

MICROMISER GUARANTEE AND SUPPORT POLICY

MicroMiser offers exhaustive support to all registered owners of MICROMOD programs.

Additionally, we guarantee the program to function properly in accordance with the manual. We reserve the option to exercise this guarantee by either returning the purchase price or repairing the disk, which is far more common! In order to validate the guarantee you must send in a completed warranty registration. You must also provide reasonable opportunity for us to repair the product by mail or phone including supplying pertinent information if applicable. You are responsible for postage and phone charges. If we do not repair the product in a reasonable amount of time you are entitled to a refund of the purchase price.

REVISION DISKS

When a program is first introduced it is subjected to a wider range of application than during its testing phase prior to release. Also, in practice, powerful new products like MICROMOD are released as soon as possible to satisfy the demands of anxious customers. MICROMOD Turbobase is no exception. Typically there will be minor bugs found during the first few months. This is why operating systems for the new 16/32 bit computers are provided on disk, for instance. In the case of MICROMOD 2.4 we sent revision disks to all registered owners 3 months after initial release to eliminate the bugs.

We expect the same experience with MICROMOD Turbobase, though it is unlikely that any new bugs would be found in functions used in MICROMOD 3.0. We are releasing the program on February 7, 1987. All registered owners may expect up to three Revision disks, approximately one per month, beginning in March of 1987. There is no charge for this service—you need only send in your warranty registration.

All programs will contain all revisions up to the time of sale—you do not need to run past revision disks.

See chapter 27 for instructions to operate Revision Disks.

LICENSE AND COPYRIGHT INFORMATION

PROGRAM USE

The purchaser of this software is granted the right to use and to make up to six copies for use of the MICROMOD program at up to three separate locations, provided it is used for the singular benefit of the purchaser or for the singular business purposes of the purchaser's current employer at the date of purchase.

Accounting Services intending to use multiple program disks must make arrangements with MicroMiser Software. There will be an additional fee charged for each application.

MANUAL

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MICROMOD Turbobase

MANUAL

MICROMOD Turbobase MANUAL
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ACKNOWLEDGEMENTS

We would like to thank Ace Rubber Stamp & Sign of Orlando for many hours of printing inaccurate statements with little or no documentation until the invoicing and statements functions were fully debugged.

We thank ICD, Inc for permission to use the SpartaDOS boot file so that users could load and run the SpartaDOS version right away. Also for the many fine products, such as SpartaDOS and the US doubler, which contribute to the unprecedented power MICROMOD makes available on Atari computers.

We thank Atari, Inc for marketing a low cost, powerful 8-bit business computer! This enables our customers to realize three times the utility from their computer application as was available before. Also we wish to thank Atari, on behalf of our customers, for giving us (de facto) permission to include the DOS and RAMDISK boot files.

We thank Woodmark Systems for allowing us to include the MYDOS ramdisk utility. Thanks to Magna Systems for MYDOS documentation and documentation on Axlon compatible ramdisks.

Many people offered invaluable technical advice with regard to program design and application. Our special thanks to: Lynne Thornton, Brian Bleakley, Dennis Gaugh, Mike Simms, and many noteworthy technical hints by Tom Galluci. Thanks to Al Bolduc for finding most of the bugs first, and printing the first draft of the manual. Thanks also to Phyllis Bolduc for proofreading same.

Most importantly we thank those MICROMOD 3.0 customers who have gone out of their way to make suggestions to improve the program. Thanks especially to Shree Vandenburg, Wayne Klotzbach, and Louis Naranjo.

TRADEMARKS

Atari, 800, 800XL, 800XE, 1050 drive, DOS 2.5 are trademarks of Atari, Inc. SpartaDOS, US doubler, "ultraspeed", MIO board are trademarks of ICD, Inc. MYDOS is a trademark of Woodmark Systems. Ramcharger is a trademark of Magna Systems. DOS XL and BASIC XE are trademarks of Optimized Systems Software, Inc.

"For Home Users with two or more disk drives...We suggest that you remove the disks from the drives once a year to check for mold and mildew. If any is in evidence transfer the files to a new disk, even though you may have used only a small portion of the old disk.

We also suggest you rotate the drive door lever once a month to prevent the possibility of sticking from disuse."

IMPORTANT NOTICE!!!

In your program package you'll find a stamped postcard addressed to MicroMiser Software. It also bears the impression of MicroMiser's seal. Please keep this postcard in a safe place until you need it.

Application Number

After you've set up your application and use MICROMOD Turbobase for a while, the program will begin displaying an "Application Number" (it will display "APPLICATION #:" in white letters in a prominent place where you can't miss it). The length of time required for the number to appear will vary widely from application to application. When the computer does start displaying this number you must write it down precisely on the postcard mentioned above, including your return address, and drop it in the mail.

Authorization Code

Within 14 days of mailing the postcard you will receive from MicroMiser an authorization code with complete instructions for entering the code. Once it is entered the "Application Number" will disappear.

You will have a minimum of 30 days to enter the "Authorization Code" (longer in most applications) and you can operate the program normally during this time.

Don't Worry!

We have considered all contingencies, all unforeseen ^{NOT} events; and have allowed for all of these. The authorization process will hold up your application. We have also made provision for those who seek to use the program for multiple applications (as long as it's the same customer), and those who make major revisions to the application. These special cases may cause you a slight extra mailing inconvenience later on, but your full use of the program is assured.

Before, during, or after the authorization procedure you can make as many copies of the shipping disks and your "operational disks" as you like, and they will all work, as long as your application files are used. They will work in new applications up until 30 days or more after the application number is displayed. They will also work normally in ramdisks, hard drives, etc.

Protection against software piracy is essential with a program such as MICROMOD. Without it MicroMiser could not survive to service the program. While the authorization procedure is a more inconvenient alternative to copy protection for us, it offers a much less troublesome and less limiting alternative for you.

PREFACE

HELL, WHAT HAVE WE HERE?

Now that you've glanced over the MICROMOD program, you're probably a little surprised--most people are. Not quite what you expected, right? There are two kinds of MICROMOD customers: those familiar only with Atari database software, and those familiar with business software. To the first group MICROMOD seems to be too much program. To those familiar with business software it seems like too little. To prevent your surprise from turning to disappointment the following assurance is given to both groups:

To the "It's too much!" group

You've been using the Atari home databases because they're simple. They can be set up in a week. You really want to do what you're doing now, but with some extra capacity, integration, and maybe a few extra features. But you still only want to spend a week, maybe two.

We have designed MICROMOD and the documentation to meet your goal. You'll get all this, and it shouldn't take any longer to set it up. We'll also throw in some extra organization. With MICROMOD that's so simple, so why not?

To the "It's too little!" group

The business programs you're familiar with have several volumes of documentation, and eight, ten, maybe fourteen disk sides. But be assured that this IS a complete small business package. We can present complete documentation in one volume because it contains no full page menu pictures, no diagrams, flow charts, or six inch square boxes with two command words in the middle. It's not that we don't think these things are nice, but there's just no way we can print six books and keep an "Atari" price. But it's all there--and in detail too!

Common ground...

Before you get started with MICROMOD we need to find some common ground. We've found most customers have a very understandable misconception regarding this product. It's understandable because it is brought about by the highly visible but misleading advertising claims of most business software--and especially the Atari home databases with which you are probably familiar. As we proceed to reach a common goal--implementing your application *quickly* and *successfully*--this misconception can present crucial interference.

You need to understand what the program is, or what it is designed to do, and how this fits in with what you want to do with it. With this in mind it is hoped that you take the following information seriously. Then we'll get down to business!

WHAT IT IS

Professional reviewers have a hard time describing MICROMOD. One said, "This program defies description..." Another says, "It's not a spread sheet program, not a file manager, not an accounting program..." It seems the only description they can come up with is "what it isn't." But it's so easy to describe MICROMOD! It's a small-business program and database manager.

The reason no one seems to feel that description is appropriate is because ALL database programs call themselves that. But they aren't.

This brings up the misconception that causes trouble. How long does it take to implement a full business application? Most people think it takes a week, or maybe a few weeks. Before MICROMOD it took *three months*, assuming you had the on-site help of an application expert and everything went right! As of this writing, application experts are getting \$70/hr, though this is usually buried in the system purchase price. Obviously many, if not most, implementations took even longer, and a year is not uncommon.

This is the reason for the MICROMOD program. We didn't do this just to prove a business program could run on an Atari--though an interesting (and very cost effective) sidelight to some, that would not be much of a meaningful contribution! We didn't think the three months and the application expert were necessary. If we could cut this time in half, and get rid of the application expert, that would be really something! We saw several software faults for small business, and it seemed these faults applied to all business software. It occurred to us that there were two main reasons for this.

First, computers were developed in an academic environment where the only business was BIG business. And only BIG business could afford the early computers. Therefore all the original software--terminology, procedure, and DESIGN--was totally oriented to big business.

Secondly, it takes an enormous amount of time to develop a program like MICROMOD from scratch. It takes less than one tenth the time to copy an existing design--with a few improvements here and there. As the saying goes, "Once you know what to do, the program's 9/10ths finished." Since serious developers seek to maximize profit, it doesn't take a genius to see how these first designs persisted way beyond the point that computers became economical for any small business.

The Goal of the MICROMOD program

Our goal was to design a program completely from scratch, without any preconceptions, that would enable a full business implementation by the average small business owner/operator in just six weeks, without an application expert (but with telephone support as required). We believe we have achieved this with MICROMOD Turbobase. For those seeking a partial business implementation (our "It's too much!" group) the time to implement the program should be proportionately less--even a week or two for some.

Oh yeah? That's not what I heard!

The design features which allow this simplicity have been in the program from the beginning--MICROMOD 2.4 and 3.0, yet they remained undocumented and therefore useless. Those who have used prior versions will note this simplicity right away--and maybe resent us for not documenting it sooner. It is only now, with the program done and the full manual completed, that we can provide the "Quick Course". Our sincere apologies to our previous customers who were looking for partial implementation--we just had to finish the program and complete documentation first. We can hear lots of groans as these customers read the Quick Course...

To those experienced with business applications, and some of those who have used previous MICROMOD versions, this claim of simplicity sounds fantastic. Bear in mind we're not talking Peachtree, Appleworks, and Dac Easy here--we're talking \$10,000 business packages. It's important for reaching our "common ground", and our credibility, to show how this is possible, and how we feel it was accomplished.

SOMETHING FOR NOTHING

In physics there is the law of "conservation of energy". To put it loosely, if one thing is decreased, something else has to increase. There's the same sort of law for computer programs. The formula goes something like this:

simplicity + features + capacity + speed = 1

If you increase any factor, something else has to decrease. Yet in order to achieve our goal with MICROMOD, ALL factors had to increase at once!

The George Washington Bridge

One version of the story goes like this: They have this bridge with a toll booth in the middle; fifty cents to go through in either direction. Somebody, not affiliated with the bridge authority, mails in a suggestion: double the toll, but collect in one direction only. Result: \$100,000 a year saved with NO COST. Something for nothing!

Who knows if this is the true version. One thing is for sure--the toll on the George Washington bridge used to be fifty cents either way, and then it was changed to a dollar, but in one direction only. A \$100,000 savings seems a reasonable savings. Why wasn't it set up this way in the beginning? Certainly plenty of expertise went into the design?? If the story is true, then it took someone *looking at the problem from a different, outside perspective* to come up with the idea.

It is possible to get something for nothing. But it takes a novel approach--starting from scratch. We analyzed small business needs--those

one owner/operator businesses with less than five employees. We found several things they *didn't* need--financial ratios, statistical projections, fancy graphics, windows (why three programs to do what one should do?), a mouse (our two favorite questions: "Is the Atari keyboard good enough for business (*are 90 characters enough?*)" and "Does it work with a mouse (*four characters are too much!*)"), etc, etc. That's why MICROMOD can fit on six disk sides.

To further illustrate the point, here are several MICROMOD design features which give the small business user "something for nothing":

- 1) Name abbreviations, not account numbers. What did account numbers ever do for anyone? Did you say "a short label for records"? How many digits in your checking account number?
- 2) Eliminate presentation printouts for in-house use. If only you and your employees are going to see it, why does it have to be presentation quality?
- 3) Intelligent interface. Instead of ten entries to instruct the computer, let the computer intelligently interpret one entry.
- 4) Separate dated and undated information. Most business records are dated, so they should be organized that way. Why clutter up your disks with old information you don't need during normal operations. Or worse, why erase old information you may need at some future time, as you must eventually do with a file manager design?
- 5) Account organization. Business records form a hierarchy of organization. Users expend enormous effort to get printouts of just the group of accounts they want. Why not make it easy--designed into the program--and indexed by design to save almost 50% of capacity for accounting records?
- 6) True integration. Who needs five program modules--priced individually--that read each other's files, or worse, where the user must enter information from one module into the next?
- 7) Menus. Eliminate the system of small menus and sub-menus. Why require 5 menu selections when you can have one menu with all the selections?
- 8) Hard drive. Why require a small business to put up with the difficult and expensive maintenance of a hard drive, when efficient storage of data eliminates the need for one?
- 9) Programming. The program should be easily modifiable. Why make the program useless if it lacks a minor required capability? ASSEMBLER programs and "compiled" programs like those written in PASCAL or ACTION are not easily modifiable.
- 10) Packaging, marketing. Since the program is designed for small business owners/operators, why assume they are idiots when making buying decisions? Save the full color ads and pictures (which cost the customers several thousand dollars *per ad*). Tell the customer what the product does, and

do it cheaply.

11) Overcome speed problems by using accumulators--store information quickly in a temporary place, then store it properly when there is time available (FAST RECORD ENTRY, TEMP DIRECTORY).

12) Support. Exhaustive telephone and timely mail support is *ABSOLUTELY ESSENTIAL* to a full business implementation without an on-site applications specialist. The program should be designed in such a way that support is quick and easy. Many small steps of procedure may make the program easier to learn, but it makes telephone support proportionately more difficult, and remember--*AFTER* you learn the program you're still stuck with the procedure! This is the primary reason for application failure, regardless of software. If you don't give the support, you don't belong in the business software business, period!

13) Allow the user to set up his own accounts easily to do things the way they are being done already, using the user's own terminology. Don't require learning of pre-set accounting terms and procedures.

14) *Get rid of the constant disk switching!* Break the program down into small modules which will load from anywhere--while maintaining full integration--so that just the desired functions needed in a particular application can be placed on the disks that will normally be in the system all the time.

Ignorance is bliss!

One design feature deserves special mention. We think it is unique. Many, if not most, of the features in this fat book are invisible in the program. That is, unless you read about them in the manual, you'll never even know they are there. This is done very purposefully. It is to support the "Quick Course" and to make the program simpler and much less confusing to the user seeking a partial implementation. It allows fewer menu selections, less cluttered displays, and fewer choices. Our apologies to the user who, after two years, discovers "Hey, this thing prints appointment calendars!"

Nobody's Perfect

The MICROMOD design does fall short with a few minor functions that other designs do well. In invoices the only way to correct an error in a previous line when entering items is to re-enter all items. There's no provision to go up the screen and change a character. The spelling checker is a turtle, and so is the breakdown of payments for tax reporting. However, we think this is a very short list compared to what the standard designs do poorly. Please forgive MICROMOD these minor weaknesses.

The Point

Each item in the design list increases one of the variables in the programming formula (simplicity, features, capacity, speed) at no cost.

These design innovations and others allow us to increase simplicity dramatically without sacrificing power--but increasing it! That's how MICROMOD does it.

Now you have a better idea of what to expect. Expect a full business implementation to take six weeks. Expect support whenever you need it. However much of the MICROMOD program you intend to utilize, expect the set-up time to take a fraction of the time it would take with a program which doesn't incorporate all or most of these design features (none we've seen do).

A DIFFERENT APPROACH TO LEARNING

Since MICROMOD presents a unique design, it could cause confusion for those experienced with standard designs--lots of things are done differently. We've become experienced at solving this problem. We know how to "re-program" you quickly. All MICROMOD users should take the "Quick Course", which is included in the program package. This is the cost of using a new design. But after the quick course is complete, and this should take less than a week, you'll be ready to take advantage of all the design innovations for simplicity--the total time to implement the program will be much less than if you do not take the course.

GUIDE TO THE QUICKEST IMPLEMENTATION

First, finish reading this Preface. Then read chapter 1 of this manual. If you have problems with the disks, drives, or DOS procedures, refer to Chapters 26-29. They contain supplementary material to Chapter 1 for those who need it. After you've finished that, and have your disks ready, take the Quick Course.

If you like the Atari databases you've been using and do not seek much extra capability, then use the Quick Course as a guide to set up your application--the Quick Course becomes your manual, and this volume becomes your reference manual.

If you seek a full business implementation then the Quick Course becomes a primer for this manual. After you take it forget about it for a while. Learn this manual, starting with chapter 2, and set up your application using it. Later the Quick Course will again become useful as a "cookbook" (abbreviated procedure for various functions).

DON'T WORRY ABOUT PERFECTION

More time has been wasted by MICROMOD users trying to find the best way to set up their application among many alternatives presented--you'll soon find that MICROMOD has enormous flexibility, especially in the Dated Records program.

You should plan your implementation in two stages. At first, just find a way to do what you want to do, then do it! You'll get most benefits you seek--capacity, integration, etc. Use the program this way for a year. At

the end of the year you'll know how to set it up in the best way. You can then start over and realize the full power of the program. Otherwise you could SPEND a year just trying to get the perfect set-up!

MANUAL SUPPLEMENTS

Before starting with the manuals (chapter 1) you should power-up with one of the Program Disks in drive #1. Press M to avoid the ramdisk load. At the Main Menu press H for "SUPPLEMENT". You will be prompted to insert the SUPPLEMENT disk. Insert the disk and press RETURN.

One or more TITLES (file names) will appear in the Supplement Table of Contents. Type these titles, one at a time, next to the "?" prompt and press RETURN. Follow instructions to read/print the supplements. There may be information you need right away before starting.

TO THIRD PARTY ATARI DEVELOPERS

We try to give our customers the full benefit of our knowledge concerning their computers and applications. This includes what information we learn about hardware developers. The computer business being what it is, our knowledge is often incomplete, conjecture rather than hard fact. We operate on the premise that a little knowledge is more helpful than nothing at all, even if it is off target some of the time.

Our sincere apologies to any parties selling products or services that we judge poorly. Atari developers are all in the same boat--small market, low capital investment and overhead. Documentation and marketing sometimes must come last of necessity, and we have to make judgements on what is available.

OUR "SERMON"

We had a favorable reaction from quite a few users from our "sermon" in the MICROMOD 3.0 manual. We therefore include it again for your enjoyment or whatever...

It is customary in a fat computer manual to present a sermon on some aspect of the use of computers which has little to do with the purpose of the manual. We don't know where or when this tradition began, but we're sure that someday someone will compile all the sermons from all the computer manuals and publish them, probably on disk. They may even rate them and pick out the most useful, or useless, depending on your point of view. We certainly don't want to be left out of this historic event.

If you think our sermon takes up too much valuable space, we've seen one that took 56 pages. And it was information that every reader except those returning from a 12 year vacation in China would know already!

If the book we mentioned is ever compiled, we want our sermon to be

picked as a winner. Therefore we will present some information which is actually intended to be of benefit to someone. Since our program is about business, we picked a management topic. It deals with a fear that we share--after working very long and hard to create a business program with some practical utility, some users may not receive any benefit from it just because the manual looks too difficult and lengthy to learn. We've made the situation worse by listing all the problems we can think of that the user might encounter. Most manuals shy away from this for common sense marketing reasons. Of course having spent three years to develop a powerful database for 8-bit Ataris proves we have no common sense anyway.

At any rate, our sermon is devoted to the experimenters, the do-it-yourselfers, the independent and creative thinkers! As a manager or owner of a small business you probably fit this description.

Are you one of those who, upon first taking a product out of the shipping carton, immediately throws the operating instructions away and figures it out for yourself? Welcome to the club! But with a comprehensive computer database program THIS WILL NOT WORK!

Most small businessmen are independent by nature. They are not followers. It is for this reason more than any other, in the author's opinion, that computers have not gained much acceptance in small businesses. They are waiting for a computer you can talk to, or give orders to! Notwithstanding the many articles on "artificial intelligence" currently popular, this won't happen anytime soon. We aren't much closer to formalizing language than Aristotle was, and that will have to be accomplished first! Comprehensive database programs require you to become a follower, at least for a while.

Follow the procedure in the manual by rote

Many users have tried to second guess the manual procedure. This will only waste your time. The only way to learn to operate the program in a reasonable amount of time is to follow procedure blindly. This can be very frustrating for an independent person of high intelligence, especially when the instructions will at times prove faulty or imperfect.

Look at it this way: the amount of procedure you need to learn is finite. Whether it takes two weeks or two months, you will eventually master it. At that point YOU will become the master! You will have a faithful employee who offers blind loyalty, and does every job perfectly every time exactly according to your instructions. What leader could ask for more?

MicroMiser is a family operation. Between us we have owned and operated a variety of small businesses, both pre-computer and post-computer. We have experienced all the attitudes and frustrations that all new computer users experience. There is a long list of manual writers we would have hung if we could have found them at the time!

But the end result is undeniable: we became the masters in a short time. We want our faithful servants to become your faithful servants. The

computer is an extremely dumb machine. MICROMOD is its very limited and finite personality, one you can master in a few short weeks. That is an opportunity no person with leadership qualities should pass up.

If you become frustrated with the manual

Call us. Swear at us if you like! Give us half a chance to support the product and we will.

Of course it is inconvenient and expensive to contact us with every problem. You will want to solve most problems for yourself. If you become frustrated to the point where you find you are losing interest, consider the following benefits that will accrue if you stick with it.

"The manual may take more time than you planned on, but the benefits will be much greater than you expected."

Management is a series of techniques. There are four elements of good management: Planning, Organizing, Leadership, and Control. Accounting textbooks may emphasize planning and control, but MICROMOD is not just an accounting tool. It is a management tool which can help you to be a far better manager than you could without it.

Planning

Your computer system, including the program, cost less than \$1,000, maybe much less. By learning the manual, you will save a minimum of \$1,000 per year in direct bookkeeping expense; every year, year after year (see Appendix 9). What is the value of an annuity for 15 years with deposits of \$1,000 per year and an interest rate averaging 10%? Whatever it is, it's not a bad return on a \$1,000 one time investment. That's good planning in anyone's book. And this is only one function of the program; not the most important.

Planning involves making a business forecast. The reliability of any forecast, statistical and otherwise, is directly related to the accuracy and availability of historical business data. The computer is by far the best tool to compile and analyze historical data.

Organizing

MICROMOD has been designed especially for organizing ability of business records. As an organizing tool, it allows you to realize your full organizing potential, at least with regard to record-keeping. You can easily find simpler programs with shorter manuals. But they will not offer the capability for being organized of a program such as MICROMOD.

Leadership

The goal of leadership in management is to make your sub-ordinates as productive as possible over the long run. But this involves manipulating personalities, something that is never fully successful or predictable. MICROMOD has a limited personality that you can master in a few weeks. As

mentioned before, once you have accomplished this you will become the perfect leader with regard to your new "faithful" employee.

Another well recognized prerequisite of leadership is attention to detail. MICROMOD offers you all the detail you need with regard to business records and scheduling.

Control

Control ability depends on your knowledge of what's going on in your business. With all the information MICROMOD provides at your fingertips--listings, statements, graphs, calendars, inventories, sales, etc. of any of hundreds of accounts containing any and all information you need--you will be totally informed of the current status of your business at any given time.

MICROMOD can give you a substantial management edge. In today's small business climate any competitive advantage or disadvantage will have magnified results. Learning this manual will help insure that you will keep the advantage on your side. That should easily justify a few weeks of "following" and a few periods of frustration. You have one crucial thing in your favor: as a successful small businessperson you don't give up easily!

note: this Preface occupies all 49 screens available in the WP23 word processor.

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I. INTRODUCTION

CHAPTER 1 -- GETTING STARTED...

FOR BEGINNERS ONLY...

Some users purchase an Atari computer system for the sole purpose of running the MICROMOD program. If this is the case, chances are that you are not familiar with the Atari computer, or computers in general. Though we cannot present an introduction to computer operation here, we have the benefit of the experience of other users in similar circumstances. The following information should provide you with enough information to get started with MICROMOD.

Types of programs

You already have three programs besides MICROMOD. The computer has two programs inside, and your disk drive was shipped with a disk which is another program. These three programs are called "systems" programs. MICROMOD is an "applications" program. The function of the systems programs is just to support applications programs. In themselves they do not accomplish anything for you.

Operating System

This is one of the programs inside the computer. You'll never need to know anything about it to operate MICROMOD.

BASIC

This is a program which allows you to write programs. If you ever see the "READY" prompt on the screen it means the BASIC program is now running, although it is temporarily stopped and waiting for you to type some instruction listed in the BASIC manual. You do not need to know anything about BASIC to run this program, except to "get out of it" and into the "DOS" program.

You can only get to the DOS program if the disk included with the disk drive is in the drive (drive #1) and that drive was turned on before the computer. If that's the case, and you see the "READY" prompt on the screen, type:

DOS

and then press the RETURN key. The disk drive will run and the "DOS menu" will appear. You will be out of the BASIC program--no instructions in the BASIC manual will work--and the DOS program will be running.

There are a few instances where we provide a short BASIC program to

- help you with some auxiliary function for your added convenience. In some cases it's the easiest way for us to assist a small minority of users. You'll probably not have occasion to use them for a long time. They should not concern you in the beginning.

Disk Operating System (DOS)

This is the program on the disk provided with the Atari disk drive. It may be called DOS 3.0 if the drive was not manufactured recently. This is an old DOS program that is not used very much anymore. But chances are that you have the DOS 2.5 program. If not you should get it! You must have either DOS 2.5 or SpartaDOS to operate the program as shipped.

If you wish to use another DOS there are instructions for setting up the disks later in the manual. In the beginning you should learn the "fundamentals" using DOS 2.5 or SpartaDOS. You may encounter hardware glitches setting up a disk for another DOS and you don't need extra confusion at this point! You can accomplish most DOS functions with any DOS program if you know how, but since you are a beginner it only makes sense that you should have a DOS program that corresponds to the instructions in the MICROMOD manual, and which corresponds to the MICROMOD disks you have.

Some of the other DOSes that you might have are: TOPDOS, NEWDOS, MYDOS, and DOS XL. Of these, MICROMOD has been tested successfully on MYDOS 4.2 and DOS XL only. Information on using these DOSes is presented at the end of this chapter.

DOS 2.5 is free, so this represents no extra expense. It is available from Atari (long wait), user groups (must find--look in COMPUTER SHOPPER magazine), dealers (quicker), and most Atari users, if you can find one (quickest).

You can purchase SpartaDOS from the developer, ICD, Inc and some dealers. SpartaDOS comes packaged with "US doublers", a product to make Atari disk drives much more powerful. If you will be using the specific business programs with an Atari drive, you'll probably want the doubler as well. Look in any Atari magazine or Computer Shopper for a mail order house that carries the doubler. Most local dealers do not.

The MICROMOD program

As stated, the MICROMOD program is the "applications" program which the Operating System, BASIC, and DOS are all designed to support. You won't "see" these programs when running MICROMOD. When you power-up with the MICROMOD master program disk in drive #1 MICROMOD takes control of the computer right away. But the other three programs are there all the time, behind the scenes, and being used by MICROMOD.

Follow the instructions in your computer owner's manual and disk manual to set up the hardware. Then put either the Atari DOS 2.5 disk or the ICD SpartaDOS (grey label) disk in drive #1. If you do not have a double density drive as drive #1, use DOS 2.5. If you have only single density drives you will not be able to copy MICROMOD--you must order a single density Master Program disk. If you are using two drives, be sure you have set drive #2 to the "drive 2" position (see disk drive manual) or the computer won't work. Turn on the disk drive, and then the computer. When you see the "READY" prompt, type: DOS and then press RETURN.

Duplicate the Shipping Disks

Follow the instructions in your DOS manual to make duplicates of the six disk sides of the MICROMOD program (it is not important to back up the spelling disks now). If you have SpartaDOS it is not necessary to make a back-up of the DOS 2.5 Master disk. If you do not have SpartaDOS you CANNOT duplicate the SpartaDOS Master disk.

Format a "records disk"

Follow the instructions in your DOS manual to format a blank disk which will become your "Records" disk (sometimes called the "MAIN DISK" because a very few users might later have another records disk for a second business).

With SpartaDOS use the XINIT command to format the disk, choosing 4) NO DOS because you don't need a DOS boot file on the records disk. Also select "40 tracks". The rest of the choices depend on your drive type (see SpartaDOS manual).

Now that the original disks are stored away where the dog can't eat them for dinner and you have a formatted records disk, you're ready to "boot" MICROMOD, meaning you're ready to "load" the program automatically by turning the computer on. Cross your fingers. It's time to see how good a duplicater you are!

LOADING THE MICROMOD PROGRAM

IF YOU ARE USING AN 800 COMPUTER YOU MUST HAVE THE BASIC CARTRIDGE IN THE LEFT SLOT TO LOAD MICROMOD.

Once you've made your "practice disks" and have all the hardware working properly, you're ready to load MICROMOD.

Insert the "Master Program Disk" in drive #1. If you have two drives, insert the "records disk" in drive #2. With two drives in the system the "records disk" is always in drive #2, and the "Master Program Disk" is always in drive #1, except in rare occasions when the computer will tell you otherwise.

It is not necessary to have any other disks in the drives. They just contain extra modules.

With one drive in the system the computer will stop and ask you to insert the records disk when appropriate.

Once the Master Program Disk is in Drive #1, turn on all drives, and then turn on the computer. The screen will be blank for several seconds and then the title screen will appear. The display of the title screen does not take up any extra time. It is simply displayed while other necessary tasks are done to initialize the MICROMOD program.

If you have a "ramdisk" in the system the message:

PRESS M TO AVOID RAMDISK LOAD

will appear on the title screen. This is not "telling" you to press M. It is giving you an option you will not normally take. But it is suggested that you do press M the first time. Otherwise the program will start loading the ramdisk and you will be in unfamiliar territory right away. At any rate, you can press M anytime while the ramdisk is loading to get to the menu. The computer automatically goes to the menu after the ramdisk is loaded also.

Assuming you pressed M, or if you do not have a ramdisk, the computer will go right from the first screen to the Main Menu automatically. Thus no matter what you do, and no matter what hardware you have, after you turn on the computer it will eventually display the Main Menu.

If the program does not load properly

Try it again. Turn the computer off for 10 seconds first. Feel the top of the drive. Is it hot? If so put a fan on it or wait for it to cool down. Is the drive 12 inches from the monitor? Is the BASIC cartridge in (on the 800)?

Try booting the Master Shipping disk. If it does not boot it means it was damaged in shipping. Call us for a replacement.

If it does boot then the error was caused in duplicating the disk. Try duplicating another, switching your "source" and "destination" drives if possible. Turn the printer off. Unplug the modem if you have one (don't laugh--nothing will boot when our XM301's plugged in). Check to make sure the switch on the drive is set to the "drive #1" setting (see DOS manual). Try booting a program that you know works (sometimes the drive belt just falls off. You'll think the drive is "cooked" but it's a simple task to put it back on).

Still no luck?

Many have problems with SpartaDOS when using the US doubler for the first time. It's essential that the drives don't overheat, that the RPMs are at 288, that the drive is aligned, and it doesn't hurt to clean the heads. Display the directory of your duplicated disk using SpartaDOS. If it won't display, or you get an error #179, or only a few files are

listed, or if there are funny graphic characters in the file names, you've got a drive problem. You can cool the drive and check the RPMs yourself. If the problem persists you need to get the drive serviced. In our area this usually costs about \$20.

Assuming MICROMOD loads and displays the Main Menu

When you see the Main Menu, the first thing you should do is press the H key. The computer will prompt you to load the "Supplement disk", which is also the "Word Processing" Disk. INSERT ALL DISKS IN DRIVE #2 IF YOU HAVE 2 DRIVES. In most cases this is not required, but it's just as easy to use drive #2. Read any supplements before continuing with the manual. These may correct errors in the manual. The supplement disk program will let you know how to get back to the Main Menu.

With the Main Menu being displayed you are ready to start with the manual. Good luck!

Now sit back and read some necessary background information. You won't need to operate the computer again until we get to the section on "Global commands" later in the chapter.

NOTES ON THE KEYBOARD AND MONITOR

The Keyboard

The Atari keyboard allows you to type a great variety of characters. Unfortunately it allows you to type too many different characters for use with the MICROMOD program. You would not want to enter graphic characters or "inverse video" characters into records. MICROMOD uses these characters for much housekeeping and to keep your records separated in the computer. If you were to enter these characters into the MICROMOD program they would destroy the integrity of your records.

To prevent this MICROMOD disables many keyboard functions—they simply don't work once the MICROMOD program is loaded. The keys that won't work are: the control key (except for arrow functions), the "inverse video" key (located on the bottom right), and the "break key". The TAB key works, but when the MICROMOD program is loaded it has an entirely different function than for positioning the cursor, as it normally does. It turns the screen on and off. This helps prevent "image burn" to the screen in certain cases, and allows the MICROMOD program to run faster in certain other cases.

All the other keys work, and all are useful in at least some part of the program, except SHIFT/CLEAR. If you happen to clear the screen with SHIFT/CLEAR, press RETURN until you regain a familiar display.

It is suggested that you read the "Atari Owner's Manual" and become familiar with the keys and their functions, especially the two functions SHIFT/INSERT and DELETE/BACK SPACE. Remember, any key sequence involving the CONTROL key will not work (other than the arrow keys in most

functions). EXCEPTION: The word processor program is different type of program from other MICROMOD programs. It uses all keys, including the control key, but many keys have different functions than that listed in the owner's manual (see Chapters 12-14).

The TV Monitor

TV screens sometimes do not display an entire "picture" as sent to the TV. For this reason most Atari programs leave a left and right margin of two spaces for all displays. This is NOT true of MICROMOD. MICROMOD is a more powerful program and thus seeks to utilize all the hardware power at it's disposal. The entire screen is utilized. If you cannot see all the characters of the display you must adjust the TV to a narrower picture. If your TV does not have this control you'll need to have a TV repairman do it. All that's required is to reduce the voltage to the tube. We use a cheap dimmer switch spliced into an ordinary extension cord. The switch cost \$3.00 and works nicely over the range needed. Of course you need to be a qualified, licensed, electronics professional to do this. A qualified, licensed, electronics professional would tap into the ground wire WITHOUT the wire being plugged in, would use wire connectors and then tape the whole affair carefully before plugging in. Again, this should be done only by a qualified professional!

GENERAL OPERATING INFORMATION

The computer will usually ask you to make a decision by asking "DO THIS(Y) OR NO(RET)?" or simply "DO THAT(Y) OR RET?" If your answer is yes, type Y (ignore the parentheses) and then press RETURN. If your answer is no, press RETURN without typing Y first. Note that you must press RETURN in either case. It is done this (slightly confusing) way to make the display short, to allow you to skip through functions by pressing RETURN, and to require two actions (you may change your mind after pressing Y) to perform the function.

Another method used when you need to make a choice is to display several words on a few lines across the screen. The first letter in each word will be in "inverse video" (will have a white background). This means that as soon as you press the key corresponding to the first letter of any of the words displayed, the computer will immediately perform that function. You do not have to press RETURN in this case.

IMPORTANT PRECAUTION -- TIME FUNCTION

The computer has a built-in safeguard to prevent possible image burn on the TV screen. This can be caused by a bright display which is left on the screen for very long periods of time. After several minutes the display will automatically become dim. Pressing any key will bring back the original brightness level (the "esc" key is suggested since this will not affect any part of the program). While this is certainly beneficial, it can also be very annoying at times.

Using the TIME function on the Custom Menu to display the time on the screen defeats this safeguard and prevents the screen from going dim. If you wish to review still displays for several minutes at a time, or are using only the START or SELECT keys to read text files, displaying the time will keep the screen at the original brightness level. However when displaying the time you should turn the display off (press the TAB key) when leaving the computer unattended for lengthy periods to prevent possible damage to the screen.

TITLES

All titles (names you make up) must be at least two characters long, and must never contain commas since commas are used to separate titles in entries. Only two types of titles, NAMES and "Listing formats" may contain spaces. No other titles may contain spaces.

The program does not check entries in some CHANGE/DELETE functions. Observe the rules concerning NAMES, titles, headings, and number of headings.

NUMBER ENTRIES

MICROMOD will perform arithmetic on numbers even if followed by letters, e.g. 34.5A or 1500@. This allows you to code numbers within records. You never have to enter trailing zeros after decimal points, even when entering dollar amounts. Entering trailing zeros after the decimal just takes up extra room in records.

IMPORTANT KEYS

THE RETURN KEY

RETURN stands for the "RETURN" key and is usually abbreviated "RET". Pressing RET is equivalent to:

"entry finished"
"no"
"done"
"ignore"
"go to menu"
"use default value"
or "cancel"

So if in doubt, keep pressing RET.

YOU CAN GET BACK TO THE MENU ANYTIME BY PRESSING THE RESET KEY. This will take much extra time though, since the whole program must reload. Never do this while the drive is running unless there is an obvious drive malfunction and the drive will not stop.

You can stop (hold) long lists or prints by pressing the H key. Resume by pressing any other key. If the printer is on, and if you resume by pressing the T key a title--page number will be printed.

The M key is used to end lists and functions that are moving--it's like saying, "Return to the Menu". If using a 130 XE or any other ramdisk you do not have to load the ramdisk to run the program. Modules will still load from the disk drive. Press M anytime while loading the program to go directly to the Menu without loading the Ramdisk. The computer will prompt you to do this when displaying the first screen.

THE M AND H KEYS DO NOT PERFORM THESE FUNCTIONS IN SOME OF THE LESS FREQUENTLY USED AUXILIARY FUNCTIONS.

Press TAB to turn off the screen during long lists. This will allow the computer to run about 30% faster since it does not have to send information to the screen sixty times a second. Press TAB again to turn the screen back on. It will also come on automatically at the end of the list (in the DATED RECORDS and Directory programs) and the buzzer will sound. If you are using an XL or XE you do not have an internal buzzer and you must have the volume up on the TV to hear the "buzzer". Other than this one function MICROMOD makes no other sounds in any function, except to provide a key click over the speaker in the word processing program.

DISK CHOICES

note: more detailed information concerning disks is presented in Chapters 26-29.

The four most important kinds of information on disk are: the PROGRAM, the "user files", DIRECTORY records, and ACCOUNT records.

You may start out using one disk for ACCOUNT records. If and when the temporary DIRECTORY (on the program disk) becomes full, which will happen if you have more than about 170 current addresses and phone numbers, you can start a separate disk for directory information. Or you can load the Directory information onto the RECORDS disk. You will have to start new ACCOUNT disks more often, but this is an ideal situation if you have 2 disk drives because you won't have to switch any disks to run the program. You can still start out this way and use a separate disk for the ACCOUNT RECORDS later.

Make frequent back-up copies of the program disk and records disk(s). THE PROGRAM DISK IS MATED TO THE RECORD DISK(S). IF THE PROGRAM DISK IS LOST YOU MUST USE THE BACK-UP RECORD COPIES MADE AT THE SAME TIME AS THE BACK-UP PROGRAM DISK, AND UPDATE THE RECORDS. Actually, the only file on the program disk which is mated to the records is the NAME file (file specification "N"). Once you become more familiar with the program it will suffice to copy only this file, the directory file ("D"), and the records disk(s) for back-ups. There is a function which assures the appropriate copies are made with the minimum amount of copying: BACK-UP/COPY FILES selection on the Custom Menu. As soon as you learn how to use this function it will be much easier to back up files (and copy files).

IF YOU ARE USING TWO DRIVES YOU MUST USE A SEPARATE DISK OR DISKS IN DRIVE 2 FOR ACCOUNT RECORDS/DIRECTORY RECORDS. ALWAYS INSERT THE DIRECTORY DISK OR ACCOUNT DISK IN DRIVE 2 AND THE PROGRAM DISK IN DRIVE 1. WHEN YOU TURN ON THE COMPUTER, DRIVE #2 MUST BE ON BEFORE YOU SEE THE MENU. If drive two is not on during system power-up the computer will think you have only one drive in the system even if you later turn on drive #2.

MENU ORGANIZATION

If the first letter of a command is in "inverse video" (has a white background) the computer will perform that function immediately upon pressing that key. If the first letter is not in "inverse video" you must type that exact word followed by some other information and then press RETURN. The only exception is the SHOW selection, for which you type SHOW and press RETURN to list all directory information.

Words in capital letters represent commands that must be typed just as they appear. Words in lower case letters represent the kind of information accepted in the entry--you do not type the actual word shown.

The SYMBOL table does not represent commands. It is just a helpful

reminder for when you enter symbols after the SHOW commands.

Command words (PUT, SHOW, MAKE, LIST, and FROM) must be followed by a space. Other information is separated by commas. The only exception is that NAMES and "listing formats" containing two or more words may have spaces within the title.

If an entry takes more than one line, just keep typing and the characters will flow over onto the next line. Don't leave spaces at the end of the line unless the entry contains a space that happens to fall at the end of the line. The computer can read up to a three line entry.

Loading Modules

Whether you make an entry or just press a key to access a menu function, the computer will usually attempt to load and run one or more modules to accomplish the function. Later it will be your goal to distribute modules on your disks in such a way that all the modules needed for the functions you frequently use will already be on the disks in the system. But in the beginning these will sometimes be on a disk which is not in the drives at the time you make the menu selection.

It is not necessary to have the disk with the required module in the drives. Other than the Master Disk, the shipping disks just contain extra modules for specialized functions. Anytime you make a Menu selection which requires one of the modules on a disk not in the system the computer will stop and display:

```
Enter M for Menu
INSERT DISK WITH FILE XXXX.MOD
PRESS RETURN?
```

and stop. Wouldn't it be nice if the computer told you which disk to insert, instead of which file? It sure would be easier at this point. But it would drastically cut down on the flexibility and power of the program later on. So finding the right disk will represent a slight inconvenience in the very beginning. A complete list of files on each "shipping" disk and alphabetical list of modules and associated shipping disks are provided to help you find the right disk. Later you'll have all the modules you need on the resident disk, and you won't have to switch disks at all during daily operations.

You can use trial and error. If the file is not found the question will be asked again. Or you can type M and press RETURN to get back to the menu. Once you become familiar with the program you'll find that you can almost always leave the Master Program and Records Disks the drives, even when the computer is shut down, and forget about disks altogether most of the time.

With one drive in the system the computer will stop and ask you to insert the records disk when appropriate.

DATES

All full dates in the program are entered by typing three numbers separated by commas. The numbers represent the month, day, and year. The year number must be only the last two digits of the year. The computer won't accept months lower than 1 or higher than 12, days lower than 1 or higher than 31, or years higher than 100. If just the month and year are required the computer will prompt you with (MM,YY). Enter the month and year digits only.

ABBREVIATIONS

You may abbreviate command words (i.e. PUT, SHOW, MAKE, LIST, and FROM) by using less letters of the word, providing you at least use the first letter. EXCEPTION: to abbreviate the word FROM you must at least use FR. DO NOT USE PERIODS in the abbreviations. For clarity, the complete form of command words is used in examples.

When using LIST commands there are ways to avoid having to enter dates. This will be discussed in the chapter on displaying Dated Records information.

Become a good abbreviator

You can double your storage capability just by using effective abbreviations. This applies to names, file names, account titles, headings, formats, model numbers, descriptions, comments, and any other appropriate data. The abbreviations should be as short as possible (but at least two characters long), while still being identifiable, and "pronounceable" if possible. You'll find yourself trying to pronounce them frequently.

Abbreviations cut down on typing time and errors dramatically. The fastest computer in the world becomes a sludge when an amateur typist is pecking away to type out a long name or title. This is usually the slowest part of computer operation. So make your Atari fast!

You'll never have enough screen or printer space to do what you want to do. Murphy's laws correctly planned printouts and tab settings will always chop off the ends of words and numbers. Short words make neater printouts and allow you to get much more data in a spread sheet.

Give your abbreviations a little thought. Establish conventions to help you (and new employees) remember the meanings. In our examples and tutorials we make an effort to abbreviate as much as possible.

TEXT FILES

There are three types of textfiles mentioned in the MICROMOD documentation. Here is a description of the three:

Standard ASCII files

These are files made up of "strings" of ASCII characters, each separated by a "carriage return" character (or carriage return and line feed). Each string in a text file will be one printed line. MICROMOD does not use this type of file, but will convert the other two types of files to standard ASCII files so that other programs can read them.

MICROMOD text file

A MICROMOD text file is exactly like a standard ASCII file, except that the first line contains one number, the length of the file. Though an unusual procedure and not necessary just to load or store files, MICROMOD does this so that it can quickly tell how long a file is for automatic file management features. Any program which reads standard ASCII files should also be able to read a MICROMOD text file, with the inconvenience that a number will show up as the first line.

MICROMOD text files may be converted from WP23 files or created with the WRITE selection on the Utility Menu. They are used (read) by the Dated Records program (spread sheet "form"), Report Generator, and the supplement table of contents (MAN.MOD--selection H on the Main Menu).

WP23 file

This is a text file created with the WP23 word processor program. WP23 uses a unique format for files to make them more efficient and to allow the program to perform various functions at greater speed. They are not compatible with any other program (other than MICROMOD).

MICROMOD lets you convert WP23 files to MICROMOD text files and standard ASCII files. It also allows you to convert standard ASCII files to MICROMOD text files, and MICROMOD text files to WP23 files.

GLOBAL INSTRUCTIONS

"Global instructions" are a way of customizing certain values to fit your application. Once you give the computer these instructions it will remember them for the life of the application unless you change them. They are stored on the disk and read every time the system is powered-up with the MICROMOD program.

The # Symbol Definition

There is a list of six symbols in a "SYMBOL TABLE" on the Main Menu. Each symbol has a definition or meaning displayed to the right of it in the table. The definitions have absolutely no effect on the operation of the symbols. They are entered by you and exist only to remind you of what you want the symbols to stand for.

Since the definitions are loaded into the computer every time you boot the MICROMOD program they are a convenient place to put "global instructions". Only the last symbol in the table, the pound or number sign (#) is used. Thus the characters following the "#" symbol alone may affect the operation of the program.

You've probably noticed this long line of characters, mostly numbers, by now since they are set at default values on the Shipping Disks. Each character has an important meaning, and the *position* of the character is just as important as the value itself. Each position in the line serves a particular function. Following is a list of all the character positions and what the characters at each position tell the computer.

Position 1 -- Drive for Records/Directory disks)

If this character is a number from 1-8 it tells the computer on which drive to store/retrieve both Directory and Dated Records information. If it is in the default state, the letter "X", then the computer will decide where the records disk is automatically. If you have one drive it will be drive #1. If you have two drives it will be drive #2. So there is really no reason to change this from an X unless you intentionally want to store all records on drive #3 (change it to a 3). This command is primarily included to allow the use of hard drives. The DOS systems of some hard drives require that the bulk of information be stored in an area designated as drive #3. If you don't have a hard drive, there's little reason to change it.

This character position serves a dual purpose. Once you store more than 170 or so addresses you'll have to unload the "TEMP DIRECTORY" on the program disk to a separate directory disk. Usually this will be your "Records" disk because there's plenty of room for both types of records on one disk in most applications. If you don't have room on the records disk, you must use a separate disk as a Directory disk. This would necessitate switching of disks in some instances. Therefore you have the capability to specify a separate drive (if you have one), usually drive #3, for the Directory disk.

To specify the drive number to find/store Directory data only (not Dated Records program data which would normally be in drive #2), make the first character in the # definition a capital letter between A and H. The letters correspond to drive numbers 1 thru 8, i.e. a C here would specify drive #3 for Directory information. Again, very few applications would require this. If you already have three drives, you might do it anyway. The Directory disk would then be a good place to include some extra modules you'd like to have in the system. Modules will load automatically from drives 1-4 and 8 (ramdisk).

Position 2 -- Drives used for Inventory Functions/Remote Disk Signal

The second character in the # definition determines which drives you will use for inventory. It must be a single digit number from 0 to 5. The meaning of each number is as follows:

0	Remote Disk
1	drive #1
2	drive #2
3	drive #3
4	drives #1 and #2
5	drives #2 and #3

Two drives are the maximum number of drives you can use for inventory (B,000 model numbers IS enough, isn't it?). The number you enter in the # definition will determine where the inventory information will be written/read from the disk.

Remote Disk

If the Master Disk is being used as a Remote Disk (see chapter 20) then the second character should be a "0", since the Remote Disk need not know which drive(s) is use for inventory (the storage takes place by the Master Computer when you read the disk and the Master Computer will have a different number here).

If you have a "0" in the second position, the invoice functions will operate differently as required at the Remote Station, as outlined in Chapter 20.

Position 3 -- Stock Location

The third character in the # definition determines which stock figures will be updated during inventory updates and inventory taking. This character must be a single digit from 1 to 3 to indicate which location will be affected. There are three quantity figures for each item in the inventory list, one for each location. If you have only one location, make the third character a 1.

Inventory Update Flag

The fourth character in the # definition determines whether or not the

inventory list will be updated whenever you store invoices in the Invoice Program. This character *must be* a 0 or 1. If you want the stock for the location indicated by the third character to be updated, the fourth character must be the single digit 1. If you do not want an update, or are not using the inventory functions, the fourth character must be a zero.

Positions 5-7 -- Primary Sales Tax

The fifth, sixth, and seventh characters tell the computer the percentage of sales tax to deduct. If there is no sales tax these three characters will contain the three single digits 000 (the number, not the letter). The three digits will be interpreted as a percent. 500 will be interpreted as 5%. 525 will be interpreted as 5 1/4%, etc. Hopefully ☺ the sales tax will not top 9.99%! Of course it probably will some day, (we know of an 8 1/4% in New York) but we'll have several new versions and update disks by then.

Positions 8-10 -- Secondary Sales Tax

If your locality requires a different sales tax on various items or sales, enter the percent here, in exactly the same way as you entered the primary tax.

Multiple Sales Taxes

If you need more than two taxes, or have a variable tax situation, enter the characters "001" in positions 8-10. This is a special signal to the computer to add an additional question when entering invoices, so you can enter the sales tax each time you write an invoice.

Position 11 -- Method of Rounding Tax

There are two methods of rounding sales tax calculations in use when the sales tax results in a fraction of a cent. If you would like to round *all* such fractions up to the next cent, enter a zero here. If you would like only those fractions of a cent of .5 or more to be rounded up, enter a 5 here.

Positions 12-13 -- House Discount

When entering invoices you have an opportunity to assign a discount to be applied to all item totals or individual items. A special key, the "=" key will automatically apply a "house" discount. When you press the "=" key to the discount question, the computer will look at the characters in positions 12 and 13 in the # definition to get the discount. There must be two single digits. 30 is interpreted as 30%, 05 as 5%, 47 as 47% etc.

Position 14 -- Inventory Search/Shipping Address

There is a convenient function to enter a list of commonly sold items and descriptions, and then have these printed automatically and immediat-

ely in invoices. You don't need to set a global command to do this. You have the capability in any case.

Since there are only 480 characters available in the list described above, and since it will not print prices, you may want the computer to print the descriptions and prices automatically from the inventory list. Since this requires an extra module to be in the system, and since we don't want to inconvenience most users with this, you must set the 14th character to a Y if you want the description/price print from inventory. There is a convenient method to specify any one of the four prices for any inventory item to be printed.

The billing address of your customers will be printed in invoices. Usually this is also the shipping address. If you need the capability to enter and print a separate shipping address on invoices, the 14th character must be set to a Y. The computer will automatically enter and/or retrieve the second address from the Directory, if one resides there.

Notice that the global for both the description search/print and the shipping address is the same (Y). This means you'll get both capabilities (and an extra module required in the system) even if you need only one of the capabilities.

Position 15 -- Decade

Only the day, month, and last year digit are stored in your records and files (the file name tells the month and year digit). Some displays require full dates to be shown. So the fifteenth character should be the digit for the current decade. In other words, in 1990 change this character to a 9.

AN EXAMPLE:

The following would be a typical # definition as it would appear in the SYMBOL TABLE for an application using invoices and inventory functions:

X211500000520NB

The definition would be interpreted as:

Character Pos	Meaning
1	All records stored in drive #1 (or #2 if 2 drives)
2	drive 2 used for inventory
3	Stock updates applied to location #1
4	Inventory will be updated from invoices
5-7	sales tax = 5%
8-10	no second sales tax
11	round sales tax fractions up if over .5
12-13	house discount = 20%
14	No description/price print from inventory/ no shipping address

15

Decade is 1980's

HELP IN SETTING GLOBAL COMMANDS

Now that you have meticulously studied the previous information--it's not necessary to know it! Please forgive us, it will be very convenient for you to recognize the global instructions just by looking at the Symbol table. There is a much simpler way of setting them up until you learn to do so:

To enter the "definition" for any symbol, press the D key at the Main Menu. The computer will display:

ENTER SYMBOL OR RET?"

If you enter the # symbol (to set global commands) the computer will display:

Enter H for help with globals

ENTER DEFINITION?"

If you'd like help, type H and press RETURN. The computer will then ask you a series of questions to which you must make short answers (or no answer), and set the globals for you.

Or once you understand the meanings of the characters, you can just enter them in sequence to the "ENTER DEFINITION?" question.

DIRECTORY VS. DATED RECORDS PROGRAM

If you use MICROMOD for general database use other than common business functions you'll need to choose which database to use--Directory or Dated Records. If you've been using a simple file manager the choice has always been easy: everything goes in "fields" in a file, no matter what it is. While this is certainly much simpler at first, there are crucial limitations.

MICROMOD has a third database, Inventory, but few types of records look like inventory records, or can benefit from the inventory functions. It's doubtful that you'll ever want to use it for any purpose other than inventory-like records.

If you've been using a file manager and will be using MICROMOD to store the same records, you'll probably find yourself using both MICROMOD databases: the Directory for undated information (usually Name, Address, Phone, history, etc.), and the Dated Records Program for dated records (usually financial or scheduling information). How you divide the data up may still present some confusion. An idea of the relative strengths and weaknesses of both databases will be of help.

The Dated Records program can be used for undated information. There are two inconveniences. First, you'll have to use dates to stand for something besides dates. You could let each month stand for a subject in a book, for instance, with the day number meaning something appropriate, like a character or place. Or if there is nothing that would fit, you could just use dates at random (though they should be sequential without any months missing).

The second inconvenience is that you'll have to become familiar with how the program stores information in "account files" so you can organize the database and know what is in which file.

Other than these two inconveniences, the Dated Records program offers many very powerful features for display, high capacity, and especially organization of categories of data. For a particular application it may be well worth while to put up with these two inconveniences.

Your choice will depend mainly on three considerations: Output capability, sorting capability, and capacity.

OUTPUT CAPABILITY

Before comparing display format capability, you should realize that neither program has any serious limitations for formatted displays or printouts, because of the Report Generator which will allow you to display any data from either database just about any way you like in a form. But Report Generator formats are tedious to build compared to the various other display types, and the information is output rather more slowly, especially without a ramdisk. So the following discussion assumes that you don't want to bother with the Forms Generator, and that quick and simple displays are an important consideration.

Directory

Other than with the Report Generator, the Directory only really displays label formats. It can be just one label, which is just a simple columnar listing of information, and the information can be printed more or less continuously, but still this information can only be for "in-house" retrieval of unformatted information. The primary output function of the directory is address labels, reminder/look-up lists like sheets with columns of telephone numbers or account numbers--jobs it performs very well. This is all that's required for most types of undated material.

Dated Records Program

The Dated Records program is extremely powerful and versatile with respect to output. You can format spread sheets, forms, statements, and calendars. You can display/print graphs. You can also use the Report Generator for integrated formats. If the way the information is going to look on a printout is very important, and it's not labels, then the Dated Records program is strongly favored.

SORTING CAPABILITY

Directory Sorting

If alphabetizing is important then the Directory will do this directly very well. In many cases alphabetizing is the best way to group data in printouts. The Directory was used to input and print the index for this manual, for instance. If you wanted to keep a database of catalog prices you might use the directory. An alphabetized list by product would then let you easily compare prices.

The directory also allows sorting during display (listing only the information specified in a command). You can use up to 6 symbols and 90 sort codes to categorize information for display sorting.

Dated Records sorting

The Dated Records program has no direct alphabetizing capability, nor is this necessary for the majority of purposes, certainly all the common business functions. You can accomplish some degree of alphabetizing by using a heading (data field) to represent characters that will be used as sort codes. You could then list all the records with an A, then all the records with a B, etc. Obviously this is quite primitive, but still very useful in some cases.

For display sorting the Dated Records program is almost without equal. It's hard to imagine a display criteria you'd need and not have. You can display records by NAME, or NAMES, and/or data items in records, strings in records, accounts (including automatic display of related records in an account organization), and any two dates.

The Dated Records program also sorts by dates (day of the month). This is not a simple re-indexing method such as the Directory alphabetizing, but records are actually re-distributed in files. This can be a very desirable method in some cases, for instance if you wish to change the size of the files—the lengths of the files are averaged. You can therefore get pre-sorted output by any category of information you can (artificially) associate with month/year and/or day numbers.

If sorting capability (other than alphabetizing) and organized printouts are important the Dated Records program is a strong choice.

CAPACITY

Directory Capacity

Both MICROMDD databases store information much more efficiently than standard design programs (spread sheets, file managers, accounting packages). The directory will store 2 1/2 to 5 times the amount of information in a given disk space as the most popular Atari file manager. The main reason for this is variable record size—records only take up as

much room as characters in the records, plus a few bytes for overhead. There is a capacity limit though: about 200K to 220K. You can have several Directory disks, but each should be for a different purpose since there is no provision to insert more than one disk—you have to know on which disk the information resides. One disk will hold about 3000 addresses and 3000 phone numbers. For different sized records adjust the estimate accordingly.

Dated Records Capacity

Again the Dated Records program wins. For organized information capacity ranges to as much as 10 or more times that of standard design programs per disk. For unorganized records the capacity will still be in the range of 4-7 times as great. And there is NO LIMIT to the total size of the database, even for practical use. This is because the records disk will hold the most recent information—the information you need most frequently. The rest of the database is on infrequently needed backup disks.

The Dated Records program has full indexing capability, and is designed to almost force you to use at least some indexing. Specifying indexing is also quite simple and the subject of indexing is covered completely in the manual.

Other considerations are math capability (only the Dated Records program has it), and record size. Both databases allow 253-256 byte records, but Dated Records are somewhat slow to enter if record size is over 133 bytes (you can't use FAST RECORD ENTRY), so some users find themselves entering two records at a time, a minor inconvenience.

Many MICROMOD users get bogged down by having too many choices. Consider these factors, then choose one or the other (or a combination of both) and DO IT! Even if it's not the perfect method, it will easily out-perform the home database you've been using. You can always re-organize next year when you're more familiar with the program.

PRINTER OPERATION

To send information to the printer you must PRESS THE SPACE BAR after making a menu selection or menu entry. This works from all three menus: Main Menu, Custom Menu, Utility Menu. At times the computer will ask you if you would like to print certain information on the printer. In these cases you do not have to press the space bar. The computer will know your intention by your response to the question.

If you do not want to enter codes for the printer and want to print in "draft mode" you have another option for the printer instruction. Simply end your SHOW and LIST commands with the two characters ",P" and the computer will send information to the printer.

Your signals to the computer regarding printing are required because some users are using the new passive printer interfaces such as U-PRINT and the computer cannot tell if the printer is on or off. Otherwise these steps would not be required; the computer would simply check to see if the printer was on.

Pressing the space bar upon finishing a menu operation also allows you to send printer codes to the printer to select different printer modes.

After you press the space bar when leaving a menu the computer will stop and ask for a number to send to the printer. It will keep repeating the question as long as you enter numbers. Enter numbers one at a time, pressing RETURN after each.

You must enter the ASCII number equivalent of graphic characters and letters, not the characters themselves. These characters will usually be in quotes in the printer manual. There should also be a key to give you the ASCII (decimal) number for each character.

Here is an example. Suppose the printer manual tells you to send:
esc 23 "H"

You would enter the three numbers: 27 (ASCII for esc), 23, and 72 (ASCII for "H"). Remember to press RETURN after entering EACH number.

If you don't want to send any codes just press RETURN without entering any numbers.

"The Waiting Printer..."

Very infrequently your printer may just stop for no reason at all, and then start up again in a minute or two as if nothing has happened. It also has been known to happen with disk drives, even ramdisks. Input/output requires the use of system timers, both in the computer (DOS and OS system) and in the peripheral. Due to potential compatibility glitches in this very complicated process, the timers can sometimes get erroneous values, or start waiting for each other when they shouldn't, etc. It can

happen with any software and most complicated printers such as Epson or Star. Occasionally it has happened with MICROMOD, though only once with our Star. There's no practical "general" solution. If it becomes serious in your case, please contact the DOS and/or printer manufacturer, as the problem most likely originates in these systems. If you don't get satisfaction there, call us.

MORE DETAILED INFORMATION ON PRINTING

The following information on printing is not required if you are just getting set up with MICROMOD. It is presented here so that the printing instructions will be in one place. If you don't need special printer instructions yet you should skip to the next section on program errors.

When executing the LIST commands that you enter on the Main Menu the program loads and runs four to eight modules depending on whether you are using a named listing format and whether you will format or print a statement after the listing. In the following example it is assumed that you are using a named listing format (using the "LIST name(s),spec,listing,date,date" command) and will not be printing or formatting a statement, so only four modules are loaded during the execution of this LIST command:

1. DISP.MOD -- prints the address (if any) and stops for a title if printing.
2. DIS.MOD -- displays the actual record information, but not the totals.
3. NLIST.MOD -- displays the totals and asks the "DO YOU WANT ME TO REMEMBER HOW TO SET UP THIS LISTING?" and "DISPLAY STATEMENT OF TOTALS?" questions.
4. MENU.MOD -- program again displays the Main Menu.

As soon as any module in the program is loaded the computer checks to see if the last key pressed was the space bar. If so it will stop and ask for printer codes. Whether or not a code(s) is entered THE COMPUTER ASSUMES THE PRINTER WILL BE ON, AND "ON LINE" (if your printer has an "on line" feature).

IMPORTANT WARNING: If the computer stops for printer codes and the printer is not on or not "on line" then the PROGRAM WILL ERROR and return to the Main Menu. This will cause no harm but is aggravating because you then must re-enter any prior information and perform the function over again. To avoid this MAKE SURE YOU DO NOT PRESS THE SPACE BAR DURING THE EXECUTION OF LIST COMMANDS UNLESS YOU INTENTIONALLY WANT TO GET TO THE PRINTER QUESTION to let the computer know you want to print, or to change the codes. If you accidentally hit the space bar and get the printer question, you must turn on the printer ("on-line") and print the rest of the information on the printer to avoid program error.

Extra Capabilities with the "SPACE BAR" Printer Signal

Since several modules are loaded during execution of LIST commands, you can stop the computer to change fonts at various points in the listing (see list of modules loaded above). You could print the address or title that you enter in one font, the main body of the listing in another font, and the totals in a third font. For example, you might want the title that you enter to be in expanded mode, the main body of the listing to be in draft mode, and the totals to be in double strike mode.

You could accomplish this by pressing the space bar after every entry and during every display to cover all possibilities, but this is not necessary if you know ahead of time what to expect just before each module is loaded. An inconvenience with keeping the space bar "on" at all times is that you will unintentionally type a space whenever the computer stops for input, such as the title entry and the "DO YOU WANT ME TO REMEMBER HOW TO SET UP THIS LISTING" question, and you will have to erase the space with DELETE BACK SPACE before making the entry or answering the question. This is a small inconvenience of little concern.

The points in the listing where you would need to press the space bar to accomplish the font changes in the above example are:

1. Immediately after entering the LIST command on the main menu and pressing RETURN. The printer codes you enter will effect the title entry (and all other information unless you change the codes).
2. Immediately after pressing RETURN after entering a title. The printer codes you enter will effect the headings and record information.
3. Anytime during the listing. The computer remembers only the last key pressed. If the computer "HOLDS" during the listing, or if you cause it to "HOLD" by pressing the H key, you will cancel the computer's memory of any previous key pressed, including the space bar. So after a "HOLD" you should resume the listing with the SPACE BAR if the printer is on, but with ANY OTHER KEY except RETURN if you are not printing (if you pressed RETURN the computer might skip an important question later). If you resume printing with the SPACE BAR without the printer on (as is the natural tendency for some) you will encounter the error problem mentioned previously, note: we chose the SPACE BAR for this function so the inexperienced user would not have to hunt for the P key or hold the OPTION key continuously.

If the space bar is the last key pressed at the end of the listing information, and you enter new printer codes, these codes will affect the totals only, since these are the only things left to print. There is no point in setting codes after this (when loading MENU.MOD) since there is nothing in the Menu to print.

This scheme is also applicable to the invoice entry function. The point to press the space bar would be just after the "ORDER #?" question.

Cancelling the Printer Instruction

Whether or not you enter codes, if you access the printer code question the computer will then send all information to the printer, not the screen. There is no way to cancel this except by getting back to a menu. The three menus: UTILITY, CUSTOM, and MAIN cancel the printer instruction.

MICROMOD supports up to 156 printer columns. This applies to LIST and SHOW commands, but not to the WP23 word processor which supports only 79 columns for text. The graph function supports any number of columns.

PROGRAM ERRORS

When you make an invalid entry the computer will let you know and ask you to re-enter it. Some valid entries require certain conditions to be present for the function to operate. But often the computer has no way of knowing if all the conditions are present until it is in the process of performing the function.

If you ask the computer to do something for which the required resources are not available, it will usually attempt to make an intelligent decision about what to do next. If it "thinks" it safe, it may try to complete the function as best it can. Or it may display a message if it can determine a specific cause of the problem.

There are limitations to the amount of programming space that can be devoted to this error checking, especially in a comprehensive database where the user can enter an unlimited variety of data and then attempt limitless combinations of manipulations to the data. In many cases the computer will simply return to the menu without doing anything. A long number containing a decimal point will also be displayed. This is not an Atari error number, but a number which will help us to track down the problem if the error should ever happen when it should not. We don't supply a list of MICROMOD error numbers because it's our policy to turn these error numbers into screen messages when we learn of them. The easily identifiable errors are identified directly on the screen in short messages instead of in an error number list.

These error numbers should always be written down immediately, in case you need to call for support. The problem will almost always (but not always) be with some aspect of MICROMOD, not your hardware. If MICROMOD thinks the error is hardware specific, then it will display an additional number, which is an Atari error number as listed in any DOS manual. Look it up--the explanation may help solve the problem. Otherwise call us if the problem persists.

System "Lock-ups"

This occurs when the computer decides to try to perform a function in which the resources required to perform the function are not present. "If at first you don't succeed, try, try, again...and again...and again!" Sometimes it will try forever if you don't press RESET. Other times it may try for several seconds or even minutes, and then give up and return to the menu. Our suggestion is that if this has happened with a

particular function, let it go for a minute or two. If it still does not quit, press RESET. EXCEPTION: If the disk drive runs continuously for forty-five seconds or more without any changes on the screen or printer, press RESET to stop the drive. If it still doesn't stop, shut the system down. This is most often the result of a very rarely enabled DOS, Disk Drive, or undiscovered MICROMOD bug. The disk drive also has a computer inside, with its own "systems" program, and it is possible for this to become impaired in some way.

The Most Frequent Causes of Program Error

For those starting out with the MICROMOD program it is simply not yet having any data on which MICROMOD expects to perform the function. If you simply load MICROMOD without files and start pressing Menu keys and entering commands, you'll encounter program errors all over the place! Entering a few records, NAMES, titles, headings, etc. will take care of this problem. In other words, the system must be "primed" with data before many functions will operate properly.

Other times you may have two drives in the system, but the wrong disks in the wrong drives, or no disk in the drive. Or the drive may be malfunctioning (see chapter 27). In any case the computer cannot find any records, and the result is the same as if there were no records.

It is possible, especially with the CHANGES/DELETES functions, to impair files—but you really have to work at it! Some "experimenters" become frustrated at not being able to perform a particular function after much experimentation. They go to the CHANGES/DELETES section of the Utility Menu and then start pressing random keys and making all sorts of random entries—anything that appears to display a different result than usual. Eventually they hit the right combination—a combination that is not checked by MICROMOD, and the files are damaged. IF YOU CAN'T GET THE COMPUTER TO DO SOMETHING, READ THE MANUAL!

Another frequent cause of program error is the printer, especially printers with an "on line" feature used with a passive interface such as the "U-PRINT" interface. If the printer is off, MICROMOD will think it's on. If the printer is on, but "off-line", MICROMOD will think it is off. Different printers act in different ways, and send different signals to the host computer. If you tell MICROMOD to write on the printer, but for some reason the printer cannot print, MICROMOD will often keep trying...and trying...and trying forever! Before pressing RESET, fool around with the printer. Turn it on if it is off. Put it "on line" if it is "off line". Wiggle the printer cables—this saved us half an hour one time! Sometimes MICROMOD will snap out of it and either print all or part of the information, or return to the input question or menu, and you save the time it takes to "re-boot" and possibly re-load the ramdisk.

If you feel that your files may be impaired read the information on the DISK FILE STRUCTURE function on the Custom Menu in Chapter 7. You may be able to spot an impairment. If so you will at least know the problem and can transfer your back-up files to the operating disks and update them. Files can be impaired without your help! You might experience a power

failure at the exact moment that records are being written on the disk, for instance. The solution: frequent back-up copies!

RULES FOR EXPERIMENTERS

You can learn to operate MICROMOD by experimentation without a full understanding of procedure in the manual. Most users do learn this way. We are providing a "cookbook" auxiliary manual to help you.

Regarding this manual, if you will be experimenting without fully understanding the manual, there are certain things you can do to damage both the disks and the application. Things that could cause you to have to start over again from scratch that you may not realize until you are a few months down the road.

To prevent this from happening, we present a special list of rules, precautions, and procedures which you can learn quickly and use as a guide. This will keep you out of trouble. So AT LEAST LEARN THE LIST OF RULES FOR EXPERIMENTERS. Then go ahead and experiment at will! The list is contained in the summaries of important points at the end of each chapter. The RULES FOR EXPERIMENTERS are noted with the "*" character.

Also listed among the "rules" are some important points that you might not be able to figure out from the displays or by trial and error.

As you experiment with setting up accounts, enter sample records only. You will find yourself deleting the account titles and starting over several times. Each time you do, you must also delete any records you have entered. Your sample records should contain all the variety of records you expect to use later in the application.

CHOOSING BETWEEN DOS 2.5 AND SPARTADOS

This section is casual reading. If you already are set up with your Master Disk and have at least tentatively decided on a DOS, skip the rest of this chapter and come back to it later for background information.

The MICROMOD program differs from some popular database programs in that it does not have its own disk operating system. We prefer to concentrate our energies on the applications program, relying on outside programs for DOS functions. We ship MICROMOD on two different disk operating systems which we feel will support the needs of most customers:

DOS 2.5

This is a comparatively low powered DOS. But it is simple to operate, relatively free of bugs, and most important of all: it's free! Atari has placed it in the public domain. This does not mean it can be used in an application program without permission. We wrote to Atari (customer

service address) asking permission, stating that a non-response would be considered as giving permission. Pretty tricky, huh? Especially since we're not even sure Atari exists! Well, guess what? There was a non-response! So we are shipping the program with the DOS.SYS file and the RAMDISK utility.

All kidding aside, we're sure there would have been a response if Atari did not want us to use the file, so we offer our thanks, on behalf of our customers, for this permission. If Atari should later decide to require a license, we will drop the DOS 2.5 file and RAMDISK file from the "shipping disks" and include instructions for adding them yourself. DOS 2.5 is free to you from Atari, user groups, and most dealers.

Should you choose the DOS 2.5 version?

If you are using an old 800 without a ramdisk, yes. If you have an AXLON ramdisk then you will have to use MYDOS (see last section of this chapter).

If you are using an XL or XE with one single density drive, you might be better off to use the DOS 2.5 version because there will be more room on the Master Disk for modules, meaning less disk-switching.

If you have not yet obtained a copy of the full SpartaDOS DOS program, you can use the DOS 2.5 version on all hardware configurations until you receive SpartaDOS. You can't use the SpartaDOS version without the complete SpartaDOS disk because it is necessary for formatting and duplicating disks, and copying files, even to begin the application. Set the SpartaDOS version of MICROMOD aside until you receive SpartaDOS.

THE SPARTADOS VERSION

If you have already received SpartaDOS, and you have an XL or XE with at least one double density drive (drive #1), use the SpartaDOS version and set the DOS 2.5 version aside (or use it for practice).

How to order SpartaDOS

If you are using 1050s, we strongly suggest you order at least one US doubler. The price is about \$50 if you shop around. Not only do you get double density and the ultraspeed feature, but the complete SpartaDOS disk and manual comes with the doubler. This is hard to beat!

If you still wish to order just the SpartaDOS disk, either contact us, your dealer, or ICD, Inc directly at:

ICD, Inc
1220 Rock St, Suite 310

Rockford, IL 61101-1437
Tel 815-968-2228

MICROMOD is shipped using the XD2.3e version of SpartaDOS which is the best choice if you are not using the R-TIME-8 cartridge or the MIO board. If you are using either of these, you must use the 3.2d or later version (see last section of this chapter).

THE "NEW" ST COMPANY AND ICD, CORP (the old "ATARI")

Does the above title confuse you? It confuses the hell out of us, too! ICD, Corp, located in Rockford, Illinois, is now the most prolific developer of new 8-bit Atari products, much more so than the "new" Atari which seems primarily interested in the ST computer. And they are powerful products, just right for business purposes!

The list of IDC products includes: US doubler, MIO board (1 meg ramdisk, hard disk interface), R-TIME-8 (time/date hardware. With MICROMOD it relieves you of having to set the time when you boot.), P:R: Connection (replaces the 850 interface for printers, etc., at almost half the price and without needing a power supply!) and the most powerful product of all--SpartaDOS. SpartaDOS is most similar to MSDOS for IBM computers. It is the business DOS of Atari 8-bits. SpartaDOS and MICROMOD are an unbeatable combination!

Now we can add new ICD products: 80 column screen capability and soon we'll be seeing SpartaDOS-X, a cartridge version which supports Indus "Synchronesh", US doubler, and will support the coming 3 1/2" drives from Atari (latest estimate for introduction is summer, 1987--don't place your bets yet!). They are also packaging a variety of hard disks with the MIO board, which relieves much of the worry about compatibility and support.

If there was any doubt before--and there really wasn't--there is no doubt now. This is the way to go for business users. Even if you have to trash some small component you now have to become compatible with ICD products. We make sure MICROMOD is compatible with ICD products first, not Atari, who it seems to us are now the "ST Company". MICROMOD is not compatible with ICD's 80 column screen yet, but will be before Atari's. Let's hope ICD will give us a keypad with compatible key codes! Talk about a potentially hot item!

We continue to receive compliments on ICD's customer service commitment. It seems they agree with us as to where the microcomputer market is going. Let's reward them, and shun those who don't ENTHUSIASTICALLY support their products.

OTHER THIRD PARTY DEVELOPERS

We don't wish to take away from other third party developers of great Atari products, most notably Supra who has a fine list of products for the 8-bit (we think of them as the BBS developer), also with good service near

as we can tell (though when we called for information for this section there was no answer and no tape at their advertised number). Then there's Magna Systems and the Newell, both very accessible and very helpful in our experience. Magna tells us they have 1/2mg and 1 mg ramdisks for the XE. We don't know yet if these are "ICD-compatible". The Newell ramdisk IS compatible after a slight SpartaDOS modification--see last section of this chapter. Wordmark Systems sells MYDOS, a very fine DOS (primary DOS for Supra hard disk, Magna and Newell upgrades, but unfortunately not very compatible with ICD products at this time. We don't know about their service. And finally, the best known "third-party" developer--Atari, Corp--who will reportedly be giving us a 3 1/2" drive yesterday, today, tomorrow, or sometime in the future. Atari's support commitment is legendary! (we didn't call). These products are just as good as ICD's products, generally speaking and by themselves. It's just that from our point of view--and that of our customers--developers (including the "ST Company" had better make their products "ICD compatible" if they wish to reach the 8-bit business market which MICROMOD is rapidly developing.

We can think of only one other well-known 8-bit third party developer, OSS, Inc., developer of great, easy to use (but generally low-powered) systems and DOS software, most notably DOS 2.5 and BASIC XE (MICROMOD is compatible with both.). They INFERRED to us, in so many words, that they are not interested in the "business" market, but only "self-supporting" software that can be set up quickly, like "Appleworks" type databases (that don't do very much). We don't expect much from them in the way of power products for serious database use.

We will keep tabs on these developments and developers for you, and let you know what we know (or think we know!).

Note: MicroMiser has no affiliation or "arrangement" with any other developer, including ICD, Corp. We are your "consultants", not a marketing entity, and as a businessperson you should know there's a big difference. We tell you just how we see it--right or wrong--and we don't care who doesn't like it, including you! But you are the beneficiary and your continued support is all we want or need for success (however, don't expect great MICROMOD reviews from certain quarters!).

As we see it (and as our customers see it) there are three distinct Atari systems shaping up: 1) Atari 8-bits, suitable for home/educational use and games, 2) The ST for graphics, music, terminal, and hobbyists, and 3) The MICROMOD/ICD/8-bit Atari systems for small business use. Though the third market is the smallest now (and was non-existent before MICROMOD) which do you think will grow the fastest, considering that there are about 10 million small businesses who haven't yet heard about the third system?

USE AND COMPATIBILITY OF ALTERNATIVE DOSes - NEWELL UPGRADE

note: more supplemental information on various hardware/doses is presented in chapter 29.

Each MICROMOD program is shipped with two Master Program Disks. One permits MICROMOD to run on DOS 2.5 and the other permits MICROMOD to run on SpartaDOS XD2.3E, which is the overall DOS of choice for the MICROMOD program if your particular hardware does not require another DOS. MICROMOD should run on just about any DOS, but has been tested under three other DOSes: SpartaDOS 3.2d, MYDOS 4.2, and DOS XL. Following is a discussion of which hardware will require you to use an alternative DOS, and how to set up the Master Program so that MICROMOD will run on that DOS.

NOTE: The information presented here on DOS systems is derived from our testing of various versions. You may encounter difficulties using different versions of the same DOS. If it is a later version we will help you to implement it. If you have an earlier version we suggest you get the updated version. In our testing we are only concerned with compatibility with MICROMOD. We may not even have the manual to work with, or if we do we ignore any sections not bearing on compatibility with MICROMOD.

The file AUTORUN.MYD is part of MYDOS and not the property of MicroMiser. This file is provided with permission of Wordmark Systems for your convenience. The modification to MYDOS for the AXLON/RAMCHARGER boards was provided by Magna Systems.

COPYING FILES FROM THE DOS 2.5 MASTER SHIPPING DISK

The DOS 2.5 MICROMOD Master Disk is formatted in 1050 density. You may have difficulty in transferring some of these files directly using MYDOS or DOS XL because these may not read the last sectors of a 1050 disk. If you should encounter this problem use DOS 2.5 to copy these files to a single density disk first, and then MYDOS and DOS XL will be able to read the files from the single density disk.

SPARTADOS 3.2d

You must use SpartaDOS 3.2d to use the R-TIME-8 cartridge, the MID board, or BASIC XE. The use of this version of SpartaDOS will become more compelling as new ICD products are introduced.

To set up a Master Disk on SpartaDOS 3.2d first format a disk with version 3.2d on it (using XINIT--see SpartaDOS manual). Then copy every file from the MICROMOD Sparta Master Shipping disk to the newly formatted disk EXCEPT XD23E.DOS. Unfortunately, the program will NOT boot because of the AUTORUN.SYS file on it.

With SpartaDOS, the only function of the AUTORUN.SYS file is to return

from the word processor to the master program. Without the AUTORUN.SYS file you'll have to re-boot to get back (reloading the ramdisk). But if the AUTORUN.SYS file is on the disk (as it would be if you followed the above instructions) the program won't boot because SpartaDOS 3.2 will transfer control to it. To avoid this problem you must perform the following two procedures:

1) With SpartaDOS loaded in the computer, insert the Word Processing disk in drive #1. At the D1: prompt type the command: (don't type the "D1:" it's already there!)

```
D1:COPY WP23.SPD D1:WP23.SYS
```

This takes the file WP23.SPD (a revised WP23 program) and copies it over the standard WP23 file, renaming it in the process.

2) Insert your new Master Program disk in drive #1. Type the following commands:

```
D1:RENAME D1:AUTORUN.SYS,BUTORUN.SYS
```

The one letter change makes all the difference (and allowed us to change only one byte in the WP23 file!). That's it!

For SpartaDOS users who wish to change the STARTUP.BAT file or any other SpartaDOS BATCH file, we include a special utility on the supplement disk called BATCH.BAS. This is a BASIC program you would run from BASIC (the READY prompt) with:

```
RUN"D:BATC.H.BAS
```

Follow the program's instructions.

The STARTUP.BAT file on the Master Shipping disk is already set up for the 3.2d version. For instance, it disables the key buffer so that this will not interfere with the MICROMOD keyboard routines.

MYDOS 4.2

Use MYDOS if you have an 800 computer with a ramdisk (AXLON, RAMPower, etc.). MYDOS is required because only SpartaDOS versions 1.x work on the 800, but not with MICROMOD because they use "page 6", an area of memory normally reserved for applications programs.

To set up MICROMOD on MYDOS 4.2 initialize a blank disk using MYDOS. Then to modify MYDOS for the ramdisks, and with MYDOS still in the computer, return to BASIC (B Run Cartridge). Enter the following POKE commands, pressing RETURN after each:

```
POKE 5601,169  
POKE 5602,1  
POKE 5603,121
```

POKE 5655,169
POKE 5656,0

NOTE: if for some reason you want to use MYDOS with the Newell upgrade don't do these POKE commands (you can now use SpartaDOS with the Newell--see last section).

Next type:

DOS

to return to the DOS menu. Select "H Write DOS" to write the MYDOS boot files on the new disk. Then select "D Delete Files" and delete the file "DUP.SYS" as it is not needed.

Next transfer every file from the DOS 2.5 MICROMOD Master Disk to the new disk, EXCEPT DOS.SYS, AUTORUN.SYS, and RAMDISK.COM.

Finally, copy the file AUTORUN.MYD from the MICROMOD Auxiliary disk to your new MYDOS Master disk, but RENAMING this file to AUTORUN.SYS (this is the ramdisk formatting utility) as in D1:AUTORUN.MYD,D2:AUTORUN.SYS.

The Operational Master Program disk is complete. You can copy any other MICROMOD files directly to MYDOS formatted disks using MYDOS to do the copying.

Using MYDOS the MICROMOD program will not boot automatically. Instead, after the ramdisk is formatted the READY prompt will appear. You must type:

RUN"D:MOD3.SYS

to run the MICROMOD program. This is necessary because, according to the latest MYDOS manual we have, there is no provision for indirection, such as the BATCH processing files of SpartaDOS.

Using MYDOS it is necessary to re-boot (press RESET) to return to the Main Menu from the word processor.

DOS XL

The only advantage of DOS XL is that it supports Indus "Synchronesh", or double speed on Indus drives. Other than that, and compared to SpartaDOS, it has all the limitations (and simplicity) of DOS 2.5. Whether "Synchronesh" is worth losing the BASIC ramdisk, BATCH processing, and future upgrade capability of SpartaDOS is up to you and your application. When the SpartaDOS "X" cartridge arrives it will support "synchronesh" and you'll have the best of both worlds.

To make a Master Program disk on DOS XL format a blank disk using DOS XL. Write the DOS XL DOS files on the disk, then delete the file DUP.SYS as it is not needed. Transfer all files on the DOS 2.5 MICROMOD Master

Program Shipping Disk to the new disk, EXCEPT DOS.SYS but INCLUDING AUTORUN.SYS.

NOTES ON COMPATIBILITY

MICROMOD runs in an Atari BASIC shell. All I/O is through standard BASIC commands because these commands run just as fast in BASIC as ASSEMBLER (yes--you can accomplish "burst I/O" in BASIC very nicely if you know how!), and this makes MICROMOD compatible with all printers and DOSes (that don't use "page 6"). No other language, including ASSEMBLER, is compatible with everything because all manufacturers test their hardware with BASIC which has it's own peculiarities even in using the Operating System. If you have a program not in a BASIC shell, then we hope you are lucky enough not to have compatibility problems.

TOP DOS

We booted MICROMOD one time under TOPDOS and had a problem with the "page 6" area of memory. The author, R.K. Bennett of Eclipse Software, was very responsive, explaining the TOPDOS did not write on "page 6", so it is probably a problem within MICROMOD. Since TOPDOS is not required for any particular hardware configuration at present, we didn't bother with it further. If it becomes necessary to use TOPDOS to support any power upgrades in the future we'll do the additional testing required. We don't infer that TOPDOS is not a very good DOS in particular cases (though certainly not "simply the best DOS ever written for Atari computers"--SpartaDOS is!), it's just that the power upgrades seem to be better supported in the aggregate by the other DOSes mentioned).

NEWELL RAM UPGRADE

It is no longer required to use MYDOS with the Newell upgrade, thanks to a hot tidbit we picked up on CompuServe, Atari special interest group. Now you can use SpartaDOS with the Newell! Thanks also to Myron Jennie, a MICROMOD user who tested this out and verified that it works.

This is a revision to the SpartaDOS ramdisk utility, the RD.COM file. The revision must be done by an intermediate Atari programmer--easy to find at any dealer or user group. We don't want to provide the revised file because we are not yet sure whether ICD is favorable to the information or not. However, we're just passing along information anyone can find on CompuServe for the benefit of our customers...

In the RD.COM file, find the sixteen bytes that contain the following hexadecimal numbers: 60,64,68,6C,20,24,28,2C,40,44,48,4C,00,04,08,0C

Change these to 60,64,68,6C,40,44,48,4C,00,04,08,0C,20,24,28,2C

Re-store the file on disk. That's it!

MICROMOD OPERATION WITH ALTERNATIVE DOSes

The MICROMOD manual states that 128 files are available for inventory on each disk. If you use a DOS which supports less files per disk (such as 64 for DOS 2.5) then modify these instructions accordingly. This will not cut the capacity per disk, since you cannot have even 64 full files on a disk.

Any DOS which takes up more room for itself than SpartaDOS 2.3 will cause the NAMES file to be shorter. MICROMOD will tell you on the first screen how many 4 LETTER NAMES you have room for. Nobody so far is using anywhere near 2,000 NAMES. Two or three hundred is more the norm. So we don't see this as a substantial limitation. If you want the 2,000 NAMES, stick with SpartaDOS 2.3. SpartaDOS 3.2 will allow 1735, DOS 2.5 will allow 1610. The worst we've tried is TOP-DOS which leaves room for 1543 4 letter abbreviations in the NAMES file.

Using another DOS will also cut the size of records files, but this is of no consequence since you can have as many "closed" files as you need. This could be a problem only if you have existing full files (occupying 81 SD sectors or 41 DD sectors on the disk). If you change DOSes and have less room for files, you won't be able to load the old files--they'll be too big.

There's an easy way to reduce the sizes of all your account files since the ORDER/CONDENSE function re-distributes records evenly in all files. Just run this function. If the new files are still too large, rename the current file (not ending in a day number) so that it ends in a day number. Then enter one new record which will start a new file, almost empty. ORDER/CONDENSE again. The resulting files should all be shortened enough.

IMPORTANT POINTS AND RULES FOR EXPERIMENTERS (#)

The first address and phone number entered into the computer should be your business address to appear on invoices/statements. Addresses are entered using "PUT name" and when entering invoices.

To get to the Dos menu from the BASIC "READY" prompt, type DOS and press RETURN.

Where to find DOS 2.5, SpartaDOS.

Duplicate "shipping disks" to get practice disks--select "4 NO DOS" if using SpartaDOS

Adjust the TV monitor to read the entire display.

Master Program disk always in drive #1. Records disk always in Drive #2 (if two drives).

Modules will load from any drive.

On power-up the Main Menu will eventually be displayed no matter what you do.

Read supplements by pressing H on the Main Menu.

Displaying TIME--careful to prevent "image burn".

* ALL TITLES, ENTRIES MUST BE AT LEAST 2 CHARACTERS LONG.

* ONLY "NAMES" AND "LISTING FORMAT NAMES" MAY CONTAIN SPACES.

H to hold the display--M to quit and return to menu.

* Don't use the "shipping disks" for practice.

* Command words are followed by a space. Other words are separated by commas with no space between them. Exception: FROM is both preceded by a space and followed by a space.

* Full dates: 3 numbers separated by commas, e.g. 6,1,85

* To signal the printer, press the space bar after the menu entry or selection.

Send ASCII number equivalents to the printer, not ASCII characters.

The menus cancel the printer instruction.

MICROMOD supports up to 156 printer columns. Exception: the word processor supports up to 79 printer columns.

Program will error if there are no data files.

* DON'T "EXPERIMENT" WITH CHANGES/DELETES

HINTS

If you have two drives a tip to save disk-switching: convert the Auxiliary disk into 1050 or double density--then use it as your Records Disk.

Although some manufacturers recommend you remove disks from the drives when you shut down, we and many MICROMOD users leave them in ALL the time. No problems have been encountered (1050 drives). We therefore recommend you leave the disks in the drives--a big convenience. We feel there is a greater risk of damage to the disks from extra handling if you remove them when shutting down.

One of the annoying things about stock 1050 drives is the amount of time the drive "runs" AFTER the disk operation is completed--about 8 seconds, every time! However, with the US doubler installed this time is

reduced to about 3 seconds. This alone is worth the price of the doubler!

When you are first learning the program, stick with the main functions. The less often used functions and utilities do not provide as much error protection--error numbers are likely to be displayed more frequently.

If you encounter a problem in operating MICROMOD in a particular program, don't proceed with that program until the problem is solved. The first error will usually result in several other errors, and this becomes confusing. Usually they will all disappear when the first error is eliminated.

Always write down the first error number you see when error numbers are displayed. You needn't remember subsequent error numbers--these are almost always the result of the first error number.

A few of the more frequent error numbers which the program does not detect:

132.014 Module/File damaged (reboot, copy new file)
180.157 Inventory--NAME missing from NAME file
210.257 Selected INVOICE, but no accounts set-up
222.237 Address contains bad NAME index
208.197 TEMP directory full

Getting your Disks Organized

If you've previously used some of those other fine Atari database programs you're probably set up with some sort of disk filer, such as a shoe box, right? No disk filer we've seen is adequate for business use. MICROMOD allows you to conduct business with only 4-6 disks, other than those that remain in the drives. Here's how to take advantage of that and make things a whole lot more convenient:

Locate a flat surface (on the wall, etc) within arm's reach of where you sit at the computer. It should be approximately 18" by 10". To protect the wall you may want to attach a piece of formica, wood, or some other "bulletin board" type of affair of these dimensions.

The idea is to tape two rows of disk jackets to the surface, 3 jackets to a row for a total of 6 jackets. If your larger dimension is horizontal, you would start by placing three jackets abreast ON THE BOTTOM ROW and then taping them along the top with one long strip of tape. About any type of tape will do. Then place three more jackets abreast, and above the first row. The bottom of the top jackets should just overlap the tops of the bottom row to cover the tape--this does not have to be exact. Then tape the top three jackets with another long strip of tape. Doesn't look bad if jackets are all the same.

One jacket is for the DOS you're using. Another is for the ~~Custom~~ ^{Auxiliary} Disk which, in the large majority of cases, will be in 1050 or double density. It should therefore contain all extra modules you'll use in the applicat-

ion. A third jacket is for your back-up disk.

If you have a separate directory disk, put it in jacket 4, and a back-up for this in jacket 5. Finally, if you're using a "Remote Disk" on another computer you'll need a separate back-up disk to use when reading the Remote Disk. This can go in jacket 6.

If you find you need all of the records disk for account files you won't have room on the main back-up disk for both these and User Files. Therefore you should back-up the User Files to a separate disk (BACK-UP/COPY FILES allows you to do this), or the Directory Back-up Disk, if you have one.

Now you're organized! Those who have done this report a dramatic improvement in "human engineering".

CHAPTER 2 -- THE "NAMES" FILE

The NAMES file is used in all the various MICROMOD programs. It occupies 10,000 bytes, a sizeable chunk of memory, and is usually in the computer at any given time. It is probably the single most important file in the program, and offers several powerful conveniences normally lacking in many database programs.

First some general information on NAMES will be presented. The rules governing the NAMES file are few, and will be presented later in the chapter.

There is generally some confusion about the file for two reasons: 1) most functions involving the file are automatic and unseen. 2) a confusion of terms. The NAMES file is called various things in both displays and in the documentation. This section is intended to eliminate the confusion.

THE FILE

The NAMES file contains up to 2000 or more short series of characters which can be any characters including spaces, except commas which are not allowed. Most are four character abbreviations for full names.

THE PURPOSE

Each series of characters is used as a label to identify certain groups of records. Most often, but not always, these will be four character abbreviations for person's or company names. Hence the term NAMES. They are sometimes called ABBREVIATED NAMES or just ABBREV. NAMES. They are also called CUST CODES in the invoice function because they perform exactly the same function as customer code and account numbers frequently used in other programs, and this will help computer operators to understand the invoice entry sequence more quickly. You will know that CUST CODE is just another word for NAMES. Whatever the entry may represent in a particular case, in this manual items in the NAMES file will always be referred to by the capitalized word NAME or NAMES.

ENTERING NAMES

There is no particular function to enter NAMES. You just enter new NAMES in all the various programs as they are asked for. If the computer doesn't find the NAME in the NAMES file it will ask you to verify that you want to add the NAME, and then add it to the file for you automatically.

Some users feel better about making up the list of NAMES ahead of time, and then entering them all at once. This can be accomplished in the Directory Entry function (see Chapter 9). You can just enter each NAME to the NAME? prompt without making any additional entries in the record, and then CANCEL the record. The NAMES will be added to the file regardless of whether you CANCEL or not.

USE IN VARIOUS PROGRAMS/FUNCTIONS**DATED RECORDS PROGRAM**

In this program NAMES are treated just like any other headings under accounts. The only difference is that the heading NAME is entered automatically by the computer and added to the headings you type in. This is not just a convenience but a precaution. It guarantees that every record will have a label by which it can be conveniently accessed.

When you enter records the first prompt will always be:

NAME?

and the entry you make will be treated as a record label, and automatically stored in the NAMES file.

THE < CHARACTER

The NAMES file performs a second different function in the DATED RECORDS PROGRAM. Some accounts will contain headings that represent data entries that are repeated over and over in other records. These tend to take up a lot of room in the records files with duplicate words. Therefore you have the option of storing these data items in the NAMES file. Then your records do not have to contain the (long) entry but only a 2 character index into the NAME file to mark the position of the entry in the file. The record entry/display is exactly the same for you, and this creates no inconvenience at all. The indexing and storage is completely automatic.

One drawback of using this method of storing data is that you will not be able to use "string" searches using the data item as search criteria (except in the NAMES file where the actual data item will be stored).

All you need to do to store frequently repeated words or numbers in the NAME file instead of in the records files is to tell the computer you wish to do so for all entries under a particular heading. This is accomplished when you first enter the headings under a new account. Simply start out the heading with the < character, e.g.:

<SUPPLIER,<FORM.PAY

From then on you never need to enter the < character again, but only the rest of the heading, i.e. SUPPLIER or FORM.PAY. The computer keeps track of this for the life of the application with no reminder from you. The only time you will see the character again is when entering records: the prompts will begin with the character to remind you this is a repeating entry. If you make an entry that is not in the NAMES file, the computer will stop and ask you to verify, so to avoid cluttering up the NAMES file with mistakes. In other words, the computer treats all headings

originally entered with a < character in exactly the same way it treats the beginning NAME heading. Remember to use only repeating entries under these headings, as each different entry does take up room in the NAMES file.

You will also see the character when changing headings using the HEADINGS OF ACCOUNTS selection in the CHANGES/DELETES section of the Utility Menu. If you have records using a certain heading, and then you change the heading to remove or add the < character, these data items will not be found and listed when using LIST commands. The rest of the record will be listed normally. So you should know ahead of time that only a limited number of different entries will be used under a heading for the life of the application before using the < character when entering headings.

Another convenience of using the < character when first entering headings for repeating data is that they will be treated as if they were NAMES in the LIST commands. Thus if you specify a NAME in a LIST command, all records containing that NAME will be listed, whether the NAME was entered under the beginning NAME heading or under another heading originally entered with the < character.

This gives you the capability to specify more than one data entry for accessing certain groups of records. To search out a normal data entry you must use a "spec" (the actual data item), and you can specify only one data item for a particular listing. In other words, NAMES are inclusive in LIST commands, while "specs" are exclusive.

THE DIRECTORY PROGRAM

Each directory record is labeled with a NAME from the NAMES file. To enter a record in the directory, type PUT, a space, and then any NAME from the file, such as:

```
PUT FRED
```

When you later list directory records, the NAME will be listed as well. Exception: NAMES are not listed when showing addresses.

THE WORD PROCESSOR

The NAMES file is not used in any function of the WP23 word processing program. However, when naming your letters on disk it is suggested that you use the 4 letter NAME abbreviations you use for that correspondent in the rest of the program. Include the date of the letter. A letter to FRED on Feb 23 might be named FRED2.23 for instance.

THE INVOICE/STATEMENTS PROGRAM

In the Invoice Entry function, NAMES are called LIST CODES. The computer

operates exactly the same with regard to CUST CODES as it does with NAMES in the DATED RECORDS program, and all CUST CODES should be 4 letter name abbreviations. They are stored in the NAMES file. When listing invoice information treat the CUST CODES as NAMES and feel free to specify them in LIST commands the same way you specify NAMES.

Batch Statements

Batch Statements or continuous "listing formats" are printed from name lists, called "batch name lists". Every name in the "batch name list" must already exist in the NAMES file. However the "batch name lists" are not stored in the NAMES file, but in separate files on disk. Regardless of separate storage, the names must reside in the NAMES list and this is checked by the computer.

When the computer lists the "batch name lists" it only allows 6 characters for the display of names. Thus NAMES intended for use in the BATCH STATEMENTS function should be limited in length, preferably to 4 characters.

THE INVENTORY PROGRAM

The only NAMES the inventory program uses are the NAMES of suppliers. Thus each supplier should have an entry in the directory, usually an address.

MAKE FREQUENT BACK-UPS OF THE NAMES FILE

The NAMES file is called "N" on the master program disk. It is backed-up automatically whenever you use the BACK-UP/COPY FILES selection on the Utility Menu to back up your "user files". You should also copy the N file to a back-up disk whenever entering new NAMES into the file. Another good idea is to print out a list of NAMES simply by pressing N from the Main Menu and then the space bar to signal the printer.

If you were to suddenly lose the NAMES file, you would lose major listing capability throughout the entire program. Fortunately, you will have many backups of this file and it should never happen. We can also re-build NAME files from address lists easily. Of course it's much easier to re-build it from a printout of the NAMES file if you have one (see above). You can do this yourself.

If you do lose the file on the operating Master Program disk, and have entered new NAMES since making the most recent back-up copy, YOU MUST RE-ENTER THE MISSING NAMES WITH EXACTLY THE SAME NUMBER OF CHARACTERS AND IN EXACTLY THE SAME ORDER. This is because your records do not contain the actual word in the NAME file, but only an index to the position of the word in the file. If the positions of the NAMES in the file were changed, the computer could not find the right NAME using the information stored in the records.

CONVENIENCES OF THE NAMES FILE

The main purpose of the NAMES file is to save room in records. This is one of the ways MICROMOD stores so many records on a disk. It also speeds up loading and storing records because they are shorter.

Abbreviated NAMES are much easier to remember than code numbers which are the standard way to label records. But code numbers perform no service at all other than the labeling function. They must be stored in records taking up extra room. In themselves they do not say anything about the record. Abbreviated names, on the other hand, can represent actual data and thus save an additional data entry in the record. By using abbreviations instead of code numbers for customers, suppliers, etc., you can usually remember the abbreviation without referring to a code number list.

The NAMES file offers a method of accessing records without typing full names. When the name stands for a category it offers an easy way to list specific groups of records.

RESTRICTIONS

As mentioned, there are some restrictions on the use of the NAMES file. It can hold 1,000 to 2,000 or more NAMES depending on the lengths of the abbreviations, which is up to the user. See "FILE CAPACITY USED" information in Chapter 23 to find out the exact number of abbreviated NAMES you can use.

The file is used to label and access both account records and directory records. You must enter an abbreviated NAME or category to enter information into the directory, and every account record entry will start by asking for an abbreviated NAME. You can easily defeat this requirement by entering one dummy category such as "XX" for every record.

If you will have more than 2,000 different current NAMES for records, then some abbreviated NAMES will have to be categories that access more than one record at a time. You can still access individual account records by entering full names contained in records as "specifications for exclusive listings" (see Chapter 6).

If you have more than 2,000 current addresses some of them will have to be categorized in the abbreviated name file. For example, you might categorize your mailing list by state. By then entering the NAME TEXAS in a SHOW command, you would print out all addresses in TEXAS.

You would not want to name every inventory item with an abbreviated NAME. Therefore categories such as TELEVISIONS, TOOLS, SUITS, etc., or possibly the manufacturer/supplier name would be used. Individual serial numbers, item descriptions, etc., can be contained in records and specified in listings to access individual records. For example, "LIST TV,WAL,INV,date,date" would list all televisions with a walnut finish.

"LIST TV,B23500Y,INV,date,date" would list just one television with the serial number B23500Y. The dates are used differently for inventory (See "using the Dated Records program for inventory", Appendix 12). Of course MICROMOD has a separate inventory program and all this is done for you. Only a small minority of applications would use the Dated Records program for specialized inventory needs.

While you can still access individual ACCOUNT records that are categorized in the NAMES file, you cannot access individual DIRECTORY records (addresses) that are categorized. Therefore, you should use an abbreviated NAME for each person in the file for which you might want to access the records individually. Individual access is more common with respect to account information, which the Dated Records Program can do without use of the NAMES labels. Most applications with more than 2,000 addresses will be mail order functions, for which individual access is not used. To make individual access to thousands of addresses and other directory information, the records should be organized differently than for an application which does not have so many entries. If you have this requirement, contact MicroMiser to obtain the expanded capability.

CONVENTIONS FOR ABBREVIATING NAMES

In the large majority of applications abbreviated NAMES will stand for actual names for directory and account records (excepting inventory records). The following instructions assume that this is the case. The instructions apply equally to NAMES used as categories.

YOU CAN USE ABBREVIATED "NAMES" OF ANY LENGTH AS LONG AS THEY ARE AT LEAST 2 CHARACTERS LONG. THE FIRST TWO CHARACTERS MUST BE CAPITAL LETTERS (so they can be alphabetized on the directory disk). But the most efficient length is from 3 to 5 letters, with the optimum number being 4, which is long enough for you to recognize the abbreviation and to minimize the chance of duplications (4 letters allow 456,976 different combinations), yet short enough to make entries quick and easy with few spelling/typing mistakes.

If you were to lose part of the NAMES file, the NAMES you lost would have to be re-entered in the same order with each NAME being the exact same length. The positions of the NAMES in the file must be duplicated since records contain an index to the position of the NAME, not the NAME itself. If all your NAMES are four characters long it is easier to add lost NAMES. In our examples we'll include 4 letter abbreviated NAMES.

In general, the best way to abbreviate names in this program is to use the first 3 letters of the last name, followed by the first letter of the first name. For a company name, use the first three letters of the first name, followed by the first letter of the next CAPITALIZED name. If there is only one name, use the first four letters of the name. Examples of abbreviated NAMES and full names:

DOEJ John Doe

ANDF Fred J. Anderson

SMIM Mrs. Mary Ann Smith
ACMP Acme Printing Co.
BANA Bank of America
FORF The Ford Foundation
MICR Micromiser

If you try to enter a new NAME which is already in the NAMES list (a duplication) you will know immediately because the computer will display "NAME FOUND" instead of "NEW NAME." In this case, cancel the record and enter a different NAME, perhaps one character shorter, such as ANF for Florence Andover if you already have ANDF for Fred Anderson.

Of course this convention is not absolutely required. Sometimes three or five letter abbreviations will be more appropriate, e.g. IBM or ATARI.

You should begin abbreviations with the last name because of the way names are categorized on disk (see FILE CAPACITY USED information in Chapter 25).

An exception with regard to lengths is the unusual situation in which you want to include NAME file NAMES as data to be printed, and that you will want other business associates to recognize. In this case, and for these names only, you might use the first 8-12 letters of the last name, followed by a space, then the first initial. This will cut down the total number of NAMES (see "FILE CAPACITY" information) by about one NAME for each lengthy NAME, make entries correspondingly more difficult, and make running continuous printouts from the list of NAMES more confusing.

Alternatively, you can include full names as data items, or you can instruct the computer to start listings with the address (which will include the full name) in the Dated Records program, or pull the first address line out of the address with the Report Generator.

If you enter an ACCOUNT record for which the name is not important, such as a one-time purchase from a store, enter XX for the NAME. This saves room in the NAME file, since all unimportant names will share the same abbreviated NAME, XX. Mr. "XX" is frequently used in the invoice program.

CHANGING "NAMES"

Access this function with the NAMES selection in the CHANGES/DELETES section of the Utility Menu. The module CNAME.MOD will be loaded and run.

This module allows you to change entries in the NAMES file, also called Abbreviated NAMES, Categories, and CUST CODES, or any data entries in the Dated Records Program under headings originally entered with the caret character "<".

NAMES may not be deleted because this would change the positions of all the NAMES in the file that occurred after the deleted NAME. It is the

positions of the NAMES in the file that are stored in records, not the NAMES themselves. Therefore the positions must be kept the same in editing functions. NAMES can be changed, but this function makes certain that the positions of all other NAMES will remain the same.

There are two restrictions on changing NAMES. First, records contain an index to the position of the NAME in the NAME file, NOT THE NAME ITSELF. So you cannot move a NAME from one place to another. If you access records for a NAME that has been moved, the records will display the new NAME at the old position, not the old NAME.

Secondly, since positions of NAMES in the file must remain fixed, the file cannot be expanded to accommodate a longer NAME. The new NAME must therefore be the same length or less. Additionally, if the old NAME was 5 or more characters long, and your new NAME is shorter, the computer will reserve at least two spaces for another new NAME you may want to add later. This maintains the position of the next NAME in the list and helps you to store NAMES in the most efficient manner. The reserved spaces will show up in the NAMES listing as +++, etc., one + for each reserved space.

If the old NAME was 8 characters long, the new NAME could be 2,3,4,5, or 8 characters long, but not 6 or 7. The computer will let you know the choices.

Periodically (typically every few years) you will want to update the NAMES file. To do this, make a copy of the program disk (which will include the "old" NAMES file). Then make the NAME changes on the original and start a new records disk. Whenever you access old records, use the old program disk (select INIT DISK after inserting a different Program Disk--see INIT DISK information in Chapter 23).

PROCEDURE

After selecting NAME on the Utility Menu the computer will stop and display:

ENTER OLD NAME OR RET?

Enter the NAME you wish to change and then press RETURN, or press RETURN without making an entry to return to the Utility Menu.

The computer will display the legal lengths for the new NAME, and then stop and display:

ENTER NEW NAME OR RET?

Enter the new NAME and press RETURN. If you press RETURN without making an entry the "old" NAME you entered will NOT be changed. If you do enter a new NAME it will be stored in place of the old NAME.

After the new NAME is stored the computer will ask you to insert the Directory disk and press RETURN. If you do not have a separate Directory

disk (have not UNLOADED the Temporary Directory) just press RETURN without inserting a disk.

If you do have a Directory disk insert it in the highest numbered drive (of 1 or 2). Any directory information stored under the old NAME will be moved into a new directory file corresponding to the new NAME. This is an effective way of re-distributing directory information if one of the Directory files should approach full capacity (see FILE CAPACITY USED information in Chapter 23).

Next the "ENTER OLD NAME?" question will be re-displayed and you can enter another NAME to change or press RETURN to return to the Utility Menu.

NAME REMINDER LIST

To print a NAME reminder list select NAME REMINDER LIST from the Custom Menu. The module NSORT.MOD will be loaded and run.

The NAME REMINDER LIST function allows you to make a reminder list of NAMES in alphabetical order, and the first address line of the first address in the Directory Files labeled with that NAME. If there is no address found for a particular NAME there will be a blank space next to that NAME.

After selecting NAME REMINDER LIST the computer will stop and ask for a tab setting of the second column. The NAMES will be printed in the first column and the first lines of addresses in the second column. If you press RETURN without entering a number the default setting of 20 will be used and the address columns will be indented 20 spaces.

After you press RETURN the computer will stop and ask for a sort code (see Chapter 10). If you enter a code, only those NAMES containing the specified code in the associated addresses will be listed. Press RETURN without entering a code if you want a reminder list for all NAMES.

The list will be printed automatically and requires no further action. After the list is printed the computer will return to the Custom Menu.

This module operates in two ways depending on how many disk drives you are using. If you are using one disk drive, only those full names from the TEMP directory on the program disk will be listed. Therefore, you should select this module before UNLOADING the TEMP directory to the directory disk.

If you are using two disk drives, all full names will be listed from both the TEMP directory and the directory disk. In this case, the listing will be printed very slowly because the Directory and TEMP directory files will have to be alternately loaded for each name. Be sure you have time available before selecting this module with two drives.

IMPORTANT POINTS AND RULES FOR EXPERIMENTERS (#)

The NAMES file has room for about 2000 NAMES.

CUST CODES is another term for NAMES.

NAMES are just a type of heading in the Dated Records program.

* Begin headings representing repeating entries with the "<" character.

Every Directory record is labeled with a NAME.

* "Batch names" must correspond to NAMES in the NAMES file.

Make frequent printouts of the NAMES file.

Re-enter lost NAMES with the same number of characters and in the same order.

If over 2000 addresses, categorize them in the NAMES file.

* NAMES must begin with 2 capital letters.

For "one time only names" use XX for the NAME.

NAMES cannot be deleted, only changed, and the new NAME must be the same number of characters or less.

Alphabetical NAME reminder list on Custom Menu.

If using one drive, print reminder list before UNLOADING TEMP DIRECTORY.

II. THE DATED RECORDS PROGRAM

CHAPTER 3 -- SIMPLIFIED INSTRUCTIONS FOR HOME USERS

You may find yourself using the MICROMOD program for simple purposes that could be served by any of several other Atari databases. Maybe you have chosen MICROMOD to save on disks and disk-switching--you will! And you may be surprised at how easy MICROMOD is to learn to do simple record-keeping, and at how few entries you'll have to make compared to other programs with which you're familiar.

You may have received MICROMOD as a gift, and have no specific purpose in mind. If so, you might start by saving records for tax purposes. Just about anyone will benefit from this. Or you might want to set up a home budget similar to the example in Appendix 4.

Lastly, you might have purchased MICROMOD because a particular needed function was lacking in your "simpler" program.

In any case, if you will be using MICROMOD just for light record-keeping, letter writing, and keeping a file of addresses, then there is no reason for you to read or understand the entire manual. You will probably keep a year or more of records on one disk (there is room for several year's worth in some applications) so you won't have to worry about disk management for a long time. The word processing instructions are fairly simple, comparable to most other word processors, and the directory filer is a simple program. You won't be wasting any time by following the regular instructions provided in this manual for those programs.

The DATED RECORDS program is by far the most powerful and comprehensive program. You'll want to use it for keeping payments and receipts records--the type of dated records most home users keep. The simplified instructions here should suffice in place of the extensive account set-up section. The section on LIST commands is simpler and you can employ "trial and error" much more freely, so you should read that section to learn how to list information.

If you feel a particular point is not sufficiently understood you can find more detailed information in Chapters 4 and 5.

If you have difficulty with the terminology refer to the section on terminology in Chapter 4, or the GLOSSARY at the back of the manual.

This chapter serves another purpose. For beginners it provides a summarized introduction to record keeping in general. Most home users will find it helpful even if generally experienced with Atari computers.

SETTING UP ACCOUNTS

Organizing records, or "accounts" which contain records, is mainly a

task involving only two kinds of records: 1) payments and 2) receipts. Both of these are handled in the same way, so payments will be used as an example.

There are four basic pieces of information in payment records: 1) the name of the payee, 2) the date of the payment, 3) the amount of the payment, and 4) the type of payment, such as "telephone bill" or "art supplies". The type of payment is usually called an "account". A "telephone bill" account will contain records of payments of telephone bills only. So to summarize, there are four pieces of information (entries) in a typical payment record:

- 1) name
- 2) date
- 3) amount
- 4) account

The simplest way to keep these records is to use a pad with four columns, and to write "name--date--amount--account" as four headings at the top of the columns. The order of the headings is not important. You would just write down the information under the headings, one line for each record. This is one way you can use the MICROMOD program. To set up this "organization" requires only two entries:

- 1) MAKE PAYMENTS,MAIN
- 2) AMOUNT,ACCOUNT

(NAME and DATE are automatically assigned as headings to every account)

Where to make them? After you turn on the computer and it stops running at the Main Menu, type MAKE PAYMENTS,MAIN and press the RETURN key. The computer will run for a few seconds and then ask, "are you sure?" and stop. Type Y and press RETURN again. It will stop again. Type AMOUNT,ACCOUNT and press RETURN again. That's it!

The next time you type "MAKE PAYMENTS,MAIN" or just "MAKE PAYMENTS" the computer will stop four times, each time displaying "NAME" "DATE" "AMOUNT" or "ACCOUNT" but ending each with a question mark, and waiting for you to type the record information, as you would write it on paper.

You would then do the same for receipts:

- 1) MAKE RECEIPTS,MAIN
- 2) AMOUNT,ACCOUNT

Of course the computer displays a lot more information to help you than this suggests, but this is the entire procedure for organizing accounts in a simple way.

What can you then do with the information? List or print it by name, dates, or account with appropriate totals in each case. Mix it with receipts records, also by name, dates, or account, subtracting payments from receipts, running total and grand totals (see chapter 6).

SPREAD SHEET METHOD

In the "old days" (before computers) it was a big problem to add up "certain" accounts. In our example of the four column pad, all accounts were listed in one column, under just one heading, making it difficult to add up just certain figures. Some business people used giant pads with lots of columns, called "spread sheets", some of which had 40 columns or more. They would then write every account name across the top as a heading for each column. Then they entered the name and date on the left, and the amount in the appropriate column.

This was quite inefficient because each line would have 30 or more blank spaces under the other accounts. At the end of the week, month and/or year they would add up each column and then add certain columns sideways to get "sub-total" columns and "running total" columns. Believe it or not, before the computer this was the "state-of-the-art" for record keeping!

Though the spread sheet method was inefficient and involved numerous tedious steps, everyone did it and therefore understood the method and terminology (rows and columns). For this reason the first popular business programs for computers were spread sheet programs. Some of these were programming marvels. All were tedious, difficult to learn, and the better ones required learning a "spread sheet" programming language. Compared to more business-oriented programs like MICROMOD, most spread sheet programs are far removed from practical business application.

This is another way MICROMOD can be used, though it is the least efficient, slowest, involves the most work and entries, and requires the user to keep a lot in his/her head. You can have as many headings (columns) as you can type in three lines, or up to 34 headings total. And if you open a new account, e.g. MAKE PAYMENTS2,MAIN you can enter another three lines of headings, and so on. All headings and all accounts can be listed together as if they were one. You can list and total up to 60 headings (columns) at one time, though your printer wouldn't be able to print that many.

Though the size of individual records is limited to about 15 items or so (133 characters), this is no problem because you will have only one, or a few, entries per "line." For long or "wordy" records the directory program allows up to 256 characters in a record, and any number of records may be listed as if they were one record.

ORGANIZED ACCOUNTS

Now that the old days are gone, there is no reason to be locked into the tedium of a "spread sheet" method. The first method presented here will do as much as the second, and infinitely easier. You could even enter another heading, e.g. AMOUNT,ACCOUNT,GEN.ACCOUNT and type five things into each record: NAME,DATE,AMOUNT,ACCOUNT, and GEN.ACCOUNT.

For instance, you could enter "telephone" "electricity" "gas" as accounts, and "utilities" each time as the "General Account." You could then list specific accounts or grouped accounts, depending on what you enter for the GEN.ACCOUNT in records.

While the first method is much better than the "spread sheet" method, it still requires much unnecessary typing of account names, both when entering records and in listing them later. It also falls short if you have lots of different groupings of accounts on different levels.

For example, "telephone records" might be under "utilities" and "utilities" under "tax deductible expenses" along with some other types of tax deductible payments. The "tax deductible expenses" might be just one type of payment, while "non-tax deductible expenses" are another.

It would be pretty difficult to group all these accounts on different levels with our first method. You would need four or five headings just to name the account groupings, and enter them in each record, keeping it straight in your head. And it's nearly impossible with the "spread sheet" method, though some programs actually try to do this. Imagine the nightmare of rows and columns and different "books, pages, sub-totals level 2, files," etc.!

On the other hand, with MICROMOD organizing different account groupings is so easy we suggest you do it even if you don't need to! Why type several entries to list your utilities, living expenses, or office supplies on schedule C when you don't have to?

The organization of accounts is just a simple extension of the first entry suggested in our first method (MAKE PAYMENTS,MAIN). Instead of that, you give the general account (PAYMENTS) a longer name, like UTILITIES,PAYMENTS or TELEPHONE,UTILITIES,TAXABLE,PAYMENTS. The longer the name, the more groupings you can list by naming JUST ONE ACCOUNT, e.g. LIST TAXABLE would list everything with the word TAXABLE in its (longer) name. The last word (MAIN) is always the same until you become more familiar with the program. You can have up to five word names, including the last word.

Entering records is also much easier. Since the account names are all in the first command, you need only one heading, AMOUNT, in the second command. When you want to enter a record, just type MAKE TELEPHONE (or any account title anywhere in the longer name), and you will have to enter only the name, date, and amount. What could be simpler?

Of course you don't lose any listing power with this simplicity--you gain! You can still name any account, account sub-division (any word in the longer name), or combinations of same, any combination of headings, and still specify names or any individual item in records.

All these listing specifications are saved so you only have to choose them once. After that you need only enter one word and the dates to print the same exact combination and format over and over, by the item or by

totals between dates for statements.

OTHER TYPES OF RECORDS

So far only payments and receipts records have been discussed. There are lots of other kinds of records: schedules, sales returns, depreciation, travel reports, test results, etc., and directory (undated) records like addresses, phones, etc.

You do not have to stick with one method as outlined here. You can choose simple two word account names or longer names, more or less headings, etc., to fit the type of records you have. The way you set up accounts will effect the way the information is displayed in listings, though all methods will give you the information you need. You may simply prefer them to look one way over another. The examples provided in the Appendices illustrate these differences.

All of the different types of records can be analyzed individually or mixed together any way you like. Don't worry about things like "numeric" or "character" or "integer" data, etc. If it's a number, MICROMOD will add or subtract it. If not, it won't!

An example of procedure -- simple account organization

Here is a suggested procedure for home users which utilizes the account organizing power of MICROMOD as outlined in the last method presented in the chapter:

Display the Menu. Type: MAKE TEL,PAYMENTS,MAIN and press RETURN. Answer Y to the AREA question. When asked for headings, type: AMOUNT,REF and press RETURN. Return to the menu.

Using your checkbook or other list of payments, list up to 40 classifications to describe all the different types of tax-deductible payments you make. One of these will be "TEL" for telephone payments, which you have already set up. The home budget example in Appendix 4 may be of help.

Enter all classifications, one at a time, from the menu. If the next classification were "Landscaping", you would abbreviate to "LANDSC" and enter: MAKE LANDSC,PAYMENTS and press return. Return to the menu and enter the third classification, e.g. MAKE ELECT,PAYMENTS and press RETURN.

When you're through entering all the classifications, start entering your records (from your check stubs). If you have a check stub for a telephone bill, enter MAKE TEL and press return. Answer the questions (headings) as they are displayed.

Next, type MAKE CASH,RECEIPTS,MAIN (at the menu) and press RETURN. Enter AMOUNT,REF and press RETURN to the HEADINGS question. You can then enter your cash receipts records by typing MAKE CASH at the menu and pressing RETURN. Again the headings will be listed. Type

MAKE CHECKS, RECEIPTS and press RETURN. You may then enter any check receipts by typing MAKE CHECKS.

These are the only accounts you need at first. Your other accounts will be only two word accounts with MAIN always as the last word. You will have to enter appropriate headings each time. Examples are "MAKE SCHEDULE,MAIN" "MAKE RETURNS,MAIN" "MAKE DEPRECIATION,MAIN", etc.

You should still try a casual reading of the instructions for the DATED RECORDS program. After you've used the program for a while it will become clearer and you'll discover new opportunities to use the record organizing power of the program. One user keeps files for books he intends to write. A teacher keeps records of test scores. Another user keeps cross-referenced Bible references. It is also suitable for inventories of all types, and of course there is a separate inventory program provided.

IMPORTANT POINTS AND RULES FOR EXPERIMENTORS (*)

Home use usually involves only receipt and payment records.

4 headings in a simple payment record: name, date, amount, account.

Computer adds NAME,DATE,COMMENT--do not enter these headings.

* Enter up to 31 headings.

* Room for only 15 or so items in individual spreadsheet records.

Organized accounts easiest and most efficient.

* Last title in a "full" account name is always the same.

* Up to five words in an account name.

CHAPTER 4 -- INTRODUCTION TO THE DATED RECORDS PROGRAM

TERMINOLOGY USED IN THE DATED RECORDS PROGRAM

We've used English words rather than computer terminology except when interfacing with Atari programming (e.g. "filespec"). This results in some confusion when the same words are used in explanations. The word "TITLE" is used to refer to the names of any of the following: AREA, ACCOUNT, GENERAL ACCOUNT, SUBDIV., HEADING, NAME, CATEGORY, "LISTING NAME", "LISTING FORMAT", "FULL ACCOUNT NAME". All of these things are named with "TITLES".

AREA

The word "AREA" stands alone and is always referred to as AREA. The AREA name is used to refer to a certain records disk, or separate application (there may be up to three applications on one program disk).

ACCOUNT

The word "ACCOUNT" can stand for "GENERAL ACCOUNT" or "SUBDIV" or "SUBDIV ACCOUNT" or any combination of these. At one point in the program the computer asks you to enter an "ACCOUNT OR SUBDIV?" This is confusing since a SUBDIV is an ACCOUNT. It is meant to remind you of this.

HEADINGS, NAMES, CATEGORIES

The word ACCOUNTS follows the general definition of "anything that holds records." HEADINGS represent the type of data that will go into each record. Each account has HEADINGS, though they are entered (by you) for the GENERAL ACCOUNT only (see below). A "NAME" or "ABBREVIATED NAME" or "CATEGORY" is nothing but a HEADING. It describes one data item that will go into records. It is like a "date" or an "amount".

ACCOUNTS (including SUBDIVs) are like the titles you would have at the top of journals, ledgers, or any other type of "spread sheet listing". HEADINGS represent the titles you would put at the top of each column in the spread sheet. In a spread sheet book you could have different headings on every page even if every page referred to the same general account, such as payroll. Each page might be a subdivision of "payroll" such as "retirement fund" and have its own headings which apply to that subdivision (of payroll) only. In the MICROMOD program every subdivision of a GENERAL ACCOUNT has the SAME headings. If you want different headings you must open a new GENERAL ACCOUNT (like starting a new spread sheet pad). Thus the program asks for HEADINGS only when you name a new GENERAL ACCOUNT, but these same headings are assigned to every SUBDIV ACCOUNT of that GENERAL ACCOUNT.

FULL ACCOUNT NAME

A "FULL ACCOUNT NAME" is just a statement of how you want to organize a particular group of accounts, stating the AREA, GENERAL ACCOUNT, and

SUBDIV ACCOUNTS, but in reverse order in the MAKE command. Notice that AREA is part of a "FULL ACCOUNT NAME" even though it is not an account, but used to name records disks. It is included because each GENERAL ACCOUNT is devoted to one AREA only and the computer must know which one.

LISTING NAME

A "listing name" or "LISTING FORMAT" title has little to do with accounts or other titles mentioned in the chapter on account set-ups (Chapter 5). It is used to name the format of spread sheet listings and statements. It would be as if you could label any (filled in) page in your spread sheet pad, statement pad, or box in your calendar, and then magically create the same headings, accounts, addresses, titles, arithmetic, etc. on any other page just by writing the label at the top, names and/or dates in the first two columns, and then watching the entire sheet automatically fill in with the appropriate new data and totals. At first you will be mostly naming individual accounts in the first four LIST commands. Later you'll be mostly using "listing names" in the last LIST command.

SETTING UP ACCOUNTS - "THEORY"

If you should find this section difficult to understand it is suggested you read the "Instructions for Home Users" in Chapter 3. It will serve as an introduction to the procedure, terminology, and accounting concepts presented here.

This chapter presents all the various uses of the MAKE command (but not the complete procedure) to set up accounts and enter records. It is devoted to the "rules" and capabilities concerning the organization of accounts. In other words, it is the "theory" part of the DATED RECORDS program.

For those who need additional "practical examples", several examples of account set-ups will be presented in appendices 1 through 9 and 12. Inexperienced operators will find it easier to pattern their account set-ups according to one or two of the examples. More experienced operators, consultants, students, and users planning to use MICROMOD for accounting services will want to fully understand this chapter. A full understanding will enable you to design different accounting systems and methods to fit a wide variety of applications.

DATED RECORDS PROGRAM VS. OTHER TYPES OF PROGRAMS

Since many users will be familiar with other types of databases it will be helpful to relate concepts of the DATED RECORDS program to these designs.

FILE MANAGER PROGRAMS

Chapter 3 on "home use" illustrates some of the advantages and differences of the MICROMOD design over standard file managers.

Popular "file manager" programs allow you to set up a large "file" into which you put records containing a number of "defined" fields. Though a MICROMOD "general account" is not a file, it is analogous to the "file" set up in a file manager program. MICROMOD "subdivision accounts" would be loosely analogous to "sections" of that file, assuming sectioning were provided. MICROMOD "headings" are directly analogous to "fields" in a file manager, though they do not need to be "defined".

The main difference between the DATED RECORDS program and the file manager is that instead of having one long disk file for each "general account", all accounts are stored together in the same files, and the files are distinguished from one another by the dates of the records they contain, not by type of account. So a "file manager" usually organizes by account or account type, and the DATED RECORDS program organizes and names files by dates.

The advantage of the file manager is that it is better suited to handle records not organized by date. The main advantage of MICROMOD's DATED RECORDS program is that all dated information (which includes all accounting records) can be easily mixed together in a variety of ways. Most business records are dated. Furthermore, when mixing a variety of records in a listing you will always want all the records to correspond to the same beginning and ending dates. These two facts greatly reduce the range of possibilities and allow the DATED RECORDS program to concentrate on the other possibilities for grouping records. The DATED RECORDS design is therefore much more suitable for business and accounting purposes. Since MICROMOD includes several fully integrated programs, undated information can easily be handled by the other programs. Thus no file manager offers an advantage over the whole MICROMOD system.

GENERAL LEDGER AND SPREAD SHEET PROGRAMS

Since general ledger information is dated, the DATED RECORDS program is a complete general ledger program, among other things. General ledger programs are usually a type of spread sheet program and organized in spread sheets, though spread sheet names and column headings may be provided.

There is one major difference in the DATED RECORDS program. Spread sheets typically have no well-defined account organization. The headings at the top of your spread sheet will usually be names of accounts, such as "advertising" and "telephone". If you have more than just a dollar amount to keep track of under a certain account, say a "lot number" or payment reference, then you must have another column and heading for that information. Thus the accounts and "record headings" are mixed up and not easily separated.

The DATED RECORDS program breaks each of your accounts into a number of elements, represented by "headings". There are no preset titles and headings such as you might find in a General Ledger program, since

everyone has different requirements. You are required to title all your accounts, and to title any headings you require for each account. (Any good library should have books with lists and explanations of accounts from which you can select accounts to fit your business. It is easy to enter these into MICROMOD if you desire "pre-set" accounts, or to follow a textbook example). Of course most accounts need only one heading: AMOUNT or AMT, as in most columns of a General Ledger. Furthermore, the General Ledger is not "set-up" by you when you set up these individual accounts and headings. Nor is it there when you enter records. Records are entered by naming the account under which you want to place the dollar amount or other information.

The General Ledger is only created when you list or print the information, naming the accounts and headings you wish to have as your column titles. You may specify just the account name, which means all headings under that account will automatically be listed, or you may specify individual headings from various accounts (up to 60 in one listing).

After you have displayed or printed the listing you can assign a name to that particular combination of headings and accounts. From then on it becomes a "format". If you named enough headings to make the listing a General Ledger, then a general ledger is created when you name the listing. This gives you much more flexibility and efficiency (with your printer) for setting up your General Ledger, as all elements of the General Ledger are up to you, including the tab settings of all the columns to be printed. Since you can format a variety of "General Ledgers", efficiency is further increased since you can get just the information you need in a certain listing, considering that there are a limited number of printer columns available.

A good General Ledger program will allow you to display a statement of the totals at the bottom of columns, such as income statements. The DATED RECORDS program allows the exact same thing, but your increased flexibility with regard to naming individual accounts is carried over into the statement function. There is no pre-set statement format. Instead each statement contains only the accounts you specify for that particular listing. Of course Statements can also be named. After that they may be called with the name as if they were pre-set.

It will be more helpful to you if you think not in terms of the whole General Ledger or spread sheet, but in terms of the individual accounts, even if they only hold records containing a single dollar entry. You can keep in mind how you would like the eventual General Ledgers to look as you are naming your accounts and headings.

ORGANIZATION OF ACCOUNTS

So far so good, but here is where it gets a little more complicated, and offers a great deal more power and efficiency, especially for storing large numbers of records on one disk.

You don't have just one general ledger spread sheet in your business, or even in your home. You have a whole pad of spread sheets, and numerous other journals, notebooks, and other notes for various information, most of which is dated. Try to imagine putting all this in one place into one gigantic General Ledger or Spread Sheet. It would be very convenient wouldn't it? As long as you didn't have to hire a camel to get you from the left column to the right! The DATED RECORDS program allows you to do this very conveniently and easily. All the accounts and headings from all of these sources can be mixed just as easily including addition and subtractions between any numeric headings from anywhere. This is the less important of the two extra capabilities offered by the "organization of accounts" feature. More on the other capability later.

To set up your gigantic spread sheet or General Ledger, just name all your accounts and headings. When you get down to listing or printing them later, you can mix and list them any way you like simply by specifying them in the same listing.

Subdivision Accounts

Now about the more important capability. Do you really want to specify all those accounts and headings in your gigantic spread sheet? And if you did, would your printer be able to print all the columns? Of course the answer is no!

Consider the imaginary list of names of all your individual accounts in all your spread sheets, General Ledger, journals, etc. Most accounts are related to certain other accounts. If you give it some thought, you'll find that your accounts are organized already into a "hierarchy", with some accounts being just subdivisions of other accounts.

Take advertising, for instance. In your General Ledger you probably have a column for advertising, especially since this is one of the named items on a schedule C (general business tax form, similar to an income statement--see Appendix 9). But your "general account" called advertising actually stands for a group of lower accounts in the "hierarchy", namely newspaper advertising, radio advertising, etc. If advertising is a major part of your business activity, then you may have each of these listed separately in your General Ledger.

Let's go back to the gigantic spread sheet. Suppose you had every one of the "component" accounts listed as titles of columns. Now imagine yourself sectioning all related accounts with brackets or whatever, and then above each group writing a general name. Over the "news advertising" and "radio advertising" columns you would write the general title "advertising". Now among your more general titles you have a manageable number of different words.

The general titles are called "general accounts" in the DATED RECORDS program. The "component" accounts are called "subdivision accounts" in the DATED RECORDS program. Each "subdivision account" can have it's own "subdivision accounts" under it, and so on, up to three levels under the "general account". Thus the general title "MILGO" might represent

"taxable" which might represent "advertising" which might represent "news advertising".

Is this too confusing to be worth while? Not if you have an active business with a fully developed bookkeeping system. The organization is already there, you just need to identify it and give it names!

Advantages of Subdivision Accounts

You cannot list all your accounts horizontally in a printout because you do not have enough printer columns to do so. Nor would you typically want to spend the time to name every account when listing records. The DATED RECORDS program can handle up to 500 individually named accounts (actually this is a conservative estimate. If your titles averaged four characters you'd have room for about 750!). By naming any account in a listing entry, all subdivision accounts will be listed automatically. The accounts and headings you name in the entries will be listed horizontally as column titles. The subdivision accounts under the accounts you enter (which may be just higher subdivision accounts) will be listed vertically, that is, they will be named in the first left hand column. The data will be listed under the appropriate heading corresponding to the heading of the account you entered. Of course this means that all subdivision account must have the same exact headings as the general account. This is accomplished automatically in the DATED RECORDS program.

Another advantage of subdivision accounts is that they save much room in files and on the disks. This is one way MICROMOD gets up to 10,000 single records on a single sided, double density disk. Each record contains only one to four characters to name all the accounts the record is related to, instead of having to have the individual accounts named which could take 20 or so characters in each record.

General Account vs. Subdivision Account

As stated, the accounts and headings you specify in listing entries will each have separate columns in the listing. Subdivision accounts under these will be listed vertically in one column.

IF YOU WANT TO LIST TITLES OF ACCOUNTS VERTICALLY IN A LISTING, THEY MUST BE SUBDIVISION ACCOUNTS. For this reason, we suggest you make ALL accounts into subdivision accounts if you have any doubt about how to set them up. This sometimes requires setting up a "dummy" General account like "PYR" so you can have a subdivision under it like "PAYROLL".

Monthly statements normally list account titles such as PAYMENT or CREDIT or RETURN vertically (see Exhibit 13). In the DATED RECORDS program then, these account titles must be subdivision accounts. You may have to construct this artificially in some cases, naming a general account such as CRD with a subdivision account called CREDIT. More detailed examples of listings options will be presented later. It is mentioned here so that you will realize that having subdivision accounts offers greater flexibility and opportunities.

NAMES vs. Accounts

Some other types of information are ordinarily listed vertically in one column, but you may want to list it horizontally to label and total certain groups of data. An example of this is in regards to NAMES of records.

NAMES are normally listed vertically in one column, one NAME to a record. You might receive interest checks from several banks, for instance, and have an account to hold the receipt records. In each record you would enter the NAME of the bank that sent the check. When later listing the account, the records would be displayed, one line for each record, with the NAME, date, amount, etc. each in its own column.

But suppose you want the bank NAMES listed horizontally, each at the top of its own column, and total figure for each NAME (bank), to be added and displayed at the bottom? There is no way to accomplish this with listing entries, mainly because the listing functions contain many automatic features for convenience. But as stated previously, any account or heading that you name in a listing entry will be displayed horizontally with its own column.

Since you can name up to 500 accounts total, and since you will have only several NAMES in this instance, you can set the bank names up as "subdivision accounts" rather than NAMES. This may sound confusing but it is simple in practice. You would title a general account something like BANKS, and then one subdivision account for each bank, titled after the bank name. When entering records and encountering the NAME? prompt, simply enter some other repeating entry, name associated with the record, or a dummy entry such as "XX". You will then be able to list and total each bank in its own column. This situation is covered in detail in Appendix 5. For now, it is important that you realize that the time spent in "organizing" accounts will pay off in more listing flexibility than you might expect from your experience with standard file manager or General Ledger programs.

IMPORTANT POINTS AND RULES FOR EXPERIMENTORS (*)

General Ledger is not set-up in accounts, but created in listings.

Up to 60 named accounts in one listing; each may represent multiple subdivision accounts.

When you name a listing it becomes a "listing format".

Statements can also be named into "listing formats".

To list titles vertically in listings they must be subdivision accounts.

CHAPTER 5 -- SETTING UP ACCOUNTS AND ENTERING RECORDS

LIST ACCOUNTS ON PAPER FIRST

Before entering your first MAKE command entry, you should have all your accounts listed on paper and organized into a chart to reflect whatever account hierarchy you have "discovered" among your various accounts.

We've found that this "account worksheet" is really quite important and useful--a prerequisite to setting up accounts for all who are not experienced operators. We've experimented a bit and found that it's easiest and works best if done in a certain way. To save you much time and effort a procedure will be presented.

THE "ACCOUNT WORKSHEET" also called *THE "ACCOUNT ORGANIZATION CHART"*

We'll use a large sheet of paper for each "general account", preferably a legal size sheet. Any pad with at least three columns and 40 or more lines available will also work well.

You can use up to three groups of records disks with the DATED RECORDS program, but most applications work best with only one, at least until you've become thoroughly familiar with the program. So you should use only one records disk for now. It needs a title, so make one up. We suggest the title "MAIN" as it will correspond to examples in this manual. You can change it later if you like. This is called the "AREA name", but more on that later. For now, take your first sheet and write the word "MAIN" in the upper right hand corner.

Why start at the right hand corner? The DATED RECORDS program handles your accounts in reverse order, from right to left, so things are going to appear to be "backwards" for a while. The reasoning for this will be explained later.

Almost all accounting information can be divided into two broad categories: money going out and money coming in. You don't have to organize this way, but it fits the large majority of applications. So the next thing to do is think up appropriate titles for all accounts which reflect money going out. Likely candidates are PAYMENTS, OUTGO, DEBITS, EXPENSE, COSTS, etc. The appropriate titles will vary depending on your business, profession, service, vocation, hobby, or whatever operations for which you are keeping records.

Will any of these titles reflect records that may share the exact same types of data, meaning they may share the same headings? OUTGO would be very general and might include things like payroll and advertising; two different types of records. But PAYMENTS or EXPENSE might represent many records that contain only an entry for the amount, and maybe a check reference. Therefore PAYMENTS is likely to contain subdivisions, so we'll use it as an example. You should substitute your titles for the titles we

use in examples, as they are likely to be more appropriate for you.

Write the word "PAYMENTS" in the top left of your sheet. PAYMENTS is a "general account". Draw a horizontal line just under the two words at the top of your sheet, PAYMENTS and MAIN.

Next think up headings for the various kinds of data or entries that will go into every payment record. The computer will automatically supply the headings NAME, DATE, and COMMENT--there are no exceptions. So you already know three of the headings. Obviously another heading must be AMOUNT or AMT, because every payment has a dollar amount associated with it. Other headings might stand for check reference, charge card, clerk that made the payment, or location such as branch office 1.

Whatever you decide to enter into payments records remember that you will be asked to make the entry every time you enter a payment record; the headings you choose will apply to all payments. You are not obligated to make the entry in a particular record though, just because the computer asks for one--you can skip that data item for that record. But still you don't want to clutter up your entry procedure unnecessarily.

To keep the example simple, we'll choose one extra heading besides AMT and call it REF, for check number or any other reference that seems appropriate. So we have a total of five headings: NAME, DATE, COMMENT, AMT, and REF. NAME and DATE are always entered first in any particular record entry sequence, and COMMENT is always entered last, so let's write them down in the order that they will be entered.

Just under the horizontal line you drew under PAYMENTS and MAIN write the headings:

NAME,DATE,AMT,REF,COMMENT

Since multiple entries on one line are entered without spaces, it's best to get into the habit of leaving out spaces right away. Draw another horizontal line just under the headings. We'll be entering the subdivision accounts in three vertical columns since they will best fit on the paper that way.

Next think up titles for the most general types of payments you have. "News advertising" and "radio advertising" are both types of payments and could go directly under PAYMENTS, but you should be able to categorize more generally than that. How about "advertising" and "repairs"? That would work even better. But "advertising" and "repairs" HAVE SOMETHING IN COMMON that some other payments don't share--they are both tax-deductible.

It's not necessary to divide payments further into "tax deductible" and "non-tax deductible". But we'll do this just to illustrate the maximum levels of organization. There are many other possibilities: branch 1, 2, and 3; product line A, B, C, and D; Fred and Mable; cars and trucks, existing and proposed, algebra class 1a, 1b, and 2c, etc, or again, you do not have to fully subdivide accounts if it does not seem profitable to

YOU.

Notice in the above example that we stated "branch 1, 2, or 3 as a possibility for categorizing payments. But we also used this as an example of a heading you might use to represent data entries in individual records. This brings up a very important point. You often have a choice of organizing records either in the account structure or in headings under the accounts. It makes very little difference which you choose. Generally it's better to use the account structure as this saves time in entering records and takes less room in the files. An exception would be if you would like the heading to appear in a certain place in a printout. A common example is in an invoice or bill. It's possible, but difficult, to get an account title to appear neatly and in the proper place on a bill. It's much easier for a heading. So for billing accounts we suggest you use headings like "ITEM" or "CHARGE" rather than having these as titles of subdivision accounts.

To make things simple at this point, just categorize by naming subdivisions if you can. There will be more examples presented later to help you in specific cases (see Appendices). You can enter several records just for testing purposes and experiment with various account set-ups, erasing the "user files" and records files if you don't like the results of a particular set-up. But it's much quicker to do it the right way first, and quicker still to do it on paper first!

Getting back to our worksheet, we will use the titles TAX and NOTAX to further categorize types of payments. So now we have PAYMENTS as the "general account" and TAX and NOTAX as the most general "subdivision accounts". Continuing with our procedure of listing things in reverse, write the title "SUBDIV 1" at the top right of the sheet just under the line under the headings (see Exhibit 5 in Appendix 6). Underline SUBDIV 1, and under the underline write the word TAX. This will be the first entry in the column for the highest level of "subdivision accounts" like TAX and NOTAX.

Next think of all the accounts you can categorize under "tax deductible" payments. As mentioned before, advertising and repairs might be two. Others might be utilities (not telephone--it's a kind of utility), or office supplies. A good way to compile the list is to look at your check stubs, income statement, or tax return. Be careful with accounts like payroll, entertainment, etc. You may want separate headings for these such as STATE, FICA, HOTEL, CLIENT, etc., so you would want them to be "general accounts" with their own headings. They can still be included in print-outs any way you like, it just represents an extra entry when specifying accounts to list, and a little extra room taken up in disk files.

Once you have your list of accounts for the next level under TAX, write the title SUBDIV 2 in the middle of the sheet just under the line you drew under the headings, and to the left of the title SUBDIV 1. Underline SUBDIV 2 and list your new level of "subdivision accounts" vertically under SUBDIV 2 starting with ADVER, REPAIRS, UTILITIES, etc.

By this time you atarimuseum.nl what the account titles

will be in the left-hand column. They are the most specific categories of accounts, each related to an account in the middle column.

If you had only two levels of subdivisions, there would be no left hand column and you would be finished upon entering the middle column. If there was only one subdivision level there would be no middle column, only the right hand column.

Write the title SUBDIV 3 on the left hand side of the paper just under the line you drew under the headings, and to the left of the title SUBDIV 2. Underline SUBDIV 3, and under that list the accounts related to and subordinate to ADVER, such as NEWS,RADIO,FLYERS, etc, and then write the titles of accounts under REPAIRS, such as TRUCKS, OFFICE, PROJECT.2, etc. The first title (TRUCKS in our example) should line up horizontally with REPAIRS in column two. You'll probably find yourself erasing the titles under SUBDIV 2 and listing them again to leave more room (we did!).

If certain accounts under SUBDIV 2 cannot be categorized more specifically into component accounts just leave the SUBDIV 3 column blank next to that account. You are not required to keep the same levels of subdivisions under each account.

This completes the "organization chart" for the "general account" payments. You might start another sheet for the general account "trips" or "schedule" or "receipts" and fill these out the same way. You'll have several "general accounts" that will have no subdivisions either because they require unique headings, or because they cannot be further subdivided into component accounts.

Before entering any accounts into the computer, check your worksheets to make sure there are no duplicate account titles. Every account and subdivision account title must be unique. If you don't check this first on paper, chances are you'll miss it when entering the titles into the computer--we did! The result can be that you have to re-enter them all. You CAN have duplicate headings, but not within the same account.

It's better if you don't organize all your accounts now. You can start out with just the PAYMENT worksheet and read the rest of the instructions. When you know the rules and procedure, go ahead and enter the PAYMENTS accounts into the computer. Then enter records and, following the instructions for LIST commands, list out some of the records. You'll gain much experience as you go along. The rest of the work sheets will be much easier and faster to fill out.

By the way, after you enter any accounts into the computer, you can display or print-out an organization chart exactly like your worksheet (and the Exhibits in the Appendices) simply by pressing the 0 key at the Main Menu (press the space bar after pressing 0 to print the chart on the printer). You should do this to verify that you have entered the accounts correctly. If not, and if simply re-spelling the titles won't do (see Chapter 7), a procedure will be presented later to easily erase all the accounts and records so that you can start over without having to copy a new set of "operational disks" (Chapter 24).

If you feel comfortable with the terminology at this point, and have at least one work sheet with some subdivisions on it, you are ready for the entry instructions. Otherwise it is suggested that you do not continue beyond this point, but go back and re-read the introductory material. If you are already thinking about starting an accounting service...well...read on!

RULES AND PROCEDURE FOR THE MAKE COMMAND

THE "FULL ACCOUNT NAME"

Since the "hierarchy" of your account organization can contain up to three levels of subdivision accounts under a "general account" the hierarchy may contain up to four levels of accounts. Also since you may have different named groups of disks (though for now please use just one disk!) there is really a fifth "level" of organization since all your accounts could be repeated for a different business using different records disks.

So depending on how many levels of subdivisions you have, each lowest subdivision account may be directly associated with up to three other accounts and one title to name the disk, a total of four related titles.

The computer must be informed of this relationship for every account. This does not mean you have to enter five titles every time (if the "general account" has 3 subdivisions). Once you state the relationship between any two accounts you never have to state it again. The second account under SUBDIV 3, for example, needs only be related to the account in SUBDIV 2. More on this later.

The important thing to remember is that, whether you enter each title into the computer or not, every account in the hierarchy has a relationship to 1, 2, or 3 other accounts (and an additional title to name the disk) as you go up the hierarchy, and this can be stated simply by listing the associated titles. The relationship when written down or typed into the computer is called the "full account name".

From our example, the "full account name" of the account NEWS is NEWS,ADVER,TAX,PAYMENT,MAIN. The "full account name" for the account RADIO is RADIO,ADVER,TAX,PAYMENT,MAIN, though if you had already entered the "full account name" for NEWS you would only need to enter RADIO,ADVER for the RADIO account since you would already have told the computer about the relationship of the ADVER,TAX,PAYMENT,MAIN titles.

If you had no subdivision accounts under a general account, such as SCHEDULE, then there would only be two titles in the "full account name": the title of the general account and the title of the records disk (MAIN).

YOU MUST NAME EACH NEW ACCOUNT BY A "FULL ACCOUNT NAME" OF FROM 2 TO 5 TITLES. Examples of full account names:

- 1) SCHEDULE,MAIN
- 2) NEWS,ADVER,TAX,PAYMENTS,MAIN

To set up an account, or to enter your first record in a new account, enter the full account name in the "MAKE" selection on the menu, separating individual titles in the "full account name" with commas. Here are two examples of "full account name" entries:

```
?MAKE SCHEDULE,MAIN
?MAKE NEWS,ADVER,TAX,PAYMENTS,MAIN
```

You would press RETURN after making these entries. Now that you have taught the computer a "full account name", you never have to enter it again. By specifying any title in the "full account name", the computer will know the rest of the titles.

If you want to set up a different subdivision (one or more titles in the "full account name" being different), just enter the new title(s) followed by a title the computer knows. For example, if the computer knows the "full account name":

```
NEWS,ADVER,TAX,PAYMENTS,MAIN
```

and you want to teach it the "full account name":

```
RADIO,ADVER,TAX,PAYMENT,MAIN
```

then you would enter:

```
?MAKE RADIO,ADVER
```

It will know that TAX,PAYMENT,MAIN will always follow ADVER (thus YOU CANNOT HAVE DUPLICATE TITLES in account names). You could enter more of the "full account name" if you wanted, for examples:

```
?MAKE RADIO,ADVER,TAX
or
?MAKE RADIO,ADVER,TAX,PAYMENTS
```

as long as the titles are in the same order, but it's easier just to enter the next title in the "hierarchy."

You are not limited to just changing the first title (or subdivision account) in "full account names". The entries:

```
?MAKE OFFICE,TAX
?MAKE STAMPS,OFFICE,TAX
?MAKE FEDERAL,PAYROLL,PAYMENTS
?MAKE NOTAX,PAYMENTS
?MAKE TELEPHONE,UTILITIES,PAYMENTS
```

all set up different "full account names" in the same general account

(PAYMENTS). If you then wanted to list records under any altered name (subdivision), ALL ACCOUNTS CONTAINING THE ENTERED ACCOUNT TITLE IN THEIR FULL ACCOUNT NAME will be listed. This is another important criteria to remember when deciding on how to set up accounts on your worksheets. If you have an idea of which records you will want to print out together on your forms, you can give them all a word in common, meaning they will all be lower subdivisions and related to the account title you will specify in the listing entry. It is the FIRST titles (lowest subdivisions) in the "full account name" that will be different, and the second, third, or fourth title that they will have in common, as in family names.

A more technical way of saying this is that if you list any title in the "hierarchy", all subdivisions under that title and related to that title will be listed. For instance, by entering ADVER in a list command, you would automatically list NEWS, RADIO, TV, MAGS, etc., as long as all these subdivisions were under ADVER in the organization of accounts chart. This is accomplished by entering:

```
?MAKE NEWS,ADVER,...  
?MAKE RADIO,ADVER  
?MAKE TV,ADVER  
?MAKE MAGS,ADVER
```

as part of the "full account names" when setting up accounts. If, in a listing entry, you specified a title (from a "full account name") that was further up on the organization chart, these would be listed again, but other accounts besides ADVER would be included. For instance, by using TAX in a listing entry, the list might include OFFICE, PAYROLL, TELEPHONE, etc.

Duplicate Account Titles

Duplicate titles in the account structure are not allowed, whether a "general account" title or "subdivision account" title. If you try to insert a duplicate title into a new "full account name" the computer will note the error and ask you to re-enter.

Often you will have accounts in different parts of the account structure which are normally called by the same title. Different locations may have the very same accounts. It would be confusing to make up different abbreviations for the same title. For the title "INSURANCE" you might wind up with INS, INSUR, and INSRE for instance, making it necessary to remember the correct abbreviation for a particular account.

The solution is to add an "extender" to the title, such as:

INS.A
INS.M
INS.T

to indicate the purpose of the account. The "extender" could stand for the "general account" title to which the "subdivision account" is associated, or a location, or a type such as INS.F for fire insurance.

You will most often want duplicate titles when you are keeping records for different operations such as a main business and a sideline. It's easy in this case to end duplicate titles with one of two letters to correspond to the operation involved.

AREA

As mentioned earlier, there must be at least two titles in a "full account name". This is because the last two words in the "full account name" have special significance. The very last word is called the "AREA" name. Each AREA can have its own disk for account records. Since the area name is used to name the file on disk, AREA NAMES (the last word in the account name) MUST CONTAIN 8 OR LESS CAPITAL LETTERS--NO PUNCTUATION.

You can't mix records from different AREAS, so each AREA should be a distinct business. Different areas do share the same directory information and abbreviated NAMES.

You cannot have more than 3 "areas" on one program disk. 1 or 2 "areas" are most common. These could be a husband and wife's names, who share the same "address book" but wish to have separate financial records, or who have different businesses. Or more commonly, you might have a main business and a sideline. The two areas might be BUSINESS and LODGE.

If the DIRECTORY and ACCOUNT information are completely separate, you might be better off to use two separate program disks.

To make the reasoning for having different areas more apparent, suppose

you are in the situation of having several items of mail to sort through and enter. If you have the AREAS on one program disk you can enter unrelated items quickly into the different AREAS without switching disks and loading another program.

WE STRONGLY SUGGEST THAT YOU USE ONLY ONE AREA DURING THE FIRST SIX MONTHS. There is plenty of room and organizational power in one AREA to handle any business, and even multiple operations. It takes much experience with the program before having multiple AREAS will be of practical benefit.

The "area" files on the Program Disk

Each new AREA will take up a few extra sectors on the program disk to hold the account titles and headings, though typically less than ten single density sectors.

The "area" files are part of the "user files" which are stored on the Program Disk, and which change as you use the program. There is one file named AREA which holds the AREA titles (up to three). Thus this file will take up only one sector (or two SpartaDOS sectors).

For each "area" title in the AREA file, there are two additional files on the Program Disk. One will be named after the "area" directly, i.e. the file for the "area" MAIN will be named MAIN. This file holds all the account titles for that "area".

Another file will be also named after the "area" title, but will have the extender ".H", i.e. this file for the "area" MAIN will be named MAIN.H. It holds all the various headings associated with the account titles in the first file.

The two files for titles and headings will average approximately one sector used up on the disk for each 15 to 20 titles or headings in the file.

Again, the last title in a "full account name" is called the AREA, and each AREA gets its own set of disk(s) for account records.

GENERAL ACCOUNT

The next to the last title in a "full account name" is called the "general account" title. Other titles in the "full account name" are called "subdivision account" titles. In the example of a "full account name":

NEWS, ADVER, TAX, PAYMENTS, MAIN

PAYMENT is the "general account" title, MAIN is the "area" title, and the rest are "subdivision account" titles. NEWS is SUBDIV. 3, ADVER is SUBDIV. 2, and TAX is SUBDIV. 1 of the "general account" PAYMENTS, from the "area" MAIN.

In the other example of a "full account name":

SCHEDULE,MAIN

SCHEDULE is the "general account" title, MAIN is the "area", and there are no "subdivision accounts" under SCHEDULE (but some could be added later, e.g. ?MAKE TOM,SCHEDULE).

In the original MICROMOD design the reason for the reverse ordering of account titles was to make the "full account name" as close to an English sentence as possible, for easier understanding. You could say, "MAKE records of NEWS ADVERTISING which is a TAXABLE PAYMENT in my MAIN business." Also, this ordering makes "full account names" roughly analogous to family names wherein the last name is the same while the first names vary. After much use of the program it appears that those familiar with organizational structures and charts would prefer a standard ordering. We've kept the original ordering since re-ordering does not appear worth the trouble, with apologies to the "organizational" user.

Whenever you enter titles in the "MAKE account" menu selection that the computer has not seen before, it will list the words and display:

ENTERING NEW TITLES
ARE YOU SURE(Y) OR CANCEL(RET)?

This is in case you just spelled a title wrong, or in case you might want to change your mind. It prevents you from setting up accounts by mistake. Type Y and then press the RETURN key if you want to enter the new title(s). Press RETURN without making an entry if you want to return to the Menu.

HEADINGS

The next to the last word in a "full account name", which is the "general account name", has special significance: You have the opportunity to enter unique headings whenever specifying a new "general account". The "subdivision accounts" under a "general account" are automatically assigned the same headings as the "general account". This is so because you will want to enter certain account titles in listing entries to cause all lower "subdivision accounts" to be included in the display automatically without having to enter each subdivision title. The headings for all of the listed accounts must be the same in order to have the data "line up" into neat columns with totals of numeric columns, etc.

Continuing with the example, if you entered:

?MAKE GOLD,RECEIPTS,MAIN
or just:
?MAKE RECEIPTS,MAIN

the computer would stop and ask for your headings for the "general account" RECEIPTS. It would also have asked for headings when you entered the first "full account name" for the PAYMENTS account (the first example).

So again, when you "MAKE" a new "general account" the computer will stop and ask you to enter the headings you will want to associate with it and give you some information about headings.

ALL ACCOUNTS ARE AUTOMATICALLY ASSIGNED THE THREE HEADINGS: NAME,DATE,COMMENT. You DO NOT enter these.

Headings tell the computer what data items you will be entering into each individual record in the "general account" and records for all subdivision accounts under the general account. Typical headings for payments accounts are:

NAME, DATE, AMOUNT, REF, COMMENT

You would enter only:

?AMOUNT,REF

to the HEADINGS question. NAME,DATE,COMMENT are added automatically. You can enter up to 31 headings, or as many headings as you can type in three lines.

WHILE YOU CANNOT HAVE DUPLICATE ACCOUNT TITLES, DUPLICATE HEADINGS ARE ALLOWED, BUT NOT WITHIN THE SAME GENERAL ACCOUNT. Exceptions: you can have one additional heading titled NAME and one additional heading titled DATE under the same account.

HEADINGS MUST BE AT LEAST TWO CHARACTERS LONG AND CANNOT HAVE SPACES. HEADING NAMES CANNOT END WITH A + OR - CHARACTER WHEN FIRST SPECIFYING HEADINGS FOR A NEW GENERAL ACCOUNT.

It is suggested that you use duplicate heading titles for similar functions in different accounts. If possible the same headings should appear in the same order. For instance AMT might always stand for "amount" and be the first heading you enter. Once you get used to entering records the record entry sequence will be faster and easier this way.

Titles of accounts and headings should be 11 or less characters in length, not only to save room in files and make your entries easier, but the screen displays are set up to neatly display headings no longer than 11 characters.

The < Character and Index files

The word "index" is used as a technical computer term and therefore is not part of the MICROMUD program. We'll use it here for the purposes of explaining the operation of the NAMES file. After this discussion you can promptly forget the word "index" if you like!

To understand the result of using the < character when entering headings, consider how data items will be stored on the disk. Assume for a moment there exists a "general account" with the headings:

CLIENT, TIME, DESTINATION, AMOUNT

among its associated headings. A section in a record for this account in the disk file might look like this:

Acme Construction/10:00 AM/Greentree Project/475.93

note: MICROMOD uses other symbols besides the / to delineate data items in disk files--the / character is used here for illustration purposes only.

If you care to count the characters in this section of the record you would find that it takes up 51 characters. The rest of the record might take 9 extra characters for a total of 60 characters. Thus you could fit about 2300 of these records on a 1050 disk (140,000 divided by 60).

But suppose you stored these data items in a different way. You might make up a list of all your clients and all possible destinations if you meet many of the same clients at repeating destinations. Part of the list might look like this:

Acme Construction
Baker Electric
Charleston Plumbing
Greentree Project
Wayside Estates
Highland Park

Assuming the list was then stored in a separate file, these REPEATING data items would not have to be stored in individual records. Instead, a two byte "index" which locates the full data item in the separate list can be stored in the record. Then when the computer is displaying the record it can use the index to get the full data entry from the list.

Using the "index" system, the above record might then look like this:

/10:00 AM//475.93

The "stars" represent two bytes used for the index. Two bytes can count up to about 65,000 so the list can be plenty long! When the computer later listed this record, it would convert the first two bytes ("**") into the words "Acme Construction" and the next "index" into "Greentree Project". Of course this is all done automatically and you'll never know it's happening. All data items will appear the same to you, regardless of whether they are "indexed" or not.

The important thing is the number of bytes used up in the disk file for the "indexed" record. The count is now 21. With the other parts of the record the total would be 30. Therefore you could store about 4,600

records on a 1050 disk, twice as much! And each record holds the exact same information. It's like having two drives instead of one. And records that are half as long take half the time to store/retrieve from the disk, effectively doubling disk speed! If you abbreviated the TIME data entry, say 10A instead of 10:00 AM you would gain another 5 bytes per record.

The key element here is that the data items must be REPEATING in order for "indexing" to work. But many headings you enter for records will represent data that will repeat over and over. CLIENT, LOCATION, BRANCH, are good examples. Others might represent days of the week, colors, style, form of payment, manufacturer, supplier, etc.

In the MICROMOD program there is one "index" file reserved for headings that represent repeating data (the NAMES file). It is 10,000 bytes long so you have room for quite a long list of repeating entries.

As mentioned before, the computer automatically assigns three headings to every account, NAME,DATE,COMMENT. The heading NAME is automatically set up to represent repeating data entries. Thus every time you answer the "NAME?" prompt when entering records you will have to enter something that is in the 10,000 byte "index" list. If the computer doesn't find it in the index list it will stop and ask you if you would like to add your entry to the list. You must either add it or use something already in the list to enter the record. You can easily defeat this requirement by having an "XX" in the list and simply entering "XX" to the "NAME?" prompt.

In almost all applications the great majority of entries in the "index" list will be abbreviations for the names of people and companies. So to simplify the operating instructions for home users we call the "index" file the NAMES file or NAMES list. Sometimes the entries in the NAMES file are called Abbreviated NAMES or CUSTOMER CODES, or whatever seems appropriate at the time. But all these refer to the exact same things entries in the "index" list. The "index" or NAMES file is stored on disk with the file name "N". It is one of the "user files" on the Master Program Disk. Of course you must not lose this file or the computer would not be able to find any repeating data items and you'd get blank spaces in displays! The "N" file is copied every time you make automatic back-up copies of the "user files" using the P MOVE/BACK-UP files on the Custom Menu. It is suggested that you use this function to back up your user files whenever you enter new items into the NAMES file.

Because the NAMES file is confusing at first, we include a separate chapter for it. For more information, see Chapter 2.

Regarding the headings that YOU specify to be associated with each new "general account", the computer does not know ahead of time whether or not any will represent data that will be repeating. Only you can judge how many NAMES, CUST CODES, Suppliers, etc. you'll have and how much room you'll have available in the NAMES list for other repeating data entries. Of course if the heading represents data that will be colors, form of payment, or days of the week the decision is easy. You will always want these to be "indexed" since there will usually be less than a dozen possibilities for different entries, meaning they will take up little room

in the NAMES file.

When there are many possibilities for different entries, maybe 50 or 100 styles, or 96 discreet time periods for instance, the decision is more difficult. One important thing to remember:

YOU CANNOT EASILY ERASE ENTRIES IN THE "NAMES" FILE

but can only replace old names with new names once you use up the 10,000 characters allowed.

In most applications, including businesses, there is ample room in the file. Typically you will have less than 1,000 NAMES. Most MICROMOD users wind up using less than 200 in the first year. Other NAMES will be categorized. Thus you would have room for 5 headings with 100 repeating entries each, and still have room left. In any case, forethought is necessary for long-term application results.

The NAMES file is admittedly a difficult concept at first. But the potential benefits in power, disk capacity, and speed cannot be neglected by the serious business user. As you set up your accounts and name headings, you should know ahead of time about what you would like to have in the NAMES file, and leave about 25% capacity free for future expansion (see File Capacity Used menu function).

Specifying headings to represent repeating entries

If a heading represents data that will be repeating entries from the NAMES list, which is often the case, begin the heading title with the < character. This is not required, but saves much room in the files. Examples of legal HEADINGS:

AMOUNT,<CLERK,QUANT,SET-UP,AM,SER# JOB,LOT,<SUPPLIER,ITEM
<ITEM,LOT2 DEPART,TRUCK,ADVER.T,PREV.BAL,PAY FED,ADJUST
<AGENT,<BANK,<PROJECT

Examples of illegal HEADINGS:

CASH DEP.,ADJUST+,<AMOUNT,WAREHOUSE #

note: <AMOUNT would be accepted by the computer but you would not want to store amounts in the NAMES file because there would be too many different data items.

Typical headings for BILLS are

JOB,ITEM,CHARGE

(names,dates do not have to be included in listings). Typical for STATEMENTS are

PREV.BAL,INVOICE#,AMOUNT

Common for deliveries are

QUANT,ADJUST,RETURNS,EXPLAN

For inventory:

COST,PRICE,STOCK,TURNOVER

For Sales:

ITEM,QUANT,SER#,CHK/CRD#,IDENT

More complex listings (STATEMENTS OF TOTALS) such as Income Statements will be combinations of other accounts/headings and will not have their own account or heading titles.

ONCE YOU SPECIFY A HEADING FOR A NEW ACCOUNT USING THE < CHARACTER, YOU NEVER ENTER THE CHARACTER AGAIN. FROM THEN ON YOU TYPE THE HEADING ONLY IN ENTRIES. THE COMPUTER WILL REMEMBER THE < INSTRUCTION FOR THE LIFE OF THE APPLICATION.

It's a good idea to include an extra heading such as REF or EXPLAN or XX for later use.

YOU CAN CHANGE HEADINGS LATER, BUT ONCE RECORDS ARE STORED UNDER THE OLD HEADINGS THEY WILL NOT BE LISTED CORRECTLY UNDER NEW HEADINGS.

Data items are stored in records with a reference to the position of the heading, not the title of the heading itself. Thus the data item "456.23" might be associated with the "third" heading, whatever that might be. If you change the title of the third heading, the data item "456.23" would be listed under the new heading, for instance, not the old heading title which might be moved to heading number four, etc.

You will therefore be changing headings only when first experimenting with the program. Later you can add new headings to the existing headings. If you have "comments" in records and then add new headings the comments will appear in the "formatted line" in listings, instead of underneath the "formatted line" as they are usually displayed (see Exhibit 7, Appendix 10). Since comments are usually lengthier than other data entries, the program is set up to display them on a separate line in printouts. Adding new headings to existing headings defeats this feature with regard to records that were entered under the old headings.

The special "TOP" heading

You may want a particular record to appear at the very top of a listing, such as a previous balance in a monthly statement of invoices. This will not happen automatically just by dating the record on the first of the month because there may be other records dated on the first. To do this you must enter the special heading "TOP" as the FIRST heading. The HEADINGS entry for a "previous balance" account might be:

?TOP,AMOUNT,REF

You may have more than one of these records in some types of listings, so a further step is required to get the record to the top of the listing: when you are later entering data into the record, and the computer prompts you with the heading "TOP?" you must enter the letter T as the data entry. Any other entry (or no entry) will prevent the record from being sorted to the top.

Finally, the record must be dated the first of the month.

To summarize, in order to get an individual record to be displayed at the very top of a listing it must satisfy three requirements:

- 1) The account must have originally included the heading TOP as the first heading.
- 2) The record entry for the heading TOP must be the letter T.
- 3) The record must be dated the first of the month.

If these three requirements are met, the record will be sorted to the beginning of the file using the ORDER/CONDENSE selection on the Utility Menu (see "ORDER/CONDENSE records" information in Chapter 23).

ENTERING DATA INTO RECORDS

After you have entered the HEADINGS the computer will ask if you would like to make your first entry or go back to the menu. This is so that you can set up accounts without making record (data) entries. Or you may want to just name accounts as you make each entry if you are already experienced enough with the program to do this.

The second time you enter a certain title in the "MAKE record" menu selection, which the computer will recognize, the computer will assume you are just entering a record. It will bypass setting up accounts/headings and just list the headings one at a time. Enter the name, date, and data items for the record you are entering as the computer prompts you with each heading, pressing RETURN after each entry. The prompts for a payment record with the headings NAME,DATE,AMT,REF,<FORM,COMMENT would look like this:

NAME?
DATE?
AMT?
REF?
<FORM?
COMMENT?

Note that entries under the heading FORM will go in the NAMES list. New NAMES will automatically be entered in the NAMES file, so use abbreviated NAMES (see "NAME file" information earlier in this Chapter). At the end of

each record entry you will be given the opportunity to accept or cancel your entries. You can also delete or change records later using the RECORDS selection in the CHANGES/DELETES section of the Utility Menu.

CHOOSING THE ACCOUNT TO HOLD THE RECORD

You can specify any account in the MAKE command when entering records, whether a "general account" or "subdivision account". If you have subdivision accounts under a general account, it is still possible to enter records under the general account title and not the subdivisions. This could be confusing when trying to remember where particular records are stored, both when listing information and when entering records. For the sake of simplicity, it is recommended that you observe the convention of always entering records into the lowest subdivision account under a general account which specifically applies to that record. For a "News Advertising" record you would enter the record in the account "NEWS", not "ADVER" or "TAX" or "PAYMENT" though this is possible and accepted by the computer.

Of course if you have a record which is more general and which does not correspond to any of the lower subdivision titles you can enter it into a high subdivision. An advertising expense that could not be broken down by media might be entered under ADVER for example. If you do this it's up to you to remember that you have records under higher subdivisions.

For inexperienced users we recommend that you always enter records into the lowest subdivision account available.

"ORGANIZATION" SELECTION -- MAIN MENU

When you select ORGANIZATION on the Main Menu the module ORGZ.MOD will be loaded and run. The module is completely automatic and requires no entries.

If you are just starting out and have not yet specified any accounts, the program will error and re-load, again displaying the Main Menu.

Assuming you have set up some accounts and headings, they will be listed or printed arranged in a horizontal organization chart, in the same format as the "account worksheet" you used when first setting up accounts.

All "areas", "general accounts", "subdivision accounts", and headings will be listed. When the list or printout is completed the program will return automatically to the Main Menu.

REQUIRED ENTRIES

When entering records you must make an entry for the first NAME? and DATE? heading prompts. After that you may press RETURN without making an entry to any heading prompt except for those headings originally defined with the < character (entries to be stored in the NAMES file).

As mentioned, at the end of each record entry sequence you have the opportunity to cancel your entries. If you do the record will not be stored. However, any new NAMES you have entered (to go into the NAMES file) will be stored in the file. This is a way to add NAMES to the file without storing any records.

FAST RECORD ENTRY

You are not limited to using the MAKE command for entering records. The "FAST RECORD ENTRY" selection on the Custom Menu will accomplish the same exact purpose, with some extra conveniences and slightly different operation.

When you select FAST RECORD ENTRY the computer will load the module FENTRY.MOD automatically. It will then stop and display:

ENTER AREA?

Enter the AREA title representing the account which will hold the records (usually "MAIN"), then press RETURN.

The computer will display:

ACCOUNT OR SUBDIV?

Enter the title of the account that will hold the record. It may be a general account or subdivision account. After you enter the title, press RETURN.

The computer will then display the headings with question marks as prompts, one at a time, and wait each time for you to make an entry. After you have responded to each prompt the computer will ask:

ARE YOU SURE(Y) OR CANCEL(RET)?

as it does when entering records using the "MAKE account" command. Enter Y and press RETURN if you wish to keep your entries. Press RETURN without typing Y if you wish to cancel the entries you just made.

Leaving the FAST RECORD ENTRY function

When you are finished entering records for any particular account, just press RETURN without making an entry to the next NAME? prompt (the first prompt in the sequence). The computer will stop and again display:

ENTER ACCOUNT OR SUBDIV?

You may now enter a new account title and proceed to enter records under the different account. This is one of the main benefits of using FAST RECORD ENTRY. You can enter records into different accounts without leaving the module. When you use "MAKE account" to enter records you must return to the menu in order to change accounts.

If you press RETURN to the "ENTER ACCOUNT OR SUBDIV?" question the computer will again stop and display:

ENTER AREA?

You may enter a new "area" title, and then a new account title, and proceed to enter more records under a new account in a different "area" without returning to the menu.

Storing Fast Records

If you press RETURN without making an entry to the "ENTER AREA?" question the computer will stop and ask:

STORE FAST RECORDS NOW(Y) OR WAIT(RET)?

When using FAST RECORD ENTRY records are not stored in the regular account files as you enter them. They are stored in a temporary disk file and can be stored much more quickly this way as you are entering records. The file name of the temporary file is named after the "area" name and ends with the extender ".TMP". The temporary file for the area MAIN would be named MAIN.TMP, for example.

Since the records are stored in a temporary file on disk as you are entering them they will not be lost if the computer is shut down. It's simply much faster to store them this way. But you cannot access the records you entered as long as they are in the temporary file.

RECORDS ENTERED WITH "FAST RECORD ENTRY" CANNOT BE ACCESSED OR DISPLAYED UNTIL TRANSFERRED FROM THE TEMPORARY FILE TO THE REGULAR ACCOUNT FILES.

There is a special function to make the transfer, called STORE FAST RECORDS (module FSTR.MOD) which is listed on the Custom Menu just under the FAST RECORD ENTRY selection.

Getting back to the FAST RECORD ENTRY sequence, if you press RETURN without making an entry to the "ENTER AREA?" question, the computer will display:

STORE FAST RECORDS NOW(Y) OR WAIT(RET)?

If you enter a Y and press RETURN the STORE FAST RECORDS function will automatically be run without you having to select it from the menu, and the records you entered will be stored in the regular files, allowing you

to access them.

If you press RETURN without entering a Y to the "STORE FAST RECORDS NOW(Y) OR WAIT(RET)?" question the records will not be stored in the regular files and the program will return to the menu. The records will still be on the Program Disk in the temporary file, so you cannot lose them unless the disk is damaged.

At any later time you may select STORE FAST RECORDS from the Custom Menu and make the transfer from the temporary file to the regular files, and the temporary file on the program disk will be erased as soon as the transfer is made. You can then display the records.

The reason you may delay the transfer is to save time. The storing of records in regular account files takes several seconds per record.

The temporary file will hold about 400 individual records, easily enough for one day's activity. You should make a habit of transferring the records with STORE FAST RECORDS at the end of the day, or whenever you have free computer time.

Conveniences when entering multiple records

Since NAME and DATE are assigned as the first two headings to every account, each record entry sequence will start with the two prompts:

NAME?
DATE?

Assuming you have entered a previous record, you may enter a single S to the NAME? prompt and press RETURN. The same NAME as you entered for the last record will be automatically supplied and displayed in place of the S.

If you press RETURN to the DATE? prompt without making an entry the computer will automatically supply the date from the previous record. It will be displayed automatically on the screen right after the date, where you would normally enter it.

Notice that the default condition to all questions is to press RETURN without making an entry. Thus you can "quit" entering FAST RECORDS anytime by pressing RETURN three times. There may be a delay between the "ENTER ACCOUNT OR SUBDIV?" and "ENTER AREA?" question if you entered new NAMES, as the computer stores these in the NAMES file.

Specifying Math in FAST RECORD ENTRY

You can accomplish simple math automatically while entering records in the FAST RECORD ENTRY function only. Math cannot be automatically accomplished using the MAKE command to enter records.

Actually there is no difference in procedure during entering of records. The math is specified in the heading titles. If a title specifies

ENTER ACCOUNT OR SUBDIV?

You may now enter a new account title and proceed to enter records under the different account. This is one of the main benefits of using FAST RECORD ENTRY. You can enter records into different accounts without leaving the module. When you use "MAKE account" to enter records you must return to the menu in order to change accounts.

If you press RETURN to the "ENTER ACCOUNT OR SUBDIV?" question the computer will again stop and display:

ENTER AREA?

You may enter a new "area" title, and then a new account title, and proceed to enter more records under a new account in a different "area" without returning to the menu.

Storing Fast Records

If you press RETURN without making an entry to the "ENTER AREA?" question the computer will stop and ask:

STORE FAST RECORDS NOW(Y) OR WAIT(RET)?

When using FAST RECORD ENTRY records are not stored in the regular account files as you enter them. They are stored in a temporary disk file and can be stored much more quickly this way as you are entering records. The file name of the temporary file is named after the "area" name and ends with the extender ".TMP". The temporary file for the area MAIN would be named MAIN.TMP, for example.

Since the records are stored in a temporary file on disk as you are entering them they will not be lost if the computer is shut down. It's simply much faster to store them this way. But you cannot access the records you entered as long as they are in the temporary file.

RECORDS ENTERED WITH "FAST RECORD ENTRY" CANNOT BE ACCESSED OR DISPLAYED UNTIL TRANSFERRED FROM THE TEMPORARY FILE TO THE REGULAR ACCOUNT FILES.

There is a special function to make the transfer, called STORE FAST RECORDS (module FSTR.MOD) which is listed on the Custom Menu just under the FAST RECORD ENTRY selection.

Getting back to the FAST RECORD ENTRY sequence, if you press RETURN without making an entry to the "ENTER AREA?" question, the computer will display:

STORE FAST RECORDS NOW(Y) OR WAIT(RET)?

If you enter a Y and press RETURN the STORE FAST RECORDS function will automatically be run without you having to select it from the menu, and the records you entered will be stored in the regular files, allowing you

to access them.

If you press RETURN without entering a Y to the "STORE FAST RECORDS NOW(Y) OR WAIT(RET)?" question the records will not be stored in the regular files and the program will return to the menu. The records will still be on the Program Disk in the temporary file, so you cannot lose them unless the disk is damaged.

At any later time you may select STORE FAST RECORDS from the Custom Menu and make the transfer from the temporary file to the regular files, and the temporary file on the program disk will be erased as soon as the transfer is made. You can then display the records.

The reason you may delay the transfer is to save time. The storing of records in regular account files takes several seconds per record.

The temporary file will hold about 400 individual records, easily enough for one day's activity. You should make a habit of transferring the records with STORE FAST RECORDS at the end of the day, or whenever you have free computer time.

Conveniences when entering multiple records

Since NAME and DATE are assigned as the first two headings to every account, each record entry sequence will start with the two prompts:

NAME?
DATE?

Assuming you have entered a previous record, you may enter a single S to the NAME? prompt and press RETURN. The same NAME as you entered for the last record will be automatically supplied and displayed in place of the S.

If you press RETURN to the DATE? prompt without making an entry the computer will automatically supply the date from the previous record. It will be displayed automatically on the screen right after the date, where you would normally enter it.

Notice that the default condition to all questions is to press RETURN without making an entry. Thus you can "quit" entering FAST RECORDS anytime by pressing RETURN three times. There may be a delay between the "ENTER ACCOUNT OR SUBDIV?" and "ENTER AREA?" question if you entered new NAMES, as the computer stores these in the NAMES file.

Specifying Math in FAST RECORD ENTRY

You can accomplish simple math automatically while entering records in the FAST RECORD ENTRY function only. Math cannot be automatically accomplished using the MAKE command to enter records.

Actually there is no difference in procedure during entering of records. The math is specified in the heading titles. If a title specifies

a math operation, the math will be done automatically and the result will be entered automatically for you after the appropriate prompt, as if you had typed it yourself.

Specify math when entering headings

You'll recall that heading titles may be any characters as long as there are two or more. You could have a heading titled " $\#\$&=$ " if you wanted! If the first character of a heading begins with +, -, /, or = then the function specified by that character will be performed on the number you enter to the heading in FAST RECORD ENTRY. The result will be stored in an "unseen" running total.

If the first character of a heading begins with an = or \$ character, then the result (of the running total) will be automatically displayed after that heading, as if you entered it yourself. If the character is an = then the raw total will be entered. If the character is a \$ then the result will be rounded off to the nearest hundredth (entered as a dollar amount).

There will be no math performed on the number you enter to the first heading with a math character, the number is just stored in the running total for future calculation. It doesn't matter which character it is. We use the + character in the first such heading (to start off the calculations).

There is a further refinement. If the heading title is nothing but a number beginning with a math character, the heading itself will be used as the number in the calculation. You need only press RETURN to that prompt. You are not required to use the "heading number" in particular cases, even if the heading is set up that way. If you do enter a number, instead of just pressing RETURN, the number you enter will still be used and the math indicated by the first character of the heading will be performed.

Lastly, you can continue to perform math on a number which was entered as a total.

An example will make it clearer. You can change, add, or delete headings anytime, but suppose you entered the following headings under a certain account when setting up accounts:

INV#, +QTY, ITEM, \$PRICE, =AMT, *.05, =TAX, +AMOUNT, \$TOTAL

Here is how the headings would be displayed as prompts in FAST RECORD ENTRY, and example entries you might type:

```
<NAME?DOEJ
DATE?2,30,87
INV#?10001
+QTY?3
ITEM?BOX OF DISKS
$PRICE?12.22
=AMT?36.66      (computer enters this)
```

.05? (RETURN pressed)
=TAX?1.833 (computer enters this)
+AMOUNT?36.66 (you must enter)
\$TOTAL?38.49 (computer enters this)

Since "ITEM" did not start with a math character the entry had no effect on the math. If you had entered .06 to the ".05?" prompt, the tax would have been calculated at 6% instead of 5%. Notice that there is no provision for storing a total to use later on in the sequence. The "AMOUNT" figure had to be added manually when needed for the "\$TOTAL" calculation. Further, all figures, whether entered or calculated, are stored in the record, so the amount 36.66 is stored twice. Notice that the TOTAL is rounded to a dollar amount. The two different headings AMT and AMOUNT were used because you cannot have duplicate headings under the same account (other than one extra NAME and one extra DATE).

Menu Selection: STORE FAST RECORDS

Select STORE FAST RECORDS from the Custom Menu. This module (FSTR.MOD) transfers the records you entered using the FAST RECORD ENTRY function from the temporary file to the regular account files so that they may be accessed in LIST commands.

If there are no temporary files on the program disk the computer will display:

NO TEMPORARY FILES FOUND

and return immediately to the Custom Menu.

If it does find temporary files it will stop and ask you to insert your records disk corresponding to each "area" for which there is a temporary file. If you are following our advice, there will be only one "area" used for several months, and the computer will stop and wait for you to insert only one records disk.

It will check the disk in drive #2 for account files and will stop for you to insert the records disk if it doesn't find any. You might have a separate "directory" disk in drive #2 at that particular time. Insert the records disk and then press RETURN.

The transfer is automatic and requires no more action on your part. When the transfer is complete the temporary file will be erased and the computer will return to the Custom Menu.

CHOOSING BETWEEN "MAKE account" and "FAST RECORD ENTRY"

Advantages of "MAKE account" for entering records:

It's simpler and easier for inexperienced users. You can enter the

account name from the Main Menu directly without accessing the Custom Menu and then FAST RECORD ENTRY. You do not have to enter the "area" title. The computer will search and find this automatically.

Using the MAKE command you can enter records up to 253 bytes in length. With FAST RECORD ENTRY you are limited to entering records of 133 bytes total (for all headings). Though account information never takes up even the 133 bytes, you may need the extra capacity in some non-business uses of the Dated Records program. If you enter records over 133 bytes in length using the MAKE command, you cannot then use the Calender, Graph, or HEADING MATH functions.

All headings for the account entered will be displayed before the individual prompts are displayed.

Records are stored in the regular account files as they are entered—it is not required that they be transferred later.

If you use FAST RECORD ENTRY you will want the two modules FENTRY.MDD and FSTR.MDD to be on the Program Disk for convenience. If you use only "MAKE account" for entering records you do not need these two modules on the Program Disk. Thus if you are using only one single density disk drive and are conserving sectors on the Program Disk, you may find it beneficial to use only the "Make account" selection to enter records.

Advantages of FAST RECORD ENTRY for entering records

It's much faster for entering records in different accounts or "areas", since you can do this without returning to the menu. If you have set up names to be in the account structure instead of in the NAMES file (in order to list names in individual columns in listings) the use of FAST RECORD ENTRY is obligatory for reasonable speed of entry. You can just back up to the "ENTER ACCOUNT OR SUBDIV?" question to enter the next "name" in the account structure.

Multiple records can be entered much faster. The storage in temporary files is immediate whereas storage of each individual record using the "MAKE account" selection takes several seconds.

You do not have to re-enter duplicate NAMES and DATES. The computer will supply the NAME and/or DATE of the previously entered record.

You can accomplish math using FAST RECORD ENTRY.

IMPORTANT POINTS AND RULES FOR EXPERIMENTERS (I)

Set up an account worksheet before entering new accounts.

Use only one group of records disks—only one "area".

You often have the choice of organizing records either in the account structure or in headings.

‡ Once you enter the accounts you can't change the structure unless you erase all account records.

‡ 5 levels of account organization: 3 subdivisions, general account, and "area".

The "full account name" defines the path up through the hierarchy of accounts.

‡ Name each account with 2 to 5 titles.

‡ You cannot have duplicate account titles.

‡ AREA name must be 2 to 8 capital letters--no punctuation.

‡ Use only one AREA in the first six months.

The AREA files are on the Master Program disk.

‡ Subdivision accounts are automatically assigned the same headings as general accounts.

‡ Duplicate headings are allowed and recommended, but not in the same account

‡ Headings must be 2 or more characters, with no spaces.

Repeating entries should go in the NAMES file by specifying the heading with the < character.

The NAMES file is file "N" on the Master Program disk, and one of the "user files".

‡ NAMES cannot be easily "erased".

‡ Once records are stored under old headings they will not be listed correctly under new headings.

Records entered with a TOP heading can be sorted to the very top of listings.

Always enter records into the lowest available subdivision account which will apply.

Using FAST RECORD ENTRY to enter records is more convenient when entering multiple records in different accounts.

"FAST RECORDS" must later be transferred to the regular account files before they can be accessed and listed.

After using FAST RECORD ENTRY with *one drive*, and then electing to store records or store them with STORE FAST RECORDS: Make sure you re-insert the Master Disk and return to the Menu before shutting down--otherwise you'll wind up with duplicate records (the records won't be deleted from the temporary file on the Program disk).

CHAPTER 6 -- LISTING ACCOUNT INFORMATION

LISTING RECORDS

After you have set up accounts you may want to change the names of some titles and perform other editing functions of the accounts and headings. Most users will not be editing accounts until after they have learned to list some sample records. For this reason the instructions for listing records will be presented first, and those for editing account information will be presented in the next chapter. If you want to change any of the account or heading titles right away you can read the next chapter first.

In this chapter an introduction to the listing functions will be presented, followed by procedure for using the LIST commands.

LIST COMMANDS

The usual way of listing records is to use one of the five LIST commands represented on the Main Menu. These will result in a listing (or print-out if selected) of records in one of four formats:

- 1) spread sheet listing (rows and columns with headings)
- 2) spread sheet with statement of totals
- 3) graph
- 4) calender

In the first case of a spread sheet listing, the listing may be embellished with other information in various areas of the listing. This includes titles, formatted text, text files created with the word processor, numbers displayed as dollar amounts, and addresses from the directory. If you are using two drives the spread sheet type of listing may be printed continuously from a list of names created with the BATCH STATEMENTS function.

The First Four LIST Commands

There are five different LIST commands. The first four are similar in operation while the fifth is operated differently.

The first four LIST commands are used to determine both the format of the listing and the various records and other information to be listed. Often they are used only to create a "sample" listing which you intend to designate as a "listing format".

"Listing formats"

At the end of every listing created with one of the first four LIST commands you will have an opportunity to assign a title, called the "listing name" to that exact type of listing. If you do it becomes a "listing format". "Listing formats" are used in the last LIST command, and are required for its use.

The listing format contains all account, heading, arithmetic, and formatting specifications of the original listing. The only things it does not remember are the dates, NAMES, and "spec" (more on "specs" later).

Once you have a "listing format" in memory, it is very easy to display records and other information in whichever way you displayed them when you first created the format. You need only enter the "listing name" and two dates from the Main Menu in a LIST command and the listing will be displayed. You may enter one or more NAMES or a "spec" in the same command if you want just certain records to be listed. Of course the new information will correspond to the two dates you enter, not the dates you originally entered when first creating the format.

"Listing formats" are stored in a separate file named "0". The 0 file is one of the "user files" on the Master Program Disk. You have plenty of room for formats, but there is a limit. If you will be displaying a certain format very infrequently, or if it is a simple format, then it is suggested that you do not turn it into a "listing format". The first four LIST commands will operate simply and conveniently for simple listings once you become familiar with them. There's no sense in wasting unnecessary space in the format file with simple and infrequent listings. Listing formats can be easily deleted though, so when you are first experimenting feel free to name any of your listings. These can be deleted when you "get serious".

Once formats are created you have limited editing capability using the LISTING FORMATS selection in the CHANGES/DELETES section of the Utility Menu. You can change the title of any format, or delete any format.

The operation of the first four LIST commands is designed to be quick and simple when a simple display is desired. Or you can "branch" into more powerful format operations. For simple or unimportant listings all the format questions have default settings which are selected by pressing RETURN. If you simply enter the word LIST followed by a space, followed by the title of any account, such as:

LIST PAYMENTS

and then press RETURN to every question that follows, you will get a listing of all information regarding that account (and any associated subdivision accounts) on the disks that happen to be in the drive. EXCEPTION: if you are using one drive and have a separate disk for account records you must enter dates to the "FIRST DATE TO LIST?" and "LAST DATE TO LIST?" questions, since the computer has no way of determining what dates will be on the disk.

LIST and INCLUDE?

After you make an entry using one of the first four LIST commands, and press RETURN, the computer will display the INCLUDE? prompts. You may include other headings and accounts in the listing by making an entry. You must specify at least one NAME or heading, followed by the word FROM (or

FR), followed by an account title. The INCLUDE? prompt will keep popping up as long as you make an entry. You may include up to 59 additional headings from any accounts.

LIST and INCLUDE are used to specify NAMES, headings, and account titles to be included in the listing. After the INCLUDE? question, all further questions apply to how you will want to organize the display, and to what auxiliary information you wish to include in the listing.

LIST COMMANDS -- PROCEDURE

AN OVERVIEW

When you choose one of the first 4 LIST commands:

LIST account
LIST name(s) FROM account
LIST heading(s) FROM account
LIST name(s),heading(s) FROM account

from the MENU, the computer will stop and ask a series of questions about what other information you would like to include in the listing or printout, dates, where to set tabs, etc. This can be a time consuming and tedious procedure. But once the computer has listed or printed the information according to your instructions it will stop and ask the question:

DO YOU WANT ME TO REMEMBER HOW
TO SET UP THIS LISTING(Y) OR NO(RET)?

If you are satisfied with the display or printout type Y and then press RETURN. The computer will ask:

WHAT WILL YOU CALL THIS LISTING?

You must then enter any name (which is called the "listing name") and press RETURN. The computer will go back to the Menu. YOU WILL NEVER HAVE TO GO THROUGH THIS PROCEDURE AGAIN FOR THAT LISTING.

The next time you want to display that information, you can use the last LIST command:

LIST name(s),spec,listing,date,date

You do not have to include a NAME or a "spec" in this command--they are optional. You need only to type the title you made up for that particular "listing format" and the dates. For example:

?LIST INCOME STATEMENT,6,1,85,12,31,85

and press RETURN. The computer will then display or print the

information in exactly the same way, but starting and ending with the different dates you entered. This means THE COMPUTER PRINTS THE FORM FROM THE ENTRY YOU MADE AT THE MENU eliminating other steps and entries. The only exception is if you are using one disk drive with a separate "records disk". The computer will stop and wait for you to insert the RECORDS disk.

This will take several seconds of disk operation (if no ramdisk), but since there are no intermediate entries involved the total time required is comparatively short.

After you have listed all the different types of displays and printouts you will need and have named them to become listing formats, from then on you will need only the last LIST command and you can ignore the others, except for infrequent or simple listings.

USING THE FIRST FOUR LIST COMMANDS

To use the Menu selection:

LIST account

type the word LIST followed by a space, and then any title of any account, which can be a general account or subdivision account, but not an AREA title (see "MAKE account" information). Then press RETURN. For example:

?LIST ADVER

causes all information including comments from the account ADVER and any other accounts with the word ADVER in their "full account name" to be listed.

To use the selection:

LIST name(s) FROM account

type LIST followed by a space, and then one or more NAMES from the NAMES file. If typing more than one NAME, separate them with commas but LEAVE NO SPACES between them. Don't type a comma after the last NAME, but leave a space after the last NAME. Then type the word FROM followed by a space, and then any account title. For example:

?LIST DOEJ FROM ADVER or
?LIST MARY SMITH, ACME CO FROM SCHEDULE

note: NAMES can contain spaces within the NAME. We strongly suggest you stick to 4 letter names. The example "MARY SMITH" is included to demonstrate that abbreviating is not required.

To use the selection:

LIST heading(s) FROM account

type LIST and then one or more headings separated by commas with NO SPACES after the commas, then a space, and then the word FROM followed by a space, and then any account title.

DO NOT ENTER NAME OR DATE AS HEADINGS. They are assumed at this point. However, you must enter COMMENT as a heading if you want comments to be displayed.

You can total numbers in records by ending the associated heading with a + or - sign in the LIST command. If some records do not contain numbers under that heading the data for those records only will be ignored.

If there is more than one heading ending in a + or - sign, entered either at the Menu or INCLUDED later on, there will be an extra column added to the listing which will be a "running total". If the heading ends with a + the numbers associated with that heading will be added to the running total. If the heading ends with a - the numbers listed under that heading will be subtracted from the running total. Examples of "LIST heading(s) FROM account" entries:

```
?LIST AMOUNT FROM ADVER  
?LIST AMOUNT+,REF FROM ADVER  
?LIST PRICE+,COST-,STOCK# FROM SALES
```

The fourth LIST selection:

LIST name(s),heading(s) FROM account

is a combination of the last two. Examples:

```
?LIST DOEJ,AMOUNT+,REF FROM RECEIPTS  
?LIST MARY SMITH,TIME,CUSTOMER FROM SCHEDULE
```

If a heading was originally set up to represent NAMES or categories from the NAMES file (begun with a < character--see Chapter 2) you DO NOT include the < character in LIST entries. You may have entered the heading "CUSTOMER" as "<CUSTOMER" but from then on refer to the heading as "CUSTOMER."

After completing entries in any of the LIST selections, you may skip over the following questions by pressing RETURN before or after the questions are asked. The default values will be used. If you are using only 1 disk drive, don't get carried away and press RETURN when the computer stops for you to insert the RECORDS disk!

The "INCLUDE?" Question

After you complete one of the first four LIST entries and press RETURN the computer will load and run the LIST.MOD module. It will stop and display:

INCLUDE?

You may make an additional entry exactly like entries for the second, third, or fourth LIST commands—you must enter at least one NAME or one heading, then the word FROM, and then the account title.

DO NOT type the word LIST this time—the computer already knows you are in the LIST module. Examples:

```
INCLUDE?AMOUNT FROM UTILITIES
INCLUDE?AGENT, COMMISSION- FROM SALE
INCLUDE?FRED, MILES, TRAVEL+, CUST FROM TRIP.LOG
```

After you press RETURN the computer will again display:

INCLUDE?

and you can enter NAMES and/or headings from another account.

The computer will keep displaying "INCLUDE?" until you press RETURN without making an entry. Any entry errors will be located and you will be asked to re-type the entry. This will happen if you misspell a heading or account title, or if the headings are entered in the wrong order. You can display the headings for any account using the HEADINGS selection in the CHANGES/DELETES section of the Utility Menu.

Once you have entered a certain NAME, you need not enter it again. Only records by that NAME (and any other NAMES you enter) will be listed. You can INCLUDE up to 59 additional headings or 59 additional accounts for a total of 60. You would not be able to display all these in the spread sheet format, but you could in a very detailed statement.

You can abort the format sequence and return immediately to the Main Menu by entering a single "M" to the "INCLUDE?" question and pressing RETURN. You will have one additional opportunity to return to the menu later (see "KEEP THIS FORMAT(Y) OR REFORMAT(RET)?" question).

Graphing

If you enter GR to the "INCLUDE?" question, i.e.:

```
INCLUDE?GR
```

and press RETURN, the computer will forget about listing a "spread sheet" type of listing and immediately load and run the graphic formatting module (GRLINP.MOD). You can enter up to three names and one heading, or up to three headings in LIST and INCLUDE entries before specifying a graphic format with GR. More information on displaying graphs will be presented in Chapter 8).

Dates

To continue the format sequence to display a "spread sheet" listing, press RETURN to the INCLUDE? question without making an entry.

The computer will stop and ask for the first and last dates to list (inclusive). If you're using one drive with a separate "records disk" you must enter the full dates. If you're using two drives the computer will display an explanation about entering dates and how you can make shorter or even no date entries. It will then ask for the first and last dates to list. Enter the dates as instructed. Otherwise enter three numbers separated by two commas representing the month, day, and last two digits of the year for the two dates, pressing RETURN after entering each date.

One mistake you do not want to make is to enter a "first date to list" which is later than the "last date to list". If you do this the computer will list records beginning on the first date you enter, but will continue searching for new months forever until you stop the listing (by pressing M for Menu).

The computer will not accept months lower than 1 or greater than 12, days lower than 1 or greater than 31, or years greater than 99. It will accept an invalid date such as 2,31,86 but this is of no consequence if there are no records on the invalid date. Expert operators like to enter 31 for the day just in case a mistake was made in one of the records.

Address

After completing the "last date" entry press RETURN. The next display occurs **ONLY IF YOU ENTERED A NAME** in one of the LIST or INCLUDE entries. The computer will display:

PRINT ADDRESS?

IF YES, ENTER NO. LINES FROM TOP LINE TO HEADINGS
IF NO, PRESS RETURN

If you specify the printing of an address the address will be printed first, and then the headings. For proper spacing on your form, enter the number of lines vertically you will want from the top line of the address to the headings. The number must be at least 6 since some addresses take up 5 lines. The address will be indented 16 spaces which is appropriate for standard windowed envelopes. This tab setting may be changed later if desired. If you don't want the address printed, press RETURN without entering a number.

One difficulty that inexperienced users sometimes have is with respect to creating formats that will automatically print addresses in listings. If you are using one of the first four LIST commands to create such a listing format, you must enter at least one NAME in the LIST or INCLUDE entries. Otherwise the address question will not appear. It must appear and you must enter a number to print the address in your "sample listing" in order for the instructions to be copied into the

"listing format" when you later name the listing.

Lines per Page

After you answer the address question, or directly after entering the dates if you did not include a NAME in the LIST or INCLUDE entries, the computer will display:

"STOP, DISPLAY HEADINGS EACH ?th LINE?"

Enter any number up to 255. For screen listings the number 20 is suggested. For the printer it depends on how many lines per page you want. If you press RETURN without entering a number, or enter 255, the computer will not stop or "hold" regardless of the length of the printout (the number has a different meaning when printing continuous forms).

The computer will count lines in the listing, including the lines occupied by the headings and the blank line under the headings. When it reaches the number you entered the listing will stop and the computer will display:

HOLDING

on the screen. The display will continue when you press any other key. It is suggested that you press a key other than RETURN or the space bar because these two send other signals to the computer as well. When you continue the listing the headings will again be displayed and the counting will start over. A reminder: you can hold listings by pressing H. If you resume by pressing the T key, and only if you are printing, a title and page number will be printed. (This instruction will not be remembered if you name the "listing format").

When you create a format to be used with the BATCH STATEMENTS function to print a format continuously from a name list, the function of the number you enter to the "STOP,PRINT HEADINGS EACH ??th LINE?" question will be different. See the instructions for BATCH STATEMENTS in Chapter 21.

Tab Settings for the Columns

Next all the headings that you specified in the LIST and INCLUDE entries, and all additional headings that the computer supplies automatically will be listed.

The computer will at least add NAME and DATE. It may supply the heading ACCT if there are subdivision accounts associated with any of the account titles you entered because these will be listed vertically in the first column. If there are no subdivision accounts, the accounts will be listed horizontally above the headings. Thus it is a good idea to make the accounts you will want to appear in certain listings into subdivision accounts, even if this requires setting up a dummy "general account" such as INV with the subdivision INVOICE. This is already done in the accounts supplied with the MICROMQD invoice program because the account titles will

later be listed vertically on statements.

If two or more headings were entered with a + or - sign added the computer will add another heading called TOTAL.

After all the headings are listed the computer will ask:

MANUAL FORMAT(Y) OR NO(RET)?

The headings and associated columns of data will be lined up in vertical columns in the listing. The distance from the left margin, counted as the number of printer or screen spaces, of each column must be specified. You can enter the tab settings or you can elect for the computer to enter them.

Type Y if you want to set the tabs, or press RETURN if you want the computer to set them. If the computer sets them it will check to see if you have previously specified a printer operation. If you have the tabs will be set for the printer. If not they will be set for the screen. If you set them yourself for the printer, using more than 40 columns but are displaying on the screen, the information will take more than 40 spaces and be folded over onto the next line. The display will be jumbled up on the screen, but not on the printer.

If you type Y and then RETURN, the computer will again list each heading followed by a ?, one at a time, and you must enter the tab position which will be the number of spaces from the left margin for that particular column. After you enter each number, press RETURN. You can prevent the listing of any column by entering zero for the tab setting, thus if you want to print the data for a particular heading you must enter a number greater than zero.

The tab settings do not have to be in sequence ~~in the Sparta 808 version~~. In many listings you will have duplicate headings in different accounts. You can save printer or screen columns by entering the same tab setting for these duplicate headings. This does not work well for columns which will be totaled (heading followed by a + or -) because only the total for one of the headings will be displayed at the bottom of the listing. This makes no difference if you are not concerned about the totals.

Another point to remember is that column totals often take up more room than the numbers in the columns. If you have two or more numeric columns which are being totaled leave enough space to display the totals. Otherwise you will get a long continuous sequence of numbers for totals because there will be no spaces to separate them. This is necessary in some cases, for instance when you are planning for a statement of the totals. There will be too many columns for the screen or possibly even the printer.

The highest tab setting you can enter depends on how many columns your printer will print. MICROMOD supports up to 156 columns, thus in any case the highest tab setting you can enter is about 150. If the computer sets

the tabs automatically, and you are printing, it will assume you have an 80 column printer.

Here is an example of what the display will look like after setting tabs for a typical listings:

```
NAME?1
DATE?6
QUANT?12
CLERK?14
AMOUNT?18
AMOUNT?25
TOTAL?32
```

This listing includes the heading AMOUNT from two different accounts. Also, two or more headings must have been followed by + or - when first entered because there will be a RUNNING TOTAL column. The tabs are set up to display on the screen since they use less than 40 spaces. You might want to be more liberal in setting tabs for the printer which will probably have at least 79 spaces per line available.

Whether you set the tabs or the computer sets them, the computer will display the headings exactly as they will appear in the listing. For example, the above headings would be displayed:

```
NAME DATE Q CLE AMOUNT AMOUNT TOTAL
```

A blank space is kept between headings even if there is not enough room to display the full heading title. You can judge whether there will be enough spaces to list the data items as you would like by looking at the headings. These tabs will do if the quantity figure ranges from 0 to 9, and the amounts don't go over 999.99. You can readily see the value of keeping names and headings short!

Dollar Amounts

Another point to keep in mind when setting tabs is that if you specify numbers to be printed as dollar amounts they will take up more spaces in the listing. Later on in the format sequence you'll have the opportunity to specify dollar amounts.

The computer will reserve a number of spaces to print dollar amounts depending on what the highest number you expect will be. If your highest number might be 9999, for instance, the computer will reserve 10 spaces, because you could possibly have the number -9,999.00 with a space added to separate the column from the next column. Dollar amounts are JUSTIFIED TO THE RIGHT of the column, while all other data is justified to the left. The heading, but not the account title, will also be justified to the right.

All this is done automatically by the computer. You need only enter the highest number you expect. The important thing to remember is to allow enough room when setting tabs to display the numbers.

After the headings are displayed as they will appear in the listing, the computer will display:

REFORMAT(Y) OR KEEP THIS FORMAT(RET)?

If you type Y before pressing RETURN the computer will again list all headings, and ask "MANUAL FORMAT(Y) OR NO(RET)?" again. You can keep setting the tabs until you are satisfied with the way the headings will look.

ANOTHER OPPORTUNITY TO RETURN TO THE MENU! If you enter M to the "REFORMAT(Y) OR KEEP THIS FORMAT(RET)?" question and press RETURN the computer will immediately abort the listing operation and return to the Main Menu.

"Spec"

After you press RETURN to the "REFORMAT(Y) OR KEEP THIS FORMAT(RET)?" question without entering a Y or an M, the computer will display:

SPECIFICATION FOR EXCLUSIVE LISTING
ENTER ANY DATA ITEM OR RET?

Well, this is your last chance! If your accounts are set up poorly, and you still can't get what you want by naming different names, headings, and accounts, you can sort your listed items by the actual data contained in records. You can even add an extra HEADING for accounts for this purpose, and then enter codes as you are making record entries for listing certain records together (the same way you use address sort codes for selecting addresses to print—see "ADDRESS SORT CODES" information in Chapter 10. This is done in the Invoice ITEM account so that tax-exempt sales can be sorted out).

A more ordinary use of this option is the case where a few different entries are made over and over in records. For example, a SALES account may have the heading FORM.PAYMENT and you might enter CASH, CHECK, CREDIT CARD, etc. in record entries. Then you could list all cash sales by entering "CASH" after the "SPECIFICATION FOR EXCLUSIVE LISTING" question (hopefully these entries would be abbreviated in practice).

This option is why "spec" is included in the last LIST command on the Menu. A data item entry for "spec" in the "LIST name(s),spec,listing,date,date" menu selection operates in exactly the same way. When you enter a "SPECIFICATION FOR EXCLUSIVE LISTING" (or a "spec") only those records with that exact combination of characters (name,number,item, etc.) ANYWHERE IN THE RECORD will be listed.

WHEN YOU NAME A LISTING FORMAT, NAMES AND SPECIFICATIONS ARE NOT REMEMBERED IN THE FORMAT. This allows flexibility in entering different names and specs in the "LIST name(s),spec,listing,date,date" command. The format will retain the instructions concerning printing of addresses

The length of "specifications" is limited to 24 characters.

In actual practice a "Specification for Exclusive Listing" is rarely entered during the format sequence. It is normally entered later into the last LIST command entry.

If you end the specification with the "roof" caret character (over the * key) then the spec becomes a "string" of characters to be used to search records (see last section of this chapter).

Calender Format

The "Specification for Exclusive Listing" question has a dual purpose. If you enter the letters CAL followed by a comma and then followed immediately by a number, such as:

?CAL,80

the computer will automatically forget about listing a "spread sheet" listing and instead load and run the calender display module, ACTCAL.MOD. The calender function will assume that the number you enter is the maximum columns that your printer (or screen) can print, and adjust the size of the calender accordingly. For detailed information on calender listings see Chapter B.

Print Headings at top of Columns?

Assuming you did not specify a calender listing, the computer will stop and display:

CANCEL PRINTING OF HEADINGS(Y) OR RET?

You may not want the headings and account titles to appear at the top of some listings, most notably when using printed forms which already contain headings. The "STAT" format supplied with the Invoice/Statements program takes advantage of this feature.

If you do not want the headings to be displayed, enter Y and then press RETURN. If you do want the headings press RETURN without entering a Y.

Titles, Dollar Amounts, HP files, Address Tab, etc.

Next the computer will stop and display:

FORMAT SPREAD SHEET FORM(Y) OR NOKRET)?

What's this? I thought we were already formatting a "spread sheet" listing! Well, yes we are, but the operative word is "FORM". So far you only have headings, columns, and maybe an address: more of a listing than a form! This selection allows you to embellish the listing with various text entries, files, etc., to make it appear more like a printed form. It also accesses the "dollar amounts" question and the ability to set the

horizontal tab setting of the address.

The above question may appear somewhat confusing, but we didn't like the looks of the word "embellish" on the screen and it took up too much room.

The great majority of listings will not require "embellishing" so you will most often press RETURN without making an entry here. If you do want to embellish the form, type a Y and press RETURN.

DO NOT FORMAT A SPREAD SHEET FORM IF YOU INTEND TO FORMAT A STATEMENT OF TOTALS. Both types of formats are stored in the same place! The "FORMAT STATEMENT..." question will not be asked.

More specific information on this feature will be presented in Chapter 8.

This is the last question before the listing will be displayed or printed, except if you are using only one disk drive the computer will stop and display:

INSERT RECORDS DISK,PRESS RET?

Ignore the question mark.

Multiple Records Disks in One Listing

This feature is called "BIGLIST". It allows you to include multiple records disks in one listing.

To make use of the BIGLIST feature simply press the B key anytime DURING THE DISPLAY of record information. The computer will display "BIGLIST ENABLED" to let you know it has received the instruction.

At the end of the listing, but before totals are printed, the computer will stop and allow you to enter another records disk (in the same drive as the first records disk). The listing will then continue with the information on the new disk.

If you have more records disks to include, press B again during the listing. If you do not have any more records disks to include, do not press B again during the listing and the listing will end normally with the totals of all information displayed from all disks.

Rules for using the BIGLIST feature

YOU MUST SPECIFY MORE THAN ONE MONTH IN THE LIST COMMAND FOR THE "BIGLIST" FEATURE TO WORK.

It is essential that you have discreet months of records on each disk to be read. MICROMOD will search ALL dates you enter in the LIST command for each disk. If you were to have the same records on two disks they would be read twice, as the computer searched that date on each disk. If

you have a ramdisk the BIGLIST will "turn it off" also for this reason. Otherwise the information in the ramdisk would be read along with each disk you inserted (assuming the dates you entered included material in the ramdisk). When you get done reading your old disks, and if you would then like to read the ramdisk (for speed) rather than the current records disk, press R to turn the ramdisk back on. The computer will prompt you to do this. The ramdisk will be "turned back on" at the end of the listing in any case.

Statement of Totals question

At the end of the listing, and only IF EVERY HEADING YOU ORIGINALLY ENTERED WAS FOLLOWED BY EITHER A + OR - SIGN, AND IF YOU DID NOT FORMAT A SPREAD SHEET FORM the computer will stop and ask the question:

STATEMENT OF TOTALS(Y) OR NO(RET)?

Type Y and press RETURN to format and print a statement of the totals. This is how you would print trial balances, income statements, budgets, and other statements that use totals of amounts from records between dates. Press RETURN to bypass formatting and printing a statement. Information on formatting a statement of totals will be presented in Chapter 8.

Naming the format

Whether you printed a statement or not, the computer will stop and ask if you would like to give the listing (or statement) a name, as stated previously. Type Y (return) and then enter the title you would like to assign to this format.

THE LAST LIST COMMAND

After you have named the format you can use the "LIST name(s),spec,listing,date,date" menu selection for this listing and the listing will be printed without any intermediate steps. With this command you have the option of entering one or more NAMES (separated by commas), AND/OR a "spec" (see above explanation concerning "specification for exclusive listing"), OR no name or "spec." Examples of entries using this command are:

```
?LIST DOEJ,CASH,SALES,7,1,85,7,31,85
?LIST MARY SMITH,SCHED,8,1,85,8,1,85
?LIST Z,TRAVEL REPORT,6,1,84,5,31,85
?LIST DOEJ,ANDF,STATEMENT,5,10,85,5,20,85
?LIST SCHED,1,1,85,12,31,85
?LIST INCOME STATEMENT,7,1,84,6,30,85
```

In the above entries "CASH" and "Z" are specs (data entries contained in records), "SALES", "SCHED", "TRAVEL REPORT", "STATEMENT", and "INCOME STATEMENT" are "listing format names".

Date Abbreviations

Often you will want to list all the dates on the Records Disk or in the ramdisk. In this case there is no need to type the two dates in long form. You can tell the computer to look on the disk in one of the drives and find the dates for itself. Just type a D followed by the number of the drive, as in:

```
LIST ACTIVITY,D2  
LIST ACTIVITY,D8
```

This does not tell the computer where to find the records--it will decide that for itself--it only tells it where to look to get the date numbers.

There is a further refinement to this feature. If you want to specify just one entire month you can type the month number just before the D, as in:

```
LIST ACTIVITY,2D2  
LIST ACTIVITY,11D8
```

This tells the computer to look in the drive specified and find dates only for the month number specified (Feb. and Nov. in the examples) of the LATEST year in the drive.

Abbreviate!

After you become well-practiced with the program *abbreviate!* You can change the format titles to two letters: AC for ACTIVITY, RE for REMOTE, IN for INVOICE, etc. You can also abbreviate all commands to 1 letter, except "FROM" which requires at least "FR". Using the new date abbreviations:

```
LIST ACTIVITY,9,1,86,9,30,86 becomes L AC,9D2  
LIST REMOTE,1,1,86,6,30,86 becomes L RE,D2
```

Slow typers will save lots of time!

String Search

This is one of the most useful features of the program, and you should become familiar with its operation. Recall that you can include a "spec" in the last LIST command. This really means that you can specify a data item to be searched for in records, and to list any records that are found to contain the data item. But with a "spec" the computer must find that exact data item, and of the same exact length.

If you end the "spec" with the "roof" caret character (over the # key) the "spec" becomes a "string" to search. A "string" is any series of characters. The computer will search for and display any account records (specified in the format) containing those exact characters, regardless of the length of the actual data item. For example, the command:

LIST .1^,ACTIVITY,3,1,86,5,1,86

would list any records containing a ".1" anywhere in the record, such as "21.10", ".10", "PLANT.1", "ER.3X.1W", etc.

The string search will not find data items which are indexed in the NAMES file (heading begins with the < character--see Chapter 5).

IMPORTANT POINTS AND RULES FOR EXPERIMENTORS (#)

Use the first four LIST commands to create a "listing format".

You cannot use the last LIST command until you have a "listing format" name to enter.

* You must enter a NAME or heading in INCLUDE? entries, then the word FROM, then an account title.

You may INCLUDE up to 59 additional headings.

The computer will add headings to the headings you enter.

If the printer has been signalled the tabs will be set for the printer.

Tabs do not have to be in sequence with the SpartaDOS version.

Amounts displayed as dollar amounts take up about twice as many printer columns as the same amounts displayed normally.

Entering a "spec" lists only those records containing that exact series and number of characters.

The length of a "spec" is limited to 24 characters.

Don't "FORMAT A SPREAD SHEET FORM..." if planning to format a Statement of Totals.

Press B during the listing to use multiple records disks in the listing.

HINTS

You can set up a "listing format" to include all or most of your "General Accounts". It will come in handy if you ever need to search for data, not knowing the associated account. A good format name is "ALL". (You can also use DISK SEARCH to find data without knowing the account).

If you copy an account file to the same disk, RENAMING it in the process with new date numbers, any records in the file will be duplicated in the new month indicated by the new numbers. This is a convenient way to enter a year's worth of fixed expenses (due) with only one month's worth

of entries.

When you enter a record into the Dated Records program, it is placed in the file corresponding to the date you entered in the record. If you enter wrong dates, wrong files will be created! You should check the account files (R...) every so often, especially before printing statements, to see if there are any isolated account files (year out of date, etc.) with only 1 or 2 sectors. If you find any, LIST the information using the indicated dates, re-enter it, and then erase the errant file.

CHAPTER 7 -- EDITING, MATH, AND VERIFICATION OF ACCOUNT INFORMATION

In the instructions for listing records it was shown that the LIST commands can result in a variety of display types. At various steps in the formatting procedure you can use special instructions to branch away from a "spread sheet" type of listing to a graph, calender, statement of totals, or to a function which allows you to "embellish" the spread sheet listing.

At first you will most likely not be selecting these special options, but will want to just see what your records look like in a simple spread sheet display. This display is used for the large majority of purposes. After you have displayed and printed several groups of records in various spread sheet configurations you may want to do some editing of the account structure right away so that it will better support your listing requirements. Therefore the editing functions will be presented first, followed by detailed instructions for displaying the various other types of formats.

LIMITED EDITING CAPABILITY

The titles, order of titles, and number of titles you enter in the account structure using the MAKE command are stored in separate files, not in the records themselves. The records themselves contain only 1-4 bytes to identify the account or subdivision title in the account title list.

The only editing you can do with "areas", "general accounts" or "subdivision accounts" is to change the title. As a safety precaution they cannot be deleted because any records stored under that account would then be inaccessible. However there is room for up to 500 account titles (a conservative estimate) and accessing them is not a speed-intensive operation. Therefore it does no harm to have unused titles in the account structure.

Regarding headings, it is the order of headings which is important. The position of a particular data item in a record will correspond to the position of the heading title in the separate headings list. Suppose you had an account with two headings titled:

AMOUNT,DEST

and then stored some records in that account. In the records themselves the amount would appear first, then the destination. But then suppose you switched the position of the headings to:

DEST,AMOUNT

If you then displayed the old records the amounts would be displayed under the DEST heading and the destinations would be displayed in the AMOUNT column. When you entered new records the DEST? prompt would occur first, so you would enter destinations in records first. The data items in

the new records would therefore be listed under the correct headings, but the items from the old records would be listed in the wrong columns.

ONCE YOU HAVE ENTERED RECORDS, YOU CANNOT CHANGE THE ORDER OF HEADINGS, UNLESS YOU INTEND TO DELETE ANY RECORDS AND START OVER.

The computer will allow you to change the order of headings, but the results will be confusing. You should experiment with sample records and arrive at the headings you will want to use before you begin the serious application by entering large numbers of records.

You can add new headings anytime without interfering with the order of the display of data items in records. However any comments you have entered will be displayed in the column under the first new heading you've entered. This may be desirable in some cases. Comments are normally displayed on a separate line in listings (see Exhibit 7). You can get them into the formatted line (columns) by adding a heading.

If you do not purposely want to get comments entered in a certain account to be displayed in the formatted line in spread sheet listings, it is suggested that you avoid entering comments until you are sure that you have the right number of headings associated with that account.

As mentioned, you cannot delete an "area" title as a safety precaution. You can change the title to something else. However, if the new title is a different length, any "listing formats" you created with the old "area" name will be unusable. If this happens, either change the "area" title to contain the same number of characters as the original title, or delete your "listing formats" with the LISTING FORMAT selection on the Utility Menu and re-create the formats.

EDITING PROCEDURE

"AREA"

To change the "area name" select AREA in the CHANGES/DELETES section of the Utility Menu. The computer will list all "area" titles (up to 3). It will then display:

ENTER OLD NAME OR RETURN?

Enter one of the "area names" listed. If you change your mind and do not want to change any "area name", press RETURN without entering a title and the computer will return to the Menu.

If you enter an incorrect title the computer will ask you to re-enter. Assuming you enter a title and then press RETURN the computer will stop and display:

ENTER NEW NAME OR RETURN?

Enter the new name. If you want to cancel changing that title, press RETURN without making an entry. The computer will back up and ask again for an "old" area name. Press RETURN to get back to the menu.

TITLES OF ACCOUNTS

Change the title of any "general account" or "subdivision account" by selecting TITLES OF ACCOUNTS in the CHANGES/DELETES section of the Utility Menu. The computer will stop and display:

ENTER AREA?

Enter an "area name". If you are starting out with the program you will have just one "area name".

The computer will then stop and display:

PRINT TITLES ON PRINTER(Y) OR RETURN?

All account titles will be displayed in three columns either on the screen or on the printer. This is a handy way to list all account titles for a reminder list. If you want them to print on the printer type Y and then press RETURN. If you want them to be displayed on the screen press RETURN without making an entry.

After the account titles are listed the computer will stop and display:

ENTER OLD TITLE OR RETURN?

Enter any one of the titles listed. If you change your mind and do not want to change a title, press RETURN without making an entry. The computer will again display the "area" question. Press RETURN again to return to the menu.

If you enter a title to change, and then press RETURN, the computer will stop and display:

ENTER NEW TITLE OR RETURN?

Enter the new title for the account you specified and then press RETURN. If you change your mind just press RETURN without making an entry. The computer will back up to the "ENTER OLD TITLE" question.

HEADINGS

To edit headings select HEADINGS OF ACCOUNTS in the CHANGES/DELETES section of the Utility Menu. The computer will stop and display:

ENTER ACCOUNT NAME OR RETURN?

Enter the title of the account to which the headings apply. If you change your mind and do not want to change headings, press RETURN without making an entry and the computer will return to the menu.

If you do enter an account title the computer will display all headings that YOU ENTERED for that account. It will not display NAME, DATE, or COMMENT since you cannot perform any editing functions on these. The computer will then stop and display:

DELETE(D),ADD(A),CHANGE(C), OR RET?

To delete a heading, type D and then press RETURN. To add a heading, type A and then press RETURN. To change a heading, type C and then press RETURN. If you change your mind and do not want to edit the headings, press RETURN without making an entry. The computer will back up to the "ENTER ACCOUNT NAME" question.

If you chose to delete a heading the computer will stop and ask for the heading to delete. Enter the heading title and press RETURN. If you choose to add a heading the computer will ask for the title of the heading to add. Enter the new title and press RETURN. The heading will be added to the end of the list. If you choose to change a heading the computer will ask for the "old" heading title. Enter one of the headings displayed and press RETURN. The computer will ask for the "new" title. Enter the new title and press RETURN.

If you change your mind during any of the above entries, just press RETURN without making an entry and the computer will back up to the "DELETE(D),ADD(A),CHANGE(C) OR RET?" question. If you press RETURN again the computer will back up to the "account name" question. Press RETURN again to get back to the menu.

After you edit the heading the list of headings will again be displayed, but changed according to your editing entries. You can re-edit the list as many times as you like. When you are satisfied with the headings, press RETURN to re-display the previous questions, or keep pressing RETURN to each question to return to the menu.

LISTING FORMATS

To change the name of a listing format or to delete a listing format select LISTING FORMATS in the CHANGES/DELETES section of the Utility Menu. The computer will list the first "listing name" and then stop and display:

DELETE(D),CHANGE(C), OR IGNORE(RET)?

To delete the format type D and press RETURN. The computer will ask you to verify by typing a Y and pressing RETURN again. You can cancel by pressing RETURN without entering a Y and the computer will back up to the previous question.

If you want to change the name of the listing format type C and press RETURN. The computer will stop and wait for you to enter the "new" name. Enter the name and press RETURN. If you change your mind press RETURN without making an entry.

If you choose to IGNORE by pressing RETURN without entering a D or a C the computer will list the next "listing name". As you press RETURN each listing name will be listed followed by the "DELETE(D),CHANGE(C) OR IGNORE(RET?" question and you can edit the formats as you go through the list.

You cannot change any of the items in the format itself. To change a format you must delete it and re-create a new format using the first four LIST commands. Or you can create the new format and delete the old format later.

EDITING DATA IN RECORDS

You may delete any individual account record. You may change any data item within an account record including NAME and DATE. You can add a comment even if no comment was entered originally into the record. The data may be changed regardless of whether it is from the NAMES file (heading begins with < character) or resides in the record itself, and the differing functions are automatic so that you need not be concerned about the distinction.

You can also perform arithmetic on all numeric data items under one or two headings in all records between any two dates. The records must be within the same account. The procedure for deleting and changing individual data items will be presented first, followed by a discussion of the arithmetic functions.

In order to edit a certain account record the record must first be located. You must know the title of the account under which the record is placed. If you don't know this you may discover the title using the last LIST command with a "listing format" that contains several accounts.

Editing Procedure

To delete an account record or change the data items within an account record select RECORDS FROM ACCOUNTS in the CHANGES/DELETES section of the Utility Menu. The computer will stop and display:

ENTER ACCOUNT?

Enter the title of the "subdivision account" in which the record is placed. If it is not in a "subdivision account" enter the "general account" title. After you enter the title press RETURN. The computer will stop and display:

(zero for day number=all days in month)

ENTER DATE OF RECORD

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You must enter a full date, that is, three numbers separated by commas. If you do not know the exact date enter zero for the day number, for example:

ENTER DATE OF RECORD?3,0,86

and all records in the month for that account (and NAME) will be listed. After you enter the date press RETURN. The computer will stop and display:

ENTER NAME (optional) OR RET?

Since there may be a multitude of records in the same account, even on the same day, entering the NAME in the record will save time. Otherwise every record will be listed and you'll have to go through the entire list. If you know the entry for NAME in the record, enter it and press RETURN. If you don't know the NAME then press RETURN without making an entry and all records will be listed regardless of NAMES.

Next the computer will display:

ENTER SPEC (optional) or RET?

You can further limit the display of records by any data item within the record by entering it here as a "spec" (see Chapter 6). You cannot accomplish a "string" search in this function, so do not include the "roof" caret character in the spec.

The computer will begin searching for the record. All records fitting the information you entered will be listed. The headings will NOT be listed, but instead each data item will be listed in a vertical column, such as:

```
1 FRED
2 13
3 10001
4 34.56
5
```

and the computer will display:

ENTER NUMBER OF ITEM TO CHANGE
D TO DELETE RECORD, F TO FINISH
OR RET FOR NEXT RECORD.

The second item is the day number in the date of the record. The last number will always be for the comment, and the display will be vacant if no comment exists in the record.

Enter the number of the item you wish to change. If you enter a D the entire record will be deleted. If you enter an F the computer will store any previously edited records and return to the "ENTER ACCOUNT?" question.

If you simply press RETURN the next record in the list will be displayed.

Assuming you enter a number of one of the items displayed, the computer will display:

ENTER ^ TO DELETE ITEM n
ENTER REPLACEMENT FOR ITEM n OR RET?

If you enter the "roof" character (over the # key) only item n (the computer will display the actual number you enter) will be deleted, not the whole record. If you enter anything else, it will replace the item in the record. If you press RETURN the operation will be aborted and the computer will repeat the "ENTER NUMBER OF ITEM..." question.

Assuming you enter a replacement item, NAME, or day number, the computer will display the changed record and ask:

RE-EDIT(Y) OR KEEP?

If you enter a Y the "ENTER NUMBER OF ITEM..." question will be re-displayed. If you just press RETURN, the changed record will be stored in the files.

To exit the function press RETURN to any question to get back to the "ENTER ACCOUNT?" question, and then press RETURN to that question also.

If the item you change is a NAME and the computer cannot find the new NAME, it will ask you to re-enter. You cannot enter new NAMES in the editing function.

"SPREAD SHEET" COLUMN ARITHMETIC"

There is a separate module to perform arithmetic functions on data items, named SSCALC.MOD. To access the function select HEADING MATH on the Custom Menu.

The computer will stop and ask for the account name which can be a "subdivision account" or a "general account".

Next the computer will display the entry key, listing the types of operations allowed. You can add, subtract, multiply, or divide all data items under two headings and just print the results or store the results under a third heading. Or you can specify a constant in place of one of the operator headings. Enter constants (numbers) in brackets as instructed by the computer.

If you do not have a heading available to store the result, you can add a new heading using the HEADINGS OF ACCOUNTS selection in the CHANGES/DELETES section of the Utility Menu.

You can perform math under only one account at a time; otherwise the

dates would not match. This module is primarily designed for spread sheets and other accounts holding several headings which represent numbers such as inventory and sales records, and for counting numbers of records in any account.

After you have specified the headings and operator, the computer will stop and ask for the first and last dates of records to be calculated. Enter the date numbers separated by commas.

The computer will stop and ask for NAMES, and then for a SPEC. Press return to either of these questions if you do not want to sort the records to be operated on by NAMES or a SPEC. If you do make entries here, the effect will be exactly the same as when you enter NAMES or a SPEC in a normal LIST operation, except that you cannot accomplish a "string" search by adding the "roof" character to the spec.

There will be two operator columns and one result column. All columns will be totaled at the end of the listing.

COUNTING RECORDS

If one of the operators is the number 1, a "1" will be displayed on each line in one of the operator columns. At the end of the listing the total of the "1's" will equal the total number of records displayed. It makes no difference what operation is being performed since you are only interested in the total of the "1's".

"K DISK FILE STRUCTURE" -- LISTING RECORDS IN RAW FORM

This selection appears on the Utility Menu. The module which will be loaded and run is called STRUK.MOD. It allows you to display records as they appear on the disk, in "raw" form. You can display the areas, account titles, headings, account records, NAMES, temporary directory, directory disk files, listing formats, and any other user files.

The computer will stop and display:

(enter Q for Quick Display)
BYTE COUNT,ASCII NOs(Y) OR RET?

Enter Q if you want a fast listing. Enter Y if you want to see the decimal ASCII equivalents of each byte. Just press RETURN for a normal listing.

The computer will display:

ENTER FILESPEC OR RET?

You can enter a filespec, such as:

D2:R702

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to list any file from any drive, or press RETURN. "Wild cards" will NOT work. This capability is included because in the later listings the computer will automatically load from the ramdisk if one is used.

Next the computer will list each type of file individually and ask if you would like to list that file (or group of files). If you would like to see any of the files, answer Y (return). Otherwise just press RETURN.

To list account files you must enter the file name of the account file, such as:

```
R604  
R70312R
```

Do not enter the Dns here. Wild cards will not work here.

Since there are several questions in this module, most of which you will want to skip, just hold down RETURN to exit the module.

Many beginning users will wonder if records entered into the computer are "really there". This happens frequently when entering records with FAST RECORD ENTRY and then forgetting to transfer the records from the temporary file to the regular account files where they can be accessed.

There is a remote possibility that records files can be damaged through some physical interference with the disk. In this case the results of LIST commands are unpredictable.

Lastly, during a support call we may need to know if the files are damaged in any way. This is the first place we usually ask you to look during a support call.

In special cases you will want to list all records of all kinds to identify certain ones.

Regarding account files (those beginning with an R), the account organization will be represented by inverse characters at the beginning of the record, then a few bytes for NAME reference and date. Next the data entries will be displayed exactly as entered, except if the data item is a NAME from the NAMES file in which case only a two byte index will be displayed.

In any case there should be enough data information to recognize records, especially if the records contain labels such as invoice numbers.

It is suggested that you become familiar with the way the files should look if you have time. A record file that ends in numerous "hearts" indicates that you attempted to store the file on a full disk with SpartaDOS (SpartaDOS does not like this situation and may even crash the disk). There is no reason for this to happen since you have the "QUICK CHECK" function on the Main Menu to check remaining capacities.

If you have further problems with program operation, the user files are a likely place to look. The NAMES file should contain no spaces except those within NAMES, and should contain no NAMES less than two characters long. There should be no graphics characters other than an up arrow between each NAME. The file display should fill the screen from left to right (for the length of the file).

The area, headings, and account titles files should not contain any spaces.

IMPORTANT POINTS AND RULES FOR EXPERIMENTERS (#)

Titles are stored in separate files, not in records.

Titles can only be changed, not deleted.

Only the positions of headings are stored in records.

You cannot change the order of headings and then LIST old records correctly.

Comments are displayed on a separate line in listings.

You cannot delete an "area" title.

The "TITLES OF ACCOUNTS" menu selection will print a reminder list of all account titles.

The "LISTING FORMATS" menu selection will list all "listing format" names.

CHAPTER 8 -- SPECIAL DISPLAY FORMATS

GRAPHING ACCOUNT INFORMATION

In the chapter covering LIST commands the INCLUDE? question was discussed. It was stated that if you enter the two letters GR to the INCLUDE? question the computer will assume you wish to graph the NAMES, headings, and accounts you entered up to that point. It will load and run the graphing modules: GRLIN.MDD, GRLINP.MOD, and GRPRINT.MOD.

MICROMOD graphs in high, medium, and low resolutions (ANTIC modes B, A, and D or BASIC 3, 5, and 7). High resolution will automatically result in a line graph, medium resolution results in a dot graph, and low resolution results in a bar graph. All sizing and scaling is done automatically. You can select color-luminosity of the first color (changing the second and third colors could make the display unreadable). You can print the graph normally or sideways regardless of the resolution used.

These choices make the graphing function useful over a wide range of applications.

There are no numbers in the vertical scale. However it is marked and the value of the marks are displayed on the bottom of the screen.

To access the graphics format use one of the first four LIST commands on the main menu as you would normally do to list the names, headings and accounts you want to graph. You can LIST and INCLUDE up to three headings from one or more accounts, with one NAME or no NAME entered. If you enter more than one NAME you cannot specify more than one heading.

You have three colors to use in the graph (besides the background color). These will represent the headings you enter. If you enter more than one NAME, they will represent the NAMES, NOT the heading.

When you are finished LISTING and INCLUDING the account information, DO NOT press return to the INCLUDE? question as you would normally do. Instead enter the letters GR, e.g.:

```
INCLUDE?GR
```

and press RETURN. This will let the computer know you wish to graph the information rather than list it.

The computer will stop and ask for the first and last dates to graph. Enter the date numbers separated by commas as usual.

Next the computer will stop and ask for your choice of resolution. Enter H, M, or L for high(160x80), medium(80x40), or low(40x20).

Next the computer will ask how many days you will want to group into one point on the graph. If you specify more days than the number of columns available (i.e. 40, 80, or 160) you will have to let one point on

the graph stand for the sum of two or more days. If you want to plot by the week enter 7 here. If you want to plot by the month enter 31. The computer will automatically adjust for the variations in the number of days in each month if you enter 31.

Next the computer will ask how many columns (along the horizontal axis) you will want to skip with each point. For instance, if you were plotting 30 days in medium resolution (80 columns) you could plot a point in every other column by entering 2 here. The graph would then use up 60 (30 X 2) columns.

If you choose low resolution, the computer will display a bar graph. Each additional heading (or name) will be plotted immediately to the LEFT of the first heading in a different color. Therefore, if you are graphing two headings in low resolution, you must skip at least one column per point to have room for the second "bar" to be plotted. If you are plotting three headings you will have to enter at least a 3 here.

As an example, suppose you want to plot monthly figures from three headings for a year (1986) as a bar graph. You would enter 1,1,86 and 12,31,86 for the dates. You would enter L to the resolution question. You would group 31 days into one point, and skip 3 columns with each point. The graph would then print 12 bars for each account, a total of 36. There would be no spaces (columns) between months. Each heading would have bars in its own color.

After you have answered the "columns to skip each point" question the computer will check to see if you have enough columns to display the graph according to your specifications. If not, it will make suggestions and ask you to re-enter the dates, resolution, groupings, and columns to skip each point.

After the computer has calculated the horizontal scale it will stop and ask for the largest number to expect. Enter your estimate for the highest total you expect plus a safety margin. If you will be plotting a running total you must estimate how high the total will run. You may enter a negative number, but the computer will adjust it to zero.

Next the computer will ask for the smallest number to expect. Enter a number which can be positive, zero, or negative. The computer will calculate the vertical scale automatically.

Next the computer will ask if you would like to plot a running total. Enter Y or press RETURN without an entry if you do not want to plot a total. In order to plot a running total you must have entered the headings with a + or - sign originally, as you do when choosing a running total in a normal listing. The running total will be plotted in the second color and will be plotted as a dot regardless of the choice of resolution. You can still plot up to three headings/names. The running total will be plotted in the same color as the second heading or name.

Next the computer will ask you to select color-brightness of the first color. Enter two numbers between 1 and 9. The first number selects the

color. See the Atari BASIC manual for a listing of the sixteen colors represented by numbers from 0 to 15. The brightness number must range between 2 and 14. To use the default colors, press RETURN without making an entry.

Printing the Graph

After the graph is displayed the computer will ask if you would like to print the graph on the printer. If so, enter Y. Make sure the printer is turned on and "on line". If you don't want to print the graph, press RETURN without making an entry.

If you choose to print the graph, the computer will stop and ask if you would like to print sideways or normally. Enter Y to print sideways. If you are in high resolution (160x80) you must select sideways printing unless your printer can print 160 characters on a line (the graphing modules support any number of printer columns).

The printer will print the "*" character for the first color, the "+" character for the second color, and a "." for the third color. While printing you can press the H key to hold the printer if necessary while you insert paper.

CALENDER FORMAT

To print account information in a calender format, enter the account information using the LIST commands on the main menu as you would normally do. Proceed and answer the format questions. Do not specify the printing of an address, and ignore (press RETURN to) the "STOP,HOLD PRINTER EACH ??th LINE?" question. If you want to prevent listing of data under certain headings, enter zero for the tab setting of that heading. Otherwise tabs are ignored and you should select AUTOMATIC FORMATTING for convenience.

When you get to the "SPECIFICATION FOR EXCLUSIVE LISTING" question, do not enter a "spec" and do not press RETURN without making an entry as you would normally do. Instead, type the letters CAL followed by a comma and then a number which represents the maximum number of columns your printer can handle. For the screen enter

CAL,40

and press return. For an 80 column printer enter

CAL,80

and press RETURN. The program will handle up to 156 printer columns, so the maximum number you can enter is 156.

On the screen there will be only 2 spaces available for each data item printed. On the printer there will be more room. The number is determined by dividing the maximum number of columns (usually 80 on the printer) by 7 and subtracting 3 from the result. 80 columns allows 8 spaces for each

data item. The height of the calender boxes will vary to correspond to the width, and will be expanded if needed to list all information specified.

The entire last month will be printed regardless of the day number entered. You can return to the menu anytime by pressing M, or hold the listing by pressing H.

After the calender is printed the computer will stop and ask if you would like to name the listing. The procedure is exactly the same as for a normal listing. If you name the listing you can then use the last LIST command to print the calender again with new names, specs, or dates, without formatting.

FORMATTING A SPREAD SHEET "FORM"

When you use the LIST commands in the master program your entries will usually result in a spread sheet type of listing. This may begin with an address if you entered a NAME in one of the LIST or INCLUDE? entries. The "FORMAT SPREAD SHEET FORM" function (module SSFORMS.MOD) allows you to print information in three areas in the listing: before the address, before the listing, and after the listing.

To get to the module, enter the NAMES, headings, and accounts using the LIST commands and INCLUDE? entries on the main menu as you would normally do. Proceed and answer the formatting questions as usual. After you have answered the "CANCEL PRINTING OF HEADINGS(Y) OR RET?" question, the computer will stop and ask:

FORMAT SPREAD SHEET FORM(Y) OR RET?

Enter Y and press RETURN to run the SSFORMS.MOD module and embellish the listing.

The instructions you enter here will be followed later during the listing.

The computer will stop and ask what information you would like to appear before the address (or before the listing if no address). Type the information one line at a time and press RETURN. If you enter [B] as one line, the computer will leave a blank line at that point in the listing. If you enter [T] as one line, the computer will stop at that point in the listing and wait for typed entries. This allows you to (later) vary the information each time it is printed.

If you enter [M] as one line this will instruct the computer to stop printing at that point in the listing and immediately return to the menu, but only after the format is "named". It will not return to the menu the very first time because if it did you'd never get to the "NAME LISTING..." question.

You can create a MICROMOD text file by converting a WP23 Word Processor text file (see Chapter 15). If you will have such a text file on disk as

the listing is printed, you may specify the printing of that text file in the (later) listing by entering the file name on one line here in the SSFORMS.MOD module. You must also specify the drive number in which the MICROMOD text file will be when the listing is printed, even if you have only one drive. Enter the file name, then a comma, then the drive number. The whole entry must be enclosed in brackets so that the computer can recognize it as an instruction. For example:

```
[TEXTFILE,EXT,2]
```

to print the text from the MICROMOD text file named "TEXTFILE.EXT" which will be on the disk in drive #2 at the time of listing.

FORM LETTERS FROM NAME LISTS

If you were to specify the printing of a MICROMOD text file, which is a form letter, you could enter an [M] as the entry on the next line. This would cause the computer to return to the menu after printing the letter. If you are using two drives you can use the BATCH STATEMENTS function to print the form letter for a name list you create and maintain on disk. If you enter a NAME in the LIST command when first creating this format you can specify the printing of an address, and addresses will be printed automatically in the form letter.

This completes the instructions you can enter for printing information before the address.

Address Tab

After you have entered the information to appear before the address, and ONLY IF YOU HAVE SPECIFIED FOR AN ADDRESS TO BE PRINTED, the computer will ask for the horizontal tab position of the address. If you do not format a "form" this is set at 16.

Next, and ONLY IF YOU SPECIFIED PRINTING OF AN ADDRESS, the computer will ask you to enter the information you will want printed before the listing (after the address). The entry procedure and results are exactly the same as above--you may enter text to be printed exactly as entered or one of four "bracket entries": [B], [T], [M], or a MICROMOD text file name in brackets.

After this the computer will again stop and ask for the information you will want printed AFTER the listing. Again, the procedure is exactly the same and you can enter a text line or bracket entries to affect the area of the print-out following the account information.

DOLLAR AMOUNTS

If you followed one or more headings in your LIST and INCLUDE? entries with a + or - sign the computer will stop and ask if you would like the numbers to be printed as dollar amounts. If you do not want dollar amounts

press RETURN without making an entry.

If you want dollar amounts, enter any number which represents the highest number you will ever expect using this format. Remember, you will be saving the format and using it in the future. The number you enter will determine how many spaces horizontally will be allotted for dollar amounts whenever the format is used.

After the format and listing is displayed the computer will stop and ask if you would like to name the listing, as it does for a simple "spread sheet" listing. The procedure is exactly the same. If you name the listing you can then print it over and over without re-formatting by using the LIST name(s),spec,listing,date,date command.

Without a 192K+ ramdisk this function causes slower listings.

The "embellished" format you enter may lengthen the size of the total format instructions considerably. The extra format instructions must be stored somewhere during the listing operation because there may not be enough room in RAM to hold 2000 names, 500 accounts and headings, full record files, considerable extra machine code programming, and the format. Thus the format is stored on disk. If you have a ramdisk you won't notice any increase in display time. Without a ramdisk the format must be stored and retrieved once from the disk drive, adding several seconds to the listing operation.

If you require a fast listing operation and have the choice you may be better off not to "Format a Spread Sheet Form."

STATEMENTS OF TOTALS*CHARACTERISTICS OF STATEMENTS*

When you use one of the first four LIST commands to display a spread sheet type of listing the computer will total any numeric data under any heading you enter ending in a + or - sign. IF YOU ENTERED EVERY HEADING this way, and assuming you DID NOT format a spread sheet "form", the computer would stop at the end of the listing and ask:

FORMAT STATEMENT OF TOTALS(Y) OR RET?

Type Y and press RETURN to format a statement. If you do not wish to display a statement of totals press RETURN without making an entry.

Before presenting procedure some general information about statements is called for. Though the formatting function is designed to be simply operated some users experience difficulty because an understanding of the (normally unnoticed) peculiarities of statements is required. This is because the Statement of Totals function takes full advantage of the peculiarities of statements to make the procedure as short and simple as possible.

One item of "trivia" concerning statements that you may not have noticed before is that

EVERY NUMBER EXCEPT THE FINAL TOTAL IS ADDED OR SUBTRACTED EXACTLY ONCE.

The computer takes full advantage of this so that the number of arithmetic instructions required in the format is greatly reduced:

IF AN ENTRY IN THE FORMAT ENDS IN A MINUS SIGN, THAT TOTAL WILL BE SUBTRACTED DURING THE STATEMENT LISTING. OTHERWISE IT WILL BE ADDED.

Each total from the spread sheet listing will be added or subtracted once, usually into subtotals. The subtotals will be added or subtracted only once into more general totals or grand totals.

Therefore the only arithmetic instruction required in the format is an occasional - sign. Of course if you specify a text message to appear on one line in the statement no arithmetic will be performed on that line.

Another peculiarity of statements is that subtotals and grand totals are never placed in a lower column than (to the left of) the numbers that were totaled. Furthermore, and most importantly, a totalling operation never involves totalling numbers from more than one column. Taking advantage of these facts further reduces required procedure. Any time you specify a number and column, but do not specify a total from the spread sheet listing, the computer will know several things automatically: First, it will be a subtotal. Secondly, if there is any number in a lower column that has not been totalled in the statement yet, the totalling operation

will apply to that column only. It makes no difference whether the "untotaled" figures represent totals from the spread sheet or previous subtotals created in the statement.

Each total in the spread sheet listing will be associated with an account, and more than one total may be associated with the same account. It is the account title, not the heading, that is most often listed in statements to identify the number that will appear. Thus it is the account title that will be used in the formatting procedure to identify a particular total from the spread sheet listing.

The order of the accounts listed in a statement usually follow a convention. For instance, in Income Statements sales are usually listed first, then inventory totals, and then expenses. To save you from having to learn a procedure for ordering the accounts in the statement, they simply appear in the exact same order as you entered them in the original LIST and INCLUDE? entries. Thus you must know something about what you will want the statement to look like before you start out with LIST and INCLUDE? instructions.

Since you will be purposely creating a statement from the beginning you will not want to enter headings that do not contain numeric data; these would not be used in the statement. So there is another requirement to remember when making your LIST and INCLUDE? entries:

EVERY HEADING ENTERED IN "LIST" AND "INCLUDE?" ENTRIES MUST END WITH A + OR - SIGN TO GET THE "STATEMENT OF TOTALS" QUESTION TO APPEAR.

This wouldn't normally be required. But it allows the computer to skip the question when you are not trying to create a statement, thus reducing procedure for other listings.

You will be specifying arithmetic in the statement format so all that is necessary to produce in the spread sheet columns is the totals. Columns are added up and totaled regardless of whether it was a + or - sign after the heading. The minus sign affects only the "running total" column. The running total is not used in the Statement of Totals function. Therefore

IT MAKES NO DIFFERENCE IN THE STATEMENT WHETHER A + OR - SIGN IS USED IN "LIST" AND "INCLUDE?" ENTRIES AS LONG AS ONE OR THE OTHER IS USED.

The sign is necessary only to get individual column totals to appear.

Another characteristic of statements is that they have only two or three number columns. Thus MICROMOD allows you to specify totals to appear in any of three columns. A more complicated tab setting procedure is not required. Three columns will easily fit on the screen or the printer so you will most often just accept the default tab setting for the columns.

We noticed that in practice the numbers in statements are always dollar amounts. So they will always be displayed that way. A procedure to specify this and the "highest number" is not required. The computer investigates all the totals automatically and displays the numbers according to its

findings.

So far the Statement formatting job is really simple. The computer can figure out most things for itself. All it has to do is list each account title associated with each total and ask whether you want it added or subtracted on the statement. This would be fine if there were only one column in the statement with no subtotals, no titles or comments, and if the titles of accounts were the same titles you would want to appear in the statement. But of course this is not the case and more formatting procedure is required. But more about that later. First we'll concentrate on the totals from the spread sheet listing themselves.

Since the computer already knows the titles, it isn't necessary for you to enter them again. The computer will list the account title on the right of the screen and wait for your instruction for the next line in the statement. The instruction might be a title, comment, or subtotal, so it's necessary for you to tell the computer if you will want the account total currently displayed to appear on the next line of the resulting statement, or just a text entry or subtotal. We chose the letter A as the instruction to specify listing the account total instead of something else. So if you type an "A" in the format, the total from the currently displayed account title will be displayed on the next line in the resulting statement, beginning with the title itself to identify the account in the statement.

But you may not want your abbreviated account titles to be used in the statement. You can change the title that will be printed. Just enter the title you want into the format and end it with an "A" enclosed in brackets (so the computer will know that the "A" is not a part of the title but an instruction to print the total).

Since total and subtotal figures will be displayed in one of three columns you must also specify a column in all entries that result in a total being displayed, whether a total from the spread sheet display or a subtotal in the statement. This is accomplished by simply ending the entry with a number from 1 to 3, separated from the first part of the entry by a comma.

Subtotals

Subtotals also contain a number total which must be placed in a column. Thus the entry to specify a subtotal is just like the entry to specify printing a total from the currently displayed account, except to leave the "A" out. The entry will begin with the title you want printed in the statement to identify the sub-total, followed by a comma, followed by a column number.

The subtotal specification need not inform the computer which numbers to total up, or even that it is a subtotal. The computer will know it's a subtotal because the entry contains no "A". It will know which numbers to total because every subtotal in a statement totals everything FROM A LOWER COLUMN OR THE SAME COLUMN that has not been totalled already. So even though the subtotal instruction is easy to enter, a lot of operations will result in the statement when it is listed.

Of course this assumes that you assign the same column number to numbers that will go into the same subtotal or grand total. This is a minor point because most users will do this out of habit anyway.

You will want some lines in the statement to be just titles or other explanatory text which has no number associated with it. Therefore there need be no comma and column number in the entry. The computer checks for the comma only. Thus any entry you make that does not contain a comma will be interpreted as a text entry and will be printed in the statement exactly as typed into the format without affecting anything else.

Think Ahead!

There's only one thing left that the computer needs to know: whether to add or subtract any particular number in the subtotalling or grand totalling operations. You will be specifying the numbers to be totalled before you specify the totalling operation itself by entering a subtotal instruction. Therefore you must include this instruction with every entry which results in a number (totals from the spread sheet and subtotals in the statement). Since all numbers are totalled exactly once, and since they are either added or subtracted into the total, there are only two possible conditions.

To take advantage of this fact and reduce procedure, you do not have to specify addition. It will be automatically assumed if you just do nothing. If you will want a number to be subtracted in the future totalling operation though, you will need to let the computer know by ending the entry with a - sign. This simply tells the computer that the number will be subtracted in the next totalling operation rather than being added.

Since only numbers can be added or subtracted, and since all numbers must be placed in one of the three columns, all - signs will follow column numbers. Thus the - sign goes immediately after the column number you specify in entries.

Users find the arithmetic instructions (- signs) to be the most confusing aspect of formatting the statement because the instructions are placed before the totalling instruction. You must think ahead every time you make an entry which results in a number and determine whether you want it subtracted or added in the next totalling operation. Of course this implies that you will be thinking ahead and know what the next totalling operation will be, e.g. a Cost Of Goods Sold figure, total of traveling expenses, Sales minus Total Expenses, etc.

More confusion may arise just because of the many instructions you accomplish when making a simple subtotal entry in the format. Not only does this automatically specify all the appropriate totaling to be done, but it results in a total itself which will be later used in some other totalling operation. So even subtotal entries will sometimes end in a - sign, for instance, Total Expenses will always end in a - sign in Income Statements because they are always subtracted from Net Sales in the later totalling operation (Net Profit).

Statement Formats just a type of "Listing Format"

It's a long road from the original LIST and INCLUDE? entries through all the spread sheet formatting questions and then the formatting of the statement itself. For this reason, once the statement format is done, there is another function which allows you to re-edit the format without starting over. Once you see the result you want you can name the statement and then use the "listing name" in the last LIST command as you would for any "listing name."

STATEMENT OF TOTALS -- PROCEDURE

When you answer Y to the "FORMAT STATEMENT OF TOTALS..." question the computer will load and run two modules in sequence. First FRMSTAT.MOD is run to format the statement, and then DISTAT.MOD is run to edit the format and print the statement itself.

You cannot re-order accounts in a statement, so they must be entered from the Menu in the same exact order that they will appear on the statement. Each entry must specify one heading ending with a + or - sign, and an account title. Here is an example of the entries for a simple Income Statement:

```
?LIST AMOUNT+ FROM SALES
INCLUDE?AMOUNT- FROM RETURNS
INCLUDE?AMOUNT- FROM FED
INCLUDE?AMOUNT- FROM FICA
INCLUDE?AMOUNT- FROM NEWS
INCLUDE?AMOUNT- FROM TV
INCLUDE?
```

(Note how much easier these entries would be if AMT were used as a heading rather than AMOUNT.)

You would go through the rest of the entry sequence as described earlier to display a spread sheet listing, choosing automatic formatting for convenience. At the end of the display answer Y RETURN to the STATEMENT OF TOTALS question.

The computer will stop and ask for tab settings for three columns. For now, press RETURN for the default tab settings (12,21,30). The computer will then display a screen of information about formatting, including examples. Also included are instructions for starting the format over and deleting lines. Continuing with the above entry example, the computer would display at the bottom of the screen:

```
NEXT ACCOUNT:
A=SALES
```

17

Statements are formatted by the line, sequentially. If there are no

commas in the entry, the computer will print (in the statement) the entry exactly as typed. Thus the Statement of Totals function could be used as a 'mini-word processor' with editing and storage capability to type short items (as long as they don't use any commas!). See "listing formats" information before doing this.

You might type a title on line 1. (If you have signaled the printer to print you may have already entered a title). Then you would press RETURN without making an entry for line 2 to skip a line after the title. The result would look like this:

```

                                NEXT ACCOUNT:
                                A=SALES
1?INCOME STATEMENT
2?
3?

```

To display the first account total, simply enter:

```
3?A,2
```

This tells the computer to print the word SALES on line 3 and then the total of sales for the period in column 2 of line 3. The resulting display would look like this:

```

                                A=SALES
1?INCOME STATEMENT
2?
3?A,2                                A=RETURNS
4?

```

Every time you specify the currently displayed account, the computer then displays the next account in the sequence on the right-hand side of the screen, as a reminder.

The next entry would be:

```
4?A,2-
```

The word RETURNS would be printed in the statement on line 4, and the amount in column 2 of line 4.

The reason for the - sign after the column number (2) is that the amount figure from RETURNS will be subtracted in the next totaling operation on the statement.

Next you would skip line 5 by pressing RETURN, and then enter a title on line 6 to total the last two figures. The display would look like this:

```

                                A=SALES
1?INCOME STATEMENT
2?
3?A,2                                A=RETURNS

```

```

4?A,2-           A=FED
5?
6? NET SALES,3
7?

```

This tells the computer to print the words NET SALES, indented one space, on line 6, and to total any figures not previously totaled (lines 3 and 4) and place the result in column 3. Note that the next account in the sequence was displayed as soon as RETURNS was specified.

Whenever a column number is entered without specifying the next account (e.g. A=FED) it tells the computer to total any numbers in lower columns that have not been totaled yet, beginning with column 1, then 2, etc. If none are found, it will total any numbers not previously totaled in the specified column. If a - sign was not entered after the column number of the previous entry, the number will be added (the + sign is understood).

Next you would press RETURN to skip line 7 and enter the first expense on line 8. But this time you might not want the word FED to appear in the statement, preferring the more descriptive title, FED WITHHOLDING. The entry would look like this:

```

8?FED WITHHOLDING[A],1  A=FICA
9?

```

The display A=FICA is not part of the entry, it is added by the computer to indicate what the next account will be. This may mask part of the previous entry if it was lengthy, but has no effect on the statement.

The entry for line 8 tells the computer to print the words FED WITHHOLDING on line 8 of the statement, and to display the amount from the FED account in column 1, line 8. There is no - sign after the column number because this number will be added in the next totaling operation (sub-total).

You would specify FICA on line 9, then skip line 10. For example:

```

9?A,1           A=NEWS
10?
11?

```

To sub-total withholding, you would enter a title and specify a column number for the result. For example:

```

11? TOT WITHHOLDING,2

```

This would cause the words TOT WITHHOLDING to be displayed on line 11 of the statement, and the total of FED and FICA from column 1 to be displayed in column 2, line 11.

You would repeat the procedure for NEWS and TV, then skip a line before totaling all expenses. The screen would look like this:

1? INCOME STATEMENT	A=SALES
2?	
3?A,2	A=RETURNS
4?A,2-	A=FED
5?	
6? NET SALES,3	
7?	
8?FED WITHHOLDING[A],1	A=FICA
9?A,1	A=NEWS
10?	
11? TOT WITHHOLDING,2	
12?	
13?A,1	A=TV
14?A,1	no more accounts
15?	
16? TOT ADVERTISING,2	
17?	
18?	

To total the two sub-totals WITHHOLDING and ADVERTISING from column 2 you might enter:

18?TOTAL EXPENSES,3-

This would cause the words TOTAL EXPENSES to be printed on line 18, and the total of the two sub-totals from column 2 to be printed in column 3.

The reason for the - sign after the column number is that the total expense figure will be subtracted in the next totaling operation in the statement.

Next you would skip a line and enter the title for net income. You must specify column 3 because the only figures left that have not been totaled (NET SALES and TOTAL EXPENSES) reside in column 3. You cannot place a total in a lower column than the figures that are to be totaled.

Enter F to let the computer know you are finished with the format. The final format:

1? INCOME STATEMENT	A=SALES
2?	
3?A,2	A=RETURNS
4?A,2-	A=FED
5?	
6? NET SALES,3	
7?	
8?FED WITHHOLDING[A],1	A=FICA
9?A,1	A=NEWS
10?	
11? TOT WITHHOLDING,2	


```

12?
13?A,1           A=TV
14?A,1           no more accounts
15?
16? TOT ADVERTISING,2
17?
18?TOTAL EXPENSES,3-
19?
20?NET INCOME,3
21?F

```

This is only one way of setting up a statement. You could specify column 1 for SALES and RETURNS, and delete the sub-totals for expenses. The statement could then be printed with just 2 columns.

The above described format function is designed to help you quickly learn to format statements. If you make any entry errors the computer will tell you what to do to correct the entry and ask you to re-enter it. The next function (edit) assumes you understand the form of entries, and is much faster.

EDITING THE FORMAT

After you enter F and press RETURN, the computer will display:

```
REVIEW FORMAT(Y) OR PRINT(RET)?
```

If you enter Y the computer will display information about editing the format and allow you full editing capability using immediate key control. As you press RETURN, each line will be displayed. You can start the edit over by pressing S, delete the previous line by pressing D, change a line by pressing C, and insert a line by pressing I. You can quickly display the format by holding down RETURN.

After the last line is displayed the computer will again ask the REVIEW FORMAT(Y) OR PRINT(RET)? question. If you press RETURN the statement will be displayed. At the end of the statement the computer will ask:

```
REVIEW FORMAT(Y) OR NO(RET)?
```

You can quickly review/edit the format and display the resulting statement over and over until you get just the result you want.

You might not want the printer on while doing all this, nor would you normally want to print the prerequisite spread sheet listing. You can signal the printer by pressing the space bar after answering the "FORMAT STATEMENT OF TOTALS..." question, or after you enter the last line in the statement format. Usually you will create the Statement Format on the screen, and then name it into a "listing format". You can worry about the printer later when using the format in the last LIST command.

After the computer displays the statement exactly as you want it, press RETURN and the computer will ask you to name the statement.

The procedure is exactly the same as previously described for the spread sheet listing.

If you name the statement, you can then display the statement anytime, modified with new dates, a name, and/or a "spec" by using the 'LIST name,spec,listing,date,date' command as described earlier.

One additional advantage with statements is that you may re-edit a statement anytime, even after it has been named, and then name the updated version. It is suggested that you delete the old version (from the Utility Menu) as statements tend to take up much room in the "listings" file.

ALL AMOUNTS IN STATEMENTS ARE PRINTED AS DOLLAR AMOUNTS, INCLUDING DECIMAL AND COMMAS TO SEPARATE THOUSANDS. FORMATTING (defining the field) IS DONE AUTOMATICALLY. Numbers in spread sheet displays are not printed as dollar amounts unless you specify this when "FORMATING A SPREAD SHEET FORM" (see spread sheet format instructions).

The Statement of Totals module has a variety of uses besides Income Statements. Using it along with the spread sheet analyses, you should be able to organize and define (name) just about any type of information possible from your account record information.

IMPORTANT POINTS AND RULES FOR EXPERIMENTERS (#)

GRAPHS:

Enter three headings--option to enter one name--or enter three names and one heading.

Follow headings with a + or - to plot a running total.

Press H to hold the printer.

CALENDER:

You can name a calender format into a "listing format" as you do with other types of listings.

SPREAD SHEET FORM:

~~The SpartaDOS version with 2 drives will run continuous "listing formats" from "batch name lists".~~

To specify dollar amounts, at least one heading must be followed by a + or -.

Formatting a "form" will cause slower listings if not using a ramdisk.

STATEMENTS OF TOTALS:

All headings must be followed by + or - to get to the Statement of

Totals function.

‡ Do not format a spread sheet "form" if planning to format a statement.

It is the account title, not the heading title, that is listed in statements.

‡ Titles must be entered in LIST and INCLUDE entries in the same order as they will appear in the statement.

III. THE DIRECTORY DATABASE

CHAPTER 9 -- CREATING AND EDITING A DIRECTORY

INTRODUCTION

The directory program is integrated with the other MICROMOD programs in the sense that all programs use the same NAMES file to label records, and addresses from the directory are printed in account listings and statements. Further, the invoice program automatically stores addresses, phone numbers, and customer information in the directory. All MICROMOD programs except the word processor share the same MICROMOD systems routines loaded into the computer when first powering up.

The directory filer was designed to fit the needs of those who will most often buy MICROMOD primarily to use the Dated Records program. Few will have purchased MICROMOD for the Directory Filer. Even so, it is a full featured filer which stores undated information efficiently, though there is less opportunity to condense directory records than there is with account records. Powerful sorting during display and/or sorting by re-indexing is included.

Most users will use the directory filer for storing addresses, phones, and brief information on customers and suppliers.

How the Directory Database is Organized

The primary task of the Directory is to support the Dated Records program with a function it cannot easily handle--that of storing addresses and printing them on labels. In effect, all information is printed out in "label" format, though it could be just one infinitely long label, or series of single labels. The directory is organized to best support this display format, and to store information in a very efficient manner.

Directory records are made up of one or more smaller records called "entries", each entry in a record applying to the same NAME. These smallest records are called "entries" because each is entered with only one entry to one prompt. The entire record (of individual "entries") may occupy up to 256 bytes. Each "entry" record may be up to 119 characters. A single entry, such as an address, may be later displayed on up to 5 lines, though entered all at once. The individual lines to be later printed/displayed, such as the 3-5 lines of an address, are determined when first making the entry by use of semicolons to separate information.

Information may be alphabetized by the first or last word in the first line of any entry (such as the first or last name in an address), by the first word of additional lines in the entry, or by zip code.

With the Report Generator, any single line of any entry may be displayed, or the first or last word of any line of any entry.

With the full alphabetizing and sorting capability, and the Report Generator, the Directory database becomes a powerful "file manager" type program, though the procedure and operation is unusual due to it's primary function of handling addresses in the simplest, most straightforward manner possible.

To prevent confusion...

The program is quite simple to operate and to understand, and users have little trouble in learning to operate it. A few difficulties have been noted and they will be discussed before getting into procedure.

The Address Symbol

There are three ways to make a directory entry. First, you may just type the information you wish to store. It will be associated with the NAME you entered and listed whenever you seek all information listed under that NAME.

Secondly, you may begin the entry with one of six symbols, followed by a space, followed by the information you wish to store. This will allow you to list only information beginning with that symbol for one name, or all NAMES.

In either of the above cases the records you enter will later be listed in sequence, with up to 256 characters in each record, and the NAME associated with the record will be displayed at the top of each record. The repeated display of the NAME between records is sometimes an inconvenience, and this can be prevented.

One of the six symbols you may enter has special significance and allows much more flexibility when listing records. It is the address symbol "@" located on the "8" key. It allows the use of a "sort code" and prevents the NAME associated with the record from being listed (a sort code can be any single character you can type on the keyboard). Thus several records entered beginning with the "@" character may be listed together without any blank or NAME lines between, AS IF THEY WERE ONE RECORD. Because of this listing flexibility and the large number of "sort codes" available to sort records in listings many users use the "@" symbol in all records and sort only by NAME and "sort code".

Sort codes may be used with the address symbol only.

Another point that many users seem to miss is that every entry in the directory must be at least two characters long, not including the associated symbol if used. The instruction to begin a new line is the ";" character. Thus to cause a blank line to be printed within or at the end of an entry, the entry must contain two spaces between two semicolons, for example:

```
@ This is the data I want followed by a blank line; ;
```

This entry will result in the text being printed on one line, and then

advancing the printer one extra line before printing the next record. The two spaces between semicolons must be within the entry or at the end. They will not work if at the beginning of the entry.

To PUT or not to PUT...

Finally, you'll be using the PUT command to access the directory. You won't just type "PUT" but will follow this with the NAME that you intend to enter into the first record. The necessity to include the NAME of the first record is actually a convenience so that you can enter information with less procedure. BUT ONCE IN THE DIRECTORY YOU DO NOT TYPE "PUT" AGAIN. After you enter the first record, additional records are entered in the standard way, i.e., each begins with a "NAME?" prompt to which you enter the NAME for that record.

The word PUT is used only when at the Main Menu and it's sole function is to tell the computer to load and run the Directory Entry module (PUT.MOD).

To exit from the Directory Entry module, just press RETURN to the NAME? prompt for the next record.

"PUT name" INSTRUCTIONS

To enter information into the Directory, use the "PUT name" selection on the Main Menu: Type PUT and follow it with an abbreviated NAME, then press RETURN. The computer displays either:

```
NAME FOUND
or
NEW NAME--KEEP IT(Y) OR CANDEL(RET)?
```

in case you made a spelling error or want to change your mind (this will also happen during the "MAKE record" Menu selection since you can add new NAMES when you enter ACCOUNT information too). To cancel, press RETURN. If the computer displays NAME FOUND or you type Y to enter the new NAME, the computer will go on to ask you for the Directory information.

You are not required to follow PUT with a NAME at the Main Menu. You can simply type PUT (return) and the computer will then ask for a NAME. This might be simpler and more straightforward to you, though it requires an additional entry.

After the computer displays "NAME FOUND" or you type Y to add a new NAME to the list, the computer will display:

```
DIRECTORY ENTRY 1 (name)
```

and stop. Type up to 3 lines of information, then press RETURN.

note: THE FIRST ADDRESS AND PHONE YOU ENTER IN THE DIRECTORY SHOULD BE YOUR BUSINESS ADDRESS AND PHONE TO APPEAR ON INVOICES/STATEMENTS.

The computer will then display:

```
DIRECTORY ENTRY 2 (name)
```

and stop again. This will continue until you press RETURN without typing anything first.

You can include up to 256 characters in a record. The computer will let you know how much room is left when you approach the limit. This limitation is easily defeated. Just enter the same name again and continue with a new record. Records may be listed together as if they were one. The NAME label will be printed between records, but use of the @ character will prevent this (see information on use of "Symbols" later in this chapter).

When you press RETURN without making an entry (may be at ENTRY 1 if you change your mind and don't want to enter anything) the computer will display:

```
ARE YOU SURE(Y) OR RET?
```

You can cancel the entries you just made under that NAME by pressing return. You can also delete Directory entries using the DIRECTORY INFO selection in the CHANGES/DELETES section of the Utility Menu.

SYMBOLS

If your entry is an address, begin the entry with a @ character (the character on the "8" key). Use a semicolon to separate information you will want listed vertically (on separate lines). For example:

```
DIRECTORY ENTRY 1 DOEJ
```

```
?@ John Doe;23 Oak St;Erie, PA;30956
```

The reason a semicolon is used instead of a comma is that you may want to use commas in your entries. When you SHOW this address later, it will be shown or printed as:

```
John Doe  
23 Oak St  
Erie, PA  
30956
```

It is recommended that you keep information between semicolons short, and list it vertically, since this makes the most efficient display or

printout after setting tabs (formatting). Your entries must be at least two characters long.

ALL DIRECTORY ENTRIES MUST BE AT LEAST TWO CHARACTERS IN LENGTH. IF YOU USE SEMICOLONS TO PRINT THE ELEMENTS OF ONE ENTRY ON SEPARATE LINES, THERE MUST BE AT LEAST TWO CHARACTERS OR SPACES BETWEEN SEMICOLONS.

YOU CANNOT HAVE MORE THAN 5 LINES (4 SEMICOLONS) IN ONE ENTRY. This limitation is also easily defeated. Just continue your data in the next entry. Multiple entries can be listed as if they were one, though again, the NAME label will take up a line between entries when displayed unless the address symbol "@" is used.

If the entry is a telephone number, begin with a # character. For example:

DIRECTORY ENTRY 2 DOEJ

?# 355-9753

or

?# H 813-345-6542;O 813-355-9753

or

?# HOME;813-345-6542;OFFICE;813-355-9753

Beginning the entry with one of these "Symbols" from the SYMBOL table will allow you to list all information in the directory of that type exclusively.

If you hold down the OPTION key while pressing RETURN to any entry, the SYMBOL table will be displayed to remind you of the meanings of the symbols. @ always means ADDRESS, # always means TELEPHONE, and you choose the meaning of the other four symbols.

You do not have to start Directory entries with a symbol. If you don't the information will be shown or printed exactly as entered when you select "SHOW" or "SHOW name".

SORT CODES

If you use the address Symbol, "@", you can follow it immediately with a "sort code" in both your Directory entries and in SHOW commands. This greatly increases your ability to sort directory information. The "sort code" may be entered in the Directory entry (in the space after the "@" symbol). There is also a separate function on the Main Menu, "ADDRESS SORT CODES" which allows you to easily assign "sort codes" later, or to update them.

Examples of the use of "sort codes" will be presented in the next Chapter (Chapter 10).

The Directory information you enter is always stored in the "Temporary Directory" file which is one of the "user files" on the Master Program disk, file name "D". If and when this file approaches full capacity (about 170 addresses) it is up to you to "UNLOAD" it to a separate directory disk (see "UNLOAD TEMP DIRECTORY instructions").

If you are using only one drive, or if you store too many account records to share the disk in drive #2 with the directory, having separate directory files will necessitate disk-switching when accessing directory information. Thus it is better not to "UNLOAD" the temporary directory until it approaches full capacity.

Once you have "UNLOADED" the temp directory once, though, you will find that time is saved by "UNLOADING" it whenever it gets up to about 25% to 50% capacity. This is because the Temporary Directory is loaded first every time you use a SHOW command, and the alphabetized files on the directory disk will be shorter. If you have a full ramdisk (192K+) holding the Temporary Directory it will be loaded quickly and you're better off to fully utilize the Temporary Directory.

More detailed information on the directory files will be presented in Chapter 23 (see "FILE CAPACITY USED" information).

"UNLOADING" THE TEMPORARY DIRECTORY

You must occasionally check the percent of capacity of the temporary directory file used (see FILE CAPACITY USED information, Chapter 23). If it is becoming full you must "unload" it to a separate Directory Disk. You should not let the temporary directory become more than 95% full.

To unload the temporary directory select UNLOAD TEMP DIRECTORY on the Utility Menu. The module UNLOAD.MOD will be loaded and run automatically. The computer will stop and ask you to verify that you want to unload the directory, in case you selected the function by mistake. Type Y and press RETURN if you do want to unload the directory. If you don't, press RETURN without making an entry and the computer will return to the Utility Menu.

Assuming you entered a Y and pressed RETURN the computer will start checking the disk in the higher numbered drive to see if it already contains a full complement of directory files. If it does not find all the files it will stop and ask:

FIRST USE OF THIS DISK(Y) OR RET?

The question should not be asked if you have used the disk before. It is a safety precaution just in case. If you have used the disk before and any of the files are not found, there could be a problem with the disk. You should return to the Utility Menu (press RETURN) and check the disk using the SHOW/FORMAT DISK selection. You should also enter SHOW from the Main Menu to list the entire directory to see if any of the files are damaged. Another method of checking the disk is to use the DISK FILE

STRUCTURE selection on the Custom Menu. Information on recovering bad disks is presented in Chapter 27. If you feel the disk may be damaged you should duplicate it AND make a back-up of the temporary directory "D" before operating the UNLOAD function. The back-ups can be done automatically using the BACK-UP/COPY FILES selection.

If you have not used the disk before for directory files, type Y and press RETURN to the "FIRST USE..." question. The computer will initiate 26 directory files on the disk (somewhat like formatting a disk) and display letters to mark its progress.

After the format is done, or if you have used this disk before, the computer will immediately start transferring the files. It takes about 10 minutes to unload a 50% full temporary directory. The computer will list the bytes remaining to unload to mark its progress.

The computer will check for errors as each file is transferred and abort the operation if any are encountered. Those records successfully transferred will be deleted from the temporary directory. The others will be retained.

In any case the computer will not transfer the very first address and phone, which should be your company address and phone.

If during the UNLOADING process the computer displays "CAN'T ALPHABETIZE!" without displaying a NAME, it means it has encountered a directory record which is longer than the legal limit (256 bytes) caused by improper use of the DIRECTORY INFO editing function. Delete the Record using the DIRECTORY INFO selection, and UNLOAD again.

After unloading the temporary directory you should condense the files on the directory disk. Do this by selecting ORDER/CONDENSE on the Utility Menu, pressing RETURN until the directory disk question appears. Then type Y and press RETURN. This will save about one sector on the directory disk for each record transferred.

The newly created directory information WILL NOT be stored on a ramdisk. To get the new files into the ramdisk you must re-boot. Most users will be UNLOADING only once in several months, if at all.

You are not required to have a separate directory disk. In most applications there will be plenty of room on the account records disk for the directory. If you do use the account records disk you should check the disk more often to make sure you are not running out of room. The account records or the directory files may be transferred to another disk anytime using the P MOVE/BACK-UP FILES selection on the Custom Menu (first "back-up" the files to the new disk, go to SHOW/FORMAT DISK and verify this, then delete them from the source disk--see Chapter 27).

EDITING DIRECTORY INFORMATION

You may change any entries in any directory record or delete any entire

record. There is no provision for deleting single entries within records; to do this you must delete the entire record and re-enter the new entries. You must also delete the entire record and re-enter it if any of the entries are damaged or illegal (such as a one character entry). You will know this right away because you will be unsuccessful at changing them.

To edit directory records, select DIRECTORY INFO in the CHANGES/DELETES section of the Utility Menu. The computer will stop and display:

ENTER P FOR PROGRAM DISK
ENTER D FOR DIRECTORY DISK
PRESS RETURN WHEN DONE

You must let the computer know whether the record you want to edit is on the program disk (in the temporary directory) or on a separate directory disk. If you entered the record since the last time you "unloaded" the temporary directory, enter P here, otherwise enter D. If you cannot remember, try P first. If the record is not found press RETURN to get back to this question and enter D.

After you enter P or D, press RETURN. If you change your mind and wish to return to the menu, press RETURN without making an entry.

The computer will display:

ENTER NAME?

Enter the NAME associated with the record. If there is more than one record labeled with the same NAME they will all be listed one at a time, and you will have the opportunity to edit any you choose. After entering the NAME press RETURN.

The computer will list the entries of each record found. At the beginning of each listed entry will be a single number followed by a caret ("greater than") symbol which points to the right. THIS IS NOT PART OF THE ENTRY. It is only used for the purposes of identifying the entry in the next two questions. At the bottom of the list of entries the computer will stop and display:

ENTER NUMBER OF ITEM TO CHANGE
ENTER D TO DELETE
PRESS RETURN TO SKIP

If you do not wish to edit this record, press RETURN. If you wish to delete the entire record, including all entries listed, type D and then press RETURN. If you wish to change one of the items listed, enter the beginning NUMBER only, then press RETURN. The computer will display:

ENTER REPLACEMENT FOR ITEM (w) OR RET

If you change your mind and do not want to edit the item, press RETURN. If you do want to change the item, re-enter the new changed item here and then press RETURN. Include symbols, sort code (if any), and colons as you would in any directory entry.

DO NOT ENTER THE BEGINNING DIGIT OR THE CARET CHARACTER IN YOUR NEW ENTRY. These are used only to identify the (old) entries when the computer lists them.

After the last record for the NAME you entered is listed, or if no records for that NAME are found, the computer will again display the "ENTER NAME?" prompt and you may try another NAME.

When you are done editing, press RETURN to the "ENTER NAME?" prompt without making an entry and the computer will again display the "ENTER P FOR PROGRAM DISK..." question. You may switch to another source for the records by entering P or D, or return to the menu by pressing RETURN without making an entry.

It is suggested that you use the DIRECTORY INFO selection to change one or a few "sort codes" since it may take a while to get to the right address using the ADDRESS SORT CODES selection on the Main Menu to change them.

DIRECTORY EXAMPLE -- MULTIPLE ENTRIES

Users have reported little difficulty with entering simple entries such as addresses, telephone numbers, and other information which can be contained in one entry.

Some find it more difficult to enter and display information that takes more than one entry, or which takes more than five lines to display. We therefore present the following example to demonstrate the procedure for entering and listing more complex information.

PUTTING A PRICE LIST IN THE DIRECTORY

The following is a price list for cigarettes which we would like to put into the directory where it may be printed or changed easily:

CIGARETTE PRICES

BRAND NAME

REGULARS	.89
KINGS	.95
100'S	.99

GENERIC

```
REGULARS .79
KINGS    .85
100'S    .89
```

The first step is to name the price list, e.g. "CIG.PRICE". Then from the Main Menu type PUT CIG.PRICE. Then type Y to verify the NAME.

The computer will display:

```
ENTRY 1: CIG.PRICE
```

Enter the title of the list, i.e. "CIGARETTE PRICES", like this:

```
?@ CIGARETTE PRICES; ; ;
```

and press RETURN

The entry begins with the address symbol @ because this will prevent the printing of the abbreviated name in listings. The semicolons tell the computer to print two blank lines after the title. There must be a minimum of two characters or spaces between semicolons as you cannot specify a one character line in the directory.

Next the computer displays:

```
ENTRY 2: CIG.PRICE
```

Enter the subtitle "BRAND NAME" indented one space.

```
?@ BRAND NAME; ;
```

There is a blank space reserved after the address symbol for the sort code. Again the @ symbol is used, as it will be in all entries for the price list. A blank line will be printed after the subtitle. Here are the price entries:

```
ENTRY 3: CIG.PRICE
```

```
?@ REGULARS .89; KINGS .95; 100'S .99; ;
```

Notice that the blank line to appear before the next subtitle was specified in the previous line. Blank lines must be specified at the end of the entry, not the beginning.

```
ENTRY 4: CIG.PRICE
```

```
?@ GENERIC; ;
```

```
ENTRY 5: CIG.PRICE
```

?e REGULARS .79; KINGS .85; 100'S .89

This completes the price list.

If you run out of room for the record just enter the name again, i.e. "CIG.PRICE", and continue the entries in a second record. They will be listed as if they were one record.

When you want to print this price list you should first select FORMAT from the menu. Enter 1, 0, 0 respectively for the format settings. You may vary the tab setting (second number). Entering zero for the NUMBER OF LINES FROM TOP LINE TO TOP LINE? question prevents printing of blank lines between addresses, or in this case, entries in the price list, except where they have been specified by extra semicolons.

To display the price list, type SHOW CIG.PRICE or SHOW CIG.PRICE,@ from the menu. To edit the price list use the utility menu function DIRECTORY INFO.

If you wish to enter more than one price list for cigarettes you can use a sort code after the "@" symbol in each of the above entries which will identify this price list only. Then by entering the sort code after the "@" symbol in the "SHOW name,@,*,@x...etc" command, only the price list corresponding to that sort code will be listed.

The price list is used as an example only to illustrate directory procedure. Those using the SpartaDOS version will be better off to use the Inventory program to create price lists. Those experienced with the word processor will find it also quicker to use for price lists.

MULTIPLE DIRECTORIES

You may have more than one directory disk. However, there is no provision to enter more than one directory disk during the execution of any one directory command. Therefore the directories must be separate--in your mind at least--because you must always know on which directory disk the information you seek resides so that you can insert that disk when prompted.

Secondly, you can enter information for only one directory between the times that you UNLOAD the TEMP DIRECTORY. In other words, only the information for one directory may be in the TEMP DIRECTORY at a given time, with the exception of your own address and phone. You can accomplish this easily by UNLOADing the TEMP DIRECTORY to the appropriate Directory Disk every time you enter new directory information (you would first enter each database with existing information so that, from then on, you would only be updating and adding new information).

* The first address and phone you put in the directory should be you business address and phone to appear on invoices/statements.

Addresses from the directory are printed in statements.

* Sort codes may be used with the address symbol (@) only.

* To cause directory information to be listed on separate lines use a semicolon in entries to separate lines.

* Directory entries, including information between semicolons, must be at least 2 characters long.

Make a back-up copy of the temp directory (file "D") and a duplicate of the directory disk before operating the UNLOAD TEMP DIRECTORY function.

* When editing a directory entry, do not enter the digit or caret character used to identify the entry in the list.

CHAPTER 10 -- DISPLAYING AND SORTING DIRECTORY INFORMATION

SHOW COMMANDS

SHOW commands are the commands you use to list directory information on the screen or printer.

If you want to list all information in the directory, just type SHOW and press RETURN.

If you want to list all information for one NAME only, type SHOW followed by a space, then the NAME, and then press RETURN. For example:

```
?SHOW MARY SMITH  
or  
?SHOW DDEJ
```

If you want to list all information of a specific type, like addresses or phone numbers, use the Menu selections:

```
SHOW @,*,@x...etc
```

The entry:

```
SHOW @
```

will list all addresses.

If you press the "T" key while listing addresses with the @ symbol (or information stored with any other symbol), the NAME abbreviation and the TOP LINE only of the address will be displayed. This allows you to print out a reminder list of abbreviated NAMES and full names (for a "neater" alphabetized list use the NAME REMINDER LIST function on the Custom Menu). For this to work the top line of the address must contain the full name.

The entry:

```
SHOW *
```

will list all phone numbers. The entry:

```
SHOW @,*
```

will list all addresses and phone numbers. You can specify up to six types of information in the listing by adding the appropriate symbols. The definition of each SYMBOL is shown on the menu, and whenever you make directory entries.

If you want to list specific information for one name only, use the Menu selection:

```
SHOW name,^\...etc
```


Which is a combination of the last two. The entry:

```
SHOW MARY SMITH,@
```

will list all addresses under the NAME MARY SMITH. You can have as many records of the same type (using the same SYMBOL) for one NAME or category as you like.

SHOWING WITH A "SORT CODE"

If you have entered various "sort codes" for addresses (see "ADDRESS SORT CODES" information below), you can list just the addresses you want by using the Menu selection:

```
SHOW @,*@x...etc
```

For example, if you entered the letter "C" as the code for customers, the entry:

```
SHOW @C
```

would cause the computer to print or display all customer addresses. (The Invoice program automatically assigns a C to all customer address except those who are tax-exempt. Tax-exempt customers are assigned an X sort code.)

THE SORT CODE CHARACTER MUST BE TYPED IMMEDIATELY AFTER THE "@" SYMBOL.

SORT CODES MAY BE USED WITH THE "@" SYMBOL ONLY.

All SHOW commands will list information one entry at a time on the extreme left of the screen or printer unless you have set tabs with the "FORMAT" Menu selection (see "FORMAT" information).

ADDRESS SORT CODES

You may want to list only certain addresses at one time. This may apply to any type of entries entered into the directory beginning with the address symbol, "@". To do this you must categorize all "@" entries further by associating one additional character besides the "@" character. The additional character, which always goes immediately after the "@" character, is called a "sort code" and may be any character you can type from the keyboard. Since the control key is disabled graphic characters cannot be used. Still this leaves about 90 characters available for sort codes.

Assigning Sort Codes

There are three ways to assign sort codes. First, you may include them in your original Directory entries that begin with the "@" character.

These may be addresses or any other information you like. The sort code character is typed immediately after the "@" symbol, i.e. it will be the second character in the entry. The information you want to store starts immediately after the sort code, so there will be no space at the beginning of the entry if you use a sort code. Otherwise there will be a space between the "@" character and the first character of the information.

Secondly, you can display the record using the DIRECTORY INFO selection in the CHANGES/DELETES section of the Utility Menu. You would "change" the entry to include the sort code (or revised sort code) in the correct place in the address as outlined in the first method.

Pg 144, para 3 (begins with "Thirdly..."): insert "After you press "A" the computer will ask "ENTER SORT CODE OR RET?". If you press return all addresses will be displayed. If you enter a code, only addresses containing that code will be displayed (allows you to easily change the sort code for a particular group of addresses)."

sses easily
do this, press
ie,
ategorized in

If there is already a sort code (entered previously) it will be displayed in "inverse video" (with a white background) immediately after the question mark. To retain the old code just press RETURN.

To specify a new sort code enter a single character which may be a number, letter, or punctuation mark. When you then use that character after the address symbol (@) in a SHOW command, for example:

SHOW @6

only addresses for which you entered a "6" for the sort code will be displayed or printed.

Special "r" Sort Code

If you use a lower case "r" as the sort code, the same address will be printed over and over until you press RESET. If you have more than one address with the "r" code, you must enter the NAME as well in the SHOW command--otherwise only the first "r" address will be printed. This capability allows you to enter some other information after the address symbol "@", such as labels for a mass produced product, and then print up to five lines of information per label on as many labels at a time as your printer can handle.

"Getting Out"

Getting out of the ADDRESS SORT CODES function before all addresses are listed can be tricky. To leave Directory listings early and return to the menu, press the M key. But when an address and sort code are being displayed, typing an M will only change the sort code to an M. The trick is to press RETURN (retaining the original sort code or no sort code) and then press M quickly before the next address is displayed. There is a

short delay between addresses and this is plenty of time. If it doesn't work the first time, just press RETURN again for the next address and try again.

The sort code character is actually entered in the directory between the @ symbol and the first character of the address. You can see this by selecting "DIRECTORY INFO" from the Utility Menu. An example of an address containing a sort code (thus listed) would be:

```
@6JOHN DOE;12 OAK ST;YUMA, TX;34539
```

This is exactly what you would have entered using the "PUT name" selection, but with a blank space where the "6" now appears. If you will have several hundred addresses or more, and if the codes will be permanent, it is suggested you decide on sort codes ahead of time and include them in your "PUT name" address entries, saving you the trouble of doing it later.

SPECIAL KEY FUNCTIONS

When printing addresses or any other directory information, pressing the "SELECT" key will stop all printing and cause the TOP LINE of each record to be displayed on the screen. Pressing the "START" key will cause the computer to resume printing full entries on the printer. This is in case you don't want to print a very long list at one time, or if you experience printer difficulty during the operation.

Cancelling/enabling Printing of NAMES

If you press the X key during a directory display/print, the abbreviated NAMES will not be displayed

NAMES are not automatically displayed when listing addresses. To display NAMES with addresses, press the N key during the display.

FORMATTING A DIRECTORY DISPLAY

To get directory records to be displayed in columns with a fixed number of lines for each group, such as for printing labels, select "FORMAT (set tabs)" on the Main Menu.

Typing "F" from the Main Menu causes the computer to stop and display:

NUMBER OF COLUMNS?

Enter the number of directory entries you will want displayed at a time horizontally. Note that this refers to each entry, not entire records--you may have multiple entries in one record. It is the individual entries in records that will be displayed separately in columns.

For example, if you were printing address labels and there were six labels across on your label sheets, you would enter the number 6 (print 6 addresses at a time).

Next the computer will stop and display:

POSITION OF COLUMN 1?

Enter the tab position of the first column (usually 0). The computer will stop and ask for a tab position for each column, one at a time. Enter the tab positions of the beginning character in each column. MICROMOD will print up to 156 characters on a line, so the maximum number you can enter will be 156 minus the width in characters of the last column. Your printer may only be able to handle 80 or 132 characters on a line so the maximum number you enter would be reduced accordingly.

After you have entered the tab setting for the last column the computer will stop and display:

NO. LINES FROM TOP LINE TO TOP LINE?

Enter the number of carriage returns you would like, including the lines the address takes up, from the top of one row of information to the top of the next row of information. It is done this way because different records may take a different number of lines to list information, and you may be printing on pre-formatted material such as address labels which require the printer paper to be positioned properly.

A typical formatting sequence for addresses might look like this after all formatting entries were made:

NUMBER OF COLUMNS?4

POSITION OF COLUMN 1?0
POSITION OF COLUMN 2?24
POSITION OF COLUMN 3?48
POSITION OF COLUMN 4?72

NO. LINES FROM TOP LINE TO TOP LINE?7

This example assumes the printer is capable of printing 96 spaces on a line, and that the maximum length of each line of your addresses is less than 24. The program can handle up to 156 characters per line.

The settings for standard label sheets with two columns of labels, one inch from the top of one label to the top of the next: 2 columns, tabs at 2 and 45, top line to top line=6.

The computer will keep one blank line (vertically) between record displays, except if you enter zero to the "NO. LINES FROM TOP LINE TO TOP LINE?" question. Entering zero will close the gap, but the abbreviated NAME will still be displayed, taking up a line between record displays. To defeat this, use the address symbol (@) for entries longer than 5 lines

that you will want printed as if they were one entry. The address symbol prevents printing of the abbreviated NAME. Or you can just press the X key during displays to cancel the display of the abbreviated NAME.

Once you have specified tabs, all SHOW commands will use those settings until you specify a new format. Exception: USING ANY "DATED RECORDS" FUNCTION WILL CLEAR THE TABS.

This method of formatting is simple and easily understood. Notice that you have the unusual option to set tabs at uneven intervals. This allows you to make complex printouts depending on how the directory information is organized (order of entries). It works as well if you are printing the same entry over and over (see ADDRESS SORT CODES information).

DEFINING SYMBOLS

Use the selection "DEFINE /,^,&,#" on the Main Menu to change definitions in the SYMBOL TABLE. This function allows you to give each of the last four symbols in the SYMBOL TABLE a name to remind you of the type of entries you enter using each particular symbol. The directory program does not use the symbol name you enter--it just stores the name and displays it on the menu and when you make Directory entries as a reminder.

The names or titles you give to the four symbols are stored in a special file on the Master Program Disk called "SYMBOL". This file is loaded into the computer whenever you power-up and is therefore called a "boot file". Since the name or title you associate with each symbol is not used by the directory program, it is an ideal place to enter and store "global" instructions concerning your computer application. By "global" we mean information that you enter only once in the application, but which affects the program every time it is used, and can be accessed from any MICROMOD module.

Thus the last "definition" in the symbol, that associated with the "#" symbol may be used to modify the program at the "user level" (by you). Regardless of what definition or title you use, there will be no effect on the operation of the "#" symbol in the Directory program. You might store credit card numbers with the "#" symbol, but use ".Y34056X" or anything else as the definition, but when you enter the "#" in a SHOW command, the credit card information will still be shown. More information on "global" instructions and the "#" definition is presented in Chapter 1.

Procedure

When you select DEFINE... the computer will stop and display:

ENTER SYMBOL?

Enter one of the last four symbols and then press RETURN. You cannot change the first two symbol definitions (@ and #).

The computer will stop and display:

ENTER DEFINITION:

If you entered the "@" symbol the computer will also display:

enter H for Help with Globals

If you need help in setting Global commands, enter H and press RETURN (see Chapter 1).

Assuming you did not enter the "@" character, enter any series of characters up to 11 characters long for a definition. The "@" definition alone may be 15 characters (15 characters required). After you type the definition, press RETURN. The program will return to the Main Menu and the revised SYMBOL TABLE will be displayed.

ALPHABETIZING AND SEARCHING THE DIRECTORY

This new sorting capability is additional to the use of symbols, NAMES, and sort codes. Each of these provides powerful sorting capability. They may both be fully utilized in combination to achieve sorting power rarely found in a file manager, let alone a simple "filer" such as the Directory program was intended to be. This is also additional to the high capacity per disk of directory disk storage--the new sorting capability doesn't take away from directory capacity.

Pre-sorted displays/printouts will be slower than standard displays because you lose the advantage of "block I/O" (loading and utilizing large disk files).

Sort/search the directory by selecting "Y DIRECTORY SORT" on the Utility Menu. The computer will load and run the DISORT.MOD module. This new module is shipped on the Supplement Disk.

Review of Directory Organization

Directory records are made up of one or more smaller records called "entries", each entry in a record applying to the same NAME label. This results in easier entries, more efficient storage, and improved organization. We call these smallest records "entries" because each is entered with only one entry to one prompt. The entire record (of individual "entries") may occupy up to 256 bytes. Each "entry" record may be up to 119 characters. A single entry, such as an address, may be later displayed on up to 5 lines, though entered all at once. The individual lines to be later printed/displayed, such as the 3-5 lines of an address, are determined when first making the entry by use of semicolons to separate lines. Sorting (and displays) are accomplished by the "entry", each of which may specify up to 5 lines to be printed.

You may sort up to 3,333 individual entries in the directory (a double density disk may hold up to about 3,000 addresses, with another 170 or so in the Temp Directory on the program disk). If the computer locates more than 1,250 entries in a particular sort it will need to use one of the drives for temporary storage.

When you first select "Y DIRECTORY SORT" the computer will search the drives in the system, beginning with drive #8 (ramdisk) for a drive with 82 free sectors. If it finds one it will remember to use it if more than 1,250 "entries" are located. If it doesn't locate such a drive it will stop and ask:

EXPECT OVER 1,200 ENTRIES(Y) OR RET?

If you enter Y (return) it will then ask you to enter a drive number to be used for temporary storage (you may have a double density drive with only 41 free sectors which would be sufficient). It will also give you the option to go to SHOW DISK to check on free sectors. Enter the drive number and press RETURN.

If you just press RETURN the computer will use drive #1 (if needed).

Most often it will find a drive on its own and will just let you know which drive it intends to use as it proceeds to the first sort question.

You may limit the sort by specifying a SYMBOL from the SYMBOL TABLE. You may also follow the address symbol @ with a sort code to further limit the sort. Or you may sort all entries, regardless of SYMBOLS.

Or you may enter a series of characters to search. If you do, the function will no longer be a "sort" but a "search" for entries containing the series of characters, though these will also be sorted by the first five characters in each entry.

The computer displays the SYMBOL TABLE and other choices and asks you to enter a SYMBOL or S for a search. If you enter S it will then ask you to enter the series of characters you'd like to search for.

The sorting will be accomplished using various sections of your directory "entries". Regardless of which criteria you specify for sorting, only the first five characters of that part of the "entry" will be used. Furthermore, if the computer finds over 2,500 entries in a particular sort the number of characters used for sorting will be reduced to four, and if it finds over 2,856 entries it will use only three. These will still be the first 3 or 4 characters, except for zip codes in which case the computer will use the last 3 or 4 digits (with this many addresses use a sort code to differentiate addresses with a different first digit).

Since entries may be printed on up to five lines, determined by semicolons in the entry, you are given the choice to use one of the five lines as sort criteria. If you wanted to sort addresses by city, for instance, you might choose to sort by "line 3" if your address entries specify the city/state on a particular line.

You probably won't want to enter names in addresses beginning with the last name, so an additional option is provided. You may choose to sort by the LAST word of the "first line" in entries. The computer will then find the last word before the first semicolon in entries and use the first five characters of that word for sorting. If the last word ends in a period, or if the next-to-last word ends in a comma, the computer will ignore the last word and use the next-to-last word for sorting. Thus you can have as first address lines:

John Doe, Pres
or
Fred Johnson Corp.

and the computer will still use "Doe" and "Johnson" for sorting.

You may elect to sort by zip code. In this case the computer will use the LAST five digit number encountered anywhere in the entry, on any line. Thus you are not required to put zip codes on any particular line, or to start any line with a zip code. Since it will use the LAST 5 digit number the computer will not be confused by 5 digit street or box numbers.

IF YOU DID NOT SPECIFY SEARCHING A STRING OF CHARACTERS the computer will stop and ask you to enter a digit (1-5) for the line to use for sorting, the letter L for "last name, line one", or the letter Z for zip code. Enter your selection and press RETURN.

The computer will stop and ask,

PRINT ABBREV NAMES(Y) OR RET?

If you want your Abbreviated NAME labels associated with each NON-ADDRESS entry to be printed, enter Y. Otherwise just press RETURN. Printing of NAMES will take much longer without a ramdisk because the area where NAMES are normally stored is used for the sorting information, so the NAME file must be loaded for each record displayed.

Next the computer will load and examine every entry in the directory, starting with the Temp Directory on the Program Disk, and then each file on a separate Directory Disk (if you have one). Obviously a ramdisk will speed up the process (and the subsequent display) considerably. Searching is programmed in ASSEMBLER. After each entry is noted the actual sort takes place. It is a fast machine code sort and usually takes only a few seconds.

After the sorting the computer will stop and ask you to name the sort, which must be a title of 2-8 capital letters/digits, except that the first character must be a letter. It will then ask you to enter a drive number on which to store the "Sort File". If you don't care to run the sort more than once you may specify drive #B if using a ramdisk.

Displaying the Sorted Information

After entering the drive number the program goes immediately to the Main Menu. To display/print the sorted records type SHOW, a space, and the title of the "SORT FILE", such as

SHOW TESTSORT

and press RETURN. The computer will search for and find the "sort file" anywhere in the system. You may display the same sorted information anytime as long as the "sort file" resides in one of the drives.

You may edit any directory information and still use the same "sort file", as long as you do not delete an entire record. New information entered after the "sort file" was created will not be displayed. You must sort the directory again to include new information.

Though you may not modify the sort with NAMES or SYMBOLS entered at the menu, you can still format (set tabs, columns) the print as you would any directory listing.

IMPORTANT POINTS AND RULES FOR EXPERIMENTERS (*)

You can have multiple addresses or other information for one NAME.

The sort code may be any character you can type.

* The sort code is entered directly after the address symbol, such as "@C".

When printing addresses, skip groups of addresses by pressing the T key.

Tab settings are remembered as long as you are using the Directory program.

IV. WP23 WORD PROCESSOR

CHAPTER 11 -- WP23 AND MICROMOD

The WP23 program differs from all other MICROMOD programs in several respects. It is written entirely in machine code, like an arcade game, and is therefore called a "binary" file on the disk. The difference in the disk file structure means it cannot be copied using the BACK-UP/COPY FILES function on the Utility Menu, since this function supports only MICROMOD files and not "binary files". WP23 can be moved using the DOS menu of whichever DOS you are using.

It can be used as a "stand alone" program, since it was originally written to be used as a word processor only. It uses none of the MICROMOD systems routines, but erases these when loaded. When you return to the Main Menu from the word processor, the MICROMOD systems files are reloaded and the word processor program is erased. Thus you must re-insert the Master Program Disk into drive #1 before returning to the Main Menu (with Ctrl_X).

Returning to MICROMOD

To return to the MICROMOD program press (CTRL_X) FROM SCREEN 1 OR "READY TO TYPE" MODE. The Master Disk must be in drive #1 or the system will lock up. If you have a ramdisk there are two additional points to remember: 1) The information in the ramdisk is preserved, so you may want to press M to avoid re-loading it if the question appears (depends on DOS). Though the ramdisk is still full of information, it will be "turned" off. Go to the Utility Menu and select RAMDISK INST. to turn it back on.

The WP23 word processor program was written in 1982 before the MICROMOD design was created. Unlike the other MICROMOD programs, it was "chosen" to be included in the program to save time, since it would take too much time and expense to develop a full function ASSEMBLER word processor just for the MICROMOD program. The procedures are therefore different from the other MICROMOD programs, though it follows the basic MICROMOD philosophy of being relatively simple and powerful in a small business situation.

Intended Use of WP23

Like the Directory Filer, the word processor is auxiliary to the Dated Records program. Few will purchase MICROMOD mainly for word processing. There are at least seven word processors available for Atari which are superior to WP23 overall for general word processing functions. We recommend these frequently to customers for certain tasks. We chose the WP23 program because it best fulfilled three requirements:

1) It can be used easily to create text files to be integrated with the Dated Records program.

2) For those who do not have another word processor it is a powerful full function program that can accomplish the utilitarian word processing needs of MICROMOD customers.

3) It does a superior job of creating text for small business purposes with proven reliability. You will have a hard time finding a word processor which better fills this limited goal.

WP23 supports only 79 printer columns, so you are limited to standard size paper with either a pica (10 characters/inch) or elite (12 characters/inch) font.

Non-business users find the limited line length and lack of publishing features to be too limiting. Also, WP23 was (unfortunately) designed for those with fair typing skills, since it uses immediate key control for all functions. This can produce great speed for some, but the "hair trigger" controls might be a liability to others. For these customers we recommend that a "friendlier" word processor be purchased. Use WP23 for creating MICROMOD text files only. Those in an active business situation rarely even notice this limitation. They are interested in speed, simplicity, and reliability only. For them the WP23 program is nearly perfect, considering the hardware limitations for word processing.

Some users will want the other features only until the novelty of this wears off. For them the WP23 program will be more attractive in the future when they have only utilitarian requirements.

If you fall into either the second or third category you will find that time invested in learning the operation of the word processor will pay off several times over.

May be used as a stand-alone Program

The WP23 program file is named WP23.SYS and is accessed from the Custom Menu. It resides on the Word Processing disk, along with two duplicate copies of the program, one named AUTORUN.SYS (making the disk a "boot disk"), and one named WP23.SPD for those using SpartaDOS version 3.2 (must be renamed).

Return to the MICROMOD program by making sure the Master Program Disk is in drive #1, and pressing Ctrl_X FROM SCREEN 1 in the WP23 program.

As mentioned, WP23 was originally developed as a stand-alone program. We suggest you use it both ways. It is easy to transfer the module to a separate disk using the DOS 2.5 menu selection "C. COPY FILE". It is suggested you change the name to "AUTORUN.SYS" on the new disk so that the program will load and run automatically when you insert this disk and turn on the computer, i.e., "D1:WP23.SYS,D2:AUTORUN.SYS" (see Chapter 27). The MICROMOD Word Processing disk is already set up this way, as an example for you.

The DOS 2.5 "DOS.SYS" file must also be on the new disk for the program to load. Do this by selecting "H. WRITE DOS FILES" from the DOS 2.5 menu.

You should also copy the format "STD.1" to the new disk as this is the format that will be most often used. You can later delete the file DUP.SYS as this is not used.

If using SpartaDOS, the SpartaDOS boot file "XC23E.DOS" (not XD23E) must reside on the disk so that the AUTORUN.SYS file will be recognized.

WP23 "Manual"

The original manual, written for the stand-alone program, is provided in the next chapter with minor improvements (we think!). Operating instructions for WP23 when used as a Micromod module to create Micromod text files are provided in the following section of this chapter. It is suggested that you read that section before reading the "manual". It presents a simplified set of instructions which will help you to understand the WP23 manual.

Create Text Files.

WP23 has no mail or graphics capabilities, nor are these required since the Micromod program handles these functions. Micromod can print a form letter from a NAMES list, changing the address in the body of the letter as well as printing the address labels.

The one capability that Micromod lacks is creating text files with full editing capability. WP23 was selected because it handled this task better than any other program available, considering the restrictions of using only 1 drive and allowing (unused) BASIC to occupy 8K of memory for a quick return to Micromod. It is suitable for all text requirements encountered in small business including letters, legal documents, memos, manuals, manuscripts, presentations, speeches, and text to be included in Micromod forms such as invoices.

Since word processing requires the manipulation of very large files speed is always a most important consideration. The WP23 program has its own systems routines to handle text editing. It does not use the operating system editing functions as is most common. While this requires much extra programming it results in greater speed and convenience since the editing functions are designed specifically to work with the WP23 program. Thus you can "flip" through 49 screens of text almost instantly.

With 25K allotted within the computer for text and full screen editing, the text becomes very "visible" and easy to manipulate, review, and proofread.

Only drive #1 is used. Thus there are no input/output instructions required other than the filename.

Typed instructions in a word processor file will eventually wind up in printed text by mistake. They also make proofreading difficult because they are difficult to differentiate from text. They slow down the program operation considerably. Thus graphic characters are used for formatting. Since the meaning and keyboard placement will be unfamiliar, learning

these characters is the main task in learning to use the WP23 program.

Printed Menu

You will not want for your text to share the screen with a menu. A full page printed menu is included in the MICROMOD package, which is a quick reference to show the meanings of each character and which keys will produce them. The menu may also be included on the "Supplement Disk" if there is room. The file name is "WMENU" and it can be loaded into the WP23 program (only) and then printed by pressing `Ctrl_W`. To do this from the WP23 program, type WMENU in the extreme upper left corner of the screen and press `(ctrl_B)`. Turn on the printer and press `(ctrl_W)`. If you are familiar with WP23 you can revise the menu to suit yourself. You should have this menu handy when reading the manual. Once you become familiar with the characters and the keys, the program will become much faster than it could otherwise be.

NOTES FROM WP23 USERS

Since the program has been in use since 1983 and therefore has experienced a variety of applications, we are very familiar with its idiosyncracies. These follow:

Although you have up to 49 screens for text, it can be slow to access these in READ mode. To be fair, the program was designed so that spelling, diction, and context would be corrected to final form before going to proofread mode. Proofread mode was designed to check formatting only. However most users find they prefer proofreading mode for all proofreading. Thus most users limit the number of screens to between twenty and thirty, enough for a small chapter. You can add two corrected files from disk to make one long file before printing.

The spelling module will only check spelling in the first thirty-one screens. Thus if you want to check spelling you should limit the size of text files to 30 screens. You can break long files into sections using the partial store function.

Using the formats provided with the program, e.g. "STD.1", we have found that inserting the paper into the printer with the left edge at -4 characters will result in the best text and page number positioning. If you cannot adjust paper insertion you can adjust the margins in the formats (add three right arrows and erase three left arrows).

"Oops, No Wedge!"

Always make sure your text ends with a "wedge" character. If there is no ending "wedge" the program will crash in "page counting" mode. This is the only circumstance in which users complain of losing text. So check the last screen for a "wedge" before pressing `(ctrl_C)`. Also, garbage characters will be printed on the printer at the end of the file.

If using SpartaDOS XC23.e, and if you try to load or store a file to dr

ive which is on, but with the drive lever in the "open door" position, the computer will lock up. Keep a disk in the drive to avoid this situation with SpartaDOS.

Again with SpartaDOS, we have found that you must perform at least one function (show files, screen 1, etc.) before returning to MICROMOD with (CTRL_X).

SIDEWINDER Game

The original program included a game file called SIDEWINDER. We can only assume that the author did this in deference to Atari's reputation as a game computer. Maybe he felt that if he couldn't sell the program as a word processor he could always sell it as a game with a word processor as a bonus! In any case, we include the game for your enjoyment. If you wish to make more room on the disk you may delete the file "SIDEWIND". Remember, before the game can be loaded it must reside on the disk in drive #1. Instructions for the game are provided in Appendix 13.

FILE CONVERSION INFORMATION

The conversion module which converts WP23 files to Micromod text files only recognizes five of the many WP23 format instructions. These are:

- "up arrow" for extra spaces
- "down arrow" to end a line
- "cross" end line and paragraph
- "wedge" marks beginning, end of text
- filename to store, load files

Thus to create a Micromod text file you need only learn the functions of the four characters and where to type the filename (extreme upper left corner of screen 1). (You'll remember this list of functions the first time you try to convert a file with relative tab settings—they will be ignored!).

During conversion of the file you have an opportunity to set margins and assign a value to the paragraph character (spaces to indent).

It is helpful when using the WP23 module to remember that the characters and text you type can reside in one of three places, or in all three at once: on the screen, in computer memory, and on the disk.

As you are typing characters reside only on the screen, not in computer memory. Anytime you change the screen or erase the screen you will lose what you have just typed. To prevent this the screen must be stored in computer memory by pressing (ctrl_S). You should become accustomed to pressing (ctrl_S) frequently as you are typing. This will prevent you from losing text by mistake, such as typing a control key sequence which changes the screen. Once you have pressed (ctrl_S) you cannot lose the text unless you deliberately erase it or the computer is turned off. IT IS PARTICULARLY IMPORTANT TO REMEMBER TO PRESS (CTRL_S) BEFORE USING THE

AUTO-INSERT FEATURE. Otherwise you will lose any added text on the screen.

Since you may experience a power failure at any time it is a good idea to store the text in computer memory on the disk after typing every few screens. You should type the filename in the extreme upper left-hand corner of screen 1 and store this in memory with (ctrl_S) before writing any text. Once the filename is in computer memory you can easily store whatever text you have completed on disk simply by pressing (ctrl_M) twice. It is easy to do this several times while typing a file.

When you finish the text file make sure to end with a "wedge" (ctrl_tab). Store this in computer memory with (ctrl_S), and then store the entire file on disk with (ctrl_M). The file is then ready to load from the WPCONV module, "W WP23 CONVERT" on the custom menu.

To return to the Main Menu (leaving the WP23 program), press (ctrl_X).

YOU MUST RETURN TO SCREEN 1 BEFORE PRESSING CTRL_X. THE MASTER PROGRAM DISK MUST BE INSERTED IN DRIVE #1 BEFORE LEAVING THE WP23 PROGRAM.

ONE LAST WORD OF ADVICE

We would like to emphasize the disk/drive procedure again. The majority of our support calls regarding the word processor are caused by not having the correct disk in the correct drive when loading files and returning to the Main Menu.

THE WP23 PROGRAM USES ONLY DRIVE #1, so you must take the Master Program Disk out and insert a disk devoted to WP23 files to load/retrieve WP23 files. Many users (and we too) forget to take this disk out and re-insert the program disk before returning to the Main Menu with Ctrl_X. Another common mistake is to type the Ctrl_X while on a screen other than screen 1. In effect this tells the computer to append the MICROMOD program to the word processing file! You can only return to the Main Menu from screen 1. Any deviation from this procedure will lock up the system, and you'll have to press RESET to reload the program.

Though WP23 only recognizes drive #1, MICROMOD recognizes several drives. If you have two drives in the system the word processing program (file WP23.SYS) will be loaded from the disk in drive #2 (usually the Custom Disk), since MICROMOD does the loading. But after it is loaded you will be using only drive #1.

Many users attempt to load the format files ("STD.1") or the game (SIDEWIND) as soon as the word processor is loaded from drive #2. Since the word processor and these other files are shipped on the same disk (Word Processing Disk), they are usually in drive #2, but now the WP23 program must do the loading for itself and it can't find the files in drive #2. You should get in the habit of inserting a disk into drive #1 whenever you load the word processing program from the Custom Menu.

IMPORTANT POINTS AND RULES FOR EXPERIMENTERS (#)

To return to MICROMOD from WP23: 1) insert program disk, 2) go to screen 1, 3) press (ctrl_X).

Check 1st text file name with SHOW/FORMAT DISK before loading WP23 from the Custom Menu.

3) MICROMOD recognizes only 5 WP23 format instructions.

WP23 text can reside in any of 3 locations: the screen, the computer, and the disk.

PROGRAM FEATURES

This program is designed for speed in handling large amounts of text and easy visibility in both editing and proofreading. To accomplish these the following features are incorporated:

- # immediate key control
- # graphic characters for formatting
- # full screen utility in all modes
- # full editing capability
- # automatic page numbering
- # variable automatic end-page
- # single space or variable full screen insert
- # transfer up to full screen with delete or save
- # quick delete
- # up to 25K of RAM for text
- # disk I/O in block form
- # all disk I/O automatic except filename

Other features include automatic underlining, auto hyphenation with variable allowance to avoid hyphenation, and optional right-justified margins, quick file display, quick address print, and modifiable preset printer codes.

Variable tab, skip lines, right and left margins, and paragraph indentation are all program controlled and not dependent on the printer. The program is compatible with all DOSes that do not write on "page 6" (same as for MICROMOD) including DOS 2.5 and the DOS menus, so all DOS menu functions are available.

The WP23 program was designed for writing manuscripts, manuals, letters, legal papers, and other applications using standard 8 1/2 inch wide paper, and a Pica or Elite font which is standard for business text. It is not suitable for graphics, pre-formatted business forms, or mail order applications.

EQUIPMENT

WP23 runs on an Atari 800 expanded to 48K, 800XL, or XE computer. Any disk drive may be used.

The program was designed to be used with daisywheel "typewriter" printers as well as the other types of printers. The right margins are justified (if option selected) by adding an extra space between words as needed since the printer may not have proportional capability. Regardless of the printer or font used, the line length is limited to 79 characters. This supports a 10 character per inch (Pica) font which will use a maximum of 65 characters per line on paper of standard width (8 1/2") assuming one inch left and right margins. It will also support a 12 character per inch

(Elite) font which will require 78 characters per line assuming one inch left and right margins.

LOADING THE PROGRAM

Although this is a machine language program it is necessary to have either the BASIC or ASSEMBLER/EDITOR cartridge in place (on the 800). Since the computer is provided with BASIC as standard equipment this represents no added expense and is actually a great convenience (see CUSTOMIZING THE PROGRAM). BASIC is also required to run the MICROMOD program, so MICROMOD users needn't be concerned about this.

WHEN LOADED, THE WORD PROCESSOR PRESENTS A BLANK SCREEN AND IS IMMEDIATELY READY FOR TEXT TO BE ENTERED. YOU WILL KNOW YOU ARE IN THE PROGRAM BECAUSE THE SCREEN WILL BE CLEARED WITH SEVERAL QUICK HORIZONTAL SWEEPS OF CHARACTERS.

LOADING FROM MICROMOD

Make sure the disk containing the WP23.SYS file is in the higher numbered drive. Then from the Custom Menu select "Q WP23". The word processor will load and run automatically.

LOADING FROM AN "AUTO-BOOT" DISK

The introduction to this chapter provides instructions for setting up the word processor as a stand-alone program on its own disk. Using DOS 2.5, the disk must be formatted with the DOS.SYS file on it. Using SpartaDOS, the disk must be formatted with the XC23E.DOS file on it. The WP23.SYS file on the MICROMOD disk must then be copied to the new disk and the file name changed to AUTORUN.SYS.

Once the disk is created the program will load and run automatically when the system is powered up.

LOADING FROM THE DOS 2.5 MENU

1. Follow the instructions in the disk drive manual to load DOS. When you see the READY (or EDIT) prompt type DOS and then press RETURN to display the DOS menu.
2. Insert the MICROMOD disk containing the WP23.SYS file. Type L and then press RETURN to select "BINARY LOAD".

The computer will display:

LOAD FROM WHAT FILE?

Type:

WP23.SYS

and press RETURN. The WP23 logo will be displayed and the program will go into "READY TO TYPE" mode.

Storing WP23 to disk from the DOS 2.5 menu

To make a copy of the program using the "BINARY SAVE" DOS selection, enter the following "load and go" file information:

WP23.SYS,8500,9C00,,89E6

and then press RETURN.

To get to BASIC while WP23 is also in Computer Memory

Select "B. Run Cartridge" by entering B and then pressing RETURN. You will see the "READY" prompt and can execute any BASIC commands. DOS and the WP23 program will still be in computer memory. WP23 can be changed with POKE commands (see "Customizing the Program", Chapter 14). It can then be stored back on the disk in its new customized form by typing DOS and pressing RETURN to get back to the DOS menu, and then selecting "K. BINARY SAVE" and entering either:

WP23.SYS,8500,9C00,,89E6 (RETURN)

to store it back on the MICROMOD disk, or:

AUTORUN.SYS,8500,9C00,,89E6 (RETURN)

to store it back on an "auto-boot" disk.

To get to BASIC (the "READY" prompt) from WP23

You can get to BASIC from the WP23 program only if the WP23 program was loaded from the DOS menu. In this case, simply press the RESET key. If you loaded the program with an "AUTORUN.SYS" file, pressing RESET will only result in the system powering up again and you will not be able to get into the BASIC program.

Running WP23 from BASIC (the "READY" prompt)

To get back to the WP23 program from BASIC type

A=USR(35302)

and press RETURN to erase text memory and start a new text file. If you have text in WP23 memory and wish to preserve it type

A=USR(35321)

and then press RETURN.

To get to WP23 from the ASSEMBLER/EDITOR program type

BUG

and press RETURN and then either:

689E6 (RETURN) to erase memory

or

689F9 (RETURN) to preserve any text in memory.

As long as you have a disk in place with the Disk Utility Package (DUP) you can display the DOS menu from either cartridge by typing

DOS

and pressing RETURN. WARNING: you must have a MEM.SAV file on disk to prevent erasure of text when calling DOS (see DOS manual).

Running WP23 from the DOS menu

To get back to WP23 from the DOS menu without reloading the program select "M. RUN AT ADDRESS" and enter the address

89E6

and press RETURN to erase any text or:

89F9

and press RETURN to preserve text in WP23 memory.

You can avoid having to load the DOS menu by renaming the WP23.SYS file to AUTORUN.SYS, assuming the disk has been formatted with the DOS.SYS file on it (by selecting "H. Write DOS" after formatting the disk). The program will load automatically when you turn on the computer. You will not be able to access the DOS menu for customizing the program unless you change the name back again.

THE QUICK COURSE

If you're in a hurry to get started or wish to test the program and equipment follow this procedure:

1. After the "READY TO TYPE" message the screen will go blank. Press the CAPS key to type in all capitals. Type

STD.1

Don't press RETURN! The RETURN key has no special significance in this

program. STD:1 should be at the extreme upper left of the screen.

2. Hold down the CTRL key and press the "B" key. This is represented in this manual as (ctrl_B). We'll use that format from now on.

● MAKE SURE A DISK WITH THE FORMAT FILE STD:1 IS IN DRIVE #1. This file is shipped on the Word Processing Disk.

3. Press the OPTION key. The file will be loaded from the disk drive.

4. After the "READY FOR TYPE" message press (ctrl_P)—hold down the CONTROL key while typing P. The file will be displayed. If you accidentally press (ctrl_P) more than once, press (ctrl_O) to back up.

5. Type TEST over the STD:1 filename. Since STD:1 takes five characters while TEST is only four, you must delete the "1" by pressing (ctrl_delete) once. If you get out of position use the (ctrl_arrow) keys to move the cursor without erasing.

6. Position the cursor at the first blank space after the last "club" using the (ctrl_arrow) keys. Type about a half screen of text. You can back up and erase characters by pressing just the DELETE-BACK SPACE key.

7. Finish the text with a single "wedge" by pressing (shift_tab).

● 8. Press (ctrl_S) to store the screen characters in computer memory. Up to this point they are on the screen only and would be lost if the screen were changed.

9. After the "READY TO TYPE" message, press (ctrl_P) to display the text again.

10. You may experiment with changing the text using the (ctrl_arrow) keys, (ctrl_insert), (ctrl_delete), and DELETE-BACK SPACE, repeating step 8 to store the changed material.

11. Press (ctrl_C). The pages will be counted and the count (1) will be displayed. If you missed step 7 and did not store an ending "wedge" the computer will lock up at this point and you must start over, reloading the program.

● 12. After the "READY TO TYPE" message, press (ctrl_R). You may proofread your text by pressing (start). If you note a mistake you can get back to the editing screen immediately by pressing (ctrl_P) once to disable the "READY FOR TYPE" message, and once again to display the screen of text. Store any revision with (ctrl_S). Press (ctrl_R) to go back to proofreading. If there is no ending "wedge" garbage characters will be displayed at the end of text, but the computer won't lock up with (ctrl_R), only with (ctrl_C).

13. After proofreading press any key to display the "READY TO TYPE" message again.

14. Turn on the printer and check all connections. Make sure the printer is "on line" if it has this feature. If you manually feed paper, insert a sheet. Press (ctrl_W) to write your text on the printer.

15. Insert a disk with room for the text file "TEST" in the disk drive. Press (ctrl_M) twice.

16. After the "READY TO TYPE" message turn off the computer, insert the program disk in the disk drive and reload the program.

17. After the "READY TO TYPE" message type:

TEST

in the extreme upper left of the screen.

18. Insert the text disk into drive #1 and press (ctrl_B) and then (option).

19. After the file is loaded you can display it again by pressing (ctrl_P).

If you have loaded WP23 from the MICROMOD program, reinsert the Master Program Disk in drive #1. Go back to screen #1 by pressing (ctrl_O). When you arrive at screen 1 press (ctrl_X) and then (option). The computer will return to the Main Menu.

CREATING TEXT

"READY TO TYPE" MODE

After the "READY TO TYPE" message the screen will go blank except for the cursor in the upper left corner. You may begin typing text immediately.

There is no automatic "key click" since you may need to avoid disturbing others at times. A quick "click" will accompany the keystrokes if you turn up the volume on the monitor.

As you reach the bottom of the screen the text is stored in memory automatically, the screen goes blank again, and you may continue typing. This occurs so quickly that you may type several pages of text without hesitation, even with the monitor off.

TYPING AND SINGLE SPACE EDITING

You may type in lower case mode using the (shift) key for capital letters, or press (caps lower) once to type in "all capitals" mode. You will still need to use (shift) to type upper case punctuation characters. To return to lower case mode press (caps lower) again.

Single space editing is accomplished using the (back s), (ctrl__insert), and (ctrl__delete) keys.

IN THIS MANUAL, THE DOUBLE UNDERLINE () BETWEEN WORDS IN PARENTHESES INDICATES THAT YOU PRESS THE SECOND KEY WHILE HOLDING DOWN THE FIRST KEY. For example, typing the dollar sign is indicated by (shift__\$).

To position the cursor for editing at a different location, use the (ctrl) and arrow keys (+,*,-, and =).

Holding any key down will cause the function to repeat.

STORING THE SCREEN IN MEMORY

Everything on the screen may be stored in the proper place in memory at any time by typing (ctrl__S). The program will go to "READY TO TYPE" mode after storing and you may continue typing additional text. The text will automatically be placed at the end of your previous text. The cursor is automatically placed in the upper left hand corner whenever "READY TO TYPE" mode is displayed.

DISPLAYING MEMORY

The contents of all the screens of typing that you stored in memory using (ctrl__S) are organized into numbered "screens" that you can display by pressing (ctrl__P) or (ctrl__O). The number of the "screen" currently being reviewed is displayed in the bottom right hand corner.

By holding down (ctrl__P) you can quickly flip through all the "screens" you have stored. You can reverse direction and get back to screen 1 by pressing (ctrl__O). The "P" and "O" keys were chosen due to their proximity to the arrow keys so that fingering for the directional functions would be the same.

Note that there is some overlapping of text from one screen to the next. This makes it easier to review previous text when you want to continue a particular thought, add copy, or use full page inserts. There are about 5 blank lines at the bottom of each screen to allow room for single space editing. Each new screen therefore has over half a screen of new material.

You have up to 49 screens to work with, numbered 1-49, before you are obligated to store all memory to disk and start again with new memory. It is suggested that you reserve a few screens at the end for future inserts or files on the disk that you may want to add to the file currently in the computer.

You may display memory before screen 1 and after screen 49 if you like. This displays all the memory in the computer and you may find it

interesting if not very useful!

Of course you may display any screen and edit as you please using all editing functions. The cursor will be initially placed in the upper left hand corner. Remember to store the changed material by typing (ctrl__S).

You may wonder why computer memory isn't automatically changed as you edit screens. This is because you may change your mind after editing a screen, deleting material, and want the original screen back. You may do this with (ctrl__P) or (ctrl__O) instead of storing with (ctrl__S). You can stop the "READY FOR TYPE" message and go directly back to the same screen with (ctrl__P).

IMPORTANT POINTS AND RULES FOR EXPERIMENTERS (#)

Type the file name in the extreme upper left of screen 1.

WP23 supports up to 79 printer columns for standard business text with either a pica or elite font.

BASIC must be in on the 800.

WP23 may be used as a "stand alone" program.

- * Use (ctrl__S) frequently to store the screen in memory.
- * End every text file with a "wedge" by pressing (shift__tab).

VARIABLE FULL SCREEN INSERT

This is one of the most powerful features of the program and a real time saver. To use the insert feature display any screen, position the cursor at any space (or character) on the screen, and press (ctrl_I). All material after the cursor will disappear. You can then fill out as much of the screen as you please with material to be inserted. The material that disappeared is still in the file, but all text was pushed up to make a "hole". You can see the remaining text if you display the next screen.

After you finish, press (ctrl_S) to store the new material. The material you made "disappear" will automatically be positioned directly after your insert. The space where the cursor was originally positioned will be deleted. If you change your mind after pressing (ctrl_I) and before you type your insert, just press (ctrl_S) to get the original material back.

MOVING BLOCKS OF TEXT

You may wish to fill the "insert" with material from some other screen. To do this, position the cursor and press (ctrl_I) as outlined above. Do not press (ctrl_S). Using (ctrl_P) and (ctrl_O) go to the screen containing the material you wish to duplicate or transfer. Position the cursor over the first character you wish to move. Delete all text you wish transferred using (ctrl_delete). You may use the quick delete function if you prefer (see next section).

If you wish to retain the material at the source location, do not press (ctrl_S). If you do wish it to remain deleted, press (ctrl_S) before changing screens. If you are not deleting the source material (ctrl_S), then you are not limited to transferring material in sequence. You may jump from screen to screen, using the (ctrl_delete) keys to copy material to your insert. You don't have to worry about overwriting material. If you try to transfer more material than there is room for in the insert "hole" it simply will not be transferred.

When you are done transferring material, go back to the screen that contains the insert. All of the material you "deleted" will have popped into the hole you created with the (ctrl_I) keys--but in "inverse video" (having a white background). This allows you to identify and verify the transferred material quickly. To get rid of the inverse video and close up the old material around the insert, press (ctrl_S).

If there is no text in computer memory there will be no response when you press (ctrl_I).

QUICK DELETE

You may speed up the deleting process by holding down the (option) key in addition to (ctrl_delete). Once the option key is held down you may release (ctrl_delete). The (option) and (delete) keys are close enough to be easily handled with the right hand. It's slightly more difficult with an XE since the (option) key was moved to the top of the console (WP23 was written before the XE was introduced). As long as the (option) key is pressed material will quickly disappear at the cursor position. If you should delete more material than intended, press (ctrl_P) or (ctrl_D) and the deleted material will reappear. Or store the edited screen with (ctrl_S).

Quick delete works much faster toward the middle of the screen. Positioning text by displaying the next screen may save time.

Quick delete also works well with the auto transfer feature.

FORMATTING FOR THE PRINTER

Formatting is accomplished using graphic characters for speed and easy differentiation from text. In this section an explanation of each formatting symbol will be given, followed by a completely formatted example which you can enter on your computer to help illustrate explanations.

The very first word you must type on screen 1 is the file name of the material for identification on the disk. Do not specify the device as this is done automatically--only drive #1 is used. The name must conform to the filename rules outlined in the disk operator's manual (may be up to 8 characters with an optional 3 character extender begun with a period).

The name must be followed with a series of "hearts" displayed by pressing the (return) key. There is an exception to this rule (see "Storing a Partial File, Chapter 14). The number of hearts will determine the size of the bottom margin when using the automatic end-page function (Ctrl_C). If no hearts are entered, the pages will contain the default value of 72 lines which is the number of single spaced lines on a legal size page (14 inches), allowing for top and bottom margins. Each heart subtracts 1 from this value. If you were using standard size sheets, single spaced, you would want about 54 lines to a page. You would therefore enter 18 hearts (72-54).

The file name and bottom margin (hearts) will be constant for the entire text and cannot be changed (unless you store a partial file (see "Storing a Partial File" information).

Page Number Positioning

You may be printing page numbers at the top of each page. The page number will be approximately in the center of the page. If you would like to set the positioning (horizontally) yourself, you can enter a capital letter between A and Z at the end of the "hearts". An "A" will tab the page number at 3, and each successive letter after "A" will set the

tab over 3 additional columns. A "Z" will position the page number at column 78.

PAGE NUMBER POSITIONING WILL NOT WORK UNTIL YOU HAVE "COUNTED PAGES" WITH (CTRL_C).

Following the hearts, type one "wedge" using (shift_tab). The wedge always precedes the beginning page number. It denotes the beginning of material to be printed and format symbols that may appear anywhere in text. The program will ignore all material not delineated by two wedges, except for filename and bottom margin. Therefore there must be two wedges in memory, one just after the filename/bottom margin instruction (hearts) and one at the very end of the text. If you are not using automatic page numbering you may have more than one block of text, each delineated by two wedges, with notes you do not wish printed in between blocks.

Immediately after the wedge you may type the beginning page number which can be any number from 1 to 9900. Pages will automatically be numbered sequentially beginning with the number you enter. If you enter the number 1, the first page will not be automatically numbered but numbering will start with page 2. You can number page 1 by treating it as the first line of text. Avoid page numbering by not entering a beginning page number.

SYMBOLS THAT MAY APPEAR ANYWHERE IN TEXT

The following formatting symbols may be repeated anywhere in the text to change formatting values. If they are imbedded in text, under certain conditions they may not be noticed unless they appear between lines. You may guarantee that they will be noticed by preceding them with an end-line instruction (down arrow).

"Right arrows" set the left margin and are produced by pressing (shift_delete). Five right arrows in a row will bring the left margin in 5 spaces.

Left arrows set the right margin and are produced by pressing (shift_return).

Circles set the paragraph indentation and are produced by pressing (shift_#). Four circles in a row will cause paragraphs to be indented four spaces.

"Square dots" set the tab and are produced by pressing (shift_caps lowr).

The program will choose whether or not to hyphenate a word at the end of a line depending on the length of the word and how many spaces you allow it to leave blank at the end of a line. The number of spaces you allow is set by typing a series of "clubs" produced by pressing (shift_+). There must be a minimum of 5 clubs for hyphenation to take place and a typical number would be 7 to 9. The MICROMOD manual was

printed using 10 clubs in the format.

Right Justification

If you use 9 clubs the right margins will automatically be kept even (justified) by adding an extra space between words as needed. Remember to suspend right-justification by typing one club when using tabs. Reinstitute right-justification by typing 9 clubs after the use of tabs.

There is no reason to format every file individually. A few format combinations will fit most of your applications. If you think you will be using the same format again, save it as a file on disk (see STORING MEMORY ON DISK). After the formatting symbols are completed, but before beginning any text, think of a name for the format. Enter the name as you would for any text file and store the format in memory. You may then store the format file on disk and call it anytime to begin another application, as was exemplified during the "Quick Course" with the standard format STD.1.

There are four standard format files included with the program (on disk) for you to use. They are named:

STD.1 standard page, single spaced
STD.2 standard page, double spaced
LGL.1 legal page, single spaced
LGL.2 legal page, double spaced

These formats all start with page number 1, have a five space left margin, five space right margin, 10 space tab, a 5 space paragraph indentation, and allow 8 letters to be dropped to prevent hyphenation.

Don't forget to change the filename before storing your application to disk or you may erase the format file.

These formats do not contain any "double space" instruction for the printer. The formats ending with ".2" just provide for less lines to be printed on a page. The printer itself must be set to the "double space" position. Then using one of the ".2" formats will insure that the correct (reduced) number of lines per page will be printed to fit on the page.

A Format Example

To illustrate the formatting procedure the beginning format for the original WP23 manual will be used. You should start off with a blank screen, and with no text in memory, so just to make sure follow the instructions for loading the WP23 program in Chapter 12. After the "READY TO TYPE" message you're ready to proceed.

Start by typing

C1

which was the name of the first chapter of the manual. The "C" must be in the extreme upper left corner of the screen.

Next press (return) 18 times. 18 hearts should appear on the first line. The first 7 hearts are to bring the bottom margin up to standard length or 11 inches (65 single spaced lines) because the maximum number of lines per page is set at 72 (for a legal sized paper). Three hearts allow for a top margin above the page number, and 3 hearts allow for the three lines taken up by the page number. 5 additional hearts leave a 5 line bottom margin: $7+3+3+5=18$ hearts. A simpler way to calculate this is just to determine the number of lines per page you want to print, and then subtract the number from 72.

Immediately after the last heart, hold down the (shift) key and press (tab) once. A single "wedge" should appear.

Type the number 1 immediately after the wedge. This is the first page number (title page).

Holding down the (shift) key press (delete) 5 times, (return) 5 times, and (caps low) 10 times. Release the shift key and press ~~(space)~~ 5 times. Hold down the shift key again and press (+) 8 times. (SHIFT-N)

After the page number you should have 5 left arrows, 5 right arrows, 10 square dots, 5 circles, and 8 clubs. The manual is now formatted. At the right of the last club would be typed "WP23 Word Processor" which was the title of the manual and the first words to be printed.

According to the above format, the manual would have 54 lines to a page (72-18), start with the page number 1, a 5 space right margin, a 5 space left margin, a ten space tab, paragraphs should be indented 5 spaces, and a maximum of 8 characters should be dropped at the end of lines to avoid hyphenation.

TEXT RELATED CONTROLS

This program does not allow two or more spaces in a row in memory because they would confuse the format interpreter. Actually in most cases the two spaces will work, especially if not at the beginning of a line. But there are so many exceptions under special formatting conditions that it's not worth the trouble to learn them. To allow additional spaces between words in a line type one "up arrow" by pressing (shift__clear) for each space desired.

The program will automatically end lines according to your format instructions. If you do not want a line to run the full length you may end it by typing one "down arrow" by pressing (shift__insert). This is usually done to skip lines between paragraphs and avoid unwanted hyphenations. To end a line and skip an additional line type 2 "down arrows." Type an additional "down arrow" for each line you wish to skip.

To end a line and begin a new paragraph type a "cross" by pressing (tab). EITHER NEVER LEAVE A SPACE BEFORE THE NEW PARAGRAPH OR ALWAYS LEAVE A SPACE. Otherwise the paragraph indentations will be uneven. Note that

the paragraph character takes care of two functions: ending the line and indenting the next. To skip a line and begin a paragraph type a "down arrow" (shift__insert) followed by a cross (tab). Type extra "down arrows" before the "cross" to skip extra lines before the new paragraph.

Type one "vertical bar" by pressing (shift__logo) for each tab position you wish to use to position text. The word "logo" stands for the Atari logo key normally used for inverse video, located to the right of the "?" key. Note that these are relative tabs, and each vertical bar will position the next word at the next tab position after those already used in the line. You will have to count letters to know how many bars to use if words are longer than one tab interval.

PROOFREADING

Once your text is formatted you can proofread at any time by pressing (ctrl__R). The first line of text will scroll up from the bottom of the screen. To continue scrolling, press (start). To scan ahead press (select). To the extreme left on the first line will be the beginning page number. From then on page numbers are ignored. Since the screen will hold only 40 characters on a line, and the printer will print up to 79 characters per line, each line to be printed is displayed as two lines on the screen. To prevent confusion lines are separated by a single screen wide horizontal bar. Therefore each "printed" line takes up three lines on the screen. This sounds confusing, but in actual practice the large letters and separation of lines facilitate proofreading.

Other than this "folding" of the line, underlining, and page numbers, the display is exactly the same as will be printed. Right and left margins and hyphenations are duplicated. Any formatting errors will be readily apparent. A faint horizontal line "behind" the text indicates the right margin.

At the extreme right of the horizontal bar separating the lines is a number which corresponds to the number of the "screen" on which that line resides in memory. You can leave the proofreading mode at any time by pressing any key other than (esc). It is suggested that you use (ctrl__P) since it halts the "READY TO TYPE" message, and you can display screens immediately. When you press (ctrl__F) to review "screens" in memory the screen corresponding to the last numbered line in proofreading mode will be displayed. This facilitates switching from proofreading mode to editing mode to correct errors. Unfortunately, the reverse is not true. Proofreading always starts at the beginning screen. This is necessary because the format and spacing at any time is dependent on all preceding symbols and text. If you're proofreading beyond screen 10 or so you may want to just note errors and screen numbers as you go along, correcting these later.

If you spend several minutes in proofreading mode the screen may start

changing color and brightness. Remedy this by pressing the (esc) key.

If the text ends in the words "END DATA" you have an odd number of "wedges" in memory and you should add a "wedge" to the end of text with (shift__tab).

AUTOMATIC END-PAGE AND PAGE COUNT

Whether or not you must manually insert paper into the printer, you may want the printer to hold at the end of each page. With automatic endpage the computer counts lines and will hold when it counts 72 lines on a page, less the number of hearts at the beginning of screen 1. The lines used up by page numbering (3) are NOT counted, and you must use three additional hearts on screen 1 if you elect automatic numbering.

Before using the automatic endpage function you should review the text to see if there are any locations where you definitely wish to end a page, regardless of spacing. Instruct the computer to end the page at the end of the next line by inserting a heart in text by pressing (return). All hearts after the first "wedge" in memory are treated as endpage instructions. The heart says, in effect, "End the page somewhere around here." If you want to end the page exactly at the position of the heart regardless of whether there will be a full line or not, precede the heart with a down arrow (shift__insert). This forces the line to end.

Once you have completed the "manual endpage" instructions by inserting hearts, select automatic endpage to start the counting of lines by pressing (ctrl__C). Counting will be evident as the text scans ahead in proofreading mode.

When the counting is complete the computer will display the total number of pages (including partial pages) counted for about 2 seconds. The program then goes into "READY TO TYPE" mode. You may review the proposed endpages by reviewing the screens. The ends of pages are represented by a thick slash, tilted to the left. You may find that the computer has inserted slashes in the middle of words. This means the word will be hyphenated and the hyphenated section will end the page.

You may review the proposed endpages in proofreading mode. The ends of pages will be denoted by a double horizontal bar (separating lines of text) instead of the usual single bar.

If you wish to move the end of the page down one line, find the screen that holds the slash ending that particular page. Position the cursor over the slash and change it to a diamond by pressing (shift__esc). A diamond tells the format interpreter, "You were going to end the page here, but I want you to end it one line later." If you wish the interpreter to skip two lines, insert an additional diamond next to the first. Insert an additional diamond for each line you wish to add at the end of the page. The first diamond must be at the exact position of the former "slash" to be noticed by the interpreter. Repeat the endpage function with (ctrl__C) and review the new slash position. If you make any formatting or textual

changes you must repeat automatic endpage with (ctrl_C). Whenever (ctrl_C) is pressed, the interpreter first erases any slashes in memory. Therefore you may select automatic endpage several times as you edit text. The diamonds and hearts are not erased however, and diamonds may tend to accumulate if you make myriad changes. Diamonds in the "wrong" position won't effect the program but they may become confusing to you. It is suggested that you delete these if not required.

You may erase all slashes without inserting new ones. Press (ctrl_C) and then the (T) key.

IMPORTANT POINTS AND RULES FOR EXPERIMENTERS (#)

All material to be printed must be delineated by 2 "wedges".

To erase all end-page instructions (slashes), press (ctrl_C) and then the T key.

Press H to hold printer, T to cancel printing and return to "READY TO TYPE" mode.

CHAPTER 14 -- WP23 MANUAL - PRINTING AND DISK OPERATIONS

Line Feed Required on Some Printers

WP23 doesn't send a line feed because Atari doesn't in some cases. You should set the dip switches on the printer so that no line feed is required.

This may make the printer incompatible with other software, so you may "customize" WP23 to send a line feed. Follow the instructions in Chapter 1 for accessing BASIC with the WP23 program in memory. Line feed is cancelled with a zero at location 39831 (as shipped). To revise WP23 to send the line feed, type the following POKE command:

```
POKE 39831,10
```

and press RETURN. Then store the revised WP23 file back on disk using the DOS menu.

PRINTER CODES

First Method

You may enter printer codes directly by use of the "ESC" key, followed by whichever characters are indicated in your printer manual. If you use this method the codes will show up in proofread mode. There are some printer characters that you cannot type on the keyboard, so you cannot specify those operations using the "ESC" method.

Second Method

Use the "inverse video" key to select up to 49 pre-set three number code combinations. This allows you to specify any codes, including those which cannot be typed. The "inverse video" key types a short square character. It must be followed by one of 49 characters that selects an associated pre-set 3 number code sequence.

The program is shipped with settings for a Star NX-10 printer, which is also Epson compatible (though your Epson may not have some features such as "Double High/Double Wide" characters and "Proportional" line spacing. You can list the codes, along with the appropriate characters to press after the inverse video character, by running a BASIC program which is included on the Word Processing disk. Here's how:

1. Boot any DOS disk and get to the READY prompt.
2. Insert the Word Processing disk in drive #1
3. Type: RUN"D:PRCODE.BAS

The PRCODE.BAS program also allows you to modify the codes. You must

enter three numbers (ASCII number equivalent of characters) for each code. If a particular code sequence contains only 2 numbers add a zero for the third number. The PRCODE.BAS program will store the revised WP23 back on disk.

Though the "pre-set" method does not take any room in the printed line (and is *invisible in proofread mode*), it has it's own limitations: when you use the inverse video key followed by one of the characters to call a pre-set code sequence, you CANNOT CANCEL THAT INSTRUCTION IN THE SAME LINE. This is because the codes are sent to the printer before the text line, no matter where the instruction is in the line (this does NOT apply to the ESC method which becomes part of the text). The rule to follow is to place "cancel" instructions just after down arrows or crosses (end-line instructions).

If you want a header and/or very first page number (not number 1) to be printed according to various printer codes, add a "block" of text, containing only the codes, just before the first "wedge". In other words, at the end of the hearts you would type a "wedge", the codes, another "wedge" to end that block, and then the original "wedge" will start the block of text.

Page numbering revisited

There is a series of "hearts" at the beginning of each format. If the very next character after the last "heart" is a capital letter between A and Z, the computer will position the page numbers accordingly. An A will print it in column 3, a Z in column 78. Each successive letter adds three columns.

BEFORE THE PAGE NUMBER WILL BE POSITIONED YOU MUST COUNT PAGES WITH (CTRL_C).

PRINTING PROCEDURE

Once you know there are no textual or format errors in proofreading mode the text is ready for printing. Turn the printer on, making sure it's "on line", and tell the computer to start writing by pressing (ctrl_W).

If you are using manual feed don't forget to insert the first sheet before pressing (ctrl_W). The printer will stop at the end of each page, assuming you "counted pages" with (ctrl_C). When you have inserted a new sheet, press the space bar or any key other than (esc) and the printing will continue.

You may "hold" the printer after any text line is printed by pressing the (H) key. Stop printing and go to "READY TO TYPE" mode by pressing the (T) key. Continue printing with any other key.

Quick Address Print

If you have an address (or any other short block of text) in your text file, you can print this immediately, tabbed over to the 30th printer column, by pressing (CTRL_A). This is completely independent of any other formatting instructions/procedures in the program. Before (CTRL_A) will work the address must be delineated by (begin and end with) the "short T" character produced by typing (Shift_=), also known as "shift/equal". The tab positioning of 30 cannot be changed.

Headers

You may want a series of characters to be displayed at the top of each printed page. If you have 8 clubs in your format the computer will print the file name (on screen one) at the top of each page, beginning at the left margin, one line above the page number. This is a good way to note the file name of your text files on printouts.

A PAGE NUMBER MUST BE PRINTED. IF THERE IS NO PAGE NUMBER IN THE FORMAT, OR THE NUMBER 1, NO HEADER WILL BE PRINTED.

You may want other words to appear as "headers". To do this just change the file name to whatever you want printed as the header. LOWER CASE LETTERS WILL NOT BE PRINTED, as in file names. This must be done just before printing. Otherwise you might inadvertently store the file under the changed "file name". After printing be sure to change it back if you intend to re-store the file. Normally files will already be on the disk by the time you print them.

If you want your "header" to be indented from the left margin begin it with spaces. The computer will print up to a 69 character header, including beginning spaces.

To cancel printing of "headers" just use a different number of "clubs" in the format. This is the way the headers in this manual were printed.

DISK OPERATIONS

LISTING THE DISK DIRECTORY

To list all the files on the disk in drive #1, just press (CTRL_F). You'll get a quick listing in two columns to fully utilize the screen and get most directories on one screen. This is so convenient that you may find yourself using the WP23 program just to search the files on various disks at times.

Anytime you press (CTRL_S) whatever is on the screen gets stored in the text file. Thus you can press (CTRL_S) anytime you are displaying a disk directory and get that directory into the text file.

Amazing!

Here is an extremely useful *unplanned* convenience discovered by a MICROMOD user. Due to the length of Atari directory displays and the coincidental length of the WP23 text line, when you store a directory display in WP23 text, and then add a beginning and ending "wedge", you can print it immediately with (CTRL_W) and it will be arranged neatly into four columns on the printer. A very convenient way to get condensed listings of all your disks!

DISK STORAGE/RETRIEVAL

To store all text on disk, press (CTRL_M). You must have the filename at the beginning of memory (see FORMATTING). When storage is complete the computer will go into "READY FOR TYPE" mode and display an error number if an error was encountered.

note: During disk operations the screen may sometimes flicker and display garbage characters. This has no effect on the operation and is no matter for concern. The flicker will stop as soon as the file is loaded/stored.

To load a file from the disk, go to "READY TO TYPE" mode by pressing (ctrl_T) or to screen 1. Type the filename in the left top corner of the screen exactly as it appeared when you stored the text file on the disk. There must be at least one space separating the name from any other material. Unlike the storage function, you are not required to store the name in memory before loading. Press (ctrl_B). The computer will display:

PRESS "OPTION" TO LOAD

This is a precautionary step since the loading function erases all memory. Press any key to return to "READY TO TYPE" mode, or press (option) to load the file. The computer will display

LOADING

When the file is loaded the program will return to "READY TO TYPE" mode.

Adding a File to Memory

If you load a file from any screen other than screen 1, the file will be loaded beginning at that screen, without erasing previous screens. Screens beyond the new file will be erased.

Make sure there are enough screens available to hold the new file. There is an easy way to determine how many screens a disk file will occupy. Just list the files with (CTRL_F). If your disk is formatted in double density divide the number of sectors the file occupies by 2. For single or 1050 density, divide by 4.

Storing a Partial File

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You may end the filename on screen 1 with a comma, followed by TWO digits, followed by a second comma, followed by TWO more digits. An example would be

FILENAME.EXT,03,27

You must store the new format with (ctrl_S).

As long as the filename ends in a comma a partial store will be attempted after the usual (ctrl_M) instruction. If there is no first comma the entire file will be stored. If there is any deviation from the partial store format after the first comma an ERROR 199 will be displayed. This is NOT an Atari error number.

The commas and numbers DO NOT become a part of the file name. To load the partial file, use the original filename only.

The stored file will include the screen denoted by the first number, up to BUT NOT INCLUDING the screen denoted by the second number. Because of the overlapping of screens it is a bit confusing to ascertain just where the partial file will end. The best procedure is to get the ending material you do NOT want to store on the top left of the screen. The screen number will then be the second number to use in the storing format. The last screen cannot be past the end of text. You can add some "garbage" text to overcome this limitation (easiest to type a single character at the bottom of the ending screen and then press (ctrl_S).

Since you can store only whole screens there is no provision to start and end the partial file at exact text locations automatically. Once you become accustomed to the delete, store, and auto insert functions, you can use these to position text before storing partial files.

IMPROVING PROGRAM PERFORMANCE

Before printing follow this proofreading checklist:

- ‡ hyphens
- ‡ margins
- ‡ paragraphs
- ‡ paragraph length
- ‡ tab spacing
- ‡ skipped lines
- ‡ lines per page
- ‡ lines skipped after headings
- ‡ first page number

You may not like some of the hyphenations. You can fool the interpreter by adding extra spaces in the sentence, thereby moving the hyphen to the left. This works especially well with justified margins. Or you can manually hyphenate the word by separating it into two words with a hyphenation after the first, as in "hyphen-ation". When a word is too

long for the line and too long to be dropped, the hyphen will be at the first location in the word (starting from the right) that three letters can be located on either side of the hyphen, not including punctuation marks. If these conditions cannot be met the word is dropped (to the next line) no matter how long.

You can't transfer material to the end of text. If you wish to do so, add some "garbage" text to the end of the last screen, and store. You may create an insert at the beginning of the "garbage" text, deleting this later.

When positioning the cursor for an auto insert, place it over a space. Otherwise the character will be deleted.

You may create an insert or add to the length of the file by typing a single character at the bottom of the screen and pressing (ctrl_S). The intervening spaces will be treated as "text".

You can verify the successful storing of a file by reloading it from a screen after the end of text (if room is available).

You should create a short disk file called ERASE. If you then wish to delete all text past a certain screen, you can load the file from that screen. Another way to do this would be to simply load a format such as STD.1 from a certain screen, erasing all text after the format. The format can then be easily deleted.

Page numbers will be centered with respect to text if the right and left margins are the same and the paper is positioned in the printer at the first character position. You can move the page number to the right or left by changing margins or positioning the paper (if applicable).

CUSTOMIZING THE PROGRAM

A few characteristics of the program may be easily changed using the ASSEMBLER/EDITOR or BASIC cartridge. The operations and BASIC POKE commands are summarized below. To make the changes permanent, copy the "customized" program to disk (see "Storing WP23 from the DOS menu", Chapter 12).

The pitch of the key "beep" is at \$95CE and is set at 11. Change the frequency with a POKE 38350,X (X=frequency).

The maximum number of lines per page (no hearts in format) is set at 72. To change this value POKE 38162,X (X=new line maximum, any number up to 255). If you find that you always use 54 lines on a page, for instance, POKEing a 55 would mean that you would only need one heart in the format.

The border and background color are set to zero for maximum contrast. Change the colors with a POKE 34790,X (X=new color).

The beginning and end of text memory are represented by even page

numbers (multiples of 256), and are at locations 35303 (min) and 35308 (max). To begin memory at location 12288, for example, you would POKE 35303,48 (48=12288/256). To end memory at location 24576 you would POKE 35308,96 (96=24576/256).

Right margin justification occurs whenever the text is formatted with 9 clubs. To change the number of clubs that will enable right-justification POKE 37525,X (X=new number of clubs).

The computer will print the file name or "header" on the line above the page number if there are 8 clubs in the format. To change the number of clubs that will enable printing of "headers", POKE 35039,X (X=new number of clubs).

Automatic page numbers are printed with a "-" character on either side of the number. To change the delineator, POKE 39233,X (X=ASCII value of left character) and POKE 39306,Y (Y=ASCII value of right character). To eliminate the delineators POKE these locations with 32 (ASCII space).

Printing the page number "1" is disabled with a value of 11 at location 39207. To allow printing of the page number "1" POKE 39207,0.

At the end of the count-auto endpage function the computer displays the page count for about 2 seconds. You may shorten the delay with a POKE 37453,X (where X is a number less than 2). To increase the delay, use a number greater than 2.

During proofreading, right margins are indicated by a faint vertical line behind text. To change the color-luminosity of the line POKE 38687,X (X=new color). The width of the line is set to 1. To double the width only, POKE 38718,3.

IMPORTANT POINTS AND RULES FOR EXPERIMENTERS (*)

* To cancel the printing of file names at the top of printouts, change the number of clubs in the format (on screen one). Having eight clubs in the format instructs the computer to print the filenames.

* Make sure the printer is "on line".

* H to hold, T to cancel printing.

Move the page number by repositioning margins.

HINTS

To get from a high numbered screen to screen one faster, press (ctrl_R) and then (ctrl_P).

CHAPTER 15 -- MICROMOD WORD PROCESSING UTILITIES

FILE CONVERSIONS

The file conversions allow the word processing and file management capabilities of the program to be used together (integrated) to realize the full capabilities of each. Most WP23 to Micromod conversions will be for the purpose of printing WP23 files in forms using the SSFORMS.MOD module in spread sheet listing formats (see Formatting a Spread Sheet "form", Chapter 8) or with the Report Generator.

MICROMOD text files may also be accessed directly from the Supplement Table of Contents using the "ENTER FILENAME" selection. If, in your original WP23 text file, you use the symbol # followed by a space, followed by a capital letter from A to K, and then convert the file to a MICROMOD text file, the Supplement Table of Contents will be able to access the section denoted with the "#" directly by pressing the letter you entered after the #, as it does when you access a certain section of the Supplement Manual.

Usually the Micromod to WP23 conversion module will be used to recover a lost or erased WP23 file that exists as a Micromod file so that the contents can be edited or revised.

You may wonder why MICROMOD cannot read a WP23 file as is, without being first converted. First, the interpretation of format symbols, most of which are unnecessary in a MICROMOD listing, would take up too much room in the module, slowing down the printing. Secondly, one reason why the WP23 program is so fast when flipping through screens is that it sends screen encoded characters directly to the screen DMA instead of using the much slower computer operating system routines to convert, display, and scroll characters, which is the usual method. The infrequent necessity of converting files is a small price to pay for the exceptional screen editing power of the WP23 program.

SELECTION "W WP23 CONVERT"

This function is selected from the Custom Menu to convert a WP23 word processor file to a Micromod text file or standard ASCII file (see Chapter 1). The computer will stop and ask for the filename of the WP23 file and the filename you wish to use to designate the new Micromod file. It will also ask whether to store the new file as a MICROMOD text file or standard ASCII file (see Chapter 1).

If you are using more than one disk drive the computer will ask you to insert the WP23 disk in drive #1 and the Micromod (destination) disk in drive #2.

The computer will recognize three format symbols in the WP23 file: extra space (up arrow), end line (down arrow), and paragraph (cross). Therefore it will ask three format questions:

PRINTER COLUMNS?

Answer by entering the number of columns (line length) you will want in the printouts of the Micromod file, usually in a spread sheet listing.

SPACES TO INDENT MARGIN?

Enter the number of spaces (usually zero) you will want the written material to be indented from the left margin.

SPACES TO INDENT PARAGRAPH?

Enter the number of spaces to indent the first word in paragraphs. This number will be assigned to each paragraph symbol (cross) found in the WP23 file. The original value assigned in the WP23 format instructions is ignored.

If you press RETURN without making an entry to the "PRINTER COLUMNS?" question, the remaining two questions will be skipped and default values of 40 columns, 0 space margin indent, and a 2 space paragraph indent will be assumed.

The file will be converted and placed on the Micromod disk. The computer will return to ask for another WP23 filename. Press RETURN without making an entry if you have no additional files to convert. The computer will return to the menu.

SELECTION "X MICROMOD CONVERT"

Select conversion of a Micromod text file to WP23 file from the Custom Menu. The computer will ask for the Micromod filename. If you press RETURN without making an entry the computer will return to the menu.

The computer will ask for the drive number of the Micromod file. Enter one number and press RETURN.

The computer will ask "PARAGRAPH INDENT KNOWN?" Enter the number of spaces you entered for the paragraph indent when you originally converted the file from a WP23 file. This allows the computer to restore the paragraph symbol (cross) in the WP23 file. If you press return without making an entry, all extra spaces in the Micromod file will be represented with the WP23 symbol for an extra space (up arrow).

After the conversion is complete the computer will stop and ask for the WP23 filename and drive number (destination disk). It will then ask for another Micromod filename. If you have no more Micromod files to convert, press RETURN without making an entry to return to the menu.

SPELLING INSTRUCTIONS

DISKS

The spelling check process involves the use of four disks. Three are supplied with the program. The fourth is supplied by the user. First, the spelling modules are on the Word Processing Disk, file names SPELL.MOD, SPELL1.MOD, and SPELL2.MOD.

Two more disks contain the dictionary, called SPELLING DISK #1 and SPELLING DISK #2. Disk #1 contains 63 files representing alphabetical brackets from AAA to MAG. It also contains a file for temporary word storage called WORD.TMP. Disk #2 contains 63 files which are brackets from MAN to WHI, and a second WORD.TMP file.

The fourth disk, which the user supplies, is the ACCUMULATOR disk. This may be any disk that has room available for temporary storage. The only file that will be maintained on the ACCUMULATOR disk is called WORD.ACM. This file may be expected to take up several hundred sectors at times.

During the spelling check the computer must access 3 different modules. If you are using a ramdisk it is suggested that you load the three spelling modules into the Ramdisk (using BACK-UP/COPY FILES) so that you can avoid having to switch disks. The spelling modules may be placed near the beginning of the disk so that they will be loaded just after the menus.

HOW THE SPELLING PROCESS WORKS

The spelling modules look at every word in a WP23 file and search for it in the dictionary. If it is not found the computer will either stop or store the word in the temporary files on the spelling disks so that you can check the list later. Obviously use of improper punctuation, valid but misused words, or inappropriate forms of words cannot be determined.

The spelling disks, as shipped, are incomplete. They do contain enough words to work effectively as a spelling checker. We will continue to add new words to make it more complete and the revised disks will be made available. You'll also want to add words of your own. In order to store a complete dictionary (when completed) on two enhanced density disks shortcuts must be taken. Thus words are stored as rootwords with 99 common prefixes and suffixes noted by the computer so that additional forms of the same rootword will take up only one byte each.

There are several ways to design a spelling checker. The spelling modules are written mostly in ASSEMBLER and operate at near machine code speed. However, regardless of design, the better part of two disks must be loaded, and all words in the WP23 file must be sorted in some manner. Valid words not found must be stored back on the spelling disks and this takes extra time (storing files takes twice as long as reading files). You can put the dictionary in the ramdisk if you have room (file spec to use in BACK-UP/COPY files would be ???). In any event, the spelling modules take a long time to operate.

Since most of the time is spent loading the dictionary into the computer, short letters take almost as long to check as long chapters. Since the sorting can be done at machine code speed, the spelling modules are designed to facilitate the fastest dictionary access possible. The dictionary is separated into 126 alphabetical brackets, and some of these can be bypassed if no word in a particular bracket is encountered in the WP23 file.

Rootword + Suffix

When storing words into the dictionary the user must select the proper combination of rootword + suffix to store. Storing an invalid rootword will not affect reliability, but will take up several times as much room on the disk.

When the computer finds a common suffix at the end of a word, it lists the various rootwords that would most commonly be associated with that suffix. The rules of grammar are employed to save time. Doubling of consonants and the association of certain suffixes with certain endings is provided for and invalid rootwords are not displayed whenever possible.

For instance, the suffix "ment" might be attached to the word "abut" or "improve", while the suffix "d" requires that the rootword end with an "e". The word "carted" would be listed as:

- 1 carted
- 2 carte + d
- 3 cart + ed

and you would choose 3, the rootword being "cart".

The word "lively" has two possible suffixes, "ively" and "ly". Thus the word would be listed as:

- 1 lively
- 2 live + ly
- 3 l + ively

and you would choose "2 live + ly" as the proper combination.

Some suffixes such as "ing" can be attached to an intact rootword such as "teeth" or can replace an ending "e" such as in "using". For example, the word "using" would be listed as:

- 1 using
- 2 use + ing
- 3 us + ing

Since both rootwords, "us" and "use", are valid words, it makes no difference to the computer which form is selected. For efficiency you should choose the shortest rootword that is a valid word when two or more valid rootwords are displayed.

The suffix "ers" is not among those recognized by the computer. Therefore with a word like "players" you have no choice but to store "player" as a rootword, even though you may have previously stored the word "player" as "play + er".

While the selection of rootwords seems complicated in explanation, it is actually quite easy and fast in practice. Most words not found will be names or concatenated words such as "thinknot". Concatenated words are the result of hyphenations. Any group of letters in the WP23 file which are connected by a hyphen or apostrophe will be concatenated, since valid words use this punctuation. All other punctuation is ignored. You should just skip over these "garbage" words. In the large majority of cases the proper word will be immediately obvious and the others will appear as "garbage". The computer lists the possibilities, which may range from 1 to 9 combinations, and you must press the number corresponding to the correct rootword. Immediate key control is used so you needn't press RETURN.

Further, the majority of words will have only 2 to 4 forms, so you may place your left hand over the number keys 1-4 and quickly make a choice. Lastly, even in cases where you make a mistake or store an incorrect rootword, this will make no difference in the correct spelling of the entire word. It will just be an extra few bytes used on the spelling disk. There is room for more mistakes than you will make without significant effect.

In most cases you will not have to make a decision regarding the proper rootword. The computer will make this for you. Usually the root word will already exist in the dictionary but the computer will not find the particular suffix used. The word "realizes" might be displayed as:

- 1 realizes
- 2 realize + s
- 3 realiz + es
- 4 *real + izes

The "*" character indicates that the rootword "real" has been found in the dictionary and is a valid rootword, but the suffix "izes" was not found. You need only check to see if "izes" added to "real" makes a valid word (which it does). You would select "4 *real + izes". The reason you would not select "2 realize + s" is that "real" is shorter and it is already on the disk. Thus your task is greatly facilitated because most all rootwords are already in the dictionary. It is when no form is found (no "*" being displayed) that the word becomes most suspect and should be looked up in a dictionary.

Even though a * character is found, this does not guarantee that the word is correctly spelled. The word "pen" might be in the dictionary and the computer might recognize the suffix "ence". The word "penence" would be displayed as:

- 1 penence
- 2 *pen + ence

but it is incorrectly spelled. Be careful with words ending in "ence" and "ance", "ite" and "ate", as you do not want to store an invalid suffix such as the word "definate".

Words with suffixes that may follow a doubled consonant will be listed both ways. The word "biggest" will be listed as:

- 1 biggest
- 2 bigg + est
- 3 big + est

and you would choose "3 big + est". The computer will therefore not store the incorrect word "bigg" as a root word, and will expect a doubling of the g whenever the suffix "est" is used.

The handling of prefixes such as "ex", "in", "under", etc., is completely automatic and requires no user interaction. Some words which the computer finds will appear to be misspelled. For example, when the computer is searching for the word "copies" it may display "†copie + s". The rootword "copie" does not actually reside in the dictionary, but the word "pie" was found and the prefix "co" added. Choosing "copie" as the rootword therefore is a valid choice and saves room. Another example would be "†reall + y" for the word "really". This would mean that the computer has found "all" and added the prefix "re". One rootword can thus take the place of several.

SPELLING OPERATION

The spelling function is accessed by selecting "J SPELLING CHECK" from the Custom Menu.

The computer will stop and ask if you wish to store words from the ACCUMULATOR disk. Assuming you do not, and press RETURN, you will be asked to enter the WP23 filename and drive number of the file to be checked. If you press RETURN here without making an entry the program will return to the menu.

Assuming you enter a filename, the computer will take a few seconds to convert the file into a list of words that can be compared to the dictionary.

The computer will display the words "PRINTER ON?" to remind you to turn on the printer if you want a printed list of words not found.

The computer will stop and ask if you want to automatically check words and store words not found, or to add words not found to the dictionary which requires your participation. If you have time you may store words as you check them. Otherwise enter Y and press RETURN.

The computer will stop and ask you to insert the spelling disk(s). If you are using just one disk drive you will need to switch disks after the

first half of the alphabet is checked. If so, the buzzer will sound to remind you. The buzzer also sounds when all words have been checked.

If you are adding words to the dictionary as they are being checked, the computer will stop when words are not found and wait for you to press a number key indicating the proper rootword. Immediate key control is used so you needn't press RETURN. If you do not wish to store the word in the dictionary press the space bar and the word will be erased.

Whether you are on "automatic" or "manual" the WP23 screen number associated with the word will be displayed to the right of each word. The same word may be displayed several times with only the screen number being changed if it is used more than once in the WP23 file. If an incorrectly spelled word is detected, you must note the screen number and change the word manually from the WP23 module, after reloading the file. Words are not changed in the WP23 file automatically.

Accumulator Disk

If you have been storing words into the dictionary, and after all words are checked, the computer will stop and ask if you wish to erase the words on the ACCUMULATOR disk. If you have just stored these you should answer yes (Y), insert the ACCUMULATOR disk, and erase the words.

The computer will return to the "STORE WORDS FROM ACCUMULATOR DISK?" question, and then to the "WP23 FILENAME?" question. Press RETURN here to get back to the menu.

If you are automatically storing words not found on the spelling disks, and after all words are checked, the computer will stop and ask, "LIST WORDS FROM SPELLING DISK?" IF YOU HAVE REMOVED THE SPELLING DISKS FROM THE DRIVES, RE-INSERT THEM TO LIST THE MISPELLED WORDS. Enter Y (return) and the unmatched words will be displayed 20 at a time. Words with rootwords having been found will still have the "*" preceding them. WP23 screen numbers will again be displayed to the right of each word. This is the last time the screen numbers will be displayed, so you should check spelling at this point and note screen numbers of incorrectly spelled words.

note: Until you check spelling again the word list remains on the spelling disks. You can access the "LIST WORDS FROM SPELLING DISK?" question anytime by answering Y (RETURN) to the "STORE WORDS FROM ACCUMULATOR DISK?" question and then pressing RETURN without entering a number to the "DRIVE #?" question.)

The computer will ask if you would like to save the word list on the ACCUMULATOR disk. If you have valid words which are not in the dictionary, enter Y and press RETURN to save the list. Because storing the words takes so much time, and because long lists can be stored almost as fast as short lists, it makes sense to compile a long list of words on the ACCUMULATOR disk, storing these when you have time available.

The computer will ask if you would like to store words from the

ACCUMULATOR disk. If you are not checking a WP23 file, but would like to store the words on the ACCUMULATOR disk into the dictionary, enter Y and press RETURN.

Since the majority of words on the ACCUMULATOR disk will be "garbage" words you are given an opportunity to delete these from the list before beginning the actual storing function. The reason for this is that "garbage" words will necessitate the loading of files in their alphabet brackets during the store function, greatly increasing the time required. Much time is saved by sorting out the unwanted words, though this seems duplicative.

The computer will list each word from the ACCUMULATOR disk and wait for you to press "K" to keep the word, or the space bar to eliminate the word. Immediate key control is used so you needn't press RETURN.

After you have sorted through the list the computer will start the actual storage function beginning with the "AUTO CHECK AND SAVE WORD LIST?" question. Press RETURN without making an entry to store the remaining words.

IMPORTANT POINTS AND RULES FOR EXPERIMENTERS (!)

Conversions are most often used to print converted WP23 files in spread sheet "forms".

Try to place the spelling modules in the ramdisk if your computer is equipped with one.

V. INVENTORY PROGRAM

CHAPTER 16 -- CREATING AN INVENTORY LIST

INTRODUCTION

The inventory program is the easiest MICROMOD program to operate. Once you learn the rules for model numbers, the size limits of entries, and let the computer know which drive(s) you'll use for inventory disks, you will be able to use the functions fully with little or no time spent with the manual. In any case, full documentation of each function will be presented. YOU WILL HAVE TO ORGANIZE YOUR MODEL NUMBERS FIRST ON PAPER BEFORE ENTERING ANY INVENTORY ITEMS.

All the essential information will be presented in this section. Then full procedure on each function will be covered. You must at least become fully acquainted with the material in this section and decide on model numbers before storing any inventory files. After that, experiment at will!

DISK MANAGEMENT CONSIDERATIONS

When you access any inventory function, other than listing delivery information, the inventory disks will either be in the system or you will have to switch disks to put them in the system. Therefore it only makes sense that you keep the inventory modules (the program) on the inventory disks. You can always take them off if you need the whole disk for inventory records, but this would be rare. The inventory modules are:

IEDIT.MOD
ITAKE.MOD

IFPRINTF.MOD
DELIV.MOD

IPRINT.MOD

If you do not have high capacity requirements you may keep inventory records on the records disk, directory disk, or even the program disk. You could copy them into the ramdisk as well using BACK-UP/COPY FILES (the filename would be I?? for all inventory files on a disk). The other files will not interfere with the program. To make the testing process quicker we use one disk for account files, directory, and inventory--this saves lots of disk switching with two drives.

On power-up the computer will look for and find only up to two drives. Though it may display "2 drives found" it will use drive #3 during inventory functions and you may specify this drive in the SHOW DISK function (or any drive #).

If you arrange the first two letters of model numbers to correspond to suppliers, this will make entering deliveries faster since you can enter the items from each invoice (received) or shipping slip into the same

files.

MODEL NUMBERS

When we speak of inventory items, we mean the items that have distinct model numbers. You may have 100 WDG-3 WIDGETS but to the computer this is only one item (with quantity figures totaling 100).

You can store about 2000 items on a SD (single density) disk and 4000 items on a DD disk. You can designate 1 or 2 drives to hold inventory information and one of these may be drive #3, if you have three drives.

More than any other MICROMOD functions the inventory functions require you to understand about disk files:

MAXIMUM NUMBER OF FILES ON ONE DISK:

SpartaDOS: 128 - 3 for formats = 125

Dos 2.5: 64 - 3 for formats = 61

MAXIMUM BYTES IN ANY FILE: 10,128 - APPROX. 200+ ITEMS

MAXIMUM BYTES AVAILABLE ON A SD DISK: 90,496

MAXIMUM BYTES AVAILABLE ON A 1050 DISK: 141,696

MAXIMUM BYTES AVAILABLE ON A DD DISK: 180,992

The exact number of items in a file will depend on the average length of the model numbers and average length of descriptions. The 200 figure is conservative. You should have room for 210 or 220. But it is best to count on 200. The number of bytes left in the file will be displayed each time you enter/edit an item.

Here are the rules for model numbers:

EACH FILE ON THE INVENTORY DISKS IS NAMED BEGINNING WITH AN "I", FOLLOWED BY THE FIRST TWO CHARACTERS OF THE MODEL NUMBERS IT CONTAINS (the "I" is not part of the model numbers).

THEREFORE ALL MODEL NUMBERS MUST BE AT LEAST THREE CHARACTERS IN LENGTH: TWO CHARACTERS USED IN THE FILE NAME, AND AT LEAST ONE CHARACTER TO DISTINGUISH IT FROM OTHER MODEL NUMBERS IN THE FILE; AND THE FIRST TWO CHARACTERS MUST BE EITHER NUMBERS OR CAPITAL LETTERS.

MODEL NUMBERS CANNOT CONTAIN PERIODS OR COMMAS.

THE MAXIMUM LENGTH OF MODEL NUMBERS IS 12 CHARACTERS.

IF USING TWO DRIVES FOR INVENTORY: THE MODEL NUMBERS FOR THE LOWER NUMBERED DRIVE MUST BEGIN WITH A CAPITAL LETTER BETWEEN "A" AND "M". THE MODEL NUMBERS FOR THE HIGHER NUMBERED DRIVE MUST BEGIN WITH A CAPITAL LETTER BETWEEN "N" AND "Z".

These rules present no limitations nor any serious inconveniences. The rules are designed to conform to systems you may already have in use. Your model numbers should already begin with two letter or number characters, with few exceptions. If you will use two drives they have to be separated in some way, and this is the only way to do it.

The operation of inventory functions will primarily involve the individual file names which will all be two characters in length (on the disk they will begin with an "I" and be three characters in length). With one drive you may have up to 125 files. With two drives, up to 250. Each file may hold about 200 items, but, of course, a disk would not nearly hold 125 full files.

Before all this becomes too confusing, let's throw in some suggested procedures:

If You Do Not Have Established Model Numbers:

Separate all the various types of items that you sell into categories. Use about 20 to 80 categories if you will be using one disk drive, and 40 to 160 if you will be using two drives (divide these figures by 2 if using DOS 2.5 which will store only 64 files on a disk). These will typically not be broad categories such as product lines, but more specific categories within product lines. The more categories you have, the shorter will be the files, and the quicker the functions will work. Decide on conventions for the characters you will use and stick to them! If the model number begins with W they are widgets. If the next character is an A they are Acme widgets, etc.

List all the categories, listing the first two characters of the model numbers you will use. These (added to the beginning "I") will be the filenames on the disk.

If You Have Existing Model Numbers:

Use them! You may have to adjust a few to conform to the rules for model numbers. If you have two drives and will be approaching full capacity, check to see that about half of the model numbers begin with a letter from N to Z. Add a beginning letter to some if you have to.

If You Want to Conform to Manufacturer's Model Numbers:

The same suggestions apply as if they were your model numbers. You may have to add beginning characters to some if they are too numerous, not numerous enough, or begin with numbers (if using two drives). Watch that manufacturers don't change model numbers too frequently. If they do, add your own characters before their numbers so you won't have to be adding numerous files later.

If Using Other Criteria for Model Numbers

You may need to describe items by location, color, page/position in catalogs, or some other criteria. You might use two letters to identify the catalog, resulting in one file for each catalog. If there are more than 150 or so items in the catalog, use one letter for the catalog and a second letter or number for the section. The rest of the number can identify page number/position of page, color, etc.

Take advantage of numbers used in descriptions. TANL-8 might be Acme 8 penny nails in the tools department. Or you might use NL8A or NL8-A. NL8-A/B might differentiate box nails.

Remember to Allow for Future Expansion

Try to keep less than 150 items in a file. This leaves 50 available for future use. Don't use over 80 different files on a disk. This allows for 45 new files. It's easy to delete items and files, but better if you don't have to until you approach capacity limitations.

DRIVE CONFIGURATION

The second character in the definition of the "#" symbol in the SYMBOL TABLE on the Main Menu lets the computer know which drive(s) you will be using for inventory. This information is stored on disk, so you do not need to keep re-entering it every time you load the program. It can also be changed anytime by choosing the DEFINE selection on the Main Menu.

Here are the possible characters that may be the second character in the definition, and the interpretation the computer will make:

"0"	(only for Remote Disk)
"1"	one drive used, drive #1
"2"	one drive used, drive #2
"3"	one drive used, drive #3
"4"	two drives used, drives #1 and #2
"5"	two drives used, drives #2 and #3

When accessing the inventory functions, the computer will look at this character position and ask you to insert the inventory disks in the appropriate drives. EXCEPTION: if the character is a "3" (one drive, #3) the computer will not stop for disk-switching as drive #3 will be reserved for inventory functions only.

ENTRY LIMITS

Following is a list of the items in each inventory record and the limits/maximum numbers allowed in entries for each:

MOD#	3-12 characters
DSC	0 to 21 characters
SUPP	4 character Abbrev NAME
CDST	167000.00
MOQ	255
QT-LOC1	65535
QT-LOC2	255
QT-LOC3	255
PRICE 1	167000.00
PRICE 2	167000.00
PRICE 3	167000.00

PRICE 4 83230.00

DSC stands for "description". If you wish to keep track of individual serial numbers you can enter them in the DSC entry, but remember this important rule: ALL MODEL NUMBERS MUST BE DISTINCT. Thus if you have several items with the same model number, but wish to enter them all individually with serial numbers, the model numbers must contain additional characters to make them different from each other. A simple way to do this is to add the last two to four digits of the serial number to the model number: PSG3045 might be a Steinway grand, serial #4053045. Of course this makes the entry of the full serial number in the DSC entry duplicative and unnecessary for control purposes.

"SUPP" stands for supplier, or manufacturer if you like. Use a four letter NAME abbreviation if possible. If the computer does not find that NAME in the NAMES file it will ask you to verify that you want to add that NAME.

For your cost figure use an average cost figure for the items you have in stock. We suggest you do not include sales taxes paid in the figure, but add this separately into a tax account. It will make entering deliveries much easier. If using the Invoice Program be sure not to use STX or STAX as a title when setting up the account, as these already hold sales taxes RECEIVED.

"MOQ" stands for "minimum ordering quantity". The "orders" function uses this number. If the total number of items in the three locations total less or equal to this number an order signal will be generated. If your MOQ is more than 255 items, use another unit of measurement, say, cases of beer or pounds of glue.

"QT-LOC1" stands for quantity at location 1. If you have only one location, or do not want to be bothered entering transfers from one location to another, simply keep zero quantities at locations 2 and 3. If you have more than one location, designate the location that normally stocks the greater quantity of items as LOC1, since you can enter a much higher number for quantity figures at LOC1. Again, if you will have higher quantity figures than 255 for locations 2 and/or 3, use different units of measurement or set blocks of items out of inventory and then "deliver" them into stock when order signals are generated. We've yet to encounter a small business where these limits were a problem at secondary locations. Typically LOC1 will be the warehouse or back room at the store, and LOC2 and LOC3 will be the display area or store.

If you will have less than four prices for each item simply keep zero prices for PRICE 2, 3, and 4. This is a good place to keep other information concerning each item. Remember you can enter only numbers in the price column. At your option the numbers may or may not be displayed as dollar amounts in listings or print-outs.

EDIT/INIT/SEARCH

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This is the function you would select to perform operations on the inventory items one at a time. Use this function to enter your inventory items as you begin your application. It is also used to manually change the inventory data. Other functions such as INVOICE and DELIVERY automatically change inventory records when appropriate.

Use this function at the point of sale to search out particular information about a certain item. If this proves to slow, full printouts of any inventory information are easy using the PRINT/TOTAL function.

The EDIT/INIT/SEARCH module is named IEDIT.MOD and is accessed by selecting EDIT/INIT/SEARCH on the Custom Menu. Only one drive is required.

The computer will stop and ask you to insert disks (if using drives other than drive #3). Insert the disks and press RETURN.

After the disks have been inserted and you press RETURN the computer will ask:

STEP THRU FILES(Y) OR INIT/EDIT(RET)?

Type a Y and press RETURN if you wish to step through files beginning at the first item in each file. Press RETURN without entering a Y if you do not wish to step through files beginning at the first item in the file. The blank "Inventory Form" will be displayed (see below). You may enter "M" here and press RETURN to return to the menu.

If you elect to step through files the computer will list each file name at the bottom of the inventory and ask you to confirm (type Y) that you wish to review that file. If you just press RETURN the next filename will be listed, and so on until all files are listed.

You do not have to select STEP THRU FILES in order to step through files. Anytime an inventory item is being displayed in the module, you may continue displaying items in the same file, one at a time, beginning with the item that is being displayed.

As you are stepping through files you may delete, add, or edit inventory information as you please.

THE "INVENTORY FORM"

Whether you elect to "step thru files" or not, the "Inventory Form" will appear on the screen. All EDIT/INIT/SEARCH functions use the same Inventory Form for graphic editing.

The top line of the form will state the file currently being edited/displayed (if any) and the remaining bytes free in that file. Each item takes up about 40 or so bytes in the file.

The body of the form consists of the prompts followed by

underlines to be filled in, like a written questionnaire. The cursor is always positioned at the first underlined space after the model number.

IF YOU PRESS RETURN WITHOUT ENTERING A MODEL NUMBER THE COMPUTER WILL RETURN TO THE MENU.

If you enter or change a model number which specifies a different file than that displayed at the top of the form, the computer will ask if you wish to change files. If you verify by typing Y, (RETURN) the current file will be stored back on disk (only if there were any changes made), the new file will be loaded, and the item corresponding to the model number you entered will be automatically displayed in the form.

As you make each entry (or no entry) and press RETURN the cursor is automatically positioned at the space above the first underline in the next data item. If there is already an entry for a data item, you may press RETURN without changing it. There will be no effect and the data item will be retained as is. Thus you can quickly jump through the form by pressing RETURN, changing one or two data items. If you press RETURN after jumping through all data items it will no longer have an effect--so you may press return quickly without worrying about pressing it too many times.

Below the body of the Inventory Form is a line reserved for messages and comments. If you are stepping through files the computer will use this line to display each file name and ask you to verify (or skip) stepping through that particular file.

The computer will check your entries as you enter them and tell you about errors in the comment line, giving you the opportunity to re-enter.

Below the comment line the computer will give you a line of choices for operations concerning the inventory item being displayed:

KEEP CHANGE INSERT PRINT NEW STEP ERASE

The first letter in each word will be displayed in "inverse video" meaning that the operation will be performed immediately upon pressing that key. The RETURN key does not have to be pressed here (it has no effect). Following is an explanation of each operation:

KEEP

If you press the K key the information currently being displayed will be stored in the file. If it is an item that already resides in the file the new information will replace the old information. If it is a new item it will be added at the end of the file.

The file will not be stored on the disk. You will be operating on one file at a time. If the model number you enter specifies a new file, and you verify that you are changing files, the old file will be stored back on disk if you made any changes/additions/deletes in it.

CHANGE

If you press the C key the cursor will be positioned at the model number of the item being displayed, giving you the opportunity to jump through the Form and make any changes you care to. These changes will not take effect unless you select "KEEP" after you have jumped through the Form.

INSERT

If you press the I key the computer will mark the beginning position in the file of the item being currently displayed in the Form. The very next item you add or edit will be inserted immediately before the original item displayed.

PRINT

If you press the P key the item information from the form will be printed on the printer. This is pre-formatted information. It will take two lines on the printer. It has no effect on the information being displayed in the Form. The printer must be on and "on line".

NEW

If you press the N key the form will go blank and the cursor will be positioned after the model number. You may enter a new item. This is where the computer will go when first accessing the module if you do not elect to STEP THRU FILES. If you are initializing your application (entering new items), simply press K after entering the information in the Form, and then press N to add the next item.

STEP

As mentioned before, you may step through items even if you did not select this option at the beginning. The stepping will begin with the item being currently displayed in the file currently being operated on. You may edit information as you STEP through the files.

RETURNING TO THE MENU

When you are through and wish to return to the menu, press N to position the cursor at the model number (which will contain no entry), if it is not already there. Simply press RETURN without making an entry. The computer may ask you to insert the program disk if using only one drive.

STEPPING THRU FILES ON A SECOND DISK

As you step through files each file is displayed in the comment line on the Inventory Form and you are asked to verify that you would like to step through that file. When you get to the last file on the first disk the program will begin displaying the file names on the second disk (as it did

for the first disk) and you may type Y (return) for any files you would like to step through on the second disk, exactly as you did for the first disk.

IMPORTANT POINTS AND RULES FOR EXPERIMENTERS (*)

* Organize model number on paper before entering items.

When deciding on model numbers, allow for future expansion.

* All model numbers must be 3-12 characters long, and must be different.

* Model numbers cannot contain periods or commas.

HINTS

Don't enter longer descriptions than the 21 spaces allowed--the computer may accept these but it will distort the form every time the record is displayed.

Though your model numbers may be up to 12 characters, some of the pre-set formats are set for 8 character model numbers to allow better displays for the majority of users. If your model numbers exceed 8 characters you may need to set your own formats (up to three).

CHAPTER 17 -- PRINTING AND SPECIAL INVENTORY FUNCTIONS

PRINTING AND TOTALING

This function is accessed from the Custom Menu with the PRINT/TOTAL selection. Two modules will be loaded and run consecutively, IPRINTF.MOD to format the print, and IPRINT.MOD which does the actual printing/totaling.

You do not have to specify which totals you want. All items worthy of being totaled are totaled automatically as they are printed every time you print inventory items. Items may be printed on the printer or displayed on the screen, but not both. You have the option to print/display totals at the end of each file and at the end of the entire print (if printing more than one file).

When you select PRINT/TOTAL on the Custom Menu the computer will load the IPRINTF.MOD module. It will stop and ask you to insert disks if you are using drives other than drive #3.

After the disks are inserted and you press RETURN, the computer will list all files of the disk in the lower numbered drive.

The computer will ask you to enter the names of the files you wish to print individually, separated by commas, or enter a single "A" and press RETURN to print all files. After the files you specify are printed, and only if you are using two drives for inventory, the computer will come back and list the files of the disk in the higher numbered drive. The procedure is the same. You may specify individual files to print or enter a single "A" to print all files (the totals will apply to all files printed from both disks).

If you press RETURN without specifying any or all files from either drive, the computer will return to the menu.

After you specify which files to print the computer will stop and ask:

```
PRINT COST,PRICES AS $ AMOUNTS?  
IF YES ENTER LARGEST NUMBER EXPECTED  
IF NO, PRESS RETURN
```

If you wish for cost and price figures to be displayed as dollar amounts, enter the highest number you expect in the listing, including totals. If you do not care about dollar amounts (or wish for more number columns to be printed in one line) just press RETURN without entering a number. The computer will tell you how many spaces you must allow for number columns and give you a chance to change the high number or cancel printing of dollar amounts.

Next the computer will stop and display your format choices which will determine tab settings for the columns to be printed and which data items

will be printed. There are eight pre-set formats and three formats which you may define and store on disk. You can also format manually anytime. Here are the choices as displayed:

RET	MANUAL	C	STOCK	F	PR #2	1	USER
A	FULL PRINT	D	PRICE	G	PR #3	2	USER
B	QTY/PRC #1	E	PR #1	H	PR #4	3	USER

User formats 1-3 are not usable until you have defined them by manually setting the tabs and then electing to save the format as number 1, 2, or 3.

The selection letters and numbers are in inverse video on the screen, meaning that the format will be loaded immediately upon pressing that key.

If you select MANUAL formatting by pressing RETURN the computer will display all the possible columns in the print-out and ask for a tab setting for each:

COL CHOICES--MOD#,DESCRIPTION,SUPPLIER,COST,MOQ,Q1,Q2, Q3,P1,P2,P3,P4

Only those items for which you enter a number greater than zero will be printed. If you enter zero for the tab setting, that column will not be printed. It WILL be used for totaling operations.

The computer will display each item listed above followed by a question mark and wait for you to type a number (or zero) and press return. Numbers need not be sequential as long as they leave sufficient space between columns.

If you are printing cost and price numbers as dollar amounts the amount columns (and numbers) will be justified to the right, and headings will be centered over the column.

After you have entered the tab position for the last item (P4) the computer will stop and display the column headings as they will appear in the printout. This gives you an opportunity to check spacing. You can verify that you want those tab settings by pressing RETURN or re-enter the format information by typing a Y and pressing RETURN.

After you verify the tab settings the computer will ask if you would like to save the format as either User Format 1, 2, or 3. If you answer yes by typing Y and pressing RETURN, the computer will ask you to enter a number between 1 and 3. You can cancel by pressing RETURN.

The computer will then stop and ask:

STOP, PRINT HEADINGS EVERY ??th LINE?

If you would like the computer to stop every so many lines while you read the display, insert paper, or advance paper, enter the number of lines you would like printed on one page. When you then resume printing by pressing any other key the headings will again be printed. If you do not

want the printer to stop during the listing press RETURN here without entering a number. The default number is very high,

Thus

the printer will not stop no matter how many lines you print.

Next the computer will stop and display:

RE-SELECT FILES(Y) OR PRINT(RET)?

This gives you a chance to go back and start over from the beginning. If you type Y and press RETURN the computer will again display the files from the disk and ask the formatting questions over again. If you wish to go ahead and print the format as entered, press RETURN without entering a Y.

The computer will stop and ask:

PRINT ON PRINTER(Y) OR SCREEN(RET)

Type Y and press RETURN if you will be printing on the printer. Make sure the printer is on and "on line". If you wish for the information to be listed on the screen press RETURN without entering a Y.

After answering the last question the printing module, IPRINT.MOD, will automatically be loaded and printing will begin.

At the end of the print-out or listing the computer will stop and display:

PRINT VALUATION(Y) OR NO(RET)?

Type Y and press RETURN if you would like to print or display the valuation figures. Press RETURN without entering a Y if you do not care about valuation figures for this listing.

After the valuation figures are listed the computer will return to the Custom Menu. It may ask you to insert the program disk first.

If you specified for the printer to stop after so many lines it will display the word "HOLDING" in inverse video. You may resume by pressing any other key besides H. If you resume by pressing a T a title-page number will be printed.

You may hold the printing at any time by pressing the H key.

You may stop printing and go directly to the "VALUATION" question by pressing M.

COST OF GOODS SOLD (COGS)

MICROMOD does not provide for the automatic transfer of inventory valuations to the Dated Records Program. COGS calculations are normally

done once a year, and benefits of automatic COGS calculations do not match the inconvenience that would be created if you had to learn (and re-learn!) a procedure every year.

The COGS total is normally calculated as follows:

Beginning inventory valuation + deliveries - returns - ending inventory valuation. This is called the "COGS formula".

The inventory valuation is usually at cost, and this figure is underlined in MICROMOD printouts. You may have other costs or credits in the formula, or may use other criteria for the valuation such as "market", depending on your accounting procedures.

For each element in the formula you should have a named account, which may be a subdivision account (see Chapter 5), to hold the figures. A delivery account (titled: DELIV) is provided, and automatically set-up with the special command MAKE SPECIAL,(area) entered at the main menu (this also sets up INVOICE accounts).

The other two accounts you should set up, going by the above formula, are:

INVAL inventory valuation
RETNS returns

and additional accounts titled after other elements you may have in the COGS formula.

note: you may have another account for returns of your products from YOUR customers. The delivery returns must have a distinct account title so as not to confuse the computer. You might title your returns account as RETURNS.

INVAL

The INVAL account needs only one heading, AMT, because you'll have only one figure to enter. Each Jan 1 you should perform a print of all inventory files (this can be printed to the screen) to get a total inventory valuation figure.

YOU DO NOT ENTER THE INVENTORY VALUATION DIRECTLY INTO THE INVAL ACCOUNT. Instead, each year set up a subdivision account under INVAL, ending the name of the subdiv. account with the year number. On Jan 1, 1987 you would enter:

MAKE INVAL87,INVAL

and then enter the JAN 1, 1987 inventory valuation figure into a single record under INVAL87. On Jan 1, 1988 you would enter:

MAKE INVAL88,INVAL

and then enter the JAN 1, 1988 inventory valuation figure into a single record under INVAL88.

You do not have to use JAN 1. Use the first date of your fiscal year. Jan 1 is used here only for illustration purposes.

The DELIV account will hold the records for all deliveries, including total amounts. You enter the delivery information needed for COGS during the normal course of business (DELIVERY on the Custom Menu), and need take no other action regarding COGS.

When you set up the RETNS account, set it up as a general account because it will need its own headings, i.e. MAKE RETNS,(area). The headings might be:

MOD#,QTY,UNIT,P,AMT,SUPP

or whatever headings will describe the elements of your record of a returned purchase. The important thing for COGS calculations is that it have the AMT heading to hold the total amount (not including taxes) that you will be credited for the return.

Other accounts (if any) in your COGS formula may have any headings required, as long as they have a heading for the total amount of the transaction.

You can now print-out just these accounts to list all the figures you need to calculate COGS. For instance, the entries to do this for the fiscal year Jan 1, 1987 to Jan 1, 1988 would be:

```
LIST AMT+ FROM INVAL87
INCLUDE?AMT+ FROM DELIV
INCLUDE?AMT- FROM RETNS
INCLUDE AMT- FROM INVAL88
```

Enter 1,1,87 as the first date and 1,1,88 as the last date to list.

This will total the two inventory valuations, the DELIV amounts, and RETNS amounts. The proper addition and subtraction to get the COGS figure will be performed in the running total column.

Listing the COGS calculations in Income Statements

note: You cannot utilize this capability until you are fully acquainted with the procedure to format Statements of Totals, and are well practiced at creating "statements of totals" formats.

The following procedure assumes that you have accounts which hold records of all sales and returns of your sales. If you are using the INVOICE functions, the heading AMT from the account ITEM will hold the totals of all invoiced sales. The heading AMT from SHIP will hold the shipping charges. If you have sales that are not invoices, you may still have an additional account titled SALES. In either case you should have an

account titled RETURNS to handle returns of your products. For purposes of illustration we'll assume you have one account titled SALES with the heading AMT to hold the totals of all sales, and one account with the heading AMT called RETURNS for the amount of returns of your products.

The entry sequence for the beginning of an income statement for fiscal 1987 would be:

```
LIST AMT+ FROM SALES
INCLUDE?AMT- FROM RETURNS
INCLUDE?AMT+ FROM INVALB7
INCLUDE?AMT+ FROM DELIV
INCLUDE?AMT- FROM RETNS
INCLUDE?AMT- FROM INVALB8
INCLUDE?...
```

and you would enter the first date of your fiscal period as the beginning date, and the first date of the next fiscal period as the last date (so that your inventory valuation for the second year will be included). If you don't like the idea of entering the first date of the next period, but would prefer to enter the last date of the current period, simply enter a duplicate INVALB8 record (for the end of 1987) to hold the inventory figure for the next period, but dated the last date of the current period.

You would INCLUDE? all the other accounts to appear in your income statement in the above entry sequence. Don't forget that each heading specified must have either a + or - associated with it in order to get to the "FORMAT STATEMENT OF TOTALS" question, but these signs are then ignored in the actual statement which uses other arithmetic signals entered into the statement format. We could just as easily have entered all plus signs in the above example for the purposes of creating a statement.

Here is an example of entries for the beginning of the statement format that would print out the Sales and COGS information correctly in a statement:

```
1?INCOME STATEMENT
2?
3?A,2
4?A,2-
5?
6? NET SALES,3
7?
8?Cost of Goods Sold:
9?
10?Beginning Inventory A ,2
11?Purchases A ,2
12?Returns A ,2-
13?Ending Inventory A ,2-
14?
15? Cost of Goods Sold ,2-
```

16?
 17? Expenses:
 18?
 19?...

and you would continue specifying accounts as illustrated in Chapter 8.

TAKING A PHYSICAL INVENTORY

To enter the quantity figures from a physical inventory choose the K TAKE INVENTORY selection on the Custom Menu. This will load and run the ITAKE.MOD module. The ITAKE.MOD module is also used for listing orders (see next section).

The computer will stop and ask you to insert the inventory disk(s) if you are using a drive other than drive #3 for inventory.

After you insert the disk(s) and press RETURN the computer will list all file names of the disk in the lower numbered drive. You may enter the individual file names of the files for which you have quantities to enter, with commas separating the file names. Or you may enter a single "A" and press RETURN to enter quantities for items in all files. Press return without making an entry to return to the menu or list file names from a higher numbered drive.

After you select the file names to list the computer will display the first item in the first file specified and then stop and wait for you to enter the new quantity number. The file name and item model number are displayed above each entry/display. The display for item AA1 might be:

```
AA  THIS IS AA1
GTY-LIST  GTY-STOCK  DSC/UNIT  DSC/COST
5        ?
```

Only the stock at the location specified in the third character of the definition of the # symbol on the Main Menu will be displayed (see "Global Instructions, Chapter 1). The number you enter will be applied to that location only. The third character in the "#" definition determines the location. It may be the character "1", "2", or "3" depending on the location of the stock. If you wish to enter quantities for a different location into the same computer, you must first change the definition of the "#" symbol so that the third character reflects the new location.

As soon as you enter the new quantity figure the discrepancy in number of units and total cost discrepancy will be displayed for that item. The discrepancy figure in units is retained for each item and displayed individually again at the end of each file, along with the total cost discrepancy.

If you simply press RETURN without entering a quantity figure, the

computer will assume there is no change, i.e. it will assume the same quantity as is in stock at that location.

You have the opportunity, after the discrepancy is displayed, to re-enter the quantity figure or to verify it by pressing RETURN.

At the end of each file the discrepancies will be listed and you will have the opportunity to re-enter all the quantities for items in that file before moving on to the next file.

IF YOU VERIFY THE ENTRIES THE UPDATED FILE WILL BE STORED ON THE DISK BEFORE THE NEXT FILE IS LOADED.

When all specified files are done the computer will display the model numbers for the higher numbered drive if using two drives for inventory. Otherwise it will return to the menu.

You have the option to print all discrepancy figures on the printer so that these may easily be updated later.

THE ORDER LIST

This function also uses the ITAKE.MOD module. But it is accessed with the ORDER LIST selection on the Custom Menu.

As in the other inventory functions, the computer will stop and ask you to insert the inventory disk(s) if you are using a drive other than drive #3.

All files of the lower numbered disk will then be displayed. You may enter individual file names, separated by commas, to list orders for certain groups of model numbers. Or you may enter a single "A" to list orders for all files.

If you press RETURN without making an entry the computer will list the file names of the higher numbered drive. If the files on the disk in the higher numbered drive have already been listed, or if you are using only one drive for inventory, the computer will return to the menu.

After you specify files to list the computer will stop and ask:

PRINT ON PRINTER(Y) OR SCREEN(RET)?

Enter Y and press RETURN if you wish to print on the printer. Make sure the printer is on and "on line". Otherwise press RETURN without typing a Y and the order list will be printed on the screen.

After you select the printer or screen for the order list, all items in all files with total quantities from all 3 locations equal to or below the MOD figure for the item will be automatically listed in 7 columns:

MOD# SUPPLIER Q1 Q2 Q3 TOT MOD

Quantities at all locations are listed, including total quantities and the "minimum ordering quantity" figure in the inventory record.

During the listing you may "hold" the listing by pressing the H key. Resume the listing with any other key. Return to the menu anytime by pressing the M key.

ENTERING DELIVERIES

This function is accessed with the V DELIVERY selection on the Custom Menu. The module DELIV.MOD is loaded and run.

Delivery information affects both the account information ("general ledger" in the Dated Records program) and the inventory list with respect to quantities and cost. The DELIVERY function allows you to update the accounts and the inventory lists at the same time with only three entries for each item delivered: model number, quantity, and unit cost.

Some users have found the Inventory program lacking in the respect that you cannot list various items grouped by delivery and original cost associated with each. But this is not true. The Dated Records program receives this information everytime you enter a delivery and it is easy to list this exact information: just type LIST DELIV to get all the delivery information. It is true that when you first initialize the inventory program with stock quantities, etc., that you will not have the itemized delivery information. But you can enter this also into the DELIV account in the Dated Records program, with MAKE DELIV.

The delivery "account" is set up automatically from the Main Menu at the same time as the INVOICE accounts with the special command, MAKE SPECIAL,MAIN. This sets up the delivery account DELIV as a "subdivision" account" (so the title can be listed vertically on printouts), with the dummy "general account" titled DLV and the headings:

NAME,DATE,MOD#,QTY,AMT,COMMENT.

You do not need to enter the NAME, which is the name of the supplier, since this is pulled from the inventory records automatically. Neither do you have to enter the AMT figure, which is the total cost of the delivery for that model number. This is calculated and stored automatically.

The COST figure in the inventory records will be updated using the weighted average method. For example if you showed 10 units in stock at an average cost of \$2 dollars, and added a delivery of 5 units at a unit cost of \$3, the new cost would be $(10 \times 2) + (5 \times 3) / (10 + 5)$ or $(20+15)/15 = \$2.33$. If there is a fraction of a cent in the remainder it will be rounded up if .5 or more and rounded down if less than .5. Thus the average cost figure may accumulate small errors of a few cents over time. This is significant for those products with unit costs of a fraction of a dollar, and the cost figures in the inventory list for these items may have to be manually updated to keep the Cost Of Goods Sold figures within

accuracy limits.

The above situation is avoided by simply using larger units of measurement for counting and costing inventory items. Doing this will make all the inventory functions work better and more accurately.

DELIVERIES PROCEDURE

After you select V DELIVERY on the Custom Menu the computer will stop and display:

DATE?

Enter the three date numbers separated by commas as usual, then press RETURN.

The computer will display three headings:

MOD # QUANTITY \$/UNIT

?

The cursor will be positioned under the MOD # heading. Enter the model number and press RETURN. If your model number specifies a different file you will be asked to verify that you would like to change files. Since files are loaded and stored from the disk for each group of model numbers having the first two characters in common, the DELIVERY function will operate much faster if you enter like model numbers in sequence.

After you enter the model number and press RETURN the cursor will automatically be positioned under the QUANTITY heading. Enter the quantity delivered and press RETURN.

The cursor will be positioned under the \$/UNIT heading. Enter the unit price only, not the total price for all units delivered. It is suggested you do not include sales taxes paid in the unit price, simply because it would take a lot of unnecessary time to compute the tax for each item. It will most likely be listed as a total figure on your invoice or shipping slip. You can easily enter the total tax paid into a separate account for that purpose in the Dated Records program. You must set up this account yourself--it is not provided.

You can set up a "sales taxes paid" account by entering MAKE STAX,P,MAIN from the Main Menu, and then entering AMT,REF for the headings. When you enter records, enter the supplier's name to the NAME prompt, and the total tax paid from the invoice to the AMT prompt.

If you have a separate account for sales taxes paid the total amount may be included with the inventory valuation when you figure Cost of Goods Sold, depending on how you want to handle sales taxes paid.

After you have entered the unit price and have pressed RETURN, the

computer will display:

STORE CANCEL QUIT

The first letter of each word in the above line will be in inverse video, meaning the operation will be performed as soon as the key is pressed. You do not have to press RETURN.

If you press the S key the information will be retained and used to update the inventory and account files.

If you press the C key the information will be forgotten and the cursor re-positioned for another entry.

If you press Q the computer will return to the Custom Menu. You may also enter "Q" to any of the three prompts for data entries and the computer will return to the menu. You may be asked to insert the program disk. Any file storage pending will be accomplished automatically before the menu is displayed.

IMPORTANT POINTS AND RULES FOR EXPERIMENTERS (#)

H to hold printer, M to stop printing and return to the menu (valuation figures may be displayed first.)

Physical inventory figures apply only to the location specified in the # definition in the SYMBOL table on the Main Menu (see "Global Instructions", Chapter 1).

VI. INVOICES AND STATEMENTS

CHAPTER 16 -- INTRODUCTION

This section of the manual is fairly extensive, though the procedure involved in creating invoices and statements is quite simple. You'll learn to enter invoices in only a few minutes, and there is a special function for entering payments to make this easy. There are less than a dozen points of procedure to print statements (assuming no input errors!).

ERROR CHECKING

Most of this section is devoted to the background information you'll need for error checking, and to fixing the errors themselves. You might conclude from the volume of material that the Invoice/Statements functions are full of opportunities for problems which will be confusing and difficult to solve. This is not true. Virtually all errors will be the result of one of three simple mistakes: 1) typing errors in entering information, 2) changing one element of an invoice without changing the other affected elements (like changing the tax without changing the total), and 3) entering records dated previous to the current statement month without updating the beginning balances which are carried forward each month.

If you have been preparing statements by hand you will quickly notice that when these errors are made with pen and ink they will result in the same types of errors in statements. Because the computer presents a different environment these same old errors become somewhat more difficult to identify and fix at first.

Concerning the other MICROMOD programs, the manual does not cover errors in nearly such detail. But Invoices and Statements present three unique circumstances which make error handling triply important. First, small errors just cannot be ignored. They are printed on statements and carried forward from month to month. Secondly, the errors will be presented to customers for review in the form of statements. Thirdly, you will be under time pressure to get the statements out within a day or so. There's no opportunity to sit back and leisurely read the manual and experiment with the computer. You'll need to know how to handle errors quickly.

Those familiar with the Dated Records program will find this material easy to understand. If we could assume that all users would take the time to learn that program, most of the material in this section would be unnecessary. But we must allow for those who will want to use MICROMOD for Invoicing and Statements only, and who will not want to bother with the other programs.

So in conclusion, though almost all errors will be due to the three simple mistakes mentioned, they will be covered in depth with much

background material, and you'll read about these same errors over and over again. As this may become tedious it is hoped that you will realize that it is not that these functions are overly complicated, but that we wish to insure that you can utilize the billing function in a practical way under time pressure--a rare event with off-the-shelf billing programs!

PREREQUISITES FOR THE INVOICE FUNCTION

In order to successfully operate a billing system using the MICROMOD program you must understand a few basic things about how the program's billing function is set up.

The invoicing and statements functions are extensions of the Dated Records program. They just gather and display account information in a very convenient way. All information is stored directly in the account files, nowhere else. So in fact, the invoicing program and the Dated Records program are so fully integrated that they may be thought of as extensions of one another or just one larger program.

Once you enter the invoices and payments in the "Invoice Entry Sequence", or transfer these from a remote disk, you will use the Dated Records program for all other operations. Thus a working knowledge of the "listing" and "editing" information presented in Chapters 6 and 7 is required to operate the Invoice/Statements functions. Appendices 10 and 11 present examples of listings of invoice information and standard forms used.

You will need to know how to edit Directory information. The "Invoice Entry" function stores addresses, phones, customer information, and tax status (sort code=X if tax exempt) into the directory program. This is presented in Chapter 9, and an explanation of sort codes can be found in Chapter 10.

Since you will be using NAMES from the NAMES file, you will need to know the information on NAMES in Chapter 2.

Finally, a working knowledge of the information on Disk Management in Chapters 25 ("File Capacity Used), 26, and 27 is also necessary. Disk Management is more important with the Invoice/Statements program than other programs simply because you will typically be storing a much higher quantity of records, and will expect high speed.

The invoice accounts, headings, and listing formats are all provided with the program. You should at least read through the "account set-up theory" information in Chapters 4 and 5 of the DATED RECORDS program. The following information will then be more easily understandable.

SETTING UP THE ACCOUNTS

The invoicing accounts are set up automatically with a special command entered at the Main Menu.

MAKE SPECIAL,MAIN

The word MAIN will become your AREA name. If you have already been using the Dated Records program and have accounts set up, you should substitute your existing AREA name for the word "MAIN" in the above command. This special command will set up all the invoicing accounts and headings, and one additional account called DELIV for the inventory functions, also with headings. DELIV will be used only with the inventory program. Don't worry about having an unnecessary account if you are not using the inventory functions—there is plenty of extra room in the account title files.

After you have executed the special "MAKE SPECIAL,MAIN" command and return to the menu, you should select ORGANIZATION and check to see that the accounts and headings have been entered.

You will have the AREA name "MAIN" (if you did not already have another AREA name). If you should encounter the question "ENTER AREA?" in any program functions, enter the word MAIN and press RETURN. If you decide to add new accounts into the dated records program you should continue to use the AREA title MAIN. You can change this to another title but the new title should also have four letters—otherwise you would have to rebuild the listing formats (not that difficult a job for those experienced with the DATED RECORDS program).

There are only 8 "accounts" and 5 "listing formats" provided, although you may add other "listing formats" yourself. This is all that is required to operate the invoice/ statement functions.

The remainder of this chapter should be read three different times. First, you should understand it so that you can enter some invoices and payments, and then list the records from the menu. Then read it a second time as there is information here that you can only understand after you have made some listings. After you have printed statements (or at least "initialized" statements), read it a third time as some information can only be understood after you've gone through the statement procedure.

THE 8 ACCOUNTS

These are the eight account titles:

1. ITEM
2. STAX
3. SHIP
4. INVOICE
5. PAYMENT
6. INV.PRV
7. CREDIT
8. PREV.BAL

note: each has associated headings

Briefly, ITEM, STAX, SHIP, and INVOICE are the accounts under which all the information within an invoice is stored. Every time you enter an invoice certain information is stored in these four accounts, though there may be no information stored in the STAX or SHIP accounts if there was no tax or shipping charge. To delete an invoice using the RECORDS function on the Utility Menu, you must delete any information associated with the invoice number in each of these four accounts. It's much simpler to delete invoices from the invoice entry function (INVOICE on the Custom Menu).

The PAYMENT account simply holds any payments for invoices. You may delete or change a payment using the RECORDS function on the Utility Menu by entering PAYMENT as the account. It is not necessary to change information under several accounts as it is when deleting/changing an invoice using the RECORDS function.

The INV.PRIV account holds the total figure and date of all *unpaid* invoices from previous months for those customers for whom you are tracking/listing individual prior unpaid invoices. The INV.PRIV account has two headings titled DATE. The first is always the first of the month. The second holds the month and day only of the original invoice.

The CREDIT account holds the amount of overpayments for invoices. CREDITS are stored only during the STATEMENT INIT function, when invoices and payments are reconciled.

The PREV.BAL account holds the total of all unpaid invoices for those customers for whom you are not tracking/listing individual unpaid prior invoices.

AN EXPLANATION OF EACH ACCOUNT

You should print out an organization chart (O on the Main Menu) and refer to this as you read about the accounts. All accounts and headings will be listed on the chart. Though there are general accounts besides the "SUBDIV" accounts listed here (such as ITM in addition to ITEM) they are not ordinarily used except for creating special "listing formats". They are ignored in the following discussion. Note from the chart that every account except PREV.BAL (and DELIV, an inventory account) has the heading INV#. Every record under the accounts ITEM, STAX, SHIP, and INVOICE (accounts within the invoice) will contain an entry for the invoice number. For customers for whom you are tracking individual prior invoices, every PAYMENT, CREDIT, and INV.PRIV record will contain an invoice number. This is how individual records are identified.

You should read the following information analytically. It is essential that you know all the points of information, even if buried in a paragraph.

It's not necessary to enter invoice numbers for payments, even if you have been individually tracking invoices for a customer. If there is no invoice number in the payment record the payment will automatically be

assigned to the earliest unpaid invoice, and so on. There will be a PREV.BAL record (beginning balance) for that customer the next month, possibly in addition to a listing of prior invoices if you also entered payments with invoice numbers (these will not be duplicated in the PREV.BAL amount). Thus you can change methods in "mid-stream" though the statement may be slightly confusing to the customer for the next month.

This illustrates the main drawback of individually tracking prior unpaid invoices: to do it effectively you must break down every payment and assign the proper amount to each invoice corresponding to the payment. Thus you must do much arithmetic when entering payments, and several payment records may have to be entered though you receive only one check. If it is your customer who requests individual tracking/listing you may find it reasonable to ask him/her to itemize the payments with invoice numbers to make your job easier.

Even with the above mentioned inconvenience, many find that individual tracking is the only really effective billing option for customers with a large number of invoices per month. It greatly simplifies checking on information in statements.

Another drawback with individual tracking of invoices, though less important, is that the INV.PRV records, which hold the records of the unpaid prior invoices, take up much room on the disk. These can be easily deleted, however, from prior months as they are no longer needed to print statements.

1. ITEM

This is the account which holds all the information concerning the individual items listed on the invoice. If you were to print out an account ORGANIZATION chart (O on the Main Menu) you would see listed the following headings associated with ITEM:

NAME, DATE, INV#, QTY, MOD#, DESCR, PRICE, AMT, STS, COMMENT.

These headings stand for name and date, invoice number, quantity, model number, description, unit price, the total amount (quantity X price less discount), tax status, and any comment you might have entered.

If there was a sales tax collected for the item there will be no entry under STS. If there was no sales tax collected there will be the single letter "X". You might wonder why a "flag" for sales tax is needed in the ITEM account when there is a separate account for sales taxes. The answer is that this "X" allows you to easily total the amount sold of all items which are non-taxable for your tax reports. The STAX account alone does not include the item totals.

The above headings and associated information are displayed using the "listing format" called INVOICE (more on this later).

2. STAX

The STAX account holds the invoice number and associated sales tax amount. If there was no sales tax in a particular invoice there will be no entry in the STAX account. You can see STAX information using the "listing format" titled INVOICE.

3. SHIP

The SHIP account holds the invoice number and associated shipping charge. If there was no shipping charge there will be no entry under SHIP for that particular invoice.

4. INVOICE

The INVOICE account holds the invoice number and the total amount of the invoice including item amounts, tax, and shipping charge. This account is used for convenience and speed. Note that the information stored in the INVOICE account could also be obtained by adding the total amounts from the three accounts: ITEM, STAX, and SHIP.

During the BATCH STATEMENTS function the computer looks at the information under the INVOICE account instead of tediously (and SLOWLY) adding up all the individual items, taxes, and shipping charges.

The INVOICE account uses the heading CHARGES instead of "AMOUNT" because this is more descriptive to customers who may see the word on printouts.

There is also a "listing format" called INVOICE, and this may lead to some confusion. In the MICROMOD program an "account" and "listing format" may have the same title and this is often done to aid in remembering "listing names". These are two entirely different things, so when you see the word INVOICE you should keep clear in your mind whether it refers to the INVOICE account or the "listing format" titled INVOICE.

When you use the "listing format" titled INVOICE, all the information under the three accounts: ITEM, STAX, and SHIP is listed. Makes sense, doesn't it? If you listed the INVOICE format for one invoice number only, such as the command:

```
LIST 50001, INVOICE, 6, 1, 86, 6, 20, 86
```

you would be listing all the information contained in the invoice, and the total figure would be the same as the amount for that invoice in the INVOICE account. This is how you would list the itemized information for one invoice only.

The INVOICE account information, which holds only the total amount of each invoice, is listed whenever you use the "listing formats" STATEMENT and ACTIVITY. The individual items, tax, and shipping charges, are not listed using STATEMENT and ACTIVITY because this would clutter up the listing. Usually the total figure for each invoice is sufficient for your

purpose.

5. PAYMENT

The PAYMENT account holds all information about payments for invoices. It has the headings: NAME,DATE,INV#,CREDITS,COMMENT. The heading CREDITS is used instead of "AMOUNT" because the word CREDITS will be more descriptive when printouts are shown to customers.

Payments may be entered in four different places: 1) as each invoice is displayed (after being entered) you have the opportunity to type the amount of a payment or deposit, 2) using the "MAKE account" selection on the Main Menu, 3) using the FAST RECORD ENTRY selection on the Custom Menu, and 4) using the special payment entry routine in the INVOICE entry function.

Payment entries present a special difficulty when printing statements. There is no way for the computer to check to see if a payment which you have received for an invoice was successfully and accurately entered. On the other hand, if there is a payment but no invoice, an error is detected and displayed. Thus you should always double-check payments to make sure they are "in the computer" after entering them. The "listing formats" that will list payments are STATEMENT and ACTIVITY. STATEMENT is suggested since ACTIVITY lists much other information besides PAYMENTS.

If you do not double check your payment entries there is the likelihood that you will miss some, or possibly enter some twice by mistake. This will result in incorrect statements!

When listing payments the "CREDITS" (the amount figure in the PAYMENT account, not to be confused with the CREDIT account) figure will usually (but not always) be the same as the amounts listed under the INVOICE and INV.PR.V accounts. Since the display for all three accounts is somewhat similar be sure you know which account a particular figure in the listing applies to or you may think you have payments in the computer when you do not. Using the STATEMENT format for checking payments will help you quickly identify payments since these amounts appear in their own column.

6. INV.PR.V

INV.PR.V is the most difficult account to understand. INV.PR.V stands for "individual amounts of unpaid invoices from previous months and their original dates".

There are two ways that INV.PR.V information is ordinarily stored. First, when you print statements the INVOICE account information (the invoice total) from any unpaid invoices from all months (prior and current) is stored under the INV.PR.V account and all these INV.PR.V records are dated the first of the new month (the original dates are also kept under a second date heading). This is done so that the computer may compute all statement information without looking at prior months which would be too time consuming and possibly require disk-switching--you may have unpaid invoices a year or more out of date.

Secondly and most infrequently, you may need to enter an invoice for a transaction which occurred in a previous month. In this case you would have to enter not only the invoice, but the invoice total and date in the INV.PRIV account and date this the first of the current month. Otherwise the invoice would not be found when printing the current month's statements.

Thus we have the first point of confusion: every INV.PRIV record has two dates, the date of the original invoice and the first of the current month. When you manually enter an INV.PRIV record using either "FAST RECORD ENTRY" or "MAKE account" the computer will give you the following prompts (headings):

NAME?
DATE?
INV#?
AMT?
DATE?
COMMENT?

To the first date question you must enter the first of the current month--three numbers separated by commas as usual. To the second date question you must enter the month and day only of the invoice, with a slash between, such as:

DATE?5/10

for May 10th. The reason the date must be entered this way is that this is how it will appear on the statement. Since the second DATE heading is treated as an ordinary data entry it is not interpreted in any way, such as the computer interprets the first DATE and lists it with a slash even though originally entered with commas.

A second point of confusion concerning the INV.PRIV account is that records look very much like records from the INVOICE or PAYMENT accounts. Some listings may not provide room for account titles. The titles may be shortened because the next column truncates them, resulting in titles listed as: INVOI, INV.P, PAY, INVO, INV. Note that if there were only three letters displayed, there would be no way of knowing whether the computer was displaying information under INVOICE or INV.PRIV. For this reason the standard "listing formats" INVOICE, STATEMENT, and ACTIVITY all allow at least 5 spaces to name the account.

Note that when you use the format ACTIVITY all information from the eight accounts is listed, including INVOICE, INV.PRIV, and PAYMENT. These three look much the same and the amounts for a particular invoice usually WILL be the same. So take care to differentiate between these when using the ACTIVITY format.

Note also that, unless an invoice is paid during the month it is originally created, there are always at least two records holding the total amount: INVOICE in the month it was created, and INV.PRIV in the next month and all succeeding months until it's paid. If an invoice were not

paid for a year, for instance, there would be thirteen records holding the total amount, one INVOICE record and twelve INV.PRIV records. This could be confusing when listing information for several months. By the way, all INV.PRIV records *FOR PRIOR MONTHS* become useless, except for re-printing statements, after the statements for the month are printed. These can all be deleted using RECORDS on the UTILITY menu and entering INV.PRIV for the account. Delete each record when prompted. It is suggested that you keep these records in place for recent months if you have room on the records disk. It's easier to go back and print duplicate statements if required. NEVER DELETE INV.PRIV RECORDS FOR THE CURRENT MONTH!

7. CREDIT

CREDIT records are created only during the "BATCH STATEMENTS" INIT function and indicate a mistake either by you or the customer. The customer may have overpaid an invoice, or you may have entered the payment figure incorrectly. These overpayments will be listed before you print the statements. It is suggested you check them to see who made the error. If it was you you should correct the PAYMENT record using RECORDS on the Utility Menu. If the customer made an overpayment you needn't do anything. A credit will be printed on the statement as it should be. When the customer sends you a reduced amount to pay the statement you need only enter this in a PAYMENT record. When you INIT for statements the next month, the computer will adjust for all credits automatically (they are handled exactly like payments).

CREDIT information is listed only in the ACTIVITY format. You can easily create another format to list CREDIT only if you know how—one of the MANY benefits of reading Chapter 6!

8. PREV.BAL

This is the account that holds the beginning unpaid balances for those customers for whom you are not tracking prior unpaid invoices. There will be only one PREV.BAL record for each of these customers, dated on the first of each month. The PREV.BAL amount will be the first item listed on the statement.

When entering payments or invoices dated prior to the statement month for PREV.BAL customers (those with simple beginning balances), you must manually update their PREV.BAL accounts, which will be one record each dated the 1st of the month. Do this by listing the record using the "RECORD (account)" selection on the Utility Menu. Change the AMT figure in the record to reflect the additional charge or credit.

IMPORTANT POINTS AND RULES FOR EXPERIMENTERS (*)

* Knowledge of Chapters 2, 6, 7, 26, and 27 is prerequisite to operation of the Invoice/Statements program. Chapters 4 and 5 also present useful background information.

There are 8 accounts and 5 "listing formats" provided with the program. A thorough knowledge of the operation of each is required.

CHAPTER 19 -- ENTERING INVOICES

The "Invoice Entry Sequence" is designed for speed. Thus some of the conventions used in other functions, such as pressing RETURN to exit the function and displaying (distracting) error messages, are violated. You'll appreciate this after having entered several invoices.

BEFORE SELECTING THE INVOICE FUNCTION YOU MUST HAVE SET UP ACCOUNTS WITH THE "MAKE SPECIAL,MAIN" COMMAND. (see Chapter 18).

To enter invoices select INVOICES on the Custom Menu (press D). The module RECPT.MOD will be loaded and run. The computer will stop and display:

Enter your code/P for payment/M for menu

If you enter M here the program will return to the Custom Menu. If you enter P the computer will ask for information concerning payments, and then return to the question. If you enter anything else it will be interpreted as your name code. If you press RETURN without making an entry the computer will still assume you want to enter an invoice, but will not print your code on the invoice.

Your name code is not retained in the computer, but only long enough to be printed on the invoice. Since you will have duplicates of invoices it is a simple matter to ascertain who entered the invoice in the rare circumstances when that information will be sought.

The name code must be 8 or less characters long. Two characters are suggested if you have low or medium volume, one character if you have high volume, as this must be entered every time you enter an invoice. The name codes are completely arbitrary and will usually be the operator's initials.

DATE

If you enter a name code or press RETURN the computer will stop and display,

must enter date first time

DATE?

Enter the three date numbers, month, day, year, separated by commas. Enter only the last two digits for the year. Press RETURN.

As long as you stay in the invoice entry module (do not return to the menu) the date you first enter will be remembered. To enter the date for the second invoice (if the same) simply press RETURN. The date will automatically appear after the question and the computer will proceed.

If the next invoice has a different date simply enter the new date. You cannot enter a date with a different month. If you try to do this the computer will remind you that you cannot do it and ask for the date again. In order to change the month you must exit the invoice routine, return to the menu, and re-select the invoice routine. As you leave the invoice routine the computer will store all information collected for the current month on the disk.

The computer will not accept dates with invalid date numbers.

Dates Entered Differently on Remote Disk

If the wrong month or year is entered in an invoice the invoice will be stored in the wrong file, sometimes in a new file a year out of date. It happens most frequently in January, with new year numbers to remember. This makes the information difficult to find and correct.

The problem is worse with a Remote Disk. The REMOTE function will transfer only one file (each operation). If there were "errant files" on the Remote Disk you would probably store only the incorrect information, since the earliest file is the one that is transferred.

To prevent your employees from entering wrong dates on a Remote Disk the computer will stop immediately after you select "INVOICE" and ask for the MONTH and YEAR only. In the Invoice Entry Sequence, and in the "Payments" function, the computer will ask for the "DAY NUMBER?" only.

If you return to the menu and again select "INVOICE" the month and year question will NOT be asked a second time. Once the month and year are entered on a Remote Disk they cannot be changed unless the system is re-booted.

INVOICE NUMBER/DELETE INVOICE

After you enter a valid date, or press RETURN to keep the same date, the computer will stop and display to the right of the date question:

Begin with D to Delete

INV#?

There are three possible responses to this question. First, you may simply enter an invoice number. This sets the number to be printed on the invoice. It also starts the counting over beginning with the number you enter. Each successive invoice number will be incremented by one, beginning with the number you enter.

If you enter a D followed by an invoice number, such as D10001 the computer will ask if you would like to delete the invoice with that number. It will then ask if you would like to delete any other invoices. When you are through deleting invoices the computer does not return to the invoice entry routine but instead returns to the menu. You must press "I"

again to return to the invoice function.

If you press RETURN to the "INV#?" question without making an entry the computer will assign an invoice number (the previously assigned number + 1) and proceed.

INVOICE NUMBERS MUST BE 4 OR 5 DIGITS IN LENGTH AND MUST START WITH A NON-ZERO DIGIT. This is a misleading rule. Most of the auxiliary invoice functions require 5 digit invoice numbers, so don't use 4 digit numbers unless you have very low volume and very simple requirements. It is suggested that you use 5 digit numbers, beginning with 10001, so that they will always be the same length.

CUSTOMER NAME

After the invoice number is entered beginning with an S, or after being assigned by the computer, the computer will stop and display,

CUST CODE?

Enter the Abbreviated NAME for the customer. Though not required, all Abbreviated NAMES should be 4 characters in length unless there is a duplication, in which case they should be reduced to 3 characters in length, and then to 2 characters if there is a second duplication. They must be at least 2 characters in length. Use the conventions recommended in Chapter 2 to abbreviate NAMES. This will prevent your having to refer to a reminder list to remember the abbreviations, and insure that NAMES will be sorted efficiently if you ever use a separate directory disk for addresses and other directory information.

If you enter an Abbreviated NAME (called CUST CODE here) which the computer does not recognize it will display,

NEW NAME--KEEP IT(Y) OR NO(RETURN)

Type Y and press RETURN if you want to keep the new NAME. Press RETURN without typing Y if you made a mistake in entering the NAME or if you wish to change the NAME. If you press RETURN without typing Y first the computer will ask for "CUST CODE?" again.

If you are entering an invoice for the same customer as the previous invoice you do not have to re-enter the NAME in subsequent invoices. Simply enter the letter S to the "CUST CODE?" question and press RETURN. The prior NAME will pop into place and the computer will proceed.

If you are entering an invoice for an infrequent customer for whom you do not want to store any personal information such as an abbreviated NAME, address, or phone, simply press RETURN to the "CUST CODE?" question. Or you may enter XX as the NAME. If you press RETURN without entering a NAME the NAME XX will be automatically assumed. If you have not entered Mr. XX into the NAMES list elsewhere, the computer will ask you to verify the NAME and type Y to enter it as a new NAME which you should do.

If you have entered a NAME which the computer recognizes, and for which an address exists in the computer, the address will automatically be displayed. If no address is found, or if you entered a new NAME, or XX, or RETURN, the computer will stop and give you an opportunity to enter an address, phone number, and/or customer information to be associated with the NAME you entered.

If the customer was Mr. XX the address may be entered, and whatever or however much of the address you enter will be printed on the invoice, but no information will be stored in the computer (unless you end the first address line with a * character--see below).

ENTERING AN ADDRESS

If the computer did not find an address it will stop and display:

ADR1?
ADR2?
ADR3?
ADR4?
TEL?

and you have an opportunity to enter an address. If you do not wish to enter an address just press RETURN to skip through the questions.

note: if you have not already entered addresses into the directory, the first address you add here will be the first address in the directory. MAKE THE FIRST ADDRESS AND PHONE YOU ENTER YOUR BUSINESS ADDRESS AND PHONE TO APPEAR ON INVOICES/ STATEMENTS.

You should enter the full name on the first line. You have 34 spaces available for each line of the entries. This is plenty of room and more than most programs allow. Do not use up all the spaces on one line. If you do run into an address that will use up all the spaces on one line, condense the entry. As a matter of fact, we suggest you keep your entries to a 24 character maximum to allow for all the various printouts, such as labels, you may want to use in the future. This will assure that you can fit three columns of addresses into an 80 column printout.

Menu Selection: "MR XX LIST"

If you ^{begin} ~~enter~~ the first address line with the * character, the entry for that line (name) and invoice number will be stored together in a special list, called the "MR XX LIST". You can then list the names of your "casual customers" (not on the billing list) and invoice numbers to check on unpaid amounts, etc. with the MR XX LIST selection on the Custom Menu.

Continue the address entries. You do not need to use lines ADR2, ADR3, or ADR4 if you don't want to. You may just want the customer's name to appear on the invoice if you are not going to store the address ("Mr.

XX").

Enter a telephone number if you like, otherwise press RETURN. Use any characters you like for entering the telephone number.

After the TEL? question the computer will display:

CUST INFO?

Press RETURN if you do not wish to store information on this customer in the directory. Or you may enter any information you like. This entry, like all directory entries, must be at least 2 characters long.

The CUST INFO? information (if any) will be stored in the directory using the "&" SYMBOL.

Next the computer will display:

TAX EXEMPT(Y) OR NO(RET)?

Enter Y if the customer has a tax-exempt status. Press RETURN without typing Y if not.

The address you entered (if not for Mr. XX) will be stored in the directory with the address character "@" followed by the sort code "C" (for customer) if not tax-exempt, or "X" if tax exempt. Thus you can later list or print all your tax-exempt customer addresses by entering "SHOW @X" on the Main Menu. The invoicing functions use the "X" sort code for figuring the tax, so you should not manually change this. You can change the "C" codes if you like; it will have no effect on the program (see "sort codes" information in Chapter 10).

The telephone number will be stored in the directory with the "*" character. The customer information entry (if any) will be stored with the "&" character. Thus you should define the "&" character as "CUST INFO" in the symbol table on the Main Menu by using the "DEFINE..." selection.

Variable Sale Tax

If the "secondary sales tax" in your global commands (see Chapter 1) is "001" then the computer will ignore the numbers in the global commands and ask for a sales tax figure to use with each invoice. It will stop and display:

SALES TAX%?

Enter the number as a percent, not a decimal, i.e. 5, not .05.

HOUSE DISCOUNT

If you entered a new NAME and address the disk drive will run for a few seconds while this information is stored. If not the address will be

automatically displayed. In either case the computer will then stop and display:

ENTER DISCOUNT O%(RET), HOUSE(=), OR ?

Discounts are automatically applied in the AMOUNT column (qty X unit price) so that the amount listed will already be reduced by the amount of the discount. Thus if you use a discount the figure in the amount column will be LESS than the QTY multiplied by the unit price.

If you press RETURN without making an entry to the discount question there will be no discount. If you press the "=" key the discount will be equal to the percentage you specify in the symbol table on the Main Menu (the number in positions 12 and 13 in the # definition--see "Global Instructions, Chapter 1).

If you type one or two number keys such as 10, 5, 2, 25, etc., and then press RETURN, that number (as a percent) will be assumed as the discount.

The method of calculating the discount reflects how most sales clerks would figure a discount using a calculator, possibly with a percent key. First the QTY X UNIT/Price figure is multiplied by the discount fraction. If the result contains a fraction of a cent, the amount is rounded up if .5 or more, or rounded down if less than .5. The result is then subtracted from the total. Thus the discount should agree with existing invoice amounts. This will help you to initialize the application at a prior date.

ITEM ENTRY SEQUENCE

After the discount question is answered the computer will stop and display:

ENTER QTY,MOD#,DESCR,PRICE

This is called the "ITEM entry sequence". The four elements of the prompt stand for the number of units sold, the model number, the item description, and the unit price, respectively. You must enter these four elements of information on one line as you would when writing out an invoice, but separated by a comma with no spaces between items, and then press RETURN. Don't enter an amount figure (QTY X PRICE) as this is calculated for you.

After you press RETURN the computer will display another question mark on the left of the screen with the cursor next to it. Enter the four elements of information for the next item in the invoice, if there is one. When you are finished entering items just press RETURN without making an entry.

ITEM entries, about like typing on a phone terminal. That is because each character is checked as you enter it. You must enter a number for QTY and PRICE. The computer will not accept anything else. You may enter anything for MOD# and DESCR, or you may enter nothing for these two. If you don't want to enter a MOD# and/or DESCR just type the next comma after the first. The entry,

1,,,23.15

is perfectly valid. Of course you would never leave out the model number during the ordinary course of business, but only when initializing the application at a prior date. You won't want to go back and enter all information in each invoice, so you can just enter 1 for the QTY, no entries for MOD# or DESCR, and the total of the amount column (before taxes) as the unit price.

There must be three commas in the entry. The computer will not accept the entry if it does not contain exactly three commas.

Special Features of the Item Entry Sequence

Description List

When you type the second comma (after entering the model number, the computer will check your list of model numbers and descriptions (if any) that you created with the DESCR LIST function on the Custom Menu. (INVLIST.MOD module). The list itself will be in a file on the program disk called INVLIST, and loaded into the computer when you first select the INVOICE entry function. If it finds a description for the model number you just entered it will automatically appear on the screen just after the comma you typed and the cursor will be positioned at the end of the description. You can then add to the description or type another comma to finish the entry with the unit price. This search and print function operates immediately. If a description is not printed quickly, then there is no description for that model number in the list, and you must type the description (if any) yourself.

Adding numbers to model numbers/descriptions

If you end the model number with a period "." followed by any characters, the characters after the period will be inserted before the description, with a space added at the end of the characters.

For example, you might have the model number "WIDG" with the associated description "pronged widget" in the DESCR LIST (INVLIST file). If you typed "WIDG.3" as the model number in the ITEM entry and then a comma, the description "3 pronged widget" would appear. Thus your model numbers may reflect how many "prongs" your "widgets" have without requiring a separate model number for each, and this does not have to be re-entered in the description. The character(s) after the period could be a letter as well. Remember, model number lengths are limited to twelve characters total.

The added character (to the model number) will be ignored for the

purposes of updating inventory, but WILL BE STORED in the invoice accounts.

Description/Price Print from Inventory List

If the 14th character in your Global commands (# definition--see chapter 1) is a "Y" then an extra module (INVAUX.MOD) will be loaded just before the Item Entry Sequence. When you type the comma after the model number, and if the computer finds no description in the separate Description List mentioned above, then it will search the inventory files for that model number and print the description for you.

If your model number entry ends with a slash followed by a number from 1-4 then a price will also be printed which will correspond to one of the four prices associated with that model number in the inventory list. The entry:

3,AA1/2,

would cause the computer to print the description and price #2 as listed for item "AA1" in the inventory files. The /2 is truncated and NOT STORED in the invoice accounts, nor is it considered when updating inventory stock levels.

You are NOT GIVEN AN OPPORTUNITY TO SWITCH DISKS during the Item Entry Sequence because this would make the description prints impractical. Your inventory information must be in the system, either on drive #3 and/or on the records disk in drive #2.

Scrolling Feature

The limit for the length of an entry line is noted with an arrow at the right of the screen. If any entry takes more characters than this limit the entire entry line will be scrolled horizontally to the left to give you more room (you no longer will be able to see the first part of your entry, but this will be displayed later). This applies to automatic description/price prints also.

Exempt from House Discount

If you end any Item Entry line with a slash followed by the capital letter N, such as in:

3,AA1,AA BATTERIES,3.24/N

then there will be no "House Discount" applied to that item (assumes you elected for house discounts to be applied to the invoice).

Second Sales Tax

If any DESCRIPTION ends with the minus character (-), such as in the

entry:

73,AA1,AA BATTERIES-,3.42

then a second sales tax, as noted in your Global commands as the characters in positions 8-10 in the # definition, will be applied to that item only, instead of the primary sales tax.

Item Exempt from Sales Tax

This usually applies to labor charges included in a list of taxable items. If the item DESCRIPTION ends with an "at" character (@) then there will be no sales tax applied to that item. The reason for the (-) and (@) signs being added to the DESCRIPTION is so that you can include these in the DESCR LIST and the instructions will be remembered by the computer and printed each time from the model number. Thus you do not have to enter these instructions every time.

Time Billing for Doctor/Lawyer etc.

You may use decimals in the quantity figure. Thus you can sell fractions of units, such as 1.4 lbs of grain. But in the inventory program quantity numbers must be whole numbers, no decimals. So if you use decimals in the invoice quantities, and are updating inventory, the stock figures will not be updated correctly.

More importantly, this allows you to put fractions of hours in as the quantity figure. It would also apply to a mileage or travel charge.

The description may describe the charge, such as "Consultation Chg/Hr" or "Mileage/Mile". Then with the "@" character added to the description to cancel the sales tax, the whole line will make sense, such as in:

3,HRS,HOURS CONSULTATION @,20

meaning "Three hours consultation at \$20 per hour."

For the unit price you would enter your hourly charge or charge per mile.

The rest of the items can be material sales as usual, such as 3,COD,QUITCLAIM DEEDS,75 if you are an attorney charging for material services as well as time.

It is helpful to have your descriptions exactly the same in all invoices as items can be searched for listing purposes by descriptions as well as NAME, account, model numbers, invoice numbers, or any other data entries or "string" of characters.

The "ITEM entry sequence" is designed to be used at a point of sale and is therefore designed to be fast. When you make a mistake there is no message or highlighting of the mistake. It is assumed that your salespeople will be fully acquainted with the entry function, which is quite simply operated. When a mistake is made the entry simply disappears, leaving only the question mark on the screen with the cursor

in position. The salesperson should know what the mistake was--either a non-number for the QTY or PRICE, or the wrong number of commas. The item can be immediately re-entered without messing up the screen.

After you are finished entering items simply press RETURN without making any entry. The computer will display:

RE-ENTER ITEMS(Y) OR NO(RET)?

You should check the entries at this point and if you note any mistakes enter a Y and press RETURN to re-enter them. If there is no mistake press RETURN. You will also have an opportunity to cancel the invoice later.

SHIPPING/COMMENT/ORDER

Shipping Address (optional)

After you verify your ITEM entries by pressing RETURN without entering a Y to the "RE-ENTER(Y) OR NDIRET(Y)?" question, and ONLY IF you have a "Y" as the 14th character in the # definition (see Global commands, chapter 1), then the computer will stop for a separate shipping address.

If you already have a second shipping address in the directory under the same NAME (with a different "sort code"---see Chapter 10) enter just the sort code to the address question. The computer will automatically display/print the shipping address.

If you do not have a separate shipping address, you have the opportunity to enter it to simply be printed on the invoice, or to assign a sort code and have it stored directly into the directory (and printed on the invoice as well).

If you simply press RETURN without making an address entry, the computer will skip to the next question and no shipping address will be printed.

Whether or not the computer asked for a shipping address, it will always stop and display:

SHP/HNDLG?

If there is a shipping charge enter the amount here and press RETURN. If there is no shipping/handling charge press RETURN without making an entry.

Whether or not you make an entry to the "SHP/HNDLG?" question, after you press RETURN the computer will stop and display:

COMMENT?

You may enter misc. information here concerning the invoice. The information is stored under the COMMENT heading in the ITEM account record for the last item entered (every account in the program has a COMMENT heading, set up automatically by the computer when you enter headings). The comment will not be entered into the Directory.

If you begin the comment with the # character the comment will be printed on the invoice. You might delineate the comment with two "stars" on either end which is usual for a "computer comment", for instance. If you do not begin the comment with a "star" it will not be printed, but will still be stored.

After you have entered a comment and pressed RETURN, or after pressing RETURN without entering a comment, the computer will stop and display:

ORDER #?

If you have a purchase order received from the customer for this sale you may enter the number here. It will not be stored anywhere, but will be printed on the invoice, as some customers may require. Press RETURN after entering the number. If you do not wish to print an order number on the invoice press RETURN without making an entry.

The "ORDER #?" question is the last entry before the invoice is displayed/printed.

Notice that the INVOICE entry sequence is designed in such a way that you can press RETURN to any question except the first "ENTER QTY,MOD#,DESCR,PRICE" entry. Either the computer will supply the required information, the question will be skipped, or a default value is assumed. This facilitates quick operation. You can initialize the application (by the month) quickly by pressing return to every question, except the NAME, and to enter "1,," followed by the total before-tax amount from existing invoices for the item entry.

GETTING BACK TO THE TOP...

During the "Invoice Entry Sequence" you may want to cancel and get back to the "Enter Name Code/P for Payment..." question without completing the entry sequence. There are several prompts to which you may enter M (return) to cancel. The prompts are:

"CUST CODE?"

"TEL?"

"RE-ENTER ADDRESS(Y) OR RET?"

"RE-ENTER ITEMS(Y) OR RET?"

PRINTING/STORING THE INVOICE

After you press RETURN to the "ORDER #?" question the module which displays, prints, and stores the invoice will be loaded. This will cause the disk drive to operate if you don't have the module (INVPRT.MOD) in a ramdisk.

The invoice will be automatically displayed on the screen, including all information, calculations, address, totals, etc. as it will be printed. The only difference is that it will not contain blank lines as it will in the printout, and will be only 40 columns wide instead of eighty. You can therefore check the invoice to see if it looks correct.

SALES TAX

The sales tax (if any) will be listed and added to the sub-total amount, and then the shipping charge will be subtracted. The sales tax will be derived from the number displayed in positions 5-7 of the definition for the system. Press RETURN to return to the Main Menu or

positions 8-10 for items for which a secondary tax was specified, or the tax percent you entered if you use a variable tax (see "Global Instructions" in Chapter 1). The actual figure for the tax will be the displayed number divided by 1,000. If the fifth-seventh characters in the definition were "500" then the sales tax would be equal to .050 or 5%. If they were "425" then the sales tax would be 4 1/4%.

If, after calculation, there is a fraction of a cent in the result, there are two methods available for rounding off. The eleventh character in the # definition in the SYMBOL TABLE will determine which method is used.

If the eleventh character is a "0" (the number, not the letter, then any fraction of a cent will be rounded up to the next penny. If the eleventh character is a "5" then any fraction of a cent equal to .5 or greater will be rounded up; any fraction less than .5 will be rounded down.

PAYMENT/DEPOSIT

This is the first and most convenient opportunity to enter a payment or deposit. As soon as the invoice is displayed on the screen (before printing) the computer will display:

PAYMENT/DEPOSIT OR RET?

If you press RETURN no payment will be entered and the computer will just proceed to the next question. Otherwise enter the amount of any payment or deposit received at the time of the sale. The computer will look at the amount and decide whether it is a payment or deposit, and print an appropriate message at the bottom of the invoice. The payment or deposit will automatically be stored in the proper place.

This convenient way of entering payments could cause a problem in some cases when it becomes time to print statements. For customers for whom you are keeping a simple monthly beginning balance--those whose names begin with a "+" on the billing list (batch name list for "STAT")--you do not normally want invoice numbers in payments. Each payment is not necessarily matched with a certain invoice with the same number. Having an invoice number in the payment (which will happen if you just enter a payment amount here) will cause the wrong type of beginning balance to be created. The computer will still handle all arithmetic and displays correctly, but it may not be the procedure you prefer. It could result in credits being listed with matching invoice amounts due, for instance.

There is a remedy in these cases of customers for whom you choose simple beginning balances: When entering payments during the "invoice entry sequence" (here), and only for "+" customers on the billing list, begin the payment or deposit figure with a single "+", such as:

PAYMENT/DEPOSIT OR RET?+42.67

Of course the "+" sign will not change the value of the number you enter (which is always positive), it will just signal the computer to store the payment or deposit without an invoice number. THIS FEATURE WILL WORK FOR 5 DIGIT INVOICE NUMBERS ONLY! It will not work if the invoice has a 4 digit invoice number.

Cash Sales

It is convenient in some applications to keep track of which sales are paid in cash. If you enter the payment or deposit amount ending with a "C", as in:

```
PAYMENT/DEPOSIT OR RET?75.24C
```

then the letter C will be placed as a "comment" in the payment record. Later when you print the list of PAYMENTS there will be a "*** C **" in the comment line to let you know it was a cash sale. You can list cash payments only by including C as a "spec" as in:

```
LIST C,PAYMENTS,209
```

The above example assumes you have created a "listing format" named PAYMENTS which lists payment records, that you are listing records for February, and that the account files are in the ramdisk.

PRINTING OPTIONS

After the "PAYMENT/DEPOSIT OR RET?" question the computer will stop and display:

```
PRINT XPRINT STORE or CANCEL
```

The first letter of each word will be in "inverse video" (have a white background). This means that the selection will be performed immediately upon pressing that key. The RETURN key does not have to be pressed.

PRINT

If you select PRINT the computer will assume you have the standard seven inch form for which MICROMOD is pre-set positioned correctly in the printer (see Appendix II), and that the printer is on and "on line". The invoice will be printed, and a second page will be printed if required. The standard form will allow 17 item lines per page for a total of 34 maximum items in one invoice. If you require more items enter a second invoice. If the printer is not on or "on line" the above prompt will be repeated. If you are using a passive interface (such as U-Print) and the printer is off, it may appear that nothing is happening. This is because the computer cannot tell that the printer is not on, and it thinks it is printing the invoice. The information will be stored, but not printed.

Repeat Invoices

If you press the R key anytime while the invoice is being printed, the computer will re-print the same invoice on the next invoice form in the printer. If you then press R again a third copy will be printed, and so on.

Time Print

If you are displaying the time on the screen with the TIME selection on the Custom Menu (NOT with an R-TIME-8 cartridge) then the time will be printed on the invoice next to the date.

XPRINT

If you select XPRINT the invoice will be printed exactly as if you selected PRINT, but the computer will assume you are using a blank ELEVEN INCH form. It will print the word "INVOICE" at the top of the form, followed by the very first address and telephone number in the TEMPORARY DIRECTORY, which, of course, should be your business address and phone number. The address and phone number must be in sequence in the directory, the address starting with a @ symbol and the telephone number starting with a # as instructed in Chapter 9. If they are not in sequence the phone number will not be printed.

Putting your Address First in the Directory

But what if you've got to here and you already have addresses in the Temp Directory and yours is not the first? There are two ways to get your address in the Temp Directory as the first address. You can "UNLOAD" the Temp Directory to a directory disk using the UNLOAD TEMP DIRECTORY selection on the Utility Menu, but this is not suggested unless you already have (accepted the inconvenience of having) a separate directory disk.

If you have only a Temporary Directory and do not have enough addresses to require a separate directory disk, you can change the first entry in the directory to your address and phone number using the DIRECTORY INFO selection in the CHANGES/DELETES section of the Utility Menu. But first you must find out which entry is first in the directory (if you don't remember). To do this type SHOW and press RETURN from the Main Menu. This lists all directory information beginning with the Temp Directory. The first information shown will be in the first record. The abbreviated NAME will also be shown. That's all you need.

Go to the Utility Menu and select "DIRECTORY INFO". Select "PROGRAM DISK" because the Temp Directory always resides on the program disk (file D). Enter the abbreviated NAME for the first record. The first record will be displayed. Change the first entry to your address, beginning with a @ character. Change the second entry to your telephone number beginning with the # character. Remember to leave a space after the characters, before typing the first character of your address or phone number. If the record has only one entry in it to change, then you will not be able to enter a phone number as instructed. Instead, enter your phone number as the last line of the address. Or you can change the first record (entering it

later) and try the next, etc. It's much simpler just to add the phone number to the address.

Now you have the right address in the right place, but it has the wrong abbreviated NAME label. When the computer tries to print an address for that NAME your address will be printed instead, not a desirable situation. So an additional step is required.

Return to the Utility Menu and select NAMES to change a NAME. Change the NAME to something else. Then go back to the Main Menu and type "PUT (name)", entering the old name. Re-enter the directory record for the record you just changed.

If you have other directory information for the old NAME, or account records for the old NAME, you must delete all these and re-enter them. This may be more trouble than it's worth, and it may be easier just to UNLOAD the Temp Directory to a Directory disk, and begin the new Temp Directory with your address and phone number. Go back and read the information about "rules for experimenters", and check these at the end of Chapter 1!

You may wonder why your address must be the first, instead of just using a particular sort code or a NAME to identify the address. Again, this is a point-of-sale function and speed is most important. For users not using a full ramdisk the address has to be loaded from the disk drive. Knowing that the address will be the first will save a second or two each time.

After your address is printed the rest of the invoice is printed as displayed except that the column headings will also be printed: QUANTITY, MODEL NUMBER, DESCRIPTION, UNIT/PRICE, TOTAL.

You may wonder why PRINT prints a 7" form while XPRINT prints an 11" form. Invoices used in small business are generally 7", and the PRINT selection will print two pages. This gives you room for 34 individual items which is plenty of room for one sale. If you ever do need to invoice more than 34 items you'll have to break the sale up into two invoices. If you do not have printed forms, you are probably just starting out and testing the program. It is most likely that you will already have 11" paper as this is the much more common size. The XPRINT will only print one page invoices. The use of the 11 inch paper size also allows the bottom of the invoice to be fed further up from the ribbon, allowing more room for tearing off the invoice. Your printer may require this.

If you print an invoice with either PRINT or XPRINT it is assumed that it is a valid invoice and the information will automatically be stored in the account files.

STORE

This selection will store the invoice in the account files, but not print it. It is used mainly when first initializing the application when you are entering invoices with a prior date.

CANCEL

This selection causes the computer to forget all the invoice information, but NOT the abbreviated NAME and ADDRESS/PHONE information you may have entered for a new customer.

If you print or store the invoice information in account files and you do not have record files in a ramdisk (drive #8), drive #2 will operate as the information is stored. With the ramdisk storage is almost immediate.

If the information stored uses up the remaining information in the "current" record file for the month (the file not ending with a day number), the file will automatically be "closed" and the day number will be added to the file name. You won't realize this has happened until you cause more information to be stored. The computer will then display "STARTING FILE R609" (if in September, 1986), etc.

Whether you stored the information or "CANCELLED" the computer will automatically reload the INVOICE entry module (RECPT,MOD) and return to the beginning of the INVOICE entry sequence by displaying the prompt:

ENTER NAME CODE/P for Payment/M for Menu

and you can continue entering more invoices. If you are using a ramdisk, and have user files and account files in the ramdisk, it is suggested that you type M and press RETURN to return to the menu after entering several invoices, or when you have time available. This will transfer the information from the ramdisk to the disk in drive #2, which should be your records disk. It will also store the current invoice number and any new Abbreviated NAMES you entered on Drive #1, which should contain the Program disk. This is not necessary--you can enter dozens of invoices--but guards against power failure which would cause you to lose all information stored in the ramdisk (the invoices would have to be re-entered).

When you again return to the INVOICE entry sequence with the INVOICE selection on the Custom Menu, there will be no information to store, and you can get back to the Custom Menu quickly without any disk operations. So storing the ramdisk information on the drive offers another convenience: If you need to list information in a hurry, and have not added new invoices since returning to the menu, you can leave the invoice function quickly to use other parts of the program.

ENTERING AN INVOICE FOR A PREVIOUS MONTH

DO NOT ENTER OLD INVOICES ON A REMOTE DISK!

Once you have written an invoice in a certain month, you cannot then change the date to a new month (the computer won't let you). You must return to the Custom Menu (storing all pending operations) and then return to the INVOICE sequence and enter the new date.

If you are using the monthly billing functions like statements and beginning balance calculations, then you *MUST* take further action regarding the invoice that was entered into a prior month:

If you have elected for the customer to have only a simple beginning balance record each month, you must change the amount in the PREV.BAL record in the current month. Do this by selecting "RECORDS (account)" on the Utility Menu and entering PREV.BAL as the account, and the CURRENT month in the date.

If you are tracking and listing all unpaid invoices for this customer you must CREATE an INV.PRIV record for the current month to reflect the amount of the invoice owing, and the date of the original invoice. Do this by typing MAKE INV.PRIV at the Main Menu. For a date enter the 1st of the current month. To the second date question enter the original date of the invoice, month and day only, like 2/19 for February 19th.

WHEN PRINTING STATEMENTS THE COMPUTER NEVER LOOKS PAST THE STATEMENT MONTH. IF YOU HAVE ENTERED PRIOR INVOICES THE COMPUTER WON'T FIND THEM! Remembering to update the beginning balances will solve the problem.

IMPORTANT POINTS AND RULES FOR EXPERIMENTERS (#)

The first address and phone you enter into the computer, which may be during the Invoice Entry Sequence, should be your business address and phone to be printed on invoices/statements.

You must return to the menu and re-select INVOICE to enter invoices for a different month.

Use 5 digit invoice numbers, beginning with 10001.

CUST CODE is another term for NAME.

Descriptions will be displayed automatically if the model number is found in the "DESCR LIST".

Do not type trailing zeros after decimal points. Don't end even dollar amounts with a decimal.

Your address must be the first in the Directory to use XPRINT.

When entering an invoice into a prior month you *MUST* update the appropriate beginning balance account.

ALWAYS enter an address when prompted for one in the invoice entry function, except for "MR. XX". Any other name must get an address if none is already in the directory.

HINTS

During invoice entry, if you press the space bar after the "ORDER#?" question, the computer will stop for printer codes.

POTENTIAL PROBLEM: If you store a new NAME when writing an invoice, the new NAME will not be written to the disk unless you return to the menu. However, the new address WILL be stored as soon as it is entered. If the computer is shut down or a program error is encountered after entering a new address, re-enter the NAME using the PUT command. In any case, the address you entered CAN be accessed (for deletion) in the DIRECTORY INFO function by using the very next NAME entered anywhere in the program.

CHAPTER 20 -- OTHER INVOICE FUNCTIONS

LISTING INVOICE INFORMATION

List invoice information from the Main Menu, using LIST commands (see Chapter 6). There are 5 "listing formats" supplied with the program:

STAT
INVOICE
ACTIVITY
STATEMENT
REMOTE

note: these formats are stored in the "Q" file on the program disk. They assume you will be using the "area" title MAIN. If you use a different title you will not be able to use these, but must build your own formats.

STAT is used only to print statements of invoices on the printed form for which MICROMOD is pre-set (see Appendix 11).

INVOICE is the format to list the elements of an invoice.

REMOTE will also list the elements of an invoice, and in greater detail. Payments are also included in the REMOTE format since payments may be entered and stored on a remote disk.

ACTIVITY will list records under all eight accounts in a screen display (no totals). ACTIVITY is used frequently for information searches because it covers all possibilities.

STATEMENT displays the accounts which are used in statements: INVOICE, PAYMENTS, INV.PRV, CREDIT, and PREV.BAL. In short, everything but the elements of invoices. STATEMENT is suggested for displaying INV.PRV, PREV.BAL, INVOICE, and PAYMENT accounts because these are listed in separate columns and therefore easier to distinguish.

You may have other listing names (also called listing formats) for formats you have created. The following procedure will work with your own formats as well. Just replace the word INVOICE with your listing name.

To list all invoices during a period enter:

```
LIST INVOICE,M,D,Y,M,D,Y
```

The date numbers you enter should specify the first and last dates you want to list, inclusive.

To list all invoices for a customer with the abbreviated name ABCD enter:

```
LIST ABCD, INVOICE, M, D, Y, M, D, Y.
```

To list the invoice numbered 10001 enter:

LIST 10001, INVOICE, M, D, Y, M, D, Y

To list all sales of items with the model number J-23 enter:

LIST J-23, INVOICE, M, D, Y, M, D, Y

To list all sales of "SNAPPY MOUSE TRAPS" enter:

LIST SNAPPY MOUSE TRAPS, INVOICE, M, D, Y, M, D, Y

To list all sales of items to tax exempt customers enter:

LIST X, INVOICE, M, D, Y, M, D, Y

note: X is stored in the ITEM records, but is also an "ADDRESS SORT CODE" stored in the address of tax exempt customers. See Chapter 10.

To list all invoices for customers ABCD, EFGH, and IJKL enter:

LIST ABCD, EFGH, IJKL, INVOICE M, D, Y, M, D, Y

To list all sales of model number J-23 to both ABCD and EFGH enter:

LIST ABCD, EFGH, J-23, INVOICE, M, D, Y, M, D, Y

To list all sales of "SNAPPY MOUSE TRAPS" to EFGH AND IJKL enter:

LIST EFGH, IJKL, SNAPPY MOUSE TRAPS, INVOICE, M, D, Y, M, D, Y

note: The first item entered after LIST is considered to be a "spec" if it is not a NAME. You can enter several NAMES, but only one spec. An invoice number or item description is a "spec".

LISTING INVOICE TOTALS AND PAYMENTS

The listing name for this format is STATEMENT. To list all invoices and payments for a customer with the NAME ABCD enter:

LIST ABCD, STATEMENT, M, D, Y, M, D, Y

To list invoice and payments for invoice number 10001 enter:

LIST 10001, STATEMENT, M, D, Y, M, D, Y

To list all invoices and payments for a period enter:

LIST STATEMENT, M, D, Y, M, D, Y

The same rules concerning names and "specs" apply as when listing invoices and any other "list" menu LIST command.

The entries using the ACTIVITY and REMOTE formats may also include NAMES and a spec as exemplified above.

ENTERING PAYMENTS FOR INVOICES

Payments for invoices can be entered easily using the FAST RECORD ENTRY or "MAKE ACCOUNT (entry)" selections on the Custom and Main Menus. In the interest of speed and simplicity for your salespeople there is a third method.

As stated before, at the top of the INVOICE entry sequence the first prompt is:

Name Code/P for Payment/M for Menu

If you type P and then press RETURN a special payment module (PAY.MOD) will be automatically loaded and run. As with all invoice functions two drives are required. When the module is loaded the computer will stop and display

DATE?

If you have entered a date in an invoice function previously and have not returned to the menu since, you may simply press RETURN here to keep the last date entered. The date will appear automatically. It will also be remembered in other invoice functions, such as when you return to the INVOICE entry sequence. Since this function is most often used at the point of sale during the day, chances are there will already be a date entered. If there was no date entered since leaving the menu, enter the date of the payment: three numbers separated by commas as usual. The date you enter must not specify a different month than that specified previously in the Invoice function. If you want to enter a different month return to the menu first.

After answering the date question the computer will display three headings with a "?" under the first:

INVOICE # NAME CODE AMOUNT

?

Type in the appropriate entry under each column. When you make an entry and press RETURN the cursor will automatically be positioned at the start of the next column. The invoice number must be 4 or 5 digits in length. Don't enter the "#" character.

You do not have to enter an invoice number. If you press RETURN without entering a number here the computer will assign the payment to any unpaid invoices starting with the unpaid invoice with the earliest date.

The NAME you enter must be in the NAME list. You cannot enter new NAMES in this function. If this is an invoice for Mr. XX (no directory info) you

are not required to type the XX in the NAME column. You may press RETURN and the NAME XX will be supplied. XX does have to be in the NAME file.

In the amount column enter the amount of payment for that invoice only. No dollar signs or commas, just digits and a decimal if not an even dollar amount. As in all MICROMOD number entries, you do not have to type ending zeros after decimals even with dollar amounts.

After you enter the amount the computer will display:

STORE CANCEL QUIT

The first letter of each word will be in inverse video, meaning the operation will start as soon as the key is pressed and you do not have to press RETURN.

If you select STORE (by pressing the S key) the payment will be stored in the account files. After it is stored the computer will erase the payment information you just entered and position the cursor under the first column so that you can enter another payment.

If you press C the payment information you just entered will be erased and will not be stored. The cursor will again be positioned under the first column.

If you enter D the program will transfer all stored information to the disk (when you press S it is stored in a temporary location in the computer). The program will return to the INVOICE entry function by displaying

Name Code/P for Payment/M for Menu

And you may continue entering invoices.

DELETING AN INVOICE

As explained in Chapter 19, after entering the date of the invoice the computer will ask for the invoice number, and expect for you either to press RETURN or to enter a number to reset the counter and proceed with the invoice entry.

The message "Begin with D to Delete..." appears above the invoice number question and if you enter a D followed by an invoice number the computer will assume that you wish to delete that invoice. It will therefore automatically load and run a special module for deleting invoices (DELINV.MOD).

The computer will stop and ask you to type Y (RETURN) to verify that you wish to delete that invoice. If you do not verify, but press RETURN, the invoice will not be deleted.

If you do verify, the computer will stop and ask:

DELETE PAYMENTS DURING MONTH(Y) OR NO(RET)?

If you would also like to delete payments, enter Y and press RETURN. If you do not wish to delete payments for this invoice press RETURN without entering a Y first. Only payments with that invoice number for the month of the date you entered will be deleted. You can exit the routine, returning to the menu, and then come back and enter a new month to delete the payment, or delete a payment from a different month from the RECORDS function on the Utility Menu.

After you answer the "DELETE PAYMENTS?" question the computer will display 5 headings:

ACCOUNT NAME DAY INV# PRICE/AMT

It will fill in columns under the headings with information from the invoice records as they are deleted. Since invoice information and payments are stored in various different accounts this allows you to verify that the whole invoice is deleted, which usually means several individual records will be deleted.

After the columns are filled out and the invoice is deleted, the computer will stop and ask:

DELETE ANOTHER INVOICE(Y) OR NO(RET)?

If you enter Y and press RETURN the computer will ask for another invoice number. If you press RETURN without typing a Y first the computer will return to the Custom Menu, not the invoice entry routine (RECPT.MOD). Therefore when you first leave the INVOICE entry sequence to delete invoices there may be a delay as any invoices in the ramdisk (if you have one) are stored on disk. If you have no ramdisk, invoices will already be stored on disk and there will be no delay here (but it takes longer to enter each invoice!).

MORE INFORMATION ON PAYMENTS

There are three places where you can enter payments for invoices: during the invoice entry sequence, using the "MAKE account (entry)" menu selection, or using the "FAST RECORD ENTRY" selection on the Custom Menu.

You can enter the payment or deposit after entering the invoice at the end of the invoice display. Just enter the amount and press RETURN. Or if you answer P (return) to the "Name Code/P for Payment/M for Menu" prompt you may enter payments in the special payments function discussed earlier.

If you have only one payment to make, the "MAKE account (entry)" selection on the Main Menu will be fastest. Enter:

MAKE PAYMENT

and press RETURN. The payment questions will be asked one at a time. Just answer the questions. Type Y to verify the entry when you are asked "ARE YOU SURE?" After making the (one) entry the computer will ask for another NAME? If you don't have any more payments to enter, press RETURN without entering a NAME to return to the menu.

If you have several payments to enter the "FAST RECORD ENTRY" function on the Custom Menu will be fastest.

The computer will ask for your AREA (usually "MAIN"). If you don't know your AREA title for PAYMENTS you can find it on the account organization chart by pressing 0 from the Main Menu.

After you enter the AREA name the computer will ask for the SUBDIV or ACCOUNT. Enter the word PAYMENT and press RETURN.

The computer will prompt you with questions about all data to go in the record--the same exact questions asked in the "MAKE account" selection, but with some added conveniences:

If you enter S to the NAME? question the computer will assume the same name as used in the last record. If you press RETURN to the date question the computer will assume the same date as the last record entered.

When you're done entering records and the computer asks for another with the NAME? prompt, press RETURN. The computer will ask for another SUBDIV or ACCOUNT. Thus you can enter records into different accounts here without returning to the menu. If you have no other records to enter, press RETURN here, and again when the AREA question is asked.

The computer will ask if you would like to store records now or wait. The choice is up to you. If you wait you will not be able to list any of the record information. It is kept in a temporary disk file. You can go back and store it in the regular files anytime by selecting "STORE FAST RECORDS" on the Custom Menu. The temporary file will hold about 500 payment records because payment records are short. Other types of records will take up more room. It's a good idea to limit your "fast records" to about 100 records at a time.

If you answer Y (return) to the "STORE RECORDS NOW..." question the FSTR.MOD module will be run immediately and the records will be stored without your having to select this from the menu. For inexperienced users it is strongly suggested that you always store FAST RECORDS right away and then verify that they have been entered with LIST commands on the Main Menu (see previous section).

AUXILIARY INVOICE FUNCTIONS

BREAKDOWN OF PAYMENTS--IF YOU HAVE TIME!

Access this function with the "3 PAYMENT INFO" selection on the Custom Menu. The payments analysis is useful mainly for filling out sales tax reports. It will give you a breakdown by item, non-taxable item, shipping, and sales tax from the associated invoices.

The invoices associated with the payments in the current month may reside in any record file from any month, current or past, even a year or more out of date. Most will be found in the current month or the month just previous. The further back you search the more payments you'll get. The ones that are not found will be listed, so at some point it may be less time consuming to take the few remaining payments and just look these up in the paper files.

You do not need a ramdisk to use this function, but without one it will prove too slow if you are at high volume (500-1000) payments/month. Even with the ramdisk it may take hours to search even two months at a time for invoices. The module therefore seeks to make full use of a ramdisk.

When you select "3 PAYMENT INFO" the computer will ask you to enter the current month/year to compile a list of payments. These will ordinarily be in the month just completed. It is suggested that you use this function before printing statements, if possible, as it will accomplish some error checking of payment/invoice amounts, and may find missing invoices in your old files.

After you enter the dates the computer will do some "intelligent" searching of ramdisk or drive for record months, choosing the fastest method available. It will display the months it intends to search, usually the months currently in the ramdisk. If you wish to alter the months it intends to search, you may enter a new beginning and ending month/year to search for invoices.

Next it will search the dates chosen and list or print the information for each payment for which an invoice is found. At the right of the printer line it will print the letters "WA" (wrong amount) in any cases where it finds an invoice total which is different from the payment amount, useful for error checking.

At the end of the list (and maybe an hour or two later!) it will stop and ask:

LIST TOTALS(Y) OR SEARCH NEW DISK(RET)?

If you would like to continue the search into older months, just press return. If you have a ramdisk, all account files in it will be erased, making room for new files on an older back-up disk. You must enter the month/year of the files you want to load from the disk into the ramdisk (usually starting with the month just previous to the last month searched). Without a ramdisk the computer will skip this intermediate loading, but will run much slower.

After it lists the information for invoices found in these files, it

will stop and again ask the "LIST TOTALS..." question. You can go back and search older months or stop the search at this point. If you enter Y to list the totals all the total information will be displayed/printed.

Any unequal amounts (wrong amounts) noted with "WA" in the list will again be listed in a column with the NAME associated with that invoice/payment in another column, to help you locate the invoices.

Next will be a list of all the PAYMENT invoice numbers for which no invoice could be found in the months you searched. These can be checked by hand.

You should not break this function up by running it at different times for different months. While this will work it will take even longer. As each invoice is found, that payment is removed from the payment list, meaning the computer needs to search for fewer numbers as invoices are found. However if you were to return to the menu and then select the function again, all payments would again be loaded and searched.

After the list of "unfound invoices" the computer returns to the Custom Menu.

INVOICE NUMBER SORT

This function is accessed with the "4 INV# SORT" selection on the Custom Menu. The module NUMSORT.MOD will be loaded and run. NUMSORT.MOD is shipped on the Invoice Disk.

NUMSORT.MOD will work only if all invoice numbers to be sorted are 5 digits in length!

The computer will ask for an account name. Enter any account which has invoice numbers: ITEM, STAX, SHIP, INVOICE, INV.PRV, PAYMENT.

Next you must enter the month and year of the records containing invoice numbers to be sorted. You may add additional months later.

The computer will load and store the invoice numbers specified. It will then display the total count of invoice numbers found, and the capacity remaining for new invoice numbers in the list. There is a total capacity for 2,000 numbers.

The computer will ask:

ADD TO LIST(Y) OR SORT(RET)?

If you type Y the computer will return to the "ENTER ACCOUNT..." question and you can enter another account (or the same account) and a new month.

If you press RETURN to the "ADD TO LIST..." question the computer will sort the numbers in the list. It will then display the sorted list.

with 12 numbers per line. The difference between the first and last number on the line will be displayed as the thirteenth number, and if there are any duplicate numbers the letter D will be added to the line.

At the end of the list the computer will ask if you'd like to print out the list of numbers which were found to be duplicated in the list. Whether or not you print the duplication list the computer will then return to the Custom Menu.

Uses of the INV# SORT Function

The INV# SORT function is used for error checking. It can check several types of errors:

1. The most obvious function is to sort the numbers from the INVOICE account in the current month, just before printing statements. This will tell you if you are missing a block of invoices or if you have duplicate invoices, both the result of some file management problem.

The difference between first and last number in any line should range between 12 and 15, as some invoices are intentionally deleted. However if the range is more than 15 it is a good indication that invoices are missing and these should be checked.

Of course there should be no duplications. Each invoice must have a unique invoice number. Any duplications should be checked and fixed before printing statements.

2. By sorting payments in the current month you can check for duplicate payments. With a high volume of sales you should expect one or two per month, the result of entering the same payment twice. Most duplications will be the result of two legitimate payments for an invoice: deposit and balance paid.

3. This module is the easiest and fastest way to count the number of records in any account. Since there is no way for the computer to check on payments not successfully entered into the computer, the total count of payments may be compared to a tally sheet maintained during the month. If the total number is different there is an indication that some payments are missing. This should be corrected before printing statements.

4. A very important function, especially in the first few months of using MICROMOD, is to check on the accuracy of beginning balances. If you have inaccurate beginning balances (INV.PRIV) records, these inaccuracies will keep showing up month after month until corrected. With high volume it's difficult to identify and correct all of these at once from the statements themselves.

This module allows you to easily check beginning balances. You should first specify the INV.PRIV account and enter the current statement month. Once these are in the list, enter the PAYMENT account records for the previous month, and then the PAYMENT records for the month before that, and so on for all previous months up to the list. Then sort

the list.

There should be no duplications, except those arising from partial payments--a rare event in most applications. If an invoice was paid in a prior month there should be no INV.PRIV record in the current month. Check the duplications and delete any INV.PRIV records that have been paid. This happens frequently when new users enter payments into prior months without updating the beginning balances (INV.PRIV) records.

MENU SELECTION: "2 DESCR FIX"

This functions will allow invoice writers to take the descriptions out of ITEM records and would normally only be used in the case where invoice records are taking up too much room on the records disk. It allows more record files per disk. It is accessed from the Custom Menu with "2 DESCR FIX" and the computer loads and runs the DSCFIX.MOD module. The function operates automatically--you need only enter the month for which you would like to remove descriptions. The computer will tell you how many bytes you saved in each file and the total bytes saved.

MENU SELECTION: "1 BATCH TOTALS"

This selection loads and runs the module ACTTOT.MOD. It allows you to total information from any account for each name in the Batch Name List (billing list). Its most obvious function is to total payments of invoices so that these could be compared with bank deposit slips and/or cash slips. This is an effective way of checking for payment entry errors or omissions. You'll remember that the entry of payments is the one circumstance in which MICROMOD cannot effectively check for errors.

The operation requires only the entry for the account (PAYMENT), the name of the Batch Names List (STAT.N), and the month/year to list.

MENU SELECTION: MR XX LIST

When you write an invoice for a customer who will not be on the billing list, you call that customer "MR. XX" and enter XX for the NAME. You then have an opportunity to enter a full name and/or address to be printed on the invoice, but not retained by the computer.

If you ^{begin} ~~end~~ the first address line with a "*" character the computer will store that line plus the invoice number in a special list (file MRXX on the Program Disk). When you select "MR XX" on the Custom Menu the computer will print out the entire list of invoice numbers and names. This will be an important reference to locate invoice numbers when there are questions or adjustments to be made for XX customers. It becomes doubly important if you are advancing credit to XX customers (even though not on the billing list).

The "MR XX" list (file) takes comparatively little room so you need

print it out only once a week, when it will be erased after the printout.

The "MR XX" list is NOT transferred during the REMOTE function, so if you have it on a Remote Disk you must insert the Remote Disk in drive #1 before selecting "MR XX LIST".

USING A REMOTE TERMINAL FOR INVOICING

You may use one or more remote terminals for point-of-sale invoicing, or for entering any other type of directory or account information. There are three very important restrictions:

1. All information entered at the Remote station must be dated in the same month between reads of the Remote disk. (Or it is up to you to remember to read the disk once for each account file on the Remote Disk).
2. You must never edit directory information at the Remote Station.
3. Each terminal may use only one disk drive (or if you want an extra drive it must be designated as drive #3--you cannot have a drive #2 at the Remote station). This is because all records must be stored right on the Master Disk, which, when devoted to a Remote station, is then called a Remote Disk. For invoicing you'll also want an 80 column printer at the Remote Station. Before selecting a printer see Appendix 11.

During the invoice sequence two or three modules must be loaded--RECPT.MOD, INVPRT.MOD, and maybe INVAUX.MOD (if using a shipping address or automatic description/price prints from inventory)--and each of these takes a few seconds to read from the disk. We therefore suggest an XE so that the modules can be loaded into the ramdisk, making the operation nearly immediate. However an 800 or XL will work fine, though slightly slower.

A single density drive is sufficient. We recommend a 1050 however, as it will allow you to put more auxiliary modules on the disk so that you can perform other service functions at the point-of-sale like editing and listing records, showing the disk, etc.

SETTING UP THE REMOTE DISK

This is very easy. Just make a duplicate or copy of ~~the~~ ^{your operational} Master Disk, but making sure to erase the module CDIR.MOD, which should not be on a Remote Disk. If your Master Disk is in double density, but your Remote station drive does not support double density, then you must make up a new Master Disk in single density. Stick with the same DOS if you use 1050 density at the Remote station--SpartaDOS 2.3 can't read DOS 2.5 1050 disks.

Boot the Remote Disk and change the definition of the # SYMBOL (Global commands--see chapter 1) so that the SECOND character (normally used to specify the inventory disk) is the single digit "0". Also make sure there are at least 80 SD or 40 DD free sectors on the Remote Disk to hold the expected account information.

If you have an XE ramdisk at the Remote computer, it is suggested that you employ the use of the STOPLOAD.MOD file (see Chapter 29) to judiciously load modules into the ramdisk, which should include RECPT.MOD, INVPRT.MOD and INVAUX.MOD. If you use it. If you have a 192K+ ramdisk you

have plenty of room to load all modules, considering that you'll only have one account file in the system.

You can also load modules into the ramdisk using BACK-UP/COPY FILES on the Utility Menu.

OPERATION OF THE REMOTE DISK

Before you ever use the REMOTE disk it must be initialized using the REMOTE selection on the Custom Menu.

You may store a hundred or more invoices on the REMOTE disk, but it is suggested you store no more than 50, or the number you write in one day.

Each day or so, you must read the data from the REMOTE disk from the master computer containing the Master Program disk, also using the Custom Menu selection, REMOTE.

YOU CANNOT CROSS OVER THE END OF A MONTH BETWEEN READS OF THE REMOTE DISK. The REMOTE disk must be read as soon as the last invoice is written in the month. Start out entering invoices for the new month only on the newly initialized REMOTE disk.

YOU CANNOT ENTER RECORDS FOR PREVIOUS MONTHS AT THE REMOTE TERMINAL. If you do this, the master program will read only those records, and none of the current records. Actually, you could just read the Remote Disk multiple times and get the extra files. But in practice the multiple files will be the result of date mistakes--you won't know you have them--and since you won't know to read the disk twice you'll lose the extra information.

You can enter new NAMES and Addresses (or any directory information). However, NEVER EDIT ADDRESSES at the remote station. To safeguard against this, the module CDIR.MOD should not be on any Remote Disk.

Remember to use 5 digit invoice numbers, not beginning with zero.

The REMOTE disk will take advantage of a full ramdisk, but invoices will not be stored in the ramdisk--the ramdisk is "turned off". If the ramdisk were to be "turned on" then the computer would store invoice information in the ramdisk, not on the drives, until the operator returned to the menu. Since you may expect the Remote Terminal to sit idle for long periods, this is not a good situation--if power is interrupted, or someone forgets to return to the menu before shut-down you'll lose the information.

Inventory Functions

The Remote Disk will store inventory quantities sold on the disk so that inventory may be updated during reading of the disk at the Master computer.

You may also have inventory files at the Remote station for automatic printing of descriptions and prices. But remember this important requirement: Inventory records must reside in a drive designated as drive #3, or on the Remote disk in drive #1, or in the ramdisk. YOU MUST NOT HAVE A DRIVE AT THE REMOTE STATION DESIGNATED AS DRIVE #2. If you were to do this, the account (invoice) information would be stored on drive #2 and the Master computer would not be able to read the disk.

At a properly installed Remote Station upon power-up, the computer will always display "1 drive found" on the first screen.

READING AND INITIALIZING THE REMOTE DISK

Once a Remote Disk is set up, initializing and reading the disk is very simple. The REMOTE init/read function is accessed with the REMOTE selection on the Custom Menu.

After selecting REMOTE the computer will load and run the REMOTE.MOD module. It will stop and ask you to insert the Remote Disk in drive #1. Insert the disk and press RETURN. The computer will then stop and ask

FIRST USE OF THIS DISK(Y) OR NO(RET)?

Type Y and press RETURN if initializing a new Remote disk.

NEVER TYPE Y TO THIS QUESTION WHEN READING A REMOTE DISK WITH INVOICES ON IT OR YOU WILL ERASE THEM. Press RETURN without typing Y first if reading an active Remote Disk.

Have a Remote Back-Up Disk ready

The computer will stop and ask you to insert the Remote Back-Up Disk. You should have a formatted disk ready for this purpose. It will hold copies of the record files created at the Remote Station, in case you should ever lose this information at the Master computer. You will be asked to enter a day number, and this number will be added to the file name. The computer will then add the letter R to the end of the filename so that you will always be able to recognize the file as coming from the Remote disk. Never store regular account files on the Remote Back-up disk. The Master computer will still read these record files from the Remote Back-up Disk--they are of the exact same format as regular account files--only the filenames are altered to distinguish them from regular account files.

The operation of the module is completely automatic. After the Remote disk is read and re-initialized (or just initialized) the computer will stop and ask you to insert the inventory disk(s) if you are using the Inventory program.

After storing the inventory information, or after the "INSERT REMOTE BACK-UP..." question if you are not using the Inventory program, the

computer will ask you to re-insert the Program disk. It will then return to the Custom Menu.

Atari Error 162

If you do not bother to check the capacity remaining on the disks: Master Disk, Records disk, Remote Back-up disk, then you will likely encounter this error. Error 162 means that you tried to transfer information to a disk that did not have room to hold all the new information. You should have 50 single density sectors (25 DD sectors) available on these disks.

SYSTEM REQUIREMENTS FOR USING THE REMOTE FUNCTION

The REMOTE function is loaded with safeguards against inserting the wrong disks in the wrong drives. It needs to be able to identify the different disks. There are also various safeguards on the Remote disk enabled when the global commands identify it as a Remote Disk. This is an attempt to make the Remote function "new employee proof", and so far it works! If you have insufficiently trained employees operating the Remote disk functions (and who ever heard of a "sufficiently trained" operator?) you may assume as fact that every opportunity for incorrect procedure will be seized upon immediately, over and over again! Therefore you must observe the following requirements concerning the disks:

1. The module REMOTE.MOD must be on the Master Program Disk, but never on the Remote Disk.
2. The file STAT.N must be on the Master Program Disk. This is the billing list, created when you write invoices, or in the BATCH STATEMENTS function.
3. You cannot have "regular" account files on the Remote Back-up Disk. Files on the Remote Back-up Disk will all end in the letter R (the computer adds the R automatically).
4. You cannot have more than one records file on the Remote Disk. This means you can only store records within the same month on the Remote Disk between reads.
5. The module CDIR.MOD should not be on the Remote Disk. This module allows editing of directory information.
6. You must have sufficient free sectors on the records disk (and in the ramdisk if you have one) to hold the information on the Remote disk. Check this with the QUICK CHECK function on the Main menu.

INFORMATION TRANSFERRED IN THE REMOTE FUNCTION

Though the REMOTE function runs automatically, much information is transferred between disks.

Each Remote Disk maintains a file called MARKER.TMP to hold the positions of the end of the NAME file and Temp Directory file. The Remote disk is checked to see if new NAMES or addresses were entered, and adds these to the master files.

The REMOTE function reads records of invoices off the Remote Disk. After the invoice disk is read the account file holding the invoices on the Remote disk is erased.

When the program disk is again inserted the new lengths of the NAMES and Temp Directory files are stored back in MARKER.TMP on the Remote Disk.

All of this communication between disks insures that the indexes in records into the NAMES file will be correct, even though a NAME's position in the file may not be known to the computer when the record is entered. Simply transferring files, using BACK-UP/COPY FILES for instance, would not work because the NAMES indexes would be incorrect. In any case, it is easier and quicker to use the REMOTE function.

If you are using a 192K+ ramdisk the remote read will be much faster. However, you must have adequate room in the ramdisk to store the new records, as well as on the records disk in drive #2. You can check the free sectors remaining in both drive #2 and the ramdisk (drive #8) using the QUICK CHECK selection on the Main Menu. SHOW the remote disk first to determine how many sectors the new account file takes up--there will be only one (see "FILE CAPACITY USED" information in Chapter 25 if you do not yet know how to identify account files).

INITIALIZING AND EDITING THE DESCRIPTION LIST

As explained in Chapter 19, there is a special file which contains your most frequently sold model numbers and associated descriptions. When one of these model numbers is entered in the INVOICE entry sequence the description will be entered and displayed automatically. This saves time and makes the descriptions more uniform so that they may be profitably used as "specs" in LIST commands. Since this feature is most frequently used at a point-of-sale we include the instructions for its use here.

There is a special module to initialize (start) and update the list of model numbers and descriptions. It is quite simply operated.

This function is accessed from the Custom Menu with the Y DESCR LIST selection. The computer will list all the model numbers and descriptions presently in the file (if any), and let you know how many more characters you can enter in the list. The list is displayed as one continuous series of characters. If it is too long for the screen the list continues on the next line. This may break up a model number or description between two lines, but has no effect on the list. Model numbers are in inverse video, while descriptions have a normal background.

After the list is displayed, along with the number of remaining spaces

available in the list, the computer will stop and ask:

MOD# OR RET?

Enter a model number from the list for which you would like to change the description, or a new model number, and press RETURN. If you are done entering items, or decide not to enter any items, press RETURN without entering a model number. The computer will return to the menu.

Assuming you enter a model number and press RETURN, the computer will stop and ask:

DESCRIPTION?

Enter the description to be associated with that model number, and then press RETURN. As each description is entered, the entire list is re-displayed and the computer again displays the MOD# OR RET? prompt.

The description list is maintained on the program disk and is named INVLIST.

IMPORTANT POINTS AND RULES FOR EXPERIMENTERS (#)

Invoices deleted on a Remote Disk will be added to the MR XX LIST. You will therefore get a list of any invoices deleted at the Remote Station when you select MR XX LIST.

There are 5 "listing formats" provided with the program: STAT, INVOICE, STATEMENT, ACTIVITY, and REMOTE. Be careful not to delete these.

Payments may be entered from the Invoice Entry Sequence, the special "P for Payment" selection at the beginning of the Invoice entry, using "FAST RECORD ENTRY", or using the "MAKE account" selection on the Main Menu.

Enter information for only one month at the Remote terminal between reads.

You may shut the remote terminal down anytime the drive is not running.

Typing Y (return) to the "FIRST USE OF THE DISK..." question will erase any invoices on the remote disk. Do this only once, after making up the remote disk.

On a Remote Disk, change the Global commands so that the fifteenth character in the # definition is an R.

HINTS

Periodically you should check the directories of your Master, Records, and Remote Back-Up disks. There should be no account files ending with an "R" on the Records or Master disks. There should be no account files NOT

ending in "R" on the Remote Disk. The REMOTE function will not work properly if the wrong type of files are on the wrong disks (result of inserting wrong disks when reading the Remote Disk).

To prevent users at the Remote Station from accessing/editing information: either leave the modules off or RENAME them. If you rename the CMENU.MOD module to MENU.MOD the computer will boot into the Custom Menu and the Main Menu will be inaccessible.

CHAPTER 21 -- BATCH STATEMENTS

OVERVIEW

The BATCH STATEMENTS function requires two disk drives in the system. It operates rather slowly without a full 192K or more ramdisk in the system. With the ramdisk statements will be printed at the rate of about 40 to 60 seconds per statement. Without the ramdisk you can expect the rate to drop to 2 or more minutes per statement.

The statement printing "loop" is controlled by the RLOOP.MOD module (BATCH STATEMENTS module), which also handles editing the "batch name lists" and initializing function. Two more "error checking" modules are run during the initializing sequence, called SINIT.MOD and SINIT2.MOD. These modules also calculate and store the beginning balances. Another module, AGING.MOD, may be run at your option to computer and store aging data and finance charges.

After the initializing operation the statements can be printed. For each statement a group of modules are run in sequence. These are the same modules that are run when using the last LIST command on the Main Menu. After all are run the program returns to the controlling module (RLOOP.MOD) to get the next NAME, and to set various conditions depending on a special symbol associated with that NAME. Thus the "batch statements" function is little more than a "continuous loop" of the operation of four modules. The modules that are run in the "loop" in order of operation are:

```
RLOOP.MOD  
DISP.MOD  
DIS.MOD  
NLIST.MOD  
RLOOP.MOD  
...
```

If the format was created with the Report Generator, the loop will contain the parallel modules RDISP.MOD, RDIS.MOD, and RNLIST.MOD--not DISP.MOD, DIS.MOD, and NLIST.MOD as listed above.

If you are printing, the only information that will be displayed on the screen is the "listing format" name (STAT) as the program goes through the DISP.MOD module each time, as it is displayed every time you use the last LIST command.

The BATCH STATEMENTS function, when used for statements of invoices, is a very powerful and flexible function, with listing options rarely found in 8-bit software. You have the ability to track and list all out-of-date unpaid invoices instead of just carrying an "unpaid" or "previous" balance forward each month. This is very useful and convenient for customers with a high number of invoices per month. This option is called "tracking of prior unpaid invoices".

There is a capacity limit for the total number of unpaid invoices which

may be tracked. They are all duplicated each month and pushed into the next month's records with a changed account name. Instead of being INVOICE records they are then INV.PRIV records, a different account. Both INVOICE and INV.PRIV have the headings NAME,DATE,INV#,AMT,COMMENT. But the INV.PRIV records have an additional heading, which is a second heading titled DATE. The first date in the record will always be the first of the month. The second date in the record will be the original date of the invoice.

The two dates may be confusing because when listed in the STAT and STATEMENT formats, the first date is not listed, but the second date is listed in the date column. So remember that, on statements, an invoice with a prior date actually represents a record in the computer which is dated the first of the month, and is under the INV.PRIV account. The date you are seeing is the second date in the record.

The capacity limit comes into effect when these unpaid invoices are "pushed" into the next month. The two files which hold the invoices to be pushed are 10,128 bytes long. They must hold all INV.PRIV records as well as all PREV.BAL records.

PREV.BAL records take up little room. There is only one for a customer, and they only hold an amount, not an invoice number and an extra date like the INV.PRIV records. The PREV.BAL records average only 11 to 13 bytes each. So a billing list of 50 names would only take up about 600 bytes in the file.

INV.PRIV records take up about 23 to 25 bytes each. Thus the total number of unpaid out-of-date invoices which you can track is about 880. If the total number of unpaid invoices you are listing approaches this number, you will have to stop individually tracking invoices for some customers and switch them over to previous balances.

You can check the size of the files which are pushed into the next month. The file names on the disk will begin with R. The second character will be the last digit of the year. The third and fourth characters will be the number of the next month after the current month. The file name will end with the letter P. If a second file is used it will end with the two letters PP. An example for November, 1986:

R611P

A full file will occupy 81 sectors on a single density or 1050 disk (or in the ramdisk), and 41 sectors on a double density disk. You can check these one or two files on the disk by showing the disk with SHOW/FORMAT DISK on the Utility Menu. If, in any month, the second file ending in PP starts approaching this number of sectors, switch some of your customers to previous balances, and stop entering invoice numbers in payments for them. Also change the symbols in front of the NAMES in the "batch statement list" for statements of invoices as outlined in the next chapter on procedure.

There is a limit to the number of payments you can make for individual invoices. The file which holds payments with invoice numbers during the

error checking function is 10,000 bytes long. This will hold about 830 payments if your amounts average in the \$100-\$999 range, or 900 if they average in the \$10 to \$99 range. There is plenty of excess capacity for payments without invoice numbers, so you need not be concerned about them. If you regularly receive partial payments for invoices, meaning there may be multiple payments for one invoice, the "payments with invoice numbers" file could be filled before the INV.PRIV file reaches capacity.

There is a way to conveniently count payment records, or the number of records in any account for that matter:

Select INV# SORT on the Custom Menu. Enter PAYMENT as the account and the statement month for the date. The computer will display the number of records found.

DATES

During the BATCH STATEMENTS function you will be asked to enter a beginning and ending date. If printing statements of invoices these must always be the first and the last dates of the month for which you are printing statements. You cannot "stagger" dates with this program when printing statements of invoices. Thus all of your statements will be dated the last day of the month, and you must wait until the first day of the next month (or the night of the last day of the statement month) to print statements.

You do not have to print statements on the last day or the first day of the next month. You can continue into the next month and return to print statements anytime. You can also go back and re-print statements that have been printed (and initialized) before, re-initializing again. This will push a new file of unpaid invoices and previous balances into the new month, replacing the old file which will be identical if you have not made changes in records in the statement month. With regard to re-printing statements that have already been initialized once, you can do this ONLY UP UNTIL THE TIME YOU USE THE ORDER/CONDENSE FUNCTION IN THE NEW MONTH. Once you sort your records by date in the new month it is too late to go back and re-print statements because this would cause the unpaid balances and invoices to be pushed into the new month again, but the existing file(s) (ending with a P or PP) in the new month will have been altered and include extra records from the new month. You would be erasing records in the new month. The sorting function re-distributes records in files, meaning the file(s) ending in P might contain anything!

To keep things simple, just print statements within the first week of each month and you can forget about the sorting problem.

IDENTIFYING ERRORS

If you are not approaching capacity limits, the statement function is easily operated and you will encounter few problems. The errors that the computer finds will be easy to identify and correct. There are two errors,

however, that require an understanding of one simple fact:

THE STATEMENT FUNCTION CANNOT SEE RECORDS BEFORE THE FIRST OF THE STATEMENT MONTH.

Of course MICROMOD is smart enough to find any record, and it does so routinely using LIST commands. But there is a reason why it does not look at prior records: speed. It would just take too long to go back over all the previous months to find an invoice that was not paid. If you ever use the BREAKDOWN OF PAYMENTS function, you'll see just how long this can take! Some unpaid invoices might be a year or more out of date and this would require disk-switching while the statements were being printed. This "blindness" causes two problems that are hard to identify for new users:

PRIOR INVOICES

Especially when first using the program, you may find that you forgot to enter an invoice into a prior month. Or you may change your mind about having a customer on the "billing list", and want to start sending this customer statements. So you go back and enter invoices dated in months for which statements have already been printed. But when you go to print this month's statements they are not listed. So you try to check this out by listing account information with LIST commands, and sure enough, the invoices are in there! The remedy for this is to enter a INV.PRV record dated the first of the current month, but also containing the date of the original invoice. The procedure is covered in Chapter 18.

PRIOR PAYMENTS

The same reasoning applies to payments entered with dates in months for which statements have already been printed. The computer can't see these during the BATCH STATEMENTS operation. These payments must be reflected in records in the current month, either by deleting the INV.PRV record, subtracting them from PREV.BAL records, by re-entering the payment with a current date (unfortunately this stores incorrect information in the computer), or by entering the payment in a CREDIT account, which will keep all the information accurate. You can enter a credit using the "MAKE account" selection on the Main Menu, or FAST RECORD ENTRY on the Custom Menu. Enter CREDIT as the "ACCOUNT OR SUBDIV" name.

Another error that may come up will stem from the use of "short" invoice numbers. ALL INVOICE NUMBERS MUST BE 4 OR 5 CHARACTERS IN LENGTH. DO NOT BEGIN THE NUMBER WITH A ZERO. We strongly recommend you begin you invoice numbers with the number 10001. On a remote terminal begin them with 50001, to identify the source of the records.

THE STAT FORMAT

(See information on "listing formats" in Chapter 6). The program is

shipped with a "listing format" titled "STAT". This is the format used to print statements on the eleven inch standard form in Appendix 11. This "listing format" name cannot be changed. It is this name that signals the computer to run the special error checking module, SINIT.MOD, during the statement initialization operation in the BATCH STATEMENTS function.

When you first access the BATCH STATEMENTS function, you will be asked for the name of the format to run. If printing statements of invoices you must always enter the title STAT and press RETURN.

Like all "listing formats", we created the STAT formats using LIST commands at the user level. It was not a programming job. You can change the format any way you like, print headings, change spacing, move the address around, add comments, etc. Before you can do this you will have to be "well-practiced" with creating listing formats using the SSFORMS.MOD module (accessed by answering Y RETURN to the "FORMAT SPREAD SHEET FORM(Y) OR NO?" question encountered when using one of the first four LIST commands).

The entries used to create the "STAT" format are included in Appendix 10.

The new format you create will eventually have to be named "STAT" to be used in printing statements. But until you get it right name it something else. Check it by running it from the Main Menu using the last LIST command. Before changing the name to STAT using the LISTING FORMATS selection on the Utility Menu, copy the G file on the program disk to another back-up disk. This way the original STAT format will not be lost.

USING YOUR STATEMENTS APPLICATION FOR THE FIRST TIME

When you first start your application, you will probably initialize to a prior date, most likely the first of the year. Thus you will have records in the computer for several months before you print your first statement. But the statements function is blind to prior months. The solution is to print "mock statements" for each month, as if you were back at that time period.

You do not have to print statements on the printer, and you will not want to print many of these "mock statements". Your only purpose is to get the unpaid invoices and balances "pushed into" the next month as you go along. But it is suggested you print out some statements on blank paper, just to get some experience with the operation.

You do not have to print or display statements in any case. Once you have "initialized" for each month and are ready to start printing, you can abort to the menu. By this time all the unpaid balances and invoices will already be pushed into the next month. Return to the BATCH STATEMENTS function and initialize for the next month, and so on, until you arrive at the current month. The application is then initialized with regard to the printing of statements.

DATE SORTING

Before printing statements that you intend to send out, and before selecting BATCH STATEMENTS, you should select ORDER/CONDENSE from the Utility Menu. This will insure that all dates are sequential in the statements. You need sort records only once.

ONCE YOU HAVE SORTED RECORDS YOU CANNOT GO BACK TO THE PREVIOUS MONTH AND RE-PRINT STATEMENTS.

BATCH STATEMENTS PROCEDURE

This function is accessed from the Custom Menu with the selection BATCH STATEMENTS. When selected the module RLOOP.MOD will be run. If printing statements of invoices the additional two modules, SINIT.MOD and SINIT2.MOD, will be run only during the statement initializing operation, which is run first before any statements are printed.

NOTE: BEFORE SELECTING "BATCH STATEMENTS" TO PRINT STATEMENTS OF INVOICES MAKE SURE YOU HAVE ENOUGH ROOM ON DISKS AND IN RAMDISK WITH THE "QUICK CHECK" SELECTION ON THE MAIN MENU. (See previous section of this chapter).

The BATCH STATEMENTS function accomplishes the same results as the last LIST command on the menu, "LIST names(s),spec,listing,date,date". The only difference is that the command is run over and over with a different NAME automatically inserted in the command each time it is run. The NAMES that will be inserted are taken from "batch name lists" which are initialized, edited, and maintained, each in its own file, on the program disk.

As with the last LIST command on the Main Menu, the "listing format" must exist by name before the function can be used. The format name for the printing of statements of invoices must be "STAT".

When the format name "STAT" is specified there are special operations that will be performed in addition to those performed with other listing formats. Extra initializing questions will be asked and two initializing and error checking modules (SINIT.MOD and SINIT2.MOD) will also be run. The statement information required by standard forms will be printed at the top of each statement, and this will be saved in a special temporary file called "PAGE2" on the program disk (or ramdisk) so that a second page of the statement can be printed if necessary.

CREATING FORMATS TO BE RUN WITH "BATCH STATEMENTS"

It is up to the user to create the listing formats, other than the STAT format which is provided, used with the BATCH STATEMENT function. If you want the printing for each form to use up an exact number of spaces so that pages will be positioned properly on a continuous feed printer, you must insert the correct number of blank spaces using the formatting capability of LIST commands. Specifically, you must answer yes (Y) to the "FORMAT SPREAD SHEET FORM(Y) OR RET?" question, and enter sufficient blank lines to be printed at the end of the listing to position the next page properly.

The account information itself will vary in the number of lines used to print it. To allow each form to take the same number of lines the function of the "STOP,PRINT HEADINGS EVERY ??th LINE?" question is changed when creating a batch format. When listing formats from the BATCH STATEMENTS function, THE NUMBER YOU ENTER TO THIS QUESTION WILL DETERMINE THE NUMBER OF LINES THE ACCOUNT INFORMATION WILL TAKE UP, regardless of how much information is printed. That is, if there is not enough account information to use up the number of lines specified, blank lines will be printed

to position the printer at the same place on the bottom of the form each time before totals are printed (if totals are being printed).

ALL FORMAT TITLES INTENDED FOR USE WITH THE BATCH STATEMENTS FUNCTION MUST BE 2-8 CAPITAL LETTERS. In the Dated Records Program you may have spaces within the names of "listing formats". But these titles will not be accepted in the BATCH STATEMENTS function. Make sure these format names have 2-8 capital letters, like disk file names.

PROCEDURE

When you select BATCH STATEMENTS on the Custom Menu the computer will stop and display:

ENTER FORMAT?

Enter the "listing format" to be run. If you will be printing statements of invoices enter the format name, "STAT". If the format was created with the Report Generator end the format name with a period. After you enter the format name, press RETURN. The file containing the names (batch name list) associated with that listing format will be loaded and displayed in a "window" with a "page number" in the lower right corner. Each window will hold 50 NAMES. You may have up to 700 or so NAMES for statements alone, so the "window" function is designed to toggle through the names immediately by pressing the L key (L for LIST--displayed in a sub-menu under the window--see "editing" section).

New users sometimes think the program is malfunctioning the first time they look at the billing list. This is because, typically, some NAMES will already be there, and some will be missing. This is because NAMES are added only when you originally entered the address for a particular customer during the invoice entry function. If you entered the address using the "PUT" command the NAME will not automatically go into the billing list (the computer has no way of knowing if it is a customer with an open account).

Therefore, the first time you access the billing list you'll have some editing to do--adding some names, deleting others, changing billing instructions, etc. (see next section).

The disk file of the "batch name list" is named after the name of the listing format. An extender of ".N" is added to the format name to get the file name. Thus the file name of the file containing the billing list for statements of invoices is "STAT.N". You can quickly identify any of these name lists on the program disk. They will all end with the two characters ".N".

The "batch name lists" have an important difference from the standard NAMES file: each name in a batch name list is preceded by one of the four symbols: +, *, =, or >. When editing or initializing the name list, NAMES must always be entered with one of these four beginning symbols. The symbol will determine whether or not that particular name will be included

in the printout. For statements of invoices the choice of symbol will also determine whether or not prior unpaid invoices will be individually tracked/listed or whether a simple previous balance will be maintained for that customer.

At the top of the name list will be displayed the four symbols and a key to the meaning of each. Here are the symbols and meanings:

"+"

A plus sign in front of a NAME means that NAME will be included in the listings to be printed. If using the STAT format it also means that there will be a PREVIOUS BALANCE account to hold the total of unpaid invoices.

"*

A star in front of a NAME also means the NAME will be included in the listings to be printed. If using the STAT format it also means that each prior unpaid invoice will be individually stored in the next month in a special account called INV.PRV.

If you are not using the format STAT, then the two symbols "+" and "*" will have exactly the same effect: that NAME will be included in the listings.

">"

The "greater than" symbol (on the INSERT key) in front of a NAME signals the computer that you do not want that name included in the listings. There is an editing function that will give all names in the list a "+" or a "*". If the name begins with the ">" character (the "greater than" symbol) the symbol will be changed to a "+"

"="

The "equals" symbol tells the computer that whenever you change all symbols in the list to "+" or "*" that that NAME will get a "*", not a "+" The explanation of the editing functions will make this clearer.

EDITING THE BATCH NAME LIST

At the bottom of the NAMES "window" four choices of operation are presented in a small menu:

EDIT LIST	LIST
INIT FOR PRINT	MENU

The first letter of each choice is in inverse video, meaning that the operation will be performed immediately upon pressing that key. You do not have to press RETURN here.

If you select EDIT LIST another short menu will appear:

CHANGE NAME DELETE NAME ADD NAME

* CHANGE ALL TO 'WILL PRINT' QUIT

= CHANGE ALL TO 'WON'T PRINT'

Following is an explanation of the operation of each editing function:

CHANGE NAME

The computer will stop and display:

OLD NAME?

Enter the NAME you wish to change, beginning with the appropriate symbol as displayed in the list. Press RETURN.

The computer will stop and display:

NEW NAME?

Enter the name, beginning with a symbol, that you wish to change the name to. Press RETURN.

The computer will keep asking for NAMES until you press RETURN without making an entry.

DELETE NAME

The computer will stop and display

ENTER NAME TO DELETE?

You must enter the NAME beginning with the appropriate symbol as displayed in the NAME list. The computer will keep asking for NAMES to delete until you press RETURN to the question without making any entry.

ADD NAME

The computer will stop and display:

NAME TO ADD?

Enter the NAME, which must be in the ABBREVIATED NAMES file, beginning with one of the four symbols. Press RETURN.

The computer will keep asking for NAMES to add until you press RETURN without making an entry.

* CHANGE ALL TO 'WILL PRINT'

The computer will stop and ask you to verify that you wish to change all "won't print" symbols to "will print" symbols. Type Y and press RETURN to verify.

Every "greater than" symbol will be changed to a "+". Therefore the signal that a previous balance account is being maintained for the customer is preserved. All "=" symbols will be changed to "*" symbols. Thus every name will be included in the next listing (unless you edit the list further).

= CHANGE ALL TO 'WON'T PRINT'

The computer will stop and ask you to verify that you wish to change every "will print" symbol to a "won't print" symbol. Enter Y and press RETURN to verify.

All "+" symbols will be changed to "greater than" symbols, and all "*" symbols will be changed to "=" symbols.

As you change the NAMES and symbols in the file, the file is re-stored on disk whenever you exit a particular editing function and the list is again displayed on the screen.

QUIT

Pressing the Q key will return the function menu:

```
EDIT LIST      LIST
INIT FOR PRINT MENU
```

ADDING AN "XX" CUSTOMER TO THE BILLING LIST

When you write an invoice for a customer not on the billing list you press RETURN to the CUST NAME? question or enter XX for the name. In either case the record is labeled with the NAME "XX". If you then would like to add a particular customer to the "Batch Name List" for statements, you'll start entering his/her invoices using a new abbreviated NAME for that customer. But what about this customer's previous invoices which were all labeled with the NAME "XX"?

You'll have to access all the old records (by invoice number) and change the NAME from "XX" to the new abbreviated NAME. It is not necessary (for printing statements) to change all records, but only those records IN THE CURRENT MONTH under accounts which are used in the BATCH STATEMENTS function, namely:

```
INVOICE
PAYMENT
INV.PRIV or PREV.BAL
```

You would enter INVOICE and PAYMENT as accounts, one at a time, in the "RECORDS (account)" function. Then you would enter the invoice

number, again one at a time, to change all "XX" NAMES to the new NAME.

There will be no INV.PRIV or PREV.BAL accounts (previous balance records) for this customer since no previous balances are kept for "XX" customers. You must analyze the customer's activity in prior months to determine the beginning balances. These must be entered manually under the INV.PRIV or PREV.BAL accounts (see chapter 18). The simplest approach is to enter one record under the PREV.BAL account with the total amount owing for prior months.

ADDING "MR. XX" TO THE BILLING LIST

You may want to keep track of the unpaid balances of all your "XX" customers in one shot. You can do this simply by adding the name "XX" to the billing list. The one reservation is that this will add substantially to the total capacity required for the beginning balances. Check the number of sectors used by the previous balance file(s) (ending in P (and PP), figure the proportion of "billing list" customers to "XX" customers, and then estimate whether you will have enough capacity (see first section of this chapter).

You can just experiment by adding the NAME and then INITing for statements. If there is insufficient room the program will error (you'll have to INIT again without "MR XX" on the list to regain intact files).

To do this right you must print out a list of all paid and unpaid prior invoices for "MR XX", and then enter all unpaid invoice totals into either INV.PRIV records (one for each) or the total amount into one PREV.BAL record. This will provide the computer with the information it needs to start maintaining the information on its own.

IMPORTANT POINTS AND RULES FOR EXPERIMENTERS (#)

Check the size of the previous balance files each month. The file name(s) looks like any other account file, but ends with a "P" or "PP".

Use "INV# SORT" to count records.

If initializing to a prior date you must "INIT" statements for each month as if you were "back at that time".

You must preserve the format name "STAT" because the name triggers special statement functions.

You cannot re-print statements in a month that has been "ORDER/CONDENSED".

In batch formats the "STOP,PRINT HEADINGS..." question encountered with LIST commands has a different spacing function.

CHAPTER 22 -- STATEMENTS OF INVOICES

INIT STATEMENTS

note: Chapter 21 contains prerequisite material for reading this chapter.

BACK-UP and ORDER/CONDENSE First

Before starting the Statements procedure with the BATCH STATEMENTS selection you should take two preliminary steps:

1) Make back-up copies of all the account files for the month using the BACK-UP/COPY files selection. Enter Y to back up user files, press RETURN to skip backing up the "Program Disk User Files", and enter Y to back up account records files. Enter the month and year of the statement month.

2) Select ORDER/CONDENSE and enter the month and year of the statement month to "FIX ACCOUNT FILES". This will assure that the dates will be in sequential order on the statements. ORDER/CONDENSE is not required to run statements, it just makes sense to make sure everything is in order. The time required to ORDER/CONDENSE the files will vary from a few minutes for a few hundred invoices to an hour for applications storing 700 invoices per month.

Turn all NAMES On

After you have completed the preliminaries, select BATCH STATEMENTS and enter the format name STAT. Check the list of names for status, duplications, etc. After you have reviewed/edited the name list and are satisfied with the status of each name you are ready to initialize for printing. MAKE SURE ALL THE NAMES FOR WHICH YOU WANT STATEMENTS BEGIN WITH EITHER A "1" OR "+". After pressing the I key for INIT STATEMENTS the computer will display:

FIRST DATE TO LIST?

Enter three date numbers separated by commas as usual. If you are printing statements of invoices this date MUST BE the first of the month to which the statements will apply. After entering the first date, press RETURN. The computer will display:

LAST DATE TO LIST?

Enter the last date for which you wish account information to apply. If you are printing statements of invoices (the STAT format) you MUST enter the last date of the month to which the statements will apply. After entering the date, press RETURN. The computer will display:

REPRINT(Y) OR NEW STATEMENTS(RET)?

If you have already INITed for statements and there were no errors displayed, then you do not have to re-init--type Y here and save lots of

time. If you have not yet INITed, or if you have INITed but had to return to the menu to fix errors, you must INIT again. Just press RETURN. The computer will display:

PRINT ON PRINTER(Y) OR SCREEN(RET)?

Type Y and press RETURN if you wish for the listings to be printed on the printer. Press RETURN without entering a Y if you simply want the material to be displayed on the screen.

IF NOT PRINTING STATEMENTS OF INVOICES

What happens next depends on whether you are printing statements of invoices (STAT format) or not. If you are not using the STAT format the function menu will again be displayed, but with a new menu selection added:

START PRINTING

This is where everybody gets up and inserts the printer paper! Before pressing S you should double check the name list to make certain that information for just the names you want will be printed. If you elected to print on the printer check to make sure the printer is on and "on line". After you've checked these, press S to start printing.

As you are printing you can "hold" the printing during the printing of account information by pressing the H key, or return to the Main Menu by pressing the M key (this aborts the entire printing procedure, so be careful).

Immediately after the totals are printed on any particular listing you may press the H key and the computer will stop when it gets to the RLOOP.MOD module (BATCH STATEMENTS module) and display the function menu again. There will be a new selection added:

CONTINUE PRINTING

You have the opportunity to edit the names list or abort the print. You will see that the symbols before the names that have been printed have been changed to "won't print" symbols. You can re-edit the list, and even "turn back on" some names that have been printed. When you are ready to continue printing, press the C key to "CONTINUE PRINTING".

Multiple Pages

With the STAT format, if any of the statements take multiple pages they will be printed automatically. Page 2 will be numbered as "Page 2". Although more extra pages will be printed, each additional page will be numbered as page 2 since the Statements function was designed to support only 2 pages (68 lines of data!). This limitation does not apply to formats created with the Report Generator.

IF PRINTING STATEMENTS OF INVOICES

If you are using the STAT format the computer will not return to the functions menu after the "PRINT ON PRINTER(Y) OR SCREEN(RET)?" question. Instead it will display "TURN PRINTER ON" (if you selected printing) and then run two initializing modules called SINIT.MOD and SINIT2.MOD. These run automatically and there is no input required. After the modules are run there will be a few more questions and then the functions menu will be displayed and you can start printing.

Besides error checking the SINIT modules push unpaid invoices and previous balances into the next month (one or two new account records files will be created and dated the next month, ending in P). The modules take a while to operate, typically 5 to 15 minutes, but up to 30 minutes in high volume applications. To let you know the computer is still working, characters are displayed at the top left of the screen. These have no meaning except to let you know the computer is working.

WHAT'S HAPPENING?

As various tasks are performed messages will appear on the screen to let you know:

"DONE COUNTING PAYMENTS/CREDITS"

This means the computer has sorted all payments and credits into those that contain invoice numbers and those that do not, and has stored the sorted lists in temporary locations.

"DONE COUNTING PREVIOUS INVOICES"

The computer has checked all prior unpaid invoices (INV.PRV) records, and reconciled these with "invoice numbered" payments.

"DONE COUNTING CURRENT INVOICES"

The computer has checked all current invoices and reconciled these with "invoice numbered" payments.

"APPLYING PAYMENTS TO PREV.BAL ACCOUNT"

The computer is checking all "non-invoice numbered" payments and credits and applying these to simple beginning balances.

"ASSIGNING BEG. BALANCES PER TRANSACTION"

This is where the intelligent processing occurs. The computer is checking each unpaid invoice, deciding if the customer is a "*" or "+" customer, updating the PREV.BAL and INV.PRV accounts accordingly, and making any switches or reconciliations regarding any customers that have been switched from one method to another. When this task is done there is

another short delay as all this information is condensed into account files. The computer then displays the file names of the new account files in the next month that will hold the beginning balances (ending with P or PP) and then stores these on the disk (and ramdisk).

Nobody's Perfect!

During each of these steps much (entry) error checking goes on. Any errors will be displayed. If you elected to print on the printer (which is normally the case) then the errors will be displayed on the printer. This is a good idea because you will want to abort and go back to the menu to fix the errors.

The type of errors that will be checked are:

Payments for a non-existent invoice number

If this happens the module will print the bad payment information, and then automatically abort to the Custom Menu. This is because the statements will certainly be wrong with "outstanding" payments in the files. So with this type of error (and expect this to happen at least once) the INIT function will not even be completed.

Chances are there was a wrong invoice number entered when the payment was entered. You can change the invoice number using the RECORDS function on the Utility Menu. Or the original invoice may have been dated in a previous month, but entered in the current month, with no INV.PRIV account entered. You must enter the out-of-date invoice into an INV.PRIV record (see introduction to INVOICE functions). Whatever you do, the invoice number of the payment must match the invoice number in either an INV.PRIV record or INVOICE record. If you are not knowledgeable enough about the program and are in a hurry, you can delete the invoice number from the payment record. The payment will then be applied to the first unpaid invoice encountered.

Overpayment

This will happen when all payments containing a certain invoice number exceeds the amount of the invoice containing the same invoice number. The operation will not abort, the overpayment will simply be listed on the statement as a credit, with the invoice number also listed. However this is a situation that does indicate an error, since you will not want mis-matches between payments and invoices for those customers for whom you are individually tracking invoices. After the error checking function is done, it is suggested you abort the print and return to the menu to fix the amounts.

Underpayment of an Invoice

This indicates an error, or mis-match with the payment amount being less than the invoice amount. The function will not abort. The invoice will still be listed on the statement but with an appropriately reduced amount owing. There will be a message on the screen of the underpayment so if

you let this go, make sure you advise the customer in some fashion. It is recommended you abort the print and fix the underpayment.

Of course for those customers for whom you are not tracking individual invoices in prior months there will be fewer errors noted. This does not necessarily mean there are fewer errors, but the computer has less opportunity to check errors when payments do not include invoice numbers. At any rate, this is the more common way to print statements.

AFTER ERROR CHECKING

After the error checking module has been run, the computer will display:

PRINT AGING DATA/LATE CHG ON STATEMENTS(Y) OR RET?

If you answer Y (return) to this question the computer will load and run the AGING.MOD module and you will be asked to answer various questions regarding aging and finance charges. An aging sheet will also be printed. You are not obligated to print aging data or finance charges if you answer Y. You may just want the aging sheet, for instance.

Full information on the operation of the aging module is presented at the end of this chapter.

Regardless of whether you ran the AGING.MOD module or not, the computer will return to the Batch Statements module and display:

PRINT ZERO STATEMENTS(Y) OR RET?

note: it is important to be very careful in answering the remaining (3) questions, as you will have only one opportunity to do so. If you answer incorrectly you will have to do the error checking all over again (5-15 minutes!).

Some users don't want to waste paper on accounts that have no activity to print. Others feel it makes marketing sense to keep in touch with inactive customers via the statements. If you type Y and press RETURN all statements (specified "will print" in the name list) will be printed. If you press RETURN without entering a Y the computer will take a minute or so to review the account information, and it will automatically change the symbols in the name list to "won't print" symbols for those customers who do not have any activity to print. This option is poorly named. If there is account information that balances out to a zero balance, the statement will still be printed.

Next the computer will stop and display:

LIST PAID INVOICES,PAYMENTS FOR * NAMES(Y) OR NOKRET)?

Here is a chance for you to save lots of paper! For those customers for whom you are individually tracking out-of-date unpaid invoices, the

statements will list every unpaid invoice. This takes a lot of room. You may not desire to take up extra room with a listing of current paid invoices and attending payments. If you wish to list unpaid invoices only, press RETURN without entering a Y. If you do want to print all information, type Y and then press RETURN. The total amount due in the statement will be the same in either case. Remember, you can print only two page statements. This gives you 68 lines for account information.

Next the computer will stop and display:

SINGLE SHEET(Y) OR CONTINUOUS(RET)?

If you would like the computer to stop and display the NAMES list and function menu after printing each statement, enter a Y here and press RETURN. If you do not want the computer to stop after each statement, press RETURN without entering a Y.

After you answer the previous question the computer will again display the NAME list and the function menu, with an additional selection added:

START PRINTING

Before you start printing by pressing the S key it is suggested that you review the NAMES list once more. You have the opportunity to re-edit the list if you want. Also check to make sure the printer is on and "on line" before pressing S.

If errors were displayed or printed during the error checking operation it is strongly suggested you abort here and press M for Menu. Fix the errors and then come back to the BATCH STATEMENTS function. You should keep initializing until no errors are displayed.

During the printing process you may hold the program with the H key during the printing of any account information. The M key will abort to the Main Menu, so be careful about this. Don't press the space bar during the printing operation as this will cause the computer to stop for printer codes. If it does stop, just press RETURN without entering any codes. This has been a problem because, after holding with the H key, it is natural for some to resume the print with the space bar. Also, it will take over 30 minutes to print all the statements, and possibly over an hour depending on the number of names you have in the list. Keep people away from the computer during this time. It's natural for a curious bystander to press a few keys, not knowing this may interfere with the printing operation.

"Time for a break!"

You can return to the Batch Names List and function menu by pressing the H key anytime totals for a statement are being printed (you have about 10 seconds). The function menu and names will be displayed and you can even edit the names to affect the rest of the statements. To continue printing statements just select "CONTINUE PRINTING" (press C).

After printing all statements you must return to the Custom Menu before attempting to re-print new statements, or attempting to INIT again. From the Custom Menu you can come right back and perform any desired operation

ERROR FIXING

Chapter 18 contains much necessary information for correcting records.

Invoices and all related account information are stored in the DATED RECORDS program, so you will have to be familiar with the operation of the LIST commands for determining the cause of the errors, MAKE or FAST RECORD ENTRY functions to enter new or corrected errors, and the RECORDS function in the CHANGES/DELETES section of the Utility Menu to change information in records.

By far the most important of the three is the LIST commands, especially the last LIST command, "LIST name(s),spec,listing,date,date" It is with this command that you can list information using the four formats provided (in addition to the STAT format), namely:

INVOICE (to list elements of an invoice)
ACTIVITY (to list everything, no matter what)
STATEMENT (to list elements of a statement)
REMOTE (to list detailed invoices and payments)

You can get all the information you need to check on errors using these four formats.

Many wasted hours have been spent by users trying to fix errors without being able to interpret the information displayed when using the LIST commands. Most frequently the confusion results from not understanding and identifying INV.PRIV records. Another source of confusion is forgetting that, during the printing of statements (and during error checking) the computer NEVER LOOKS AT ANY RECORDS NOT DATED IN THE CURRENT MONTH. So be sure to notice the dates of the records when they are displayed in LIST commands. If they are dated before the current month the computer is "BLIND" to them during the BATCH STATEMENTS function. They might as well not exist. Move payments which you have entered into prior months into the current month, either as a payment or a credit. For invoices which you entered into prior months (entered during the current month) create an INV.PRIV record using MAKE (account) or FAST RECORD ENTRY, or add the amount of the invoice into a PREV.BAL account.

ERROR FIXING IN DETAIL

You may be making hundreds of invoice and payment entries per month. It is expected that there will be some errors and omissions in the records despite your best efforts. Your customers will help by overpaying, underpaying, and giving you wrong invoice numbers and other information. They will also help you find your mistakes by checking statements.

When you are first using the program you will make some common mistakes. The most frequent will be entering payments and invoices into prior periods without updating the previous balance accounts, or not knowing how to update the previous balances. Handling credits offers another opportunity for mistakes.

Experience has shown that there are some systems errors that are likely to show up from time to time with regard to invoices/statements. Most of these are due to poor disk management, a function that beginners sometimes find tedious to learn and underestimate its importance.

There are some common mistakes made when entering invoices and these will show up in statements.

Lastly, you may experience printer problems during the statement print, or a power failure.

We have designed the program to help you as much as possible to eliminate these opportunities for errors. But much of the responsibility for perfect statements still rests with you and your understanding of the statements and related functions. For the first few months you should expect several statements containing errors out of each batch. Initializing back to a prior date presents an excellent opportunity to print statements for each prior month and gain experience. Each error should be checked and regarded as an opportunity to understand the statements functions.

When you "INIT" statements for the current month ("for real") you may still encounter a few errors. If some slip by, your customers will realize that you are implementing a new computer system and most will appreciate statements which will be more accurate and informative in the long run (though they may not fall in love with your new "late charge" capability).

For the first couple of months, we suggest you print a "trial run" on inexpensive single-copy paper, since some statements will contain errors and have to be re-copied anyway. This also gives you the opportunity to gain experience with the printer, cables, paper positioning, keyboard controls, etc.

After a few months, and after you have thoroughly learned the sections of this manual regarding invoices, statements, and file/disk management, there's no reason why statements cannot be printed perfectly every time. Understanding the appropriate sections in the manual is prerequisite. The sooner you do, the sooner you will be printing perfect statements!

ERROR CHECKING DURING STATEMENT "INIT"

During the "Statement Init" function (see first section of this chapter), the computer will review all records for the month and display any likely errors it can find. There will almost always be a few errors detected on the first "INIT".

You should not print statements with errors in the records. Return to the Main Menu and correct the errors. Then select BATCH STATEMENTS and "INIT" again. If you have fixed all the errors none should be displayed and you are ready to print statements.

You should always turn the printer on when "initing" statements so that error information will be printed and easily referred to when correcting these.

Errors noted in the "Init" function are most often caused by having entered invoices or payments into prior periods where the computer cannot find them during the "init" function. The computer looks only in the statement month for all statement information. Normally you should never need to enter invoices or payments into a prior period. The need (or urge!) to do this happens when missing invoices and payments are found, or when adding an old customer to the statements list. WHEN BACK-DATING INVOICES AND PAYMENTS, YOU MUST UPDATE THE INV.PRV OR PREV.BAL ACCOUNTS IN THE CURRENT STATEMENT MONTH--OTHERWISE THE INFORMATION WILL NOT BE FOUND DURING THE STATEMENTS FUNCTION.

HOW TO CHANGE RECORDS

To change an invoice, delete the entire invoice from the INVOICE function and re-enter it. Don't attempt to change an invoice from the Utility Menu as several accounts must be changed. To change an INV.PRV, PREV.BAL, or PAYMENT record, use the RECORDS (account) selection on the Utility menu.

There are three types of errors that may be displayed during the "INIT" process. An explanation of each type follows:

Underpayment

This error is noted when a payment for an invoice is found, but it is less than the amount of the invoice. Of course this may not be an error if the customer intentionally underpaid. But most often it will indicate an entry mistake.

Causes of Underpayments

The amount of the invoice may be wrong. Check the INV.PRV account for the amount the computer is using for the invoice. Also check the original invoice. The LIST XXXX OF UTILITY data base command will list all

numbers.

There is an easy "compromise" way to keep track of payments. Each time you enter a payment record, add a mark on a reminder list. At the end of the month you can check the total number of payments using the INV# SDRT function on the Custom Menu (enter PAYMENT as the account). If less payments records are in the computer than noted on your list, then there is likely to be missing payments. If the totals agree, but the "init" function or your customers indicate missing payments, they are probably in prior periods or (worse) in wrong accounts.

LOSING INVOICES

Remote Disk

When using a REMOTE disk you can enter only 10,000 characters of information before reading the disk at the main computer. The number of invoices that will fit into 10,000 characters will vary from 50 to 200 depending on how many items you average per invoice, and how wordy your item descriptions are.

The Main Computer

As you enter invoices with a full ramdisk (192K+), the invoices are stored only in the ramdisk until you return to the menu. If the computer is shut down for any reason before you return to the menu, the invoices entered since you entered the Invoice function will be lost.

A note to inexperienced operators: Users of the Invoice/Statements program sometimes buy the program for this purpose only, and have little experience with computers in general. They soon learn to develop a certain "attention" to detail when making entries, which pays off several times over. To their surprise, after a month or two the entry mistakes all but disappear.

AGING STATEMENTS/FINANCE CHARGES

The aging sheet and finance charge features are available ONLY FOR "*" CUSTOMERS--those for whom you are tracking individual prior unpaid invoices. This is because the second date in the INV.PRV records (beginning balances) is used for determining the ages of debts. This new module may be accessed from the Custom Menu with "5 AGING INFO". It may also be automatically run when INITIALizing for Statements by answering Y to the additional question:

PRINT AGING DATA/LATE CHG DN STATEMENTS(Y) OR RET?

It operates differently than the menu is accessed.

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From the Custom Menu, the computer will stop and ask for the

ERROR CHECKING DURING STATEMENT "INIT"

During the "Statement Init" function (see first section of this chapter), the computer will review all records for the month and display any likely errors it can find. There will almost always be a few errors detected on the first "INIT".

You should not print statements with errors in the records. Return to the Main Menu and correct the errors. Then select BATCH STATEMENTS and "INIT" again. If you have fixed all the errors none should be displayed and you are ready to print statements.

You should always turn the printer on when "Initing" statements so that error information will be printed and easily referred to when correcting these.

Errors noted in the "Init" function are most often caused by having entered invoices or payments into prior periods where the computer cannot find them during the "init" function. The computer looks only in the statement month for all statement information. Normally you should never need to enter invoices or payments into a prior period. The need (or urge!) to do this happens when missing invoices and payments are found, or when adding an old customer to the statements list. WHEN BACK-DATING INVOICES AND PAYMENTS, YOU MUST UPDATE THE INV.PRV OR PREV.BAL ACCOUNTS IN THE CURRENT STATEMENT MONTH--OTHERWISE THE INFORMATION WILL NOT BE FOUND DURING THE STATEMENTS FUNCTION.

HOW TO CHANGE RECORDS

To change an invoice, delete the entire invoice from the INVOICE function and re-enter it. Don't attempt to change an invoice from the Utility Menu as several accounts must be changed. To change an INV.PRV, PREV.BAL, or PAYMENT record, use the RECORDS (account) selection on the Utility menu.

There are three types of errors that may be displayed during the "INIT" process. An explanation of each type follows:

Underpayment

This error is noted when a payment for an invoice is found, but it is less than the amount of the invoice. Of course this may not be an error if the customer intentionally underpaid. But most often it will indicate an entry mistake.

Causes of Underpayments

The amount of the invoice may be wrong. Check the INV.PRV account for the amount the computer is using for the invoice. Also check the original invoice. The LIST XXXXX,ACTIVITY,date,date command will list all

information. Substitute the invoice number for XXXXX. Change the amount if wrong.

You may have entered the payment amount incorrectly. Or there may have been more than one payment for the same invoice, but one was entered with a wrong date or invoice number. Use the ACTIVITY format to check all dates on the disk for that invoice number. If unsuccessful, substitute the likely amount of the missing payment for the invoice number in the ACTIVITY command, such as

LIST 34.26,ACTIVITY,6,1,86,10,30,86

This will list any record containing the amount 34.26 and you may find a payment with a wrong invoice number. Listing all payments for a certain NAME will also work, but usually takes much longer because so many records will be listed.

Underpayments usually result from one of the payments being entered into a prior month where the computer cannot see it during the "Init" function. In this case you should reduce the amount of the invoice in the INV.PRIV account to reflect the true situation (a smaller balance should have been brought forward).

It will save time if, when entering payments, you note those payments which you know to be underpayments. This will save you having to track down the source of the (supposed) error.

If you do not correct the information

If the underpayment is legitimate, or if you choose not to correct it, you can still print the statement. The amount owing for the invoice shown in the statement will be reduced by the amount of the partial payment. This same amount will be carried forward into the new month in the INV.PRIV account (for invoices which are individually tracked).

Overpayments

Overpayments always indicate errors on your part or the customer's, usually yours! These may be due to incorrect invoice totals in the INV.PRIV account or incorrect payment entries such as with underpayments. Use the suggestions above for underpayments to identify and correct these errors.

Overpayments usually are the result of entering invoices into prior periods where the computer cannot find them during the "Init" function. Thus you should search the invoice number in prior periods using the ACTIVITY format. If this is the case, increase the amount in the INV.PRIV account for that invoice number accordingly to reflect the true situation (a higher amount should have been carried forward).

If you do nothing

If you do not correct the records the statement may still be printed. A credit for the overpayment will be printed on the statement and pushed

into the new month in the CREDIT account. The credit will be adjusted automatically in next month's INIT function. If there is a legitimate error the best thing to do is to correct the records.

Payments Unaccounted For

This is always caused by entry errors which must be corrected. The computer will not print statements if there are payments unaccounted for, as this just compounds the error. It will automatically abort and return to the menu (after printing the payment information). You must take care of the errant payments before returning to BATCH STATEMENTS.

"Unaccounted for" payments are almost always the result of entering invoices into prior periods without updating the INV.PRIV account records. The solution is to enter INV.PRIV records for each invoice which was entered into a prior month.

Another cause is simple errors in entering payment records like wrong invoice numbers, dates, or NAMES. See information on underpayments (above) for identifying and correcting entry errors.

ERRORS NOT CHECKED DURING "INIT"

If you have received payments that were not SUCCESSFULLY entered into the computer, or if you have entered payments into prior periods without updating the INV.PRIV or PREV.BAL accounts, the computer cannot find these errors. The computer will print the statements and you may not notice the error until the customer calls.

If the payment is not in the computer, but you feel that you did enter it, you may have entered it with FAST RECORD ENTRY but then neglected to store it in the regular account files. Go to the Custom Menu and select STORE FAST RECORDS just in case. If there are no records to store it won't hurt anything.

If you have entered the payments into a prior period you should have updated the INV.PRIV or PREV.BAL accounts in the statement month. At least you should have noted that the payment was entered. If you don't understand about updating INV.PRIV or PREV.BAL, re-read the information in Chapter 18. Otherwise there is no choice but to rely on your customers to find these errors, not an attractive alternative.

Beginners should always use the PAYMENTS function in the INVOICE entry sequence to enter payments. This prevents some possible mistakes which are hard to track down. For instance, when using FAST RECORD ENTRY or MAKE account to enter payments, they may be mistakenly entered into another account. You can search your entire records disk for any string, which may be the amount figure, using DISK SEARCH on the Utility menu. You are unlikely to make this mistake, but careless or insufficiently trained employees will, eventually. Using the INVOICE entry sequence to enter payments also helps prevent entering wrong dates and invalid invoice

numbers.

There is an easy "compromise" way to keep track of payments. Each time you enter a payment record, add a mark on a reminder list. At the end of the month you can check the total number of payments using the INV# SORT function on the Custom Menu (enter PAYMENT as the account). If less payments records are in the computer than noted on your list, then there is likely to be missing payments. If the totals agree, but the "init" function or your customers indicate missing payments, they are probably in prior periods or (worse) in wrong accounts.

LOSING INVOICES

Remote Disk

When using a REMOTE disk you can enter only 10,000 characters of information before reading the disk at the main computer. The number of invoices that will fit into 10,000 characters will vary from 50 to 200 depending on how many items you average per invoice, and how wordy your item descriptions are.

The Main Computer

As you enter invoices with a full ramdisk (192K+), the invoices are stored only in the ramdisk until you return to the menu. If the computer is shut down for any reason before you return to the menu, the invoices entered since you entered the Invoice function will be lost.

A note to inexperienced operators: Users of the Invoice/Statements program sometimes buy the program for this purpose only, and have little experience with computers in general. They soon learn to develop a certain "attention" to detail when making entries, which pays off several times over. To their surprise, after a month or two the entry mistakes all but disappear.

AGING STATEMENTS/FINANCE CHARGES

The aging sheet and finance charge features are available ONLY FOR "*" CUSTOMERS--those for whom you are tracking individual prior unpaid invoices. This is because the second date in the INV.PRIV records (beginning balances) is used for determining the ages of debts. This new module may be accessed from the Custom Menu with "S AGING INFO". It may also be automatically run when INITIALizing for Statements by answering Y to the additional question:

PRINT AGING DATA/LATE CHG ON STATEMENTS(Y) OR RET?

It operates differently depending on how it is accessed.

If selected from the Custom Menu the computer will stop and ask for the current month and year. Otherwise this question will be skipped and the computer will immediately begin analyzing the INV.PRIV records for aging

information.

If the module was accessed from the Statement INIT function the computer will stop and ask if you would like to print/store finance charges on the Statements. If you answer Y the computer will ask you to enter the finance percent. If you enter the number 1.5 it will be interpreted as 1.5% (don't enter decimal equivalents).

You may also choose to print on the printer or screen, and to elect displaying numbers as dollar amounts.

If you selected the module from the Custom Menu the computer will return to the menu after printing the aging sheet.

Otherwise it will again ask "PRINT AGING DATA/CHARGES ON STATEMENTS(Y) OR RET". Enter Y and press RETURN. This is a way to print the aging sheet before statements without storing the finance charges. Also it allows you to change your mind.

You may INIT for statements several times, and this is done to correct errors found in the INIT function. But

NEVER STORE FINANCE CHARGES TWICE FOR THE SAME MONTH.

When you elect to print finance charges on statements, they are automatically stored as INV.PRV records in two files: the current file in the statement month, and the beginning balance file (ending with P) just created for the new month in the Statement INIT process.

Since all individual finance charges become INV.PRV records, they are treated like any beginning balance record for invoices. Thus they are pushed ahead, month to month, until paid. Since every INV.PRV record must have a distinct invoice number (they normally represent unpaid invoices) the new INV.PRV records holding finance charges will be assigned their own invoice numbers, and the invoice number counter in the computer will be incremented accordingly.

This method of handling finance charges treats them exactly as if you had written a separate invoice during the month for each finance charge, though the records are created automatically. When you receive payment you must "pay" off the finance charge by entering a payment as if for an invoice, with the invoice number corresponding to that finance charge. It is necessary therefore when entering payments for finance charges that you have a list of customers and finance charges due, including invoice numbers. There are several ways to do this. BATCH TOTALS is one (INV.PRV as the account). Another would be to LIST ACTIVITY,nD2 (substitute the new month number for the n), or just LIST INV.PRV.

The above listing methods will list all INV.PRV records for invoices as well as finance charges. However the finance charges will all be in sequence in the printout. The finance charges may be distinguished from unpaid invoices by the second date listing (origin date of the unpaid invoice or finance charge). The finance charges will all have the last day

of the statement month as the date of origin. Additionally, the date will be followed by the letter F.

When printing statements, it is the letter F than tells the computer to print the words "FINANCE CHARGE" on the statement rather than the word "INVOICE" (the F is not printed on the statement). So if you ever have occasion to create a finance charge manually with FAST RECORD ENTRY or MAKE INV.PRV, remember to end the second date entry (date of origin) with the letter F, for the purposes of printing statements with the STAT format.

The "AGELIST" File

When you print statements with aging data, the computer will read the information from a file called AGELIST which it (automatically) places on the records disk in drive #2. If you change your mind and do not want to print the aging information, or wish for it to be printed for a certain block of statements only, you can rename or remove this file. BE SURE THE FILE 'AGELIST' IS UPDATED, RENAMED, OR REMOVED FROM DRIVE 2 BEFORE PRINTING THE NEXT MONTH'S STATEMENTS. Otherwise the computer will load the old file and print the same aging data it printed the previous month. If you store new aging data when INITing for the next month, the file will automatically be erased (replaced).

IMPORTANT POINTS AND RULES FOR EXPERIMENTERS (§)

New NAMES are added to the STAT.N file (batch name list for statements of invoices) when entering invoices.

‡ For statements of invoices always enter the first and last day of the statement month for the dates to print.

You have room for 68 lines of information on (2 pages of) statements.

‡ During statements of invoices the computer is blind to records in previous months.

Initializing to a prior period presents a valuable opportunity to gain experience with printing statements and error checking.

VII. PAYROLL

Chapter 23 -- THE PAYROLL FUNCTION

Like most other MICROMOD functions the MICROMOD Payroll program is just an extension of the very powerful Dated Records Program. It fully utilizes the Dated Records program (and the Directory as well) so that integration is automatic and assured, and all of the powerful LISTing capabilities of that program are available for all payroll information.

Though the MICROMOD Payroll program contains all the capabilities of the best 8-bit Payroll systems, few will purchase MICROMOD just for payroll since there are very good payroll systems for Atari that are easier to implement if that is your sole requirement, most notably the Miles Payroll System (trademark of Miles Computing). Payroll does not require much memory so upgrade support is not very important. We have reviewed the Miles system and others for 16 bit machines and found that the MICROMOD system has all the capabilities of those programs, and some extra flexibility as well, such as allowing a deduction as a percent of another deduction--a requirement in R.I. the last time we checked. And, being integrated with the Dated Records Program, the output and usefulness of the data is multiplied considerably. It is also much easier to set up and use--assuming you already have the MICROMOD system in place, are using the Dated Records program and are familiar with its operation, and that you are familiar with making Directory entries. In all fairness to Miles and the others, these are big IFs! Once the Payroll information has been set up, the day to day operation is extremely simplified, as is the case with the Report Generator.

This brings up the first important point--since you will already be using the MICROMOD program for other functions which require a knowledge of the Dated Records Program, the instructions for the Payroll program assume you have such knowledge. If you are not using the Dated Records Program or the Point-of-Sale features (also an extension of the Dated Records Program) then these instructions will be insufficient. We'll be happy to provide extra assistance in the unlikely event that you should need to operate the payroll program only.

A knowledge of the Directory, especially using the SYMBOLS, is also prerequisite.

You'll need to use the Report Generator to print payroll checks, and knowledge of the Dated Records and Directory programs is also required to use that function. So it is therefore doubly required that you have familiarity with both these MICROMOD databases. If you do not, then it is suggested that you put off implementing the Payroll (and Report Generator) functions until a later date. There's plenty of capability in the other MICROMOD functions to keep you going for a while until you become more at ease with general operation.

Even if you do not fully understand the instructions, they should be sufficient to tell you whether MICROMOD will handle all your payroll

requirements. It would be very unlikely that it wouldn't, but we have allowed for the possibility of changing laws and highly individualized employee programs. If you think you have a requirement which MICROMOD can't handle let us know. The Payroll function is designed so that minor modification is easy.

ENTERING TAX TABLES

As with most payroll programs, the first task is entering the tables. First let's address the well-known confusion of terms with respect to the word "table". The IRS allows for two methods to be used, the "percentage method" and the "table method". However, the "percentage method" is not really a percentage method, but just a different kind of table. To the computer both methods are just tables. In fact, the same programming is used to enter both kinds. We will be using the terms "percentage method" and "percentage table method" to refer to the "percentage" method.

To enter tables (and perform any other payroll function other than listings) select PAYROLL on the Custom Menu. The PYR.MOD module will be loaded and run, and you will be presented with two choices:

INIT/EDIT TABLES or ENTER RECORDS

Press the "I" key to enter the tables. The computer will ask:

ENTER DIGIT,LETTER FOR GROUP,STATUS

You must enter a single digit and a single letter separated by a comma. The digit will stand for a group of tax tables for a certain period and government division. For instance 1 might stand for Federal-biweekly. 2 might stand for State-monthly. The choice of digit is entirely up to you.

Associated with each digit will be one or more tables to correspond to status: single, married, etc. Each of these will be represented by a capital letter. In the large majority of applications there will be three capital letters used: S for single, M for married, H for head of household. So here are some suggested guidelines for naming 6 tables which will suffice for the large majority of applications:

1,S Federal-weekly,single
 1,M Federal-weekly,married
 1,H Federal-weekly,head of household
 2,S State-weekly,single
 2,M State-weekly,married
 2,H State-weekly,head of household.

If you also have employees paid monthly or bi-monthly, you'll need six more tables, most likely 3,S 3,M and 3,H for the fed and 4,S 4,M and 4,H for the state. You can use any single digit from 0 to 9 so you could theoretically have 30 tables. Of course you would enter appropriate additional tables for City withholding if applicable.

All tables are stored in their own file. The file name will begin with TABLE and have an "extender" to indicate the group, status of the table, for instances:

TABLE.1S
TABLE.3H

So backing up, after you enter the digit and letter to the "ENTER DIGIT, LETTER..." question, the computer will search the system for that table (can be on any drive). If it does not find an existing table it will stop and ask:

PERCENTAGE METHOD(P), TABLE(T) OR RET?

PERCENTAGE METHOD TABLE

Assuming you enter a P the computer will ask:

ENTER NUMBER OF ROWS (VERTICALLY)?

Enter the number of rows of the table in your tax supplement that you use. There's no need to enter the entire table, just outline in pencil the area of the table which will cover your actual needs and count up the rows (vertically). You can update the table easily if required.

The computer will not ask for the number of columns. All percentage method tables are printed with 5 columns in the tax books, but the first and fifth columns are identical, so you do not need to enter the fifth column. The computer will automatically assume four columns.

The computer will ask:

Which column to enter?
ENTER NUMBER FROM 1 TO 4 OR RET?

Enter the number 1. The computer will ask for each element of column 1. Enter the numbers out of the table, pressing RETURN after each. After you've entered column one the computer will ask you to select another column to enter (column 2), and so on.

Column 1 will be the numbers under the "Over" heading in your tax book, column 2 will be the numbers under the "...but not over" heading. Column 3 will be the third column of small dollar amounts (this may begin with a percent figure--do not enter it that way--shift the percent to column 4 and enter zero for column 3). Column 4 will be the column of percents. Enter the percents without decimals, i.e., for 22% enter 22 not .22.

Don't enter any lines in the table that are missing numbers in one of the columns. If you fear the situation that the table will not cover all your expected wage amounts, enter a fictitious low amount at the top, or high amount at the bottom. Like "over \$400 but less than \$50,000" for the last line, etc. This won't affect your calculation, it's just that you must

supply an upper and lower limit for the computer, and the tax books do not. When you've entered all four columns just press RETURN without selecting a column to enter (select to STORE the table).

The computer will ask:

ENTER AMOUNT FOR ONE WITHHOLDING ALLOWANCE?

Your tax book will have a table for one withholding allowance for the different time periods. Enter the amount corresponding to the time period of the table just entered, press RETURN. The computer will ask:

STORE TABLE IN DRIVE #?

Enter the drive number to store the table. The tax tables take up very little room, usually one or two sectors, and should always go on a disk (not in the ramdisk).

TABLE METHOD

Backing up to the "PERCENTAGE(P), TABLE(T)..." question, if you enter a T here the computer will ask:

ENTER NUMBER OF ROWS (VERTICALLY)?

The tables for the "table" method in the tax books are quite large, but in the majority of applications there is no sense in entering the entire table. Just outline in pencil the area of the table you normally use in your business, plus an extra row/column or two for a safety factor. If the highest number of exemptions among your employees is 3, for instance, you might enter up to the column for 4 exemptions, but there's no reason to enter columns for up to 8 or 10 exemptions. To the "...ROWS..." question enter the number of rows (vertically) that you outlined. The computer will ask:

ENTER NUMBER OF COLUMNS (HORIZONTALLY)?

Enter the number of columns (horizontally) within your outline.

The computer will number the table columns differently than the tax book. Column 1 will be the "...over" column. Column 2 will be the "but not over" column. Column 3 will be the "zero exemptions" column, and so on.

The computer will ask you to enter the table information. The procedure (and programming!) is exactly the same as for the percentage method, but the "ENTER AMOUNT FOR ONE WITHHOLDING EXEMPTION?" question will be skipped because it does not apply to the table method.

The computer will go directly to the "STORE TABLE IN DRIVE #?" question to store the table.

EDITING THE TABLE

Backing way up to the "ENTER DIGIT, LETTER FOR GROUP, STATUS?" question, if the computer does locate an existing table in the system it will not ask the "PERCENTAGE METHOD..." question, but instead will ask:

PRINT TABLE(Y) OR ENTER/EDIT(RET)?

If you would like a printout of the table, type Y, RETURN. Otherwise just press RETURN. The computer will ask:

PRINT ON PRINTER(Y) OR SCREEN(RET)?

After the table is printed or displayed the computer will ask:

Which column to enter?
ENTER NUMBER FROM 1 TO n OR RET?

The letter n above stands for the number of columns in the table. The procedure for re-entering a column is the same as that for entering a new table. When you are through re-entering columns, press RETURN and the table will be re-stored.

EMPLOYEE SET-UP

Each employee must have a Directory entry for that employee's payroll information. The entry will start with the # symbol. Do not worry that this is also the symbol in the SYMBOL TABLE next to the global commands. The global numbers only appear in the SYMBOL TABLE and have no effect on the operation of the directory--the # symbol is still available for your use, though you can't display a convenient definition. Just remember that # stands for "payroll info".

The first step in entering an employee's information is to type PUT followed by the employee's abbreviated NAME, as in:

PUT DOEJ

for John Doe. The computer will ask for "DIRECTORY ENTRY #1". If you have not previously entered the employee's address and phone, you should do so here for entries 1 and 2 (see Directory instructions).

The payroll information will be typed all into one entry with no semicolons. Start the entry with the # symbol followed by a space, then the hourly wage, like:

?# 6.75

If the employee is salaried, enter the amount of the salary, like:

?# 406.50

Next enter the employee's tax status which will be used to locate the appropriate tables for tax calculations, usually S, M, or H. Follow this with the number of exemptions, as in:

6.75,S,3

This might be the end of the entry (you'd press RETURN) but you may add additional information.

Later you will be naming payroll deduction types and entering these into the computer. Each will have a title, such as FED, FICA, STATE, IRA, etc. It is mentioned here because the following instructions refer to such titles.

If there is a fixed amount deducted from this employee's wages, and if the fixed amount is different for other employees, you can enter the amount here. Begin with the title of the deduction, for instance INS for "insurance". Enclose the dollar amount in parentheses, as in:

6.75,S,3,INS(22.5)

Press RETURN if this is the only such deduction, or you can add other like deductions. If the deduction is an IRA type, that is, the amount will be subtracted from gross wages before figuring certain other deductions, you must name the titles of all deduction types that so apply, using slashes within the parentheses, such as in:

6.75,S,3,INS(22.5),IRA(32.04/FED/STATE/CITY)

This would cause the amount of \$32.04 to be subtracted from gross wages before computing the deductions for FED, STATE, and CITY withholding.

After you have entered all the deduction information (if any), press RETURN.

This concludes the employee set-up procedure. You can list the payroll information for all employees by typing:

SHOW # (return)

You can change the information for any employee by selecting DIRECTORY INFO on the Utility Menu and entering the employee abbreviated NAME.

THE PAYROLL ACCOUNTS

As mentioned earlier the payroll program is just an extension of the Dated Records program. All payroll data entered or computed is stored in the Dated Records program, so there must be an account set up to hold the information. The account will be set up as a subdivision so that the account title may be listed vertically in printouts if desired. Furthermore it must be named "PAYROLL" as the payroll program will expect that exact title.

To set up the PAYROLL account, type:

MAKE PAYROLL,PYR,MAIN

at the Main Menu, press RETURN. The computer will then ask for headings. The payroll program will expect two exact headings, "GROSS" and "NET". The other headings are entirely up to you. For most small business applications a heading for hours worked, total wages, federal, state, and FICA deductions will be adequate. If this were the case, you would enter for headings:

HRS,WAGES,GROSS,NET,FED,STATE,FICA,PAYCHK

and press RETURN. The wage categories must always appear before "GROSS,NET" and the deduction categories must always be after "GROSS,NET".

A secondary account must also be set up and named "SET.PYR". This account will not hold any records. It is used merely so that the headings entered for it can contain information about how to handle the various types of calculations performed on the data entered to the PAYROLL account headings. Thus each heading in the PAYROLL account may have a corresponding heading in the SET.PYR account which tells the computer some necessary information about it. You would set up the SET.PYR account by typing at the Main Menu:

MAKE SET.PYR,MAIN

and press RETURN. In our example of headings for the PAYROLL account (above), the only headings that need clarification are the deductions FED, STATE, and FICA. In other words, the computer must be told how the deductions will be computed.

If a deduction will be computed using a tax table the corresponding heading in the SET.PYR account must contain the number of the table to use, entered with a slash. If the deduction calls for a limit/percent computation, as does the FICA deduction, then the limit amount and percent must be added in parentheses to the corresponding heading in the SET.PYR account. So for this example the heading entries for the SET.PYR account would be:

FED/1,STATE/2,FICA(75/13.6)

This assumes that the federal withholding will be computed using the

group of tables denoted with the digit 1, the state withholding will be computed using the group of tables denoted with the digit 2, and the FICA withholding amount will be computed as 13.6% of net wages up to \$75. The exact tax tables to use will be determined by the number specified here, plus the letter found in the particular employee's Directory entry.

So to summarize up to here, a very simple payroll application would require these four account set-up entries:

MAKE PAYROLL,PYR,MAIN

(enter headings): HRS,WAGES,GROSS,NET,FED,STATE,FICA,PAYCHK

MAKE SET.PYR,MAIN

(enter headings): FED/1,STATE/2,FICA(75/13.6)

To give you an idea how simple the payroll program is to operate once set up, the actual records are entered the same way as any other account information using MAKE or FAST RECORD ENTRY (though you must use the payroll module to enter the payroll records). But with the preceding account set-up in place you would make entries to only the NAME?, DATE?, and HRS? prompts. The computer automatically calculates and enters (on the screen) all the remaining entries. In fact, no matter how extensive the headings in the PAYROLL account, you'll still only be required to enter NAME, DATE, HRS, and possibly a dollar amount of a "commission" type of wage. All the rest of the data is filled in for you. Those familiar with Dated Record entry will know that this is a very quick and simple procedure.

WAGE TYPES

Now for the heavy stuff! Your payroll requirements aren't that simple right? Well, at least you've got the idea. You can have as many headings to represent wage types as you need. If the wage type will be computed from a number of hours to be entered, then there must be two headings, as in the previous example ("HRS" and "WAGES"). The first heading must begin with the letters "HR", and both titles must be distinct. Here's an example of headings for wage types:

HRS,WAGES,HRS.OT,OVERTIME,...

When entering records you would enter the number of hours to the HRS? and HRS.OT? prompts. The data for WAGES? and OVERTIME? would be filled in for you. But there will be a difference in computing for overtime--it is normally time-and-a-half, meaning the hourly wage is multiplied by 1.5. You can specify for the hours to be multiplied by any number, not just 1.5. The number to multiply the hours by will be specified in the corresponding "hours" heading in the SET.PYR account. The example for overtime would be:

HRS.OT#1.5

For double time the corresponding heading in the SET.PYR account might

be:

HRS.DT*2

So to summarize, you might have these first headings in the PAYROLL account:

HRS, WAGES, HRS. OT, OVERTIME, HRS. DT, DBLTIME, ...

With these corresponding headings in the SET.PYR account:

HRS. OT*1.5, HRS. DT*2, ...

In the MICROMOD program a salary is treated as an hourly wage. The amount of the salary will be in the Directory, and you will enter 1 hour to the HRS? prompt when entering records. So the headings in the PAYROLL account for salary would look like simple wages:

HRS, SALARY, ...

If you want to enter a fixed amount, such as a commission, into the payroll record just leave the "HRS." heading out for that type, as in:

HRS, WAGES, COMMISSION, ...

If a certain heading in the PAYROLL account stands for an amount that will NOT be used in calculating deductions, then that heading must have a corresponding heading in the SET.PYR account ending with a "/X". So you might have the heading REIMBRS in the PAYROLL account with a corresponding heading REIMBRS/X in the SET.PYR account. To summarize with respect to wage types, here is an example of a more complex payroll set-up. The headings for PAYROLL might begin:

HRS, WAGES, HRS. OT, OVERTIME, HRS. DT, DBLTIME, COMMISSION, REIMBRS, GROSS, ...

With corresponding headings in the SET.PYR account:

HRS. OT*1.5, HRS. DT*2, REIMBRS/X, ...

meaning that overtime would be computed at time-and-a-half, double time would be computed at twice the normal rate, and the amount entered for REIMBRS would not be used in figuring deductions. The REIMBRS amount would be included in the GROSS amount for wages, but not in the NET amount.

DEDUCTION CLASSIFICATIONS

As far as the PAYROLL account is concerned, setting up additional deduction classifications is simple: just add the titles in the heading entry. The complete heading entries for the PAYROLL account in a more complex set-up might be:

HRS, WAGES, HRS. O, OTIME, HRS. S, SICK, W, COMM, GROSS, NET, IRA, FED, STATE, FICA, CITY,
UN-E, PENS, PAYCHK

There are only two additional rules: 1) an IRA type deduction which is subtracted from NET pay in computing certain deductions must always be entered immediately after the NET heading, and 2) the PAYCHK heading, which is the amount of the pay check, must always be the last heading.

Each of the "deduction" headings in the PAYROLL account must have a corresponding heading in the SET.PYR account to tell the computer which method to use in calculating the deduction. We've already illustrated the specification of certain tax tables and the limit-percent method.

If a deduction will always be a fixed amount, the corresponding heading in the SET.PYR account will end with the fixed amount in parentheses, as in INS(34.50).

If a deduction is a fixed amount which varies from employee to employee, the amount of the deduction, whether a simple fixed amount or IRA type (fixed amount but affecting other deductions), will be found in the employee's directory entry. To tell the computer to look in the Directory for the fixed amount, end the corresponding heading in the SET.PYR account with the two characters "/E" as in IRA/E.

If the deduction is to be calculated as a simple percent of net pay, end the corresponding heading in the SET.PYR account with the number followed by the % character, enclosed in parentheses, as in PENSION(15%).

If the deduction is to be calculated as a percent of ANOTHER DEDUCTION end the corresponding heading in the SET.PYR account with the number, followed by the % character, followed by the title of the deduction to be used, enclosing all in parentheses, as in STATE(20%FED). This would mean that the State withholding is calculated to be 20% of the Federal withholding amount. THE HEADING FOR THE DEDUCTION TO BE USED IN THE CALCULATION MUST ALWAYS APPEAR BEFORE THE HEADING FOR THE DEDUCTION TO BE CALCULATED.

This completes the variety of deduction categories. Following is a list of all the types of characters which may follow headings in the SET.PYR account, each of which corresponds to a heading in the PAYROLL account:

HRS.OT#1.5	multiply wages by 1.5
COMM/X	don't use in deduction calculations
FED/1	use one of the "1" tables
FICA(164/13.6)	wages (up to \$164) times 13.6%
INS(18.2)	deduction is \$18.20
IRA/E	deduct amount in employee file
PENSION(20%)	deduct 20% of net wages
STATE(20%FED)	deduct 20% of FED withholding

The following example is more complex than you would find in an actual application, but is used to illustrate the various wage types, deductions, and instructions in the SET.PYR account.

Four entries to set up a payroll application:

atarimuseum.nl

MAKE PAYROLL,PYR,MAIN

(enter headings): HRS,WAGES,HRS.DT,OVERTIME,HRS.SK,SICKPY,HRS.VC,VAC.PAY, COMM,EXP,GROSS,NET,IRA,FED,STATE,FICA,CITY,INS,PENS,PAYCHK

MAKE SET.PYR,MAIN

(enter headings): HRS.DT*1.5,HRS.SK*.8,HRS.VC*.5,EXP/X,IRA/E,FED/1, STATE(22%FED),FICA(380/14.7),CITY/3,INS(12),PENS(8%),PAYCHK

LISTING/EDITING THE ACCOUNT HEADINGS

To list the headings and corresponding instructions, select PAYROLL on the Custom Menu, then choose ENTER RECORDS. All headings will be listed in one column and the corresponding instructions in an opposite column.

To edit the heading information, just enter C (CHANGE HEADINGS) at the bottom of the display, and the computer will transfer you to the CHEAD.MOD module where it is an easy matter to change/add/delete any of the headings. Or you can select this function directly with the HEADINGS selection on the Utility Menu.

ENTERING PAYROLL RECORDS

To enter payroll records, select PAYROLL on the Custom Menu, and then select ENTER RECORDS. After the heading information is displayed the computer will ask:

ENTER DRIVE # TO FIND PAYROLL TABLES?

After you enter the single digit for the drive number, and only if you have an XL or XE computer running on SpartaDOS, the computer will display:

STORING IN BASIC RAMDISK FOR SPEED

as it transfers the tables into the BASIC ramdisk (drive #7) so that calculations may be performed much more quickly. The computer then lists the heading prompts, beginning with:

<NAME?

After you enter the abbreviated NAME for this employee the computer will display the directory information for that NAME, such as:

MG: 10.5 STS: 5 EXMTS: 2 OTHER:
IRA(23/FED/STATE/CITY)

so that you can verify it for accuracy. Next the computer will ask for the DATE? and then the first PAYROLL account heading, normally:

HRS?

After you make the HRS entry(s) and any commission type entry, all headings will be listed in sequence and you can watch as the computer quickly fills in the data, as if you were entering it. After the last heading (PAYCHK) the computer will let you know how many more spaces are available in the record, like:

(67 characters left for a comment)
COMMENT?

Enter a comment about this record if you like. The computer will then ask you to verify the record, as usual, and then ask for a second <NAME?.

After you've entered all the payroll records and press RETURN to the NAME? prompt the computer will ask:

STORE RECORDS NOW(Y) OR WAIT(RET)?

Just as it does in FAST RECORD ENTRY. The procedure is the same. You can elect to store the records immediately or come back with the STORE FAST RECORDS selection on the Custom Menu later. You cannot list any of the records with LIST commands until they are stored in the regular files.

LISTING PAYROLL INFORMATION

The easiest way is to simply type:

LIST PAYROLL

at the Main Menu, and then press RETURN to each succeeding prompt. You may want to enter a month number to the first date question, and you may want to set your own tabs. (Hint: if you press the space bar after the last INCLUDE? entry to signal the printer, the computer will automatically set the tabs in the listing for 80 columns, not the usual 40.

A more useful LIST command would be to specify math in the listing with an entry like:

LIST HRS+,WAGES+,HRS.O+,OVERTIME+,NET+,FED+,STATE+,FICA+ FROM PAYROLL

and press RETURN. Then invest a few minutes in entering appropriate tab settings, possibly for a 132 column printout (condensed pica).

At the end of the listing you'll be able to name the listing into a "listing format". Then you can use the last list command to get quick payroll information, using one or more NAMES, maybe a spec, and various dates, such as

LIST DOEJ,PAYROLL,1,1,87,3,30,87

Press RETURN. Pressing the space bar after RETURN will allow you to

enter printer codes to specify 132 or 156 columns (condensed elite).

If you add a + or - to every heading in your LIST command, as in this example, the computer will ask if you would like to display a statement of the totals. This is a perfect application for the statement of totals function, as it will be rather easier than for a more complex statement such as an income statement, and the resulting format will be very useful for a variety of purposes, such as tax, employee, and cost accounting reports.

PRINTING CHECKS

Use the forms generator to create a format for printing checks. The name will come from the first address line in the Directory, the amount from the PAYCHK heading in the PAYROLL account, and you can specify a serial (check) number to be printed if you do not have this printed on the checks. You can include various characters such as "*****" as titles in the format to make the amount look more official.

After you name the format, you'll want to go to the BATCH STATEMENTS function on the Custom Menu and enter the format name. You can then create a Batch Name List, which will be a list of all the employees' abbreviated NAMES for whom you would like to print checks. When you run the format from the BATCH STATEMENTS function you can enter a beginning and ending date, and it is the ending date you enter that will be printed as the "full date" on your checks. See the Forms Generator instructions for more complete information.

VIII. REPORT GENERATOR

CHAPTER 24 -- SPECIALIZED OUTPUT FORMATS

The large majority of your reporting needs can be satisfied by one of the simple MICROMOD formats: directory (label type), spread sheets, statement of totals, spread sheet "form", calender, or graphs. In the case of the simple spread sheet you can include an address from the directory. In a spread sheet "form" you can specify dollar amounts, text files, titles, or keyboard input.

These simple formats contain many automatic features for simplicity, but have some limitations as well. For instance, in a spread sheet you can't get non-address information from the directory, all information from a single record is printed on only one line (plus a comment line), and generally the sequence of information cannot be changed. An address always precedes the account information, for instance. The Report Generator overcomes these limitations and adds several new features.

A working knowlege of the Directory and Dated Records programs, especially relating to SYMBOLS, sort codes, spread sheet listings, and "spread sheet form" is prerequisite to operating the Report Generator, and even to understand the following instructions. Without such practice it's hopeless! However, though you may not understand the instructions this chapter should give you a good idea as to whether the Forms Generator will handle your special requirements. If you feel there may be a problem please contact us with your specific requirements including sample forms.

Though it may not be immediately apparent, the Report Generator CAN handle about any type of form imaginable. For instance, suppose your form requires your company address, customer address, and a third "dealer" address? How do you get these three in when you will (usually) be using only one NAME in the LISTing specification? The answer: your address will be in the format as TITLES, the customer address comes out of the directory (under the NAME specified) and the third address is input into an account record (which has appropriate headings for an address) under the same NAME. We'll be happy to help you set up the input and format requirements in complex cases. If you want us to create the actual printer formats for a complex form, or several forms, please call first so we can arrange a LOW fee. Printer formats require a tedious trial-and-error process no matter how familiar you are with the program.

Program Execution

The Report Generator operates very similarly to the simple spread sheet display function. To format a spread sheet listing the modules LIST.MOD and FRMAT.MOD are used. To display the spread sheet the modules DISP.MOD, DIS.MOD, and NLIST.MOD are run in sequence. The Report Generator is set up in parallel fashion. The modules are named after the spread sheet modules to help you to identify them. The computer will run RFRMAT.MOD and RFRMAT2.MOD to format the report, and RDISP.MOD, RDIS.MOD, and RNLIST.MOD to display it. Since these modules require considerable disk space you

will hopefully have a two drive system (so they can be on the records disk) or at least a ramdisk to hold them. You could also place them on the program disk, but you may need to transfer some other modules off the program disk to make room.

FORM OF ENTRIES

In addition to specifying the exact position of any specific directory "line" or account data item, you can specify the exact positions of full dates, page numbers, titles, serial numbers, keyboard entries, and text files. You can also specify printer codes at any points in the form.

The math capability is also greatly enhanced. In a simple spread sheet listing you can add up columns and add or subtract elements from a running total column. In the forms generator you can add or subtract elements from one of three running total columns, and the three running totals may be added or subtracted from a grand total. The exact positions of these columns and totals are specified by you.

Windows

In any particular printout the amount of data in the directory or accounts which meets the listing criteria may vary widely. One customer may have only two payments while another may have ten. Or one may have ten references in the Directory while another has none. Thus you usually will not know how many lines account or directory data will take to print, so it would be impossible to specify the exact position of each data item in the format.

This problem is solved by specifying an area, or "window", in the form for directory and account data which will consist of a number of lines to hold the expected data. If the window is not large enough (vertically) to list all the data in a particular case an extra page will be printed (all positions of all information in the format will be the same). The extra data will be continued on the next page starting at the top of the window. Extra pages will again be printed until all the data is finished. This does not apply to text files since you'll know how much room to leave for these.

Obviously you want to leave enough room in your window to print all or most of the information in most cases. If you had a two line window, for instance, but 50 lines of data in the account, the computer would print 25 pages to list the information!

Additional pages will be numbered, so you will be specifying where to print the page numbers.

You may have a wide variety of information in the format. In the case of additional pages, necessitated by excess account or directory data, you may not want all the information to be re-printed on extra pages. Some, like a serial number, you may want only on the first page of each report. Thus you have the capability to specify in the format whether any

particular information will be re-printed on extra pages.

Some information will always be printed on one line, such as page numbers, name, date, total, or title, etc. This information requires only a line number and a tab. The very first line of your form is assumed to be line number 1--there is no "line 0". The tab determines which printer column to start printing the data. With an 80 column printer the tab number would range from 1 to 80--there is no "zero" tab setting (a zero for line or tab cancels printing the item). For account information the screen prompt for entering a single line and tab setting is:

```
1,t (data type)?      such as in:
1,t GRAND TOTAL?34,56
```

This entry would tell the computer to print the grand total on line 34 beginning in the 56th printer column.

To specify a "window" for directory and account information requires a beginning and ending line number, and tab. There is no "ending tab" (so it's not a true window!). The information will be printed to the right of your tab setting no matter how lengthy it is. Additional lines in the window will be printed vertically starting at the same tab setting, to form a column. For account data, the screen prompt to enter the beginning-ending line number and tab is:

```
1-1,t (data type)?    such as in:
1-1,t CREDIT?20-26,62
```

This would instruct the computer to list the data entered under the CREDIT heading on lines 20 thru 26 in a column, beginning each data item in the 62nd printer column. Again, if it did not all fit into these (seven) lines (more than seven records with a credit amount) an extra page would be printed.

Each form may have a full date and page number, and these will always be printed on any extra pages. Regarding all other information though, it is up to you to specify in the format whether to re-print that particular element on extra pages. To do this add the characters ",P" to any entry. If an entry does not end in ",P" that data will not be repeated on extra pages. Here are some examples of entries which specify the data to be reprinted on extra pages:

```
1,t DATE?34,56,P
1-1,t AMOUNT?23-45,10,P
THIS IS MY TITLE,1,32,P
RUN TOTAL TOTAL?45,56,P
[TEXTFILE,8],34-88,56,P
```

You may wonder why you would add a ",P" to account information since it is this information that signals printing of extra pages if required. The reason is that you may have other account information elsewhere in the form which does not take up it's "window", and may want this repeated on extra pages.

ACCOUNT DATA

If you specify totaling for a specific heading (ending the heading with a + or - in a LIST command) then the sign will be displayed in the format prompt, as int

```
1-1,t AMOUNT+?
1-1,t CREDIT-?
```

If math is specified for a particular heading then there will be two extra prompts after the heading: one for the line and tab setting of the simple total of data items (same as the total at the bottom of spread sheet columns), and one prompt to tell the computer which of the three running totals to sum (or subtract) the information into.

After you enter the line/tabs for the various headings, the computer will check to see if any numbers were summed into running totals 1, 2, or 3. If so it will ask for a line/tab setting for each that is used.

If there is one or more running totals being used, then the computer will ask for a line/tab setting for a grand total, which is the sum of the three running totals.

DIRECTORY DATA

To specify directory data to be printed in the form you must specify the corresponding SYMBOL from the SYMBOL TABLE of the information. You cannot include directory information which was not entered into the directory with one of the six symbols. After the SYMBOL you must specify a beginning and ending line number, and a tab setting, so directory information is also printed in a "window" and if there is not enough room in a particular case, extra pages will be printed. There are no screen prompts for entering the format instructions for directory information. The instructions are just typed on separate lines. Here is an example to include an address:

```
@,34-38,20
```

This means that the first address found (for a particular NAME) will be printed on lines 34-38, tabbed at 20. If the address does not take the five lines the extra lines will be left blank.

In the case of the address symbol only (@) you can include a sort code, so you can pick out one address among several under a certain NAME. Here is an example:

```
@P,23-30,45
```

Directory entries may include data to be printed on up to 5 lines, as in the case of addresses. Therefore you may specify just one of the 5

lines to be printed in the form. This would allow you to include just a zip code, or a single account number, for instance. Examples of the format entry are:

```
#-2,45-45,102,P
@3-2,34-39,2
#-1,2-3,150
```

You may have more than one entry under a NAME beginning with a symbol, so you still may require a window.

There is one further embellishment for directory data. You can specify just the first or just the last "word" from a single line in the directory to be printed. The "word" may be a number or any characters. To do this just add an F or L to the line number, as in:

```
@-3F,23-27,56
&-2L,23-23,60,P
@z-5F,145-150,1
```

Notice this gives you the capability to print continuous form letters including addresses and a "Dear Harold" line. Presently there is no way to print a comma after the first name, or a Mr. or Mrs. (unless they are all Mr. or Mrs.). You can't include the comma as a "title" because you'll never know how long the name will be. Still, this is progress!

TITLES, SERIAL NUMBER, TEXT FILES, ETC.

To include a title (or any formatted text) just type the title followed by a single line number and tab, as in:

```
DELINQUENT NOTICE,23,45,P
```

To instruct the computer to stop at a certain point when later printing the form, enter the letter T followed by a line/tab, as in:

```
T,23,45
```

To cause a serial number to be printed, enter the letter N followed by a line/tab, as in:

```
N,2,75,P
```

The serial number is mainly used when printing continuous forms from a "Batch Names List". The computer will stop during the printing of the first form for you to enter the starting number. The number will be incremented and automatically printed on all succeeding forms.

To print a MICROMOD text file in a "window" in the form, enter the file name and drive number in brackets (same as when formatting a "spread sheet form"). Then follow the closing bracket with a beginning and ending line number, and tab, as in:

```
atarimuseum.nl
```


[TEXTFILE.EXT,2],7-28,45
[DEMO.TXT,8],12-150,1,P

Finally, you may want the printer to be signaled during the printing of each form to change fonts, margins, etc. You must enter three numbers enclosed in brackets. The three numbers represent the number equivalents of the ASCII control characters as presented in your printer manual. If a particular instruction takes less than three characters (numbers) then enter 0 for the second and/or third number. Here are examples:

[27,71,0],7,45
[27,13,65],10,15,P

The codes in the first example would be presented in your printer manual as ESC "G".

FORMATTING PROCEDURE

To begin the format, use one of the first four LIST commands in exactly the same way as you do for simple spread sheet displays, including a + or - after any headings to be used for totaling. You may not want any account information in a particular report, but you must still use the LIST command to access the Report Generator formatting modules. So enter at least one account name. Later in the format you can skip the account information.

Capacity for naming accounts and headings

The computer can handle up to 104 named headings, but this is only theoretical because it assumes no account titles are entered. The maximum number of headings is reduced for each account title. If you enter 60 headings you can name 14 accounts. If you enter 50 headings you can name 18 accounts. If you enter 26 headings you can name 26 accounts. To determine the exact combination for any case, take the number of headings and subtract this from 104, then divide the total by 3. In any case, Reports require much fewer headings than spread sheets and general ledgers, so it is very doubtful that you'll ever have to worry about the number of heading and account titles. Almost all reports will have less than 10 headings from 3 or 4 accounts.

After you have named all the account information in LIST and INCLUDE? entries, do not press RETURN to the INCLUDE? question as you would normally do. Instead type a single period and then press RETURN, like:

INCLUDE?. (return)

(an R will also work)

The computer will load and run the RFRMAT.MOD module. When the module is loaded the computer will stop and ask:

PRINTER COLUMNS?

Enter the number of printer columns you'll be using for this report. The highest number you can enter is 156, which is approximately the number of columns allowed for "condensed elite" on most printers.

Next the computer will ask:

LINES/PAGE?

Enter the number of printer lines, vertically, on your form. The highest number you can enter is 156. Enter the total number from the top to the very bottom. Don't allow for margins. If you are printing continuous forms this is the number of carriage returns the computer will use before printing the next form. If you have a printed form you are formatting for, you might want to print line numbers on a sample form. Here's a short BASIC program to do so:

```

10 DIM A$(156):A$="...."
20 TRAP 20:?"NO. COLS";:INPUT C
30 FOR L=1 TO 156:A$=STR$(L):FOR N=5 TO C-4 STEP 5:A$(N)="*...."
40 NEXT N:LPRINT A$:NEXT L

```

You would enter these lines under the BASIC "READY" prompt, pressing (return) after each, position your form in the printer, and then type RUN (return). Enter the number of printer columns in the form, press (return). This will print the line numbers vertically, and a star in each fifth printer column on your sample form.

Next the computer will ask:

LINE/TAB FOR PAGE NO.?

Enter the position to print the page number, press RETURN. The computer will ask:

2nd LINE/TAB FOR PAGE NO. OR RET?

If you would like the page number printed in two locations on the form, enter a second position here. Otherwise just press RETURN. In either case, the computer will ask:

LINE/TAB FOR FULL DATE?

Though you may have partial dates printed in account information, most reports will require a full date somewhere on the form. Enter the position and press RETURN. The computer will ask:

2nd LINE,TAB FOR FULL DATE OR RET?

If you would like the full date to be printed in two locations, enter the second position here. Otherwise press RETURN. The computer will ask:

SHORT DATE OR LONG DATE
ENTER S or L, RET?

If you would like a short date, like 3/6/86 enter an S. If you would like a long date like 6 MAR 1986 then enter L. The exact date that will be printed on a particular form depends on the dates you enter in the LIST command. If you enter two dates, the date printed will be the last date. If you enter no date, the date will be the last day of the month, adjusted for the various months.

DATED RECORDS

Next the computer will ask:

INCLUDE ACCOUNT DATA(Y) OR RET?

If you do not want any Dated Records (account) data in the form, just

press RETURN. Even though you entered an account it will not be included in the format. If you do want the account data you specified in LIST and INCLUDE entries to be included, type Y and press RETURN. Assuming you typed Y the computer will ask:

PRINT AS \$\$ AMOUNTS?

If you would like account data numbers and totals to be printed as dollar amounts, enter the highest number you expect. If not, just press RETURN. The computer will ask:

RE-ENTER(Y) OR RET?

You can change your mind about the dollar amounts or enter a new high estimate. The computer will then display a screenful of information and examples of entries. At the bottom it will stop and display:

l-t NAME?

Enter the lines and tab for data under the NAME heading for the first account you entered in your LIST commands (the account name is also displayed).

The computer will list each heading in turn and you must enter the beginning-ending line number and tab.

If you wish for data under any heading NOT to be printed, enter a zero as the first line number or simply press RETURN to the prompt.

If a heading was entered ending in a + or - sign there will be two additional prompts:

l,t (heading) TOTAL?

Enter the line,tab for the single amount of the total of all amounts in the specified column. Usually the line number will be two lines below the bottom of the "window". The computer will ask:

SUM INTO RUN. TOT 1,2,3 or RET?

If you would like to sum the total into a running total column, enter the column number here. Otherwise just press RETURN.

After you have entered the positions of all the headings for the various accounts, the computer will ask for the tabs and math instructions for the running total columns (assuming you specified any). It will stop and ask:

l-t RUNNING TOTAL COL 1?

Enter the beginning-ending line number and tab for the specified running total column, usually the same lines as the account data but with a higher tab as in a side column display. The computer will then

ask:

l,t RUNNING TOTAL TOTAL?

Each running total column will itself have a total which requires a line and tab number. The computer then asks:

SUM(+) or SUBTRACT(-) RUN.TOT 1 INTO GRAND TOTAL?
ENTER +, -, OR RET?

The single total from each of the running total columns may be added or subtracted into the grand total. Enter the appropriate sign, or just press RETURN if you do not want the total to affect the grand total. The computer will then ask the same questions for the other running total columns (if used). It will then stop and ask:

l,t GRAND TOTAL?

Enter the single line and tab setting for the grand total figure. The computer will then ask:

RE-ENTER TABS(Y) OR RET?

If you enter Y here the computer will go back to the first NAME? prompt for the first account and allow you to re-enter all the page positions. This completes the format entries for Dated Records (account) data.

Spread Sheet "Windows"

You'll notice that you have complete flexibility in placing any information under any heading anywhere on the form. You could have the NAME in the top left corner, the date in the middle, an AMOUNT in the lower right, and the total of amounts in the top right of the form! This flexibility has a drawback in one special case, that of a spread sheet type of listing. You'll recall from your simple spread sheet listings that each record is listed on a separate line, causing blank spaces in columns for other records on that line. This is necessary so that all information from all records will have a place to be printed. Otherwise the data would not be consistent when read from left to right.

If you will purposefully want a spread sheet type of listing in an area on your form the computer must have a way of knowing this so that it will leave blank spaces in certain columns so everything will line up correctly. The way it will know is to look at the line numbers you enter for positioning. You will want to specify the same beginning line number for all data in the spread sheet, and this will be the signal to the computer. As long as you specify the same beginning line number for each heading, the computer will assume that data is to be handled in spread sheet fashion. If you will have multiple accounts in the spread sheet area they must be entered in sequence in the original LIST and INCLUDE? entries. This assures that the same beginning line number will be entered to all account headings for those accounts, and in sequence. You cannot place data under one heading in the spread sheet in another part of the

form--that would cancel the "spread sheet" instruction. However, the rule does not apply to totals, which are (usually) placed below the spread sheet "window".

Watch the Signs in Arithmetic

There are two points in the format where you will be assigning math to the same data: once when entering the heading in LIST commands with a + or -, which allows them to be summed into a running total, and then again when you specify for the running total to be added or subtracted into the grand total.

A common error would be to end a heading such as CREDITS with a - in the LIST command, and then specifying for the corresponding running total to be subtracted from the grand total. But remember--two minuses equal a plus! The result will be that the CREDIT data will be ADDED into the grand total, not subtracted as you intended. In these cases, either add the data into the running total, then subtract it from the grand total, or use a - sign in the LIST commands and then ADD the running total into the grand total. The net result will be that the data is subtracted from the grand total. Which method you choose will depend on what you want the total of the running total column to mean when displayed in the form.

FORMATTING FOR DIRECTORY INFORMATION

After you press RETURN to the "RE-ENTER TABS(Y) OR RET?" question the computer will load the second format module, RFRMAT2.MOD and then ask:

INCLUDE DIRECTORY DATA(Y) OR RET?

Type Y and press RETURN if you would like to include directory information in the form. A full screen of information and example entries will be displayed.

There are no prompts for directory format entries other than a question mark. You must make a format entry, as described earlier, for each directory data type you wish to include, and then press return. You can include up to 10 entries (ten data types), each with separate "windows" on the form. The form of entries is:

SYMBOLsortcode-LINEfirst or last,beg-end line,tab

The sortcode, LINE, and first or last are optional (see previous instructions). The computer will give you complete examples. Here are some others:

&,34-35,67

Print & info on lines 34-35, tabbed at 67.

&-3,34-35,67

Print only the third line of & entries on lines 34-35, tabbed at 67.

@4,34-38,1,P

Print the address with the sort code of "4" on lines 34-38, tabbed at one. Reprint the address on any extra pages.

#-1F,23-23,56

Print the first word in the first line of # entries on line 23 since there will only be one entry per NAME, and tab these at 56.

#-1L,23-23,56

Same as previous example, but print the LAST word of line one.

TITLES, TEXT FILES, ETC.

When you're finished entering format information for the directory, press RETURN without making an entry to the ? prompt. The computer will ask:

INCLUDE TITLES/TEXT/SER#(Y) OR RET?

Every form needs a title somewhere, right? So type Y and press RETURN. Otherwise just press RETURN.

The computer will display a screenful of information about titles, etc., and example entries. As in the case of Directory format entries, there are no prompts for title entries other than a question mark. Specify each data type and page position on a single line, then press RETURN. There is no specific limit on the number of entries, but all characters entered must total less than 480 characters. This is not checked since you'll never require near that many. For voluminous text create a text file and just specify the file name in the format. As opposed to account and directory format entries, title information requires only one line number and one tab number, i.e., not printed in "windows". In the case of text files, the line number will be the beginning line number and the entire file will be printed. You will know in advance how many lines will be used since the length of the text is constant and you can check the number of lines by reviewing the MICROMOD text file with the WRITE selection on the Utility Menu.

There are five data types that you can enter: Titles, text file names, serial #, keyboard input, and printer codes. See previous instructions in this chapter. The computer will list the five types and give examples. Here are a few more:

ACME CONSTRUCTION CO. INC,3,3,P

Print the words "ACME CONSTRUCTION CO. INC" on line three beginning in the third printer column and reprint this on any extra pages. YOU CANNOT

USE COMMAS WITHIN TITLES!

T,23,45

Before printing each form, stop for keyboard input to be printed on line 23, tabbed at column 45.

N,3,108

Before printing the first form, stop for keyboard input which will be the beginning serial number, to be incremented with each form and printed in the upper right-hand corner on line 3, column 108. Don't repeat on extra pages in a particular form.

[PASTDUE.TXT,8],34,5

Print the MICROMOD text file named PASTDUE beginning on line 34 with a left margin of 4 columns. The file will be found in drive #8 (ramdisk) when the form is being printed (assumes it will be copied to the ramdisk using BACK-UP/COPY FILES on the Utility Menu before printing).

[27,71,0],33,1

[27,72,0],64,1

Set the printer to boldface type (on an Epson) before printing PASTDUE and, since the text will end before line 64, cancel boldface after printing the letter.

STORING THE FORMAT

When you're done entering title format entries, press RETURN to the ? prompt. The computer will ask:

ENTER TITLE OF FORMAT?

Enter a name using from 2 to 8 capital letters. Each Report format is stored in its own file, so there is no limitation on how many formats you can use, other than disk space available. The computer will then ask:

DRIVE #?

Enter a single digit to specify the drive on which to store the format. You do not need to have the same disk in the same drive when printing the form--the computer will search the system for the format. This is a special service for Report formats, not included in most other MICROMOD functions. You could copy the format to drive #8 (ramdisk) with BACK-UP/COPY FILES before printing and the file will be located much more quickly than in drive 2 or 3, etc.

PRINTING OPERATION

Once the format has been created, the actual printing operation is extremely simple. Just use the format title in the last LIST command as you would for any "listing name" created with the Dated Records program. The only difference is that you must end the format title with a period, such as in:

```
LIST FORMAT.,208      or,  
LIST FRED,PD,NOTICE.,2,1,87,2,16,87
```

In the second example, FRED is an abbreviated NAME, PD is a spec (data item in a record indicating "past due"), NOTICE is the format name, and the two dates were chosen because they might include a beginning balance and some additional charges up to the present date. The date of the report would be 16 FEB 1987.

The modules that will be run to print the report are: RDISP.MOD, RDISJ.MOD, and RNLIST.MOD.

IX. MICROMOD UTILITIES

CHAPTER 25 -- FILE INFORMATION AND MISC. UTILITIES

LISTING MISC. FILE INFORMATION

Various functions on the Utility menu, including all CHANGES/DELETES functions, are designed not to effect any data if you skip through them by continually pressing RETURN. Much program information can be listed this way:

The SHOW DISK module will list all file names, sectors used by each file, total sectors of files display in a particular listing, and sectors remaining.

The FILE CAPACITY USED function will list all account record months on a disk. It will also display the alphabetical brackets used to store Directory records on a Directory disk.

The CHANGE/DELETE modules can also display much information:

AREA NAME will list the areas on the program disk.

The RECORD change/delete module will list all records for any account as of any date.

The TITLES OF ACCOUNTS module will list all individual Account titles in three columns which can be printed.

The HEADINGS OF ACCOUNTS module will list all headings for any account.

The LISTING FORMATS module will display all "listing format" names. If you try using a title in the last LIST command and the computer tells you the format can't be found, this is where you would come to check the title.

FILE CAPACITY USED -- FILE INFORMATION

Access this function with the FILE CAPACITY USED selection on the Utility Menu. The module CAP.MOD will be loaded and run. This module displays the percent currently in use of the current account records file, directory records files, the NAMES list, and the "listing formats" file. The operation of the module is self-explanatory and requires no entries other than "Y" or RETURN.

ACCOUNT RECORDS

Account records are stored by the month in the Master Program. Total capacity per month is used by the records stored in individual files

holding from about 450 to 600 records each, depending on the size of the records. File management is completely automatic.

You do need to check the accounts disk periodically ("SHOW DISK" or "QUICK CHECK"). If there are less than 81 free sectors available (41 for double density), start a new records disk. If you are using more than one records file per month (see below), then you should check the disk at the end of each month. Start a new disk when there are not enough sectors left for another month (average the number of sectors used for previous months and add a safety factor of 80 single density sectors or 40 double density sectors). In most applications it will take months, if not years, before the disk becomes full.

Home users have little need to know how Account files are managed during the first year, so you may want to skip this section for now if you are not curious about what the files on the account disk represent.

FILE NAMES OF ACCOUNT FILES

The first (or "current") file name for the month will begin with the letter R, followed by the last digit of the year, followed by two digits for the month. The current file for February 1986 would be named "R602."

When the current file is filled the number for the day in the date of the last record is added to the end of the name. In the example, if the file became full on February 12, 1986 the file would be renamed "R60212" and closed. A new current file (R602) would be opened. This will happen when you are entering records. The computer will display, "CLOSING FILE R60212" (or whichever file is being closed). It will then display "OPENING FILE R602" upon entering the next record for the month as a new current file is opened.

If there is already a closed file ending with the day number, the number will be incremented in the new closed file.

Only the current file is shown in the "FILE CAPACITY USED" module because all other (closed) files will be full. You will see the files when you show the disk (SHOW DISK) or when making back-ups with BACK-UP/COPY files. If you store less than about 500 records per month there will be no closed files.

When using LIST commands or editing account files, the computer will find any files beginning with R followed by three digits. This gives you (and us) flexibility in coding files, making files "invisible", etc. For instance, the computer will add a "P" or a "PP" to the file name when storing beginning balances (statement INIT function). It will add an "R" to files when stored on a Remote Back-Up disk. This helps you (and the computer) to identify these files. If you RENAME an account file to end in an S, neither that file or any subsequent (older) file will be loaded into the ramdisk upon power-up.

DIRECTORY RECORDS

There are 27 files for DIRECTORY records, one TEMPORARY file on the PROGRAM disk, and 26 files on the DIRECTORY disk. Each file will hold about 170 addresses and phone numbers. If other kinds of information are included this number will be somewhat less. For instance, if you had a third category USED AS OFTEN as addresses and phone numbers, and the average entry was 10 characters long, you would have room for about 142 entries including addresses, phones, and the third category. If the average entry for the third category were 30 characters, this number would be reduced to about 110.

The total capacity in the 27 files for addresses and phone numbers is about 4,600, but only about 3,000 if you use only one directory disk because one disk will not hold 26 full files (but a hard disk would, and probably the 3 1/2" drives also). This is intentionally done because names will be distributed unevenly making the files different sizes. The records are sorted according to the assigned NAME labels into 26 alphabetical "brackets", using the first two letters of the NAME label. The file names (DA-DZ) DO NOT correspond to the letters in the name, but represent alphabetical brackets that distributes records similarly to the frequency of last names in a telephone book.

If you are using hundreds of NAMES which are not abbreviations for last names or company names, the distribution will be different and some files may become full before the disk becomes full. You can see if this is happening by accessing this module. If any of the files are approaching 100% capacity you should either start a new directory disk, or intentionally use NAMES that will be stored in the smaller files (brackets). When you change any NAME using the NAMES selection on the Utility Menu, entries for that NAME are automatically transferred to the file corresponding to the new NAME. This is a shortcut to re-distributing NAMES in the Directory disk files.

You can use additional DIRECTORY disks, with an additional 26 files on each, but you must know before hand which disk a certain record will be on before trying to access it--there's no provision to search multiple disks other than to repeat the SHOW command with a different disk inserted. Furthermore, you must enter only information for one directory disk between UNLOADs of the TEMP DIRECTORY (see UNLOAD instructions) because there is no provision in the UNLOAD function to distribute records to more than one directory disk at a time.

The reason a TEMPORARY directory file is used on the program disk is to save time when entering addresses, to be able to list recent entries quickly without accessing the DIRECTORY disk, and to permit those who have less than 170 current addresses and phones to store to dispense with the DIRECTORY disk altogether. At any time you can transfer the TEMPORARY file to the DIRECTORY disk using the "UNLOAD TEMP DIRECTORY" selection from the Utility Menu.

SHOW commands will list information from the TEMP DIRECTORY first, and then from the DIRECTORY disk. Records are listed alphabetically in the

TEMPORARY directory, but they are "roughly" alphabetized on the DIRECTORY disk into 16 groupings, distributed similarly to the distribution of names in any standard telephone book. Complete alphabetizing capability is also provided with the "Y DIRECTORY SORT" selection on the Utility Menu.

"NAMES" FILE

There is only one NAMES file for each program disk. It is 10,000 characters long. Each abbreviated NAME takes up one additional character ("white arrow") in the file besides the number of characters in the abbreviated NAME. The abbreviated NAME "DOEJ" takes 5 characters. If the lengths of your abbreviated NAMES average 3 letters you can store 2,500 different NAMES on a program disk. An average of 4 characters allows 2,000 NAMES. An average of 9 allows 1000 NAMES.

The size of the NAMES file stated here assumes you are using SpartaDOS D2.3e. Other DOSes will give you less room. Upon power-up the computer will tell you how many FOUR CHARACTER NAMES you can store with the DOS you are using.

Few small businesses have more than this many CURRENT NAMES. In fact, at this writing we are very much surprised that with versions 2.4 and 3.0 we have not encountered one application which is using more than a few hundred. It seems our estimates of the number of NAMES required was much too high. In any event, if you need more NAMES, you can use categories (see Chapter 2), or shorten some names. If you ever need to re-organize the names file, you can make a copy of your Program disk (including the NAMES file) and mark it to correspond with the current records disk(s). You can then change various obsolete NAMES to new ones and start new records disks to correspond with the updated NAMES list. You will have one NAME such as "XX" for unimportant names (such as point-of-sale or miscellaneous purchases).

If you are using the Dated Records Program for inventory (see Appendix 12) or for other specialized purposes such as library references, etc., and you have more than a hundred categories of items, it is suggested you use a separate program disk.

LISTING FORMATS

The file which holds listing formats is 10,000 characters long. A spread sheet listing takes up about 200 characters, an income statement from 400 to 800 or more. Thus you have plenty of room for all the formats you will need. For example, you may have 10 spread sheet formats, a few trial balances, a few income statements, and several other statements, and still have 2,000 characters left for new formats.

The only problem that arises is when you make minor changes to a statement format and then name the changed format. There is not enough room to store numerous revised statements, each with a minor improvement. You should delete old statement formats after you update them.

Report Generator formats are not stored in the format file (file D) but each format is stored in its own file. Therefore the capacity of Report Generator formats is limited only by disk space.

ORDER/CONDENSE FILES

Access this function by selecting ORDER/CONDENSE FILES on the Utility Menu. The module FXREC.MOD will be loaded and run.

This module serves two different purposes. First it allows you to pre-sort account records according to date so that dates will be sequential in listings. Secondly, it condenses account files, directory files, and the "listing formats" file so that they take up less room on the disk.

DATE SORTING

You might not enter records in sequential order with respect to dates. Account records will be sorted by date as well as condensed. The computer will stop and display:

ENTER MONTH, YEAR OF MONTH TO SORT?

Enter the number of the month, a comma, and the two last digits of the year number only. Do not enter a number for the day. If you are using just one drive with a separate records disk, the records disk must be inserted before you press RETURN to the date question.

All account records files for the month you enter will be sorted and condensed. If you are storing more than about 500 records a month, there will probably be "closed" files for the month (see FILE CAPACITY USED information on account files). This module will sort all records in all files for the month as if they were in one big file. Thus the records are re-distributed in the files and the file sizes will seek an average length.

The size averaging is especially apparent when using the BATCH STATEMENTS function to print statements of invoices. The previous balances will be pushed into the next month in a file ending with the letter P. It will usually not be a full file. But after the ORDER/CONDENSE function sorts the new month it will be usually be larger, meaning it contains additional information from the other files. The file lengths are displayed as the function operates.

As the records are sorted you will see strange characters moving at the top of the screen. The screen is used as a temporary storage area so that you can see that the program is working during long sorts.

After the sorting is done for the month you entered, the "ENTER MONTH..." question will be displayed. This is an opportunity to sort

another month. The sort will take from a few seconds to as long as an hour depending on the size of the application.

CONDENSING OTHER FILES

After you press RETURN to the "ENTER MONTH..." question without making an entry, the computer will list other types of files, one at a time, and you are required either to type Y and press RETURN to condense those files, or to press RETURN without typing Y to skip those files. No sorting of these files is done.

The files that may be condensed are Temporary Directory, Directory Disk, and the "listing formats" file (file Q).

After you press RETURN to the "listing formats" question the computer will return to the Utility Menu. You may want to try SHOW DISK and see how many sectors were saved on the disk due to condensing files.

LOAN SCHEDULE/INTEREST/PAYMENTS, COMPOUND INTEREST

Access this function by selecting LOAN STATISTICS on the Custom Menu. The module PSCHED.MOD will be loaded and run automatically. PSCHED.MOD is shipped on the Auxiliary Disk.

The computer will stop and display:

```
LOAD SCHEDULE(L),COMPOUND INT(C) OR RET?
```

If you press RET the computer will return to the Menu. If you press C the computer will ask the first question regarding compound interest calculations. The compound interest function will be discussed after the loan schedule instructions.

LOAN SCHEDULE

Assuming you press L (loan schedule), the computer will ask you to enter the amount of the loan and then the yearly interest rate. Do not enter dollar signs or commas. Enter the interest rate as a percent, not the decimal equivalent, i.e. 12.5 not .125. Press RETURN after making these entries.

The computer will stop and ask if the monthly rate is equal to the yearly rate divided by twelve. Normally it is, but some institutional computers use formulas that make the monthly rate slightly higher than the yearly rate divided by twelve. This is of concern only if you are trying to duplicate an existing payment schedule.

Next the computer will ask for the term of the loan, or number of months. Enter the number of months or periods, not the number of years.

The computer will ask if there will be a balloon payment, or a lump sum payment at the end of the term. If so, enter the amount of the balloon payment. If not, press RETURN without making an entry.

Next the computer will stop and ask if the payment per period is known. If you are trying to duplicate an existing payment schedule, an attempt can be made to approximate the method used by the institutional computer. This is done by refiguring the interest rate based on the payment which has been calculated (most likely) by a different method.

If you entered a payment amount, the computer will stop and ask if you would like to refigure the interest. If so, the calculations will take a minute or more since a trial and error method is used. If not, the new payment figures will still be used in the loan schedule, but there will most likely be a negligible discrepancy in the interest figures near the end of the schedule.

If you re-calculate interest, the figures should match your schedule within one cent, if a standard method has been used to calculate the existing schedule. The one cent difference, if there is one, will be due to differences in rounding-off procedures, and possibly to the use of a different number of significant figures used in calculations between the two computers. The Atari computer uses 8-9 significant figures.

Next the computer will ask if you would like to sum the interest figures between any two periods. This is most useful at tax time to add up the interest expense or receipts for the tax year.

Next the computer will display the loan statistics and ask if you would like to print the schedule.

It will then ask if you would like to print a "total interest" column. Creditors often do not want lenders to see the total interest figures to be paid in black and white!

The schedule will list the payment number, principal, payment and interest due as of each period, similar to a home mortgage schedule.

COMPOUND INTEREST

Backing all the way up to the "LOAN SCHEDULE(L), COMPOUND INT(C) OR RET?" question, if you press C (compound interest) the computer will ask:
PRESENT VALUE OR RET?

note: this function calculates compound interest only. The other parameters must be known.

Enter the total amount of the loan or principal amount of the debt instrument. The computer will display:

Enter the nominal interest rate as a percent, not as a decimal, i.e. 12.5 not .125

Next the computer will ask:

COMPOUNDED DAILY(Y) OR MONTHLY(RET)

Enter Y (return) or simply press RETURN to choose the correct compounding period. The computer will then ask for either the number of days or the number of months, depending on which you selected.

You'll find that different banks use different numbers of days to represent a month or year. The number of days might be 360, 365, 365.25 or anything in between! Some use "average months" which could be any of these figures divided by 12 to get a monthly interest figure. If you are trying to duplicate the interest rate calculated by a lending institution you may have to experiment with these different figures for the number of days.

After you enter the number of days or months, the interest will be displayed both as a dollar amount and as a decimal amount, such as:

INTEREST=\$127.47 (127.47188)

ARITHMETIC -- CALCULATOR

Access this function by selecting ARITHMETIC on the Custom Menu. The module CALC.MOD will be loaded and run automatically. CALC.MOD is shipped on the Auxiliary Disk.

The module operates similarly to a calculator in that the numbers and operators are printed upon pressing the keys.

Pressing the = key will perform the operation. Pressing the S key followed by a number between 0 and 9 will store the result in the indicated memory. Pressing the A key will add (sum) the result into the memory location. You can then press the R key and follow with a number from 0 to 9 during the calculations to use the contents of that memory location in the calculations.

If you press the Q key after typing a number or memory location, the number will be immediately transformed into its square root as on a calculator and you can proceed with the calculation.

When storing a result with the S or A key, you can store or sum it over and over into the same or different memory locations simply by pressing S or A again followed by the new memory number.

Pressing L will list the contents of all memories. Pressing Z will clear the contents of all memories.

The computer displays an entry key showing all the valid entries.

Pressing D will re-display this information at any time. Press RETURN when finished to return to the Custom Menu.

CALENDER

Access the calender function by selecting CALENDER on the Custom Menu. The module CAL.MOD will be loaded and run. CAL.MOD is shipped on the Auxiliary Disk.

The computer will stop and ask for a beginning date. Enter a full date, even though the day number will be ignored. Use the last two digits of the year only in the year number. Calenders may be printed for the 20th century only. A three month calender will be displayed beginning on the first of the month of the date you enter.

After the calender is displayed the computer will again ask for a beginning date. If you do not wish to display another calender, press RETURN without making an entry and the computer will return to the Custom Menu.

THE CALENDER WILL BE DISPLAYED ON THE SCREEN ONLY -- YOU CANNOT PRINT THE CALENDER ON THE PRINTER. However, the Dated Records program will allow you to print a much more useful calender of any length, with blank boxes for your use. This CALENDER function is just a quicker way of checking on a day/date.

TIME

Access the clock function with the TIME selection on the Custom Menu. There is no module for the time, it is included in the MICROMOD systems programming. The computer will stop and ask for the current time. Enter two numbers separated by a comma to represent the hours and minutes such as:

3,45

for 3:45 AM or 3:45 PM. The time will be displayed in a special "white" window at the top right of the screen from then on as long as the computer remains on. It will be displayed during the use of all programs and functions except the WP23 word processor program which cancels the display.

You may cancel the display of the time anytime by selecting the function and pressing RETURN to the TIME question without making an entry.

Displaying the time cancels "attract mode" which means the dimming of the screen after lengthy periods of use. When displaying the time do not leave the screen on for long periods while the computer is unattended. Over time this may cause "image burn" on the screen. You can turn the screen off very simply by pressing the TAB key. Pressing TAB again turns it back on.

Some people find "attract mode" to be annoying. If you do, displaying the time will keep the screen at full brightness at all times. Isn't it nice to know that new monitors cost only forty bucks at your local TV discount store?

If you are displaying the time when printing invoices, the time will be printed on the invoice next to the date.

INIT PROGRAM

Access this function with the INIT PROGRAM selection on the Main Menu. No module will be loaded as the menu module MENU.MOD handles the function.

Many users use multiple copies of the MICROMOD program for different uses. You cannot simply insert a different Program Disk and Records disk. The two files N (NAMES file) and SYMBOL (Symbol Definitions) are used often in numerous MICROMOD functions. Most often they are kept in RAM (computer memory) instead of loading them from the disk every time they are needed.

When you change programs these two files (N and SYMBOL) must be re-loaded from the disk. INIT PROGRAM does this automatically. The new Master Program disk must be inserted before selecting INIT PROGRAM for the proper files to be loaded.

If you have data files in a ramdisk INIT PROGRAM is not sufficient to reload the ramdisk files. The ramdisk must either be re-loaded (re-boot) or "turned off" with respect to data files, but not modules (RAMDISK INST. on Utility Menu).

IMPORTANT POINTS AND RULES FOR EXPERIMENTERS (*)

The TITLES OF ACCOUNTS selection will print all account titles.

Reserve B1 (SD) or 41 (DD) sectors on the records disk and ramdisk.

Account file names all start with "R" followed by numbers.

If NAMES average 4 characters there will be room for 2,000 NAMES.

ORDER/CONDENSE will re-distribute account records if there are multiple files in one month.

Displaying the TIME disables "attract mode".

MENU SELECTION: WRITE

This selection allows you to create and print MICROMOD text files (see Chapter 1) directly without using the word processor and converting the files. However there is no editing capability--other than re-typing the entire file. So the WRITE selection is convenient for short messages only.

The WRITE selection offers a nice embellishment: you can specify any number of copies to be printed, and specify a number of lines to be skipped between each copy. Therefore it is very useful for printing multiple announcements, post cards, and even labels (if in one column).

Using the WRITE selection you can review or print any MICROMOD text file, including those converted from WP23 (word processor) files. You might want to do this if you were printing multiple copies of a letter, for instance.

But the primary reason for the WRITE file is to create short text files to be included in Dated Records program printouts ("FORMAT SPREAD SHEET FORM") and Report Generator printouts. It will be faster than the word processor for any such text files that are less than a few paragraphs in length.

"WRITE" PROCEDURE

Select the WRITE function by pressing W on the Utility Menu. No module will be loaded as this function is included in the UMENU.MOD module (Utility Menu).

The computer will display:

PRINT FILE TYPE or RET?

If you press the T key (type) the computer will display "ENTER LINES TO PRINT - F TO FINISH", followed by a question mark underneath. Type a line of text, up to 119 characters (not more than 80 for an 80 column printer) and press RETURN. A new question mark will be displayed and you can enter a second line, and so on.

If you press RETURN without entering any characters to any "?" prompt a blank line will result in the file.

When you are through typing the text you must enter the single letter F to let the computer know you are finished.

After you enter F and press RETURN the computer will display:

PRINT REVIEW STORE QUIT

If you press R the entire text will be displayed on the screen. If you press Q the Utility Menu will be displayed. If you press S (store) the computer will ask for a file name and line # to store the file.

If you press P (print) the computer will ask:

WOULD YOU LIKE MULTIPLE COPIES?
ENTER NO. OF COPIES OR RET?

If you press RETURN there will be only one copy. If you enter a number the computer will then ask:

LINES BETWEEN COPIES?

Enter the number of blank lines (carriage returns) you would like between copies.

As the copies are being printed the computer will display the total count of copies after each copy.

After printing or displaying the text file(s) the computer returns to the "PRINT FILE TYPE or QUIT" question.

MENU SELECTION: RAMDISK INST.

When you select this function on the Utility Menu the computer will display:

WILL LOOK IN RAMDISK FOR FILES (Y/N)

MODULES	yes
USER FILES	yes
RECORD FILES	no
DIRECTORY FILES	yes

Whether a "yes" or "no" is displayed depends on the current status.

The computer then will list the four categories of files, one at a time, followed by a question mark. You must enter Y, N, or RETURN. If you enter Y then signal for that category will be changed to a "yes". If you enter an N the signal will be changed to a "no". If you press RETURN to the first "MODULES?" prompt the computer will return to the menu. If you press RETURN to any of the three remaining prompts the computer will re-display the status of each type of file.

Why turn the ramdisk on and off?

If you would like to read account information off a records disk which contains the same dates as dates of files in the ramdisk, then you must turn the ramdisk off first. A prime example would be reading the files on a Remote Back-up Disk. Otherwise the computer will read files in the ramdisk only. The same applies to different directory disks, or user files. You may want to load a module off a disk rather than the ramdisk if you have an updated module or think the module in the ramdisk is damaged in some way.

The main purpose of this function is to turn the ramdisk on when some other function in the program has turned it off. Ramdisk management is an extremely complicated function--even for MICROMOD! Many functions turn the ramdisk off momentarily for various reasons, and are then supposed to turn it back on. Though we have tried to provide safeguards against all the expected program interruptions, we cannot be sure we've allowed for every possibility. If you notice that the drives are running when they shouldn't be, this function will let you know what the computer "thinks" is in the ramdisk, and will allow you to change its "thinking".

Whenever you return from the Word Processor the ramdisk will be "turned off". You must access this function and turn it back on manually (the information will still be in the ramdisk).

MENU SELECTION: ENTER MODULE

This allows you to run a module for which there is no menu selection. It allows us to provide custom modules to customers without having to revise the menu.

You'll most often use this function to re-run the ramdisk load module which is named "RMDSK.SYS". Though named as a system file it has the same structure as a module. This is provided for your convenience and is not fully tested. Be sure to check results with SHOW DISK to determine the success of the loading operation. If files already exist in the ramdisk they will just be loaded from the ramdisk and re-stored back in the ramdisk. You can skip various screens by pressing the keys indicated at the top of each screen. You can use "wild cards" (see DOS manual) in the BACK-UP/COPY FILES function to load groups of files into the ramdisk, and this will be easier/more reliable in most cases.

MENU SELECTION: GO PROG.BAS

This selection will automatically run any BASIC program named PROG.BAS. When you select this function by pressing G the computer will display:

Pick a Drive:

1 2 3 4 5 6 7 8

Press the key corresponding to the drive on which the PROG.BAS program resides.

In order to return to MICROMOD without re-booting or re-loading the ramdisk, your BASIC program must transfer control to this line of BASIC:

```
10000 POKE 764,4:RUN"D:\MDD3.SYS"
```

The line number is not important.

MENU SELECTION: J GOTO DOS

When you make this selection by pressing J the computer will display the SpartaDOS "D1:" prompt or the DOS 2.5 menu (if the file DUP.SYS is on the disk in drive #1). You can then perform any DOS function.

To return to MICROMOD without re-booting or re-loading the ramdisk, return to the BASIC "READY" prompt (type CAR with SpartaDOS or "B. Run Cartridge" with DOS 2.5) and type the following line of BASIC:

```
10 POKE 764,4:RUN"D:MOD3.SYS"
```

and press RETURN. Then type RUN (return) to run this one line program.

MENU SELECTION: DISK SEARCH

This selection on the Utility Menu allows you to search an entire disk or any group of files on a disk for a "string" of characters or two "strings" at once.

It is the quickest way to search for information, especially if you are unsure as to where it is. You can search an entire disk with the "filespec" Dn:k,* (n=drive number). However the displays cannot be printed, and the information is displayed in "raw form"--all the graphic characters MICROMOD uses for housekeeping will also be displayed. Any information which is indexed will be unidentifiable (except for NAMES). Still you'll be able to locate the information you need in the large majority of cases, or at least get enough information to use the more ordinary commands to display the information properly.

When the computer displays the information, it will simply list three lines of characters from the file, with your "string" in the middle of the middle line. So you'll get about 60 characters "before" and "after".

The file name will be displayed at the top of the three lines. The NAME label will also be displayed if you elect for NAMES to be included. Since MICROMOD does not know ahead of time what type of record will be displayed it will do some intelligent interpreting to try to locate the NAME. It will find it in the large majority of cases, but not always.

DISK SEARCH PROCEDURE

After you select DISK SEARCH the computer will ask for a "filespec" and give you four examples of filespecs, some using "wild cards". The examples will cover searching account files, all directory files, all inventory files, and the NAMES file. The drive numbers used in the examples ARE ONLY EXAMPLES.

You must enter a "filespec", and use "wild cards" to search groups of files. No attempt is made here to teach you what a "filespec" is or what

"wild cards" are or how to use them. This is covered completely in your DOS manual.

After you enter the "filespec" the computer will ask you to enter a "string" to search. It will then ask you to enter a second "string" to search (this is optional—you may just press RETURN). The main convenience of being able to search two strings at once is the case where you cannot remember if you entered information in "all caps" or "lower case". So you can search either way.

Next the computer will ask if you wish for NAME labels to be displayed. Enter Y (return) to get the NAMES or just press RETURN if you don't care about NAMES.

The searching will then take place and any matches will be displayed. The computer then returns to the "ENTER STRING OR RET?" question so you may search another string(s) directly. If you have no more strings to search, press RETURN to get back to the "FILESPEC?" question, and then RETURN again to get back to the Menu.

MENU SELECTION: QUICK CHECK

Select this function by pressing Q on the Main Menu. There are no prompts or entries as this is just a display function.

The computer will list the remaining capacity in bytes of each disk in the system including drive #7 (BASIC ramdisk) and drive #8 (ramdisk) if present.

The computer will attempt to determine whether each disk is formatted in single density or double density, and it will succeed in almost all applications. If it does not, it will ask you to enter the density (D or S).

The computer will offer various advice if capacities are found to be dangerously low in particular cases. Examples are:

MASTER DISK TO FULL--SUGGEST YOU MOVE A MODULE OFF

WILL HOLD ABOUT 34 MORE INVENTORY RECORDS

IF PRINTING STATEMENTS AND YOU EXPECT MORE THAN 312 UNPAID INVOICES YOU NEED 28 MORE FREE SECTORS IN RAMDISK

There are various other advice messages. The computer will not check capacity required to read a Remote Disk. However, the requirements are about the same as those for INITing for Statements, so follow the same advice as that given for statements if you intend to read a Remote Disk.

Obviously this function should be used often--every day! And certainly before INITing for statements. It runs fast and there is very little inconvenience.

Why Do I have to worry about Disk Capacities?

MICROMOD will allow you to attempt to store information on a full disk--most programs will not. But there is a very good reason! This makes the program "open ended" with respect to capacity utilization. It will utilize any capacity available in a hard drive, ramdisk, etc. If we were to put the limits in, allowing "bytes remaining" messages here and there, then you would be disappointed when you purchased your first upgrade!

Secondly, checking the remaining sectors on a disk to prevent errors takes time, just like reading a disk file. So this makes the program operate faster.

Using MICROMOD for a full function business implementation requires good disk management. The QUICK CHECK feature makes this a much simpler job. Use it!

HINTS

You can read MICROMOD text files (see chapter 1) directly using the WRITE selection on the Utility Menu, or the H SUPPLEMENT selection on the Main Menu. However the WRITE selection is limited to reading files of 10,000 or less bytes in length. The H SUPPLEMENT selection can read files 20,000 bytes in length.

X. DISK MANAGEMENT

CHAPTER 26 -- INTRODUCTION

Since MICROMOD is a database program a proficiency in some fundamental DOS operations is required: Formatting disks, duplicating disks, copying files, renaming files, and deleting files. It is up to you to learn these functions prior to operating MICROMOD, using your DOS manual. This section of the manual covers some DOS functions because you may find these easier to learn if explained twice, and we can relate the functions to the MICROMOD program. But this is not a DOS manual! If you have difficulty in understanding this section please go back to the DOS manual and practice the various functions mentioned above.

The first step in learning disk operations is to learn how to show the files on a disk, and to recognize the function of the file, or at least what type of file it is. This section starts with the SHOW/FORMAT DISK function. Essential information on identifying files will be found in the FILE CAPACITY USED information in Chapter 25 and Systems Configuration information later in this section and in Chapter 29.

Since MICROMOD is a large modular program which supports many different systems, ramdisks, drive densities, etc., a knowledge of the functions of files, which ones can be moved, which ones grow larger, etc. is important to best utilize the program. Later in this section information will be presented to help you to learn how to move files and copy disks. Finally, there will be much information to help you to distribute MICROMOD files and modules among various disks to best suit the hardware you are using.

MENU SELECTION: SHOW DISK

Access this function by selecting SHOW DISK on the Utility Menu. The module SHDISK.MOD will be loaded and run. This module allows you to list the file names on a disk, including the number of sectors occupied by each file and total sectors of displayed files, the total number of files, and the remaining free sectors on the disk. The list may be printed if you press the space bar to signal the printer immediately after selecting SHOW DISK.

SHOW DISK also allows you to delete any file or rename any file listed.

SHOW DISK is normally the most frequently used module after the menus. It should reside on the Master Program Disk if possible and should be loaded into the ramdisk if you have one.

Procedure

When you press S to select SHOW DISK the computer will stop and display:

ENTER DRIVE NUMBER OR RET?

If you press RETURN the computer will return to the Menu. This is how you will exit the function. Enter the number of the drive (1-8) that contains the disk you wish to look at, and then press RETURN.

The computer will stop and display:

Insert disk in drive #n
Enter F for Fast
ENTER FILENAME OR RET?

If you do not already have the disk you wish to look at in the specified drive, you should insert it here. You may enter any file name here, assuming you know which file you are looking for. You may use "wild cards" as outlined in the DOS manual to list certain groups of files. After entering the file name, press RETURN. If you press RETURN without making an entry all files on the disk will be listed. Filenames will be displayed the same way you enter them into the computer, with no spaces in the file name.

If you enter F (return) the file names will be displayed much more quickly in two convenient columns, but they will not be displayed the same way you would enter them, but with spaces in the file name. This is confusing to new users. For them we suggest they do not enter F until they are more familiar with DOS procedures.

Assuming you do not enter F, the files will be listed twenty at a time, and you must press RETURN to continue the listing (actually any key will work). Those familiar with DOS and other Atari programs will notice two differences in the listing. First, file names are listed the same way they are entered, with no spaces between the first characters and "extender". This is less confusing since beginners can enter the names in editing functions exactly as listed. Secondly, the files are numbered so that you can tell how many files are on the disk. DOS 2.5 allows up to 64 files on a disk, while SpartaDOS allows up to 128.

If you did not enter F, and if you are displaying drive #8 (ramdisk), the computer will tell you which types of files it found in the ramdisk. If you have previously turned the ramdisk off with the RAMDISK INST. selection this will turn them back on. You also have the opportunity to turn the "records files in ramdisk" signal off. This is an older convenience not used much any more since the RAMDISK INST. selection was added--it does the same thing, but easier.

At the end of the list the computer will stop and display:

DELETE FILE(S) OR NO(RET)?

If you wish to delete any files type Y and then press RETURN. The computer will ask you to enter the name of the file to delete. You may enter any file name exactly as listed. You may also use "wild cards" as explained in the DOS manual. After you make the entry, press RETURN and

the file (or files) will be deleted. You will not be asked to verify each delete if using "wild cards", thus it is somewhat faster to delete groups of files than with DOS 2.5. If you change your mind and do not wish to delete any files press RETURN without making an entry.

The computer will not delete any file ending in ".MOD". This is protection against new users deleting modules by mistake. You can delete modules by using wild cards in the "extender".

Deleting Old Account Files Off the Records Disk

As you go through time the records disk will become filled up--it's time to delete the files for the oldest months. Before doing this make sure the files are on at least two back-up disks! If they are on your (one) back-up disk only, either duplicate that disk, or back-up the old months (using BACK-UP/COPY FILES) to a second disk, just to make sure.

Next identify the filenames of the oldest month on the records disk. See chapter 25 if you have trouble doing this. You can also identify the oldest month's filenames by watching the ramdisk load (if you have one) since the oldest month is listed last.

The files for the oldest month will all have the same first four characters: an R followed by three numbers. If the month were February '87, for instance, the filenames would all begin with "R702". You might have an R702, R702P, R70212, R70223, etc.

To delete the entire month, using the "DELETE FILES..." function in the SHOW DISK module, you would enter as a file name the first four characters of the filenames followed by a single star (*). In the above example for February, '87 the file name to enter would be:

```
ENTER FILENAME TO DELETE?R702*
```

Press RETURN after entering the file name. You would then confirm this by entering a Y (return).

All files for the month will be deleted, and you have room for another month on the records disk.

Getting back to the SHOW DISK procedure...

After the "DELETE FILES..." question the computer will stop and display:

```
RENAME FILES(Y) OR NO(RET)?
```

If you wish to rename any files, enter Y and press RETURN. The computer will stop and ask for the old file name. Enter the file name you wish to change, exactly as listed (not in a FAST listing), and press RETURN. The computer will ask for the new file name. Enter the new name according to the rules for file names in the DOS manual and press RETURN. If you change your mind press RETURN. You may also press RETURN

without making an entry to the "RENAME FILES..." question to skip renaming of files.

The computer will return to the "ENTER DRIVE # OR RET?" question and you can show another disk or press RETURN to get back to the menu.

DELETING ALL APPLICATION FILES

When you are first learning to use the program you will be entering account set-ups and a few sample records to test operation. Most will find that they wish to delete the accounts and start over with different accounts as they learn more about the program. Some do this several times until they get just the account set-up they want.

In most programs it's easier--there's only one way to do it. They may even be set up for you when you receive the program. Of course it's unlikely that it will be the best set-up for you. Just about any set-up with the MICROMOD program will work about as well as a pre-set program. But most users want to set up accounts to suit their own application perfectly. We've found that few will accept less. MICROMOD allows you to do this.

You cannot delete individual accounts. A few unused accounts won't hurt anything, but in the beginning you will have "more than a few" you want to get rid of. You'll have to delete all application files, including any records, and start over. There are two ways to do this. First, you can simply copy new operational disks and format a new records disk. Otherwise, use this procedure to erase all the files from the disks you are using.

Procedure

First you must erase all the "user files" on the Master Program Disk. Use the SHOW DISK selection to display all the files on the disk. DO NOT enter "F for Fast".

The "user files" are easily identified because they are all denoted with the words "user file". Pretty ingenious, huh? Enter Y and press RETURN to the "DELETE FILES..." question and enter each file name that is denoted with "user file" EXCEPT THE TWO FILES "D" AND "INUM", pressing RETURN after each entry, and then confirming with Y, RETURN. Do not delete the two files D (format files containing preset formats) and INUM (invoice number counter).

That takes care of the Master Program disk.

If you have been storing account records or directory records on a separate disk, you can just re-format the disk and this will erase all files.

If you have been storing account records and/or directory records on a disk which also contains modules, then you want to erase just the records,

not the modules. Using the same delete procedure as outlined above, delete all files not having an extender. To do this enter a single "*" as the file name to delete in the DELETE function (do not do this with the Master Disk because the important SYMBOL file will be erased, in addition to Q and INUM).

After you've deleted all the "user files", account files, and directory files (if any), you can start over by entering a new "area" and new account titles and headings, and new sample account records. DON'T ENTER LARGE NUMBERS OF RECORDS UNTIL YOU ARE SATISFIED WITH THE ACCOUNTS!

SIMPLIFIED SYSTEMS CONFIGURATION WITH DOS 2.5

Before loading modules the computer polls each disk drive to determine which disk contains the specified module. Thus modules may be loaded from anywhere in the system. Drive #8 (RANDISK) is checked first. If the module is not found, drive #1 is checked, then #2, then #3, then #4.

Application files are always loaded from drive #1 if one drive is being used. If two drives are being used only the Directory Disk records (not the Temp Directory file) and account records files will be loaded from Drive #2. The other USER FILES will still be loaded from Drive #1.

On the shipping disks modules are distributed on the disks in such a way as to run most efficiently in a system consisting of an 800/XL computer and two disk drives. If you are using a 130XE with two drives, but will never want to wait for the modules to load into the RANDISK, then your system will mimic an 800XL system and the standard module distribution will be most efficient.

If you are using a system other than an 800 or 800XL with two drives a redistribution of modules will most likely make the program run faster and require less disk switching. Redistribution is accomplished using the Atari DOS 2.5 Master Diskette selection C. "Copy File" (see DOS manual). If you do not have DOS 2.5 it is available free from dealers and user groups.

800/XL AND ONE DRIVE

Efficiency with this system can be improved only in the case of non-business use and the storage of relatively few records. You can avoid disk switching to store/retrieve records by storing the records on the unused portion of the Program disk. They can then be transferred periodically to another records disk.

To make more room on the Program disk for records you can transfer seldom-used modules, such as the utility modules, to another disk. You will then have to switch disks only when selecting those functions.

Since the RAMDISK operates as an extra drive, the modules can be distributed in such a way as to nearly eliminate disk switching. To accomplish this the program disk must be divided into two disks. The first disk, or "Boot Disk" will contain the Systems Files, DOS.SYS, AUTORUN.SYS, MOD1.SYS, MOD2.SYS, MOD3.SYS, SYMBOL (these are the first six files on the disk) and the RAMDISK.COM file. It will also contain 499 sectors of your most frequently used modules. The program is shipped with the most frequently used modules (in most applications) stored near the beginning of the disk. The first 499 sectors of modules are displayed when the system is booted, as the RAMDISK is loaded. If you want to store other modules in the RAMDISK you will need to SHOW the program disk from the Utility Menu and count up the sectors each module takes up, to a total of 499.

You cannot just copy the file DOS.SYS to the "boot" disk. It must be written from the DOS menu with the "H. Write Dos" selection after formatting the disk. After the DOS files are written, select "D. Delete files" and enter "DUP.SYS" as the file to delete, as you do not need this DOS file on the "boot disk".

The second disk, or "Operational Disk", will contain all other modules and the user files: AREA, N, D, Q, etc. There is an exception to this scheme: Whenever using the Main Menu selection "DEFINE /,^,&,#" you will have to insert the "boot disk" before making the selection so that the file "SYMBOL" may be accessed. The computer will remind you to do this. Copying the SYMBOL file to the operational disk will not work because this file is accessed during the loading (booting) process and must be updated on the boot disk.

After the "boot" and "operational" disks are completed, there should be plenty of room on the operational disk to store directory and account records. You can even use this disk as your directory disk. If the directory should later take up too much room it can be transferred to its own disk.

To boot the system, insert the boot disk before turning on the computer. After the modules have loaded into the RAMDISK and the Main Menu is displayed, insert the operational disk. You will not need to switch disks from then on (unless you DEFINE SYMBOLS).

MOVING MODULES AND OTHER FILES WITH DOS 2.5

1) If using one disk drive:

Select "O. Duplicate file" from the DOS menu. Enter the name of the file you wish to move. The computer will then give you instructions. MICRONOD uses file names that make copying directory and account files easy. If you want to copy the directory to another disk it is not necessary to enter each file name individually. Just enter D? as the file name. To copy all account records on a disk, enter R* as the file name.

2) If using two disk drives:

Select "C. Copy File" from the DOS menu. Enter D1:MENU.MOD,D2:MENU.MOD to copy the menu module from disk #1 to disk #2. To copy any other file, replace "MENU.MOD" with the correct file name in the above example. Enter D1:D?,D2:D? to copy the entire directory. Enter D1:R*,D2:R* to copy all account records on the disk in drive #1 to the disk in drive #2.

After you have completed transferring files you may want to delete the files from the source disk. You may do this from the DOS menu. Select "D. Delete Files" and enter the filename of the file you wish to delete. To delete the entire directory enter D? as the filename. To delete all account records, enter R* as the filename. You can delete files more quickly from the MICROMOD utility menu (SHOW/FORMAT DISK), since you will not be asked to verify each deletion if more than one (it's correspondingly less forgiving). Enter the filenames as described above for the DOS 2.5 delete function.

More detailed instructions for using DOS 2.5 with the MICROMOD program will be presented in Chapter 27.

IDENTIFYING AND MOVING YOUR FILES

You have four main types of files to hold your data: 1) the program disk "user files", sometimes called just "user files", 2) Record files which hold the account information (dated info), 3) Directory files which hold directory records, and 4) Inventory Files. Note a confusion of terms. Record files refer to Account records even though, technically speaking, the directory and inventory files also contain "records". If the word "records" is used to describe directory or inventory records the word "directory" or "inventory" will precede it.

PROGRAM DISK USER FILES

By far the most important type of file is the "program disk user files." In fact one of these files, the N file, might be unrecoverable by you if lost. You cannot just re-enter it from the keyboard as all NAMES must be exactly the same length and in exactly the same order. We or you can re-build an N file if all NAMES have addresses, or if you have previously printed out a list of NAMES. Once you print the list you're safe (at the Main Menu press N and then the space bar).

The program disk user files are titled:

N
D
Q
AREA
STAT.N

INUM

and there are two others that contain your AREA name such as MAIN and MAIN.H if your AREA name is MAIN (MAIN holds the account titles, MAIN.H holds the headings).

If you are not using the Invoice/Statements function you will not have a file named STAT.N so there will be one less file.

MAKE BACKUPS OF THE PROGRAM DISK "USER FILES" EVERY TIME YOU ENTER NEW NAMES. OR MAKE A PRINT-OUT OF ALL NAMES.

The "Shell" Game

It is suggested that you have two back-up disks. Alternate these each back-up session. Whenever you experience difficulty with the program having to do with files USE DIFFERENT BACK-UP DISKS. Otherwise you may store damaged files on top of the last intact files on your regular back-up disks.

RECORDS FILES OR ACCOUNT RECORDS FILES

You should become familiar with the information on Account records and Directory records in Chapter 25. Serious business users need to be able to recognize these files when SHOWING the records disks.

Account files all begin with the letter R followed by a series of numbers. Chapter 25 explains what the numbers mean. If account files are lost they can be re-entered, record by record, from the keyboard. You should back up account files once a day for the first week using the program, twice a week during the first month, and once a week thereafter or whenever you've entered more records than you'd care to re-enter!

DIRECTORY FILES

Directory files on a separate directory disk all begin with the letter D followed by one other letter, such as DA, DB, DC, etc. You won't have a directory disk until you've used the "UNLOAD TEMP DIRECTORY" function on the Utility Menu. Until then your directory records are stored in one of the program disk user files, file D. You should back-up directory records every time you UNLOAD the temporary directory to the directory disk.

DIRECTORY/ACCOUNT RECORDS ON ONE "RECORDS DISK"

It is more convenient to use one disk for both account files and directory files if you have room. If using a full ramdisk these will both be loaded into the computer when you first load the program. Otherwise you'll have to load the directory in separately.

These files all begin with the letter I followed by two more letters or numbers. They may be stored on their own disk or on two disks, or they may share a Records or Directory disk.

UTILITY MENU SELECTION: BACK-UP/COPY FILES

Use this function to make your back-ups. It will automatically copy any of the three types of files (but not inventory files automatically), or allow you to copy individual files.

IT WILL NOT COPY DOS FILES, SYSTEMS FILES, OR WP23 WORD PROCESSOR FILES--ONLY MODULES AND MICROMOD APPLICATION FILES.

If you invest the time to learn what each file represents you can save yourself a lot of time in making back-ups. You could just make frequent copies of the N file, for instance, without having to copy less important files as often.

You can also use this function to move program modules (the program) from disk to disk. If there is a certain module that you use very often, but it resides on the Auxiliary Disk, you might be better off to move it to the program disk so that you do not have to switch disks when accessing that function.

PROCEDURE

When you select BACK-UP/COPY FILES the computer will load and run the COPY.MOD module, and then display a submenu with three selections: Back-up User Files, Copy selected files, or Return to Menu. You must press B, C, or RET to make the selection.

If you press B (back up user files) the computer will ask:

Copy from drive #1 to drive #?

The source drive will be drive #1. If you have only one drive, enter 1. If you have two drives enter 2. If you have three drives, enter 3. The operation is different with drive #3 holding the back-up disk--you won't have to switch any disks because the appropriate files will be read from the Master disk in drive #1 and the Records disk in drive #2.

Next the computer will ask:

Erase Destination Disk(Y) or RET?

If you are using a "garbage disk" as a back-up disk, entering Y here will clean the disk before transferring any files to it. Be careful--entering a Y here could also erase important files.

The computer will ask:

COPY PROGRAM DISK USER FILES(Y) OR RET?

Enter Y to back-up the user files on the program disk. Do this if you have added any new NAMES, directory information, formats, accounts, or headings. Otherwise just press RETURN.

Do not worry if the computer displays:

File XXX.TMP not found

Or

File STAT.N not found

The file ending in .TMP will only be on the disk if you entered records with FAST RECORD ENTRY and have not yet stored them in the regular account files. The file STAT.N will be on the disk only if the invoice/statements functions are in use.

The computer will ask:

COPY ACCOUNT FILES(Y) OR RET?

If you have entered account records (Dated Records program) since the last back-up operation enter a Y here. The computer will ask you to enter the month and year only of the files to back up. After the files for the month are copied you will be asked to enter a different month to back-up. Normally you'd do this only to transfer old files for some other reason, such as to put your files on a new MICROMOD version.

When you are through backing up account files, press RETURN without entering a month/year. The computer will display:

BACK-UP DIRECTORY DISK(Y) OR RET?

You may have already backed up the TEMP DIRECTORY when you backed up the Program Disk User files. This function backs up a separate Directory Disk only. If you have a separate Directory disk and have not backed it up since the last "UNLOAD TEMP DIRECTORY" operation, enter Y here to back up the directory disk. Otherwise press RETURN. The computer returns to the Custom Menu.

COPYING SELECTED FILES/MODULES

To copy individual files and modules press C when the sub-menu is displayed after accessing the BACK-UP/COPY FILES function from the Utility Menu.

The computer will ask for a filename. You can enter the filename of an individual file, or use "wild cards" to copy groups of files. Here are instructions for some common operations:

Backing Up Inventory Files

This cannot be done automatically as with the other types of application files. However, it's just as easy using wild cards. Just enter the three characters "I??" as the filename to copy. All inventory files will be copied. You can put all inventory files in the ramdisk by entering @ as the destination drive.

Copying All Modules in drive #n to the randisk

Just enter the file name "%MOD", and then (after entering the source drive number) enter 8 as the destination drive.

COPYING ALL DIRECTORY FILES FROM DRIVE #2 TO #3

Enter D? as the file name. Enter 2 as the source drive and 3 as the destination drive.

There are certain MICROMOD files that you cannot copy or move using the BACK-UP/COPY FILES selection. They are:

SYMBOL	WP23.SYS	SIDEWIND	
Word processor files		Files ending in .BAS or .SYS	

TRANSFERRING ALL APPLICATION FILES TO A NEW MICROMOD PROGRAM

- 1) Boot the NEW Program Disk.
- 2) Go to the Utility Menu.
- 3) Press B for BACK-UP/COPY FILES
- 4) ~~Insert the disk with the new COPYMOD (New Auxiliary Shipping disk).~~
- 5) Select C to Copy Selected Files, Modules
- 6) Enter a single star^{a period and a question mark} as the filename.
(*.?)
- 7) Enter 2 as the source drive (or 1 if only one drive). Enter 1 as the destination drive. Press RETURN to the "DELETE..." question.
- 8) Insert your old Master Program disk in the "source" drive (#2 if you have 2 drives). Press RETURN. Ignore the message that the SYMBOL file cannot be copied.
- 9) If you have modules on your Records disk or Inventory Disk, go to SHOW DISK and erase all modules on these disks by entering the filename "%MOD?" as the file to erase. The new program can read the old files.
- 10) Return to the Main Menu and select DEFINE SYMBOLS
- 11) Enter # as the SYMBOL to change.
- 12) Enter H to the "DEFINITION..." question. Answer all the questions about your application. See chapter 1, "Global Commands" if you need help.
- 13) ONLY IF YOU HAVE A SEPARATE DIRECTORY DISK: Format or locate a new disk to hold a new directory. Go to the Utility Menu. Insert the new Supplement Disk in any drive. Press E to "ENTER MODULE". Type the module

name: DIRCONV and press RETURN. Follow the screen prompts to insert disks. Your 16 file directory will be converted into a 26 file directory.

14) Throw away all previous shipping disks, disks with just old modules, and erase any other old modules.

DISK AND FILE MANAGEMENT

Disk management can be summed up easily: Check all disks frequently to see if they are becoming full. Doing this is as easy as pressing Q on the Main Menu (QUICK CHECK). If they are becoming full move some files off or start a new disk. Therefore there is no disk management job to do if no disks are becoming full yet.

It's easy to find out if a disk is becoming full. The more difficult task is determining which files to move off, or to transfer to a new operating disk.

CHECKING THE DISKS

To check a disk to see if it is becoming full insert the disk in one of the drives and select QUICK CHECK on the Main Menu. The number of FREE bytes will be displayed. The minimum number of bytes you should accept for various disks is as follows:

Minimum Acceptable free bytes on Various Disks

Master Program Disk: 2500 bytes

 If using INVOICE functions: 5000 bytes

 If using REMOTE disk: 7500 bytes

 If printing statements of Invoices without SpartaDOS: 8000

Notes: if using a ramdisk with Statements of Invoices, as many as 20,000 bytes may be required in the ramdisk (or on records disk if no ramdisk) if there are 880 unpaid invoices. For less unpaid invoices the requirements are proportionately lower.

RECORDS DISKS

200-500 records/month: 3200 bytes

500-1000 records/month: 5600 bytes

1000-2000 records/month: 10,600 bytes

Over 2000 records/month: 10,600 bytes (check disks twice/week).

HOW TO GAIN MORE SECTORS ON A DISK

First, select ORDER/CONDENSE on the Custom Menu. Enter the month and year numbers of the most current records. After the records are done for the current month, answer Y to the remaining questions in the function. A condensing of all files atarimuseum.nl not condensed files

before you may experience up to a 50% reduction in file sizes depending on the DOS you use. The content of the files is unaffected.

After using ORDER/CONDENSE check the full disk again. You may find you still have plenty of room!

If the files are condensed and you still have a full disk, you may move certain files off the disk.

MOVING FILES OFF THE DISK

Do this with the BACK-UP/COPY FILES selection on the Utility Menu. Elect to copy selected files. After you enter the file names and specify the drive numbers, answer Y (RETURN) to the "DELETE SOURCE FILE(Y) OR RET?" question. This tells the computer to delete the source file after the copying is done, thus making it a "move" operation.

Which files/modules to transfer

Master Program Disk

Users with only one 1050 or DD drive often store account records on the Master Program disk to avoid disk-switching. If this is the case, transfer the older record files off the disk.

Otherwise, you cannot transfer any of the "user files" off the master disk. You can only make room by moving modules. Check the list of modules and associated functions listed in Chapter 28 to determine which modules on the Master Disk you use least frequently. These will be the ones to move.

Records Disk

Transfer the oldest dated records files to a back-up disk.

If you are using the "records disk" as a "directory disk" also, and find that you are having to frequently move records files off the disk, you might be better off to transfer the directory files to a separate directory disk.

Use the BACK-UP/COPY FILES selection on the MICROMOD Custom Menu to transfer all directory files automatically; elect to copy user files. Enter a drive # and press RETURN until you see the "BACK UP DIRECTORY FILES?" question, answering this with a Y. All directory files will be "backed-up" to the new disk. To delete the directory files from the old disk, select SHOW/FORMAT DISK to show the disk, and delete all directory files by entering D? as the file to delete.

Reading the Dates of Records files

All account records files contain the month and year numbers in the

file name. If they are full ("closed") files they will also contain the day number of the day they become full. The files are easily identified because they all begin with the letter R followed by a series of numbers.

The first number is the last digit of the year of the records. The next two numbers are the number of the month of the records. If there are additional numbers they will represent the day that the file became full. Files ending with a P are created during the Statements init function and hold previous balances and records of unpaid invoices. Examples:

R604 current file for April 1986 (or 1996)
R71111 full file for Nov 1987, closed on Nov 11.
R901P file of previous balances, Jan 1989.

High Volume use of the Invoice Program

Each invoice creates 1 record for each item, 1 to 3 other records for SHIP, STAX, and INVOICE, and an additional record for each payment. Thus 1000 invoices could represent over 3000 records. Add to that a few hundred or less other General Ledger accounts and you may find you have room on the records disk for only one full month's worth of records. This is no big problem, except that you'll have to switch a disk to access old records.

A more important consideration is that you will want the entire current month's records to be in the ramdisk when you print statements. Otherwise it could take up to two minutes or more to print each statement, as some records will have to be loaded from the disk. You'll see the account files loaded into the ramdisk upon power-up and they may also be checked with SHOW DISK (drive #8). Remember that you need 81 sectors free for service functions.

If you cannot get the full month into the ramdisk you can reduce the number of other files in the ramdisk. You want to keep the "user files" in since these are most speed intensive. So you should reduce the number of modules in the ramdisk. There are four alternatives:

First, you can watch as the modules are loaded when powering up, and interrupt the loading after loading just certain modules.

Secondly, you can position a STOPLOAD.MOD file between modules on the disk to interrupt module loading automatically.

Thirdly, you can just go to SHOW DISK and delete some modules (use .# in the filename to replace .MOD).

Lastly, you can create a "boot disk" with the DOS and "systems files" on it plus just the modules you want loaded into the ramdisk. The ramdisk load utility has a feature by which you press B when powering up to cause the computer to stop and wait for you to insert an "operational" disk before loading the "user files" (see ramdisk load information, Chapter 29). Other than the fact that you must have the SpartaDOS boot files on the "boot disk" and not on the "operational" disk, the procedure for creating

a "boot disk" is the same as that mentioned earlier in this chapter for creating a DOS 2.5 boot disk ("130 XE with one drive").

With a boot disk you will have to switch one disk every time you boot, but in a high volume business you'll typically power-up only once each morning. This is also compensated for by having much more room on the "operational" disk for modules normally accessed from other disks.

You should have on the boot disk all the modules in the BATCH STATEMENTS "loop", namely: RLOOP.MOD, DISP.MOD, DIS.MOD, and NLIST.MOD. To preserve the speed of writing invoices you should also have the two invoice modules: RECPT.MOD and INVPRT.MOD (and INVAUX.MOD if used) on the boot disk. If you still have room in the ramdisk choose additional modules depending on frequency of use, i.e. MENU.MOD, CMENU.MOD, etc.

If you're writing lots of invoices you may wind up with several full (10,000 byte) files in each month. In fact you may only have room for 2 or 3 months on one records disk. You'll also most likely be using a full ramdisk (192+) for speed. Since you'll want modules and user files in the ramdisk there will typically be fewer record files in the ramdisk than on the records disk (in drive #2).

This situation requires additional care when LISTING or UPDATING information in three categories:

- 1) Records residing in the ramdisk
- 2) Records not in the ramdisk, but in Drive #2
- 3) Old records on a back-up disk.

KEEP DISCRETE MONTHS ON DISKS AND IN RAMDISK

First some background on disk procedure. As your records disk becomes full you must delete old records for more room. Make sure you delete an entire month (all files in one month) at a time. Since these will be two or three months back you should have all files on back-up disks, which you should double-check first.

You should maintain separate out of date disks to contain old files. It is important that MONTHS DO NOT OVERLAP on these disks. If you are fitting three months on a disk, for instance, one disk would hold JAN-MAR, another APR-JUN, and so on. If you are prudent when using back-up disks you can back-up just the desired months to each back-up disk, and these will then become your out of date operational records disks. The back-up procedure allows you to back-up just one month at a time and will help with organizing these disks. It is still crucial to have two copies of everything. If you use a Remote Disk then you will have separate back-ups of the Remote Disk files and these can serve as one copy.

The ramdisk load function will help with high volume disk management. It will make sure that you have discreet months in the ramdisk. Before each month's files are loaded the computer will check to make sure there is enough room for the entire month's records in the ramdisk. If there is not, no files for that month will be loaded and the computer will exit to

the menu. If there is room, the entire month will be loaded and you will not be able to cancel (go to menu or next screen) until all files for the month are loaded.

If you were to have only certain files for the month on a disk, or in the ramdisk, then you might be unable to access the missing files, even if they reside on the records disk. You'll think records are missing.

Know which months are where

It's important that you know which months are on the current records disk in Drive #2, which months are in the ramdisk at a given time, and which months are on your old disks. Your old disks will be labeled and you'll also know which months are on the records disk--you're the one who has to delete old months as the disk gets full. But the computer loads the ramdisk automatically. You may start out the month with 3 months in the ramdisk. As you add new records during the month, at some point there will not be enough room in the ramdisk for the oldest month--that month will then no longer be loaded into the ramdisk.

Most programs require you to name and keep track of each individual file, and to list records by naming each file. MICROMOD does this for you by interpreting the dates you enter and loading the appropriate files. When it looks for files in a given month and finds one in the ramdisk or in drive #2, it will stop looking further and assume that all files for the month are in that location.

If months overlap on your disks, then you are likely to think you have duplicate records in the computer--invoices will be listed twice, for example.

Learn how to turn the ramdisk on and off

Certain functions will look in the ramdisk only if a ramdisk is in use. If you cannot access a record in a certain function, but "know" that the record is there, then go to the Utility Menu and select RAMDISK INST. to turn the ramdisk off (not with respect to modules). If you still can't access the record, it's probably in a different month, or possibly under a wrong account or name.

One final suggestion: learn to use the DISK FILE STRUCTURE function, at least for showing records files. It has been modified so that you can enter the names of each individual file. In this way you can quickly search all files in a month and know exactly what is in the computer. We have received calls from some users who haven't yet become proficient at disk management as outlined in the manual. This is very understandable since disk procedures are a confusing aspect of computer operation. When these users experience difficulty in accessing certain records due to poor disk management, they are likely to start experimenting--turning drives off, copying files from disk to disk, etc. Most often the result is duplicate records, or missing records (they often wind up on the Master Disk if drive #2 has been turned off).

In these cases knowing how to operate the DISK FILE STRUCTURE function can be a great help. It circumvents many of the automatic features of the program and allows you to quickly ascertain just what records are where on your disks. You may find that two files contain the exact same records and you can solve the "duplicate records" problem quickly by deleting one of the files instead of deleting each record one at a time with the "RECORDS (account)" function.

Directory disk

The directory disk files all begin with the letter D followed by one additional letter from A-Z, for 26 files.

If the directory disk becomes full you cannot transfer files off. A directory disk must always have a full complement of 26 file names. You must start out with a new directory disk with your next "UNLOAD TEMP DIRECTORY" operation. You'll have to insert the old directory disk to access the old information.

FILE MANAGEMENT

File management is automatically accomplished in the MICROMOD program, with the minor exception of the three user files found only on the Master Program Disk: N, D, and Q which are the NAMES file, the Temp Directory, and the "listing formats" file, respectively.

YOUR TASK REGARDING THESE THREE FILES IS SIMPLY TO MAKE SURE THEY NEVER BECOME FULL.

Checking on the capacity is easy. Simply select "FILE CAPACITY USED" on the Utility Menu. The percent in use of each of these three files will automatically be listed. If any are approaching 100% you must take action. (The capacities of the current account file and directory files are also listed). In a typical application the N file will remain below 20%, the Q file between 20% and 40%, and the D file will become full periodically, usually once every 6 to 12 months.

IF THE NAMES FILE BECOMES FULL

There is enough room for 2000 NAMES if you use 4 letter abbreviations. THE SIZE OF THE NAMES FILE CAN NEVER BE REDUCED. If it approaches 100% capacity you must stop entering new NAMES, and use only NAMES which already exist in the file. There are plenty of guidelines in this manual to prevent the NAMES file from getting too large without limiting you in any way. Thus a full NAMES file is a condition that shouldn't happen.

But what if it does? Print-out a list of all the NAMES. By the time you have a full file there will be plenty of unused names and ++'s in the file (left when changing a NAME to a shorter NAME). Using the NAMES selection in the CHANGES/DELETES section of the Utility Menu, change the out-of-date NAMES and +++ NAMES to CATEGORIES that will represent groups

of records you will use.

If you do not find enough candidates to change to CATEGORIES, you can change active NAMES to shorter NAMES, thereby creating new openings in the file for CATEGORIES. See Chapter 2.

IF THE TEMP DIRECTORY FILE BECOMES FULL

When the TEMP DIRECTORY approaches 100% capacity, simply unload it to a separate "Directory Disk" using the UNLOAD TEMP DIRECTORY function on the Utility Menu. MAKE SURE THE TEMP DIRECTORY NEVER ACTUALLY GETS TO 100% FULL.

Once you have a separate Directory Disk (have used UNLOAD TEMP DIRECTORY), and only if you have two disk drives, you can save SHOWING time by unloading the Temp Directory more frequently, say, when it gets over 25% full. This is also a way to gain sectors on the Master Program disk.

IF THE "LISTING FORMATS" FILE BECOMES FULL

You can easily delete unused listing formats using the LISTING FORMATS selection in the CHANGES/DELETES section of the Utility Menu. MAKE SURE THE LISTING FORMATS FILE NEVER ACTUALLY REACHES 100% CAPACITY.

There is plenty of room in the file for all the formats you need. There are typically two reasons why it may become full: 1) You do not delete formats that you no longer need. 2) You make minor revisions to existing "Statements of Totals" formats, storing the revised formats, and forget to delete the original format.

THE DIRECTORY FILES ON THE DIRECTORY DISK

If you are using a separate directory disk, there is a possibility that one of the files may become full before the entire disk becomes full. This would only happen if a large number of ABBREVIATED NAMES do not stand for person's names or company names, or if you do not follow the conventions suggested in this manual for abbreviating NAMES.

After you've "UNLOADED" the Temp Directory ten times or more, check the capacity of the Directory Disk files periodically using the FILE CAPACITY USED selection on the Custom Menu. If any files are approaching 100% use you must take action.

There are two remedies. First, you can simply start a new directory disk. Secondly, you can redistribute records in the files by changing NAMES. To do this, find NAMES that fall in the alphabetical bracket corresponding to the large directory file. Change some of these NAMES using the NAMES selection on the Utility Menu to NAMES beginning with different letters. The computer will then reinsert the directory disk

during the NAME changing operation. The records will be redistributed automatically.

IMPORTANT POINTS AND RULES FOR EXPERIMENTERS (*)

The DOS manuals present much helpful information.

* Don't enter large numbers of records until satisfied with accounts.

Four types of files: user files, account files, directory files, and inventory files.

Use QUICK CHECK frequently to see if disks are becoming full.

Don't allow the NAMES file, Temporary Directory file, or "listing formats" file to reach 100% capacity.

Move seldom used modules off the Program disk.

CHAPTER 27 -- COPYING FILES AND DUPLICATING DISKS

The information on DOS operations in this chapter represents an attempt to present a simplified, abbreviated sub-set of DOS procedures required to set up and maintain the MICROMOD program. This is not a DOS manual and no attempt is made at completeness. If you need help refer to your DOS manual. If you have never operated a DOS before, we suggest that you spend several hours with you DOS manual just practicing the menu functions having to do with formatting and duplicating disks, and listing, deleting/erasing, copying, and renaming files. If you don't have or don't gain this prerequisite DOS experience you will quickly become overcome with constant program errors and attending confusion in trying to set-up and operate MICROMOD.

Once you have this very minimal experience, this chapter will help you accomplish the required DOS operations in a minimum of time.

FILE/DISK OPERATIONS WITH DOS 2.5

DUPLICATING A DISK

You can duplicate any DOS 2.5 formatted disk onto another blank disk using the DOS 2.5 menu selection "J. Duplicate Disk". The copy will be automatically formatted in the same density as the source disk. You do not need to format the destination disk first, as this is done automatically.

Procedure

With the computer off, insert the Atari DOS 2.5 disk. Turn the computer on and wait for the "READY" prompt. Type:

DOS

and press RETURN. The DOS menu will appear. Type J and press RETURN. The computer will ask:

Source, Dest Drives?

If you are using one drive type:

1,1

and press RETURN. If you are using two drives type:

1,2

and press RETURN. The computer will wait for you to insert the source disk in drive #1 and the destination disk in drive #2. When you have inserted both disks, press RETURN.

If you are using just one drive the computer will stop and ask you to

insert the source disk. Do so and press RETURN. It will alternately ask you to insert source and destination disk, and to press RETURN each time until the duplicating is done. BE SURE TO KEEP TRACK OF WHICH DISK IS WHICH. OTHERWISE YOU MAY DAMAGE THE SOURCE DISK IF YOU INSERT IT AS THE DESTINATION DISK BY MISTAKE.

COPYING AND MOVING FILES

The most frequent reason for copying files is to make backup copies of your records and "user files". Do this automatically with the "BACK-UP/COPY FILES" selection on the Utility Menu of the MICROMOD program.

Another occasion to make copies of files is when you are first setting up operating program disks using the "shipping disks" (the disks we sent) as source disks. In the beginning this is easier to do with DOS 2.5 than with the "BACK-UP/COPY FILES" selection in the MICROMOD program because you can copy any file with DOS 2.5. MICROMOD will not copy DOS, Systems, or Binary files (like WP23 files).

Here is the procedure for copying files using DOS 2.5:

With the computer off insert the Atari DOS 2.5 disk. Turn on the computer and wait for the "READY" prompt. Type:

```
DOS
```

and press RETURN. The DOS menu will appear. What you do next depends on the number of drives you are using:

With One Drive

Select "0. DUPLICATE FILE" by typing an 0 and pressing RETURN. The computer will ask you to enter the file name. Enter the filename as listed in this manual, with a period (if listed that way) and with no spaces.

You can list the files on the disk in drive #1 by selecting A. on the DOS menu and pressing RETURN twice. If you type D2: between RETURNS the files on the disk in drive #2 will be displayed. But the files are not listed in the same way as you would enter them. They are listed with spaces between the main filename and the "extender" instead of with no spaces and a period between the main file name and "extender" if any. The file names AUTORUN.SYS and DOS.SYS would be listed by DOS 2.5 as:

```
AUTORUN SYS  
DOS      SYS
```

but would be entered as AUTORUN.SYS and DOS.SYS.

Once you have selected 0. Duplicate Disk and pressed RETURN, and have entered the file name of the file you wish to copy, press RETURN. The computer will ask you to insert the source disk. Insert the disk and press

RETURN. The computer will then ask you to insert the destination disk, and press RETURN. It may ask you to insert each disk more than once if it is a large file.

With Two Drives

To copy a file from the disk in drive #1 to the disk in drive #2, select C. Copy Files. Type a C and press RETURN. The computer will stop and ask you to enter source and destination "filespecs", which means you have to include the drive number as well as the file names. MICROMOD doesn't ask for "filespecs" (except in the DISK SEARCH function) so don't worry if you do not understand right now. Just make the entry as shown here. If you wanted to copy the file MENU.MOD from the disk in drive #1 to the disk in drive #2, you would enter:

D1:MENU.MOD,D2:MENU.MOD

and press RETURN. The copy will be made. If you wanted to copy the file SYMBOL from the disk in drive #1 to the disk in drive #2 you would enter:

D1:SYMBOL,D2:SYMBOL

and press RETURN. Just substitute the file name you would like to move for "MENU.MOD" or "SYMBOL" in the above examples.

Copying Groups of Modules

Here's a handy convenience for copying all modules on disk one to disk two. Instead of typing the above example, enter:

D1:*.MOD,D2:*.MOD

and press RETURN.

You can also do this using one drive and the "O. Duplicate File" selection. Enter:

*.MOD

as the name of the file to copy. All modules will be copied.

But suppose you don't want to copy all modules but all modules but one or a few? You can trick the computer into doing this by renaming one or a few modules (temporarily!). Select E. Rename Files. Enter D1:MENU.MOD,MENU.XXX and press return. The file MENU.MOD (now MENU.XXX) will not be transferred using the *.MOD specification. After you have transferred the modules, you MUST rename MENU.XXX back to MENU.MOD or the program will not function properly.

Moving Files

Moving files (sometimes called "Copy with Delete") involves one additional step to erase the file from the source disk. To do this

(after the copying is done) select D. Delete File by typing a D and pressing RETURN. Enter the file name of the file you wish to delete. Put the source disk in drive #1 (if it isn't already there) and press RETURN. For example, if you wanted to delete the file MENU.MOD from the source disk in drive #1 you would enter:

MENU.MOD

and press RETURN. To delete the file MENU.MOD from the disk in drive #2 you would have to include the drive # in the command:

D2:MENU.MOD

You will most frequently be using a "move" operation when re-arranging files to manage the disks after using the program for a while. This is much easier to do from the "BACK-UP/COPY FILES" function on the Utility Menu of the MICROMOD program, as there are less entries to make. It is suggested that you use the MICROMOD program to "move" files.

DUPLICATING THE "1050 DENSITY" DOS 2.5 MASTER PROGRAM DISK

The MICROMOD program is shipped on single density disks, except for the Master Disks. The DOS 2.5 Master Disk is in "1050 density (also called "enhanced" or "dual" density). You cannot read this disk with an 810 drive.

To duplicate the DOS 2.5 Master Shipping Disk from the DOS 2.5 menu, just select J. Duplicate Disk. If you have only one drive enter:

1,1

for the source and destination specification. The computer will prompt you to switch disks when necessary. If you have two drives enter:

1,2

as the source and destination specification. Insert the source disk in drive #1 and a blank disk in drive #2.

Press RETURN. That's it!

COPYING THE OTHER SHIPPING DISKS TO A "1050" FORMATTED DISK

First format a blank disk using the I. Format Disk selection.

Next copy all files of the single density disk to the 1050 disk in one stroke! Here's how:

With one drive

Using the D. Duplicate Disk selection, enter the file name:

4.4

and press RETURN. Just entering those three characters tells the computer to copy every file on the disk.

With Two Drives

To copy all files of the single density disk in drive #1 to the (formatted) disk in drive #2 using the C. Copy Files selection, enter:

D1:4,D2:4.4

and press RETURN. This copies everything, and will work with any disk other than the Master Program disk which contains the file DOS.SYS. DOS.SYS can only be added to a disk by selecting H. Write DOS Files or by duplicating a disk that has DOS.SYS on it (in the same density) using the J. Duplicate Disk function.

Copying the Word Processing Disk to a "1050 density" disk

The word processing disk has a DOS file so that it can "boot into" the word processor program (named AUTORUN.SYS) automatically. To copy this disk, first write the DOS files to a disk you formatted with the "I. Format Disk" selection. To copy the DOS files select "H. Write Dos".

Next put the Word Processing disk in drive #1 and delete the file DOS.SYS. Select "D. Delete File" and enter DOS.SYS as the file name to delete.

You can not follow the directions for copying the other single density Shipping Disks using one or two drives to copy the remaining files on the Word Processor disk to your new disk (which will already have the file DOS.SYS on it).

DISK/FILE OPERATIONS WITH SPARTADOS

note: SpartaDOS can read only the first 707 sectors of a 1050 (enhanced density) disk with some drives. This should not be a problem in accessing the MICROMOD disks because they are formatted either in double density or single density (except the DOS 2.5 Master Program which you don't use with SpartaDOS). If you do ever have difficulty in accessing the last sectors of a 1050 density disk, copy the last files to a single density disk using DOS 2.5 first.

COPYING AN ENTIRE DISK

Before storing any atarimuseum.nl diskette must be

formatted using the ICD SpartaDOS disk.

The disk you are copying is called the "source disk" and the new disk to hold the copy is called the "destination disk."

1) Load SpartaDOS: Turn off the computer. Insert the SpartaDOS disk in drive #1. Turn drive #1 on if it's not already on. Turn on the computer.

2) Load the Format Utility: When you see the "READY" prompt type:

DOS

and press RETURN. When you see the "D1:" prompt type:

XINIT

and press RETURN.

3) The computer will ask a series of questions relating to the type of format you want. The prompts and answers you should type are:

SELECT DOS: press N if you are duplicating a disk to another disk OF THE SAME DENSITY, or if you are copying a MICROMOD shipping disk other than the Master or Word Processing Disk. Press 3 for 3) XD23e.DOS if you are copying the Master Program disk to a disk of another density. Press 2 for 2) XC23e.DOS if you are copying the Word Processing disk.

DRIVE TO FORMAT: type 1 or 2 depending on which drive holds the "destination disk."

NUMBER OF TRACKS: press 1 (40 tracks)

DENSITY: If using an unmodified 1050 drive press 3 (1050 density). If using a double density drive or a "doubled" 1050 press 2 (double density).

VOLUME NAME: Not used. Type any series of random letters and numbers up to 8 characters. Each disk should have a different volume name.

ULTRASPEED (Y/N): If using a drive modified with a US doubler, type Y. If using any other drive, type N.

When you are ready to do the format press RETURN once. When the format is completed the computer will be ready to perform the next step below:

Copying the Disk

1) After the format (above) is completed hit the "ESC" key to get to the "D1:" prompt again. If you already had a formatted destination disk and had booted SpartaDOS and typed DOS to the "READY" prompt you would continue the procedure with the next step:

2) To the "D1:" prompt type:

DUPDSK

and press RETURN. The SpartaDOS disk must still be in Drive #1 before typing DUPDSK.

(note: with SpartaDOS the source and destination disk MUST BE FORMATTED IN THE SAME DENSITY. The MICROMOD "Sparta" Master Shipping Disk is in DOUBLE density. All others are in SINGLE density. If your source and destination disks are in different densities, do not use these instructions to duplicate the disk. Instead use the instructions for copying files.)

Next the computer will stop and ask for the "SOURCE" drive number. You may remove the SpartaDOS disk any time after this.

3) Type the number of the drive which holds the SOURCE disk. The computer will immediately ask the number of the DESTINATION drive. Type the number of the drive which holds the DESTINATION disk.

4) The computer will stop and wait for you to double-check that the correct disk is in the correct drive. When you've double checked this, press RETURN. The entire copy will be made.

During the copy the computer will display any errors in the copy. Don't accept a copy that contains an error. Reasons for disk errors in order of frequency are:

- 1) Bad disk. The surface of the disk may be damaged.
- 2) The drive may be over-heated.
- 3) The drive may need a speed adjustment (RPMs)
- 4) The drive may need an alignment adjustment.
- 5) There may be a faulty component in the drive, such as the drive belt falling off (the disk will not be rotating). You can put the drive belt back on yourself, like the fan belt of a car. DO NOT REMOVE THE DRIVE COVER UNLESS YOU ARE A QUALIFIED ELECTRONICS REPAIR TECHNICIAN!
- 6) The computer may simply have failed to read or write successfully on that try (very rare). It should work if you repeat the copying procedure.
- 7) The drive may be too close to the TV (should be 12" away).

SUGGESTIONS: Try a new destination disk. Switch the numbers you enter for SOURCE and DESTINATION drives. If either of the drives feels hot, set up a fan to cool the drive. Try another copy.

If the error still occurs, chances are you have a bad sector on the SOURCE disk. Hopefully you have made back-ups of your records and program disk user files. Insert the source disk in drive #1. Access the "D:" prompt (see above). Type DIRS and press RETURN to list the files on the disk. If all files are listed you're in luck: the bad sector is in a file (which can be recovered). If all files are not listed the problem is more serious. The disk may still be recoverable. Call for help!

Sector Copier

The later versions of SpartaDOS include a sector copier which has an

added convenience for duplicating disks: the disks do not need to be formatted ahead of time. The sector copier will format the destination disk automatically.

To duplicate the disk in drive #1 to drive #2 with the sector copier (SpartaDOS disk in drive #1), the command line would look like this:

```
D1:SCOPY D1: /U D2: /U
```

The above assumes that both drives are US doubled. If either is not, leave the "/U" out of the command. To duplicate the disk in drive #2 to the "Rambo" randisk, the command line would look like this:

```
D1:SCOPY D2: /U D8: /R
```

To Duplicate the randisk to drive #1:

```
D1:SCOPY D8 /R D1: /U
```

THE RPM COMMAND

The SpartaDOS system is sensitive to the RPM rate as the disk spins in the disk drive. It is most sensitive in double density, or with the use of the US doubler. You can check the rate with the RPM command:

Power-up with the SpartaDOS (grey label) disk in drive #1. Type DOS and press RETURN to display the D1: prompt.

If you wish to check the speed of drive #2, type D2: and press RETURN. The D1: prompt will be changed to D2: and you should insert the SpartaDOS disk in drive #2.

Next type:

```
RPM
```

and press RETURN. The drive will run and the RPMs will be displayed on the screen. It should be at 288. The speed check will continue until you press RESET.

Speed Adjustment on the 1050

Turn the drive over and remove the six screws that hold the cover on. DO NOT REMOVE THE DRIVE COVER UNLESS YOU ARE A QUALIFIED ELECTRONICS TECHNICIAN! Turn the drive upright again. Remove the cover. The speed adjustment is located on the PCB board towards the back of the drive, about two inches from the rear and one inch from the left hand side. Locate a small rectangular housing, about 1/2 inch on a side, with a small adjustment pin sticking out the top. The pin may be covered with some glop which you must remove. The pin will be notched for a small jeweler's screwdriver. This pin must be rotated using needle nosed pliers or a miniature screwdriver. You may operate the drive with the RPM command as

you make the adjustment.

If the RPMs are fluctuating wildly, chances are you have some other peripheral in the system which is making a faulty connection. Disconnect all other peripheral cables one at a time and check the result.

COPYING AND MOVING FILES

It is most likely that you will be using the SpartaDOS disk to copy files when beginning your application. The program is shipped on single density disks. You will need the SpartaDOS disk to make up operating disks in 1050 enhanced or double density.

With One Drive

With one drive use the SpartaDOS disk to copy boot files and the word processing programs, WP23.SYS and AUTORUN.SYS. All other copying should be done using the MICROMOD program selection BACK-UP/COPY FILES on the Utility Menu.

Using SpartaDOS to copy files with one disk drive is a tricky task if you are not experienced with the SpartaDOS menu. This is why we suggest you use it only when necessary. The only files you need to copy with SpartaDOS are the DOS boot file (XD23e) only during the XINIT formatting sequence, and these files from the MICROMOD disks:

STARTUP.BAT	RMDSK.SYS	MOD1.SYS
MOD2.SYS	MOD3.SYS	AUTORUN.SYS
SYMBOL	RD.COM	
RDBASIC.COM	WP23.SYS	

To copy any other files with one drive use the MICROMOD program to do the copying.

Procedure to Copy Files Using SpartaDOS with One Drive:

note: follow this procedure by rote. Any deviation will result in failure and the necessity of starting all over.

1) Power up with the SpartaDOS disk in drive #1. Wait for the READY prompt.

2) Type:

DOS

and press RETURN. The computer will display:

D1:

Type MENU after the D1: causing the display to look like this:

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D1:MENU

and press RETURN. What will happen after you press RETURN will be confusing, but don't pay any attention to the screen.

3) Take the SpartaDOS disk out of drive #1.

4) Insert the source disk into drive #1 (the disk containing the file you wish to transfer).

5) Press RETURN

6) Press the "I" key.

7) You will see a list of file names on the screen, and to the left of the list a white arrow enclosing the word "select". Now press the "=" key until the white arrow is beside the file name you wish to copy.

8) Press the SELECT key on the computer just once.

9) Press RETURN

10) Press the "I" key

11) Press the RETURN key

12) Take out the source disk and insert the destination disk. When you are ready, press RETURN. The file will be copied.

TO COPY MORE FILES:

13) Press the SELECT key exactly 4 times.

14) Remove the destination disk.

15) Go back and start over at step 4.

Copying a File with Two Drives

With two drives copying a file is much simpler, similar to using DOS 2.5.

Load SpartaDOS and type DOS (RETURN) to display the "D1:" prompt. Insert your source disk in drive #1 and your destination disk into drive #2.

To transfer the file MENU.MOD from the disk in drive #1 to the disk in drive #2 you would type COPY after the D1: prompt, then leave a space, and then type MENU.MOD D2: resulting in the following display:

D1:COPY MENU.MOD D2:

and then press RETURN. The file will be copied. To copy any other file, substitute the file name for MENU.MOD in the above example. To copy all

modules from the disk in drive #1 to the disk in drive #2 substitute the file name *.MOD for MENU.MOD in the above example.

If you would like to copy all modules but one or a few, rename the modules you do not wish to copy (temporarily!) to something else. To rename the file MENU.MOD, type RENAME MENU.MOD,MENU.LXXX next to the D: prompt resulting in the display:

```
D:RENAME MENU.MOD,MENU.LXXX
```

and then press RETURN. To rename any other file substitute the file name for MENU.MOD in the above example. DON'T FORGET TO RENAME THE MODULES BACK TO THEIR ORIGINAL NAMES AFTER THE COPYING OPERATION!

MAKING COPIES OF THE "SHIPPING DISKS" IN DIFFERENT DENSITIES.

Note: you must have a double density drive to use the SpartaDOS version as shipped. If you do not, use the DOS 2.5 version until you obtain double density.

First format a blank disk as explained earlier in this section. After typing XINIT, do not select 3. XD23E to copy the DOS file to the new disk. Instead select 4. NO DOS, since you need no disk operating system on any disks other than the master program disk.

With One Drive

Follow the procedure to copy files using SpartaDOS to copy any file ending in .SYS, .COM, .BAS, .SPD, .1, .2 and including the files:

```
WP23.SYS  WPCODE.SYS          SIDEWIND
```

Load MICROMOD and use BACK-UP/COPY FILES to copy all modules.

To copy word processing files you can either use the SpartaDOS disk or load the files into the word processor program (if you know how) and re-store them on a different disk with CTRL-M.

With Two Drives

Simply type COPY *.* D2: after the D: prompt resulting in the following display:

```
D:COPY *.* D2:
```

and press RETURN to copy every file on the disk in drive #1 to the disk in drive #2, regardless of density.

COPYING FILES WITH MICROMOD

See Chapter 26, *UTILITY MENU SELECTION: BACK-UP/COPY FILES* for the procedure to copy MICROMOD applications files and modules using the MICROMOD program.

The BACK-UP/COPY FILES function allows you to make back-up copies of all application files with a minimum amount of copying. It also helps prevent mistakes in copying since filenames do not have to be entered. You can also move (copy with delete) in one operation.

Generally speaking, if you are not making a new program disk or copying system files (ending in .SYS, .COM, or .DOS, it will be easier to use BACK-UP/COPY FILES to accomplish all your MICROMOD copying.

REVISION DISKS

MicroMiser has been unusually supportive with respect to improving program performance in the most timely manner possible. This support usually comes in the form of Revision Disks sent to all warranted users. MicroMiser frequently sends disks to individual users to correct some application specific problem, or a minor bug that affects one application severely, etc. Most software developers charge in the range of \$15 or so for Revision disks even though they are responsible for the bugs, while MicroMiser usually provides these without charge.

With this in mind, it's important to keep the cost of the revision disk down—making the disks, packaging, mailing, and documentation. So here is some "documentation" that will make it easier for us to provide these disks:

First, we use the least expensive packaging possible. That means some disks will be damaged (about 1.5%). If you receive a damaged disk, or find damaged files on a disk, just let us know by mail or phone. We'll replace the disk gladly.

Procedure

- 1) Select "H SUPPLEMENT" at the Main Menu. You may have to insert the original Supplement Disk to load the MAN.MOD module or this may be included on the Revision Disk. Insert the Revision Disk and select "LIST FILES". If any files are listed (end in .TXT), enter the filename and read the contents.
- 2) Print out the directory of the Revision Disk. If there are two notches in the disk print out both sides. You can print directories by selecting SHOW DISK on the Utility Menu and then immediately pressing the space bar to signal the printer. Revision disks will always be on DOS 2.5 single density disks, so all contents can be accessed by whichever DOS you're using.
- 3) Locate all files on your current "operational" disks (the ones you use)

that correspond to the files listed for the Revision Disk. If you are still using SHOW DISK you can cancel the printer instruction by returning to the Utility Menu, and selecting SHOW DISK again without signaling the printer.

Next to each file name on your printout, note the operational disk where the corresponding "old" file resides. It may reside on more than one disk.

Also on your print out of Revision disk files, note any files that end in .SYS (other than RMDISK.SYS) and the SYMBOL file. These files must be copied using your DOS disk (of whichever DOS you are using with MICROMOD). If there are no such files you can do all the copying with MICROMOD (BACK-UP/COPY FILES). Otherwise you have your choice of which program to use to copy the other files.

4) Copy all files from the Revision disk to the appropriate "operational" disks to replace the "old" files with the files on the Revision disk.

5) Boot your operational disks and access those functions which will use the updated modules/files.

6) If the modules and functions work, and there were no error messages during the copying, then make duplicates of your updated "operational disks". Otherwise contact MicroMiser for help.

7) There is no guarantee that the original modules/files will be compatible with the updated program, so the old disks have little value except to contain modules you haven't yet used. Stash them.

FLOPPY DISK PROBLEMS

RECOVERING BAD DISKS

If MICROMOD is performing a disk function and it appears that the program is not functioning properly, it is most likely a disk problem. One example of this would be the repeated display of "OPENING NEW TEMP DIRECTORY" when adding new directory information after "UNLOADING" the old TEMP DIRECTORY to the directory disk.

If a problem such as this occurs you should first SHOW the disk from the Utility Menu. If there are no remaining sectors available you have discovered the problem. There are two reasons why this may happen, neither of which is the fault of the MICROMOD program.

First, you may not have had enough room on the disk to add new information. This is unlikely because you will have used the program for a long time before even the first disk becomes full, and you should be familiar with disk usage. The solutions start a new disk.

More likely there has been a malfunction on the disk, the result of

which makes the remaining sectors on the disk unusable. You can tell if this is the case by adding up the sectors in use (displayed with SHOW DISK if you don't use "F for Fast") and subtracting this from the total number of sectors free on a newly formatted disk which will vary depending on the MICROMOD version and the disk density you are using. The difference should be zero. If not you must transfer the files from the bad disk to a new formatted disk.

Using DOS 2.5 with 2 Drives

You may do this automatically from the DOS 2.5 menu:

First, insert the bad disk in drive #1 and select E. RENAME. Enter `*.SYS,*.XXX`. This renames any files ending in `.SYS`. DOS 2.5 won't copy files ending in `SYS`.

Secondly, select C. COPY FILES and enter `"D1:*.D2:*.X"` to copy all files from the bad disk in drive #1 to the new disk in drive #2.

After the copying is done insert the new disk in drive #1 and select E. RENAME again. Enter `*.XXX,*.SYS` to rename all the `.SYS` files back to their original names. If there are no files on the bad disk ending in `.SYS` you can skip the instructions regarding renaming files.

You should be able to repeat the MICROMOD function you were using with the new disk in place and the program should work properly.

DOS 2.5 with 1 Drive

Follow the instructions for using 2 drives except select O. Duplicate File instead of C. Copy File to transfer the files. Enter

`*.*`

As the file name to transfer. You will have to switch disks as each file is transferred.

Using SpartaDOS with 2 Drives

Load the SpartaDOS disk (grey label) and type:

DOS

and then press RETURN to get to the "Di:" prompt. Type

`COPY *.* D2:`

To copy all the files from drive #1 to drive #2. If you are copying the Master Program Disk, this will not work for the file `XD23E.DOS`. You must add this file when formatting the disk with the `XINIT` command. Then delete the `XD23E.DOS` file from the bad disk before copying.

Using SpartaDOS with 1 drive

Again, you must add the XD23E.DOS file when formatting the new disk with the XINIT command. You cannot just transfer this file.

Copying the files with one drive is a more complicated procedure. Use the instructions earlier in this chapter for copying SpartaDOS files with one drive using the SpartaDOS menu.

"Two Sector Modules"

Another thing to look for is any modules that take up 1 or 2 sectors. This means they were damaged in a copying process. All modules take over 5 sectors. Recopy the module from the Shipping or Revision disk.

DISK PROBLEMS WITH SPARTADOS

SpartaDOS has its own peculiarities. It's sensitive to disk conditions like RPM and overheating with the doubler. When you first use it you will get frequent ERROR 139 messages. This means a file was not copied successfully, or the directory sectors are damaged in some way. You may also see graphic characters in the directory listing. Try to "RENAME" the affected files if this happens. Usually this gets rid of them. Though you should get rid of the disk when these errors occur, most of the files will still be good and you can transfer them to a new disk if important.

We have asked ICD about these problems and it appears that they don't know the cause either. It seems to happen most frequently with very heavy use of the drives, indicating overheating. The errors with SpartaDOS DO DISAPPEAR after you use it for a while and get the drives adjusted. Even considering these difficulties it's the best DOS going--see Analog review, August 1986.

When we first started using SpartaDOS and the doublers, we frequently had crashed disks, damaged directories, and graphic characters in filenames during the first month. We contacted ICD for their advice, and took some measures of our own. First, we were told that 1050 drives made in Singapore worked better with the doublers than those made in Hong Kong (check plaque on underside of drive). We switched to Singapore drives. We put a fan on the drives. We set the RPM's and had the heads cleaned and aligned. We moved the drives 12" away from the monitors. We started using only brand name (BASF) disks.

We can't say just which step or combination of steps did the trick, but all problems disappeared. Since then we have not had any problems. In fact, the systems have become so reliable that we do not bother to back up many unimportant files.

IMPORTANT POINTS AND RULES FOR EXPERIMENTERS (*)

* Enter file names without spaces within the name.

If you rename modules, atarimuseum.nl back.

which makes the remaining sectors on the disk unusable. You can tell if this is the case by adding up the sectors in use (displayed with SHOW DISK if you don't use "F for Fast") and subtracting this from the total number of sectors free on a newly formatted disk which will vary depending on the MICROMOD version and the disk density you are using. The difference should be zero. If not you must transfer the files from the bad disk to a new formatted disk.

Using DOS 2.5 with 2 Drives

You may do this automatically from the DOS 2.5 menu:

First, insert the bad disk in drive #1 and select E. RENAME. Enter `*.SYS,*XXX`. This renames any files ending in .SYS. DOS 2.5 won't copy files ending in SYS.

Secondly, select C. COPY FILES and enter `"D1:*.D2:*.X"` to copy all files from the bad disk in drive #1 to the new disk in drive #2.

After the copying is done insert the new disk in drive #1 and select E. RENAME again. Enter `*.XXX,*SYS` to rename all the .SYS files back to their original names. If there are no files on the bad disk ending in .SYS you can skip the instructions regarding renaming files.

You should be able to repeat the MICROMOD function you were using with the new disk in place and the program should work properly.

DOS 2.5 with 1 Drive

Follow the instructions for using 2 drives except select O. Duplicate File instead of C. Copy File to transfer the files. Enter

`*.X`

As the file name to transfer. You will have to switch disks as each file is transferred.

Using SpartaDOS with 2 Drives

Load the SpartaDOS disk (grey label) and type:

DOS

and then press RETURN to get to the "Dir:" prompt. Type

COPY *.* D2:

To copy all the files from drive #1 to drive #2. If you are copying the Master Program Disk, this will not work for the file XD23E.DOS. You must add this file when formatting the disk with the XINIT command. Then delete the XD23E.DOS file from the bad disk before copying.

Using SpartaDOS with 1 drive

Again, you must add the XD23E.DOS file when formatting the new disk with the XINIT command. You cannot just transfer this file.

Copying the files with one drive is a more complicated procedure. Use the instructions earlier in this chapter for copying SpartaDOS files with one drive using the SpartaDOS menu.

"Two Sector Modules"

Another thing to look for is any modules that take up 1 or 2 sectors. This means they were damaged in a copying process. All modules take over 5 sectors. Recopy the module from the Shipping or Revision disk.

DISK PROBLEMS WITH SPARTADOS

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IMPORTANT POINTS AND RULES FOR EXPERIMENTERS (*)

* Enter file names without spaces within the name.

If you rename modules, don't forget to rename their back.

The DOS.SYS file must be copied using H. WRITE DOS FILES.

To Duplicate a SpartaDOS disk, first format a destination disk with XINIT.

Don't accept a copy that contains an error.

SpartaDOS is sensitive to RPM.

MICROMOD will format disks in 1050 density only.

Learning to use "wild cards" (DOS manual) will make BACK-UP/COPY FILES more useful.

CHAPTER 28 -- SHIPPING DISKS AND FUNCTIONS OF FILES

THE SHIPPING DISKS

note: A printout of the directories of the shipping disks is included in the program package. Exception: there is no printout for the Spelling Disks.

All shipping disks, other than the Master Program disks, are formatted in DOS 2.5 single density. None of the disks or files are "write protected". You can add "write protect" tabs to the disks, or "lock files" using your DOS system if you like. You should make duplicates of the Shipping disks. The duplicates SHOULD NOT be write-protected, as various application files are stored on the program disks.

Master Program Disk -- DOS 2.5

Use this disk if you do not have SpartaDOS, or if you do not have at least one double density drive. The disk is formatted in "enhanced density" and requires a 1050 drive or double density drive to operate. IT WILL NOT WORK IN A SINGLE DENSITY DRIVE SUCH AS AN 810. If you have an 810 you must request a special single density Program disk. The Master Program includes all the "systems" files required to load MICROMOD. It should be in drive #1 upon power-up. It also contains some "Program Disk User Files" and a few of the most frequently used modules.

Master Program -- Sparta

Use this disk only if you have SpartaDOS and at least one double density drive. If you have a 1050 drive you may obtain the "US doubler" which gives you double density and comes packaged with SpartaDOS. The Master program includes all the "systems" files required to load MICROMOD. It should be in drive #1 upon power-up. It also contains some "Program Disk User Files" and a few of the most frequently used modules.

Auxiliary Disk

This disk contains those functions of the Dated Records program and Directory program that cannot fit on the Master Program disk. It also contains misc. utilities and service files.

Invoice/Statements Disk

This disk holds all the modules required to enter invoices and print statements (or any "continuous" forms).

Inventory/Payroll/Report Generator Disk

This disk contains the modules that specifically apply to inventory, payroll, and report generator functions.

Word Processing/Supplement Disk

This disk is a "boot disk" and will boot into the WP23 Word Processor program. There are three copies of the word processor on this disk: AUTORUN.SYS (boot file), WP23.SYS (loads from Custom Menu), and WP23.SPD (used with SpartaDOS version 3.2 only, must be renamed to WP23.SYS). The disk also contains auxiliary word processing files, and any manual supplements in the form of text files. It may also contain various files which will not fit on the Auxiliary disk (misc. files).

Spelling Disks

These disks contain 126 files which form a spelling dictionary. The file names are all three characters in length and represent alphabetical brackets.

FUNCTIONS OF VARIOUS FILES AND MODULES

ACTCAL.MOD

This module is called from the DISP.MOD module during the execution of LIST commands if a calender type of listing was specified in the format entries. If no calender was specified ACTCAL.MOD will not be run, but instead DIS.MOD will be run to display a spread sheet type of listing.

ACTTOT.MOD

This module is used with the various Invoice Accounts to display various totals, such as totals of payments, listed by each customer on the billing list.

AGING.MOD

This module prints an aging sheet, and also stores finance charges for use with statements. Accessed from the Custom Menu directly, and automatically during the Statement INIT routine.

AREA

This file is one of the "user files" on the Master disk. It holds the "area" names only.

AUTORUN.SYS

On the Master Disk this file contains programming which allows MICROMOD to "boot" automatically on power-up. It is also used during the return from the word processor.

On the Word Processing disk, it is the WP23 program, renamed AUTORUN.SYS so it will boot upon power-up.

AUTORUN.MYD

This is a MYDOS utility (C) Woodmark Systems and is used only by MYDOS users. It formats a Newell/AXLON/RAMCHARGER ramdisk. It must be renamed to AUTORUN.SYS and replaces the AUTORUN.SYS file on the program disk.

BATCH.BAS

This is a BASIC program. It is a convenient utility to create SpartaDOS "Batch files".

CAL.MOD

This module displays a 2 1/2 month calender (CALENDER selection on the Utility menu).

CALC.MOD

This module is accessed with the ARITHMETIC selection. It functions as a ten memory calculator. Calculations are entered and performed by pressing keys in similar fashion to a calculator.

CAP.MOD

This module is accessed with the FILE CAPACITY USED selection. It tells you the percent of capacity in use in account files (current file only), the temp directory, the directory disk files, the NAMES file, and the "listing formats" file ("G" on the program disk).

CAREA.MOD

This module is accessed with the AREA selection. It allows you to change the name of the area, but not to delete an area. Deleting an area by mistake could prevent the program from being capable of displaying account information.

CDIR.MOD

This module is accessed with the selection DIRECTORY INFO. It allows you to delete or change entries in directory records. You must know beforehand whether the record to be edited resides in the temporary directory on the program disk or on a separate directory disk.

CHEAD.MOD

This module is accessed with the selection HEADINGS FROM ACCOUNTS. It allows you to delete, change, or add headings. You must leave enough headings under the account to display previously entered records.

CLISTG.MOD

This module is accessed with the LISTING FORMATS selection. It allows you to change the name of any "listing format" (formats created with LIST commands) or to delete a format.

CMENU.MOD

This module is the Custom Menu. The Custom Menu module also contains some preliminary programming required to run various invoice and statements functions, meaning they may only be operated (selected) from the Custom Menu.

CNAME.MOD

This module is accessed with the NAME selection. It allows you to change any of the Abbreviated NAMES (also called record labels or CUST CODES).

COPY.MOD

This is the module that is run when you select BACK-UP/COPY FILES on the Utility Menu. It provides automatic back-ups of your applications files, and allows copying of various MICROMOD files and modules.

CREC.MOD

This module is accessed with the "RECORD (account)" selection. It allows you to delete any account record or to change data items within a record. You must know the name of the account under which the record is stored.

CTITLE.MOD

This module is accessed with the TITLE OF ACCOUNTS selection. It allows you to change the title of an account and to make a list/printout of all accounts in three columns. You cannot delete an account title as it could then damage the account organization and make records inaccessible.

D

This file on the Master Disk is created when you make your first Directory entry. It is the "TEMP DIRECTORY". When the file becomes full it is UNLOADED to a directory disk.

DEF.MOD

This module handles two functions on the Main Menu. It is used to "DEFINE SYMBOLS" and to "FORMAT (set tabs)" for directory displays/printouts.

DELINV.MOD

This module is called from the RECPT.MOD module whenever an invoice number is entered beginning with a D. It offers a convenient method of deleting an invoice since invoice information is stored in various accounts.

Payments and invoice information can be entered/changed/deleted using

standard account entry/change/delete modules but this is a tedious and confusing procedure because invoice information is stored in several different accounts, e.g. the shipping charge is stored in the SHIP account. If you were to edit information in one account, you would then have to check all the other invoice accounts and change related information accordingly. Using the PAY.MOD and DELINV.MOD modules eliminates the confusion.

The DELINV.MOD module also serves another function not related to deleting invoices. Since there is room in the module it is used to change inventory stock levels as items are sold, saving you from having another module on the disk.

If you are running an inventory and specify that invoice quantities should be subtracted from inventory, this module will be run as you leave the RECPT.MOD module. The quantities and associated information are temporarily stored in the BASIC ramdisk, set up as drive #7. After the stock levels are adjusted the program returns to the Custom Menu (Loads CMENU.MOD).

DELIV.MOD

This module is accessed with the selection V DELIVERY. It allows you to easily enter delivery information into the DELIVERY account (DELIV) in the Dated Records program, and to adjust the stock figures in the inventory files automatically. After running the module calls the CMENU.MOD module (returns to the Custom Menu).

DIS.MOD

This module is called from, and run immediately after, DISP.MOD which is run with LIST commands. If you specify a "calendar listing" in the format DIS.MOD will not be run but instead the module ACTCAL.MOD will be run. DIS.MOD displays a spread sheet type of listing with columns and headings.

DISORT.MOD

This module is accessed with the Y DIRECTORY SORT selection. It allows you to alphabetize directory information in printouts, or to search a string in the directory.

DISP.MOD

This is the first module run in the display sequence specified with LIST commands. It decodes "listing formats" and prints directory information such as an address.

DISTAT.MOD

This module allows you to edit and display "Statement of Totals" formats.

DOS.SYS

This is the DOS 2.5 "boot" file which allows various DOS operations to be specified by an applications program such as MICROMOD.

DSCFIX.MOD

This module is accessed with the DESCR FIX selection and allows the removal of item descriptions from invoices to save room in files.

DA - DZ

Files DA thru DZ represent the alphabetical brackets used to separate records on a Directory Disk. They are the filenames of the directory on a directory disk created with the UNLOAD function.

FENTRY.MOD

This module is accessed by selecting FAST RECORD ENTRY. It is used for entering records into the Dated Records program, thus it performs the same function as the MAKE.MOD module (MAKE command on Main Menu) with respect to entering records. It has several added conveniences for entering records, including a math capability.

FRMAT.MOD

This module isn't accessed from a menu, but called automatically by the LIST.MOD module, which is called with LIST commands. FRMAT.MOD asks all the various format questions concerning a spread sheet type of listing of accounts specified in LIST and INCLUDE entries.

Neither LIST.MOD nor FRMAT.MOD is run when using the last LIST command, "LIST names(s),spec,listing,date,date".

FRMSTAT.MOD

This module allows you to format the totals listed in a spread sheet listing into statement form. It contains numerous helpful comments to help you learn the procedure.

FSTR.MOD

This module is accessed by selecting STORE FAST RECORDS. It can also be accessed at the end of the FAST RECORD ENTRY function at the user's option. It stores records created with FAST RECORD ENTRY in the regular account files. Until this module is run the FAST RECORD ENTRY records are stored in a temporary file on the program disk. The temporary file will be named after the AREA and end with the file extender .TMP (see MAIN.TMP).

If you "know you have entered records" but cannot find them with LIST commands it is likely they have not been stored with FSTR.MOD. You should SHOW the program disk from the Utility menu using the SHOW/FORMAT DISK selection. If there is a file beginning with one of your AREA names and

ending with .TMP then you'll know that the records are in the computer—they have just not been stored in the regular files.

FXREC.MOD

This module is accessed with the ORDER/CONDENSE FILES selection. It will allow you to sort all account records by date so the dates will be sequential in listings.

FXREC.MOD also allows you to restore files in "block form" to take up less sectors on the disk. Thus when you are running short of sectors you should run this module and condense all files as you are prompted with each type of file.

GRLIN.MOD

This module displays a graph according to your specifications. After the graph is completed the GRPRINT.MOD module is called automatically.

GRLINF.MOD

This module is called automatically from the LIST.MOD module if a graphic listing was specified with GR entered to the INCLUDE? question. Otherwise the FRMAT.MOD module is loaded.

GRLINF.MOD asks for all the information required to set up a graph of account record data over various time periods. After the information is entered GRLIN.MOD is run automatically.

GRPRINT.MOD

This module allows you to print the graph just displayed in the GRLIN.MOD modules on the printer. Normal or sideways printing may be selected. After the graph is printed the program returns to the Main Menu (loads MENU.MOD). If no printing is chosen the program returns to MENU.MOD immediately.

IEDIT.MOD

This module is accessed with the EDIT/INIT/SEARCH selection. It allows you to create and enter inventory records. It is also used to update/edit and search/display records.

INUM

This is the invoice number counter maintained on the Program disk.

INVAUX.MOD

This module is run during the Invoice entry function only if an automatic description/price print from inventory or a separate shipping address is specified in the global commands.

INVLIST.MOD

This module is accessed with the Y DESCR LIST selection. It allows you to create a list of model numbers and associated descriptions to be automatically displayed when entering invoice information in the RECPT.MOD module. The list you create will be stored in a separate file on the program disk called INVLIST.

INVLIST

File of item model numbers and descriptions (see INVLIST.MOD).

INVPRT.MOD

This module is called only from the RECPT.MOD module and displays, prints, and stores the invoice. The program then returns to the RECPT.MOD module automatically.

IPRINT.MOD

This module displays or prints listings of inventory items as specified in the IPRINTF.MOD module. It also displays various totals. After running the module returns to the Custom Menu.

IPRINTF.MOD

This module is accessed with the G PRINT/TOTAL selection. It allows you to enter various information about what inventory information you would like to display or print for groups of inventory items at a time. After the information is entered the module runs the IPRINT.MOD module automatically.

ITAKE.MOD

This module is accessed with the K TAKE INVENTORY selection. It allows you to enter the figures from a physical count of inventory items quickly and easily. Adjustments and discrepancies are noted and listed.

It is also used to list suggested orders when accessed with the ORDER LIST selection.

Ixx

Files beginning with "I" followed by two capital letters or numbers are inventory record files created with the EDIT/INIT/SEARCH selection and stored on an inventory disk.

LGL.1 and LGL.2

WP23 Word Processor format files.

LIST.MOD

This is the first module accessed when using one of the first four LIST commands on the Main Menu. It decodes the entry, checks for errors and asks the INCLUDE? question.

MAIN

A "MAIN" file will be create if you use the "area" name MAIN as suggested in the manual. The MAIN file will then hold the titles of all accounts.

MAIN.H

If your area name is "MAIN" then the MAIN.H file will hold all heading titles.

MAIN.TMP

If your "area" title is MAIN then the MAIN.TMP file will hold all records entered with FAST RECORD ENTRY until these are stored in regular account files with STORE FAST RECORDS.

MAKE.MOD

This module is the second module run when using the MAKE command, after MAKEP.MOD. It will ask for headings if a new "general account" was opened. If no new general account, or if no new account was specified, it will ask for record entries under the account specified in the MAKE command.

MAKEP.MOD

This is the first module run when you use the MAKE command. It checks to see if the accounts you entered in the command are already in the computer. If not it will set up new accounts. If so it will bypass setting up accounts and load the record entry module, MAKE.MOD.

MAN.MOD

This module is accessed by pressing H from the Main Menu. It displays the Supplement Table of Contents to access MICROMOD text files which may be read or printed. If using 2 drives the text files must be in drive #2.

MARKER.TMP

This short file holds the lengths of the NAMES file and TEMP DIRECTORY file (D) on a Remote Disk so the computer can tell if new NAMES or directory entries were made at the Remote Station.

MENU.MOD

This module is the Main Menu and is where the program will always end up upon power-up. The computer will boot into any module you RENAME to MENU.MOD. If you were then to load the real MENU.MOD into a ramdisk (say from the Records Disk) atarimuseum.nl you would access the real menu. This

gives you a degree of protection against unauthorized use of the program.

MICONV.MOD

This module is accessed with X MICROMOD CONVERT. It allows you to convert MICROMOD text files back to word processor files. It is most often used when you have lost the original word processor file, or more frequently, don't care to search for it. It offers a way to convert ASCII files created with other programs to WP23 files. First convert the standard ASCII file to a MICROMOD text file, then use this module to convert the file to a WP23 file.

MOD1.SYS - MOD2.SYS - MOD3.SYS

These are MICROMOD systems files which must reside on the MICROMOD boot disk (Master Program disk) in order for MICROMOD to load successfully.

N

This is the NAMES file, always on the Master Program disk. It is created when you enter your first abbreviated NAME. You should make printouts of the NAMES file whenever you add new NAMES (at the Main Menu press N and then the space bar). Printouts allow you to re-build the file easily if it is ever lost.

NLIST.MOD

This module is called from DIS.MOD and prints the totals from the listing (if any), information specified in the "spread sheet form" (if any) to be printed after the listing, and asks the question "DO YOU WANT ME TO REMEMBER HOW TO SET UP THIS LISTING?" if one of the first four LIST commands was used.

NSORT.MOD

This module is accessed with the NAME REMINDER LIST selection. It will print or display each Abbreviated NAME in alphabetical order, and the top line from the first address in the directory for that NAME.

NUMSORT.MOD

This module is accessed with the INV# SORT selection. It allows you to print a sorted list of invoice numbers from any of the invoice accounts for error checking (duplicates, missing invoices, etc.).

ORGZ.MOD

This module is accessed from the Main Menu with the "ORGANIZATION" selection. It decodes and displays all the accounts and headings organized into a horizontal organization chart.

PAGE2

This is a utility file created by MICROMOD to hold title information for repeated printing in multiple page statements and invoices.

PAY.MOD

This module is run from the Invoice Entry function at the user's option. It allows payments for invoices to be entered conveniently. After the module is run the program automatically returns to the Invoice module (RECPT.MOD).

PAYBRK.MOD

This is the slowest MICROMOD function. Accessed with the PAYMENT BREAKDOWN selection, it allows you to itemize with totals the various invoice charges attributed to payments, by customer.

PRCODE.BAS

This is a BASIC program which allows you to display and change pre-set printer codes in the word processor.

PSCHED.MOD

This module is accessed by selecting LOAN STATISTICS. It will display a loan schedule, similar to a mortgage schedule, or compute compound interest.

PUT.MOD

This module, accessed from the Main Menu with the "PUT name" selection, is used to put information in the directory.

PYR.MOD

This module is accessed with the PAYROLL selection. It allows you to enter/edit tax tables, and displays all the various wage and deduction categories and methods.

PYR2.MOD

This module is automatically accessed by the PYR.MOD module to enter payroll records.

Q

This is the file which holds formats for spread sheet, calender, statements of totals, and "spread sheet forms" listings, but not Report Generator formats. It is one of the program disk "user files".

RAMDISK.COM

This is the DOS 2.5 utility (C) Atari, Inc which formats an XE ramdisk into 499 single density disks.

RDBASIC.COM

This is the SpartaDOS utility (C) ICD, INC. which formats a BASIC ramdisk using BK of otherwise unused ram in XL and XE computers. MICROMOD makes frequent use of this ramdisk for speed, if present.

RD.COM

This is the SpartaDOS utility (C) ICD, INC which intelligently formats various ramdisks, XE, Rambo, etc. This file may be modified to format a Newell ram upgrade into a ramdisk (see Chapter 1).

RDIS.MOD

This is the module which accumulates account information to be displayed in a Report Generator formatted printout.

RDISP.MOD

This is the module which decodes a Report Generator format.

RECPT.MOD

This is the Invoice Entry module, accessed from the Custom Menu with the INVOICE selection.

REMOTE.MOD

This module is accessed with the REMOTE selection, and reads Remote Disks. It stores the information in various MICROMOD regular files, including inventory updates of items sold.

RFRMAT.MOD

This module is accessed by typing a period to the INCLUDE? question. It allows you to format a Report using the Report Generator.

RFRMAT2.MOD

This is the second Report Generator formatting module, and is called automatically by the RFRMAT.MOD module.

RLOOP.MOD

This module is accessed with the BATCH STATEMENTS selection and controls the display loop of modules when printing continuous forms or reports from a batch name list. It also handles maintenance of the batch names lists.

RMDSK.SYS

While this module ends in ".SYS" it has the structure of any module. It

is the utility which loads the ramdisk upon power-up, and can be re-run using the ENTER MODULE selection on the Utility Menu.

RNLIST.MOD

This is the module which displays/prints output created with the Report Generator. It is called automatically by the RDIS.MOD module.

Rnnn

Any file beginning with R followed by a series of at least three numbers is an "Account records file" or "Dated Records file". The numbers stand for the month/year of the records the file contains. If more than three numbers, the ending numbers stand for the day the file was "closed" (became full).

SHDSK.MOD

This module is accessed with the SHOW DISK selection and allows you to list or print all the filenames on the disk including sectors used and total free sectors remaining. It also allows you to delete files and rename files.

SHOW.MOD

This single module handles all directory displays accessed with SHOW commands, and the two selections, NAMES and ADDRESS SORT CODES on the Main Menu.

SIDEWIND

This is a game file which may be accessed only from the word processor. All files to be loaded into the word processor must reside in drive #1.

SINIT.MOD

This is the first module run when you INIT for statements of invoices using the BATCH STATEMENTS function. It does error checking and reconciliation of payments and invoices.

SINIT2.MOD

This is the second module run during INIT for statements of invoices. It assigns and stores beginning balances.

SPELL.MOD - SPELL1.MOD - SPELL2.MOD

These three modules are run in sequence and are accessed from the Custom Menu with the SPELLING CHECK selection. They will check each word of a WP23 text file and compare it with the words on the spelling disks (dictionary). Words not matched will be listed and/or stored, along with the WP23 screen number corresponding to the word's location.

SSCALC.MOD

This module accomplishes the math and storage functions according to instructions given in the SSCALP.MOD module (see below).

SSCALP.MOD

This module is accessed with the HEADING MATH selection, and asks for various instructions regarding math to be performed on data under particular headings between dates. Once the instructions are entered the SSCALC.MOD module is run to do the actual computation and storage (if specified).

SSFORMS.MOD

This is the module run when you elect to "FORMAT A SPREAD SHEET FORM"

during the format entries following use of LIST commands. It allows you to embellish a spread sheet type of listing with titles, text files, etc.

STAT.N

This file is created when you enter addresses in invoices, or create a batch names list in the BATCH STATEMENTS function. The first part of the name corresponds to the name of the "listing format" or Report Generator format to which the batch NAMES will apply. The file is stored on the Program Disk.

STD.1 - STD.2

These are word processor format files shipped with the program.

STOPLOAD.MOD

This file may contain anything, since the contents of the file are ignored. It is only the file name which is important. When the computer encounters this "module" it will stop loading modules into the ramdisk. Therefore the positioning of the file on the disk is the only consideration for its use.

STRUK.MOD

This module is accessed with the K DISK FILE STRUCTURE selection. It allows you to view various application files as they appear to the computer in "raw form". There will be various characters which have no meaning to the user, but will help us to support the program over the phone in case of any problems related to application files.

SYMBOL

This file holds the SYMBOL TABLE on the Main Menu which in turn holds the "global commands". The SYMBOL file must be on the Master Disk for MICROMOD to load properly.

TABLE.nx

Any file beginning with "TABLE," and ending with an "extender" of one number and one letter is a payroll table. These files may go on any disk, but it is important that all payroll tables reside on the same disk.

TMP

This file is a service file created by MICROMOD during the Statement INIT sequence to store temporary data. It will be stored on the disk in drive #2 if no ramdisk is in use.

UMENU.MOD

This module is the Utility Menu. The Utility menu has several functions that are programmed into the menu file itself, so they do not require

modules to operate.

UNLOAD.MOD

This module is accessed with the selection UNLOAD TEMP DIRECTORY. It allows you to distribute directory information which is stored in the temporary directory (file "D" on the Program disk) into appropriate alphabetical files on a separate Directory Disk. This makes room available for entering more directory information in the temporary directory file. The temporary file will hold about 170 addresses.

WMENU

This is the WP23 Word Processor menu which is just a text file that must be printed out. There is no menu included in the program itself. A printout of the WMENU file is included in the program package.

WORD.ACM

This is a list of words from text files which the spelling function could not find in the dictionary. It is maintained on an Accumulator disk which is supplied by the user. The words may later be added to the dictionary when time is available.

WP23.SYS

This is the WP23 word processor. It is a "binary file" which may only be copied using DOS. It is accessed with the WP23 selection on the Custom Menu.

WP23.SPD

This is a modified WP23 word processor which is renamed to WP23.SYS to replace the original WP23.SYS only in those applications using the 3.2 version of SpartaDOS to run MICROMOD. It allows a return from the word processor to the MICROMOD menu without re-booting and/or reloading the ramdisk.

WPCONV.MOD

This module is accessed with the W WP CONVERT selection. It allows you to convert text files created with the Word Processor program into MICROMOD text files, or into standard ASCII files (see Chapter 1). The converted MICROMOD text files may be read using the H SUPPLEMENT or WRITE selections, and/or may be printed in "spread sheet forms" or Report Generator formats.

The very first line in a MICROMOD text file is a number which is the total byte count in the file. Of course this is not shown when the file is displayed. The second line begins with the text of the file.

WPDEMO

This is a WP23 text file which demonstrates some formatting features of the word processor. It can be accessed (loaded) only from the word processor.

XC23E.DOS

This is a version of SpartaDOS that is used only for creating a Word Processing boot disk. It recognizes and runs any AUTORUN.SYS file on the disk (which will be the word processor).

XD23E.DOS

This is the version of SpartaDOS on which the MICROMOD program is shipped (Sparta Master Disk). It is the most efficient DOS for use with MICROMOD, though you may need to use version 3.2 to support various peripherals.

USING MICROMOD WITH VARIOUS HARDWARE

note: This information is supplemental to the information on various DOSes in chapter 1.

Atari 800 (64K)

If you are using an Atari 800 computer you cannot use SpartaDOS to run MICROMOD. The reason is that version 1.x of SpartaDOS (the only one that does work with the 800) writes on "page 6", an area of memory normally reserved for the applications program. MICROMOD needs to use this area.

Use the DOS 2.5 Master Disk. If you have a double density drive, or an Axlon compatible ramdisk, you should make up another Program Disk using MYDOS. See chapter 1 for the procedure to do this.

USING MICROMOD WITH SINGLE DENSITY DRIVES

If you have only single density drives, then you cannot read either Master Program Disk. You must order a single density Program disk or obtain the use of a 1050 drive to copy the DOS 2.5 Master Disk to a single density disk.

Since the rest of the shipping disks are in single density, you do not have to create any other new disks. You can just duplicate the shipping disks (both sides) to use as your working copies.

You will have to format a blank disk to use as your "records disk". With one drive the computer will stop at appropriate times to allow you to insert the records disk.

There is a special concern regarding disk management when using SD (single density) drives. A single density Master Program Disk will typically have fewer free sectors even considering that there will be less modules on the disk.

There are several additional "user files" that will be added to the master disk as you use the program:

- A file for the NAMES list (file: N)
- The temporary directory, mostly for addresses (file: D)
- A file for "listing formats" (file: B)
- The AREA file (file: AREA)
- and two files for each AREA which hold account titles and headings.

The free sectors will be sufficient to hold all these files in the beginning, as you are learning how to operate the program. You should check the disk directory frequently, though, to make sure you have a thousand or so free bytes on the master program disk. Select QUICK CHECK

on the Main Menu.

Making More Room on the Program Disk

When the number of FREE SECTORS gets to be 10 or 20, or the number of FREE BYTES gets to 1,300 or 2,600, you will have to start making more room on the program disk for your "user files". The user files MUST reside on the disk in drive one, which will be your Master Program disk. The systems files must also remain. The only way to make more room is to transfer modules off the master program disk onto another disk. There is plenty of room on other Shipping Disks for extra modules: Invoice, Inventory or word processing disks.

If you do not have an XE you do not need the file RAMDISK.COM. Erasing it will give you 9 sectors. Next you should transfer the least used modules. Suggestions:

Once you have set up most of your accounts, you will not need the two modules MAKEP.MOD and MAKE.MOD for setting up accounts. You will use them only for entering records. However the modules FENTRY.MOD and FBTR.MOD can also be used for entering records. Decide which record entry procedure you prefer, and then transfer one of these pairs of modules off the master disk. This will give you another 35 to 50 sectors with only a negligible increase in disk switching.

Other candidates are COPY.MOD, CDIR.MOD, and SHDSK.MOD. Transferring these off the master disk will give you an additional 80 or so sectors. Without the extra entry modules and RAMDISK.COM this gives you about an additional 120 to 140 sectors for "user files" which should be plenty.

You can make another refinement. With one SD drive users find it most convenient to use the back side of the program disk for frequently used modules that cannot fit onto the program disk. This makes disk-switching much faster and easier. You can "notch" a double sided disk and format the back side, and then transfer frequently used modules to it.

MICROMOD WITH TWO DRIVES

With two drives the problem of disk-switching is virtually eliminated. You have room on the "records disk" in drive #2 for frequently used modules that will not fit on the master disk in drive #1. These modules will load automatically from the "records disk" in drive #2 without interfering with records operations. MICROMOD stores records so efficiently that you should still have plenty of room on the "records disk" to avoid disk-switching, even with a SD drive.

IF YOU HAVE A 1050 DISK DRIVE

If you have a 1050 drive, but no double density drives, duplicate the DOS 2.5 Master Program to use as your operational Master Disk.

One option you may find advantageous, especially if you're using only one 1050, is to store account information right on the master program disk rather than on a separate records disk. Most non-business users find that they can get several months of records on the program disk without running out of free sectors. To do this just do not enter a "records" disk when the computer prompts you to. Press RETURN and the program will read/write the records from/onto the program disk. When the disk starts getting full you can transfer old files off onto a "records disk".

Two 1050 Drives

With a 1050 drive to hold your Records Disk, you'll have plenty of room on the Records Disk for frequently used modules that will not fit on the Master Disk. You should still have enough room to allow your "records" disk to double as a "directory disk" if the Temporary Directory file on the program disk becomes full. This eliminates disk-switching in all functions, even with a separate directory disk.

Note: if you are using 2 drives the word processor must load from drive 2. Do not transfer WP23.MOD to the Master Program disk.

800 XL COMPUTER

With an XL you will eventually want to use the SpartaDOS version of the program, if not right away. There are four advantages of using the DOS 2.5 version, at least temporarily. First, you most likely already have DOS 2.5, and therefore can access the DOS 2.5 menu to format disks, duplicate the "shipping disks" and copy files. This, of course, is necessary to operate the program.

Secondly, the "boot files" on the DOS 2.5 master program disk occupy less room on the disk. You can therefore get more modules on the Program disk and reduce disk-switching. This is of concern only if you are using one single density drive.

Thirdly, in order to use the SpartaDOS version you will need to purchase a copy of SpartaDOS. This is a minor expense for such a powerful system, but one you may need to consider. At any rate you should put SpartaDOS at the top of your future upgrade list. If you purchase a US doubler (approx. \$50) to convert your 1050 to double density, SpartaDOS is included in the package.

Lastly, if you have only stock 1050's you will not be able to read the Sparta Master Program disk, since it is in double density. You COULD use a 1050 density Master Disk on SpartaDOS--we don't ship it this way because you're just as well off using DOS 2.5 with a stock 1050. It will run just as fast, except for the loss of the BASIC ramdisk, and is easier to use. If you do want to use SpartaDOS in 1050 density, you can order a 1050 density program disk, or borrow access to a double density drive to convert the Sparta Master Disk to 1050 density. You won't have room for all the modules. Print out the directory for the DOS 2.5 Master Disk and use this as a guide to transfer files to your 1050

density Master Disk. The modules you do not transfer will be found on the other Shipping Disks.

If you have at least one double density drive (drive #1), the advantages of SpartaDOS far outweigh the advantages of the DOS 2.5 version.

If you are using double density drives or 192K+ memory upgrades, you must use the SpartaDOS version to take advantage of these. With SpartaDOS you get a "free" 8K ramdisk on any XL or XE. This BASIC ramdisk is fully utilized for greater speed.

STARTING WITH DOS 2.5

You can start out with DOS 2.5 and then switch to SpartaDOS any time. The files are fully compatible and can be automatically transferred as if you were making back-up copies to the new disk.

DOS 2.5 with the XL

You do not need the RAMDISK.COM file so erasing it will give you extra room on the Program disk. If using one drive see the suggestions for using the DOS 2.5 version with one drive in the previous section.

DOS 2.5 with the XE

There is a special convenience available with the XE, especially if using only one disk drive. The idea is to "boot" the system and load the ramdisk with modules with a separate "boot disk" and then to use another disk as the "master program disk". The "Boot Disk" must have the following files:

DOS.SYS, AUTORUN.SYS, MOD1.SYS, MOD2.SYS, MOD3.SYS, SYMBOL, RMDISK.SYS and RAMDISK.COM. You should also have 499 sectors of your most frequently used modules on the boot disk to load the ramdisk.

After the system boots and stops at the Main Menu, you can take out the "boot disk" and insert the "master program disk" which will contain the modules not in the ramdisk, and the "user files". You'll also have extra room on the program disk for records files, thus the much improved efficiency with only one drive in the system.

EXCEPTION: WHEN USING THE MENU FUNCTION "DEFINE SYMBOLS" YOU MUST RE-INSERT THE "BOOT DISK" AS THIS FUNCTION UPDATES THE BOOT FILE "SYMBOL" (the computer reminds you to do this).

SPARTADOS AND ONE DOUBLE DENSITY DRIVE

You can use a "boot" disk (see above) to fully utilize the drive and gain room on the Master Disk to hold record files.

The files that must be on the "Boot Disk" are:

XD23E.DOS, STARTUP.BAT, RMDSK.SYS, MOD1.SYS, MOD2.SYS, MOD3.SYS, SYMBOL, RD.COM, RDBASIC.COM, and MENU.MOD. Besides MENU.MOD you should have enough of your most frequently used modules to fill up the XE ramdisk (499 sectors total).

When the program stops at the Main Menu you can insert the master program disk which will contain more modules and the program "user files". YOU MUST RE-INSERT THE "BOOT DISK" WHENEVER USING THE FUNCTION "DEFINE SYMBOLS" AS THIS UPDATES THE "SYMBOL" FILE.

XL OR XE WITH MEMORY UPGRADE

There are several memory upgrades available for both the XL and XE computers. Virtually all of these result in at least a 192K ramdisk capability. SpartaDOS must be used to utilize these upgrades. MICROMOD will utilize the full ramdisk regardless of it's size (up to 4 megabytes). With the MICROMOD program 256K or 320K is plenty of capacity for most small business applications, though users writing over 700 invoices per month will have an easier ramdisk management job with a 512K XE upgrade. A hard drive is not usually worth the extra problems associated with it IN A SMALL BUSINESS unless you have several high volume points-of-sale.

A 256K system with only one drive will be a rarity since an additional drive is a much more advantageous first upgrade, but for those who do wind up with this system it offers advantages over a one drive system with low memory.

The ramdisk can be loaded with modules and user files from the master program disk, and records files and directory files from records disks. This will make display functions work at much faster speed, though you will still have to insert disks when entering records. The inventory functions may be used, but the INVOICE/STATEMENTS functions still require two drives.

XL OR XE WITH TWO DRIVES

This is the minimum recommended system for standard business use since the INVOICE/STATEMENT and continuous forms functions are available. Inventory capacity is up to 4000 model numbers (SD) or 8000 (DD).

The size of the drives required to eliminate disk switching during business hours depends on the number of records you store per month, which will determine the number of months you may keep in the "records disk", along with extra modules.

Single density drives will be adequate for low volume businesses storing 500 records or so per month. 1050's will handle 1000 or more. Double density drives will handle several thousand records per month without requiring disk switching in the normal course of business. The increase in efficiency is a 2:1 "I/O" ratio when adding

disk capacity.

Doubled 1050s

If you do not already have double density drives, we currently suggest that you use US doubled 1050 drives. The price is about the same as other double density drives, but the 1050s will offer the advantage of the Ultraspeed feature of SpartaDOS, and a stepped upgrade expense (can be used in enhanced density first). With large volume the disk operating time becomes more significant. US doubled 1050s offer about as high a floppy drive speed as any system, and for much less money than other "doubler" systems we've seen with comparable speed.

Finally, Micromiser is most experienced with 1050's. If you have drive problems we will be in a better position to offer support.

This is not to say that other drives are not as good or better than the 1050. It's just that SpartaDOS was the DOS of choice for MICROMOD and SpartaDOS happens to support three times faster US doubled 1050s with the Ultraspeed feature.

note: we (and ICD Corp) recommend 1050's manufactured in Singapore, as opposed to drives manufactured in Hong Kong, as there is some evidence that they operate more reliably in double density. We recommend that you use only brand name high quality double density disks, as we experienced problems with cheap disks in double density. Lastly, with continual use, we suggest a small 4" cooling fan, operating just fast enough to keep the air moving around the 1050's.

INVENTORY, REMOTE DISK

It is just as well to put the inventory modules on the inventory disks themselves since they must be inserted in the drives anyway. You could also load the inventory modules into the ramdisk if you like.

If using a remote terminal, REMOTE.MOD must be added to the Program disk.

LOADING THE RAMDISK

The module which loads the ramdisk is called RMDSK.SYS. It is automatically loaded and run during the booting process (system power-up). Though it is a MICROMOD module, it is named RMDSK.SYS to remind you that it must reside on the program disk, or whichever disk contains the boot files.

This function contains five sections or five "screens" in which various file names are listed and then loaded one at a time into the ramdisk. As each file is loaded a "X" character is placed in front of the file name so you can easily track the process of loading. At the bottom of the screen the remaining ramdisk sectors will be listed. The number of sectors each

file takes up (on the source disk) will be displayed to the right of each file. The numbers will correspond to the number of ramdisk sectors occupied by each file only if the source disk is formatted in single or 1050 enhanced density. Ramdisk sectors are formatted in single density. If the source disk is formatted in double density twice as many ramdisk sectors will be used as the number of sectors displayed for each file listed.

At the top of each screen are instructions allowing you to press various keys, without interrupting the loading process, to select different loading options. You can press M anytime to discontinue loading the ramdisk as soon as the current file is loaded and go directly to the Main Menu. You can also prevent running the ramdisk load utility altogether by pressing M during the initial booting process.

While loading files listed on any screen, you can discontinue loading that group of files anytime and go to the next screen by pressing the key representing the next section which is displayed at the top of each screen.

THE FIRST SCREEN

On this screen will be listed all the modules on the program disk (or boot disk) in the order that they appear in the disk directory. The computer will start loading them automatically and load them all unless you divert to the menu or the next screen. If you will frequently want only certain modules in the ramdisk you can re-order the modules on the program disk by initializing a new disk with the boot files on it, and then transferring files to it in a different order. Don't forget to transfer your user files too!

The STOPLOAD.MOD file

If you have a file named STOPLOAD.MOD on the Master Disk, then the computer will load only those modules which appear before the STOPLOAD.MOD file in the disk directory. Thus you can get just the modules you want into the ramdisk without manually interrupting the loading.

For those who don't have a short one sector file readily available to rename to a STOPLOAD.MOD file, here's a way to create one from BASIC. Under the READY prompt type:

```
OPEN #1,8,0,"D1:STOPLOAD.MOD":CLOSE #1
```

This will put an empty file named STOPLOAD.MOD on the disk in drive #1.

THE SECOND SCREEN

All the program disk "user files" and "service files" are listed on the second screen. They will all be loaded into the ramdisk in sequence unless the program is diverted to the next screen or the menu.

When the computer is loading User Files it will also load any files not having an extender, or any files ending in ".H" or ".N" (to get all account heading files and Batch Name Lists). This is a way to get your own files into the ramdisk, assuming they were created with the MICROMOD program. There is a special provision to keep from loading the SYMBOL file.

THE THIRD SCREEN

On this screen the computer lists all the account records found in drive #2, or will wait for you to insert the records disk if using only one drive.

An important refinement is added to this listing. The files will be listed and loaded starting with the files with the most recent dates. They will all be listed in reverse date order. Thus you can easily load only recent files if you are trying to save room in the ramdisk. All files will be loaded unless you divert the program to the next screen or to the menu.

There is a way to automatically divert loading to the next screen: rename the first file YOU DO NOT WANT loaded to end in the letter "S" (add the S to the existing name). If you have more than one file in a month the S must be added to the first file for the month for it to work. You can still list the file using LIST commands (it will load from the drive).

THE FOURTH SCREEN

On this screen all the directory files are listed (if you have a separate directory). If the directory is not found the computer will sound the buzzer (through the TV speaker) and wait about 60 seconds for you to insert a directory disk and press RETURN. If you do not have a separate directory disk just press RETURN without inserting a different disk. If no directory is found the second time the computer will go immediately to the fifth screen. If you press M the computer will go to the Main Menu. If you take no action during the 60 second wait the computer will go to the Main Menu.

THE FIFTH SCREEN

The computer will stop and ask if you would like to load more modules into the ramdisk from other disks.

If you don't care to load other modules press M to go to the Main Menu. If you do wish to load modules from another disk insert the disk in drive #1 and press RETURN. The modules in drive #1 will be listed on the screen in the same order as they appear in the disk directory and loaded in sequence. All modules will be loaded unless you divert to the Main Menu with the M key.

After the modules are loaded the computer will stop and ask if you have more modules to load, and so on. It will keep stopping and loading modules until you enter an M before pressing RETURN.

ALL OR NOTHING!

The computer will load all account files for a month, or none for that month. It checks before loading any month to make sure there will be room, including B1 sectors left over. It is equally important to load all User files or none, and all Directory files or none, but the computer doesn't check this--it's up to you!

SPECIAL KEY INSTRUCTIONS

If you press the B key while the modules on screen one are loading, the computer will stop and wait for you to switch the disk in drive #1 before going to screen two. This allows you to load a separate "boot disk" and then switch to an "operational" master disk.

Randisk Size

To take full advantage of the size of your randisk and to load it properly, MICROMOD must determine how many free sectors it has when empty. This is more difficult than one might expect. There are variations in DOSes, including sector displays, and variations in randisk size and bank switching schemes. Thus we have adopted a rudimentary system which will be compatible with all randisks and DOSes, now and in the future.

If you take no action the program will automatically distinguish between an XE 64K randisk, Rambo or Newell 192K randisk, and upgraded XE 256K randisk. If you have a different sized randisk or difficulty in getting a proper sector count there is a way to manually set the number of sectors. To understand how requires an understanding of how the sectors are displayed in a normal directory listing.

DOS 2.5 and SpartaDOS display a three digit sector count of sectors remaining, such as:

530 FREE SECTORS

while MYDOS displays a 4 digit count, such as:

0530 FREE SECTORS

To make the program compatible with all doses MICROMOD looks at the last three digits only. But this means it cannot tell if the number 530, for instance, really means 530, 1530, 2530, or some higher number. There must be a way of determining the "thousands" digit. Here's what the program will do automatically:

If the sector count is between 480 and 515 then there will be no change

(it's a standard XE). If the count is less than 100 MICROMOD will add 2,000 (it's a modified XE with a 256K ramdisk). Any other count will result in 1000 sectors being added.

If this results in a wrong sector count for your ramdisk, here's how to change it:

When booting the program, press a key anytime before the ramdisk load screen appears. The key you press will determine how many THOUSANDS of sectors will be added to the standard DOS 2.5 display (last three digits). If you press "0" nothing will be added. If you press "2" 2,000 sectors will be added, and so on. By pressing a number key you can add up to 9,000 sectors.

But how about those megabyte ramdisks? You are not limited to just pressing number keys. The numbers will keep increasing by using a letter key. The "A" key will add 10,000 sectors, the "B" key will add 11,000 sectors, and so on up to the "Z" key which will add 35,000 sectors (about a 4.5 megabyte ramdisk). The only key that won't work is the "M" key which aborts the ramdisk load altogether. This should take care of the immediate future!

As soon as the first ramdisk load screen appears the key you pressed will have been noticed and you can press other keys to accomplish other purposes as noted.

THE RAMDISK LOAD UTILITY KEEPS 81 FREE SECTORS IN THE RAMDISK FOR SERVICE FUNCTIONS. When the "sectors remaining" reaches 81 the computer will go directly to the Main Menu.

LOADING THE RAMDISK MANUALLY

You can also load the ramdisk using the BACK-UP/COPY FILES selection on the Utility Menu. Just specify drive #8 as the destination drive.

IMPORTANT POINTS AND RULES FOR EXPERIMENTERS (#)

With an 800 use the DOS 2.5 version.

Single density drives present special concerns for disk management.

Notching and using the back side of the Program disk will save disk-switching time.

With a 1050 home users can store account records on the Program disk.

The word processor file must be in drive #2 if using 2 drives.

If using a "boot disk" insert it when "defining symbols".

You can put the inventory materials on the inventory records disk.

Press M anytime after power-up to go directly to the Main Menu.

The ramdisk load utility keeps 81 sectors free in the ramdisk.

‡ Be sure to load all User files or none, all Directory files or none.

‡ If using a Remote Disk the module REMOTE.MOD must be on the Master Disk.

APPENDIX 1 -- CHECKBOOK EXAMPLE

If you will look at Exhibit 1 you'll find two listing examples of a checkbook statement. This MICROMOD user has gaurdianship of "Arnold" and uses a separate checking account to keep track of incomes and expenses for him. Neither of these listings reflects a good account structure for a checking balance. To be fair the user did not have a manual to help him! We present the examples for illustration purposes only. You should not try to duplicate them exactly. A discussion of the weaknesses will be helpful.

The listing at the top of Exhibit 1 reflects the first try at setting up the account. (Notice how neatly the Epson LX-80 prints in condensed mode). The account was established with:
MAKE ARNOLD,MAIN

for a general account titled "ARNOLD" and the area "MAIN". The headings:

```
DEP,CHK#,AMT,BAL,REM
```

were entered. The computer added NAME, DATE, and COMMENT.

Note that there is a heading for the checking balance, meaning the user must compute and enter this, not the computer! This was a very tedious entry job. The running total column just prints useless information.

At the bottom of the page is the second try at it. The accounts are the same, but with the different headings:

```
CHK#,REM,AMT,DEP
```

Again, the computer added NAME,DATE and COMMENT. In this example the balance is not entered when entering records, but calculated when the records are listed. The entries for this listing began:

```
LIST CHK#,REM,AMT-,DEP+ FROM ARNOLD
```

No INCLUDE? entries were added since only one account (ARNOLD) was listed. The dates were probably 1,86 and 5,31,86. The tabs were approximately

```
NAME?0 (no NAMES listed)
DATE?1
CHK#?6
REM?12
AMT?22
DEP?31
TOTAL?43
```

This account set-up is good, except for two things. First, the names of the payees and payers were entered to the REM? prompt when entering records. Thus each name is stored on the disk. This wastes

disk space and makes everything (slightly) slower. Though not listed in the example, there is always a NAME heading and the NAME? prompt appears first when entering any record. The names listed in the REM column should have been entered under the NAME heading, and gone into the NAMES file.

Secondly, this user is entering the beginning balance into the "ARNOLD" account under the DEP or deposit heading. This reflects an untrue situation, though it "fools" the computer into performing the correct math. It will be impossible to add up deposits for more than one month because the records contain previous balance amounts.

Another account should be created to hold the previous balance. This would be accomplished by entering:

```
MAKE PRV.BAL,MAIN
```

(note: PREV.BAL is already used by the invoice program)

and then entering the headings:

```
TOP,REF,AMT
```

Then to enter the previous balance you would type:

```
MAKE PRV.BAL
```

and enter XX (dummy name) for the NAME, the letter "T" to the TOP? prompt, and the amount to the AMT? prompt. You could enter "OPENING BAL" to the REF prompt if you wanted these words printed in the listing. This and the REF heading are optional. Always enter the first of the month as the date for previous balances. Otherwise the TOP feature won't work.

To create the listing you would make the same LIST entry as shown above, but would INCLUDE this entry:

```
INCLUDE?AMT+ FROM PRV.BAL  
OR  
INCLUDE?REF,AMT+ FROM PRV.BAL
```

There would be another column in the printout titled PRV.BAL and AMT, which would be for the previous balance.

The reason the TOP heading was included and T was entered under it is that this forces the computer to sort the previous balance record to the top of the list when date sorting with ORDER/CONDENSE.

There is no provision in the DATED RECORDS program to automatically enter the previous balance into the next month's PRV.BAL account. At the end of each month you must enter the total figure from the previous month's listing into a PRV.BAL record.

If you have more than one checking account (as this user obviously does) then you will have a previous balance for each. You do not have to

create separate general accounts. You can just add subdivisions under PRV.BAL since all previous balances will have the same headings. To do this you might enter:

```
MAKE PRVBAL1,PRV.BAL,MAIN  
MAKE PRVBAL2,PRV.BAL  
MAKE PRVBAL3,PRV.BAL
```

to set up previous balances for three checking accounts. Then to list your total balance in all accounts you would simply enter

```
LIST PRV.BAL
```

then enter the first of the month as the date, and press RETURN to everything else.

ARNOLD ACCT FIRST FIVE MONTHS '84
 L DEP*,CHK*,INT*,BAL,BEN FROM ARNOLD
 USED ELITE FONT

NAME	DATE	DEP	CHK#	AMT	BAL	REY	TOTAL
SS	1/2	322.00			612.22		322
SSI	1/4	24.00			627.22		24a
CYR	1/18		9	322.00	285.22		-4
FNBB	1/27	1.69			283.51		-7.21
SS	1/28	322.00			615.51		324.29
SSI	2/5	24.00			629.51		248.49
CYR	2/11		10	324.00	285.51		-7.51
FNBB	2/25	1.72			283.79		-5.59
SS	2/28	322.00			617.79		326.42
SSI	3/6	24			641.79		330.42
CYR	3/6		101	324	287.79		-5.59
FNBB	3/28	1.42			286.37		-4.15
SS	4/2	322.00			618.37		327.85
SSI	4/8	24.00			642.37		331.85
CYR	4/9		102	324.00	288.37		-4.15
FNBB	4/25	1.31			287.06	INT	-2.54
SS	5/1	322.00			620.06		329.44
CYR	5/6		103	324.00	294.06		-26.54
SSI	5/7	24.00			318.06		-2.54
FNBB	5/27	1.5a			296.54		-9.98
TOTAL		1778.02		1778			-9.98

ARNOLD ACCOUNT 1984
 FORMAT *ARNOLD*

DATE	CHK	REH	AMT	DEP	TOTAL
1/1		OPENING BAL		281.22	281.22
1/1		SS		322.00	612.22
1/2		SSI		24	627.22
1/8	9	CYR HOME	322.00		285.22
1/27		FNBB INTEREST		1.69	283.51
1/28		SS		322.00	615.51
2/5		SSI		24.00	629.51
2/11	10	CYR	324.00		285.51
2/25		FNBB INT		1.72	283.79
2/28		SS		322.00	617.79
2/28		FNBB INT		1.42	619.07
3/6		SSI		24.00	643.07
3/6	101	CYR	324.00		287.07
4/2		SS		322.00	619.07
4/8		SSI		24.00	643.07
4/9	102	CYR	324.00		287.07
4/25		FNBB		1.61	285.46
5/1		SS		322.00	620.46
5/6	103	CYR	324.00		294.46
5/7		SSI		24.00	318.46
5/27		FNBB INT		1.5a	296.94
TOTAL			1778	2859.24	296.94

Exhibit 1

APPENDIX 2 -- Account Set-up -- Simple Billing

note: the following tutorial advises the use of the title INVOICE. Do not use this title if you are using the Invoice program--INVOICE is one of the Invoice account titles.

The following is a copy of a support letter sent to a MICROMDD user in response to a request for help in setting up billing. This was actually the second request. The first request was answered with the tutorial in Appendix 3 of this manual. That is presented after this Appendix because it represents a more complex account set-up. It proved to be to complicated to be of maximum benefit to this user. The advantages of that set-up will be pointed out in Appendix 3.

The letter refers to Exhibit 2, in which the "letterhead" has been edited to preserve anonymity.

Dear Roger,

Since you said you may have lost your NAME file, and since you sent your addresses, I was able to rebuild a name file for the addresses only. I have listed the addresses in various formats and this works fine. There are no sort codes, but you can add these easily by pressing A from the main menu.

You seem to be having a lot of difficulty with account set-ups. I have therefore re-designed your account structure to be much more simply operated. Your addresses are all done but you will have to re-enter all your account records. I strongly suggest that you do this.

I include a printout of the new organization which includes only one account title, JOB, with the area PHOTO. JOB has the headings:

NAME,DATE, QTY, <ITEM, DESCRIPTION, PRICE, CHARGE, COMMENT

You can now enter records from either "MAKE account" or "FAST RECORD ENTRY". If you use "MAKE account" you would type "MAKE JOB" to enter records. If you use "FAST RECORD ENTRY" you would enter PHOTO as the area and JOB as the account. Either way the computer will ask for input:

NAME?
DATE?
QTY?
ITEM?
DESCRIPTION?
PRICE?
CHARGE?
COMMENT?

To the ITEM? question enter the titles you previously had in your account organization, i.e. ROLLS, 5X7, etc. I assume you will also want to use the ITEMS TAX and TRUNC. I use a < character when entering the

heading ITEM so that these titles will go in the NAMES file, saving much room in records, and allowing the computer to check for entry errors.

If you change the QTY heading to +QTY, the PRICE heading to #PRICE, and the CHARGE heading to #CHARGE then the math will be accomplished automatically, and the CHARGE will be entered for you.

If you will be having more than one job for the same customer during the same dates you might want to add a (first) heading titled INV# so that you can enter a certain invoice number for related jobs. As I understand your application this isn't required.

I have made a "listing format" for you call INVOICE. You can list out an "invoice" type of listing by using the last LIST command, i.e. "LIST ALBJ,INVOICE,5,8,86,5,8,86".

I created this format by starting with the entry:

```
LIST ALBJ,QTY,ITEM,DESCRIPTION,PRICE,CHARGE+ FROM JOB
```

Notice that I started with a NAME so that I would get the "ADDRESS YES OR NO?" question later.

I didn't INCLUDE? anything. To the address question I typed 6. To the "STOP, PRINT HEADINGS" question I pressed RETURN to avoid any stopping during the print.

The headings, as they would be listed, then were displayed and I chose "MANUAL FORMAT".

I then entered the following tab settings:

```
NAME?0  
DATE?1  
QTY??  
ITEM?11  
DESCRIPTION?25  
PRICE?60  
CHARGE?70
```

Note that there was no running total column because I only had one "+" in my LIST command.

I pressed RETURN to the "SPECIFICATION FOR EXCLUSIVE LISTING" question. I typed "Y" RETURN to the "FORMAT SPREAD SHEET LISTING?" question. The computer asked me to enter the lines to appear before the address. I entered your letterhead first, then two blank lines, then "SOLD TO:", then pressed RETURN and verified these with "Y" RETURN.

I then entered 16 to the "address tab setting" question.

I then typed RETURN for the lines before the listing as I didn't want any lines between the address and the headings.

I then entered the line "### THANK YOU! ###" to be printed after the listing, a blank line, and then a title line, in case you wanted to add something from the keyboard at the end of the listing.

I include a printout of your "ORGANIZATION" as well as a sample "invoice" (see Exhibit 2). I entered some sample records for John Albert first.

INSTRUCTIONS FOR USING THE NEW DISK

First, print out all account records you have now. I don't know if you have many or few, but they all have to be re-entered, so a printout is the easiest way to start.

AFTER YOU HAVE ALL RECORDS PRINTED OUT make a back up copy of all your present records, in case there is some mistake made. You don't want to wind up with nothing...

APPENDIX 3 -- BILLING (Alternative Method)

The following tutorial was written in response to the first support request by the MICROMOD user mentioned in Appendix 2. If a support letter seems to apply to several users we turn it into a tutorial and included it in manual supplements.

While this billing procedure turned out to be over-complicated for this user's simpler needs, it has some advantages for those with a higher sales volume. These will be pointed out as notes in parentheses.

This tutorial was written before the math capability was added to the FAST RECORD ENTRY function, and therefore uses the HEADING MATH function to make calculations. It would be easier to use math in FAST RECORD ENTRY. The tutorial is presented as is because it illustrates the HEADING MATH function as well as a billing method.

BILLING -- PHOTOGRAPHY

One MICROMOD user is a part time photographer who wishes to use the program for billing. After completing various jobs in the darkroom he wishes to enter the work, including charges, into the computer. He would then like to print bills at the end of the month. He does not wish to specify individual charges per unit in the bills, but only the total charge for each type of processing. He also would like to include a charge for traveling expense at 20.5 cents/mile. For brevity we will assume he performs only 4 types of developing jobs: ROLLS, PROOFS, RUSH, and 5X7.

We suggested he set up accounts ahead of time, though this could just as easily be done as he enters the first record in each account.

From the main menu, type:

```
MAKE ROLLS,JOB,PHOTO
```

PHOTO is the area name and JOB is the general account name. The computer will stop for headings. Enter the following headings:

```
QUANT,PRICE,MILES,@20.5
```

Return to the menu and type MAKE PROOFS,JOB. Verify the entry and return to the menu. Type MAKE RUSH,JOB. Again return to the menu and type MAKE 5X7,JOB. This completes setting up the accounts.

Note that the different kinds of jobs could be noted in headings instead of in the account organization (as in Appendix 2). In that case you would type only MAKE JOB,PHOTO and enter the rest of the information in headings. The method presented saves much room on the disk for records. (The first advantage -- the items do not take up room in the NAMES file or in records. Important only with dozens of different items. There is typically more excess room for new account titles than for NAMES, since

the NAMES file has so many different uses).

When he completes the work each day in his darkroom he will use the MAKE selection to enter records for each type of work done, i.e. MAKE ROLLS. The computer has seen the word ROLLS before so it's not necessary to type anything else.

When the computer displays the headings, one at a time, he will enter the client's abbreviated NAME to the NAME? question. He will then enter the quantity, total price, and number of miles. He will press RETURN without making an entry to the @20.5 heading question. This will later be calculated using the #SSCALC module (a second advantage--the computer will calculate the mileage. It does not have to be calculated by the user and entered during the record entry procedure).

After entering all records for the ROLLS he has developed, he will type MAKE PROOFS and enter the records for PROOFS he has made, and so on. The RECORD ENTRIES UNDER DIFFERENT ACCOUNTS CAN BE MADE MUCH MORE QUICKLY USING "FAST RECCRD ENTRY" (A disadvantage--must enter a different account title to enter a different item).

At the end of the month, when he is ready to print invoices, he will calculate all the mileages. From the #SSCALC module (HEADING MATH on the Custom Menu), he will enter JOB as the account. This automatically includes all the subdivisions: ROLLS, PROOFS, RUSH, etc. Or if he wanted to calculate them one at a time, he could enter the SUBDIV instead, such as ROLLS for the account. He could also specify a single client or a certain specification in records to further limit the calculations.

He then enters "MILES" as the first heading to be calculated, the * character for the operator, and the number .205 enclosed in brackets as the second heading (or constant) to be calculated. After electing to store the result, he enters the heading @20.5 as the heading under which to store the result.

All the mileage computations for the month are calculated and stored automatically.

Next he selects a client abbreviated NAME, such as DOEJ, at random to create a sample invoice. He types LIST DOEJ,QUANT,PRICE+,MILES,@20.5+ FROM JOB, and does not INCLUDE? anything. He selects manual format and enters 1 for the account, but 0 for NAME. The SUBDIVS ROLLS, PROOFS, RUSH, 5X7 will be listed in the bill under the account column. (An advantage--items do not have to be entered into records. Though the account must be specified once, if there are several records involving the same item this method will be quicker).

He may include other information in the invoice using the #SSFDRMS module (FORMAT SPREAD SHEET FORM(Y) OR NO?), such as his return address, one or more WP23 text files, etc. It's a good idea to print a WP23 text file explaining the bill for the first few months until the client becomes familiar with them. In any case, he must access the #SSFDRMS module to

specify printing of dollar amounts.

At the end of the listing the computer will ask if he would like to name the format. Yes he would? In this case the simple name INVOICE or BILL will do.

He can then easily print bills to all clients using the last LIST command, e.g.:

```
LIST DOEJ,INVOICE,1,1,86,1,31,86
```

to print the January invoice (or statement in this case) for John Doe.

END OF TUTORIAL

Another advantage--the main advantage for most--of this method over the one in Appendix 2 is that the sales of each individual item can be listed and totaled in individual columns in one listing. With the method of Appendix 2 sales can be listed by item including totals also, but this requires a separate listing for each item by entering the item title in the LIST entry.

This is the most frequent reason for putting NAMES or items in the account structure--so that they may be listed in columns in one listing.

APPENDIX 4 -- HOME BUDGET

If you will look at Exhibit 3 you will find the account organization chart for a sample home record-keeping or budgeting system. The entries for creating this budget set-up are listed below. After each MAKE entry is completed the computer will ask you to type Y (return) to verify the entry. It will then ask if you would like to enter the first record under that new account. To set up accounts ahead of time, press RETURN without typing Y to that question. The program will return to the Main Menu and you can make the next MAKE entry.

ENTRIES TO SET UP A HOME BOOKKEEPING SYSTEM

MAKE WAGES,REC,MAIN
(enter headings) AMT,REF
MAKE SALES,REC
MAKE PTJOB,REC
MAKE INT,REC
MAKE UNEARN,REC
MAKE MISC.R,REC
MAKE FOOD,EAT,OUTGO,MAIN
(enter headings) AMT,REF
MAKE DINDOUT,EAT
MAKE MISC.E,EAT
MAKE PAY.H,HOME,OUTGO
MAKE TAX.H,HOME
MAKE INS.H,HOME
MAKE FIX.H,HOME
MAKE UTIL,HOME
MAKE MISC.H,HOME
MAKE BUY.C,CLOTHES,OUTGO
MAKE CLEAN,CLOTHES
MAKE FIX.C,CLOTHES
MAKE PAY.A,AUTO,OUTGO
MAKE GAS,AUTO
MAKE FIX.A,AUTO
MAKE INS.A,AUTO
MAKE ITEM,FUN,OUTGO
MAKE TICKET,FUN
MAKE DUES,FUN
MAKE ALLOW,FUN
MAKE MISC.F,FUN
MAKE CHURCH,GIFT,OUTGO
MAKE XMAS,GIFT
MAKE BDAY,GIFT
MAKE MISC.S,GIFT
MAKE SAVE,BANK,OUTGO
MAKE IRA,BANK
MAKE STOCK,BANK
MAKE MC,BANK
MAKE VISA,BANK

MAKE MISC.B,BANK
 MAKE LIFE,INS,OUTGO
 MAKE MED,INS
 MAKE BILLS,MEDICAL,OUTGO
 MAKE PILLS,MEDICAL
 MAKE MISC.H,MEDICAL
 MAKE MISC,OUTGO

To enter actual records, type MAKE followed by any of the titles that immediately follow the word MAKE in the above list of entries. Another way of saying this is to always enter records into the lowest subdivision account. You can enter records into higher subdivisions, but this offers more power (and complexity) than most applications can utilize.

Since the computer will already know the title you enter (because you entered it before to set up accounts) it will just ask for a record. Each heading will be listed, one at a time, and the computer will wait for your entry. In this case the entry prompts will always be:

NAME?
 DATE?
 AMT?
 REF?
 COMMENT?

To the NAME prompt enter the abbreviated NAME of the payee or payer or service. If you expect the name to occur only once there is no reason to take up room in the NAMES file with that name. Instead enter XX to the NAME? prompt. You can include the full name under REF or COMMENT if you ever need to list it.

You needn't make an entry under the REF heading--you can just press RETURN. If you do make entries under REF each entry should be of the same type such as check #, or "reason" or "explanation".

You might want to enter another heading (in the OUTGO account) to reflect who created the expense. In this case begin the heading with the caret or "less than" character, such as

AMT,REF,<WHO

since you'll only have a few repeating NAMES for members of your household. These will go in the NAMES file.

Of course you would not want to use this budget exactly. Some titles will not apply to you. You may want to add others. Feel free to change the MAKE entries as long as you follow the same format. But here are some points to remember:

Each of the SUBDIV 1 accounts (EAT, HOME, CLOTHES, etc) begins with a different first letter. This is so that repeating titles in SUBDIV 2 can include the first letter of the higher subdivision. You can't have duplicate titles of accounts. But you can add a letter to make them

different and it makes sense to add a letter that identifies the higher account.

Secondly, you'll notice from Exhibit 3 that there is a lower SUBDIV available if you'd like to use more specific accounts. For instance, you might want to subdivide UTIL (utilities) into telephone, gas, electricity, etc. Do this by adding the following make commands:

```
MAKE TEL,UTIL
MAKE GAS,U,UTIL
MAKE ELECT,UTIL
```

You already have another GAS account so this title must be spelled differently. Again, enter the records into the lowest subdivision, i.e. type MAKE TEL to enter a telephone bill, not MAKE UTIL. If you have a bill that doesn't fit, open a new account, possibly:

```
MAKE MISC,U
```

to hold the record. The only time you would use MAKE UTIL to enter a record would be if you had an expense that could not be broken down, but which applied to more than one type of utility. If you do this DON'T FORGET TO INCLUDE UTIL, HOME, OR OUTGO IN YOUR LIST COMMANDS. Otherwise the record will not be listed.

REC stands for RECEIPTS. It's better to keep titles short for your own convenience. SALES might stand for commission income as opposed to WAGES. UNEARN stands for unearned income such as mortgage or stock income.

ITEM might stand for any item you buy for your home. This might be further subdivided by use or user, for example:

```
MAKE HOUSE,ITEM
MAKE PERS,ITEM
```

to separate personal items from household items. ALLDW might stand for your allowance for petty cash or pocket money.

The rest of the titles are easily understood.

LISTINGS

With this set-up listings can be well organized. Entering any subdivision title in a LIST entry will automatically list all lower related subdivisions. Entering

```
LIST HOME
```

will give you the total of all expenses for shelter. The subdivision titles will be listed in the first column.

The entries:

```
LIST AMT+ FROM REC
INCLUDE?AMT- FROM OUTGO
```

will give you a completely itemized cash statement for everything.

If you enter the SUBDIV 1 titles in separate entries, such as:

```
LIST AMT+ FROM EAT
INCLUDE?AMT+ FROM HOME
INCLUDE?AMT+ FROM CLOTHES
INCLUDE?AMT+...etc.
```

you can list all expenses with each type listed and totaled in a separate column in one listing. The individual SUBDIV 2 titles will still be listed in the first column. If you INCLUDE?AMT- FROM REC you'll still get the cash statement. The same entry procedure applies to the REC account. You can enter WAGES, SALES, PTJOB, etc. in separate entries and then list them in columns with totals.

THE STATEMENT

If you count up all the lowest subdivisions in the example you'll come up with 43. In your actual structure you may have more or less. The point is that you won't be able to list all the detailed accounts in separate columns in one listing with one grand total. Therefore they should be formatted into a statement.

Once the statement is formatted you can print it again anytime for a different time period just by entering the statement name (listing format name) in the last LIST command. It is very convenient to list statements though they take a few minutes for all the calculations. MICROMOD is a very powerful program in this regard.

To create a statement you must plan ahead with your very first entry, the LIST entry. You must name each account in the same order you want them to appear in the statement, such as:

```
LIST AMT+ FROM WAGES
INCLUDE?AMT+ FROM SALES
INCLUDE?...
(continuing with OUTGO)
INCLUDE?AMT- FROM FOOD
INCLUDE?AMT- FROM DINDUT
INCLUDE?...
(finishing up with...)
INCLUDE?AMT- FROM MISC
```

You can INCLUDE? up to 59 additional account titles besides the one in the LIST entry. Examples of formatting statements are presented in Chapter B and Appendix 7, so there is no detailed procedure provided here. You should follow those examples carefully to learn how to set up a statement.

Here's some additional information that applies to the home budgeting case:

Specify for your REC accounts (WAGES-MISC.R) to appear in the second column. Put the total in the third column, such as:

TOTAL RECEIPTS,3

You needn't end the 3 with a sign. The total will be added in the next totalling operation for column 3.

Put your OUTGO account totals in column 1. After you specify each account in one category (such as the category "EAT") by entering:

A,1

for each, skip a line and put a subtotal for that category in column 2. For instance:

TOTAL FOOD EXPENSE,2

Then skip a line and specify the accounts for the next category (HOME) back in column 1.

After you've specified all the account titles and the computer displays "NO MORE ACCOUNTS", specify a grand total for OUTGO in column 3, such as:

TOTAL OUTGO,3-

Notice that this will be the only minus sign (in fact the only math sign) in the statement. Everything else is added.

Lastly, specify the "Net Cash" amount, which is the reconciliation of all your receipts and payments, for instance:

NET GAIN OR LOSS,3

Print and re-edit the statement until it looks good. Then choose to name it by typing Y and pressing RETURN to the "DO YOU WANT TO NAME THIS STATEMENT..." question. If you forget to do this the computer will give you a second chance by asking "ARE YOU SURE?". Make sure you name the statement. Otherwise you'll find yourself making all the entries over again. A good name is "BUDGET".

Now you can use the last LIST command anytime for any time period. Entering:

LIST STATEMENT,1,1,86,12,31,86

Will list all activity for the year 1986 with one entry! Or enter:

LIST JOE,STATEMENT,1,1,86,6,30,86

to get an analysis of all transactions involving Joe (assuming you entered Joe's NAME in various records).

THE BUDGET

So far we have not presented a legitimate budget. The above information is just to keep records for a budget, and possibly for tax purposes. A true budget will have ALLOTTED or PROPOSED amounts for each account. The actual amounts and budgeted amounts may be compared so that you can reduce unwarranted expenditures.

It's possible to set up MICROMOD accounts to give you a statement containing detailed comparisons of actual vs budgeted amounts. But this is much more trouble than it's worth. You would begin by re-entering all account titles, but with the added characters ".X" to make them distinct (excepting the title MAIN). You would then enter one budgeted amount into one record for each account, all dated the first day of the budget period. You can then set up spread sheet, statement, or even graphic analysis of the differences. With more than thirty accounts you will have to analyse one section or category at a time.

Clearly, all this extra work is unwarranted considering what you want to do with the budget, and considering a very easy alternative:

Once you have completed and named the statement, print one for a fictitious period, or a period for which you have no records in the computer, such as

```
LIST BUDGET,1,1,65,1,1,65
```

An entire statement will be printed, but with 0.00 for all amounts. Next to each 0.00 write in the budgeted amount. Then when you print out statements of actual expenditures and receipts you can easily compare the two statements.

ACCOUNT ORGANIZATION CHART -- PRESS *O* FROM THE MAIN MENU

Home Budget Example

ACCOUNT: REC AREA: MAIN

HEADINGS: NAME,DATE,AMT,REF,COMMENT

ORGANIZATION FOR *REC* ACCOUNT:

SUBDIV. 3	SUBDIV. 2	SUBDIV. 1
		WAGES
		SALES
		PTJOB
		INT
		UNEARN
		MISC.R

ACCOUNT: OUTGO AREA: MAIN

HEADINGS: NAME,DATE,AMT,REF,COMMENT

ORGANIZATION FOR *OUTGO* ACCOUNT:

SUBDIV. 3	SUBDIV. 2	SUBDIV. 1
	FOOD	EAT
	DINOUT	
	MISC.R	
	PAY.N	HOME
	TAX.N	
	INS.N	
	FIX.N	
	UTIL	
	MISC.R	
	BUY.C	CLOTHES
	CLEAN	
	FIX.C	
	PAY.A	AUTO
	GAS	
	FIX.A	
	INS.A	
	ITCM	FUN
	TICKET	
	DUES	
	ALLOW	
	MISC.F	

(ORGANIZATION OF ACCOUNTS--PAGE 2)

CHURCH	GIFT
XMAS	
RDAY	
MISC.G	
SAVE	BANK
IRA	
STOCK	
MC	
VISA	
MISC.R	
LIFE	INS
MED	
BILLS	MEDICAL
PILLS	
MISC.M	
	MISC

Exhibit 3

APPENDIX 5 -- NAMES FILE VS ACCOUNT TITLES

If you will look at Exhibit 4 you will see the account organization chart for keeping receipts records. This MICROMOD user receives income from a large number of sources.

Though a simple example, we include the chart to illustrate an important point. You usually have three choices in deciding what to do with repeating entries. The choice you make will depend on how you want the information listed, how you wish to enter records, and secondarily, how much room you have in the NAMES file and account titles file.

This user chose to put the names of the payers in the account title file. The advantage he seeks is to be able to list amounts for each account in separate columns in one listing, with totals for each column. There is a minor cost, that of taking up room in the account titles file. But there are 5,000 bytes in the file for titles. If all titles were abbreviated so, and in low subdivisions, there would be room for 1,000 titles--enough for General Motors at least! So there is really no cost with regard to room in the titles file.

There is an inconvenience when entering records. Records will be entered using FAST RECORD ENTRY. Each time the user wishes to enter a new name he must back up to the "ENTER ACCOUNT OR SUBDIV?" question with an extra RETURN, and he must also specify Mr XX to the NAME? prompt--an extra entry. For this user the extra keystrokes (a total of three) with each record is worth the extra listing capability.

Regarding record storage efficiency, this is the most efficient of all. Only one byte is needed in the record to locate the title in the title file. A NAME index takes up two bytes in records.

If there were no subdivisions under "INCOMES", and if the names of the payers were entered to the NAME? prompt, one extra byte would be used in records, and room would be taken up in the NAMES file. But entries would be quicker and easier. Most users are overly worried about using up space in the NAMES file, but 2,000 NAMES are many more than most applications will use. Those who have large numbers of NAMES (and who are not large enough to be using an institutional computer) will most likely be categorizing some NAMES. And it is simple to change out-dated NAMES to new ones, especially if all abbreviations are the same length (4 characters).

Another advantage with having names in the NAMES file is that the NAME entered to the NAME? prompt in records is used to locate the address in some listings. If this user were later to want to mail information to any of these sixteen payers, it would be convenient to have addresses printed automatically for windowed envelopes.

Most names, including the names in this example, will have addresses in the Directory, and for this it is required to have the NAMES in the NAME file. Thus no extra room is taken up by including NAMES in records.

There is a third alternative. Names and items that would normally go either in the NAMES file or account titles file could be stored in the individual records themselves. There are two disadvantages. Obviously this takes up much more room on the disk. Disk capacity can be cut almost in half in some cases. Longer records take longer to store and load.

Secondly, you may want to use the name or item as a "spec" to search out only those records containing that specific name or item. For this to work, each time you enter the name in records it must be spelled exactly the same. No one can achieve this perfection over a long period of time. NAME entries and account titles are checked each time they are entered.

The one advantage of storing names or items in records is that room in the NAMES and account titles files is not used. Of course it is important to be aware of this and provide for future needs, but most users become over-cautious.

If there are hundreds of names or items of a particular type, or if they do not repeat (and you don't want to use Mr. XX for the name, then they should not be stored in the NAMES file or the account titles file. Amounts, large quantities, invoice numbers, comments, explanations, etc., should never be stored in the NAMES file.

Some cases are borderline. If your quantity figure ranges between 1 and 12 for instance, you may think it better to store the numbers 1,2,3,...12 in the NAMES file. But they only take up 1 or 2 bytes in records, so there is no advantage.

Times of day will normally not go in the NAMES file. But if you use only certain time intervals, say each one half hour during the day, there would be only 24 repeating entries. You might save much room in records by storing these in the NAMES file, especially if you will be using long forms such as 12:00 P.M. which take 10 characters.

ACCOUNT ORGANIZATION

ACCOUNT: INCOMES AREA: AL

HEADINGS: NAME, DATE, AMT, COMMENT

ORGANIZATION FOR "INCOMES" ACCOUNT:

SUBDIV. 3 SUBDIV. 2 SUBDIV. 1

BIB

BED

HER

IST

NUH

MDS

LAC

HIS

SSA

SSP

FRAN

USBD

OSC

INB

MET

HISC

.....

Exhibit 4

APPENDIX 6 -- ACCOUNT SET-UP -- DWARF MINING CO.

If you will look at Exhibits 5 and 6 you will find a typical small business account set-up. The set-up covers payments, receipts, a travel schedule/log, sales returns (because they require different headings), job for simple billing (Dwarf Mining does not use the Invoice program), and three 34 column spread sheets (for who knows what!).

The purpose of this illustration is to provide an example of MAKE entries, an illustration of the function of some of the titles, and to provide background for APPENDIX 6 which will cover some of the listings available from this account structure.

Each of the listed MAKE entries must be verified by typing Y (return), and RETURN must be pressed again to return to the menu in order to enter the next MAKE entry in the list. The MAKE commands to create the account organization charted in Exhibits 6 and 7 follow:

note: the title PAYMENTS is not related to the Invoice account PAYMENT--don't get the two confused.

```
MAKE RETAIL,SALES,RECEIPTS,MINING
(enter headings) AMOUNT,REF
MAKE GOLD,SALES
MAKE SILVER,SALES
MAKE STONES,SALES
MAKE COTTAGE1,RENTAL,RECEIPTS
MAKE COTTAGE2,RENTAL
MAKE LOANS,INTRST,RECEIPTS
MAKE SAVINGS,INTRST
MAKE RET.FUND,INTRST
MAKE RETURNS,MINING
(enter headings) ITEM,QUANT,AMOUNT,EXPLAN,REF
MAKE JOB,MINING
(enter headings) JOB,DESCRIPTIONS,AMT.DUE
MAKE S1,SPREAD,MINING
(enter headings) 01,02,03,04,05,06,07,08,09,10,
                  11,12,13,14,15,16,17,18,19,20,
                  21,22,23,24,25,26,27,28,29,30,31
(headings must be two or more characters)
MAKE S2,SPREAD
MAKE S3,SPREAD
MAKE TV,ADVER,EXPENSE,PAYMENTS,MINING
(enter headings) AMOUNT,REF
MAKE RADIO,ADVER
MAKE NEWS,ADVER
MAKE SIGNS,ADVER
MAKE GAS,TRAVEL,EXPENSE
MAKE FOOD,TRAVEL
MAKE ROOMS,TRAVEL
MAKE ENTER,TRAVEL
MAKE TICKETS,TRAVEL
```

MAKE WAGES, PAYROLL, EXPENSE
 MAKE FED, PAYROLL
 MAKE STATE, PAYROLL
 MAKE FICA, PAYROLL
 MAKE RET, PAYROLL
 MAKE CASUALTY, INS, EXPENSE
 MAKE FIRE, INS
 MAKE MORTG, INTEREST, EXPENSE
 MAKE NOTES, INTEREST
 MAKE BLDGS, REPAIRS, EXPENSE
 MAKE MACH, REPAIRS
 MAKE VEHICLES, REPAIRS
 MAKE TOOLS, SUPPLIES, EXPENSE
 MAKE OTHER, SUPPLIES
 MAKE STORE, RENT, EXPENSE
 MAKE EQUIP, RENT
 MAKE UTILITIES, EXPENSE
 MAKE OFFICE, EXPENSE
 MAKE MISC, EXPENSE
 MAKE BUILDINGS, CAPITAL, PAYMENTS
 MAKE LAND, CAPITAL
 MAKE MACHINES, CAPITAL
 MAKE TRUCKS, CAPITAL
 MAKE SUPPLIER, PAYMENTS
 MAKE SCHEDULE, MINING
 (enter headings) <CLIENT, DEST, DEPART, FLT#, HOTEL,
 PHONE, RES#, RETURN, CASH

This account set-up is quite self-explanatory. To enter records type MAKE and then any title above that appears directly after the word MAKE. Since the computer would already know the title it would bypass setting up accounts and instead display each heading, one at a time, and wait for you to make an appropriate entry.

Note that whenever making an entry into one of the spread sheets, ALL HEADINGS WILL BE LISTED. Thus the user will have to press RETURN 34 times to enter each record. Also, the limit for characters in any one record is about 120 less the total number of headings. With thirty-four headings this comes out to 86 characters per record--enough to enter a two and sometimes three digit number into 30 headings, or eight ten character entries total.

Note that new 34 column spread sheets can be created simply by entering MAKE S4, SPREAD

and pressing RETURN. You would enter S4, then S5, etc. Remember that spread sheet records take up a lot of room on the disk. There's room for about 2800 on a double density disk, assuming records average about 50 characters entered from the keyboard.

The only math MICROMAN will do between headings for spread sheet

columns) is simple one step addition, subtraction, multiplication, and division.

A few criticisms of this account set-up: We'd prefer shorter titles to make record entry easier, and listings neater. Also, duplicate titles with an added character to indicate the higher account are preferable to different words for the same thing. Notice the titles VEHICLES and TRUCKS, MACH and MACHINES, OTHER and MISC. The operator must remember which form goes where.

Notice in the SCHEDULE account that entries for CLIENT will be stored in the NAMES file. This is an excellent idea in this case. If many of the same HOTELS were used over and over, these might also be stored in the NAMES file, especially if addresses for the hotels will be entered into the directory.

ORGANIZATION OF ACCOUNTS -- GURFF MINING CO

ACCOUNT: PAYMENTS AREA: MINING
HEADINGS: NAME, DATE, AMOUNT, REF, COMMENT

ORGANIZATION FOR "PAYMENTS" ACCOUNT:

SUBDIV. 3	SUBDIV. 2	SUBDIV. 1
TV PROID FIELD SIGNS	ADVER	EXPENSE
GAS FOOD ROOMS ENTER TICKETS	TRAVEL	EXPENSE
WAGES FED STATE FICA RET	PAYROLL	EXPENSE
CASUALTY FIRE	INS	EXPENSE
MORTG NOTES	INTEREST	EXPENSE
BLDGS MACH VEHICLES	REPAIRS	EXPENSE
TOOLS OTHER	SUPPLIES	EXPENSE
STORE EQUIP	RENT	EXPENSE
	UTILITIES OFFICE MISC	EXPENSE
	BUILDINGS LAND MACHINES TRUCKS	CAPITAL

SUPPLIER

ACCOUNT: SCHEDULE AREA: MINING

HEADINGS: NAME, DATE, CLIENT, DEST, DEPART, FLT#, HOTEL, PHONE, RES#, RETURN, CASH, COMMENT

ORGANIZATION FOR "SCHEDULE" ACCOUNT:

SUBDIV. 3 SUBDIV. 2 SUBDIV. 1

NO SUBDIVISIONS UNDER "SCHEDULE"

ACCOUNT: RECEIPTS AREA: MINING

HEADINGS: NAME, DATE, AMOUNT, REF, COMMENT

ORGANIZATION FOR "RECEIPTS" ACCOUNT:

SUBDIV. 3	SUBDIV. 2	SUBDIV. 1
	PETROL	SALES
	GOLD	
	SILVER	
	STONES	
	COTTAGE1	RENTAL
	COTTAGE2	
	LOANS	INTRST
	SAVINGS	
	RET.FUND	

ACCOUNT: RETURNS AREA: MINING

HEADINGS: NAME, DATE, ITEM, QUANT, AMOUNT, EXPLAN, REF, COMMENT

ORGANIZATION FOR "RETURNS" ACCOUNT:

SUBDIV. 3	SUBDIV. 2	SUBDIV. 1
-----------	-----------	-----------

NO SUBDIVISIONS UNDER "RETURNS"

ACCOUNT: JOB AREA: MINING

HEADINGS: NAME, DATE, JOB, DESCRIPTION, AMT. DUE, COMMENT

ORGANIZATION FOR "JOB" ACCOUNT:

SUBDIV. 3	SUBDIV. 2	SUBDIV. 1
-----------	-----------	-----------

NO SUBDIVISIONS UNDER "JOB"

ACCOUNT: SPREAD AREA: MINING

HEADINGS: NAME, DATE, 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20,
21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, COMMENT

ORGANIZATION FOR "SPREAD" ACCOUNT:

SUBDIV. 3	SUBDIV. 2	SUBDIV. 1
		01
		02
		03

Exhibit 6

APPENDIX 7 -- LISTING FORMATS -- DWARF MINING

If you will look at Exhibit 7 you will find two listing formats for Dwarf Mining, created from the account structure illustrated in Appendix 6.

CASH STATEMENT

This format was set up for the screen since it uses only 39 spaces. Most users discover that they will be using the printer more often than they thought at first, but if a listing will fit into 39 columns it's a good idea to do it that way. If it takes more than 39 columns it will be folded over on the screen and more difficult to read.

This is a complete cash statement for all receipts and payments, yet it was created with just two listing entries:

```
LIST AMOUNT+ FROM RECEIPTS  
INCLUDE?AMOUNT- FROM PAYMENTS
```

Of course there followed some formatting instructions, but that's not bad for listing some 42 accounts, all properly organized. Another entry:

```
INCLUDE?CASH- FROM SCHEDULE
```

would have added another column and would have included cash budgeted for trips. Another entry:

```
INCLUDE?AMOUNT- FROM RETURNS
```

would have added another column and accounted for sales returns.

The reason the CASH STATEMENT is listed in two parts is that the number 20 was entered to the

```
STOP,PRINT HEADINGS EACH ??th LINE?
```

question. The user advanced the paper manually, otherwise only one line would have been skipped before the listing began by reprinting the headings. Had the listing been resumed by pressing the T key a title and page number would have been printed.

The tabs were set manually:

```
ACCOUNT?1  
NAME?6  
DATE?12  
AMOUNT?17  
AMOUNT?25  
TOTAL?33
```

Notice that there will not be enough room to print a date between November and December. A setting of 11 would have been better for the date since NAMES should be four characters.

After the listing was formatted it was named CASH STAT. Thus this particular listing was called with the single entry:

```
LIST CASH STAT,6,1,85,6,30,85
```

The entry:

```
LIST ACMM,CASH STAT,1,1,86,12,31,86
```

would have listed all receipt and payment information, with totals and arithmetic, for Acme Metals for the year 1985.

SCHEDULE

In this format there is not enough room for all information to be printed on a line, even with 80 columns. Perhaps two different listings with less headings in each, for two different purposes, would have been better.

Notice that comments entered to the COMMENT? prompt are not displayed in the formatted line, but appear on a separate line. Thus lengthy explanations should be entered under COMMENT to make listings neater and more complete.

Since this format is named SCHEDULE, the entry:

```
LIST DOC,SCHEDULE,6,1,85,6,30,85
```

would have listed only those trips taken by DOC.

INCOME STATEMENT

If you will look at Exhibit 8 you will find a detailed Income Statement for Dwarf Mining. This was also created from the accounts listed in Appendix 6. The period of the statement is 6,1,85 to 6,30,85. A statement for the year could just as easily be printed with the entry:

```
LIST INCSTAT,1,1,85,12,31,85
```

Again, just the activity involving one or a few persons or companies could be listed by including the NAMES in the LIST entries, such as:

```
LIST DOEJ,ACMM,INCSTAT,5,1,85,5,31,85
```

assuming DOEJ and ACMM are NAMES.

Though the listing is presented on one page in this manual it actually

prints out in one long 40 column listing.

To create this format each of the accounts had to be entered using LIST and INCLUDE?. These were the entries:

```
LIST AMOUNT+ FROM RETAIL
INCLUDE?AMOUNT+ FROM GOLD
INCLUDE?AMOUNT+ FROM SILVER
INCLUDE?AMOUNT+ FROM STONES
INCLUDE?AMOUNT- FROM RETURNS
INCLUDE?AMOUNT+ FROM COTTAGE1
INCLUDE?AMOUNT+ FROM COTTAGE2
INCLUDE?AMOUNT+ FROM LOANS
INCLUDE?AMOUNT+ FROM SAVINGS
INCLUDE?AMOUNT+ FROM RET.FUND
INCLUDE?AMOUNT- FROM TV
INCLUDE?AMOUNT- FROM RADIO
INCLUDE?AMOUNT- FROM NEWS
INCLUDE?AMOUNT- FROM SIGNS
INCLUDE?AMOUNT- FROM GAS
INCLUDE?AMOUNT- FROM FOOD
INCLUDE?AMOUNT- FROM ROOMS
INCLUDE?AMOUNT- FROM ENTER
INCLUDE?AMOUNT- FROM TICKETS
INCLUDE?AMOUNT- FROM WAGES
INCLUDE?AMOUNT- FROM FED
INCLUDE?AMOUNT- FROM STATE
INCLUDE?AMOUNT- FROM FICA
INCLUDE?AMOUNT- FROM RET
INCLUDE?AMOUNT- FROM CASUALTY
INCLUDE?AMOUNT- FROM FIRE
INCLUDE?AMOUNT- FROM MORTG
INCLUDE?AMOUNT- FROM NOTES
INCLUDE?AMOUNT- FROM BLDGS
INCLUDE?AMOUNT- FROM MACHINES
INCLUDE?AMOUNT- FROM VEHICLES
INCLUDE?AMOUNT- FROM TOOLS
INCLUDE?AMOUNT- FROM OTHER
INCLUDE?AMOUNT- FROM STORE
INCLUDE?AMOUNT- FROM EQUIP
INCLUDE?AMOUNT- FROM UTIL
INCLUDE?AMOUNT- FROM OFFICE
INCLUDE?AMOUNT- FROM MISC
INCLUDE?AMOUNT- FROM BUILDING
INCLUDE?AMOUNT- FROM LAND
INCLUDE?AMOUNT- FROM MACHINES
INCLUDE?AMOUNT- FROM TRUCKS
INCLUDE?AMOUNT- FROM SUPPLIER
INCLUDE? (RETURN pressed)
```

note: each of these entries is checked by the computer and you may immediately re-enter any misspelled entry.

For the first and last dates 6,1,85 and 6,30,85 were entered. Return was pressed to the "STOP,PRINT HEADINGS..." question.

Automatic formatting (setting of tabs) was selected since the spread sheet display is unimportant.

RETURN was pressed to all remaining questions prior to the spread sheet listing.

Since every heading was followed by a sign, the "STATEMENT OF TOTALS..." question was asked after the spread sheet display was finished. The user entered Y and pressed RETURN to answer yes to the question.

The computer then stopped and asked for tab settings for the three columns of the statement. RETURN was pressed to accept the default settings of 12, 21, and 30.

The following entries were made to format the statement. The account titles at the right of the page (A=...) were not entered, but displayed by the computer to remind the user which account would be indicated with the next "A" entered in the format. The account is displayed after the entry (first part of line) and does not apply to the "A" typed on that line, but the next "A" to appear further in the listing. The computer prints the number of the line (in the statement) followed by a question mark, and waits for an entry. RETURN must be pressed whether an entry is made or not in order for the next line number to be displayed.

INCOME STATEMENT -- Dwarf Mining -- Format Entries:

1? INCOME STATEMENT	A=RETAIL
2?	
3? SALES:	
4?	
5? A,1	A=GOLD
6? A,1	A=SILVER
7? A,1	A=STONES
8? A,1	A=RETURNS
9?	
10? TOTAL SALES,2	
11?	
12? LESS RETURNS, A ,2-	A=COTTAGE1
13?	
14? NET SALES,3	
15?	
16? OTHER INCOME	
17?	
18? RENTALS:	
19?	
20? COTTAGE 1 A ,1	A=COTTAGE2
21? COTTAGE 2 A ,1	A=LOANS
22?	
23? INTEREST:	

24?		
25?	A, 1	A=SAVINGS
26?	A, 1	A=RET.FUND
27?	A, 1	A=TV
28?		
29?	TOTAL MISC INCOME, 3	
30?		
31?	GROSS INCOME, 3	
32?		
33?		
34?	EXPENSES:	
35?		
36?	ADVERTISING:	
37?		
38?	A, 1	A=RADIO
39?	A, 1	A=NEWS
40?	A, 1	A=SIGNS
41?	A, 1	A=GAS
42?		
43?	TOTAL, 2	
44?		
45?	TRAVEL:	
46?		
47?	A, 1	A=FOOD
48?	A, 1	A=ROOMS
49?	A, 1	A=ENTER
50?	A, 1	A=TICKETS
51?	A, 1	A=WAGES
52?		
53?	TOTAL, 2	
54?		
55?	PAYROLL:	
56?		
57?	A, 1	A=FED
58?	A, 1	A=STATE
59?	A, 1	A=FICA
60?	A, 1	A=RET
61?	A, 1	A=CASUALTY
62?		
63?	TOTAL, 2	
64?		
65?	INSURANCE:	
66?		
67?	A, 1	A=FIRE
68?	A, 1	A=MORTG
69?		
70?	TOTAL, 2	
71?		
72?	INTEREST:	
73?		
74?	A, 1	A=NOTES
75?	A, 1	A=BLDGS
76?		
77?	TOTAL, 2	

78?		
79?	REPAIRS:	
80?		
81?	A, 1	A=MACH
82?	MACHINES A , 1	A=VEHICLES
83?	A, 1	A=TOOLS
84?		
85?	TOTAL, 2	
86?		
87?	SUPPLIES:	
88?		
89?	A, 1	A=OTHER
90?	A, 1	A=STORE
91?		
92?	TOTAL, 2	
93?		
94?	RENT:	
95?		
96?	A, 1	A=EQUIP
97?	A, 1	A=UTILITIES
98?		
99?	TOTAL, 2	
100?		
101?	OTHER PAYMENTS:	
102?		
103?	UTIL A , 1	A=OFFICE
104?	A, 1	A=MISC
105?	A, 1	A=BUILDINGS
106?		
107?	TOTAL MISC., 2	
108?		
109?	CAPITAL EXP:	
110?		
111?	A, 1	A=LAND
112?	A, 1	A=MACHINES
113?	A, 1	A=TRUCKS
114?	A, 1	A=SUPPLIER
115?		
116?	TOTAL, 2	
117?		
118?	MISC INVENTORY	
119?		
120?	A, 1	(no more accounts)
121?		
122?	TOTAL, 2	
123?		
124?	TOTAL EXPENSE PAYMENTS, 3-	
125?		
126?		
127?	NET INCOME, 3	
128?	F	

The "F" entered on the last line is required to let the computer know

you are finished. Otherwise it would keep listing line numbers.

Next the computer displays:

EDIT FORMAT(Y) OR PRINT(RET)?

Normally you would print the statement first to spot any errors. After the statement is printed you'll have another opportunity to edit the format.

The editing function just lists your entries line by line as you entered them, again displaying the accounts on the right of the screen. You can make deletions, changes, and additions by pressing the keys indicated on the screen.

After you see a statement to your liking you may name the format. This particular format was named INCSTAT. You can list all format names from the Utility Menu with the LISTING FORMAT selection.

CASH STATEMENT JUNE '85 DWARF MINING...

ACCO NAME	DATE	RECEIPT AMOUNT	PAYMENTS AMOUNT	TOTAL
SAVI KINS	6/1	788.23		788.23
TV METR	6/2		358.19	358.19
RETR XX	6/2	388.02		658.06
COTT FR16	6/2	225		875.06
TRUC FR1T	6/3		1354.38	-479.24
SUPP ACNM	6/3		258.34	-729.58
GAS XX	6/4		18.34	-747.92
COTT DUMB	6/4	225		-522.92
NEWS DRAIN	6/5		53.34	-576.26
RETR XX	6/6	342.56		-233.7
FOOD XX	6/8		23.24	-256.94
WAGE DUCD	6/10		134.34	-391.28
WAGE DUD	6/10		282.48	-593.68
WAGE PIGP	6/10		232.20	-825.88
WAGE FLIN	6/10		121.82	-946.9
LOAN HAPPY	6/12	48.56		-906.34
RETR XX	6/13	267.83		-638.51
GOLD ACNM	6/13	1367.34		728.83
GOLD ACNM	6/13	875.38		1604.13
MISC XX	6/14		13.43	1598.7

ACCO NAME	DATE	RECEIPT AMOUNT	PAYMENTS AMOUNT	TOTAL
SUPP FUDJ	6/14		518.82	1088.68
FED XX	6/15		328.34	752.34
STAT XX	6/15		182.81	650.33
FICA XX	6/15		358.23	388.1
RET HUTE	6/15		282.56	97.54
TOOL ACEH	6/19		24.35	73.19
TICK THR	6/20		282.56	-129.37
GOLD FUDJ	6/21	3123.43		2594.86
HACH FR1T	6/23		458	2744.86
RETR XX	6/24	312.98		2857.84
FIRE QUEI	6/25		185.45	2731.39
HORT KINS	6/28		647.83	2183.76
RETR XX	6/29	267.34		2371.1
STOR ROCH	6/30		647.95	1723.75
UTIL TEMP	6/30		278.48	1445.27
TOTAL		8955.59	6618.32	1445.27

RETU CASH
 RES#
 HOTEL FICHE
 HIRI DATE CLI DES DEPAR FLT#
 DOC 6/9 RCN MIA 5-17 TWR345
 DUP 6/18 FUD LRS 18-88 EASTERN #813 DUES 718-353-5348
 #4 BOPING TO MAKE PAYROLL #4
 DOC 6/22 RCN L.R 5-31 345
 4096-32-3 6.18 508
 6.26 12888
 FLEAB 222-222-2222 NONE 6/25 888

SCHEDULE EXAMPLE

INCOME STATEMENT EXAMPLE -- GAWRF MINING JUNE '85.

INCOME STATEMENT

SALES:	
RETAIL	1,428.73
GOLD	3,366.87
SILVER	8.88
STONES	8.88
TOTAL SALES	6,856.38
LESS RETURNS	48.05
NET SALES	6,816.75
OTHER INCOME:	
RENTALS:	
COTTAGE	458.88
COTTAGE	8.88
INTEREST:	
LOANS	48.95
SAVINGS	788.88
RET. FUND	8.88
TOTAL MISC INCOME	1,198.79
GROSS INCOME	8,815.54
EXPENSES:	
ADVERTISING:	
TV	358.19
RADIO	8.88
NEWS	58.84
SIGNS	8.88
TOTAL	411.53
TRAVEL:	
GAS	18.84
FOOD	28.84
ROOMS	8.88
ENTER	8.88
TICKETS	282.84
TOTAL	244.14
PAYROLL:	
WAGES	688.86
FED	328.84
STATE	128.81
FICA	328.88
RET	282.86
TOTAL	1,673.10

INSURANCE:

CASUALTY	8.88
FIRE	188.45
TOTAL	188.45

INTEREST:

MORTG	647.88
NOTES	8.88
TOTAL	647.88

REPAIRS:

BLOCKS	8.88
MACHINES	488.88
VEHICLES	8.88
TOTAL	488.88

SUPPLIES:

TOOLS	24.88
OTHER	8.88
TOTAL	24.88

RENT:

SCOPE	647.88
EQUIP	8.88
TOTAL	647.88

OTHER PAYMENTS:

UTIL	278.48
OFFICE	8.88
MISC	13.43
TOTAL MISC.	291.91

CAPITAL EXP:

BUILDING	8.88
LAND	8.88
MACHINES	8.88
TRUCKS	1,354.88
TOTAL	1,354.88

MISC INVENTORY:

SUPPLIER	768.86
TOTAL	768.86

TOTAL EXPENSE PAYMENTS 6,818.10

NET INCOME 1,485.10

Exhibit 8

APPENDIX B -- ACCOUNT SET-UP -- MANUFACTURER'S REP

It was pointed out in Appendix 5 that the user often has a choice between entering names or items in the NAMES file or in the account structure. In some complex applications both methods may be used at the same time to accommodate a situation where one method alone would not work. This tutorial illustrates the procedure.

Mr. J.W. is a manufacturer's sales representative. He wishes to use MICROMOD to keep track of sales. Information must be organized by items sold, types of items sold, and by manufacturer. The records are to be listed either by manufacturer or customer (retailer). He may use the information for billing later (should billing become his responsibility) so customer addresses may be required in listings.

J.W. represents three manufacturers who we'll name SUPP1, SUPP2, and SUPP3, since MICROMOD doesn't care whether a supplier is a manufacturer, a distributor, or other source. You would substitute your own names. All three carry a total of 50 to 100 items which J.W. sells. He sells these to a long list of retailers which are his customers. We'll name three of his retailers CUST1, CUST2, and CUST3, and refer to them as customers since MICROMOD doesn't care if a customer is a person or a business.

This tutorial would apply to anyone selling less than a few hundred distinct products which are supplied by multiple sources to any type of customers, provided no sizeable inventory is kept by the user.

We'll name three items that JW sells ITEM1, ITEM2, and ITEM3. Since J.W. categorizes products into types, consistent with the manufacturer's product lines, we'll call three types of items TYPE1, TYPE2, and TYPE3.

J.W. has been using a well-known file manager program, trying to cross index all this information without much success. The problem is that, like most file managers, organization can be accomplished only in one dimension, that is, by "indexing fields" in records. Micromod doesn't use this terminology because it's smart enough to do this sort of thing by itself. But Micromod organizes in three dimensions: "indexing fields" (or by headings in records), automatic account organization, and by data items in records. To solve JW's problem we'll use two of the three levels: heading organization (includes the NAMES file) and account organization. That leaves data organization for other capabilities J.W. might find useful later.

Since we'll name each record by customer name, and customer addresses will go in the directory, the information can also be used for billing purposes or for general analyses of activity for customers. Because we knew about JW's application we were able to make a minor "customization" to the format module. Since the product names were to be included in the account organization, we changed the title "ACCT" that would normally appear on listings to "ITEM". This will help recipients to better understand the information.

Organization Procedure

From the main menu, type the entry:

```
MAKE ITEM1,TYPE1,SUPP1,SALES,REP
```

Of course you would use your own names for ITEM1, TYPE1, and SUPP1. From the manual, chapter 5, we see that REP is the "area" name and SALES is a "general account" name. ITEM1, TYPE1, and SUPP1 are subdivisions of the general account SALES. Since the computer has never seen this general account name before, it will stop and ask for headings. Enter:

```
<MOD#,QTY,PRICE,<COLDR
```

MOD# (model number) and COLDR are optional. You may not want to keep track of these or to include this information in listings. You could add other headings if you wanted to include other information or descriptions regarding each product sold. Because we are organizing for maximum flexibility in listing items, these headings must apply to all products, so be sure you include sufficient headings to describe all items, as you require. Also keep in mind that the computer will add the headings NAME, DATE, and COMMENT. Infrequent product information might be entered as comments.

Note that the < character is used before headings that represent entries that will repeat over and over. This saves much room on the disk because they will be stored in the NAMES file (see Chapter 2).

The computer will ask if you would like to enter a record or return to the menu. For the purposes of illustration we'll assume the organization will be done before entering records rather than as records are being entered: Return to the menu. Type:

```
MAKE ITEM2,TYPE1
```

Verify the entry by typing Y and return again to the menu. Type:

```
MAKE ITEM3,TYPE2,SUPP1
```

This assumes that ITEM3 is of a new type or product line. Note that, since the computer has never seen the words ITEM3 and TYPE2 before, we let it know where to place them in the organization by adding a word the computer knows. Otherwise the computer would assume you were opening a completely new AREA asking you to verify it, and you would cancel, returning to the menu.

Proceed through your list of individual products, e.g.:

```
MAKE ITEM4,TYPE2
```

```
MAKE ITEM5,TYPE2
```

```
MAKE ITEM6,TYPE3,SUPP1
```



```
MAKE ITEM7,TYPE3  
MAKE ITEM8,TYPE4,SUPP2,SALES  
MAKE ITEM9,TYPE4
```

Suppose SUPP1 and SUPP2 both carry the same product line, TYPE3. You cannot have duplicate account titles. Each title must lead up one and only one path through the hierarchy of accounts to the general account. If you used TYPE3 for both SUPP1 and SUPP2 the computer would not be able to figure out where to go when you specify TYPE3 in listings (though it would detect the duplicate title and reject it before this happened).

To illustrate the solution to the problem of duplicate titles, suppose TYPE3 is actually TVS, and the suppliers who both carry a line of televisions are Able Co. and Baker Co. Instead of using TVS as the type, you would use TVS.AB and TVS.BK (or whatever you like as long as it's short!). This makes the titles distinct to the computer and helps you to recognize the product.

Once you're sure you understand how to use the MAKE record command, you needn't finish entering all your products now. You can enter new products as you enter records for them, as long as you follow the same guidelines outlined above.

Don't worry about capacity or changing discontinued products. The program reserves 5,000 bytes to hold the account titles--enough for at least 500 titles if they average 6 or seven letters (2-4 bytes are added to each title in the file). You can check the length of the file from the FILE STRUCTURE module. You can have up to 100 titles in one subdivision under the same higher subdivision or general account title.

ENTERING RECORDS

Our method assumes the use of the FAST RECORD ENTRY selection on the Custom Menu for entering records. Using the MAKE command to enter these records will be faster only if you are entering records for just one product. You would type MAKE ITEM1 to enter a record for ITEM1.

After selecting FAST RECORD ENTRY enter the area "REP" to the area question.

The computer will ask for the ACCOUNT or SUBDIV. Enter the name of the product, e.g. ITEM1, and press RETURN.

To the NAME? prompt enter your Abbreviated NAME for the customer. To the DATE? prompt enter the date of the sale, e.g. 6,15,86.

Enter the quantity, price, and other information for the record as the headings are displayed. If a heading does not apply just press return without making an entry.

The next step is the important one!

After you verify the entries (type Y) the computer will ask for a new NAME to input another record for this product. But usually you will be entering several different products for only one NAME. So press RETURN again to access the ACCOUNT? question. Enter the new item. The computer will display the NAME prompt again. Enter S to keep the same name as the last record. Press RETURN to the DATE? prompt to enter the same date as the last record. Then continue with the other entries.

To summarize, you are using the FAST RECORD ENTRY function to enter information under a NAME, not an account (usually). Though it's more convenient to enter different NAMES for the same account (the usual method), this procedure only requires you to press RETURN one extra time for each record--not a bad price to pay for all the flexibility of having items organized in the account structure as well as in headings.

LISTINGS

This method was selected for maximum flexibility in listings. Consequently you can use almost every listing feature of the program. These are covered in Chapter 6 of the manual and will not be restated here. We'll include a few examples:

Typing LIST QTY,PRICE+ FROM SALES will add up all revenues from all sales with individual items, customer names, and dates automatically included. Typing LIST QTY,PRICE+ FROM SUPP1 will do the same but only for SUPP1. LIST QTY,PRICE+ FROM TYPE1 will do the same but only for TYPE1 from SUPP1. Typing LIST QTY,PRICE+ FROM ITEM1 will list this info only for one item--items will not be displayed in a separate column.

To any of the above entries you can INCLUDE? any other headings FROM any other SUBDIVS or general accounts in the program. As long as you keep entering new headings and accounts, the INCLUDE? question will still pop up--59 times!

If you type LIST PRICE+ FROM ITEM1, then INCLUDE?PRICE+ FROM ITEM2, and then INCLUDE?PRICE+ FROM ITEM9, etc., each item will be listed and totaled in a separate column in the listing, including a running total and grand total. You could do this for each type, naming the format by TYPE name. By including NAMES in the LIST and INCLUDE entries you could print out all activity for a customer, one type to a listing, with only one entry at the menu--stating the "listing name".

The same applies to SALES by type or suppliers. You could LIST and INCLUDE the various product lines individually, e.g. LIST PRICE+ FROM TYPE1, and then name the format SALES. By including a NAME in the last LIST command, you would print out all activity, arranged by product line, for one customer.

Again, the same applies if you want to categorize by supplier. By naming suppliers individually in LIST and INCLUDE entries, naming the "listing", and then including NAMES in the last list command, you can list activity by one customer.atarimuseum.nl Individual items will be

named in all these listings unless you prevent this by specifying zero to the tab setting for that column.

By entering a "spec" you can further sort all these various listings by color, model number, quantity, or other data in records.

Listing all activity for a supplier, by product line, by item, etc. is equally easy. More than one name can be specified in LIST commands. Therefore you can also print out any of these listings by region.

Remember, every time you use the LIST commands to set up one of these "formats" you can name the listing and then call that same listing from the menu with only one entry. So once you have organized all the listings you will need, the display and printing functions become simple and fast for the duration of the application.

See chapter 6 for information about setting up a billing format. In most applications the format would be created by typing LIST (name),QTY,PRICE+ FROM TYPE1 and INCLUDE?QTY,PRICE+ FROM TYPE2, and so on through the types or product lines. You would then specify printing an address. You would enter zero for the tab setting for NAME but enter greater tab settings for all other columns to suit your printer. The columns will represent the list of specific products, dates, product lines, and running total. The bill or "statement" could be set up differently if you like, along the lines of any of the listings previously discussed.

You would then select formatting a spread sheet form and specify your name and address, titles or short messages such as "SOLD TO:" or text files to be added. It's a good idea to end the invoice or statement with a text file explaining the form until your customers become accustomed to it. You may also want to revise some of your titles from the utility menu to make the form more understandable.

Designing an invoice is a matter of experimentation! But unlike the account organization function, you do not pay for your mistakes in inefficiency. You can simply delete the format (from the utility menu) and try a new one.

This method also allows for the full use of "Statements of Totals" and graphs. See Chapter 8 in the manual to use these functions.

APPENDIX 9 -- ACCOUNT SET-UP -- SCHEDULE C

It's been said that 90% of the job of filing a tax return is in getting all the information in one place and totaled up properly. If this is true (and we think it's more than true!) then you and MICROMOD can easily get most of your tax work done yourself.

MICROMOD *could* print out your return--but it wouldn't be worth the time spent in creating the formats. Nor would you want it to in any case. A computer cannot replace an accountant, only a bookkeeper (he or she becomes a "computer operator" and asks for a raise!). All kidding aside, professional tax consultation is a requirement and this includes filling out the returns. But with all the organized information that MICROMOD can provide, an accountant should be able to prepare most small business tax returns in a day or less. All that's required is to judge the best methods, enter the MICROMOD figures and other figures from last year's return onto the returns, and complete the arithmetic required in the returns.

Since most accountants will charge less than \$500 for a day's work, plus a few hours tax consultation throughout the year, and since most small businesses are paying \$1,500 or more for Accounting/bookkeeping, we feel it's reasonable for MICROMOD users to experience a \$1,000 per year savings on accounting bills.

We're not taking work away from accountants--they can use MICROMOD too, and increase the bookkeeping services to those unfortunate people who own other types of computers.

Having said all that, down to business! What you should do with the MICROMOD program regarding taxes is to compile all the figures used as sources on all your tax schedules. Don't bother with names, exemptions, ID numbers, etc. It's easier to add those without the computer.

Look at each line in the form and determine if it requires totals of large numbers of records. You won't want to bother setting up accounts, headings, and entering records for items that have only a few numbers in the year, or items you can simply copy from last year's return, such as depreciation schedules (you will want to keep track of repairs with the computer).

Since all businesses or home users with part time businesses use Schedule C we'll use it for an example. The same techniques apply to all schedules. You'll find that it's easy to set up accounts to conform to tax forms, easier than most other computer functions, because the "titles" are presented to you on the forms.

Schedule C

A copy of Schedule C for 1985 is provided in Exhibit 9. The information at the top of the form is of no concern as far as record keeping. If you are using the Inventory Cost method, enter the "Inventory Cost" on line E if you

are using the underlined cost figure (figured by the weighted average method).

We'll examine each line beginning with "Part I" and illustrate how to set up accounts, if applicable.

Line 1

You can account for sales with a simple account opened with MAKE SALES,MAIN and the heading AMT. If you are using the Invoice Program, sales will be the total of all "AMT" entries in the ITEM account. See Appendices 2 and 3 for examples of billing set-ups that will accumulate sales data.

Line 1a

See Exhibit 6 for an example of a sales returns account.

Line 1c

No source data required

Line 2

No source data required. The source data is required in Part III (at least it's on the same form!). We're only concerned with data that doesn't come from another part of the form or another tax schedule.

Line 3

No source data required

Line 4a

Not worth keeping in the computer

Line 4b

Here's a likely computer function: "Other Income". For tax purposes, simply set up another account under your general account for receipts, such as,

MAKE OTHER,RECEIPTS

The headings AMT,REF or similar headings will already be in the computer. For your own budgeting purposes you might break OTHER down into subdivisions, for instance:

MAKE CIGS,OTHER
MAKE GAMES,OTHER
MAKE TICKETS,OTHER

Line 5

No source data required

Line 6

See Exhibit 6 for an example of account organization for advertising. The schedule requires only one account, ADVER, but again, you may want various subdivisions.

Line 7

This depends on how (or when) you write off bad debts. See your (new!) accountant to determine the proper method. If you have separate accounts for SALES and RECEIPTS, the subtraction of the two will give you an amount due. If you use a time period for bad debt write offs, simply list the SALES and RECEIPTS reconciliation for a prior period reflecting the proper age of the debt. If you are using the Invoice/Statements program, the Aging Sheet (for * customers) and PREV.BAL account (for + customers) will give you a total amount owed for all customers in the statement list. Again, you can list this for prior months to determine bad debts.

Line 8

Don't bother. The bank already does this for you.

Line 9

Again, see Exhibit 6. These expenses will all be easily listed and totaled from your payments or expense accounts.

Line 10

This would be a subdivision under the general receipts or income account, such as,

MAKE COMM,RECEIPTS

Line 11 and 12

No source information required. It's generally not profitable to use the computer for depreciation accounts. Most information can be copied or quickly calculated from last year's return. One exception repairs and maintenance. See Exhibit 6 for examples of accounts to record repair and maintenance expenses.

Line 13

Sometimes included in a subdivision under office expense. Otherwise open an account under PAYMENTS:

MAKE DUES,PAYMENTS

Line 14

Normally a subdivision of PAYROLL expense. See Exhibit 6 for an example of a retirement fund. The title could be changed to cover all employee benefit programs (see line 22), or a new account could be added directly under expense with subdivisions for different employee programs (RET would be moved to the new account).

Lines 15-25

See Exhibit 6 for examples of accounts covering these expenses.

Line 26

If you break payments down into taxes, shipping, etc. you will need an account to hold the sales tax paid. This can go under the general payments account:

MAKE STAX,PAYMENTS

For the purposes of taxes on your federal return, these totals are all available from state and local returns.

Lines 26-29

See Exhibit 6

Line 30

Get from prior return.

Line 31

Expenses not covered up to here will be in the remainder of your payments or expenses account. Referring to the example in Exhibit 6, you would just specify the remaining SUBDIV 2 accounts in LIST and INCLUDE? entries to print totals for the remaining expenses. These can be presented to your accountant.

Line 32-34

No source data required.

PART 111, Lines 1-8

If you are using the Inventory program, get these figures using the PRINT/TOTAL selection on the Custom Menu. Otherwise, see Appendix 12 -- Using the Dated Records program for inventory.

SCHEDULE C
(Form 1040)
Department of the Treasury
Internal Revenue Service

Profit or (Loss) From Business or Profession
(Sole Proprietorship)

Partnerships, Joint Ventures, etc., Must File Form 1065

Attach to Form 1040 or Form 1041. See instructions for Schedule C (Form 1040).

OMB No. 1545-0047
1985
02

Name of business (or individual, including spouse or partner, if a proprietorship) _____ Social security number _____
2. Principal business location (street, city, state, ZIP) _____

3. Business name and address _____ 4. Employer ID number _____

5. Method(s) used to value closing inventory:
(1) Cost (2) Lower of cost or market (3) Other (attach explanation) _____
6. Accounting method: (1) Cash (2) Accrual (3) Other (specify) _____
7. Will there any change in determining quantities, costs, or valuations between opening and closing inventory?
If "Yes," attach explanation _____
8. Do you use any method for amortizing goodwill? _____

Part I Income

1. a. Gross receipts or sales	1a
b. Less: Returns and allowances	1b
2. Subtracting 1b from 1a and enter the balance here	1c
3. Cost of goods sold and/or operations (from Part II, line 3)	2
4. Subtract line 2 from line 1c and enter the gross profit here	3
5. a. Worked Profit Tax Credit or Refund received in 1985 (see instructions)	4a
b. Other income	4b
6. Add lines 3, 4a, and 4b. This is the gross income	5

Part II Deductions

7. Real estate taxes on services (Cash method taxpayers, see instructions)	22. Freight and profit sharing plans
8. Bank service charges	23. Rent on business property
9. Car and truck expenses	24. Repairs
10. Commissions	25. Supplies (not included in Part III below)
11. Depreciation	26. Taxes (Do not include nondeductible taxes. See line 10.)
12. Depreciation and Section 179 election (Use Form 4562. This includes a Part III election.)	27. Travel and entertainment
13. Dues and subscriptions	28. Utilities and telephone
14. Employee benefit programs	29. a. Wages
15. Freight (not included in Part III below)	b. Cost of goods
16. Insurance	c. Subtract line 29b from 29a
17. Laundry and cleaning	30. Worked Profit Tax withheld in 1985
18. Legal and professional services	31. Other expenses (specify):
19. Mortgage interest paid to financial institutions (see instructions)	a. _____
20. Office expenses	b. _____
21. Other interest	c. _____
22. Add amounts in columns on lines 8 through 31. This is the total deduction	d. _____
	e. _____
	f. _____
	g. _____
	h. _____
	i. _____
	j. _____
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	zv. _____
	zw. _____
	zx. _____
	zy. _____
	zz. _____

Part III Cost of Goods Sold and/or Operations (See Schedule C instructions for Part III)

1. Inventory at beginning of year (if different from last year's closing inventory, attach explanation)	1
2. Purchases and cost of goods sold (attach explanation)	2
3. Cost of labor (not include salary paid to yourself)	3
4. Material used in sales	4
5. Other costs	5
6. Add lines 1 through 5	6

APPENDIX 10 -- LISTING FORMATS -- INVOICE PROGRAM

If you will look at Exhibits 10 and 11 you will find various listing examples to correspond with the "listing formats" provided with the program in the "D" file on the Master Program disk. These are all ready to use as soon as you enter some invoice information.

Each format begins with the LIST entry made at the Main Menu which was used to make the listing. These were entered as the computer stopped and asked for title entries, as it does whenever the printer has been signaled with the space bar.

The listings are not complete. After a sufficient number of records were displayed for illustrations purposes the M key was pressed to interrupt the listing and return to the Main Menu.

Notice in these listings that two lines of headings are displayed. The top line lists the account titles, and the next line lists the headings. This will happen when you specify more than one account in the LIST and INCLUDE? entries. The heading format is saved in the format when it is named.

You can save room in listings by specifying the same tab setting for different headings which represent the same type of data, as long as the column totals are not important. In the examples, the heading INV# for invoice number was entered several times with various account titles. When specifying tabs, the same number was entered after each INV# heading, so all invoice numbers are listed in the same column. An unsightly but otherwise insignificant result of this is that some titles and headings will be supplanted with later titles and headings. Sometimes they will erase headings further along in the line. Since these listings are used for "in house" purposes this is not a problem. The familiar operator will recognize the data immediately.

THE "REMOTE" FORMAT

Here are the entries used to create the REMOTE format:

```
LIST ITM
INCLUDE?INV#,AMT FROM STX
INCLUDE?INV#,AMT FROM SHP
INCLUDE?INV#,CREDITS FROM PAY
```

STOP,PRINT HEADINGS...No Hold in format, press RETURN

TABS:

```
ACCT?1
NAME?9
DATE?14
```

INV#?20
 QTY?26
 MOD#?29
 DESCR?35
 PRICE?67
 AMT?73
 STS?80
 INV#?20
 AMT?26
 INV#?20
 AMT?26
 INV#?20
 CREDITS?26

By not specifying headings in a LIST command (as in the first entry above) the computer assumes you will want ALL headings in the listing.

In most listings you will be entering the lowest subdivision accounts. In the example above, higher accounts were entered purposely so that there would be an "account" column.

THE "STAT" FORMAT

The "STAT" format was created to print the form in Exhibit 13. The entries to create the form were:

```

LIST XX,INV,CHARGES+ FROM INV
INCLUDE?INV#,CREDITS- FROM PAY
INCLUDE?INV#,AMT+,DATE FROM INV.P
INCLUDE?INV#,AMT- FROM CRD
INCLUDE?AMT+ FROM PREV.B
  
```

ADDRESS=9

STOP,PRINT HEADINGS EACH ??th LINE?34

```

ACCOUNT?23
NAME?0
DATE?14
INV#?4
CHARGES?43
INV#?4
CREDITS?55
INV#?4
AMT?43
DATE?14
INV#?4
AMT?55
AMT?43
TOTAL?68
  
```

CANCEL HEADINGS?Y

SPEC? (no entry)

FORMAT SPREAD SHEET FORM(Y)?Y

LINES BEFORE ADDRESS:

? (none--RET pressed)

ADDRESS TAB?8

LINES AFTER ADDRESS:

? (no entry)

LINES AFTER LISTING:

?[B]

?[B]

?[B]

?[B]

?[B]

?[B]

?[B]

?[B]

?[B]

?[B]

LARGEST NUMBER?99999

Notes: The display module, DIS.MOD has special programming to support this format, and other special programming to support other formats run from the BATCH STATEMENTS module (RLOOP.MOD). The XX in the LIST command is an abbreviated NAME.

LIST 37359, INVOICE, 4, 1, 86, 6, 30, 86

ACCO NAME	DATE	SHIP INV#	IT	ITM QT	ITM MOD#	ITM DESCR	ITM AMT	STX AMT	SKP AMT	TOTAL
ITM SOGA	4/3	37359	1	821.3	3	LN STP	3.25			3.25
STAX SOGA	4/3	37359						.16		3.41
SHIP SOGA	4/3	37359							.94	4.35
TOTAL							3.25	0.16	0.94	4.35

LIST SOGA, INVOICE, 4, 1, 86, 6, 30, 86

ACCO NAME	DATE	SHIP INV#	IT	ITM QT	ITM MOD#	ITM DESCR	ITM AMT	STX AMT	SKP AMT	TOTAL
ITM SOGA	4/3	37359	1	821.3	3	LN STP	3.25			3.25
ITM SOGA	4/7	37142	1				6.25			9.5
STAX SOGA	4/7	37142						0.31		9.81
SHIP SOGA	4/7	37142							0.89	10.7
ITM SOGA	4/10	37728	1				8.25			18.99
STAX SOGA	4/10	37728						0.41		19.36
SHIP SOGA	4/10	37728							2.15	21.51
TOTAL							17.75	0.72	3.04	21.51

LIST 37359, ACTIVITY, 4, 1, 86, 6, 30, 86

ACCO NAME	DATE	CRD. P INV#	I	ITM Q	ITM MOD	ITM DES	CRD AMT
ITM SOGA	4/3	37359	1	821	3	L	3.25
STAX SOGA	4/3	37359					.16
SHIP SOGA	4/3	37359					.94
INVOI SOGA	4/3	37359					4.35
INV. P SOGA	5/1	37359	4.35			4/3	
PAYME SOGA	5/29	37359					4.35

LIST 37359, STATEMENT, 4, 1, 86, 6, 30, 86

DATE	INV#	PAYMENT AMT	PR INVOICE	PAYMENT CHARGE	CREDIT	TOTAL
4/3	37359		4.35			4.35
4/3	37359	4.35				8.7
5/29	37359			4.35		4.35
TOTAL		4.35	4.35	4.35	4.35	

Exhibit 10

LIST REVOTE,4,5,86,5,5,86

ACCOUNT	NAME	DATE	PAY INVS	PAY CREDITS		
SHIP	GOAA	6/5	10117	D.55		
ITEM	XX	6/5	10118	3 EL2	2 ENGRAVD LOGO GOLD TAG	2.5 7.4
ITEM	XX	6/5	10118	1 SU	SET-UP ORANGE LOGO	25. 25
ITEM	XX	6/5	10118	30 HL	HOT STMP LOGO ORG LOGO	.5 15
ITEM	XX	6/5	10118	30 MISC	BLANK CMG	.5 15
ITEM	XX	6/5	10118	30	ON STOCK	0 0
STAX	XX	6/5	10118	1.14		
ITEM	XX	6/5	10119	2 EP4	4 LN PLATE 3X8 C101	12.91 25.42
ITEM	XX	6/5	10119	2 EN2	2 LN TAG STY 64 C101	3.1 6.2
STAX	XX	6/5	10119	1.61		
ITEM	XX	6/5	10120	1 EN2	2 LN TAG 800 RV	4.5 4.5
STAX	XX	6/5	10120	0.23		
ITEM	BRUN	6/5	10121	6 EN1	1 LN TAG STY 40 CH	4. 16.8
ITEM	BRUN	6/5	10121	1 EN1	1 LN TAG STY 63 C104 CH	2.6 1.82
ITEM	CITY	6/5	10122	2 EN1	1 LN TAG 1.5X4 C111	2.6 5.2
ITEM	CITY	6/5	10122	1 EP1	2 LN PLATE 2X8 C11	3.55 3.55
ITEM	CITY	6/5	10122	1 EN1	1 LN TAG 700 CH	3.5 3.5
ITEM	XX	6/5	10123	2 EP2	2 LN PLATE 4X8 C104	7.44 14.88
ITEM	XX	6/5	10123	1 MISC	2 SETS HOLE W/TAPE	.25 0.5
ITEM	XX	6/5	10124	1 EN1	3 LN TAG STY 60 C113	3.6 7.2

LIST SOUA STATEMENT,4,1,86,4,30,86

INV. P	PAYMENT	PR	INVOIC	PAYMENT		
DATE	INVS	AMT	CHARGE	CREDIT	TOTAL	
11/29	34968	5.41			5.41	
3/7	36670	58.65			64.06	
3/13	37003	19.08			83.14	
3/18	37194	5.4			88.54	
3/23	37233	20.48			109.02	
3/28	37377	5.1			114.12	
4/7	37142		7.45		121.57	
4/10	37728		10.81		132.38	
4/14	37603		10.21		142.59	
4/15	36670			58.65	83.94	
4/15	37194			5.4	78.34	
4/15	37377			5.1	73.44	
4/15	37233			20.48	52.96	
4/30	37003			19.08	33.88	
3/30	36660	5.62			39.5	
4/30	34968			5.41	34.09	
4/3	37339		4.35		28.44	
TOTAL		119.74	32.82	114.12	38.44	

Exhibit 11

APPENDIX 11 - FORMS USED WITH THE INVOICE/STATEMENTS PROGRAM

You can use blank paper for invoices and statements, and instruct the computer to print headings and titles. The program is also pre-set to print on standard invoice and statement forms. Exhibit 12 shows the invoice for which MICROMOD is pre-set. Exhibit 13 shows the statement form MICROMOD uses.

Micromiser will make adjustments in the invoice print module (INV-PRT.MOD) and statements module (RLOOP.MOD) to suit any forms you prefer. There is a reasonable charge for this. We modified the STAT format for one customer to print item descriptions. Since this was merely the creation of a simple format accomplished at the user level it fell under the category of "user support", so there was no charge.

Of course the Exhibits have been reduced to fit onto the manual page. The invoice is an 8 1/2 x 7 standard size and the statement is an 8 1/2 by 11 standard size. The invoice comes in triplicate and the statement comes in duplicate. Both are continuous feed forms.

Full size examples and ordering information will be included in the program package if possible. You can print these forms yourself using a word processor, or get prices from local suppliers. In all previous cases the supplier we recommended has bid a much lower price than local suppliers. MicroMiser does not supply the forms directly, but shops for and recommends a suitable supplier. Nor does MicroMiser receive a "commission" on sales of forms. Our only interest regarding forms is to locate the best service and price for your benefit. You must deal with the supplier directly, and the terms of sale are entirely up to you and the supplier.

If you will be printing invoices at a point of sale care should be taken in selecting an appropriate 80 column printer. You should be able to easily tear the printed invoice from the next sheet. MICROMOD moves the perforation at the bottom of the printed invoice to about one inch above the ribbon. The Legend 808 is suitable, the Epson LX-80 appears not to be because the sprockets are inches above the ribbon. You could use friction feed on the LX-80, but you may find yourself adjusting paper frequently. On the Legend the sprockets are before the ribbon. Our Star NX-10 also is suitable, but there is no advantage to using this more expensive printer for the purpose of printing invoices.

APPENDIX 12 -- USING THE DATED RECORDS PROGRAM FOR INVENTORY

The MICROMOD inventory program is designed for simplicity, high capacity, and to accomplish the necessary inventory functions encountered in the large majority of small business applications. It is recognized that the capabilities presented may not be sufficient to meet the preferences of some operators. To provide many of these extra functions would unnecessarily complicate the procedure for most users. However most of these refinements, mostly in the area of reporting, are available by using the Dated Records program for inventory.

The following information is presented to help you to use the Dated Records program for the inventory list. Time and space limitations do not allow for a fully detailed procedure. The information is designed to get you started in the right direction. It assumes that you are fully proficient with the Dated Records program. If you do not fully understand the account organization features, do not attempt to use the following information to set up inventory.

Due to the flexibility in account organization and the condensing of records, the Dated Records program can be used for inventory record keeping and Cost of Goods Sold computations. Up to several thousand individual items can be handled with a manageable number of disks. Searches can be done in a reasonable amount of time.

There are several ways of organizing inventory records. The method suggested here will work best in most applications. It offers full flexibility in listing records and reasonable speed.

Decide on headings

Determine what information you want in each record. You don't need a heading for the "type" of item, as this will be entered under the "NAME" prompt and go into the NAMES file. If you have more than a hundred or so types you might be better off to categorize types more generally, and enter individual types in records to save room in the NAMES file. Examples of headings you might use

```
<SUPPLIER,DATE,PURCH,COST,BASIS,PRICE,<MARK-UP,<MARGIN,  
TURNOVER,USE,QUANT,SER#,<DESCRIPT,<LOCATION,LENGTH,WEIGHT,  
<FINISH,MODEL,<YEAR,STATUS
```

Notice that repeating entries go into the NAMES file. This allows more records per disk.

There are different kinds of inventory records. "Quantity" records account for several items in one record. "Serial number" records record each individual item. Items in different stages of production may require separate headings. If you use "quantity" records, include a heading for turnover, such as USE. This will enable you to use inventory modules later for various inventory functions.

After you have decided on headings, estimate the average number of

characters you will type into each record by adding up the average number of characters that will be entered under each heading. The number 4275.31 takes 7 characters. Any entries from the NAMES file (heading begins with < character) take up only 2 characters regardless of the length of the entry. Include 2 characters for the NAME heading, and only 1 character for the date. Add to this total 1 extra character ("overhead") for each heading, including 3 for NAME, DATE, and COMMENT. Divide the resulting total into 90000, 140000, or 180000 depending on your disk density to get the number of individual records you can store on one disk.

If you will need more than one disk you should categorize each disk by location, type of record, or some other general classification which will allow you to enter one classification at a time (to save disk switching).

Accounts

Set up a general account for inventory records.

Enter MAKE INV,(area) to set up the account. If you have more than one type of record, for instance "serial items" and "quantity item" requiring different headings, set up a general account for each. Enter the headings to the headings prompt.

You can save room in records and the NAME file by subdividing the general account into subdivisions. It is suggested you do this only on one additional level (SUBDIV 1). This works well for different locations, e.g.:

```
MAKE STORE1,INV  
MAKE WAREHS2,INV  
MAKE LOC4,INV
```

Categorize Records

Make up categories of records. Each category should contain up to about 200 records, or more specifically, up to about 9,000 characters. This size is not a rigid requirement, but represents the size for optimum efficiency. The average number of records in each category multiplied by the number of categories should equal the total number of records you will store on the disk, plus a safety margin depending on how confident you are of your estimates of record size and number of records.

The more categories you have, the faster you will be able to access records for control purposes and point-of-sale. 16 to 50 categories are suggested. You cannot have more than 64. The categories may or may not correspond to one of your headings, such as type, supplier, description. When you later search for an item, you will have to know to which category the item belongs.

Using Date Numbers to Categorize Disk Files

List the categories on paper. Write two numbers to be associated with each. The first number atarimuseum.nl The second number must

range between 61 and 69. Examples:

tables 8,69
coats 5,66
maple 4,62
acme adhesives 3,65

If you will want to list (add up cost of) certain items together, make the first number sequential and the second number the same. Otherwise the numbers are completely arbitrary as long as they are sequential. Keep the list handy or enter it in the directory i.e. PUT INV LIST and enter the categories and numbers, one at a time, under that name (INV LIST). Then SHOW INV LIST will display/print the list, and it is easily updated.

When you enter records and encounter the DATE? prompt, enter the first number for the month, enter 1 for the day, and enter the second number for the year. Using the FAST RECORD ENTRY module, you need only enter S to the NAME and press RETURN to the date (after the first entry) while entering the records for each type (NAME) and category (DATE). If your categories correspond to the types (i.e. TVS,REFRIDG,FLUTES, 2x4, etc.), you keep doing this until you proceed to the next type. If you have more categories than types you will have to change the date numbers more often.

Use a separate disk for each inventory. If you take frequent inventories some will become unimportant after a while. You can re-format and re-use the disk.

This completes the procedure for entering inventory records. They can be listed and totaled by names, headings, or specs within the records. Entering the date codes in LIST commands allows the computer to search only a small section of the disk to find the record. By inserting the correct disk (if using more than one) and the date codes, items can be located quickly among thousands of records using the LIST name(s),spec,listing,date,date command.

COST OF GOODS SOLD

You will want the inventory totals to appear in your income statements. This can be done using the following method:

Add another general account called COGS, e.g. MAKE COGS,(area). If you take inventory once a year, enter only one heading, AMOUNT. If you take inventory one or more times a month, enter twelve headings, one for each month, i.e. JAN,FEB,APR,MAY, etc.

Each year enter a new subdivision under the general account COGS which reflects the year in the title, e.g. MAKE INV86,COGS. Enter the total cost or other basis for inventory under that account, i.e. MAKE INV86 and then skip to the correct month by pressing return to the record prompts. If you would like the Cost of Goods Sold accounting on the Statement to include different categories of items or records, e.g. RAW, COMPLETED, PARTS, etc., enter another level of subdivisions under the year title, e.g.:

MAKE RAW86, INV86
MAKE CML86, INV86
MAKE PRT86, INV86

Enter the subtotals from the inventory list into the appropriate account SUBDIV and heading (month). You can have up to 100 titles in one SUBDIV in the same general account, so this method should easily outlive the system.

Entries for the Statement might look like this:

?LIST AMOUNT+ FROM SALES
INCLUDE?AMOUNT- FROM RETURNS INCLUDE?JAN+ FROM INV86
INCLUDE?AMOUNT+ FROM PURCHASES INCLUDE?JUL- FROM INV86
INCLUDE?...

This will assure the correct order of totals on the statement to format for Cost of Goods Sold.

If you take inventory more often than once a month the total will be used for control analyses and not for statements, so you should not need to organize accounts further. Otherwise it is suggested you make two new subdivisions to alternate each inventory, e.g. INV.A,COGS and INV.B,COGS.

APPENDIX 13 -- SIDEWINDER GAME INSTRUCTIONS

If it gets a little dull around the office you can liven things up with a game of SIDEWINDER. The game may be loaded ONLY from the WP23 program. It is a file on disk and you enter it the same way you enter a text file. From "READY TO TYPE" mode, enter the filename SIDEWIND and press (ctrl_B). WARNING: save text memory on disk--the game will erase it.

THE FILE "SIDEWIND" MUST BE ON THE DISK IN DRIVE #1 OR YOU WILL GET AN ERROR 131 (FILE NOT FOUND)

After the game is loaded it starts automatically. Return to the WP23 program ANYTIME THE GAME IS MOVING by pressing (option). Start the game over anytime the game is moving by pressing the (S) key.

GAME INSTRUCTIONS

The game starts by displaying the name and the question:

LEVEL?

Enter any number from 1 to 8 (Beginners: use level 1 or 2).

The game will immediately display the scores, round number, level number, and player number. When you're ready, press (start) to play. You must also press (start) at the beginning of each round and at the end of the game.

You are the pilot of the red and gold plane. You get three planes each round, and there are 3 rounds. Fly the plane with the left and right arrow keys, and fire with the select key. Score points by hitting the blue-white enemy plane. When you do it will develop a fuel leak (pink line) and from then on you score points by firing into the fuel leak as well. Even though your shots seem to hit the enemy, most will be misses. Maneuvering into position behind the enemy plane greatly increases your chances for a hit. Firing at any other object has no effect.

The enemy plane cannot fire back, so you need not worry about crossing in front of it. There are a few hazards for you however.

There is a weather hazard in the form of a line of thunder squalls with tremendous wind shears, represented by variable blue lines. Flying into these means immediate destruction. The enemy plane can stand more G's and is unaffected by them.

Flying into the enemy plane or the fuel leak causes a sidewinder missile to be released. The guided missile will chase your plane until it catches and destroys it or until it hits a squall line which stops (but does not disarm) it. It makes an ominous sound which is easily distinguishable from the other sounds of the game. It is often released from the enemy plane but can be released from any location.

As each round progresses for each player the sky becomes increasingly dotted with "flak" which flashes all colors and moves about randomly. While the enemy is unaffected by these, for you to fly into one will damage your plane, making you plunge to low altitude, at times spewing out debris. A sidewinder is also released. You can recover, but if you or any debris are hit by the missile or the squall line, your plane is lost. You should try to collect the debris as soon as possible. While firing you will be unaffected by these, but they will move so rapidly that you won't know where one will be when you stop.

Score 100 points for each hit. 10 points is SUBTRACTED for each miss, so you cannot fire indiscriminately. You cannot have a minus score however, nor can points be subtracted from a previous round. Therefore you can fire at will at the beginning of each round.

The game was designed to be played at level 3 (or 4 for very experienced pilots). 250,000 at level three is a respectable score. 500,000 makes you an ace and 1,000,000 gets you the distinguished flying cross!

STRATEGY

There are several defenses against the sidewinder. First, it can only fly vertically and horizontally so you can outrun it if you fly diagonally. It cannot follow you off screen, but must reverse direction as you re-enter. Firing will prevent it from chasing you INSIDE the fuel leak SOMETIMES! You can re-position the missile by causing a new one to be released. By using these tactics wisely you can maneuver the missile into the squall line or avoid it while scoring points.

There are two main strategies for scoring points. One is to get inside the fuel leak and fire continuously. Since there are few misses, points add up rapidly. You won't last long though, since a sidewinder is released and you don't know where you are or where it is.

The second strategy is to get behind the fuel leak and fire into it, avoiding collisions with it and any other objects. Points are scored more slowly but you can last a lot longer.

The first strategy works best for student pilots. The second is best for those with combat experience.

Don't waste too much time just flying around. The flak gets thicker with time and will become increasingly bothersome.

Keep your plane on screen. When you're flying "IFR" you may hear your plane destroyed and not know what hit you. Avoid flying behind the score board for the same reason.

Avoid getting behind the enemy in the vertical position. When you hit you will be inside the fuel leak and a missile will be released.

When in front of the fuel leak let it follow you and position your plane in front of the enemy plane. When the enemy begins cleaning up the leak you can circle behind into firing position.

Remember, every offense has a defense. The enemy has subtle weaknesses. Learn to exploit these to your tactical advantage. Thumbs up!

APPENDIX 14 -- ACCOUNTS PAYABLE

MICROMOD does not include a separate accounts payable program. The payables functions normally required in small business are easily handled by the Dated Records program. The DELIV account will list the amounts obligated from inventory received. A simple account set-up will allow you to keep records of payments for expenses.

The following information is presented to help you more fully utilize the Dated Records program for payables functions.

PAYABLES DESCRIPTION

Obligations to make payments are usually created in four ways:

- 1) A service or delivery is performed by a supplier who provides terms of payment. Example: a delivery of inventory items.
- 2) A fixed expense which must be paid every week, month, year, or other period. Example: a mortgage payment.
- 3) A fixed expense for which the amount varies. Example: tax bill, payroll.
- 4) A one-time or intermittent service or delivery is performed with terms of payment which apply to that transaction only. Example: a repair bill.

In a typical accounts payable application the user enters a future date and generates a list of all payments due to be paid by that date, including creditor, amount, and total amount. Certain accounts may be selected for immediate payment, initiating a check writing routine, for instance, and automatically updating the payables list and cash accounts, similarly to a payroll function.

The most important benefit of an accounts payable list is to use the total amount in estimating what the cash levels are expected to be at a future date. Will I have enough cash or should I arrange for a loan? Should I buy new equipment now or wait? Another function would be to edit or change the information in the list.

The main problem in accounts payable is determining the expected date of payment. Most suppliers offer a discount for payment by one date, with another date when the net amount must be paid. Further, there is the date that you would like to pay, the date you expect to pay, and finally the date that you actually can pay considering your cash requirements.

The maintenance of all these dates in a payments list is usually more trouble than it's worth in a small business application. Most users will estimate just one date which usually reflects the last day they know from experience the supplier will allow to make payments. If the supplier list contains terms of payment, these terms would be modified to reflect the true number of days for payment, rather than the date the supplier "would

like to get paid".

To summarize up to here, accounts payable functions involve generating a list of payables as of a certain future date, and various manipulations of the list.

USING THE DATED RECORDS PROGRAM FOR ACCOUNTS PAYABLE

Due to the Dated Records program's flexibility in handling dated information it is already well suited to generating an accounts payable list. You need only set up a general account for payables, e.g.:

```
MAKE SUPP.P,PAYABLES,MAIN
MAKE FIXED.P,PAYABLES
MAKE MISC.P,PAYABLES
```

After the first entry above the computer would stop for headings. Enter headings to represent the information you will want in records such as the amount, date of delivery or service, date of invoice or statement, model or catalog number, delivery method, form of payment required, etc. For most applications the two headings AMOUNT,ORIG.DT would be sufficient with "ORIG.DT" representing the date on which the obligation originated. Additional headings for other dates reflecting the supplier's terms could be used, though these serve no function other than to remind you in listings. Don't enter headings for the date of expected payment or the name of the creditor. These will go in records under the headings NAME,DATE which the computer adds to your headings.

When entering records, to the NAME? prompt enter the Abbreviated NAME of the creditor. To the DATE? prompt enter the future date of expected payment, NOT the date of the service or delivery--that date goes under the "date of origin" heading that you entered.

After these accounts are set-up you need only make record entries upon receipt of deliveries or services, e.g. MAKE SUPP.P or MAKE MISC.P. You can then use LIST commands to generate an accounts payable list. The first date to enter in LIST commands would be the earliest date for which a payment is still overdue (not made), which would be today's date if you pay all your bills on time! The second date would be the future date for which you want the payables list to apply.

Of course when you make a payment you must update the list. You could delete the appropriate record from the Utility Menu, for instance. But this would wipe out information you may need later. In most applications it would be better to MAKE a new record, with the same NAME, and the date of the payment entered to the DATE? prompt, but entering the amount paid as a negative number, such as -34.75 if you paid \$34.75. Then the next time you list payables the payments will be easily identified. The amount due will be canceled out in the list, but the records of deliveries, etc., and payment will be preserved. Using this scheme there will be extra headings you won't need when entering payment records (with the minus amounts). You could enter a code under one of these headings, such as the

letter P. You could then list payments only by entering P as a "spec" in LIST commands. Another method would be to specify the "-" character as a "string" to search, since payments (and only payments) will contain that character.

You may want different information in your records of payments from the information in the payables list, i.e. different headings. Few programs offer the mixing of accounts capabilities you have. You would set up another account, such as MAKE PAYMENTS,MAIN. Most users will have such an account already set up for tax purposes. Examples are provided in the manual.

Once you have both a PAYABLES account and a PAYMENTS account, it is easy to mix the two in listings. When you specify the heading for the AMOUNT of PAYMENTS using the LIST commands end the heading with a minus sign. The running total will give you the adjusted amount due. The column totals will give you totals of PAYABLES and PAYMENTS respectively. Another way would be to add a heading to the PAYMENTS account and use the HEADING MATH function to multiply all the payments by -1, before using the LIST commands. This is more tedious and takes up extra room on the disk, but is mentioned in case you have an unusual record set-up causing problems with the listings.

Note that you have all the flexibility of LIST commands in generating different kinds of payables/payment lists. You can specify one or more NAMES to make an analysis of activity for just one or a few creditors, for example. You can include income, deliveries, or any other account information in the listings. You can "name" the listings and thereafter call up that particular analysis with one entry at the menu. These capabilities will be increased depending on how much thought you give to setting up accounts for your particular application, but in any case they should suit your purpose well.

You can edit or change any record information from the Utility Menu, selection "R".

Entering Fixed Expenses Due

You can easily enter all fixed expenses which repeat month to month. Enter them into the next month, that is, the first month which contains no records yet. Then just rename the file to a new month in copy commands using DOS, twelve times.

For instance, suppose you enter several monthly expenses due dated in February, 1987. The file that MICROMOD would create to hold these would be named R702. If you then copied this file to the same disk, but renaming it to R703 in the process, such as in:

```
COPY D1:R702 D1:R703
```

you would then have two months worth of fixed expenses entered. You would then repeat the process to create files R704, R705, R706, R707, etc. Of course this would work for monthly payments only. You will have to

manually enter those with different pay intervals.

You could then list all fixed expenses due with LIST commands, entering future dates. As you go through time and enter payments, the payments can cancel out the expenses in printouts.

APPENDIX 15 -- EXCERPTS FROM SELECTED SUPPORT LETTERS

These excerpts are taken from support letters written by MicroMiser to MICROMOD 3.0 customers in response to support requests. Since the subject material may vary widely within the letters, no attempt to organize the information is made, other than to title the various sections.

Also in the case of support letters little consideration is given to grammar and spelling, resulting in an asyndetic style (Look it up, it's a great word for business!). The goal is to provide as much information as possible without going into more detail than may be necessary. If more detail is required a follow-up letter will be provided. An assumption is therefore made about the level of proficiency of the user. The level of specifics will vary from letter to letter.

Further, some of the information is in response to questions which are not included, making the information even less clear.

But even considering these vagaries the information could be very valuable in certain cases since it is likely that most users will have many of the same questions, and these may be too specific to include in the manual proper.

Since the letters apply to the 3.0 version an attempt has been made to revise them in cases where there is a major conflict in procedure or functions between the two versions. Still, you should allow for some difference and not expect the procedure to be identical in every case. The information should therefore be used as a guide only.

ACCOUNTING TERMS

"Generate a journal entry" -- we say, "Set up an account with headings to represent the data items to go into each record. Note that what you call an "entry", we call a "record".

"Descriptions of the journal entries" -- we say, "include a heading to represent short descriptions that will repeat. Otherwise, you will always be able to enter a "COMMENT" at the end of each record entry. COMMENTS can generally be longer as they don't have to be squeezed into a column in the printout--they are listed in the next line.

"A general ledger report with the journal entries posted" -- we say, "Use the LIST commands to LIST and INCLUDE up to 60 accounts (you say "journals") in one listing, naming the headings and arithmetic you want. At the end of the listing you can name that particular format. We call the format a "listing NAME" or "listing format". If you include ("post") most of your "journals" in the listings the resulting format is a "general ledger", and you could even name this "GEN LEDGER", etc., though you'll probably want several formats for different uses.

"Statements generated from the closing balances in the G/L" -- we say, "STATEMENT OF TOTALS" which is the same thing. See chapter 3 in the manual. You can make a [atarimuseum.nl](http://www.atarimuseum.nl) listing, G/L type or

otherwise.

CHECKBOOK

The MICROMOD manual contains a procedure for you to set up accounting for your checks. You might want to enter check numbers under the heading "REF" when entering checks. This will allow you all the flexibility you need for tax purposes.

To reconcile your checking account you should also set up an account called "DEPOSITS", i.e.,

MAKE DEPOSITS,(area)

and enter the headings AMOUNT,REF.

Lastly, set up an account named "PREV.BAL", i.e.

MAKE PREV.BAL,(area)

and enter the headings TOP,AMOUNT,REF. At the end of each month when you LIST AMOUNT+ FROM PREV.BAL, INCLUDE?AMOUNT+ FROM DEPOSITS, and INCLUDE?AMOUNT- FROM PAYMENTS; you should then enter a record under PREV.BAL (MAKE PREV.BAL) dated the first of the next month. Enter T to the heading TOP, and the ending balance from the previous month as the AMOUNT. The first month you use the program just enter the balance from your checking statement.

TIME BILLING

A standard invoice asks for quantity, model number, description, and unit/price. The quantity figure is then automatically multiplied by the price for the "total" column. You would enter the number of hours under "quantity". You are not required to enter a model number or description, but could enter a description such as "hourly rate" and the price/hour in the unit/price column. For item charges such as doc stamps, contract fee, etc., you could enter the usual quantity (1), description, and price.

TERMINOLOGY

FORGET FILE STRUCTURE

You're not supposed to understand the display when using the DISK FILE STRUCTURE selection on the Utility Menu. It allows us to debug over the phone in some cases. It also allows inexperienced users to verify that certain records are indeed in the computer when they cannot access them with LIST commands. Otherwise it is an unnecessary function.

ACCOUNT RECORDS/DIRECTORY DISK ALWAYS IN DRIVE #2 IF 2 DRIVES.

Yes, if the computer finds two drive in the system it will always load/write account records to/from drive #2. This is a big convenience as there is no advantage in doing it any other way, and it saves procedure which most people hate. .

FORMAT DENSITY

If using 1050's format in enhanced density ("I" on the DOS menu). If using 810s format in single. Since you read the MICROMOD disk, I assume you have 1050s. Use enhanced density.

THE TITLE SCREEN

The title screen adds another .024 seconds to the booting process, not a long time! While the title is being displayed much required initialization takes place. If it really took any unnecessary time, as it does in a lot of programs, we'd get rid of it. Of course you know the number of drives in the system, but you don't know if the computer knows unless it says "two drives found". You should look for this in case a drive should not be functioning properly upon power-up. If you thought you had two, but the computer thought you had only one, it might write records files onto the program disk, wiping out free memory and necessitating making up a new disk. This occasionally happened before we included this message.

If you don't understand the difference between AREA, ACCOUNT, and SUBDIV, then "A=FICA" and "NET SALES,3" is way beyond where you should be in learning to operate the program. Let's save formatting statements for the next letter.

AREA

All you need to know about AREA is that you will have only one, that it is any word of 8 or less capital letters, and it is the last word you enter in MAKE commands. If the other words in MAKE commands are already known to the computer, you do not need to include the AREA title in the command, but including it does not hurt anything.

There is the possibility of using two or three areas, each with their own disks for records, but again, this is advanced stuff. For the first six months, always cancel (press RETURN without entering Y) if you see the question "OPENING AREA #2...."

THE DIFFERENCE BETWEEN ACCOUNT AND SUBDIV

That's easy--there is none. Everything in the ORGANIZATION CHART (O on the Main Menu) that is not the AREA or a HEADING is an account.

There are two kinds of accounts: general accounts and subdivision accounts. When using the MAKE command to set up accounts, one account title will be just before the AREA name, that is, it will be the next to the last word. This is the only distinction that makes it a general account and not a subdivision account. Subdivision accounts are entered to

the left (before) the general account name on the MAKE command line.

You enter HEADINGS only when naming a new general account. This could only happen when the last word in the MAKE command is the AREA title, and the next to the last word in the MAKE command is a word the computer has not seen before. It will then stop and ask for headings. From then on, any account named in a MAKE command which appears before the general account name on the command line will get the exact same headings as you entered for that general account.

Have you seen an organization chart for the management staff of a business? The AREA is analogous to the "President" and you need only one! The general account is analogous to the Vice Presidents, each with their own functions (headings). Each manager under the vice president (subdivision manager) has roughly the same overall goals (headings) as the vice president of the department.

The really nice thing (and powerful thing) about this organization is that if you name just the general account in a LIST command, all the subdivision accounts under that account are automatically listed too. Meaning you can list a lot of related information without typing 15 or 20 entries as you would have to do otherwise.

The graphing function may look pretty weird at times depending on the information and mode used, but it would only "trap out" (appear to lock up) if it could not find the record files. I think this is a case where the records may have been in the wrong drive, or there may be a problem in the account structure which is causing a difficulty in finding records.

DELETING DEMO FILES/HP23 BOOT DISK

Your biggest problem is that you are not deleting the demo files properly. This is not covered sufficiently in the old manual and we received many support calls on this. What is covered is in a very stupid place: page 43, section d. Anyway, follow this procedure:

1) Duplicate the Master Program disk with J. Duplicate Disk.

2) delete the following files from your new copy:

AREA
MINING
MINING.H
N
D
Q
RAMDISK.COM
WMENU

3) Power up with the new disk in drive #1.

4) At the Main Menu, type:

atarimuseum.nl

MAKE GENACCT,MAIN

and press RETURN. The computer will display:

OPENING AREA #1 "MAIN"
ARE YOU SURE(Y) OR CANCEL(RET)?

Type Y and press RETURN. The computer will stop for headings.
Type:

AMT,REF

and press RETURN. The computer will ask if you would like to enter records now. Press RETURN to get back to the menu.

You have just entered an "area" and a "general account". Either of the titles may be changed. There is no provision to enter "file names" with the any function on the main menu. If you have two drives, insert a blank formatted disk into drive two. You should be able to enter records with no problem for about a year.

The DOS 2.5 version does not support the AXLDN ramdisk. You'll never get it to work!

Are you sure the WP23.MOD file was in drive #2 if you are using two drives, or in drive #1 if using one? You should format a disk with the DOS.SYS file on it, and then transfer WP23.MOD to the new disk, renaming it AUTORUN.SYS so it will boot automatically. I'm sure this will work as I used the same exact thing on an 800 for two years. Note: when WP23 loads you get a blank screen, "READY TO TYPE" mode.

BASIC / 800 COMPUTER

MICROMOD is not a BASIC program--it's a BASIC/ASSEMBLER program. There's a huge difference. It would take a BASIC program about 5 minutes to check for a NAME in the NAMES file. Listings would take about 15 minutes.

To answer your question about upgrades...Since you have a removable BASIC cartridge you must be using an old 800. Do yourself a BIG favor. Trade it in on an XL. The difference is only about \$50, and more like \$25 if you shop around. It doubles the power of MICROMOD. It also doubles the clarity of the screen, and gets rid of systems bugs. That should be your first "upgrade". Next get a Singapore 1050 if you do not have two drives. Next call ICD at 815-968-2228 and arrange to purchase a "RAMBO" XL upgrade. You can send the XL to them with \$32, or arrange for a local technician, which is required, to install it for about \$25. Next order MICROMOD 3.0 and take full credit for the program you have. It's three times as powerful, three times as fast, and the manual alone is worth the difference.

COMPUTER DATING

I work out of my office at home. I'm usually here during the day, except on occasion when I do local on-site support. In that case I'll forward my calls if practical, so you're liable to get an unfamiliar phone answer. Just ask for Steve. Otherwise leave a message on the machine and I'll call when I return.

I program and do support until quite late in the evening when rates are low, so don't hesitate to call after hours.

I strongly suggest that you follow the conventions outlined in chapter 2 for abbreviating your customer names to four letters. With several hundred customers this is the only easy way to handle record labels for you and others who'll use the program. Considering your intended use of the Directory, this will assure the proper distribution of information in the files for capacity considerations.

As the first Dating Service we know of using MICROMOD, you get your own tutorial, so here goes:

You've said you were keeping your descriptions on Paper Clip. Paper Clip is an astounding program, but the descriptions are really more of a Directory function, not a word processing function. Therefore there's a much better way with the MICROMOD program.

With 300 customers, and 256 bytes per description (as you say) we're talking about a 80,000 byte database. Since you have double density, you have almost twice this capacity on one Directory Disk. So your descriptions could easily average 500 characters or so, or you could expand to 500 or more customers on one disk. How's that sound?

Read the manual on how to make a directory entry. You can classify elements of your descriptions. If you use 5 or less classifications (which is 5 more than you get with Paper Clip) then you can use one of the five symbols from the Symbol Table at the beginning of each entry. If you would like more classifications, and I imagine a dating service would need more than 5, you would start every entry with the address symbol @, and assign one of up to 90 sort codes to the entry. If you do this MAKE SURE the "real" address is the first entry using the @ character--so the computer can find it when printing invoices, statements, continuous forms, form letters, etc. It will assume the first @ entry is the mailing address.

You can then search the directory by abbreviated name, symbol, or sort code, for "required attributes". Beginning an entry with @R (R=Sort Code) might denote religion info, @S might be sex, @A might be occupation, etc. A capability that would be basic to a dating service would be an exclusive sorting feature which would allow you to enter several codes to display only NAMES that met all requirements. MICROMOD doesn't do this now, but arrangements could be made to add this capability.

When the Temporary Directory approaches capacity you'll have to "UNLOAD"

it to the Directory Disk proper. It would be prudent to call me when you are ready to do this the first time.

By the way, this will work much better for making your lists for customers--much better than a word processor. You can list all information for one name at a time, one name with only various symbols (categories) or all names and all information with one command.

Next function: matching NAMES. You'll need a "recommend" list and a "match" list, since I understand you bill according to this. Also it would be useful for your own in-house information. You'll want to enter a NAME and get a list of all "recommended" NAMES, or a list of all "matched" NAMES between any two dates. You'll also want cross-referencing: put in any NAME and find out who was matched or recommended, or who this person was matched with or recommended to.

What we're really talking about here is a sort of "spread sheet" containing names, or more specifically, four letter abbreviated NAMES. You'll be setting up two "general accounts", one named RCMD (or any abbreviation you like for the word "recommendation") and one named MATCH. Under each you'll be entering headings.

The most important decision you'll make is to decide the number of different matched or recommended names (may be different numbers) you'll enter into each record. I want to help you to set it up so your entries will be as easy as possible. The criteria for this is difficult to explain, but here goes:

The number of headings under "RCMD" and "MATCH" will determine how many matched NAMES you can enter into one record. If you have more NAMES in a particular case you can just start a new record on the same date--it's all the same to the computer. But starting a new record will involve a few extra keystrokes. So you'll want to be able to enter enough NAMES in one record to cover the majority of cases. However, when entering one record, you will get prompts sufficient to enter the maximum number of names--meaning that if, in a particular case, you have less names to enter you'll have to enter a dummy name like "XX" (or press RETURN) several times to skip the unneeded prompts. Is this clear to you? Oh yeah, we'll I wish you'd explain it to me!

Anyway, I suggest you figure out the average number of recommendations and the average number of matches you give in an average case. Then I'd add one or two to get the most efficient number of prompts. If you average 10 recommendations and 4 matches, for example, I'd set-up the two accounts with 12 and 5 headings respectively. Don't use over 13 because you can't display more than 13 NAMES on one 80 column printer line, after the customer NAME and DATE. If you were a statistician with a TI calculator you'd add about one "standard deviation" to the "mean".

Now that the long-winded explanation is over, the actual procedure is quite simple:

Set up the general account RCMD with this entry of the Main Menu:

atarimuseum.nl

MAKE RCMD,MAIN

The computer will ask for headings. Enter a number of headings to correspond to the maximum NAME entries you just decided on for each record. If you decided on 8 for example, the heading entry would be:

<01,<02,<03,<04,<05,<06,<07,<08

Begin each heading with the < character. This will enable the computer to index the NAMES in the NAMES file (since they're already there anyway) meaning you'll get about twice as many records on one disk, and you'll be able to do the cross-searching I mentioned.

Next set up the general account MATCH:

MAKE MATCH,MAIN

If you decided on 4 entries in one record you would enter for headings:

<01,<02,<03,<04

By the way, you can enter additional headings for any other material you'd like to enter like charges, time of day, cash, card no., etc. That's entirely up to you. You can enter up to 31 headings or three lines of headings.

This completes the account set-up for recommended and matched NAMES.

A word of advice: before setting up these accounts, set up your invoice accounts with the special command MAKE SPECIAL,MAIN, so they will be first in the organization. It really makes no difference, except that the program has been more fully tested with this arrangement and there is less opportunity to encounter an undiscovered program bug.

Now let's say you've just recommended NAMES to a customer. To enter this information type:

MAKE RCMD

The computer will list each heading as a prompt. After you enter the customer NAME and DATE, enter the recommended NAMES, pressing RETURN after each. Let's say you set-up the account with 8 headings, but you have only 5 NAMES to enter in this case. To the last three prompts (i.e. 06?, 07?, 08?) you would enter the dummy name XX. This is required because in the majority of applications it is desired that the program do error checking for indexed entries. So this represents a slight inconvenience in your application. I'll fix this so you can simply press RETURN to the undesired prompts for \$20 (remind me of this quote). It involves minor changes to the two modules MAKE.MOD and FENTRY.MOD. I'd just send you a disk with the two files and you could copy them to your operational disks.

Still assuming you set up 8 headings, consider the case where you have 10 NAMES to enter. You would enter the first 8 NAMES as usual. You would then just enter a second record by typing the customer NAME and DATE again. If you use FAST RECORD ENTRY to enter these records you can type S for the same NAME and press RETURN to the DATE? prompt to keep the same date. The computer will ask for 8 more NAMES but you have only 2. To the six additional prompts enter the dummy name XX (or press RETURN if I modify the program). You can see why it would be beneficial to have sufficient headings to enter most cases in just one record.

Now you'll have to read the manual to learn how to use LIST commands to search out the various data you need. You'll wind up with 2 "listing formats", probably called RCMD and MATCH to correspond to the account titles. Then you would list all recommendations in July with:

```
LIST RCMD,7,1,86,7,31,86
```

All matches for DOEJ (John Doe) with:

```
LIST DOEJ,MATCH,7,1,86,7,31,86
```

When you use these commands all records containing the specified NAME (DOEJ) will be listed, whether the record was for that customer, or that NAME was included in recommendations to someone else. So you may often get information you do not need. The way to prevent this is to specify only one day in the date, the date of recommendations to this customer. Even if you do get more records than you need, the customer NAME will always be in the first column so you can easily see which records apply for billing purposes.

There are two ways to list only records for that customer (defeat the cross-referencing). One is to include an extra heading (without a <) and type any data item (that you can remember for that customer) into records. The easiest data entry would be to repeat 1-3 characters of the customer's NAME itself (but not 4 because the "spec" must be distinct from the NAME). Then you could include this data entry as a "spec" in the last LIST command to list only records for that customer. If you left the "spec" out you'd still get the cross referencing. This, of course, requires an additional entry into each record.

The second way would be to leave the < character out when specifying the headings. You would have to make the NAMES you enter under the headings as data items distinct from the same NAMES in the NAMES file, say by ending with a period, such as "DOEJ." The records would take up at least 50% more room on the disk. You'd still have cross-referencing capability by entering the DATA-NAMES as a "spec". The specified customer's own records would not be listed unless you included that NAME in the command (as in LIST DOEJ,DOEJ,RCMD,7,1,86,7,31,86). Thus you have additional flexibility for cross-referenced listings: The command

```
LIST DOEJ,RCMD,7,1,86,7,31,86
```

would list all DOEJ's records. The command:

```
LIST DOEJ.,RCMD,7,1,86,7,31,86
```

would list all records for other customers including the data entry "DOEJ." The command:

```
LIST DOEJ,DOEJ.,RCMD,7,1,86,7,31,86
```

would list both DOEJ's records and other records containing "DOEJ."

When you're ready to make out a bill, determine the number of recommendations and matches as outlined above. Select INVOICE from the Custom Menu. Read the manual for entering an invoice. For the item entries you might have, for example:

```
5,REC,RECOMMENDATIONS,1  
2,MAT,MATCHED NAMES,2.5
```

This would mean 5 recommendations for this customer at \$1 each, and 2 matches at \$2.50 each. The total charge would be computed by the computer as \$10.00 (plus tax if applicable). You should start a "DESCR LIST" (description list) to enter model numbers and descriptions (REC/RECOMMENDATIONS) and then you won't have to type out the descriptions when writing invoices.

Well this should get you started. Go as far as you can with the manual and this information. When and if you run into stumbling blocks please give me a call. It's important that you enter only a few test records to test this system out. If you find that you don't like it, or wish for more (or less) capabilities, you'll probably have to erase all records to implement a different account set-up.

DOCTOR'S OFFICE

I strongly suggest that you follow the conventions outlined in chapter 2 for abbreviating your patient names to four letters. With three hundred patients this is the only easy way to handle record labels for you and others who'll use the program. Considering your intended use of the Directory for histories, this will assure the proper distribution of information in the files for capacity considerations.

Regarding your patients, I see the need for three areas of record-keeping. First, you'll want to have an invoice written to account for various charges and to bill the patient. Invoicing is covered quite well in the manual, and time-billing in the supplements, so I'll leave that to the future, such as you require.

Secondly, you mentioned keeping a "history" of about 300 characters of text for each patient. This amounts to about a 90,000 byte database for histories. The Directory Program is well suited to this. One DD directory disk will handle almost double your requirement. A 1050 disk will also do the job.

Will you want to categorize elements of each history, other than by name? If you will have just a few categories you can use one of the symbols in the Symbol Table for each category. If you will have more than 5 categories you should make all entries beginning with the address symbol @. This will allow you to assign one of up to 90 sort codes with each directory entry. If you do this make sure the "real" customer address is the very first address entry. Don't use the @ symbol if you don't need to, as this may cut down your options later for other uses of the directory.

When the Temporary Directory gets full you'll need to "UNLOAD" it to a Directory Disk. It would be prudent to call me when you're ready to do this the first time.

Thirdly with regard to patient record-keeping, you'll want to keep dated records with information other than billing pertinent to each office visit or professional communication. Each of these records will be associated with a patient name (abbreviated NAME), and a date. You'll want a few categories that will be repeating. Not being an expert in your field I can only imagine this might be: reason for visit, diagnosis, treatment, prescription, consulting physician, etc.

The Dated Records Program is uniquely powerful with regard to organizing ability, offering organization in three "dimensions". Since you require only one dimension of organization there are three methods available to you for organizing these "dated records." First, you can set up an "account" called something like "VISIT" and enter one "heading" to represent each classification. The limitation here is that all information under all classifications will be later displayed on one line, with "fields" for each heading. Thus all the classified information for one visit would have to fit into one printer line. This works fine for most business situations since most entries are dollar amounts or repeating abbreviations. This would probably not work well for you, since I doubt

the all information you want to keep about each visit would fit into one line, even if you're a great "abbreviator".

The second method is to set up a "subdivision" account for each category. You can be quite specific with your categories if you like, since the program will handle up to 100 subdivisions on the same level under each general account. An example of how to do this would be:

```
MAKE INIT,VISIT,MAIN
```

This would set up the subdivision INIT (standing for "reason initial-izing this visit or communication"). It's essential to keep the abbreviat-ions as short as possible in this method and the next because you'll have to type them when entering records.

You would then be prompted for "headings" for the general account VISIT, since this would be the first time the computer would see the word VISIT. You'd enter just one heading, which is actually a dummy heading, named something like INFO or REF or something. This means you can enter up to 133 characters into each INIT entry. If this is insufficient in a particular case, you can just enter a new record with the same NAME, date, and subdivision account (INIT).

For the next category, say "diagnosis", you would enter:

```
MAKE DIAG,VISIT
```

You don't have to enter headings again, since the computer already knows the general account (VISIT) and sub-division accounts don't get their own headings. You might proceed with:

```
MAKE TREAT,VISIT  
MAKE PRESC,VISIT  
...etc.
```

This method requires that you use FAST RECORD ENTRY for making data entries, since you must change the account with each entry. Just press RETURN to the NAME? prompt to get to the ACCDUNT? question.

Later, dated information will be listed with one line to an entry, with the subdivision (category) named at the beginning of each line. Though this method adds a few steps of procedure to entering records, the subsequent listing capability is quite exceptional.

I suggest you read the tutorial in Appendix B, page 368, "Entering Records" for more information on entries and listings with this method.

The third method is simpler and allows you to use either FAST RECORD ENTRY or MAKE account to enter data. You would set up the general account only:

```
MAKE VISIT,MAIN
```

and enter one additional heading for a total of two:

<SUBJ,INFO

Notice that the first heading begins with the caret character <. This means that entries will be indexed in the NAMES file, saving room in records. This completes the account organization.

When entering records under the account VISIT you will encounter the additional prompt:

SUBJ?

Enter the classification here, such as INIT, DIAGNOSIS, PRESC, TREAT, etc. Then enter the record information to the next prompt (INFO). Again you can add a comment if more room is needed. You don't need to specify a different account with each record (as in the second method) but will still have to type the category to the SUBJ? prompt.

Later records can be listed by NAME, subject, and/or date. Though each record will contain information under five headings (NAME,DATE,<SUBJ,INFO,COMMENT) you need print only the info under SUBJ and INFO on each line. Do this by entering 0 to the tab setting for each of the other headings when you are setting up the format (using the first four LIST commands to get to the "Listing name" question.)

Your other record-keeping needs will be more ordinary and will conform to the many examples in the manual for tax records, payables, etc.

Another suggestion: set up your invoice accounts first with the MAKE SPECIAL,MAIN command. Though not necessary to have these accounts first, they usually are. The program is much better "tested" with this arrangement and there is less opportunity for bugs to be found.

You mentioned an intention to acquire a hard disk in the future. I caution you to await news concerning 3 1/2" Atari drives for 8-bits. Considering the efficiency with which MICROMOD stores information these would preclude the need for a hard drive in all but the most high volume businesses. It would also save you the many added file maintenance and initializing chores associated with hard drives. We already have one high volume customer waiting to replace an IBM AT system with MICROMOD and a 500K ramdisk when the 3 1/2" drives arrive, for maintenance and user-friendly reasons.

After you've taken your best "shot" at your account set-ups, I urge you to send a printout of your organization chart (0 on the Main Menu), or better yet, a copy of your operational disks. This will help me to assure that your application is initialized properly.

DOCTOR'S OFFICE - FOLLOW-UP

your old Master Disk to the new operational Master Disk. Do not copy other "user files", such as AREA, MAIN, MAINH, or Q because these contain the accounts and listing formats I have set up.

Once you have booted this disk you should print out the organization with the Q selection and become familiar with the two general accounts and headings. I've set up 3 generic listing formats, titled VISIT, REPORT, and STATE. These titles are easily changed using "LISTING FORMATS" on the Utility Menu.

You cannot change the titles of the two general accounts VS (for visit) or RC (for RECEIPT), as these specific titles trigger the modifications I've made to the FENTRY module, nor can you change the area title MAIN.

I've also modified the Main Menu to access FENTRY.MOD and FSTR.MOD directly. To enter a visit, press "I FENTRY" and enter VS as the account. After you've entered various records you can transfer them to regular files immediately, or choose to return to the Main Menu to list information.

I've made modifications to the three modules FENTRY.MOD, MENU.MOD, and DIS.MOD. Be sure that you do not revise these with future revision disks since they will not contain these modifications. This disk already contains all the revisions from the current revision disk.

To use the three listing formats, type LIST, a space, a NAME, a comma, the format name, a comma, and then two dates. The two dates may be replaced with D2 or, when you get the full ramdisk, DB. For example:

```
LIST JOHN DOE,VISIT,D2
LIST SMITH MARY A,REPORT,8,12,86,8,12,86
LIST DOEJ,STATE,1,1,86,12,31,86
```

The formats REPORT and STATE will print patient addresses assuming they have addresses in the directory. I also included an instruction in the format for the computer to stop for a typed entry at the end of the format.

With your relatively low number of NAMES you can enter NAMES any way you like, as long as they don't contain commas. If they AVERAGE 15 characters in length you'll have room for 625 NAMES. The listing formats I've provided allow 24 characters to display NAMES, though these can be modified to allow more room.

I assume your printer has controls that allow you to set it to condensed mode without sending the codes from the program. If this is not the case, the program should be modified to send the codes automatically since these formats require up to 136 columns.

The heading STATUS is set up to be in the NAMES file. All this means for you is that status entries will be repeating and the computer will check them, asking you to verify when you add new ones.

My entries for creating the format VISIT were:

LIST NOTE FROM VS
INCLUDE?PRV,BAL,FEE,PAID,NEW,BAL,STATUS,DIAGNOSIS,OTHER FROM RC

I entered the tabs:

1,26,32,1,9,17,25,33,46,92

I cancelled the display of headings. (But modified DIS.MOD to display headings before the RC (receipt) information.

I pressed return to the other prompts in the format sequence.

You can vary these listings by learning the two accounts and headings from the organization chart, and becoming familiar with LIST commands, chapter 6 and chapter 8 starting at pg 115.

The program would have accomplished all your needs, and a great deal more, without modification. I've modified these modules to save you about 8 keystrokes in entering records, and to make the display of headings in listings neater. This supports your desired goal of operating the program similarly to the program you've been using.

This is not necessarily the method I would recommend, nor the best way to utilize the MICROMOD program. For instance, I find it unacceptable to have to look up a previous balance in order to enter a record. However, you should get at least 4 months of records on a disk, and this would be improved if you use less characters in some entries. By using a 3 1/2" drive as drive #2 (when they come out) you should double this capacity.

MATH IN "FAST RECORD ENTRY"

Briefly, you can set up headings to begin with one of six symbols: +, -, *, /, =, or "\$".

When the computer sees a heading beginning with the first +, -, *, or / it will ignore the operation, but just note that number. Upon each additional heading encountered with a +, -, *, or / it will perform that operation on the result so far.

Upon encountering an "=" as the first character of a heading, it will automatically display the result of previous calculations and enter it automatically, as if you had typed it.

If it encounters the symbol "\$" as the first character in a heading, it will function as if it were an "=", only the result will be rounded off to the nearest cent.

Thus you should set up your headings for your "SALES" account:

ACCT,ITEM,+QTY,*PRICE,*PC,=TOTAL

If you want the totals to be all dollar amounts, change the last heading to \$TOTAL.

If you have already set up headings as I advised before, just change them to the above using HEADINGS on the Utility Menu.

One additional feature that you may not be able to utilize: If your heading begins in one of the operator signs, +,-,*, or / and the rest of the heading is a number, for instance:

+60

Then if you press RETURN to that question without entering a number the computer will use the heading as if it were an entry and perform the operation. For instance, if your *PC heading were changed to *.60, then you could press RETURN to that prompt when entering records and the pending number would be multiplied by .6 automatically. If many of your sales are at the same percent this may save you time. If you do enter a number, the computer would still use your entry, not the .6 figure.

*MR XX / INVOICE ITEM ENTRY
QUARTERLY STATEMENTS / FINANCE CHARGES*

Mr. XX

When you enter an invoice the computer asks for a NAME. If you enter any name other than XX for the first time the NAME goes on the billing list and the address is stored in the directory.

If you press RETURN without making an entry, the name XX is assumed. So pressing RETURN or entering XX has the same effect: No address information will be retained, except to print it on the invoice.

There is another difference when you get to the monthly statements function. The computer ignores all XX invoice/payments info in pushing beginning balances into the new month. So Mr. XX is useful only for customers who pay in cash at the point of sale, or for those whom you do not want on the billing list for some reason (maybe capacity limitations--see this month's supplement).

Invoicing your various charges

Of your various types of charges: sales, monitoring, servicing, leasing, maint., fin chg, misc., I see no real difficulty in entering these into invoices. We discussed this on the phone and I remember feeling that you were able to enter these charges, so I won't go into them now. Chances are that, if you have further problems they will be only regarding one or two of these. I'll wait to hear from you.

Considering finance charges, the program now handles these automatic-

lly, independant of the invoice entry routine, for "*" customers--those for whom you are tracking individual unpaid prior invoices. For "+" names, or those with simple beginning balances, you still must accomplish finance charges by creating an invoice just for this. We intend to include automatic finance charge management for "+" customers as well by the next revision disk.

Quarterly Statement

You can print statements monthly, and then mail three at a time. The only reason I can see for not doing this is the waste of paper.

The program is shipped with a format named STATEMENT. You can run this from a NAMES list. It does not have any provision for spacing so the statement would take only as much room as required by the data. You would still have to print three statements as the beginning balances would otherwise be added together.

You would do this by selecting BATCH STATEMENTS and entering STATEMENT as the format to print. You would then have to add all the NAMES, beginning with a "+" to the list for which you intend to send quarterly statements. These same names would still be on the billing list (STAT.N) file, for the purposes of pushing beginning balances, but you would not print statements for them (you'd turn the names off when using the STAT format to print statements).

After printing your monthly statements each month with the STAT format (meaning all beginning balances were computed), you would again select BATCH STATEMENTS and enter the STATEMENT format to print statements for the remaining names.

At the end of three months you could send out the three statements to each customer. Quarterly statements imply that there will be no activity for two of the months in most cases. In that case you would need to send only one statement--the one that showed activity.

It comes to mind that you have an option not to print "zero" statements in the regular statement function. Seems this would solve your problem of billing low-volume customers better than quarterly statements, but only you can judge this.

Listing Receivables Information.

This is covered quite well on pages 224-225, and pages 379-380 in the manual. I must assume that your difficulty in listing receivables information stemmed from not having proper invoice information entered into the computer--a problem which we have hopefully solved. If you still have difficulty in using the LIST command, let me know.

See this month's supplement for information on how to list an aging sheet, but this will work only for "*" customers. You told me you would be keeping simple previous balances "+" customers for the immediate

future.

ACCOUNT SET-UP FROM BALANCE SHEET

To set up your accounts enter the following MAKE commands at the Main Menu.

You must type Y (return) to verify each entry. You must also enter headings after certain MAKE commands. To every heading question, type:

AMT,REF (return)

Press (return) to return to the Main Menu after entering each MAKE (or heading) entry. Here are the MAKE commands to enter:

Balance Sheet:

MAKE COH,CASH,ASSETS,MAIN
 MAKE BANKS,CASH
 MAKE REC,RECEIV,ASSETS
 MAKE ALLOW,RECEIV
 MAKE DEP,RECEIV
 MAKE INVENT,ASSETS
 MAKE INS,P,PREP,ASSETS
 MAKE TAXES,PREP
 MAKE RENT,PREP
 MAKE OTHER,P,PREP
 MAKE LAND,REAL,ASSETS
 MAKE BLDGS,REAL
 MAKE M&E,REAL
 MAKE LEAS,I,REAL
 MAKE VEH,REAL
 MAKE FURN,REAL
 MAKE BLDGS,A,ACCUM,ASSETS
 MAKE M&E,ACCUM
 MAKE LHI,ACCUM
 MAKE VEH,A,ACCUM
 MAKE F&F,ACCUM
 MAKE EXP,ORG,ASSETS
 MAKE AMORT,ORG

MAKE ACPAY,LIAB,MAIN
 MAKE FICA,WITH,LIAB
 MAKE FIT,WITH
 MAKE SIT,WITH
 MAKE CIT,WITH
 MAKE WAGES,ACCR,LIAB
 MAKE FICA,ACCR
 MAKE FUT,ACCR
 MAKE SUT,ACCR
 MAKE WC,ACCR
 MAKE FRANCH,ACCR

MAKE CTAX,ACCR
MAKE PRTAX,ACCR
MAKE OTHER.AC,ACCR

MAKE STOCK,EQUITY,MAIN
MAKE CAP,EQUITY
MAKE EARN,EQUITY

Income Statement:

MAKE REB,INCOME,MAIN
MAKE REP,INCOME
MAKE RENT,INCOME
MAKE MISC,INCOME
MAKE REB.C,COGS,MAIN
MAKE REP.C,COGS
MAKE WAGES,LABOR,EXP,MAIN
MAKE FICA,LABOR
MAKE FUT.L,LABOR
MAKE SUT.L,LABOR
MAKE WC.L,LABOR
MAKE LIFE,LABOR
MAKE MED,LABOR
MAKE RENT,EXP
MAKE BUILD,EXP
MAKE WATER,EXP
MAKE HEAT,EXP
MAKE ELECT,EXP
MAKE INS.E,EXP
MAKE RETAX,EXP
MAKE M&E.E,EXP
MAKE SUPL,EXP
MAKE TOOLS,EXP
MAKE ACCT,EXP
MAKE LEGAL,EXP
MAKE BANK.E,EXP
MAKE ADVER,EXP
MAKE TEL,EXP
MAKE POST,EXP
MAKE DUES,EXP
MAKE OFFICE,EXP
MAKE TRAVEL,EXP
MAKE ENTER,EXP
MAKE VEH.E,EXP
MAKE CONT,EXP
MAKE BAD,EXP
MAKE SHIP,EXP
MAKE INT,EXP
MAKE MISC.E,EXP
MAKE BUILD.D,DEP,EXP
MAKE M&E.D,DEP
MAKE LHI.D,DEP

MAKE VEH.D,DEP
 MAKE F&F,DEP
 MAKE OE,DEP
 MAKE FRANCH.T,TAX,EXP
 MAKE CTAX.T,TAX
 MAKE PRTAX.T,TAX

To enter data into the computer, type the word MAKE followed by any of the FIRST words after the word MAKE in the above list, such as:

MAKE LIFE
 MAKE TRAVEL
 MAKE PRTAX.T
 etc.

When you type one of these MAKE commands the computer will ask you for NAME, DATE, AMT, REF, and a COMMENT. Enter the data after each prompt and press return.

To list information, type the word LIST followed by any word in the list of accounts--does not have to be the first account name. You can list grouped data depending on which word you type after LIST, for example:

LIST BANK.E
 LIST EXP
 LIST REC
 LIST INC

You can then include other account names in the INCLUDE? command.

Press RETURN to every other question for now.

To create an income statement format, make LIST and INCLUDE entries naming the FIRST WORD ONLY of every account in the Income statement, such as:

LIST AMT+ FROM REB
 INCLUDE?AMT+ FROM REP
 INCLUDE?AMT+ FROM RENT
 INCLUDE?AMT+ FROM MISC
 INCLUDE?AMT+ FROM REB.C

...and so on until all accounts of Income Statement are included.

You will then answer Y to the FORMAT STATEMENT OF TOTALS QUESTION. Follow the instructions in the manual for formatting a statement. You will have an opportunity to fully name each account in the statement format so that it will be presentable.

Before entering records I recommend you set up your addresses and decide on NAME abbreviations:

For each person or company you do business with, make up an abbreviation for the name as outlined on page 48 of the manual. You do not enter this list all at once, but enter each NAME as you enter various records

and are asked for a NAME? If it's the first time the computer has seen that NAME it will add the NAME to the list.

The best way to start is to type PUT DRMC (your abbreviated NAME) at the Main Menu. The computer will ask you to type Y to confirm. Then it will ask for a Directory Entry. Enter your own company name and address like this:

?@ FRED JOHNSON;2127 W. 103RD STREET;CLEVELAND, OHIO 44102

and the your phone:

?* 555-5555

Confirm this entry and the computer will ask for another NAME?. Enter one of your other NAME abbreviations (but not the word PUT again) and the address and phone, in the same way. You only type PUT before the NAME when at the Main Menu.

I suggest that you get a second disk drive as your first upgrade, which should be a 1050 so you can later add a US DOUBLER and get high speed if you need it.

No, you do not need a more powerful system for what you want to do. You'll find that with MICROMOD you'll have nothing but excess capacity, especially with two drives. Though these abbreviations may look strange, you will like getting rid of the account numbers which don't do anything for you. You do not have to abbreviate if you don't want to, but can't have spaces within the titles. The abbreviations just make entering records easier and efficient printouts. You will also have superb account organization, allowing you to list grouped data easily without taking up any room in your disk files.

*NAMES / SORT CODES / ADDRESSES
INVENTORY / SPELLING / DESCR LIST
PRINTER COMPATIBILITY*

NAMES

Full names and company names are represented by a four (usually) character NAME code, beginning with two capital letters.

The reason the manual does not give many instructions on how to utilize the NAMES file is that the use of it is completely automatic with one exception. Just remember that whenever the computer prompts you with the question ...NAME? or SUPPLIER?, enter one of the NAME abbreviations. The computer handles everything else.

Now for the exception, which applies to the Dated Records Program only, and specifically to the MAKE command only. You use the MAKE command to enter the titles of accounts and headings for those accounts. Sometimes when you enter a MAKE command, the computer will then ask you to enter headings. Each heading represents a certain entry or "field" in each record. If the entries you will be making into that particular part of the record will be repeating, the heading title you enter (after a MAKE entry) should begin with the < character. There are many examples of headings with the < character on page 79, and two more on page 44. The computer gives more examples before asking for headings.

After you've named a heading beginning with the < character, forget it forever! The computer will handle everything after that.

LIST COMMANDS

The two examples on page 92 assume that when one or more records were previously entered with the MAKE command or using FAST RECORD ENTRY (the Dated Records Program), the characters "DOEJ" were entered to the NAME? prompt, and the characters "MARY SMITH" were entered to the NAME? prompt in another record. That's all that's required for them to become NAMES. There need not be any data in the Directory for those NAMES.

NAMES are stored in a separate file which is used independently of the Directory, though the Directory uses it too. Whenever you enter a new NAME in any function of the program, it is automatically stored in the NAMES file. If you then typed SHOW (the name) the directory would come up blank unless you had stored some information with the PUT command into the directory. Even so, you may have data in the other programs associated with that NAME and you would use the NAME to get the records.

I think your point of confusion is that you are associating NAMES with the Directory, which I can understand because the manual covers the use of NAMES with the Directory program more than with the other programs.

The reason "MARY SMITH" is used as an example is to illustrate that NAMES may be of any length and may contain spaces. But you are right: in most applications it's best to abbreviate to four letters, i.e. SMIM. Doctors

who don't see patients for a year or more sometimes prefer to use the full name in the NAMES file, though I would argue that it's wasteful, tedious, and not necessary even in that case.

YOUR BUSINESS NAME, ADDRESS/UNLOAD

Yes, you are so right that the Business name and address should be re-entered--a glaring omission in the manual. We will include this in future documentation, as well as a message on the screen after UNLOADING to re-enter the address. But what we had planned, and which would be better, is to retain the first address/phone in the Temp Directory. You can expect this soon on a revision disk.

SORT CODES

I'll try to take a different approach than the manual.

Start with the SHOW command. Suppose you want to list several addresses, stored under different names, all with something in common, such as being for "customers", or "in Texas", or with ZIP codes ending in "034". How would you do it? If you type SHOW @ all address will be listed. If you type SHOW DOEJ,@ (for instance) only the addresses under that NAME will be listed.

The solution is to go through your addresses and assign the same character (or "sort code") to each address you want to list. Then you can type SHOW @C (for instance) and all the addresses for which you assigned a "C" would be listed.

Sort codes may be used with addresses only, but you can call anything an address (using the @ symbol).

How to assign the character to addresses? Press A on the Main Menu. Each address will be listed and the computer will stop after each. You can type one character after each.

We now have the DISORT.MOD module which allows you to sort directory information in the traditional way--at the traditional (slow) speed.

MULTIPLE ADDRESSES FOR ONE NAME

How? Enter additional addresses for the same name in EXACTLY THE SAME WAY as you entered the first address. To differentiate multiple addresses under one name (if required) you should use a different sort code for each address. You might use a "B" for Billing address and an "S" for shipping address, for instance. To do this (after entering the addresses) press A at the Main Menu. When you see the billing address, type B and press RET. When you see the shipping address, type S and press RET.

Congratulations for tackling WP23. It is admittedly an unfriendly program until you get the hang of it--after that I promise you'll like it! Also, since we are re-writing the manual in December, we'll be adding capability for printer codes so we can print with the titles.

We have the following printers: Seikosha, Legend, Epson, Smith-corona, Silver Reed, and Atari. The line feed works on all of these. This is the first problem I've heard of with Star printers. However we just ordered an NX-10 which we'll be using to print the revised manual. If there are any problems you can be sure we'll note them and fix them!

On the other hand, it would be very unusual (though not impossible) for any printer not to be compatible with WP23. WP sends the standard line feed which I believe is the number "13" (not the non-standard Atari 155). However, I do seem to remember a problem with the line feed on the Silver Reed. We had been using it on an IBM. We were able to solve the problem by setting the dip switches to the RS232 setting. Check your printer manual for this setting. Hope this helps. Otherwise, check cables, turn printer on/off, put it on line, and wait for more news from us.

Your letter says, "...the screen wrapped around...gave off a buzz..and locked up. I entered J...it asked if I wanted to store words from the ACCUMULATOR disk."

If the computer locks up, then nothing will happen when you press J. I don't understand this sequence of events. The screen will do funny things when you load the word processor with "Q" since it is disabled while the keyboard interrupts are re-instated for the WP23 program--and this will cause a buzz, which is nothing to worry about.

If the computer locks up after pressing "J" then you have a bad SPELL.MOD file. Either replace it with the SPELL.MOD file on your (Supplement) shipping disk or (if that one is bad) request a replacement. However, since you got into it once, the file could not be damaged at the time it loaded.

Sorry, I need to know the exact sequence of events on this one.

LOCK-UP IN SPELLING MODULE

When you enter the WP23 file name and drive # the computer immediately loads a WP23 file from the drive. There is full protection against not having the file on the designated disk, or a file too large. A lock-up would only result in the SPELL.MOD file or WP23 file being damaged, or a peripheral problem. Try loading another file. If you still have a problem, try copying the SPELL.MOD file from the Shipping disk just in case there's a bad one or two bytes--it's happened before. The only other suggestion I can come up with at this time is to send us a copy of both the SPELL.MOD file you have and the WP23 file you are trying to load. If we can duplicate the problem we can fix it.

By the way, all WP23 files should begin and end with a "wedge" character. This is one thing that we DID make sure to put in the manual prominently, so I assume you've already checked this. Another point that comes to mind is that with a large WP23 file (over 25 screens) the computer will pause for up to 50 or so seconds to decode the file after you enter the drive

#.

MOQ

The MOQ is the minimum quantity of an item that you want to have on stock at all times. When your stock levels fall below the MOQ, that item will be listed when you select "ORDER LIST". This tells you what items you should order to maintain your desired stock levels--but not what quantities to order.

QT-LOC's

No quantities are moved as the number hits zero because this number must (or should) reflect the physical number of items at each location. If you move the physical items, you must re-distribute the numbers in inventory yourself. But I infer that you are asking if you can "stack-up" your levels of items in the different locations, even though you have only one location. The answer is no, but the quantity limit of 65535 at location 1 is sufficient to handle your entire inventory of any one item.

PURPOSE OF THE PRICES

You are right--there is no purpose other than to print price lists. There just isn't enough time available to utilize the prices for printing on invoices, though we are searching and may find a way. In any case if you try to make up a price list using any of the other MICROMOD programs, you'll then appreciate the inventory prices more!

DESCR LIST

In the large majority of cases there are only a dozen or two frequently sold items, and the DESCR function can handle that. There is another important advantage to printing descriptions from DESCR LIST, rather than inventory. In many cases a different description is desired on the invoice. You can also include signals for use in the Invoice Entry Sequence, such as no tax or a different tax for that item. You would not ordinarily want these characters in the inventory list. And professional people charging for time with descriptions like "hourly charge @" would not want to have to use the inventory program.

SALES TAX SUBTRACTED

Obviously a case of manual writer's fatigue!

I appreciate the great amount of time you spent with your letter. It's unusual to receive one so well-written and precise. I've put you on our list for a free revision disk, as a gesture of thanks.

UPGRADE ADVICE / COMPUTER FORMS

I hope as you run into stumbling blocks you will either write or call. If you were to make 10 calls this night, it would be \$50 to the cost of the

program. But it would still be a low price and I'm sure you'd be much more satisfied with the result.

You'll need two drives to operate the invoice and statements functions. All others will work with one drive, but with an 810 our help in setting up is even more important. You want to set your files up as efficiently as possible. There will be quite a lot of disk-switching.

You cannot use SpartaDOS with the 800. The only SpartaDOS version that runs on the 800 (Lx) is not compatible with MICROMOD because it writes on "page 6". You might as well stick with DOS 2.5 for now.

As you upgrade your system, you should work towards a two drive system, with one or two US doublers, SpartaDOS, and a ramdisk. This results in the most powerful, fastest system for the least expense.

With that in mind, I suggest your first upgrade be a 1050 drive, which you can then use as drive #1. 1050's are made either in Hong Kong or Singapore and this is stated on the underside of the drive. Insist on "Singapore" drives, even if you have to shop around. Next I would suggest selling the 800 in the paper (there's a good market among hobbyists) and buying an XL or XE. The "trade-in" difference would make this your least expensive upgrade, and allow you to run SpartaDOS and get a "BASIC 8K ramdisk" (which MICROMOD makes full use of) right away.

The best way to get SpartaDOS is to purchase a US doubler, since it is included.

The 1050, doubler, and trade to an XL or XE will run you about \$230 and will result in a fairly powerful system.

The next upgrades after this would be a 192K or 240K ramdisk, for much better speed of operation (also saves the drives). Finally, if you need more capacity for records you might consider a 1050 or 1050 with US doubler for drive #2, either trading the 810 in or using it as drive #3 for inventory or to load infrequently used modules.

For invoice and statement forms call or write Joyce, Computer forms of Orlando, P.O. BDX 38174, Orlando, Fl 32819 Tel (305) 876-4181. Just tell her you're using MICROMOD. She'll send samples if you like and I'm told that her price is about \$200 lower (for 5,000 invoices) than customers have been able to get in their local areas. We have no financial arrangement with her, we just do not have the time to handle this ourselves. Again, two drives are required to use the invoice function, though they may be any type of drives.

MULTIPLE ADDRESSES FOR A NAME INVOICING / PAYMENTS / LISTINGS

You have as many as 50 names/addresses associated with one company, and any might be a billing address. Also you might want to list addresses individually. I suggested each address have a unique ABBREV NAME label,

but starting with a company identifier, such as DUEJ-3 for John Doe of the 3M company (NAMES must begin with two capital letters). DON'T USE MORE THAN SIX CHARACTERS IN A NAME THAT WILL BE ON THE BILLING LIST

Then under each name you could have a telephone number(s) starting with the # character.

I suggested that, with regard to addresses, you forget sort codes for now and just leave a blank space after the address symbol, such as:

@ John Doe;123 Oak St;Anywhere, State 30303

Later you can enter sort codes by selecting ADDRESS SORT CODES on the main menu and typing a character after each address, such as C for customers or S for suppliers. Don't use a small "r" as this has a special use (pg 141).

For Customer Info I would begin my directory entries with the "&" symbol as this corresponds to the symbol used if you ever enter this info during the Invoice Entry Sequence (Info will be automatically stored with the "&" character). For other information, such as an account or location code for instance, you could use another symbol.

To get started with writing invoices you must enter the special command:

MAKE SPECIAL,MAIN

at the Main Menu. Since you said you already have your "Global Commands" set you are then ready to enter invoices.

We discussed only your monthly lease charge, and I suggested you enter one Invoice at the end of the month for each of these customers. You would enter the item like this:

1,LSE,MONTH LEASE @,75

if there was NO tax on a lease charge, or

1,LSE,MONTH LEASE AT,75

if there is a tax on leases. The @ character at the end of the description field cancels sales tax on that item. Which ever description you have for leases you would want the description to print automatically whenever you typed the model number "LSE" in invoices, for convenience. To accomplish this, select DESCR LIST on the Custom Menu (I forget the exact key to press, but it's on the menu).

I told you on the phone you could skip the model number and description, but after some thought I think you should include them--at some later date you may want this info to be printed on statements. There is an easy way to do this, which I'll tell you if we get to it! If you'll never need this info you can leave them out.

After the module INVLIST.MOD is loaded (you'll probably have to insert a disk in drive #2 to load the module), you would enter "LSE" to the "MOD#?" question and then "MONTH LEASE AT" or "MONTH LEASE @" to the "DESCR?" question.

This would put a file called "INVLIST" on the Master Disk which would be used when entering invoices.

After you see the invoice displayed on the screen press RETURN to the PAYMENT/DEPOSIT? question because you won't have payment in advance. Then select 5 to store the invoice without printing.

After you enter a few invoices, return to the Main Menu and list the information with the command:

```
LIST ACTIVITY,D2
```

This is a good time to experiment with other LIST specifications such as:

```
LIST 10001,ACTIVITY,D2
```

```
(assuming one of the invoice numbers you entered was 10001), and  
LIST ACTIVITY,11,1,86,11,15,86
```

to list only between two dates.

You'll notice right away that the invoice information you entered was actually stored in several account records. More information on this is in Chapter 18.

Once you have entered the invoices for one month and listed the information, we can go through the statement procedure. It won't hurt anything to do this for incomplete information, since we can erase the resulting previous balances. When you're ready to try this you should call with the computer ready and next to the phone.

You should print out the invoice information from time to time. It is especially important to get hard copy when you're learning--you may be re-entering information.

Entering Payments

How you enter payments will depend on how you want your statements to look, and how much error checking you want to do. You can use simple previous balances on statements, or list all unpaid prior invoices for old months, commonly called "open invoices" or "open invoicing". If you want "open invoicing", and/or aging data, and/or aging data/finance charges to be printed on statements then you must **enter invoice numbers** in your payment records. If you want just simple beginning balances to be listed on statements then you do not enter invoice numbers in payment records.

It's more tedious to enter invoice numbers in payment records because you must then find the number and break down your checks received into

component amounts to correspond to certain invoices--this is where hard copy of invoice records will help.

In your application the easiest way to enter payments is to type:

MAKE PAYMENT

at the Main Menu. Just answer the prompts: NAME? (abbreviated name), DATE? (date of payment), INV#? (just press RETURN if keeping simple previous balances), and CREDITS? (amount of check if simple balances, or portion of check for that invoice number if using "open ended" invoicing.

You can also use "FAST RECORD ENTRY" to make payments, or select INVOICE on the Custom Menu and entering a P for Payment to the first question. Each does the same thing but offers it's own conveniences. The choice makes no difference as far as the computer is concerned.

Keeping track of your Tapes

I suggested you set up an account with:

MAKE ROWE,MAIN

and then enter the headings:

SER#,POS-1,POS-2,POS-3,...,POS-12

as headings.

You would then type:

MAKE ROWE

at the Main Menu to enter the records. To list out the information, type the following command at the Main Menu:

LIST ROWE

and then press RETURN to every other question until the info is listed. At the end of the listing you can "name" that format. Once you've named it you can then use that format name in the last LIST command exactly as you did with the ACTIVITY format for listing invoice information. If you don't like how the listing looks you need not name it. Use the first four LIST commands and answer the format questions to vary how the listing will look. See pages 97-98 for help in setting tabs. If you use the first four LIST commands to "design" a listing, the computer will stop and ask for a format "name". This is how we created the ACTIVITY format--it was not programmed.

You can delete (or change the names of) these formats at the Utility menu with the LISTING NAMES (or LISTING FORMATS--I can't remember which is displayed) question.

WARRANTY SERVICE...

On your operational Master disks I found four problems:

- 1) Poor module distribution. Though it would theoretically work, you'd have to keep switching disks when entering invoices. It would be almost impossible to remember to keep the right disks in the right drives every time.
- 2) Illegal addresses.
- 3) Q file missing.
- 4) some modules not updated.

In an integrated program an error in any part may effect any other part. So rather than tracing bugs I just set up the disks properly for your application. I then duplicated your configuration and invoice entry and everything worked fine.

I have changed six disk sides (all side 1) to become your operational disks--a Master, Custom, and Inventory, each with a duplicate backup. Please use these in the drives indicated, and please do not change any of these disks. If you need to change them, contact me first.

I have taken the telephone number out of your (PPSS) address and put it in a separate entry using the * character, as it should be. I've also added our NAME (MICR), address, and phone.

You no longer need an "AUX" disk as I have distributed the modules among the three disks. On the rare occasions when you must load a module off the Custom disk, load these in drive #2 and be sure to switch this back to your Records disk as soon as the module is loaded.

You do not need the SpartaDOS file, XD23E.DOS, on any disk except the Master Disk. On other disks it just takes up room.

After receiving these disks, please insert them in the indicated drives and boot the system. Then call me with the system loaded and at the Main Menu. Please have ready at least two addresses of customers to enter, preferably with phone numbers and an additional item of misc. info on each of the two. It is necessary that I talk you through entering the first two addresses so that addresses will be entered correctly.

Continue to enter invoices as you have been doing. The inventory files look good, as do the invoices. I have reversed your sales tax priorities, as well as the signals at the end of the descriptions in the description list. You may have zero quantities of an inventory item in the inventory program, and it will not effect the inventory updates--the quantity will remain at zero.

When you have a full month of invoices and payments entered into the computer (not just test records, but a month's worth of actual activity), do not attempt to print statements yourself. Send me duplicates of both your Master Disk and Records Disk. I will go through all of the statement procedure first with the duplicates. I will then send you information to use as a guide as you INIT for statements and correct any data errors found.

You can get multiple prints of invoices only by pressing the R key as any invoice is being printed. This will cause the print to repeat once.

**DIRECTORY / INVOICE ENTRY
BILLING REPORTS / UPGRADE ADVICE**

Though the Directory Program may seem simple (and it is), we spent a great deal of time thinking about just the sort of things you need before designing it. Your paragraph on this subject could have been written by a majority of our customers. The three criteria are capacity, speed, and relieving the user from having to remember anything. Since on an Atari capacity is an absolute requirement, we are certain that we have found the best trade-off regarding speed and ease of searches.

The one item of information that you are most likely to have is a name. Thus the fastest way to search information is with a four character name abbreviation which you will always know if you know the name. This is faster than a "string" search, so in the majority of cases you'll get the best of everything.

As for the cases when you can't remember the name: you can search a "string of characters" which is much slower. This will find any single entry, such as an address, phone, or contact person, but not other "entries" stored under that NAME that do not contain the string. But it will also give you the NAME so that you can make another request using the NAME for listing related information.

You can also find the name by searching accounting data related to the name.

I personally would use printouts to help me look up the name, though I realize these are expensive and never seem to be where you can find them when you need them. But I could look up five NAMES in the time the average file manager could search a string.

So to conclude: you can accomplish all your search criteria, which is not saying a lot. In the majority of cases you will experience high speed, in some cases you'll need to use a slow string search, and in fewer cases you may need to search a string first to find the NAME, and then make a second request. Overall most users experience a speed improvement. In any case, you'll find yourself wanting to remember four letter NAME abbreviations a lot of the time.

As I said we designed the Directory for this purpose, so the best way to organize your information is to follow the examples in the manual. To enter addresses, type PUT followed by the NAME (or just the NAME once you are in the directory program). Enter the address symbol @, a space, and then the address beginning with the full name, such as:

@ MICROMISER SOFTWARE;1635-A HOLDEN AVE;ORLANDO, FL 32809

If your addresses to be printed will contain a mail code, then this must be entered IN THE ADDRESS somewhere. The number of lines, first name first-last name first, placement of zip code, makes no difference in any function, but once you decide on the name order, stick with it so you can print addresses alphabetically. One exception: I recommend you use all

capitals to make "string" searches easier.

For telephone numbers, begin the entry with the # symbol. See the examples in the manual. You may specify up to five lines in any entry regardless of which symbol you use.

For contact people use another symbol, say the "/" character. begin the entry with a "/", followed by a space, then the name and other info to be later printed on separate lines. For example:

NAME?IBM

/ Joe Blow;(212) 456-7890;(Mail code);(what I did for them)

which would be printed out on four lines, and the whole entry would be listed if you searched any "string" in the entry. If you wanted to print "all telephone numbers of IBM contact people" only, then these would have to be in separate entries, and you would include the contact's name (or shortened name) right in the entry, like:

222 222-2222;Joe

If you then requested: SHOW IBM,# all numbers would be listed with the appropriate names. If you requested: SHOW IBM,#,/ then all contact info and numbers would be shown for IBM. You could also find Joe's number by searching the string "JOE" or "JO" or "OE" if you didn't know the NAME IBM. I find myself using the area code as search criterea a lot because i have an area code map on the wall.

Deleting or changing directory entries is simple, but there is a separate function for this: D DIRECTORY INFO on the Utility Menu. To edit a directory record you must know the NAME under which it is stored.

When you say that 10 contact people share the same address, you suggest a capability more involved than MICROMOD is designed to support. You cannot print any of these names as a first address line followed by the rest of the address unless you enter the address ten times in the directory, once with each name. You could do this in addressing an envelope typing two requests: first the contact name, and then the address. Micromod won't do it with one command. To do this the contact name must have a unique NAME abbreviation and an entry with the name only, such as:

NAME?BLOJ

& JOE BLOW, SALES

The request would be SHOW BLOJ,& to print the single line. Then you would request SHOW IBM,& for the rest of the address. This would take some experimentation to get the spacing right.

For now I think you will be using SHOW IBM,/ to get the name and mail code, and then writing this on the envelope.

Just give your personal numbers a unique NAME, individually or one NAME for all. If you use one NAME for all, include a short name in the entry.
Likes:

NAME?PERS

```
...
* JOE 222-2222
* FRED 555-5555
* MABLE JABLONSKI;444-4444
...
```

It's best to put lengthy info on separate lines for better formatted listings.

One more note about the Directory: it is possible to do things in a variety of ways, such as making every entry an address and using myriad sort codes to search data. But in every application I've seen so far these "exotic" methods have proven to be a liability later on down the road. It's best to follow examples here and in the manual, if you can. Use different organization, but only if you need extra capability which it provides.

I'm glad you put all your directory data in. With double density disks you'll have room for about 3,000 addresses or 6,000 short entries on your one Directory Disk (or in a ramdisk!). What does Appleworks say about that?

INVOICES

Whether you print invoices or not, you should use the invoice entry function to enter invoices. You can store the information in the invoice without printing it.

The only item in your list of things to include in the invoice for which there is no specific prompt for is the "buyer's name". This must be included in the PO# entry, such as:

```
PO#?123456 JOE BLOW
```

The PO# entry is NOT RETAINED in the computer, since almost all users could care less about wasting disk space on it. But if you need to retain this there is a provision: enter it to the COMMENT? prompt. It will be stored in the last ITEM record. (the record holding the last item you listed on that invoice).

The fifth, sixth, and seventh characters in your # symbol definition should be "800" for your 8% sales tax. The program comes with the characters "500" here, since Florida is grabby, but not quite as grabby as Illinois!

You would enter your labor charge as you would any other "item". In the "item entry sequence" you would begin with the number of hours, which may include a decimal, then a dummy model number (so you can print an

automatic description), then the description (automatically entered) and finally the price PER HOUR. The description must end with the character "@" so that no tax will be applied to that item. Here are some labor items, as entered in the invoice:

```
5,LBR,HOURS LABOR @,5
2,LBR,HOURS LABOR @,17.1
3.25,LBR,HOURS LABOR @,11.23
```

In your "Description list", which the computer looks for as a file named INVLIST on the Program Disk, and which you create/edit by selecting DESCR LIST on the Custom Menu, you would have entered:

```
MOD#?LBR
DESCR?HOURS LABOR @
```

so that the description would be automatically entered in invoices and you don't have to remember to type the "@" character.

You don't have to remember the tax exempt status of your customers either. An "X" sort code associated with the address takes care of that. You can either assign these by hitting "A" on the main menu and typing an X after each tax exempt address, or if you enter addresses during the invoice entry sequence, the computer asks you if they are tax exempt--and will enter the X sort code for you when it stores the address. After that you can forget about the status--the computer will remember.

"List of open invoices/grand total". You get this once a month on an aging sheet. During the month you can get the list "as of the first of the month" and then just add a statement of invoices minus payments (use the listing format "STATEMENT" which is provided, as in LIST STATEMENT,10,1,86,10,31,86.

To get the aging list there is an important requirement: YOU MUST SET UP THE NAMES IN YOUR BILLING LIST TO BEGIN WITH THE "*" CHARACTER. Then when you "INIT" for statements the aging list will be calculated along with everything else such as pushing the beginning balances into the new month. You do not have to print statements, but you must INIT once a month to push the balances forward. This also does a lot of "error checking" in case you made mistakes in some entries, though I realize that YOU would never do that!

"Store paid invoices" I think your suggestion of storing paid invoices on a separate disk is the result of using other 8-bit software. To us it is unacceptable to switch disks to get recent information. Thus we store information several times as efficiently. As I understand your volume to be about 300 transactions per month, with only a few "items" per invoice, you should get six months on a double density records disk. You can search all dates on the disk with the simple specification "D2". For instance, suppose the item were "FIVE SIDED PLAQUE" with the model number "FSP". You would enter:

```
LIST FSP,ITEM,D2
```

or
LIST FIVE SIDED PLAQUE,ITEM,D2

If you knew the approximate date you could speed up the search, like:

LIST FSP,ITEM,7,1,86,8,15,86

or you could search a partial description ("string") like:

LIST SID ,ITEM,D2

The "roof" caret character turns "SID" into a string and will list any records with "SID" anywhere in the record. By the way, you could enter the unit price, total price, NAME, invoice number, tax status, or even a comment rather than the MOD# or description as search criteria. Anyway, you'll be able to find the price you charged six months ago, but would probably have to switch a disk (excuse the foul language!) to search past six months.

Though you do not have to print statements, you can elect to print one or a few to replace your "friendly reminder" invoice copies. These can include that customers aging data at the bottom automatically, and a finance charge if you like, also automatically. MICROMOD has more statement options than any other 8-bit program, I think! It really shines in this respect.

Sales tax report: I understand just what you need. There is a special function to get just this information: BREAKDOWN OF PAYMENTS on the Custom Menu. In this one function only, we find that the MICROMOD design is very poor. Since payments and invoice information are stored in separate dated records, there can be a long "distance" between the ITEM record which has the sales tax info, and the PAYMENT record. This means a big search for most payments in the month. I have one user with 700 invoices/payments per month. It takes about 5 hours to print the list of taxable and non-taxable amounts for payments received, though he has a full ramdisk (Rambo XL). With your 300 I would estimate about 2 hours. Most of this (maybe 1:45 hrs) can be run overnight at the end of the month. It takes a little planning. The documentation is in the August supplement. It still beats the "by hand" method by a mile!

You'll notice that there is no "accounts payable" program. This is because the general ledger or Dated Records program can handle most of the payable functions required in a small business such as yours. But if you look for specific A/P functions you will be disappointed.

Most users just enter records when they are paid and this keeps all the information needed for tax purposes. But of course you are looking for something else. In order to accomplish what you want to do, you must first set up accounts for entering the payments, as I just described for tax purposes. This is relatively simple but requires lengthy explanation. It is covered exhaustively in the manual and I would ask that you either use the many examples there, or send me a list of payables so I can send you a

list of entries to set up those accounts. The example on page 57 is simple, and would be very suitable for your needs. I'll leave that for now and assume you can set them up.

You want a "grand total of open payables". After the payment accounts are set up, you need to set up a "schedule" of the same exact accounts: that is, using a list of all entries you make to set up the payment accounts, you must enter each entry over again, but each title will have one or two additional letters, say an X or S or .B or whatever to make it distinct from the payment accounts, but easily remembered to correspond with the payment account. The only exception is that the one "area" title MAIN will remain the same.

Now each month you would enter amounts under all the "schedule" accounts (which are actually budget accounts) to reflect what you expect to have to pay. The amounts may be exact, from invoices or shipping slips or price lists you have, or amounts that are fixed, such as loan payments. Or they may be estimates.

Your two general accounts, one for the payment accounts and one for the "schedule" or "budget" accounts, will probably be PAYMENTS and PAYMENTS.S. In that case you would get the grand total you seek by entering:

```
LIST AMT+ FROM PAYMENTS.S  
INCLUDE?AMT- FROM PAYMENTS
```

and at the end of this listing you could name it into a format, with a name such as DWED. Then you could get your grand total anytime by entering:

```
LIST DWED,D2
```

To speed things up you might enter two dates into the above. The first would be the oldest date for which you have an unpaid bill, the second date would be the current date (or a future date if you were trying to project cash on hand), i.e.:

```
LIST DWED,9,14,86,11,31,86
```

If you wanted just the analysis of payables for one creditor you would add a NAME in the above command, such as in:

```
LIST BLOJ,DWED,D2
```

If this is too confusing I will set up these accounts for you and give you more complete examples of entries to get the info you want. Again, just send in a list of payables.

You are wrong when you say all bookkeeping functions are handled by your accountant. If you do what you say you want to do with your computer you will be keeping all your tax information, and will also be paying your accountant about a \$1,000 a year to do it a second time. This is up to you but I can't help thinking about the poor starving people in China. (just

joking!) I'm sorry for my emotional feelings about this. It's just that we designed MICROMOD primarily to save money on accounting, but it seems *everyone's* accountant is his uncle!

Hardware advice: sell your 800 in the paper, then get an XL or XE. The trade-in difference is minor for the capability you'll get. You can get a used printer suitable for printing invoices (about as good as a typical cash register receipt) for about \$50. We have one we'd sell you. Check your original receipt for the MICROMOD program.

If you'd like something more presentable, I think the Legend 808 at about \$150 is a good value, and it's POSSIBLE to tear off an invoice without tearing your hair out as well. You definitely want a dot matrix. Don't get an Epson when you can get a Star NL-10 or NX-10 for about the same price from Lyco if you send in a check which gets you free shipping. Epson print is so light you need an image enhancer to read it. The Star comes with a paper feed - optional on the Epson. The Epson is much quieter, the only advantage.

You need two drives and normally I suggest a US doubler for double density as the first upgrade. But with your comparatively low volume, the frequent "searching" you intend to do, and your need to use the slow "payment breakdown" function, I'd suggest the ram upgrade to the computer first, either a 256K XL or a 320K XE, both upgrades available from ICD. Mention MICROMOD and they'll know I'll start bugging them on the phone if they don't ship it soon!

As is always the case with a first support letter, it is comorehensive but not too detailed. See how far you can get with this information, and maybe a few calls. Then let me know what's left and we'll go into that more specifically.

WORK IN PROGRESS

You have two distinct functions: Sales data (orders) and inventory data (prices). There are various ways of accomplishing the order function. You could set up one account called ORDERS with headings such as ORD#,PATTERN,STYLE,COLOR,QTY. You could include UNIT/PRICE if you like and the computer would do the math. Since you may have 1-6 patterns in an order, you would enter 1-6 records, meaning you'd have to re-enter the ORDER# for each record. Or you could enter duplicate headings to the account such as ORD#1,PATTERN1,STYLE1,COLOR1,QTY1,ORD#2,PATTERN#2...etc., and press RETURN alot when you only have one or two patterns in a record. I would suggest entering multiple records.

You would also set-up another account called STATUS with headings ORD#,STATUS so you could update the work-in-progress. It would be better to turn the PATTERN-STYLE-COLOR into model numbers with single characters to represent STYLE/COLOR. Then the one heading MOD# could represent the three headings PATTERN,STYLE,COLOR. This is how it's normally done, it would also then make sense to include multiple patterns in one record.

The second method would be to enter invoices (no need to print). The invoice number would take place of the ORDER#. The model number would be the pattern number, and possibly codes for style/color. Style and color could be put in the description field. You could enter a dummy price in invoices if you don't care to track financial data, or enter the price if you do. You would still need the new account STATUS to update the status of work-in-progress.

With either of these methods you could get the info you need with a simple listing format in place, and then using a LIST command with any search criteria: Cust NAME, date, ord#, pattern, price, etc.

The price list is definitely an inventory function, and you'd use the inventory program. 4,000 mod#'s with one DD drive, 8,000 mod#'S with 2 DD drives. SD gives half as many, 1050 density gives 14/19ths as many.

Each MOD# would specify pattern, or pattern/style or pattern/color or pattern/style/color. Do your prices vary with style as well as color? I need to know how many different styles and how many different colors you might have for each pattern, and how many different prices. Are there any colors that would always have the same price for a given pattern? if there were only four different prices for many different colors in one pattern it would be lots easier since the inventory program is set up to print 4 prices per model number. If this is not the case I would envision a coding system for colors with a key printed at the top of the price list.

I really can't go further here without knowing the possible numbers of patterns, styles, and colors and having an idea of the possible combinations of same. In any case, I'm confident that MICROMOD can be set up to handle your pricing needs.

Please send data. Also, you will probably need to buy another program for this operation, since it requires a separate program disk and support. If it is a "branch" or "remote station" of your present MICROMOD installation this won't be necessary.

WORK IN PROGRESS - FOLLOW-UP

Since the xxxxx xxxx application is quite simple I set it up on a program and entered a few sample records. The enclosed printouts illustrate how easily MICROMOD can do this sort of thing. It didn't take much time. Of course you would display this info on the screen most of the time, not the printer.

You should use these printouts as a guide. Let me know if you need more or less info in records, more headings or different titles, etc. There are so many possible variations on how to do this.

Going by the info you send with your order, I will set up a disk with the accounts in place. You'll need only to enter addresses and start entering work-in-progress info. atarimuseum.nl enter records:

When you get an order, types

MAKE ORDER

and the computer will give you the prompts:

NAME?
DATE?
ORD#?
QYT?
PATTERN?
STYLE?
COLOR?
COMMENT?

and you'd answer each (or just press RETURN to skip a question). If you had another pattern on the same order, you would again answer these questions (the computer will remember the NAME and DATE if for the same order, but you must enter the Order # again).

As you complete each phase of work-in-progress for each pattern # you would enter a record to note that by typing,

MAKE PROG

(PROG stands for progress. This can be changed). You'd then answer these prompts:

NAME?
DATE?
ORD#?
PATTERN?
STYLE?
STAGE?
COMMENT?

You're not required to enter all this info, but you must enter anything you intend to use as search criteria later on (see printouts). For instance, if you don't enter a pattern # you won't be able to list the record by specifying a pattern #.

This application is much easier than the INVOICE/STATEMENTS routine. I'm sure you would have no trouble operating it.

RMDSK.SYS / STOPLOAD.MOD

Enclosed is your operational Master Program Disk, running on DOS 2.5. Both sides are the same in case one side gets damaged.

Since you do not presently have a "randisk" you can delete the file "RMDSK.SYS" and gain 50 or so sectors on the Master Disk. You can then add this in the future if you wish to upgrade to the XL.

I took the liberty of entering your address and our address/phone to test the Directory module. It worked fine and you can check these by entering SHOW (RET) at the Main Menu (side one only).

There are four other frequently used modules which I did not put on the disk since I wanted to leave enough sectors to handle the additional information that you will be storing, like directory data, NAMES, and account/heading titles. I suggest you put the files:

FENTRY.MOD FSTR.MOD DELINV.MOD PAY.MOD

on your Records Disk (drive #2) so that you won't have to switch disks to access these functions. If you find that you are running out of room on the Master Program disk at some later date, you can transfer one or more modules from it to your records disk to gain more room.

You'll notice a file called "STOPLOAD.MOD" on the Master Disk. This is for use with a ramdisk and I'd leave it there since it takes only 1 sector. It will come in handy if you upgrade later.

GETTING SET UP

MICROMDD was designed to have very little actual procedure for a given task. One reason for this is so that we can give quick telephone support.

We've determined four separate stages in "getting started" with the program. In some cases a call to us is required as you enter each of these four stages.

- 1.) Setting up operational disks. Call and let us know your hardware and which functions you'll be using. We'll help with the operational disks.
- 2.) Entering NAMES and addresses. When you receive the "Op" disks, call with the program running and in front of you. Let us "talk you through" entering the first two addresses. You can then enter the rest on your own gaining much familiarity with the program generally.
- 3.) Entering your first invoice. After the addresses are entered, call and let us "talk you through" entering the first invoice.
- 4.) After you have one month's invoices and payments entered you're ready to print statements. Call and let us give you the procedure. Several short calls are usually required, one to let you know the steps, one to help you set up the "Billing list", and one to help you correct any errors (data entry mistakes) detected by the computer.

After these four steps your application is "set-up" and you may begin receiving some practical benefit from the program. Expect to run into difficulties from time to time until you learn the few requirements of maintaining your application, mostly keeping free sectors available on the disks.

As you can tell from the enclosed reviews, we are experiencing extraordinary results with the program. In most of these cases we have had support communications at several points along the way.

Don't be left out! Several calls will cost you \$25 to \$50 it's true. But this still results in a very low cost, considering the benefits, personalized support, and the prices of alternative software packages. Feel free to call when rates are low. If there is a difficulty in communication, such as difficulty with English, we can communicate by mail, or we can talk an associate or friend of yours through the procedures as you watch and listen. It is really a quick and simple affair.

Let's get started with step 1 as soon as possible. Give me a call or write telling me the computer, number of drives, densities of each drive, and if you will be willing to buy SpartaDOS.

15,000 RADIO SHOWS...

atarimuseum.nl

Your application to keep records of of 15,000 radio shows would normally require about a 6-7 megabyte database, and to do this right you'd need a hard disk drive and a good full featured File Manager program that would utilize the hard disk properly. I know of no such program for Atari, nor is it likely one will be developed though you never know--no one thought a program such as MICROMOD would be developed either.

MICROMOD does, however, make it possible to keep the database assuming you would give up some conveniences. With any other Atari program I know of it would be hopeless.

Due to MICROMOD's efficiency in storing records the database would require only about 3 megabytes, so in any case you'll need several disks. The one data type you gave me that would be suitable for categorizing disks is "type" or "category" of show, i.e. detective, comedy, etc. So you'll need to format a separate disk for each of these "types". When you enter or retrieve data you'll need to insert the disk of the "type" of show you are accessing.

To enter a record you would type the word PUT followed by the name of the radio show, which should be shortened as much as possible while still recognizable, such as:

```
PUT ABC MYSTERY HR
```

you would press RETURN after this entry.

The rest of the information would be entered in this order: Name of show, date, stars, description, source, reel #, tape #, quality, and notes. Automatic serial numbering records is not offered in any MICROMOD program other than invoices, and displays in the new report generator. Neither of these would suit your purpose. If you can squeeze this info into 117 bytes (less 4 for overhead) I would put this all in one entry. Otherwise I would use two separate entries, repeating the name of the show. If you decide to use two entries, use two in EVERY CASE--don't switch back and forth between methods. Here's an example of everything in one entry:

```
ENTRY NUMBER 1 ABC MYSTERY HR
```

```
?* SNOW WHITE 49-12;DWARF/DOC WHITE/SNOW  
HARDY/OLIVER;SEVEN DWARFS SAVE SNOW WHI  
TE;B 234-5 30404 G;THIS IS A GOOD SHOW
```

and press RETURN. This info would be displayed on five lines with one additional line for the name of the radio show.

If you used two entries per record you would enter info like this:

```
ENTRY NUMBER 1 ABC MYSTERY HR
```

```
?* SNOW WHITE 49-12;DWARF/DOC WHITE/SNOW  
HARDY/OLIVER BENNY/JACK COMEDY VERSION 0
```

F A POPULAR FAIRY TALE

ENTRY NUMBER 2 ABC MYSTERY HR

?* SNOW WHITE;B 652-45 N34 J;THIS IS THE
TAPE THAT I PUCHASED AT THE SAN FRANCIS
CO FLEA MARKET IN LAST SUMMER

The limitation here is that you can only type three 40 character screen lines in one entry.

Both these entries could be printed vertically or side by side as in the sample printout. If you printed them side by side you'd first set the tabs with the FORMAT selection on the Main Menu (2 columns). Then you'd print in condensed mode if possible.

In each case the command to show the record would be:

SHOW ABC MYSTERY HR,*

and then press RETURN.

The biggest problem with this system is that, for purposes of editing records, you can access the record by movie show (abbrev NAME) only. You could have quite a few "mystery" shows under one radio show NAME, for instance. You would have to tediously go through the list of mysteries for that show to get to the record you wanted to change.

You are limited by the total file space for Abbreviated names. The maximum number of unique radio show NAMES you can use is determined by dividing the average length of the names+one byte each into 10,000 bytes. If the radio show NAMES averaged 9 characters, for instance, you would have room for $10,000/(9+1)=1,000$ NAMES. The more DISTINCT radio show names you use the easier it will be to access individual records for editing.

The Dated Records program could also be used for this database and it would be more efficient, and individual access would be accomplished. You could also use a hard drive with it, solving the disk switching problem. But I chose to use the Directory program instead for one crucial reason: You said you will be printing this information out, to be used by various parties, and the Dated Records program will not sort into alphabetized printouts--the Directory Program will. If this is NOT a requirement, let me know because the Dated Records program would then be better and you could use a hard disk in the future.

If you decide to try this out, please ENTER NO MORE THAN 10 RECORDS OF EACH OF A FEW DIFFERENT TYPES. Then print these out and experiment with different SHOW and FORMAT specifications. Most importantly, edit a few of the records using DIRECTORY INFO on the Utility menu. Then sort and print the information in various ways using the SORT DIRECTORY selection on the Utility Menu. You must become familiar with all these procedures before you'll be able to judge whether this system will work satisfactorily for you. You don't want to find out it won't upon entering the fifteen

thousandth record!

One last instruction: You can only enter 50 or so entries before "unloading" the TEMP DIRECTORY and they MUST ALL BE OF ONE CATEGORY. This is because the records you enter are stored in a TEMPORARY DIRECTORY on the program disk. As this becomes full you must "unload" it to a Directory Disk, which will be one of your categorized disks. All entries in the TEMP DIRECTORY must be unloaded to the same directory disk, therefore they must be of the same type. You accomplish the "unloading" with the UNLOAD TEMP DIRECTORY function on the Utility Menu. To check the TEMP DIRECTORY to see if it is becoming full, select "FILE CAPACITY USED" on the Utility Menu.

If you get this set up please let me know. It would be quite a "feather in our cap" to have a 15,000 large record database working on an 8-bit without a hard drive.

As I said before, running this application is not a matter of brand of computer--many hard disks work on the Atari. It is a question of software. To do this right, or if you have other applications of this size, I would suggest you look for File Manager software that would handle the job--then get whatever hardware it runs on.

Regarding your problem of not being able to get a second drive working with your XE: this is definitely a hardware or OS systems software problem. We have no "hardware" people here so can offer no help on this subject. I would switch computers and if the second computer works, trash the first and take the loss. On the other hand, if your application is going to require software for another brand of computer, there's no sense in wasting more money on Atari hardware. As far as getting your XE fixed, I don't think you'll get far. Not many would even believe this problem--I've never heard of it before, though that's not saying much. I believe it because similar things have happened to me. I had an XL where the screen wouldn't stay still until I accidentally bent the tin radiation shield while poking around inside--who'd believe that? But it's true.

**ENTERING AN ADDRESS/ PERSONAL BUDGET
ASSOCIATION MEMBERS**

First, concerning your printouts using your previous program, let me say that you have definitely been doing things the hard way--as you have implied. The discussion of the limitations of spread sheet programs on Pg 55 of the manual could not be better exemplified than by your existing application.

Please realize that you have invested much time in analyzing the capabilities of your spread sheet program and have learned to think in these terms. Your printouts reflect this. So to use MICROMOD you will have to do some "re-orienting" which will be difficult. These MAKE commands and account organization will be confusing at first. But I assure you they will result in a fraction of the work required to maintain your application and much higher quality output.

I strongly suggest that you first work with your personal budget application, and get used to entering records and listing information in different ways. It is hoped that this would help you to gain understanding of various parts of the manual. This would be an excellent primer for your more comprehensive MDCAM application. Thus I do not repeat certain explanations concerning disk #381 in the discussion of the later application (disk #382).

APPLICATION #381

Before entering any records you should make up name abbreviations for all of your creditors and sources of income. You should then enter these and their addresses at the same time into the directory. To enter the first NAME/ADDRESS type:

PUT MACG (return)

at the Main Menu, then type Y return to add the name. The computer will display:

ENTRY #1

And you type your address, like this:

?@ Mechanical Contractors Association; of Toledo, Inc.;1-806 Bradford St;Toledo, Ohio, 45555

and press return. The computer would display:

ENTRY #2

enter you phone like this:

?# 555-5555 (return)

Press RETURN to "ENTRY #3" and then verify the record with Y, (return). Next enter our NAME and address. The computer will display:

ENTER NEW ABBREV NAME OR RET?

Type: MICR and press RETURN. The computer will display:

ENTRY #1 MICR

Enter our address:

?@ MICROMISER SOFTWARE;1635-A HOLDEN AVE;ORLANDO, FL 32809;U.S.A

and press RETURN. Then enter our phone # to ENTRY #2:

?# 305-857-6014

and press RETURN. atarimuseum.nl

Notice that your address was in lower case, while ours was in all caps. All addresses but yours should be in caps. This is because it will be easier to use "string searches" if you know ahead of time that the letters will be in caps. On the other hand, your address will appear in various printouts, so it's more important for it to look presentable.

To the next "ENTER NEW ABBREV NAME OR RET?" question, just press RETURN and you'll return to the menu. Type SHOW and press RETURN to verify that the addresses are successfully entered. Then type PUT followed by a new NAME to enter a third address, and additional addresses by entering new NAMES. Once in the module (as illustrated above with our address) you do not type PUT again, but only the NAME.

When later entering account records, always enter the abbreviated NAME to the "NAME?" prompt, not the full name. Since you will not have that many names in your application you may use more than four letters in your abbreviations, but I'd try to limit it to 6 or 8. Four letters has proven itself to be the best all around.

I have entered your accounts into the computer. Please see enclosed account organization printout. Each month you should list the "STATEMENT" format for the month to get an ending balance. You would then manually enter the result into a single previous balance record dated the first of the next month. Here is an example, assuming the ending balance was \$23.45:

Type:

MAKE PREV.BAL

You would then enter a dummy name, such as XX, then date it the 1st, enter T to the TDP? prompt, and the amount:

```
NAME?XX
DATE?2,1,87
TDP?T
AMT?23.45
COMMENT?
```

Entering the T assures that this record will be sorted to the top of the file when you sort records with the ORDER/CONDENSE function on the Utility Menu. Otherwise the previous balance may not appear at the very top of listings.

After you have entered several records you can print "Income Statements" by using the "SUMMARY" format, by typing:

```
LIST SUMMARY,1,1,86,1,31,86
```

You can vary the time period by entering any two dates you please.

Please refer to Chapter 4 to learn how to display this account information

in various other ways.

To enter data just type the word MAKE followed by a space, and then any account title which I have circled on the account printout.

To change the titles of accounts, select TITLES OF ACCOUNTS on the Utility Menu. Account titles may not contain spaces.

To add new accounts, type MAKE, followed by a title in the next higher subdivision, such as:

MAKE COMMISSION,INCOME to add an income account, or

MAKE MORTGAGE,C,COTTAGE to add a new expense.

No two account titles may be exactly the same characters. That is why I have added "extenders" to some titles, like OTHER,I

The #381 disk is also duplicated on the back side of the #382 disk. The #382 disk is duplicated on the back side of the #381 disk. I did it this way to make it easy with two drives.

APPLICATION #382

I have not entered any accounts or formats on this disk, as I do not feel I have sufficient understanding of some of the accounts listed in your documentation. In the absence of further information, I have noted on your G/L printout the MAKE commands I would enter to set up the account organization. These would be entered in sequence, from top to bottom. Notice that whenever a new "general account" is specified (the title "MAIN" in the command), the computer will ask for headings.

If you understand what these MAKE commands are accomplishing as far as organization is concerned, then you may be able to revise them slightly or add a few. Otherwise I will need more information before entering the commands. Here is what I'd want to know:

When the members report their "hours" do you know the hourly rate, or multiplier, used to calculate the dollar amount? Is the multiplier constant for all members, though it may be revised from time to time? If the hourly rate is constant, say \$5.65, then I'd change the heading, "MPER,HR" to "\$5.65" and you'd only have to enter the number of hours; the rest would be computed.

In the list of income accounts, on your spreadsheet it appears that the first several titles are types of "INT ON TERM DEPOSIT", but then on this G/L printout there is a separate title for "INT ON TERM DEPOSIT". Which is it? And what would you label the sub-total--this suggests another general classification.

You would not ordinarily want titles that change to be in the account structure. Your "functions" should be identified in individual records,

not as account titles. I have therefore grouped them under the general title, "FUNCTIONS". The name of the function will still appear in the printouts, though in a different column.

Again, in your expense accounts, what would you label the subtotal? If there is a general name for the first accounts then the MAKE commands would contain an extra title before the "EXPENSE" title. As you can see in the printout for your personal budget application, it makes much more useful print-outs if you identify the account organization with titles.

*INVENTORY QUANTITIES
DOG PEDIGREE*

In reviewing your inventory report, I note that some model numbers are longer than 8 characters. The new MICROMOD version will support up to 12, so you'll want that version. With MICROMOD use capital letters. MICROMOD doesn't allow fractions of units because they are 1) unnecessary, and 2) waste lots of disk space. Concerning the few items you now have which require fractions of units, you'll have to use different units of measure. Gallons of "degreaser" could be quarts or 1/10 gals. On items like "pizza paper" you'll probably use tenth cases. Other items where cost is measured in thousandths of a cent will required larger units. Otherwise I see no problem in transferring your inventory directly. Bear in mind that MICROMOD is for practical use. Fractions of units and cents are nice features, but from a practical cost accounting or tax accounting standpoint the unit of measurement can always be adjusted. Doing without them allows the capacity for 4,000 mod numbers on a disk--a practical necessity for some. You CAN get these features by using the Dated Records program for inventory, the same way you are using Synfile/Syncalc, but you lose automatic quantity/cost updating for invoices and deliveries (received). There is a section in the manual about doing this, let me know if you want help and send me the complete inventory list. I still suggest the Inventory program--it's much faster, more convenient, and efficient.

"Showing the best price for an item..." I would do this by entering the supplier price lists into the directory, because it has complete sorting capability. You would "define" one of the symbols in the "Symbol Table" to be "Price List". See example in the manual, page 136. For your price list a neat display is not required, so ignore the instructions about line spacing. To enter a price list start with the Supplier NAME, i.e.:

PUT ACME

Assuming you define the "&" symbol for "Price List", an entry might look like this:

DIRECTORY ENTRY #1 ACME

?& MOP HEADS 3.82

DIRECTORY ENTRY #2 ACME

?& SCOURING POWDER .95

etc. No profit in making it any more complicated than necessary. Later you'll select "Y DIRECTORY SORT" and enter "&" as the symbol, sort by "LINE 1" (you'll only have one line per entry), and specify for Abbrev NAMES to be displayed (so you'll know who the supplier is). The result will be a list of all items and prices with like items listed together so you can see the lowest price.

"Set up spread sheet...switch from 80 cols to 136 cols...?" How about condensed elite, which will give you 156 cols? Yes, in the dated records

program you can name any headings to appear in a listing and the printer columns can be up to 156 cols. You can also enter printer codes to set the printer. But the listing you sent is actually information that would be generated during taking of a physical inventory and entering the units. MICROMOD has a function designed specifically for this.

Normally the "USAGE" column would be generated seperately in the Dated Record Program by listings of sales information. Since your restaurant is a special case, your usage is actually a "raw materials" or "work in progress" functions. You do not "update" inventory stock levels from invoices, so your stock stays the same until you "take inventory". When you enter the amount of each item physically counted, the computer will note the difference with the amount that was previously there, like in your printout. But MICROMOD calls this a "discrepancy" because normally the levels are automatically reduced and the stock on hand should match the figures in the computer. But for you the "discrepancy" is your usage figure.

This is like explaining how to tie your shoelaces--it's a lot easier to do than to explain. To make a long story short, you would get all the information in your Usage report by 1) listing items with PRINT/TOTAL and 2) add the usage information with K TAKE INVENTORY.

No, certain items cannot be highlighted in "inverse video", a nice spread sheet "embellishment". Admittedly MICROMOD contains few of these niceties. It's tough enough just to get the main job done! Other than point of sale searches, inventory reports are normally printed.

PEDIGREE RECORD

You know, I wish there were more time to market this program effectively. This is an application which requires an organizational printout. Usually you're lucky to get a few of the output formats, i.e. graph, spread sheet, form, report, statement, etc., but MICROMOD includes both calender and organizational. To market for this application would require 30 or so pages of documentation--which I don't have time for right now. I'll start you off, see what you think, and if you like it send me more specific information on what you need. I'll be glad to follow up with with more information.

The trick is to use the "account organization" to name the parental lineage. You'd use a separate program disk. You can name up to three AREAS, one for each of your dogs. This will let you go down to great-great grandfather. If you only need it down to great grandfather you can do as many dogs as you like (up to 100). Let's assume you need great-great grandfather, and you have three dogs.

Each AREA will have two "General Accounts", one each for mother and father. Here's an example of entries to set this up (you would substitute dog names for the descriptive titles I use):

```
MAKE MOTHER1,DOG1  
MAKE FATHER1,DOG1
```

```
MAKE MOTHER2,DOG2  
MAKE FATHER2,DOG2  
etc...
```

The computer will ask for headings when you make these entries. Enter headings to describe the pedigree info OTHER THAN OWNER like:

```
BREED,PRIZES,ALPO,FLEAS,ORIGIN
```

or whatever dog buyers need to know! The name of the owner will be entered to the NAME heading in records (which is automatically included by the computer).

Then complete the organization by naming grandfathers, great-grandfathers, etc as "account" titles:

```
MAKE GF1,MOTHER1  
MAKE GM1,MOTHER1  
MAKE GG1,GM1  
MAKE GGF1,GM1  
MAKE GGG1,GG1  
etc.
```

You can add these subdivisions any time. As long as the computer "knows" the last title in the entry.

You can get the "organizational" printout anytime by selecting ORGANIZATION on the Main Menu. See manual page 355 for an idea of what it will look like.

Next enter the NAMES and addresses of the owners in the directory.

Now you're ready to enter records. To enter the info for great grandmother of dog 1 type:

```
MAKE GG1
```

and press RETURN. To the NAME? prompt enter the owner's NAME.

The DATE entry is the tricky part, seeing as we are using a dated records manager for a non-dated purpose. Just pick a month/year for each of the three dogs (AREAS) and always enter a date (any day) in that month when entering any record corresponding to that dog. So for this example record you might enter 1,1,86 for the date. Then always enter a date in Jan, '86 for any records relating to DOG1.

Next just enter the information called for by the headings (prompts) as they appear.

The organization chart will only list names, so you'll want a spread sheet type of listing for information on each name. This is easy. For DOG1 just

types:

LIST MOTHER1,P (return)

and press RETURN to every other question until printed. Then to the same for all parents, i.e. LIST FATHER1, LIST MOTHER2, etc. until you have a printout of all parents. These will automatically include all descendants. If you enter your own tab settings you can prevent the meaningless date column by entering a zero for the setting.

Since you have plenty of room for names, use the full names of owners, not abbreviations. But for dog names (named as account titles) you cannot have spaces (use a period to separate words) and its neater to limit titles to 11 characters, so you might abbreviate if necessary. You can include an extra **HEADING** for **FULLNAME** or some such.

If you don't like this method I can imagine other methods using either the Directory or Dated Records program. In either case the use of some sorting entry would be required, so you could list information which contained a "string" which would be part of the code. GGM1 might be entered into a record to stand for great-grandmother of dog 1, for instance. This would allow you to go as far back in the lineage as you liked.

BILLING CREDIT / EXPENSE ACCOUNTS

Regarding the statement you sent, and referring to INV# 10101, you should enter a **CREDIT** record to reflect the change. Type **MAKE CREDIT** at the Main Menu, and enter \$48 as the amount. Then when you list **ACTIVITY** for that invoice, you'll get the original amount and the credit shown. The **STATEMENT** format will also show the math. The **Statement INIT** function will take care of the **CREDIT** at the end of the month when you **INIT** for statements of invoices (**STAT** format).

To get "Carrolls Jewelers" on the **STAT** name list, display the list and press **E** and then **A** to add a name. Just type the name beginning with the appropriate symbol, i.e. **#50** and press **RETURN**.

In your list of expenditures (**EXPEND**), I can identify no general categories other than possibly a tax category. So there's no sense in overcomplicating it. Here's the list of **MAKE** commands to set this up. Feel free to change any abbreviations, but remember not to have any spaces within account titles (I remember you are a slow typist so I make the titles short):

```
MAKE ACCT,EXPEND,MAIN
(enter headings) AMT,REF
MAKE AUTO,EXPEND
MAKE BEEP,EXPEND
MAKE CARTS,EXPEND
MAKE DELV,EXPEND (DELIV and DLV taken)
MAKE FRT,EXPEND
MAKE LIC,EXPEND
MAKE MISC,EXPEND
MAKE OFC,EXPEND
```



```
MAKE PSTG,EXPEND
MAKE RENT,EXPENT
MAKE SLX,EXPENT (STX and STAX taken)
MAKE SS,EXPEND
MAKE UI,EXPEND
MAKE OTX,EXPEND
MAKE SELL,EXPEND
MAKE SUPL,EXPEND (reserve SUPP for "Supplier")
MAKE TEL,EXPEND
MAKE BOO,EXPEND
MAKE DUES,EXPEND
MAKE TRAV,EXPEND
MAKE PURCH,EXPEND
```

The last entry, MAKE PURCH,EXPEND assumes you would just like to keep track of dollar amounts paid to suppliers. In this case you would not enter the name as an account, but would enter the NAMES later in individual records to the NAME prompt. Remember, you have a separate accounting of deliveries which will show the amount due, which of course is not exactly the same as the amount paid if you do not pay cash for everything.

Enter these MAKE commands one at a time from the Main Menu. To enter records, just type MAKE and then the first title in any of the above commands. In other words, always enter records into the lowest subdivision.

I checked out all your files on the disk and they seem fine. Since I'm sure this is just a duplicate, and unless you request the disk back, I'll hold it and use it the next time I need to send you files/updates/debugs or whatever.

GLOSSARY

abbreviated NAME

See NAMES

account

A title that describes groups of records which are related in some way.

account organization chart

A chart which illustrates the relationship, or hierarchy, between accounts, and lists the associated headings.

account worksheet

an account organization chart filled out by the program user before entering the information into the computer.

AREA

The title for an entire account hierarchy and associated records disks.

application files

All files which hold information entered by the user, including all records, titles, and user-defined formats.

attract mode

A condition whereby the computer will automatically dim the TV screen if no key has been pressed for several minutes.

auxiliary disk

One of the "shipping disks" included with the MICROMOD program. It contains extra modules and misc. files.

batch name list

A list of NAMES from the NAMES file, each preceded with a punctuation character which determines action to be taken when printing statements. The files are created with the BATCH STATEMENTS function and are maintained on the Program Disk.

BIGLIST

A feature that allows multiple records disks to be included in one spread sheet listing.

booting

Another word for "powering-up", or turning the computer system on.

boot disk

A disk with one or more files on it which enables the computer to operate upon power-up.

boot files

The files required on a disk to enable the computer to operate upon

power-up.

category

A title in the NAMES file which stands for a group of names or items. See NAMES.

Directory Disk

A disk provided by the user, it is used to store directory information from the temporary directory when this becomes full, using the UNLOAD TEMP DIRECTORY utility.

DOS

Abbreviation for Disk Operating System. Either DOS 2.5 or SpartaDOS is used with MICROMOD, but not supplied with the program. Each resides on its own disk and must be obtained by the user.

down time

A phrase used by IBM and Apple owners to describe the wait for an expensive repair technician. Atari owners just buy a new component for less than a typical repair bill.

draft mode

The font, or kind of print, the printer uses if given no special instructions. It is the default mode.

double density

A disk which has been formatted with 256 bytes in each sector. It has twice the storage capacity of a single density disk, about 180,000 bytes.

enhanced density

A disk formatted with 128 bytes to a sector, but which has almost one and a half times the number of sectors as a single density disk, and can store about 140,000 bytes. Also called 1050 density.

extender

A few characters added to the end of a word and separated from the rest of the word by a period, as in WORD.EXT.

filespec

A filename which begins with a D, a drive number, and a colon, such as D1:FILENAME.

Format

A series of instructions which can be labeled, stored, and called into operation, by specifying just the name, to perform some function over and over again, such as displaying information in a certain way. A series of tab settings which are stored on disk becomes a format.

full account name

a series of titles, separated by commas, which describes the relationship between the titled accounts in the account hierarchy.

general account

The most general account in one area. It may have subdivisions but cannot be a subdivision. Headings are entered only when a new general account is specified, and the same headings apply to all subdivision accounts under that general account.

global instructions

Information which the user supplies during initialization of the program, and which is retained as permanent instructions affecting the program over a wide range of functions every time it is used.

heading

Called "fields" in other programs, headings are the titles that describe each element of data to be stored in a certain account. They become the "prompts" the computer displays when entering records.

image burn

an imprint left on the screen due to a still display being left on the screen for long periods of time.

"in the system"

Meaning the file is on a disk in one of the active drives, or in a ramdisk.

inventory form

In the Inventory program, the screen display which lists inventory information and allows editing and entering new inventory information.

inverse video

The display of dark characters with a white background instead of the usual white characters with a dark background.

listing format

The series of instructions which are saved when naming a particular type of display. The display can then be redisplayed in exactly the same way by using the name, without having to enter each instruction again.

listing name

The title of a listing format entered by the user.

Master Disk

Also called Master Program disk or Program disk. It is the shipping disk which holds the boot files and most frequently used modules. An "operational" copy is made to be used in drive #1. During the application "user files" are created and maintained on the Master Disk.

MICROMOD text file

Converted from a WP23 text file, or created with the WRITE selection, it is a standard ASCII file with the file length as the first line.

NAMES

Labels of records stored in a special index file, called the NAMES file. They are usually four character abbreviations for full names of

people and companies.

notch

The cutout in the side of a floppy disk which allows the drive to store information on the disk. A wide variety of "disk notchers" is available so that the opposite sides of disks may be notched and used.

on line

The condition in which a printer will print if printing instructions are received from the computer.

Operating Disk

A disk which is used in the actual application. Shipping disks are not normally used, but only copied for use, thus assuring that they will not be damaged. The copy that is then used becomes an operational disk.

Program Disk

See Master Disk

ramdisk

Sometimes called a "virtual disk", it is a part of computer memory set up to operate exactly like a disk drive. The only difference is that all data in the ramdisk is lost when the system is shut off. On Ataris the ramdisk is the result of additional memory added to the computer, but which cannot be easily accessed in other ways.

records

The element of a file which holds individual data items, each represented by a "heading" (called a "field" in some programs).

Records Disk

The disk which holds account files, and named after the "area" to which the accounts belong. Records disks always go in drive #2 if using two drives.

Remote Disk

A disk used on a separate computer to collect invoice and payments information. The information is then periodically transferred to the main computer.

remote terminal

A separate computer which runs the remote disk program.

service files

Misc. housekeeping files created, maintained, and erased when no longer needed by the MICROMOD program. Typically the user takes no action regarding the files, except to see that there is a small amount of excess room on disks and in the ramdisk for these files.

Shipping Disks

The disks that are packaged with the MICROMOD program. They are not intended for use in the application, but only as sources for the operational disks.

Single density

A disk formatted to hold 128 bytes in each sector, with 707 free sectors (DOS 2.5) or 713 free sectors (SpartaDOS). A single density disk stores about 90,000 bytes.

small business

A business that typically has one owner/operator with less than 5 employees, no more than a few sales points, all located in one area or city, and grossing less than \$500,000 per year. There are a variety of exceptions, and a variety of small business that require more power than that offered with a personal computer, such as active full service insurance agencies. Still, the vast majority of SBA classifications, and of businesses in general, fit this definition.

spec

a data item which has been stored in an account record.

spread sheet form

A spread sheet listing which has been embellished with text, titles, and/or numbers printed as dollar amounts.

spread sheet listing

A type of display of account records which lists the data in columns with headings.

Standard ASCII file

A file of ASCII characters, each printed line being separated by a carriage return character (and/or line feed). Though very inefficient in most applications, this is the industry standard for compatible files.

string

Any series of any characters. Normally a section of a data entry which is use as criteria for a search for information containing the series of characters.

subdivision or SUBDIV

An account title which is related, but subordinate, to another account which is higher in the account hierarchy. A subdivision account always uses the same headings as its associated general account.

1050 density

See "enhanced density".

title

The series of characters entered to name any account, heading, area, disk, or format. All must be at least two characters in length. All titles except the AREA title may contain punctuation characters, except for commas. Spaces are not allowed in titles with the exception of NAMES and listing format names.

user files

The files which are created and maintained on the Program disk which

include the: NAMES file, AREA file, format file, and two files for each area to hold account titles and headings. The batch name list which is used for statements of invoices, called STAT.N is also a user file.

wild cards

Special characters used in a file name to designate groups of files. See DOS manual.

XINIT

The SpartaDOS command used to format disks.

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