IBM

IBM InfoWindow™ 3477

GA18-2923-00

User's Guide
- Setup Instructions
- Operations
- Problem Solving Guide

Federal Communications Commission (FCC) Statement

Warning: This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Instructions to User: Properly shielded and grounded cables and connectors must be used for connection to peripherals in order to meet FCC emission limits. Proper cables are available from IBM authorized dealers. IBM is not responsible for any radio or television interference caused by using other than recommended cables or by unauthorized modifications to this equipment. It is the responsibility of the user to correct such interference.

The above FCC statement applies only to those machines used in the U.S.

Canadian Department of Communications Compliance (DOC) Statement

This equipment does not exceed Class A limits per radio noise emissions for digital apparatus, set out in the Radio Interference Regulation of the Canadian Department of Communications. Operation in a residential area may cause unacceptable interference to radio and TV reception requiring the owner or operator to take whatever steps are necessary to correct the interference.

The above DOC statement applies only to those machines used in Canada.

United Kingdom Telecommunications Safety Requirements

Notice to Customers: This apparatus is approved under approval number NS/G/23/J/100003 for indirect connection to public telecommunication systems in the United Kingdom.

First Edition (September 1989)

Changes are made occasionally to the information herein; any such changes will be reported in subsequent revisions or technical newsletters.

Reference in this publication to IBM products, programs, or services does not imply that IBM intends to make these available in all countries in which IBM operates. Any reference to an IBM program product in this publication is not intended to state or imply that only IBM's program product may be used. Any functionally equivalent program may be used instead.

Publications are not stocked at the address given below. Requests for IBM publications should be made to your IBM representative or to the IBM branch office serving your locality.

A form for readers' comments is provided at the back of this publication. If the form has been removed, comments may be addressed to IBM Corporation, Publications Development, Department 6R1J, 180 Kost Road, Mechanicsburg, PA 17055 U.S.A. IBM may use or distribute whatever information you supply in any way it believes appropriate without incurring any obligation to you.

AS/400, Proprinter, and InfoWindow are trademarks of the International Business Machines Corporation.

Quietwriter and Quickwriter are registered trademarks of the International Business Machines Corporation.

© Copyright International Business Machines Corporation 1989

International Business Machines Corporation Armonk, New York 10504

Exhibit to IBM Statement of Limited Warranty
(U.S. Only)

IBM InfoWindow™ 3477 Display Station Limited Warranty

IF YOU PURCHASED THE IBM InfoWindow 3477 DISPLAY STATION (MACHINE) DIRECTLY FROM INTERNATIONAL BUSINESS MACHINES CORPORATION (IBM), OR ANOTHER IBM ORGANIZATION, UNDER AN AGREEMENT FOR PURCHASE OF IBM MACHINES, THE WARRANTY PROVISIONS THEREIN SHALL PREVAIL AND THIS EXHIBIT AND THE ENCLOSED STATEMENT OF LIMITED WARRANTY SHALL NOT APPLY.

WARRANTY SERVICE DESCRIBED IN THE ENCLOSED STATEMENT OF LIMITED WARRANTY IS AVAILABLE ONLY FOR MACHINES PURCHASED AND LOCATED IN THE UNITED STATES OR PUERTO RICO.

IF YOU PURCHASED THIS MACHINE FROM A SUPPLIER AUTHORIZED BY AN IBM ORGANIZATION TO MARKET THIS MACHINE IN OTHER THAN THE UNITED STATES OR PUERTO RICO, WARRANTY INFORMATION IS AVAILABLE FROM SUCH SUPPLIER.

I. Date of Installation (Warranty Start Date): The Date of Installation, which is the warranty start date, will be the day (Monday through Friday) following the date of delivery of the Machine to you from an IBM Authorized Dealer, an IBM Authorized Distributor or a Reseller who purchased the Machine from such Distributor, as applicable. Delivery is deemed to be complete when the Machine is placed in your possession; however, when the Machine is shipped to you, delivery will be deemed to be complete three days after the date of shipment from an IBM Authorized Dealer, an IBM Authorized Distributor or a Reseller who purchased the Machine from such Distributor, as applicable. You are responsible for setting up this Machine in accordance with the instructions in this manual.

II. Warranty Duration

	1 Year Warranty For Models	3 Years Warranty For Models
IBM 3477	FG1, FA1, FC1, FD1	FG3, FA3, FC3, FD3

III. Type of Service: IBM On-Site Repair (IOR)

IV. Period of Warranty Service Availability: When rendered by IBM, Warranty Service is available 24 hours per day, 7 days per week. When rendered by an IBM Authorized Dealer or an IBM Authorized Distributor, Warranty Service is available during the hours and days prescribed by such Dealer or Distributor.

V. Provider of Warranty Service: IBM or any IBM Authorized Dealer or IBM Authorized Distributor for this machine.

The IBM Statement of Limited Warranty appears in the following pages.

You may be required to provide a dated proof of purchase of this Machine from the IBM Authorized Dealer, the IBM Authorized Distributor or the Reseller who purchased this Machine from such Distributor and evidence of the date of delivery to you in order to obtain warranty service. If you have any questions regarding warranty service, contact your point of purchase, or call IBM at 1-800-428-2569.

InfoWindow is a trademark of the International Business Machines Corporation.

International Business Machines Corporation

Armonk, New York 10504

Statement of Limited Warranty

DEFINITIONS

The term "Machine" as used herein refers to machines and/or their features, model conversions, machine elements and accessories unless the context requires individual reference.

The terms "Machines" and "machines" are used in substitution for the terms "Products" and "products," respectively. Such latter terms appear in selected IBM agreements.

The term "failing machine" refers to machine or machine element requiring warranty service. The term "exchange machine" refers to a machine or machine element provided by IBM to the Customer under an Exchange Type of Service.

The term "programming" shall mean such programming as IBM may make generally available, without separate charge, for machines of the types ordered by the Customer.

WARRANTIES

Machines purchased from IBM under an agreement for purchase of IBM machines or from an IBM approved Remarketer, or an IBM Authorized Dealer, Distributor or Wholesaler will be 1) newly manufactured by or for IBM from new and serviceable used parts which are equivalent to new in performance in these Machines, 2) assembled by or for IBM from serviceable used parts, or 3) Machines which have been previously installed.

IBM warrants that on the Date of Installation each Machine will be in good working order and will conform to IBM's official published specifications which are available upon request.

The Warranty Period for each Machine commences on its Date of Installation.

Warranty service as described herein may be provided by IBM, an applicable IBM Authorized Dealer, or an IBM selected independent contractor, as indicated in the applicable Exhibit.

IBM will not provide warranty service hereunder for Machines or programming located outside the United States and Puerto Rico.

Service and Parts Warranty

Commencing on the Date of Installation of each machine, model upgrade and feature addition, and continuing for the duration of the Warranty Period, IBM agrees to provide the availability of warranty service at no additional charge except as set forth in this subsection or in the subsection entitled "Travel Expense," to keep the machines, model upgrades and feature additions in, or restore them to, good working order. Warranty service will be provided by repairing the machines, model upgrades or feature additions or exchanging the machines under one of the Types of Service described in the subsection entitled "Types of Service." The specific Type of Service for each machine, model upgrade or feature addition will be indicated in the applicable Exhibit. Warranty options that provide alternate Types of Service are available for certain Machines under an IBM maintenance agreement.

It is the Customer's responsibility to determine when a machine or machine element requires warranty service. Before requesting warranty service, the Customer will perform any problem determination procedures provided by IBM, and if service is required, the Customer will follow the service request procedures by IBM.

When the Customer presents a failing machine to IBM under a Repair Type of Service, IBM will provide warranty service to restore the failing machine to good working order. Repair Types of Service include remedial maintenance and may include preventive maintenance based on the specific needs of individual machines as determined by IBM. Repair Types of Service may also include lubrication, adjustments and replacement of parts, all as deemed necessary by IBM. Parts, which may be used parts, will be furnished on an exchange basis, and the replaced parts become the property of IBM. When a failing machine is to be repaired under a Repair Type of Service, the Customer is responsible to remove or implement other safeguards to protect all programming, programs, data and removable storage media before such repair.

When the Customer presents a failing machine to IBM under an Exchange Type of Service, it becomes the property of IBM at the time of exchange. An exchange may not be new, but will be in good working order, and becomes the Customer's property at the time of exchange. IBM reserves the right to verify that warranty service for a failing machine is required prior to providing an exchange machine. When a failing machine is exchanged, the Customer will remove all programming, programs, data and removable storage media, and all non-IBM parts, options, alterations and attachments before such exchange. The Customer agrees that all such items not removed will be deemed to have been discarded by the Customer. The Customer will not present to IBM a failing machine for exchange which is defaced, altered or damaged beyond repair. (Repair is as described in

the preceding paragraph.) However, if upon inspection IBM determines it has received in exchange a failing machine in such condition, the exchange will be nullified and each party will return to the other the machine or machine element in its possession.

The Period of Warranty Service Availability for IBM On-Site Repair and IBM On-Site Exchange Types of Service are specified in the applicable Exhibit. Outside such Period, warranty service, if requested by the Customer and provided by IBM, will be subject to charge for travel expense plus travel, waiting and service time at IBM's then applicable hourly service rates and minimum charges; however, there will be no additional charges for parts.

The Period of Warranty Service Availability for Customer On-Site Exchange, Customer Carry-In Exchange and Customer Carry-In Repair Types of Service are specified in the applicable Exhibit.

Warranty service described herein does not assure uninterrupted operation of the Machines. IBM may, at its option, store on the Customer's premises maintenance equipment and/or parts that IBM deems necessary to fulfill this warranty.

During the Warranty Period, engineering changes, determined applicable by IBM, will be controlled by IBM and installed as specified by IBM on the Machines. The Customer may, by providing notice subject to written confirmation by IBM, elect to have only mandatory changes, as determined by IBM, installed on Machines so designated.

IBM shall have full, free and safe access to the Machines to provide IBM On-Site Types of Service thereon. The Customer shall promptly inform IBM of any change in a Machine's location during the Warranty Period.

In respect to warranty service provided by IBM, the Customer is responsible for all risk of loss of, or damage to, Machines owned by other than IBM during the period such Machines are in transit to and from IBM, except for loss or damage caused by IBM's negligence. However, IBM is responsible for risk of loss of, or damage to, Machines owned by other than IBM while in possession of IBM or in transit from IBM by an IBM selected carrier whose expenses were prepaid by IBM.

The Customer represents and warrants that, at the time a failing machine becomes IBM's property, it will be free of any outstanding liens, security interests or other encumbrances held by any third party.

If the Warranty Period expires on a Friday or Saturday, it will be extended so that the last day of such Warranty Period will be on the following Sunday.

Types of Service

IBM On-Site Repair (IOR)

IBM will provide warranty service for the failing machine at the Customer's location.

IBM On-Site Exchange (IOE)

IBM will 1) deliver the exchange machine to the Customer's location, 2) disconnect the failing machine, 3) connect the exchange machine, 4) verify its operation, and 5) remove the failing machine from the Customer's location.

Customer On-Site Exchange (COE)

IBM will have an exchange machine delivered to the Customer's location. The Customer will 1) disconnect the failing machine and prepare it for shipment to IBM, 2) connect the exchange machine, and 3) verify its operation. The Customer will follow IBM's instructions regarding the shipment of the failing machine to IBM. Such shipment will be at IBM's expense.

Customer Carry-In Exchange (CCE)

The Customer will 1) deliver the failing machine to an IBM Service/Exchange Center or other IBM designated location, 2) pick up the exchange machine and take it to the Customer's location, 3) connect it, and 4) verify its operation.

The Customer, in lieu of such delivery and pick up, may ship the failing machine prepaid, in the original shipping container or equivalent to one of the designated IBM Service/Exchange Centers designated for this delivery method. IBM will then ship the exchange machine to the Customer's locations, prepaid, within the United States and Puerto Rico.

Customer Carry-In Repair (CCR)

The Customer will 1) deliver the failing machine to an IBM Service/Exchange Center or other IBM designated location, 2) when the failing machine is repaired, pick up and return it to the Customer's location, 3) connect it, and 4) verify its operation.

The Customer, in lieu of such delivery and pick up, may ship the failing machine prepaid, in the original shipping container or equivalent, to one of the IBM Service/Exchange Centers designated for this delivery method. IBM will ship the repaired machine to the Customer's location, prepaid, within the United States and Puerto Rico.

Programming

IBM warrants that, when shipped to the Customer, programming designated by IBM for use with a Machine and for which programming services are available will conform to IBM's official published specifications which are available upon request.

IBM does not warrant that functions contained in programming will operate in the combinations which may be selected for use by the Customer or will meet the Customer's requirements.

ALL OTHER PROGRAMMING IS DISTRIBUTED ON AN "AS IS" BASIS.

Additional Provisions for Features and Model Conversions

IBM's warranty for each feature addition or model upgrade requires that the machine on which it is installed is at the then current engineering-change level, is the specific serial-numbered machine for which it was ordered, and has been modified only with changes obtained from IBM specifically for that serial-numbered machine. If these conditions are not met, IBM will attempt to install non-Customer set-up feature additions and model upgrades on the machine, and, if such attempt results in an incorrectly functioning machine, upon Customer request and at IBM's then applicable hourly service rates and minimum charges, parts and material prices and travel expense, IBM will remove the features and/or model upgrades and restore the machine to its prior condition. If such features or model upgrades did not involve the removal of parts which became the property of IBM, such features and model upgrades remain the property of the Customer. If such features and model upgrades did involve the removal of parts which became the property of IBM, such features and model upgrades become the property of IBM and the restored parts become the property of the Customer.

For a feature removal, model downgrade or reinstallation of a previously purchased feature or model conversion, a three-month parts warranty will apply to additional parts, if any, supplied by IBM.

Additional Provisions for Accessories

Accessories have a three-month Warranty Period unless otherwise specified by IBM. During the Warranty Period, the Customer will remove any defective or failing accessory and ship it prepaid to the designated IBM location. IBM will replace such accessory and ship the replacement to the Customer without charge.

Additional Provisions for Machines Containing Funds

The Customer is responsible for removing, controlling and replacing or reloading funds contained in the Machines. IBM will service Machines containing funds only when the cash container cannot be opened prior to repair by IBM, in which case the Customer will remove the funds as soon as the container has been opened.

Services for Additional Charge During the Warranty Period

The services for additional charge described in this subsection are not warranty services. However, unless such services are provided under another written agreement between the Customer and IBM, during the Warranty Period, the following services, if available, will be provided by IBM to the Customer at IBM's i) then generally available hourly service rates and minimum charges for IBM service time, including travel and waiting time, ii) parts and material prices then generally in effect, and iii) charges for travel and shipping expense, all as applicable:

1) Repair of Machine damage, replacement of parts or increase in service time caused by —

   a) failure to continually provide a suitable environment prescribed by IBM including adequate space, electrical power, air conditioning and humidity control;
   b) neglect misuse, including use of the Machines for purposes other than for which designed;
   c) accident disaster, including water, wind and lightning, transportation; vandalism or burglary;
   d) alterations, including any interconnection to the Machine of non-IBM equipment or devices not under an IBM maintenance agreement;
   e) attachments, including any interconnection to the Machine design;
   f) IBM Machines, other Machines or accessories, except those IBM Machines, other Machines or accessories that are owned by IBM, under warranty from IBM or under an IBM maintenance agreement;
   g) conversions from one IBM model to another or installation or removal of an IBM feature whenever any of these activities was performed by other than IBM, except that this item (g) will apply only during the first three-month period subsequent to such Machine modification; and

h) maintenance or repair of the Machine not performed by IBM.

2) Repair of Machine damage, replacement of maintenance parts (due to other than normal wear) or repetitive service calls caused by the use of, or failure to use, supplies;
3) Service for accessories other than as provided in the subsection entitled "Additional Provisions for Accessories" of this Section;
4) Inspection of altered Machine;
5) Replacement or addition of parts and increase in service time associated with the installation by IBM of an engineering change, required due to the conversion of one IBM model to another or installation or removal of an IBM feature whenever any of these activities was performed by other than IBM;
6) Rearrangement or relocation of Machines and provision of necessary materials; and
7) Replacement of a part not furnished for the Machine by IBM with a directly interchangeable IBM maintenance part, and any increase in service time associated with such activity, except that IBM will not replace any part which is included in an alteration.

Travel Expense

There will be no charge for travel expense associated with warranty service or programming service during the applicable Period of Warranty Service Availability except that actual travel expense will be charged when the site at which the Machine is located is normally inaccessible by both private automobile and scheduled public transportation.

Exclusions

The warranties stated herein do not include 1) furnishing supplies, painting or refinishing the Machines or furnishing material therefore, 2) electrical work external to the Machines, 3) installation, maintenance or removal of alterations or attachments to the Machines, and 4) any service which is impractical for IBM to render because of alterations in, or attachments to the Machines. IBM does not warrant that the operation of Machines or programming will be interrupted or error free or that all programming errors will be corrected.

THE FOREGOING WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Preface

This manual describes the setup and the operations of the IBM InfoWindow 3477 and its intended use is for operators and supervisors.

Note: Some display station parts or equipment that appear in this publication may not be available in your country. Ask your IBM marketing representative for details.

Organization

This manual has the following chapters and appendixes:

Chapter 1, "Setup Instructions" provides information for initial setup of the display station. This chapter should also be referred to when a display station element is replaced.

Chapter 2, "Operations" describes operations and adjustments of the display station including print operations.

Chapter 3, "Display Screen and Operator Messages" describes the meanings of the symbols and messages that appear on the screen.

Chapter 4, "Keyboard and Key Functions" describes the functions of the keys, and shows the keyboard layouts available for the display station.

Chapter 5, "Problem Solving Guide" describes what to do when you have a problem during display station operations. This chapter also provides information for removing and packing the display station parts.

Appendix A, "Display Station Controls and Adjustments" provides information for controlling and adjusting the display station.

Appendix B, "Printer Controls and Adjustments" provides information for controlling and adjusting the printer.

Appendix C, "Country-Specific Keyboard Layouts" shows the country-specific keyboard layouts for the 122/124-key typewriter keyboards and the IBM Enhanced keyboards.

Related Manuals

When you need additional information on the IBM InfoWindow 3477, see the following publications.

- *IBM InfoWindow 3476 and 3477 Introduction and Installation Planning Guide*, GA18-2952

This book will help you prepare the display station site. This book provides intro ductory, environmental, electrical, and dimensional information.

- *Connecting the IBM InfoWindow 3477 to System/36, System/38, or AS/400™ System*, GA18-7027

This manual provides information for attaching an IBM 3477 to a System/36, System/38, or AS/400 System.

- *IBM System/36 What to Do Before Your Computer Arrives*, SBOF-4773

This manual gives setup and configuration for persons who plan to use System/36 as their system.

- *AS/400 New Products Planning Information*, GA21-9984

This manual will help you prepare to attach the 3477 to an AS/400 system.

AS/400 is a trademark of the International Business Machines Corporation.

Contents

Chapter 1. Setup Instructions 1-1
Check Parts 1-2
Attach RID (Repair Identification) Tags 1-3
Attach Logic Element to Display Element 1-5
Attach Display Stand to Display Element 1-7
Attach Lift-stand to Display Element 1-10
Connect Keyboard Cable 1-15
Personalize Display Station 1-16
Apply Power to Display Station 1-17
Adjust Screen Brightness 1-19
Set Setup Values 1-21
Connect Display Station to Host System 1-26
Connect Printer 1-38
Location of Terminator Switches 1-41

Chapter 2. Operations 2-1
Powering-On 2-2
Personalizing Display Station 2-3
  Screen Brightness 2-3
  Screen Contrast 2-3
  Display Viewing Angle 2-4
  Keyboard Slope Adjustment 2-5
What the 3477 Can Do 2-6
  Operational Modes 2-6
  Field Attributes 2-7
  Cursors 2-8
  Character Set 2-8
  Extended Display 2-9
  Auto Display Dim 2-9
  Security Key lock 2-9
  Audible Alarm 2-10
  Clicker 2-10
  Reverse Image 2-10
  Languages on Setup Panels 2-11
  Characters in Diacritic Mode 2-11
Dual Addresses Display Station Operation 2-12
  Screen Format 2-12
  Non-split Screen Operation 2-12
  Split Screen Operation 2-13
  Browsing the Current Setup Values/Parameters for the 3477 2-14
Recording and Playing Keystrokes 2-17
  Recording 2-18
  Playing 2-19
  Record/Play Exercise 2-21
Print Operations 2-24
  Setting up for Local Screen Data Print 2-24
  Cancellation of Print Operations 2-31
  Browsing the Current Setup Values/Parameters for the Attached Printer . . 2-32

Chapter 3. Display Screen and Operator Messages 3-1
Display Screen 3-1
Operator Messages 3-3

Symbols on the Operating Status Line . . . 3-3
Symbols in Communication Mode . . . 3-3
Symbols in Setup Mode . . . 3-6
Symbols in Record and Play Modes . . . 3-7
Symbols in Print Modes . . . 3-9
Error Codes and Recovery Procedures . . . 3-11

Chapter 4. Keyboard and Key Functions . . . 4-1
Keyboard Layouts . . . 4-1
Key Functions . . . 4-2
Quick Reference Table of Key Functions . . . 4-2
Keyboard Control Keys . . . 4-4
Katakana Shift . . . 4-6
Typewriter Type Keys . . . 4-7
Cursor Control Keys . . . 4-10
Screen Control Keys . . . 4-13
Local Function Keys . . . 4-16
Host Function Keys . . . 4-19

Chapter 5. Problem Solving Guide . . . 5-1
Problem Solving Initial Checks . . . 5-1
Problem Symptom . . . 5-2
Analysis Procedures . . . 5-4
Operator Messages . . . 5-6
Error Recovery Instructions . . . 5-8
Alarm Problems . . . 5-16
Display Problems . . . 5-18
Keyboard Problems . . . 5-31
Power-on Light Problem . . . 5-34
Printer Problem . . . 5-38
Mechanical Problems . . . 5-40
Keyboard Test . . . 5-41
Logic Element Check Procedure . . . 5-44
Request for Service . . . 5-46
ECCO (for the U.S. only) . . . 5-47
Removal and Packing . . . 5-48
Display Station Element Removal . . . 5-48
Packing Instructions . . . 5-53
Packing Display Station Element . . . 5-53

Appendix A. Display Station Controls and Adjustments . . . A-1
Customization . . . A-1
Serial Number . . . A-5
Setup Display . . . A-6
Record/Play Security Options . . . A-10
Summary of the 3477 Setup Parameters . . . A-13

Appendix B. Printer Controls and Adjustments . . . B-1
Customization for the Attached Printer . . . B-1
Customization for Local Screen Print . . . B-1
Customization for System Print . . . B-3
Setup Printer . . . B-5
Setup Printer Panel for Local Screen Print . . . B-5
Setup Printer Panel for System Print . . . B-9
Summary of Printer Setup Parameters . . . B-15

Appendix C. Country-Specific Keyboard Layouts C-1

Glossary X-1

Index X-5

Figures

2-1. IBM InfoWindow 3477 2-2
2-2. Brightness Control 2-3
2-3. Contrast Control 2-3
2-4. Viewing Angle Adjustment 2-4
3-1. 1920 Character Screen Format 3-1
3-2. 3564 Character Screen Format 3-2
3-3. 3360 Characters Screen Format 3-2
3-4. Operating Status Line Symbols in Communication Mode 3-3
3-5. Operating Status Line Symbols in Setup Mode 3-6
3-6. Operating Status Line Symbols in Record Mode 3-7
3-7. Operating Status Line Symbols in Enter-key state in Record Mode . 3-7
3-8. Operating Status Line Symbols in Halt Record or Play Mode 3-7
3-9. Operating Status Line Symbols in Play Mode 3-8
3-10. Operating Status Line Symbols in Play Back Operation 3-8
3-11. Operating Status Line Symbols in Print (Screen) Mode 3-9
3-12. Operating Status Line Symbols in Print (Trim) Mode 3-9
4-1. 122-key Typewriter Keyboard Layout (U.S. English) 4-1
4-2. IBM Enhanced Keyboard Layout (U.S. English) 4-1
C-1. Austrian/German 122-key Typewriter Keyboard C-2
C-2. Austrian/German IBM Enhanced Keyboard C-2
C-3. Belgian 122-key Typewriter Keyboard C-3
C-4. Belgian IBM Enhanced Keyboard C-3
C-5. Canadian French 122-key Typewriter Keyboard C-4
C-6. Canadian French IBM Enhanced Keyboard C-4
C-7. Danish 122-key Typewriter Keyboard C-5
C-8. Danish IBM Enhanced Keyboard C-5
C-9. Dutch IBM Enhanced Keyboard C-6
C-10. Finnish/Swedish 122-key Typewriter Keyboard C-7
C-11. Finnish/Swedish IBM Enhanced Keyboard C-7
C-12. French (AZERTY) 122-key Typewriter Keyboard C-8
C-13. French (AZERTY) IBM Enhanced Keyboard C-8
C-14. Italian 122-key Typewriter Keyboard C-9
C-15. Italian IBM Enhanced Keyboard C-9
C-16. Japanese Katakana 124-key Typewriter Keyboard C-10
C-17. Japanese Katakana IBM Enhanced Keyboard C-10
C-18. Norwegian 122-key Typewriter Keyboard C-11
C-19. Norwegian IBM Enhanced Keyboard C-11
C-20. Portuguese 122-key Typewriter Keyboard C-12
C-21. Portuguese IBM Enhanced Keyboard C-12
C-22. Spanish 122-key Typewriter Keyboard C-13
C-23. Spanish IBM Enhanced Keyboard C-13
C-24. Spanish-Speaking 122-key Typewriter Keyboard C-14
C-25. Spanish-Speaking IBM Enhanced Keyboard C-14
C-26. Swiss-Bilingual-French 122-key Typewriter Keyboard C-15
C-27. Swiss-Bilingual-French IBM Enhanced Keyboard C-15
C-28. Swiss-Bilingual-German 122-key Typewriter Keyboard C-16
C-29. Swiss-Bilingual-German IBM Enhanced Keyboard C-16
C-30. U.K. English 122-key Typewriter Keyboard C-17
C-31. U.K. English IBM Enhanced Keyboard C-17

Chapter 1. Setup Instructions

This chapter describes how to set up your display station and the ASCII printer (optional). Perform all activities as shown in the following instructions.

If you have any problem in setting up the display station, see Chapter 5, "Problem Solving Guide" on page 5-1.

Note: Packing material is required for shipment if you relocate or require service on the display station. New packing material can be purchased from IBM if needed.

DANGER

To avoid shock hazard:

- **The power cord must be connected to a properly wired and grounded receptacle.**
- **Any equipment to which this product will be attached must also be connected to properly wired receptacles.**
- **Any cables should not be connected or disconnected during an electrical storm.**
- **Installation, maintenance, or reconfiguration of this product should not be performed during an electrical storm.**

CAUTION

When the logic element requires disposal, do not handle it as normal trash, because the logic element contains a lithium battery (3 V, 500 mAh, UL[1] recognized component or equivalent). The lithium battery contains less than 150 mg of lithium and can be harmful to people and may explode if not properly used, handled, or disposed of, such as; (1) thrown into water, (2) overheated to more than 100°C (212°F), or (3) attempting to recharge, repair, or disassemble. When disposing of the logic element, follow your company's safety procedures or local procedures, which define the disposal of such items.

UL/CSA Statement

For use only with UL listed and CSA[2] certified display elements. The display element part numbers are as follows:

Part Number	Display	Part Number	Display
69X8052	14 inch, Green	69X8053	14 inch, Amber
39F7426	15 inch, Green	16F1200	14 inch, Color

The above UL/CSA statement applies only to those machines used in the U.S. and Canada.

---

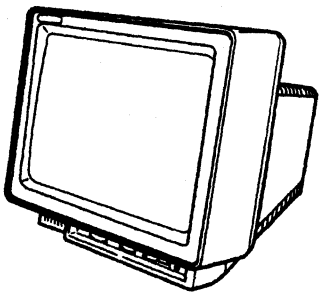
1 Registered trademark of Underwriters Laboratories Inc.

2 Canadian Standard Association

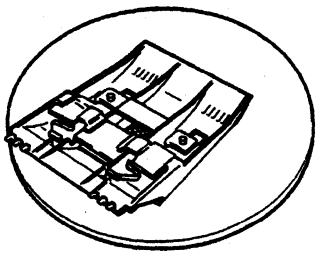
Check Parts

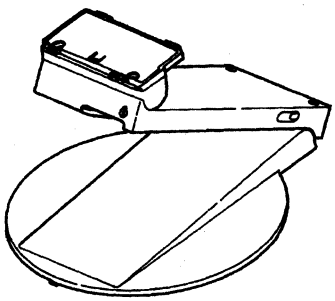
Check each box ☐ as you unpack and identify each item. If any are missing, call your IBM marketing representative.

☐ Display Element



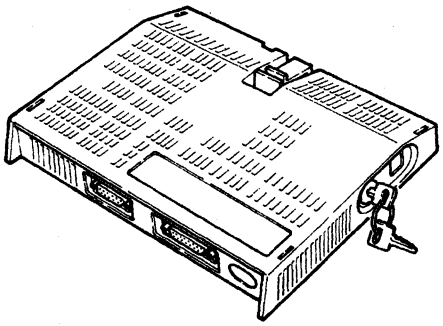
☐ Stand[4]



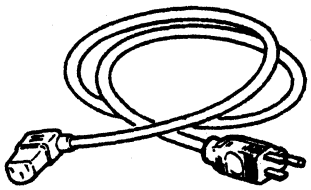


Display Stand or Lift-stand

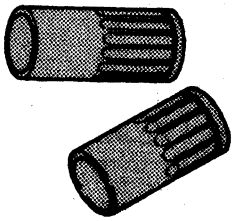
☐ Logic Element and Security Key[3]



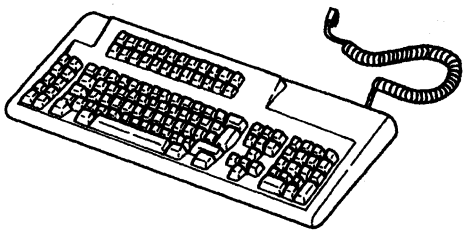
☐ Power Cord



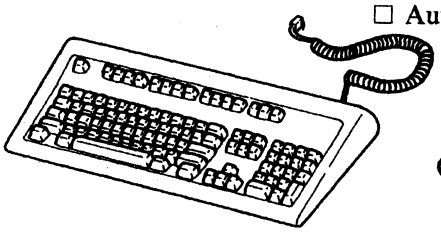
☐ Connector Shields



☐ Keyboard

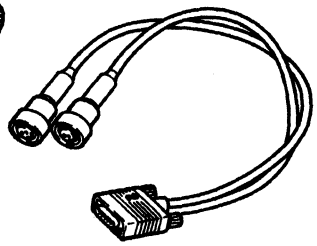


122/124-key Keyboard or



IBM Enhanced Keyboard

☐ Auto Termination Unit



---

[3] The security keys are inserted as shown. Detach one key and store in a safe place.

[4] Either of the two display stands is available depending upon the countries as shown.

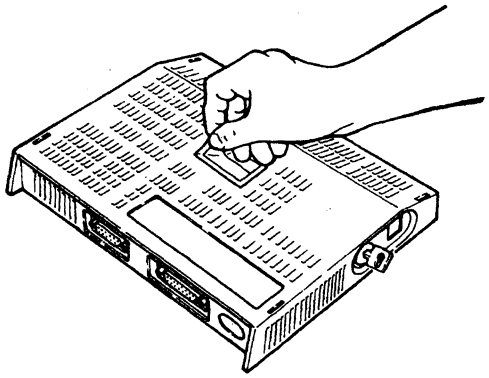
Display Stand: All the countries except European, Middle East and African countries.
Lift Stand: European, Middle East and African countries

Attach RID (Repair Identification) Tags

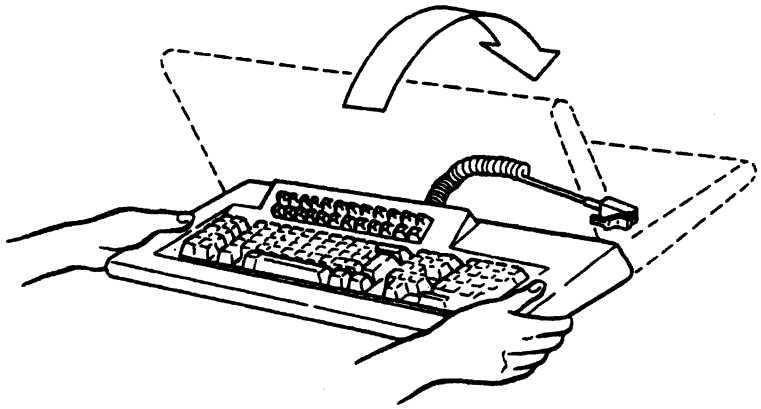
Note to the reader

If the display station is used in the U.S., disregard this section and go directly to "Attach Logic Element to Display Element" on page 1-5.

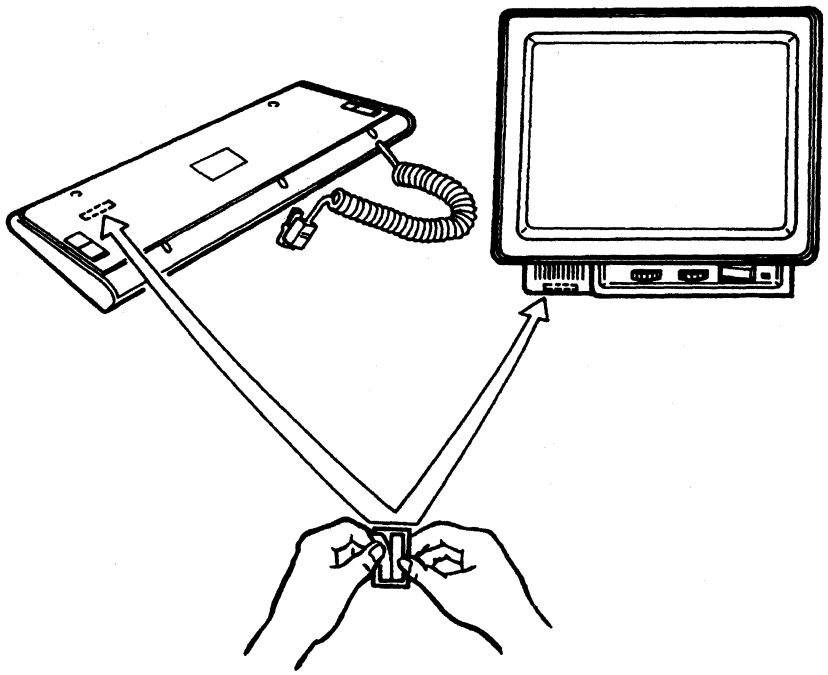
1 Remove the tags from the bottom of the logic element.



2 Turn the keyboard upside down.



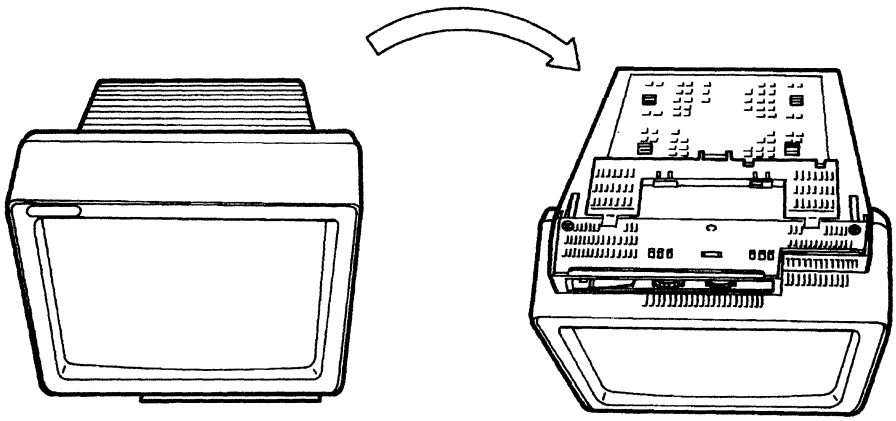
3 Peel off the tags and place one on each of the parts as shown.



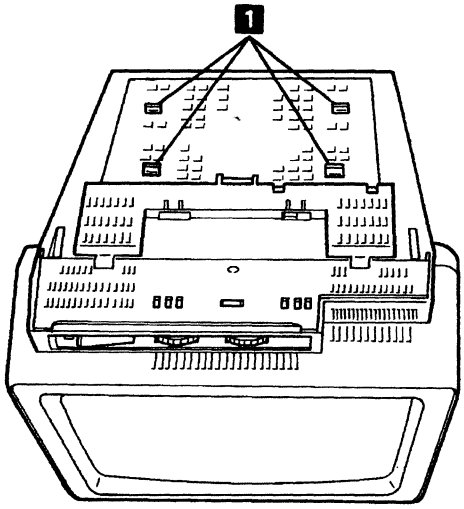
IMPORTANT: If you do not attach the tags, there may be a delay in obtaining service due to the time required to determine the unit's maintenance status.

Attach Logic Element to Display Element

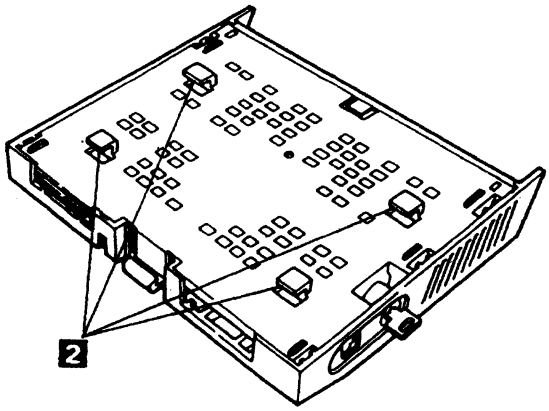
1 Turn the display element upside down so that the screen faces you.



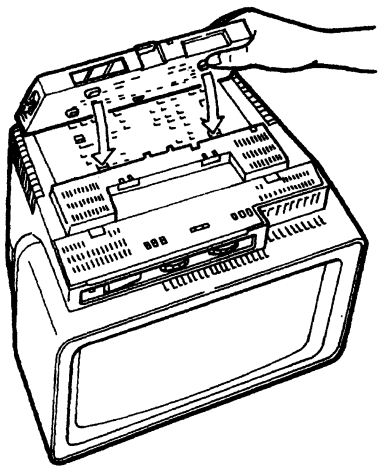
2 Locate the four slots 1 of the display element.



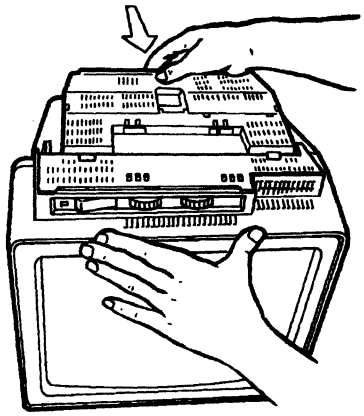
3 Locate the four hooks 2 of the logic element.



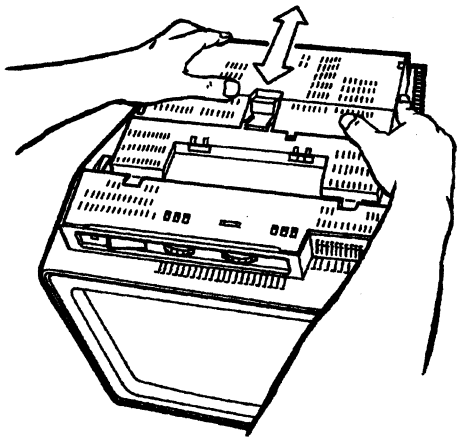
4 Insert the four hooks of the logic element into the four slots of the display element.



5 While holding the top edge of the front side of the display element, pull the logic element toward you until the logic element snaps into place.



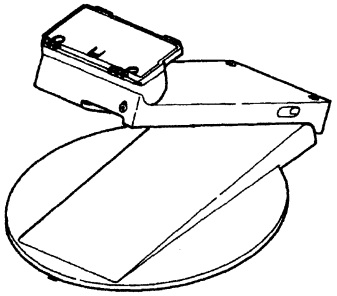
6 Make sure the logic element is locked onto the display element by moving the logic element forward and backward.



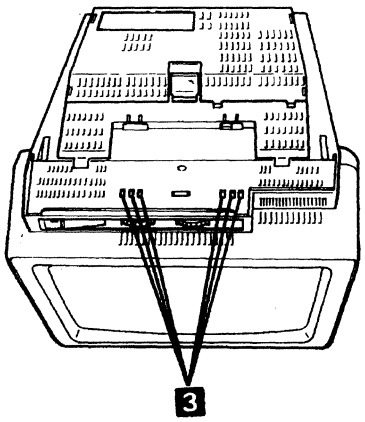
Attach Display Stand to Display Element

Note to the reader

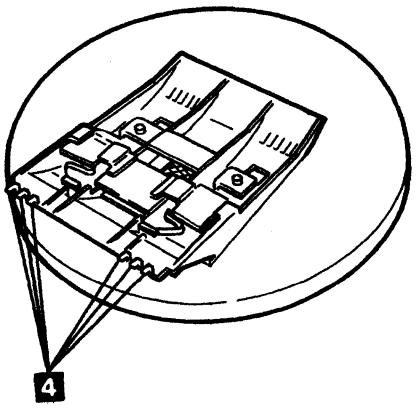
If you are attaching the lift-stand, go to "Attach Lift-stand to Display Element" on page 1-10.



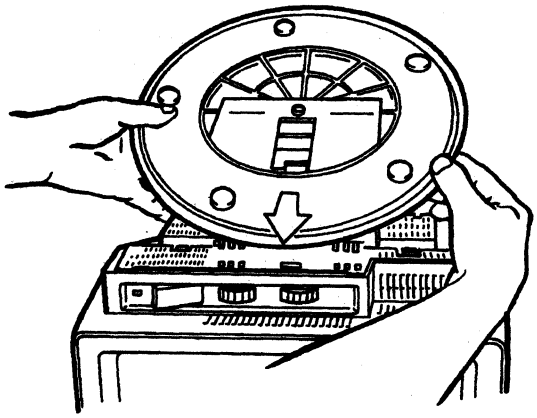
1 If you are attaching the display stand, locate the six slots 3 of the display element.



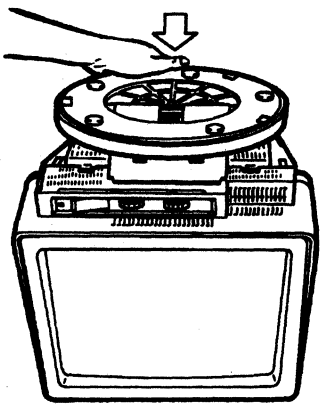
2 Locate the six hooks 4 of the stand.



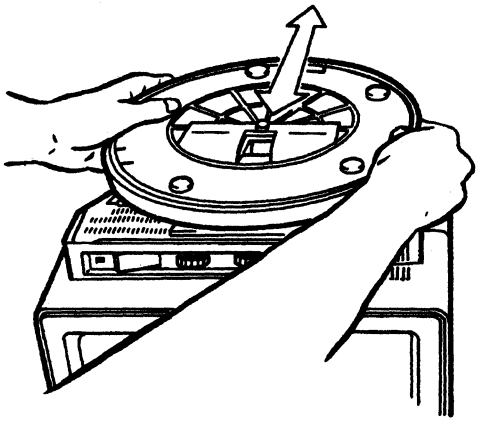
3 Insert the six hooks of the stand into the six slots of the display element.



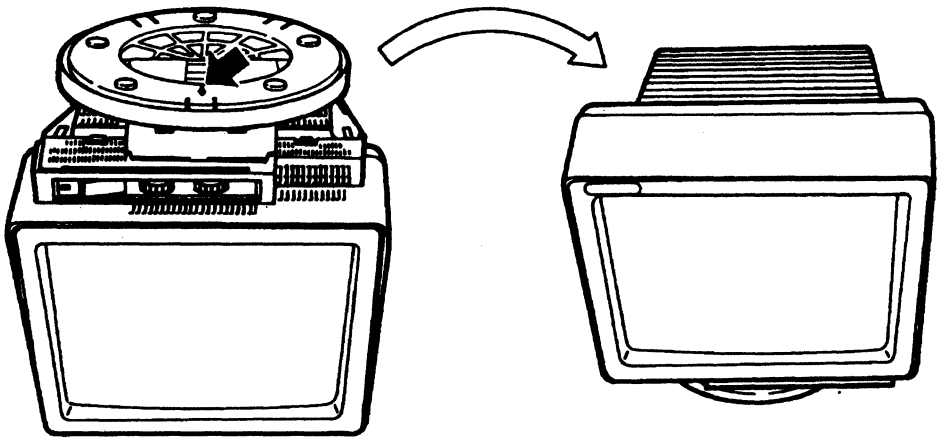
4 Push the edge of the stand down.



5 Make sure the stand is locked onto the display element by attempting to move the stand forward and backward.



6 Set the arrow mark at the bottom of the stand to the front of the display element (see the figure shown below). Then turn the display element right side up.



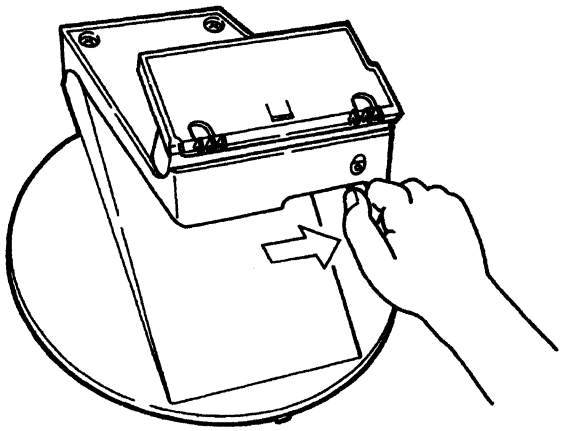
7 Go to "Connect Keyboard Cable" on page 1-15.

Attach Lift-stand to Display Element

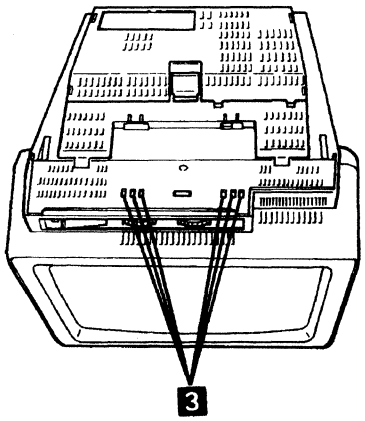
1 The lift-stand tension is pre-set for either monochrome or color display models. Make sure that you have the correct lift-stand for your display.

- Lift-stand for Monochrome display, 15 inch: Part Number 6398220
- Lift-stand for Color display, 14 inch: Part Number 6398210

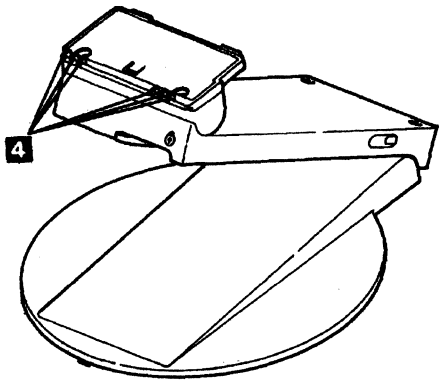
2 Lock the lock-lever of the lift-stand.



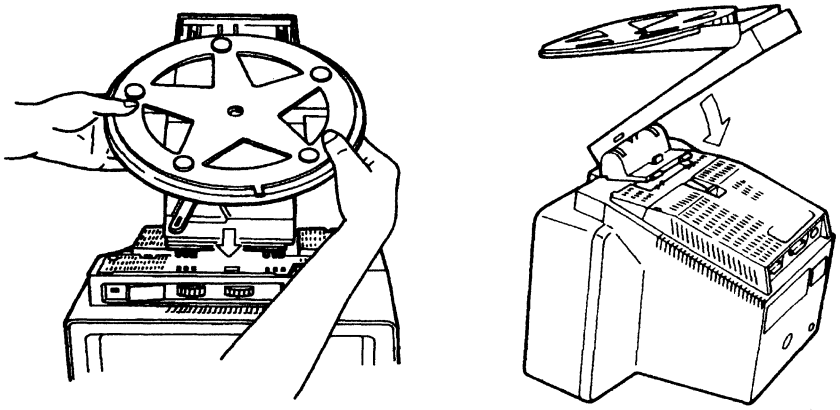
3 Locate the six slots 3 of the display element.



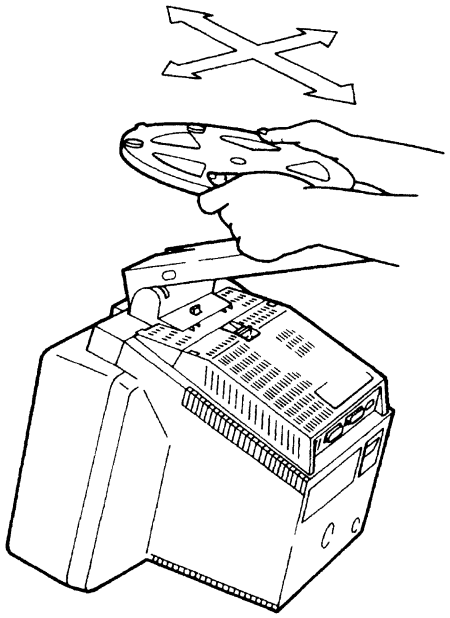
4 Locate the six hooks 4 of the lift-stand.



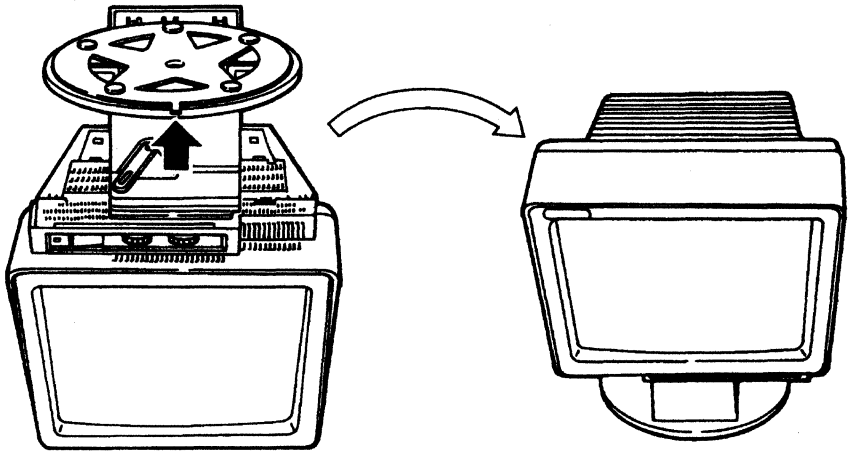
5 Insert the six hooks of the lift-stand into the six slots of the display element and place the stand on the display element. You should hear a click sound when the stand is locked onto the display element.



6 Make sure the stand is locked onto the display element by attempting to move the stand forward and backward.



7 Make sure that the notch at the bottom of the stand is indicating the front of the display element. Then turn the display element right side up.

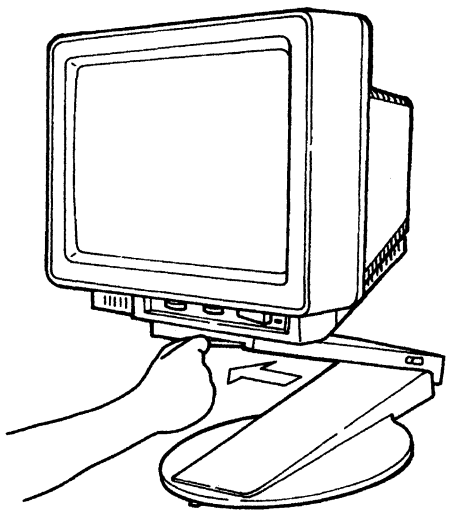


8

CAUTION

To avoid pinching your fingers in the lift-stand, do not press down the display element while your other hand is holding the stand.

Release the lock-lever of the lift-stand.

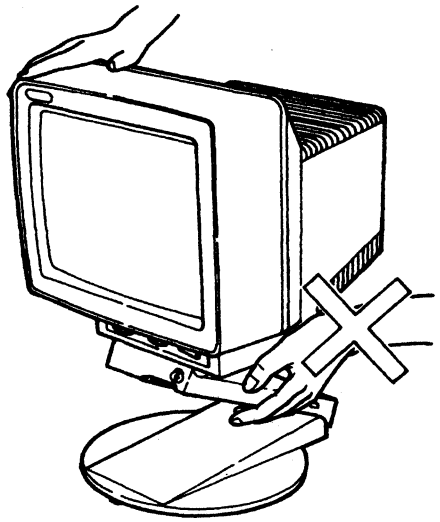


Lock Lever Release

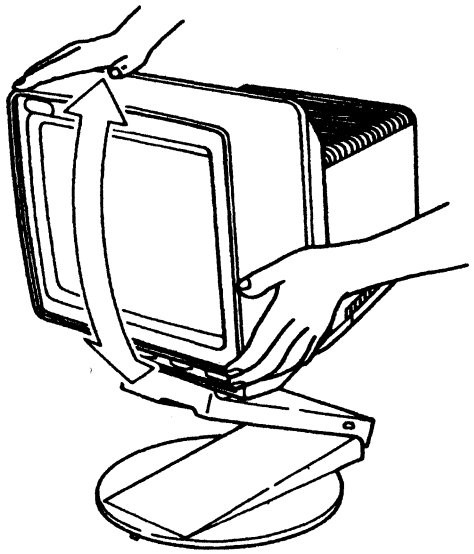
9

CAUTION

When you adjust the height of the display element, be careful not to pinch your fingers.

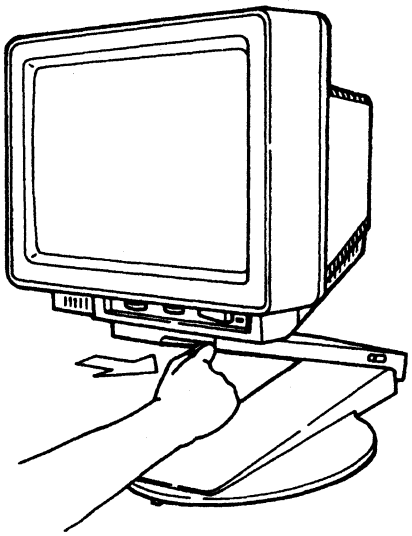


Adjust the height and viewing angle of the display element.



Adjust Viewing Angle

10 Lock the lock-lever of the lift-stand.



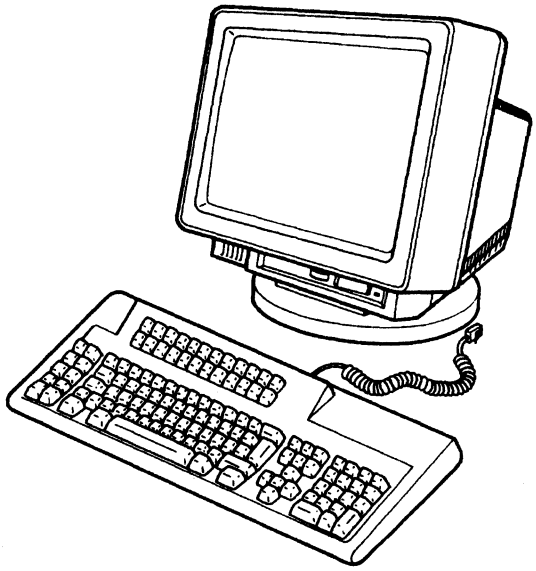
Lock Lever Locked

Connect Keyboard Cable

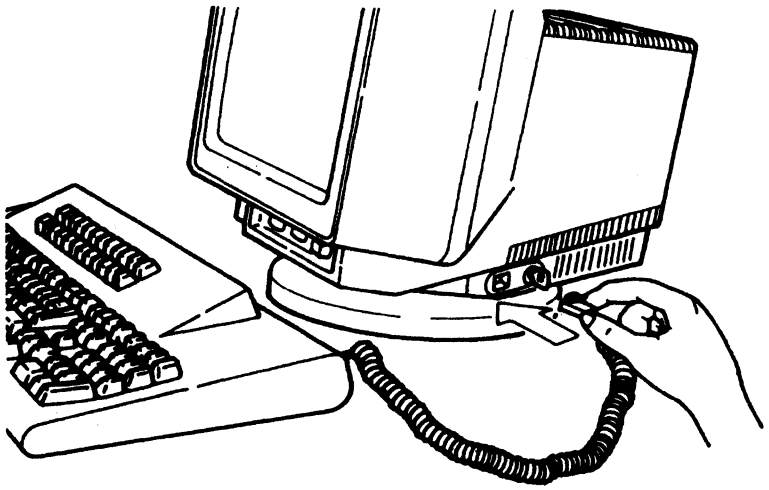
1 Place the keyboard in front of the display element.

Important

If you have a lift-stand attached to the 3477 and want to place a keyboard in front, slide the stand forward or backward by holding the bottom of the display element with two hands.

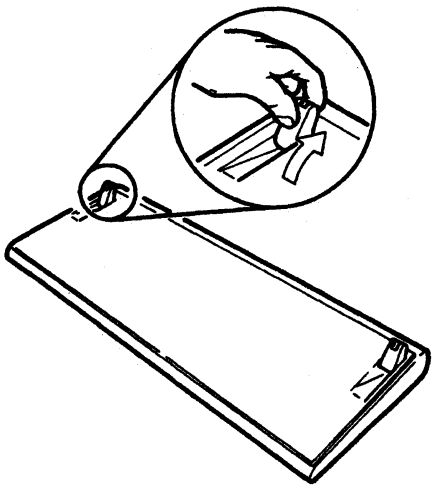


2 Insert the keyboard cable into the logic element.

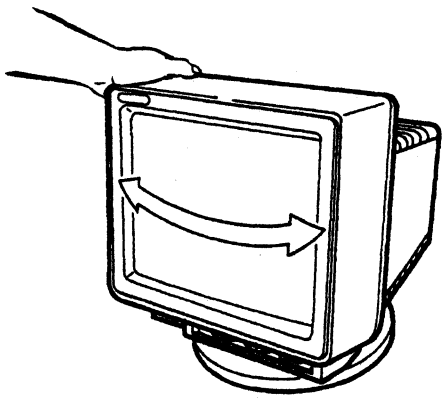


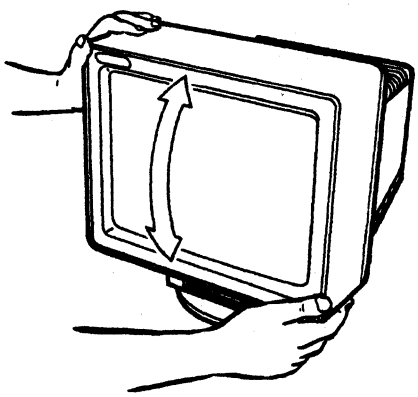
Personalize Display Station

1 Turn the keyboard upside down to adjust the keyboard angle.



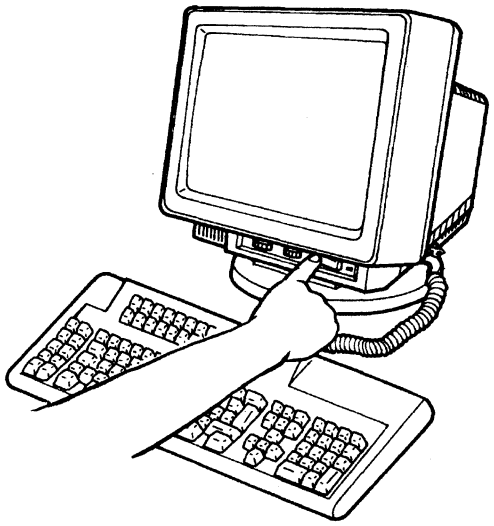
2 Adjust the viewing angle by rotating and tilting the display element.



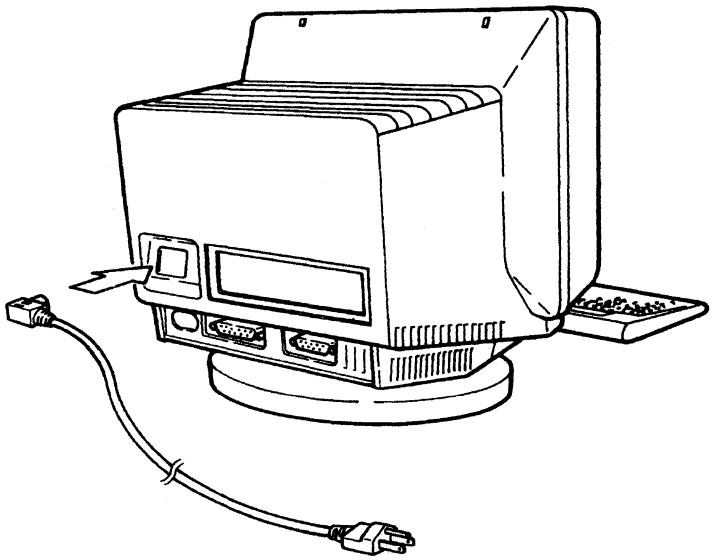


Apply Power to Display Station

1 Make sure the power switch is set to Off (O), or the power button is in the raised position (off position).



2 Insert the power cord into the display element as shown.

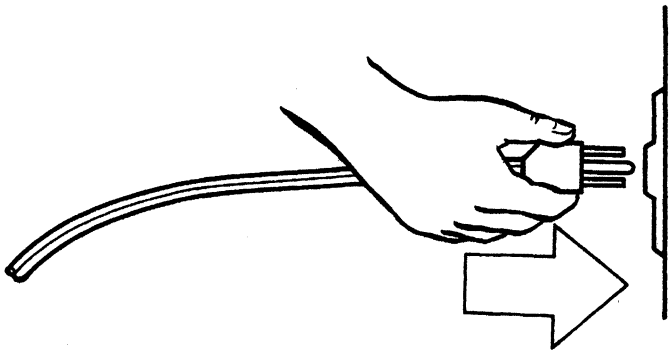


3 **DANGER**

An incorrectly wired outlet or plug can place hazardous voltage on accessible metal parts of this display station. The power cord and plug (when supplied) with your display station have been approved for use with this display station and meet the necessary testing laboratory/test house standards. For your safety, the power cord and plug must be connected to a correctly wired and grounded outlet. The customer is responsible for the outlet and plug wiring.

If it becomes necessary to change the power cord or plug, or if the outlet is incorrectly wired, have the change made by a qualified electrician according to local or national code. A new power cord may be ordered from your IBM marketing representative.

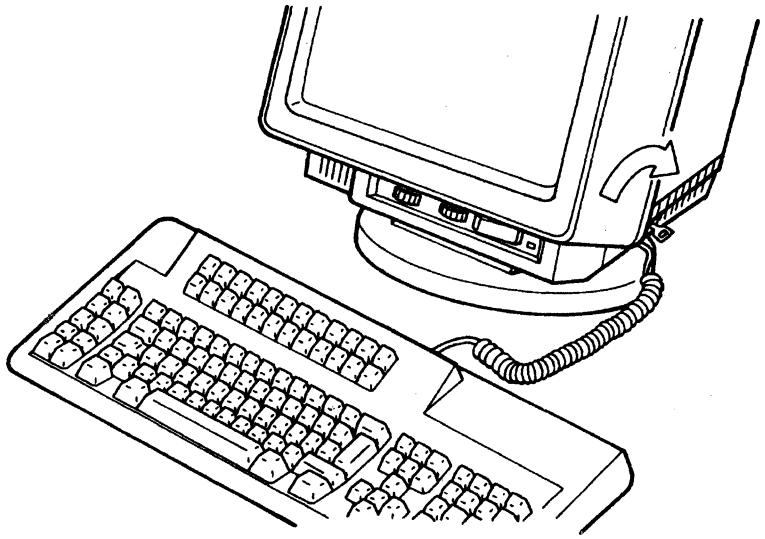
Plug the power cord into an electrical outlet.



Notice for Customers in Chicago, Illinois

Two different lengths of power cords, 1.8 m (5.9 ft) and 2.8 m (9.2 ft), are shipped with the display station. Use the 1.8 m (5.9 ft) length power cord.

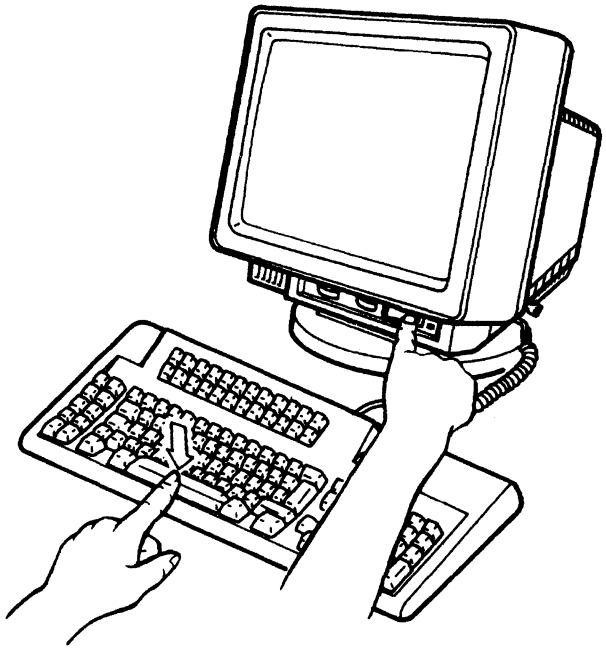
4 Turn the security key clockwise.



Adjust Screen Brightness

1 Press and hold the space bar, and set the power switch to On. The power-on light should come on, and you will hear an audible alarm.

IMPORTANT: Hold the space bar down until the offline setup panel appears.



"Offline Setup" panel appears on the screen.

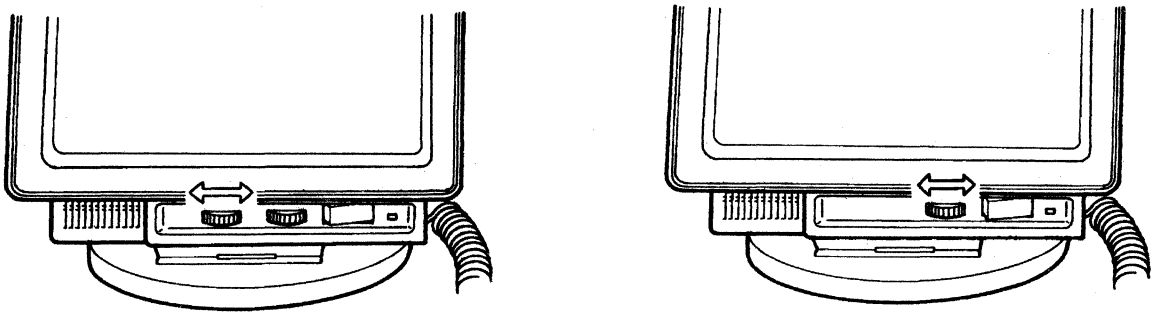
```
                    Offline Setup

Move cursor to desired selection and press ENTER.

   Customize workstation

   Update serial number

   Test workstation
```

Note: A quick power-off and power-on sequence may cause the machine to function incorrectly. If this happens, set the power switch to Off, wait a few seconds, and set it back to On.

If you have any problem in setting up the display station, see Chapter 5, "Problem Solving Guide" on page 5-1.

2 Turn the knob shown below to the right to brighten, or to the left to darken the screen.

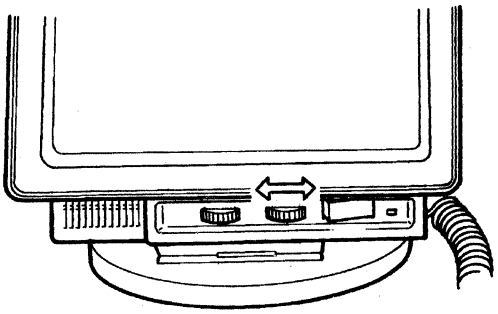
Monochrome Model **Color Model**



Brightness Control Adjustment

3 For color models, go to the next section, "Set Setup Values".

For monochrome models only: turn the contrast control knob to the far right.



Contrast Control Adjustment

Then turn the knob gradually left for contrast. As illustrated below, there is a difference between the first line (highlighted) and the second line (normal).

```
                    Offline Setup

Move cursor to desired selection and press ENTER.
```

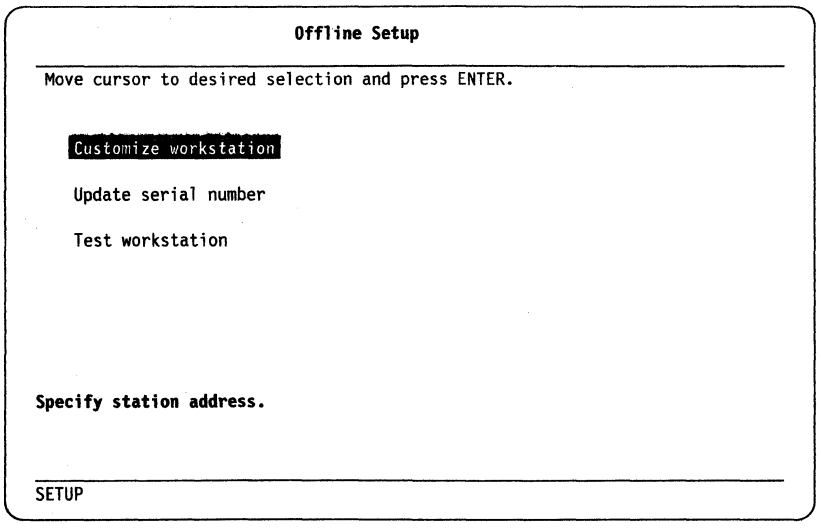
Set Setup Values

1 Determine the setup values/parameters (terminal mode, display addresses, character set, printer address, printer character set, and printer emulation) from the following table. Enter check marks for later reference.

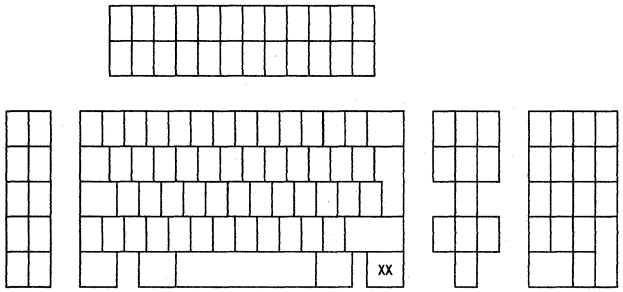
If you cannot determine the values/parameters, contact your system coordinator or supervisor. Also refer to Appendix A, "Display Station Controls and Adjustments" on page A-1 or Appendix B, "Printer Controls and Adjustments" on page B-1.

Terminal mode	☐ One-Display		☐ Two-Display			☐ Display-Printer	
Display address 1	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Display address 2	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Character set	☐ Country specific					☐ Multinational	
Printer address	☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Printer character set	☐ PC		☐ Type A			☐ Multilingual1	
	☐ Multilingual2		☐ Multilingual3			☐ Multilingual4	
Printer emulation	☐ 5256		☐ 4214			☐ 5219	

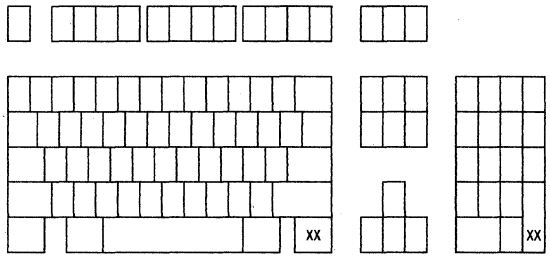
2 Make sure that the "Offline Setup" panel is displayed on the screen. Refer to step 1 on page 1-19 if this panel is not displayed.



3 Press the Enter key (shown in the following keyboard layouts).



122/124-key typewriter keyboard



IBM Enhanced keyboard

The following "Customization" panel will appear on the screen.

```
                          Customization                          More: +
Move cursor to desired choice, then press SPACE BAR to select.

  Terminal mode . . . . . . . One-Display    Two-Display   Display-Printer
  Display address 1 . . . . . 0     1     2     3     4     5     6


  Character set . . . . . . . Country specific        Multinational

  Printer character set . . . PC               Type A          Multilingual1
                              Multilingual2    Multilingual3   Multilingual4



  Specify station address.

SETUP
```

4 Based on the check marks you entered in the table from step 1,

a. If the terminal mode is One-Display, press the Space Bar.

   If the terminal mode is either Two-Display or Display-Printer, move the cursor with the cursor move key (→, ←, ↓, or ↑) to either Two-Display or Display-Printer, and press the Space Bar.

b. The selected terminal mode will be changed to reversed-high-intensified characters for monochrome models or reversed-yellow characters for color models. Go to next step.

5 Find the panel below that matches your screen to determine how many setup value items you need to select.

```
                          Customization                          More: +

Move cursor to desired choice, then press SPACE BAR to select.

  Terminal mode . . . . . One-Display    Two-Display    Display-Printer

  Display address 1 . . . . . 0    1    2    3    4    5    6

  Character set . . . . . Country specific       Multinational

  Printer character set . . . PC              Type A          Multilingual1
                              Multilingual2   Multilingual3   Multilingual4
```

Customization panel for One-Display

```
                          Customization                          More: +

Move cursor to desired choice, then press SPACE BAR to select.

  Terminal mode . . . . . One-Display     Two-Display     Display-Printer

  Display address 1 . . . . . 0    1    2    3    4    5    6

  Display address 2 . . . . . 0    1    2    3    4    5    6

  Character set . . . . . Country specific       Multinational

  Printer character set . . . PC              Type A          Multilingual1
                              Multilingual2   Multilingual3   Multilingual4
```

Customization panel for Two-Display

```
                          Customization                          More: +

Move cursor to desired choice, then press SPACE BAR to select.

   Terminal mode . . . . . One-Display     Two-Display     Display-Printer

   Display address 1 . . . . . 0    1    2    3    4    5    6

   Character set . . . . . Country specific       Multinational

   Printer address . . . . . 0    1    2    3    4    5    6

   Printer character set . . . PC              Type A          Multilingual1
                               Multilingual2   Multilingual3   Multilingual4
   Printer emulation . . . . . 5256            4214           5219
```

Customization panel for Display-Printer

6 Select the appropriate addresses with the cursor move keys and press the Space Bar.

- For One-Display, select display address 1,
- For Two-Display, select display address 1 and 2,
- For Display-Printer, select display address 1 and printer address.

Note to the reader

1. After selection of the addresses, the message, "Specify station address" will disappear and "F3 = Save and Exit" appears at the bottom of the screen.
2. Do not press the F3 key until all values/parameters have been set.

```
                          Customization                          More: +

Move cursor to desired choice, then press SPACE BAR to select.

  Terminal mode . . . . . One-Display    Two-Display    Display-Printer

  Display address 1 . . . . . 0    1    2    3    4    5    6
```

Customization panel for One-Display

```
                          Customization                          More: +

Move cursor to desired choice, then press SPACE BAR to select.

  Terminal mode . . . . . One-Display    Two-Display    Display-Printer

  Display address 1 . . . . . 0    1    2    3    4    5    6

  Display address 2 . . . . . 0    1    2    3    4    5    6
```

Customization panel for Two-Display

```
                          Customization                          More: +

Move cursor to desired choice, then press SPACE BAR to select.

   Terminal mode . . . . . One-Display    Two-Display    Display-Printer

   Display address 1 . . . . . 0    1    2    3    4    5    6


   Character set . . . . . Country specific      Multinational

   Printer address . . . . . 0    1    2    3    4    5    6
```

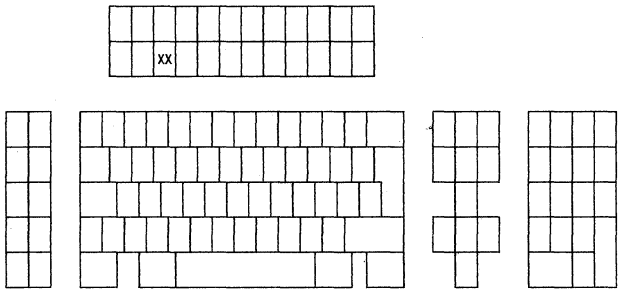
Customization panel for Display-Printer

7 Move the cursor to either "Country specific" or "Multinational" with the cursor move keys and press the Space Bar.

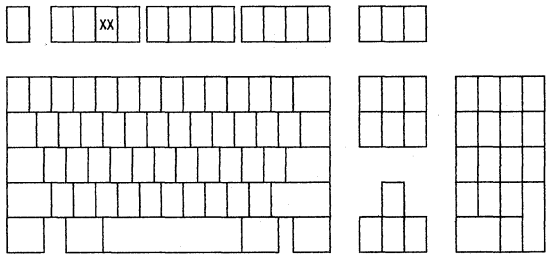
```
Character set . . . . . Country specific        Multinational
```

8 If you attach a printer to the 3477, select setup values for the appropriate printer character set and printer emulation (only for Display-Printer terminal mode). For detailed information about the setup parameters, see Appendix B, "Printer Controls and Adjustments" on page B-1.

9 Press the F3 key (shown in the following keyboard layouts) to exit from "Customization" panel.



122/124-key typewriter keyboard



IBM Enhanced keyboard

10 Press the F3 key again to exit "Offline Setup" panel. The screen becomes blank except the bottom line of the screen.

11 Set the power switch to Off.

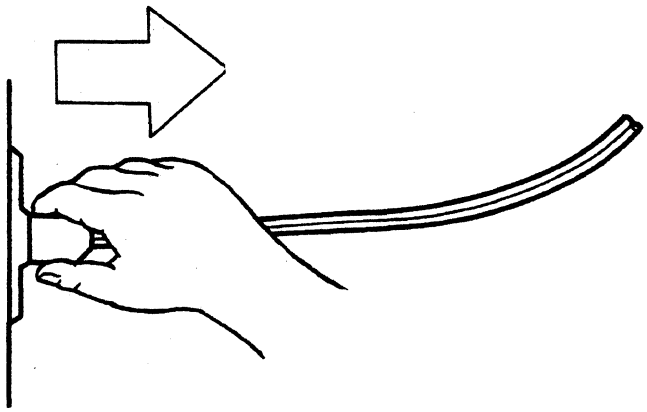
Connect Display Station to Host System

DANGER

> **Do not connect or touch any communication cables during an electrical storm. Communication cables can conduct lethal charge of electricity.**

1 Make sure that the power switch is set to Off.

2 Unplug the power cord from the electrical outlet.

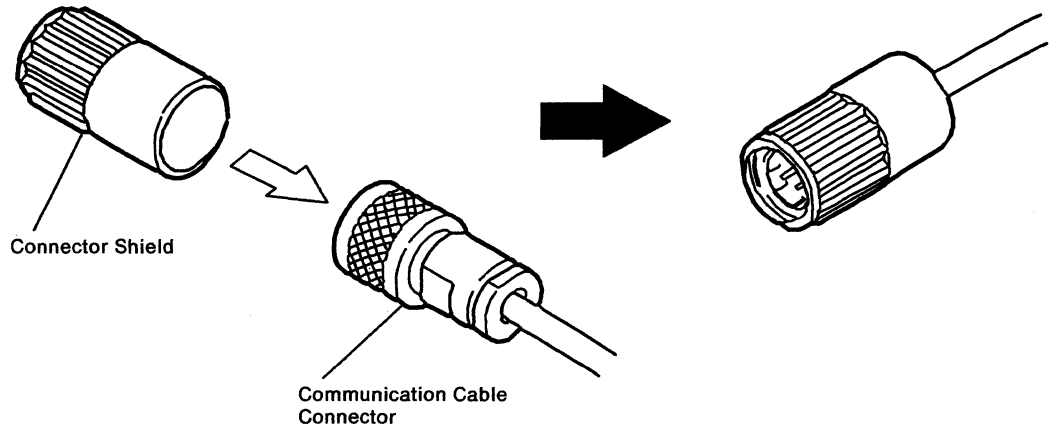


3 Find the communication cable. This may be the cable from the host system, the remote workstation control unit, or the previous workstation.

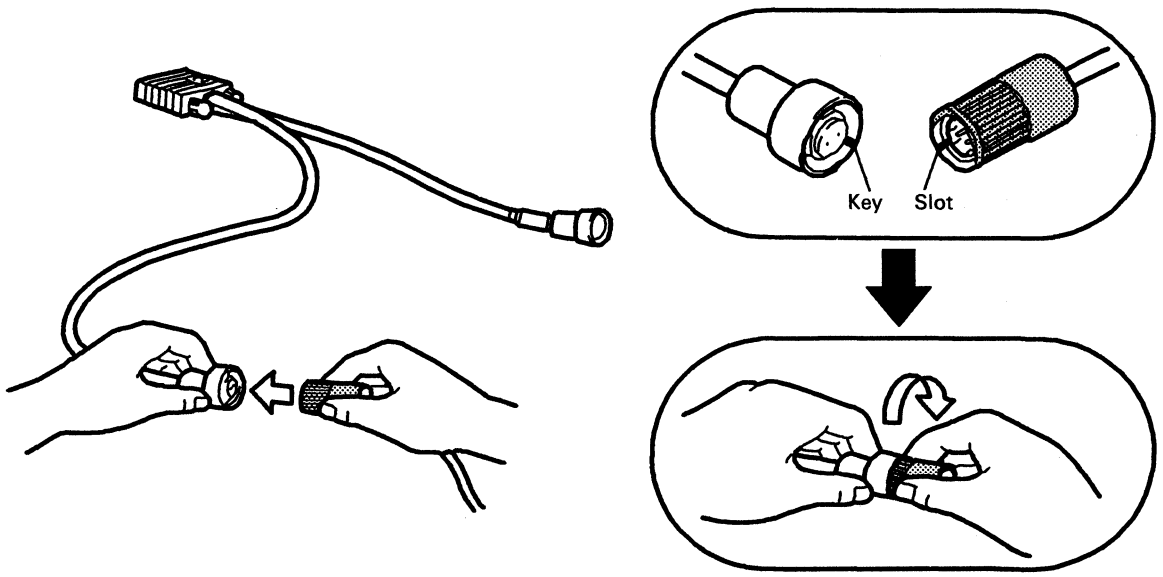
DANGER

> **To avoid the possibility of electrical shock make certain your display station is unplugged from the electrical outlet before making the communication cable connection between your IBM 3477 and the host system, the remote workstation control unit, or the previous workstation (if cable-thru).**

4 Push the connector shield (insulating rubber tube) into the communication cable connector until it goes to the end.



5 Align the widest slot of the communication cable plug with the key in either socket of the auto termination unit. Then push the plug into the socket and turn the retaining ring clockwise until it is tight.



6 Is there a workstation (display station or printer) on the cable immediately before your 3477?

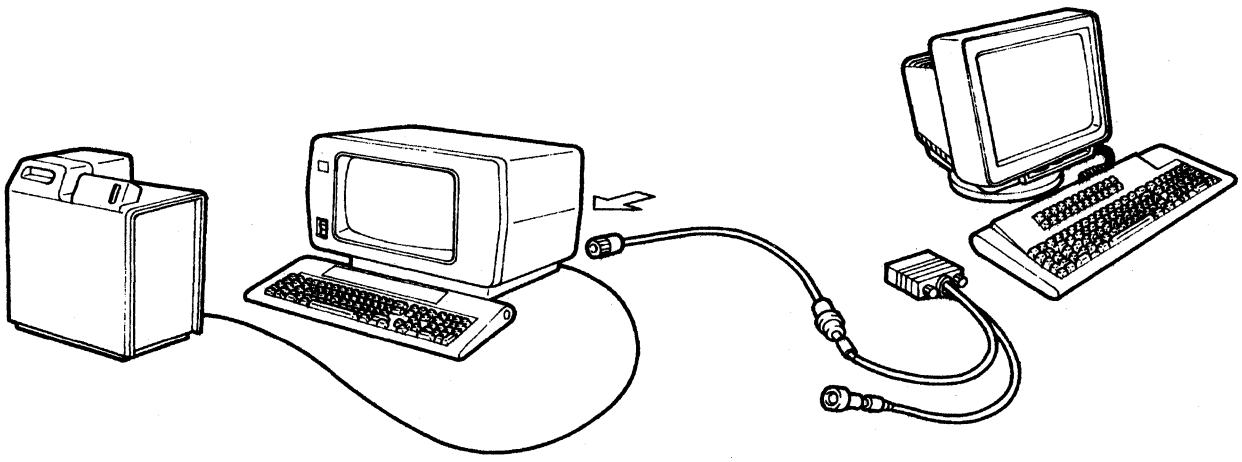
YES: Go to step 7.

NO: Go to step 10 on page 1-29.

7 **DANGER**

> **To avoid the possibility of electrical shock, make certain the IBM 3477 is unplugged from the electrical outlet before making the attachment of the workstation to the display station.**

Connect the communication cable to the unused port on the workstation immediately before your 3477.



8 Does the workstation immediately before yours have a terminator switch? (See "Location of Terminator Switches" on page 1-41 in this chapter for placement help.)

YES: Go to step 9.

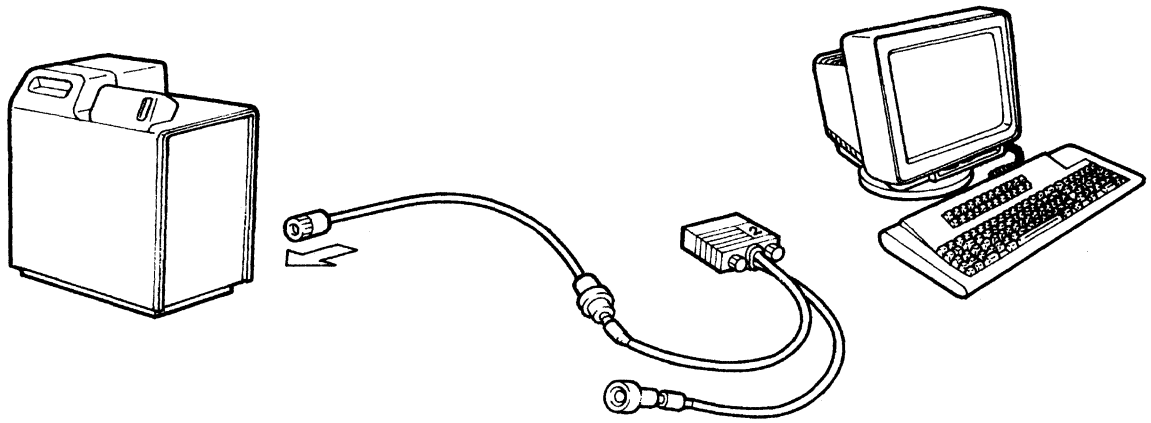
NO: Go to step 11 on page 1-29.

9 Make sure that the terminator switch on the workstation immediately before your 3477 is set to 2. Go to step 11 on page 1-29.

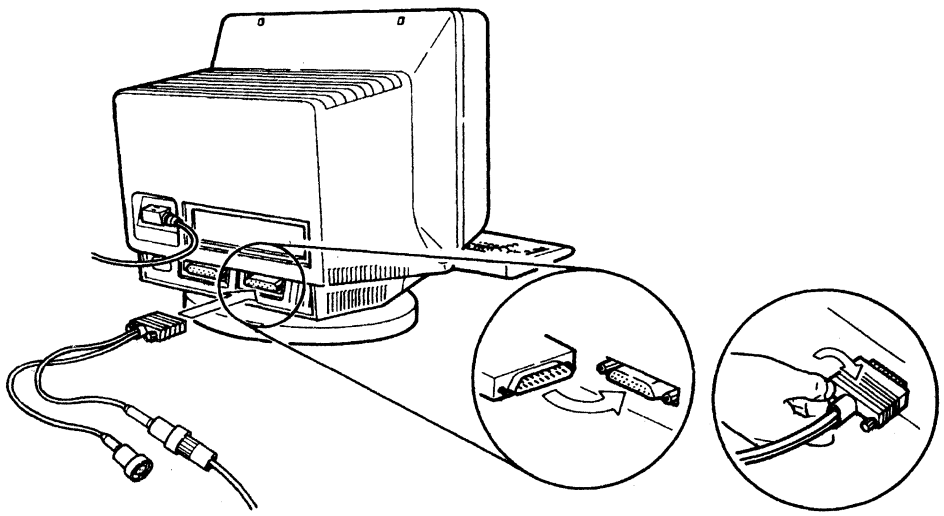
10 **DANGER**

> **To avoid the possibility of electrical shock, make certain the IBM 3477 is unplugged from the electrical outlet before making the attachment of the communication cable to the display station.**

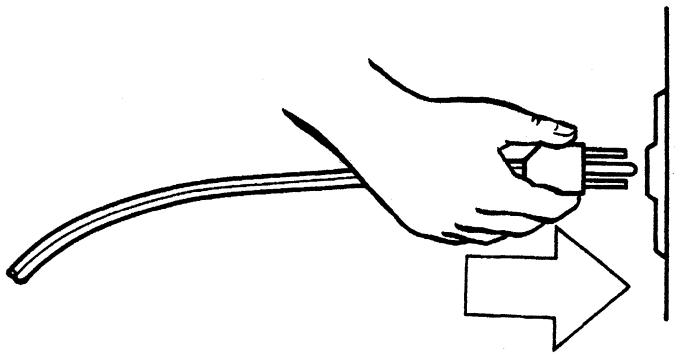
Connect the communication cable to the unused port of the host system or control unit.



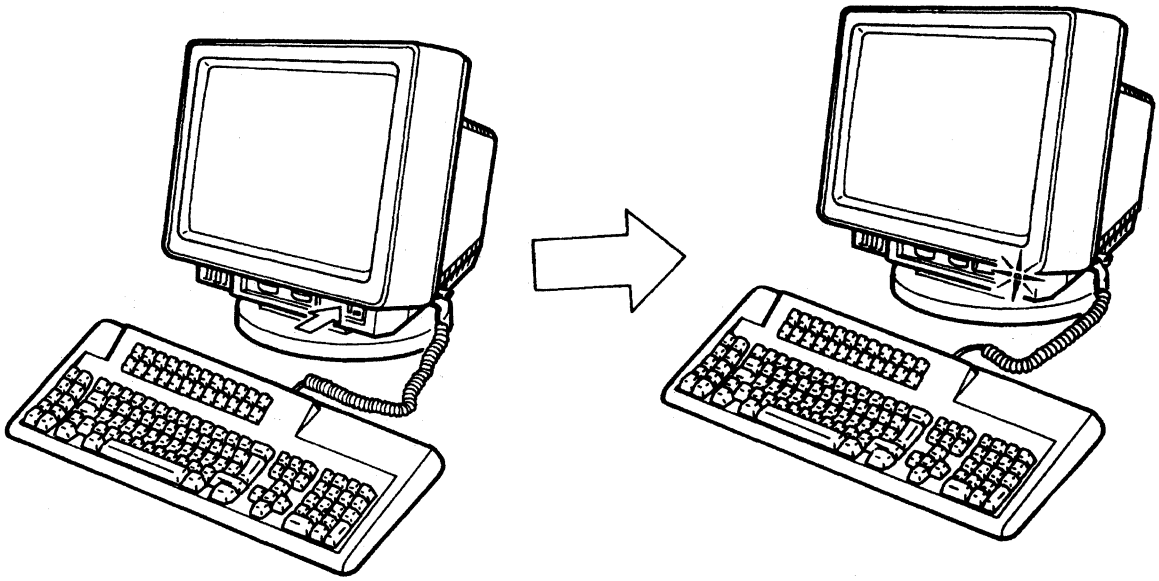
11 Fully insert the plug of the auto termination unit into the the display element socket and tighten the two screws.



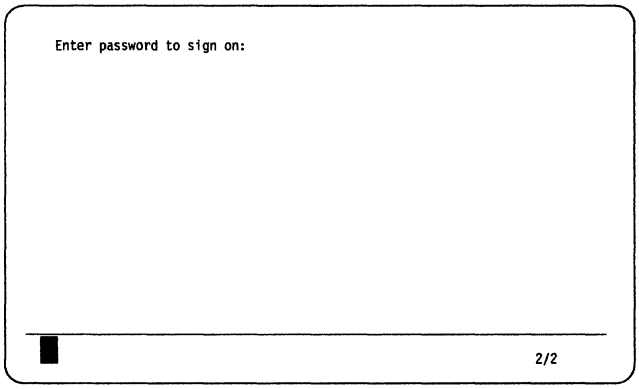
12 Plug the power cord into an electrical outlet.



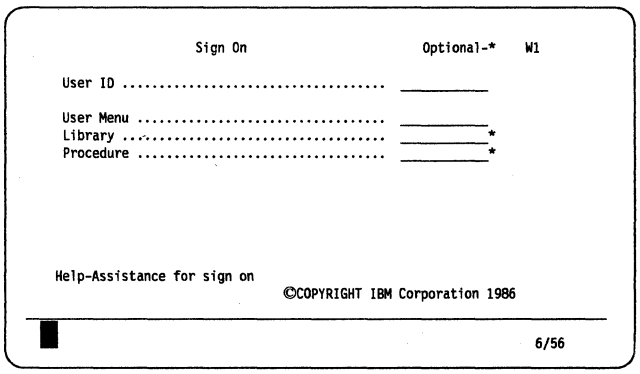
13 Set the power switch to On. The power-on light will turn on and you will hear an audible alarm.



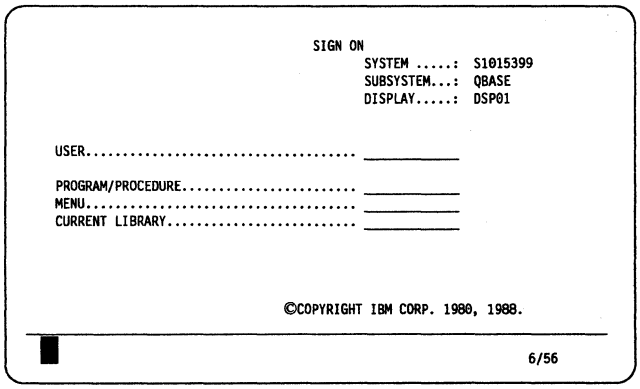
14 Within 30 seconds, does a sign-on display (similar to one of the three shown below) appear?



System/38



System/36



AS/400

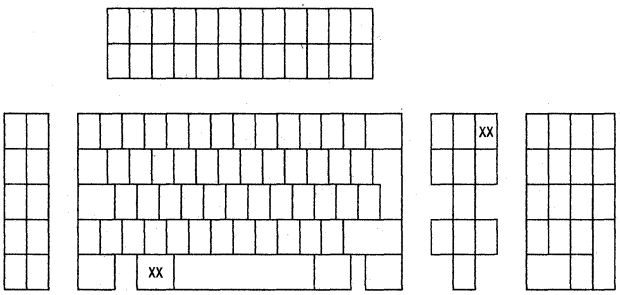
YES: Go to step 15 on page 1-32.

NO: Go to step 19 on page 1-34.

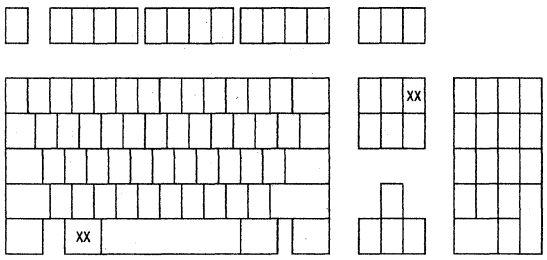
15 Which of the following terminal modes did you select?

- **One-Display Mode** → Go to step 20 on page 1-35.
- **Two-Display Mode** → Go to step 16.
- **Display-Printer Mode** → Go to step 17 on page 1-33.

16 Press and hold the Alt key, and press the Jump key shown below.



122/124-key typewriter keyboard



IBM Enhanced keyboard

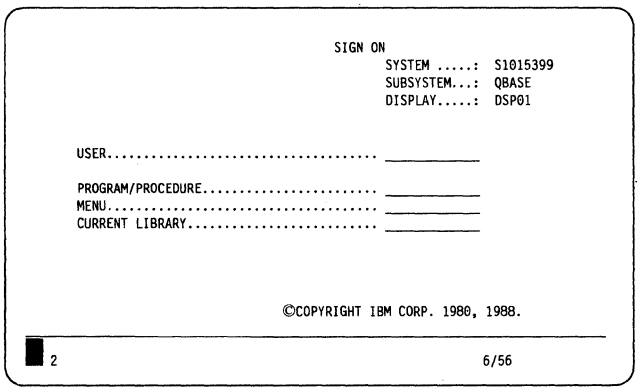
Does a sign-on display (similar to one of the following) appear?

```
Enter password to sign on:

2                                                    2/2
```

System/38

```
                    SIGN ON                    Optional-*   W2

     User ID ..................................  __________

     User Menu ................................  __________
     Library ..................................  __________*
     Procedure ................................  __________*

Help-Assistance for sign on
                          ©COPYRIGHT IBM Corporation 1986

2                                                    6/56
```

System/36

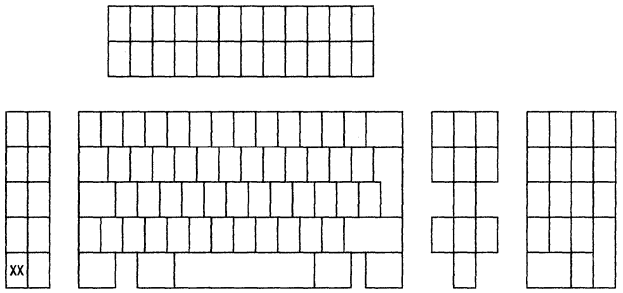


AS/400

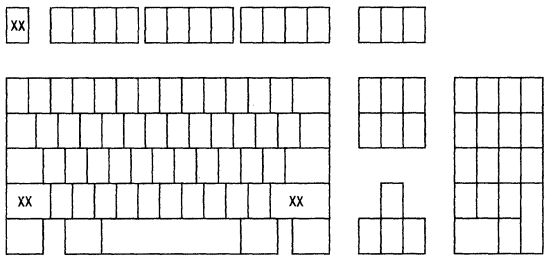
YES: Go to step 20 on page 1-35.

NO: Ask your system coordinator if the system is able to recognize your display station or your display station has an incorrect display address. Go to step 20 on page 1-35.

17 Press the Setup key for the 122-key keyboard (the Setup key with the Shift key on the IBM Enhanced keyboard).

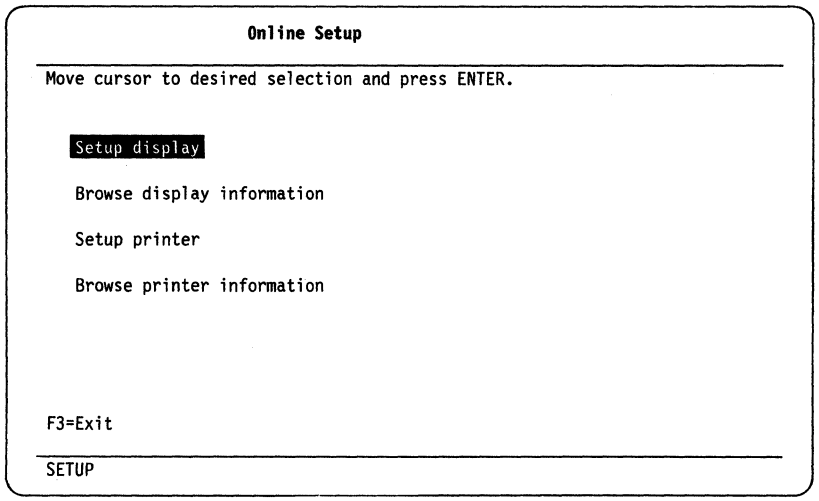


122/124-key typewriter keyboard



IBM Enhanced keyboard

The following Online Setup panel will appear.



18 Move the cursor to "Browse printer information" with the cursor move keys and press the Enter key. The "Printer information" panel will be displayed.

```
System Available. . . . . Yes          No
```

Is the status of the "System available" on the screen "Yes"?

YES: Press the Setup key again and go to step 20 on page 1-35.

NO: Ask your system coordinator if the system is able to recognize your display station or your display station has an incorrect printer address. Go to step 20 on page 1-35.

19 Do the following.

a. Ask your system coordinator to:

- Check that the system is operating and able to recognize your display station.
- Check that your display station has the correct address.

  Note: Your display station may be on a cable with multiple workstations. If so, check that each workstation on your cable has a unique address to avoid double assignment of the station addresses.

b. Set the power switch of your 3477 to Off and unplug the power cord from the electrical outlet. Make sure that the communication cable is connected to the correct socket and is tightly fastened.

c. If there is a workstation on the cable immediately before your 3477 that has a terminator switch, make sure it is set to 2. (See "Location of Terminator Switches" on page 1-41.)

d. Plug the 3477 power cable into the electrical outlet and set the power switch to On.

e. Do the conditions in step 14 on page 1-31 occur now?

YES: Go to step 20.

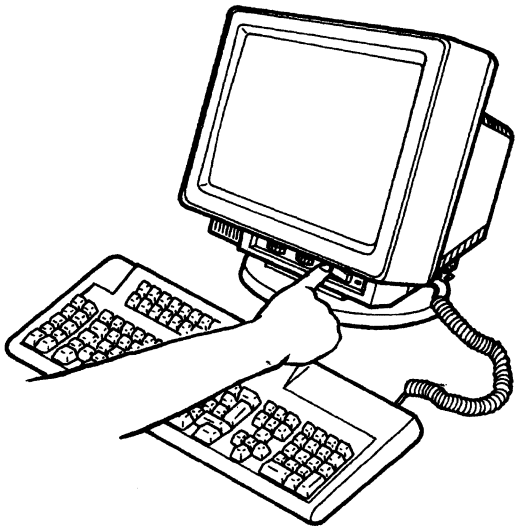
NO: Go to "Logic Element Check Procedure" on page 5-44.

20 Do you have another workstation (display station or printer) to connect to the second cable of the auto termination unit.

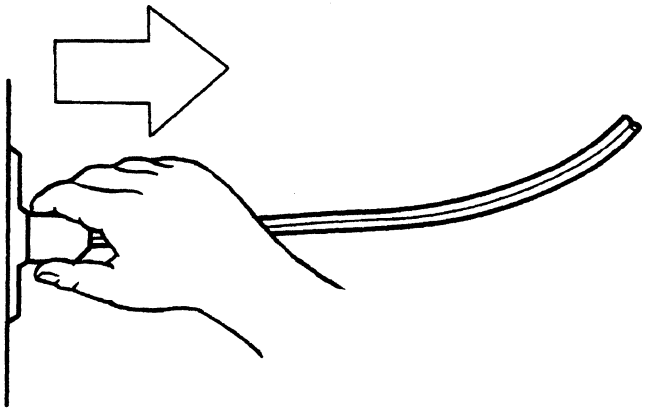
YES: Go to step 21.

NO: Go to step 1 on page 1-38.

21 Make sure the 3477 power switch is set to Off.



22 Unplug the power cord from the electrical outlet.



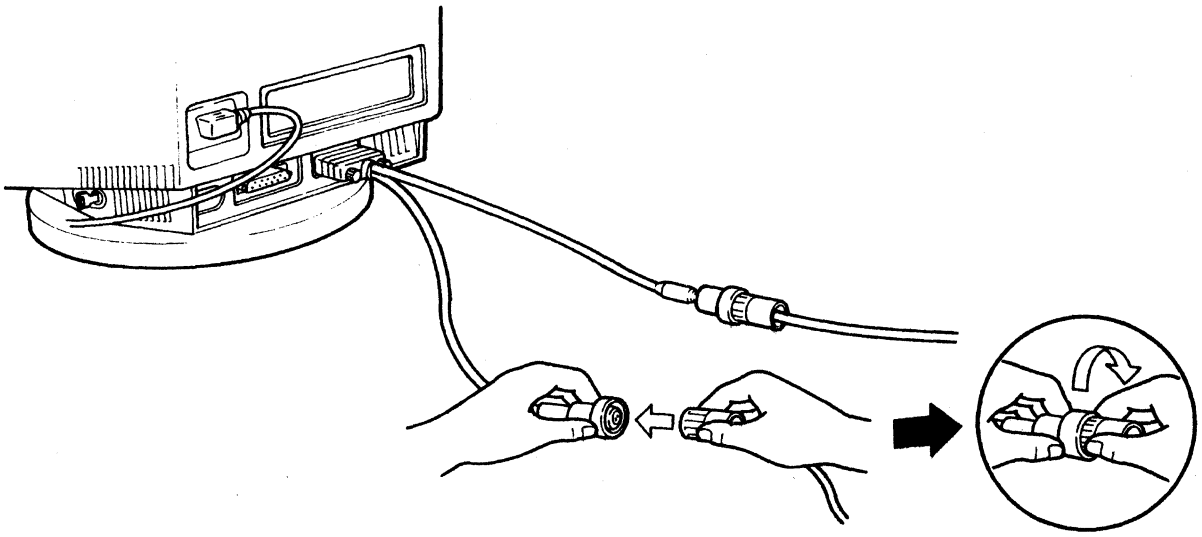
DANGER

To avoid the possibility of electrical shock, make certain the display station and the attaching printer are both unplugged from the electrical outlet before attaching the printer to the display station.

23 Push the communication cable connector into the connector shield (insulating rubber tube) until it goes to the end (see step 3 on page 1-27).

24 Connect the second cable to the unused port of the auto termination unit. The other end of this communication cable will be connected to the next workstation.

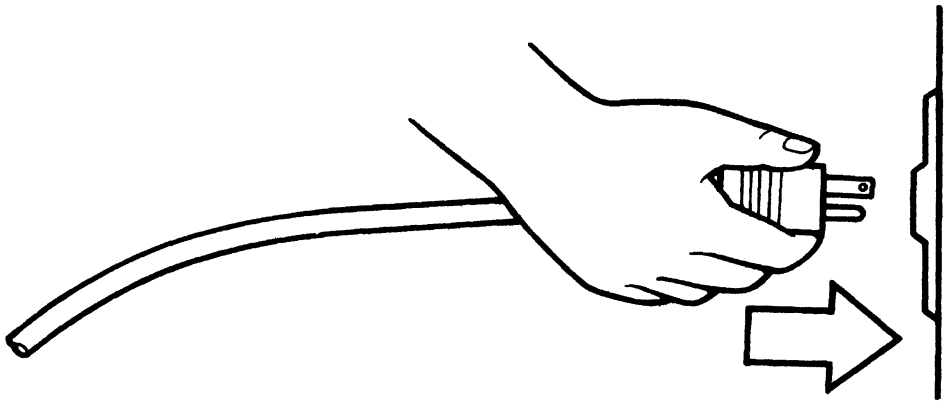
If you have a printer to attach, go to step 1 on page 1-38.



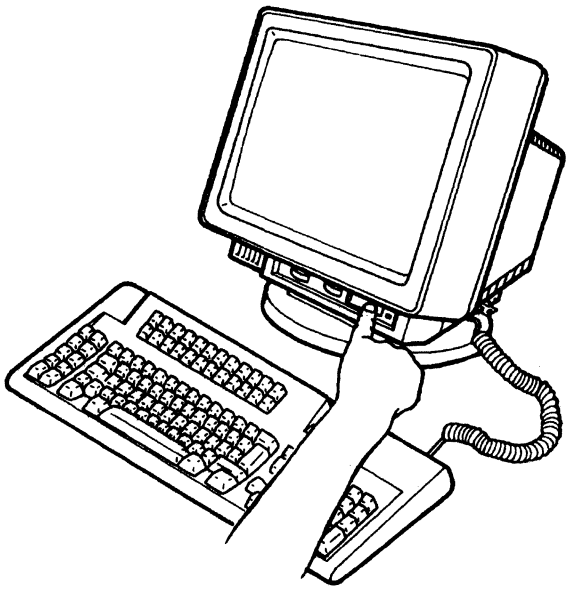
WARNING

When a second communication cable is connected to the auto termination unit, your 3477 is not terminated. Do not connect the second communication cable to the auto termination unit unless the other end of the cable is connected to another workstation.

25 Plug the 3477 power cord into an electrical outlet.



26 Set the 3477 power switch to On.



SETUP OF YOUR DISPLAY STATION IS NOW COMPLETE.

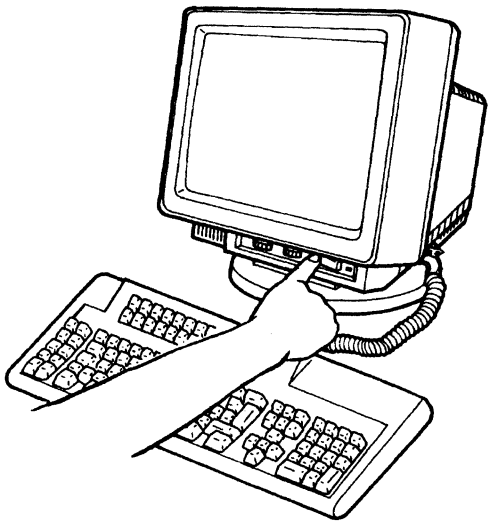
Note to the reader

If you have a printer to attach to your 3477, go to "Connect Printer" on page 1-38.

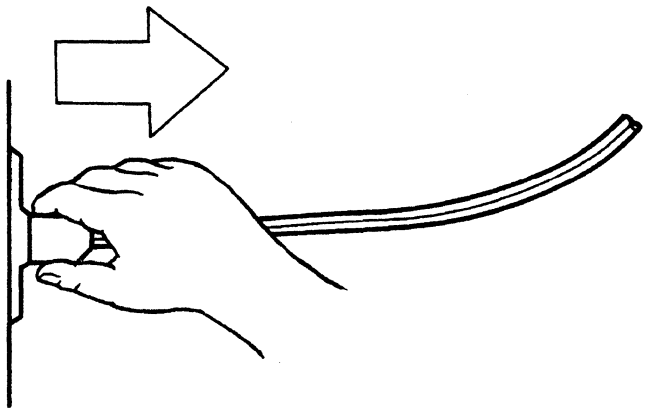
Connect Printer

Note: For setup and operation of your printer, refer to the printer instruction manual.

1 Make sure the display station and printer power switches are set to Off.



2 Unplug the display station and printer power cords from the electrical outlet.

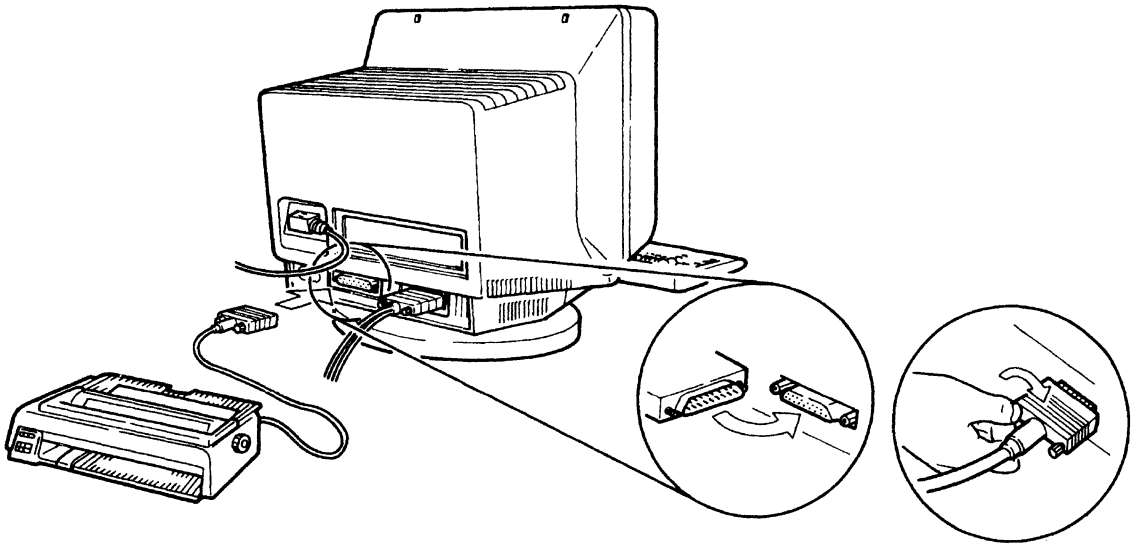


DANGER

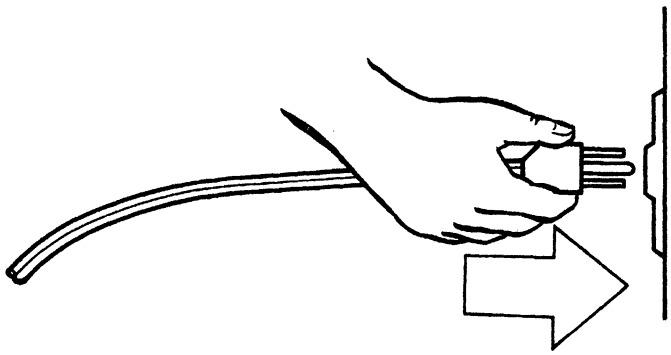
> **To avoid the possibility of electrical shock, make certain the display station and the attaching printer are both unplugged from the electrical outlet before attaching the printer to the display station.**

3 Insert the printer cable into the logic element, and tighten the screws. When inserting, check that both connectors match correctly.

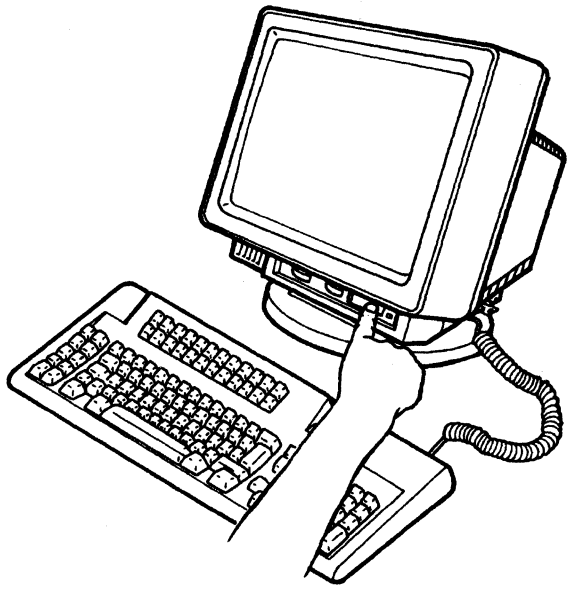
Note: Use the IBM PC parallel interface cable for the printer cable.



4 Plug the display station and printer power cords into an electrical outlet.



5 Set the display station and printer power switches to On.



YOUR PRINTER SETUP IS NOW COMPLETE.

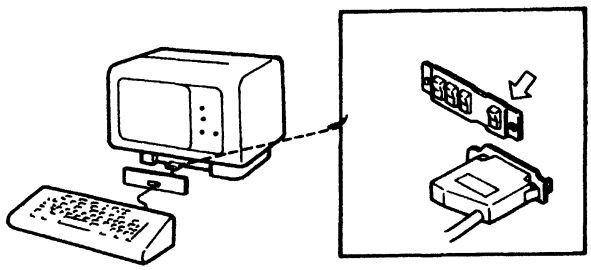
Note: To use the printer, you need to define your printer in the setup panel. Refer to Appendix B, "Printer Controls and Adjustments" on page B-1. You can also define various display station characteristics using the setup panels. Refer to Appendix A, "Display Station Controls and Adjustments" on page A-1.

Location of Terminator Switches

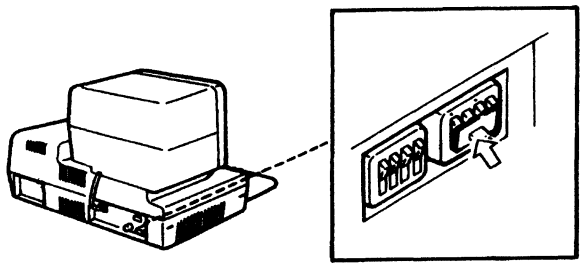
The following figures show the location of the terminator switch on the display stations. This section references to step 8 of "Connect Display Station to Host System" on page 1-26.

Note: Some display stations do not have a terminator switch.

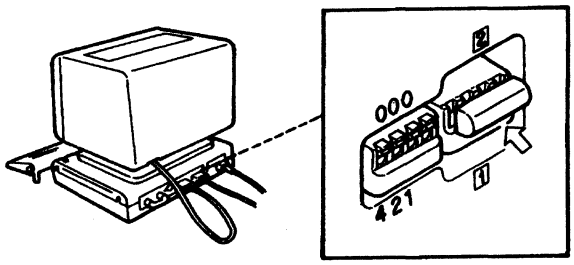
IBM 5251 (Models 1 and 11)



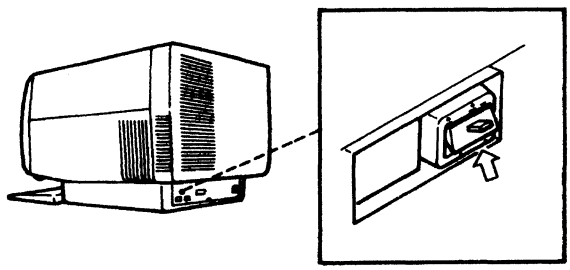
IBM 5291 (Model 1)



IBM 5291 (Model 2)

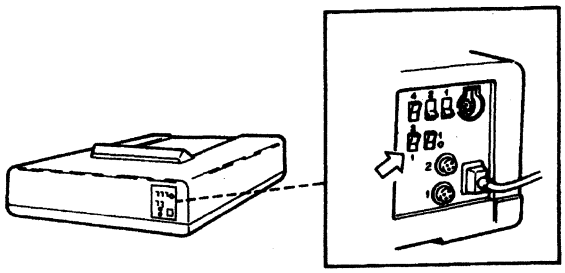


IBM 5292 (Models 1 and 2)

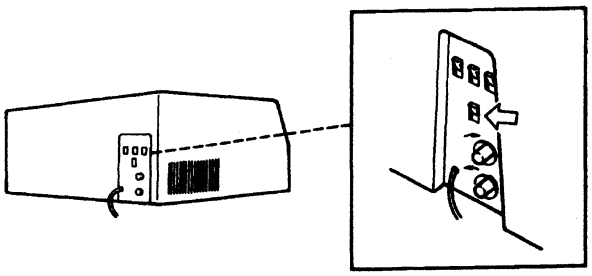


The following figures show the location of the terminator switch on the printers.

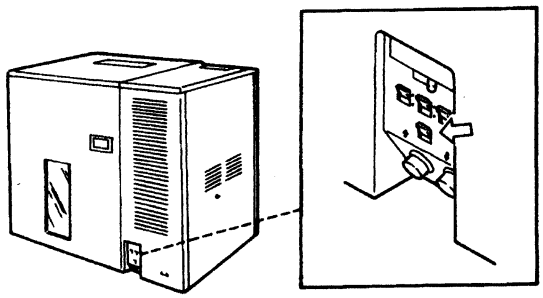
IBM 5219



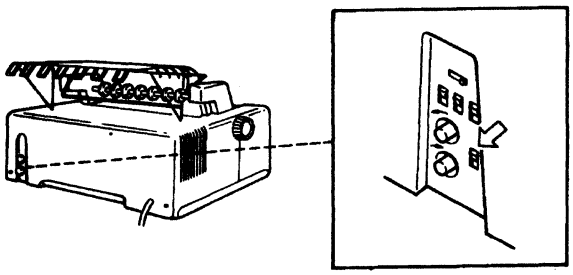
IBM 5224



IBM 5225



IBM 5256



Chapter 2. Operations

This chapter describes control and adjustments of the 3477 and also introduces various functions available for the 3477.

The display station can attach any of the following two keyboard elements.

- **122/124-key typewriter keyboard** (124-key for Japanese Katakana and 122-key for the U.S. English and other national languages)
- **IBM Enhanced keyboard** (102-key for the U.S. English, 103-key for the languages other than the U.S. English., 104-key for Japanese Katakana)

Your display station can attach to any of the following IBM PC printers. It can also be used as a system controlled printer or a local screen printer, depending on the terminal mode (one-display, two-display, or display-printer terminal mode).

- IBM Proprinter™ I (IBM 4201 Model 1)
- IBM Proprinter II (IBM 4201 Model 2)
- IBM Proprinter III (IBM 4201 Model 3)
- IBM Proprinter XL (IBM 4202 Model 1)
- IBM Proprinter II XL (IBM 4202 Model 2)
- IBM Proprinter III XL (IBM 4202 Model 3)
- IBM Proprinter X24E (IBM 4207 Model 2)
- IBM Proprinter XL24E (IBM 4208 Model 2)
- IBM Quietwriter® Printer (IBM 5201 Models 1 and 2)
- IBM Quietwriter Printer III (IBM 5202)
- IBM Quickwriter® Printer (IBM 5204)
- IBM Personal Pageprinter (IBM 4216 Model 10)

For the printing operations, see the section, "Print Operations" in this chapter.

If you encounter operation problems, refer to Chapter 5, "Problem Solving Guide" on page 5-1.

---

[1] Proprinter is a trademark of the International Business Machines Corporation.

[2] Quietwriter and Quickwriter are registered trademarks of the International Business Machines Corporation.

Powering-On

The following steps show how to start the 3477 operation.

1. Turn the security key **1** clockwise to unlock the keyboard.

   The security lock prevents the entry, changing, or viewing of the display station's data.
2. Set the power switch **2** to On (I) or the power button to flat position.

   This switch applies power to the display station, and the Power-on light **3** illuminates.

   When you turn on the display station, function tests are run. If any problems are detected, an error code appears on the operating status line (bottom line of the screen) or an alarm sounds.

Note: A quick power off/on sequence may cause problems with the display station. After powering off, wait a few seconds before powering on again.

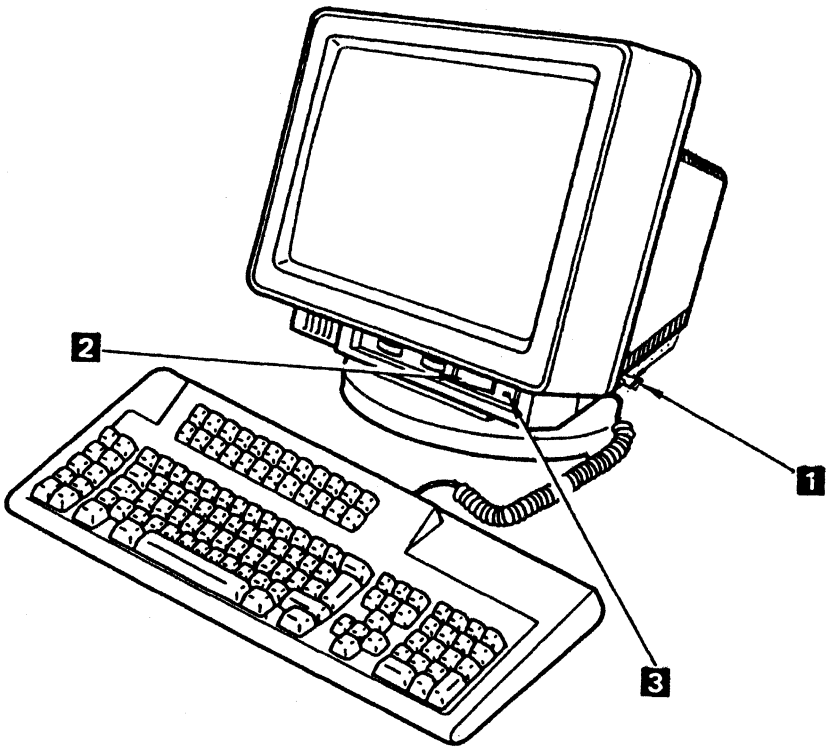


Figure 2-1. IBM InfoWindow 3477

Personalizing Display Station

This section describes how to adjust the brightness and contrast of the screen, display viewing angle, and keyboard slope.

Screen Brightness

This control knob adjusts the character brightness on the screen. The characters become brighter as you turn this knob to the right.

Monochrome Model **Color Model**

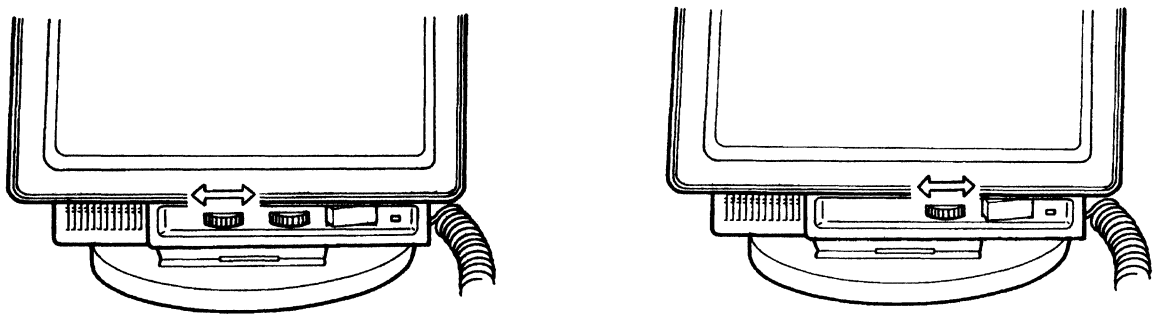


Figure 2-2. Brightness Control

Screen Contrast

This control knob adjusts the contrast between the intensified characters or fields and the normal ones on monochrome display stations.

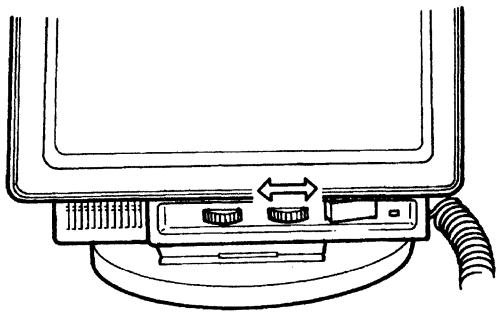


Figure 2-3. Contrast Control

Display Viewing Angle

You can adjust the viewing angle by rotating and tilting the display element.

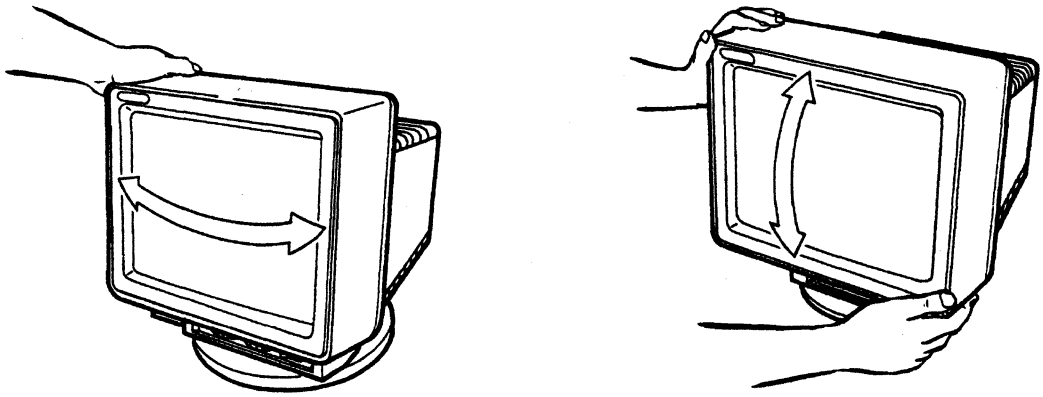
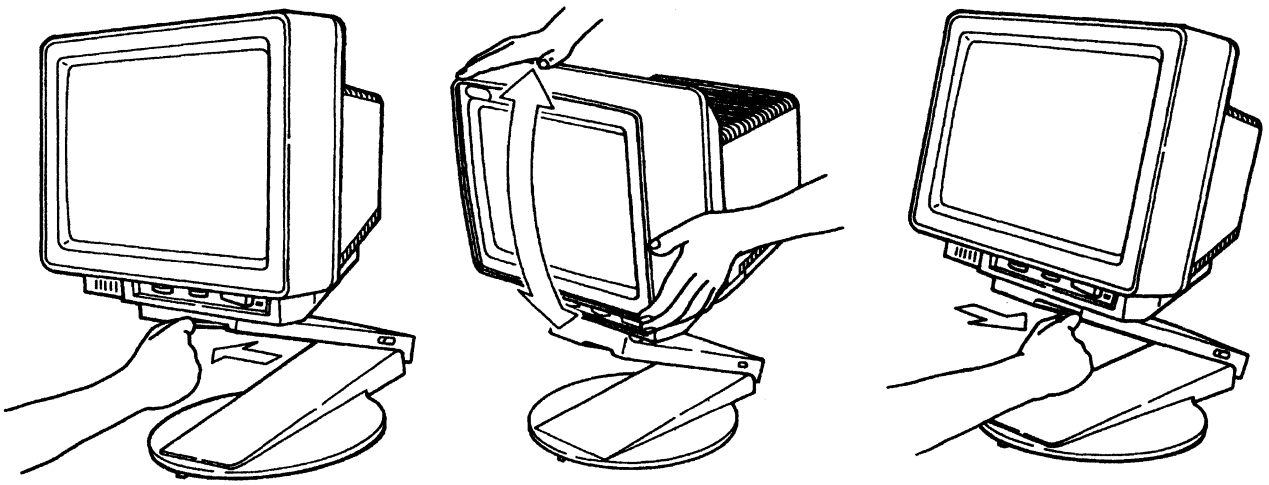


Figure 2-4. Viewing Angle Adjustment

If the lift-stand is attached, the display element can be lifted up or down.

Release lock-lever **Adjust viewing angle** **Lock lock-lever**



CAUTION

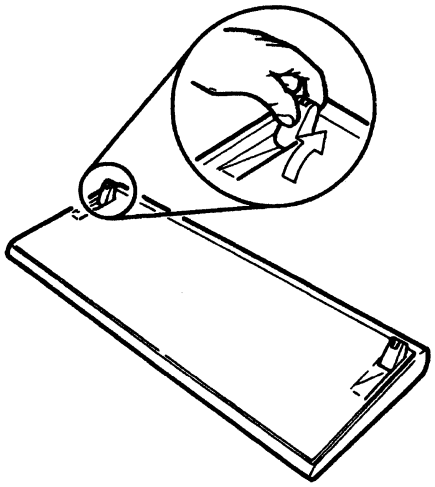
When you adjust the height of the display element, be careful not to pinch your fingers.

Keyboard Slope Adjustment

You can adjust the keyboard slope by:

1. Lifting the back of the keyboard.
2. Pulling out the leg edges from the keyboard.
3. Pushing out the legs to lock them in place.

When you flip both legs up from the underside of the keyboard, the keyboard sits flat.



What the 3477 Can Do

The 3477 is a display workstation consisting of three elements: display, logic and the keyboard. It can be attached locally to the AS/400, System/36, or System/38 by a twinaxial cable, the IBM Cabling System, or telephone twisted-pair cabling. The 3477 can also be connected to the IBM 5294/5394 Remote Control Units for remote usage via telecommunication lines. The 3477 can also be attached to the 5259 Migration Data Link.

The 3477 comes in three models: 14 inch monochrome, 14 inch color, and 15 inch monochrome. There are three types of display formats: 24 lines x 80 characters (1920 characters), 27 lines x 132 characters (3564 characters), and 42 lines x 80 characters (3360 characters for split screen format).

Either of the following two keyboards can be attached to the 3477:

- 122/124-key typewriter keyboard
- IBM Enhanced keyboard.

Operational Modes

The 3477 operates in six: communication, setup, setup printer, record, play, and test mode.

Communication Mode

In this mode, the 3477 can communicate with a host system.

Setup Modes

The 3477 has two setup sub-modes: offline and online. From the screen panels, the 3477 can be customized by selecting setup values/parameters that best suit your operation.

In offline setup mode, the following parameters can be selected through the "Customization" or "Serial Number" panel.

- Terminal mode
- Display address 1
- Display address 2
- Character Set
- Printer address
- Printer character set
- Printer emulation
- Keyboard type and keyboard ID
- Serial number.

In online setup mode, the following functions can be selected through the "Setup Display" panels.

- Alarm Volume
- Clicker Action
- Clicker Volume
- Cursor Style
- Cursor Blink
- Row/column indicator
- Rule line:

- Style
- Intensified or Color
- Follow cursor

- Auto dim and delay time
- Extended display
- Reverse image (black-on-white only)

For a detailed description on customization setup values/parameters, refer to Appendix A, "Display Station Controls and Adjustments" on page A-1.

Setup Printer Mode

If a printer is attached to the 3477, the user can define the setup values/parameters through the "Setup Printer" panels.

With the "Setup Printer" panels, the following functions can be selected.

- Lines pitch (lines per inch)
- Character pitch (characters per inch)
- Print quality (printed character quality)
- Character width (standard or double width)
- Character height (standard or double height)
- Print key (define characteristics of the Print key)
- Trim border (treatment of a trimming frame)
- Type style, System code page, and Attention(for 5219 emulation only)
- Paper feed, Form, and Source drawer (for 5219 emulation only)

For a detailed description about setup values/parameters for the "Setup Printer" panels, refer to Appendix B, "Printer Controls and Adjustments" on page B-1.

Record Mode

Pressing the Record key in communication mode causes the display station to enter record mode. Data which is required on a regular basis can be recorded in any of the 24 Function (F) keys. The maximum keystrokes that can be recorded are 1500. Refer to "Recording and Playing Keystrokes" on page 2-17.

Play Mode

After the data is recorded, it can be retrieved in communication mode and displayed by pressing the Play key and then the assigned F key. Refer to "Recording and Playing Keystrokes" on page 2-17.

Test Mode

There are two test sub-modes: basic assurance and offline. When the 3477 power switch is turned on, it automatically enters the basic assurance test mode. The self diagnostic programs test the hardware functions. In offline test mode, additional tests can be selected and run. Refer to Chapter 5, "Problem Solving Guide" on page 5-1.

Field Attributes

Field attributes determine how the data will be displayed. The attribute is specified by the bit settings found at the beginning of the field. If extended display is enabled from the "Online Setup" panel, the current assignment is displayed in hexadecimal at the attribute position.

Cursors

Two types of cursors are available: normal and shadow.

Normal Cursor

The normal cursor indicates the position where the next character entered will be placed.

Two styles of cursors are available: underline and block. The operator can select the style of cursor during online setup. From the same "Online Setup" panel or from the host system, the cursor can be made to blink; thereby making it easier to find the cursor.

Shadow Cursor

The shadow cursor (a block type cursor) is a secondary cursor. It moves horizontally on a parallel line with the normal cursor. This allows the operator to easily determine the column location of the normal cursor.

The shadow cursor is set on or off by request of the host system.

The line on which the shadow cursor moves is specified by the host system. The line can be in the data area or the message line.

Rule Line

The rule line is used to determine the cursor position relative to other characters displayed on the screen. The user can select one of three rule lines: horizontal (-), vertical (|), or cross (+) through the "Setup Display" panels.

The indication of the rule line can also be specified as follows:

- Color of the rule line (for color models): white or green
- Highlight of the rule line (for monochrome models): high intensity or normal
- Follow cursor (a rule line to be moved with a cursor): yes or no

The rule line can be displayed or not by pressing the Rule key.

Row/column Indicator

The row/column indicator in the operating-status line shows the number at which the cursor is currently located.

The user can set the row/column indicator on or off during online setup.

Character Set

The 3477 supports two character sets: Country specific and Multinational. Either character set can be specified during offline setup.

Country Specific Character Set

When the "country specific character set" is specified, the code pages and the graphic character sets can be used according to the attached keyboard language.

- Arabic
- Austrian/German/Swiss German — CECP
- Belgian — CECP
- Canadian French
- Cyrillic
- Danish/Norwegian — CECP

- Finnish/Swedish — CECP
- French (AZERTY)/Swiss French — CECP
- Greek
- Hebrew
- Icelandic — CECP
- Italian — CECP
- Japanese Katakana
- Latin 2
- Spanish/Latin American Spanish — CECP
- Turkish
- U.K. English — CECP
- U.S. English/Netherlands/Portuguese — CECP
- Yugoslav.

Multinational Character Set

When the "Multinational character set" is specified, the common international character set can be used.

Extended Display

When the extended display function is enabled, the field attributes are in hexadecimal format. The display positions that contain code points of neither characters nor field attributes are displayed as small dots.

The controller and keyboard link parity error counts are also displayed on the operating-status line.

The extended display function is enabled or disabled during online setup.

Auto Display Dim

The auto display dim function blanks the data area and the message line if the predefined interval of time expires without any key operation.

When auto dim is on, the symbol (☒) is displayed on the operating-status line. The other symbols on the operating-status line are not affected by the auto display dim function.

The operator can set the auto dim function on or off during online setup. The dim interval can be set for 5, 10, or 20 minutes.

The blanked screen is restored when the host communication is resumed or a key is pressed.

Security Key lock

A security key lock is provided to prevent unauthorized use of the display station. When locked, the screen is blanked, an ✘ followed by the key symbol appears on the status line and the keyboard is disabled.

Audible Alarm

The audible alarm is used to attract the operator's attention.

The alarm volume can be adjusted during online setup to one of six sound levels: Off, 1, 2, 3, 4, or High.

Clicker

The clicker sound notifies the operator that the keystroke is accepted.

During online setup, the operator can set the clicker on or off. When the operator selects "Yes" (for on), the clicker sounds each time a key is pressed and the key entry data is accepted. If the data is not accepted, there will be no audible feedback. When "No" (for off) is selected, the operation will be just the opposite of "Yes".

The operator can also set the clicker volume during online setup to one of six levels: Off, 1, 2, 3, 4, or High.

Reverse Image

Monochrome models displays dark characters on light background or light characters on dark background.

The reverse image function varies according to the models.

Green and Amber-gold models: The host system can reverse the screen image by sending a request to the 3477. The 3477 user cannot directly use this function.

Black-on-white model: The 3477 user can reverse the screen image any time through online setup panels. The host system cannot reverse the screen image by sending a request.

Languages on Setup Panels

The 3477 characteristics can be selected during the setup functions. The setup operation is performed by selecting panels. The panels display one of five languages, as shown in the following table, and correspond to the the attached keyboard language.

Keyboard language	Language used on the setup menus
Arabic Belgian Cyrillic Danish Finnish/Swedish Greek Hebrew Icelandic Japanese Katakana Latin 2 Netherlands Norwegian Portuguese Turkish U.K. English U.S. English Yugoslav	English
Canadian French French (AZERTY) Swiss French	French
Austrian/German Swiss German	German
Italian	Italian
Latin American Spanish Spanish	Spanish

Characters in Diacritic Mode

The 3477 can produce characters with special accent symbols. When any accent symbol keys are pressed, the 3477 enters diacritic mode and a ð appears on the operating status line. The cursor does not move, but the corresponding scan code is transmitted to the host system. If the next accent character pressed is valid, the accent character is displayed at the cursor position and the cursor is advanced.

The diacritic mode is a function of the host system application program and not the 3477. Contact your system coordinator or see the system program manual for more information on how to use the diacritic mode.

Dual Addresses Display Station Operation

This function allows simultaneous usage of two independent logical display stations. The workstation controller, or the host system, can communicate with the two logical display stations as if two physically separated display stations were attached.

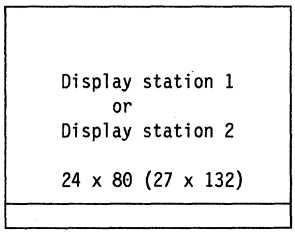
The dual address display function can be used by selecting the "Two-Display" terminal mode in the 3477 customization (refer to Appendix A, "Display Station Controls and Adjustments" on page A-1 for details).

The following sections describe the screen formats for non-split screen and split screen.

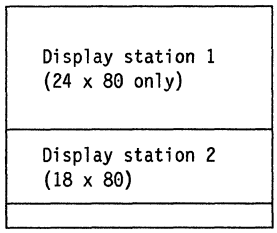
Screen Format

In "Two-Display" terminal mode, one of the following two formats can be selected using the Zoom (⧉↔□) key.

- Non-split screen (either 24 lines x 80 characters or 27 lines x 132 characters defined by the host system)
- Split screen (42 lines x 80 characters).



Non-split screen format



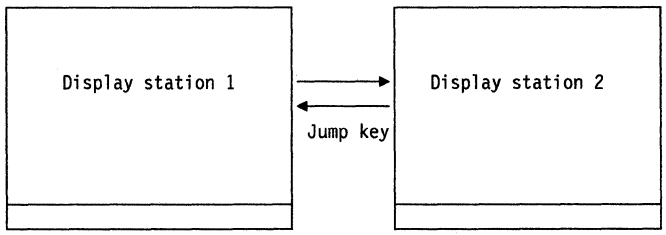
Split screen format

Non-split Screen Operation

When the user selects the "Two-Display" terminal mode, either a 24 x 80 screen or a 27 x 132 screen for the logical display station 1 will be displayed.

If you want to communicate with the host system using the logical display station 2, press the Jump key together with the Alt key. The screen for logical display station 2 replaces logical display station 1.

Pressing the Jump key together with the Alt key changes the screen from display station 1 to display station 2 or from display station 2 to display station 1.



Note: In split screen operation, the user can only use a block cursor for the active screen.

Split Screen Operation

On the split screen, one half is active at a time. The active screen always has the cursor. The user can use the active screen for communications while data on the non-active screen can be referenced.

The user can do the following using the split screen:

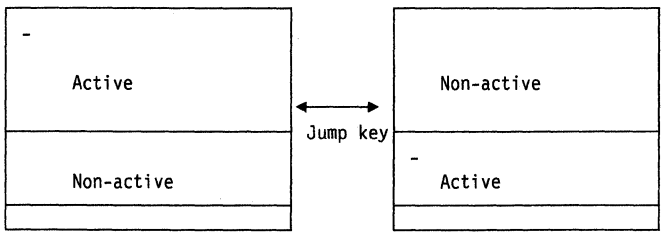
- Changing the active screen
- Scrolling the lower half screen (small screen)
- Changing the screen format.

Changing the Active Screen

As mentioned previously, the active screen displays the cursor. If the user wants to change the active screen from the upper half screen (display station 1) to the lower half screen (display station 2) or from the lower half screen to the upper half screen, press the Jump key. The user can toggle back by pressing the Jump key again.

Notes:

1. In split screen, if the host system specifies the 27 x 132 screen format for the active screen, your display screen automatically changes from split screen to non-split screen and the host specified screen format will be displayed on the screen. In the same condition, if the host system specifies the same screen format for the active screen, the 24 x 80 screen format will be displayed.
2. When either the upper half screen or the lower half screen is active, the host system can establish a session with each split screen (logical display station).



Scrolling the Small Screen

When the cursor is in the upper half screen, scrolling of the lower half screen (small screen) is enabled. If the operator wants to scroll up the small screen, press the Back key. To scroll down, press the Fwd key.

The small screen displays only a part (18 x 80) of the entire screen (24 x 80).

Changing the Screen Format

When the operator wants to change the current screen format from the non-split screen to the split screen, or from the split screen to the non-split screen, press the Zoom (⧉↔□) key.

The cursor in split screen will move to the corresponding non-split screen location. For example, if the screen is split and the cursor is located on the lower half screen (small screen), pressing the Zoom key changes the screen from a split screen to the display station 2 full screen.

Note: When one of the non-split screens (either logical display station 1 or 2) is in 27 x 132 screen format, pressing the Zoom key causes an error and the error code, 9032 is displayed on the operating status line.

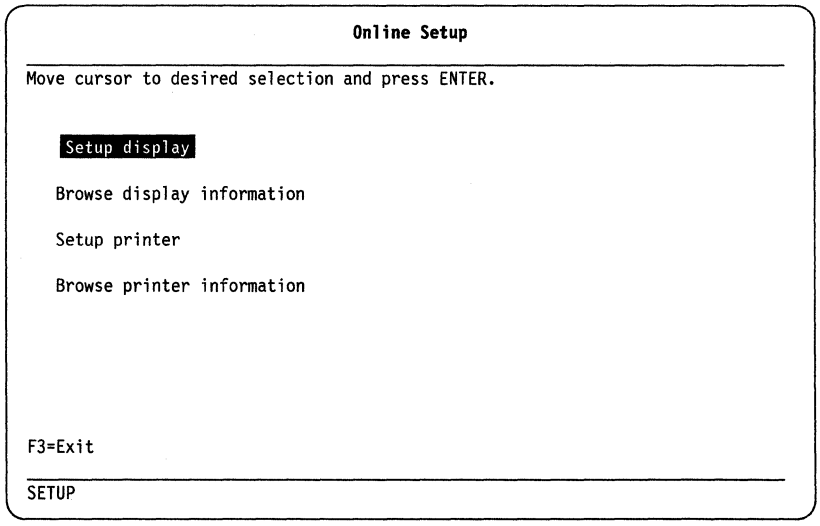
Browsing the Current Setup Values/Parameters for the 3477

The operator can check the current setting of the following display setup values/parameters through the browse display functions.

- Terminal mode
- Display address 1
- Display address 2
- Character set
- Keyboard type
- Keyboard ID

To browse the current setup values/parameters, do the following procedure.

1. Press the Setup key. The following online setup panel appears on the screen.



2. Move the cursor to the "Browse display information" using the cursor move keys and press the Enter key. Based on the selected terminal mode and keyboard type, one of the following panels will appear.

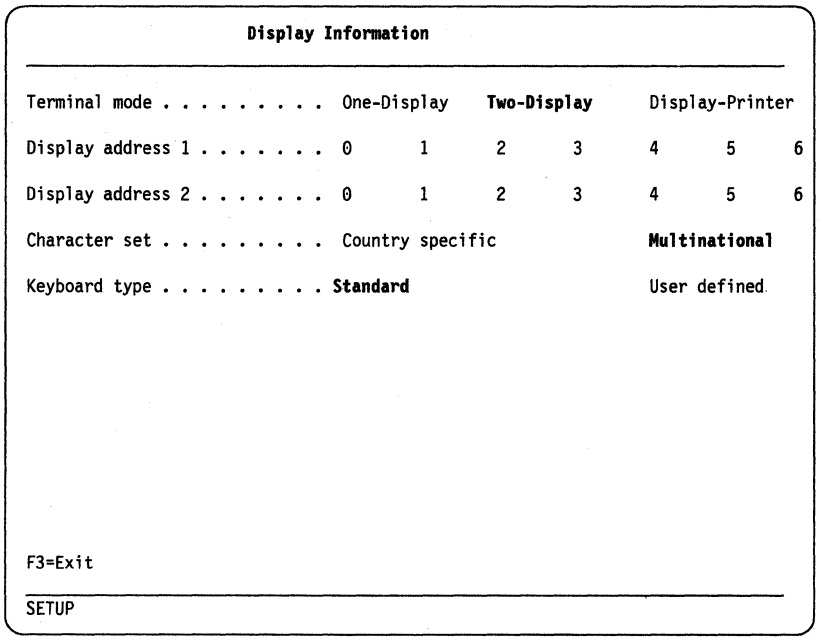
```
                    Display Information

Terminal mode . . . . . . . . . One-Display    Two-Display    Display-Printer

Display address 1 . . . . . . . 0      1      2      3      4      5      6

Character set . . . . . . . . . Country specific             Multinational

Keyboard type . . . . . . . . . Standard                     User defined




F3=Exit

SETUP
```

Display Information panel (One-Display and Standard keyboard)

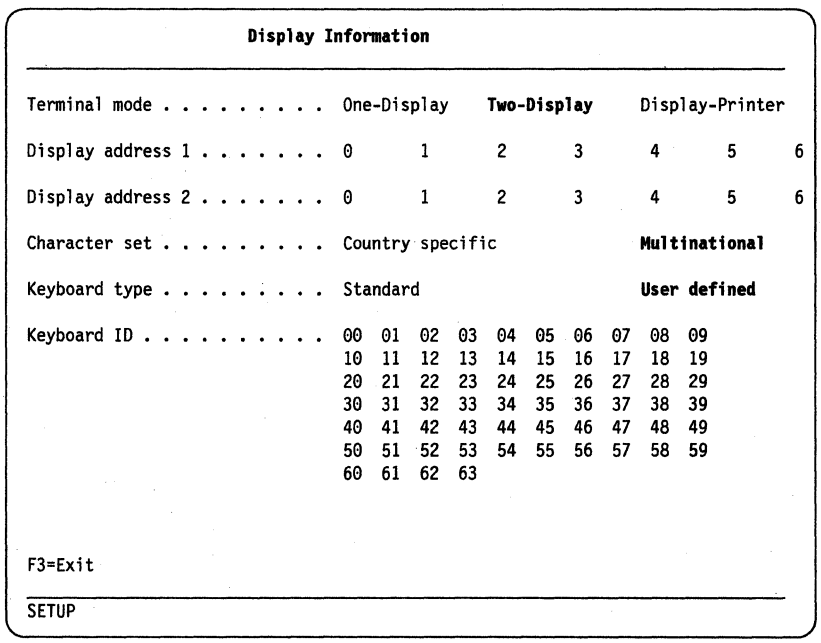
```
                    Display Information


Terminal mode . . . . . . . . . One-Display    Two-Display    Display-Printer

Display address 1 . . . . . . . 0      1      2      3      4      5      6

Character set . . . . . . . . . Country specific             Multinational

Keyboard type . . . . . . . . . Standard                     User defined

Keyboard ID . . . . . . . . . . 00  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  32  33  34  35  36  37  38  39
                                40  41  42  43  44  45  46  47  48  49
                                50  51  52  53  54  55  56  57  58  59
                                60  61  62  63



F3=Exit

SETUP
```

Display Information panel (One-Display and User defined keyboard)

Note: The "Standard" keyboard type is the default setting. The "User defined" keyboard type is not available.



Display Information panel (Two-Display and Standard keyboard)



Display Information panel (Two-Display and User defined keyboard)

Note: The "Standard" keyboard type is the default setting. The "User defined" keyboard type is not available.

3. After browsing the desired display setup values/parameters, press the Setup key for the 122/124-key keyboard (the Setup key with the Shift key for the IBM Enhanced keyboard) to return to communication mode.

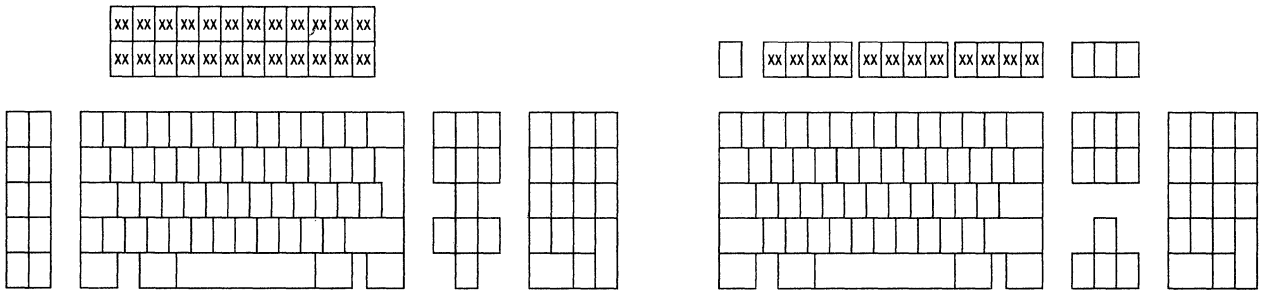
Recording and Playing Keystrokes

The Record/Play functions allow you to store and retrieve and display data with a single key entry. The Record/Play functions eliminate repetitive operations. Instead of keying in[3] the same data, the display station can store the data and recall it anytime by pressing a single key. The data remains in storage even if you turn off the display station.[4]

Notes:

1. The local function keys cannot be recorded.
2. If the recorded data is played back, and there is an input-inhibit condition, the play back operation will be automatically terminated.
3. The record/play functions are not available if the operator sets the record/play function disabled by using "Record/Play Security Option", For detailed information, refer to "Record/Play Security Options" on page A-10.

The following figure shows the Record-ID (F1 - F24) keys that key strokes can be assigned to.



122-key typewriter keyboard

IBM Enhanced keyboard

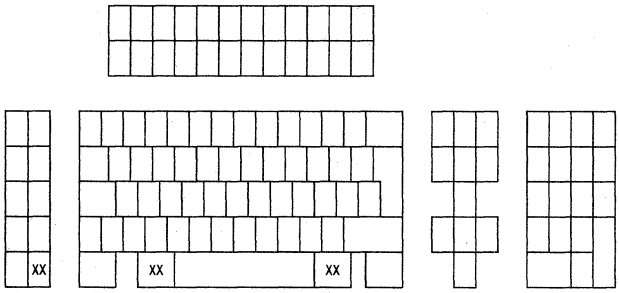
The "Record/Play Exercise" on page 2-21 will help you to understand this operation.

[3] The Shift keys and Alt keys are counted as two keystrokes. All other keys are counted as one keystroke. The total keystrokes for the Record function is 1500.

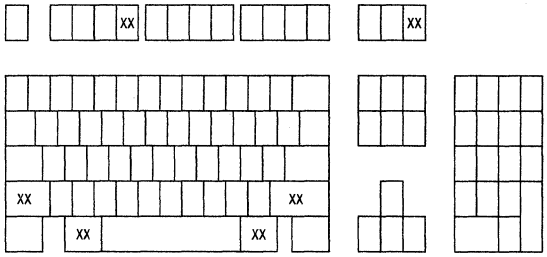
[4] If the Record/Play function needs to be restricted or disabled, refer to Chapter Appendix A, "Display Station Controls and Adjustments" on page A-1.

Recording

The keys used for Record and Pause are shown in the following keyboard layouts.



122-key typewriter keyboard



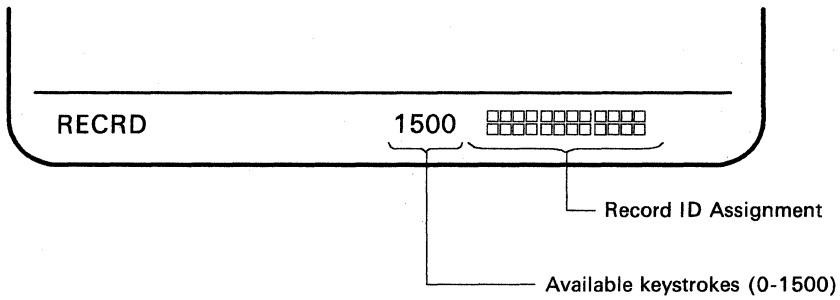
IBM Enhanced keyboard

To record a sequence of key strokes:

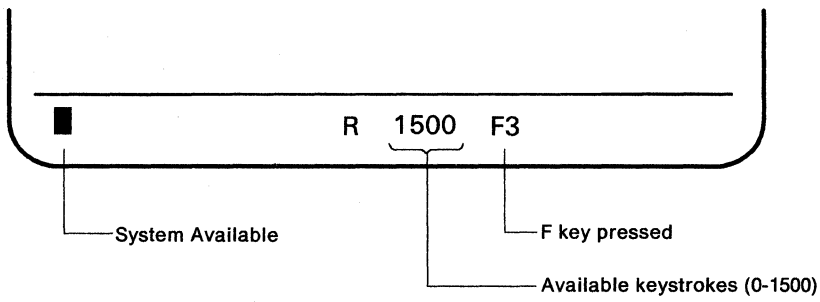
1. Press the Recrd key on the 122/124-key typewriter keyboard (or F4 key while pressing and holding the Alt key for the IBM Enhanced keyboard).

   "RECRD," a number (from 0 through 1500), and the Record ID Assignment indicator will be displayed in the operating status line in reverse video.

   The Record ID Assignment indicator is used to show that you have already assigned and recorded data to the that F key. The assigned F key position is shown as a solid box. The number represents the remaining keystrokes available.



2. Press any F key where you want to record the data. The three previous indicators will be replaced with the following.



Note: If you select an F key where data is already recorded, the data will be replaced with the newly recorded data.

3. Key in data you want to record.

   Notes:

   a. You can also record a keystroke for the "Pause" key. When you first press the Pause key while in record mode, a Record/Play Halt indicator (⅄∧) appears next to the "R" symbol.

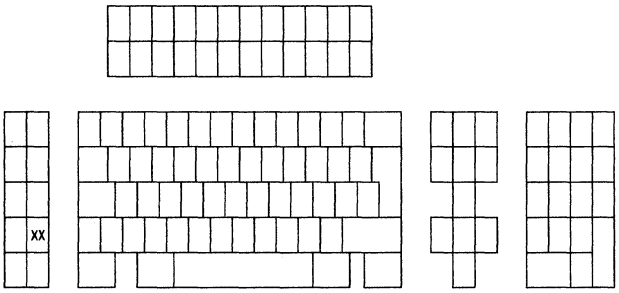
      Pause enables you to stop the record operation.

   b. You can cancel the newly recorded keystrokes by pressing the Quit key (the Reset key plus an Alt key). This cancellation does not affect the previously recorded keystrokes.

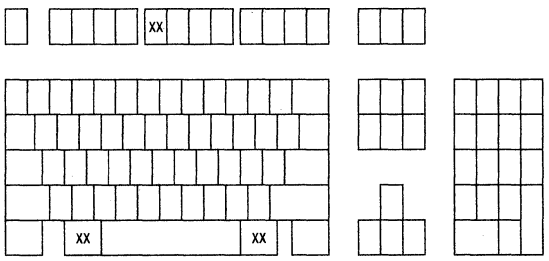
4. Press the Recrd key to accept the recorded keystrokes. Return to the previous operation.

Playing

The keys used for the play operation are shown in the following keyboard layouts.



122-key typewriter keyboard

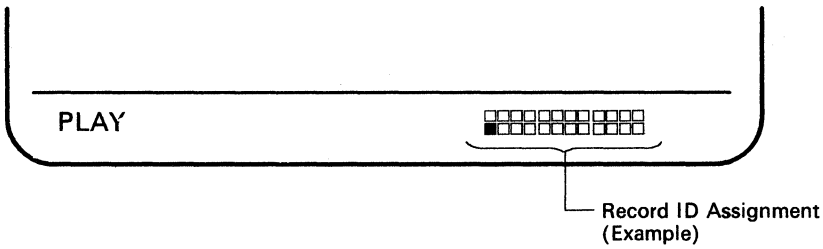


IBM Enhanced keyboard

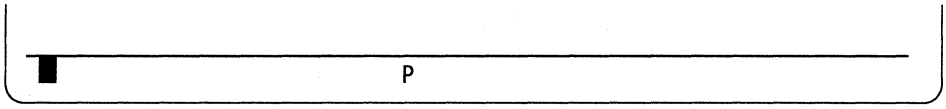
To play back the recorded key strokes:

1. Position the cursor at the location where you want the recorded data to begin.
2. Press the Play key on the 122/124-key typewriter keyboard (or F5/F17 key while pressing and holding the Alt key for the IBM Enhanced keyboard).

   "PLAY" and the Record ID Assignment indicator will be displayed on the operating-status line in reverse video.



3. Press the same F key used to record the data. The two symbols shown in the previous step will disappear and an uppercase "P" will appear. The keystrokes will automatically play back starting at the cursor location. When the playback is complete, the "P" disappears.



Notes:

1. If you record the Pause, the playback action temporarily stops there. At the pause, you can key in additional data and the cursor moves as many positions as the data recorded. Pressing the Play key again continues the playback action from where you stop keying in data.
2. If you record long sentences for a single F key, and want to cancel during the playback operation, use the "Quit" key.

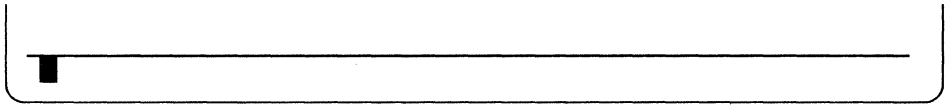
Record/Play Exercise

Task

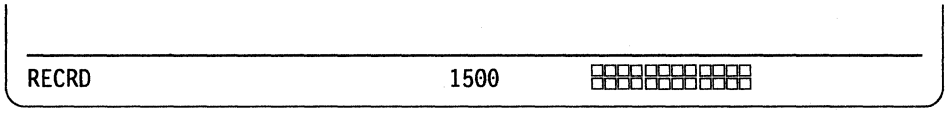
Your company name is "ABC" and it has branch offices in several countries. You are requested to record your company and branch office name like: "ABC company New York branch office." In this exercise, the location of the branch office is variable.

Let's key in "ABC company New York branch office", and then by using the play back function, enter "ABC company Paris branch office". Use the F1 key for recording and playing data.

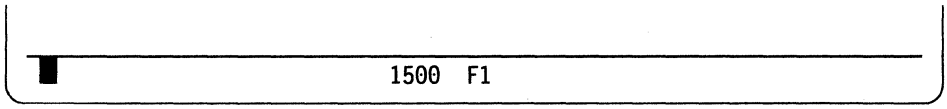
1. Make sure that the display station is in communication mode. The screen should look like this:



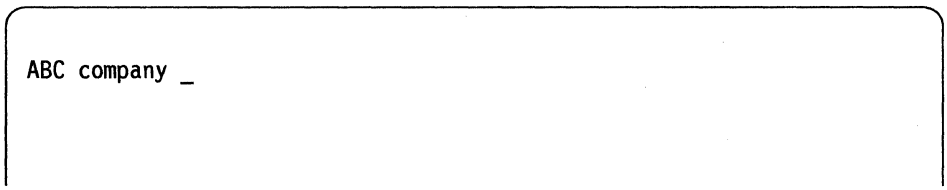
2. Press the Recrd key on the 122-key typewriter keyboard (or the F4 key while pressing and holding the Alt key on the IBM Enhanced keyboard).



3. Press the F1 key where you want to record data. The following indicators will appear in the operating status area.



4. Move the cursor to the home position (first line position 1) and type in "ABC company" and then press the Space Bar once.



5. Press the Pause key to temporarily stop recording keystrokes; "R 人^" will appear on the operating status line. Key in "New York" and press the Space Bar (New York is not recorded).

```
ABC company New York _

:

R 人 ^
```

6. Press the Pause key again.
7. Type in "branch office". Now the screen looks like:

```
ABC company New York branch office_
```

8. Verify that the company name is typed correctly. Press the Recrd key again. This validates the recorded data and exits the record mode.

   If the keystroke sequence is not typed correctly, press the Recrd key and start over from the step 1.
9. Press the New Line key to move the cursor to the next line.
10. Press the Play key to enter play mode. The "PLAY" and the Record ID Assignment indicator will be displayed.

    The Record ID assignment is indicated as a solid box which means data was recorded in that key.

```
PLAY                                    □□□□□□□□□□□□
                                        ■□□□□□□□□□□□
```

11. Press the F1 key and "ABC company" appears at the cursor position, the cursor moves to the next input position, and " P 人^ appears in the operating status line.

```
ABC company New York branch office
ABC company _
```

12. Type in "Paris" and press the Space Bar once.

```
ABC company New York branch office
ABC company Paris _
```

13. Press the Play key again. The remaining recorded words will be played back at the cursor position.

```
ABC company New York branch office
ABC company Paris branch office_
```

14. **The task is complete. You can continue entering data from the cursor location.**

Print Operations

The following sections describe how to setup printer parameters and print data from the screen to the attached printer.

To use an attached printer as system controlled or local, you need to define the following functions in advance. For further details, refer to Appendix B, "Printer Controls and Adjustments" on page B-1 in this manual.

Printer functions:

- Terminal mode
- Printer address
- Printer character set
- Printer emulation type
- Line pitch (lines per inch)
- Character pitch (characters per inch)
- Print quality
- Character width and height
- Print key usage (local or system)
- Trim border characteristics
- Miscellaneous parameters for 5219 emulation.

When you want to use the attached printer as a system printer, refer to Appendix B, "Printer Controls and Adjustments" on page B-1.

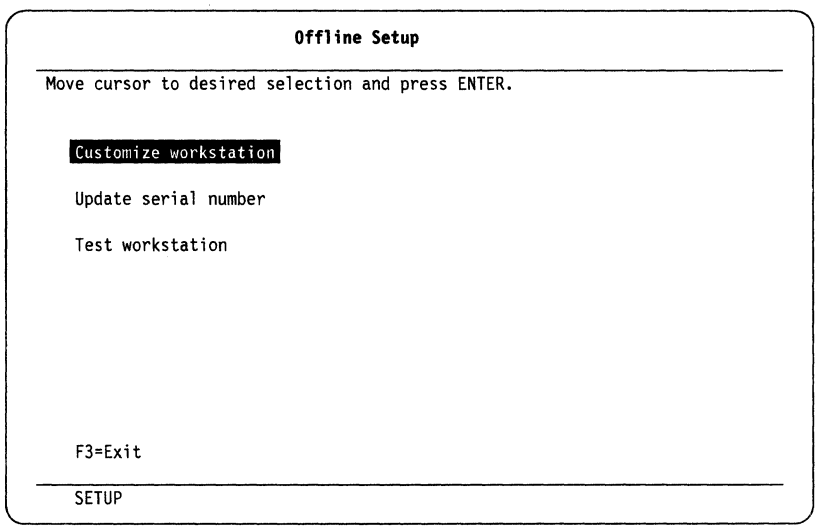
Setting up for Local Screen Data Print

The operator can print a part or a whole screen on the attached printer. To use the attached printer as a local screen printer, it is necessary to specify "Local" on the Setup Display panel (on-line setup mode).

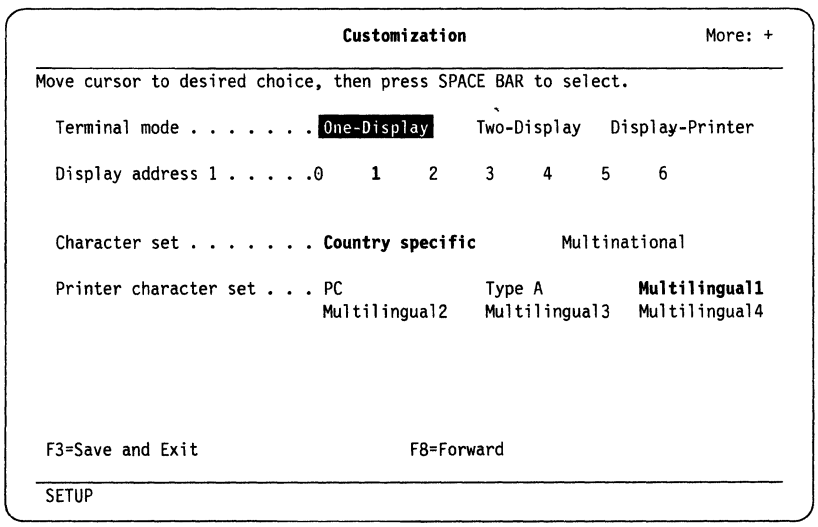
Printer Pre-setup:

The following procedure describes how to setup the 3477 for "Local" printing.

1. Set the power switch to Off.
2. Press and hold the Space Bar; set the power switch to On.
3. Hold the Space Bar down and wait approximately ten seconds. The "Offline Setup" panel appears on the screen.

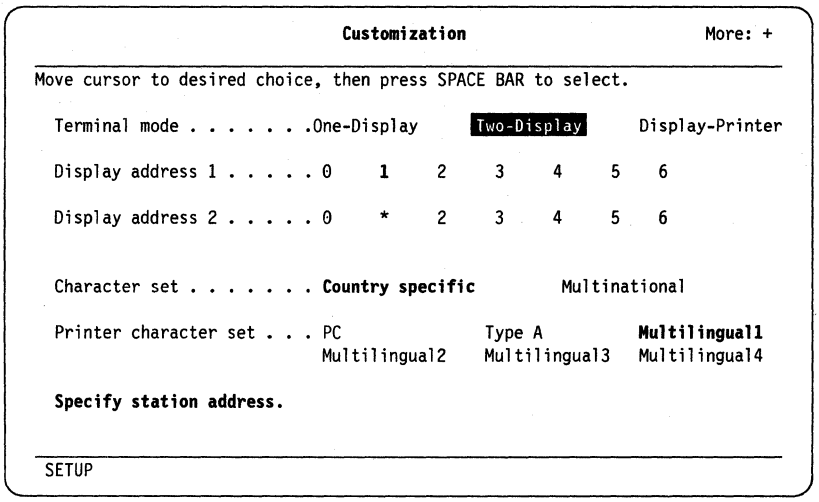


4. Press the Enter key; the following "Customization" panel appears on the screen.



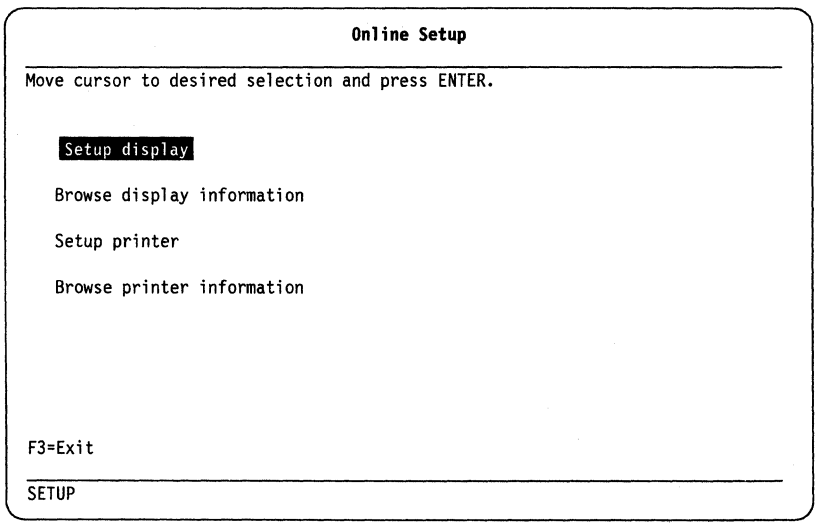
5. **For One-Display mode**: select display address, character set, and printer character set with the cursor move keys (→, ←, ↓, or ↑). Press the Space Bar at the desired setup values/parameters. This validates the selections and displays them in high intensity. Go to step 7 on page 2-26.

6. **For Two-Display mode**: move the cursor to "Two-Display" with the cursor move keys and press the Space Bar. The following panel will appear.



Select the appropriate values/parameters using the cursor move keys and pressing the Space Bar. The selected item will appear in high intensity. Continue to step 7.

7. Press the F3 key twice to enter communication mode.
8. To enter online setup mode, press the Setup key on the 122/124-key keyboard (the Setup key plus the Shift key on the IBM Enhanced keyboard). The "Online Setup" panel appears.



9. Move the cursor to "Setup printer" and press the Enter key. Depending on the print character set selected, one of the following three "Setup Printer" panels appears.

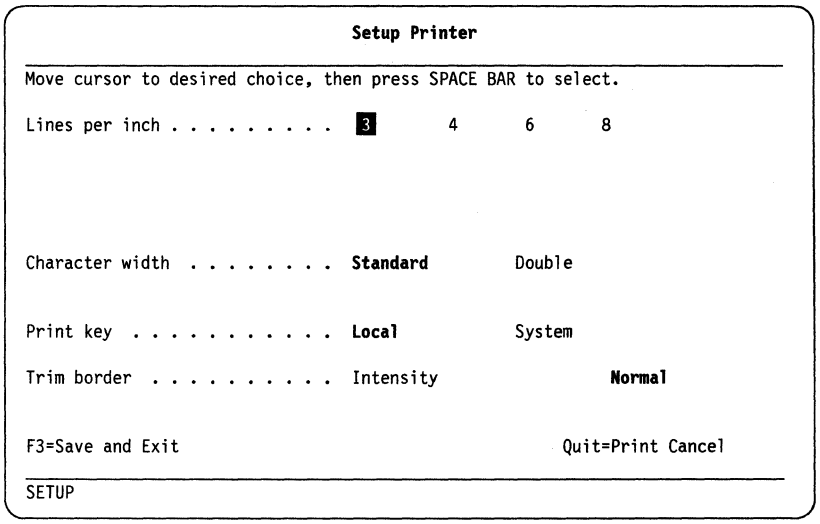
Note: For 3477 color models: in the "Trim border" parameter, the "Green" selection corresponds to "Normal" on monochrome models.

```
                              Setup Printer
Move cursor to desired choice, then press SPACE BAR to select.

Lines per inch . . . . . .  3       4       6       8

Characters per inch . . . . . .  5       6       8.5     10
                                 12      17      PS

Print Quality. . . . . .  Draft    Letter    Enhanced


Character height . . . . . .  Standard          Double

Print key . . . . . .  Local             System

Trim border . . . . . .  Intensity                    Normal


F3=Save and Exit                                 Quit=Print Cancel

SETUP
```

Setup Printer Panel (One-Display/Two-Display, Multilingual, Monochrome Model)

```
                              Setup Printer
Move cursor to desired choice, then press SPACE BAR to select.

Lines per inch . . . . . .  3       4       6       8

Characters per inch . . . . . .  5       6       8.5     10
                                 12      17      PS

Print Quality. . . . . .  Draft                       Near letter


Character height . . . . . .  Standard          Double

Print key . . . . . .  Local             System

Trim border . . . . . .  Intensity                    Normal

F3=Save and Exit                                 Quit=Print Cancel

SETUP
```

Setup Printer Panel (One-Display/Two-Display, PC, Monochrome Model)



Setup Printer Panel (One-Display/Two-Display, Type A, Monochrome Model)

10. If you want to use the attached printer, select "Local" for the "Print key" parameter. If you select "System", pressing the Print key will cause the 3477 to send a print request to the host system.
11. Complete the remaining selections using the Space Bar to validate each.
12. Press the "Setup" key for the 122/124-key keyboard (the "Setup" key plus the Shift key for the IBM Enhanced keyboard) to return to communication mode.

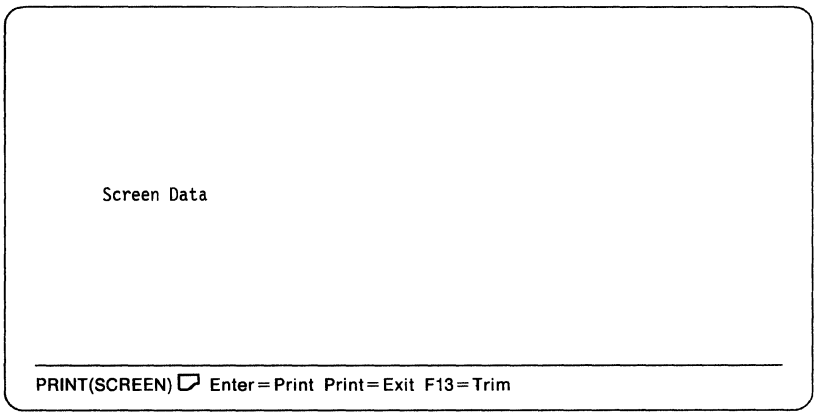
Note to the reader

The Pre-setting prerequisites for either local or system printing is now complete. The procedure for making a screen data print follows.

Local Screen Data Print

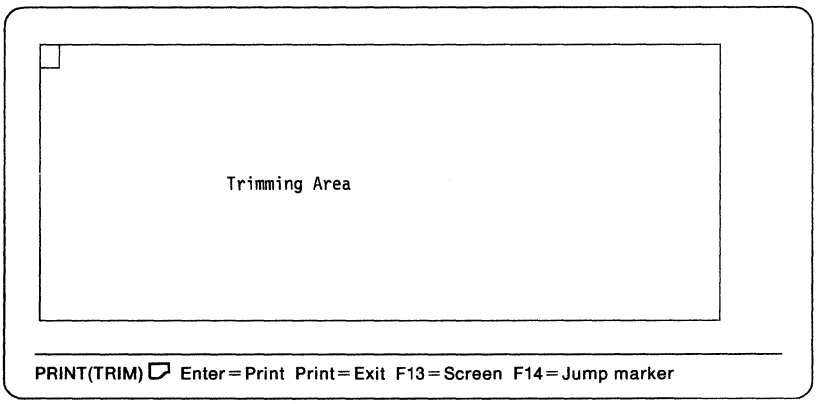
You have already pre-set the printer parameters above for the attached printer and you can now print screen data as specified. To print the screen data, follow the steps below.

1. Press the Print key to enter print mode. The following operator messages appear at the bottom of the screen.



Local Screen Print Panel

2. If the following screen is displayed, press the F13 key to return to the screen data panel shown above.



Local Trim Print Panel

3. Check the indications on the bottom line.

   If a ⊠ is displayed, make sure that the printer is securely connected to the 3477 and the printer power switch is set to On. If a ▭ is displayed, the attached printer is ready to print.

4. Press the Enter key. The entire screen data will be sent to the attached printer and starts printing.

   While the data is printing, the ■ will be displayed on the operating status line. When the printing is complete, the symbol will change to ▭.

The local screen data printing is now complete.

Partial Screen Data Print

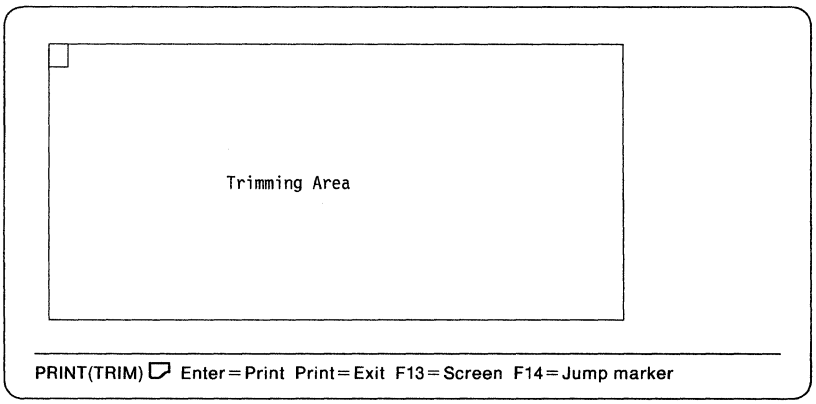
Note to the reader

When you select the "Two-display" terminal mode and use a split-screen, the partial screen data print cannot be used. If you attempt this, an error code, 9033, will be displayed on the operating status line.

Assumption: You have data displayed that is ready to be printed. You want to print a part of the screen data.

1. Press the Print key to enter print mode. The following operator messages and trimming rectangle appear.

   If the displayed screen is other than the panel shown below, press the F13 key to return to the trimming panel.



Local Trim Print Panel

2. Check the indications on the bottom line.

   If a ⊠ is displayed, make sure that the printer is securely connected to the 3477 and the printer power switch is set to On. If a ▱ is displayed, the attached printer is ready to print.

3. The data within the trimming area can be printed. If you want to change the trimming area, move the Trim Marker (box cursor at upper left corner) using the cursor move keys. If the cursor is moved to the right, the width gets smaller. If the cursor is moved downward, the depth gets smaller.

   If you want to move the Trim Marker from the upper left corner to the lower right corner, press the F14 key.

4. When you complete the trimming area definition and want to print the data, press the Enter key. The attached printer starts to print. While the data is printing, the ◩(local print status indicator) is indicated on the operating status line. When printing is complete, the indicator will change to ◻.

The partial screen data printing is now complete.

System Screen Data Print

Assumption: You have data displayed that is ready to be printed. You want to use the system designated printer.

Note: The function of the Print key can be defined by the host application program.

Remember to pre-select the "System" parameter in the "Print key" on the Setup Printer panel.

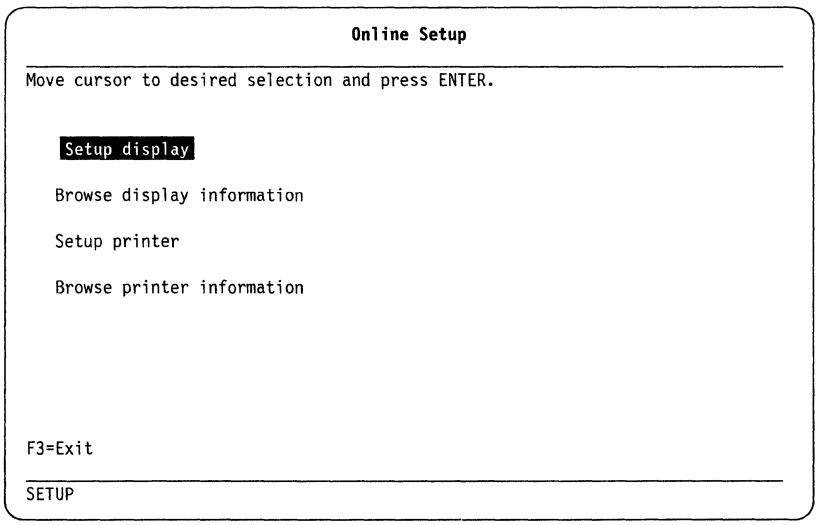
1. Press the Print key. The 3477 sends a screen print request to the host system.
2. The system designated printer will start printing.

The system screen data printing is now completed.

Cancellation of Print Operations

The operator can cancel the print request by performing the following steps.

1. Press the Setup key for the 122/124-key keyboard (the Setup key plus the Shift key for the IBM Enhanced keyboard). The Online Setup panel appears.



2. Move the cursor to "Setup printer" using the cursor move keys and press the Enter key. The appropriate setup printer panel appears on the screen.
3. Press the Quit key (press the Reset key while pressing and holding the Alt key). The cancel request will then be accepted. The printer will continue printing data that was sent to the printer buffer.
4. Press the Setup key to return to communication mode.

Browsing the Current Setup Values/Parameters for the Attached Printer

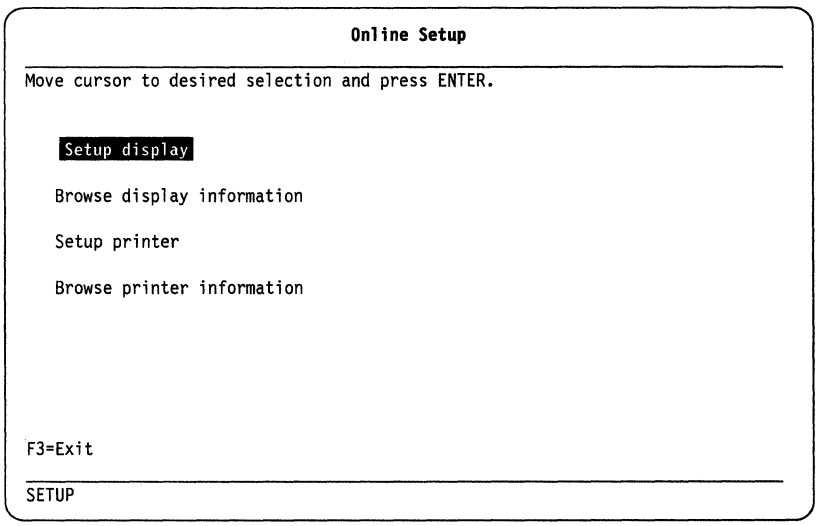
The operator can browse the current printer setup values/parameters (including the parameters specified by the system when the 5219 emulation is selected) listed below through the browse printer functions.

Printer browse functions:

- Printer character set
- Printer address
- Printer emulation
- System available
- Type style
- System code page
- Paper feed
- Form
- Source drawer

To browse the current setup values/parameters, do the following procedure.

1. Press the Setup key. The following online setup panel appears on the screen.



2. Move the cursor to the "Browse printer information" using the cursor move keys and press the Enter key. Based on the selected terminal mode and emulation type, one of the following panels appears.

```
                    Printer Information

Printer character set . . . . . PC              Type A          Multilingual1
                                Multilingual2    Multilingual3   Multiligual4




F3=Exit                                                  Quit=Print Cancel

SETUP
```

Printer Information panel (One-Display/Two-display)

```
                    Printer Information

Printer character set . . . . . PC              Type A          Multilingual1
                                Multilingual2    Multilingual3   Multiligual4

Printer address . . . . . . . . 0    1    2    3    4    5    6

Printer Emulation . . . . . . . 5256      4214      5219

System available  . . . . . . . Yes               No




F3=Exit                                                  Quit=Print Cancel

SETUP
```

Printer Information panel (Display-Printer, 5256/4214 Emulation)

```
                    Printer Information

Printer character set . . . . . PC              Type A          Multilingual1
                                Multilingual2    Multilingual3   Multiligual4

Printer address . . . . . . . . 0      1        2      3        4      5      6

Printer Emulation . . . . . . . 5256           4214            5219

System available  . . . . . . . Yes                      No

Type Style . . . . . . . . . . . 011 Courier 10

System code page . . . . . . . . 850

Paper feed . . . . . . . . . . . Manual         Tractor         ASF

Form . . . . . . . . . . . . . . Paper                   Envelope

Source drawer  . . . . . . . . . 1

F3=Exit                                                 Quit=Print Cancel

SETUP
```

Printer Information panel (Display-Printer, 5219 Emulation)

Notes:

a. When the following four conditions are selected at the same time, the host system can suspend the print operation and display the request for changing the current type style, system code page, paper feed technique, form, source drawer or existence of errors in application programs on the 22nd line of the Printer Information panel.

- Display-Printer terminal mode is selected.
- 5219 emulation type is selected.
- "Attention" is selected in the Setup Printer panel.
- Any of five printer setup parameters: system code page, type style, paper feed, form, and source drawer are set to "System".

In the above panel, for example, "011 Courier 10" is specified as the current type style. If the host system requests the 3477 to change the type style of the attached printer from "011 Courier" to "087 Letter Gothic", and the other items are unchanged, the type style on the Printer Information panel will automatically change to "087 Letter Gothic". In addition, the type style change request will be displayed at the bottom of the panel. The Printer Information panel should be as follows:

```
                    Printer Information

Printer character set . . . . . PC              Type A          Multilingual1
                                Multilingual2    Multilingual3   Multiligual4

Printer address . . . . . . . . 0      1      2      3      4      5      6

Printer Emulation . . . . . . . 5256           4214           5219

System available  . . . . . . . Yes                    No

Type Style . . . . . . . . . . . 087 Letter Gothic

System code page . . . . . . . . 850

Paper feed . . . . . . . . . . . Manual        Tractor        ASF

Form . . . . . . . . . . . . . . Paper                 Envelope

Source drawer  . . . . . . . . . 1

Printer emulation is suspended.  Change type style.

F3=Exit                         F2=Resume          Quit=Print Cancel

SETUP
```

If the font cartridge on the attached printer is pluggable and does not include the "087 Letter Gothic", change the cartridge to the one that has "087 Letter Gothic" and then press the F2 key. The print operation with the type style will start. If the requested cartridge is not available, press the F2 key to ignore the host request.

For detailed information on how to change the type style, system code page, paper feed mechanism, form type, or source drawer type, refer to the Guide to Operation for the attached printer.

b. If you do not want the print operation to be suspended by the host system, select "No" for attention setup parameter. Refer to "Summary of Printer Setup Parameters" in Appendix B.

c. If the printer is printing data when it receives a request for changing the type style, system code page, paper feed mechanism, form type, or source drawer, the data transmission from the 3477 to the printer will immediately suspended but the printer may continue printing data stored in the printer buffer.

3. After checking the printer setup values/parameters, press the Setup key for the 122/124-key keyboard (the Setup key plus the Shift key for the IBM Enhanced keyboard) to return to communication mode.

Chapter 3. Display Screen and Operator Messages

This chapter describes three different display screens available and various symbol and error code meanings.

Display Screen

The display screen is divided into two basic areas: the data area and the message area.

The data area displays data received either from your keyboard or the host system. The data area can display up to **1920 characters** (24 lines of 80 characters), **3564 characters** (27 lines of 132 characters) or **3360 characters** (42 lines of 80 characters). Format selection depends on the terminal mode or the host application programs. For additional terminal mode details, refer to Appendix A, "Display Station Controls and Adjustments" on page A-1.

The message area is divided into two sub-areas: the message line and the operating status line. The message line is an area to display error messages and help messages received from the host or the controller. Detailed information about error messages is described later in this chapter.

The area below the separator line is the operating status line. This is used to display your display station or attached printer operating status. The messages or the symbols displayed on this line are described in the following section.

Figure 3-1 shows the standard format (1920 characters) of your display station. The 24th line is used for either the message line or the data area, and the 25th line is the operating status line.

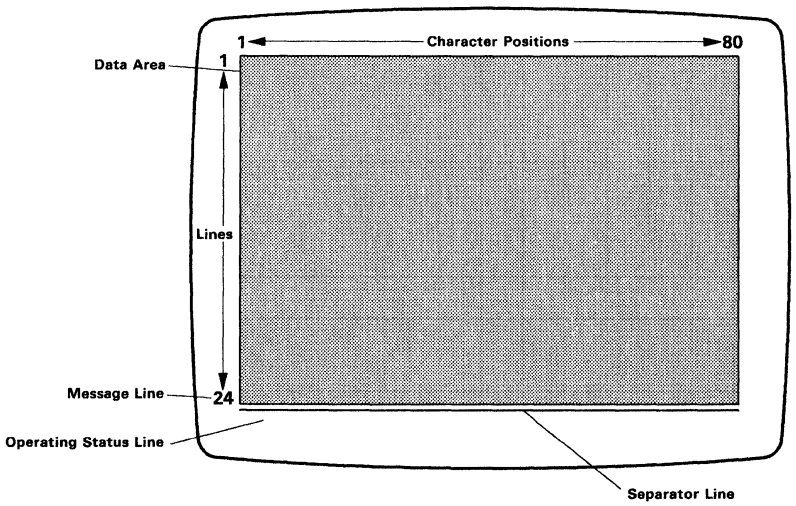


Figure 3-1. 1920 Character Screen Format

Figure 3-2 shows the condensed screen format (3564 characters). The 27th line is used for the message line, and the 28th line is the operating status line.

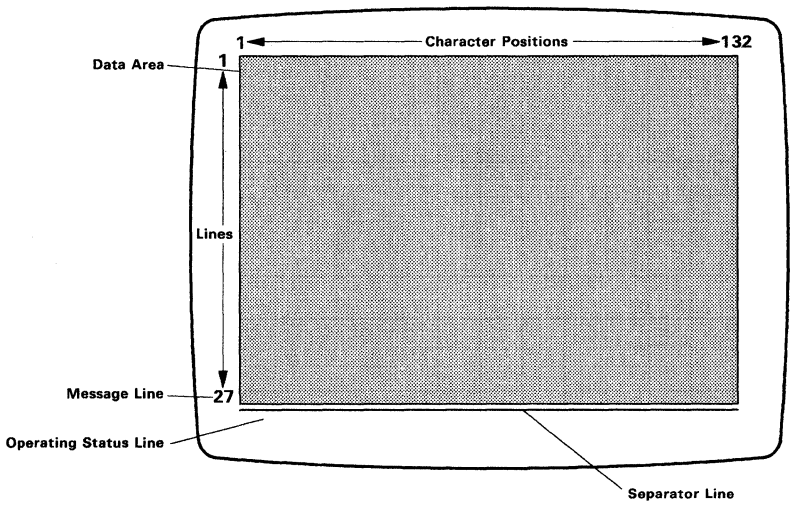


Figure 3-2. 3564 Character Screen Format

Figure 3-3 shows the split screen format (3360 characters). This consists of two data areas: one from logical display station 1, and the other from logical display station 2. The 24th and 43rd lines are used for either the message lines or the data area, and the 44th line is the operating status line.

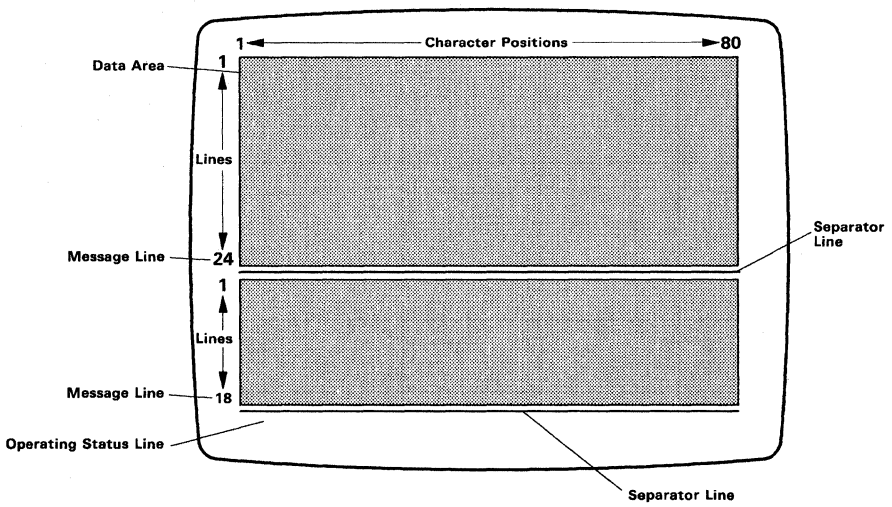


Figure 3-3. 3360 Characters Screen Format

Operator Messages

This section describes the meaning of the various operator messages and symbols that appear during communication mode, setup mode, record/play mode and print mode.

The 3477 displays the various symbols and messages on either the operating status line or the data area to indicate:

- Display station operational status
- Functions selected
- Operational errors or machine failures detected by your display station or the host system.

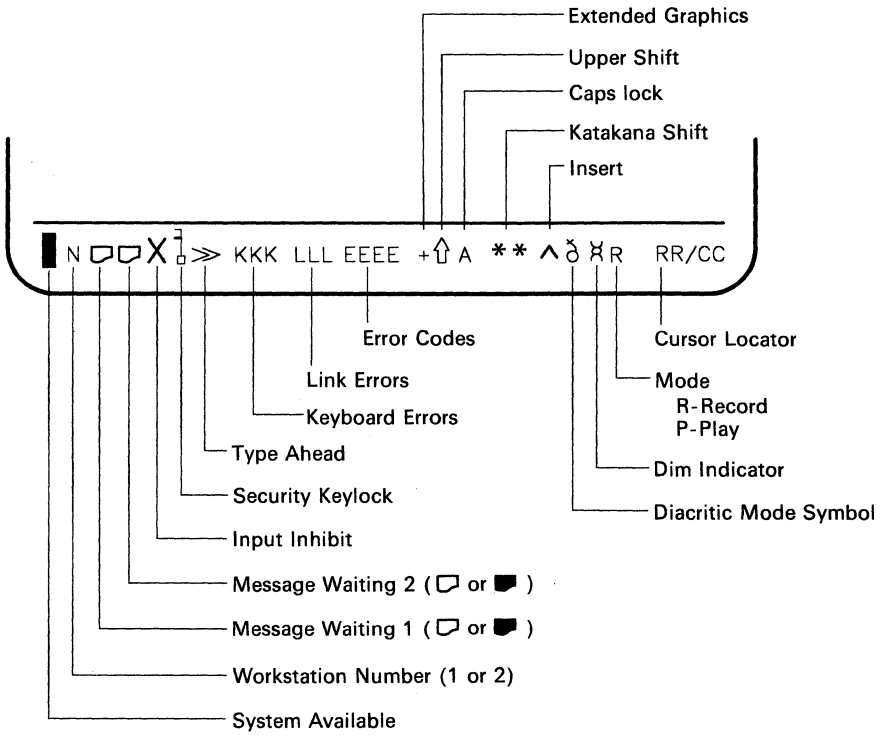
The following sections describe the locations and meanings of the symbols that appear on the operating status line and the error codes and error recovery instructions that appear in the data area.

Symbols on the Operating Status Line

The symbols displayed on the operating status line vary depending on the operational modes: communication, setup, record/play, and print. The following sections describe the symbols location and meanings.

Symbols in Communication Mode

The communication mode symbols displayed on the operating status line are shown in Figure 3-4.



Note: If you select the one-display or display-printer mode, the Message Waiting 2 symbol does not appear.

Figure 3-4. Operating Status Line Symbols in Communication Mode

The following figure explains the operating status line symbols for communication mode and the actions to take, if required.

Symbol	Symbol Name	Meaning
▮	System Available	The host system connected to your display station is operating and available.
N	Logical Display Station Number	Indicates which logical screen is currently active with a number, 1 or 2.
▱ or ▰	Message Waiting 1	The blank symbol (▱) indicates that the host system has one or more messages for logical display station 1; also the display screen for logical display station 1 is active. If the logical display station 1 is inactive, the display symbol is a solid one (▰). An alarm also sounds when this symbol appears. Your host system program defines the procedure for displaying messages. To find out how to display a message, see your system coordinator or the system program manual.
▱ or ▰	Message Waiting 2	The blank symbol (▱) indicates that the host system has one or more messages for logical display station 1; also the display screen for logical display station 2 is active. If the logical display station 1 is inactive, the display symbol is a solid one (▰). An alarm also sounds when this symbol appears. Your host system program defines the procedure for displaying messages. To find out how to display a message, see your system coordinator or the system program manual.
X	Input Inhibit	The system will not accept your input. This symbol appears when: • The host system is processing your input. • The host system is very busy. • The host system detects an error condition. **Note:** If the condition is not an error and this symbol remains for an abnormal length of time, contact your supervisor.
⚷	Keylock Locked	The security key lock on your display station is locked. Nothing can be displayed until it is unlocked.
≫	Type Ahead	You can continue keying in even if the keyboard becomes locked. This will be supported on AS/400 Release 2 or later.
+	Extended Graphics	Extended keyboard layout has been selected. This will be supported on AS/400 Release 2 or later.
KKK	Keyboard Errors	Indicates the number of keyboard errors since your display station was turned on. (Appears only when you enable the extended display function.)
LLL	Link Errors	Indicates the number of link parity errors since your display station was turned on. (Appears only when you enable the extended display function.)
EEEE	Error Codes	A four-digit number. These error codes define operational errors. A short audible alarm sounds. Refer to "Error Codes and Recovery Procedures" in this chapter to clear errors.
⇧	Keyboard Upper Shift	The keyboard is in upshift or locked in upshift.

Symbol	Symbol Name	Meaning
A	Caps Lock	The keyboard is in Caps Locked. The alphabetic characters are entered in uppercase.
**	Katakana Shift	The keyboard is in Katakana shift and カナ appears on the operating status line. (Only Katakana keyboard users.)
^	Insert	Indicates when the Ins (Insert) key is pressed.
ð	Diacritic Mode	Indicates that your display station is in Diacritic mode. This symbol appears when you press these accent keys: circumflex (^), grave accent (`), tilde (~), cedilla (¸), diaeresis (¨), or acute accent (´). Diacritic Mode is a function of the host system program and not the display station. To find out how to use Diacritic Mode, see your system coordinator or the system program manual.
¤	Dim Indicator	Indicates that "Auto dim" has been selected and there has been no activity for 5, 10, or 20 minutes. (The screen is blank, except for the operating-status line.)
R	Record Mode	Indicates that your display station is in Record mode. While the 'R' is displayed, the current acceptable number of keystrokes are indicated next to 'R.'
P	Play Mode	Indicates that your display station is in Play mode.
RR/CC	Cursor Locator	Indicates the row and column where the cursor is currently positioned.

Symbols in Setup Mode

The Setup mode symbols displayed on the operating status line are shown in Figure 3-5.

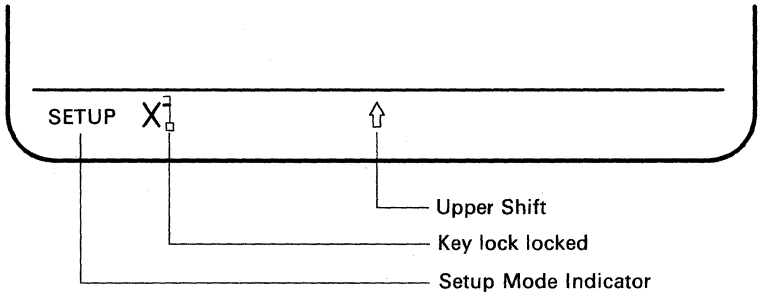


Figure 3-5. Operating Status Line Symbols in Setup Mode

Symbol	Symbol Name	Meaning
SETUP	Setup Mode Indicator	Indicates that your display station is either in offline setup mode or online setup mode. In either mode, you can define setup parameters to determine your display station functions. For additional information, refer to Appendix A, "Display Station Controls and Adjustments" on page A-1 and Appendix B, "Printer Controls and Adjustments" on page B-1 of this manual.
	Keylock locked	The security key lock of your display station is locked while in setup mode. Nothing can be displayed until it is unlocked. When this symbol appears and the attached printer is used as a system printer, the printer setup can be implemented.
⇧	Keyboard Upper Shift	The keyboard is in upper shift.

Symbols in Record and Play Modes

The Record mode and Play mode symbols are shown in the following five figures.

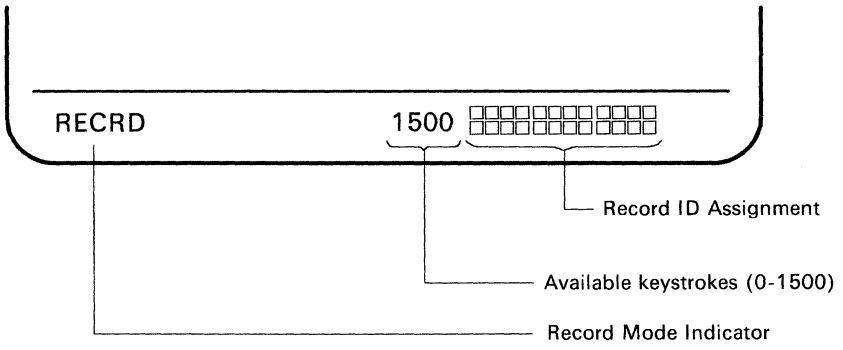


Figure 3-6. Operating Status Line Symbols in Record Mode

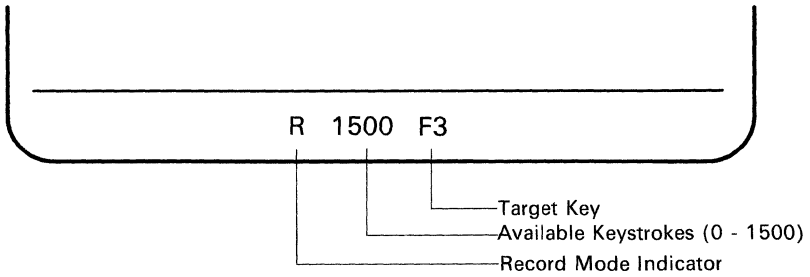


Figure 3-7. Operating Status Line Symbols in Enter-key state in Record Mode

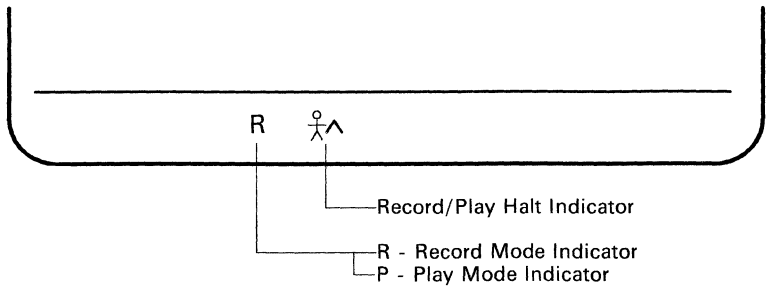


Figure 3-8. Operating Status Line Symbols in Halt Record or Play Mode

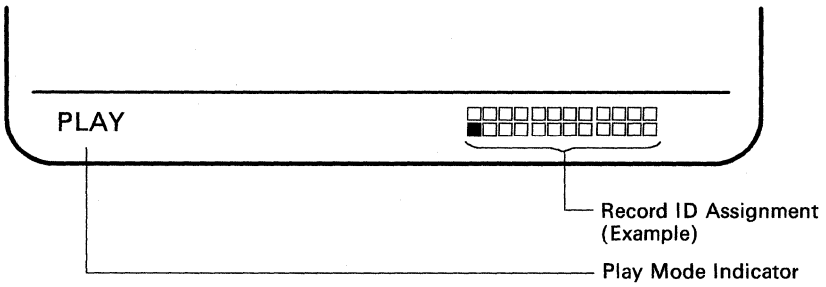


Figure 3-9. Operating Status Line Symbols in Play Mode

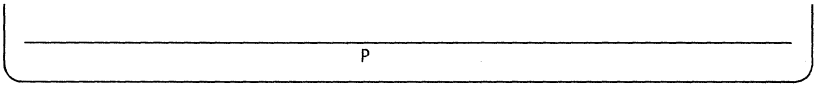


Figure 3-10. Operating Status Line Symbols in Play Back Operation

Symbol	Symbol Name	Meaning
RECRD	Record Mode	Indicates that your display station is in Record (Recrd) Mode. When the 'R' is displayed, the current acceptable number of keystrokes are indicated next to 'R.'
1500	Available Storage Indicator	Indicates number of keystrokes available in record mode. The Alt key and Shift keystrokes are counted as two. All other keys are counted as one.
⊟	Record ID Assignment	Indicates record data assignment for the 24 F keys. This indicator represents the arrangement of the 24 F keys for both the 122-key typewriter keyboard and the IBM Enhanced keyboard. The solid box indicates that the F key has data recorded, while the blank box indicates that the F key has no data recorded.
F3	Target F key	Indicates the F key that was pressed to record data while in record mode. The F3 key shown is an example. You can specify any of the 24 F keys.
R	Record Mode Indicator	Indicates that your display station is in Enter-key state in record mode.
P	Play Mode Indicator	Indicates that your display station is in play back operation.
⅄∧	Record/Play Halt Indicator	Indicates either of the following cases. • You pressed the Pause key while in record mode operation. • The play back operation stopped at Pause.
PLAY	Play Mode	Indicates that your display station is in Play Mode.

Symbols in Print Modes

The Local Print mode symbols that are displayed on the operating status line are shown in the following two figures.

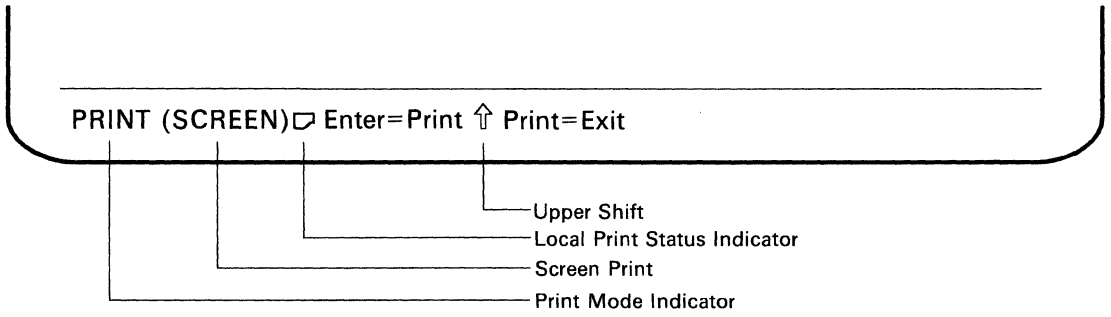


Figure 3-11. Operating Status Line Symbols in Print (Screen) Mode

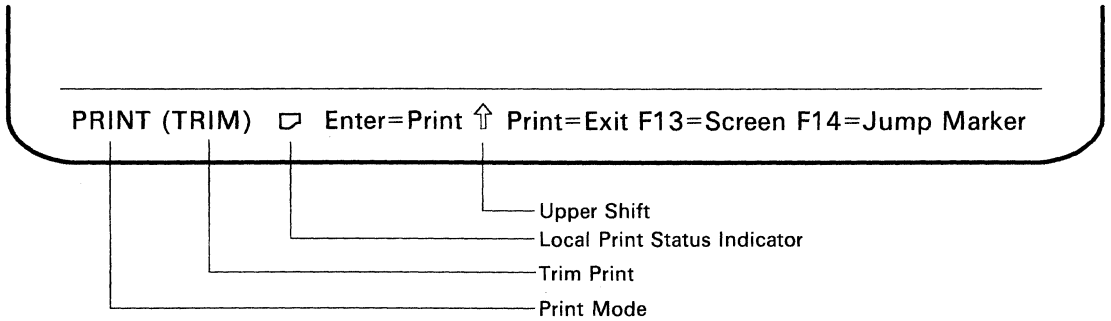


Figure 3-12. Operating Status Line Symbols in Print (Trim) Mode

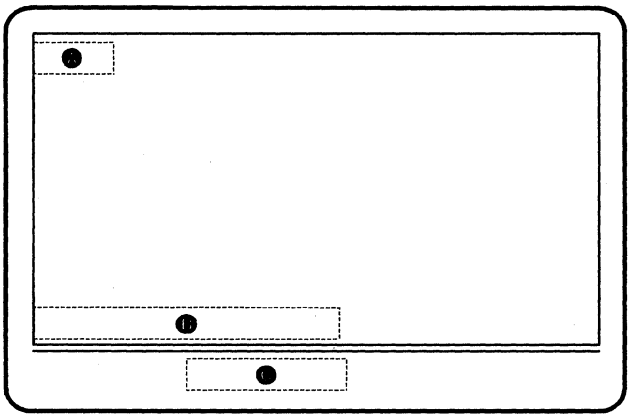
Symbol	Symbol Name	Meaning
PRINT(SCREEN)	Local Screen Print Status Indicator	Indicates that your display station is in local screen print state. This indicator appears on the operating status line when you select either One-display or Two-display terminal mode in offline setup mode, the "Print" key is set to "Local", and the "Print" key is pressed. Pressing the Enter key starts the printing operation.
PRINT(TRIM)	Local Trim Print Status Indicator	Indicates that your display station is in local trimmed-area print state. This indication appears on the operating status line when you select either One-display or Two-display terminal mode in offline setup mode, the "Print" key is set to "Local", and the Print key is pressed. Pressing the Enter key starts the printing operation.
▭, ▬, or ⊠	Local Print Status Indicator	Indicates that your display station is in local print mode. The meaning of each status indicator is: • ▭ - Indicates that the attached printer is ready to print. • ▬ - Indicates that the attached printer is busy. • ⊠ - Indicates that the attached printer is not ready to print.

Symbol	Symbol Name	Meaning
⇧	Keyboard Upper Shift	The keyboard is in upshift.

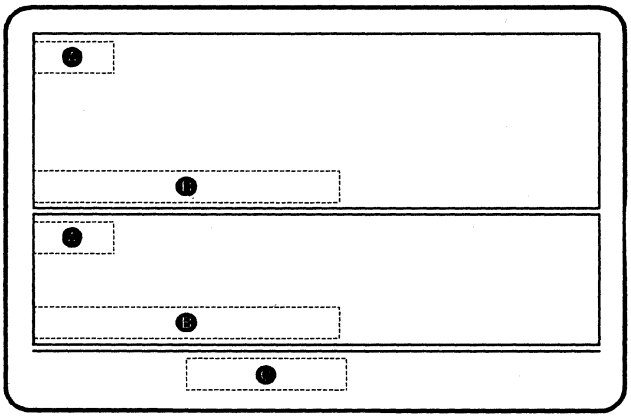
Error Codes and Recovery Procedures

The 3477 is checked either by the host system or the built-in self-diagnostic program. This occurs during communication mode or when the power switch is set to On. The error codes can appear in three different positions on the display screen, depending on the nature of the problem.

The following two figures are the screen formats for non-split screen and split screen to indicate the locations where the error codes appear.



Non-Split Screen



Split Screen

Error codes appearing in positions A and B are from the host system. If an error code appears in B, pressing the Help key will provide more error information and give the necessary recovery action.

Error codes 90xx, L, K, and LK that appear at position C on the operating status line, are controlled by the IBM 3477. Error codes L, K, and LK are used to isolate a failing element. For more details about isolation procedures, refer to Chapter 5, "Problem Solving Guide" on page 5-1 in this manual.

The following figures list and explain all error codes, causes, and recovery actions.

00xx (Error Codes Appearing at Position A or B)

Error Code	Cause	Recovery Action
0000	You pressed the Help key. Either no error code was displayed, or the error was issued by a program that does not support the Help key.	Press the Reset key. Continue entering information, or refer to the previous error code and perform that recovery procedure.
0001	The host system or remote workstation control unit has not kept up with the rate you are entering information. The last character you entered was not recognized.	Press the Reset key. Continue entering information.
0002	The host system or remote workstation control unit received an invalid key code.	Press the Reset key. Try to continue entering data. If the error cannot be reset or still occurs, report the problem to your system coordinator.
0003	You pressed an invalid key after pressing and holding the Alt key.	Press the Reset key.
0004	You attempted to enter data into a field that does not allow keyboard input.	Press the Reset key.
0005	You attempted to enter data when the cursor was not in an input field. Data cannot be entered in a protected area of the display.	Press the Reset key. Move the cursor to a valid input field.
0006	After pressing the SysRq/Attn key, and before pressing the Enter key or the Reset key, you pressed an invalid key.	Press the Reset key.
0007	At least one field on the display requires that you enter data before the display can be changed or moved. (The cursor goes to the first character position of the first mandatory-entry field.)	Press the Reset key. Enter the required data.
0008	You tried to enter non-alphabetic data into an alphabetic field. Valid characters are A through Z, blank, comma, period, and hyphen.	Press the Reset key.
0009	You tried to enter non-numeric data into a numeric only field. Valid characters are 0 through 9, blank, comma, period, plus and minus.	Press the Reset key.
0010	You tried to enter data into a field that will accept only signed numeric data. Valid characters are 0 through 9.	Press the Reset key. Continue by using valid characters.
0011	You attempted to enter data into the last position of a signed numeric field.	Press the Reset key. Make sure that the data is correct, and exit from the field by using the Field−, Field+, or Field Exit key.

Error Code	Cause	Recovery Action
0012	Either there is no more room in the field or the cursor is in the last position of the field. Do not use the Insert key to change data or to enter the last character into this field.	Press the Reset key. Correct the field, if necessary, and continue.
0013	You attempted to leave a field after you pressed the Insert key.	Press the Reset key.
0014	You pressed a key function that moves the cursor out of the field. However, the requirements of this mandatory-fill field have not been met. (Mandatory-fill fields must be filled completely or left blank.)	Press the Reset key. Enter data to fill the entire field, or move the cursor to the start of the field and use the Field−, Field+, or Field Exit key to blank out all of the field.
0015	You entered data into a self-check field. The number and the check digit you just entered do not correspond.	Press the Reset key. Check that you have correctly entered the number and check digit. If you have entered them correctly, check that the number is valid for a self-check field. If the numbers are valid but this error still occurs, report the problem to your system coordinator.
0016	You pressed the Field− key, but the field you were in is not a signed numeric field or, for some systems, a numeric-only field.	Press the Reset key. Continue to enter data or press the Field Exit key to blank out all of the field.
0017	You pressed the Field−, Field+, or Field Exit key. However, the requirements for this mandatory-fill field have not been met. A mandatory-fill field must be filled completely or you must exit from the first position of the field.	Press the Reset key. Enter data to the end of the field, or move the cursor to the start of the field and use the Field−, Field+, or Field Exit key to blank out all of the field.
0018	You used a data key instead of a non-data key.	Press the Reset key. Use a non-data key such as the Field Exit key or a cursor movement key, to leave this field.
0019	You pressed the Dup key, which is not permitted in this field.	Press the Reset key. Continue, but without using the Dup key in this field.
0020	You pressed a key that is not allowed in this field. This is either a right-adjust or a signed numeric field. You must exit the field before pressing any of the following: Function (F1 -F24) keys, Character Backspace key, Enter key, Print key, Help key, Roll keys, and the Home key (when the cursor is in the home position).	Press the Reset key. The cursor is in the same position as when you pressed the invalid key. Continue by pressing the Field+, Field−, or Field Exit key.

Error Code	Cause	Recovery Action
0021	The cursor is positioned in a mandatory-enter field. A mandatory-enter field must have data entered in it before you can exit the field by pressing the Field+, Field−, or Field Exit key.	Press the Reset key. Enter the required data.
0022	A system error occurred. The status of the present field is not known. This error can occur during an insert or delete operation.	Press the Reset key. Check the display to determine if the insert or delete function was done properly. If not done properly, correct the field.
0023	You pressed the Hex key, but the first key pressed was not a character A through F or 4 through 9; or the second key pressed was not a character A through F or 0 through 9. This error also occurs when a hexadecimal code is used in a numeric-only, signed numeric, alpha-only, or feature I/O field.	Press the Reset key. Continue by using the correct keys.
0024	You tried to enter a non-numeric value in a numeric-only field.	Press the Reset key and continue.
0026	You pressed the Field− key to exit a numeric-only field, but the last position of the field was not a number 0 through 9.	Press the Reset key. Correct the last position of the field, or exit the field by using the Field+ or Field Exit key.
0027	You pressed a key that is not used by this display station.	Press the Reset key. Continue by using valid keys.
0029	The second key pressed during a diacritic-mark key function did not produce a valid combination.	Press the Reset key. Enter a valid combination.
0040	The 'data set ready' line is inactive and it should be active.	Recovery from this error must be made at the Control Unit.
0042	The receive clock signal failed during a receive operation.	Recovery from this error must be made at the Control Unit.
0043	The 'data set ready' line is active and it should be inactive.	Recovery from this error must be made at the Control Unit.
0044	The 30-second communications time-out expired with no valid data received.	Recovery from this error must be made at the Control Unit.
0050	Either the 'clear to send' line was inactive while the 'request to send' line was active or the 'clear to send' line was active while the 'request to send' line was inactive.	Recovery from this error must be made at the Control Unit.
0051	The transmit clock signal failed during a transmit operation.	Recovery from this error must be made at the Control Unit.
0052	The Control Unit detected an internal error.	Recovery from this error must be made at the Control Unit.

Error Code	Cause	Recovery Action
0054	The Control Unit received an invalid command from the system during communications.	Recovery from this error must be made at the Control Unit.
0097	An attempt was made to run online verification tests not supported by the host program.	Press the Reset key. Continue to use the display station without performing the verification tests.
0099	An error occurred before, during, or after sign-on.	Press the Reset key. If the error persists, contact the system coordinator.

90xx (Error Codes Appearing in Position C)

Error	Cause	Recovery Action
9001	Your record table is full. (Maximum storage is 1500 keystrokes)	Press the Recrd key to exit Record Mode. To record a new keystroke sequence, do either of the following: • Press the Recrd key and the target F key that has erasable data. Then enter the new data. • Press the Recrd key and the target F key that has erasable data, Then press the Del (delete) key to erase the recorded data for that F key.
9002	The microprogram detected an error in the recorded data, and the contents of that F key were automatically erased.	Press the Reset key.
9003	While performing the record or play function, you pressed an invalid target F key (ex. Jump key, Back key, etc.).	Press the Reset key.
9004	While performing the record or play function, you pressed an target F key and an Alt key.	Press the Reset key.
9007	While performing the record function, you pressed an invalid sequence key (ex. Play, Setup, etc.). These are not valid sequence keys.	Press the Reset key.
9010	While performing the play function, you pressed an F key that does not have a keystroke sequence assigned to it.	Press the Reset key.
9015	In communication mode, you pressed either the Quit key or the Pause key.	Press the Reset key.
9019	Record or Play Mode While the Record/Play Halt indicator ( ) was displayed on the operating-status area, you pressed an invalid key (ex. Setup key or Play key in record mode or Record key in play mode).	Press the Reset key.
9020	When the Record/Play function was inhibited, you pressed either the Record key or the Play key.	Press the Reset key.
9021	You attempted to record or play back in a non-display field.	Press the Reset key.
9030	Jump key was pressed when not in a two-display mode.	Press the Reset key.
9031	Back or Fwd key was pressed when the local scroll function was not available.	Press the Reset key.

Error	Cause	Recovery Action
9032	• Zoom key was pressed when not in a two-display mode. • Zoom key was pressed when one or both of the display sessions were in 27 x 132 screen format.	Press the Reset key.
9033	Trimmed area was previously selected when the Print key was pressed in split screen.	Press the Reset key.

Others (Error Codes Appearing in Position C)

Error	Cause	Recovery Action
L	The logic element is failing.	Set the power switch to Off and refer to "Request for Service" on page 5-46 of this manual.
K	The keyboard cable connection may be loose or the keyboard itself is failing.	1. Set the power switch to Off. 2. Disconnect the keyboard cable from the logic element and re-connect it to the logic element. 3. Set the power switch to On. If the K still appears, refer to "Request for Service" on page 5-46 of this manual. If the K does not appear, the 3477 restored normal operation.
LK	Either the logic element or keyboard is failing.	Refer to Chapter 5, "Problem Solving Guide" on page 5-1 of this manual.

Chapter 4. Keyboard and Key Functions

This chapter describes the key functions of the 122-key typewriter keyboard and the IBM Enhanced keyboard.

Keyboard Layouts

Figures 4-1 and 4-2 show the two types of U.S. English typewriter keyboards that can be attached to your 3477.

Appendix D contains keyboard layouts for languages other than U.S. English.

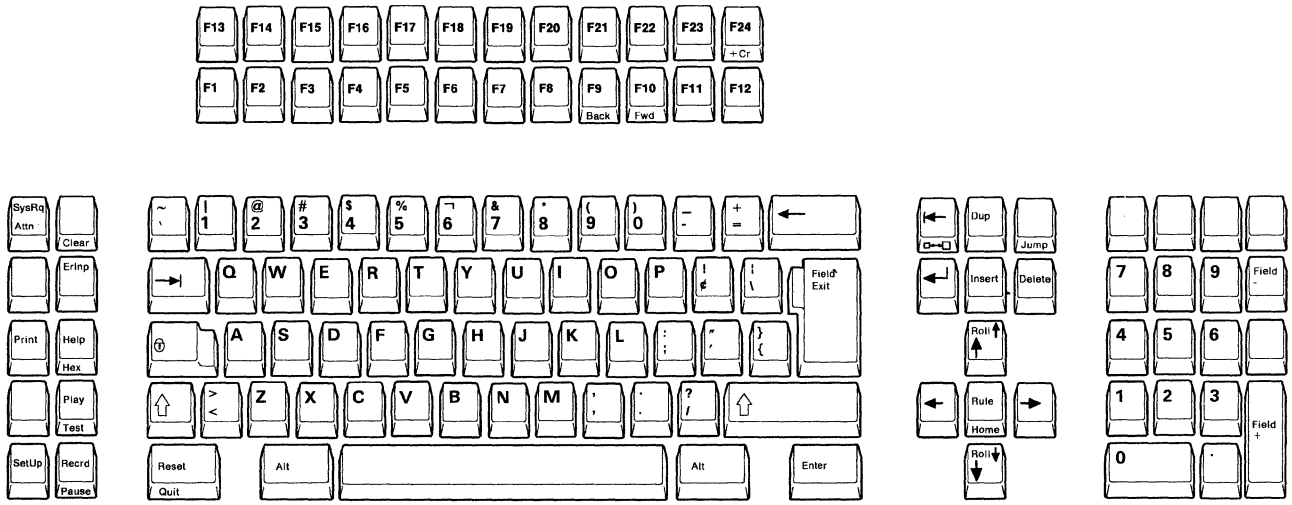


Figure 4-1. 122-key Typewriter Keyboard Layout (U.S. English)

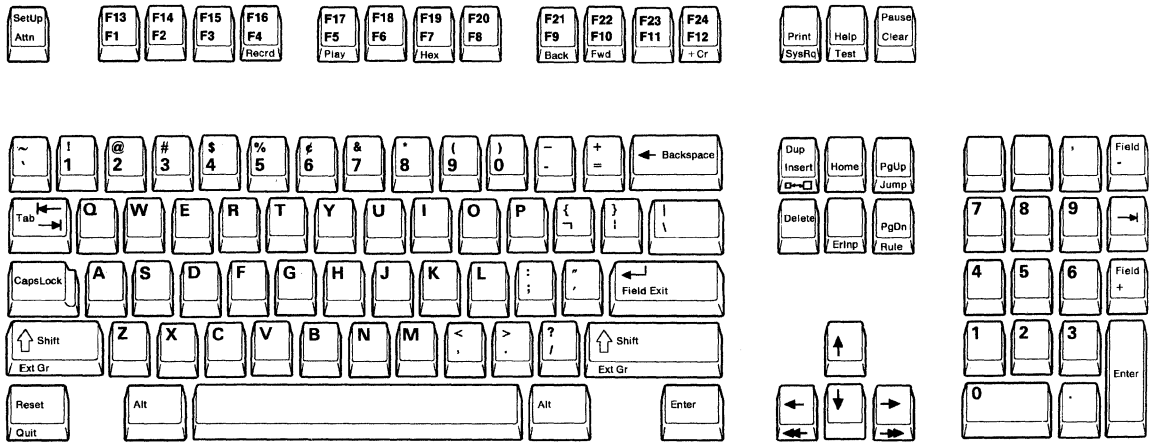


Figure 4-2. IBM Enhanced Keyboard Layout (U.S. English)

Key Functions

This section describes all key functions and their locations of the 3477 keyboards. To explain the key functions, this section is divided into six sub-sections as follows:

- Keyboard control keys
- Typewriter type keys
- Cursor control keys
- Screen control keys
- Local function keys
- Host function keys

Note: The +CR key is not supported by the 3477.

Quick Reference Table of Key Functions

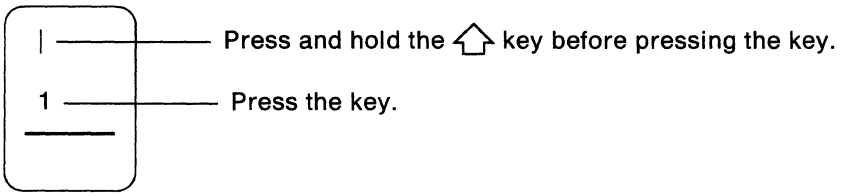
Locate the desired key, then go to the specified page for details.

Group name	Key	Page
Keyboard control keys	Alternate (Alt)	4-4
	Caps Lock	4-4
	Shift Lock (⇧)	4-4
	Extended Graphics (ExtGr)	4-5
	Upper Shift (⇧)	4-5
	Katakana Shift (カナ, 英数, 英, and 記号)	4-6
Typewriter type keys	Alphabetic	4-7
	Diacritical Mark	4-8
	Numeric	4-8
	Symbols	4-8
	Punctuation Mark	4-8
	Space	4-9
	Space Bar	4-9
Cursor control keys	Field Backspace (⇤)	4-10
	Character Backspace (← or ← Backspace)	4-10
	Cursor (↑, ↓, ←, and →)	4-11
	Cursor Home (↖ or Home)	4-11
	Double-speed Cursor (⇐ and ⇒)	4-11
	New Line (↵)	4-12
	Field Advance (⇥)	4-12
	Field Exit (Field Exit)	4-12
Screen control keys	Backward (Back)	4-13
	Clear	4-13
	Delete Character (Delete)	4-13
	Duplicate (Dup)	4-14
	Erase Input-field (ErInp)	4-14
	Forward (Fwd)	4-14
	Insert (Insert)	4-14
	Page (PgUp and PgDn)	4-15
	Roll (Roll ↑ and Roll ↓)	4-15
Local function keys	Hex	4-16

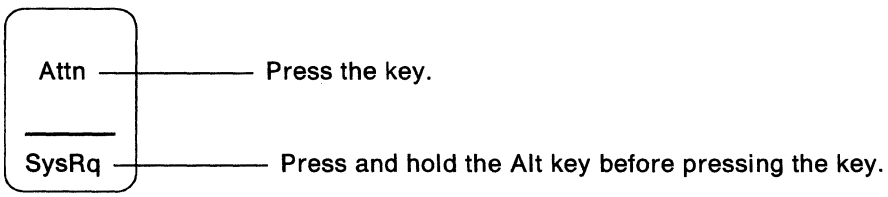
Group name	Key	Page
	Pause	4-16
	Play	4-16
	Print	4-17
	Quit	4-17
	Record	4-17
	Zoom	4-17
	Rule (Rule)	4-17
	Setup	4-18
	Test	4-18
	Jump	4-18
Host function keys	Attention (Attn)	4-19
	Enter	4-19
	Field -	4-19
	Field +	4-20
	Function (Fn)	4-20
	Help	4-20
	System Request (SysRq)	4-20
	Reset	4-21

How to select the upper and alternate position of key labels

Some keys have a combination of characters, symbols, and labels printed on their key-top. To enter the one on the lower half, press the key alone. To enter the upper half, press and hold the upper shift (⇧) key then press the desired key.

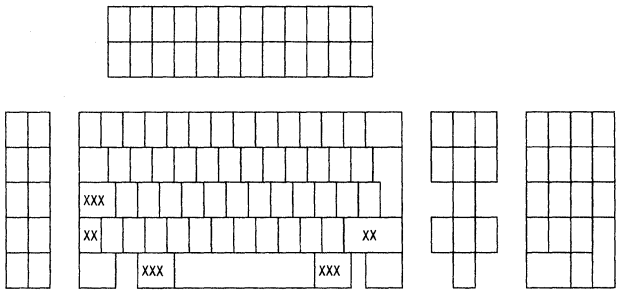


Some keys have a combination of characters, symbols, and labels printed on both the top and front of the key. To enable the top function, press the key alone. To enable the front function, press and hold the alternate (Alt) key then press the desired key.

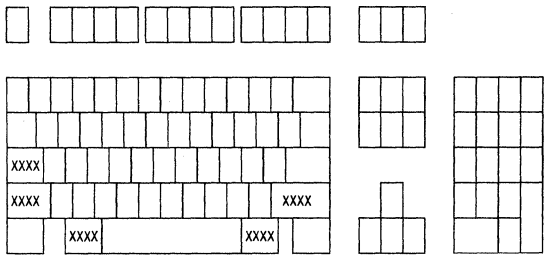


Keyboard Control Keys

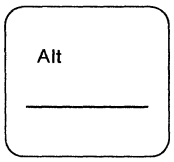
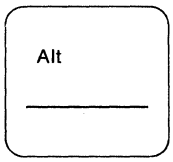
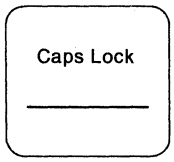
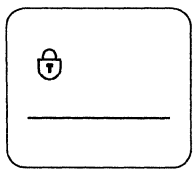
This sub-section describes the keys that control the shift states.

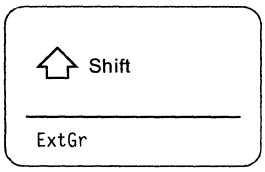
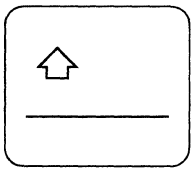
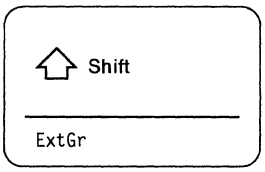


122-key typewriter keyboard

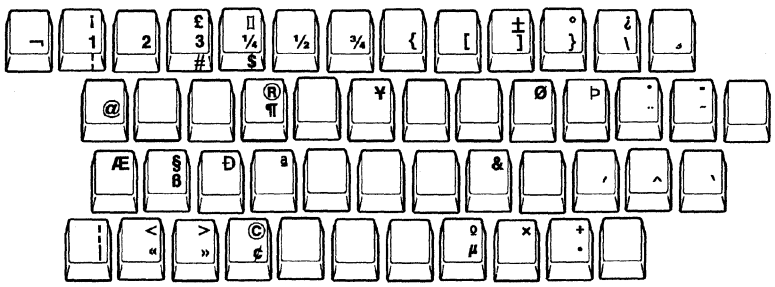


IBM Enhanced keyboard

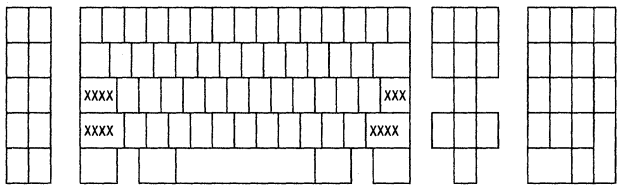
Typewriter keyboard	Enhanced keyboard	Description
Alternate Shift 		Some keys have names printed on the front of the keys. To activate this function, the key must be pressed while pressing and holding the Alt key. The name printed on the top of the key is the function activated when it is pressed alone.
Caps Lock 		When this key is pressed, the display station enters Caps Lock mode. Alphabetic characters and accented characters will appear in capital letters.
Shift Lock 		When this key is pressed: • The keyboard locks in upper shift • The alphabetic characters (A through Z and accented characters in some countries) are entered as uppercase letters • The symbols on the upper half of the numeric keys and the punctuation marks on the upper half of the other keys are entered. To return the keyboard to lower shift, press an upper shift (⇧) key.

Typewriter keyboard	Enhanced keyboard	Description
Extended Graphics		Press the ExtGr key, while pressing and holding the Alt key. This enables the 3477 display station to enter Extended Graphic mode. While in this mode, you can key and display any of the extended character sets shown on the extended character layout (see the note after this table for the extended character layout). Note that the characters for the extended character set are not engraved on the keytops. **Notes:** 1. Customers should be aware that when selecting this function, characters may be displayed and placed in a data file which cannot be recognized by other devices such as terminals and printers. Your system coordinator should be consulted to determine any effect the Extended Character Set may have on your existing data files. 2. After entering Extended Graphics mode, you can only activate a single extended character at a time. If another unique character is required, you have to press and hold the Alt key, and the ExtGr key again while pressing the corresponding key.
Upper Shift 		When this key is pressed and held down: • The alphabetic characters (A through Z) are entered as uppercase letters • The symbols on the top of the numeric keys and the punctuation marks on the upper half of the other keys are entered. • The functions located in the shift position of a key are selected. The symbol ⇧ appears in the operating status line when you press the upper shift (⇧) key.

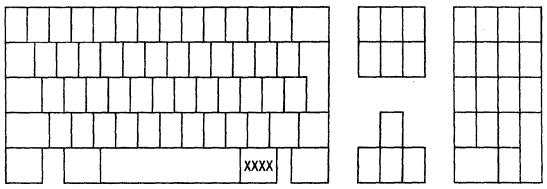
Note: The following keyboard layout shows the extended characters available in Extended Graphics mode. However, the U.S. English keyboard does not have a two symbol key at the far left bottom row in this mode. Also, the accent grave symbol key moves to the far right of the 2nd row.



Katakana Shift



124-key typewriter keyboard

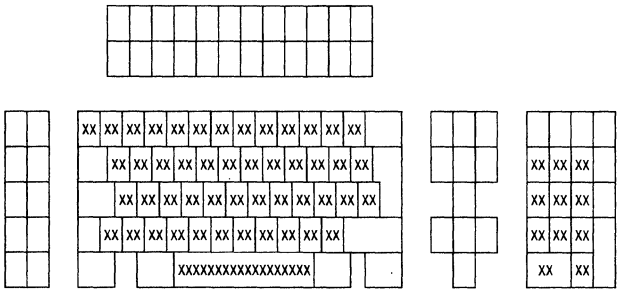


IBM Enhanced (104-key) keyboard

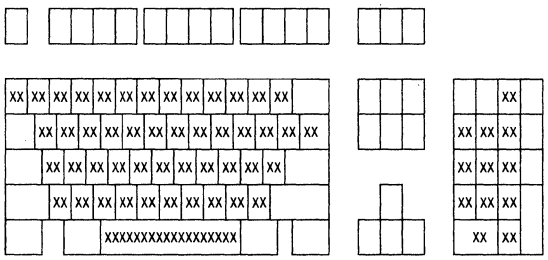
Typewriter keyboard	Enhanced keyboard	Description
Katakana Shift		Japanese Katakana keyboard only.
英数	英数 / カナ	The Japanese Katakana keyboard has four shift modes for the data character keys (see below). The current shift status is indicated in the operating status line as follows: **Alpha** blank **Alpha symbol** ⇧ **Kana** カナ **Kana symbol** カナ⇧ At power-on, the keyboard is set to Alpha shift. Depending on the keyboard type, the Katakana keys control the shift modes as follows: **124-key Typewriter Japanese Katakana keyboard:** The 英数, 英 記号, カナ, and カナ 記号 keys place the keyboard in Alpha, Alpha symbol, Kana, and Kana symbol modes, respectively. The keyboard remains in that shift mode until another Katakana shift key is pressed. **IBM Enhanced Japanese Katakana keyboard:** The 英数/ カナ key in Alpha or Alpha symbol shift mode, places the keyboard in Kana or Kana symbol shift mode, respectively. Pressing the 英数/ カナ key in Kana or Kana symbol shift mode, causes the keyboard to enter Alpha or Alpha symbol shift mode, respectively. In Alpha or Kana shift mode, pressing the upper shift key places the keyboard in Alpha symbol or Kana symbol shift mode. The shift lock (⇪) key can be used to lock the keyboard in Alpha symbol or Kana symbol shift mode. Pressing an upper shift key (⇧) returns to Alpha or Kana shift mode.
英 記号		
カナ		
カナ 記号		

Typewriter Type Keys

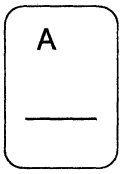
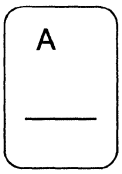
The keys listed below are data keys (A-Z, 0-9), diacritical marks, punctuation symbols, and Space Bar.

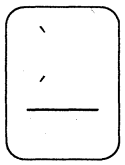
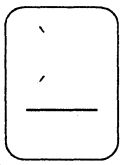
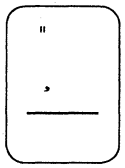
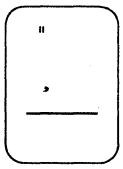
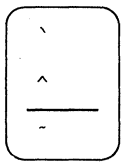
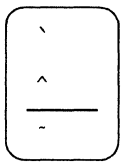
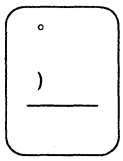
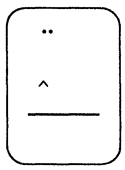
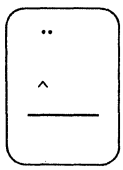
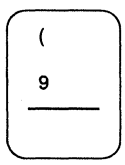
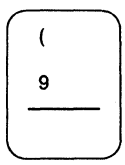
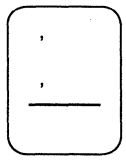
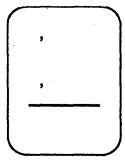


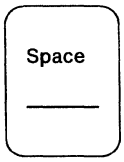
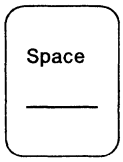
104/122-key keyboard



IBM Enhanced keyboard

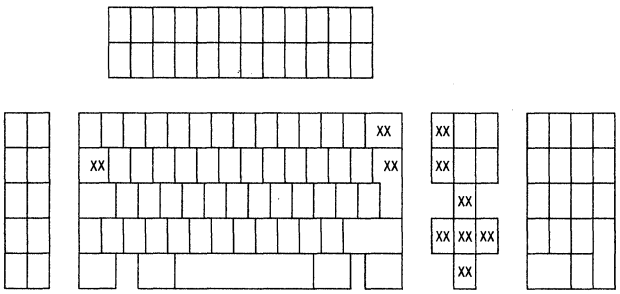
Typewriter keyboard	Enhanced keyboard	Description
Alphabetic  	 	Press the alphabetic keys in shift states (⇧, ⇪, or **Caps Lock** on S/36, S/38, and AS/400 Release 1). This displays the characters printed on the top of the keys at the current cursor position. The character displayed is either in upper case (if only one character appears on the key) or printed in the upper shift position of the key. On AS/400 Release 2, pressing an alphabetic key while in Caps Lock state will provide the equivalent upper case character regardless of position of the character on the keyboard. Pressing the alphabetic keys in the non-shift state displays the characters in lowercase. All alphabetic keys are repeat-action keys. If the cursor is not in an input field, pressing these keys causes ✖ to appear. Press the **Reset** key to remove this symbol and to unlock the keyboard.

Typewriter keyboard	Enhanced keyboard	Description
Diacritical Mark		When you press any of the keys with a diacritical mark, a ð appears on the operating status line and the corresponding diacritical mark appears at the cursor position. In this condition, the cursor does not move until you press the correct character key that makes a valid accented character. When you enter the valid accented character, the ð will disappear and you can continue entering data. You can also use the Alt, and Upper Shift (⇧) or Shift Lock (⇪) to make a character with a diacritical mark. Pressing the Reset key after entering a diacritical mark cancels the diacritical mode and produces a stand-alone accent at the cursor position. The diacritic mode is a function of the host system application programs and not of the 3477. Contact your system coordinator or see the system program manual for more information on how to use diacritic mode.
		
		
		
		
		
Numeric, Symbol, and Punctuation Mark		The numeric, symbol, and punctuation mark keys are repeat-action keys. If the cursor is not in an input field, pressing the key causes ✖ to appear. Press the **Reset** key to remove this symbol and to unlock the keyboard.
		
		

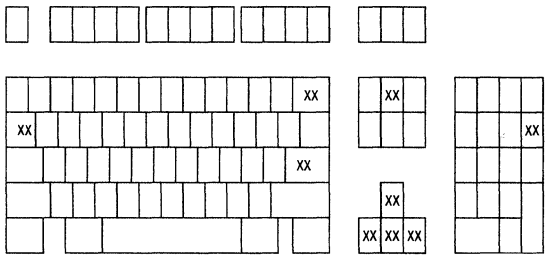
Typewriter keyboard	Enhanced keyboard	Description
Space and Space Bar 		In an input field, pressing the Space Bar or Space key causes a space to be entered at the current cursor position. The cursor moves to the next cursor position. The Space Bar and the Space keys are repeat-action keys. If the cursor is not in an input field, pressing the key causes ✖ to appear. Pressing the Reset key removes this symbol and unlocks the keyboard.

Cursor Control Keys

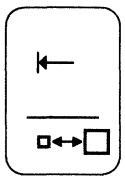
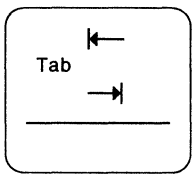
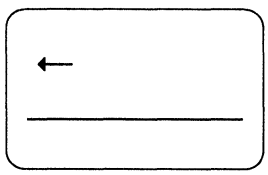
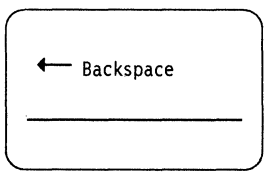
The keys listed below are the keys that control the cursor movements.

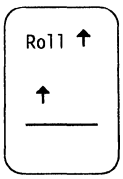
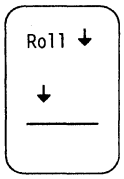
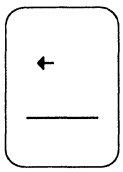
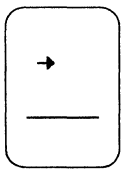
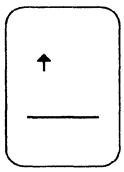
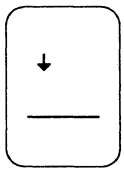
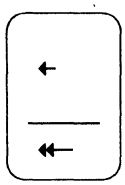
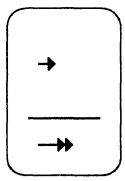
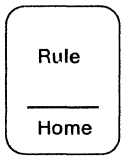
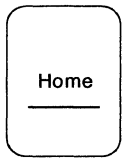
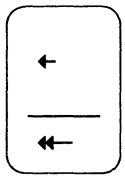
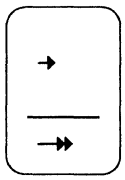


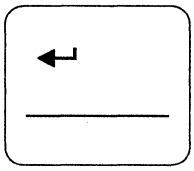
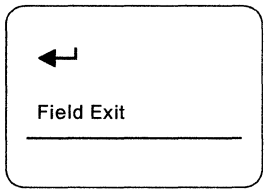
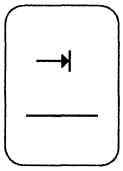
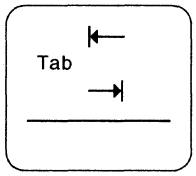
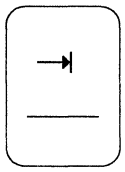
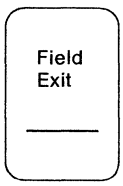
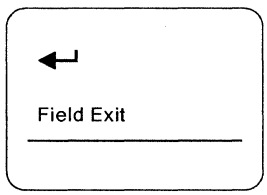
104/122-key keyboard



IBM Enhanced keyboard

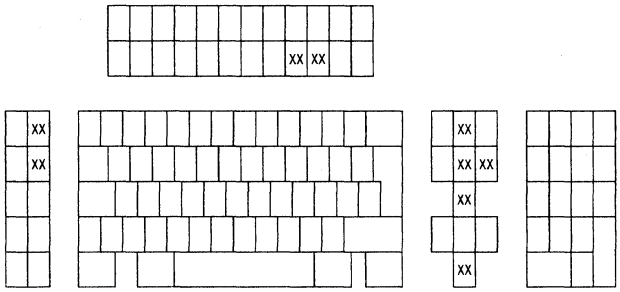
Typewriter keyboard	Enhanced keyboard	Description
Field Backspace 		This key moves the cursor back to the first position of an input field. If the cursor is in an input field, but not at the first position, press the Field Backspace (⇤) key to move the cursor to the first character position. Pressing the Field Backspace key moves the cursor to the first position of the previous input field when the cursor is not in an input field, or in the first position of an input field. If the screen is unformatted, or does not contain input fields, pressing the Field Backspace key moves the cursor to row 1, column 1 of the screen.
Character Backspace 		This key moves the cursor back to the previous position in which data can be entered. If the cursor is in the first position of an input field, it moves back to the last position of the preceding input field.

Typewriter keyboard	Enhanced keyboard	Description
Cursor    	   	Moves the cursor in the direction of the arrow without affecting the existing data. The cursor up and down keys are used to move the cursor one position at a time in the direction of the arrow. These keys move the cursor vertically on the screen. When either key is held down and the cursor moves off the screen edge, it reappears in the same column, on the opposite side of the screen. The cursor left and right keys are used to move the cursor horizontally on the screen. When you hold down the cursor right key and the cursor reaches the right edge of the screen, it reappears one line lower on the left side; that is, the cursor wraps. The cursor also wraps when you hold down the cursor left key at the left edge of the screen. It reappears one line higher on the right side of the screen. These keys are repeat-action keys.
Cursor Home  	 	Press the Cursor Home (↖) key (while holding down the Alt key for the 122/124-key keyboard only). This causes the cursor to move to the first input position of the screen. The cursor moves to row 1, column 1 of the screen if the screen is unformatted or has no input fields.
Double-speed Cursor	 	Pressing these keys while holding down the Alt key will move the cursor two positions at a time in the direction of the arrow. These keys are repeat-action keys. **Note:** This function is also supported on the typewriter keyboard by holding down the Shift key and pressing the cursor left or right keys.

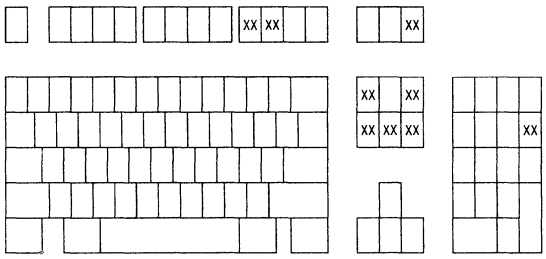
Typewriter keyboard	Enhanced keyboard	Description
New Line 		This key moves the cursor to the first input position on the next line. If there are no input positions, the cursor moves to row 1, column 1 of the screen. If the screen is unformatted, the cursor moves to the first character position on the next line. The **New Line** key wraps the cursor from the end of the screen to the beginning of the screen. This key is a repeat-action key.
Field Advance 	 	The Field Advance key allows you to move the cursor from the current position to the first input position of the next input field. If there are no input fields after the current cursor position, the cursor moves to the first character position of the first input field on the screen. If the screen is not formatted or does not contain input fields, pressing this key moves the cursor to row 1, column 1 on the screen. This key is a repeat-action key.
Field Exit 		The Field Exit function (activated by pressing the Field Exit key) causes the cursor to exit an input field, and null characters (displayed as blanks) are inserted from the current cursor location to the end of the field. When you press the Field Exit key in a right-adjust field, the data to the left of the cursor shifts to the right. The vacated positions are filled with zeros or blanks as specified by the program, and the cursor advances to the next input field.

Screen Control Keys

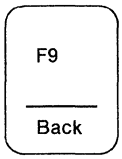
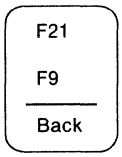
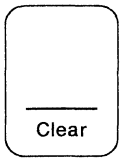
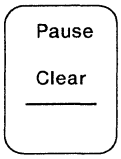
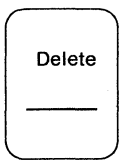
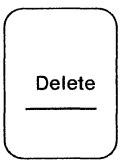
The keys listed below control data on the screen such as scrolling backward or forward, deleting or duplicating data and data insertion.

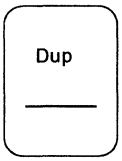
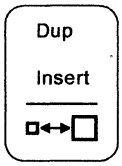
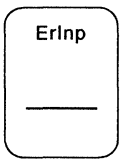
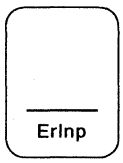
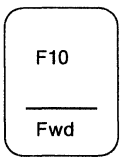
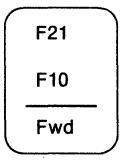
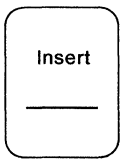
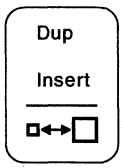


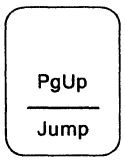
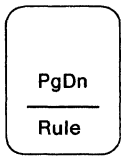
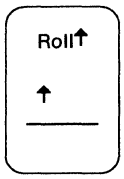
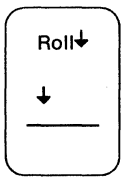
122-key typewriter keyboard



IBM Enhanced keyboard

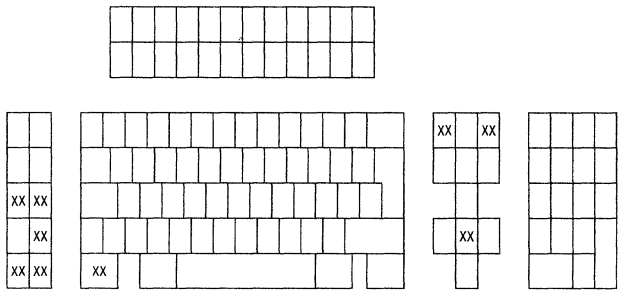
Typewriter keyboard	Enhanced keyboard	Description
Backward 		In split screen, when the lower half screen (for logical display station 2) is inactive, pressing this key scrolls the lower half screen down.
Clear 		Press this key while holding and pressing the Alt key. This blanks the current screen except for the cursor, the separator line, and the operating status line. It allows recovery if you accidentally press the Clear key. The host system program defines the way this function operates. Contact your host system coordinator or refer to the host system operating manual for additional information.
Delete Character 		Pressing the Delete Character key deletes data from an input field. When you press this key, the character at the cursor location is deleted, and all characters to the right of the cursor (in the same input field) shift one position to the left. Null characters are inserted into the right end of the field as the characters in the field shift left. If you press the Delete Character key when the cursor is not located in an input field, ✖ appears. Press the **Reset** key to remove the symbol and to unlock the keyboard. The Delete Character key is a repeat-action key.

Typewriter keyboard	Enhanced keyboard	Description
Duplicate 		Press the Dup key (the Dup key plus a ⇧ key on the IBM Enhanced keyboard). In a field programmed to allow duplication, the symbol ⌧ is placed at the cursor position. This causes the program to duplicate the data in the same field as in the previous record. Pressing this key when the cursor is not in an input field will cause ✖ to appear in the operating status line. To remove the symbol and to unlock the keyboard, press the Reset key.
Erase Input 		Press this key (the ErInp key plus the Alt key on the IBM Enhanced keyboard). This erases the contents of all input fields on the screen and moves the cursor to the beginning of the first input field. If the screen has no input field, the cursor moves to row 1, column 1 of the screen; no data is erased. If the screen is unformatted, this key clears the screen and moves the cursor to row 1, column 1 of the screen. In Record mode, after pressing the target F key, if you press the Erase Input key, the data recorded for that F key will be erased.
Forward 		In split screen, when the lower half screen (for logical display station 2) is inactive, pressing this key scrolls the lower half screen up.
Insert Mode 		This key places the keyboard in insert mode. The Insert symbol ^ appears in the operating status line. Pressing this key allows you to insert a character into an existing input field without writing over existing data. Null characters, displayed as blanks, must be in the right-most positions of the field where the insert will be performed. When a new character is inserted at the cursor location, characters at and to the right of the cursor will shift one position to the right. If you attempt to insert more characters than there are nulls, ✖ appears in the operating status line, and the keyboard locks. Pressing the Reset key removes the symbol and unlocks the keyboard. To turn off insert mode, press the Reset key. The following keys also may turn off insert mode. Attn, Clear, Enter, SysRq, and F1 - F24 Insert will also be supported as a toggle key at AS/400 Release 2.

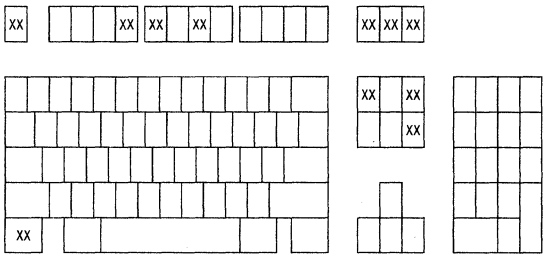
Typewriter keyboard	Enhanced keyboard	Description
Page	 	The page up and page down functions are used to move data up or down on the display screen. Pressing the PgUp key replaces the current data on the screen with the previous page (data above the current display screen). Pressing the PgDn key replaces the current data on the screen with the next page (data below the current display screen).
Roll  		Use the Roll function to move data on the display screen up or down. Activate the Roll function by pressing and holding a Shift key, then by pressing the desired Roll key. Pressing the Roll down key causes the previous page (data below the current display screen) to replace the current data. Pressing the Roll up key causes the next page (data above the current display screen) to replace the current data.

Local Function Keys

The keys listed below describe the local available function keys. Pressing these keys will not transmit scan codes to the host system.

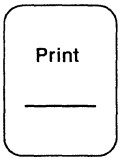
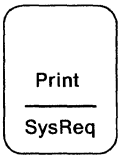
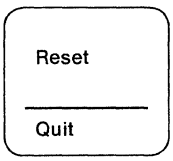
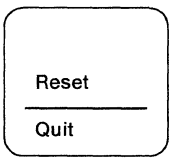
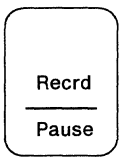
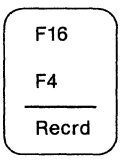
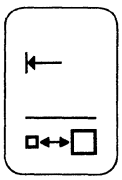
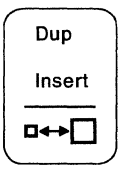
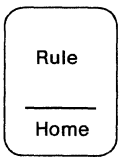
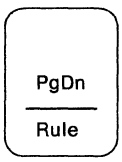


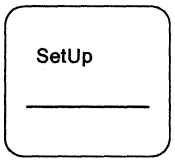
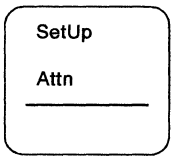
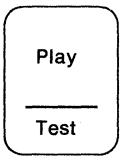
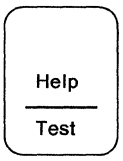
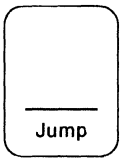
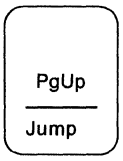
122-key typewriter keyboard



IBM Enhanced keyboard

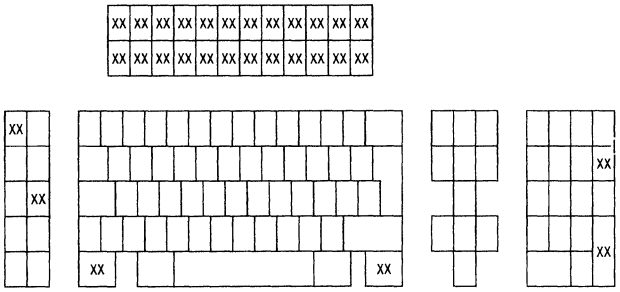
Typewriter keyboard	Enhanced keyboard	Description
Hex Help Hex	F19 F7 Hex	Use the Hex function to enter the hexadecimal value for a character. To enter a hexadecimal value, press the Hex key while pressing and holding an Alt key, then enter the corresponding hexadecimal value using the alphanumeric keys. The function must be repeated for each hexadecimal value entered. (Refer to the *IBM 5250 Function Reference Manual*, SA21-9247 for the hexadecimal value for each character.) **Note:** For valid hexadecimal characters, use 4-9 and A-F for the first character and 0-9, and A-F for the second character. Do not use "FF."
Pause Recrd Pause	Pause Clear	Press this key while pressing and holding the Alt key (the Pause key plus the Shift key on the IBM Enhanced keyboard). This stops the playback operation to insert additional data. Press the Pause key once where you want to insert data during the record mode operation. Then the pause is recorded together with other recorded data. When you playback the recorded key strokes, the playback operation automatically stops at the pause. After you key in data, the playback starts again when you press the Play key.
Play Play Test	F17 F5 Play	Press the Play key (the Play key plus the Alt key on the IBM Enhanced keyboard). To play back recorded data assigned to the Function keys. See "Playing" in Chapter 2, "Operations" on page 2-1 for more information about the Play function.

Typewriter keyboard	Enhanced keyboard	Description
Print 		When in either terminal mode: One-Display or Two-Display, press the Print key. This allows the 3477 to enter print mode and a ▱ appears on the operating status line. Press the Enter key, and data on the entire screen or a part of the screen is sent to the printer attached to your 3477. While sending the data to the printer, a ▰ appears on the operating status line. If the printer is not ready, a ⊠ appears. Pressing the Reset key removes the ⊠ from the screen. When in Display-Printer mode, press the Print key; this sends a print request to the host system. If supported, the host system program selects the printer that will print the data displayed on the screen. To cancel the printing operation, press the Setup key first and then press the Quit key (press and hold the Alt key, then press the Reset key).
Quit 		In Printer Setup mode, press this key while holding down the Alt key. This stops the printing operation and cancels the printing of the remainder of the file. The printer attached to the 3477 then starts printing the beginning of the next file. This key is also used to end a recording and playback sequence.
Record 		Press the Record key (the Recrd key plus the Alt key on the IBM Enhanced keyboard). This records data sequences to be assigned to the Function keys. See "Recording" in "Recording" on page 2-18 for more information about the Record function.
Zoom 		The zoom function (activated by pressing the Zoom key while pressing and holding the Alt key) allows you to change the screen format from the split screen to the non-split screen (full screen) or from the non-split screen to the split screen in two-display terminal mode.
Rule 		Pressing this key (while pressing and holding down the Alt key for the IBM Enhanced keyboard) makes the rule line (a horizontal, vertical, or cross straight line) appear or disappear on the screen. The rule line displayed on the screen indicates the row and/or column of the cursor. If the follow cursor is selected in online setup mode, a rule line can be coincidentally moved with the cursor. The rule line style can be chosen in online setup mode.

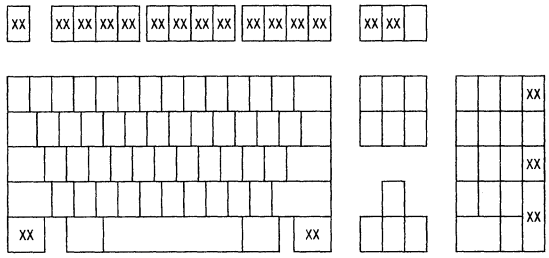
Typewriter keyboard	Enhanced keyboard	Description
Setup 		When you press the Setup key (the Setup key plus the Shift key on the IBM Enhanced keyboard) while in communication mode, the display station enters Setup mode, allowing you to: • Adjust alarm volume • Enable/disable clicker • Adjust clicker volume • Select cursor style • Enable/disable cursor blink • Enable/disable cursor indicator • Select rule line characteristics • Enable/disable auto display dim • Enable/disable the extended display • Select reverse image (black-on-white model only) This key is also used for entering printer setup mode, and browsing display information and printer information from online setup mode. When you press the Setup key again, the display station returns to communication mode.
Test 		This key is not used for the 3477. Nothing happens when you press this Test key.
Jump 		The Jump function (the Jump key plus the Alt key) allows you to change the active screens. You can move from one split screen to the other (when the screen format is split) in two-display terminal mode. When the screen format is non-split, this key allows you to make the hidden screen active. The repeated key action changes the active screen to the previous condition. **Note:** In two-display terminal mode, the display screen can be split into two screens; 24 lines of 80 characters or 18 lines of 80 characters. One of the two split screen is always active. The upper half split screen connects to the logical display station 1 and the other connects to the logical display station 2.

Host Function Keys

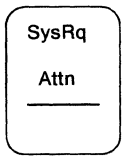
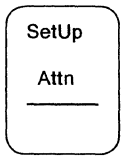
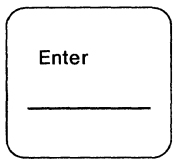
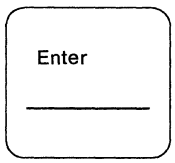
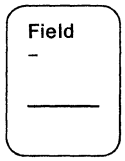
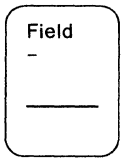
The keys listed below are the keys whose scan codes will be transmitted to the host system when pressed.

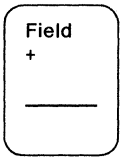
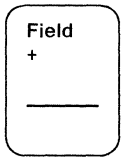
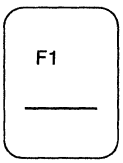
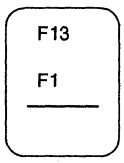
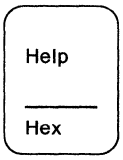
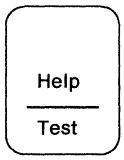
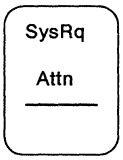
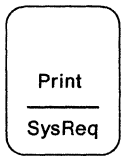


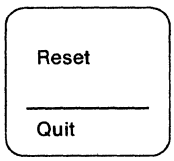
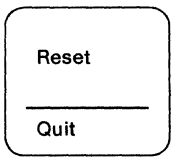
122-key typewriter keyboard



IBM Enhanced keyboard

Typewriter keyboard	Enhanced keyboard	Description
Attention 		This key is used to temporarily stop the present display station activity and select a new activity.
Enter 		When the System Available symbol (▮) appears on the operating status line, press the Enter key. This transmits data you have keyed in on the screen to the application program. This key does not change the keyboard shift status, but it does cancel insert mode.
Field – 		The Field – function (activated by pressing the Field – key) can vary depending on the system. On most systems, the Field – function operates the same as the Field+ and Field Exit functions, except that it is allowed only in signed-numeric and numeric-only fields. Pressing the Field – key inserts a – (minus) sign in the last position of a signed numeric-only field, or it changes the last position of a numeric-only field to an alphabetic character. (This alphabetic character is used to tell the system the numeric value of the last position and that it is a negative field.) Pressing the Field – key causes an error if used in any field not programmed to accept negative numbers as input.

Typewriter keyboard	Enhanced keyboard	Description
Field + 		The Field+ function (activated by pressing the Field+ key) causes the cursor to exit an input field, and null characters (displayed as blanks) are inserted from the current cursor location to the end of the field. When you press the Field+ key in a right-adjust field, the data to the left of the cursor shifts to the right. The vacated positions are filled with zeros or blanks as specified by the program, and the cursor advances to the next input field. When you enter numeric data, you can use the Field+ key instead of the Field Exit key.
Function 		The function keys (F1 - F24) provide a means of communicating with the application program. Each Function key sends a particular signal to the application program. If ■ is not present, pressing a function key causes ✖ to appear. Press the Reset key to remove this symbol and to unlock the keyboard.
Help 		The Help function (activated by pressing the Help key) provides (1) an explanation of current error conditions or (2) help from the system. The system must be programmed to support the Help function. See Appendix A, "Display Station Controls and Adjustments" for more information about the error codes.
System Request 		This function can vary depending on the host system. With most systems, you use this function to: • Select and start an alternate job • Notify the host system that the display station is ready to select a new program or activity • Request that the keyboard be unlocked (after normal error-recovery action has failed) so that you can enter data. To use this function, press and hold a Shift key and press the System Request (SysRq) key (press and hold the Alt key and press the System Request key on the IBM Enhanced keyboard). Then press the Enter key. To cancel this function, press the Reset key, then press the Enter key.

Typewriter keyboard	Enhanced keyboard	Description
Reset  	 	The Reset key: • Causes the display station to leave insert mode and removes the symbol ^. • Cancels a diacritical-mark key and character key input, leaving a stand-alone accent at the cursor position. • Ends the help and system request functions. • Cancels a hex key. • Clears operator errors. • Unlocks the keyboard and removes the do-not-enter symbol ✖ currently displayed in the operating status line except: **Security key** ✖🔒 **Printer Not Ready** ✖🖂

Chapter 5. Problem Solving Guide

This chapter will help you solve problems that you may have with your IBM 3477.

When you encounter any problems during the initial power-on time, perform the "Problem Solving Initial Check" on this page first, and then go to the "Problem Symptom" list to select the symptom and follow the instructions.

If you cannot define the problem, go to the "Analysis Procedures" starting on page 5-4. The procedures help you to find the symptom and guide you to the appropriate instructions for correcting the problem.

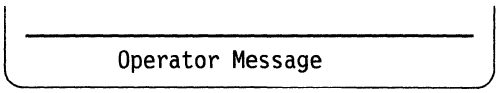
CAUTION

The power cord plug is approved for use with this display station and meets the relevant laboratory, country, or test-house standards. For your safety, the plug must be connected to a properly wired and grounded receptacle. An improperly wired receptacle could place a hazardous voltage on accessible metal parts of the display station. The customer is responsible for receptacle wiring.

Problem Solving Initial Checks

This section guides you in isolating the failing parts of your display station as well as in identifying operational errors.

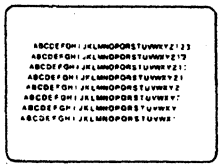
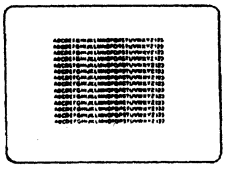
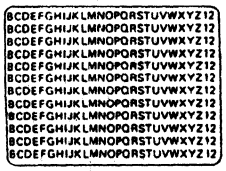
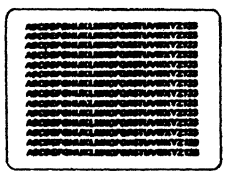
1. Does the alarm sound continuously?
   Yes, go to "Alarm sounds continuously" on page 5-16
   No, go to step 2.
2. Do four digit error codes (0000 - 9041) appear on the screen?
   Yes, go to "Error Codes and Recovery Procedures" on page 3-11.
   No, go to step 3.
3. Does L, K, or LK appear on the operating status line?

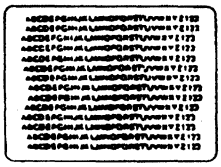
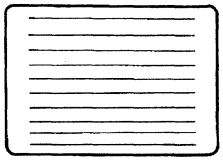
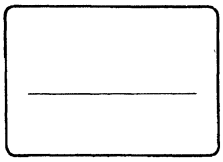
   

   Yes, go to "Operator Messages" on page 5-6.
   No, go to "Problem Symptom" on page 5-2, then find your symptom from the chart, and perform the appropriate action.

Problem Symptom

Compare the symptom of your problem with the symptoms listed below. When you find a matching symptom, go to the appropriate page and follow the instructions.

Problem Category	Symptom	Page
Four digits error codes	0000 - 9041	3-11
Operator Message	Operator Message	
	L, LK, or K	5-6
	Security Key Symbol (✖)	5-7
Error Recovery Instructions	Error Recovery Instructions	
	Specify station address.	5-8
	Selections have been reset to the IBM default values.	5-10
	Specify serial number.	5-14
Alarm	Alarm sounds continuously	5-16
	Alarm does not sound	5-16
Display	Screen is blank	5-18
	Only a horizontal line and a cursor are displayed	5-21
	An unexpected cursor appears on the screen	5-22
	Screen Problem Distorted  Shrunk  Tilted Expanded  Out of Focus 	5-23
	Screen too dark	5-23
	Brightness knob does not work	5-23
	Contrast knob does not work (for monochrome models)	5-23
	Screen is wavy	5-24

Problem Category	Symptom	Page
	  	
	The color is not correct	5-25
	Characters or symbols on the screen have extra or missing dots	5-30
	Offline Setup panel appears when not requested	5-30
	Characters or symbols on the screen are moving vertically or horizontally	5-30
Keyboard	Characters are typed, but are not displayed on the screen	5-31
	Keyboard clicker does not sound	5-32
	A single character is typed, but multiple characters are displayed on the screen	5-33
	An unexpected character (a character different from what should appear) is displayed on the screen	5-33
	Typematic keys do not work	5-33
	Characters are displayed on the screen without typing	5-33
Power-on Light	The power-on light does not come on	5-34
Printer	Printer does not work	5-38
Mechanical	The security key does not work	5-40
	The cover is damaged	5-40
	The stand is damaged	5-40

```
                Offline Setup

Move cursor to desired selection and press ENTER.

  Customize workstation

  Update serial number

  Test workstation
```

HELP

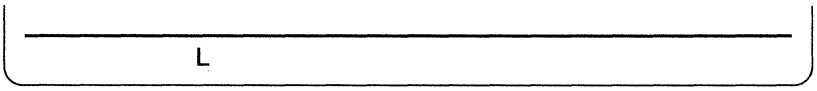
If you cannot find a symptom that matches your problem or you failed to isolate the problem, do the "Analysis Procedures" on the following page which will guide you to the correct symptom.

Analysis Procedures

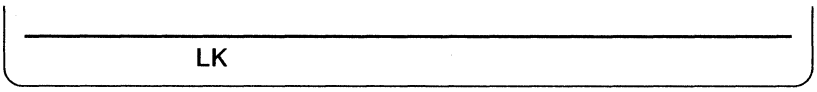
Note to the reader

These procedures help you define the problem and guide you to the appropriate instruction for correcting the problem.

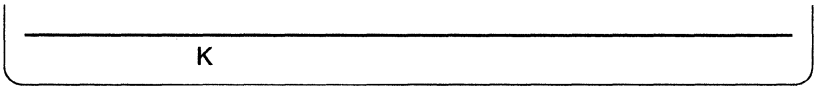
1. Set the power switch to Off and wait approximately ten seconds.
2. Set the power switch to On. Does the alarm sound continuously?
   YES, go to "Alarm sounds continuously" 5-16.
   NO, go to step 3.
3. Does the power-on light stay on?
   YES, go to step 4.
   NO, go to "The power-on light does not come on" on page 5-34.
4. Wait approximately ten seconds. Is the screen blank?
   YES, go to "Screen is blank" on page 5-18.
   NO, go to step 5.
5. Does "L" appear on the operating status line?



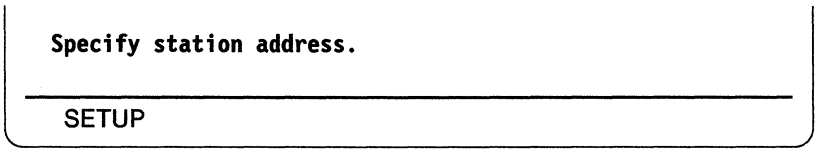
   YES, go to L on page 5-6.
   NO, go to step 6.
6. Does "LK" appear on the operating status line?



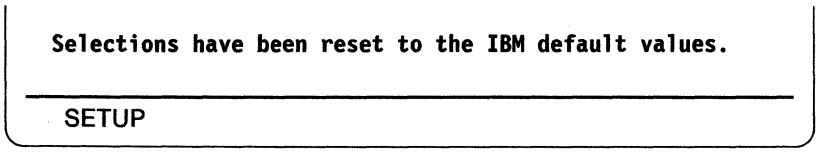
   YES, go to LK on page 5-6.
   NO, go to step 7.
7. Does "K" appear on the operating status line?



   YES, go to K on page 5-6.
   NO, go to step 8.
8. Does "Specify station address." appear on the screen?



   YES, go to "Specify station address." on page 5-8.
   NO, go to step 9.
9. Does "Selections have been reset to the IBM default values." appear on the screen?



   YES, go to "Selections have been reset to the IBM default values." on page 5-10.

NO, go to step 10.

10. Does "Specify serial number." appear on the screen?

```
Specify serial number.

SETUP
```

YES, go to "Specify serial number." on page 5-14.
NO, go to step 11.

11. Does an "Offline Setup" panel appear on the screen?
YES, go to "Offline Setup panel appears when not requested" on page 5-30.
NO, go to step 12.
12. Set the power switch to Off and wait approximately ten seconds.
13. Press and hold the Space Bar, and set the power switch to On.

Wait approximately ten seconds. Does the "Offline Setup" panel appear on the screen?
YES, go to step 14.
NO, the keyboard is failing. Go to "Request for Service" on page 5-46.

14. Move the cursor to select "Test workstation" and press the Enter key.

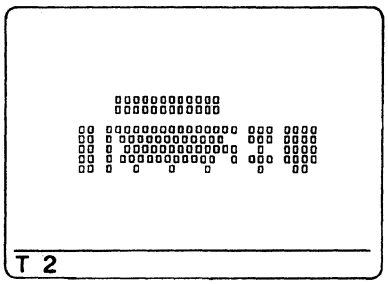
Does "TEST" appear on the operating status line?

```
TEST
```

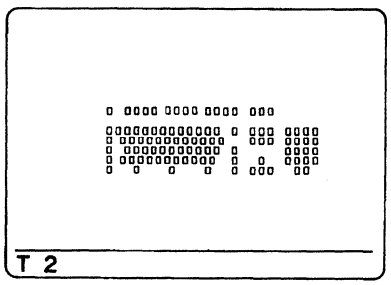
YES, go to step 15.
NO, the keyboard is failing. Go to "Request for Service" on page 5-46.

15. Press and hold the Alt key and press the F2 key. Either of the following keyboard layouts will appear on the screen.

122/124-key Keyboard



IBM Enhanced Keyboard



Does "T 2" appear on the operating status line?

```
T 2
```

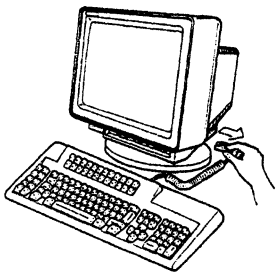
YES, go to step 16.
NO, the keyboard is failing. Go to "Request for Service" on page 5-46.

16. While observing the screen, press any key that you suspect is failing.

Does each corresponding key position on the screen change from □ to ■ or vice versa?
YES, go to Logic Element Check Procedure on page 5-44.
NO, the keyboard is failing. Go to "Request for Service" on page 5-46.

Operator Messages

This section describes the meanings and actions to take when "L", "LK", "K" or "X" are displayed on the operating status line.

Symbol	Action
L	The logic element is failing. Go to "Request for Service" on page 5-46.
LK	1. Set the power switch to Off; and wait approximately ten seconds. 2. Set the power switch to On. 3. Does "LK" still appear? **Yes,** go to step 4. **No,** your problem has been corrected; return to the desired operation. 4. Set the power switch to Off. 5. Disconnect the keyboard cable from the logic element.  6. Set the power switch to On. 7. Does "LK" still appear? **Yes,** the logic element is failing. Go to "Request for Service" on page 5-46. **No,** the keyboard is failing. Go to "Request for Service" on page 5-46.
K	1. Set the power switch to Off. 2. Make sure the keyboard cable is tightly connected. 3. Set the power switch to On. 4. Wait ten seconds. Does "K" still appear? **Yes,** the keyboard is failing. Go to "Request for Service" on page 5-46. **No,** your problem has been corrected; return to the desired operation.

Symbol	Action
✕🔒	1. Turn the security key counterclockwise. 2. Turn the security key clockwise. 3. Does "✕🔒" still appear? **Yes,** go to step 4. **No,** your display station has been corrected; return to the desired operation. 4. Set the power switch to Off; wait approximately ten seconds. 5. Set the power switch to On. Does "✕🔒" still appear? **Yes,** the logic element is failing. Go to "Request for Service" on page 5-46. **No,** your problem has been corrected; return to the desired operation.

Error Recovery Instructions

This section describes the actions to take when one of the following error recovery instructions are displayed on the screen.

- Specify station address.
- Selections have been reset to the IBM default values.
- Specify serial number.

Symptom

Specify station address.

Note: If this error condition occurs frequently, the logic element is failing. Go to "Request for Service" on page 5-46.

1. The "Offline Setup" panel with "Specify station address." appears on the screen.

```
                    Offline Setup
Move cursor to desired selection and press ENTER.

 Customize workstation

 Update serial number

 Test workstation



 Specify station address.

SETUP
```

2. Press the Enter key. The "Customization" panel will appear on the screen.

   Note: The contents of the "Customization" varies depending upon the terminal mode you select. The screen image shown below is for the One-Display terminal mode.

```
                    Customization                          More: +
Move cursor to desired choice, then press SPACE BAR to select.

     Terminal mode . . . . . One-Display  Two-Display  Display-Printer

     Display address 1 . . . . . 0    1     2     3     4     5     6


     Character set . . . . . Country Specific    Multinational


     Printer character set . . . PC            Type A         Multilingual1
                                 Multilingual2  Multilingual3  Multilingual4


Specify station address.


SETUP
```

3. Select the correct display address using the cursor move keys and press the Space Bar. The selected address (0 for this example) will be displayed in high intensity (monochrome) or yellow (color) and the screen will be changed as follows.

```
                        Customization                          More: +
Move cursor to desired choice, then press SPACE BAR to select.

   Terminal mode . . . . . One-Display  Two-Display  Display-Printer

   Display Address 1 . . . . 0     1     2     3     4     5     6
```

4. Press the F3 key.
5. Does "Specify serial number." appear on the screen?

```
Specify serial number.
F3=Exit
  SETUP
```

Yes, go to "Specify serial number." on page 5-14.
No, press the F3 key to return to communication mode. Continue operation.

Symptom

Selections have been reset to the IBM default values.

Note: If this error condition occurs frequently, the logic element is failing. Go to "Request for Service" on page 5-46.

1. The "Offline Setup" panel with "Selections have been reset to the IBM default values." appears on the screen.

```
                    Offline Setup
Move cursor to desired selection and press ENTER.

     Customize workstation

     Update serial number

     Test workstation



Selections have been reset to the IBM default values.

SETUP
```

2. Press the Enter key. The "Customization" panel will appear on the screen.

```
                    Customization                          More: +
Move cursor to desired choice, then press SPACE BAR to select.

     Terminal mode . . . . . One-Display   Two-Display   Display-Printer

     Display address 1 . . . . . 0    1     2     3     4     5     6

     Character set . . . . . Country Specific            Multinational

     Printer character set . . . PC           Type A       Multilingual1
                                 Multilingual2 Multilingual3 Multilingual4

Selections have been reset to the IBM default values.

SETUP
```

3. The offline setup values you selected have been reset to the IBM default values (shown in high intensity). Compare the setup values on the screen with the values on the Setup Sheet (see Setup Instructions of Chapter 1 of this manual).

   If the setup values are the same, press the F8 key and go to step 4.

   If any of the setup values are different from the ones selected, choose the appropriate setup values using the cursor move keys, and press the Space Bar. Press the F8 key and go to step 4.

4. The additional setup values appear.

```
                          Customization                        More: -
Move cursor to desired choice, then press SPACE BAR to select.

      Keyboard type . . . . . . . Standard       User defined

F3=Save and Exit   F7=Backward
  SETUP
```

If the values are correct, skip this step and press the F3 key. If the values are incorrect, choose the appropriate values in the same way as in step 3, and press the F3 key.

5. The "Offline Setup" panel appears again.

Does "Specify serial number." appear on the screen?

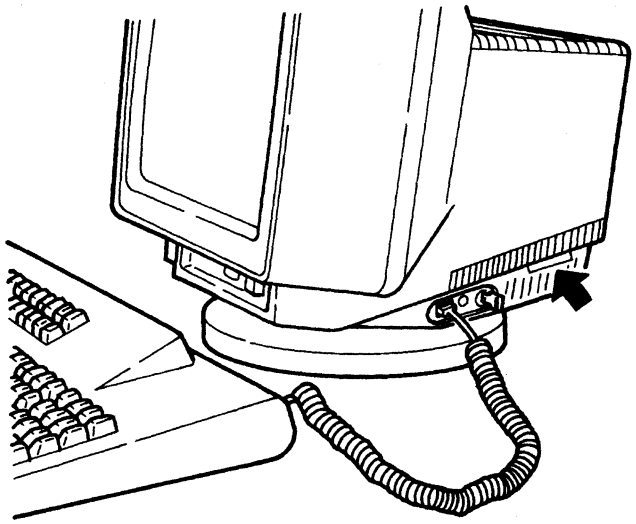
```
Specify serial number.
F3=Exit
  SETUP
```

Yes, go to step 6.
No, go to step 10.

6. Move the cursor to select "Update serial number" and press the Enter key. The following panel appears on the screen.

```
                          Serial Number
Move cursor to desired choice, then press SPACE BAR to select.
                                  1  2     3  4  5  6  7  8  9
      Machine serial. . . . . . . _  _     _  _  _  _  _  _  _

        Plant of manufacture
           First   position . . . . . 0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ
           Second  position . . . . . 0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ

        Serial number
           Third   position . . . . . 0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ
           Fourth  position . . . . . 0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ
           Fifth   position . . . . . 0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ
           Sixth   position . . . . . 0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ
           Seventh position . . . . . 0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ
           Eighth  position . . . . . 0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ
           Ninth   position . . . . . 0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ

Specify serial number.
F3=Save and Exit
  SETUP
```

7. Observe the serial number printed on the label attached near the Security key.



- The far left two digits of the serial number label correspond to positions 1 and 2 on the "Serial Number" panel.
- The next two positions on the "Serial Number" panel, 3 and 4, must be 00.
- The last five digits of the serial number label correspond to the remaining five positions, 5 to 9, on the "Serial Number" panel. See the figure above and the table shown below.

8. Enter the correct serial number on the label in the following manner.

Relationship between the serial number label and the display panel

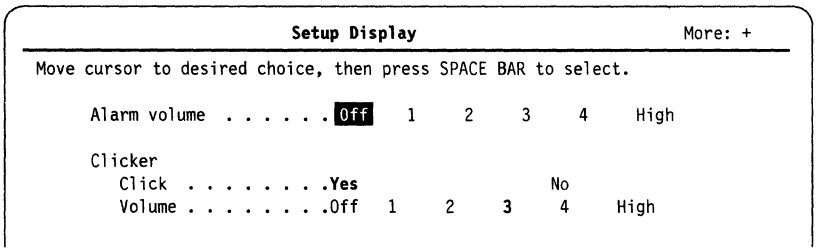
Serial number label	TYPE 3477 S/N XX-XXXXX 12 34567
Machine serial on the serial number panel	Machine Serial ..... X X 0 0 X X X X X 1 2 3 4 5 6 7

9. Press the F3 key to save the values of the serial number.

10. Press the F3 key again, and then press the Setup key for the 122/124-key keyboard (the Setup key with the Shift key for the IBM Enhanced keyboard). The "Online Setup" panel appears.

```
                    Online Setup
Move cursor to desired selection and press ENTER.

     Setup display

     Browse display information

     Setup printer

     Browse printer information
```

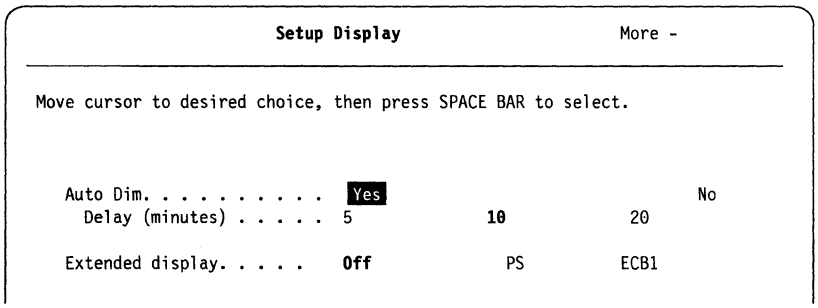
11. Press the Enter key. The "Setup Display" panel appears.



If the setup values are correct, press the F8 key and go to step 12. If the values are incorrect, re-set the appropriate values in the same way as in step 3. Press the F8 key.

12. The additional setup values appear.

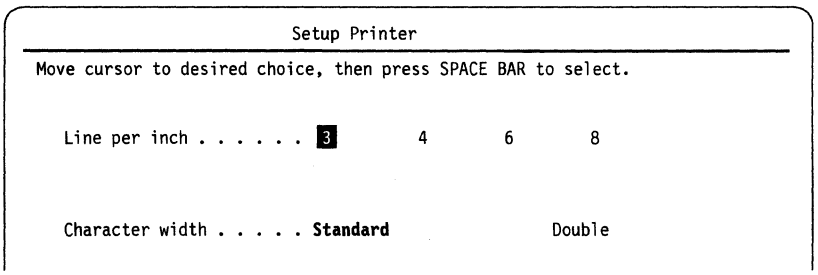
If the values are correct, skip this step. If the values are incorrect, select the appropriate values in the same way as in step 3.



13. Press the F3 key. The "Online Setup" panel appears again.

14. Are you using the printer?
Yes, go to step 15.
No, press the F3 key to return to communication mode. Return to the desired operation.

15. Move the cursor to select "Setup printer" and press the Enter key. The "Setup Printer" panel appears.



16. If the values are correct, skip this step. If the values are incorrect, select the appropriate values in the same way as in step 3.

17. Press the F3 key twice to return to communication mode.

Symptom

Specify serial number.

Note to the reader

1. If this error condition occurs frequently, the logic element is failing. Go to "Request for Service" on page 5-46.
2. The recorded serial number was reset and is now filled with null characters. You need to enter the correct serial number in the following sequence.

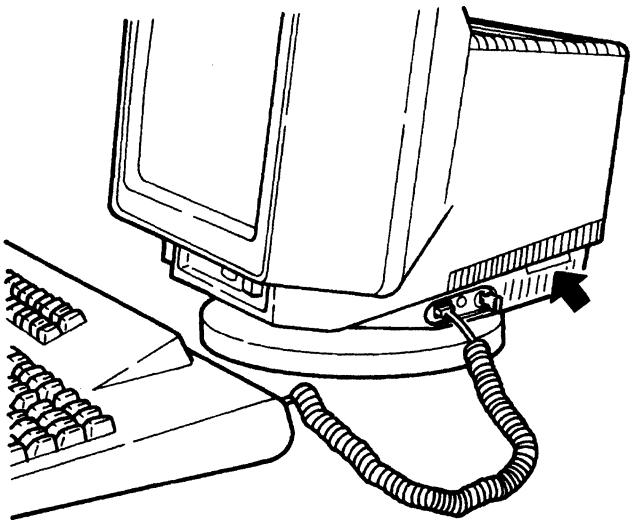
1. The "Offline Setup" panel with "Specify serial number." appears on the screen.

```
                        Offline Setup
Move cursor to desired selection and press ENTER.

      Customize workstation

      Update serial number

      Test workstation




Specify serial number.

F3=Exit
  SETUP
```

2. Move the cursor to select "Update serial number"and press the Enter key. The following panel appears on the screen.

```
                        Serial Number
Move cursor to desired choice, then press SPACE BAR to select.
                                 1  2     3  4  5  6  7  8  9
      Machine serial. . . . . . . _  _     _  _  _  _  _  _  _

        Plant of manufacture
           First   position . . . . . 0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ
           Second  position . . . . . 0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ

        Serial number
           Third   position . . . . . 0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ
           Fourth  position . . . . . 0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ
           Fifth   position . . . . . 0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ
           Sixth   position . . . . . 0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ
           Seventh position . . . . . 0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ
           Eighth  position . . . . . 0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ
           Ninth   position . . . . . 0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ

Specify serial number.

F3=Save and Exit
  SETUP
```

3. Observe the serial number printed on the label attached near the Security key.



- The far left two digits of the serial number label correspond to positions 1 and 2 on the "Serial Number" panel.
- The next two positions of the "Serial Number" panel, 3 and 4, must be 00.
- The last five digits of the serial number label correspond to the remaining five positions, 5 to 9, on the "Serial Number" panel. See the figure above and the table shown below.

4. Enter the correct serial number using the numbers on the label in the following manner.

Relationship between the serial number label and the display panel

Serial number label	TYPE 3477 S/N XX-XXXXX 12 34567
Machine serial on the serial number panel	Machine Serial ..... X X 0 0 X X X X X 1 2 3 4 5 6 7

5. Press the F3 key to save the values of the serial number. Press the F3 key again to return to communication mode.

Alarm Problems

This section covers the alarm problems.

Symptom

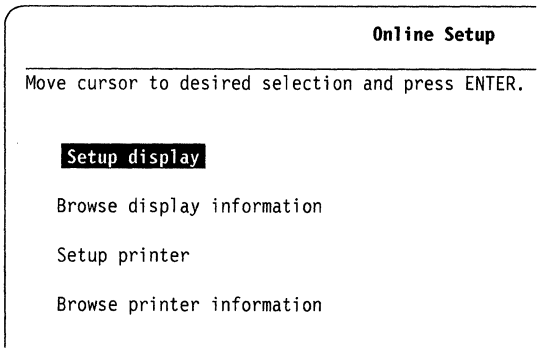
Alarm sounds continuously.

1. Does the power-on light stay on?
   Yes, go to step 2.
   No, go to the symptom, "The power-on light does not come on." on page 5-34.
2. Set the power switch to Off; wait approximately ten seconds.
3. Set the power switch to On.
4. Does the alarm still sound continuously?
   Yes, the logic element is failing. Go to "Request for Service" on page 5-46.
   No, your problem has been corrected. If this is a continuous occurrence, go to "Request for Service" on page 5-46.

Symptom

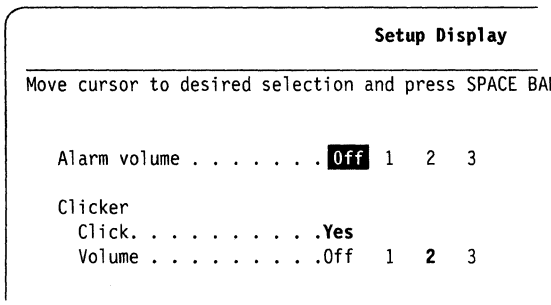
Alarm does not sound.

1. Is the screen completely blank?
   Yes, go to "Screen is blank." on page 5-18.
   No, go to step 2.
2. Press the Setup key (the Setup key with the Shift key for the IBM Enhanced keyboard).
3. Does the "Online Setup" panel appear?

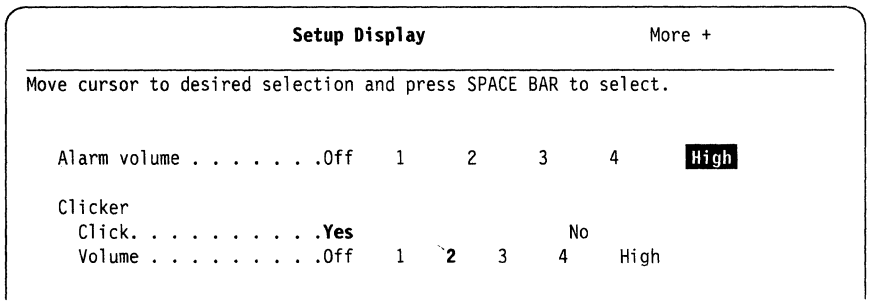


   Yes, go to step 4.
   No, the keyboard is failing. Go to "Request for Service" on page 5-46.
4. Press the Enter key to select "Setup display".

5. The "Setup Display" panel should appear.



6. Move the cursor to select "High" in the Alarm Volume field and press the Space Bar.



7. The display attribute "High" should change to the high-intensified (yellow for color models).
8. Does the alarm sound?
   Yes, go to step 9.
   No, the display element is failing. Go to "Request for Service" on page 5-46.
9. Does the alarm sound change when the cursor is moved from 1 to 4 and the Space Bar is pressed?
   Yes, go to step 10.
   No, the display element is failing. Go to "Request for Service" on page 5-46.
10. Move the cursor to select a comfortable sound level and press the Space Bar.
11. Press the F3 key twice; return to the desired operation.

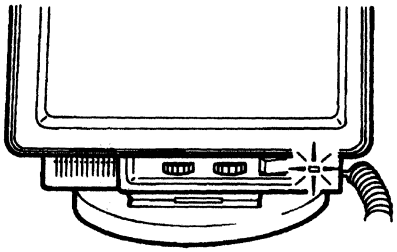
Display Problems

This section covers the display problems that relates to the display screen, cursor, and missing dots of the characters or symbols.

Symptom

Screen is blank.

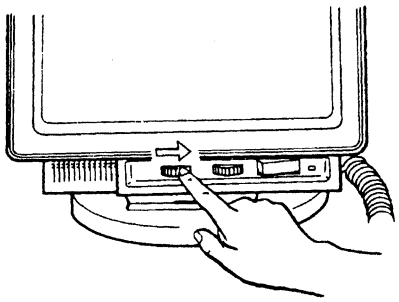
1. Set the power switch to Off.
2. Remove the power cord from the electrical outlet.
3. Make sure the power cord is tightly connected to the display element.
4. Plug the power cord into the electrical outlet.
5. Wait approximately 60 seconds.
6. Set the power switch to On.
7. Does the Power-on light stay on?



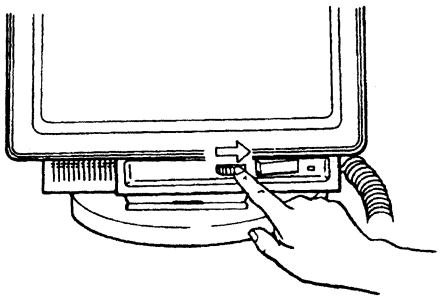
Yes, go to step 8.
No, go to "Power-on Light Problem" on page 5-34.

8. Turn the brightness knob all the way to the right.

Monochrome model

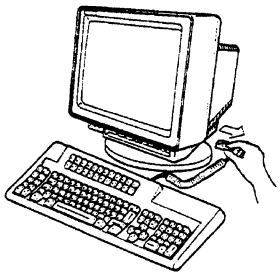


Color model

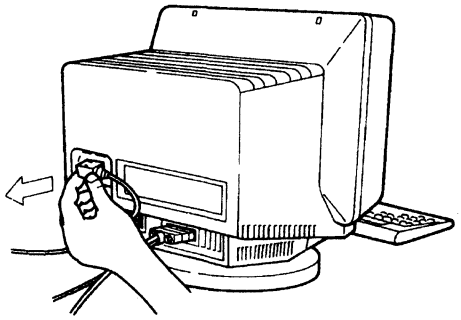


9. Turn the security key clockwise and wait ten seconds.

10. Does the problem still exist?
    Yes, go to step 11.
    No, your problem has been corrected. If this is a continuous occurrence, go to "Request for Service" on page 5-46.
11. Set the power switch to Off.
12. Unplug the power cord from the electrical outlet.
13. Disconnect the keyboard cable from the logic element.



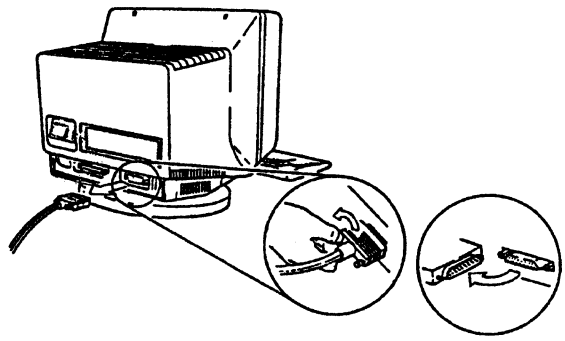
14. Remove the power cord from the display element.



15. **DANGER**

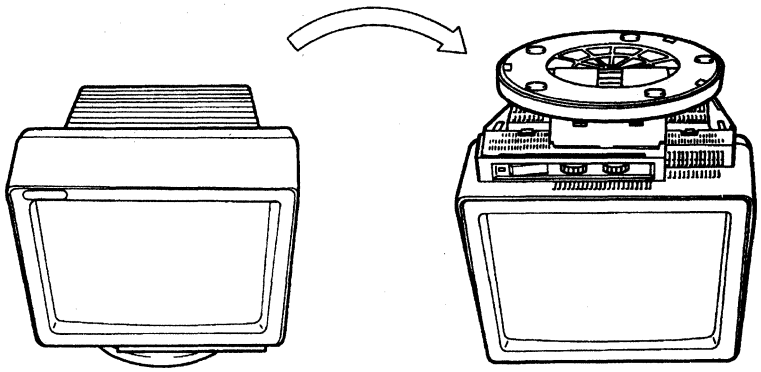
    Do not touch the auto termination unit during an electrical storm. Communication cables can conduct lethal charges of electricity.

    Disconnect the auto termination unit from the logic element.

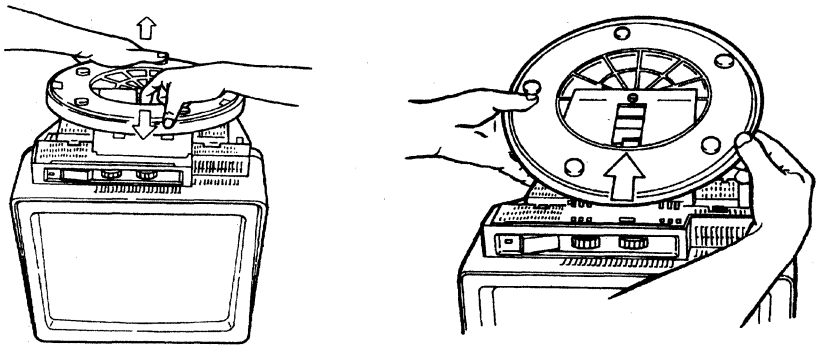


16. Remove the printer cable (if attached) from the logic element.

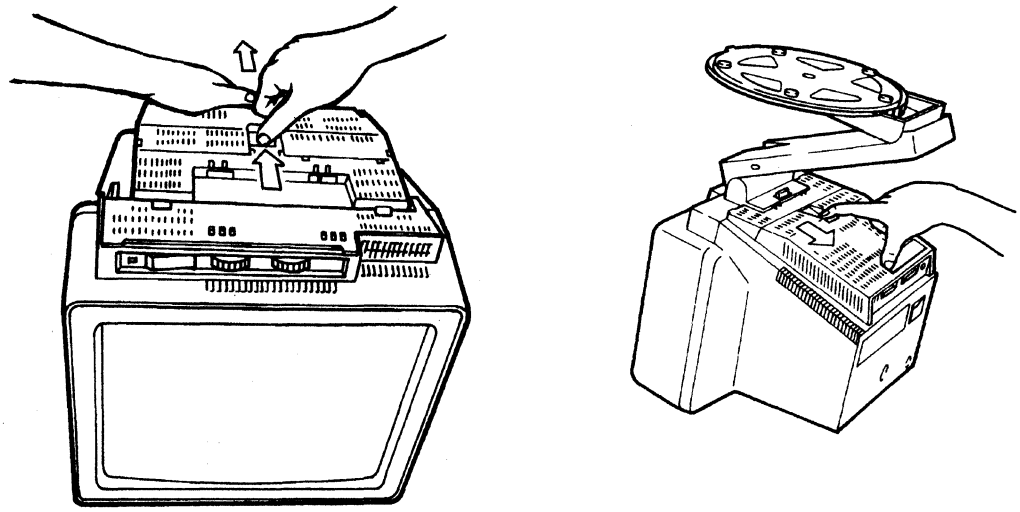
17. Turn the display station upside down so that the screen faces you.



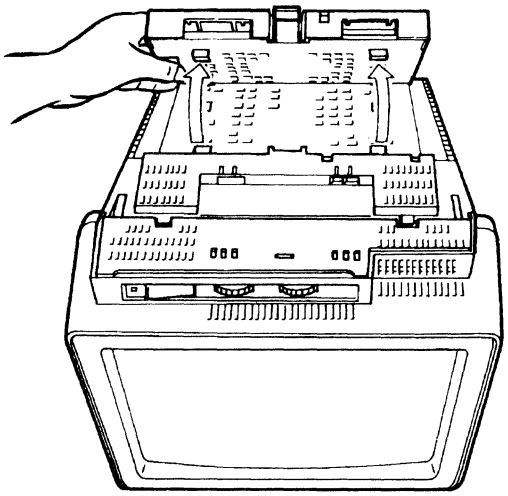
18. If the lift-stand is attached to your display element, go to step 20.
19. Pinch the blue latch and pull up the edge of the stand to remove from the display element.



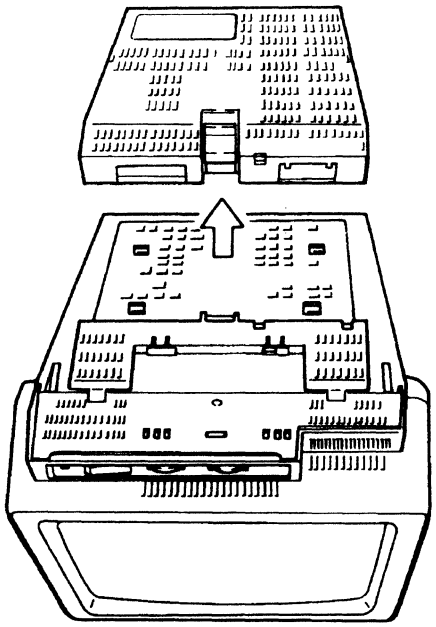
20. Pinch the latch of the logic element and push the logic element to unlock it from the display element.



21. Pull up the edge of the logic element to remove from the display element.



22. Remove the logic element from the display element.



23. Plug the power cord into the electrical outlet and connect it to the display element.
24. Set the power switch to On.
25. Is the screen completely blank?
    Yes, the display element is failing. Go to "Request for Service" on page 5-46.
    No, the logic element is failing. Go to "Request for Service" on page 5-46.

Symptom

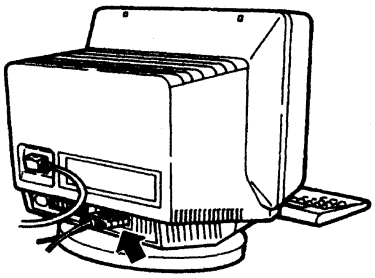
Only a horizontal line and a cursor are displayed.

1. Press the Space Bar.

2. Do any characters appear?
   Yes, your problem has been corrected. If this is a continuous occurrence, go to "Request for Service" on page 5-46.
   No, go to step 3.
3. Set the power switch to Off.
4. Unplug the power cord from the electrical outlet.
5. Unplug the power cord from the display element.
6.

DANGER

Do not touch the auto termination unit during an electrical storm. Communication cables can conduct lethal charges of electricity.



Make sure the auto termination unit is tightly connected.

7. Plug the power cord into the display element.
8. Plug the power cord into the electrical outlet.
9. Set the power switch to On and wait ten seconds.
10. Does the problem still exist?
    Yes, go to "Logic Element Check Procedure" on page 5-44.
    No, your problem has been corrected. If this is a continuous occurrence, go to "Request for Service" on page 5-46.

Symptom

An unexpected cursor appears on the screen.

1. Press the Setup key (the Setup key with the Shift key for the IBM Enhanced keyboard).
2. The "Online Setup" panel should appear.

```
                    Online Setup

Move cursor to desired selection and press ENTER.

  Setup display

  Browse display information

  Setup printer

  Browse printer information
```

3. Press the Enter key to select "Setup display".

4. The "Setup Display" panel should appear.

```
                              Setup Display

Move cursor to desired selection and press SPACE BAR


   Alarm volume . . . . . . . Off    1     2     3

   Clicker
     Click. . . . . . . . . .Yes
     Volume . . . . . . . . . Off    1     2     3

   Cursor
     Style  . . . . . . . .   Underline           Block
```

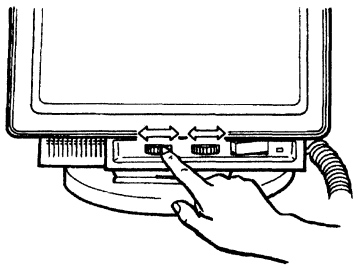
5. Move the cursor to select your desired cursor style and press the Space Bar.
6. Press the F3 key twice.
7. Does the problem still exist?
   Yes, the logic element is failing. Go to "Request for Service" on page 5-46.
   No, your problem has been corrected. If this is a continuous occurrence, go to "Request for Service" on page 5-46.

Symptom

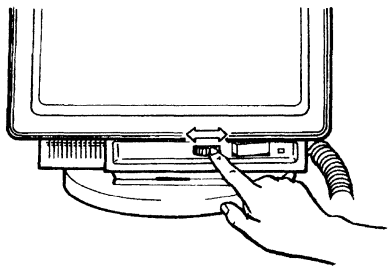
- Screen Problem (distorted, shrunk, tilted, expanded, out of focus, or too dark)
- Brightness control knob does not work.
- Contrast control knob does not work (for monochrome models).

1. Does the alarm sound?
   Yes, the logic element is failing. Go to step "Request for Service" on page 5-46.
   No, go to step 2.
2. Turn the brightness (and contrast for monochrome models) control knob to a comfortable viewing level.

Monochrome model



Color model



3. Does the problem still exist?
   Yes, the display element is failing. Go to "Request for Service" on page 5-46.
   No, your problem has been corrected. If this is a continuous occurrence, go to "Request for Service" on page 5-46.

Symptom

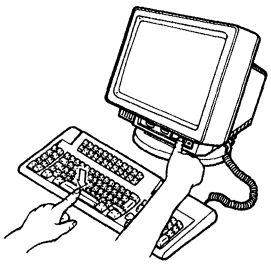
Screen is wavy.

Note to the reader

The wavy screen condition can be caused by external interference. To correct this condition, there are three options:

1. Turn off or relocate the electrical appliance that is generating the interference.
2. Relocate the display station to an area away from the source of interference.
3. IBM has built circuitry into the display station that in some cases will cancel the effect of the external interference.

1. Are there other display stations, motors, or fluorescent lamps that are turned on near your display station?
   Yes, go to step 2.
   No, go to step 4.
2. Relocate the electrical appliances (other display stations, motors, or fluorescent lamps) or turn off the power switches of the electrical appliances.
3. Does the problem still exist?
   Yes, go to step 4.
   No, move your display station or the appliances away from each other. Return to the desired operation.
4. Set the power switch to Off.
5. Press and hold the Space Bar and set the power switch to On.



6. Hold the Space Bar down and wait approximately ten seconds. The "Offline Setup" panel appears on the screen.

```
                          Offline Setup

Move cursor to desired selection and press ENTER.


   Customize workstation

   Update serial number

   Test workstation
```

7. Move the cursor to select "Test workstation" and press the Enter key.
8. The Offline Test Entry Panel appears on the screen as follows.

Monochrome model

```
3477                    0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ
VPDABCDEF
0111    09F4575         AAAAAAAA    AAAAAAAA    AAAAAAAA
        09F4576         AAAAAAAA    AAAAAAAA    AAAAAAAA
10111111 10111111
```

Color model

```
3477                    0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ
VPDABCDEF
0111    09F4573         AAAAAAAA    AAAAAAAA    AAAAAAAA
        09F4574         AAAAAAAA    AAAAAAAA    AAAAAAAA
01111111 01111111       AAAAAAAA    AAAAAAAA    AAAAAAAA
```

9. Press and hold the Alt key and press the F4 key. Make sure the "T 4" with **A** or **B** appears in the operating status line.

```
T 4          A
```

10. Press the F4 key and make sure **A** is replaced with **B** or vice versa.

Note to the reader

The reverse video symbol (**A** or **B**) toggles between **A** and **B** each time the F4 key is pressed.

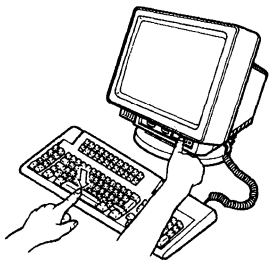
11. Select **A** or **B**, whichever provides the best display image. Press the Reset key twice. Press the F3 key to resume operation.

Note: If the preceding option does not resolve the problem, the logic element may be failing. Go to "Request for Service" on page 5-46.

Symptom

The color is not correct.

1. Set the power switch to Off.
2. Press and hold the Space Bar; set the power switch to On.



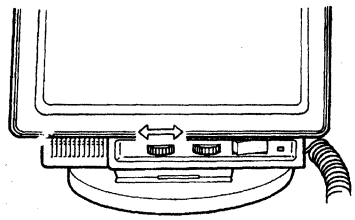
3. Hold the Space Bar down and wait approximately ten seconds. The "Offline Setup" panel appears on the screen.

```
                    Offline Setup

Move cursor to desired selection and press ENTER.


  Customize workstation

  Update serial number

  Test workstation
```

4. Move the cursor to select "Test workstation" and press the Enter key.
5. The Offline Test Entry panel appears on the screen.

```
3477                    0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ

VPDABCDEF

0111    09F4573         AAAAAAAA    AAAAAAAA    AAAAAAAA

        09F4574         AAAAAAAA    AAAAAAAA    AAAAAAAA

01111111 01111111       AAAAAAAA    AAAAAAAA    AAAAAAAA
```

6. Turn the brightness control knob to a comfortable viewing level.



7. Observe the attribute test pattern.

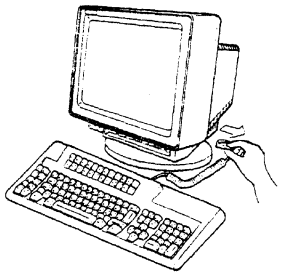
```
AAAAAAAA    AAAAAAAA    AAAAAAAA

AAAAAAAA    AAAAAAAA    AAAAAAAA

AAAAAAAA    AAAAAAAA    AAAAAAAA
```

8. Is the attribute test pattern displayed correctly?

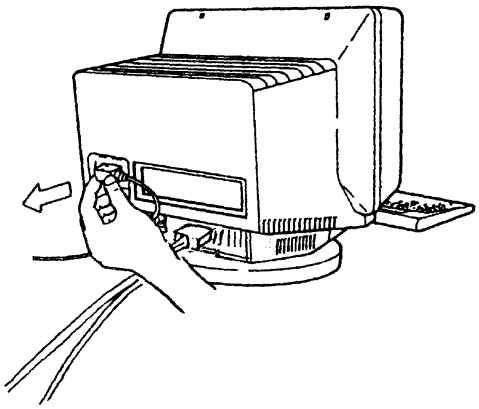
```
AAAAAAAA            AAAAAAAA              AAAAAAAA
(blue+normal)       (red+blink)           (pink+reverse)

AAAAAAAA            AAAAAAAA              AAAAAAAA
(green+underscore)  (turquoise+column     (yellow+high-intensity
                          separator)            color)
AAAAAAAA            AAAAAAAA              AAAAAAAA
(white+normal)      (white+normal)        (white+normal)
```

Yes, your display station does not have a problem. Contact your supervisor.
No, go to step 9 on page 5-27.

9. Set the power switch to Off; then wait approximately 15 minutes.
10. Repeat step 2 on page 5-25 through step 7 on page 5-26. Go to step 11.
11. Is the attribute test pattern displayed correctly?
    Yes, your problem has been corrected. If this is a continuous occurrence, go to "Request for Service" on page 5-46.
    No, go to step 12.
12. Set the power switch to Off.
13. Unplug the power cord from the electrical outlet.
14. Disconnect the keyboard cable from the logic element.



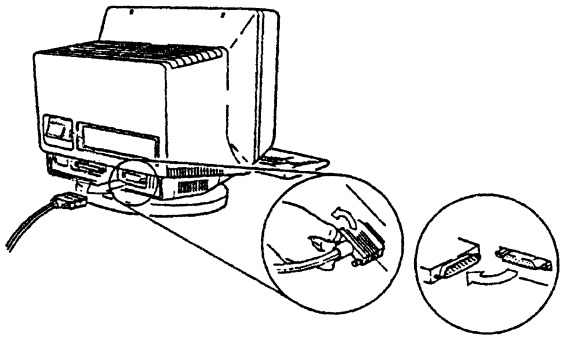
15. Remove the power cord from the display element.



16. **DANGER**

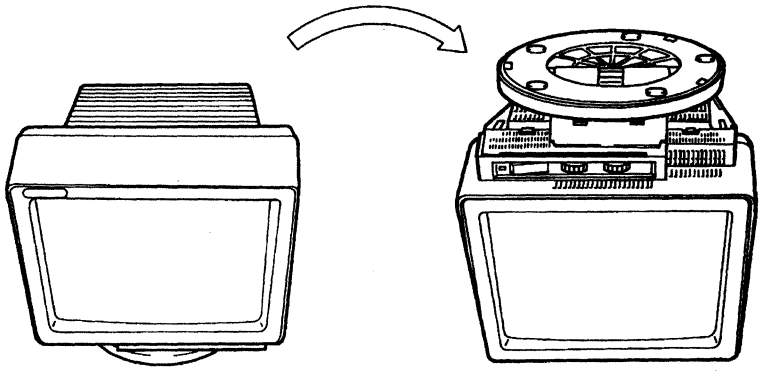
> **Do not touch the auto termination unit during an electrical storm. Communication cables can conduct lethal charges of electricity.**

Disconnect the auto termination unit from the logic element.

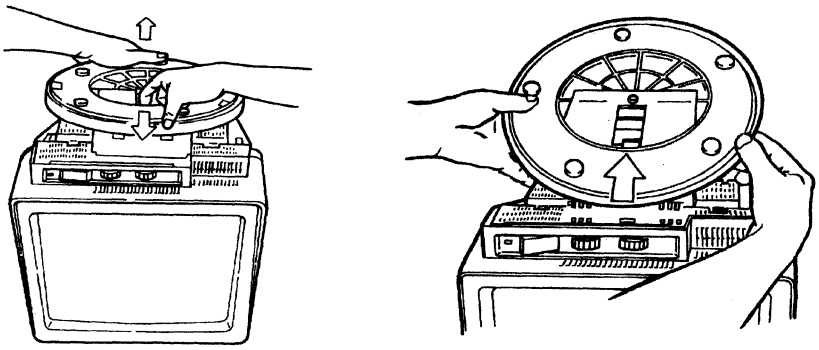


17. Remove the printer cable (if attached) from the logic element.

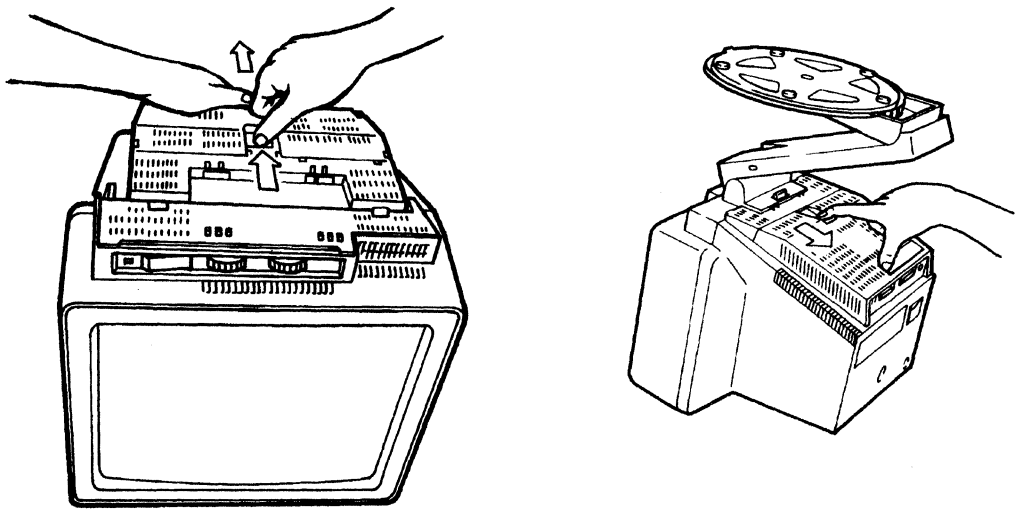
18. Turn the display station upside down so that the screen faces you.



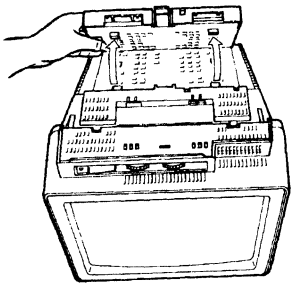
19. If the lift-stand is attached to your display element, go to step 21.
20. Pinch the blue latch and pull up the edge of the stand to remove from the display element.



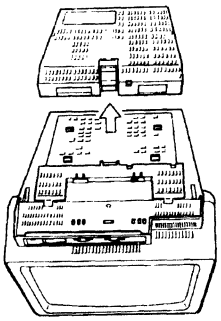
21. Pinch the latch of the logic element and push the logic element to unlock it from the display element.



22. Pull up the edge of the logic element to remove from the display element.



23. Remove the logic element from the display element.



24. Plug the power cord into the electrical outlet.
25. Set the power switch to On.
26. Is the screen white?

    Yes, the logic element is failing. Go to "Request for Service" on page 5-46.

    No, the display element is failing. Go to "Request for Service" on page 5-46.

Symptom

Characters or symbols on the screen have extra or missing dots.

The logic element is failing. Go to "Request for Service" on page 5-46.

Symptom

The "Offline Setup" panel appears when not requested.

Note to the reader

If one of the following instructions appear with "Offline Setup" panel, go to the appropriate page.

- "Specify station address." 5-8
- "Selections have been reset to the IBM default values." . . 5-10
- "Specify serial number.". 5-14

1. Set the power switch to Off and wait approximately ten seconds.
2. Make sure there is nothing laying on the keyboard.
3. Set the power switch to On.
4. Does the "Offline Setup" panel still appear?
   Yes, go to "Keyboard Test" on page 5-41.
   No, your problem has been corrected. If this is a continuous occurrence, go to "Request for Service" on page 5-46.

Symptom

Characters or symbols on the screen are moving vertically or horizontally.

1. Set the power switch to Off and wait approximately ten seconds.
2. Set the power switch to On.
3. Does the alarm sound continuously?
   Yes, the logic element is failing. Go to "Request for Service" on page 5-46.
   No, the display element is failing. Go to "Request for Service" on page 5-46.

Keyboard Problems

This section covers the keyboard problems that relate to the key functions and the clicker.

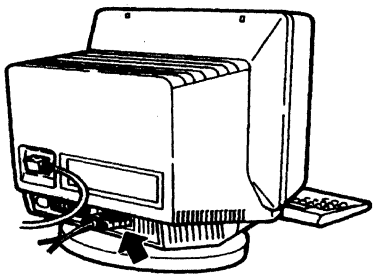
Symptom

Characters are typed, but are not displayed on the screen.

1. Is the power-on light on?
   Yes, go to step 2.
   No, go to "Power-on Light Problem" on page 5-34.
2. Set the power switch to Off.
3. Unplug the power cord from the electrical outlet.
4.

DANGER

Do not touch the auto termination unit during an electrical storm. The auto termination unit can conduct lethal charges of electricity.



   Make sure the auto termination unit is tightly connected.
5. Plug the power cord into the electrical outlet.
6. Set the power switch to On.
7. Does the system indicator (▮) appear in the operating status line?
   Yes, go to step 8.
   No, go to "Logic Element Check Procedure" on page 5-44.
8. Does the problem still appear?
   Yes, go to "Keyboard Test" on page 5-41.
   No, your problem has been corrected. If this is a continuous occurrence, go to "Request for Service" on page 5-46.

Symptom

Keyboard clicker does not sound.

1. Press the Setup key (the Setup key with the Shift key for the IBM Enhanced keyboard).
2. Does the "Online Setup" panel appear?

```
                          Online Setup

Move cursor to desired selection and press ENTER.


   Setup display
   Browse display information
   Setup printer
   Browse printer information
```

Yes, go to step 3.
No, the keyboard is failing. Go to "Request for Service" on page 5-46.

3. Press the Enter key. The "Setup Display" panel will appear on the screen.

```
                              Setup Display

Move cursor to desired selection and press SPACE BAR


   Alarm volume . . . . . .Off  1   2   3

   Clicker
     Click. . . . . .Yes
     Volume . . . . . .Off   1   2   3
```

4. Move the cursor to select "Yes" in the "Clicker" field and press the Space Bar.

```
                              Setup Display

Move cursor to desired selection and press SPACE BAR


   Alarm volume . . . . . .Off 1   2   3

   Clicker
     Click. . . . . .Yes
     Volume . . . . . .Off   1   2   3
```

5. Move the cursor to select "High" in the "Clicker" field and press the Space Bar.
6. The display attribute "High" should be changed to High intensity (Yellow for color models).

   Does the clicker sound?
   Yes, go to step 7.
   No, your display element is failing. Go to "Request for Service" on page 5-46.

7. Does the clicker sound change when cursor is moved from 1 to 4 and the Space Bar is pressed?
   Yes, go to step 8.
   No, the display element is failing. Go to "Request for Service" on page 5-46.
8. Move the cursor to select a comfortable sound level and press the Space Bar.
9. Press the F3 key twice and return to the desired operation.

Symptom

- A single character is typed, but multiple characters are displayed on the screen.
- An unexpected character (a character different from what should appear) is displayed on the screen.
- Typematic keys do not work.

Go to "Keyboard Test" on page 5-41.

Symptom

Characters are displayed on the screen without typing.

The keyboard is failing. Go to "Request for Service" on page 5-46.

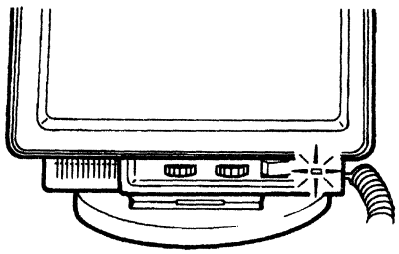
Power-on Light Problem

This section describes the procedures to take when the power-on light does not come on when the 3477 power switch is set to On.

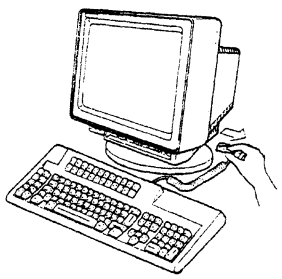
Symptom

The power-on light does not come on.

1. Set the power switch to Off.
2. Remove the power cord from the electrical outlet.
3. Make sure the power cord is tightly connected to the display element.
4. Plug the power cord into the electrical outlet.
5. Wait approximately 60 seconds.
6. Set the power switch to On.
7. Does the power-on light stay on?

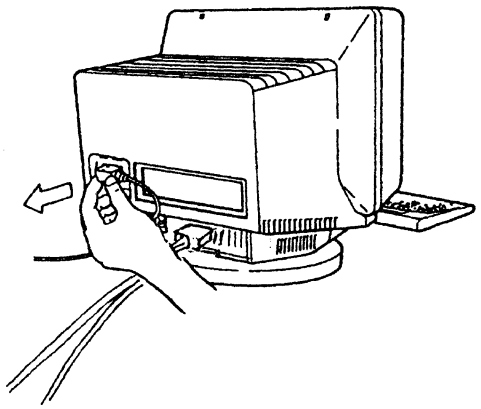


   Yes, your problem has been corrected. If this is a continuous occurrence, go to "Request for Service" on page 5-46.
   No, go to step 8.
8. Set the power switch to Off.
9. Disconnect the keyboard cable from the logic element.



10. Wait approximately 30 seconds.
11. Set the power switch to On.
12. Does the power-on light stay on?
    Yes, the keyboard is failing. Go to "Request for Service" on page 5-46.
    No, go to step 13.
13. Set the power switch to Off.
14. Unplug the power cord from the electrical outlet.

15. Remove the power cord from the display element.

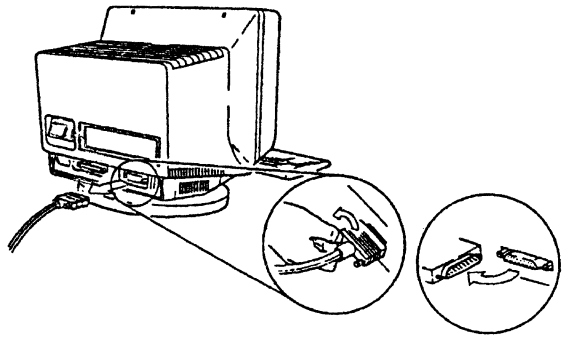


16.

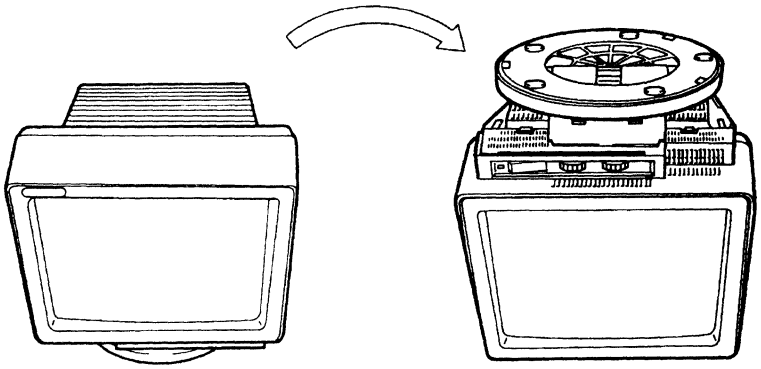
DANGER

> **Do not touch the auto termination unit during an electrical storm. Communication cables can conduct lethal charges of electricity.**

Disconnect the auto termination unit from the logic element.

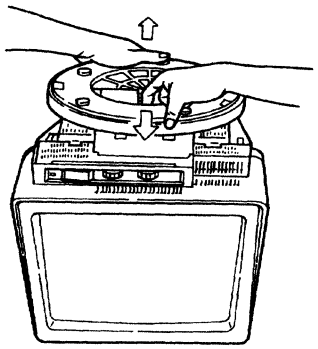


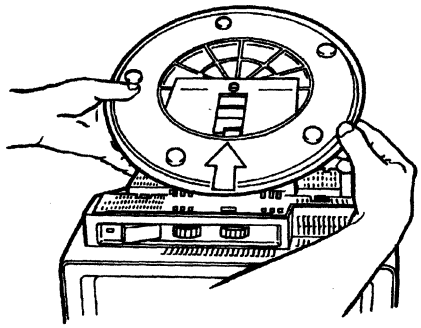
17. Remove the printer cable (if attached) from the logic element.
18. Turn the display station upside down so that the screen faces you.



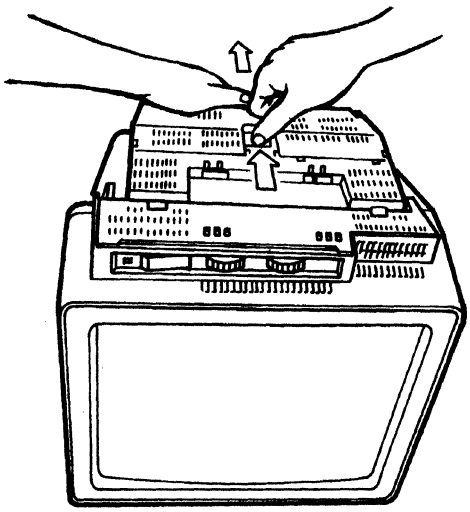
19. If the lift-stand is attached to your display element, go to step 21 on page 5-36.

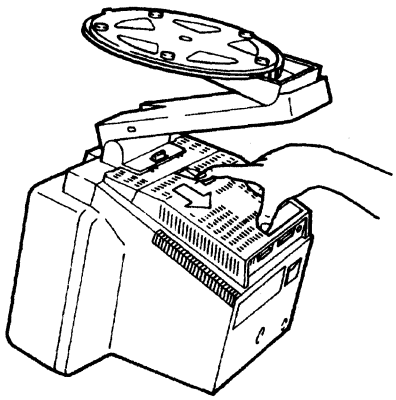
20. Pinch the blue latch and pull up the edge of the stand to remove from the display element.



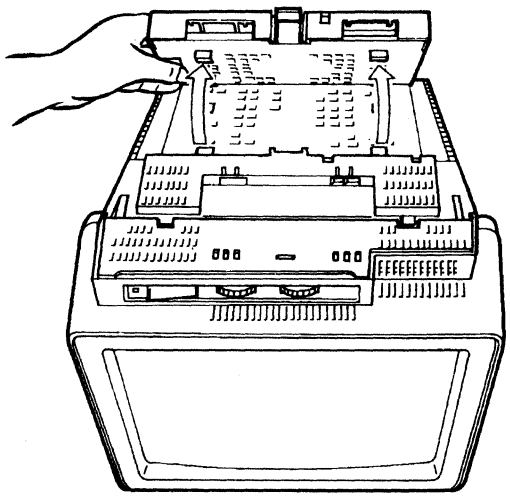


21. Pinch the latch of the logic element and push the logic element to unlock it from the display element.

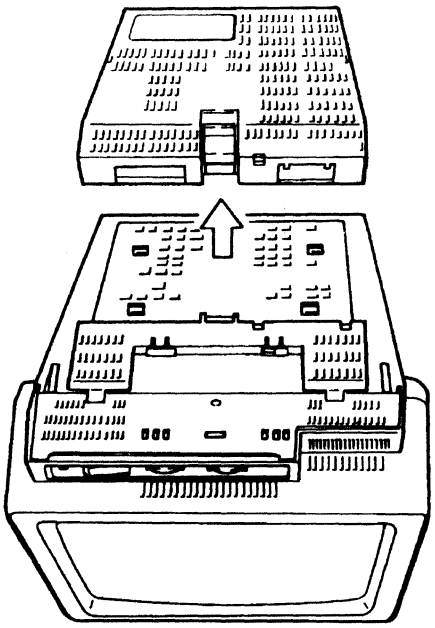




22. Pull up the edge of the logic element to remove from the display element.



23. Remove the logic element from the display element.



24. Plug the power cord into the electrical outlet.
25. Connect the power cord to the display element.
26. Wait approximately 30 seconds.
27. Set the power switch to On.
28. Does the power-on light stay on?
    Yes, the logic element is failing. Go to "Request for Service" on page 5-46.
    No, go to step 29.
29. Set the power switch to Off.
30. Do you have another IBM 3477?
    Yes, replace the power cord with the one from the other IBM 3477.
    Go to step 31.
    No, the display element is failing. Go to "Request for Service" on page 5-46.
31. Wait approximately 30 seconds.
32. Set the power switch to On.
33. Does the power-on light stay on?
    Yes, the original power cord is failing. Go to "Request for Service" on page 5-46.
    No, the display element is failing. Go to "Request for Service" on page 5-46.

Printer Problem

This section covers the attached printer problem.

Symptom

Printer does not work.

1. Make sure the power switch of your printer is set to On.
2. Make sure the printer is ready to print.
3. Press the Setup key for the 122/124-key keyboard (the Setup key with the Shift key for the IBM Enhanced keyboard). The "Online Setup" panel appears.

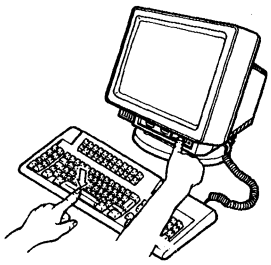
```
                    Online Setup

Move cursor to desired selection and press ENTER.


  Setup display

  Browse display information

  Setup printer

  Browse printer information
```

4. Move the cursor to select "Browse printer information" and press the Enter key.
5. Does the "Printer emulation is suspended." appear on the screen?

```
Printer emulation is suspended.

F3=Exit                          F2=Resume  Quit=Print Cancel

SETUP
```

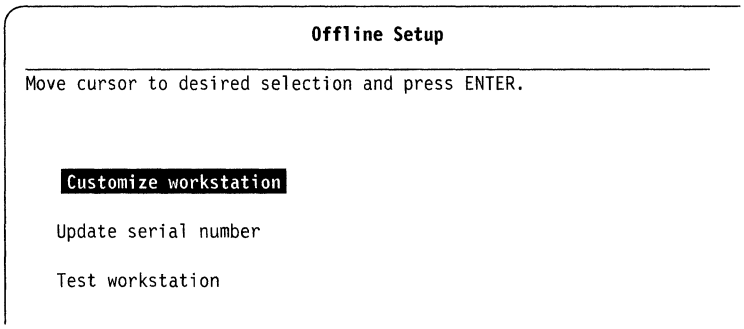
Yes, take appropriate action by referring to the "Notes" on page 2-34, and resume operation.
No, go to step 6.

6. Set the power switch of the IBM 3477 to Off.
7. Press and hold the Space Bar down; set the power switch to On.



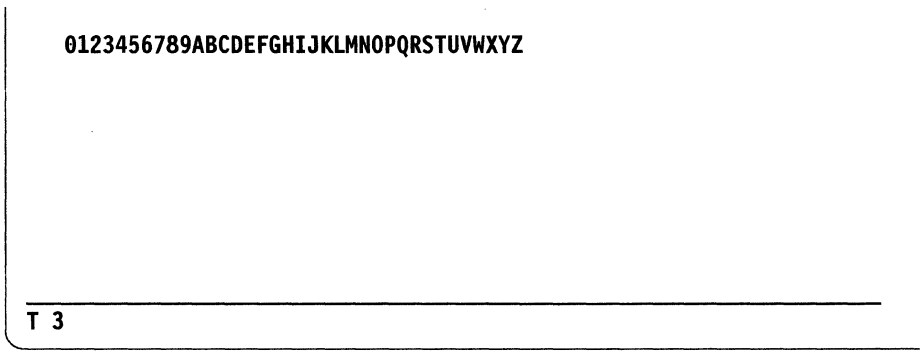
8. Hold the Space Bar down and wait approximately ten seconds.

9. Does the "Offline Setup" panel appear?



Yes, go to step 10.
No, the keyboard is failing. Go to "Request for Service" on page 5-46.

10. Move the cursor to select "Test workstation" and press the Enter key.
11. Press and hold the Alt key and press the F3 key.
12. "T 3" appears in the operating status line and blinks a few times.



13. Did "T 3" stop blinking?
    Yes, go to step 14.
    No, the printer, the printer cable or the logic element is probably failing. Contact your supervisor.
14. Does the print-out have the same pattern that is displayed on the screen?
    Yes, the problem is not in your display station.
    One of the following is probably failing:
    - Host system
    - Customization (Printer address)
    - Auto termination unit.

    Contact your supervisor.
    No, the printer, the printer cable or the logic element is probably failing. Contact your supervisor.

Mechanical Problems

This section describes the problems on the security key, display cover, keyboard cover, and the stand.

In the following cases, you should request service.

Symptom

The security key does not work.

The security keylock of the logic element is failing. Go to "Request for Service" on page 5-46.

Symptom

The display or keyboard cover is damaged.

Go to "Request for Service" on page 5-46.

Symptom

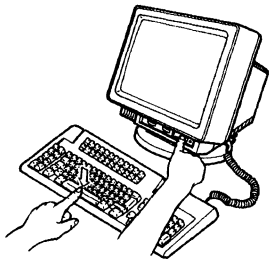
The stand is damaged.

Go to "Request for Service" on page 5-46.

Keyboard Test

This section covers the procedures to check the keyboard functions.

1. Set the power switch to Off.
2. Press and hold the Space Bar and set the power switch to On.



3. Hold the Space Bar down and wait approximately ten seconds.
4. Does the "Offline Setup" panel appear?

```
                    Offline Setup

Move cursor to desired selection and press ENTER.


  Customize workstation

  Update serial number

  Test workstation
```

Yes, go to step 5.
No, the keyboard is failing. Go to "Request for Service" on page 5-46.

5. Move the cursor to select "Test workstation" and press the Enter key.
6. Does the Offline Test Entry panel appear on the screen?

Monochrome model

```
3477                    0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ
VPDABCDEF
0111    09F4575         AAAAAAAA    AAAAAAAA    AAAAAAAA
        09F4576         AAAAAAAA    AAAAAAAA    AAAAAAAA
10111111 10111111
```

Color model

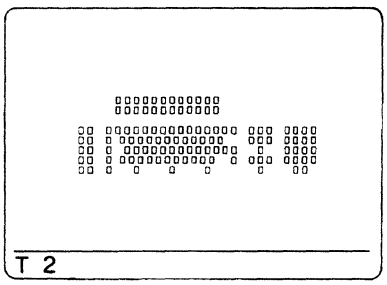
```
3477                    0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ
VPDABCDEF
0111    09F4573         AAAAAAAA    AAAAAAAA    AAAAAAAA
        09F4574         AAAAAAAA    AAAAAAAA    AAAAAAAA
01111111 01111111       AAAAAAAA    AAAAAAAA    AAAAAAAA
```

Yes, go to step 7.
No, the keyboard is failing. Go to "Request for Service" on page 5-46.

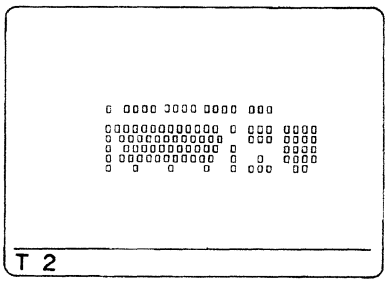
7. Press and hold the Alt key and press the F2 key.

8. Does your keyboard layout figure appear at the center part of the screen?

122/124-key Keyboard



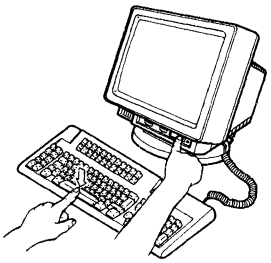
IBM Enhanced Keyboard



Yes, go to step 9.
No, the keyboard is failing. Go to "Request for Service" on page 5-46.

9. Press the key that has a problem several times. Does the equivalent key shown on the screen change form □ to ■, or vice versa?
Yes, go to step 10.
No, the keyboard is failing. Go to "Request for Service" on page 5-46.
10. Press, one at a time, all of the keys on the keyboard.

Does the equivalent key shown on the screen change from □ to ■, or vice versa?
Yes, go to step 11.
No, the keyboard is failing. Go to "Request for Service" on page 5-46.
11. Set the power switch to Off and wait approximately ten seconds.
12. Press and hold the Space Bar and set the power switch to On.



13. Hold the Space Bar down and wait approximately ten seconds.
14. Does the "Offline Setup" panel appear?

```
                    Offline Setup

Move cursor to desired selection and press ENTER.


   Customize workstation

   Update serial number

   Test workstation
```

Yes, go to step 15.
No, the keyboard is failing. Go to "Request for Service" on page 5-46.
15. Press the Enter key to select "Customize workstation".

16. Does the "Customization" panel appear on the screen?

```
                          Customization
Move cursor to desired choice, then press SPACE BA

  Terminal Mode . . . . . One-Display   Two-Disp

  Display Address 1 . . . . .0    1    2    3    4

  Character set . . . . . .Country specific
```

Yes, go to step 17.
No, the keyboard is failing. Go to "Request for Service" on page 5-46.

17. Press the F8 key. The assigned keyboard type appears on the screen as shown in the figure below.

```
  Keyboard type . . . . . Standard          User defined
```

18. Does the keyboard type "Standard" appear in high intensity for the monochrome model (or yellow for the color model)?
Yes, contact your supervisor.
No, go to step 19.
19. Move the cursor to "Standard" with the cursor move keys and press the Space Bar.
20. Press the F3 key twice and continue the operation.

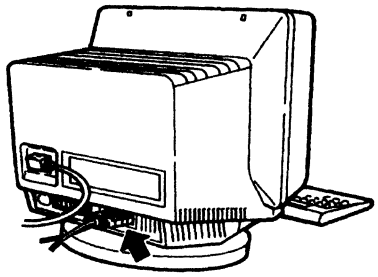
Logic Element Check Procedure

This section covers procedures to check the logic element.

1. Set the power switch to Off.
2. Unplug the power cord from the electrical outlet.
3.

DANGER

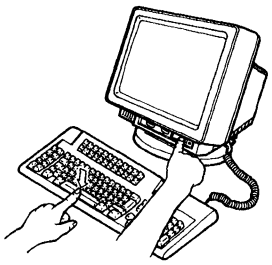
Do not touch the auto termination unit during an electrical storm. The communication cables can conduct lethal charges of electricity.



Disconnect the auto termination unit.

Note: If you do not disconnect the auto termination unit, the test will fail.

4. Plug the power cord into the electrical outlet.
5. Press and hold the Space Bar and set the power switch to On.



6. Hold the Space Bar down and wait approximately ten seconds.
7. Does the "Offline Setup" panel appear?

```
                    Offline Setup

Move cursor to desired selection and press ENTER.


   Customize workstation

   Update serial number

   Test workstation
```

Yes, go to step 8 on page 5-45.
No, the keyboard is failing. Go to "Request for Service" on page 5-46.

8. Move the cursor to select "Test workstation" and press the Enter key.
9. Does the Offline Test Entry panel appear on the screen?

Monochrome model

```
3477                    0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ
VPDABCDEF
0111    09F4575         AAAAAAAA    AAAAAAAA    AAAAAAAA
        09F4576         AAAAAAAA    AAAAAAAA    AAAAAAAA
10111111 10111111
```

Color model

```
3477                    0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ
VPDABCDEF
0111    09F4573         AAAAAAAA    AAAAAAAA    AAAAAAAA
        09F4574         AAAAAAAA    AAAAAAAA    AAAAAAAA
01111111 01111111       AAAAAAAA    AAAAAAAA    AAAAAAAA
```

Yes, go to step 10.
No, the keyboard is failing. Go to "Request for Service" on page 5-46.

10. Press and hold the Alt key and press the F1 key. "T 1" appears in the operating status line and blinks a few times.
11. Does "LL" appear in the operating status line on the screen?

```
T1                                  LL
```

Yes, the logic element is failing. Go to "Request for Service" on page 5-46.
No, one of the following is probably failing.

- Host system
- Control unit
- Auto termination unit
- Logic element
- Customization

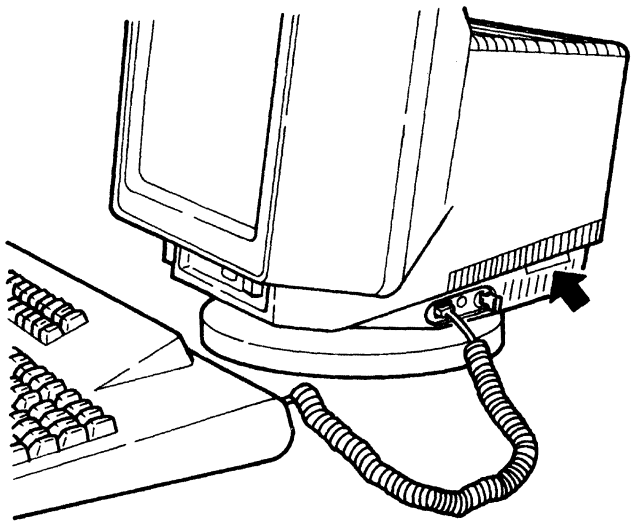
Contact your supervisor.

Request for Service

This section describes how to request IBM service for your 3477.

If your display station requires service, do the following:

1. Set the power switch to Off.
2. Be prepared to give:
   - Machine type
   - Serial Number (the location is shown with an arrow.)



   - Problem Symptom
   - Your telephone number, address, and zip code (U.S. only)
3. Call the toll-free number 1-800-IBM-SERV (for the U.S. only) or contact your IBM Service Center (for other countries).

   The IBM Service Center will verify your warranty or maintenance agreement status and will provide information on how your service request will be handled.

   Note: You must define the setup values before installing a new display element.
4. When you need to remove or replace a failing element, or pack it for shipment, go to "Removal and Packing" on page 5-48.
5. When you exchange an element, see Chapter 1, "Setup Instructions" on page 1-1.

ECCO (for the U.S. only)

The following parts list is used when you request service through the ECCO (Electronic Customer Communications Option) system. The ECCO system is available only in the U.S. If the logic element is failing, use the part number of the logic card. If the color display element is failing, use the part number of the analog/video card.

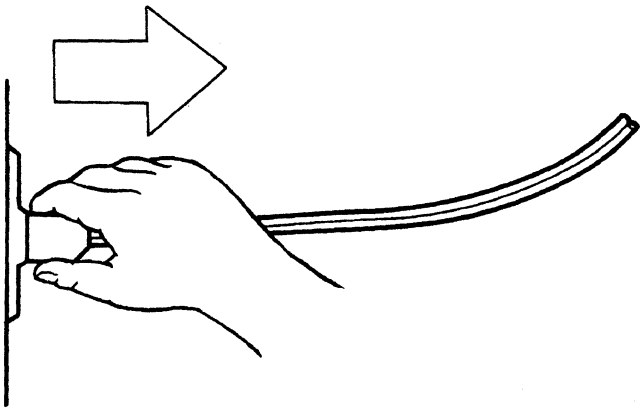
Description	Part Number
Display Element 14 inch, Green, U.S.	69X8052
Display Element 14 inch, Amber, U.S.	69X8053
Display Element 15 inch, Green, U.S.	39F7426
Display Element 14 inch, Color, U.S.	16F1200
Display Element 14 inch, Color, U.S., Analog/video card	39F9225
Display Element 14 inch, Color, U.S., Front cover	39F9315
Display Element 14 inch, Color, U.S., Rear cover	39F9316
Display Element 14 inch, Color, U.S., CRT and Yoke assembly	39F7590
Logic Element, U.S., Logic Element	09F4270
Logic Element, U.S., Logic card	38F5833
Logic Element, U.S., Cover group	09F4273
Logic Element, U.S., I/O plate	09F4272
122-key Typewriter Keyboard, U.S. English (for Green/Amber)	1394803
IBM Enhanced Keyboard, U.S. English (for Green/Amber)	1394804
122-key Typewriter Keyboard, U.S. English (for Color)	1395661
IBM Enhanced Keyboard, U.S. English (for Color)	1395666
Display Stand (T/S)	09F4221
Auto Termination Unit	23F3794
Power Cord, 2.8 m (9 ft), U.S.	6952297
Power Cord, 1.8 m (6 ft), U.S. (Chicago)	6952298

Removal and Packing

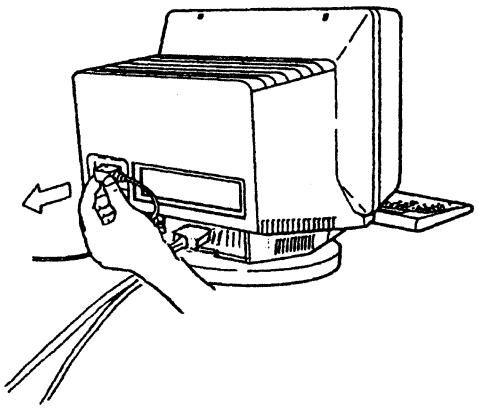
This section describes how to remove the display station and the stand. Refer to Chapter 1, "Setup Instructions" on page 1-1 when replacing the display station elements.

Display Station Element Removal

1. Set the power switch to Off.
2. Unplug the power cord from the electrical outlet.



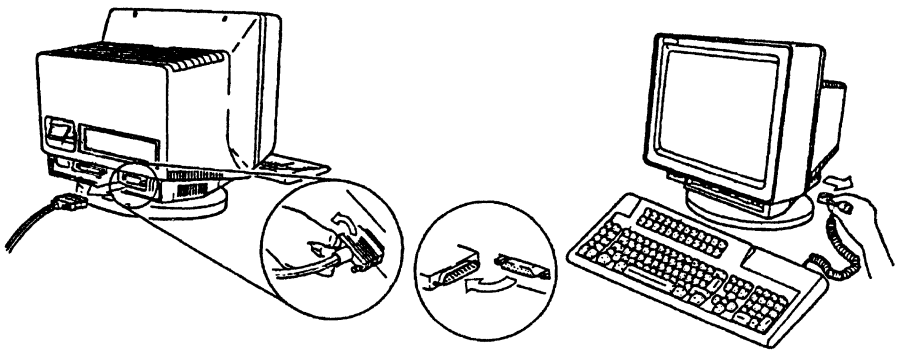
3. Unplug the power cord from the display element.



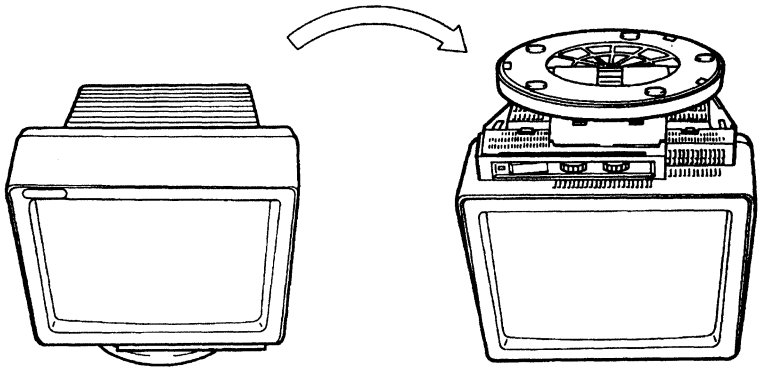
4. **DANGER**

> **Do not touch the auto termination unit during an electrical storm. Communication cables can conduct lethal charges of electricity.**

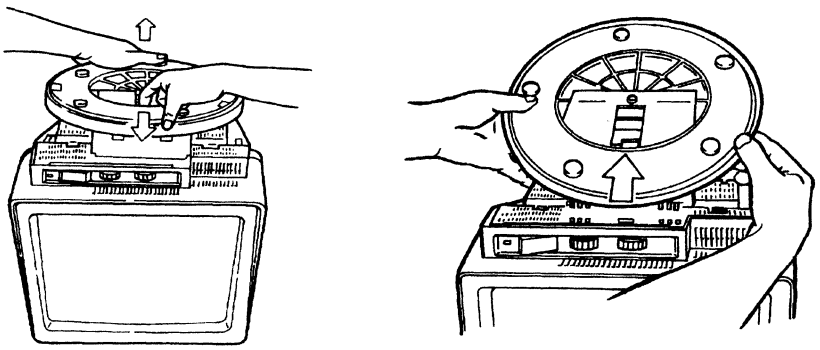
Unscrew and pull out all cables from the display element and logic element.



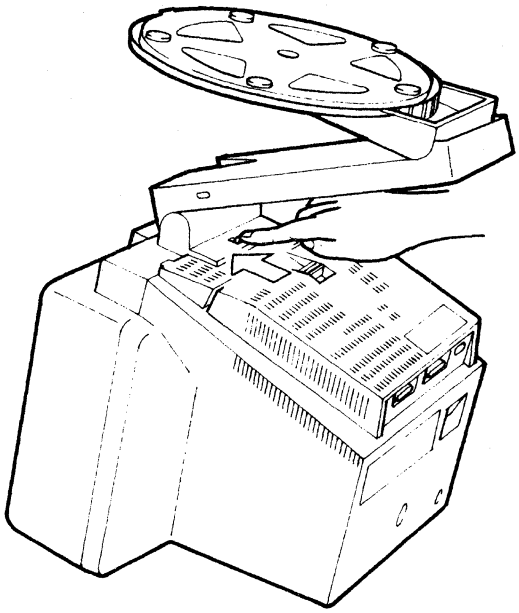
5. Turn the display station upside down so that the screen faces you. If the lift-stand is attached to your display station, go to step 7 on page 5-50.



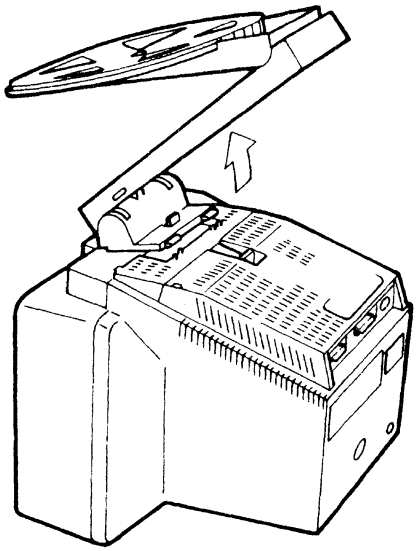
6. Pinch the blue latch and pull up the edge of the stand to remove from the display element. Go to step 10 on page 5-51.



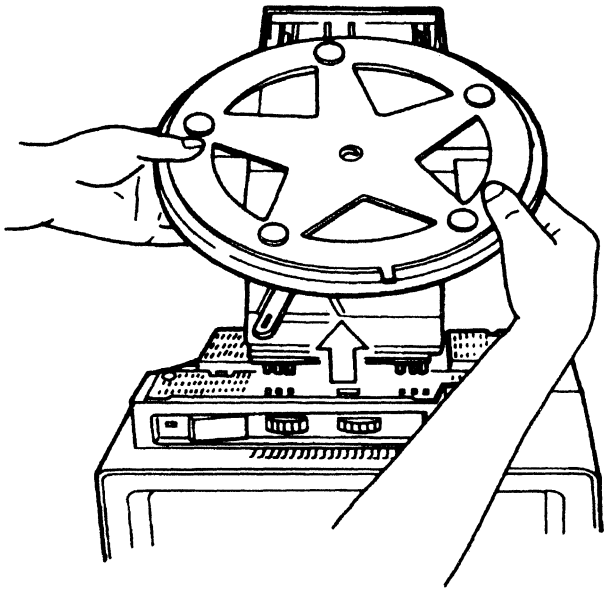
7. Push and hold the blue latch to unlock the lift-stand from the display element.



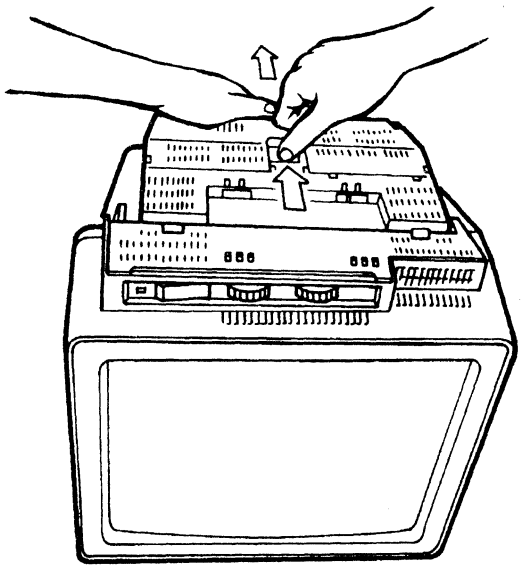
8. Pull up the edge of the stand to remove from the display element.



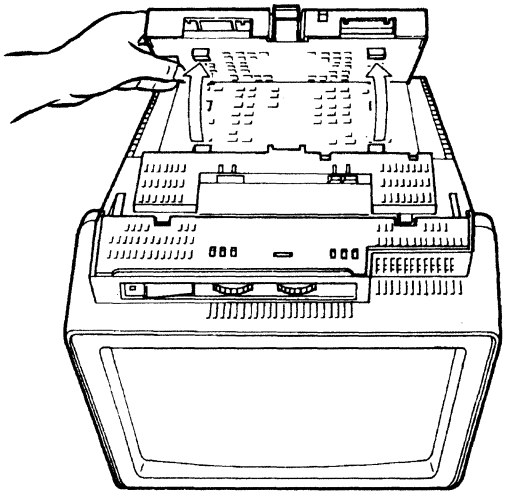
9. Remove the stand from the display element.



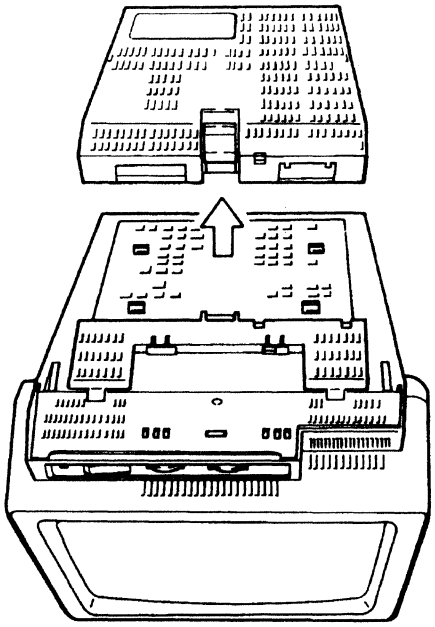
10. Pinch the latch of the logic element and push the logic element to unlock it from the display element.



11. Pull up the edge of the logic element to remove from the display element.



12. Remove the logic element from the display element.

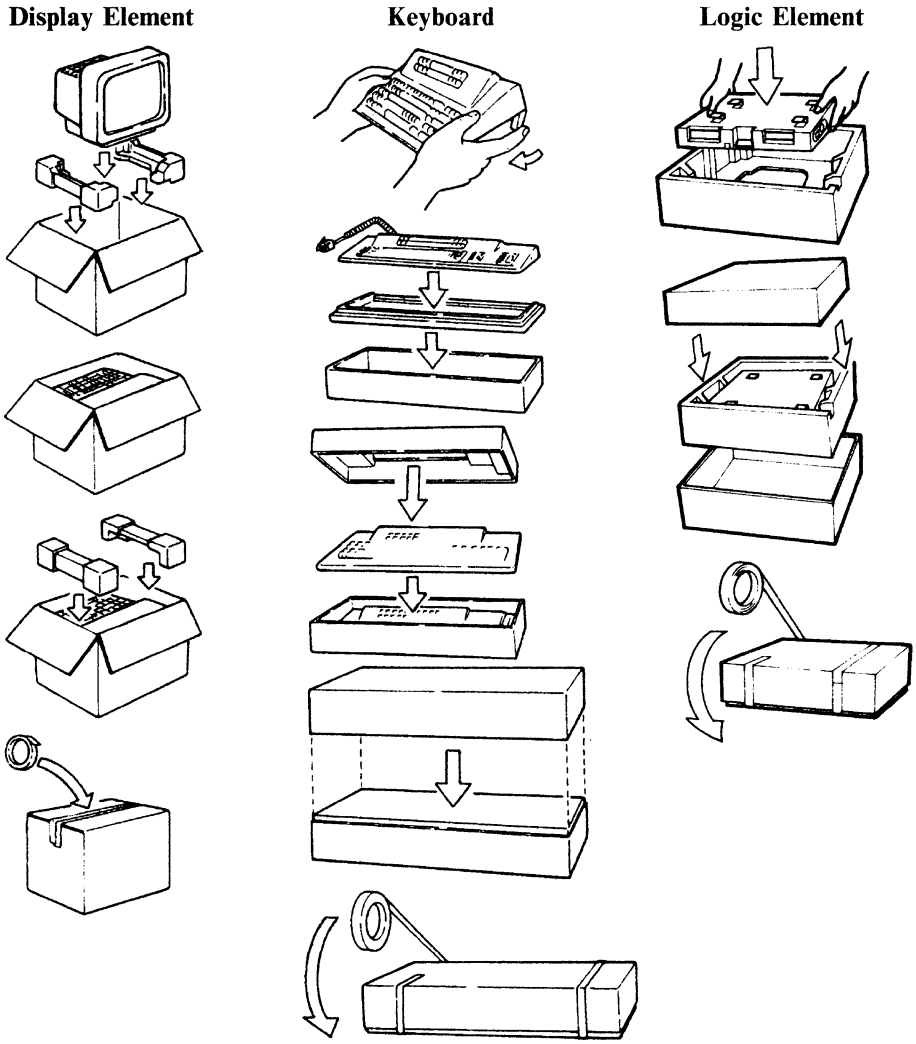


13. Go to "Packing Display Station Element" on page 5-53 for directions on returning the failing element to IBM.

Packing Instructions

This section provides wordless packing instructions for the display, keyboard, and logic elements.

Packing Display Station Element



Notes:

1. Keep the power cord.
2. Remove and keep all special key caps (if any) and overlay, and reinstall the standard key caps.
3. Send the two security keys with the logic element.

Appendix A. Display Station Controls and Adjustments

This appendix describes how to customize your 3477 and the attached printer, the serial number, setup display, record/play security options, and setup parameters.

The 3477 is designed to configure up to two logical workstations using the setup parameters in customization. If you select either two-display or display-printer terminal mode, and the attached host system is so configured, you can use your 3477 as two logical display stations or one logical display station and one printer.

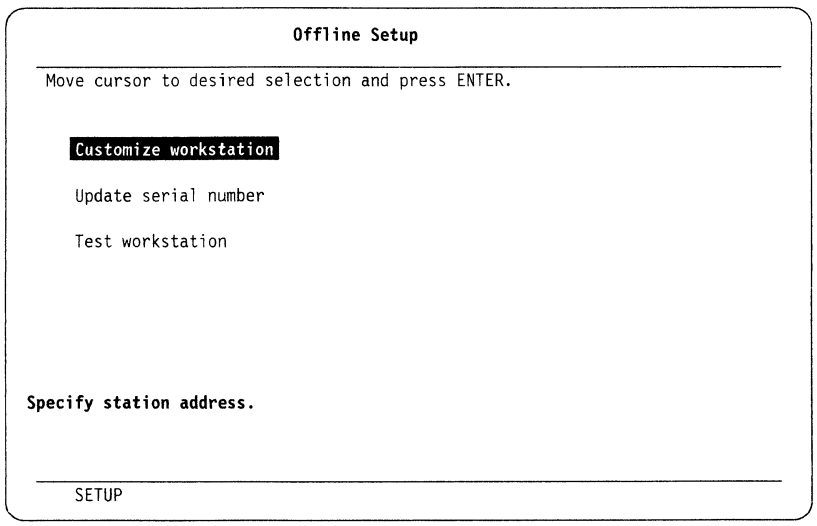
In addition, while in the communication operation, you can select various parameters to adjust your display station and the attached printer for your operation needs. For more detailed information about setup parameters, refer to "Summary of the 3477 Setup Parameters" on page A-13 located at the end of this appendix.

Customization

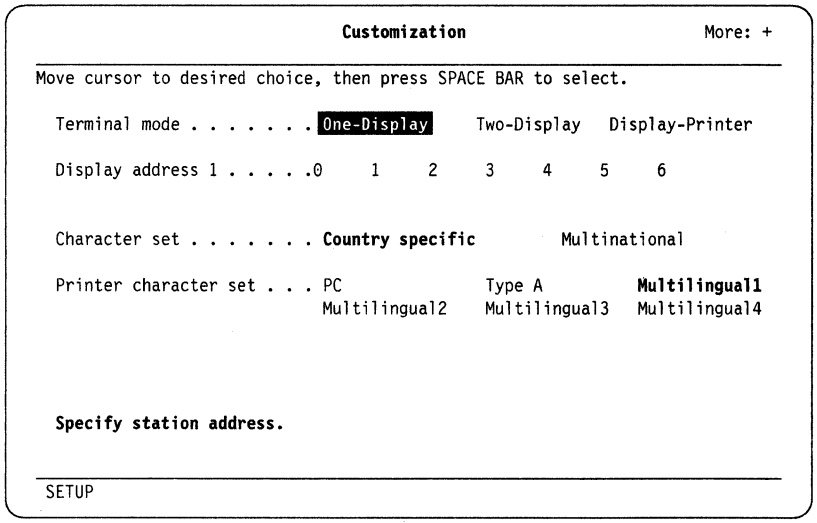
The 3477 has two logical workstations: 1) two logical display stations, or 2) one display station and one printer. By specifying how your display station is to be operated from the "Customization" panel, you can operate your display station as just one display station, two display stations, or one display station and one printer.

The following procedure shows how to customize your display station and the printer (if attached to the 3477) before you use it for the communication operation with the host system.

1. Set the power switch to Off and wait approximately ten seconds.
2. Press and hold the Space Bar and set the power switch to On.
3. Hold the Space Bar down and wait approximately ten seconds. The "Offline Setup" panel appears on the screen.



4. Press the Enter key. The following "Customization" panel will appear on the screen.



Note: Once a display address is specified, the operator message, "Specify station address." will not be displayed on the screen. Instead, "F3 = Exit" will be displayed.

But when you change the terminal mode from "One-Display" to "Two-Display" or "Display-Printer" the "Specify station address." will be displayed. You need to set the secondary address. When you set the address, "Specify station address" will disappear and "F3 = Exit" will appear.

5. If you want to select either terminal mode, Two-display or Display-Printer, move the cursor using the cursor move keys (→, ←, ↓, or ↑) to either one and press the Space Bar. One of the following "Customization" panels will appear on the screen.

```
                          Customization                          More: +
Move cursor to desired choice, then press SPACE BAR to select.

  Terminal mode . . . . . .One-Display     Two-Display      Display-Printer

  Display address 1 . . . . . 0    1    2    3    4    5    6

  Display address 2 . . . . . 0    1    2    3    4    5    6


  Character set . . . . . . . Country specific       Multinational

  Printer character set . . . PC              Type A          Multilingual1
                              Multilingual2   Multilingual3   Multilingual4

  Specify station address.


SETUP
```

Customization panel for Two-Display

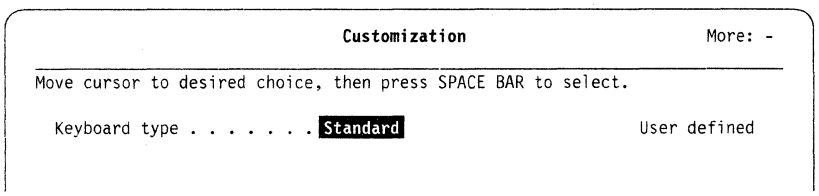
```
                          Customization                          More: +
Move cursor to desired choice, then press SPACE BAR to select.

   Terminal mode . . . . . .One-Display     Two-Display      Display-Printer

   Display address 1 . . . . .0    1    2    3    4    5    6


   Character set . . . . . . . Country specific       Multinational

   Printer address . . . . . .0    1    2    3    4    5    6

   Printer character set . . . PC              Type A          Multilingual1
                               Multilingual2   Multilingual3   Multilingual4
   Printer emulation . . . . . 5256            4214           5219

  Specify station address.


SETUP
```

Customization panel for Display-Printer

6. Complete the selections for the setup parameters such as display addresses, printer address, character set, printer character set and printer emulation.

7. Press the F8 key and the other "Customization" panel appears. Make sure that the "Standard" keyboard type is selected (highlighted).

   Note: The "User defined" keyboard type is not available.



Customization panel for Keyboard type

8. Press the F3 key to exit the "Customization" panel.
9. Press the F3 key again to enter communication mode.

   Customization of your display station is now completed.

Serial Number

The serial number is recorded by IBM before shipment for maintenance purpose.

If the logic element of your display station fails and an exchange is necessary, the serial number must be updated to show the serial number of the original logic element.

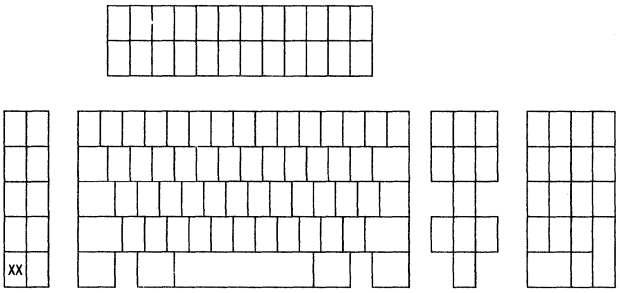
If it is necessary to update the 3477 serial number, the detailed procedures can be found in "Specify serial number" on page 5-14.

Setup Display

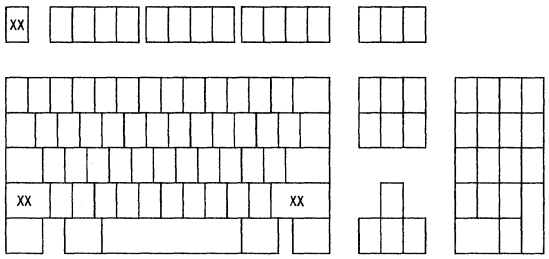
This section describes how to setup online parameters/values to meet your operational needs.

You can adjust or change the operational functions of the 3477 from the "Setup Display" panel without detaching from the host session (the job with the host application program).

1. Press the Setup key for the 122/124-key typewriter keyboard (Setup key plus Shift key for the IBM enhanced keyboard) while the display station is in communication mode.



122/124-key typewriter keyboard



IBM Enhanced keyboard

You will see the "Online Setup" panel.

```
                          Online Setup
Move cursor to desired selection and press ENTER.

   Setup display

   Browse display information

   Setup printer

   Browse printer information




F3=Exit
SETUP
```

2. Press the Enter key; either of the following two "Setup Display" panels will appear.

```
                          Setup Display                          More: +
Move cursor to desired choice, then press SPACE BAR to select.

Alarm volume . . . . . . Off    1     2     3     4     High

Clicker
   Click. . . . . . . . . Yes                    No
   volume . . . . . . . . Off    1     2     3     4     High

Cursor
   Style  . . . . . . . . Underline              Block
   Blink  . . . . . . . . Yes                              No

Row/column indicator  . . On                     Off

Rule Line
   Style  . . . . . . . . Horizontal   Vertical  Cross
   Color  . . . . . . . . White                  Green
   Follows cursor . . . . Yes                    No

F3=Save and Exit                    F8=Forward

SETUP
```

Color Model

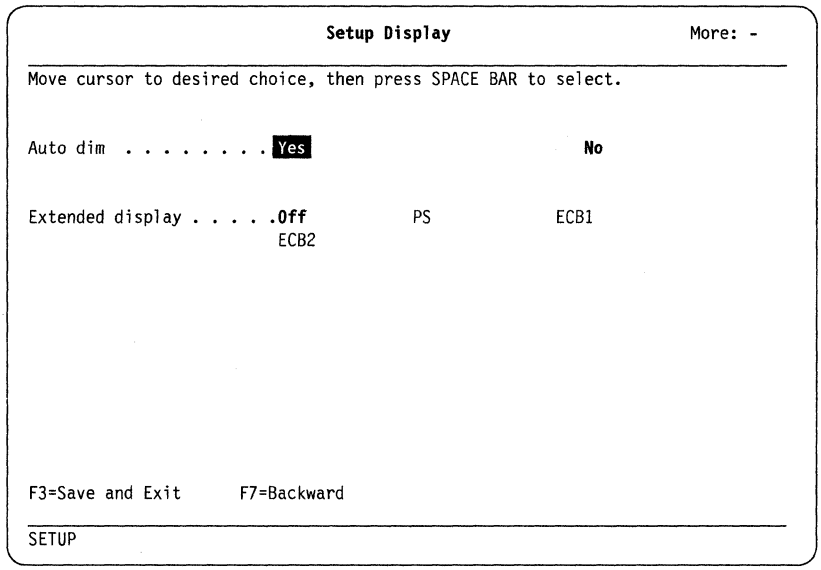
```
                          Setup Display                          More: +
Move cursor to desired choice, then press SPACE BAR to select.

Alarm volume . . . . . . Off    1     2     3     4     High

Clicker
   Click. . . . . . . . . Yes                    No
   volume . . . . . . . . Off    1     2     3     4     High

Cursor
   Style  . . . . . . . . Underline              Block
   Blink  . . . . . . . . Yes                    No

Row/column indicator  . . On                     Off

Rule Line
   Style  . . . . . . . . .Horizontal  Vertical  Cross
   Intensified. . . . . . .Yes                   No
   Follows cursor . . . . .Yes                   No

F3=Save and Exit                    F8=Forward

SETUP
```

Monochrome Model

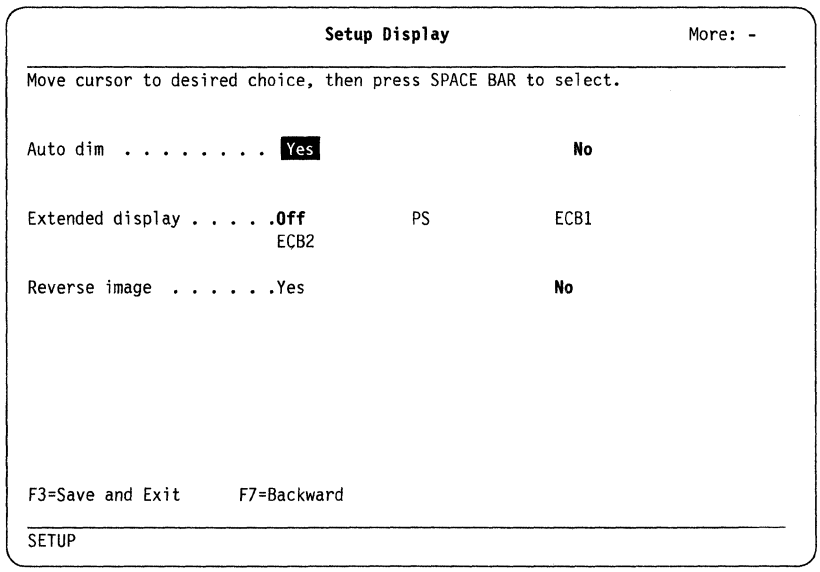
Note: The setup values in high intensity show the IBM default values.

3. Move the cursor to the desired setup value and press the Space Bar for each selection. The selected value will be highlighted. Complete all the selections.

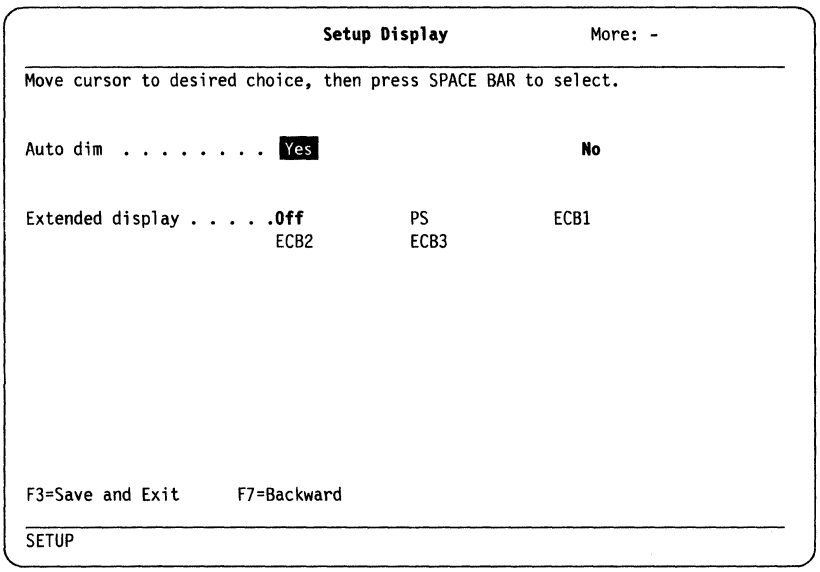
4. Press the F8 key to go to the additional setup panels shown below. If you do not need to change the values, press the Setup key to exit to communication mode.



Monochrome Model



Monochrome (black-on-white) Model



Color Model

5. Complete your selections from the appropriate panel above. Use the cursor move keys to move to desired choice and press the Space Bar to select. If you select "Yes" in "Auto dim", the following delay time selection will be added.

```
Delay (minutes) . . . . 5        10        20
```

6. Press the Setup key to exit to communication mode.

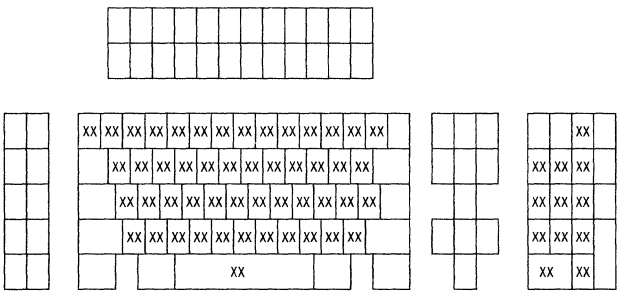
Record/Play Security Options

To limit the record/play functions for data security purpose, you can select one of the following three choices:

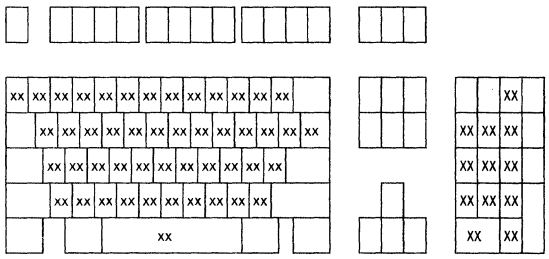
- No protection (IBM default) : R0
- Non-display field protection : R1
- Record/Play function disabled: R2.

When you select "No protection" (R0), you can record and play any data without any restriction. The 3477 defaults to this value.

When you select "Non-display field protection" (R1), you cannot enter any data keys marked "XX" on the following keyboard layouts. If you try this, the 3477 automatically exits record mode and an error code, 9021 will be displayed on the operating status line. Also, if you try to play back data recorded in the F keys in the non-display field, the 3477 exits play mode and an error code, 9020 will be displayed on the operating status line.



122/124-key typewriter keyboard



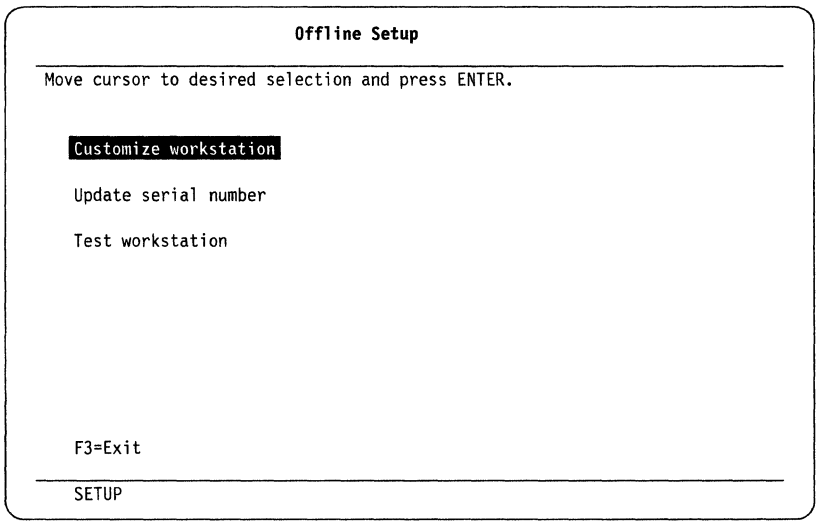
IBM Enhanced keyboard

When you select "Record/Play function disabled" (R2), no record/play function is available.

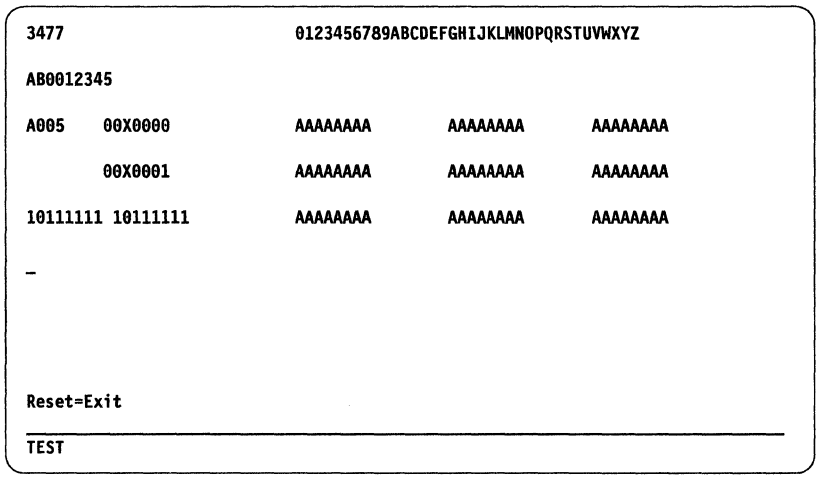
The following procedure shows how to change the record/play security options.

1. Set the power switch to Off and wait approximately ten seconds.
2. Press and hold the Space Bar and set the power switch to On.
3. Hold the Space Bar down and wait approximately ten seconds.

The "Offline Setup" panel appears on the screen.



4. Move the cursor to "Test workstation" using the cursor move keys and press the Enter key. The following panel will appear.



5. Press and hold the Alt and Shift keys, and press the Record key. You should see one of the following symbols appear in the operating status line.

R0 - The full (original) Record/Play function is available.
R1 - Non-display field input is prohibited.
R2 - The record/play function is disabled.

Important

The Record/Play Security Option is set to the default value R0. In this case, you can change the option to either R1 or R2. However, if the current option is R1, you can change it only to R2. If the option is R2, you cannot change it to either R0 or R1 without the assistance of an IBM service representative.

6. Based on your requirements, select one of the two options:
   - When the current option symbol is R0 and you want to change it to R1, press the F1 key. The blinking R1 will appear. Press the Enter key to validate the change. In a few seconds, the blinking symbol changes to R1. After a few seconds, R1 disappears.
   - When the current option symbol is either R0 or R1 and you want to change it to R2, press the F2 key. The blinking R2 will appear. Press the Enter key to validate the change. In a few seconds, the blinking symbol changes to R2. After a few seconds, R2 disappears.

   Note: If you decide to change the security option while the option symbol is blinking, press the Reset key.
7. Press the Reset key to exit to offline setup mode.
8. Press the F3 key to exit to communication mode.

Summary of the 3477 Setup Parameters

The following chart is a summary of the offline setup functions that you can change on your operational environments. Refer to *IBM InfoWindow 3476 and 3477 Introduction and Installation Planning Guide*, GA18-2952 for a more detailed description of each setup function.

Table A-1 (Page 1 of 3). Display Station Controls and Adjustments

Selection Item	Panel Title	Page	Description
Terminal mode	Customization	A-1	There are three terminal modes: One-Display, Two-Display, and Display-Printer. The selections are determined by the system configuration. • **One-display**: The 3477 has one station address and works as one display station. When a printer is attached to the 3477, the printer can be used as a local screen printer. • **Two-Display**: The 3477 has two station addresses and works as two display stations. The two display stations can communicate with the host system concurrently and independent of each other. When a printer is attached to the 3477, the printer can be used as a local screen printer. • **Display-Printer**: The 3477 has two station addresses; one for the display station and the other for the attached printer. The host system treats the 3477 and the attached printer as two independent workstations on the same communication line and can communicate with each concurrently and independently. The screen format of the 3477 is the same as the one in "One-Display" terminal mode. The selected terminal mode will be indicated in high intensity for a monochrome model and in yellow for a color model.
Display address 1 (0 to 6)	Customization	A-1	If the user selects either the "One-Display" or the "Display-Printer" terminal mode, the "Customization" panel shows the selection as one display address (0 to 6). If you select the "Display-Printer" terminal (one display address and one printer address) mode, the 3477 checks overbooking of the same address. It will change the address for one workstation (a display or a printer) to an asterisk. The selected address will be indicated in high intensity for a monochrome model and in yellow for a color model.
Display address 2 (0 to 6)	Customization	A-1	If you select "Two- Display" terminal mode, selections of two display addresses (display address 1 and 2) will be displayed on the screen. The display address 1 is for the logical display station 1 while the display address 2 is for the logical display station 2. The 3477 checks overbooking of the same address. It will change the address for one workstation to an asterisk. The selected address will be indicated in high intensity for a monochrome model and in yellow for a color model.

Table A-1 (Page 2 of 3). Display Station Controls and Adjustments

Selection Item	Panel Title	Page	Description
Printer address (0 to 6)	Customization	A-1	If the user selects "Display-Printer", the printer address will be displayed in addition to one display address. The selected printer address will be indicated in high intensity for a monochrome model and in yellow for a color model.
Character set	Customization	A-1	The 3477 is arranged to support the "Country-specific" character set based on the attached keyboard. The "Multinational" is a function of the host system. Consult your system coordinator to specify the "Multinational" character set.
Printer character set	Customization	A-1	The 3477 supports six printer character sets: PC, Type A, Multilingual 1 (default value), and Multilingual 2 to 4. The printer character set should be determined by the printer is attached to the 3477. For the relationship between the printer character sets and the attached printers, refer to Note 1.
Printer emulation	Customization	A-1	The 3477 supports three printer emulations (or device IDs): the 5256, the 4214, and the 5219 when you select the "Display-printer" terminal mode. Each printer emulation relates to a printer character set. The relationship between the printer emulations and printer character sets are shown in Note 2 after this table. When the printer emulation is changed from 5219 or 4214 to 5256, the related line pitch (LPI), character pitch (CPI), and print quality will be changed to "6", "10", and "Draft" respectively. When the printer emulation is changed from 5256 to either 5219 or 4214, those parameters are automatically changed to the system designated values. When the printer character set is changed from Multilingual, or PC to Type A, the printer emulation type, line pitch (LPI), and print quality will be changed to "5256" "6", and "Draft" respectively. When the printer character set is changed from Multilingual to PC, the printer emulation type will be reset to "4214".
Keyboard type	Customization	A-4	The "Standard" keyboard type is the default setting. The "Standard"keyboard type covers the IBM defined keyboard layouts that are listed in Chapter 4, "Keyboard and Key Functions" on page 4-1 for the U.S. and in Appendix C, "Country-Specific Keyboard Layouts" on page C-1 in other countries.), The "User defined" keyboard type is not available.
Keyboard ID	Customization	A-4	Because the "User defined" keyboard type is not available, the keyboard ID is not selectable.
Machine serial	Serial Number	A-5	This number is used for the network control. The original setting of this value is the serial number of the logic element.
Alarm volume	Setup Display	A-6	The user can adjust the alarm volume including value 0 (off).
Clicker	Setup Display	A-6	The user can turn on/off and adjust the volume of the audible clicker.
Cursor	Setup Display	A-6	The user can change the style and blinking state of the cursor.

Table A-1 (Page 3 of 3). Display Station Controls and Adjustments			
Selection Item	**Panel Title**	**Page**	**Description**
Row/column indicator	Setup Display	A-6	When turned on, the current row and column numbers are displayed in the operating status line.
Rule line	Setup Display	A-6	You can change the attributes of the rule line: style, color or intensity, and follows-cursor.
Auto dim	Setup Display	A-7	The screen becomes blank if the user does not press a key, or the display station does not receive any data from the host, in the specified time in "Delay".
Extended display	Setup Display	A-7	When either "PS", "ECB1", "ECB2", or "ECB3" is selected, the 3477 displays the attributes in hexadecimal format.
Reverse image	Setup Display	A-7	The user can select either of two screen images: light graphics on dark background, or dark graphics on light background. When "Yes" is selected, the screen is set to light graphics on dark background (white-on-black). When "No" is selected, the screen is set to dark graphics on light background (black-on-white). This function is available only for the monochrome (black-on-white) model.
Record/Play Security Options	Test workstation	A-10	You can change the record/play function to prohibit recording of the non-display field input (like a password), or the record/play function can be totally disabled. Once the record/play function is changed, the original function will not be recovered.

Notes:

1. The following table shows the relationship between the printer character set and the IBM supported printers.

Item	**Printer character set**	**Supported printer**
PC	IBM PC printer character set	• IBM Proprinter (IBM 4201-1) • IBM Proprinter II (IBM 4201-2) • IBM Proprinter XL (IBM 4202-1) • IBM Proprinter XL (IBM 4202-2)
Type A	IBM Type A multilingual character set	• IBM Quietwriter (IBM 5201-1) • IBM Quietwriter (IBM 5201-2)
Multilingual1	Multilingual character set	• IBM Quietwriter III (IBM 5202) • IBM Quickwriter (IBM 5204)
Multilingual2	Multilingual character set	• IBM Proprinter III (IBM 4201-3) • IBM Proprinter XL III (IBM 4202-3)
Multilingual3	Multilingual character set	• IBM 4207-2 • IBM 4208-2
Multilingual4	Multilingual character set	• IBM 4216-10

2. The following table shows the relationship between the printer character set and emulation type.

Printer character Set	Supported Emulation
PC	5256, 4214
Type-A	5256
Multilingual1	5256, 4214, 5219
Multilingual2	5256, 4214
Multilingual3	5256, 4214, 5219
Multilingual4	5256, 4214

Appendix B. Printer Controls and Adjustments

This appendix describes how to customize the attached printer and setup the online parameters for the attached printer.

Through the "Setup Printer" panel, the user can specify the various parameters to adjust the functions of the printer which is attached to the 3477. As described in Appendix A, depending on the terminal mode which the user selects, the attached printer can be used as a local screen printer or a system printer.

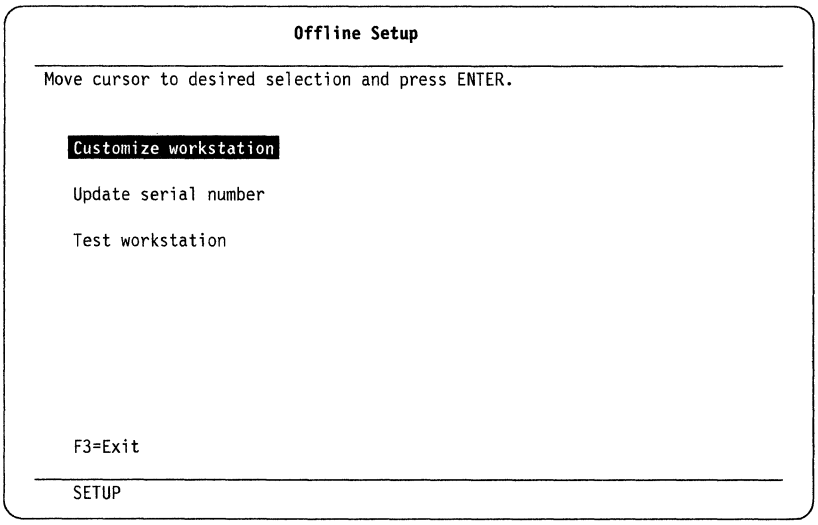
The selected parameters for the printer setup functions remain in storage even if you set the power switch to Off.

Customization for the Attached Printer

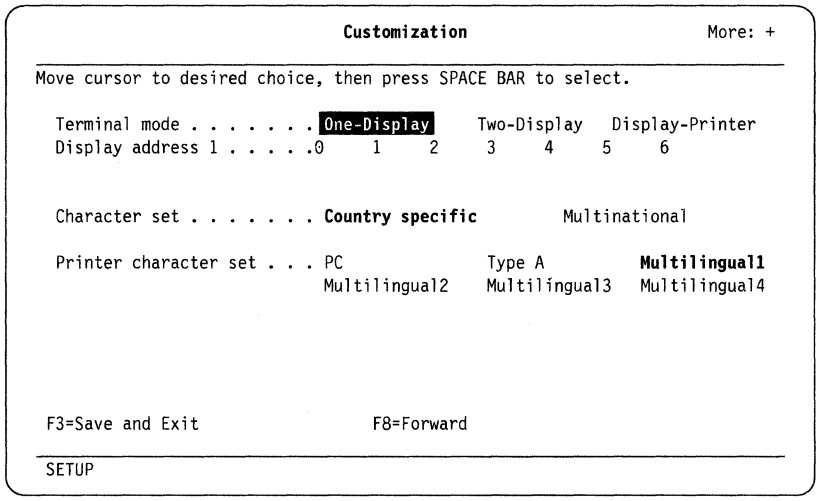
This section describes how to setup the printer as either a local screen printer or a system designated printer.

Customization for Local Screen Print

1. Set the power switch to Off and wait approximately ten seconds.
2. Press and hold the Space Bar and set the power switch to On.
3. Hold the Space Bar down and wait approximately ten seconds. The "Offline Setup" panel appears on the screen.



4. Press the Enter key; the following "Customization" panel will appear on the screen.



5. Select either terminal mode, "One-display" or "Two-display". Press the cursor move keys and then press the Space Bar to select.

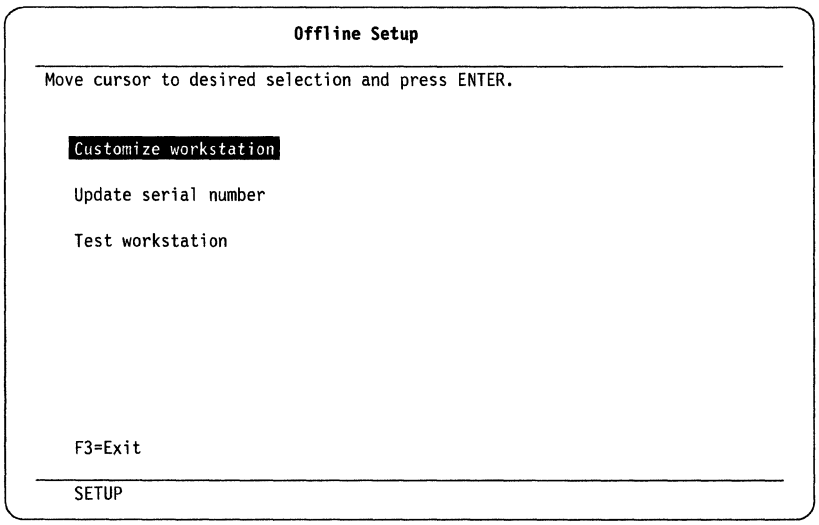
Note to the reader

To use the attached printer as a local printer, it is mandatory to specify either "One-display" or "Two-display" terminal mode.

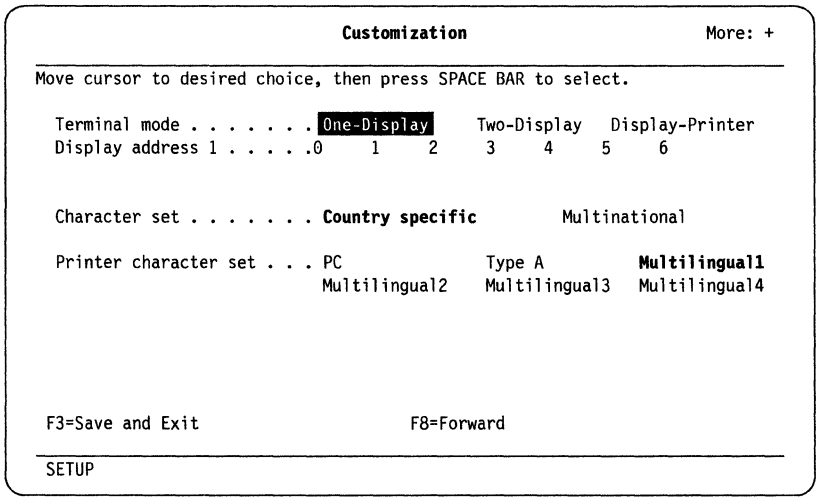
6. Specify display addresses and the remaining setup values/parameters. Use the cursor move keys and press the Space Bar to select (Refer to the setup value table in Chapter 1 for the 3477 configuration).
7. After selection of the setup values/parameters, press the F3 key twice to enter communication mode.

Customization for System Print

1. Set the power switch to Off and wait approximately ten seconds.
2. Press and hold the Space Bar and set the power switch to On.
3. Hold the Space Bar down and wait approximately ten seconds. The "Offline Setup" panel appears on the screen.



4. Press the Enter key; the following "Customization" panel will appear on the screen.



5. Select the Display-Printer terminal mode. Press the cursor move keys and then press the Space Bar to select.

> **Note to the reader**
>
> To use the attached printer as a system printer, it is mandatory to specify "Display-Printer" terminal mode.

```
                          Customization                          More: +

Move cursor to desired choice, then press SPACE BAR to select.

   Terminal mode . . . . . .One-Display     Two-Display      Display-Printer

   Display address 1 . . . . .0     1     2     3     4     5     6


   Character set . . . . . . . Country specific         Multinational

   Printer address . . . . . .0     1     2     3     4     5     6

   Printer character set . . . PC               Type A           Multilingual1
                               Multilingual2    Multilingual3    Multilingual4
   Printer emulation . . . . . 5256             4214             5219

  Specify station address.


SETUP
```

For detailed information about the setup items for the attached printer, refer to the "Summary of the 3477 Setup Parameters" on page A-13.

6. Specify station addresses and the remaining setup values/parameters using the cursor move keys and pressing the Space Bar. Refer to the setup value table in Chapter 1 for the 3477 configuration.
7. After selection of the setup values/parameters, press the F3 key twice to enter communication mode.

Setup Printer

You can adjust or change the operational functions of the printer attached to the 3477 through the "Setup Printer" panel without detaching the host session. To change the operational functions, perform the following sections.

For detailed information about each setup value/parameter, refer to "Summary of Printer Setup Parameters" on page B-15 located at the end of this appendix.

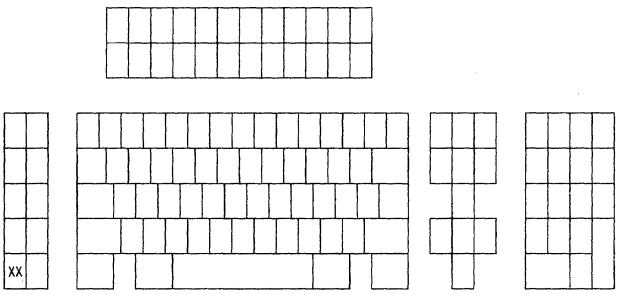
Setup Printer Panel for Local Screen Print

To use the printer that is attached to the 3477 as a local screen printer, do the following procedure.

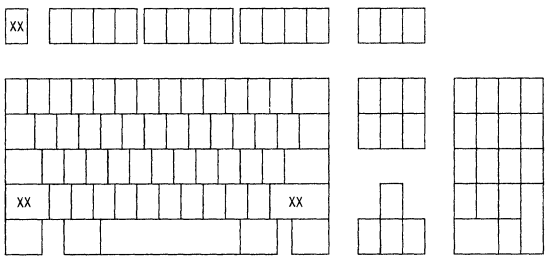
Prerequisite Settings in Customization

As described in "Customization for Local Screen Print" on page B-1, it is mandatory to select either "One-display" or "Two-display" terminal mode in the customization panel before going through this procedure.

1. Press the Setup key for the 122/124-key typewriter keyboard (the Setup key plus the Shift key on the IBM enhanced keyboard) while the display station is in communication mode.

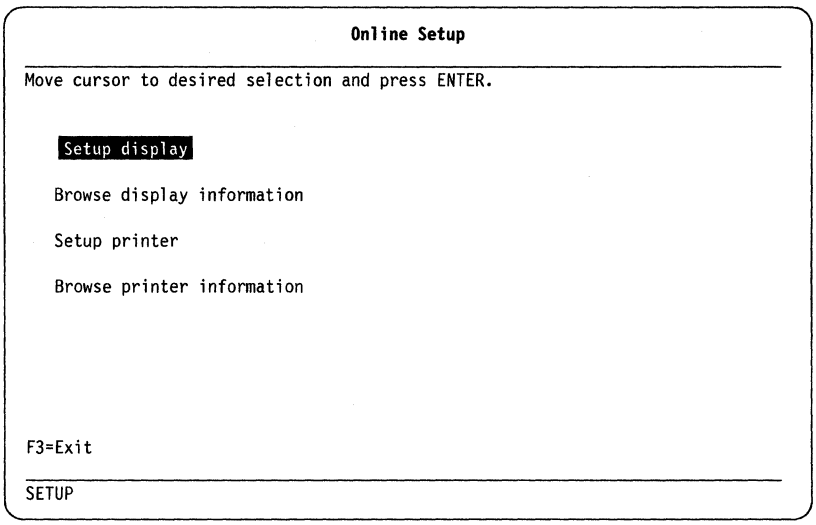


122/124-key typewriter keyboard



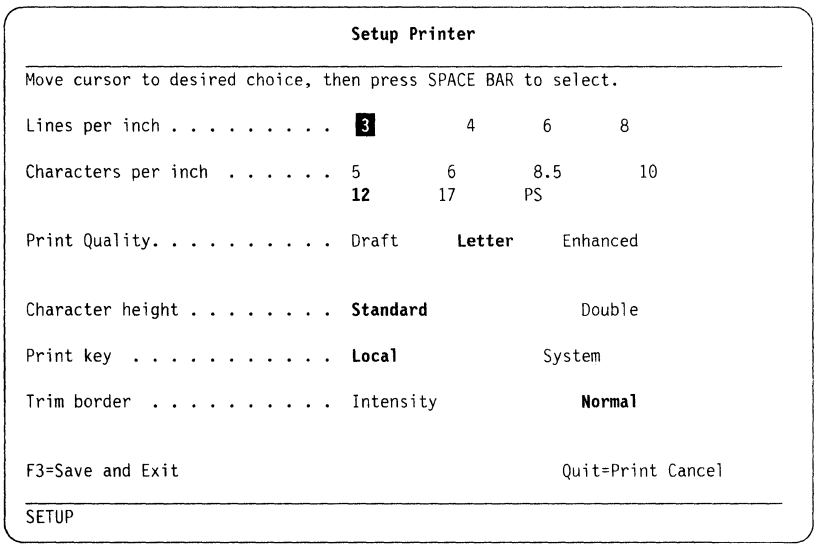
IBM Enhanced keyboard

You will see the "Online Setup" panel.



2. Move the cursor to select "Setup printer" and press the Enter key. The "Setup Printer" panel on the screen varies depending on the printer character set you selected in the 3477 customization (see "Customization" of this section).

3. Find the "Setup Printer" panel that matches the display on the screen.

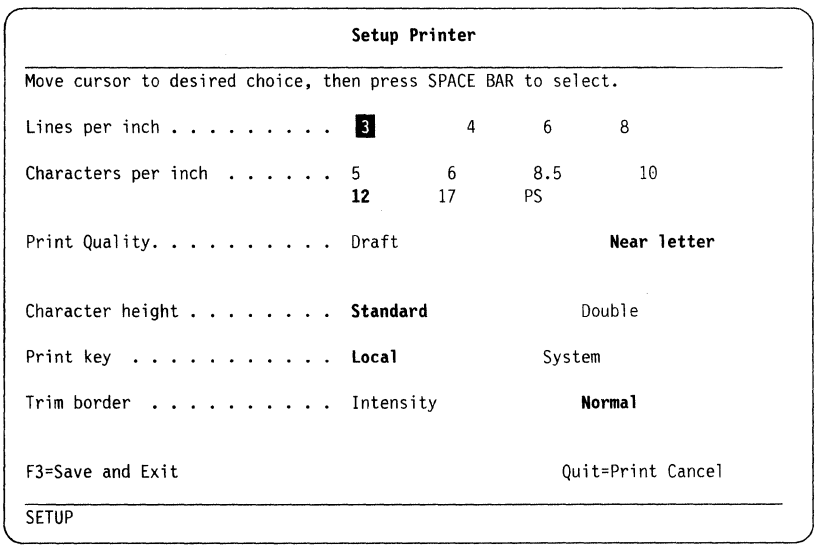


Setup Printer Panel (One-Display/Two-Display, Multilingual, Monochrome Model)

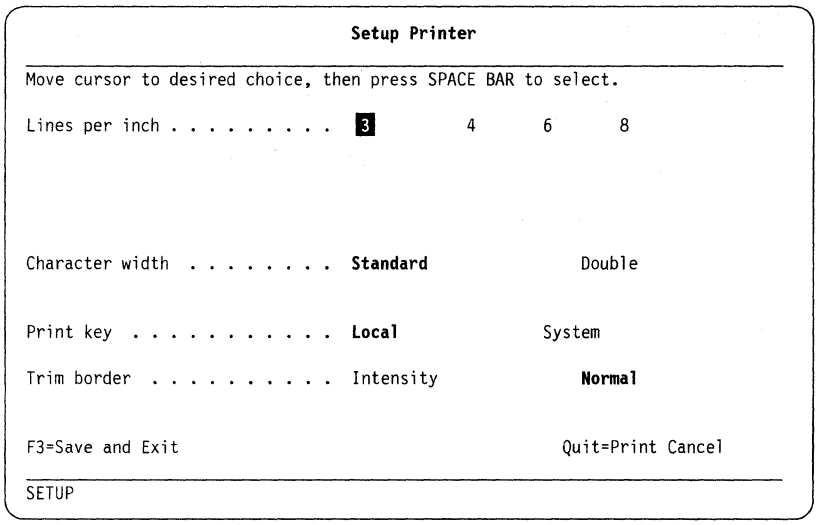
Notes:

a. For color models, the "Trim border" field, "Green" corresponds to "Normal" on a monochrome model.

b. If you specify "System" in the "Print key" field and press the Print key, a system screen print request is issued to the host system.



Setup Printer Panel (One-Display/Two-Display, PC, Monochrome Model)



Setup Printer Panel (One-Display/Two-Display, Type A, Monochrome Model)

4. Complete your selection by using the cursor move keys and pressing the Space Bar.
5. Press the "Setup" key on the 122/124-key keyboard (the "SetUp" key plus the Shift key on the IBM Enhanced keyboard) to return to communication mode.

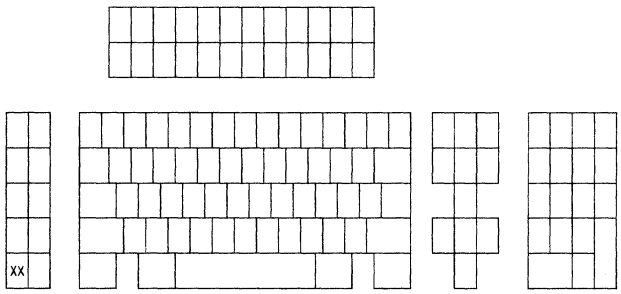
Setup Printer Panel for System Print

To use the printer that is attached to the 3477 as a subsystem printer, perform the following procedure.

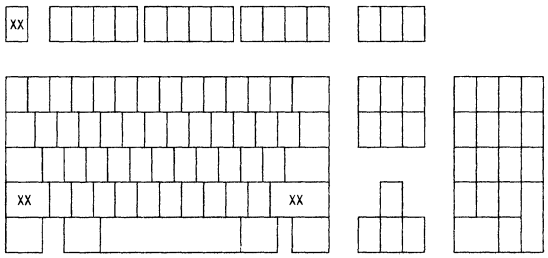
Prerequisite Settings in Customization

As described in "Customization for Local Screen Print" on page B-1, it is mandatory to select the "Display-Printer" terminal mode in the customization panel before going through this procedure.

1. Press the Setu? key for the 122/124-key typewriter keyboard (the SetUp key plus the Shift key for the IBM enhanced keyboard) while the display station is in communication mode.



122/124-key typewriter keyboard



IBM Enhanced keyboard

You will see the "Online Setup" panel.

```
                          Online Setup
Move cursor to desired selection and press ENTER.

   Setup display

   Browse display information

   Setup printer

   Browse printer information




F3=Exit
SETUP
```

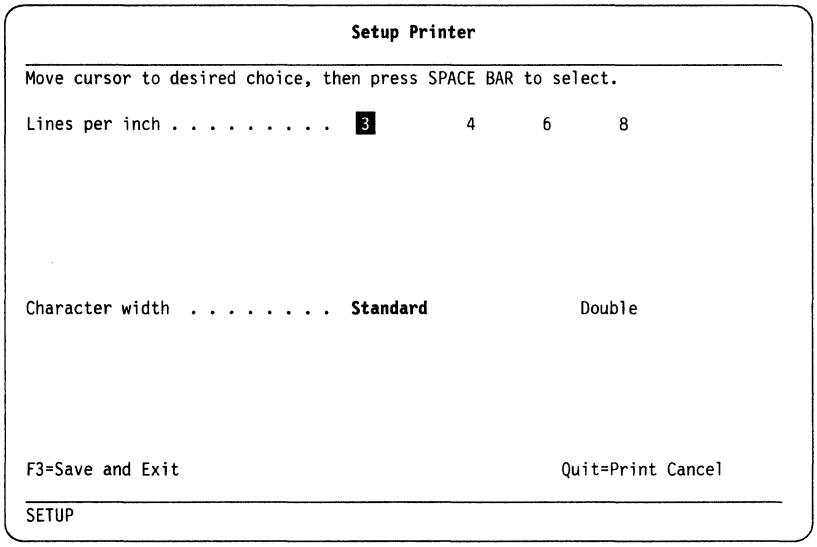
2. Move the cursor to "Setup Printer" and press the Enter key to go to the "Setup Printer" panel. The "Setup Printer" panel that appears on the screen varies depending on the printer character set and emulation type that you selected in the 3477 customization (see "Customization" of this section).
3. Find the "Setup Printer" panel below that matches the display on your screen.

```
                                 Setup Printer
Move cursor to desired choice, then press SPACE BAR to select.

Lines per inch . . . . . . . . .  3        4       6       8

Characters per inch  . . . . . .  5        6       8.5       10
                                  12       17      PS

Print Quality. . . . . . . . . .  Draft        Letter      Enhanced


Character height . . . . . . . .  Standard              Double




F3=Save and Exit                                      Quit=Print Cancel
SETUP
```

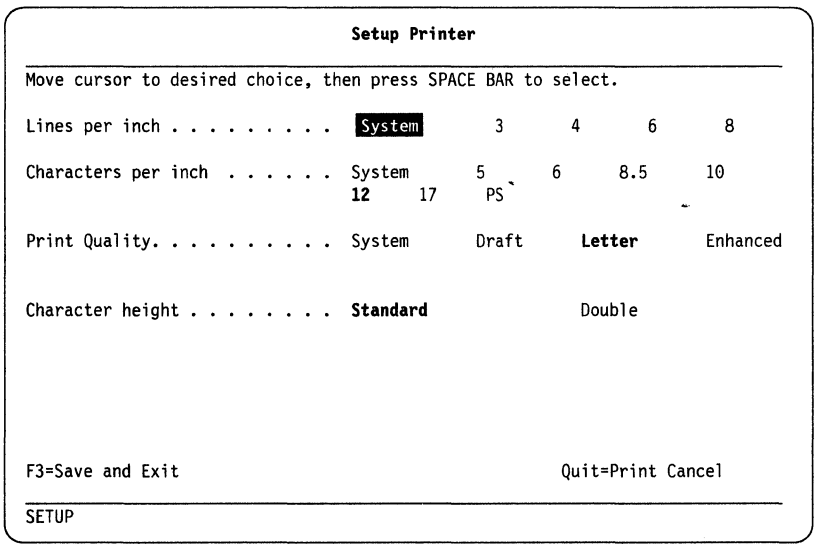
Setup Printer Panel (Display-Printer, Multilingual, 5256 Emulation)

```
                                 Setup Printer
Move cursor to desired choice, then press SPACE BAR to select.

Lines per inch . . . . . . . . .  3        4       6       8

Characters per inch  . . . . . .  5        6       8.5       10
                                  12       17      PS

Print Quality. . . . . . . . . .  Draft                     Near Letter


Character height . . . . . . . .  Standard              Double




F3=Save and Exit                                      Quit=Print Cancel
SETUP
```

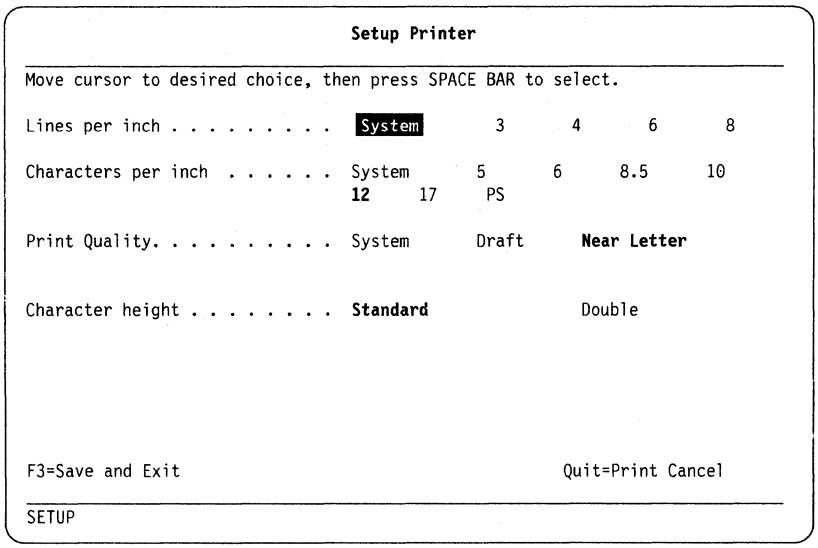
Setup Printer Panel (Display-Printer, PC, 5256 Emulation)



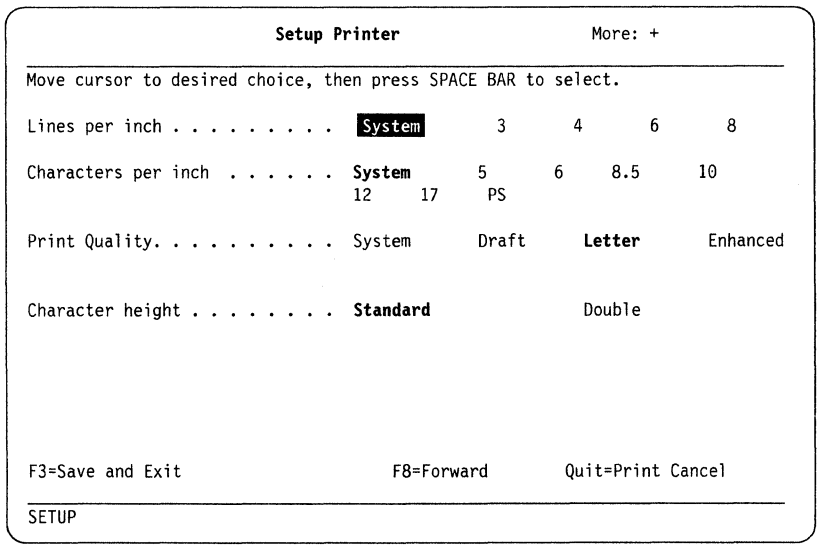
Setup Printer Panel (Display-Printer, Type A, 5256 Emulation)



Setup Printer Panel (Display-Printer, Multilingual, 4214 Emulation)



Setup Printer Panel (Display-Printer, PC, 4214 Emulation)



Setup Printer Panel (Display-Printer, Multilingual, 5219 Emulation)

4. Complete your selection by using the cursor move keys and pressing the Space Bar.
5. If you selected the 5219 emulation, press the F8 key to go to the additional setup printer panel. If not, go to step 7 on page B-14.

   If you have never selected a "System" parameter from the "Type style", "System code page", "Paper feed", "Form", or "Source drawer", the following panel will appear.

```
                    Setup Printer                    More: -
Move cursor to desired choice, then press SPACE BAR to select.

Type Style . . . . . . . . . . . System                  Local

System code page . . . . . . . . System                        Local

Paper feed . . . . . . . . . . . System                        Local

Form . . . . . . . . . . . . . . System          Paper     Envelope

Source drawer  . . . . . . . . . System          1         2




F3=Save and Exit      F7=Backward                  Quit=Print Cancel
SETUP
```

Additional Setup Printer Panel (Display-Printer, Local, 5219 Emulation)

If you have previously selected at least one "System" parameters from the "Type style", "System code page", "Paper feed", "Form", or "Source drawer", the following panel will appear.

```
                    Setup Printer                    More: -
Move cursor to desired choice, then press SPACE BAR to select.

Type Style . . . . . . . . . . . System                  Local

System code page . . . . . . . . System                        Local

Paper feed . . . . . . . . . . .  System                Local

Form . . . . . . . . . . . . . . System          Paper       Envelope

Source drawer  . . . . . . . . . System          1           2

Attention  . . . . . . . . . . . Yes                                No


F3=Save and Exit          F7=Backward                Quit=Print Cancel
SETUP
```

Additional Setup Printer Panel (Display-Printer, System, 5219 Emulation)

6. Complete the selections of values/parameters in the additional setup printer panel.
7. Press the Setup key for the 122/124-key keyboard (the Setup key plus the Shift key for the IBM Enhanced keyboard) to return to communication mode.

Summary of Printer Setup Parameters

The following chart is a summary of the printer setup functions that you can change for your operational environment. Refer to the *IBM InfoWindow 3476 and 3477 Introduction and Installation Planning Guide* for details of the function.

Table B-1 (Page 1 of 4). Printer Control and Adjustment

Selection Item	Panel Title	Page	Description
Attention	Additional Setup Printer	B-13	When "Yes" is selected, the 3477 suspends the printer emulation. It stops sending data to the attached printer when the 3477 receives any of the following requests from the host system. • Type style request • Code page change request • Paper feed change request • Form change request • Source drawer change request At the same time, the 3477 also displays the change request message on the Printer Information panel (see "Browsing the Current Setup Values/Parameters for the Attached Printer" on page 2-32). When "No" is selected, the 3477 will not suspend the printer emulation.
Character height	Setup Printer	B-7, B-10	The user can select two character heights: Standard or Double.
Characters per inch	Setup Printer	B-7, B-10	You can select the number of characters printed per inch. 1. The user can choose any one of the seven selections: 5, 6, 8.5, 10, 12, 17, PS (proportional spacing) under the following conditions: • When either terminal mode, One-display or Two-display, is selected, or • The Display-Printer terminal mode, 5256 emulation, and either printer character sets, Multilingual (1 - 4) or PC, are selected. 2. The user can select one of eight selections: System*, 5, 6, 8.5, 10, 12, 17 or PS (proportional spacing). * - If "System" is selected, the host system specifies a character pitch. However, if the user specifies character pitch, the system designated character pitch will be ignored.
Character width	Setup Printer	B-8	When "Type A" printer character set is selected, the user can select either of the two character widths; Standard or Double.

[1] Before you go into the panels "Customization" for changing these items, you should complete your host session (job with the host application program). The panel will terminate your host session.

Table B-1 (Page 2 of 4). Printer Control and Adjustment

Selection Item	Panel Title	Page	Description
Form	Additional Setup Printer	B-13, B-13	The user can select the form used for the printer from three choices: "System", "Paper", and "Envelope". When "System" is selected, the host system specifies the form. When either "Paper" or "Envelope" is selected, the selected form is used, even though the host system requests a different form. The 3477 displays the change request message from the host system on the Printer Information panel (see "Browsing the Current Setup Values/Parameters for the Attached Printer" on page 2-32).
Lines per inch	Setup Printer	B-7, B-8, B-10, B-11, B-12	The user can select the number of lines printed per inch. Depending on the terminal mode, the range of the line pitch selections varies: 1. Four line pitches are selectable, 3, 4, 6, and 8, if the user specifies either of the following conditions. • When either terminal mode, One-display or Two-display, is selected. • The Display-Printer terminal mode and 5256 emulation are selected. 2. Five line pitches are selectable, System*, 3, 4, 6, and 8, if the user specifies Display-Printer mode, and either 5219 or 4214 emulation. * - When "System" is selected, the host system specifies the line pitch. If the user specifies another line pitch, the 3477 ignores the system designation.
Paper feed	Additional Setup Printer	B-13, B-13	The user can select either "System" or "Local" for paper feed technique. When "System" is selected, the paper technique will be designated by the host system. When "Local" is selected, the system designated paper feed technique will be ignored and the paper feed technique selected by the ASCII printer will be used. The 3477 displays the change request message from the host system on the Printer Information panel (see "Browsing the Current Setup Values/Parameters for the Attached Printer" on page 2-32).
Print key	Setup Printer	B-7, B-8	This function is available when either terminal modes: One-Display or Two-Display is selected. The user can specify either "System" or "Local", to send the scan code of the Print key to the host system. When "System" is selected, pressing the Print key on the 3477 will cause the scan code of the Print key to be sent to the host system. When "Local" is selected, pressing the Print key will cause the scan code to be send to the local screen print.

Table B-1 (Page 3 of 4). Printer Control and Adjustment

Selection Item	Panel Title	Page	Description
Print quality	Setup Printer	B-7, B-8	The user can change the print quality in one of the five degrees: System, Draft, Near letter, Letter, and Enhanced. Depending on the combination of emulation, terminal mode, and printer character set, the available print quality will be determined. 1. The "Draft" or "Near Letter" can be selected if the user selects either of the following combinations: • When either terminal modes, One-display or Two-display, is selected, or, • The 5256 emulation, Display-Printer terminal mode, and PC printer character set are selected. 2. "System", "Draft", "Enhanced", and "Letter" can be selected if the user specifies either 5219 or 4214 emulation, Display-Printer terminal mode, and Multilingual (1 - 4) printer character set. 3. "System", "Draft", and "Near Letter" can be selected if the user specifies either 5219 or 4214 emulation, Display-Printer terminal mode, and PC printer character set. When "System" is selected, the host system will designate the print quality.
System code page	Additional Setup Printer	B-13, B-13	The user can select two code pages: system and local. If "System" is selected, the system designated code page will be applied to the printer. If "Local" is selected, the code page designated by the system will be ignored and the code page selected on the attached printer will be used. When the "System" is selected, the system code page selected by the host system can be viewed in the Printer Information panel.
Source drawer	Additional Setup Printer	B-13, B-13	This selection is available only when the user specifies "Display-Printer" terminal mode and 5219 emulation, and attaches to one of two printers: IBM 5202, and 5204 which have a sheet feeder (paper cassette) to the 3477. When "System" is selected, the host system will designate the drawer number. If the other parameters are selected, either "1" or "2", the user can select it from the 3477 keyboard. The 3477 displays the change request message from the host system on the Printer Information panel (see "Browsing the Current Setup Values/Parameters for the Attached Printer" on page 2-32).
Trim border	Setup Printer	B-7, B-8	The user can select different trimming rectangles depending on whether monochrome or color is used. • **Monochrome** - the trim border is highlighted or not highlighted (normal intensity). • **Color** - the trim border is displayed in white or green. The function is available when either terminal modes: One-Display or Two-Display is selected.

Table B-1 (Page 4 of 4). Printer Control and Adjustment

Selection Item	Panel Title	Page	Description
Type style	Additional Setup Printer	B-13, B-13	The user can select two type styles: system-designated or local. When the user selects "System", the type style will be designated by the host system. When "Local" is selected, the type style selected on the attached printer control panel will be used. When the "System" is selected, the type style selected by the host system can be viewed in the Printer Information panel.

Appendix C. Country-Specific Keyboard Layouts

Figures C-1 through C-31 show the country-specific keyboard layouts for the 122-key/124-key typewriter keyboards and the IBM Enhanced (103-key/104-key) keyboards. The table below is a quick index for each keyboard layout.

Keyboard Layout	Figure Number for a Keyboard Layout	Page
Austrian/German	C-1, C-2	C-2
Belgian	C-3, C-4	C-3
Canadian French	C-5, C-6	C-4
Danish	C-7, C-8	C-5
Dutch	C-9	C-6
Finnish/Swedish	C-10, C-11	C-7
French (AZERTY)	C-12, C-13	C-8
Italian	C-14, C-15	C-9
Japanese Katakana	C-16, C-17	C-10
Norwegian	C-18, C-19	C-11
Portuguese	C-20, C-21	C-12
Spanish	C-22, C-23	C-13
Spanish-Speaking	C-24, C-25	C-14
Swiss-Bilingual-French	C-26, C-27	C-15
Swiss-Bilingual-German	C-28, C-29	C-16
U.K. English	C-30, C-31	C-17

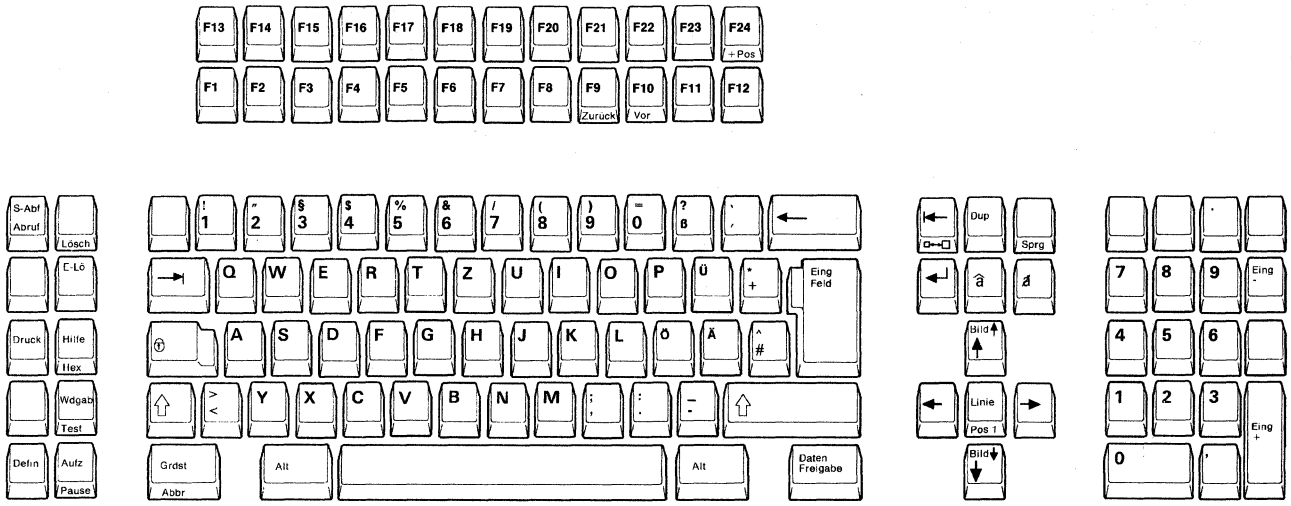


Figure C-1. Austrian/German 122-key Typewriter Keyboard

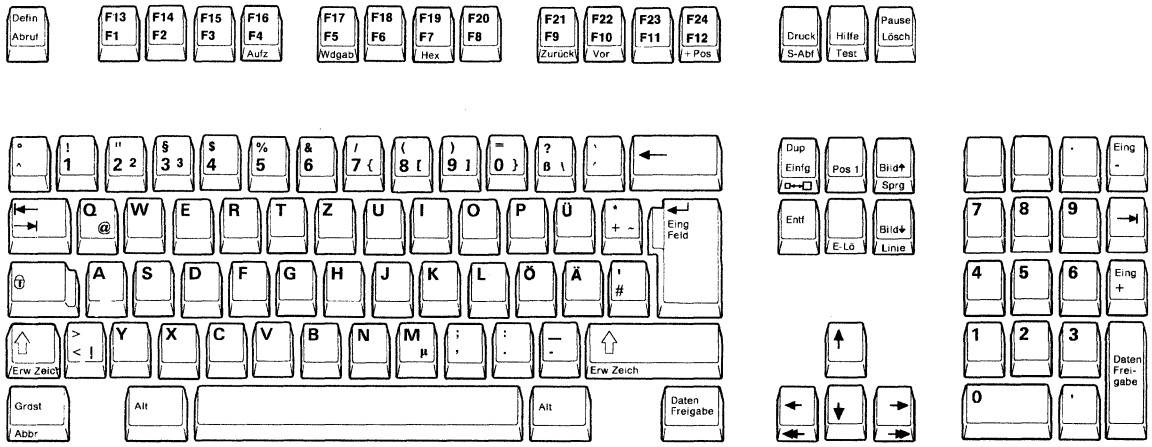


Figure C-2. Austrian/German IBM Enhanced Keyboard

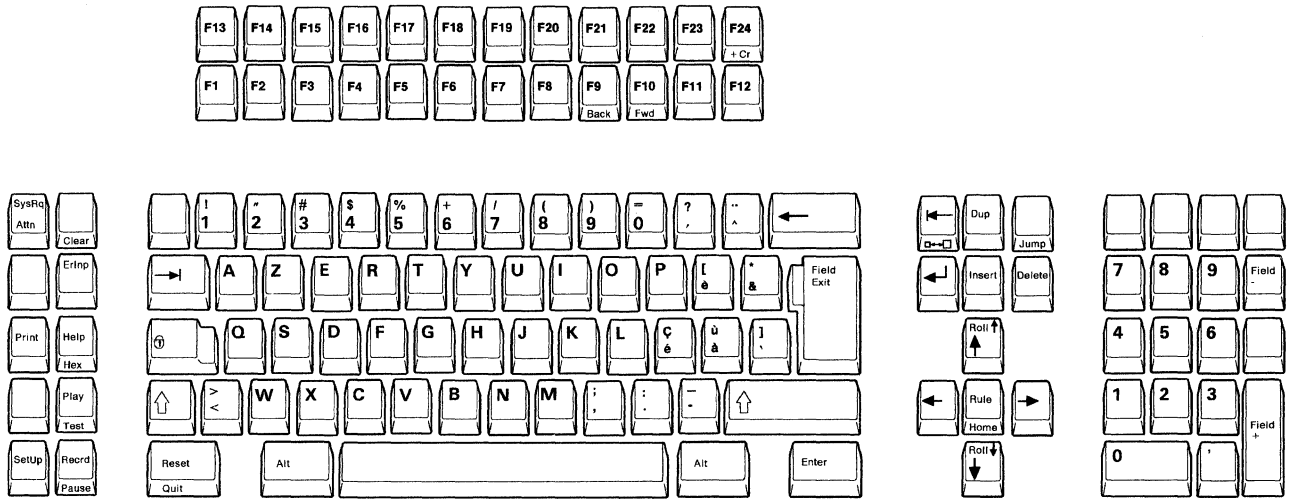


Figure C-3. Belgian 122-key Typewriter Keyboard

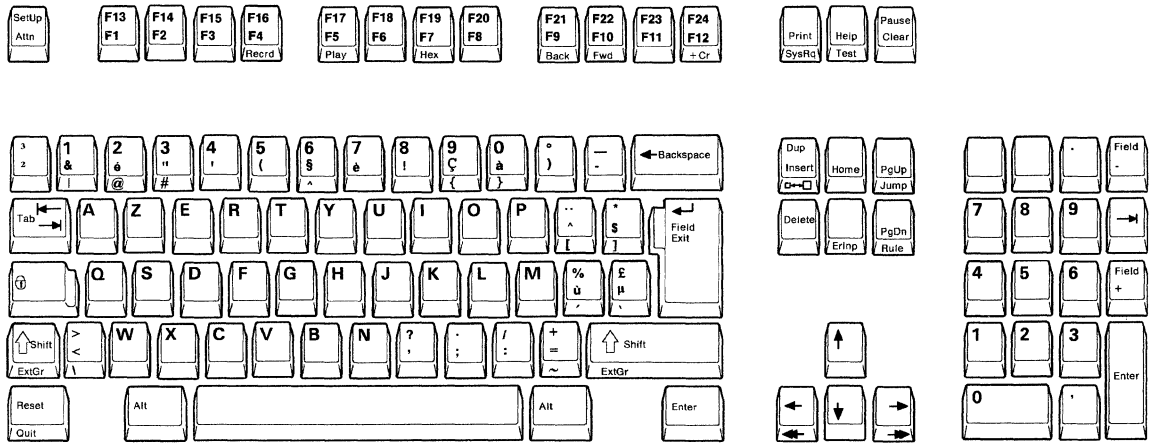


Figure C-4. Belgian IBM Enhanced Keyboard

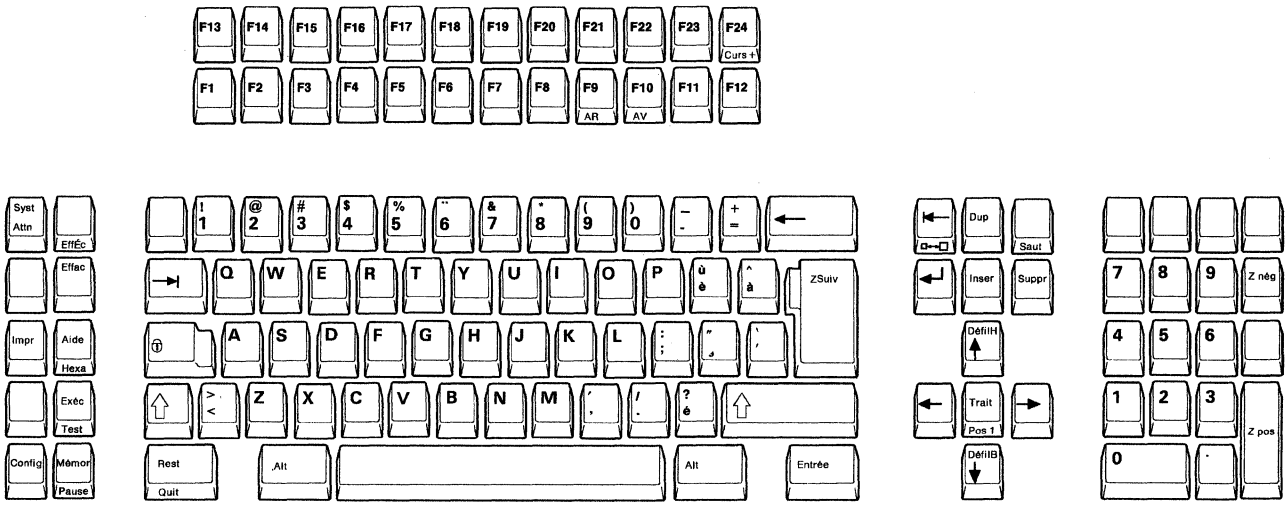


Figure C-5. Canadian French 122-key Typewriter Keyboard

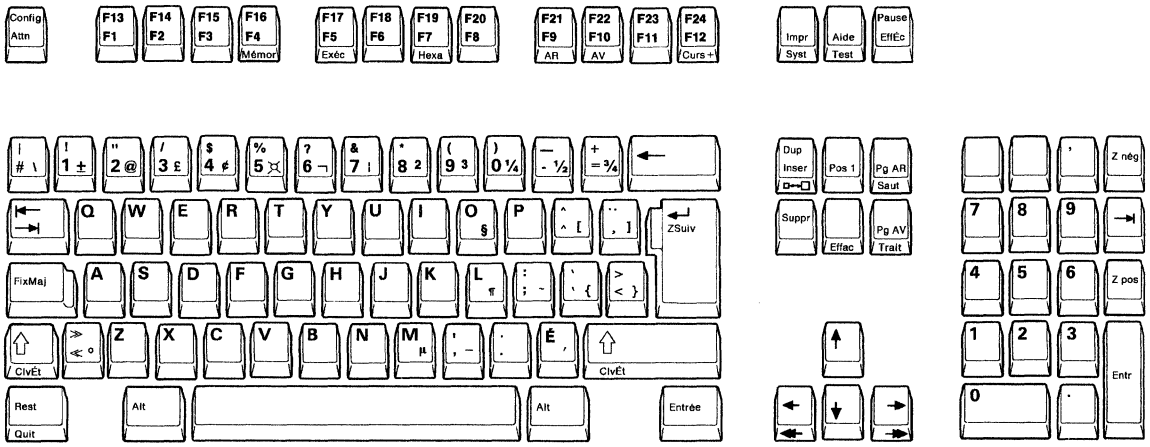


Figure C-6. Canadian French IBM Enhanced Keyboard

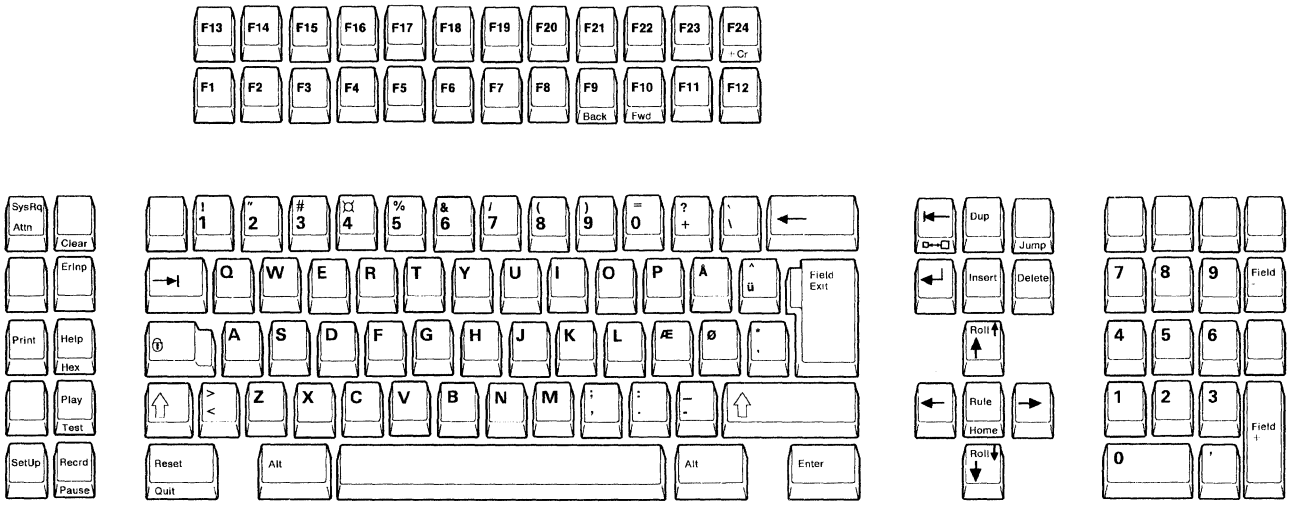


Figure C-7. Danish 122-key Typewriter Keyboard

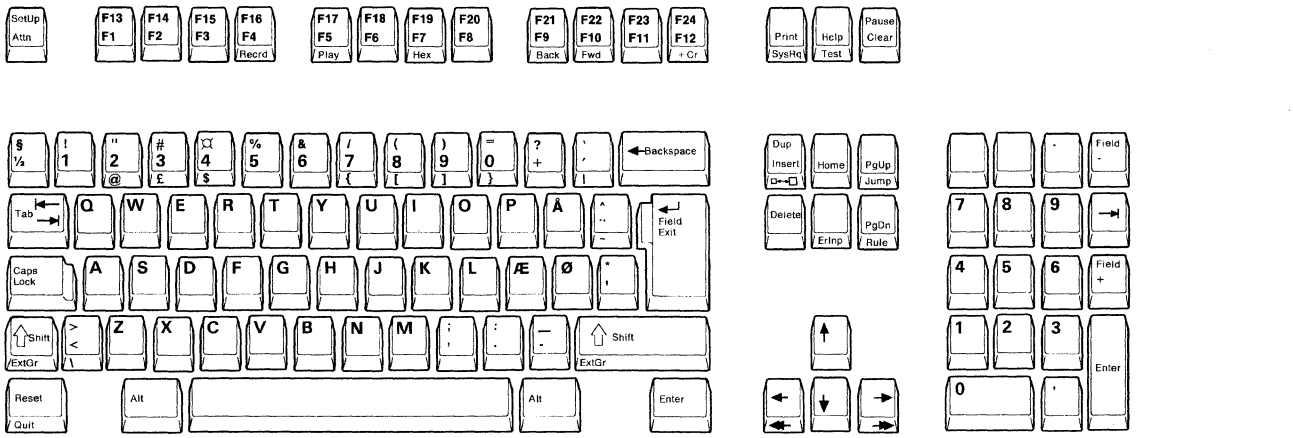


Figure C-8. Danish IBM Enhanced Keyboard

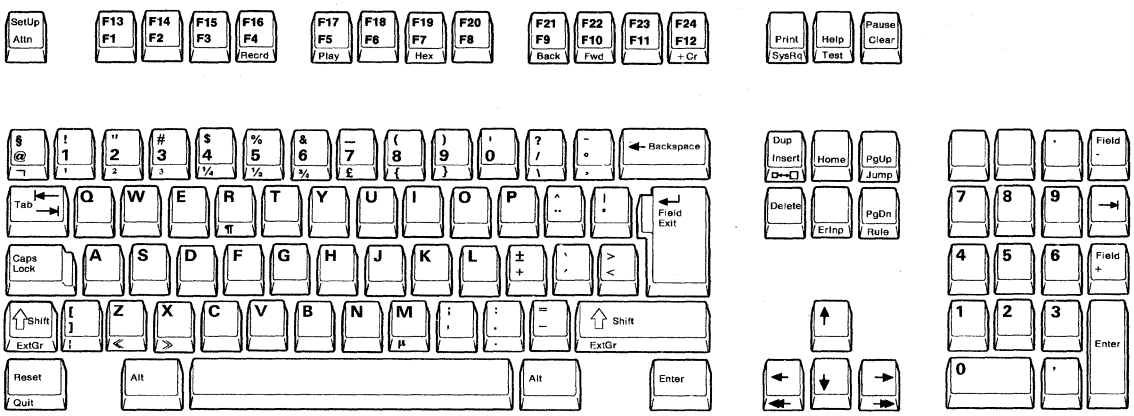


Figure C-9. Dutch IBM Enhanced Keyboard

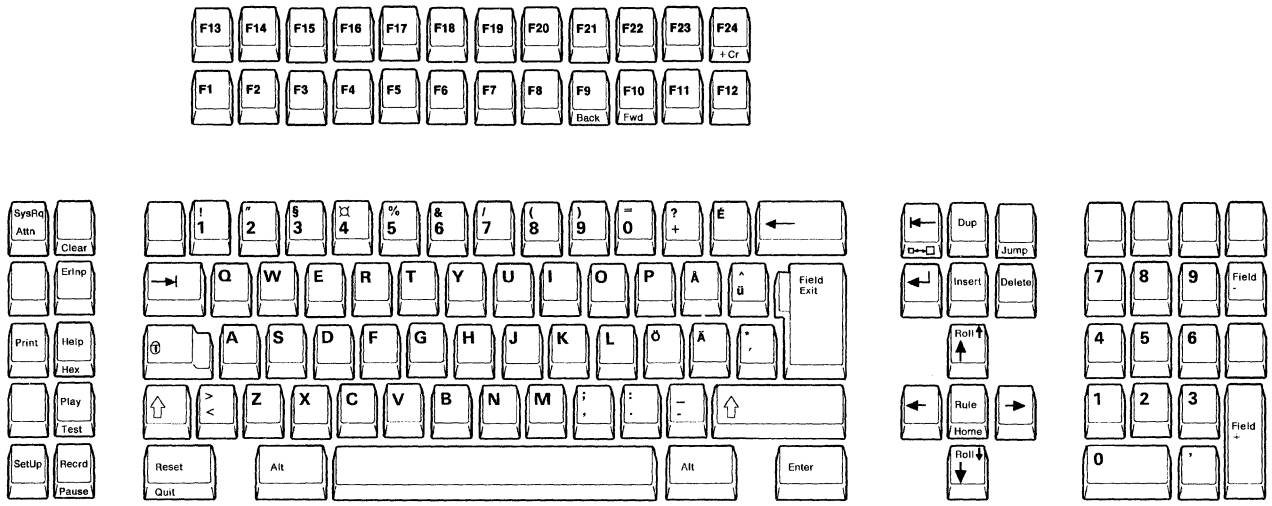


Figure C-10. Finnish/Swedish 122-key Typewriter Keyboard

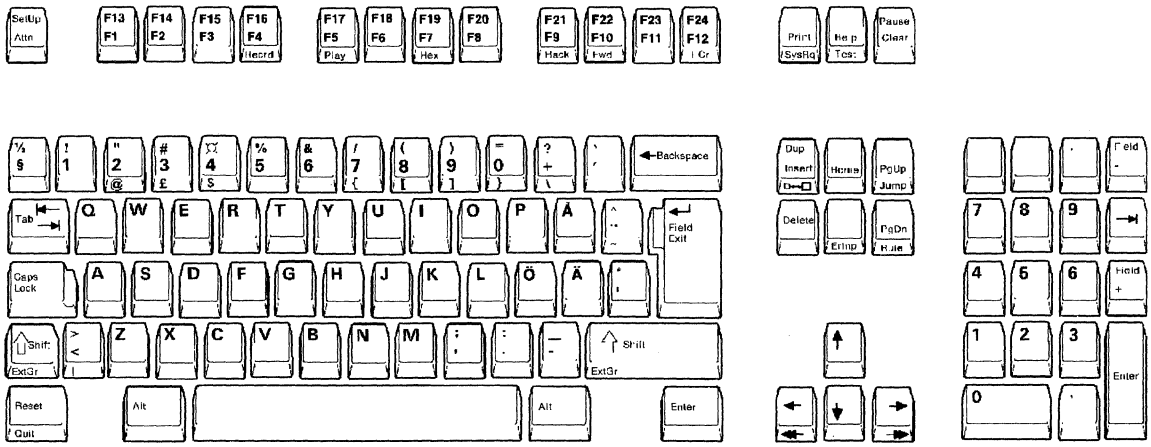


Figure C-11. Finnish/Swedish IBM Enhanced Keyboard

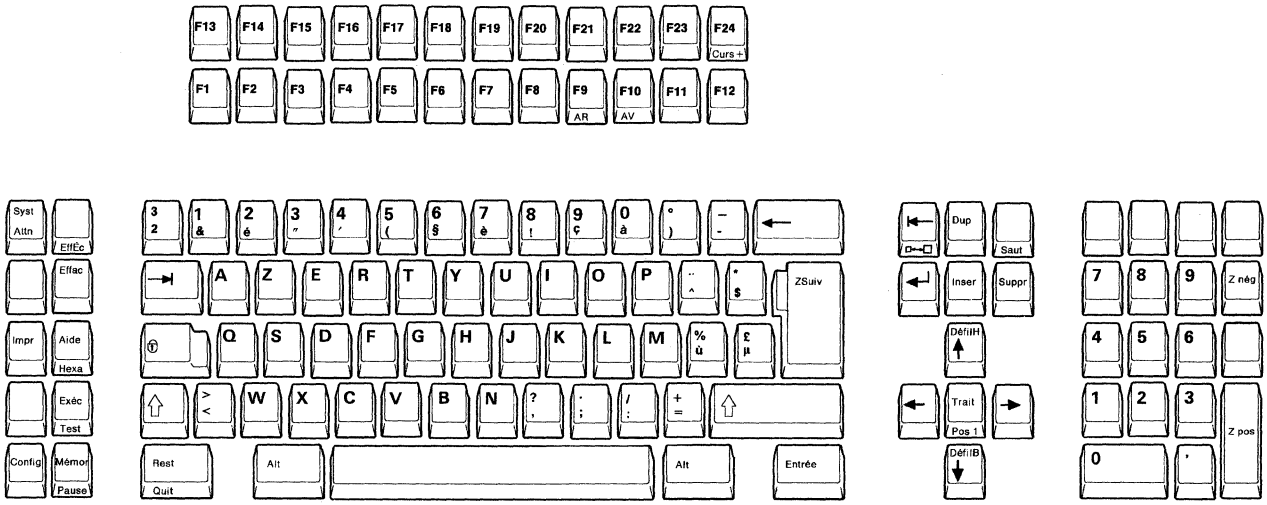


Figure C-12. French (AZERTY) 122-key Typewriter Keyboard

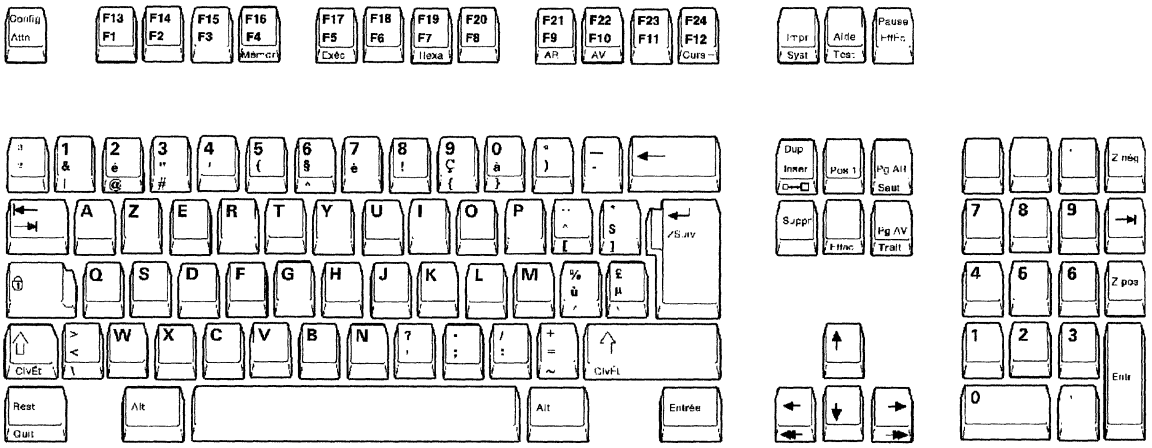


Figure C-13. French (AZERTY) IBM Enhanced Keyboard

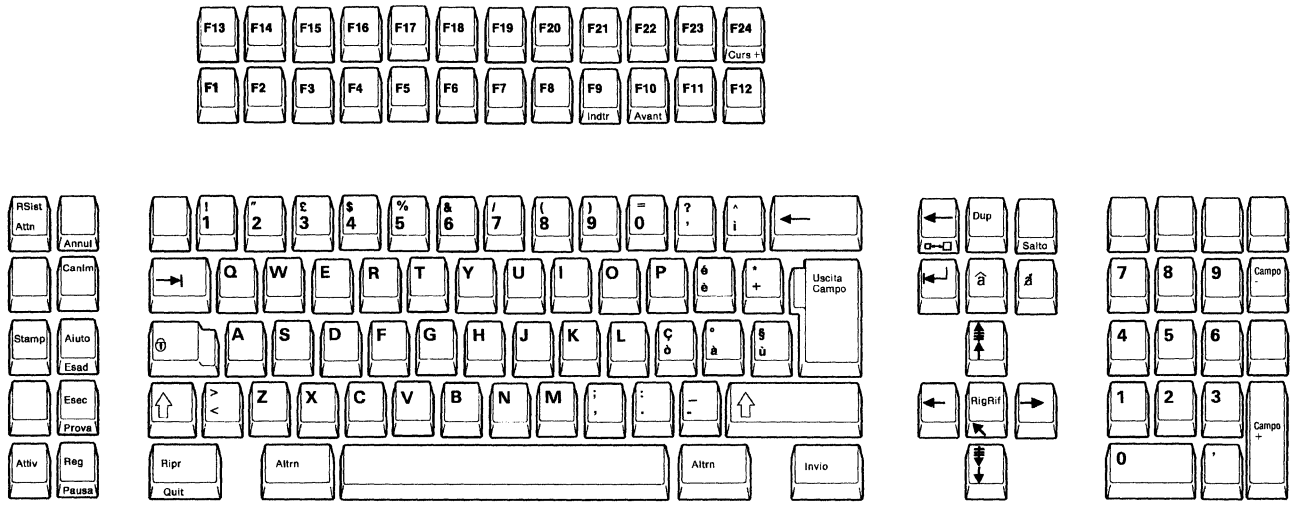


Figure C-14. Italian 122-key Typewriter Keyboard

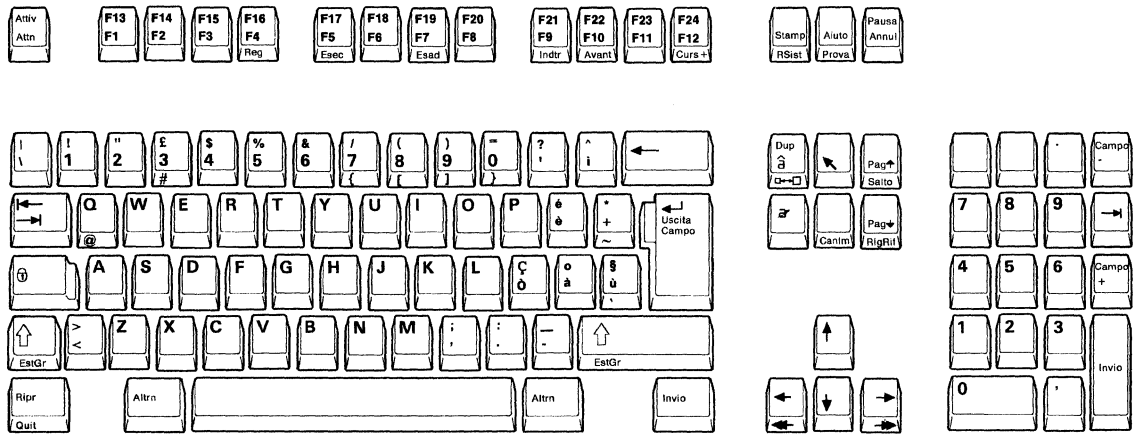


Figure C-15. Italian IBM Enhanced Keyboard

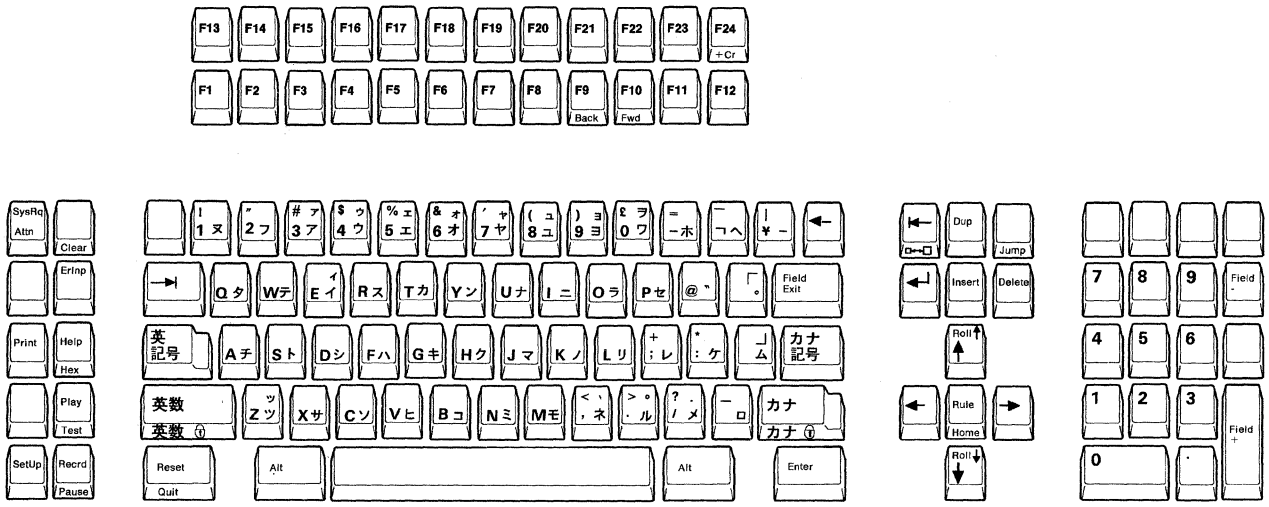


Figure C-16. Japanese Katakana 124-key Typewriter Keyboard

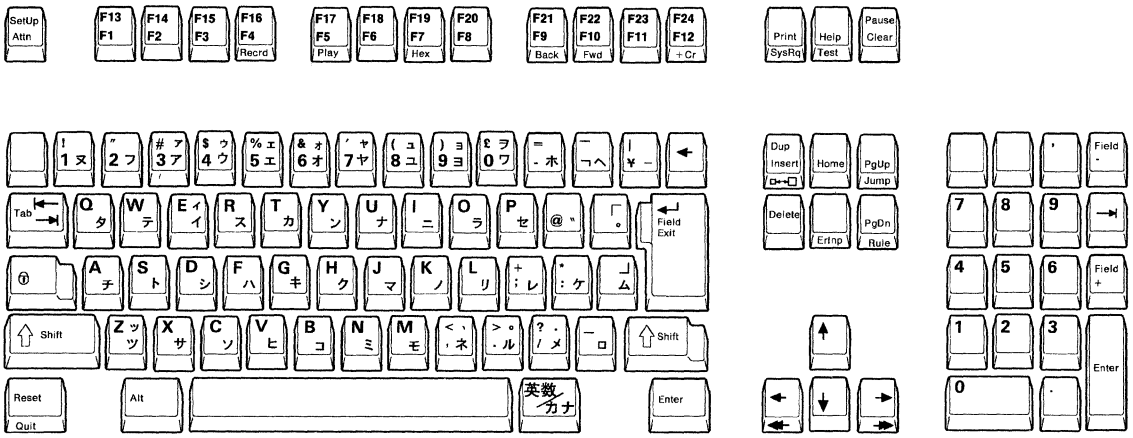


Figure C-17. Japanese Katakana IBM Enhanced Keyboard

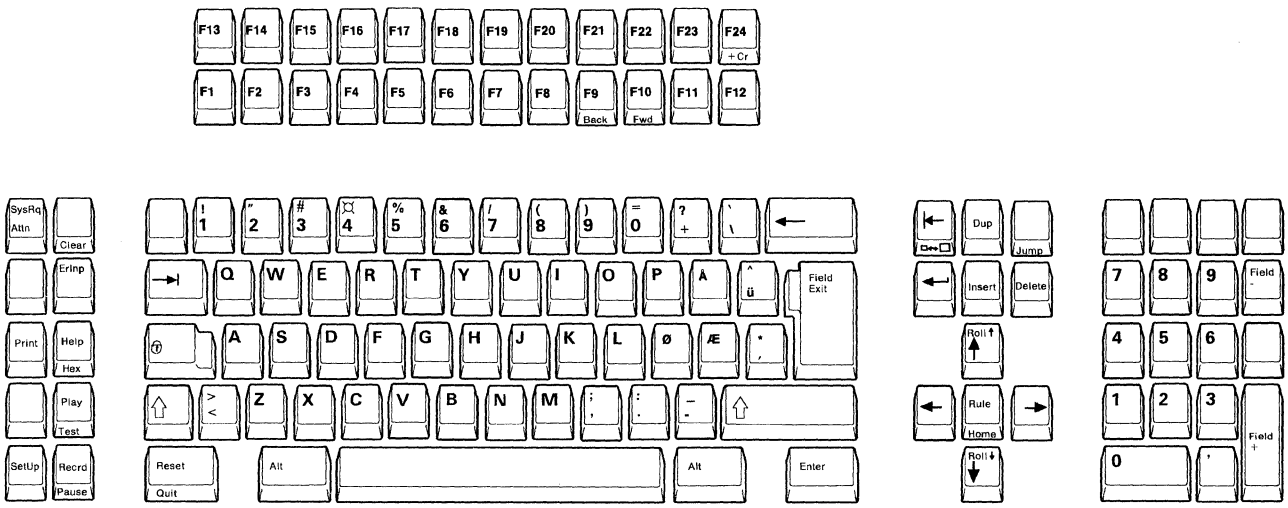


Figure C-18. Norwegian 122-key Typewriter Keyboard

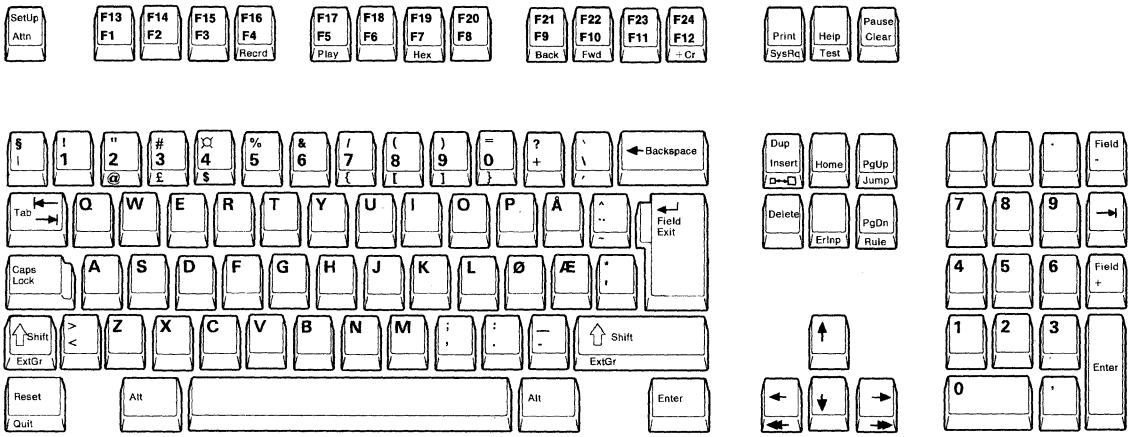


Figure C-19. Norwegian IBM Enhanced Keyboard

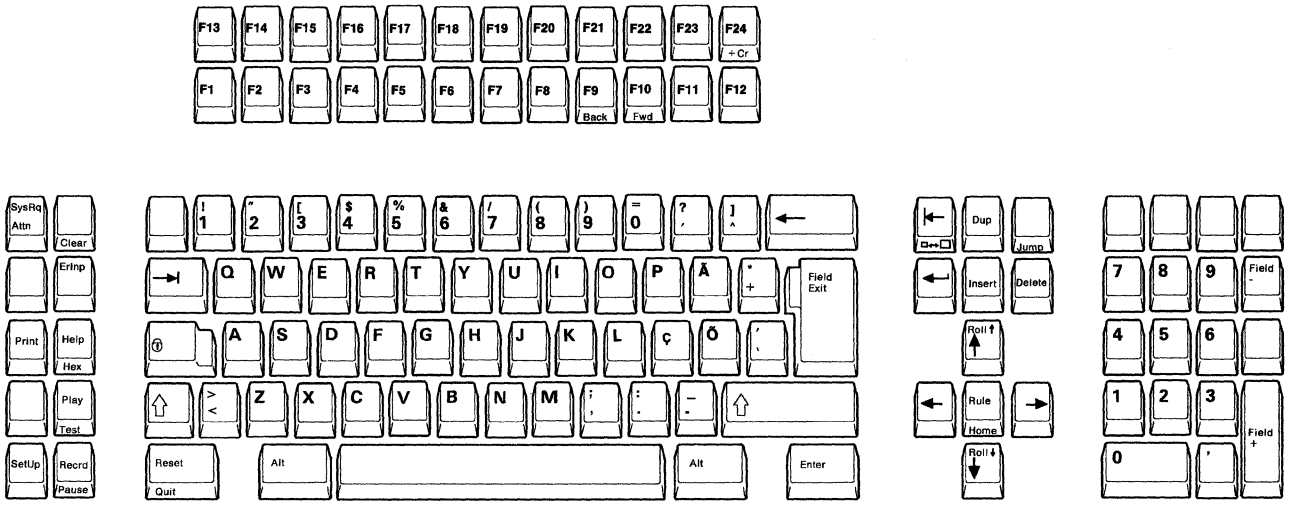


Figure C-20. Portuguese 122-key Typewriter Keyboard

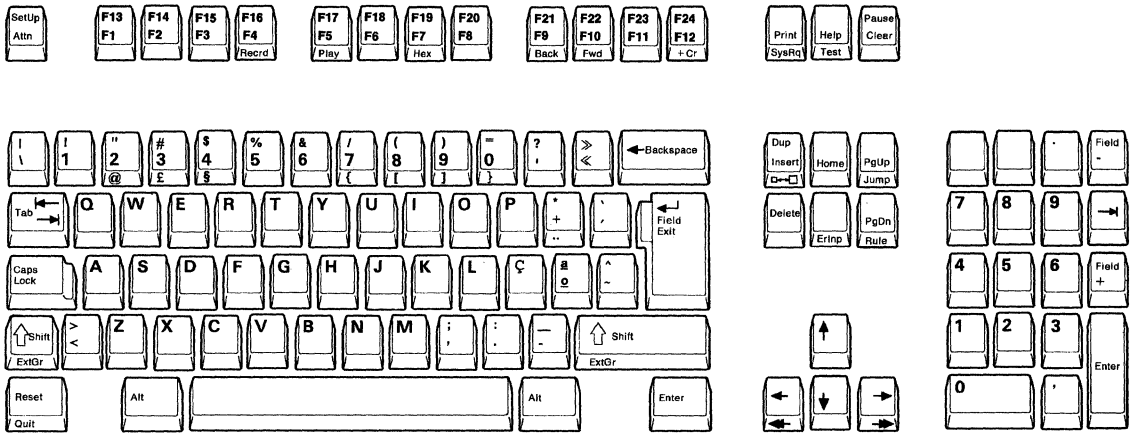


Figure C-21. Portuguese IBM Enhanced Keyboard

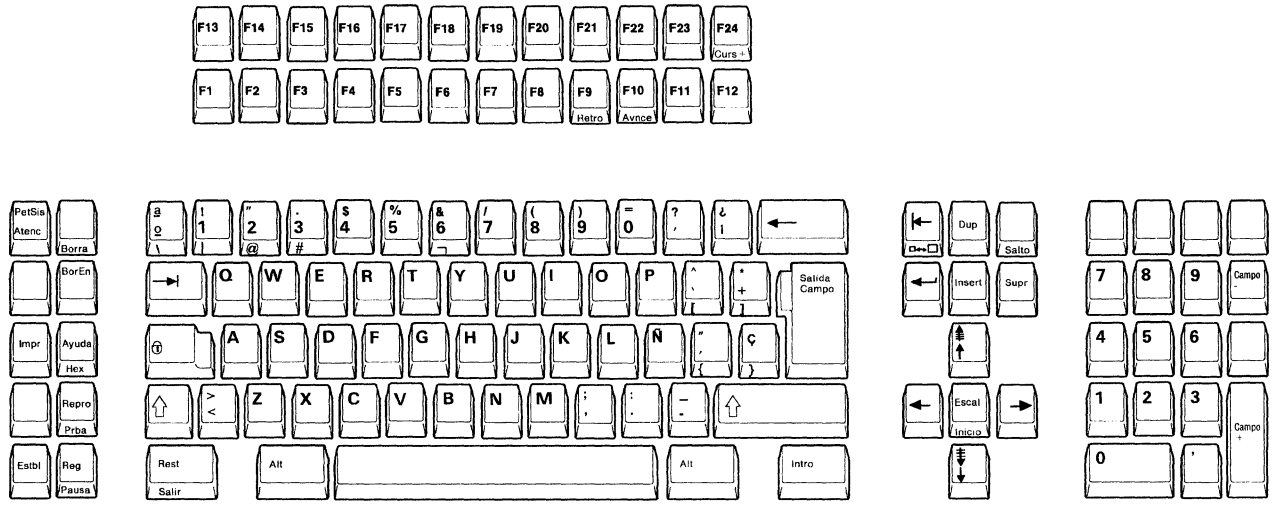


Figure C-22. Spanish 122-key Typewriter Keyboard

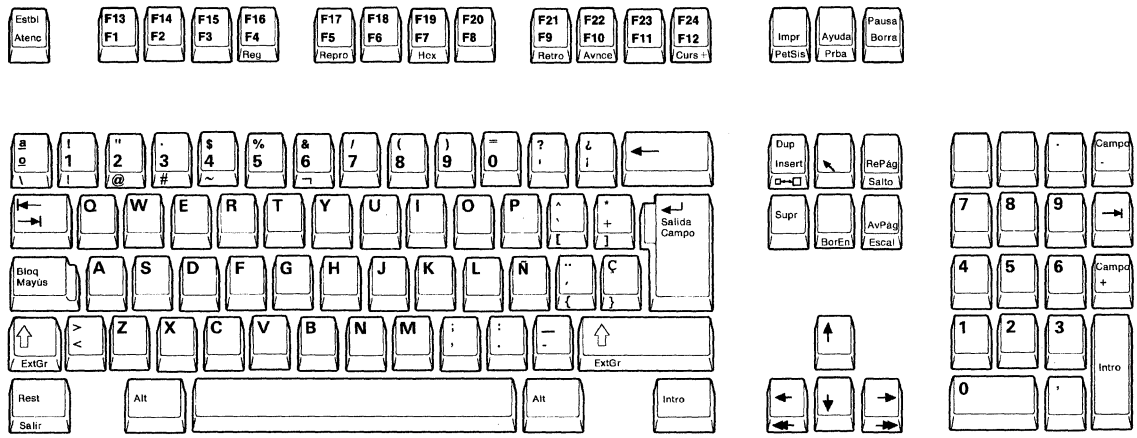


Figure C-23. Spanish IBM Enhanced Keyboard

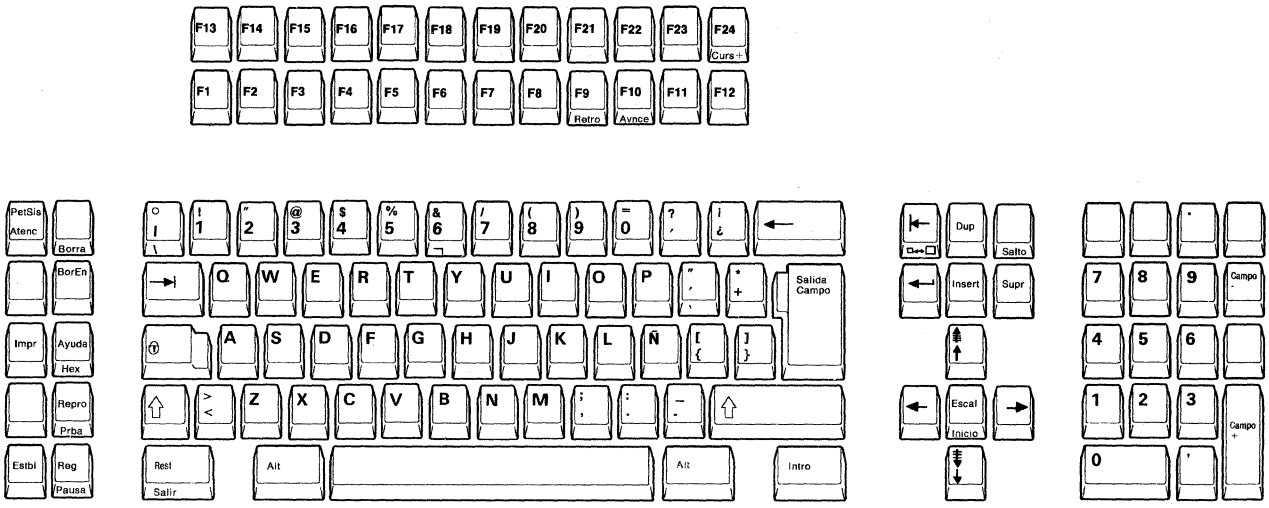


Figure C-24. Spanish-Speaking 122-key Typewriter Keyboard

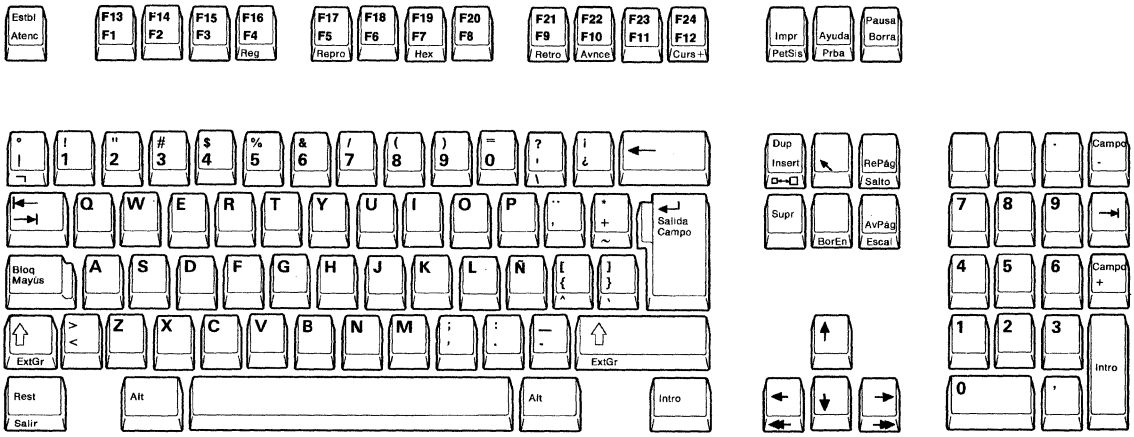


Figure C-25. Spanish-Speaking IBM Enhanced Keyboard

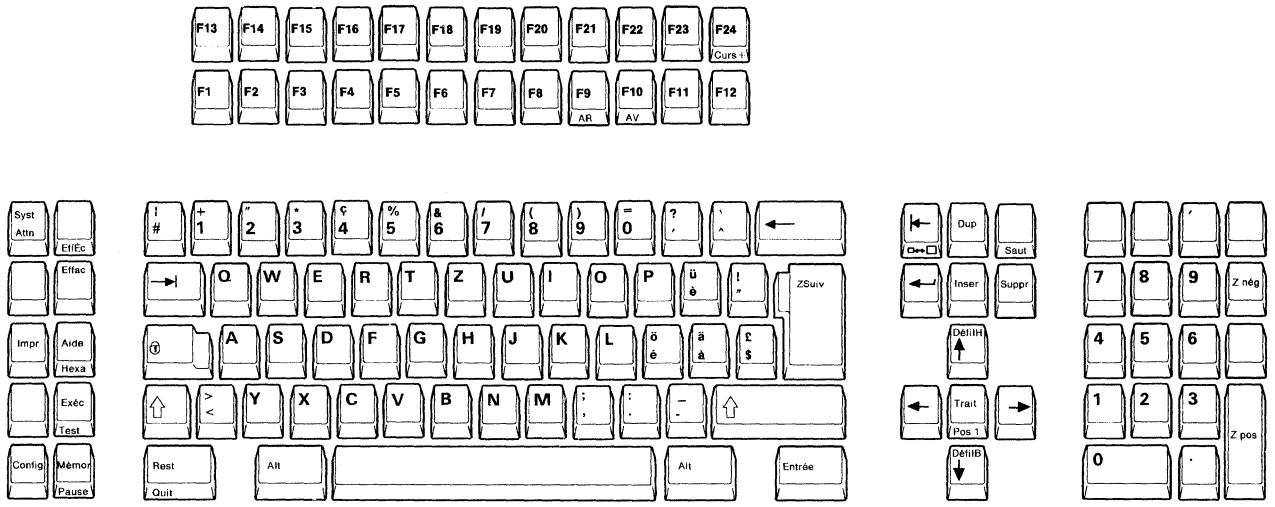


Figure C-26. Swiss-Bilingual-French 122-key Typewriter Keyboard

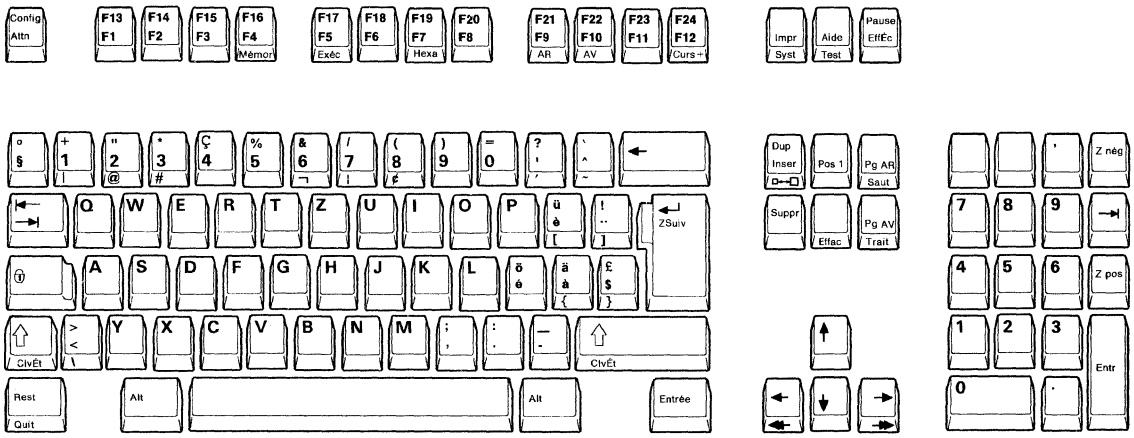


Figure C-27. Swiss-Bilingual-French IBM Enhanced Keyboard

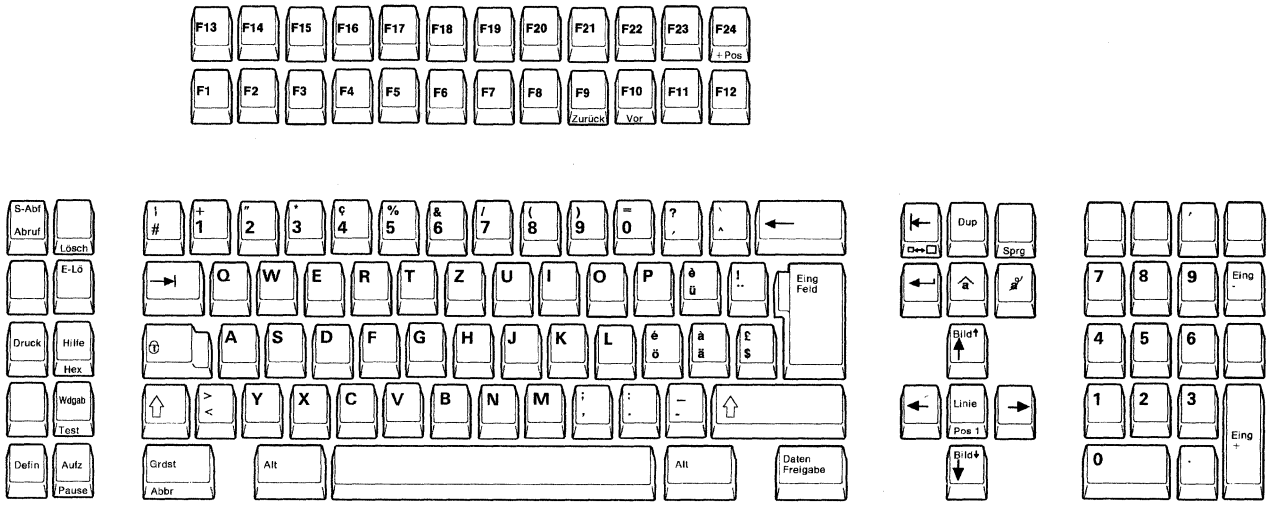


Figure C-28. Swiss-Bilingual-German 122-key Typewriter Keyboard

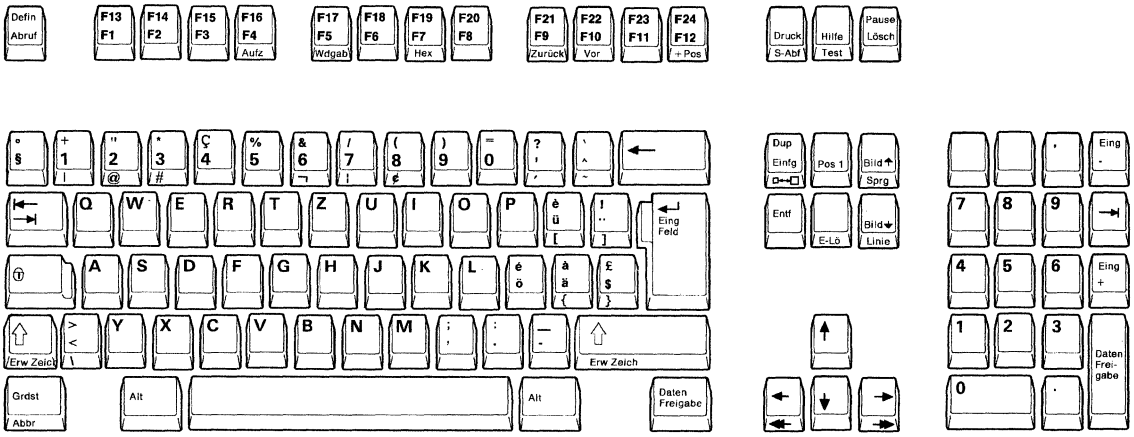


Figure C-29. Swiss-Bilingual-German IBM Enhanced Keyboard

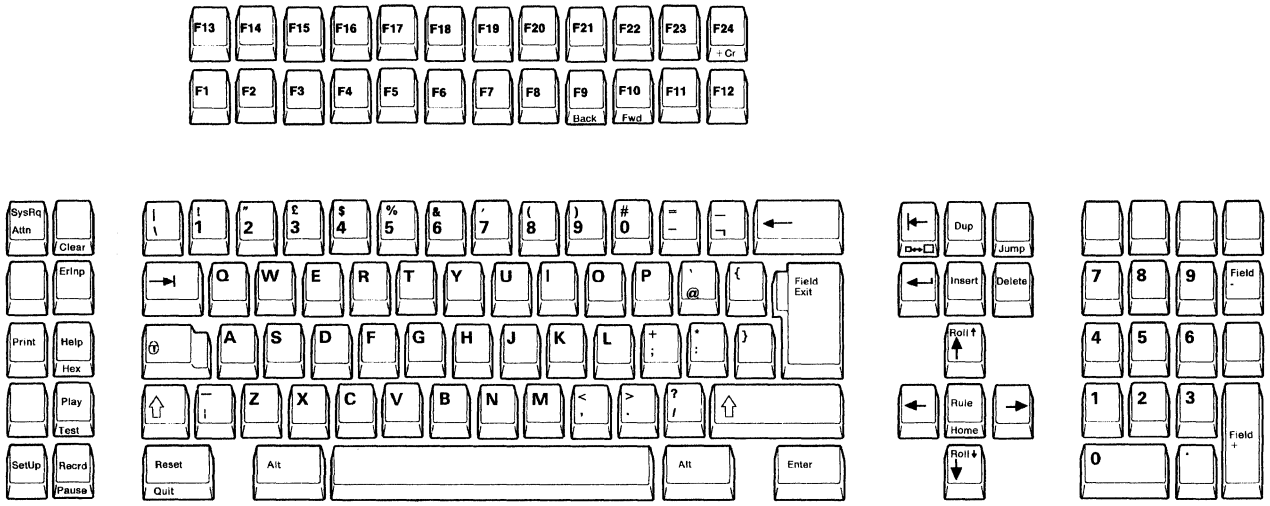


Figure C-30. U.K. English 122-key Typewriter Keyboard

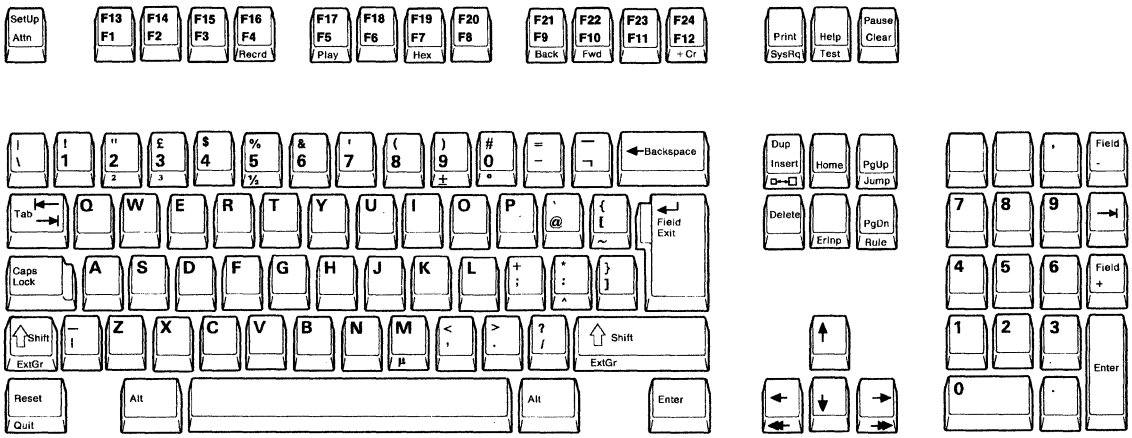


Figure C-31. U.K. English IBM Enhanced Keyboard

Glossary

This glossary defines terms and abbreviations in this manual. If you do not find the term you are looking for, refer to the Index or to the *Dictionary of Computing*, SC20-1699.

A

address. The 3477 Display Station does not have address switches. Instead, the address is set using the offline setup panel.

attribute. A characteristic. For example, attributes of a displayed field could include brightness and reverse video.

audible alarm. An alarm that is sounded when designated events occur that require operator attention or intervention.

B

blank character. A character that is not displayed but occupies a position on the display screen.

C

cable-thru. A special feature or standard function that allows the attachment of multiple workstations to the same host system through a single cable path.

CECP. Country extended code page.

character location. A location on the display screen at which one character can be displayed.

clicker. A mechanism that sounds when a key is pressed.

command. An instruction that directs the system to perform an operation.

communication cable. A cable that carries commands and data between the host system and the display stations or printers.

control unit. A device used to coordinate and control operations of one or more attached workstations and to synchronize their operation with that of the host system.

controller. See *control unit* or *workstation controller*.

country extended code page (CECP). An eight-bit code page that has a 93-character set on its nationally standardized code points but is extended to the multilingual character set for the national languages of some European countries.

cursor. A movable marker on the display screen that may appear as an underscore or as a rectangular block. The cursor indicates where the next character entered from the keyboard will appear.

D

display. The visual information on the screen.

display field. See *field*.

display screen. An electronic vacuum tube, similar to a TV display tube, used to display characters.

display station. An input/output device containing a display screen and an attached keyboard.

display station operator. A person who uses the keyboard to perform operations at a display station.

display system. The group of display stations and printers that are attached to a system.

F

field. One or more consecutive positions on the display screen set aside to contain a specific type of data; for example, a name or telephone number.

formatted display. A display screen with fields established for specific information that may be restricted to the use of certain keys; for example, a field reserved for credit card numbers cannot contain letters.

function key. One of 24 keys on the top row of the 122-key keyboard (or one of 12 keys on the top row of the 102-key keyboard) that is used for operating or adjusting the display station.

H

hexadecimal. A numbering system with a base of 16. Valid digits range from 0 through F, where F represents the highest units position, which is equivalent to decimal 15.

home position. The first input position of the first input field on a display screen.

host system. The main computer and the programming necessary to execute customer jobs. The host system can have numerous display stations or printers attached.

I

image. The characters or attributes shown on the display.

input field. An area on the display in which an operator enters data. Input fields are blank on the display and can be preceded by a prompt.

K

keystroke sequence. The sequence of keys pressed while performing the record function.

M

message line. The line below the separator line on which messages and error codes appear.

multinational character set. The 188/184-character display and printer character set that includes special characters and symbols for different languages.

N

normal image. A display that has light characters on a dark background.

null character. A blank that is displayed as the result of zeros occupying character positions in the buffer.

O

offline. The status of equipment or a processing operation that is not being controlled by a control unit or a processing unit.

online. The status of equipment or a processing operation that is being controlled by a control unit or a processing unit.

operating-status line. The line near the bottom of the display that indicates the operating state of your display station and the system to which it is connected.

operator's manual. A book, produced by the programmers of a system, that contains the procedures for operating the system. Other names for the operator's manual are the system procedures manual, the user's guide, and the job instructions book.

P

power cord. A cord that plugs into a electrical outlet supplying electrical power.

printer. A device that provides printed hard copy output.

program. A series of coded instructions, written for a computer, that performs a specific job; for example, order entry or payroll. The program is stored in the host system and can be accessed by the display station.

R

repeat-action key. A key that, when held fully depressed, causes an action, such as typing a character, to be repeated until the key is released, for example, a typematic key.

reverse video. The character attribute that causes the display of letters, numbers, and symbols as dark characters on a light background.

S

security key lock. A key-operated switch used to control the use of the keyboard and/or data communications operations.

sign-on. A log-on procedure performed at a display station. The procedure can include entering the sign-on command, a password, or other user-specified information.

system. See **host system**

T

terminator switch. A switch that is used to terminate the communication of the last workstation. (The 3477 does not require a terminator switch.)

twinaxial cable. A cable made of two twisted wires inside a shield.

typematic keys. Keyboard keys that repeat their function when pressed and held down.

W

workstation. A display station or printer.

workstation address. The characters or codes that identify a specific workstation in a cable-thru arrangement.

workstation controller. The controlling device that coordinates workstation operation with system operation. Synonymous with *control unit*.

Index

A

active screen 2-13
alarm problems 5-16
alarm volume 2-10, A-14
alphabetic keys 4-7
Alternate Shift key 4-4
Alternate Shift (Alt) key 4-4
applying power to display station 1-17
attention B-15
Attention (Attn) key 4-19
audible alarm 2-10
audience ix
Austrian/German IBM Enhanced keyboard C-2
Austrian/German 122-key typewriter keyboard C-2
auto dim 2-9, A-15
auto display dim 2-9, A-15
auto termination unit 1-2, 1-27
  attachment 1-27
  terminator switch 1-28
available keystrokes 2-18
available storage indicator 3-7, 3-8

B

Backward (Back) key 4-13
Belgian IBM Enhanced keyboard C-3
Belgian 122-key typewriter keyboard C-3
brightness adjustment 2-3
browsing values/parameters
  display station 2-14
  printer 2-32

C

Canadian French IBM Enhanced keyboard C-4
Canadian French 122-key typewriter keyboard C-4
cancel, record 2-19
caps lock 3-5
Caps Lock key 4-4
changing screen format 2-14
Character Backspace key 4-10
character height B-15
character per inch B-15
character set 1-21, 2-8, A-14
  country-specific 2-8
  multinational 2-9
character set selection 1-25
character width B-15
check parts 1-2
Clear key 4-13
clicker 2-10, A-14
communication cable attachment 1-27
communication mode 2-6, 3-3
connection of the 3477 to the host system 1-26
connector shields 1-2, 1-27
connector shields attachment 1-27
country-specific character set 2-8
cover problem 5-40
cursor A-14
cursor control keys 4-10
  Character Backspace 4-10
  Cursor Home 4-11
  Cursor Move 4-11
  Double-speed Cursor 4-12
  Field Advance 4-12
  Field Backspace 4-10
  Field Exit 4-12
  New Line 4-12
Cursor Home (Home) key 4-11
cursor locator 3-5
Cursor Move keys 4-11
cursors
  normal 2-8
  row/column indicator 2-8
  shadow 2-8
customization
  display A-1
  printer B-1

D

Danish IBM Enhanced Keyboard C-5
Danish 122-key typewriter keyboard C-5
Delete Character key 4-13
delivered parts check 1-2
diacritic mode 2-11, 3-5
Diacritical Mark keys 4-8
dim indicator 3-5
display address 1-21
display address selection 1-24
display address 1 A-13
display address 2 A-13
display control switches
  power switch 2-2
  power-on light 2-2
  security keys 2-2
display customization 1-21, A-1
display element 1-2
display element packing 5-53
display screen 3-1
display setup parameters
  alarm volume A-14
  auto dim A-15
  character set A-14
  clicker A-14
  cursor A-14

display setup parameters *(continued)*
display address 1 A-13
display address 2 A-13
extended display A-15
keyboard ID A-14
keyboard type A-14
printer address A-14
printer character set A-14
printer emulation A-14
record/play security options A-15
reverse image A-15
row/column indicator A-15
rule line A-15
serial number A-14
terminal mode A-13
display stand attachment 1-7
display station controls and adjustments A-1
display viewing angle 2-4
Double-speed Cursor 4-12
dual address operations
non-split screen 2-12
screen format 2-12
split screen
active screen 2-13
changing screen format 2-14
scrolling 2-13
Duplicate (Dup) key 4-14
Dutch IBM Enhanced keyboard C-6

E

ECCO (Electronic Customer Communications Option) 5-47
Electronic Customer Communications Option (ECCO) 5-47
element removal 5-48
Enter key 4-19
Erase Input (ErInp) key 4-14
error codes 3-4
others (L, K, LK) 3-17
00xx (0000-0099) 3-12
90XX 3-16
90xx (9001-9033) 3-16
error codes and recovery procedures 3-11
error recovery instructions 5-8
selections have been reset to the IBM default values. 5-10
specify serial number. 5-14
specify station address. 5-8
extended display 2-9, A-15
extended graphics 3-4
Extended Graphics (ExtGr) key 4-5

F

Field – key 4-19
Field Advance key 4-12
field attributes 2-7
Field Backspace key 4-10
Field Exit key 4-12
Field + key 4-20
Finnish/Swedish IBM Enhanced keyboard C-7
Finnish/Swedish 122-key typewriter keyboard C-7
form, browsing 2-32
Forward (Fwd) key 4-14
French (AZERTY) IBM Enhanced keyboard C-8
French (AZERTY) 122-key typewriter keyboard C-8
Function (F1-F24) key 4-20

H

Help key 4-20
Hex key 4-16
host function keys 4-19
Attention 4-19
Enter 4-19
Field – 4-19
Field + 4-20
Function (F1-F24) 4-20
Help 4-20
Reset 4-21
System Request (SysRq) 4-20

I

IBM enhanced keyboard 2-1
IBM PC printer
IBM Personal Pageprinter (IBM 4216 Model 10) 2-1
IBM Proprinter II XL (IBM 4202 Model 2) 2-1
IBM Proprinter II (IBM 4201 Model 2) 2-1
IBM Proprinter III XL (IBM 4202 Model 3) 2-1
IBM Proprinter III (IBM 4201 Model 3) 2-1
IBM Proprinter XL (IBM 4202 Model 1) 2-1
IBM Proprinter XL24E (IBM 4208 Model 2) 2-1
IBM Proprinter X24E (IBM 4207 Model 2) 2-1
IBM Quickwriter Printer (IBM 5204) 2-1
IBM Quietwriter Printer III (IBM 5202) 2-1
IBM Quietwriter Printer (IBM 5201 Models 1 and 2) 2-1
IBM service center 5-46
request for service 5-46
toll free number 5-46
initial checks 5-1
input inhibit 3-4
insert 3-5
Insert Mode key 4-14
Italian IBM Enhanced keyboard C-9
Italian 122-key typewriter keyboard C-9

J

Japanese Katakana IBM Enhanced keyboard C-10
Japanese Katakana 122-key typewriter keyboard C-10

Jump key 4-18

K

katakana shift 3-5, 4-6
Katakana Shift key 4-6
keyboard 1-2
keyboard cable connection 1-15
keyboard control keys
  Alternate Shift 4-4
  Caps Lock 4-4
  Extended Graphics 4-5
  Shift Lock 4-4
  Upper Shift 4-5
keyboard errors 3-4
keyboard ID A-14
keyboard layouts
  Austrian/German C-2
  Belgian C-3
  Canadian French C-4
  Danish C-5
  Dutch C-6
  Finnish/Swedish C-7
  French (AZERTY) C-8
  IBM enhanced keyboard (U.S. English) 4-1
  Italian C-9
  Japanese Katakana C-10
  Norwegian C-11
  Portuguese C-12
  Spanish C-13
  Spanish-Speaking C-14
  Swiss-Bilingual-French C-15
  Swiss-Bilingual-German C-16
  U.K. English C-17
  103/104 IBM enhanced keyboard (Non-U.S.) C-1
  122-key typewriter keyboard (U.S. English) 4-1
  122/124-key typewriter keyboard (Non-U.S.) C-1
keyboard packing 5-53
keyboard problems 5-31
keyboard slope adjustment 1-16, 2-5
keyboard test 5-41
keyboard type A-14
  IBM enhanced keyboard 2-1
  122-key typewriter keyboard 2-1
keyboard upper shift 3-4, 3-6, 3-10
keys
  alphabetic 4-7
  Alternate Shift (Alt) 4-4
  Attention (Attn) 4-19
  Caps Lock 4-4
  Character Backspace 4-10
  Cursor Home 4-11
  Cursor Home (Home) key 4-11
  Cursor Move 4-11
  Diacritical Mark 4-8
  Double-speed Cursor 4-12
  Duplicate (Dup) 4-14
  Enter 4-19
keys *(continued)*
  Erase Input (ErInp) 4-14
  Extended Graphics (ExtGr) 4-5
  Field – 4-19
  Field Advance 4-12
  Field Backspace 4-10
  Field Exit 4-12
  Field + 4-20
  Forward (Fwd) 4-14
  Function (F1-F24) 4-20
  Help 4-20
  Hex 4-16
  Insert Mode 4-14
  Jump 4-18
  Katakana Shift 4-6
  New Line 4-12
  Numeric 4-8
  Page (PgUp and PgDn) 4-15
  Pause 4-16
  Play 4-16
  Print 4-17
  Punctuation Mark 4-8
  Quit 4-17
  Record 4-17
  Reset 4-21
  Roll 4-15
  Rule (Rule) 4-17
  Setup 4-18
  Shift Lock 4-4
  Space 4-9
  space bar 4-9
  Symbol 4-8
  System Request (SysReq) 4-20
  Test 4-18
  Upper Shift 4-5
  Zoom 4-17
K, operator message 5-6

L

languages on setup panels 2-11
lift-stand 1-2
lift-stand attachment 1-10
link errors 3-4
LK, operator message 5-6
local function keys 4-16
  Hex 4-16
  Jump 4-18
  Pause 4-16
  Play 4-16
  Print 4-17
  Quit 4-17
  Record 4-17
  Rule 4-17
  Setup 4-18
  Test 4-18
  Zoom 4-17

local print status indicator 3-9
local screen data print 2-29
local screen print 2-24, B-1
  local screen data 2-29
  local trim print panel 2-30
  partial screen data 2-30
  printer pre-setup 2-24
local screen print status indicator 3-9
local trim print panel 2-30
local trim print status indicator 3-9
logic element 1-2
logic element attachment 1-5
logic element check procedure 5-44
logic element packing 5-53
logical display station number 3-4
L, operator message 5-6

M

maximum keystrokes 2-18
mechanical problems 5-40
message area 3-1
message waiting symbols 3-4
multinational character set 2-9

N

New Line key 4-12
non-active screen 2-13
non-split screen format 2-12
normal cursor 2-8
Norwegian IBM Enhanced keyboard C-11
Norwegian 122-key typewriter keyboard C-11
Numeric key 4-8

O

online setup mode functions 4-18
online setup parameters A-6
operating status line 3-1
operational modes
  communication 2-6
  play 2-7
  record 2-7
  setup 2-6
  setup printer 2-7
  test 2-7
operations 2-1
operator messages 3-1
  communication mode 3-3
  play mode 3-7
  print mode 3-9
  record mode 3-7
  setup modes 3-6
operator messages (L, K, LK) 5-6
organization ix
other error codes (L, K, LK) 3-17

P

packing
  display 5-53
  keyboard 5-53
  logic 5-53
packing instructions 5-53
Page (PgUp and PgDn) key 4-15
paper feed, browsing 2-32
parameters, online setup A-6
partial screen data print 2-30
parts
  auto termination unit 1-2
  connector shields 1-2
  display element 1-2
  display stand 1-2
  keyboard 1-2
  lift-stand 1-2
  logic element 1-2
  power cord 1-2
  security keys 1-2
parts check 1-2
pause 2-19, 2-20
Pause key 4-16
pause, playing 2-20
pause, recording 2-19
personalize display station 1-16
  display viewing angle 2-4
  keyboard slope adjustment 2-5
  screen brightness 2-3
  screen contrast 2-3
personalizing display station 2-3
play exercise 2-21
Play key 4-16
play mode 2-7, 3-5
play mode indicator 3-7, 3-8
play operation 2-19
  record ID assignment 2-19
Portuguese IBM Enhanced keyboard C-12
Portuguese 122-key typewriter keyboard C-12
power cord 1-2
power switch 2-2
power-on light 2-2
power-on light problem 5-34
powering-on 2-2
Print key 4-17
print operations
  local screen print 2-24
  system screen data print 2-31
print request cancellation 2-31
printer address 1-21
printer address, browsing 2-32
printer browse functions
  form 2-32
  paper feed 2-32
  printer address 2-32
  printer character set 2-32
  printer emulation 2-32

printer browse functions *(continued)*
source drawer 2-32
system available 2-32
system code page 2-32
type style 2-32
printer character set 1-21, A-14
printer character set, browsing 2-32
printer connection 1-38
printer controls and adjustments B-1
printer customization
local screen print B-1
system print B-3
printer emulation 1-21, A-14
printer emulation, browsing 2-32
printer problem 5-38
printer setup parameters
attention B-15
character height B-15
character per inch B-15
character width B-15
form B-16
lines per inch B-16
paper feed B-16
print key B-16
print quality B-17
source drawer B-17
system code page B-17
trim border B-17
type style B-18
problem analysis procedures 5-4
problem solving
alarm problems 5-16
analysis procedures 5-4
display problems 5-18
initial checks 5-1
keyboard problems 5-31
mechanical problems
covers 5-40
security keys 5-40
stand 5-40
operator messages 5-6
power-on light problem 5-34
printer problem 5-38
problem symptom 5-2
problem solving guide 5-1
problem symptom 5-2
Punctuation Mark key 4-8

Q

Quit key 4-17

R

record cancel 2-19
record exercise 2-21
record function 2-17
record ID assignment 2-18, 3-7, 3-8
Record key 4-17
record mode 2-7, 3-5, 3-7
record mode indicator 3-7, 3-8
record operation
pause 2-19
record ID assignment 2-18
recordable keystrokes 2-18
recordable keystrokes 2-18
record/play functions
record 2-17
record/play halt indicator 2-19, 3-7
record/play security options A-10, A-15
related manuals ix
removal, element 5-48
repair service 5-46
request for service 5-46
Reset key 4-21
reverse image 2-10, A-15
RID (repair identification) tag attachment 1-3
Roll key 4-15
row/column indicator 2-8, A-15
rule line 2-8, A-15
Rule (Rule) key 4-17

S

screen brightness 2-3
screen brightness adjustment 1-19
screen contrast 2-3
screen contrast adjustment 1-20
screen control keys 4-13
Backward (Back) 4-13
Clear 4-13
Delete Character 4-13
Duplicate 4-14
Erase Input (ErInp) 4-14
Forward (Fwd) 4-14
Insert Mode 4-14
Page (PgUp and PgDn) 4-15
Roll 4-15
screen format
1920 character screen 3-1
3360 character screen 3-2
3564 character screen 3-2
screen format, dual address 2-12
scrolling, split screen 2-13
security key 2-9
security key lock 2-9
security key problem 5-7, 5-40
security keylock 3-4, 3-6
security keylock symbol 5-7
security keys 1-2, 2-2
security options, record/play A-10
selections have been reset to the IBM default values (error) 5-10
separator line 3-1

serial number A-14
serial number update A-5
service request 5-46
setup instructions 1-1
  applying power to display station 1-17
  brightness adjustment 2-3
  connection of the 3477 to the host system 1-26
  display stand attachment 1-7
  keyboard cable connection 1-15
  keyboard slope adjustment 1-16
  lift-stand attachment 1-10
  logic element attachment 1-5
  parts check 1-2
  printer connection 1-38
  RID (repair identification) tag attachment 1-3
  screen brightness adjustment 1-19
  screen contrast adjustment 1-20
  setup values setting 1-21
  viewing angle adjustment 1-16
Setup key 4-18
setup modes 2-6, 3-6
  offline setup 2-6
  online setup 2-6
setup printer B-5
setup printer mode 2-7
setup printer parameters
  local screen print B-5
  system print B-9
setup values/parameters
  character set 1-21
  display address 1-21
  printer address 1-21
  printer character set 1-21
  printer emulation 1-21
  terminal mode 1-21
shadow cursor 2-8
Shift Lock key 4-4
sign-on display 1-31
  AS/400 1-31
  system/36 1-31
  system/38 1-31
source drawer, browsing 2-32
space bar 4-9
Space key 4-9
Spanish IBM Enhanced keyboard C-13
Spanish 122-key typewriter keyboard C-13
Spanish-Speaking IBM Enhanced keyboard C-14
Spanish-Speaking 122-key typewriter keyboard C-14
specify serial number (error) 5-14
specify station address (error) 5-8
split screen format 2-13
stand 1-2
stand problem 5-40
start operation 2-2
Swiss-Bilingual-French IBM Enhanced keyboard C-15
Swiss-Bilingual-French 122-key typewriter keyboard C-15
Swiss-Bilingual-German IBM Enhanced keyboard C-16
Swiss-Bilingual-German 122-key typewriter keyboard C-16
Symbol key 4-8
symbols 3-3
  communication mode 3-3
    caps lock 3-5
    cursor locator 3-5
    diacritic mode 3-5
    dim indicator 3-5
    error codes 3-4
    extended graphics 3-4
    input inhibit 3-4
    insert 3-5
    katakana shift 3-5
    keyboard errors 3-4
    keyboard upper shift 3-4
    link errors 3-4
    logical display station number 3-4
    message waiting 3-4
    play mode 3-5
    record mode 3-5
    security keylock 3-4
    system available 3-4
    type ahead 3-4
  play mode 3-7
    play mode indicator 3-7
    record/play halt indicator 3-7
  print mode 3-9
    local print status indicator 3-9
    local screen print status indicator 3-9
    local trim print status indicator 3-9
  record mode 3-7
    available storage indicator 3-7
    record ID assignment 3-7
    record mode 3-7
    record mode indicator 3-7
    target F key 3-7
SysRq (System Request) key 4-20
system available symbol 3-4
system available, browsing 2-32
system code page, browsing 2-32
system print B-3
System Request (SysReq) key 4-20
system screen data print 2-31

T

target F key 3-7, 3-8
terminal mode 1-21, A-13
terminal mode selection 1-22
terminator switch 1-28
terminator switches 1-28, 1-41
  display stations
    IBM 5251 models I and II 1-41
    IBM 5291 models I and II 1-41
    IBM 5292 models 1 and II 1-41

terminator switches *(continued)*
printers
IBM 5219 1-42
IBM 5224 1-42
IBM 5225 1-42
IBM 5256 1-42
Test key 4-18
test mode 2-7
toll free number 5-46
type ahead 3-4
type style, browsing 2-32
typewriter type keys
alphabetic 4-7
Diacritical Mark 4-8
Numeric 4-8
Punctuation Mark 4-8
Symbol 4-8

U

Upper Shift key 4-5
U.K. English IBM Enhanced keyboard C-17
U.K.English 122-key typewriter keyboard C-17

V

viewing angle adjustment 1-16, 2-4

W

what the 3477 can do 2-6

Z

Zoom key 4-17

Numerics

00xx (0000-0099) 3-12
122-key typewriter keyboard 2-1
122-key typewriter keyboard (U.S. English) 4-1
IBM enhanced keyboard (U.S. English) 4-1
1920 character screen format 3-1
3360 character screen format 3-2
3564 character screen format 3-2
90XX (error codes) 3-16
90xx (9001-9033) 3-16

IBM InfoWindow 3477
User's Guide
GA18-2923-00

READER's COMMENT FORM

This manual is a part of a library that serves as a reference source for systems analysts, programmers, and operators of IBM systems. This form may be used to communicate your views about this publication. They will be sent to the author's department for whatever review and action, if any, is deemed appropriate. Comments may be written in your own language; use of English is not required.

IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation whatever. You may, of course, continue to use the information you supply.

Note: Copies of IBM publications are not stocked at the location to which this form is addressed. Please direct any requests for copies of publications, or for assistance in using your IBM system, to your IBM representative or to the IBM branch office serving your locality.

If you wish a reply, give your name and mailing address.

Name: _____

Address: _____

Occupation: _____

Comments: _____

Thank you for your cooperation. No postage stamp necessary if mailed in the U.S.A. (Elsewhere, an IBM office or representative will be happy to forward your comments.)

GA18-2923-00

Reader's Comment Form

Cut or Fold Along Line

Fold and tape Please Do Not Staple Fold and tape

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 40 ARMONK, N.Y. U.S.A.

POSTAGE WILL BE PAID BY ADDRESSEE:

INTERNATIONAL BUSINESS MACHINES CORPORATION
DEPARTMENT 6R1J
180 KOST ROAD
MECHANICSBURG, PA 17055

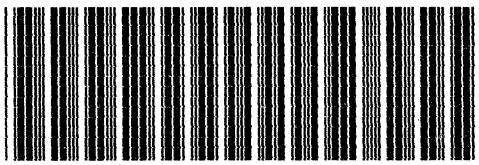
Fold and tape Please Do Not Staple Fold and tape

IBM®

Part Number
23F4036

File Number
S5250/S36/S38/AS400-06

GA18-2923-00



Printed in U.S.A.