FirstM ate 2000

Windows 9x, NT 4.0
Version 1
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Helm Instrument Co., Inc.

User Manual

FirstMate 2000 User Instructions

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FIRSTMATE 2000 - SIGNATURE ANALYSIS & PRODUCTION SCANNING
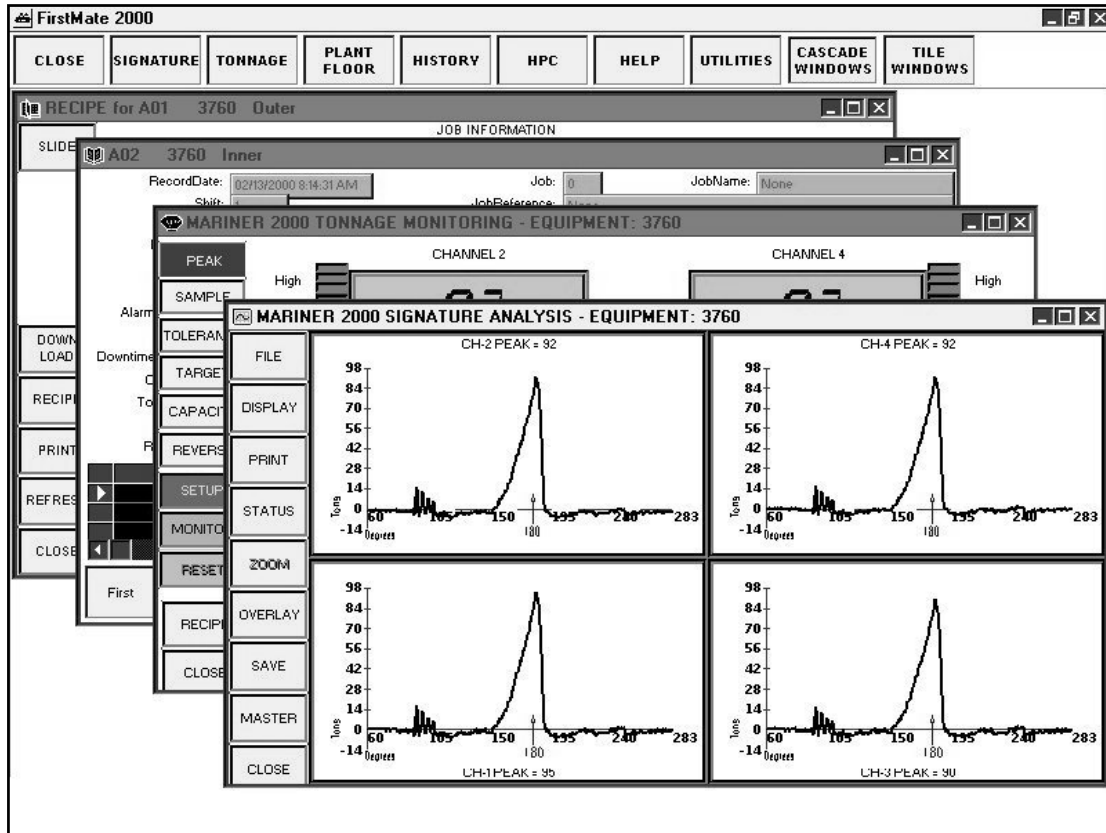
OVERVIEW

Welcome to FirstMate 2000 the premier Signature Analysis and Plant Reporting Software. FirstMate 2000 continues the FirstMate software series, providing the tools you need to analyze, display and archive the forming forces that are occurring in your metalworking processes.

This software package is designed to maximize the ability to display key instrument information. Any combination of display screens may be open at one time allowing you to customize the information to your particular requirements. You may open all windows for one instrument or selected windows displaying data for several instruments and arrange it to suit your needs.

FirstMate 2000 uses Microsoft Access to store historical information. This allows you to generate user specific reports, whenever necessary. Information from this database can easily be exported or offloaded for long-term storage.

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FirstMate 2000 is composed of a Data Collection Engine and a Display Module. Users throughout the plant may run the Display module to access and view Signatures without interrupting data collection.

Installing FirstMate 2000

Insert the FirstMate 2000 CD into the CD-ROM drive.
If you have Auto-Play set to ON, the Setup will automatically startup for you.
If you do not have Auto-Play set to ON, Run the Autorun.exe file on the CD to begin the installation.

The FirstMate Installation Wizard

This wizard is designed to help get the FirstMate software installed and working quickly. When the wizard loads, it will allow you to install FirstMate 2000 in a small number of steps.
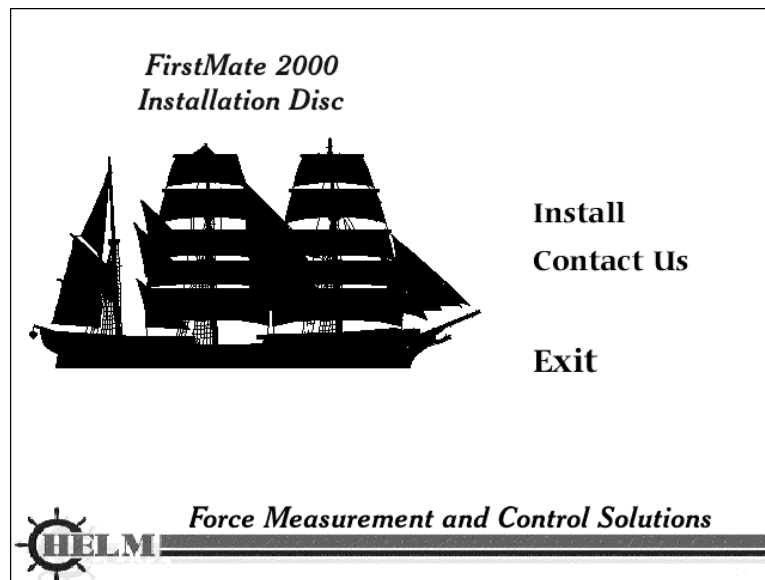
To begin the installation, click on *Install*.

In order to proceed with the installation, you must agree with the End-User License Agreement. Once you have read it over, click on *I Agree* to continue or *I Disagree* to return to the Main Menu.

Once you have agreed to the End-User License Agreement, the installation wizard will bring up the next step in the installation process.

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Installing FirstMate 2000

To install FirstMate 2000 click on the *Install* button. By clicking on Install, all of the files necessary to FirstMate will be installed. Follow the on-screen instructions until the installation asks which components to install.
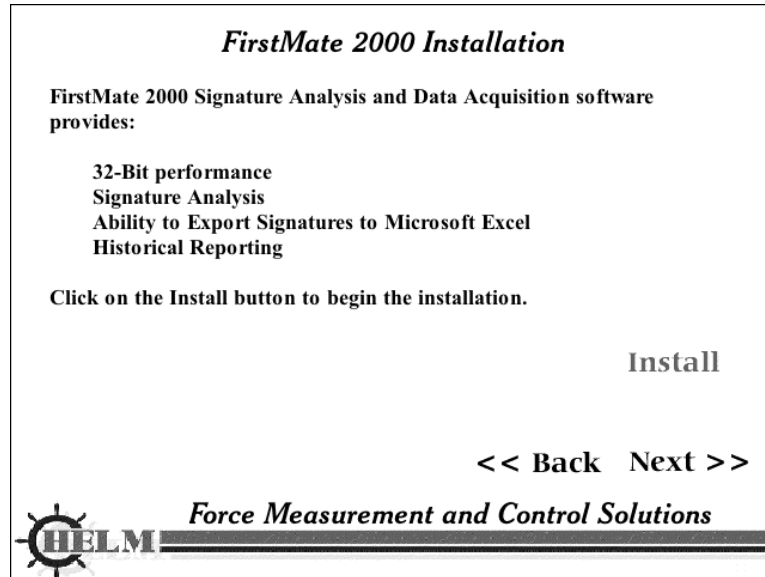
By selecting a specific set of components, you can tailor what functionality FirstMate 2000 will have. There are three different ways to install FirstMate and they are listed below.
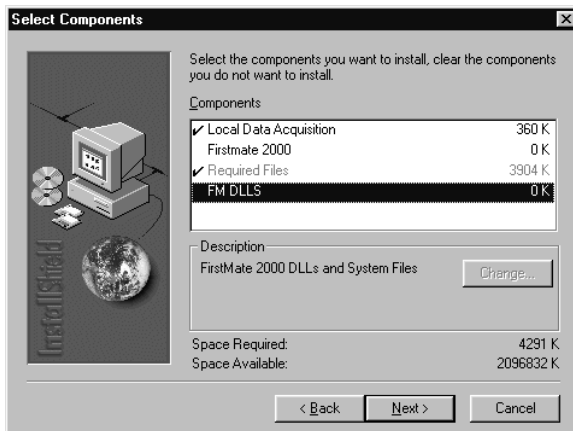
Data Acquisition Server

By selecting only the Local Data Acquisition option, you can have one computer dedicated to collecting information from the instruments at your facility. By choosing this setup, the computer will be dedicated to polling the instruments and providing a higher volume of information storage.

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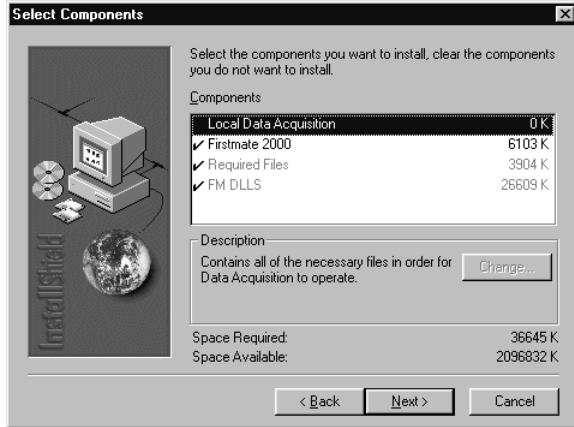
FirstMate 2000 Client
By selecting only FirstMate 2000 and FM DLLS you can use this computer as a remote client that will display the information collected by your Data Acquisition Server. This allows multiple people to access the information collected.
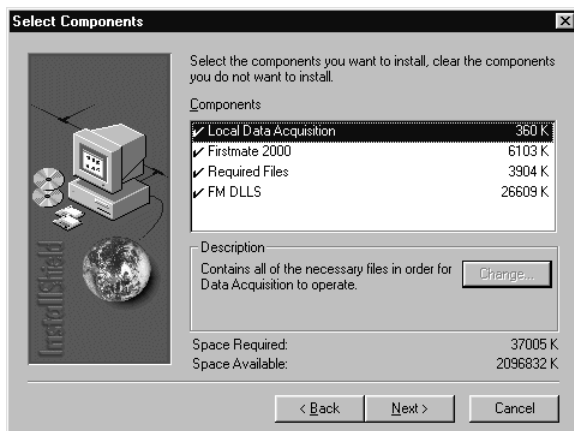
Data Acquisition Server and FirstMate 2000
Allows you to utilize FirstMate 2000 on a single computer, or allows a single computer to act as an information collector and viewer. It is recommended that the recommended system requirements are met to run this type of setup. For this configuration, select all of the available options from the components.

Click on Next to begin the file copying process. Once the files have been installed, the install may ask you to reboot your computer. If you plan on only installing FirstMate 2000 without the FirstMate 2000 Data Acquisition software, feel free to have the installation program restart your computer.

Note: *If you did install the Data Acquisition software, please do NOT restart your computer and let the installation program finish. When the install has closed, you will return to the Installation Wizard and continue from there.*

Click on *Next>>* to continue to the next step in the Installation Wizard.

The Installation Wizard will now ask if you installed the Local Data Acquisition component during the installation of FirstMate 2000. If you did install that component, it is required to install Microsoft's Data Access Objects (DAO.)

Microsoft Data Access Objects Installation

If you installed the Local Data Acquisition option for FirstMate 2000, it requires the installation of Microsoft's Data Access Objects.

Do you want to install Microsoft's DAO now?

WARNING: Local Data Acquistion software will not operate until Microsoft's DAO is installed.

Yes, Install DAO   No, Do Not Install DAO

Force Measurement and Control Solutions

HELM

Select the proper choice to continue on in the installation. If you chose not to install DAO, jump to the section **Rebooting My Computer**.

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Installing Microsoft Data Access Objects

If you chose to install DAO, you can run the installation by clicking on the Install button. Or if you would like to install it at a later time, you may click on Next>> to advance to the next step in the wizard.
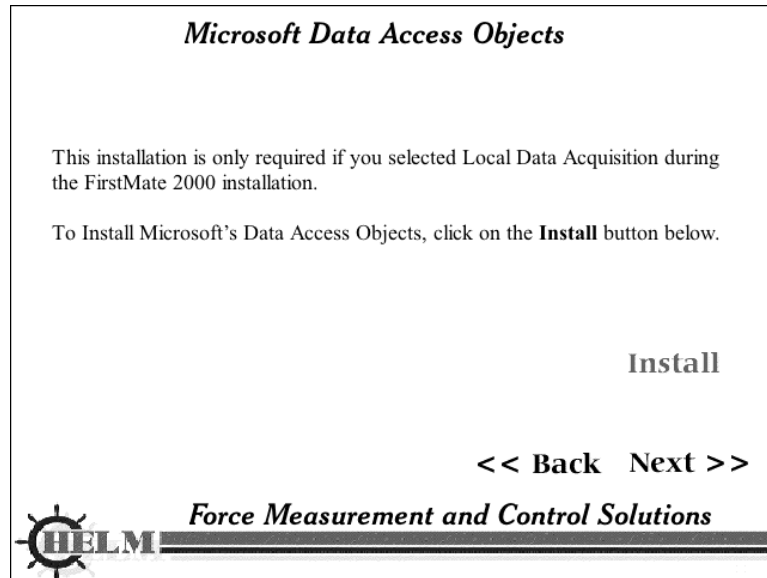
Once the Microsoft DAO installation program has started follow the on-screen instructions until it asks which database engines need to be installed. There are two choices, Jet 3.5 and ODBCDirect. The only option that has to be selected is Jet 3.5. You may deselect ODBCDirect if you choose.

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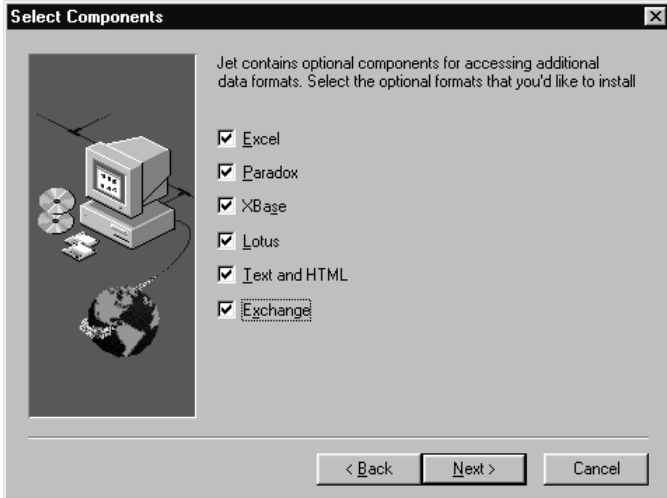
The installation program will that ask which additional features you would like to install for Jet 3.5. It is recommended to leave all of them selected.

It will now begin to install the files for DAO. Once the installation program has finished, it will return you to the installation wizard. Click on *Next>>* to continue to the final step.

Rebooting Your Computer
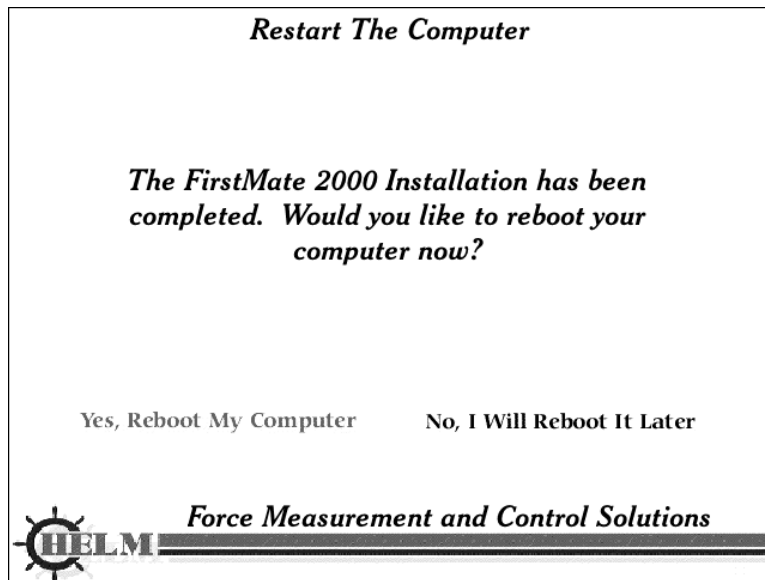
The installation of FirstMate 2000 is now complete. It is recommended that you reboot your computer before configuring/running the application. To reboot your computer click on *Yes, Reboot My Computer*. If you would like to reboot your computer at a later point in time, you may click *No, Do Not Reboot My Computer* and that will return you to the main menu.

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Initial FirstMate System Setup

For initial setup your FirstMate 2000 system. FirstMate 2000 assumes that you are performing this setup on the computer that the FirstMate 2000 Data Acquisition software was installed. If 2000 Data Acquisition software was not installed on this system, you are setting up only the client and only the first section applies. The two sections "Configuring your Serial Communications" and "Setting up your Instrumentation" can be ignored.

Loading the Control Panel

To access the FirstMate 2000 Control Panel, go to **Start Menu>> Settings>> Control Panel** and double-click on the *FirstMate 2000 Settings* icon.

Once the dialog is loaded it will look similar to this:
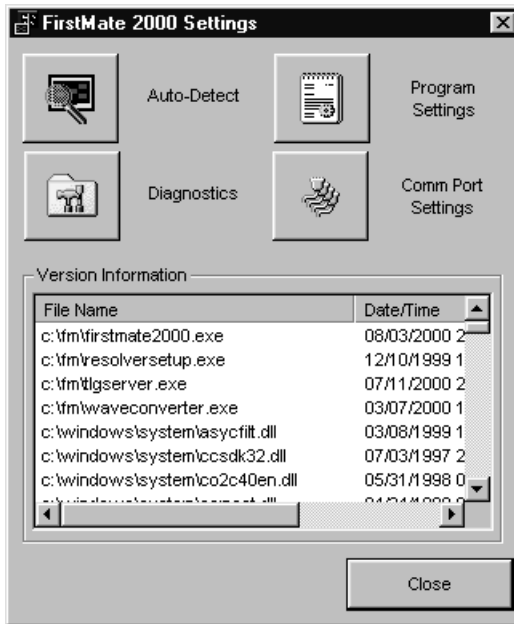
The command buttons located at the top of the dialog box perform actions such as setting up the communication ports, performing diagnostics, and auto-detecting instruments that exist on the system.

The second half contains information on all of the required files FirstMate 2000 uses. It displays the filename, the date and time marked on the file, and it's internal file version. This is important information that might be needed to troubleshoot any technical difficulties with FirstMate 2000.

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Configuring FirstMate 2000 with the Program Settings Dialog
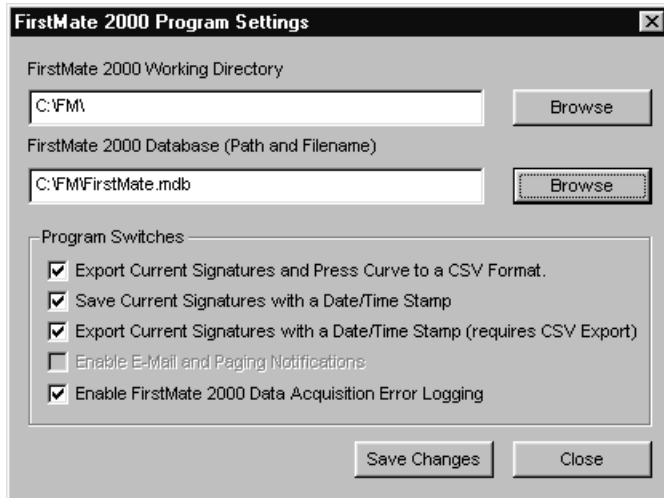
 From the main FirstMate 2000 Control Panel, click on the Program Settings button. This will load the Program Settings dialog, and will allow you to change the file paths for FirstMate to use and select optional signature and data acquisition features.

The dialog provides the ability to change the paths that FirstMate will use to access the information generated by the Data Acquisition server. It consists of a working path, a database path, and optional functionality switches to enable or disable additional features in the Data Acquisition server.

Working Path is a location where FirstMate 2000 Data Acquisition saves the signatures provided by the instrument. This location can be on a local drive or on a network drive *(via Networked Drive Mappings).*

Database Path is where the FirstMate database is stored. This location can be different from the Working Path. This location can be on a local drive or on a network drive via Networked Drive Mappings. If the path specified is invalided, FirstMate will notify you that the database could not be found and will exit.

Export Current Signatures and Press Curve to a CSV Format will generate a spreadsheet-friendly text file that can be opened with any spreadsheet application. This allows you to share information with others.

Save Current Signatures with a Date/Time Stamp will save the current signature to a Date and Time Signature directory every time an instrument is polled. With this feature enabled, the hard drive will fill quickly *(the user is responsible for cleaning up the unneeded files).*

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Export Current Signatures with a Date/Time Stamp will export the current signature to a text file that can be opened with any spreadsheet application. These files will be stored in a Date and Time Signature directory every time an instrument is polled. With this feature enabled, the hard drive will fill quickly *(the user is responsible for cleaning up the unneeded files).*

Note: *This feature requires the Export Current Signatures and Press Curve to a CSV Format be enabled in order to operate correctly.*

To properly setup your program settings, you must know how the computer is going to be used. The program settings must be changed accordingly. It can be a stand-alone data acquisition server, a stand-alone information display client, or it can be both. The settings below must be set properly to ensure proper operation.

> Stand-Alone Data Acquisition Server
> 1. FirstMate Database Path points to the location where the database exists.
> 2. Working Path should be set to the same location as the Database Path.
> 3. The Program Switches should be set to your preference.

> Stand-Alone FirstMate 2000 Client
> 1. FirstMate Database Path points to the location where the database exists.
> 2. Working Path points to the main FirstMate folder that contains the folders
>   which store the signature files (ex. "H:\FM\".)
> 3. The Program Switches have no effect on the operation of the system.

> Data Acquisition Server and FirstMate 2000 Display
> 1. FirstMate Database Path points to the location where the database exists.
> 2. Working Path points to the folder where FirstMate was installed.
>   (ex. "C:\FM\")
> 3. The Program Switches should be set to your preference.

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Configuring your Serial Communications

From the FirstMate 2000 Control Panel, click on the Comm. Port Settings button.
This will allow you to allocate serial communications ports (Comm. Ports) for FirstMate 2000 to use in data acquisition.

Note: *If this button is disabled, the Data Acquisition software was not installed and you need to do this on the computer with it installed, or re-run the installation program to install it.*
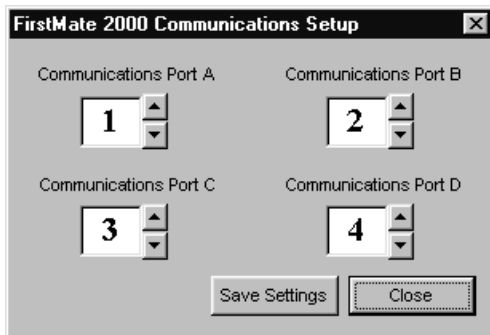
This dialog assigns serial communication port to FirstMate 2000 Ports. You can setup a port to use COMM 1 through COMM 9 (*assuming you can assign nine ports without any conflicts with other hardware in your system.*) It is possible to link two FirstMate ports to the same communication port, as long as there are no repeats in EIC addresses on that port. If you are going to use less then four ports, you can assign the unused ports to any communication port without any conflicts, as long as those ports are not used in auto-detecting instrumentation.

Once you have assigned the ports, click on the Save Settings button to save your changes.

Setting up your Instrumentation

To add instrumentation for FirstMate 2000 to use. Click on the Auto-Detect button on the main Control Panel dialog.

Note: *If this button is disabled, the Data Acquisition software was not installed and you need to do this on the computer with it installed, or re-run the installation program to install it.*

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The Auto-Detect dialog will appear on the screen. Initially, no instrumentation will be selected to be scanned.
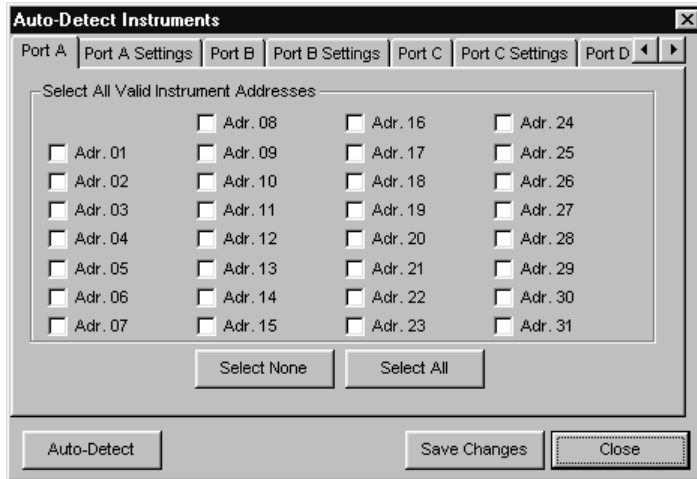
The tabs, at the top, allow you to specify the settings for the four communications ports to be used by FirstMate 2000. The "Port X" tabs (where X is either A,B,C, or D) allows you to specify which instruments are present at that address for that serial communication line.

Click on the Select All button to select every address on ports A,B,C, and D. You can clear your selections on all four ports by clicking on the Select None button.

The Auto-Detect button will begin scanning the communication ports for the presence of your instrumentation. The results of this scan can be used to pre-generate your Equipment table in the FirstMate database.

You may save your current configuration for easy access in the future, by clicking on the Save Changes button.

Note: *Clicking on Save Changes will not alter your database tables with the selections you have made. The only time the database is modified is when you Auto-Detect your instrumentation.*
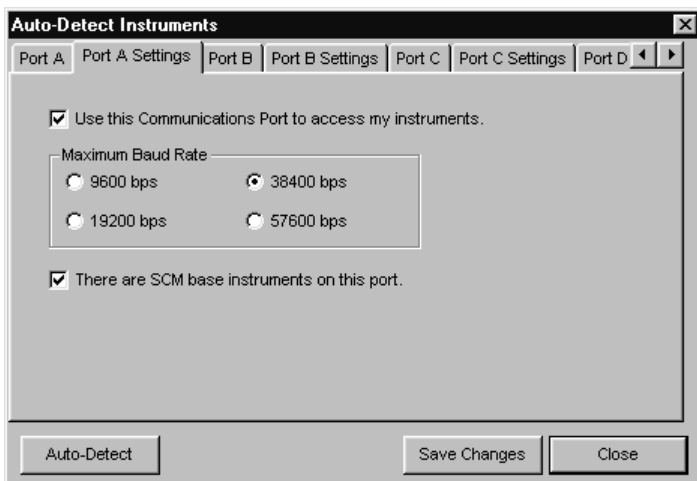
There are four tabs labeled "Port X Settings" (where X is either A,B,C, or D.) These tabs allows you to configure which ports you would like to use with FirstMate and assign the maximum baud rate to be used on each port.

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Using Port A as an example, select the Use this Communications Port to access My Instruments. Without this checked, the port will not be scanned for any instrumentation on that port.

Specify the maximum baud rate to use on that port. Your choices are 9600, 19200, 38400, or 57600 bps. It is recommended to set this to 57600 bps to ensure all possible instrumentation will be found during the scan.
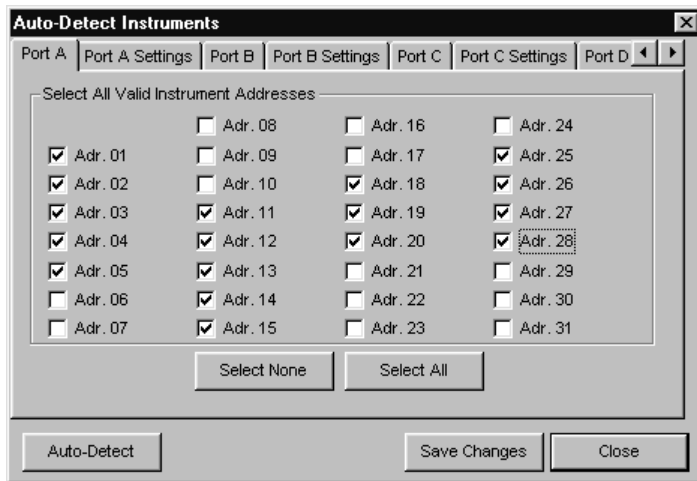
Example: From the Port A tab, select Addresses 1, 2, 3, 4, 5, 11, 12, 13, 14, 15, 18, 19, 20, 25, 26, 27, and 28. This will perform a scan looking for 17 instruments on Port A. Then set the port's settings. Click on the Port A Settings tab and enable the Communications Port then specify the Maximum Baud Rate to be 57600 bps.

Click on the Auto-Detect button located at the lower left-hand corner. This will begin the scanning process. A dialog box will appear that will tell you the status of the auto-detection scan. You may cancel the scan at any time by clicking on Cancel.
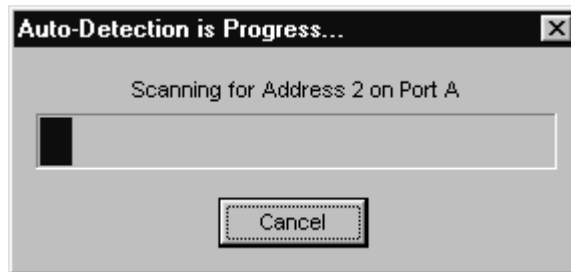
When the scan is completed, a message box will ask you if you would like the results from the scan to be inputted into the Equipment table in the FirstMate 2000 database, the contents of the Current table will be erased at the same time.

Note: *The history of those instruments will NOT be deleted in this process. The Current table is used to display the information at that moment and is overwritten every time the server updates the information in the database.*

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When the above steps are complete, you may now close the control panel and start up the communications server and FirstMate 2000.

Diagnostics and Maintenance

Diagnosing Communications Problems
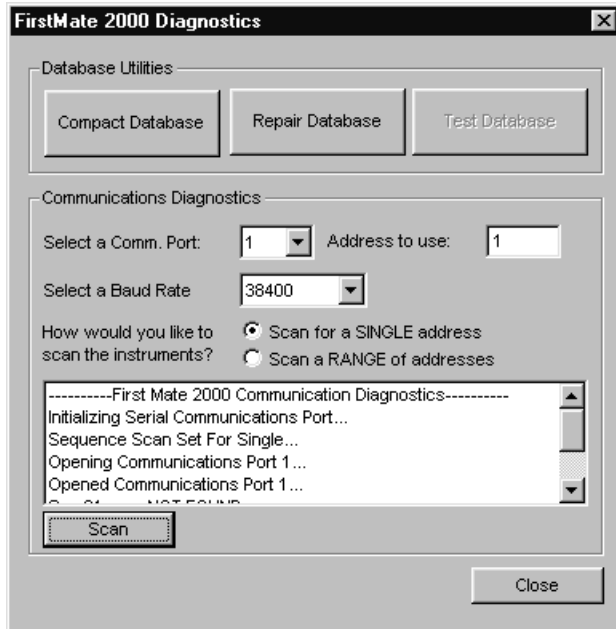
The Diagnostics dialog provides a simple mechanism for testing serial communications lines for the presence of a specific instrument. This allows you to check the integrity of the communication cable and/or the proper operation of the instrument's EIC card.

Open the Diagnostic and Utilities Dialog from the main control panel window. Select the proper Communications Port for the instrument to be tested. Enter the EIC address of the instrument in the field provided. The two operations you can perform are *Scan for a Single Address* and *Scan a Range of Addresses*. If you would like to test just that address select *Scan for a Single Address*. If you would like to test that address and all of the preceding addresses, select *Scan a Range of Addresses*. Click on Scan to perform the test. The results of the test are displayed in the text window provided. Possible results

- Failed to Open Communications Port? The port selected is unavailable.
  Try rebooting your computer and retest. This may suggest a hardware configuration problem or hardware failure.

- Seq. X was NOT FOUND…: The instrument at this address was not found.
  Ensure that the instrument is powered and communication lines are wired correctly. This may suggest that the instrument and/or communication cable may need servicing.

- Seq. X was FOUND…: The scan detected the presence of an instrument at that address.

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Repairing and Compacting your FirstMate 2000 Database

Simple maintenance of the FirstMate Microsoft Access database is recommend on a regular basis. By repairing and compacting your database, you will reduce the overall size of the database and will correct any transient errors that may occur.
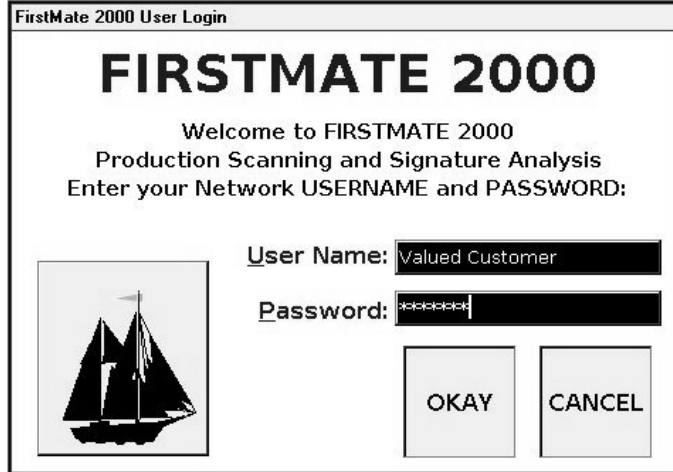
Important: *Before Compacting or Repairing your database, ensure that all computers running FirstMate 2000 have exited out and no one will access that database during the compacting/repairing process. To fail to do so may corrupt your database and cause unknown results with the program operation.*

To repair or compact the database, click on their corresponding buttons in the Diagnostic/Utilities Dialog.

Note: *These processes take time and it is common for a single operation to take more then ten minutes to complete.*

STARTING FIRSTMATE 2000

The startup screen for FirstMate 2000 requests a USERNAME and PASSWORD. Three levels of passwords are available controlling the level of usage within FirstMate. Entering a user name and password may be omitted if no security is desired.

Enter the **USERNAME** and **PASSWORD**
Press **OKAY** to enter FirstMate

Or

Press **CANCEL** to close FirstMate 2000

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UTILITY PANEL
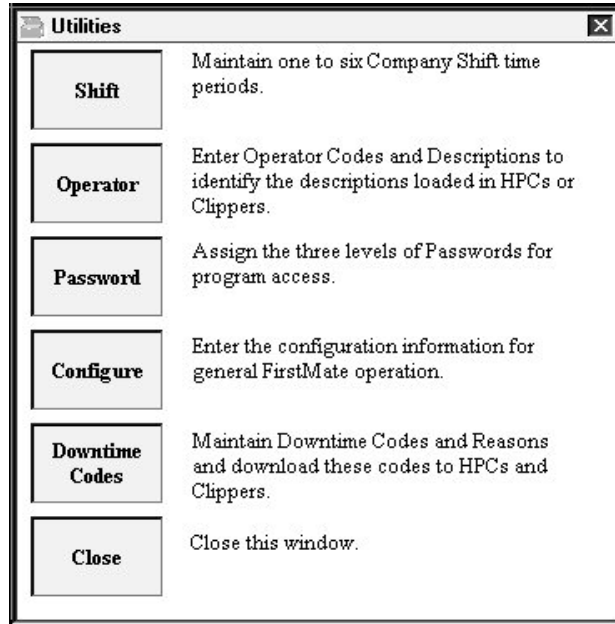
This panel has five buttons that provide access to Utility Table Maintenance functions. These functions edit the utility tables in the Access Database, FIRSTMATE.MDB.

SHIFT

Maintains one to six shift periods in the Shift table. These time ranges are used to assign the shift number to the signature and history archives

OPERATOR

Maintains the operator badge and description fields in the Operator table. This table works with Clipper series instruments to provide a description of the badge ID written from the HPC unit. It provides similar functions with the Autograph series instruments along with the ability to set operator codes from FirstMate.

PASSWORD

Maintains password settings and communications port settings in the Config. Table. The passwords control access to functionality levels in FirstMate. The port numbers tell the communications server which port to poll for each communications cable.

CONFIGURE

Maintains the Equipment table and all settings associated with each instrument being polled. This is the major control access for most equipment settings.

DOWNTIME CODES

Maintains the Downtime Codes and the Descriptions used to qualify downtime events on Tags, Scams, and instruments with Hips.

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SHIFT EDIT PANEL

SHIFT	
Shift 1 Start:	6:00:00 AM
Shift 1 Stop:	2:30:00 PM
Shift 2 Start:	2:30:00 PM
Shift 2 Stop:	11:00:00 PM
Shift 3 Start:	11:00:00 PM
Shift 3 Stop:	6:00:00 AM
Shift 4 Start:	
Shift 4 Stop:	
Shift 5 Start:	
Shift 5 Stop:	
Shift 6 Start:	
Shift 6 Stop:	

Refresh   Update   Close

This table contains six sets of starting and stopping times used to define the Production Shifts. As FirstMate polls an instrument, it compares the time of the polling event to the shift table times and selects the proper shift to assign to the polled data. Shift times may overlap or have gaps but this is not advised. FirstMate will look for the FIRST time range starting from the top of the table that provides a valid shift and use that value to assign it. If Shift 2 overlaps Shift 1, FirstMate will select Shift 1 as the current Shift. Shift times that do not fit the Shift Table ranges are assign a value of zero.

OPERATOR EDIT PANEL

OPERATOR	
Operator:	1163
Operator Description:	Jeena Johnson

Operator	OperatorDescription
1163	Jeena Johnson
2331	Sue Smith
2433	Bill Fold
4334	John Doh

Add   Delete   Refresh   Update   Close

This is a simple table containing two fields: Operator and Operator Description. The Operator field corresponds to the Badge ID on HPC units and is the Operator Name on Autographs. This table provides an identifier to supplement the Operator Name. Enter the information in the green boxes and click on the desired editing function. You can position the cursor on any row in the table prior to editing.

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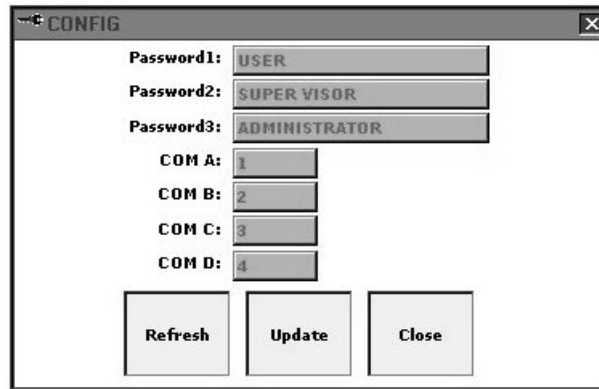
PASSWORD

Firstmate 2000 has three levels of password protection controlling the access to its functionality:

Password #1 – controls entry to FirstMate. You are prompted for this password when you log on to the program. Use this password to limit access to the entire program.

>   LOGIN

>   Password #2 – controls access to the Instrument Settings functions. Firstmate's options allow you to directly control features on the tonnage monitors, change settings and by extension, control the press operation. All FirstMate options that access instrument settings require this password.

>   RECIPE DOWNLOAD
>   RECIPE EDIT
>   INSTRUMENT CONTROL
>   PARTS AND BATCH CONTROL
>   HISTORY DELETE
>   ALARM HISTORY DELETE

>   Password # 3 – controls access to FirstMate Setup Utilities. All access to table maintenance and setup functions require this password.

>   SHIFT EDIT
>   OPERATOR EDIT
>   PASSWORD EDIT
>   CONFIGURATION
>   DOWNTIME CODE MAINTENANCE

Leaving a particular password blank disables protection for that feature only.

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CONFIGURE PANEL

Use this screen to modify the EQUIP table controlling all features for each piece of equipment polled by FirstMate 2000. Use the **First**, **Previous**, **Next** and **Last** keys, or the grid slider bars to move through the table. Use the **Add**, **Delete** and **Update** keys to modify the table, clearing edits with the **Refresh** key if necessary. Generate an equipment list with the **Print** key.

General Settings

Name – the equipment's name that you want to appear in all history and signature files.

Seq. – the port (A,B,C,D) and EIC number (1 to 32) of each instrument.

Slide – Outer/Inner or Slide1 / Slide2 for double action or transfer presses.

Model – a description of the instrument.

Line ID – used to identify a group of instruments for line download functions.

Downtime – the number of minutes before a default downtime event is triggered, and the default downtime description. Default downtime is used when the instrument does not have downtime capabilities.

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Alarm Switches

Print Alarms – write an alarm record to a printer.

Print Alarm Signatures – write an alarm signature to a printer.

Archive Alarms – save alarm history to disk.

Archive Alarm Signatures – save alarm signatures to disk.

Alarm Printer – identifies the printer where alarms are written.

Signature Printer – identifies the printer used to print signatures.

Archive Storage Settings

These settings determine the number of records/signatures recorded in each archive table after which the oldest are overwritten.

History Records - number of records to store in the history tables (A01)

History Signatures - number of signatures stored in trend files (A01.TND)

Alarm Records - number of alarm history records stored in the ALARM and CAPACITY ALARM tables.

HPC Records - number of records stored in the HPC table.

Downtime Records - number of records stored in the DOWNTIME table

Selected Archive Path – this path tells the data collector program (TLGServer) where to write signatures and database records. It's unique for each instrument.

Communication

SLC Node - node ID of the SLC500 polled with SLCServer
Baud Rate - polling baud rate for TLGServer and SLCServer.
Polling Rate - write history for an instrument every XX times its polled.

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DOWNTIME CODES PANEL

This table containing two fields:
Downtime and DownDescription.
Downtime is the numerical code used to
identify the downtime reason entered on
HPCs, ATGs, and SCMs.

DownDescription is the reason for the
event. Enter the information in the green
boxes and click on the desired editing
function. You can position the cursor on
any row in the table prior to editing.

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SELECTING A SIGNATURE FOR DISPLAY

```
FirstMate 2000                                                    _ ▣ ✕
┌────────┬───────────┬─────────┬─────────┬─────────┬───────┬────────┬───────────┬──────────┬─────────┐
│ CLOSE  │ SIGNATURE │ TONNAGE │ PLANT   │ HISTORY │ HPC   │ HELP   │ UTILITIES │ CASCADE  │ TILE    │
│        │           │         │ FLOOR   │         │       │        │           │ WINDOWS  │ WINDOWS │
└────────┴───────────┴─────────┴─────────┴─────────┴───────┴────────┴───────────┴──────────┴─────────┘
```

SELECT EQUIPMENT

Select the Equipment Name and
press "Open" to display:

3760 Outer
3760 Inner

OPEN   CANCEL
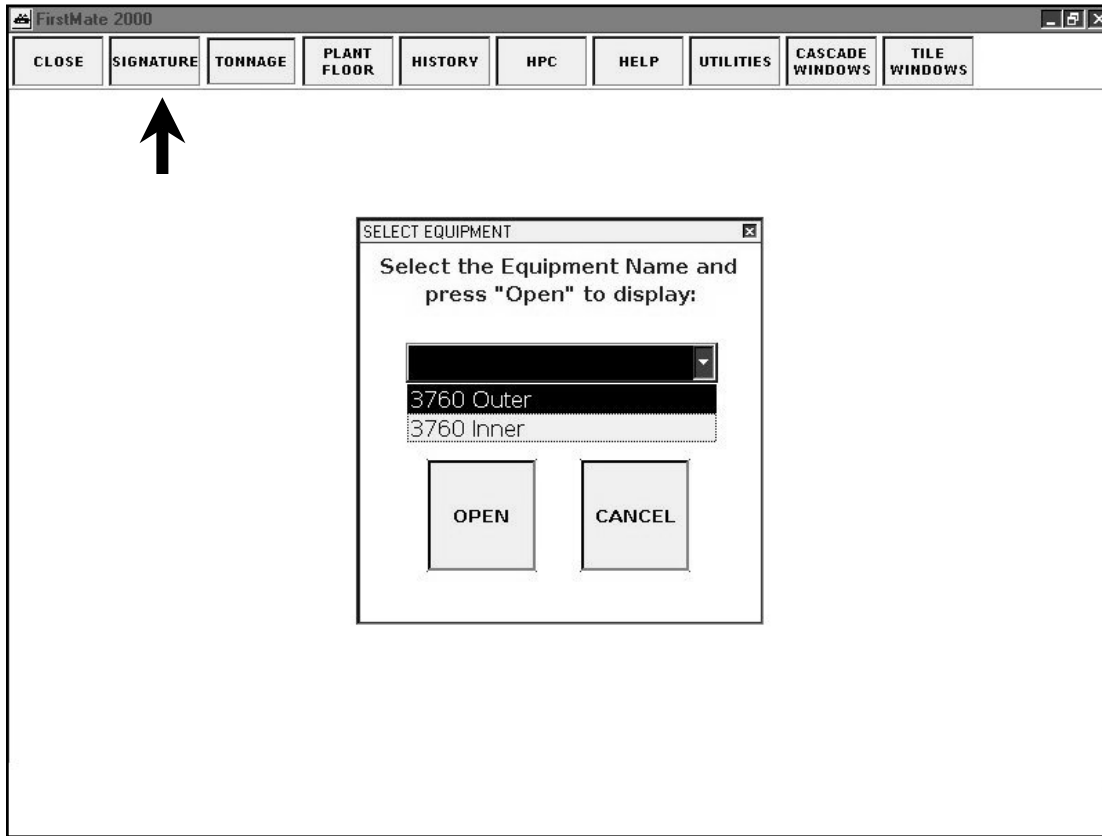
Clicking on the SIGNATURE button on the Main Menu opens the SELECTION PANEL that allows you to choose an instrument for Signature Analysis. Use the dropdown list box to select the equipment name and then click OPEN to display this instrument's Signature Analysis window. CANCEL closes the Selection Panel without opening a display.

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FirstMate 2000 User Instructions

BASIC SIGNATURE DISPLAY
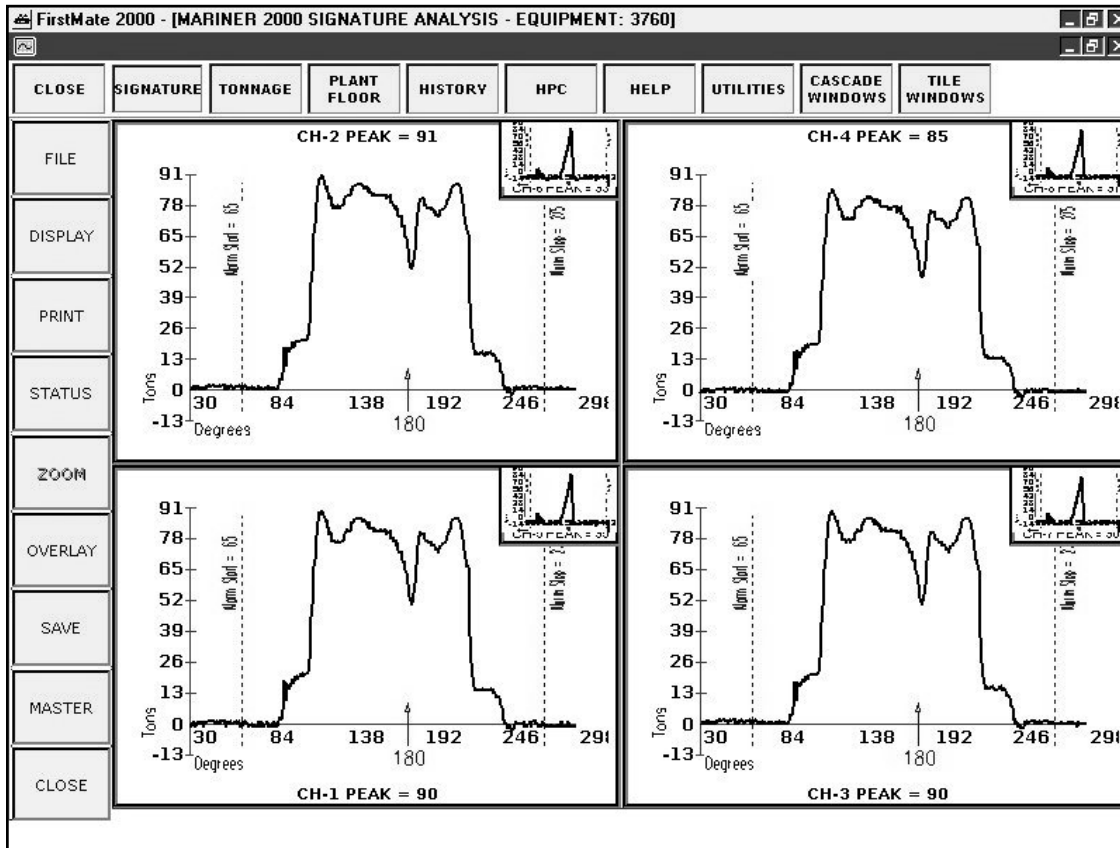
Shown is the main display for Signature Analysis - all other features are activated from this window. Each Channel (1-8) is graphed in a separate window with Channels 1-4 displayed in the larger windows and Channels 5-6 displayed in the smaller windows. Each set of four is scaled to the highest value for the displayed features in that set. Adding or removing a display signature re-scales the windows on the next draw. The Signature Displays are redrawn at a fixed time interval of 3 seconds. This allows you enough time to study the current signature before its redrawn.

The Signature Display windows have an active Mouse-Over feature that displays the location and tonnage value for the current mouse location. This information is displayed at the top or bottom of the window. The information is LOAD @ ANGLE for Thru-Stroke instruments and LOAD @ MILLISECOND for Peak-Only Instruments.

Clicking the mouse on any Signature Display hides all other displays and resizes the selected one to full window. Clicking on the full size display returns it to its original size and re-displays the others.

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FirstMate 2000 User Instructions

You may open a Signature Display window for every instrument in the Equipment Table. The number of display windows that are opened is limited by computer resources. For best results with multiple Signature Displays you may need to increase both RAM and Video memory.

Signature Displays can be re-sized within the FirstMate 2000 platform. Use the CASCADE and TILE buttons to rearrange these and other displays.

There are nine buttons on the left of the Signature Display window. Use these buttons to open Display Feature Panels or perform Display functions.

FILE – opens a panel providing access to Recall, Trend Overlay and Alarm Overlay and Export options.

DISPLAY – opens a panel that allows you to select Signature Analysis Display options and features.

PRINT – opens a panel containing access to all printing options.

STATUS – opens a display panel with status and other useful information about the current signature.

ZOOM – toggles the in-depth zooming feature for selecting a subsection of the Signature display for analysis. This button is inactive until the one Channel is maximized.

OVERLAY – displays all channels of Signature on one maximized display in overlaid format.

SAVE - saves the current Signature to a named file.

MASTER – saves the current signature to MASTER.WAV. This "master" can be displayed on the Display Panel

CLOSE – closes this Signature Display window.

SIGNATURE ZOOM FEATURE
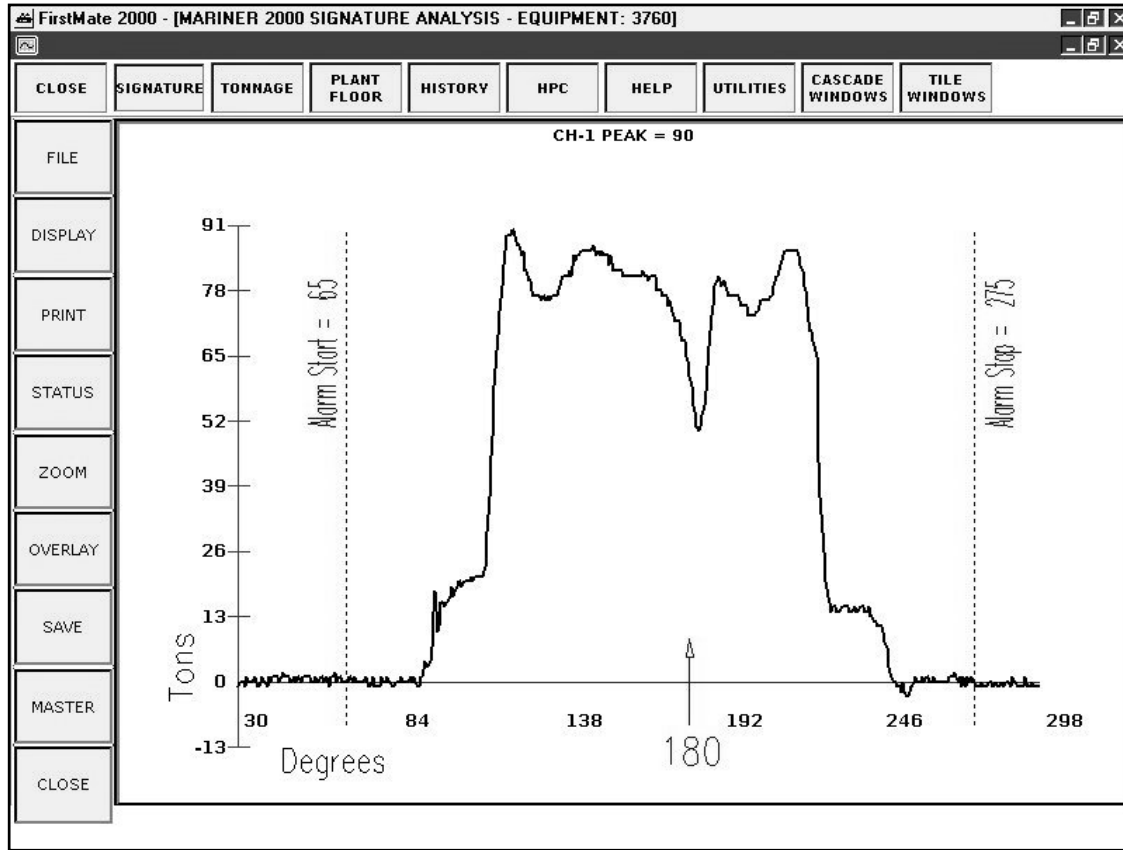
Any Channel Display may be resized to a full window by clicking on the signature display. This feature allows you to focus on one channel and provides a more detailed view of the signature. Click on the display a second time to return to the signature's original size.

SIGNATURE CUSTOM ZOOM FEATURE

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FirstMate 2000 - [MARINER 2000 SIGNATURE ANALYSIS - EQUIPMENT: 3760]
```

| CLOSE | SIGNATURE | TONNAGE | PLANT FLOOR | HISTORY | HPC | HELP | UTILITIES | CASCADE WINDOWS | TILE WINDOWS |

FILE
DISPLAY
PRINT
STATUS
UNZOOM
OVERLAY
SAVE
MASTER
CLOSE

CH-1 PEAK = 90

Tons

95
89
83
77
71
65
59
53

87   118   149   180   211   241
Degrees
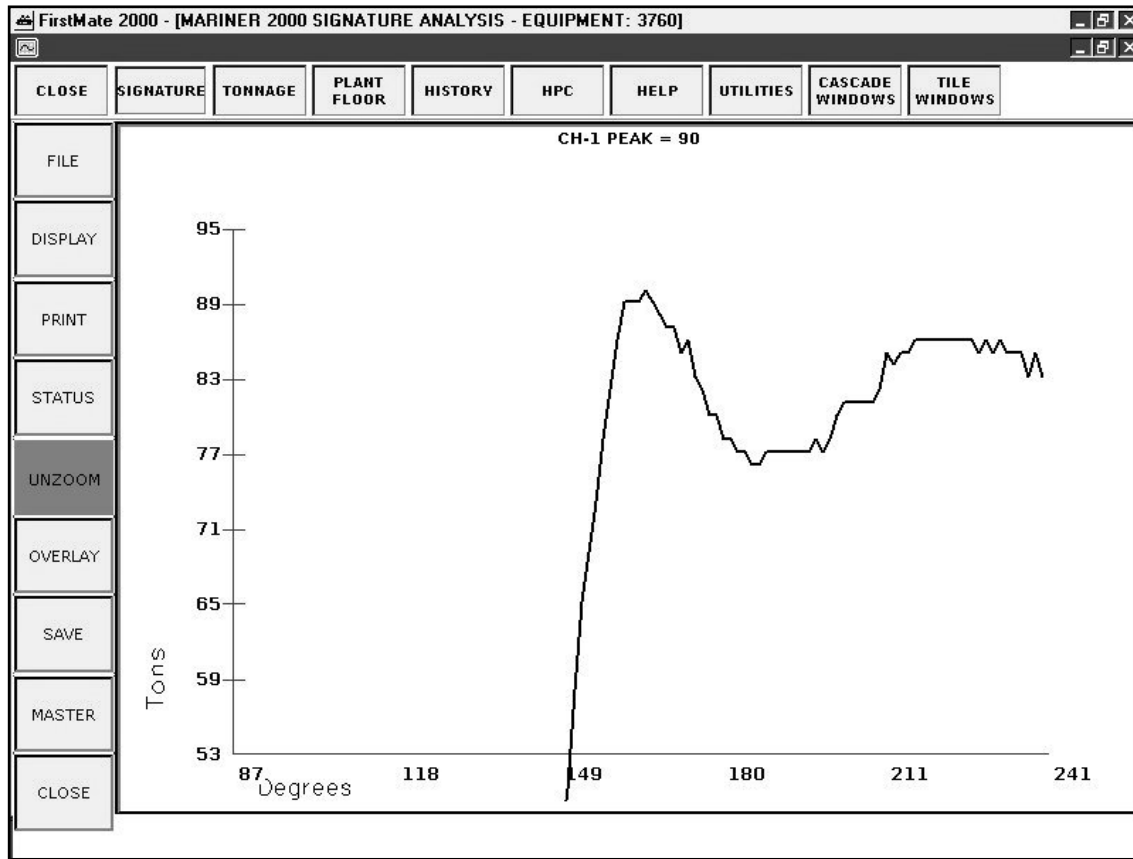
When a channel is displayed in the full window, the ZOOM button is active. Selecting this button turns off the Load @ Angle display and allows you to draw a box around a portion of the signature. You can re-scale the display to show the selected area. Click once on one corner of a rectangle to start the rectangle. Move the mouse until the yellow dotted lines surround the area to be zoomed. Click the mouse again to complete the rectangle and redisplay the zoomed signature. When you are finished click on the ZOOM button to end this display and return to the full screen signature.

SIGNATURE FILE PANEL
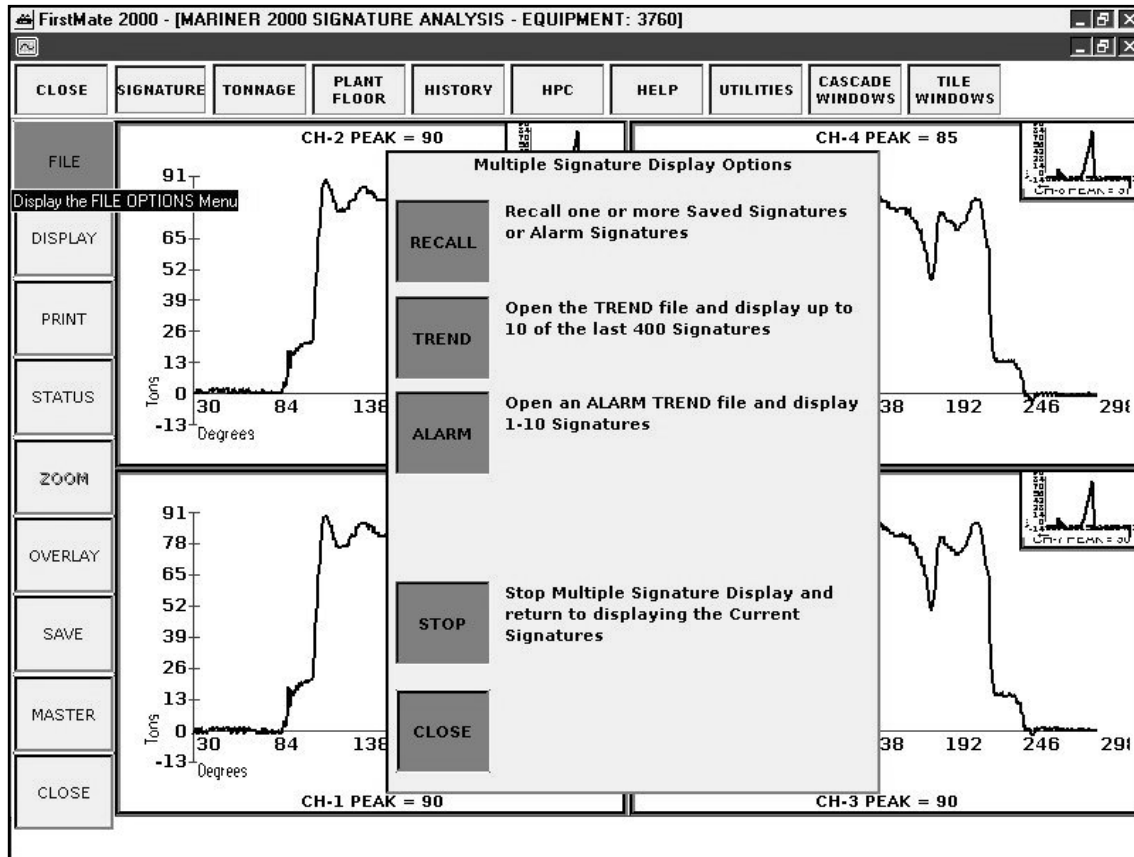
Selecting the FILE button opens the Multiple Signature Display Panel and allows you to access the File features of FirstMate 2000:

RECALL – opens saved signatures using the standard Windows File Panel. Saved signatures can have any name and be stored anywhere that is accessible from Windows.

TREND – opens a file containing the last four hundred signatures collected for the current equipment. The signatures are listed so that you can select the ones you want to open.

ALARM – opens a file similar to the TREND file but containing the last four hundred Alarm Signatures. These are also listed for your selection.

STOP – selecting using any of the methods hides the current signature and displays the recalled signatures. Use this button to end the recall display and return to the current signature.

CLOSE – hides the Multiple Signature Display Panel.

SIGNATURE ANALYSIS OPTIONS
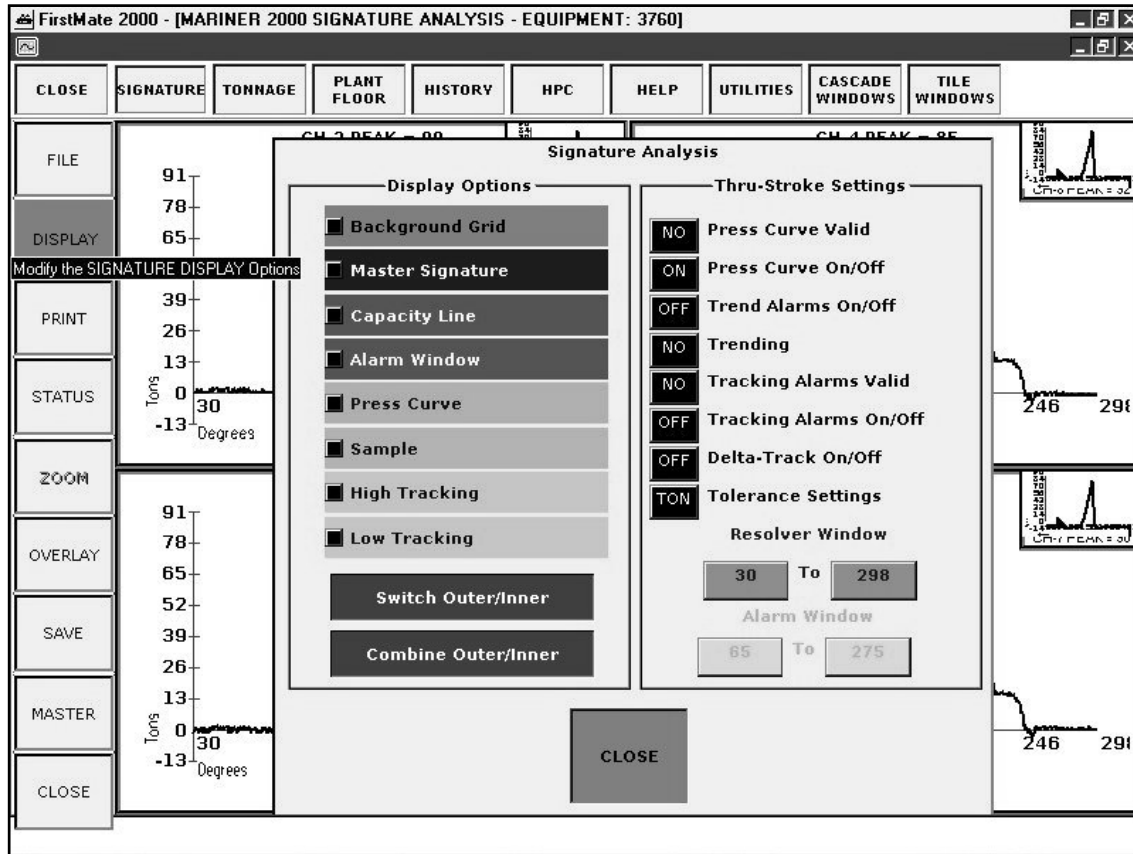
The SIGNATURE ANALYSIS PANEL provides the platform for controlling the display features of FirstMate's Graph Windows. These features are divided into three types: Standard, Thru-Stroke and Eight-Channel. Standard features are available for all types of equipment; Thru-Stroke is only available when the current instrument is a TSM unit. Eight-Channel features are available for equipment having more than four channels – typically double action presses.

STANDARD FEATURES:

BACKGROUND GRID – puts light gray horizontal lines on all graphs to aid in recognizing features of the current signature. These grid lines will print.

MASTER SIGNATURE – draws the Master Signature in yellow on all graphs in view. If the Master Signature file doesn't exist, a yellow line overwrites the X-Axis.

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CAPACITY LINE –   The Capacity Setting for each Channel is drawn on the appropriate graph as a yellow horizontal dotted line with a caption showing the Capacity Value.

SAMPLE –   The display for Sample depends on the instrument type. For A Peak Unit it is a green horizontal dotted line drawn at the tonnage value of the instrument's Sample. A Thru-Stroke Unit has a Sample Signature that is drawn in green on the appropriate Channel. Sample Signatures are only drawn when the instrument's status is in Setup/Standby.

HIGH and LOW
 TOLERANCE –   These displays are drawn similar to the Capacity Display with Peak Units drawn as horizontal dotted lines and Thru-Stroke Units drawn as Signatures on the appropriate Channel Graphs. These displays are drawn in red and only draws when the instrument's status is in Monitor Parts.

THRU-STROKE FEATURES:

ALARM WINDOW –   The display for the Alarm Window is drawn as two vertical yellow dotted lines representing the Start Angle and Stop Angle for the Window. When the Start or Stop Angle equals the corresponding Look Window Angle, no line is drawn. A small yellow arrow is drawn on each Channel graph at the 180 degree point.

PRESS CURVE –   The Manufacture's Press Curve is drawn as a purple Signature on each displayed Channel Graph. Press Curves are displayed for any instrument status but are only active in Setup/Standby mode.

EIGHT-CHANNEL FEATURES:

SWITCH
INNER/OUTER –   For equipment with five or more channels, the fifth and greater channels are displayed in small windows at the upper right of the first four channels. You can switch the display to show Channels 5-8 in the larger windows with Channels 1-4 graphing in the smaller.

COMBINE
INNER/OUTER –   graphs Channels 1 & 5, 2 & 6, 3 & 7, & 4 & 8 together. This gives an excellent picture of the combined forming forces for a double-action press.

Instrument Settings are displayed on the right side panel and reflect the current status of the equipment. Use these as a reference to instrument operation and to determine which settings are currently valid. These settings are displayed or hidden depending on instrument type.

Use the CLOSE button to hide the Signature Analysis Panel.

SWITCHING CHANNEL FOCUS
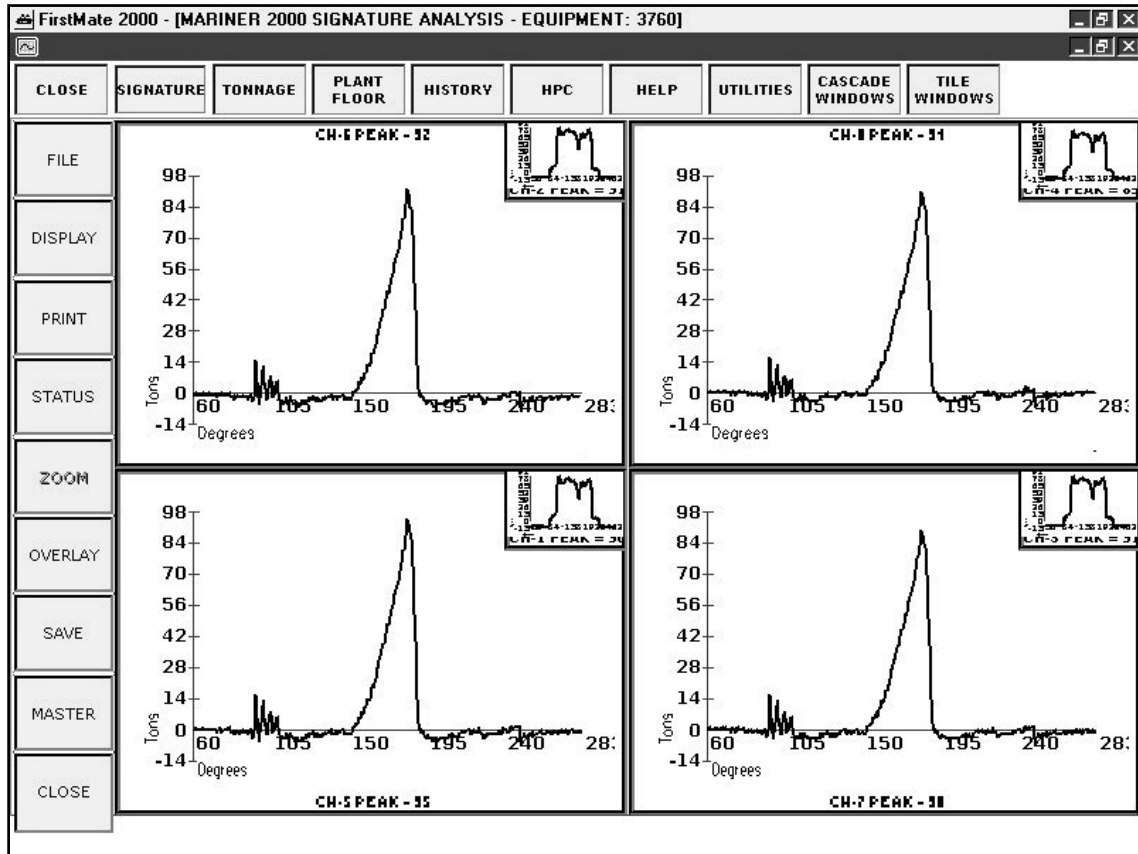
SWITCH INNER/OUTER reverses the signature sizes in the channel display windows. The larger sized display is drawn in the smaller window and the smaller display is drawn in the larger window. Clicking the button a second time returns all signatures to the original sizes. This feature works best with double action presses with outer and inner slides.

COMBINING CHANNELS

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FirstMate 2000 - [MARINER 2000 SIGNATURE ANALYSIS - EQUIPMENT: 3760]
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| CLOSE | SIGNATURE | TONNAGE | PLANT FLOOR | HISTORY | HPC | HELP | UTILITIES | CASCADE WINDOWS | TILE WINDOWS |

CH-1 PEAK = 90

FILE
DISPLAY
PRINT
STATUS
ZOOM
OVERLAY
SAVE
MASTER
CLOSE

Tons

98
84
70
56
42
28
14
0
-14

Degrees

30   84   138   192   246   298
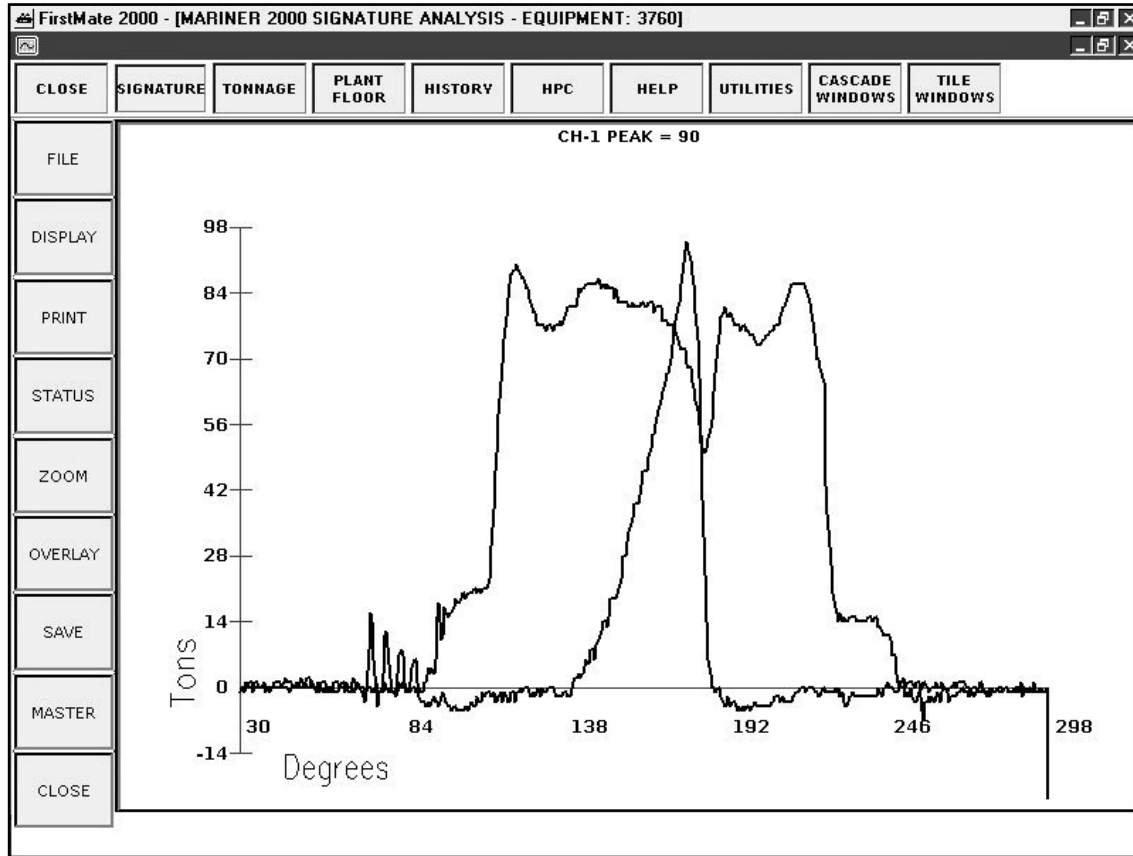
Channels 1 and 5, 2 and 6, 3 and 7, and 4 and 8 can be combined using the COMBINE INNER/OUTER button. This feature is useful when displaying signatures from double action presses where the inner and outer slides have related forming forces. The combined channels are graphed together. Clicking the button a second time returns the signature display to its original settings.

SWITCH INNER/OUTER and COMBINE INNER/OUTER are mutually exclusive and one cannot be activated when the other is in use.
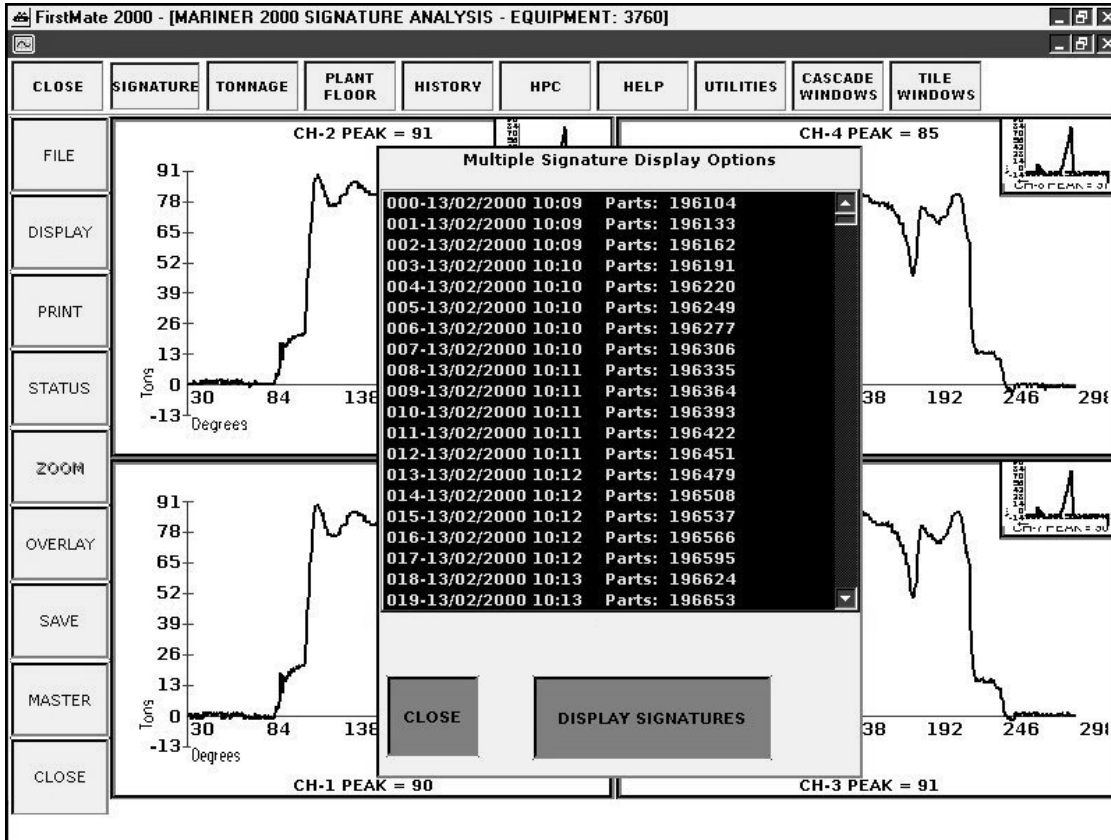
TREND FILE LIST

The Trend File List Box displays the records in the TREND and ALARM files. These files contain the last four hundred, standard and alarm signatures respectively. They are arranged by date, time and part number. Use the slider at the right to move up or down through the list. Select one to ten signatures by clicking on the desired listing. When you are finished selecting signatures, click on DISPLAY SIGNATURES to start graphing your selections.

TREND SIGNATURE DISPLAY
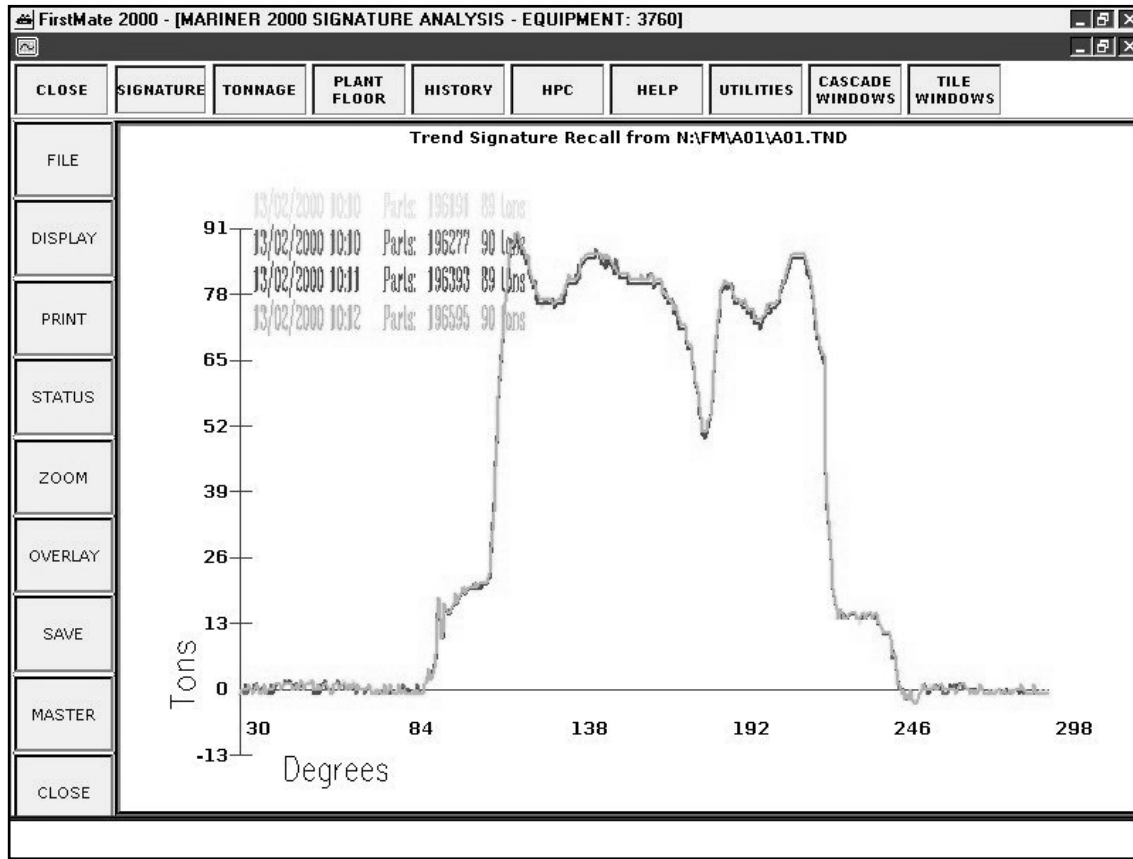
Selected Trend Signatures are graphed in overlay fashion using a different color for each signature. The Date, Time, Parts Count, and Peak Tonnage values are listed in matching colors at the side of the Signature. Tonnage is scaled to the highest peak value for all selected signatures. Degree or Millisecond Look Windows are scaled to the first signature in the selected list. Selecting signatures with large differences in peak value or look windows can result in unreadable displays.

INSTRUMENT STATUS DISPLAY
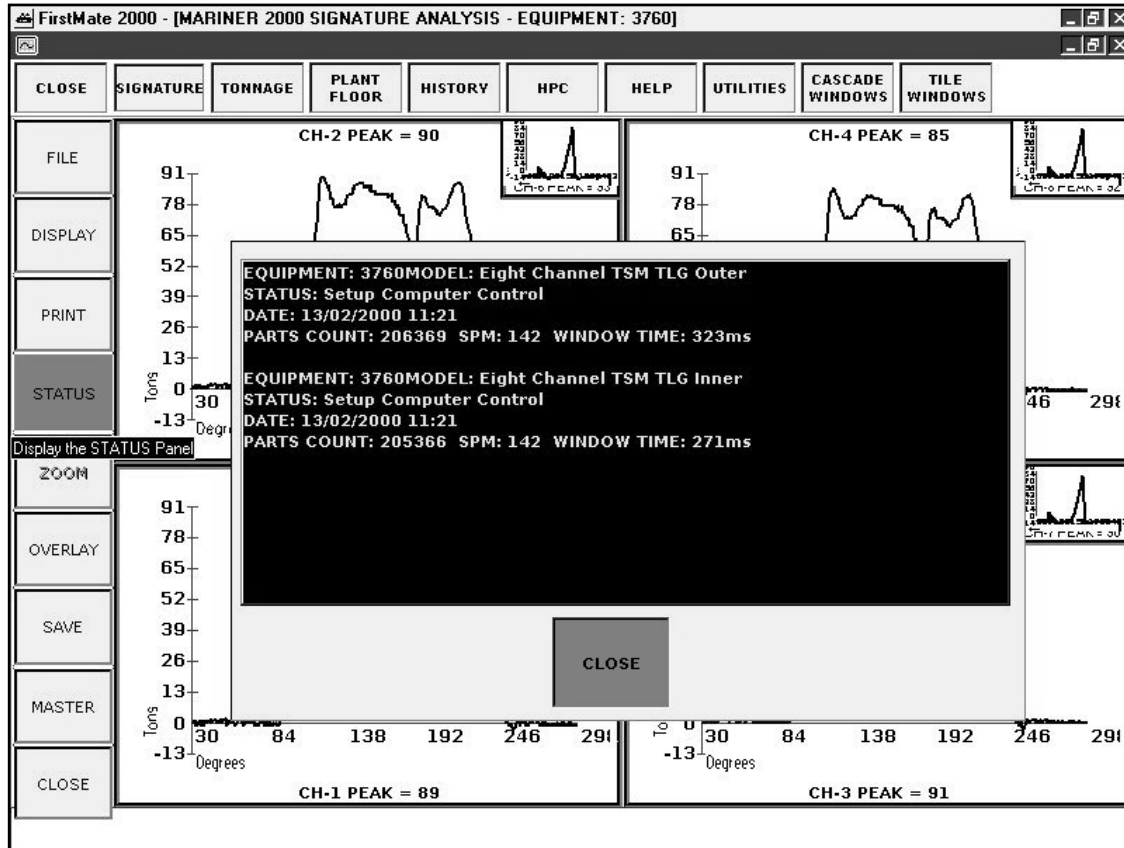
STATUS opens a display panel providing current information for the instrument displayed in this Signature Display window. Information on this display is updated as the instrument is polled. For instruments with five or more channels, the status is displayed separately for Channels 1-4 and 5-8. Click on the CLOSE button to hide the Status Display.

PRINTING A SIGNATURE
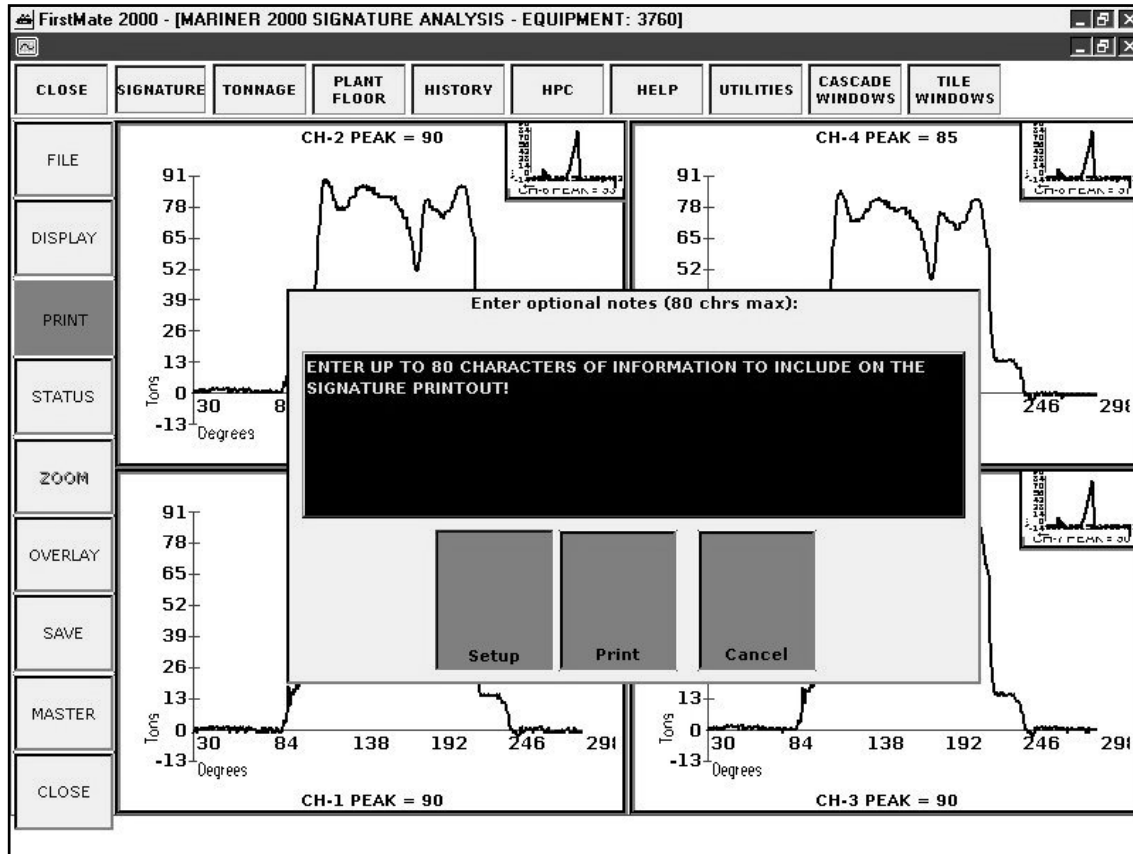
PRINT opens the Print Display Panel. Use this panel to select a printer, modify its settings, and print the currently displayed signature on the selected printer. FirstMate 2000 allows you to add up to eighty characters of notes to your signature printout. This gives you the ability to describe the features displayed on the signature or the reason for the printout, etc. Enter NOTES in the white text box. SETUP opens the Windows Printer Options panel and allows you to select a printer and modify its settings. PRINT sends the current display to the printer. CANCEL closes the Print Display Panel without printing.

SAVING THE CURRENT SIGNATURE
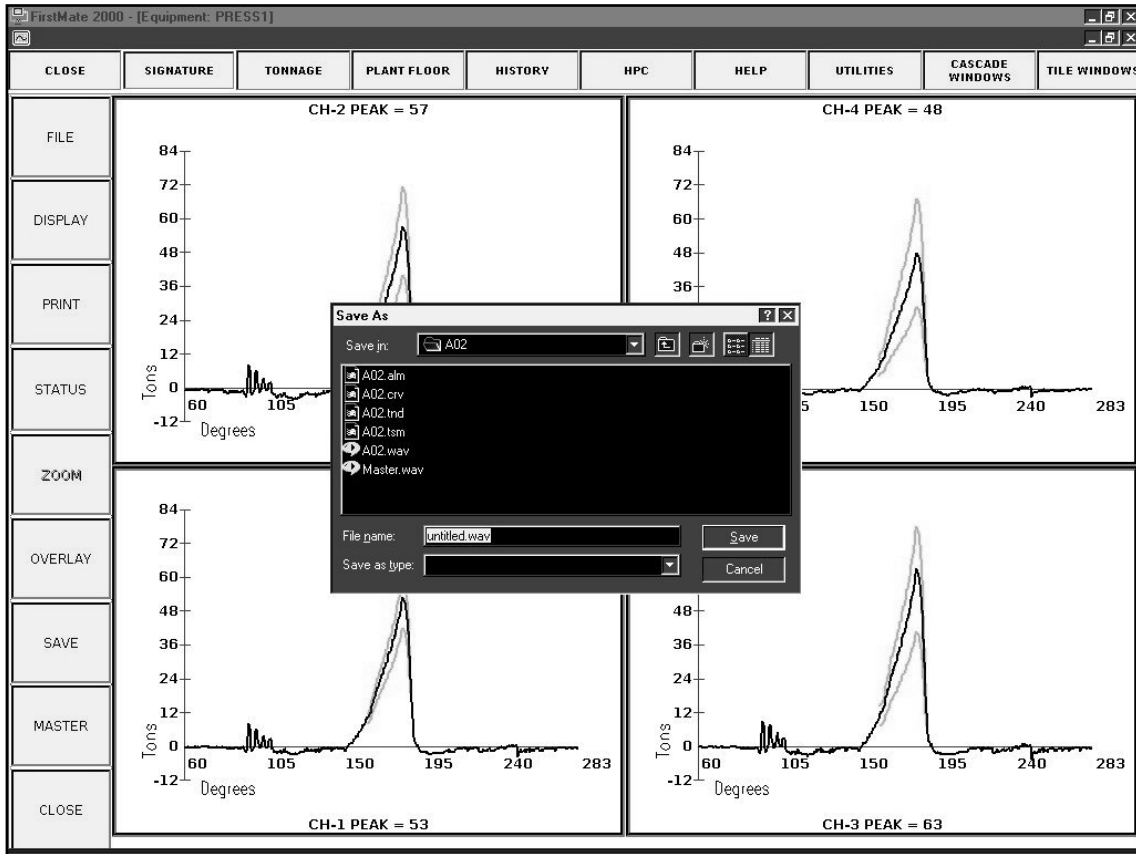
Pressing the SAVE button opens the Windows "Save as" panel. You can save the current signature to any location and name. Note that signature file extensions .WAV should be maintained.

SAVING A MASTER SIGNATURE
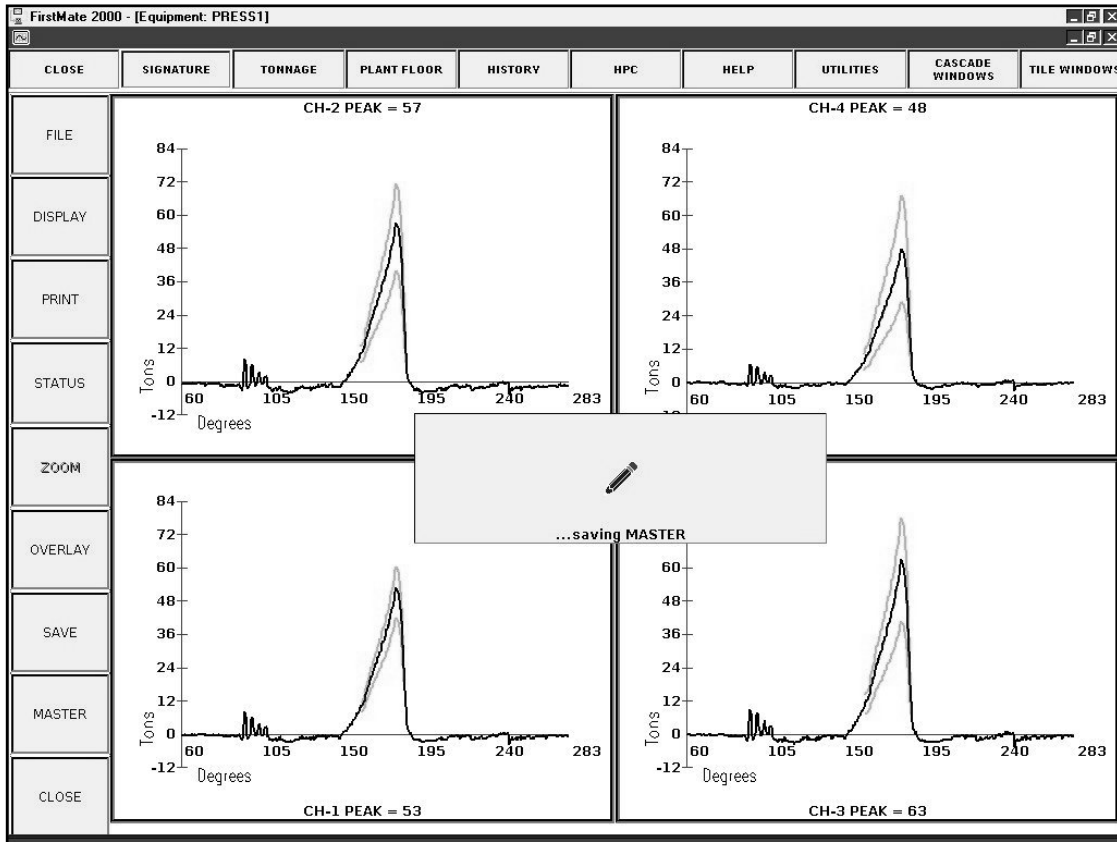
Pressing the MASTER button saves the current signature to a file named MASTER.WAV and this file can be displayed as an overlay on subsequent signatures. This feature allows you to compare each signature to a "good" signature and detect variations from the desired one. MASTER signatures can be displayed via the SIGNATURE ANALYSIS PANEL.

TONNAGE DISPLAY
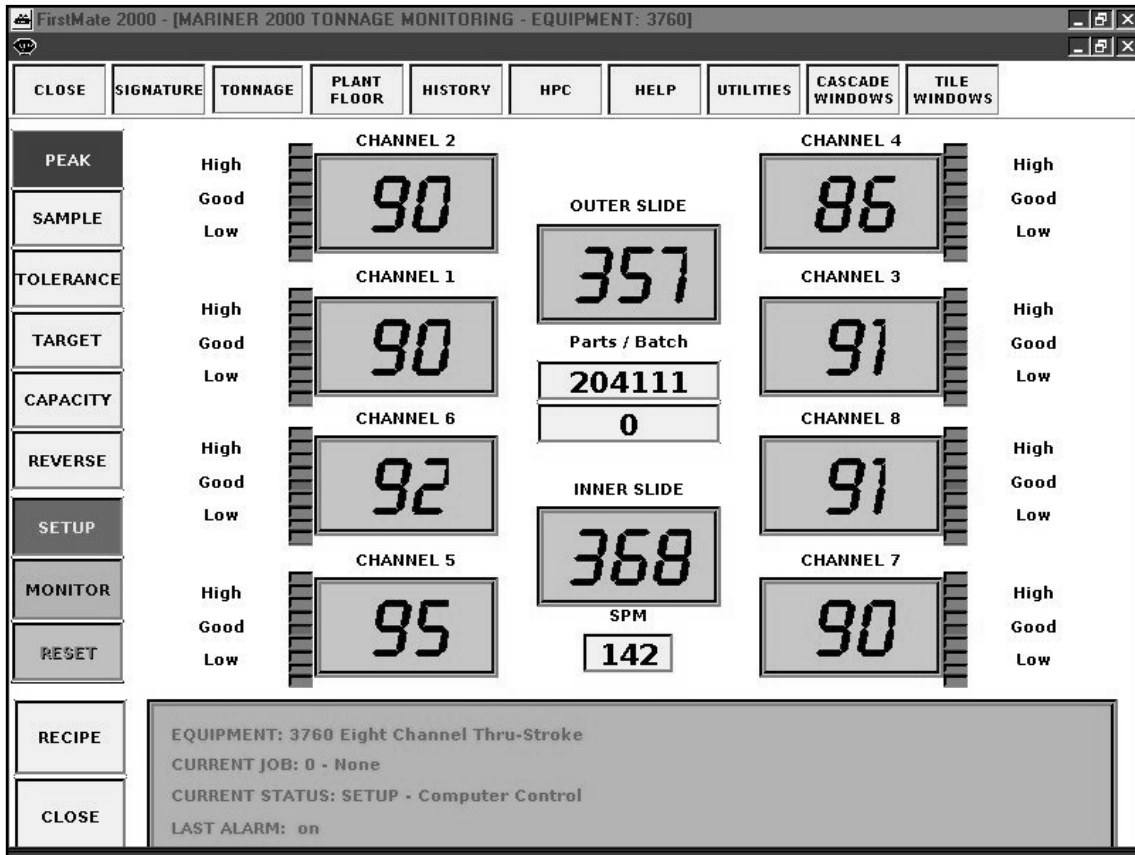
Tonnage is displayed on this screen which also contains related features. Each channel of tonnage is displayed in a separate box and the total tonnage is shown in the center. When the total channels exceed four, the display is divided into two sections representing four channel instruments with separate totals. Clicking the mouse on any channel of tonnage shifts focus to Signature Display.

Each Channel has a column of **Trend Lights** duplicating this feature on the instrument. These lights represent variations from part to part between the sample and peak tonnage values.

The **top six buttons** on the left side of the display select the information displayed in the for each channel:

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PEAK

Displays PEAK LOAD for each channels with Totals.

SAMPLE

Displays the SAMPLE LOAD calculated during the Trending Cycle on the instrument. The Peaks are compared to the Sample for Trend Variations.

TOLERANCE

Displays the HIGH and LOW Alarm Limit settings for this instrument in either PERCENT or TONS. Peak values higher or lower that these limits trigger Alarm conditions when active.

TARGET

Displays JDC Instrument comparison values used to monitor part quality.

CAPACITY

Displays the current MAXIMUN Peak Values allowed for this instrument.

REVERSE

Displays any negative load measured by the instrument.

The **next three buttons** show instrument status and allow you to download status changes with cooperating equipment. BRIGHT GREEN *(indicates that this status is active)* – DULL GREEN *(indicates that this status is inactive)* – BRIGHT RED (indicates an alarm condition).

SETUP

Instrument is in the Setup or Standby Condition with Press Curve and Capacity Alarms valid.

MONITOR

Instrument is in Monitor Parts mode with Capacity, Trend and Tolerance Alarms valid.

RESET

When RED indicates an alarm condition. Pressing this will download an Alarm Reset code.

The last two buttons control display.

TONNAGE
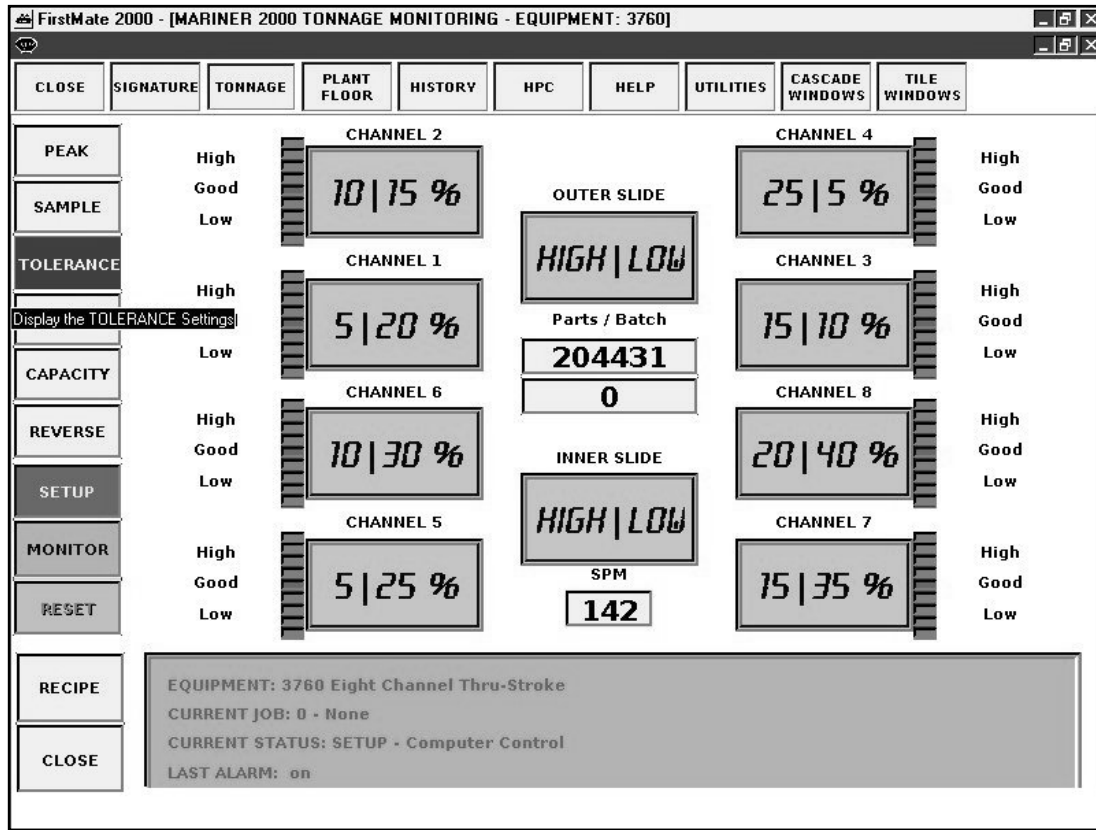
This picture shows the **Tolerance Alarm** settings. The values are **HIGH | LOW** for each corner and represent **Percent (%)** in this example. Parts Count and Batch Count are displayed in the center of this window. Strokes per Minute is shown at the bottom. The green panel displays current Status information: Equipment Name and Model, Current Job Name and Number, Current Status of the instrument, Last Alarm condition , and Last Downtime.

PARTS AND BATCH COUNTERS
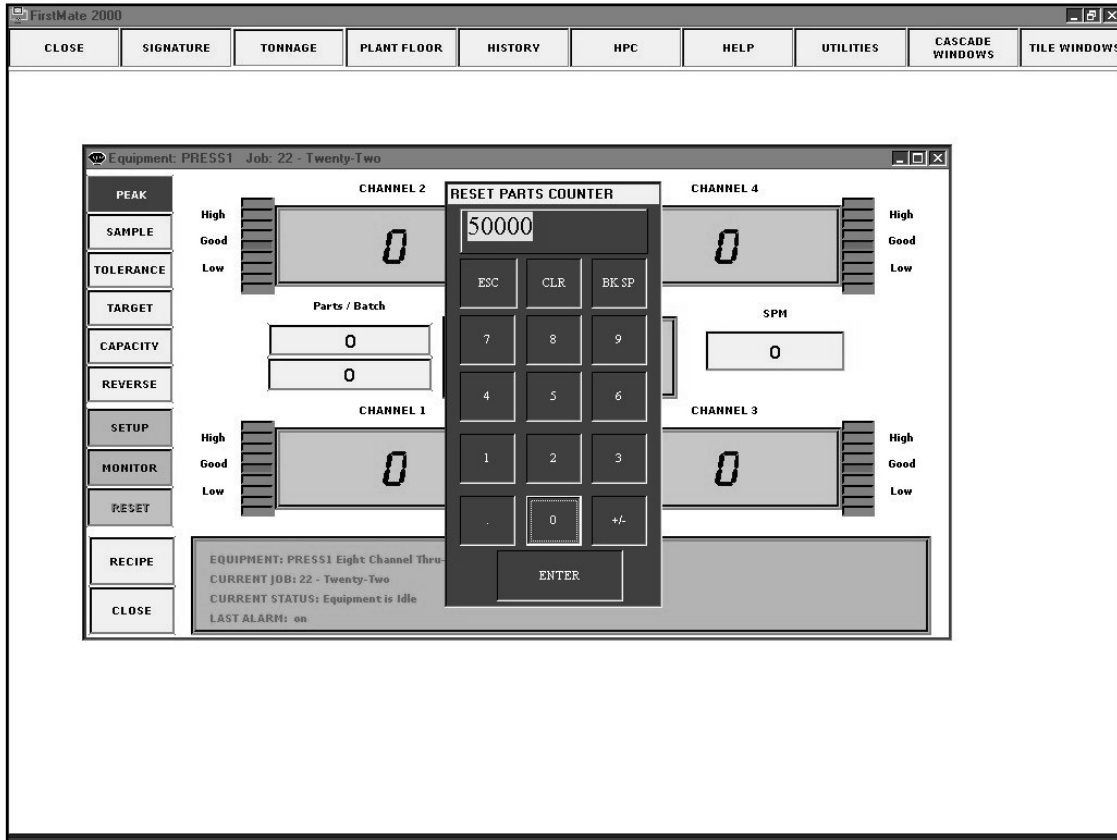
The Parts and Batch Counters can be set from the Tonnage Display. Click on the counter display to open the numeric keypad. Enter the values on the keypad and then press ENTER to confirm the download. ESC closes the keypad without saving an entry. Use CLR to clear the display and BKSP to backspace and remove the character left of the cursor.

This keypad is used for editting throughout FirstMate 2000.

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CHANGING INSTRUMENT MODES
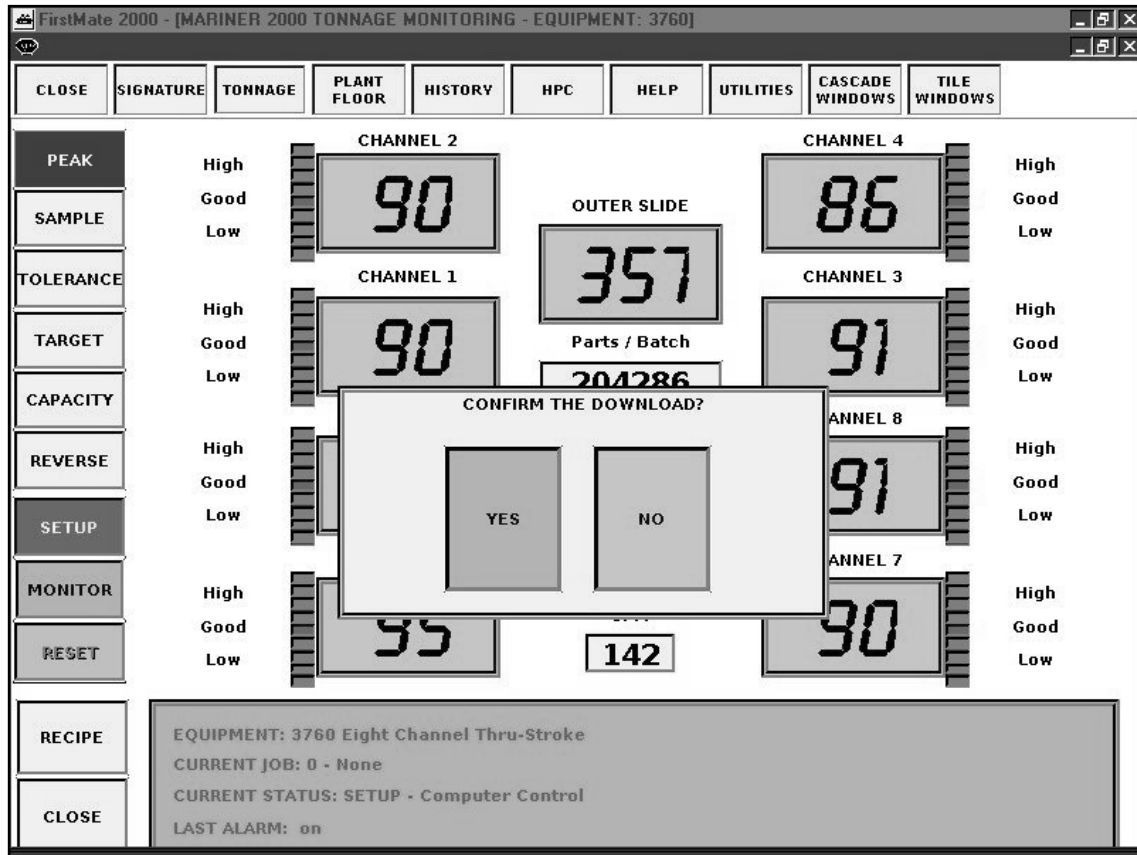
FirstMate 2000 displays the current instrument mode using active buttons on the left side of the window. For instruments that have the capability to accept downloaded mode changes you may send these changes by clicking on the SETUP or MONITOR button This opens the CONFIRM PANEL and clicking on the YES button sends the download to the instrument. When the instrument is re-polled the mode change will be displayed. Only instruments with proper features will respond to this download.

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PLANT FLOOR DISPLAY
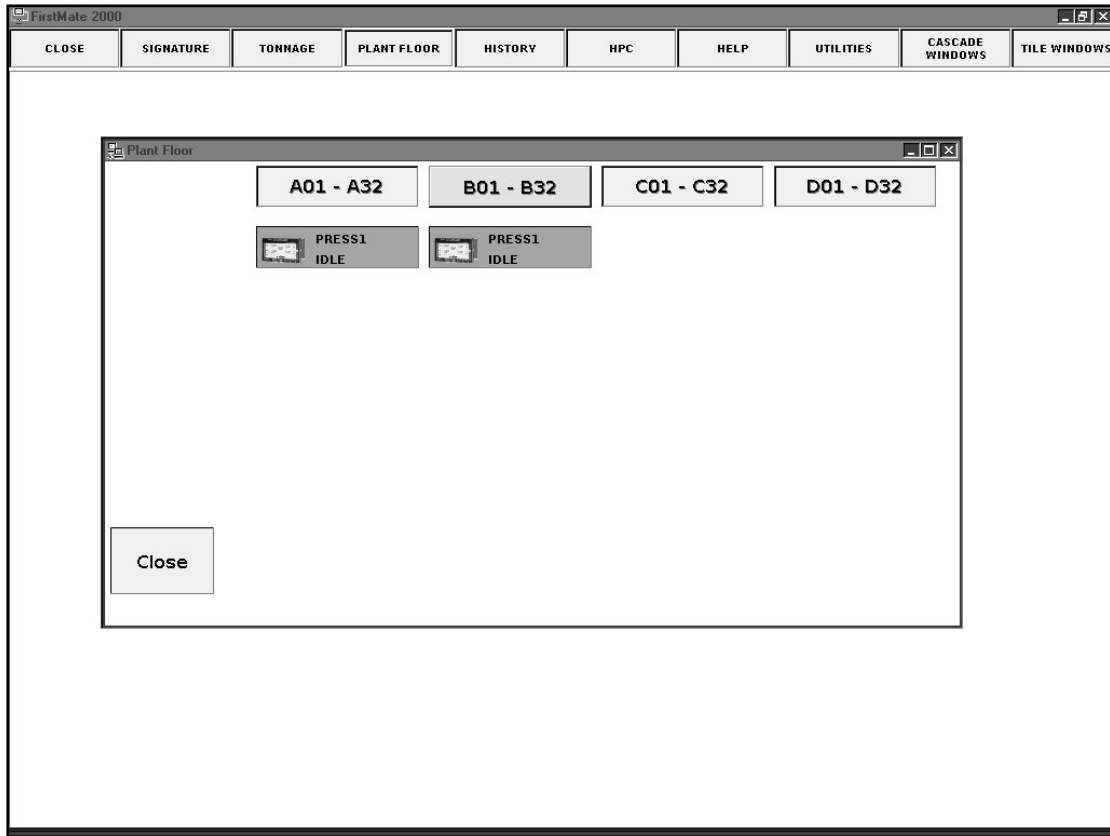
Plant Floor provides a view of all the instruments on the FirstMate network and allows you to quickly assess the status and current operation of each. It also provides a path to the Signature and Tonnage screens for any instrument you choose. Each instrument is displayed in the window.

Click on a desired instrument to open the Menu Bar.

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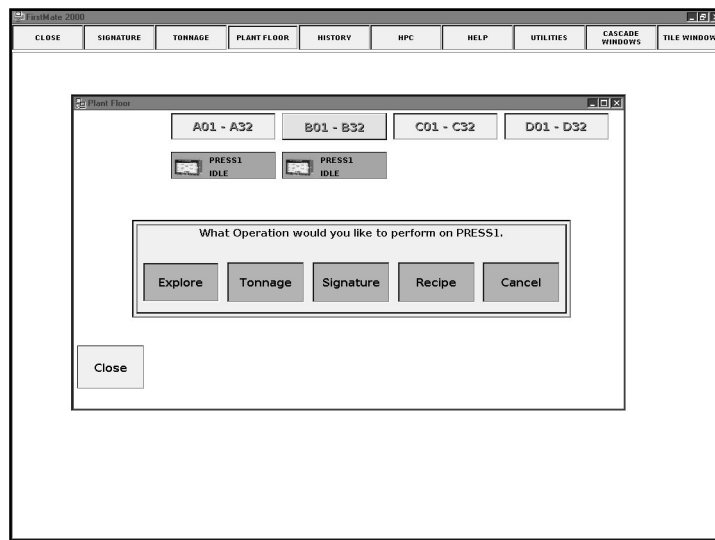
PLANT FLOOR MENU OPTIONS

EXPLORE display current information for the selected instrument. Click CLOSE to return to the Plant Floor display or BACK to return to the menu bar. TONNAGE opens the Tonnage Display window - SIGNATURE opens the Signature Display window. RECIPE opens the Job Recipe display for this instrument.

EDITING THE CURRENT JOB RECIPE

This is the Job Recipe display. It can be opened from the Menu Bar in Plant Floor of from the Tonnage display. This is where you enter information to download to an instrument. This is also the place where you set up the Job Recipe Database containing your Job files. The display shows the current settings for the instrument.

SLIDE
Toggles Outer/Inner or Slide1/Slide2 for eight channel instruments. You edit one slide at a time.

DOWNLOAD
Sends the current settings to the server program to be written to the instrument.

RECIPE
Switched the display from current settings to stored recipe settings. Use this display to create and archive job recipe information.

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PRINT

Writes the recipe database to the default printer.

REFRESH

Reloads the display. When editing is not in effect the display will refresh periodically. After editing starts the display is not refreshed until you either download or click the refresh button.

CLOSE

Hides this window.

EDITING STORED RECIPES
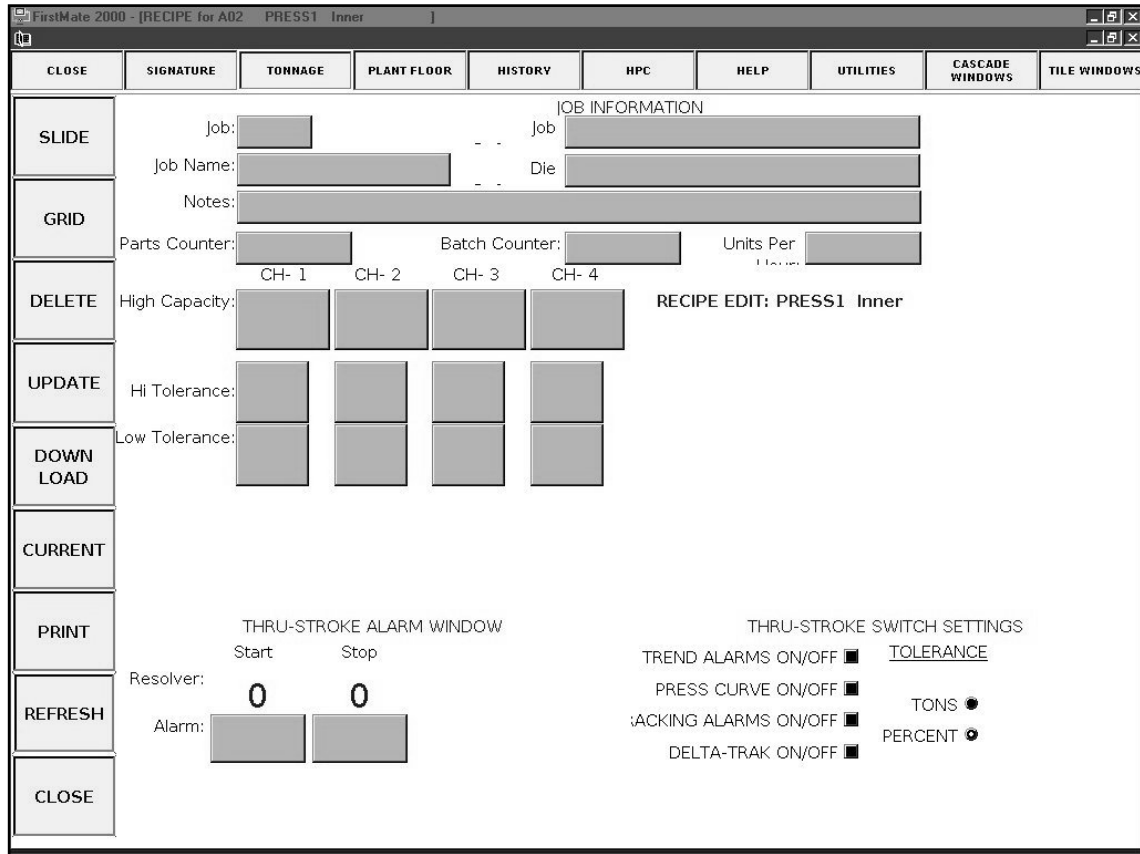
Switching to Recipe editing opens this empty display and allows you to set up multiple job recipes and save them in a database file. Editing is the same as for current job.

GRID
> Shows all recipes in a spreadsheet display. Clicking on one recipe line opens that item in the display editor.

DELETE
> Deletes the current recipe from the database.

UPDATE
> Commits the current edits to the database file.

CURRENT
> Switches back to the current instrument settings.

RECIPE EDIT
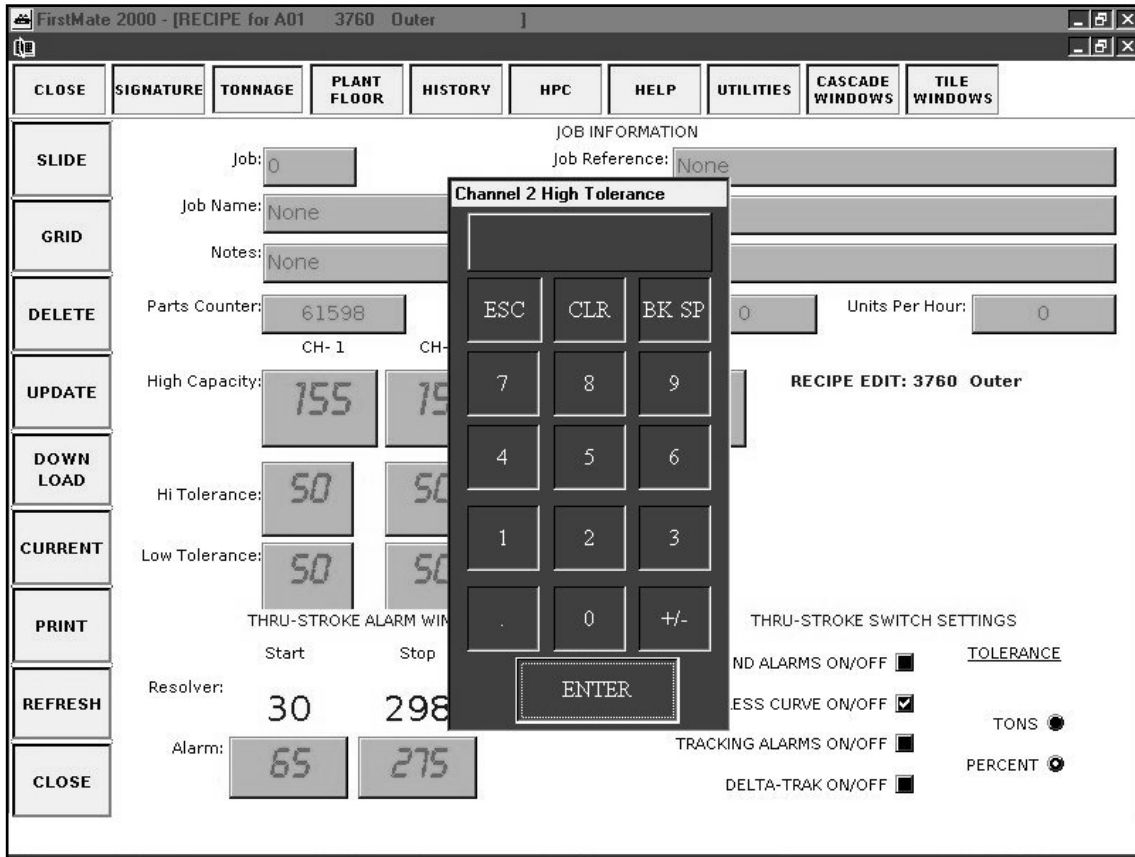
Clicking on any field opens a keypad and allows you to change the values for this instrument. Text fields have a full keypad and numeric ones are limited to digits. The switch settings can be changed directly. Once you have edited these values you can launch the download with the DOWNLOAD button.

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RECIPE GRID DISPLAY
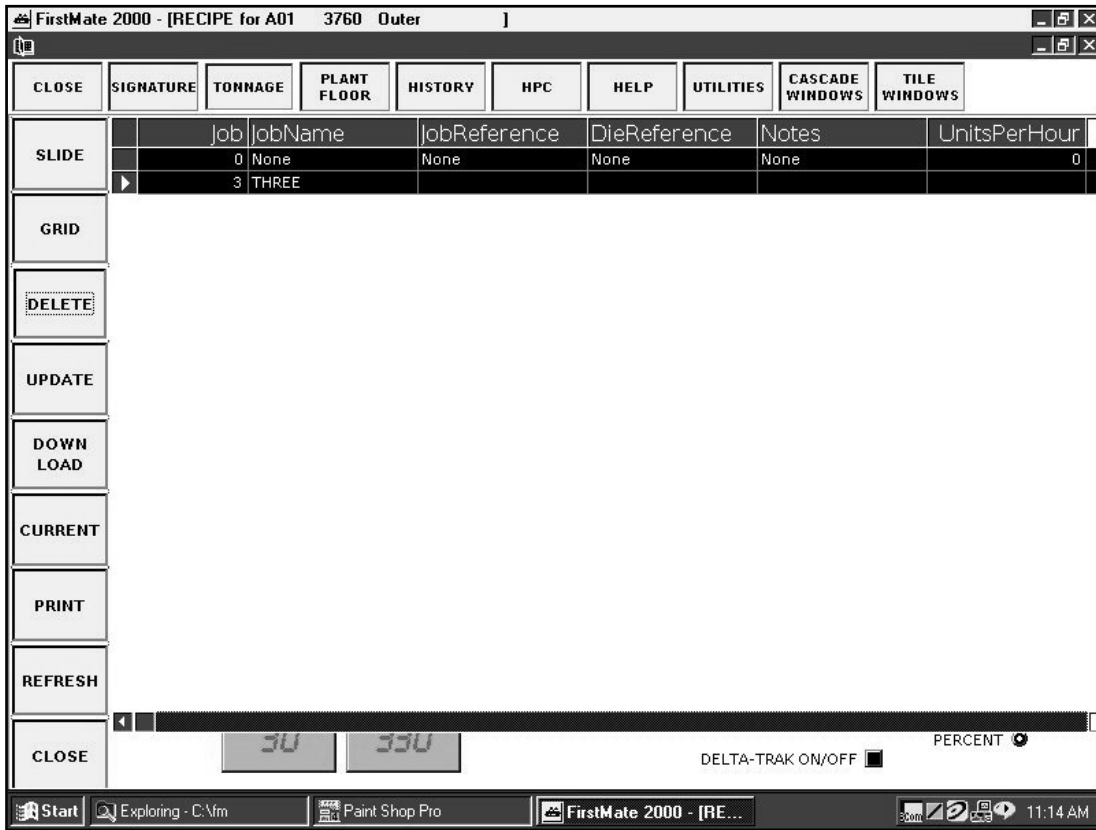
This is the stored recipe grid display showing all stored recipes in a spreadsheet display. Clicking on a recipe line opens the recipe editor and allows you to modify the selected job. Use the GRID button to toggle this feature ON/OFF.
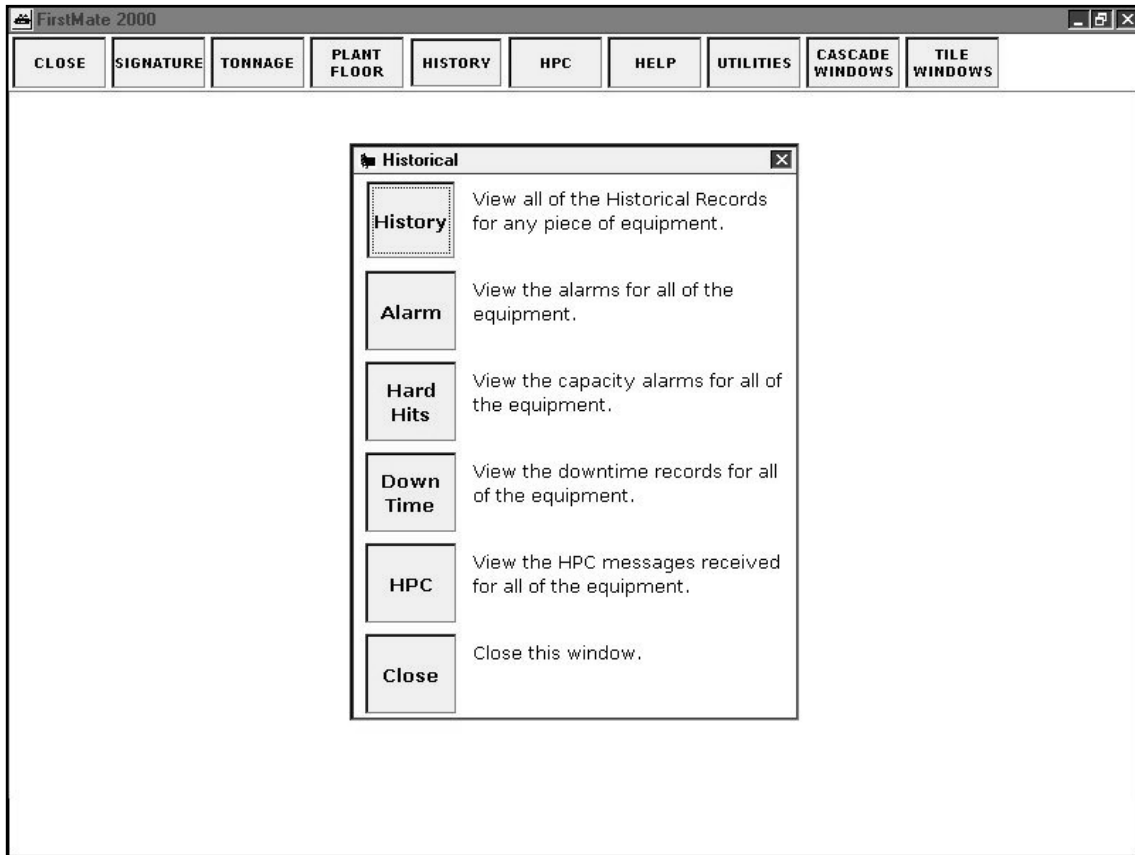
HISTORY MENU PANEL

The HISTORY button opens the History Menu Panel. This menu allows you to access the history reporting features of FirstMate 2000. Click on the desired report button or CLOSE to hide this panel.

HISTORY opens the Equipment Selection panel from which you can select the instrument and display its history.

ALARM
Opens the Alarm History Display

HARD HITS
Opens the Hard Hits History Display

DOWNTIME
Opens the Downtime History Display

HPC
Opens the Helm Process Control Display

Instrument History

This is the History Database Display for the selected instrument. All history records are shown in the grid at the bottom of the window and the current or selected record is shown in the display's fields. Control buttons are available along the bottom of the display. This history is a snapshot of the database when the window is opened. It does not update unless you refresh the display.

FIRST, PREVIOUS, NEXT, LAST
Move the record pointers around the snapshot of the history records.

FIND
Opens the record seeking panel and allows you to locate a record using key words.

GRID
Toggles the grid display between condensed and full screen.

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PRINT
    Prints a list of the history records in the database.

REFRESH
    Reloads the snapshot from the database

DELETE
    Removes the selected history record from the database.

CLOSE
    Ends this history session.

Instrument History Grid Display

Job	JobName	JobReference	DieReference	Notes	solverStart	solverStop	Window1Sta
0	None	None	None	None	30	298	6
0	None	None	None	None	30	298	6
0	None	None	None	None	30	298	6
0	None	None	None	None	30	298	6
0	None	None	None	None	30	298	6
0	None	None	None	None	30	298	6
0	None	None	None	None	30	298	6
0	None	None	None	None	30	298	6
0	None	None	None	None	30	298	6
0	None	None	None	None	30	298	6
0	None	None	None	None	30	298	6
0	None	None	None	None	30	298	6
0	None	None	None	None	30	298	6
0	None	None	None	None	30	298	6
0	None	None	None	None	30	298	6
0	None	None	None	None	30	298	6
0	None	None	None	None	30	298	6
0	None	None	None	None	30	298	6
0	None	None	None	None	30	298	6
0	None	None	None	None	30	298	6
0	None	None	None	None	30	298	6
0	None	None	None	None	30	298	6
0	None	None	None	None	30	298	6

The GRID button at the bottom of the display toggles this grid to full screen giving you better access to the history records. Use the sliders at the right and bottom to access the data.

SCM-4800
AUTOGRAPH

ATG-4800
AUTOGRAPH

CS-4800
CLIPPER

TLG-8000
LOADGARD
OUTER SLIDE

TLG-8000
LOADGARD
INNER SLIDE

TLG-2300
LOADGARD

TLG-4500
LOADGARD

NETWORK
COMPUTER

Ethernet

NETWORK
COMPUTER

Ethernet

SERVER

Hub

Ethernet

NETWORK
COMPUTER

Ethernet

Modem

RS-422
DAISY-CHAINED
COMMUNICATIONS
CABLE

Phone
System

Modem

REMOTE
COMPUTER

```
TLG-4500
SEQ#4

TLG 4500
SEQ#3

TLG 4500
SEQ#2

TLG 4500
SEQ#1
```
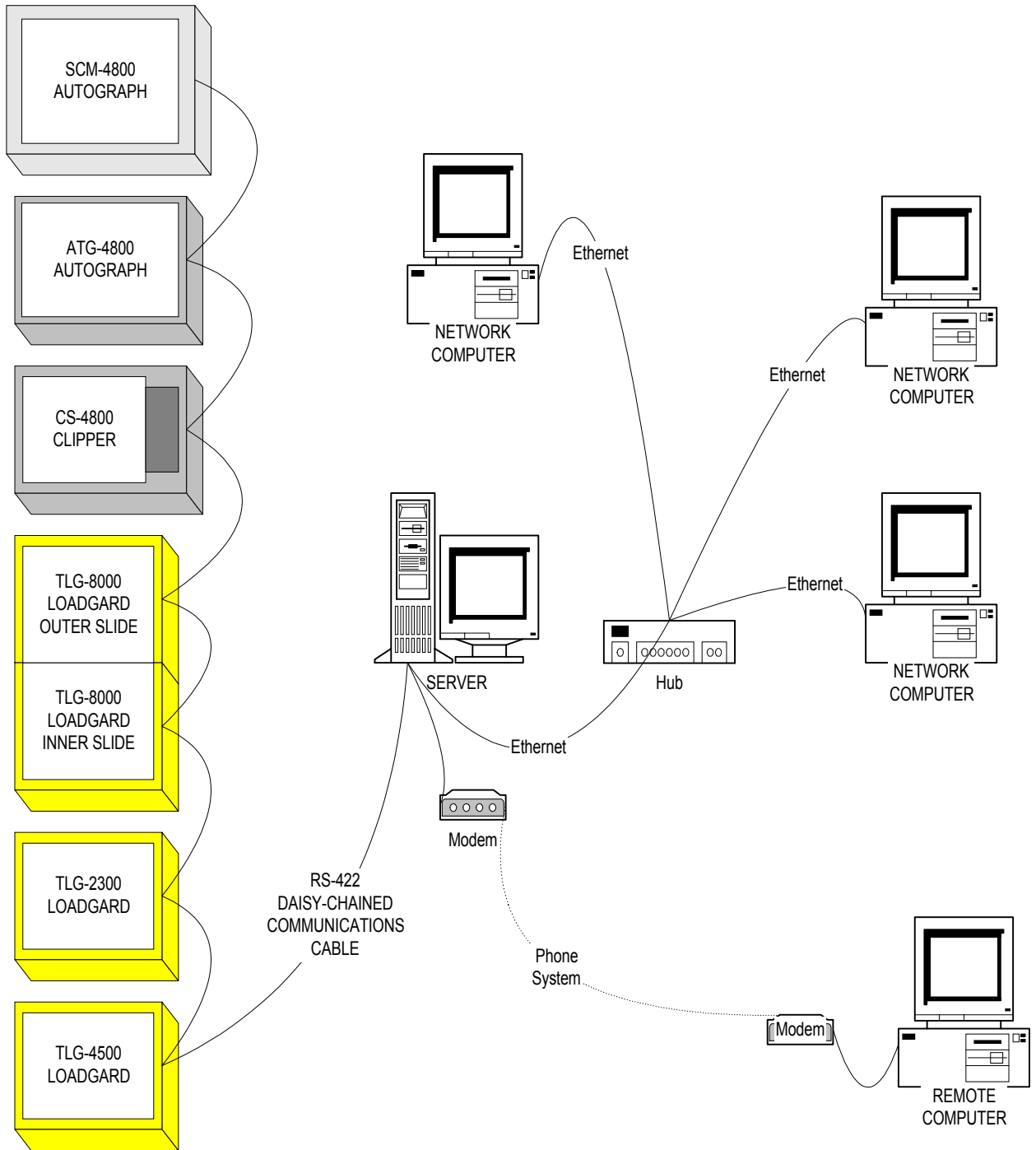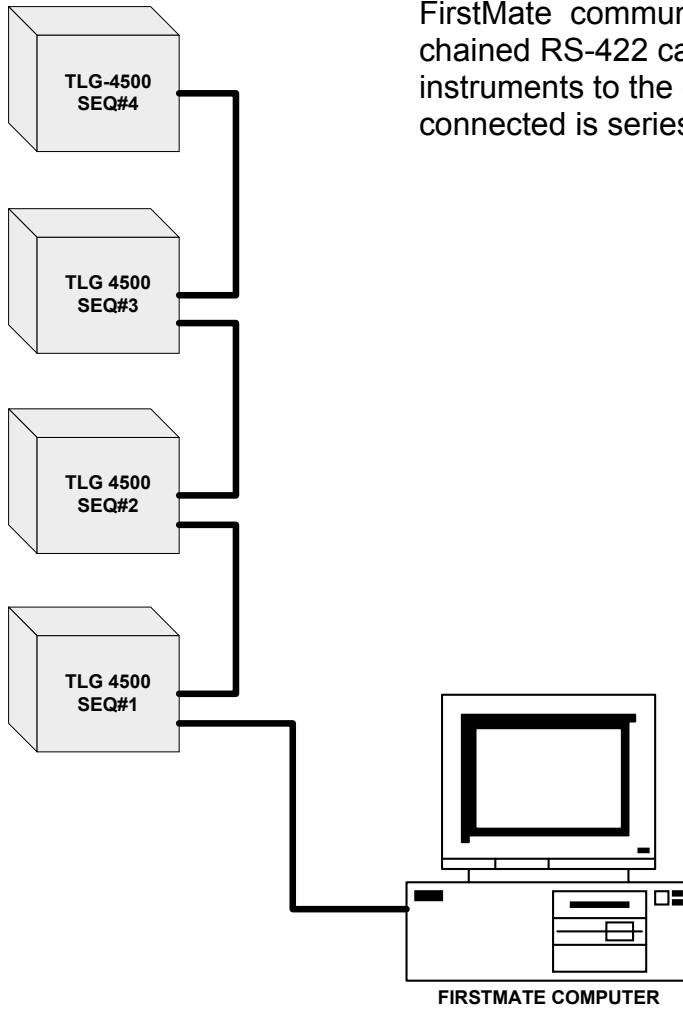
FirstMate communications uses a daisy-chained RS-422 cable to connect the instruments to the computer. The cable is connected is series with no breaks or tees.

FIRSTMATE COMPUTER

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File Structure Information

This guide will discuss the FirstMate 2000 file structure, directory by directory. It will show the files and what they contain in each directory. At the end of this guide there is a section that discusses the layout of the Spreadsheet Friendly CSV files that FirstMate 2000 can generate and how to graph them in Microsoft Excel.

FirstMate 2000 Installation Folder
(Default is C:\FM)

The FirstMate 2000 folder contains all of the program files and support files for FirstMate to operate correctly. Inside of the directory, you will see at least these files:

FirstMate.MDB
The Firstmate.mdb is a Microsoft Access database that contains entries for the instruments FirstMate should use to poll information from, the current status of the instruments, the history of each instrument, any alarms that occurred on any of the instruments, and any predefined recipes that will be used to download to an instrument. This database can be used to export status information to an outside source by examining the contents of the database.

FirstMate2000.EXE
FirstMate2000.exe is the main executable for FirstMate 2000.

ResolverSetup.EXE
ResolverSetup.exe allows you to modify the resolver settings of any instrument registered with FirstMate 2000.

TLGServer.EXE
TLGServer.exe is the program that provides the communications between the instruments installed and FirstMate 2000. There should only be one copy of the Data Acquisition software running at one time.

TLGServer.INF

TLGServer.inf is a text file that contains all of the program settings that will customize how FirstMate 2000 and the Data Acquisition function. Such settings are Exporting current signatures, storing Date and Time stamped signature files, and file mapping to FirstMate 2000 files in the case of a multiple computer setup.

WaveConverter.EXE

WaveConverter file is a conversion program provided by Helm to allow 16-bit FirstMate signatures to be converted for use in FirstMate 2000.

Instrument Related Files

Inside the FirstMate 2000 folder will be subfolders named Axx, Bxx, Cxx, Dxx (where xx is 01 - 31.) The A, B, C, D notation is a reference to which communications port the instrument exists on. These folders contain all of the files generated by the Data Acquisition program. All of these files are signature related, and any status-related information will be found in the database.

Inside the A01 Folder
(Example C:\FM\A01)

We will use the folder A01 as an example for the rest of this guide.

The files in this folder will depend on what features are enabled in the TLGServer.inf file.

The files possible are listed below.

A01.WAV
A01.wav file contains the most recently read Signature from that instrument.

A01.CRV
A01.crv file contains the most recently read Press Curve Signature from that instrument.

A01.TND
A01.tnd file contains the last xxxx Signatures read from that instrument (where xxxx is a number 1 - 9999 specified in the database)

A01.ALM
A01.alm file contains the last yyyy Alarm Signatures read from that instrument (where yyyy is a number 1 - 9999 specified in the database and may be different then xxxx)

A01.CSV

A01.csv file contains the most recently read Signature from that instrument in a format that is spreadsheet friendly. This file can be used in any spreadsheet that supports comma-separated values and will contain all of the information to display four channels of signature. This file will only be generated/updated if the "EXPORT" setting in the TLGServer.inf file is set to "ON".

A01PC.CSV

A01PC.csv file contains the most recently read Press Curve Signature in a spreadsheet friendly format. As with the A01.csv file, the four channels of the press curve will be stored, and will only be generated if the "EXPORT" setting is turned "ON".

Date and Time Stamped Files
(example C:\FM\A01\Date And Time Signatures)

Inside of our example folder A01, there can also be a subfolder called "Date And Time Signatures." This folder will contain date and time stamped signature files, if their corresponding options have been turned on.

The two types of Date And Time Stamped files are:

✓ FirstMate 2000 Format Signature Files (example June 05, 2000 16-47-01.wav)

✓ Spreadsheet Friendly CSV Files (example June 05, 2000 16-47-02.csv)

TLGServer Settings

To enable the FirstMate 2000 Format files the "DateTimeSignatures" setting in TLGServer.inf must be set to "ON".

To enable the Spreadsheet Friendly CSV files the "DateTimeComma" setting and the "EXPORT" setting must be set to "ON".

If the DateTimeComma is set to ON and the EXPORT is set to OFF, the EXPORT setting will override the DateTimeComma setting.

You may enable either one or both of them.

Spreadsheet Friendly CSV File Layout
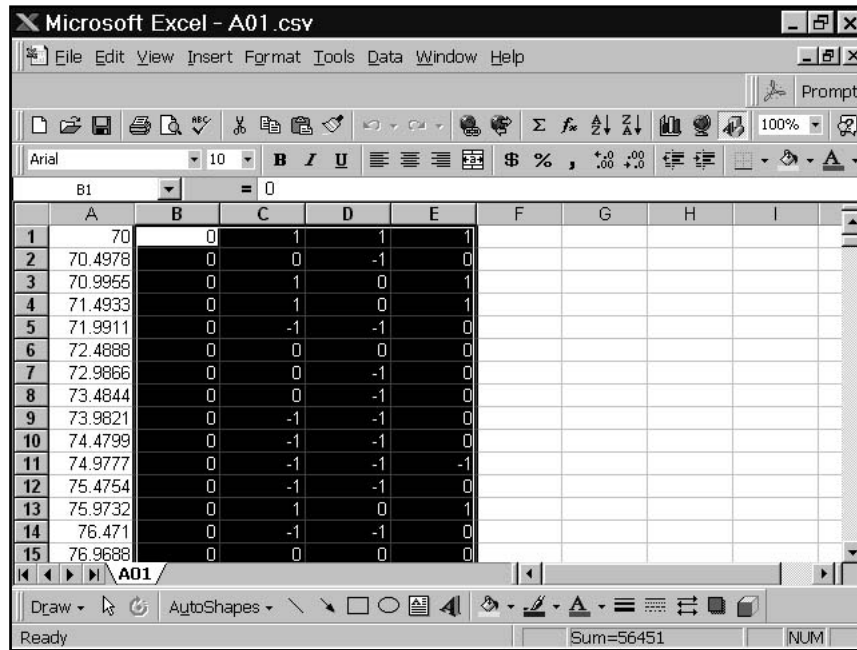
How to take the CSV file and create the signature graph from it.

Open your spreadsheet application *(in this example it will be Microsoft Excel)* and load the CSV file. You may have to select "Text Files" from the Files of Type drop down box on the Open File Window.

Once the file is loaded, Excel should look like the sample shown.

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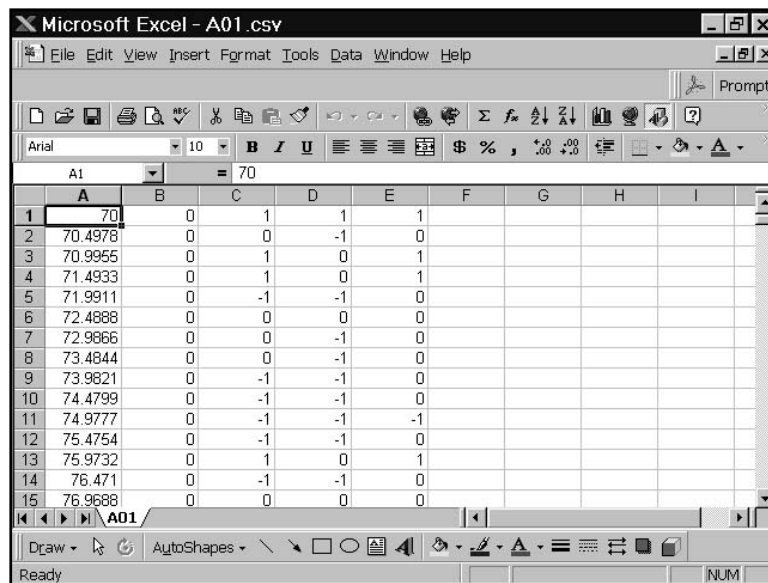
FirstMate 2000 User Instructions

The file should have numbers in the first five columns. Column A is the Resolver Angle if it is a TSM Instrument; otherwise, it will display the window time in milliseconds. Column B is the Tonnage Values at the corresponding point in Column A. Therefore, the first value of Column B states that there was no tonnage at 70 degrees. Column C, D, and E are Channels 2, 3, and 4 respectively. There will be 448 points sampled for each channel of the signature.

To graph this, start by selecting the 448 rows of Column A, B, C, and D as shown.
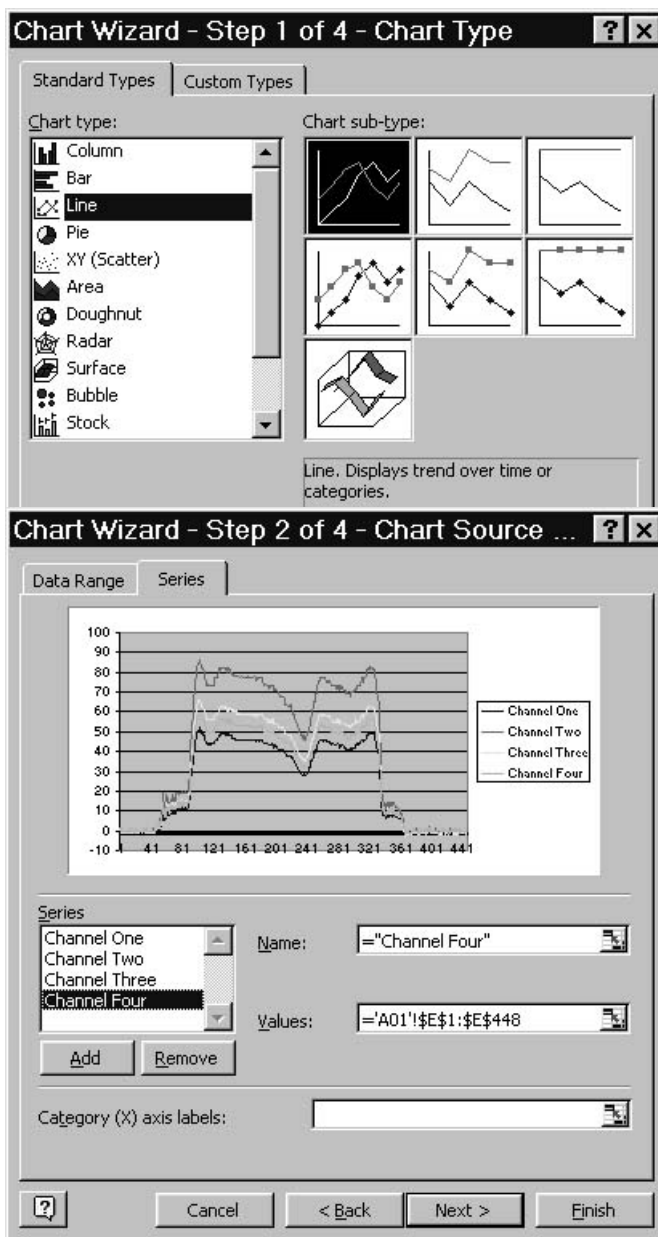
Once the columns have been selected, click on the Chart Wizard button in the toolbar. (The button that looks like a Bar Graph.) It will then bring up the Chart Wizard Dialog Box. Select Line from the Chart Type list, and then select the top-left most line graph type. Click Next to continue.

Click on the Series Tab at the top. This will allow you to name the different columns with names that have meaning to you. To do this select the first series and type in the name you would like to give to Channel One. Repeat the process for all of the channels that you selected.

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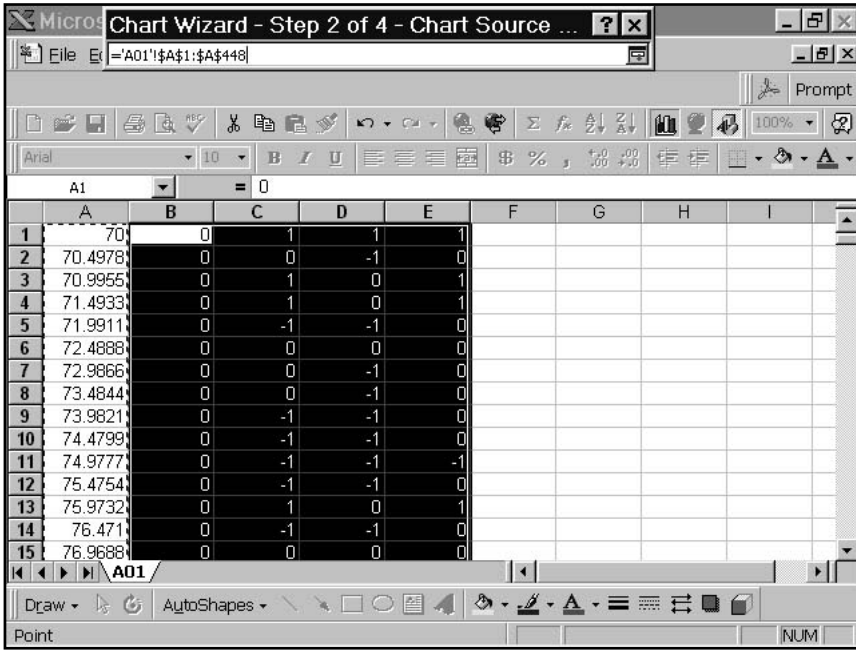
If you would like to add in the resolver angles / window time to the graph, at the bottom there is an entry called "Category (X) axis labels." The edit box to the right has a button associated with it. By clicking the button, it will allow you to select fields from the CSV file to use as an x-axis.

Once you click the button to select the x-axis labels, the dialog will disappear and the screen will look like this.
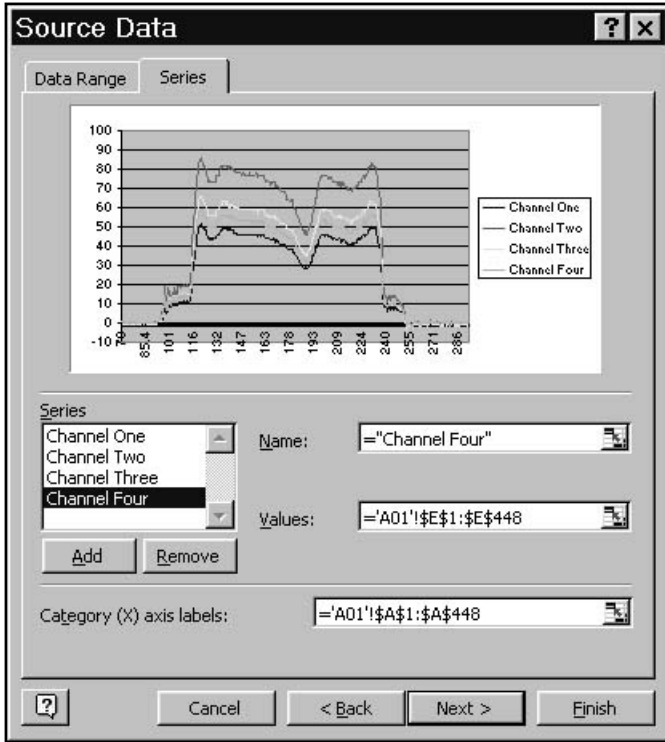
Then, select the contents of Column A. Once you have selected the values, click on the button below the X button in the floating window. You will now have an entry in the "Category (X) axis Labels" field, as shown below.

Then, click on Next to continue to the next step.

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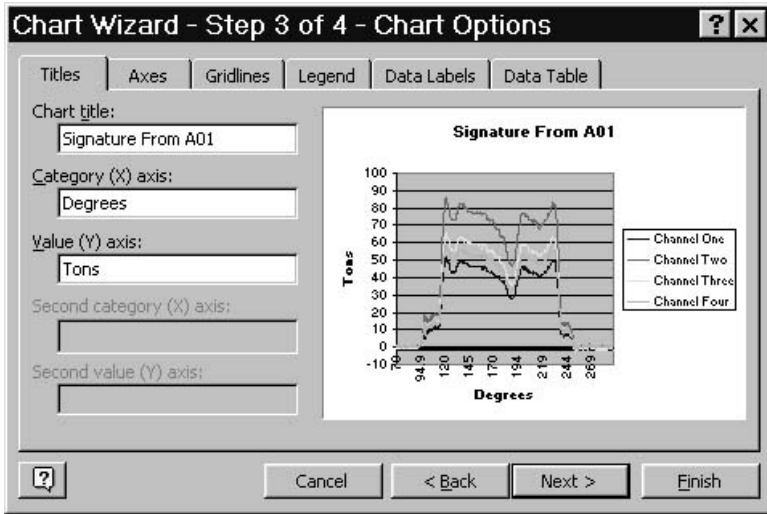
The next dialog allows you to customize how the graph looks and allows you to add additional things to your graph. We will just add a Graph Title and Axis Labels to our graph. Click on the Titles Tab at the top if it is not already selected. Here you can enter the labels for your graph. For this example the Chart Title is "Signature from A01", and the X and Y labels are Degrees and Tons respectively. You can customize the graph more if you like, but when you are done click Next to continue.
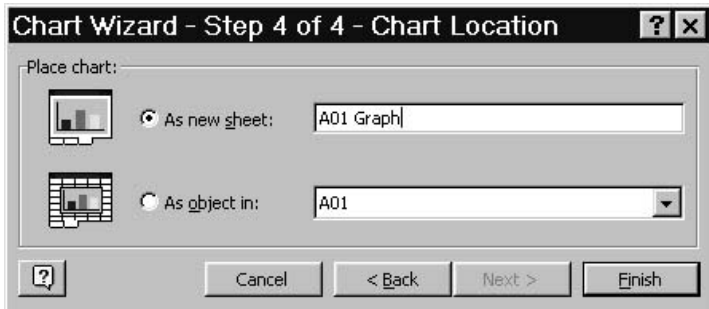
Now it will ask you how you would like to display your graph. The two choices are as a new sheet in your spreadsheet or as an object on a pre-existing sheet. Select as a new sheet for better printing, name the new sheet, and then click Finish.

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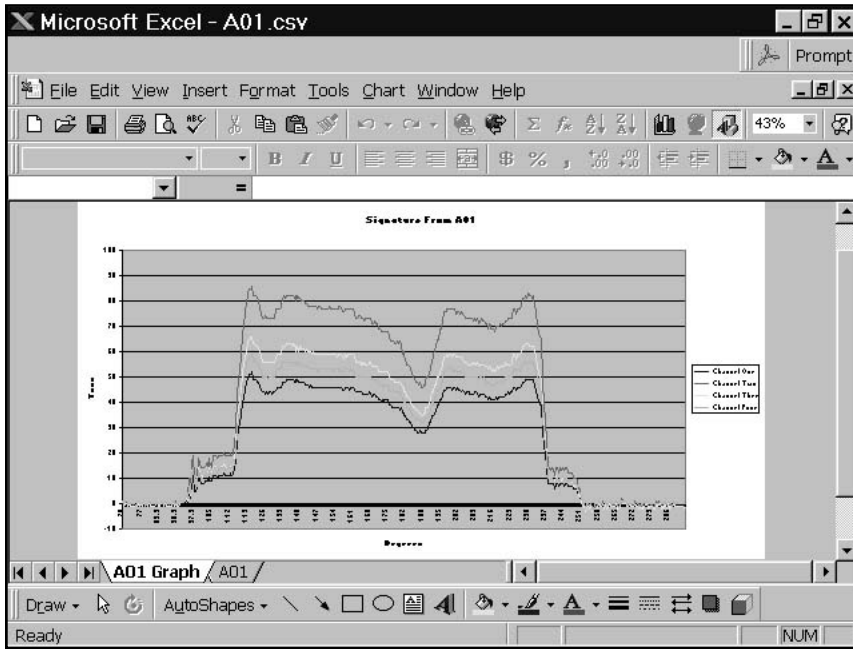
When you close this document, Excel will state that it can not save your changes as a CSV file and it will ask if you would like to save it as an Excel XLS spreadsheet. If you would like to save the graph as well as the data click yes and the file will be saved as an Excel spreadsheet.

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FIRSTMATE.MDB
TABLE: A01

NAME	TYPE	SIZE	DESCRIPTION
Job	Number (Long)	4	Current Job Number either set by the instrument, an outside process or by FirstMate 2000
JobName	Text	20	Current Job Name
JobReference	Text	40	Additional space for Job documentation
DieReference	Text	40	Additional space for Job documentation
Notes	Text	80	Additional space for Job documentation
ResolverStart	Number (Long)	4	Resolver Look Window Start Angle– 30 Degrees Minimum
ResolverStop	Number (Long)	4	Resolver Look Window Stop Angle - 330 Degrees Maximum
AlarmWindow1Start	Number (Long)	4	Alarm Window Start Angle – Look Window is Minimum
AlarmWindow1Stop	Number (Long)	4	Alarm Window Stop Angle – Look Window is Maximum
AlarmWindow2Start	Number (Long)	4	Alarm Window Start Angle – Look Window is Minimum (SLC Only)
AlarmWindow2Stop	Number (Long)	4	Alarm Window Stop Angle – Look Window is Maximum (SLC Only)
Status	Text	50	Current Instrument Status
RecordDate	Date/Time	8	Date/Time stamp for this record
AlarmDescription	Text	50	Description of an Alarm Condition if one occurred since the last record
UpdateCounter	Number (Long)	4	Instrument-in-motion Counter
LastUpdateCounter	Number (Long)	4	Previous counter used for comparison
Downtime	Number (Long)	4	Number of minutes of recorded down-time if an event occurred since the last record
DowntimeCode	Number (Long)	4	Numeric Downtime identification code

FirstMate 2000 User Instructions

NAME	TYPE	SIZE	DESCRIPTION
DowntimeDescription	Text	40	Description of the Downtime event
Operator	Text	20	Operator Code received from an instrument with HPC functionality
Shift	Text	1	Current Shift
Meterscale	Number (Long)	4	Instrument scaling number for some types of equipment
Capacity-High	Text	40	Maximum Capacity number set on the instrument 1-8 channels
Capacity-Low	Text	40	Minimum Capacity number set on the instrument 1-8 channels (SLC only)
PeakLoad	Text	40	Current Peak Load Values – the highest tonnage recorded on this record 1-8 channels
ToleranceHigh	Text	40	Maximum Tolerance or Tracking Alarm number set on the instrument 1-8 channels
ToleranceLow	Text	40	Minimum Tolerance or Tracking Alarm number set on the instrument 1-8 channels
PartsCount	Number (Long)	4	Last Parts Count Value
Batch Count	Number (Long)	4	Last Batch Counter Setting
StrokesPerMinute	Number (Long)	4	Last Strokes per Minute value
SampleLoad	Text	40	Current Sample Load Values – zero in SETUP, instrument values in MONITOR 1-8 channels
ReverseLoad	Text	40	Current Reverse Load Values – tonnage below zero or zero – 1-8 channels
TargetLoad	Text	40	Current Target Load Values set on the instrument – 1-8 channels (not valid on all equipment)
LEDs	Text	40	1-8 numbers matching the # of channels that mirror the Trend Lights on Trend Series instruments

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FIRSTMATE.MDB
TABLE: A01RECIPE

NAME	TYPE	SIZE	DESCRIPTION
Job	Number (Long)	4	Arbitrary job number ranging 0-999 for display purposes 0-99 for JDC compatibility
JobName	Text	20	User defined job name
JobReference	Text	40	Extra field for user defined information
DieReference	Text	40	Extra field for user defined information
Notes	Text	80	Extra job identification field for user defined information
UnitsPerHour	Number (Long)	4	Units per hour used for Production Efficiency reporting
AlarmWindow1Start	Number (Long)	4	Resolver angle where alarming starts – must be >=Resolver Start
AlarmWindow1Stop	Number (Long)	4	Resolver angle where alarming starts – must be <=Resolver Stop Angle
AlarmWindow2Start	Number (Long)	4	Start of 2nd alarm window for SLC's
AlarmWindow2Stop	Number (Long)	4	End of 2nd alarm window for SLC's
RecordDate	Date\Time	8	Date of job modification
Capacity/High	Text	40	Maximum Capacity number set on the instrument 1-8 channels
CapacityLow	Text	40	Minimum Capacity number set on the instrument 1-8 channels (SLC Only)
PeakLoad	Text	40	Not used!
ToleranceHigh	Text	40	Maximum Tolerance or Tracking Alarm number set on the instrument 1-8 channels
ToleranceLow	Text	40	Minimum Tolerance or Tracking Alarm number set on the instrument 1-8 channels
PartsCountPreset	Number (Long)	4	Preset for the parts counter when job is loaded

FIRSTMATE.MDB
TABLE: A01RECIPE (continued)

NAME	TYPE	SIZE	DESCRIPTION
BatchCountPreset	Number (Long)	4	Preset for the batch counter when job is loaded
TargetLoad	Text	40	Good part target values
TrendONOFF	Number (Long)	4	Toggles trend alarming
PressCurveONOFF	Number (Long)	4	Toggles press curve alarming
TrackingONOFF	Number (Long)	4	Toggles tracking alarms on/off
DeltaTrakONOFF	Number (Long)	4	Toggles DeltaTrak feature on/off
ToleranceTONPERCENT	Number (Long)	4	Toggles tolerance values as Tons or Percent

FIRSTMATE.MDB
TABLE: CAPACITYALARM

NAME	TYPE	SIZE	DESCRIPTION
Seq	Text	3	FirstMate ID Code
Name	Text	50	Equipment Name
Slide	Text	50	Equipment slide name if applicable
Model	Number (Long)	4	Equipment Model ID code
ModelDescription	Text	255	Referenced model description
Job	Number (Long)	4	Job Number during the alarm event
Job Name	Text	20	Job Name during alarm event
JobReference	Text	40	Extra job information for this job
DieReference	Text	40	Extra job information for this job
Note	Text	80	Extra job information for this job
ResolverStart	Number (Integer)	2	Resolver starting angle during alarm event
ResolverStop	Number (Integer)	2	Resolver ending angle during alarm event
AlarmWindow1Start	Number (Integer)	2	Alarm window starting angle during alarm event
AlarmWindow1Stop	Number (Integer)	2	Alarm window ending angle during alarm event
AlarmWindow2Start	Number (Integer)	2	ditto for SLC
AlarmWindow2Stop	Number (Long)	4	ditto for SLC
Status	Number (Long)	4	Status code from the instrument during the alarm event
StatusDescription	Text	50	Status description from the instrument during the alarm event
RecordDate	Date/Time	8	Date and time of the alarm event
AlarmDescription	Text	50	Description of the alarm condition
UpdateCounter	Number (Long)	4	Update counter at the time of the alarm
LastUpdateCounter	Number (Long)	4	Previous update counter

FIRSTMATE.MDB
TABLE: CAPACITYALARM (continued)

NAME	TYPE	SIZE	DESCRIPTION
Downtime	Number (Long)	4	Downtime (if any) for the alarm event
DowntimeCode	Number (Integer)	2	Downtime code if applicable
DowntimeDescription	Text	40	Downtime Description code if applicable
Operator	Text	20	Operator at the time the alarm occurred (HPC enabled instruments)
Shift	Text	1	Shift code at the time of the alarm
Meterscale	Number (Integer)	2	Instrument scaling code
CapacityHigh	Text	40	Maximum Capacity number set on the instrument 1-8 channels
CapacityLow	Text	40	Minimum Capacity number set on the instrument 1-8 channels (SLC Only)
PeakLoad	Text	40	Current Peak Load Values – the highest tonnage recorded during the alarm event
ToleranceHigh	Text	40	Maximum Tolerance or Tracking Alarm number set on the instrument 1-8 channels
ToleranceLow	Text	40	Minimum Tolerance or Tracking Alarm number set on the instrument 1-8 channels
PartsCount	Number (Long)	4	Last Parts Count Value
BatchCount	Number (Long)	4	Last Batch Counter value at the time of the alarm
StrokesPerMinute	Number (Integer)	2	Strokes per Minute value at the time of the alarm
SampleLoad	Text	40	Sample Load value if the instrument is in MONITOR mode during the alarm
ReverseLoad	Text	40	Reverse load values during the alarm
TargetLoad	Text	40	Target Load if applicable
LEDs	Text	40	1-8 numbers matching the # of channels that mirror the Trend Lights on Trend Series instruments

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FirstMate 2000 User Instructions

FIRSTMATE.MDB
TABLE: CONFIG

NAME	TYPE	SIZE	DESCRIPTION
Password1	Text	50	Second default Password #1 controlling basic access
Password2	Text	50	Second default Password #2 download capabilities
Password3	Text	50	Second default Password #3 system setup
COM A	Number (Long)	4	Line A communications port number
COM B	Number (Long)	4	Line B communications port number
COM C	Number (Long)	4	Line C communications port number
COM D	Number (Long)	4	Line D communications port number

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FirstMate 2000 User Instructions

FIRSTMATE.MDB
TABLE: CURRENT

NAME	TYPE	SIZE	DESCRIPTION
Seq	Text	50	FirstMate ID Code
Name	Text	50	Instrument Name
Slide	Text	50	Slide Name if applicable
Model	Number (Long)	4	Instrument model code
ModelDescription	Text	50	Instrument description based on model code
Job	Number (Long)	4	Current Job Number either set by the instrument, an outside process or by FirstMate 2000
JobName	Text	20	Current Job Name
JobReference	Text	40	Current additional job information
DieReference	Text	40	Current additional job information
Notes	Text	80	Current additional job information
ResolverStart	Number (Integer)	2	Resolver Look Window Start Angle
ResolverStop	Number (Integer)	2	Resolver Look Window Stop Angle
AlarmWindow1Start	Number (Integer)	2	Alarm Window Start Angle
AlarmWindow1Stop	Number (Integer)	2	Alarm Window End Angle
AlarmWindow2Start	Number (Integer)	2	Alarm Window Start Angle SLC only
AlarmWindow2Stop	Number (Long)	4	Alarm Window End Angle SLC only
Status	Number (Long)	4	Current instrument status code
StatusDescription	Text	50	Current status description from status code
Record/Date	Date/Time	8	Date and time of the current record
AlarmDescription	Text	50	Alarm description if one has occurred
UpdateCounter	Number (Long)	4	Current update counter
LastUpdateCounter	Number (Long)	4	Last update counter
Downtime	Number (Long)	4	Downtime minutes if one occurred

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FirstMate 2000 User Instructions

NAME	TYPE	SIZE	DESCRIPTION
DowntimeCode	Number (Integer)	2	Downtime code if one occurred
DowntimeDescription	Text	40	Downtime description if one occurred
Operator	Text	20	Current operator
Shift	Text	1	Current shift
Meterscale	Number (Integer)	2	Current meter scale
CapacityHigh	Text	40	Maximum Capacity number set on the instrument 1-8 channels
CapacityLow	Text	40	Minimum Capacity number set on the instrument 1-8 channels (SLC Only)
PeakLoad	Text	40	Current Peak Load Values – the highest tonnage recorded on this record 1-8 channels
ToleranceHigh	Text	40	Maximum Tolerance or Tracking Alarm number set on the instrument 1-8 channels
ToleranceLow	Text	40	Minimum Tolerance or Tracking Alarm number set on the instrument 1-8 channels
PartsCount	Number (Long)	4	Current Parts Count Value
BatchCount	Number (Long)	4	Current Batch Count Value
StrokesPerMinute	Number (Integer)	2	Current strokes per minute
SampleLoad	Text	40	Current Sample Load Values – zero in SETUP, instrument values in MONITOR 1-8 channels
ReverseLoad	Text	40	Current Reverse Load Values – tonnage below zero or zero – 1-8 channels
TargetLoad	Text	40	Current Target Load Values set on the instrument – 1-8 channels (not valid on all equipment)
LEDs	Text	40	1-8 number matching the # of channels that mirror the Trend Lights on Trend Series instruments

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FirstMate 2000 User Instructions

NAME	TYPE	SIZE	DESCRIPTION
TrendONOFF	Number (Integer)	2	Current Trend alarm switch value
Trending	Number (Integer)	2	Is instrument trending flag
PressCurveValid	Number (Integer)	2	Is press curve valid flag
Press CurveONOFF	Number (Integer)	2	Current press curve on/off value
TrackingONOFF	Number (Integer)	2	Current tracking alarm on/off value
TrackingValid	Number (Integer)	2	Are tracking alarms valid flag
DeltaTrakONOFF	Number (Integer)	2	Current Delta Trak on/off flag
ToleranceTONPERCENT	Number (Integer)	2	Current Tons or Percent setting

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FirstMate 2000 User Instructions

FIRSTMATE.MDB
TABLE: DOWNCODE

NAME	TYPE	SIZE	DESCRIPTION
DownCode	Number (Integer)	2	Downtime Code ranging 0 to 999 identifying the downtime event
DownDescription	Text	50	Downtime description for the downtime event

FirstMate 2000 User Instructions

NAME	TYPE	SIZE	DESCRIPTION
Seq	Text	3	FirstMate ID Code
Status	Text	50	Instrument status at the time of the downtime event
Job	Number (Integer)	2	Job Number at the time of the downtime event
JobName	Text	20	Job Name at the time of the downtime event
JobReference	Text	40	Extra job information for this downtime event
DieReference	Text	40	Extra job information for this downtime event
Notes	Text	80	Extra job information for this downtime event
RecordDate	Date/Time	8	Date and time of the recorded downtime event
UpdateCounter	Number (Long)	4	Instrument update counter at the time of the event
Downtime	Number (Long)	4	Downtime duration in minutes
DowntimeCode	Number (Integer)	2	Downtime code from the instrument
DowntimeDescription	Text	40	Matching downtime description
Operator	Text	20	Operator at the time of the event
Shift	Text	1	Shift number at the time the event was recorded
PartsCounter	Number (Long)	4	Parts Counter at the time the event was recorded
BatchCounter	Number (Long)	4	Batch Counter at the time the event was recorded

FirstMate 2000 User Instructions

FIRSTMATE.MDB
TABLE: EQUIP

NAME	TYPE	SIZE	DESCRIPTION
Seq	Text	3	FirstMate ID Code
Name	Text	50	Equipment Name
Model Name	Text	80	Equipment Description
Model Number	Number (Integer)	2	The Actual Model Number
Slide	Text	50	Inner, Outer, Slide 1, Slide 2
Line ID	Text	50	Text Box
Rolling Rate	Number (Long)	4	Poll this instrument every nn times
Baud	Number (Long)	4	Communications speed
Print Alarms	Text	50	Print a notice of alarms on this unit
Print Alarm Signatures	Text	50	Print the Alarm Signature
Write Alarms	Text	50	Write to the Alarm Database
Write Alarm Signatures	Text	50	Write a record of the Alarm Signature
Alarm Printer	Text	50	Printer for alarm records
Signature Printer	Text	50	Printer for Signatures
Archive Path	Text	50	Network Path for Archiving
SLCNode	Number (Integer)	2	Node for SLC Polling
History Records	Number (Long)	4	# of A01's, etc. to save
History Signatures	Number (Long)	4	# of Trend Signatures to save
Alarm Records	Number (Long)	4	# of ALARM and ALARM-CAPACITY to save
Alarm Signatures	Number (Long)	4	# of Alarm Trend Signatures to save
HPC Records	Number (Long)	4	# of HPC records to save
Downtime Records	Number (Long)	4	# of DOWNTIME's to save
Downtime	Number (Integer)	2	# of minutes for default idle alarm calculations
Downtime Description	Text	50	Default Downtime Description

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FirstMate 2000 User Instructions

FIRSTMATE.MDB
TABLE: HPC

NAME	TYPE	SIZE	DESCRIPTION
Equip	Text	50	Equipment Name
Seq	Text	3	FirstMate ID Code
JobName	Text	255	Current Job Name
RecordDate	Date/Time	8	Date the message was received
HPCCode	Text	5	Message ID sent from the HPC enabled instruments
HPCMessage	Text	100	Message Text sent from HPC enabled instruments

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FirstMate 2000 User Instructions

NAME	TYPE	SIZE	DESCRIPTION
HPCCode	Text	2	Message Number for stored messages entered by the user
HPCMessage	Text	75	Message Text of the stored message

FIRSTMATE.MDB
TABLE: OPERATOR

NAME	TYPE	SIZE	DESCRIPTION
Operator	Text	50	Operator Code stored on the Helm HPC Unit
OperatorDescription	Text	50	Description of the Operator Code

FIRSTMATE.MDB
TABLE: SHIFT

NAME	TYPE	SIZE	DESCRIPTION
Shift 1 Start	Date/Time	8	Starting Time for the 1st Shift
Shift 1 Stop	Date/Time	8	Ending Time for the 1st Shift
Shift 2 Start	Date/Time	8	Starting Time for the 2nd Shift
Shift 2 Stop	Date/Time	8	Ending Time for the 2nd Shift
Shift 3 Start	Date/Time	8	Starting Time for the 3rd Shift
Shift 3 Stop	Date/Time	8	Ending Time for the 3rd Shift
Shift 4 Start	Date/Time	8	Starting Time for the 4th Shift
Shift 4 Stop	Date/Time	8	Ending Time for the 4th Shift
Shift 5 Start	Date/Time	8	Starting Time for the 5th Shift
Shift 5 Stop	Date/Time	8	Ending Time for the 5th Shift
Shift 6 Start	Date/Time	8	Starting Time for the 6th Shift
Shift 6 Stop	Date/Time	8	Ending Time for the 6th Shift