

# ***MPRO 2000 PLUS***

*....ISO Professional Maintenance Management system*



## **USER'S GUIDE**



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# MPRO 2000 PLUS

The MPRO 2000 PLUS ISO Professional Maintenance Management System is a full feature program that is designed to provide small and large manufacturers with the ability to thoroughly define and monitor the maintenance function, provide preventive maintenance and efficiently manage the plant maintenance function. The system also provides valuable management information to analyze and evaluate the effectiveness of the various functions, including the tracking and reporting of labor, material and subcontracting costs. A full featured inventory and purchasing system is included with the maintenance program.

The MPRO 2000 PLUS ISO9000 Professional Maintenance Management System is designed for any version of Windows, including Windows 95, Windows98, and Windows NT. The program is network ready and is year 2000 compliant.

A unique feature of the program allows use of the full features of the program for demonstration purposes (quantity of new data entry is limited, but sufficient for the user to fully evaluate the capabilities of the program). Company data entered during the demonstration period is not lost when the system is fully activated. Activation simply involves the entry of a code by the user to indicate the purchase of selected modules.

The system is provided with sample data to illustrate the functions of the various windows. It is strongly suggested that the user access each module and fully understand the function of each window and control to become thoroughly familiar with all the features before beginning the entry of active company records.

## ABOUT THIS MANUAL

The MPRO 2000 PLUS manual is provided to introduce the user to the extensive capabilities and features of the MPRO 2000 PLUS modules. The manual is purposely brief and simple to follow so that the user will quickly be able to access and use the program. A detailed on line manual is provided through the Help selections at each window by pressing the "Help" button. Also, select Help on the menu tool bar, then "Contents" to choose a help topic.

## HARDWARE REQUIREMENTS

MPRO 2000 PLUS can be installed on IBM 386, 486, or Pentium true compatibles with at least 640K of RAM memory. For best performance a 486 or Pentium computer running at a minimum of 33 MHz should be used. MPRO 2000 PLUS needs most of the 640K of RAM so other memory resident (TSR's) software should be held to a minimum. The complete program requires up to 12 megabytes of hard disk space for all the options. More disk space will be required as data is added. The program is fully network ready and will run on Windows 3.x, Windows 95, 98, ME, XP, 2000 or Windows NT.

## INSTALLATION

MPRO 2000 PLUS is supplied on a CD with all the programs and the User's Guide. The disk will self start when inserted in the drive (or select the CD drive and then Install.exe from explorer). Select the Equipment/Plant/Facility Maintenance button, then the Install MPRO 2000 PLUS Maintenance System button.

The installation program will create new directories automatically in the drive and directory name the user specifies when prompted. The default directory is C:\MPLUS.

To install on a network server map the MPLUS folder to a DOS drive (such as J:/MPLUS. Then create shortcuts on each workstation with the target J:/MPLUS/mplus.exe.

## STARTING PROGRAM

During the installation process a program group named MPRO 2000 PLUS was created. To start MPRO 2000 PLUS double click on the MPRO 2000 PLUS icon, or select from the program list in Windows. The program may also be started by double clicking on C:\MPLUS\MPLUS.EXE (or the directory name specified by the user in the installation process) in either File Manager or Explorer. The MPRO 2000 PLUS title and main menu will be displayed.



Type the employee name DEMO and press Tab to accept. Then enter the password DEMO (be sure to use capital letters), then press the OK button. At initial program entry the exclusive Maintenance Due Alert screen is displayed.

EQUIP NO	MAINT ITEM	PM INTERVAL - DAYS			PM INTERVAL - METER SPANS				
		LAST PM	INT	DUE	LAST	UM	METER INT	DUE	RES
AA-100	Insertion Headst	6/27/1996	0		4200	Prs	4000		6275
AA-100	General Maint	8/08/2002	90	11/06/2002	0		0		0
AA-110	Monthly PM	4/15/1996	30	5/15/1996	0		0		0
AA-110	Replace Rings	5/10/1996	0	?	3532	Hrs	1000	4532	4600
AA-110	6 Month PM	3/25/1996	182	9/23/1996	0		0		0
AA-201	General Maint	8/11/1995	120	10/09/1995	0		0		0
AA-100	General Maint	4/18/1996	120	8/16/1996	0		0		0
BA-100	Overhaul	8/12/1996	0	?	2332	Miles	1000	3332	3895
VDH-1	6 Month PM	5/09/1996	182	11/07/1996	0		0		0
VDH2	General Maint	8/10/1995	365	8/10/1999	0		0		0
VDH2	General Lube	9/10/1995	182	3/11/1999	0		0		0
AA-100	UNSCH W/O: 18	?	0	?	0		0		0
AA-110	UNSCH W/O: 19	?	0	?	0		0		0
AA-110	UNSCH W/O: 21	?	0	?	0		0		0
AA-110	UNSCH W/O: 25	?	0	?	0		0		0
AA-110	UNSCH W/O: 26	?	0	?	0		0		0
AA-110	UNSCH W/O: 27	?	0	?	0		0		0

Desc: INSERTION MACHINE      Mfg: Ingersoll  
 Model: A100      S/N: B1000

This window is only displayed when a maintenance is overdue

Print Overdue List      Continue

All equipment that are currently due for maintenance are displayed. Press the "Continue" button.

## SECURITY

A security system is incorporated in MPRO 2000 PLUS to provide limited access of the individual programs and data so that only duly authorized personnel can view or change data. Each employee of the company is identified by name and each is issued a unique password. In addition, the modules that the employee is permitted access are designated. Five levels of security are provided to limit the activity of the employee in that module.

- Level 1- System Administrator  
Enters security passwords
- Level 2- Personnel  
Access to employee records and labor rates
- Level 3- Manager  
Access to all other records, data and management reports
- Level 4- Operator  
Access to all other records and data.
- Level 5- Review  
Can only view summary records, cannot change data.

Only employees with security Level 1 have access to the security portion of the system. To access the security setting, select "SUPPORT" from the main menu of the MPRO 2000 PLUS. Then select "EMPLOYEES".

The employee designated as the system administrator (by setting the security level for that employee to 1) should enter the security level and password for each employee. **Note that only the employee(s) with Level 1 security will have access to this screen. Be sure the at least one employee has the Level 1 designation before deleting the "DEMO" employee from the employee list.** The MPRO 2000 PLUS system is shipped with an employee named "DEMO" with the password "DEMO" and security level 1 so there is initial access to the security screen.

## PROGRAM STRUCTURE

### HELP SCREENS

Each of the modules is supported by extensive on line help that is accessible at every window. Help may be accessed from either the help contents selection from window menus or by selecting the "Help" button on each window.

### SAMPLE DATA

MPRO 2000 PLUS is supplied with sample data simulating a manufacturing business. The data is automatically provided during the installation process. It is strongly recommended that this data be left on the system until the user becomes thoroughly familiar with all the features of the program. While becoming familiar with the program this sample data may be modified, or additional data may be entered. For each new window it is suggested the user read the help associated with the window. Follow the instructions for adding, modifying or deleting data and records.

After becoming familiar with the features of MPRO 2000 PLUS the sample data may be removed individually from the appropriate windows using the delete method provided for that window.

### STRUCTURE

The MPRO 2000 PLUS modules are designed to be extremely simple to use and to provide the maximum amount of information using very few windows. For example the "Maintenance" and then the "Equipment" selection of the menu will immediately provide the user with detailed data about the equipment that is selected as well as the maintenance history about the selected equipment-items without changing windows! Buttons are provided so that complete detailed data about either the equipment itself or the maintenance records can be easily retrieved.

All programs are constructed using several basic window types: Menu, Scrolling Tables, Data Entry windows, and Reports

Menus: Selection of area of interest.

Scrolling Tables: a list of available records.

Data Entry window: Individual detail data about a selected record.

Reports: Print out of information.

To rapidly access data, locate fields are included in the tables which are expected to contain a large amount of data. When the desired data is typed in and the tab key selected to accept the field, the table cursor goes immediately to the selection. Also, when the table records are in focus (the mouse cursor is pointed to a record), typing a single character will access the nearest record meeting that parameter. As additional characters are added the desired record is located.

Tables:

[PgDn] scrolls the table to the next page of data.

[PgUp] scrolls the data to the previous page of data.

[Ctrl-PgDn] scrolls the table to the last page of data.

[Ctrl-PgUp] scrolls the table to the first page of data.

Forms:

[Tab] accepts the data entry for the highlighted field and advances the highlighted cursor to the next field. When the last field is accepted all the data is saved for the record and control returns to the table window.

Select "OK" button to accept all the data from any window.

Within a highlighted field move the cursor to the desired location using the mouse or the left and right arrow keys. Characters may be deleted with the [Delete] or [Backspace] keys.

## TECHNICAL SUPPORT

Unlimited technical support for MPRO 2000 PLUS is provided. Before contacting technical support make use of the Help functions that are available at each MPRO 2000 PLUS window. Contact BDR Systems customer service at 610-873-8570 or e-mail at [address plant@bdrsystems.com](mailto:address plant@bdrsystems.com) (be certain to type the address exactly as shown, do not use capital letters).

## MPRO 2000 PLUS

The MPRO 2000 PLUS ISO Professional Maintenance System is comprised of seven major sections: Support, Equipment/Maintenance, Maintenance Request, Inventory, Purchasing, System and Reports. The integrated system is designed to track every equipment and other assets that require emergency or unscheduled maintenance as well as regular preventive maintenance. The documentation of preventive and unscheduled maintenance data is specifically designed to provide record retention and traceability to assist in achieving the requirements of ISO9000. The system also provides valuable management information to analyze and evaluate the effectiveness of the maintenance program, the cost of equipment maintenance and repair, and the status of all assets of any period. A full featured inventory and purchasing system is included in the program.

### Major Standard features include:

- Exclusive Maintenance Due Alert
- Copy Equipment
- Equipment/Asset Inventory
- Unlimited maintenance items for each asset
- Maintenance intervals by days or meter/miles.
- Maintenance Request System
- Purchasing order generation
- Work Order system
- Monitors PM and Unscheduled Maintenance
  - Labor Costs tracked
  - Material Costs tracked
  - Subcontracting costs tracked
- Inventory System
- Labor Scheduling
- Management Analysis
- Back Up and Restore Data
- PM Intervals in days, day of week, meter/hours/mileage

### Optional Modules Available:

- Import/Export Data
- Graphical Downtime Analysis
- Palm and PDA Interface
- Ad Hoc Report Writer
- Purge Excess Data

The system is provided with sample data to illustrate the functions of the various windows. It is strongly suggested that the user access and fully understand the function of each window and control to become thoroughly familiar with all the features before beginning the entry of active company records.

## MAINTENANCE

Select the MAINTENANCE menu selection in the MPRO 2000 PLUS main menu.



The functions of the program may be accessed either with the menu selection tool bar at the top or by using the icon selection tool bar. Selecting item from the menu selection tool bar will result in a drop down sub menu from which individual features may be selected. The icon tool bar provides rapid access to the most frequently used functions of the program.

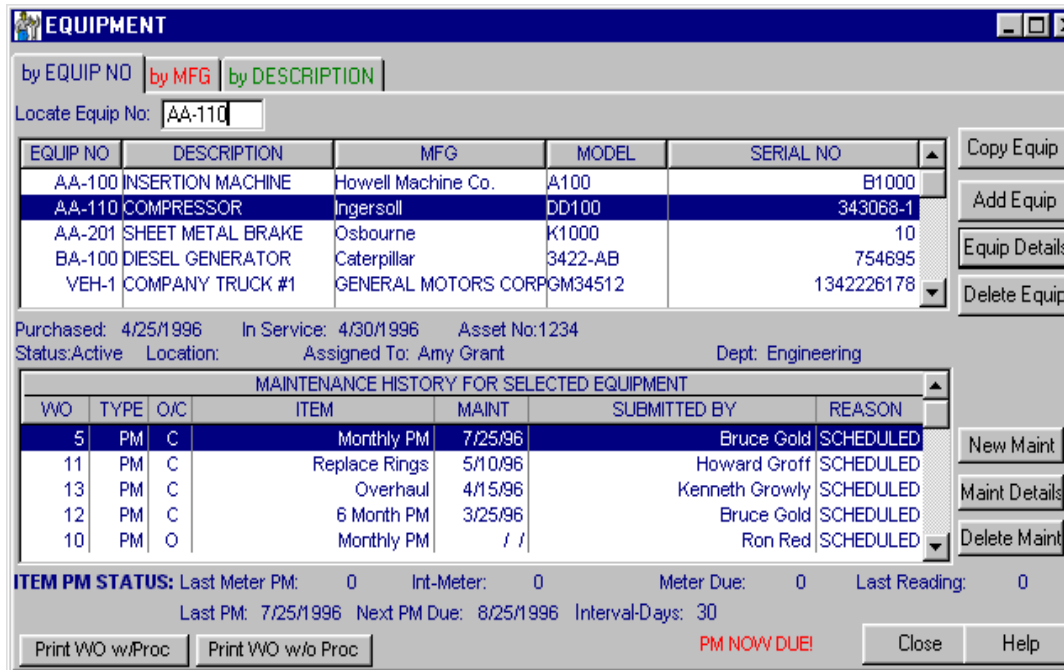
To rapidly access data on screens with tab controls and lists of data, locate fields are included in the tables which are expected to contain a large amount of data (see "Locate Mfg:" below). When the desired data is typed in and the tab key selected to accept the field, the table cursor goes immediately to the selection. Also, when the table records are in focus (the mouse cursor is pointed to a record), typing a single character will access the nearest record meeting that parameter. As additional characters are added the desired record is located.

To become familiar with the features and structure of the program the following tour of the program is recommended.

Every maintenance action, whether preventive maintenance or unscheduled maintenance, begins with using the Maintenance selection from the main menu ( or the Equipment/Maintenance icon). A sub menu provides the selections:

- Enter Current Meter Readings: Update meter or mileage readings.
- Open Maint Requests: Requests that have not been converted to work orders.
- Closed Maint Requests: Requests that have been deleted or work orders issued.
- Equipment: Complete access to all equipment detail and maintenance history.
- Procedures: Detailed PM procedures for selected equipment.
- PM Due: A table listing of all equipment requiring PM during selected period.
- Work Order Status: A table listing of all work orders with pertinent data.
- Open Work Orders: Current open work orders.
- Downtime Graphs: Graphical Analysis of Downtime
- Maintenance Cost Graphs: Total Maintenance Cost by Equipment

Select the Equipment item from the Maintenance menu (or select the Equipment/Maintenance icon).



### EQUIPMENT

The equipment section contains all the assets that are included in the maintenance system. Each equipment or asset is assigned a unique alphanumeric equipment identification number whenever a new equipment record is added to the maintenance system. For each equipment an unlimited quantity of maintenance items may be entered.

MPRO 2000 PLUS is structured so that vital information regarding both equipment detail data and maintenance data is available on a single screen.

The "EQUIPMENT" selection of the menu will immediately provide the user with detailed data about the equipment that is selected as well as the maintenance history about the selected equipment- without changing windows! Buttons are provided so that complete detailed data about either the equipment itself or the maintenance records can be easily retrieved.

The window is divided into an upper and lower section. The upper section contains a scrolling table with a listing of all equipment that has been entered into the system. The lower section contains a scrolling table

with all the maintenance records for the equipment that is highlighted in the upper screen. Between the upper and lower tables is additional equipment detailed data for the equipment that is highlighted. Use the up and down arrows, selected with the mouse, to scan through the equipment records. Note how the maintenance records and detailed equipment data changes for each change in highlighted equipment.

Below the lower maintenance record scrolling table is the PM maintenance status for the highlighted maintenance item for the selected equipment. If the item is past due for maintenance it is indicated in the lower right section of the window.

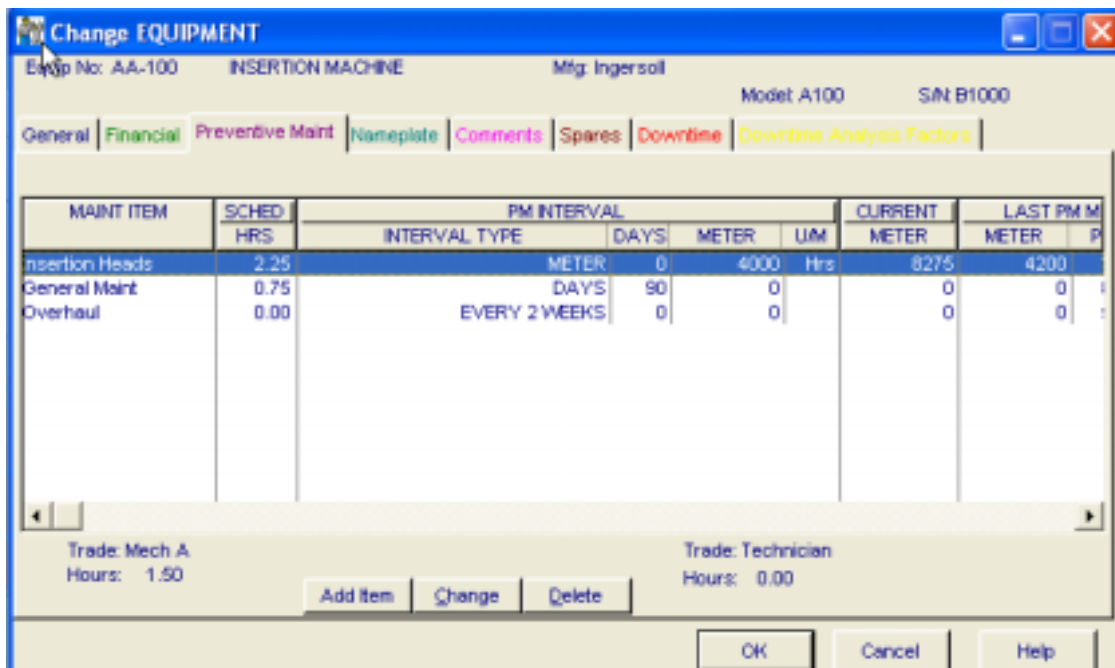
The equipment data may be sorted and viewed by equipment number, manufacture, or equipment description. Place the mouse cursor on the tab above the upper table and click the left mouse button to select the preferred sort.

To the right of the equipment table are buttons to copy, add, view detail, or delete equipment records. Place the mouse cursor on the "Equip Details" button and click with the left mouse button.

### EQUIPMENT MAINTENANCE ITEMS

One of the most powerful features of the MPRO 2000 PLUS maintenance management system is the ability to schedule and track preventive and unscheduled maintenance for multiple items for the same equipment. Example: The company truck, one asset or equipment, requires lubrication and oil change every 5000 miles (one item), rotate tires every 10,000 miles (2nd item), wash and clean interior every week (3rd item), state inspection every year (4th item) etc. An unlimited number of maintenance items may be associated with one asset or equipment.

Select the "Equip Details" button, then the "Preventive Maint" tab to add or view the maintenance items associated with the selected equipment. Each maintenance item is independent and may have a time period or meter/milage preventive maintenance interval. Select the appropriate tab to view the general data, financial information, nameplate specifications, Spare Parts listing, Downtime records, and Comments concerning this equipment. All the data relative to the selected equipment is displayed in one window!



To add a new maintenance item for the selected equipment, select the Preventive Maint tab and click on the "Add Item" button.

Select the maintenance item description from the drop down table. To add new descriptions select the SUPPORT item from the maint menu and then select MAINTENANCE ITEMS. Enter the estimated schedule hours to perform the new maintenance. This is used in the manpower requirements calculation for scheduling purposes.

Enter the estimated time that the maintenance action should take, in hours, in the "PM Sch Hrs" data field. This is used for manpower scheduling purposes.

Enter the trade classifications and the corresponding estimated trade labor hours in the two TRADEx and TRADEx HOURS data fields. These entries will be used for manpower scheduling and for productivity calculations in the Management Analysis section.

Select the Maintenance Type from the drop down selection box. The appropriate entry fields will be displayed for the type of interval selected. If the selection is a maintenance interval in days or weeks the Last Maintenance Date will be displayed. Enter the date of the last maintenance for the maintenance item. This date will be used to calculate the next maintenance due. If the selection is "Every Week", "Every 2 Weeks", or "Every 4 Weeks" the START DAY field will be displayed. Select the calendar button to select the DAY that the work is to be performed. Be sure to select a DAY and DATE that is at least a period prior to the Last Maintenance Date entered. The next maintenance due will be on the DAY of the weekly period selected. This enables maintenance to be required, for example, on a Tuesday every 2 weeks. If "METER" is selected as the maintenance item the maintenance interval in mileage, hours, or meter reading is entered as well as the current reading for the interval. This value is used to determine the maintenance due requirements from the last preventive maintenance performed.

Enter either the preventive maintenance interval in days, or alternatively, the meter reading interval and the unit of measure.

Enter the last maintenance date for the equipment item. If the maintenance interval period is days, the next maintenance due date will be displayed.

If the maintenance interval selected above was mileage/meter reading, then enter the reading at the last maintenance performed, the unit of measure, the current reading and the date that the current reading was made. The next reading when the next maintenance is to be performed will be displayed.

Enter comments regarding the maintenance item. Detailed maintenance procedures for the new item may be added by selecting MAINTENANCE, then PROCEDURES from the main menu, or by selecting the Procedures icon. See Maintenance Item Procedures.

To change preventive maintenance intervals, schedule hours, or manpower requirements select "Change" from the Change EQUIPMENT window. To delete the maintenance item select "Delete".

## MAINTENANCE WORK ORDERS

To the right of the Maintenance History table on the Equipment window are buttons to add, view maintenance work order records, or delete equipment maintenance records. Place the highlighted selector bar on the maintenance item work order that you want to view or change the maintenance work order record. Place the mouse cursor on the "Maint Details" button and click with the left mouse button.

Select the various Tabs to view the maintenance labor, materials and subcontracting information about the selected maintenance record.

To rapidly access data, locate fields are included in the tables which are expected to contain a large amount of data (see "Locate Equip No:" above). When the desired data is typed in and the tab key selected to accept the field, the table cursor goes immediately to the selection. Also, when the table records are in focus (the mouse cursor is pointed to a record), typing a single character will access the nearest record meeting that parameter. As additional characters are added the desired record is located.

LABOR:	\$25.07
MATERIALS:	\$67.46
SUBCONTRACTING:	\$1,295.00
TOTAL WO COST:	\$1,387.53

## OPENING NEW WORK ORDERS

Opening a new work order in MPRO 2000 PLUS is very simple.

1. From the main menu select "MAINTENANCE".
2. Select "EQUIPMENT" from the sub menu.
3. Use the mouse to scroll through the Equipment table to highlight the equipment.
4. Use the mouse to select the "New Maint" button.
5. Reference information regarding the selected equipment is displayed at the top of the window. Also, the next sequential work order number is automatically assigned and is displayed.
6. When the above window is first opened the Maintenance Type will be displayed with the PM (Preventive Maintenance) block checked and the UNSCH (Unscheduled Maintenance) block will be hidden. If the maintenance action is emergency or unscheduled, place the mouse cursor on the PM block and click the left mouse button. This will deselect the PM block and will expose the UNSCH block. Accept the selection by pressing Tab.
7. The cursor will advance automatically to the next data entry field each time a field is accepted by pressing the Tab key. Alternately, use the mouse to advance to any specific data entry field.
8. Fields with down arrow buttons will display drop down data selection tables. Use the mouse to depress the down button. Point to the desired selection from the table using the mouse cursor and accept by clicking the left mouse button.
9. Do not enter a date in the "WORK ORDER COMPLETED" field until the work is actually completed. This date entry will close the work order.
10. Maintenance labor, materials and subcontracting data may be entered by selecting the labeled tabs using the mouse. Point to the requested tab and click the left mouse button.

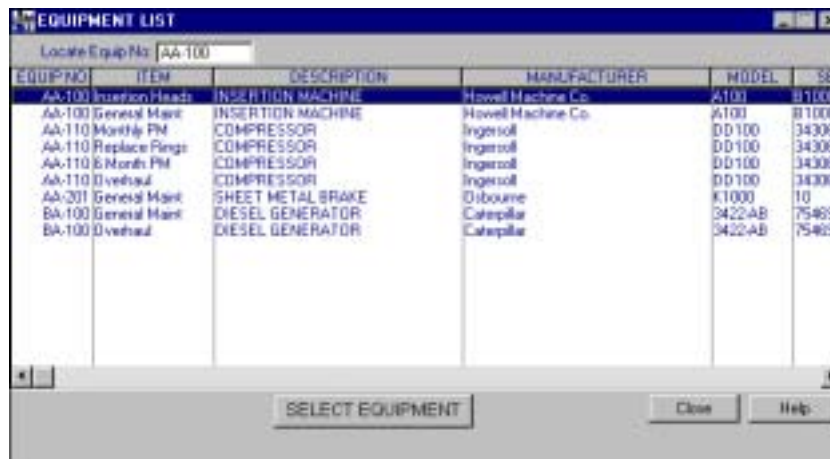
## CLOSING A WORK ORDER

A work order is closed by entering a completion date for the maintenance activity. To close the work order select MAINTENANCE in the main menu of MPRO 2000 PLUS, then EQUIPMENT. Highlight the desired equipment in the upper table and select the desired work order in the lower maintenance table. Then select the "Change Maint" button.

Point to the "WORK ORDER COMPLETED" field with the mouse and enter the date that the maintenance effort was completed. Press "OK". The status of the work order will be changed from "Open" to "Closed".

## PROCEDURES

The "Procedures" menu selection will result in the display of the steps and the detailed preventive maintenance procedure for selected equipment maintenance items. Use the mouse to select "Maintenance" at the main menu and then "Procedures". At the equipment number prompt select the "Equipment" button.



Highlight the equipment and maintenance item and then select the "SELECT EQUIPMENT" button.



The preventive maintenance procedure for the selected equipment and maintenance item will be displayed.

To add new procedure steps point to the "Add PM Proc" button and click with the left mouse button. To change existing procedure steps or to delete a procedure step, use the mouse cursor to highlight the item to be modified. Then select either the "Change" or the "Delete" button and click the left mouse button. Change the selected step, or add a new step, and press OK to accept the change or verify the deletion of the step.

## PREVENTIVE MAINTENANCE DUE

Select Maintenance Due from the MAINTENANCE sub menu or select the PM Due icon. Enter the start date for preventive maintenance records to be displayed and press Tab to accept. The program will exclude

all records for which the maintenance due is before the start date. Enter the end date. The program will exclude all records for which the maintenance due date is after the end date entered.

The preventive maintenance due table displays all the equipment items which are due for preventive maintenance during the period specified by the user. The due date for preventive maintenance is calculated by adding the specified maintenance interval to the date of the last preventive maintenance completion. If this is a new asset the due date is calculated from the equipment in service date. Maintenance items that have a meter reading maintenance interval become due for maintenance when the current meter reading is greater than the meter reading at the last preventive maintenance plus the assigned meter interval.

The current meter reading for the highlighted maintenance item is displayed below the table with a description of the equipment.

If a work order is open for the item listed the work order number will be displayed. To print a copy of the work order for a particular preventive maintenance record, highlight the record using the mouse. Then depress the "PRINT WO" button, using the left mouse button, to print the work order.

## WORK ORDER STATUS

The work order status is a listing of every work order that has been initiated. The pertinent information regarding the work order is provided. In addition to the date of initiation the current status of the work order is indicated as an "O" for a work order with no completion dates and a "C" for work orders that have a completion date.

WO	EQUIP NO	MAINT ITEM	TYPE	STATUS	IN MAINT	PM DUE	MAINT DATE
1	AA-100	Insertion Heads	PM	C	6/25/1996	2/16/1996	6/27/1996
7	AA-100	General Maint	UNSCH	C	8/05/1996	/ /	8/08/1996
8	AA-100	General Maint	PM	C	4/03/1997	4/01/1996	4/06/1997
9	AA-100	General Maint	PM	O	4/12/1998	5/01/1996	/ /
5	AA-110	Monthly PM	PM	C	7/22/1996	7/29/1996	7/25/1996
10	AA-110	Monthly PM	PM	O	8/10/1996	8/24/1996	/ /
11	AA-110	Replace Rings	PM	C	5/08/1996	/ /	5/10/1996
12	AA-110	6 Month PM	PM	C	3/20/1996	9/23/1996	3/25/1996
13	AA-110	Overhaul	PM	C	4/13/1996	/ /	4/15/1996
3	AA-201	General Maint	PM	C	6/10/1995	6/24/1995	6/11/1995
6	AA-201	General Maint	PM	O	7/22/1995	7/26/1995	/ /
2	BA-100	Overhaul	PM	C	7/29/1996	8/25/1996	8/12/1996
15	BA-100	General Maint	PM	C	4/13/1996	4/27/1996	4/18/1996

AA-100    INSERTION MACHINE  
MFG: Howell Machine Co.    MODEL: A100    S/N: B1000

## OPEN WORK ORDERS

The open order listing displays every work order that has been initiated but not yet completed. The pertinent information regarding the work order is provided. In addition to the date of initiation the current preventive maintenance status of the work order is indicated.

## SUPPORT

The support menu selection provides access to a series of files that contain data supporting the various maintenance activities. For first time program users these files are normally completed before proceeding with the entry of actual equipment or maintenance records. Most of the data is available at appropriate data entry fields in the form of drop down data selection tables in the equipment and maintenance sections of the program.

## INVENTORY

The "Inventory" menu selection consists of the Item Master File, which contains detailed information

regarding every maintenance part used, and the Inventory file, which indicates the current status of each part. This includes the vendor, last material transaction, and the current on hand balance. Whenever a part is allocated for use in a maintenance work order the inventory level is adjusted accordingly. Whenever the on hand inventory falls below the minimum stocking level specified in the Item Master file the part is automatically added to the Purchase Order list for action by the user.

#### *SUPPORT DATA*

The support menu selection provides access to a series of files that contain data supporting the various inventory windows. For first time program users these files are normally completed before proceeding with the entry of actual inventory records. Most of the data is available at appropriate data entry fields in the form of drop down data selection tables in the inventory and purchasing sections of the program.

#### *ITEM MASTER FILE*

The item master file defines the characteristics of the individual parts. To access the item master file select "INVENTORY" from the main menu, then select "Item Master File".

To rapidly access data, locate fields are included in the tables which are expected to contain a large amount of data (see "Locate Part No:" above). When the desired data is typed in and the tab key selected to accept the field, the table cursor goes immediately to the selection. Also, when the table records are in focus (the mouse cursor is pointed to a record), typing a single character will access the nearest record meeting that parameter. As additional characters are added the desired record is located.

The item master file window is a scrolling table listing of all the parts that are used in the maintenance system. The data may be presented in the sorted order by Stock Number, Part Number, Description, or Vendor as indicated by the tabs. Point to the tab and press the left mouse button for the desired sort order.

The pertinent data about each part is shown in the table. The cost, unit of measure, min and max stocking levels are indicated. Use the right scroll button to expose the quantity of the part that is currently on order. Additional detail about each part is available by selecting the "Change" button.

To add new parts to the item master file select the "Add Part" button using the mouse. To change existing data concerning the part position the highlighted selector bar on the desired part and select the "Change" button. To delete the entire part record select the "Delete" button.

#### *INVENTORY*

The inventory of parts on hand is accessed by selecting INVENTORY from the main menu, and then selecting "INVENTORY" from the sub menu.

To rapidly access data, locate fields are included in the tables which are expected to contain a large amount of data (see "Locate Part No:" above). When the desired data is typed in and the tab key selected to accept the field, the table cursor goes immediately to the selection. Also, when the table records are in focus (the mouse cursor is pointed to a record), typing a single character will access the nearest record meeting that parameter. As additional characters are added the desired record is located.

The current inventory status is presented as a scrolling table of all the parts in the item master file with the current inventory balance and latest transactions indicated. Use the right scrolling button to view the current inventory balance.

The data is presented in sorted order by either Stock Number, Part Number, Part Description, or Vendor as indicated on the tabs above the table. Point to the desired sort order tab with the mouse and press the left mouse button.

The "Last Transaction" section of the table indicates the date of the last transaction and the quantity that was either issued or received on that date. A part is issued when it is entered as used on a maintenance work order. A part is received when the part is entered as being received against an outstanding order in the purchasing system.

The inventory balance (the amount of parts physically on hand) may be adjusted as required. This may be the result of cycle counting of the inventory or by a complete physical count of all the inventory. If there is a variance of actual count to the computer inventory balance point to the "Adjust Inventory" button with the mouse and press the left mouse button.

Change the inventory balance quantity to the correct balance and select OK.

## **PURCHASING**

The "PURCH" menu selection enables the user to generate new purchase orders, view the status of open purchase orders, retrieve purchase order history, receive delivered parts and adjust the inventory automatically.

### *SUPPORT DATA*

The support menu selection provides access to a series of files that contain data supporting the various purchasing windows. For first time program users these files are normally completed before proceeding with the entry of actual purchasing records. Most of the data is available at appropriate data entry fields in the form of drop down data selection tables in the inventory and purchasing sections of the program.

To access a support file to add, view or revise the data, position the highlighted selector bar on the desired file using the mouse pointer. Press the left mouse button to display the selected data.

### *PURCHASE ORDERS*

The MPRO 2000 PLUS program is designed to determine when parts used in the maintenance function depletes the inventory below the minimum stock level established in the item master file. When parts are "issued" (by adding parts to the material used on a maintenance or calibration work order) the on hand inventory is reduced accordingly. When this occurs the part is added to the table of "requested purchase orders" using the order quantity specified in the item master file. The user can scan this table periodically and select the items for which purchase orders are to be issued.

Select "PO's" from the purchasing main menu to view the table of all issued purchase orders.

To view only open purchase orders, select "OPEN PURCHASE ORDERS" from the menu.

### *REQUESTED PURCHASE ORDERS*

Select "REQUESTED PURCHASE ORDERS" to view those parts which have fallen below the minimum stock level defined in the inventory system. Items will automatically be added to the list when parts are specified for use in a calibration or maintenance action (issued) and the stock level has been depleted below the minimum level.

To automatically generate purchase orders for the listed items point to each item that is to be included and press the left mouse button. Each item selected for purchase order generation will remain highlighted. To deselect an item, point to the item and press the left mouse button once. The item will not be highlighted. When all the selections have been made point to the "Print Marked PO's" button and press the left mouse button. Individual purchase orders will be printed for each vendor of the required parts. All parts from the same vendor will be combined on a single purchase order.

### *RECEIVE MATERIALS*

To accurately track the purchase order system it is required to document the receipt of parts against the purchase order that was issued to a vendor for that part. When parts are received select the "RECEIVE MATERIAL" menu item from the Purchasing main menu.

The stock number of the part, the dates of issue and receipt, and the required quantity with the quantity received is shown. The date may be viewed in order of stock number, purchase order number, vendor, or date issued by selecting the appropriate tab.

This table listing are all of the current open orders. That is, those purchase orders for which there are one or more items that the quantity of the item received is less than the quantity of the item ordered.

The table displays the open purchase orders, the part number of the part, the quantity of the part ordered, the last received quantity and the total received quantity.

Select the purchase order of the received part by using the mouse to position the highlighted selector bar on the correct purchase order. The user may sort the data by Purchase order, Stock Number, Part Number, or by Vendor to aid in the selection process. Point to the desired sort tab using the mouse and press the left mouse button. When the correct purchase order is selected point to the "Receive Mat'l" button with the mouse and press the left mouse button. Enter the receive date and the quantity received to update the status.

#### *OPEN PURCHASE ORDERS*

A scrolling table listing of all open purchase orders is accessed by selecting PURCHASING from the main menu of MPRO 2000, then select PURCHASE ORDERS, then select OPEN PURCHASE ORDERS from the sub menu.

A purchase order is considered open if the quantity of parts received against the purchase order is less than the required quantity on the purchase order.

The listing of all open purchase orders is presented in sorted order by either Stock Number, Purchase Order Number, Part Description, or Vendor as indicated on the tabs above the table. Point to the desired sort order tab with the mouse and press the left mouse button.

The pertinent data about the purchase order is shown in the table. Additional detail about each purchase order is available by selecting the "Change" button.

To add a new purchase order point to the "Add PO" button with the mouse and press the left mouse button. To modify or delete an existing purchase order position the highlighted selector bar on the desired purchase order with the mouse and then select either the "Change" or "Delete" button with the mouse.

To print the selected purchase order point to the "Print PO" button and press the left mouse button.

#### **MAINTENANCE REPORTS**

The maintenance reports section provides an extensive choice of maintenance data reports, reports of equipment maintenance that are due for the user selected time period, reports of the maintenance interval for the equipment, maintenance overdue reports and a maintenance history report for any user selected equipment. Take the opportunity to explore the various report formats to fully understand the functions. The unique Management Analysis reports are of particular interest.

A powerful preview feature of the report on screen is provided for each report type. This allows you see the format of the report and the data selected for the report, before it is actually printed. The user, therefore, can review the data and make any necessary changes to the time period or choice of other variables before printing.

The management analysis reports provide the user with labor summary, maintenance cost data, maintenance manpower requirements, and maintenance department performance reports.

To access the report menu select "REPORTS" at the main menu of MPRO 2000 PLUS and then select "MANAGEMENT ANALYSIS" at the sub menu.

The labor summary report provides all the maintenance labor expenditures over any user specified time period.

The cost summary report provides the labor, materials, and maintenance subcontracting costs incurred during the user specified time period. This report is also available for each department and for each cost center. This is very valuable to charge back departments or individual cost centers for maintenance work

performed over any time period.

The manpower requirements report provides the maintenance labor requirements for open work orders in the system for any user specified time period.

The performance report calculates the efficiency of the maintenance department based on completed work orders for the time period specified by the user.

Place the highlighted cursor on the desired report and click with the left mouse button to view the preview window. Select the print icon with the mouse or select "File" and then "Print".

## **REQUESTING MAINTENANCE**

The maintenance request system permits any employee with access to the program to request that maintenance be performed. The requester completes the information on the request screen to generate a request. The security in the program permits only a supervisor with a security level of 3 or better to convert the request to a maintenance work order. Only the maintenance supervisor can change or delete a maintenance request that has been entered.

To issue a maintenance request select "REQ" from the main menu or select the Maintenance Request icon.

To add a new maintenance request select the "Add Request" button. Complete the request information, including a complete description of the maintenance to be performed. A unique sequential maintenance request number is automatically assigned to the request.

The supervisor can select multiple requests to be converted to maintenance work orders by highlighting the request with the mouse cursor and clicking the left mouse button (deselect by placing the cursor on the request and again click the left mouse button. After all the selections are made select the "ISSUE WO" button. The requests are converted to work orders. To view all maintenance requests select the "All MAINTENANCE REQUESTS" selection in the "REQ" sub menu.

## **METER READINGS**

The interval between maintenance can be either time based (days, weeks, years) or meter based (running hours, mileage, etc.). For meter based maintenance it is necessary to periodically enter the meter readings for the equipment items involved. When the meter reading exceeds the reading at the last maintenance, plus the meter interval, the item will be listed as PM Due.

To enter the current meter reading select the "Meter" icon or select "Enter Current Meter Readings" from the MAINTENANCE sub menu.

The table lists all equipment items that have a meter interval for maintenance. For each item the current meter reading (last entered reading), the meter reading at the last maintenance, and the interval between maintenance is shown. If the current reading exceeds the last maintenance reading plus the interval, the maintenance is identified as being Due.

Place the highlighted selector bar on the maintenance item. For this item the pertinent data about the equipment is displayed below the table. To enter the current meter reading for this highlighted item enter the reading in the "New Meter Reading" data entry field and press "OK".

To rapidly select an equipment, type the equipment number in the locate field at the top of the window and press tab. The highlighted selector bar will be placed on that equipment. Use the arrow keys or the mouse to select the item for that equipment.

## **CUSTOMIZE**

The customize main menu selection provides the ability to identify user fields in the equipment and maintenance sections of the program.

The user defined fields are easily identifiable in the equipment detail window and the maintenance detail window. The label of the user field is entered in the appropriate entry field of the customize window. That label will then appear whenever the equipment or maintenance detail windows are displayed.

## **AVAILABLE MANPOWER**

The available manpower feature is used to identify the staffing of the maintenance department and the expected hours of availability over a 12 week scheduling period. This data is used in manpower capacity requirements planning to determine the manpower needed to planned maintenance activities. See also Manpower Requirements Planning.

The manpower availability should be updated weekly, or as desired, for accuracy of the planning activity. This is easily accomplished in MPRO 2000 PLUS. It is only necessary to enter the first period start date, the remaining eleven weeks are automatically calculated for the user. It is then only necessary to indicate changes in scheduled hours for each maintenance employee.

To add or modify the available manpower select "SUPPORT" from the main menu and the "AVAILABLE MANPOWER" from the sub menu.

The upper scrolling table shows each maintenance department employee, his trade classification, and the hours of availability for that employee over a 12 week period starting at the date shown. Below the scrolling table the available hours for the employee highlighted in the table is shown for the entire 12 week period.

To change the calendar period simply enter the date of the first period in the "Starting Date" entry field and press tab. The remaining dates are adjusted automatically.

To add an employee, delete an employee, or to change the available hours for an employee select the appropriate button.

## **BACK UP DATA**

To back up and restore data files select "File" from the main menu, then select "BACK UP and RESTORE DATA" from the sub menu. This feature provides a convenient and simple method to back up or restore all of your data files. Be sure to back up data at least daily.

## **THE OPTIONS**

### **PURGE EXCESS DATA**

After prolonged use the data files can become very large. This option enables the user to delete selected data, based on date range, from the active data files. The deleted data is stored in archive files that may be viewed for reference purposes.

### **IMPORT/EXPORT DATA**

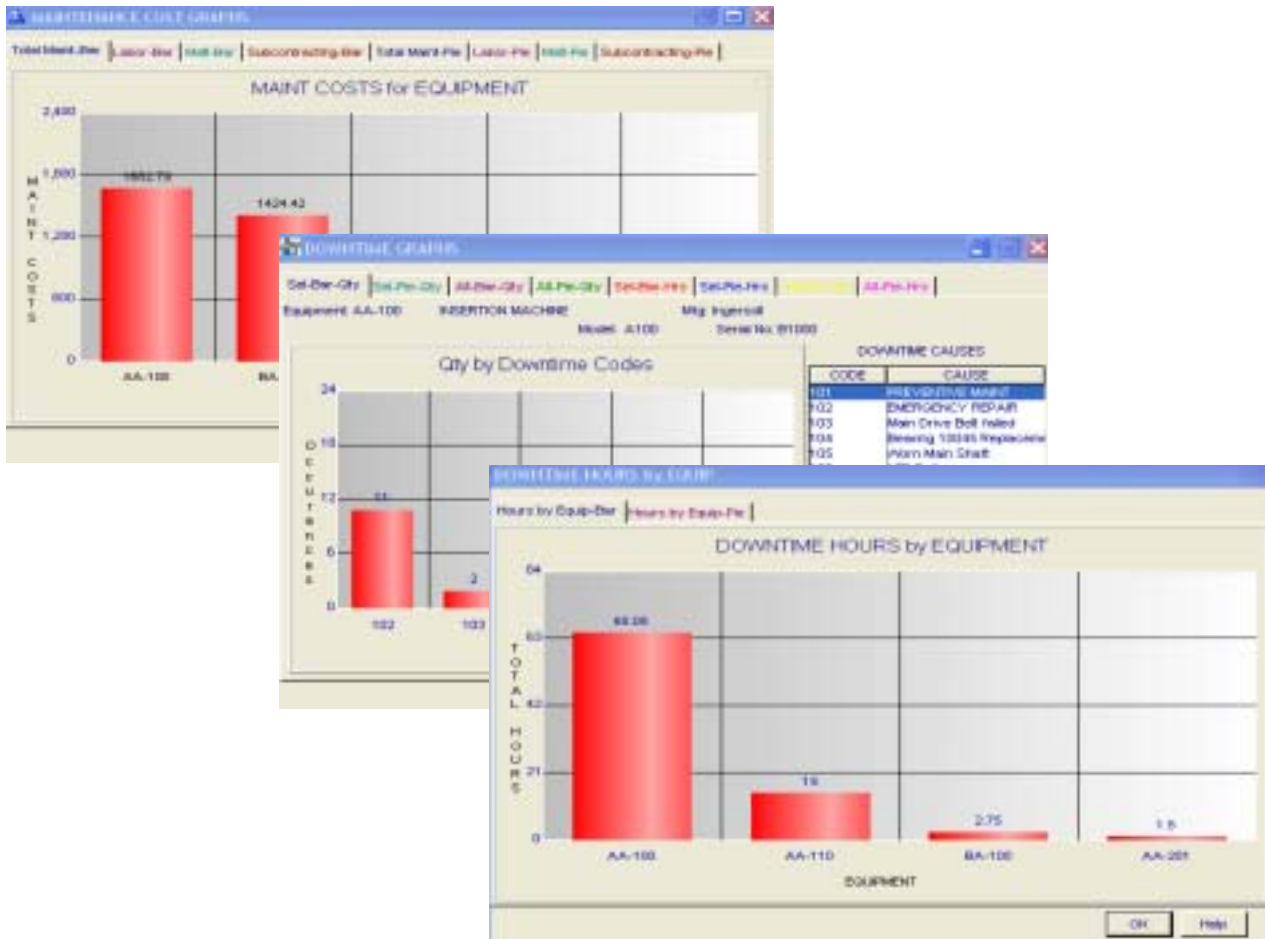
The individual data files in the relational database may be exported in ASCII, dBASE, or Excel formats. Data exported in Excel format are automatically displayed on the Excel spreadsheet where the user can perform sorting, calculation or printing functions with the data. Data files may be imported into the individual relational database files in ASCII, dBASE, or Excel formats.

### **REPORT WRITER**

Custom ad hoc reports may be written by the user using the individual relational data base files and the data dictionary provided with the Report Writer. Data may be analyzed and presented in a custom format constructed by the user.

## GRAPHICAL ANALYSIS

The equipment downtime and costs are analyzed and graphically displayed in bar or pie chart format. The analysis includes Maintenance Cost by Equipment (Total, Labor, Material, and Subcontracting costs), Downtime Analysis by Cause, and Maintenance Downtime Hours by Equipment.



## PDA DATA INTERFACE OPTION

The PDA data interface option provides the capability to enter work order data in the field using Palm or similar PDA's that utilize the Palm OS operating systems. Open work orders are uploaded into the PDA. The user can then view the pertinent work order parameters, view the PM procedures on the PDA, and enter the labor, material and subcontracting data. When the work order is checked as complete the data is downloaded into the PC.



**AFTER THE TOUR**

After becoming thoroughly familiar with the various menu selections, experiment with the sample data provided by changing and adding records in each of the data areas. When the user is comfortable with the program remove (delete) the sample data and enter data pertaining to the company. Start by entering the known data in the Support files section. Then enter the Equipment detail data using the Maintenance menu selection. The user should then begin adding new maintenance work orders.

