
PM-PRO Preventive Maintenance

User Guide



www.pister.com

Version 4.0

Table of Contents

Introduction	1-1
Overview	1-1
Set Up Information	1-1
Skip Holidays	1-1
Equipment Maintenance	1-2
General Elements	1-2
Installation	2-1
Start Program	2-2
Access Code	2-2
Set Up Equipment Information	3-1
Add/Edit Equipment Detail	3-1
Custom Fields	3-2
Maintenance Instructions	3-2
Equipment Picture	3-3
Costs	3-4
Parts to use During Preventive Maintenance	3-4
Saving Set Up Information	3-5
Equipment Subsystems	3-6
Copy Current Equipment Setup to New Equipment	3-6
Equipment Detail Report	3-7
Equipment Maintenance Based on Meter Reading	3-8
Tool Bar Buttons	3-9
Maintenance Instructions Set Up	3-10
Suppliers of Spare Parts	3-11
Spare Parts Inventory	3-12
Recording Activities	4-1
Transactions	4-1
Add Transactions	4-2
Unscheduled Maintenance - MTBF / MTTR	4-3
Parts Used During Maintenance	4-5
Delete Transaction	4-5
Meter Based Transactions	4-6

Table of Contents

Reports	5-1
Report Options	5-1
Equipment Due Calendar	5-2
Equipment Due Report	5-3
Meter Based – Equipment Due	5-3
Updating Meter Values	5-4
Equipment List	5-5
Work Order	5-6
Unscheduled Maintenance	5-7
Unscheduled Work Order List	5-8
Unscheduled Work Order	5-9
Equipment History	5-10
Cost / Time Analysis	5-11
Maintenance Efficiency	5-12
Maintenance Reason Analysis: Downtime, Repair, Idle Time	5-14
Spare Parts Inventory	5-15
Spare Parts Reorder	5-16
MTBF / MTTR – for Unscheduled Maintenance	5-17
Other Features	6-1
Skip Days	6-1
General Settings	6-2
Equipment Detail Settings	6-3
Work Order Settings	6-4
Codes: Downtime / Repair / Idle Settings	6-5
Spare Parts: Classification / Location Settings	6-6
Report Settings	6-7
Field Titles / Language Settings	6-8
Other Settings	6-9
Convert Database From Previous Version	6-10

Overview

The software offers a complete system for:

- Scheduled and unscheduled equipment maintenance
- Historical records of all maintenance activities

Set Up Information

Practical information is recorded during the initial equipment set up process. Some of the key elements include:

- Interval or meter count between preventive maintenance activities
- Picture of equipment
- Spare parts required
- Instructions on how to maintain the equipment
- Custom fields that are user defined

Skip Holidays

The due dates for equipment maintenance can skip user-identified periods. This can include weekends and specific dates during the year.

Reporting Flexibility

The criteria for identifying the equipment to be included in the selected report are user determined. Filtering and ordering the report can be based on:

- Date range or overdue
- Equipment Id, Category, Location
- User defined fields

Equipment Maintenance Reports

A number of highly focused reports can be generated:

- Work order with maintenance instructions
- Equipment due for maintenance list
- Calendar highlighting scheduled maintenance days
- Equipment Maintenance History
- Maintenance efficiency analysis
- Spare parts inventory

General Elements

Other useful features include:

- Password protection at the system and user levels
- Language / terminology for each field can be user altered
- E-Mail reports
- Export reports to external files (word processor, spreadsheet etc.)

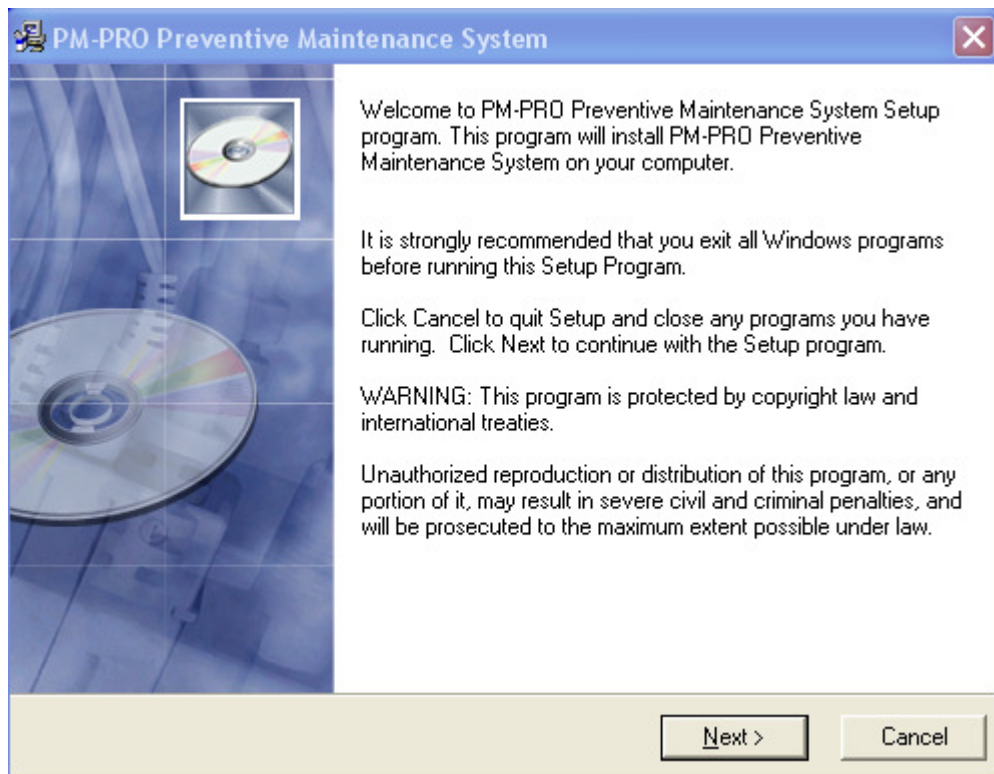
Procedure to Install

- 1) If the software has been downloaded from our web site, extract the install file **PMProSetup.EXE** and user guide from the compressed file. Proceed to step 3.
- 2.) If you are using a CD, place the PM-Pro preventive maintenance software CD in the CD drive.

Use Windows Explorer to select the folder titled **ProgramV4** on the CD.

- 3.) Double click on the file **PMProSetup.EXE**.

A screen similar the one shown below will appear.



It is highly recommended that all default settings be kept.

Follow the screen instructions by pressing the **Next** button until the installation is complete and then press the **Finish** button.

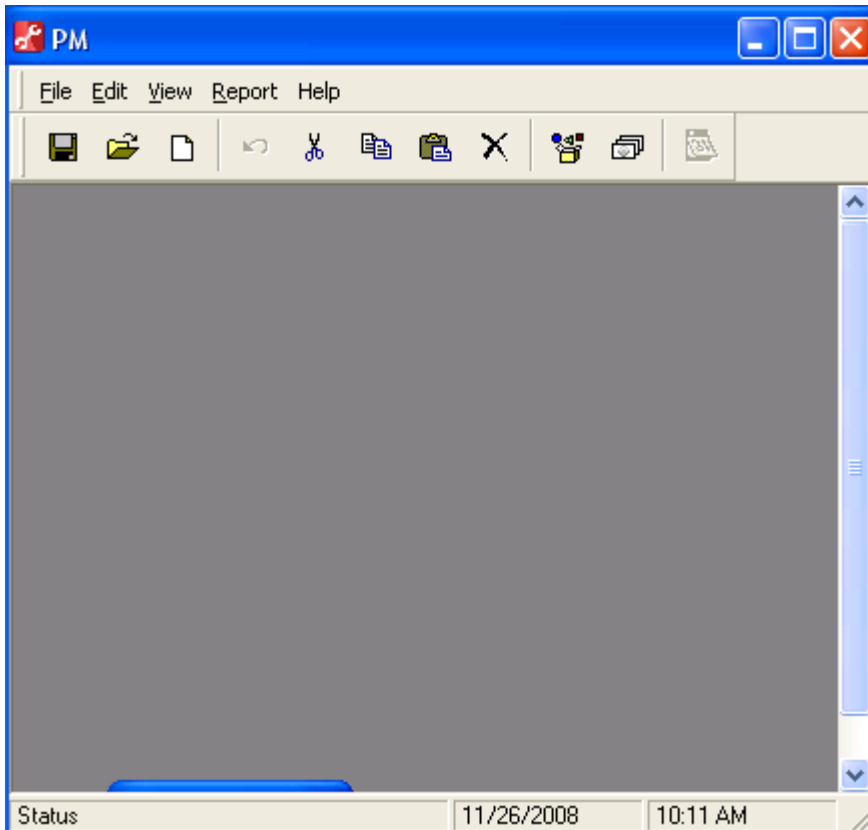
Start Program

Click the **Start** button on the Windows task bar.

Point to **All Programs** and select the **PM-Pro** folder.

In the **PM-Pro** folder, click on **MaintV4** menu item.

The main screen is similar to:

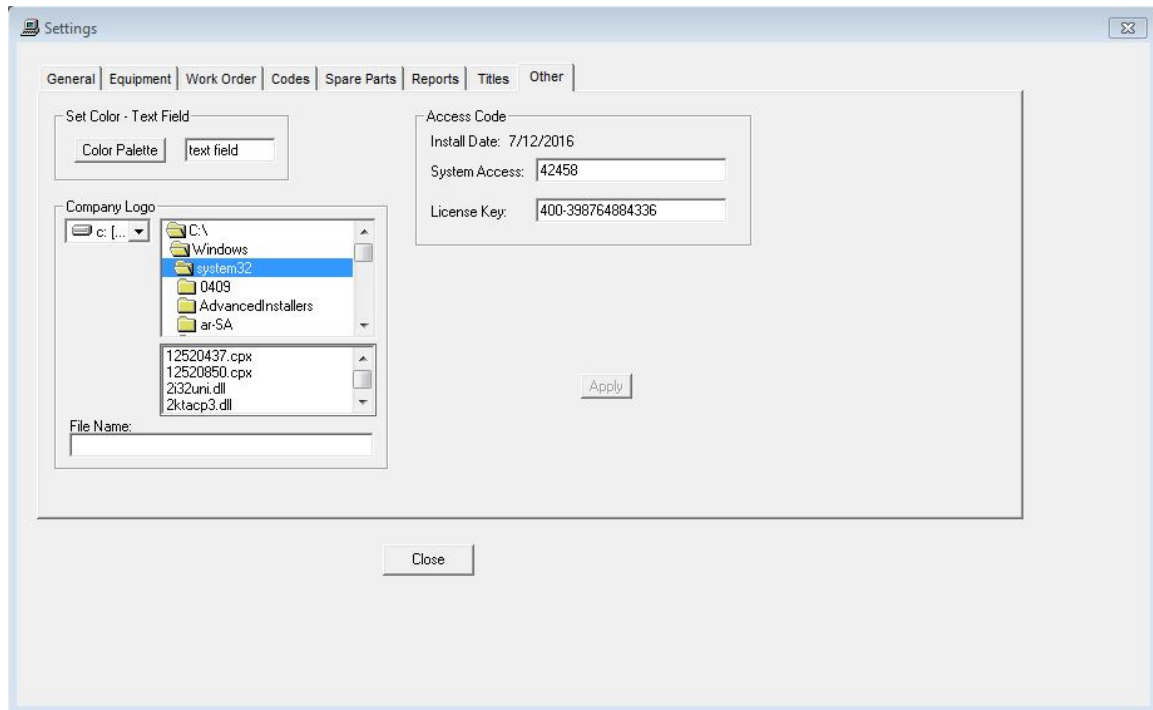


Access Code

The software is fully functional, however it remains a restricted (time and number of records) use version until it is unprotected.

To remove the protection, click on the **View** menu item. From the pull down menu, select **Settings**.


In the settings screen, click on the tab titled **Other**.

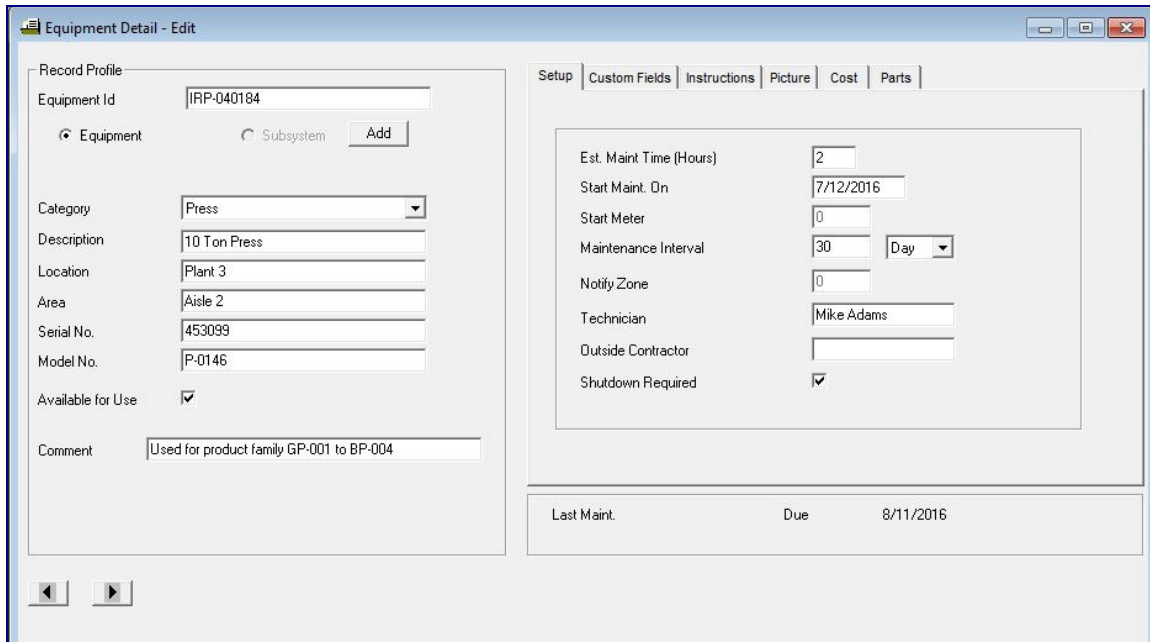


In the top left segment of the access code frame an **Install Date** is displayed.

Please provide this install date to us by e-mail to **support@pister.com** or calling at **(905) 886-9470**. We will then provide you with the appropriate system access code and license key.

Add/Edit Equipment Detail

To set up or edit equipment information, click on the menu item **File** and from the pull down menu select  **Equipment**



The fields in the equipment detail record window are described below. All field entries are optional with the exception of those shown in *italics*.

Fields- Buttons -Tabs	Description
<i>Equipment Id</i>	Each equipment requires a unique id – can be alpha/numeric
<i>Category</i>	General grouping name – pick from a user populated list
<i>Description</i>	Usually the type of equipment
<i>Available for Use</i>	The equipment is active and will be included in reports like due etc.
<i>Start Maint. On</i>	If no equipment history exists, the maintenance interval is added to this date to produce the next preventive maintenance date <i>Note:</i> - the default date shown is the current system date and can be changed by the user. Some short cut keys are: <ul style="list-style-type: none">- the +/- keys advance/decrease the date shown- type y for first of year and r for end - YeaR- type m for first of month and h for end - MonthH
<i>Interval Units</i>	Maintenance interval units can be set to day, week, month or year Meter option: units are in count
<i>Start Meter</i>	If no equipment history exists, the maintenance interval count is added to this meter count to produce the next PM end count
<i>Maintenance Interval</i>	The time period between maintenance – day, week, month or year Meter: PM required when the current count – last PM count exceeds meter interval
<i>Notify Zone</i>	If using the meter option, notify zone is a buffer count subtracted from the end count. It triggers a notification of approaching the end count

Custom Fields

There are 5 user defined fields that can be set up either globally for all equipment or uniquely for each equipment.

The screenshot shows a software window with a tabbed interface. The tabs are 'Setup', 'Custom Fields' (which is selected), 'Instructions', 'Picture', 'Cost', and 'Parts'. The 'Custom Fields' tab is divided into two main sections: 'Field Name' and 'Field Content'. Under 'Field Name', there are four text input fields; the first two contain 'Manufacturer' and 'Rate'. Under 'Field Content', there are four text input fields; the first two contain 'ABC Press Co.' and '35 pieces per min.'.

Fields- Buttons -Tabs	Description
Field Name	This is the title of the field
Field Content	This is the content of the field

Instructions

The instructions on how to perform the preventive maintenance can exist at the global level or uniquely keyed in for each equipment. The default is global.

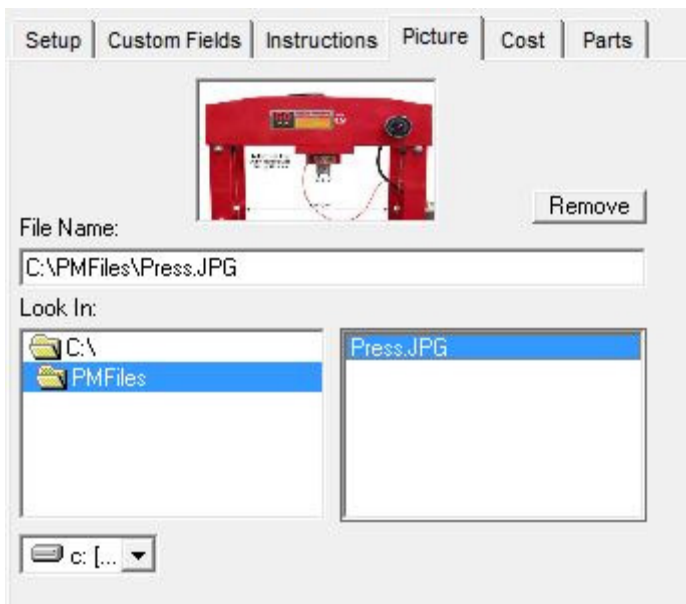
Click on the **Instructions** tab then on the  button to obtain a list of existing instructions. Double click on the appropriate instruction.

The screenshot shows a software window with a tabbed interface. The tabs are 'Setup', 'Custom Fields', 'Instructions' (which is selected), 'Picture', 'Cost', and 'Parts'. The 'Instructions' tab contains a 'Global Instructions Link' section with a text input field containing 'PM-001' and a 'Find' button. Below this is a 'Details:' section with a large text area containing the following text: 'Remove slide arm marked A-1 and inspect for any signs of damage including nicks, cracks etc.' and 'Replace with new slide arm if not totally smooth.'.

Fields- Buttons -Tabs	Description
Find Button	List of global pm instructions to choose from
Global Instructions Link	Instruction identifier
Details	At the global level the details are retrieved At the local level instructions details are keyed in here

Equipment Picture

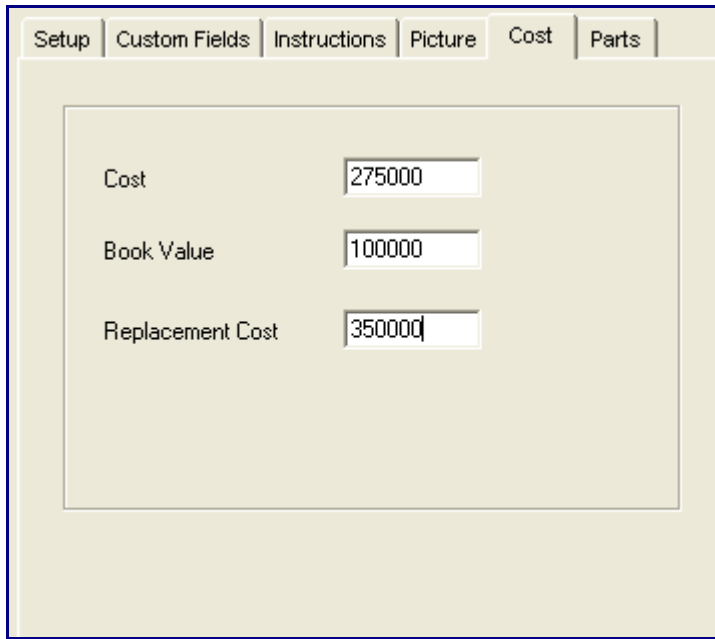
A picture of the equipment or subsystem can be displayed on various reports. Click on the **Picture** tab to identify the picture file information.



Fields- Buttons -Tabs	Description
File Name	Location of picture file (many graphic formats supported)
Remove Button	Removes picture file from current equipment record

Cost

Equipment cost details can be recorded. Click on the **Cost** tab and key in the relevant cost values.



Tab	Cost	Book Value	Replacement Cost
Setup			
Custom Fields			
Instructions			
Picture			
Cost	275000	100000	350000
Parts			

Parts

Parts that would normally be required to perform the PM activity can be identified.


Before the parts required for the current equipment can be identified, a spare parts inventory must exist. This is a separate function of the PM-Pro system.

Click on the **Parts** tab and then on the button (filing cabinet) to bring up a list of parts from which to choose.

Spare Parts List			
Part Number	Description	In Stock Qty	Classification
P-011455	1.5 inch Washer	500	Washers
P-011693	2 inch Bolt	350	Bolts

Fields- Buttons	Description
Find	One may scroll through a list or type in the first letters of the part
Spare Part List	Double click on the part number to add it to parts required by the equipment for PM

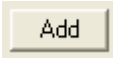
Saving Information

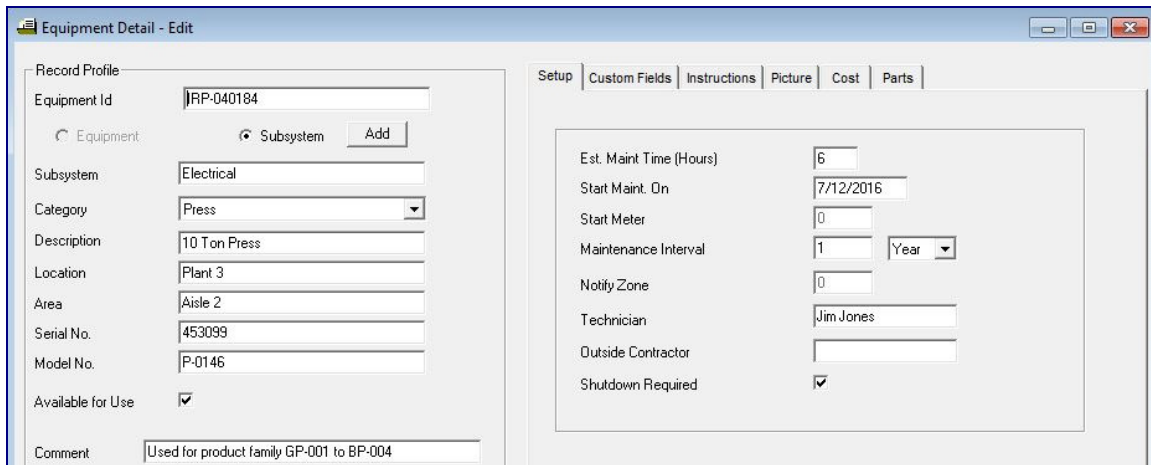
In order to retain all the equipment detail information click on the **Save**  tool bar button.

Subsystem

Each equipment can have one or more subsystems maintained at different intervals.

As an example, the electrical system might be maintained every year and the mechanical system ever three months etc.

To create a subsystem for the equipment click on the subsystem  button.




The screenshot shows the 'Equipment Detail - Edit' window. On the left, the 'Record Profile' section contains fields for Equipment Id (JRP-040184), Subsystem (Electrical), Category (Press), Description (10 Ton Press), Location (Plant 3), Area (Aisle 2), Serial No. (453099), Model No. (P-0146), and a checked 'Available for Use' checkbox. A comment field at the bottom contains 'Used for product family GP-001 to BP-004'. On the right, the 'Setup' tab is active, showing fields for Est. Maint Time (Hours) (6), Start Maint. On (7/12/2016), Start Meter (0), Maintenance Interval (1 Year), Notify Zone (0), Technician (Jim Jones), Outside Contractor, and a checked 'Shutdown Required' checkbox. Other tabs include Custom Fields, Instructions, Picture, Cost, and Parts.

Many of the fields are retained from the MAIN equipment detail.

Fields- Buttons	Description
Subsystem	Identifier for subsystem
Maintenance Interval	Can be different than the Main equipment
All other Tabs and Fields	Can be the same as the Main equipment or different

Saving Information

In order to retain all the equipment subsystem detail information click on the **Save**  tool bar button.

Equipment Copy

It is possible to use an existing equipment setup to create a new equipment record. This avoids having to key in similar information. With the equipment detail window active, click on the menu item **Edit** and from the pull down click on **Equipment Copy**. A pop up window will appear. Enter the new Equipment id. All the existing equipment detail will be assumed by the new equipment id.

Equipment Detail Report

To obtain a formatted report of the equipment detail click on the menu item **Report** and from the pull down click on **Detail Report**.

Equipment Detail



7/12/2016
Page 1 of 1

Equipment Id	IRP-040184	Description	10 Ton Press
Category	Press	Location	Plant 3
Serial No.	453099	Area	Aisle 2
Available for Use	Yes	Model No.	P-0146
Maintenance Interval	30 Day(s)	Technician	Mike Adams
Est. Maint Time (Hours)	2	Outside Contractor	
Start Maint. On	7/12/2016	Last Maint.	
		Due	8/11/2016
Book Value			
Replacement Cost			
Manufacturer	ABC Press Co,		
Rate	35 pieces per minute		
Comment	Used for product family GP-001 to BP-004		
Instructions	PM-001	1.0	
Remove slide arm marked A-1 and inspect for any signs of damage including nicks, cracks etc.			

Equipment Maintenance Based on Meter Reading

A similar set of steps are used to set up an equipment maintenance schedule based on a meter reading instead of a date.

The screenshot shows the 'Equipment Detail - Edit' window. On the left, the 'Record Profile' section contains fields for Equipment Id (BGP-011693), Category (Paint), Description (Paint Spray Nozzle), Location (Plant 01), Area (Dept. 22), Serial No. (2468-ABC), Model No. (9876321), and a checked 'Available for Use' checkbox. On the right, the 'Setup' tab is active, showing fields for Est. Maint Time (Hours) (1), Start Maint. On (7/14/2016), Start Meter (0), Maintenance Interval (100) with a 'Meter' dropdown, Notify Zone (10), Technician (Wally), Outside Contractor, and a checked 'Shutdown Required' checkbox. At the bottom right, a summary box shows 'Last Maint.' and 'Last Meter' with a 'Due' value of 100.












Fields- Buttons	Description
Start Meter	Initial meter reading – interval will be added to this to determine point at which maintenance is required for the first time
Maintenance Interval	Select Meter from the pull down list
Notify Zone	If using the meter option, notify zone is a buffer amount subtracted from the due meter reading point It triggers a notification indicating the due meter value is approaching

Tool Bar Buttons

A number of tool bar buttons are displayed at the top.



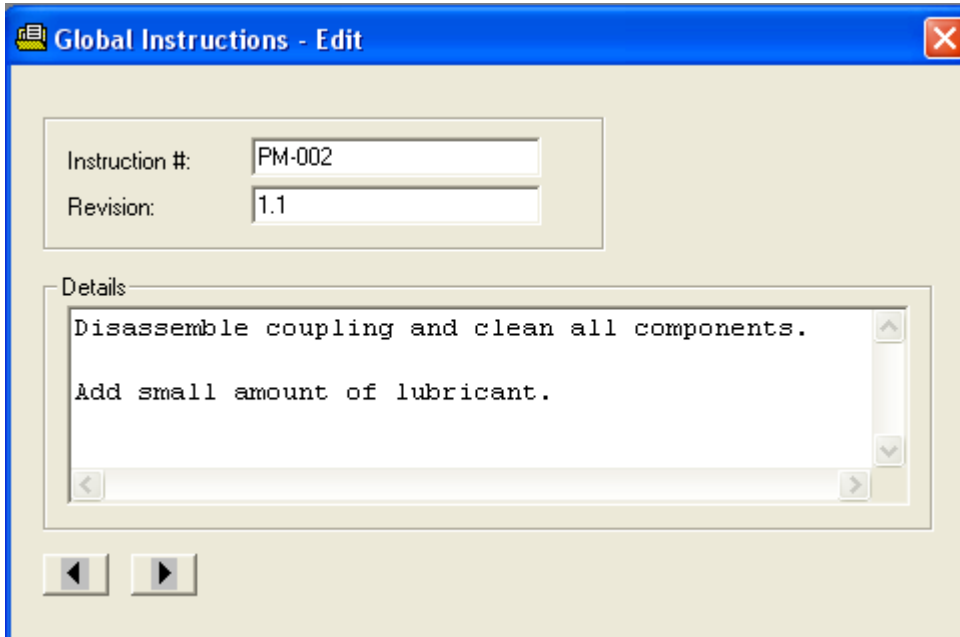
If the buttons are not grayed out then they are available for the active window.

Tool Bar Buttons		Description
	Save	Saves all elements related to the current equipment record
	Find	Find an equipment either by typing in the id or picking from a list
	New	Clears out field contents, and allows new information to be entered for a new equipment
	Undo	Field contents reverts back to original content
	Cut	The highlighted text is cut and placed in windows clipboard
	Copy	The highlighted text is copied and placed in windows clipboard
	Paste	The contents of the clipboard are pasted in the active field
	Delete	Deletes the current record
	Equipment Detail	Advances to the equipment detail window
	Transaction	Advances to the transaction window where PM or unscheduled activity is detailed and saved
	Due Calendar	Displays a full calendar for the selected month, identifying equipment due for maintenance.

Maintenance Instructions - Setup

To setup/edit a maintenance instruction, click on the menu item **File** and from the pull down menu select **Instruction**.

Click on the **New**  button to start a new instruction.




The image shows a software window titled "Global Instructions - Edit". It contains two input fields: "Instruction #:" with the value "PM-002" and "Revision:" with the value "1.1". Below these is a "Details" section with a text area containing the text: "Disassemble coupling and clean all components." and "Add small amount of lubricant." At the bottom of the window are two navigation buttons, one with a left arrow and one with a right arrow.

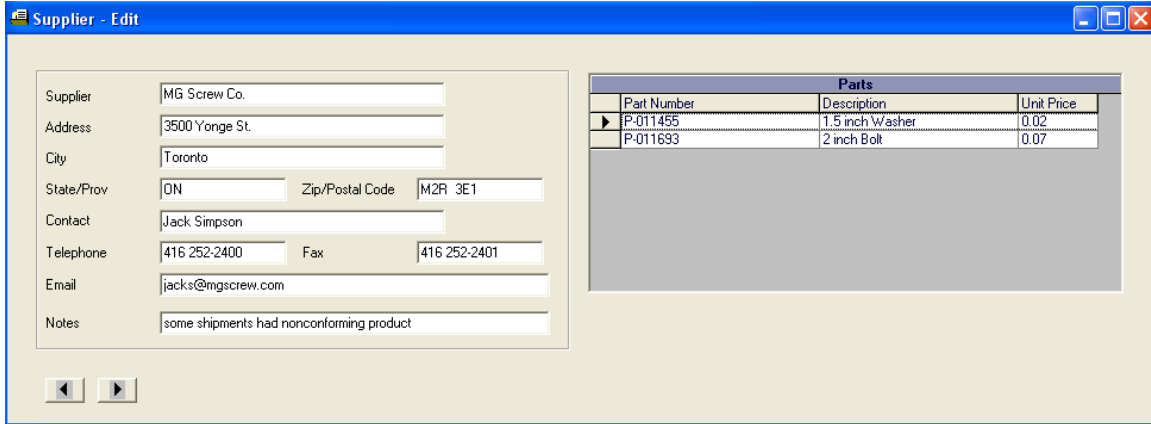
Fields- Buttons	Description
Instruction #	Alpha/Numeric instruction identification
Revision	Alpha/Numeric revision level
Details	Free format text – procedure details

To store the maintenance instruction information, click on the **Save**  tool bar button.

Suppliers

To setup/edit a supplier of parts, click on the menu item **File** and from the pull down menu select **Supplier**.

Click on the **New**  button to start a setup a new supplier.



Fields- Buttons	Description
Supplier #	Alpha/Numeric supplier name
Parts	Table of parts is populated based on the spare parts system

To store the supplier information, click on the **Save**  tool bar button.

Spare Parts Inventory

A record of each spare part can be set up, including quantity in stock, suppliers that provide the part and equipments that use the part.

Click on **FILE – SPARE PARTS** to open the spare parts add/edit screen.

Supplier		
Supplier	Unit Price	Notes
ACME Industrial Supply	0.03	try to use this supplier if possible
MG Screw Co.	0.02	


Fields- Buttons	Description
Part Number	Alpha/Numeric part identification
In Stock Qty	Amount currently in stock
Minimum Qty	Point at which part has to be reordered
Class	Family category in which part belongs
Location	Physical location where part will be found
Supplier	Click on the supplier rolodex button to identify one or more suppliers
Equipment	Equipments using the part can optionally be identified

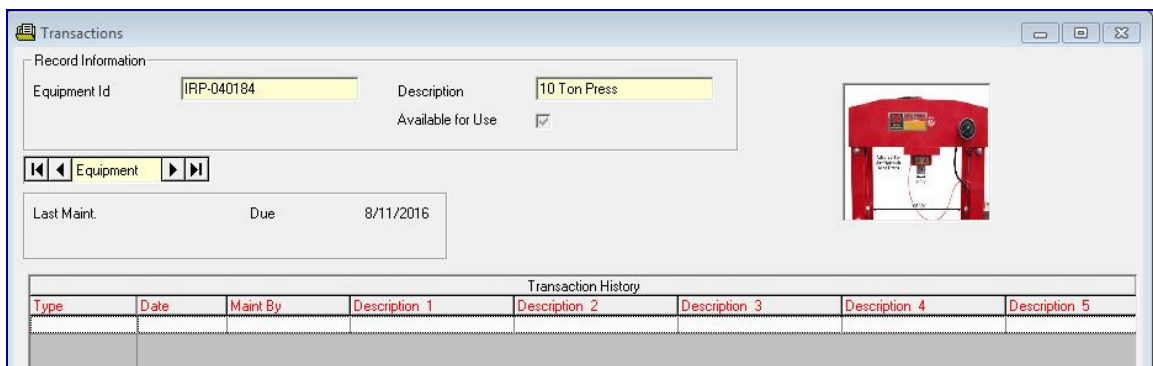
To store the spare part details, click on the **Save**  tool bar button.

Transactions

The transaction system provides the mechanism to record any activity on a particular equipment.

If the transaction type is a preventive maintenance then the next scheduled PM date is calculated based on the maintenance interval. If it is an unscheduled or other maintenance category then the scheduled PM date is unaffected.

Click on the menu item **File** and from the pull down select **Transactions**. An alternate method is to click on the **Transaction**  tool bar button.




The screenshot shows the 'Transactions' window. It has a 'Record Information' section with fields for 'Equipment Id' (IRP-040184), 'Description' (10 Ton Press), and a checked 'Available for Use' checkbox. Below this is a navigation bar with 'Equipment' selected. A 'Last Maint.' section shows 'Due' as 8/11/2016. On the right is a small image of a red hydraulic press. At the bottom is a 'Transaction History' table.

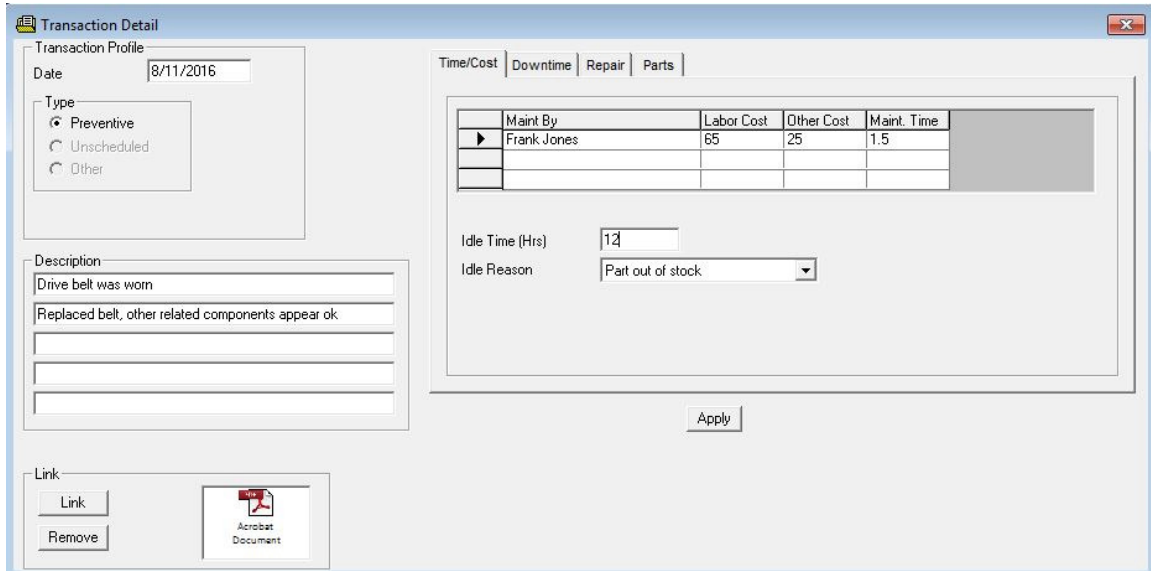
Type	Date	Maint By	Description 1	Description 2	Description 3	Description 4	Description 5

If there is maintenance history it will be shown in the table at the bottom.

To edit a maintenance record, double click on the record of interest.

Add Transaction

To enter a new maintenance transaction, click the **NEW**  button on the tool bar.



Fields- Buttons	Description
Date	Date on which maintenance was performed <i>Note:</i> - the default date shown is the current system date and can be changed by the user. Some short cut keys are: <ul style="list-style-type: none">- the +/- keys advance/decrease the date shown- type y for first of year and r for end - YeaR- type m for first of month and h for end - MonthH
Type	Identify the type of maintenance – PM, unscheduled or other
Description	Free format up to 5 lines
Link	Link to an external document (e.g. certificate of maintenance) Double clicking on the linked document icon, calls up document
Idle Time	Wait time – before maintenance is started
Idle Reason	Pull down list of idle reasons
Downtime/Repair Tabs	Downtime Reasons and Repair Codes for Unscheduled Maintenance
Parts Tab	Identify parts used during maintenance
Apply	Saves all information entered

Note: the downtime, repair codes and spare parts tables have to be populated prior to having these elements available. This is described elsewhere in this guide.

Unscheduled Maintenance

To record an unscheduled maintenance (machine breakdown), set the **Type** option button to **Unscheduled**

If unscheduled work orders were set up (see section 5 of manual) then a pop up grid listing the work orders will be displayed.

Double click on the work order that has been completed. Information will be transferred to the Transaction Detail record.

The screenshot shows the 'Transaction Detail' window with the 'Type' set to 'Unscheduled'. A pop-up window titled 'Unscheduled Work Orders List for Current Equipment' is displayed, showing a table of work orders.

W/O Date	Status	Priority	Complete By	Technician	Reason	Shutdown	Instructions
7/15/2016	Outstanding	High	7/15/2016	james	Misuse	<input checked="" type="checkbox"/>	Feeder jammed - sheet steel lodged at stage 2
7/20/2016	Outstanding	High	7/25/2016	Stewart	Misuse	<input checked="" type="checkbox"/>	Main cam shaft needs to be replaced - currently cracked

If key performance indicators (KPI) such as Mean Time Between Failure (MTBF) and Mean Time To Repair (MTTR) are desired, details including when the equipment went DOWN and when it was back UP can be entered.

The screenshot shows the 'Transaction Detail' window with the 'Type' set to 'Unscheduled'. The 'Description' field contains 'Jam in primary feed'. The 'Down' and 'Up' fields are populated with dates and times.

Time/Cost	Downtime	Repair	Parts
Maint By	Labor Cost	Other Cost	Maint. Time
Stewart			

Idle Time (Hrs):
Idle Reason: (none)

Down Date: 3/10/2017 Time: 10:00 AM
Up Date: 3/12/2017 Time: 3:00 PM

Apply

Once the APPLY button is clicked the transaction is saved and if equipment DOWN (date / time) and equipment UP (date / time) are entered, a revised calculation for MTBF and MTTR are performed and displayed.

The Transactions window displays the following information:

- Record Information:** Equipment Id: JRP-040184, Description: 10 Ton Press, Available for Use: ☒
- Equipment:** Last Maint.: 3/12/2017, Due: 8/16/2017
- Performance Indicators (Unscheduled):** MTBF (Hrs.): 1295, MTTR (Hrs.): 40
- Transaction History Table:**

Type	Date	Maint By	Description 1	Description 2	Description 3	Description 4	Description 5
Unscheduled	7/15/2016	James	Misuse				
Preventive	8/11/2016	Frank Jones	Drive belt was worn	Replaced belt, other relater			
Preventive	8/17/2016		Test Parts Inventory				
Unscheduled	1/15/2017	Bill	Misuse				
Unscheduled	3/12/2017	Stewart	Jam in primary feed				
Preventive	3/16/2017		All activities performed				

Downtime / Repair Codes

Downtime reason and repair codes can be stored with the transaction record. Click on the **Downtime** tab and then on the **List** button. Double click the downtime code(s) that are to be assigned to this transaction.

The Transaction Detail window shows the Downtime tab selected. A Downtime List dialog box is open, displaying a list of codes:

- Clogged Feed
- Transfer Jammed
- Broken Temperature Control
- Heater Element Cracked
- Pressure Indicator
- Bearing Cracked

The main window also shows a table with the following data:

Code	Description
M01	Clogged Feed

The List button is visible next to the table, and the Apply button is at the bottom right.

In a similar way the repair code can be assigned to the transaction.

Parts

To record the parts used during the maintenance, click on the Parts tab.

Part Number	Description	Qty Used	Unit Price	Total Price
P-011455	1.5 inch Washer	1	0.03	0.03
P-011693	2 inch Bolt	2	0.07	0.14

List

Total 0.17

Fields- Buttons	Description
List Button	Table listing all spare parts – double click on the part to add it to the parts used for maintenance
Qty Used	Used to calculate total price Quantity entered will be removed from spare parts inventory

Click on the **Apply** button to save the maintenance transaction record.

Delete Transaction

To delete a specific transaction, call it up on the screen and click on the **Delete**



tool bar button.

Transaction – Meter Based

Equipment maintenance that is dependant on a meter value is handled by a transaction that is meter based.

All elements of the transaction remain the same except there is a field to accept the current meter reading.

The screenshot shows a software window titled "Transaction Detail" with a close button in the top right corner. The window is divided into several sections:

- Transaction Profile:** Contains a "Date" field with the value "7/15/2016". Below it is a "Type" section with three radio buttons: "Preventive" (which is selected), "Unscheduled", and "Other". At the bottom of this section is a "Meter" field with the value "100".
- Description:** A text area containing the text "Added lubricant and cleaned drive shaft". Below this are four empty text input lines.
- Time/Cost:** A tabbed interface with four tabs: "Time/Cost" (selected), "Downtime", "Repair", and "Parts".
 - Under the "Time/Cost" tab, there is a table with the following data:

Maint By	Labor Cost	Other Cost	Maint. Time
▶ Jimmy	85	15	1.5
 - Below the table, there is an "Idle Time (Hrs)" field with the value "1" and an "Idle Reason" dropdown menu currently showing "(none)".

An "Apply" button is located at the bottom right of the window.

The maintenance interval is added to the current meter reading to determine the meter reading where the equipment will be due for maintenance.

Report Options

It is possible to manipulate what is retrieved from the database prior to generating a report. For example the equipment due for maintenance could be filtered to include only equipment due for a particular date range etc.

If the data set is to include all equipment, then the report options can be bypassed.


From the menu options at the top, click on the menu item **Report** and from the pull down, click on **Report Options**.

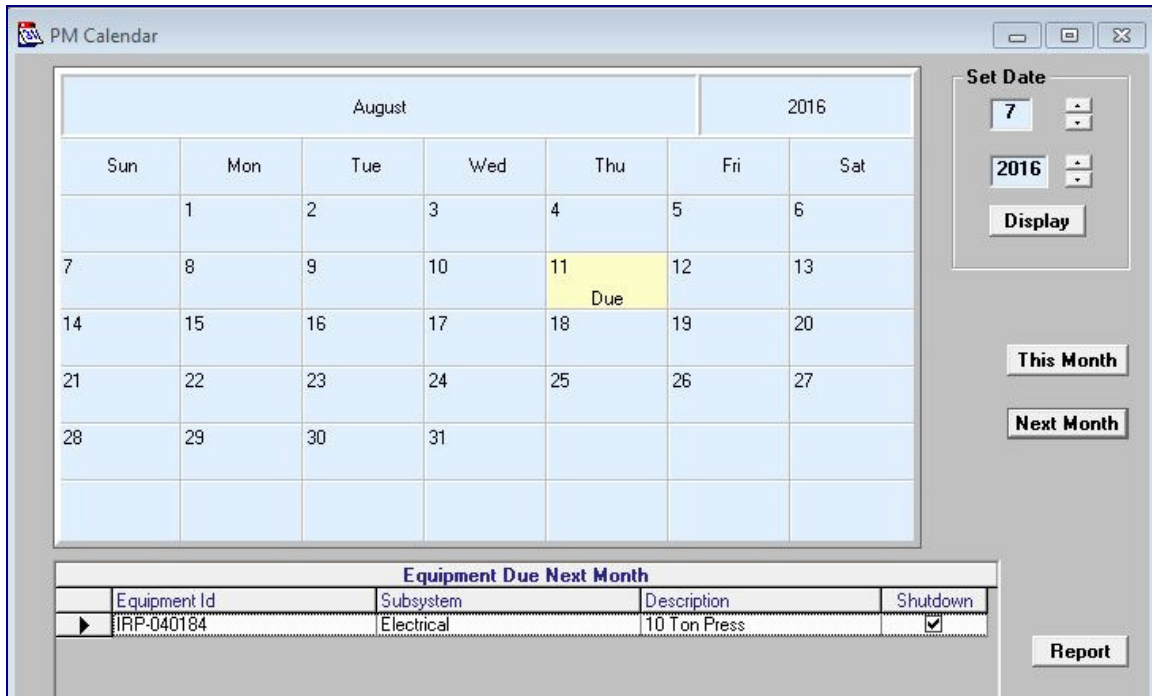
Filter Range		
Field Name	From	To
Equipment Id		
Subsystem		
Category	Paint	Paint
Location		
Manufacturer		
Capacity		
Rate		

Tab - Buttons	Description
Filter Tab	Enter a from/to range for selected field name
Range Tab	Retrieve all history or a data set for a selected date range
Which Tab	Data set to include active equipment or not active or both Choice of Scheduled or Unscheduled or both
Sort Tab	Report will list items in alpha-numeric order based on the selected sort field from the pull down menu
Criteria Tab	Work Orders: Scheduled or Unscheduled Type of Scheduled PM: based on date or meter reading
Spare Parts Tab	Spare parts report can show everything or be narrowed down based on the part classification
Reset Button	Default settings restored
Apply Button	Accepts all the selected report options

Equipment Due Calendar

This report identifies the days during the month where a scheduled (PM) maintenance will be required. It also details the equipment that will be due in the selected month.

To obtain this report click on the calendar  tool bar button or click on **Report – Due Calendar**



August 2016						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11 Due	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Equipment Id	Subsystem	Description	Shutdown
IRP-040184	Electrical	10 Ton Press	<input checked="" type="checkbox"/>

Fields- Buttons	Description
Set Date	Identify the month and year to display
Display Button	Displays due days for the month selected
Due	Clicking on a due date, displays the equipment due on due date
Report	Generates a equipment due for maintenance report

Equipment Due Report

This report lists equipment due for maintenance. The criteria can be as simple as those equipment due currently or based on the various selection elements detailed in the report options segment.

To obtain this report click on **Report – Due**

Equipment Id	Subsystem	Category	Description	Location	Due
IRP-040184		Press	10 Ton Press	Plant 3	9/12/2016
IRP-040184	Electrical	Press	10 Ton Press	Plant 3	8/11/2016
JP-042458		Paint	Fume Ventilation	Paint Dept.	9/14/2016
TMP-012588		Press	Conveyor	Metal Stamping	9/26/2016

Buttons	Description
Print Button	Prints full page hard copy
Export Report	Send report to an external file / e-mail the report

Equipment Due – Meter Based Report

Prior to obtaining a list of equipment due for maintenance based on a meter value, click on **Reports – Report Options – Criteria** and set the **Unit** to **Meter**.

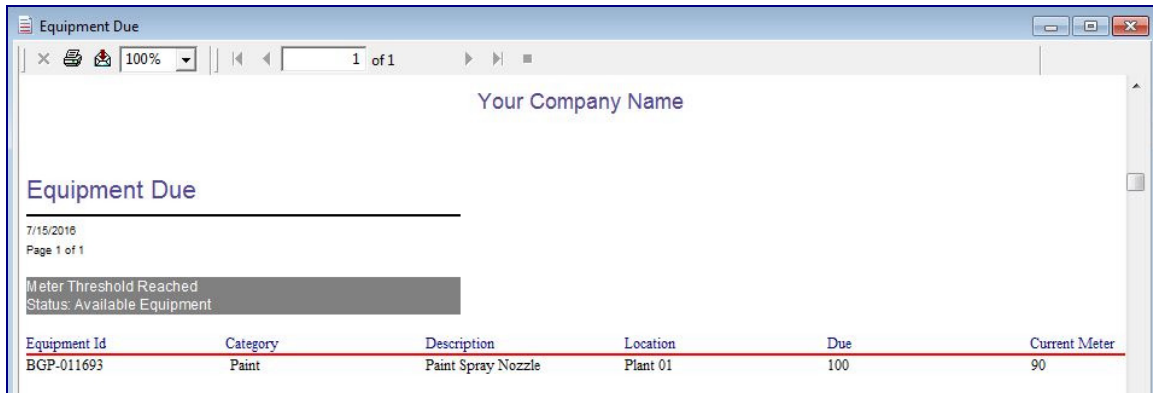
Unit

☐ Date

☒ Meter

Any equipment that has reached the threshold meter value will be retrieved. The threshold is based on the next due meter value minus the notify zone value.

To obtain the report click on **Report – Due**.

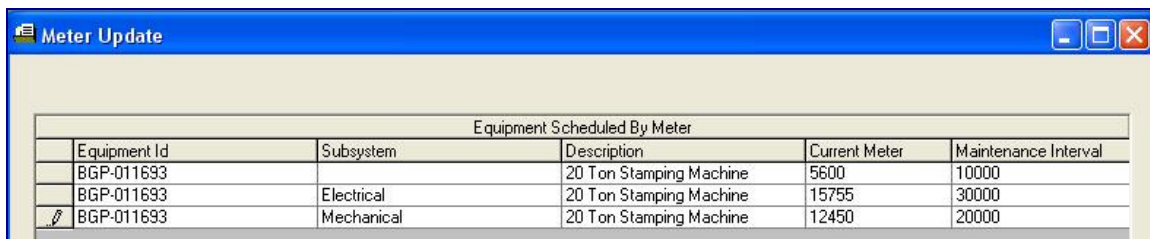


Equipment Id	Category	Description	Location	Due	Current Meter
BGP-011693	Paint	Paint Spray Nozzle	Plant 01	100	90

Updating Meter Values

In order for the system to determine if an equipment is due for maintenance based on a meter value, the current meter value must be recorded.

To update the current meter value, click on **File – Meter Update**



Equipment Id	Subsystem	Description	Current Meter	Maintenance Interval
BGP-011693		20 Ton Stamping Machine	5600	10000
BGP-011693	Electrical	20 Ton Stamping Machine	15755	30000
BGP-011693	Mechanical	20 Ton Stamping Machine	12450	20000

Equipment maintenance scheduled based on meter value are listed.

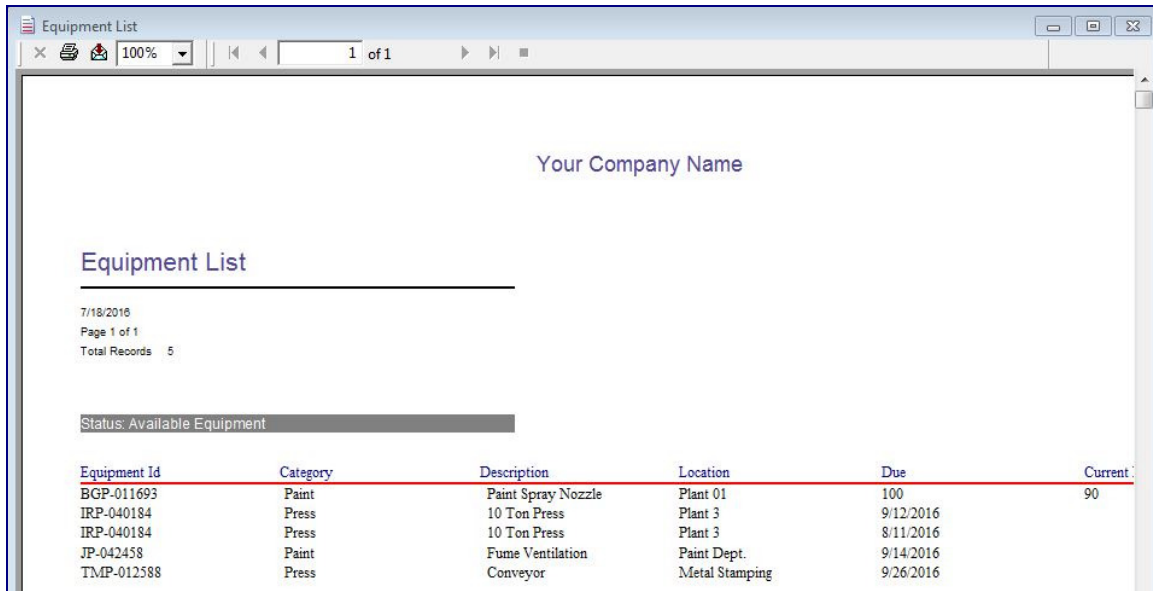
The current meter reading can be manually entered.

If the current meter value is greater than or equal to the next due meter value minus the notify zone value then it is considered due for maintenance.

Equipment List Report

This report lists all equipment in the system. The list can be narrowed down based on filter criteria entered in the Report Options segment.

To obtain this report click on **Report – Equipment List**



Equipment Id	Category	Description	Location	Due	Current
BGP-011693	Paint	Paint Spray Nozzle	Plant 01	100	90
IRP-040184	Press	10 Ton Press	Plant 3	9/12/2016	
IRP-040184	Press	10 Ton Press	Plant 3	8/11/2016	
JP-042458	Paint	Fume Ventilation	Paint Dept.	9/14/2016	
TMP-012588	Press	Conveyor	Metal Stamping	9/26/2016	

Equipment Work Order

The work order is the paperwork given to the maintenance technician. It is not a required element of the software and is used if needed.

It includes the maintenance instructions. Space is provided to enter labour time/cost as well as material cost. Space for a comment, signatures and other key items are part of the report.

The criteria can be as simple as those equipment due currently or based on the various selection elements detailed in the report options segment.

To obtain this report click on **Report – Work Order**

Work Order Report

100% 1 of 3

Your Company Name

Work Order

7/18/2016 Page 1 of 1

Please be advised that the following equipment is due for Preventive Maintenance

Technician	Mike Adams	Description	10 Ton Press
Equipment Id	IRP-040184	Category	Press
Location	Plant 3	Area	Aisle 2
Serial No.	453099	Model No.	P-0146
Available for Use	Y		
Maintenance Interval	30 Day(s)	Last Maint.	8/11/2016
		Start Maint. On	7/12/2016
Manufacturer	ABC Press Co.		
Rate	35 pieces per min.		

Due	9/12/2016	Outside Contractor	
Shutdown Required	<input checked="" type="checkbox"/>		

Unscheduled Maintenance

An unscheduled maintenance activity can be recorded in the usual manner through the transaction portion of the software.

If work orders are desired, then the process of accommodating unscheduled maintenance requires the setup of unscheduled work orders.

Once the unscheduled work order is set up the steps to generate reports is similar to a scheduled maintenance.

Click on **File – Work Orders** to open the unscheduled work order entry screen.

Work Orders - Unscheduled

Record Information

Equipment Id: IRP-040184 Description: 10 Ton Press Available for Use: ☒

Equipment

WO Details - Add

WO Date: 7/19/2016 Status: Outstanding Priority: High Complete By: 7/19/2016 Technician: Bill Reason: Misuse Shutdown Required: ☐

Instructions: Feeder jammed - sheet steel lodged at stage 2 Disassemble and clean out Apply

Unscheduled Work Orders

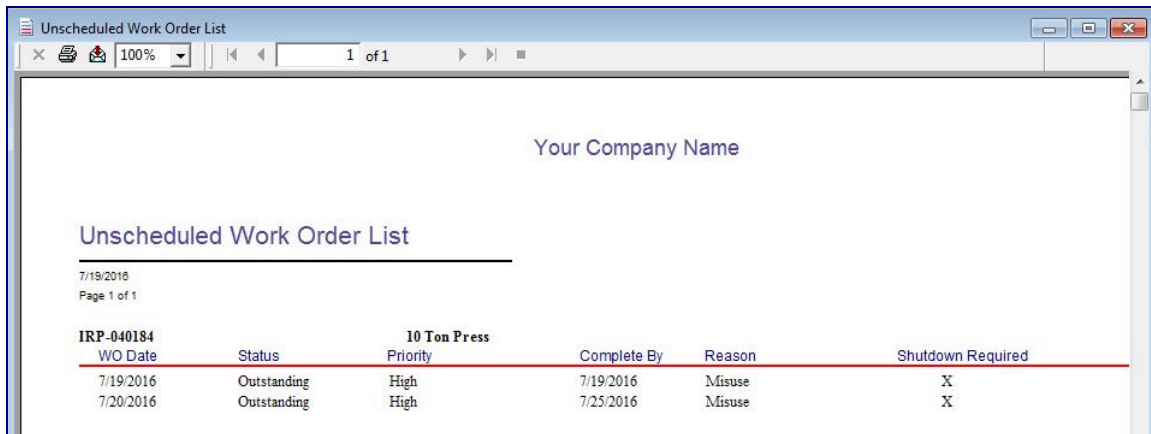
WO Date	Status	Priority	Complete By	Technician	Reason	Shutdown	Instructions
7/20/2016	Outstanding	High	7/25/2016	Stewart	Misuse	<input checked="" type="checkbox"/>	Main cam shaft needs to be replaced - currently cracked

Fields- Buttons	Description
Equipment Data Control	Move to different equipment id
W/O Date	Date work order initiated
Status Pull Down	Select status designation
Priority Pull Down	Select priority designation
Complete By	Desired completion date
Reason Pull Down	Assign a reason for the unscheduled maintenance
Instructions	Maintenance steps to follow – free format notes
Shutdown Check Box	Check if equipment shutdown necessary
Work Orders Grid	Lists the various unscheduled work orders for this equipment
Apply Button	Saves unscheduled work order and adds it to grid

Unscheduled Work Order List

This is a listing of all unscheduled work orders.

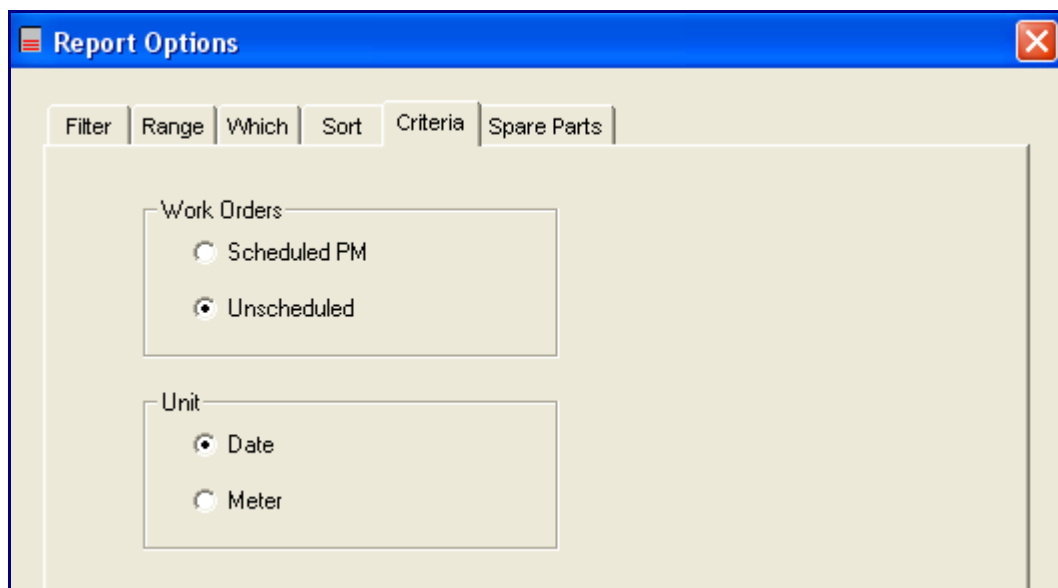
The list can be filtered based on the criteria entered in Report Options.



WO Date	Status	Priority	Complete By	Reason	Shutdown Required
7/19/2016	Outstanding	High	7/19/2016	Misuse	X
7/20/2016	Outstanding	High	7/25/2016	Misuse	X

Unscheduled Work Order

In order to obtain the work orders click on **Report – Report Options – Criteria** and select the option button **Unscheduled** in the Work Orders frame.




The unscheduled work orders can be retrieved by clicking on **Report – Work Orders**

Work Order Report

1 of 2

Your Company Name



Unscheduled Work Order

7/19/2016 Page 1 of 1

Please be advised that the following equipment is due for maintenance.

Technician	Bill	Description	10 Ton Press
Equipment Id	IRP-040184	Category	Press
Location	Plant 3	Area	Aisle 2
Serial No.	453099	Model No.	P-0146
Available for Use	Y		
Maintenance Interval	30 Day(s)	Start Maint. On	7/12/2016
Manufacturer	ABC Press Co.		
Rate	35 pieces per min.		

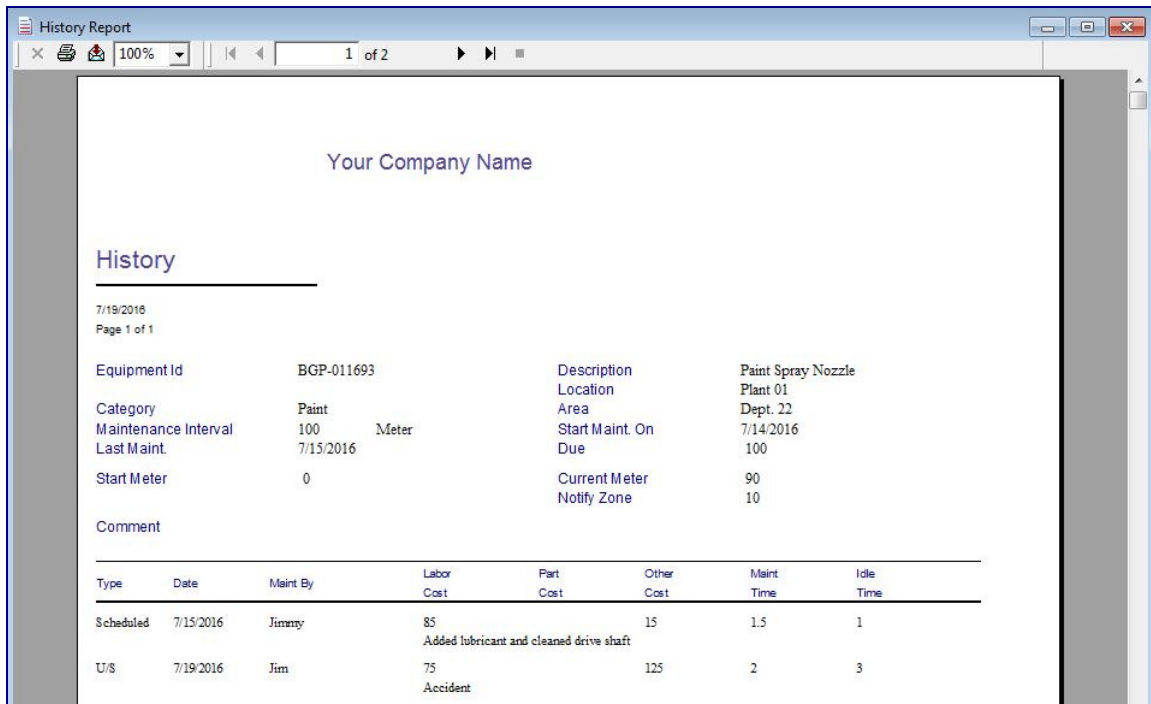
WO Date	7/19/2016	Status	Outstanding
Complete By	7/19/2016	Priority	High
Shutdown Required	<input checked="" type="checkbox"/>	Reason	Misuse

Equipment History

The history report displays a listing of all transactions performed on the equipment.

As with the other reports, the information displayed can be filtered based on what is entered in report options.

Click on **Report – History** to obtain the report.



The screenshot shows a web browser window titled 'History Report'. The page displays 'Your Company Name' at the top. Below this, the 'History' section shows details for Equipment Id BGP-011693. The details include Category: Paint, Maintenance Interval: 100 Meter, Last Maint: 7/15/2016, Start Meter: 0, Description: Paint Spray Nozzle, Location: Plant 01, Area: Dept. 22, Start Maint. On Due: 7/14/2016 100, Current Meter: 90, and Notify Zone: 10. A 'Comment' section follows, containing a table with transaction history.

Type	Date	Maint By	Labor Cost	Part Cost	Other Cost	Maint Time	Idle Time
Scheduled	7/15/2016	Jimmy	85		15	1.5	1
			Added lubricant and cleaned drive shaft				
U/S	7/19/2016	Jim	75		125	2	3
			Accident				

Cost / Time Analysis

A tabular report displays the various costs and time taken for both scheduled and unscheduled maintenance.

Click on **Reports – Cost / Time Analysis** to see the report.

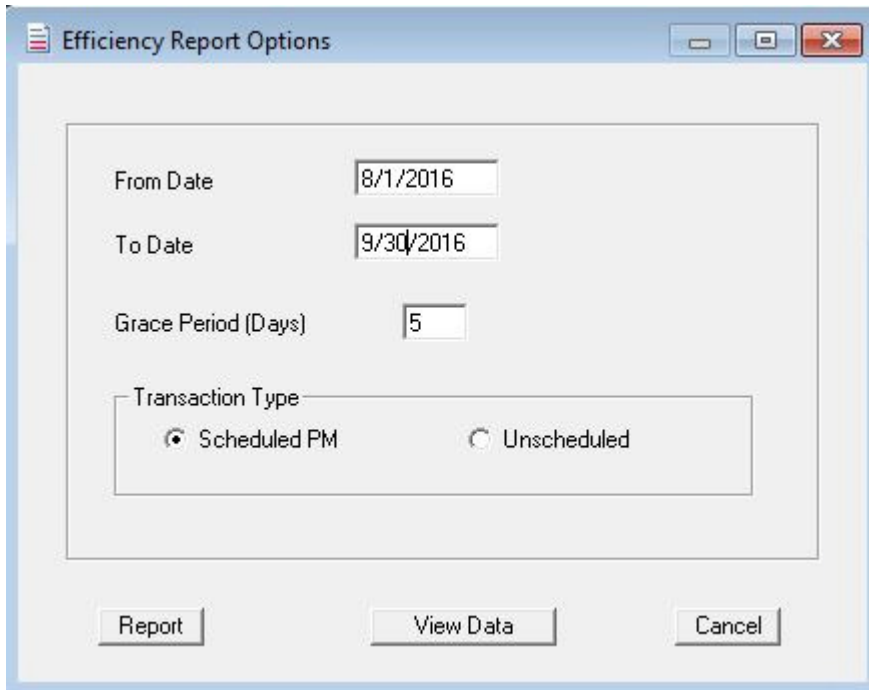
Your Company Name									
Cost/Time Analysis									
7/19/2018									
Page 1 of 1									
Total Records: 2									
Date Range: All History									
Status: Available Equipment									
Equipment Id	Category	Preventive				Unscheduled			
		Labor Cost	Part Cost	Other Cost	Time	Labor Cost	Part Cost	Other Cost	Time
BGP-011693	Paint	85.00	.00	15.00	1.50	75.00	.00	125.00	2.00
IRP-040184	Press	65.00	.00	25.00	1.50	55.00	.17	25.00	1.50
Total		\$150.00	\$0.00	\$40.00	3.00	\$130.00	\$0.17	\$150.00	3.50



Maintenance Efficiency


The purpose of this report is to identify if any delay occurs from the time that a maintenance action is scheduled to the time it actually is performed.

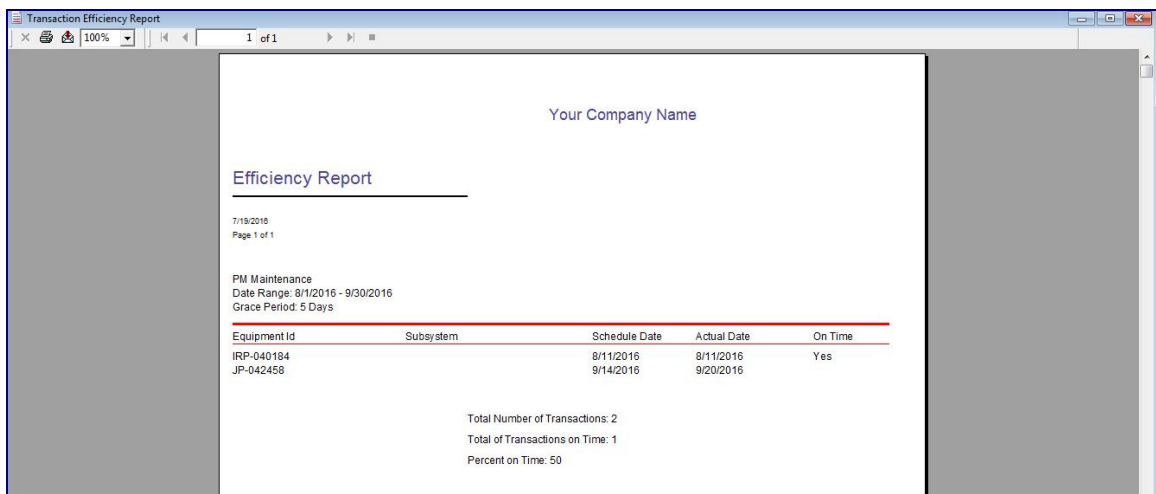
It will identify the percentage of maintenances that are on time.

Click on **Report – Efficiency** to view the set up screen.



Buttons	Description
From / To Dates	Period to be analyzed
Grace Period	Allowable delay from scheduled maintenance date
View Data	History of maintenance due dates and actual dates
	purge button to remove records prior to specified date
	Generates the efficiency report

Click on the  button to obtain the efficiency report.



Transaction Efficiency Report

1 of 1

100%

Your Company Name

Efficiency Report

7/19/2016
Page 1 of 1

PM Maintenance
Date Range: 8/1/2016 - 9/30/2016
Grace Period: 5 Days

Equipment Id	Subsystem	Schedule Date	Actual Date	On Time
IRP-040184		8/11/2016	8/11/2016	Yes
JP-042458		9/14/2016	9/20/2016	

Total Number of Transactions: 2
Total of Transactions on Time: 1
Percent on Time: 50

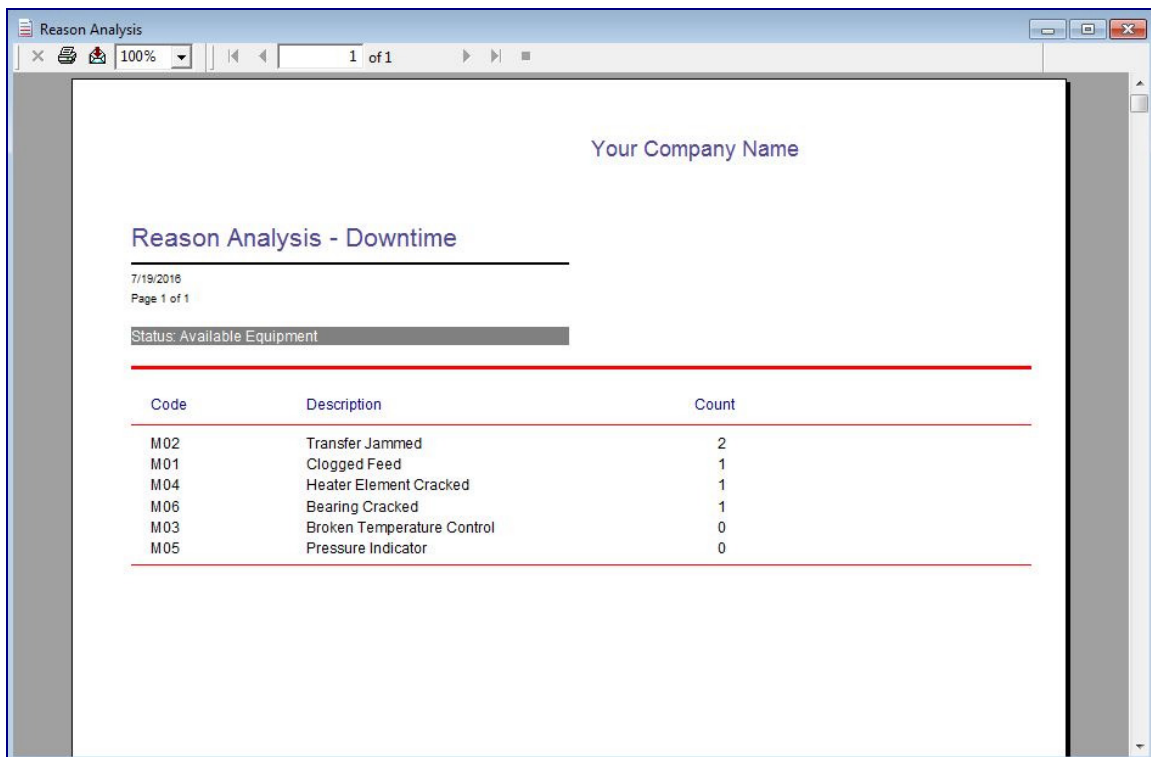
Reason Analysis

Several elements of maintenance can be monitored in terms of reasons such as:

- Downtime Reasons
- Repairs Performed
- Equipment Idle Time

An ordered list based on occurrences can be displayed for each of these elements.

For downtime analysis, click on ***Reports – Reason Analysis – Downtime***



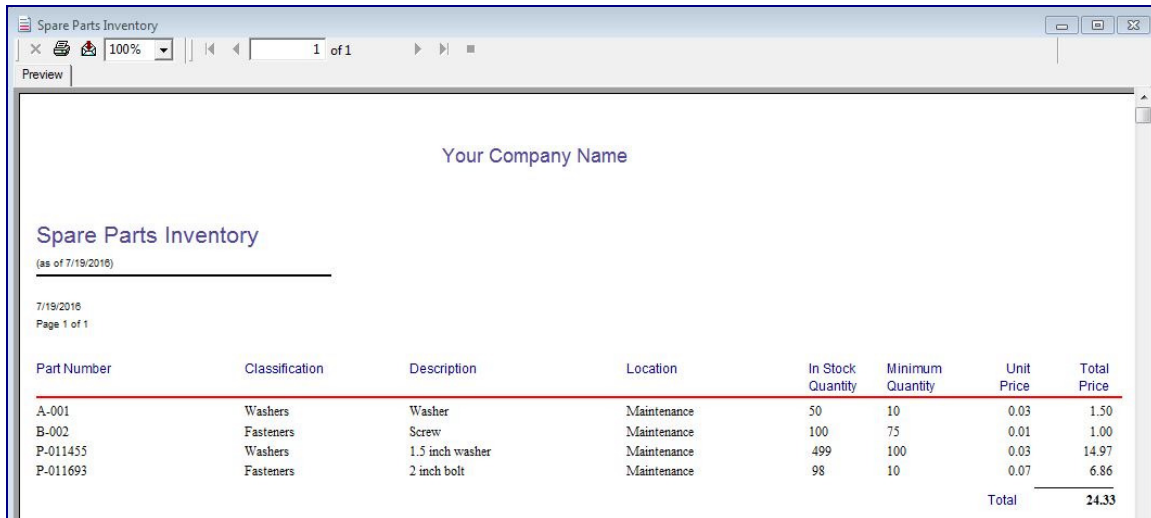
Code	Description	Count
M02	Transfer Jammed	2
M01	Clogged Feed	1
M04	Heater Element Cracked	1
M06	Bearing Cracked	1
M03	Broken Temperature Control	0
M05	Pressure Indicator	0

A similar report can be obtained for repairs performed or equipment idle time reasons.

Spare Parts Inventory

A tabular listing of spare parts quantity and value currently in inventory along with reorder thresholds are part of this report.

Click on **Report – Spare Parts – Inventory** to display the report.



Spare Parts Inventory

(as of 7/19/2016)

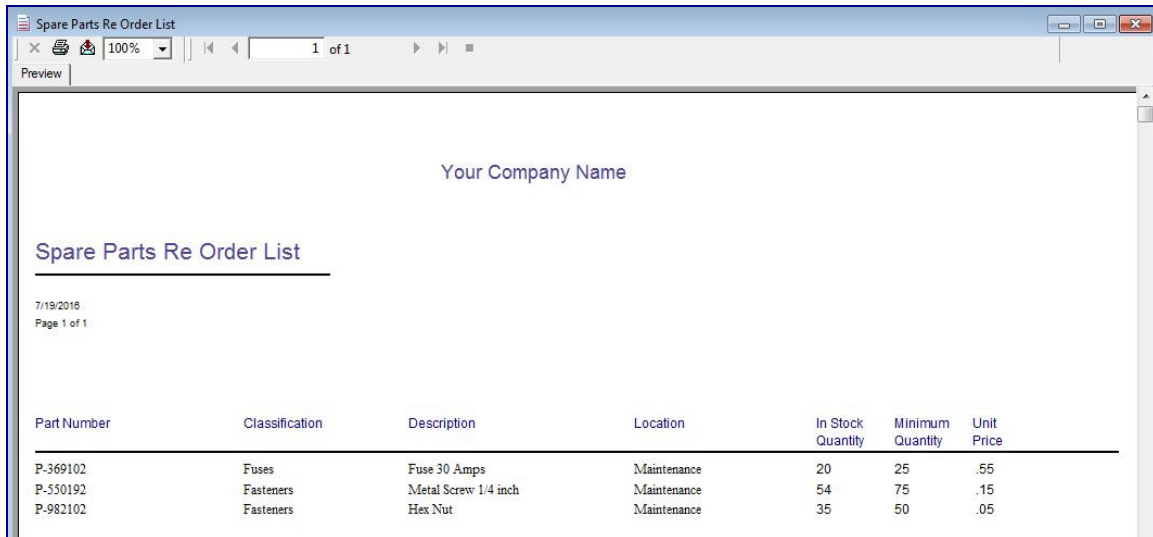
7/19/2016
Page 1 of 1

Part Number	Classification	Description	Location	In Stock Quantity	Minimum Quantity	Unit Price	Total Price
A-001	Washers	Washer	Maintenance	50	10	0.03	1.50
B-002	Fasteners	Screw	Maintenance	100	75	0.01	1.00
P-011455	Washers	1.5 inch washer	Maintenance	499	100	0.03	14.97
P-011693	Fasteners	2 inch bolt	Maintenance	98	10	0.07	6.86
						Total	24.33

Spare Parts Reorder

A tabular listing of those spare parts that need to be reordered based on inventory quantity being less than the minimum quantity threshold.

Click on ***Report – Spare Parts – Re-Order*** to display the report.



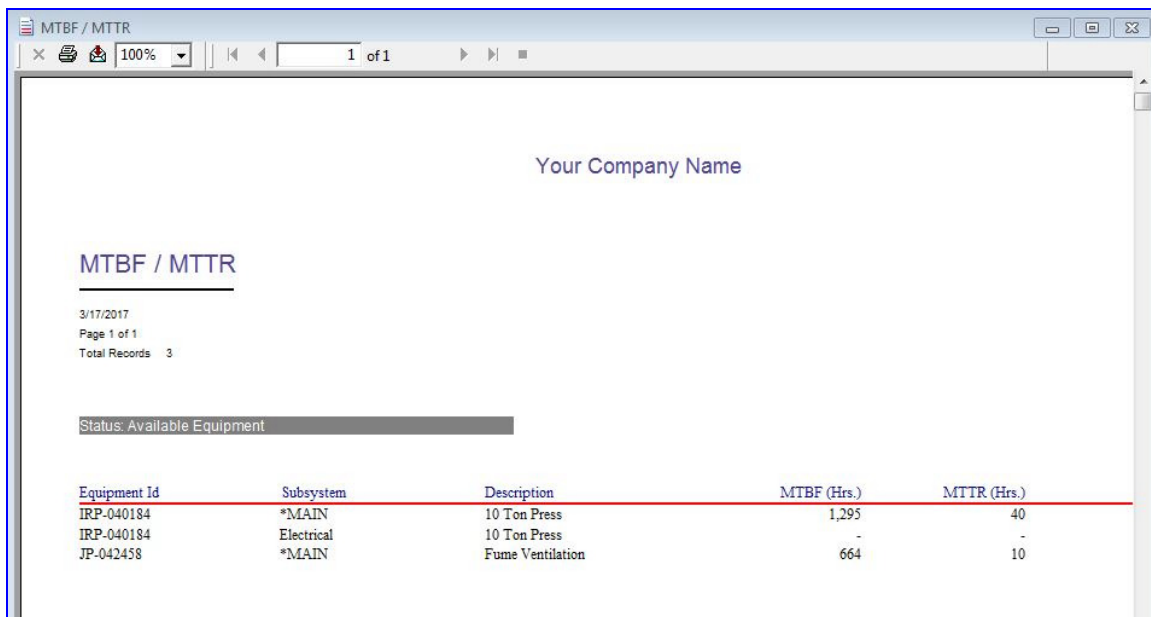
Part Number	Classification	Description	Location	In Stock Quantity	Minimum Quantity	Unit Price
P-369102	Fuses	Fuse 30 Amps	Maintenance	20	25	.55
P-550192	Fasteners	Metal Screw 1/4 inch	Maintenance	54	75	.15
P-982102	Fasteners	Hex Nut	Maintenance	35	50	.05

MTBF / MTTR

When an equipment has an unscheduled maintenance it is possible to record when the equipment went DOWN and when it was brought back UP.

This accumulated DOWN / UP information is used to calculate key performance indicators like Mean Time Between Failures (MTBF) and Mean Time To Repair (MTTR).

A tabular listing of each equipment's MTBF and MTTR can be displayed by clicking on **Report – MTBF / MTTR**.

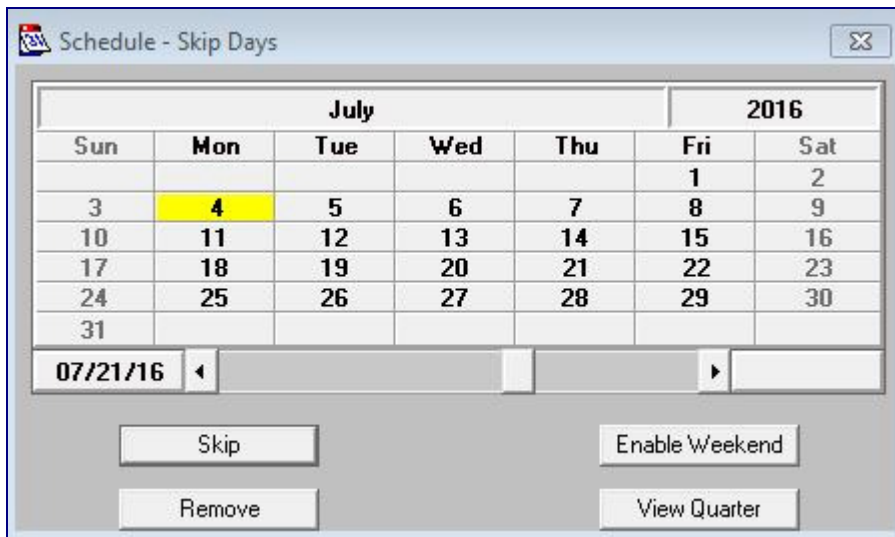


Equipment Id	Subsystem	Description	MTBF (Hrs.)	MTTR (Hrs.)
IRP-040184	*MAIN	10 Ton Press	1,295	40
IRP-040184	Electrical	10 Ton Press	-	-
JP-042458	*MAIN	Fume Ventilation	664	10

Skip Days

This feature allows you to block off days such as vacation and plant shut downs so that maintenance activity will not be due on these days.

To set up this feature, click on the menu item **View** and from the pull down click on **Skip Days**.



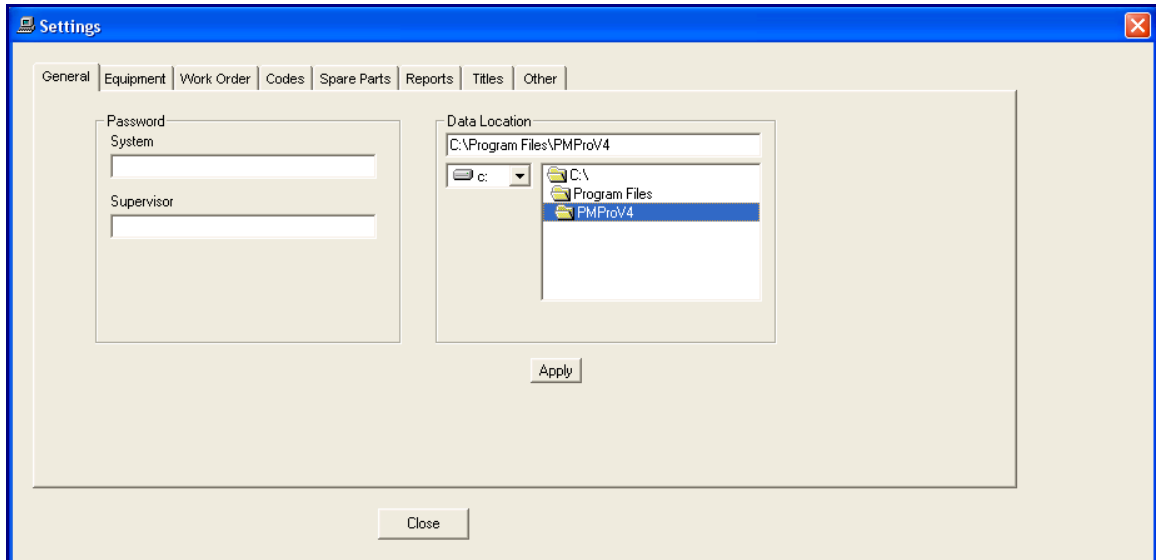
Buttons	Description
Skip	Click the day and then Skip button – skipped day in yellow highlight
Enable Weekend	Toggle between enable/disable maintenance on weekends
View Quarter	View a 3 month calendar
Remove	Click the day and then Remove button – return day to regular

General Settings

Various options are setup in this segment of the software.

Click on the menu item **View** and from the pull down **Settings**.

Click on the **General** tab.



Fields - Buttons	Description
Password	<ul style="list-style-type: none">- System password restricts access to the software- Supervisor password restricts access to equipment detail and other critical elements of the software<ul style="list-style-type: none">– transactions and reporting are available
Data Location	Identify drive and folder where data base is located
Apply Button	Saves the settings

Equipment Detail Settings

The default settings for items such as the type of maintenance instruction, maintenance interval, custom field titles and other elements are modified by clicking on the menu item **View** and from the pull down **Settings**.

Click on the **Equipment** tab.

The screenshot shows a software window titled "Settings" with a blue title bar and a close button. The window has a tabbed interface with tabs: General, Equipment (selected), Work Order, Codes, Spare Parts, Reports, Titles, and Other. The "Equipment" tab is active, showing two sub-tabs: "Instructions" and "Custom Fields". The "Instructions" sub-tab is selected, displaying radio buttons for "Global" (selected) and "Stored with Equipment", a "Maintenance Interval" of 30, an "Interval Unit" of "Day", and "Reset Meter" options "Yes", "No" (selected), and "N/A". An "Apply" button is at the bottom right of the "Instructions" section. The "Custom Fields" sub-tab is also visible, showing a list of five custom fields: 1. Manufacturer, 2. Capacity, 3. Rate, 4. (empty), and 5. (empty). An "Apply" button is next to the list. A "Close" button is at the bottom center of the window.

Fields - Buttons	Description
Instructions	- Global: same maintenance instructions used by multiple equipment - Stored With Equipment: unique instructions for each equipment
Maintenance Interval	Period between preventive maintenance
Interval Unit	Days, week, month, year or meter
Reset Meter	For maintenance based on meter, reset to zero after maintenance
Custom Fields Tab	Titles for each custom field, applied to all equipment
Category Tab	Create a list of categories that an equipment would fall into
Unavailable Reasons	Set up list why equipment unavailable – used in transactions
Apply Button	Save equipment settings

Work Order Settings

The work order report for scheduled and unscheduled maintenance can have various default settings.

Click on **View – Settings – Work Order**

The screenshot shows the 'Settings' dialog box with the 'Work Order' tab selected. The 'Reason' list box contains: (none), Accident, Design Flaw, Misuse, Misc. The 'Priority' list box contains: (none), Critical, High, Emergency. The 'PM W/O Statement' text box contains: 'Please be advised that the following equipment is due for Preventive Maintenance'. The 'Unscheduled W/O Statement' text box contains: 'Please be advised that the following equipment is due for maintenance.'. The 'Unscheduled Transaction Save' section has 'Delete Workorder' selected. The 'Apply' button is located to the right of the statement text boxes, and the 'Close' button is at the bottom center.

Fields - Buttons	Description
Reason List	Primarily meant for unscheduled maintenance – add, edit or delete reasons for maintenance, list will be available in transactions segment
Priority List	Priority levels for maintenance, list will be available in transactions
PM W/O Statement	Statement at top of PM Work Order – user can modify text
Unscheduled Statement	Statement at top of Unscheduled Work Order – user can modify text
Unscheduled Transaction Save	- Delete Work Order: Saving a transaction causes corresponding work order to be deleted from unscheduled work order grid - Keep Work Order: Saving a transaction does not remove corresponding unscheduled work order
Apply Button	Saves work order settings

Codes

Three types of codes can be setup to help describe maintenance elements.

- Downtime Reasons
- Repair Descriptions
- Equipment Idle Reasons

Click on **View – Settings – Codes**

The screenshot shows a software window titled "Settings" with a blue title bar and a close button. Inside, there are several tabs: "General", "Equipment", "Work Order", "Codes", "Spare Parts", "Reports", "Titles", and "Other". The "Codes" tab is selected. Within this tab, there are three sub-tabs: "Downtime", "Repair", and "Idle". The "Downtime" sub-tab is active. It contains a "Group Name" dropdown menu set to "General". Below this is a table with two columns: "Code" and "Description". The table lists six codes: M01 (Clogged Feed), M02 (Transfer Jammed), M03 (Broken Temperature Control), M04 (Heater Element Cracked), M05 (Pressure Indicator Non Responsive), and M06 (Bearing Cracked). An "Apply" button is located below the table. At the bottom of the window is a "Close" button.

Fields - Buttons	Description
Downtime Tab	Primarily meant for unscheduled maintenance – add, edit or delete reasons for downtime, list will be available in transactions segment
Repair Tab	A brief repair description code – list will be available in transactions
Idle Tab	Idle time reasons – list will be available in transactions
Apply Button	Saves codes

Spare Parts

A classification category can be assigned to each spare part.

A location for the spare part can be assigned as well.

Click on **View – Settings – Spare Parts**

Settings

General Equipment Work Order Codes **Spare Parts** Reports Titles Other

Classification

Description
(none)
Bearings
Washers
Bolts
Fuses
Electrical Controls
Lubricants

Apply

Location

Description
(none)
Maintenance
Tool Room
Production

Apply

Remove parts from spare parts inventory automatically

☒ Yes ☐ No

Apply

Close

Fields - Buttons	Description
Classification	General category into which spare part belongs – can be utilized to find a similar spare part if the one needed is out of stock
Location	Where the part is physically found
Remove Part...	Parts identified in a transaction can be automatically deducted from spare parts inventory
Apply Button	Saves entries

Reports

Various options / entries related to the reporting segment are set here.

Click on **View – Settings –Reports**

Settings

General | Equipment | Work Order | Codes | Spare Parts | **Reports** | Titles | Other

Report Header
Your Company Name

Report Options
☐ Remember ☒ Reset

Print Equipment Picture on Reports
☒ Yes ☐ No

Form Numbers

Report	Form Number
Equipment Due	Maint-001 Rev. 1.1
Equipment List	Maint-002 Rev. 1.2
Equipment Detail	Maint-003 Rev. 1.0
Work Orders	
U/S Work Order List	
Equipment History	
Spare Parts Inventory	
Spare Parts ReOrder	
Efficiency	

List/Due | Cost/Time

Field Name	Display
Equipment Id	<input checked="" type="checkbox"/>
Subsystem	<input checked="" type="checkbox"/>
Category	<input type="checkbox"/>
Description	<input checked="" type="checkbox"/>
Location	<input checked="" type="checkbox"/>
Area	<input type="checkbox"/>
Due (Date/Meter)	<input checked="" type="checkbox"/>
Current Meter	<input checked="" type="checkbox"/>

Apply

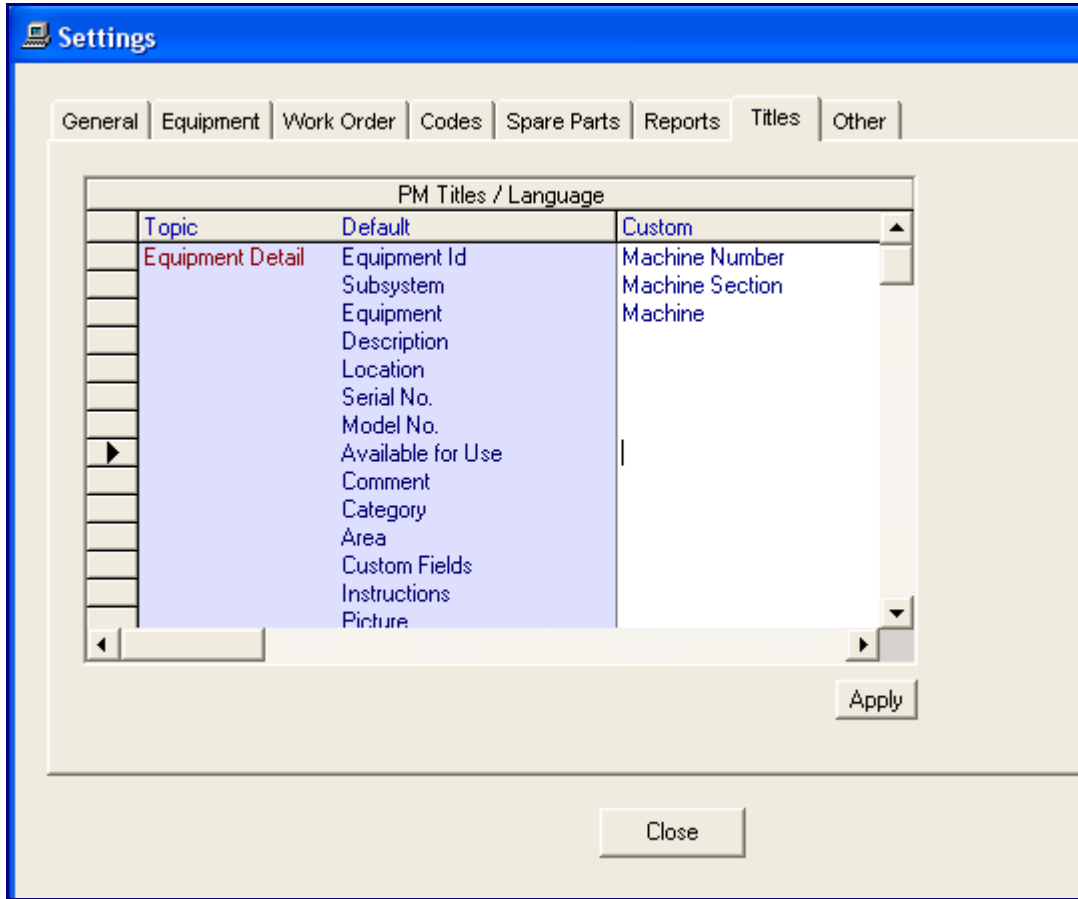
Close

Fields - Buttons	Description
Report Header	Usually the corporate name – will appear at top of reports
Print Equipment Picture	Option to turn on/off printing equipment picture on hard copy reports
Report Options	Retain or Reset settings in report options – while in other segments of the software
Form Numbers	Free format will appear at bottom of report
List / Due Tab	Select field columns to appear on reports related to list / due
Cost / Time Tab	Select field columns to appear on reports related to cost / time
Apply	Save settings

Titles

The text labels displayed on various windows and reports can be modified for different terminology or language.

Click on **View – Settings –Titles**

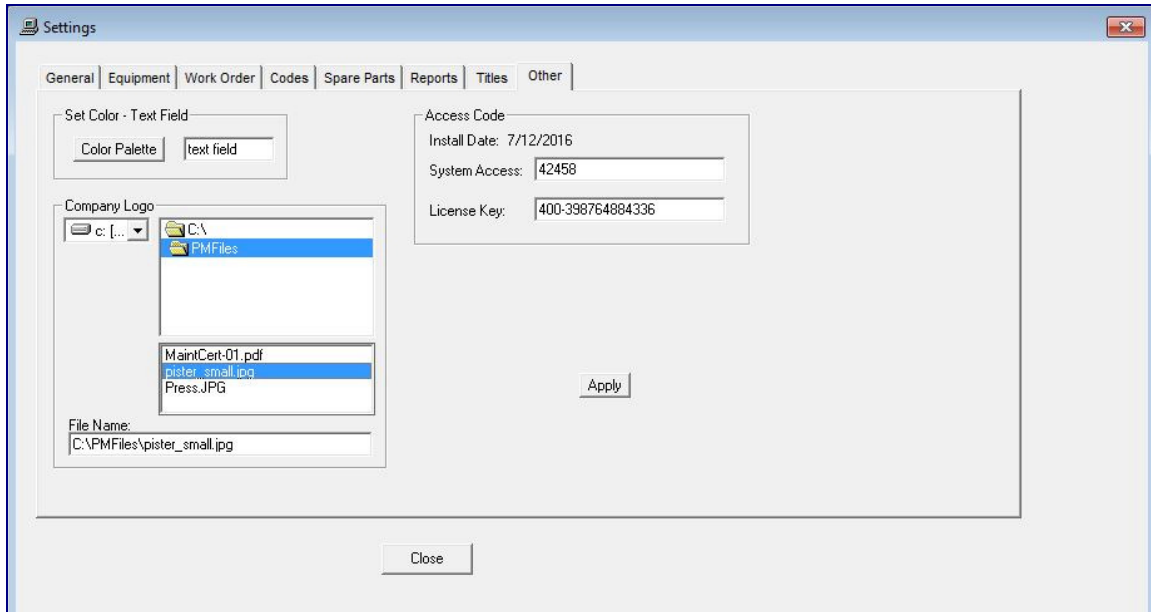


Fields - Buttons	Description
Topic	Segment of software that the displayed field titles apply to
Default	Factory settings for field titles
Custom	Replaces current label title with user entered label
Apply Button	Saves entries

Other Settings

Access code details, company logo and text color can be set here.

Click on **View – Settings – Other**



Fields - Buttons	Description
Access Code	System Access and License Key required to have full rights to the software – key code based on install date shown
Company Logo	Identify location of graphic file containing corporate logo
Set Color – Text Field	Text color can be set by user or left at default window setting
Apply Button	Save settings

Compact Data Base

When equipment or transactions are deleted, they are only marked as deleted but remain physically in the database. The compact option will compress the database and physically remove any deleted equipment and transactions.

To use this feature, click on the menu item **File** and from the pull down click on **Accessories – Compact**.

The compact option should be used every few months to clean up the database and **not** each time you delete an equipment or transaction.

Add Field to Data Base

When we modify elements of the program, the database tables/fields may be affected. The add field option will add the necessary information to the database.

To use this feature, click on the menu item **File** and from the pull down click on **Accessories – Add Field**.

You do not need to run this option unless instructed to by us.

Convert Data Base

This option facilitates the database conversion from PM-Pro v3 to v4.

To use this feature, click on the menu item **File** and from the pull down click on **Accessories – Convert**.