

INTRODUCTION

The manual is divided into these Chapters ...

Overview	an introduction to the PPM program, its concepts and facilities
Installation	how to install the software on a handheld
Operations	an explanation of terms used by the program and procedures for setting up the system and daily operations
Things you ought to know	guidance on using a handheld
Detailed Description	a detailed description of every screen
Appendix 1	Backups
Appendix 2	The database transfer files
Appendix 3	Contacting tap-it software
Appendix 4	Trademarks

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OVERVIEW

What is PPM?

PPM provides facilities, on Palm OS™ handhelds, for managing the maintenance of plant and equipment in offices and other commercial and industrial premises which have maintenance staff.

Unlike most maintenance management software products, tap-it software's **PPM** does not use printed job cards: details of all jobs are held on a handheld and job histories are entered as jobs are completed.

Also, unlike other software products, **PPM** is primarily concerned with providing the answer to the question *What jobs should I do today?*. Detailed analysis of the maintenance activity is not provided by **PPM** since, in most organisations, the primary concern is that jobs, scheduled or unscheduled, should be completed to time.

Two job types are supported, *Scheduled* and *Unscheduled*. *Scheduled* jobs are generated from a Planning Chart which shows, for each of the 52 maintenance weeks in a year, the weeks in which each item of plant is due for planned preventive maintenance (PPM). *Unscheduled* jobs are recorded at any time.

Some users may wish to carry out an analysis of the information held by the handheld. A facility is provided which allows the database to be copied to an SD card in CSV format: that card can then be read by the PC and the files imported into Excel or some similar program.

An SD card is a postage stamp sized memory card which holds 32 Mbytes or more. These are identical to those in use with many digital cameras. Modern handhelds have a slot into which the cards are loaded.

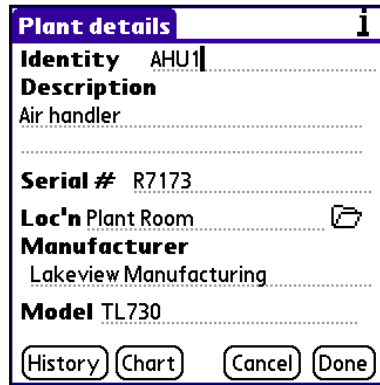


CSV format is a computing industry standard for the format of data files: the letters stand for *comma separated values*. This means that the individual data items are separated by commas or, as provided in this program, by tabs. Further information on this format can be obtained from any computer programmer.

Plant register

Details of all items of plant are entered into the Register. For each the information held is...

- Identity of up to 15 characters
- Description of up to 50 characters
- Optional serial number of up to 20 characters
- Optional Location of up to 20 characters
- Optional manufacturer's name of up to 25 characters
- Optional model number of up to 20 characters
- Optional History/Notes providing space for technical information and other details: 1000 characters maximum.



The screenshot shows a dialog box titled "Plant details" with an information icon in the top right corner. The fields are as follows:

Identity	AHU1
Description	Air handler
Serial #	R7173
Loc'n	Plant Room
Manufacturer	Lakeview Manufacturing
Model	TL730

At the bottom of the dialog box are four buttons: History, Chart, Cancel, and Done.

The software allows the user maximum flexibility, only insisting on data being provided if it is essential to the running of the program.

Note Only 5 items of plant may be created in the evaluation system.

Job details

For each job is held ...

- Job number: allocated by the system
- Plant identity: optional for *unscheduled* jobs since these might relate to items which are not in the Plant register – for example, *Reset temperature controls in the Main Office*
- The location of the work: this is optional
- Details of the job
- Date on which the job should be started
- Date by which it should be completed
- Date actually completed

Unscheduled job

Job No 1007

Plant OX

Loc'n Canteen

Job details
Leaking tap in vegetable prep area

Start date 17 Feb 2004

Complete by 17 Feb 2004

Cancel Done

In addition, the Job History screen shows the time taken, the date completed and details of the work and spares used.

Note that jobs have no priority rating: the system uses the date by which a job should be completed because the nearer that date, the higher the job's priority.

Planning chart

This is a table which has 52 entries for each item of plant, one for each of the 52 weeks of the maintenance year. Where a year has 53 weeks, the 53rd is treated as a *catch-up* week and no entry is made.

Chart for PUMP3													i
1	2	3	4	5	6	7	8	9	10	11	12	13	
14	15	16	17	18	19	20	21	22	23	24	25	26	
27	28	29	30	31	32	33	34	35	36	37	38	39	
40	41	42	43	44	45	46	47	48	49	50	51	52	
--	--	--	--	--	Q	--	--	--	--	--	--	--	
--	--	--	--	--	A	--	--	--	--	--	--	--	
--	--	--	--	--	Q	--	--	--	--	--	--	--	
--	--	--	--	--	Q	--	--	--	--	--	--	--	
<input type="checkbox"/> W	<input type="checkbox"/> M	<input type="checkbox"/> Q											
<input type="checkbox"/> H	<input checked="" type="checkbox"/> A	<input type="checkbox"/> X											
Tasks			Clear			Done							

For each week in which preventive maintenance is required, the table holds a *Time Code* and a *Task code*

The *Time Code* is used to indicate the nature of the maintenance, the following codes being provided ...

- W for *weekly*
- M for *monthly*
- Q for *quarterly*
- H for *half yearly*
- A for *annual*

The *Task code*, up to 15 characters long, refers to an entry in a *Task Library*.

The *Task Library* holds the details of the work to be carried out. As entries may be no longer than 300 characters it is possible that, in some instances, it will be necessary for the details to be entered in a shortened form.

For a Pump there may be a quarterly task to carry out a visual inspection and to check bearings: that could be given the code PUMP-Q with the task itself specifying the items to be inspected and measured.

If there is a annual routine to check electrical resistance, etc the code could be PUMP-A and the task would list the insulation measurements and other items to be checked. And so on. If no task is specified the phrase *See manual* will be printed.

Where routine maintenance is carried out by an external contractor, Water Treatment specialists for example, it would be helpful to set up a Task called CONTRACTOR and to place his name and telephone number in the Plant's Notes.

HotSync

Although there is no PPM program to run on the PC, it is important to know that the HotSync operation creates an image of the handheld's memory on the PC's hard disc.

If the handheld is lost or damaged, it is comforting to know that connecting the replacement to the PC and carrying out a HotSync will restore the handheld to the same state as the original at its most recent HotSync. Everything is restored, programs and data.

A description of the HotSync operation will be found in the handheld's manual.

Help!

The **PPM** user is given several sources of guidance. These are the printed manual, this document, and the Help displays for every screen. Screen Help displays are called up by tapping the **i** icon at the top right of each screen.



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INSTALLATION

System Requirements

The handheld must ...

- run Palm OS version 3.5 or later
- have an 8 Mbyte memory or better
- and an SD slot if data is to be transferred to the PC

The PC must ...


- have a CD drive if the software is delivered on CD
- have the Palm Desktop installed
- synchronise with the handheld using HotSync so that the PPM software can be loaded on the handheld
- have at least one Palm User set up

Installation

The software may have been delivered on a CD or downloaded from the web. In both cases two files will have been received.

One is the Setup program, called PPM_Setup.exe, and the other is this pdf manual.

Use Windows Explorer on the PC to locate PPM_Setup.exe and *double click* its name. This will launch the installation process, the screens of which provide a detailed explanation of the actions to be taken.

On completion of this procedure the PPM program will have been loaded on the handheld and the PPM icon  will be seen on the handheld's main menu screen.

The first time the program is run a window will pop up, giving the date of the beginning of Week 1.

Software registration

The PPM software is delivered in *evaluation* mode. Every time the program is run the Registration screen is displayed.

To continue using the program without registering, tap the button marked *Skip*

Registration: the Main Menu will be shown.

To register, contact *tap-it software*, passing over the handheld user name and the appropriate fee. The name is case-sensitive so it is essential to identify which letters are in upper case.

The name is necessary because the software is registered to that specific handheld: it may not be used in full mode on any other handheld unless a separate fee is paid.

Enter the unlock code where shown and tap the *Register* button. If the code is validated a pop up window giving the Licence Number will appear. This will be required when requesting support.

Registration

To register this product **for use on this handheld**, pass the name of the handheld to tap-it software. The unlock code will be sent back. Enter the code below and tap the Register button.

Unlock code

.....

.....

The Licence Number is also available on the About screen.

Once the software has been registered, the Registration screen is no longer displayed.

OPERATIONS

General remarks

This Chapter describes aspects of the PPM system which it is helpful to understand before reading the descriptions of the individual screens.

Week 1

PPM's maintenance year is 52 weeks long and it starts at the beginning of the calendar year. The official definition of Week 1 is that it is the first week in which there are 4 or more days in the new year.

For example: Week 1 for the year 2004 begins on 29 December 2003. In the old year there are 3 days – 29, 30 and 31 December. In the new year there are 4 days – January 1 to 4

There is no means of changing the Week 1 date. The program recognises year end and automatically resets the Week 1 data and the Planning Chart for the new year.

If a year has 53 weeks, the extra week is considered to be combined with week 52 and used to *catch up* on any work which may be outstanding.

When the program is run for the first time a pop-up window displays the handheld date and requests confirmation that this is correct. This is necessary because the dates in new handhelds are sometimes not correctly set.

If the date is not right the program closes with the recommendation that the date be set correctly.

The reason for this step is to ensure that week numbers are linked to the right calendar dates.

Jobs

The system supports two job types: *Scheduled*, or preventive, and *Unscheduled*.

Scheduled jobs are created automatically by the program using the Planning Chart and Task library. These jobs are invariably linked to an item of plant.

Unscheduled jobs are created manually by the user and can relate to an item in the Plant Register, any other item of equipment which does not appear in the Register or to a Location.

Job dates

There are three dates associated with each job. These are ...

Start Date for scheduled jobs this is the Moday of the week in which it is to be carried out. For unscheduled jobs the start date may be the current date or any date in the future: this allows work to be recorded well in advance of the date on which it is to be carried out.

Target Date	the work should be completed by the end of this day. For scheduled jobs the program assumes that all jobs must be completed by the end of the Friday following the Start date: for unscheduled jobs any date may be entered so long as it is not earlier than the job's Start date.
Closed Date	the date on which the job is closed

Today's Jobs

This is a screen which lists all jobs which meet the criteria listed below ...

- the job is open
- the job's Start date is the current date or earlier

The jobs are listed in the order of their Target dates in order to indicate priority - the job which must be completed soonest is at the top of the list, and so on.

Selecting a job from this screen brings up the Job History screen so that information may be recorded, if required, as the job progresses. For scheduled jobs, Task details may have been specified ... Step 1 do this, Step 2, etc These can be displayed on

the history screen to give guidance on the procedures to be carried out.

Job History

When completed, a job is Closed by entering the date on which the work was finished.

In addition, the job's history may optionally contain a record of the time taken for the work, comments and details of spares which have been used.

Until a job has been closed it will continue to appear on the list of outstanding jobs, the *Today's Jobs* screen. Once closed, a job's details and history may be displayed but they cannot be amended. The date on which the job is closed is stored in its history.

Plant Register

This is a list of the items of plant and equipment whose maintenance is controlled by the PPM system.

The only mandatory items of information are the plant identity, which must be unique, and its description. All other details, such as location, are entirely optional.

It is helpful to assign plant identities with prefixes which indicate the type. For example, PMP001 could identify a pump, DB3 a distribution board and FA1 a Fire Alarm system.

This method of identification is particularly useful when there is a number of similar items because the plant list will group these together.

For each item of plant a 52-week Planning Chart can be created with the weeks on which maintenance is to be carried out identified with letters: W for Weekly, M for Monthly, Q for Quarterly, H for Half Yearly and A for Annually. These are referred to as Time Intervals.

A library of maintenance routines, called Tasks, can be created for display when scheduled jobs are carried out.

Typically, for a pump there might be a quarterly routine (Task) and an Annual routine. The quarterly task could be called PUMP-Q and its contents might be ...

1. Switch to standby pump
2. Switch off the power supply for the pump and remove the fuse
3. Remove the filter and clean or replace, as required
4. ... and so on

The annual routine will normally be a more comprehensive series of checks, including electrical resistance checks.

Tasks can be written for all plant types or just for those which require special attention.

A plant's planning chart screen has an option which allows a task to be specified for each Time Interval used in the chart. For example, the pump has just two Time Intervals – Quarterly and Annually. It is therefore only necessary to write two tasks for pumps: these might be called PUMP-Q and PUMP-A

If Tasks are not specified for a plant, the job details will merely say *See manual*

Job scheduling

The program must be run at least once each week so that each week's preventive jobs can be scheduled. If a week is missed a warning message is displayed **but no further action is taken by the software**. The user must create unscheduled jobs to cover all the missed scheduled jobs – a tedious task!

Setting up the system

There are seven steps ...

1. tour the site, entering details of the items of plant into the handheld, using the *Plant Details* menu option, and the *<Add plant>* facility
2. collect the information required for the Tasks (maintenance routines) for those items of plant for which detailed instructions are required
3. choose the *Plant Details* menu option and select the first item of plant. Tap the *Chart* button and select the weeks in which maintenance is carried out, specifying for each of these the appropriate Time Interval codes – W, M, Q etc
4. if Tasks are to be set up for this plant, tap the Tasks button at the bottom of the screen and enter the Task details as described later in this manual under the **Tasks** heading
5. return to the Chart screen and then to the Plant Details screen

6. if there is additional information which should be stored for this plant - part numbers, performance details, supplier name, etc – tap the History button and enter that information
7. repeat steps (3) to (6) for all other items of plant.

To reduce the time taken to set up the system, steps (4) and (6) could be deferred until a later date.

The system is now ready to use

Daily operations

Whenever the software runs it checks the planning chart for scheduled jobs which have fallen due. As the maintenance week runs from Monday to Sunday, these will normally only exist when the week number changes, on a Monday.

However, if a change is made to the planning chart, introducing a new entry for the current week, a scheduled job will be created on the next run of the program – no matter on which day that occurs.

Each day the program will be run to view *Today's Jobs*. This is a list of all jobs whose Start date is equal to the current or earlier. The jobs are listed in the order of their Target (for completion) dates so that the most urgent is cleared first.

Tapping a job in the list brings up the job's History screen which is used to display the related Task, if appropriate, and to enter details of time taken and spares used.

As jobs are marked as Closed, by the entry of the date of closing, they disappear from the *Today's Jobs* list.

When that list is empty, there is no outstanding work.

At any time during the day, unscheduled jobs may be logged and, if they are to be started on the current date, they will appear on the *Today's Jobs* list.

If it is wished to begin work on an unscheduled job which is not due to be started until some future date, it is possible to *pull* that job forward using the *Do Today* button on the *Display Jobs* screen.

Transfer data to a PC

The handheld program has no facilities for detailed analysis of the maintenance operation or for printing reports of any kind. The reason for this is that the handheld program replaces paper with screen displays.

In order that those who require to print reports may do so, a facility has been provided which transfers details of plant, the planning charts and jobs to the PC in a format which can be imported into Excel or similar programs.

The files' format is called CSV (comma separated values), an industry standard.

The structure of these files is fully defined in Appendix 2

The medium used to transfer the data is the SD card, a postage stamp sized memory chip which fits into a slot on all modern handhelds. An SD card reader, connected to the USB port of a PC, is widely available at modest price and appears to Windows Explorer as an additional disc drive.

Using Explorer the files can be copied to any location on the PC's disc drive(s) and then imported into Excel or any other program.

This operation does not affect the data held in the handheld's database.

THINGS YOU OUGHT TO KNOW ...

It is useful to be familiar with these items before reading the details description of the program.

Buttons

Buttons placed on the handheld screen allow commands to be issued by the user, in the same manner as with Windows® software. The standard buttons are these ...

Save	Update the database with new or amended information
Cancel	Discard any changes made to the information on the screen
Done	The current operation is complete. Usually, the Main Menu will be displayed when a Done button has been tapped.
OK	The information currently displayed – HELP for example – need no longer be displayed.
Next	Typically shown at the bottom of a HELP screen, this indicates that there is at least one further page to be seen. Tapping the button shows the next page.

Back

This button matches **More**, moving backwards through the HELP pages.

The functions of buttons not included in this list will be found in the descriptions of the screens' operations and in their Help! Displays.

Icons

These are the icons used on the handheld screens...



display the screen's Help information



tap this drop-down icon to see a list of items from which a selection may be made. In many cases the list begins with an <Add plant> line, or similar. Tap this to create a new item.

Drop-downs are sometime called *search* icons

Data entry

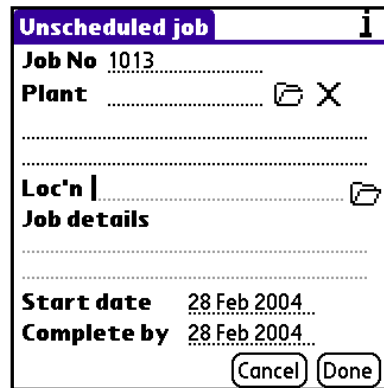
Where possible, data entry is achieved by selection from drop-down lists – see below.

Where this is not possible, the entry of data values may be carried out using the screen-based keyboards which are provided as part of the Palm OS operating system or by means of *graffiti* characters. Both are described in detail in the handheld manual. It is **strongly recommended** that time is taken to learn the *graffiti* script as this is a fast and effective process.

In addition, Palm OS provides a *short cut* facility which converts two *graffiti* characters into a word or phrase. This feature, which is fully described in the handheld manual, is particularly useful where a word or phrase is repeatedly used.

Drop-downs

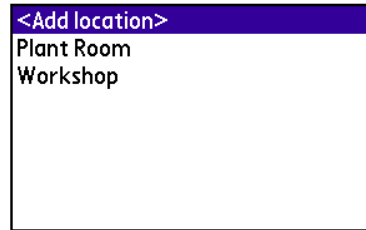
Where a selection has to be made from a list of items, a drop-down may be used. A drop-down icon is shown on this screen alongside two data fields.



The screenshot shows a Palm OS application window titled "Unscheduled job" with a status bar icon 'i'. The window contains the following fields and controls:

- Job No**: 1013
- Plant**: A text field with a drop-down icon and an 'X' icon.
- Loc'n**: A text field with a drop-down icon.
- Job details**: A section header with a dotted line separator below it.
- Start date**: 28 Feb 2004
- Complete by**: 28 Feb 2004
- At the bottom right, there are two buttons: "Cancel" and "Done".

This is the result of tapping the Location's drop-down. Select the required item or, for a new location, tap *<Add Location>*



If there are more items than fit into the window, scroll arrows appear.

Dates

To avoid potential confusion when viewing dates in the format 22/9/01, this software invariably shows dates in the format **22 Apr 2001**.

The user is never required to enter a date directly because it is simpler to make a selection from a calendar.

The arrows on either side of the year are used to choose a year. A month is selected by tapping its name and the day similarly selected.



Tap **Today** for today's date, whatever the setting of the calendar, and tap **Cancel** to return a blank date.


On tapping a day number, **Today** or **Cancel**, the calendar is closed and the original form is displayed.

Tap the required item to make a selection. The window then closes and the item, in this case a location, appears alongside the drop-down arrow.

Closing the program

There are two ways of closing the program.

One is to tap the screens' **Done** buttons until the main menu is displayed and then to tap its **Done** button.

The other is to tap the  icon to the left of the handheld's *graffiti* area. This closes the program and *remembers* the screen and data which were displayed at that time. When the program is next run it goes directly to that screen.

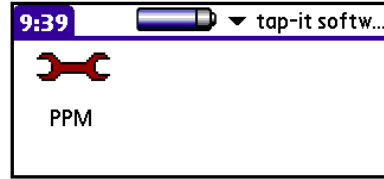
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DETAILED DESCRIPTION

This Chapter describes each screen in turn, providing guidance in its use.

Handheld menu

When the software has been installed, the handheld menu screen displays the program's icon, a spanner.

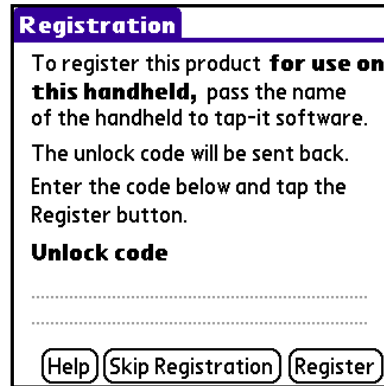


Tap the spanner to run the program

Registration screen

If the software has not been registered, this screen is then displayed.

Tap the *Skip Registration* button to run the program as an evaluation. The Main Menu will then be seen.



To register the software, send the name of the handheld to tap-it software by email, post or by telephone. If payment has not already been made for the software, this can be made by cheque or

Visa/Mastercard: the payment amount will be found on the price list or at www.custom.co.uk.

It is essential that the handheld name is given correctly and that upper case letters are reported as such.

To check the handheld name, tap the category shown at the top right of the handheld screen. From the list, select *All*. Then tap the HotSync icon. The handheld name is shown at top right of the screen.

If an unlock code has been received, enter this in the space provided and then tap *Register*.

The code is validated and the product Licence Number is displayed. Then the Main Menu is shown.

A screenshot of a handheld device's registration screen. The screen has a purple header with the word "Registration" in white. Below the header, the text reads: "To register this product **for use on this handheld**, pass the name of the handheld to tap-it software. The unlock code will be sent back. Enter the code below and tap the Register button." Underneath, there is a section titled "Unlock code" followed by the alphanumeric string "A7R1-99B3-ZQ12-ZQ37-5A5A-035". A dotted line indicates a space for user input. At the bottom, there are three buttons: "Help", "Skip Registration", and "Register".

Registration

To register this product **for use on this handheld**, pass the name of the handheld to tap-it software. The unlock code will be sent back. Enter the code below and tap the Register button.

Unlock code
A7R1-99B3-ZQ12-ZQ37-5A5A-035

.....

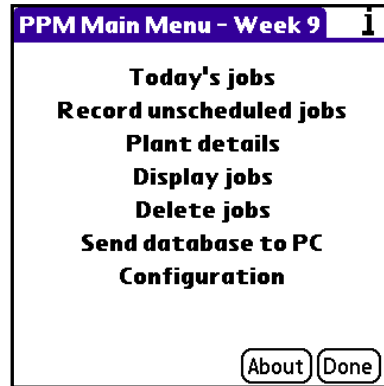
Help Skip Registration Register

The Registration screen will not be seen again.

Main Menu

The Main Menu shows the current maintenance week number in the heading. The menu options are as follows ...

Today's jobs This screen displays a list of all open jobs whose Start date is today or earlier. The jobs are listed in the order of the jobs' Target dates.



The purpose of this screen is to show which jobs are to be carried out and to allow job histories to be entered.

Record unscheduled jobs When defects or other unexpected items of work are reported, their details are recorded using this option.

Plant details is used to maintain the Plant Register.

Display Jobs provides the means for reviewing a job and its history.

Delete jobs may be used to delete all jobs held on the system, useful at the end of the trial use of the software. It may also be used to delete all completed jobs or a specific job.

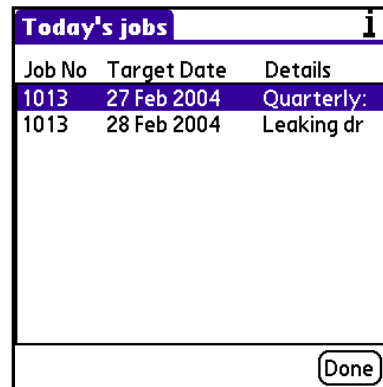
Send database to PC creates copies, on an SD card, of the plant register, planning chart and job files. These can then be read into the PC and processed using any suitable program such as Excel.

The **Configuration** screen allows the user to set the Next Job Number: to see the last week for which preventive jobs were scheduled: and to see the date of Week 1.

About displays the software Issue Number and the Licence Number.

Today's Jobs

In this example there are only two jobs outstanding. The first is seen to be a preventive (scheduled) job because the first part of the job's description is the word *Quarterly*. The second job is an unscheduled job.



Job No	Target Date	Details
1013	27 Feb 2004	Quarterly:
1013	28 Feb 2004	Leaking dr

Done

The list will show all open jobs whose Start date is today or earlier.

The entries are listed in the order of the jobs' Target dates so that the most pressing job appears at the top of the list.

As a job is closed, its entry in this list is removed.

Note that future jobs do not appear in this list. That means that scheduled jobs for the next or subsequent weeks and unscheduled jobs due to start at any date after today are not seen.

There is no way of bringing scheduled jobs forward.

There is, however, a method of bringing an unscheduled job forward. Selecting the job on the *Display Job* screen and tapping the *Do Today* button will change that job's Start date so that it appears in the *Today's Jobs* list

Job History

To enter a job's history, tap the job's entry in the *Today* list. This screen is displayed, giving the details of the job for confirmation. This example is of an unscheduled job.

None of the data items can be changed.

Job details		i
Job No	1013	
Plant	
	No plant specified	
	
Loc'n	Kitchen	
	
Job details		
	Leaking drain in vegetable prep	
	area	
	
Start date	28 Feb 2004	
Complete by	28 Feb 2004	
	
<input type="button" value="Enter History"/>		<input type="button" value="Done"/>

Tap the *Enter History* button to record the job's history. This page allows the entry of comments, the selection of the date on which the job was completed and the time taken for the work.

The **Comments** are optional and may not be longer than 120 characters.

The **Date completed** must be entered in order to signal that the job is finished and should no longer appear on the list of outstanding jobs. A calendar is used for setting this date and the **X** icon tapped to clear the date.

Note that, when saving a job's history by clicking *Done* on the first screen, a warning is given if a Date completed has been entered. This is to guard against a job being closed in error.

Once a job has been closed it may not be re-opened.

Time taken, which is optional, is selected by means of *up* and *down* arrows. Minute values are restricted to 0, 15, 30 and 45 for ease of data entry.

If a job lasts over several days, its history screen may be updated several times. There is only one screen for each job and it is for the user to accumulate times spent.

Remember that the Date Completed must only be set as part of the final history entry for a job.

This is a typical job history.

The Job History screen shown at the beginning of this topic is for an unscheduled job. This is the equivalent for a scheduled job.

The Job Details item shows that this is a Quarterly routine for the pump and that the task to be used is PUMP-Q.

Tapping the *Task* button displays the routine to be followed.

If no Task was allocated when setting up the plant's planning chart, the Task Details specify *See manual* and the *Task* button is not seen.

Task details ⓘ

Task code PUMP-Q

Task

1. Switch to standby pump
2. Switch off and remove fuse
3. Remove filter
4. Clean or replace filter
5. Check cable and gland
6. Re-assemble
7. Connect power
8. Test

Done

| **Record unscheduled jobs**

When first displayed, the screen shows the **Job Number**, which is automatically generated, and the dates on which the job is to start and is to be completed (the Target date).

If the screen has been selected in error, the *Cancel* button returns to the Main Menu.

Unscheduled job ⓘ

Job No 1013

Plant [Folder] X

Loc'n | [Folder]

Job details

Start date 28 Feb 2004

Complete by 28 Feb 2004

Cancel Done

If the defect is associated with an item of **Plant**, tap the search icon to the right of the plant identity and select from the plant list. If the plant is not found in that list it can be added. (For this procedure refer to the *Plant details* heading below.)

Should an item of plant been selected in error, tap the **X** icon to clear the selection.

The **Location** will have been filled automatically if an item of plant has been selected. If this is not the case, the location may be entered directly or chosen from the location list by tapping the search icon. As described under the *Plant details* heading, a new location can be added to that list if required.

A Location of up to 20 characters may be made of the drop-down to choose an existing location or to create a new Location.

Job Details must be entered and must be no longer than 75 characters.

The **Start date** defaults to the current date but may be set to any future date by tapping the date. A pop-up calendar will be displayed for this purpose.

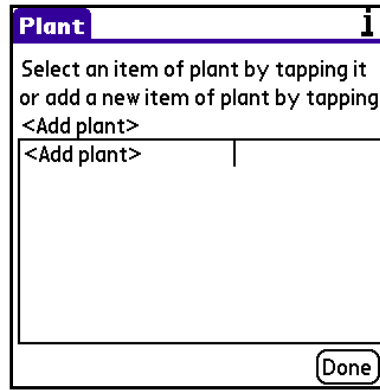
A **Complete by** date is set in a similar manner. It may be no earlier than the Start date.

Save the job's details by tapping the *Done* button or cancel the entry with the *Cancel* button.

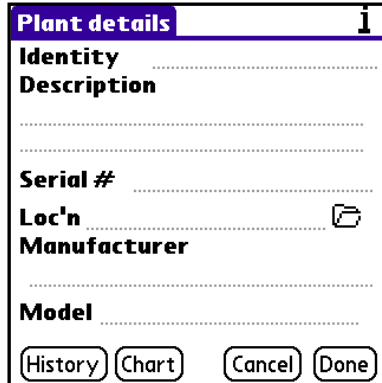
Plant details

When the Plant details screen is first selected, when setting up the PPM system, this screen will be displayed.

Tap the *<add plant>* item in the list to display an empty screen which is used to enter the details of the first item of plant.



The screenshot shows a mobile application screen titled "Plant" with an information icon (i) in the top right corner. The main text reads: "Select an item of plant by tapping it or add a new item of plant by tapping <Add plant>". Below this text is a list with one item: "<Add plant>". At the bottom right of the screen is a "Done" button.



The screenshot shows a mobile application screen titled "Plant details" with an information icon (i) in the top right corner. The form contains the following fields: "Identity" (with a dotted line), "Description" (with a dotted line), "Serial #" (with a dotted line), "Loc'n" (with a dotted line and a folder icon), "Manufacturer" (with a dotted line), and "Model" (with a dotted line). At the bottom of the screen are four buttons: "History", "Chart", "Cancel", and "Done".

The **Plant identity** must be unique and not longer than 15 characters. Typically, the identity will identify the equipment type – AHU1, PUMP17, etc

A **Description** is mandatory: it may not be longer than 50 characters.

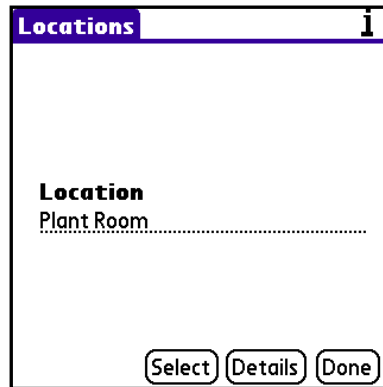
Serial Number is optional: a maximum of 15 characters is allowed for this.

It is useful to know the **Manufacturer's** name and the **Model** when ordering spares. These may optionally be entered, the name having a maximum length of 25 characters and the model a maximum length of 20 characters.

The **Location** of the plant is optional and must be no longer than 20 characters. This is of particular value when there is a large number of similar units.

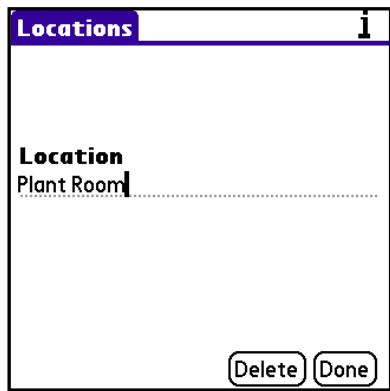
Location may be entered directly or a selection made from a list of locations displayed by tapping the search icon. If the location already exists in the list, tap it.

Having tapped Plant Room, the screen on the next page is displayed so that the selection may be confirmed by tapping the *Select* button.



If it is required to amend the location's name, the *Details* button must be tapped and the requisite changes made on this screen.

When the name change has been made, the *Done* button returns to the selection screen.



Note that it is also possible to remove a location from the system by tapping the *Delete* button. This does not affect any appliance with that location: the name remains in the plant details as though the name had been

entered directly.

Remember, by tapping on the Location search icon on the *Plant details* screen it is possible to select a location, to add a location or to remove a location from the location list.

It will be seen that similar facilities apply to Plant and Tasks.

At the bottom of the *Plant details* screen is a **History** button. It should be called *Notes and History* but there is insufficient space for this on the button.

Chart for PUMP3												
1	2	3	4	5	6	7	8	9	10	11	12	13
14	15	16	17	18	19	20	21	22	23	24	25	26
27	28	29	30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49	50	51	52
--	--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--	--

W M Q
 H A X

Tasks Clear Done

This is an example of the Notes and History screen. Entry is in free format, the only limitation being that the total length may not be greater than 1000 characters. Scroll through the data with the scroll bar.

As jobs are an integral part of a plant's history, the *Show Jobs* button brings up a list of all the jobs relating to the selected plant. The jobs are listed in Job Number sequence.

Jobs for this plant		
Job No	Target Date	Details
1013	27 Feb 2004	Quarterly:

Done

Tapping a job brings up its details and history. For the details of this screen refer to the *Display Jobs* item on a later page.

The *Plant details* screen also has a **Chart** button.

This displays the plant's 52-week planning chart. The year is divided into four 13-week quarters with the week numbers shown in the heading lines.

Chart for PUMP3													i
1	2	3	4	5	6	7	8	9	10	11	12	13	
14	15	16	17	18	19	20	21	22	23	24	25	26	
27	28	29	30	31	32	33	34	35	36	37	38	39	
40	41	42	43	44	45	46	47	48	49	50	51	52	
--	--	--	--	--	Q	--	--	--	--	--	--	--	
--	--	--	--	--	A	--	--	--	--	--	--	--	
--	--	--	--	--	Q	--	--	--	--	--	--	--	
--	--	--	--	--	Q	--	--	--	--	--	--	--	
<input type="checkbox"/> W	<input type="checkbox"/> M	<input type="checkbox"/> Q											
<input type="checkbox"/> H	<input checked="" type="checkbox"/> A	<input type="checkbox"/> X											
Tasks				Clear				Done					

When first displayed for a plant, every week is shown as --, meaning *no entry*. To make an entry on the chart, select the Time Interval code – W for Weekly, etc – and tap the appropriate week in the lower section of the chart. The code will replace the -- entry.

Chart for PUMP3													i
1	2	3	4	5	6	7	8	9	10	11	12	13	
14	15	16	17	18	19	20	21	22	23	24	25	26	
27	28	29	30	31	32	33	34	35	36	37	38	39	
40	41	42	43	44	45	46	47	48	49	50	51	52	
w	w	w	w	w	Q	w	w	w	w	w	w	w	
w	w	w	w	w	A	w	w	w	w	w	w	w	
w	w	w	w	w	Q	w	w	w	w	w	w	w	
w	w	w	w	w	Q	w	w	w	w	w	w	w	
<input checked="" type="checkbox"/> W	<input type="checkbox"/> M	<input type="checkbox"/> Q											
<input type="checkbox"/> H	<input type="checkbox"/> A	<input type="checkbox"/> X											
Tasks				Clear				Done					

To clear a week's entry, select the **X** code and tap the week. The entry will be replaced by --.

To clear the plant's chart entirely, tap the *Clear* button.

The two images on the previous page show the chart when all major routines have been entered and the same chart when a weekly has been added.

To remove the need to set Weekly into every blank week, the program will set W into every blank entry. Just set **W** into one cell and all the other empty cells will be set to this value.

In order that the mass of weeklies does not hide the more important Q and A, the weekly code is represented by a lower case w.

The *Done* button saves the settings and returns to the *Plant Details* screen.

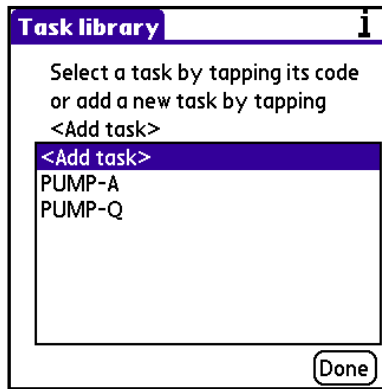
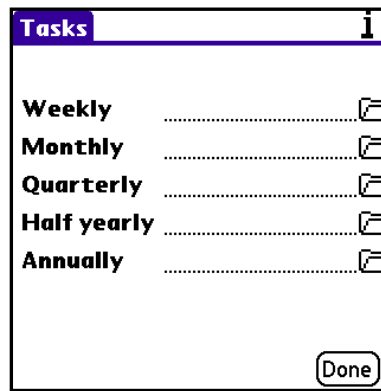
The *Planning Chart* screen also has a *Tasks* button. This provides for the allocation of a Task to each of the Time Intervals used in the plant's chart.

It is only necessary to specify tasks if the procedures require a specific sequence of operations or if the engineer requires a formal specification of the procedures to be carried out..

Tapping the *Tasks* button displays this screen.

For each item of plant up to five tasks may be specified, one for Weekly, one for Monthly and so on.

It is only necessary to specify tasks for the Time Intervals actually used on that plant's chart.



To allocate a task to, say, the Annual routine, tap the *search* icon on the Annually line. This will display a list of tasks from which one may be selected.

Tap the required task or, if that does not yet exist in the Task library, tap *<Add task>* to create a new entry.

The *Task Code* must be unique and not longer than 15 characters.

The task details may not be longer than 300 characters.

Task details ⓘ

Task code PUMP-Q

Task

1. Switch to standby pump
2. Switch off and remove fuse
3. Remove filter
4. Clean or replace filter
5. Check cable and gland
6. Re-assemble
7. Connect power
8. Test

Delete Done

When completed with tasks for Quarterly and Annually, the plant's Task screen looks like this.

Tasks ⓘ

Weekly 📁

Monthly 📁

Quarterly PUMP-Q 📁

Half yearly 📁

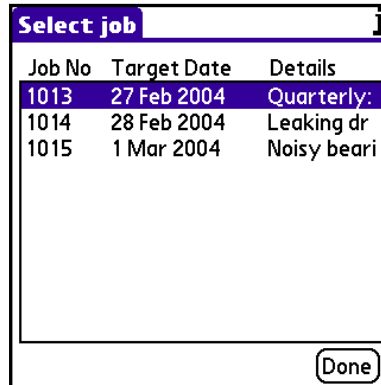
Annually PUMP-A 📁

Done

Display Jobs

This option provides two facilities: to display all the information held on a job and, if it is an unscheduled job whose Start date is in the future, to set its Start date to today.

On selecting *Display Jobs* from the Main Menu, the familiar selection screen is displayed. This shows all jobs known to the system – but not the jobs which will be scheduled for the remaining weeks in the year.



Job No	Target Date	Details
1013	27 Feb 2004	Quarterly:
1014	28 Feb 2004	Leaking dr
1015	1 Mar 2004	Noisy beari

The sample screen was displayed on 29 February 2004: job 1015 is not due to be started until 1 March.

Tapping job 1015 brings up its details.

As this job is due to begin in 2 days' time, a *Do Today* button is displayed. If the engineer wishes to bring this date forward, he taps that button to change the Start date to 29 February. It will then appear in the *Today's Jobs* list.

Details of the selected job **i**

Job No 1015
Plant PUMP3
Hot water circulating pump

Loc'n Plant Room
Job details
Noisy bearing

Start date 1 Mar 2004
Complete by 1 Mar 2004

No other details of the job or its history may be changed with the *Display Jobs* option.

The *History* button displays Comments, Date Completed and Time Taken as has been described on an earlier page.

Delete Jobs

Facilities are provided to delete All jobs, All Completed jobs or selected jobs.

If the Selected Jobs choice is made, a list of jobs is displayed so that a selection may be made.

Delete jobs **i**

Choose the jobs to be deleted

completed all select

Delete all completed jobs

A job is selected from that list and confirmation given that deletion is to take place.

The screens used by this option are identical to other screens described earlier in this Manual.

Send database to PC

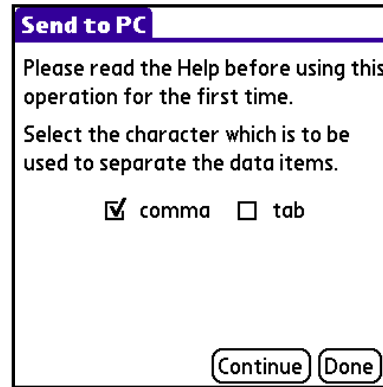
This facility is not available on the Evaluation system

An SD card must be loaded into the handheld's SD slot before choosing this option.

Three CSV files are created on the card: details of these are given in Appendix 2.

Select the character which is to be used to separate individual items and tap *Continue*. *Done* returns to the Main Menu.

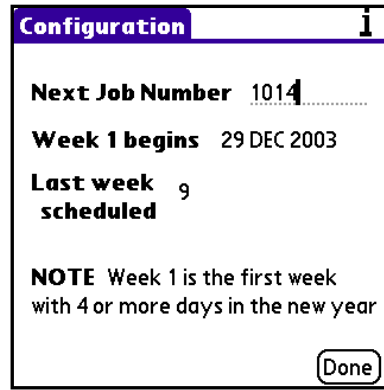
As the operation takes place a changing *tell-tale* is displayed on the screen.



Configuration

The configuration consists of three items of information.

The **Next Job Number** may be changed by the user, It is initially set to 1000 but may be changed as required. It is recommended that the number is not made smaller.



The screenshot shows a screen titled "Configuration" with an information icon in the top right. It displays the following information:

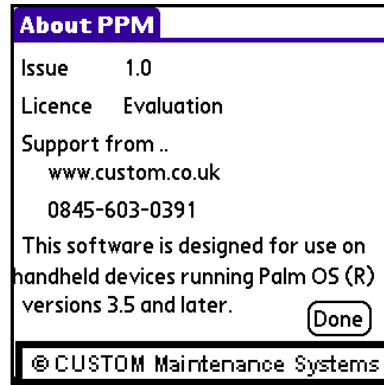
- Next Job Number** 1014
- Week 1 begins** 29 DEC 2003
- Last week scheduled** 9

A **NOTE** states: "Week 1 is the first week with 4 or more days in the new year". A "Done" button is located at the bottom right.

The date on which the current Maintenance Year's **Week 1** began is displayed for information, as is the number of the **Last week scheduled** – normally the current week.

About

This screen shows the software Issue Number and the Licence Number. In this example the software was still in evaluation mode.



The screenshot shows a screen titled "About PPM" with the following information:

- Issue** 1.0
- Licence** Evaluation
- Support from ..**
www.custom.co.uk
0845-603-0391

A note states: "This software is designed for use on handheld devices running Palm OS (R) versions 3.5 and later." A "Done" button is located at the bottom right. At the very bottom, a copyright notice reads: "© CUSTOM Maintenance Systems".

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APPENDIX 1: BACKUPS

This software does not include a database backup facility. However, there are two ways of preserving the data held in the handheld.

HotSync

Every time a HotSync is carried out, an image of handheld memory is created on the PC's hard disc. This is retained until another HotSync replaces it.

It is a simple matter to carry out a HotSync each evening, an operation which will preserve data and recharge the batteries at the same time.

If a handheld has to be replaced for any reason, this simple sequence will transfer that image to the replacement handheld.

1. place the new handheld in its cradle, or connect its power source, and charge it
2. if the handheld has a HotSync cable, rather than a cradle, connect the cable between PC and handheld.
3. initiate a HotSync
4. as the handheld has no name, the PC screen will display a list of all handhelds which have been supported by the PC. Choose the appropriate name
5. the HotSync continues
6. on completion the handheld will contain the same programs and data as the original, at its most recent HotSync

If it is required to reload a handheld for any reason, follow these steps ...

1. carry out a Hard Reset on the handheld (See the handheld manual for instructions on this operation)
2. connect the handheld to the PC with the HotSync cable or cradle
3. initiate a HotSync
4. as the handheld now has no name, the PC screen will display a list of all handhelds which are supported by the PC. Choose the appropriate name
5. the HotSync continues
6. on completion the handheld will contain the same programs and data as at the most recent HotSync

Backup program

There are several programs on the market which backup the contents of a handheld's memory to an SD card.

Typically, these cost £20 to £30 - a small outlay for an important facility.

APPENDIX 2: DATA TRANSFER

This Appendix identifies the data items which are included in the CSV files created by the *Send database to PC* menu option.

The separator character may be a comma or a tab, as selected when carrying out the operation.

The Plant Register is held in a file called PPM-Plant.txt.

The items in each record are ...

- Plant identity
- Description
- Serial Number
- Manufacturer
- Model
- Locations
- Weekly Task Code
- Monthly Task Code
- Quarterly Task Code
- Half Yearly Task Code
- Annually Task Code
- History

The Planning Chart file is called PPM_Chart.txt

The items in each record are ...

- Plant Identity
- Week 1 Time Code
- Week 2 Time Code and so on to week 52

The Jobs file is called PPM-Jobs and its records hold this information ...

- Job Number
- Plant Identity
- Plant Description
- Location
- Job Details
- Time Code
- Task Code
- Start date
- Target date
- 'Completed on' date
- History
- Time taken in hours to 2 decimal places
- Closed: this is a True/False item

APPENDIX 3 CONTACTING TAP-IT SOFTWARE

Our address is ...

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Brighton
BN1 1UB

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 fax 01273-564141
 email accounts@custom.co.uk

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 fax 01273-564141
 email sales@custom.co.uk

Support telephone 0845-603-0391
 fax 01273-564141
 email support@custom.co.uk

Web site <http://www.custom.co.uk>

APPENDIX 4 TRADEMARKS

The following attribution applies to all pages of this manual and to the program which it describes.

The trade names used in this product and its documentation belong to their registered owners. They are used as industry-standard names to illustrate and explain the use of this software.

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