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DOMINO A–SERIES
INK JET PRINTER

OPERATION AND MAINTENANCE MANUAL

DECLARATION OF CONFORMITY

We,

Domino UK Ltd, Bar Hill, Cambridge CB3 8TU

declare under our sole responsibility that the products,

Domino A300 and Pinpoint, A200 & A100 Printers

to which this declaration relates, are in conformity with the following standards:

EN50081–2 1992 Class B : Electromagnetic Compatibility (Conducted),

EN50082–2 1992 : Electromagnetic Compatibility, General Immunity Standard

EN55022–1 1987 Class A : Electromagnetic Compatibility (Radiated)

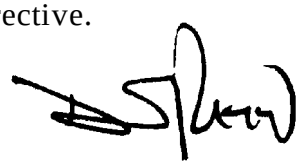
EN60204 Part 1 : Safety of Machinery – Electrical Equipment of Industrial Machines

EN60950 : Safety of Information Technology Equipment, including Electrical Business Machines

following the provisions of:

73/23/EEC : Low Voltage Directive

89/336/EEC : EMC Directive.



Bar Hill,

Cambridge,

17th July 1998 D.W. Reed

DOMINO A–SERIES
INK JET PRINTER
OPERATION AND MAINTENANCE MANUAL

This manual, Domino Part No. 27080, is for use in the maintenance of Domino A300 and Pinpoint, A200 and A100 printers.

For instructions on how to operate the printer, refer to the *Domino A–Series Operator's Pocketbook*, Domino Part No. 27090.

Users of this ink jet printer are warned that is is essential to read, understand and act according to the information given in Part 1 : Health and Safety. This part of the manual also specifies a set of symbols which are used elsewhere in the manual to convey special warnings or requirements. It is, therefore, essential that users are also familiar with these symbols and act accordingly.

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Domino UK Ltd has a policy of continuous product improvement, the Company therefore reserves the right to modify the specification contained in this manual without notice.

E Domino UK Ltd 1998

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FCC Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communication. Operation of this equipment in a residential area is likely to cause harmful interference, in which case, the user will be required to correct the interference at his own expense.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re–orientate or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio / TV technician for help.

Any changes or modifications not expressly approved by the manufacturer could void the user 's authority to operate the equipment.

DOMINO A–SERIES
INK JET PRINTER
OPERATION AND MAINTENANCE MANUAL

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	Part 2	Introduction Including printer specification, menu map and use of the front panel.
CHAPTER 2	Part 3	Operation Start up, shut down, cartridge and reservoir replacement and how to create a message.
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	Part 5	Reference Glossary of terms and screen descriptions with details of the options.
CHAPTER 3	Part 6	Printer Description Print head, cabinet, electronics and ink systems.
	Part 7	Maintenance General and periodic maintenance, jet alignment and ink changes.
	Part 8	Repair Print head, electronics system and ink system.
	Part 9	Spares and Accessories Accessories, consumables, tools and spares.
	Part 10	Options Additional parts for the printer.
Appendix A		Installation Installation and preparation for use.
Index		To locate a subject in the manual.
Appendix B		Compressor Driven Airdryer Instructions and maintenance.
Appendix B		Air Driven Airdryer Instructions and maintenance.

DOMINO A–SERIES
INK JET PRINTER
OPERATION AND MAINTENANCE MANUAL

AMENDMENT RECORD

Amendment	Date
All Parts at Issue 1	September 98
Appendix B : Compressor Driven Airdryer	April 98
Appendix B : Air Driven Airdryer	April 98

DOMINO A–SERIES
INK JET PRINTER
OPERATION AND MAINTENANCE MANUAL

In order that the machine continues to comply with the standards required by the certification, the following components must not be altered in any way or replaced by other types.

COMPONENT	DOMINO PART NO.	MANUFACTURER	MANUFACTURER PART NO.
HV PSU	12170	Advance HI Volt	GM7–19
PSU Assy	37758	Bulgin Power Source	SAX110–34
Filter Mains / Power	13492	Shaffner Bulgin	FN332–3 / 05 PS02 / A0320 / 63
Switch Mains / Power	37744	EAO	61–8420.12
Plug 3 Way Mains / Power	13496	Bulgin	PX0730 / P
Socket 7 Way Mains / Power	13498	Bulgin	PX0744 / S
PCB Assy External Interface	25109	Domino	25109
Fuse 20x5 (T) 1A	01210	Little Fuse	213.001.MA000
Fuse 20x5 (T) 4A	01229	Little Fuse	218.004.MA000

PART 1 : HEALTH AND SAFETY

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HEALTH AND SAFETY

INTRODUCTION

Domino supplies Safety Data Sheets (SDS's)giving specific safety information with each of its ink, make–up and wash fluids. There are also warnings on each container. The following notes are for general guidance only.

Basic Requirements

When used correctly, printing inks do not cause problems. However, everybody using them should be familiar with the appropriate safety standards and be aware of the precautions that should be taken. The following are basic requirements.

- Proper standards of industrial practice relating to cleanliness and tidiness must be maintained
- Inks and their containers must be stored and handled with care
- All who come into contact with inks must be properly instructed in their use.

Directions for safe working practices vary according to the environment. The following are broad principles so that necessary precautions may be taken.

- Contact with the mouth must be avoided. Therefore eating, drinking or smoking, or any personal habits or actions which may transfer ink to the mouth, must be avoided
- Contact with the eyes must be avoided. Suitable eye protection must always be worn whenever there is any risk of splashing or misting. If ink does get into the eyes, first aid treatment is to flood the affected eye for 15 minutes with saline solution, (or clean water if saline solution is not available), taking care not to allow the water to run into an unaffected eye. Medical aid must be obtained immediately
- Most inks contain solvents which may injure the skin. Warning of this is given on the SDSs. Barrier creams should be used and protective clothing worn

- Many inks contain materials which vaporise easily and can be inhaled. Good ventilation is necessary
- Any used cleaning materials, e.g. rags, paper wipes, are a potential fire hazard. They must be collected for safe disposal after use
- After exposure to ink, all possible traces must be washed off as soon as possible at the nearest washing facility.

Certain inks are allowed for use where they can be in indirect contact with food. In these cases, the following precautions must be observed in addition to those appropriate to hygiene:

- The inks must only be used in printers supplied from new for use with these inks. Any repairs and replacements must use genuine, new and unused spare parts
- The inks must not be used in printers which have previously been used, at any time, for any other purpose.

In other words, a printer using ”food grade” ink can be converted for use with other inks, but a printer which has used other inks must not be converted for use with food grade ink.

Storage

Printing inks must be stored in well–ventilated buildings, or in areas set aside for the purpose, chosen for safety in case of fire. Materials based on volatile, flammable solvents must be stored in accordance with local regulations.

Fire Risk

For an electrical fire, do not use water. If water must be used, such as in the case of a Nitro–cellulose ink fire (see below) the power MUST BE REMOVED first.

Many inks used in ink jet printing contain Nitro–cellulose as the binder and remain highly flammable when dry. Observe all warnings given on the machine and the following safety instructions:

- If there has been an accumulation of dried ink, do not use ferrous metal (iron or steel) scrapers to remove it, as they can produce sparks

- If dry Nitro–cellulose based ink ignites, it will generate its own oxygen and can only be extinguished by lowering the temperature with water
- If a Nitro–cellulose fire occurs, ENSURE THAT THE ELECTRICAL POWER IS IMMEDIATELY REMOVED FROM THE PRINTER BEFORE water is used to extinguish the fire.

Fire risk is a most important consideration where printing inks are stored and used. The degree of fire hazard will vary considerably from one type of ink or wash to another.

Water–based inks will not burn, although inks based on water–alcohol mixtures may burn if there is sufficient alcohol present. Prolonged exposure of water–based systems to high temperatures may evaporate the water to give a flammable residue.

Solvent–based inks offer a greater degree of hazard depending on the particular solvent or solvent combination. When there is a particular hazard the appropriate information is given on the SDS.

Ink jet printers place small electrostatic charges on the ink drops used for printing. In most circumstances, such as when they arrive at the print surface, these electrostatic charges are either conducted away or cannot accumulate. However, during maintenance, print drops may be collected in a container, such as a beaker. It is essential that this container is made of conducting material and is securely connected to ground / earth. The electrostatic charges will then be safely conducted to ground / earth.

If there is a fire, there is a likelihood that dangerous fumes will arise from printing inks. For this reason ink must be stored where it can be reached quickly by the fire fighting service, and where it will not spread beyond the store.

Spillages and Disposal

WARNING: Some dried inks are highly flammable. Clean up all ink spillages immediately. Do not allow the ink to dry or allow any build–up of dried ink spills.

Spillages must be cleaned up as soon as possible with the appropriate solvent materials and with regard to the safety of personnel. Care must be taken to prevent spillages or residue from cleaning up entering drains or sewage systems.

Inks and associated fluids are materials which conduct electricity. Therefore, power to the printer must be switched off while spillages inside the printer cabinet are being cleaned up.

Printing inks and associated fluids must not be treated as ordinary waste. They must be disposed of using approved methods according to local regulations.

SYMBOLS

The following symbols are used in this manual. Where they appear next to a procedure or instruction, they have the significance and importance of written warnings and cautions.



Eye protection must be worn.



Protective clothing must be worn.



The equipment must be switched off and power removed.



Only trained personnel should carry out this procedure.



Beware of Electrostatic Discharge (ESD). Electrostatic precautions must be used.

- Switch off machine first
- Wear a wristband connected to ground
- Avoid wearing clothing which can build up electrostatic voltages
- Use ESD protective bags to transport PCBs
- Only place PCBs on a mat made from a material which will dissipate electrostatic voltages and which is connected to ground.

PART 2 : INTRODUCTION

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domino
A300
A300


Domino
A200
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A100
A100

INTRODUCTION

GENERAL

This manual provides:

- A basic introduction to the printer and how to use the front panel, with procedures that demonstrate how to manage the printer
- Reference sections describing the functions and messages presented through the front panel
- A full description of the ink and electronics systems
- Maintenance and repair procedures.

The printer consists of a print head connected to a stainless steel cabinet by way of a flexible conduit. The cabinet contains an ink system and a controlling electronic system operated through a panel on the cabinet upper door. The printers are shown on pages 2–2, 2–3 and 2–4, with internal views of the cabinet upper (electronic) and lower (ink system) compartments shown on pages 6–7 and 6–8.

PRINTER SPECIFICATION

Print Head

Standard Finish:	Aluminium alloy, Tufram coated
Dimensions:	Width: 40mm (1.575”)
	Depth: 42.5mm (1.673”)
	Height: 280.5mm (11.05”)
	Weight: 1.0kg (2.2lbs)
Nozzle size: Pinpoint only:	60 or 75 micron 40 micron
Spacing from print surface: Pinpoint only:	12mm (0.47”) nominal 4mm (+/– 1mm)
Working height relative to cabinet base:	3m conduit: +/–2m (8ft 2ins) 6m conduit: +/–3m (10ft) (A300/A200 only)
Conduit Length:	3 or 6 metres (10ft and 20ft) A300 Pinpoint and A100: 3m only

Cabinet

Standard Finish:	Brushed 316 stainless steel (A300) Brushed 304 stainless steel (A200 & A100)
IP Rating:	A300 is IP65 (1977) A200/A100 are IP53 (1977)
Dimensions (A300 & A200):	Width: 475mm (18.7”) –not incl. handles
	Depth: 245mm (9.65”) –not incl. front panel
	Height: 715mm (28.15) –not incl. feet
Weight (A300 & A200) (incl. fluids):	36kg (79lbs)
Dimensions (A100):	Width: 450mm (17.7”) – not incl. handles
	Depth: 245mm (9.46”)
	Height: 650mm (25.6”)
Weight (A100) (incl. fluids):	33kg (72.6lbs)
Control Panel:	Polyester, Membrane touch button

For cabinet and print head installation dimensions, see Installation page A–13.

Data Input (Optional)

Interface:	Serial, RS232, RS485
Rate:	110 – 38.4kBaud software configurable

Ink System

Ink Capacity (Reservoir):	1.2 litres (0.32 US gall.) – automatically metered
Ink Capacity (Cartridge):	825ml (0.218 US gall.)
Make–up Capacity (Reservoir):	600 ml (0.16 US gall.) nominal – automatically metered
Make–up Capacity (Cartridge):	825ml (0.218 US gall.)
Ink Viscosity Control:	Automatic Viscometer
Ink Bleed Control:	Automatic Start–Up / Shut–Down
Working Pressure: Pinpoint only:	Automatic, 2900mBar (42 psi) nominal Automatic, 4000mBar (60psi) nominal

Environment

Temperature Range (working):	+5 °to +45 ℃ (42 ℉ to 112 ℉)
Temperature Range (Storage):	–20 °to +60 ℃ (–4 ℉ to +140 ℉) (machine dry storage, wet dependent upon fluids)
Humidity:	10 – 90% RH (non–condensing)
Electrical Supply:	90–132V / 180–264V 50 / 60Hz single phase Auto ranging, 200VA, internal fuse rating 4A

General

Acoustic Noise Level:	Not more than 70 dBA
Positive Air Pressure (print head):	Internal or external supply. Max external supply pressure to cabinet 1 bar. (A100 is internal only)
Product detector / Shaft encoder connectors:	Bulgin ”Buccaneer” 6 way socket. 12V 100mA for photocell or proximity detector
Shaft Encoder Input:	Open collector or TTL encoder
Beacon Connector (option):	Bulgin ”Buccaneer” 7 way socket
Alarms Connector (option):	Bulgin ”Buccaneer” 9 way plug
User Port Connector (option):	Bulgin ”Buccaneer” 25 way socket
Communications Port connector (option):	Bulgin ”Buccaneer” 9 way socket
Power connector:	Bulgin ”Buccaneer” 3 way plug, cable supplied

PRINTER CONTROL

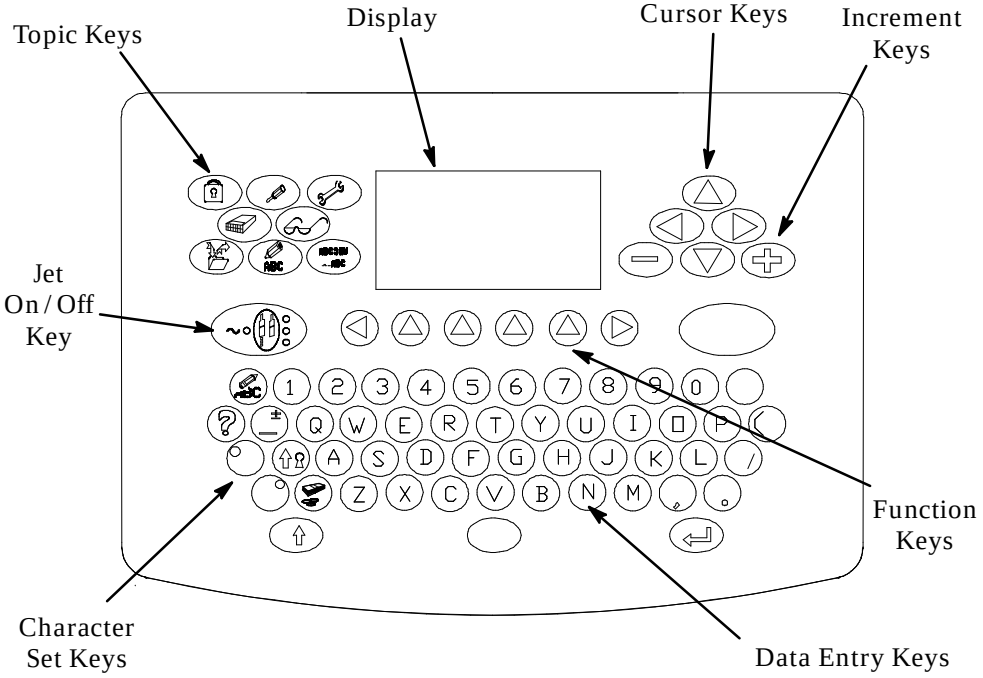
The printer is switched on by pressing the black button–switch on the side of the cabinet. This supplies power to the whole printer and after a short period control of the printer is transfered to the front panel.

Control Panel

The printer is controlled exclusively through the front panel. There are two types of keys:

- Permanent keys with fixed functions (these form the majority of keys)
- Function keys with functions which can change under software control.

The main areas of the front panel are identified in the diagram below.

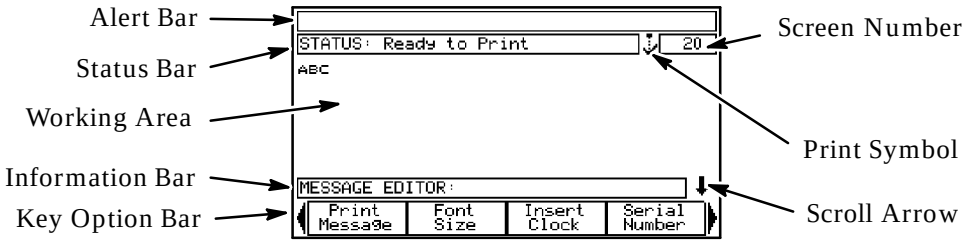


Front Panel Keyboard Layout

Display

The display presentation has the following basic structure.

Alert bar shows a message when a printer alert is raised. The message flashes until acknowledged by pressing any character key or the space key, after which the message is displayed continuously. When the alert condition is cleared, the message is cleared. If two or more alerts exist



simultaneously, the highest priority alert is displayed. An unacknowledged alert is always at a higher priority than any other acknowledged alert. Screen messages are detailed in Part 4.

Status bar shows status and other non–alert information.

Working area provides a general presentation area for the function in use.

Information bar usually shows which level is currently selected, but is also used for general information.

Key option bar shows up to four key options at any one time, presenting them as labels for the four function keys immediately below the screen. The options are scrolled left and right in groups of four by the keys on each side of the function keys, which appear when there is more than four key options. Scrolling results in the key labels changing, with the functions of the keys also changing to correspond with the labelling.

Screen number provides a numerical identity for each screen.

Scroll arrow shows that the screen detail extends off the display. The up– and down–cursor keys must be used to show the hidden detail.

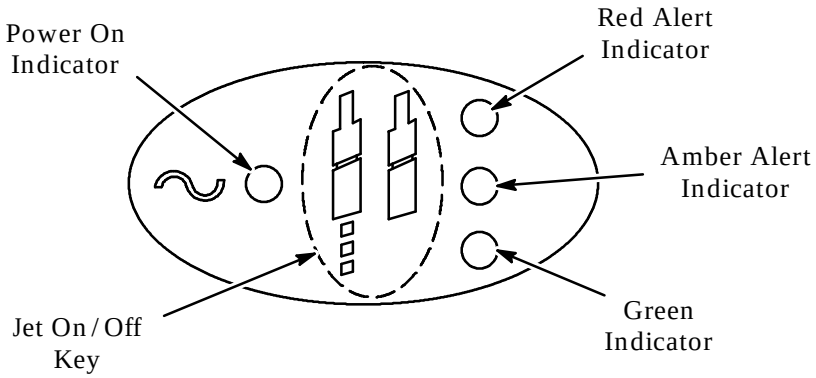
Print symbol shows printing as each Print Go signal is received. At very slow print rates the symbol will appear to flash, but typical print rates will give the appearance of a continuous symbol.

Jet On/Off Switching

The Jet On / Off switch is pressed to switch on the jet and pressed again to switch off the jet. It is necessary to press the switch for two seconds as a precaution against accidental use. The switch also carries the following indicators:

Power On Indicator shows when the power is switched on at the switch on the side of the cabinet.

Red Alert Indicator shows the printer has a fault which prevents printing. The indicator flashes while the alert is unacknowledged and



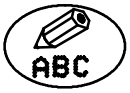
displays steadily when the alert is acknowledged. It is extinguished when the fault is cleared.

Amber Alert Indicator shows the printer has a fault that requires attention. The indicator flashes while the alert is unacknowledged and displays steadily when the alert is acknowledged. It is extinguished when the fault is cleared.

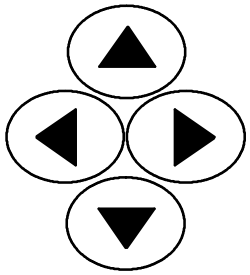
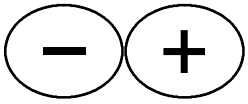
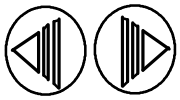
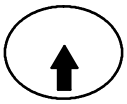
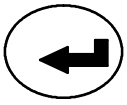
Green Indicator flashes while the printer is starting up or shutting down and displays steadily when the printer is printing or ready to print. It is extinguished by a fault or when the jet is not running.

Topic Keys

The topic keys each open sets of screen options. These are shown in the diagram on pg. 2–8 and described in detail in Part 5 : Reference.

	Message Editor	Provides access to the message creation utilities.
	Message Store	Provides access to the stored Messages.
	Print Setup	Provides access to the utilities controlling the message being printed, e.g. message orientation.
	Machine Setup	Provides access to adjustments in setting up the printer.
	Service	Provides access to the printer for the Service engineer.
	Memory Card	Provides access to the PCMCIA utilities.
	Message Monitor	Shows the message currently being printed.
	Lock–out	Switches on password protection, where used.

General Purpose Keys

	Cursor Keys	Four permanent keys used to move the cursor around the screen.
	Increment Keys	Two permanent keys used to increment and decrement values shown on the screen and marked with the highlight bar. The effect of these keys on settings and values is immediate.
	Option Key Bar Scroll Keys	Two keys used to scroll the functions in the keybar.
	Function Keys	Keys with functions identified by the names in the keybar immediately above.
	Delete Key	Deletes entries marked by the highlight bar.
	Alternative Character Set – Left (Blue)	Press this key to select the top left blue character on each character key. Also (used with the + and – keys) controls screen contrast.
	Alternative Character Set – Right (Green)	Press this key to select the top right green character on each character key.
	Shift Lock Key	Changes characters to lower case until pressed again to return to upper case characters.
	Shift Key	Hold down to change characters to lower case.
	Enter Key	Press this key to put data into the system to complete an action.

Help Key



Help Key — Provides access to help information concerned with the current menu screen.

Currency Key



Currency Key — Provides entry for localised currency characters. Pressing this key generates the minor currency symbol (e.g. p,c) and pressing it in combination with the Shift key generates the major currency symbol (e.g. £, $, etc).



Lockout

Pressing the Lockout key prevents unauthorised changes through the front panel or, for example, interference with the printer while it is unattended. With Lockout selected, control of the printer is restricted to switching on, switching off and inspecting the current message being printed (by pressing the Label Monitor key). Access to all other functions requires the use of the appropriate password, provided this has been set.



The Lockout screen also shows the internal clock, which is replaced in all other cases by a screen number.

Password System

Entry to the Lockout and Message Monitor areas of printer control is unrestricted, but all other areas can, if required, be protected by password. There are two levels of password protection: Supervisor, and Service. Each of these has a progressively higher level of access to the machine. When accessing a protected area, it is necessary to enter the appropriate password (or the password for a higher level). Entry to all areas with the same or lower protection status will subsequently be unhindered. Returning to Lockout resets the password access. It is possible to change the Supervisor password.

The following table shows the available password protection:

LEVEL	PASSWORD REQUIRED
Lockout	None
Message Monitor	None
Message Editor	Supervisor
Message Store	Supervisor
Print Setup	Supervisor
Memory Card	Supervisor
Machine Setup	Supervisor
Service	Service

Unicode Character Entry

Characters that are not represented by a key can be available for printing. They can be entered into the Message Editor or a data entry dialog using their Unicode identity. This is done by holding down both alternative character set keys and typing the Unicode 4–digit hexadecimal number (0000 to FFFF).

Importing and Exporting Data

Memory Card

The memory card is a blank, formatted PCMCIA card which can be used to copy and back–up messages and logos. This can then be used as a back–up for the messages and logos, or used to copy messages and logos to another printer.

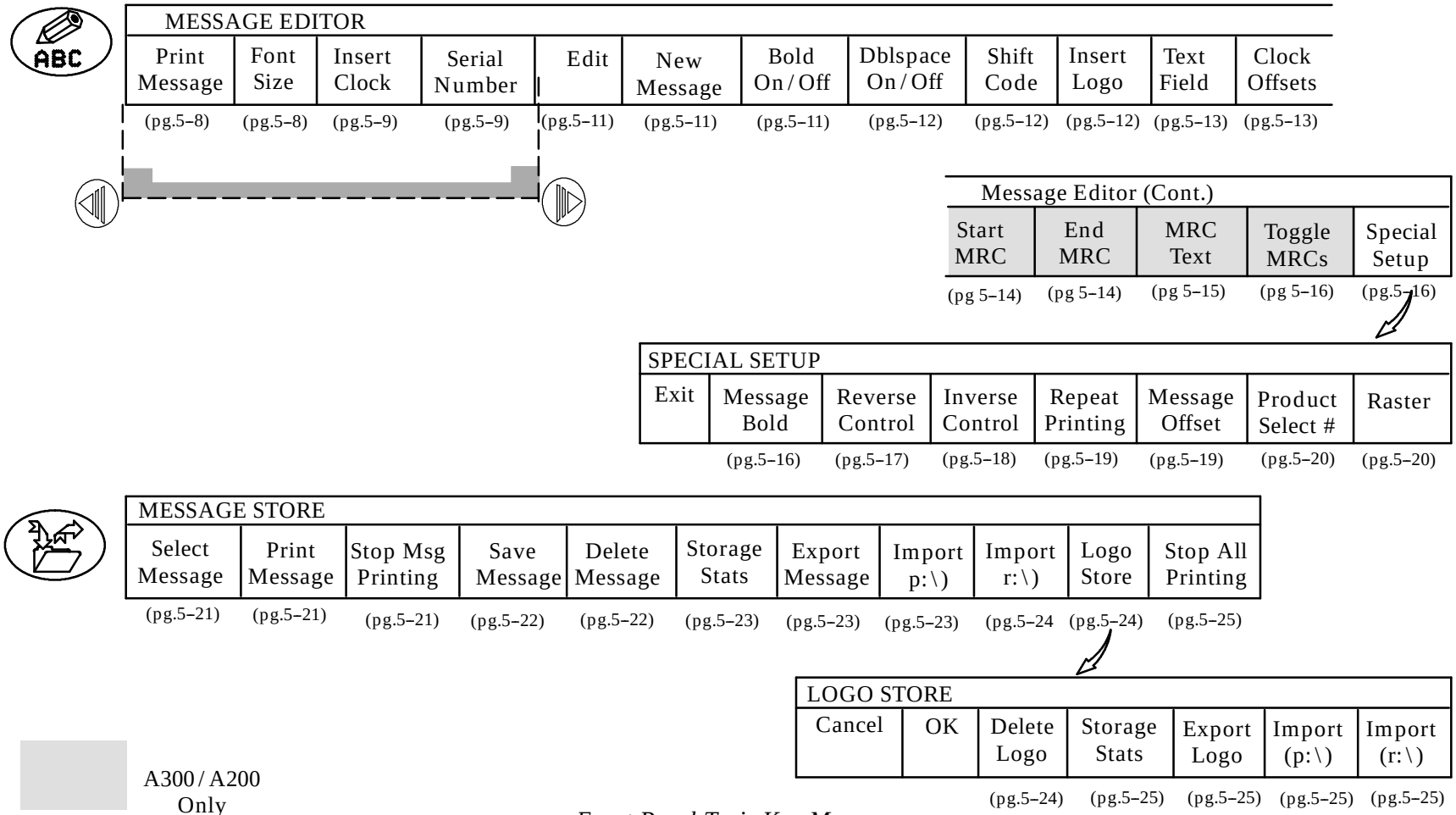
It is possible to copy the entire message (see pg. 5–30) or logo store or individual messages or logos (see pg. 5–23 and 5–25).

Back–up/Restore Card

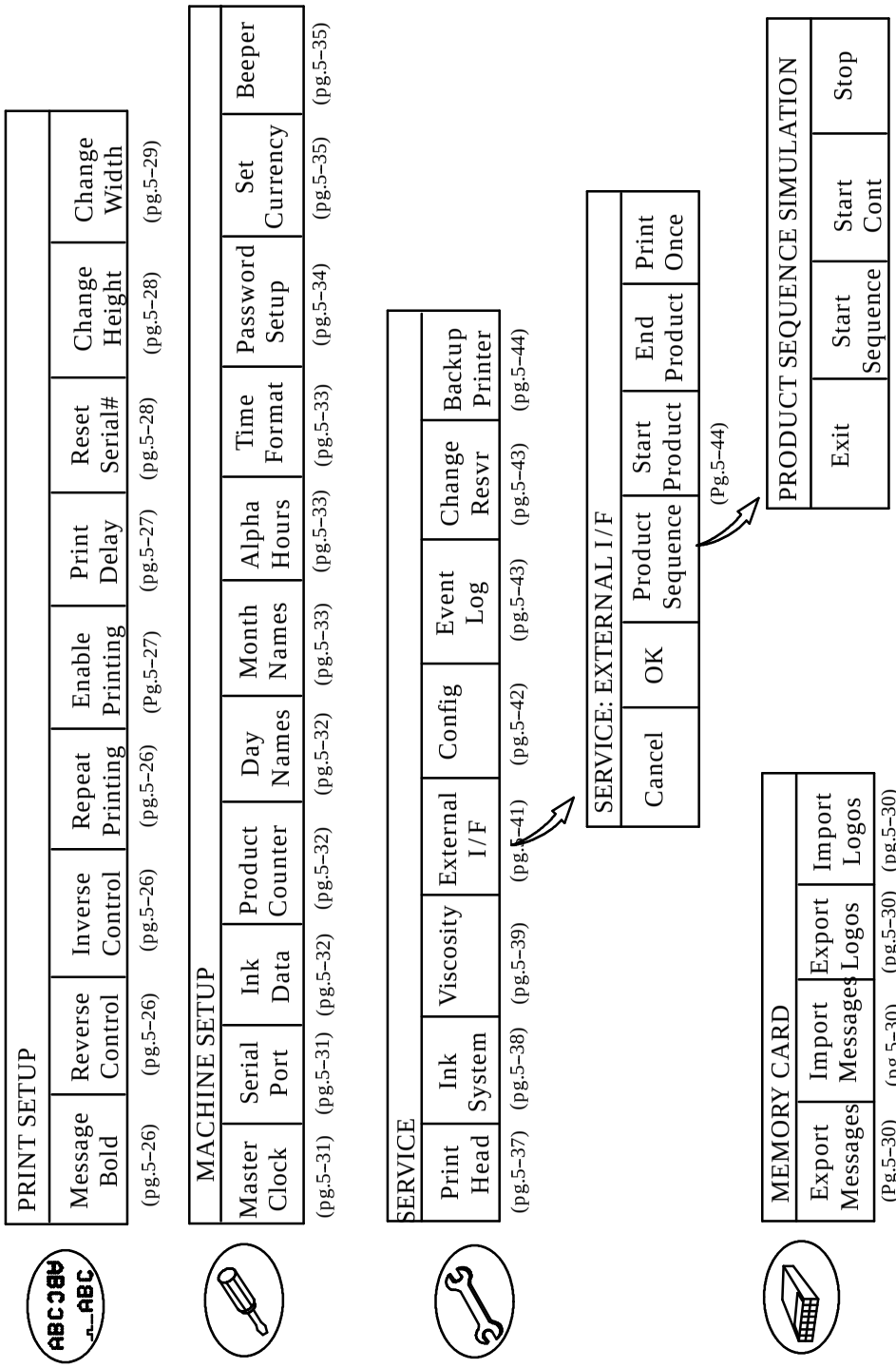
The Back–up / Restore card is a dedicated PCMCIA card used to back–up and restore all of the configuration data of a printer. It can also be used to restore partial configuration data to the same printer or copy it to another printer (although the printers must be the same, i.e. machine type, ink type, etc. and have the same version of main program). The partial restore will copy data such as: nozzle size, ink type, conduit length, etc. but not data such as: pump speed, modulation voltage, etc. (see pg. 5–44).

User Port

External control of the printer is possible through the User Port.



Front Panel Topic Key Menus



Front Panel Topic Key Menus

PART 3 : OPERATION

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SHUT DOWN 3–3

INK RESERVOIR REPLACEMENT 3–4

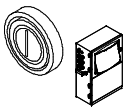
INK AND MAKE–UP CARTRIDGE REPLACEMENT 3–6

CREATING A MESSAGE 3–7

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OPERATION

START–UP



Press the push–button switch on the left side of the cabinet.

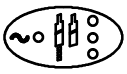
(The following switch–on and automatic run–up takes about 40 seconds).

- Screen displays *"Please wait . . ."*
- Green indicator on the Jet On / Off key begins to flash.
- Status bar shows message *Printer Initialising.* See pgs. 2–8 and 2–9 for screen and key details.

Note: The amber alert indicator on the Jet On/Off key may flash and a message appear in the alert bar on the display.

- Status bar message changes to *Printer Off* and the green indicator stops flashing and remains off.
- Either A300, A200, A100 (depending on printer type) or Domino Logo is displayed on the screen.

The printer is now ready for the jet to be switched on.



Press the Jet On / Off key for 2–3 seconds or until an audible "beep" is heard (if activated – see pg. 5–35).

(Turning on the jet is an automatic procedure taking about 70 seconds).

- Status bar shows the message *Sequencing On*,
- Green indicator on the Jet On / Off key begins to flash.
- Status bar message changes to *Ready to Print,* green indicator shows steadily.

The printer is now ready to print messages.

SHUT DOWN

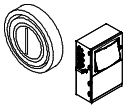
CAUTION ***Do not remove power to the printer until 'Printer Off' is displayed.***



Press the Jet On / Off key for 2–3 seconds or until an audible "beep" is heard (if activated – see pg. 5–35).

(Shut down is an automatic procedure taking about 3 minutes).

- Status bar shows the message *Sequencing Off.*
- Green indicator on the Jet On / Off key begins to flash.
- Status bar message changes to *Printer Off* and the green indicator stops flashing and remains off.



Press the push–button switch on the left side of the cabinet to switch off the printer.



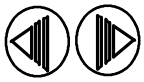
INK RESERVOIR REPLACEMENT

The messages *Ink change needed in less than 24 hours* and, later, *Ink change needed in less than 2 hours* will appear near the end of the reservoir life (If a long–life system is being used, these warnings will appear at 300 hours and 24 hours before the end of reservoir life). Printing will not continue beyond the expiry of the reservoir life.

It is necessary to enter the reservoir quality code of the new reservoir and reset the reservoir replacement alarms, using the following procedure:



(1) Press the Service key and enter the password if required.



(2) Use the key bar scroll keys to find the *Change Resvr* option at the bottom of the screen.



(3) Press the function key marked by *Change Resvr* and the screen will change to show a prompt requesting input of the Quality Code printed on the label of the new ink reservoir.

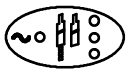
(4) Type in the reservoir quality code.



(5) Press the function key marked *OK*.

If the correct code is typed in, the reservoir run time will be reset and the alarms cancelled. Proceed to step (6).

If the number is typed inaccurately, it can be corrected by typing in again. If an invalid code number is typed, the number will not be accepted and messages in the information bar will indicate the problem, e.g. *Incorrect ink type*, *Ink out of date*, or *Resvr already used* (an old reservoir number). The offending reservoir should be replaced.



(6) Shut down the printer using the proper procedure.



(7) Switch off the printer.

Replace the reservoir as follows.

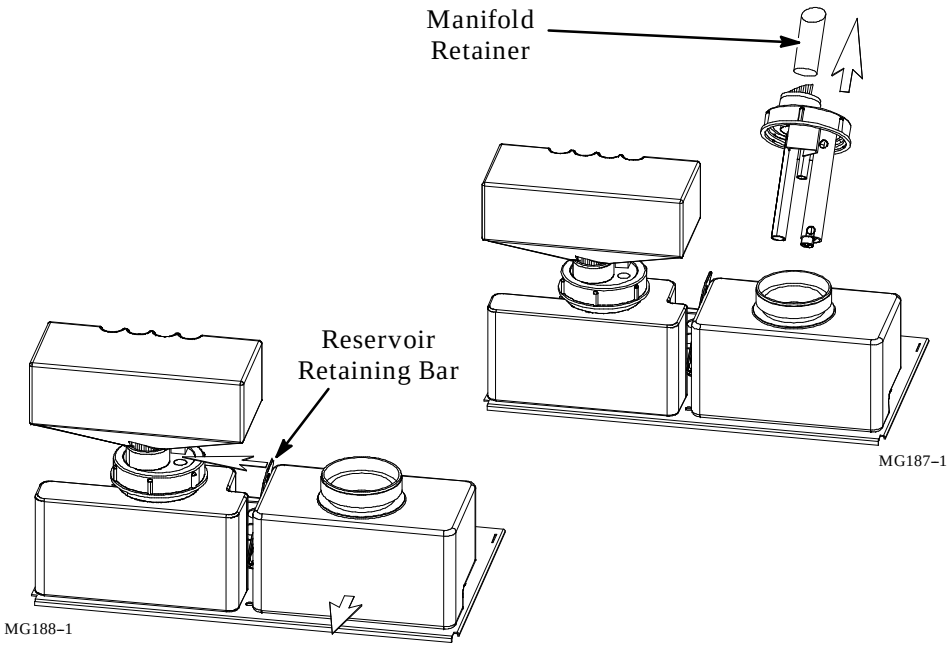
Notes (1) Tissue will be required for this procedure.

(2) The make–up reservoir is non–replaceable.

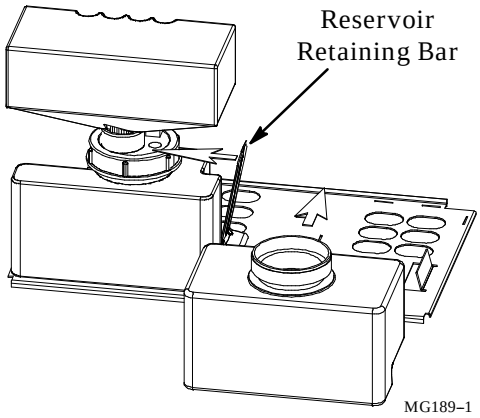
Remove the ink cartridge (see diagram on the next page). Unscrew the manifold locking ring, lift the manifold out of the reservoir and secure the manifold into the manifold retainer inside the top of the ink cabinet.

Fit a cap to the reservoir. Push the metal reservoir retaining bar and pull the reservoir forward to remove.

To fit a new reservoir, reverse the above procedure.



Removing the Ink Reservoir



Refitting the Ink Reservoir



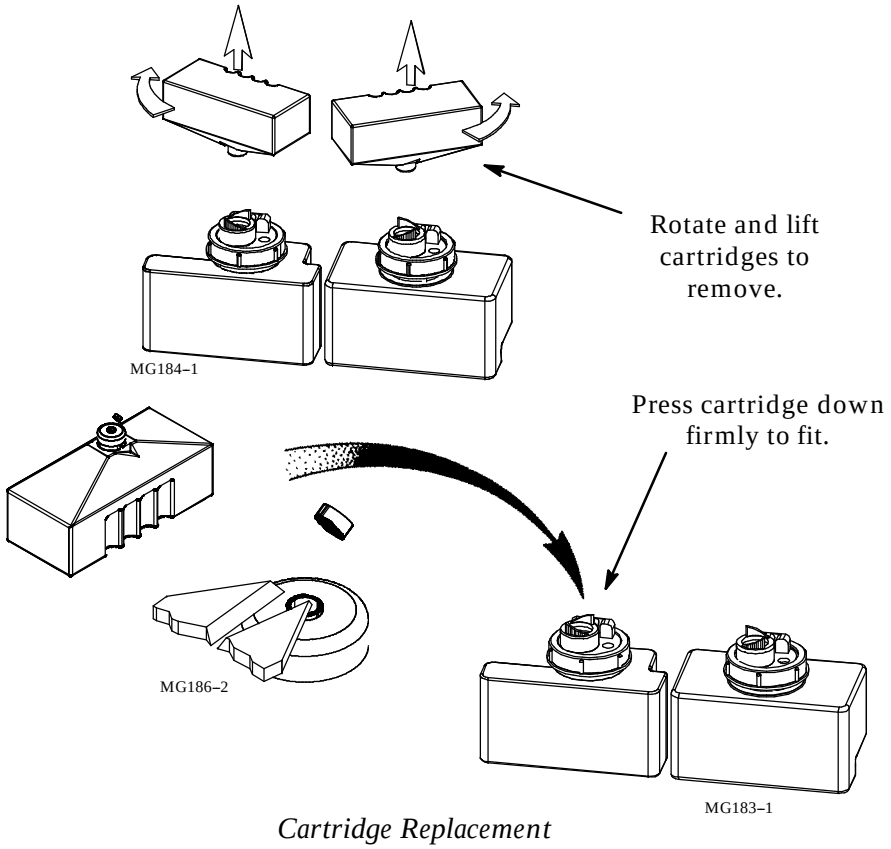
INK AND MAKE–UP CARTRIDGE REPLACEMENT

Note: *If only small amounts of ink are being used by the printer, it may not be necessary to fit an ink cartridge. Leave the ink manifold seal in place and only fit an ink cartridge when a request appears on the display.*

Messages 'Add Ink Cartridge' or 'Add Make–up Cartridge' will appear on the front panel display when the ink or make–up cartridges need replacing, and the amber alert will illuminate.

The ink cartridge is rotated anti–clockwise and the make–up is rotated clockwise to free them before being lifted away. This mechanism ensures that the cartridges cannot be fitted onto the wrong manifold.

To fit a cartridge, cut off the sealing tab and push on to the correct manifold.



Cartridge Replacement

If the make–up cartridge is not replaced, the make–up reservoir will empty and the ink viscosity will eventually go outside limits. Also, head flushing will not be carried out when the printer is shut down and ink may be deposited on the print head components. Thus, although the printer can still be used, head faults may occur.

CREATING A MESSAGE

The following shows how to create and print a message. The suggested entries could be used as a working example. All of the screens presented on the display are fully described in Part 5 : Reference.

Display Contrast

For comfort, the display contrast can be adjusted by pressing the blue alternative character set key and adjusting the contrast using the increment (+ and –) keys.

General Information

The following is general advice for using the keyboard. For example, if a mistake is made, and it is required to delete a character, the cursor keys (see pg. 2–12) can be used to move a highlight bar over the character. Pressing the delete key (see pg. 2–12) will then remove the character. Note that new characters are always inserted immediately in front of the highlight. Therefore, if a replacement character is required in the same place as a deleted character, type in the new character without moving the highlight.

Font (character) size, bold characters and double spacing can be selected as function key options. Pressing the key activates the option and all subsequent entries will be size / bold / spaced accordingly, until the key is pressed again.

Values can be typed in, or changed by using the increment keys (see pg. 2–12). Values changed with the increment keys are effective immediately. By contrast, values typed in using the number keys become effective only when *OK* or the equivalent is selected using the function keys, or a + / – key is pressed.

Font size is indicated by the vertical size of the cursor. If a larger font size is inserted into a multi–line message, the other characters will be automatically arranged around the larger characters.

Note: The following attributes/parameters can be set as special setups into individual messages (through Message Editor) and also set into the printer as overall global settings (through Print Setup):

Bold

Repeat messages

Reverse/Inverse

Individual message settings take priority over the global settings.

The key labels along the bottom of the screen may not show the required options immediately. If necessary, use the scroll keys (see pg. 2–12) to move the options across the screen. To select the option, press the key below the label on the screen.

To Create the Message



(1) Press the Message Editor topic key.

(2) Type in the message (e.g. abc).

Creating a detailed message can include entering clock data, serial numbers, shift codes or text fields (see below). To continue with a simple message, proceed as follows.

To Print the Message

(1) With Message Editor selected, press the scroll keys to search the key options and find *Print Message*.



(2) Press the key below *Print Message* the prompt 'Message Ready for Printing' is displayed. The message will now be printed at each Print Go signal if the printer is in the Ready to Print state.

Note: If an on–line message is changed in any way, it is necessary to press Print Message again to implement the changes.

To Save the Message



(1) Press the Message Store key. (The screen will change and may show the name of a previous message – ignore this!)



(2) Select *Save Message* from the key options along the bottom of the screen (by pressing the key under the label).

(3) Type in the name of the message (e.g. "Example").



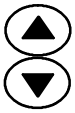
(4) Select *OK* from the key options (by pressing the key under the label).

To Delete the Message from Store





(1) With Message Store selected, press the scroll keys to search the key options and select *Delete Message*. The screen will change to show a list of names of stored messages.



(2) Use an up– or down–cursor key to move the highlight bar to cover the name of the required message, e.g. "Example". The list of

message names may extend off the screen – continuing to use the cursor key will automatically scroll the list.

Note: A message being currently used for printing (marked ">") cannot be deleted.



(3) Select *Delete Message* from the key options. The screen will change to show *Delete message?* and the message name.



(4) Select *OK* to delete the message and the screen will return to the list of messages.

The deleted message name will not now be included in the list and steps (2) to (4) can be repeated to delete any other messages.

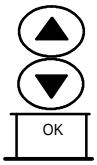


(5) Select *Cancel* from the key options.

To Select an Existing Message



(1) With Message Store selected, press the scroll keys to search the key options and select *Select Message*. The screen will change to show a list of names of stored messages.



(2) Use down– and up–cursor keys to move the highlight bar to select the name of the required message.

(3) Select *OK* from the key options. The display will change to show the name of the chosen message only.

Note: To print this message, select Print Message from the key options.



(4) Press Message Editor and the display will show the full message.

To Enter a Clock Entry



(1) With Message Editor selected, select *Insert Clock* from the key options. The display will change to show the Insert Clock screen with a highlight bar over *Clock Offset Number.*

(2) Type in a numerical value, e.g. 2. (This value selects one of four clocks on A300/A200, or one of two clocks on A100, containing time offsets entered into the printer by way of the *Clock Offsets* option. For example, a continuously updated date four weeks ahead of the current date can be inserted into the message).



(3) Press the down–cursor key to move the highlight bar down over *Format*.

The clock entries consist of names, etc. arranged in a range of formats. The names, codes, available formats, etc. can all be changed if required (see pgs. 5–33 and 5–34).



(4) Use an increment key to change the date format in the highlight bar to a suitable format.



(5) Select *OK* from the key options. The display will change to show the message with the clock detail inserted at the cursor position. Clock entries on the display will not be updated. However, the printed messages will have clock entries updated from the master clock and Message Monitor will also display the correct clock information after each received print go.

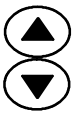
To Enter a Serial Number



(1) With Message Editor selected, press the scroll keys to search the key options and select *Serial Number.*

The screen will change to show the parameters controlling the serial numbering. These include the start number (first limit), finish number (second limit) and the change between messages (step size). If the start number is below the finish number the change (step) will be incremental, i.e. positive. If the start number is above the finish number, the change (step) will automatically be decremental, i.e. negative. Also, if required, the same serial number can be entered into a selected number of messages before it is changed (Repeat Count).

More advanced serial numbers can be set up, to include a letter–type prefix or suffix and batch linking between two serial numbers (batch linking on A300/A200 only). In the case of alphanumeric serial numbers, the order (precedence) in which the alpha and numeric parts are updated can be selected. In the following steps, the example entries will create a serial number AA0000, AA0001 . . . through AX0000 . . up to KK1000, increasing at each step by 1.

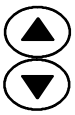


(2) Use down– and up–cursor keys to move the highlight bar and select the details of the serial number, and type in the required values. For example:

First Limit: 0
Second Limit: 1000
Start Value: 0
Leading Zeros: . . . . . Yes (selected with the increment keys)
Step Size: 1
Repeat Count: 0

The serial number is displayed at the bottom of the screen.

(3) If a more complex serial number is required, select *Advanced.*



(4) Use down– and up–cursor keys to move the highlight bar and select the details of the serial number, and enter the required values. For example:

Alpha: . . . . . Prefix (selected with the increment keys)
Batch Link: . . . . . No (selected with the increment keys)
(A300/A200 only)
Precedence: . . . . . Numeric (selected with the increment keys)
First Limit: . . . . . AA
Second Limit: . . . . . KK

Lower Character: . . . . . A
Upper Character: X
Start Value: . . . . . AA



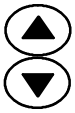
(5) Select *OK* from the key options.

To Enter a Shift Code



(1) With Message Editor selected, press the scroll keys to search the function key options and select *Shift Code*. The display will change to show the Shift Code screen. Up to 24 shift codes can be entered in the form of start and stop times (in hours and minutes according to the 24 hour clock system) and a shift code name (in the *String* column). Move the highlight bar using the up– and down–cursor keys to mark the entry being entered or amended.





(2) Type in a shift code, e.g. *Start* 08:30, *Stop* 12:30, *String* Red.



(3) Select *OK* from the key options. The display will change to show the message and, provided the current real time falls within the specified shift code start and stop times, the shift code name, e.g. Red, will be inserted at the cursor position. (If the shift code time is outside the time limits, the shift code position in the message will show as a blank space.)

To Enter a Text Field

A text field is a blank area which can be left within a message, e.g. to avoid interference with other pre–printed information.



(1) With Message Editor selected, select *Text Field* from the key options. The display will change to show the Text Field screen. Enter a value representing the size of the field (measured in characters).



(2) Select *OK* from the key options. The message will re–appear showing a space sized to the value entered in the previous step at the position of the cursor.

To Create a Machine Readable Code (MRC) (A300/A200 only)



The following procedure is carried out in Message Editor, either as a new message or as part of a message being constructed.

During the following procedures, decisions on the following will be required:

(a) MRC type

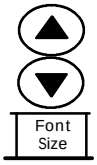
(b) MRC data which is appropriate to the MRC type

(c) Position of any human–readable text related to the MRC. This is usually indented into a barcode, but can, if required, be placed elsewhere.

(d) Type of human readable text. This is usually the same data as the MRC and, if set up according to the following procedures, amendments or updates to the MRC will then be automatically applied to the human–readable text.



During the procedures, key labels along the bottom of the screen may not show the required options. It will be necessary to be familiar with using the scroll keys (see pg. 2–12) to move the key options across the screen and selecting an option by pressing the key below the label on the screen.

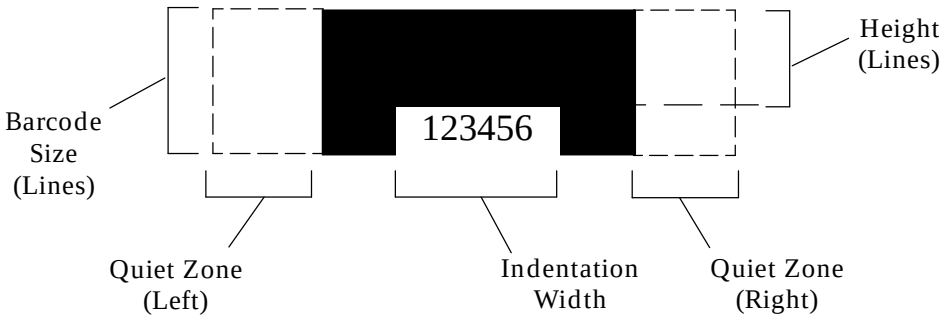


It will also be necessary to be familiar with using the up– and down–cursor keys to move the highlight bar to select settings given on a display screen.

(1) Inspect the cursor on the display and press the *Font Size* option key until it is the size of the required MRC.



(2) Select *Start MRC* option key and note the appearance of the symbol ”>” at the correct MRC size.



(3) Type in the MRC message.

End MRC

(4) Press *End MRC* option key. The screen will change to show the MRC Identifier i.e. whether the barcode is the first, second, etc. in the message, and the MRC type.

(5) If necessary, use the increment keys to change the MRC setting to the required type.

To Create a Barcode:

OK

(6) If a simple barcode only is required select *OK* and the barcode will appear. If human–readable information is to be included, select *Advanced* as in step (7).

To confirm the barcode data, use the *Toggle MRC's* option key to switch between the barcode and its human–readable version. (Toggling the data does not affect printing – only the barcode is printed.) However, selecting the human–readable version helps editing, as the cursor can be moved to the required character and changed in the normal way. Note the "<" symbol at the end of the barcode data. Marking this and selecting Edit returns the screen to step (4) allowing the barcode details to be changed. Alternatively, toggling to the barcode and selecting Edit also returns the screen in step (4).

(7) The barcode data can be printed in human–readable form, either before or after the barcode, or it can be indented into the barcode as shown in the diagram. Some barcodes (such as EAN 13) use a double indentation. Select *Advanced*.

Advanced

(8) With *Advanced* selected, set the indentation width. For an exact fit, this width is measured in strokes, but for demonstration purposes enter any large number (e.g. 1000) to create the largest available width in the barcode.

(9) Enter the height (in number of lines) of the barcode above the indentation (see diagram).

(10) If required, values (in strokes) can be entered to give quiet zones (clear spaces) at the beginning and end of the barcode.

OK

(11) Select *OK* to return to the barcode screen.

OK

(12) Select *OK* to return to the Message Editor screen. The barcode will now show the indentation(s).

Font Size

(13) Inspect the cursor at the front of the display and press the *Font Size* option key until it is the size of the required barcode. If the barcode

text is to be fitted into the indentation, it is important that this is a height suitable to fit into the indentation (or the text will be fitted outside the barcode). Then use the cursor keys to move the cursor to the required position.

MRC Text

(14) Select *MRC Text* or, if the barcode uses two indentations, go to step (18).

(15) Highlight the *Number of Characters* and enter the number of barcode characters.

OK

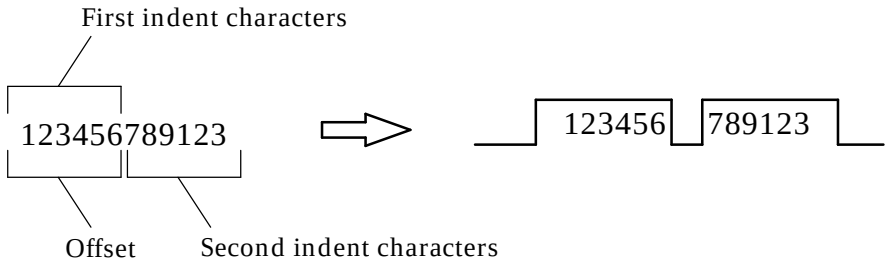
(16) Select *OK*.

(17) The barcode will appear including the human–readable text. If required, this text can be re–positioned by entering character spaces or thin spaces (shift + space keys).

(18) In a barcode using two indentations, selected human–readable characters would be placed in the two positions. Select *MRC Text*.

MRC Text

(19) Select *Number of Characters* and enter the number of characters to be put into the first indent (this is usually half of the total number). Leave the *Offset* value at zero.



OK

(20) Select *OK* and check that the required characters appear in the first indentation. If necessary move the cursor to the start of the second indentation.

MRC Text

(21) Select *MRC Text* again.

(22) Select *Offset* and enter the number of characters not required to be shown. Select *Number of Characters* and enter the number of characters (usually half of the total number), beyond the offset, to be put into the second indent.

OK

(23) Select *OK* and check that the required characters appear in the first and second indentations.

To Create A Dot Code:

Follow steps under 'Create a Machine Readable Barcode' up to step (5), then continue as follows:

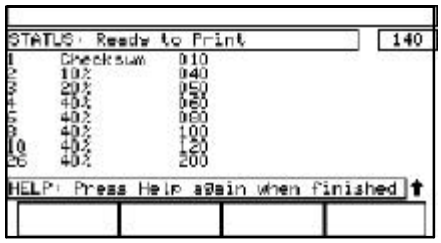
(6) Select the required code (Snowflake or Data Matrix) and press the *Advanced* key.

(7) Select the required Dot Code parameters in this screen. These are as follows:
Format which describes the type of data to be encoded, options are:

SNOWFLAKE	DATA MATRIX
1. Numeric only (0..9)	1. Numeric only (0..9)
2. Upper case only (A..Z)	2. Alpha only (A..Z)
3. Lower case only (a..z)	3. Printable ASCII
4. Punctuation (;: ',.?!)	
5. Alphanumeric (A..Z a..z 0..9)	

Error Correction Code (ECC) applied to dotcode. Use the help (?) to enter the required ECC for Snowflake, values of none and checksum are not permitted and will be changed to the minimum supported value of 10%. For Data Matrix, ECC values of 000, 010 and 040 are not supported and are changed to the minimum supported value of 050. The reason that numbers are entered is to make the menu generic for all dotcode symbologies (see the following Help screens).





(8) Select the height and width required and press OK.

Snowflake Encryption Capacities

10% Error Code Correction

DENSITY	MAXIMUM CHARACTER ENCRYPTION CAPACITY				
	Numeric Format 1	Upper Case Format 2	Lower Case Format 3	Punctuation Format 4	Alphanumeric Format 5
7 x 16	4	3	3	4	3
7 x 24	10	8	8	10	7
8 x 8	n / a	n / a	n / a	n / a	n / a
9 x 9	2	1	1	2	1
10 x 10	2	2	2	2	1
11 x 11	6	4	4	6	4
11 x 24	23	19	19	23	15
12 x 12	8	7	7	8	5
12 x 24	26	21	21	26	17
13 x 13	12	9	9	12	8
14 x 14	15	12	12	15	10
15 x 15	17	13	13	17	11
16 x 16	21	17	17	21	14
16 x 24	39	31	31	39	26

20% Error Code Correction

DENSITY	MAXIMUM CHARACTER ENCRYPTION CAPACITY				
	Numeric Format 1	Upper Case Format 2	Lower Case Format 3	Punctuation Format 4	Alphanumeric Format 5
7 x 16	2	2	2	2	1
7 x 24	6	5	5	6	4
8 x 8	n / a	n / a	n / a	n / a	n / a
9 x 9	1	n / a	n / a	1	n / a
10 x 10	2	1	1	2	1
11 x 11	3	2	2	3	2
11 x 24	15	12	12	15	10
12 x 12	4	3	3	4	2
12 x 24	16	13	13	16	11
13 x 13	6	5	5	6	4

14 x 14	8	7	7	8	5
15 x 15	11	9	9	11	7
16 x 16	13	10	10	13	9
16 x 24	25	20	20	25	17

40% Error Code Correction

DENSITY	MAXIMUM CHARACTER ENCRYPTION CAPACITY				
	Numeric Format 1	Upper Case Format 2	Lower Case Format 3	Punctuation Format 4	Alphanumeric Format 5
7 x 16	n / a	n / a	n / a	n / a	n / a
7 x 24	2	2	2	2	1
8 x 8	n / a	n / a	n / a	n / a	n / a
9 x 9	n / a	n / a	n / a	n / a	n / a
10 x 10	n / a	n / a	n / a	n / a	n / a
11 x 11	1	n / a	n / a	1	n / a
11 x 24	6	5	5	6	4
12 x 12	1	1	1	1	1
12 x 24	7	5	5	7	4
13 x 13	2	1	1	2	1
14 x 14	2	2	2	2	1
15 x 15	4	3	3	4	2
16 x 16	5	4	4	5	3
16 x 24	11	9	9	11	7

Data Matrix Square Encryption Capacities

Error Code Correction 50

DENSITY	MAXIMUM CHARACTER ENCRYPTION CAPACITY		
	Numeric Format 1	Alphanumeric Format 2	ASCII Format 3
11 x 11	1	1	n / a
13 x 13	10	6	4
15 x 15	20	13	9
16 x 16	20	13	9

Error Code Correction 80

DENSITY	MAXIMUM CHARACTER ENCRYPTION CAPACITY		
	Numeric Format 1	Alphanumeric Format 2	ASCII Format 3
13 x 13	4	3	2
15 x 15	13	9	6
16 x 16	13	9	6

Error Code Correction 100

DENSITY	MAXIMUM CHARACTER ENCRYPTION CAPACITY		
	Numeric Format 1	Alphanumeric Format 2	ASCII Format 3
13 x 13	1	1	n / a
15 x 15	8	5	3
16 x 16	8	5	3

Error Code Correction 200

DENSITY	MAXIMUM CHARACTER ENCRYPTION CAPACITY		
	Numeric Format 1	Alphanumeric Format 2	ASCII Format 3
8 x 18	10	6	6
8 x 32	20	13	8
10 x 10	6	3	3
12 x 12	10	6	5
12 x 26	32	22	14
12 x 36	44	31	20
14 x 14	16	10	6
16 x 16	24	16	10
16 x 36	64	46	30
16 x 48	98	72	47

PART 4 : DISPLAY MESSAGES AND FAULT FINDING

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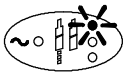
PRINT QUALITY FAULTS 4–19

DISPLAY MESSAGES AND FAULT FINDING

INTRODUCTION

There are separate bars on the display showing:

- alert messages (see below)
- status messages (see pg. 4–14)
- Information messages (see pg. 4–16).



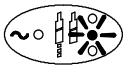
Red Alerts

Red alerts are shown by a flashing red LED indicator on the jet on / off switch and a message flashing in the alert bar (see pg. 4–4). They show the presence of faults and stop the printer printing or prevent an unsafe condition occurring. There are two types:



Non–recoverable The jet will shut off (without following the normal sequencing). If the fault condition is still present when acknowledged (see below), the red LED will remain on and the alert bar message will show continuously. If the fault condition has cleared when acknowledged, the red LED will extinguish and the message will be removed.

Recoverable The green LED on the jet on / off switch will flash as the printer attempts to recover. The jet remains switched on. If recovery is successful, the green LED will remain on and the red LED will flash until acknowledged. When acknowledged, the red LED will extinguish and the alert bar message will be removed.



Amber Alerts

Amber alerts are used to inform the operator that the printer is in need of attention or that there are message handling errors.

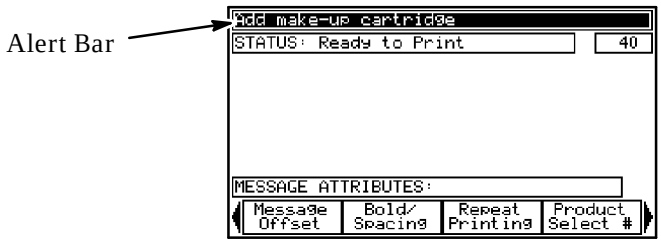
If the fault condition is still present when acknowledged (see below), the amber LED will remain on and the alert bar message will show continuously. If the fault condition has cleared, the amber LED and alert bar message will flash until acknowledged, when the amber LED will extinguish and the alert bar message will be removed.

Fault Acknowledgement

Alert bar messages flash until acknowledged by pressing any character key or the space key, after which the message is displayed continuously. Depending on the alert, some messages are cleared when the condition is cleared. In other cases the message is retained until acknowledged. If two or more alerts exist simultaneously, the highest priority alert is displayed. An unacknowledged alert is always at a higher priority than any acknowledged alert.

All reports are recorded in the error log, together with times of acknowledgement and repair.

ALERT BAR MESSAGES



The following warning and alert messages may be displayed:

Abandoned message, product ended

End of product detected before end of message.

Check sensor position, message length.

Abnormal ink pressure

Ink pressure is outside limits for current ink type: pump failed, pressure transducer failed or connection problem.

Check electrical and ink connections, pump and pressure transducer.

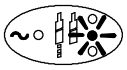
Ink pressure set too high or too low.

Adjust ink pressure.

Add ink cartridge

The ink level is low.

Fit a new ink cartridge.



Abnormal vacuum level

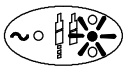
Flow through jet pump low with low pump speed.

Check for and eliminate any ink leakage.

Flow through jet pump with high pump speed.

Check for and eliminate any partial blockage in feed circuit or jet pump.

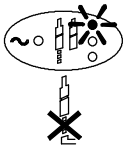
Check for and eliminate any air leakage into feed circuit.



Add make–up cartridge

The make–up level is low.

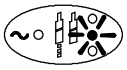
Fit a new make–up cartridge.



Beware! Ink reservoir change overdue

The ink life has expired.

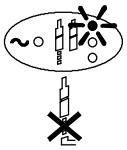
Fit a new reservoir.



Blank message detected (no drops)

Attempting to print a blank message.

Edit message or reassign a message containing information.

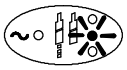


Cabinet overheated

Cabinet temperature is too high.

Ensure printer is operating within specified temperature environment.

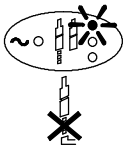
Check air filter. If fault persists, call Domino Service.



Cabinet temperature sensor input error

Failure at input to sensor.

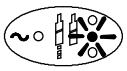
If fault persists, call Domino Service.



Charge detection has failed

Incorrect modulation, ink or solvent on charge electrode.

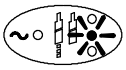
Reset modulation, clean / check charge electrode.



Could not convert message to Codenet

Selected message is not in a valid format for the currently selected font and raster.

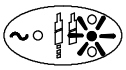
If fault persists, call Domino Service.



Could not find message to be printed

Message does not exist.

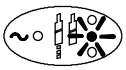
Select a new message.



Could not find message to be updated

Message to be updated does not exist.

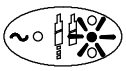
Select a new message.



Could not find message to clear queue

Message queue is already empty.

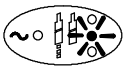
Send new message.



Could not prepare message for printing

Selected message is not in a valid format for the currently selected font and raster.

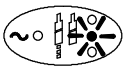
Send new message.



EEPROM write failed

The EEPROM (a hardware device used by the printer to store the ink life data) has failed.

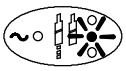
If fault persists, call Domino Service.



Excess pump overspeed

Ink pressure is being maintained but pump speed is excessive.

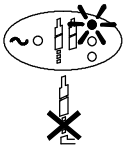
Check ink system for leaks or worn pump.



Excess pump underspeed

Ink pressure is being maintained but pump speed is too low.

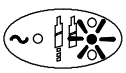
Check ink system for blockages, kinked tubes, badly formed connections, etc.



Excessive ink pressure

Ink pressure is too high. Blocked jet pump.

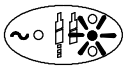
Refurbish jet pump.



Failed to write to store file

Message store is full or corrupted.

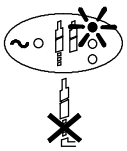
Delete unused messages or restore the contents from backup.



Fall–back jet modulation in use

During start–up sequencing, the modulation level is automatically determined if automatic modulation has been selected. If the modulation level cannot be determined automatically, the last successful modulation level is used and this warning raised. Check and if necessary clean the charge electrode. Printer can be used, but check print quality.

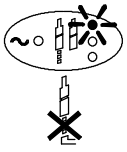
If fault persists, call Domino Service.



Fault: PEB restarted

Internal error.

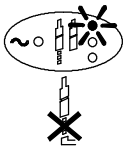
If fault persists, call Domino Service.



Fault: PSB restarted

Internal error.

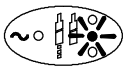
If fault persists, call Domino Service.



Fault: SGB restarted

Internal error.

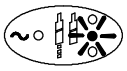
If fault persists, call Domino Service.



Gunbody temperature high

Gunbody temperature is higher than set value.

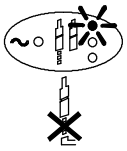
If fault persists, call Domino Service.



Gunbody temperature low

Gunbody temperature is lower than set value.

If fault persists, call Domino Service.

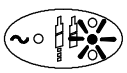


Gutter dry

Ink not entering gutter.

Check jet alignment.

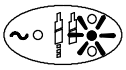
Check that nozzle is not blocked.



Head temperature sensor input error

Failure at input to sensor.

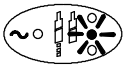
Check sensor connections. If fault persists, call Domino Service.



Ink temperature sensor input error

Failure at input to sensor.

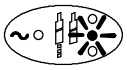
Check sensor connections. If fault persists, call Domino Service.



Ink change due – replace ink reservoir

Ink life has expired.

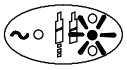
Fit new reservoir before printing can be restarted.



Ink change needed in less than 2hrs (Not given in extended ink life printers.)

Ink life is within 2 hours of expiry. (A first warning is given at 24 hours before expiry.)

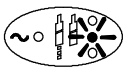
Fit new ink reservoir.



Ink change needed in less than 24hrs

Ink life is within 24 hours of expiry.

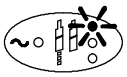
Fit a new ink reservoir.



Ink change needed in less than 300hrs (Extended ink life printers only.)

Ink life is within 300 hours of expiry. (A second warning is given at 24 hours before expiry.)

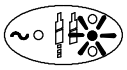
Hold new ink reservoir ready for use at 24 hour warnings.



Ink detected on charge electrode

Ink on charge electrode.

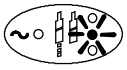
Clean charge electrode (see pg. 7–17), restart printer.



Ink "hours–to–go" data altered

Ink life setting has been altered due to either ink being changed or ink life setting value adjustment.

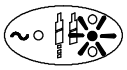
Check authorisation for change.



Ink heating failed

Ink heating system has failed.

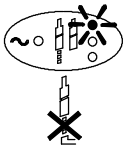
Check heater connections and check thermistor.



Ink level sensor input error

Failure at input to sensor.

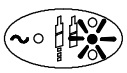
Check sensor connections. If fault persists, call Domino Service.



Ink pressure loss

Pressure loss due to leakage, pump failure or transducer failure.

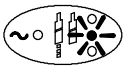
Check for leaks. Check electrical connections, pump and transducer operation.



Ink temperature high

Ink temperature is outside control system limits.

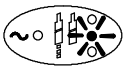
Ensure printer environment is within specification.



Ink temperature low

Ink temperature is outside control system limits.

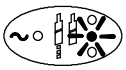
Ensure printer environment is within specification.



Invalid or missing Font file

Font file missing or corrupted.

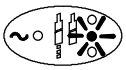
Replace the font file.



Invalid or missing Raster file

Raster file is either missing or corrupted.

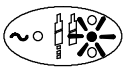
Replace the raster file.



Long print, check print quality

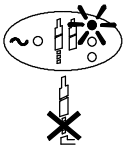
Long print generated.

Inspect print quality.



New Store file created

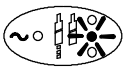
This message is displayed for information only. It indicates that a new file store (for the display of messages, logos etc.) has been created. This may happen if the printer has been reconfigured (to use a different ink type, nozzle size or print format).



No ink

Ink level is below minimum.

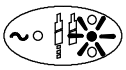
Fit a new ink cartridge.



No make–up

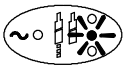
Make–up level is below minimum.

Fit a new make–up cartridge.



PEC config. item defaulted

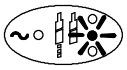
Configuration data not available (during initialisation). Initialisation will be continued using default values.



Print Engine Standby timed–out

Printer has remained in standby state for longer than the pre–set time (and sequenced full off).

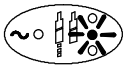
Start up printer if required.



PEC changed – new build information

Software upgrade has resulted in change to build data stored in printer.

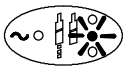
If message does not correspond to a software change, call Domino Service.



PEC changed – new configuration data

Configuration change has resulted in change to build data stored in printer.

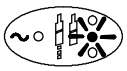
If message does not correspond to a configuration change, call Domino Service.



Pressure sensor input error

Failure at input to sensor.

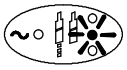
Check sensor connections. If fault persists, call Domino Service.



Print data generated too late

Print rate too fast.

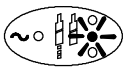
Adjust print delay.



Print failed – print delay too short

Message data was not received before the next product was detected.

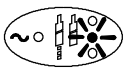
Increase print delay until an acceptable value can be entered. If necessary, adjust position of product sensor or print head. If fault persists, call Domino Service.



Print Go occurred while printing

Next product was detected before the current message completed printing.

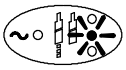
Check sensor position, message length.



Print late – print delay too short

Message data was received too late for the message to be generated and printed.

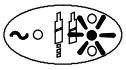
If fault persists, call Domino Service.



Print max speed limit in force

Maximum stroke rate has been exceeded.

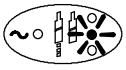
Reduce print rate.



PSB Battery low or disconnected

Backup battery voltage low and data will be lost when printer is switched off.

Copy all files to a PCMCIA card before shutting down the printer. Call Domino for support.



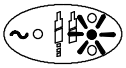
Pump speed outside normal range

Pump system is trying to compensate for excess or loss of pressure.

Check for blockages or leaks in ink circuit.

Pump pressure could be set too high

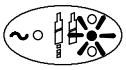
Check and adjust if necessary.



Quality code OK – fit reservoir

Quality code indicates a reservoir of the correct type.

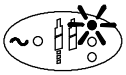
Fit reservoir.



RAM disk has been reformatted

File store has been re–initialised with loss of any changes to configuration parameters and edited messages. Possible battery backup failure.

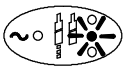
Check battery.



Reset by watchdog

Internal error.

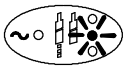
If fault persists, call Domino Service.



Solvent level sensor input error

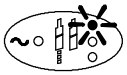
Failure at input to sensor.

Check sensor connections. If fault persists, call Domino Service.



Too many products, some ignored

Messages have been queued more frequently than products are being detected. Some messages will be lost.

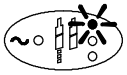


Too much ink

Ink level is above maximum.



Remove ink from the reservoir.

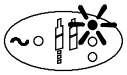


Too much make–up

Make–up level is above maximum.



Remove make–up from the make–up reservoir.

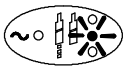


Ventilation failure

Fan has stopped, pressure switch has failed or (if fitted) the air supply from the air dryer has stopped.



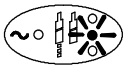
Check fan and connections.



Viscometer fault

Viscometer or valve has failed.

Check connections, replace viscometer or valve.



Viscosity out of range

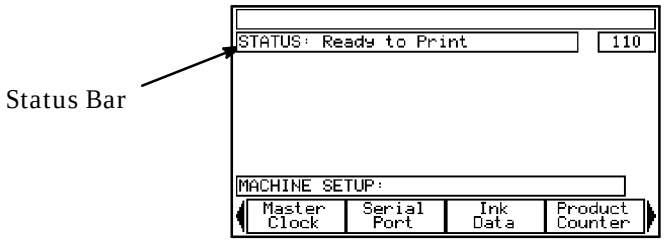
Make–up cartridge empty or make–up add solenoid failed. (Printing is still possible, but print quality may deteriorate).

Replace make–up cartridge or solenoid. Ensure printer operating environment temperature is correct.

Too many shut downs performed, resulting in low viscosity.

Allow printer to run until ink recovers or change ink reservoir. Reduce frequency of shut downs as good practice.

STATUS BAR MESSAGES



The following status messages may be displayed:

Fault condition

The printer encountered a fault that it was unable to recover from. In general, this state is entered after the printer has shut down following an unsuccessful fault recovery attempt. Pressing the jet On / Off button for 2 seconds resets the printers status to ”Printer Off”. The printer or print head may require cleaning or other maintenance before attempting to start up again.

Fault recovery attempt

The printer has encountered a fault that it may be able to recover from and it is attempting to do so. Please wait until the printer reports ”Ready to Print” indicating that recovery was successful or the printer aborts the recovery attempt and sequences off.

Head bleed in progress

The printer is performing a print head bleed operation. This is a service level operation.

Heating, please wait

During sequencing on, the printer has determined that the gunbody in the print head has not yet reached the minimum operating temperature for the type of ink in use. Once the required head temperature is reached, the printer will report ”Sequencing On” and continue until ”Ready to Print”.

Jet running

The printer has entered an intermediate state where the jet is running, but there is no HV, jet modulation or drop charging. This state is only reported when sequencing is controlled via the Service mode.

Modulating

The printer has entered an intermediate state where the jet is running and modulation is enabled. This intermediate state is only reported when sequencing is controlled via the Service Mode.

Modulation reset

The printer is attempting to automatically reset the modulation level.

Phase locked

The printer has entered an intermediate state where the jet is running and the phase control has been locked. This intermediate state is only reported when sequencing is controlled via the Service Mode

Printer Off

The printer 's ink delivery system is fully sequenced off. The ink is not pressurised. (This is one of the possible states that printer can enter when first turned on – the other is Printer Standby).

Printer Initialising

The printer is initialising. This may take several minutes if the printer has been reconfigured to operate using different operating parameters, e.g. the ink type, nozzle size or print format has changed.

Printer Standby

The printer 's ink delivery system is sequenced off but the ink is pressurised. (This is one of the possible states that printer can enter when first turned on – the other is Printer Off).

Printing Disabled

Printing has been disabled – see Enable Printing in Print Setup.

Ready to Print

The printer ink delivery system is fully sequenced on and is ready to print. This is the state the printer reports when actually printing. Indication of actual printing is made by the "printing" symbol to the immediate right of the printer status line.

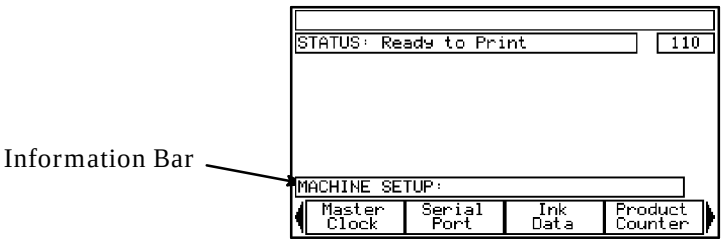
Sequencing Off

The printer is sequencing off. During normal operation, this state may be reported if the operator has requested sequence to off, i.e. the printer was Ready to Print and the Jet On / Off key was pressed for two seconds. This state may also be reported if the printer has found a fault condition that necessitates an automatic shut–down.

Sequencing On

The printer is sequencing on. During normal operation, this state is reported when the operator has requested sequence on to get Ready to Print.

INFORMATION BAR MESSAGES



This bar normally shows the current menu name, but is also used to provide general messages such as the following. Such messages are normally self–explanatory.

Access Denied

Action Not Allowed

Discard Changes?

Leave Dialog First!

File Already Exists: Overwrite?

Help: Press Help Again When Finished

Incorrect ink type– do not fit

Ink out of date – do not fit

Password: Enter Password & Press Ok

Password Reset!

Press Help For More Information

Reading Log – Please Wait

Resv, already used – do not fit

Unknown ink – do not fit

PRINTER FAULTS

The following problems can have the suggested causes and remedies.

No Indicators Showing

Power failure.

Restore power.

Fuse failure.

Replace fuse (see pg. 8–22).

Machine Does Not Print

Message faulty.

Check data entry.

Product detector disconnected or faulty.

Check detector.

Width control set too low.

Reset width control.

Faulty Shaft Encoder.

Check shaft encoder and connector.

External stroke source selected (where no encoder is fitted).

Change to internal stroke source (see pg. 5–42).

Print Position Incorrect

Print delay incorrect.

Re–enter Print delay data.

Product detector misaligned.

Re–align detector.

Spaces entered at start or end of message.

Clear fixed spaces from input data.

Print Size Too Small

Character height adjustment incorrect.

Adjust print height.

Jet alignment with deflector plates incorrect.

Check jet alignment.

Ink Pressure too high.

Check and reset pressure if required.

Solvent on deflector plates (after cleaning).

Dry deflector plates.

Print head too close to product.

Check position of print head.

Incorrect size nozzle fitted.

Check and replace if necessary.

Gutter Over–flowing Ink

Gutter filter blocked.

Replace gutter filter.

Gutter tube blocked.

Wash down and clear gutter.

Air leak preventing vacuum at gutter.

Check gutter circuit for leaks.

Vacuum pump head faulty.

Check / replace pump head.

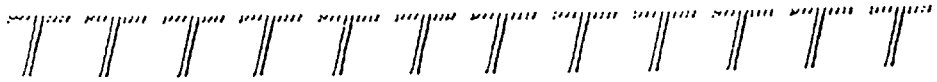
Pressure set incorrectly.

Adjust pressure.

PRINT QUALITY FAULTS

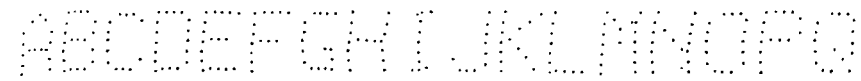
The following are examples of faulty printing. In most cases, further investigations should begin with ensuring that the print head is clean and properly aligned.

Head not mounted at 90 degrees to direction of product movement.



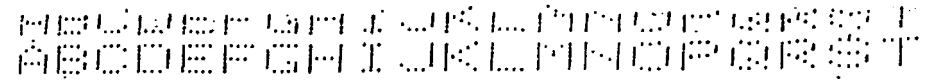
TP3060–1

Head too far from print surface.



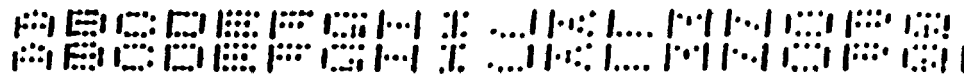
TP3061–1

Pressure too low – note missing drops from some characters.



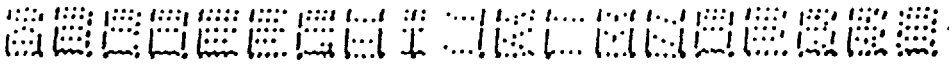
TP3062–1

Pressure too high – note drops coalescing on some characters.



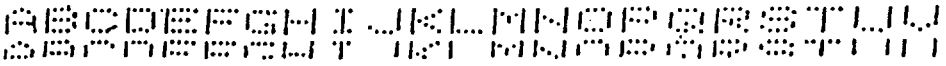
TP3063–1

Incorrect break–up – satellites can be seen in the viewer and break– up is not in correct position relative to charge electrode.



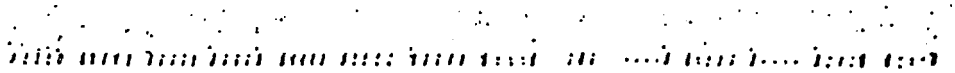
TP3064–1

Printed drops clipping edge of gutter – jet incorrectly aligned to gutter, or print height too low.



TP3065–1

Phase error – see incorrect break–up fault (above).



TP3066–1

PART 5 : REFERENCE

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REFERENCE

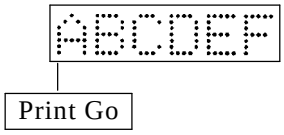
Glossary of Terms

Alphanumeric	Letter or number characters.
Attribute	A characteristic, or distinctive feature.
BFT	Ball Fall Time. The time taken for the ball in the viscometer to descend through the sample of ink in the viscometer tube.
BUP	Break up point, below nozzle plate and within charge electrode, where jet breaks into drops.
Drop	Ink drop. Also used as a unit of measurement in measuring character or font height.
Enter	Information to be put into the printer – use the keyboard keys to type in a value.
Key options	Options selected by the function keys under the screen labels.
Mode	Way of working or way in which something is done; method of procedure.
MRC	Machine Readable Code, such as barcode or Dot Code.
PCMCIA	(Personal Computer Memory Card International Association) the software interface and hardware specification for the memory and input/output cards used by the printer.
Range	Information presented by the printer – the range within which the value should appear.
Raster	The set of charge voltages that create a print stroke. Rasters are specifically designed to accommodate drop size characteristics, number of lines of print and the required print quality.
Select	Information to be put into the printer – use the keyboard increment keys to choose the option required.
Sequencing	Application of an automatic sequence of actions, such as used to start up or shut down the printer.
Soft Key	Key having its function controlled by software. The key can, therefore, be expected to have different functions at different points in printer operation.

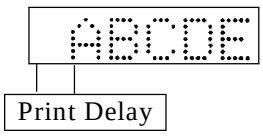
Status	Information presented by the printer – the current value, setting or adjustment in the printer.
Stroke	The adjacent lines of ink drops making up the character drop matrix. The distance between strokes is sometimes used as a unit of measurement in spacings or delays.
Unicode	An international coding scheme for written characters and text, each of which is identified by a 16–bit code between 0000 and FFFF. The code conforms to a Standard maintained by the Unicode Consortium and ISO organisation.

Print Definitions

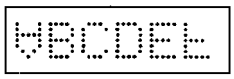
Normal Print



Print Delay



Inverse Print



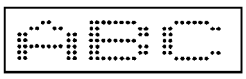
Reverse Print



Double Space Print



Bold (Double Stroke) Print



SCREEN DESCRIPTIONS

Following is a reference section of screens appearing on the front panel display, Each description consists of:

- a representative illustration with a general explanation
- Screen content (in italics): specifying the options, values, etc.
- Options: explaining the options where these are not immediately apparent
- Function key options: explaining the options offered through the soft keys.

Refer to the Glossary on pg. 5–5 for an explanation of terms.

To display the screens shown, press the key sequence shown in the margin, followed by the key corresponding to the title. Options to be changed are selected by use of a highlight bar, which is moved using the cursor keys. Preset option conditions or values are selected using the increment and decrement keys (+ and -). Numerical values are initially fully highlighted and can be incremented or decremented as complete numbers, or replaced by values typed in using the keys. However, when values are being entered, the highlight bar is confined to single characters and has to be moved using the left– and right–cursor keys accordingly. Highlighted characters can be removed with the delete key and typed characters will be inserted to replace them. Repeated use of the delete key will deleted the highlighted character and successive characters to the left of it.

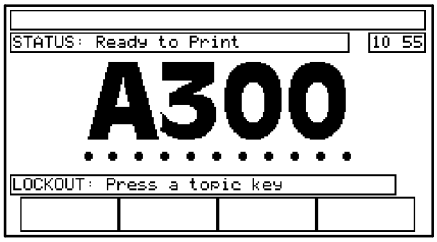
Moving the highlight bar up or down will automatically scroll the screen line–by–line. To scroll the whole screen, use the Shift key with the cursor keys.

This manual contains procedures demonstrating many of the options described below:

- For constructing a message, see pg. 3–7 and subsequent pages.
- For adjustments to the printer, see pg. A–8 and subsequent pages.



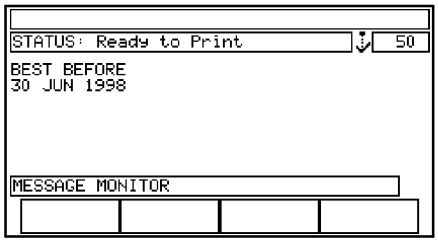
LOCK–OUT



When the lock–out key is pressed a screen similar to the one shown will appear (depending upon the printer). Start–up and Shut–down are still controlled by the jet On / Off key, but a password may be required for access to any other menu areas (see pg. 2–13)

The screen also appears at Start–up.

MESSAGE MONITOR

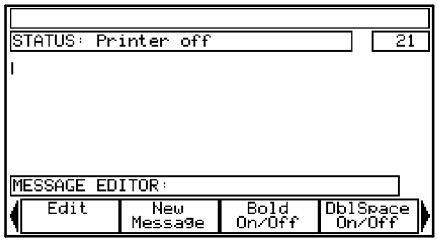


Shows the messages as they are printed. A displayed message cannot be edited, but is updated each time the message is printed (up to the maximum display refresh rate) and shows the true value of printed serial numbers and clock fields.

Messages are only displayed after a print go signal is received and the message is printed. Similarly, if a message is edited, the new message will only be displayed after a Print Go signal causes it to be printed.

MESSAGE EDITOR

Access to Message Editor can be controlled by password (see pg.2-13).



Used to create and modify messages. Existing entries are marked with a highlight bar and the highlight bar is moved around the message using the cursor keys. A cursor of the selected character size appears at the end of line position.

Entries can be made into the message as shown below. For very accurate print positioning, a thin–space can be inserted using Shift and Space keys.

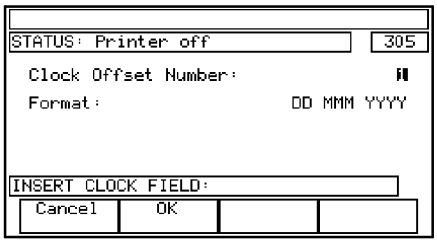
Print Message

Permits the message being edited to be printed on receipt of the next product detect signal. Serial numbers in the message will start at the lower limit or the last printed value.

Font Size

The selected character size is shown on the display by the height of the cursor. Press the function key to cycle through the character sizes available in the current print format and available for insertion on the current line.

Insert Clock



Permits clock information to be inserted into the message at the cursor position. The format of the clock information and offsets to the time can be selected from a range of options.

Clock Offset Number: Enter 1–4 (or 1–2 on A100)(see pg. 5–13)

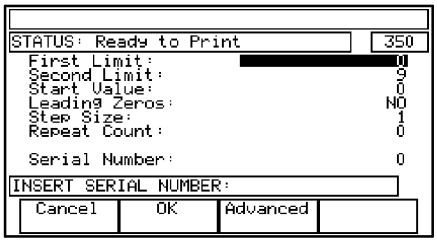
Format: Select DD MM YYYY / DD/MM/YY / DD/MM/YYYY / Date / Day name / Day of week / Day of year / HH MM / HH MM SS / Hour character / Hours / Julian Year / Minutes / Month name / Month number / Quarter hours / Seconds / Week number / Year (2 digits) / Year (4 digits). (These formats are set up using Time Format – see pg. 5–33).

Function key options:

Cancel Return to previous menu without entering clock.

OK Enter clock information into message.

Serial Number



Permits creation of a serial numbering system and inserts it into the message at the cursor position. Numbers can be numeric or alphanumeric (using Advanced). Numbers with a first limit higher than the second limit will decrement. Two serial numbers are available on the A300/A200 printers, and one on the A100 printer.

First Limit: Starting value of serial number sequence.

Second Limit: Finish value of serial number sequence.

Start Value: First number in sequence.

Leading Zeros: Select Yes/No for leading number positions to be zeros or blanks.

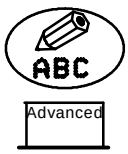
Step Size: Step size between successive numbers.

Repeat Count: Number of times serial number is to be repeated before stepping to the next value.

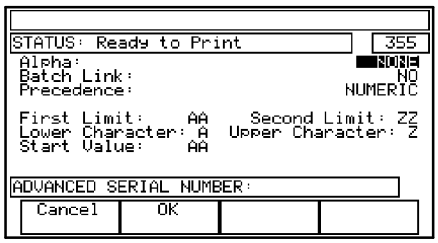
Serial Number: Example serial number to show structure.

Function key options:

Cancel	Return to previous menu without entering serial number.
OK	Enter serial number information into message.
Advanced	Open menu enabling complex serial numbers.



Advanced Serial Number



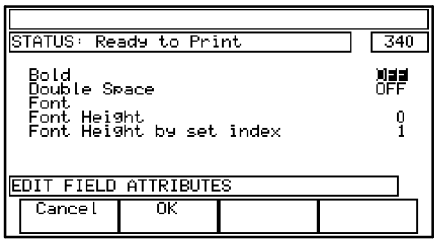
Enables alphanumeric serial numbers to be created. Alpha stepping will be reversed if the first limit is beyond the second limit. Also enables two serial numbers to linked for batch numbering. (Screen differs for A100).

Alpha:	Select None / Prefix / Suffix.
Batch Link:	Select Yes / No for sequential updating to be carried across into a second serial number. (A300 / A200 only).
Precedence:	Select Numeric / Alpha to select which part of the number will be the least significant part, i.e. successively updated with the step size.
First Limit:	Enter alpha characters in range a–ZZ as starting value of sequence.
Second Limit:	Enter alpha characters in range a–ZZ as finishing value of sequence.
Lower Character:	Enter alpha character in range a–Z as lower limit on least significant character.
Upper Character:	Enter alpha character in range a–Z as upper limit on least significant character.
Start Value:	Enter alpha characters in range a–ZZ.

Function key options:

Cancel	Discard settings and return to serial number screen.
OK	Enter settings into serial number.

Edit



Permits the editing of any part of the message such as individual characters, clock entries, serial numbers, etc. The required part of the message is selected by marking with the highlight bar.

The screen detail may be as shown. However, more appropriate screen detail will be shown if required by the function selected for editing.

Bold: Select On / Off.

Double Space: Select On / Off.

Font: Select from the fonts shown by using the increment keys.

Font Height: Enter height in number of drops.

Font Height by Set Index: Enter height in number of fonts.

Function key options:

Cancel Discard changes.

OK Accept new settings.

New Message

Clears the screen to start a new message. If the current message has been edited, but not saved, a warning is given so that, if required, the current message can be named and saved before being discarded.

Current Message Shows name of current message.

Discard Changes If selected with the highlight bar, the changes to the message can be discarded.

Options:

Cancel Previous message returns to screen.

OK Cancels message and clears screen.

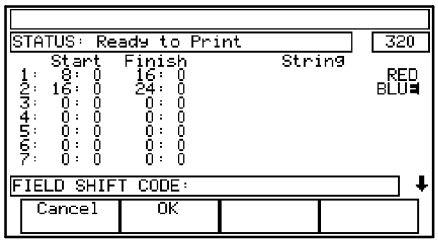
Bold On/Off

Press the function key and all items subsequently inserted in the message will be made up of double strokes, creating a bold effect. The flashing cursor will increase in width to indicate Bold is on. Press the key again to discontinue bolderising. (This key does not cause the entire message to be printed in bold.)

DblSpace On/Off

Press the function key and all items subsequently inserted in the message will be double–spaced. Press the key again to discontinue double–spacing. (This key does not cause the entire message to be printed in double spacing – see pg. 5–26).

Shift Code



Permits creation of shift code information and inserts it into the message at the cursor position.

Start: Enter hours and minutes of start time in 24hr clock system.

Finish: Enter hours and minutes of finishing time in 24hr clock system.

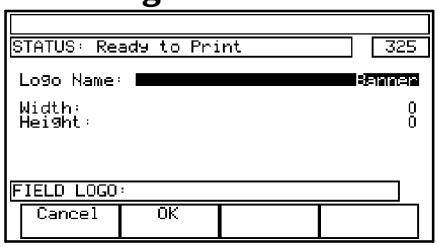
String: Enter shift code (name, identification code, etc.)

Function key options:

Cancel Return to previous menu without entering a shift code.

OK Enter shift code into message.

Insert Logo



Permits the selection of a logo from the logo store and inserts it at the cursor position. The logo name is shown on the display. If height and width values are set, the logo is centred within the defined area.

The logo store contents can be inspected through Logo Store, see pg. 5–24.

Logo Name: Select from names scrolled by the increment keys.

Width: Enter width in strokes.

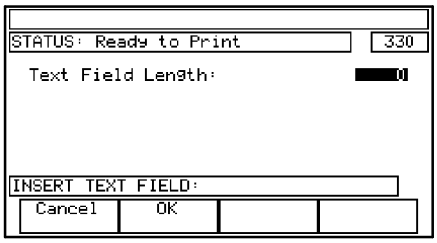
Height: Enter height in drops.

Function key options:

Cancel Return to previous menu without entering a logo.

OK Enter logo into message.

Text Field



Permits the insertion of an open area in the message allowing, for example, other pre–printed information to show clearly through the message.

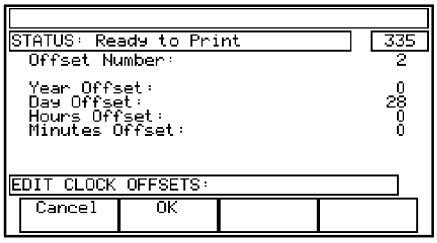
Text Field Length: Enter length in character widths.

Function key options:

Cancel Return to previous menu without creating or amending a text field.

OK Accept text field settings.

Clock Offsets



Permits setting offsets into each of four clocks (A300/A200), (two clocks A100), derived from the master clock. These clocks, numbered 1 to 4 (1 to 2), can then be used by date/time fields (see pg. 5–9).

If real (master) clock time is required for entry into messages, one of the four (two) clocks must be left without offsets.

Offset Number: Enter 1–4(1–2).

Year Offset: Enter 0–99.

Day Offset: Enter 0–366.

Hours Offset: Enter 0–23.

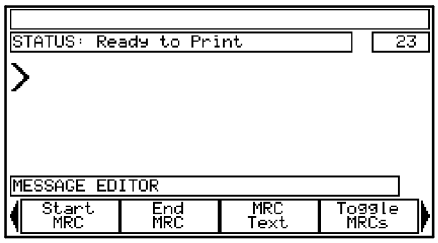
Minutes Offset: Enter 0–59.

Function key options:

Cancel Return to previous screen without entering a logo.

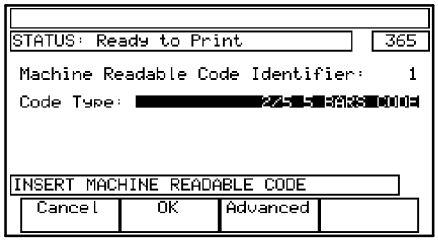
OK Accept new settings.

Start MRC (A300/A200 only)



Inserts a marker indicating the start of the MRC. Subsequent entries into the message will be included in the MRC, until *End MRC* is selected. The marker is shown on the screen by a ”>” symbol.

End MRC(A300/A200 only)



Inserts the marker indicating the end of the MRC. Entries before this marker will be part of the MRC. The marker is shown on the screen by a ”<” symbol.

Also permits selection of the type of MRC and identifies the MRC as first, second, etc, in the message. Further MRC parameters can be set in *Advanced* – see below.

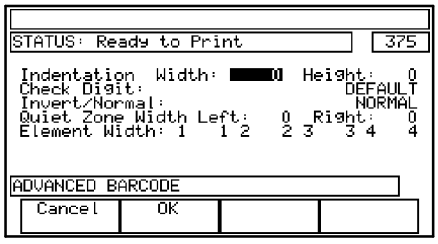
Machine Readable Code Identifier: Shows MRC identification number.

Code Type: Select 2/5 5 BARCODE / INTERLEAVED 2/5 BARCODE / CODE 39 BARCODE / EAN 13 BARCODE / EAN 8 BARCODE / UPC–A BARCODE / UPC–E BARCODE / CODE 128 BARCODE / 2/5 INDUSTRIAL BARCODE.

Function key options:

Cancel	Return to previous screen without accepting changes.
OK	Accept new settings.
Advanced	See below.

(END MRC) ADVANCED (A300/A200 only)



Permits the MRC details to be set for use in the construction of the MRC.

Indentation Width: Enter 0–59.
Height: Enter number of print lines.
Check Digit: Select Default / None / Mod10 Factor3 / Mod10 Factor 3 Alt / Modulus 43 / Modulus 103 .
Invert/Normal: Select Invert / Normal.
Quiet Zone Width Left: Enter 0–59.
Quiet Zone Width Right: Enter 0–59.
Element Width: Enter number of strokes to be used to create the barcode element.

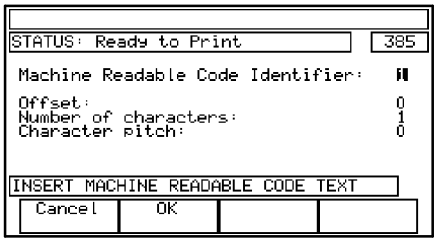
Options:

Invert: White printing on black background.
Check digit: Type depends upon type of barcode selected.

Function key options:

Cancel Return to previous screen without accepting changes.
OK Accept new settings.

MRC Text (A300/A200 only)



Permits the characters represented by the MRC to be printed in human–readable form. The number of characters can be selected and the characters identified by specifying an offset of non–printed characters – see diagram pg. 3–15.

Machine Readable Code Identifier: Enter 1–4.
Offset: Enter 0–255.
Number of Characters: Enter 0–255.
Character Pitch: Enter 0–99.

Function key option:

Cancel Return to previous screen without accepting changes.
OK Accept new settings.

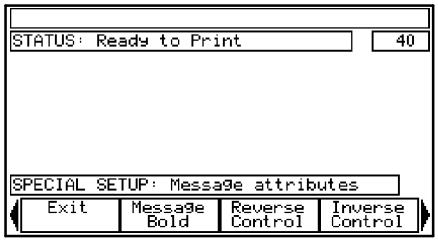
Toggle MRCs (A300/A200 only)

Permits switching the display between the MRC and the characters represented by the MRC.

Special Setup

Messages are printed according to two groups of settings – the special settings associated with a particular message and the general (global) settings used by the printer. Selecting Special Setup (see below) gives access to the settings associated with the message. These settings are saved with the message and may override the general settings put in through Print Setup (see 5–26).

SPECIAL SETUP



Provides access to the options permitting special settings for use with the message currently being edited (see above).

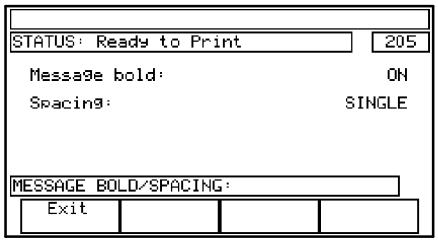
Function key options:

Exit Return to the topic screen.

Others as below.

Message Bold

Special Setup



Permits setting the message to be printed in bold and / or with double spacing. Alternatively the global bold setting selected through Print Setup can be used. Double spacing is not available as a global attribute.

Message Bold: Select On / Off / Use Global.

Spacing: Select Single / Double.

Options:

On/Off: Print / Do not print message in double strokes (bold).

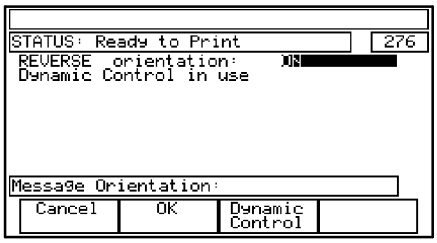
Use Global: Use the settings in Print Setup.

Function key options:

Exit Accept settings.



Reverse Control



Permits reverse printing of each message. This will be applied to all messages unless dynamic control is used, in which case reverse printing can be alternately applied and suspended to specified counts of messages.

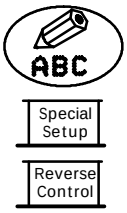
Reverse Orientation Select On / Off / Use Global

Function key options:

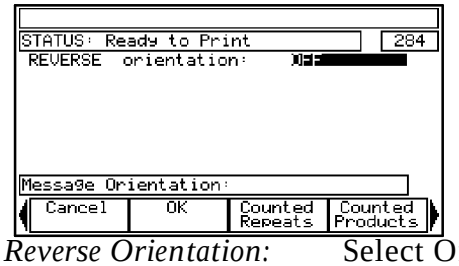
Cancel Discard new settings.

OK Accept special settings.

Dynamic Control: Open Dynamic Control screen for advanced options (see below).



Dynamic Control



Permits reverse printing to be alternately applied and suspended to groups of messages. The size of the groups is specified as message repeats or counts of products.

Reverse Orientation: Select On / Off.

Function key options:

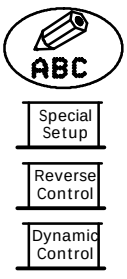
OK Accept special settings.

Cancel Discard new settings.

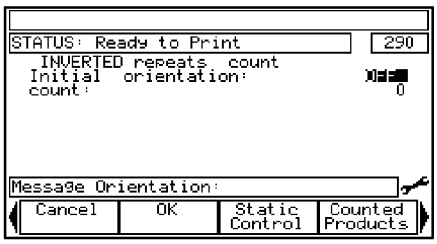
Counted Repeats: Open Counted Repeats screen.

Counted Products Open Counted Products screen.

External Port Provides access to external control settings.



Counted Repeats



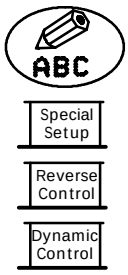
Permits setting the initial orientation and number of repeated messages for which reverse printing will be alternately applied and suspended.

Initial Orientation: Select On / Off for initial reverse printing.

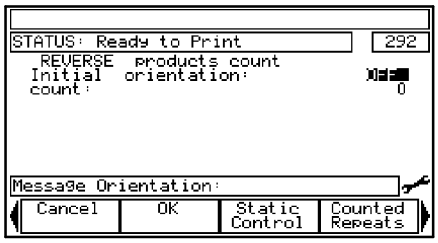
Count: Enter number of repeats.

Function key options:

OK	Accept special settings.
Cancel	Discard new settings and return to Special Setup screen.
Static Control:	Abandon dynamic control and return to Dynamic Control screen.
Counted Products	Opens Counted Products screen –see below.
External Port	Provides access to external control settings.



Counted Products



Permits setting the initial orientation and number of products for which reverse printing will be alternately applied and suspended.

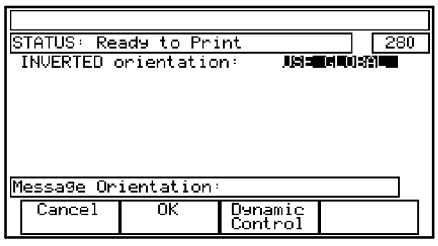
Initial Orientation:	Select On / Off for initial reverse printing.
Count:	Enter number of products.

Function key options:

Cancel	Discard new settings and return to Special Setup screen.
OK	Accept special settings.
Static Control:	Abandon dynamic control and return to Dynamic Control screen.
Counted Repeats	Opens Counted Repeats screen –see previous page.
External Port	Provides access to external control settings.



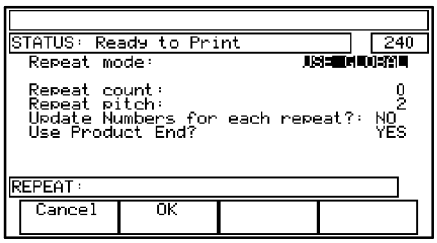
Inverse Control



Permits control of inverse printing in the same way as reverse printing (see page 5–17).

Repeat Printing





Permits selection of continuous printing, or repetitive counts to a specified number and pitch value, or global settings entered through Print Setup. Message contents such as clocks, shift codes, serial numbers, etc, can be updated every time a message is printed or only when a new product is detected.

Repeat Mode Select Off / Counted / Continuous / Use Global.

Repeat Count Enter 1–254.

Repeat Pitch Enter 2–65535.

Update Numbers for each repeat: Select Yes / No.

Use Product End: Select Yes / No.

Options:

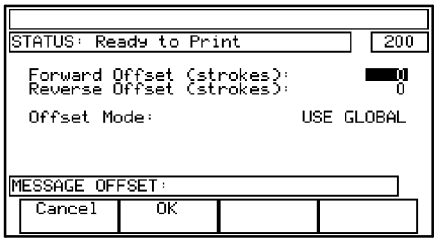
- *Use Global:* Use the settings in Print Setup.
- *Counted:* Use Repeat Count value.
- *Continuous:* Repeat continuously.

Function key options:

- *Cancel* Discard changes.
- *OK* Accept new settings.

Message Offset





Permits entry of an offset between the normal start–of–print position and the required print position. This delay is added to the Print Delay value.

Forward Offset: Enter 0–9999 strokes offset (forward printing).

Reverse Offset: Enter 0–9999 strokes offset (reverse printing).

Offset Mode: Select On / Use Global.

Options:

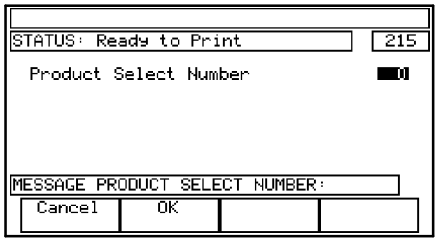
- *On:* Use the values set here.
- *Use Global:* Use the settings in Print Setup.

Function key options:

Cancel	Discard changes.
OK	Accept new settings.



Product Select



Permits allocation of a number to identify the message. This allows a range of messages to be available for printing according to selection by number through the User Port.

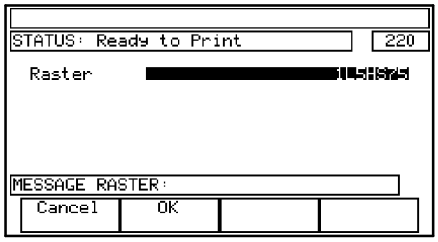
Product Select Number	Enter 0–255.

Function key options:

Cancel	Discard change.
OK	Accept new setting.



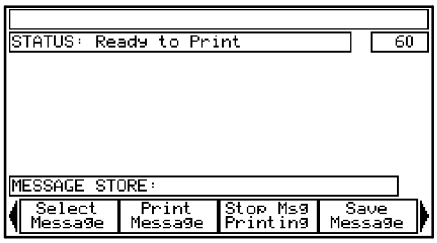
Raster



Shows the raster identification.

MESSAGE STORE

Access to Message Store can be controlled by password (see pg.2-13).



Provides access to the message store and is closely linked with the Message Editor.

Select Message



Permits selection from an alphabetical listing of the stored messages. If a message is already selected for editing, selection of another message is accompanied by a warning that the current message could be lost. (Use function key *Cancel* or *OK* to discard or keep the message.)

Select the message by covering with the highlight bar using the up and down cursor keys to scroll through the list. A message already being printed will be marked with a ”>”.

To move up or down the list by one screen, use the shift key together with the up and down cursor keys.

To move to the start or finish of the list, use the blue character set key together with the up and down cursor keys.

Function key options:

Cancel	Return to previous menu.
OK	Load selected message.

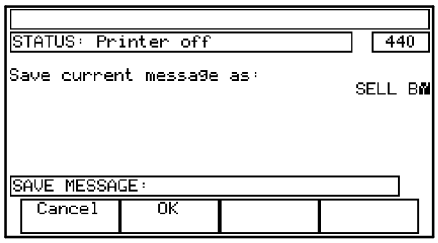
Print Message

Permits the message currently selected to print on receipt of the next product detect signal. Serial numbers in the message will start at the lower limit or the last printed value.

Stop Msg Printing

Marks the message as being not available for printing Any message in this state would not be included in printing which is controlled, for example, by an external controller using the Product Select numbering facility (see pg. 5–20). Messages available for printing are indicated by the symbol ”>” against the name on the display. Messages can be made available for printing by using *Print Message*.

Save Message



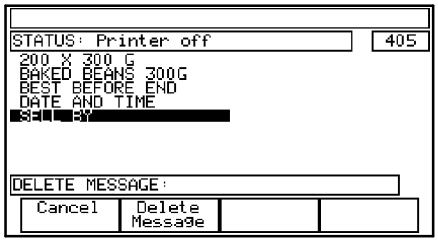
Permits entering the message into the message store under a message name. A warning is provided if the message name is already used in the store.

Save current message as: Enter message name up to 64 characters long.

Function key options:

Cancel	Return to previous menu without saving message.
OK	Save message under typed name.

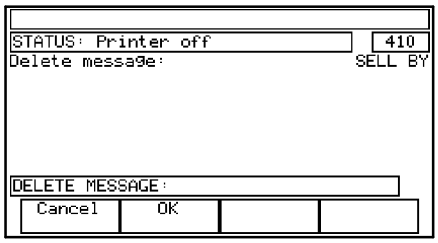
Delete Message



Permits deletion of any message from the message store except a message currently being printed (marked ”>”). If the message currently being printed is to be deleted, printing must be stopped in Message Editor.

Function key options:

Cancel	Return to previous menu without deleting message.
Delete Message	Delete highlighted message. Screen will change to request confirmation that selected message should be deleted.



Requests confirmation that named message should be deleted.

Function key options:

Cancel	Do not delete message.
OK	Complete deletion of message.

Storage Stats

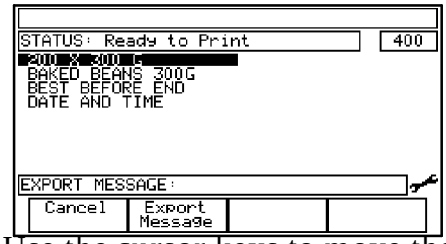


Displays message store information as shown.

Key Option:

Exit Return to previous menu.

Export Message



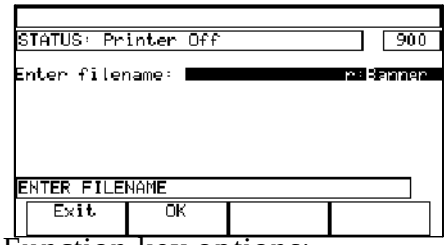
Permits export of a message as a file to a PCMCIA card or the printer internal RAM disk. (Always wear a wrist strap when working in the electronics cabinet).

Use the cursor keys to move the highlight bar to cover the message.

Function key options:

Cancel Return to previous menu.

Export Message Screen changes to show only the selected message.



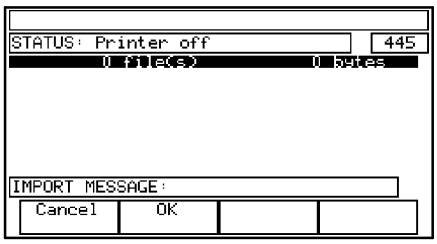
Provides confirmation of selected message and permits entry of a filename for the file to be exported. Path identity for the RAM disk is r: Path identity for PCMCIA card is p:

Function key options:

Exit Return to previous menu without exporting file.

OK Export file and return to previous menu.

Import (p:\)



Permits import of a message from the PCMCIA card into the message store.

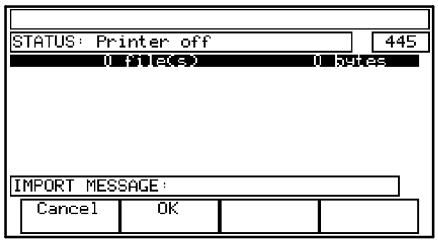
Function key options:

Cancel Return to previous screen without action.

OK Complete procedure.



Import (r:\)



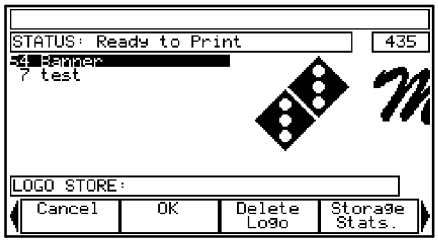
Permits import of a message from the printer's internal RAM disk for direct use in printing.

Function key options:

Cancel	Discontinue procedure.
OK	Continue procedure.



Logo Store



Permits inspection and control of the store from which logos can be selected for insertion into messages. Control of the logo store is similar to control of the messages in Message Store.

Logos are inserted into the message using Insert Logo (see pg. 5–12). Use the cursor keys to move the highlight bar to cover the logo.

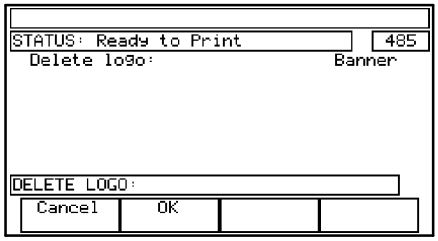
Function key options:

Cancel	Return to the topic screen.
OK	Select logo and return to previous menu.

Others as below.



Delete Logo



Same as Delete Message – see pg. 5–22.



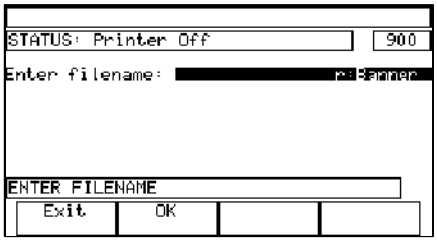
Storage Stats



Provides statistics for the logo store.



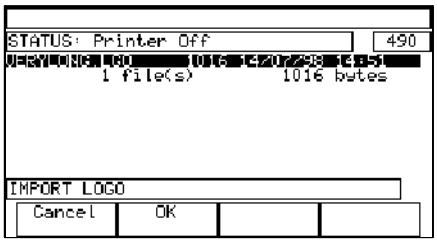
Export Logo



Permits export of a logo onto the PCMCIA card or to the printer's RAM disk.
Path identity for the RAM disk is r:
Path identity for PCMCIA card is p:



Import (p:\)



Permits import of a logo from the PCMCIA card into the logo store.



Import (r:\)

Similar to Import (p:). Permits import of a logo from the RAM disk into the printer for direct use in printing.

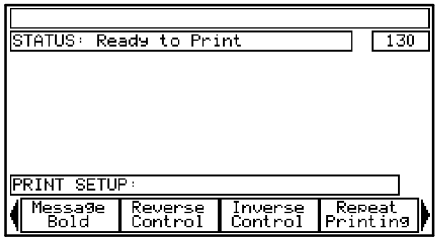


Stop All Printing

Marks all messages as being not available for printing. To mark individual messages as not being available for printing, use *Stop Message Printing* – see pg. 5–21.

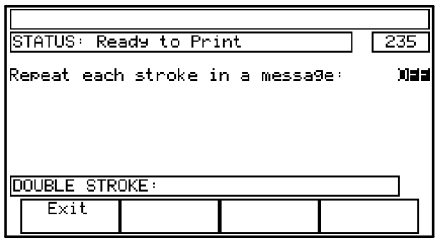
PRINT SETUP

Access to Print Setup can be controlled by password (see pg. 2–13).



Provides access to default or global options which control the way all messages are printed. Message may, however, contain individual settings entered through the Message Editor (see pg. 5–16) that override these global settings.

Message Bold



Permits all messages to be printed with double strokes, creating bold print.

Repeat each stroke in a message: Select Off / On.

Function key options:

Exit Accept screen settings.

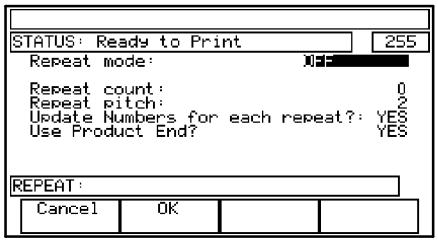
Reverse Control

This function is similar to that in Special Setup– see pg. 5–16.

Inverse Control

This function is similar to that in Special Setup – see pg. 5–18.

Repeat Printing



Allows selection of continuous printing or a chosen number of repeated prints. Repeated prints follow the print initiated by product detection, and must be terminated before the arrival of the next product detection by either a careful limit on the number or detection of the end of the product.

Repeat Mode: Select Off / Counted / Continuous.

Repeat Count: Enter 0–99.

Repeat Pitch: Enter 2–9999.

Update Numbers for each Repeat: Select Yes / No.

Use Product End: Select Yes / No to select if repeats are to be terminated by detection of the end of the product.

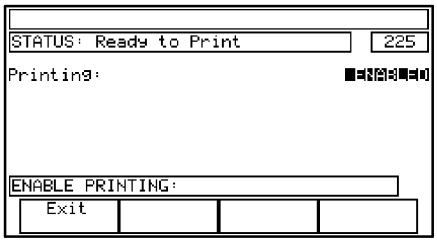
Function key options:

Cancel Discard changes.

OK Accept new settings.



Enable Printing



Permits printing to be enabled under control of the product detector input.

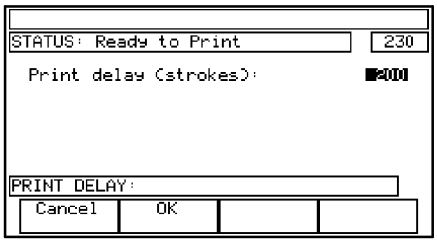
Printing Select Enabled / Disabled.

Function key options:

Exit Accept new settings.



Print Delay



Permits entry of the delay (in strokes) between the print go input and the first stroke of the printed message. Each print format has a minimum delay and the printer must not be set to values below this minimum (see pg. A–10).

Print delay (strokes) Enter 2–9999.

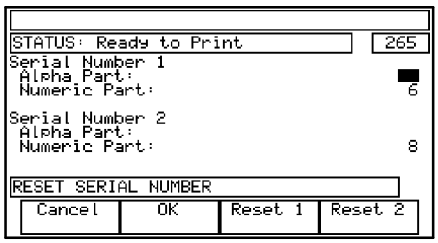
Function key options:

Cancel Discard changes.

OK Accept new settings.

Reset Serial

If the current message does not contain any serial numbers this key will not be active.



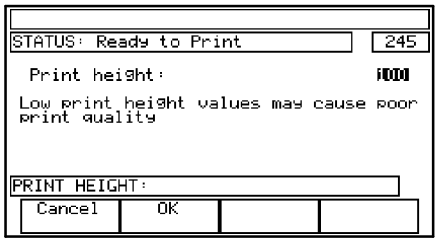
Displays the current values of any serial numbers contained in the message currently being printed. The printed output can be edited with new values or reset to the original values. The A100 printer has only one serial number available.

Serial Number	Identifies serial number.
Alpha Part	Enter a–ZZ.
Numeric Part	Enter start value.

Function key options:

Cancel	Discard changes.
OK	Accept new settings.
Reset 1	Reset serial number 1 to original settings.
Reset 2	Reset serial number 2 to original settings. (A300 / A200 only).

Change Height



Permits adjustment of the height of printed characters by adjusting the HV. Full scale print height is also controlled by the print head distance from the print surface, see pg. A–15.

Print Height (%): Enter 28–100% (of full scale height).

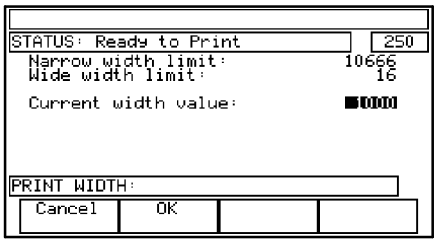
A message on the screen warns that reducing print size can affect print quality. If size is reduced too far, printing can be inhibited entirely. Using the increment keys gives immediate adjustment: typed–in values are not effective until key option *OK* is used.

Function key options:

Cancel	Discard changes.
OK	Accept new settings.



Change Width



Permits adjustment of the width of printed characters. The adjustment is only effective with internal stroke generation.

If stroke generation is external, the width is displayed but is adjusted by shaft encoder selection and the external stroke divider ratio (see pg. 5–41).

Narrow/Wide Width Limit: Limits dictated by the print format.

Current Width Value Enter value between width limits. Increase the value to reduce the width.

Using the increment keys gives immediate adjustment: typed–in values are not effective until key option *OK* is used.

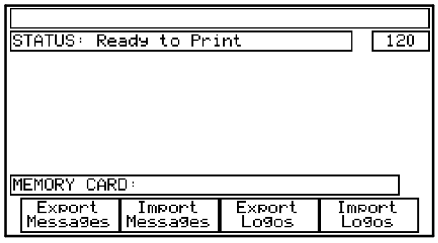
Function key options:

Cancel Discard changes.

OK Accept new settings.

MEMORY CARD

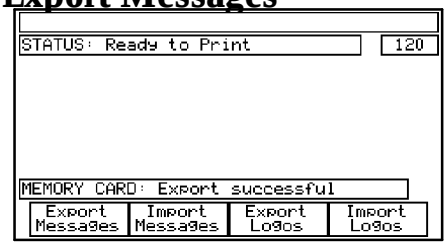
Access to Memory Card can be controlled by password (see pg.2-13).



Provides export and import of messages and logos between the printer and the PCMCIA card fitted into the slot on the Control PCB Assembly (always wear a wrist strap when working in the electronics cabinet).

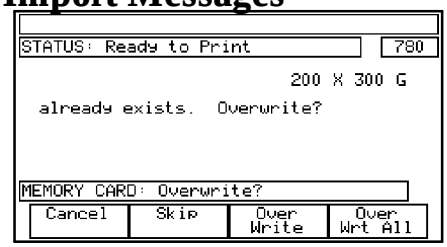
The data transferred consists of complete sets of messages and logos. Transfer of individual messages and logos must be carried out through Message Store.

Export Messages



Permits export of the entire message store to the PCMCIA card. Any existing set of messages on the PCMCIA card will be overwritten.

Import Messages



Permits import of a complete set of messages from the PCMCIA card.

If any message appears to already exist in the printer store, the screen shows a prompt requesting confirmation that the imported message can overwrite the old message.

Function key options:

Cancel	Return to previous screen without action.
Skip	Do not overwrite.
Overwrite	Overwrite message named on screen.
Over Wrt All	Overwrite all messages.

Export Logos

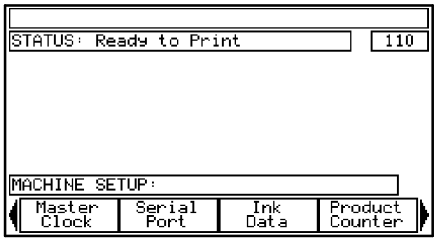
Permits export of the entire logo store to the PCMCIA card. Operation is the same as exporting messages – see above.

Import Logos

Permits import of a complete set of logos from the PCMCIA card. Operation is the same as importing messages – see above.

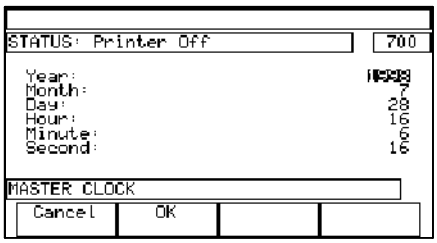
MACHINE SETUP

Access to Machine Setup can be controlled by password (see pg.2-13).



Provides access to options which affect the operation of the printer.

Master Clock



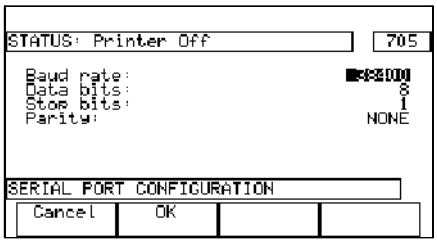
Permits setting of the real–time clock in the printer. Only valid times and dates can be entered.

Year: Enter 1970–2038.
Month: Enter 1–12.
Day: Enter 1–31.
Hour: Enter 0–23.
Minutes: Enter 0–59.
Seconds: Enter 0–59.

Function key options:

Cancel Discard changes.
OK Accept new settings.

Serial Port



Permits the printer's serial port to be set up.

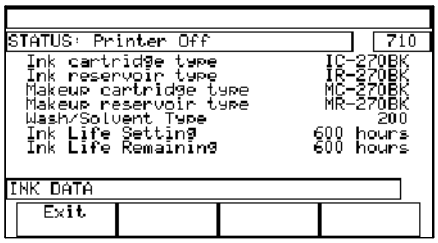
Baud Rate: Select 1200 / 2400 / 4800 / 9600 / 19200 / 38400.
Data bits: Select 7 / 8.
Stop Bits: Select 1 / 2.
Parity: Select None / Odd / Even.

Normal settings are baud rate 38400, data bits 8, stop bits 1, parity none.

Function key options:

Cancel Discard changes.
OK Accept screen settings.

Ink Data



Provides a display of the current ink data.

Cartridge, reservoir and wash details depend upon the ink in use.

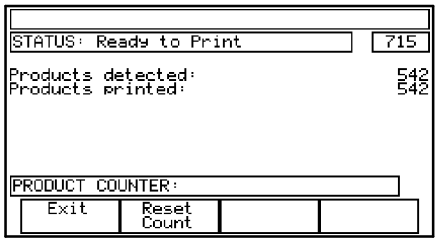
Ink Life Setting: Shows ink life.

Ink Life Remaining: Remaining hours before ink reservoir life expiry.

Function key options:

Exit Return to previous screen.

Product Counter



Shows the number of products detected and number of products printed with messages. The numbers are updated as products are detected and this will result in the numbers on the screen changing.

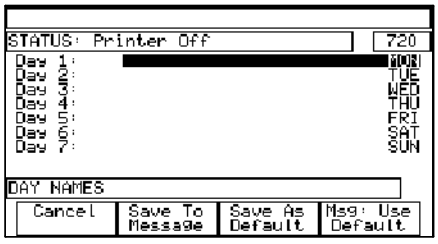
Products Detected/Printed: Up to 999999999.

Function key options:

Exit Return to previous screen.

Reset Count: Sets both counts to zero.

Day Names



Permits editing of the day names used in the clock information inserted into a message using the message editor.

Day 1, 2 . .: Enter up to 28 alphanumeric characters.

Function key options:

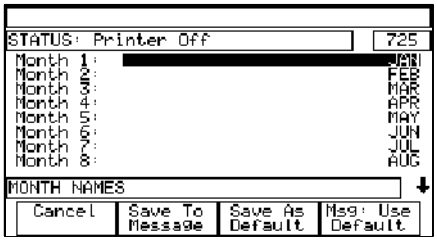
Cancel Discard changes.

Save to Message Use new names in current message only.

Save as Default Retain for use in new messages.

Msg: Use Default Use default names in message.

Month Names



Permits editing of the month names used in the clock information inserted into a message using the message editor.

Month 1, 2 . .: Enter up to 28 alphanumeric characters.

Function key options:

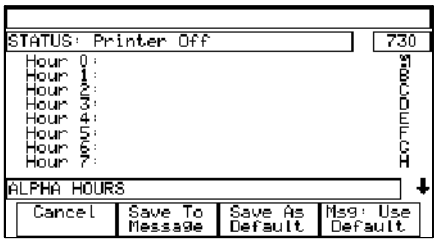
Cancel Discard changes.

Save to Message Use new settings in current message only.

Save as Default Retain new names for use in new messages.

Msg: Use Default Use default names in message.

Alpha Hours



Permits an alphanumeric character to be associated with each of the 24 hours. These can be inserted into a message using the message editor.

Hour 0, 1, . . : Enter 1 alphanumeric character.

Function key options:

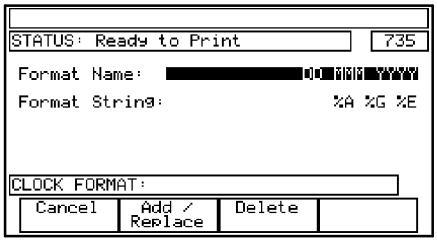
Cancel Discard changes.

Save to Message Use new settings in current message only.

Save as Default Retain new names for use in new messages.

Msg: Use Default Use default names in message.

Time Format



Permits addition, amendment or deletion of time formats in the clock format store.

Format Name : Select an existing format using the increment keys or enter new name (up to 20 alphanumeric characters).

Format String: Enter any of the following codes (with spaces and characters where required) to construct the required format.

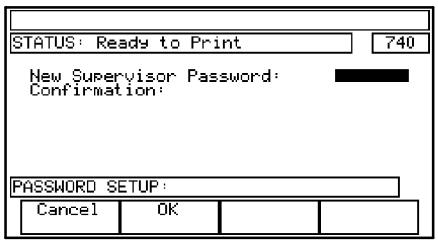
%A	Date (01 to 31).
%B	Julian date (001 to 366).
%C	Julian year (0 to 9).
%D	Year (00 to 99).
%E	Year (1970 to 2038).
%F	Month (01 to 12).
%G	Month name (see pg. 5–33).
%H	Hours (00 to 23).
%I	Quarter hours (01 to 96).
%J	Day name (see pg. 5–32).
%K	Week number (01 to 53).
%L	Day number (1 to 7).
%M	Minutes (00 to 59).
%N	Seconds (00 to 59).
%O	Alpha hours (see pg. 5–33).

Function key options:

Cancel	Discard changes.
Add/Replace	Accept new settings.
Delete	Delete format.



Password Setup



Permits the Supervisor password to be changed and password protection to be enabled or disabled.

When the screen is opened the *New Supervisor Password* is empty. Entering a password enables the password protection of all Supervisor controlled areas (see pg. 2–13). Using key option *OK* immediately without any entry disables the password protection.

New Supervisor Password: Enter alphanumeric characters.

Use the cursor keys to move the highlight bar down.

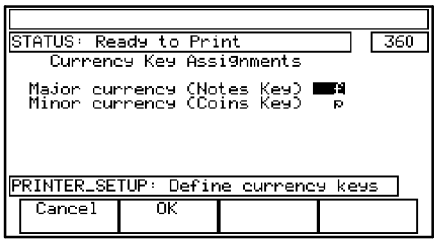
Confirmation: Enter exact repeat of new password and press *OK*.

The new and confirmed passwords must be identical to be accepted.

Function key options:

Cancel	Discard changes.
OK	Accept new settings.

Set Currency



Permits setting up the currency entries made with the currency key. Thus, currencies which are not represented directly on the keyboard can still be made single key entries. The major and minor denominations are carried as the upper and lower case currency key entries.

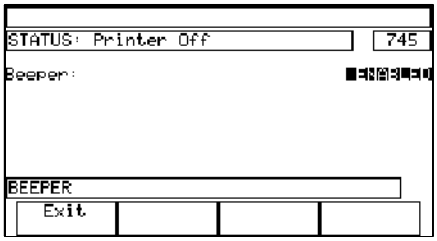
Major currency (notes key) Enter up to three alphanumeric characters as major currency.

Minor currency (coins key) Enter up to three alphanumeric characters as minor currency.

Function key options:

Cancel	Discard changes.
OK	Accept new settings.

Beeper



Allows the beeper to be enabled or disabled (when the beeper is enabled, it sounds every time a key is pressed)

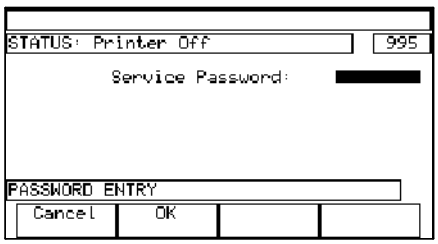
Beeper	Select Enabled / Disabled.

Function key options:

Exit	Return to main menu.

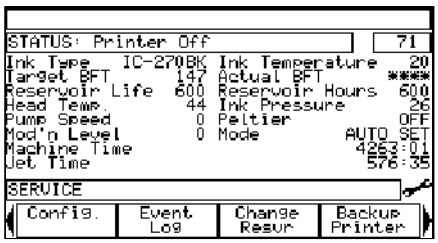
SERVICE

Provides access to printer functions for trained personnel.



Access to Service is controlled by password (see pg. 2–13).
Enter the correct password and select *OK*. (An incorrect password must be removed using the delete key before a revised password is entered).

If the correct password is entered the screen changes to:



Provides general printer information.

Ink Type :	Shows the ink type in the printer.
Ink Temperature:	Range: 5–55 C, depending upon ink type.
Target BFT:	Dependent upon ink type (seconds).
Actual BFT:	Result of last viscosity measurement (seconds).
Reservoir Life:	Normally 600 hours.
Reservoir Hours:	Range: 0–600 hours remaining before reservoir life expiry.
Head Temp:	Range: 26–50 C depending upon ink type.
Ink Pressure:	Range: 2500–3250 mbar depending upon ink type. Pinpoint Range: 3700–4500mbar depending upon ink type
Pump Speed	Range: 1700–2300 rpm depending upon ink type.
Peltier	Status: On / Off.
Mod'n Level:	Range: 250–1850 x100mV depending upon ink type, nozzle size.
Mode:	Status: Fixed / Auto Set (fixed only on Pinpoint)

Machine Time: Total time printer has been switched on – hours:minutes.

Jet Time: Total time jet has been switched on – hours:minutes.

Options:

Fixed Previously saved modulation set point used for modulation voltage.

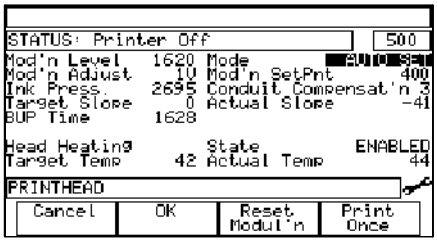
Auto Set Select for automatic modulation set–up. This is not subsequently tracked and may require re–setting due to temperature variations.

Function key options:

See further descriptions below.



Print Head



Provides general print head information.

Mod'n Level: Range: 250–1850 x100mV depending upon ink.

Mode: Select Fixed / Auto Set (fixed only on Pinpoint).

Mod'n Adjust: Select 100mV / 1V / 10V increment key value when setting the modulation set point.

Mod'n Setpnt: Enter 250–1850 x100mV depending upon ink type, nozzle size, etc.

Ink Press: Range: 2500–3250 mbar depending upon ink type.
Pinpoint Range: 3700–4500mbar depending upon ink type

Conduit Compensat'n: Status:1–8, setting for conduit compensation.

Target Slope: Operating slope set–point, normally 0.

Actual Slope: Range: typically 0–500 ns / V, actual slope (gradient) of modulation curve at current set–point.

BUP Time: Range: 1500–5000 x100ns, current value of saved or target modulation break–off time.

Head Heating State: Status: Enabled / Disabled.

Target Temp: Range: 26–50 C gunbody target temperature, dependant upon ink type.

Actual Temp: Within +/–5 C of gunbody target temperature, with printer at working temperature.

Options:

Fixed Previously saved modulation set point used for modulation voltage.

Auto Set Select for automatic modulation set–up. This is not subsequently tracked and may require re–setting due to temperature variations.

Function key options:

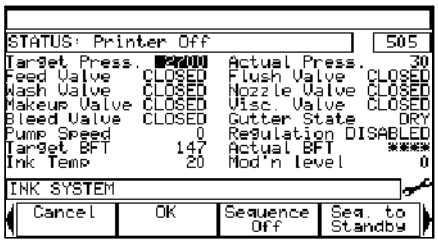
OK Accepts changes and returns display to previous screen.

Cancel Discards changes and returns display to previous screen.

Reset Modulat'n Resets modulation when AUTOset is selected.

Print Once Simulates single Print Go to print single message.

Ink System



Provides general ink system information.

Target Press: Enter 2500–3250 mbar depending upon ink type.
or, 3700–4500mbar for Pinpoint.

Actual Press: Within +/–50mbar of ink system target pressure during normal running.

Feed Valve: Status: Open / Closed.

Flush Valve: Status: Open / Closed.

Wash Valve: Status: Open / Closed.

Nozzle Valve: Status: Open / Closed.

Make–up Valve: Status: Open / Closed.

Visc Valve: Status: Open / Closed.

Bleed Valve: Status: Open / Closed.

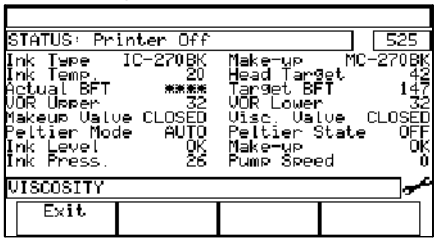
Gutter State:	Status: Wet / Dry.
Pump Speed:	Range: 1700–2300 rpm depending upon ink type.
Regulation:	Status: Pressure / Vacuum / Disabled.
Target BFT:	Dependent upon ink type (seconds).
Actual BFT:	Result of last viscosity measurement (seconds).
Ink Temp:	Range: 5–55 C, depending upon ink type.
Mod'n Level:	Range: 250–1850 x 100mV, depending upon ink type.

Function key options:

Cancel	Discard changes.
OK	Accept new settings.
Sequence Off	Sequences ink system to off.
Seq. to Standby	Sequences ink system to standby.
Seq. to Jet Run	Sequences ink system to jet running.
Seq. to Modulate	Sequences ink system to modulating state.
Seq. to Phase Lok	Sequences ink system to phase locked state.
Sequence On	Sequences ink system fully on to Ready to Print.
Fast Shutdown	Emergency crash stop fast shutdown of ink system. This shutdown does not flush the head.
Reset Modulat'n	Resets modulation according to current criteria.
Bleed Head	Bleeds print head.



Viscosity



Provides general ink and viscosity information

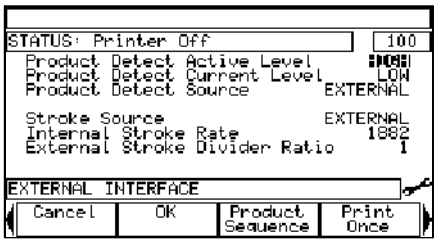
Ink Type :	Ink type in the printer.
Make–up:	Make–up type in the printer.
Ink Temp :	Range: 5–55 C, depending upon ink type.
Head Target:	Range: 26–50 C gunbody target temperature, dependant upon ink type.

Actual BFT:	Result of last viscosity measurement (seconds).
Target BFT	Dependent upon ink type (seconds).
VOR Upper:	Range: upper limit on BFT (seconds).
VOR Lower:	Range: lower limit on BFT (seconds).
Make–up Valve:	Status: Open / Closed.
Visc Valve:	Status: Open / Closed.
Peltier Mode:	Status: Off / On / Auto.
Peltier State:	Status: On / Off.
Ink Level:	Status: Empty / Low / OK / High.
Make–up:	Status: Empty / Low / OK / High.
Ink Press:	Range: 2500–3250 mbar depending upon ink type.
Pump Speed:	Range: 1700–2300 rpm depending upon ink type.

Function key options:

Exit	Returns display to previous screen.

External I/F



Permits control of the external interface (product detection and stroke control). Stroke control is directly selectable as internal or external (external is normally a shaft encoder). Internal product detection is selected through the *Product Sequence* function key option.

Product Detect Active Level: Select High / Low, – external product detector signal level initiating Print Go.

Product Detect Current Level: Status: High / Low, – current external product detector signal level.

Product Detect Source: Status: Internal / External. Internal will only be shown when Product Sequence Simulation (see pg. 5–44) is providing internal product detection.

Stroke Source: Select Internal / External – external for shaft encoder.

Internal Stoke Rate: Range: 0–25600 Hz max. – limited by print width maximum value.

External Stroke Divider Ratio: Enter 1–32, to divide down the external input stroke rate into reduced rate for printing.

Function key options:

Cancel Discards changes and returns display to previous screen.

OK Accepts changes and returns display to previous screen.

Product Sequence (See Product Sequence Simulation pg. 5–44).

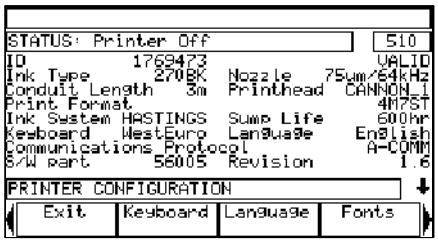
Print Once Simulates a single product detection.

Start Product Simulates the start of a product being detected.

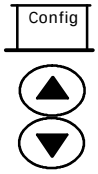
End Product Simulates the end of a product being detected.

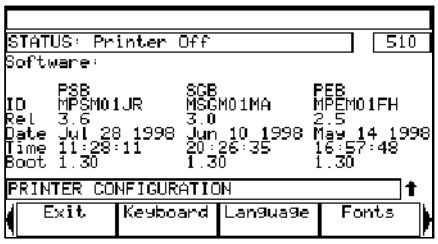


Config



Provides general printer information. Also, by pressing the down cursor key, the screen changes to give software details.





ID: A value representing the printer configuration used in reports on the printer.

Ink Type: Ink type used in printer.

Nozzle : Nozzle diameter and drive rod frequency.

Conduit Length: Conduit length 3 or 6 metres (3m A100).

Printhead: Print head type fitted to the printer.

Print Format: Print format used by the printer.

Ink System: Ink type used in printer.

Sump Life: Ink life in hrs.

Keyboard : Keyboard used by the printer.

Language: Language used by the printer.

Communications Protocol: External communications protocol.

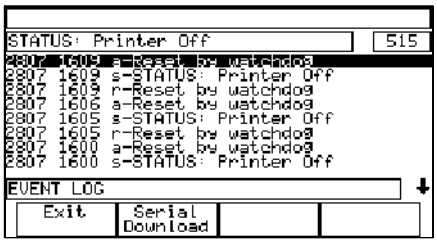
S/W Part: Software part number.

Revision: Software revision number.

Function key options:

Exit	Returns display to previous screen.
Keyboard	Shows keyboard type in use.
Language	Shows screen language in use.
Fonts	Shows fonts in use.
Raster	Shows raster in use.
Reset Password	Resets the Supervisor password to no–password – see pg. 2–13. To set up a new password see pg. 5–34.

Event Log



Lists the last 50 system events which have been logged, starting with the most recent. Date, time and the alert status (Raised, Acknowledged or Cleared) is shown with each event.

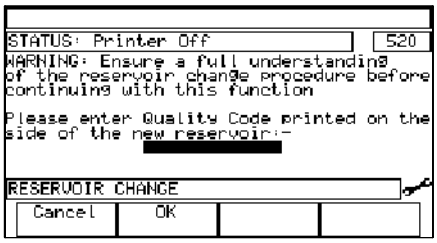
Events are recorded as *DDMM hhmm x – (details)*, where:

DD	Range: 1–31 days.
MM	Range: 1–12 months.
hh	Range: 0–23 hours.
mm	Range: 0–59 minutes.
x	Event code:
	a Event acknowledged.
	r Event raised.
	c Event cleared.
	s Status changed.

Function key options:

Exit	Returns display to previous screen.
Serial Download	Downloads log onto PC through the serial port.

Change Resvr



Permits entry of the reservoir quality code when a new reservoir is fitted. Only the code for a new reservoir will be accepted.

Please enter quality code	Enter code on reservoir label.

Function key options:

Cancel	Discard any changes and return to previous screen.
OK	Accept new code.

Backup Printer

This function down–loads the printer settings onto a specially formatted PCMCIA card, to provide a back–up record of the printer configuration. The card can then be held for use in restoring the settings in the printer after repair, or setting up another printer for similar operation.

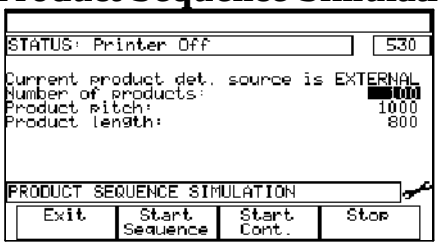
CAUTION ***ElectroStatic Discharge precautions must ALWAYS be taken when entering the electronics compartment to avoid damage to the components. A ground/earth chassis connector is provided for connection of a wrist strap.***

To back–up the printer configuration, switch the printer on and (while wearing a wrist strap) plug in the back–up / restore card, enter the Service topic menu and select back–up printer.

To restore the settings, (wearing a wrist strap) fit the PCMCIA card into the printer while shut down and then start up the printer. The screen will identify a function key with the label *Restore* and if selected, two function keys will then be labled *Yes* and *No*, allowing the reload to continue or be terminated.

Product Sequence Simulation

External I/F



Permits internal product detection by setting up a simulated product detect sequence. This can can be limited to a specified number of products or, if set to continuous, allowed to run until stopped by the operator.

A message identifies the current product detector source as internal or external (see *External I/F* pg. 5–41).

Number of Products: Enter 0–65536 products to be simulated.

Product Pitch: Enter 0–65536 strokes as distance between start of one product and start of next.

Product Length: Enter 0–65536 strokes as distance from start to end of product.

Function key options:

Exit: Return to Internal Product Detector.

Start Sequence: Starts the simulation as a sequence running up to the Number of Products.

Start Cont: Starts the simulation as a continuous sequence, not limited to the Number of Products. Continues until *Stop* is used.

Stop: Stops the simulation.

PART 6 : PRINTER DESCRIPTION

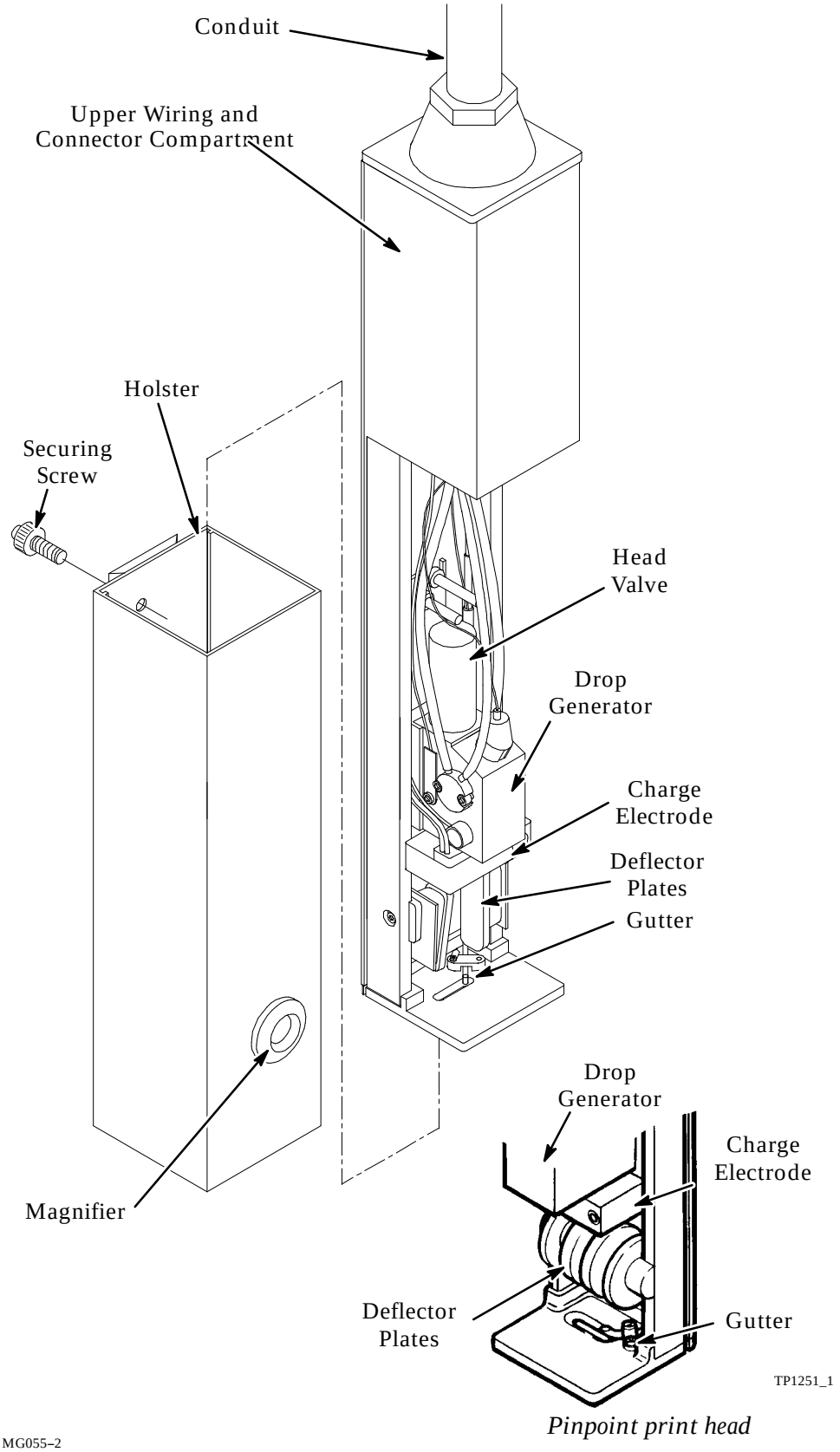
CONTENTS

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- Details 6–3

CABINET 6–5

ELECTRONICS SYSTEM 6–12

INK SYSTEM 6–16
- General 6–16
- Ink Circuit 6–16

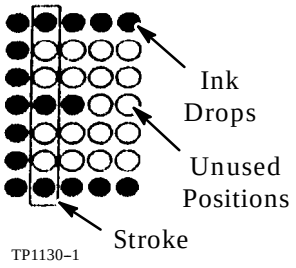


Print Head – General View

PRINTER DESCRIPTION

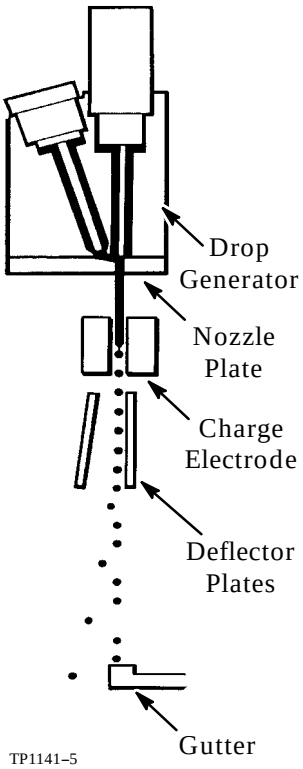
PRINT HEAD

General Principles



TP1130–1

Each printed character consists of a dot matrix made up of lines, or strokes, of ink drops. The ink drops in each stroke are spaced apart by electronic deflection and the strokes are spaced apart by the movement of the print surface under the head.



TP1141–5

Inside the print head, ink is supplied under pressure to the drop generator, and emerges through a small nozzle as a very fine jet. The drop generator contains a drive rod which creates ultrasonic pressure waves in the ink, making the jet break up into a stream of separate drops shortly after leaving the nozzle.

The break–up is adjusted to occur within the charge electrode, where each ink drop is given an electrostatic charge by putting a voltage onto the charge electrode as the drop breaks off. The size of the charge on the ink drop depends upon the voltage on the charge electrode.

The ink drops then pass through the electrostatic field set up between between two high voltage deflector plates. The direction of flight of each charged ink drop is deflected by an amount dependent upon the size of the charge.

Ink drops not required for printing are not given electrostatic charges and are collected in the gutter.

Details

The print head components are mounted on a rigid chassis, with a fully enclosed top section containing the connections between the print head and conduit wiring.

The print head slides into a protective holster and is locked into place by a screw in the rear. The holster is mounted in the printing position and contains precision guide rails to ensure that the print head always returns to exactly the same position if the print head is removed and replaced.

Ink jet. The ink jet is created by the drop generator assembly, which consists of the gunbody, fitted with a nozzle plate through which the ink jet emerges. The gunbody contains a drive rod which generates the ultrasonic pressure waves into the ink. The drop generator also has a heater built into it with the temperature controlled by a sensor embedded into the gunbody wall. Heating the ink reduces the effects of variations in ambient temperature and improves drying times with certain inks. A solenoid–operated plunger seals the nozzle when the jet is switched off.

The control system includes a bleed function which increases the ink flow through the drop generator and sweeps out any traces of air or solid material.

Jet break–up. The ink jet breaks up into separate drops within the charge electrode, by careful control over the ink viscosity and the drive rod vibration.

The electronic system also maintains a close control over the timing of the charge voltages on the charge electrode relative to the drop formation.

The ink jet can be seen through a lens in the print head holster as it passes through the charge electrode. It is made visible by the stroboscopic effect of an LED pulsed in synchronism with the ink drops.

Jet deflection. The deflector plates are mounted on insulating bobbins to isolate their high voltages. These voltages are not hazardous due to protection circuits which make the voltages instantly collapse on contact. The plates are angled to allow for greater deflection however, this is not the case with Pinpoint as it does not require a wider deflection range.

Jet alignment. The ink jet is directed into the gutter by adjusting the alignment of the drop generator (and therefore the nozzle) using a special cam mechanism.

Gutter. Ink caught in the gutter is drawn back into the ink system for re–use by a pump in the cabinet. The gutter system in the head consists of the gutter pipe, a short length of tube, and a gutter sensor consisting of a length of pipe electrically isolated from the chassis. Ink is detected by monitoring the electrical continuity through the ink between the gutter and the gutter sensor.

Ink Pressure. While the best print quality is given by an optimum ink working pressure (usually about 2900mbar / 42psi or 4000mbar / 60psi for Pinpoint), print quality remains acceptable within certain limits above or below this pressure. The pressure range between the limits of acceptable print quality is called the pressure window and depends upon the type of ink.

Auto–flush. It is not possible to fully control the drops when the jet is being started and stopped. To prevent problems caused by scattering ink drops, a supply of make–up is connected into the drop generator. When the jet is switched off, the supply to the drop generator is switched over from ink to make–up. The generator fills with make–up and the jet becomes make–up, which cleans the nozzle and the gutter. Any stray drops not collected in the gutter evaporate with very little residue. At start–up, the make–up in the gunbody is replaced with ink ready for the head solenoid to open.

Positive Air Supply. Contaminants can be picked up by the ink drops in flight, or be drawn with the air into the gutter. Available as options, a small pump in the printer cabinet or an external air dryer (A300 / A200 only)can supply clean air to the print head, maintaining a positive air pressure inside the head to keep out dust, etc.

CABINET

The cabinet is made of stainless steel with doors to two separate compartments. The upper door carries the printer control panel and is lockable. The conduit serving the print head and all external connections enter the left hand side. There are transport handles on both sides of the cabinet. For stability, the cabinet must be mounted on a stabiliser kit or stand (see Part 10 : Options). Alternatively, the cabinet must be bolted to a stable surface.

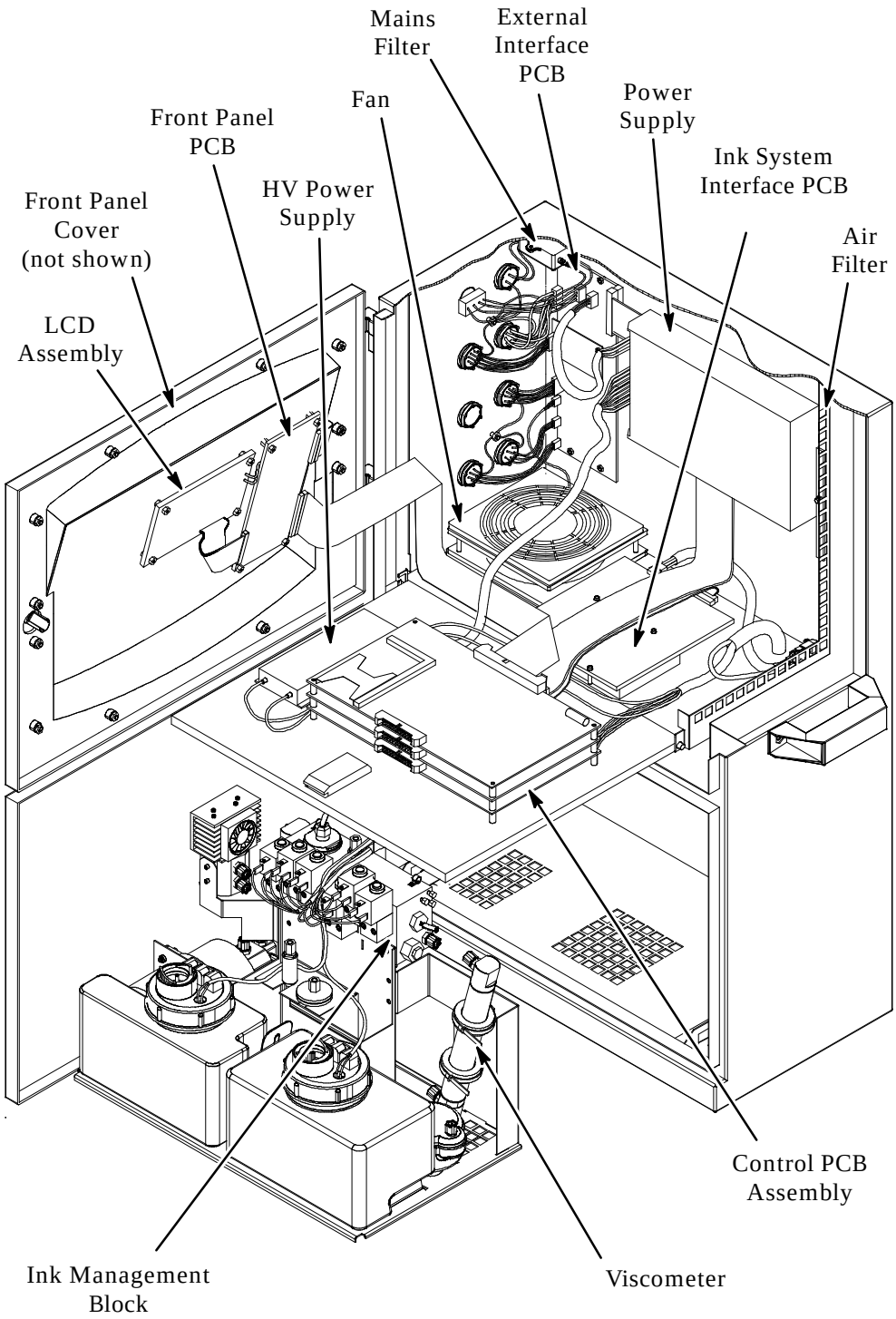
The upper compartment has a hinged cover plate behind the outer door that provides both general protection and a mounting surface (on its inner face) for part of the electronic components.

CAUTION ***The printer must not be operated with the ink chassis removed.***

In the lower compartment, operations such as replacing cartridges and reservoirs are carried out through the open door. However, the ink system is mounted on a chassis, enabling it to be removed as a single assembly.

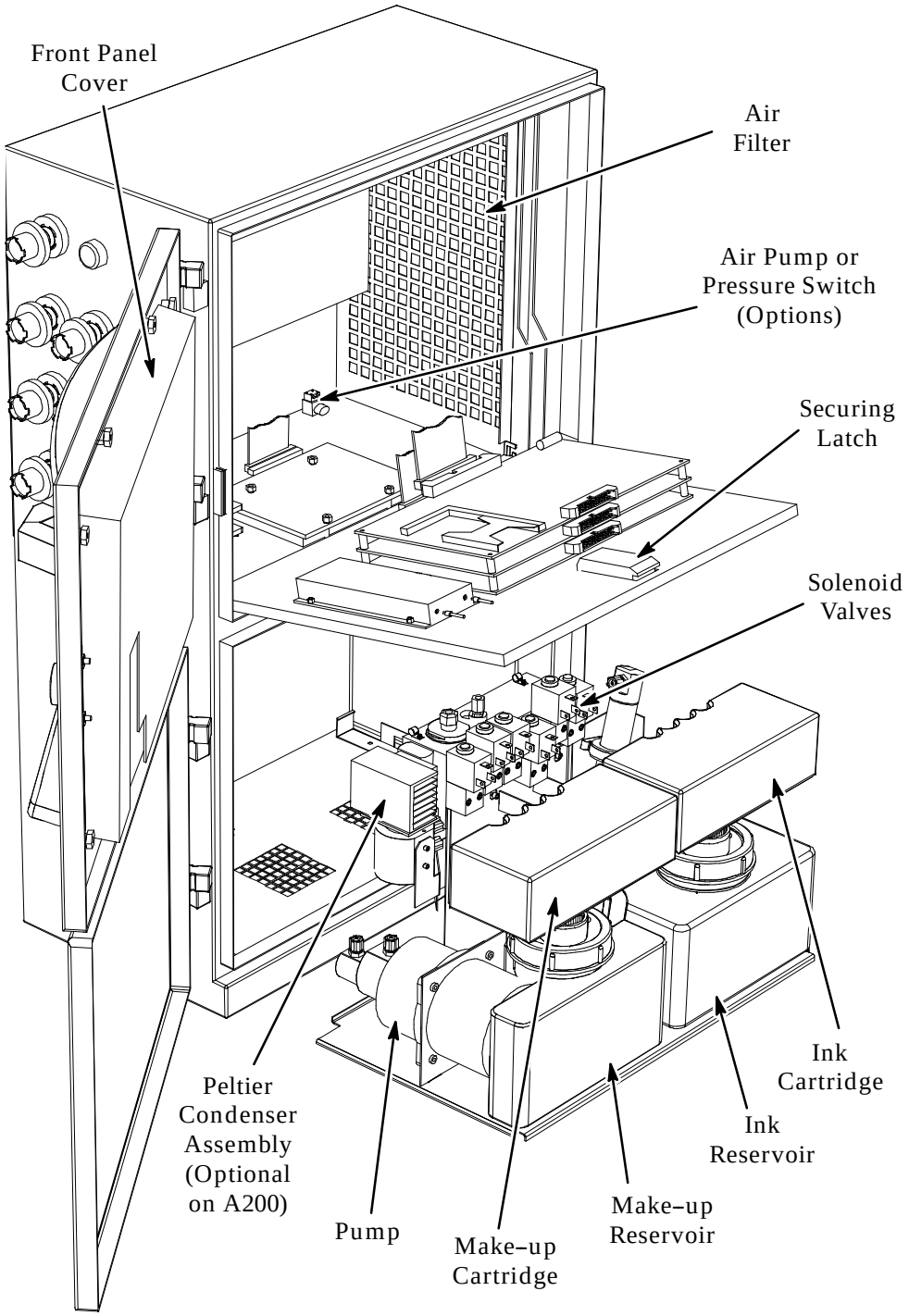
An A300 cabinet is cooled by air drawn in through the right side of the base and ducted up the right–hand side wall, through a filter into the upper electronics compartment. A fan then forces the air down through the lower ink compartment and out through the left side of the base. A baffle plate on the underside of the cabinet prevents re–circulation of the air.

A200 and A100 cabinets are cooled by air drawn in through louvres on the right side of the cabinet and drawn through a filter into the upper electronics compartment. A fan then forces the air down through the lower ink compartment and out through the base.

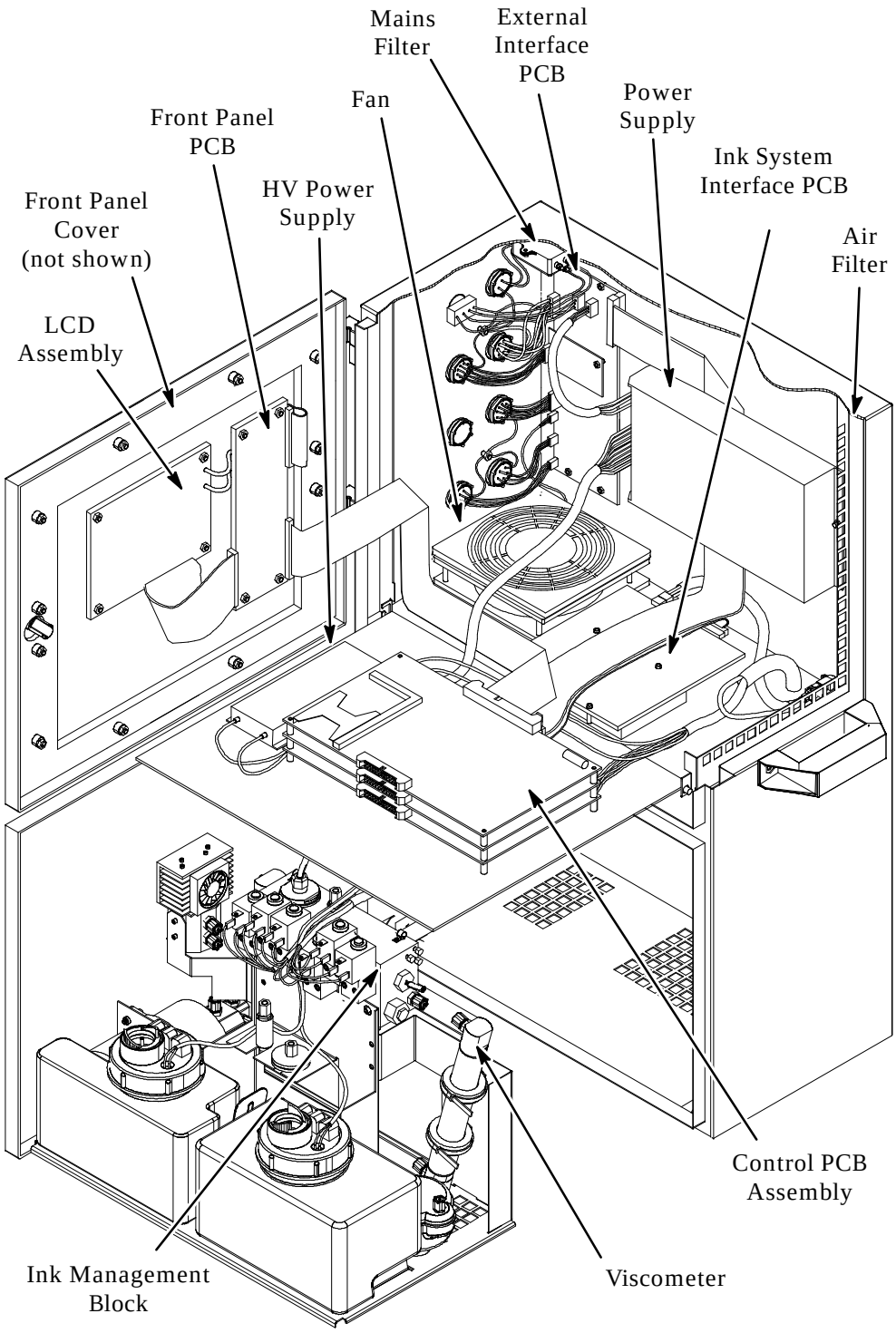


MG002–2

A300/A200 Cabinet – General View(1)

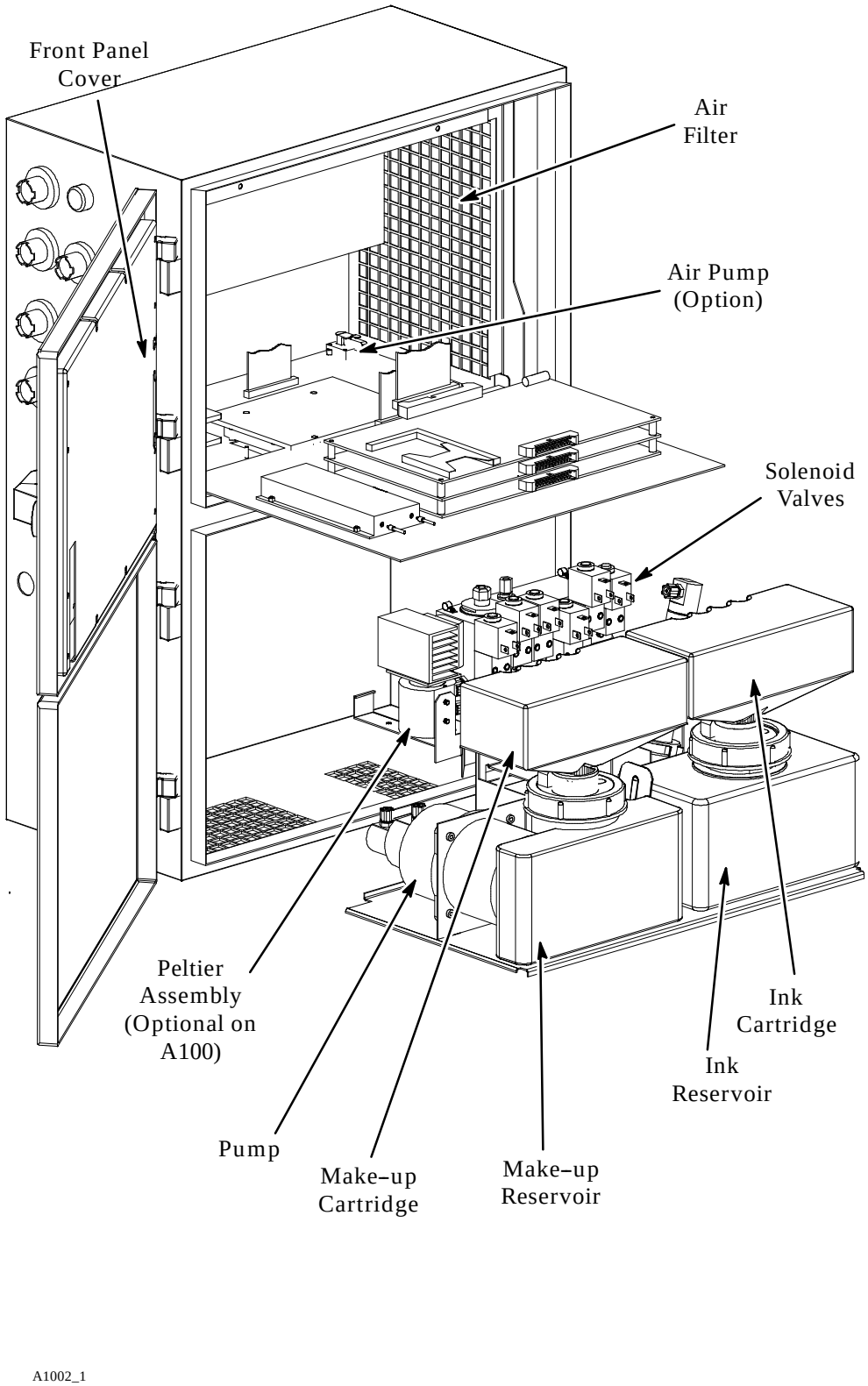


A300/A200 Cabinet – General View (2)

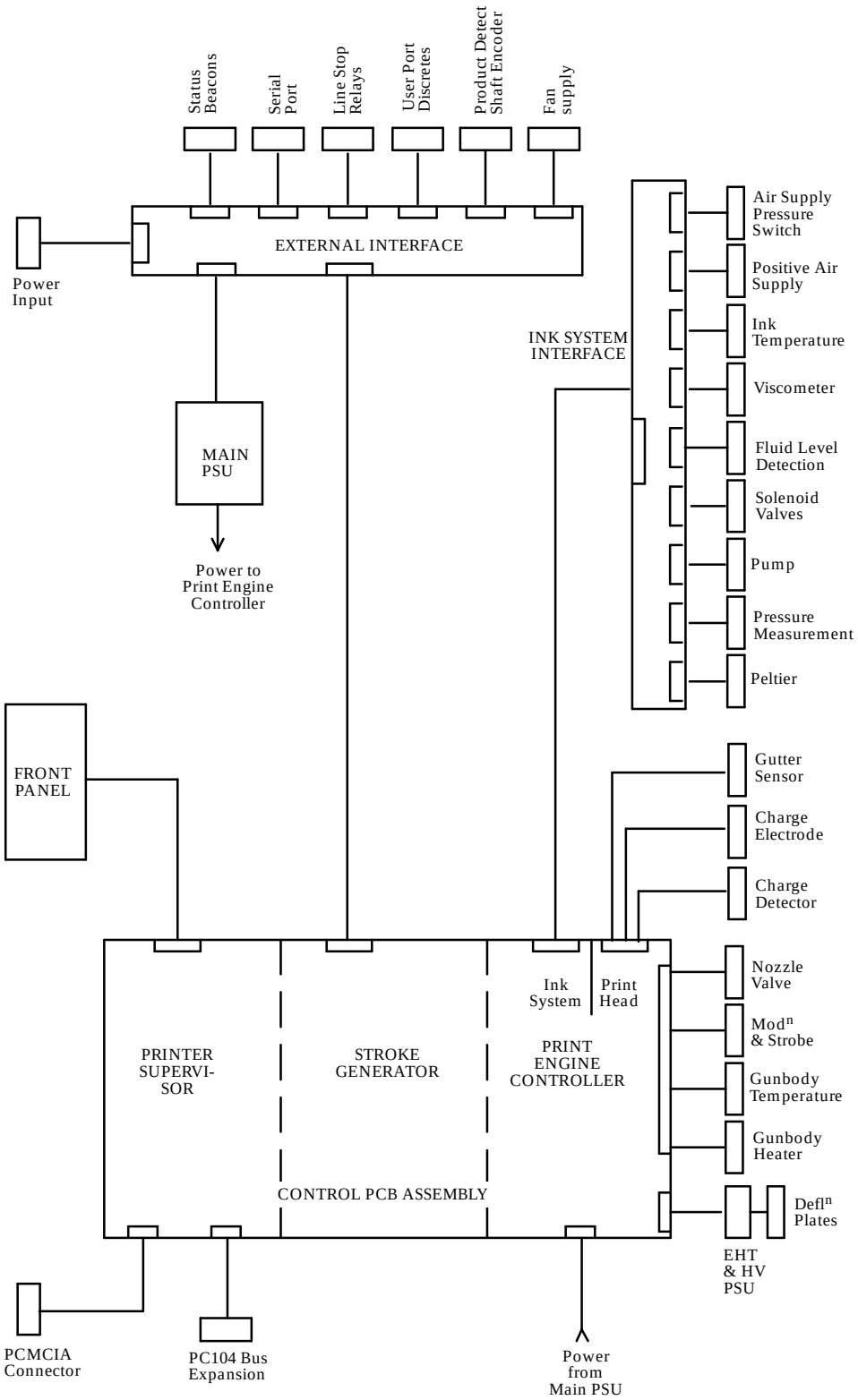


A1001_1

A100 Cabinet – General View (1)



A100 Cabinet – General View (2)



Electronics System – Schematic Diagram

ELECTRONICS SYSTEM

All operator control, maintenance and fault reporting is carried out via the front panel in communication with the electronics system shown in the diagram opposite.

The electronics system is centred on the Control Printed Circuit Board (PCB) Assembly, consisting of the Printer Supervisor, Stroke Generator and Print Engine Controller. The assembly is fitted into the upper compartment of the cabinet. Each PCB has its own microprocessor, battery–backed SRAM for data storage and FLASH memory for main code storage.

CAUTION ***For all maintenance and repair purposes, the Control PCB Assembly must be treated as a single assembly. Under no circumstances must the Control PCB Assembly be split.***

Connections between the Control PCB Assembly and all other parts of the printer are by direct connection or by way of three peripheral PCB's – the Front Panel Interface, External Interface, and Ink System Interface PCB's.

The Front Panel Interface PCB is principally concerned with scanning the front panel keys, driving the light emitting diodes (LEDs) and interfacing with the liquid crystal display module showing the screen information.

The External Interface PCB interfaces between the Control PCB Assembly and the low voltage level product detector and shaft encoder signals. It also provides buffers between the Control PCB Assembly electronics and the high voltages used in the beacon and alarm circuits. Small optional PCBs can be mounted on the External Interface PCB to provide, for example, RS232 or RS485 communications interfaces for the printer communications port, or a separate User Port.

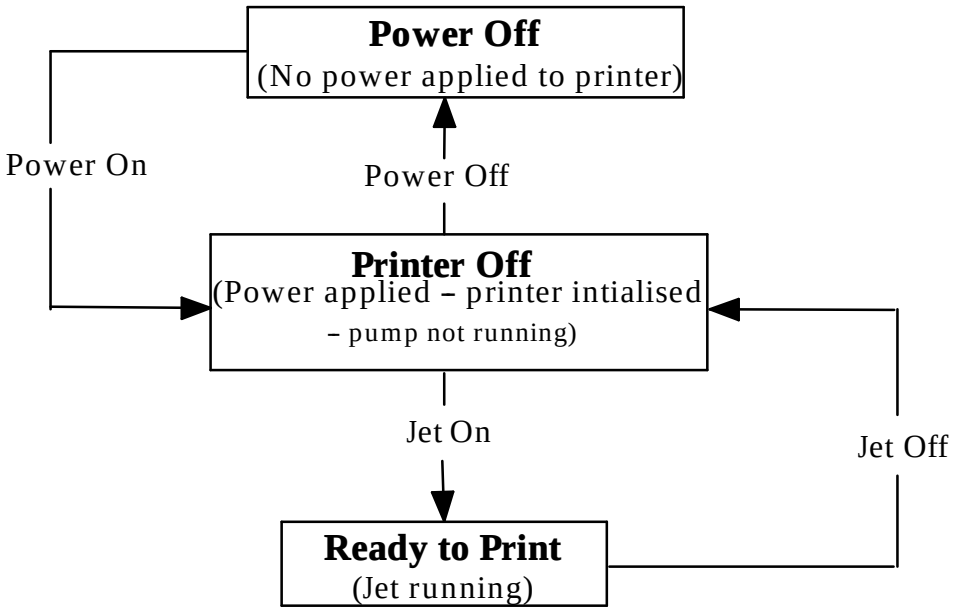
The Ink System Interface PCB distributes the functions provided by the ink system output port of the Control PCB Assembly. It also provides the protective interface between the fluid level sensors and the Control PCB Assembly electronics system.

There are two power supply units in the electronics compartment. The unit mounted at the rear of the electronics compartment generates the low level dc voltages required by the printer (+5V, +12V, +25V nominal). The unit mounted on the electronics inner door generates the

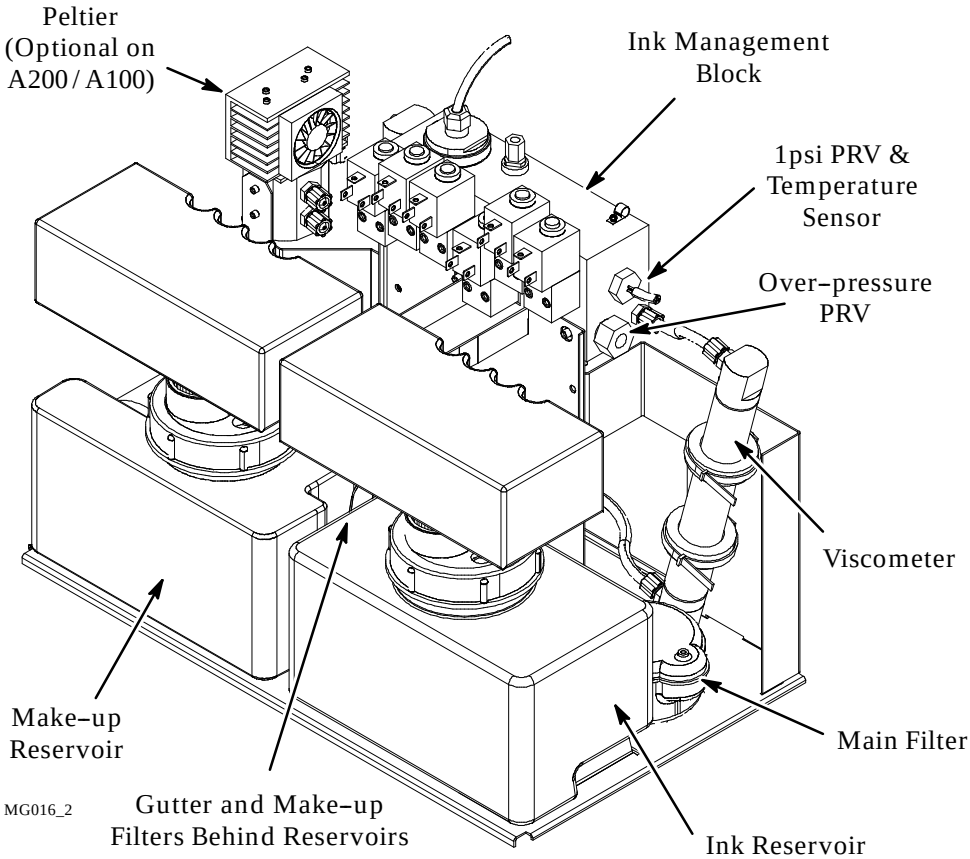
voltages required for drop charging (295V nominal), ink stream modulation (210V nominal) and drop deflection (+/–4kV nominal or +/–3.65kV Pinpoint). The drop deflection voltage has a very high source impedance, eliminating any hazard if touched.

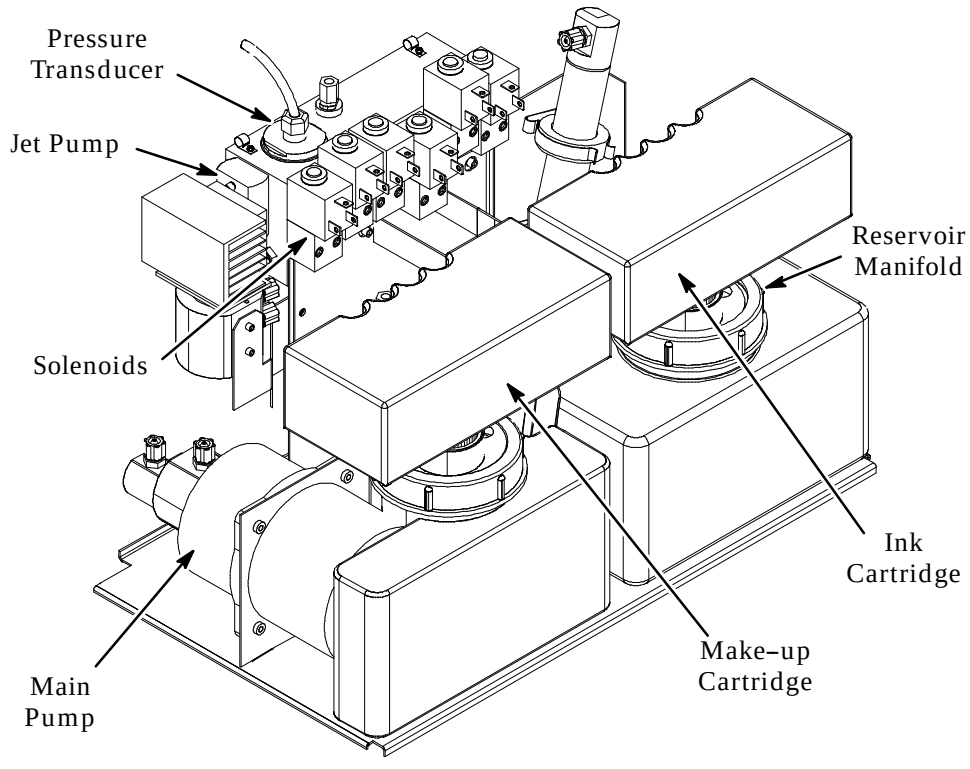
Software support is supplied via a PCMCIA card connector, providing the means of loading software, upgrading software and downloading data such as error logs, printer configuration information, logos and message back–ups. In addition, a PC104 Bus expansion connector provides direct access to the processor functions for specialised applications.

The printer is entirely software–controlled. A number of functions can be adjusted, or configured, to suit the particular use to which the printer is put. There are also a number of automatic functions, such as viscosity control, which maintain optimum performance. In operation, the printer can be in a number of different states which are basically stable, such as ”printer standby” and ”ready to print”. To change from one stable state to another, the printer automatically ”sequences” through a number of steps such as running/stopping pumps, opening/closing valves, etc. Sequencing is indicated by a flashing green indication on the Jet On/Off key.



Printer Automatic Sequencing





Ink System – General Views

INK SYSTEM

General

CAUTION ***The Ink system must never be withdrawn from the cabinet with the printer running.***

The ink system supplies the printhead with ink at the correct pressure and viscosity. When the jet is stopped, the system also flushes out the print head with make–up to provide a clean stop and, when the jet is next switched on, a clean start.

The printer contains a reservoir of printing ink. As ink is used for printing, it is replaced by fresh ink from a disposable cartridge. The ink has a solvent base which (like all solvents) is subject to evaporation, and this, in turn, affects ink viscosity. The electronic system, therefore, checks the viscosity regularly and keeps it within carefully controlled limits by adding make–up, supplied from a second reservoir, which is also supplied by a disposable cartridge.

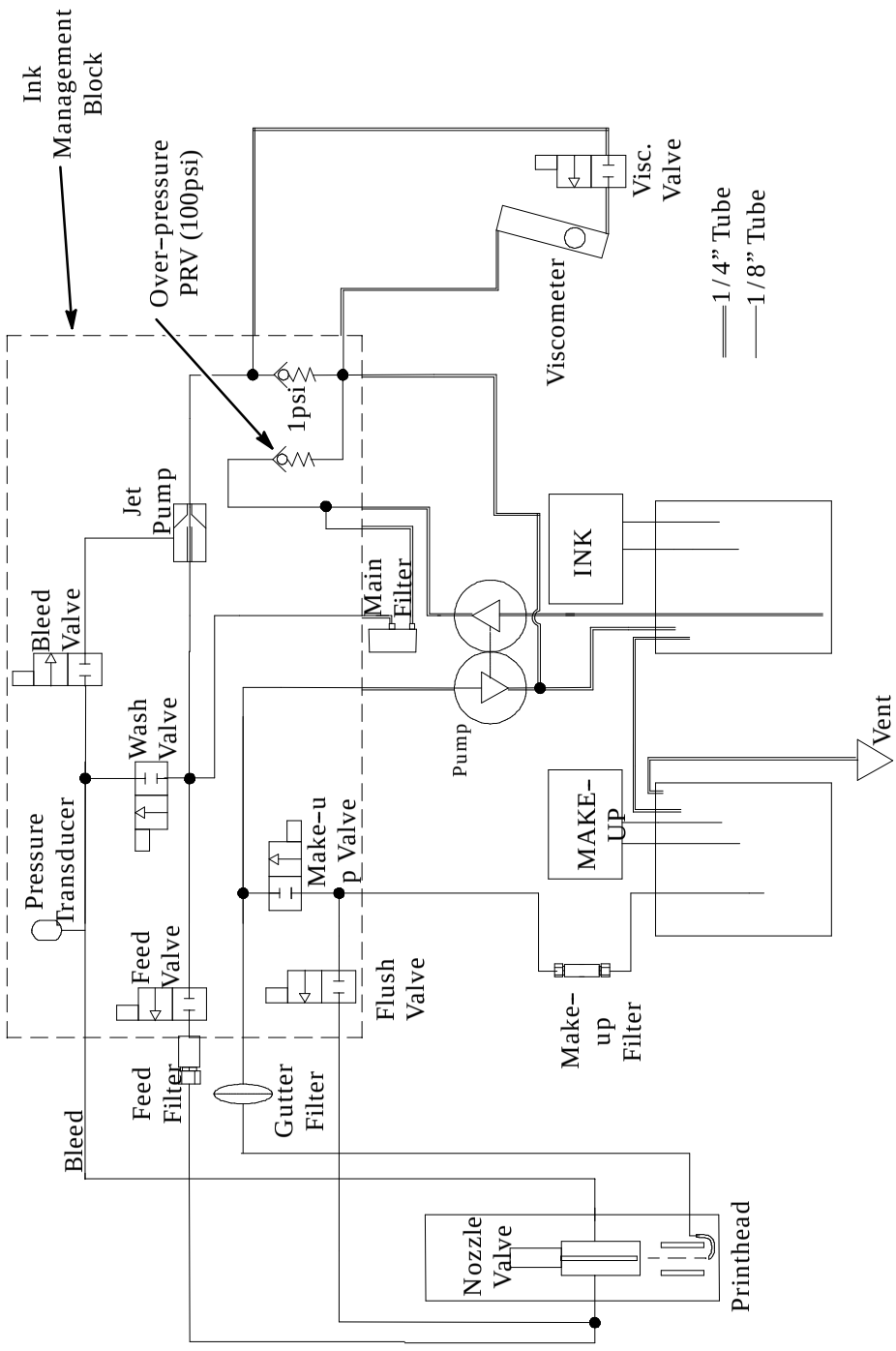
Ink Circuit

The ink circuit is shown schematically in the following diagram (see pg. 6–17).

Ink supply. The printing ink is held in a replaceable reservoir, on which is mounted a manifold carrying a replaceable cartridge. Make–up is also held in a reservoir (non–replaceable) and has a disposable make–up cartridge mounted on it.

The ink cartridge is sealed onto the manifold except for two dip tubes of different lengths extending down from the manifold into the reservoir. As the ink level falls below the end of the shorter tube, air is allowed into the cartridge. Fresh ink is then able to drain through the longer tube into the reservoir until the ink level rises above the end of the shorter tube. The ink and make–up levels are monitored by level sensors in each reservoir. If the ink cartridge is not replaced before the ink falls below a second level, the printer switches off. However, if the make–up reservoir is empty the machine can still be used, but the start–stop performance will be impaired. If make–up is not replaced it will cause the ink viscosity to increase, and print quality to deteriorate.

The printer also indicates when the ink or make–up levels are too high.



Ink System – Circuit Diagram

Feed circuit. Ink from the reservoir is supplied to the circuit by the high pressure pump. The ink is pumped through a 5 micron filter, a jet pump and then through a 69 mbar (1psi) Pressure Relief Valve (PRV) and back into the reservoir. This circuit provides the different levels of pressure to operate the other ink circuits. The electronics system checks the ink temperature using a sensor encapsulated into part of the 1psi PRV.

The jet pump provides a restriction for the main pump to work against, and as a result of the fluid flow through it, creates a vacuum in the bleed line.

Pump pressure is measured by the pressure transducer mounted on the ink management block which is read, and controlled, by the software. Ink at pump pressure is fed through a solenoid valve and a 10 micron filter into the drop generator in the print head. This ink is forced out of the nozzle to form the ink jet. Nominal ink pressure at the printhead is 2900mbar (42psi), or 4000mbar (60 psi) for Pinpoint.

An over–pressure PRV is incorporated and set to operate at 100psi in case of over pressure in the feed circuit.

Gutter circuit. Non–printed drops of ink from the ink jet are collected in the gutter. This unused ink is drawn from the gutter through a filter by the vacuum side of the pump and returned to the ink reservoir. The gutter circuit operates continuously from start–up to shut–down. The vacuum pump head is kept primed by a small supply of ink from the pressure side of the pump.

Bleed circuit. A second connection at the drop generator passes ink through the bleed solenoid valve back to the reservoir via the jet pump. Opening the bleed solenoid valve increases ink flow through the drop generator and the inherent turbulence clears out any traces of air or solid material. The bleed function is used automatically at start–up and at shut–down. It can also be controlled manually for maintenance purposes.

Viscosity control. Periodic measurements of ink viscosity are taken automatically. Ink at 69mbar (1psi) is taken from the junction between the 1psi PRV and the jet pump, through a solenoid valve to the viscometer. The output side of the viscometer is connected to pass ink back to the reservoir. The viscometer itself consists of a ball in an inclined tube. Ink flowing through the tube forces the ball to the top, when the solenoid valve shuts off the ink flow, the ball falls back

through stationary ink. Its movement down the tube is timed and this time is used as the viscosity check.

If the ink is too thick, make–up is added into the ink reservoir by opening the make–up solenoid valve. The suction provided by the low pressure (gutter) pump head then draws in make–up from the make–up reservoir and passes it with the gutter ink into the reservoir.

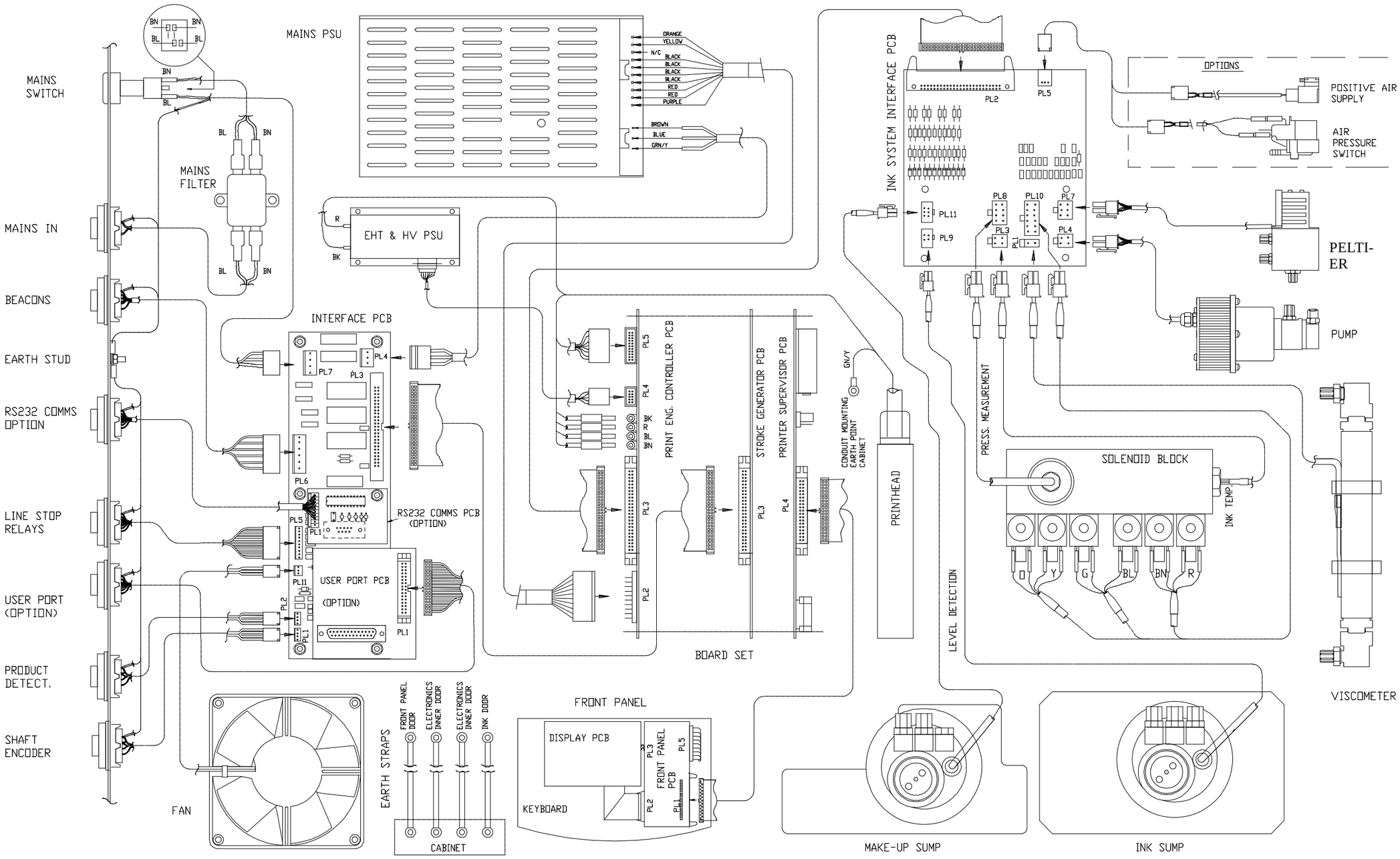
Auto–flush. Shutting down the printer involves an automatic flush cycle to prevent the print head becoming dirty with ink splashes. When the ink jet is turned off, the head and feed solenoids are turned off and the flush and bleed solenoids are opened. The vacuum created by the jet pump draws fluid from the make–up reservoir to the bleed circuit via the printhead. The wash and printhead valves are then opened to enable the make–up in the bleed line to pass through the nozzle.

The head is cleaned by the flow of make–up during the flush cycle, the printhead and wash solenoids are then closed. The flush period is extended to allow the gutter to be emptied, and then the main pump is stopped. Finally the bleed solenoid valve is opened temporarily to release the pressure in the drop generator.

CAUTION ***Do not switch the printer off before the flush cycle is complete.***

Venting. The ink reservoir is connected to a vent at the bottom of the cabinet. This allows for variations in the ink level and for air drawn in by the ink and make–up cartridges. It also allows air drawn in through the gutter to be released. These air movements could result in the emission of solvent fumes and an evaporation loss. To reduce the evaporation loss, an optional peltier device can be fitted to cool and condense any escaping vapour. The resulting liquid is passed back into the make–up reservoir.

37700W Iss. 1



Wiring Diagram

PART 7 : MAINTENANCE

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PREVENTATIVE MAINTENANCE

Maintenance falls into the following categories:

- Preventative Maintenance carried out at regular intervals
- General maintenance carried out as necessary
- Head alignment, if the print quality deteriorates
- Changing of the ink type in the printer.

Preventative Maintenance falls into the following two categories:

- Procedures that can be carried out by the operator
- Procedures which must only be carried out by Domino trained personnel.
  (This is indicated by the symbol shown in the margin)



However, Domino recommends that all maintenance procedures are carried out by Domino trained personnel.

The list of procedures on page 7–5 are designed as preventative maintenance, they should be carried out at the intervals indicated on the list (usually every 2000 hours).

For ink and make–up cartridge replacement, see pg. 3–6.

INK SYSTEM – ACCESS

WARNINGS (1) When working on or near the ink system, protective clothing (especially safety glasses) must be worn.

(2) Power to the printer must be removed before carrying out any maintenance.

(3) If the printer is ever operated in a way that allows it to print into a beaker, the beaker must be made of conducting material and be securely connected to earth (ground), as the electrostatic charges on the ink drops used for printing could cause a fire hazard.

The ink system is contained on a tray, in the lower section of the printer. The door is released by twisting the latch on the lower door anti–clockwise. The whole ink system can be withdrawn from the cabinet for maintenance (remove cartridges first), by removing the 4mm hex screw in the centre front of the tray and pulling the ink system forward using the metal handle in the centre (do not pull on any cables or pipes to do this, and ensure pipes and cables are not snagged or trapped).

The ink system tray can then be placed in front of the cabinet for all round access.

PREVENTATIVE MAINTENANCE REPORT

Serial Number _____ **Run Hours** _____

Date _____ **M/C Configuration** _____

	2000	4000	6000	8000
(1) Replace Filters:				
(a)Make–up / Flush				
(b)Gutter				
(c)Main				
(d)Feed				
(2) Replace Air Filter				
(3) Check Manifold Seals				
Replace Manifold Seals				
(4) Check Operation:				
(a)Cooling Fan				
(b)Positive Air Pump				
(5) Ink Information:				
(a)Ink Temp				
(b)Actual BFT				
(c)Target BFT				
(d)Ink Type				
(e)Make–up Type				
(6) Clean Cabinet of Excess Ink				
Clean All Ink Off Motor				
(7) Check All Plumbed Fittings &				
Elec Conns in Ink Cabinet				
(8) Check Conns to Printhead				

Note: The following procedures must only be carried out by Domino trained personnel.

	2000	4000	6000	8000
(9) Printhead Settings:				
(a)Jet Into Gutter Alignment	☐	☐	☐	☐
(b)Printhead Alignment Checks	☐	☐	☐	☐
(10) Pressure Window Check	☐	☐	☐	☐
(11) Modulation Window Check	☐	☐	☐	☐
(12) Pump Speed Check	☐	☐	☐	☐
(13) Printhead Cleaning	☐	☐	☐	☐
(14) Obtain a Print Sample	☐	☐	☐	☐

Note: An Airdryer can be fitted to A300 and A200 printers as an Option, therefore, only carry out the following if an airdryer is fitted.

(15) Airdryer Service (if required)	☐	☐	☐	☐

PINPOINT ONLY
PREVENTATIVE MAINTENANCE REPORT

Serial Number ☐ **Run Hours** ☐

Date ☐ **M/C Configuration** ☐

	Every 600hrs	1800	3600	5400	7200
(1) Replace Filters:					
(a)Make–up / Flush		☐	☐	☐	☐
(b)Gutter		☐	☐	☐	☐
(c)Main	☐	☐	☐	☐	☐
(d)Feed					☐
(2) Replace Air Filter		☐	☐	☐	☐
(3) Check Manifold Seals		☐	☐	☐	☐
Replace Manifold Seals					☐
(4) Check Operation:					
(a)Cooling Fan		☐	☐	☐	☐
(b)Positive Air Pump		☐	☐	☐	☐
(5) Ink Information:					
(a)Ink Temp		☐	☐	☐	☐
(b)Actual BFT		☐	☐	☐	☐
(c)Target BFT		☐	☐	☐	☐
(d)Ink Type		☐	☐	☐	☐
(e)Make–up Type		☐	☐	☐	☐
(6) Clean Cabinet of Excess Ink		☐	☐	☐	☐
Clean All Ink Off Motor		☐	☐	☐	☐
(7) Check All Plumbed Fittings &		☐	☐	☐	☐
Elec Conns in Ink Cabinet		☐	☐	☐	☐
(8) Check Conns to Printhead		☐	☐	☐	☐

Note: The following procedures must only be carried out by Domino trained personnel.

	1800	3600	5400	7200
(9) Printhead Settings:				
(a)Jet Into Gutter Alignment	☐	☐	☐	☐
(b)Printhead Alignment Checks	☐	☐	☐	☐
(10) Pressure Window Check	☐	☐	☐	☐
(11) Modulation Window Check	☐	☐	☐	☐
(12) Pump Speed Check	☐	☐	☐	☐
(13) Printhead Cleaning	☐	☐	☐	☐
(14) Obtain a Print Sample	☐	☐	☐	☐

Note: An Airdryer can be fitted to A300 and A200 printers as an Option, therefore, only carry out the following if an airdryer is fitted.

(15) Airdryer Service (if required)	☐	☐	☐	☐



1(a) Make–up Filter Replacement

Notes (1) Tools required: Lint–free tissue to catch escaping ink.
11mm spanner (see step 7).
Pipe cutters.
Protective clothing (especially safety glasses)

(2) When replacing a filter, a small length of tube is always lost, therefore, ensure there is enough tube before replacing.

The make–up filter is a 10 micron filter with a tubular body and a flow direction arrow on the side. Its input tube has a red marker. Keep the tube connections high during fitting to avoid losing make–up.

The printer must be shut down and both cartridges removed.

(1) Remove the securing screw and pull out the ink system.

(2) Ensure the nuts are fitted loosely to the new filter.

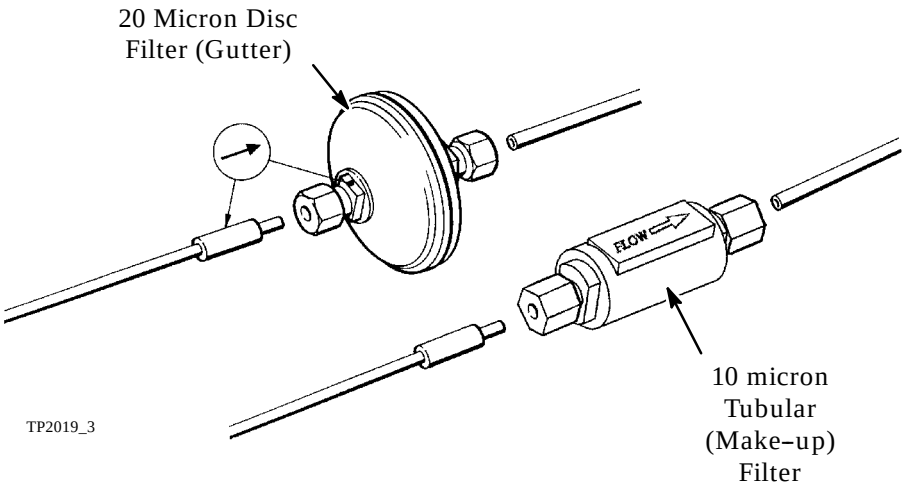
(3) Cut through the ink tubes where they enter the nuts on the old filter. Wrap the old filter in tissue and discard.

(4) Orientate the new filter using the direction arrow on the body of the filter.

(5) Push the make–up tubes through the nuts on the filter until they stop at the shoulder inside the filter.

(6) Hold the make–up tubes in place and tighten the nuts finger tight.

(7) Using a spanner, tighten the nuts by a further 1.5 turns.



Filter Replacement



1(b) Gutter Filter Replacement

Notes (1) Tools required: Lint–free tissue to catch any escaping ink.
11mm spanner (see step 4).
Pipe cutters
Protective clothing (especially safety glasses).

(2) When replacing a filter, a small length of tube is always lost, therefore, ensure there is enough tube before replacing.

The gutter filter is a 20 micron disc filter.

The printer must be shut down and both cartridges removed.

(1) Remove the securing screw and pull out the ink system.

(2) Ensure the nuts are fitted loosely to the new filter.

(3) Cut through the ink tubes where they enter the nuts on the old filter. Wrap the old filter in tissue and discard.

(4) Orientate the filter using the small flow direction arrow on the new filter, it is on the shoulder next to one of the threads.

(5) Push the ink tubes through the nuts on the filter until they stop at the shoulder inside the filter.

(6) Hold the ink tubes in place and tighten the nuts finger tight.

(7) Using a spanner, tighten the nuts by a further 1.5 turns.



1(c) Main Filter Replacement

Notes (1) Tools required: Lint–free tissue to catch any escaping ink.
16mm spanner (see step 3)
Protective clothing (especially safety glasses).

(2) Filters must not be re–used.

The printer must be shut down and both cartridges removed.

(1) Move the filter to the front of the ink system and make a note of the pipe connections (see diagram on next page).

(2) Remove the bungs from the new filter and retain for use on the old filter.

(3) Remove the connectors from the old filter and fit to the new filter in the same orientation (as noted in step 1). The connections should be finger tight, then tightened 1.5 turns with a spanner.

(4) Fit the bungs removed in step 2 to the old filter.

(5) The filter will now need bleeding at low pressure as follows:

(a) Enter the service mode, by pressing the service button and entering the password.

(b) Enter the ink system screen by pressing the Ink System button in the scroll menu at the bottom of the screen.

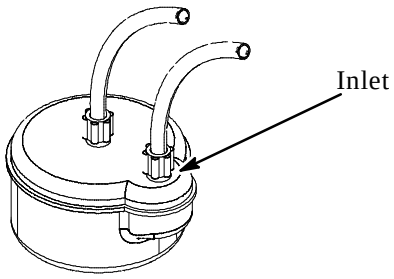
(c) Make a note of the target pressure, then set it to 1000mbar and press OK. Press the Ink System button again to return to the ink system screen.

(d) Scroll the menu selection at the bottom of the screen and press sequence to standby. Allow the printer to run for 3–5minutes and monitor for leaks as the ink builds up in the filter.

(e) Press the sequence off button.

(f) Enter the target pressure as recorded in step (c) and press OK.

(6) Replace the filter to its original position and refit the cartridges.



MG032_1 *Main Filter Replacement*



1(d) Feed Filter Replacement – 8000 HOURS ONLY

CAUTION ***This filter must only be replaced after 8000 hours and NOT every 2000 hours.***

Notes (1) Tools required: *Lint–free tissue to catch any escaping ink.*
10mm & 11mm spanners.
Pipe cutters.
Protective clothing (especially safety glasses).

(2) When replacing a filter, a small length of pipe is always lost, therefore, ensure there is enough pipe before replacing.

The feed filter is a special 10 micron filter fitted into the ink management block.

The printer must be shut down and both cartridges removed.

(1) Remove the securing screw and pull out the ink system.

(2) Ensure the nut is fitted loosely to the new filter.

(3) Cut through the ink tube where it enters the nut on the old filter.

(4) Unscrew the old filter from the ink management block, wrap it in tissue and discard.

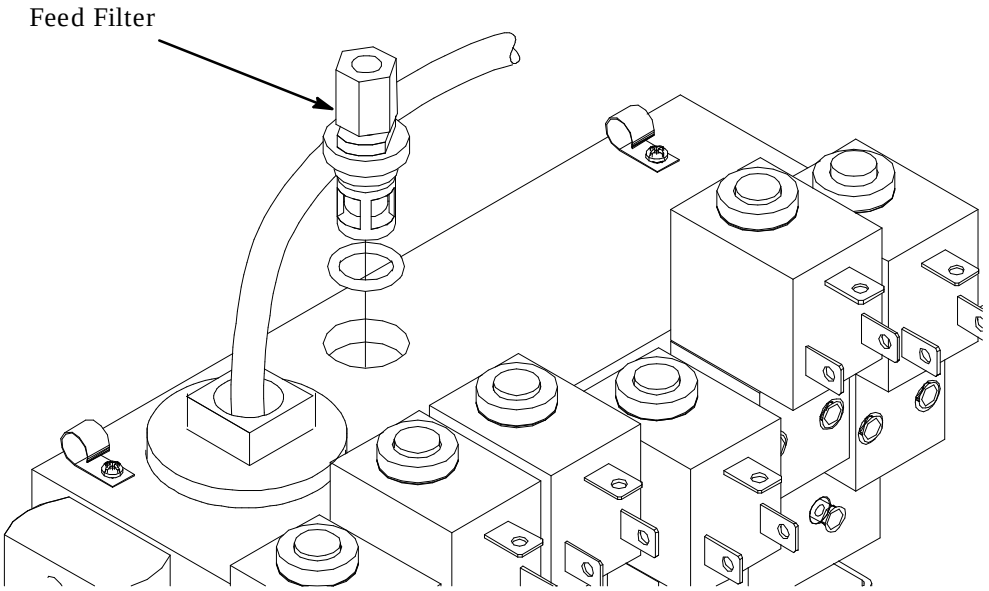
(5) Fit the new filter to the block and tighten.

(6) Hold the ink tube in place and tighten the nut finger tight.

(7) Using a spanner, tighten the nut by a further 1.5 turns.

(8) Run the printer with the jet on for 5 minutes, to allow ink to circulate through the filter. Check for leaks.

(9) Switch the printer off and refit the cartridges and the ink system.



MG178_2

Feed Filter Replacement

2. Air Filter Replacement

The air filter is designed not to be cleaned, it must be replaced. To replace the air filter, pull out the old filter (situated at the side of the electronics compartment) and slide in the new filter, making sure that it is fitted in the same orientation as the old one (with tab at the bottom).



3. Manifold Seal Check

Remove the cartridges and wipe round the seals using the appropriate solvent. Check for any signs of wear or cracking. In the event of cracks or splits, replace the seals.

4(a) Check Operation of Cooling Fan

At the rear left of the ink cabinet, check for a gentle air flow into the cabinet from the fan.

4(b) Check Operation of the Positive Air Pump (If Fitted)

At the printhead, check for a small air pressure from the positive air pipe.

5. Obtain Ink Information

The ink information can be obtained from the Service Menu in the Config Screen.

The Ink and Make–up types can be obtained from the cartridges.



6, 7, 8. Clean the cabinet and Check Connections

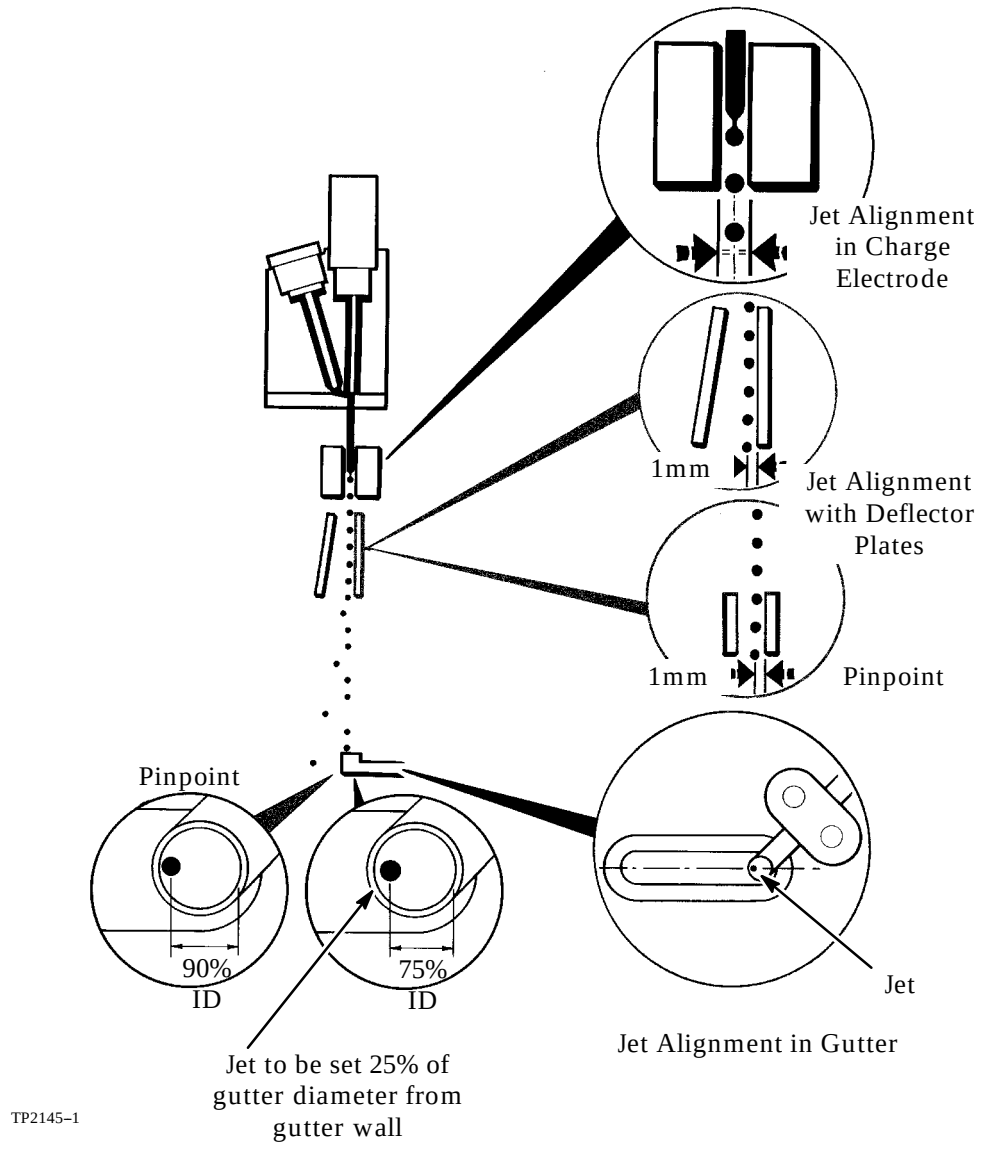
With the power off, clean the cabinet, including the motor, of any excess ink. Check all connections in the ink cabinet (plumbed and electrical), and all connections to the printhead.

Note: *The following procedures must only be carried out by Domino trained personnel.*



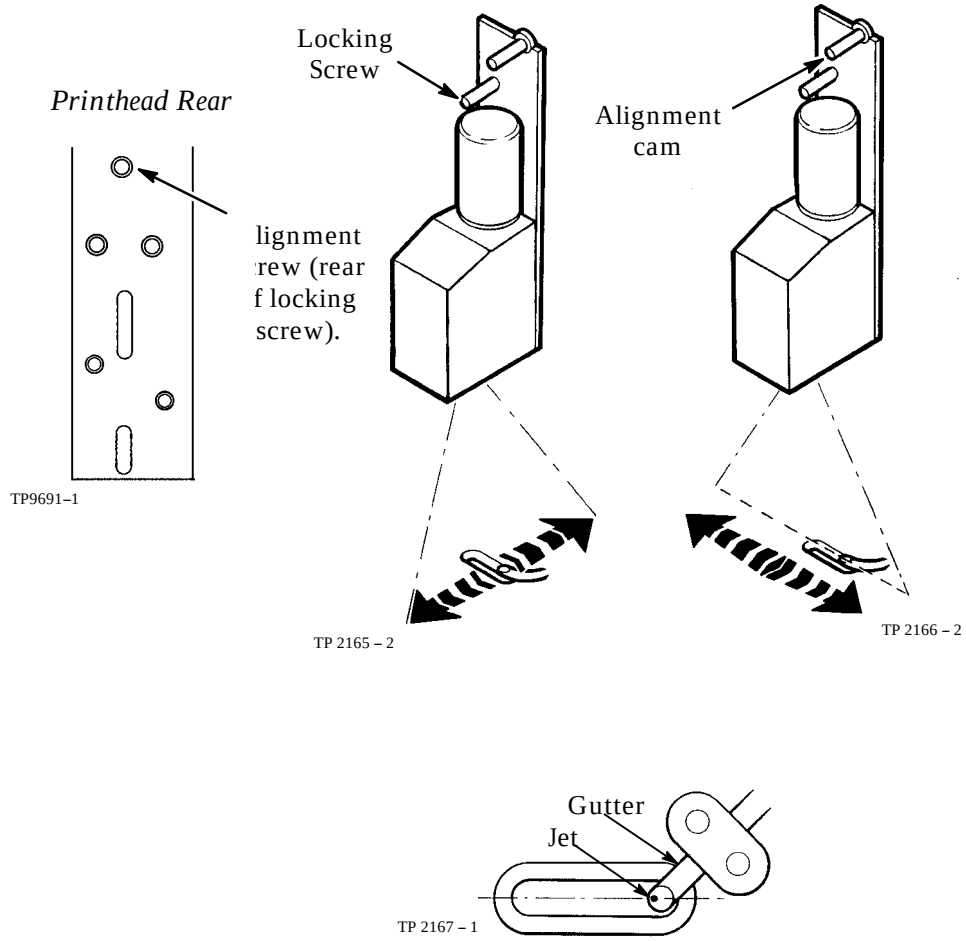
9(a). Jet into Gutter Alignment

With the jet running, check the position that it enters the gutter as shown in the following diagram. If incorrect, carry out the jet alignment procedure on page 7–15.



Head Alignments

9(b)Printhead Alignment Checks



Ink Jet Alignment into Gutter

(1) From the Service Menu press Sequence to Jet Run.

(2) Loosen the locking screw.

(3) Adjust the screw at the printhead rear so that the jet is in the centre of the gutter, when viewed from the side.

(4) Adjust the cam so that the jet is just inside the left side of the gutter when viewed from the front, tighten the locking screw when finished.



10. Pressure Window Check

The pressure window is the range of usable ink pressure that the printer can be set to, before print quality becomes unacceptable.

The printer should operate at approximately 2900mbar (4000mbar for Pinpoint) with a message that uses all available lines.

(1) Take a print sample by sweeping a piece of card under the printhead whilst triggering the product detector (simulating a product).

(2) Enter Service Mode and press the Ink System button. This will display the target pressure.

(3) Note the original pressure and increment the pressure one step at a time using the + key while checking the print quality. Continue until print quality becomes unacceptable.

(4) Reduce the ink pressure to one increment below the original pressure using the – key, whilst checking print quality.

(5) Continue reducing the pressure, whilst checking print quality, until the quality becomes unacceptable.

(6) The pressure should now be set to the midpoint of the pressure window.

Note: A typical window is +/–300mbar.

11. Modulation window check



Sequence the machine on. Enter Service Mode and press the Print Head button. In this screen, press the n r buttons to go to the modulation Set Point (make a note of the current value). Now use the +/– keys to increase or decrease the modulation voltage. The voltage can be adjusted in three levels: 0.1V, 1V and 10V steps. It is advisable to adjust the voltage in 10V steps until the print quality deteriorates, the go back 10V and change in 1V steps to get an accurate print window. Check print samples as normal to obtain the print window.

12. Pump Speed Check



Note: This test should be carried out at an ambient temperature of 25 _C. However, if the ambient room temperature is higher then the pump speed will also be higher, and if the ambient temperature is lower then the pump speed will be lower.

In Service Mode press the Ink System button, then press the Sequence to Jet Run button. Once the jet has established itself in the gutter, make a note of the pump speed, this should be approximately 2000rpm. If the speed is 3500rpm or above it would be advisable to change the pump.

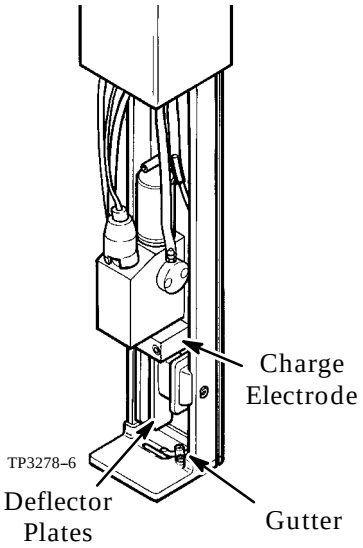


13. Print Head Cleaning

The printer must be shut down. Fit the print head into the maintenance holster.

(1) Wash down the gutter. Dry the wet areas with lint–free tissue.

(2) If required, also wash down the deflector plates, avoiding wetting the Charge Electrode.



If the Charge Electrode needs cleaning:

(3) Undo the securing screw and pull the electrode gently away from its mounting.

(4) Wet a piece of tissue with wash and draw it through the slot in the Charge Electrode. Any ink residue in the slot will stain the tissue. Wash the rest of the electrode.

(5) Draw some dry tissue through the slot and dry the rest of the electrode. Ensure that no traces of tissue remain in the slot.

(6) Refit the Charge Electrode and tighten the securing screw.

Refit the print head into its holster.

14. Obtain a Print Sample

Obtain a print sample (instructions are given on pg. A–11)and check the quality of the print. Keep this sample and attach it to the maintenance sheet.



15. Airdryer Service (If fitted)

For the relevant information on 2000 / 4000 hour service, refer to the Appendix B : Air Driven Airdryer, or, Appendix B : Compressor Driven Airdryer accompanying the Airdryer.

PART 8 : REPAIR

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PRINT HEAD REPAIR

Nozzle Plate Removal and Cleaning

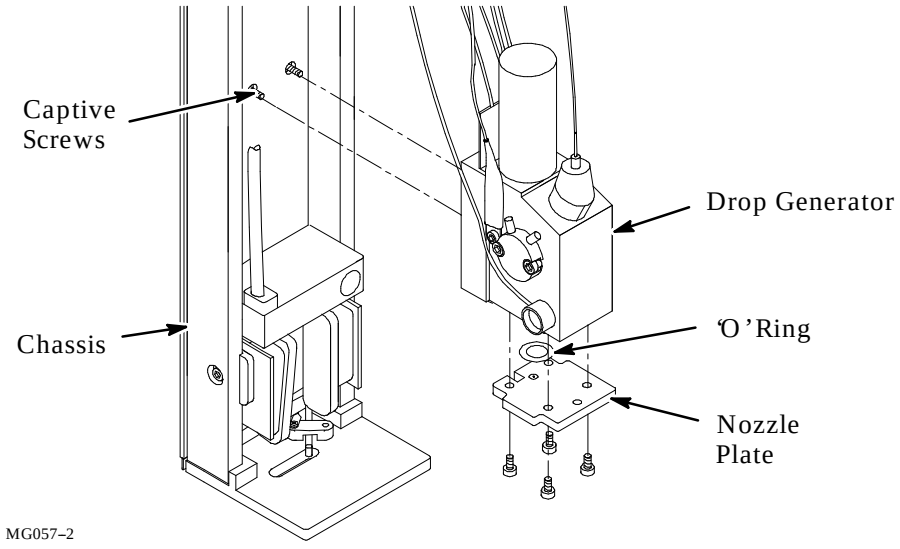


WARNINGS (1) Never start the printer with the nozzle plate removed.

(2) Under certain fault conditions, the ink in the feed tubes and gunbody could remain under pressure when the printer is switched off. To protect against escaping ink, place tissue around the nozzle plate before releasing the securing screws, or around an ink feed tube junction before disconnection.

CAUTION ***In the following procedure, except where specified, do not touch the head valve plunger or the nozzle jewel (in the middle of the nozzle plate) with the fingers.***

The print head must be removed from its holster. Remove the nozzle plate as follows.



Removing the Nozzle Plate

(1) At the rear of the print head, unscrew the two captive screws securing the drop generator.

(2) Pull the drop generator gently away from the chassis sufficiently to allow access to the nozzle plate screws. Avoid pulling on the wiring.

(3) Remove the four screws securing the nozzle plate. Pull the nozzle plate off its locating pins and remove.

To clean the nozzle, put the nozzle plate into a clean beaker filled with the appropriate wash. Stand the beaker in an ultrasonic bath filled with water. Switch on the ultrasonic bath and clean the nozzle plate for not more than 10 minutes. If the nozzle is to be changed, ensure that the new nozzle is the correct type. Replace the nozzle plate as follows:

(4) Wash the face of the drop generator and the tip of the head valve plunger where it projects from the gunbody. Gently press the tip of the plunger into the gunbody to ensure that it moves freely.

(5) Ensure that the 'O' ring is in place on the face of the drop generator, then fit the nozzle plate to the drop generator. The plate must be the correct way round so that the screw holes correspond and the plate fits onto the locating pins. Tighten the screws as far as possible.

(6) Refit the drop generator onto its mounting, ensuring that it is correctly fitted onto the locating pins. At the rear of the head, tighten the two securing screws.



Drive Rod Replacement

The printer must be shut down and the print head removed from its holster. Special drive rod clamp nut and gunbody spanners will be required (see pg 9–2, Tools).

(1) Remove the cover over the upper part of the head by:

  (a) removing the four screws in the sides,

  (b) removing the two screws at the top,

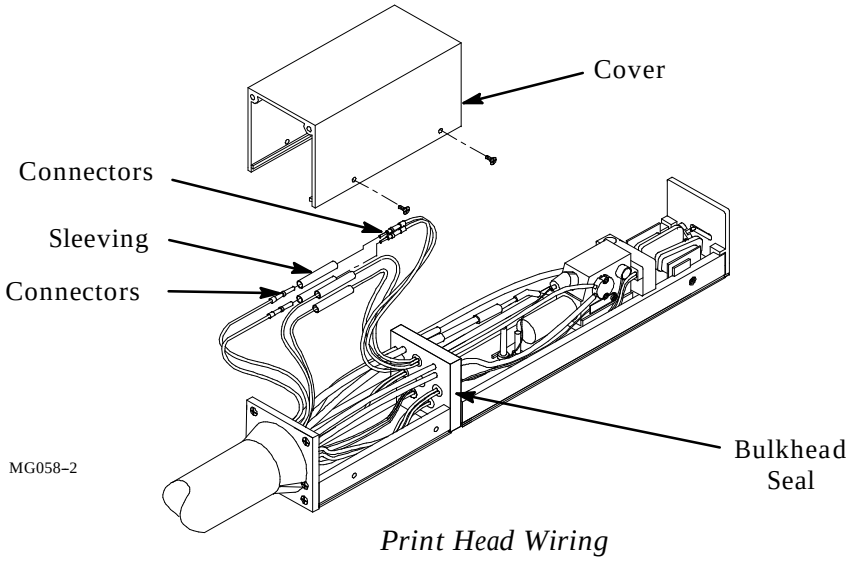
  (c) carefully pulling the sides away from the chassis and removing the cover.

(2) Trace the wire from the drive rod to its connection at the conduit wiring in the upper part of the head.

(3) Cut the heatshrink sleeving around the connection and disconnect the drive rod wire.

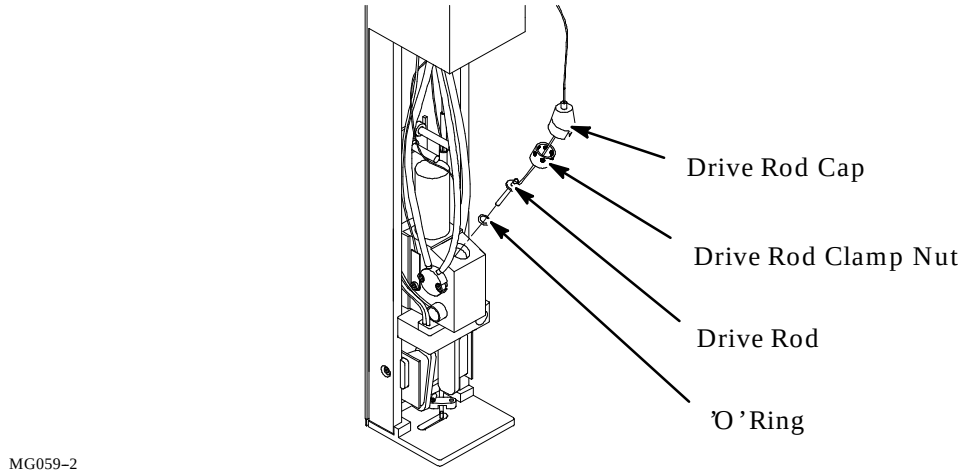
(4) Cut off the connector on the drive rod wire. Pull the wire back through the cable gland (which it shares with other wires) to the drive rod.

CAUTION ***The following steps should be carried out using a drive rod spanner and a gunbody spanner (see pg. 9–2). Do not rely on the attachment of the gunbody to the print head chassis for support.***



Print Head Wiring

(5) Carefully pull off the drive rod cap and, using drive rod and gunbody spanners, remove the drive rod nut from the gunbody and pull out the drive rod. Retrieve the cap and clamp nut for future use.



Removing the Drive Rod

(6) Clean the recess in the drop generator and replace the drive rod 'O' ring.

(7) Fit the drive rod clamp nut and cap over the drive rod wire. Fit the drive rod into the drop generator and tighten the clamp nut firmly

but not excessively, to ensure metal–to–metal contact between the drive rod flange and the gunbody. Refit the drive rod cap.

(8) Pass the drive rod wire through the cable gland (see step (4)) into the upper part of the head.

(9) Fit a new connector to the drive rod wire and fit a new piece of heatshrink sleeving onto the drive rod wire.

(10) Connect the drive rod wire into the conduit wiring and use a heat gun to tighten the sleeving over the connectors.

(11) Refit the cover over the upper part of the head.

Drop Generator Replacement

The printer must be shut down and the print head removed from its holster.

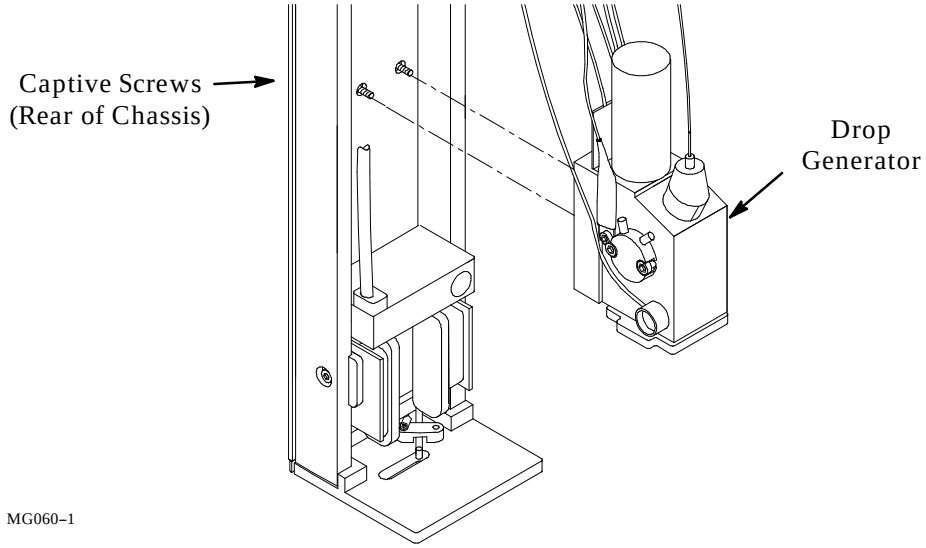
(1) Remove the cover over the upper part of the head by:

(a) removing the four screws in the sides,

(b) removing the two screws at the top,

(c) carefully pulling the sides away from the chassis and removing the cover.

(2) Trace the wires from the drive rod, the head solenoid valve, heater and thermal sensor to their connections in the upper part of the head (see pg. 8–5).



Drop Generator Removal

(3) Cut the heatshrink sleeving around the connections and disconnect the wires.

(4) Trace the wires to their cable glands in the bulkhead seal. Carefully push the cable glands out of the bulkhead seal in the direction of the drop generator.

(5) Remove the unions on each side of the drop generator.

(6) At the rear of the print head, unscrew the two screws securing the drop generator. These screws are captive and will remain in place. When the drop generator is free, remove it from the print head.

(7) On the drop generator, remove the four screws securing the nozzle plate. Pull the nozzle plate off its locating pins and remove to a clean, safe place.

(8) Cut off the connector on the drive rod wire. Pull the wire back through the cable gland (which it shares with other wires) to the drive rod.

CAUTION ***The following steps should be carried out using a drive rod spanner and a gunbody spanner (see pg. 9–2).***

(9) Carefully pull off the drive rod cap and, using drive rod and gunbody spanners, remove the drive rod nut from the gunbody and pull out the drive rod. Retrieve the cap and clamp nut for future use.

(10) Fit the drive rod clamp nut and cap over the drive rod wire. Fit the drive rod into the replacement drop generator and tighten the clamp nut firmly but not excessively, to ensure metal–to–metal contact between the drive rod flange and the gunbody. Refit the drive rod cap.

(11) Pass the drive rod wire through the cable gland and fit a new connector.

(12) Fit the drop generator into the print head (but do not secure with the fixing screws) and pass the wires up through the bulkhead seal into the upper part of the head. Carefully push the cable glands on the wiring into the bulkhead seal.

(13) Clean and refit the unions to the drop generator, ensuring that the 'O' rings are fitted correctly.

(14) Fit the drop generator into position and secure with the fixing screws.

(15) Fit heatshrink sleeving over the wires in the upper part of the head and connect the wires to the conduit wiring. Use a heat gun to tighten the heatshrink over the connectors.

(16) Refit the cover over the upper part of the head.

The drop generator replacement is now complete. Check the jet alignment when the printer is next started up.

Thermistor Replacement

The printer must be shut down and the print head removed from its holster.

(1) Remove the cover over the upper part of the head by:

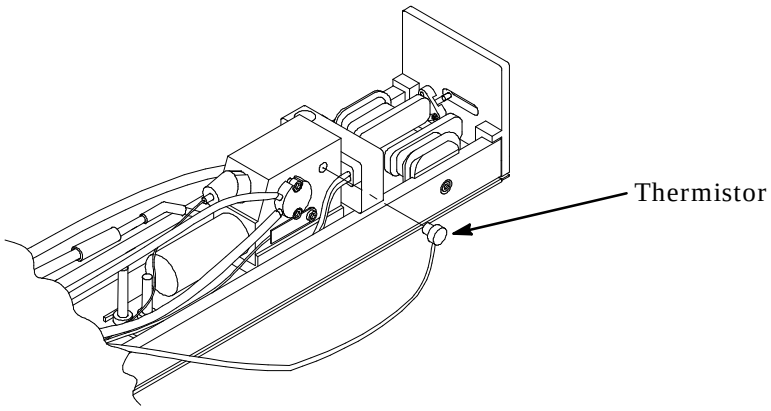
(a) removing the four screws in the sides,

(b) removing the two screws at the top,

(c) carefully pulling the sides away from the chassis and removing the cover.

(2) Trace the wire from the thermistor up to its connection to the conduit wiring in the upper part of the head (see pg. 8–5).

(3) Cut the heatshrink sleeving around the connection and disconnect the thermal sensor wire.



CA005_2

Thermal Sensor Removal

(4) Cut off the connector on the thermistor wire. Pull the wire back through the cable gland (which it shares with other wires) to the thermal sensor.

(5) Unscrew the thermisor and remove from the drop generator.

(6) Screw the replacement thermistsor into the drop generator.

(7) Pass the thermistor wire through the cable gland (see step (4)) into the upper part of the head.

(8) Fit a new connector to the thermistor wire and fit a new piece of heatshrink sleeving onto the wire.

(9) Connect the thermistor wire into the conduit wiring and use a heat gun to tighten the sleeving over the connectors.

(10) Refit the cover over the upper part of the head.

Strobe Assembly Replacement

The printer must be shut down and the print head removed from its holster.

(1) Remove the cover over the upper part of the head by:

(a) removing the four screws in the sides,

(b) removing the two screws at the top,

(c) carefully pulling the sides away from the chassis and removing the cover.

(2) Trace the wires from the strobe to their connections at the conduit wiring in the upper part of the head (see pg. 8–5).

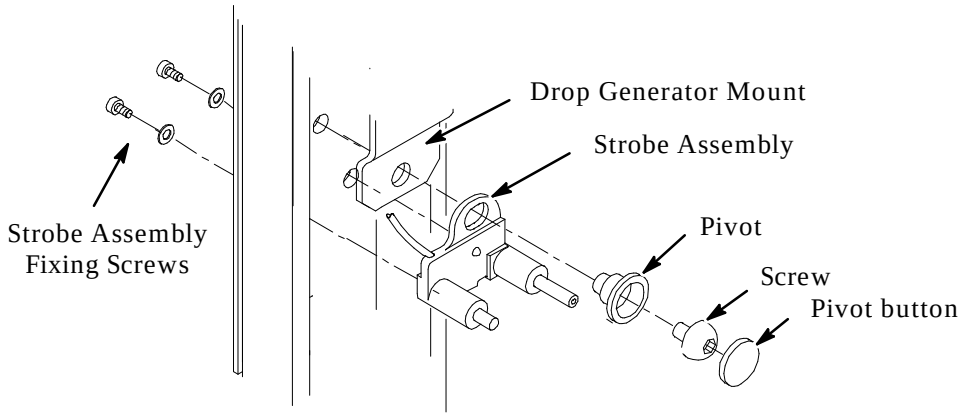
(3) Cut the heatshrink sleeving around the connections and disconnect the strobe assembly wires.

(4) Trace the wires to their cable gland in the bulkhead seal. Carefully push the cable gland out of the bulkhead seal in the direction of the drop generator.

The strobe is part of the charge electrode mount, and therefore it is the mount which must be replaced as follows:

(5) Remove the screw securing the charge electrode and lift off the electrode.

(6) At the rear of the print head, remove the screws securing the charge electrode mount.



CA006–1

Strobe Removal

(7) Unscrew the screws securing the drop generator and lift the drop generator away from the head.

(8) Pull off the cap on the pivot button at the bottom of the drop generator mount and remove the screw.

(9) Remove the charge electrode mount from the print head.

(10) Fit the new charge electrode mount into the head and refit the securing screws and the pivot button. Refit the pivot screw cover by pushing the cover onto the screw head. Note that when the repair is complete, it will be necessary to re–align the charge electrode.

(11) Refit and secure the drop generator.

(12) Refit and secure the charge electrode.

(13) Fit the strobe wires to pass through the bulkhead seal into the upper part of the head. Carefully push the cable gland on the wiring into the bulkhead seal.

(14) Fit a heatshrink sleeving onto the charge electrode wires and connect the wires into the conduit wiring. Use a heat gun to tighten the heatshrink sleeving around the connectors.

(15) Refit the cover over the upper part of the head.

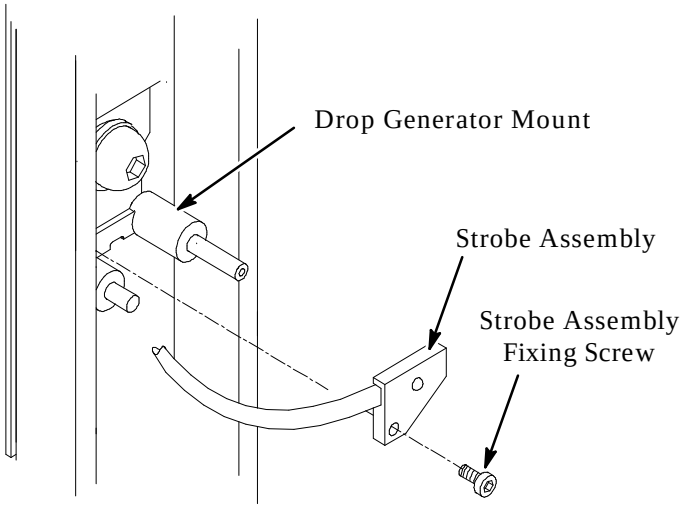
Pinpoint Strobe Assembly Replacement

The Pinpoint strobe assembly is mounted onto the charge electrode carrier, therefore replacement is as follows:

Follow the procedure for Strobe Assembly Replacement above to step (4), then continue as below:

(5) Remove the screw securing the strobe assembly tp the charge electrode carrier, and remove the strobe assembly.

(6) Fit a new strobe assembly and follow the above procedure from step (13).



MG270_1

Strobe Removal

Charge Electrode Replacement

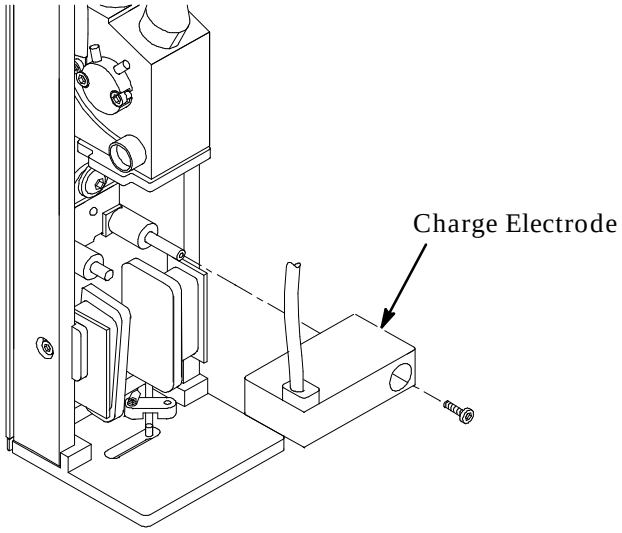
The printer must be shut down and the print head removed from its holster.

(1) Remove the cover over the upper part of the head by:

(a) removing the four screws in the sides,

(b) removing the two screws at the top,

(c) carefully pulling the sides away from the chassis and removing the cover.



MG061–2

Removing the Charge Electrode

(2) Trace the wires from the charge electrode to their connections at the conduit wiring in the upper part of the head (see pg. 8–5).

(3) Cut the heatshrink sleeving around the connections and disconnect the electrode wires.

CAUTION ***During the following steps, do not touch the charge electrode mounting plate screws at the rear of the chassis, behind the charge electrode. These screws hold the plate in a preset position.***

(4) Trace the wires to their cable gland in the bulkhead seal. Carefully push the cable gland out of the bulkhead seal in the direction of the charge electrode.

(5) Remove the single screw in the charge electrode and pull off the charge electrode.

(6) Fit the new charge electrode onto the mounting pillars and secure with the fixing screw. Ensure the charge electrode is correct for the printer (see pg. 9–5).

(7) Pass the charge electrode wiring along the printhead chassis and through the hole in the bulkhead seal (see step (4)) into the upper part of the head. Carefully push the cable gland on the wiring into the bulkhead seal.

(8) Fit heatshrink sleeving onto the charge electrode wires and connect the wires into the conduit wiring (see step (2)). Use a heat gun to tighten the heatshrink sleeving around the connectors.

(9) Refit the cover over the upper part of the head.

CAUTION ***Take care when starting up the printer. If a new charge electrode has been fitted, it may be necessary to adjust the position of the charge electrode (see below).***

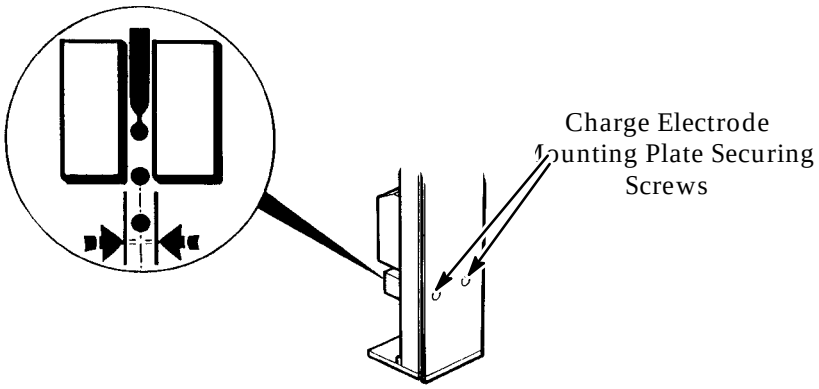
Charge Electrode Alignment

The printer must be shut down, but ready to run. The print head must be removed from its holster and fitted into a maintenance holster
A 1.5mm ball driver or hexagon wrench will be required.

The charge electrode must be adjusted so that the ink jet is in the centre of the charge electrode slot and runs parallel with the slot. Adjustment should only be necessary when a charge electrode or the charge electrode mounting is replaced. To correct a slight misalignment of the jet in the charge electrode slot, it should only be necessary to start from step (5).

(1) Loosen the charge electrode fixing screw and lift the electrode off its mounting pillars, clear of the jet position.

(2) Start the ink jet by pressing the Sequence to Jet Run button.



t



(3) Carefully slide the charge electrode onto its mounting pillars, watching the ink jet and its position in the charge electrode slot. If the ink jet collides with the charge electrode, pull off the electrode and adjust the position of the mount as in the next step.

Note: If, at any time, ink loss is sufficient to cause a gutter fault, stop the jet, clean the print head and restart the jet.

(4) At the rear of the print head, slacken the screws securing the charge electrode mount. Move the charge electrode to a position where it is possible to slide the charge electrode onto its mounting pillars without contact with the ink jet. Tighten the mount securing screws sufficiently to secure the charge electrode.

(5) Inspect the position of the ink jet in the charge electrode slot. With the mounting plate fixing screws sufficiently loose to allow movement of the charge electrode, adjust the electrode until the ink jet is in the correct position in the slot.

(6) At the rear of the print head, tighten the mounting plate fixing screws. Re–check the position of the jet in the charge electrode slot.

The adjustment is now complete. If necessary clean the print head.

Deflector Plate Replacement

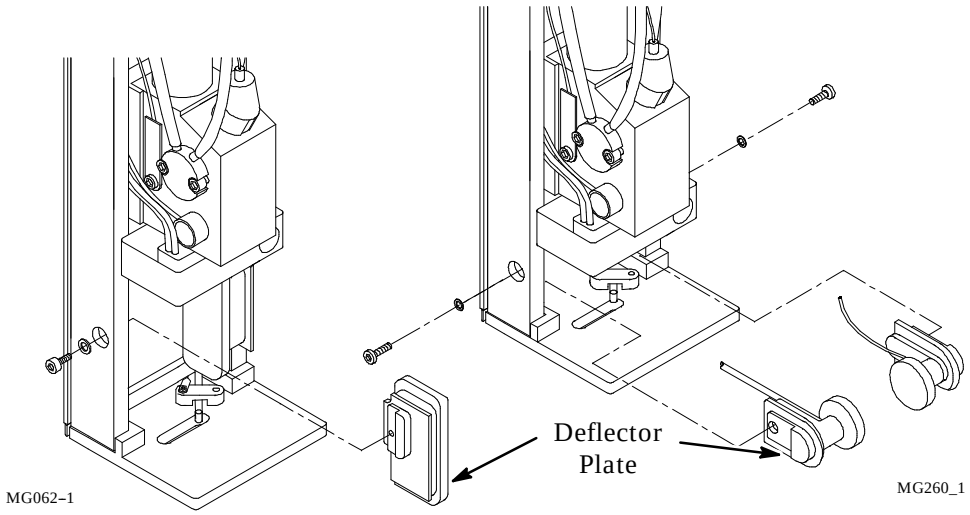
The printer 0st be shut down and the print head removed from its holster.

(1) Remove the cover over the upper part of the head by:

(a) removing the four screws in the sides,

(b) removing the two screws at the top,

(c) carefully pulling the sides away from the chassis and removing the cover.



Removing the Deflector Plates

(2) Trace the wires from the deflector plates to their connections at the conduit wiring in the upper part of the head (see pg. 8–5).

(3) Cut the heatshrink sleeving around the connections and disconnect the deflector plate wires.

(4) Trace the wires to their cable gland in the bulkhead seal. Carefully push the cable gland out of the bulkhead seal in the direction of the deflector plates.

(5) Remove the screws securing the deflector plates to the chassis and remove the plates from the head.

(6) Insert the new deflector plates and wiring into the head.

(7) Fit each deflector plate to the chassis and fit and tighten its securing screw.

(8) Pass the deflector plate wiring along the printhead chassis and up through the hole in the bulkhead seal (see step (4)) into the upper part of the head. Carefully push the cable gland on the wiring into the bulkhead seal.

(9) Fit heatshrink sleeving onto the deflector plate wires and connect the wires into the conduit wiring (see step (2)). Use a heat gun to tighten the heatshrink sleeving around the connectors.

(10) Refit the cover over the upper part of the head.



Gutter Tube and Sensor Replacement

The printer must be shut down and the print head removed from its holster.

(1) Remove the cover over the upper part of the head by:

(a) removing the four screws in the sides,

(b) removing the two screws at the top,

(c) carefully pulling the sides away from the chassis and removing the cover.

(2) Trace the wires from the gutter sensor to their connections at the conduit wiring in the upper part of the head (see pg. 8–5).

(3) Cut the heatshrink sleeving around the connections and disconnect the sensor wires.

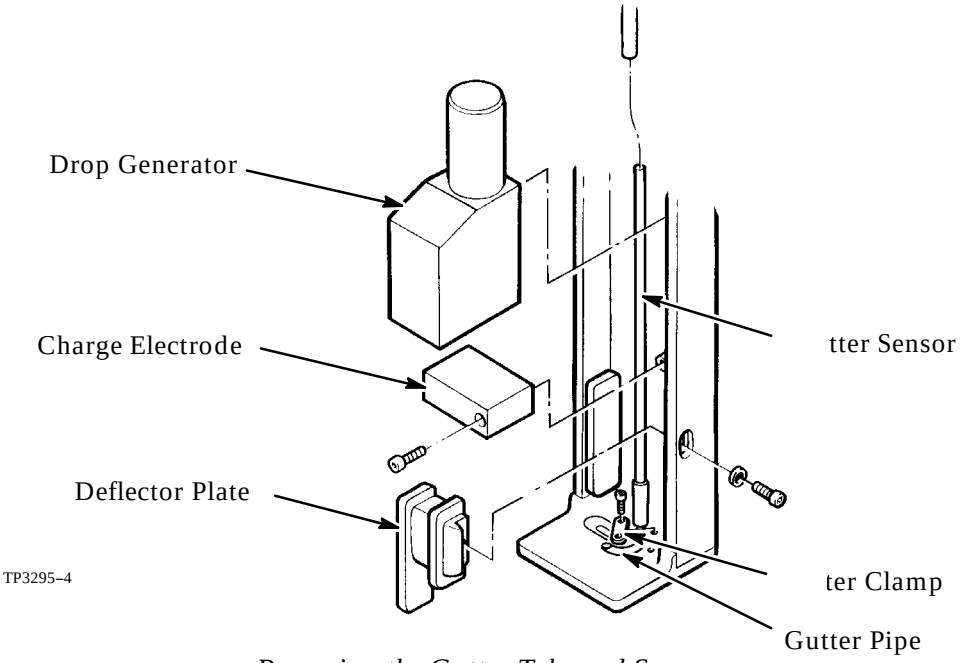
(4) Trace the wires to their cable gland in the bulkhead seal. Carefully push the cable gland out of the bulkhead seal in the direction of the gutter sensor.

(5) At the rear of the print head, unscrew the two screws securing the drop generator. These screws are captive and will remain in place. Lift the drop generator away from the print head chassis sufficiently for the gutter sensor to be removed.

(6) Remove the screw securing the deflector plate over the gutter sensor. Move the deflector plate to one side.

(7) Remove the four screws securing the gutter block to the chassis.

(8) Disconnect the gutter sensor pipe at its connection to the conduit gutter tube near the seal plate and remove the gutter block and the gutter sensor from the print head as a single assembly.

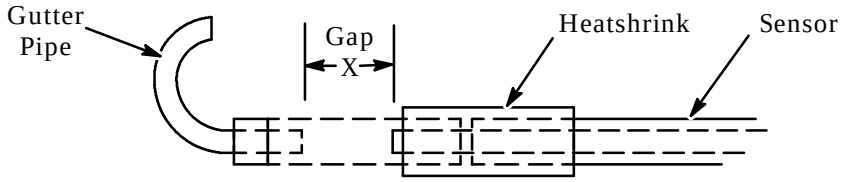


Removing the Gutter Tube and Sensor

Once removed, the gutter tube and the sensor can be split and the gutter tube or the sensor can be replaced as follows.

(9) Remove the nut on the gutter clamp fixing screw to disconnect the sensor earth/ground wire from the gutter block. Separate the sensor from the gutter block at its junction with the gutter pipe.

(10) Remake the assembly with a replacement gutter block or gutter sensor as required.



Gutter Sensor Gap

(11) Push the gutter pipe into the sensor tube up to the start of the bend. Ensure that the gap X between the ends of the gutter and sensor tubes is 5 ¦ 1mm (0.20” ¦ 0.04”). Check that there is no damage to the insulation covering the gutter sensor.

(12) Refit the assembly into the print head by reversing steps (4) to (8).

(13) Fit heatshrink sleeving onto the gutter sensor wires and connect the wires into the conduit wiring (see step (3)). Use a heat gun to tighten the heatshrink sleeving around the connectors.

(14) Refit the cover over the upper part of the head.

The replacement is now complete. Note that to work correctly, the gutter sensor must be completely electrically isolated except for its wiring connections. Check the sensor to ensure that at no point does the metal inner tube of the sensor make electrical contact with the chassis, etc.

Carry out the gutter alignment procedure.

Gutter Alignment

CAUTION ***The print head must be securely mounted over a large beaker, tissue must be ready to clear up escaping ink and protective clothing must be worn.***

The jet should enter the gutter just inside the gutter tube wall as shown in the diagram. Align the gutter as follows.

The printer must be shut down, but ready to run, and the print head must be removed from its holster.

(1) Start up the printer.



(2) Check the position of the jet with respect to the deflector plates. The jet should be parallel with the deflector plates and 1mm from the plate on the gutter side (see diagram). If necessary, align the jet (see Pg. 7–15).

(3) Shut down the printer. Remove the screw securing the deflector plate over the gutter, to improve access to the screws securing the gutter pipe. Move the deflector plate to a secure position away from the ink jet.

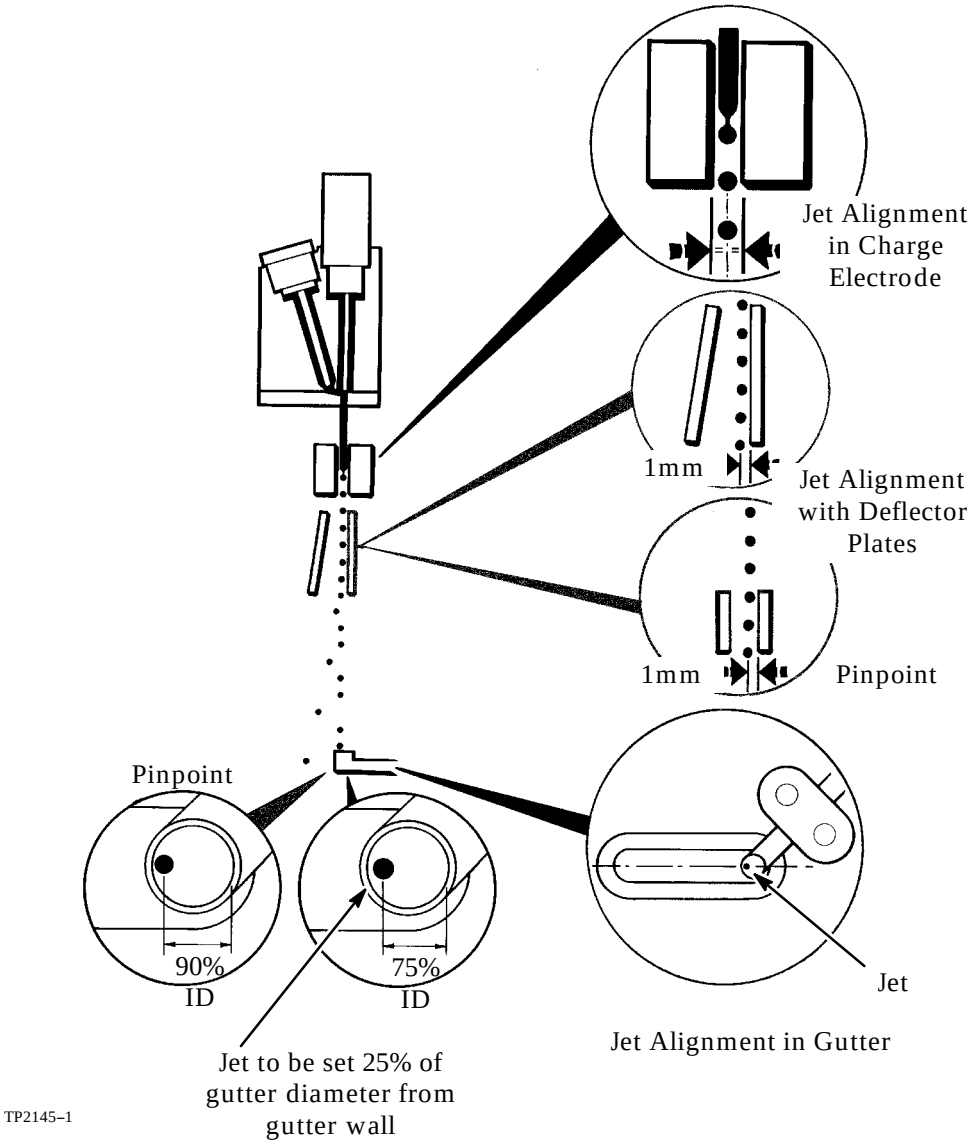
(4) Slacken the gutter pipe securing screws sufficiently for the pipe to be held in place, but adjustable in position.

(5) Start up the printer and adjust the gutter so that the jet enters the gutter at the correct position (see diagram).

(6) Shut down the printer and tighten the screws to secure the gutter pipe.

(7) Refit and secure the deflector plate.

The printer should be started up to check that the jet alignment is correct.



Head Alignments

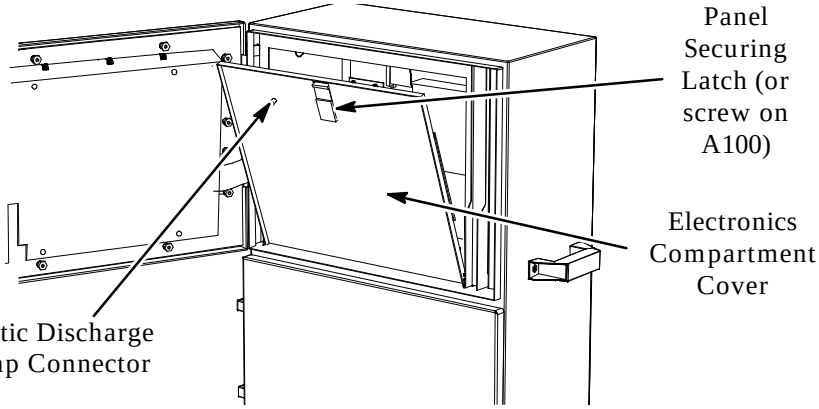
ELECTRONIC SYSTEM REPAIRS

WARNING: Electrical power to the printer must be disconnected before opening the electronics compartment and during any work on the electronics system.

CAUTIONS (1) Double pole neutral fusing.

(2) Electrostatic discharge precautions must ALWAYS be taken when entering the electronics compartment to avoid damage to the components. A ground/earth chassis connector is provided for connection of a wrist strap (see diagram below).

Access

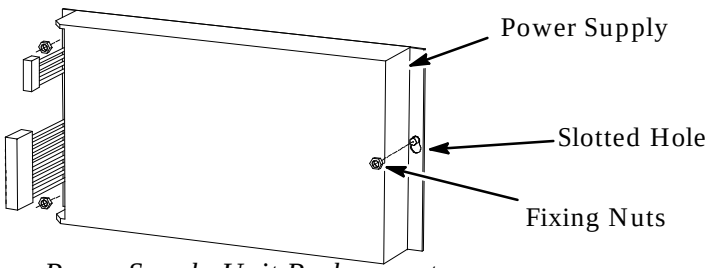


MG005–2

Access – Electronics Compartment

The front of the electronics compartment is covered by a solid panel which is released by a latch (or screw on A100) at the top and hinges down. The Printer Control PCB Assembly and the HV power supply are mounted on the inside face of the panel.

Power Supply Unit Replacement



MG007–2

Power Supply Unit Replacement

The electronics compartment must be open.

(1) Pull off the power supply input and output connections from the External Interface PCB and the Control PCB Assembly.

(2) Slacken the securing screws, slide and lift away the power supply.

Replacement is the reverse procedure.

Fuse Replacement

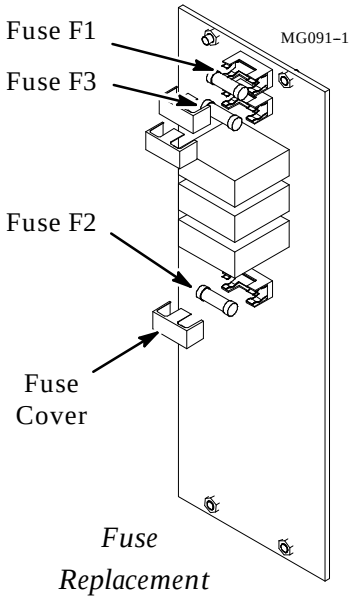
The power must be removed and the electronics compartment open.

The power fuses are to be found on the External Interface PCB. Fuses F1 and F3 are 4A(T) power fuses. Fuse F2 is the alarms contacts 1A(T) fuse. Each fuse is protected by a small cover.

(1) Pull off the fuse cover.

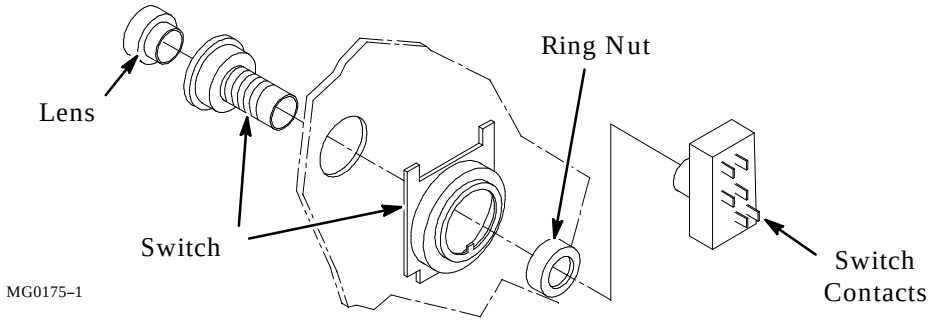
(2) Pull the fuse out of the fuse holder.

(3) Push a replacement fuse into the fuseholder and replace the cover.



Fuse Replacement

Power Switch and External Connector Replacement



Power Switch Replacement

The power must be removed and the electronics compartment open.

(1) Pull the rectangular block of switch contacts off the switch. Carefully transfer the wiring from the old switch contacts to the new switch contacts.

(2) Unscrew the ring nut and remove the switch from the cabinet side.

(3) Push the new switch lens into the new switch, then fit the switch to the cabinet as shown. Secure with the ring nut.

(4) Push the new switch contacts onto the switch.

Replacement is the reverse procedure.

The external connectors are replaced using conventional methods.

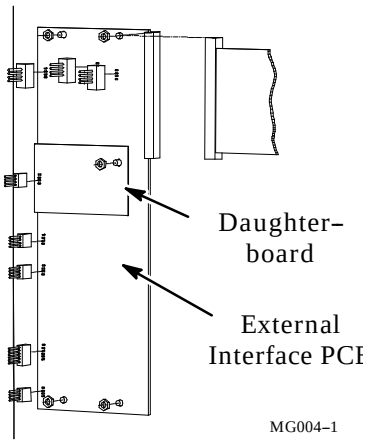
External Interface PCB Replacement

The power must be removed and the electronics compartment open.

(1) Remove the nut securing any daughterboard fitted onto the External Interface PCB and remove the daughterboard. Remove also the pillar under the daughterboard.

(2) Remove all connectors from the daughterboard and the External Interface PCB.

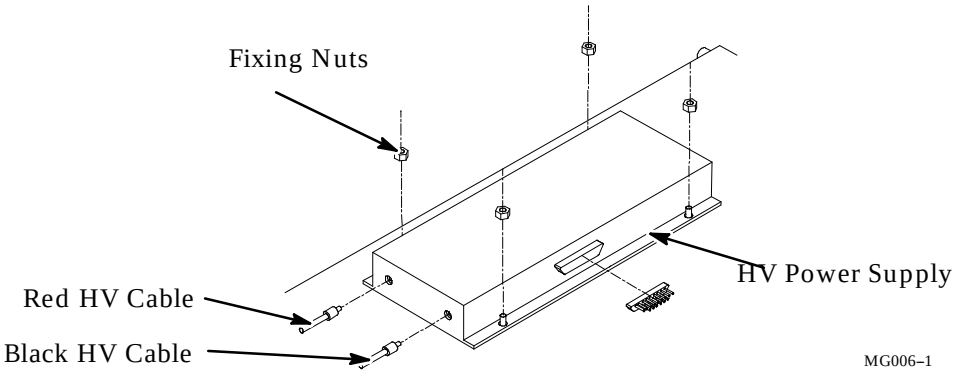
(3) Remove the 5 nuts and washers securing the External Interface PCB and remove the PCB.



External Interface PCB Replacement

Replacement is the reverse procedure.

HV Power Supply Replacement



HV Power Supply Replacement

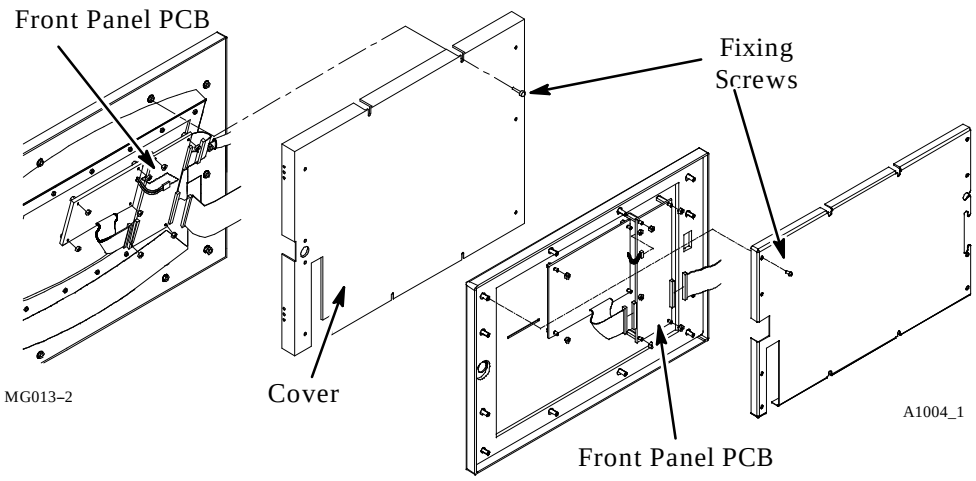
The power must be removed and the electronics compartment open.

(1) Disconnect the cabling connector and pull out the HV connectors from the HV power supply.

(2) Remove the four securing nuts and lift away the power supply.

Replacement is the reverse procedure.

Front Panel PCB Replacement



Front Panel PCB Replacement

The power must be removed and the electronics compartment open.

(1) Remove the cover over the front panel.

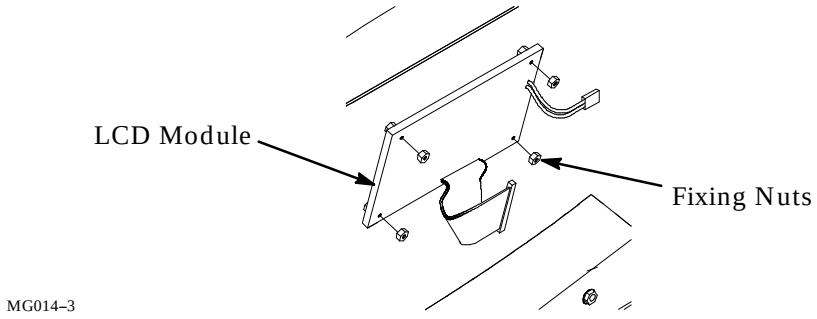
(2) Disconnect the flat cables connecting the Front Panel PCB into the cabinet.

(3) Remove the four nuts securing the PCB.

(4) Carefully lift away the PCB and disconnect the red–and–black cabling from the LCD module.

Replacement is the reverse procedure.

LCD Assembly Replacement



LCD Assembly Replacement

The power must be removed and the electronics compartment open.

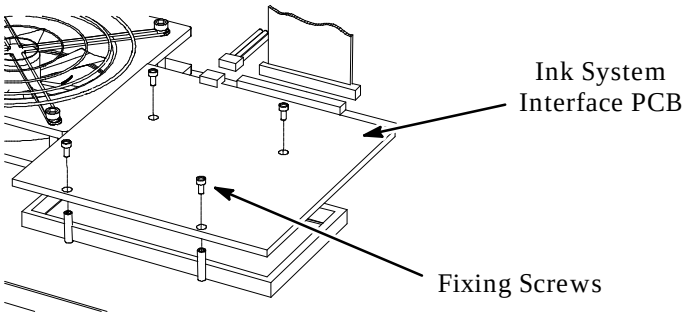
(1) Remove the cover over the front panel.

(2) Disconnect the flat cable connected to the LCD assembly.

(3) Remove the four securing screws and lift away the LCD assembly, disconnecting the red–and–black cabling by pulling out the connector on the Front Panel PCB.

Replacement is the reverse procedure.

Ink System interface PCB Replacement



Ink System Interface PCB Replacement

The power must be removed and the electronics compartment open.

(1) Inside the lower ink system compartment, remove the connectors from the underside of the Ink System Interface PCB.

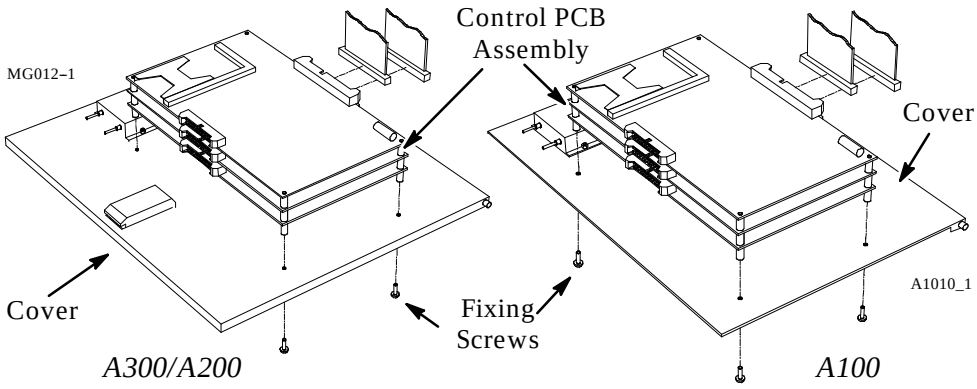
(2) In the upper compartment, disconnect the flat cables from the Control Board Set connected to the Ink System Interface PCB.

(3) Remove the four securing screws and lift away the Ink System Interface PCB together with the flat cables.

(4) Remove the cables from the Ink System Interface PCB and retain for future use.

Replacement is the reverse procedure. Reconnect the ink system connectors.

Control PCB Assembly Replacement



Printer Control PCB Assembly Replacement

The power must be removed and the electronics compartment open.

(1) Loosen the four screws securing the three printed circuit boards forming the Control PCB Assembly to the hinged cover. Lift the

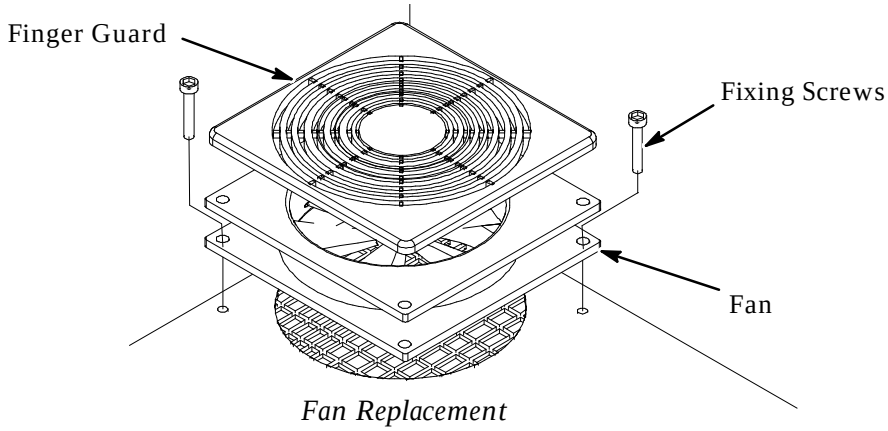
PCB Assembly out of the slotted fixing holes and pull forward as a single assembly.

(2) Remove all connectors from the Control PCB Assembly and remove the PCB Assembly from the cabinet.

CAUTION ***HV wiring must go round, not over or under, the Control PCB Assembly.***

Replacement is the reverse procedure.

Fan Replacement



Fan Replacement

The power must be removed and the electronics compartment open.

(1) Inside the upper compartment, disconnect the fan connector from the External Interface PCB.

(2) Loosen the two securing screws and remove the fan, finger guard and securing screws as a single assembly.

(3) Pull the finger guard off the fan (the guard is held by four barbs).

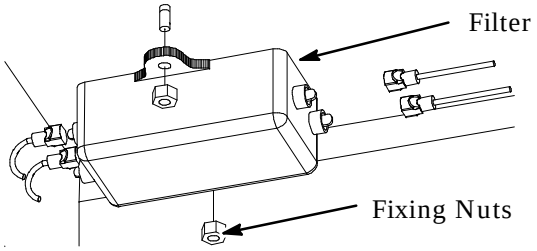
Replacement is the reverse procedure.

Power Filter Replacement

The power must be removed and the electronics compartment open.

(1) Remove the fixing nuts and lift away the filter.

(2) Carefully transfer the wiring to the new filter.



Power Filter Removal

(3) Discard the old filter and fit the new filter with the fixing nuts.

INK SYSTEM REPAIRS

WARNING: When working in the cabinet, the power lead must be removed from the mains.

For details of access to the ink system see pg. 7–3.



Pump Assembly Replacement

WARNING: Protective clothing, especially safety glasses must be worn.

Note: Tools required: *Lint–free tissue to catch escaping ink.*
Adjustable spanner.
Pipe cutters.
Protective clothing (especially safety glasses).

The printer must be shut down and the cartridges removed.

(1) Remove the securing screw and pull out the ink system.

(2) Disconnect the pump electrical connector at the ink system interface PCB.

(3) Disconnect the ink tubes, making a note of where each came from (see diagram opposite), plug the pipes to prevent ink spills.

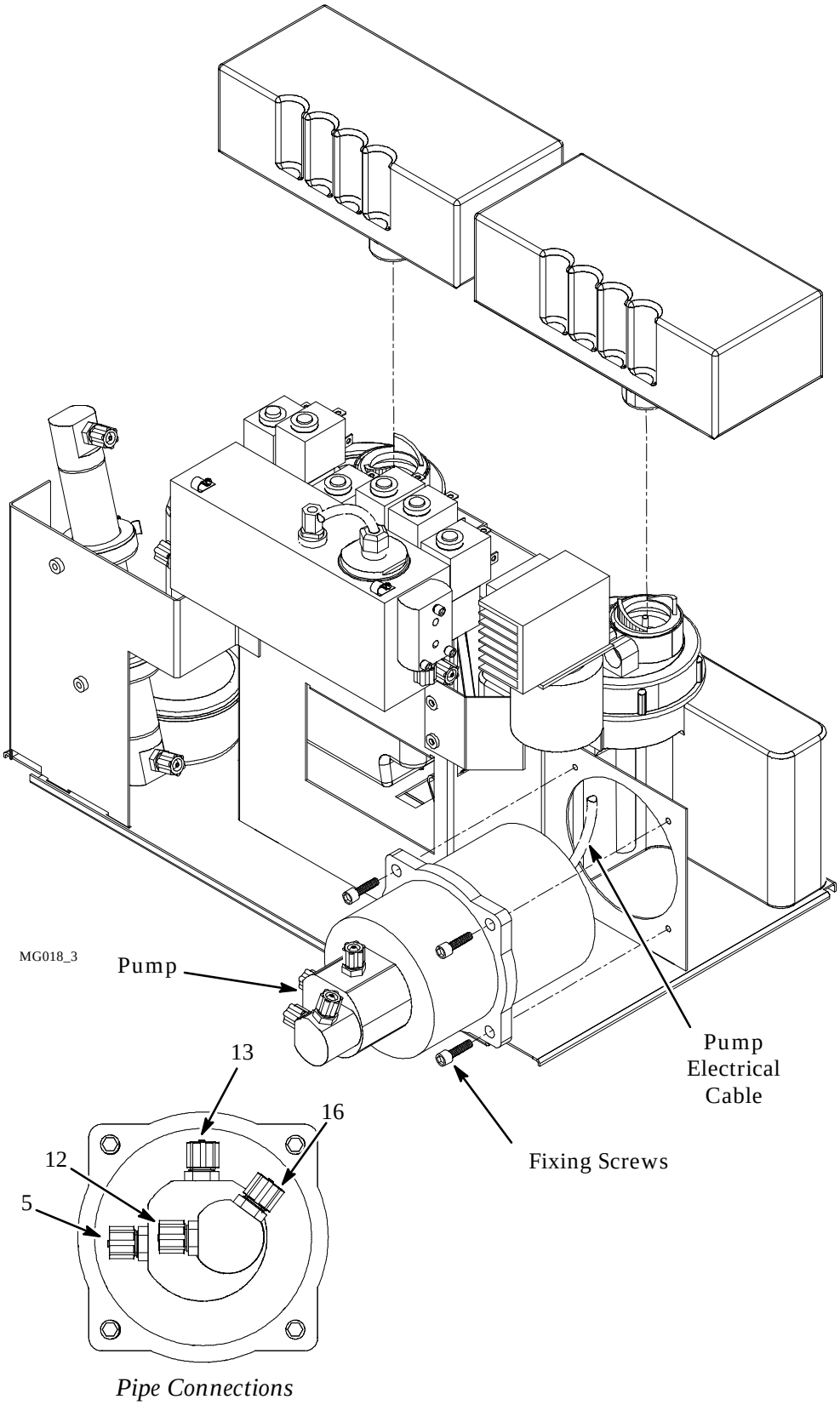
(4) Remove the four fixing screws and pull the pump from its mounting.

(5) Fit the new pump in the same orientation as the old pump and secure with the screws.

(6) Cut off the used end part of the pipes (approx. 5–6mm) and reconnect as noted in step (3), these need to be finger tight.

(7) Fit the pump electrical connector into the ink system interface PCB.

(8) Check the pump by running the printer and checking the pump pressure.



Pipe Connections

MG019_2

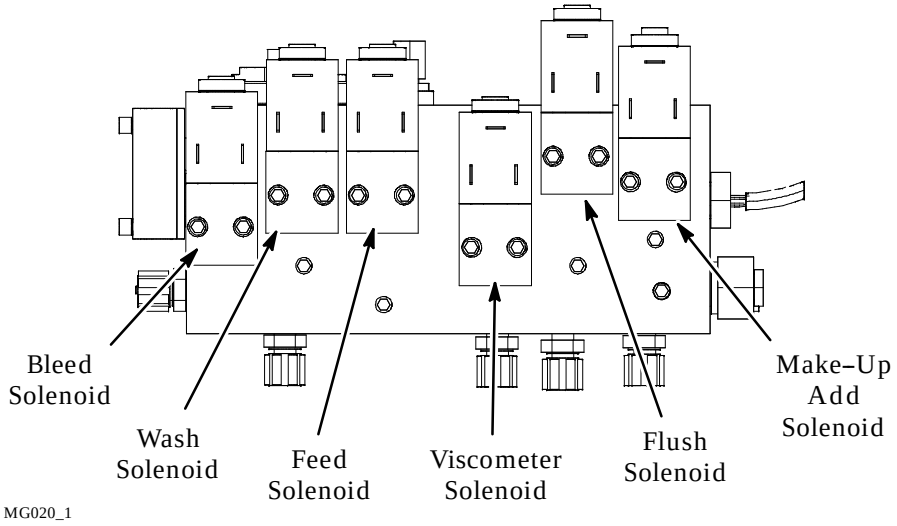
Pump Replacement



Solenoid Valve Replacement

WARNING: Protective clothing, especially safety glasses must be worn.

The ink system can be withdrawn from the cabinet if required, however access to the solenoid should be sufficient by removing one of the cartridges.



Solenoid Valves

Each solenoid valve consists of a valve actuated by an electrical solenoid. The solenoid can be removed separately by unscrewing the ring nut and sliding the solenoid off the valve stem. Two small 'O' rings seal the junction between the valve and block.

Note: Tools required: Lint–free tissue to catch any escaping ink.
2.5mm ball driver (see step (3)).
Protective clothing (especially safety glasses).

(1) Remove power from the printer.

(2) Pull off the electrical connections to the solenoid.

(3) Remove the two screws securing the solenoid valve to the block and remove the valve, taking care not to lose the 'O' rings.

(4) Clean the face of the block and ensure the face of the valve is clean.

(5) Fit the new solenoid valve, ensuring that the 'O' rings are fitted correctly. Do not over–tighten the fixing screws.

(6) Fit the electrical connections.

Replace the cartridge if removed. Check the block for leaks when the printer is started up.



Pressure Transducer Replacement

Note: *Tools required:* *Pressure transducer removal tool (or large adjustable spanner) – see step (3).*
Protective clothing (especially safety glasses).
Lint–free tissue to catch any escaping ink

The printer must be shut down and the cartridges removed.

(1) Remove the securing screw and pull the ink system from the cabinet.

(2) Disconnect the pressure transducer electrical connector at the ink system interface PCB.

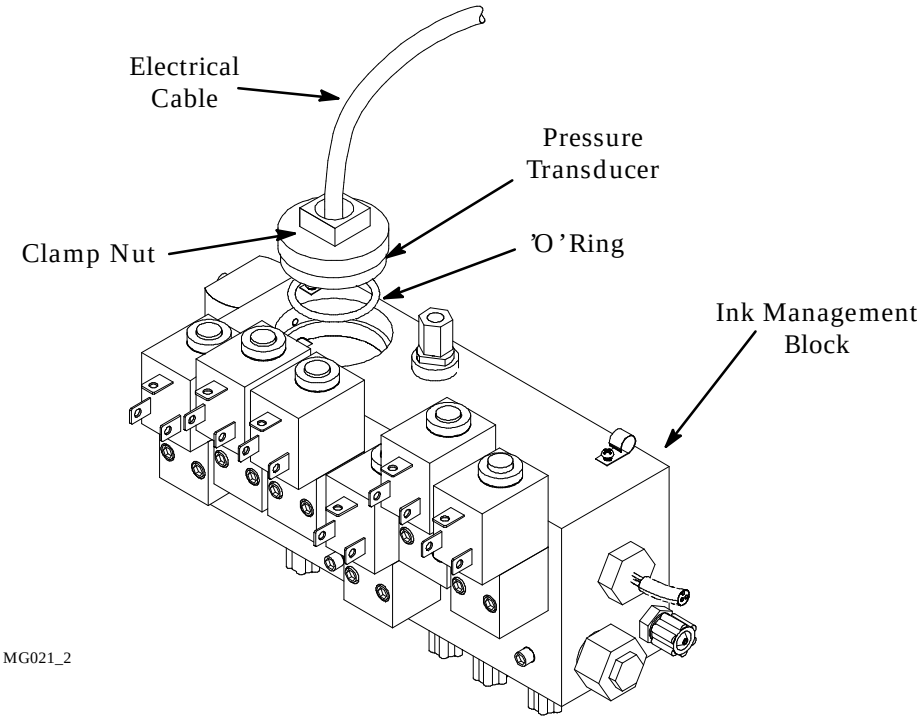
(3) Unscrew the pressure transducer clamp nut from the block, and remove the transducer (taking care not to twist the cable or lose the 'O' ring).

(4) Clean the top of the block.

(5) Fit a new transducer and tighten the clamp nut, ensuring that the 'O' ring is in place.

(6) Fit the transducer connector into the ink system interface PCB.

(7) Return the ink system to the cabinet, and replace the cartridges.



Pressure Transducer Replacement



Peltier Assembly Replacement

Notes (1) This is an option and may not be fitted.

(2) Tools required: 2.5mm ball driver (see step (4)).
Lint free tissue to catch any escaping ink.
Protective clothing (especially safety glasses).

(1) Remove power from the printer.

(2) Remove both cartridges and pull the ink system from the cabinet.

(3) Disconnect the Peltier electrical connector at the ink system interface PCB.

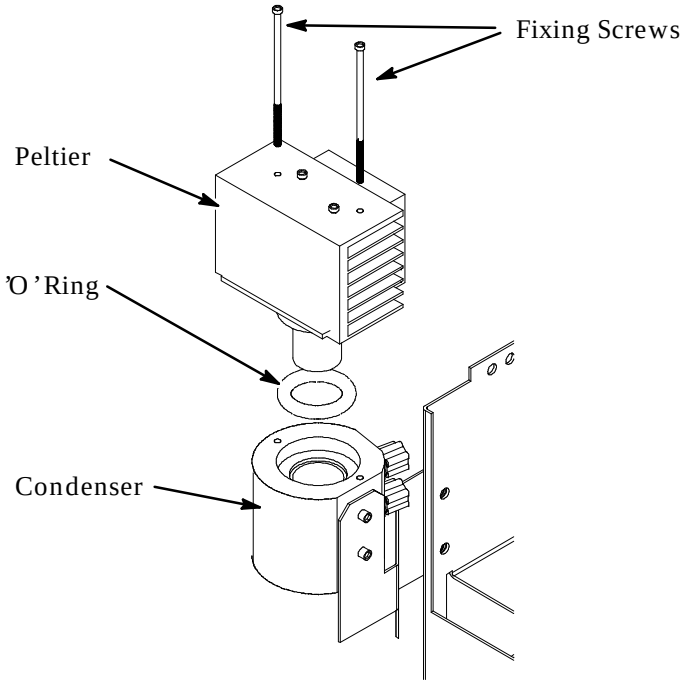
(4) Unscrew the two fixing screws securing the Peltier assembly to the condenser (the two outer screws). Remove the assembly and its 'O' ring.

(5) Clean the face of the condenser, and fit the new 'O' ring into the condenser.

(6) Fit and secure the Peltier assembly to the condenser.

(7) Fit the Peltier electrical connector into the ink system interface PCB.

(8) Return the ink system to the cabinet, and replace the cartridges.



MG024_1

Peltier Replacement



Temperature Sensor Plug Replacement

Note: *Tools required:* *Lint–free tissue to catch any escaping ink.*
3/4" spanner (see step (3)).
Protective clothing (especially safety glasses).

The printer must be shut down and the cartridges removed.

(1) Remove the securing screw and pull the ink system from the cabinet.

(2) Disconnect the temperature sensor connector at the ink system interface PCB.

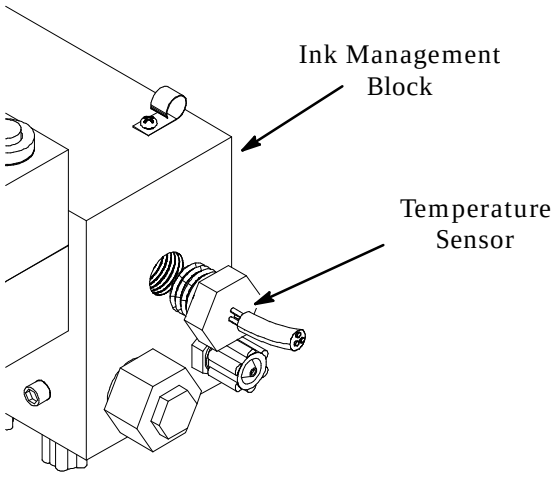
(3) Unscrew the temperature sensor and remove from the block.

(4) Clean the face of the block.

(5) Screw the replacement sensor into the block.

(6) Fit the temperature sensor connector into the ink system interface PCB.

(7) Return the ink system to the cabinet, and replace the cartridges.



MG034_1

Temperature Sensor Plug Replacement



Pressure Relief Valve (1psi) Refurbishment

Note: *Tools required:* *Lint–free tissue to catch any escaping ink.*
3/4" spanner (see step (3)).
Large flatblade screwdriver (see step (4)).
Protective clothing (especially safety glasses).

(1) Remove power from the printer.

(2) Remove both cartridges and pull the ink system out of the cabinet.

(3) Remove the temperature sensor from the 1psi PRV.

(4) Using a suitable screwdriver, unscrew the setting screw from the PRV body and remove from the block. The PRV body should come out with poppet, valve seat, etc. as a complete assembly. If it does not, ensure that all parts are removed from the recess.

(5) Dismantle the PRV, including removing the old 'O' ring from the valve seat. Clean all parts thoroughly. Clean the recess in the block.

(6) Fit a new 'O' ring to the valve seat. Reassemble the spring, poppet, and valve seat into the PRV body.

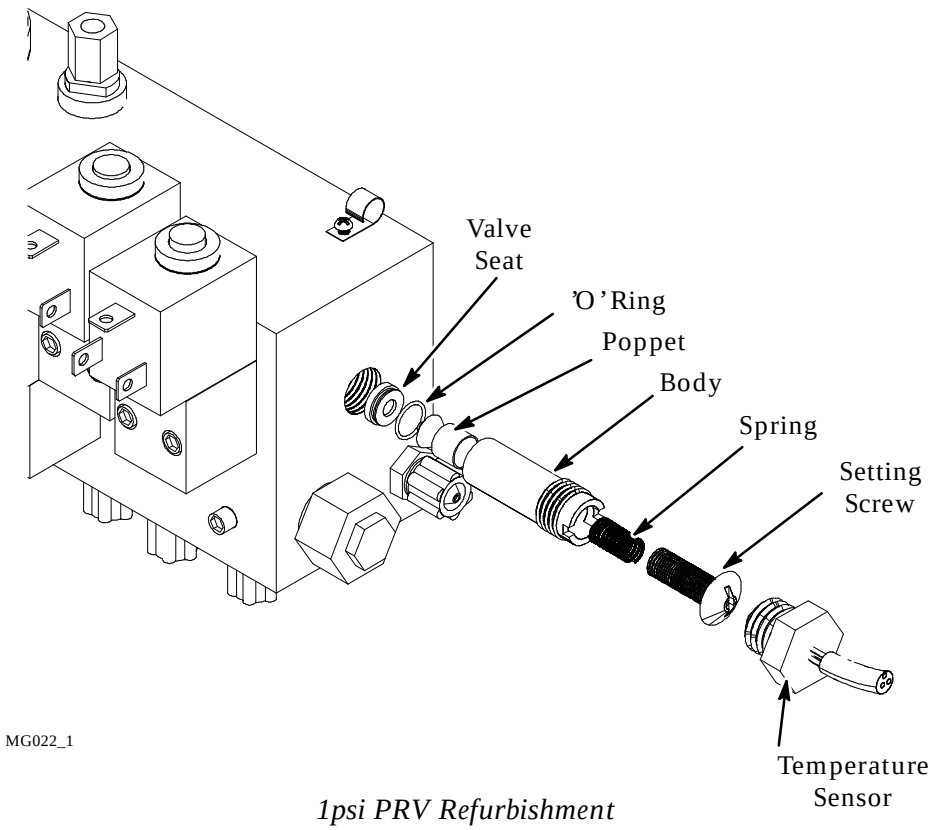
(7) Fit the PRV body into the block and screw in firmly. Do not use excessive force.

(8) Put the spring into the PRV body (replace the spring if suspect) and screw in the setting screw.

(9) Refit and tighten the plug (temperature sensor).

(10) Return the ink system to the cabinet, and replace the cartridges.

(11) Check the system for leaks when the printer is started up.



1psi PRV Refurbishment



Viscometer Replacement

Note: *Tools required:* *Lint–free tissue to catch any escaping ink.*
Adjustable spanner (see step (4)).
Protective clothing (especially safety glasses).

The printer must be shut down and the cartridges removed.

(1) Remove the securing screw and pull out the ink system.

(2) Disconnect the viscometer wiring from the ink interface PCB.

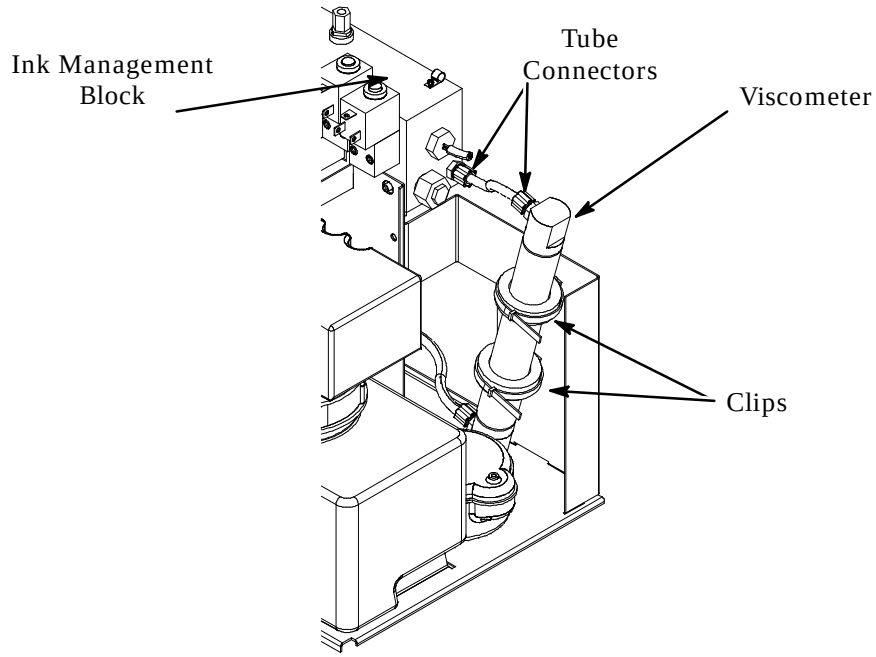
(3) Pull the viscometer out of its clips by squeezing each tab and releasing the clip.

(4) Disconnect the ink tubes from the viscometer and trim the used end part (approx. 5–6mm) of the tubes, then transfer to the new viscometer. The tubes must be connected so that when the new viscometer is fitted into the clips, the tube connectors face the block (see diagram), the wires must come out of the bottom of the viscometer.

(5) Fit the new viscometer into the clips and connect the wiring to the ink interface PCB.

(6) Refit the ink system and the cartridges.

The replacement is now complete. Check for leaks when the printer is next started up. If a viscometer fault is shown, ensure that the viscometer is fitted correctly.



MG025_2

Viscometer Replacement





Jet Pump Refurbishment

Note: *Tools required:* *Lint–free tissue to catch any escaping ink.*
3mm ball driver (see step (2)).
M2.5 Screw (see step (3)).
Protective clothing (especially safety glasses).

The printer must be shut down and the cartridges removed.

(1) Remove the securing screw and pull out the ink system.

(2) Remove the three screws securing the cover to the distribution block taking care not to lose the three 'O' rings inside.

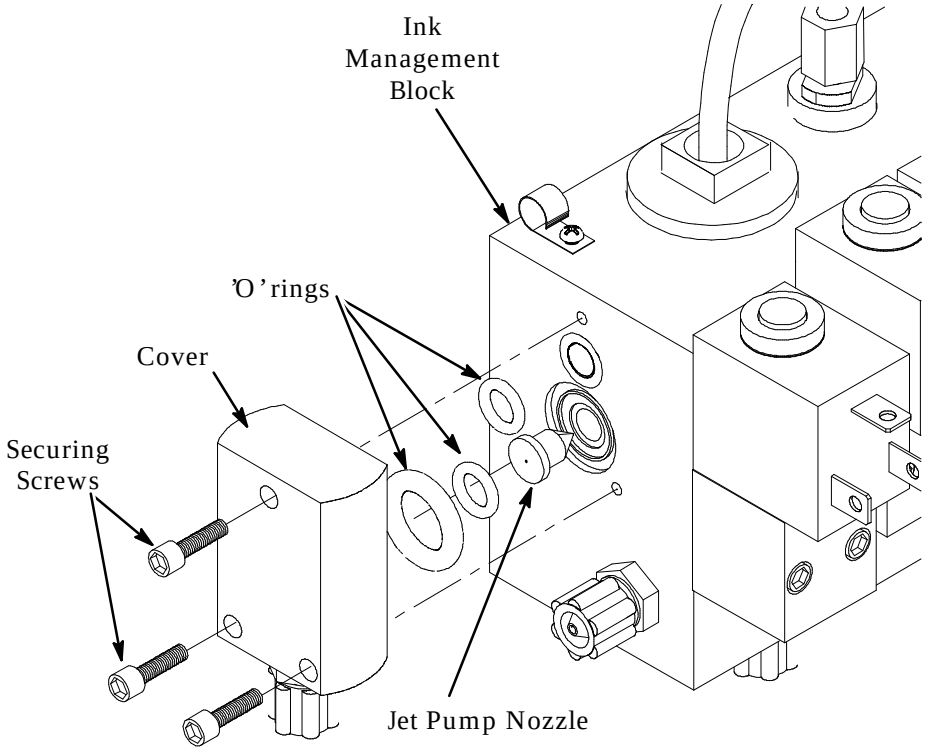
(3) Using an M2.5 screw fitted into the end of the jet pump nozzle (this only needs to be in by 1 turn), pull out the jet pump and 'O' rings.

(4) Clean the jet pump nozzle in an ultrasonic bath.

(5) Clean the ink management block face and refit the jet pump nozzle and 'O' rings (see diagram).

(6) Refit the cover.

(7) Check for leaks when the printer is started up.



MG023_2

Jet Pump Refurbishment

PART 9 : SPARES AND ACCESSORIES

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SPARES AND ACCESSORIES

ACCESSORIES

37760	Photocell & Reflector Assy A–Series
37761	Photocell Assy Proximity A–Series
37762	Inductive Sensor 18mm A–Series
37763	Inductive Sensor 30mm A–Series
37764	Photocell Assy F.Optic A–Series
30606	Beacon Assy IP65 240V IP68 Plug
30607	Beacon Assy IP65110V IP68 Plug

CONSUMABLES

99114	Medium Gloves
99115	Large Gloves
99116	Tissue Roll (Lint–free)
26046	Hand Cleaner (500g tub/jar)
14563	Wash Bottle
14561	Plastic Beaker (500ml)
14562	Plastic Beaker (100ml)

TOOLS

26134	Tool Kit Universal
14547	Eyeglass
14377	Drive Rod spanner
26886	Gunbody Spanner
14309	11mm Spanner
14484	Ball Driver (1.5mm)
14306	Ball Driver (3mm)
14477	No.1 Pozi Drive Screwdriver
14478	No.2 Pozi Drive Screwdriver
14567	5mm Flatblade Screwdriver
14568	10mm Flatblade Screwdriver

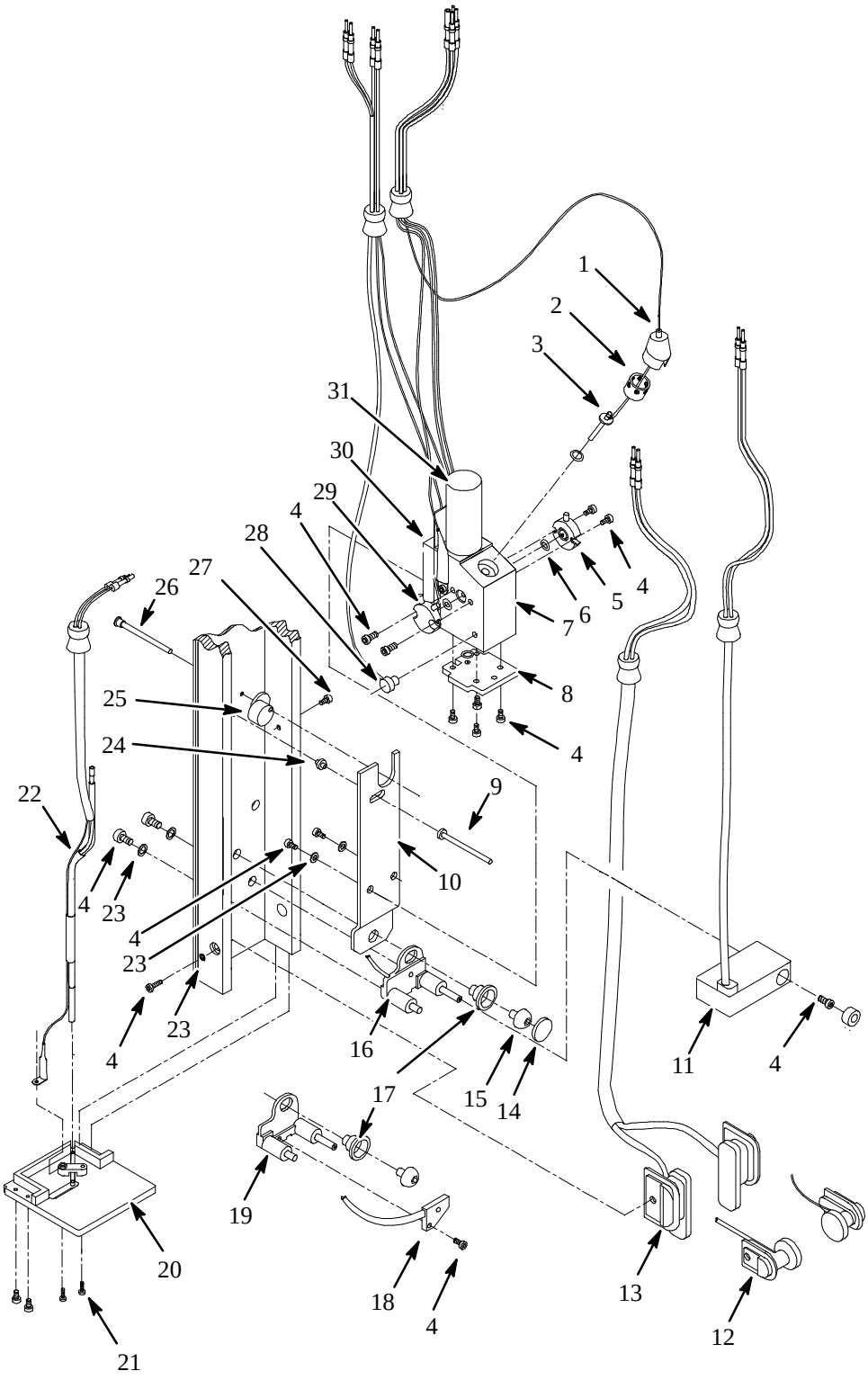
14549	Pipe Cutters	
10700	Anti–Static Wrist Strap (1.5M)	
26083	Metal Beaker	

FIRST LEVEL SPARES

37708	Air Filter Assy	1 or,
37805	Air Filter Assy A100	1
01210	Fuse 20x5 (T)1A	2
01229	Fuse 20x5 (T) 4A	2
14831	Filter 5 micron (main)	1
29265	Filter Kit No.1 Replacement (20µ)	1
29273	Filter Kit No.3 Replacement (10µ)	1
26743	Nozzle Assembly 75 micron	1
26828	Nozzle Assembly 60 micron	1
26829	Nozzle Assembly 40 micron *(Pinpoint)*	1

SECOND LEVEL SPARES

14225	Lip Seal	2
37743	Fan Assy A–Series	1
25109	PCB Assy External Interface	1
25115	PCB Assy Ink System Interface	1
37758	Power Supply Unit Assy	1
12170	H.V. PSU +285V +220V 4.2kV	1
15003	Key	1
25106	PCB Assy Front Panel	1 or,
25122	Front Panel PCB Assy A100	1
14824	Switch Pressure 4.98mbar	1
37730	Pump Assembly A–Series	1
13522	1M SRAM Memory Card	1
13545	1M SRAM Back–up Card	1

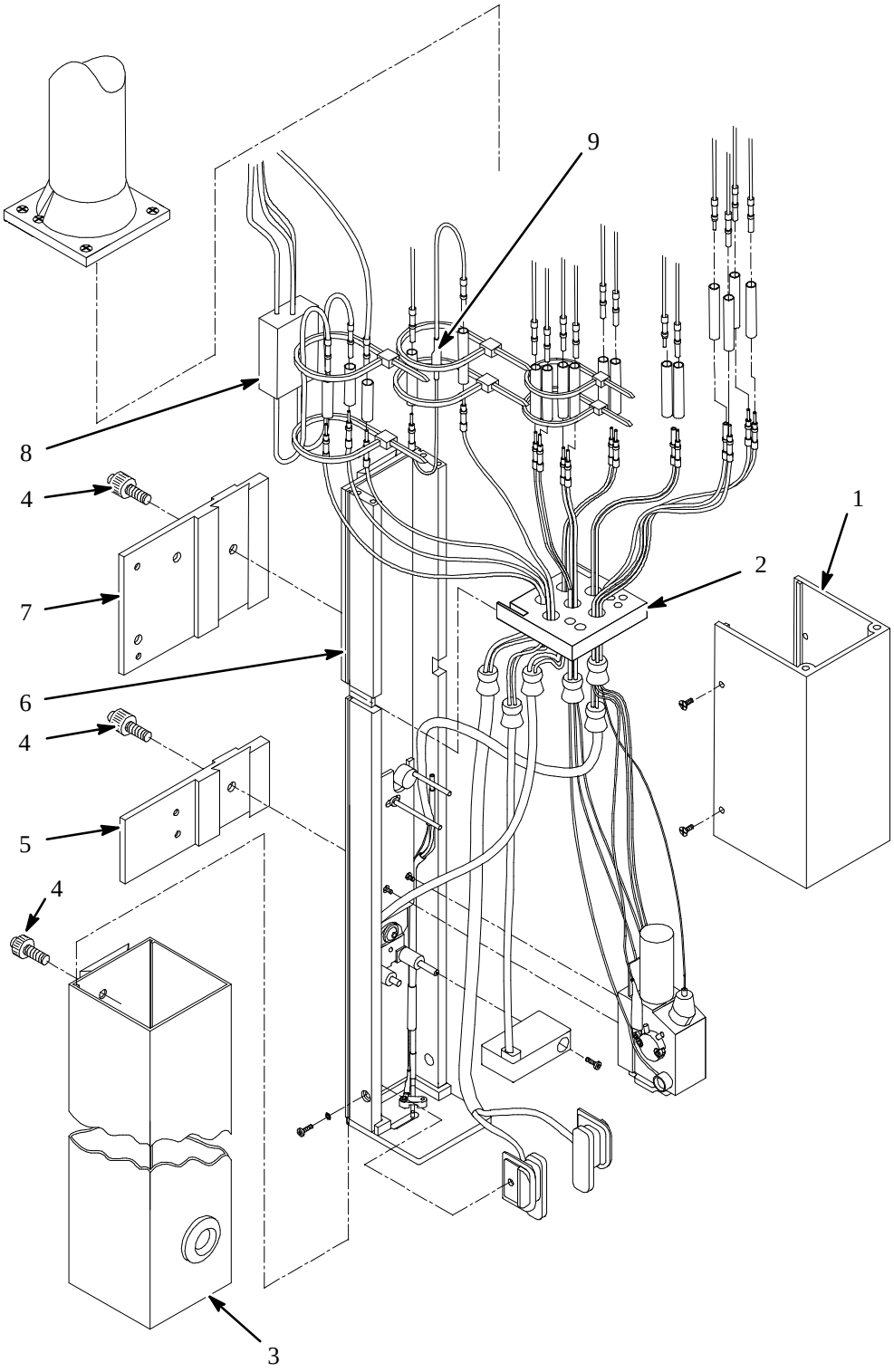


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Print Head Assembly

PRINT HEAD ASSEMBLY

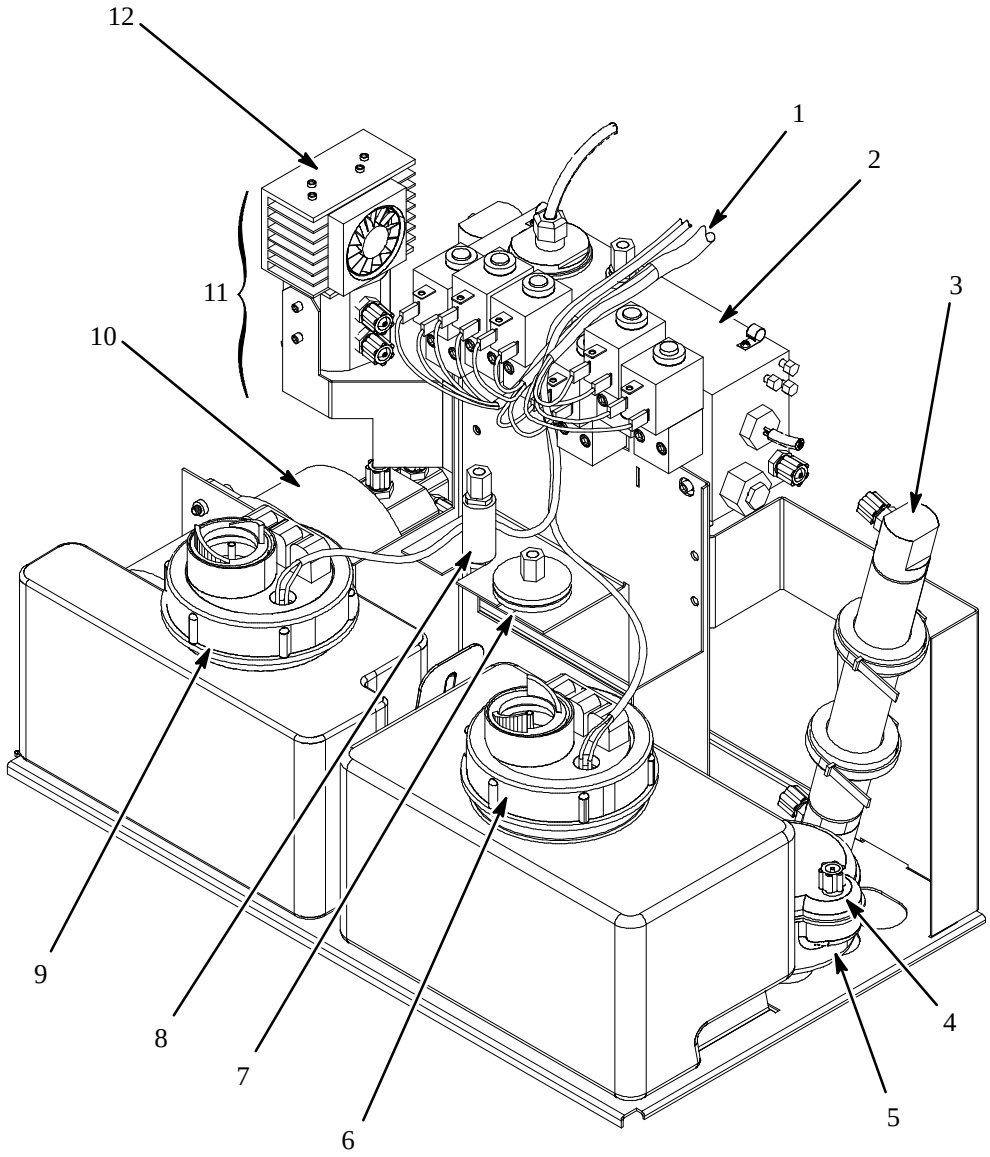
Item	Part No.	Description	Qty
1	26898	Drive Rod Cap	1
2	26868	Nut Drive Rod Clamp	1
3	26856	Drive Rod Assembly *(Pinpoint)*	1
or	26747	Drive Rod Assembly	1
	(Refer also to ink type conversions in Part 10 : Options)		
4	04368	Screw Skt Cap St. St. M2x5	1
5	26809	Union Assembly 1 Way	1
6	04166	'O' Ring EDPM 3.69 ID 1.78 CS	1
7	45463	Drop Generator Assy 40 micron *(Pinpoint)*	1
or	45462	Drop Generator Assembly 75 micron	1
	(Refer also to ink type conversions in Part 10 : Options)		
8	26829	Nozzle Assembly 40 micron *(Pinpoint)*	1
or	26828	Nozzle Assembly 60 micron	1
or	26743	Nozzle Assembly 75 micron	1
9	26824	Screw Locking	1
10	45457	Mount Drop Generator Mk 3	1
11	45431	Charge Electrode Assy 40 micron Mk3 *(Pinpoint)*	1
or	45411	Charge Electrode Assy 75 micron Mk3	1
12	45432	Drop Deflector Assy 40 micron Mk3 *(Pinpoint)*	1
13	37759	Drop Deflector Assy A–Series	1
14	45456	Pivot button	1
15	04833	Screw Skt Btn Hd St. St. M3x5	1
16	45409	Strobe LED Assembly 75 micron	1
17	45405	Pivot Drop Generator Mk3	1
18	45429	Strobe LED Assembly 40 micron *(Pinpoint)*	1
19	45426	Charge Electrode Carrier *(Pinpoint)*	1
20	45466	Gutter Block Assembly Mk3	1
21	04367	Screw Skt Cap St. St. M2x4	1
22	45430	Sensor Assembly Mk3 40 micron *(Pinpoint)*	1
or	45410	Sensor Assembly Mk3 75 micron	1
23	04201	Washer Flat St. St. M2	1
24	26759	Adjuster	1
25	26825	Cam	1
26	26823	Adjuster Shaft	1
27	04832	Screw Pan Poz. St. St. M2x8	1
28	45469	Thermistor Assembly	1
29	26808	Union Assembly 2 Way	1
30	14737	Heater to spec	1
31	14735	Head Solenoid Valve	1



Print Head – General Detail

PRINTHEAD GENERAL DETAIL

Item	Part No.	Description	Qty
	37736	Printhead Assembly 3 metres	1
	37980	Printhead Assembly 6 metres	1
	37626	Printhead Assembly 3 metres *(Pinpoint)*	1
1	26763	Box Interconnection	1
2	45404	Bulkhead Seal Rubber	1
3	45408	Holster 75 micron Mk3	1
or,	45423	Holster 40 micron *(Pinpoint)*	1
4	04530	Knob Knurled M5 Nylon	1
5	26800	Mount Detector	1
6	45401	Chassis Assembly 75 micron	1
or,	45421	Chassis Assembly 40 micron *(Pinpoint)*	1
7	26798	Plate Mounting	1
8	45459	EHT Sensor Assembly	1
9	14741	Network Passive Safety	1
Not shown:			
	01599	Gutter Plug	1
	26919	Plate P/Head Mounting (Glass–filled Nylon)	1
	98108	Heatshrink Sleeving	As reqd
	26801	Wash Station	1

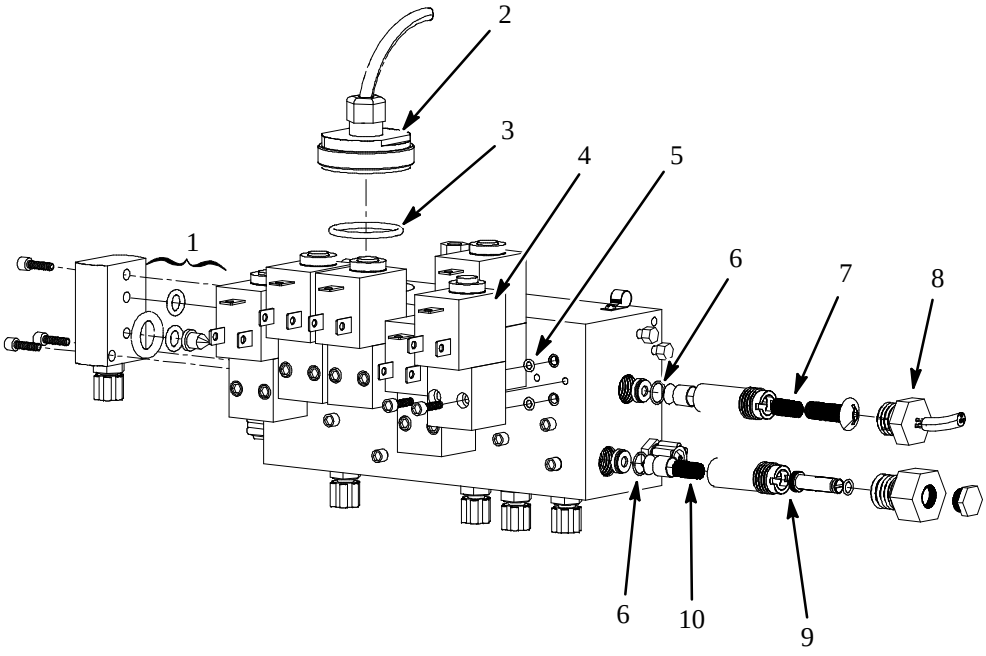


MG045_1

Ink System – General

INK SYSTEM – GENERAL

Item	Part No.	Description	Qty
1	37735	Solenoid Cable Assembly	1
2	37752	Ink Management Block Assembly	1
3	37733	Viscometer Assy	1
4	14453	Filter Nut (for 14831)	2
5	14831	Filter 5 Micron	1
6	37753	Ink Manifold Assembly	1
7	29265	Filter Kit No.1 Replacement (20 Micron)	1
8	29273	Filter Kit No.3 Replacement (10 Micron)	1
9	37754	Make–up Manifold Assembly	1
10	37730	Pump Assembly A–Series	1
11	37751	Condenser Option Kit (incl. Peltier & Bkt)	1
12	37725	Peltier Assembly (Option)	1

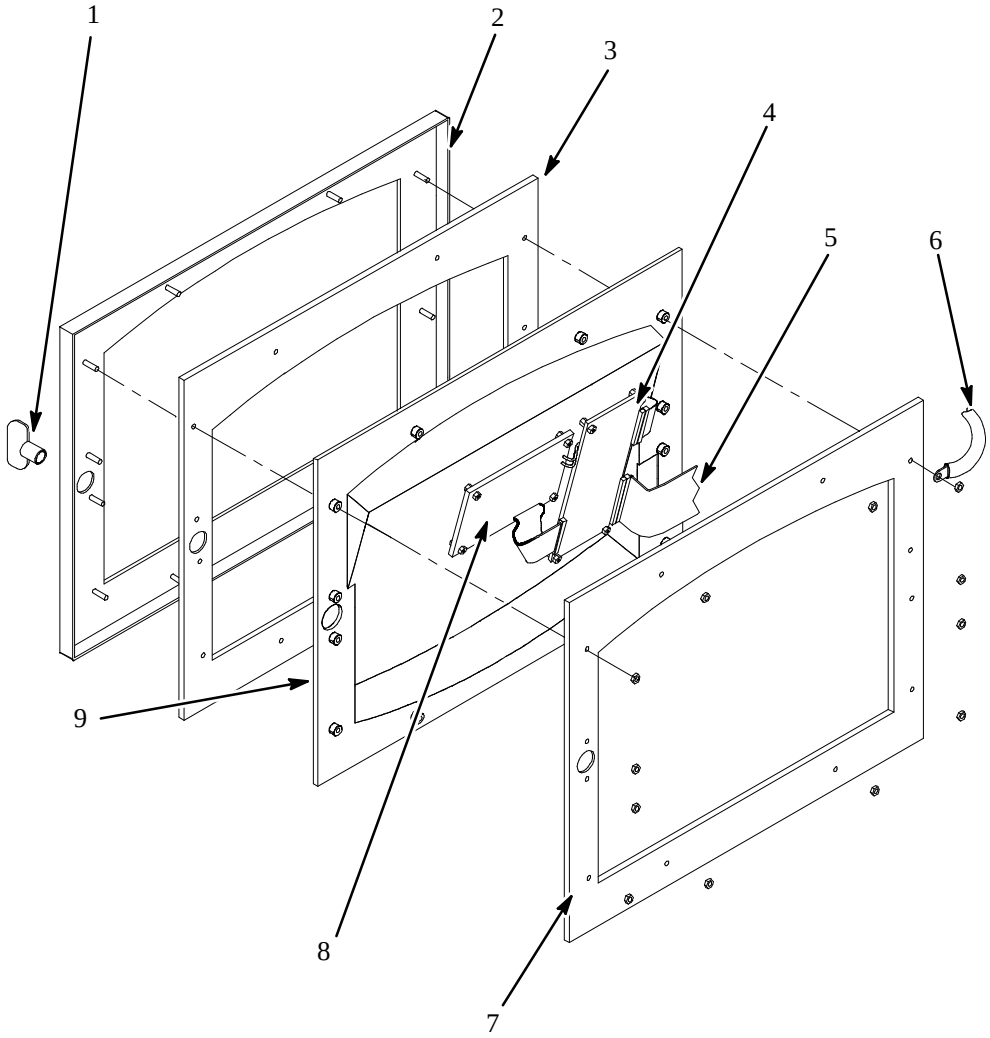


MG046_1

Ink Management Block

INK MANAGEMENT BLOCK

Item	Part No.	Description	Qty
1	37772	Jet Pump Kit Spares A–Series (Incl. Jet Pump & 3 x 'O' Rings)	1
2	37731	Pressure Transducer Assembly	1
3	04183	'O' Ring 21.95ID x 1.78CS	1
4	14780	Solenoid Valve 2Way 24V 3.8	6
5	04150	'O' Ring EPDM 2.90ID x 1.78CS	12
6	04155	'O' Ring EPDM 5.28ID x 1.78CS	3
7	14186	Spring Compression 1psi St. St.	1
8	37732	Temp Sensor Plug Assy	1
9	04166	'O' Ring EPDM 3.69ID x 1.78CS	1
10	14830	Spring Comp. 5–150psi St. St.	1



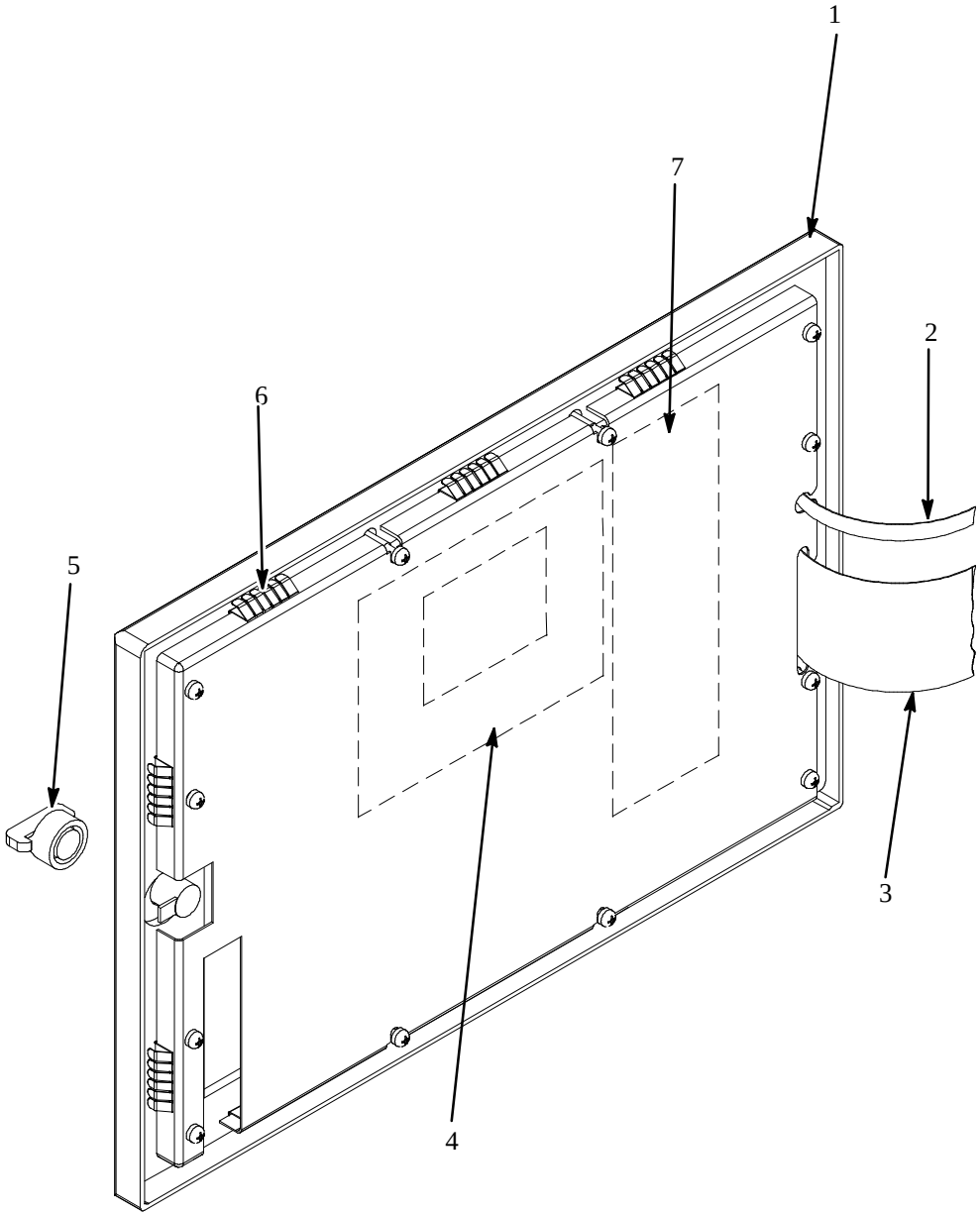
MG060_2

Electronics Door Assembly A300/A200

ELECTRONICS DOOR ASSEMBLY A300/A200

Item	Part No.	Description	Qty
1	15003	Key	1
2	37900	Contact Strip	16
3	37884	Bezel Gasket	1
4	25106	PCB Assy Front Panel	1
5	37715	Front Panel Ribbon Cable Assy	1
6	37741	Earth Lead Assembly (Door)	2
7	37885	Electronics Door Gasket	1
8	37727	LCD Assembly	1
9	37726	Membrane Keyboard Assembly	1
*not shown	37625	Label A200 Product ID	1

* Denotes A200 specific part.

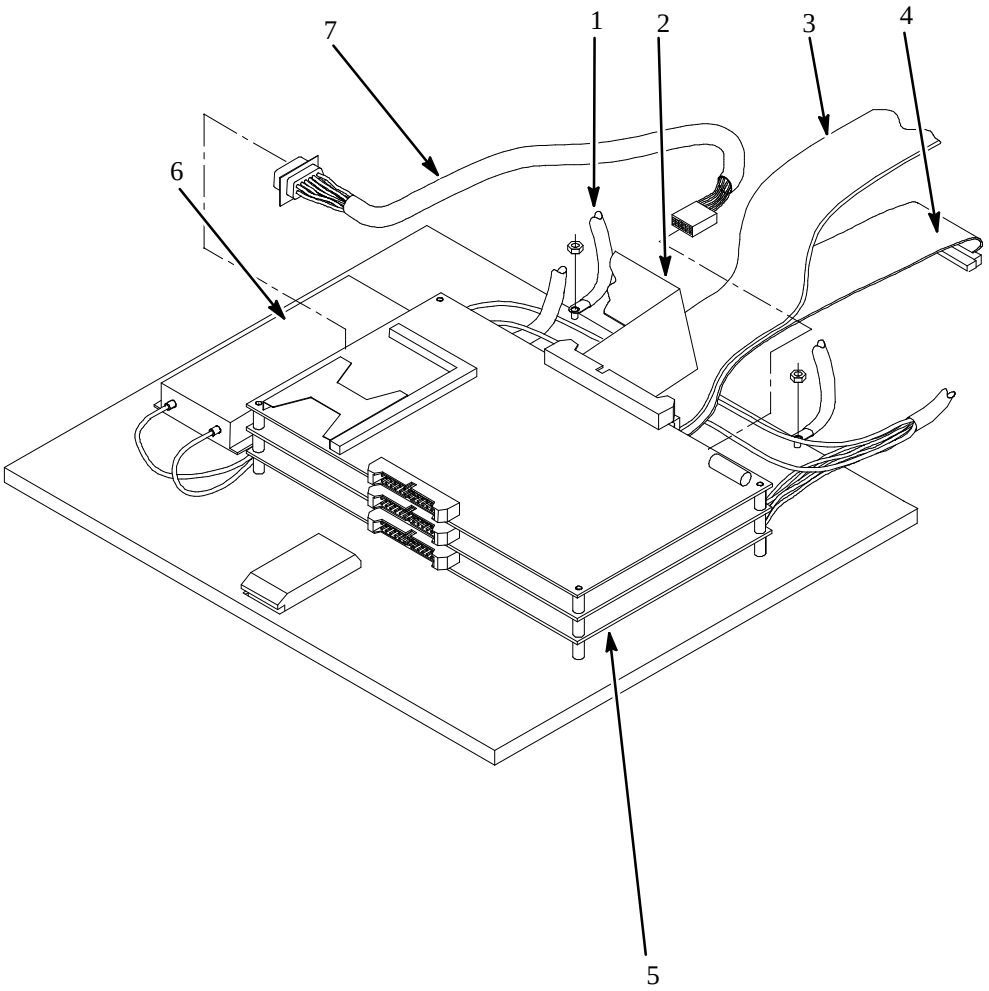


A1003_2

Electronics Door Assembly A100

ELECTRONICS DOOR ASSEMBLY A100

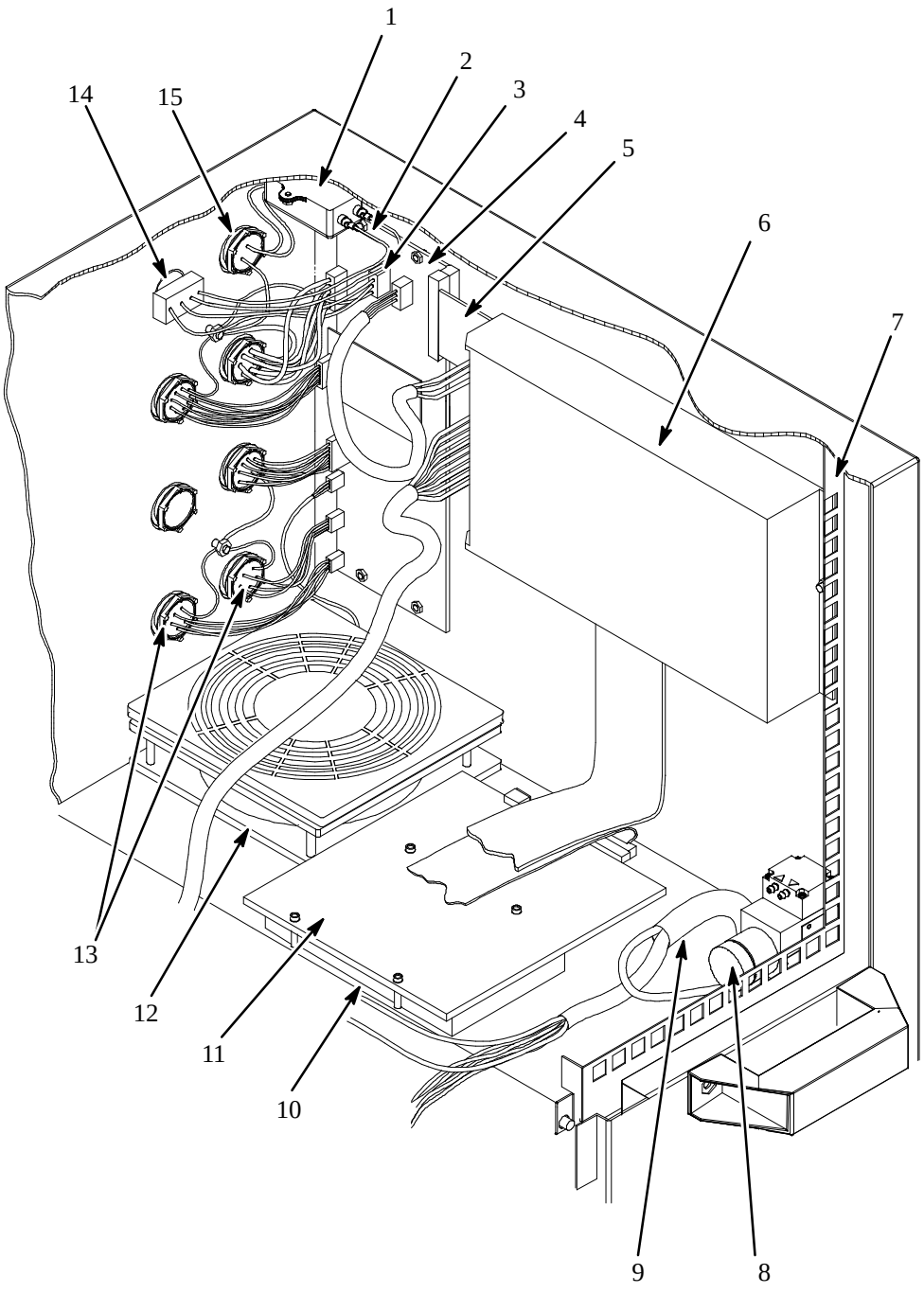
Item	Part No.	Description	Qty
1	37568	A100 Door Assembly	1
2	37741	Earth Lead Assembly (Door)	2
3	37715	Front Panel Ribbon Cable Assy	1
4	37727	LCD Assembly	1
5	15003	Key	1
6	37900	Contact Strip	16
7	25122	PCB Assy Front Panel A100	1



Electronics Inner Door

ELECTRONICS INNER DOOR

Item	Part No.	Description	Qty
1	37745	Earth Lead Assy (Inner Door)	2
2	37715	Front Panel Ribbon Cable Assy	1
3	37713	EI PCB R/Cable Assy	1
4	37714	Ink Syst. PCB R/Cable Assy.	1
5	37711	PCB Assy Control A–Series	1
6	12170	H.V. PSU +285V +220V 4.2kV	1
7	37717	HIVolt to PEC Cable Assy	1
or	37634	HIVolt to PEC Cable Assy PP *(Pinpoint)*	1



MG067_2

Electronics Cabinet

ELECTRONICS CABINET

Item	Part No.	Description	Qty
1	13492	Filter Mains	1
2	37720	Filter to Switch Cable Assy	1
3	37719	Switch to EI PCB Cable Assy	1
4	25109	External Interface PCB Assy	1
5	37713	E.I. PCB Ribbon Cable Assy	1
6	37758	Power Supply Unit	1
7	37708	Air Filter Assy	1
8	37748	Positive Air Pump Assy (option)	1
9	37724	Pressure Switch Cable Assy (option A300/A200)	1
10	37875	Gasket Ink System PCB	1
11	25115	PCB Assy Ink System Interface	1
12	37743	Fan Assy A–Series	1
13	37721	P.D/S.E Cable Assembly	2
14	37744	Mains Switch Assy	1
15	37746	Mains Filter Cable Assy	1
Not shown	37722	Mains Cable Assembly (external)	1

PART 10 : OPTIONS

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PHOTOCELL ASSEMBLY FIBRE OPTIC 10–25

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CONVERSION (INK TYPE 234BK) 10–26

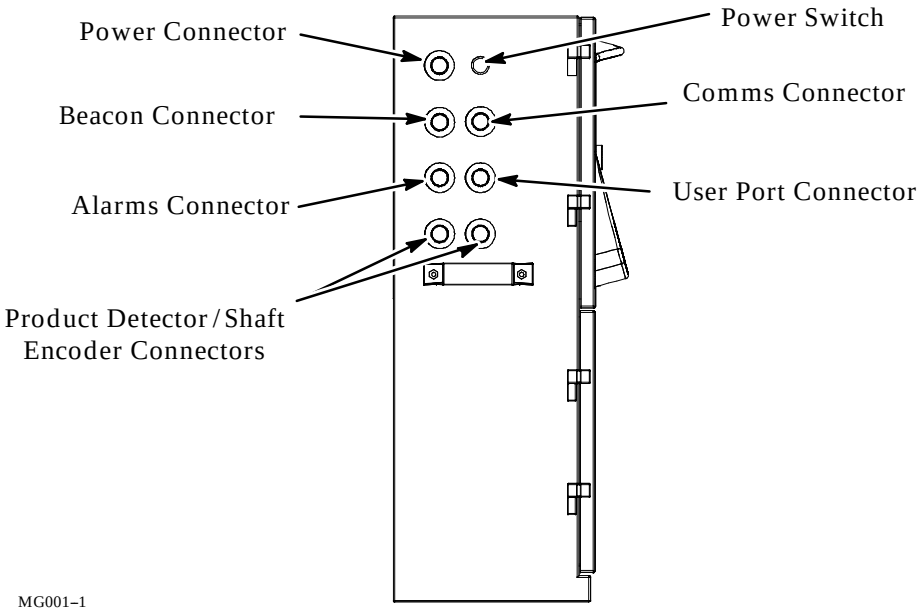
OPTIONS

WARNING: **When working in the electronics compartment, power must be switched off and the mains cable removed.**

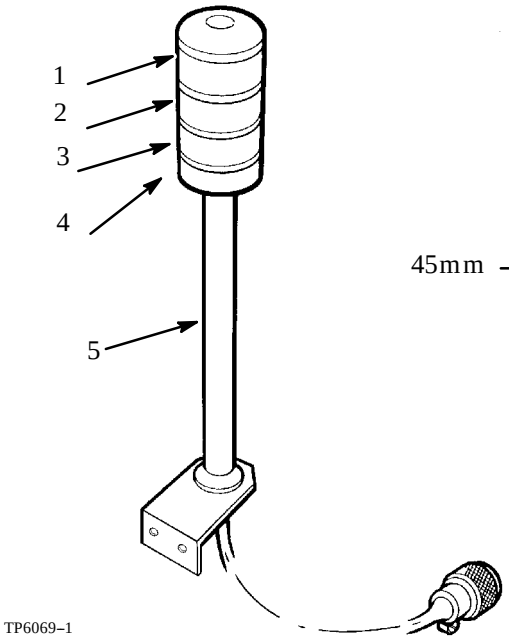
CAUTION ***When working in the electronics compartment, anti–static precautions must be taken. A wrist strap must be worn and plugged into the socket provided.***

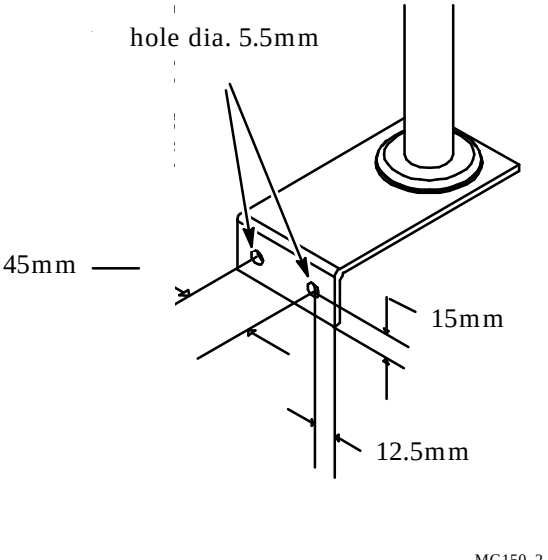
Domino A–Series printers have the power connector, power switch and product detector / shaft encoder connectors fitted as standard, the other connections are only fitted as optional extras. Where connectors are not fitted, a blanking plug is fitted which is removed by unscrewing the nut on the inside of the cabinet and pulling the plug out.

The following diagram illustrates where each option is fitted.

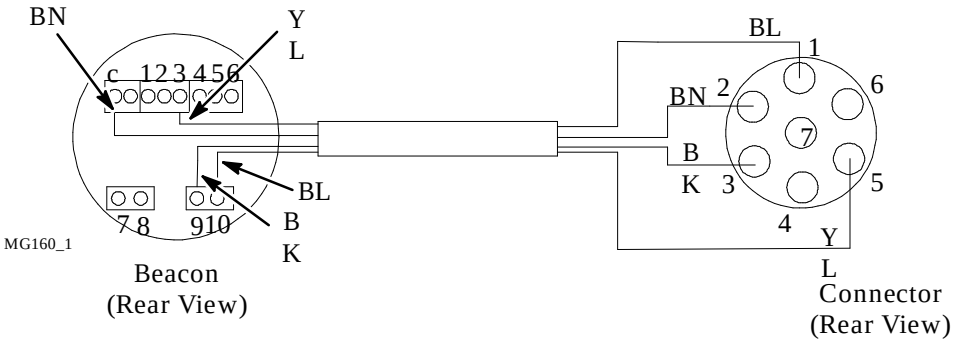


External Connections





Mounting Dimensions



Alarm Beacon

Spares list: Beacon Assy IP65 240V (G/R/A), Part No. 30606
Beacon Assy IP65110V (G/R/A) Part No. 30607

Item	Part No.	Description	Qty
1	10724	Green Lens Unit IP65	1
2	10723	Red Lens Unit IP65	1
3	10725	Amber Lens Unit IP65	1
4	10727	Bulb 220/240V Filament BA15D	3
or	10728	Bulb 110/125Z Filament BA15D	3
5	30625	Beacon Fitting Kit 240V 2Flash	1
or	30627	Beacon Fitting Kit 110V 2Flash	1

ALARM BEACON

The beacon assembly consists of:

- A beacon, which can be mounted up to 2 metres from the printer.
- A beacon connector assembly.

The beacon consists of a short tubular aluminium pole carrying three lamps in ”totem pole” style, with a mounting bracket and a 2 metre cable. The beacon indicators are as follows:

Green (non–flashing)	– printer is printing or ready to print.
Red (flashing)	– there is a fault, printer has stopped.
Amber (flashing)	– printer requires attention.

The beacon is connected into the beacon connector assembly on the side of the cabinet.

Installation

The printer must be shut down and the power removed.

(1) Install the cable assembly beacon port into the cabinet (see pg.10–6).

The beacon mounting bracket is shown in the diagram. The beacon can be mounted within its 2m cable length. Mounting holes are provided at the rear right hand side of the printer, if required.

(2) Fit the beacon cable connector into the cabinet connector.

Bulb Replacement

Disconnect the beacon connector from the printer cabinet.

(1) Remove the relevant coloured lamp cover (these are bayonet fixings).

(2) Remove the lamp unit by squeezing the bottom of the lamp unit to free the tabs, and pull free of the others. The bulb is housed inside and has a bayonet fitting.

(3) To replace the lamp unit, ensure that it is in the correct orientation and push onto the other lamp units.

(4) Refit the lamp cover.

To replace the Beacon fitting kit (housing the flasher unit), remove all the lamp units and covers and fit to the new beacon fitting kit.

CABLE ASSEMBLY BEACON PORT

This cable is used in conjunction with the beacon assembly and is installed as follows:

WARNING: Power to the printer must be removed.

CAUTION Anti-static precautions must be taken.

(1) Remove the blanking plug from the printer (for position see the diagram on page 10–3).

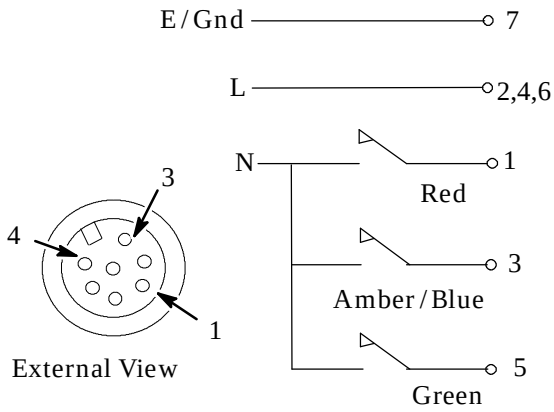
(2) Feed the 6way connector through the hole into the cabinet. Secure the round 7way connector in the hole and tighten the nut.

(3) Plug the 6way connector into PL6 on the External Interface PCB.

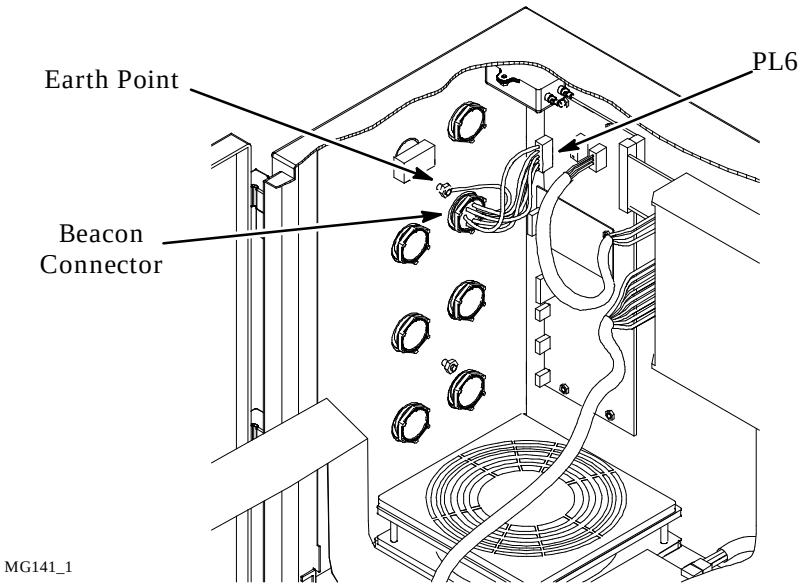
(4) Fit the earth lead to the earth point.

Beacon Connections

STATUS	PIN
Red – Neutral	1
Live	2
Amber – Neutral	3
Live	4
Green – Neutral	5
Live	6
Earth / Ground	7



Beacon Switch Connections and Circuit



Cable Assembly Beacon Port

Spares List – Beacon Port Kit – Part Number 37737
Plug IP68 7Way Cable Mounting – 13499

CABLE ASSEMBLY ALARMS

The alarms port enables the printer status to be indicated for external use. Installation is as follows:

WARNING: Power to the printer must be removed.

CAUTION Anti-static precautions must be taken.

(1) Remove the blanking plug from the printer (for position see the diagram on page 10–3).

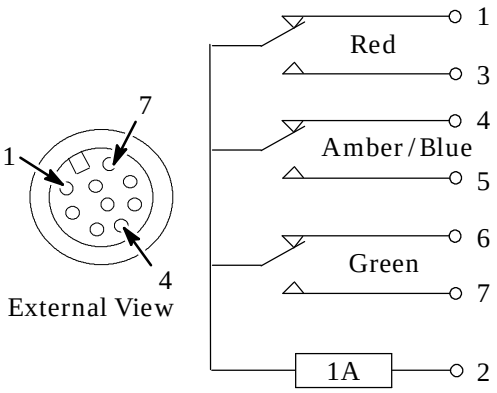
(2) Feed the 10way connector through the hole into the cabinet. Secure the round 9way connector in the hole and tighten the nut.

(3) Plug the 10way connector into PL5 on the External Interface PCB.

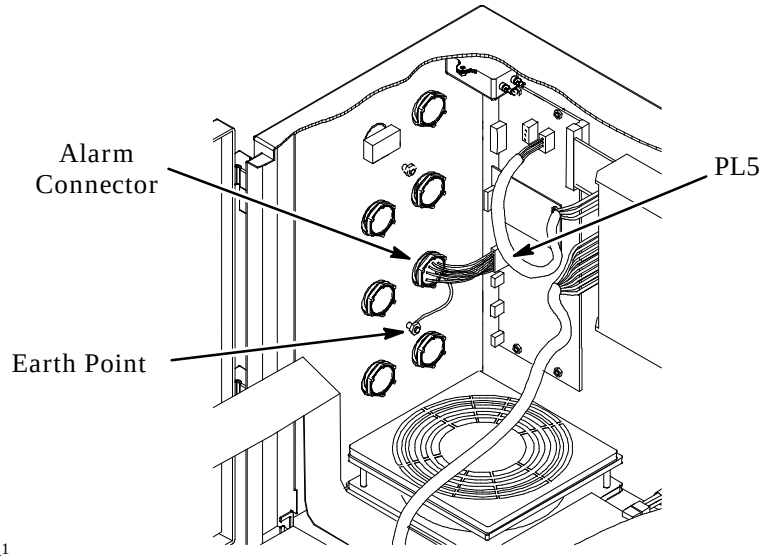
(4) Fit the earth lead to the earth point.

Alarm Connections

PINS	STATUS
1 – 2	Red alert not active
3 – 2	Red alert active
4 – 2	Amber/blue alert not active
5 – 2	Amber/blue alert active
6 – 2	Green status not active
7 – 2	Green status active



Alarm Kit Connections and Circuit



Cable Assembly Alarm Port

Spares List – Alarm Port Kit – Part Number 37738
Socket IP68 9Way Cable Mounting – 13501

RS232 COMMS OPTION KIT A–SERIES

The RS232 Comms option kit enables the printer to communicate with an external computer for remote control. Installation is as follows:

WARNING: Power to the printer must be removed.

CAUTION Anti–static precautions must be taken.

(1) Fit the PCB to SK2 on the External Interface PCB. This is done by removing the nut fitted to the mounting stud, fit the spacer supplied in the kit, then the PCB, shakeproof washer and finally replace the nut.

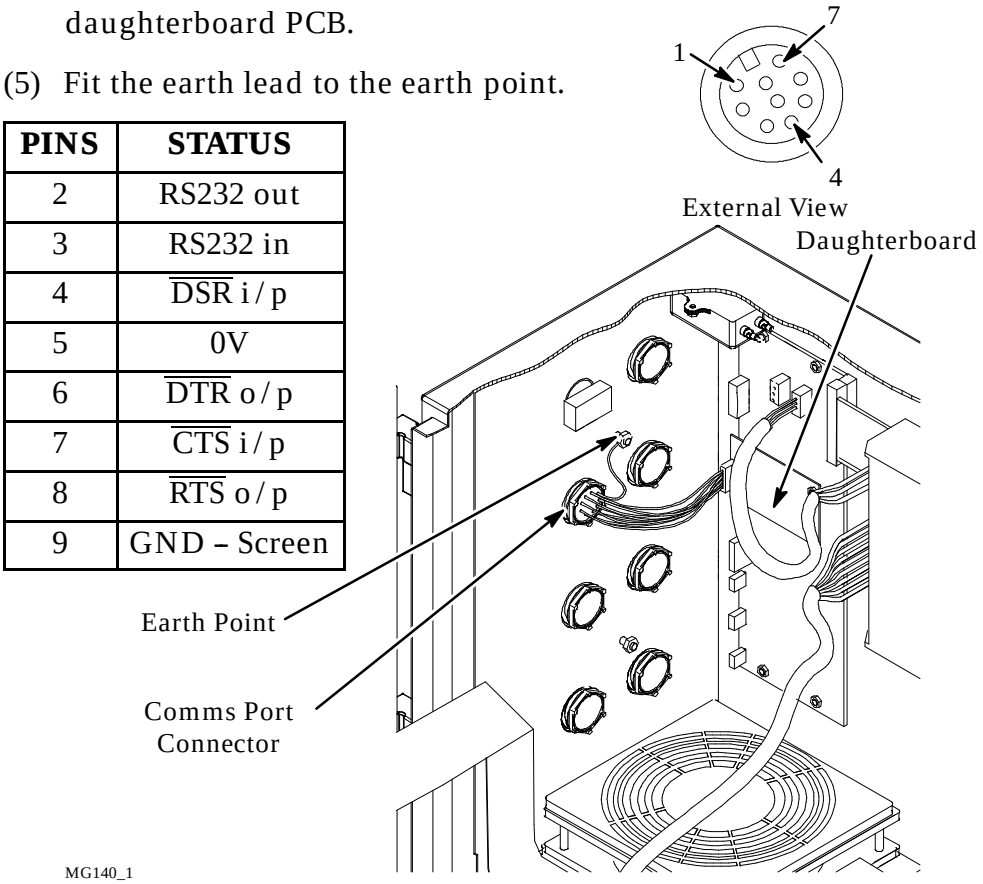
(2) Remove the blanking plug from the printer (for position see the diagram on page 10–3).

(3) Feed the 10way connector through the hole into the cabinet. Secure the round 9way connector in the hole and tighten the nut.

(4) Plug the 10way connector into the plug (PL1) on the daughterboard PCB.

(5) Fit the earth lead to the earth point.

PINS	STATUS
2	RS232 out
3	RS232 in
4	$\overline{\text{DSR}}$ i / p
5	0V
6	$\overline{\text{DTR}}$ o / p
7	$\overline{\text{CTS}}$ i / p
8	$\overline{\text{RTS}}$ o / p
9	GND – Screen



RS232 Comms Option Kit

Spares List – RS232 Communications Kit – Part Number 37775
Plug IP68 9 Way Cable Mounting – 13505

USER PORT KIT

The user port can be used for controlling the printer externally or to allow the printer to control external equipment. Installation is as follows.

WARNING: Power to the printer must be removed.

CAUTION Anti-static precautions must be taken.

(1) Fit the PCB to SK1 on the External Interface PCB. This is done by removing the nut fitted to the mounting stud, fit the spacer supplied in the kit, then the PCB, shakeproof washer and finally replace the nut.

(2) Remove the blanking plug from the printer (for position see the diagram on page 10–3).

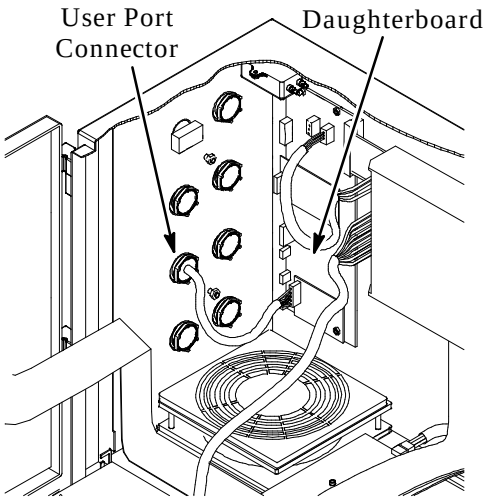
(3) Feed the 26way connector through the hole into the cabinet. Secure the round 25way connector in the hole and tighten the nut.

(4) Plug the 26way connector into the plug PL1 on the daughterboard PCB.

Spares List – User Port Assembly – Part Number 37740
Plug IP68 25Way Cable Moutning – 13507

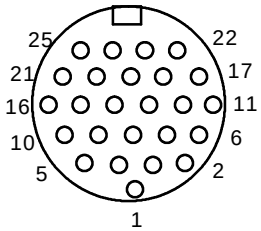
For further details , contact Domino.

PINS	STATUS
1	Input 1
2	Input 2
3	Input 3
4	Input 4
5	Input 5
6	Input 6
7	Input 7
8	Input 8
9	Input 9
10	Input 10
11	Input 11
12	Input 12
13	Input Common
14	Output 1
15	Output 2
16	Output 3
17	Output 4
18	Output Return
19	+5V
20	+5V
21	+12V
22	+12V
23	GND
24	GND
25	Chassis



MG146_1

Cable Assy User Port



External View

Row 1:Pin 1
Row 2:Pins 2 to 5
Row 3:Pins 6 to 10
Row 4:Pins 11 to 16
Row 5:Pins 17 to 21
Row 6:Pins 22 to 25

POSITIVE AIR PUMP ASSEMBLY

The positive air pump supplies the printhead with a small positive air supply to keep it free from dust. Installation is as follows:

WARNING: Power to the printer must be removed.

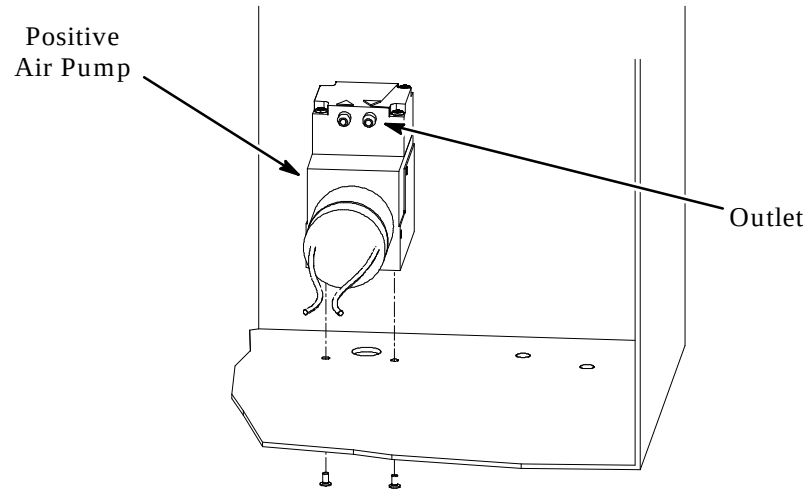
CAUTION Anti-static precautions must be taken.

(1) In the electronics cabinet, remove the blanking grommet and the two screws and nuts.

(2) Fit the positive air pump to the cabinet using the two M3x6 countersunk screws supplied in the kit (these are screwed from the underside of the electronics cabinet). The positive air pump mounting holes are threaded.

(3) Fit the 3/16" tube from the printhead to the outlet (right) side of the positive air pump, using the silicon tube attached to the end of the tube.

(4) Plug the positive air pump connector into PL5 on the Ink Interface PCB.



Fitting the Positive Air Pump

Spares List – Positive Air Pump Assembly – 37748

AIRDRYER CONNECTION KIT (A300/A200 only)

The airdryer connection kit is fitted in conjunction with the airdryer option and monitors the air pressure fed to the printhead. If this pressure fails it causes the printer to raise an alert. Installation is as follows:

WARNING: Power to the printer must be removed.

CAUTION Anti-static precautions must be taken.

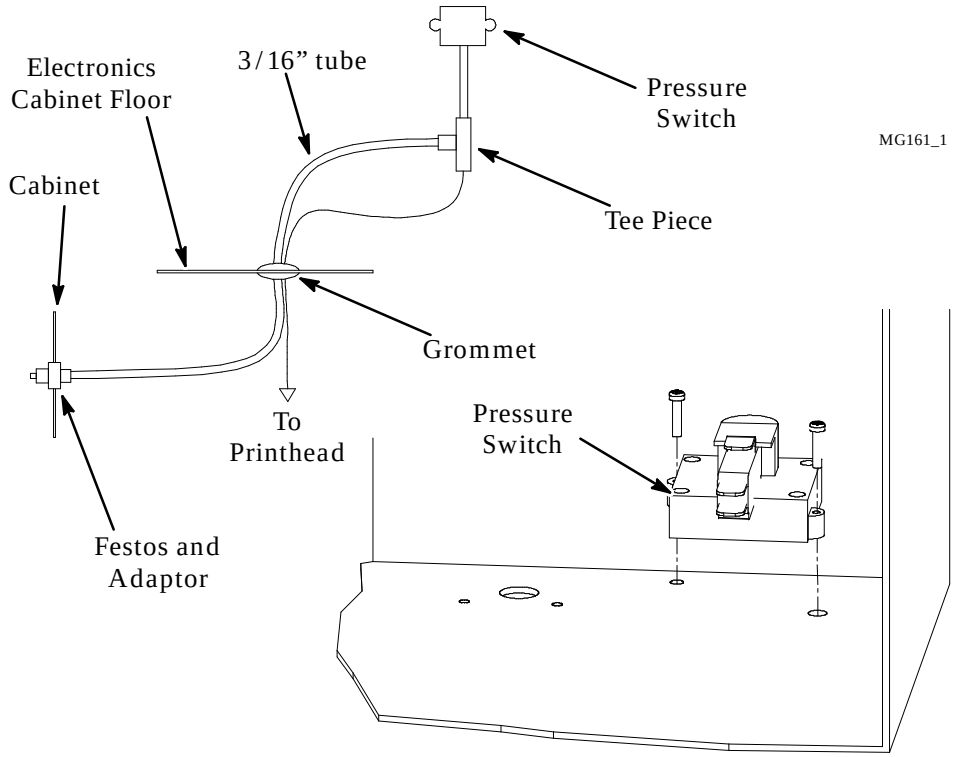
(1) Fit the festo connector supplied in the kit to the inside of the adaptor in the ink cabinet and fit the 3/16" tube (in kit)to the festo.

(2) Feed the 3/16" tube through the grommet into the electronics cabinet and fit to the centre of the festo tee piece (in kit).

(3) Remove the silicon tube attached to the 3/16" tube from the printhead and fit the printhead tube to one side of the tee and the silicon tube to the other.

(4) Remove the two screws in the electronics cabinet and fit the pressure switch (in kit) to the cabinet using the two screws(in kit).

(5) Attach the cable (in kit) to the top and bottom connectors on the pressure switch, and plug into PL5 on the Ink Interface PCB.



Pressure Switch (schematic and fitting) MG163_1

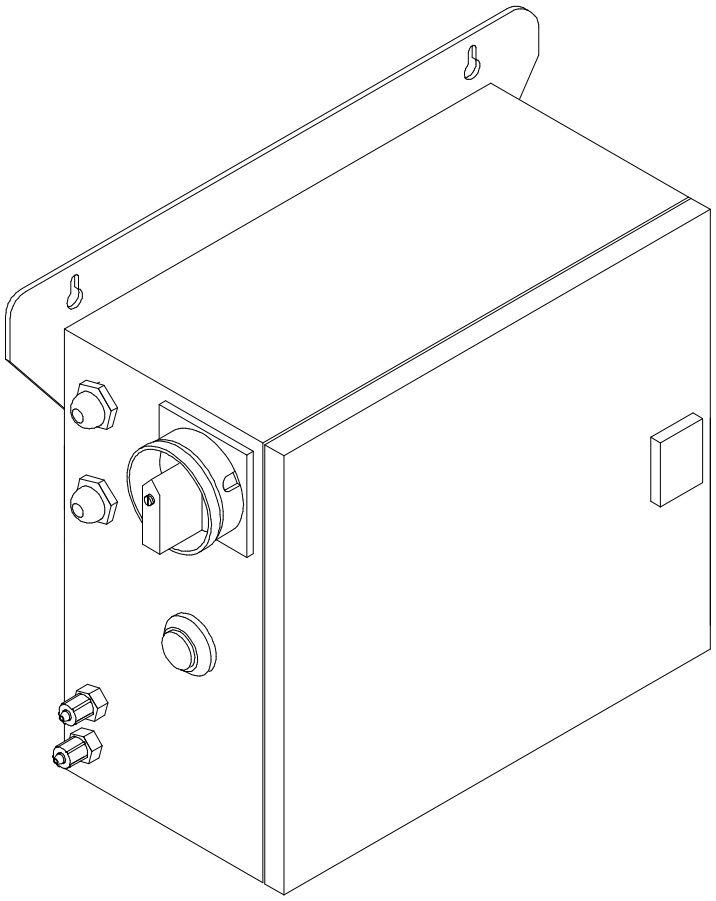
Spares List – Airdryer Connection Kit – 37749

Item No	Part No	Description	Quantity
1	14824	Switch Pressure 4.98mbar	1
2	37724	Pressure Switch Cable Assy	1

AIRDRYER (AIR DRIVEN) (A300/A200 only)

The airdryer feeds the printhead with very clean, dry air, ensuring that the ink does not absorb airborne contaminants. The air driven airdryer uses factory supplied air. The airdryer must be fitted in conjunction with the airdryer connection kit (see pg. 10–11).

For further details and fitting instructions see the air driven airdryer appendix Domino part number 20951.



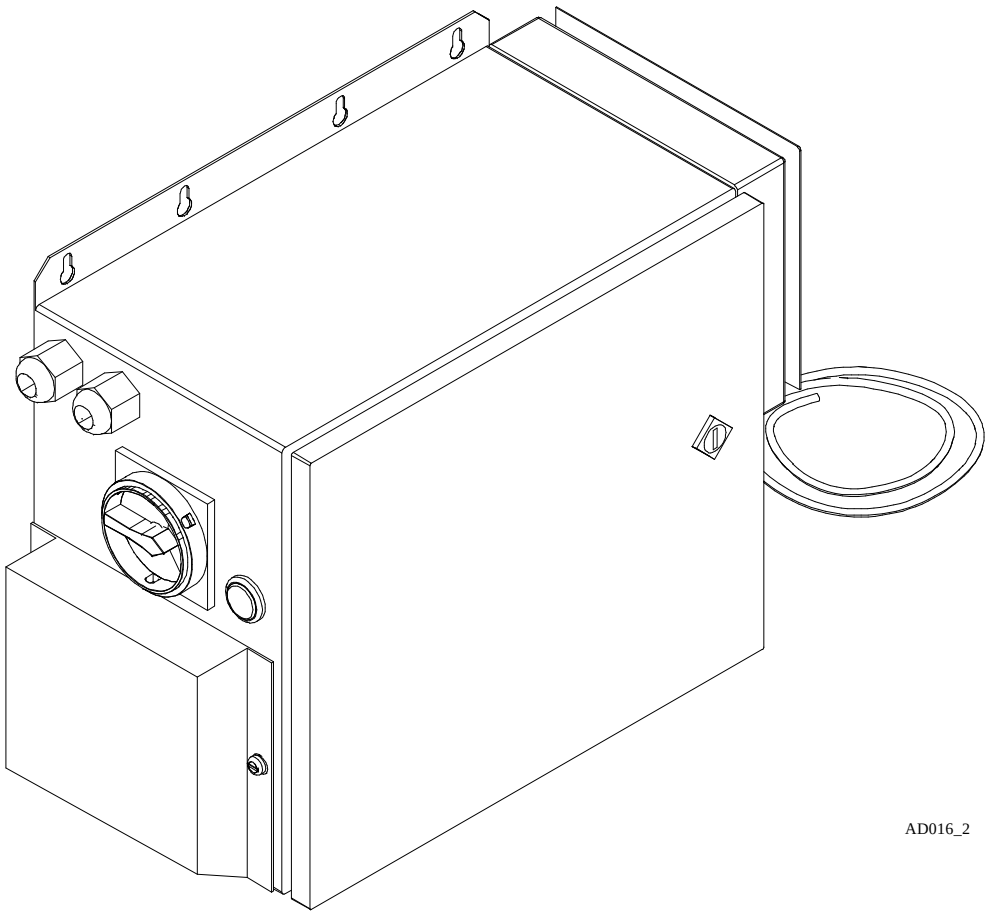
AD032–1

Airdryer

AIRDRYER (COMPRESSOR DRIVEN) (A300/A200 only)

The airdryer feeds the printhead with very clean, dry air, ensuring that the ink does not absorb airborne contaminants. The airdryer must be fitted in conjunction with the airdryer connection kit (see pg. 10–11).

For further details and fitting instructions see the air driven airdryer appendix Domino part number 20950.

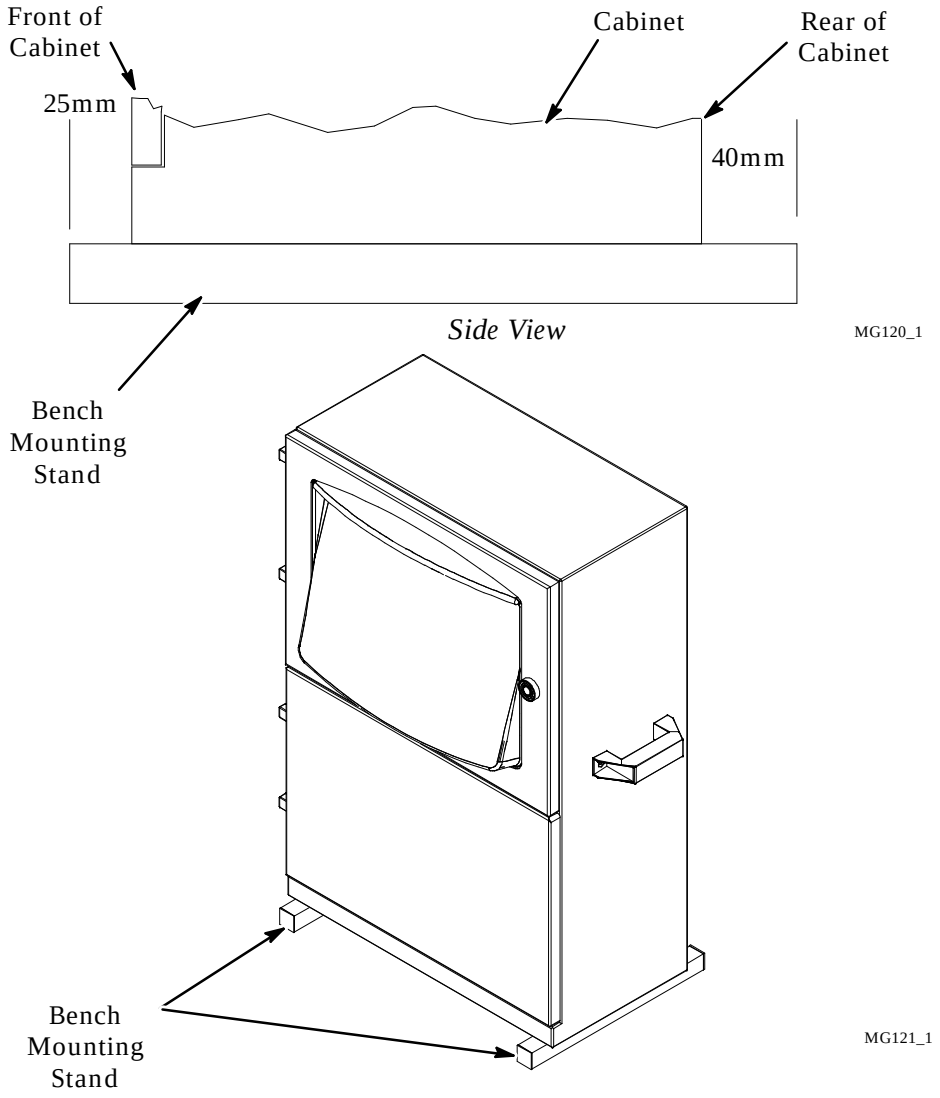


Airdryer

BENCH MOUNTING STAND

A bench mounting stand or stationary stand (see page 10–15) must be fitted to the printer if there is no suitable surface to which printer can be bolted.

The bench mounting stand comprises two 310mm long bars which fit to the underside of the printer. To fit, remove the feet from the printer and screw the bars to the base with the longer end to the rear (as shown below).



Bench Mounting Stand

Spares List – Bench Mounting Stand – 37991

STATIONARY STAND

A stationary stand or bench mounting stand (see page 10–14) must be fitted to the printer if there is no suitable surface to which printer can be bolted.

This stand provides a secure support for the printer, placing it at a convenient height for the operator and making provision for a storage cabinet below. The airdryer can also be mounted onto the stand, to the rear support panel.

The stand is made of stainless steel with a finish similar to the printer cabinet. Four adjustable feet provide levelling on uneven floors.

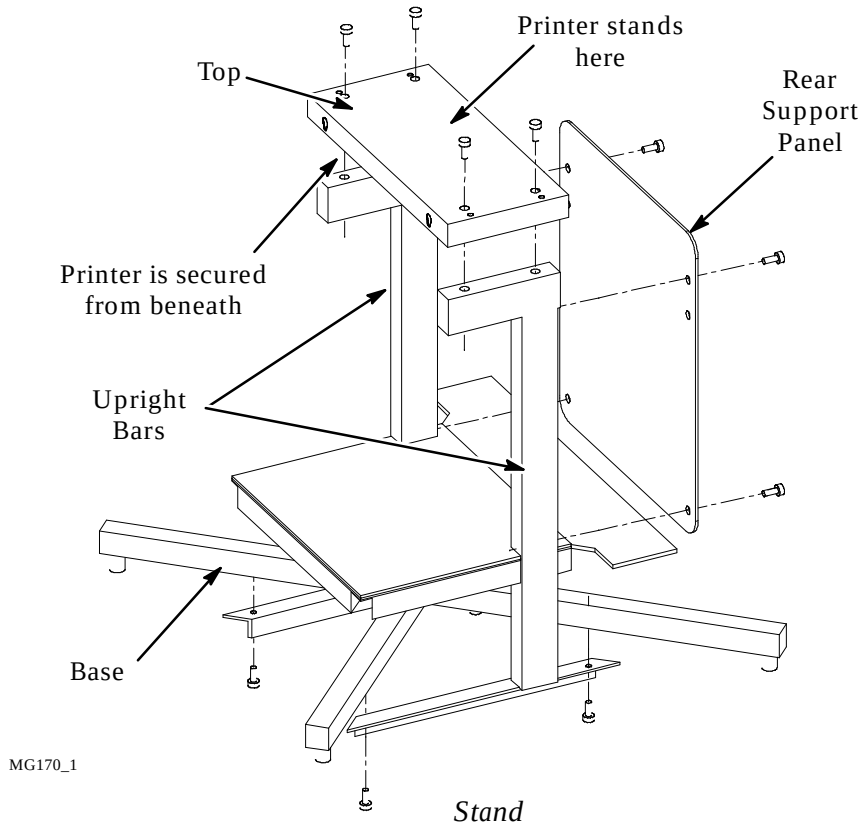
Assemble the stand as follows:

(1) Secure the upright bars to the base using four M6x10 screws (in kit).

(2) Fit the rear support panel using four M6x10 screws (in kit).

(3) Fit the top cover using four M6x10 screws (in kit).

(4) The printer is fitted to the top of the stand using four M6x20 screws fitted from the underside, with the spacers fitted beneath the printer.



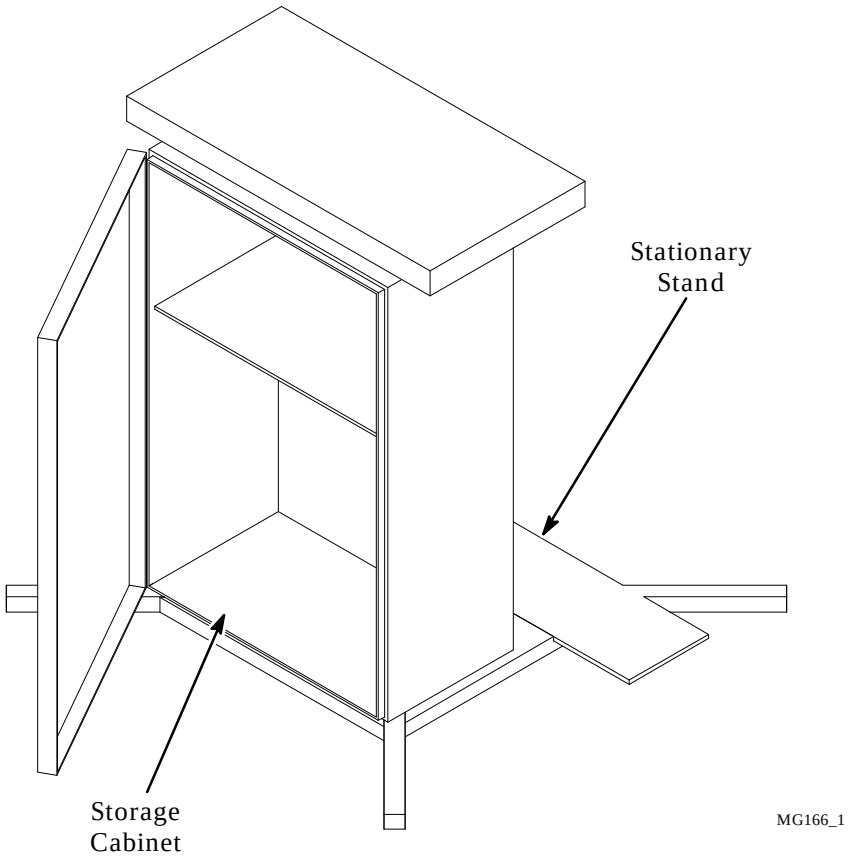
Stand

Spares List – Stationary Stand (Stainless Steel) – 37767
Stationary Stand (Painted) – 37769

Option for Stationary Stand : Mobility Kit (Stainless Steel) – 37703
Mobility Kit (Painted)– 37704
Stainless Steel Service Tray – 37770
40mm Clamp Kit – 37765

STORAGE CABINET

This cabinet provides secure storage for the fluids, cleaning materials, protective clothing, manuals, etc. It is fitted onto the stationary stand below the printer, and secured by two bolts to the uprights. The cabinet is made of stainless steel with a finish similar to the printer and the door has two catches like those on the printer ink compartment door.



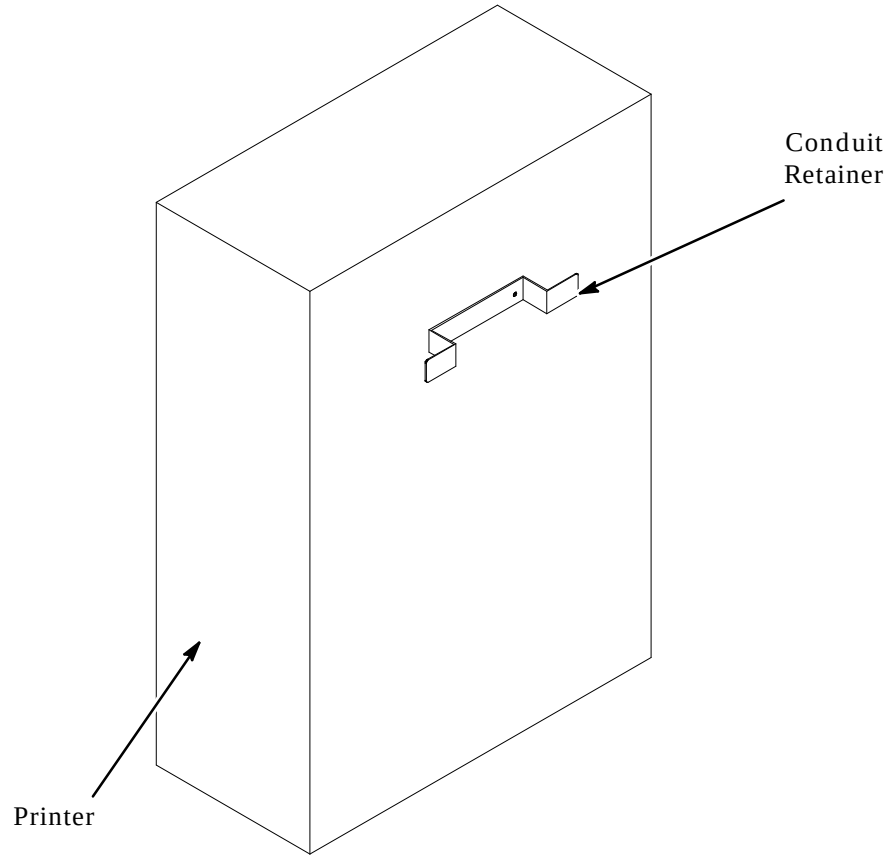
Storage Cabinet

Spares List – Storage Cabinet (Stainless Steel) – 37766

Storage Cabinet (Painted) – 37768

CONDUIT RETAINER KIT

This is used to hold the conduit when the printhead is close to the printer, to prevent the conduit from laying on the floor. It is bolted onto the rear of the printer.



MG174_1

Conduit Retainer Kit

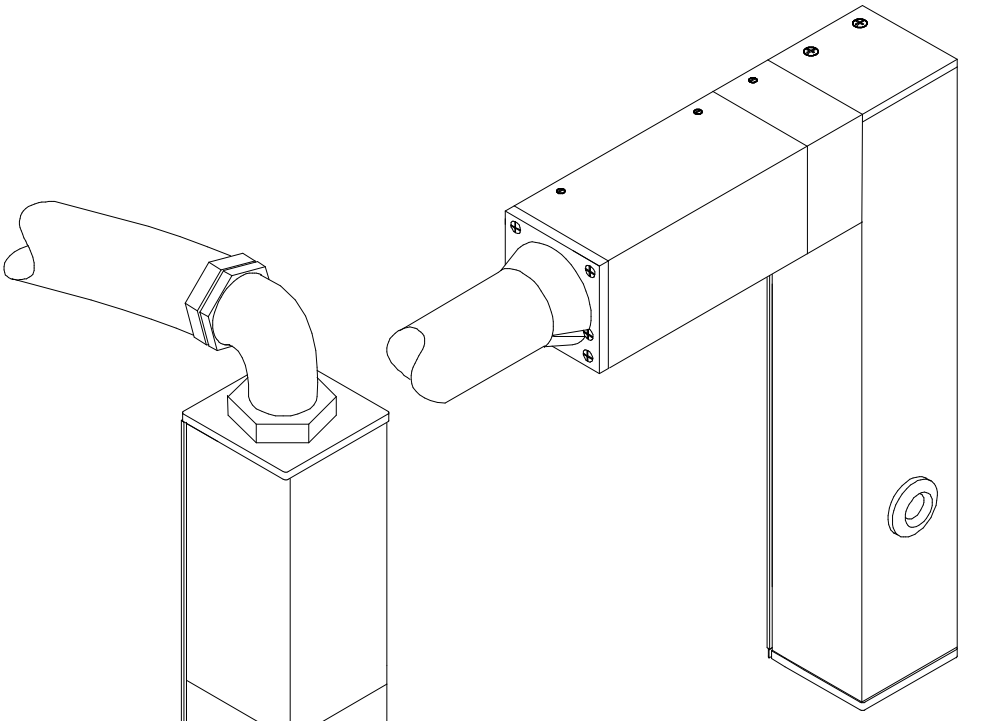
Spares List – Conduit Retainer Kit – 37987

90 DEGREE PRINTHEAD AND CONDUIT

The A–Series printers have the option of a 90 degree printhead, this is for use where space is limited.

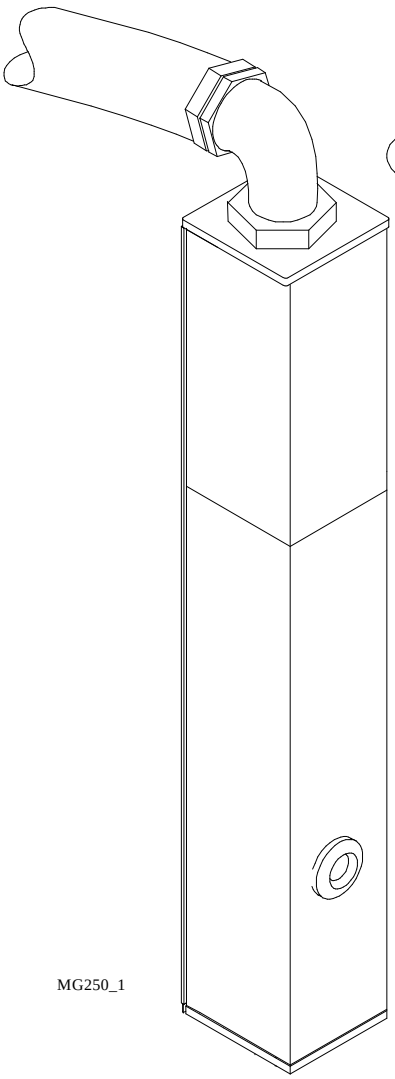
Also available is a 90 degree bend in the conduit either at the printhead end, cabinet end, or both.

For further details on either of these options please call Domino.



MG210_2

90 Degree Printhead



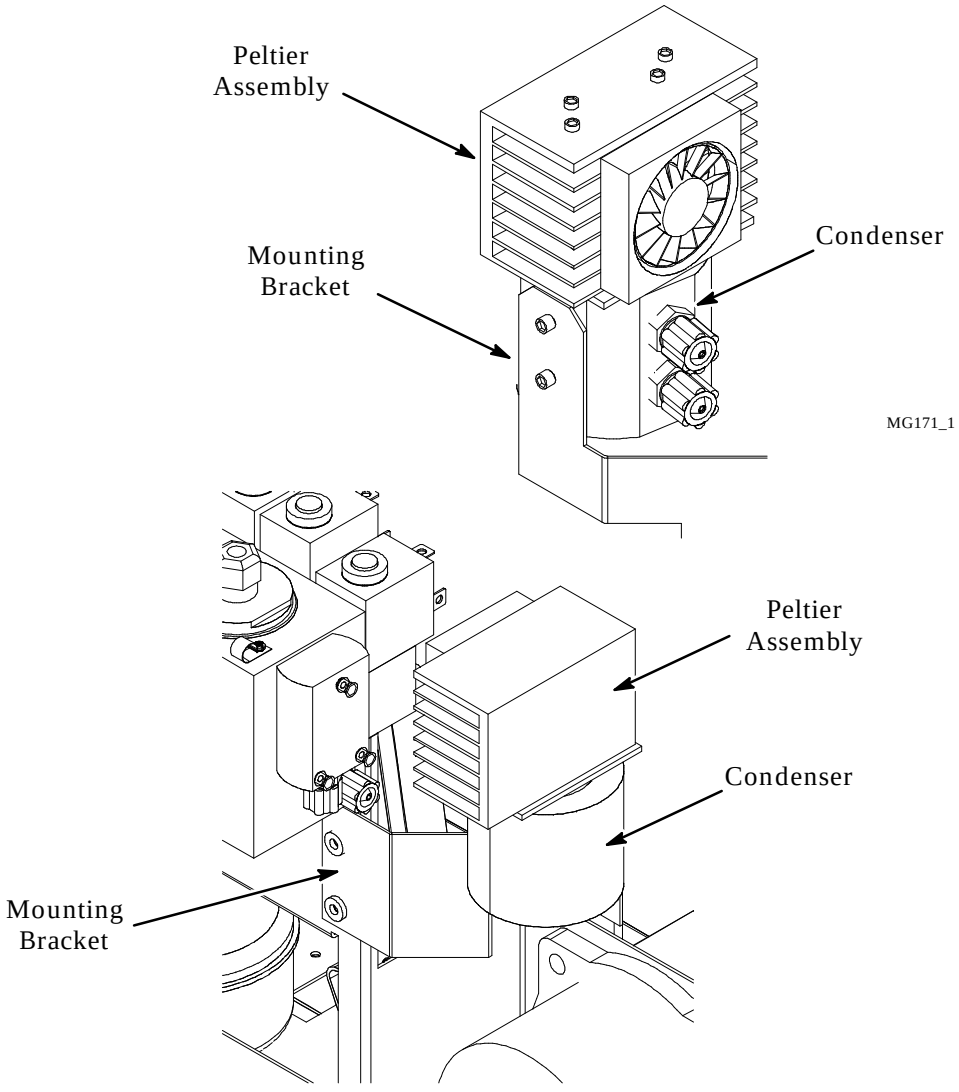
MG250_1

90 Degree Conduit

PELTIER OPTION KIT

The Peltier assembly is fitted to reduce evaporation loss from the vent. The resulting liquid is passed back into the make–up reservoir. It is fitted as standard on A300 printers and is an option for A200 and A100 printers.

The Kit consists of a Peltier assembly and condenser fitted onto a bracket which is mounted to the side of the ink system, next to the ink management block. Fit the Peltier connector into PL7 of the Ink System Interface PCB (inside the ink cabinet).



Peltier Option Kit

Spares List – Peltier Option Kit – 37751

Peltier Assembly (only)– 37725

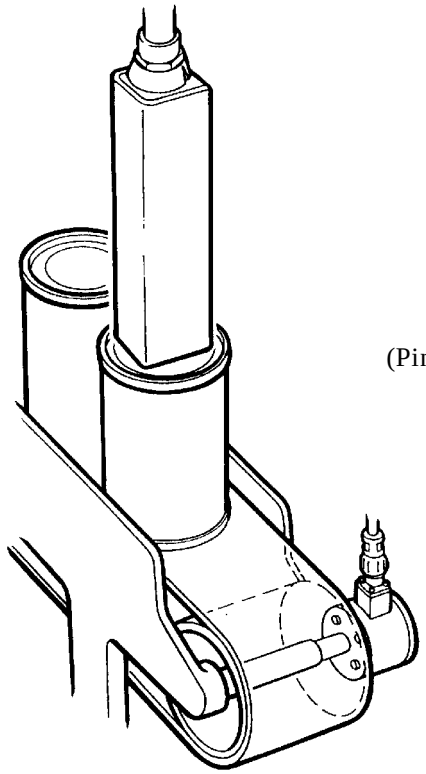
SHAFT ENCODER

The shaft encoder is fitted to the production line and its rotation follows the line movement. Exact details of both the shaft encoder and its installation depend upon the line.

Connection into the printer is to either of the Shaft Encoder / Product Detector connectors on the side of the cabinet. The printer provides a 12V dc supply for use by the shaft encoder and a 12V NPN open–collector input for signals from the encoder.

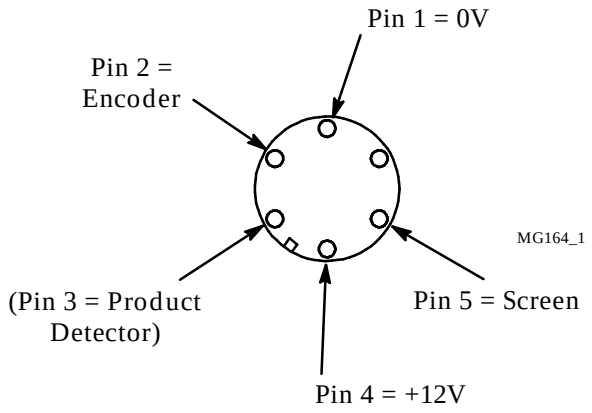
Spares List: Plug IP68 6 way Cable Mounting (external) – 13503

Five pin AXR to IP68 Plug Adaptor (for use with existing shaft encoders / photocells) – 37771



TP6020–1

Shaft Encoder



Cabinet Connectors (External View)

Each printed character is made up of a fixed number of strokes. This number must be determined from the type of printer and the message. Examples are as follows:

Single print, single space	= 6
Single print, double space	= 7
Bolderise print, single space	= 12
Bolderise print, double space	= 14
Double bolderise, single space	= 24
Double bolderise, double space	= 28
16x10 single space	= 12
16x10 double space	= 14
16x10 bolderise, single space	= 24
16x10 bolderise, double space	= 28
16x10 double bolderise, single space	= 48
16x10 double bolderise, double space	= 56

Calculate the number of pulses required from the shaft encoder (to within 10%) as follows.

Determine the number of strokes per character ”N”.

Determine the pitch of the characters ”P”. This is the distance from the front edge of one character to the front edge of the next character, in millimetres.

Determine the distance the product moves in one revolution of the encoder ”D” in millimetres.

Calculate: Required pulses per revolution $= \frac{D \times N}{P}$

Thus, for example:

To print bolderise print, single space (i.e. N = 12), at 3mm character pitch with the product moving 180mm per rev. of the shaft encoder:

Required shaft encoder output $= \frac{180 \times 12}{P}$

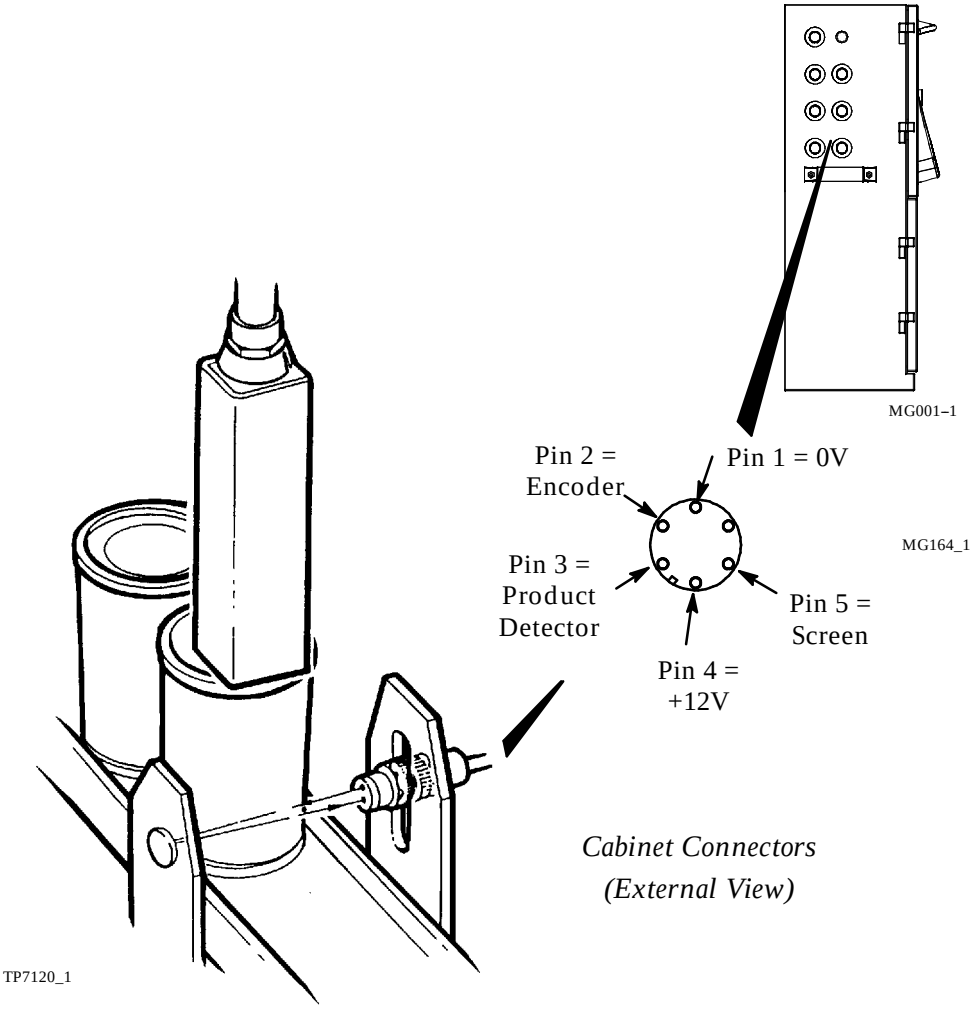
= 720 pulses per revolution.

Domino will provide advice on an appropriate encoder.

PHOTOCELL AND REFLECTOR ASSEMBLY

This detector consists of a photocell and a reflector, which must be fitted on opposite sides of the product line. The reflector is adjusted so that a light beam from the detector, directed across the line, is reflected back into a photocell in the detector. Products moving in between the detector and reflector break the light beam and this is used to start the printing, either as the beam is broken or as it is restored. The basic requirement is gaps between product items as they pass the detector.

Connection details are given in the diagram.



Photocell and Reflector Assembly

Spares List – Photocell and Reflector Assembly – 37760

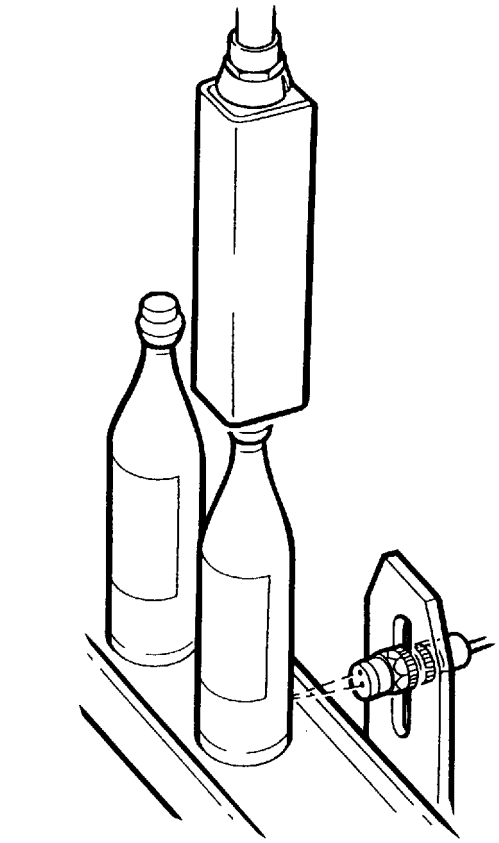
IP68 6Way Cable Mounting (external) – 13503

Five pin AXR to IP68 Plug Adaptor Cable (for use with existing photocells / shaft encoders) – 37771

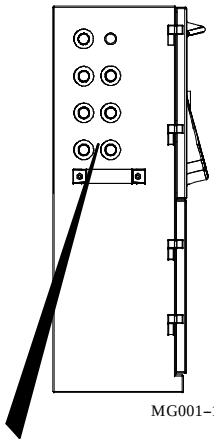
PHOTOCELL ASSEMBLY PROXIMITY

This detector is fitted on the side of the product line and set up so that a light beam from the detector is reflected back by the product itself. The detector senses the reflected beam and printing starts when reflection either begins or ends. The reflection may be from the body of the product or from a light coloured marking on a darker background on the product.

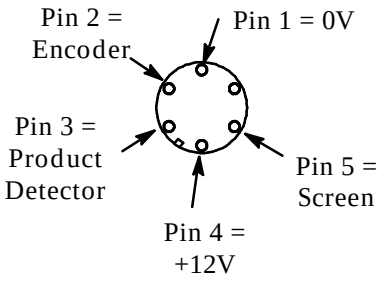
Connection details are given in the diagram.



TP7140_1



MG001–1



MG164_1

Cabinet Connectors
(External View)

Photocell Assembly Proximity

Spare List – Photocell Assembly Proximity – 37761

Five pin AXR to IP68 Plug Adaptor Cable (for use with existing photocells / shaft encoders) – 37771

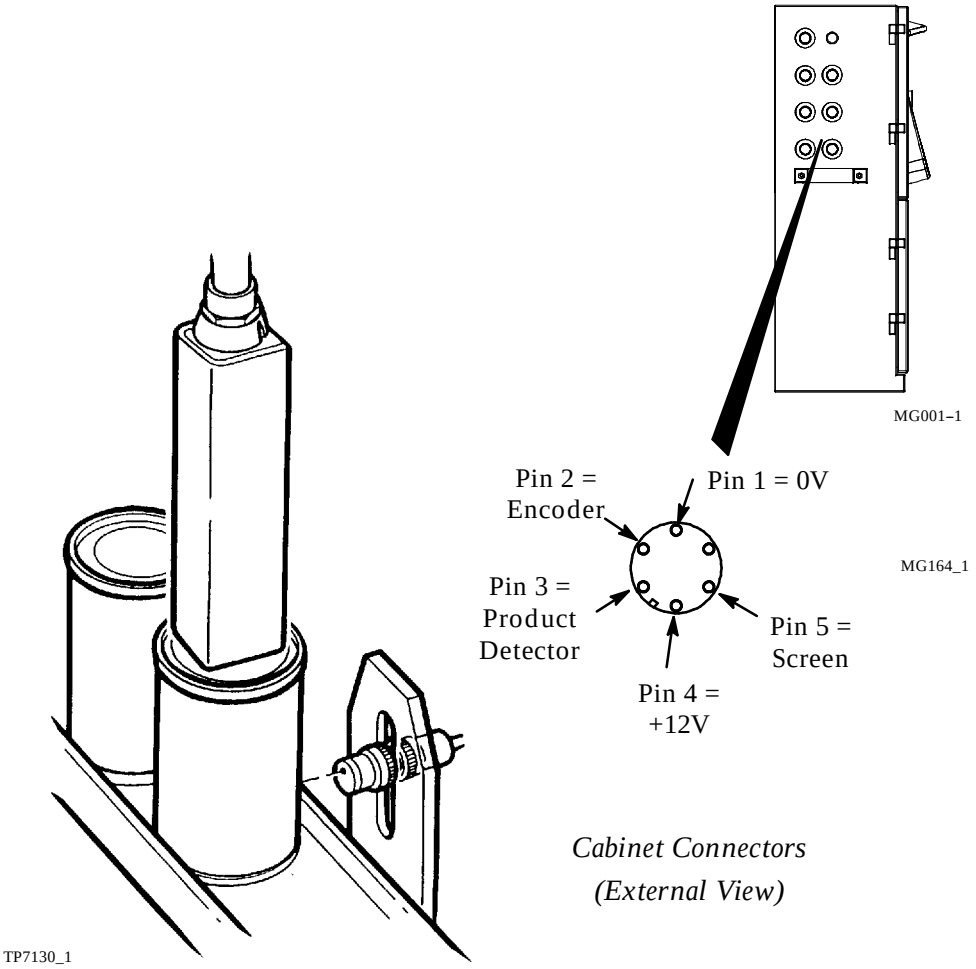
INDUCTIVE SENSOR

Two types of detector are available:

- Inductive Sensor (18mm range), or
- Inductive Sensor (30mm range).

The proximity switch detects metal products. It is mounted close to the products on the line and provides a signal to the printer when the product comes within its detection range. The distances between the switch and the product vary depending upon the material from which the product is made and the application. Domino can provide further information and advice.

Connection details are given in the diagram.



Cabinet Connectors
(External View)

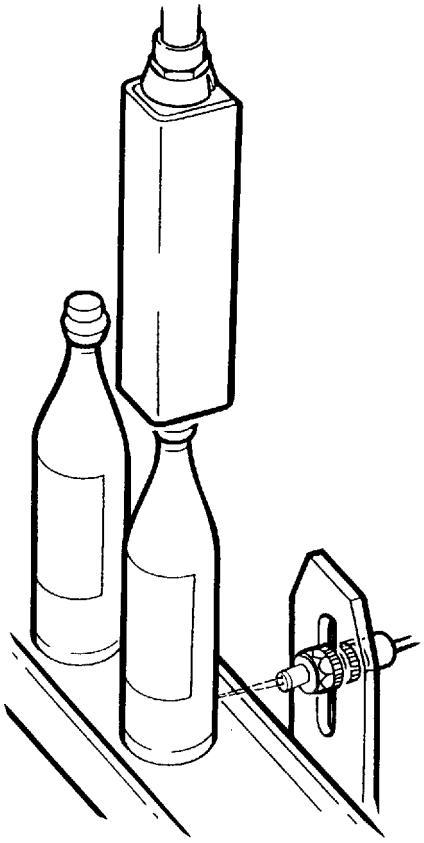
Inductive Sensor

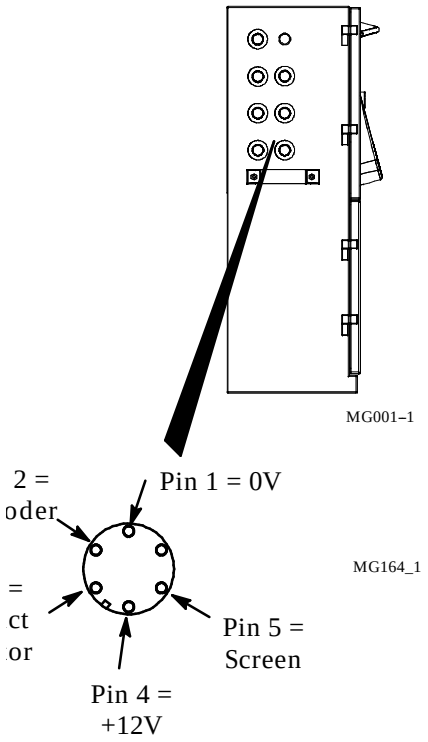
Spares List – Inductive Sensor 18mm, Domino Part No. 37762.
Inductive Sensor 30mm, Domino Part No. 37763.
Five pin AXR to IP68 Plug Adaptor Cable (for use with existing photocells / shaft encoders) – 37771

PHOTOCELL ASSEMBLY FIBRE OPTIC

This detector is fitted on the side of the product line and can be used where space is limited.

It produces a light beam across the product line, when the product passes through the beam it causes it to be reflected back into the photocell giving a printgo signal to the printer. The sensitivity can be adjusted via an external potentiometer on the side of the sensor box.





Cabinet Connectors
(External View)

ibre Optic

Spares List – Photocell Assembly F.Optic A–Series – 37764

Five pin AXR to IP68 Plug Adaptor Cable (for use with existing photocells / shaft encoders) – 37771

CONVERSION (INK TYPE 138BK) (A300/A200 only)

Printhead

The following parts are fitted in place of the standard items:

Part No.	Description	Qty
26561	Drive Rod Assembly (green wire) Fitted in place of Drive Rod Pt No. 26747	1
26863	Drop Generator Fitted in place of Drop Generator Pt No. 45462	1
06037	”O” Ring EPDM 8.0/7.9mm ID 1.0 CS Fitted in place of ’O’ Ring Pt No. 06035	1

CONVERSION (INK TYPE 234BK) (A300/A200 only)

CAUTION ***Ink type 234BK can only be used in A300 and A200 printers equipped with a 3 metre (10ft) conduit, a 75 micron nozzle and an air dryer.***

Note: The ink reservoir life for 234BK is 1200hrs.

Printhead

The following parts are fitted in place of the standard items:

Part No.	Description	Qty
26563	Drive Rod Assembly 60kHz (white wire) Fitted in place of Drive Rod Pt No. 26747	1
26863	Drop Generator Fitted in place of Drop Generator Pt No. 45462	1
06037	”O” Ring EPDM 8.0/7.9mm ID 1.0 CS Fitted in place of ”O” Ring Pt No. 06035	1
29555	Print Head Filter Kit A filter fitted especially for this ink – see over page.	1

Printhead Filter

This filter is fitted only to printers using 234BK ink. Fitting instructions are provided with the maintenance filter kit.

After cutting free the old filter, the ink feed tube from the bulkhead must be lengthened. Do not pull excessive tubing out through the bulkhead, as only a limited length can be returned through the bulkead when the new filter is fitted into place.

Domino recommend using Cutting Tool Part No. 14549 and Tube Holder Part No. 14301 during the filter replacement.

APPENDIX A : INSTALLATION

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APPENDIX A : INSTALLATION

INTRODUCTION



WARNINGS (1) There are high voltages and delicate components inside the Domino A–Series cabinets. The electronic (top) compartment must not be opened by unskilled personnel.

(2) For the safety of personnel, all items in the printer requiring connection to earth/ground have cables for this purpose. Any earth/ground cables disconnected at any time must be refitted before the printer is returned to operation.

Installation of a Domino A–Series printer consists of:

- Checking that all items have been delivered
- Preparing the printer for use
- Installing the printer and its associated equipment.

In the case of installing the printer, there is a wide range of possible work areas and it is not possible to give specific instructions. The information provided, therefore, consists of the basic requirements and general information. It would be prudent to ensure that the basic requirements can be met before installing the printer.

Domino A–Series printers should be mounted on a stand or fitted with a stabiliser kit (see Part 10 : Options). Domino can also provide mountings for the print head from a range of brackets and support systems. For details see the *Print Head Mounting Bracketry Reference Manual*, Domino Part No. 20643.

INITIAL INSPECTION

(1) Check that the equipment supplied conforms to the sales order and the ink supplied conforms to the ink type identified on the machine test result form. Copies of both sales order and test results should accompany the printer on delivery. Identification of the software installed in the printer must wait until the printer is switched on (see pg. A–9).

Note: For details of access into the cabinet, see pg. 7–3 and pg. 8–21.



(2) Open the upper door of the cabinet. Connect the antistatic wrist strap into the connector on the electronics compartment cover.



(3) Open the compartment cover and inspect the electronics compartment to ensure that all connections are intact and there is no damage. Check that the red and black HV cables are properly connected.

(4) Close the electronics compartment cover, disconnect the antistatic wrist strap and close the top door.

(5) Open the lower compartment door. Remove the bubble wrapping from the ink reservoir manifold.

(6) Inspect the components and tubes inside the lower compartment to ensure that all connections are intact and there is no damage.

(7) Close the lower door.

PREPARING THE PRINTER FOR USE.

WARNINGS (1) During procedures involving the ink system, protective clothing, especially eye protection and gloves, must be worn at all times – see Part 1 : Health and Safety.

(2) The printer must never be started up with the nozzle plate removed.

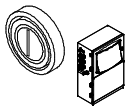
(3) Under certain fault conditions, the ink in the feed tubes and gunbody could remain under pressure when the printer is switched off. To catch any escaping ink, place tissue around the nozzle plate before releasing the securing screws, or around an ink feed tube junction before disconnection.

The following procedures will require use of the control panel. Consult the general rules for using the keyboard (see pg. 2–8) and the glossary of terms (see pg. 5–5) with particular reference to:

- the screen areas such as the status bar and the key option bar
- how to use the scroll keys (to change the function key actions) and the function keys
- meanings of terms such as ”Select” (to press a function key, or to step through the available options using the increment keys) and ”Enter” (to type in a value with the number keys)
- the difference between entering values with the number keys (effect delayed until exiting the screen) and using the increment keys (effective immediately).

Start–Up

(1) At the printer cabinet, connect the power cable into the side of the printer cabinet and plug the power cable into the supply.



(2) Press the switch on the left side of the cabinet.

(3) Wait approximately 40 seconds until the Status bar on the display shows the message *Printer Off* and the green status indicator on the Jet On key stops flashing *(*see pgs. 2–8 and 2–9 for screen and keyboard details).

On initial start–up after delivery, the message *Beware: Ink reservoir change overdue* will appear on the front panel display in the alert bar. (Alert bar messages are explained in Part 4). It will now be necessary to enter the reservoir quality code into the printer. The quality code is given on the label on the reservoir.



(4) Press the Service key. The screen may change to request a password. In this case, it will be necessary to type in the passord and select the function key labeled *Enter* at the bottom of the screen.

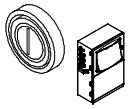
(5) Use the scroll keys to search through the key options along the bottom of the screen and select *Change Resvr.*



(6) The screen will change to request the ink reservoir quality code. Type in the quality code number given on the ink reservoir label.



(7) Select *Enter* from the key options along the bottom of the screen.



(8) Switch off the printer by pressing the switch on the left side of the cabinet.

Preparing the Ink System

Note: For details of the cabinet interior, see pg. 6–7.



(1) Open the lower door of the cabinet.

(2) Fit a new ink reservoir into the cabinet.



(3) On the ink manifold, remove the red cover from the top and the two red covers from the underside. Also remove the silicone cover from the return tube.

(4) Remove the top from the ink reservoir and screw the ink manifold onto the reservoir.

(5) Fit an ink cartridge onto the ink manifold.

(6) Remove the red cover from the top of the make–up manifold and fit a make–up cartridge.

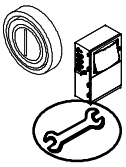
Note: The starter pack supplied with the printer includes a wash bottle. The bottle must be filled with the correct fluid.

(7) At the print head, release the securing screw and remove the print head from its holster and fit into a wash station.

Note: For details of the print head see pg. 6–3.

(8) Remove the silicone tube cap over the gutter. Check that the print head is clean and dry.

The ink system will now need bleeding at low pressure as follows:



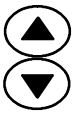
(9) Press the switch on the left side of the cabinet. Wait for the printer to start up as in step (3) of start–up procedure on previous page.

(10) Press the Service key. If necessary, enter the password.

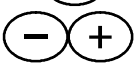


(11) Select *Ink System* from the key options along the bottom of the screen.

(12) The screen details include *Target Pressure*. Note the target pressure value.



(13) If necessary, move the highlight bar to mark the target pressure using the cursor keys.



(14) Set the target pressure to 1000mbar using the increment keys.



(15) Select *Sequence to Standby* from the key options along the bottom of the screen, then allow the printer to run for 3–5 minutes while checking for leaks, the message 'Abnormal Ink Pressure' may appear.

(16) Change the target pressure back to the original value recorded in step (12).

The printer is now ready for the jet to be switched on.



(17) Select *Sequence to Jet Run* from the key options along the bottom of the screen.

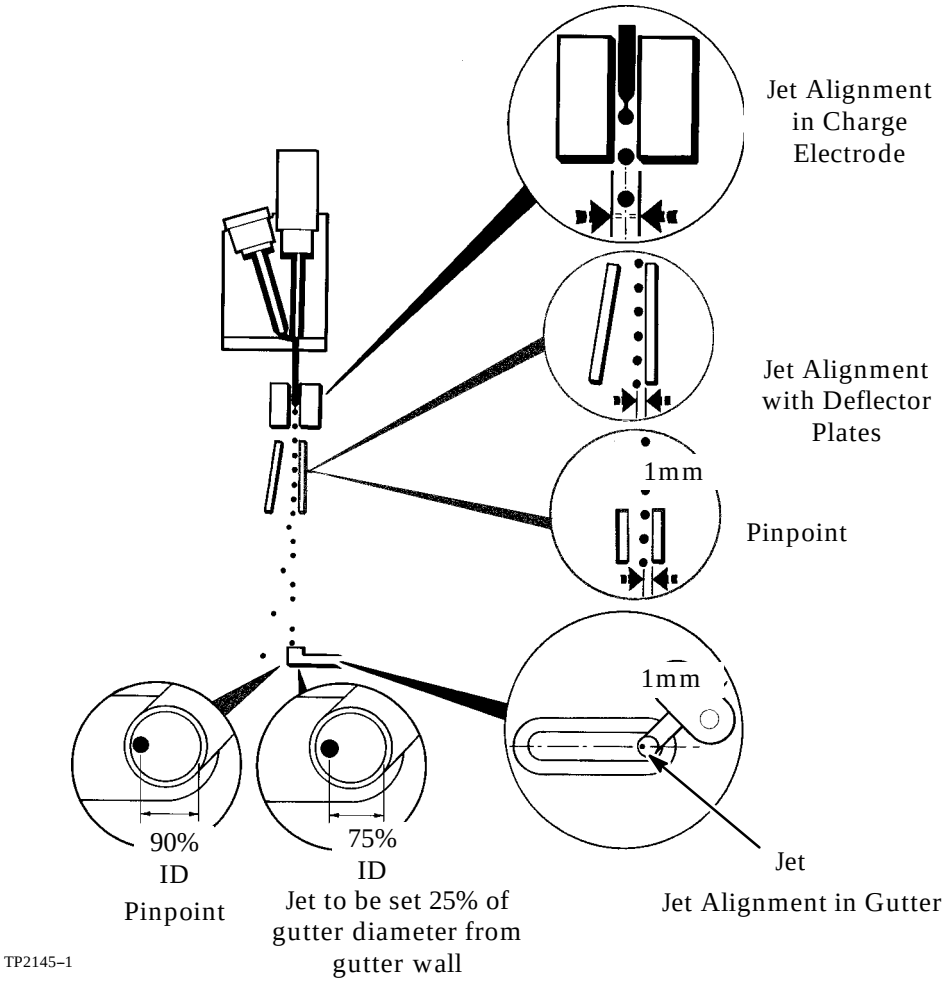
(18) Check the jet alignment is correct according to the diagram on pg. A–8.



(19) Select *Sequence On* from the key options along the bottom of the screen.

(20) Check that approximately 40 seconds after pressing the *Sequence On* key, the Status bar message changes to *Ready to Print* and the green status lamp stops flashing and shows steadily.

(21) At the print head, release the securing screw, remove the print head from the wash station and refit into its holster.



Head Alignments

Setting the Master Clock

(1) Press the Lockout key and check the time shown on the front panel display. If this requires adjustment carry out steps (2) to (5) below.

(2) Press the Machine Setup key. Enter the password, if required.

(3) Select *Master Clock* from the key options along the bottom of the screen (by pressing the key under the label).

(4) Use the up– and down–cursor keys to move the highlight bar to cover each value requiring amendment and type in the new value.

(5) When the clock values are correct, select *OK* from the key options along the bottom of the screen (by pressing the key under the label).

(6) Press the Lockout key and check that the clock is correct.

Setting the Clock Offsets

Each of four (two on A100) clocks can be set up with separate time offsets from the master clock, ready for insertion into messages. If the real master clock time is required, one of the clocks should be left with zero offsets. Offsets can only be ahead in time of the master clock.



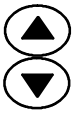
(1) Press the Message Editor key.



(2) Select *Clock Offsets* from the key options along the bottom of the screen (by pressing the key under the label).



(3) The screen will change to show the clock details. Use the increment keys to change the clock number.



(4) Use the up– and down–cursor keys to move the highlight bar to cover each value (year, day, hours or minutes) requiring amendment and type in the offset value.



(5) When the offset values for each clock are correct, select *OK* from the key options along the bottom of the screen (by pressing the key under the label).

Software Identification



(1) Press the Service key. Enter the password if required.

(2) Use the scroll keys to search through the key options along the bottom of the screen and select *Config*.





(3) Press the down cursor key to show the screen giving the software details (see pg. 5–42). Check that these details agree with the delivery documentation.



(4) Select *Exit* from the key options along the bottom of the screen.

Product Detection



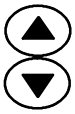
(1) Use the scroll keys to search through the key options along the bottom of the screen and select *External I/F.*



(2) Use the increment keys to set the *Product Detector Active Level* to High or Low as required.

Note: *The product detection source will be shown as External unless the Product Sequence Simulation is set to Continuous or to a product count long enough to show on the screen.*

Stroke Source



(1) With *External I/F* still selected, use the cursor keys to move the highlight bar to *Stroke Source* .



(2) Use the increment keys to select *Internal* or *External* (if a shaft encoder is to be used).

Note: If the Stroke Source is Internal, the stroke rate is controlled by Change Width in Print Setup (see below).

(3) If the Stroke Source is External, use the highlight bar to select *External Stroke Divider Ratio* and type in the value required.



(4) Use the scroll keys to search through the key options along the bottom of the screen and select *OK.*

Print Delay

Note: Each print format has a minimum print delay to which the printer is set on delivery. This value should be recorded for future use. Entering any value below this minimum will result in an error message when printing. In the absence of a recorded minimum, increase the print delay until an acceptable value is found. The product detector or print head may require re–positioning.



(1) Press the Print Setup key.



(2) Use the scroll keys to search through the key options along the bottom of the screen and select *Print Delay.*

(3) Type in the number of strokes giving the change in position required to print the message accurately on the product.



(4) Select *OK* from the key options along the bottom of the screen.

Character Height and Width



(1) With Print Setup still selected, select *Change Height* from the key options along the bottom of the screen.

(2) Type in the height value required.



(3) Select *OK* from the key options along the bottom of the screen.



(4) Use the scroll keys to search through the key options along the bottom of the screen and select *Change Width.*

(5) Type in the width value required.



(6) Select *OK* from the key options along the bottom of the screen.

Beeper



(1) Press the Machine Setup key.

(2) Use the scroll keys to search through the key options along the bottom of the screen and select *Beeper.*



(3) Use the increment keys to select *Enabled* or *Disabled* (see also pg. 5–35).



Select *Exit* from the key options along the bottom of the screen.

To Create a Print Sample

WARNING: During the following procedure, the print head must be directed into a beaker made of conducting material which is securely connected to ground/earth, as electrostatic charges on the ink drops used for printing could cause a fire hazard.

The printer is now ready to print messages. It will be necessary to have the jet running and a message ready to print. If required, refer to the introduction to message creation and printing, pg. 3–7.



(1) Press the Service key. Enter the password if required.

(2) Use the scroll keys to search through the key options along the bottom of the screen and select *External I/F.*



(3) Use the cursor keys to highlight *Stroke source* and use the increment keys to select *Internal.*

(4) Set the character width to a suitable value for the message – see pg. A–10.



(5) Select *Product Sequence*.



(6) Select *Start Cont*.

(7) Take a print sample by sweeping a piece of card under the print head and check the print quality. If required adjust print height, etc. as above.

(8) Return to Service, *External I/F* and *Product Sequence*



(9) Select *Stop*, then select *Exit* to return to the *External I/F* screen. The printer will then revert to external product detection when it auto–detects an external print go signal.



(10) Select *OK* from the key options along the bottom of the screen to return to the Service screen.

Inverse Printing

Messages can be printed in inverted form in all prints, or with change–overs between normal and inverted orientation after specific numbers of products or prints. Setting up follows procedures similar to reversed printing (below), but selecting *Inverse Control* in the Special Setup menu.



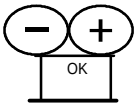
Reverse Printing

Messages can be printed in reverse in all prints, or with change–overs between normal and reversed orientation after specific numbers of products or prints.



(1) Press the Print Setup key.

(2) Select *Reverse Control* from the key options along the bottom of the screen.



(3) Use the increment keys to set *Reverse Orientation* to *On*.

(4) Select *OK* from the key options along the bottom of the screen for continuous reverse printing.

(5) Alternatively, for controlled change–overs between normal and reversed orientation, select *Dynamic Control*.





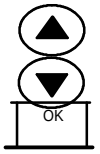
(6) If dynamic control is not already in operation, the screen will show the prompt *Reverse Orientation*. Use the increment keys to select *On*.



(7) Select *Counted Products* or *Counted Repeats* as required.



(8) Use the increment keys to set *Initial Orientation* to *On* (reversed) or *Off* (normal) as required.



(9) Use the up– and down–cursor keys to move the highlight bar to *Count* and type the number of products between each change–over.

(10) Select *OK* from the key options along the bottom of the screen to return to the Special Setup screen.

To cancel dynamic operation and return to continuous operation, select *Static Control*.

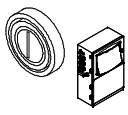
Shut Down



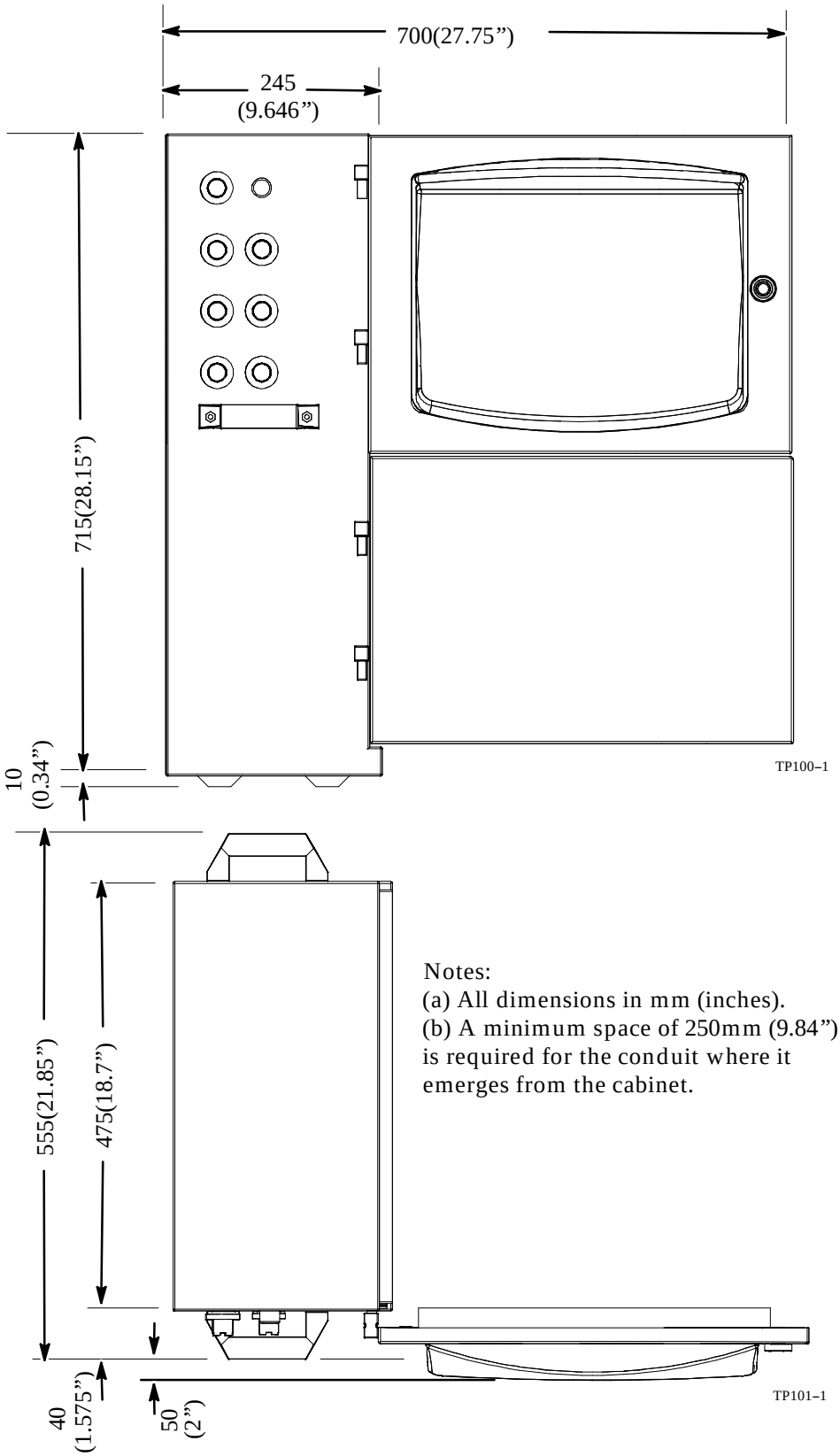
(1) Press the Jet On / Off key for about 2 seconds or (if activated) until an audible ”beep” is heard.

(2) Check that the Status bar shows the message *Sequencing Off*, and the Status lamp (green) on the Jet On key begins to flash.

(3) Check that approximately 3 minutes after switch–off, the Status bar message changes to *Printer Off* and the status lamp stops flashing.

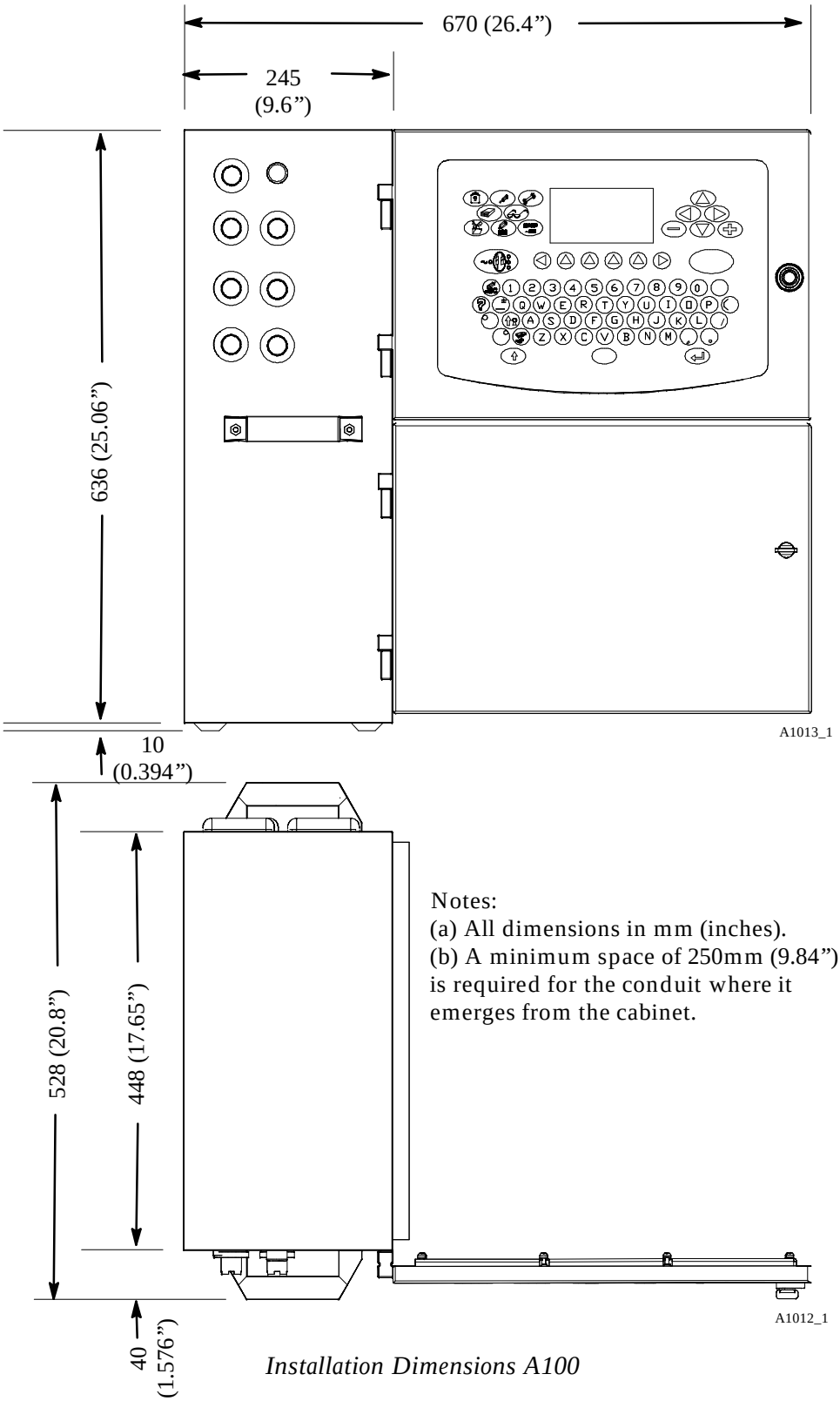


(4) Press the switch on the left side of the cabinet to switch off the printer.



Notes:
(a) All dimensions in mm (inches).
(b) A minimum space of 250mm (9.84") is required for the conduit where it emerges from the cabinet.

Installation Dimensions A300 and A200



Notes:
(a) All dimensions in mm (inches).
(b) A minimum space of 250mm (9.84”) is required for the conduit where it emerges from the cabinet.

Installation Dimensions A100

PRINTER INSTALLATION

The following is general information for installing the printer in a wide range of working areas.

Printer cabinet and printhead installation dimensions are given in the diagrams opposite and on pg.A–16. Further details are given on pg. 2–6.

Cabinet Positioning

The cabinet should be in a position where there is access to the front and left side with clearances to open the doors as given in the diagram. The cabinet must be level and electrically isolated from other equipment, except for a normal data interface.

For total stability, the cabinet should be mounted on a stand or fitted with a stabiliser kit (see Part 10 : Options).

The printer should not be put into an area where the temperatures will go outside the range +5 ^{o}C and +45 ^{o}C and the relative humidity will go outside the range 10% to 90% (non–condensing). The A300 printer draws in and expels cooling air through the underside of the cabinet, whilst the A200 and A100 printers draw cooling air through the upper right hand side of the cabinet, and expels it through the underside of the cabinet. Nothing must be allowed to interfere with this movement of air.

Conduit and Print Head Positioning

The conduit must be kept away from power supply cables and other wiring capable of producing electrical noise. The print head must also be electrically isolated. This is normally achieved by the insulation coating on the print head and its mounting components. However, if there is any danger of this being insufficient, use the glass–filled nylon mounting bracket supplied loose with the printer. The print head and conduit must also be as free as possible from vibration.

NOZZLE SIZE	PRINT HEAD DISTANCE FROM PRINT SURFACE
75 micron	12mm (0.47”) nominal, 12–30mm (0.47–1.18”)range
60 micron	12mm (0.47”) nominal, 5–20mm (0.2–0.79”) range
40 micron (Pinpoint)	6mm (0.24”) nominal, 2–12mm (0.08–0.47”) range

The print head must be mounted perpendicular to the printing surface. The distance between print head and print surface is optimised to the

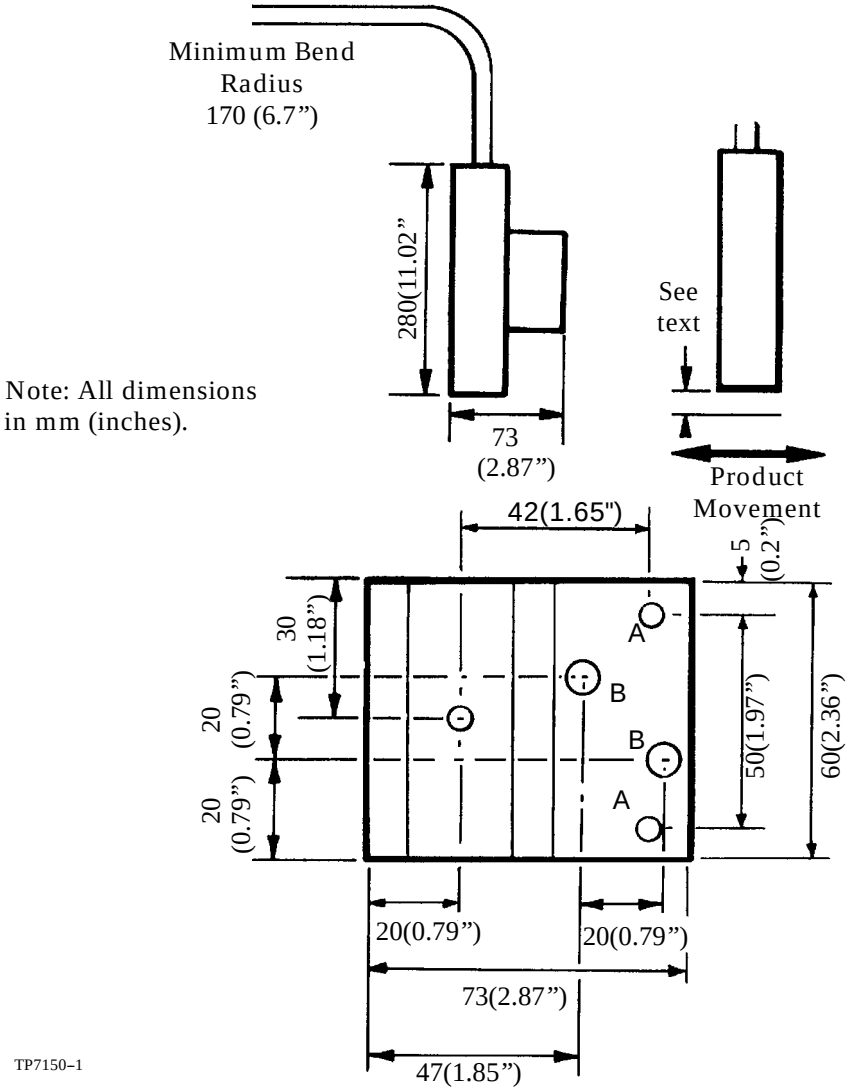
values given above. Print quality will be maintained if the distance is between the limits given, but will reduce outside these limits.

External Air Supply (Print Head) (A300/A200 only)

WARNING: Ensure the external air supply is connected to the new pipe fitting. Do not connect the air supply to the ink circuit vent.

If required, the positive air to the print head can be supplied from an external source. The air supply must be clean and dry. (Domino can provide advice on suitable air filters.) Pressure must not exceed 1bar (15psi) and should preferably be adjustable. The air supply is connected to the connector on the side of the cabinet.

The air pressure should be set to the minimum value that achieves the requirement, i.e. exclusion of contamination or fumes, but which does



Print Head and Bracket Installation Dimensions

not fall below the pressure switch minimum. An excessive air pressure will interfere with the ink jet and cause a deterioration in print quality.

Electrical Supply

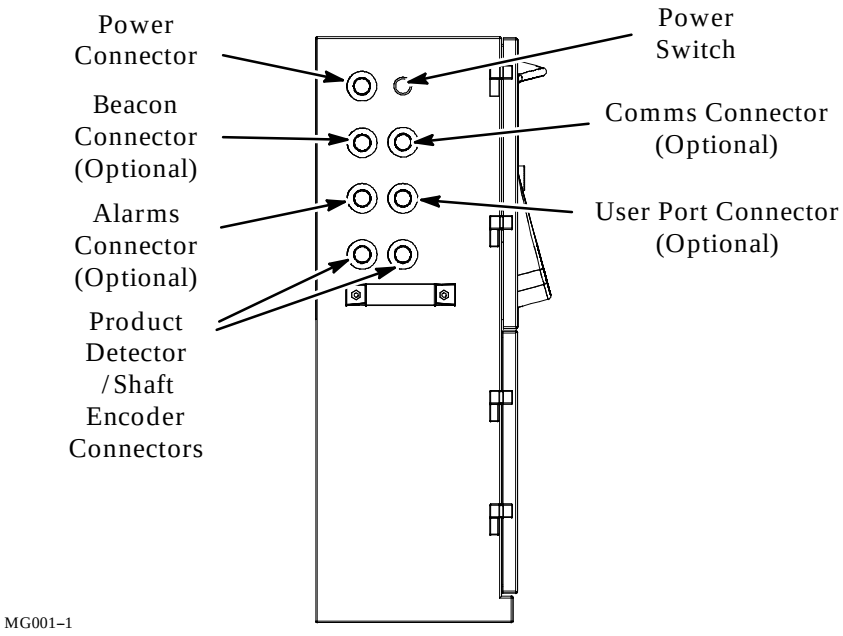
WARNING: **The cabinet must be properly earthed for the safety of personnel working on the printer.**

CAUTION ***Inadequate earthing could result in unreliable operation or component failure.***

The printer should be connected using a suitable plug and socket outlet which is accessible and close to the equipment, so that power can be quickly disconnected. If a fused power connector is used, it should be fitted with a 5A fuse. If a fused power connector is not used, then the supply circuit should have a circuit breaker or fuse rated at 5A.

The supply must be free from electrical noise. Domino can give advice on suitable devices to ensure trouble–free operation.

EXTERNAL CONNECTIONS



External Connections

Domino A–Series printers require the following a.c. single phase, three wire supply:

90V – 132V (nom. 120V), 200VA, 50 / 60Hz, or

180V – 264V (nom. 220V), 200VA, 50 / 60Hz,

PRODUCT DETECTOR INSTALLATION

Details are given in Part 10 : Options of the following types of detector:

- Photocell Assembly Retroreflective
- Photocell Assembly Proximity
- Proximity Switch Assembly.

The printer provides a 12V 100mA d.c. output for use by the photocell or proximity switch, and a 12V NPN open–collector input for product detection signals back from the detector. The detectors are attached to a connector on the side of the printer cabinet.

Sometimes the mode of operation and position of the product detector may be unique to a particular application. Domino would be pleased to assist with any problem.

Product Detector Positioning

The product detector should be fitted at a position where it can detect the product before the product reaches the print head. The product detector produces a pulse while the product is passing it, and either the leading edge or the trailing edge of this pulse can be selected to generate the Print Go signal (which triggers printing of the message). A time delay, called the Print Go delay, is applied to the Print Go signal. This delay enables the product to reach the exact position where printing should occur.

Positioning the printed message on the product is, therefore, controlled by two adjustments:

(a) Position of the product detector. The detector should be as close as possible to the print head, although this may depend upon the availability of attachment points, etc. The closest distances may also be affected by the minimum print delay available with the print format in use (see pg. A–10).

(b) Adjustment of the Print Go delay through the printer control panel.

The aim should be to position the product detector and select a pulse edge which will result in the minimum Print Go delay. A highly unsatisfactory condition, normally to be avoided, is where one product triggers printing on the next. This becomes increasingly possible at high print repetition rates, such as with small products passing at high speed.

APPENDIX B : A–SERIES COMPRESSOR DRIVEN AIRDRYER AMENDMENT RECORD

Amendment	Date
All Pages at Issue 1	Apr 98

APPENDIX B : A–SERIES COMPRESSOR DRIVEN AIRDRYER

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APPENDIX B : A–SERIES COMPRESSOR DRIVEN AIRDRYER

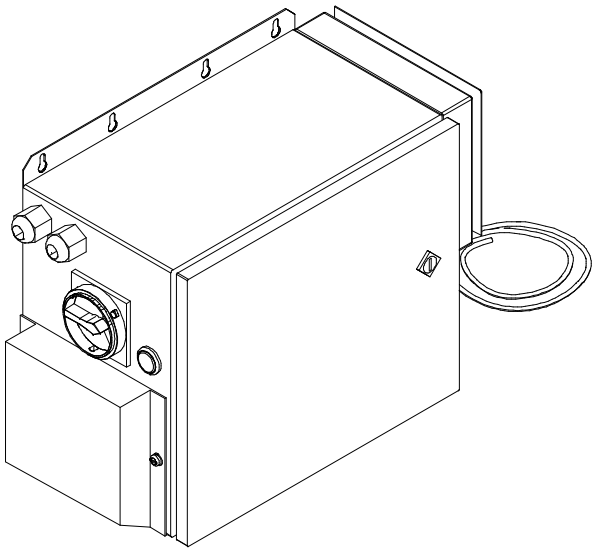
INTRODUCTION

The airdryer purges the print head with very clean, dry air. This environment around the jet and gutter ensures that the ink does not absorb airborne contaminants which are the main cause of ink degradation. The additional parts of the system are:

- an airdryer unit
- an airdryer connection kit.

The airdryer is connected into the main power supply to the printer to control the humidity and pressure of the air supplied to the printhead. If an airdryer fault occurs it gives both visual and audible warnings, the printer then performs a controlled shut–down and raises an alert.

If the reservoir is used for 2000 hours, it is recommended that at least two ink cartridges are used to maintain the condition of the ink.



AD016–2

Compressor Driven Airdryer

SPECIFICATION

Dimensions (overall):	Height:	275mm
	Width:	385mm
	Depth:	200mm
	Weight:	8.5kg
Environment:	Temp. Range:	5 –45 C operating.
	Humidity:	10 – 90% RH non–condensing.
Electrical Requirements:	90–132V / 180–264V, 50 / 60Hz, single phase, switch selectable.	
Performance:	Air flow:	2.0–2.2 litres / min
	Output humidity:	< 40% RH.
	Internal operating pressure:	4 bar set to 2 bar.
Acoustic Noise Level:	Not more than 70dBA.	

PRODUCT SAFETY

Certain parts of the airdryer must not be replaced by other types without approval of the Design Authority. These parts are as follows.

PART NO.	DESCRIPTION	MANUFACTURER	MANUF. PART NO.
11588	Voltage Selector	ITW	SE 1022 18–000–042
30430	Compressor 90–132V 50 / 60Hz	KNF	PJ 13504_NPK09
13654	Transformer	Avel	D4020
23387	PCB	Domino	
10606	Isolator	K. Moeler Ltd	TO–1–102 / EA / SV B
11191	Fuseholder	Schurter	031.1133
12172	Mains Filter	Ducatti	EFBF–3
30419	Filter Assy Low Frequency	Domino	
11340	Fan 110V	Papst	4600N
37775	Cable Assy Mains Output	Domino	
30414	Cable Assy Power Supply	Domino	

DESCRIPTION

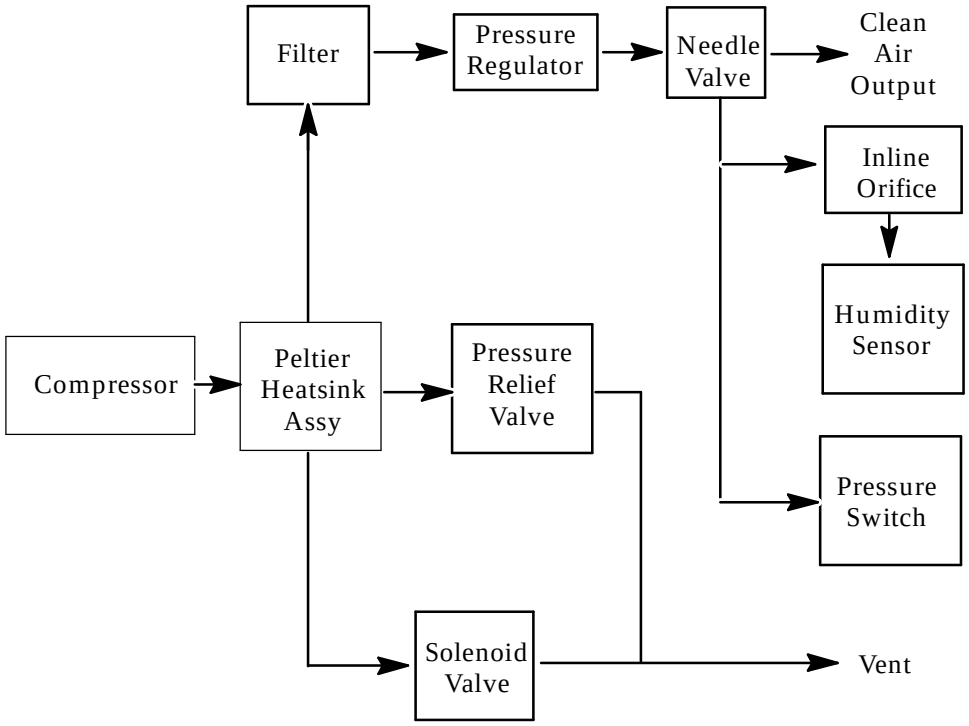
Airdryer – General

The airdryer system is contained in a stainless steel cabinet with a door fastened by a lock. A flange along the top of the cabinet provides fixing holes, enabling the dryer to be fitted to the printer stand or to be wall mounted.

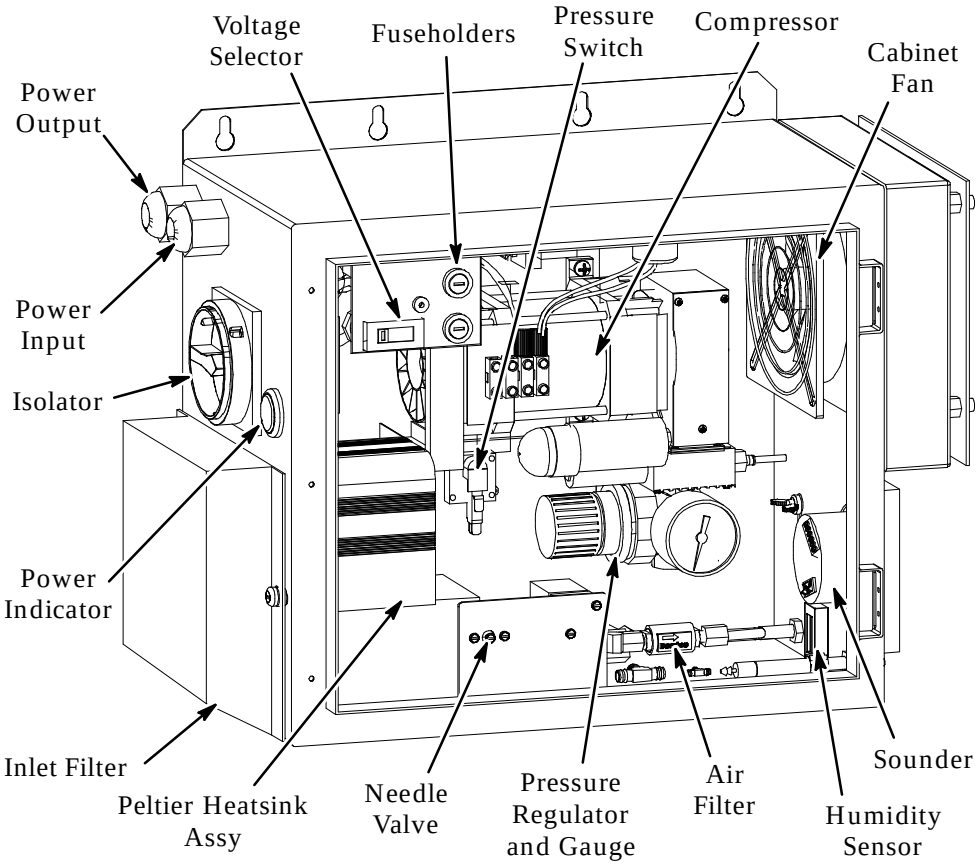
CAUTION ***The airdryer must be mounted in the upright position.***

The airdryer is shown in two general views (see Pg. B–8), with the block diagram below giving a schematic view of its operation.

Air is drawn in by the compressor and supplied at a pressure of approximately 4bar to the Peltier heatsink assembly. Increasing the air pressure above atmospheric pressure reduces its dew point and, in the Peltier heatsink assembly, the temperature of the pressurised air is reduced to approximately 5°C. The moisture in the air condenses and is trapped in the Peltier heatsink assembly. The dry compressed air then passes through a filter to a pressure regulator and a needle valve restrictor. The regulator maintains a fixed pressure of 2bar and the restrictor valve maintains a fixed flow rate from the airdryer of 2.0 to 2.2 litres / minute to the print head.

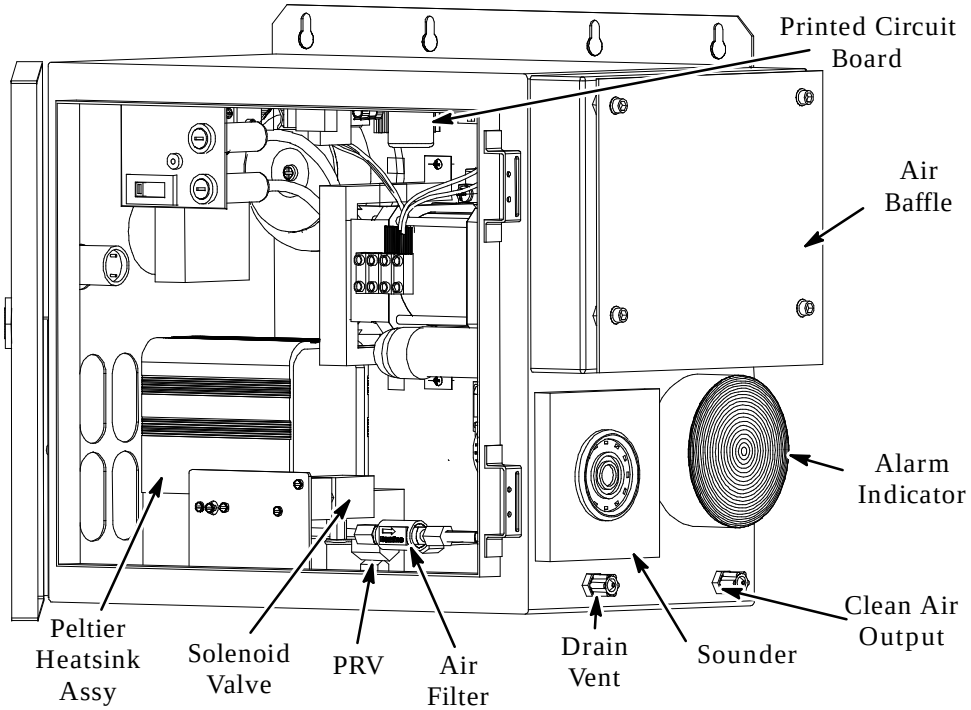


Airdryer Schematic Diagram



AD035_1

Airdryer – General View (a)

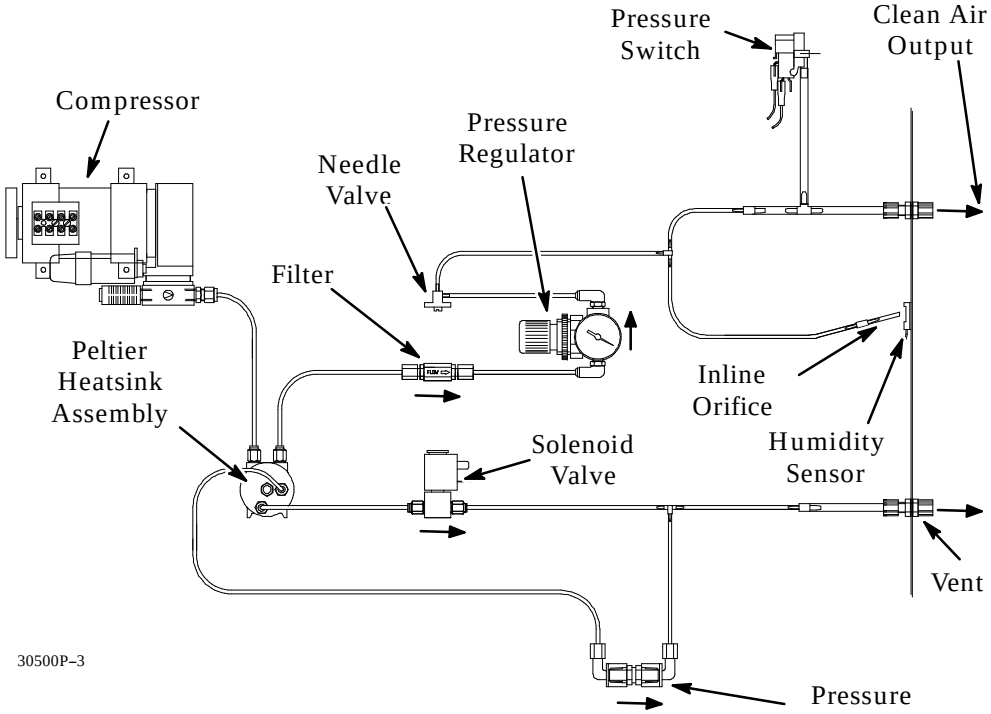


AD036_1

Airdryer – General View (b)

The output air is checked by a pressure switch and a small amount, controlled by an inline orifice, is allowed to leak onto a humidity sensor. A failure in either the pressure or humidity is detected by the electronics system.

The Peltier heatsink assembly has a second output connection, through a solenoid valve to a vent and a third output connection through a Pressure Relief Valve (PRV) (to the same vent). Opening the solenoid valve periodically ejects the condensation caught in the Peltier heatsink assembly. The PRV limits the air pressure to a factory setting of 4bar.



Airdryer System

The Peltier heatsink assembly has a thermally insulated condenser where the compressed air is cooled, and a heatsink that dissipates the heat taken from the air. The heatsink is cooled by a fan that draws air into the cabinet through a filter. This air also provides general cooling and is expelled by a fan on the opposite side of the cabinet.

Airdryer – Installation

CAUTION ***The airdryer must be mounted in the vertical position.***

Note: *If the air output from the airdryer is not connected to the printer, a pressure fault will occur.*

The airdryer has key hole attachment points along its top edge. Ensure that the airdryer is secure when using these points.

The airdryer has two fuses, both the same rating. Remove the fuseholder cover and check that the fuses are correct for the nominal input power:

240V – 1.6A

120V – 3.15A.

Replace the cover after checking.

The airdryer connections are as follows:

(a) Power input – connect to the power source.

(b) Power output – connect to printer

(c) Clean air output – connect to the printer at the connection near the conduit panel at the side of the cabinet.

Mounting the Airdryer onto the A–Series Stands

WARNING: Power to the printer must be removed.

(1) At the rear of the stand, screw the two M6x10 skt cap screws into the centre holes of the rear support panel. Allow sufficient room for the airdryer slots.

(2) Fit the airdryer onto the screws using the two outer keyhole fittings.

(3) Tighten the screws to secure the airdryer in place.

(4) Remove the mains cable from the printer.

(5) Plug the airdryer mains output socket into the printer mains input.

(6) Connect the 2 metres of 1/4" tube supplied in the kit to the external festo on the side of the printer (below the external connections).

(7) Cut this 2 metre tube to the correct length, and connect the other end to the airdryer air output festo.

Notes *(1) Ensure the tube is not kinked.*

(2) Test the air flow and humidity at the printhead using the airdryer test kit – part number 30455.

Airdryer – Electronics

Note: Removing power to the compressor will remove the air output from the airdryer.

The airdryer circuits perform the following functions:

- Provide power to the Peltier cooling element
- Maintain the Peltier cool side at or above 4 C to prevent icing of the cooler in low ambient temperatures
- Periodically open the condensate drain solenoid
- Periodically sample the output air pressure and humidity, and if either goes out of specification, (a) remove power from the compressor and (b) provide visual and audible alarms
- Provide fault indications.

The Peltier heat pump in the cooler is supplied with power taken from an unregulated 12V supply generated on the printed circuit board. With this level of power input, the heat pump can provide a 25 C temperature difference between its hot and cold faces. When the ambient temperature is less than 29 C, a thermistor control circuit interrupts the supply, preventing the cold face falling below 4 C and avoiding the formation of ice.

Condensate is expelled at regular intervals from the Peltier cooler by way of a solenoid valve. The solenoid is opened for 1 second by a monostable triggered by a clock generator driving a counter. Link LK2 allows selection from a range of counts giving time intervals of, 6 secs, 12.5 mins, 25 mins and 100 mins.

The same counter provides clock signals to sampling latches at a rate dependent upon the setting of LK1.

The humidity sensor is supplied with a simulated ac voltage derived from a low frequency binary oscillator. The humidity alters the sensor resistance and controls the input to a sampling latch. The pressure switch provides a switched dc level into a second sampling latch. LED's 1 and 2 show these states. If the input to either latch is set, clock pulses controlled by LK1 switch the latch to:

(a) Operate the alarm and fault indicator.

(b) Operate the relay to cut power to the compressor.

Switch SW1 (see Pg. B–31) allows selection of normal operation, or a test condition, in which the sounder is stopped, the alarm indicator

flashes and power is restored to the printer, regardless of any fault conditions.

Two parallel power supply circuits provide power the peltier, cooling fan and solenoid from one supply and the sensors and alarms from the other. A monitor circuit can detect if the peltier supply is interrupted and activates the alarms as a warning (without disturbing the power supply to the printer).

A lockout mode has current fault and history LEDs indicating present and past faults. Once a current fault is sampled the history LED is turned on, a time delay is started and after an elapsed time, the power to the compressor is cut. The airdryer remains in this state, enabling the history LEDs to be inspected to identify the fault. Reset switch SW2 cancels the alarms, resets the LEDs to off and restores power to the compressor.

Removing power to the compressor causes a pressure fault which is sensed by the printer. The printer will perform a soft shut–down and raise a red alert.

2000 HOUR MAINTENANCE

The following maintenance should be carried out after each 2000 hours of operating time. If the printer is in infrequent use, these should be carried out every six months.

For access into the airdryer, unlock and open the door.

Note: The 2000 hour service kit is part number 30469

Manual Venting of Peltier Chamber

During the 2000 hour service the Peltier chamber must be vented manually as follows:

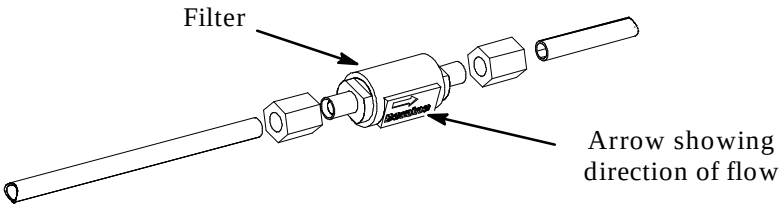
(1) On the PCB, switch SW1 to the test position and place LK2 from pins 3&4 to pins 1&2, (this opens the condensate drain every 6 seconds).

(2) Switch the airdryer on and leave for 30 minutes, or until no moisture is expelled from the vent.

(3) Replace LK2 back to pins 3&4 and switch SW1 to normal.

Peltier Air Filter Replacement

WARNING: The airdryer must be switched off and power removed.



Filter Replacement

(1) Cut off each air tube at the filter. Use the face of the nut securing the tube to the filter as a guide to make a clean, square cut.

(2) Discard the old filter.

(3) On the new filter, ensure that the tube nuts are fitted but not tightened.

(4) Inspect the new filter to find the small arrow indicating the direction of air flow.

(5) Push the pipe supplying air into the filter (from the Peltier assembly) into the nut behind the arrow. Push the tube into the nut until it stops against the shoulder just inside the filter.

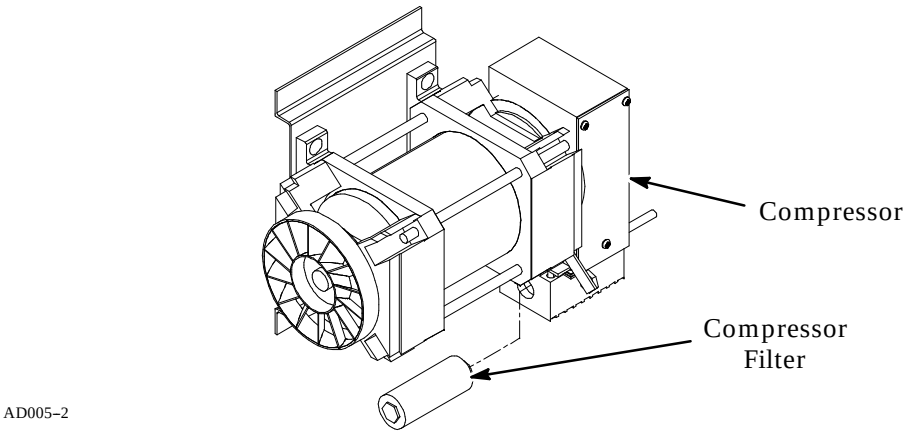
(6) Tighten the nut finger–tight, without excessive force, then tighten the nut by half a turn with a spanner.

(7) Fit the tube taking air from the filter as in steps 5 and 6.

Compressor Filter Replacement

WARNING: The airdryer must be switched off and power removed.

Note: In dusty environments, the filter should be replaced more frequently.



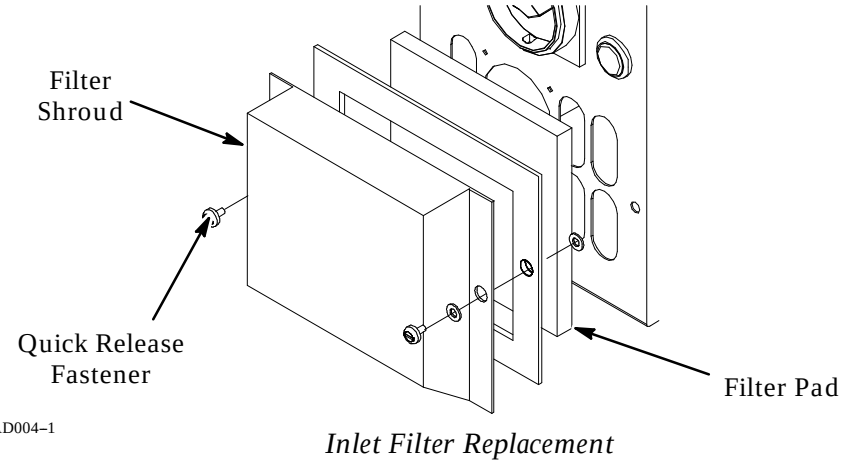
Compressor Filter Replacement

Unscrew the compressor filter and remove from the compressor head. Screw the replacement into its place.

Inlet Filter Replacement

WARNING: The airdryer must be switched off and power removed.

Note: If this filter becomes very dirty after 2000 hours, it should be cleaned or replaced more frequently.



Inlet Filter Replacement

(1) Release the fasteners on each side of the filter shroud and remove the shroud.
(2) Remove the filter pad from the shroud. Inspect the filter for signs of damage or serious clogging and in either case replace the filter. Otherwise, clean the filter in warm soapy water and allow to dry.
(3) Fit the new or cleaned filter into the shroud and refit to the airdryer.

Air Flow Check

CAUTION ***It is essential that the air flow AND humidity are both checked every 2000 hours to ensure reliable printer operation.***

Notes (1) The part number for the airdryer test kit used in this check is 30455.

(2) Any instability in the ink jet apparently due to this air flow will almost certainly result from another cause and should be properly investigated. However, if the air flow rate from the dryer does interfere with the ink jet, reduce the air flow (screw in the needle) until the interference ceases.

(1) Remove the print head from its holster.

(2) Check the air flowmeter chart (part of the airdryer kit) and determine the meter graduations corresponding to air flows of 2.0 and 2.2 litres / minute.

(3) Connect the air flowmeter to the 1 / 4" silicone air tube in the print head. Support the flow meter in a vertical position.

(4) Turn on the airdryer.

(5) Check that the air flow indicated by the meter is between 2.0 and 2.2 litres / minute. If necessary, carefully adjust the restrictor needle to set the air flow to within these limits. Remove the meter.

Humidity Check

Note: The part number for the airdryer test kit used in this check is 30455.

(1) Remove the print head from its holster.

(2) Connect the humidity sample bottle to the 1 / 4" silicone air tube in the print head.

(3) Turn on the airdryer.

(4) Set the ThermoHygrometer to monitor Centigrade. Insert the meter into the neck of the sample bottle and switch the meter on.

(5) Allow the meter to acclimatise for ten minutes, then note the temperature and humidity shown in the meter window.

(6) The air temperature should be slightly higher than the ambient temperature and the humidity should be less than 22% Relative Humidity.

(7) Remove the sample bottle and meter, return the printhead into its holster.

Note: During the purge period when the solenoid valve is open, the humidity may temporarily increase by up to 5% RH.

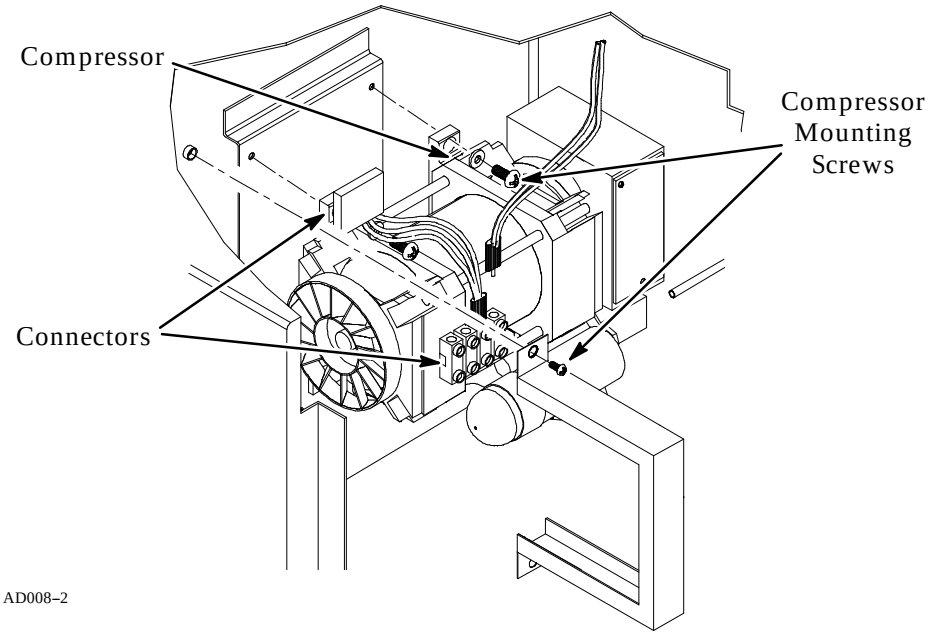
4000 HOUR MAINTENANCE

The 4000 hour service is as the 2000 hour service plus the following procedure.

Compressor Piston Seal and Valve Replacement

WARNING: The airdryer must be switched off and power removed.

Note: The 4000 hour service kit is part number 30470.



Removing the Compressor

(1) Remove the wiring to the compressor.

(2) Disconnect the tube connected to the compressor head.

(3) Remove the screws securing the compressor fan cover and remove the cover.

(4) Release the screws securing the compressor and remove the compressor from the cabinet.

(5) Unscrew and remove the compressor filter.

(6) Note the orientation of the compressor head relative to the compressor body, then release the screws securing the compressor head and remove the head and valve plates as a single assembly.

(7) Remove the 'O' ring from the cylinder sleeve.

(8) On the compressor, remove the screw at the center of the piston and remove the retainer plate from the piston.

(9) Remove the piston seal in the top of the piston. If necessary, it is possible to pull out the cylinder, complete with seal. Remove the seal, then clean and replace the cylinder. It may also be convenient at this stage to carry out step (12).

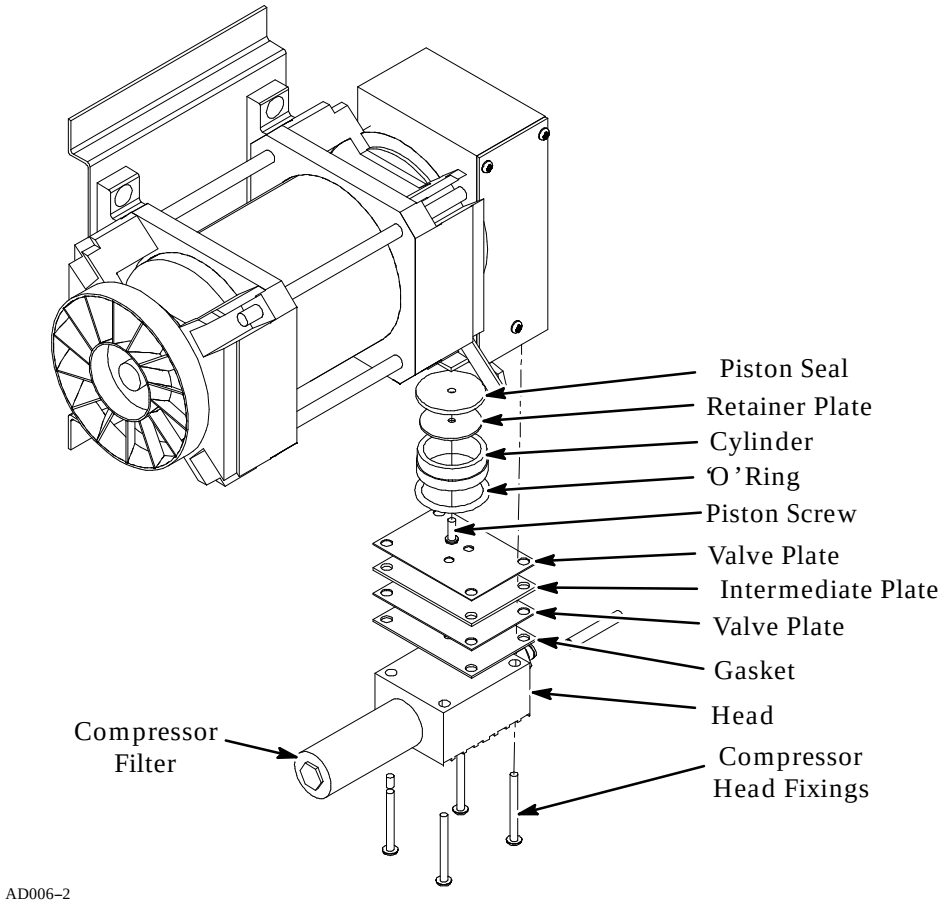
(10) Turn the compressor fan until the piston is fully extended, keeping the cylinder in place.

(11) Fit a new piston seal to the top of the piston, then fit and tighten the retainer plate and screw.

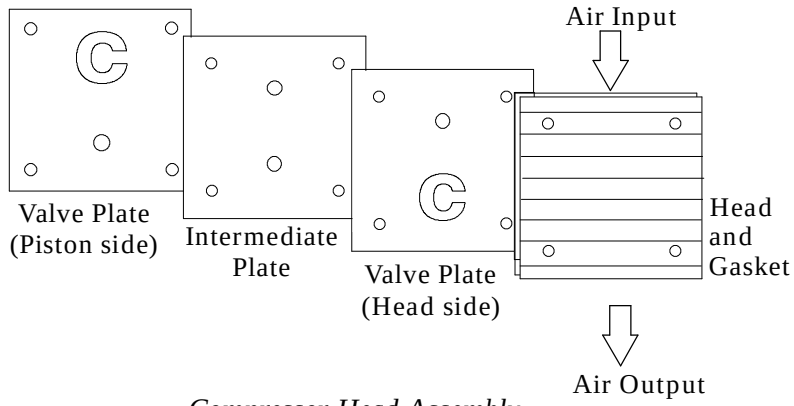
(12) Fit a new 'O' ring to the cylinder.

(13) Carefully remove, clean and refit the valve plates assembled to the compressor head. Reassemble the head and valve plates to the compressor and tighten the fixing screws diagonally and uniformly, sufficiently to secure the head firmly, but without over–tightening. Turn the compressor to ensure that the assembled machine moves freely.

(14) Fit a new compressor filter.



Compressor Head Assembly



Compressor Head Assembly

(15) Refit the compressor into the cabinet and reconnect the wiring and output tube.

(16) Replace the compressor fan cover.

FAULT FINDING AND REPAIR

The airdryer PCB contains a switch and links which should be set as on Pg. B–31, see also service diagrams on Pg. B–41.

Fault Diagnosis

The following tables are provided for help in fault finding.

Air Pressure Faults

FAULT	POSSIBLE CAUSE	ACTION
No flow at print head.	Kink or loose connection in tubes connecting airdryer to printer.	Check air flow from dryer. Check tubes and connections.
	Needle valve closed or blocked.	Clean and / or adjust needle valve.
	Filter blocked.	Check filter between Peltier assembly and regulator. Check compressor filter.
	Compressor faulty.	Check for electrical supply failure. Check for mechanical failure.
	Solenoid valve permanently open or leaking.	Check solenoid valve. Check solenoid valve wiring. Check solenoid control from PCB – set LK2 to position 1–2 and check operation every 6 secs. Reset to position 3–4.
	Air leak in system.	Check for split tubes, broken or loose connections.
	PRV permanently open.	Clean or replace PRV.

FAULT	POSSIBLE CAUSE	ACTION
Air flow too low.	Regulator not at 2bar.	Set regulator to 2bar and lock knob.
	Needle valve not set correctly.	Set to airflow of 2.0–2.2 ltrs / min.
	Compressor faulty.	Check compressor motor, piston seal and valve plates.
	PRV not set correctly or leaking.	Check PRV set to 4bar and not leaking.
	PCB LK2 in test position.	Set PCB LK2 to normal.
Airflow too high.	Regulator set above 2bar.	Set regulator to 2bar and lock knob.
	Needle valve not set correctly.	Set to airflow of 2.0–2.2 ltrs / min.
	Inline orifice blocked.	Check airflow from humidity sensor tube is 1.0 ltrs / min approx.

Humidity Faults

FAULT	POSSIBLE CAUSE	ACTION
High output humidity or water present in conditioned air.	PCB fuse blown.	Check fuse.
	Peltier fault.	Check Peltier connections. Check PCB.
	Peltier chamber water–logged.	Check solenoid operation. Check PCB LK2 has connector fitted. Check inlet filter not blocked.
	Waste liquid not being ejected.	Check solenoid operation. Check PCB LK2 is incorrect position (normally 3–4).
	Low pressure.	Check for low airflow.
High output humidity or water present in conditioned air.	Peltier fan not working.	Check connections and operation.
Output humidity satisfactory, PCB humidity LED illuminated and alarms operating.	Humidity sensor detection incorrect.	Check tube supplying humidity sensor correctly placed. Check orifice not blocked. Set PCB SW1 to Test mode and run dryer with door closed for 6 minutes to stabilise cabinet and ensure PCB humidity detection operates correctly (LED goes out). Check sensor. Check PCB.

Power, Alarms, Sensors and Overheating Faults

FAULT	POSSIBLE CAUSE	ACTION
Airdryer and printer not powering up.	Power fault.	Check power fuses. Check connections in airdryer.
Input fuse keeps blowing.	Circuit fault. Cabinet overheating.	Check voltage selector. Check fuse rating. Check inlet filter not blocked.
Airdryer operating but power indicator not illuminated.	PCB fuse blown. Lamp blown.	Check PCB fuse F1. Check 12V on PCB. Check PCB. Check lamp.
PCB fuse F1 blowing.	Heatsink on PCB loose. PCB faulty. Peltier faulty. Cabinet overheating.	Check PCB heatsink is secure. Check PCB. Check Peltier. Check inlet filter not blocked.
Alarm indicator does not flash or sounder does not operate when fault occurs.	Sounder faulty. Alarm indicator faulty.	Check sounder. Check alarm indicator. Check PCB.
Alarm indicator does not flash in Test mode.	Alarm indicator faulty.	Check alarm indicator. Check PCB fuse. Check PCB.
Output humidity high but humidity LED not illuminated.	Humidity sensor fault.	Check humidity sensor, wiring and connections.
Constant pressure fault.	Air pressure switch faulty.	Check switch, wiring and connections.
	Break in air supply between Airdryer output and printer	Ensure airdryer output is connected to the printer air input. Check airflow at printhead.

FAULT	POSSIBLE CAUSE	ACTION
No output airflow, no fault shown.	Air pressure switch faulty.	Check switch, wiring and connections.
Alarm indicator flashing constantly.	PCB SW1 set to Test position.	Set PCB SW1 to normal.
Airdryer overheating.	Cabinet fan not operating.	Check fan and wiring.
Peltier assembly overheating.	Peltier assembly fan faulty.	Check fan and wiring.

Power Indicator	Power To Printer	Compressor Running	Beacon Indicator	Sounder	Air Dryer Status	Check/Cause
On	Yes	Yes	Off	Off	Normal	
On	Yes	Yes	On	On	Pressure/humidity fault or fuse fail warning	See following procedure (a)
On	Yes	No	On	On	Printer Sequences off and raises a red alert	See following procedure (b)
On	Yes	Yes	On	Off	Service mode	See fault tables
Off	Yes	Yes	Off	Off	Air dryer malfunction	See fault tables
Off	No	No	Off	Off	Air dryer and printer malfunction	See fault tables

Indicator and Alarm Status Table

(a) Check PCB Issue 2 indicators as follows:

LED 1 (present pressure fault)	**LED 2** (present humidity fault)	**LED 3** (Peltier on)	**LED 4** (history pressure fault)	**LED 5** (history humidity fault)	**FAULT CONDITION**
On					Pressure fault present – not yet sampled.
On			On		Pressure fault present and sampled.
			On		Pressure fault sampled but fault cleared.
	On				Humidity fault present – not yet sampled
	On			On	Humidity fault present and sampled.
				On	Humidity fault sampled but fault cleared.
		On			Peltier on.
					F1 blown.

Note: Removing power to the compressor will cause the printer to shutdown to the standby mode and cause a red alert.

When they first operate, the external warnings (flashing lamp and sounder) indicate that either:

- the fault has been sampled and power to the compressor will soon be cut, or
- the fuse has failed, the Peltier is no longer working and the air supply is not being dried. Power to the compressor will soon be cut.

(b) Check PCB Issue 2 indicators as follows:

LED 1	**LED 2**	**LED 3**	**LED 4**	**LED 5**	**FAULT CONDITION**
On			On		Pressure fault present and sampled.
			On		Pressure fault sampled but fault cleared.
	On			On	Humidity fault present and sampled.
				On	Humidity fault sampled but fault cleared.

Press reset switch SW2 to reset the LED indicators to normal, return power to the compressor and cancel the alarms.

Fuse Replacement

WARNING: The airdryer must be switched off and power removed.

The power fuses are fitted into holders next to the voltage selector. In addition, PCB Issue 2 has two fuses, held in open connectors on the PCBs.

Power input 120V nominal: 3.15A (T).

Power input 240V nominal: 1.6A (T).

PCB Issue 2 fuse F1 4.0A, fuse F2 500mA.

Power Indicator Replacement

WARNING: The airdryer must be switched off and power removed.

The door must be open.

Lamp replacement: At the rear of the indicator body, press together the two release tabs and pull the lamp holder out of the indicator shell. The bulb is a push fit into the holder.

Indicator replacement: Disconnect the wire connection at the PCB, unscrew the ring nut and remove the indicator. Re–assembly with a new lamp is the reverse procedure.

Sounder Replacement

WARNING: The airdryer must be switched off and power removed.

The door must be open.

To remove the sounder, disconnect the wiring from the PCB, loosen the two fixing screws and remove. Re–assembly is the reverse procedure.

Alarm Beacon Lamp Replacement

WARNING: The airdryer must be switched off and power removed.

The door must be open.

The cabinet wall has a hole shaped to allow the indicator wiring connector and nut to pass through. Therefore, disconnect the indicator wiring from the PCB, and loosen the nut to remove the indicator. Re–assembly, with a new lamp, is the reverse procedure. Ensure that the gasket under the indicator is in the correct position.

Cabinet Fan Replacement

WARNING: The airdryer must be switched off and power removed.

The door must be open.

Pull off the power connections from the fan and remove the earth / ground connection.

Remove the four screws securing the external shroud to the cabinet. Lift the shroud, complete with fan, away from the dryer cabinet.

Remove the four screws holding the fan, finger guard and shroud as a single assembly, replace the fan with a new unit and re–assemble.

Refit the shroud onto the cabinet and reconnect the wiring to the fan.

Pressure Switch Replacement

WARNING: The airdryer must be switched off and power removed.

The door must be open.

Remove the two fixing screws and pull the switch forward. Remove the wiring connections and the tube from the switch and remove the switch from the cabinet. Re–assembly, with a new switch, is the reverse procedure.

Humidity Sensor Replacement

WARNING: The airdryer must be switched off and power removed.

The door must be open.

Disconnect the wiring from the PCB and carefully remove the humidity sensor from the cabinet wall. To fit a new sensor, attach the sensor to the cabinet wall using the adhesive pad and connect the wiring to the PCB. Be careful to place the sensor in the air flow from the sampling tube.

Pressure Regulator Replacement

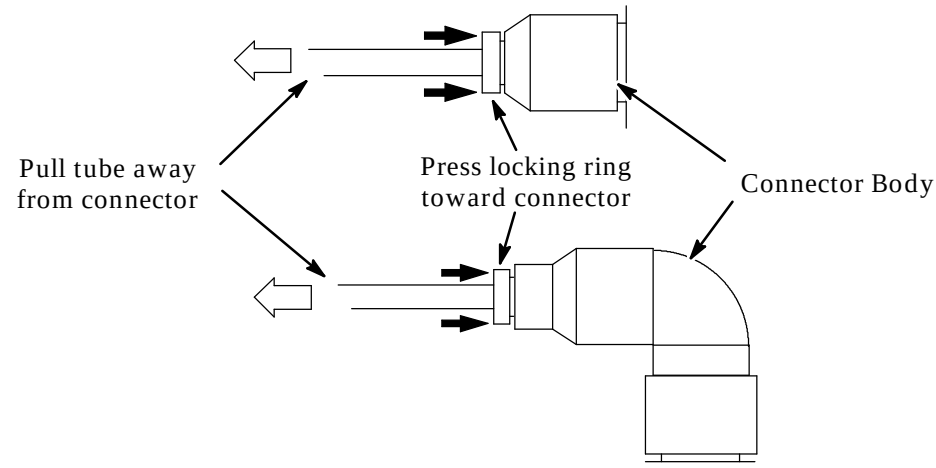
WARNING: The airdryer must be switched off and power removed.

The door must be open.

The regulator has two quick release tube connectors (see diagram) and is secured by a ring nut. When the tubes and ring nut are removed, the regulator can be lifted out and replaced.

Quick Release Connectors

To disconnect the tube, release the connector by pressing the locking ring and pull off the tube (see diagram). Do not disturb the screw thread connection of the connector into the filter body. To reconnect the tube, push the tube firmly into the connector.



Quick Release Connectors

Solenoid Valve Replacement

WARNING: The airdryer must be switched off and power removed.

The door must be open.

The solenoid valve has two quick release tube connections (see diagram) and two electrical connections. When these are removed, the solenoid valve securing screws can be released and the solenoid valve replaced.

Main Switch Replacement

WARNING: The airdryer must be switched off and power removed.

The door must be open.

(1) Loosen the screw in the center of the red outer handle and remove the handle.

(2) In the recess previously covered by the red handle, remove the two fixing screws securing the switch body.

(3) Inside the cabinet, pull the switch body forward sufficiently to remove the wiring connections.

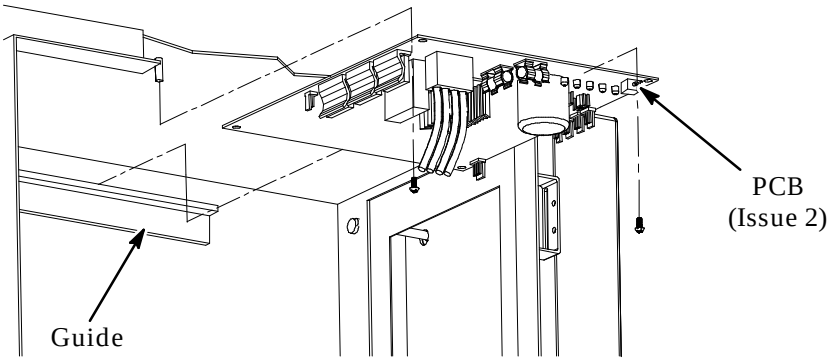
Re–assembly, with a new switch, is the reverse procedure.

PCB Removal and Replacement

WARNING: The airdryer must be switched off and power removed.

The door must be open.

Note: The PCB contains settings that should be checked before fitting.



AD007_2

Printed Circuit Board Removal (Front View)

(1) Note the location of the wiring connectors on the PCB, and remove.

(2) Remove the two nylon screws near the outer edge of the PCB and remove the PCB.

(3) To replace the PCB, fit the PCB into the cabinet, ensuring that the back edge of the PCB is located correctly in the guide on the cabinet wall.

(4) Refit the nylon fixing screws, ensuring that the PCB is still properly located in the guide.

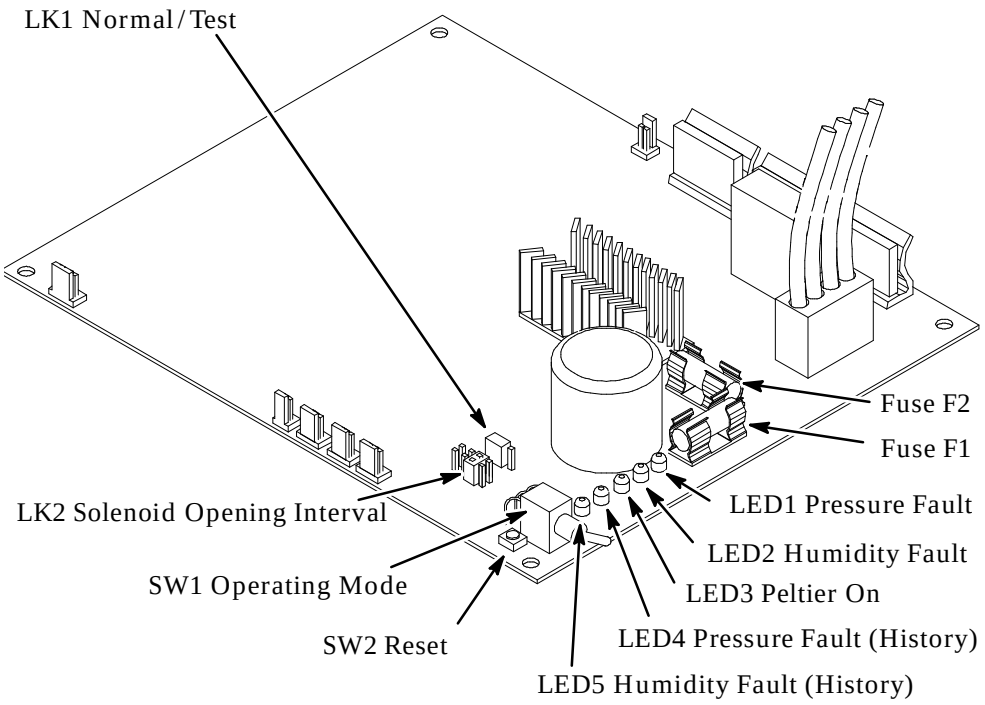
(5) Refit the wiring connectors (as noted in step 1).

PCB Mk 2 settings (see pg. B–41) are:

Switch SW1 should be set to Normal

Link LK1 should be set to Normal

Link LK2 should normally be set to position 3–4 (1500 secs).

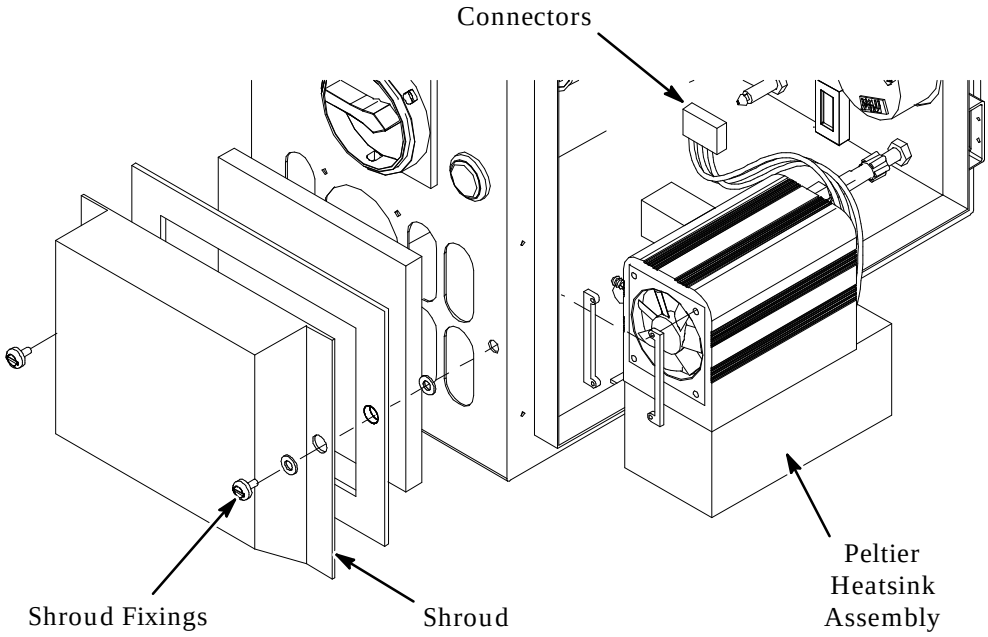


Airdryer PCB Issue 2

Peltier Assembly Replacement

WARNING: The airdryer must be switched off and power removed.

The door must be open.



Replacing the Peltier Assembly

(1) Release the quick release fasteners and remove the input filter shroud.

(2) Disconnect the Peltier assembly connections from the PCB.

(3) Remove the screws securing the needle valve mounting bracket and move the bracket to one side (see Pg. B–8).

(4) Disconnect the tubes at the quick release connectors (see Pg. B–29) on the Peltier assembly.

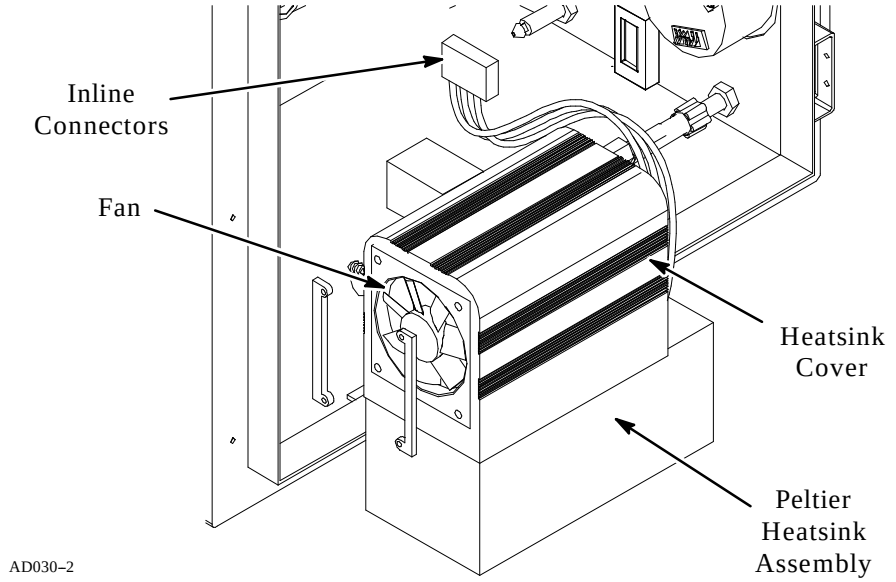
(5) On the outside of the cabinet, remove the screws securing the Peltier assembly and lift the assembly out of the cabinet.

The Peltier assembly can now be replaced as a single assembly by reversing the above procedure. Alternatively, the heatsink fan can be replaced as in the following procedure.

Peltier Assembly Fan Replacement

WARNING: The airdryer must be switched off and power removed.

The Peltier assembly can be removed from the cabinet for this repair. (see Pg. B–32). Alternatively the fan can be replaced as follows:



Replacing the Peltier Fan

(1) Inside the cabinet, disconnect the Peltier assembly wiring from the PCB.

(2) Disconnect the Peltier power and temperature sensor wires at their inline wiring connectors and cut the cable tie securing the wiring to the Peltier assembly.

(3) Carefully slide the Peltier heatsink cover back towards the compressor.

(4) Outside the cabinet, remove the inlet filter shroud.

(5) Remove the screws securing the Peltier assembly, to release the fan. Remove the fan and its wiring from the cabinet.

(6) Carefully slide the connectors and wiring on the replacement fan down the center of the heatsink inside the cover. The fan is marked with an arrow showing direction of air flow and this must point toward the heatsink. Fit the fan into position and secure the fan and Peltier assembly with the fixing screws.

(7) Carefully slide the cover back into the correct position. Connect the inline wiring connectors and reconnect the wiring to the PCB.

(8) Refit the inlet filter shroud.

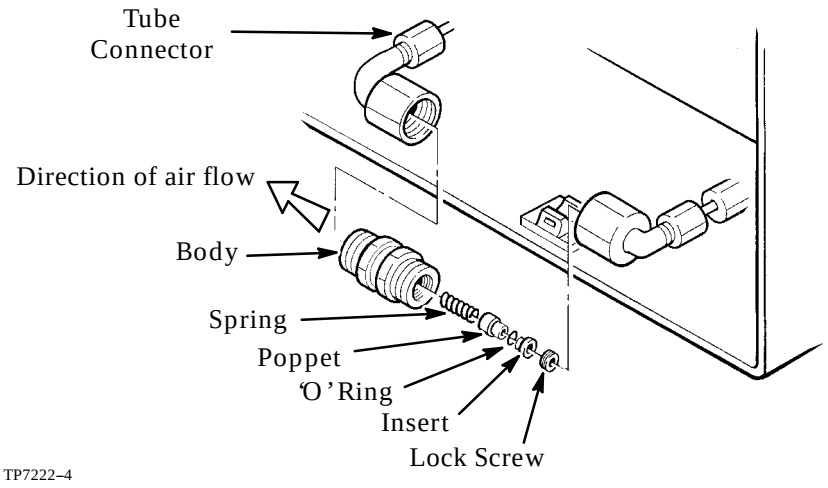
Pressure Relief Valve Cleaning,Checking or Adjusting

WARNING: The airdryer must be switched off and power removed.

Note: Airdryer Test Kit 30455 is required for these procedures

Cleaning the PRV

Note: Thread sealant (Loctite 542 with Activator 7941) will be required.



PRV Removal

(1) With the Mains isolator off and the door open, cut the ty–rap securing the PRV, and unscrew the nuts to disconnect the tubes.

(2) Remove the elbows from the PRV, making a note of the orientation of the PRV.

(3) To fit a new PRV, apply thread sealant to the inlet end threads of the PRV, and screw to the correct elbow, as noted in step 2. Now follow the adjustment procedure on page B–35.

To clean the PRV,

(4) With the PRV removed, find the arrow indicating the air flow direction, the arrow points to the adjustment end.

(5) At the opposite end to the adjustment (the inlet end), use a 5/16" hexagon key to remove the lock screw.

(6) Remove the insert (carrying the sealing O'ring), poppet and spring

(7) Clean all parts of the PRV, then refit into the PRV body, tighten the locking screw.

(8) Refit the PRV as in step 3.

Testing the PRV Pressure

CAUTION ***Ensure the vent is clear.***

(1) With the mains isolator off and the door open, set switch SW1 to TEST.

(2) Turn the needle valve fully clockwise (closed).

(3) Switch the isolator to ON.

(4) Turn the regulator clockwise, until the pressure reading on the gauge no longer increases.

(5) Note the pressure on the gauge. This should be 4bar ¦ 0.2bar.

(6) To release the pressure from the system, turn the needle valve anti–clockwise by one turn.

(7) With the mains isolator switched OFF, set switch SW1 to NORMAL.

(8) If the pressure was found to be within limits, reset the airdryer pressure and airflow , as detailed in the airdryer test kit

(9) If the pressure is found to be out of specification, adjust the PRV as detailed below.

Adjusting the PRV

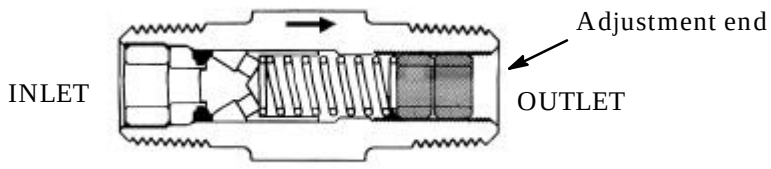
Note: *Thread Sealant (Loctite 542 with Activator 7491) will be required when re–assembling the connectors – see step (3).*

(1) With the mains isolator set to Off and the door open, set switch SW1 to TEST.

(2) Turn the needle valve fully clockwise (closed).

(3) Cut the cable tie securing the PRV body.

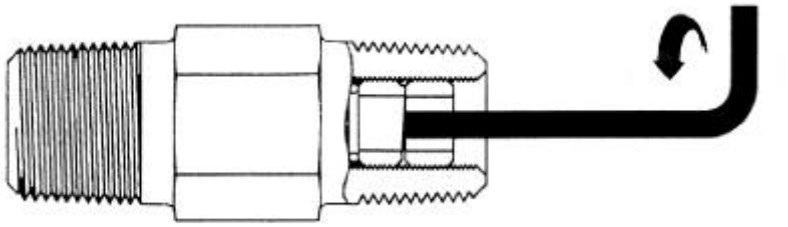
(4) Identify the PRV adjustment end (see diagram), an arrow on the body of the PRV points to this end.



TP7804_1

(5) At the adjustment end of the PRV, undo the nut on the elbow, and remove the elbow from the PRV.

(6) Insert a 4mm Allen key into the adjustment end of the PRV as far as the locking screw (see diagram below), loosen the locking screw by turning it anti–clockwise.

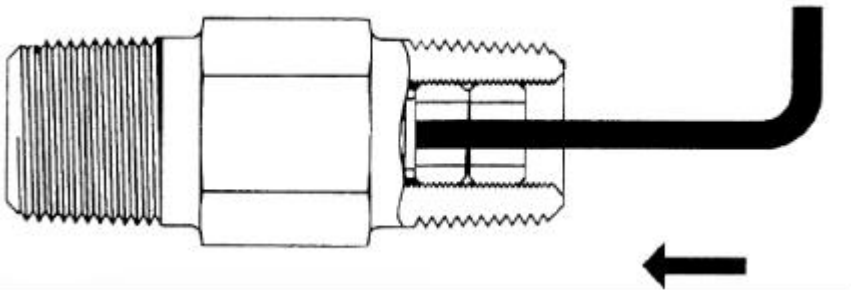


TP7801_1

(7) Turn the mains isolator On.

(8) Turn the regulator clockwise, until the pressure reading on the gauge no longer increases.

(9) Slide the allen key down into the adjusting screw (see diagram below)



TP7806_1

(10) Observing the pressure gauge, turn the adjusting screw until it reads 4.2bar ¦ 0.2bar. Turn clockwise to increase the pressure and anti–clockwise to decrease.

(11) Remove the allen key from the PRV and check that the pressure does not fall, if it falls out of tolerance, repeat step (10) until it remains within the tolerance.

(12) Insert the allen key into the locking screw, and turn clockwise to lock.

Note: If the pressure adjusts, and the locking screw does not seem to lock, remove the locking screw completely and refit the other way round. If this is necessary, repeat steps 10 to 12).

(13) The PRV is now set. To release the pressure from the system, turn the needle valve anti–clockwise by one turn.

(14) Switch the mains isolator OFF, and set switch SW1 to NORMAL.

(15) Apply Loctite activator to the end of the PRV thread , leave for 10 minutes, then apply Loctite 542 to the thread and refit the elbow to within 1 to 2 turns of the end of the thread.

(16) Reconnect the nut to the elbow and cable tie the PRV back in place.

(17) Reset the airdryer 's pressure and airflow as detailed in the airdryer test lit.

Needle Valve Refurbishment and Adjustment

WARNING: The airdryer must be switched off and power removed.

The door must be open.

Test equipment to measure air flow and humidity will be required. See Pg. B–44 for details.

(1) Unscrew the needle and withdraw from the valve body.

(2) Check needle is clean. Clean and check the 'O' ring – replace if necessary.

(3) Refit the needle into the valve body.

(4) Screw the needle into the valve until the valve is closed. Do not over–tighten the needle.

(5) Consult the air flow meter chart and determine the meter graduations corresponding to air flows of 2.0 and 2.2 litres / minute.

(6) Connect the air flowmeter to the air tube in the print head. Support the flow meter in a vertical position.

(7) Carefully unscrew the needle and set the air flow indicated by the meter to between 2.0 and 2.2 litres / minute. Remove the meter.

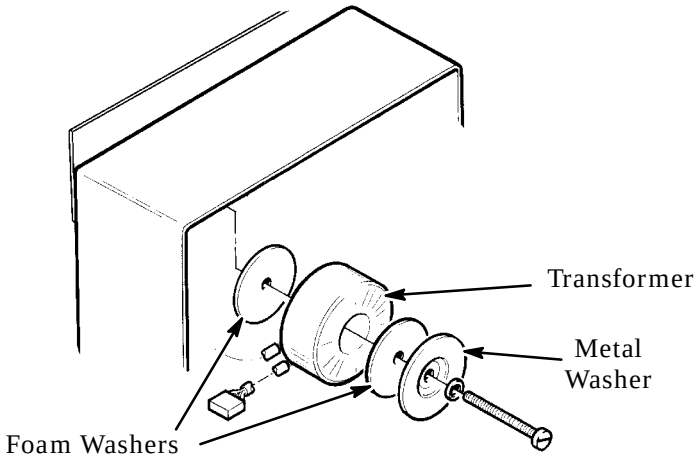
Note: Any instability in the ink jet should be properly investigated. If the air flow rate from the dryer does interfere with the ink jet, reduce the air flow (screw in the needle) until the interference ceases.

Transformer Replacement

WARNINGS (1) Any earth/ground connections which are disconnected must be refitted and properly tightened.

(2) The airdryer must be switched off and power removed.

The door must be open.



TP7228–1

Transformer Replacement

(1) Remove the connector from PL8 on the PCB.

(2) Remove the nuts securing the fuse plate to the cabinet and remove the plate.

(3) Note and disconnect the transformer connections to the components behind the fuse plate.

(4) Remove the screw securing the transformer to the cabinet and lift out the transformer assembly. Retrieve the washers (two foam and one metal) and the fixing screw from the transformer assembly.

To fit a new assembly:

(5) Secure the transformer to the cabinet using the washers and fixing screw retained in step (4).

(6) Reconnect the connections noted in step (3) and refit the fuse plate.

(7) Reconnect the transformer cable to PL8 on the PCB.

Inline Orifice Replacement

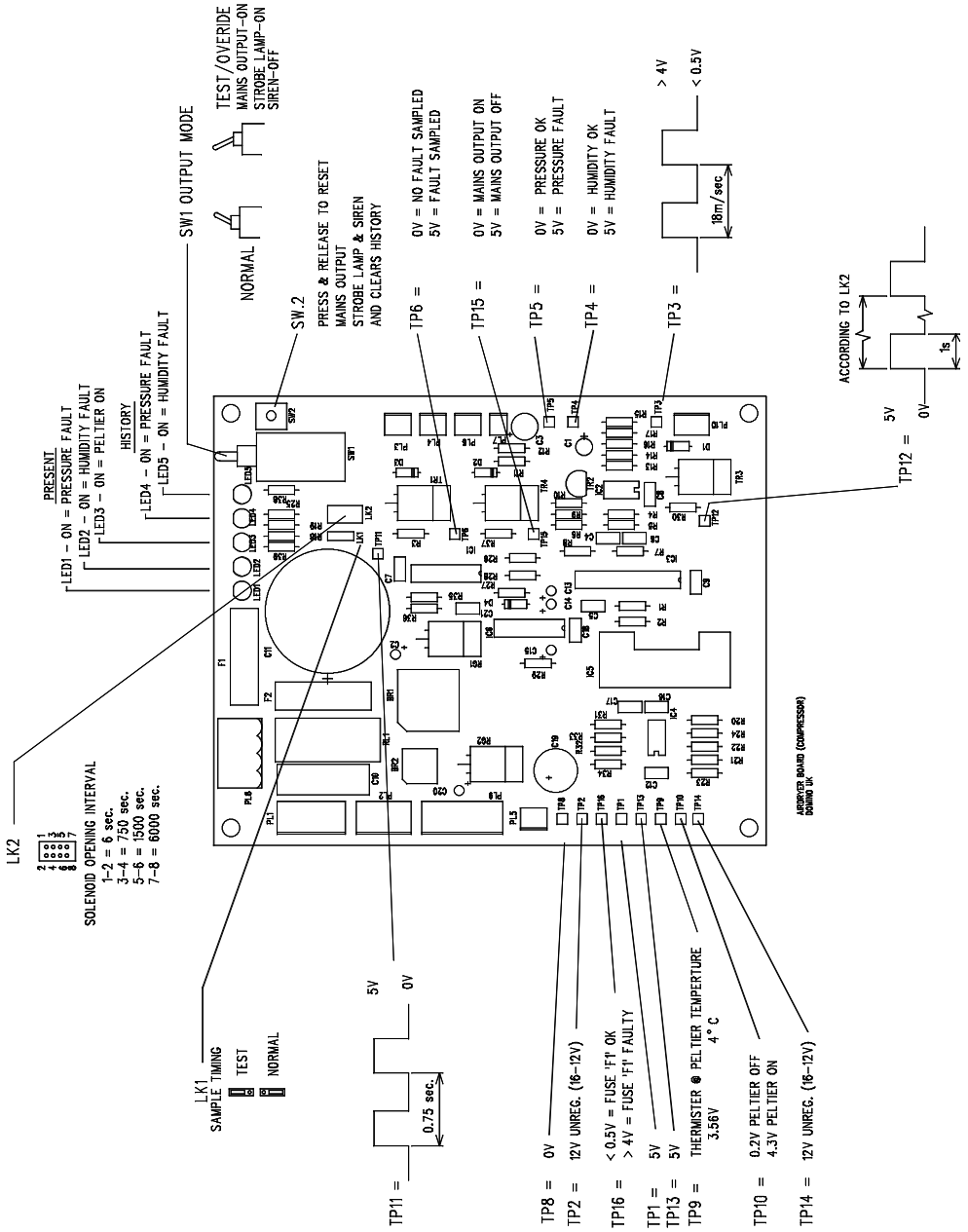
The inline orifice is located, with push fit connections, in the tube supplying air to the humidity sensor. If a new orifice is to be fitted, it will be necessary to cut the tubes on both sides. The tube from the orifice to the humidity sensor should be replaced with tube cut to a suitable length to:

(a) Point directly at the sensor.

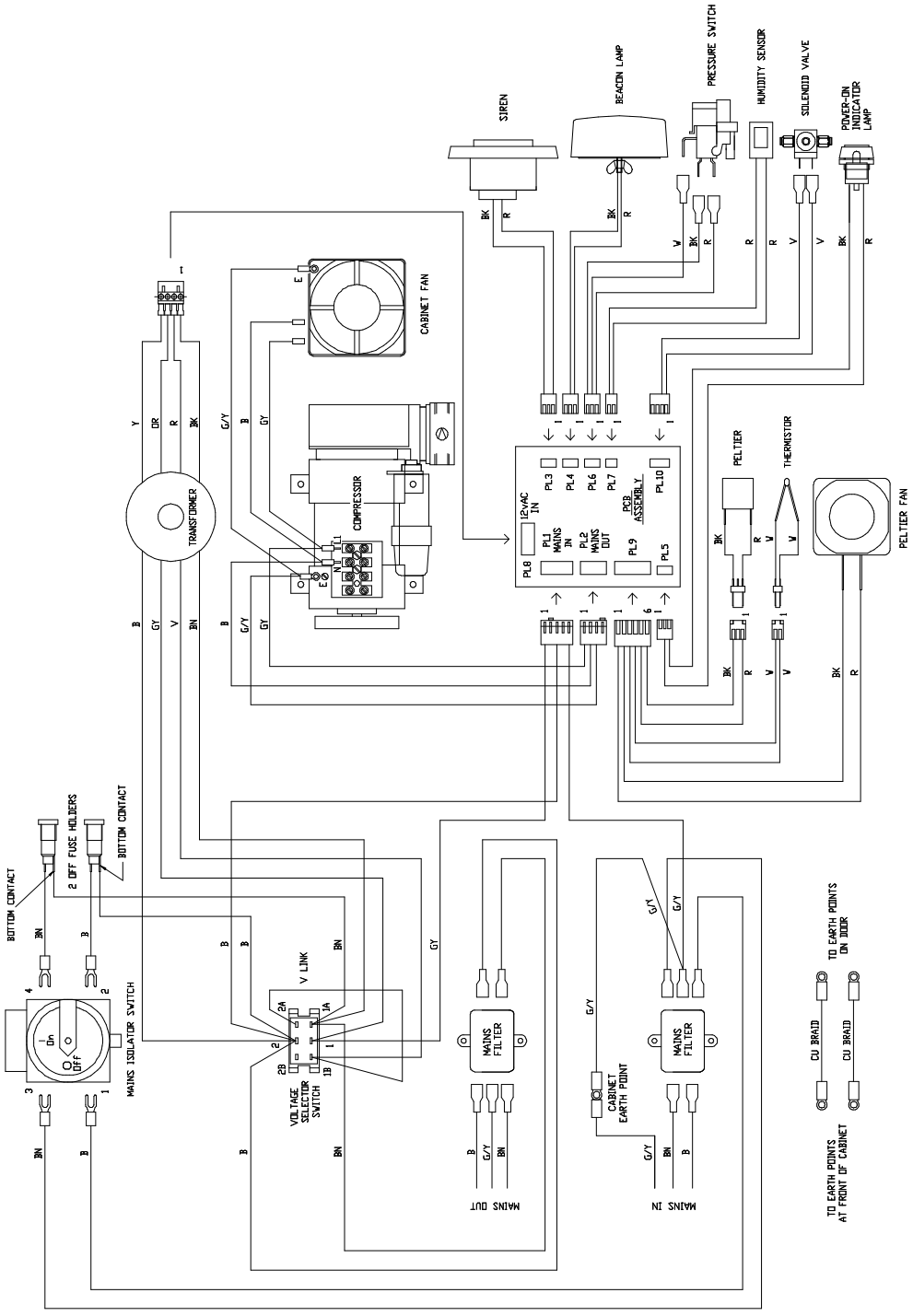
(b) End with a gap of 3 – 6 mm between the sensor and the end of the tube.

SERVICE DIAGRAMS

23387J Iss 1

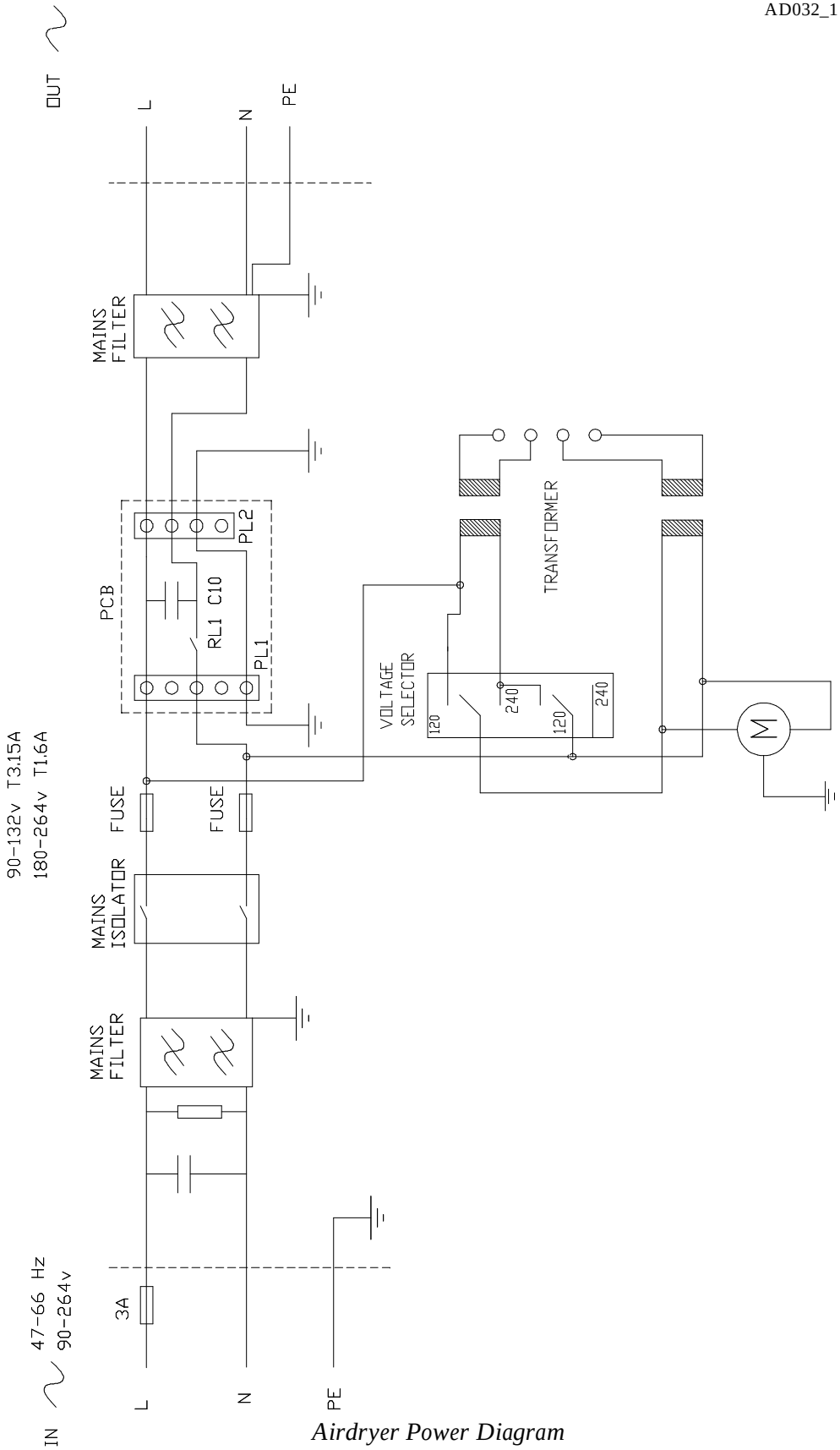


Airdryer PCB Assembly MK2 Service Diagram



Airdryer Wiring Diagram

AD032_1



Airdryer Power Diagram

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SPARES AND TEST EQUIPMENT

First Level Spares

29273	Filter Kit No. 3 (10 micron)
30468	Compressor Repair Kit (incl. Valve Plates and Piston Seal)
14372	Filter Inlet
45145	Fan Assembly Airdryer
01192	Fuse 20x5 (T) 1A6 (240V nom. power)
01249	Fuse 20x5 (T) 3A15 (120V nom power)

Second Level Spares

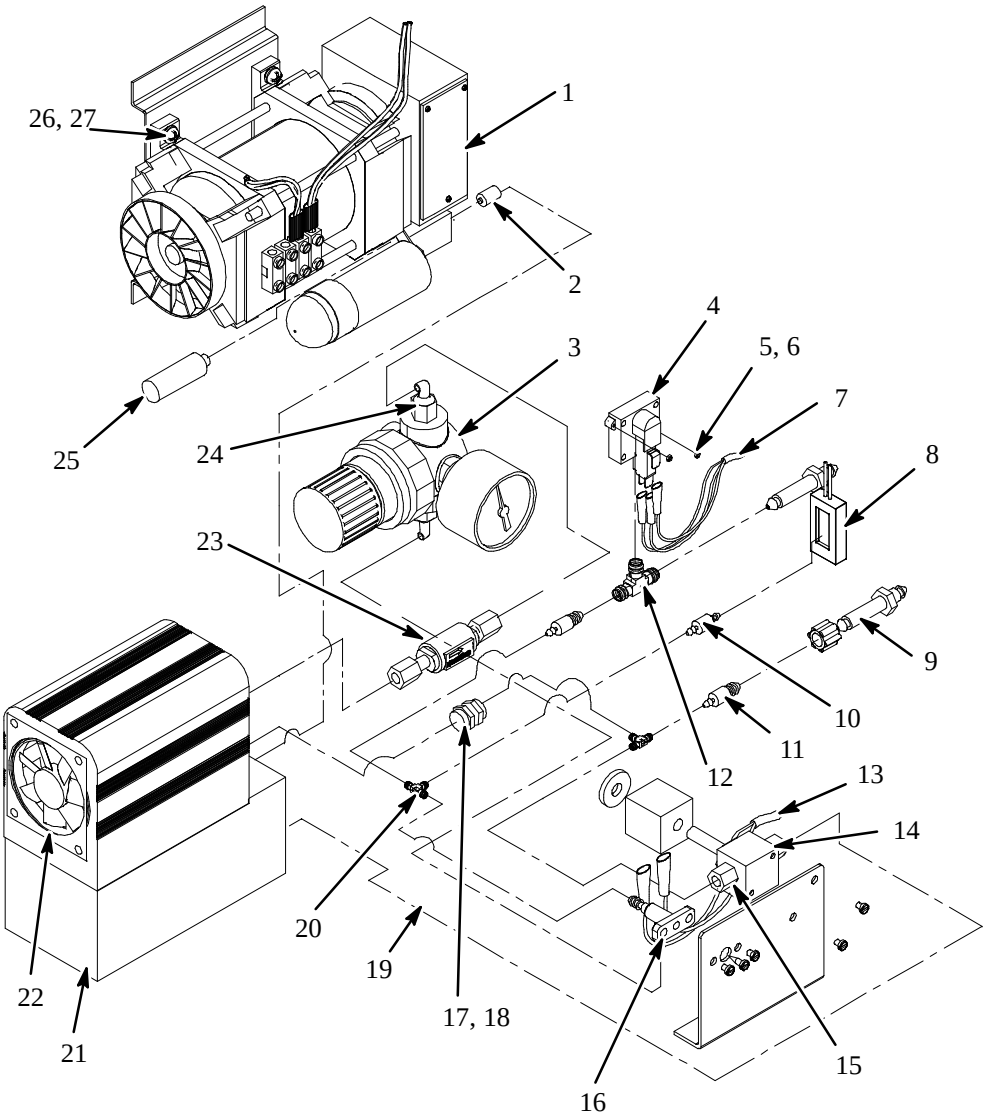
14748	Pressure Relief Valve (PRV) 1/4" NPT Male 50psi Brass
14369	Valve Needle 1/16" Tube Barbs
14673	Valve Solenoid
23387	PCB Airdryer
45146	Peltier Heatsink Assembly

Test Equipment

30455	Airdryer Test Kit

Service Kits

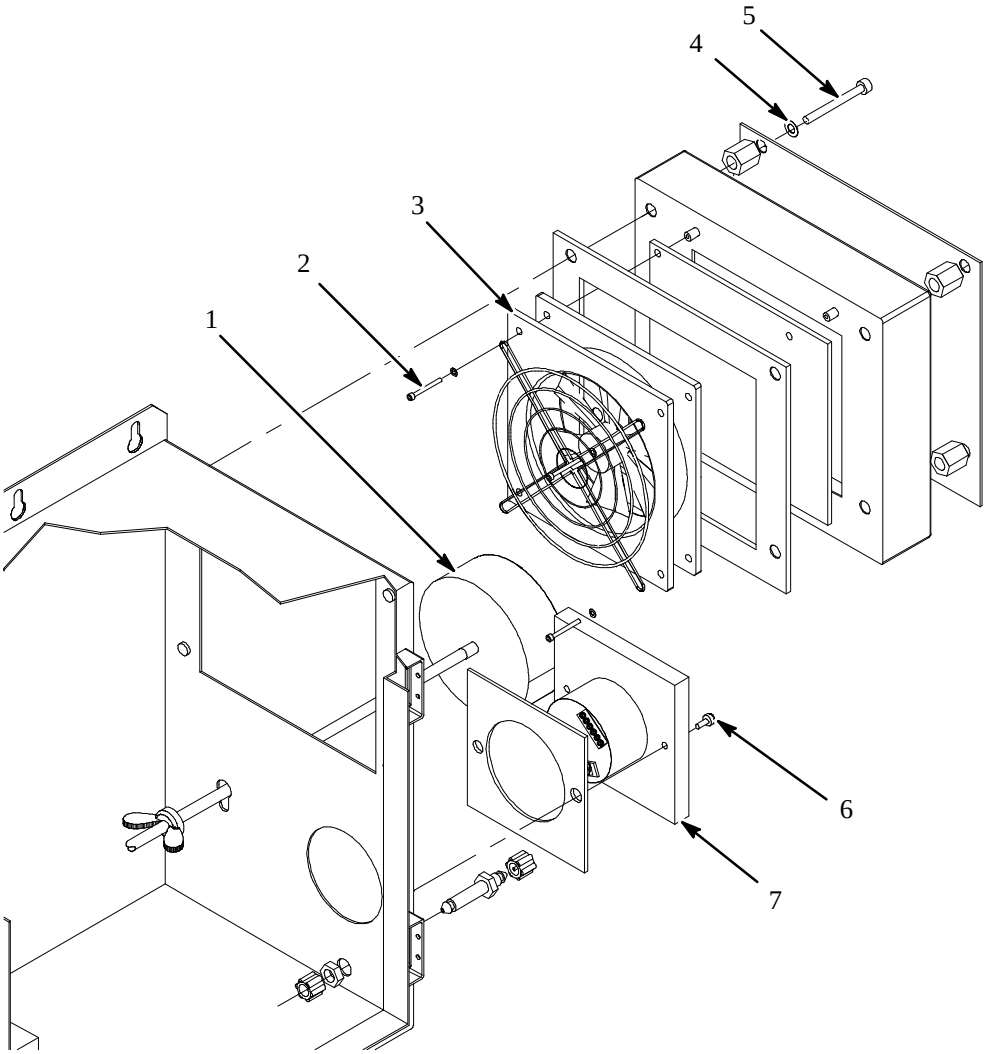
30469	2000hr Service Kit
30470	4000hr Service Kit



Airdryer Components

Airdryer Components

Item No.	Part No.	Description	Quantity
1	30468	Compressor Repair Kit	1
2	14749	Connector 1/8" BSP x 1/8" Tube Brass	1
3	30466	Regulator/Gauge Kit	1
4	14824	Switch Pressure 4.98mbar	1
5	04485	Screw Skt Cap St. St. M4x16	2
6	04305	Washer S/P Int Tooth St. St. M3	2
7	30448	Cable Assembly Pressure Switch	1
8	30467	Humidity Sensor Kit	1
9	14176	Connector Bulkhead 4mm ID Tube	2
10	14757	Orifice Restrictor 1/16" ID Tube	1
11	14771	Reducer Barb 1/8" x 1/16"	2
12	14766	Tee 1/8"	1
13	30451	Cable Assembly Solenoid	1
14	14673	Valve Solenoid TP PC	1
15	14764	Coupling Quick Release 1/8"x1/8" BSP	4
16	14369	Valve Needle 1/16" Tube Barbs	1
17	14748	PRV 1/4" NPT Male 50psi Brass	1
18	14451	Elbow 1/4" NPT female 1/8" Tube	2
19	98201	Tube PTFE 1/8" Natural	1
20	14765	Tee 1/16"	2
21	45146	Heatsink Assembly Peltier	1
22	45145	Fan Assembly Airdryer	1
23	29273	Filter Kit No. 3 (10 micron)	1
24	14774	90 Deg Swivel Elbow 1/8"x1/8" BSP	2
25	14372	Filter Inlet	1
26	04412	Screw Pan Poz. St. St. M4x12	1
27	04408	Washer S/P Int Tooth St. St. M4	1

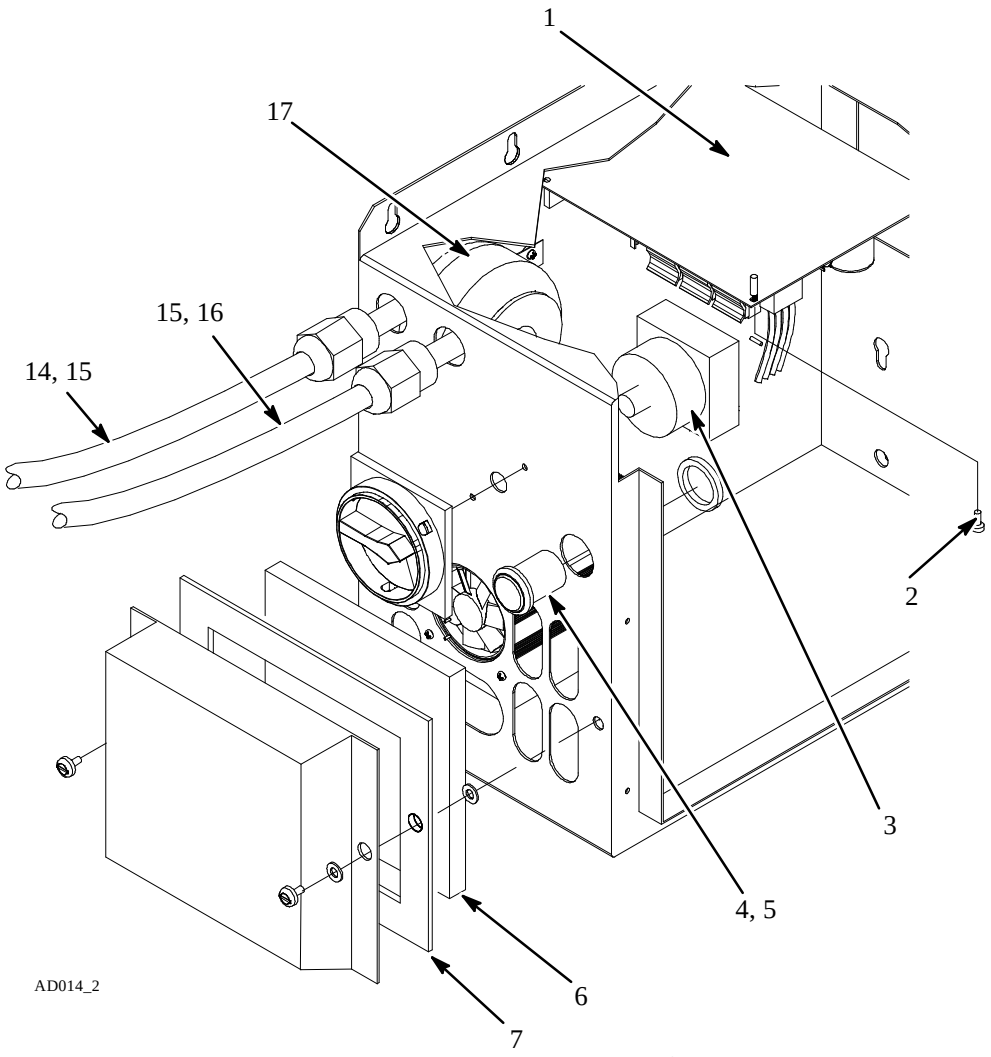


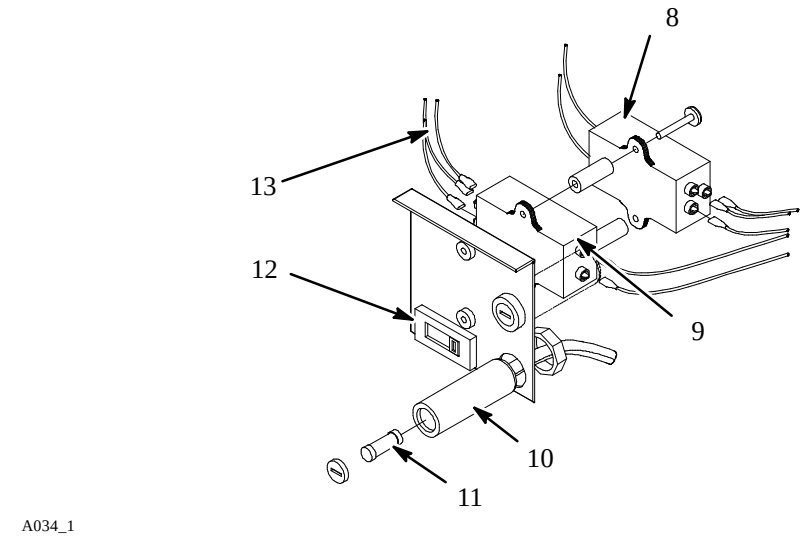
AD013–2

Sounder, Fan and Beacon Components

Sounder, Fan and Beacon Components

Item No.	Part No.	Description	Quantity
Note:	*Items marked * must be replaced by the specified component (see Pg. B–6).*		
1	30465	Sounder Kit	1
2	04498	Screw Pan Poz St. St. M4x45	4
3	11340*	Fan Axial 110V 95cfm 120mm	1
4	04482	Washer Nylon66 M4 9x4.3x0.8mm	1
5	04437	Screw Skt Cap St. St. M4x45	4
6	04409	Screw Csk Poz. St. St. M4x16	2
7	30446	Cable Assembly Beacon	1





PCB and Power Components

PCB and Power Components

Item No.	Part No.	Description	Quantity
Note:	*Items marked * must be replaced by the specified component (see Pg. B–6).*		
1	23387*	PCB Assembly Airdryer (compressor)	1
2	04323	Screw Ch. Slt Nylon M3x8	2
3	10606*	Isolator	1
4	30447	Cable Assembly Indicator Lamp	1
5	10762	Indicator Lamp 14V T13/4 Wedge	1
6	30443	Inlet Filter Element	1
7	30437	Gasket Air Filter Shroud	1
8	12172*	Filter Main Power	1
9	30419*	Filter Assembly Low Frequency	1
10	11191*	Fuseholder 20x5 6A3 250V	2
11	01192	Fuse 20x5 (T) 1A6	2
or	01249	Fuse 20x5 (T) 3A15	2
12	11588*	Switch Voltage Select 120–240V	1
13	30417	Cable Assembly Filter/Isolator	1
14	37755	Cable Assembly Mains Output	1
15	10855	Nut Cable Gland 20mm Grey	1
16	30414	Cable Assembly Power Supply	1
17	14654*	Transformer Toroidal 100VA	1

APPENDIX B : AIR DRIVEN AIRDRYER AMENDMENT RECORD

Amendment	Date
All pages at Issue 1	Apr 98

APPENDIX B : AIR DRIVEN AIRDRYER

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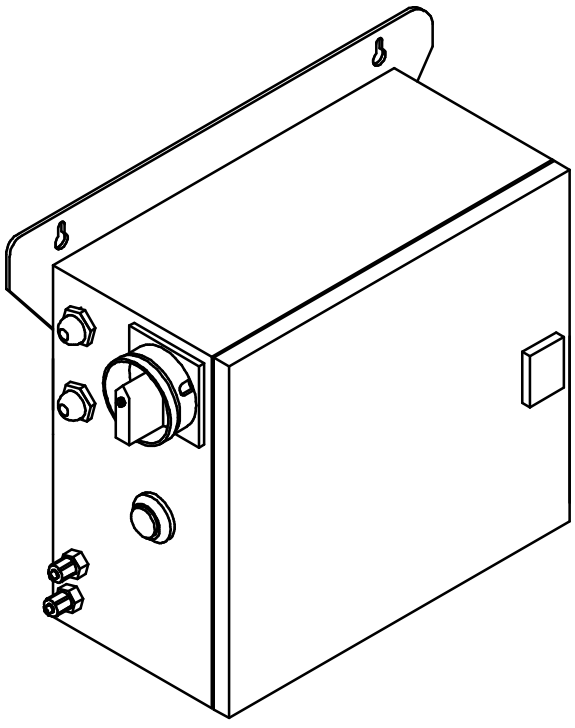
APPENDIX B : AIR DRIVEN AIRDRYER

INTRODUCTION

The air driven airdryer fills the print head with very clean, dry air, creating an environment around the ink jet and gutter which ensures that the ink does not absorb the airborne contaminants that are the main cause of ink degradation. The additional parts of the system are:

- An airdryer unit
- Airdryer connection kit.

The airdryer takes factory supplied air, which it cleans, regulates and supplies at the required flow rate to the printer cabinet, for use in the print head. The airdryer checks the humidity and pressure of the air and provides both visual and audible warning of any fault. If a pressure fault occurs, the printer performs a controlled shut–down and raises an alert.



AD032_1

A–Series Airdryer

SPECIFICATION

Dimensions:	Height:	250mm
	Width:	280mm
	Depth:	130mm
	Weight:	4.5kg
Environment:	Temp. Range:	5°–45°C operating.
	Humidity:	10 – 90% RH non –condensing.
Electrical Requirements:	90–132V / 180–264V, 50 / 60Hz, single phase, switch selectable, 60VA.	
Performance:	Air flow:	2.0 – 2.2 litres / min
	Output humidity:	< 40% RH.
	Internal operating pressure:	2 bar.
Acoustic Noise Level:	Not more than 70dBA.	

It is recommended that an ink usage of at least 2 ink cartridges over the 2000 hour life of the reservoir is achieved if the optimum operating condition of the ink is to be maintained.

PRODUCT SAFETY

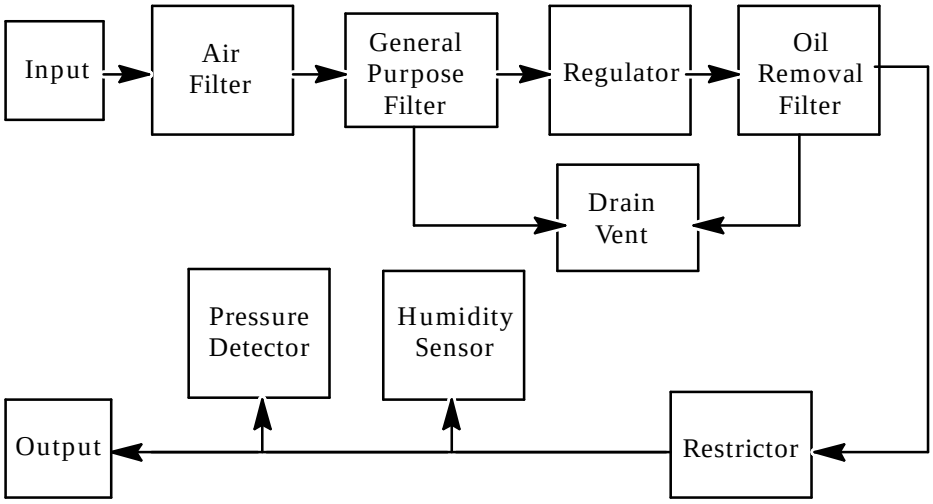
Certain parts must not be replaced by other types without approval of the Design Authority. These parts are as follows.

PART NO.	DESCRIPTION	MANUFACTURER	MANUF. PART NO.
23388	PCB	Domino	
37755	Cable Assembly Power Output	Domino	
30414	Cable Assembly Power Supply	Domino	
10606	Isolator	Moeller Klöckner	TO–1–102
12172	Power Filter	Ducatti	EFBF–3

DESCRIPTION

Airdryer –General

The airdryer is housed in a small stainless steel cabinet designed for either wall mounting, or attachment to the printer stand. Externally, the cabinet carries a power isolator, a mains indicator, a fault lamp and a sounder. Internally, the electronic circuits are carried on a printed circuit board which is protected by a cover. A special grommet in the housing wall provides a release for any excess pressure which may develop in the housing.

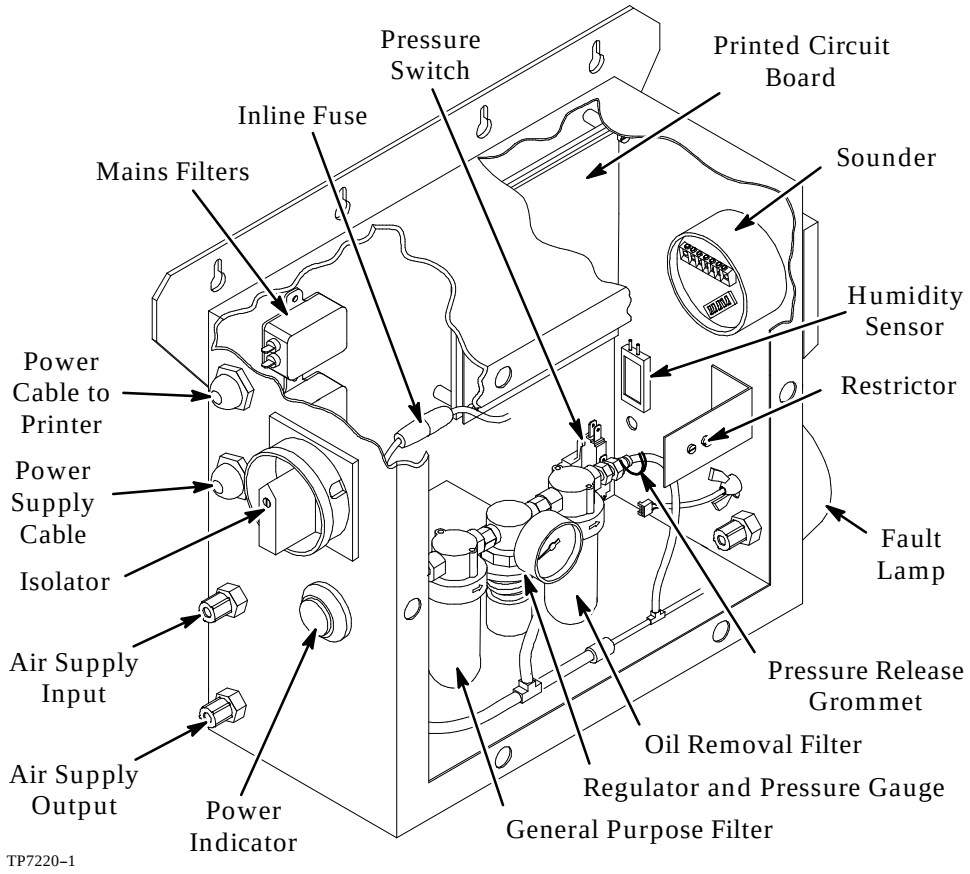


Airdryer Schematic Diagram

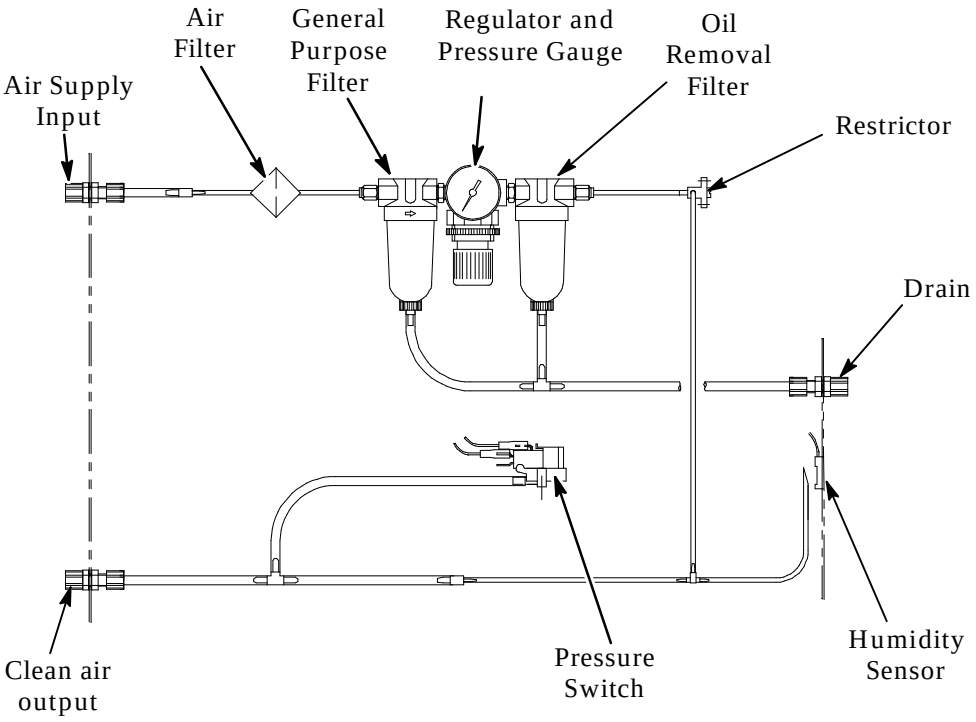
The airdryer is supplied with factory driven air, that is passed first through an air filter to remove solid particles and then through a general purpose constant bleed drain filter, to remove any airborne condensate (moisture). A regulator reduces the air pressure to a constant 30psi and the air is passed through a constant bleed drain coalescing filter to remove any oil. Finally, an in–line restrictor reduces the output airflow to the rate required by the print head.

A humidity sensor and a pressure switch are connected into the system. If a fault occurs, such as excessive humidity or a drop in pressure, an external red lamp flashes and an audible alarm is given by a sounder to warn the operator.

A Printed Circuit Board (PCB) carries a switch that bypasses the humidity and pressure sensing circuit (see pg. B–18). The switch allows the unit (a) to be serviced, or (b) to continue to operate in conditions that are outside its specification, but which are considered acceptable by the operator. Whilst the switch is in the bypass position, the red indicator flashes.



Airdryer – General View



Airdryer System

Airdryer – Installation

CAUTION ***The airdryer must be mounted in the vertical position.***

The airdryer has keyhole attachment points along its top edge. Ensure that the airdryer is secure when attached by these points.

The airdryer contains two fuses in inline holders in the wiring to the isolator. Remove the cover and check that the fuses are correct for the nominal power input (240V – 1A, 120V – 2A). Replace the cover.

The airdryer connections (see diagram pg. B–8) are as follows:

(a) Power supply cable – connect to the power source.

(b) Power cable to printer – connect directly into the airdryer power socket.

(c) Air supply input – connect to the factory air supply.

(d) Air supply output – connect to the printer at the connection near the conduit panel at the side of the cabinet.

Mounting the Airdryer onto the A–Series Stand

WARNING: Power to the printer must be removed.

(1) At the rear of the A–Series stand, screw the two M6x10 skt cap screws into the centre holes of the rear support panel. Allow sufficient room for the airdryer slots.

(2) Fit the airdryer onto the screws using the two outer keyhole fittings.

(3) Tighten the screws to secure the airdryer in place.

(4) Remove the mains cable from the printer.

(5) Plug the airdryer mains output socket into the printer mains input.

(6) Connect the 2 metres of 1/4" tube supplied in the kit to the external festo on the side of the printer (below the external connections).

(7) Cut this 2 Metre tube to the correct length, and connect the other end to the airdryer air output festo.

Notes (1) Ensure the tube is not kinked.

(2) Test the air supply and humidity at the printhead using the airdryer test kit – part number 30455.

(3) If the airdryer air output is not connected to the printer, an air pressure fault will occur

Airdryer – Electronics

The airdryer circuits perform the following functions:

- Periodically samples the output air pressure and humidity, and if either is out of specification, provides both visual and audible alarms.

Airdryer – Checks

Before turning on the power to the airdryer and printer, ensure that the airdryer isolator is switched off.

(1) Turn on the air supply and check that there are no leaks.

(2) Turn on the power to the airdryer. Check that the power indicator and the fault lamp on the airdryer are off.

(3) Turn on the airdryer isolator. Check that the power indicator on the airdryer turns on and the fault lamp remains off.

(4) Check the air flow rate (see pg. B–19).

(5) Check the humidity of the air being supplied from the airdryer (see pg. B–19).

The printer can now be used.

2000 HOUR MAINTENANCE

WARNING: The cover has two earth/ground cables which may be disconnected if the cover is to be removed. However, the cables must be connected again when the cover is refitted to the box.

Note: Filter Kit part number 30428 will be required for this service.

The only maintenance necessary is replacement of the filters after each 2000 hours of operating time. The filters may be replaced at more frequent intervals if considered necessary. Provided the maintenance work is not prolonged, it is not necessary to interrupt the operation of the printer.

The dryer should be switched off and the power removed.

(1) Release the six quick release fasteners around the edge of the cover. Lift the cover away from the housing.

(2) Disconnect the air circuit at the following points:

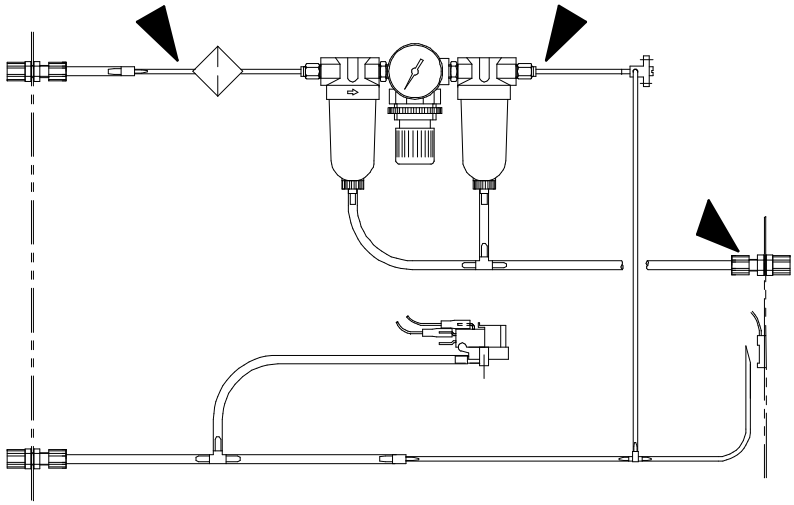
  (a) At the bulkhead fitting, remove the vent tube from the festo connection.

  (b) At the junction where the tube from the input joins the air filter.

  (c) At the junction where the tube to the restrictor joins the coalescing air filter (see quick release connector explanation – next page).

(3) Remove the large nut, on the underside of the regulator, which secures the regulator to its mounting bracket.

(4) Carefully lift out the complete set of filters as a single assembly.



30400P

Removing the Filters – Disconnection Points

The filters can now be replaced as follows:

(5) Replace the tubular bodied filter with a complete new item.

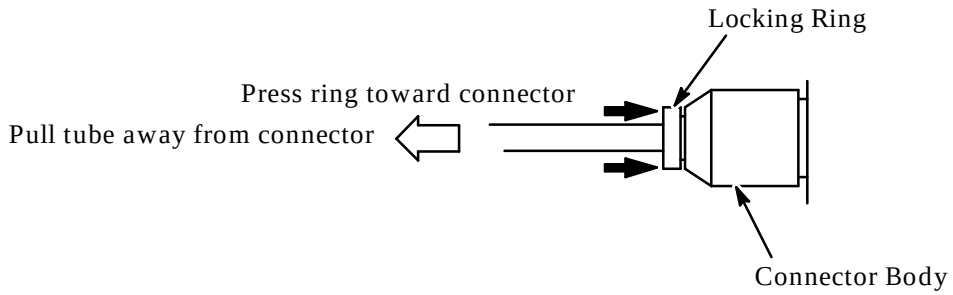
(6) Unscrew the glass bowl of the general and coalescing filters, remove and clean.

(7) Unscrew the elements of the general and coalescing filters and replace with new elements.

(8) At the dryer housing ensure that the tubes forming the vent system are clean and free of residues.

(9) Replace the complete filter set by reversing steps (2) to (4) ensuring that all connections are tight.

Quick release connectors are used at the connections of the tubes to the bowl filters. To disconnect each tube, release the connector by pressing the locking ring and pull off the tube (see diagram). Do not disturb the screw thread connection of the connector into the filter body. To reconnect the tube, push the tube firmly into the connector.



Quick Release Connector

FAULT FINDING AND REPAIR

The airdryer has the following indicators.

External Indicators	
Power Indicator	Normally On
Fault Indicator	Normally Off – flashes in the event of a pressure failure or excessive humidity
Sounder	Normally Off – gives audible alarm in the event of a pressure failure or excessive humidity
PCB Indicators	
LED 1 (red)	Normally Off – On indicates pressure failure
LED 2 (red)	Normally Off – On indicates humidity failure

Fault Diagnosis

FAULT	POSSIBLE CAUSE	REMEDY
No flow at print head	Air filter, general purpose filter and / or oil removal filter blocked	Replace filter assembly
	Kink or loose connection in pipes connecting airdryer to printhead	Check connections and tubes. Check for blockage in airdryer unit
	Needle Valve blocked	Clean and / or adjust needle valve, resetting to correct position when blockage is cleared
	Air leak in system	Check for split pipes, broken or loose connections
Airflow too low	Regulator not at 2bar	Set regulator to 2bar and lock adjustment knob in position
	Needle valve not set correctly	Set to give an airflow of 2.2L / min

FAULT	POSSIBLE CAUSE	REMEDY
Airflow too high	Regulator set above 2bar	Set regulator to 2bar and lock adjustment knob in position
	Needle valve not set correctly	Set to give an airflow of 2.2L / min
Constant pressure fault	Air pressure switch faulty	Check LED 1 (P) is illuminated indicating a pressure fault
		Check wiring and operation of switch
		Check PCB
	Airdryer air output not connected to printer	Connect air output to printer and ensure there is air flow at the printhead
There is no airflow from the airdryer and the unit has not gone into fault mode	Air pressure switch faulty	Check LED 1 (P) is illuminated indicating a pressure fault
		Check the air output is not blocked
		Check wiring to and operation of switch
		Check PCB
Beacon illuminated and sounder operating	Air pressure failure or humidity greater than 40%RH	Check input air supply, check filters
No power to printer	Fuse blown	Replace fuse – ensure no other fault exists
Both airdryer and printer not powering up	Airdryer mains fault	Check mains fuse, check for loose mains connections in airdryer

FAULT	POSSIBLE CAUSE	REMEDY
Airdryer running, but green power indicator is off	Lamp blown	Check TP2 on PCB is at +12V, check that lamp has not blown and is housed correctly.
In fault mode, the sounder is operating, but the beacon is not flashing	Beacon faulty	Check beacon wiring, and connection to the PCB, check PCB
In fault mode, the beacon is flashing, but the sounder is not working	Sounder faulty	Check sounder wiring and connection to the PCB, check PCB
In service mode, the beacon is not flashing.	Beacon faulty	Check beacon wiring and connection to the PCB, check beacon operation, check PCB
Alarms are operating immediately after power on	Link LK1 in test mode	Check position of LK1 is in NORMAL mode
Beacon is flashing constantly	Switch SW1 set to test mode	Ensure SW1 is set to NORMAL mode.
Constant humidity fault	Humidity sensor fault	Check humidity at printhead is <40%RH.
	Leak pipe incorrectly positioned	Position leak pipe correctly
	PCB faulty	Check wiring of sensor to PCB

Fuse Replacement.

WARNING: Power must be removed from the airdryer.

(1) Release the six quick release fasteners around the edge of the cover. Lift the cover away from the housing.

(2) Inside the housing, replace the fuses in the in–line fuse holders near the power connector. Fuse values are as follows:
Power input 120V nominal: 2A (T)
Power input 240V nominal: 1A (T)

(3) Refit the cover.

Humidity Sensor Replacement

CAUTION Handle the humidity sensor with care. Do not crush or allow finger marks or dirt to collect on the sensor.

The humidity sensor is attached by double–sided adhesive tape to the inside face of the cabinet. To replace the old sensor, disconnect the wires and ease the sensor off the cabinet. To fit the new sensor, connect the wires and stick the sensor onto the wall of the cabinet, first ensuring that the surface is clean. Ensure that the tube from the air system is directing air onto the sensor.

Needle Valve Refurbishment and Adjustment

WARNING: The airdryer must be turned off at the isolator and the power removed. The cover must also be removed.

(1) Unscrew the needle and withdraw from the valve body.

(2) Check needle is clean. Clean and check the 'O' ring – replace if necessary.

(3) Refit the needle into the valve body.

(4) Screw the needle into the valve until the valve is closed, avoiding over–tightening the needle.

(5) Adjust the air flow as in the *Air Supply Check* on Pg. B–19.

Pressure Switch Replacement

WARNING: The airdryer must be switched off and power removed.

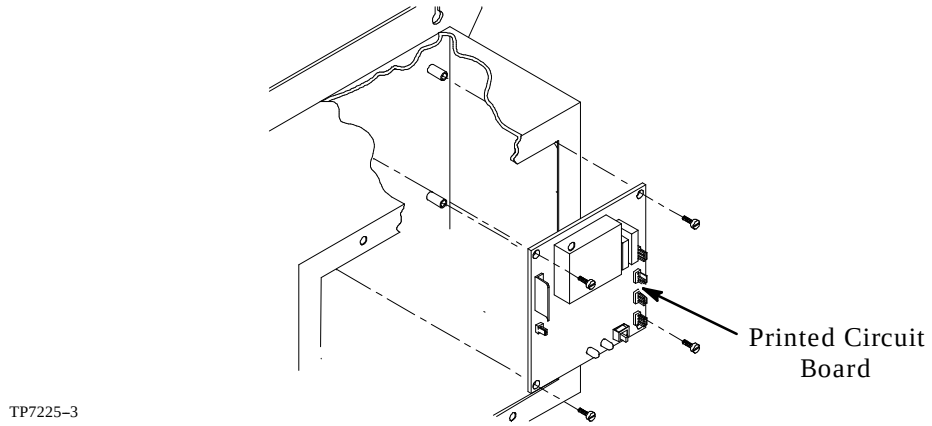
With the door open, Remove the two fixing screws and pull the switch forward. Remove the wiring connections and the tube from the switch, and remove the switch from the cabinet. Re–assembly with a new switch is the reverse procedure.

PCB Removal and Replacement

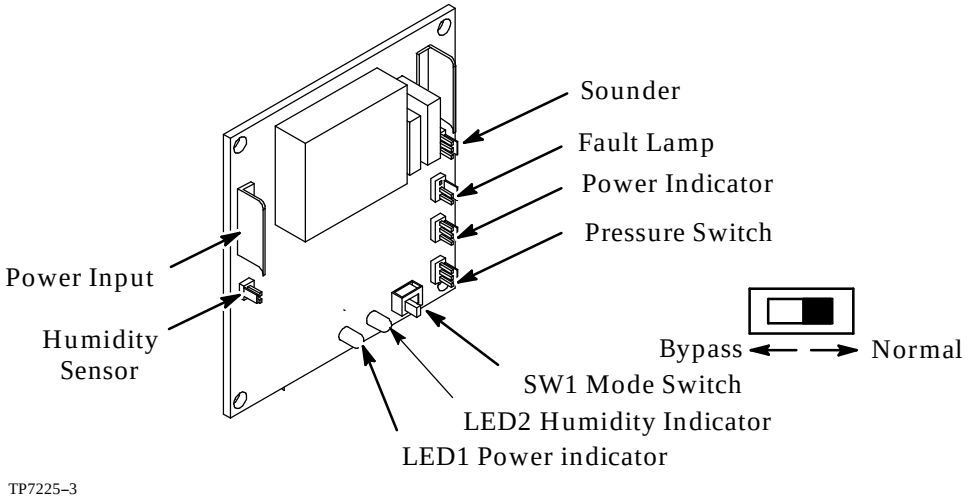
WARNING: Power to the printer must be removed.

CAUTION Always use anti–static procedures when handling PCBs or integrated circuits.

The cover must be removed.



Printed Circuit Board Removal



Printed Circuit Board Connections

(1) Remove the securing screws and PCB cover.

(2) Note orientation of all connectors and remove from PCB.

(3) Remove the nylon securing screws and lift out the PCB.

To replace the PCB:

(4) Fit the PCB into the housing and secure with the nylon screws.

(5) Re–connect the cables to the PCB connections noted in step 2.

(6) Refit and secure the cover over the PCB.

Humidity Check

CAUTION ***It is essential that the air flow and humidity are both checked every 2000 hours to ensure reliable printer operation.***

Note: Airdryer test kit used is 30455

(1) Remove the print head from its holster.

(2) Connect the humidity sample bottle to the 1/4" silicone air tube in the print head.

(3) Turn on the airdryer.

(4) Set the ThermoHygrometer to monitor Centigrade. Insert the meter into the neck of the sample bottle and switch the meter on.

(5) Allow the meter to acclimatise fro ten minutes, then note the temperature and humidity shown in the meter window.

(6) The air temperature should be slightly higher than the ambient temperature, and the humidity should be slightly less than 22% Relative Humidity (RH).

Note: During the purge period, when the solenoid valve is open, the humidity may temporarily increase by up to 5%RH.

Air Flow Check

Notes (1) Airdryer test kit used is 30455

(2) Any instability in the ink jet is unlikely to be due to the air flow, however, if the air flow rate does interfere with the ink jet, reduce the air flow (by screwing in the needle) until the interference ceases.

An excessive supply of air into the print head will interfere with the ink jet, and therefore print quality. Ensure the equipment is running and check the air supply as follows:

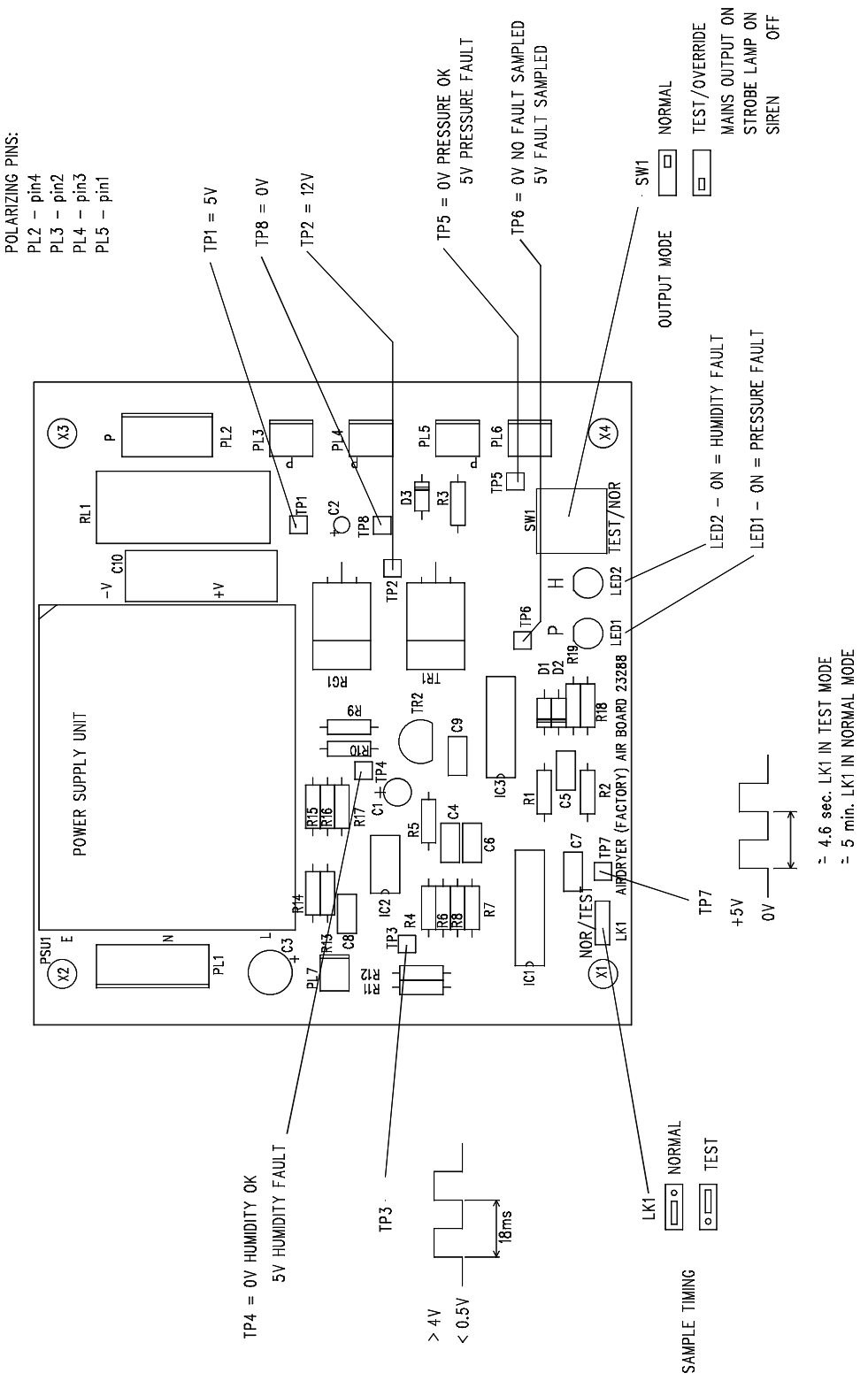
Note: Once the air flow is set up, any instability in the ink jet apparently due to this air flow will almost certainly result from another cause and should be properly investigated.

(1) Remove the print head from its holster.

(2) Check the air flow indicated by the meter is between 2.0 and 2.2 litres/minute. If necessary, carefully adjust the restrictor needle to set the air flow to within these limits. Remove the meter and bottle.

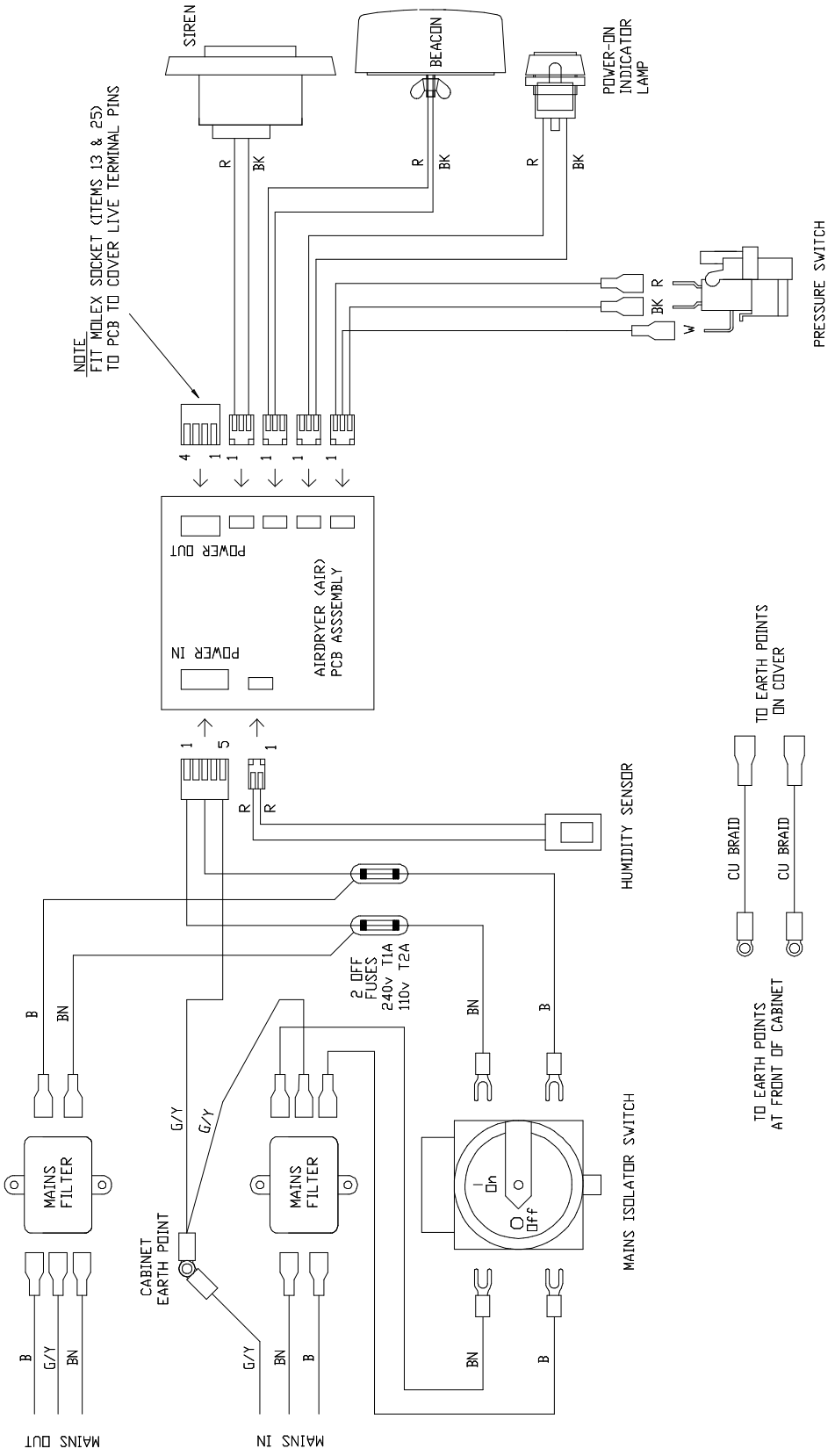
SERVICE DIAGRAMS

23388J Iss 1

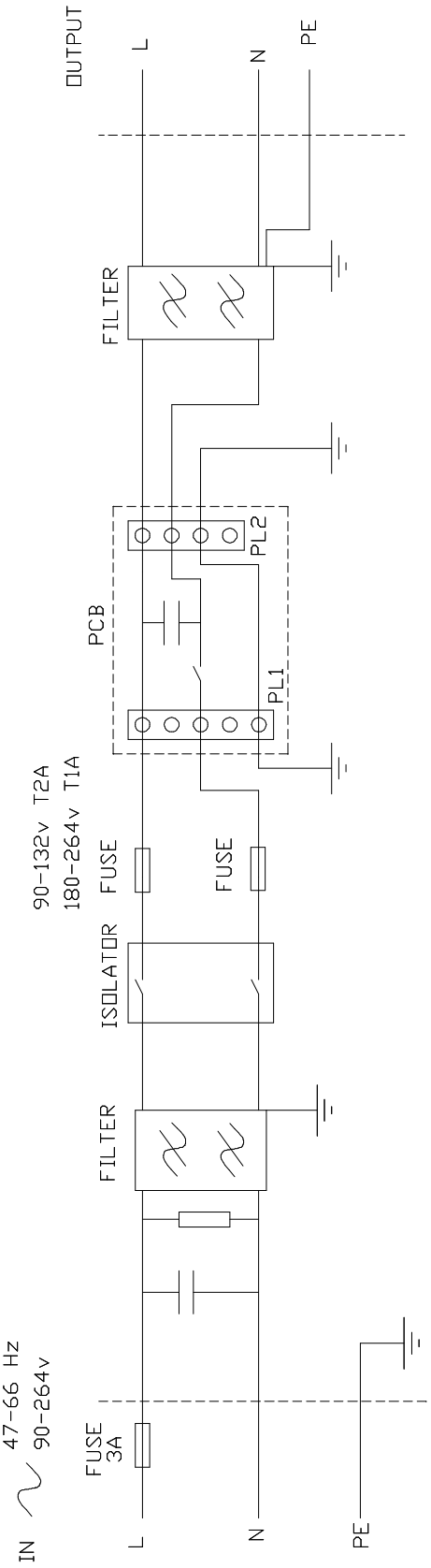


Airdryer PCB Assembly Service Diagram

37709W Issue 1



Airdryer Wiring Diagram



AD033_1

Airdryer Power Diagram

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SPARES

First Level Spares

10762	Indicator lamp
01210	Fuse 20x5 (T) 1A (240V nominal supply)
01248	Fuse 20x5 (T) 2A (120V nominal supply)
30428	Filter Kit

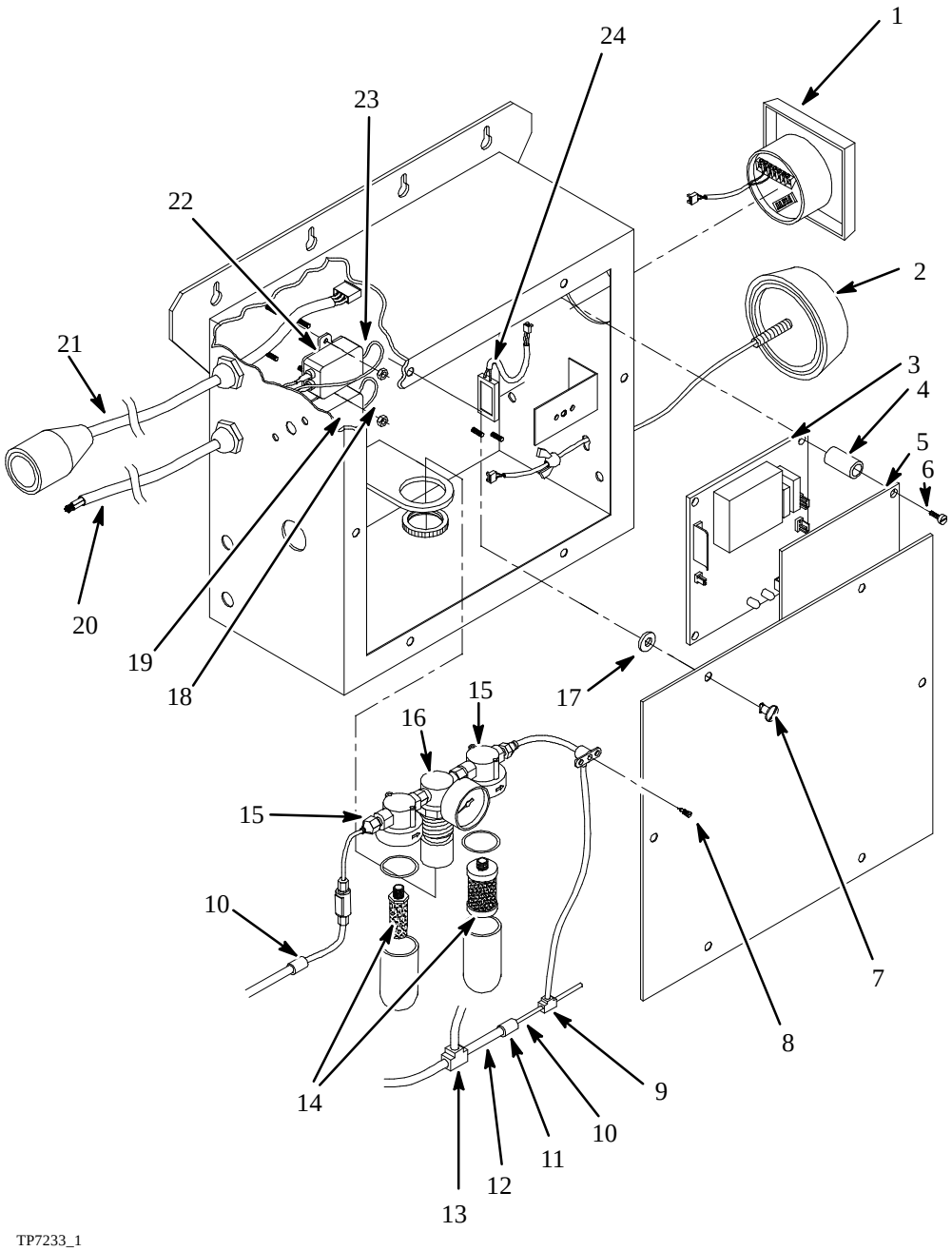
Second Level Spares

The following spares are additional to the first level spares.

30426	Humidity Sensor Kit
30410	Cable Assembly Beacon (incl. lamp)
14824	Pressure Switch 4.98mbar
23388	PCB assembly

Test Equipment

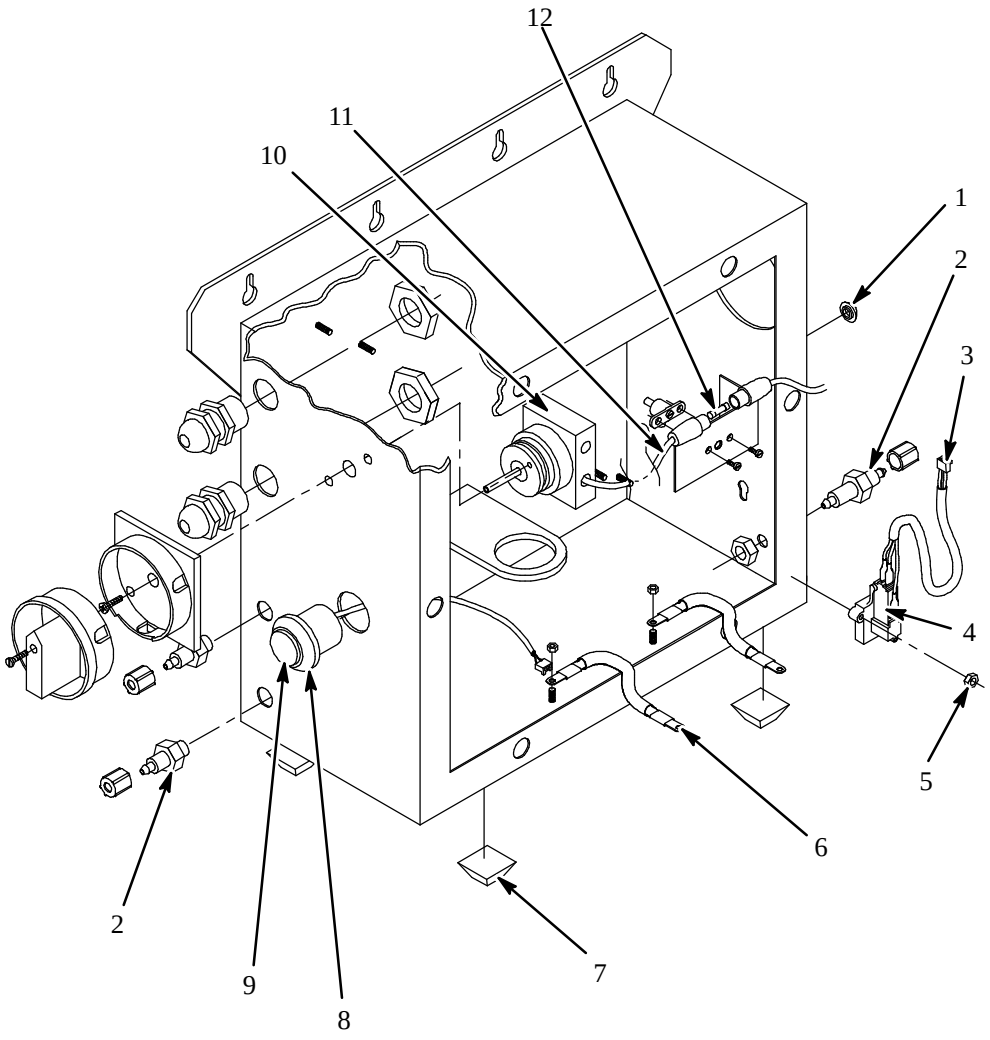
30455	Airdryer Test Kit



Airdryer – General 1

Airdryer – General 1

Item No.	Part No.	Description	Quantity
1	30425	Sounder Kit (incl. Sounder, gasket and cable)	1
2	30410	Cable Assembly Beacon (incl. lamp)	1
3	23388	PCB Assembly	1
4	04725	Spacer Nylon	2
5	30405	Cover Insulated	1
6	04323	Screw Ch. Slt Nylon M3x8	2
7	04835	Stud 1/4" Turn Oval Hd Slotted	6
8	14369	Valve Needle 1/16" Tube Barbs	1
9	14765	Tee 1/16"	1
10	98201	Tube PTFE 3mm Natural	As reqd
11	14771	Reducer Barb 1/8"x1/16"	1
12	98110	Tube Polyethylene 1/4" 6OD Nt	As reqd
13	14766	Tee 1/8"	1
14	30428	Filter Kit (for air, general & coalescing)	1
15	14764	Coupling Quick Release 1/8x1/8BSP	2
16	30427	Filter/Regulator Spares Kit	1
17	04836	Retainer Nylon	6
18	30417	Cable Assembly Filter/Isolator	1
19	30419	Filter Low Frequency	1
20	30414	Cable Assembly Power Supply	1
21	37755	Cable Assembly Power Output	1
22	12172	Filter Mains	1
23	30415	Cable Assembly Filter/PCB	1
24	30426	Humidity Sensor Kit	1



Airdryer – General 2

Airdryer – General 2

Item No.	Part No.	Description	Quantity
1	06009	Grommet Blind 12.7mm Hole	1
2	14176	Connector Bulkhead 4mm ID Tube	3
3	30409	Cable Assembly Pressure Switch	1
4	14389	Pressure Switch 19.9–62.3mbar	1
5	04303	Screw Pan Poz. St. St. M3x16	2
6	30406	Earth Braid Assembly	2
7	06030	Foot Rubber S/A 20.6x20.6mm	4
8	30418	Cable Assembly Indicator lamp/PCB	1
9	10762	Lamp Indicator 14V T13/4 Wedge	1
10	10606	Isolator	1
11	30415	Cable Assembly Filter/PCB	1
12	01210	Fuse 20x5 (T) 1A (240V nominal supply)	2
or	01248	Fuse 20x5 (T) 2A (120V nominal supply)	2

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