



CASECODER

MAINTENANCE

MANUAL

DECLARATION OF CONFORMITY

We,

Domino UK Ltd, Bar Hill, Cambridge CB3 8TU

declare under our sole responsibility that the product,

CaseCoder

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

EN 60204 Part 1 / DIN VDE 0113 Part 1 : Safety of Machinery – Electrical Equipment of Industrial Machines

EN 60950 : Safety of Information Technology Equipment, including Electrical Business Machines

EN 50081-1 1992 : Electromagnetic Compatibility, General Emission Standard

EN 50082-1 1992 : Electromagnetic Compatibility, General Immunity Standard

EN 55022-1 1987 Class A : Electromagnetic Compatibility (Radiated).

following the provisions of:

73/23/EEC : Low Voltage Directive

89/336/EEC : EMC Directive.



Bar Hill,

Cambridge,

1 Jan 1996

D.W. Reed

CASECODER MAINTENANCE MANUAL

WARNINGS (1) Printing inks must be handled with care.

Do not allow ink into the eyes, mouth, or onto the skin.

(2) Some dried inks are highly flammable. Clean up all ink spillages immediately. Do not allow the ink to dry.

(3) Do not use the printer in wet or explosive environments.

(4) The printer must be correctly connected to ground (earth), for the safety of personnel and to avoid the possibility of component failure.

(5) Many inks used in ink jet printing contain Nitrocellulose and remain highly flammable when dry. Observe all warnings given on the machine and the following safety instructions:

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

If dry Nitrocellulose based ink ignites, it will generate its own oxygen and can only be extinguished by lowering the temperature with water.

If a Nitrocellulose fire occurs, ensure that the electrical power is immediately removed from the printer before water is used to extinguish the fire.

For an electrical fire do not use water.

CAUTION

This is a Class A product as defined in EN 55022. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

This manual, Part No. 20519, is for use with the Domino CaseCoder Ink Jet Printer.

For operating instructions, refer to *CaseCoder Ink Jet Printer User's Pocketbook*, Part No. 20518.

For sales, service and inks contact:

Domino UK Ltd

Bar Hill
Cambridge CB3 8TU
Tel: 01954 782551
Fax: 01954 782874

Domino Amjet Inc

1290 Lakeside Drive
Gurnee IL.60031
Tel: 847 244 2501
Fax: 847 244 1421

All rights reserved. No part of this publication may be reproduced, stored on a retrieval system, or transmitted in any form, or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of Domino UK Ltd.

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.

Domino UK Ltd 1998

CASECODER MAINTENANCE MANUAL

CONTENTS

Part 1	Health and Safety
Part 2	Description
Part 3	Maintenance Procedures
Part 4	Fault Diagnosis
Part 5	Service Diagrams
Part 6	Spares and Accessories

AMENDMENT RECORD

Amendment

Date

All pages to Issue 5 as at

Dec 91

All pages to Issue 6 as at

Jun 96

All pages to Issue 7 as at

Sept 98

CASECODER PRODUCT SAFETY

This product has been carefully designed for maximum safety. It carries a safety certification by TÜV on behalf of the German standards authority VDE, which is expressed by a TÜV GS marker on the inside of the machine.

Certain parts of the machine are particularly important in this respect and any changes to them may affect the safety of the product and invalidate the certification. These should not be altered, or replaced by other types, without the approval of the Design Authority for the product.

The requirements for certification are defined in the *IEC Standard 204-1 for Electrical Equipment of Industrial Machines*.

For this printer the components affected are:

COMPONENT	DOMINO PART NO	MANUFACTURER	MANUFACTURER'S PART NO
Transformer Toroid	36150	ILP Electronics	3D311
Mains Filter Fuse Switch	10152	Schaffner	FN285-6-06
Power Cord	11115	Bulgin	PZ0100 / 2M00
Voltage Selector	11106	Schurter	SWS6
Equipment Wire			Type 3 PVC
Fan	11286	IMC	3115FS-12W-B30

PART 1 : HEALTH AND SAFETY

CONTENTS

INTRODUCTION	Page 1-3
BASIC REQUIREMENTS	1-3
STORAGE	1-4
FIRE RISK	1-4
SPILLAGES AND DISPOSAL	1-5

HEALTH AND SAFETY

HEALTH AND SAFETY

Refer also to the warnings given on pg. (3) at the front of this manual.

Introduction

Domino supplies Safety Data Sheets (SDS) 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, therefore, 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 ink data sheets. Barrier creams should be used and protective clothing worn

HEALTH AND SAFETY

- ▷ 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

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.

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: Dried ink, especially from spillages, is flammable, therefore a build up of dried ink spills must not be allowed!

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.

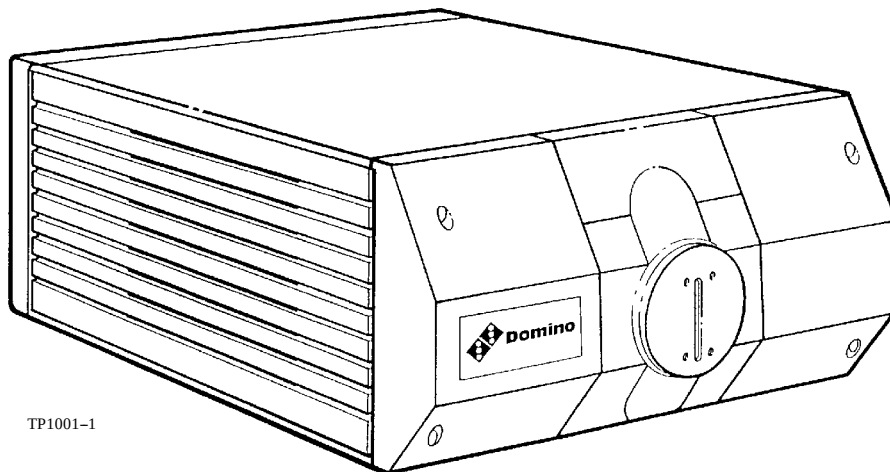
HEALTH AND SAFETY

PART 2 : DESCRIPTION

CONTENTS

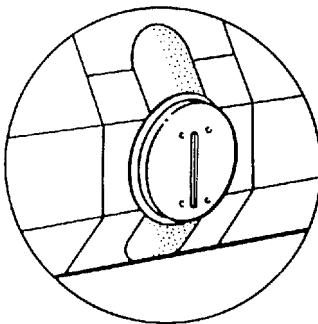
INTRODUCTION	Page 2-3
SPECIFICATION	2-4
CABINET	2-7
PRINT HEAD	2-9
INK SYSTEM	2-11
ELECTRONICS SYSTEM	2-12
Universal Serial Interface and Solenoid Driver PCBs	2-13
Motherboard	2-16
Power Supply Assembly	2-16
Product Detector	2-17
Shaft Encoder (Optional)	2-17
EXTERNAL CONNECTIONS	2-18
Product Detector and Shaft Encoder Connectors (5-pin AXR)	2-18
Mains Connector	2-19

DESCRIPTION



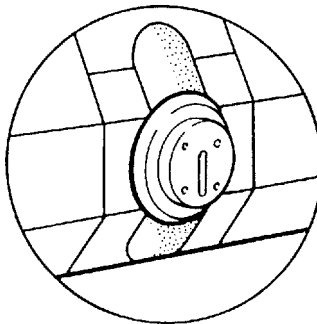
TP1001-1

CaseCoder Front View



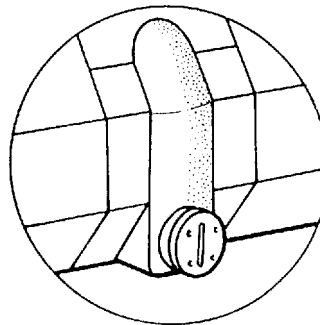
TP1002-1

*CaseCoder with
32mm Print Head*



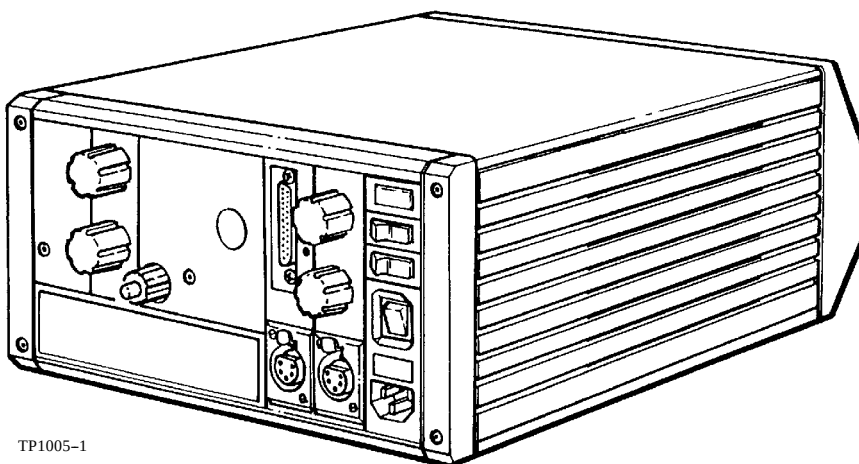
TP1003-1

*CaseCoder with high
12mm Print Head*



TP1004-1

*CaseCoder with low
12mm Print Head*



TP1005-1

CaseCoder Rear View

DESCRIPTION

INTRODUCTION

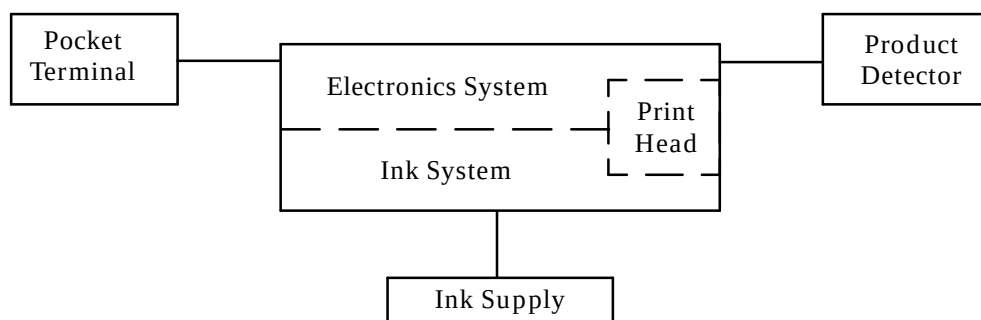
CaseCoder is a valve jet printer, designed to mark items moving along a production line. Valve jet printers do not touch the print surface. Therefore, as well as obvious surfaces, CaseCoder is able to print on soft, irregular or otherwise "difficult" surfaces.

CaseCoder is a small unit containing a print head and the associated ink and electronic control circuits. There are two types of print head: 7 nozzle 12mm and 16 nozzle 32mm. An external photo-electric sensor, normally mounted on the printer cabinet, detects the product and enables CaseCoder to print at the correct time. Ink is supplied to the printer from a separate, disposable ink container.

The printer is normally installed on a special mounting bracket, with its print head nozzles close to the surface being printed on. It should be level and free from vibrations which could reduce print quality.

CaseCoder is programmed with a Domino pocket terminal. This is a small calculator-style unit which enables messages to be quickly and easily entered into the printer. Once a message is programmed into the printer, it is unaffected by switching off or power failures and can only be changed by the operator. The terminal can be detached for security.

Optional extensions to the CaseCoder include a shaft encoder which will make printing follow variations in the line speed. Also, input of data is not confined to the pocket terminal. CaseCoder is fully capable of becoming part of a larger printing system.



CaseCoder Block Diagram

DESCRIPTION

SPECIFICATION

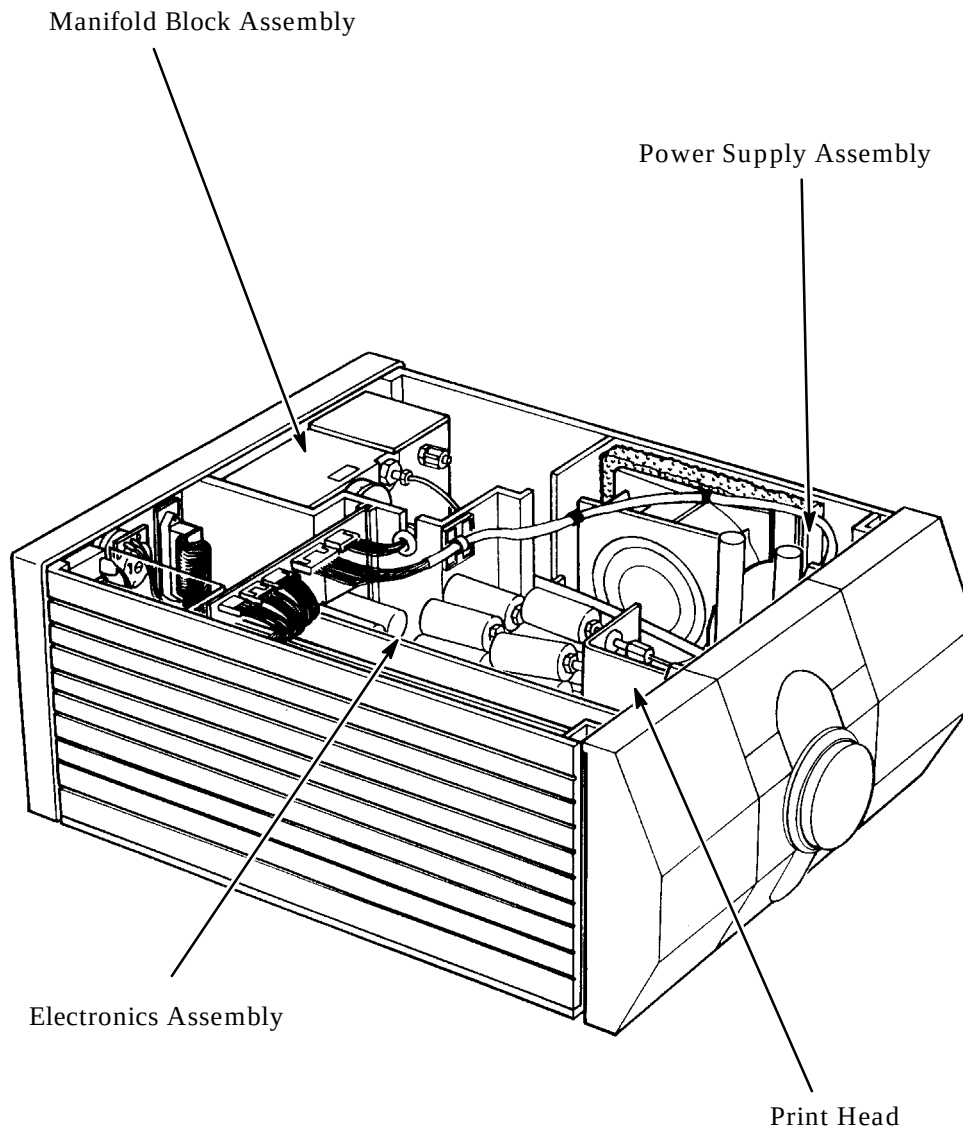
Printing	
Character Heights:	
CaseCoder single line:	8mm (5 x 5 matrix).
	12mm (7 x 5 matrix).
CaseCoder two line:	8mm (5 x 5 matrix).
	12mm (7 x 5 matrix).
	32mm (16 x 10 matrix).
Maximum print speed (all variants):	100 m / sec at 12.5mm character width.

Ink System	
Disposable bulk ink supply of 5 litres (initial supply 1 litre).	
Dimensions	
Weight:	6.8kg.
Height:	130mm.
Width:	262mm.
Depth:	396mm.
Print Head Distance:	6 – 10mm (optimum). – max allowable distance between nozzle and print surface 25mm.
Data Input	
Pocket terminal 20 (16 x 10) chrs each:	50 messages of up to 40 (7x5) chrs each or 20 (16 x 10 chrs each
Data retention during power off.	
Domino Codenet:	Controls up to 24 CaseCoder from one P.C.
Interface:	RS232 or 20mA current loop.

DESCRIPTION

Character Control Functions	
User defined clock formats including:	
	Programmable shift codes,
	Gregorian e.g. Nov 90,
	Julian e.g. 0319 = 31 Jan 89,
	Quarter hours e.g. 64 = 1600 hours,
	Clock offsets for different messages.
Two independent serial numbers.	
All clock formats and serial numbering change automatically within a message.	
Invert, reverse and bolderise characters.	
Adjustable character width.	
Adjustable drop size.	
User programmable changing of messages at a set time.	
Auto message repeat.	
Product counter.	
Options for:	Barcode 2/5 and code 39, Foreign alphabets e.g. Arabic, Custom logos and symbols.
Environmental	
Temperature:	5 –35 °C operating.
Humidity:	10 – 90% RH (non-condensing).
6 position voltage selector:	110V / 130V / 150V or 220V / 240 / 260V.
Main fuse rating:	0.63A (220V – 260V). 1.25A (110V – 150V).
Power requirements	78VA, 50–60HZ.
Shaft Encoder input	Suitable for open collector or TTL encoders.

DESCRIPTION



TP1043-2

CaseCoder – Internal View

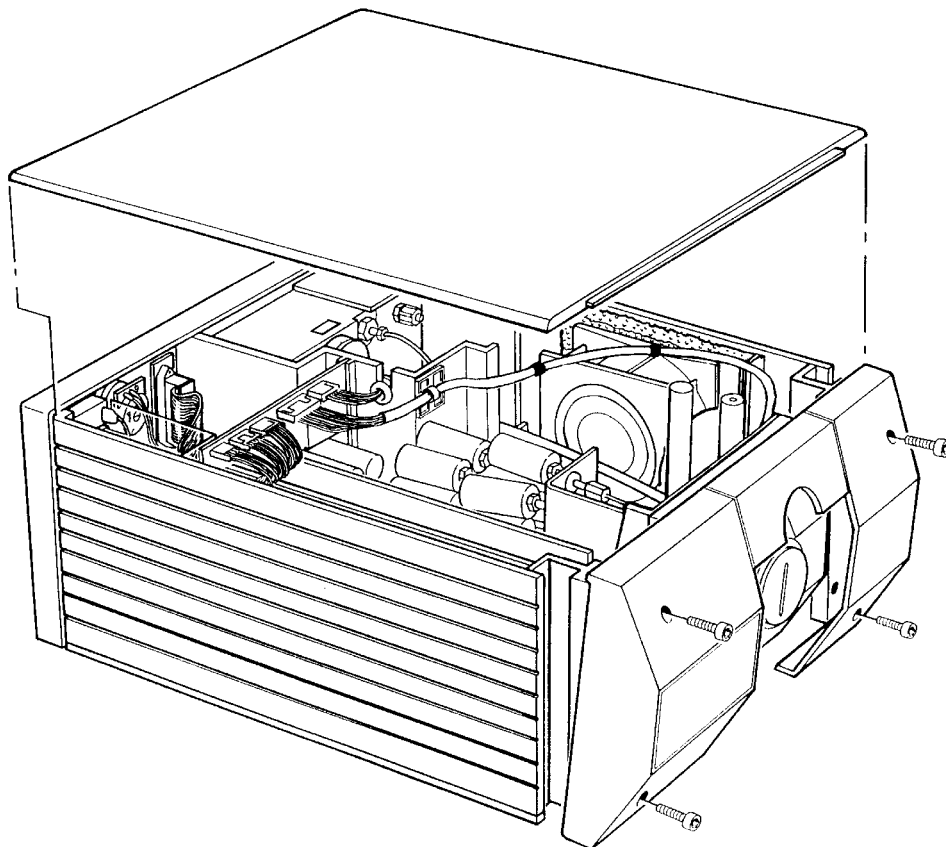
DESCRIPTION

CABINET

The CaseCoder cabinet is made of a structural plastic foam material which is extremely strong as well as light and easy to clean. The cabinet consists of a base moulding, front cover, top cover and rear control panel. The front cover has an aperture for the rubber seal surrounding the print head. In the case of the 12mm low print head, this seal is part of the print head assembly. In the case of the 12mm high and 32mm print head, the seal is detachable. Access for maintenance consists of removing the four screws holding the front panel. Removing the front panel then releases the top panel.

The assemblies which make up the ink and electronic systems are fitted as shown in the diagram opposite. A fan provides cooling air and maintains a slightly positive air pressure inside the cabinet to keep out dust, etc.

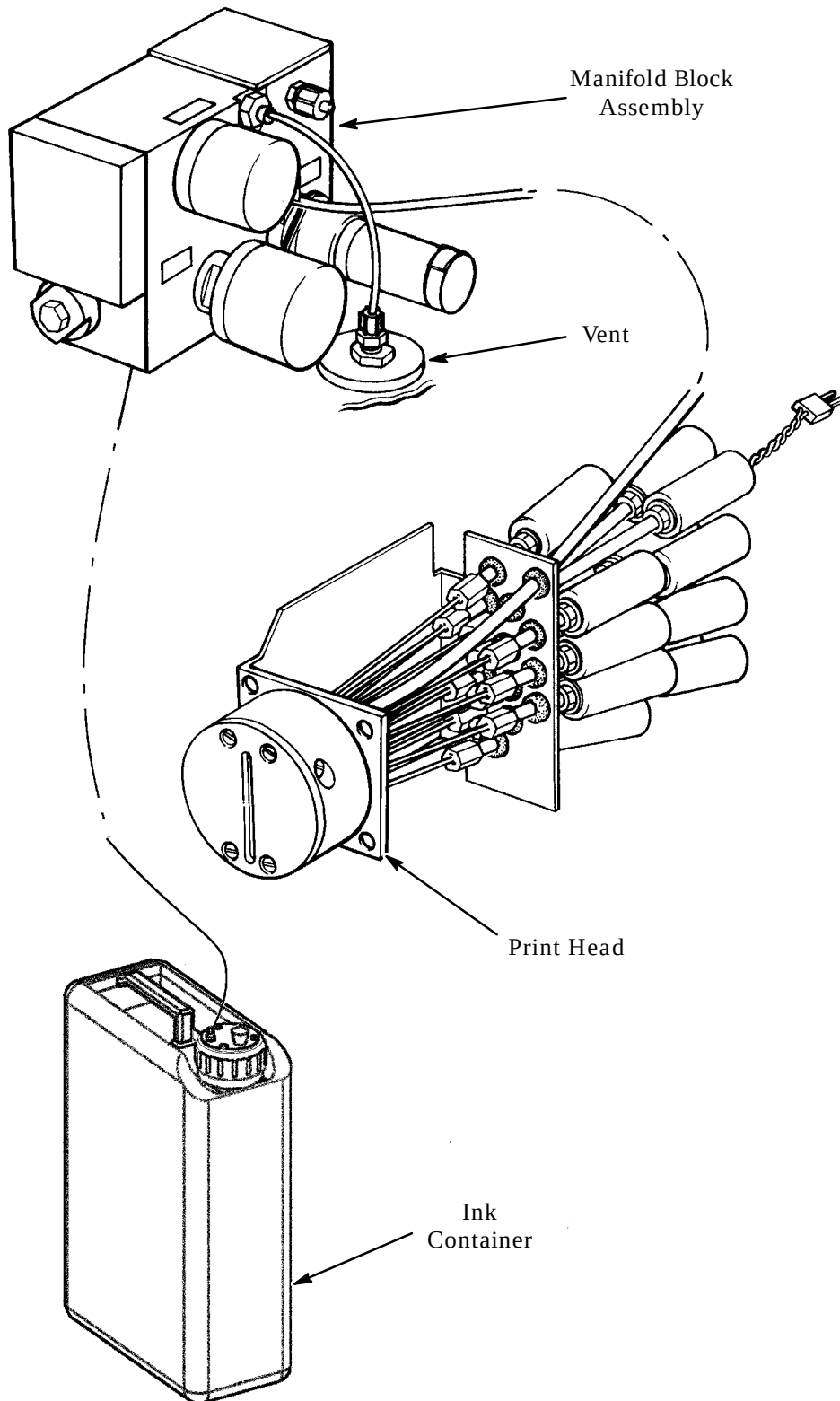
Controls and external connections are all on the rear panel (see Pg. 2-13).



TP1044-2

Removing the Covers for Access

DESCRIPTION



TP1384-3

Ink System Components

PRINT HEAD

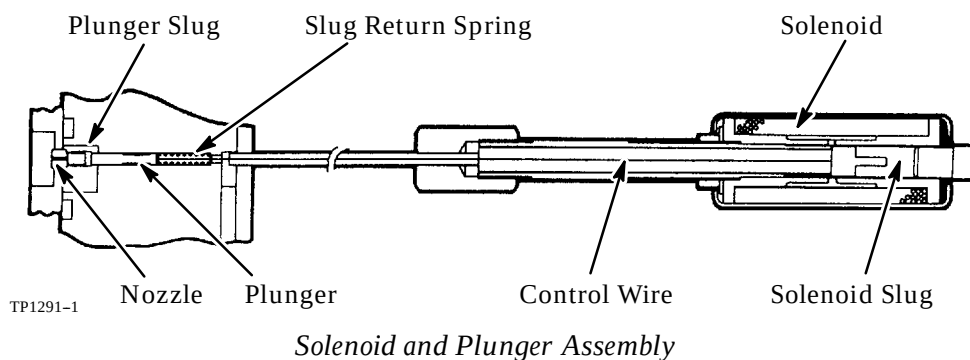
The only visible part of the print head is the nozzle plate. This is a circular, stainless steel plate with a vertical line of either seven or sixteen nozzles. Each nozzle consists of a jewel, precision-drilled to the nozzle size, embedded in the plate. The nozzle is closed from behind by a rubber-tipped plunger. Ink, under pressure behind the plate, shoots out of the nozzle when the plunger is momentarily pulled away. The resulting drop of ink, together with drops from other nozzles in the line, form a column of dots on the print surface. As the surface moves past the print head, successive columns of dots form the printed characters.

The diagram opposite shows the complete print head, a diagram of one nozzle is shown below. Pressurised ink supplied by the ink system is held in the print head manifold behind the nozzle plate. The plungers sealing the nozzles operate in this manifold. Each plunger is connected by a control wire to a slug inside a solenoid. When the solenoid is energised, the slug is pulled into the middle of the solenoid, pulling the plunger away from the nozzle. When the solenoid is de-energised, the plunger is pulled back to its original position by the return spring.

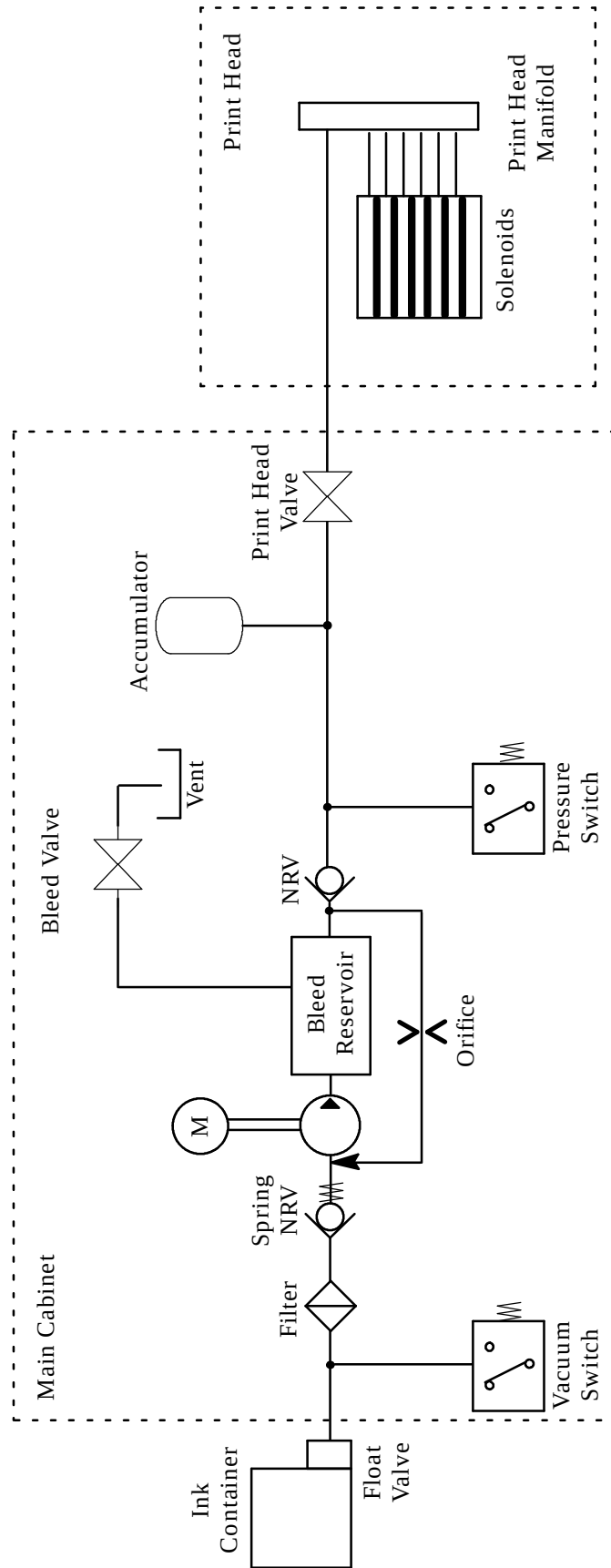
Drop size is controlled by three factors:

- ▷ the time for which the solenoid is energized
- ▷ the position of the slug in the solenoid
- ▷ the ink pressure.

The ink nozzles are self cleaning in normal operation as the forced ink flow automatically sweeps away any dirt. A manually controlled PURGE function is provided which opens all of the nozzles repeatedly to sweep out any air or other accumulations. Purging is carried out when required.



DESCRIPTION



Ink System Diagram

INK SYSTEM

The ink system supplies ink under pressure to the print head. Most of the components in the ink system are built into the manifold block assembly.

Ink is supplied to the printer from a disposable sealed ink container. Connection into the ink container is through a float valve which is transferred from one container to the next.

The ink is drawn into the system through a filter and a spring non-return valve (NRV) by a pump. A vacuum switch is connected to the input from the ink container. When all ink has been used, the inlet vacuum will rise. This is detected by the vacuum switch (at approximately 8 – 10”Hg) and indicated by the CONTAINER EMPTY warning indicator being lit. The pump switches off, but the vacuum is retained by the spring non-return valve, holding the vacuum switch on.

The ink is pumped into a bleed reservoir where any residual air from the ink container is collected. This air is removed by opening the bleed valve for a short time. Bleeding should be carried out periodically. The recommended period is weekly.

The ink next passes through a plain non-return valve to the accumulator and the print head. The accumulator provides a working supply of ink under pressure for the print head. It is a sealed container divided into two compartments by a rubber diaphragm. As ink is pumped in on one side of the diaphragm, the air on the other side is compressed. At approximately 7 – 7.7psi, detected by a pressure switch, the accumulator will therefore contain a volume of ink (approximately 30ml) under pressure and the pump switches off. Ink is prevented from returning to the pump by the non-return valve.

As the ink in the accumulator is used up through the print head, the air on the other side of the diaphragm decompresses. The resulting reduction in ink pressure (to approximately 6psi – 1psi) is detected so that the pump can automatically switch on again to recharge the accumulator. The intervals between recharging allow replacement of the ink container without stopping printing.

To ensure that the pump remains primed if air should be present at the pump inlet, ink is fed back from the bleed reservoir to the pump inlet. The return flow is kept to a low level by the orifice. The print head valve turns the ink feed off to the print head for maintenance.

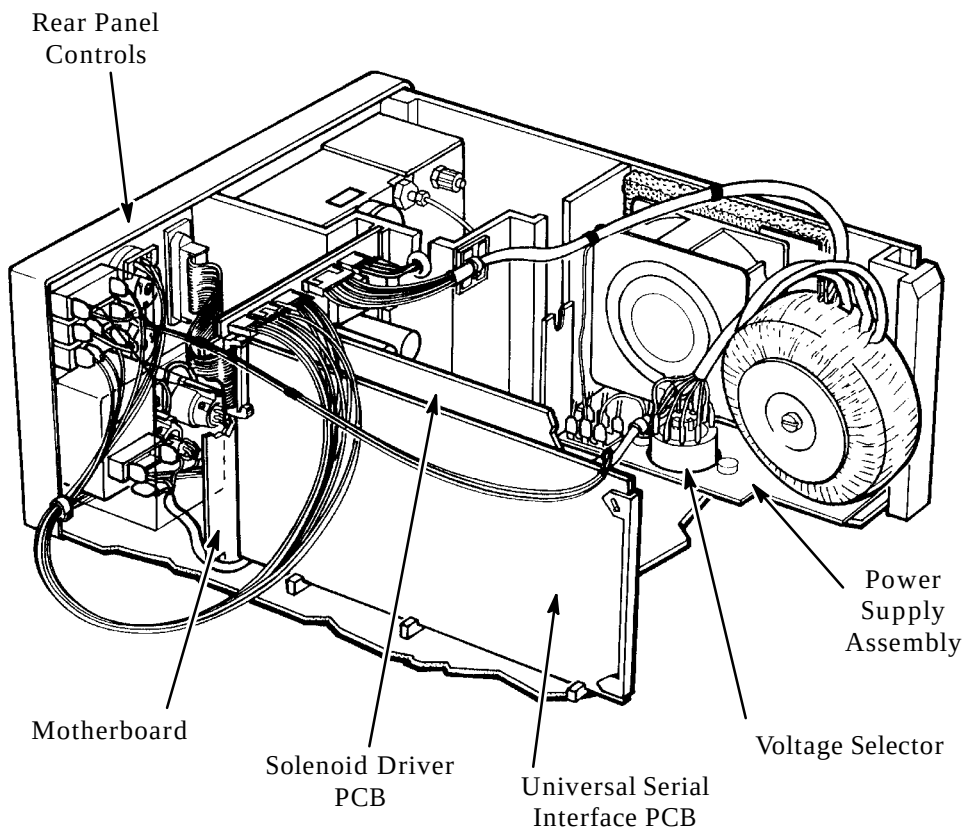
DESCRIPTION

ELECTRONICS SYSTEM

The major components of the CaseCoder electronics system are shown in the diagram. Not shown is the external product detector which triggers printing. The system comprises two printed circuit boards (PCBs) fitted into a printed circuit motherboard.

The printed circuit boards are:

- ▮ the Universal Serial Interface PCB, concerned with the data processing
- ▮ the Solenoid Driver PCB, concerned with driving the print head.



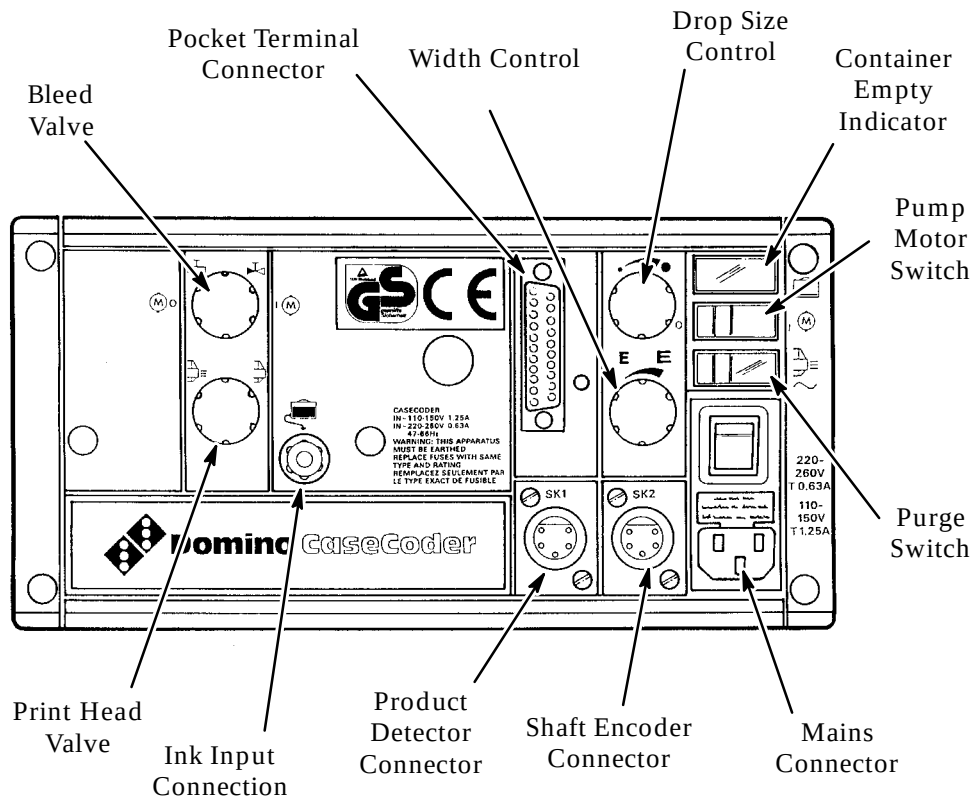
TP1086-2

Electronic System Components

The motherboard contains the interconnections between the PCBs, and the connections out to the print head, external controls and connectors. The d.c. power supplies required by the circuits are generated by a power supply assembly in conjunction with circuits on the motherboard.

DESCRIPTION

The controls and indicators are grouped on the rear panel as shown in the diagram.



TP1087_2

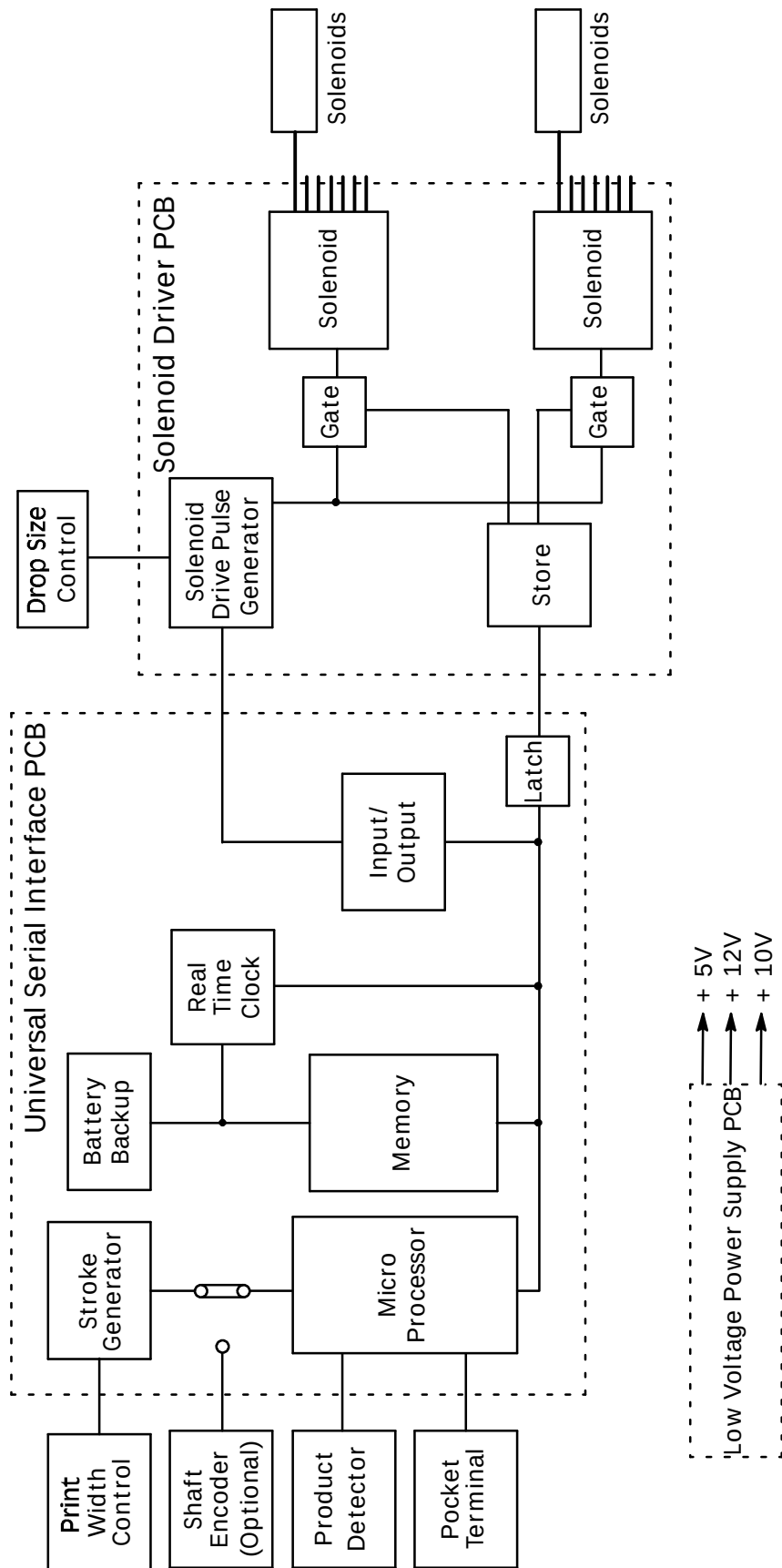
Rear Panel Controls

Universal Serial Interface and Solenoid Driver PCBs

A block diagram of the electronics system is shown on pg. 2-14. Messages and printing instructions are entered by the operator into the Pocket Terminal. The Terminal passes this data to the Universal Serial Interface PCB, where it is processed by a system consisting of the microprocessor, memory, and Real Time Clock (RTC).

The microprocessor controls the printer by carrying out a set of instructions (the operating program) held as fixed data in the memory. In addition, the memory holds variable information, such as the message data and the data generated by the microprocessor in carrying out the operating program. The memory also holds a fixed set of character look-up tables. These are used to translate the message data into a form suitable to control the print head. The RTC makes time and calendar information available for inclusion in the printed messages.

DESCRIPTION



The Electronic Control System

DESCRIPTION

The memory is made up of two types of device. The fixed information (the operating program, character set tables) is held in Read Only Memory (ROM) devices. The variable data (the message information) is held in Random Access Memory (RAM) devices which will lose the information if power is removed. Power removal will also stop the RTC. To avoid this, the Universal Serial Interface PCB has a battery back-up system which maintains power for up to three months on the RAM and RTC if the normal power is removed. During normal use the battery is automatically recharged.

The microprocessor has two control inputs. One is a PRINT GO signal from the product detector, indicating that a product is approaching. Printing is carried out after a programmed delay which allows the product time to reach the correct position. The delay is set up through the Pocket Terminal.

The other input is the STROKE GO signal from the stroke generator. This provides the microprocessor with the frequency, or rate, at which the strokes making up the character are to be printed. This, in turn, depends upon the speed with which the product passes the print nozzles. The stroke generator is adjusted with the external print WIDTH control. (Where the optional shaft encoder is fitted, links on the PCB are used to connect the pulses from the encoder into the microprocessor, in place of those from the stroke generator.)

The data required to drive the print head is sent to a latch. This is a temporary store where data is held ready for transfer to the Solenoid Driver PCB. The data is received on the Solenoid Driver PCB by a store from which it controls the pulses operating the print head solenoids. The data is transmitted as an 8-bit parallel signal, controlling up to eight nozzles. In the case of the seven-nozzle head, successive data inputs each control one stroke. In the case of the sixteen nozzle head, one stroke is controlled by two successive data inputs.

The microprocessor controls the data transfer with a signal generated by an input/output device. This signal also triggers the drive-pulse generation circuits in the Solenoid Driver PCB. These generate pulses which are gated with the print data in the store. Pulses allowed through the gates by the print data are amplified by the solenoid drivers and operate the solenoids.

DESCRIPTION

The duration of the drive pulses is adjustable using the external DROP SIZE control. This varies the time for which the print head nozzle is open.

The battery back-up supply and other functions are subject to link settings on the PCBs. Details are given in Part 3: Replacing the Universal Serial Interface PCB.

Motherboard

The motherboard carries the interconnections between the PCBs and their connections to the external controls. It contains a small amount of control circuitry, d.c. power supplies, circuits and fuses.

The supplies generated are:

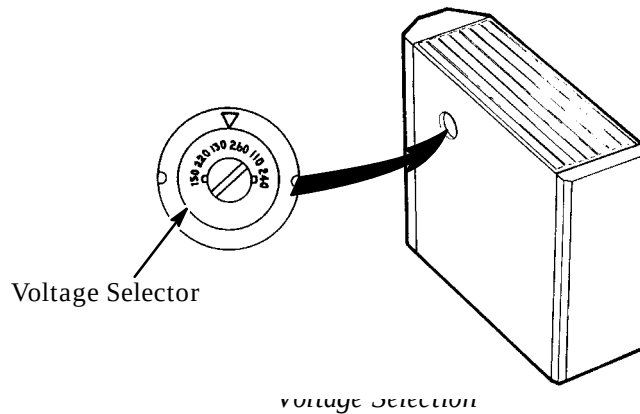
Unregulated +24V, used by:	Solenoid Driver PCB
	indicator lamps
	pump motor
Unregulated +10V, used by:	+5V generation
	Serial Interface PCB
Regulated +12V, used by:	both PCBs
	product sensor
Regulated -12V, used by:	both PCBs
Regulated +5V, used by:	both PCBs
	pocket terminal
	motherboard circuits

The motherboard carries a switch and a jumper link. The switch controls the printed character aspect ratio i.e. the ratio of height to width. The jumper link is concerned with the Print Go input circuit. These must be correctly set. Details are given in Part 3: Replacing the Motherboard.

Power Supply Assembly

The power supply assembly consists of a multi-winding mains transformer, a fan, a voltage selector and a fuse. The transformer is used to supply rectifier and regulation circuits on the motherboard. The selector allows inputs of 110, 130, 150, 220, 240 or 260V. Normal protection is provided by a fuse fitted into a holder immediately above the mains input connector on the back panel. A second fuse (6.3A) is fitted into the mains selector. The fan is a 110V unit which is automatically provided with the correct supply by the voltage selector.

DESCRIPTION



Product Detector

CaseCoder uses an external detector to sense the approach of a product. This is normally mounted on the side of the printer in an adjustable clamp provided as part of the installation kit. The detector sends out an infra-red light beam and looks for a reflection from the product. Alternatively it can detect the edges of light or dark markings on the product. The signal resulting from detection is fed into the Universal Serial Interface PCB as the PRINT GO signal.

A delay can be programmed into the printer as part of the input data from the pocket terminal to allow the product time to reach the correct position for printing.

Shaft Encoder (Optional)

Internal stroke control assumes a constant product speed and gives a constant stroke rate. If the product speed changes, the width of the printed characters will change. Fitting a shaft encoder allows the stroke rate to vary with the product speed.

A shaft encoder generates electrical pulses as it rotates. These are a fixed number of pulses for each rotation of its shaft. These pulses are used to control the print stroke rate, maintaining the correct stroke spacing and printing characters of a constant and fixed width, regardless of product speed.

Selecting a shaft encoder to suit the print width and line speed is detailed in the Maintenance section. Making the printer work with the shaft encoder requires adjustments to the Stroke Go links on the Universal Serial Interface Board.

EXTERNAL CONNECTIONS

Product Detector and Shaft Encoder Connectors (5-pin AXR)

WARNING: The printer must be connected securely to ground.

There are two connectors, SK1 and SK2. Both connections are wired with the same connections so that a product detector can be connected with either connector and a shaft encoder connected into the other. Alternatively, SK1 and SK2 can be used to loop a single product detector, or a shaft encoder to another similar printer in an extended system. Connection details are shown following table.

PIN	SIGNAL
1	OV
2	Encoder input
3	Print Go input
4	+5V
5	+12V

Pocket Terminal Data Entry Connector (25-way D connector)

For RS232 operation pins 13 and 24 are linked to disable the 20mA loop. Pins 4 and 9 may also be linked to set CTS. For 20mA loop operation pins 21 and 22 are linked. The terminal as supplied has the connections set for RS-232 operation.

PIN	SIGNAL	PIN	SIGNAL
1	OV	12	Tx +ve
2	RS232 Data In	13	Rx +ve
3	RS232 Data Out	18	-12V
4	CTS (Input)	21	20mA ENABLE
5	RTS (Output)	22	+12V
7	0V	24	Tx -ve
9	+5V	25	Rx -ve
11	20mA SOURCE		

DESCRIPTION

Mains Connector

Euroconnector with moulded lead:

Line	brown
Neutral	blue
Ground	green \ yellow

PART 3 : MAINTENANCE PROCEDURES

CONTENTS

GENERAL	Page 3-3
PRINT HEAD	3-3
NOZZLE PLATE	3-3
CHECKING DOT SIZE	3-4
Solenoid Adjustment	3-5
Solenoid Replacement	3-6
Print Head Plunger Slug Replacement	3-7
INK SYSTEM	3-10
Ink System Depressurising	3-10
Ink System Priming	3-11
Repressurising the Ink System	3-12
Ink System Removal	3-14
Ink Filter Replacement	3-15
Filter and NRV External Leaks	3-15
Refurbishing a Spring NRV	3-16
Refurbishing a Plain NRV	3-17
Pressure Switch	3-18
Vacuum Switch	3-19
Pump	3-20
Pump Replacement	3-20
Refurbishing the Accumulator	3-21
Air Filter Replacement	3-22
Cleaning the Float Valve Assembly	3-22
ELECTRONIC SYSTEM	3-23
Fuse Replacement	3-23
Switch and Indicator Replacement	3-24
PCB Replacement	3-24
Replacing the Universal Serial Interface PCB	3-24
Replacing the Solenoid Driver PCB	3-30
Replacing the Motherboard	3-30
SHAFT ENCODER (OPTIONAL)	3-32

MAINTENANCE PROCEDURES

MAINTENANCE PROCEDURES

GENERAL

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

CaseCoder does not require regular maintenance routines. Cleanliness and the recommended operating practices will be sufficient to ensure continuous high level performance.

This section, therefore, contains the procedures to be used in refurbishing, repairing or replacing parts of the printer after it has shown signs of abnormal performance or failed. (A guide to identifying the part of the printer requiring attention is given in Part 4: Fault Diagnosis). Details on fitting a shaft encoder (optional) are given at the end.

CAUTION ***The ink system vent is on the underside of the printer cabinet. Clean away any ink deposits which may occur under the cabinet.***

PRINT HEAD

For maintenance purposes the print head is considered as a separate assembly. It can be isolated from the pressurised ink system by closing the print head valve and made electrically safe by switching off the printer.

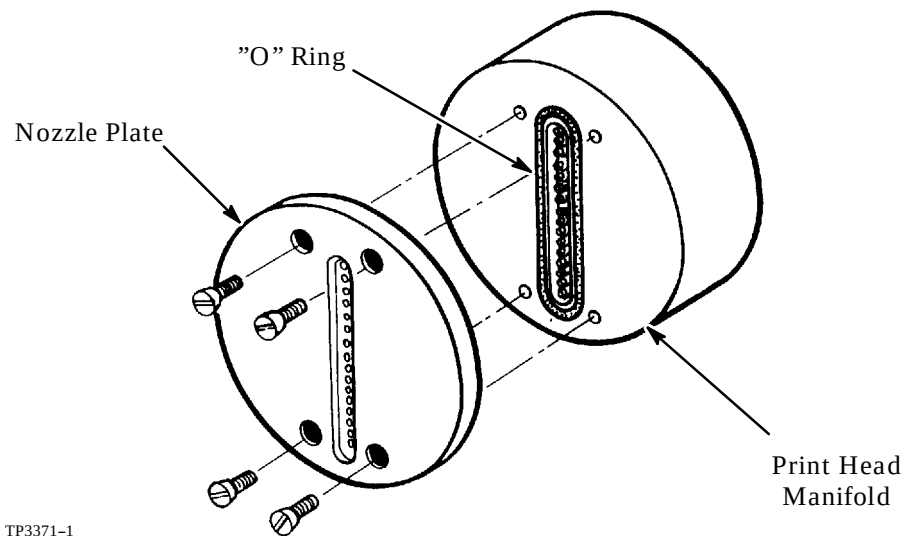
Nozzle Plate

It may be necessary to remove the nozzle plate for cleaning if any nozzles become blocked.

- (1) Ensure the printer is switched off.
- (2) Close the print head valve by turning the knob clockwise.
- (3) Using a container to catch the ink, unscrew the retaining screws and carefully remove the nozzle plate.
- (4) Clean the nozzle plate in an ultrasonic bath for 10 minutes max using the appropriate washing solution. When clean, inspect for wear or damage.

MAINTENANCE PROCEDURES

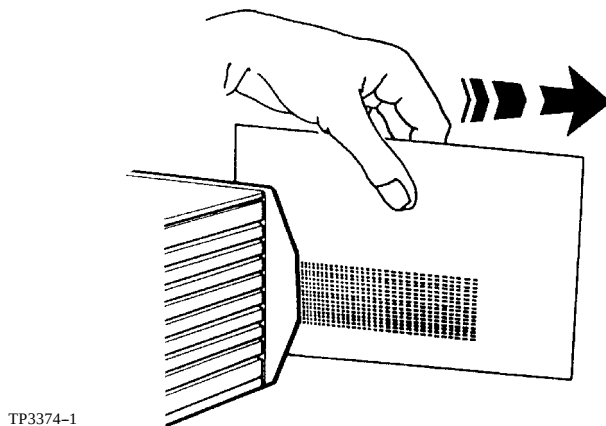
- (5) Inspect the "O" ring in the manifold block against which the nozzle plate is secured. Ensure that it is clean and undamaged. Wet the seal with the wash solution.
- (6) Refit the nozzle plate and retaining screws.
- (7) If a new nozzle plate assembly is fitted, it may be necessary to adjust the solenoids (see Pg. 3-5).
- (8) Open the print head valve by turning the knob anti-clockwise.
- (9) Purge the head and check for leaks (see CaseCoder Pocketbook).



Nozzle Plate Removal

Checking Dot Size

The dot size on the print surface should be 2.5 to 3.0mm diameter. Solenoid adjustment consists of setting the size of the print drops so that the dot size is correct and the same as those from the other nozzles.



MAINTENANCE PROCEDURES

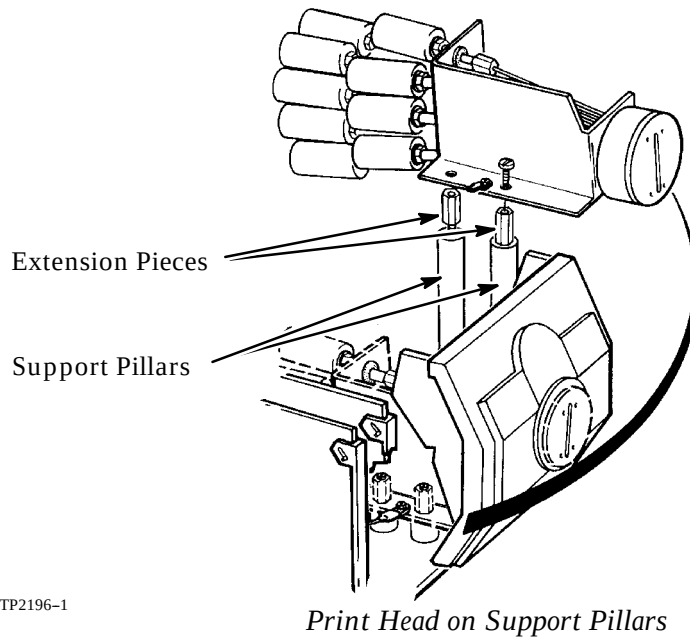
- (1) Clean the nozzle plate (see above).
- (2) Switch on the CaseCoder and turn the drop size control fully clockwise.
- (3) Move a piece of card at a constant speed across the front of the print head assembly at a distance of approximately 10mm. At the same time operate the purge switch. With a little practice it will be possible to draw a series of vertical lines on the card.
- (4) Inspect the lines printed on the card. All lines should be 2.5 to 3.0mm and of uniform width. Any noticeable variation in the size of an individual drop may require adjustment of the appropriate solenoid.

Solenoid Adjustment

WARNING: **The Solenoid Adjustment procedure must only be undertaken by suitably qualified personnel. High voltages are present in CaseCoder.**

- (1) Ensure the printer is switched off.
- (2) Remove four fixing screws and take off the front cover. Remove the top cover.
- (3) Remove the print head fixing screws. Lift the print head and fit it onto the special support pillars with the fixing screws, inserting the extension pieces as shown in the diagram. Ensure that the pipe and cable connections are not strained or damaged.
- (4) Identify the nozzle corresponding to any incorrect dot. (A label showing the solenoid arrangement can be found either on the print head or the cabinet).
- (5) Hold the solenoid body and loosen the locknut securing the associated solenoid. To increase the drop size, turn the solenoid anticlockwise to reduce it turn the solenoid clockwise. Tighten the locknut.
- (6) Switch power on.
- (7) Check dot size as in step 2 of Checking Dot Size procedure.
- (8) Repeat the adjustment until the drop size is correct.
- (9) Repeat the adjustment on any other solenoids as required.

MAINTENANCE PROCEDURES

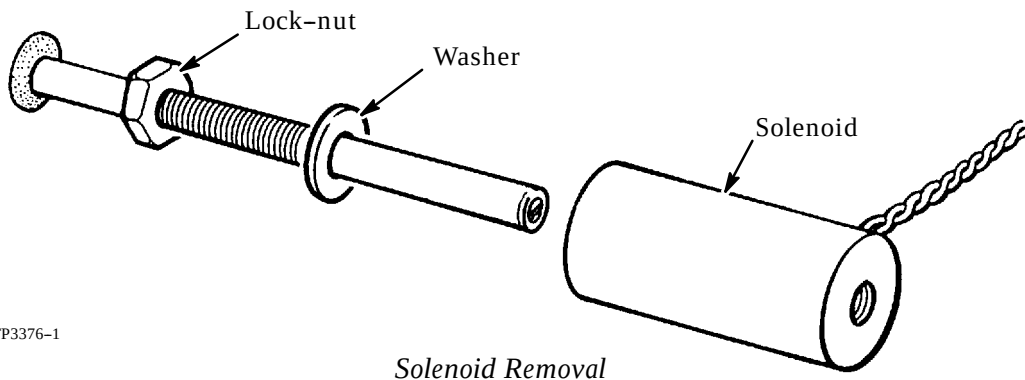


(10) Switch off the CaseCoder and refit the print head and covers.

Solenoid Replacement

Ensure the printer is switched off. Remove the front and top covers and fit the print head onto the support pillars (see Solenoid Adjustment procedure).

- (1) Disconnect the solenoid wiring from the connector.
- (2) Hold the solenoid body and loosen the locknut sufficiently to allow the solenoid to be unscrewed and removed from the mounting tube. Leave the locknut to mark the position of the solenoid.
- (3) Screw the new solenoid onto the mounting tube, up to the locknut.
- (4) Reconnect the solenoid wiring.
- (5) Do the drop size test and adjust the solenoid as necessary.



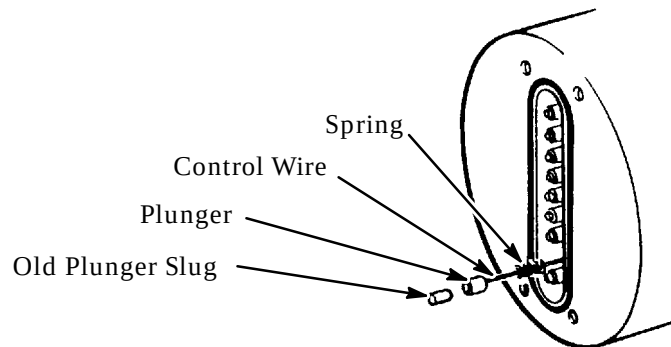
Print Head Plunger Slug Replacement

Plunger slugs in a print head will occasionally require replacement due to wear. This is indicated by ink leakage from the nozzles. The nozzle plate should be carefully cleaned first to ensure that the leakage is not caused by dirt. While the plate is removed, check the condition of the plunger slugs. Also inspect the nozzle plate to check that the jewels forming the nozzles are not damaged or displaced.

Replacing a damaged plunger slug requires an insertion tool, Domino part number 33574. The tool consists of a base, a top and an insertion pin. A small amount of silicone grease will also be necessary.

Having identified the faulty plunger, proceed as follows:

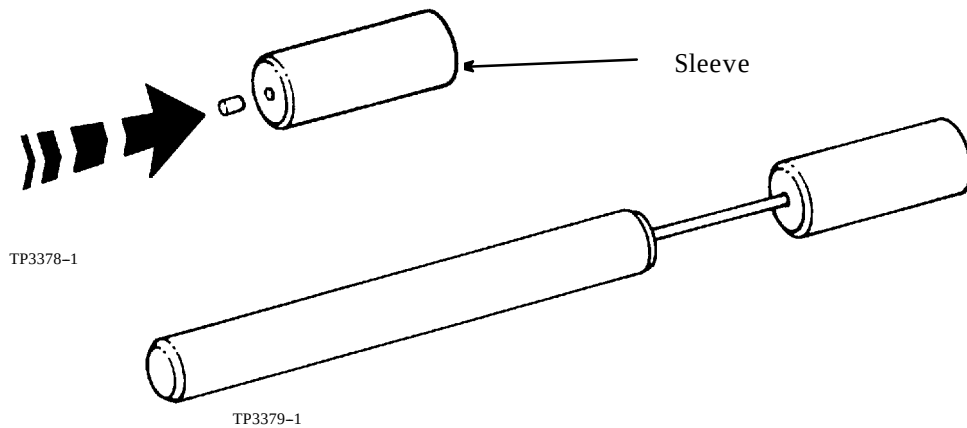
- (1) Close the print head valve by turning the knob fully clockwise. Remove the nozzle plate.
- (2) Carefully pull the plunger out as far as possible from the print head manifold block.
- (3) Remove the damaged plunger slug. Make sure that the recess for the plunger slug is clean.



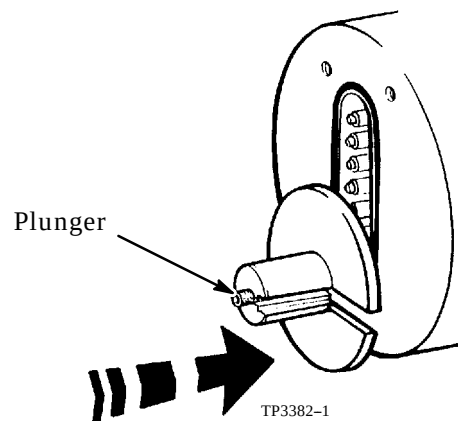
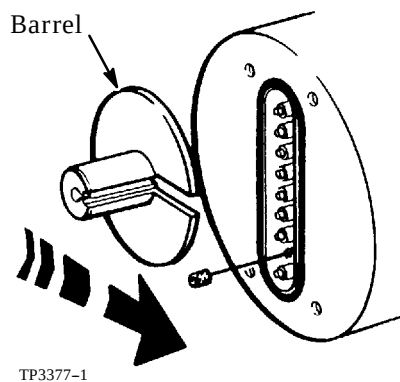
Note. The insertion tool consists of a barrel, sleeve and insertion pin. The hole through the sleeve should be prepared by inserting a little silicone grease (MS4) and pushing a plunger slug through several times with the insertion pin. Wipe away excess grease and discard the slug.

- (4) Apply a thin film of silicone grease to the new slug. Insert the new slug into the top of the sleeve as shown.
- (5) Slide the spring down and fit the barrel onto the control wire. Push the plunger down until it is seated in the barrel.

MAINTENANCE PROCEDURES

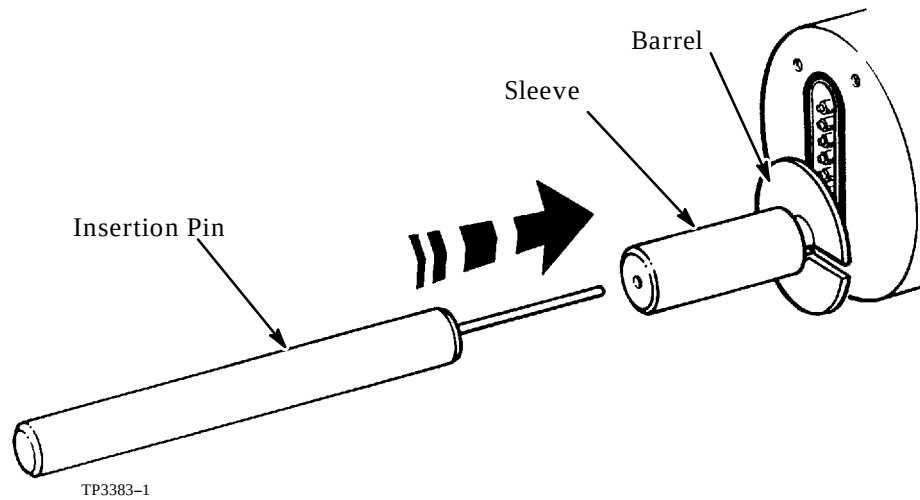


- (6) Push the barrel down onto the manifold (keeping the plunger correctly seated) and fit the sleeve over the barrel. Do not let the barrel slip sideways, as it will damage the plunger and control wire.



MAINTENANCE PROCEDURES

- (7) Fit the insertion pin into the sleeve and push the new slug into the plunger. Only push the slug until it is felt to be fully inserted – excessive force will damage the slug.



- (8) Remove the insertion pin and sleeve. Pull out the plunger and control wire sufficiently to remove the barrel.
- (9) Inspect the plunger, plunger slug and control wire to ensure that they are not damaged and refit into the manifold.
- (10) Check for free movement of the assembly.
- (11) Refit the nozzle plate and open the print head valve.

Note. There may be a small leakage of ink from the nozzles. This will stop once the slugs are bedded in.

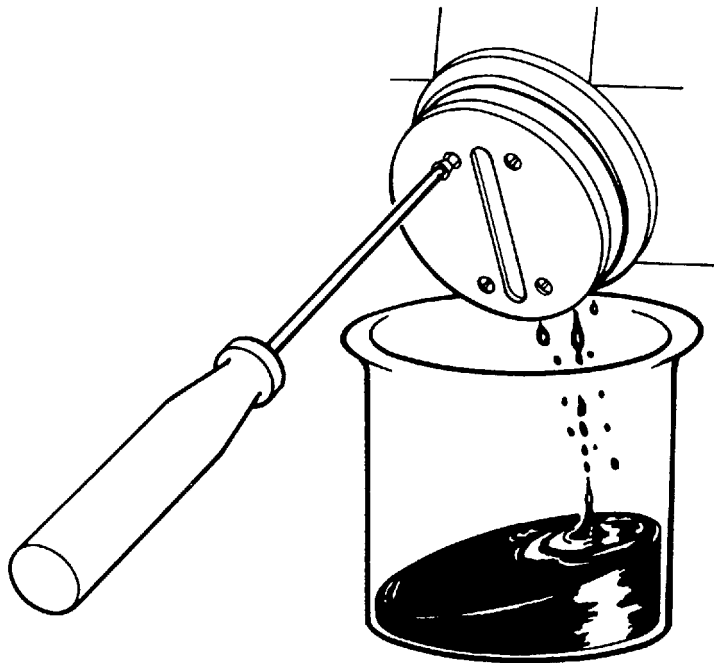
INK SYSTEM

WARNING: The ink system **MUST BE DEPRESSURISED** before any work is carried out on it. After the work is completed the ink system must be repressurised. Both procedures are given below.

Ink System Depressurising

This procedure must be carried out before any work on the ink systems commenced. Do the following steps in the order given.

- (1) Ensure power is removed from the printer.
- (2) Close the print head valve by turning the knob fully clockwise.
- (3) Position the nozzle plate over a suitable container and loosen the nozzle plate screws to allow ink to drain.
- (4) Slowly open the print head valve and drain the ink system into the beaker.
- (5) When all ink has drained, close the print head valve and retighten the nozzle plate.

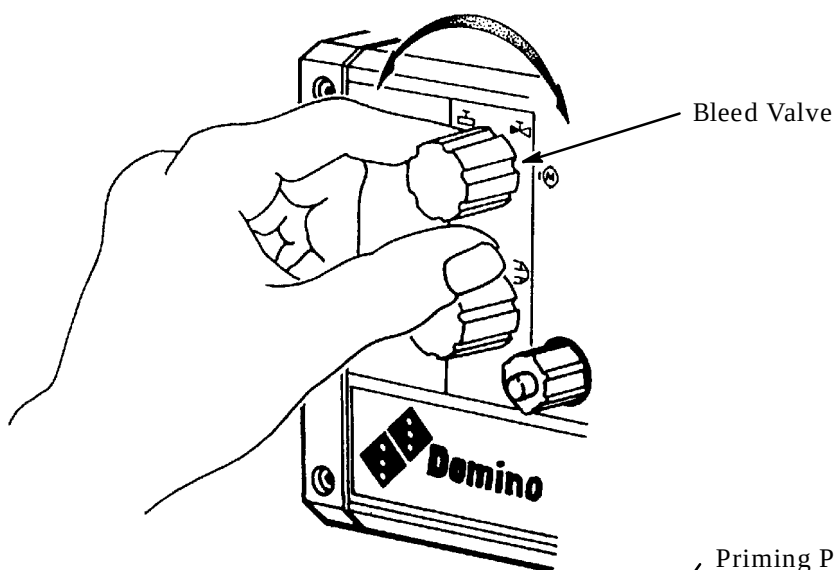


TP2315_1

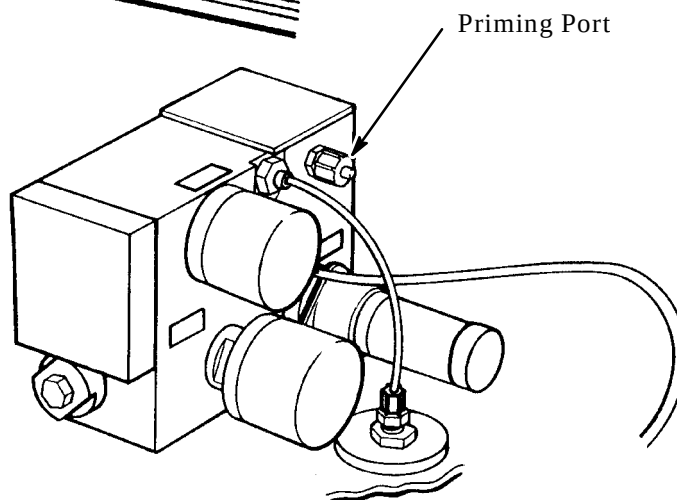
Draining the Print Head

Ink System Priming

- (1) Ensure that the power is removed from the printer.
- (2) Open the bleed valve by turning the knob fully anti-clockwise.
- (3) Remove the blanking plug from the priming port on the ink manifold block assembly.
- (4) Use the wash bottle to force wash solution into the priming port until it flows out of the vent underneath the printer.
- (5) Close the bleed valve by turning the knob fully clockwise.
- (6) Replace the priming port blanking plug.



TP 2310_1



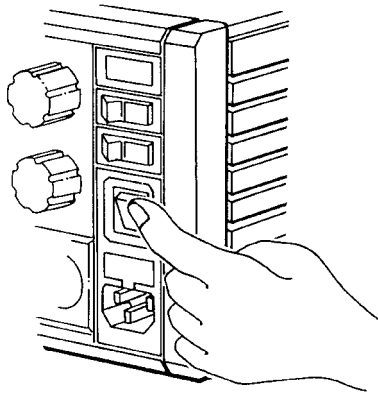
TP3544_4

Ink System Priming

Repressurising the Ink System

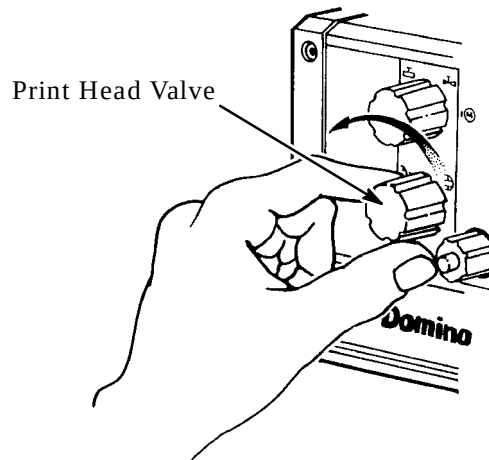
This procedure should be carried out after any work which causes loss of ink from the ink system.

- (1) Connect the printer to mains power and an ink container.
- (2) Close the print head valve by turning the knob fully clockwise.
- (3) Set the power switch to ON (1) and ensure that the Motor Switch is ON (1).



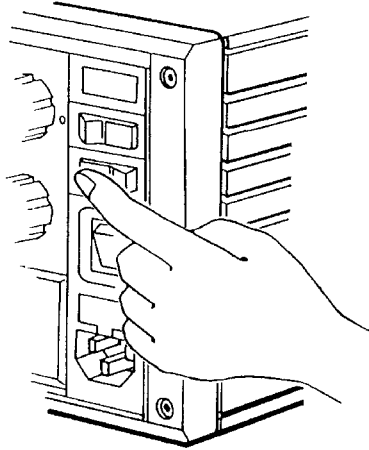
TP2312_1

- (4) Place a suitable container under the nozzle plate.
- (5) Loosen the nozzle plate fixing screws sufficiently for ink to escape.
- (6) Arrange plenty of tissue around the beaker to catch any drops of ink.
- (7) Very slowly open the print head valve and allow air and ink to escape into the beaker. Continue until approximately 50ml of ink has been collected.



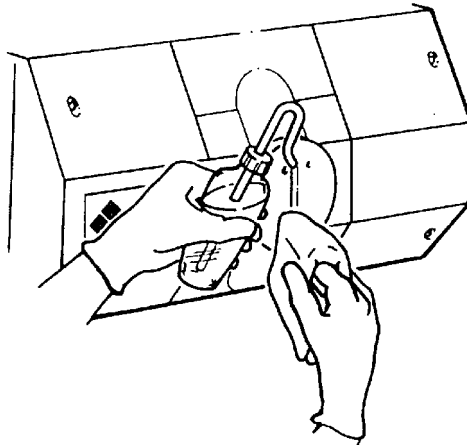
MAINTENANCE PROCEDURES

- (8) Close the print head valve by turning the knob fully clockwise and tighten the nozzle plate screws.
- (9) Hold the container in front of the nozzle plate. Operate the purge switch until all air is forced out of the print head manifold and an unbroken stream of ink comes out of each nozzle.



TP2313_1

- (10) Clean the nozzle plate with wash solution and dry with lint-free tissue.



TP2314_1

- (11) Set the motor switch to OFF (0).
- (12) Hold a piece of tissue under the vent in the bottom of the case. Open the bleed valve fully anti-clockwise. Leave open for a few seconds then close the bleed valve.
- (13) Set the motor switch to ON (1).

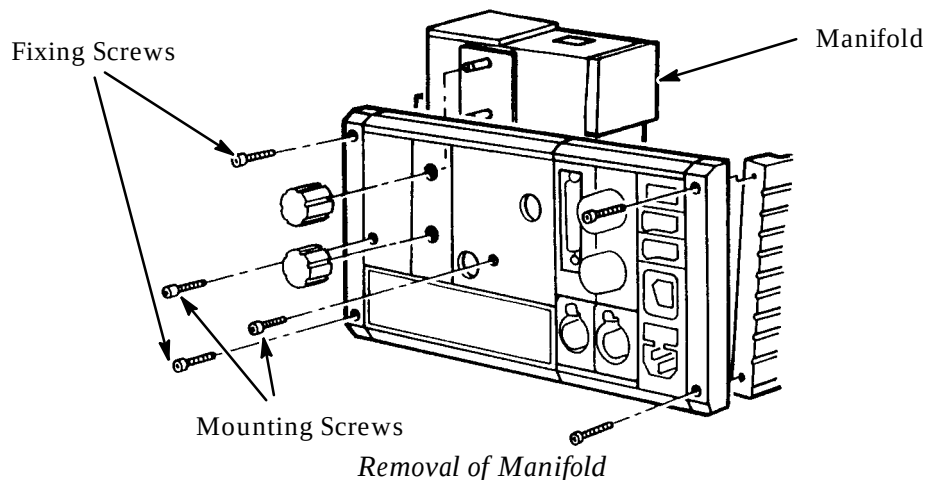
Ink System Removal

Most ink system repairs are carried out with the ink system removed. Ink spillages must be cleaned up with tissue.

- (1) Disconnect power from the printer and the ink container.
- (2) Depressurise the ink system (see Pg. 3-10).
- (3) Remove the four fixing screws and remove the front cover. Remove the top cover.
- (4) Disconnect wiring from the pump, pressure switch and vacuum switch by unplugging PL4 on the motherboard.
- (5) Remove the vent pipe at the manifold.
- (6) Disconnect the pipe to the print head at the manifold. Keep the pipe-end high to minimise ink spillage. Ensure that ink does not come into contact with any electronics.
- (7) Disconnect ink feed pipe from the ink container at the manifold. (Use a blanking plug to seal off the port.)
- (8) Pull the knobs off the print head and bleed valves.
- (9) Remove the two mounting screws in the rear panel below the bleed valve to release the manifold. Remove the screws holding the rear panel, ease the rear panel back and lift the complete ink system out of the cabinet.

Replacement is carried out in the reverse order.

- (10) Reconnect the mains lead to the printer.
- (11) Repressurise the system (see Pg. 3-12).

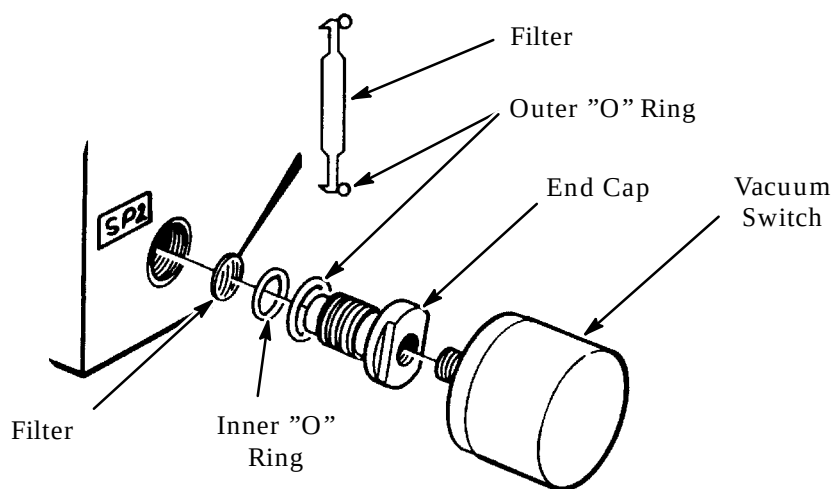


Ink Filter Replacement

Ink filters should always be replaced, never washed and refitted.

Proceed as follows.

- (1) Remove the ink system from the cabinet (see Pg. 3-14).
- (2) Unscrew the end cap (which also carries the vacuum switch) from the manifold with a 20 mm A/F spanner.
- (3) Remove and discard the filter and "O" rings. Flush out the filter chamber with solvent that matches ink type and clean the end cap.
- (4) Fit a new filter disc into the manifold block with the sharp edge of the disc facing inward.
- (5) Insert a new inner "O" ring.
- (6) Fit a new outer "O" ring in the groove in the manifold block.
- (7) Refit and tighten the end cap.
- (8) Refit the ink system into the case (see Pg. 3-14).
- (9) Remake all connections.
- (10) Re-pressurise the ink system (see Pg. 3-12).



TP3543_2

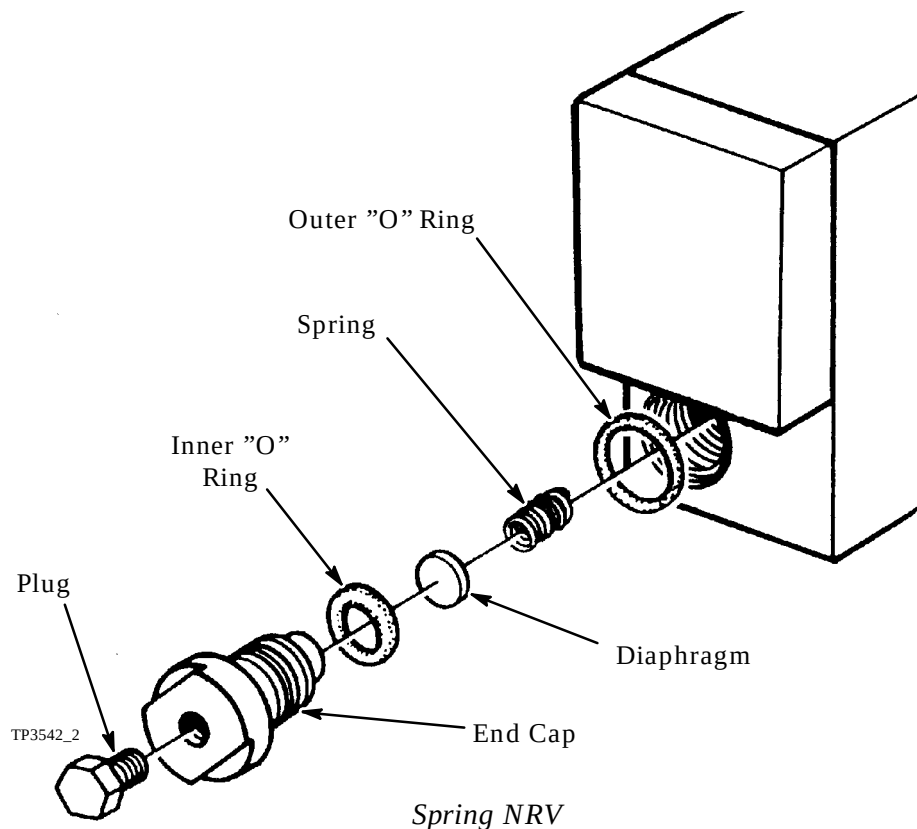
Filter Parts and Assembly into Block

Filter and NRV External Leaks

Air or ink leaks may occur at the end cap. Check that the end cap is tight. If the leak continues replace the outer "O" ring on the end cap and tighten the blanking plug (see Ink Filter Replacement steps 2 to 10).

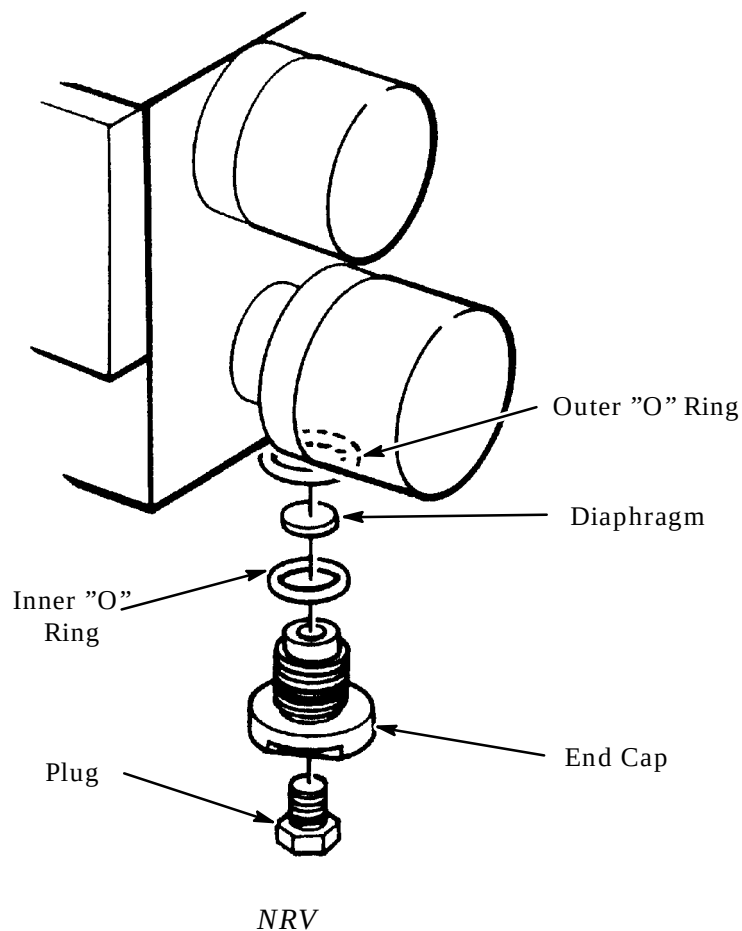
Refurbishing a Spring NRV

- (1) Depressurise and remove the ink system from the cabinet (see Pg. 3-14).
- (2) Release the NRV end cap with a 20mm A/F spanner.
- (3) Remove the rubber diaphragm and spring.
- (4) Flush out the housing with wash solution and clean the spring and end cap.
- (5) Refit the spring and a new diaphragm. Replace the "O" rings.
- (6) Fit a new inner "O" ring onto the end of the cap.
- (7) Fit a new outer "O" ring into the groove in the manifold.
- (8) Refit and tighten the end cap.
- (9) Refit the ink system into the case and remake all connections (see Pg. 3-14).
- (10) Repressurise the ink system (see Pg. 3-12).



Refurbishing a Plain NRV

- (1) Depressurise and remove the ink system from the cabinet (see Pg. 3-14).
- (2) Release the NRV end cap with a 20mm A/F spanner.
- (3) Remove the rubber diaphragm.
- (4) Flush out the housing with wash solution and clean the end cap.
- (5) Fit a new diaphragm.
- (6) Fit a new inner "O" ring onto the end of the cap.
- (7) Fit a new outer "O" ring into the groove in the manifold.
- (8) Refit and tighten the end cap.
- (9) Refit the ink system into the case and remake all connections.
- (10) Repressurise the ink system (see Pg. 3-12).

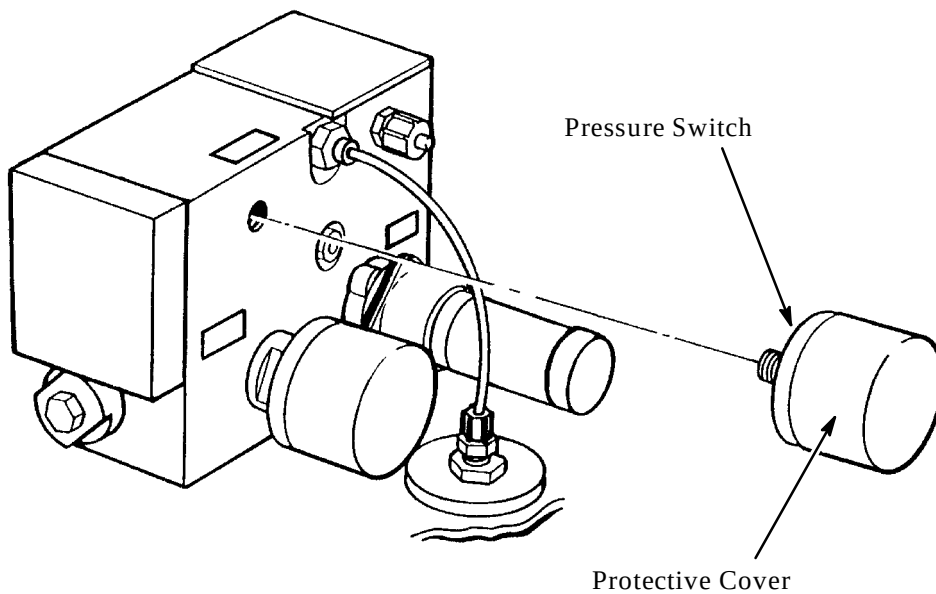


TP3542_2

Pressure Switch

The pressure switch is factory set and should not be adjusted. Replacement is as follows.

- (1) Disconnect the mains lead from the printer.
- (2) Depressurise the ink system (see Pg. 3-10) and remove the top cover.
- (3) Remove the protective cover.
- (4) Unsolder the wires from the pressure switch (note the connections).
- (5) Unscrew the pressure switch and discard.
- (6) Add Loctite 542 to the thread of the replacement pressure switch and screw into the manifold block.
- (7) Re-solder the wires to the new pressure switch as shown in the diagram. Ensure that the switch is fitted with a 6R8 Ohm resistor.



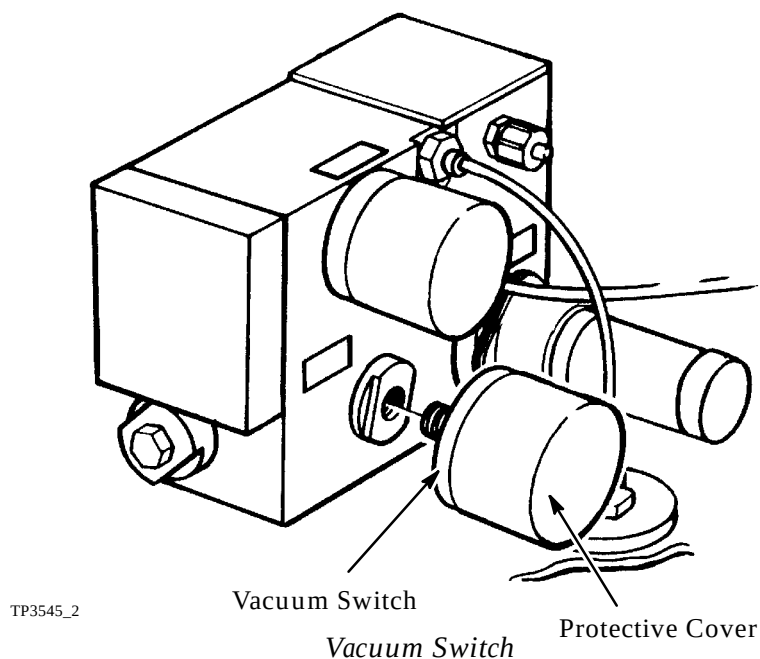
TP3547_2

Pressure Switch

Vacuum Switch

The vacuum switch is factory set and should not be adjusted. Replacement is as follows.

- (1) Ensure power is removed from the printer.
- (2) Depressurise the ink system (see Pg. 3-10) and remove the top cover.
- (3) Remove the protective cover.
- (4) Remove the screws holding the rear panel and ease it back to gain access to the vacuum switch.
- (5) Unsolder the wires to the vacuum switch (note the connections).
- (6) Unscrew the vacuum switch from the filter cap on the ink manifold and discard.
- (7) Add Loctite 542 to the thread of the replacement switch and screw into the filter cap.
- (8) Re-solder the wires to the new switch.
- (9) Reconnect the mains lead to the printer.
- (10) Replace the top cover.
- (11) Switch on the printer and repressurise the ink system (see Pg. 3-12).

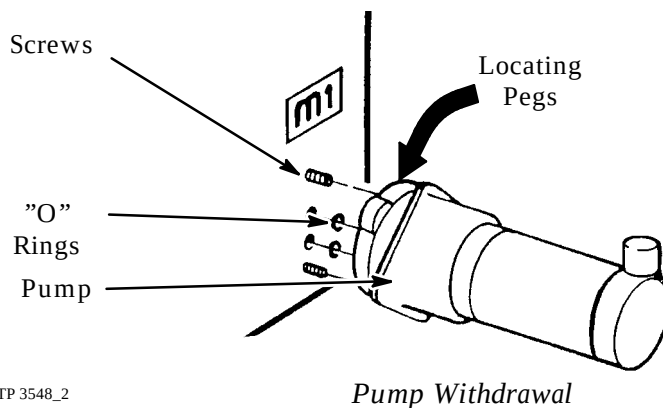


Pump

The pump is a reliable unit and before being replaced all other possible causes of failure to pressurise the ink system should be investigated. This includes air leaks elsewhere in the system.

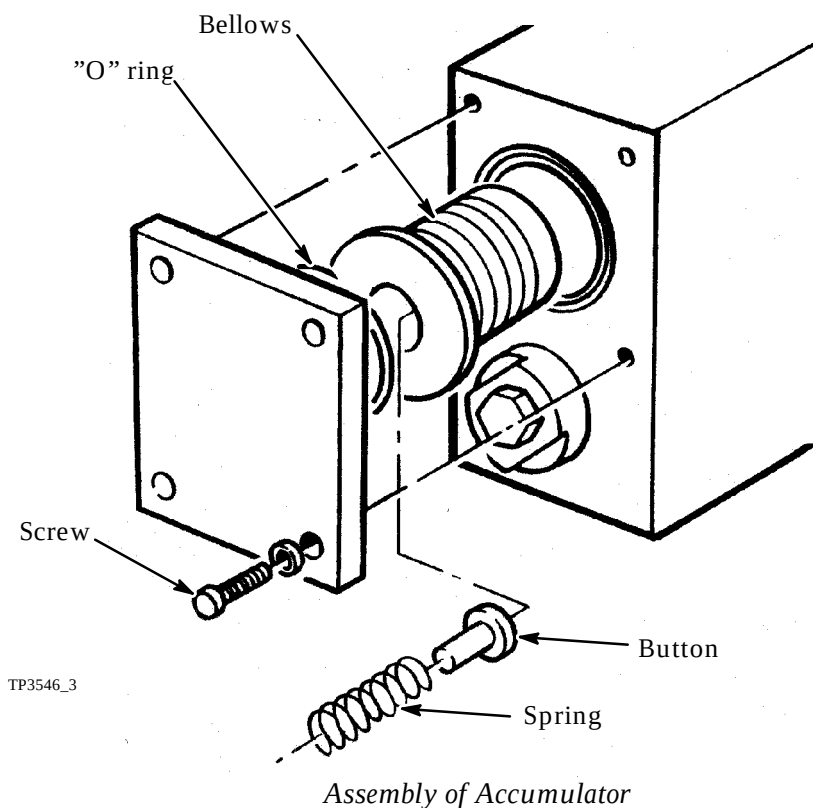
Pump Replacement

- (1) Disconnect the mains lead from the printer.
- (2) Depressurise the ink system (see Pg. 3-10), remove the top cover.
- (3) Remove the ink system from the cabinet (see Pg. 3-14).
- (4) Unsolder the two wires from the pump.
- (5) Remove the two cap head screws securing the pump to the manifold block.
- (6) Remove the pump and clean the manifold area with wash solution.
- (7) Fit new "O" rings into pump manifold.
- (8) Ensure new pump has a 10 μ F 35V capacitor fitted to the terminals.
- (9) Fit the pump to the manifold block, ensuring that the locating peg fits into the corresponding hole in the manifold block.
- (10) Solder the two wires to the pump. The yellow wire must be connected to the red terminal, the black wire to the plain terminal.
- (11) Refit the ink system into the case and remake all connections (see Ink System Removal).
- (12) Reconnect the mains lead and switch on the printer.
- (13) Repressurise the system (see Pg. 3-12).
- (14) Refit the top cover.



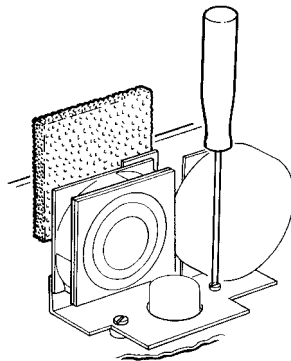
Refurbishing the Accumulator

- (1) Depressurise the ink system (see Pg. 3-10) and remove the top cover.
- (2) Remove the ink system from the cabinet (see Pg. 3-14).
- (3) Remove the four screws holding the accumulator cover.
- (4) Take off the cover, being careful not to lose the spring and button contained within.
- (5) Pull out the bellows and remove the "O" ring.
- (6) Clean the items removed in steps (4) and (5).
- (7) Refit the "O" ring and bellows then, refit the button and the spring. There is a locating hole in the centre of the cover for the spring.
- (8) Replace the cover, ensuring the spring is correctly in place, and push close. Refit the four screws with an equal pressure on each.
- (9) Refit the ink system (see Pg. 3-14).
- (10) Repressurise the ink system (see Pg. 3-12).



Air Filter Replacement

- (1) Disconnect the mains lead from the printer, remove the top cover.
- (2) Slacken the three screws securing the power supply assembly to the bottom of the CaseCoder. (One screw is accessed underneath the base of the CaseCoder.) Pull the assembly away from the sidewall to release the filter. Clean or renew the filter and refit between the fan and the CaseCoder wall. Tighten the power supply securing screws.



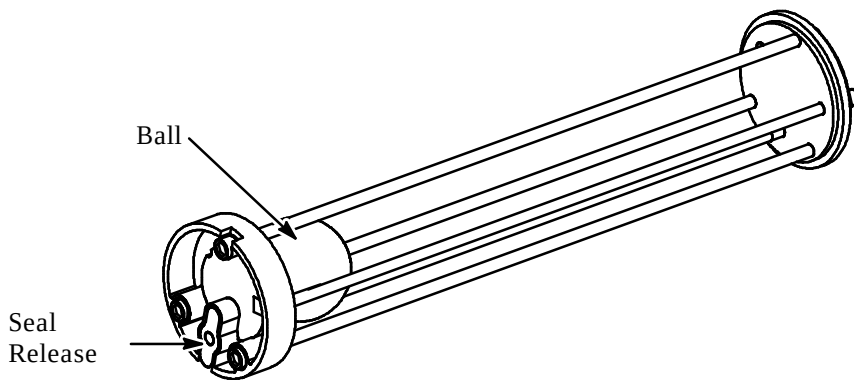
TP3549_2

Air Filter Replacement

Cleaning the Float Valve Assembly

Note. If cleaning is considered necessary during fitting a new ink container, DO NOT operate the release button or dislodge the ball maintaining the seal.

Inspect the float valve assembly for accumulations of solidifying ink or other residues. If necessary, clean the ball and the bottom of the assembly with wash, including operating the release button to enable the wash to clean the passages associated with the release mechanism. Also ensure that the air vent hole in the top is clear.



MJ1001_1

Float Valve Assembly

ELECTRONIC SYSTEM

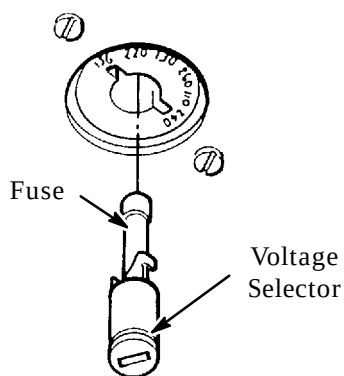
Fuse Replacement

The mains fuse is fitted behind a small cover immediately above the mains input connection on the rear panel. The value of this fuse depends upon the mains voltage:

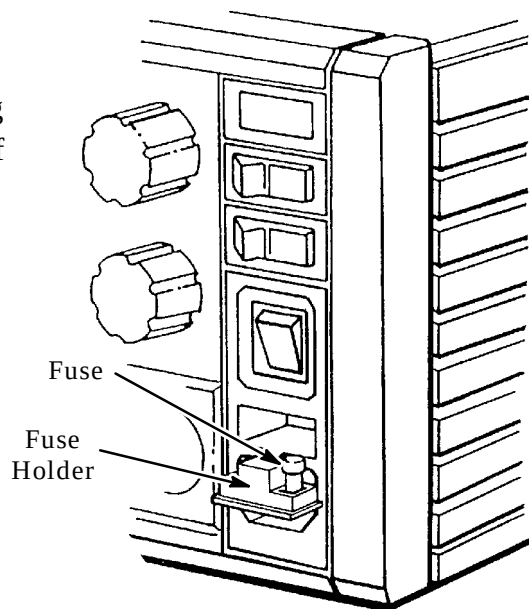
110V (nominal): 1.25A,

220V (nominal): 0.63A.

A second fuse of nominal rating (0.63A) is fitted into the centre of the voltage selector.



TP3550_1

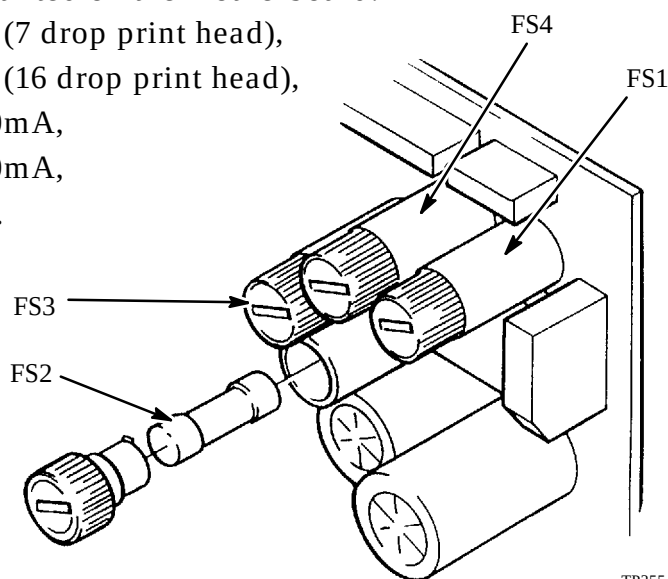


TP3551_1

Power Fuse Replacement

The D.C. supplies have fuses in their a.c. inputs from the transformer. These fuses are mounted on the motherboard.

- | | |
|-----|--------------------------|
| FS1 | 2A (7 drop print head), |
| | 4A (16 drop print head), |
| FS2 | 250mA, |
| FS3 | 250mA, |
| FS4 | 1A. |



TP3554_1

Motherboard Fuse Replacement

Switch and Indicator Replacement

The switches and indicators on the rear panel are complete items and are replaced in the same way. Pull off the electrical connections, ease back the clips behind the rear panel and draw the item forward out of its hole in the panel (it may be necessary to remove the four securing screws and move the rear panel to improve access). Refit the new switch or indicator using the reverse procedure.

PCB Replacement

CAUTION *Ensure that power is off before removing or refitting PCBs and anti-static precautions must be observed.*

Disconnect the mains lead before removing connectors, PCBs, etc.

Each printed circuit board (PCB) is fitted into a socket on the mother-board. The PCB sockets and connectors are polarised. To avoid possible damage, inspect the board or connector and the socket before fitting.

To remove a PCB, remove the four fixing screws and take off the front panel, then remove the top panel. In the case of the Universal Serial Interface, remove the connector at the top. The PCBs can then be pulled forward out of their sockets in the motherboard.

To remove the motherboard, pull it vertically out of its guides after pulling off the eight connectors. When refitting the top cover, be sure that the PCBs are properly located in their guides in the bottom and in the top cover. Refit the front cover.

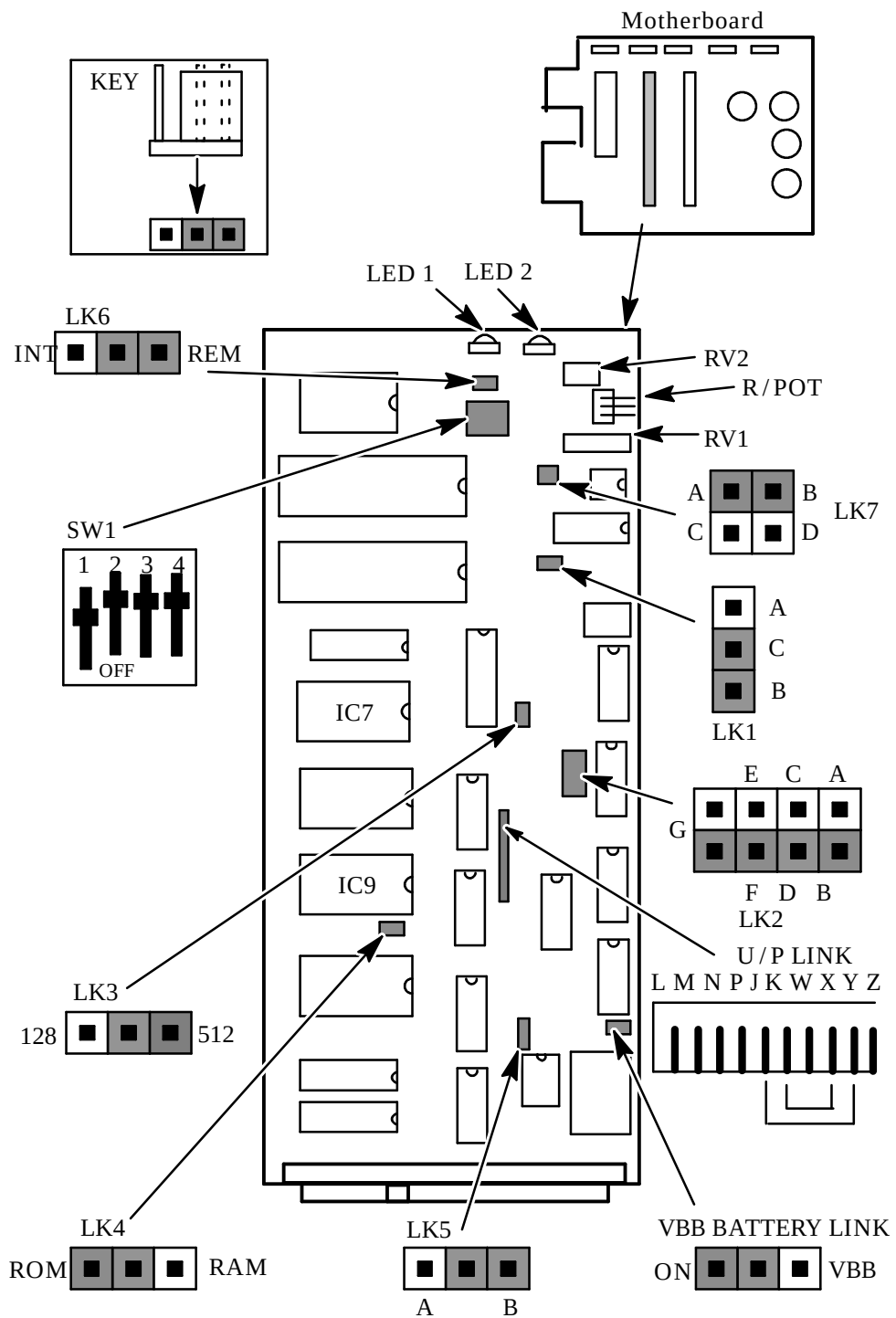
Replacing the Universal Serial Interface PCB

The printer must be shut down, the power removed and the upper door open.

The normal link and switch positions are shown in the separate diagrams for when the printer is being used with the white PT64/T64 pocket terminal or the blue T14 pocket terminal.

If the replacement PCB is not fitted with the software PROM integrated circuits (IC7, IC10 and IC9), these must be transferred from the old PCB to the new PCB. It is vital that each IC is transferred into the identical position, has pin 1 in the correct position and no pins are bent or damaged. It is also essential that anti-static precautionary procedures are also used.

MAINTENANCE PROCEDURES



*Universal Serial Interface Mk6 PCB
Link and Switch Settings - Terminal 64*

MAINTENANCE PROCEDURES

A spare PCB must have its links and switches set up correctly before fitting. The usual positions are shown in the diagram. Alternatively, the links and switches can be set for individual requirements. Therefore, the options available are given below.

VBB Battery link. This link is usually set to OFF when the PCB is in transit. It is essential that the link is set to ON before the PCB is inserted into the printer.

LINK	OPTION
On	Board fitted
Off	Board in transit

The link enables the battery fitted onto the PCB to maintain a permanent supply to the memory ICs. In this state, data in the memory can be retained even when the PCB is removed. Thus, for example, a PCB being used as a replacement may still have this link in the ON position and hold unwanted data. To completely clear the memory, fit the VBB link temporarily into the OFF position.

LK1 Print Go polarity.

LINK	OPTION
A-C	Trailing
B-C	Leading

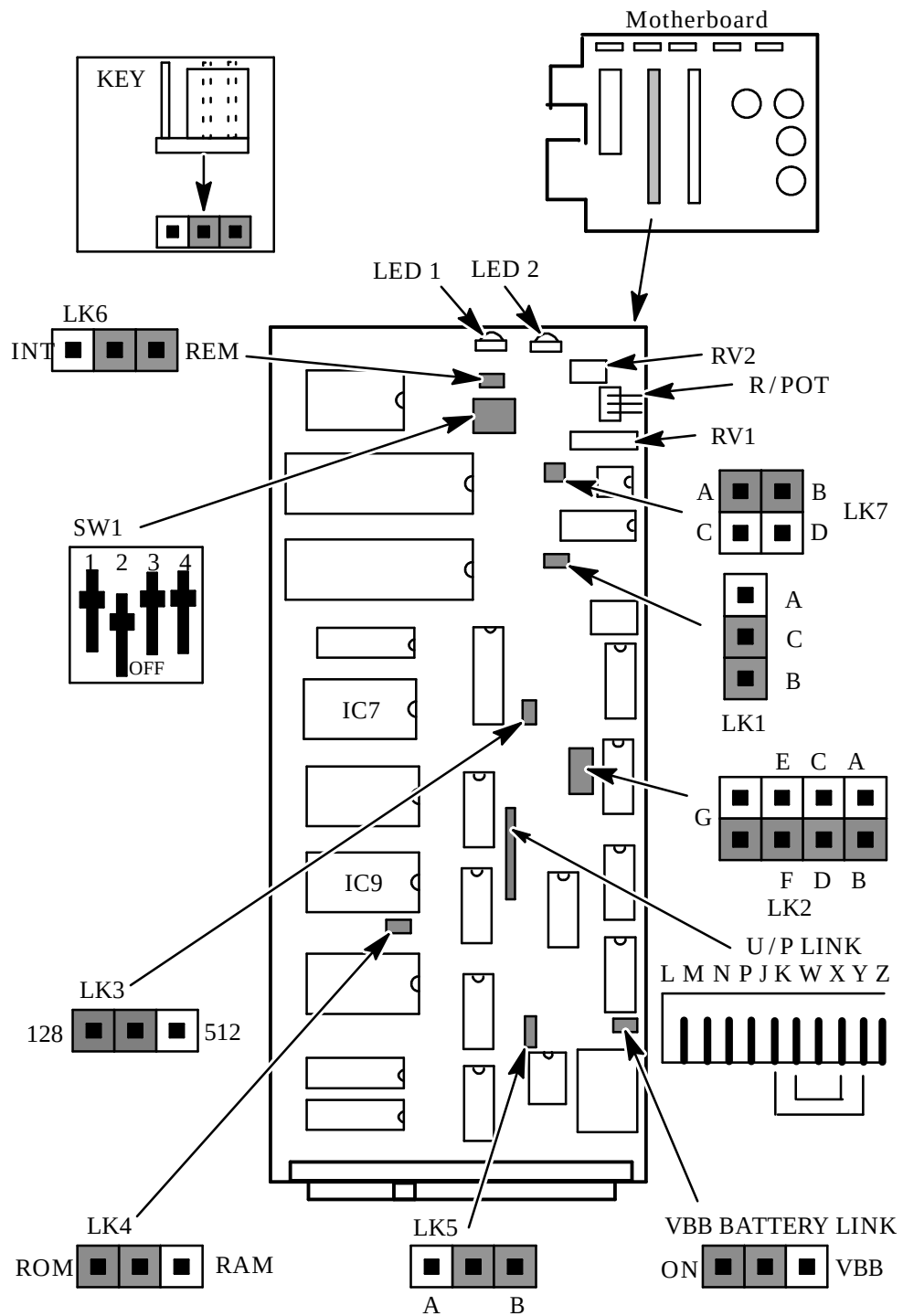
Where the product detector is a photocell detecting when a product breaks a light beam, a trailing edge is generated as the beam is broken and a trailing edge is generated when the light beam is restored.

Where the product detector is the photocell type detecting a reflection from the print surface, a Print Go leading edge is generated as the product moves in front of the detector and begins to reflect the light beam. A trailing edge, therefore, is generated by the product leaving the front of the detector and no longer reflecting the beam.

LK2 Stroke Go control.

LINK	OPTION
G-F, D-B	Internal
G-E, D-B	Shaft Encoder

MAINTENANCE PROCEDURES



*Universal Serial Interface Mk6 PCB
Link and Switch Settings – Terminal 14*

MAINTENANCE PROCEDURES

LK3 This link must be set according to the type of pocket terminal in use.

LINK	OPTION
128	Issue 6 software
512	Issue 7 Software

LK4 This link is only altered for special applications.

LINK	OPTION
ROM	Normally set to ROM
RAM	

LK5 This link must be set according to the type of printer in which the PCB is used.

LINK	OPTION
A	XT4 printer
B	Other printers

LK6 This link is used to select an internal or external width control. It can be set to any position if a shaft encoder is selected at LK2

LINK	OPTION
INT	Internal control RV2
REM	External control through R/Pot

LK7. This link must be set to position A-B. In the event of a major software change, consult Domino.

U/P links. These arrange the user port connections and consist of wire links between pins on a 10-way connector. Details are given with the User Port option in Part 6 of this manual.

SW1 This is a dual-in-line switch controlling the data exchange between the printer and control panel. The switch functions differ, depending upon the pocket terminal in use.

Note. After changing any of these switches, it will be necessary to set the battery link VBB to off and then to on (see pg. 3-26) to delete the previous settings.

MAINTENANCE PROCEDURES

Functions with the white PT64/T64 terminal are:

BAUD RATE	SW1/1	SW1/2
300	Off	Off
2400	On	Off
9600	Off	On
19200	On	On

SW1/3		SW1/4	
ON	OFF	ON	OFF
CTS/RTS	XON/XOFF	Fault Bus Off	Fault Bus On

The baud rate required by the white PT64/T64 terminal is 9600 and hand shaking is CTS/RTS.

Functions with the blue T14 terminal are:

BAUD RATE	SW1/1	SW1/2	SW1/3	SW1/4
75	On	On	On	On
110	Off	On	On	Off
150	Off	On	On	On
300	On	Off	On	On
600	Off	Off	On	On
1200	On	On	Off	On
2400	Off	On	Off	On
4800	On	Off	Off	On
9600	Off	Off	Off	On
19200	On	On	On	Off

The baud rate required by the blue T14 terminal is 300.

Minimum Width Adjustment.

The printer should be running and ready to print messages.

- (1) Locate potentiometer RV2 (preset minimum width control) on the top edge of the Universal Serial Interface PCB. Turn it fully counter

- clockwise. Turn the width control on the rear panel fully counter clockwise.
- (2) Enter the message ABCDE into the printer.
 - (3) Use a piece of card moved across the front of the product detector and the print head to observe the printed message. Slowly adjust RV1 until printing stops or strokes are missed. Reverse the adjustment of RV1 until proper printing is restored.

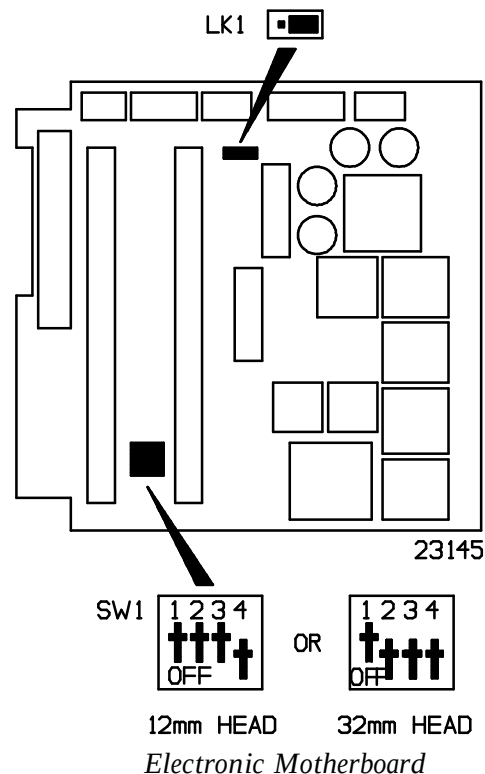
Replacing the Solenoid Driver PCB

The two links L2 and L3 (see next page) should both be set to correspond to the type of print head, as follows:

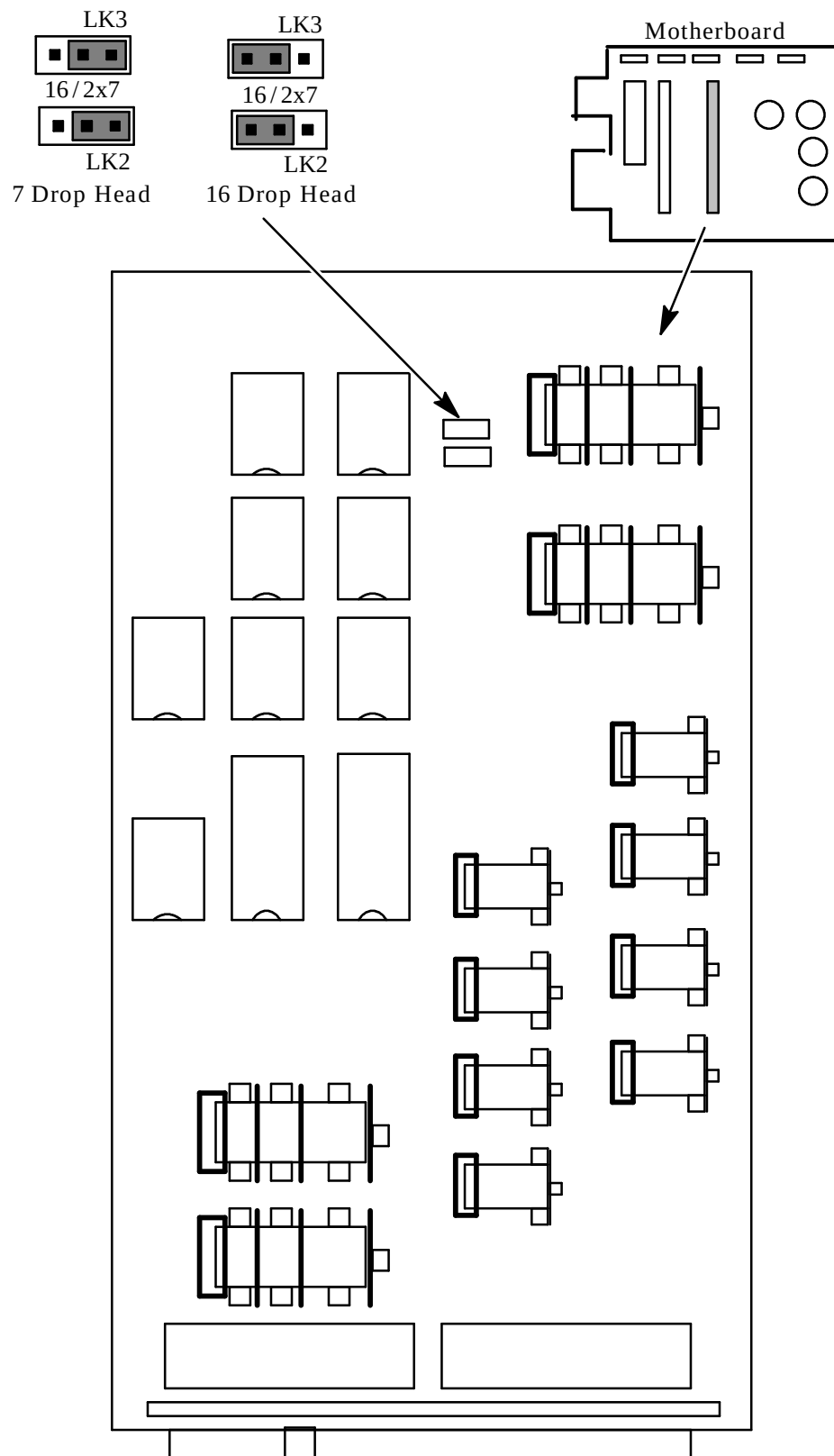
12mm 7-drop head: common - 2x7
32mm 16-drop head: common - 1x16

Replacing the Motherboard

The motherboard has a 4 way DIL switch controlling the printed character aspect ratio which must be set according to the print head size. It also has a jumper link setting the Print Go signal input. Their positions are shown in the diagram.



MAINTENANCE PROCEDURES



Solenoid Driver PCB

SHAFT ENCODER (OPTIONAL)

Domino will provide advice on an appropriate encoder, details depend upon the installation. The encoder connector is fitted into the rear panel of the printer.

When fitting a shaft encoder, set the Stroke Go links on the Universal Serial Interface PCB to G-E, D-B (see page 3-26).

Selection of a particular encoder is based on the print width required and the line speed. The following calculation illustrates how these factors are used.

Each printed character is made up of a fixed number of strokes. This number must be determined from the type of print. Examples are as follows:

7 x 5	Single print, single space	= 6 strokes
7 x 5	Single print, double space	= 7
7 x 5	Bolderise print, single space	= 12
7 x 5	Bolderise print, double space	= 14
7 x 5	Double bolderise, single space	= 24
7 x 5	Double bolderise, double space	= 28
16 x 10	Single space	= 12
16 x 10	Double space	= 14
16 x 10	Bolderise, single space	= 24
16 x 10	Bolderise, double space	= 28
16 x 10	Double bolderise, single space	= 48
16 x 10	Double bolderise, double space	= 56

Calculate the number of pulses required from the encoder as follows.

Note. Two pulses are equivalent to one stroke.

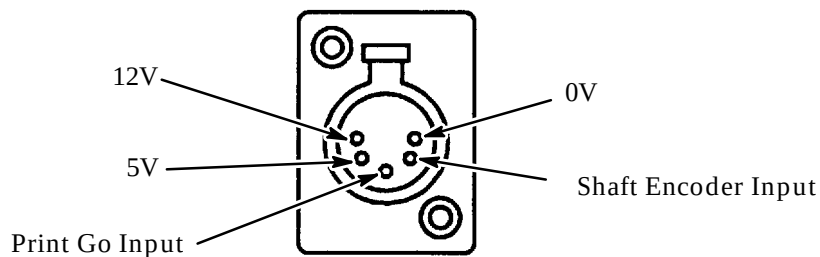
Determine the number of strokes per character "N".

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.

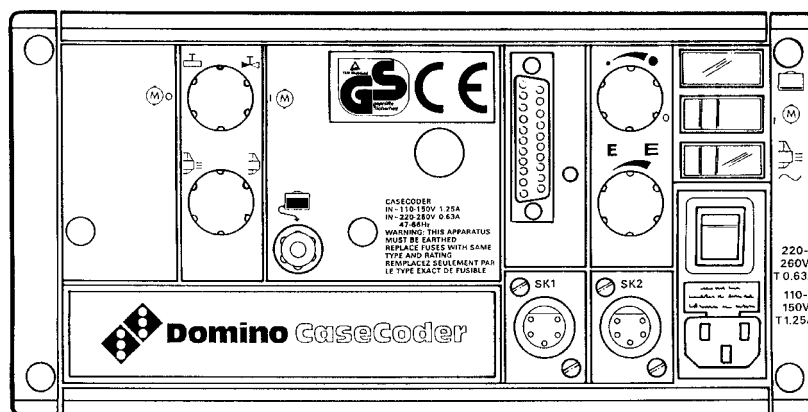
Calculate: Required pulses per revolution = $D \times N \times 2$

MAINTENANCE PROCEDURES

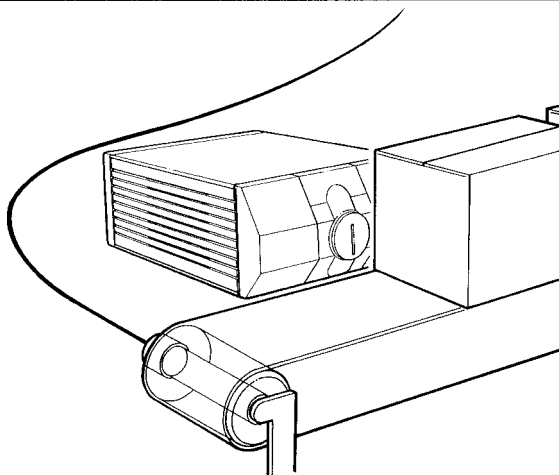


TP7110_1

Connector (Front View)



TP1087_2



TP3555_2

Fitting and Connecting Shaft Encoder

Thus, for example:

To print 7 x 5 characters, single space (i.e. N = 6), at 15mm character pitch with the product moving 180mm per rev. of the shaft encoder:

Calculate: Required shaft encoder output = $180 \times 6 \times 2$

15

= 144 pulses per revolution.

MAINTENANCE PROCEDURES

PART 4 : FAULT DIAGNOSIS

CONTENTS

INTRODUCTION	Page 4-3
NORMAL RUNNING CONDITIONS	4-3
FAULT ANALYSIS	4-4
To Test a Solenoid	4-7
To Check the D.C. Power Supply Voltages	4-8
To Check Stroke Go	4-8
Testing the Accumulator	4-9
Replacing a Print Head	4-10

FAULT DIAGNOSIS

FAULT DIAGNOSIS

INTRODUCTION

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

Due to its simple and reliable design, CaseCoder has only one fault indicator (the INK CONTAINER EMPTY lamp). Beyond this, faults are diagnosed from the faulty performance. A list of symptoms and probable causes are given in this section, together with suggested repairs or further checks. Refurbishment, repair and replacement procedures are given in the Maintenance section.

NORMAL RUNNING CONDITIONS

The following are the controls and indicators in their normal running condition. They are not normally changed except for a specific purpose. For example, switching on and off only requires operation of the mains switch. The only other control which might be touched would be the print head valve if the switch-off were to be lengthy. Apparent malfunctions are frequently a result of controls being in unexpected positions.

Mains switch	On (1)
Pump Motor switch	On (1)
Mains on indicator	On
Ink container empty indicator (Amber)	Off
Print head valve	Open (fully anti- clockwise)
Bleed valve	Closed (fully clockwise)
Character width control	Adjusted for best character shape
Drop size control	Adjusted for best print quality
Purge Switch	Off

FAULT ANALYSIS

Initial checks are to inspect the printer externally and internally for leaks and damage. With the top and front covers removed, check:

- (a) Ink system for leaks and damaged pipework,
- (b) Cabling for insecure connections and damaged wiring,
- (c) Printed circuit boards for incorrect fitting and incorrect switch and link settings.

INDICATION	PROBABLE CAUSE	REMEDY
Printer will not run – no indicator lit.	Mains fuse blown.	Replace mains fuse
	+24V supply failed. Supply and circuits. (See Pg. 3-9)	Check +24V d.c.
Printer will not print – indicators correct.	No Print-Go signal	Check Print-Go – faulty sensor or serial PCB (See Pg. 4-8)
	Incorrect data from print Pocket terminal	Check data for on / off commands, etc. (See Pocket Terminal Guide).
	Faulty Serial Interface PCB.	Replace Serial Interface PCB (See Pg 3-24)
	Faulty Solenoid driver PCB	Replace Solenoid PCB. (See Pg 3-30).
	Faulty power supply	Check d.c. power supplies. (See Pg. 4-8)
Pump runs too long or too frequently.	Pressure loss due to:	
	– leaking accumulator (air or ink)	Refurbish accumulator (See Pg. 3-21)
	– back leakage through the NRV.	Refurbish NRV (See Pg 3-17)

FAULT DIAGNOSIS

INDICATION	PROBABLE CAUSE	REMEDY
	– excessive air in bleed reservoir or pump ink system (pump and return choke dry).	Prime system. (see Pg 3-11)
	– bleed valve leaking (ink loss from vent)	Close bleed valve
	– faulty pressure switch	Replace switch (See Pg 3-18)
	– faulty pump (See Pg 2-22)	Replace pump
Container empty lamp lit (pump intermittent) – container not empty.	Blocked ink filter.	Replace filter (See Pg. 3-15)
	Faulty vacuum switch	Replace switch (See Pg. 3-19)
	Restriction in inlet pipe	Check inlet pipe
Container empty lamp flashes, (pump intermittent) – container empty	Back leakage through spring NRV	Refurbish spring NRV. (See Pg. 3-16)
	Air leaking in at :	
	–Ink container valve	Refurbish / replace ink container float valve assy.
	–filter	Repair leak (See Pg. 3-15)
	–vacuum switch	Repair leak (See Pg 3-19)
	Faulty vacuum switch	Replace switch (See Pg 3-19)
One nozzle not printing ink	Blocked nozzle	Clean nozzle plate (See Pg 3-3)
	Air in print head	Purge print head (See CaseCoder pocketbook)
	Stuck plunger	Clean plunger and control wire (See Pg 3-7)

FAULT DIAGNOSIS

INDICATION	PROBABLE CAUSE	REMEDY
	Faulty solenoid	Check solenoid connections, circuitry, pull, adjustment (See Pg 4-7)
	Faulty solenoid driver PCB	Replace driver PCB (See Pg 3-30)
Ink drop misaligned	Partly blocked nozzle	Clean nozzle plate (See Pg 3-3)
	Nozzle jewel displaced	Replace nozzle plate (See Pg 3-3)
	Ink pressure low	Check ink system, replace pressure switch (See Pg 3-18)
	Printer too far from product	Reposition printer (See Pg 2-4)
Ink drop size cannot be adjusted large enough	Faulty solenoid	Check solenoid pull (See Pg 4 - 7)
	Partially blocked nozzle	Clean nozzle plate (See Pg 3-3)
Nozzle leaking	Faulty plunger slug	Replace plunger slug (See Pg 3-7)
	Faulty plunger spring	Check spring (See Pg 3-7)
	Dirty nozzle plate	Clean nozzle plate (See Pg 3-3)
All printed drops too small	Drop size set too low	Turn drop size knob clockwise (See Pg 4-3)
	Print head valve partially closed	Turn print head valve fully anti-clockwise (See Pg 4-3)
	Faulty pressure switch	Replace pressure switch (See Pg 3-18)

To Test a Solenoid

Ensure the printer is switched off, the front and top covers are removed and the print head is fitted onto the test pillars (see Part 3: Solenoid Adjustment).

The first test on any suspect solenoid is to remove its connector and measure its resistance. At room temperature this should be 1.0 Ohms $\pm$ 10%.

All solenoids are driven by identical circuits on the Solenoid Driver PCB. To check whether a solenoid or its drive circuit is faulty, proceed as follows:

- (1) Identify a working nozzle and its connector.
- (2) Remove the working nozzle connector and fit the connector from the suspect solenoid into its position.
- (3) Switch on the printer and carry out the dot size check (see Part 3: Checking Drop Size).
- (4) If the suspect solenoid still does not work, carry out further checks on the solenoid as outlined in steps 1 to 8 below. If the suspect nozzle now operates, check the connections in the 16-way sockets. If these are satisfactory, replace the Solenoid Driver PCB.

To test a suspect solenoid for pull:

- (5) Disconnect solenoid wiring from connector.
- (6) Holding the solenoid body, loosen the locknut sufficiently to release the solenoid. Unscrew the solenoid and remove it from the mounting tube, leaving the locknut to mark its original position.
- (7) Reconnect the solenoid wiring to the connector.
- (8) Switch on the printer, insert a small steel screwdriver into the solenoid and operate the purge switch on the rear panel. There should be a magnetic pull on the screwdriver. Switch off the printer.
- (9) No pull indicates either faulty drive from the Driver PCB or a bad connection. Check the connections at the print head 16-way connectors and at the motherboard connector. Connect the solenoid into the connection for another (working) solenoid and recheck.

FAULT DIAGNOSIS

- (10) If the solenoid is found to be faulty, it must be replaced. Fit the solenoid, reversing the procedure for its removal and using the locknut as a guide to its position.
- (11) Carry out the dot size test and adjust the solenoid as necessary (see Part 3: Checking Drop Size and Solenoid Adjustment).

To Check the D.C. Power Supply Voltages

Ensure that the voltage selector is set to the correct mains voltage. The d.c. voltages are generated by circuits on the Motherboard. Use a multimeter set to the appropriate range to measure the voltages between C1 on the Universal Serial Interface Board (OV connection) and the following points:

+24V +/- 10%	Motherboard PL4 pin 1
- 12V +/- 10%	Motherboard PL6 pin 1
+12V +/- 10%	Rear panel product sensor connector pin 5
+5V +/- 10%	Rear panel product sensor connector pin 4
+10V +/- 10%	Motherboard SK2 pin 3b

Note. Absence of the +10V will always be accompanied by loss of +5V.

If a supply is missing check the motherboard fuses (see Pg. 3-23).

If any voltage is not correct or is still missing, switch off the printer and remove a PCB. Switch on the printer again and recheck the voltages. If the voltage is now correct, the fault is probably in the PCB. If the fault remains, repeat the check with the other PCB.

To Check Stroke Go

The product detector sends a Print Go signal to the printer. The resulting printed message is controlled by a series of Stroke Go signals. The Stroke Go signals are shown by light emitting diode LED 1 on the Universal Serial Interface PCB. This LED glows with an intensity proportional to the stroke rate.

Note. If a shaft encoder is in use LED 1 does not operate.

Testing the Accumulator

The accumulator has a reserve ink capacity of approx. 6–8ml, provided by compressing air behind a rubber diaphragm. Any fault in the accumulator will be either with the diaphragm or with the sealing of the air compartment. Therefore ink will leak into the air compartment, or air will be lost from the air compartment. In either case, the result will be a reduction in the reserve capacity of the accumulator.

To check that the accumulator is working properly, ensure that there is no evidence of low ink pressure and proceed as follows:

- (1) Switch on the printer as for normal running. Allow the printer to run until the pump stops.
- (2) Place a calibrated beaker under the nozzle plate.
- (3) Switch the pump off, using the switch on the back panel, and close the print head valve.
- (4) Slacken the screws holding the nozzle plate sufficiently to release ink into the beaker. Allow the print head to drain and then empty the beaker.
- (5) Open the print head valve slowly and catch the resulting ink in the beaker.
- (6) The total ink collected in the beaker should be between 20 and 30ml.
- (7) If the volume of ink collected is less than the minimum, refurbish the accumulator (see Part 3: Refurbishing the Accumulator) and re-test the accumulator. If the accumulator still shows less than the minimum ink capacity, replace the pressure switch.

Replacing a Print Head

The printer must be switched off. Remove the top and front covers.

- (1) Trace the print head solenoid cables back to the flat cable connector from the motherboard. (There will be one flat cable for a 7-drop print head and two for a 16-drop print head.)
- (2) Look to see how the solenoid wire connectors are connected into the flat cable connector, for future reference, then pull all of the solenoid connectors out of the flat cable connector(s).
- (3) Disconnect the ink pipe from the print head at its connection to the manifold.
- (4) Remove the print head fixing screws and remove the print head from the cabinet.
- (5) In the cases of the 12mm and 32mm high heads, remove the front cover seal.

Notes (1) Each print head assembly has a label showing the solenoids, as seen from the end of the assembly. Alternatively, a label will be found in the cabinet. Each solenoid is identified by the number of the nozzle which it operates.

Notes (2) A 7-drop print head has a single cable fitted into motherboard PL1. A 16-drop print head has a cable fitted into PL1 (for solenoids 9 to 16) and a cable fitted into PL2 (for solenoids 1 to 8).

Notes (3) Each connector on the flat cable from the motherboard has a "V" either impressed into the plastic or marked on with paint. This shows the pin 1 end of the connector. As a second check, the flat cable has a blue edge which goes to pin 1 in the connector.

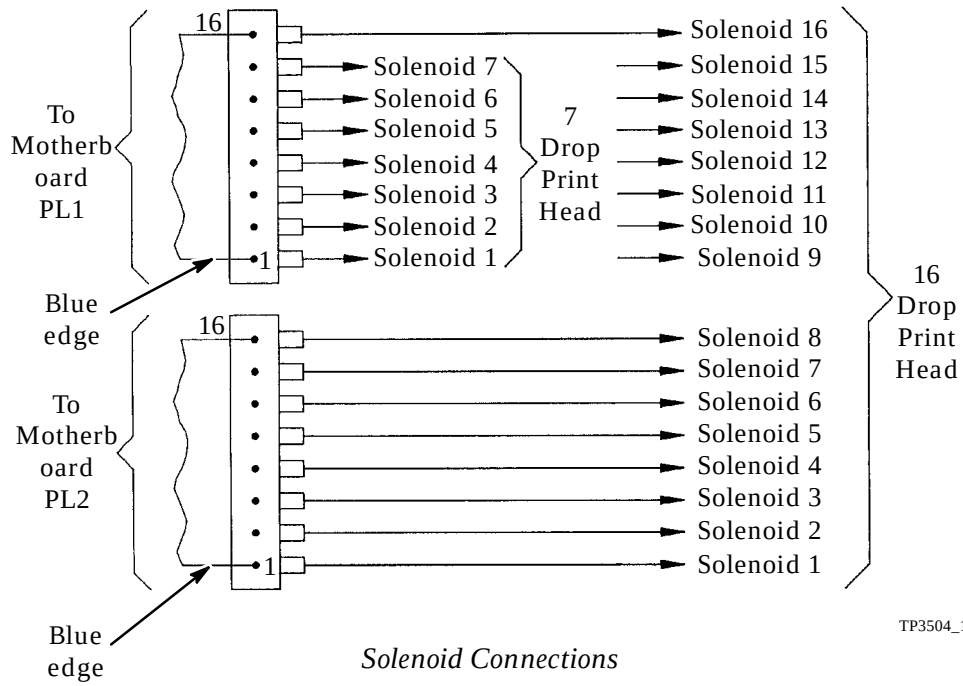
Continue as follows:

- (6) Fit the new print head onto the special support pillars.
- (7) Fit the connector on the wires to solenoid 1 into the flat cable connector at the pin 1 end (for a 16 drop print head, this will be the cable to motherboard PL2 – see notes above).
- (8) Fit the connector on the wires to solenoid 2 into the next position in the flat cable connector.

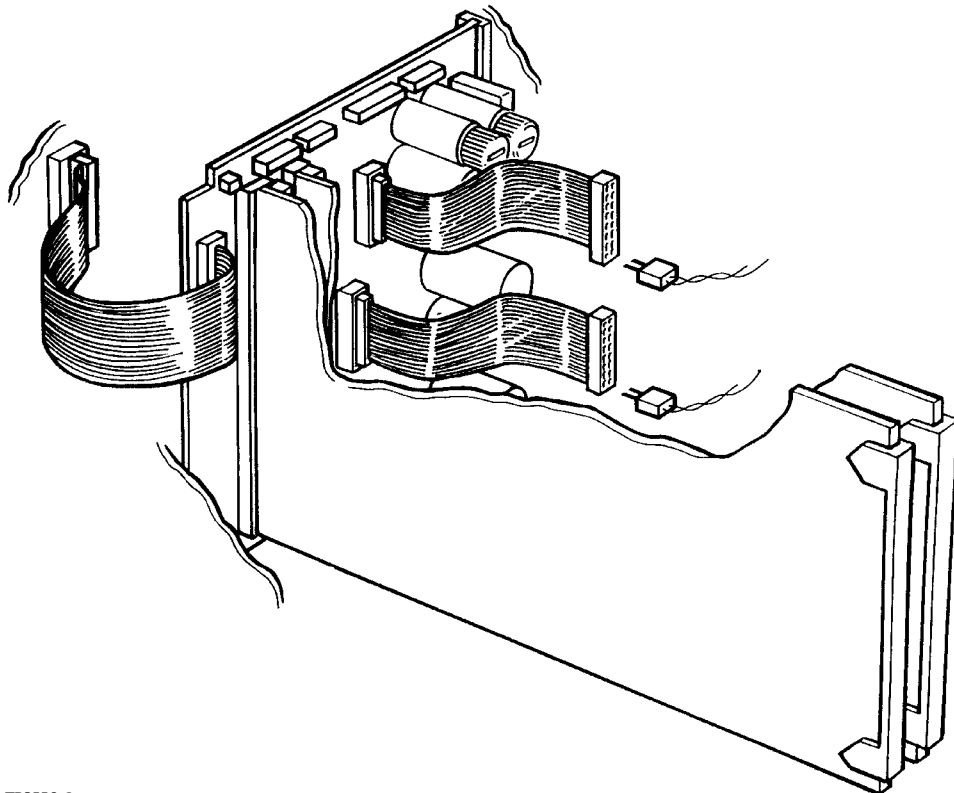
FAULT DIAGNOSIS

- (9) Repeat this procedure for the remaining solenoids. For a 16-drop print head, continue this onto the second connector, fitting solenoid 9 into the pin 1 position.
- (10) Connect the ink pipe from the print head to the manifold.
- (11) Take the print head off the support pillars and fit it into the normal position in the cabinet. (In the cases of the 12mm and 32mm high heads, fit the front cover seal and then fit the head into the cabinet.) Secure the print head with fixing screws, ensuring that the extension pieces are in place under the heads.
- (12) Check that the print head connections are still secure, then replace the front cover and cabinet top.

FAULT DIAGNOSIS



TP3504_1



TP3556_2

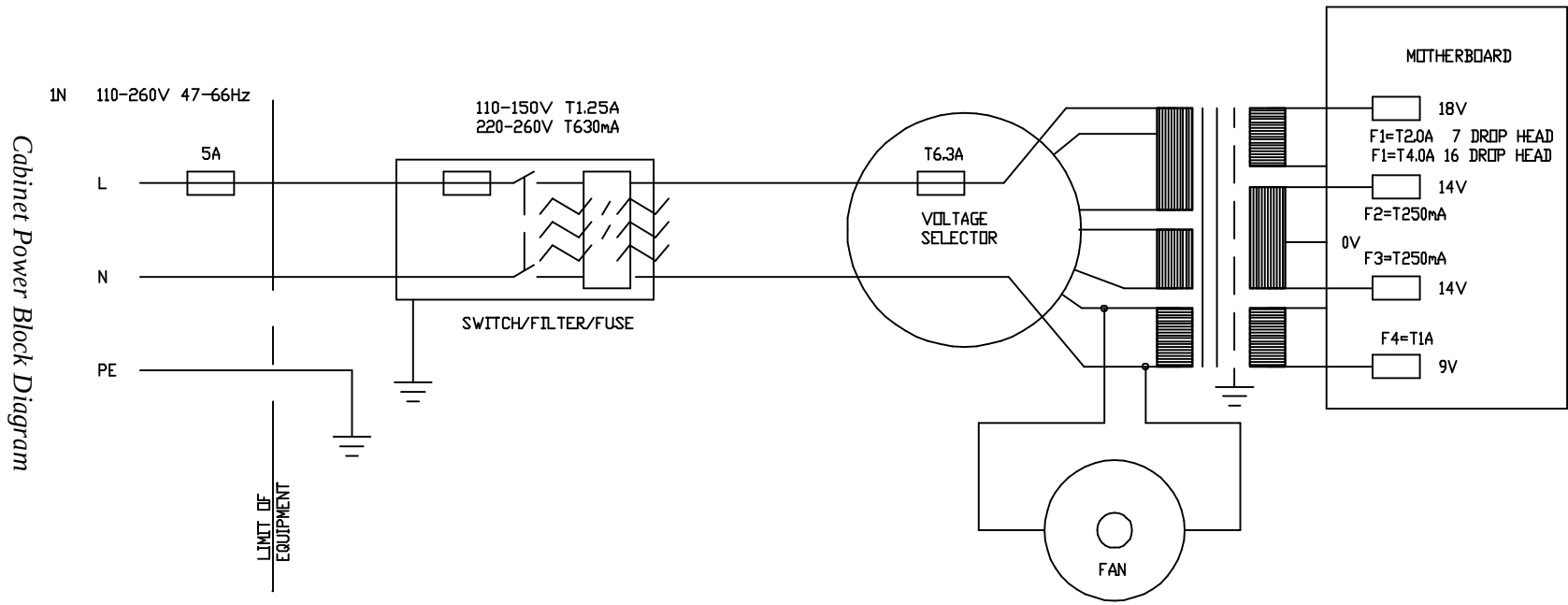
Connecting the Print Head

PART 5 : SERVICE DIAGRAMS

CONTENTS

POWER BLOCK DIAGRAM	Page 5-3
MOTHERBOARD	
Service Diagram	5-4
Circuit Diagram	5-5
UNIVERSAL SERIAL INTERFACE PCB	
Service Diagram	5-6
Circuit Diagram	5-7
SOLENOID DRIVER PCB	
Circuit Diagram	5-8
CABINET	
Wiring Diagram	5-9

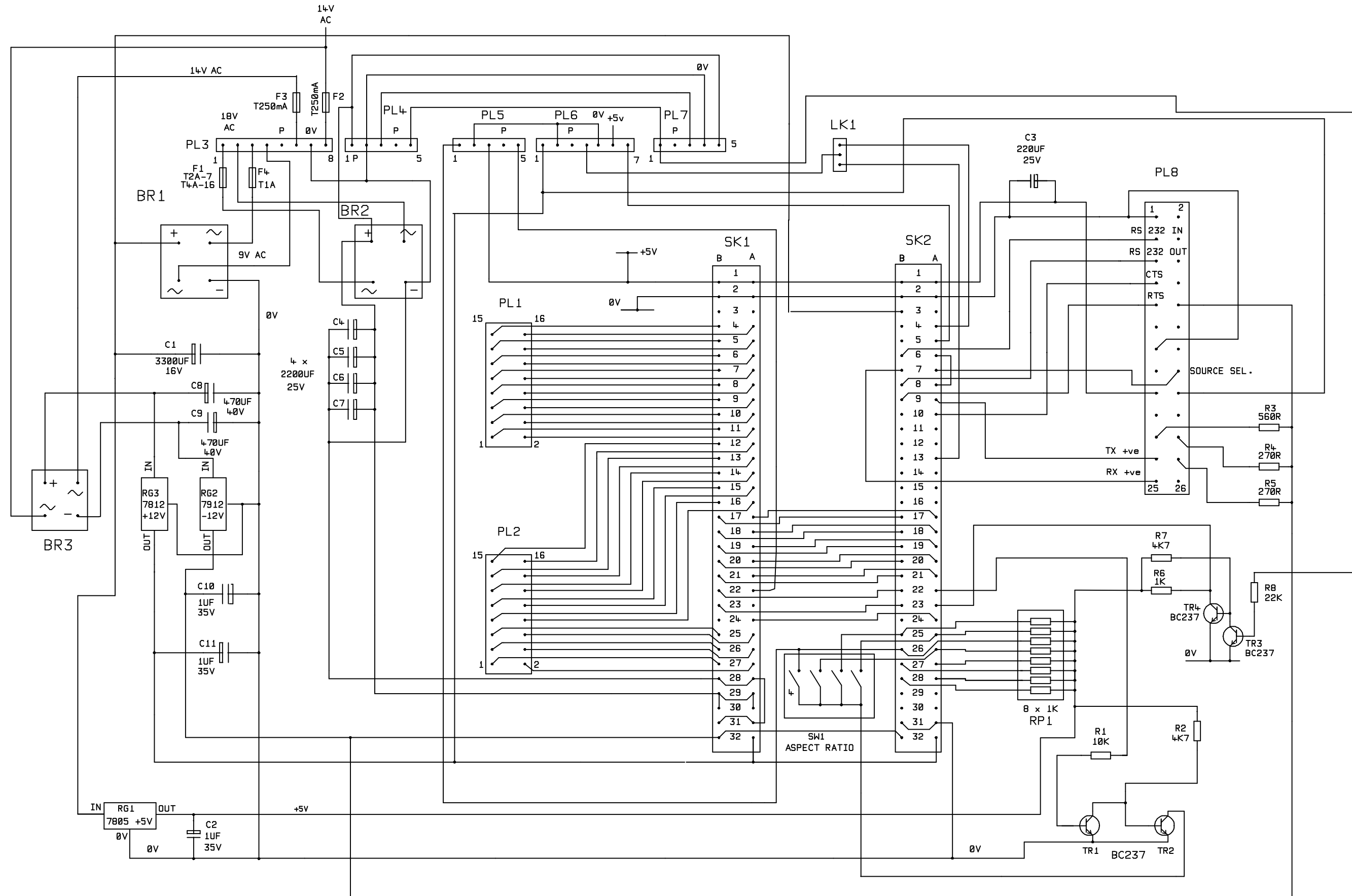
SERVICE DIAGRAMS



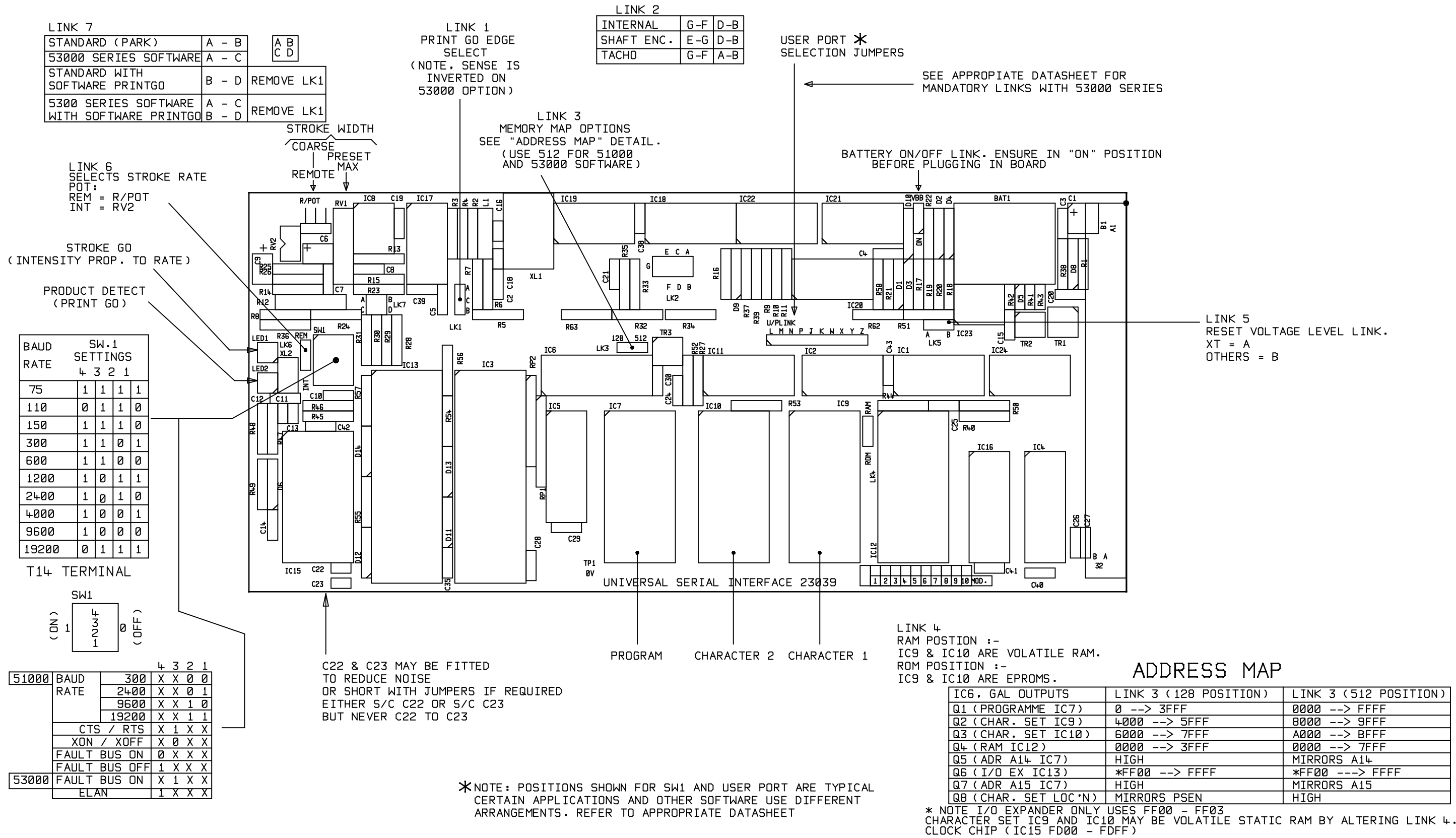
Cabinet Power Block Diagram

23145J Iss4



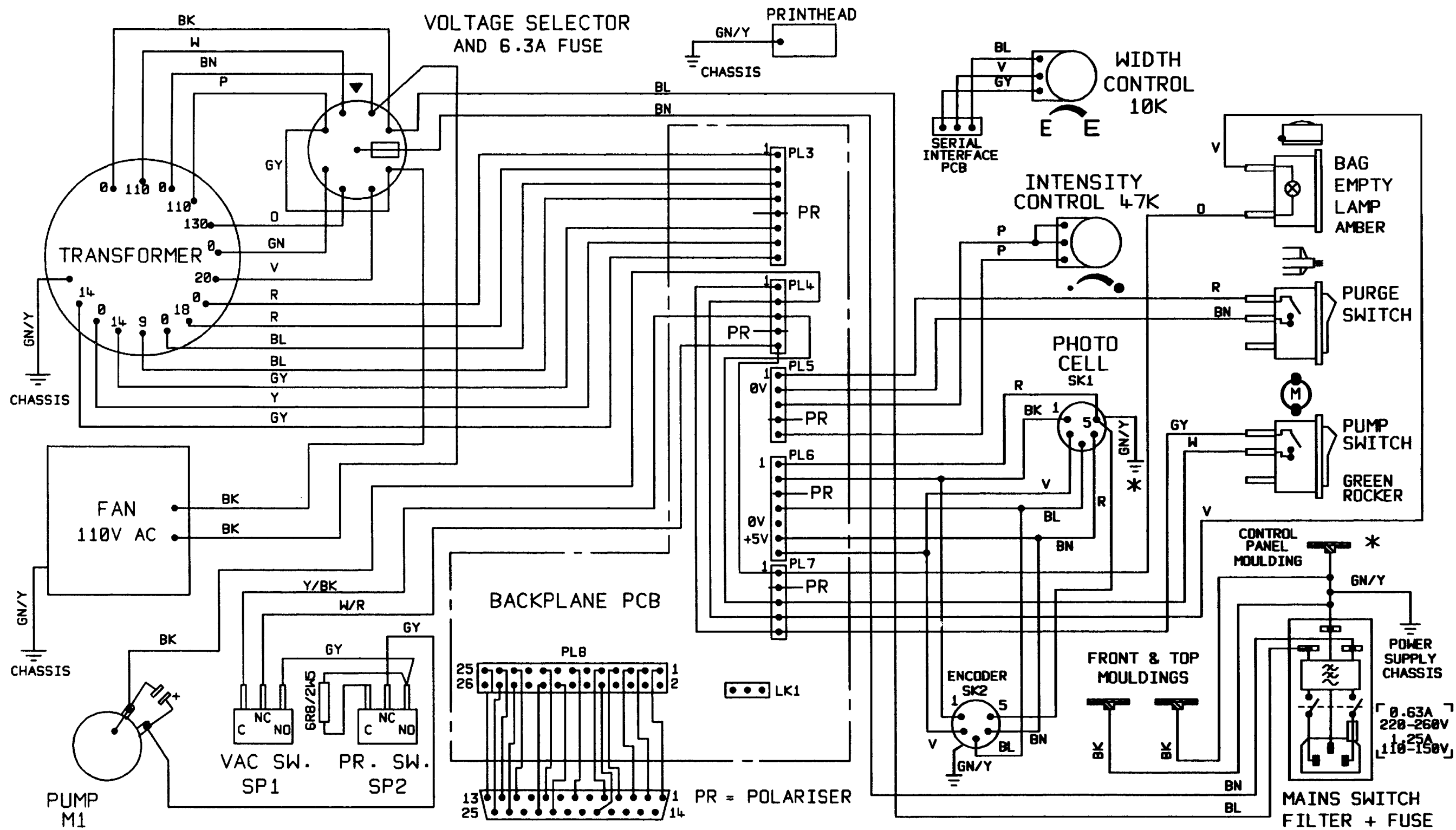


Motherboard Circuit Diagram



Universal Serial Interface PCB Service Diagram





Cabinet Wiring Diagram

SERVICE DIA-
GRAMS

PART 6 : SPARES AND ACCESSORIES

CONTENTS

CASECODER ASSEMBLIES	Page 6-3
Print Head Assembly	6-3
Manifold Block Assembly	6-4
Control Panel Assembly	6-4
Motherboard Pcb	6-4
Power Supply Unit	6-4
CABINET ASSEMBLY	6-5
PRINT HEAD ASSEMBLY	6-7
MANIFOLD BLOCK ASSEMBLY	6-9
CONTROL PANEL ASSEMBLY	6-11
POWER SUPPLY	6-13
ELECTRONIC ASSEMBLY	6-15
ANCILLARIES	6-17
ACCESSORIES	6-17

SPARES AND ACCESSORIES

CASECODER ASSEMBLIES

The following are the recommended spares for Casecoder. The quantities given are the numbers used in the printer, for use in assessment of the numbers to be held as spares.

Part No.	Description	Quantity
23135	Solenoid Driver PCB	1
23145	Motherboard PCB	1
23139	Universal Serial Interface PCB	1
33550	Manifold Block Assembly	1
33561	Print Head Assembly (12mm) Low	1
or		
33520	Print Head Assembly (12mm) High	1
or		
33562	Print Head Assembly (32mm)	1
11114	Power Cable (inc. plug) (USA)	1
or		
11115	Mains Lead 2M (without plug) (European)	1
36080	Float Valve Assembly (Ink Container)	1
21130	Photocell Assembly (Reflective)	1
or 21131	Photocell Assembly (Proximity)	1
or 21132	Inductive Proximity Detector 18mm	1
or 21133	Inductive Proximity Detector 30mm	1
33788	Photocell Mounting	1
33789	Photocell Mounting Clamp Plate	1

PRINT HEAD ASSEMBLY (12mm 7 Nozzle, High and Low) (32mm 16 Nozzle)

Part No.	Description	Quantity
33107	Solenoid	7 or 16
33234	Plunger Slug	7 or 16
33758	Nozzle Plate (12mm low)	1
33436	Nozzle Plate (32mm)	1
33434	Nozzle Plate (12mm high)	1
04164	"O" Ring EPDM 31.47ID 1.78CS (32mm)	1
04183	"O" Ring EPDM 21.95ID 1.78CS (12mm high)	1
04176	"O" Ring EPDM 15.60ID 1.78CS (12mm low)	1

SPARES AND ACCESSORIES

MANIFOLD BLOCK ASSEMBLY

Part No.	Description	Quantity
33690	Pump	1
33825	Switch Min Pressure SS 6 psi Dec	1
33826	Vacuum Switch Assembly	1
04184	"O" Ring	1
14600	Filter	1
04158	"O" Ring	1
04176	"O" Ring	1
33079	Diaphragm Disc (NRV)	1
33293	Cap Assembly NRV	2
04076	Spring (NRV)	1
04160	"O" Ring	1

CONTROL PANEL ASSEMBLY

01216	Fuse, 1.25A	1
01215	Fuse, 0.63A	1
10110	Mains Filter, Switch and Fuse	1
10621	Switch Black Rocker (Momentary)	1
10620	Switch Blk / Green Rocker (Latching)	1
10610	Lamp, Amber, 24V	1
33564	Potentiometer, 47kOhm	1
33571	Plug Assembly, Data Entry	1
33787	Knob, 1/4 inch Spindle	4
33675	Potentiometer Assembly, 10k Ohm	1

MOTHERBOARD PCB

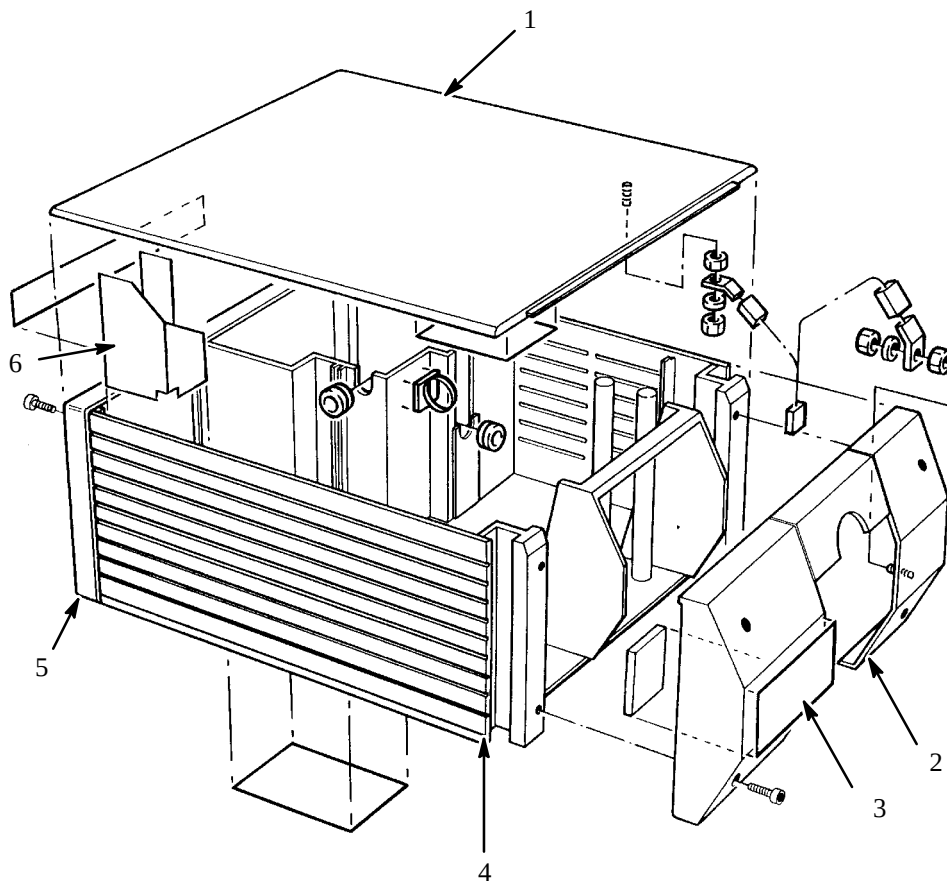
01211	Fuse 250m A	1
01210	Fuse 1.0A	1
01229	Fuse 4A	1
01248	Fuse 2A	1

POWER SUPPLY UNIT

01199	Fuse 6.3A	1
-------	-----------	---

CABINET ASSEMBLY

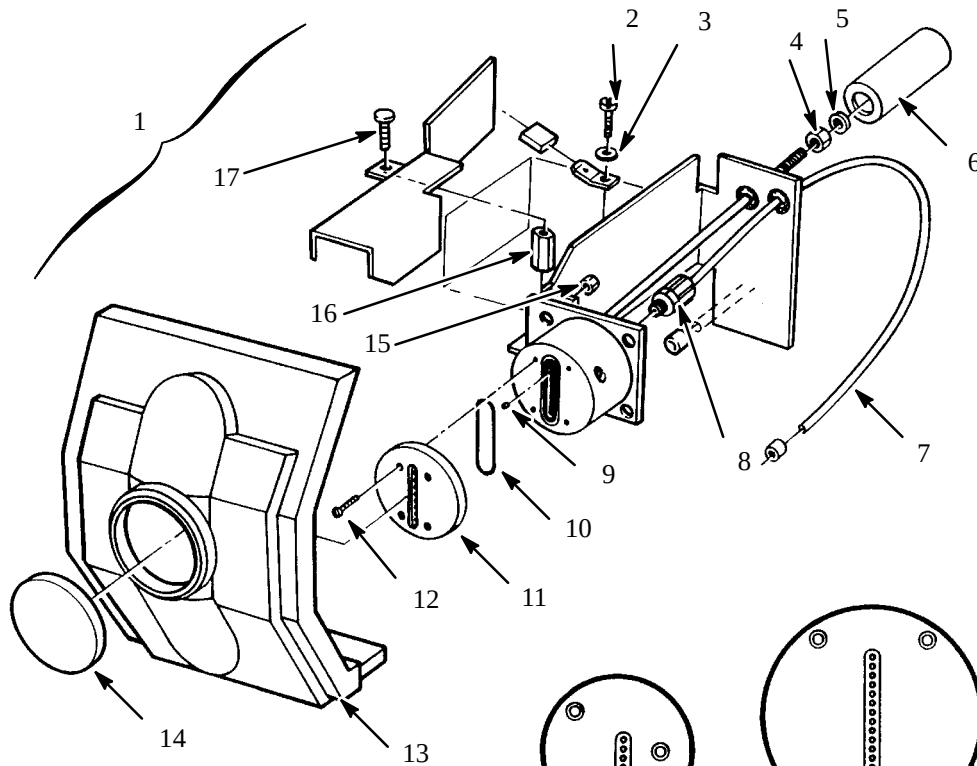
Item No.	Part No.	Description	Quantity
1	33777	Cover Top Moulding	1
2	33778	Cover Front Moulding	1
3	33791	Label Rear Panel	1
4	33776	Cabinet Base Moulding	1
5	33558	Control Panel Assembly	1
6	36062	Insulator Board Mains Switch	1



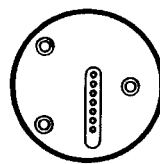
TP5525_2

Cabinet Assembly

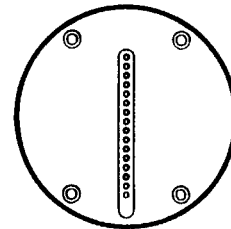
SPARES AND ACCESSORIES



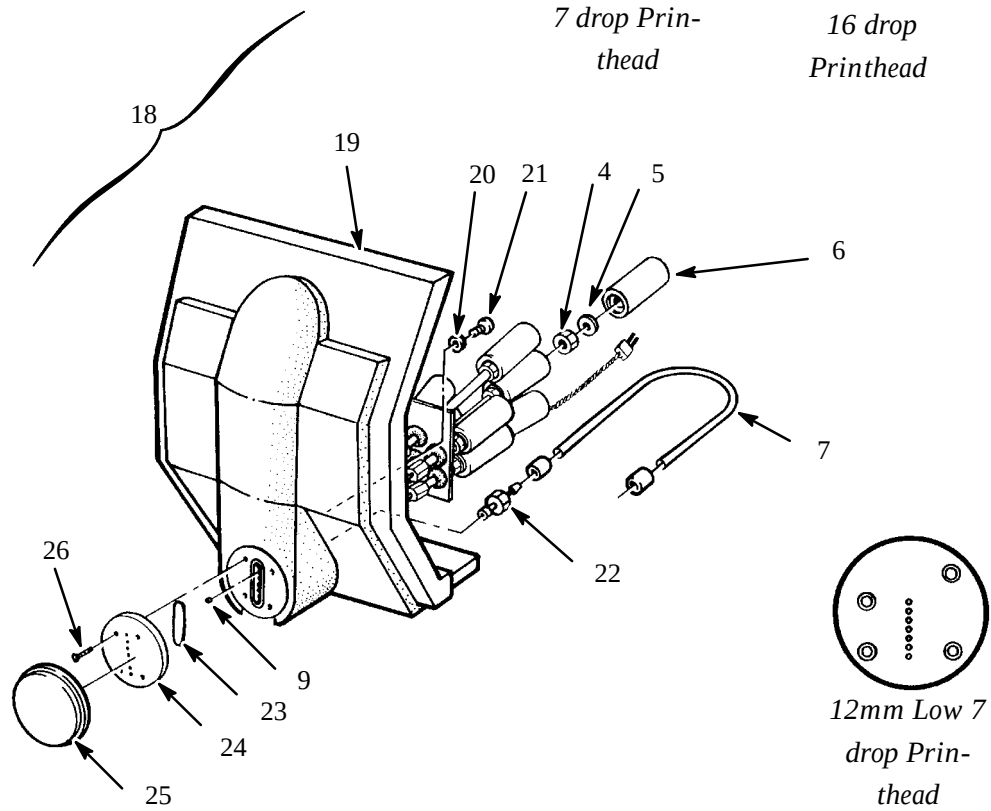
TP5575_2



12mm High
7 drop Printhead

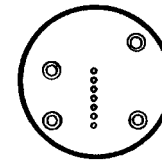


32mm
16 drop
Printhead



TP5576_2

Print Head Assemblies



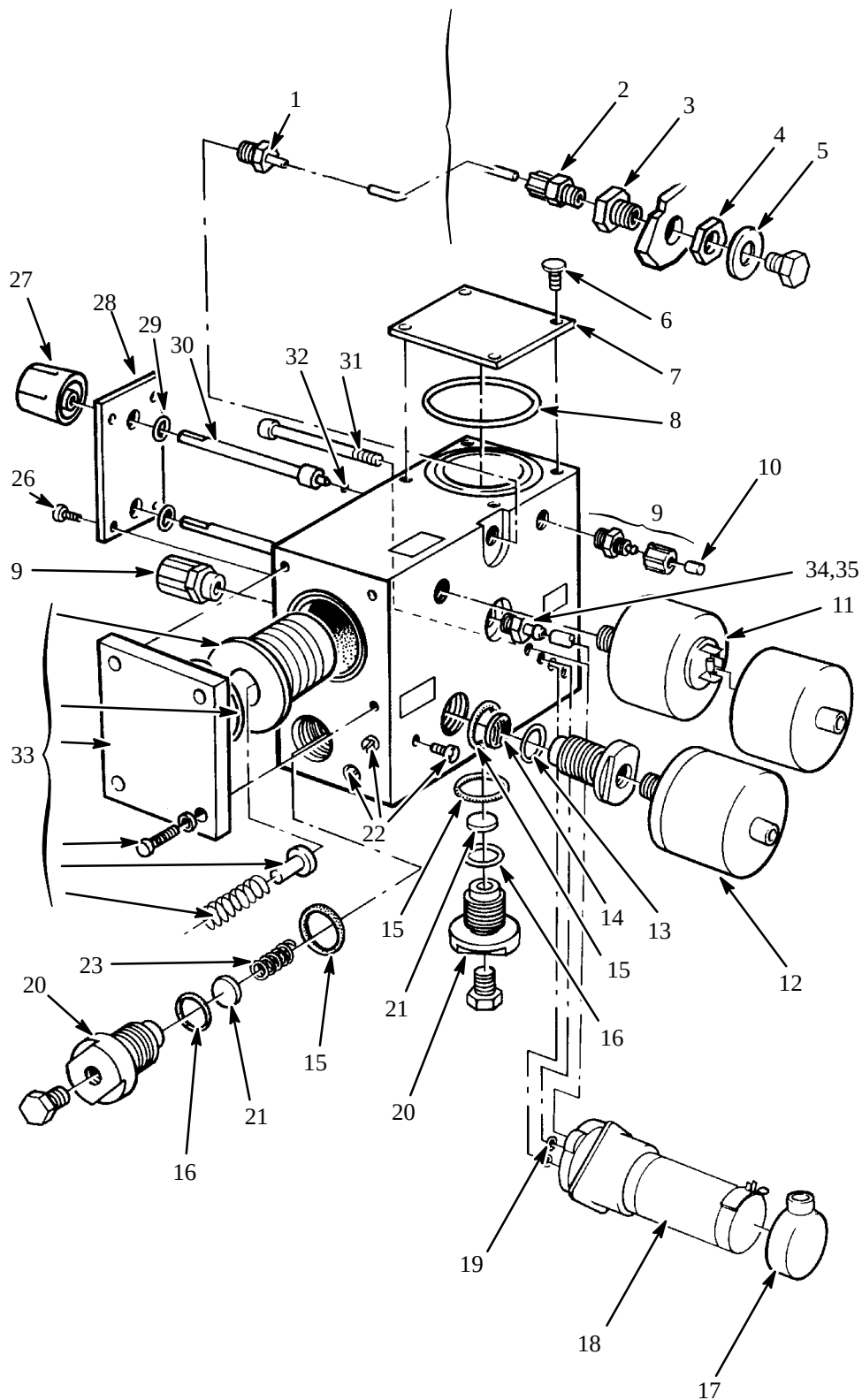
12mm Low 7
drop Printhead

SPARES AND ACCESSORIES

PRINT HEAD ASSEMBLIES

Item No.	Part No.	Description	Quantity
1	33562	Print Head Assembly 32mm (complete)	1
or	33520	Print Head Assembly 12mm high (complete) (including item nos. 6–14 and 19)	1
2	04307	Screw Pan Poz St St M3X6	1
3	04305	Washer S/P INT Tooth St St M3	1
4	04520	Nut Hex St. ZN M5x0,5	7 or 16
5	04507	Washer Flat St St M5	7 or 16
6	33107	Solenoid Assembly LCP	7 or 16
7	98203	Tube PTFE 3/16"OD X 0.03"	0.55m
8	14175	Connector Male 3X1/8"BSP (32mm only)	1
9	33234	Plunger Slug 12/32mm	1
10	04164	"O" Ring EPDM 31.47ID 1.78 CS (32mm)	1
or	04183	"O" Ring EPDM 21.95ID 1.78 CS (12 high)	1
11	33436	Nozzle Plate 32mm	1
or	33434	Nozzle Plate 12mm	1
12	04220	Screw Csk Slt St. St. M2x8	3 or 4
13	33762	Seal Front Cover 32mm	1
or	33449	Seal Front Cover 12mm high	1
14	06005	Dust Cap (12mm High)	1
or	06003	Dust Cap (32mm)	1
15	04300	Nut Hex Full St. St. M3	2
16	05710	Spacer Hex Brass M/F M4X18	2
17	04417	Screw Pan Poz St. St. M4x8	2
18	33561	Print Head Assembly 12mm low (complete) (including item nos 3, 14, 17, and 19)	1
19	33761	Seal Front Cover 12mm low	1
20	04408	Washer S/P Int Tooth St. St. M4	1
21	04420	Screw Skt Cap St. St. M4x6	1
22	33799	Tail Pipe 1/4" UNF 3mm dia	1
23	04176	"O" Ring EPDM 15.60ID 1.78CS	1
24	33758	Nozzle Plate 12mm	1
25	06004	Dust Cap (12mm Low)	1
26	04212	Screw Csk Slt St. St. M2x6	4

SPARES AND ACCESSORIES



TP5103_3

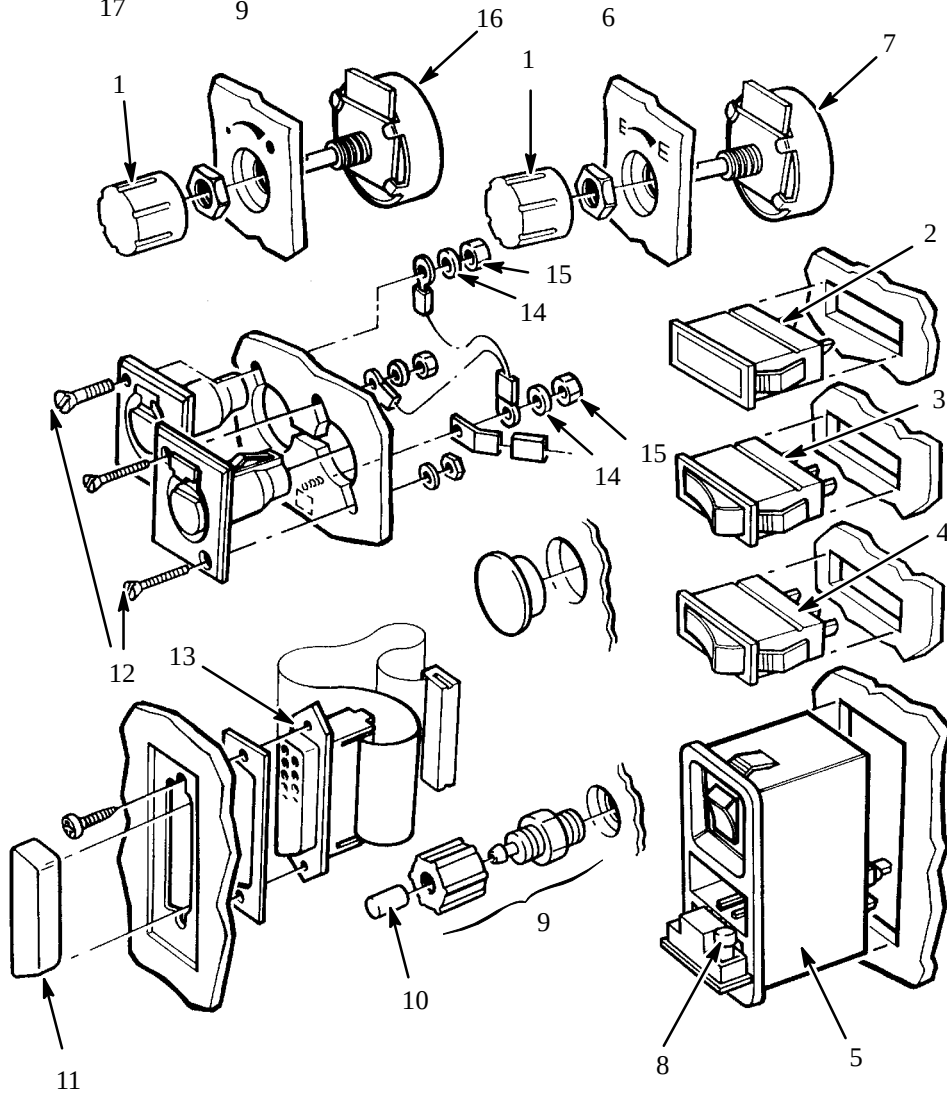
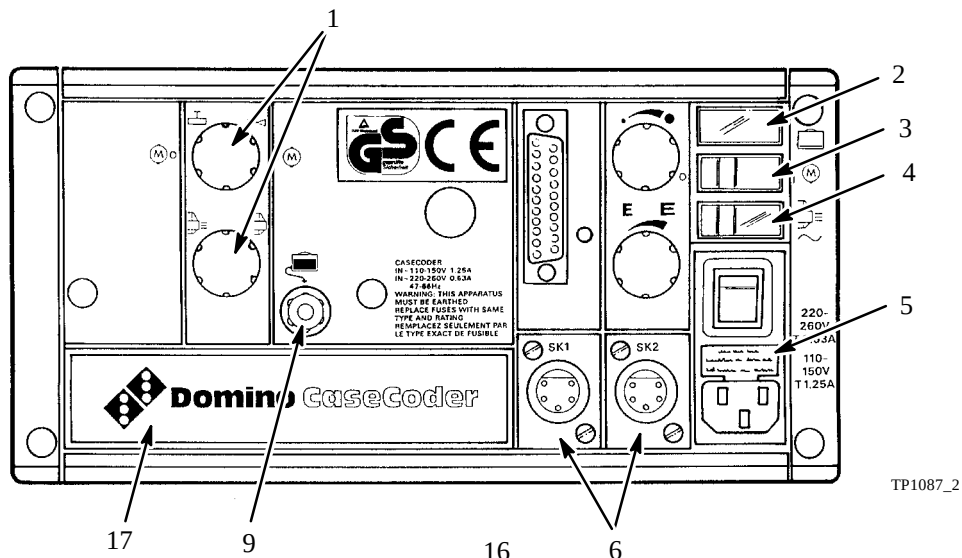
Manifold Block Assembly

SPARES AND ACCESSORIES

MANIFOLD BLOCK ASSEMBLY – 33550

Item No.	Part No.	Description	Quantity
1	33767	Tailpipe 1/8" BSP 3mm Pipe	2
2	14175	Connector Male 3 x 1/8" BSP	1
3	04012	Adaptor 1/4–1/8" BSP Brass NI	1
4	04011	Nut Brass 1/4 BSP	1
5	04812	Washer Flat St. St. M10	1
6	04412	Screw Pan Poz St. St. M4 x 12	8
7	33773	Cover Bleed Pot .	1
8	04182	"O" Ring EPDM 41.00 ID 1.78 CS	1
9	14174	Connector Male 4 x 1/8" BSP	2
10	04115	End Cap 1/4" Pipe Fitting	2
11	33826	Vacuum Switch Assembly	1
12	33825	Pressure Switch Assembly	1
13	04158	"O" Ring EPDM 16.60 ID 2.40 CS	1
14	14600	Filter Pleated Disc 20 Micron	1
15	04184	"O" Ring EPDM 23.53 ID 1.78 CS	3
16	04176	"O" Ring EPDM 15.60 ID 1.78 CS	2
17	33850	Boot CC Pump Motor	1
18	33690	Pump Kit (incl. capacitor and "O" Rings)	1
19	04166	"O" Ring EPDM 3.69 ID 1.78 CS	2
20	33293	Cap Assembly NRV	2
21	33079	Disc Diaphragm NRV	2
22	04418	Screw Pan Poz St. St. M4x6	7
23	04076	Spring Compression 2Psi St. St.	1
24	04426	Screw Pan Poz St. St M4x20	4
25	04408	Washer S/P Int Tooth St. St. M4	4
26	04481	Screw Polymate St. Zn. No. 4 x 3/8"	4
27	33787	Knob 1/4" Spindle	2
28	33786	Valve Sealing Plate	1
29	04181	"O" Ring EPDM 6.07 ID 1.78 CS	2
30	33754	Valve Plunger	2
31	04342	Screw Skt Cap St. St. M3x50	2
32	04160	"O" Ring EPDM 1.78 ID 1.78 CS	2
33	33860	Bellows Upgrade Kit	1
34	14758	Filter	1
35	14755	Festo Sealing Washer	1

SPARES AND ACCESSORIES



TP5580_2

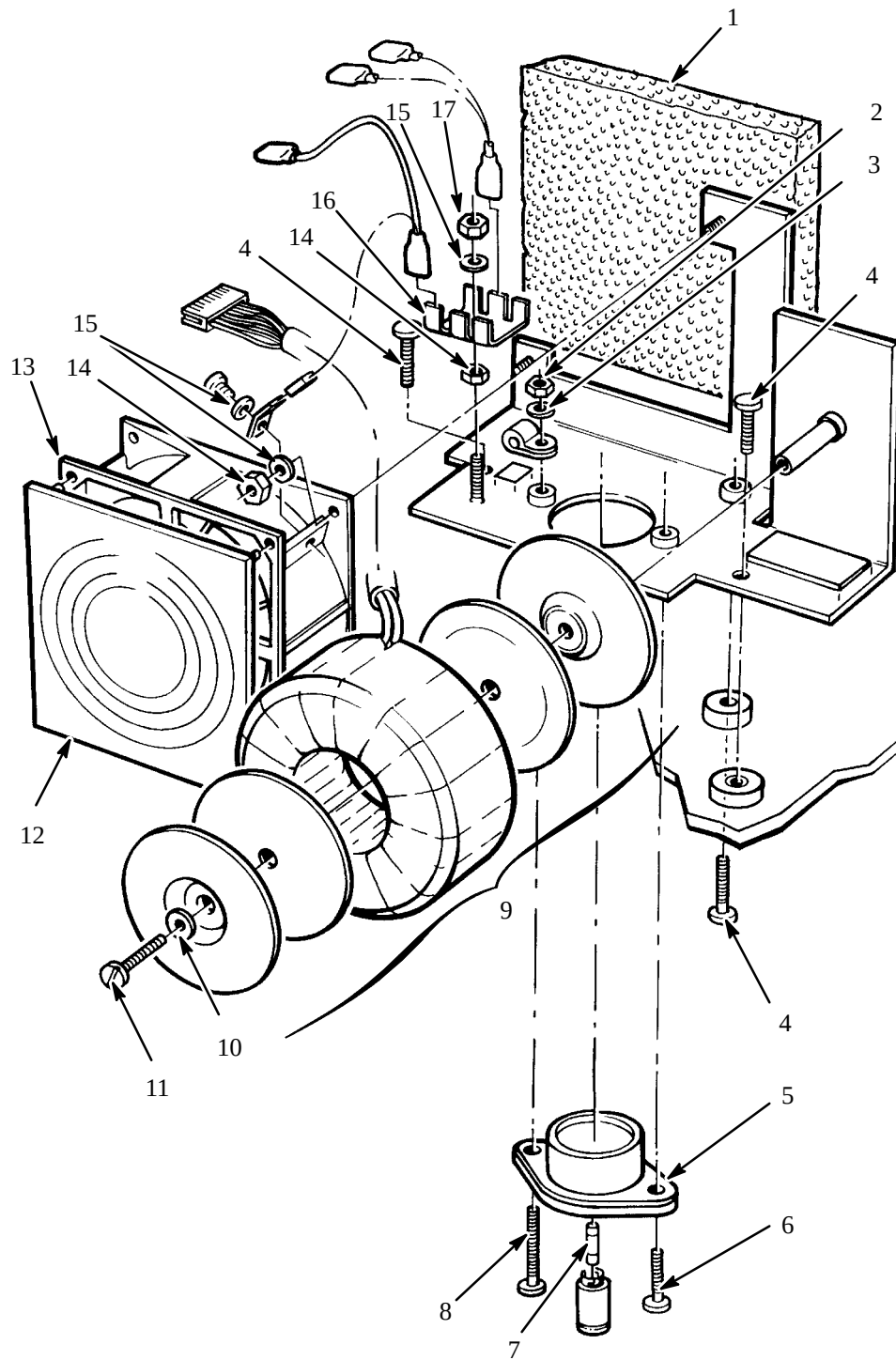
Control Panel Assembly

SPARES AND ACCESSORIES

CONTROL PANEL ASSEMBLY

Item No.	Part No.	Description	Quantity
1	33787	Knob 1/4" Spindle	4
2	10610	Lamp 24V Amber	1
3	10620	Switch Blk / Green Rocker Latching	1
4	10621	Switch Black Rocker Momentary	1
5	10110	Filter Mains, switch and fuse	1
6	36108	SKT Assembly Photocell (twin sockets complete with wiring)	1
7	33675	Pot Assembly 10K Ohm	1
8	01216	Fuse 20 x 5 (T) 1.25A (110V)	1
or	01215	Fuse 20 x 5 (T) 0.63A (220V)	1
9	14174	Connector Male 4x1/8" BSP	1
10	98110	Tube Polyethylene 1/4" 6OD	1.5M
11	11051	Cover "D" 25Way	1
12	04319	Screw Csk Poz St. St. M3 x 12	4
13	33571	Plug Assembly D	1
14	04305	Washer S/P Int Tooth St. St. M3	5
15	04300	Nut Hex Full St. St. M3	8
16	33564	Potentiometer Assembly 47K Ohm	1
17	33790	Label Rear	1

SPARES AND ACCESSORIES



TP5585_2

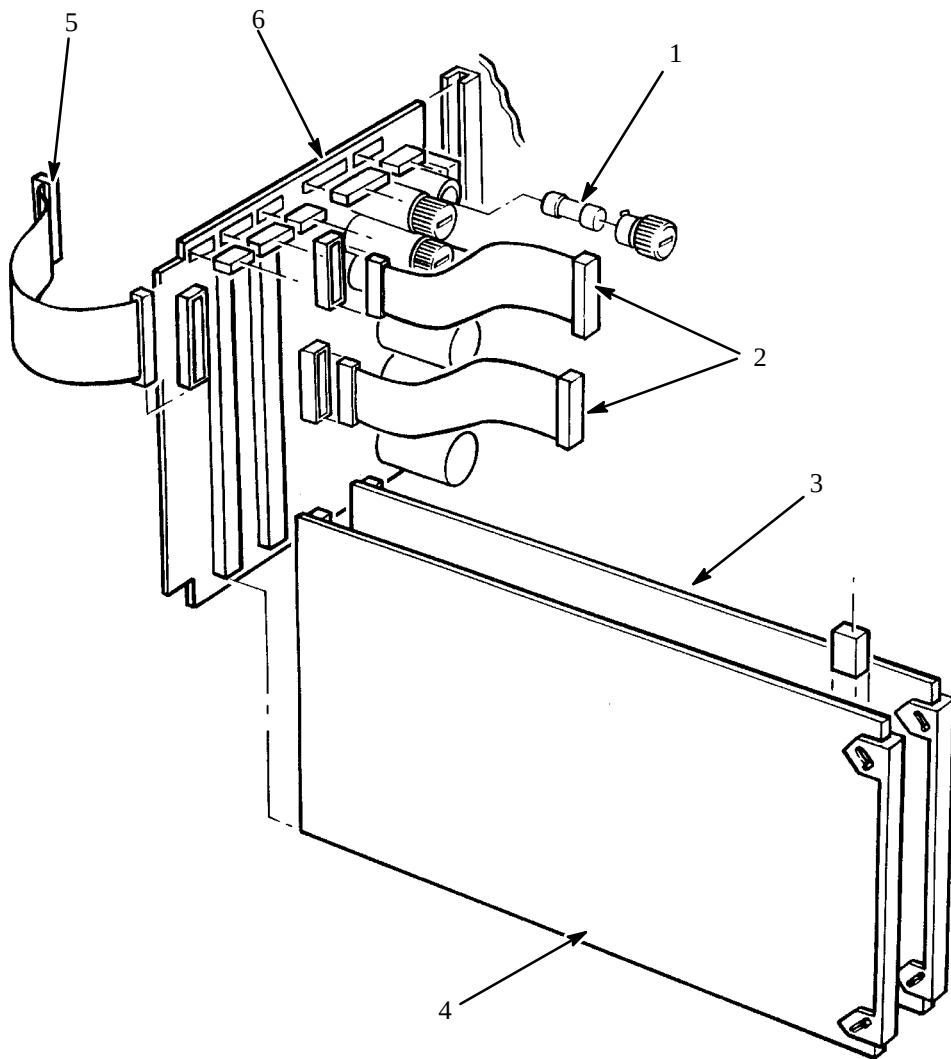
Power Supply

SPARES AND ACCESSORIES

POWER SUPPLY – 36102

Item No.	Part No.	Description	Quantity
1	33792	Filter	1
2	04300	Nut Hex Full St. St. M3	1
3	04305	Washer S/P Int Tooth St. St. M3	1
4	04417	Screw Pan Poz St. St. M4 x 8	3
5	11106	Voltage Selector	1
6	04314	Screw Pan Poz St. St. M3 x 12	1
7	01199	Fuse 20 x 5 (T) 6A3	1
8	04303	Screw Pan Poz St. St. M3 x 16	1
9	36150	Transformer Toroidal	1
10	04507	Washer Flat St. St. M5	1
11	04510	Screw Pan Poz St. St. M5 x 25	1
12	11285	Guard Finger 80mm Plastic	1
13	11286	Fan Axial 80mm 115Vac 35Cfm	1
14	04402	Nut Hex Full St. St. M4	3
15	04408	Washer S/P Int Tooth St. St. M4	4
16	01185	Terminal Strip U Tab 1/4" 3 way	1
17	04487	Nut Nyloc St. St. M4	1

SPARES AND ACCESSORIES



TP5590_2

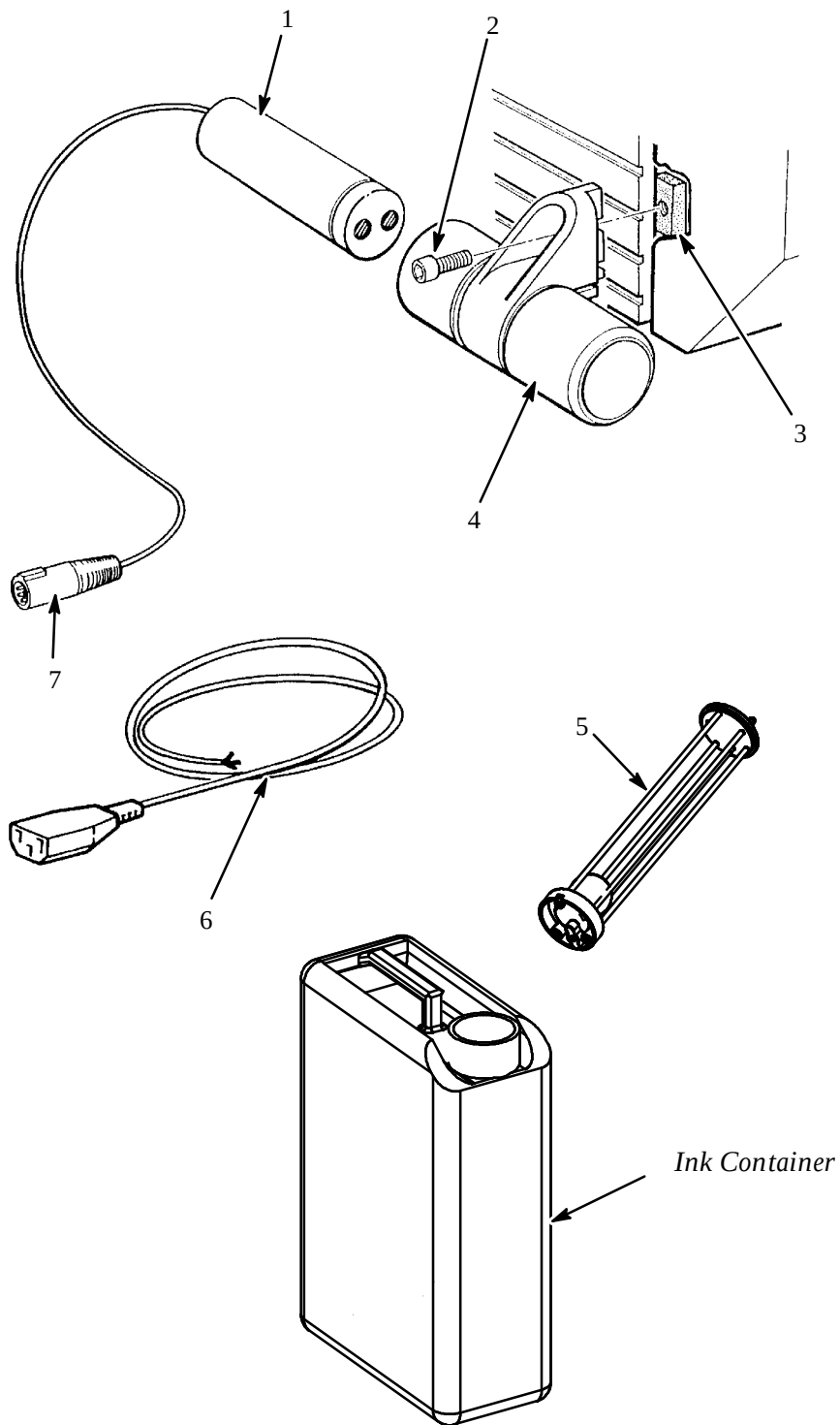
Electronics Assembly

SPARES AND ACCESSORIES

ELECTRONIC ASSEMBLY

Item No.	Part No.	Description	Quantity
1		Motherboard Fuses:	
	01248	(FS1) 20 x 5 (T) 2A (7 drop head)	1
or	01229	(FS1) 20 x 5 (T) 4A (16 drop head)	1
	01211	(FS2) 20 x 5 (T) 250mA	1
	01211	(FS3) 20 x 5 (T) 250mA	1
	01210	(FS4) 20 x 5 (T) 1.0A	1
2	33555	Cable Assembly Solenoid	1 or 2
3	23135	Solenoid Driver PCB	1
4	23139	Universal Serial Interface PCB	1
5	33571	Plug Assembly "D"	1
6	23145	Motherboard PCB	1

SPARES AND ACCESSORIES



TP5595_1

Ancillaries

SPARES AND ACCESSORIES

ANCILLARIES

Item No.	Part No.	Description	Quantity
1	21130	Photocell Assembly Retro-reflective	1
or	21131	Photocell Assembly Proximity	1
or	21132	Detector Assembly 18mm	1
or	21133	Detector Assembly 30mm	1
2	04490	Screw Skt Cap St. Bk M4 x 10	1
3	33789	Clamp Plate Photocell	1
4	33788	Photocell Mounting	1
5	36080	Float Valve Assembly	1
6	11114	Power Cable (USA) (incl. Plug)	1
or	11115	Lead Mains 2M (European) (not incl. Plug)	1
7	11136	Plug 5way AXR	1
Not shown:			
	01204	Plug 3 Way 13A Mains	1

ACCESSORIES

Part No.	Description
11804	Pocket Terminal PT64
11835	Pocket Terminal PT14
36116	CaseCoder Mounting Kit
36117	CaseCoder Photocell Mounting Kit
33574	Plunger Slug Insertion Tool
	Shaft Encoder – supplied to specification
36120	Ink Container Support Tray

SPARES AND ACCESSORIES