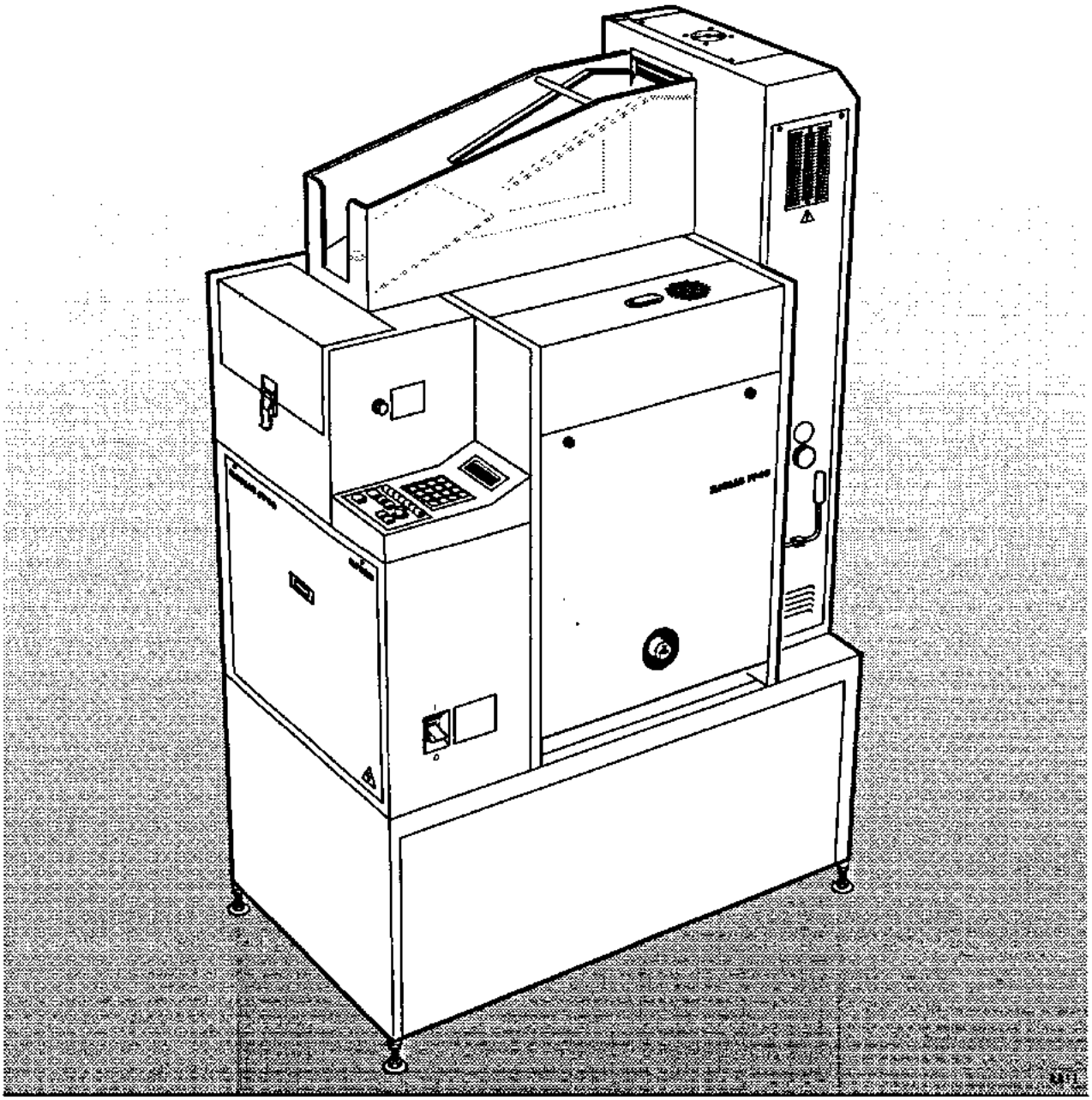
ILFORD

50/60Hz **SERVICE MANUAL**

ILFOLAB FP40

FLOOR STANDING PROCESSOR
FOR BLACK AND WHITE FILMS



AMENDMENT RECORD SHEET

Amendment	Signature	Date
Initial issue		September 1995
1		
2		
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ASSOCIATED PUBLICATIONS

Title	Publication number
ILFOLAB FP40 Operating Manual	40236.GB
ILFOLAB FP40 Service Manual	40237.GB

MAJOR MODIFICATIONS

The following is a record of the major modifications introduced to the ILFORD ILFOLAB FP40 processor. The detailed information has been included in the appropriate sections of this manual.

From serial number	Description	Suitable for retrospective fitting	Modification & Advice Note
A010046	New guides fitted to the inlet of the dryer rack to improve transport of the leader sheet	No	-
A010078	Water supply components changed to comply with WRC requirements	No	-
A010078	Socket outlet to film winder changed (2-pin round to 3-pin rectangular)	No	P3-1
A010078	The magazine holder in the right track changed to accept the 100ft film magazine	Yes	P3-1
A010078	Change to display message - DRAIN BOTTLE FULL & NO WATER SUPPLY	No	-
A010078	Reed interlock switch added to the processor lid	No	P3-1
A010078	Dryer filter material change, from polyurethane to polyester/polyamide	Yes	-
A010078	SSR board redesigned to meet electrical standards	No	P3-1
A010078	ILFORD logo screen printed onto panels	No	-
A010078	Cable gland added to electrical compartment	Yes	-
A010098	All machines - remove flow restrictor and filter (inlet side). 60Hz machines must have flow restrictor fitted by customer	Yes	P3-1

From serial number	Description	Suitable for retrospective fitting	Modification & Advice Note
A010098	Hinge mounting holes moved up to lower door on which CPU is mounted to prevent electrical wires fouling	No	-
A010141	Electrical connections to water tank changed - Machines upto A010177 use a clip to locate plug under dryer; Machines from A010178 locates connection in dryer compartment	No	-
A010178	Machine control system changed to allow the processing of infra-red film	No	P3-2
A010178	Introduces crank handle stowage clamp on RH side of dryer	Yes	-
A010178	Pipes from Dev and Fix working tanks extended and attached to processor frame with cable ties	Yes	P3-2
A010178	Machine labels changed to pictograms	No	P3-2
A010178	Cutter cover, lh - clearance increased around guillotine blade	No	-
A010178	Film holder redesigned to hold new, smaller 35mm cassette	Yes	-
A010188	Additional rollers are introduced to extend the fix rack to increase fix time	Yes	P3-2
A010188	Change ROM 2 to increase fix time	Yes	-
A010188	Reduce length of flexible tube on float valve in water storage tank to meet water regulations	Yes	-
A010198	Screen printing of ILFOLAB FP40 removed rh & lh covers	No	-
A010188	Roller change in wash spray rack	Yes	P3-3

APPROVED ABBREVIATIONS

The following is a list of abbreviations used on the parts list and circuit diagrams:

Abbreviation	Word(s) in full
AR	as required
assy	assembly
CT	control, temperature
csk hd	countersunk head
dev	developer
d	diameter
fig	figure
fix	fixer
flex hose	flexible hose
hex head	hexagonal head
id	inside diameter
lh	left hand
LED	light emitting diode
no.	number
od	outside diameter
oflow	overflow
phd	pan head
PCB	printed circuit board
RL	relay
rep	replenishment
rh	right hand
stap	self tapping
sproof	shakeproof
ss	stainless steel
SW	switch
T	teeth
temp	temperature
TB	terminal block

ILFORD COMPONENT DIAGRAM SYMBOLS

ALTERNATING CURRENT AC


BATTERY

DIRECT CURRENT DC


SCREENED CONDUCTOR


CO-AXIAL PAIR


RESISTOR


VARIABLE R


VOLTAGE DEPENDENT R


POTENTIOMETER


PRESET R


HEATER ELEMENT


CAPACITOR


TRANSISTOR NPN


TRANSISTOR PNP


DIODE


LED


PHOTO DIODE


TRIAC

AC MOTOR

DC MOTOR


TRANSFORMER


EARTH


CHASSIS EARTH


RELAY


FUSE


LAMP


BELL


BUZZER


SWITCH and MAKE CONTACT


BREAK CONTACT


BREAK BEFORE MAKE


MECHANICALLY OPERATED SWITCH


MANUAL SWITCH

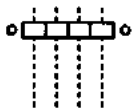

PUSH SWITCH


THERMAL SWITCH BREAK

TEMP. SWITCH MAKE


PROX. SWITCH MAGNET

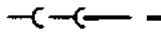

FLOAT SWITCH


MULTIPLE SWITCH


BRIDGE RECTIFIER


TERMINAL BLOCK

WIRE LOOM


SOCKET/PLUG


FLUID OPERATED SWITCH

o TERMINAL

• CONDUCTOR CONNECTION

——— CONDUCTOR

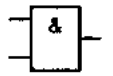
---------- MECH. CONNECTION

0	B	BLACK
1	BR	BROWN
2	R	RED
3	O	ORANGE
4	Y	YELLOW
5	GN	GREEN
6	BL	BLUE
7	V	VIOLET
8	GY	GREY
9	W	WHITE

WIRE No./COLOUR (SIZE)

R	OHMS
K	KILOHMS
M	MEGAOHMS


AMPLIFIER



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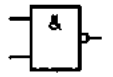
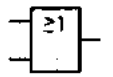


NAND



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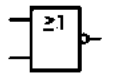
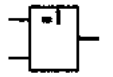
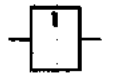


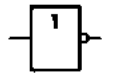
NOR



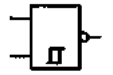
EXCLUSIVE OR



BUFFER



INVERTOR


element with HYSTERESIS

2
FILM TRANSPORT SYSTEM

CONTENTS

2.1 LEADER SHEETS

See figure 2.1.

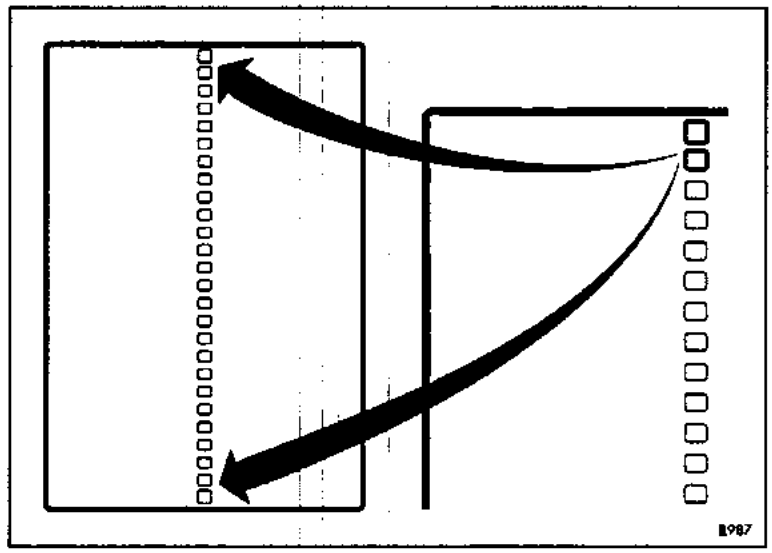


Figure 2.1 Leader sheet

1 A leader sheet and film are transported from the film loading box into the developer working tank by the light shield rollers. Perforations in the leader sheet then locate on the leader sprockets in each rack to transport the film through the working tanks. The processed film is then transported through the dryer rack and into the film receiving box.

2 The perforations on the leader sheet are of differing sizes. The larger perforations at the leading edge facilitate the pick up of the leader sheet by the leader sprocket in each rack to transport the leader and film through the machine.

3 Transport problems will occur if leaders with damaged perforations or leaders that are creased or cut are used.

2.2 USE OF THE RED CAM LEVER PRESS BAR

See figure 7.7 item 18 and figure 7.33 item 24.

1 The red cam lever press bar must be fitted in the film loading box when 120/220 roll films or cut length films are processed. It locates on the cam levers to hold the upper and lower light shield rollers apart during processing.

2 The cam bar is used to reduce roller pressure and prevent static discharge to the film.

3 The cam bar also prevents long lengths of film from overfeeding

into the processor. The film speed through the processor is dictated by the rate at which the leader is transported by the sprockets in the racks. In the film loading box the speed at which the film is driven into the processor is determined by the diameter of the light shield rollers. If this speed is greater than the speed of the leader through the machine then the film will overfeed and a loop of film form between the light shield box assembly and the developer rack. The cam bar permits the rollers to close momentarily as the lid is closed to feed the leader into the machine. When the lid is closed then the bar prevents the nipping of the light shield rollers and the feeding of the film.

4 The cam bar must not be used with cassetted film. The light shield rollers are required to provide the drive to pull the cassette holder forward and operate the guillotine micro-switch. If the cam bar is used with cassetted film, then a hesitation in the film transport as slack film is taken up will result in a bar mark on the film.

2.3 OPERATION AND ADJUSTMENT OF CAM ROLLER ASSEMBLIES

See figure 7.4 item 8 and figure 7.7 item 18.

1 Two cam rollers on the film loading box lid contact the cam levers when the lid is open. The cam levers are depressed by the rollers to the maximum extent to hold the upper and lower light shield rollers apart. This ensures that film is not extracted from the cassette or magazine before the lid is closed.

2 With a new processor or when new light shield rollers have been fitted, the grip of the rollers may be excessive and start to extract film before the lid is closed. After several films have been processed the grip of the rollers should reduce and film will not be extracted until the lid is closed.

3 If the pressure of the rollers continues to extract film check the operation of the cam roller assemblies and adjust their position as required using the two pan head screws on each cam plate.

2.4 OPERATION OF THE SLIP CLUTCH

See figure 7.7 item 42.

1 A slipping clutch is provided to allow the film to be drawn at a faster rate through the nipped light shield rollers. This is necessary to allow for rollers that may become undersize due to long term shrinkage.

2.5 DISMANTLING THE FILM LOADING BOX ASSEMBLY

See figure 2.2, figure 7.4 item 2 and figure 7.7 items 49, 51.

1 The velvet surfaces within the loading box assembly may become contaminated if developer is poured directly into the working tank. If the velvet surfaces are contaminated then the film loading block must be dismantled. To remove and replace components refer to figures 7.6 and 7.7. Wash the top and bottom plates with warm water and allow the velvet to dry. Brush the velvet to restore the nap. Check the velvet surface for faults which may cause damage to the film, replace if necessary.Chemistry may also run onto the sensor assemblies and contaminate the LED lamps. The PCB must be washed to remove all traces of chemistry and thoroughly dried. Clean the LEDs with a dry soft cloth.

2 Switch the machine off.

3 Remove the four socket head screws that secure the plastic guillotine covers.

4 To remove the film loading box cover, use a screwdriver with at least a 10inch (25cm) long blade to slacken the 5 screws securing the cover. Do not remove these screws. Slide the cover vertically and lift away from the screws. Release the electrical connections (refer to figure 7.4 items 28, 29, 30) between the cover and the film loading box assembly.

5 Use a pencil to mark the position of the film loading block assembly on the front of the processor body to assist correct alignment of the assembly on installation.

6 Disconnect the electrical connections (refer to figure 7.6 items 50, 54) between the film loading block assembly and the processor.

7 Release the four screws (refer to figure 7.6 item 39) and lift the assembly away from the processor.

8 To remove and replace components, refer to figures 7.6 and 7.7.

Caution
Four of the securing screws are covered with a strip of foam rubber.

9 Before replacing the loading box assembly and cover, remove the developer rack, refer to the ILFOLAB FP40 Operating manual, section 10.2a.

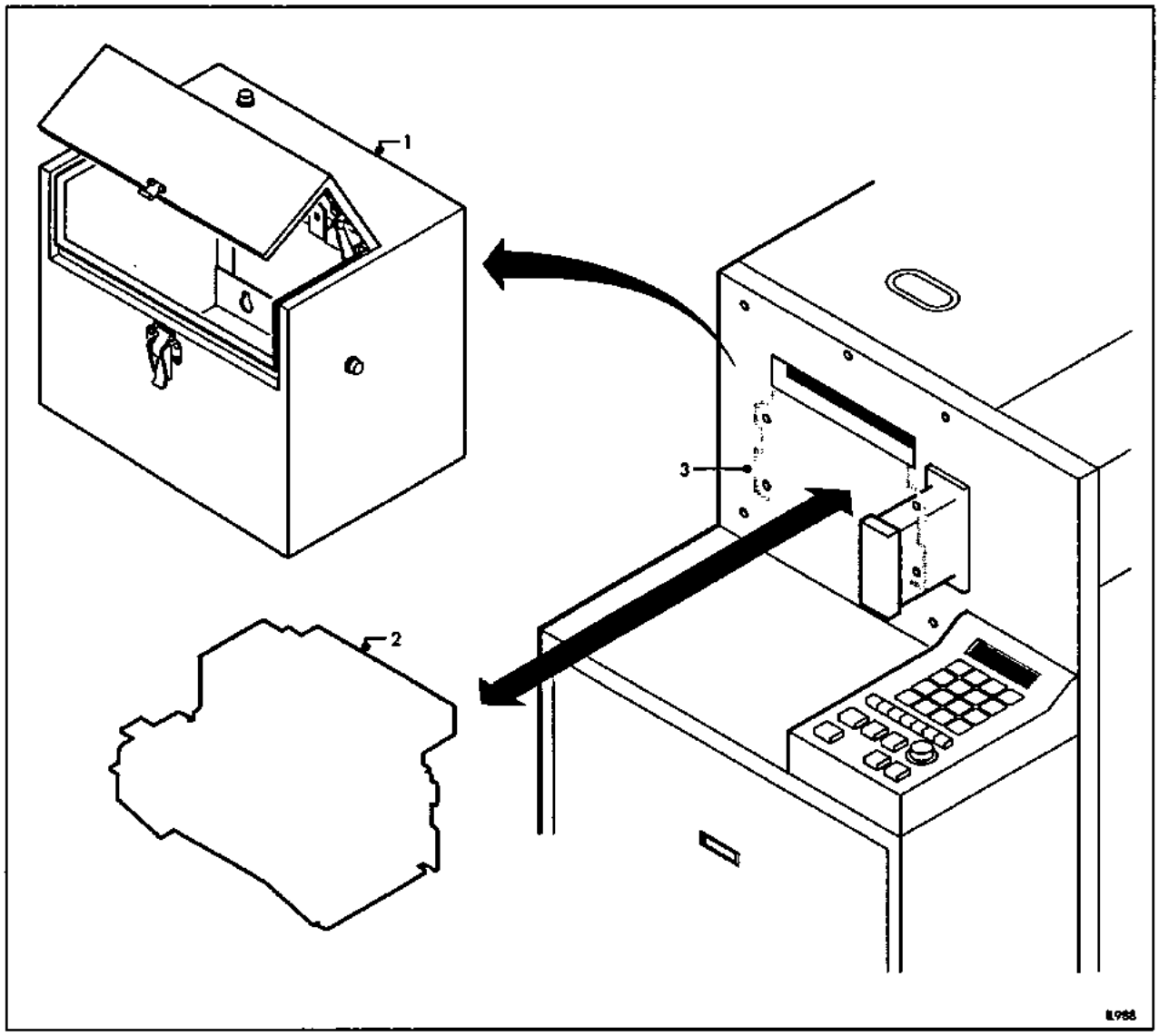


Figure 2.2 Dismantling the film loading box assembly

Figure 2.2

1 Film loading box cover
2 Film loading block
3 Pencil mark (film loading block position)

10 To install the loading box assembly, locate the top right hand screw in the loading box assembly side plate and hold in place with the screwdriver. Position the assembly on to the front of the processor and secure with the screw. Replace the remaining screws but do not tighten.

11 Align the assembly correctly with reference to the marks made in operation 4. Tighten the screws. Re-connect the electrical connections between the processor and the film loading box assembly.

12 Replace the developer rack. Ensure that the rack lifts in and out of the processor freely. If the rack touches the film loading box

assembly, check that the assembly is correctly positioned on the processor body.

13 Re-connect the electrical connections between the cover and the film loading box assembly. Locate the keyhole slots on the cover onto the 5 screws on the processor body. Lower the cover onto the screws, use a screwdriver with at least a 10inch (25cm) long blade to tighten the screws to secure the cover.

14 Replace the plastic guillotine covers.

2.6 REMOVING AND REPLACING ROLLER COVERS

See figure 7.21, 7.22, 7.23, 7.24, 7.27 or 7.28.

Note

Rollers may be replaced as a complete assembly or the rubber covering can be replaced. Damaged roller covers must be removed and replaced as follows:

1 Remove the rack, refer to the ILFOLAB FP40 Operating manual, section 10.2a.

2 Remove the roller from the rack, refer to figures 7.24, 7.25, 7.26, 7.27 and 7.28.

3 The damaged cover should be carefully cut away or peeled off the roller, and discarded. Care must be taken not to damage the plastic roller.

4 Slide the new cover onto the plastic roller using running water as a lubricant. Do not stretch the rubber cover excessively, carefully ease it on to the plastic roller.

5 Re-assemble the components in the roller assembly and re-assemble the rack, refer to the appropriate figure in section 7. Locate the gears, see section 2.8 and the top guides, see section 2.7.

6 To check the smooth running of the rollers, feed a leader sheet into the rack by turning the drive gear.

7 Install the rack, refer to the ILFOLAB FP40 Operating manual, section 10.2a.

2.7 ORIENTATION OF TOP GUIDES

See figure 2.3.

1 The top guide in each rack must be orientated correctly to

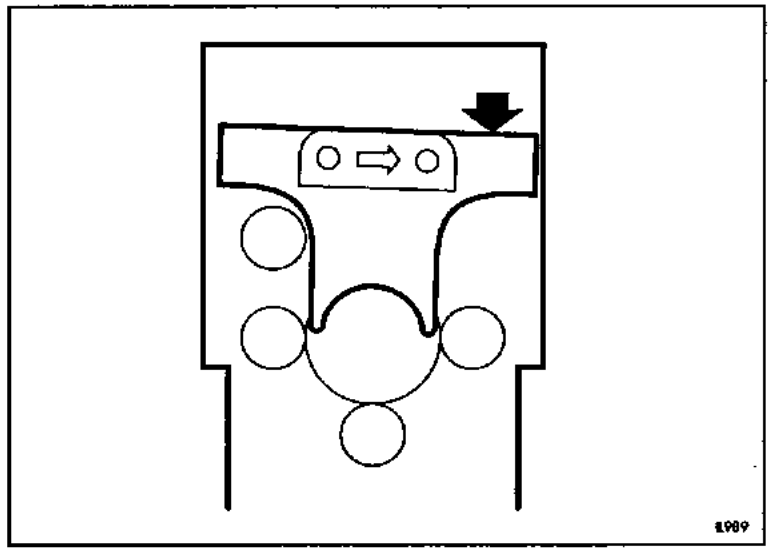


Figure 2.3 Orientation of top guides

prevent film transport problems. Each guide is marked with an arrow which indicates the direction of the leader transport through the processor.

2 Ensure the guide is fitted with the arrow pointing to the rear of the machine. Fit the securing screws and washers (4 off) but do not tighten. Bias the guide fully in the direction shown before finally tightening the screws.

3 To check the installation of the guides, feed a leader sheet into the rack by turning the drive gear.

4 A final check of the leader transport can only be done with the racks installed in the machine. Run the machine with the top lid removed and with a free magnet operating the lid interlock switch. Watch and listen for smooth transfer of the leader between the racks.

2.8 TIMING OF GEARS

See figure 2.4.

When a rack has been re-assembled the gears must be installed as follows to ensure correct timing of the gear train;

1 Each gear is marked with two raised dots. The gears must be installed with the dot on the gear tooth located in line with the dot between the teeth on the adjacent gear. Ensure all the dots align vertically when the gears are fitted on the rack.

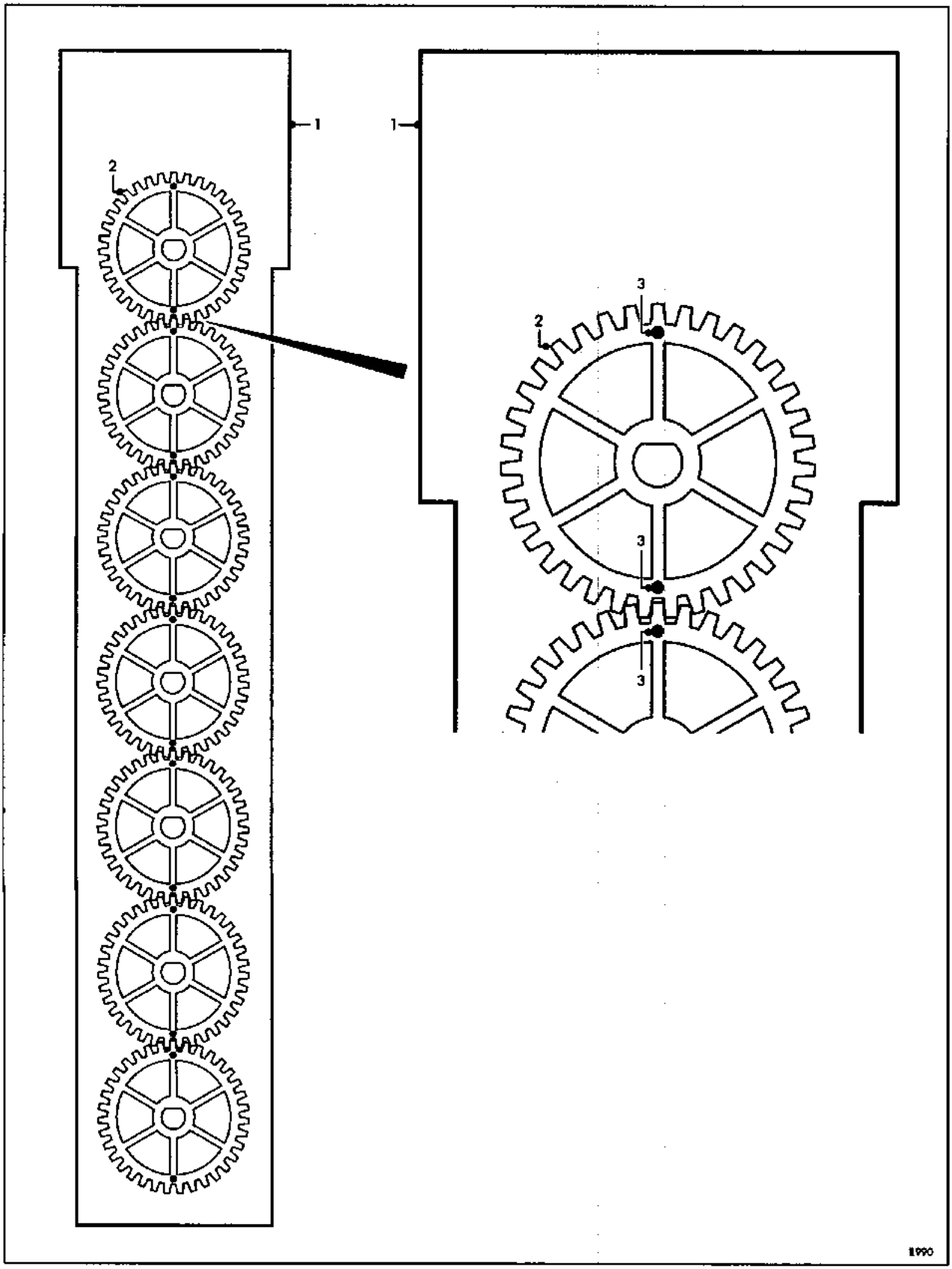


Figure 2.4 Timing of gears

Figure 2.4
1 Developer rack (typical)
2 Gear wheel
3 Raised dots

Note
The fix rack has two drive inputs. When checking the transport of the leader through the rack then both drives must be rotated by hand.

2.9 MODIFICATIONS

2.9a Processors from Serial number A010046

1 New inlet guides are installed in the dryer rack to improve transport of the leader into the rack.

2.9b Processors from Serial number A010078

1 The socket outlet to the film winder unit is changed (2-pin round to 3-pin rectangular).

2 The magazine holder in the right hand track is changed to accept the 100ft film magazine.

3 A reed interlock switch is introduced which prevents the processor main drive from operating if the processor lid is raised.

2.9c Processors from Serial number A010178

1 ROM1 and ROM2 are changed to allow the processing of infra-red film. The TEMP switch is replaced by a switch labelled IR. If the IR switch is selected the sensor assemblies are switched off as soon as the splicing tape is detected and will remain off for sufficient time to allow a 36 exposure length of film to be processed. The processor then returns to the normal mode.

2 The left hand cutter cover in the film loading box assembly is changed to increase the clearance around the guillotine blade.

3 The film holders in the film loading box assembly are redesigned to hold the smaller 35mm Konica Mini cassettes.

2.9d Processors from Serial number A010188

1 Additional rollers are introduced to extend the fix rack to increase fix time. The path length for the film is increased by 20%

2 In the wash spray rack the outlet roller assembly is changed to improve processing quality.

3
WET SYSTEM

CONTENTS

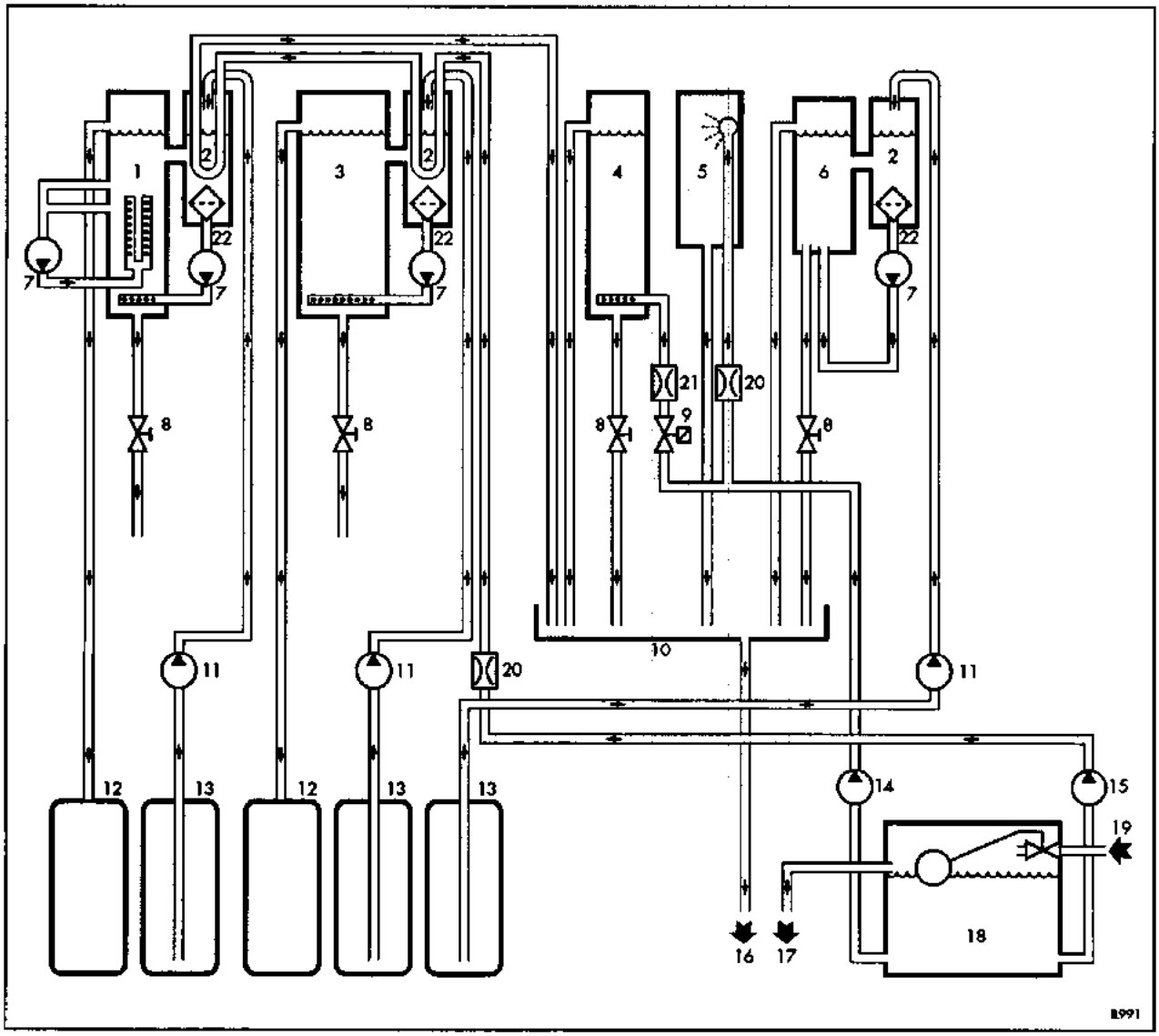


Figure 3.1 System diagram

3.1 REMOVAL AND CLEANING OF DISTRIBUTION PIPES

See figures 3.1, 7.10 and 7.11

1 Solution distribution pipes are incorporated into the working tanks in order to provide uniform conditions of temperature and activity across the width of the processing path.

2 These distribution pipes have holes that can become blocked as a result of debris from film and splicing tape or from crystallised chemistry that has dried on the distribution pipes when the tanks have been emptied.

Figure 3.1

1 Developer working tank
2 Temperature control tank
3 Fixer working tank
4 Wash water tank WS1
5 Water spray tank WS2
6 Rinse solution tank WS3
7 Circulation pump
8 Drain valve
9 Solenoid valve
10 Drain tray
11 Replenishment pump
12 Drain bottle
13 Replenishment bottle
14 Wash water pump
15 Cooling water pump
16 Drain tray overflow
17 Water storage tank overflow
18 Water storage tank
19 Mains water supply
20 Flow restrictor
21 Flow restrictor (60Hz only)
22 Filter

3 All holes in the pipes may be cleaned using a length of fine wire. When reassembling pipes into the tanks use PTFE jointing tape and ensure that the outlet holes point towards the top of the tank.

3.2 DEV TANK

See figure 7.10 item 37.

1 There are two distribution pipes. One is mounted at the base of the tank with access from the lh side of the machine. The dev tank must be drained if this pipe is to be removed.

2 The other distribution pipe is mounted on the front wall of the dev tank and may be removed by lifting the pipe from the tank. There is no need to drain the dev tank to remove this pipe.

Note
This distribution pipe is not protected by a solution filter, refer to figure 3.1.

3.3 FIX TANK

See figure 7.10 item 5.

1 Access from the rh side. Drain tank before removing.

3.4 WASH TANK

See figure 7.11 item 4.

1 Access from rh side. Drain tank before removing.

3.5 REMOVAL AND CLEANING OF AIR DISTRIBUTION PIPE

See figure 7.10 item 39.

1 Access from lh side. Drain tank before removing.

3.6 REMOVAL AND CLEANING OF SPRAY BAR

See figures 3.1 and 7.21

1 Rack 4 in the wash spray tank WS2 is fitted with a spray bar. An uneven water spray can lead to marks on the film. The spray bar can be removed and cleaned as described in the ILFOLAB FP40 Operating Manual, section 10.2a.

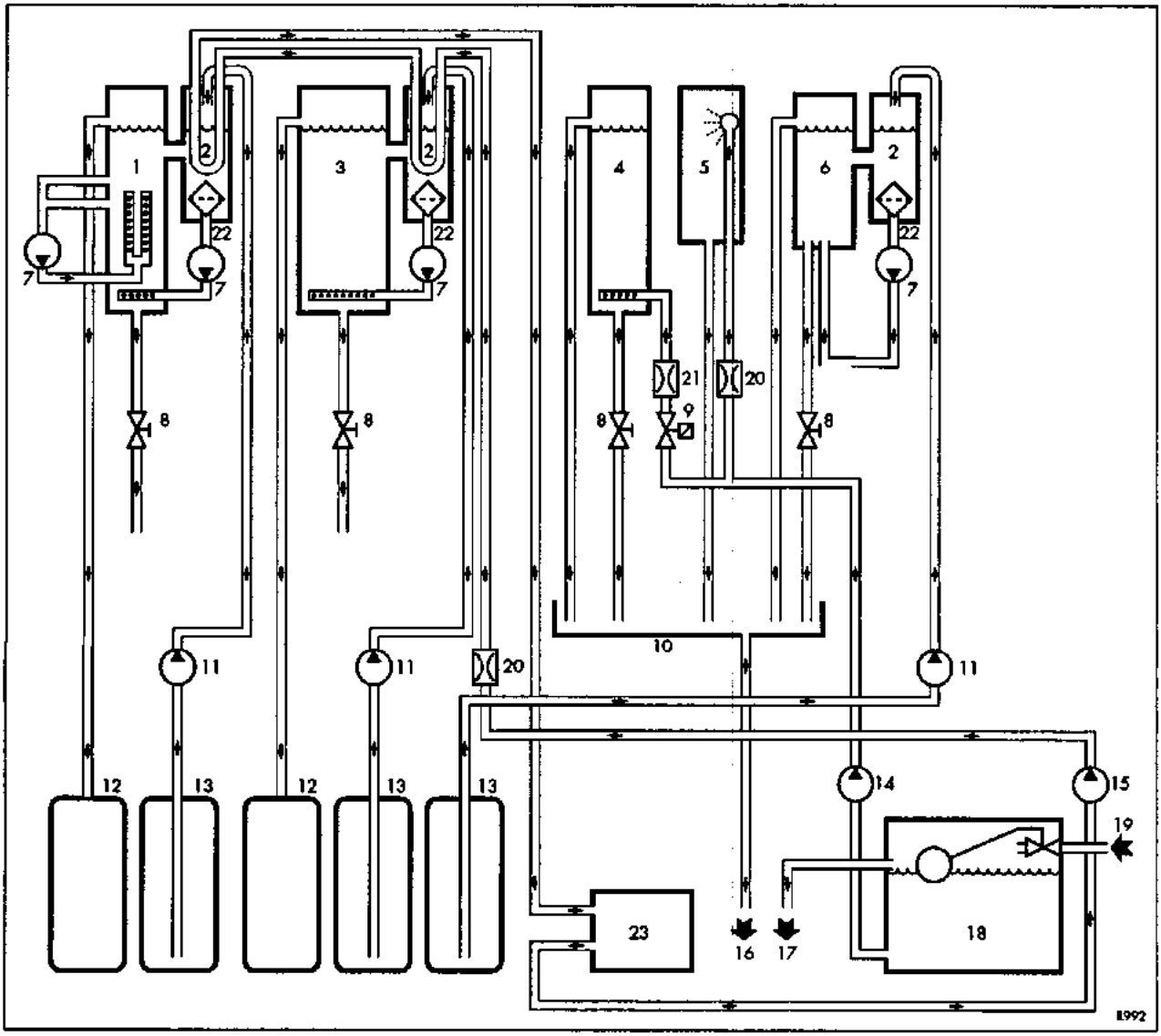


Figure 3.2 System diagram with water cooling unit installed

3.7 MODIFICATIONS

3.7a Processors from Serial number A010078

1 The water supply components are changed to comply with WRC requirements.

3.7b Processors from Serial number A010098

See figure 3.1.

1 On all processors, the flow restrictor on the inlet pipe from the water storage tank to tank WS1, and the wire filter located in the entry port of the wash water solenoid valve are not fitted. The

Figure 3.2

1 Developer working tank
2 Temperature control tank
3 Fixer working tank
4 Wash water tank WS1
5 Water spray tank WS2
6 Rinse solution tank WS3
7 Circulation pump
8 Drain valve
9 Solenoid valve
10 Drain tray
11 Replenishment pump
12 Drain bottle
13 Replenishment bottle
14 Wash water pump
15 Cooling water pump
16 Drain tray overflow
17 Water storage tank overflow
18 Water storage tank
19 Mains water supply
20 Flow restrictor
21 Flow restrictor (60Hz only)
22 Filter
23 Water cooling unit (optional)

water flow is controlled at 4 - 4·5 litres per minute by virtue of the match of the pump to the pipework. On processors operating at 60Hz, the flow restrictor must be fitted by the installer.

Note
At 60Hz the speed of the pump is greater than at 50Hz. This increased speed will generate a greater flow of water than is required.

3.7c Processors from Serial number A010178

1 Drain pipes from the developer and fixer working tanks are extended and attached to the processor frame. This facilitates drainage into suitable containers and prevents solution entering the main drains.

3.7d Processors from Serial number A010188

1 The length of the flexible tube on the float valve in the water storage tank is reduced to meet water regulations.

4
ELECTRICAL SYSTEM

CONTENTS

CAUTION
Before opening the electrical compartment to remove any assemblies, isolate the processor from the electrical mains supply.

4.1 SOLUTION OR DRYER TEMPERATURE ADJUSTMENT

See table 4.5.

After installation of a new CPU board or temperature probes then the temperature as recorded by the machine should be checked against the actual measured temperature of the solutions or dryer. Small adjustments to the recorded temperatures can be made by following this procedure.

Note
Expect a short delay between adjusting the resistor and the associated information being shown on the control panel display.

WARNING
Extreme care should be taken when the processor is switched on and the electrical compartment door is open.

1 Measure the actual temperature of the solution.

2 Select CLEAR

3 Select 9 TEMP DISPLAY

```
CHECK SOLUTION
TEMPERATURES
```

4 Select ▼

```
DEV: SET 00.0°C
ACTUAL 00.0°C
```

To display the set and actual developer temperature

5 Adjust VR27 so that the ACTUAL temperature displayed corresponds with the measured temperature:
The temperature will be raised by turning VR27 clockwise
The temperature will be lowered by turning VR27 anti-clockwise

6 Select ▼

```
FIX: SET 00.0°C
ACTUAL 00.0°C
```

To display the set and actual fixer temperature

7 Adjust VR23 so that the ACTUAL temperature displayed corresponds with the measured temperature:

The temperature will be raised by turning VR23 clockwise
The temperature will be lowered by turning VR23 anti-clockwise

8 Select ▼

DRY: SET 00.0°C
ACTUAL 00.0°C

To display the set and actual dryer temperature

9 Adjust VR16 so that the ACTUAL temperature displayed corresponds with the measured temperature:
The temperature will be raised by turning VR16 clockwise
The temperature will be lowered by turning VR16 anti-clockwise

4.2 FILM DETECTORS

Information from the film detectors controls replenishment, wash water flow, dryer heating, display information, guillotine operation and loading box locking. It is therefore important that the sensitivity of these detectors is set accurately.

Note
If a detector indicates the presence of film without film being present, then the console keyboard will not respond to the operator when the keyboard is operated.

4.3 FILM DETECTOR ADJUSTMENT

See table 4.1.

When new components have been fitted or after contamination of the detectors by chemistry, refer to section 2.6, adjustments to the sensitivity of the film detector settings may be required.

⚠ **WARNING**
Extreme care should be taken when the processor is switched on and the electrical compartment door is open.

1 Open the electrical compartment to give access to the CPU PCB. The 'POWER' and 'DRIVE' switches are on.

2 Load a clear leader into the processor. All relevant LEDs should remain not illuminated.

3 Process a 16mm or 135 or 120/220 film, refer to the ILFOLAB FP40 Operating manual, section 7. The associated LED or combination of LEDs should illuminate when the film is detected, refer to figure 4.11 and table 4.1.

4 If the relevant LED fails to illuminate or remains on after the

passage of the film then the sensitivity of the detectors must be increased or reduced accordingly. For films that are very translucent then the sensitivity must be set more critically, but not to the extent where they will detect the leader.

5 Adjust VR as follows:
The sensitivity will be reduced by turning VR clockwise
The sensitivity will be increased by turning VR anti-clockwise

Table 4.1 Film detectors adjustment - variable resistors and associated LEDs

	Film size	Detector	VR	LED on
Left track	16mm	PT1	VR4	LD2
	135	PT2	VR3	LD2 & LD3
	120/220	PT3	VR5	LD2 & LD3 & LD4
Right track	16mm	PT4	VR6	LD5
	135	PT5	VR8	LD5 & LD6
	120/220	PT6	VR7	LD5 & LD6 & LD7

4.4 MOTOR SPEED CONTROL

The control unit (CON1) for the drive motor (M1) is factory set and no adjustment is possible.

4.5 DRYER STANDBY TEMPERATURE AND SOLUTION TEMPERATURE (MACHINE OFF) DIP SWITCH 1 & 8

See figures 4.11 and 4.12.

CAUTION
The software logic may become corrupted if an attempt is made to change the dip switch settings with the power switched on.

Switch 1 is used to raise the dryer standby temperature above the normal pre-set value of 45°C. This may be necessary in conditions of low environmental temperature that would not allow the dryer to achieve the ideal temperature before the arrival of the film at the dryer. Refer also to the ILFOLAB FP40 Operating manual, section 3.12.

Switch 8 is used to select a pre-programmed machine warm up cycle during control by the machine timer. This may be necessary in conditions of low environmental temperatures <5°C, whilst the machine is not being used. Low temperatures can cause precipitation within the chemistry. All other dip switches 2, 3, 4, 5, 6, 7 have no function on the ILFOLAB FP40.

4.6 ROM 1 - FRENCH, GERMAN AND ITALIAN LANGUAGES

See figure 7.31 and table 4.2.

On delivery the processor is supplied with an English language ROM 1 and control console label. French, German and Italian language labels are provided in the accessories box, the customer can change the label according to their requirements.

1 ROM 1 must be changed so that the display message will be in the appropriate language. Ensure the processor is isolated from the electrical supply before replacing ROM 1, refer to figure 7.31.

Note
Extreme care must be taken when fitting ROM 1 to ensure that no damage occurs to the pins.

Table 4.2 Eproms

		ROM1		ROM2
A010001	English	ROM (1)-E	210BIL-E	ROM (2)
to	Italian	ROM (1)-I	210BIL-I	(210B-6)
A010045	French	ROM (1)-F	210BIL-F	
A010046	English	43-E0821	FP40-E	43-E0820
to	Italian	43-E0822	FP40-I	(FP40-V1.9)
A010077	French	43-E0823	FP40-F	
	German	43-E0824	FP40-G	

ROM2 (FP40-V1.8) was fitted at production but this EPROM will not permit the flow of cooling water during automatic timed start up phase. ROM2 (FP40-V1.9) can be ordered and fitted to allow cooling during timed start up.

A010078	English	43-E0821-1	FP40-E1	43-E0820-1
to	Italian	43-E0822-1	FP40-I1	(FP40-V2.0)
A010177	French	43-E0823-1	FP40-F1	
	German	43-E0824-1	FP40-G1	
A010178	English	43-E0821-3	FP40-E3	43-E0820-2
to	Italian	43-E0822-3	FP40-I3	(FP40-V2.3)
A010187	French	43-E0823-3	FP40-F3	
	German	43-E0824-3	FP40-G3	
A010188	English	43-E0821-3	FP40-E3	43-E0820-3
to	Italian	43-E0822-3	FP40-I3	(FP40-V2.4)
current	French	43-E0823-3	FP40-F3	
	German	43-E0824-3	FP40-G3	

4.7 MODIFICATIONS

4.7a Processors from Serial number A010078

1 The socket outlet to the film winder unit is changed (2-pin round to 3-pin rectangular).

2 ROM 2 is changed so that the display message will show DRAIN BOTTLE FULL and NO WATER SUPPLY.

3 A reed interlock switch is introduced which prevents the processor main drive operating if the processor lid is raised.

4 SSR PCB redesigned to meet electrical standards.

5 Cable gland added to the electrical compartment.

4.7b Processors from Serial number A010098

1 Hinge mounting holes on the CPU PCB door are moved up to lower the door to prevent electrical wires fouling.

4.7c Processors from Serial number A010178

1 The processor control system is changed to allow processing of infra-red film. The TEMP switch is removed and replaced by the DRIVE switch. A protected infra-red switch is introduced. ROM 1, ROM 2 and the SSR PCB are changed.

2 The electrical connections to the water tank are changed. On processors from A010141 to A010178 a clip is used to locate the plug under the dryer. On processors from A010178 the electrical connections are located in the dryer compartment.

4.7d Processors from Serial number A010188

1 Additional rollers are introduced to extend the fix rack, and ROM 2 is changed to compensate for the additional fix time. The path length for the film is increased by 20%

Table 4.3 Key to figure 4.1.
The following is a table of notes which should be read in conjunction with figure 4.1.

	MACHINE OFF
1	The main power switch must be switched on at all times when the processor contains chemistry. The fume extract fans operate to prevent condensation in those areas of the processor which should be kept dry.
2	The processor lid should be held open to reduce condensation.
3	The loading box lid should be left open when a film is not being processed to prevent condensation.
4	If the processor will not be used for more than 8 hours, drain wash water tank WS1 to prevent algal growth.
	AUTO START FROM TIMER
5	With the 'TIMER' switch selected for automatic processor switch on, the water supply must be left on. This will allow the supply of cooling water when the chemistry has reached the set temperature. When ambient conditions are in excess of set temperatures the water supply is used to reduce the solution temperatures.
6	The solutions will warm to the set temperature. In conditions where the set temperature is below the ambient temperature, the heaters will not operate until the cooling system has reduced the solution temperature.
	MANUAL START
7	The wash drain valve is closed during the Start Work procedure. The wash water will run for 10 minutes from start up to ensure WS1 tank is flushed and filled.
7a	The drive motor will only operate if a development time switch is selected ON.
8	The dryer heater will switch on once solutions have reached the set temperatures. The dryer will warm to 45°C, or if DIP switch 1 is selected ON the dryer will heat to the set temperature.
	MACHINE AT STANDBY
9	The heaters and cooling water will cycle as required to hold the solution temperatures within 0·1°C of the set temperatures.
10	The dryer heater will cycle as required to maintain the dryer either at 45°C (normal operation) or at the set temperature (DIP switch 1 selected ON).

INSERT LEADER AND CASSETTE

11 Closing the loading box lid operates MSW1 and lock solenoid (SO1), the lid is locked to prevent inadvertent opening and fogging the film. The leader is drawn into the processor.

12 Film detectors will detect the leading edge of the film and provide the machine logic with information about the number of films attached to the leader, their width and length.

13 When 35mm film is being processed, the dryer heater will raise the temperature of the dryer to the set temperature.

When 120 or 220 film is being processed the dryer temperature will be raised to a temperature of 5°C above the set temperature. The heater will cycle on and off to maintain the temperature.

14 The loading box lock will operate when the lid is closed and the film detected.

INSERT LEADER AND INFRA-RED FILM

15 If infra-red film is being processed then the film detectors must be disabled while the film is in transit past the detectors. If the IR switch is ON the detectors will be switched off as soon as the film is detected.

16 The infra-red detectors will remain in the off condition for a period equivalent to the length of a 36 exposure film. When the film has been extracted from the cassette and the loading box unlocked, the machine will automatically revert to the normal operation of the detectors.

17 Replenishment of chemistry will automatically assume the IR film is 36 exposures in length.

FILM EXTRACTED CASSETTE ADVANCES

18 When all the film has been extracted, the cassette and holder are pulled forward and operate MSW3 (left track) or MSW4 (right track) to operate the left or right cut solenoids (SO2 or SO3).

19 Developer, fixer or rinse solution is replenished after the passage of the equivalent of a 36 exposure length of film or at the end of the passage of a shorter length. The duration of the pumping cycle is determined by the information from the film detectors about the length of the film.

20 The guillotines will operate automatically for 35mm film in cassettes only, on a signal from MSW3 (left track) or MSW4 (right track) or by operation of the manual cut buttons.

Note
The guillotine will not operate when 120 or 220 film is processed.

END OF FILM INTO DEVELOPER

21 The loading box lid can be opened as soon as the lock is released. Another film can then be loaded.

22 The loading box lock is released 5 seconds after the trailing edge of the film has passed the film detectors.

FILM ENTERS WASH WATER

23 The wash water pump (P5) will operate as the film approaches the wash tank and continue operating as film is passing through tanks WS1 and WS2. The start time and duration of water supply is controlled from the information provided by the film detectors.

END OF FILM IN RINSE

24 The wash water pump (P5) will stop when the film has left tank WS2.

LEADER AT EXIT OF DRYER

25 The leader operates MSW2 at the end of the drying path to provide an audible signal which indicates arrival of the processed film.

ALL FILM OUT OF DRYER

26 After the film has passed, the dryer will cool to 45°C or if DIP switch 1 is selected ON maintain the set dryer temperature.

LIFT PROCESSOR LID

27 A reed interlock switch prevents the processor main drive operating if the processor lid is lifted.

SWITCH PROCESSOR OFF

28 The dryer exhaust and main fan will continue to operate for 5 minutes after the processor has been switched off. This will prevent build up of the temperature at the dryer heater.

NO FILM LOW LEVEL DEV/FIX TANK

29 If the developer, fixer or water storage tank levels are low, the associated circulation pump will not operate, this prevents damage to the pump from being run dry.

30 If the developer or fixer tank level is low the associated heater will not operate.

31 If the developer or fixer tank level is low the alarm will sound and the display will show SOLUTION LEVEL LOW.

NO FILM LOW LEVEL WASH TANK

32 If the water level in tank WS1 is low either the drain valve is open or the water supply is not turned on.

33 A low level in the replenishment bottle will not prevent the operation of the replenishment pump, which can operate dry without damage.

34 The alarm will indicate a high level in the drain bottle. If this warning is ignored, chemistry will spill on the floor.

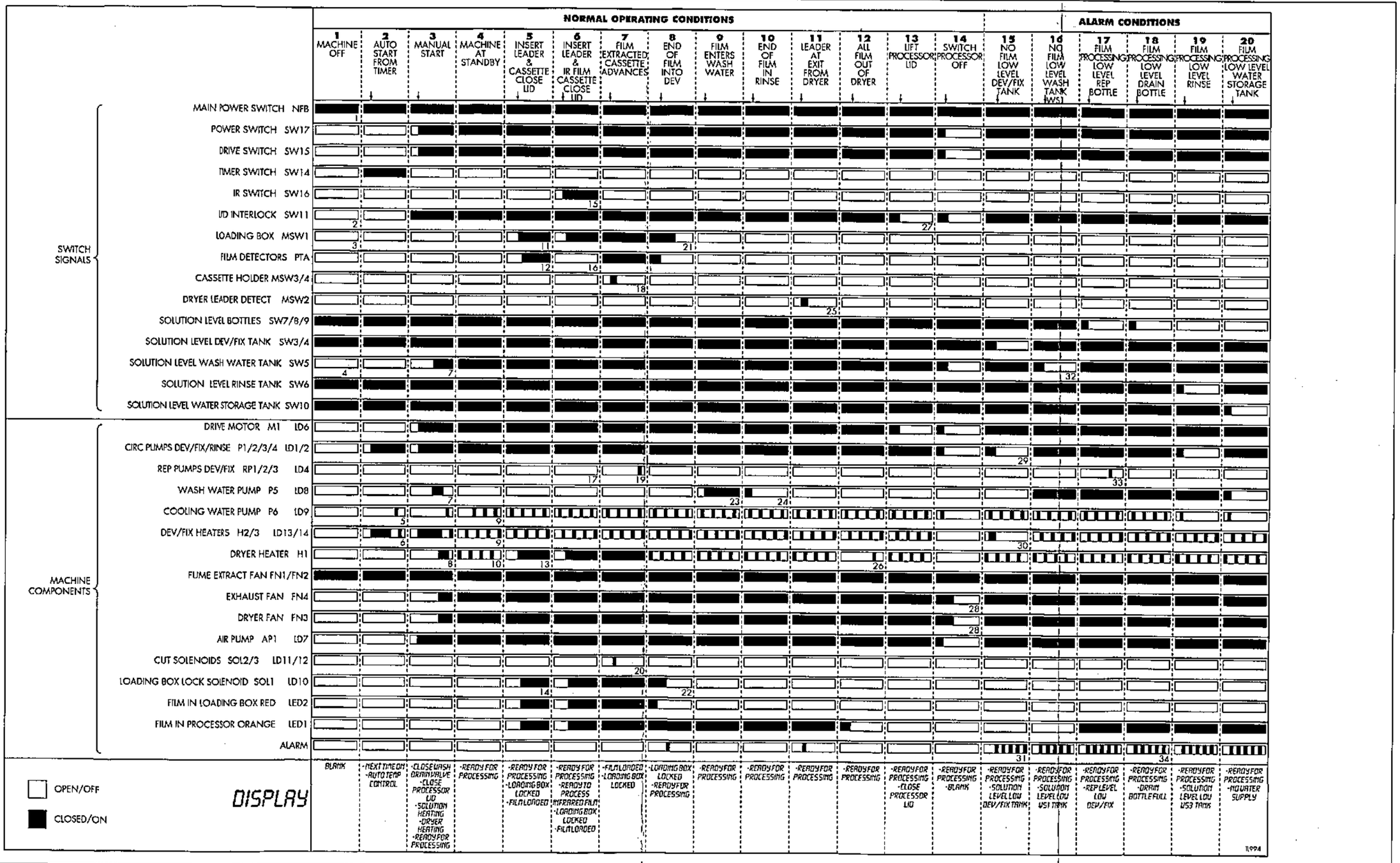


Figure 4.1 Timing diagram

Table 4.4 Fuses

See figure 4.2.

Fuse	Type	Description
F1	250V 15A	Dryer heater (H1)
F2	250V 10A	100V power supply
F3	250V 2A	Dryer fan (FN3)
F4	250V 1A	CPU PCB

Annotations to figure 4.2

AP1	Air pump	SK1	Film winder socket
CON1	Speed controller	SOL1	Lock solenoid
FL1	Noise filter	SOL2	Left cut solenoid
FL2	Noise filter	SOL3	Right cut solenoid
FN1	Cooling fan	SOL4	Wash water solenoid
FN2	Fume extract fan	SW1	Fix drain bottle level switch
FN3	Dryer fan	SW2	Dev drain bottle level switch
FN4	Exhaust fan	SW3	Dev tank level switch
H1	Dryer heater	SW4	Fix tank level switch
H2	Dev heater	SW5	Wash water tank level switch
H3	Fix heater	SW6	Rinse tank level switch
LED1	Running orange	SW7	Dev rep bottle level switch
LED2	Running red	SW8	Fix rep bottle level switch
M1	Drive motor	SW9	Rinse rep bottle level switch
MSW1	Loading box	SW10	Water storage tank level switch
MSW2	Film out	SW11	Lid interlock
MSW3	Left film cut	T1	Transformer
MSW4	Right film cut	TSW1	Dryer heater cutout
NFB	Main power switch	TSW2	Dev heater cutout
P1	Dev circulation pump	TSW3	Fix heater cutout
P2	Fix circulation pump	TH1	Dev temp sensor
P3	Rinse circulation pump	TH2	Fix temp sensor
P4	Dev agitation pump	TH3	Dryer temp sensor
P5	Wash water pump		
REG	Power regulator		
RP1	Dev rep pump		
RP2	Fix rep pump		
RP3	Rinse rep pump		

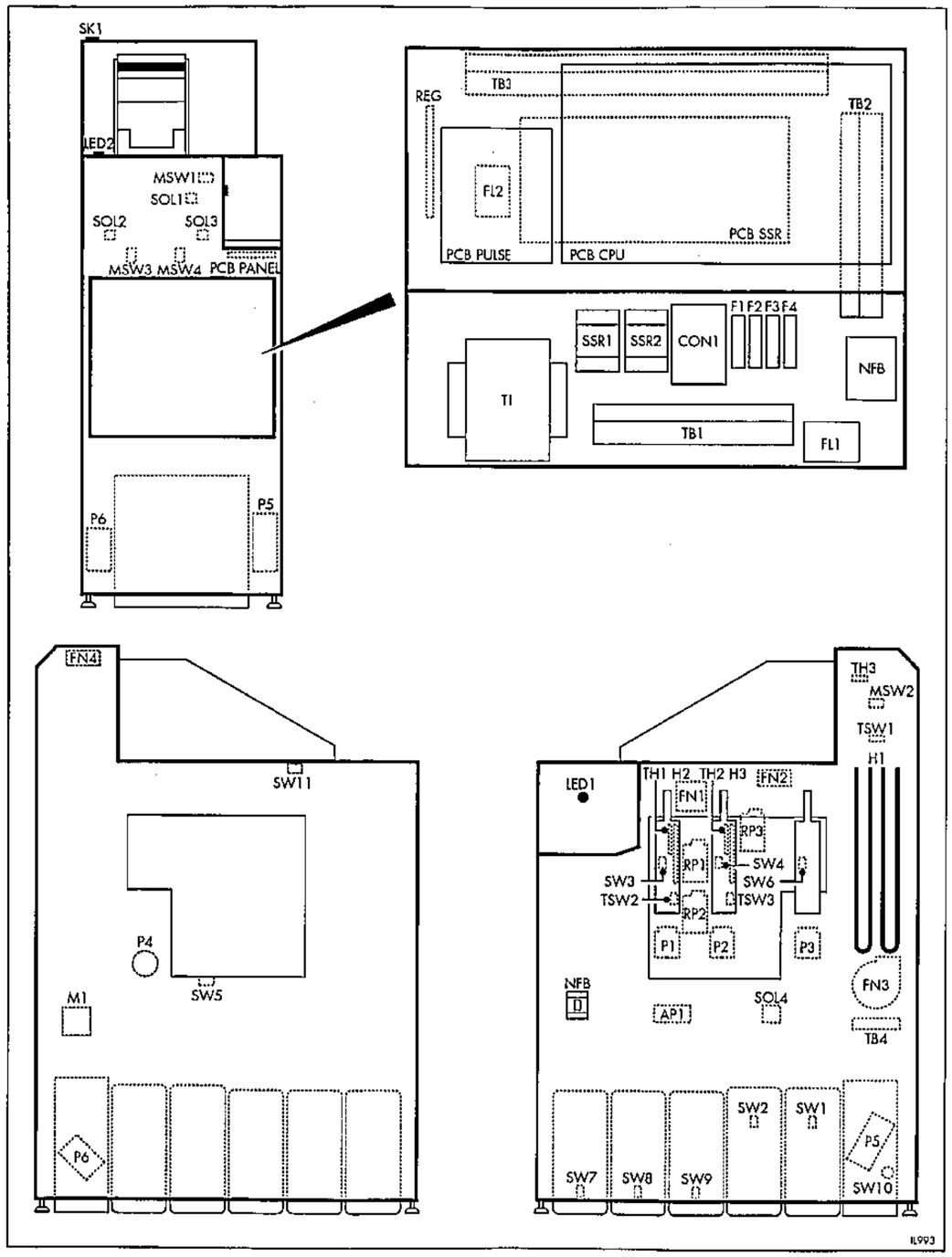


Figure 4.2 Processor - component layout

FROM SERIAL No. A010178 to CURRENT

CON1	SPEED CONTROLLER
FL1	NOISE FILTER
FL2	NOISE FILTER
FN1	COOLING FAN
FN2	FUME EXTRACT FAN
FN3	DRYER FAN
FN4	EXHAUST FAN
H1	DRYER HEATER
H2	DEV HEATER
H3	FIX HEATER
LED1	RUNNING ORANGE
LED2	RUNNING RED
M1	DRIVE MOTOR
M2	WINDING UNIT MOTOR
PS1	PULSE SENSOR
PTA	FILM SENSORS
P1	DEV CIRC PUMP
P2	FIX CIRC PUMP
P3	RINSE CIRC PUMP
P4	DEV AGITATION PUMP
P5	WASH WATER PUMP
P6	COOLING WATER PUMP
REG	POWER REGULATOR
RP1	DEV REP PUMP
RP2	FIX REP PUMP
RP3	RINSE REP PUMP
AP1	AIR PUMP
SK1	FILM WINDER SOCKET
SOL1	LOCK SOLENOID
SOL2	LEFT CUT SOLENOID
SOL3	RIGHT CUT SOLENOID
SOL4	WASH WATER SOLENOID
SW1	FIX DRAIN BOTTLE
SW2	DEV DRAIN BOTTLE
SW3	DEV TANK
SW4	FIX TANK
SW5	WASH WATER TANK
SW6	RINSE TANK
SW7	DEV REP BOTTLE
SW8	FIX REP BOTTLE
SW9	RINSE REP BOTTLE
SW10	WATER STORAGE TANK
SW11	LID INTERLOCK
SW12	CUT RIGHT-MANUAL
SW13	CUT LEFT-MANUAL
SW14	TIMER
SW15	DRIVE
SW16	INFRA RED
SW17	POWER
SW18	DEV TIME SELECTOR
MSW1	LOADING BOX
MSW2	FILM OUT
MSW3	LEFT FILM CUT
MSW4	RIGHT FILM CUT
NFB	MAIN POWER SWITCH
TSW1	DRYER HEATER CUTOUT
TSW2	DEV HEATER CUTOUT
TSW3	FIX HEATER CUTOUT
TH1	DEV TEMP SENSOR
TH2	FIX TEMP SENSOR
TH3	DRYER TEMP SENSOR

Figure 4.3 System CD diagram from A010178 to current

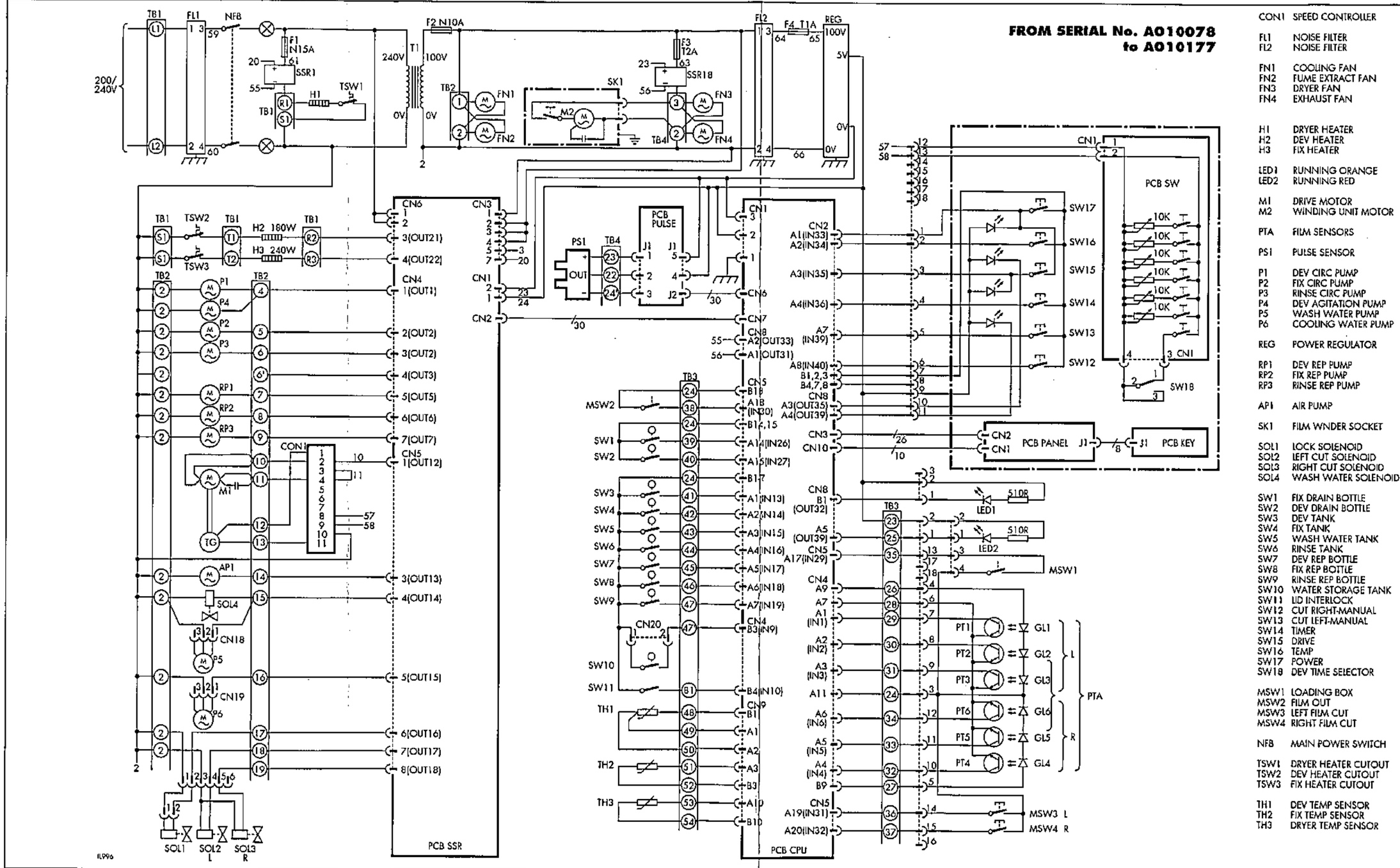
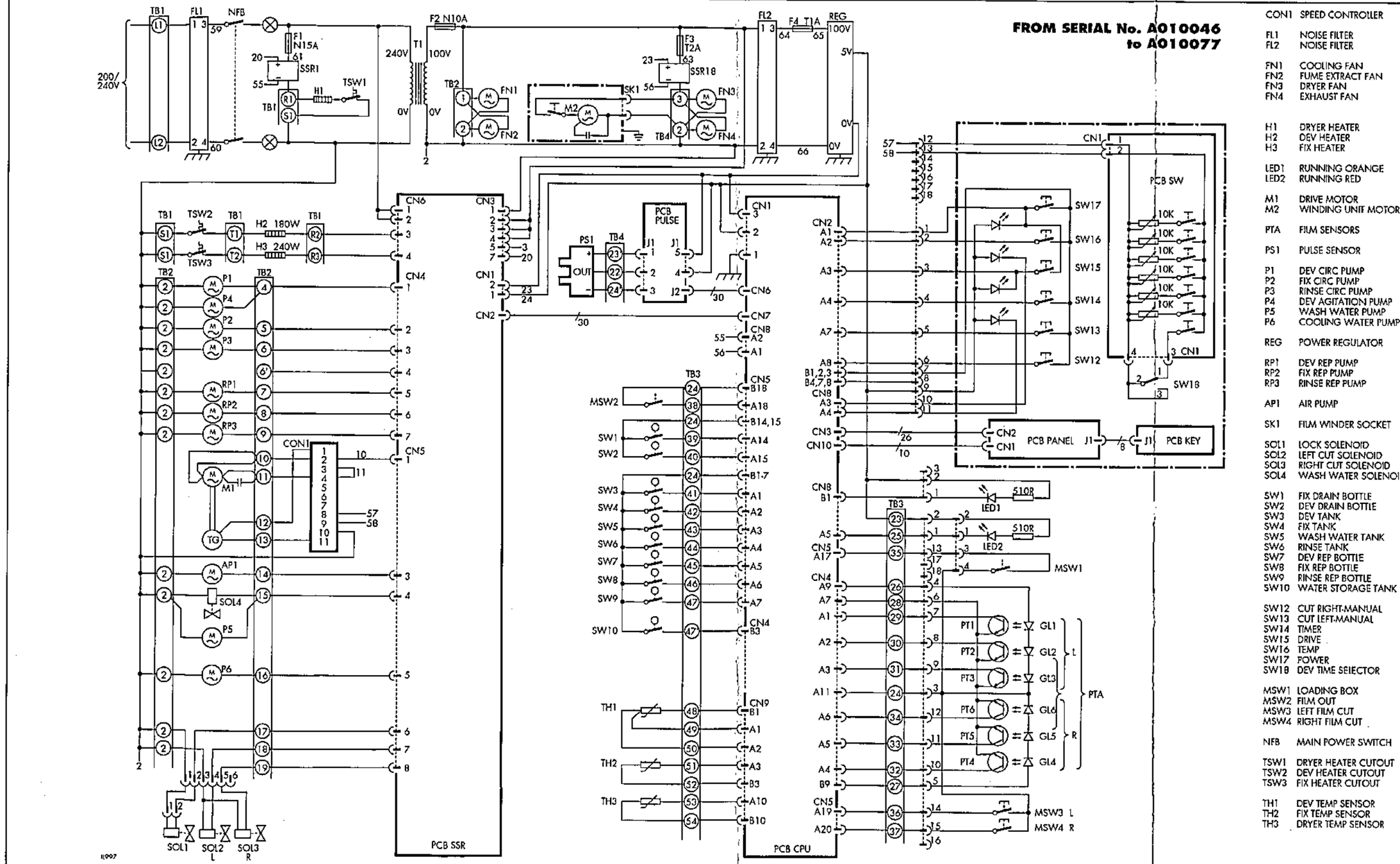


Figure 4.4 System CD diagram from A010078 to A010177

FROM SERIAL No. A010046 to A010077



CON1 SPEED CONTROLLER

FL1 NOISE FILTER
FL2 NOISE FILTER

FN1 COOLING FAN
FN2 FUME EXTRACT FAN
FN3 DRYER FAN
FN4 EXHAUST FAN

H1 DRYER HEATER
H2 DEV HEATER
H3 FIX HEATER

LED1 RUNNING ORANGE
LED2 RUNNING RED

M1 DRIVE MOTOR
M2 WINDING UNIT MOTOR

PTA FILM SENSORS

PS1 PULSE SENSOR

P1 DEV CIRC PUMP
P2 FIX CIRC PUMP
P3 RINSE CIRC PUMP
P4 DEV AGITATION PUMP
P5 WASH WATER PUMP
P6 COOLING WATER PUMP

REG POWER REGULATOR

RP1 DEV REP PUMP
RP2 FIX REP PUMP
RP3 RINSE REP PUMP

AP1 AIR PUMP

SK1 FILM WINDER SOCKET

SOL1 LOCK SOLENOID
SOL2 LEFT CUT SOLENOID
SOL3 RIGHT CUT SOLENOID
SOL4 WASH WATER SOLENOID

SW1 FIX DRAIN BOTTLE
SW2 DEV DRAIN BOTTLE
SW3 DEV TANK
SW4 FIX TANK
SW5 WASH WATER TANK
SW6 RINSE TANK
SW7 DEV REP BOTTLE
SW8 FIX REP BOTTLE
SW9 RINSE REP BOTTLE
SW10 WATER STORAGE TANK

SW12 CUT RIGHT-MANUAL
SW13 CUT LEFT-MANUAL
SW14 TIMER
SW15 DRIVE
SW16 TEMP
SW17 POWER
SW18 DEV TIME SELECTOR

MSW1 LOADING BOX
MSW2 FILM OUT
MSW3 LEFT FILM CUT
MSW4 RIGHT FILM CUT

NFB MAIN POWER SWITCH

TSW1 DRYER HEATER CUTOUT
TSW2 DEV HEATER CUTOUT
TSW3 FIX HEATER CUTOUT

TH1 DEV TEMP SENSOR
TH2 FIX TEMP SENSOR
TH3 DRYER TEMP SENSOR

Figure 4.5 System CD diagram from A010046 to A010077

FROM SERIAL No. A010001 to A010045

CON1 SPEED CONTROLLER

FL1 NOISE FILTER
FL2 NOISE FILTER

FN1 COOLING FAN
FN2 FUME EXTRACT FAN
FN3 DRYER FAN
FN4 EXHAUST FAN

H1 DRYER HEATER
H2 DEV HEATER
H3 FIX HEATER

LED2 RUNNING RED

M1 DRIVE MOTOR

PTA FILM SENSORS

PS1 PULSE SENSOR

P1 DEV CIRC PUMP
P2 FIX CIRC PUMP
P3 RINSE CIRC PUMP
P4 DEV AGITATION PUMP
P5 WASH WATER PUMP

REG POWER REGULATOR

RP1 DEV REP PUMP
RP2 FIX REP PUMP
RP3 RINSE REP PUMP

AP1 AIR PUMP

SK1 FILM WINDER SOCKET

SOL1 LOCK SOLENOID
SOL2 LEFT CUT SOLENOID
SOL3 RIGHT CUT SOLENOID
SOL4 WASH WATER SOLENOID
SOL5 WASH WATER SPRAY SOL
SOL6 WATER COOLING SOL

SW1 FIX DRAIN BOTTLE
SW2 DEV DRAIN BOTTLE
SW3 DEV TANK
SW4 FIX TANK
SW5 WASH WATER TANK
SW6 RINSE TANK
SW7 DEV REP BOTTLE
SW8 FIX REP BOTTLE
SW9 RINSE REP BOTTLE

SW12 CUT RIGHT-MANUAL
SW13 CUT LEFT- MANUAL
SW14 TIMER
SW15 DRIVE
SW16 TEMP
SW17 POWER
SW18 DEV TIME SELECTOR

MSW1 LOADING BOX
MSW2 FILM OUT
MSW3 LEFT FILM CUT
MSW4 RIGHT FILM CUT

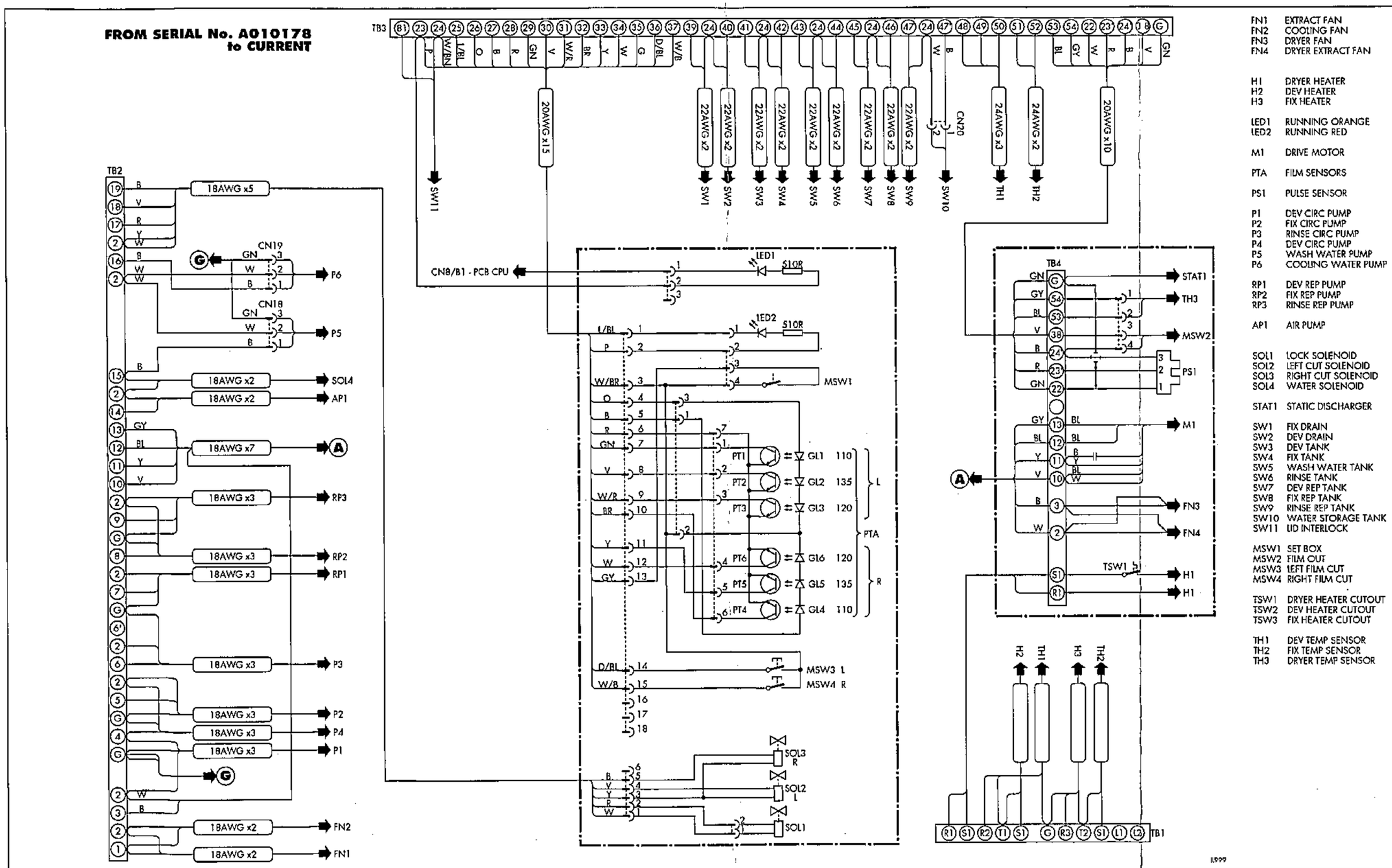
NFB MAIN POWER SWITCH

TSW1 DRYER HEATER CUTOUT
TSW2 DEV HEATER CUTOUT
TSW3 FIX HEATER CUTOUT

TH1 DEV TEMP SENSOR
TH2 FIX TEMP SENSOR
TH3 DRYER TEMP SENSOR

Figure 4.6 System CD diagram from A010001 to A010045

FROM SERIAL No. A010178 to CURRENT



FN1 EXTRACT FAN
FN2 COOLING FAN
FN3 DRYER FAN
FN4 DRYER EXTRACT FAN

H1 DRYER HEATER
H2 DEV HEATER
H3 FIX HEATER

LED1 RUNNING ORANGE
LED2 RUNNING RED

M1 DRIVE MOTOR

PTA FILM SENSORS

PS1 PULSE SENSOR

P1 DEV CIRC PUMP
P2 FIX CIRC PUMP
P3 RINSE CIRC PUMP
P4 DEV CIRC PUMP
P5 WASH WATER PUMP
P6 COOLING WATER PUMP

RP1 DEV REP PUMP
RP2 FIX REP PUMP
RP3 RINSE REP PUMP

AP1 AIR PUMP

SOL1 LOCK SOLENOID
SOL2 LEFT CUT SOLENOID
SOL3 RIGHT CUT SOLENOID
SOL4 WATER SOLENOID

STAT1 STATIC DISCHARGER

SW1 FIX DRAIN
SW2 DEV DRAIN
SW3 DEV TANK
SW4 FIX TANK
SW5 WASH WATER TANK
SW6 RINSE TANK
SW7 DEV REP TANK
SW8 FIX REP TANK
SW9 RINSE REP TANK
SW10 WATER STORAGE TANK
SW11 LID INTERLOCK

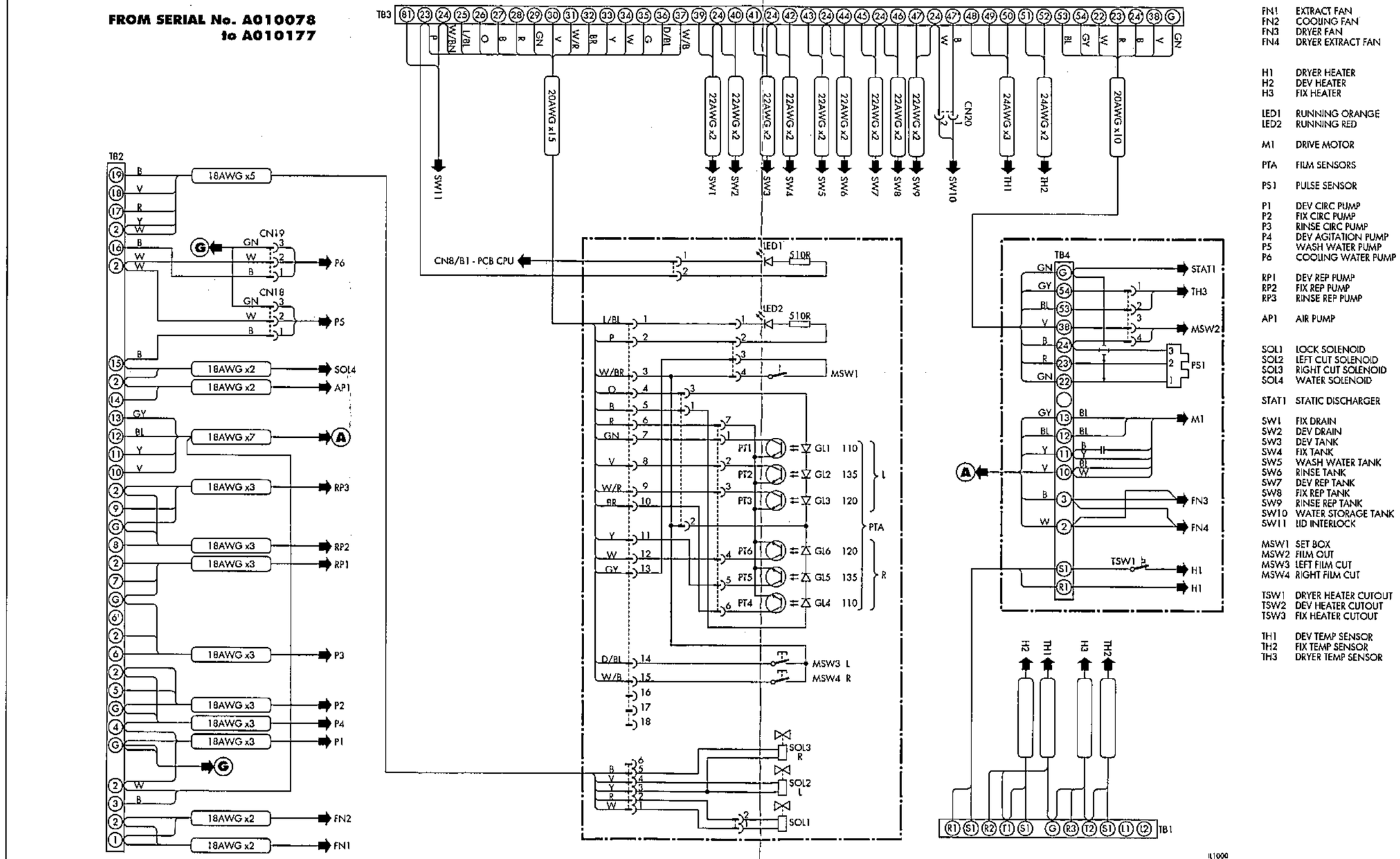
MSW1 SET BOX
MSW2 FILM OUT
MSW3 LEFT FILM CUT
MSW4 RIGHT FILM CUT

TSW1 DRYER HEATER CUTOUT
TSW2 DEV HEATER CUTOUT
TSW3 FIX HEATER CUTOUT

TH1 DEV TEMP SENSOR
TH2 FIX TEMP SENSOR
TH3 DRYER TEMP SENSOR

Figure 4.7 TB interconnection diagram from A010178 to current

FROM SERIAL No. A010078
to A010177



FN1 EXTRACT FAN
FN2 COOLING FAN
FN3 DRYER FAN
FN4 DRYER EXTRACT FAN

H1 DRYER HEATER
H2 DEV HEATER
H3 FIX HEATER

LED1 RUNNING ORANGE
LED2 RUNNING RED

M1 DRIVE MOTOR

PTA FILM SENSORS

PS1 PULSE SENSOR

P1 DEV CIRC PUMP
P2 FIX CIRC PUMP
P3 RINSE CIRC PUMP
P4 DEV AGITATION PUMP
P5 WASH WATER PUMP
P6 COOLING WATER PUMP

RP1 DEV REP PUMP
RP2 FIX REP PUMP
RP3 RINSE REP PUMP

AP1 AIR PUMP

SOL1 LOCK SOLENOID
SOL2 LEFT CUT SOLENOID
SOL3 RIGHT CUT SOLENOID
SOL4 WATER SOLENOID

STAT1 STATIC DISCHARGER

SW1 FIX DRAIN
SW2 DEV DRAIN
SW3 DEV TANK
SW4 FIX TANK
SW5 WASH WATER TANK
SW6 RINSE TANK
SW7 DEV REP TANK
SW8 FIX REP TANK
SW9 RINSE REP TANK
SW10 WATER STORAGE TANK
SW11 LID INTERLOCK

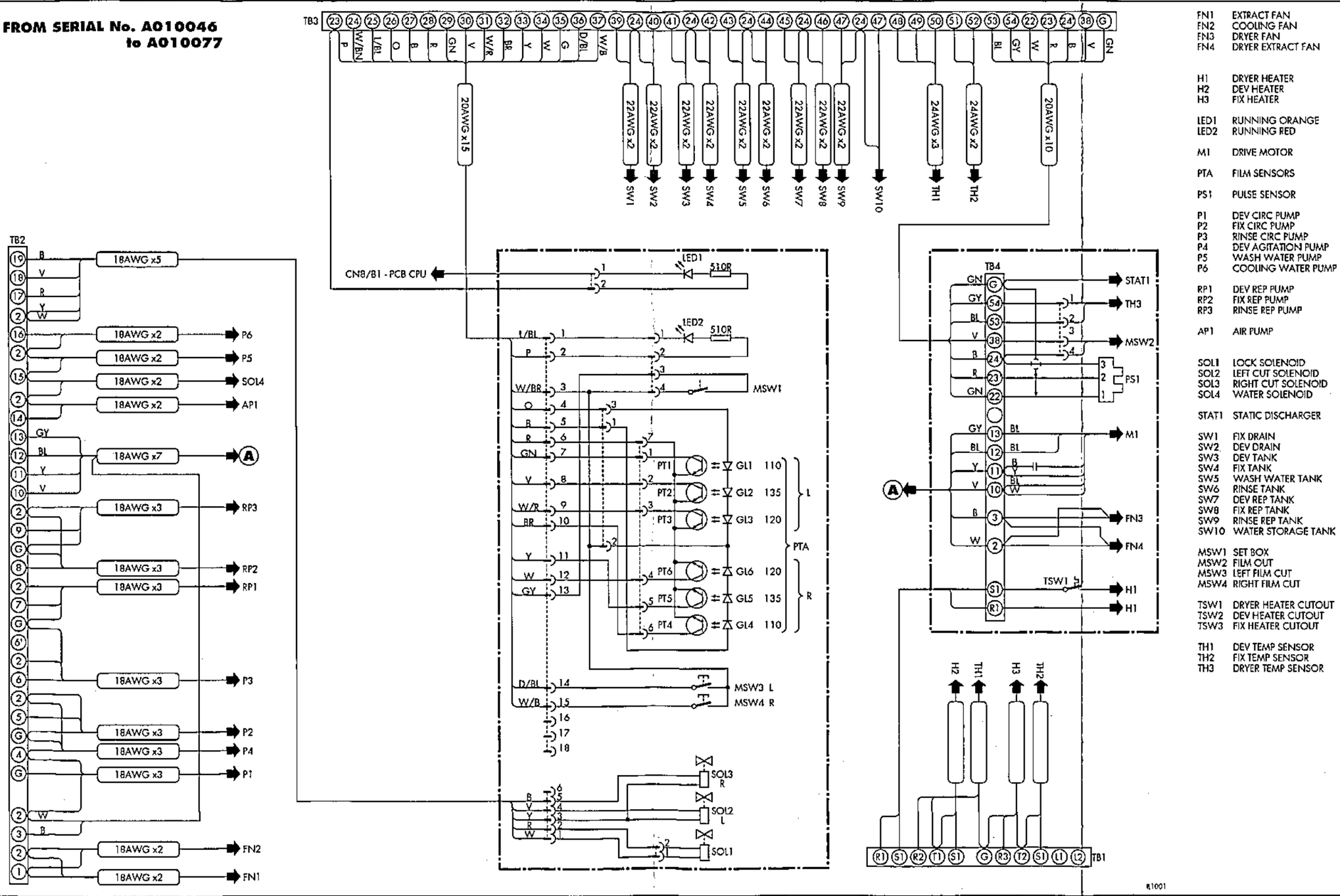
MSW1 SET BOX
MSW2 FILM OUT
MSW3 LEFT FILM CUT
MSW4 RIGHT FILM CUT

TSW1 DRYER HEATER CUTOUT
TSW2 DEV HEATER CUTOUT
TSW3 FIX HEATER CUTOUT

TH1 DEV TEMP SENSOR
TH2 FIX TEMP SENSOR
TH3 DRYER TEMP SENSOR

Figure 4.8 TB interconnection diagram from A010078 to A010177

FROM SERIAL No. A010046 to A010077



FN1 EXTRACT FAN
FN2 COOLING FAN
FN3 DRYER FAN
FN4 DRYER EXTRACT FAN

H1 DRYER HEATER
H2 DEV HEATER
H3 FIX HEATER

LED1 RUNNING ORANGE
LED2 RUNNING RED

M1 DRIVE MOTOR

PTA FILM SENSORS

PS1 PULSE SENSOR

P1 DEV CIRC PUMP
P2 FIX CIRC PUMP
P3 RINSE CIRC PUMP
P4 DEV AGITATION PUMP
P5 WASH WATER PUMP
P6 COOLING WATER PUMP

RP1 DEV REP PUMP
RP2 FIX REP PUMP
RP3 RINSE REP PUMP

AP1 AIR PUMP

SOL1 LOCK SOLENOID
SOL2 LEFT CUT SOLENOID
SOL3 RIGHT CUT SOLENOID
SOL4 WATER SOLENOID

STAT1 STATIC DISCHARGER

SW1 FIX DRAIN
SW2 DEV DRAIN
SW3 DEV TANK
SW4 FIX TANK
SW5 WASH WATER TANK
SW6 RINSE TANK
SW7 DEV REP TANK
SW8 FIX REP TANK
SW9 RINSE REP TANK
SW10 WATER STORAGE TANK

MSW1 SET BOX
MSW2 FILM OUT
MSW3 LEFT FILM CUT
MSW4 RIGHT FILM CUT

TSW1 DRYER HEATER CUTOUT
TSW2 DEV HEATER CUTOUT
TSW3 FIX HEATER CUTOUT

TH1 DEV TEMP SENSOR
TH2 FIX TEMP SENSOR
TH3 DRYER TEMP SENSOR

Figure 4.9 TB interconnection diagram from A010046 to A010077

FROM SERIAL No. A010001 to A010045

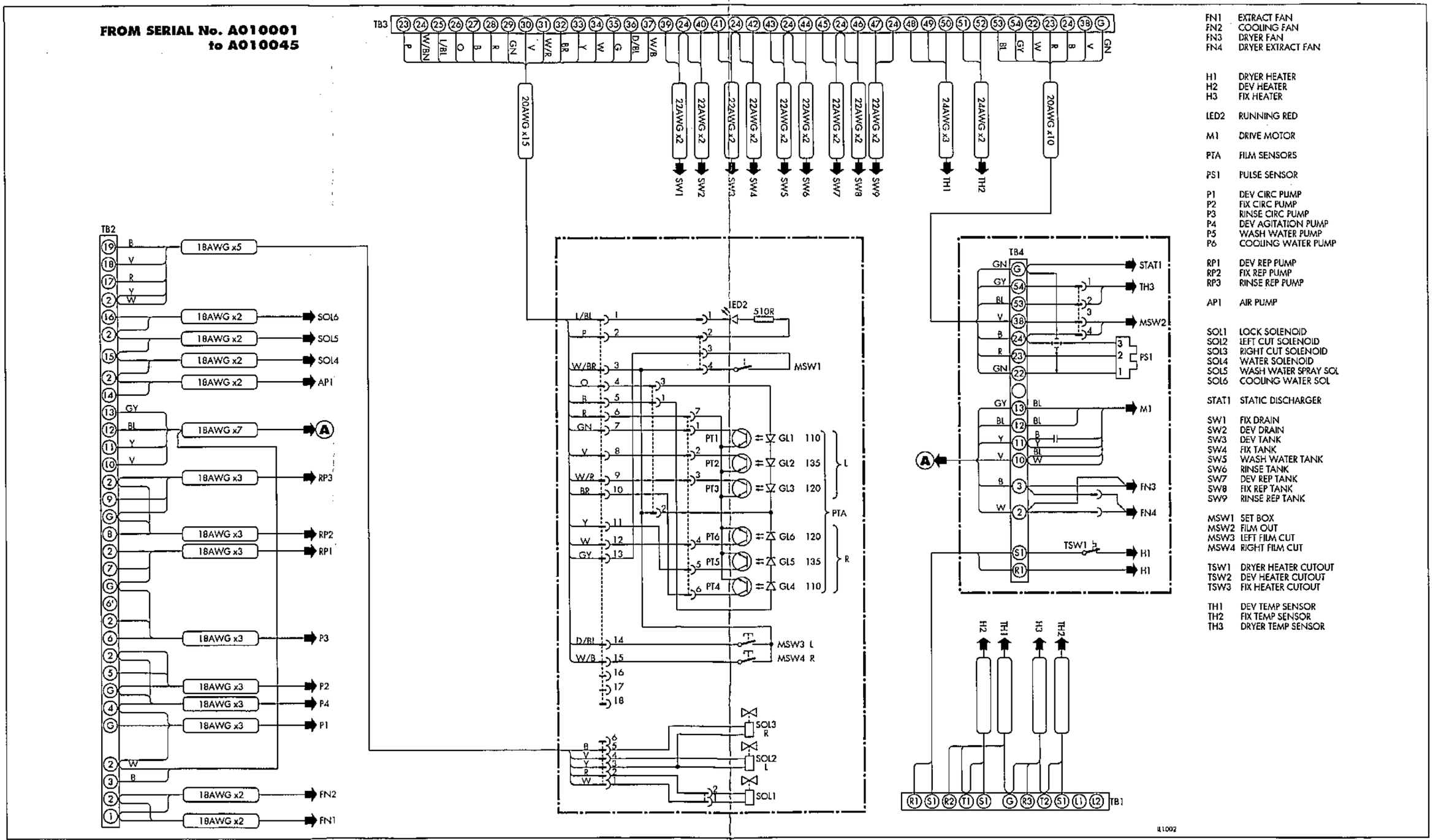


Figure 4.10 TB interconnection diagram from A010001 to A010045

Table 4.5 CPU variable resistors and associated LEDs

See figure 4.11.

VR	LED on	Adjustment
VR1		No adjustment
VR2		No adjustment
VR3	LD3	Left track 135 film detection sensitivity
VR4	LD2	Left track 16mm film detection sensitivity
VR5	LD4	Left track 120 film detection sensitivity
VR6	LD5	Right track 16mm film detection sensitivity
VR7	LD7	Right track 120 film detection sensitivity
VR	LED on	Adjustment
VR8	LD6	Right track 135 film detection sensitivity
VR9	LD8	Not used
VR10	LD9	Not used
VR11	LD11	Not used
VR12	LD10	Not used
VR13	LD12	Not used
VR14	LD13	Not used
VR15		Not used
VR16		Dryer real temp minor adjustment
VR17		Not used
VR18		Not used
VR19		Not used
VR20		Not used
VR21		Not used
VR22		Not used
VR23		Fix real temp minor adjustment
VR24		No adjustment
VR25		No adjustment
VR26		No adjustment
VR27		Dev real temp minor adjustment
VR28		No adjustment

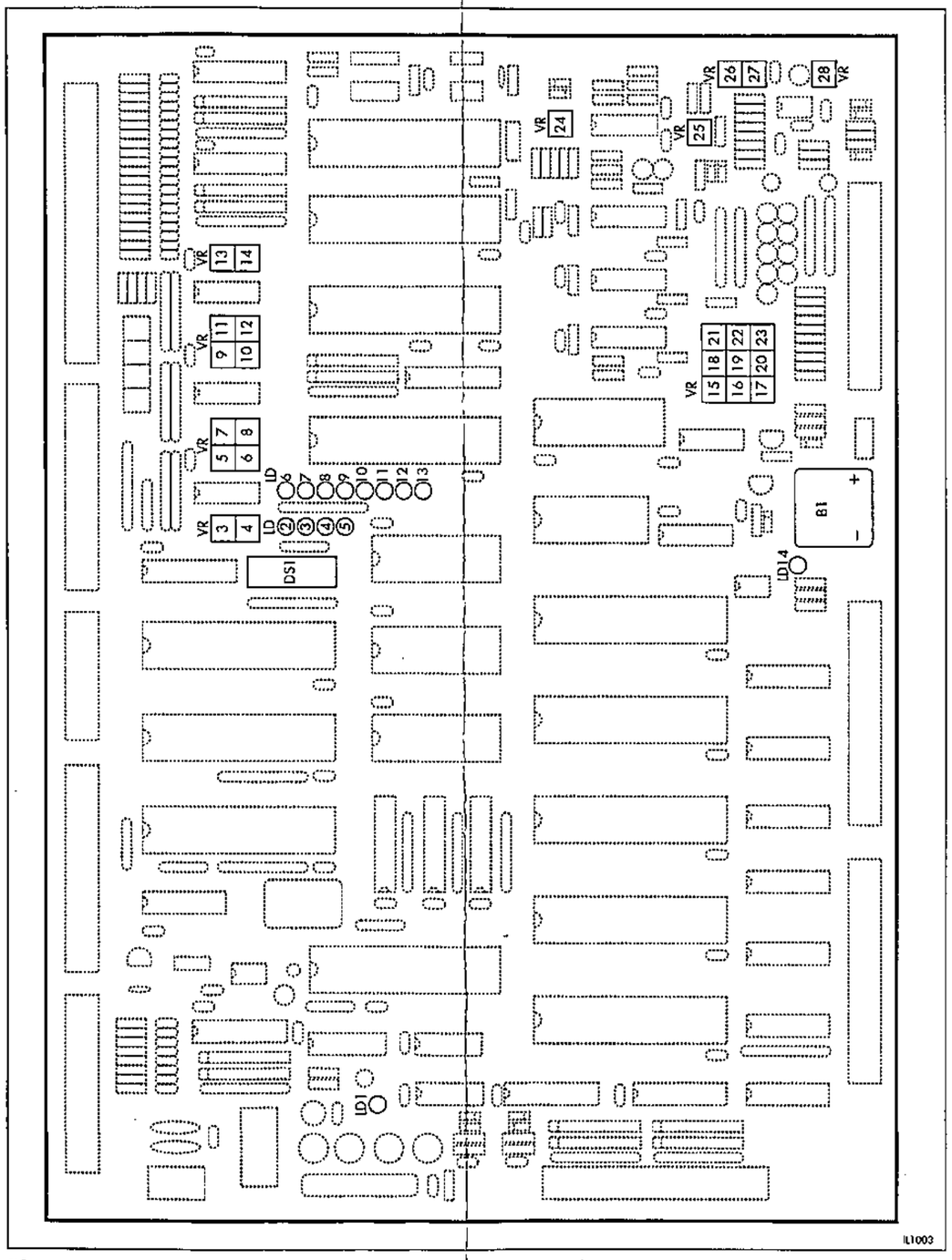


Figure 4.11 CPU PCB - component layout

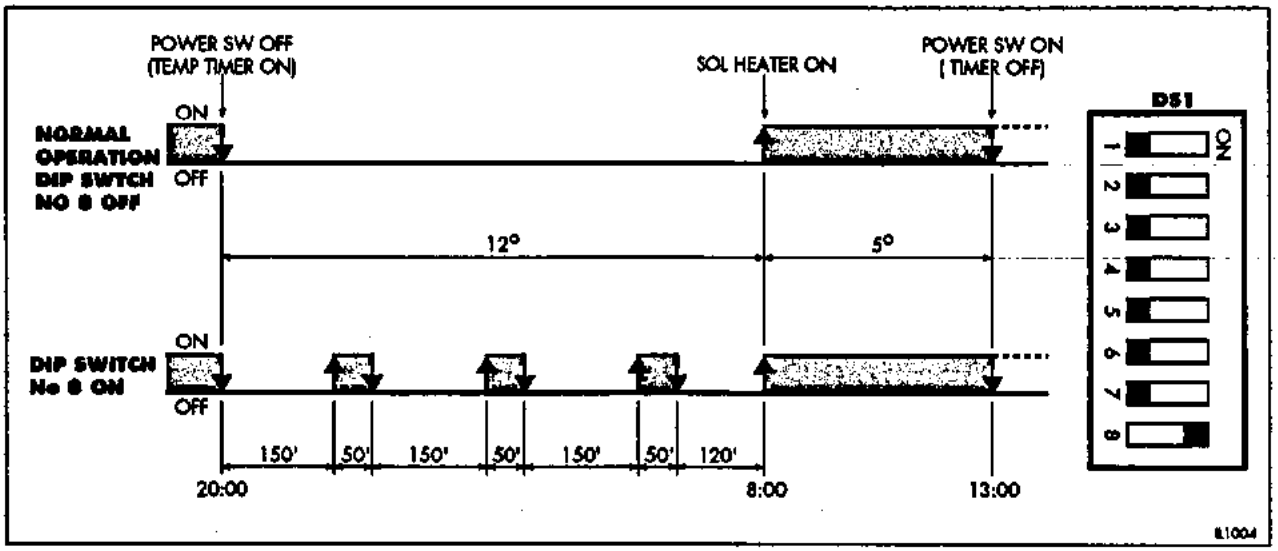


Figure 4.12 Dip switch 8 operation

Table 4.6 SSR LEDs

See figure 4.13.

SSR	LED on	Operating component
SSR2	LD1	Dev pump (P1)
SSR3	LD2	Fix and WS3 pumps (P2, P3)
SSR4	LD3	Not used
SSR5	N/A	Dev rep pump (RP1)
SSR6	N/A	Fix rep pump (RP2)
SSR7	LD4	WS3 rep pump (RP3)
SSR8	LD5	Not used
SSR9	LD6	Drive motor (M1)
SSR10	LD7	Air pump (CO)
SSR11	LD8	Water solenoid valve (SOL4) and water pump (P5)
SSR12	LD9	Cooling pump (P6)
SSR13	LD10	Lock solenoid (SO1)
SSR14	LD11	Left guillotine solenoid (SO2)
SSR15	LD12	Right guillotine solenoid (SO3)
SSR16	LD13	Dev heater (H2)
SSR17	LD14	Fix heater (H3)

5
ROUTINE MAINTENANCE

CONTENTS

5.1 INTRODUCTION

Cleaning is the only regular maintenance required on the processor, full details are given in the ILFOLAB FP40 Operating manual, section 10.

5.2 MAINTENANCE

1 Check the operation of the film detectors. Process a 16mm, 135, 120/220 film, observe the operation of the appropriate LEDs, refer to section 4, table 4.5. Adjust the associated variable resistor if necessary, refer to section 4.5.

2 Check the guillotine cut quality. Clean or replace the guillotine blade, refer to section 2.6 and figure 7.6.

3 If required, lubricate the drive chain with general purpose light machine oil.

4 Check the operation of the solution and air distribution pipes and the spray bar. The components can be removed and cleaned, refer to sections 3.1, 3.2 and 3.3.

5 If processing irregularities suggest that there is a difference between actual and displayed temperatures, check and adjust the display to record the actual temperatures as independently measured.

6
FAULT FINDING

CONTENTS

Figure	**Description**	

FAULT FINDING

Before commencing fault finding, refer to the relevant diagnostic operation diagram or abnormal condition diagram to check operation of the processor. LEDs and variable resistors on the CPU PCB and SSR PCB are used to check operation of components, refer to section 4 for more information.

	Symptom	Possible cause	Remedy
1	**Solution temperature does not rise**	Fuse FS2 (dev heater, 5A) or Fuse FS2 (fix heater, 5A) blown	Replace fuse
		Damaged heater element	Check for physical damage and electrical continuity. Replace element. See figures 7.12 and 7.13
		Faulty electrical connection, particularly at heater	Check all connections
		Faulty SSR16 (LD13 should be lit when dev heater is operating) or SSR17 (LD14 should be lit when fix heater is operating)	Replace SSR PCB
		Faulty temperature sensor	Replace, see figures 7.12 and 7.13
		Faulty CPU board	Replace CPU board
		Thermal cut-out has operated	Allow to cool
2	**Solution temperature does not fall**	Storage tank water more than 20°C	Reduce temperature of incoming water
		Faulty cooling water circulation pump (P6)	Replace
		Fuse FS3 (circulation pumps) blown	Replace fuse
		Faulty circulation pump	Replace, see figure 7.11
		Faulty SSR16 or SSR17	Replace SSR PCB
		Faulty temperature control thermistor (TH1 dev: TH2 fix)	Replace, see figures 7.12 and 7.13

	Symptom	Possible cause	Remedy
		Faulty CPU board	Replace CPU board
		Faulty water cooling unit (optional)	Investigate
		Faulty temperature sensor	Replace, see figures 12 and 7.13
		Thermal cut-out open circuit	Allow to cool
3	**Solution temperature fluctuates**	Dirty filter element	Replace element OM 10.3b
		No circulation of solutions	Check circulation pump
			Dev circulation pump fuse FS3 blown, replace
			Fix circulation pump fuse FS3 blown, replace
			Rinse solution circulation pump fuse FS3 blown, replace
		Temperature control sensor thermistor or cooling pipe touching the heater	Adjust position
		Faulty electrical connection, particularly at heater	Check all connections
		Faulty CPU board	Replace CPU board
		Faulty temperature sensor	Replace, see figures 7.12 and 7.13
		Thermal cut-out has operated	Allow to cool
4	**No drive**	Fuse FS5 blown	Replace
		Faulty SSR9	Replace SSR PCB
		Faulty drive motor	Replace, see figure 7.8
5	**Circulation pump overheats**	Dirty filter element	Replace element OM 10.3b
		Note The circulation pumps run safely at temperatures up to 55°C	

	Symptom	Possible cause	Remedy
6	**Scratches on film**	Velvet surfaces in loading box contaminated	Wash velvet surfaces. See section 2.6
		Rollers in loading box dirty/damaged	Clean/replace. See section 2.6 and figure 7.7
		Dirty/damaged rollers	Clean racks. See OM section 10. Replace roller cover. See section 2.7
		Dirty solution	Drain tank and refill, OM sections 9 and 4.9
7	**No replenishment**	Air lock in replenishment system	Reposition hoses to remove air lock
		Dirty or sticking non return valve in rep pump	Clean valves, replace as necessary
		Kinked pipework	Reposition pipework
		Faulty replenishment pump	Clean pump. Replace as necessary, see figure 7.11 See symptom 9
8	**Replenishment pump does not operate**	Faulty SSR5, SSR6, SSR7	Replace SSR PCB
		Faulty replenishment pump	Replace, see figure 7.11
		Faulty CPU board	Replace CPU board
9	**Continuous replenishment**	Film sensor LEDs dirty	Clean, see section 2.6. Adjust sensitivity, see section 4.5
10	**Dryer temperature does not rise**	Fuse FS1 blown	Replace
		Damaged heater element	Replace, see figure 7.30
		Faulty heater circuit contacts	Check and tighten all connections
		Faulty SSR1	Replace
		Thermal cut out (Bi1) open circuit	Allow to cool

	Symptom	Possible cause	Remedy
		Faulty temperature control	Replace thermistor (TH3)
		Faulty CPU board	Replace CPU board
11	**Dryer temperature too high**	Faulty CPU board	Replace CPU board
		Faulty temperature control	Replace thermistor (TH3)
		Faulty SSR1	Replace
12	**Dryer fan does not operate**	Fuse FS3 blown	Replace
		Faulty fan motor	Replace, see figure 7.30
		Faulty SSR18	Replace
13	**Loss of pre-programmed information in a power supply failure or after power turned off for more than 3 months**	Back-up battery discharged	Switch processor on and input data, see OM section 2
14	**Infra-red film fogged**	Faulty CPU board	Replace CPU board
		IR switch not selected	Operate IR switch on control panel
		Faulty SSR board	Replace

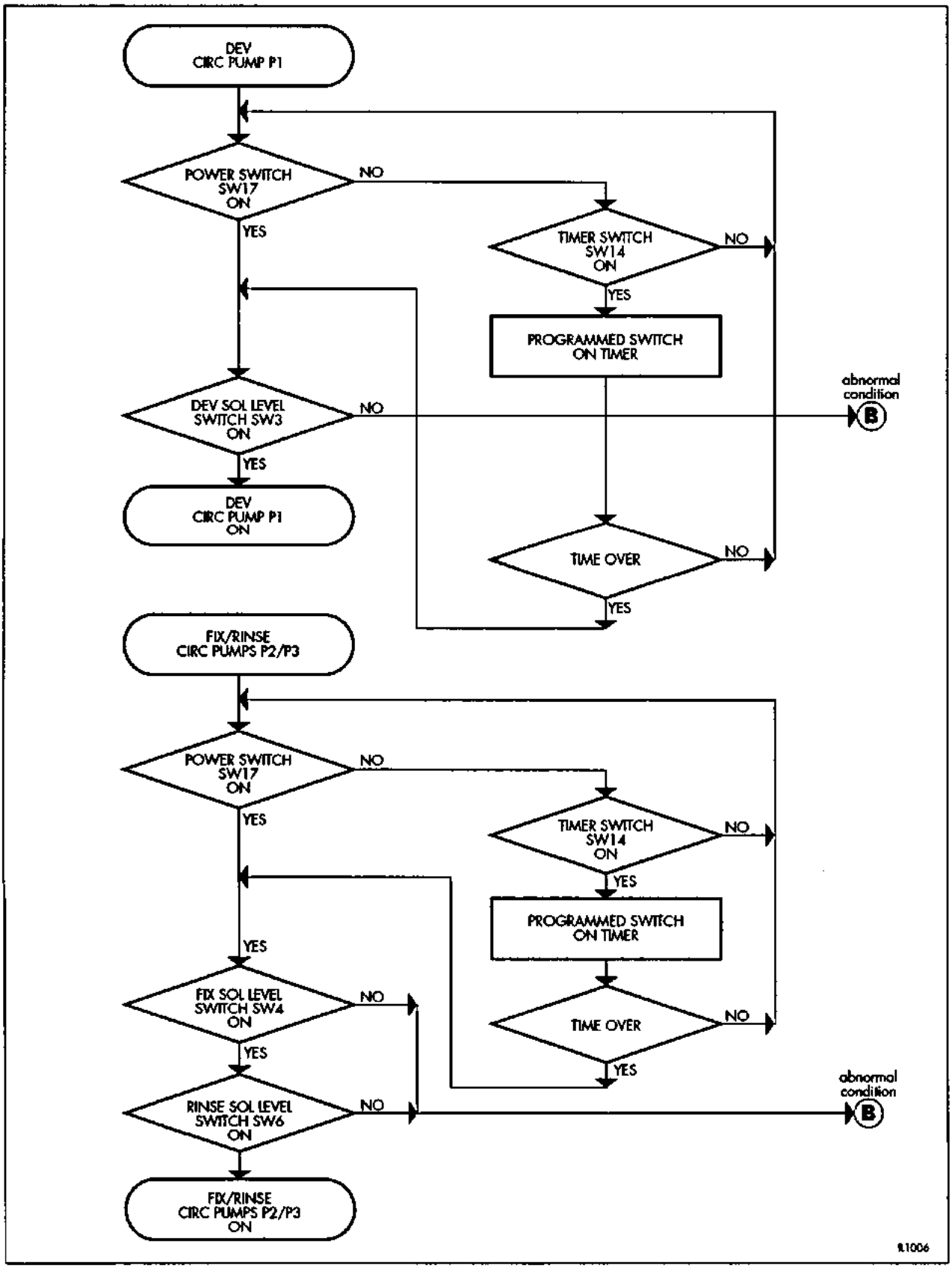


Figure 6.1 Diagnostic operation diagram - circulation pumps (P1/P2/P3)

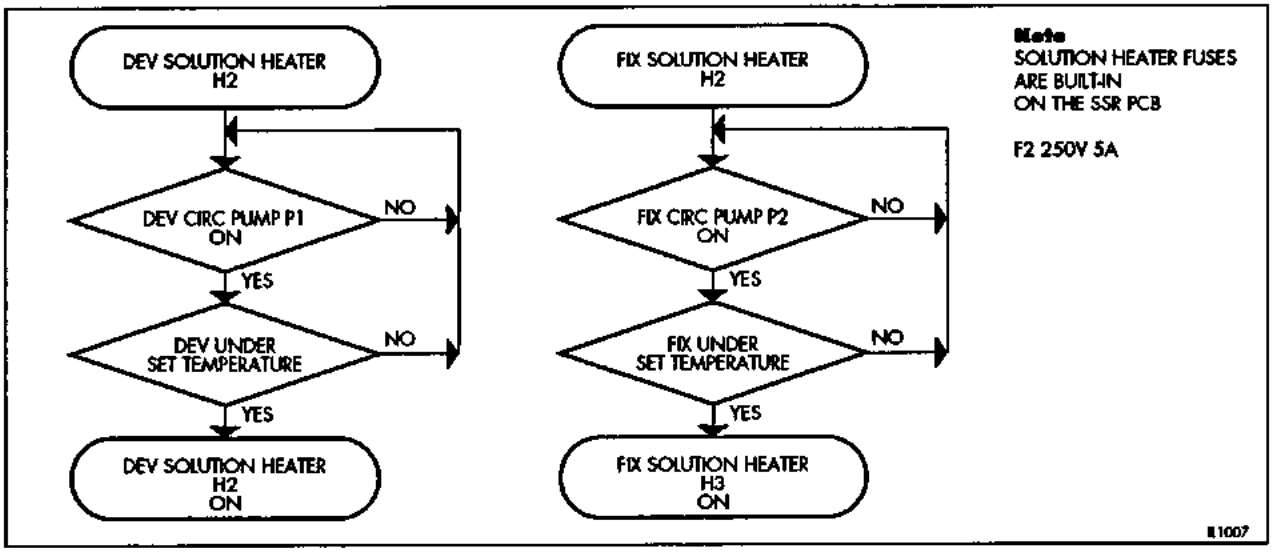


Figure 6.2 Diagnostic operation diagram - solution heaters (H2/H3)

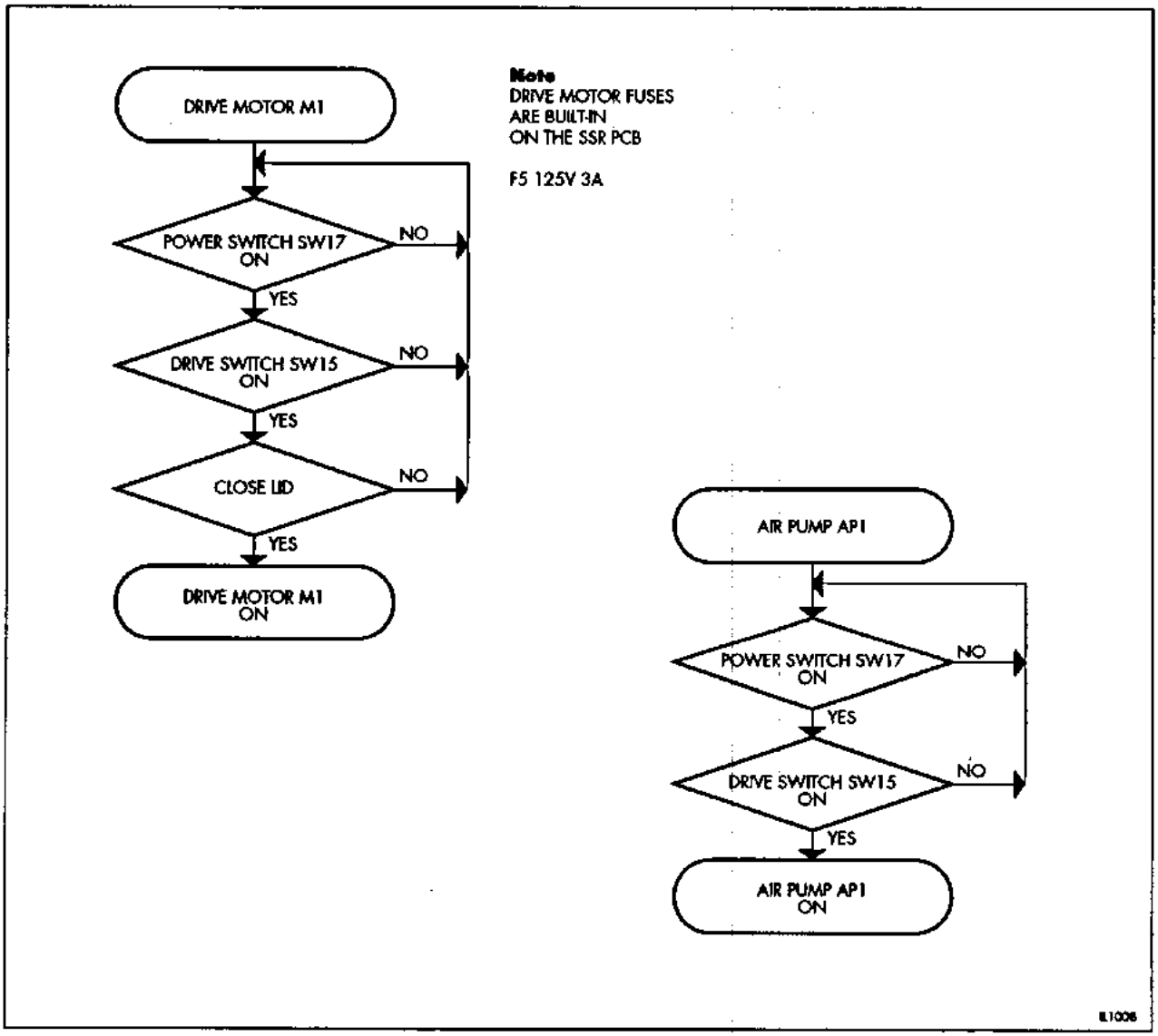


Figure 6.3 Diagnostic operation diagram - drive motor/air pump (M1/AP1)

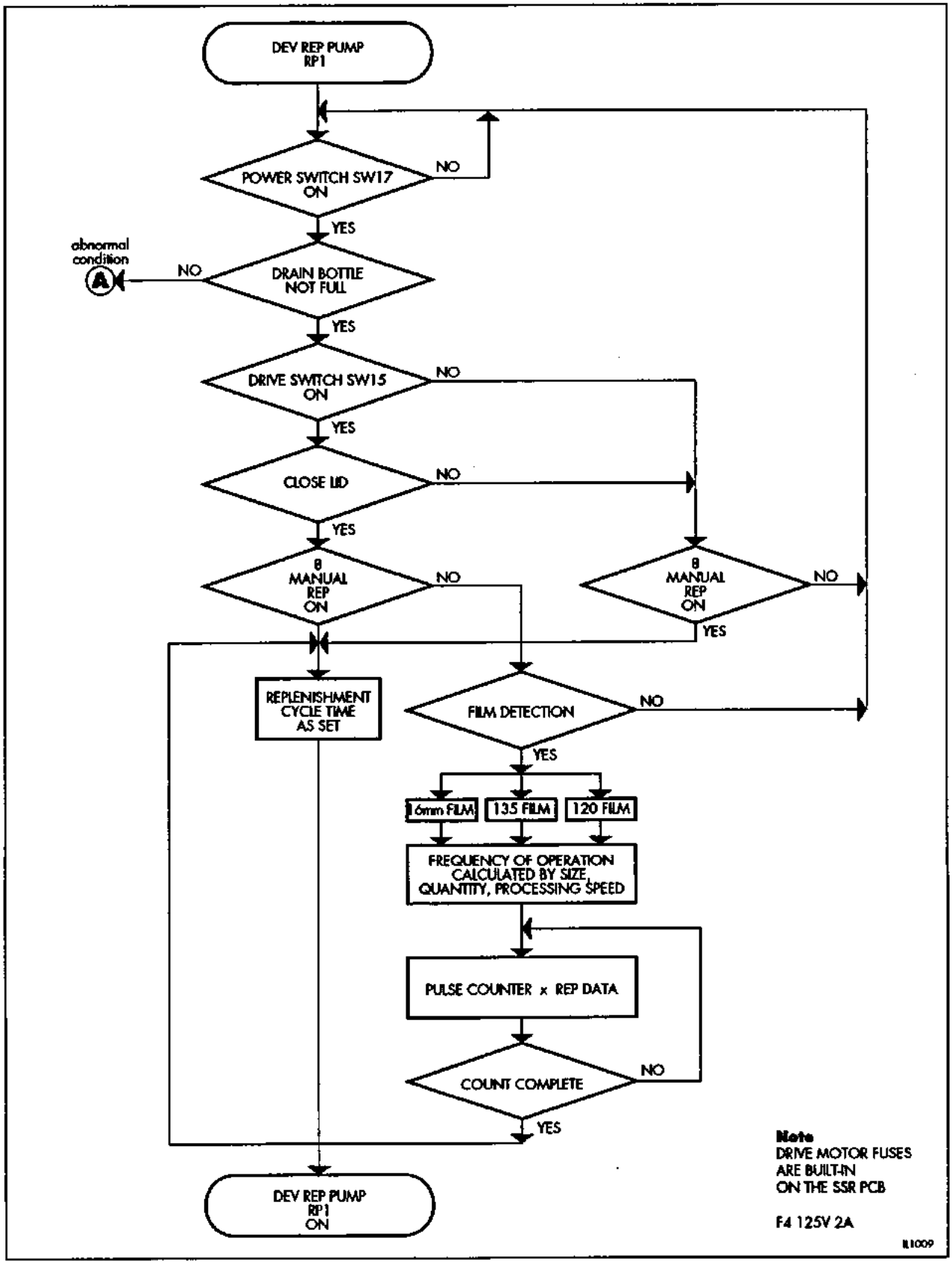


Figure 6.4 Diagnostic operation diagram - dev rep pump RP1

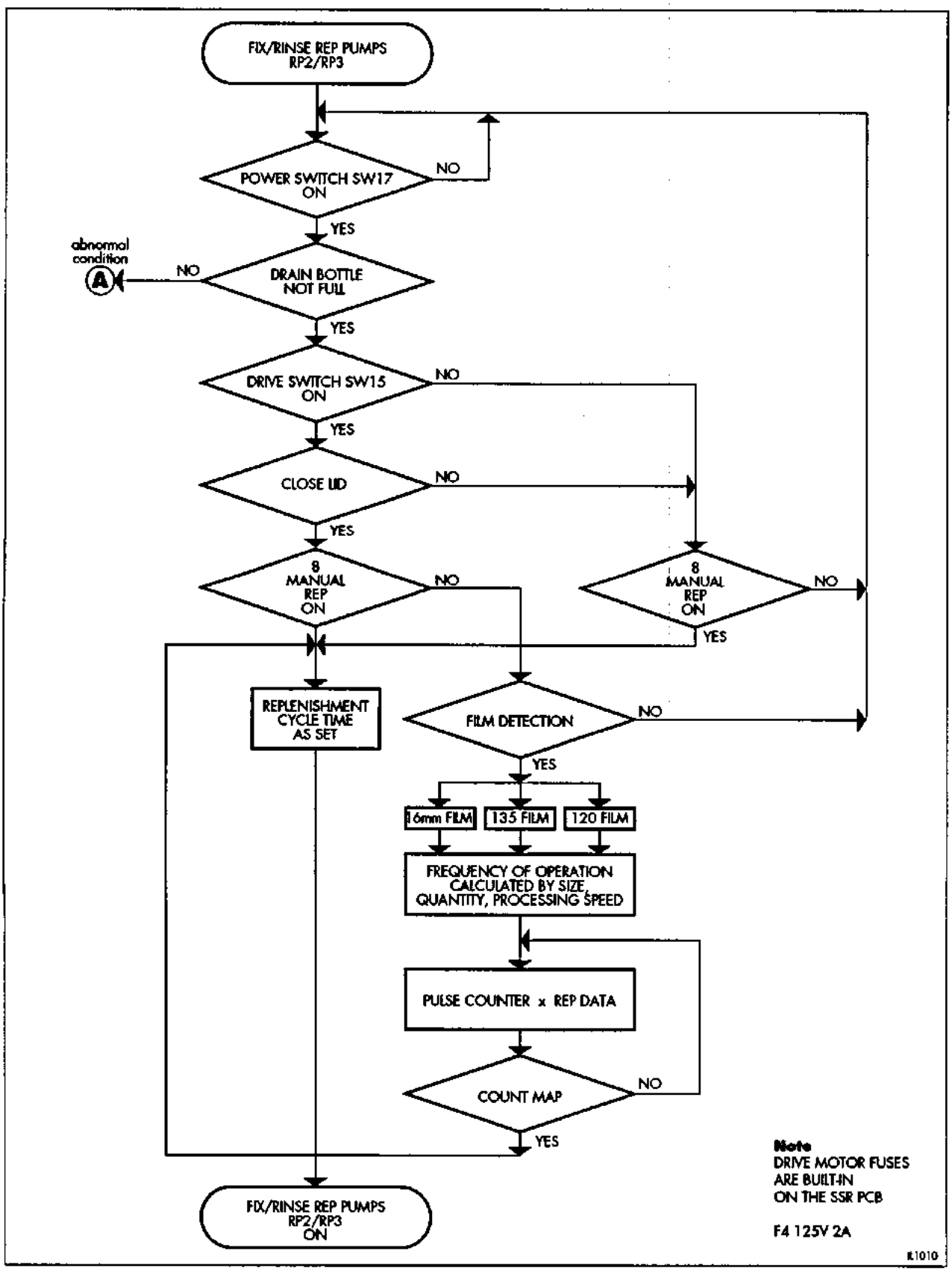


Figure 6.5 Diagnostic operation diagram - fix/rinse rep pump (RP2/RP3)

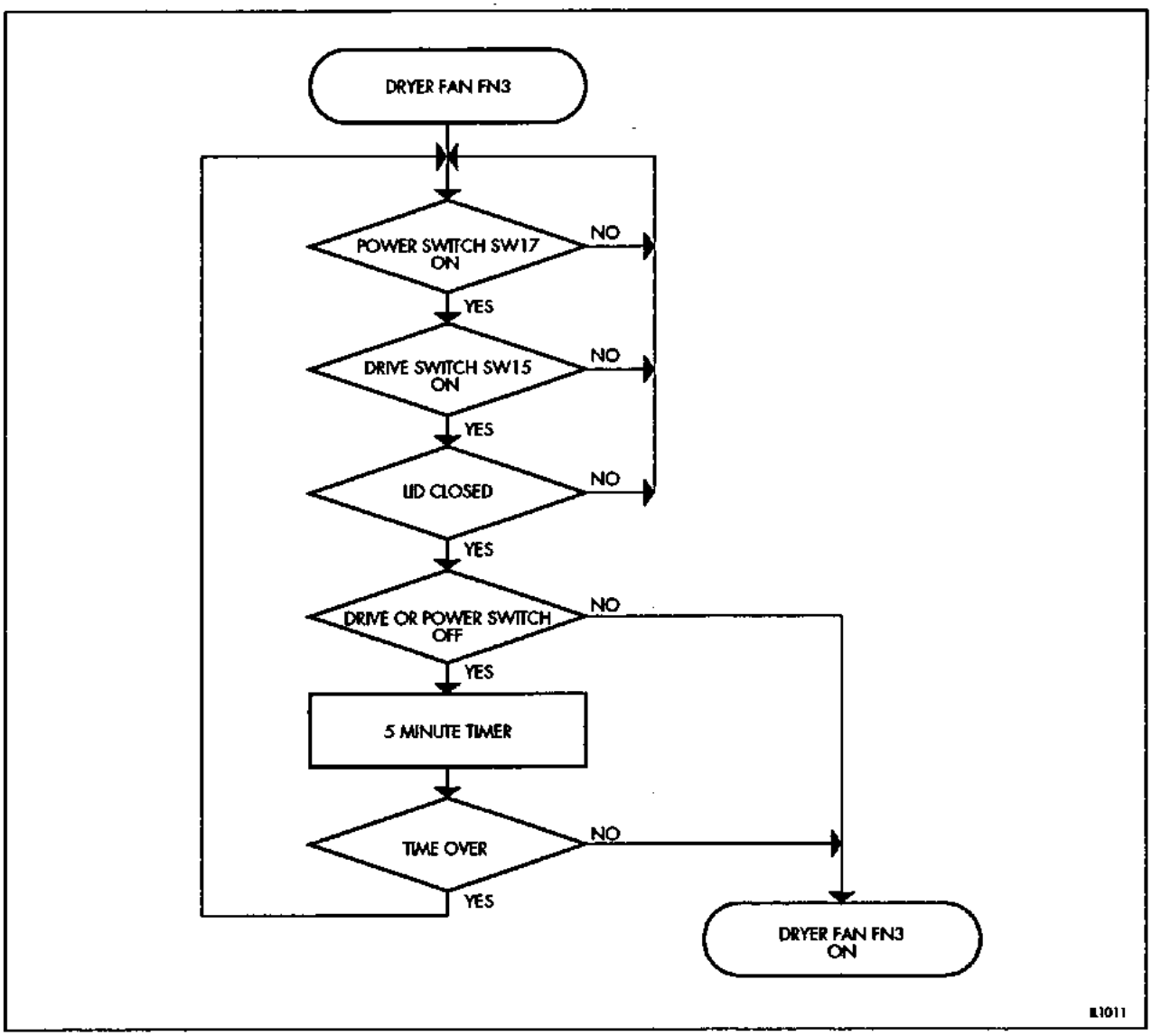


Figure 6.6 Diagnostic operation diagram - dryer fan (FN3)

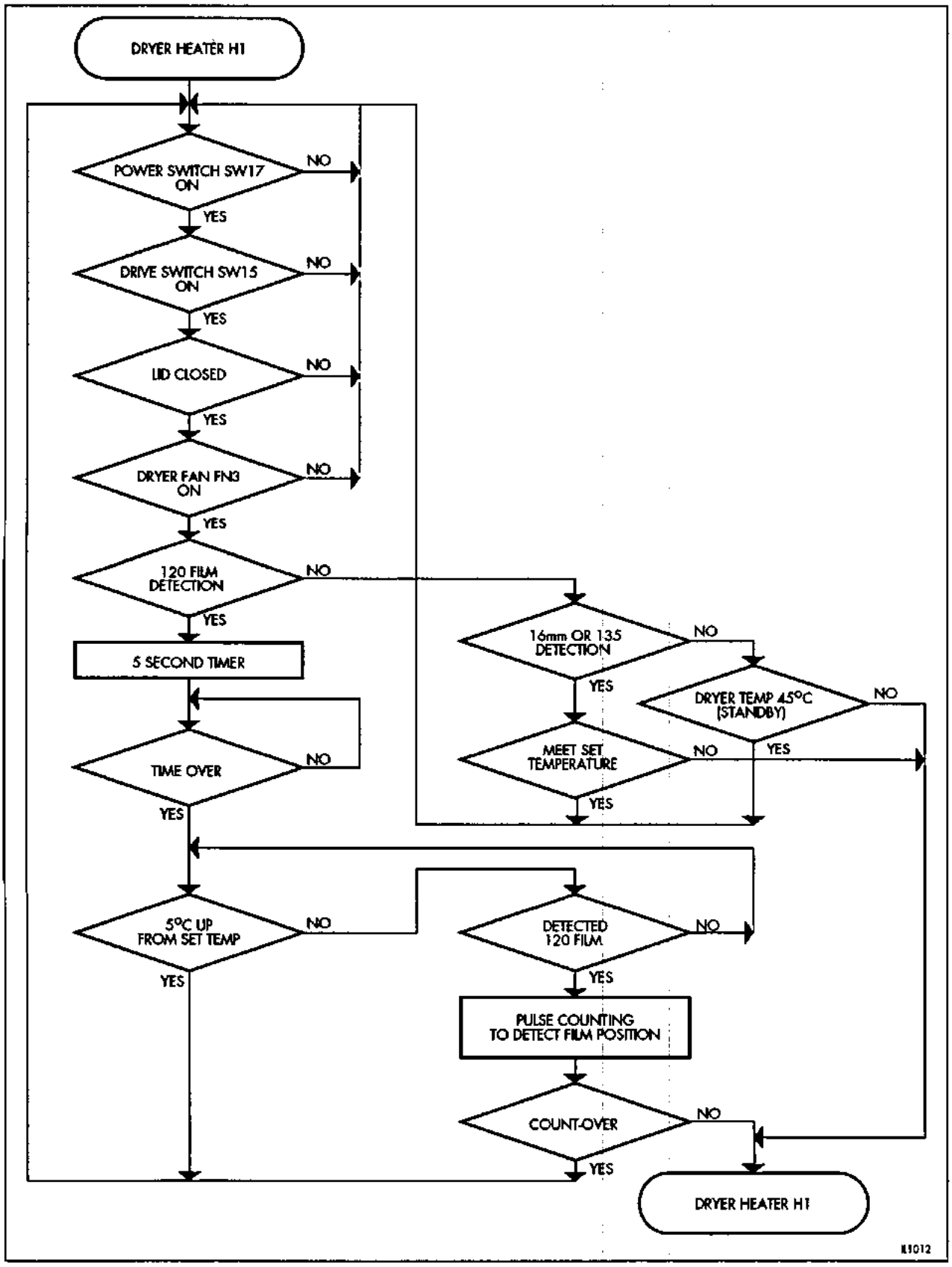


Figure 6.7 Diagnostic operation diagram - dryer heater (H1)

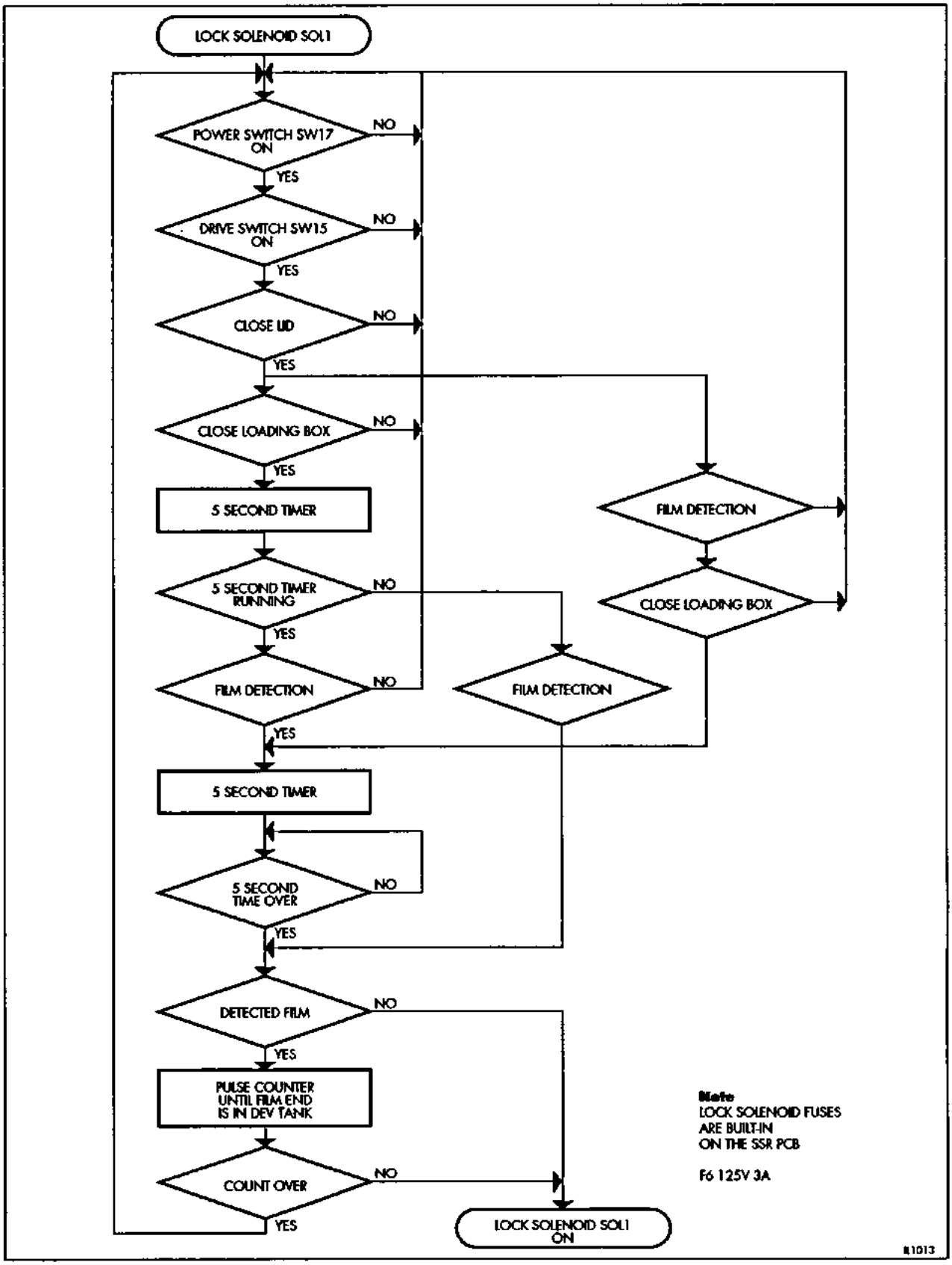


Figure 6.8 Diagnostic operation diagram - loading box lock solenoid (SOL1)

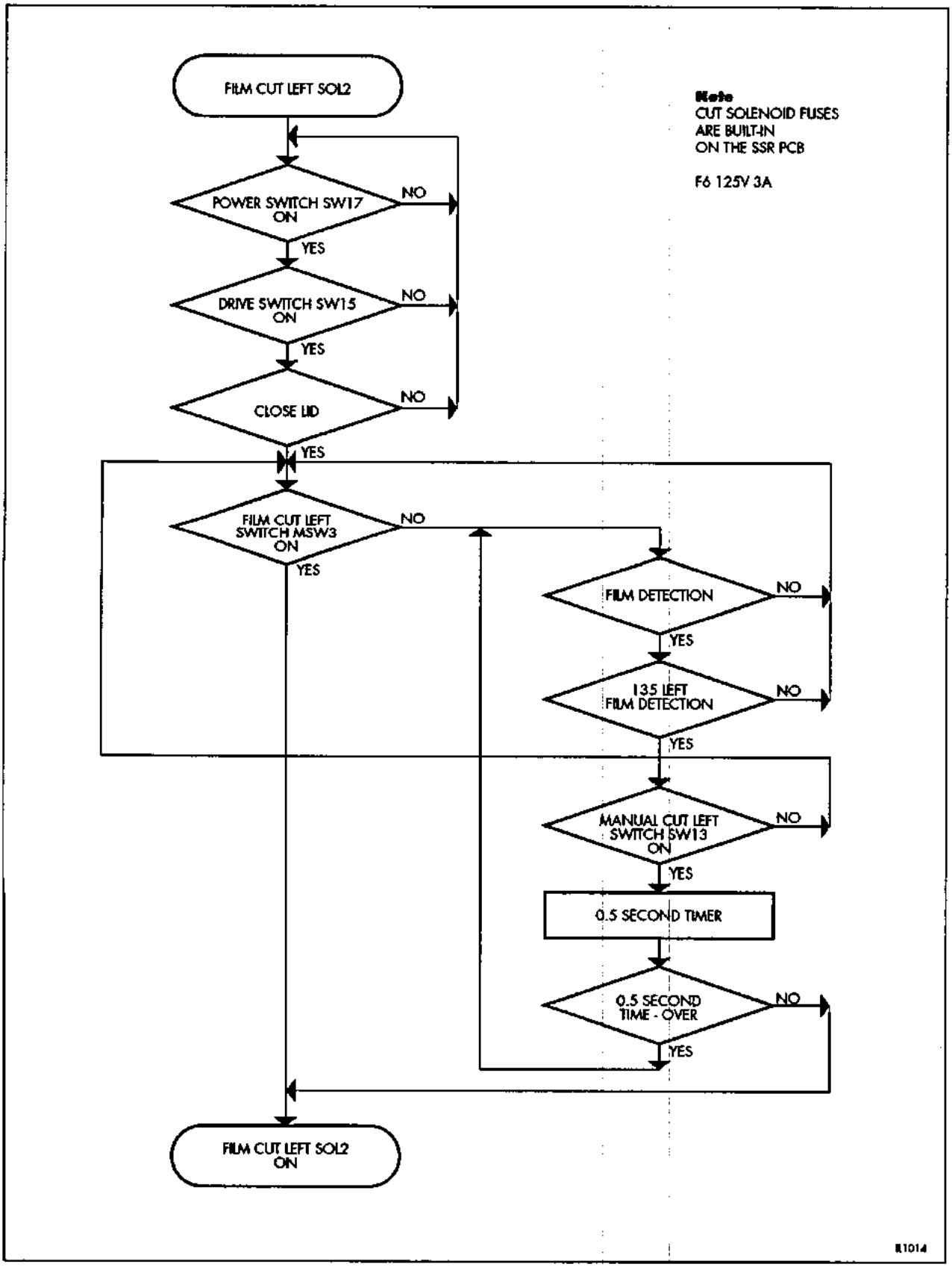


Figure 6.9 Diagnostic operation diagram - left film cut (SOL2)

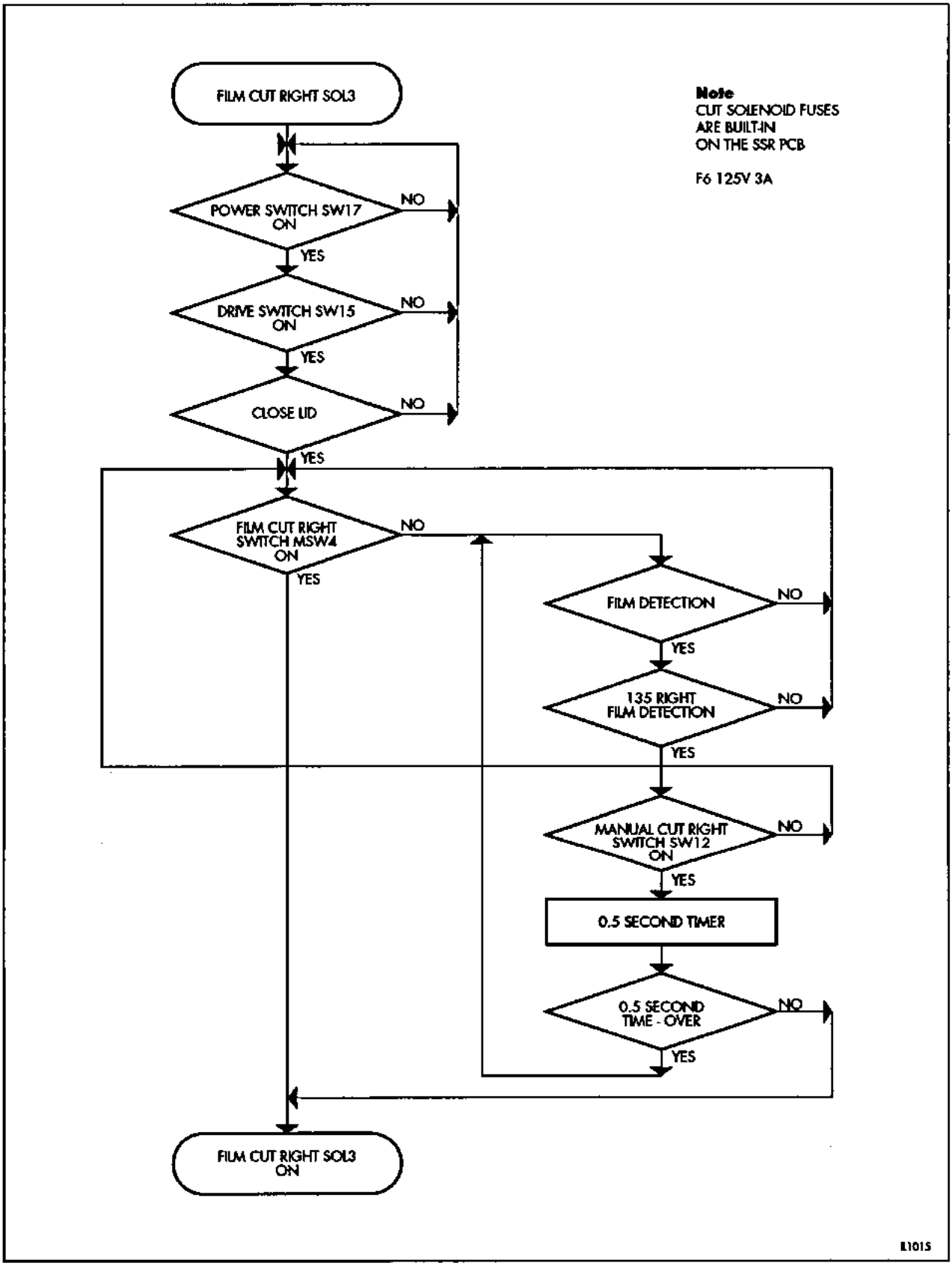


Figure 6.10 Diagnostic operation diagram - right film cut (SOL3)

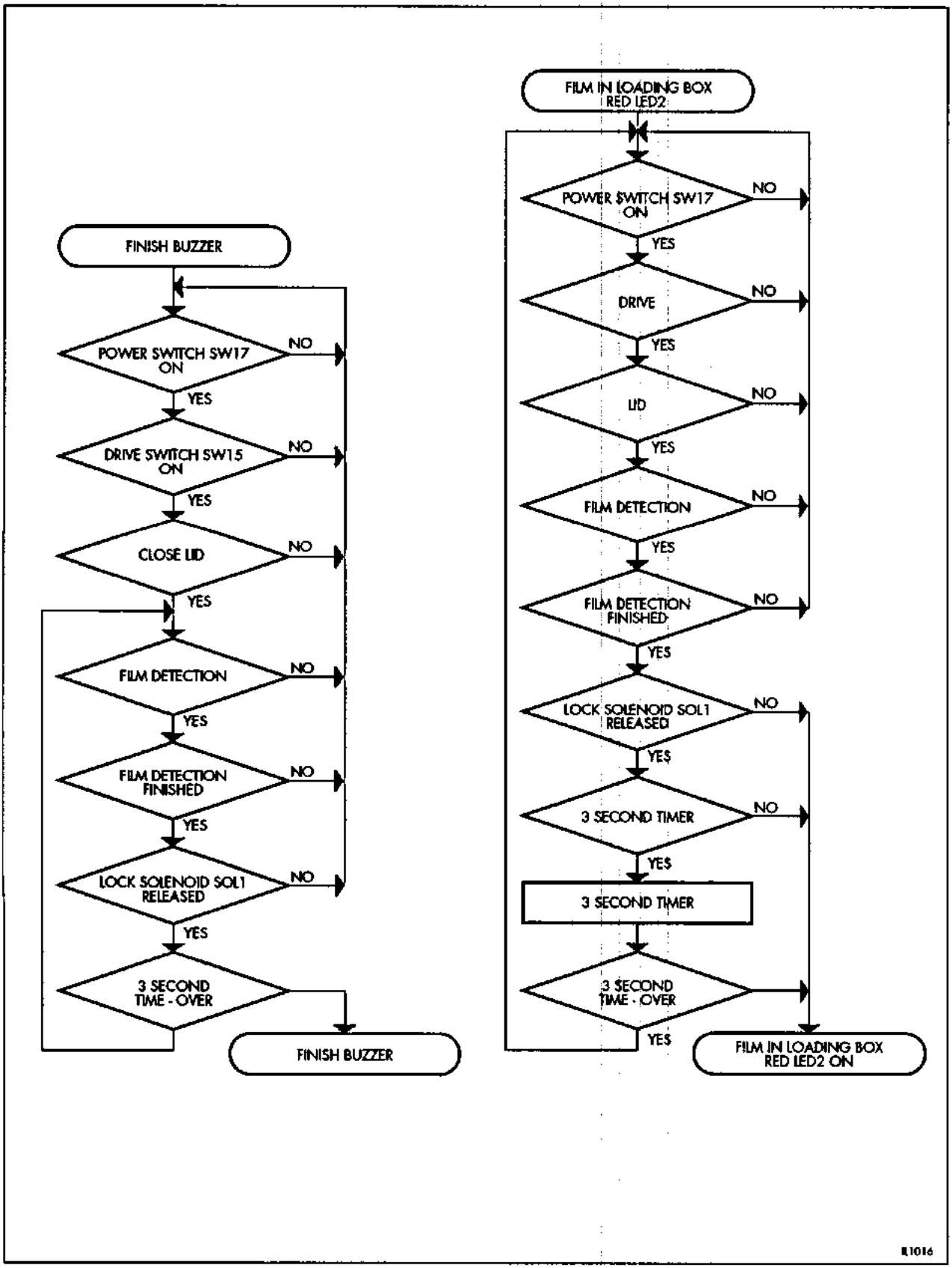


Figure 6.11 Diagnostic operation diagram - film deted buzzer/in loading box light (LED2) red

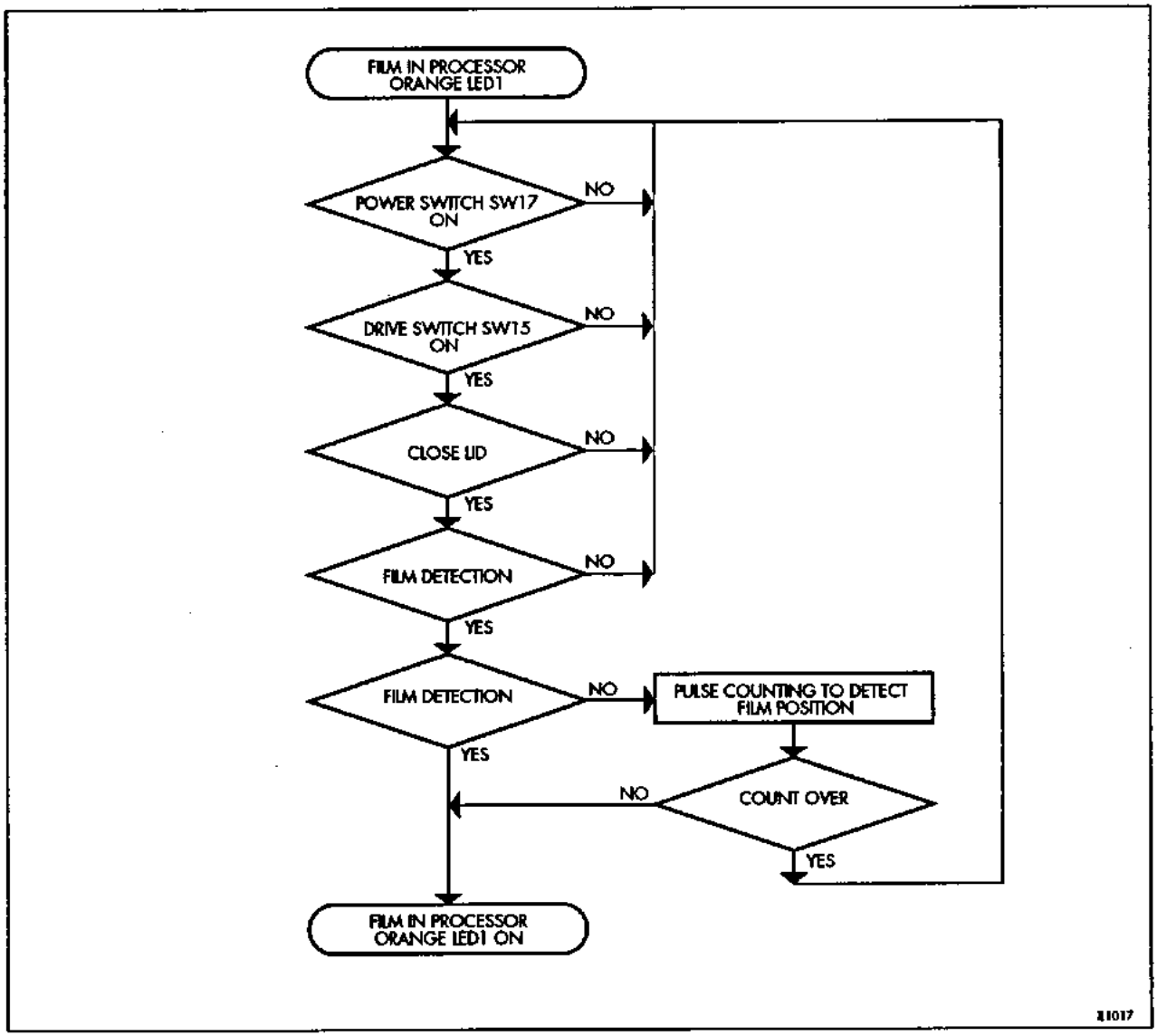


Figure 6.11A Diagnostic operation diagram - film running light (LED1) orange

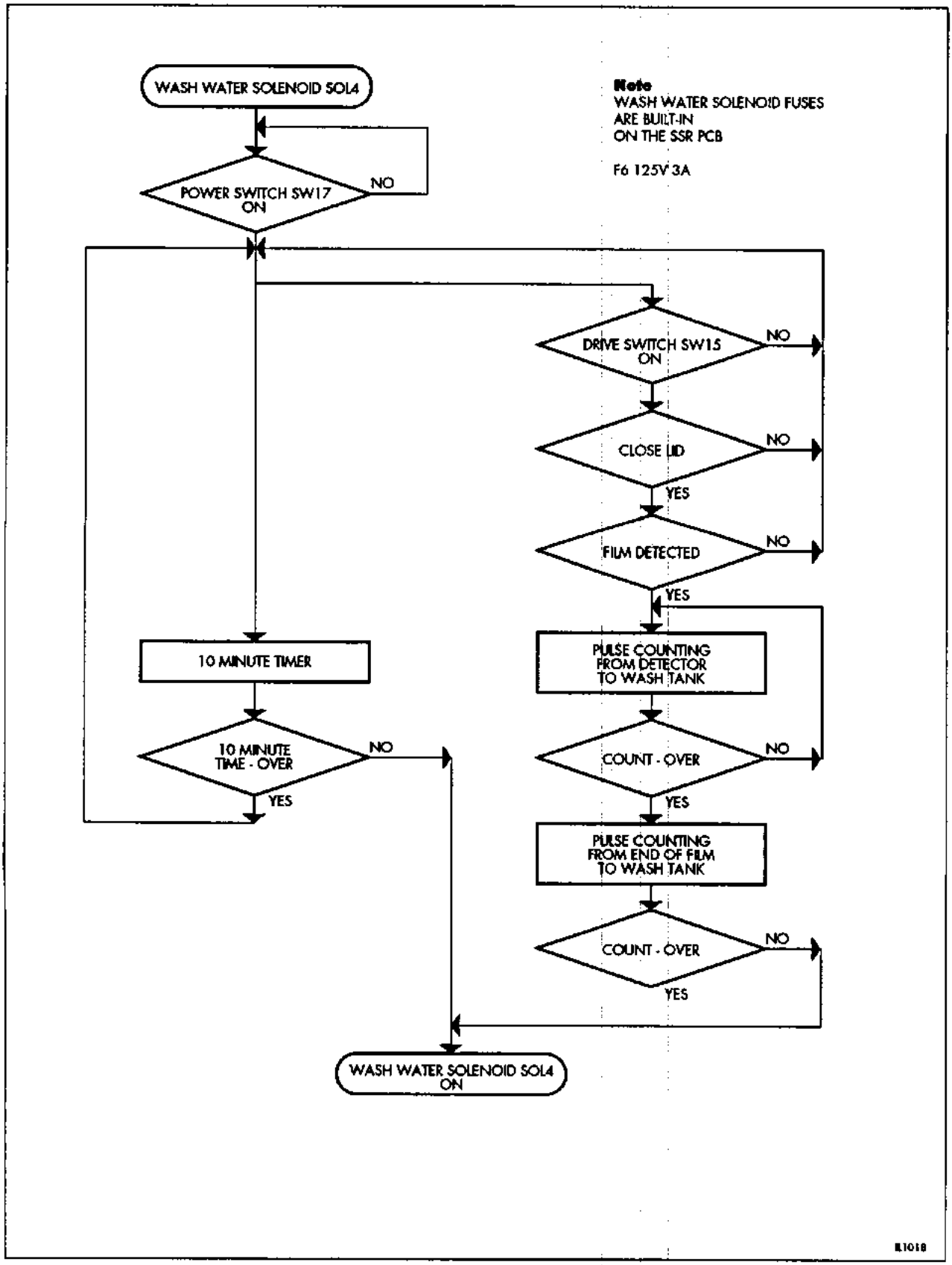


Figure 6.12 Diagnostic operation diagram - wash water solenoid (SOL 4)

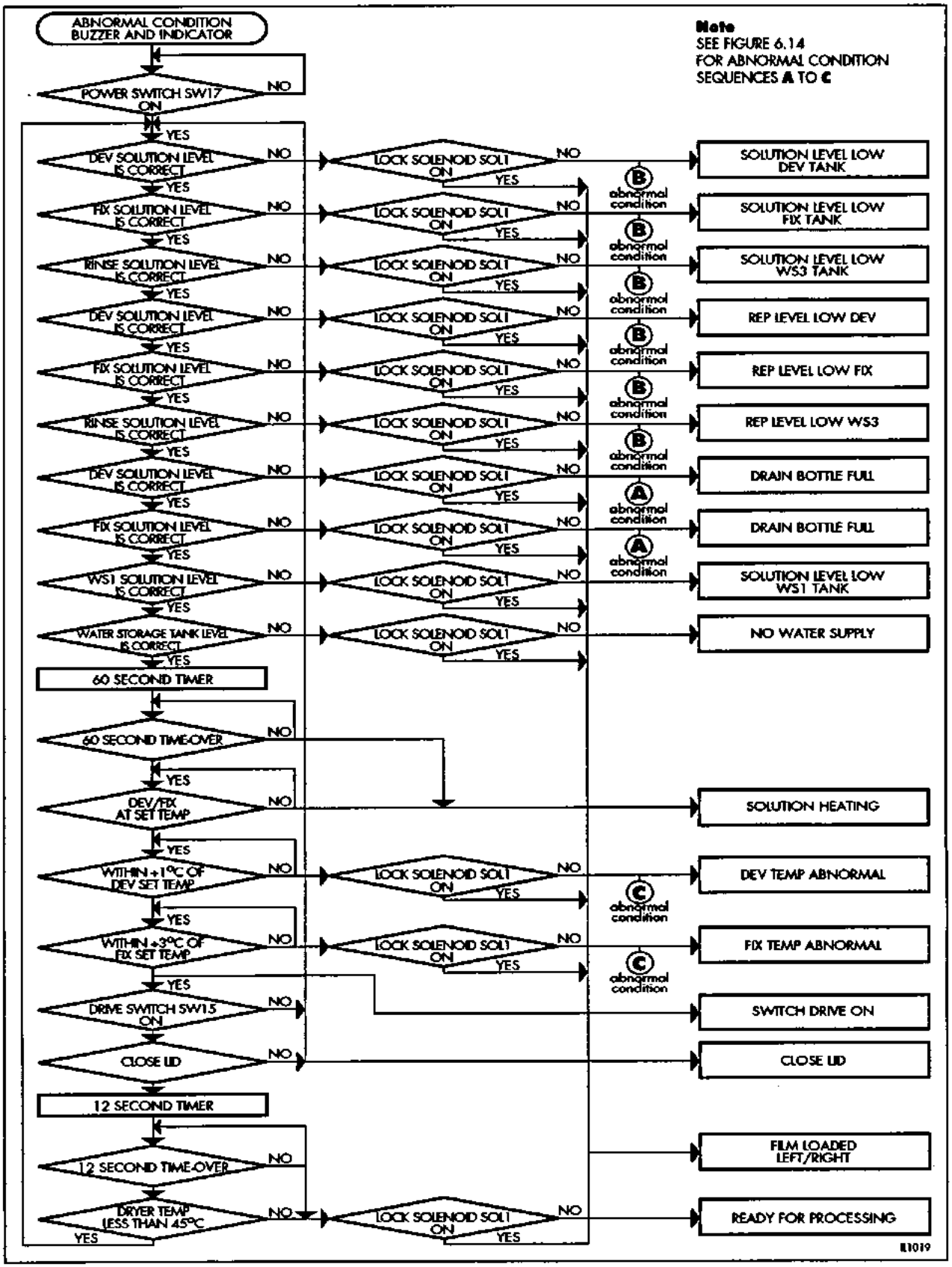


Figure 6.13 Abnormal condition diagram - buzzer and indicator

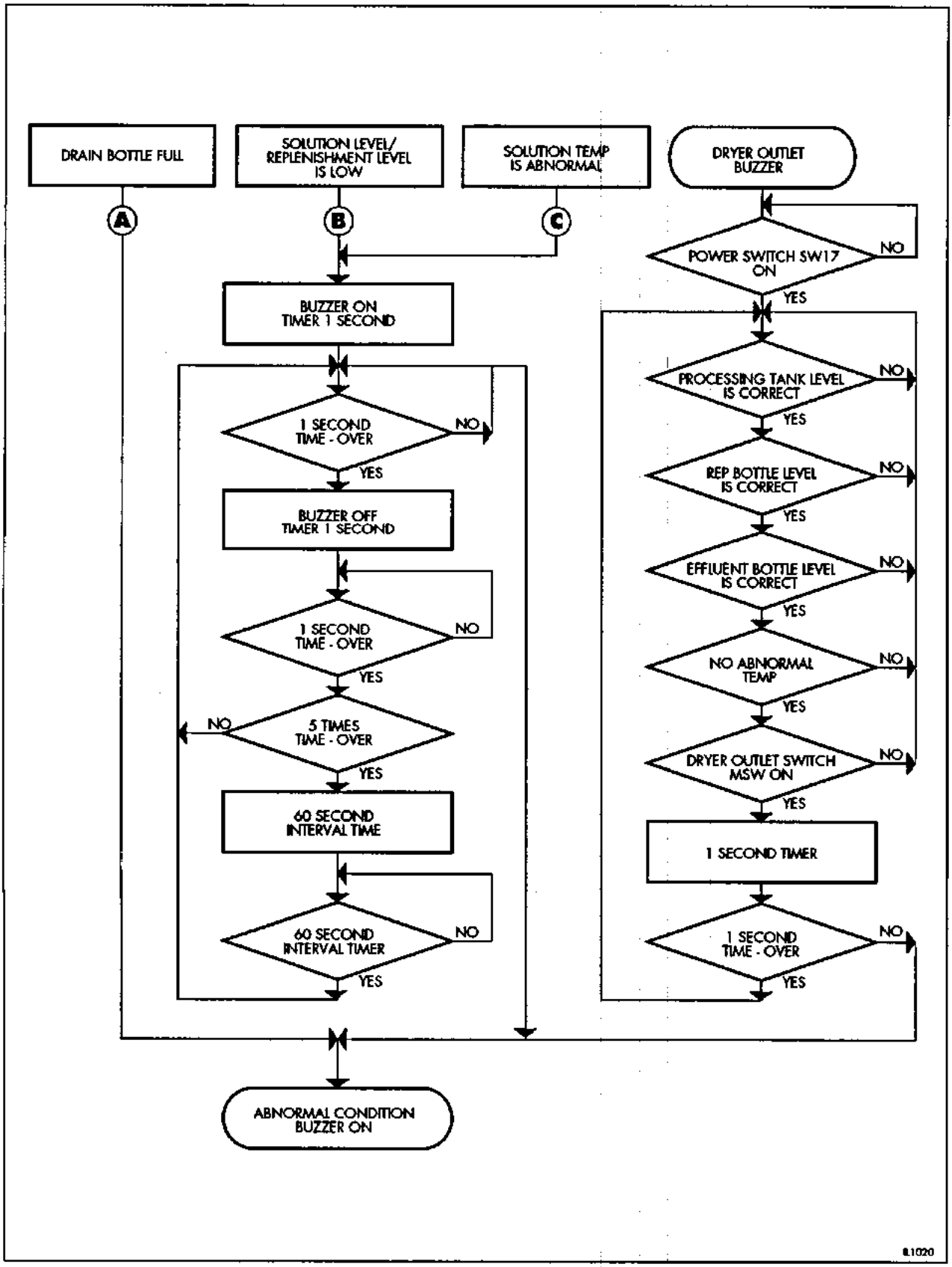


Figure 6.14 Abnormal condition diagram - A to C condition sequence

7
PARTS

CONTENTS

When ordering spare parts please quote the correct part number in order that ILFORD Limited can process your order as quickly and efficiently as possible.

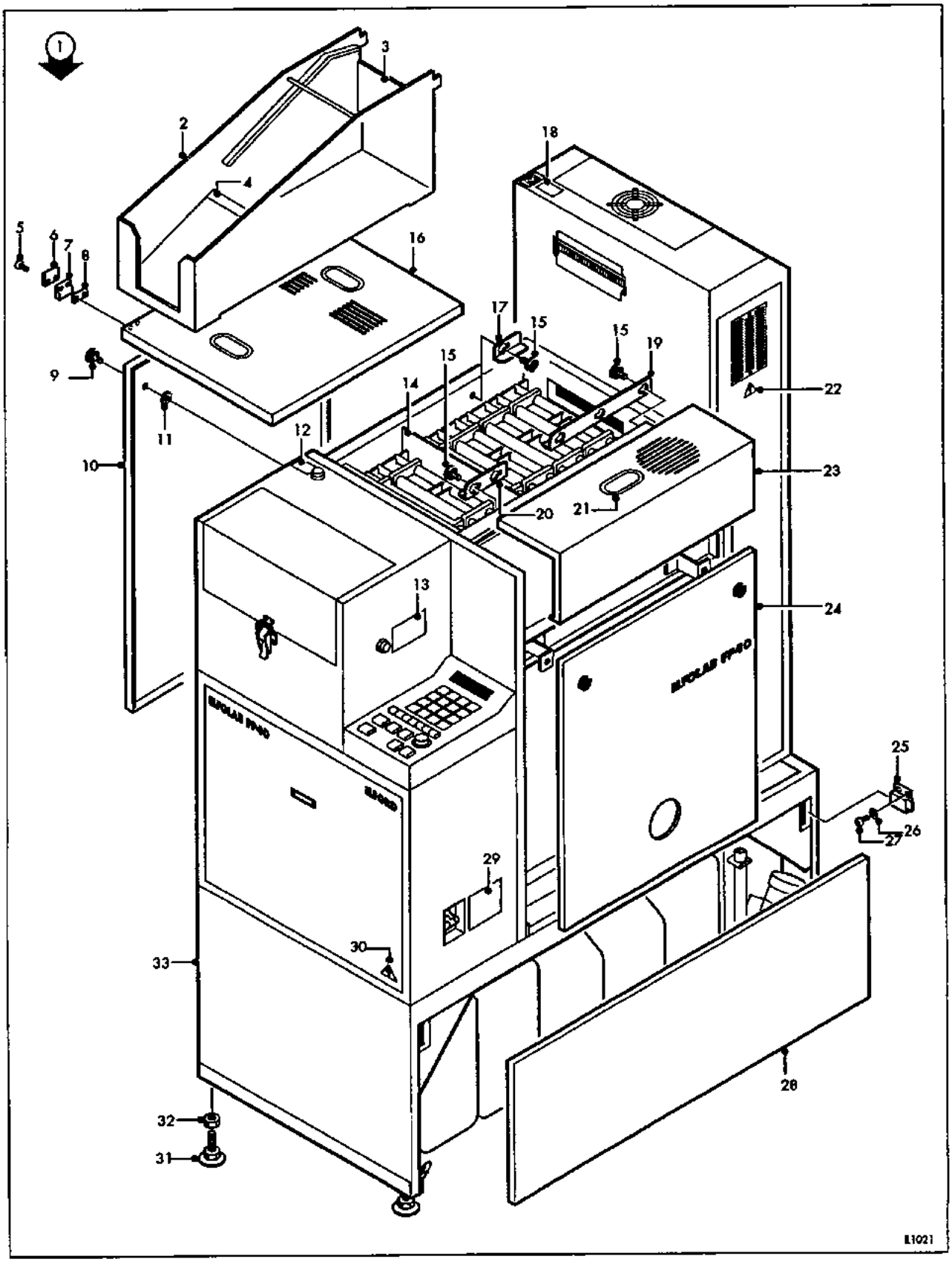


Figure 7.1 Body

7.1 Body

Ref no. fig 7.1	Part no.	GIN no.	Description	Quantity	Serial no.
1	1706163		ILFOLAB FP40 processor		
2	32-A0724		Film receiving box	1	
3	43-A0725		Cloth	1	
4	43-09968		Cloth	1	
5	Z14030604		Screw	2	from A010078
6	43-A2244		Spacer	1	from A010078
7	ZHA57135000	1749137	Magnet	1	from A010078
8	43-A2245		Plate	1	from A010078
9	43-09987		Screw	4	
10	33-A0745		Panel, lh	1	upto A010197
	33-A2239-1		Panel, lh	1	from A010198
11	Z67040004	1723553	'E' ring	4	
12					
13	6199-3-185A		Label	1	
14	33-09907		Plate, light shield	1	
15	Z93051644	1723829	Thumb screw	6	
16	23-A0742		Lid, processor	1	upto A010077
	23-A0742-1		Lid, processor	1	from A010078
17	43-09875		Plate, rack retaining	1	
18	6199-4-192A		Label	1	
19	33-09906		Plate, rack retaining	1	
20	43-09905		Plate, rack retaining	1	
21	ZTOTHA1732A		Cap	3	
22	6200-4-143A		Label, general hazard	1	
23	33-A0743		Top panel	1	
24	33-A2240		Panel, rh	1	upto A010197
	33-A2240-1		Panel, rh	1	from A010198
25	ZTAC952		Catch	4	
26	Z61030094		Washer, plain	8	
27	Z11030604		Screw, phd	8	
28	33-A0733		Panel, lower side	2	
29	6199-3-191A		Label	1	
30	6200-4-133A		Label, electrical hazard	1	
31	43-25878-2		Foot, levelling	4	
32	Z51120004		Nut	4	
33	13-A0732-1		Bed	1	

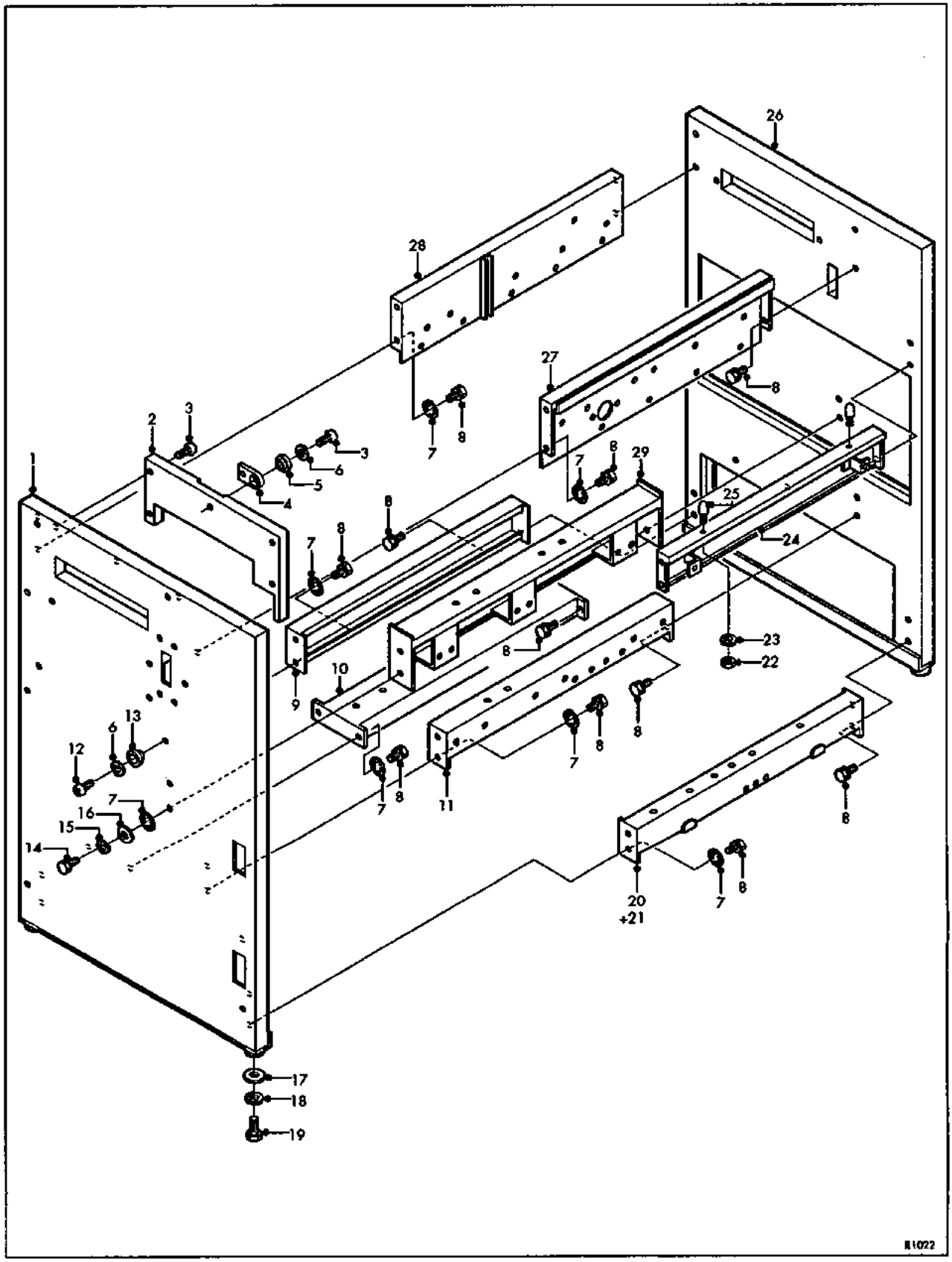


Figure 7.2 Body

7.2 Body

Ref no. fig 7.2	Part no.	GIN no.	Description	Quantity	Serial no.
1	13-A0746		Frame, front	1	
2	33-09872-1		Plate, light shield	1	
3	Z11051604		Screw, phd	9	
4	43-05165		Cover stopper	1	
5	43-05166		Cover stopper metal	1	
6	Z62050004		Washer, spring	1	
7	Z65060004		Washer, locking	8	
8	Z43061204		Bolt, hex hd	28	
9	33-A0756		Frame, upper, left	1	
10	33-09864-1		Frame, tank	1	
11	33-A2287		Frame, pump	1	
12	Z11051204		Screw, phd	2	
13	43-08953-1		Spacer, bolt	2	
14	Z41061204		Bolt, hex hd	4	
15	Z62060004		Washer, spring	4	
16	Z61060004		Washer, plain	4	
17	Z61120004		Washer, plain	4	
18	Z62120004		Washer, spring	4	
19	Z41122004		Bolt, hex hd	4	
20	33-A2289		Frame, upper, right	1	upto A010177
	33-A2289-1		Frame, upper, right	1	from A010178
21+	ZTYT30R/HS		Cable tie	2	from A010178
22	Z51040004		Nut	2	
23	Z62040004		Washer, spring	2	
24	33-A0750		Frame, cover	1	
25	43-76524		Pin, cover set	2	
26	13-A0747		Frame, rear	1	
27	33-A0748		Frame, upper, right	1	
28	33-A0749		Frame, upper, left	1	upto A010077
	33-A0749-1		Frame, upper, left	1	from A010078
29	33-A0753		Frame, temp control tank	1	

+ not illustrated

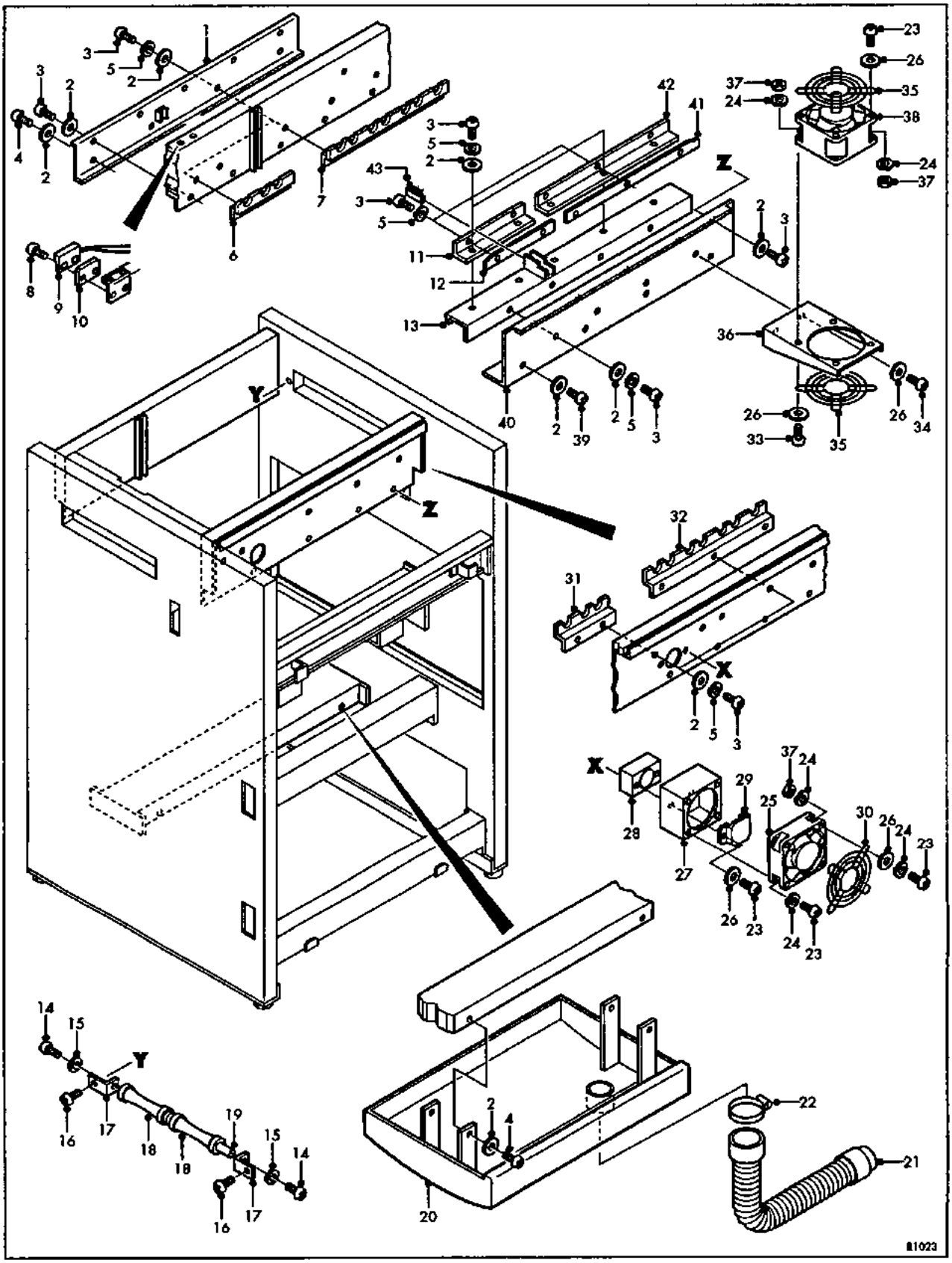


Figure 7.3 Body

7.3 Body

Ref no. fig 7.3	Part no.	GIN no.	Description	Quantity	Serial no.
1	33-A0757		Frame, light shield	1	
2	Z61050004		Washer, plain	28	
3	Z11050804		Screw, phd	20	
4	Z11051004		Screw, phd	4	
5	Z62050004		Washer, spring	10	
6	43-09869		Holder, rack, B	1	
7	33-09871-1		Holder, rack, D	1	
8	1214030604		Screw, M3	4	from A010078
9	ZHA59135020	1749182	Proximity reed switch	1	from A010078
10	43-53649-3		Cam plate	2	
11	33-A0752		Frame, chain, B	1	
12	43-25750		Guide rail, chain, A	1	
13	43-09860		Angle, A	1	
14	Z11030604		Screw, phd	2	
15	Z62030004		Washer, spring	2	
16	Z14040604		Screw, truss hd	2	
17	43-09978-2		Support, guide roller	2	
18	43-25019-1	1723315	Guide roller	2	
19	43-09985		Shaft, guide roller	1	
20	23-09892-3		Tray, drain	1	
21	43-Z0825		Flexible hose	1	
22	ZMRND20		Hose clamp	1	
23	Z11041204		Screw, phd	14	
24	Z62040004		Washer, spring	19	
25	ZJSVS55B41	1723856	Fan	1	
26	Z61040004		Washer, plain	16	
27	33-15533		Fan case	1	
28	43-09601-1		Fan connector	1	
29	43-85598		Light shield plate	1	
30	ZSIFG80		Finger guard, fan, body frame	1	
31	43-09868		Holder, rack, A	1	
32	33-09870		Holder, rack, C	1	
33	Z11041404		Screw, phd	4	
34	Z11050604		Screw, phd	2	
35	ZSI8134		Finger guard	2	
36	33-09890		Fan bracket	1	
37	Z51040004		Nut	12	
38	ZJSKL3B55	1723618	Fan	1	
39	Z11052004		Screw, phd	4	
40	33-A0751		Frame, chain, A	1	
41	33-09859		Guide rail, chain, A	1	
42	33-09861		Angle, B	1	
43	43-53624-1		Brush, light shield	1	

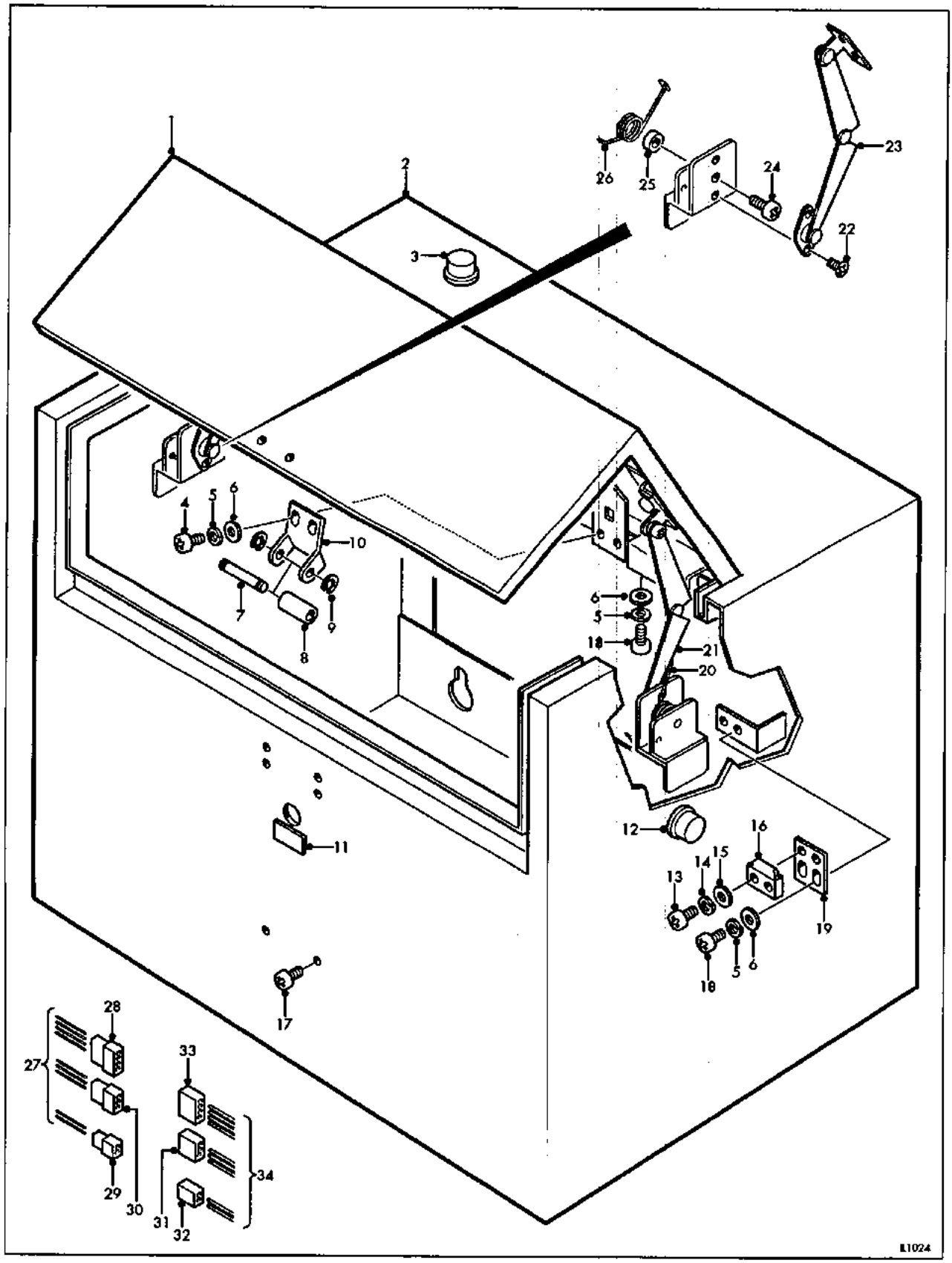


Figure 7.4 Film loading box

7.4 Film loading box

Ref no. fig 7.4	Part no.	GIN no.	Description	Quantity	Serial no.
1	23-A0741		Lid, loading box	1	
2	13-A2281		Loading box	1	
3	ZORM2BT90A105ER	1723672	Lamp, red	1	
4	Z11040604		Screw, phd	2	
5	Z62040004		Washer, spring	6	
6	Z61040004		Washer, plain	6	
7	43-53694-2		Cam roll shaft	2	
8	43-53695		Cam roll	2	
9	Z67030004		'E' ring	2	
10	43-53649-3		Cam plate	2	
11	43-25941		Rubber sheet	1	
12	ZORM2BT90A105EY		Lamp, orange	1	
13	Z11021004		Screw, phd	2	
14	Z62020004		Washer, spring	2	
15	Z61020004		Washer, plain	2	
16	ZORSS5GL	1723847	Micro-switch	1	
17	Z14040604		Screw, truss hd	2	
18	Z11040804		Screw, phd	6	
19	43-35573		Holder, light switch	1	
20	43-35691-3	1734618	Tension spring, right	1	
21	ZTAB823L		Stay, right	1	
22	Z12030604		Screw, flat hd	8	
23	ZTAB823R		Stay, left	1	
24	Z14041604		Screw, truss hd	2	
25	43-35579		Collar	2	
26	43-35690-3	1734609	Tension spring, left	1	
27	ZAM606184		Pin, contact	8	
28	ZAM14804260		Housing, cap	1	
29	ZAM14803190		Housing, cap	1	
30	ZAM14803050		Housing, cap	1	
31	ZAM14803030		Housing, plug	1	
32	ZAM14803180		Housing, plug	1	
33	ZAM14804240		Housing, plug	1	
34	ZAM606174		Socket, contact	8	

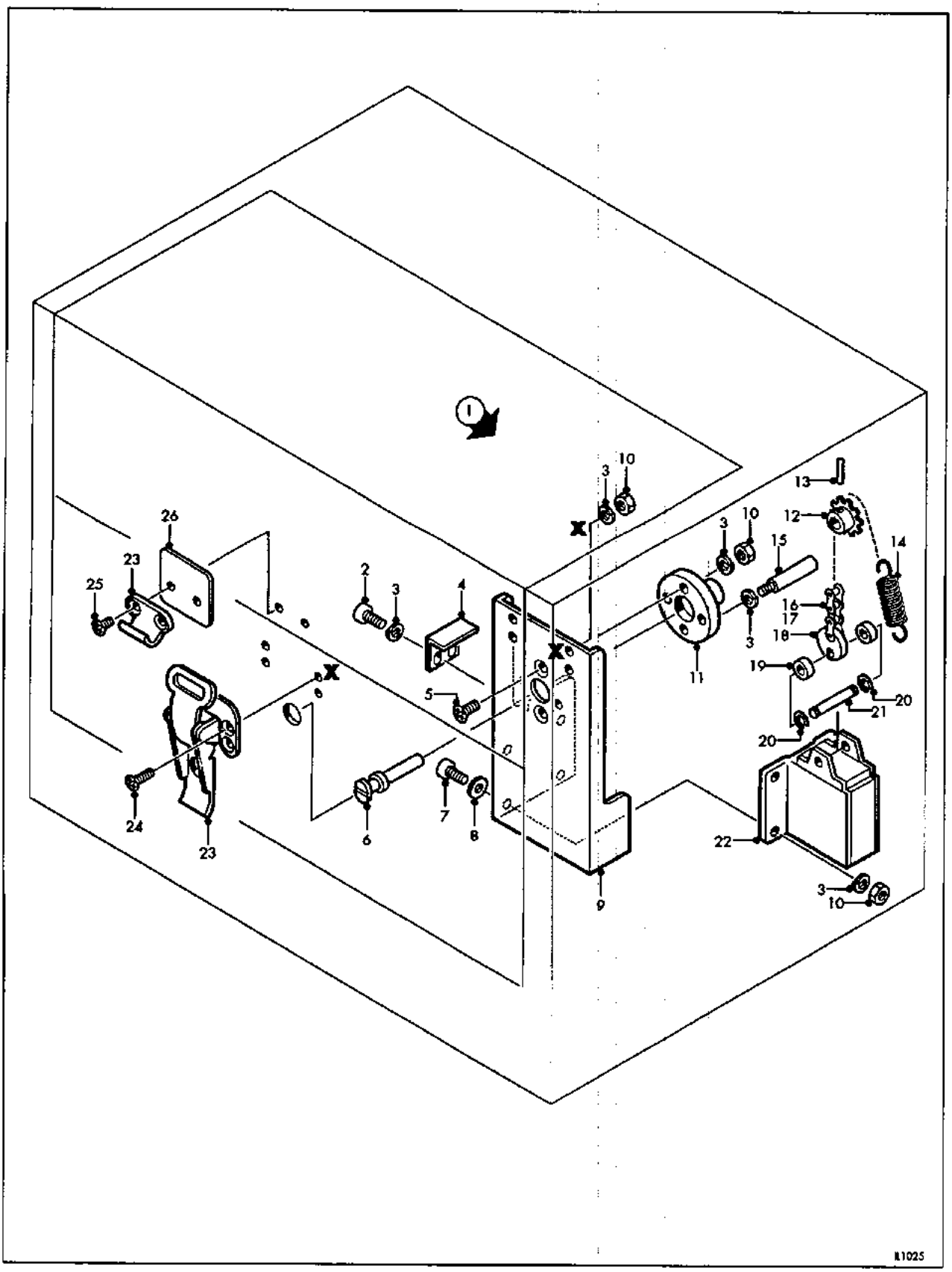


Figure 7.5 Film loading box

7.5 Film loading box

Ref no. fig 7.5	Part no.	GIN no.	Description	Quantity	Serial no.
1	22-25930		Lock assy	1	
2	Z11040604		Screw, phd	4	
3	Z62040004		Washer, spring	22	
4	43-25939-1		Angle, retaining	1	
5	Z12041204		Screw, flat hd	2	
6	43-25931-2		Lock shaft	1	
7	Z11041004		Screw, phd	4	
8	Z61040004		Washer, plain	8	
9	33-25937-1		Unit base	1	
10	Z51040004		Nut	12	
11	43-25932		Flange	1	
12	43-05020		Sprocket, 15T	1	
13	Z71021204		Spring pin	1	
14	43-25936		Spring	1	
15	43-25938		Guide pin	2	
16	ZOCRC100017C	1749971	Chain	1	
17+	ZOCJL10C	1749962	Link	1	
18	43-05027-1	1749953	Chain joint	1	
19	43-25934		Collar	2	
20	Z67030004		'E' ring	4	
21	43-25933		Solenoid pin	1	
22	ZMDAS61081	1723452	Solenoid	1	
23	43-25940		Super clamp	1	
24	Z12041004		Screw, flat hd	4	
25	Z12040804		Screw, flat hd	2	
26	43-35578		Plate	1	

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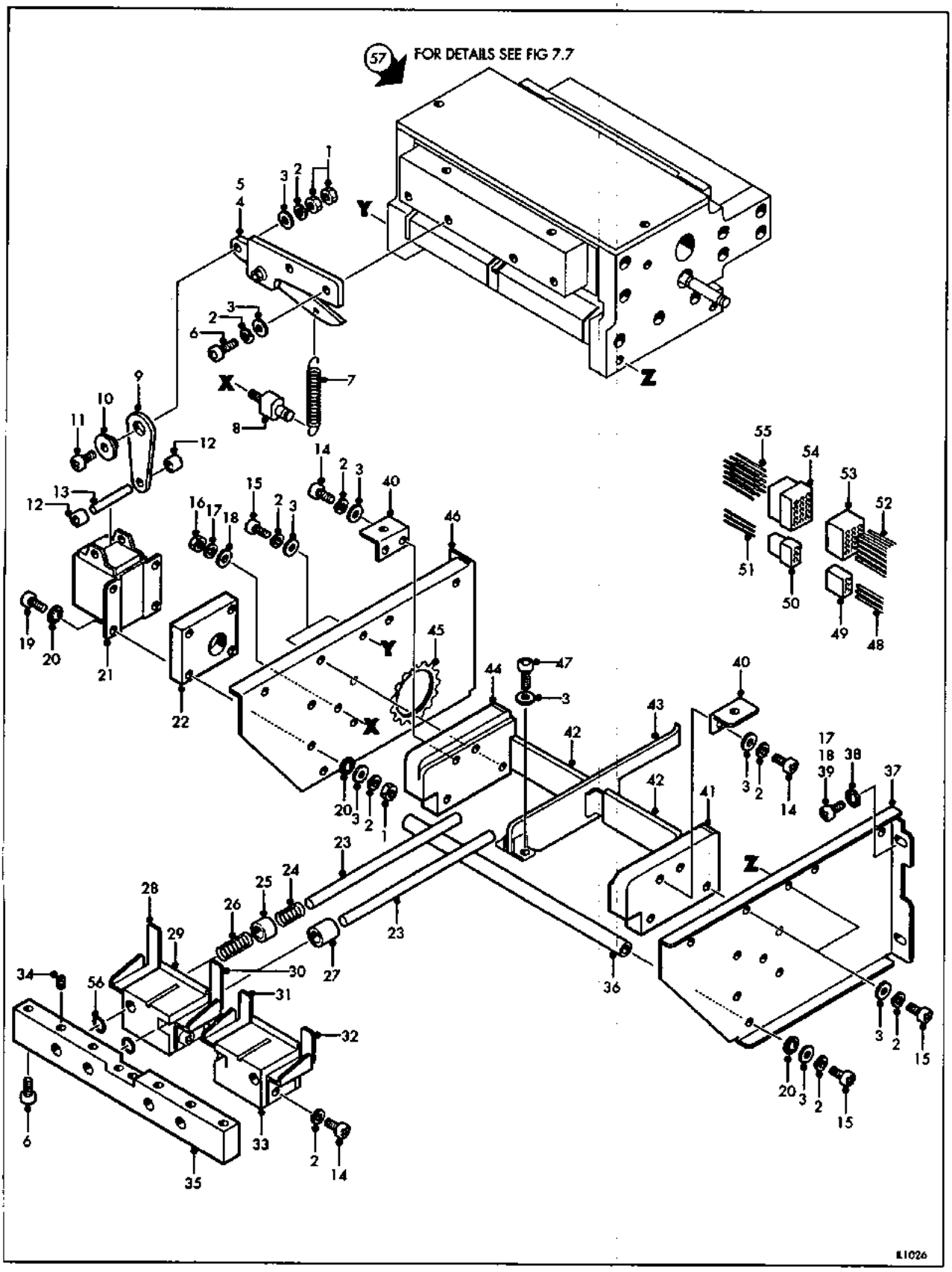

Figure 7.6 Light shield box assembly

7.6 Light shield box assembly

Ref no. fig 7.6	Part no.	GIN no.	Description	Quantity	Serial no.
1	Z51040004		Nut	12	
2	Z62040004		Washer, spring	38	
3	Z61040004		Washer, plain	28	
4	32-53896	1744242	Cutter assy, left	1	
5	32-53897	1744251	Cutter assy, right	1	
6	Z46041204		Bolt, hex skt hd	4	
7	43-08905-1	1723241	Spring, cutter	2	
8	43-08919-1		Spring stud	2	
9	43-08893		Solenoid arm	2	
10	43-08891		Flange collar	2	
11	Z14042004		Screw, truss hd	2	
12	43-08894	1723232	Collar	4	
13	Z71043204		Spring pin	2	
14	Z11040804		Screw, phd	12	
15	Z11041204		Screw, phd	6	
16	Z51050004		Nut	2	
17	Z62050004		Washer, spring	6	
18	Z61050004		Washer, plain	6	
19	Z11042004		Screw, phd	8	
20	Z65040004		Washer, locking	6	
21	ZMDAS90833	1723443	Solenoid	2	
22	43-25134		Spacer, solenoid	2	
23	43-35572		Slide shaft	4	
24	43-35750-1	1734627	Spring	2	
25	43-35752-1		Spring cap	2	
26	43-35751-1	1734636	Spring	2	
27	43-08954		Rubber	2	
28	43-25873		120 magazine holder, left	1	
29	33-25143-2		Holder base	1	
30	43-25889		120 magazine holder, right	1	
31	43-19026-1		120 magazine holder, SL	1	
32	43-19027-1		120 magazine holder, SR	1	
33	33-05586-6		Holder base	1	
34	Z47040604		Screw, hex skt hd	4	
35	33-25876-1		Shaft holder	1	
36	43-25133		Span shaft	2	
37	33-09849-1		Unit plate, right	1	
38	Z65050004		Washer, locking	1	
39	Z11051204		Screw, phd	4	
40	43-35576-1		Cutter cover fitting angle	2	
41	33-35570		Leader guide, right	1	
42	43-25148		Cloth	1	
43	33-35571		Leader guide, centre	1	
44	33-35569-1		Leader guide, left	1	
45	ZKICSG016		Grommet	1	
46	33-09848-1		Unit plate, left	1	
47	Z46041004		Bolt, hex skt hd	2	
48	ZAM606174		Socket, contact	5	
49	ZAM14802700		Connector, plug housing	1	
50	ZAM14803400		Connector, cap housing	1	
51	ZAM606184		Pin, contact	5	
52	ZAM1702481		Socket contact	15	
53	ZAM2074421		Connector (plug)	1	
54	ZAM2074431		Connector, cap housing	1	
55	ZAM1702461		Pin contact	15	
56	ZZORP0070C		'O' ring	4	
57	22-09832		Light shield box assy (ref fig 7.7)		

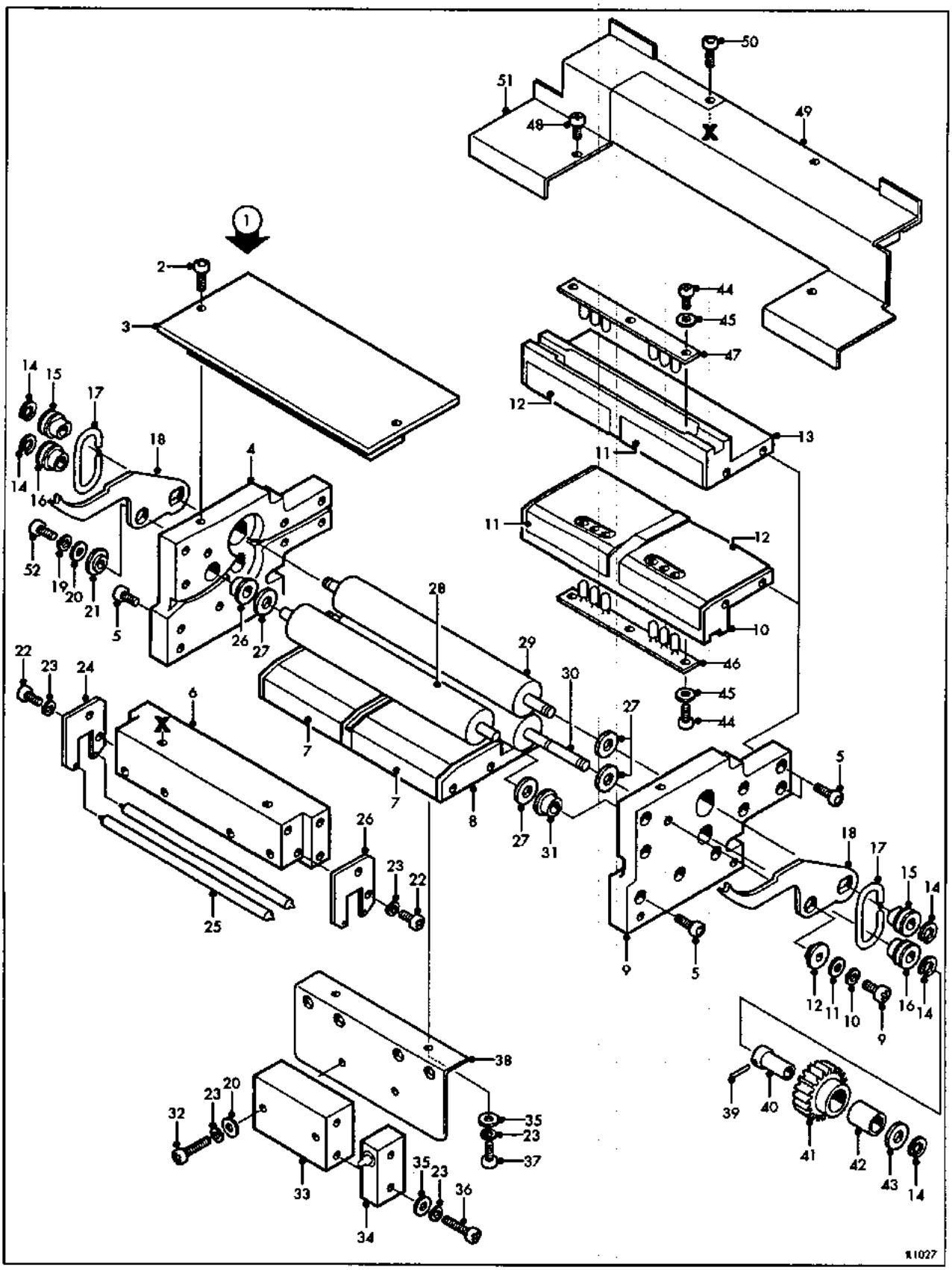

Figure 7.7 Light shield box assembly

7.7 Light shield box assembly

Ref no. fig 7.7	Part no.	GIN no.	Description	Quantity	Serial no.
1	22-09832		Light shield box assy	1	
2	Z46041604		Bolt, hex skt hd	2	
3	33-09838		Lid	1	
4	33-35562		Main plate, left	1	
5	Z46042004		Bolt, hex skt hd	18	
6	33-25110-1		Cutter base	1	
7	43-25149	1723434	Light shield cloth	2	
8	33-09837		Sensor base, bottom	1	
9	33-35563-1		Main plate, right	1	
10	33-09836		Sensor base, lower	1	
11	43-25733-1	1734599	Light shield cloth	2	
12	43-25732-1	1734580	Light shield cloth	2	
13	33-09835		Sensor base, upper	1	
14	Z67060004	1723535	'E' ring, 6mm	5	
15	43-53645		Spring metal, upper	2	
16	43-53644		Spring metal, lower	2	
17	43-53651-1		Spring	2	
18	43-09876	1795897	Cam lever	2	
19	Z62050004		Washer, spring	2	
20	Z61050004		Washer, plain	2	
21	43-53650		Metal collar	2	
22	Z11041204		Screw, phd	5	
23	Z62040004		Washer, spring	10	
24	43-25335		Guide, roller bearing, right	1	
25	43-25123-1	1723425	Guide roller	2	
26	43-25122		Guide roller bearing, left	1	
27	43-85463		Thrust collar	4	
28	43-05565	1723195	Roller, sponge	1	
29	33-25103-1	1723067	Light shield roller, upper	1	
30	33-35016-2	1723094	Light shield roller, lower	1	
31	43-85505-2		Bushing	2	
32	Z11053004		Screw, phd	2	
33	33-05593-1		Switch holder	1	
34	ZORZ15GSB	1723874	Micro-switch	2	
35	Z61040004		Washer, plain	18	
36	Z11042504		Screw, phd	4	
37	Z11040804		Screw, phd	2	
38	33-25129-1		Switch angle	1	
39	Z71161224	1764675	Spring pin	1	
40	43-08876-1	1795860	Clutch, inner	1	
41	43-53646-1	1795879	Gear, 17T	1	
42	ZNSFCB10	1795914	Clutch, one-way	1	
43	43-53647		Collar	1	
44	Z11030804		Screw, phd	4	
45	Z61030004		Washer, plain	4	
46	42-09834	1723186	Sensor mount assy	1	
47	42-09833	1723177	Sensor mount assy	1	
48	Z14040804		Screw, truss hd	2	
49	33-09829		Cutter cover, right	1	
50	Z46041004		Bolt, hex skt hd	2	
51	33-09828		Cutter cover, left	1	upto A010177
	33-09828-1		Cutter cover, left	1	from A010178
52	Z11051604		Screw, phd	2	

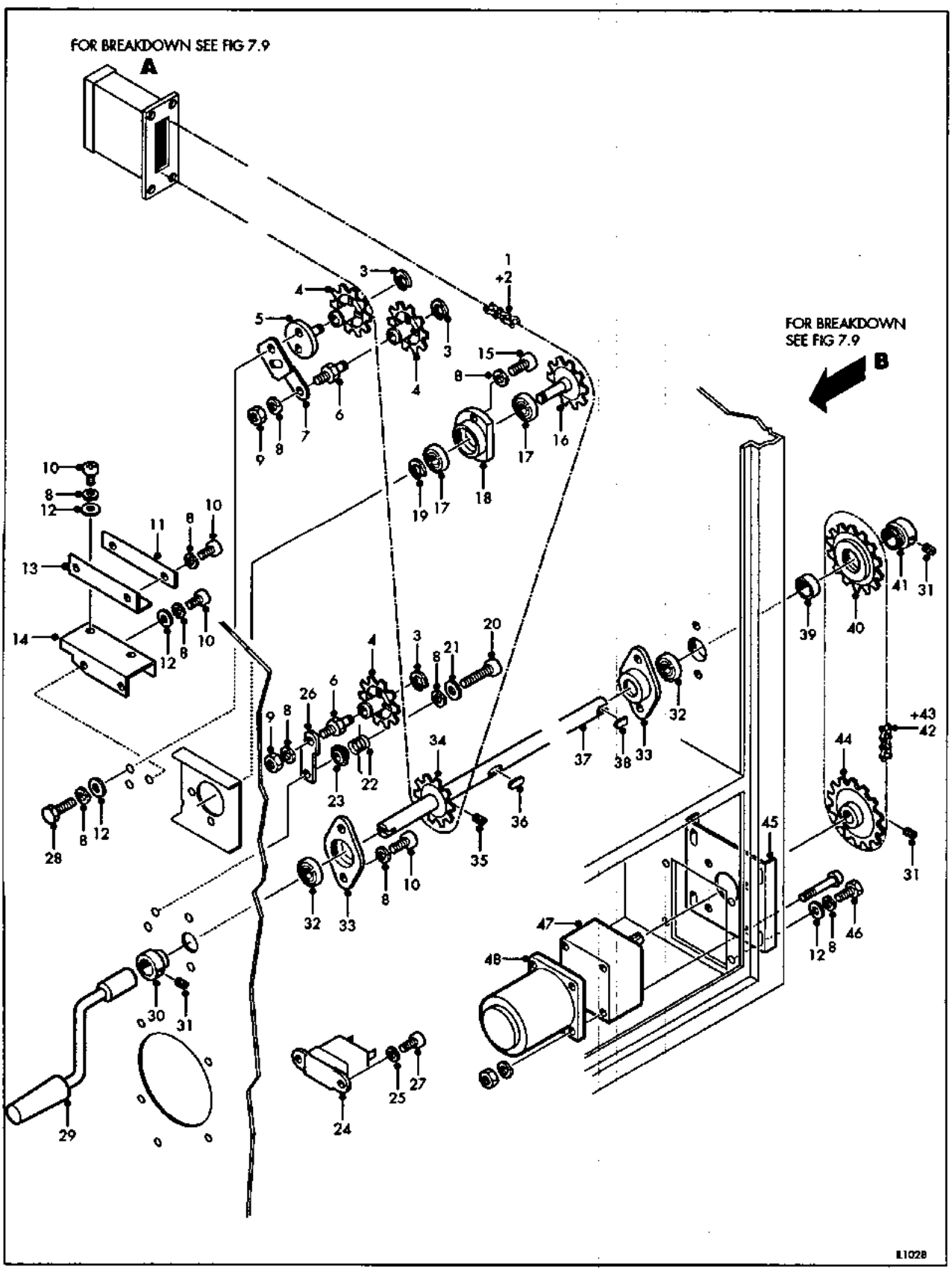

Figure 7.8 Drive assembly

7.8 Drive assembly

Ref no. fig 7.8	Part no.	GIN no.	Description	Quantity	Serial no.
1	ZOCRC42153S	1723719	Chain, roller	1	
2+	ZOCJL42S		Link, joint	1	
3	Z67060004	1723535	'E' ring, 6mm	3	
4	33-25412	1723076	Sprocket, 10T	3	
5	43-25646		Shaft	1	
6	43-25625		Shaft, tension	2	
7	33-09937		Mount, tension	1	
8	Z62050004		Washer, spring	24	
9	Z51060004		Nut	4	
10	Z11050804		Screw, phd	16	
11	43-09940		Rail, chain	1	
12	Z61050004		Washer, plain	9	
13	43-09939-1		Angle	1	
14	33-09938-1		Frame, chain	1	
15	Z11051204		Screw, phd	4	
16	43-35239		Sprocket, 10T	1	
17	ZZBE6001ZZ		Ball bearing	2	
18	43-35240-2		Housing, bearing	1	
19	Z67100004		'E' ring	1	
20	Z11052004		Screw, phd	1	
21	43-65584		Washer, plain	1	
22	43-53594-1		Spring	1	
23	43-08966-1		Holder, spring	1	
24	ZOMCH35	1722985	Condenser	1	
25	Z62040004		Washer, spring	2	
26	43-65582		Arm, tension	1	
27	Z11040604		Screw, phd	2	
28	Z41051204		Bolt, hex hd	2	
29	32-35682		Handle, manual crank	1	
30	43-25623		Collar	1	
31	Z47040804		Screw, hex skt hd	6	
32	ZZBE6002ZZ		Ball bearing	2	
33	43-25622		Housing, bearing	2	
34	43-25621		Sprocket, 11T	1	
35	Z47040604		Screw, hex skt hd	2	
36	ZZKY050520A		Key	1	
37	43-09935		Shaft, linkage	1	
38	ZZKY050530B		Key	1	
39	43-25629		Collar, spacer	1	
40	43-Z0707		Free wheel	1	upto A010077
	43-Z0707-1		Free wheel	1	from A010078
41	43-08709-1		Core	1	
42	ZOCRC42061C	1723728	Chain, roller	1	
43+	ZOCJL42C	1723700	Link, joint	1	
44	43-86413		Sprocket, motor, 15T	1	
45	43-A0764		Plate, motor	1	
46	Z41051004		Bolt, hex hd	4	
47	ZOM3GN120K	1723003	Gear head	1	
48	ZOM3IK15RGNA	1723012	Motor, speed control	1	

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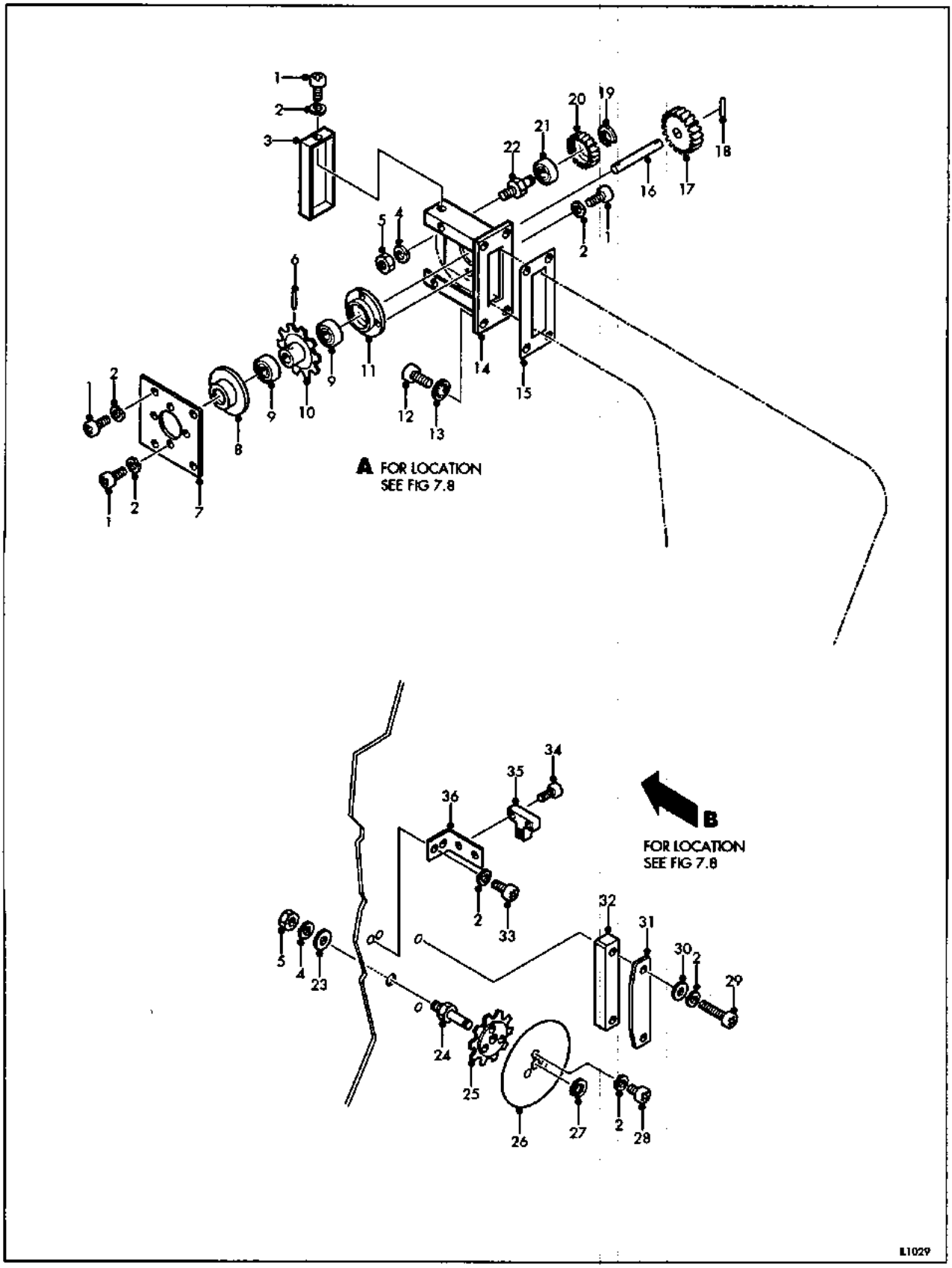

Figure 7.9 Drive assembly

7.9 Drive assembly

Ref no. fig 7.9	Part no.	GIN no.	Description	Quantity	Serial no.
1	Z11040804		Screw, phd	9	
2	Z62040004		Washer, spring	20	
3	43-09842-1		Light shield cover	1	
4	Z62060004		Washer, spring	1	
5	Z51060004		Nut	1	
6	Z71031604		Spring pin	1	
7	43-09984		Bearing plate	1	
8	43-09983		Bearing case, left	1	
9	ZZBE628		Ball bearing	2	
10	43-25326		Sprocket, 10T	1	
11	43-53670		Bearing case, right	1	
12	Z16051204		Screw, phd	4	
13	Z65050004		Washer, locking	1	
14	33-09841		Gear bracket	1	
15	43-05607		Light shield cloth	1	
16	43-53668		Sprocket shaft	1	
17	43-25116-1		Gear, 20T	1	
18	Z71021804		Spring pin	1	
19	Z67050004	1723526	'E' ring, 5mm	1	
20	43-35019		Gear, 15T	1	
21	ZZBE626Z		Ball bearing	1	
22	43-53669		Gear shaft	1	
23	Z61060004		Washer, plain	1	
24	43-09934		Shaft, disk sprocket	1	
25	43-09933		Sprocket, disk	1	
26	43-09932-1		Disc	1	
27	Z67060004	1723535	'E' ring, 6mm	1	
28	Z11041004		Screw, phd	9	
29	Z11042004		Screw, phd	2	
30	Z61040004		Washer, plain	3	
31	43-09964		Rail, chain	1	
32	43-09965		Spacer	1	
33	Z11040604		Screw, phd	2	
34	Z11030804		Screw, phd	2	
35	ZOREESPX401	1723571	Photo micro sensor	1	
36	43-09963		Bracket, sensor	1	

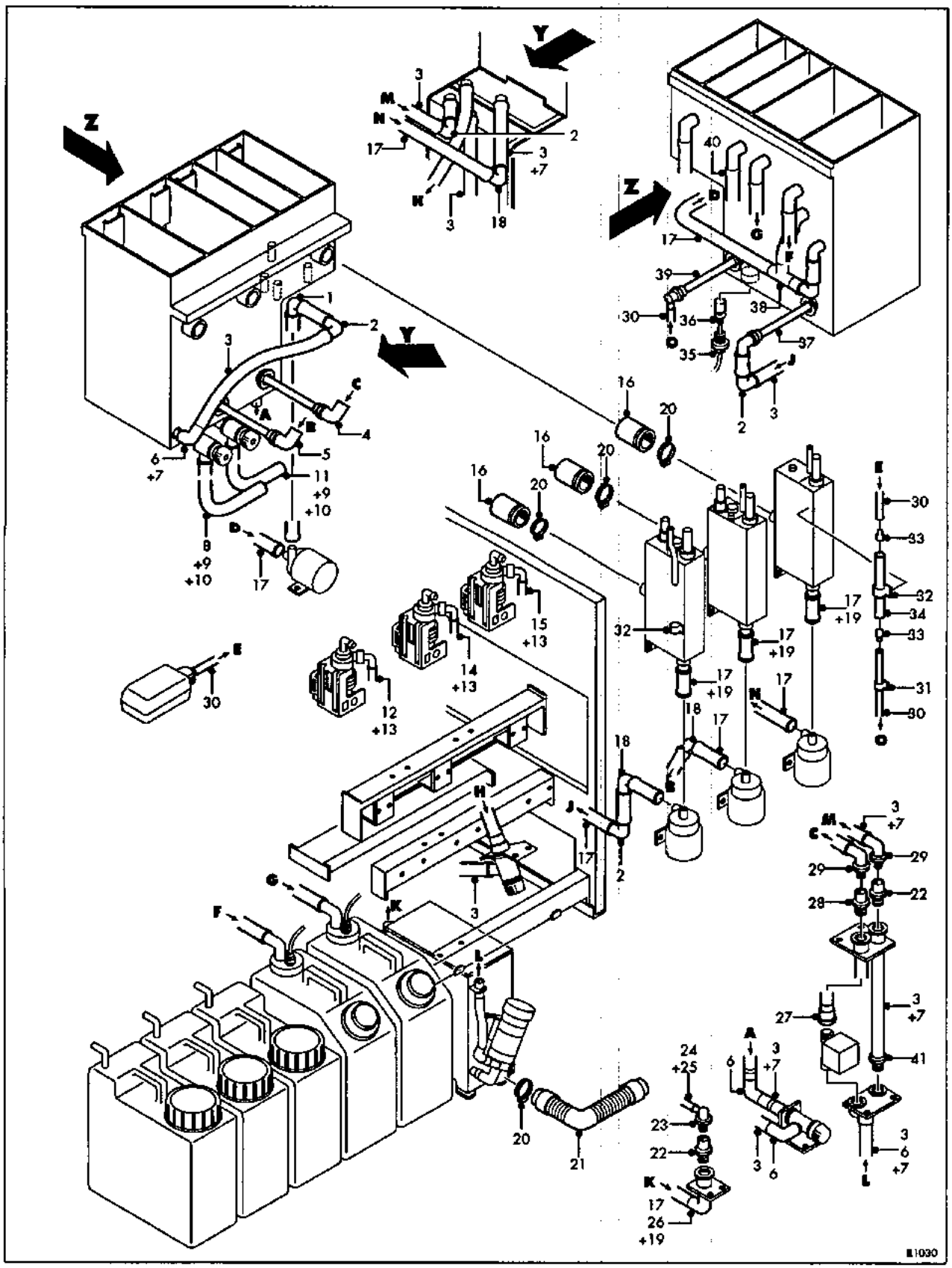

Figure 7.10 Wet system

7.10 Wet system

Ref no. fig 7.10	Part no.	GIN no.	Description	Quantity	Serial no.
1	43-18603	1724864	Elbow joint, pump	1	
2	43-09993		Elbow joint	5	
3	ZZVH16222000BL		Hose, vinyl, black		
4	33-25809-1		Pipe	1	
5	33-09559		Pipe	1	
6	43-14463		Elbow	4	
7+	ZMRND10		Hose clamp	13	
8	42-A2237		Drain hose set, D	1	
9+	ZMRND10		Hose clamp	2	
10+	ZTYT30R/HS		Cable tie	2	
11	42-A2238		Drain hose set, F	1	
12	ZZVH09132000CL		Hose, vinyl, transparent		
13+	43-Z0835		Wire clamp	6	
14	ZZVH09132000RE		Hose, vinyl, red		
15	ZZVH09132000YE		Hose, vinyl, yellow		
16	ZZVH35412000BL		Hose, vinyl, black		
17	ZZVH13193000BL		Hose, vinyl, black		
18	43-25211		Elbow	3	
19+	ZMRNM6		Hose clamp	13	
20	ZMRND20		Hose clamp	4	
21	43-Z0825		Flexible hose	1	
22	ZYV13MD15	1724855	Valve, constant flow	2	
23	43-A2284		Hose joint, D	1	
24	ZZVH07112000CL		Hose, vinyl, transparent		
25+	ZPKMS0200N		Hose clamp	5	
26	43-65666		Elbow joint	1	
27	43-A2297		Hose joint, A	1	
28	ZYV13MZ05	1749201	Valve, constant flow, 60Hz	1	
29	43-09904		Elbow joint	2	
30	ZZVH04062000CL		Hose, vinyl, transparent		
31	ZKICKN10		Clamp	1	
32	ZKICKN13		Clamp	4	
33	43-76709-1		Hose joint	2	
34	ZZVH10132000CL		Hose, vinyl, transparent		
35	43-09900	1724873	Holder, level sensor	1	
36	33-45997-B2		Level sensor	1	
37	33-09903		Pipe	1	
38	43-09919		'T' joint	1	
39	33-09561-1		Pipe	1	
40	ZZVH17222000CL		Hose, vinyl, transparent		
41	43-A2298		Hose joint, B	1	

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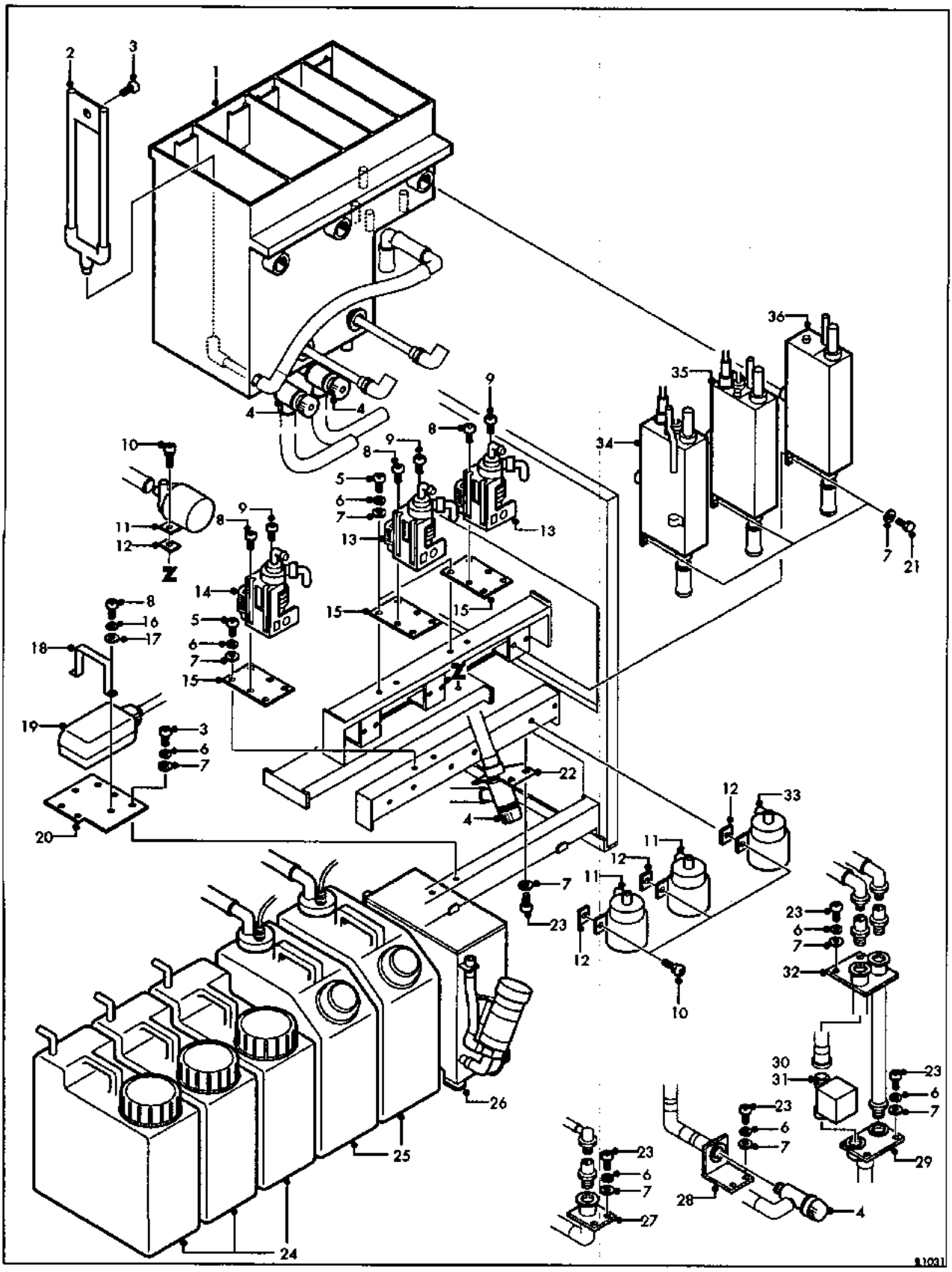

Figure 7.11 Wet system

7.11 Wet system

Ref no. fig 7.11	Part no.	GIN no.	Description	Quantity	Serial no.
1	13-A2299		Processing tank	1	
2	33-09893-1		Pipe, dev	1	
3	Z11051004		Screw, phd	6	
4	32-76015	1723021	'L' shaped valve	4	
5	Z11050804		Screw, phd	6	
6	Z62050004		Washer, spring	6	
7	Z61050004		Washer, plain	23	
8	Z11040604		Screw, phd	8	
9	Z11041204		Screw, phd	6	
10	Z16051204		Screw, phd	8	
11	ZIWMD10UNO	1723654	Magnet pump	3	
12	43-08692-1		Gasket	8	
13	ZIWKBA3YAU1S32	1720886	Rep pump	2	
14	ZIWKBA3XAU1568	1719693	Rep pump	1	
15	43-09899		Rep pump base	3	
16	Z62040004		Washer, spring	2	
17	Z61040004		Washer, plain	6	
18	43-25788-1		Clamp, air pump	1	
19	ZADX101AC100V	1723865	Air pump	1	
20	43-A2292		Bracket, air pump	1	
21	Z41051004		Bolt, hex hd	6	
22	43-09896		Valve holder, C	1	
23	Z11051204		Screw, phd	8	
24	32-09973-1		Rep tank assy (ref fig 7.15)		
25	32-09976-1		Drain tank assy (ref fig 7.16)		
26	22-A2275-1		Water tank assy (ref fig 7.17)		
27	43-A2296		Valve holder, D	1	
28	43-A2295		Valve holder, C	1	
29	43-A2293		Valve holder, A	1	
30	43-91027-1		Cover, solenoid	1	
31	ZCKJ240521	1723609	Solenoid valve	1	
32	43-A2294		Valve holder, B	1	
33	ZIWND6	1723663	Magnet pump	1	
34	22-09881-1		Temp control tank assy, dev (ref fig 7.12)		
35	22-09885-1		Temp control tank assy, fix (ref fig 7.13)		
36	22-09887		Temp control tank assy, rinse (ref fig 7.14)		

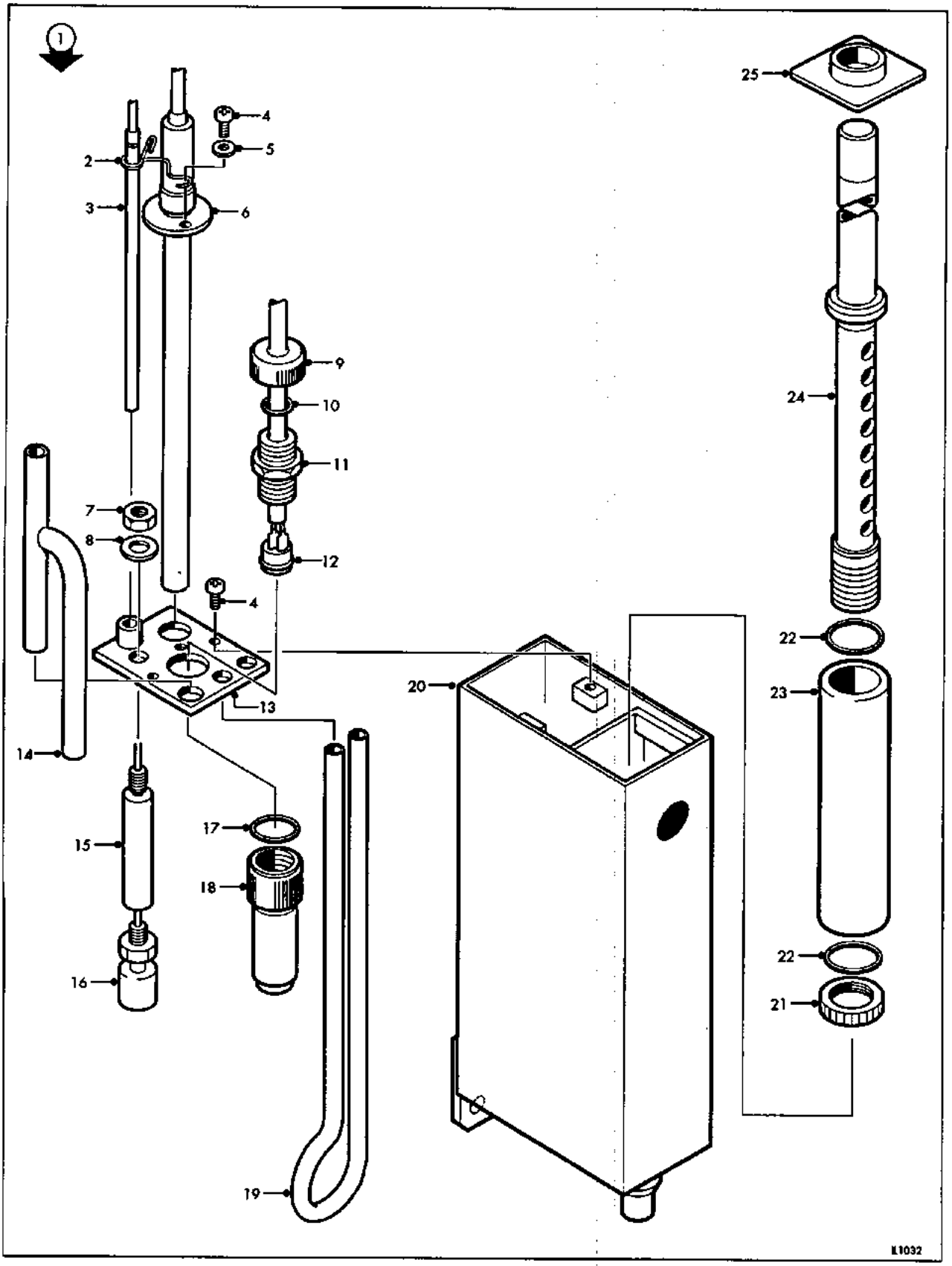

Figure 7.12 Temperature control tank assembly, developer

7.12 Temperature control tank assembly, developer

Ref no. fig 7.12	Part no.	GIN no.	Description	Quantity	Serial no.
1	22-09881-1		Temp control tank assy, dev	1	
2	43-25195-1		Earth clip	1	
3	ZTDPM6	1723773	Sensor	1	
4	Z11041206		Screw, phd	4	
5	Z61040006		Washer, plain	1	
6	ZMACH130180S	1724882	Heater, 220V, 180W	1	
7	Z51080004		Nut	1	
8	Z61080004		Washer, plain	1	
9	43-25455-1		Cap, 'O' ring sealed	1	
10	ZZORP0080C	1723755	'O' ring	1	
11	43-25456-1		Socket, 'O' ring sealed	1	
12	ZEW2455R43137	1722976	Thermostat	1	
13	43-09883-3		Lid, temp control tank	1	
14	43-76754		Rep pipe	1	
15	43-76610	1734672	Level sensor connector	1	
16	33-45997-A2	1723791	Level sensor	1	
17	ZZORP0210C	1718180	'O' ring	1	
18	43-25457-1		Case, thermostat	1	
19	33-18614		Cooling pipe	1	
20	23-09882-3		Temp control tank, dev	1	
21	43-76607-1		Nut	1	
22	ZZORP0220AC	1723892	'O' ring	2	
23	43-35063	1715156	Filter, 35dx140	1	
24	33-35062-1		Holder, filter	1	
25	43-09884		Lid, filter	1	

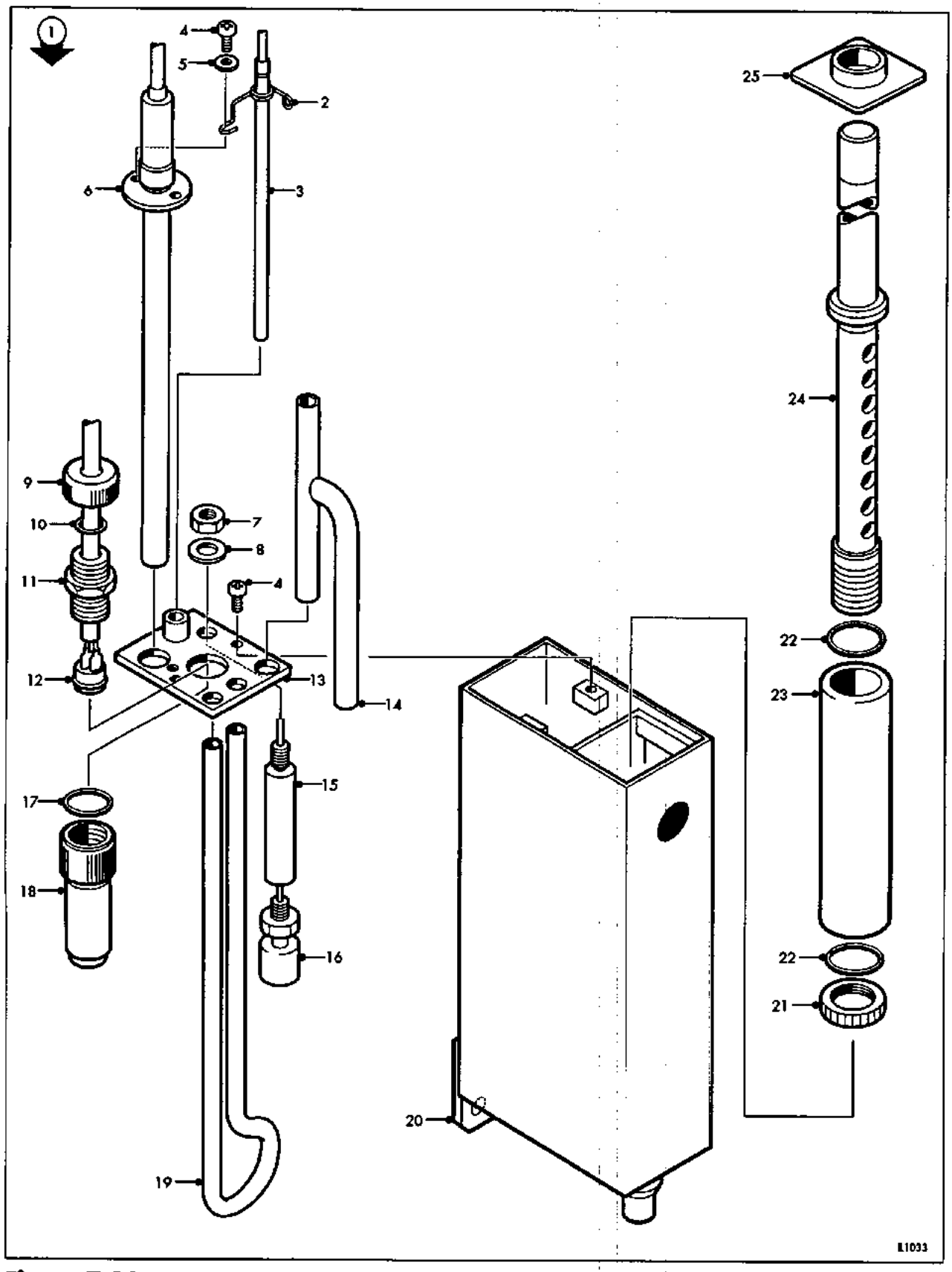

Figure 7.13 Temperature control tank assembly, fixer

7.13 Temperature control tank assembly, fixer

Ref no. fig 7.13	Part no.	GIN no.	Description	Quantity	Serial no.
1	22-09885-1		Temp control tank assy, fix	1	
2	43-25195-1		Earth clip	1	
3	ZTDM1K	1723627	Sensor	1	
4	Z11041206		Screw, phd	4	
5	Z61040006		Washer, plain	1	
6	ZMACH130240S	1723113	Heater, 220V, 240W	1	
7	Z51080004		Nut	1	
8	Z61080004		Washer, plain	1	
9	43-25455-1		Cap, 'O' ring sealed	1	
10	ZZORP0080C	1723755	'O' ring	1	
11	43-25456-1		Socket, 'O' ring sealed	1	
12	ZEW2455R43137	1722976	Thermostat	1	
13	43-09886-4		Lid, temp control tank	1	
14	43-76754		Rep pipe	1	
15	43-76610	1734672	Level sensor connector	1	
16	33-45997-A2	1723791	Level sensor	1	
17	ZZORP0210C	1718180	'O' ring	1	
18	43-25457-1		Case, thermostat	1	
19	33-18614		Cooling pipe	1	
20	23-09882-3		Temp control tank, fix	1	
21	43-76607-1		Nut	1	
22	ZZORP0220AC	1723892	'O' ring	2	
23	43-35063	1715156	Filter, 35dx140	1	
24	33-35062-1		Holder, filter	1	
25	43-09884		Lid, filter	1	

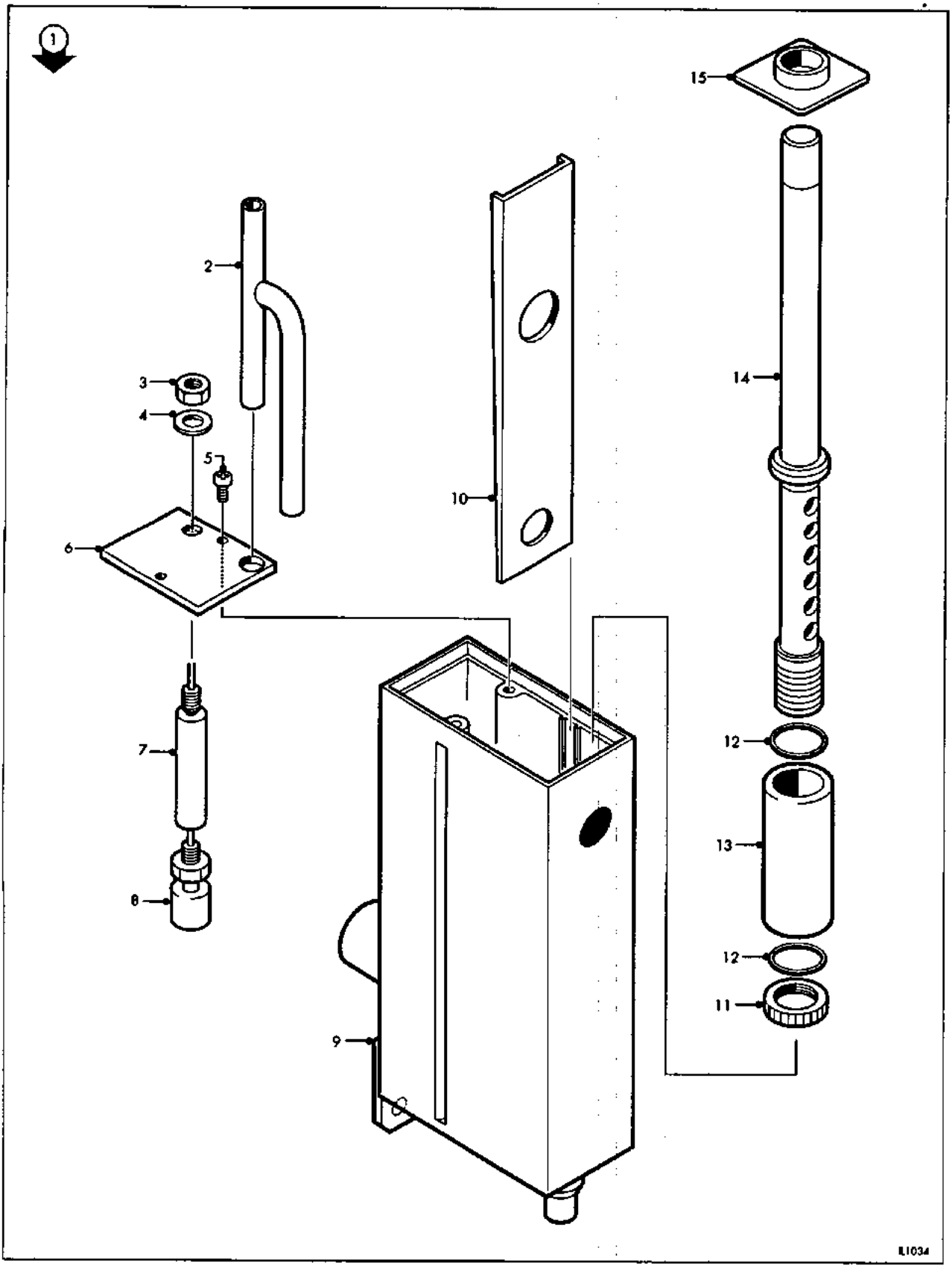

Figure 7.14 Temperature control tank assembly, rinse solution

7.14 Temperature control tank assembly, rinse solution

Ref no. fig 7.14	Part no.	GIN no.	Description	Quantity	Serial no.
1	22-09887		Temp control tank assy, rinse solution	1	
2	43-76754		Rep pipe	1	
3	Z51080004		Nut	1	
4	Z61080004		Washer, plain	1	
5	Z11041206		Screw, phd	1	
6	43-09888		Lid, control tank	1	
7	43-76610	1734672	Level sensor connector	1	
8	33-45997-A2	1723791	Level sensor	1	
9	23-25779-2		Control tank, rinse	1	
10	33-25985		Plate, control tank	1	
11	43-76607-1		Nut	1	
12	ZZORP0220AC	1723892	'O' ring	2	
13	43-35063	1715156	Filter, 35dx140	1	
14	33-35062-1		Holder, filter	1	
15	43-25962-1		Lid, filter	1	

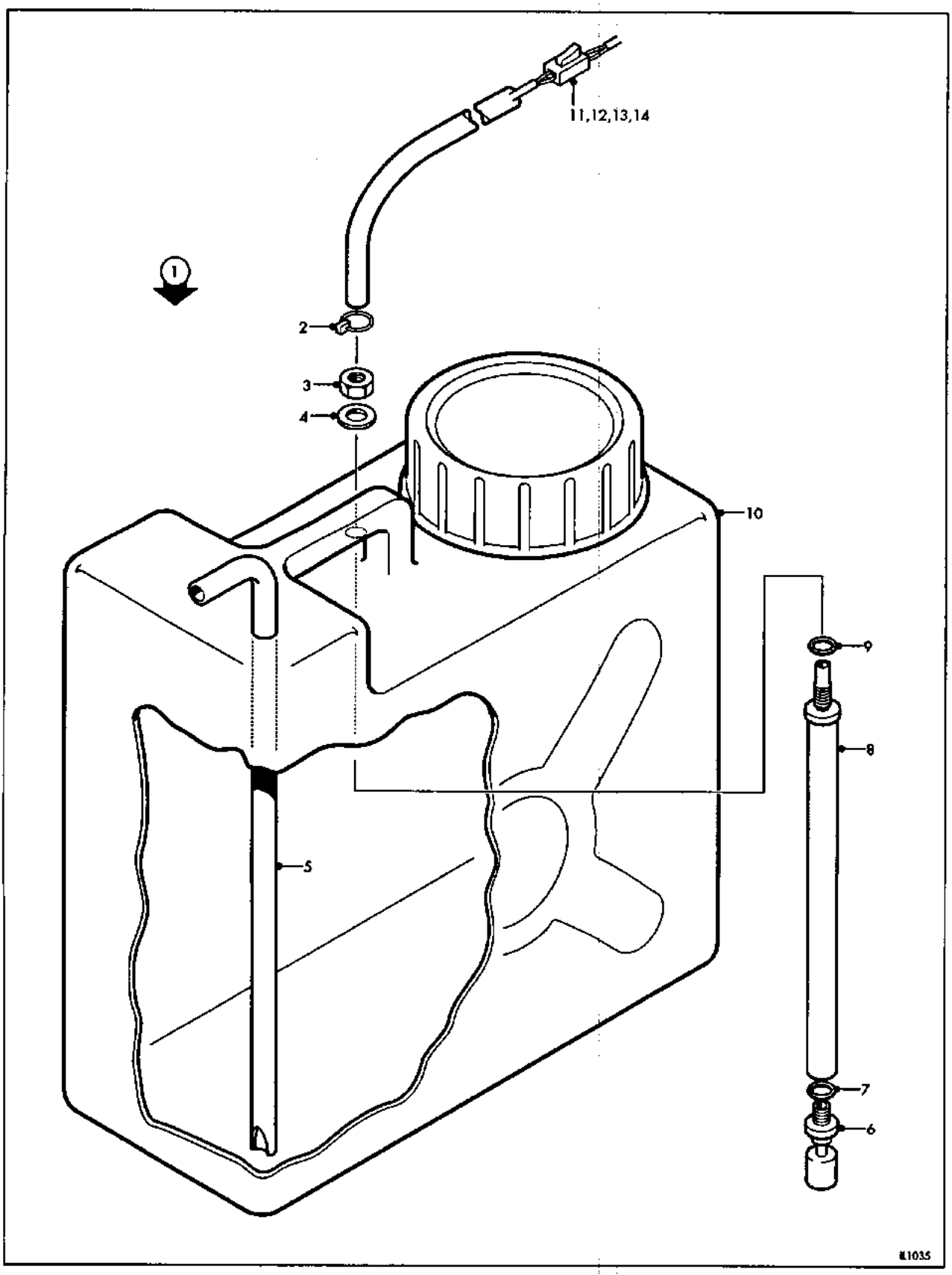

Figure 7.15 Replenishment tank assembly

7.15 Replenishment tank assembly

Ref no. fig 7.15	Part no.	GIN no.	Description	Quantity	Serial no.
1	32-09973-1		Rep tank assy	3	
2	ZTYT1BR/HS		Tie	3	
3	Z51100004		Nut	3	
4	Z61100004		Washer, plain	3	
5	43-18679-1		Rep pipe, suction	3	
6	33-45997-A2	1723791	Level sensor	3	
7	ZZORP0080E		'O' ring	3	
8	43-09975-1		Sensor joint	3	
9	ZZORP0100C	1723737	'O' ring	3	
10	43-09974		Rep bottle, 10l	3	
11	ZNILR02F1		Connector, cap	3	
12	ZNILP021		Connector, plug	3	
13	ZNILLM01T20		Pin contact	6	
14	ZNILLF01T20		Socket contact	6	

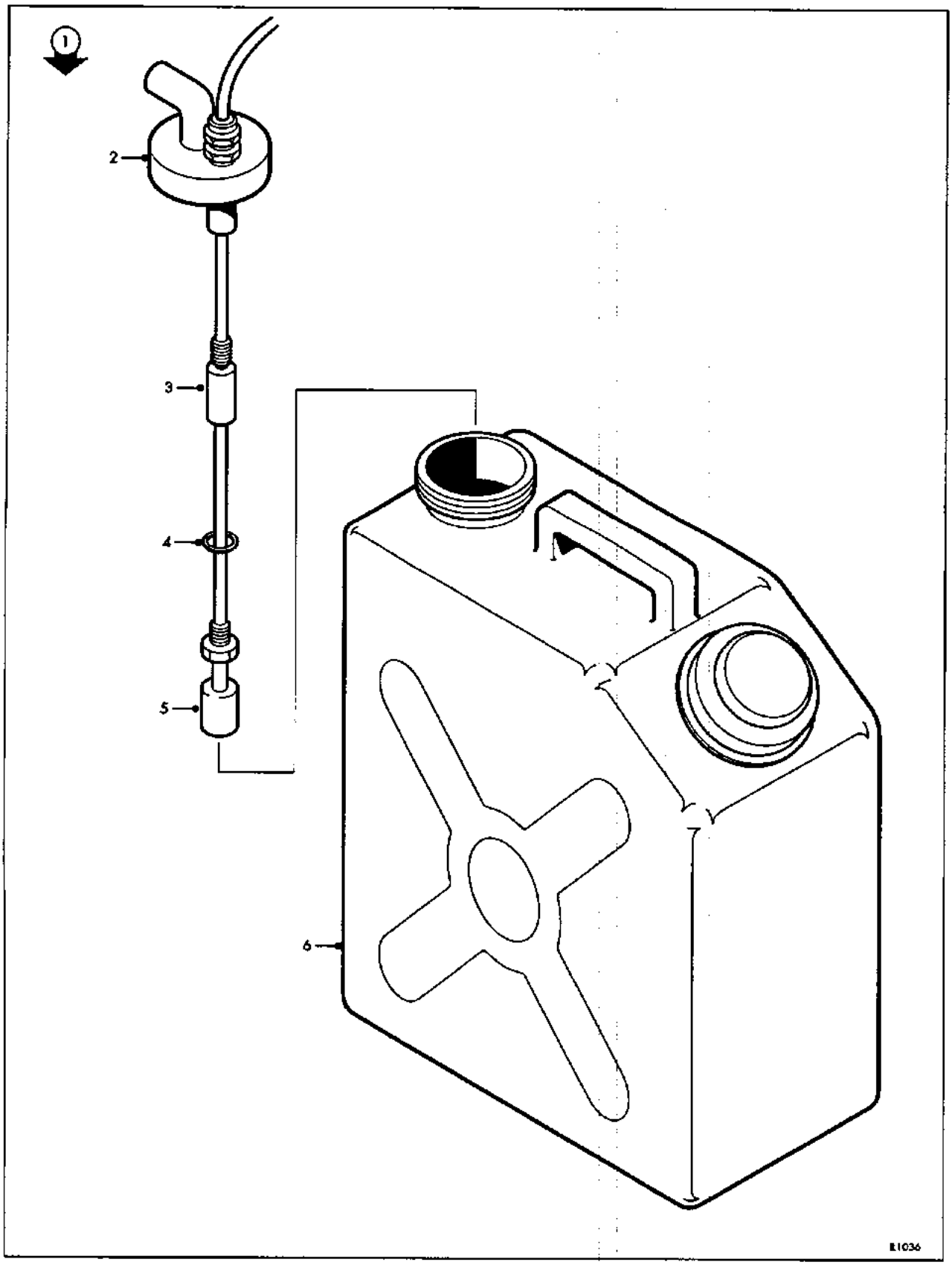

Figure 7.16 Drain tank assembly

7.16 Drain tank assembly

Ref no. fig 7.16	Part no.	GIN no.	Description	Quantity	Serial no.
1	32-09976-1		Drain tank assy	2	
2	42-86665-1		Sensor cap	2	
3	43-45083	1734654	Sensor joint	2	
4	ZZORP0080E		'O' ring	2	
5	33-45997-B1		Level sensor	2	
6	43-Z0826		Drain bottle	2	

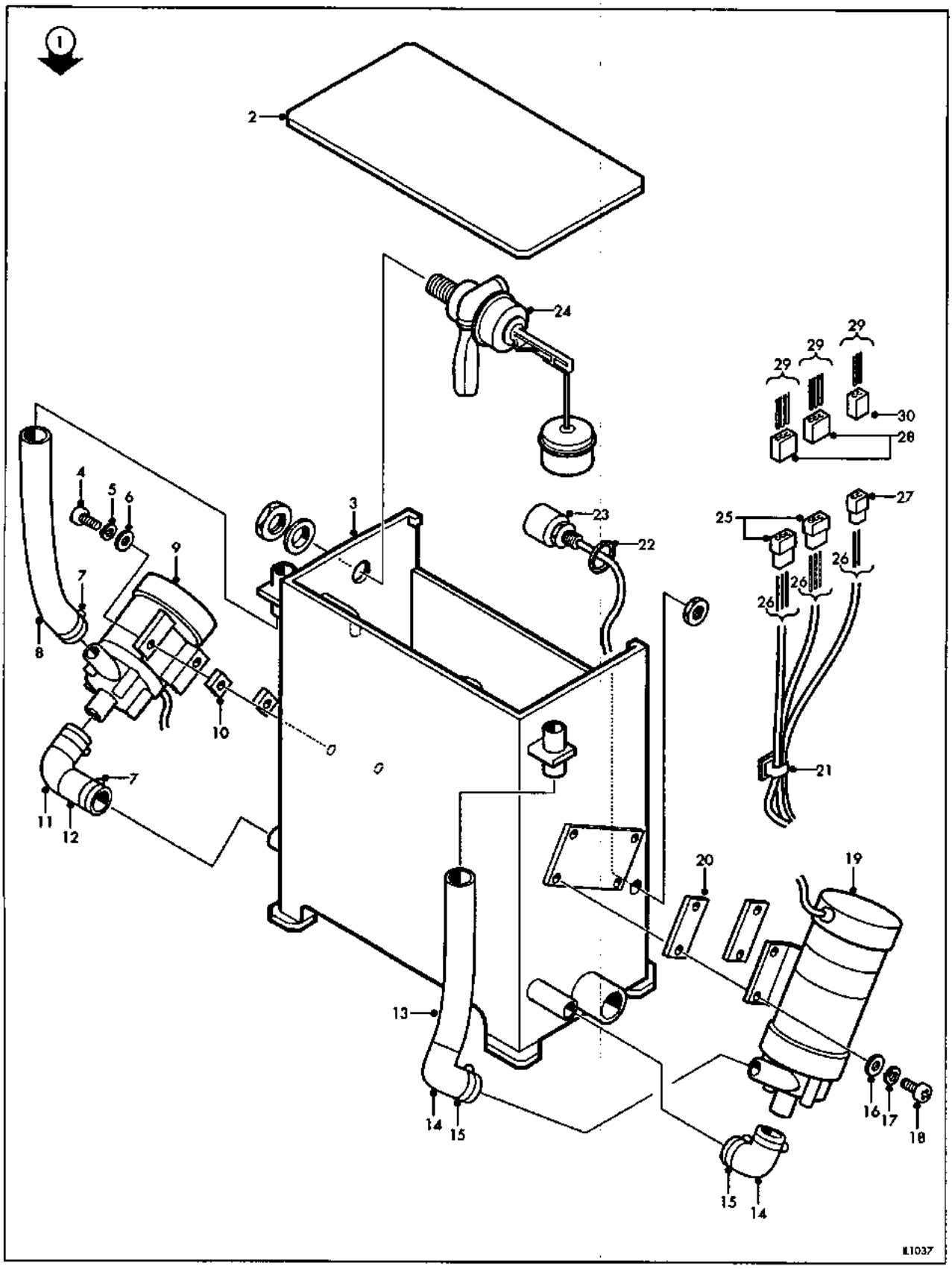

Figure 7.17 Water storage tank

7.17 Water storage tank

Ref no. fig 7.17	Part no.	GIN no.	Description	Quantity	Serial no.
1	22-A2275-1		Water tank assy	1	upto A010077
	22-A2275-3		Water tank assy	1	from A010078
2	33-A2277-1		Lid, tank	1	upto A010077
	33-A2277-2		Lid, tank	1	from A010078
3	23-A2276-1		Water tank	1	upto A010110
	23-A2276-3		Water tank	1	from A010111
4	Z11041604		Screw, phd	2	
5	Z62040004		Washer, spring	2	
6	Z61040004		Washer, plain	2	
7	ZMRNM6		Hose clamp	3	
8	ZZVH13172000CL		Hose, vinyl, transparent	1	
9	ZIWMD10NL02	1764565	Magnet pump	1	
10	43-45988		Gasket	2	
11	43-65666		Elbow joint	1	
12	ZZVH13192000BL		Hose, vinyl, black	1	
13	ZZVH17222000CL		Hose, vinyl, transparent	1	
14	43-14463		Elbow	2	
15	ZMRND10		Hose clamp	3	
16	Z61050004		Washer, plain	4	
17	Z62050004		Washer, spring	4	
18	Z11051604		Screw, phd	4	
19	ZIWMD20RNL05	1764574	Magnet pump	1	
20	43-08688-1		Gasket	2	
21	ZKICKN13		Clamp	1	
22	ZZORP0125C	1786152	'O' ring	1	
23	ZRIMFS21E1	1786161	Level sensor	1	
24	43-A2278	1749191	Float valve	1	upto A010187
	43-A2278-1	1749191	Float valve	1	from A010188
25	ZAM14803050		Housing, cap	2	
26	ZAM606184		Pin, contact	8	
27	ZAM14803190		Housing, cap	1	
28	ZAM14803030		Housing, plug	2	
29	ZAM606174		Socket, contact	8	
30	ZAM14803180		Housing, plug	1	

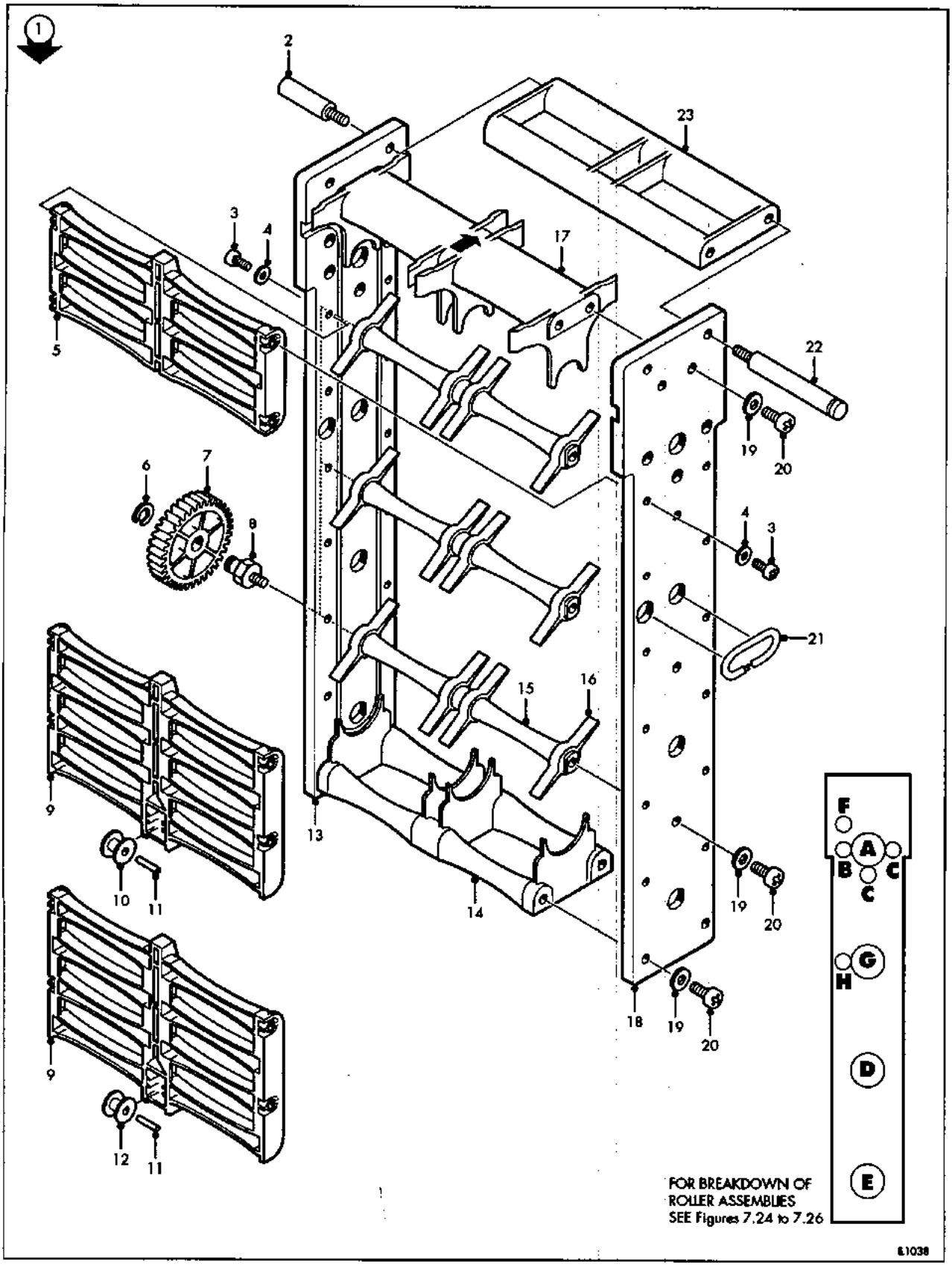

Figure 7.18 Developer rack

7.18 Developer rack

Ref no. fig 7.18	Part no.	GIN no.	Description	Quantity	Serial no.
1	12-09811-2	1724891	Rack assy, dev	1	
2	43-25040		Holder, rack, 10mm d	2	
3	Z11041606	1723681	Screw, phd	24	
4	Z61040006		Washer, plain	24	
5	33-25044		Film guide, short	1	
6	43-85464-1	1724947	Retaining ring, white, 6mm d	3	
7	43-25042-2	1723379	Gear, idle, 35T	3	
8	43-25041		Shaft, idle	3	
9	23-25032-2		Film guide	5	
10	43-25034-1		Guide roller, 14mm d	3	
11	43-25033		Shaft, roller	5	
12	43-25091		Guide roller, 12mm d	2	
13	23-09812-1	1723883	Frame, rack side, left	1	
14	23-25426	1722967	Guide, rack, lower	1	
15	33-05600-1		Shaft, film guide	3	
16	33-25036-1	1723049	Film guide	12	
17	23-25425	1722958	Guide, upper, inlet	1	
18	23-09813	1722949	Frame, rack side, right	1	
19	Z61050006		Washer, plain	11	
20	Z11051606		Screw, phd	11	
21	43-25719	1734571	Spring	2	
22	43-53528-1		Holder, rack, 12mm d	2	
23	23-35829		Holder span	1	

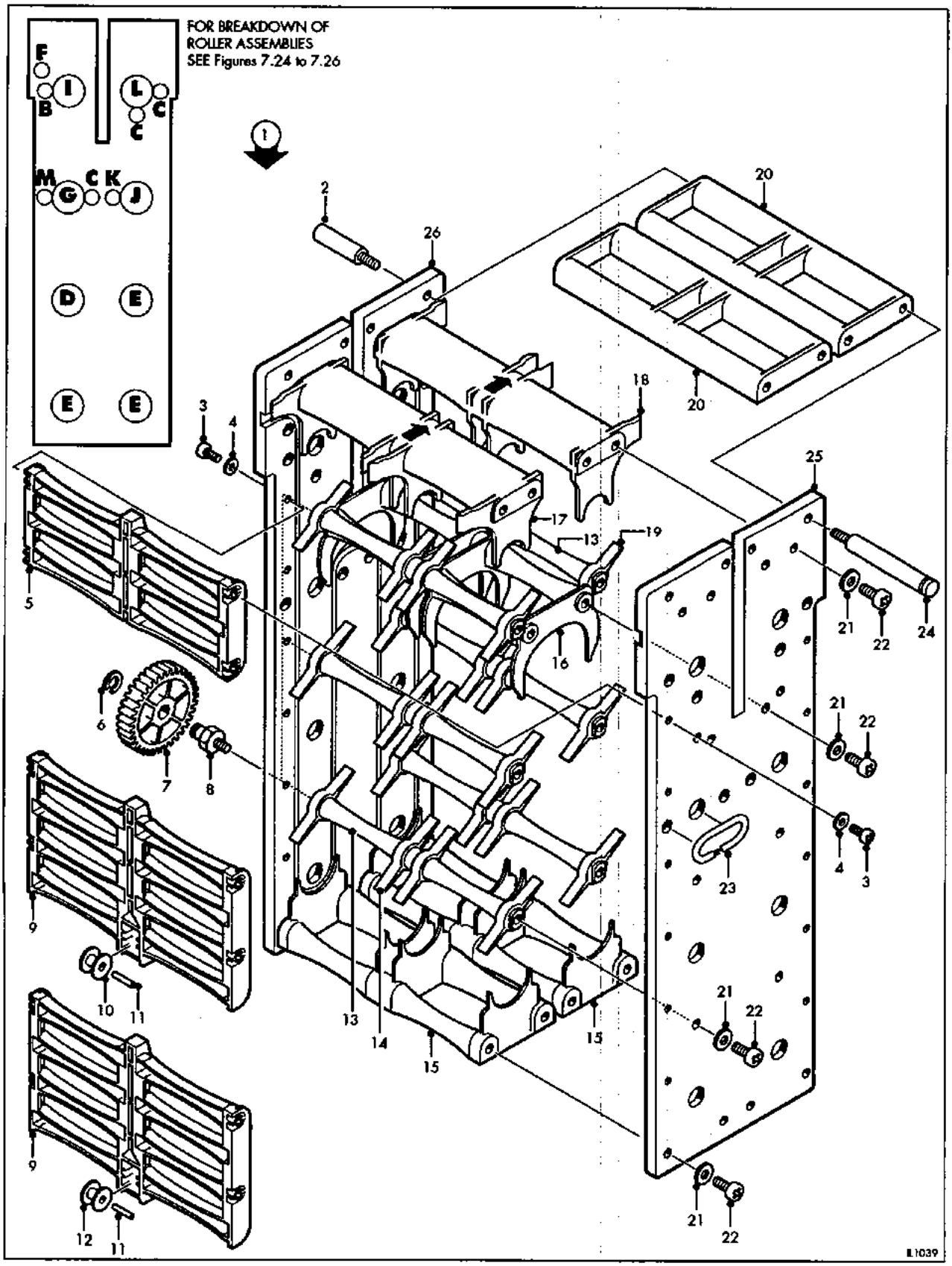

Figure 7.19 Fixer rack

7.19 Fixer rack

Ref no. fig 7.19	Part no.	GIN no.	Description	Quantity	Serial no.
1	12-098143	1724909	Rack assy, fixer, short	1	upto A010187
	12-A3920	1761449	Rack assy, fixer, long	1	from A010188
2	43-25040		Holder, rack, 10mm d	2	
3	Z11041606	1723681	Screw, phd	36	
4	Z61040006		Washer, plain	36	
5	33-25044		Film guide, short	1	
6	43-85464-1	1724947	Retaining ring, white, 6mm d	5	
7	43-25042-2	1723379	Gear, idle, 35T	6	
8	43-25041		Shaft, idle	5	
9	23-25032-2		Film guide	7	
10	43-25034-1		Guide roller, 14mm d	3	
11	43-25033		Shaft, roller	7	
12	43-25091		Guide roller, 12mm d	4	
13	33-05600-1		Shaft, film guide	6	
14	33-25036-1	1723049	Film guide	13	
15	23-25426	1726967	Guide, rack, lower	2	
16	33-25070-2		Guide, turn, under solution	1	
17	43-25427	1734517	Guide, rack inlet, upper	1	
18	43-25428	1734526	Guide, rack outlet, upper	1	
19	43-25066	1723397	Film guide, short	8	
20	23-35829		Holder span	2	
21	Z61050006		Washer, plain	25	
22	Z11051606		Screw, phd	25	
23	43-25719	1734571	Spring	2	
24	43-53528-1		Holder, rack, 12mm d	2	
25	23-09918-2		Frame, rack side, rh	1	upto A010187
	23-A3922		Frame, rack side, rh	1	from A010188
26	23-09917-2		Frame, rack side, lh	1	upto A010187
	23-A3921		Frame, rack side, lh	1	from A010188

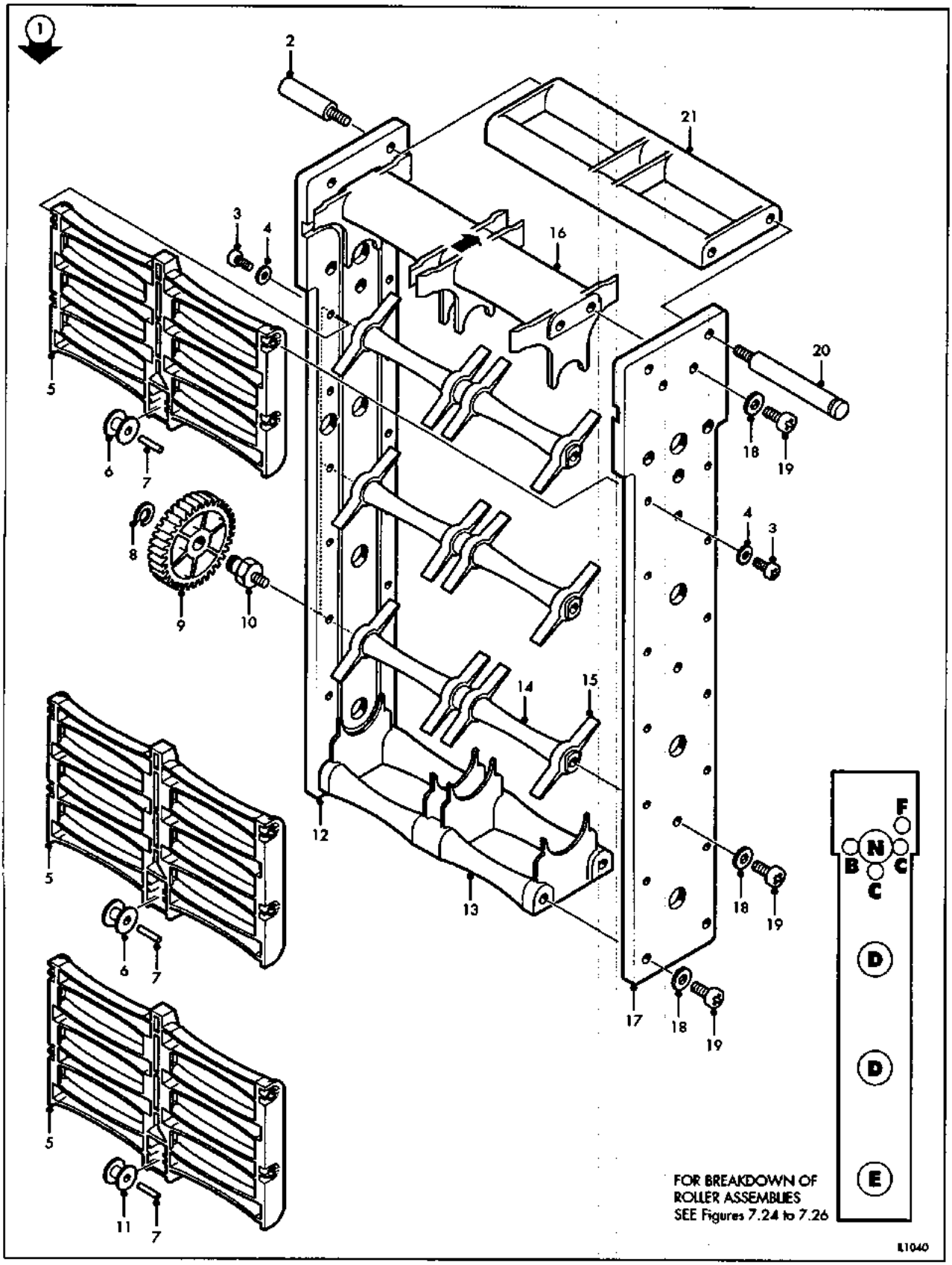

Figure 7.20 Wash water rack

7.20 Wash water rack

Ref no. fig 7.20	Part no.	GIN no.	Description	Quantity	Serial no.
1	12-09815-3	1724910	Rack assy, wash water, WS1	1	
2	43-25040		Holder, rack, 10mm d	2	
3	Z11041606	1723681	Screw, phd	24	
4	Z61040006		Washer, plain	24	
5	23-25032-2		Film guide	6	
6	43-25034-1		Guide roller, 14mm d	4	
7	43-25033		Shaft, roller	6	
8	43-85464-1	1724947	Retaining ring, white, 6mm d	3	
9	43-25042-2	1723379	Gear, idle, 35T	3	
10	43-25041		Shaft, idle	3	
11	43-25091		Guide roller, 12mm d	2	
12	23-09998		Frame, rack side, lh	1	
13	23-25426	1722967	Guide, lower	1	
14	33-05600-1		Shaft, film guide	3	
15	33-25036-1	1723049	Film guide	12	
16	23-25425	1722958	Guide, upper, inlet	1	
17	23-09999		Frame, rack side, rh	1	
18	Z61050006		Washer, plain	11	
19	Z11051606		Screw, phd	11	
20	43-53528-1		Holder, rack, 12mm d	2	
21	23-35829		Holder span	1	

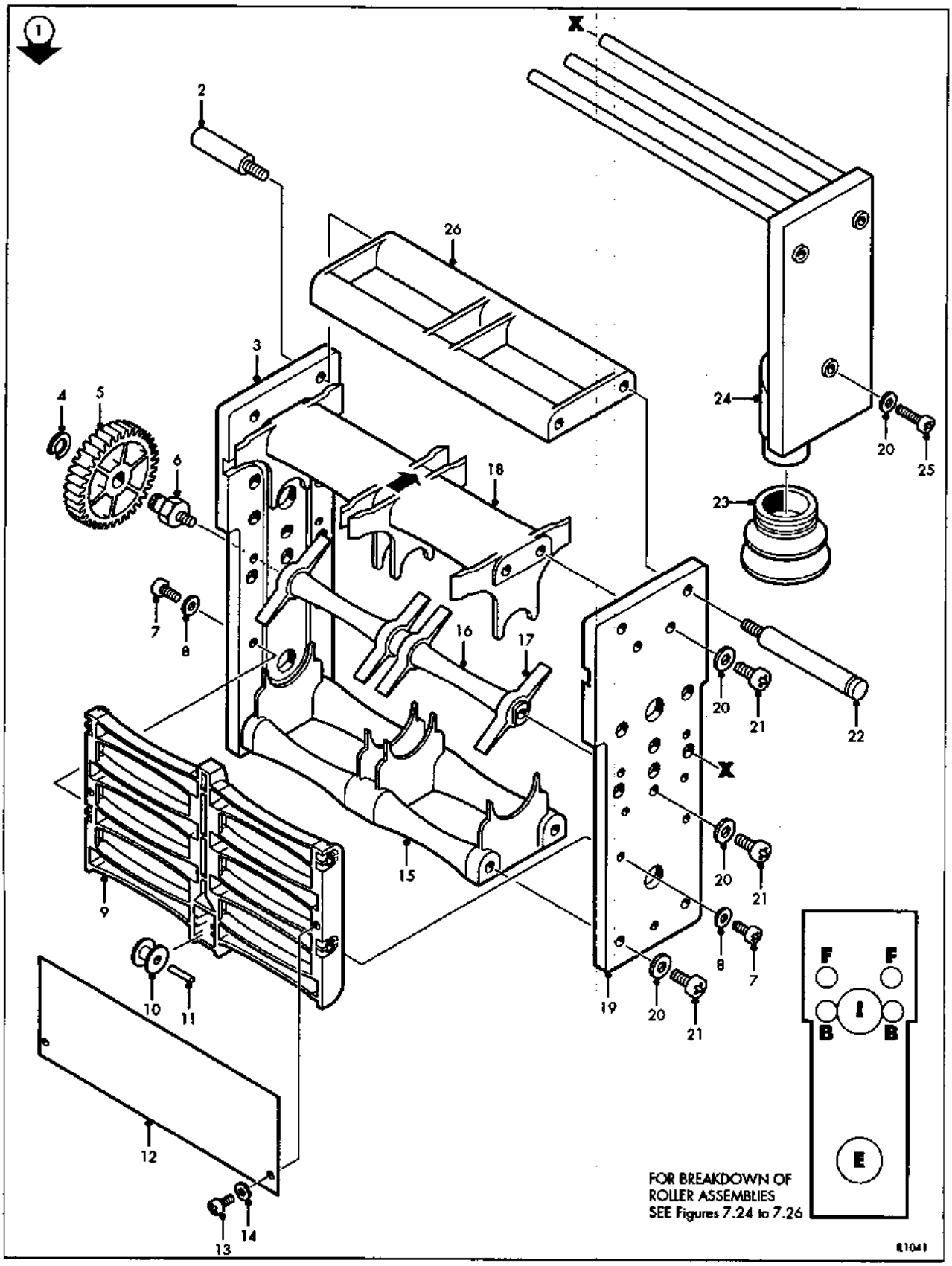

Figure 7.21 Wash spray rack

7.21 Wash spray rack

Ref no. fig 7.21	Part no.	GIN no.	Description	Quantity	Serial no.
1	12-A3928	1724929	Rack assy, wash spray, WS2	1	
2	43-25040		Holder, rack, 10mm d	2	
3	23-09820-1		Frame, rack side, lh	1	
4	43-85464-1		Retaining ring, white, 6mm d	1	
5	43-25042-2	1723379	Gear, idle, 35T	1	
6	43-25041		Shaft, idle	1	
7	Z11041606	1723681	Screw, phd	19	
8	Z61040006		Washer, plain	8	
9	33-09819-1		Film guide	2	
10	43-25091		Guide roller, 12mm d	2	
11	43-25033		Shaft, roller	2	
12	43-09982		Splash guard	2	
13	Z11030604		Screw, phd	4	
14	Z61030004		Washer, plain	4	
15	23-25426	1722967	Guide, lower	1	
16	33-05600-1		Shaft, film guide	1	
17	33-25036-1	1723049	Film guide	4	
18	23-25425	1722958	Guide, upper, inlet	1	
19	23-09821-1		Frame, rack side, rh	1	
20	Z61050006		Washer, plain	12	
21	Z11051606		Screw, phd	20	
22	43-53528-1		Holder, rack, 12mm d	2	
23	43-51678		Bellows joint	1	
24	23-09822		Shower pipe	1	
25	Z11052506		Screw, phd	3	
26	23-35829		Holder span	1	

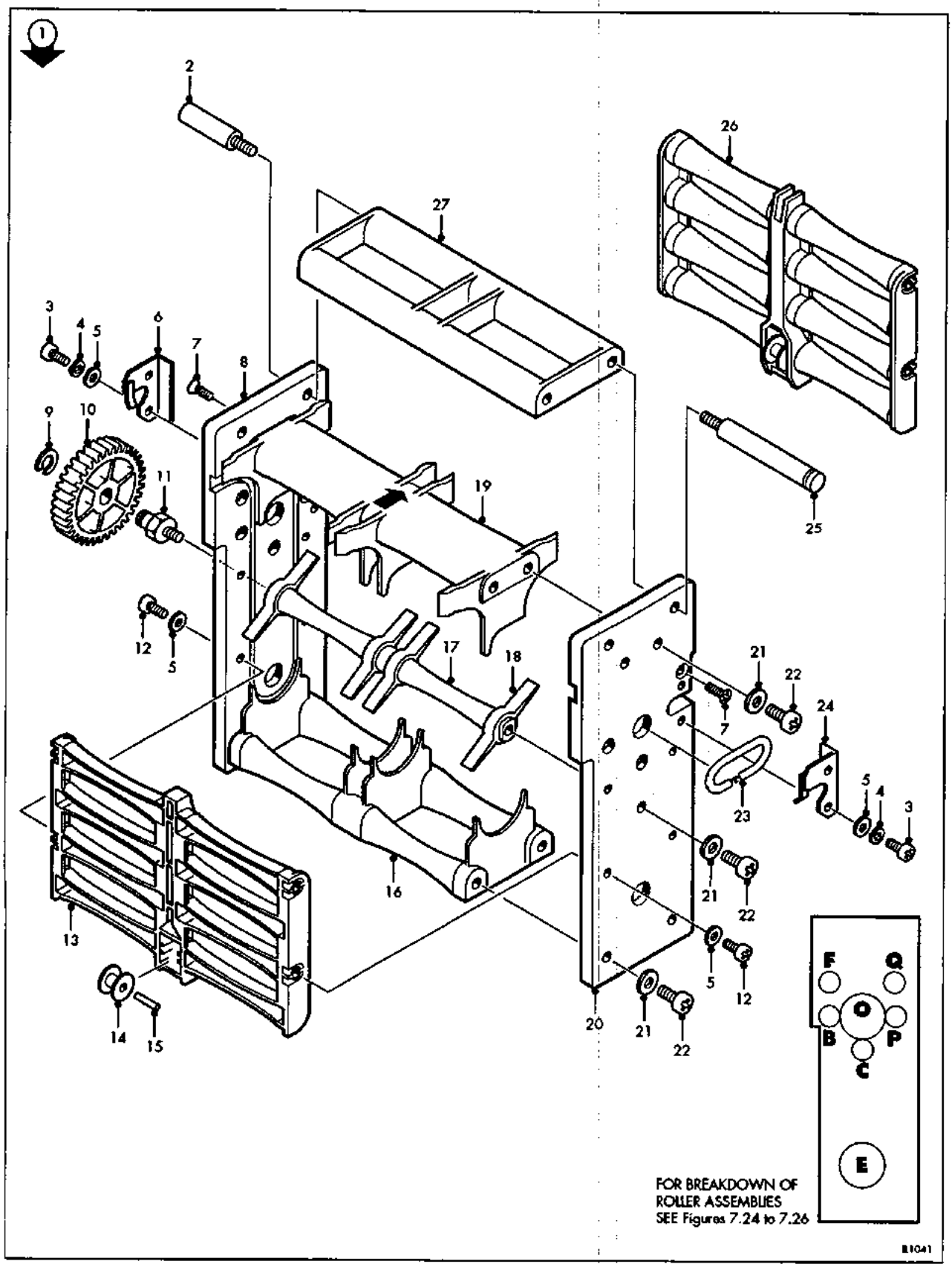

Figure 7.22 Rinse solution rack

7.22 Rinse solution rack

Ref no. fig 7.22	Part no.	GIN no.	Description	Quantity	Serial no.
1	22-09823-3	1724938	Rack assy, rinse solution, WS3	1	
2	43-25040		Holder, rack, 10mm d	2	
3	Z11041206		Screw, phd	4	
4	Z62040004		Washer, spring	4	
5	Z61040006		Washer, plain	12	
6	43-25087		Support, lh	1	
7	Z12040804		Screw, flat hd	2	
8	33-09824-1		Frame, rack side, lh	1	
9	43-85464-1		Retaining ring, white, 6mm d	1	
10	43-25042-2	1723379	Gear, idle, 35T	1	
11	43-25041		Shaft, idle	1	
12	Z11041606	1723681	Screw, phd	8	
13	23-25032-2		Film guide	1	
14	43-25091		Guide roller, 12mm d	2	
15	43-25033		Shaft, guide roller	2	
16	23-25426-2		Guide, lower	1	
17	33-05600-1		Shaft, film guide	1	
18	33-25036-1	1723049	Film guide	4	
19	33-35624	1723104	Guide, upper	1	
20	33-09825-1		Frame, rack side, rh	1	
21	Z61050006		Washer, plain	9	
22	Z11051606		Screw, phd	9	
23	43-25043	1734737	Spring	2	
24	43-25083-1		Support, rh	1	
25	43-53528-1		Holder, rack, 12mm d	2	
26	43-25433		Film guide	1	
27	23-35829		Holder span	1	

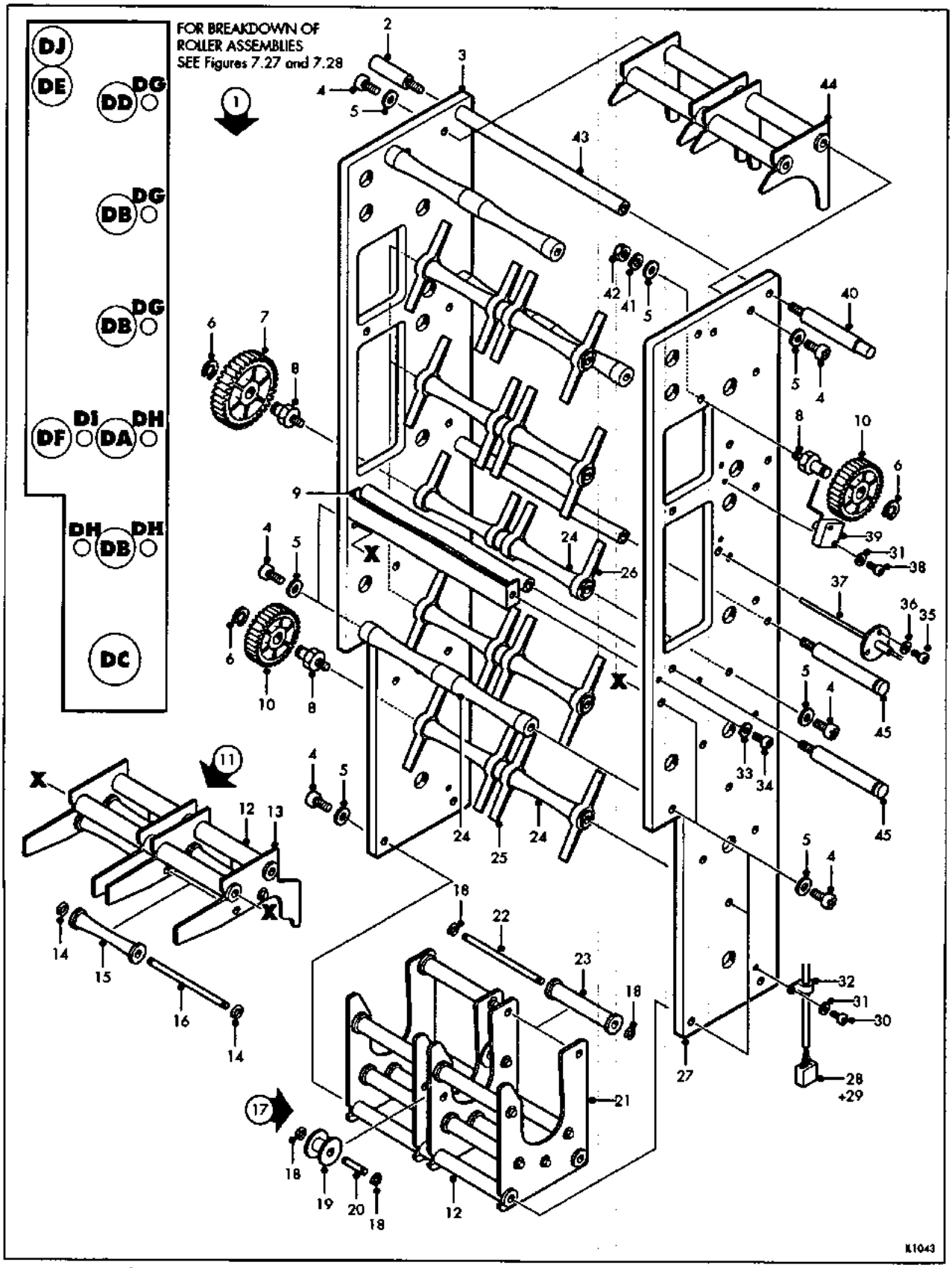

Figure 7.23 Dryer rack

7.23 Dryer rack

Ref no. fig 7.23	Part no.	GIN no.	Description	Quantity	Serial no.
1	12-09921-1		Dryer rack assy	1	
2	43-25040		Holder, rack, 10mm d	3	
3	23-09928-1		Frame, rack side, lh	1	
4	Z11051604		Screw, phd	25	
5	Z61050004		Washer, plain	26	
6	Z67060004	1723535	'E' ring, 6mm	6	
7	43-25042-2	1723379	Gear, idle, 35T	4	
8	43-25041		Shaft, idle gear	6	
9	43-35737		Plate	1	
10	43-08611	1723223	Gear, idle, 27T	2	
11	22-09922		Guide set, inlet assy	1	upto A010045
	22-09922-2		Guide set, inlet assy	1	from A010046
12	33-25586		Shaft, guide, 12mm d	4	
13	33-09923		Guide, inlet	4	upto A010045
	33-09923-3		Guide, inlet	4	from A010046
14	Z67050004	1723526	'E' ring, 5mm	8	
15	43-35701		Roller, concave, inlet	4	
16	43-35700		Shaft, concave roller	4	
17	22-09924		Turn guide set assy	1	
18	Z67040004	1723553	'E' ring	20	
19	43-25592-1		Roller, turn	2	
20	43-86426		Shaft, roller	2	
21	33-09925		Guide, turn	4	
22	43-25588		Shaft, roller	10	
23	43-35742		Roller, side	10	
24	33-05600-1		Shaft, film guide	9	
25	43-95221	1734728	Film guide	16	
26	43-09927	1723250	Film guide	4	
27	23-09929-1		Frame, rack side, rh	1	
28	ZAM14804260		Housing, cap	1	
29+	ZAM606184		Pin, contact	4	
30	Z11031004		Screw, phd	3	
31	Z61030004		Washer, plain	5	
32	ZKINK5N		Clamp	3	
33	Z61040004		Washer, plain	2	
34	Z11041204		Screw, phd	2	
35	Z11030604		Screw, phd	1	
36	Z62030004		Washer, spring	1	
37	ZTDM2K	1723636	Thermistor	1	
38	Z11032504		Screw, phd	2	
39	ZORD2MC01E	1723562	Micro-switch	1	
40	43-25594		Guide, rack	1	
41	Z62050004		Washer, spring	1	
42	Z51050004		Nut	1	
43	43-05532-2		Holder span	3	
44	23-25593-2		Guide, outlet	1	
45	43-53528-1		Holder, rack, 12mm d	2	
46	43-53791-3	1734663	Actuator	1	

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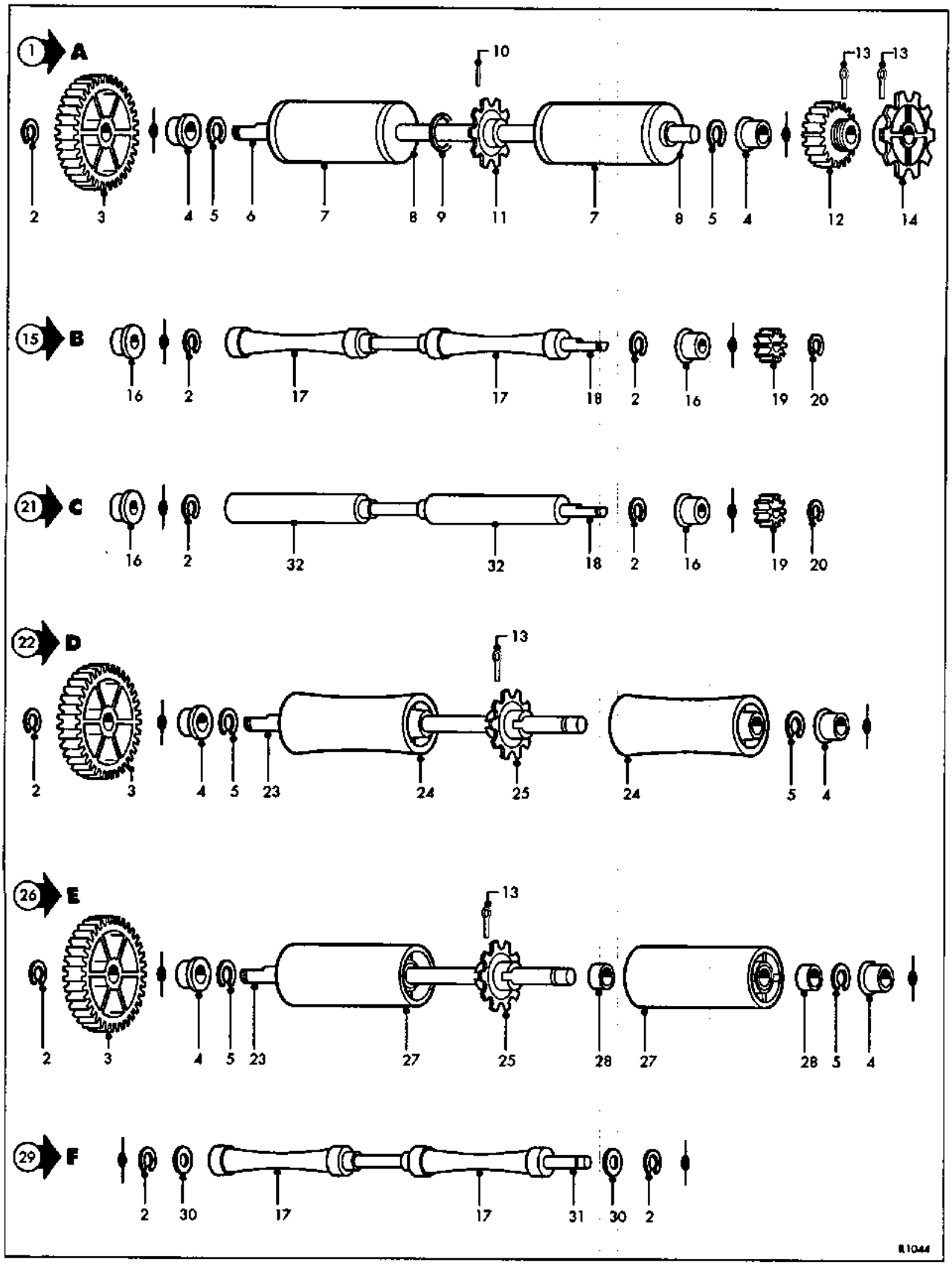

Figure 7.24 Roller assemblies

7.24 Roller assemblies

Ref no. fig 7.24	Part no.	GIN no.	Description	Quantity	Serial no.
1	32-09915	1724956	Roller set, drive	1	
2	43-08538-2	1723214	Retaining ring, grey, 5mm d	51	
3	43-25016-2	1723306	Gear, 35T	11	
4	43-85505-2		Bush, 8mm d	22	
5	43-85464-1	1724947	Retaining ring, white, 6mm d	22	
6	33-25012-1		Shaft, drive roller	1	
7	43-86752	1734719	Centre tube, white	2	
8	43-09916		Roller, drive	2	
9	ZZORP0110E	1723746	'O' ring	1	
10	43-A0480	1723508	Pin	1	
11	43-35788	1734645	Sprocket, centre, 10T	1	
12	43-25015-1	1723296	Gear, 20T	1	
13	Z72022006	1723517	Split pin	12	
14	33-25412	1723076	Sprocket, 10T	1	
15	32-25017	1724965	Roller set, inlet	5	
16	43-25021-1	1723333	Bushing, 6mm d	28	
17	43-25019-1	1723315	Roller, inlet	24	from A010188
18	43-25018		Shaft, inlet roller	14	
19	43-25020	1723324	Gear, 10T	14	
20	43-25022-2	1723388	Retaining ring, yellow, 4mm d	14	
21	32-25024	1724974	Roller set, outlet	2	
22	32-25026	1724983	Roller set, intermediate	1	
23	33-25027		Shaft, intermediate roller	10	
24	43-25028-1	1723351	Roller, intermediate	8	
25	43-25014		Sprocket, centre, 10T	10	
26	32-25029-1	1724992	Roller set, lower turn	1	
27	43-25030-1	1723360	Roller, lower turn	12	
28	ZN10808		Bushing	24	
29	32-25045-1	1725001	Guide roller set	1	
30	43-45168		Thrust collar	12	
31	43-25046-1		Shaft, roller guide	6	
32	43-25025-1		Roller, inlet	18	upto A010187

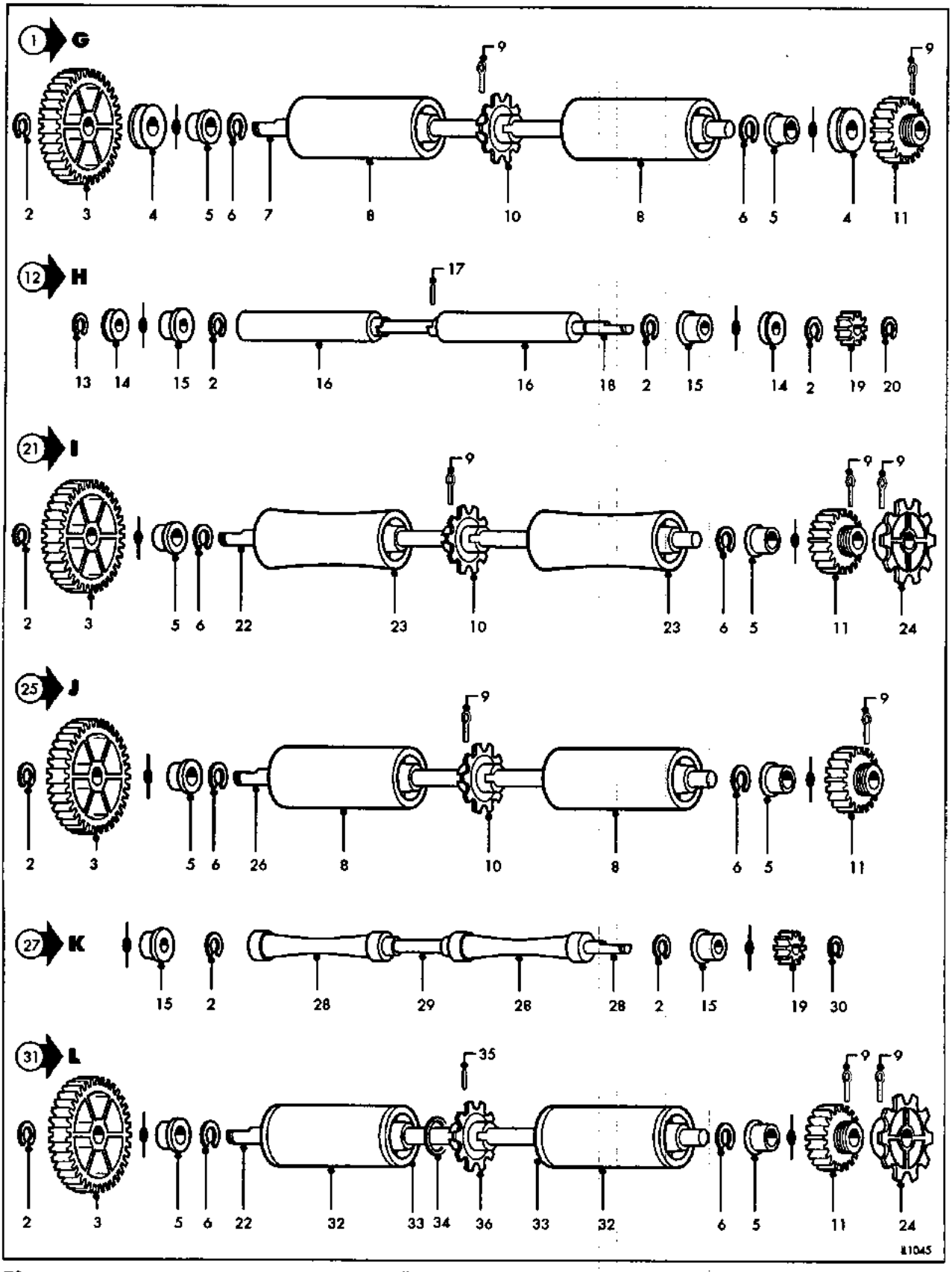

Figure 7.25 Roller assemblies

7.25 Roller assemblies

Ref no. fig 7.25	Part no.	GIN no.	Description	Quantity	Serial no.
1	32-25047	1725010	Roller set, drive under solution	1	
2	43-08538-2	1723214	Retaining ring, grey, 5mm d	12	
3	43-25016-2	1723306	Gear, 35T	8	
4	43-25049		Spring, metal	4	
5	43-85505-2		Bush, 8mm d	12	
6	43-85464-1	1724947	Retaining ring, white, 6mm d	12	
7	33-25048-1		Shaft, drive roller, under solution	2	
8	43-25013	1723287	Roller, drive	6	
9	Z72022006	1723517	Split pin	20	
10	43-25014		Sprocket, centre, 10T	5	
11	43-25015-1	1723296	Gear, 20T	4	
12	32-25050-1	1725029	Roller set, driven under solution	1	
13	Z67050004	1723526	'E' ring, 5mm	1	
14	43-25053		Spring, metal, 6mm d	2	
15	43-25021-1	1723333	Bushing, 6mm d	4	
16	43-25052	1723058	Roller, driven, under solution	2	
17	43-25054		Pin	1	
18	33-25051-1		Shaft, driven roller, under solution	1	
19	43-25020	1723324	Gear, 10T	2	
20	Z67040004	1723553	'E' ring	1	
21	32-09817	1725038	Roller set, drive	1	
22	33-25012-1		Shaft, drive roller	3	
23	43-86709	1734681	Roller, drive	4	
24	33-25412	1723076	Sprocket, 10T	3	
25	32-25071	1725047	Roller set, driven under solution	1	
26	33-25072-1		Shaft, drive roller, under solution	1	
27	32-25073	1725056	Roller set, inlet, turn under solution	1	
28	43-25019-1	1723315	Roller, inlet	2	
29	43-25074		Shaft, inlet/outlet	1	
30	43-25022-2	1723388	Retaining ring, yellow, 4mm d	1	
31	32-09981	1725065	Roller set, drive	1	
32	43-25565-1	1734535	Centre tube, black, 30mm d	2	
33	43-25564-1		Roller, drive	2	
34	ZZORP0110E	1723746	'O' ring	1	
35	43-A0480	1723508	Pin	1	
36	43-35788	1734645	Sprocket, centre, 10T	1	

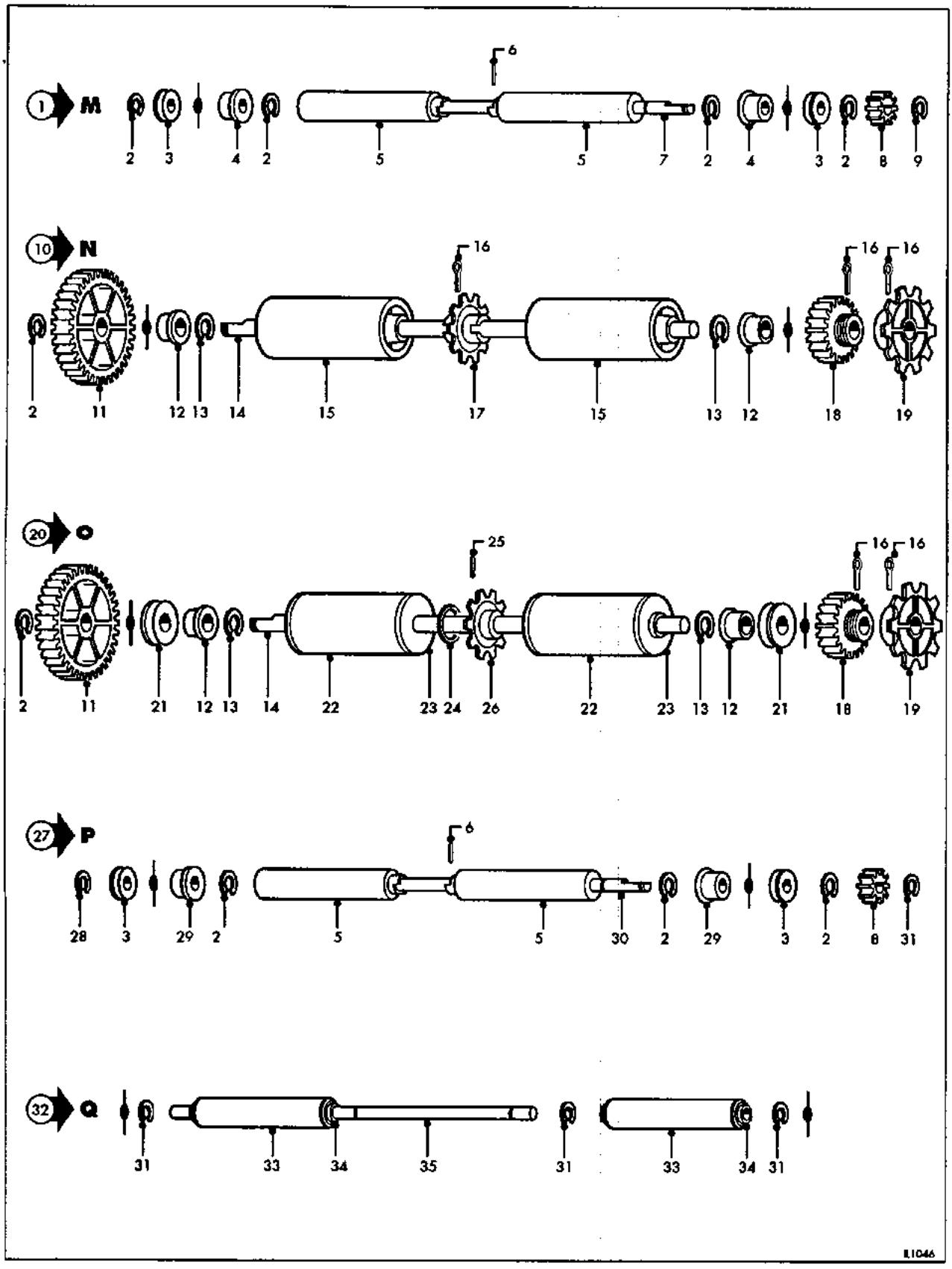

Figure 7.26 Roller assemblies

7.26 Roller assemblies

Ref no. fig 7.26	Part no.	GIN no.	Description	Quantity	Serial no.
1	32-09979	1725074	Roller set, driven, under solution	1	
2	43-08538-2	1723214	Retaining ring, grey, 5mm d	9	
3	43-25053		Spring, metal, 6mm d	4	
4	43-25021-1	1723333	Bushing, 6mm d	2	
5	43-25052	1723058	Roller, driven, under solution	4	
6	43-25054		Pin	2	
7	33-09980		Shaft, driven roller, under solution	1	
8	43-25020	1723324	Gear, 10T	2	
9	43-25022-2	1723388	Retaining ring, yellow, 4mm d	1	
10	32-25411	1725083	Roller set, drive	1	
11	43-25016-2	1723306	Gear, 35T	2	
12	43-85505-2		Bush, 8mm d	4	
13	43-85464-1	1724947	Retaining ring, white, 6mm d	4	
14	33-25012-1		Shaft, drive roller	2	
15	43-25013	1723287	Roller, drive	2	
16	Z72022006	1723517	Split pin	5	
17	43-25014		Sprocket, centre, 10T	1	
18	43-25015-1	1723296	Gear, 20T	2	
19	33-25412	1723076	Sprocket, 10T	2	
20	32-45266	1725092	Roller set, drive	1	
21	43-25049		Spring, metal	2	
22	43-19431	1723269	Squeeze tube, 30mm d	2	
23	43-45159		Roller, drive, squeeze	2	
24	ZZORP0110E	1723746	'O' ring	1	
25	43-A0480	1723508	Pin	1	
26	43-35788	1734645	Sprocket, centre, 10T	1	
27	32-25084	1725102	Roller set, outlet	1	
28	Z67050004	1723526	'E' ring, 5mm	1	
29	43-25085		Bush, 6mm d	2	
30	33-25051-1		Shaft, driven roller, under solution	1	
31	Z67040004	1723553	'E' ring	5	
32	32-19433	1725111	Roller set, rinse solution	1	
33	43-19432	1723278	Squeeze tube S, 15mm d	2	
34	33-25582	1723085	Roller, side	2	
35	43-35796-1		Shaft, side roller, 5mm d	1	

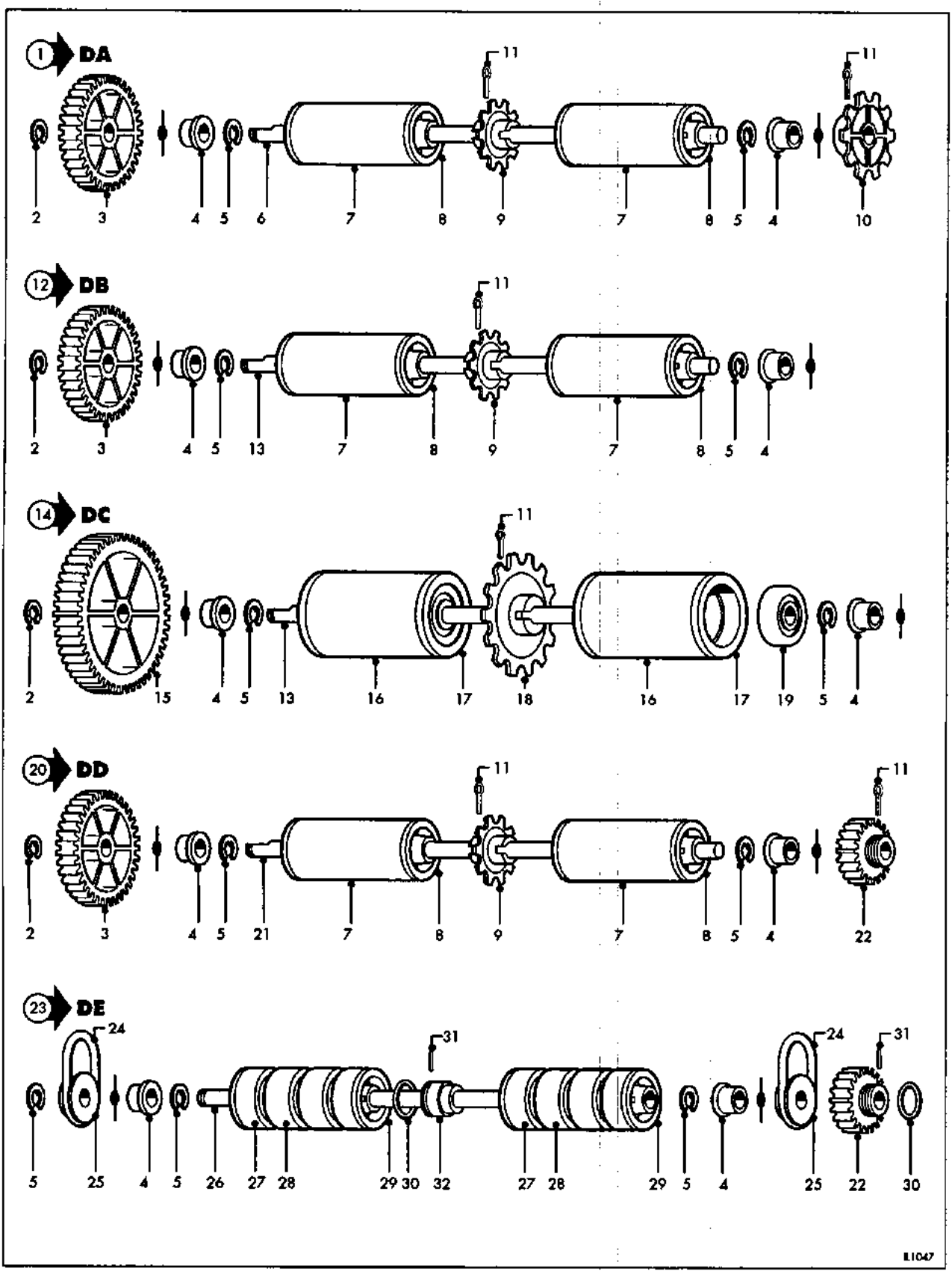

Figure 7.27 Roller assemblies

7.27 Roller assemblies

Ref no. fig 7.27	Part no.	GIN no.	Description	Quantity	Serial no.
1	32-25562	1725120	Roller set, drive	1	
2	Z67050004	1723526	'E' ring, 5mm	6	
3	43-25016-2	1723306	Gear, 35T	5	
4	43-85505-2		Bush, 8mm d	14	
5	Z67060004	1723535	'E' ring, 6mm	15	
6	33-25563		Shaft, drive	1	
7	43-25565-1	1734535	Tube, sponge, 30mm d	10	
8	43-25564-1		Roller, drive	10	
9	43-25014		Sprocket, centre, 10T	5	
10	43-25412	1723076	Sprocket, 10T	1	
11	Z72022006	1723517	Split pin	8	
12	32-25566	1725139	Roller set, intermediate	3	
13	33-25567		Shaft, roller, intermediate	4	
14	32-25568	1725148	Roller set, lower turn	1	
15	43-25572-1	1734553	Gear, 49T	1	
16	43-25570	1734544	Tube, sponge, 42mm d	2	
17	43-25569		Roller, lower, turn	2	
18	43-25571		Sprocket, centre, 14T	1	
19	ZOGPE30PPH8	1723764	Bearing, plastic	4	
20	32-25573	1725157	Roller set, upper drive	1	
21	33-25574		Shaft, drive roller	1	
22	43-25015-1	1723296	Gear, 20T	2	
23	32-86736	1725166	Roller set, outlet	1	
24	43-25719	1734571	Spring, 4d	1	
25	43-25049		Spring, metal	2	
26	33-86421		Shaft, roller	1	
27	43-86738	1734690	Tube A, centre, EPT sponge	4	
28	43-86739	1734700	Tube B, centre, EPT sponge	4	
29	43-86737		Roller, drive	2	
30	ZZORP0110E	1723746	'O' ring	2	
31	43-A0480	1723508	Pin	2	
32	43-25577		Collar, centre	1	

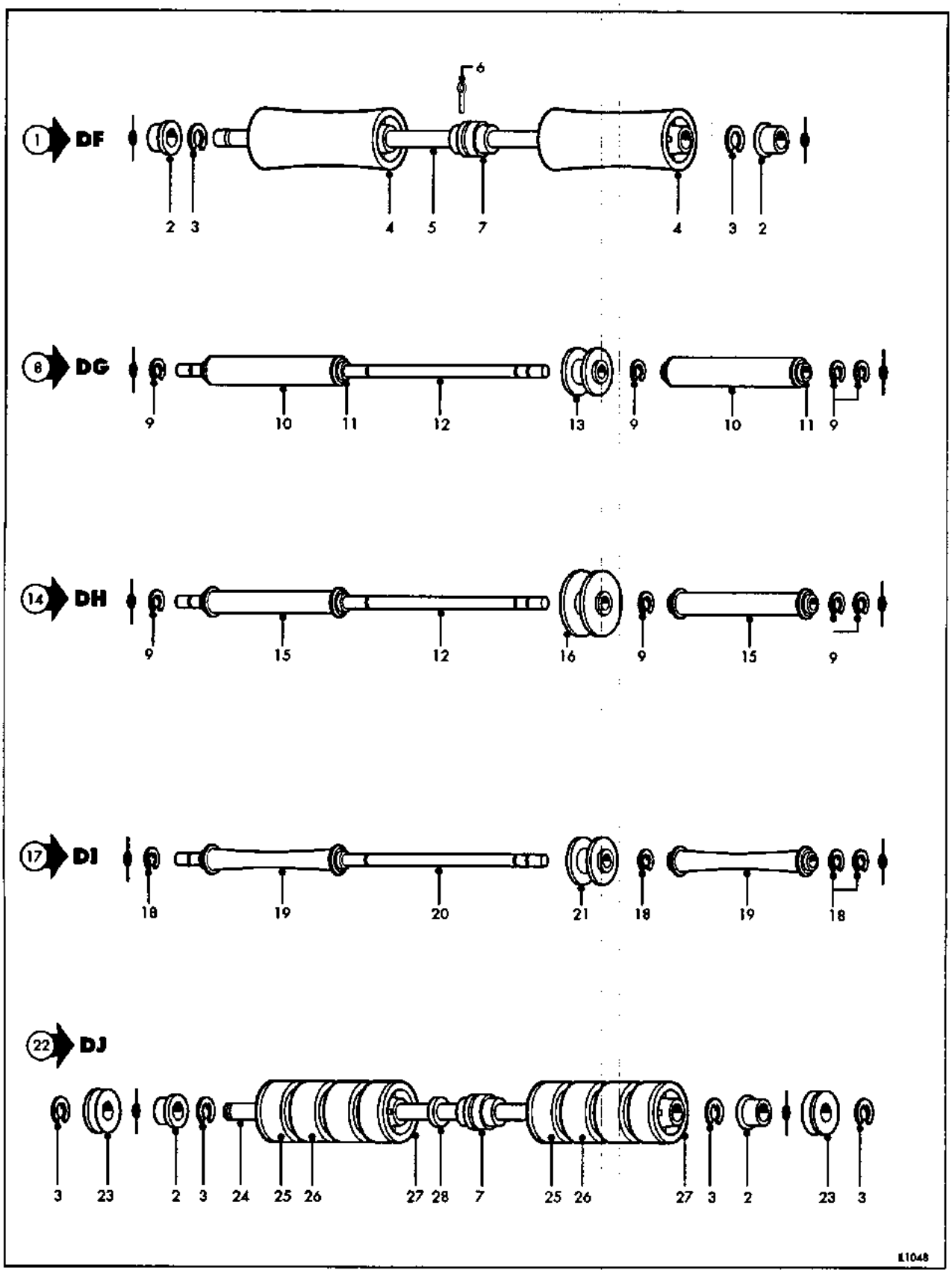

Figure 7.28 Roller assemblies

7.28 Roller assemblies

Ref no. fig 7.28	Part no.	GIN no.	Description	Quantity	Serial no.
1	32-25578-1	1725175	Roller set, inlet concave	1	
2	43-85505-2		Bush, 8mm d	4	
3	Z67060004	1723535	'E' ring, 6mm	6	
4	43-25028-1	1723351	Roller, intermediate	2	
5	33-25579-1		Shaft, concave roller	1	
6	Z72022006	1723517	Split pin	1	
7	43-25577		Collar, centre	2	
8	32-25580	1725184	Roller set, side	3	
9	Z67040004	1723553	'E' ring	36	
10	43-25583-1	1734562	Silicon tube, white	6	
11	33-25582	1723085	Roller, side	6	
12	33-25581		Shaft, side roller	6	
13	43-25584-1		Roller, sprocket, 19mm d	3	
14	32-35741	1725193	Roller set, side	3	
15	43-35742		Roller, side	6	
16	43-86418		Roller, sprocket, 27mm d	3	
17	32-35791	1725203	Roller set, side inlet	1	
18	Z67050004	1723526	'E' ring, 5mm	6	
19	43-35701		Roller, concave	2	
20	43-35792		Shaft, side roller, 6mm d	1	
21	43-35793		Roller, sprocket, 19mm d	1	
22	32-35965-1	1725212	Roller set, outlet driven	1	
23	43-25049		Spring, metal	2	
24	43-35964		Shaft, outlet, driven	1	
25	43-86738	1734690	Tube A, centre	4	
26	43-86739	1734700	Tube B, centre	4	
27	43-35966		Roller, press	2	
28	ZAPTM8005		Washer, thrust	1	

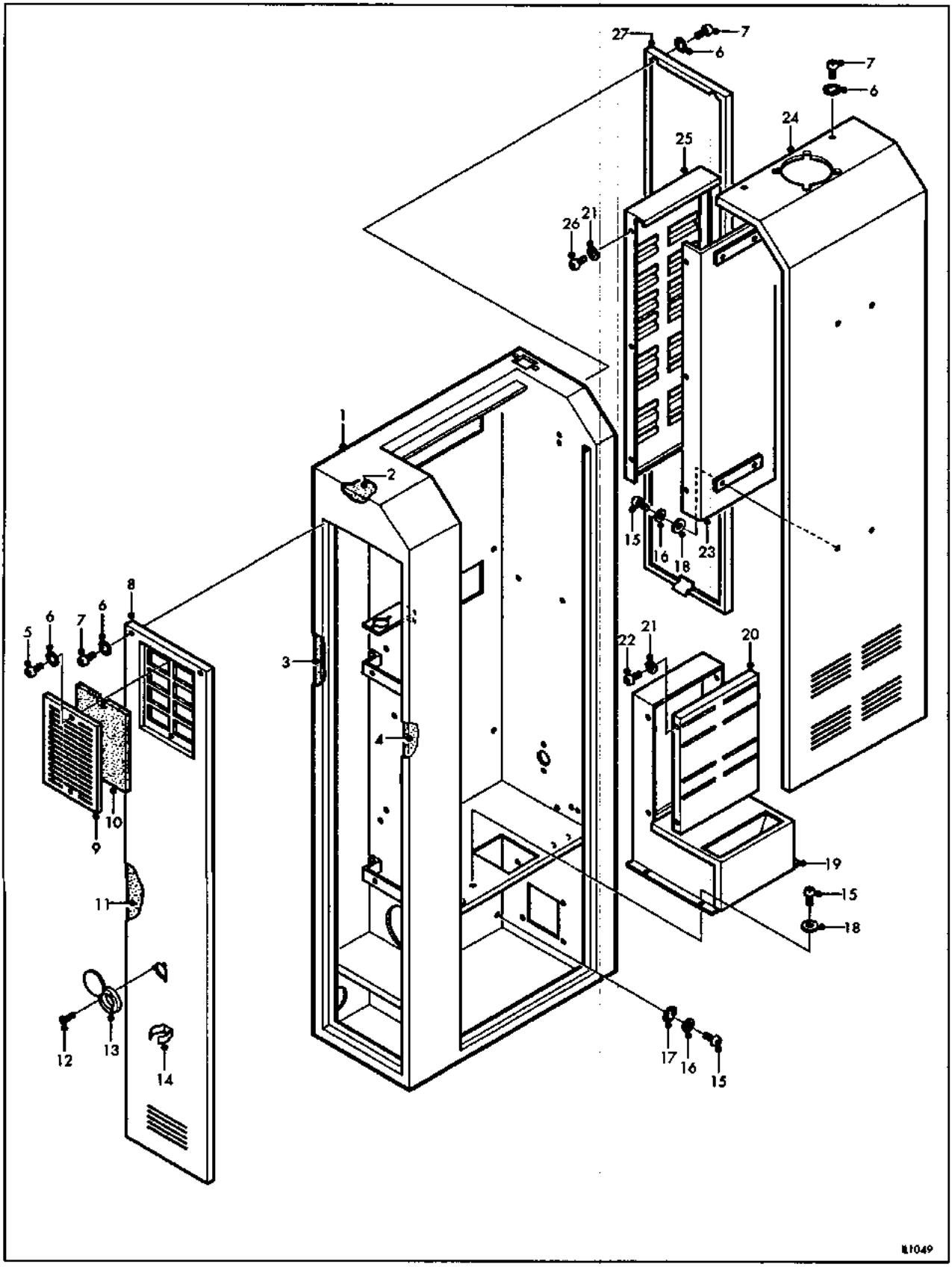

Figure 7.29 Dryer

7.29 Dryer

Ref no. fig 7.29	Part no.	GIN no.	Description	Quantity	Serial no.
1	13-A0753		Frame, dryer	1	upto A010177
	13-A0758-2		Frame, dryer	1	from A010178
2	43-09951		Adiabatic pad, U	1	
3	43-09949		Adiabatic pad, F	1	
4	43-09950		Adiabatic pad, R	1	
5	Z14042004		Screw, truss hd	2	
6	Z65040004		Washer, locking	10	
7	Z14041604		Screw, truss hd	6	
8	23-A0761		Cover, side, rh	1	upto A010177
	23-A0761-1		Cover, side, rh	1	from A010178
9	33-A0762		Cover, filter	1	
10	43-A0765		Filter element	1	upto A010077
	43-09948	1795273	Filter element	1	from A010078
11	43-09948-1		Adiabatic pad, S	1	
12	Z12030804		Screw, flat hd	3	
13	ZTAC1350		Handle cap	1	
14	ZKICKS10L		Clamp	1	from A010178
15	Z11050804		Screw, phd	12	
16	Z62050004		Washer, spring	10	
17	Z65050004		Washer, locking	1	
18	Z61050004		Washer, plain	6	
19	23-09952-2		Air duct, main	1	
20	33-09953		Slit plate	1	
21	Z62040004		Washer, spring	10	
22	Z41040604		Bolt, hex hd	4	
23	33-09956		Air duct	1	
24	23-A0759		Cover, rear	1	
25	33-09957-1		Plate, slit	1	
26	Z14040604		Screw, truss hd	6	
27	33-A0760		Cover, side, lh	1	

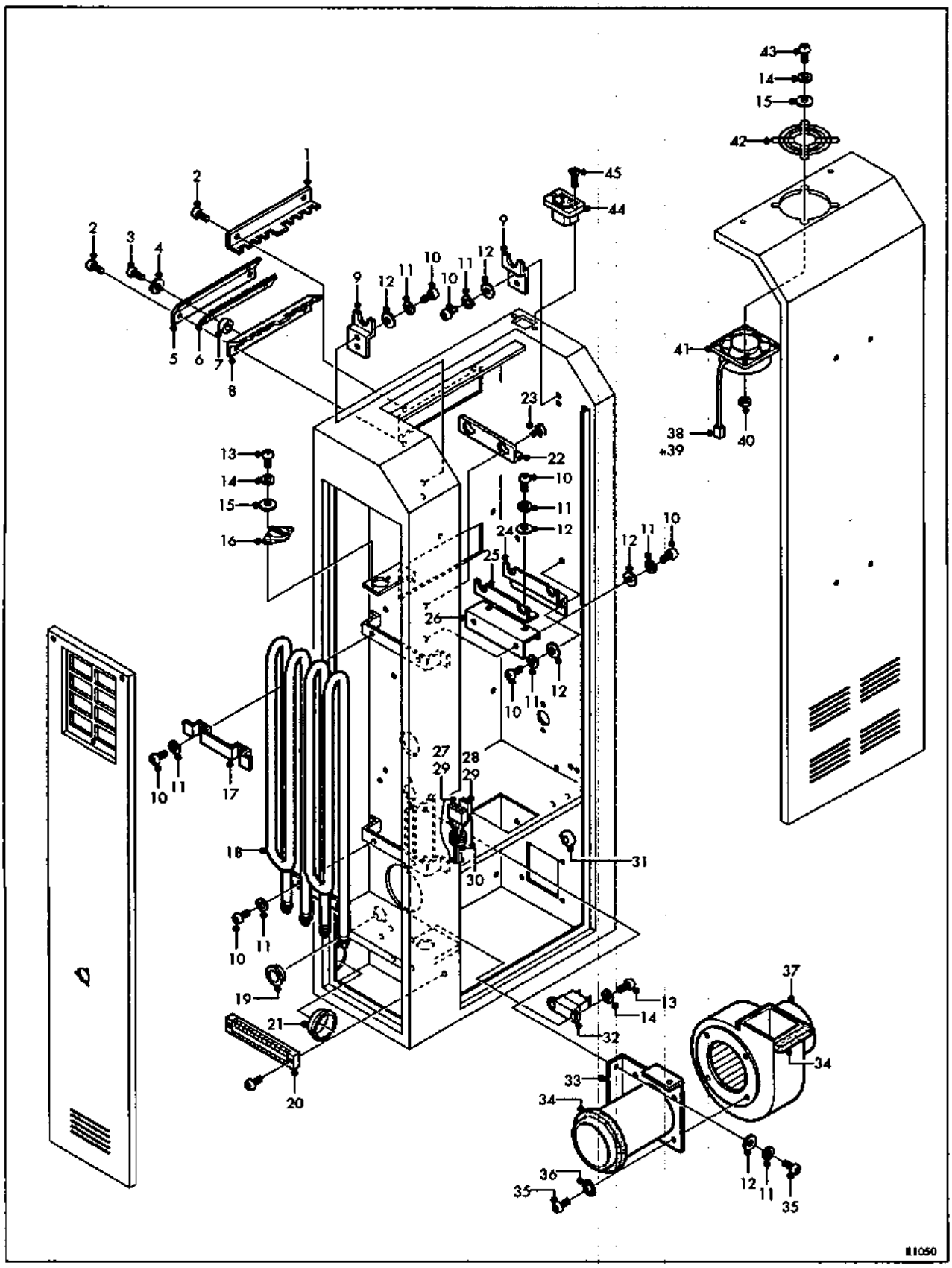

Figure 7.30 Dryer

7.30 Dryer

Ref no. fig 7.30	Part no.	GIN no.	Description	Quantity	Serial no.
1	33-86735		Outlet guide, upper	1	
2	Z14040604		Screw, truss hd	4	
3	Z11030604		Screw, phd	2	
4	Z61030004		Washer, plain	2	
5	33-19138		Mounting, static electric discharger	1	
6	43-05703	1723205	Static electric discharger	1	
7	Z51030004		Nut	2	
8	33-09960-3		Outlet guide, lower	1	
9	43-25637		Guide, rack	2	
10	Z11050804		Screw, phd	18	
11	Z62050004		Washer, spring	25	
12	Z61050004		Washer, plain	21	
13	Z11040604		Screw, phd	10	
14	Z62040004		Washer, spring	8	
15	Z61040004		Washer, plain	10	
16	ZWACS1750FF	1723498	Bimetal	1	
17	43-09961		Holder, heater	1	
18	33-09962	1723030	Heater, 220V, 400W	1	
19	ZHESB87511		Bushing	1	
20	ZKMTS61516P		Terminal, 16P	1	
21	ZHESB137516		Bushing, snap	1	
22	43-09959		Plate, rack retaining	1	
23	Z93051644	1723829	Thumb screw	2	
24	33-25635		Holder, rack	1	
25	33-86430-1		Angle, holder	1	
26	33-86429-1		Angle, holder	1	
27	ZAM14804240		Housing, plug	1	
28	ZAM14803180		Housing, plug	1	
29	ZAM606174		Socket, contact	6	
30	ZHESB5627		Bushing	1	
31	ZHESB3754		Bushing	1	
32	ZOMCH30	1722994	Condenser	1	
33	33-A0763		Bracket, fan	1	
34	ZZLS101503008L		Tape, light shield	2	
35	Z11051004		Screw, phd	7	
36	Z65040004		Washer, locking	4	
37	ZOMMB10XBB	1723645	Scirocco fan	1	
38	ZAM14803190		Housing, cap	1	
39+	ZAM606184		Pin, contact	2	
40	Z51040004		Nut	4	
41	ZJSVS55B41	1723856	Fan, dryer frame	1	
42	ZSIFG80		Finger guard, fan, dryer frame	1	
43	Z11041404		Screw, phd	4	
44	ZSPS1395		Socket, outlet	1	upto A010077
	ZRER47210300	1749155	Socket, outlet	1	from A010078
45	Z12030604		Screw, flat hd	2	

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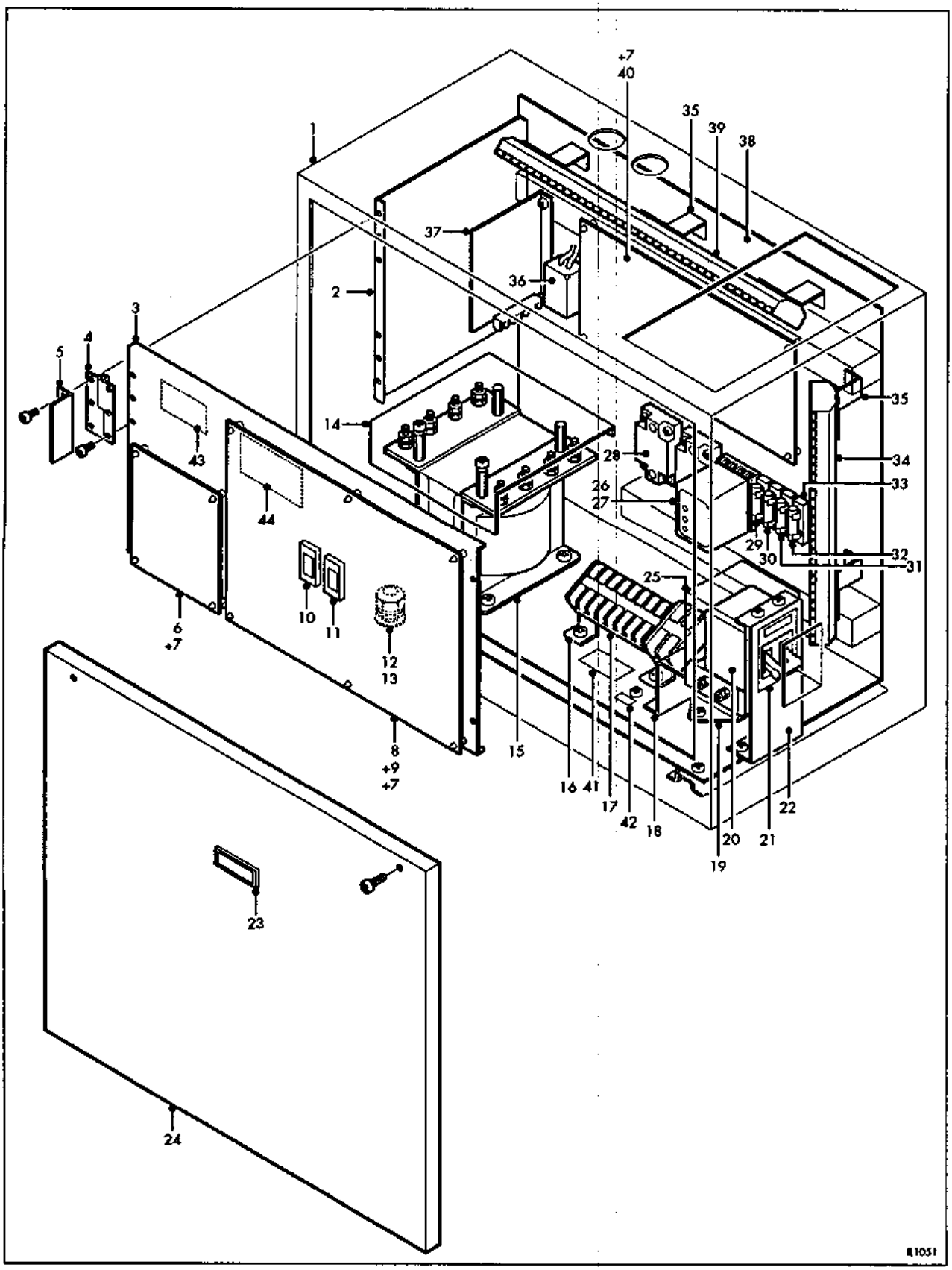

Figure 7.31 Electrical cabinet

7.31 Electrical cabinet

Ref no. fig 7.31	Part no.	GIN no.	Description	Quantity	Serial no.
1	13-E0312		Box, power source	1	
2	33-E0318		Fixing metal	1	
3	33-E0314		Mount, PCB	1	upto A010097
	33-E0314-1		Mount, PCB	1	from A010098
4	ZTAB10042		Hinge	2	
5	43-52558-2		Stopper, PCB	1	
6	35-52524	1723122	Pulse counter board	1	
7+	ZSSSPLS6		Spacer, PCB	14	
8	35-52528	1723159	CPU board	1	
9+	ZSSPS6N		Spacer, PCB	2	
10	43-E0820-2		ROM 1	1	upto A010187
	43-E0820-3		ROM 1	1	from A010188
11	43-E0823	1749063	ROM 1, French	1	from A010178
	43-E0822	1749054	ROM 1, Italian	1	from A010178
	43-E0824	1749045	ROM 1, German	1	from A010178
	43-E0821-1	1749072	ROM 1, English	1	upto A010177
	43-E0821-2	1749072	ROM 1, English	1	from A010078
12	43-E0288		Plate	2	from A010078
13	SCL-10B		Cable clamp	1	from A010078
14	43-52569-1		Cover, transformer	1	
15	ZKHUL500F		Transformer	1	upto A010077
	ZKHUL500FA		Transformer	1	from A010078
16	43-E0317		Mount, terminal	2	
17	42-E0817		Terminal block, TB1	1	
18	43-52538-3		Cover, noise filter	1	
19	ZNEMZS122033		Noise filter	1	
20	ZISNRBM210020A	1723690	Circuit protector	1	
21	43-52565		Panel, breaker	1	
22	43-E0315		Mount, breaker	1	
23	ZTAA1743		Handle	1	
24	23-E0322		Door, box	1	
25	33-52153-1		Cover, breaker	1	
26	ZOMSS21LSSSD	1723838	Control pack	1	
27	ZORPF113F		Socket	1	
28	63N-210B	1723580	SSR	2	upto A010077
	ZNKD2W220D	1749173	SSR	2	from A010078
29	ZU314015		Fuse	1	
30	ZU314010		Fuse	1	
31	ZU313002		Time lag fuse	1	
32	ZU313001		Time lag fuse	1	
33	ZFJUF4032F250		Fuseholder	4	
34	42-E0818		Terminal block, TB2	1	
35	43-E0316		Mount, terminal	5	
36	ZNEPBF120333		Noise filter	1	
37	ZECP15E5	1723809	Regulator	1	
38	23-E0313		Chassis	1	
39	42-E0819		Terminal block, TB3	1	upto A010077
	42-E0819-1		Terminal block, TB3	1	from A010078
40	35-52525-1	1723131	SSR board	1	upto A010177
	35-52525-2	1749816	SSR board	1	from A010178
41	6199-4-187A		Label	1	
42	6200-4-115A		Label, earth	1	
43	6199-4-189A		Label	1	
44	6199-3-188A		Label	1	

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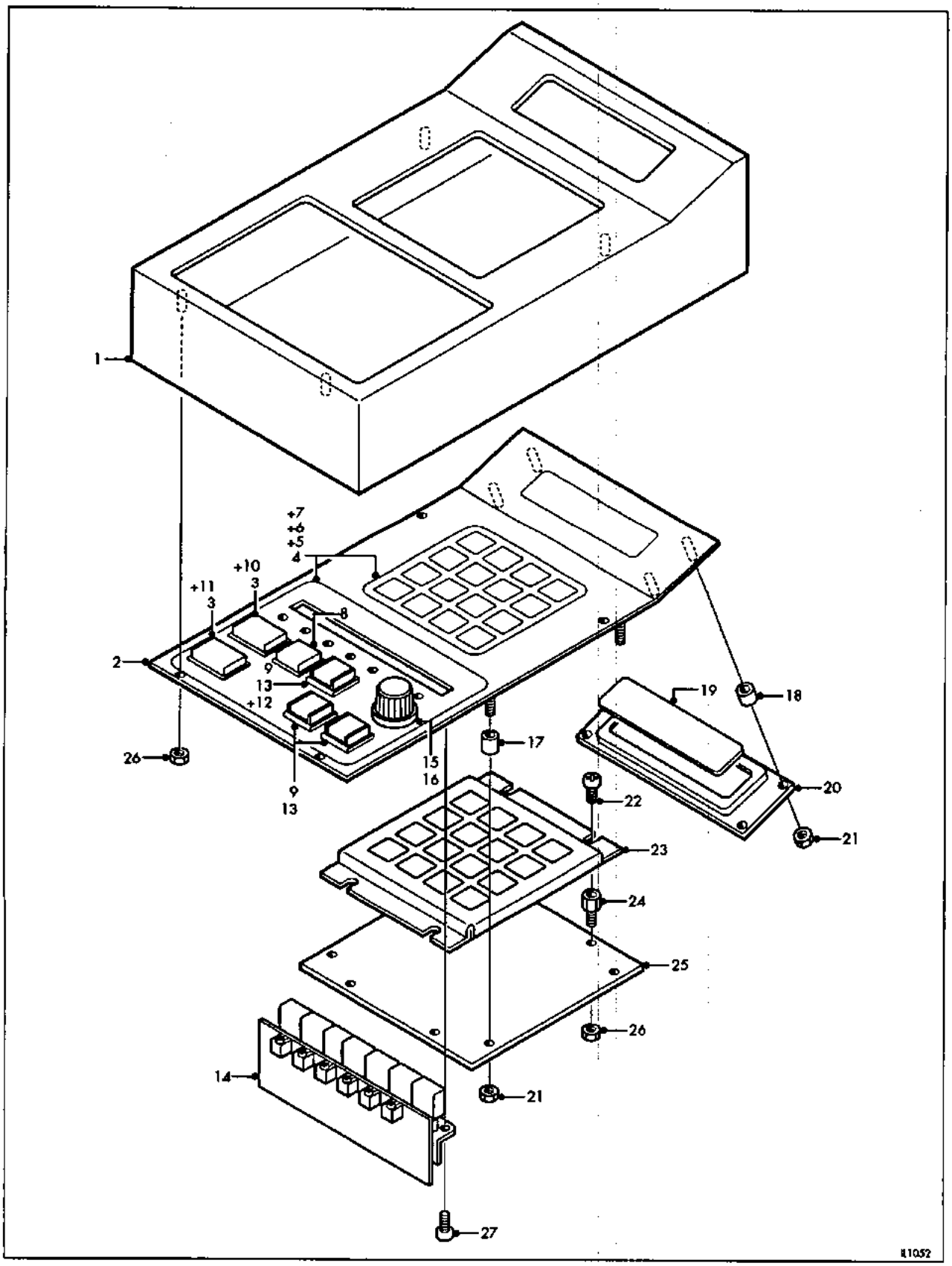

Figure 7.32 Control panel

7.32 Control panel

Ref no. fig 7.32	Part no.	GIN no.	Description	Quantity	Serial no.
1	33-E0310		Cover, control panel	1	
2	33-E0311		Control panel	1	
3	ZORA3SJ90B105EW	1723489	Push button switch	2	from A010178
4	33-E0303		Label, control panel, GB	1	
5+	43-E0814		Label, control panel, Italian	1	
6+	43-E0815		Label, control panel, French	1	
7+	43-E0816		Label, control panel, German	1	
8	ZORA3SA90B105EW	1723470	Push button switch	2	upto A010177
	ZORA3SA90B105EW	1723470	Push button switch	1	from A010178
9	ZORA3SA90A105EW	1723461	Push button switch	2	upto A010177
	ZORA3SA90A105EW	1723461	Push button switch	3	from A010178
10+	43-E0853		Label, power switch	1	from A010178
11+	43-E0854		Label, timer switch	1	from A010178
12+	43-E0855		Label, IR switch	1	from A010178
13+	ZORA3SA5050		Guard, switch	2	upto A010177
	ZORA3SA5050		Guard, switch	3	from A010178
14	42-E0828	1734746	Switch board assy	1	
15	ZCSRV20YN15SB	1723810	Variable resistor	1	
16	ZSPK52KE3		Knob	1	
17	43-E0826		Spacer	4	
18	43-E0825		Spacer	4	
19	43-52619		Cover, LCD	1	
20	35-52669	1723168	Panel board LCD	1	
21	Z51030004		Nut	8	
22	Z11030604		Screw, M3, phd	4	
23	42-E0827	1766747	Switchboard	1	
24	ZME3SQ15		Spacer	4	
25	35-52526	1723140	Panel board	1	
26	Z51040004		Nut	8	
27	Z11030804		Screw, M3, phd	2	

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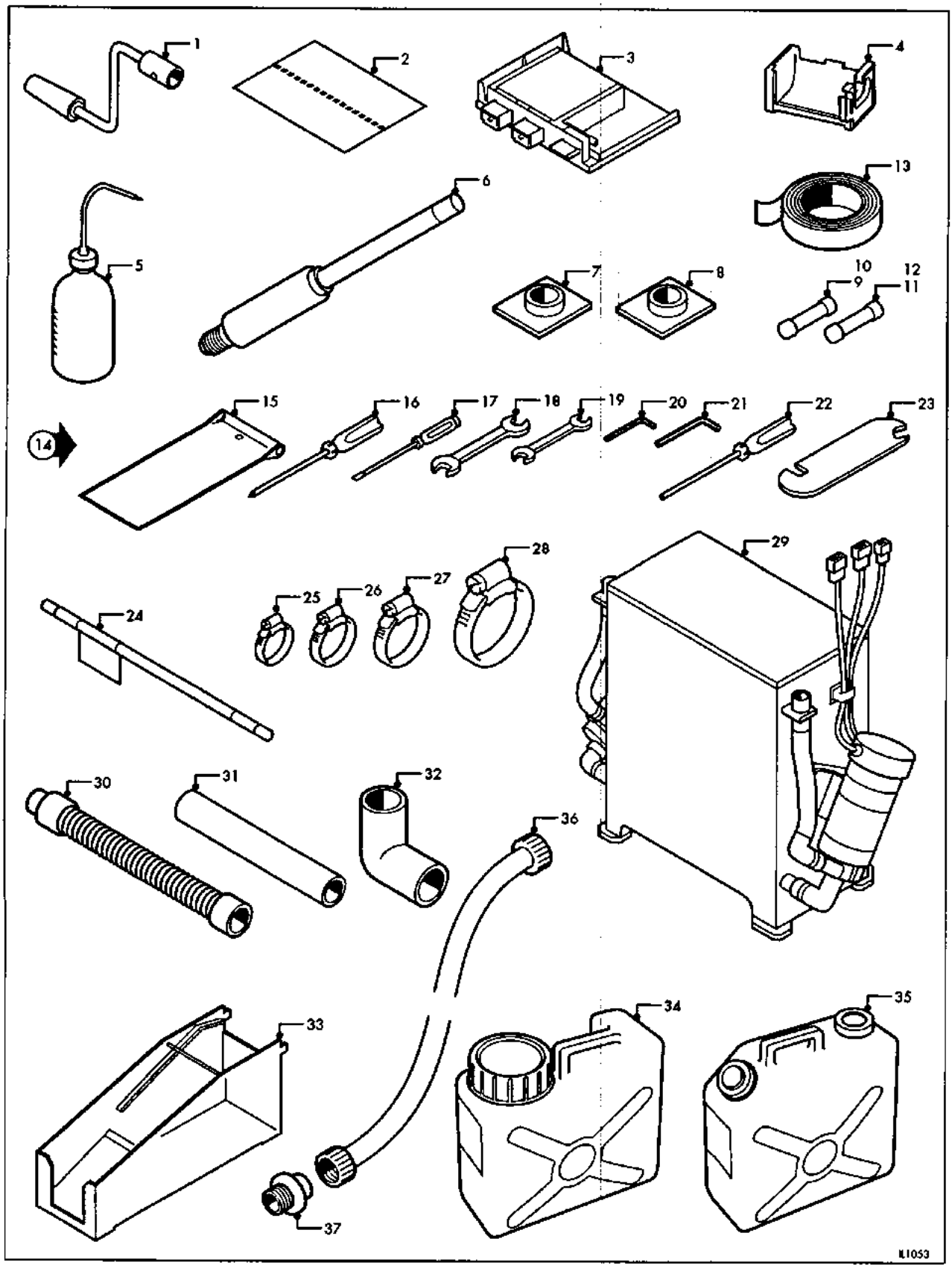

Figure 7.33 Accessories

7.33 Accessories

Ref no. fig 7.33	Part no.	GIN no.	Description	Quantity	Serial no.
1	32-35682		Handle, manual crank	1	
2	33-05710-1	1706310	Film leader x 20	15	
3	22-35250	1725221	Manual splicer	1	
4	43-A5019		Film holder,35mm cassette	2	upto A010177
	42-A0587	1715165	Film holder,35mm cassette	2	from A010178
5	43-Z0003		Wash bottle	1	
6	32-35112		Chemical filter assy	3	
7	43-09884		Cover, temp control tank	2	
8	43-25962-1		Cover, temp control tank	1	
9	ZU314015		Fuse	1	
10	ZU314010		Fuse	1	
11	ZU313002		Fuse	1	
12	ZU313001		Fuse	1	
13	43-Z0010	1718171	Splicing tape	1	
14	42-65039		Tool set	1	
15	43-Z0070		Tool bag	1	
16	43-Z0071		Screwdriver	1	
17	43-Z0072		Screwdriver	1	
18	43-Z0073		Spanner	1	
19	43-Z0074		Spanner	1	
20	43-Z0075		Allen key	1	
21	43-Z0076		Allen key	1	
22	43-Z0077		Cross head screwdriver	1	
23	43-05606		Spanner	1	
24	43-19129		Cam lever press bar	1	
25	ZPKMS0200N		Hose clamp	1	
26	ZMRNM6		Hose clamp	1	
27	ZMRND10		Hose clamp	2	
28	ZMRND20		Hose clamp	2	
29	22-A2275-2		Water tank assy	1	upto A010077
	22-A2275-3		Water tank assy	1	from A010078
30	43-Z0825		Flexible hose	2	
31	ZZVP301000		Pipe, PVC	1	
32	ZZEL030D		Elbow, 90°, PVC	3	
33	32-A0724		Film receiving box	1	
34	32-09973-1		Rep tank assy	3	
35	43-Z0826		Drain bottle	2	
36	43-A2282	1749164	Reducing bush	1	
37	43-A2283	1749825	Water supply pipe	1	

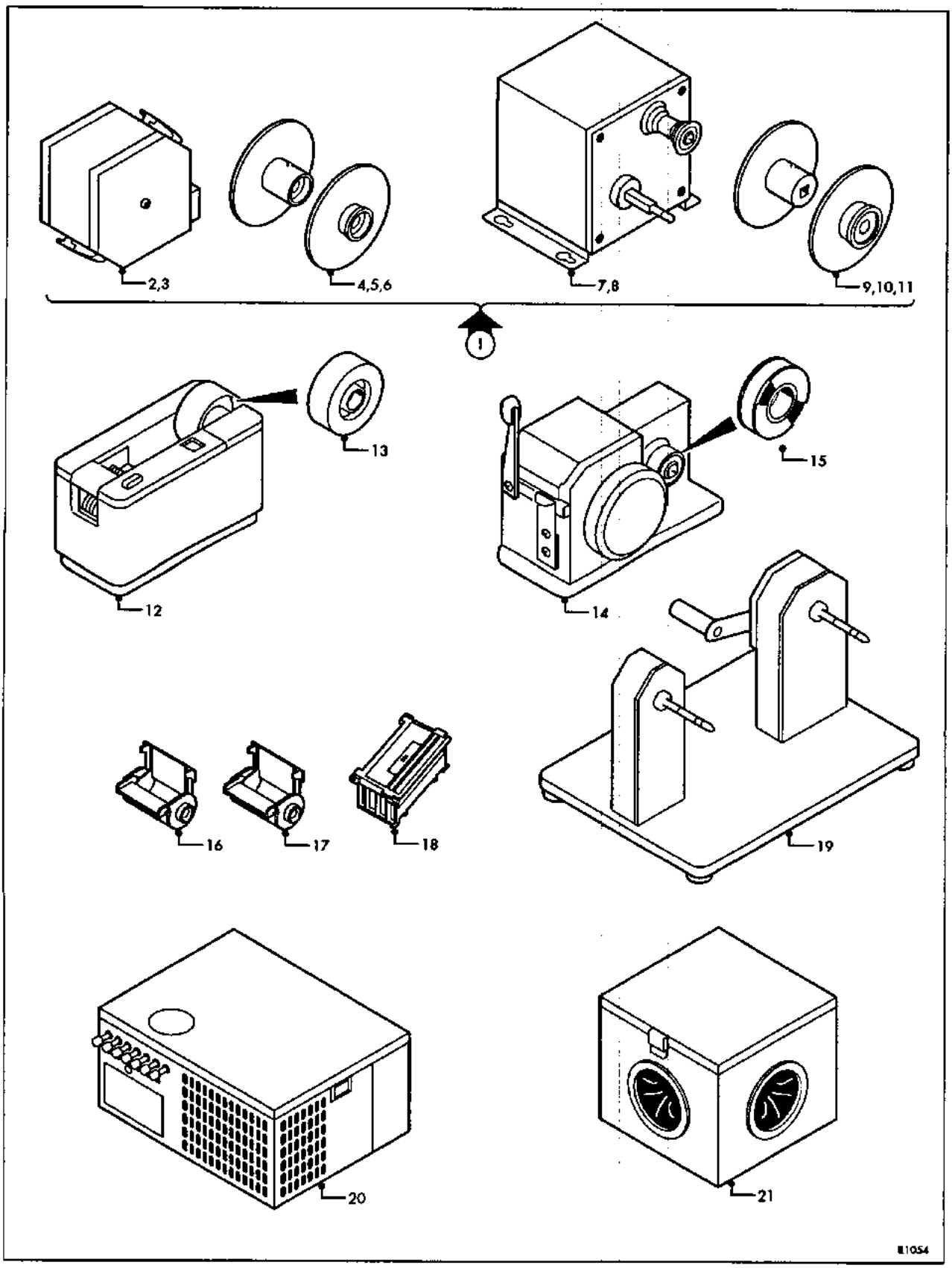

Figure 7.34 Optional accessories

7.34 Optional accessories

Ref no. fig 7.34	Part no.	GIN no.	Description	Quantity	Serial no.
1	22-19127	1706338	100ft film processing kit 16/35 comprising items 2 to 11	1	
2	22-19070	1752135	16/35mm x100ft film magazine	1	
3	22-19000		35/46mmx100ft film magazine	1	
4	42-19131	1754427	Spool assy, 35mm	1	
5	42-19130	1721317	Spool assy, 16mm	1	
6	42-19132		Spool assy, 46mm	1	
7	22-A3923		16/35mm film winding unit	1	
8	22-19060		35/46mm film winding unit	1	
9	42-19134	1754436	35mm spool assy	1	
10	42-19133	1721326	16mm spool assy	1	
11	42-19135		46mm spool assy	1	
12	22-A5020	1706356	Tape dispenser	1	
13	89014038	1718171	Splicing tape	1	
14	22-A5021	1706365	Film extractor	1	
15	43-Z0011		Film extractor tape	1	
16	32-A1900	1706282	100 film magazine	1	
17	32-A1901	1706291	126 film magazine	1	
18	32-25137	1706301	120 film magazine	1	
19	12-19100	1706347	16/35mm film winder	1	
20	6199-P-057	1763658	Cooling unit	1	
21	22-66770	1706374	Dark box	1	

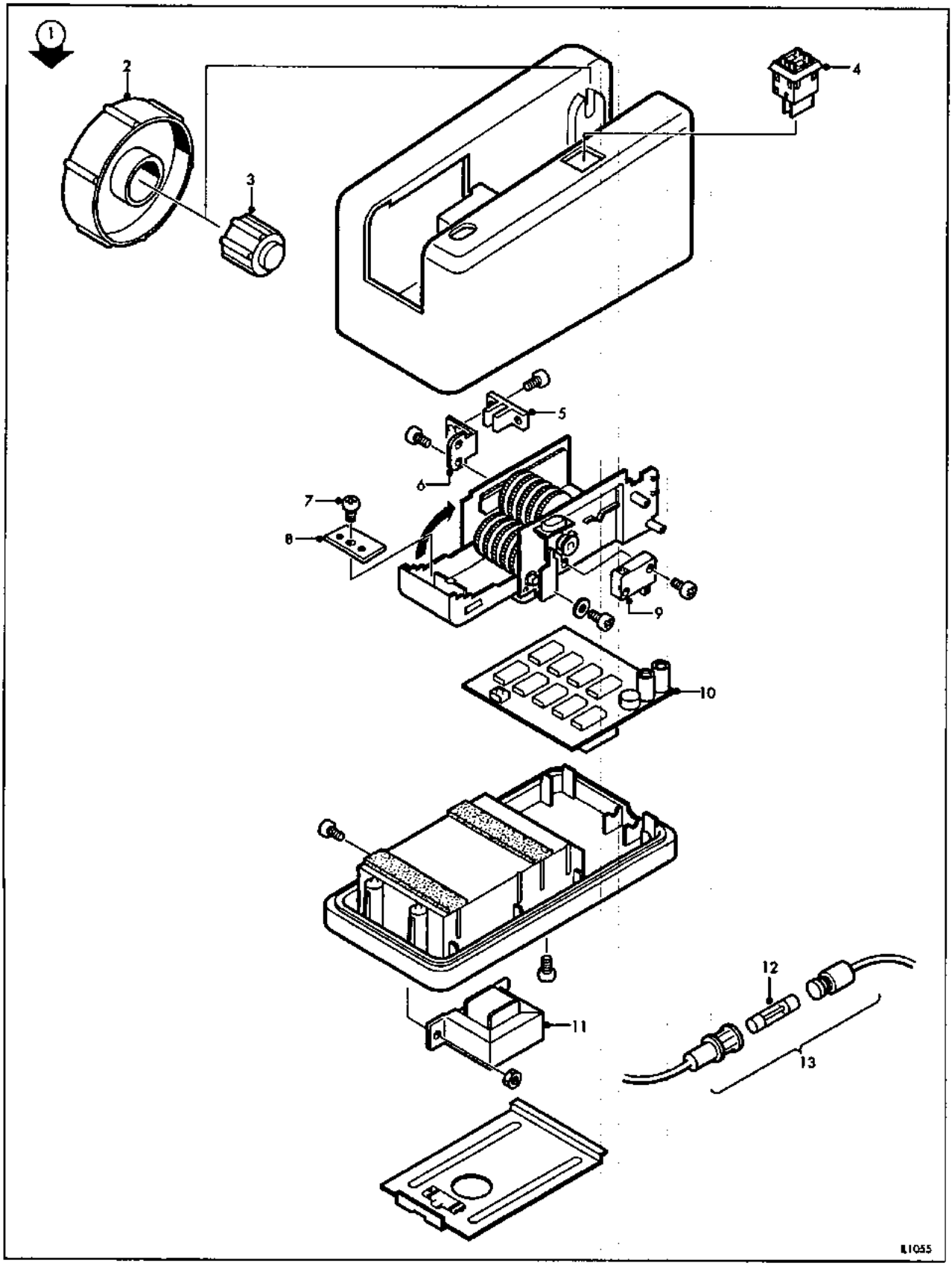

Figure 7.35 Tape dispenser

7.35 Tape dispenser

Ref no. fig 7.35	Part no.	GIN no.	Description	Quantity	Serial no.
1	22-07640	1706356	Tape cutter	1	
2	43-Z0201	1749926	Reel, large	1	
3	43-Z0202	1749935	Reel, small	1	
4	ZISDEBL0331Z	1749898	Switch, digital	1	
5	ZOREESH3CS	1749908	Sensor	1	
6	43-07723-1		Bracket, sensor	1	
7	43-Z0101		Screw, tapping	1	
8	43-Z0200	1749917	Blade, cutter	1	
9	ZORV101A4	1749944	Switch	1	
10	35-72175	1749870	PCB	1	
11	TS-2858	1749889	Transformer	1	
12	ZFNFGM8125VO3A		Fuse	1	
13	ZSPF7175		Fuseholder	1	

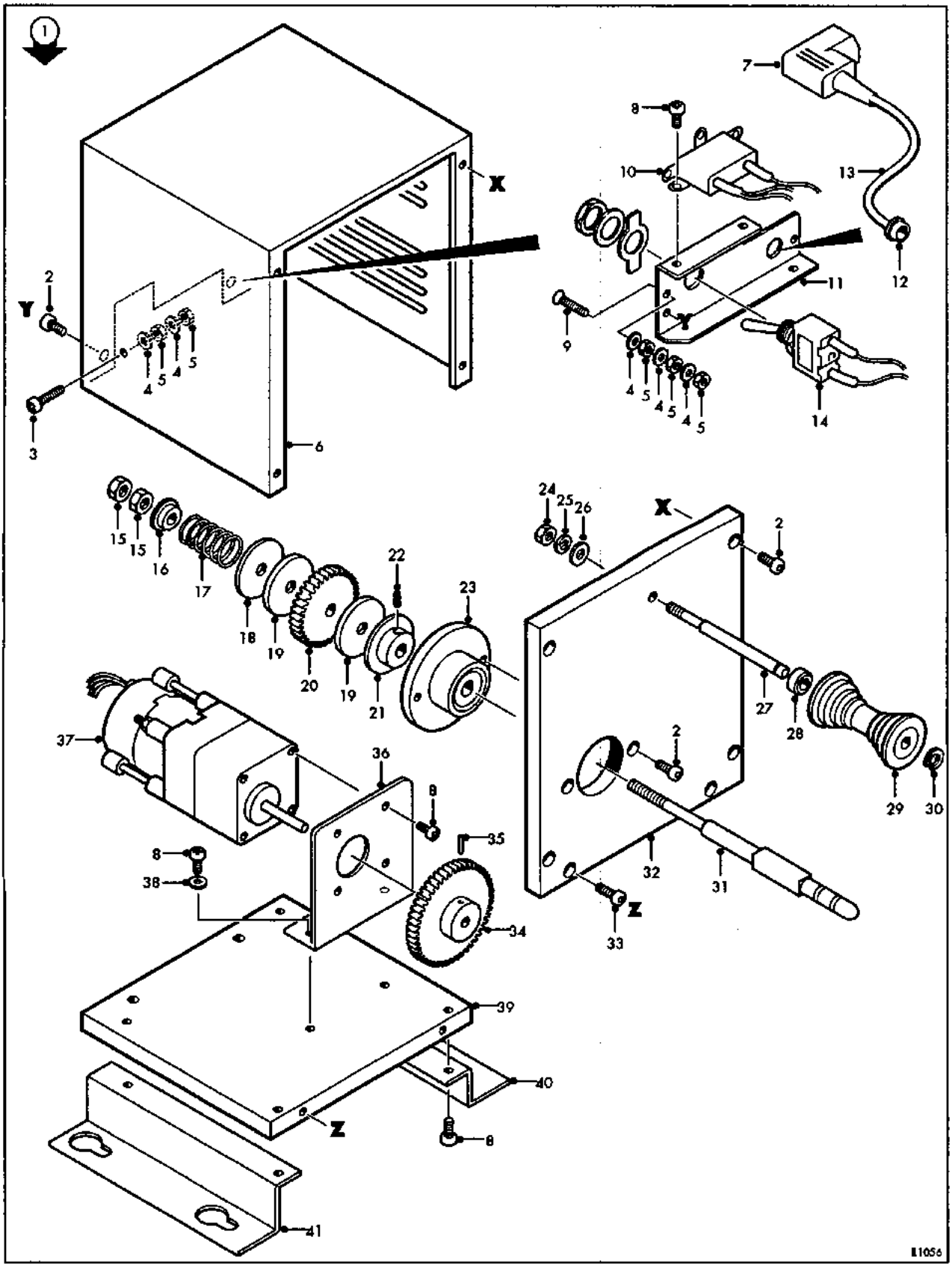

Figure 7.36 Film winding unit

7.36 Film winding unit

Ref no. fig 7.36	Part no.	GIN no.	Description	Quantity	Serial no.
1	22-A3923		Film winding unit	1	
2	Z11041004		Screw, skt hd, M4x10mm	8	
3			Screw, phd, M3x20mm, brass	1	
4	Z61040004		Washer, plain, M4, brass	6	
5	Z51040004		Nut, M4, brass	6	
6	23-A3924		Cover	1	
7	ZR47330000	1749146	Plug	1	
8	Z46041004		Screw, M4x10mm, cap hd	12	
9	Z41042004		Screw, csk hd, M4x20mm, brass	1	
10	ZOMCH15		Condenser	1	
11	43-A3926		Mounting bracket	1	
12	ZHE2057		Grommet	1	
13	P4-3072		Cable	1	
14	ZFSST115A22		Switch assy	1	
15	Z51060004		Nut, M6	2	
16	40-19040		Collar	1	
17	43-19043		Spring	1	
18	43-19039		Friction plate	1	
19	43-19041		Friction disk	2	
20	43-19037		Gear	1	
21	43-19038		Friction plate	1	
22	Z47040604		Socket set screw, M4x6mm	1	
23	43-19035		Bearing housing mounting plate	1	
24	Z51050004		Nut, M5	1	
25	Z62050004		Washer, spring, M5	1	
26	Z61050004		Washer, plain, M5	1	
27	43-19093		Spindle	1	
28	43-19047		Collar	1	
29	43-19092		Film spindle	1	
30	Z69050004		Circlip	1	
31	43-19091		Spindle	1	
32	33-19061		Plate, side	1	
33	Z46041604		Screw, socket hd, M4x16mm	2	
34	43-19036		Gear	1	
35	Z47030604		Socket set screw, M3x6mm	1	
36	43-A3925		Motor mounting bracket	1	
37	ZOM01K1GKA3		Motor	1	
38	Z62040004		Washer, spring, M4	2	
39	33-19062		Base plate	1	
40	43-19065		Mounting bracket, rear	1	
41	43-19094		Mounting bracket, front	1	

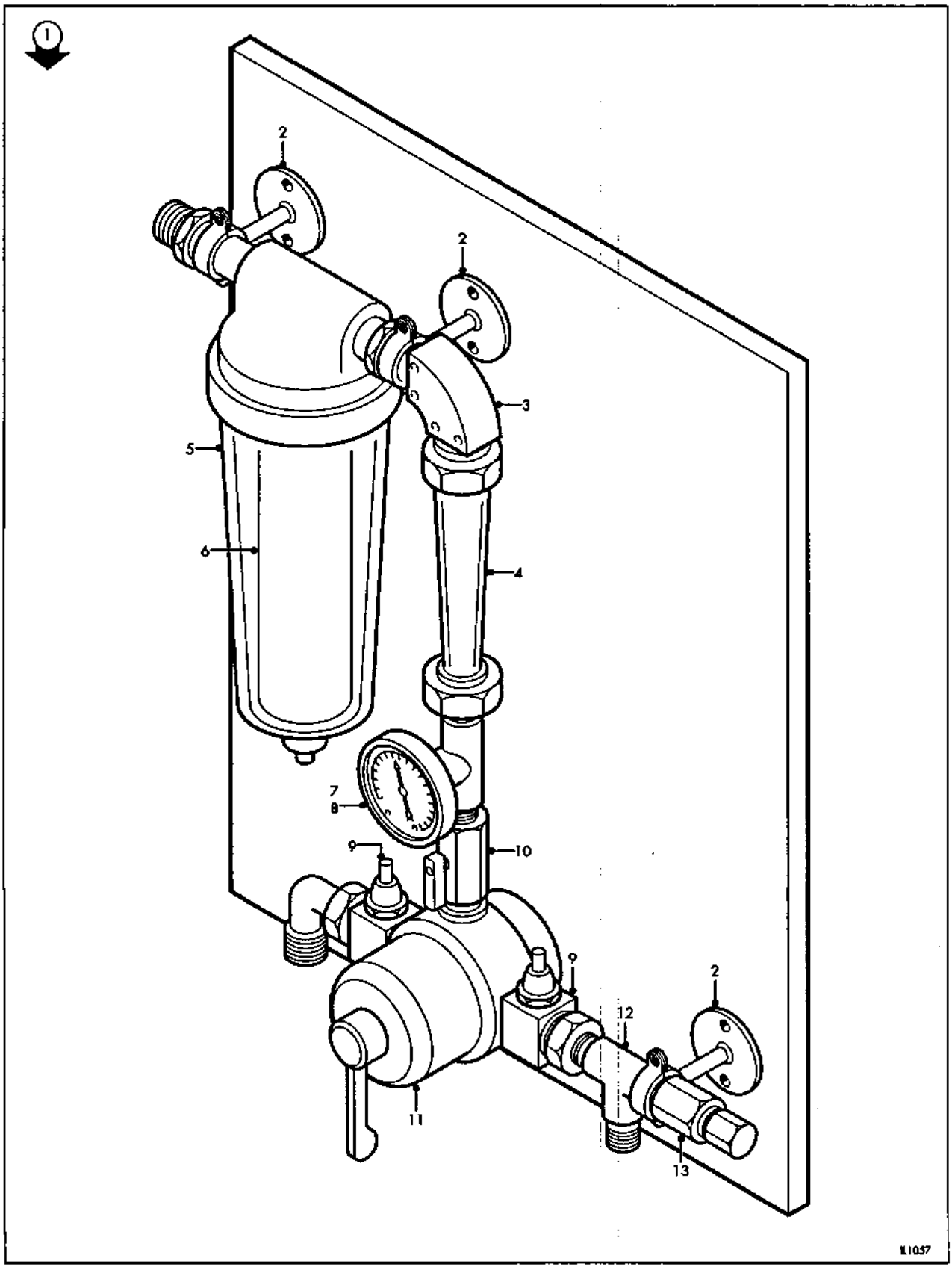

Figure 7.37 Water control panel

7.37 Water control panel

Ref no. fig 7.37	Part no.	GIN no.	Description	Quantity	Serial no.
1	22-89460	1715174	Thermo mixing unit	1	
2	43-Z0890		Pipe support	3	
3	43-Z0866		Elbow	1	
4	32-89478		Flow meter	1	
5	ZNRPFC250		Filter case	1	
6	43-Z0900	1785025	Filter	1	
7	43-Z0220		Thermometer	1	
8	43-Z0881		'T' joint	1	
9	43-Z0850		Check valve	2	
10	43-Z0851		Ball cock	1	
11	ZOBG3H		Mixing valve	1	
12	43-Z0882		'T' joint	1	
13	43-Z0852		Ball cock	1	

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