WARNEZ AGRIPOM

operators manual

Order number(s)	057629
Serial number	201817819375
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	**Warning:- It is important that the machine is operated by 1 person ONLY. DO NOT allow anyone to rest their hands on any part of the Rotary table or Base tool during rotatation of the machine table (Risk of operator injury).**
	**Warning:- The safety relays fitted to this machine have been factory set by Packaging Automation. DO NOT adjust or replace with third party components (Risk of operator injury).**
	**Warning:- If the Top tool has been in use Heat resistant gloves MUST be worn during removal. Allow sufficient time for cooling before any maintenance work is carried out.**

pa 182mk3

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A - INTRODUCTION

B - OPERATION

C - TOOL CHANGING AND DISMANTLING

D - ROUTINE MAINTENANCE

E - SPARE PARTS

F - WIRING DIAGRAMS

CONTENTS

SECTION

A INTRODUCTION

- General Description
- Location of Equipment

B OPERATION

- Operating procedures
- Film Feed System Setup
- Photo-electric Sensor - Setup
- Error Code

C TOOL CHANGING AND DISMANTLING

- Base Tool Replacement (Standard)
- Base Tool Replacement (Shallow)
- Top Tool Replacement Procedure
- Top Tool Dismantling Procedures
- Sealing Rubber Replacement
- Thermocouple Replacement
- Film Clamp Plate Springs
- Trim Blade Replacement (Standard & Tabbed)
- Trim Blade Replacement (Quick Release)
- Seal Spring Replacement
- Heater Mat Replacement
- Brake and Clutch Unit Replacement

D ROUTINE MAINTENANCE

- Cleaning
- Inspection
- Lubrication

E SPARE PARTS

- Control Panel & Cubicle
- Top Plate Assembly
- Film Feed Assembly
- Film Rewind Assembly
- Tooling
- Table & Eject Plate
- Lower Plate Assembly

F WIRING DIAGRAMS

- Electrical Circuit Diagrams

INTRODUCTION

SUB-SECTION	PAGE
GENERAL DESCRIPTION	A 2
MAIN FEATURES	A 2

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GENERAL DESCRIPTION

The PA182 MK3 combines existing design features of the MK2 machine with increased safety, ease of operation and greater access for cleaning and maintenance. A number of functions are capable on this machine type:-

ATMOSPHERIC	(Standard sealing of film to containers)
MAP-F	(Gas flushing, replacing the air with gas or mixture of gases)

It is semi-automatic in operation. Loading and unloading of the machine table is carried out manually; the sealing operation being automatic once the loaded table is moved into the sealing position.

Two loading stations are provided on the table, each of which has a Base tool into which the containers to be sealed are placed. This enables one tool to be loaded while the other is in the Sealing chamber.

As the table is rotated a sensor, mounted below, monitors the movement. Once a certain point has been reached a pneumatic cylinder applies pressure to a Latch mechanism, which locks the table into position, activating the sealing process.

The sealing film is contained on a pneumatically clamping Film reel set at a low level for ease of replacement on the left hand side of the machine. It is drawn from the reel by a chain driven nip roller and controlled by electro-magnetic clutch and brake mechanisms. Feed time is selected from the E150 operators interface on the Control panel.

From the infeed section the film enters the Sealing chamber, where it is sealed onto the containers by heated profile plates.

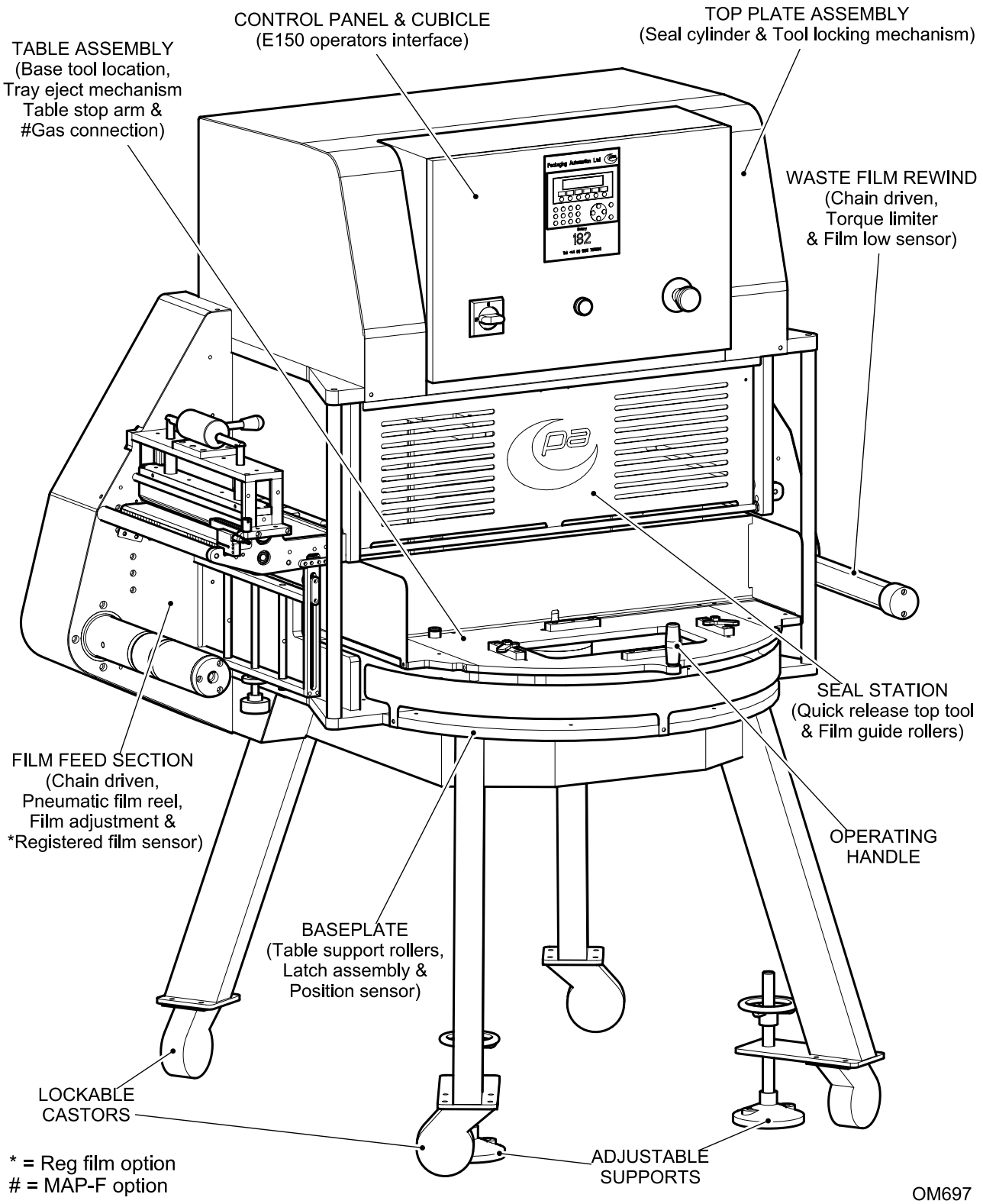
The Seal cylinder moves the Top tool onto the Base tool to perform the seal cycle. Pressure is applied to the profile plates by a pneumatic cylinder which, when operated, presses the heated profile plates onto the film to seal it to the containers in the Base tool. During the sealing cycle, the film is cut to the shape of the containers by formed trimming blades attached to blade carriers mounted on the Tool pressure plate.

In the case of MAP-F machines the operation is two stage. The first stopping the Top tool just above the Base tool and by the use of gas pressure, forcing the air out of the container(s). The second stage performs the sealing cycle in the normal way.

When the cylinder pressure is released, the profile plates, which are spring loaded, rise from the containers, enabling surplus film remaining to move out of the Sealing chamber and new film to take its place ready for the next sealing cycle. The surplus film is wound onto a chain driven Rewind spindle.

Both the Film feed & Rewind assemblies are chain driven by electric motors. The Rewind motor is fitted with an adjustable torque limiter device.

Once the seal process is complete rotation of the table allows the sealed containers to be removed from the Base tool and new containers in the other Base tool to enter the Sealing chamber. As the table locks for the next cycle an eject cylinder is activated, pushing the sealed containers out of the Base tool.



Location of equipment
Fig. 1

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All tooling is designed for ‘quick release’ ensuring the minimum amount of machine down-time for product changeover, cleaning or maintenance.

Sealing time and temperature are selected from the E150 operators interface mounted on the Control panel and are adjusted in accordance with the settings recommended by Packaging Automation Ltd for the product being sealed.

The E150 also contains controls to isolate certain machine functions such as Heaters or Film feed. This is especially useful during machine setup. The Control panel also features an Isolator switch, Reset button and Emergency stop button.

All hinged guards are fitted with magnetic safety switches that prevent machine operation when opened. A tool locking mechanism is fitted which physically holds the Top tool in its raised position when a machine error or emergency stop occurs, preventing damage or injury.

The PA182 MK3 could have an additional facility which enables pre-printed film to be used in addition to plain film. In this machine a photo-cell is used to detect registration marks on the film. An adjustable roller is provided to align the printed film area with the container to be sealed. Selection of the plain or printed film is made at the E150 operators interface.

OPERATION

SUB-SECTION	PAGE
OPERATING PROCEDURES	B 2
FILM LOADING & THREADING	B 10
PHOTO-ELECTRIC SENSOR SETTING	B 16
ERROR CODE LISTING	B 18

OPERATING PROCEDURES

1. General

This topic explains how to carry out safe operation of the machine in

- Initial set-up
- Control setting
- Operation
- Error handling

2. **Procedure** (Initial set-up) (Ref. Fig.1)

WARNING:- THE WHEEL LOCKS MUST BE ON BEFORE OPERATING THE MACHINE.

(a) Connect the machine to the electrical and compressed air supplies. Set the Air prep unit, at the top of the machine, between 0.5-0.7 mpa (80-100 psi).

(b) For MAP functions connect the machine to the gas supply as required.

(c) Install the required Tooling e.g. Top tool, Base tools (See Section C).

(d) Load and thread the film in accordance with the Film loading and threading instructions.

(e) Close the Sealing chamber guard (1).

(f) Turn on the electrical power at the Mains switch (2) and set the Pneumatic shut-off valve to the 'SUP' position.

The E150 operators interface (3) will come on and display "PRESS RESET".

(g) PRESS the Reset button (4).

The E150 operators interface (3) changes to the 'MAIN DISPLAY' screen.

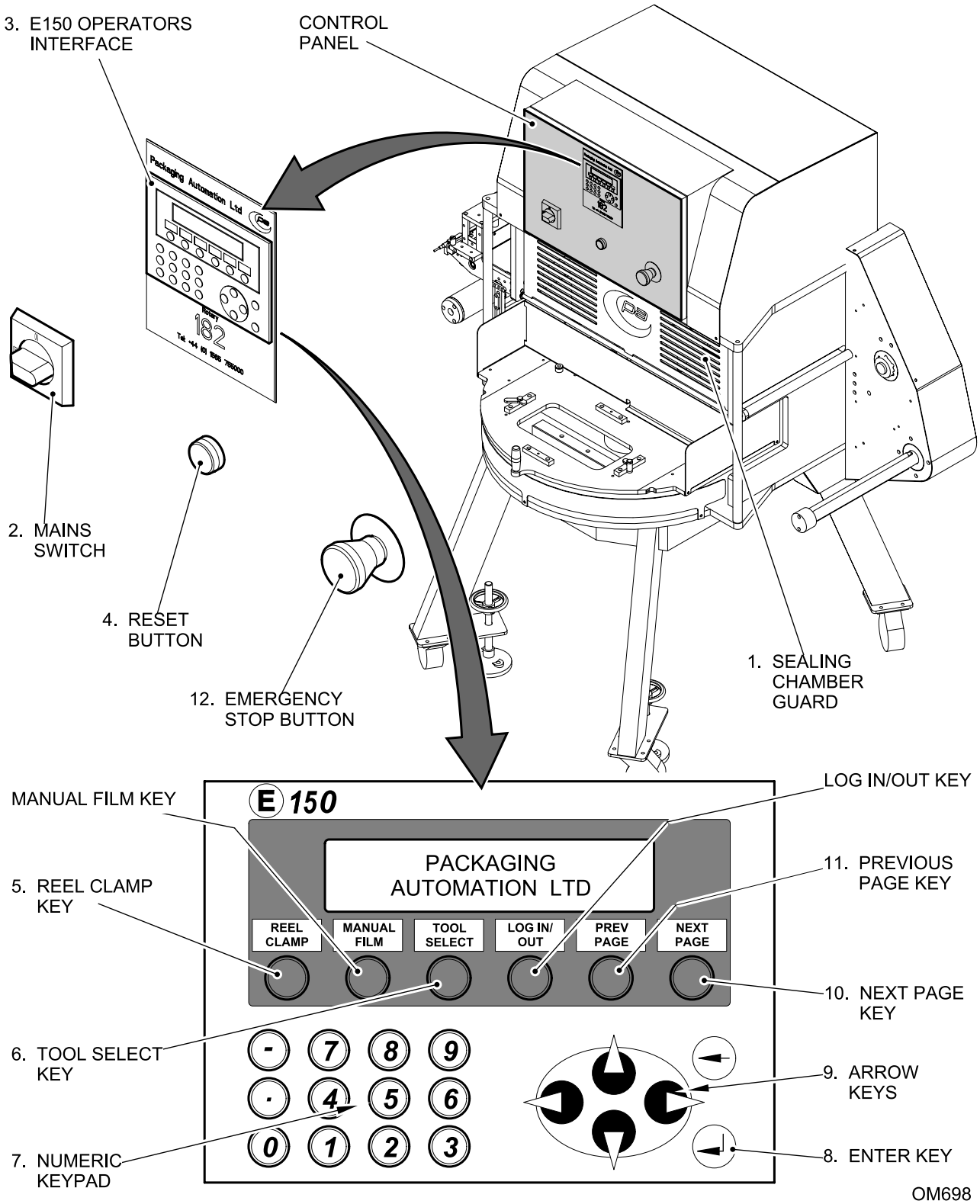
(h) PRESS the Reel clamp key (5) to activate the Reel clamp on the Film feed spindle.

(i) PRESS the Tool select key (6) to load the required Recipe (if not already selected).

The display changes to the 'TOOL SELECTION' screen. (See Fig.2)

(j) Input the Program Number using the Numeric keypad (7) and PRESS the Enter key.

The Tool ID is shown then the display automatically changes back to the 'MAIN DISPLAY' screen. (See Fig. 2 'Quick reference to control setting')



Machine set-up
Fig. 1

3. **Procedure** (Control setting) (Ref. Fig. 1)

(a) If a new Recipe program is required PRESS the Tool select key (6), input a Program number that is not in use and a Tool ID using the Numeric keypad (7) then PRESS the Enter key (8).

(b) PRESS the Enter key (8) on the 'MAIN DISPLAY' screen to toggle the Heater status 1 & 2 from OFF to ON. To alter each Set value use the Arrow keys (9) to move to the required area then input the figures using the Numeric keypad (7) and PRESS the Enter key (8).

(c) PRESS the Next page key (10) on the E150 operators interface (3).

The display changes to the 'SEAL & FILM FEED TIME' screen (See Fig 2).

(d) Use the Arrow keys (9) to scroll to each setting point.then input the figures using the Numeric keypad (7). PRESS the Next page key (10) again.

The display changes to the 'REG FILM & MARK COUNT' screen.

(e) PRESS the Enter key (8) to toggle the Reg film status from OFF to ON. Alter the Reg film counter using the Arrow keys (9) to move to the required area and input the number using the Numeric keypad (7) and PRESS the Enter key (8).

(f) PRESS the Next page key (10).

The display changes to the 'F/FEED MODE & EJECT TIME' screen (See Fig 2).

(g) PRESS the Enter key (8) to toggle the Film feed mode status from OFF/ HEAD UP/ TABLE as required. Alter the Eject time using the Arrow keys (9) to move to the required area and input the figure using the Numeric keypad (7) and PRESS the Enter key (8).

(h) PRESS the Next page key (10) on the E150 operators interface (3).

The display changes to the 'M/C MODE & GAS TIME' screen

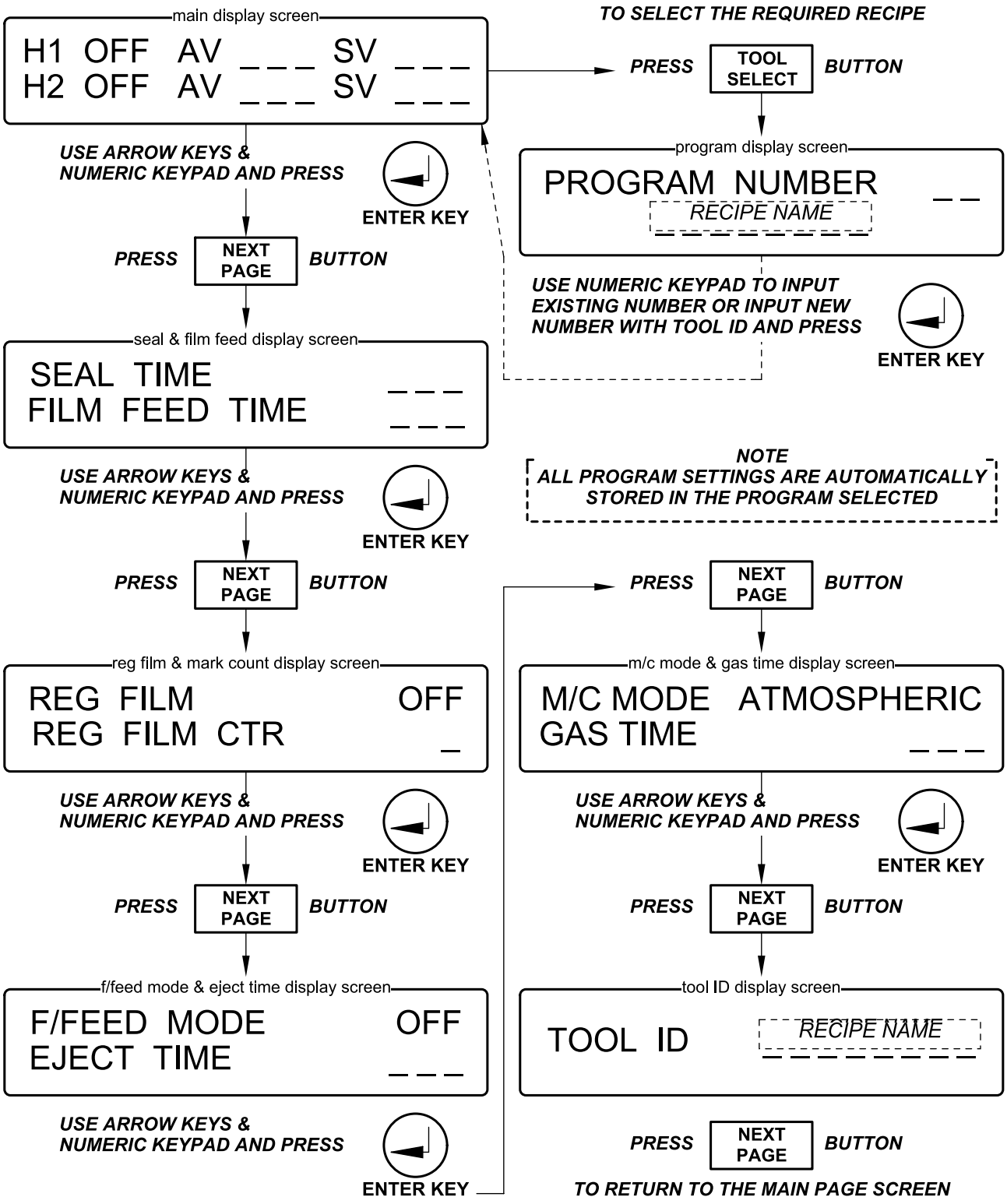
(i) PRESS the Enter key (8) to toggle the Machine mode status from ATMOSPHERIC to MAP-F as required. Alter the Gas time using the Arrow keys (9) to move to the required area and input the figure using the Numeric keypad (7) and PRESS the Enter key (8).

(j) PRESS the Next page key (10) to view the TOOL ID of the recipe in use.

Note:- All parameters are automatically stored with the Tool ID selected as they are input.

(k) PRESS the Next page key (10) again to return to the 'MAIN DISPLAY' screen.

(l) The machine is now ready for operation.



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Quick reference to control setting
Fig. 2

4. **Procedure** (Operation) (Ref. Fig. 3)

Caution:- **If new Heater mats have been fitted the tooling must be run at approximately 75oC for 30 minutes before increasing to the working temperature.**

(a) Place the Unsealed container(s) (1) into the Base tool (2) on the Rotary table (3) and pull the Operating handle (4) to rotate in a clockwise direction.

As the table is rotated a sensor, mounted below, monitors the movement. Once a certain point has been reached a pneumatic cylinder applies pressure to a Latch mechanism, which locks the table into position, activating the sealing process.

(b) The Unsealed container(s) (1) will now be in position in the Sealing chamber (5), place the next container(s) into the vacant Base tool (2).

(c) When the sealing is complete, rotate the table once more to allow the container(s) to vacate the Sealing chamber (5).

The Seal cylinder may be two stage, this provides control during MAP functions. The first stage lowers the Top tool to just above the Base tool allowing gas to replace air in the unsealed packs. The second stage moves the Top tool onto the Base tool to perform the seal cycle in the normal way.

Once the sealing cycle is completed the Latch mechanism retracts to allow the rotation of the table once more.

Note :- The sealed container(s) will be automatically ejected from the base tool.

(e) Remove the Sealed container(s) (6) and repeat (steps a & b) as required.

5. **Procedure** (Error handling) (Ref Fig. 1)

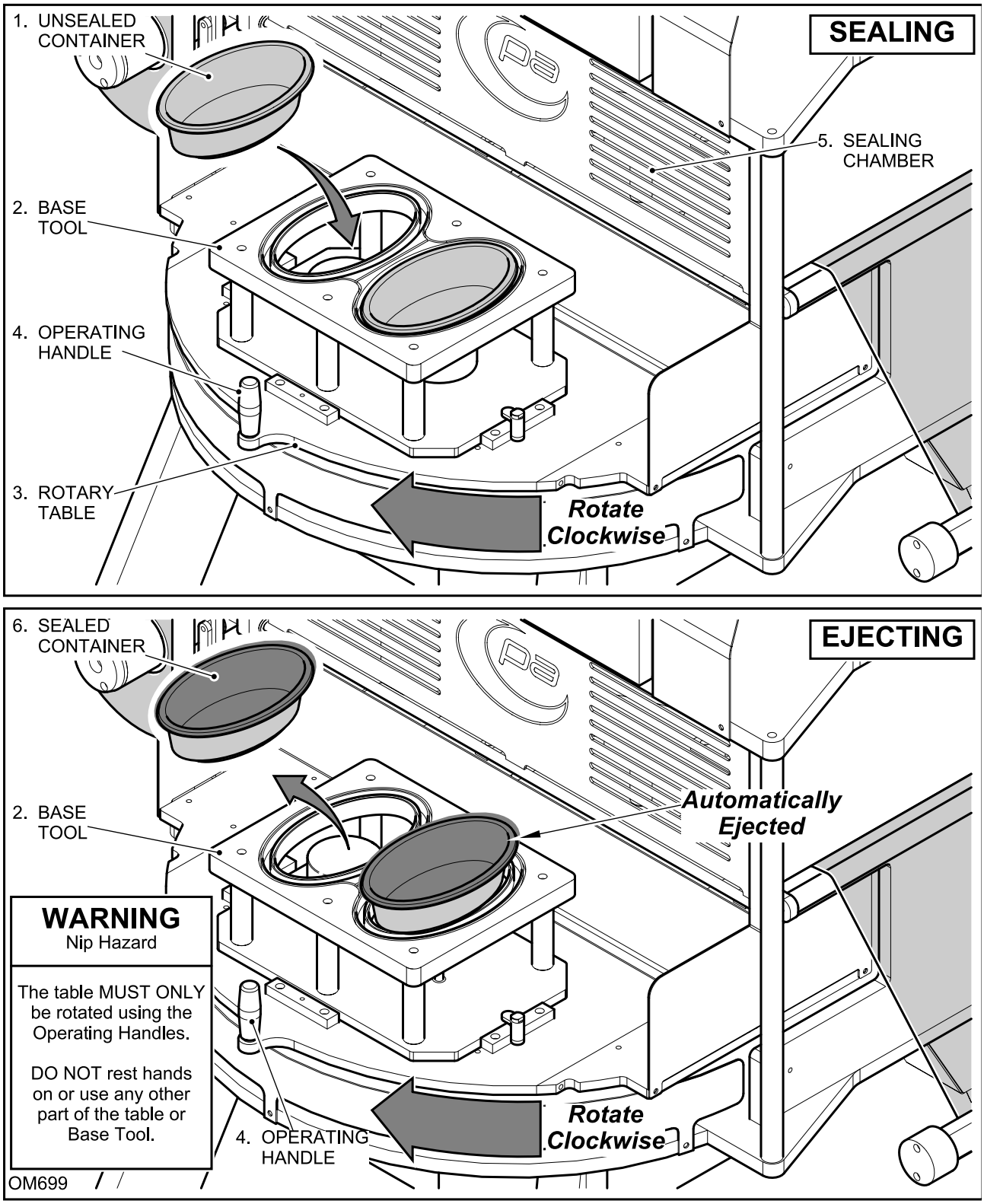
Errors may be caused by machine faults, open guards or Emergency stop button (12) activation.

Note:- For most errors production can recommence immediately. (See 'Error code listing').

(a) Press the Reset button (4) on the Control panel 'TWICE'.

Note:- The Reset button (4) is designed to 'Flash' indicating the interlock system must be reset. The screen may also display "PRESS RESET" as a reminder.

(b) To recommence production follow Procedure 4 'Operation'.



Operation
Fig. 3

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FILM FEED SYSTEM SET UP

1. **General**

This topic explains how to :-

- load the film
- thread the film
- adjust film tension

Variations for registered film are also shown.

2. **Procedure** (Load the film reel) (Ref. Fig. 1)

Note:- The electrical and pneumatic supplies must be ON in order to activate or de-activate the Film reel spindle (1).

(a) Ensure the Reel clamp button (2), on the E150 operators interface (3) is set to 'OFF'. (If replacing the film remove the old reel from the spindle).

The indicator light above the button will go out.

(b) Slide the new Film reel (4) onto the Film reel spindle (1). Position the reel using Film location strip (5), fitted to the Nip guard (6), as a guide to accurate centralisation.

Note:- The film must travel in a clockwise direction.

(c) On the control panel PRESS the Reel clamp button (2) to secure the reel.

WARNING:- DO NOT ACTIVATE THE RUBBER RINGS (7) WITHOUT A FILM REEL (4) LOADED ONTO THE SPINDLE.

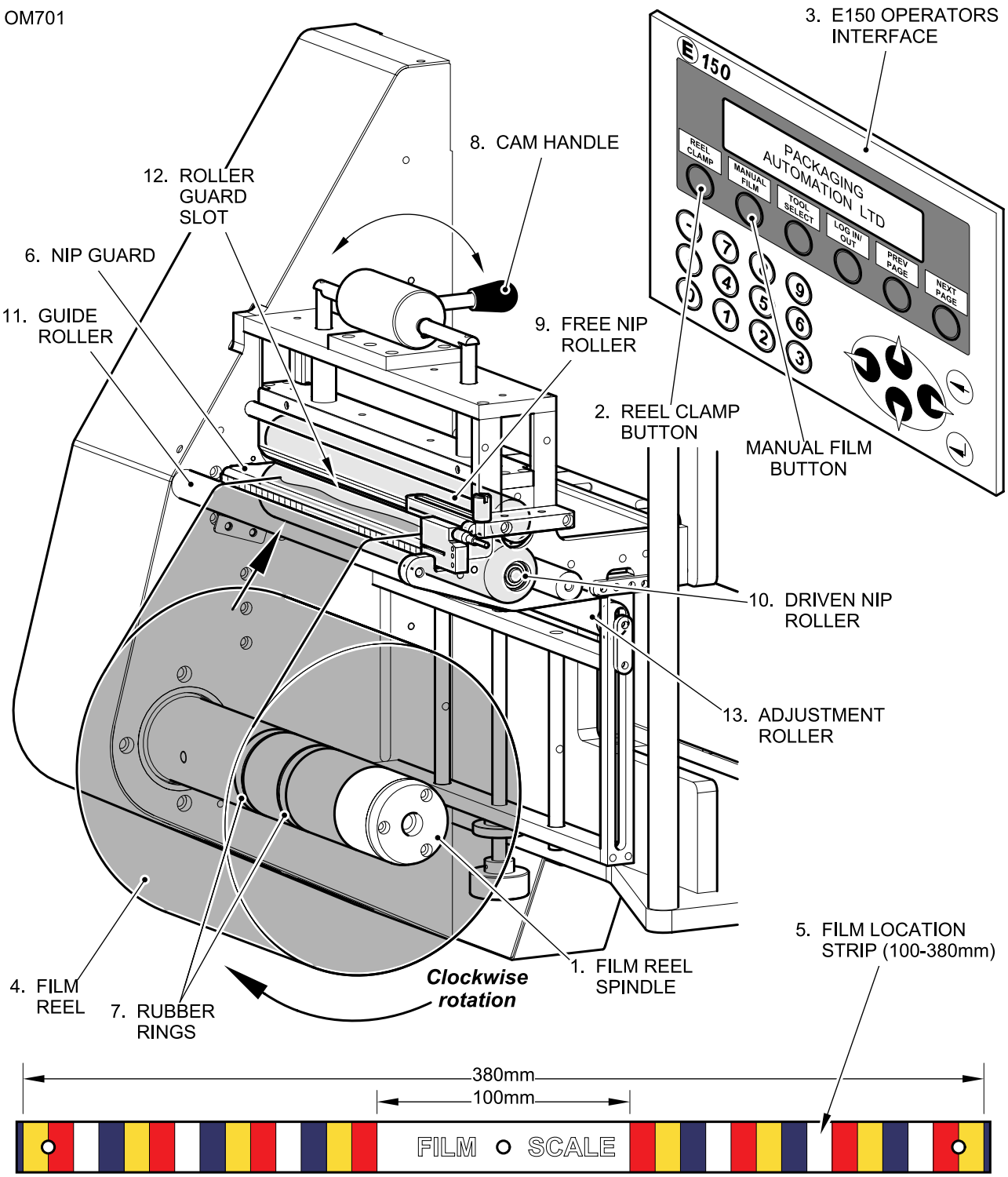
The indicator light above the button will light up.

(d) Lift the Cam handle (8) to de-activate the Free nip roller (9), separating it from the Driven nip roller (10).

(e) Draw a length of film sufficient to feed over the Guide roller (11), through the Roller guard slot (12) and between the Free & Driven nip rollers (9) & (10).

(f) Thread the film under the Adjustment roller (13), if registered film is to be used.

(g) The film is now ready for threading.



Note:- The Film location strip is divided into coloured bands at 10mm intervals. Align with the outer edge of the film equally for accurate centralisation.

Film loading
Fig. 1

3. **Procedure** (Thread the film) (Ref. Fig. 2).

(a) Thread the Film (1) over the Guide roller (2).

(b) With the Cam handle (3) in its raised position, feed the film through the roller guard slot, threading it between the Free nip roller (4) and the Driven nip roller (5).

MACHINES WITH PLAIN FILM

(c) Thread the film over the Infeed guide roller (6) and into the Sealing chamber (7).

MACHINES WITH REGISTERED FILM

(c) Thread the film around the Infeed guide rollers (6) and the Adjustment roller (8) then into the Sealing chamber (7).

Note:- See 'Photo-electric sensor set-up' in this section for calibration and alignment when registered film is in use.

WARNING:- IF THE MACHINE HAS BEEN IN OPERATION, THE TOOLS WILL BE HOT. ALLOW SUFFICIENT TIME FOR THESE AREAS TO COOL DOWN BEFORE YOU ATTEMPT TO THREAD THE FILM.

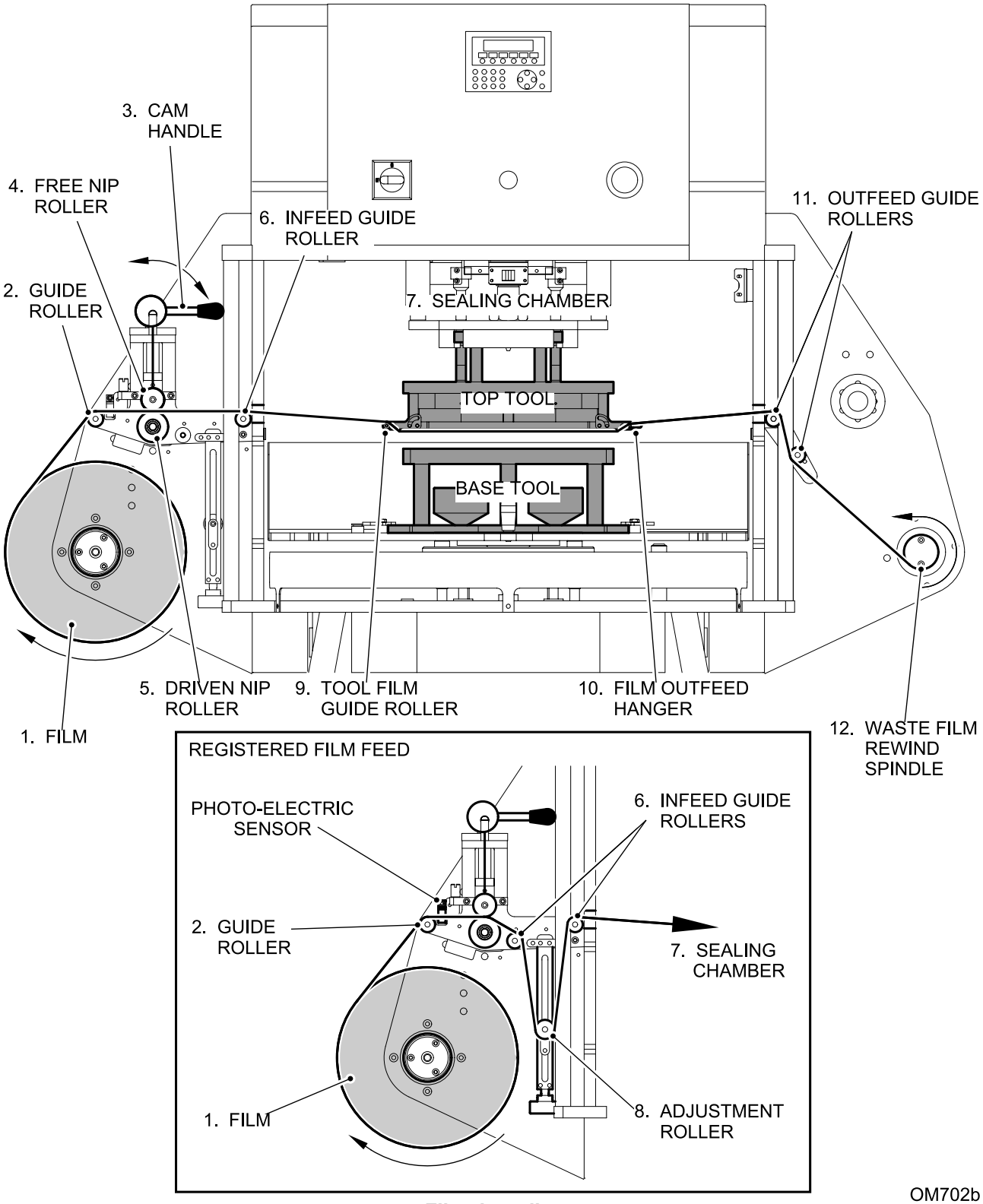
(d) Open the front hinged guard to gain access to the Sealing chamber (7).

(e) Thread the film over the Tool film guide roller (9).

(f) Draw the film carefully across the under-side of the Top tool.

(g) Feed the film over the Film outfeed hanger (10) and out of the Sealing chamber (7).

(h) Draw the film around the Outfeed guide rollers (11).



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Film threading
Fig. 2

(i) Secure the film to the Waste film rewind spindle (12).(Ref. Fig. 3).

Step 1:- Slide off the film Gripper rod assembly.

Step 2:- Place the Film around the Rewind spindle.

Step 3:- Replace the Gripper rod assembly, trapping the film/foil securely to the Spindle

(j) Check that the film is correctly threaded throughout its path (Ref. Fig. 2) and close the front hinged guard.

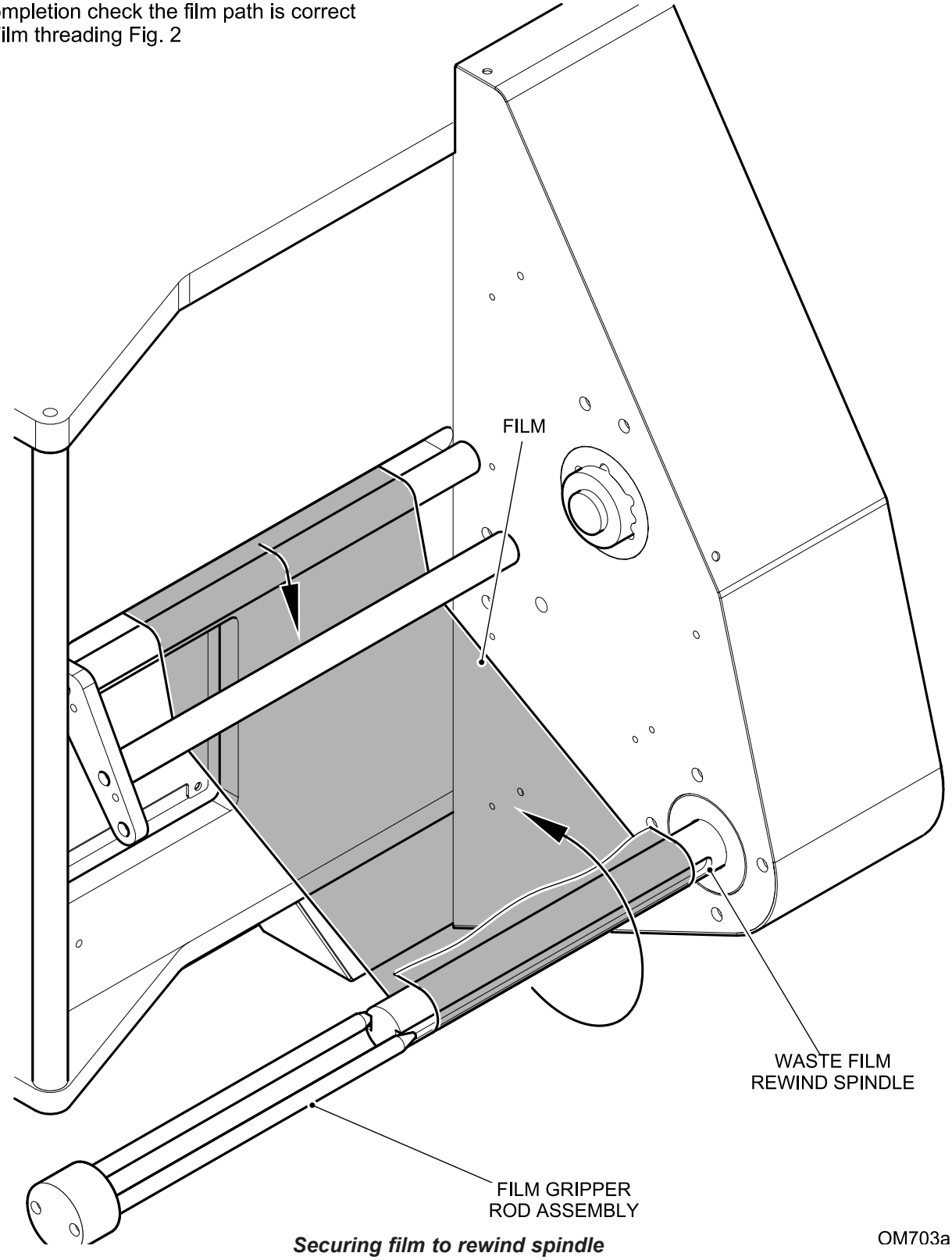
Note:- The Film feed label fitted to the machine can be a useful reference guide.

(k) Put the Cam handle (3).into its operating position so that the Free nip roller (5) moves into place against the Driven nip roller (6).

(l) PRESS the Manual film button for a short period to help tension the film path.

(m) Refer to the operating procedures for machine start up.

On completion check the film path is correct
See Film threading Fig. 2



Securing film to rewind spindle
Fig. 3

4. **Procedure** (Torque Limiter Adjustment) (Ref. Fig. 4.)

If the film is breaking or distorting, it may be due to the tension on the film being too great or too little. It is therefore possible to adjust the tension by resetting the Torque limiter (1), which is situated on the Rewind drive assembly (2), positioned above the Waste film rewind spindle (3).

WARNING:- DO NOT MAKE ANY ADJUSTMENTS UNTIL YOU HAVE TURNED OFF THE ELECTRICAL POWER SUPPLY.

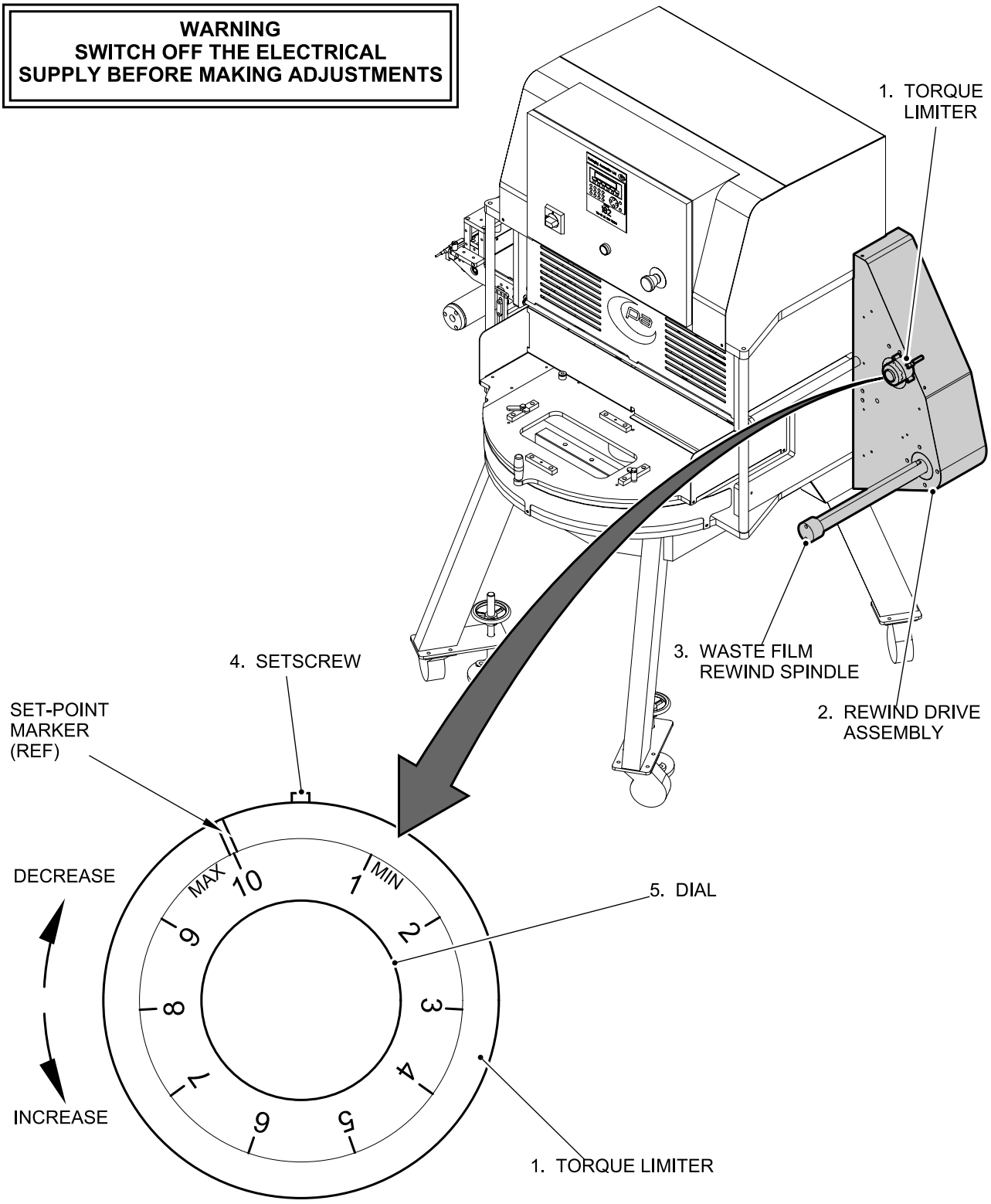
(a) If the tension on the film is too great, loosen the Setscrew (4) and turn the Dial (5) on the Torque limiter (Kinetrol) (1) slightly clock-wise.

(b) If the tension on the film is too slack, turn the Dial (5) anti-clock-wise.

(c) Repeat steps (a) or (b) until the desired tension is obtained.

(d) Tighten the Setscrew (4) to lock the setting.

WARNING
SWITCH OFF THE ELECTRICAL SUPPLY BEFORE MAKING ADJUSTMENTS



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Torque limiter adjustment
Fig. 4

PHOTO-ELECTRIC SENSOR SET-UP (REGISTERED FILM)

1. **General**

The following procedure explains how to calibrate the Photo-electric sensor and align the film to the packaging when registered film is in use.

2. **Procedure** (Set-up) (Ref. Fig. 1)

Note:- The electrical and pneumatic supplies must be ON in order to activate or de-activate the Film feed spindle (1).

(a) Thread the film in accordance with the instructions provided for machines with registered film (See 'Film feed system set-up').

(b) Loosen the nut of the Sensor adjustment assembly (2) to position the Photo-electric sensor (3) laterally and thread the Film (4) between the fingers of the sensor.

Note:- Sensors are installed for the detection of a dark reg. mark on a light background.

(c) Ensure the background material is in the Light beam (5), the Signal strength indicator L.E.D. (6) should be constantly lit 'yellow' (this means the light reception is optimal).

(d) Place a film Registration mark on the Light beam (5) , he Signal strength indicator L.E.D. (6) should go out. If it does not PRESS the [-] Key (7) until it does go out.

(e) Move to the background colour again, the Signal strength indicator L.E.D. (6) should light 'yellow'. If it does not PRESS the [+] Key (8) until it does light up.

3. **Procedure** (Adjustment) (Ref. Fig. 1)

(a) Once the Photo-electric sensor (3) has been set-up it is necessary to adjust the position of the Film (4) so that the printed design is synchronised with the tray(s) to be sealed.

(b) With the Film adjustment roller (9) in the mid-position, perform a sealing test to establish the amount of adjustment required. (See 'Operating procedures')

(c) Decide whether the Film (4) requires to be moved up or down and position the Film adjustment roller (9).

(d) Loosen the Locknut (10) of the Registered film adjustment assembly (11) then turn the Adjustment handle (12) until the roller reaches the desired position. Perform another sealing test and repeat the adjustment procedure as required.

(e) Once the position is correct tighten the Locknut (10) to secure the setting.

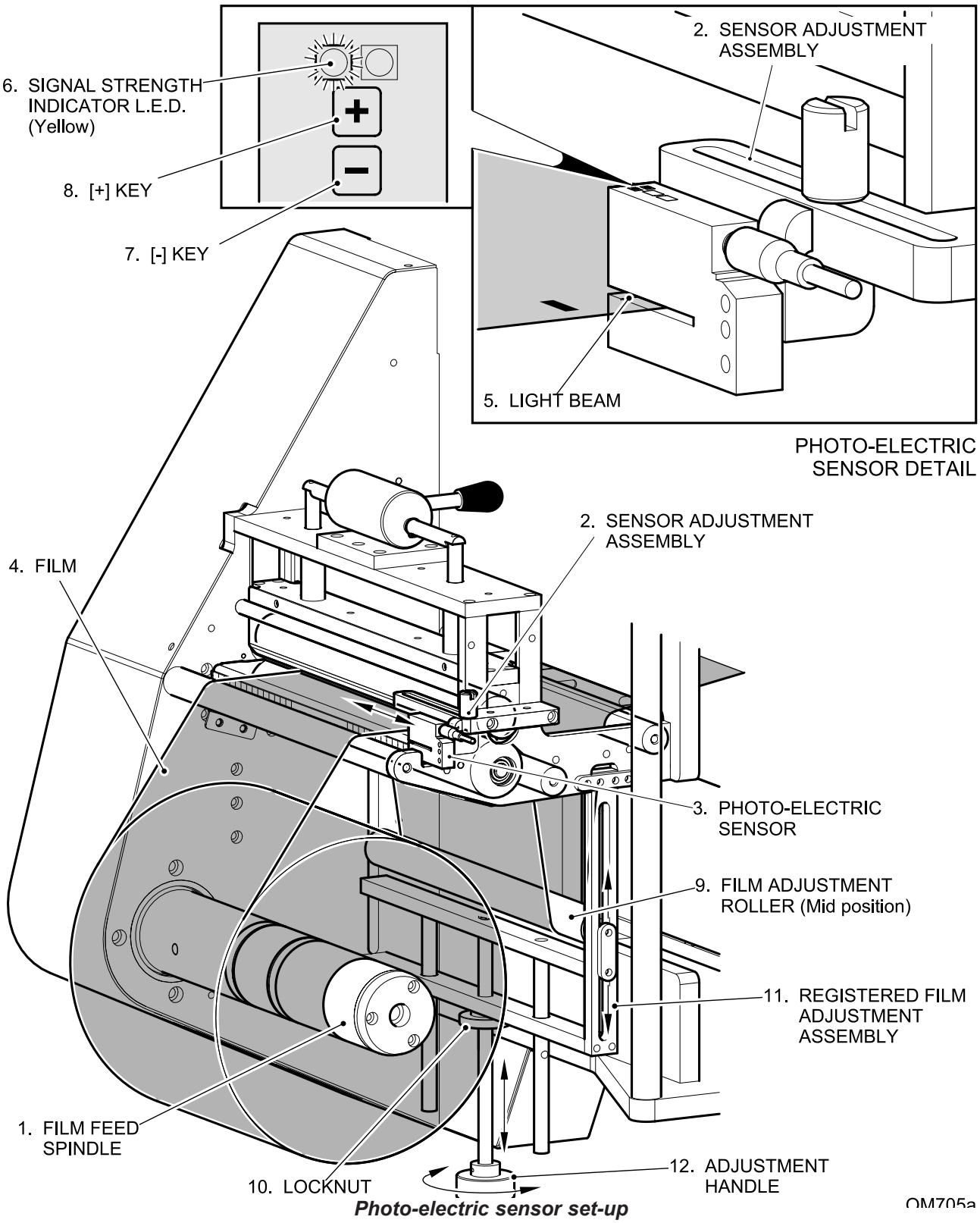

Photo-electric sensor set-up

Fig. 1

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ERROR CODE LISTING

SIGNAL	ERROR DISPLAY	ACTION
1	EMERGENCY STOP PRESSED	(1) Reset the button at this the Control panel (Press the reset button).
2	FRONT GUARD OPEN	(1) Close the guard front (Press reset button). (2) Check safety switch (Replace as required).
3	REAR GUARD OPEN	(1) Close the guard rear (Press reset button). (2) Check safety switch (Replace as required).
4	AIR PRESSURE ERROR	(1) Check pressure gauge is at 0.5-0.7 mpa (80-100 psi) Adjust as required. (2) Ensure air prep units moisture trap is auto-venting correctly. (3) Check for leaks in the pneumatic system.
5	HEATER 1 THERMOCOUPLE ERROR	(1) Check all connections to the top tool. (2) Replace thermocouple as required.
6	HEATER 2 THERMOCOUPLE ERROR	(1) Check all connections to the top tool (2) Replace thermocouple as required
7	HEATER MAT FAILED - HEATER 1	(1) Check all connections to the top tool. (2) Replace heater mat as required. (3) Run replacement at approximately 75oC for 30 minutes before increasing to the working temperature.
8	HEATER MAT FAILED - HEATER 2	(1) Check all connections to the top tool. (2) Replace heater mat as required. (3) Run replacement at approximately 75oC for 30 minutes before increasing to the working temperature.
9	HEAD DOWN ERROR	(1) Check for obstructions. (2) Check Head-down limit switch. (3) Replace switch as required.
10	HEAD UP ERROR	(1) Check for obstructions. (2) Check Head-up limit switch. (3) Replace switch as required
11	PAUSE CYLINDER ERROR (MAP-F ONLY)	(1) Check for obstructions. (2) Check pause switch. (3) Replace switch as required.
12	SAFETY CIRCUIT BROKEN	(1) Guard switches may not be in contact correctly or be faulty (Check or replace).
13	2LC MODULE ERROR	(1) Check the FX2-LC temperature controller for failure. (2) Replace if required
14	PLC LOW BATTERY ERROR	(1) Replace battery as soon as possible.

ERROR CODE LISTING

SIGNAL	ERROR DISPLAY	ACTION
15	FILM SNAP ERROR	(1) Re-thread or replace the film as required. (2) Check the snap sensor fitted on the film rewind drive assembly (Clean or replace).
16	GAS PRESSURE ERROR	(1) The gas pressure may be set too low for operating tolerances - Increase as required at point of supply. (2) Check all supply pipe connections are secure and undamaged. (3) The gas supply may be low - renew as required.

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TOOL CHANGING AND DISMANTLING

SUB-SECTION	PAGE
BASE TOOL REPLACEMENT (STANDARD)	C 2
BASE TOOL REPLACEMENT (SHALLOW)	C 4
TOP TOOL REPLACEMENT PROCEDURE	C 6
TOP TOOL DISMANTLING PROCEDURES	C 10
SEALING RUBBER REPLACEMENT	C 14
THERMOCOUPLE REPLACEMENT	C 16
FILM CLAMP PLATE SPRINGS	C 18
TRIM BLADE REPLACEMENT (STANDARD & TABBED)	C 20
TRIM BLADE REPLACEMENT (QUICK RELEASE)	C 22
SEAL SPRING REPLACEMENT	C 24
HEATER MAT REPLACEMENT	C 26
BRAKE AND CLUTCH UNIT REPLACEMENT	C 28

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BASE TOOL REPLACEMENT (STANDARD)

1. **General**

This topic explains how to remove and replace standard Base tools on the Rotary table (1) for cleaning or maintenance purposes.

WARNING:- TURN 'OFF' THE MACHINES ELECTRICAL & COMPRESSED AIR SUPPLIES BEFORE PROCEEDING.

2. **Procedure** (Removal) (Ref. Fig. 1)

(a) Rotate the Tool cam locks (2) on the Location strips (3) at each side of the Base tool (4).

Note:- For MAP-F tooling disconnect the gas tubing from the Adaptor (5).

(b) The tool can now be carefully lifted away from the Rotary table (1) and placed on a suitable work bench for cleaning or repair.

(c) To remove the second Base tool (4) grip the Operating handle (6) and rotate the table clockwise until the remaining tool clears the Sealing chamber (7).

(d) Repeat steps 2a to 2b for removing the second Base tool (4).

3. **Procedure** (Replacement) (Ref. Fig. 1)

Caution:- Care must be taken to ensure the Base tools are kept clean at all times. Make sure all sealing rubbers are intact before replacing the tools (See page C14 'Sealing rubber replacement).. For MAP-F tools check that the gas holes are clean and clear.

(a) Lower the Base tool (4) into position between the Location strips (3).

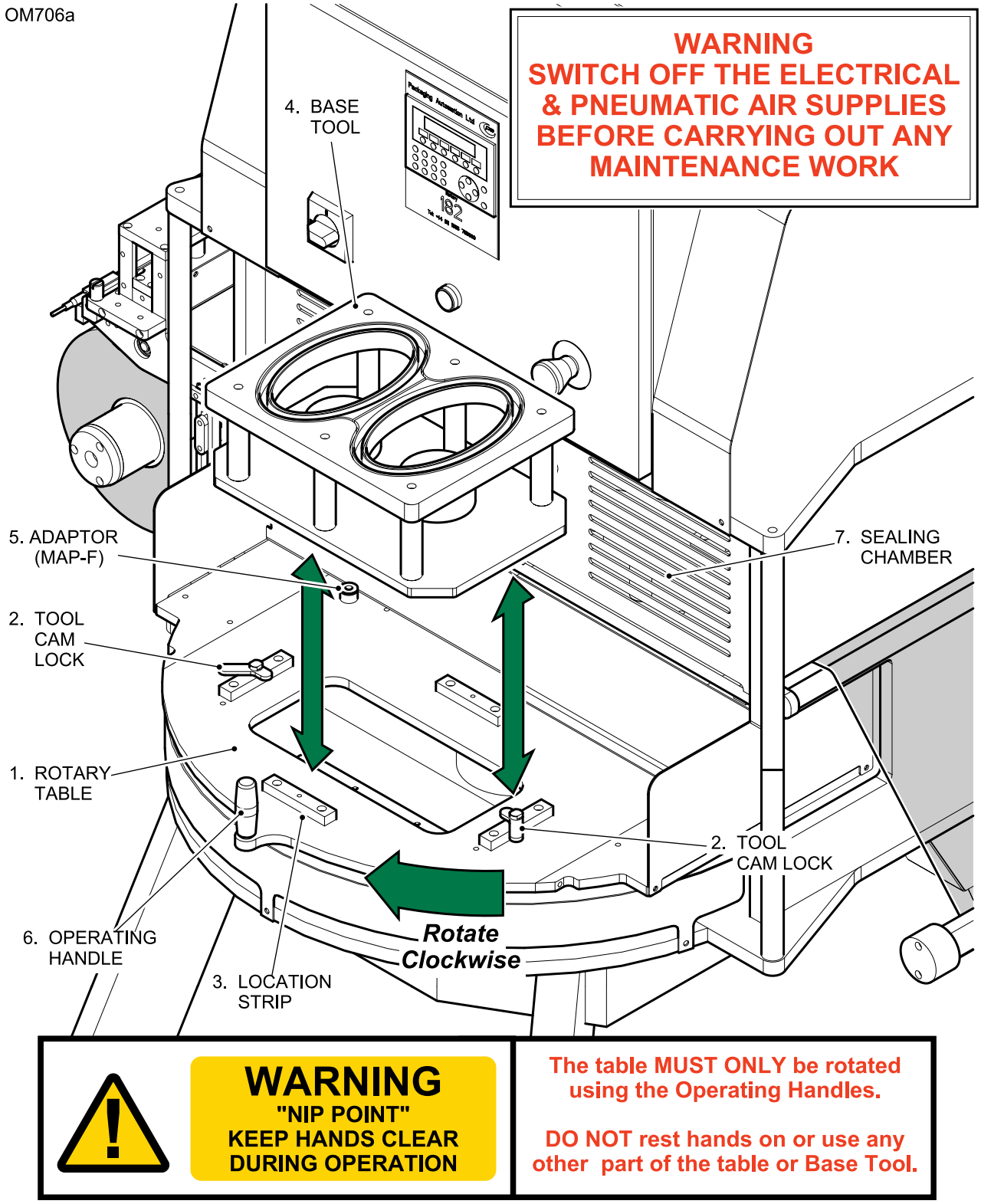
Note:- The eject shoulder screws on the underside of the tool must be located carefully.

(b) Rotate the Tool cam locks (2) to secure the Base tool (4) in place.

Note:- For MAP-F tooling reconnect the gas tubing to the Adaptor (5).

(c) Grip the Operating handle (6) and rotate the table clockwise.

(d) Repeat steps 3a to 3b for replacing the remaining Base tool (4).



Base tool replacement (standard)
Fig. 1

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BASE TOOL REPLACEMENT (SHALLOW)

1. **General**

This topic explains how to remove and replace shallow Base tools and Adaptor plates on the Rotary table (1) for cleaning or maintenance purposes.

WARNING:- TURN 'OFF' THE MACHINES ELECTRICAL & COMPRESSED AIR SUPPLIES BEFORE PROCEEDING.

2. **Procedure** (Removal) (Ref. Fig. 2)

(a) Rotate the Tool cam locks (2) on the Location strips (3) at each side of the Base tool (4). The tool can now be carefully lifted away from the machine and placed on a suitable work bench for cleaning or repair.

(b) If the Base adaptor (5) is to be removed or replaced rotate the Tool cam locks (2)on the Rotary table and lift clear

(c) To remove the second Base tool (4) grip the Operating handle (6) and rotate the table clockwise until the remaining tool clears the Sealing chamber (7).

(d) Repeat steps 2a to 2c for removing the second Base tool (4) and Base adaptor (5).

(e) If the machine is to be used with Standard depth Base tools (4) loosen the setscrews that secure the Eject bar adaptor (8) and lift it clear of the eject assembly.

3. **Procedure** (Replacement) (Ref. Fig. 2)

Caution:- Care must be taken to ensure the Base tools are kept clean at all times. Make sure all sealing rubbers are intact before replacing the tools (See page C14 'Sealing rubber replacement). For MAP-F tools check that the gas holes are clean and clear.

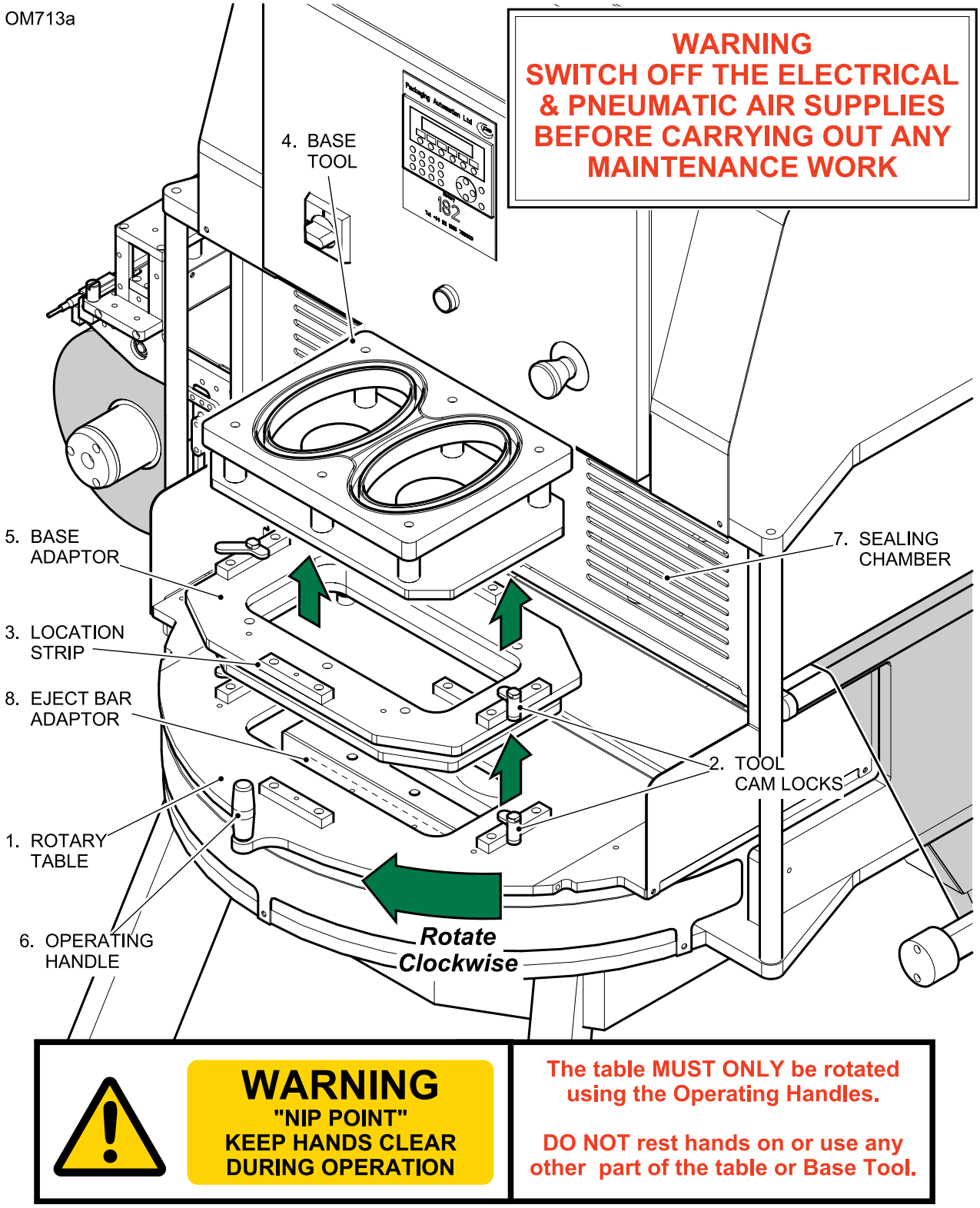
(a) Lower the Base adaptor (5) into position between the Location strips (3) as required of the Rotary table (1) and secure using the Tool cam locks (2).

(b) Position the Base tool (4) between the Location strips (3) of the Base adaptor (5) and secure using the Tool cam locks (2).

Note:- The eject shoulder screws on the underside of the tool must be located carefully.

(c) Grip the Operating handle (6) and rotate the table clockwise.

(d) Repeat steps 3a to 3b for replacing the remaining Base adaptor (5) & Base tool (4).



Base tool replacement (shallow)
Fig. 2

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TOP TOOL REPLACEMENT PROCEDURE

1. **General**

This topic explains how to remove and install the Top tool assembly (1) for maintenance, component replacement or cleaning puposes.

2. **Procedure** (Top tool removal) (Ref. Fig. 3)

WARNING:- TURN 'OFF' THE MACHINES ELECTRICAL & COMPRESSED AIR SUPPLIES BEFORE PROCEEDING.

THE TOP TOOL WILL REMAIN HOT FOR SOME TIME. ALLOW IT TO COOL OR WEAR HEAT RESISTANT GLOVES.

(a) At the back of the machine open the Rear hinged guards (2).

(b) Disconnect the Heater cable (s) (3) and Thermocouple(s) (4) from their Sockets (5) on the Electrical box (6).

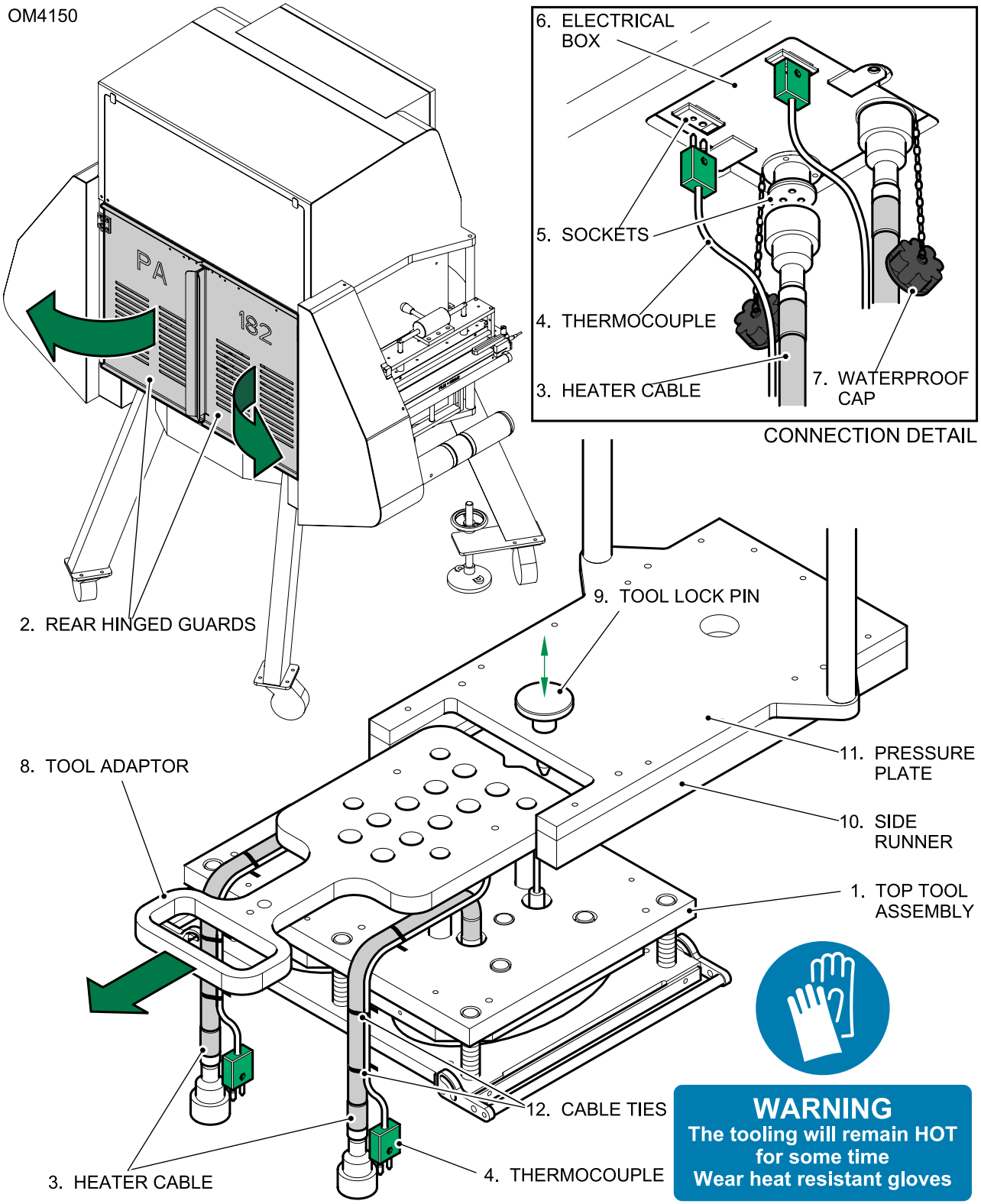
Caution:- Do not trap or kink each Heater cable (3) and Thermocouple (4). Position them towards you if possible.

(c) Fit the Waterproof caps (7) on the under-side of the Seal station as required.

(d) Grip the Tool adaptor (8), lift the Tool lock pin (9) then slide the Top tool assembly (1) along the Side runners (10) until the Tool lock pin (9) drops once more.

(e) Carefully lift the Top tool assembly (1) off the Pressure plate (11), out of the machine and place on a suitable clean and level work bench.

Note:- Store all toolsets together to prevent mismatch during replacement.
(Top Tool Assembly & Base Tools)



Top tool removalt
Fig. 3

3. **Procedure** (Top tool replacement) (Ref Fig. 4)

WARNING:- TURN 'OFF' THE MACHINES ELECTRICAL & COMPRESSED AIR SUPPLIES BEFORE PROCEEDING. MAKE SURE THE WHEEL LOCKS ARE SECURE.

Note:- Ensure all components are intact, clean and dry before proceeding.

(a) At the back of the machine open the Rear hinged guards (1) and unscrew the Waterproof caps (2) [as required] on the under-side of the Seal station.

Caution:- Do not trap or kink the Heater cable (3) and Thermocouple (4). Position them towards you if possible.

(b) Lift the Top tool (5) and rest the Tool adaptor (6) on the Side runners (7) of the Cylinder pressure plate (8).

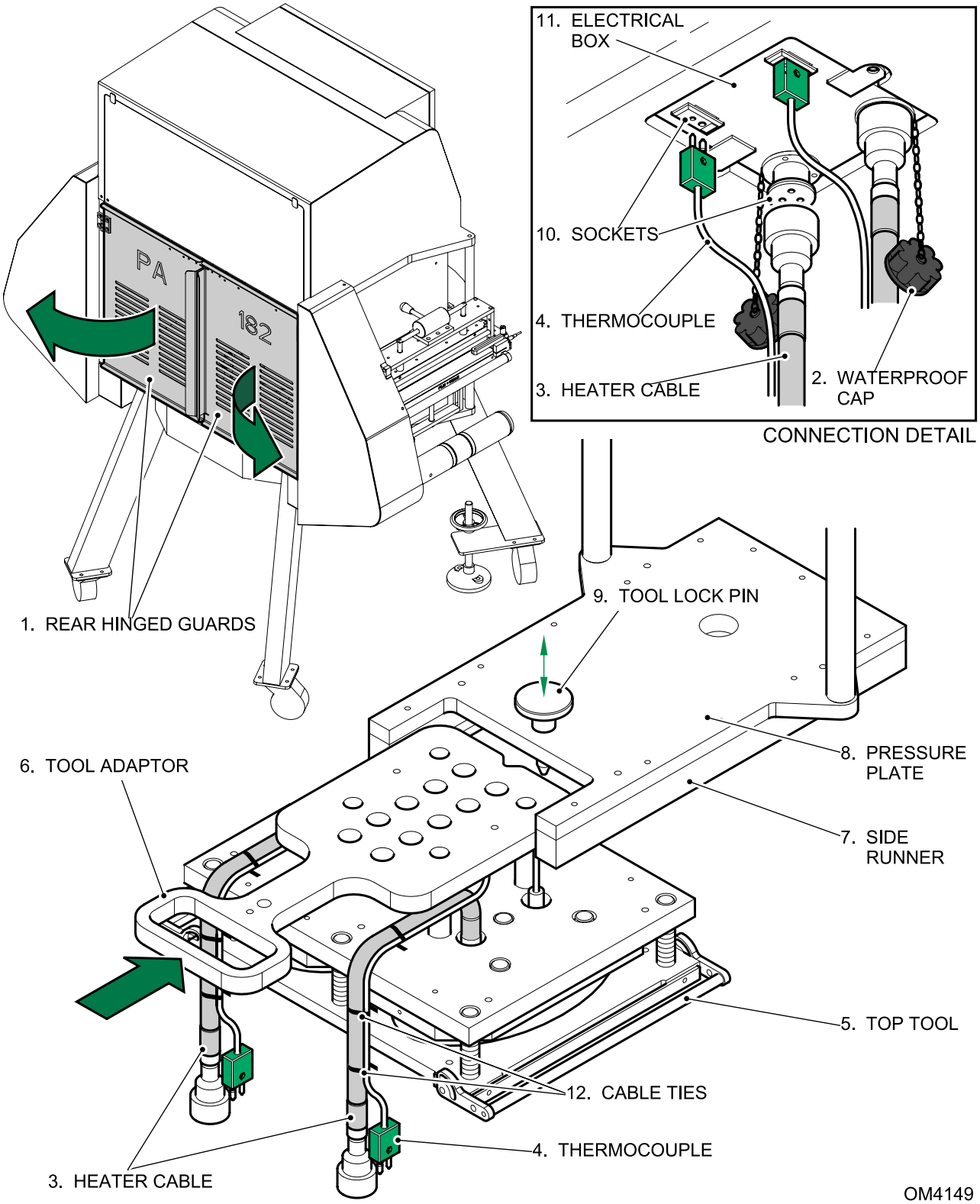
(c) Support the tool, lift the Tool lock pin (9) then slide the Top tool (5) along the Side runners (6) until it stops. Lock in position by dropping the Tool lock pin (9) into the Tool adaptor (6).

(d) Connect the Heater cable (s) (3) and Thermocouple(s) (4) to their Sockets (10) on the Electrical box (11).

(e) Ensure any excess Thermocouple cable is gathered near the Electrical box (11) and Cable ties (12) are used to secure the Thermocouple(s) to the Heater cable(s).

(f) Close the Rear hinged guards (1) and re-connect the power and air supplies.

(g) Follow the Control setting procedures in Section B to select the required tool recipe.



Top tool replacement
Fig. 4

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TOP TOOL DISMANTLING

1. **General**

This procedure explains how to completely dismantle the Top tool assembly for comprehensive cleaning or maintenance. Reference is given to more detailed procedures shown in this section for individual component replacement.

2. **Procedure** (Top tool dismantling) (Ref. Fig. 5)

(a) Remove a Top tool assembly from the machine and place on a clean, level work bench. (See page C6 'Top tool replacement procedure').

Caution:- Take care not to damage the Seal profile face.

(b) Separate the Film clamp plate (1) from the Tool pressure plate (2) by unscrewing the Shoulder screws (3). Retain the Film clamp springs (5) for replacement later. (See page C18 'Film clamp plate springs').

(c) Carefully remove the Trim blade(s) (5) from the Pressure plate (2). (See Page C 20 or C22 'Trim blade replacement').

WARNING:- HANDLE WITH CARE, THE TRIM BLADE IS EXTREMELY SHARP.

(d) Cut the Cable ties (6) that secure each Heater conduits (7) to a Thermocoples (8) and remove the Thermocouples (8). (See Page C16 'Thermocouple replacement').

(e) To access the each Seal block assembly remove the Insert screw (9) from the Heater plug (10), draw out the Plug insert (11), disconnect the Heater wiring (12) and remove the Heater plug (10) from the Heater conduit (7).

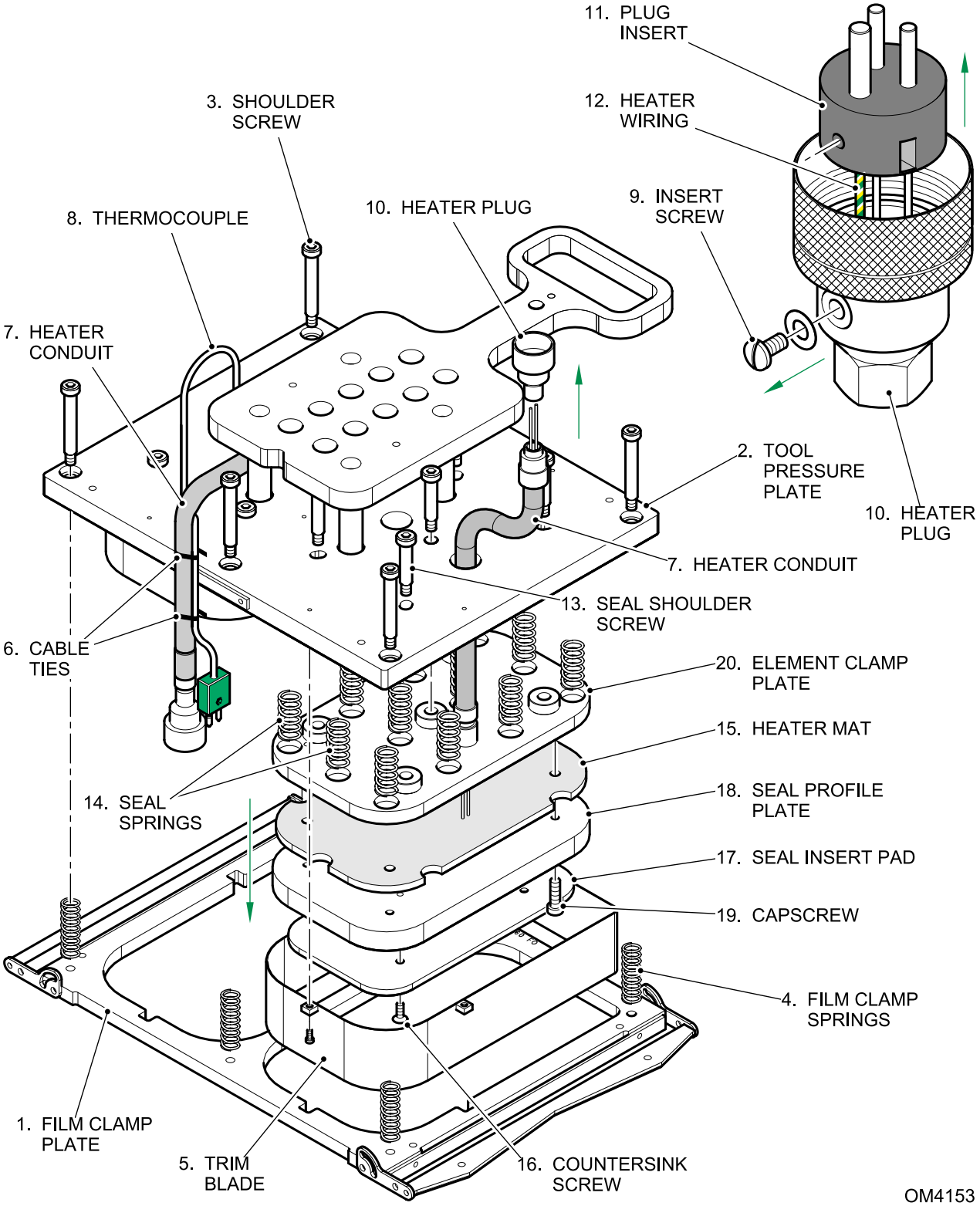
(f) To dismantle the Seal block assembly remove the Seal shoulder screws (13) and lift off the Tool pressure plate (2), feeding the Heater conduit (7) through the plate. Retain the Seal springs (14) for replacement later. (See page C24 'Seal spring replacement').

(g) To access the Heater mat (15) unscrew the Countersink screws (16) and remove the Seal insert pad (17) from the Seal profile plate (18).

(h) Loosen the Capscrews (19) and lift the Seal profile plate (18) from the Element clamp plate (20).

Caution:- Take great care not to damage the Heater mat (14).

(i) Draw out the Heater mat (14) through the Heater conduit (10) and Element clamp plate (20). (See Page C26 'Heater mat replacement').



Tool dismantling
Fig. 5

4. **Procedure** (Tool assembling) (Ref. Fig. 6)

Note:- Before assembling the tool ensure all components such as springs and heater mats are clean, dry and intact (replace as required).

(a) Ensure all Sealing rubbers are clean, dry and intact (clean or replace as required). (See Page C14 ‘Sealing rubber replacement’).

(b) Install the Heater mat (1), sliding the Heater wiring (2) through the Element clamp plate (3) and Heater conduit (4).

(c) Carefully place the Seal profile plate (5) onto the Element clamp plate (3), secure with the Capscrews (6) and re-fit the Insert pad (7) . (See Page C26 ‘Heater mat replacement’).

(d) Place the Seal springs (8) into the counterbores in the Element clamp plate (3), lift on the Tool pressure plate (9) [Sliding the Heater condiut (4) through the plate] and secure using the Seal shoulder screws (10). (See page C24 ‘Seal spring replacement’).

(e) Re-fit each Trim blade (11) over its assembled Seal block. (See Page C 20 or C22 ‘Trim blade replacement’).

WARNING:- HANDLE WITH CARE, THE TRIM BLADES ARE EXTREMELY SHARP.

(f) Place the Film clamp plate (12) face down and position the Film clamp springs (13) on top of the plate.

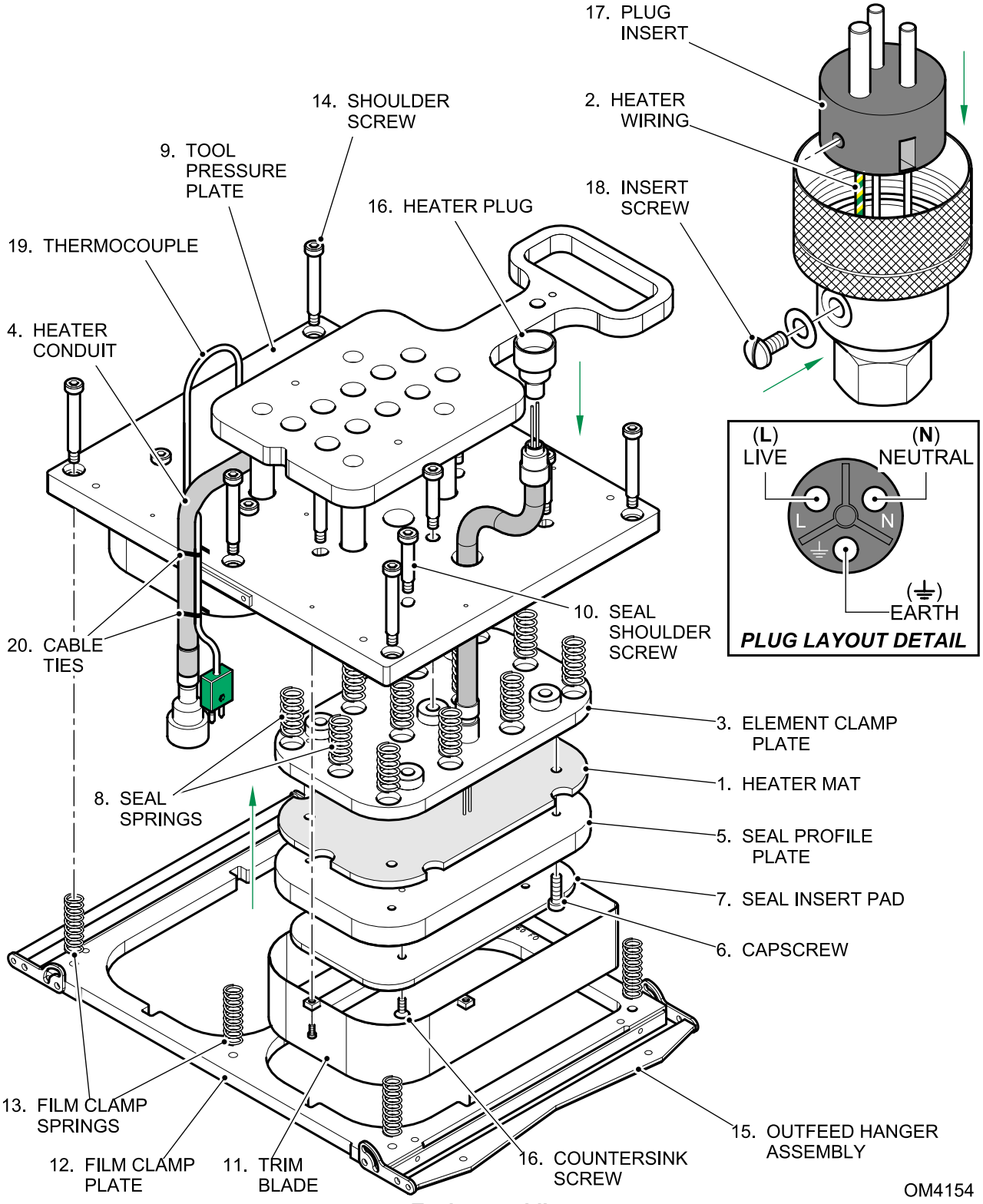
(g) Carefully lift the partially assembled Top tool and position onto the Film clamp springs (13) and refit the Shoulder screws (14). Ensure all springs are seated correctly. (See page C18 ‘Film clamp plate springs’).

Caution:- Make sure the tool is properly orientated with the Outfeed hanger assembly (15) at the correct side of the tool.

(h) Re-fit the Heater plug (16) to the Heater conduit (4), re-connect the Heater wiring (3) to the Plug insert (17) [see ‘Plug layout detail’] and secure using the Insert screw (18).

(i) Install the Thermocouples (19) and secure to each Heater conduits (4) with Cable ties (20). (See Page C16 ‘Thermocouple replacement’).

(j) Ensure all fasteners are secure before loading the Top tool and operating the machine. (See page C8 ‘Top tool replacement procedure’).



Tool assembling
Fig. 6

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SEALING RUBBER REPLACEMENT

1. **General**

The procedure for removal and installation of the sealing rubber applies to the base tool profile plate and the top tool film clamp plate.

2. **Procedure** (Replacement) (Ref. Fig. 7).

(a) After you have removed the Base tool (1) (or top tool) from the machine place it on a clean and level bench. (Ref. Page C2, C4 or C6).

(b) Identify any section of damaged or old sealing rubber which requires to be replaced.

Caution:- **Make sure you do not damage the tool when you remove the sealing rubber.**

(c) Use a suitable tool to remove the Old sealing rubber (2) from its groove.

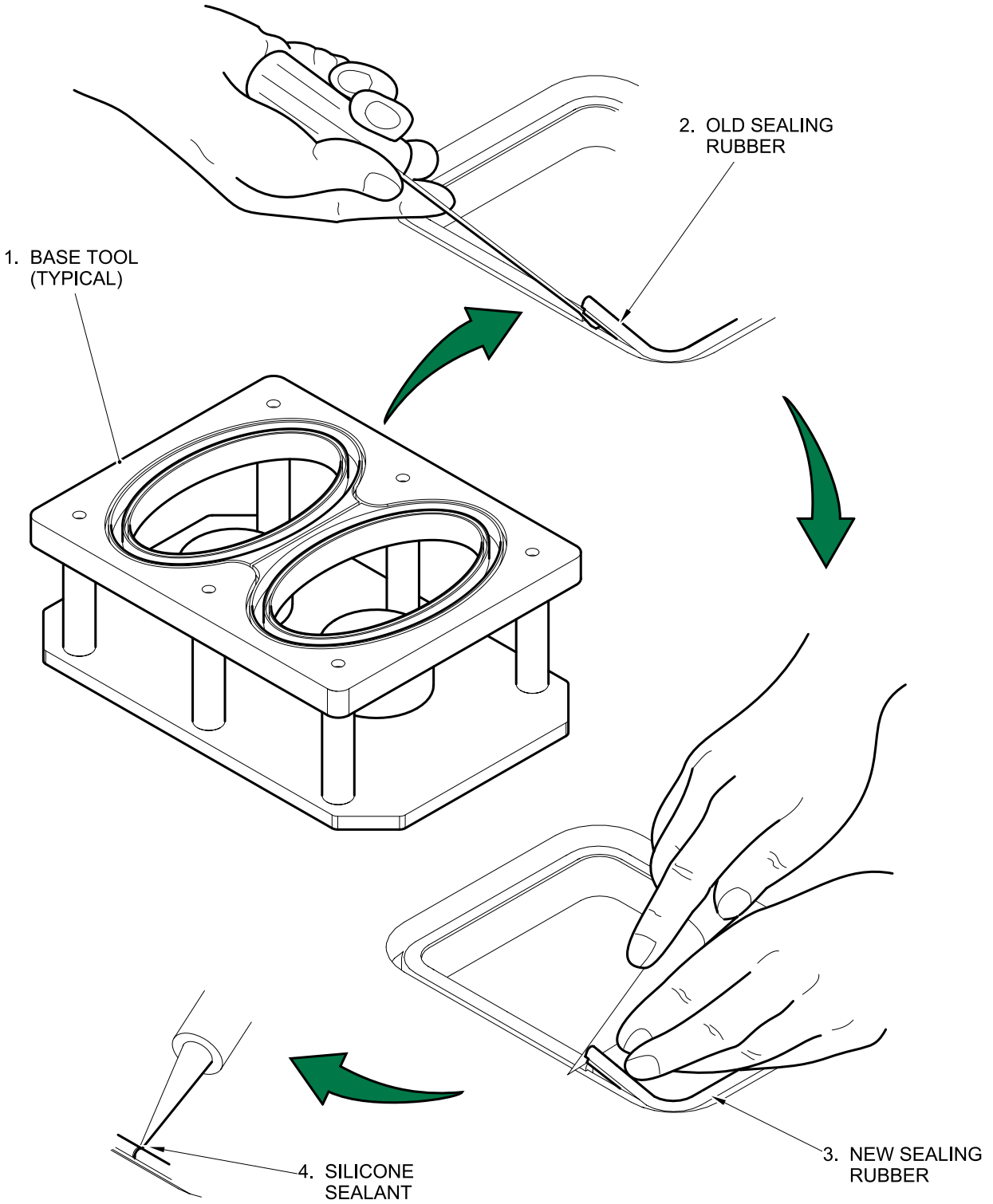
(d) Remove any old sealant from the groove.

Note:- Avoid stretching the sealing rubber when you install it. If not avoided, stretched sealing rubber will return to its original shape after a short period of time resulting in an increased gap at the joint.

(e) Insert a section of New sealing rubber (3) into the groove and cut to size.

(f) Run a bead of Silicone sealant (4) into any slight gap which appears after trimming.

(g) Clean off any residual sealant before returning the tool to the machine.



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Sealing rubber replacement
Fig. 7

THERMOCOUPLE REPLACEMENT

1. **General**

Remove the top tool from the cylinder pressure plate (Ref. page C6). Put the tool in a suitable position on a work bench.

2. **Procedure** (Replace) (Ref. Fig.8)

(a) Locate the damaged Thermocouple and remove the cable ties that attach it to the heater conduit.

(b) Push down and turn the (bayonet type) Cap (1) anti-clockwise and remove the Thermocouple probe (2) from the tool.

(c) Select a new Thermocouple and apply heat sink compound to the Thermocouple probe (2) (This will ensure a good electrical contact).

(d) Push the Thermocouple probe (2) down through the Thermocouple adaptor (3) until it reaches the bottom of the Blind hole (4) in the Profile plate (5).

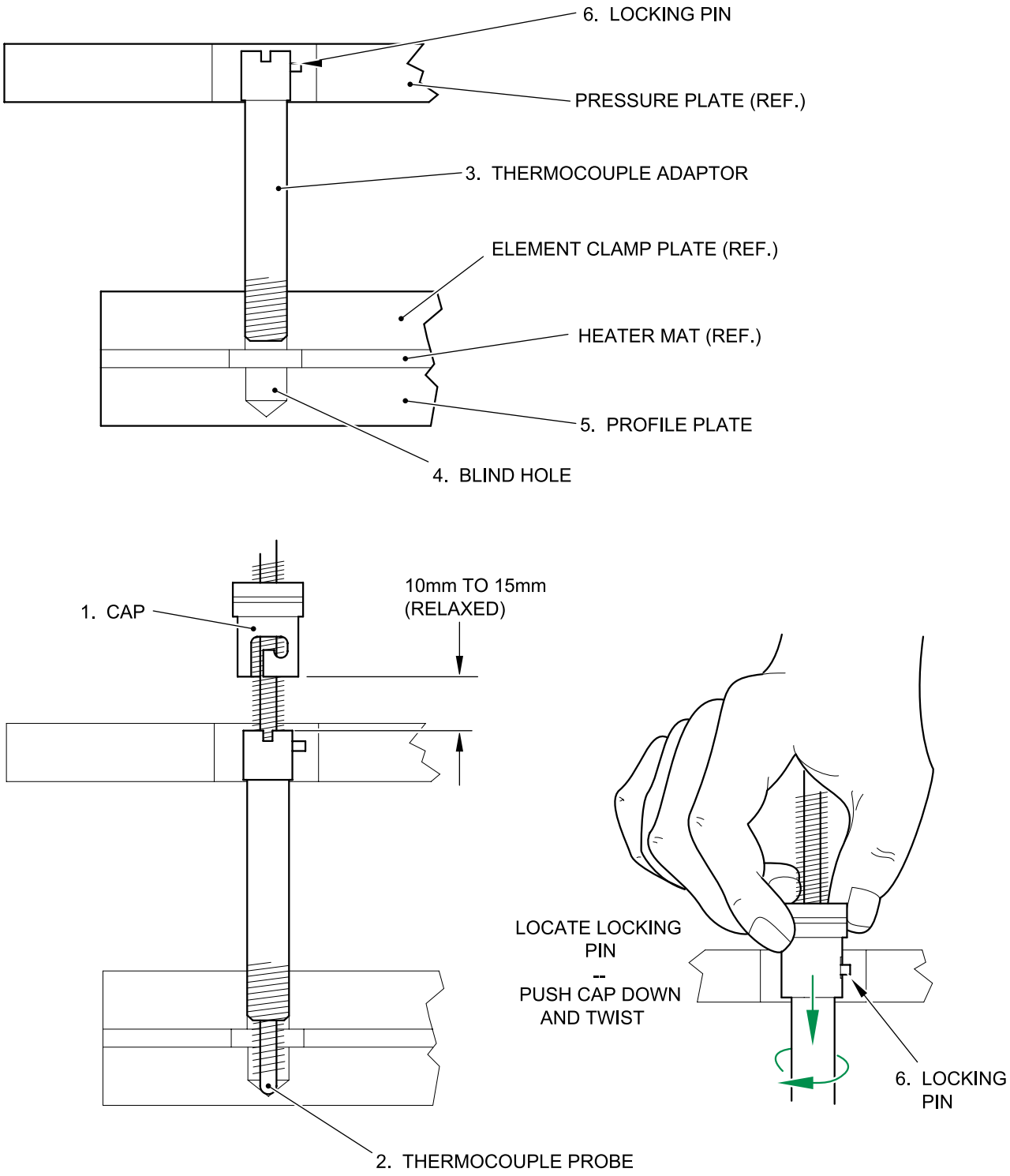
(e) Make sure the (bayonet type) Cap (1) is approximately 10mm to 15mm above the Thermocouple adaptor (3).

(f) Push the Cap (1) down over the adaptor and rotate it clockwise until it locks on the Locking pin (6).

(g) Fit new Cable ties to the Thermocouple and the Heater lead conduit.

WARNING:- DO NOT SHORTEN THE THERMOCOUPLE LEAD, LOOP AND ATTACH ANY EXCESS TO THE HEATER LEAD CONDUIT WITH TIES. MAKE SURE THEY ARE NOT STRETCHED OR KINKED.

(h) Re-install the Top tool (See page C8).



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Thermocouple replacement
Fig. 8

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FILM CLAMP PLATE SPRINGS

1. **General**

The film clamp plate springs are situated between the tool pressure plate and the film clamp plate. Each spring can be replaced individually and without dismantling the top tool assembly.

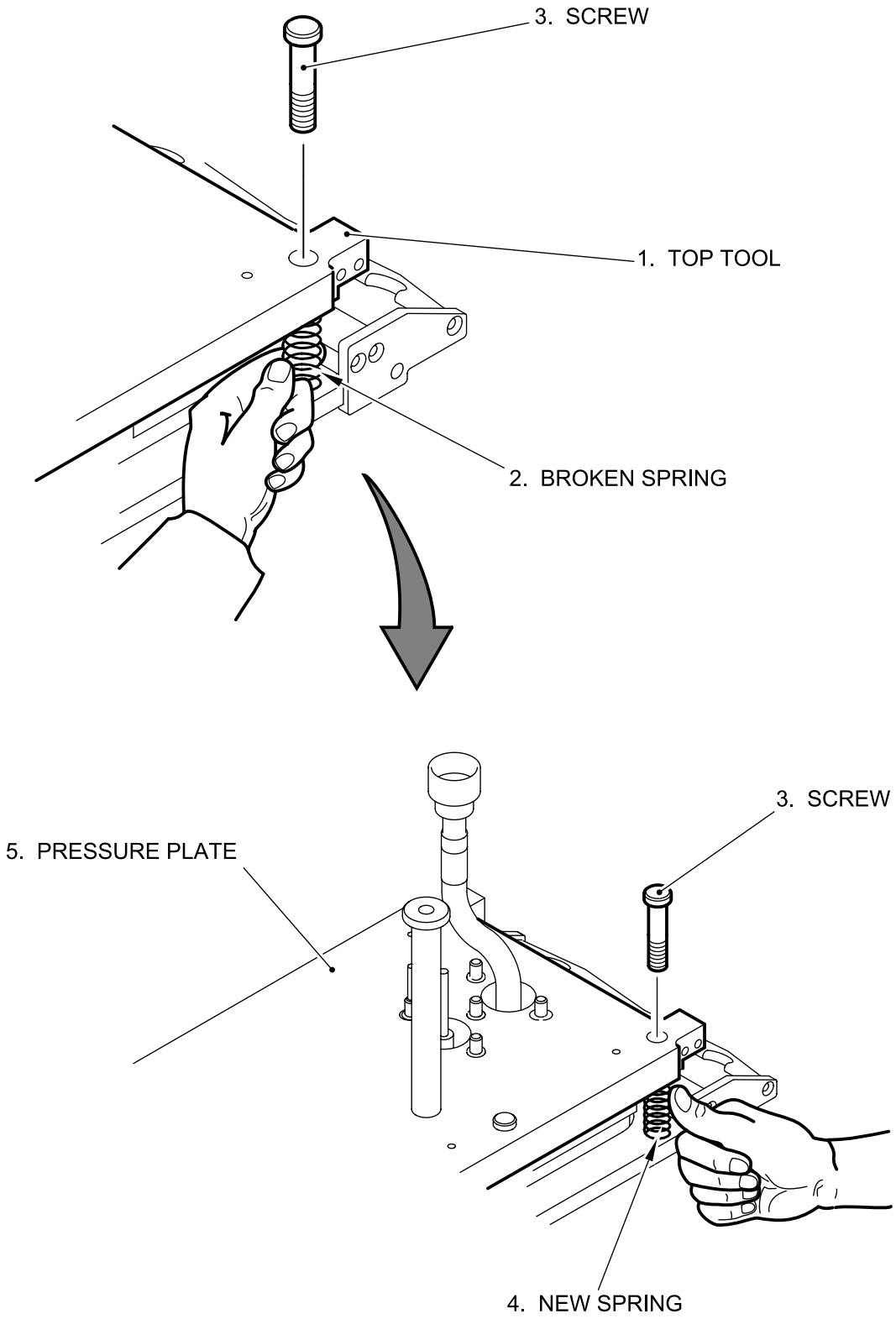
2. **Procedure** (Replacement) (Ref. Fig. 9)

(a) After you have removed the Top tool (1) from the machine and placed it on a clean level bench, locate the Broken spring(s) (2).

(b) Remove the Screw(s) (3) which secure the Spring(s) to the tool and prise out the broken Spring(s) or fragments.

(c) Partially compress the Replacement spring (4), feed it into position between the film clamp plate and the pressure plate and secure it with the Screw (3).

(d) Rotate the spring to make sure that it is seated properly in its counter bore in the Pressure plate (5).



Film clamp plate spring replacement
Fig. 9

TRIM BLADE REPLACEMENT (STANDARD & TABBED)

1. **General**

Two blade designs are currently used on the tooling. The first is standard with each blade attached and supported by a blade carrier. The second is tabbed, without the use of a Blade carrier (2).

2. **Procedure** (Replacement) (Ref. Fig. 10)

WARNING:- HANDLE WITH CARE, THE TRIM BLADES ARE EXTREMELY SHARP.

STANDARD BLADE

(a) With the Top tool (1) partially dismantled and inverted remove each Blade carrier (2) as required from the Pressure plate (3) (Ref. Page C10).

(b) Loosen the Screws (4) that secure the Blade (5) to the Blade carrier (2) and slide out the old blade.

(c) Install a new blade into each blade carrier and make sure they are correctly seated before tightening the Screws (4).

(d) Refit the Blade carrier (2) to the Top tool (1).

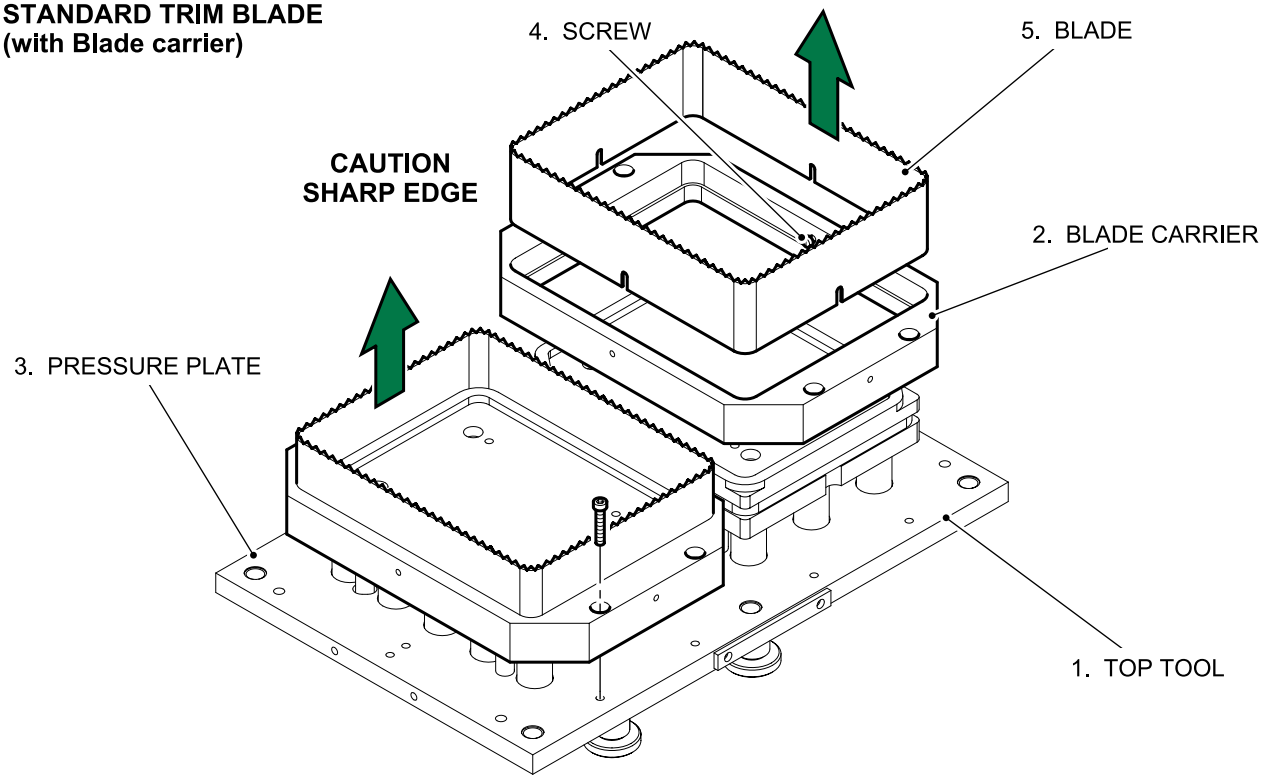
TABBED BLADE

(a) With the Top tool (1) inverted loosen and remove the Capscrews (6), that secure each Trim blade (7) to the Tool pressure plate (8) as required.

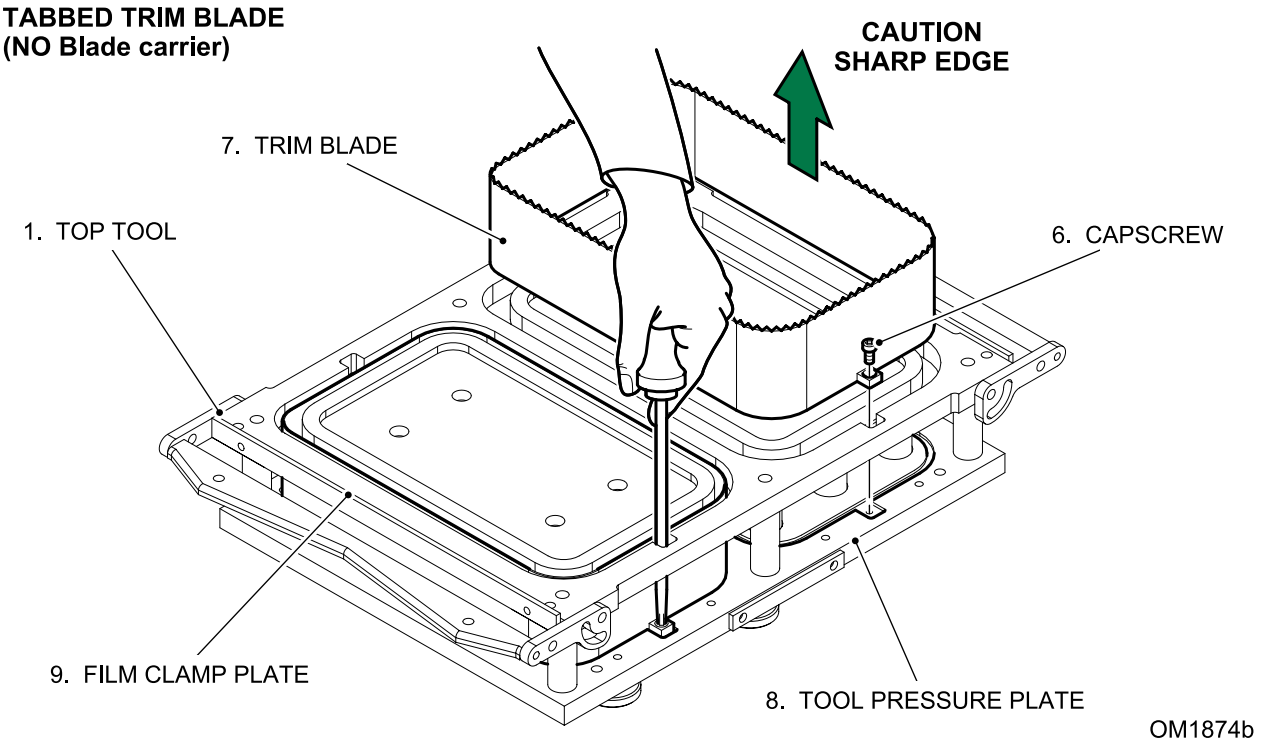
(b) Carefully lift out each old blade through the Film clamp plate (9).

(c) Fit each new blade as required and make sure they are correctly orientated before refitting the Capscrews (6).

STANDARD TRIM BLADE
(with Blade carrier)



TABBED TRIM BLADE
(NO Blade carrier)



Trim blade replacement (standard & tabbed)
Fig. 10

TRIM BLADE REPLACEMENT (QUICK RELEASE)

1. **General**

This third style of Trim blade (1) fitting is a 'Quick release' design based on the Packaging Automation Ltd Eclipse machine range.

The blades are attached directly to the tool Pressure plate (2) and can be replaced individually, without dismantling each Seal block.

2. **Procedure** (Replacement) (Ref. Fig. 11)

(a) Follow the steps on page C6 'Top tool replacement procedure' to safely remove the Top tool assembly (3) from the machine.

(b) Push down and rotate the Blade pins (4) to release the Blade retaining plates (5).

(c) Using the holes in the sides prise out and carefully slide the Trim blade (1) from the recess in the Pressure plate (2).

WARNING:- HANDLE WITH CARE, THE TRIM BLADES ARE EXTREMELY SHARP.

3. **Procedure** (Replacement) (Ref. Fig. 11)

(a) Ensure the Top tool assembly (3) is inverted on a clean, level bench.

(b) With the new Trim blade (1) (sharp edge facing up) carefully slide and push down into recess in the Pressure plate (2). Ensure the blade is bedded in correctly.

(c) Push down and rotate the Blade pins (4) to lock the Blade retaining plates (5) back into the Trim blade (1) slots.

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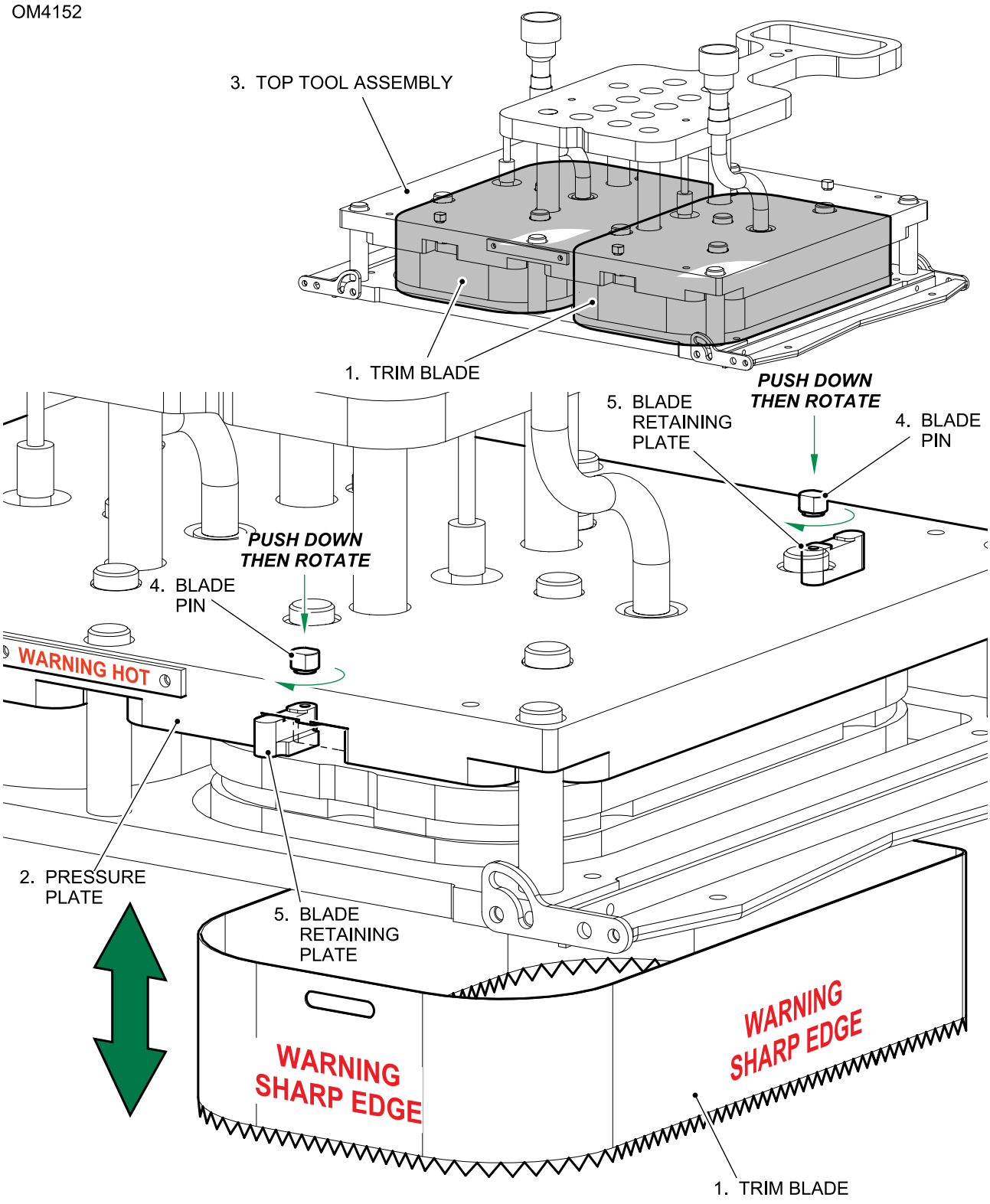

Trim blade replacement (quick release)
Fig. 11

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SEAL SPRING REPLACEMENT

1. **General**

The seal springs are located between the pressure plate and the seal block and are retained in counter bores. It is necessary to remove the seal block from the tool to replace or examine the seal springs.

2. **Procedure** (Replacement) (Ref. Fig. 11)

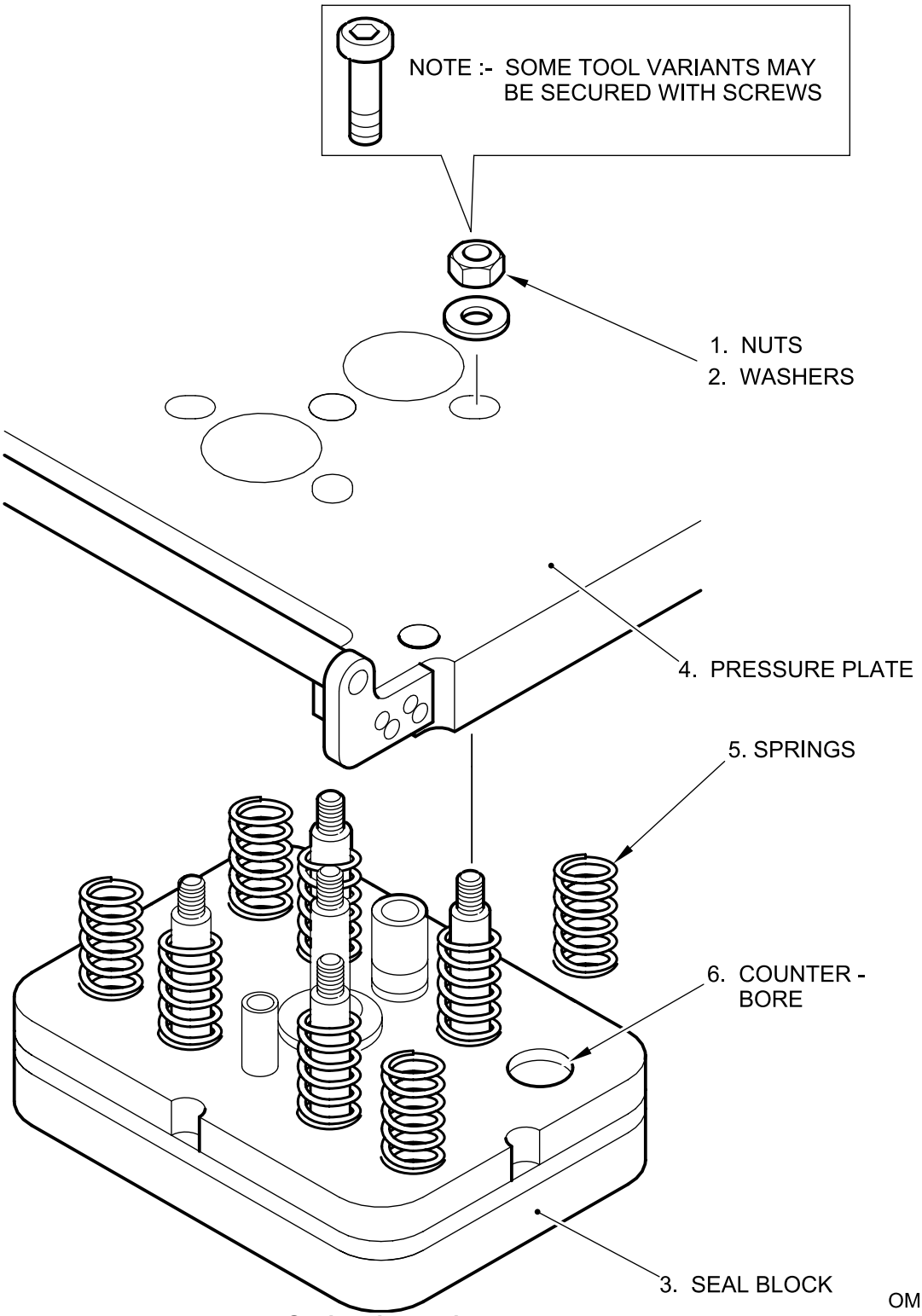
(a) Dismantle the Top tool (Ref. Page C10).

(b) Remove the Nuts (1) & Washers (2) that attach the Seal block (3) to the pressure plate (4).

(c) Remove any broken Spring(s) (5) and their fragments.

(d) Examine all springs for cracks or deterioration and replace as necessary.

(e) Carefully relocate all springs in their counter bores and re-assemble the tool.



Seal spring replacement
Fig. 12

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HEATER MAT REPLACEMENT

1. **General**

The heater mat is clamped between two plates, the element clamp plate and the seal profile plate, which together form the seal block.

2. **Procedure** (Replacement) (Ref. Fig. 13)

(a) SINGLE IMPRESSION TOOL:- Remove the Heater cable plug (1) from the end of the Heater cable and slide off the Conduit (2).

or

MULTIPLE IMPRESSION TOOL:- Disconnect the Heater cable from inside the terminal block and slide off the Conduit (2).

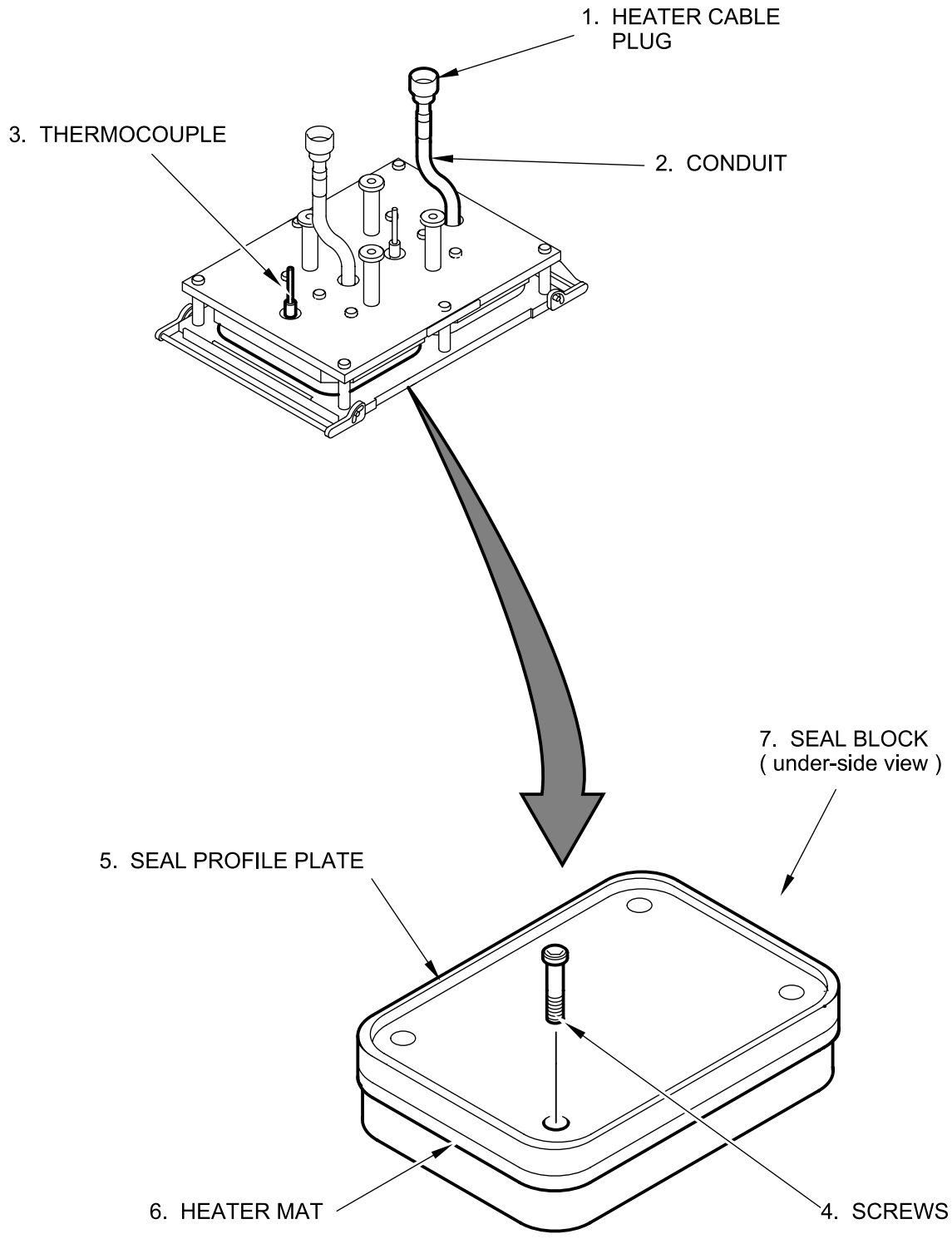
(b) Disconnect the Thermocouple (3), and invert the complete tool assembly on a suitable level bench.

(c) Remove the Screws (4) from the Seal profile plate (5) and remove the plate.

(d) Lift out the Heater mat (6) and withdraw the heater cable.

(e) Install the new Heater mat (6) and re-assemble the Seal block (7) and heater cable.

Caution:- You must operate the new heater mat at 75oC for at least 30 minutes before you increase the temperature to normal operating levels.



Heater mat replacement
Fig. 13

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BRAKE AND CLUTCH UNIT REPLACEMENT

1. **General**

This topic explains how to replace the Brake and Clutch units fitted to the Film feed assembly.

2. **Procedure** (Refitting) (Ref. Fig. 14)

WARNING:- SWITCH OFF THE ELECTRICAL POWER SUPPLY TO THE MACHINE BEFORE REPLACING ANY COMPONENTS.

(a) Remove the Guard cover (1), the Idler sprocket assembly (2) from the drive chain and Mounting plate then remove the old Brake & Clutch units.

Note:- Wipe any oil residue from the magnet faces of all new components before assembling.

(b) To assemble the Clutch plate assemblies (3) of each new unit :-

- Locate the Clamp collar (4) inside the Clutch plate (5).
- Secure the collar by fitting the Spring clips (6) to the Clutch plate (5).

(c) Slide the Brake unit (7) onto the end of the Driven nip roller shaft (8) and secure with 4 setscrews.

(d) Fit the brake units Clutch plate assembly (3) by sliding it onto the Driven nip roller shaft (8).

(e) Leaving a 0.4mm gap between the front face of the Brake unit and the Clutch plate assembly (3), tighten the Grub screws (9) of the Clamp collar (4).

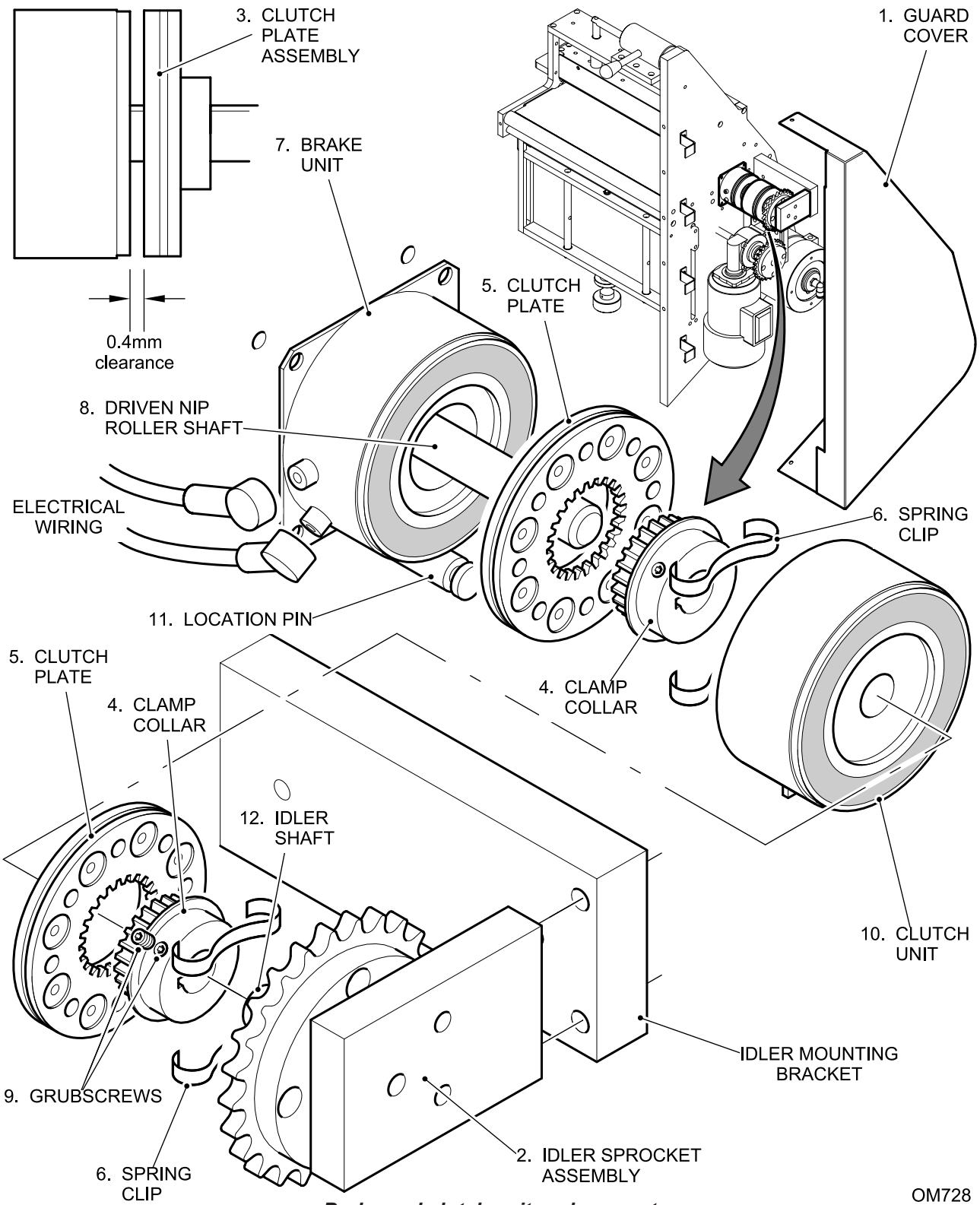
(f) Fit the Clutch unit (10) by sliding it onto the Driven nip roller shaft (8) and Location pin (11) lock in place by tightening the grub screws at the rear.

(g) Slide the remaining Clutch plate assembly (3) onto the Idler shaft (12) and refit the Idler sprocket assembly (2) to its Mounting bracket and drive chain.

(h) Move the Clutch plate assembly (3) up to the Clutch unit (10).

(i) Leaving a 0.4mm gap between the front face of the Brake unit and the Clutch plate assembly (3), tighten the Grub screws (9) of the Clamp collar (4). (The first Grub screw must bed down onto the Idler shaft and the second to secure the first in position).

(j) Connect all electrical wiring and refit the Guard cover (1) before switching the machine power back on.



Brake and clutch unit replacement
Fig. 14

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ROUTINE MAINTENANCE

SUB-SECTION	PAGE
CLEANING	D 2
INSPECTION	D 3
LUBRICATION	D 4

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CLEANING

WARNING:- IT IS ESSENTIAL TO SWITCH OFF THE ELECTRICAL SUPPLY TO THE MACHINE TO AVOID ALL POSSIBILITY OF AN ACCIDENTAL ELECTRIC SHOCK DURING THE CLEANING OPERATION.

THE SEALING TOOL WILL REMAIN HOT FOR A WHILE AFTER SWITCHING OFF THE ELECTRIC SUPPLY. DO NOT TOUCH THIS COMPONENT UNTIL IT HAS COOLED DOWN SUFFICIENTLY OR WEAR HEAT RESISTANT GLOVES.

Caution:- Avoid in ALL CASES, the entry of water into or onto the control panel and saturation of the electric wiring. Install the waterproof screw-on covers where provided.

1. The machine's supporting structure and casings are fabricated in stainless steel, and may be washed with care. DO NOT use abrasive materials unless absolutely necessary. In some cases, it may be necessary to remove individual components to facilitate access for cleaning.

2. Clean any accumulated grease/dirt from exposed areas of the machine using site approved solvents.

3. Where necessary use an airline to remove any trapped product debris from inside the machine.

4. Remove the tools from the machine and: (Ref. Sect. C)

(BASE TOOL)

(a) make sure that the base tool blade slot is free from product build-up or contamination.

(b) make sure no product has acumulated in or around the gas holes (situated around the inner edge of the blade slots).

WARNING:- WEAR EYE PROTECTION DURING THE CLEARING OF THE GAS HOLES.

(TOP TOOL)

(a) examine the seal profile for any contamination or residues of food or product. Clean with site approved solvents and a soft cloth, take care not to damage or scratch the seal area. Heavy contamination may be removed with a Scotchbrite pad or similar.

INSPECTION

1. **DAILY** (or during cleaning, following operation)

(BASE TOOL)

(a) examine the condition of the sealing rubber and renew any sections which are damaged (Ref. Section C).

(b) check the gas holes around the blade slots are free of product build up. Clear as required (See Cleaning)

(TOP TOOL)

(a) examine the trimming blades for contamination and deterioration. Renew if required (Ref. Section C).

(b) check that there are no broken springs in the complete assembly. Renew if required (Ref. Section C).

(c) examine the seal profile for contamination. Clean where necessary (See Cleaning).

(d) check the security of all fasteners.

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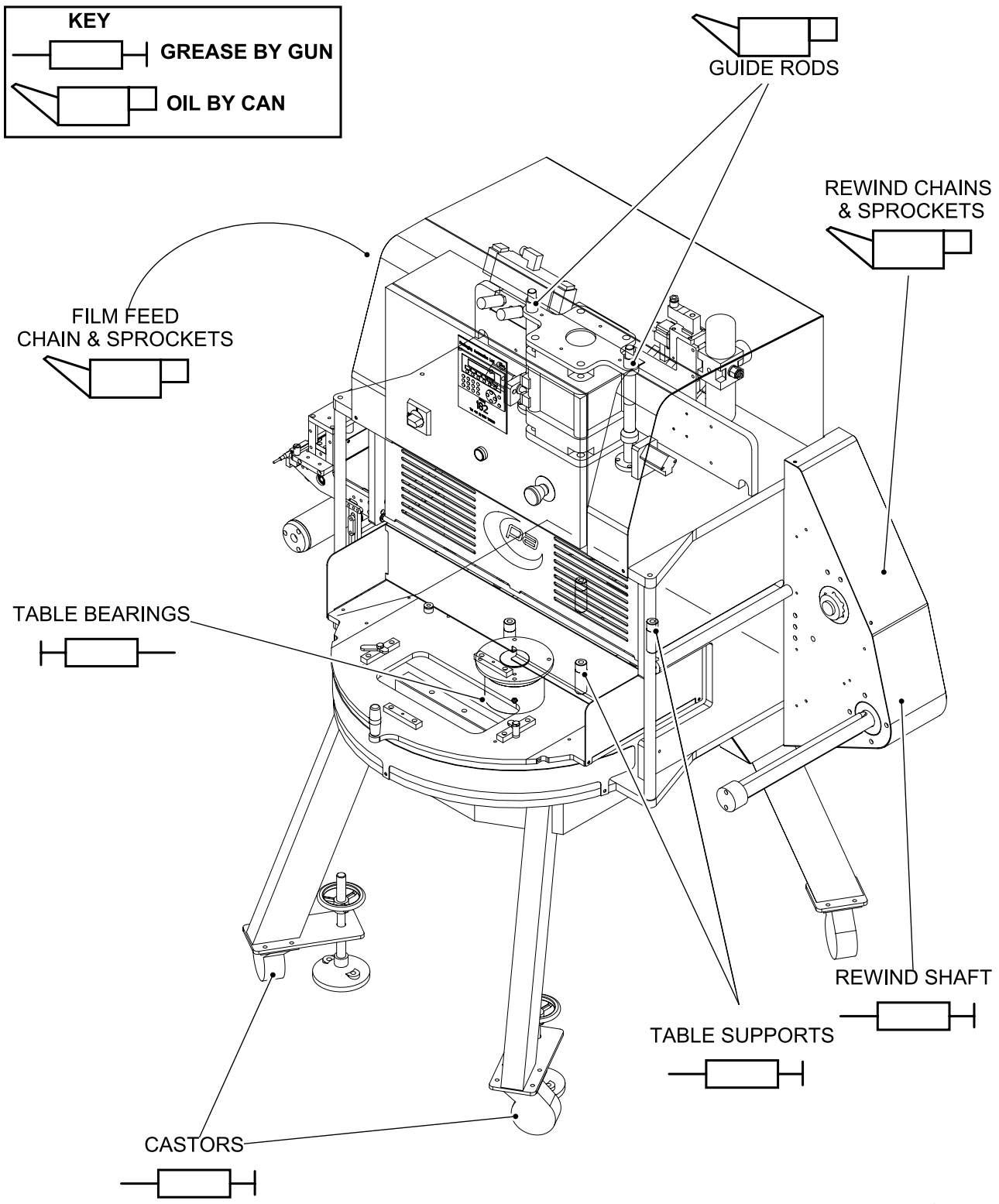
LUBRICATION

Many of the moving components within the machine are sealed for life, therefore, if a component does not appear on the Lubrication table, it does not require lubrication.

The table below shows those parts requiring periodic lubrication, the frequency of lubrication and the recommended lubrication in each case. Refer to figure 1 for location of the parts.

WARNING:- THE MACHINES ELECTRICAL SUPPLY MUST BE SWITCHED OFF AT THE CONTROL PANEL OR IF POSSIBLE, UNPLUG FROM THE MAINS.

MACHINE PART	FREQUENCY OF LUBRICATION	RECOMMENDED LUBRICANT	METHOD OF APPLICATION
Table bearings - Remove table skirt for access	Monthly or after major cleaning	Shell Alvania RA or R3	Grease Gun
Table supports	Monthly or after major cleaning	Shell Alvania RA or R3	Grease Gun
Guide rods	Monthly	Light general oil	Oil Can
Castors	Monthly or after major cleaning	Shell Alvania RA or R3	Grease Gun
Rewind shaft - (Remove guard for access)	Monthly	Shell Alvania RA or R3	Grease Gun
Film feed/ Rewind chains and sprockets (Remove guards for access)	Monthly	Light general oil	Oil Can



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Lubrication points
Fig. 1

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SPARE PARTS

SUB-SECTION	PAGE
CONTROL PANEL & CUBICLE	E 2
TOP PLATE ASSEMBLY	E4
FILM FEED ASSEMBLY	E 8
FILM REWIND ASSEMBLY	E 14
TOOLING	E 18
TABLE & EJECT PLATES	E 22
LOWER PLATE ASSEMBLY	E 24

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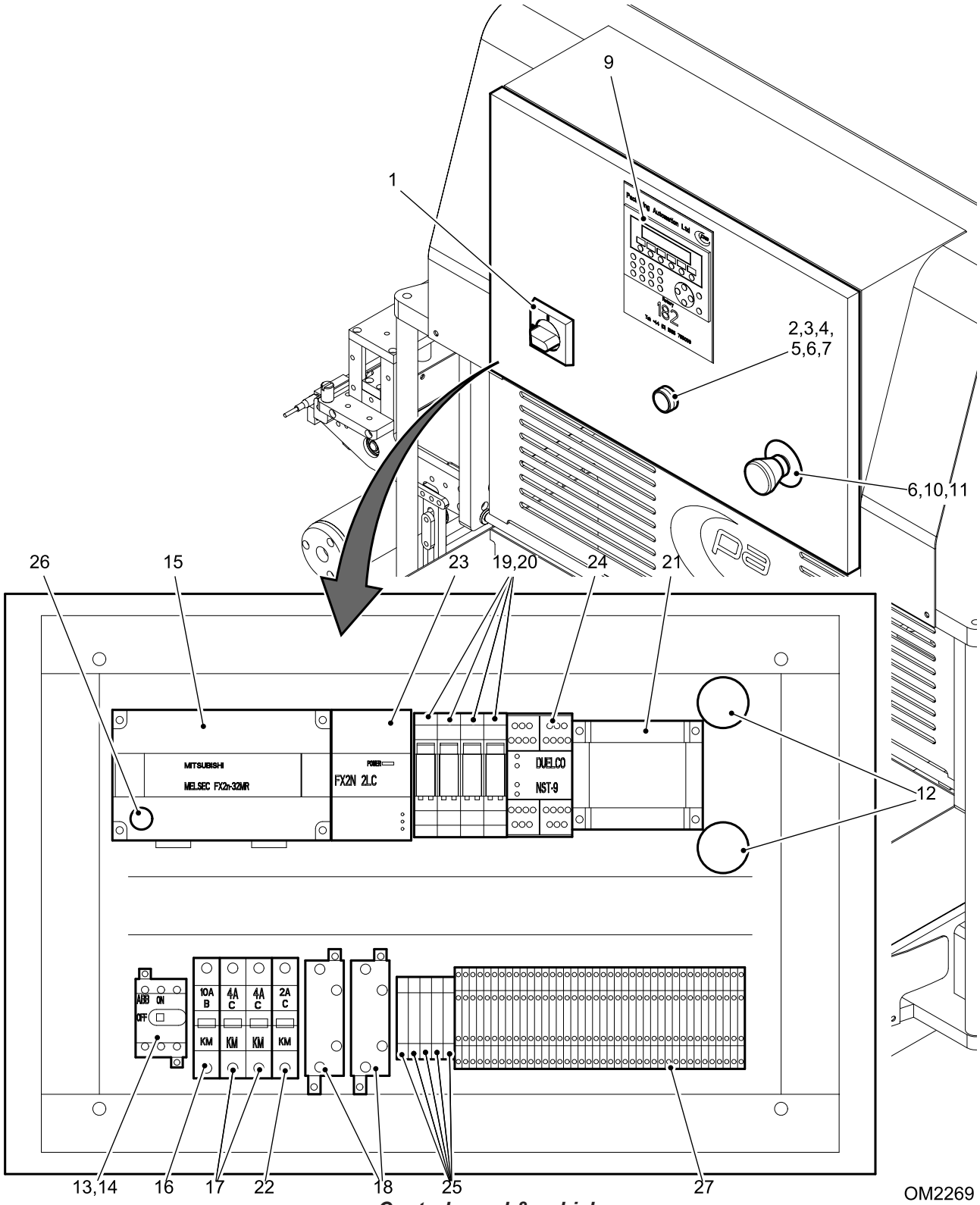

Control panel & cubicle
Fig. 1

CONTROL PANEL & CUBICLE (FIG. 1)

Item	Description	Stock Code	Quantity
Control Panel			
1	Isolator Handle	E00140	1
2	Pushbutton (Illuminated)	E00842	1
3	Gland (20mm)	E00847	1
4	LED & Holder	E00889	1
5	Contactor	E00185	1
6	Contactor	E00186	2
7	Fixing Adaptor	E00187	1
8	Gland (12mm)	X02284	8
9	E1012 Screen	E01297	1
10	Emergency Stop Button	E00090	1
11	Emergency Stop Ring	X00890	1
Control Cubicle			
12	Capacitor	with motors	2
13	Isolator	E00139	1
14	Shaft (Isolator)	E00141	1
15	PLC (FX3U-32MR)	E01320	1
16	Circuit Breaker (10 amp)	E00153	1
17	Circuit Breaker (4 amp)	E00195	2
18	Solid State Relay	E00197	2
19	Relay	E00209	4
20	Relay Base	E00212	4
21	Power Supply	E00215	1
22	Circuit Breaker (2 amp)	E00242	1
23	Thermocouple Extension Block	E00790	1
24	Safety Relay	E00791	1
25	Fused Terminal	X01684	5
26	Connecting Cable	E00841	1
27	2 Tier Terminal	X01585	40
*28	16amp Plug	306059	1
*29	Flex Gland	E00270	1
30	Gland (PG9)	X02227	23
31	Facia	E182-154	1

***** = *Not illustrated***

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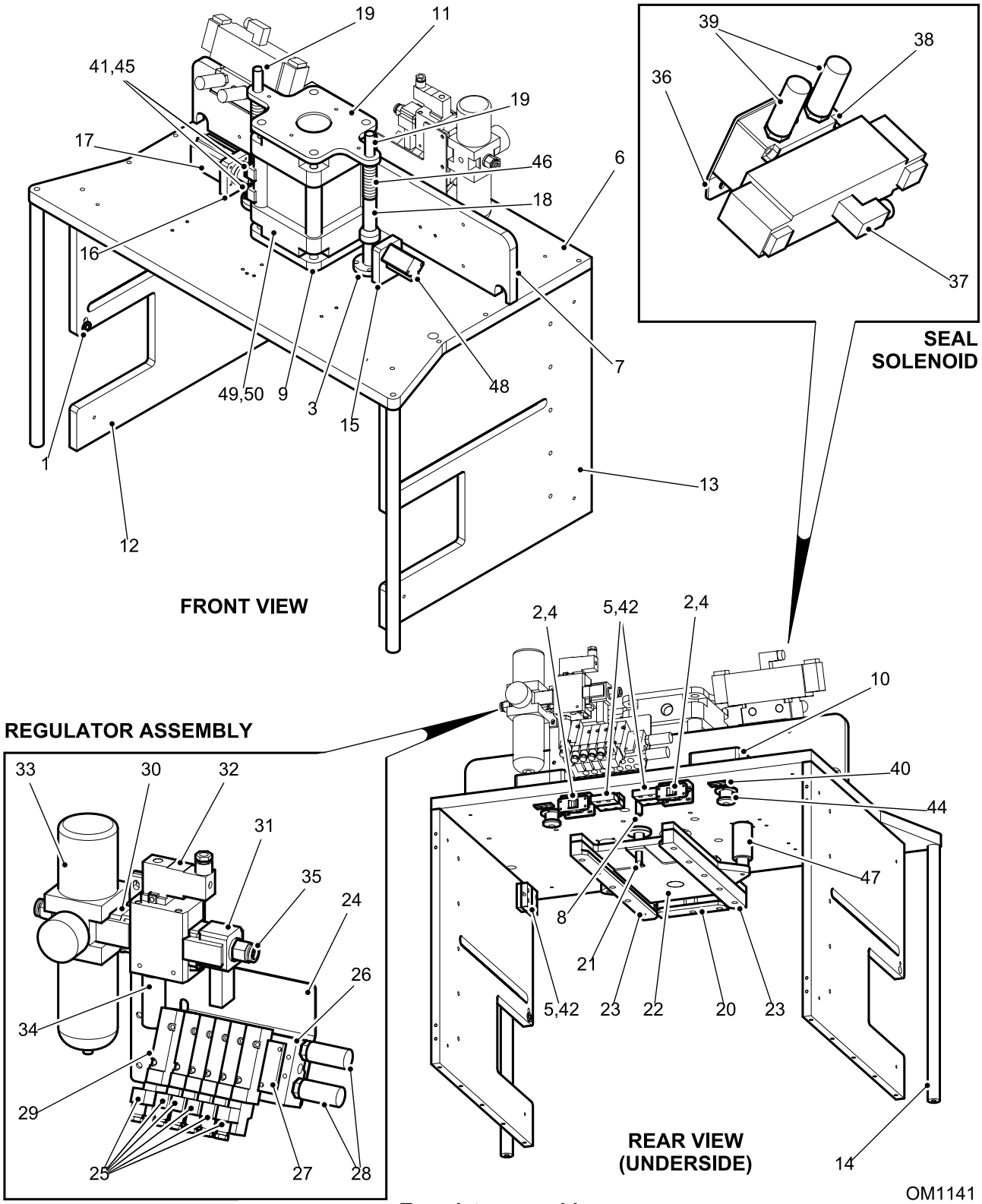

Top plate assembly
Fig. 2

TOP PLATE ASSEMBLY (FIG. 2)

Item	Description	Stock Code	Quantity
1	Bush (Flanged)	451118	2
2	Door Catch Assembly	750144	3
3	Bearing (Flanged)	B00113	1
4	Catch Bracket	D182-286-28	3
5	Switch Packer	D182-286-30	3
6	Top Plate	D182-300-14	1
7	Stiffner (Top Plate)	D182-300-15	1
8	Pin Stop	D182-300-19	1
9	Cylinder Plate	D182-300-01	1
10	Cover (Electrical Connections)	D182-300-21	2
11	Spring Plate (MAP-F)	D182-300-04	1
12	Left Hand Side Plate	D182-300-05	1
13	Left Hand Side Plate	D182-300-06	1
14	Front Side Bar	D182-300-07	2
15	Tool Lock Bracket	D182-300-08	1
16	Lock Bracket (MAP-F)	D182-300-20	1
17	Tool Lock Cylinder (MAP-F)	P00468	1
18	Guide Collar	D182-291-11	2
19	Guide (MAP-F)	D182-300-10	2
20	End Tool Guide	D182-300-11	1
21	Tool Lock Pin	D182-300-12	1
22	Pressure Plate	D182-300-13	1
23	Side Runner	D182-300-09	2
24	Regulator Plate	D182-300-17	1
25	Solenoid Valve	P00289	6
26	Solenoid Manifold (7 Way)	P00334	1
27	Blanking Plate	P00335	1
28	Muffler	P00439	4
29	Manifold Supply Port	P00418	1
30	Bracket (Modified)	E182-151-01	1
31	Air Switch	P00429	1
32	Dump Solenoid Valve	P00431	1
33	Filter/ Regulator	P00434	1

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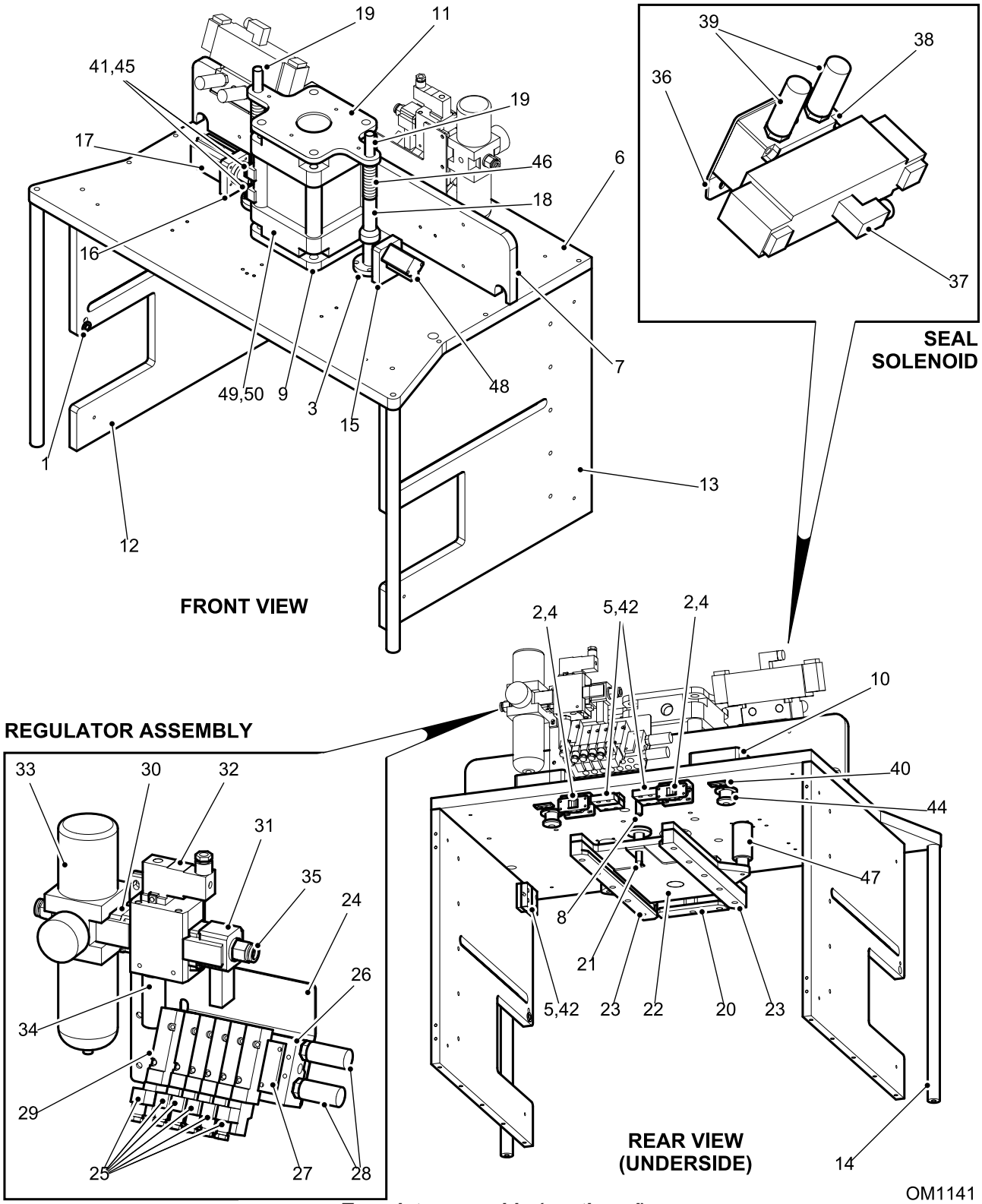

Top plate assembly (continued)
Fig. 2

TOP PLATE ASSEMBLY (CONTINUED) (FIG. 2)

. . . . From previous page

Item	*Description*	*Stock Code*	*Quantity*
34	Silencer	X01841	1
35	Fitting (3/8 to 12mm)	X00406	2
36	Bracket (Seal Solenoid)	D182-300-18	1
37	Solenoid Valve	P00458	1
38	Valve Base	P00459	1
39	Silencer	X01841	2
40	Thermocouple Socket	E00103	2
41	Bracket (Switch)	E00715	2
42	Safety Switch Assembly	E00810	3
43	Lead (for E00810)	E00811	3
44	3 Pin Heater Socket (Earthed)	E000419	2
45	Switch	E00681	2
46	Spring	F00085	2
47	Bearing (Flanged)	B00114	1
48	Tool Lock Cylinder	P00265	1
49	Seal Cylinder	P00309	1
50	Lock Nut	with item 49	1
51	‘O’ Ring	X00463	1

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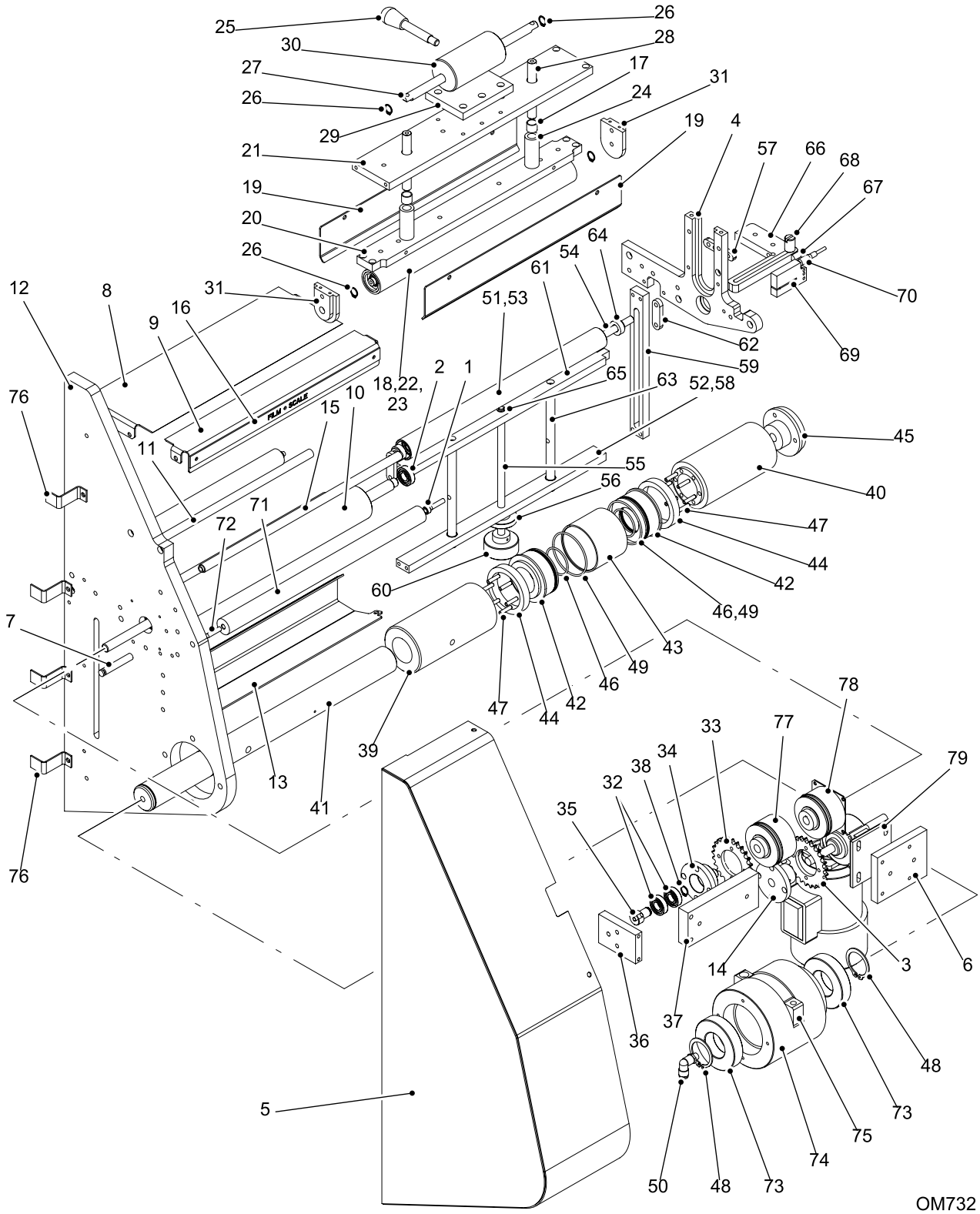

Film feed assembly
Fig. 3

FILM FEED ASSEMBLY (FIG. 3)

Item	Description	Stock Code	Quantity
1	Bearing	B00018	6
2	Bearing	B00032	2
3	Plate Wheel	D182-287-17	1
4	Front Plate	D182-302-17	1
5	Film Feed Guard	D182-302-18	1
6	Motor Plate	D182-302-19	1
7	Clutch Pin	D182-302-01	1
8	Nip Guard (Top)	D182-302-20	1
9	Nip Guard (Front)	D182-302-21	1
10	Driven Nip Roller	D182-302-22	1
11	Tie Bar	D182-302-24	1
12	Backplate	D182-302-25	1
13	Roller Guard	D182-302-02	1
14	Hub	D182-302-35	1
15	Cable Tube	D182-302-36	1
16	Scale	D182-302-37	1
Nip Roller Support			
17	Glacier Bush	B00024	2
18	Bearing	B00005	2
19	Guard (Free Nip Roller)	D182-302-30	2
20	Push Plate (Free Nip Roller)	D182-302-31	1
21	Fixed Plate (Free Nip Roller)	D182-302-32	1
22	Rubber Roller Assembly	D182-302-33	1
23	Roller Shaft	D182-302-34	1
24	Spring	F00066	2
25	Handle	M00064	1
26	External Circlip (Release Shaft)	M00078	4
27	Shaft (Film Release)	D185-044-05	1
28	Release Guide Bar	D185-044-06	2
29	Cam Plate	D20-039-07	1
30	Cam (Film Release)	D185-044-08	1
31	Nip Roller Guide	D20-031-09	2

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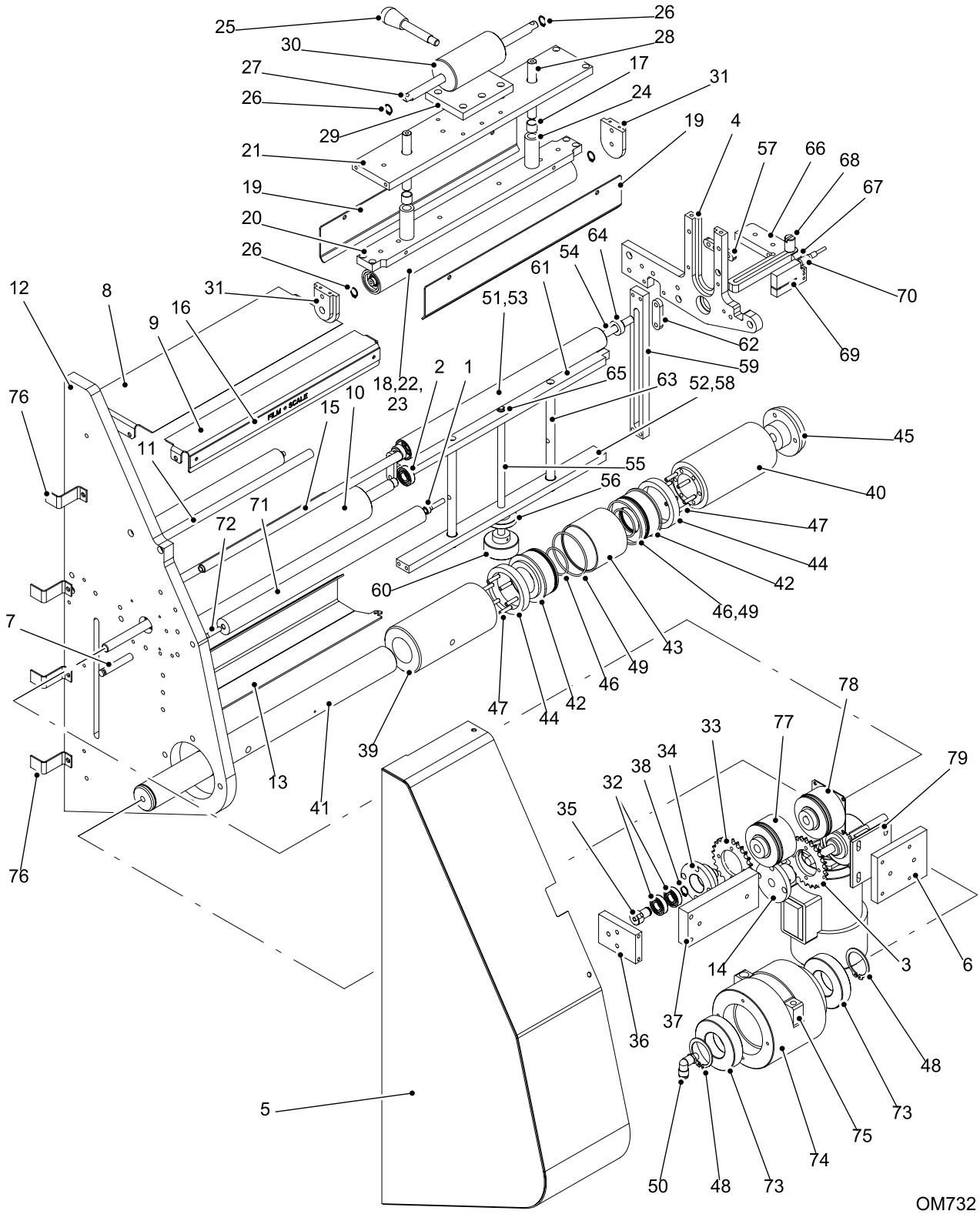

Film feed assembly (continued)
Fig. 3

FILM FEED ASSEMBLY (CONTINUED) (FIG. 3)

. . . . From previous page

Item	Description	Stock Code	Quantity
Idler Assembly			
32	Bearing	B00032	2
33	Plate Wheel	D182-287-17	1
34	Hub	D182-302-26	1
35	Fixed Shaft	D182-302-27	1
36	Plate (Fixed Shaft)	D182-302-28	1
37	Mounting Plate	D182-302-29	1
38	External Circlip	M00078	1
39	Inner Sleeve	D182-302-13	1
40	Outer Sleeve	D182-302-14	1
41	Reel Shaft	D182-302-15	1
42	Piston Sleeve	D185-056-05	2
43	Piston Cylinder	D185-056-07	1
44	Rubber Ring	M00177	1
45	End Cap	D3000-008-25	12
46	‘O’ Ring (Inner)	M00488	2
47	Spring	F00093	2
48	External Circlip	M00180	2
49	‘O’ Ring (Outer)	M00452	2
50	Elbow	X01362	1
Registered Film			
51	Bearing	B00122	2
52	Glacier Bush	B00024	2
53	Registered Film Roller	D182-302-10	1
54	Shaft (Registered Film Roller)	D182-302-11	1
55	Adjustment Screw	D182-302-12	1
56	Adjustment Locknut	D182-302-38	1
57	Film Clamp	D182-302-03	1
58	Fixed Plate	D182-302-04	1
59	Front Plate	D182-302-05	1
60	Adjustment Nut	D182-302-06	1
61	Adjustment Plate	D182-302-07	1
62	End Plate	D182-302-08	2

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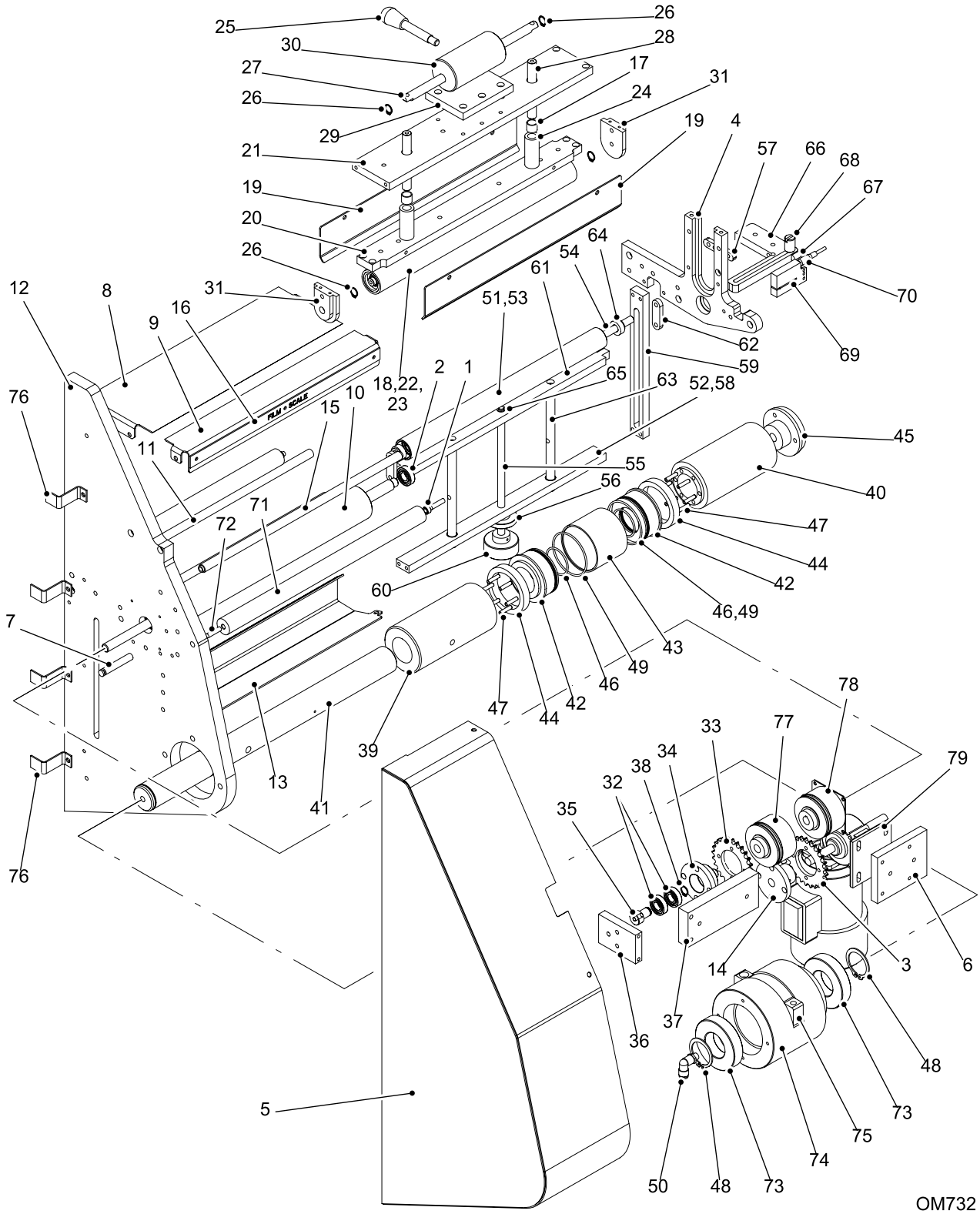

Film feed assembly (continued)
Fig. 3

FILM FEED ASSEMBLY (CONTINUED) (FIG. 3)

. . . . From previous page

Item	*Description*	*Stock Code*	*Quantity*
Reg Film (Cont.)			
63	Guide Pin	D182-302-09	2
64	Spacer (Registered Film Roller)	D4000-007-30	2
65	External Circlip	M00185	1
Sensor Mounting			
66	Mounting Plate	D182-302-23	1
67	Slide	D4000-007-26	1
68	Thumbscrew	D4000-007-34	1
69	Sensor	E00768	1
70	Straight Lead (4 Way)	E00769	1
Guide Roller			
71	Roller Body	D182-302-16	3
72	Dowel	X01011	6
Bearing Housing			
73	Bearing	B00051	2
74	Bearing Housing	D182-287-26	1
75	Reel Brake	D182-287-27	1
76	Cable Guide	D182-303-12	4
77	Clutch	E00049	1
78	Brake	E00051	1
79	Geared Motor	E00054	1
*80	Drive Chain	X00596	
*81	Split Link	X00594	

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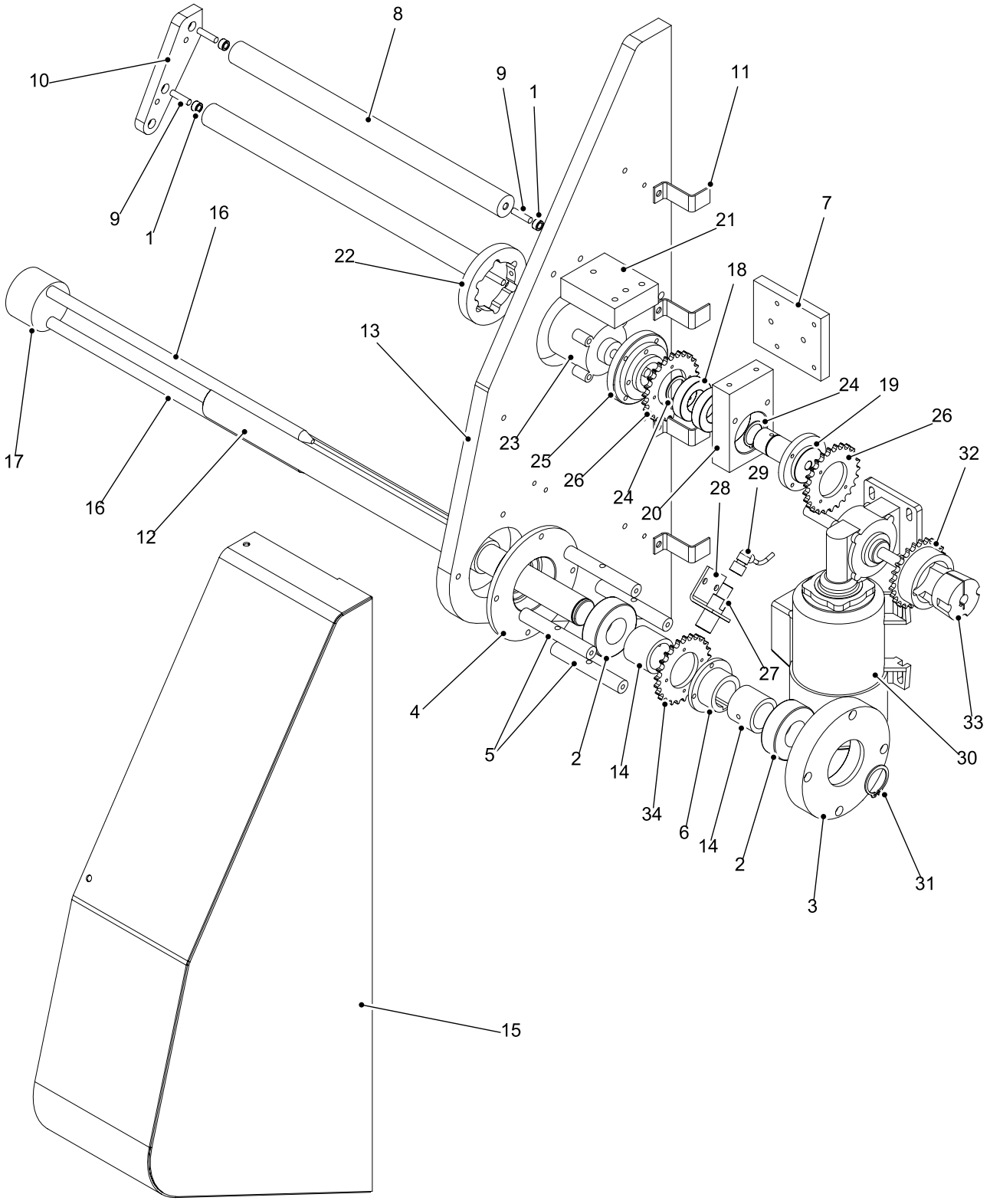

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Film rewind assembly
Fig. 4

FILM REWIND ASSEMBLY (FIG. 4)

Item	Description	Stock Code	Quantity
1	Bearing	B00018	4
2	Bearing	B00059	2
3	Bearing Plate	D182-289-02	1
4	Location Plate	D182-289-03	1
5	Spacer	D182-289-04	4
6	Mounting Plate	D182-289-06	1
7	Motor Plate	D182-302-19	1
8	Roller Body	D182-302-16	2
9	Dowel	X01011	4
10	Roller Plate	D182-303-13	1
11	Cable Guide	D182-303-12	4
12	Rewind Shaft	D182-303-01	1
13	Backplate	D182-303-03	1
14	Shaft Spacer	D182-303-04	2
15	Rewind Guard	D182-303-09	1
16	Film Gripper Rod	D182-303-02	2
17	Mounting Plate (Gripper Rod)	D182-035-08	1
Kinetrol Assembly			
18	Bearing	B00137	2
19	Shaft (Kinetrol)	D182-303-05	**1**
20	Bearing Housing	D182-303-06	1
21	Bearing Support	D182-303-07	1
22	Cover (Kinetrol)	D182-303-08	1
23	Torque Limiter (Kinetrol)	M00144	1
24	External Circlip	M00434	2
25	Adaptor (Torque Limiter)	D238-033-02	1
26	Chain Wheel	D238-033-03	2
Snap Sensor			
27	Proximity Switch	E00793	1
28	Snap Sensor Bracket	D182-303-11	1
29	Sensor Lead	E00817	1

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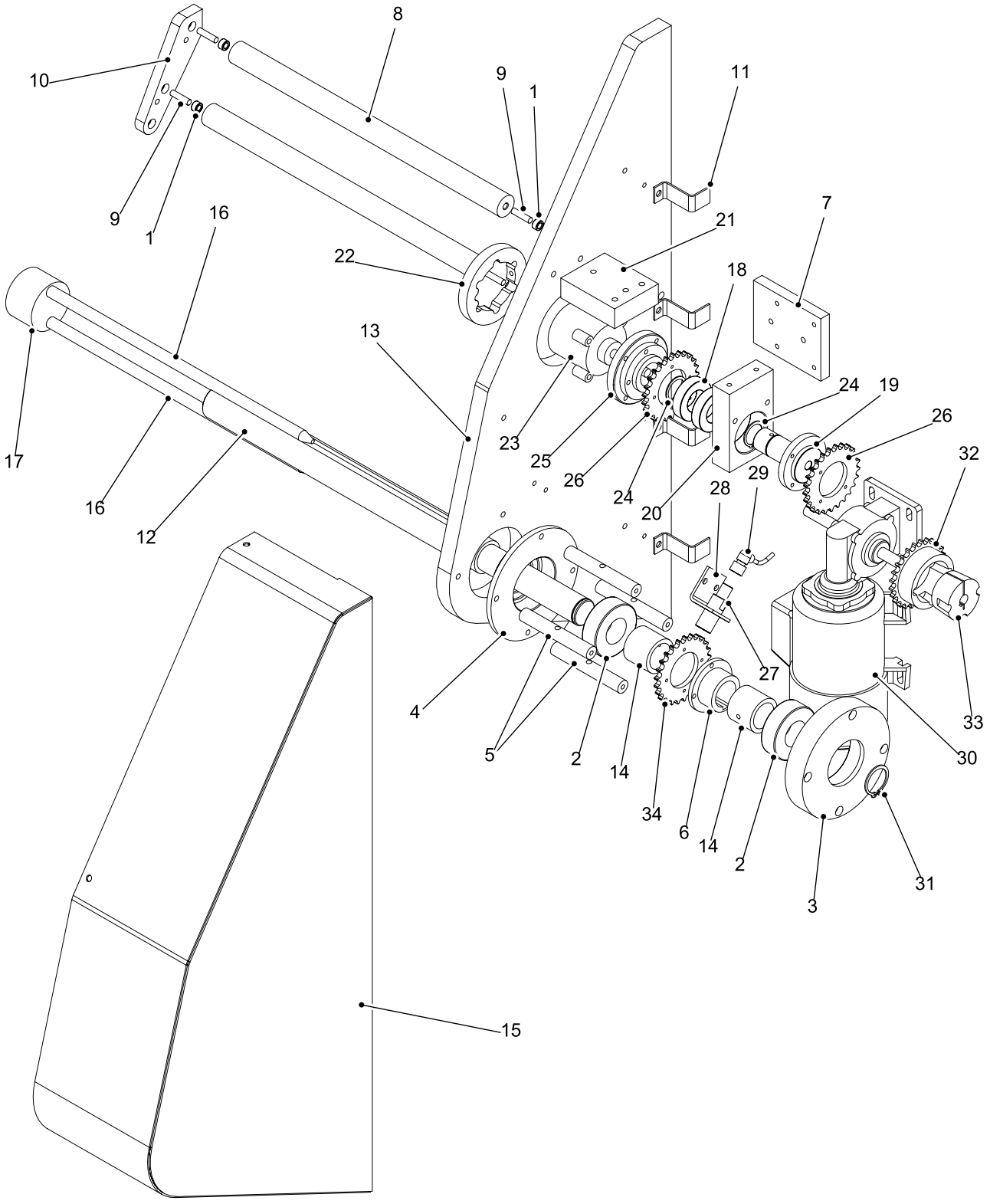

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Film rewind assembly (continued)
Fig. 4

FILM REWIND ASSEMBLY (CONTINUED) (FIG. 4)

. . . . From previous page

Item	*Description*	*Stock Code*	*Quantity*
30	Drive Motor	E00024	1
31	External Circlip	M00189	1
32	Taper Sprocket	M00066	1
33	Taper Bush	M00093	1
34	Chain Wheel	D238-033-03	1
*35	Chain	X00596	
*36	Split Link	X00594	

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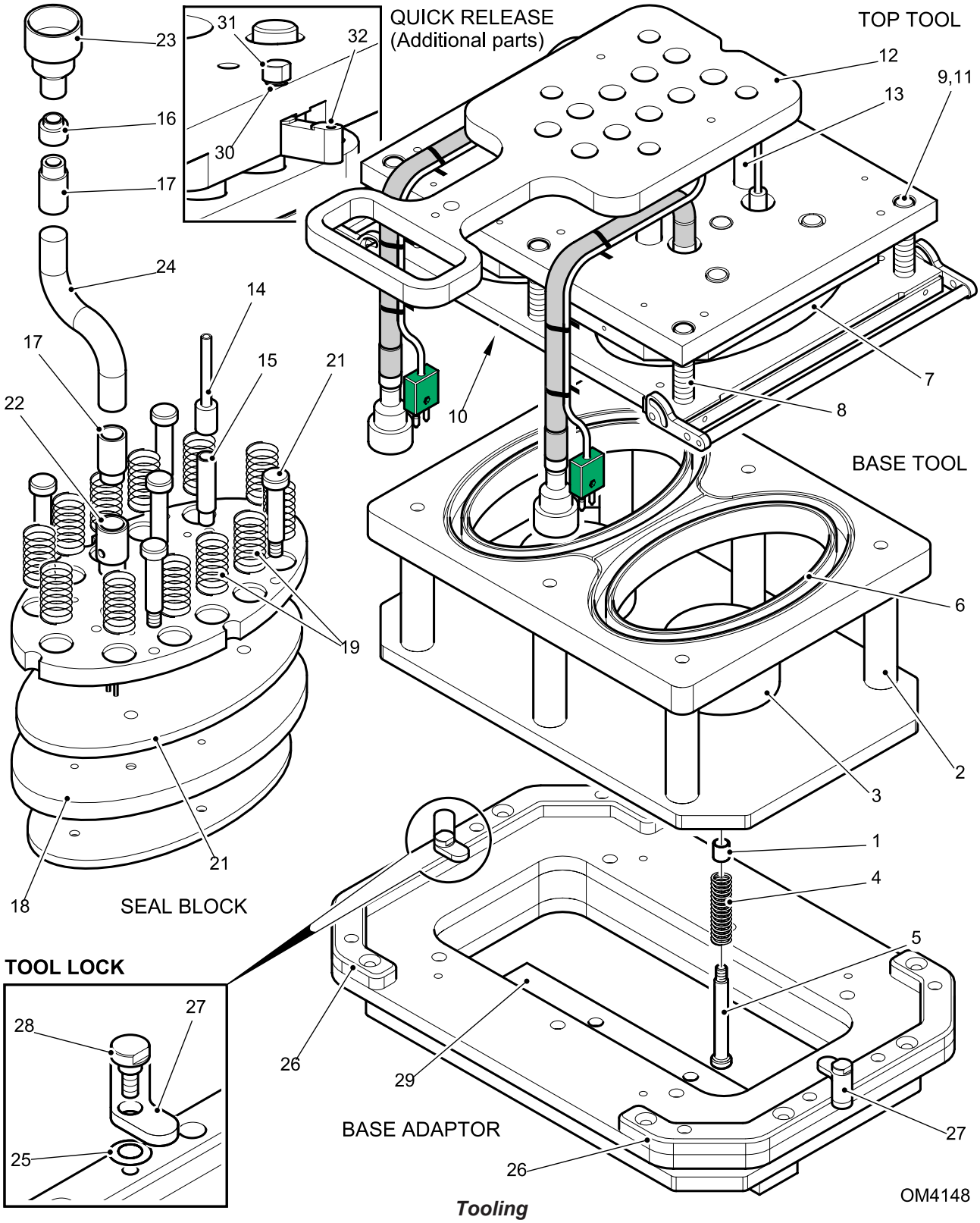

Tooling
Fig. 5

TOOLING (FIG. 5)

Item	Description	Stock Code	Quantity
Base Tool			
1	Bearing	B00031	2
#2	Base Tool Pillar:-	E01448	1
	Standard (5 1/2")	EST3797	A/R
	Shallow (3 1/2")- Quote Tool	EST	A/R
#3	Eject Pad		1
	- Quote Tool Number	EST	1 (per imp)
4	Eject Spring:-		1
	Standard (Long)	F00016	2
	Non Standard (Short)	FLEXO 183216	2
5	Eject Should Screw	S00034	2
6	Base Tool Seal Rubber - Quote Colour	/ Quote Shape	4
Top Tool	Taperlock Bush	M00668	1
#7	Trim Blade	M00671	1
	- Quote Tool Number	EST	1 (per imp)
8	Film Clamp Spring	F00080	6
9	Clamp Shoulder Screw	S00029	6
10	Top Tool Seal Rubber - Quote Colour	/ Quote Shape	1
11	Bearing	B00031	8
12	Top Tool Adaptor (PA182 MK3)	D182-304-04	1
	Top Tool Adaptor (PA182 MK1 & 2)	ST4296	1
13	Mounting Pillar (Tool Spacer)	M00163	4
14	Thermocouple	E00131	1 (per imp)
15	Adaptor (Thermocouple)	E00132	1 (per imp)
16	Plug-To-Adaptor Connector	E00232	2 (per imp)
17	Conduit Adaptors	E00233	2 (per imp)
#18	Seal Profile - Quote Tool Number	EST	1 (per imp)
19	Seal Spring	F00082	24

Note:- # For Tools with the 'Quick release' design, reference EST may be replaced for QST. (When in doubt quote Order Number or Pack Reference)

Trim blades are not held in stock at packaging automation. We strongly advise you to hold a spare set on site.

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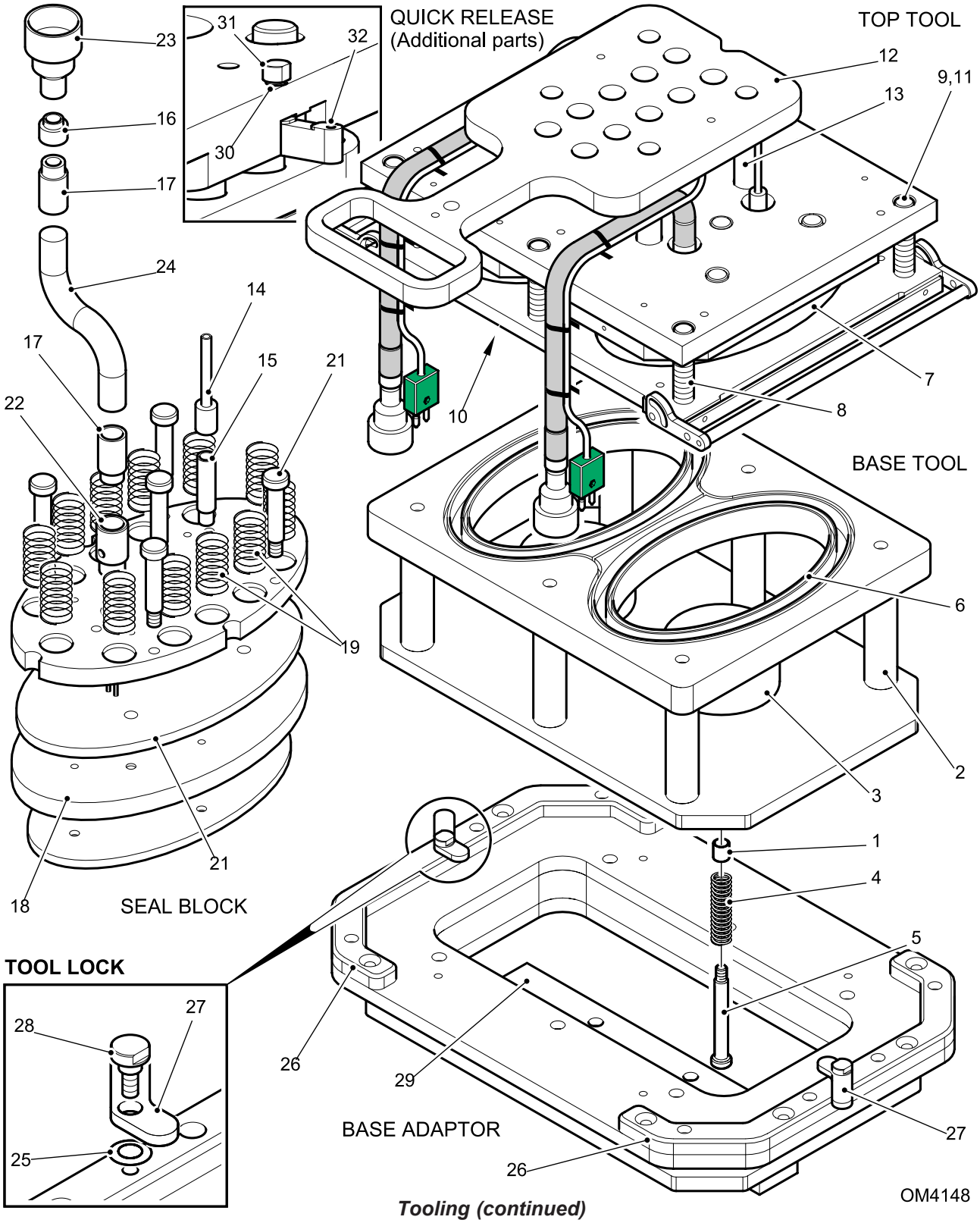

Tooling (continued)
Fig. 5

TOOLING (CONTINUED) (FIG. 5)

. . . . From previous page

Item	*Description*	*Stock Code*	*Quantity*
Top Tool (Continued)			
#20	Heater Mat		
	- Quote Tool Number	EST	1 (per imp)
21	Seal Shoulder Screw	S00019	5 (per imp)
22	Earthing Adaptor	ST3643-01	1 (per imp)
23	3 Pin Plug	E182-178 (W01106)	1 (per imp)
24	Conduit	X01034	1 (per imp)
Adaptor Parts			
25	Disc Spring Washer	X02285	2
26	Location Part	D182-296-07	2
27	Cam Lock	D182-296-05	2
28	Cam Screw	D182-296-06	2
29	Eject Bar Adaptor	D182-298-03	1
Quick Release	(Additional Parts)		
30	Spring	F00088	2 (per imp)
31	Blade Pin	T947-10	2 (per imp)
32	Blade Retaining Plate	T947-11	2 (per imp)

Note:- # For Tools with the ‘Quick release’ design, reference EST may be replaced for QST. (When in doubt quote Order Number or Pack Reference)

Trim blades are not held in stock at packaging automation. We strongly advise you to hold a spare set on site.

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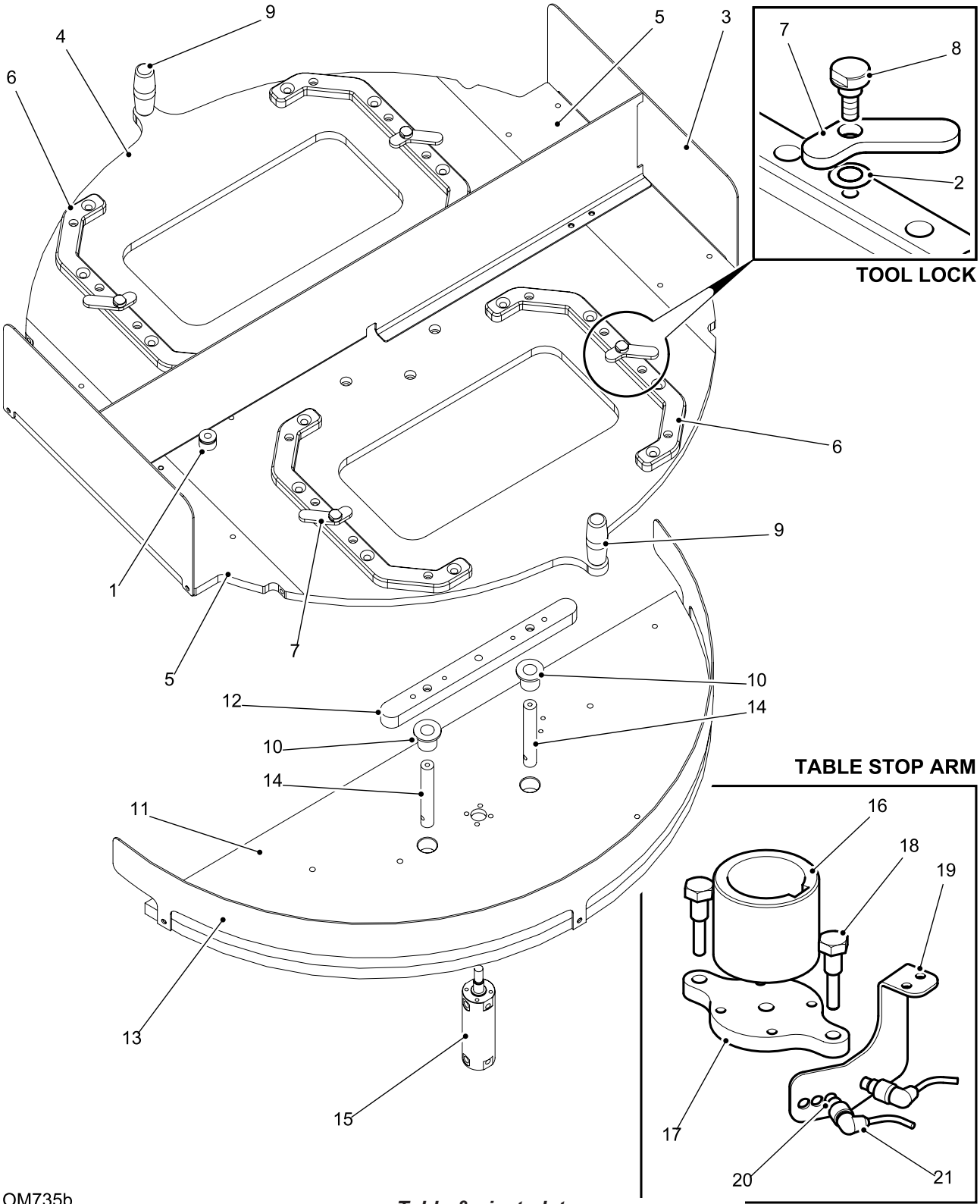

OM735b

Table & eject plates
Fig. 6

TABLE & EJECT PLATES (FIG. 6)

Item	*Description*	*Stock Code*	*Quantity*
Table Assembly	Servo Drive Gear	AW025-15	2
1	Compression Fitting (1/4” to 8mm)	X01657	2
2	Disc Spring Washer	X02285	4
3	Table Centre Guard	D182-296-01	1
4	Main Table Plate	D182-296-02	1
5	Table Side Plate	D182-296-03	2
6	Location Part	D182-296-07	4
7	Tool Cm Lock	D182-296-05	4
8	Cam Screw	D182-296-06	4
9	Handle	M00579	2
	Conveyor Mounting Plate	AZ003-06	1
Eject Plate Assembly	Lower Guard Assembly	AZ003-08	1
10	Oilite Bush	B00038	2
11	Lower Front Plate	D182-298-01	1
12	Eject Bar	D182-298-02	1
13	Wrap Guard	D182-298-05	1
14	Eject Guide	D182-298-06	2
15	Eject Cylinder	P00460	1
	Stainless Bearing	B00121	2
Table Stop Arm			
16	Boss	D182-325-04	1
17	Pin Plate	D182-325-02	1
18	Pin	D182-325-03	2
19	Sensor Bracket	D182-325-04	1
20	Proximity Sensor	E00793	2
21	Sensor Lead	E00817	2

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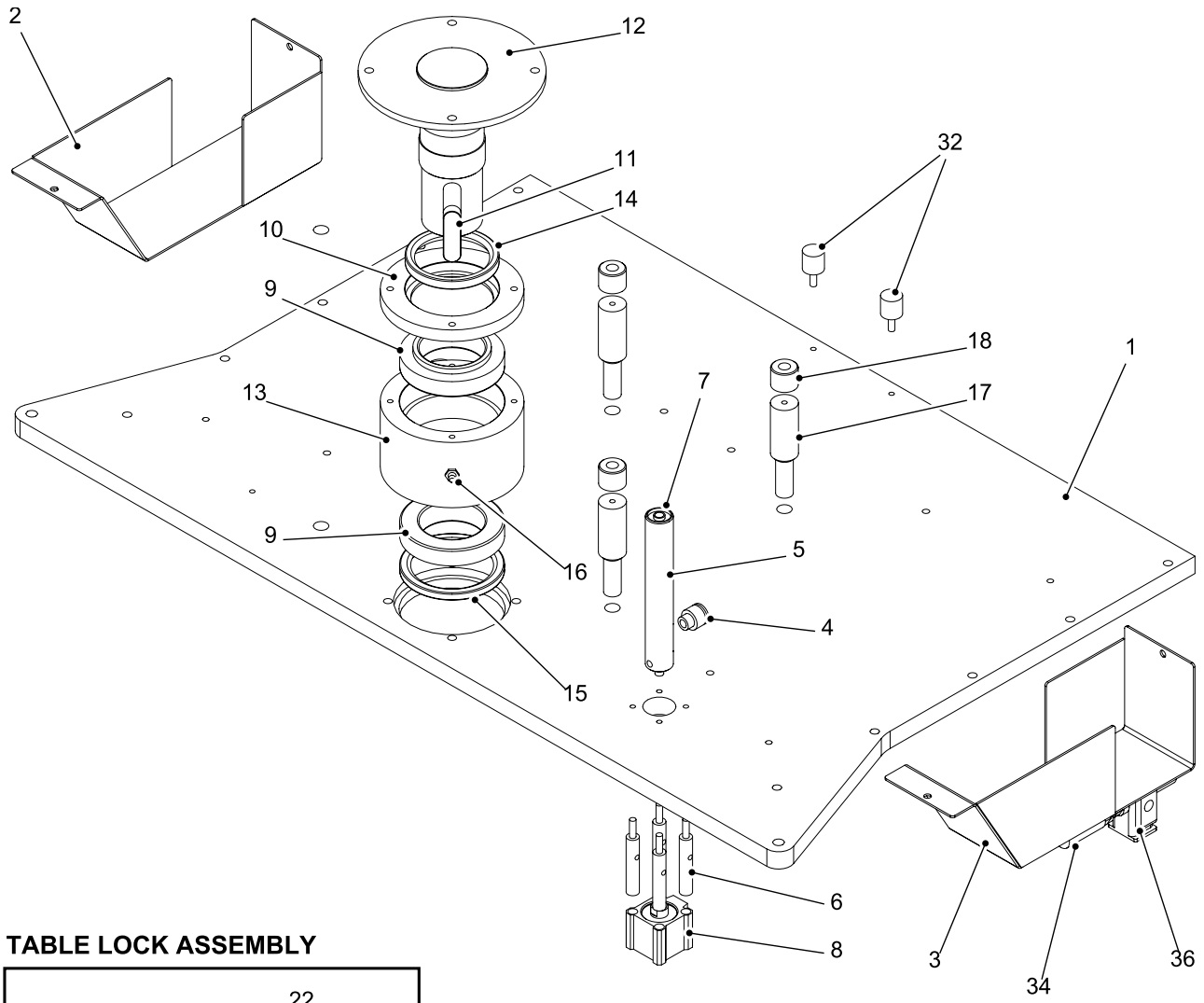

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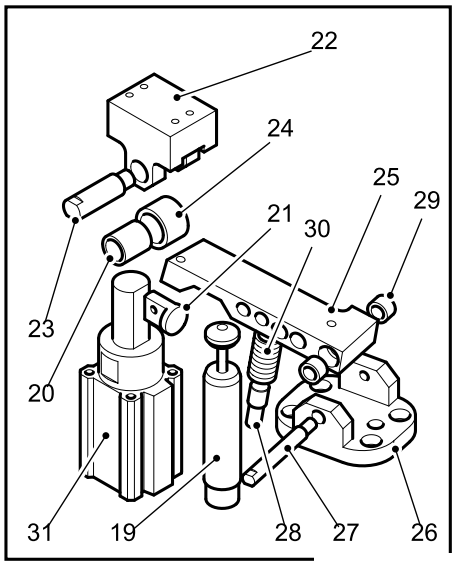

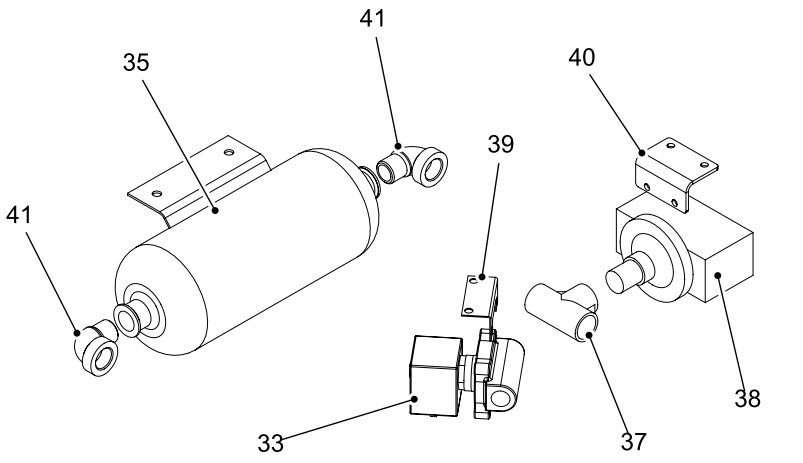

OM2519

Lower plate assembly
Fig. 7

LOWER PLATE ASSEMBLY (FIG. 7)

Item	Description	Stock Code	Quantity
1	Lower Plate	D182-299-01	1
2	Infill Guard (Film Feed)	D182-299-04	1
3	Infill Guard (Rewind)	D182-299-07	1
4	Push-in Fitting (1/4” to 8mm)	X00400	1
5	Shaft (MAP-F)	D182-299-05	1
6	Spacer (MAP-F)	D182-299-06	4
7	‘O’ Ring	M00090	1
8	Shaft Cylinder	P00412	1
9	Taper Bearing	B00135	2
10	Seal Plate	D182-299-12	1
11	Table Shaft Key	D182-299-14	1
12	Table Shaft	D182-299-15	1
13	Table Bearing Housing	D182-299-16	1
14	Seal (Upper)	M00616	1
15	Seal (Lower)	M00621	1
16	Grease Nipple	X00634	1
17	Support Shaft	D182-299-02	4
18	Support Cap	D182-299-03	4
Table Lock			
19	Shock Absorber	M00471	1
20	Bush (Plain Oilite)	D182-324-12	2
21	Cylinder Insert	D182-324-01	1
22	Bracket (Roller)	D182-324-02	2
23	Pin (Roller)	D182-324-03	2
24	Roller	D182-324-04	2
25	Follower	D182-324-05	1
26	Bracket (Follower)	D182-324-06	1
27	Pin (Follower)	D182-324-07	1
28	Shaft (Spring)	D182-324-11	1
29	Bush (Plain Oilite)	450164	2
30	Spring	F00099	1
31	Air Cylinder	P00371	1

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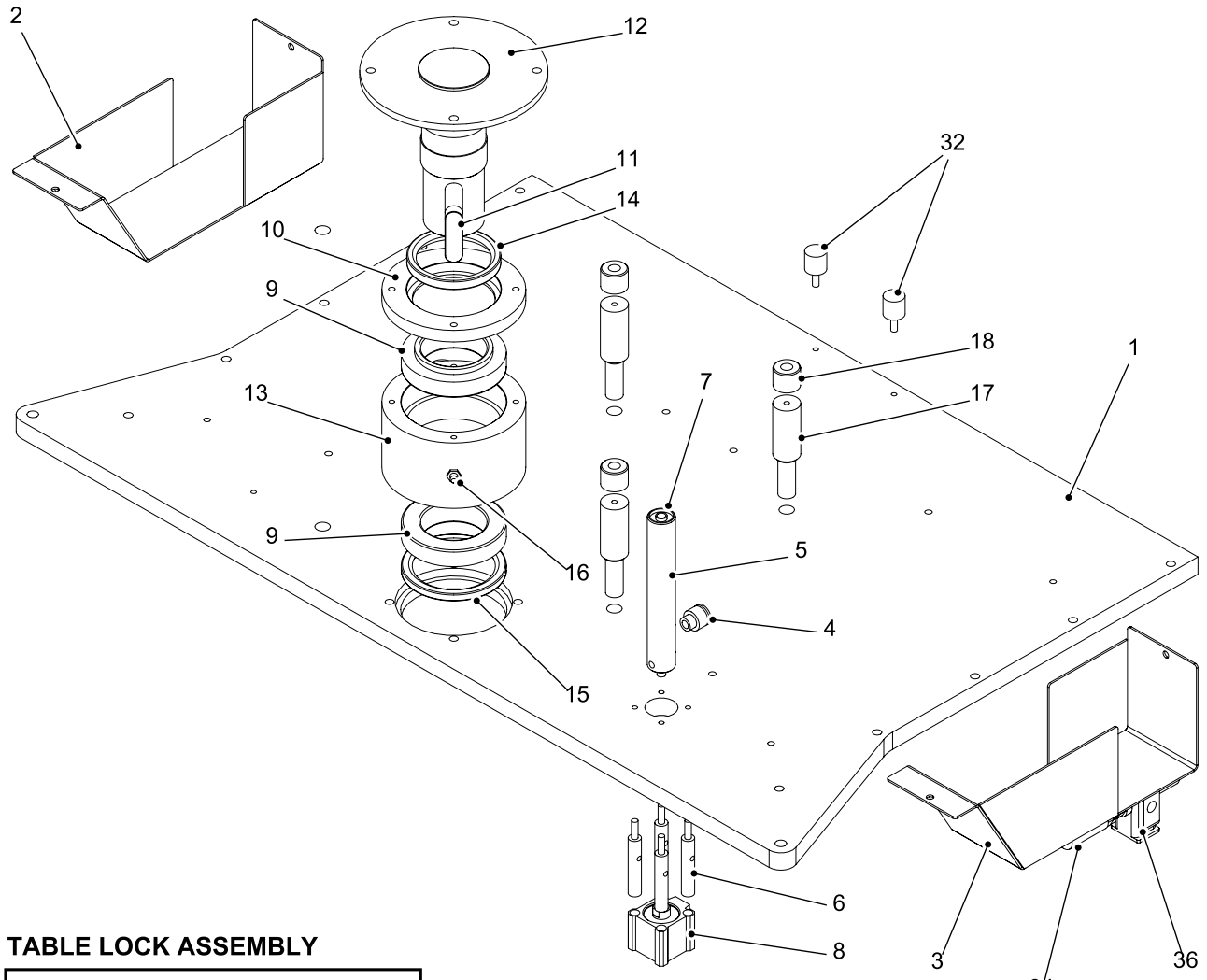

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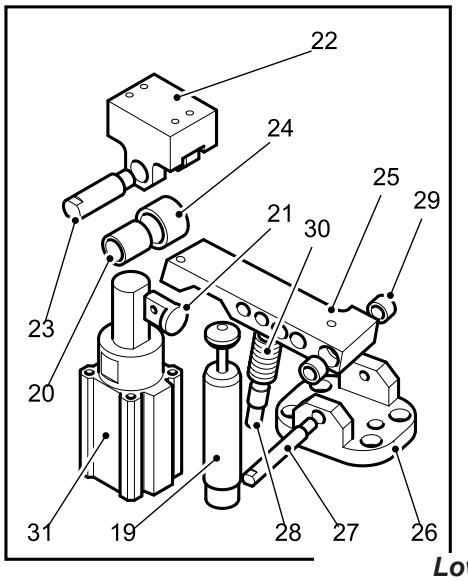

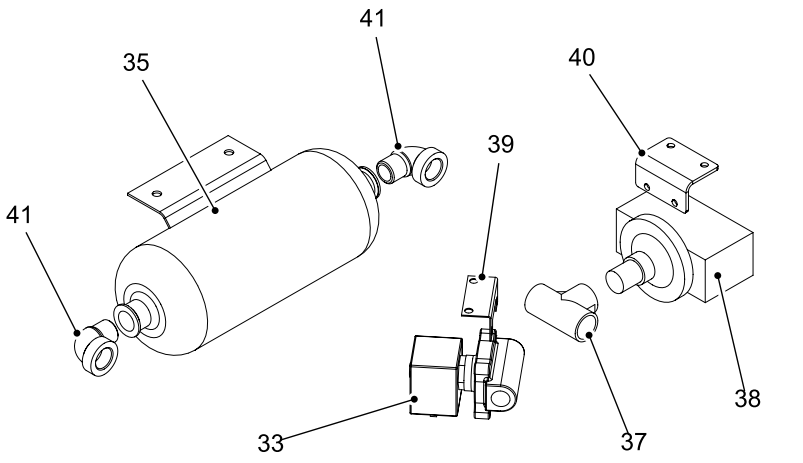

OM2519

Lower plate assembly (continued)
Fig. 7

LOWER PLATE ASSEMBLY (CONTINUED) (FIG. 7)

. . . . From previous page

Item	*Description*	*Stock Code*	*Quantity*
32	Buffer	M00482	2
33	Gas Valve (MAP-F)	P00143	1
34	Muffler	P00439	1
35	Gas Tank (MAP-F)	P00332	1
36	Shut-off Valve	P00432	1
37	1/2” BSP Tee (MAP-F)	P00178	1
38	Gas Pressure Switch (MAP-F)	E00154	1
39	Switch Bracket	D182-299-29	1
40	Bracket (Gas Pressure Switch)	P00144	1
41	1/2” Elbow	P00404	2

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WIRING DIAGRAMS

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ELECTRICAL CIRCUIT DIAGRAMS	A/R

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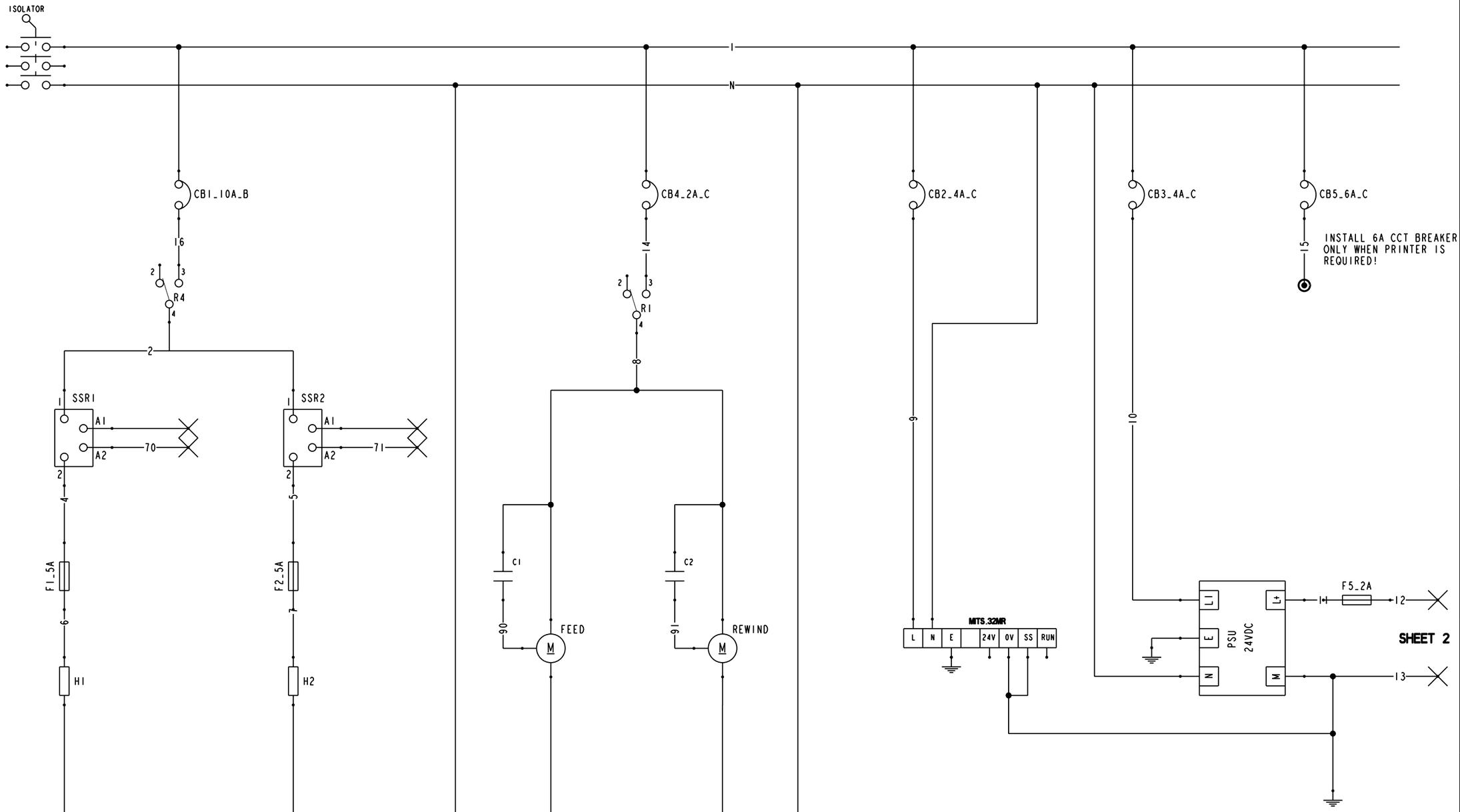


REV A: MODIFIED DIGRAM TO SUIT SECOND RELEASE AH 12/09/02
REV B :ADDED FILM SNAP DETECT AND TABLE IN STATION PROXIMITY SWITCH 2 T.R. 27/11/02
REV C: REMOVED TWO 5/2 VALVES AND REPLACED WITH 5/3 VALVE AH 03/07/03
REV D: ADDED FLOW CONTROLERS ON EJECT & TABLE LOCK, MODIFIED PIPES TO SHOW SINGLE ACTING CYLINDER ON EJECT AH 30/07/03
REV E: ADDED RELAY FOR HEATERS, ADDED GAS ISO VALVE - MDB 03/09/03
REV F: CHANGED IDENTS HEAD UP & HEAD DOWN SOLENOIDS - MDB 10/5/04
REV G: MODIFIED WIRING ON REGISTRATION SENSOR - AH 26/07/06
REV H: MODIFIED CIRCUIT DIAGRAM FOR DIODES ON SOLENOIDS - MDB 28/10/10

ALL DIMENSIONS IN MACHINE TO ✓ UNLESS STATED OTHERWISE

ALL FRACTIONAL DIMENSIONS ±0.254
REMOVE ALL SHARP CORNERS
DO NOT SCALE.
IF IN DOUBT ASK.

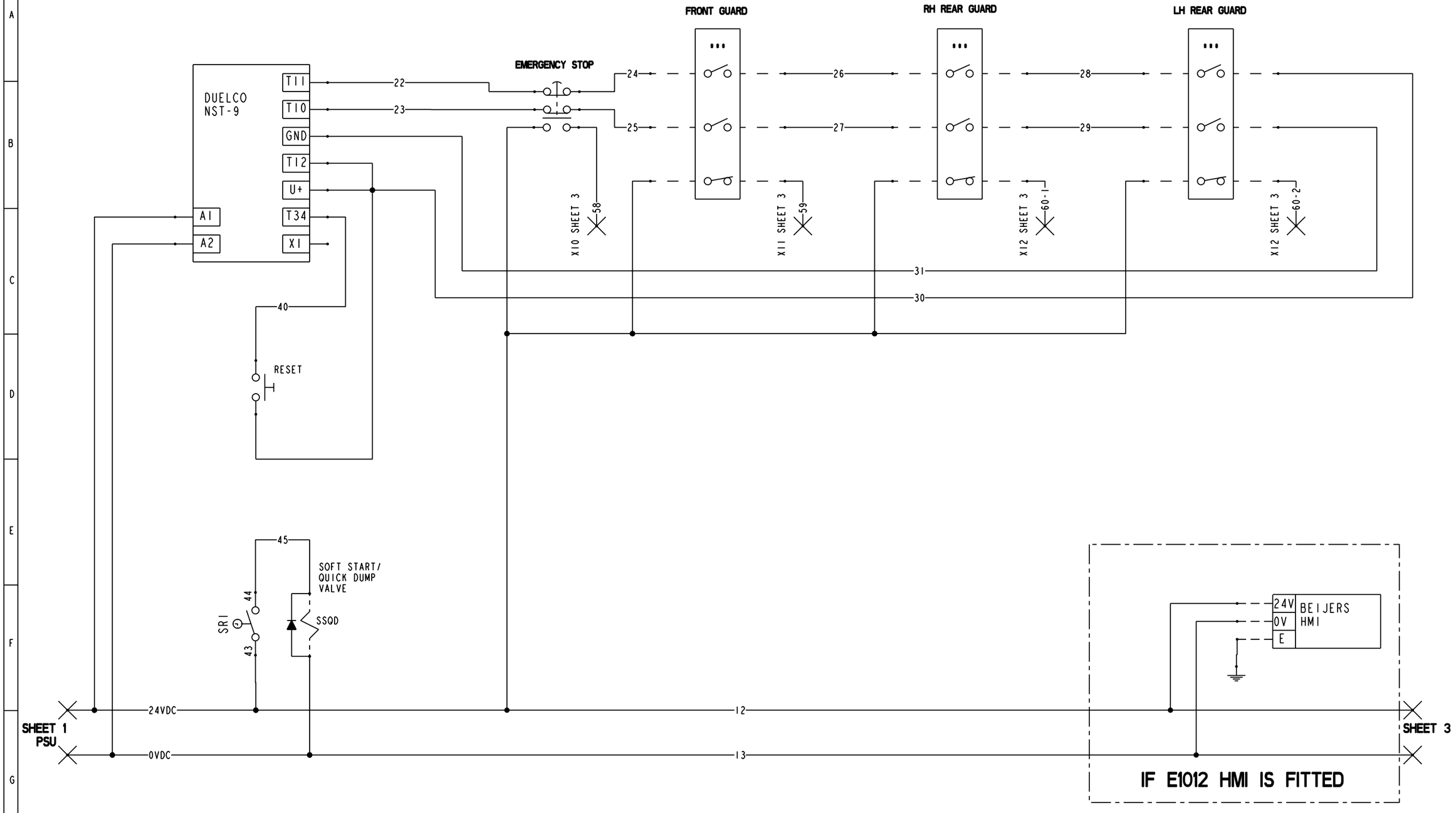
TITLE

182 MK3 STANDARD CIRCUIT DIAGRAM

DRAWN BY A HENDERSON

DATE DRAWN 08/03/02

DRG. No. E182/150H SHEET 1 OF 7



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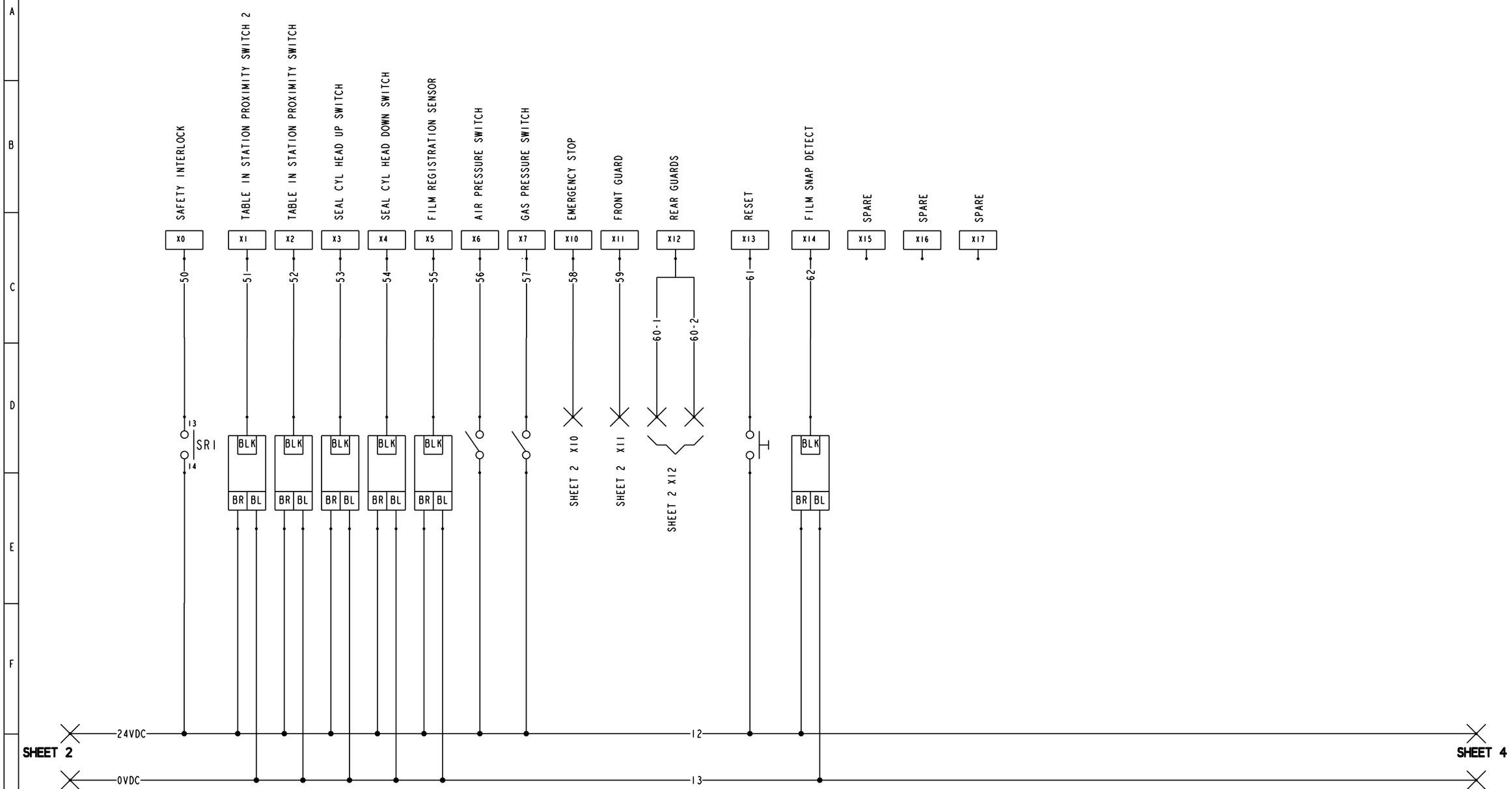
TITLE
182 MK3 STANDARD CIRCUIT DIAGRAM

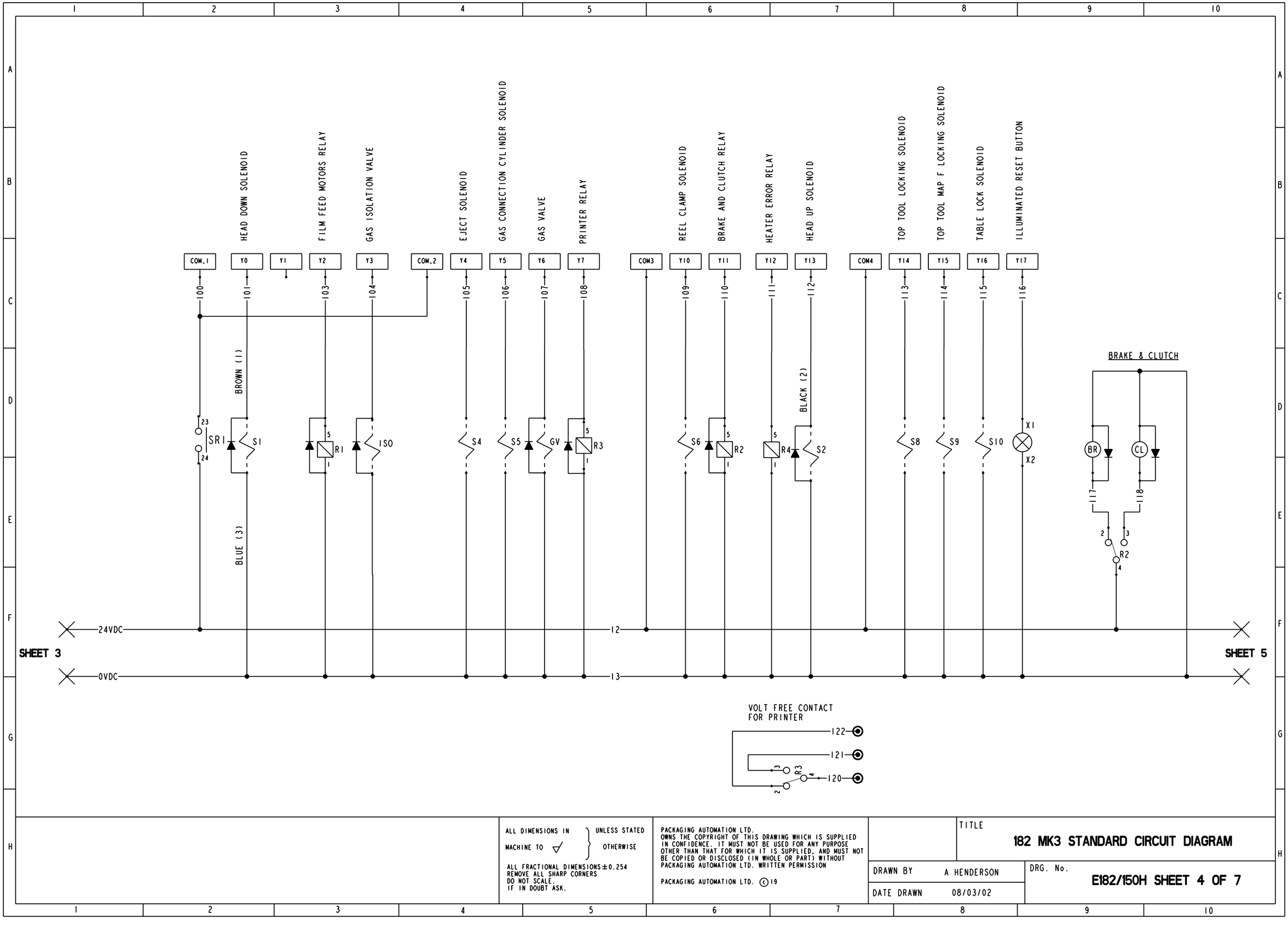
DRAWN BY A HENDERSON

DATE DRAWN 08/03/02

DRG. No.
E182/150H SHEET 2 OF 7



	ALL DIMENSIONS IN MACHINE TO ∀ UNLESS STATED OTHERWISE ALL FRACTIONAL DIMENSIONS ±0.254 REMOVE ALL SHARP CORNERS DO NOT SCALE. IF IN DOUBT ASK.		TITLE **182 MK3 STANDARD CIRCUIT DIAGRAM** DRAWN BY A HENDERSON DATE DRAWN 08/03/02 DRG. No. **E182/150H SHEET 3 OF 7**



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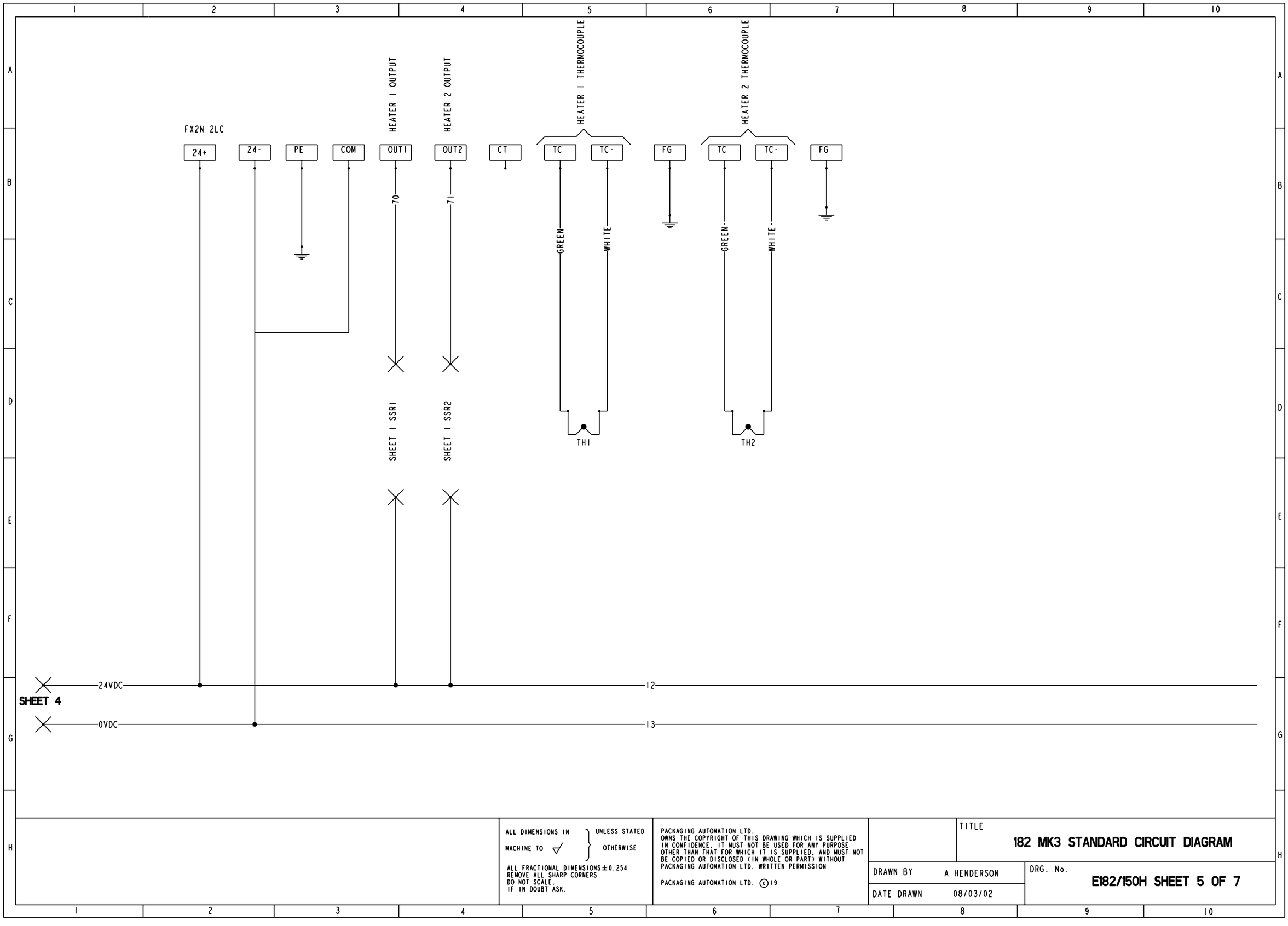
TITLE
182 MK3 STANDARD CIRCUIT DIAGRAM

DRAWN BY A HENDERSON

DATE DRAWN 08/03/02

DRG. No.
E182/150H SHEET 4 OF 7



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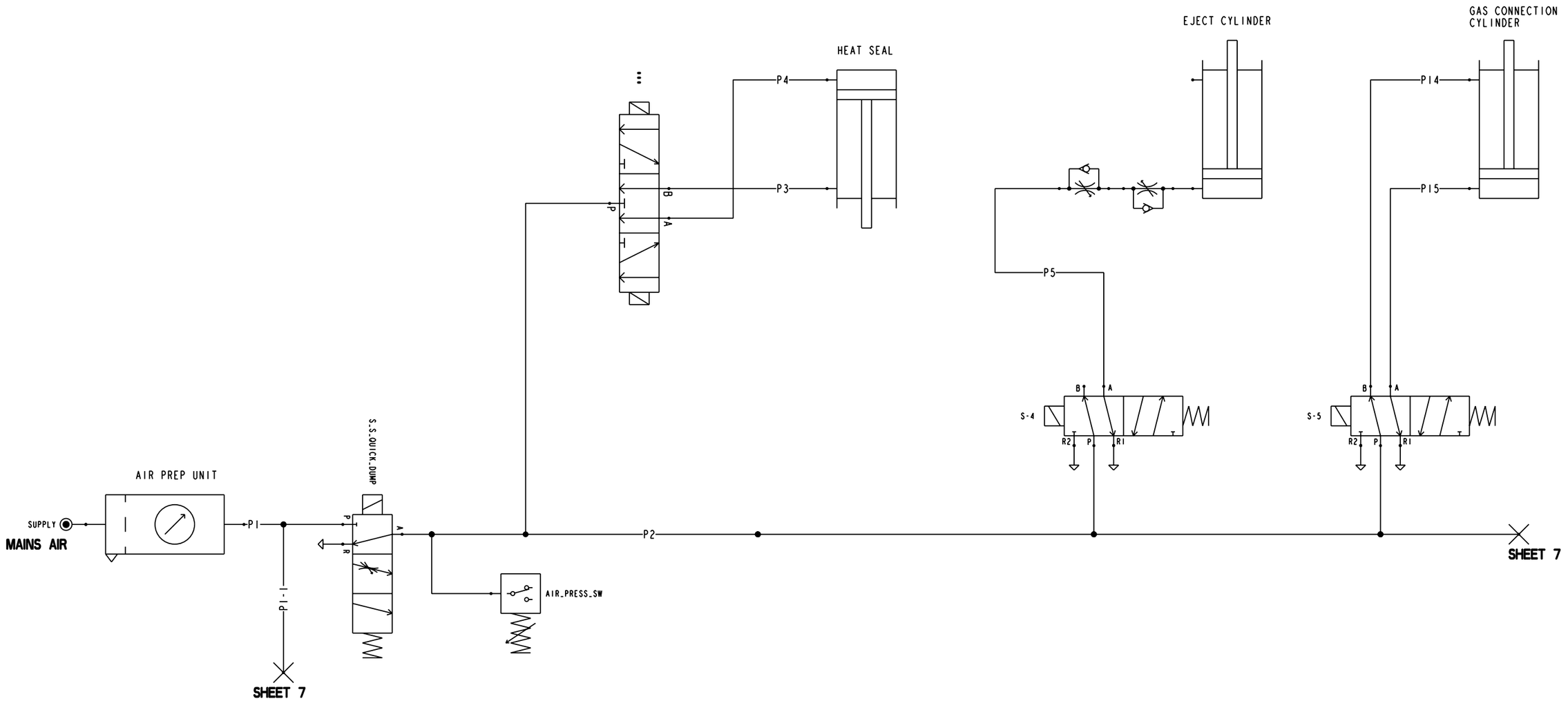
182 MK3 STANDARD CIRCUIT DIAGRAM

DRAWN BY A HENDERSON

DATE DRAWN 08/03/02

DRG. No.
E182/150H SHEET 5 OF 7



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DRG. No.

E182/150H SHEET 6 OF 7

TOP TOOL
LOCKING CYLINDER

TOP TOOL MAP F
LOCKING CYLINDER

TABLE LOCK
CYLINDER

P11

P12

P13

PRECISION REGULATOR

TO REEL CLAMP

P16

P7

P8

S-8

S-9

S-10

S-6

B

A

R2

P

R1

P2

SHEET 6

UNDUMPED SUPPLY
SHEET 6

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182 MK3 STANDARD CIRCUIT DIAGRAM

DRAWN BY A HENDERSON

DATE DRAWN 08/03/02

DRG. No.

E182/150H SHEET 7 OF 7

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packaging automation ltd

PLEASE ENSURE THIS FORM IS COPIED, FILLED OUT AND KEPT UP TO DATE FOR EVERY TOOL NUMBER INSTALLED. THIS IS IMPORTANT AS A PRECAUTION AGAINST THE LOSS OF PROGRAM INFORMATION IN THE UNLIKELY EVENT OF A PLC FAILURE.

Program Number		**Tool ID**	

Main Display

Heater1		Off/On	Setpoint (°C)	
Heater2		Off/On	Setpoint (°C)	

Seal & Film Feed

Seal Time (seconds)	
Film Feed Time (seconds)	

Reg Film & Mark Count

Registered Film Mode		Off/On
Registered Film Counter		1 or 2

Film Feed Mode & Eject Time

Film Feed Mode		Off/On
Eject Time (seconds)		

Machine Mode & Gas Time

Machine Mode (Atmospheric/Map-F)	
Gas Time (MAP-F) (seconds)	

Tray Reference		**Film Reference**	

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