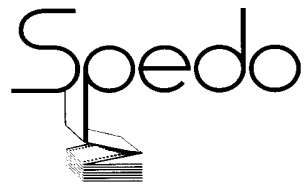


# Spedo 970/971 Web Control Unit

## INSTRUCTION MANUAL

**Issue 8**

Part Number SP002179



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## **Spedo 970/971 Web Control Unit**

### **Copyright**

Published by Spedo UK Limited  
76 Woolmer Way  
Bordon  
Hampshire  
GU35 9QF  
ENGLAND

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### **First Published January 2001**

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## Spedo 970/971 Web Control Unit

### Safety Measures

This instruction manual contains certain WARNING and CAUTION notices which must be followed by the user to ensure safe operation and to retain the equipment in a SAFE condition.

All users of the equipment described in this manual MUST have received adequate training in its use and application in order to ensure SAFE AND PROPER USE.

Any adjustment, maintenance or repair of the opened apparatus under voltage shall be carried out only by a skilled person who is AWARE OF THE HAZARD INVOLVED.

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**GENERAL DESCRIPTION****SECTION 1****INTRODUCTION**

The Web Control Unit is a multipurpose continuous forms feed system, designed for merging, collating and to web buffer or to simply provide forms transport for inkjet and encoding applications.



**Fig 1.1 Web Control Unit**

Spedo 970 Web Control Unit is designed to accept up to four layers of infeed web simultaneously, centre cut them and as they outfeed the unit, overlap the resultant two streams of paper of each web, either left over right or right over left. These can then applied to the input of a guillotine.

Spedo 971 Web Control Unit is designed to accept a single layer of infeed web from a printer, optionally centre cut them and as it outfeeds the unit, overlap the resultant two streams of paper, either left over right or right over left. These can then applied to the input of a guillotine.

## Spedo 970 WEB CONTROL UNIT

### Technical Data

#### Safety Features:

Emergency stop button stops complete system if pressed in an emergency.  
Protective cover fitted over moving parts. Safety interlock switches off the unit if the transparent cover is opened while the unit is running.

#### Paper Web:

Capable of handling 4 streams widths up to 520mm (max.).

#### Paper Weight:

Single Web: 40 to 200 g/m<sup>2</sup>  
Multi Web: 90 to 200 g/m<sup>2</sup>

#### Speed:

600ft/min (200M/min).

#### Paper Loop Sensing:

One out-feed sensor detects presence of loop to guillotine.

#### Power Requirements:

230V +/-10%,  
460W  
50Hz to 60Hz

#### Noise Emissions:

76dB

#### Dimensions (approx):

Height: 1030mm  
Length: 575mm  
Width: 825mm

#### Weight (approx):

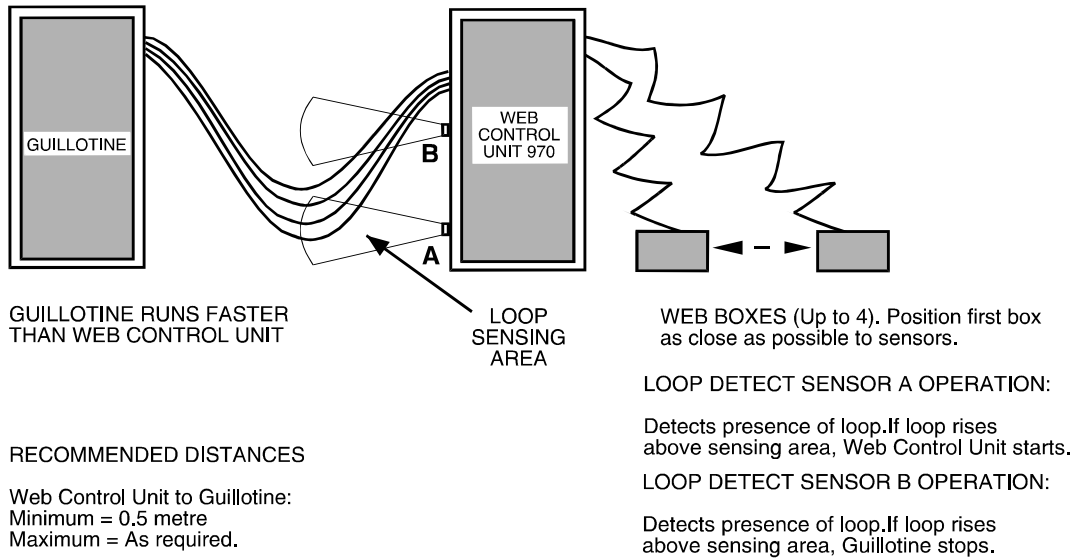
120kg

### Description of Operation

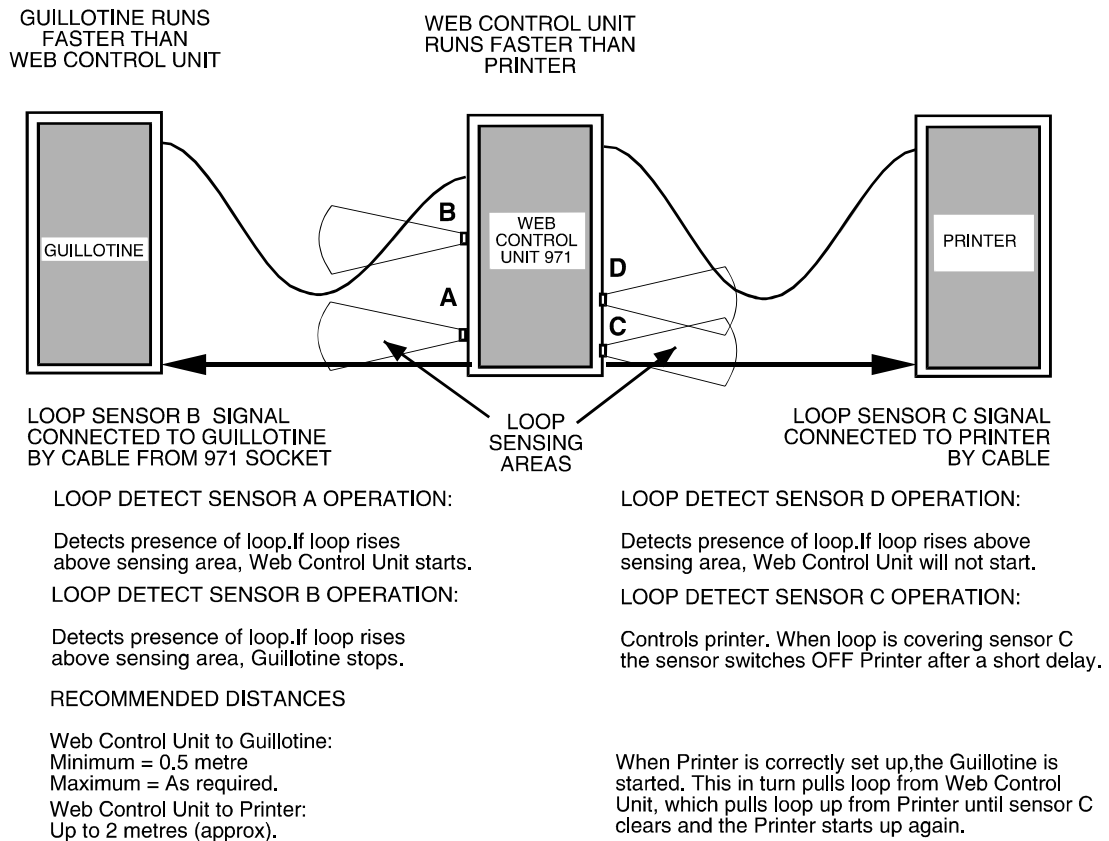
The web control unit is configured into a system as shown in Fig 1.2. Up to four layers of in-feed web can be applied simultaneously over the in-feed plate from where they are fed forward by two tractor units to be applied to a centre cutter. They pass between the cutter blades and are fed out from the unit.

Dependent upon the setting of the overlap paper guides they are then overlapped, either left-over-right or right-over-left. These can then applied to the input of a guillotine. The resultant loop that forms between the two machines is monitored by an out-feed loop sensor. If the loop becomes too tight (the loop rises above the sensing area of the sensor) the web control unit starts, so lowering the loop.





**WEB CONTROL UNIT 970 SYSTEM**



**WEB CONTROL UNIT 971 SYSTEM**

**Fig 1.2 System Configurations**

The speed of throughput can be varied by the operator from 0 to 600 feet per minute (0 to 200 metres per minute) approximately.

If the paper feed runs out, the unit stops. Similarly, a paper run-out switch fitted in the path of the first web in-feed detects when the last form has run through the unit and then stops the unit.

The unit is operated from a control panel, running down the left side, the controls of which allow the unit to be switched on, set up and run.

There are two safety devices fitted. If the transparent cover is lifted while the unit is running, it stops immediately. An emergency stop button is fitted at the out-feed end, which if pressed, also stops the unit immediately.

## **Spedo 971 WEB CONTROL UNIT**

### **Technical Data**

#### **Safety Features:**

Emergency stop button stops complete system if pressed in an emergency.  
Protective cover fitted over moving parts. Safety interlock switches off the unit if the transparent cover is opened while the unit is running.

#### **Paper Web:**

Capable of handling 4 streams widths up to 520 mm (max.).

#### **Paper Weight:**

Single Web: 40 to 200 g/m<sup>2</sup>  
Multi Web: 90 to 200 g/m<sup>2</sup>

#### **Speed:**

600 ft/min (200 m/min).

#### **Paper Loop Sensing:**

One in-feed sensor detects the presence of the web loop.  
One in-feed sensor controls the out-feed from the printer.  
Two out-feed sensors detect presence of loop to guillotine.

#### **Power Requirements:**

230V +/- 10%  
460W  
50Hz to 60Hz,

#### **Noise Emissions:**

76dB

#### **Dimensions (approx):**

Height: 1030mm  
Length: 575mm  
Width: 825mm

#### **Weight (approx):**

120kg

## **Description of Operation**

The web control unit is configured into a system as shown in Fig 1.2.

A single stream of web is fed in from the printer (or up to four layers of web can be applied simultaneously), over the infeed plate from where it is fed forward by two tractor units to be (optionally) cut by a centre cutter.

If the centre cutter is in use, the web passes between the cutter blades and is fed out from the unit. Dependent upon the setting of the overlap paper guides, the resultant streams are overlapped, either left-over-right or right-over-left. The outfeeding web (whether cut or not) is then fed to the input of a guillotine.

The resultant loop which forms between the three machines is monitored by four paper loop sensors - one detecting the presence of the infeed loop to the web control unit, one controlling the output of the printer, and two sensing the paper loop between the web control unit and the guillotine.

If infeed loop to the web control unit becomes too tight (the loop rises above the sensing area of the sensor) the web control unit and guillotine stop.

If the outfeed loop from the web control unit becomes too tight, the web control unit starts (provided paper is available at its infeed). If the outfeed from the printer is faster than the speed (infeed) of the web control unit, the loop slackens (drops) and after a short delay, the printer pauses. Once the loop begins to tighten (rises), the printer starts again.

The speed of throughput on the web control unit can be varied by the operator from 0 to 600 feet per minute (0 to 200 metres per minute) approximately. A paper runout switch fitted in the path of the first web infeed detects when the last form has run through the unit and then stops the system.

The unit is operated from a control panel, running down the left side, the controls of which allow the unit to be switched on, set up and run.

There are two safety devices fitted. If the transparent cover is lifted while the unit is running, it stops immediately. An emergency stop button is fitted at the outfed end, which if pressed, also stops the unit immediately.

## **INSTALLATION & OPERATION**

## **SECTION 2**

### **INTRODUCTION**

- The installation procedures given in this section should only be carried out by a competent trained service technician.
- Once the web control unit has been declared ready to operate, the operating personnel should be made familiar with its safe operation.

### **UNPACK**

- Unpack the equipment and examine it thoroughly to ascertain whether any damage has occurred in transit.
- Report immediately any such damage to the agent or manufacturer. Retain the packing should further transportation be necessary.

### **ACCESSORIES**

- The following items are supplied as standard:
  - Mains Cable to Guillotine.
  - Loop Control Cable to Guillotine.
  - Interface Cable (fixed) to Printer (971 only - to order).
  - Instruction Manual - Part No. SP2179

### **SITE CONSIDERATIONS**

- Configure the system as shown in Fig 1.2.
- For optimum use of the unit, the distance between the web control unit and guillotine can be between 0.5 metre minimum to any desired maximum. The distance from the web control unit to the printer can be up to 2 metres maximum. If heavy weight paper is to be processed, the maximum possible distance should be allowed.
- Consideration must also be given to the layout and positioning of work tables and cupboards surrounding working area, at the same time leaving enough space around the system for the operator to have access to all operational requirements.
- All units in the system should be set square in relation to each other.
- Refer to the relevant instruction manual of any other unit in the system, before making up the combined system.

## INSTALLATION

### Connecting the Mains (Power) Cable

- Insert the mains (power) cable plug into the mains input socket located on the rear panel (below the emergency stop button) and then the other end into the guillotine power output socket.
- If an alternative plug is required for the guillotine, remove the plug from the cable and re-connect it to a suitable plug. The colour codes are as follows:

L	(live)	=	BROWN	wire
N	(neutral)	=	BLUE	wire
E (earth / ground) = GREEN/YELLOW wire.				

### Installation Check

- **WARNING:** Never operate the unit when wearing items of loose clothing or loose decorative jewellery, as they could become entrapped in the machinery and cause injury.
- Refer to Figs 2.1 thru 2.5 to familiarize yourself with the sequence of operation, controls and paper deck adjustment requirements before attempting to load and operate the unit.
- Switch ON the web control unit. Check that the MAINS ON:OFF indicator illuminates.
- Press the START button and ensure the STOP lamp is extinguished. Press and release the START button several times and check that on each press the tractor unit drive runs.
- Press the CONTINUOUS button. Check that it illuminates and locks. Press the START button and check that the STOP lamp is extinguished. Check that the tractor unit drive runs.
- Check manually by covering each sensor with paper that it is detecting the presence of its loop. Press the STOP button to cancel.
- Follow the sequence given in Fig 2.1 and check that the web is being processed as required.
- With the unit running, hit the emergency STOP button and check that the unit stops. Twist the button to release it.
- On web control unit 971, connect the (captive) printer interface cable to the printer and the loop control cable to the guillotine. Manually check that the lower infeed sensor switches off the printer.
- Operate the system and check that it functions satisfactorily. Before handing over, ensure that the operating personnel are familiar with all operating procedures and are aware of any safety hazards involved.

**OPERATING PROCEDURES**

**SWITCH ON**

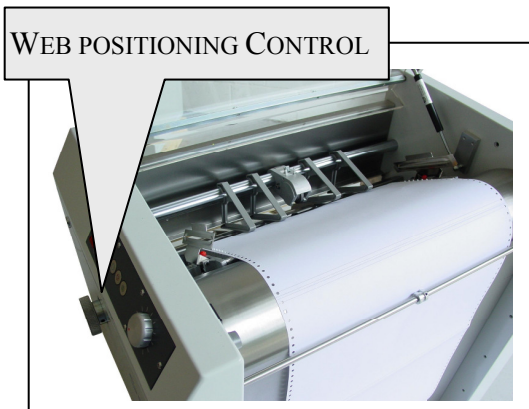
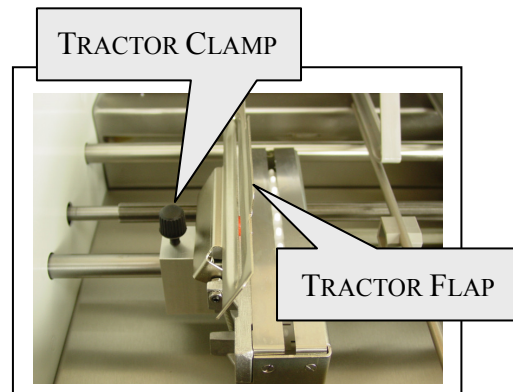
- Depress the MAINS ON:OFF switch and check that it illuminates.

**LOAD PAPER**

**Web Control Unit 970**

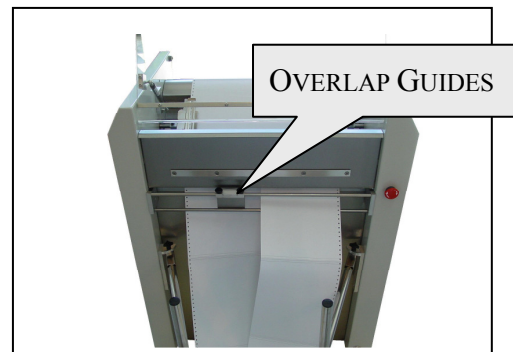
- The main components of the paper deck are shown on Figs 2.2 and 2.3.

1. OPEN THE COVER. OPEN BOTH TRACTOR FLAPS BEFORE IN-FEEDING THE PAPER.
2. FEED FIRST WEB THROUGH PAPER RUN-OUT SWITCH GUIDE.
3. FEED OTHER WEBS AS REQUIRED AND ALIGN FRONT EDGES & TRACTOR HOLES.

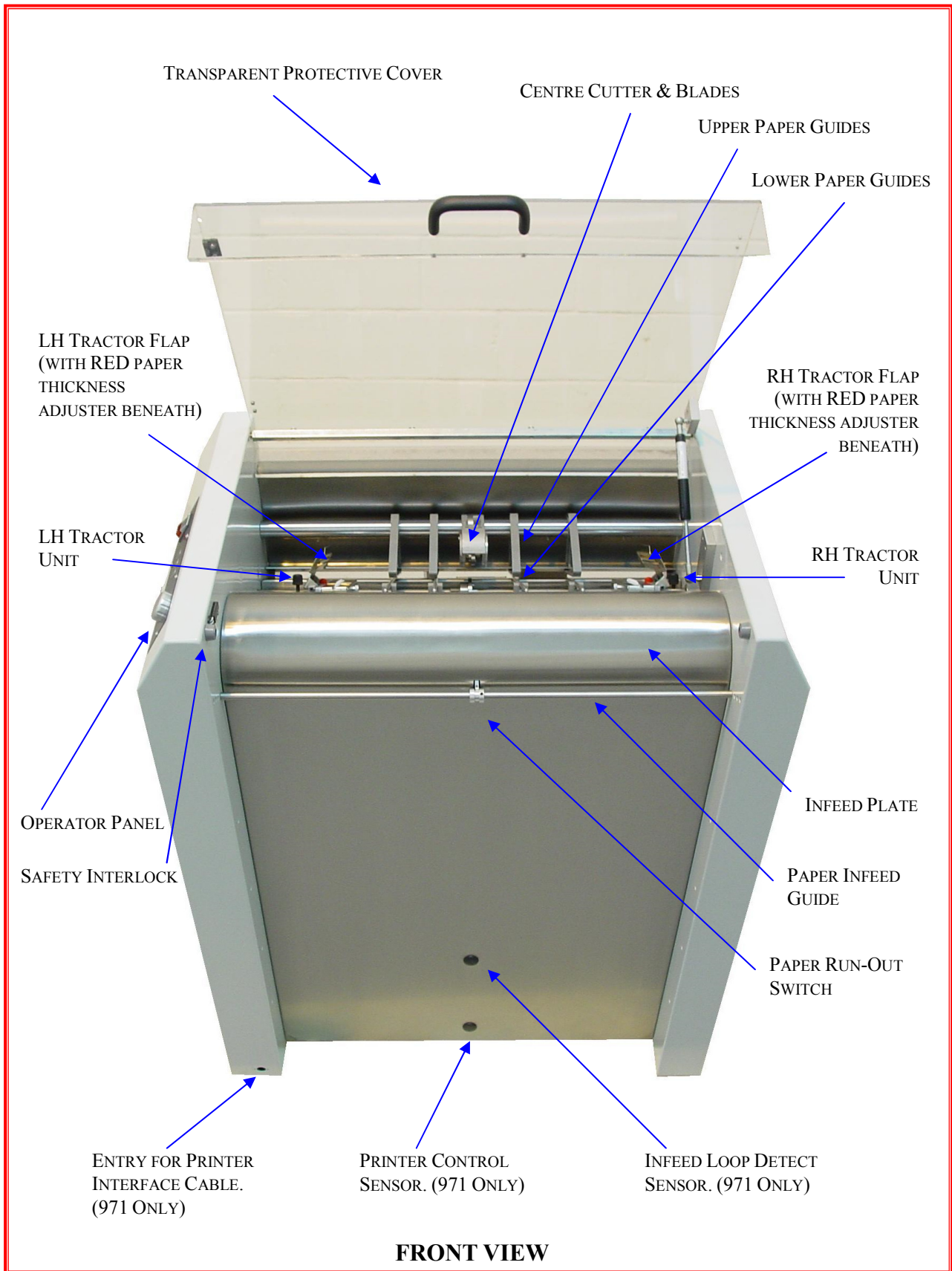


4. SLACKEN THE LEFT AND RIGHT HAND TRACTOR CLAMPS AND MOVE EACH TRACTOR UNIT UNTIL THE GAP BETWEEN THEM ALLOWS THE PINS TO ALIGN WITH THE HOLES IN THE PAPER WEB. RE-CLAMP THE TRACTOR.
5. ENGAGE PAPER ONTO BOTH TRACTOR SPROCKETS AND CLOSE TRACTOR FLAPS

6. IF THE CENTRE CUTTER IS IN USE ALIGN CENTRE CUT LINE ON WEB WITH CUTTER BLADES BY ROTATING THE WEB POSITIONING CONTROL.
7. JOG PAPER THRU READY FOR GUILLOTINE.
8. SET OVERLAP GUIDES AS REQUIRED.

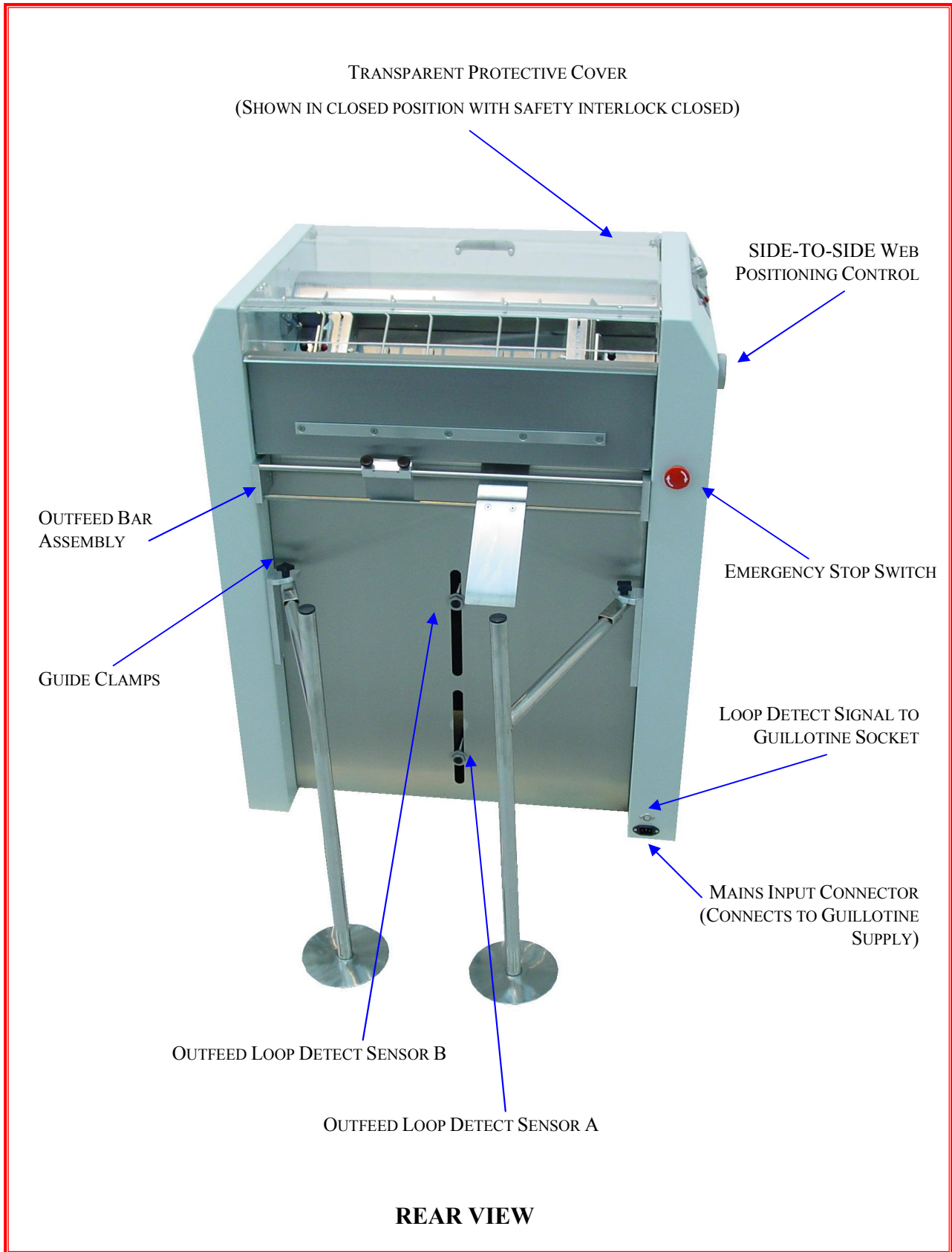


**Fig 2.1 Operational Sequence**



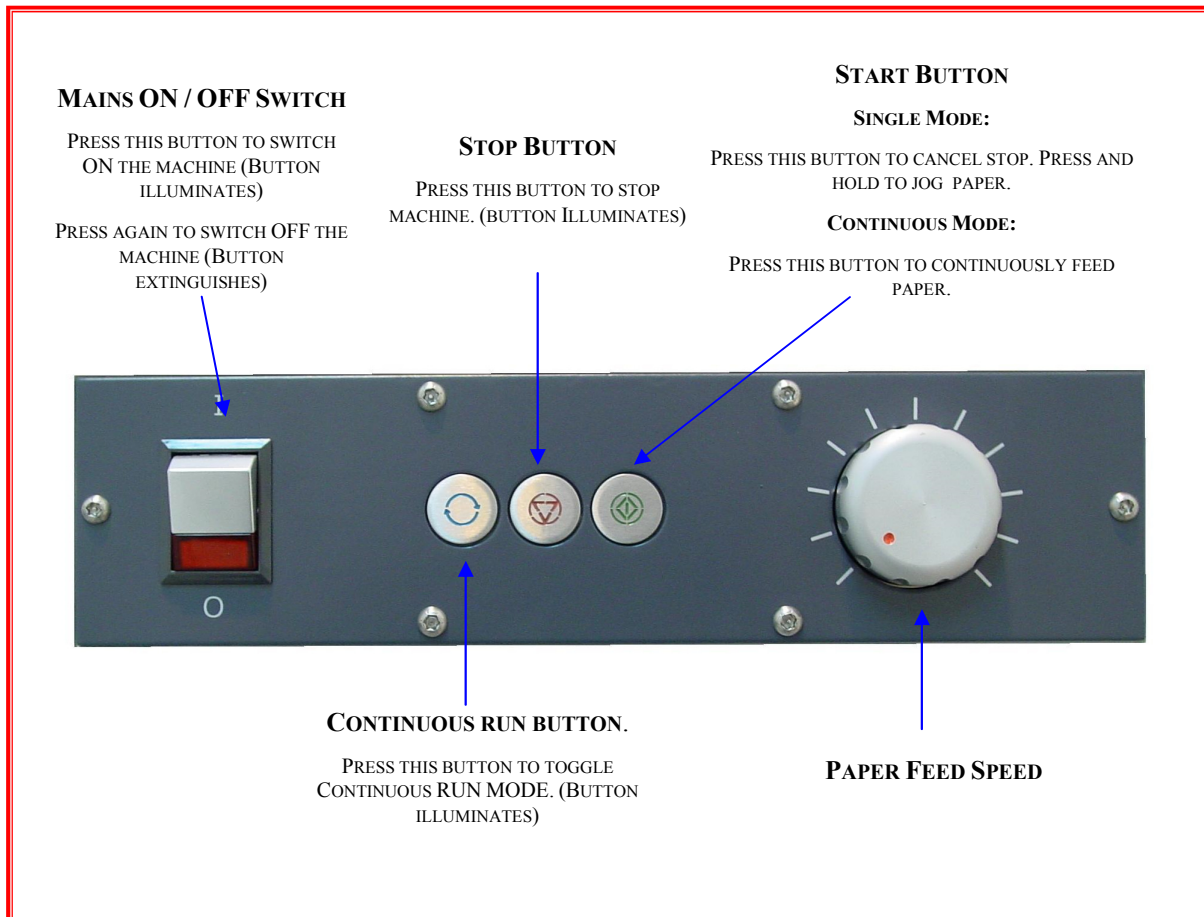
**Fig 2.2 Identification of Operational Assemblies**





**Fig 2.3 Identification of Outfeed Assemblies**





## 2.4 Summary of Controls

- Place the box containing the web that is to be the bottom-most web running through the deck, closest to unit. The box for the next web layer is placed behind the first box and so on until all four web boxes are in line, as close as possible to the unit.
- Feed each layer, starting with the first (bottom) under the infeed guides. The first layer should be inserted between the lowest infeed guide and the infeed plate, such that it slides between the spring and guide of the paper runout switch. Insert the next layer under the next guide and so on.
- For each layer, pull enough length of paper so that it can lie unsupported on top of the paper deck. Position the two paper supports equally underneath the paper to match its width.
- Open the tractor unit flaps. Slacken the two tractor clamps (Fig 2.1). Adjust the side-to-side position of each tractor unit so that the sprocket holes in the paper sides fit over the tractor unit pins.
- Align the front edges of the layers and push the paper holes over the pins. Close the flaps and move each tractor unit separately so that the paper in between is flat and slightly tensioned. Tighten the tractor clamps.
- Ensure the machine is in SINGLE FEED mode and press the START button once to clear the STOP lamp. Press and hold the START button briefly until the edge of the web(s) reach the centre cutter blades.

- Using the manual web positioning control knob (Fig 2.3), rotate the knob until the centre cut line on the web aligns with the cutter blades as shown in Fig 2.1.
- As a check, continue to jog the paper forward through the cutter blades, checking that it has been cut at the correct position. If necessary, repeat this step until the correct cut position has been attained.
- Set the required overlap (Fig 2.1) and clamp the overlap guides in position. Close the top cover.
- Press and hold the START button until enough paper has been fed from the unit to be applied to the guillotine such that a loop of paper is formed between units, low enough to cover the outfeed loop sensor (Fig 2.3).

#### Web Control Unit 971

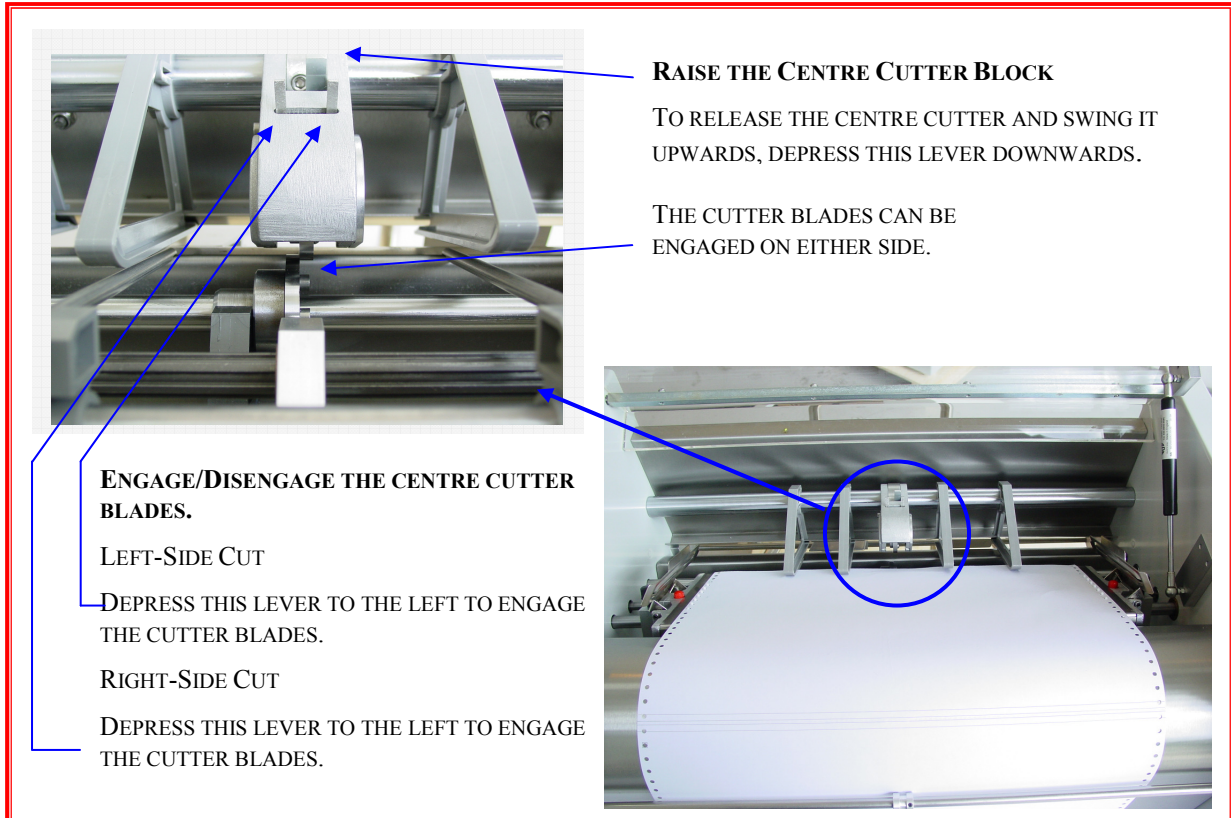
- The main components of the paper deck are shown on Figs 2.2 and 2.3. Open the top cover.
- Pull enough paper from the printer to form a loop between the printer and web control unit. Insert the web under the lowest infeed guide and over infeed plate, such that it slides between the spring and roller of the paper runout switch.
- Pull enough length of paper so that it can lie unsupported on top of the paper deck.
- Position the two paper supports equally underneath the paper to match its width.
- Open the tractor unit flaps. Slacken the two tractor clamps (Fig 2.1). Adjust the side-to-side position of each tractor unit so that the sprocket holes in the paper fit over the tractor unit pins.
- Push the paper holes over the pins. Close the flaps and move each tractor unit separately so that the paper in between is flat and slightly tensioned. Tighten the tractor clamps.
- If the centre cutter is in use: press the START button briefly until the start edge of the web reaches the centre cutter blades.
  - Using the manual web positioning control knob (Fig 2.3), rotate the knob until the centre cut line on the web aligns with the cutter blades as shown in Fig 2.1.
  - As a check, continue to jog the paper forward through the cutter blades, checking that it has been cut at the correct position. If necessary, repeat this step until the correct cut position has been attained.
  - Set the overlap (Fig 2.1) and clamp the overlap guides in position. Close the top cover.
  - Press the START button until enough paper has been fed from the unit to be applied to the guillotine such that a loop of paper is formed between units, low enough to cover the outfeed loop sensor (Fig 2.3). Check that the loop from the printer is also continuing to be formed.

**SYSTEM PAPER FEED**

- Having set up and switched-on all units in the system, Press the CONTINUOUS button on the web control unit ensuring the button illuminates. Once the machine is in CONTINUOUS mode press the START button to run. Set the speed of the web control unit to be slightly slower than the speed of the guillotine, and slightly faster than the printer. It must be noted that the web control unit controls the movement of paper between units.
- Accurate registration is achieved by combined adjustment of distance between units and the square-ness of the web control unit in relation to the other units
- To ensure smooth transfer of paper between units, make sure that the loops of paper appearing between them is as long and deep as possible. This makes the loop as heavy as possible and ensures correct operation of the sensors on the web control unit, so that the loops are maintained during operation.

**CHANGING PAPER**

- Split the paper on the in-feed. Ensure the machine is in CONTINUOUS button is extinguished. On the web control unit press the START button once to enter SINGLE FEED mode. Press and hold START button until the remaining paper is fed out completely.
- Open the protective top cover. Load the paper as detailed at the beginning of this procedure.



**Fig 2.5 Setting the Centre Cutter**

**OPERATIONAL MAINTENANCE****SECTION 3****WARNINGS****Electrical**

Before starting any preventive maintenance, ensure that the web control unit has been disconnected from the mains electrical supply.

**Clothing & Jewellery**

Never operate the guillotine when wearing items of loose clothing or other decorative jewellery, such as necklaces or bracelets as they could become entrapped in the machinery and cause injury.

**Cutting blades**

The angular blades on the centre cutter are extremely sharp and care should be taken to protect fingers when the protective cover has been opened.

The manufacturer is not liable for damage caused by non-observance of the procedures given in this manual.

If any malfunction occurs, contact the Customer Services Department of Spedo or its agent for assistance. **DO NOT ATTEMPT** to correct any mechanical malfunction that occurs unless qualified to do so.

**TASK INTERVALS****Recommended Service Schedule****Weekly Operators Tasks**

- Clean away paper dust adhering to any surface.
- Lubricate the centre cutter bridge.

**3 to 6 Month Tasks**

- Check the sharpness of the centre cutter blades. Renew if necessary (Fig 3.2).

**Annual Tasks**

- Renew the tractor belts, (see Fig 3.1).
- Renew the main drive belt.

**Cleaning**

- Remove any paper dust or other debris from the inside of the paper transport deck, using an air line or vacuum cleaner. This should be checked on a regular basis and performed as required.
- Open the tractor units and remove any paper dust.
- Clean away any ink residue or other tenaciously adhering debris from bare lubricated parts with a clean cloth.

- Clean the centre cutter blades using a soft-hair hand brush.
- Never use a metal instrument to remove paper debris adhering to the blade surfaces.
- Clean the protective cover using a foam cleaner.

### **Lubrication**

- Lightly oil the tractor unit drive bushes. Loosen their clamps and slide the units along the shaft to spread the oil.
- Lightly oil the centre cutter bush which runs in the centre bridge.

### **REMOVAL PROCEDURES**

#### **Side Compartment Doors**

- The left side compartment door is secured in position by two locks. This prevents the operator from accessing the internal moving parts and electrical assemblies.
- The right side compartment is held by two catches only.
- Unlock both locks on the left side door and lift out and upwards from its retainers.
- Release the catches on the right side door and lift out and upwards from its retainers.
- Disconnect any EARTH leads.
- When re-fitting each door, ensure that the EARTH leads are re-connected.

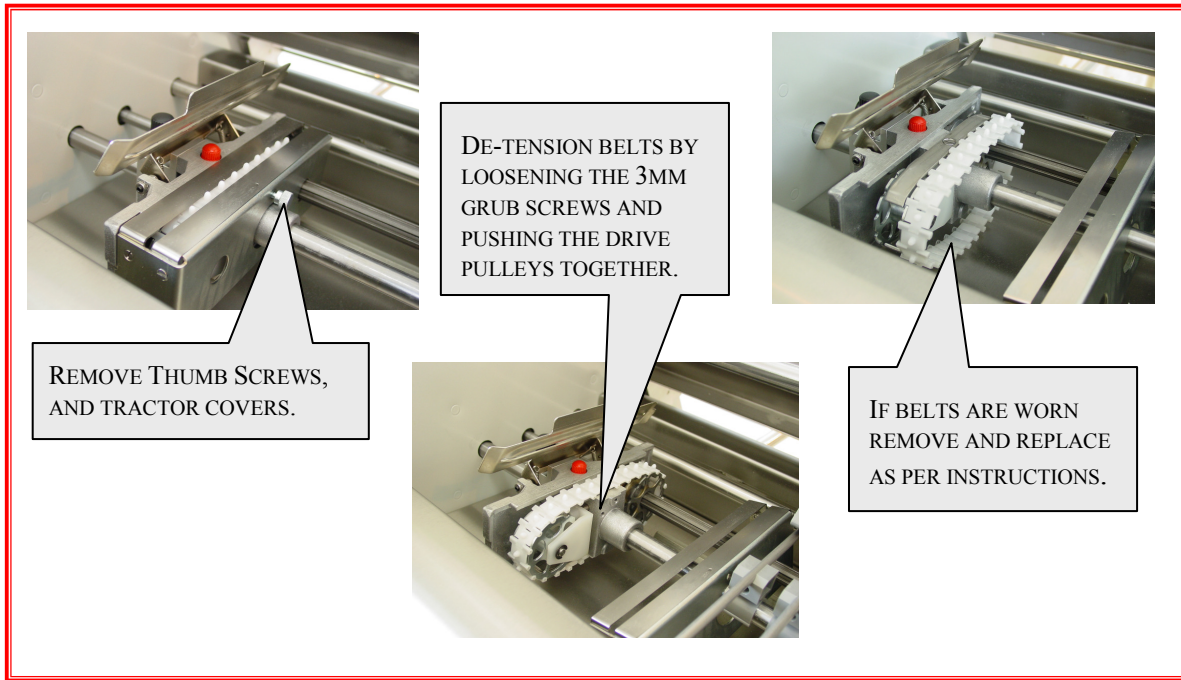
### **RENEWAL PROCEDURES**

#### **Tractor Belts (Fig 3.1)**

The tractor belts are located beneath the tractor cover on each tractor assembly. Proceed as follows:

- Remove each tractor cover by removing the associated securing thumbscrew.
- De-tension each belt by loosening the 3mm grub screw, using a 2mm Allen key. Push the two drive pulleys together.
- If the belts are worn, they should be cut out from the tractor assemblies.
- With the belts removed, clean and lubricate each assembly.
- When fitting the new belts, lightly lubricate the belt guides.
- Before fitting the new belt, ensure that its direction of travel matches that of the belt in the other tractor unit.
- Fit each new belt by wrapping it around its drive pulleys, locate the ends and press in the pin.
- Apply tension to each belt and clamp by tightening the grub screw.

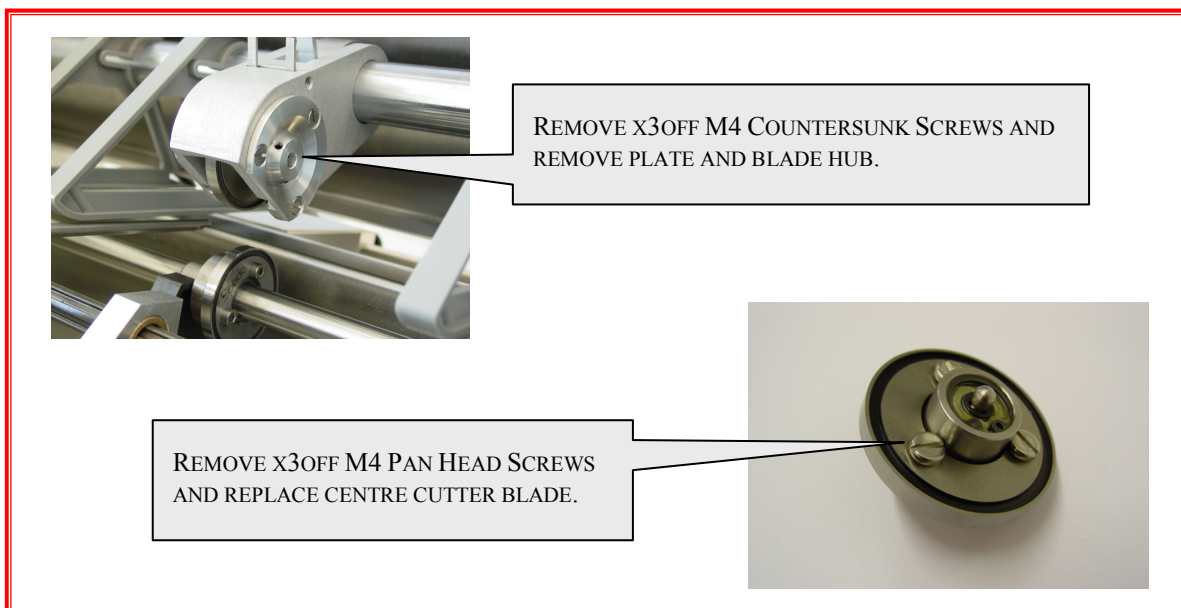




**Fig 3.1 Renewal of Tractor Belts**

**Upper Centre Cutter Blade (Fig 3.2)**

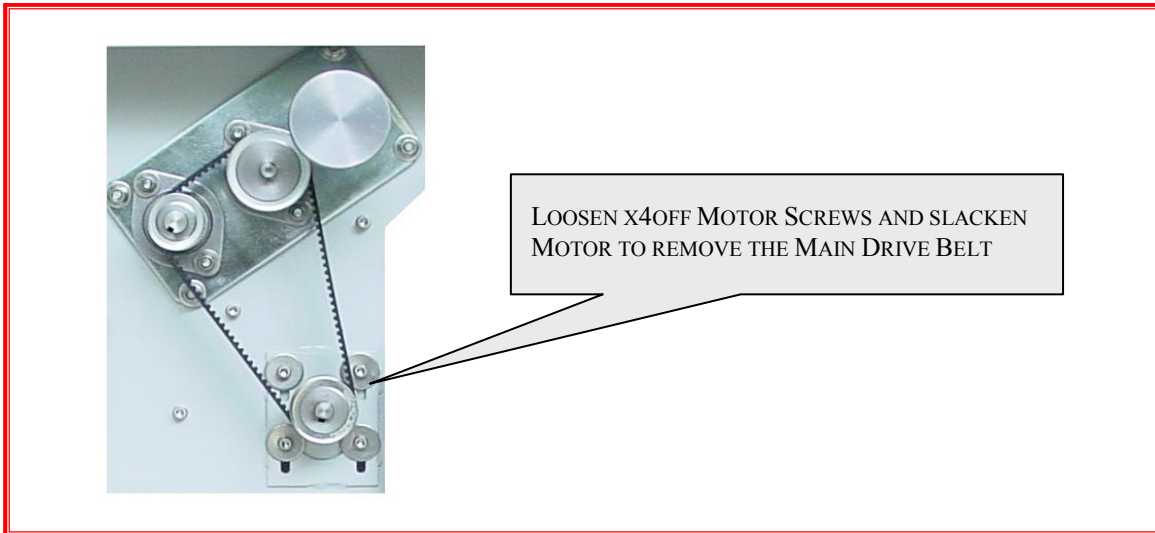
- Remove x3off M4 countersunk screws. Remove the plate.
- Remove the blade hub. Remove x3off M4 screws and fit the new blade. Check that the hub spindle is free to move from side to side.
- Clean and lubricate. Re-assemble the parts in the reverse to the procedure given above.



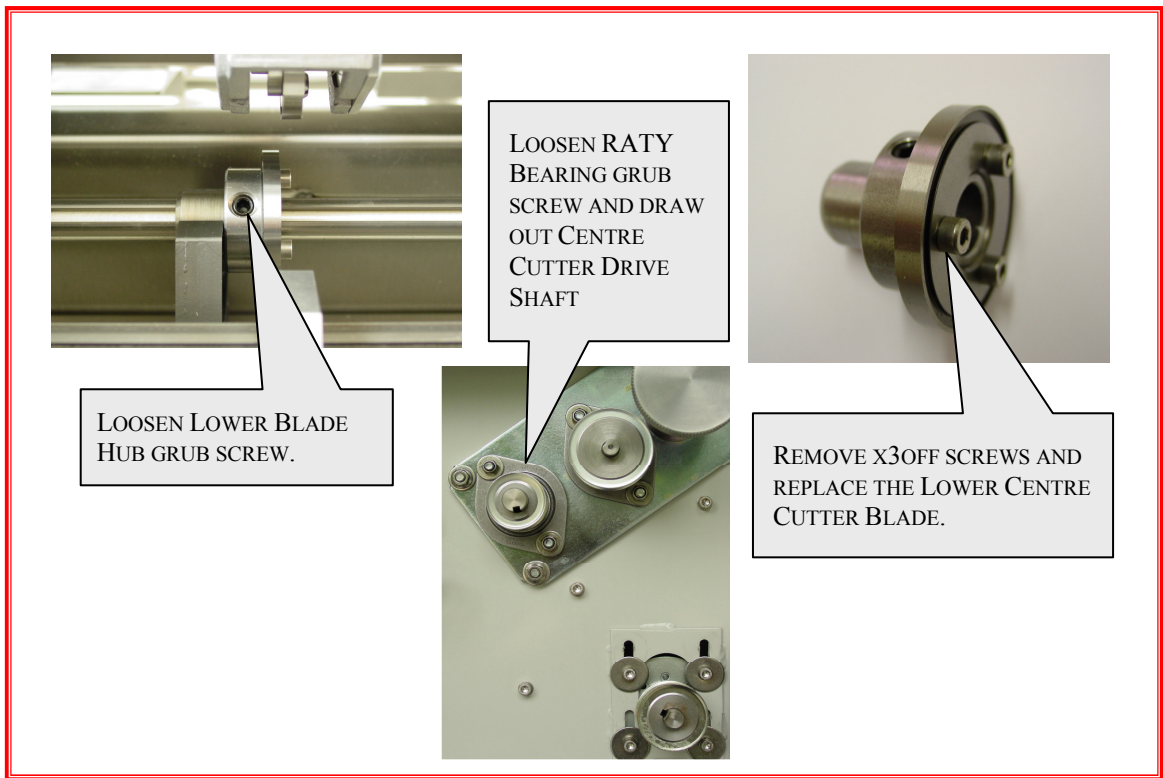
**Fig 3.2 Renewal of Upper Centre Cutter Blade**

**Main Drive Belt (Fig 3.3)**

- Loosen x4off main drive motor mounting screws.
- Push main drive motor upwards to slacken the drive belt.
- Fit new drive belt and tension by moving the main drive motor downwards.
- When correct tension is achieved, tighten all main drive motor screws.

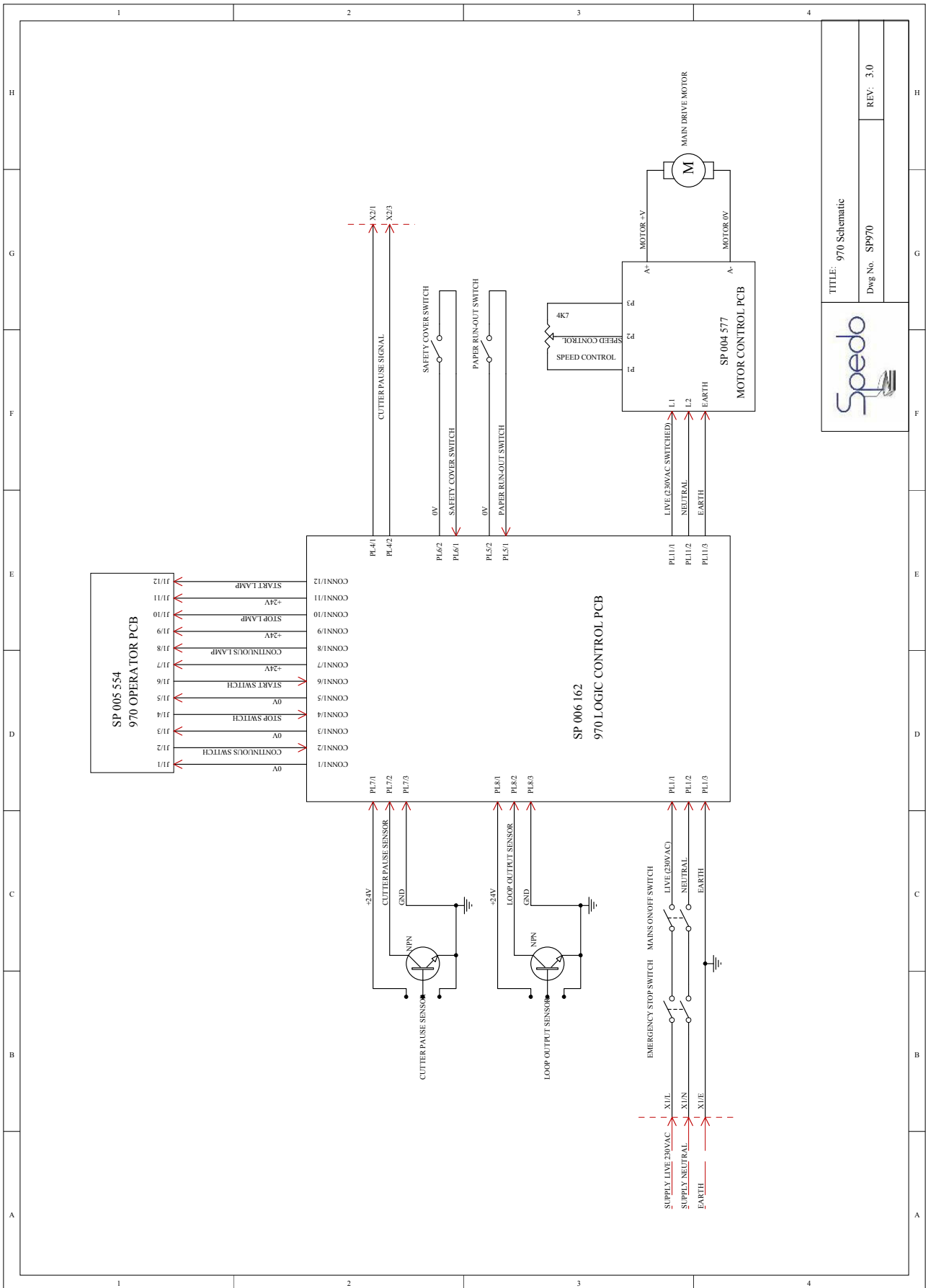
**Fig 3.3 Removal of Main Drive Belt****Lower Centre Cutter Blade (Fig 3.4)**

- Raise upper centre cutter assembly.
- Loosen the lower blade hub grub screw using a 4mm Allen key.
- Remove Main Drive Belt as described in Fig 3.4.
- Loosen the centre cutter shaft raty bearing grub screw using a 2.5mm Allen key.
- Carefully draw the centre cutter shaft from the lower centre cutter hub.
- Remove the x3off M4 Screws and fit the new blade.
- Re-assemble the parts in the reverse to the procedure given above.



**Fig 3.4 Renewal of Lower Centre Cutter Blade**





Spedo

TITLE: 970 Schematic  
Dwg No. SP970  
REV: 3.0