MC-810 PRODUCT HANDLING SYSTEM

OPERATING INSTRUCTIONS
USER INFORMATION

Designed and manufactured by:

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MC-810 INTRODUCTION

The MC810 is an automatic feeding system suitable for a wide range of flat blanks including paper labels, cards, sleeves, cartons, crash lock cartons and skillets from stack to catcher. When fitted with a hot foil, thermal transfer or inkjet printer or a deboss coder from our range it provides an extremely versatile, off-line overprinting facility.

Featuring a fully adjustable infeed hopper and outfeed catching tray the MC-810 can be easily adjusted to suit a wide range of product sizes, shapes and thicknesses without the need for change parts. During feeding, products are held tightly between a pair of side belts and their progress through the system is controlled by dual optical sensors.

This manual contains important safety information and operating instructions for safe and efficient use of the MC-810. It must be read fully before setting up or using the machine and in conjunction with any manual(s) relating to devices e.g. printers which may be fitted to the MC-810.

Note: Not all features covered in this manual are fitted to all machines.

GENERAL SAFETY INSTRUCTIONS

Read these instructions carefully.

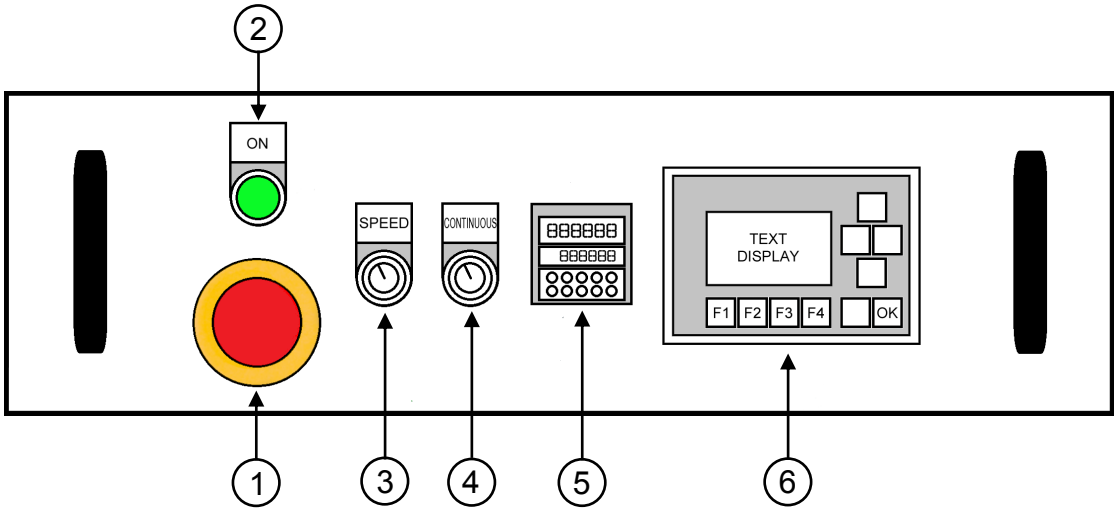
1. Follow all warnings and instructions marked on the product.
2. Only use the unit for the purpose that it is intended for.
3. Always disconnect the unit from the mains electrical supply before attempting to clean or service it.
4. This product should only be operated by persons who have been trained correctly to do so.
5. Do not operate the unit near water. Never spill liquid of any kind on to the product.
6. Do not place this product on an unstable stand or table. It may fall causing serious injury to the operator or damage to the product.
7. Never insert objects of any kind into this product through any openings or gaps as they may touch dangerous voltage points or short circuit parts that could result in fire or electric shock.
8. This product should only be connected to the type of electrical supply as indicated on the label located on the top of the power supply (See CE label).
9. Use only the power cable supplied with the product. The cable supplied is three core, utilising one wire as a grounding conductor. This must be connected to a suitable earth point at the electrical supply. This is a safety feature. If any doubt arises in trying to connect the power cable, please contact the manufacturer or the agent who supplied the product.
10. Do not allow anything to rest on the power cable. Do not locate the product where people could walk on the cable.
11. If an extension cable is used with this product, make sure that the total ampere ratings of the equipment plugged into the extension cable does not exceed the extension cable ampere rating. Also make sure that the total rating does not exceed the fuse rating.
12. Do not attempt to operate this product with any covers or guards removed or missing.
13. Refer all servicing and maintenance to qualified personnel. Opening or removing guards may expose you to dangerous voltages, and other risks.
14. Do not attempt to use to use this product in areas where explosive gases or substances are present.
15. Under the following conditions always disconnect the electrical supply and refer to a qualified service engineer.
    a. If cables are damaged or frayed.
    b. If liquid has been spilled onto the product.
    c. If the product does not operate normally when the operating instructions are followed.
15. Adjust only those controls covered by these instructions. Improper adjustment could result in permanent damage, requiring qualified technicians to restore the product to normal operating conditions.

MC-810 SAFETY INSTRUCTIONS

To avoid risk of injury or damage all persons operating, adjusting or servicing this machine must read and comply with the instructions below:

1. Read this manual fully before operating or working on this machine.
2. Do not operate the machine with the safety covers removed or damaged.
3. Do not use the machine if it's operation is abnormal or erratic. Contact Open Date for advice.
4. If the machine jams, switch the power off using the red emergency stop button to avoid damage to the motors or drive systems.
5. Before attempting to clear jammed cartons ensure the power is off by pressing the red emergency stop button.
6. Do not load cartons into the machine while it is running.
7. Do not attempt to clear jammed cartons while the machine is running.
8. Do not place fingers or foreign objects on or near moving parts of the machine while it is running.
9. Isolate the mains supply by disconnecting the power cable before opening the electrics tray. Live parts are accessible with the tray open.
10. Refer servicing to Open Date or suitably trained/qualified personnel only.

USER CONTROLS

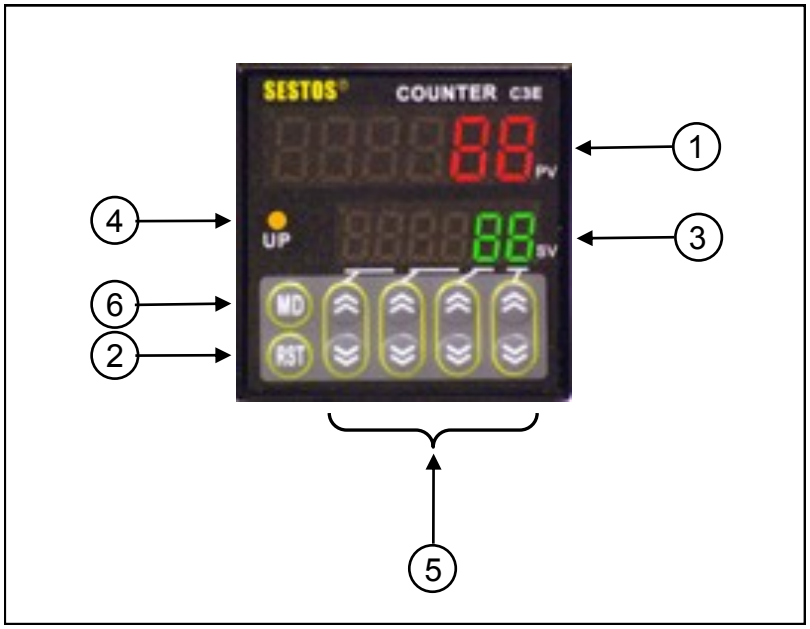


1. **EMERGENCY STOP/ Power off;** Push to stop the machine in an emergency or to power down. When pushed, the button locks down. Twist the button anti-clockwise to release. The machine will not power up if the button is locked down. This is a safety feature.
2. **Power ON;** Press to power the machine up. The button illuminates green to confirm that the power is on. If the machine does not power up check that the EMERGENCY STOP button is unlocked (See 1 above).
3. **Speed Control;** Varies the speed that the blanks are transported through the machine. A range of speeds is provided to accommodate a wide variety of blanks. The speed should be adjusted so that the blanks feed evenly without overlapping. The maximum speed setting may not be usable with all blanks.
4. **Continuous;** (For use with continuous printers only). When set to '1' (on) position cartons continue to move under the printer when they are detected. When set to the '0' (off) position cartons are stopped and the machine waits for the printer to finish printing before carton movement resumes.
5. **Batch counter;** Displays the current quantity of blanks that have been transported since resetting and allows a batch quantity to be set. Refer to page 6 for counter instructions.
6. **Display and user functions:** Controls for operating machine and information display showing status and error messages. Function buttons:

   - **F1 Start.** Starts the feeding cycle. Feeding continues until the batch count is reached (if set), the stack of blanks have been used up or if there has been a misfeed.
   - **F2 Pause/stop.** Stops the feeding of blanks from the hopper. The transport belts continue to run for a short time to ensure all blanks in transit are ejected.
   - **F3 Leading/Trailing carton detection.** Switches between leading and trailing edge detection of the blanks at the printer. The display briefly confirms which mode has been set.
   - **F4 Print One.** Feeds one blank from the hopper, though the system and ejects it. Used for setting up.

Note: At power up the display window briefly shows the model, serial number and program version for the machine. Please make a note of these and quote them when contacting Open Date for assistance.

BATCH COUNTER

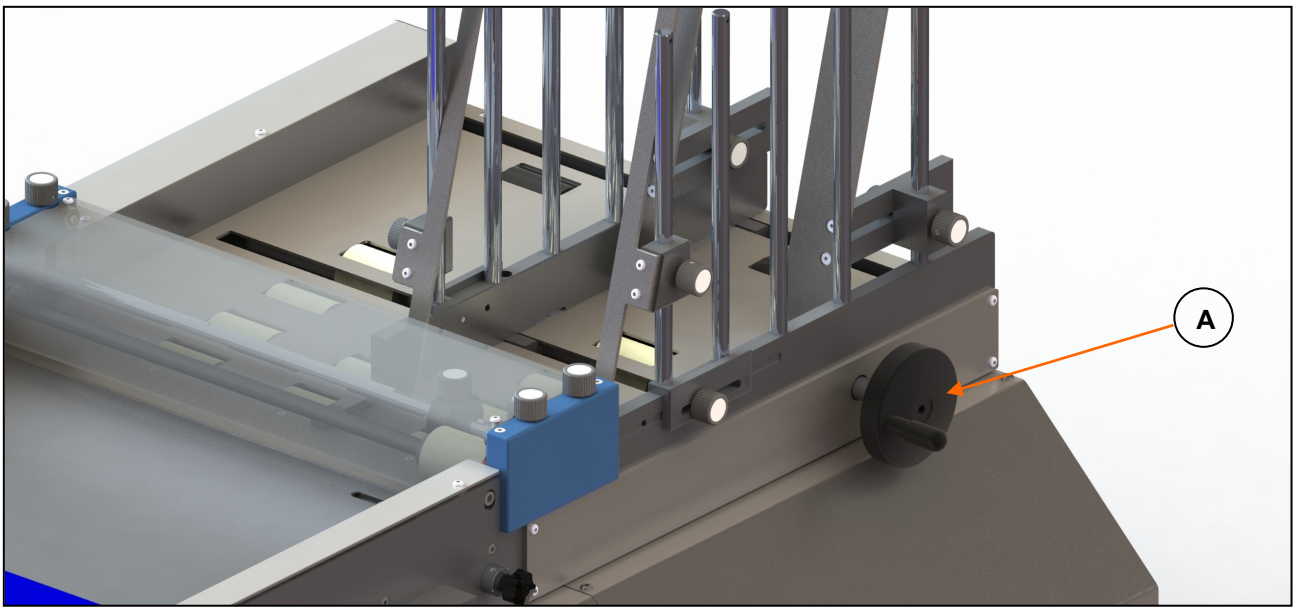


1. **Count display (red digits).** Shows the number of blanks that have been fed though the system since the counter was reset. Blanks are counted as they are fed from the hopper. This is independent of whether the batch count is set or not.
2. **Reset button.** Resets the count (1)
3. **Preset batch quantity.** Shows the target number of blanks to be fed through the system. When set to zero the count will be infinite. If a number is entered then feeding will stop when the count (1) reaches that number.
4. **UP (yellow lamp).** When this lit indicates the preset batch quantity (3) has been reached. The machine will be stopped and a 'Batch count reached' message shown on the text display. The counter must be reset (see 2) before printing can be resumed.
5. **Presetting buttons.** To set a batch quantity press one of the up/down buttons. The preset display (3) will flash and the buttons can then be used to set the desired number. The right hand pairs of buttons set units and tens (scrolling through 0 to 9). The left hand pairs set thousands and hundred thousands (scrolling through 0 to 99). When the desired number is displayed the MD button (6) must be pressed to store it.

6. **MD button.** Used to store the preset number in the counter once it has been entered.

- Blanks are counted as they pass the denest sensor. This enables the machine to finish feeding and to eject the final blanks when the batch count is reached.
- For feeding without batch counting set the preset count to zero.
- The machine will not run if the batch count has been reached.
- Accurate counting depends on good adjustment of the hopper to prevent overlapping of blanks as overlapping blanks may be counted as a single one.

ADJUSTMENT OF INFEED HOPPER



Orientation of Blank

To determine which orientation the blank should be in for feeding the following points should be considered.

- The location of the overprint. The feeder should be able to stop the blank in the correct position under the printer so that it can be printed in the required location.
- Ideally the blank should be orientated so that it feeds “narrow edge leading”. This helps the blank to feed squarely as it allows the longest possible edges for guiding.

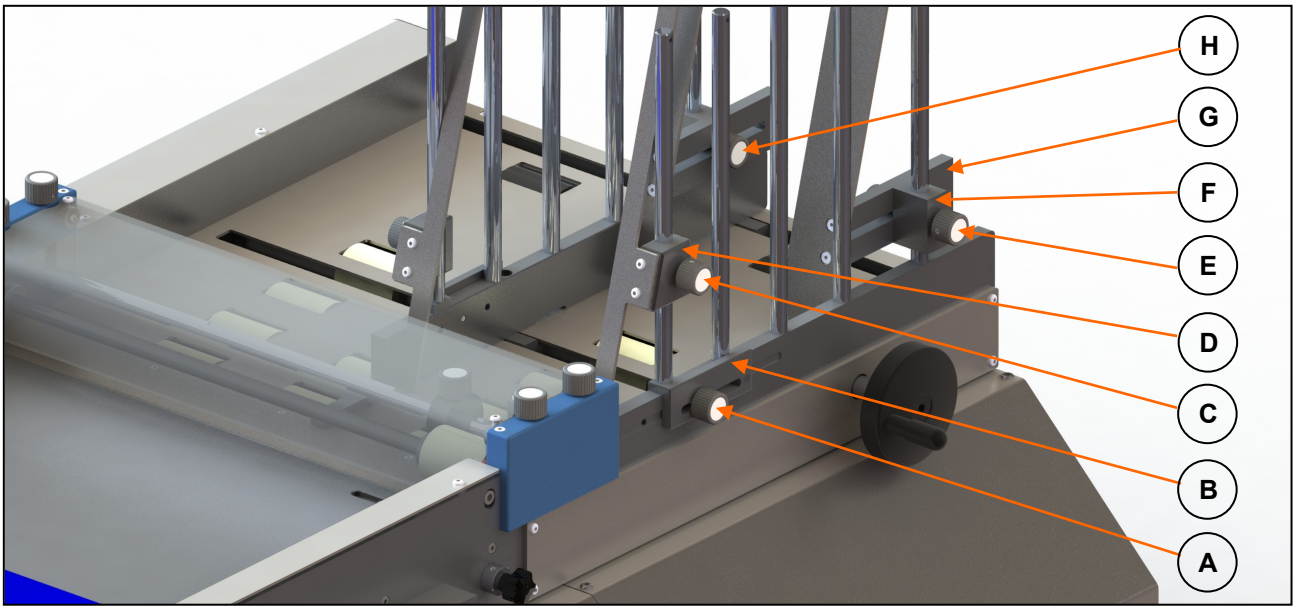
Infeed Hopper Guide Rail

The adjustable hopper guide rail should be adjusted to suit the width of the blank by turning the hopper guide rail adjuster (A).

Adjust the hopper guide rail to suit the width of the blank using the handle. The gap between the hopper guides and the blank should be as small as possible whilst allowing the blank to move freely.

Continued.

ADJUSTMENT OF THE INFEED (continued)



Front Carton Guide Assembly (x2)
A. Horizontal Lock
B. Horizontal Slide
C. Vertical Lock
D. Vertical Slide

Rear Carton Guide Assembly (x2)
E. Vertical Lock
F. Vertical Slide
G. Horizontal Slide
H. Horizontal Lock

Infeed Hopper Guides

The infeed hopper guides should be adjusted to support the stack of blanks and also to allow only a single blank to be dispensed from the bottom of the stack.

Once the feed orientation of the blank has been determined, place it on the bed of the infeed hopper between the guide rails. Undo the front carton guide horizontal locks (A) and slide the horizontal guide assemblies (B) along so that the two front carton guide bars are located on the corners of the leading edge of the blank.

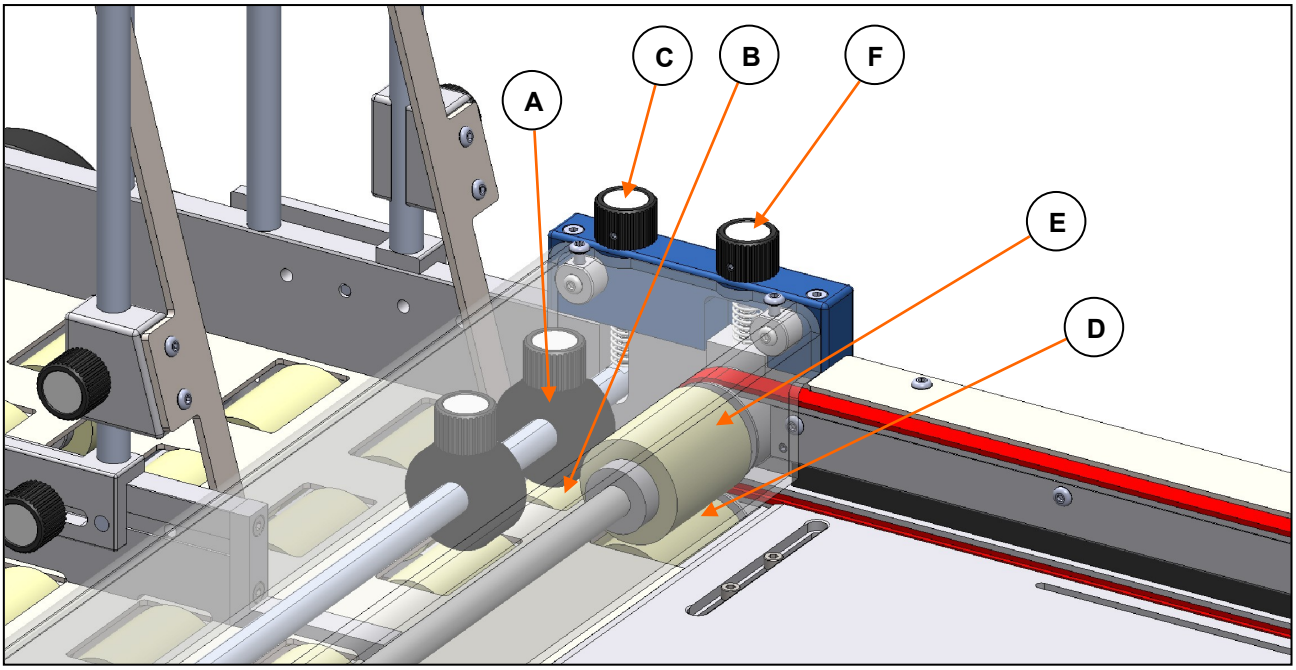
Undo the two front vertical slide locks (C) and adjust the vertical slides (D) vertically up or down so that only one blank can pass beneath them.

Undo the rear carton guide assembly locks (H) adjacent to the trailing edge of the blank and slide the guide assemblies (G) along so that the two rear carton guide bars are located on the corners of the trailing edge of the blank.

A stack of blanks can be loaded and should be able to move freely between the carton guide bars.

Note: The separation of blanks from the stack will be more efficient if at least one of the front carton guide bars is located immediately above the centre line of one of the rubber drive rollers.

ADJUSTMENT OF THE SEPARATION GATE



Positioning the Gate Wheel

The separation gate should be adjusted to allow only one blank to pass through.

The plastic gate wheel (A) should be positioned over the rubber gate roller (B). To do this it will be necessary to remove the clear acrylic cover. Once removed, loosen the lock in the gate wheel and slide the wheel along the gate wheel shaft so that the wheel is positioned above the rubber gate roller and as central as possible to the blank. Retighten the lock.

Once this has been done refit the acrylic cover.

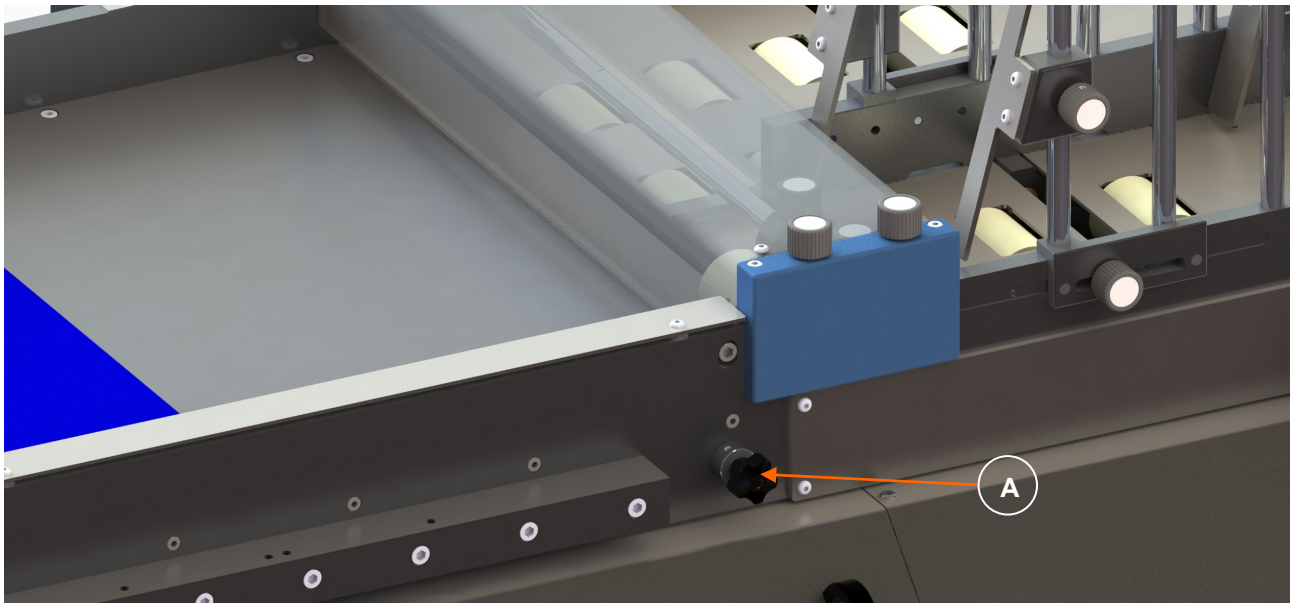
Setting the Gate Wheel

The gap between the gate wheel (A) and the gate roller (B) is set by turning the adjustment knobs (C) at either end of the shaft. To increase the gap turn the knobs in a clockwise direction and to reduce it, turn the knobs anti-clockwise. The gap should be set so that one blank can pass through but two cannot.

Setting the Infeed Gap for the Belts

The gap between the infeed rollers (D) and (E) is set by turning the adjustment knobs (F) at either end of the shaft. To increase the gap turn the knobs in a clockwise direction and to reduce it, turn the knobs anti-clockwise. The gap should be set so that the rollers can drive the blank in to the transport belts.

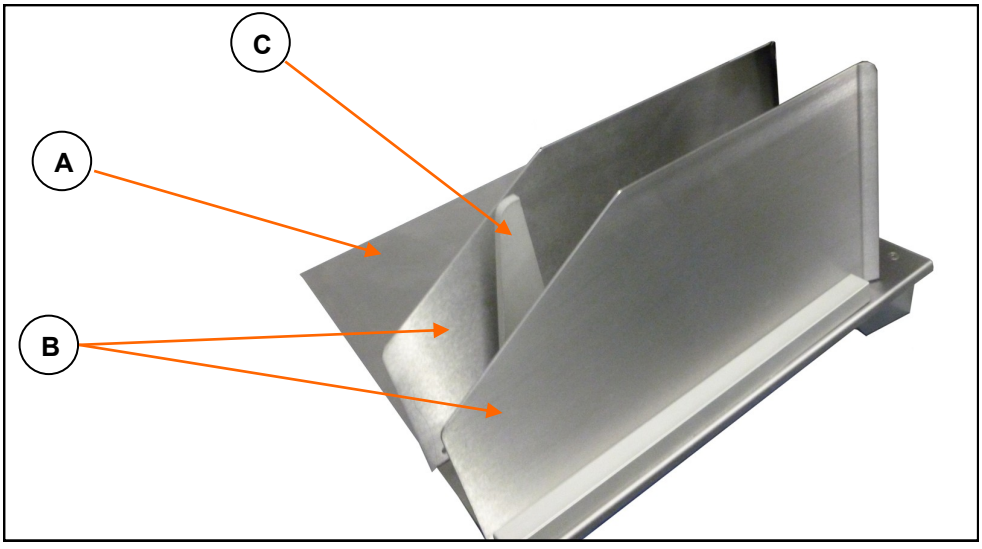
ADJUSTING THE PRODUCT SENSOR



Adjusting the product sensor will determine the stop position of the blank and therefore the position in which it is printed.

To adjust the product sensor turn the adjustment knob (A). Turn the knob in a clockwise direction to move the sensor to the right and in an anti-clockwise direction to move it to the left.

ADJUSTING THE PRODUCT CATCHER



The product catcher is made up of a base plate (A), two sides (B) and a back stop (C) with magnetic bases. Position the sides and back so that the processed blanks stack neatly.

SETTING UP THE MC-810 TO FEED BLANKS

1. Determine the correct orientation for the blank to feed.
2. Adjust the infeed hopper guide rail to suit the width of the blank.
3. Adjust the carton guides within the infeed hopper to suit the size, shape and thickness of the blank.
4. Adjust the separation gate to suit the thickness of the blanks.
5. Adjust the product sensor so that the print is correctly positioned along the length of the blank.
6. Adjust the printer within it's mounting frame so that the print is correctly positioned across the width of the blank.
7. Rotate the printer within it's mounting frame so that the print is orientated correctly.
8. Adjust the printer's settings for optimum print quality as detailed in it's operating manual.
9. Adjust the catcher so that blanks are neatly stacked.
10. Set the batch counter to the required quantity.
11. Press the F1 button to feed blanks and adjust the potentiometer to the required speed.

MC-810 MAINTENANCE & SPARE PARTS

Warnings

1. Follow all warnings and instructions marked on the product.
2. Always disconnect the unit from the mains electrical supply and the compressed air supply (if fitted) before attempting to carry out any maintenance on it.
3. Do not place this product on an unstable stand or table.
4. Use only the power cable supplied with the product. The cable supplied is three core, utilising one wire as a grounding conductor. This must be connected to a suitable earth point at the electrical supply. This is a safety feature. If any doubt arises in trying to connect the power cable, please contact the manufacturer or the agent who supplied the product.
5. Do not attempt to operate this product with any covers or guards removed or missing.
6. Refer all servicing and maintenance to qualified personnel. Opening or removing guards may expose dangerous voltages and other hazards.
7. Adjust only those controls covered by these instructions. Improper adjustment could result in permanent damage, requiring qualified technicians to restore the product to normal operating conditions.

Transport Belt Removal

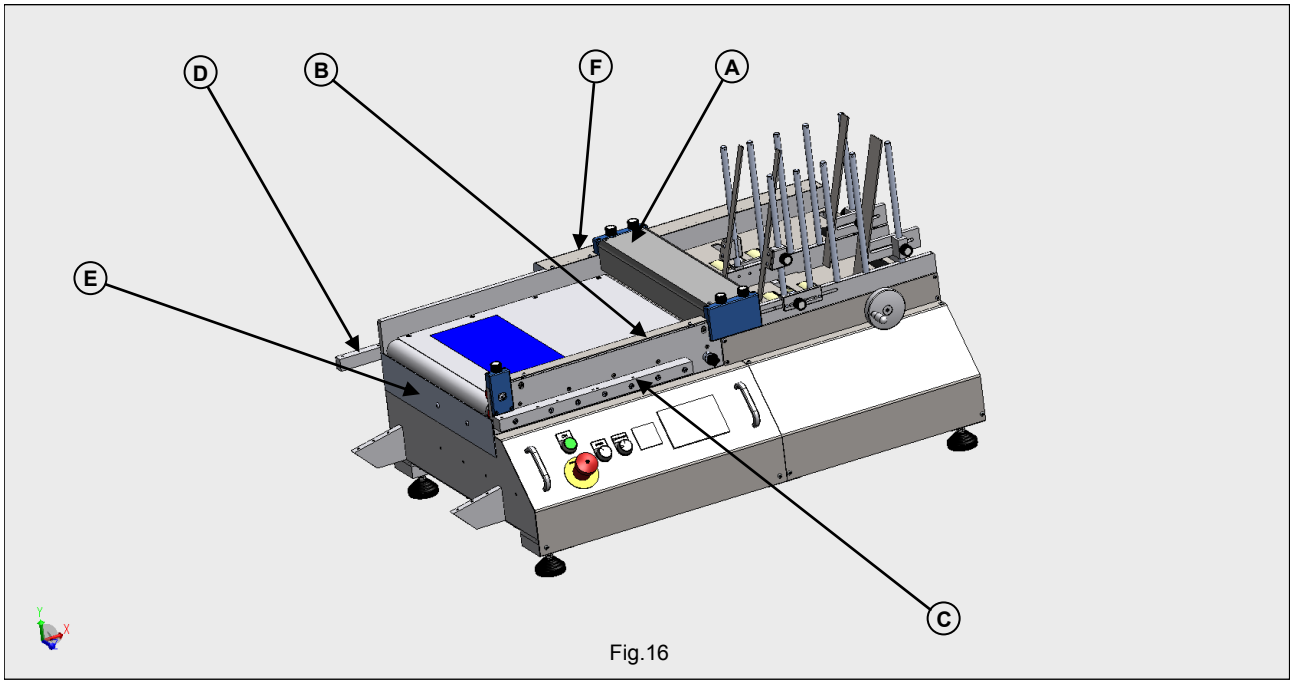


Fig.16

1. Disconnect the machine from the mains electricity supply and compressed air supply (if fitted).
2. If fitted, remove the printer from the printer mounting frame.
3. Remove the printer mounting frame (4 screws).
4. Remove the clear acrylic roller guard (A) (4 screws).
5. Remove the top guard (B) (2 screws) Note - take care not to lose the two small spacers that are underneath the top guard.
6. Remove the front mounting rail (C) (7 screws).
7. Remove the rear mounting rail (D) (6 screws).
8. Remove the end guard (E) (3 screws).
9. Remove the left hand rear cover (F) (6 screws).

Transport Belt Removal (2)

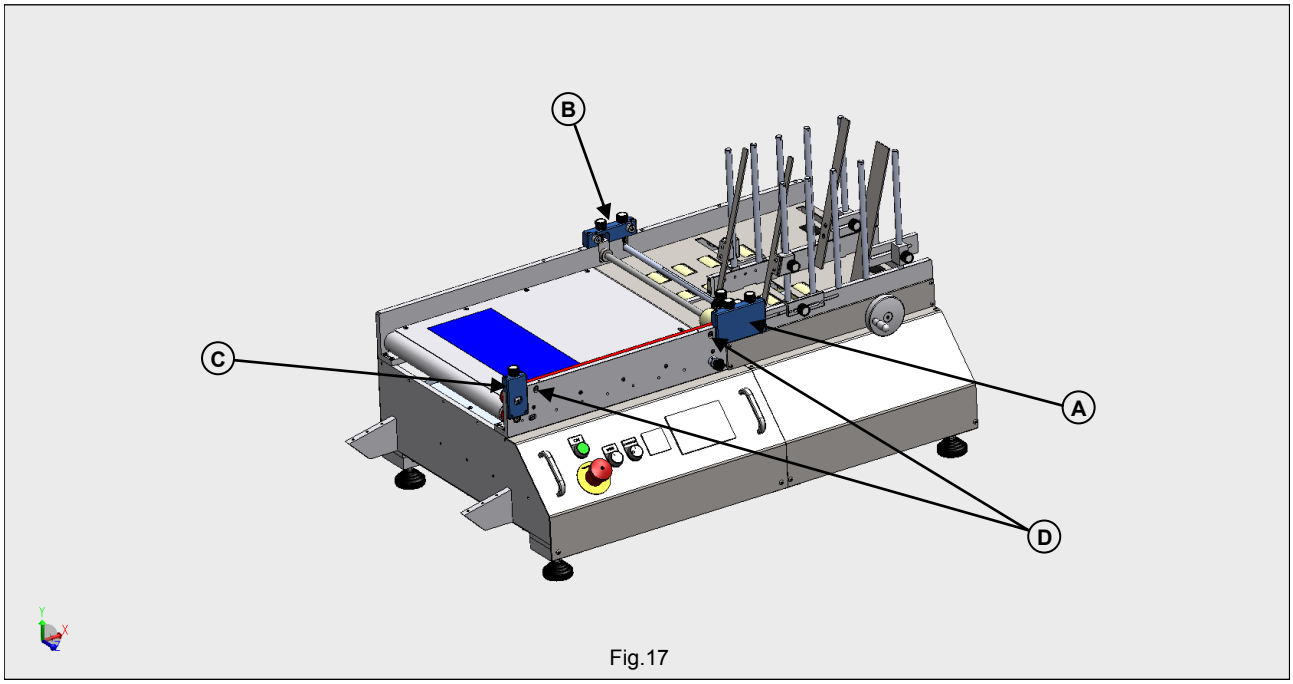


Fig.17

1. Fully unscrew the two adjustment knobs in the front and rear right adjusting block assemblies (A, B & C) and remove them taking care not to lose the washers that are under them.
2. Remove the two screws from the front right adjusting block (A) and remove the block taking care not to lose the two springs that are behind it.
3. Remove the two screws from the rear adjusting block (B) and remove the block taking care not to lose the two springs that are behind it.
4. Remove the four screws from the front left adjusting block (C) and remove the block taking care not to lose the spring that is behind it.
5. Remove the two brush bar screws (D) and then the pressure brush itself from within the top transport belt.

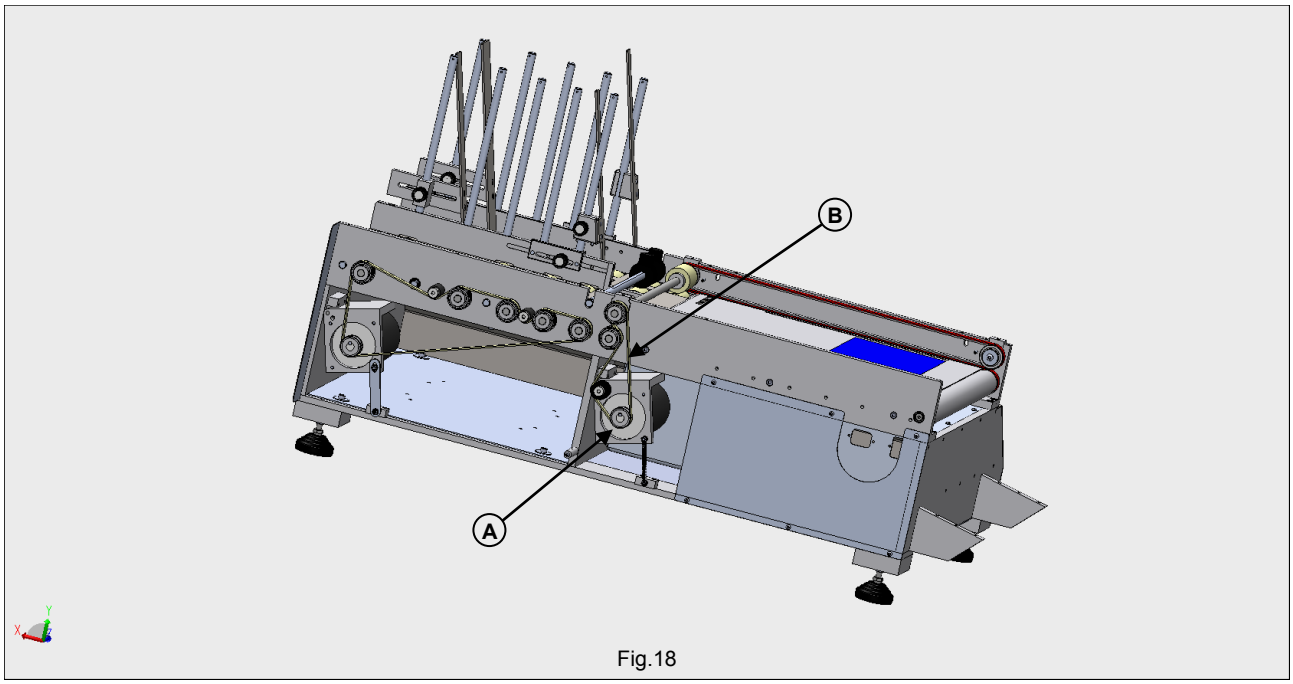


Fig.18

1. Lift stepper motor (A) upwards to slacken the timing belt (B).
2. Remove the timing belt (B)

Transport Belt Removal (3)

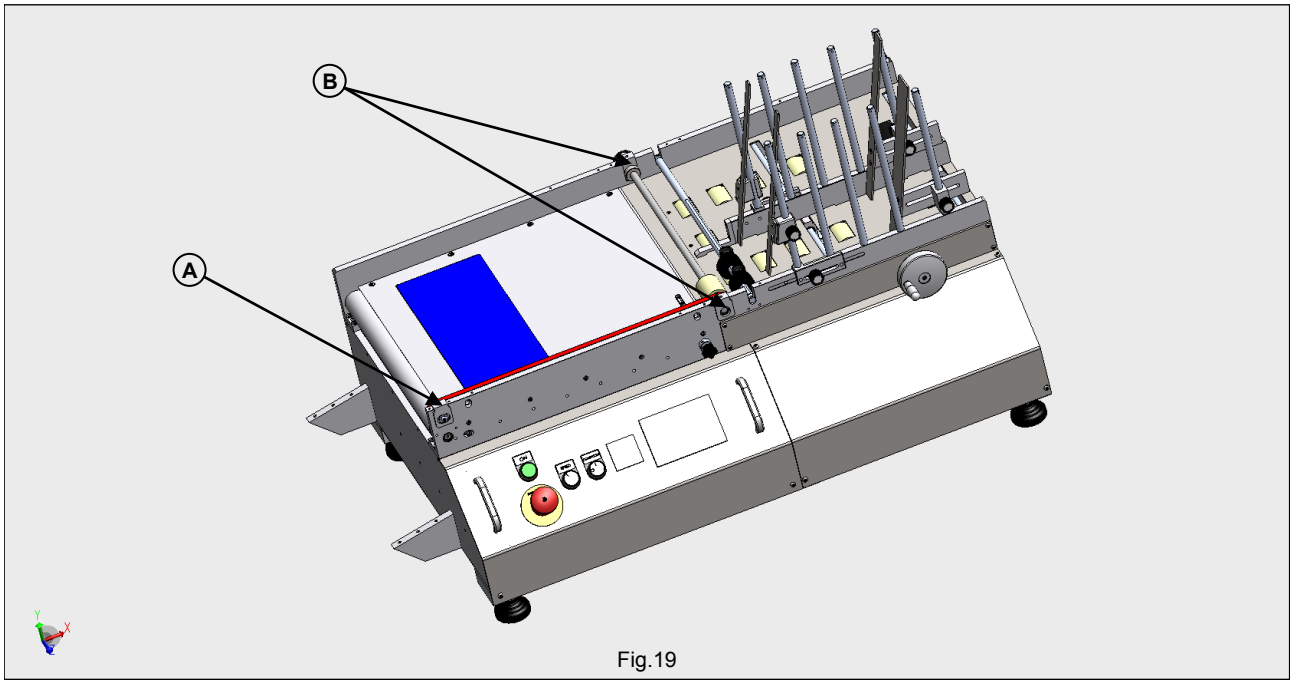


Fig.19

1. Slide upwards and remove the left hand adjusting block assembly (A). Remove the top transport belt from around the timing pulley.
2. Lift both front and rear adjusting blocks (B), remove the transport belt.

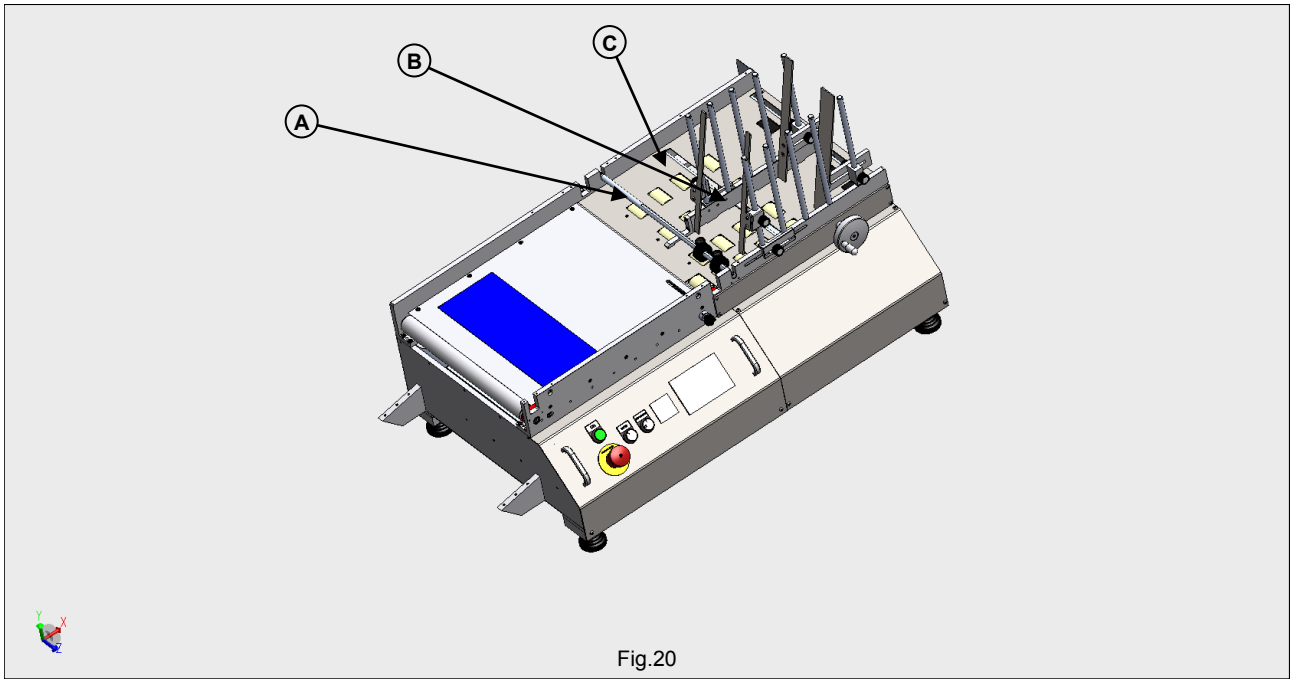


Fig.20

1. Lift out the gate rod (A) with the gate roller(s).
2. Remove the rear carton guide assembly (B) (2 screws).
3. Remove the grid plate (C) (6 screws).

Transport Belt Removal (4)

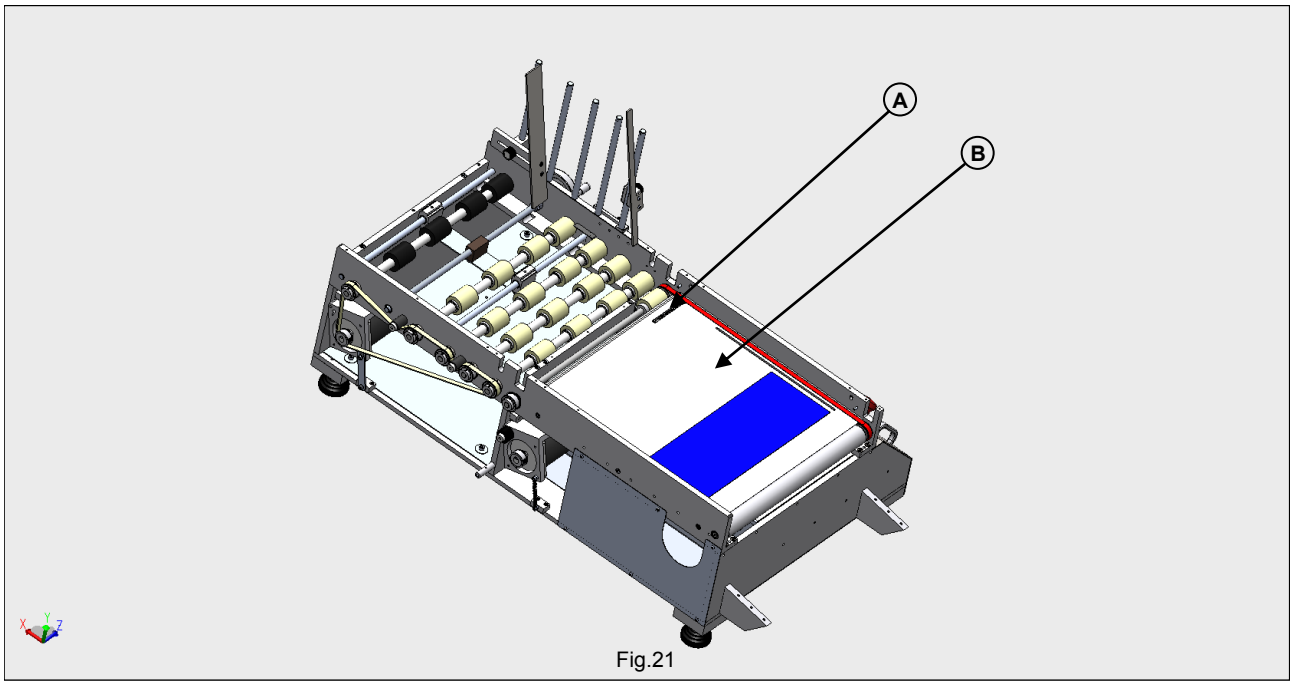


Fig.21

1. Remove the 2 screws holding the infeed sensor (A).
2. Remove the print base plate (B) (9 screws).

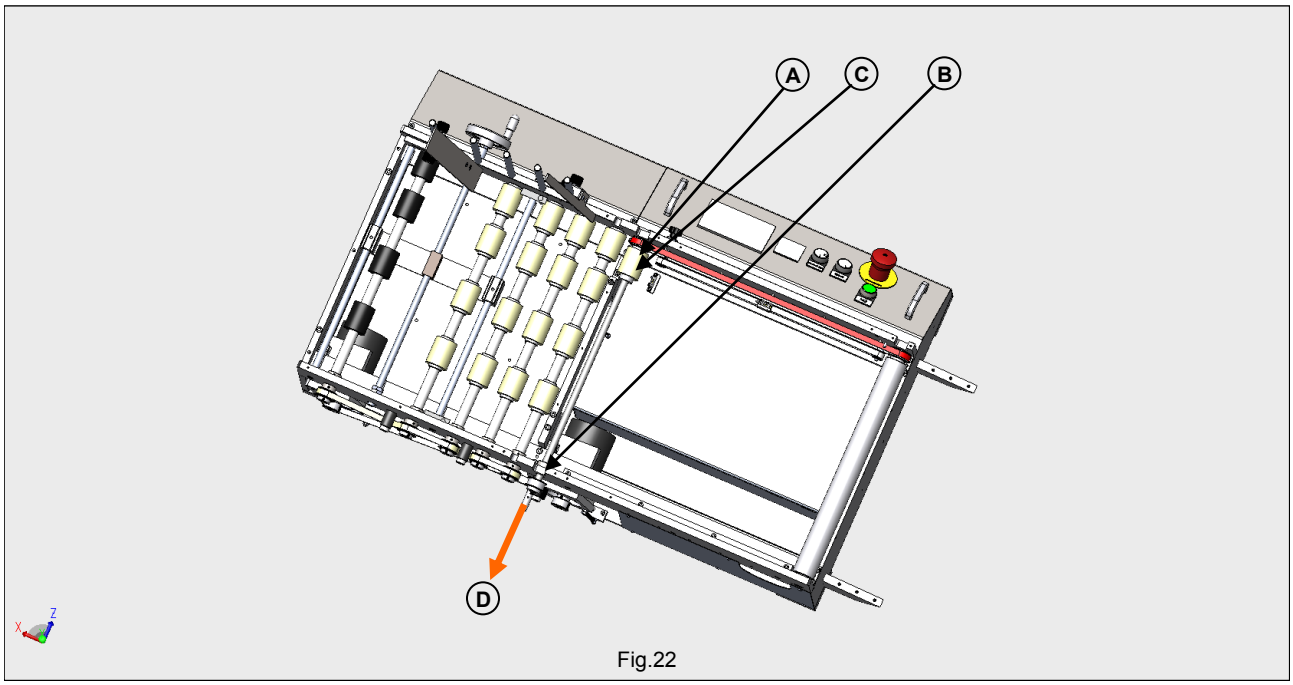


Fig.22

1. Undo, but do not remove the grub screw in timing pulley (A).
2. Undo, but do not remove the grub screw in rubber drive roller (B).
3. Undo, but do not remove the grub screw in locking collar (C).
4. Pull the lower drive shaft in the direction of arrow C just far enough so that the timing pulley (A) can be removed.

Transport Belt Removal (5)

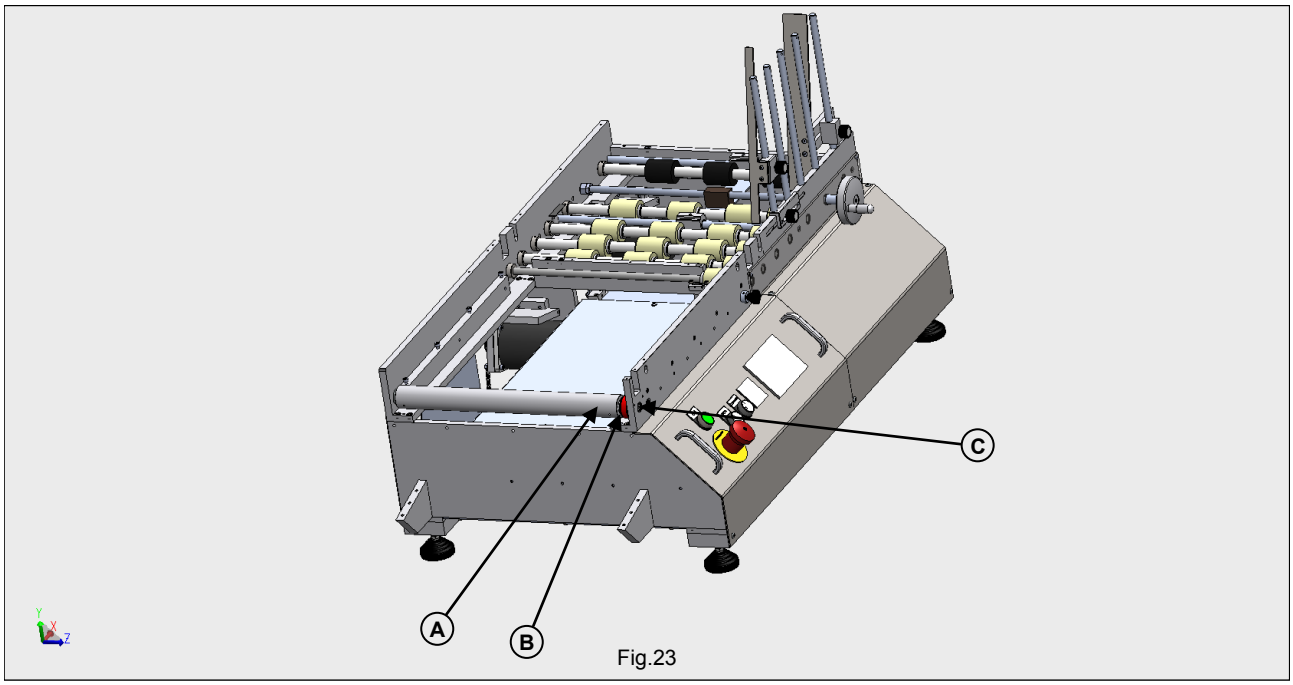


Fig.23

1. Loosen but do not remove the grub screws in roller A and timing pulley B.
2. Screw an M5 screw into the hole in the end of stub shaft C and then using the screw, pull the stub shaft out so that the timing pulley is free.
3. Remove the lower transport belt.

Refitting Transport Belts

Refer to previous pages.

Fig. 23

1. With the new transport belt around it, position timing pulley (B) between roller (A) and the machine side plate.
2. Having first noted the orientation of the flats on stub shaft (C), slide it through the bearing in the machine side plate, through the timing pulley and into the end of the roller.
3. Tighten the grub screws in the timing pulley and the roller whilst ensuring that they are tightened on to the flats on the stub shaft.

Fig. 22

1. With the new transport belt around it, position timing pulley (A) between rubber roller (C) and the machine side plate having first noted the orientation of the flats on the lower drive shaft.
2. Slide the lower drive shaft through timing pulley (A) and into the machine side plate.
3. Tighten the grub screws in the timing pulley (A), drive roller (C) and locking collar (B) ensuring that they are all tightened on to the flats on the lower drive shaft.
4. Ensure that the shaft rotates freely.

Fig. 21

1. Refit the print base plate (B) ensuring that the product sensor assembly is properly located within the sensor slot. Fasten using 9 screws.
2. Fit the infeed sensor (A). It ill be necessary to open the electronics drawer in order to gain access to position the sensor correctly within the it's slot. Fasten using 2 screws.

Fig. 20

1. Refit the grid plate (C) and fasten using 6 screws.
2. Refit the carton guide assembly (B) using 2 screws. Wind the guide assembly fully across the machine to ensure that it move freely. Adjust if necessary.
3. Locate the gate rod (A) into the relevant slots.

Fig. 19

1. With the new top transport belt around the timing pulley, fit the left adjusting block (A) into it's slot in the side plate.
2. With the new top transport belt around the timing pulley, fit the front and rear adjusting blocks (B) and shaft with drive roller into their slots in the front and rear side plate.

Fig. 18

1. Lift stepper motor (A) upwards and refit timing belt (B).

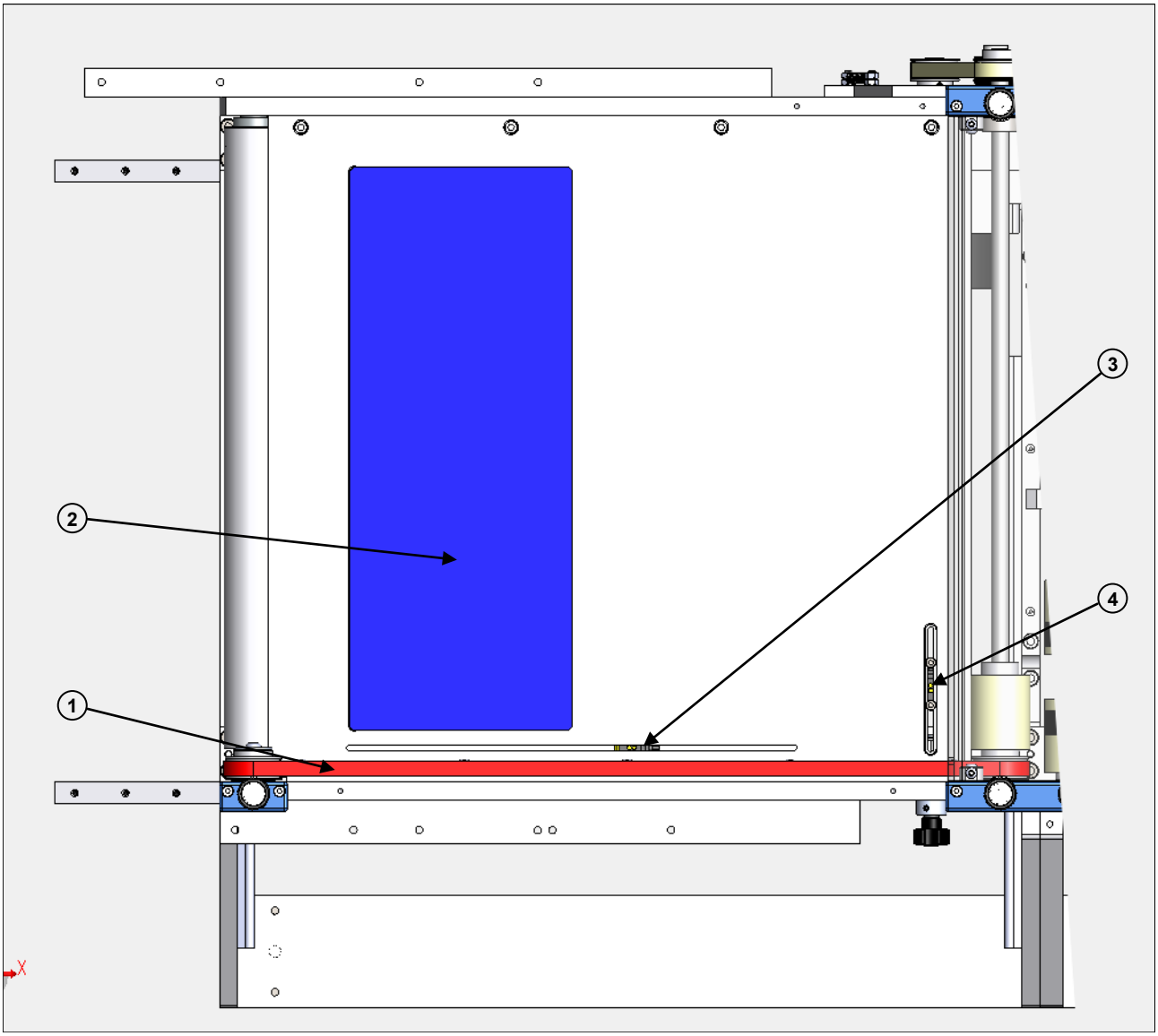
Fig. 17

1. Refit the brush bar and loosely fit 2 screws (D). Adjust the brush bar pressure to ensure that products are gripped tightly between the belts and tighten the screws (D).
2. Fit an adjustment screw with nylon washer into the hole in the top of front left adjustment block (C). Place a pressure spring over the adjusting screw.
3. Position this assembly over the left hand adjusting block assembly (item A, fig. 19) and screw the adjustment screw into the adjustment block. Fasten the adjustment block (C) using 4 screws.
4. Fit two adjustment screws with nylon washer into the holes in the top of rear adjustment block (B). Place pressure springs over the adjusting screws.
5. Position this assembly over the rear adjusting block assembly (item B, fig. 19) and screw the adjustment screws into the adjustment block and gate shaft (item A, fig. 20). Fasten the adjustment block (B) using 2 screws.
6. Repeat items 4 and 5 for the front adjustment block (A).
7. Ensure that the gate shaft (item A, fig. 20) and the drive roller shaft move freely up and down when the adjustment screws are turned. Adjust as necessary if not.

Fig. 16

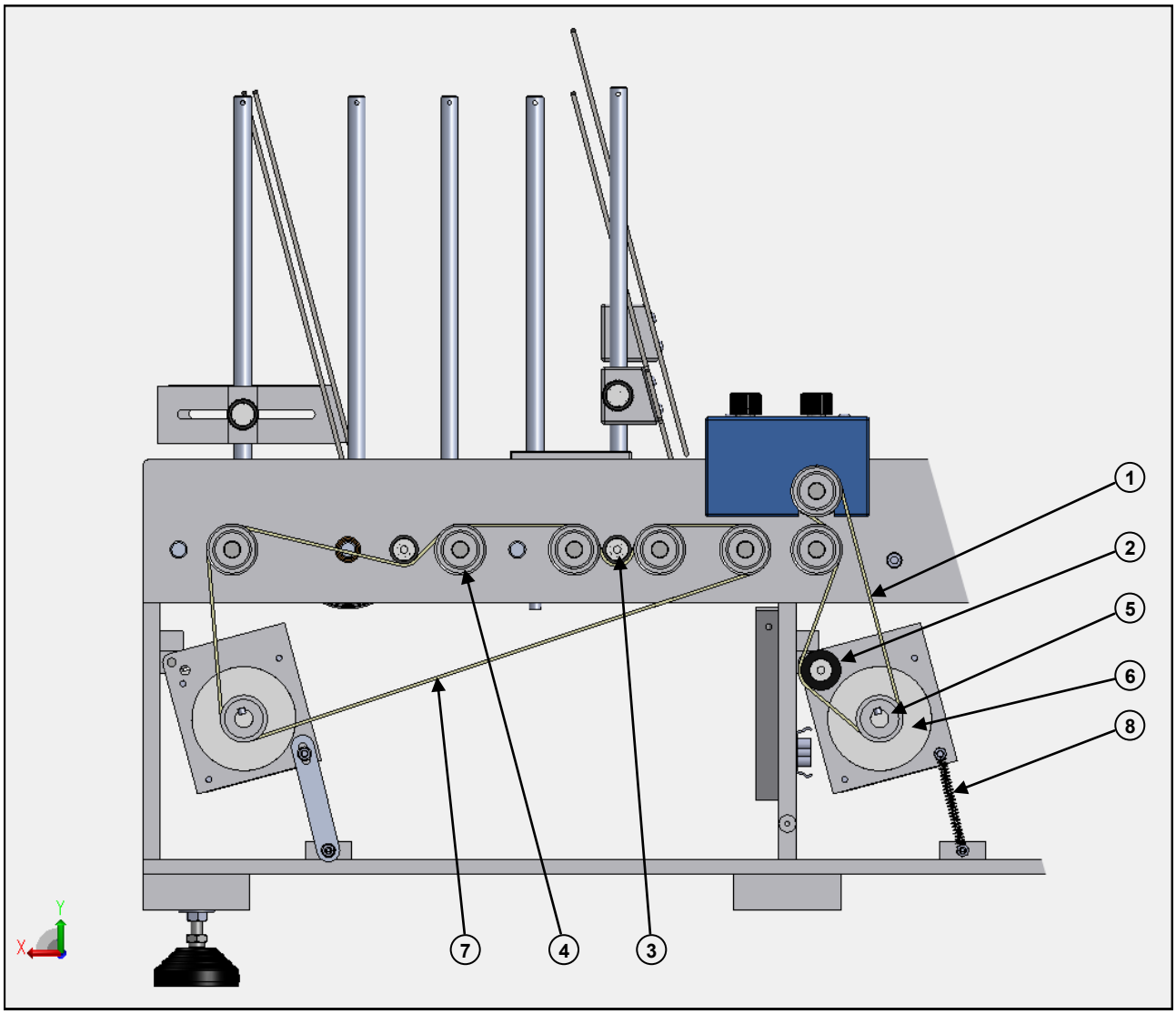
1. Refit the left hand rear cover (F) (6 screws), the end guard (E) (3 screws), the rear mounting rail (D) (6 screws), the front mounting rail (C) (7 screws).
2. Refit the top guard (B) (2 screws) with the two small spacers between it and the machine rail.
3. Refit the clear acrylic roller guard (A) (4 screws), the printer mounting frame (4 screws) and the printer.

MC810 Parts - Top Elevation - Infeed (guards & covers removed)



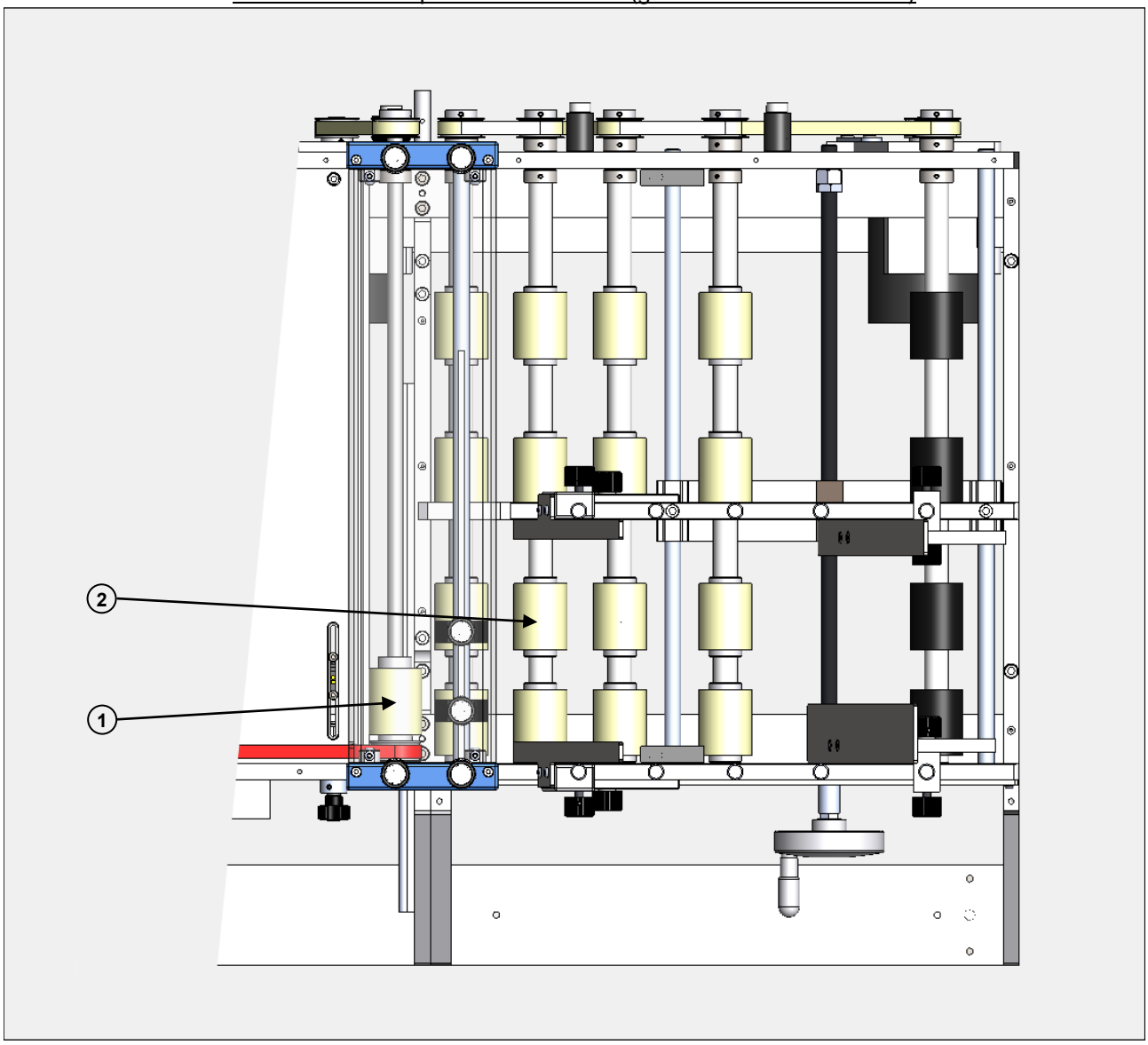
Item	Part Number	Description	Quantity	
1	BEL640304	Transport Belt	2	
2	PAD640321	Print Pad	1	
3	PHO505617	Product Detector	1	
4	PHO505617	Infeed Detector	1	

MC810 Parts - Real Elevation - Infeed (guards & covers removed)



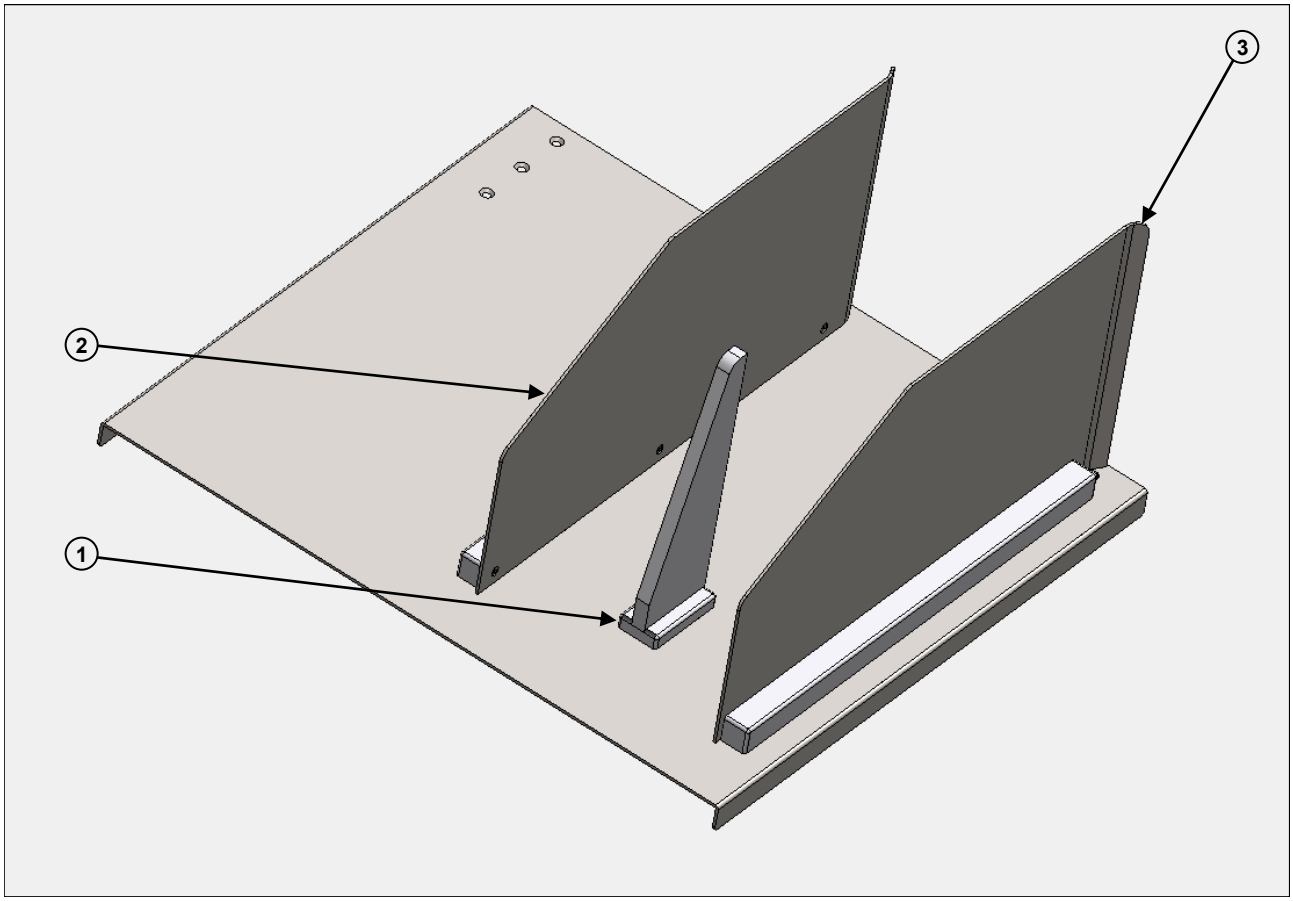
Item	Part Number	Description	Quantity	
1	BEL640301	Timing Belt	1	
2	IDL640413	Belt Idler Assy	1	
3	IDL640427	Belt Idler Assy	2	
4	PUL640306	Timing Pulley	7	
5	PUL640305	Timing Pulley	2	
6	MOT503203	Stepper Motor	2	
7	BEL640300	Timing Belt	1	
8	SPR530008	Tension Spring	1	

MC810 Parts - Top Elevation - Infeed (guards & covers removed)



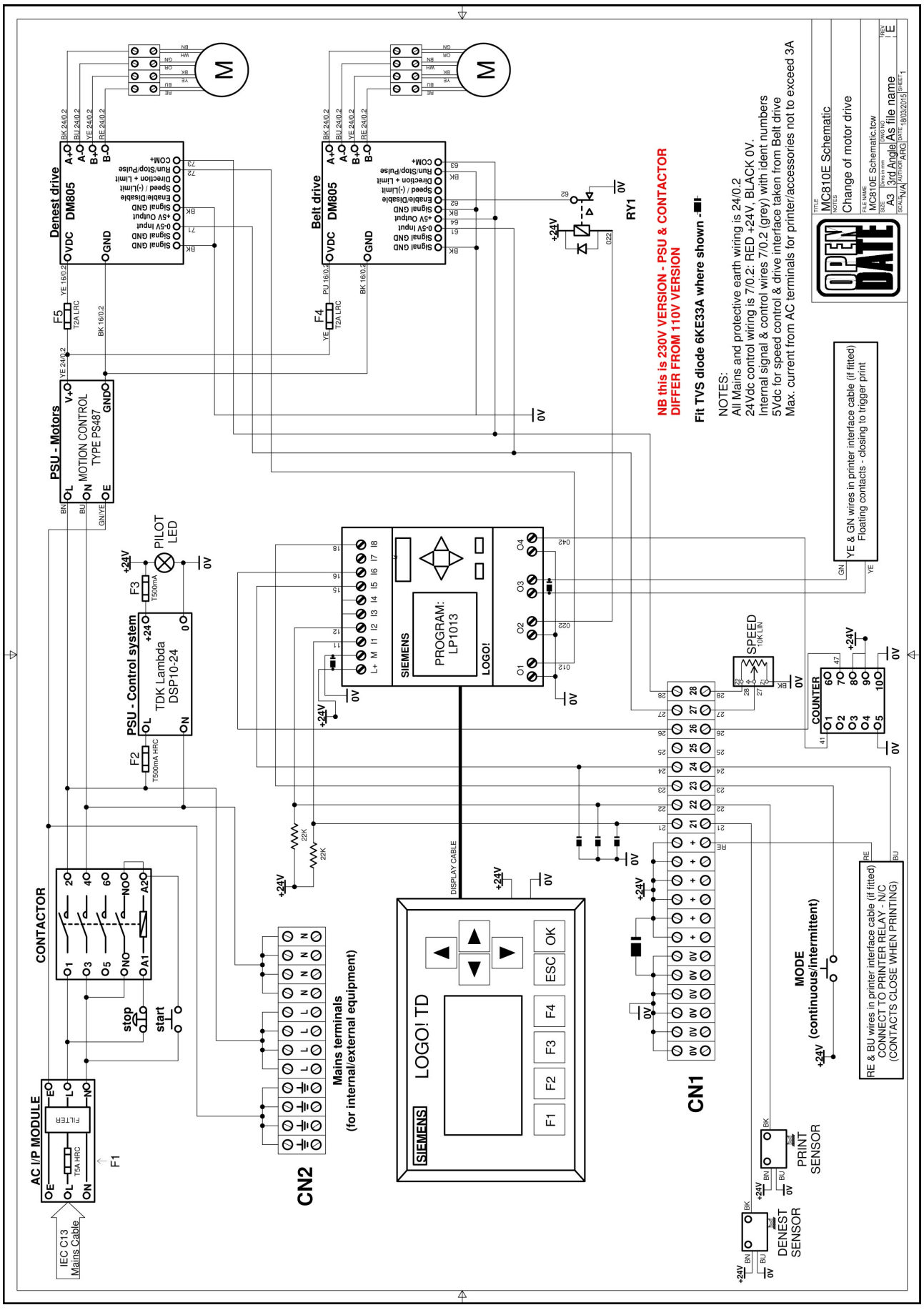
Item	Part Number	Description	Quantity	
1	ROL640423	Drive Roller	2	
2	ROL640421	Denest Drive Roller Assy	16	

MC810 Parts - Product Catcher



Item	Part Number	Description	Quantity	
1	STO640481	End Stop Assy	1	
2	GUI640482	L/H Side Plate Assy	1	
3	GUI640483	R/H Side Plate Assy	1	

MC-810E SCHEMATIC



Items Shown on MC-810 Schematic				
Item	Part Number	Description	Quantity	
F1	FUS503519	Fuse, T, 5A, 5 x 20mm	1	
F2 & F3	FUS503517	Fuse, F, 0.5A, 5 x 20mm	1 each	
F4 & F5	FUS503518	Fuse, T, 2A, 5 x 20mm	1 each	
Belt Drive	DRI503202	Belt Motor Drive	1	
Denest Drive	DRI503202	Denest Motor Drive	1	
PSU - Motors	POW640803	Power Supply	1	
PSU - Control System	POW640804	DIN Rail Power Supply	1	
Denest Sensor	SEN640806	Denest Sensor	1	
Print Sensor	SEN640806	Print Sensor	1	
Counter	COU504509	6 DIGIT DIGITAL COUNTER	1	
Siemens PLC	PLC640801	PLC	1	
PLC Interface	DIS640805	PLC Interface	1	
Other Items				
	MOT503203	Belt Drive Motor	1	
	MOT503203	Denest Motor	1	

Version History			
Version	Date	Page	Change
3	13/12/16	All	Rewritten
4	08/05/17	25	Version history added.
4	08/05/17	24	SEN640806 was PHO505617.