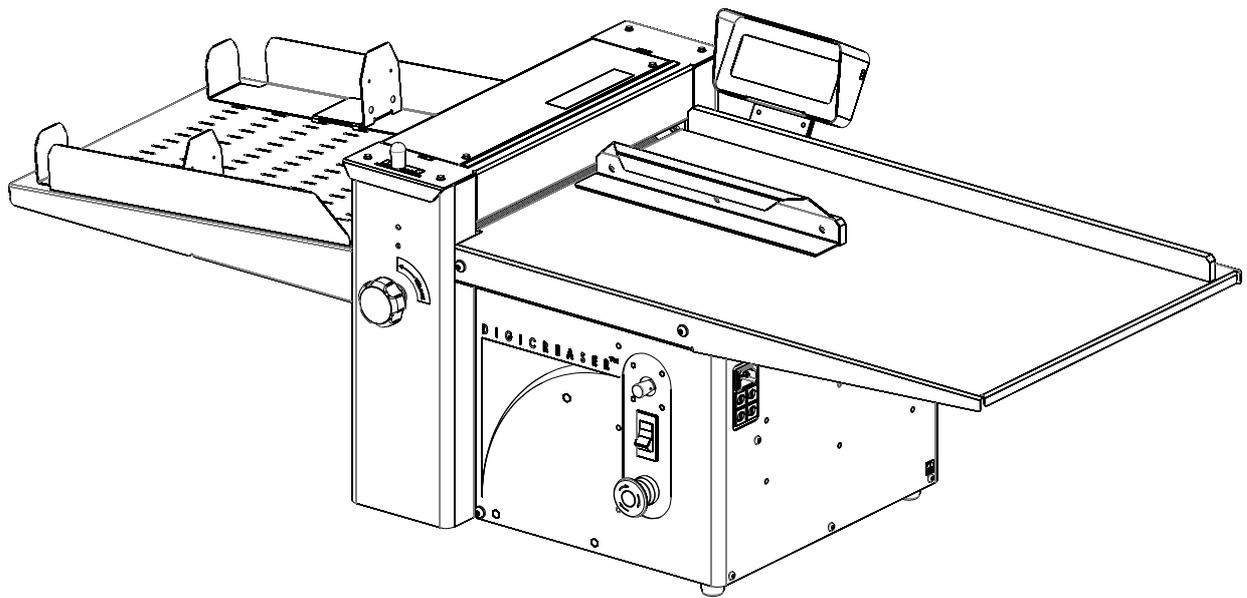


Morgana DigiCreaser



HAND FED DOCUMENT CREASING MACHINE *SERVICE MANUAL*

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MORGANA DigiCreaser

i Introduction

The purpose of this manual is to explain the procedure for dismantling and re-assembly of the major assemblies on the Morgana DigiCreaser.

All the engineering adjustments are shown at the end of each relevant section.

Operator's adjustments and routine maintenance are explained in the appropriate operators guide which should always be used in conjunction with this manual.

It is always a good idea to have a copy of the machines illustrated parts manual available when servicing, as its illustrations provide an invaluable reference to the construction of the individual assemblies used to build the machine.

ii Fasteners

All threaded fasteners are isometric & all nuts are isometric hexagon. All screws are hardened high tensile steel.

Cap head, Button head, Socket countersunk, Shoulder bolts and Grubscrews have internal hexagon drives which require isometric hexagon wrenches (allen keys). Ball drivers may be used, but care should be taken—particularly when releasing screws for dismantling—to avoid breaking the driver as they cannot cope with full tightening torques.

NOTE Do not substitute fasteners with low grade alternatives which may fail or become irremovable.

Pan head and Cross-head countersunk screws all have metric Taptite threads and Pozi-drive recesses. Use No.2 point Pozidriv or Supadriv drivers for all screws M4 & above, and No.1 point drivers for M3 & below.

WARNING

WORK SHOULD BE CARRIED OUT BY A TRAINED AND COMPETENT ENGINEER AND ALL SAFETY PROCEDURES SHOULD BE ADHERED TO.

SWITH OFF MAINS POWER BEFORE COMMENCING

DO NOT USE PHILLIPS DRIVERS - THESE WILL DAMAGE THE SCREWS & MAY SLIP, CAUSING DAMAGE OR INJURY.

iii Identification

For general identification of areas of the machines, the following terms are used:-

Operator side (control panel facing)

Rear of machine (opposite to control panel)

Delivery end (to the left of the operator side)

Feeder end (on your right)

iv New Machine Preparation

Remove all packaging materials

All metal parts, including the folding rollers have a protective coating and any excess should be removed.

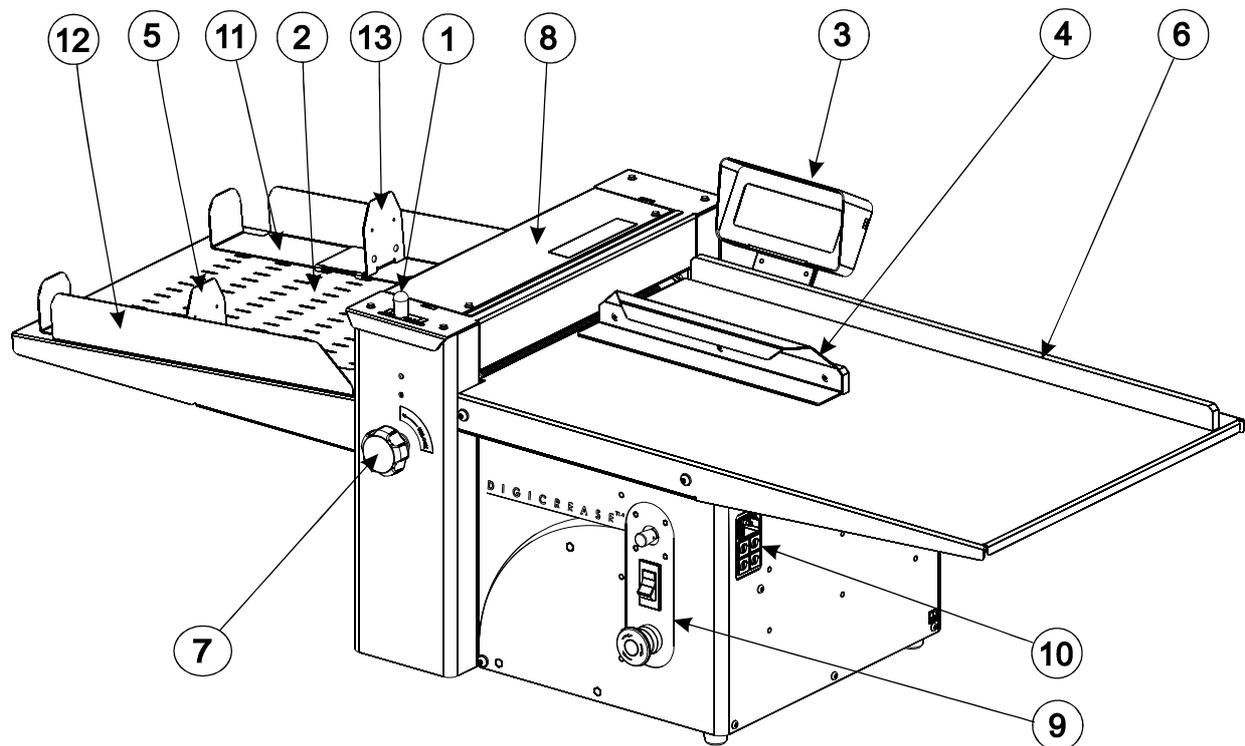
Connect the power cable to the mains supply. The machine requires 230V 50Hz 10 Amps or 115 60Hz 15 Amps.



HAND FED DOCUMENT CREASING MACHINE

Key to photograph below

- | | | | | | |
|---|---------------------|---|------------------|----|------------------|
| 1 | Roller tilt handle | 5 | Back stop RH | 9 | Control Panel |
| 2 | Stacker assembly | 6 | Fixed side lay | 10 | Fuses |
| 3 | The display unit | 7 | Roller tilt knob | 11 | Stacker Guide LH |
| 4 | Adjustable side lay | 8 | Exit Guard | 12 | Stacker Guide RH |
| | | | | 13 | Back Stop LH |



SECTION 1

1.1 The Feed Table.

To remove the feed table first remove the four M6 button head screws and washers. The feed table can now be slid off after removing the display unit .

1.2 The Frame Assembly.

To remove the frame assembly first remove the three M4 screws along the bottom edge of the frame under the mains input connector.

Remove the two M6 screws, nuts and washers at the bottom of the frame, at the back and front of the machine next to the creaser mechanism.

Remove the two pillars at the top of the frame, at the back and front of the machine next to the creaser mechanism.

Unplug all the connectors from the PCBs and disconnect the wires.

The frame assembly can now be carefully removed.

1.3 The Creaser Mechanism Cover.

The creaser mechanism is situated towards the delivery end of the machine and is covered by a fixed and a hinged guard.

To remove these guards just remove the four screws (M4 x 8 long) beneath the infeed guard. Pull off the rubber handle from the tilt lever, the infeed guard can now be lifted upwards and removed.

SECTION 2

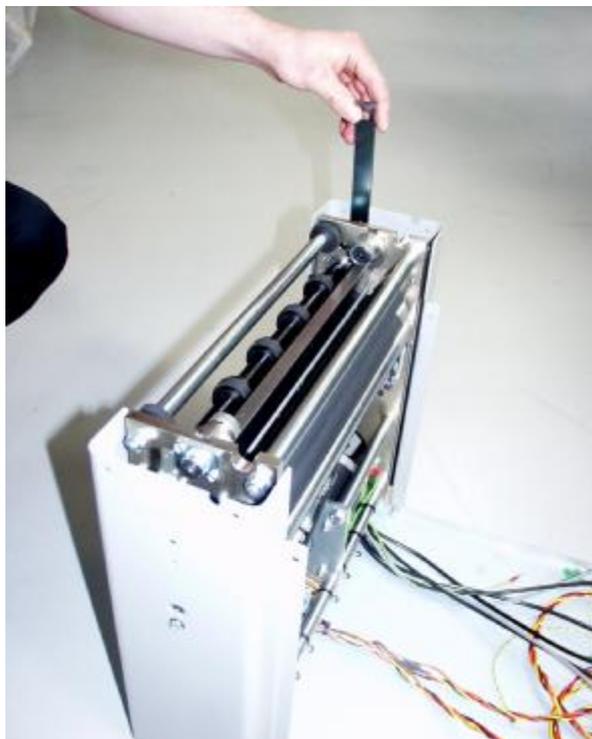
MAIN CREASER MECHANISM

REMOVAL OF UNIT

- 2.1 First access should be gained by removing the top infeed and outfeed guards
(See Section 1)
- 2.2 Remove the feed table and display unit.
- 2.3 Detach guard micro switch by removing two screws, taking care not to drop them.
- 2.4 Cut and remove cable ties from cable mounting, retaining wiring loom.
Ensure that the mains is unplugged.
- 2.5 From the rear of the machine, remove two button socket screws with their washers.
- 2.6 Remove the 'unlock' knob from the front of the machine.
- 2.7 The unit can be lifted by two people vertically out of the frame with care.
One person should be guiding the wiring and plugs to ensure they do not get trapped during the lifting.



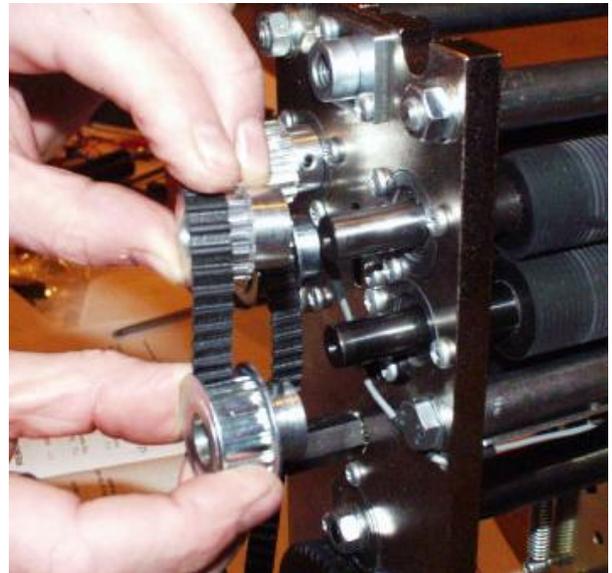
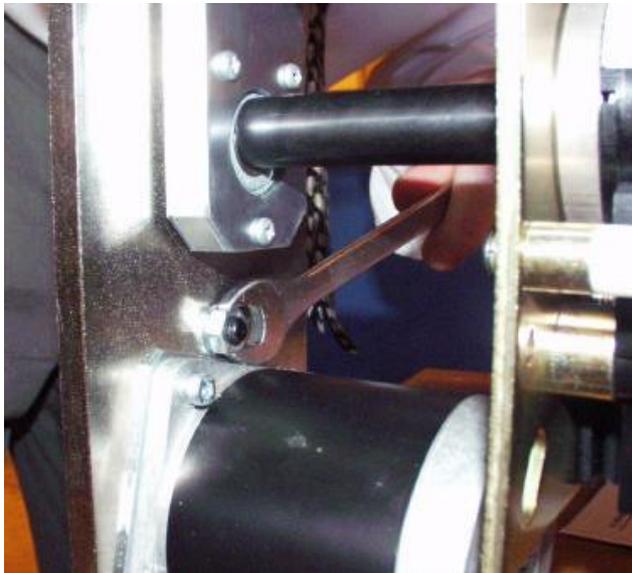
- 2.8 Place the unit on a solid and clear bench ensuring no wires are trapped beneath the metal side plates.
- 2.9 Replace the unit ensuring the wiring harness is threaded as it was removed
- 2.10 Fit the tilt lever to the inside front frame with the bottom button head and screw in tilt knob.
- 2.11 Slide rear spacer bar down in position (see below). Fix the bottom screw in and align the top screw and fit loosely. Replace cable ties to mountings. Align the roller set square with the fixed lay edge while the front tilt lever is in the centre position. (Use the rear slots to adjust square) Tighten the screws and replace the top covers.



SECTION 3

REMOVAL/REPLACEMENT STEPPER DRIVE BELT/ PULLEYS

- 3.1 Loosen the adjuster nut from the inside unit and slide the belt off.
- 3.2 Loosen the securing socket set screws in the drive pulley on the roller for it to be removed (**NOTE** there is one screw located in a hole in the shaft)
- 3.3 Refitting the belt is a reverse procedure. To tighten the belt, first adjust the drive motor down to allow 'feel' of belt tightness; then re-adjust the motor / gear mesh to allow minimum backlash.



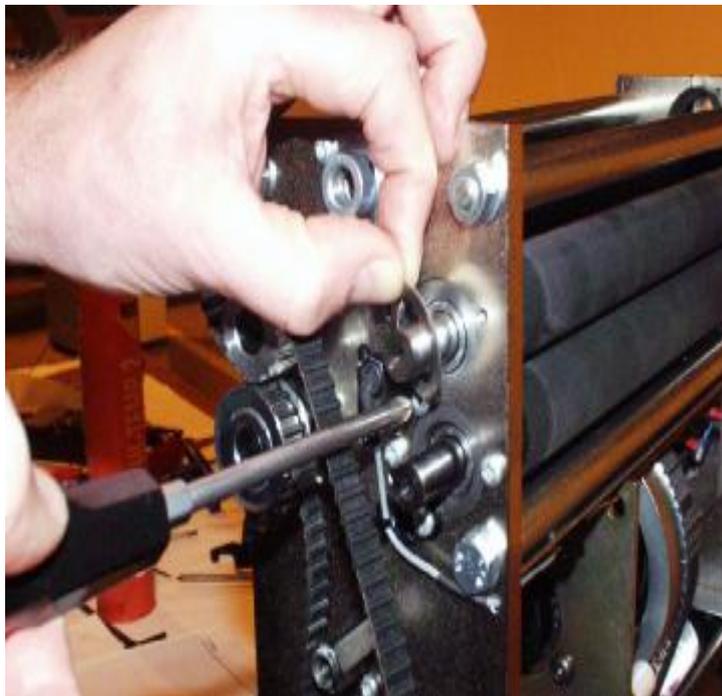
SECTION 4

REMOVAL / REPLACEMENT OF INFEEED ROLLER.

- 4.1 With the unit on a bench.
- 4.2 Remove the drive belt and pulley from the roller to be removed.
(See section 3)

WORKING ON THE DRIVE BELT SIDE:

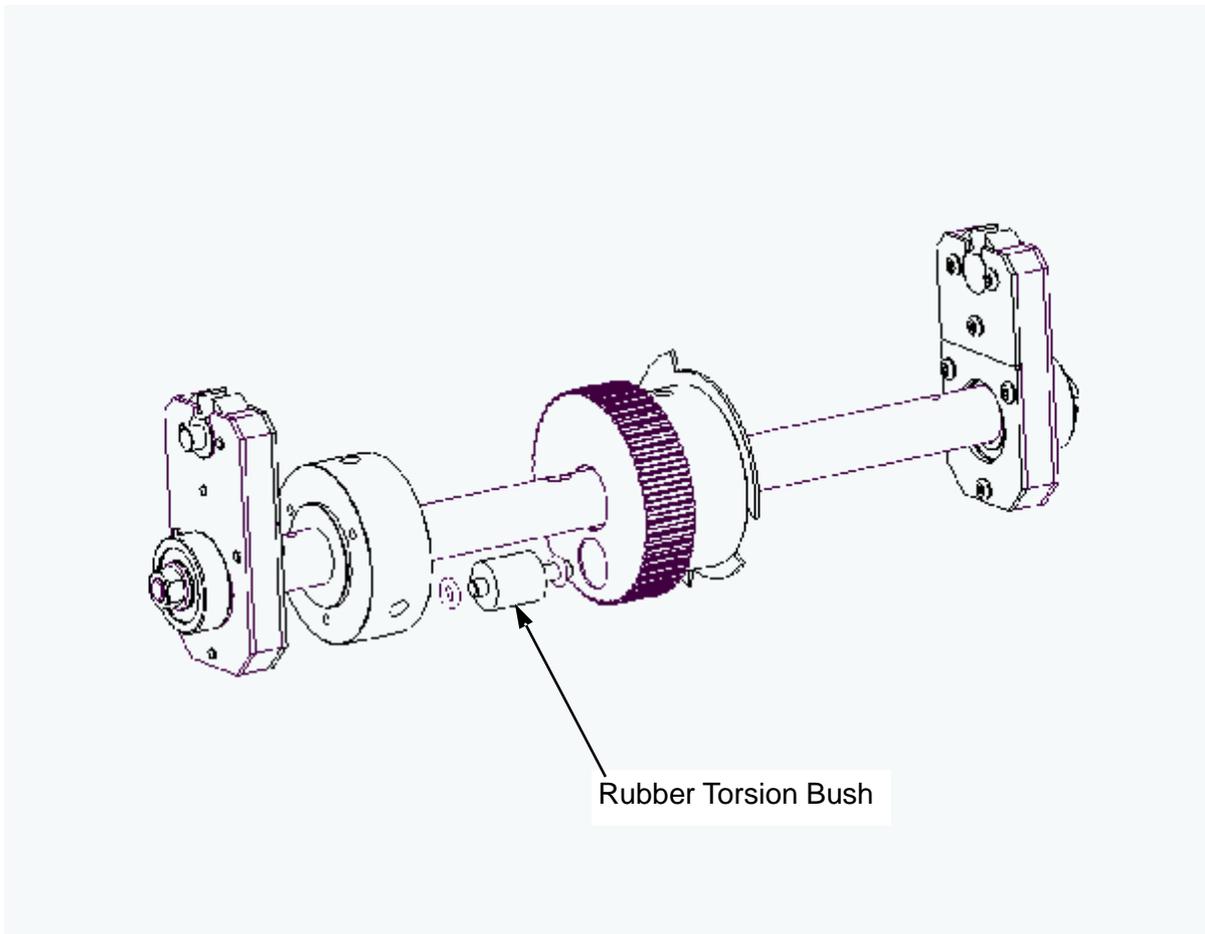
- 4.3 Remove the three M4 posi-head taptite screws from around the bearing hole in the side plate (Drive belt side) to allow easy access to the bearing retaining rings. Remove the rings.
- 4.4 Slide the roller out and remove the bearing from the shaft drive belt side.
The roller can be turned sideways to allow removal.
Note the position of the spring washers.
- 4.5 Replace the roller in the reverse manner.



SECTION 5

DRIVE HUB:- REPLACE RUBBER TORSION BUSH (SHOCK ABSORBER).

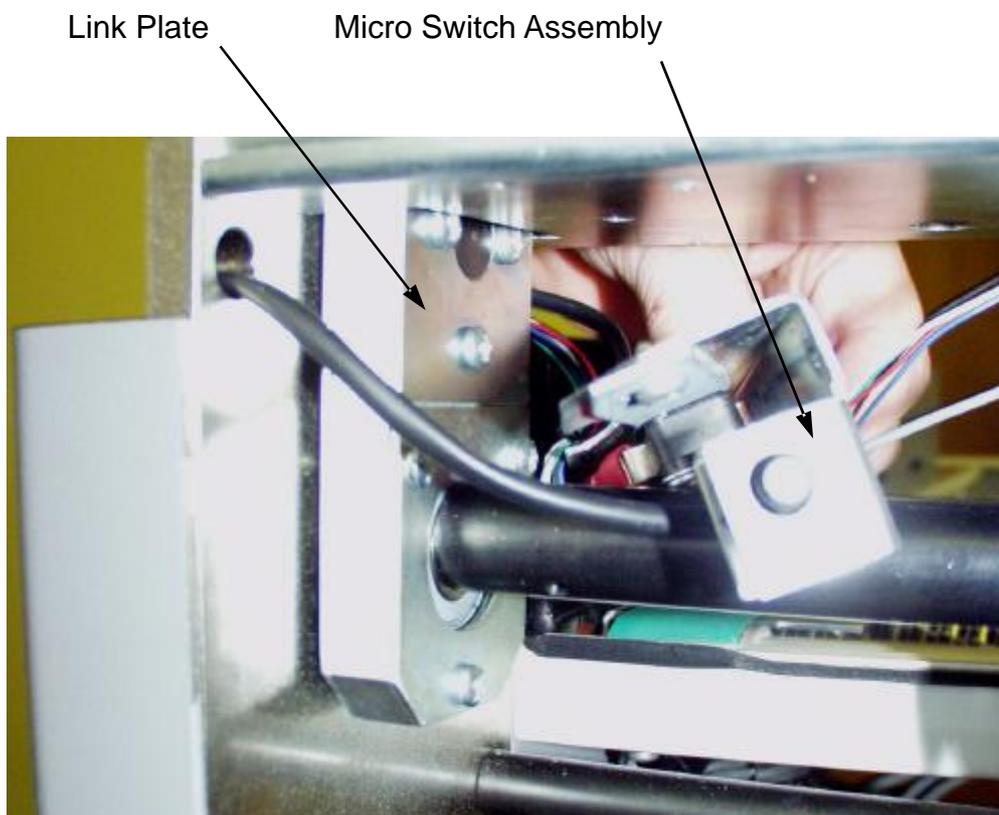
- 5.1 Loosen grub screws in one half of hub.
- 5.2 Slide hub outward & remove rubber torsion bush.
- 5.3 Replace in reverse order.



SECTION 6

DRIVE LINK REFURBISHMENT

- 6.1 Remove the drip tray by removing the four securing screws fixed to the tie bars.
- 6.2 Remove both tie bars and drip tray.
- 6.3 Remove the micro switch assembly to gain access to the rear drive link.
- 6.4 Using a short dumpy posi drive screwdriver, unscrew the three screws from the side of the link plate. Slide the side off ('O' Rings should be maintained in position). The plastic drive link can be removed by sliding it forward.
- 6.5 Replace the drive link and outer plate.
- 6.6 Re-assemble in reverse order.



SECTION 7

ELECTRICS: REMOVAL / REFITTING PCB / POWER SUPPLY ASSEMBLY

All the Electric controls and pcbs are located within the frame.

Disconnect the mains.

Remove the feed table and display unit.

Unplug all plugs from the PCBs and disconnect wires.

The total electronics assembly can be removed from the machine by unscrewing the four fixings on the frame. (two screws at the bottom and two spacers at the top).

POWER SUPPLY ASSEMBLY- Two Large PSU

The two large PSU's are located, mounted on a plate fitted within the frame, to remove these Follow the steps below.

Using a 4mm socket with extension bar, remove the six nuts from the studs and lift clear of the m/c. Removal of individual PSU is by removal of two countersunk screws in the rear of the plate.

Replace the units using the same screws, as damage will occur if longer screws are used.

POWER SUPPLY- Small PSU 5/24V dc

First remove the PSU assembly as above, this will give you access to the four posi pan head screws fixing the unit to the inside of the frame.

BOARD REPLACEMENT. STEPPER DRIVE PCB

The Stepper Driver board supplies the power to both Blade motor and main Drive motor and can be removed whilst located on the machine.

Switch the mains power off.

Cut cable ties and unplug the four green plugs.

Take note of the two spade terminals on each board and remove.

Unscrew the five fixing screws attaching the board to the frame and remove from the machine.

Refitting is a reverse procedure to the above.

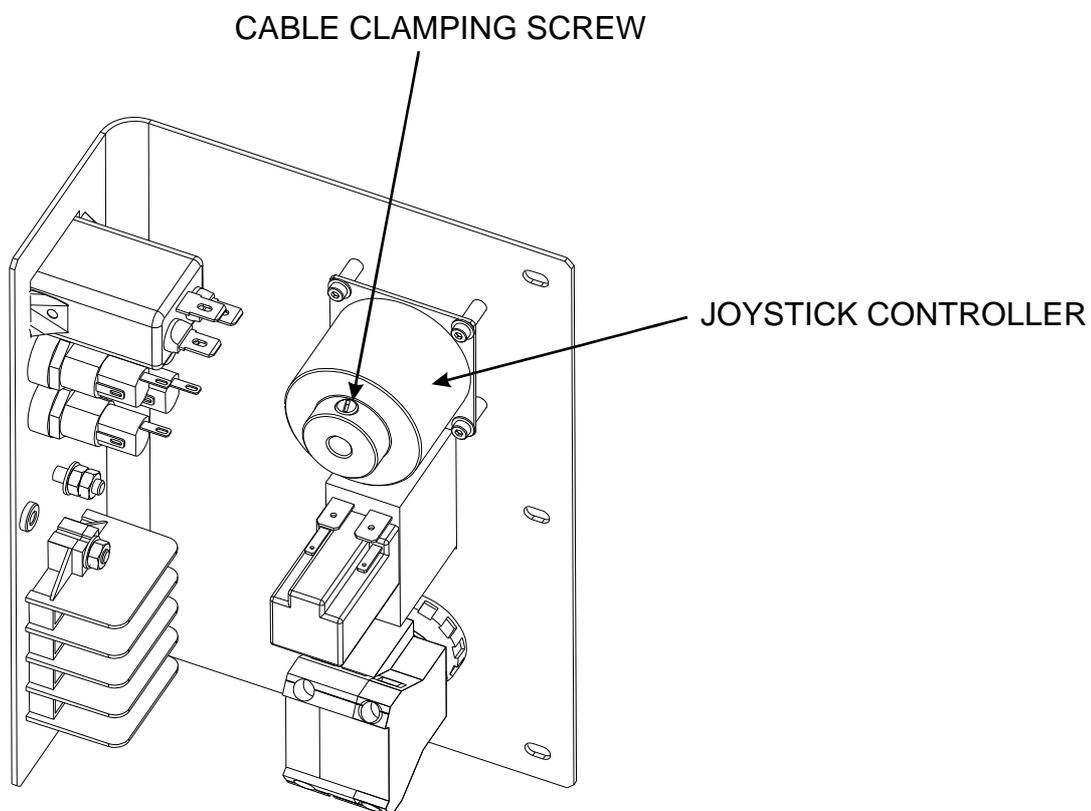
IMPORTANT:-

Check that the switch positions on SW1, SW2, SW3, and SW4 are correct, see wiring diagram.

Replacing the Joystick Controller

Located on the leg, this switch is an assembly made up of four micro switches and an encoder which are generally very reliable once installed. Should it require replacing follow the procedure below.

1. Remove the feed table and display unit, giving access to the yellow leg, the PCBs and the power supplies.
2. The switch is fitted to the leg with four M2.5 socket head screws, one on each corner, which can only be accessed from the inside of the frame. Undo the four screws and unplug the 5 way and 3 way green plugs from the main control board located at the rear of the machine.
3. Remove the switch and lead taking note of the route taken by the cable and the relevant cable tie positions.
4. Refitting is generally the reverse procedure but note, the cable clamping screw on the body of the joystick must be at the top as shown below.
5. Fix the cable using the same path and fixing points and plug the 5 way and 3 way green connectors into the p.c.b.



DIAGNOSTICS.

To set total counter to zero.

Turn the Machine on.

Insert the Engineers Plug into the Socket located at the rear of the machine.

Select Tools on the Display and scroll down the screen until 'M/C TotalX10' and a numeric value is between the Arrows. (Take note of this figure)

Operate the Joystick to reset count to zero.

Lift the joystick up until the start screen appears.

NOTE. This also removes all stored programmes, including the 'Lead Edge Trim' and 'Stretch' settings.

SET THE MEASUREMENT SYSTEM (METRIC / IMPERIAL SETTINGS).

To set the measurement system for Imperial (Inch) or Metric (mm) the following procedure is necessary.

Turn the machine on.

Insert the Engineers Plug into the Socket located at the rear of the machine.

Select Tools on the Display and scroll down the screen until 'METRIC or IMPERIAL' is displayed.

Operate the Joystick to change the selection.

Lift the joystick up until the start screen appears.

SET THE LANGUAGE (ENGLISH, FRENCH, GERMAN)

To set the language.

Turn the machine on.

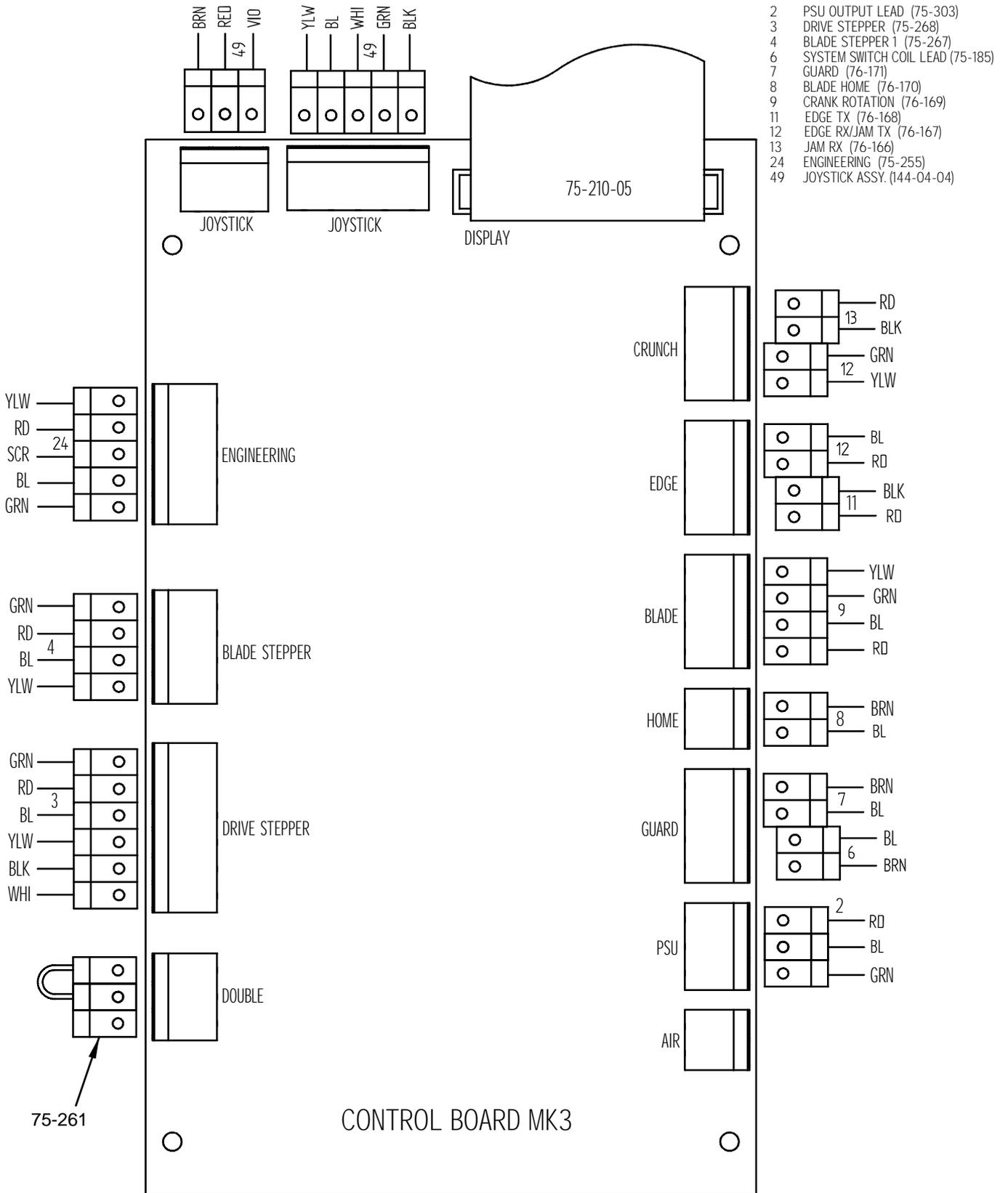
Insert the Engineers Plug into the Socket located at the rear of the machine.

Select 'Tools' on the Display and scroll down the screen until 'English', 'Francais', or 'Deutsch' is displayed.

Operate the joystick to change to the required language.

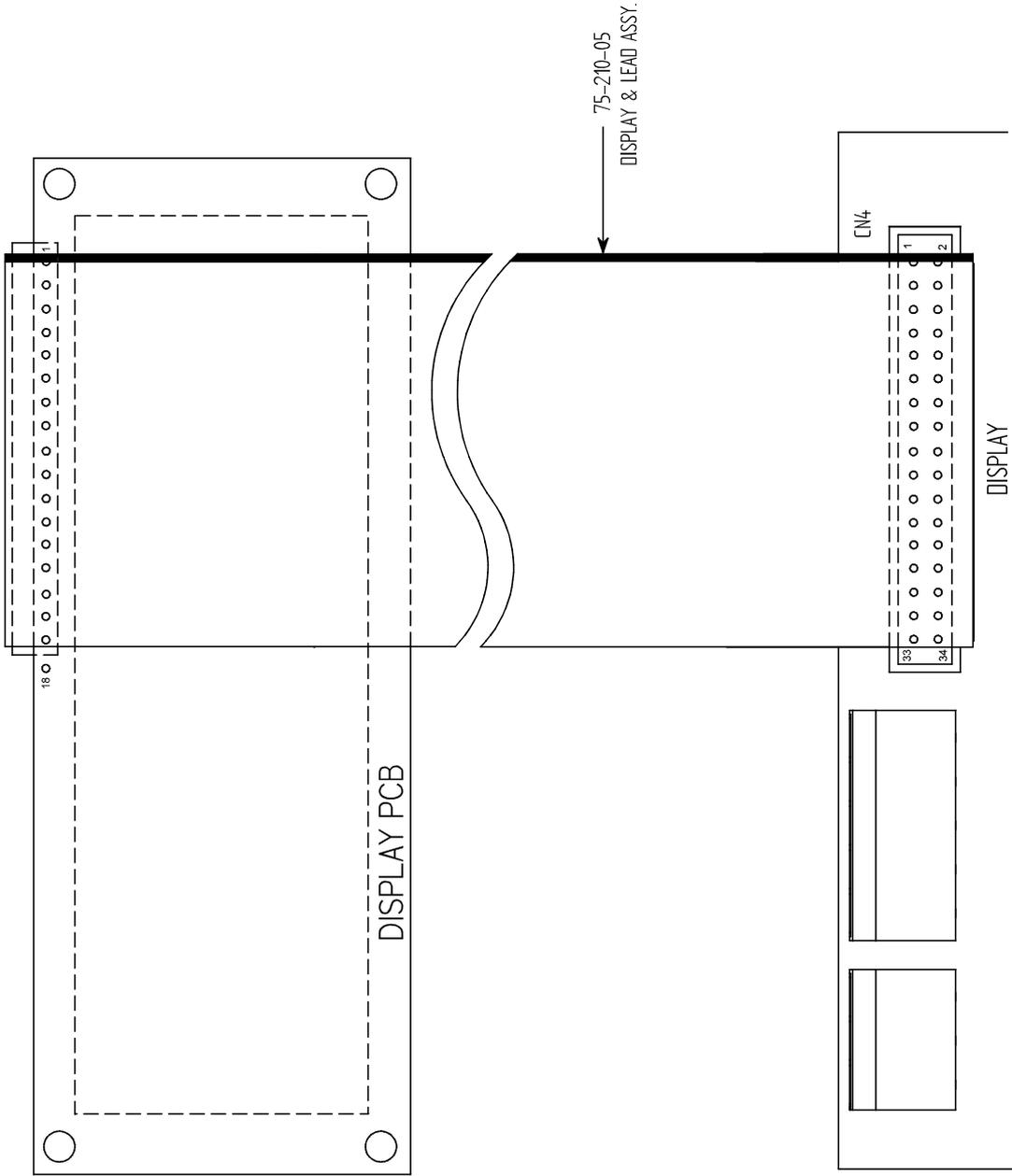
Remove the Engineers Plug.

DigiCreaser



SHEET 1 OF 2

DIGICREASER CONTROL PCB CONNECTION DIAGRAM



SHEET 2 OF 2

DIGICREASER
CONTROL PCB
CONNECTION DIAGRAM

SECTION 8

Cleaning Sensors

With blades removed the optical sensors are accessible for cleaning on either side of the creaser unit - use a soft brush or cloth to remove any dust that may of collected onto sensor lens.



SECTION 9 Trouble Shooting

Calibration of creasing position

The length between the leading edge of the sheet and the 1st crease position can be calibrated in the event of the machine creasing out of position.

Also the last crease closest to the back of the sheet can be adjusted relative to the front edge of the sheet to compensate for the inaccuracy of manufacture of the input roller diameters.

The first crease should be 50 mm from the lead edge (less than 1 revolution of the in-feed roller) & the last crease should be 370 mm from the lead edge.

Adjust the 1st crease position as follows:-

Turn On machine.

Insert the Engineers Plug into the Socket located at the rear of the machine.

Run the machine and measure the first crease position at 50 mm.

Select Tools on the Display and scroll down the screen until 'LEAD EDGE TRIM' and a numeric value is between the Arrows.

Operate the Joystick to change the value (Left to Increase), a higher value

Will move the crease further from the lead edge. (0 is a good start value)

Lift the joystick up until the start screen appears.

Run machine and check crease position, repeat above procedure until accurate crease position is achieved.

Adjust the Last crease position as follows:-

Turn On machine.

Insert the Engineers Plug into the Socket located at the rear of the machine.

Run the machine and measure the last crease position at 370 mm.

Select Tools on the Display and scroll down the screen until 'STRETCH' and a numeric value is between the Arrows.

Operate the Joystick to change the value (Left to Increase), a higher value will move the crease further from the lead edge. (0 is a good start value)

Lift the joystick up until the start screen appears.

Run machine and check crease position, repeat above procedure until accurate crease position is achieved.

DigiCreaser

Section 9 Trouble Shooting

Fault	Reason	Solution
Erratic register of the Creaser	Damaged roller surface Faulty motor	Replace rubber rollers Remove and replace motor assembly.
No Power or No Display	Fuse Blown Check small Power supply input on CN1 Check small power supply output Voltage on Cn2 =5V dc If supply has input but no output. Check voltage on main PCB CN6	Replace with correct value. L & N Voltages should read 240V or 110V AC Check cables for continuity to Emergency stop button. Replace Faulty wire or connection. Black lead of meter to green wire. Red lead of meter to blue wire. Replace PSU If no voltage then check for damaged wire or connection. Replace as required.
Display shows Faint or unrecognizable characters	Check ribbon cable for damage communication fault or faulty processor.	Change Display PCB or Assembly. Replace main PCB
No Display	If LED1 & LED2 are lit on main PCB. Check CN4 is correctly fitted If still no display If missing lines	Adjust VR1 (contrast) Adjust VR2 (backlit) Change Display PCB or Assembly. Change Display PCB or Assembly.
No Control of Menu	Check Joystick wires Check Joystick	Repair damaged wires or Replace Joystick assembly Switch m/c off. Black lead of meter to blue wire small PSU. Red lead of meter to each terminal CN10 (main PCB) First 4 pins will show reading of 4.7 Kohms Move joystick 4 posn. Check all pins. If any pins show 4.7 K ohms without moving joystick Suspect a fault joystick and replace the assembly.
No Drive or Motors Pulsing	Low or No Power to Motors	Check green light is illuminated on both PSUs Check 240/110V AC input to Large PSUs (Meter across L & N terminals)
No LED on Stepper PCB	Low or No Power from PSU	Meter across V+ & V- of SP-150-24 reading 24V dc Meter across V+ & V- of SP-150-48 reading 48V dc Replace PSU if no or low reading Meter across V+ of SP-150-48 & V- of SP-150-24 reading 72V dc If voltage is correct but no light on stepper then check cable integrity
If Motors Run but Display Shows Operate System Switch Before Running'	Check Lead No3 from CN4 (bottom plug) of Stepper to Cn2 of Main PCB.	Check white & black wire for continuity.

Section 9 Trouble Shooting

Fault	Reason	Solution
If Motors Run but Display Shows 'Operate System Switch Before Running'.	Check connectors	To Check. 5Vdc should be across pins 5 & 6 on CN2 Main PCB when System Switch is operated.
If System switch activates but display shows 'Activate System Switch Before Running'.	faulty cable or terminals	Check 6 core cable from CN2 of control board to CN4 of stepper board
Motors Erratic	Wrongly wired Incorrect voltage Should read approx 30vdc When running	Check colours with wiring diagram. Black lead of meter on tab IC13 (Stepper PCB) Red lead of meter on each pin CN3 (drive) Red lead of meter on each pin CN2 (Blade)
Sensor - Transmitter	Check supply voltage Should read 1.3Vdc (Closest red wire to CN3) To Adjust these voltages	Black lead of meter on tab IC8 (Main PCB) Red lead of meter on red wire of CN8 Adjust VR3 Edge sensor & VR5 Jam sensor.
Sensor - Receiver, Jam	Check voltage 2.9Vdc Voltage will increase/decrease by adjusting intensity of transmitter (pot VR5)	Meter across Red/Black of CN12 (Obstruct Beam and Voltage will rise to approx 5 Vdc)
Sensor - Receiver, Edge	Check voltage 0.466Vdc Note- Voltage will increase/decrease by adjusting intensity of transmitter (Pot VR3 or VR4 depending on SW1 switch position)	Meter across Red/Blue of CN8 (Obstruct Beam and Voltage will rise to approx 5 Vdc)
Safety Circuit Faulty No Drive.	Check Voltage on CN7 = 11/12 Vdc To Check PCB. To Check Cable	Any Switch or Wire, Open circuit will be 0Vdc Black lead of meter on tab IC8 (Main PCB) Red lead of meter on brown wire plug6 CN7 should read 12Vdc Unplug CN7 (meter set to Ohms) place probes across plug If no continuity then check each switch.
Error Double Sheet Detected	Check link on CN11 is correct.	Replace link, check wiring diagram.
Slot Sensor Blade	CN3	Black lead of meter on Yellow (ground) Red lead of meter on Green = 0.2Vdc obstructed Approx 4Vdc not obstructed. Red lead of meter on Blue = 5Vdc Red lead of meter on Red = 1.2Vdc
Home Position Switch	Remove plug from CN13	Check continuity across wires (make and break switch)

FUSE POSITIONS & RATINGS

