



LW - 2000

LOCKSTITCH POCKET WELTING MACHINE

PARTS AND SERVICE MANUAL

PART NUMBER 97. 4000.0.000



LIMITED WARRANTY ON NEW AMF REECE EQUIPMENT

Warranty provisions:

A ninety (90) day limited service labor warranty to correct defects in installation, workmanship, or material without charge for labor. This portion of the warranty applies to machines sold as "installed" only.

A one (1) year limited material warranty on major component parts to replace materials with defects. Any new part believed defective must be returned freight prepaid to AMF Reece, Inc. for inspection. If, upon inspection, the part or material is determined to be defective, AMF Reece, Inc. will replace it without charge to the customer for parts or material.

Service labor warranty period shall begin on the completed installation date. Material warranty shall begin on the date the equipment is shipped from AMF Reece, Inc.

Exclusions:

Excluded from both service labor warranty and material warranty are: (1) Consumable parts which would be normally considered replaceable in day-to-day operations. These include parts such as needles, knives, loopers and spreaders. (2) Normal adjustment and routine maintenance. This is the sole responsibility of the customer. (3) Cleaning and lubrication of equipment. (4) Parts found to be altered, broken or damaged due to neglect or improper installation or application. (5) Damage caused by the use of non-Genuine AMF Reece parts. (6) Shipping or delivery charges.

There is no service labor warranty for machines sold as "uninstalled".

Equipment installed without the assistance of a certified technician (either an AMF Reece Employee, a Certified Contractor, or that of an Authorized Distributor) will have the limited material warranty only. Only the defective material will be covered. Any charges associated with the use of an AMF Reece Technician or that of a Distributor to replace the defective part will be the customer's responsibility.

NO OTHER WARRANTY, EXPRESS OR IMPLIED, AS TO DESCRIPTION, QUALITY, MERCHANTABILITY, and FITNESS FOR A PARTICULAR PURPOSE, OR ANY OTHER MATTER IS GIVEN BY SELLER OR SELLER'S AGENT IN CONNECTION HEREWITH. UNDER NO CIRCUMSTANCES SHALL SELLER OR SELLER'S AGENT BE LIABLE FOR LOSS OF PROFITS OR ANY OTHER DIRECT OR INDIRECT COSTS, EXPENSES, LOSSES OR DAMAGES ARISING OUT OF DEFECTS IN OR FAILURE OF THE EQUIPMENT OR ANY PART THEREOF.

WHAT TO DO IF THERE IS A QUESTION REGARDING WARRANTY

If a machine is purchased through an authorized AMF Reece, Inc. distributor, warranty questions should be first directed to that distributor. However, the satisfaction and goodwill of our customers are of primary concern to AMF Reece, Inc. In the event that a warranty matter is not handled to your satisfaction, please contact the appropriate AMF Reece office:

Europe

Prostejov, Czech Republic

Phone: (+420) 582-309-286

Fax: (+420) 582-360-608

e-mail: service@amfreece.cz

Warranty Registration Card

(Please Fax or Mail immediately after installation)

Note: All Warranty Claims Void, unless Registration Card on file at AMF Reece HQ

Machine model number:

(S101, S100, S104, S105, S211, Decostitch, S4000 BH, EBS Mark II, etc)

Manufacturer's serial or production number:

Installation Site Information:

Customer's Name:

Customer's Mailing Address:

Customer's Telephone Number:

Supervising Mechanic's or Technician's Name:

Signature of Supervising Technician:

AMF Reece Technician's Name:

AMF Reece Technician's Signature:

Type of garment produced at this location?

Average Daily Production Expected from this machine?

(number of buttonholes, jackets sewn, pants produced, buttons sewn, etc)

Any special requirements required at this location?

What other AMF Reece Machines are at this location?

How can we serve you better?

Tovární 837, 796 25 Prostějov, Czech Republic

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INTRODUCTION

The Lockwelt 2000 is a twin needle, stitch type 301 lockstitch machine used to produce welt pocket openings of non-flap applications in various types of garments, including trouser pockets and suit pocket linings. With simple variations in the automatic folding system, it will produce single and double welts.

The Lockwelt 2000 features intermittent feed, increased speed and productivity, enhanced operation visibility and the flexibility of a complete line of optional attachments including a work remover, air ejector, and a dart stretcher. Electronically adjusted tab knives simplify pocket length adjustments. Microprocessor technology provides on-board diagnostics and easy programmability for various fabric adjustments. For operator safety, no high voltage exists above the table top.

SPECIFICATIONS

<i>Description:</i>	LW 2000
<i>Sewing Head:</i>	HUANAN GC 20505 - 1
<i>Stitch Type:</i>	ISO 301.301
<i>Sewing Speed:</i>	2500 stitches per minute
<i>Needle Bite Sizes:</i>	10mm, 12mm, 14mm, 16mm, 18mm and 20 mm (13/32", 15/32", 9/16", 5/8", 23/32", 25/32")
<i>Pocket Lengths:</i>	40 to 180 mm (1-3/16" to 7-3/32")
<i>Density-Center Stitching:</i>	8 to 14 stitches per inch
<i>Number of End Dense Stitches:</i>	3 to 6 stitches
<i>Density-End Stitching:</i>	18 to 22 stitches per inch

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SPECIFICATIONS

<i>Welt Styles:</i>		Single and Double
<i>Center Knife:</i>		Top Center Knife, upper driven
<i>Type of Feed:</i>		Stepping motor
<i>Control System:</i>		2x CPU Simens535 (23x input 24 V, 28x output 24V/1A)
<i>Data Saving:</i>		EEPROM - Non-Volatile Memory for Data Saving
<i>Operator Position:</i>		Standing up or Sitting down
<i>Lubrication:</i>		Semi-Automatic System
<i>Electrical Requirements:</i>		3NPE~50Hz 400V/TN-S 3NPE~60Hz 230V/TN-S 1NPE~60Hz 230V/TN-S 1NPE~50Hz 230V/TN-S
<i>Input:</i>		1.3 kW max. (0.775kW; 0.5 kW KMI)
<i>Compressed Air:</i>	Pressure	min 0.5MPa (80 PSI)
	Consumption	14 l/min (0.5 cfm)
<i>Material:</i>		light or medium heavy
<i>Needle to Be Used:</i>		Schmetz 190R Nm 100, Nm 110 or Nm 120 Organ Mt x 190#16
<i>Machine Dimensions:</i>	Length	1450 mm (57 inches)
	Width	750 mm (29.5 inches)
	Height	1820 mm (71.5 inches)
	Weight	275 Kg
<i>Packing Dimensions:</i>	Length	1520 mm
	Width	920 mm
	Height	1595 mm
	Weight	420 Kg

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SAFETY PRECAUTIONS

Before operating or maintaining the Lockwelt 2000, read and fully understand the operating instructions. Safety guards and an Emergency Stop push button are featured for added operator safety. Labels are placed on the machine to warn of possible trouble areas.

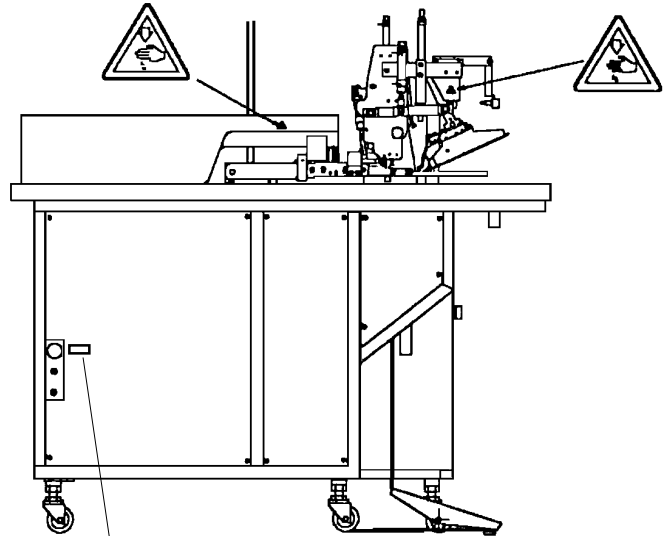
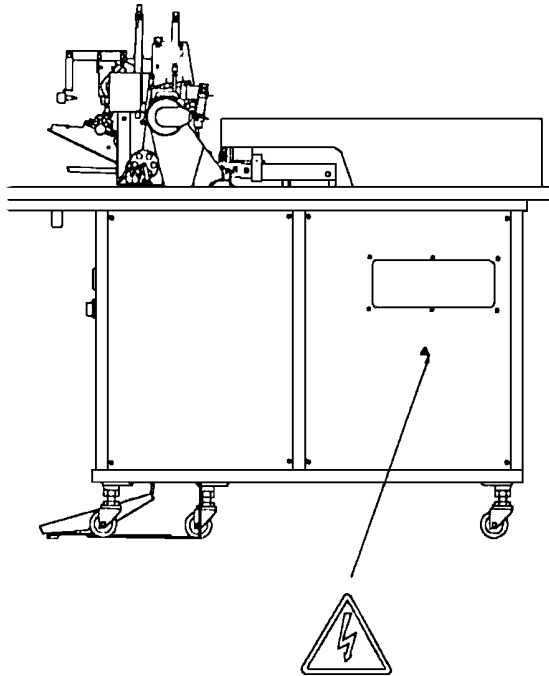
Before connecting the main power plug:

- Ensure all covers and guards are installed.
- Ensure the main switch is off.

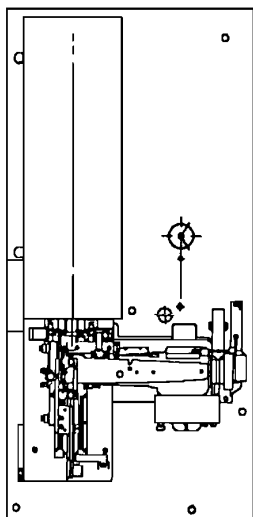
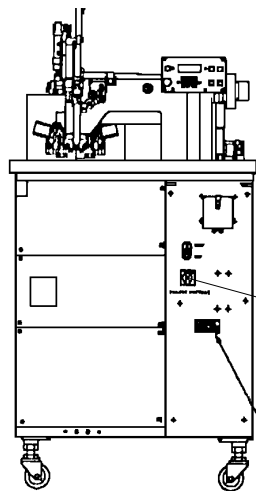
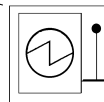
When operating or maintaining the machine:

- Be aware of the needles.
- Keep hair, clothes, and hands away from rotating shafts.
- Ensure adequate working area with proper lighting.
- Ensure proper operation of Emergency Stop push button.
- Press the Emergency Stop push button when changing the needles.
- Disconnect the main power plug when performing maintenance.
- Always use the correct value fuse.
- Use recommended grease and lubricants.
- Use original parts and proper tools.

LABEL LOCATIONS



**Operating Air Pressure
0.5MPa
(5BAR/PSI 70)**



CE	AMF REECE <i>Better Ideas, Better Made</i>	
	LW 2000	
YEAR	1997	NUMBER
VOLTAGE	3 x 400	50 Hz
INPUT	1.3kW	CURRENT 6A
AMF REECE CR PROSTEJOV CZECH REPUBLIC <i>Better Ideas, Better Made</i>		

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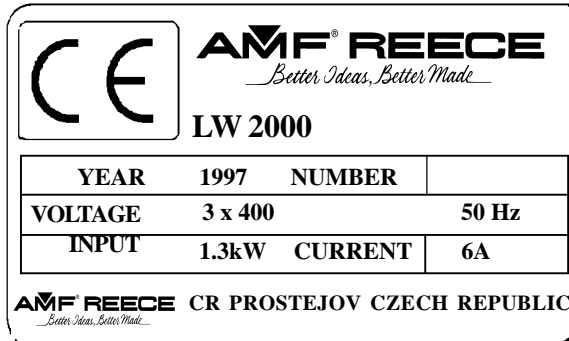
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SAFETY LABELS

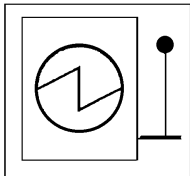
DANGER! Possible loss of life.

WARNING! Possible serious injury or machine damage.

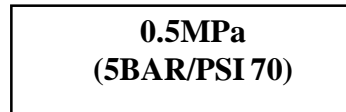
NOTICE! Possible injury or machine damage.



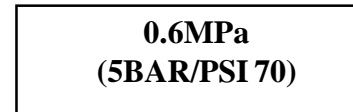
Main Power Switch



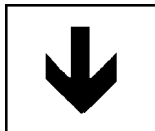
Operating Air Pressure



Input Air Pressure



Rotational
Direction



Cover Removed
Electrical Danger



Covers Removed
Possible Injury



Danger Possible
Injury



If the labels are missing or damaged, contact AMF Reece, CR a. s. Prostějov, Czech Republic, CZ tel. #420 508 309 111/fax #420 508 360 606

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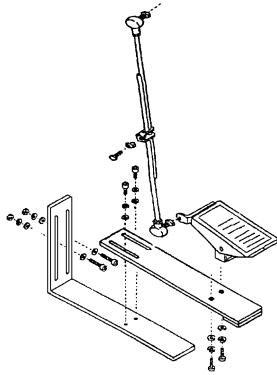
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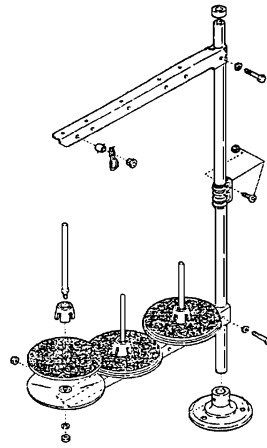
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ACCESSORIES

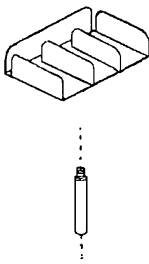
Operating Pedal



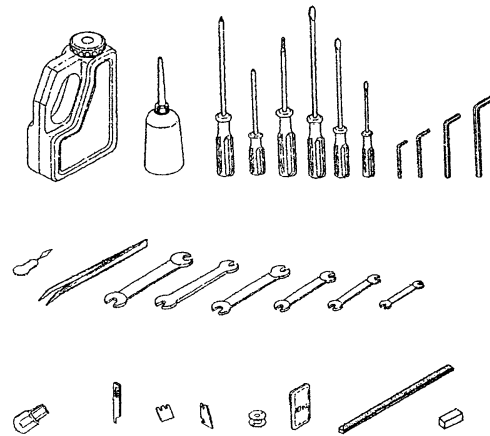
Spool Stand



Drawer



Tools and Lubrication



Bite Size Gauge - Extra Parts



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CONTENTS OF SHIPMENT

Description	Quantity
1. Lockwelt 2000 Sewing Machine	1
2. Pedal Holder	1
3. Pedal	1
4. Rod	1
5. Thread Stand	1
6. Oil (Esso Terreso 32)	1
7. Oil Can	1
8. Philips Head Screwdriver PH1	1
9. Philips Head Screwdriver PH2	1
10. Screwdriver 1.58	1
11. Screwdriver 335	1
12. Screwdriver 135	1
13. Screwdriver 102	1
14. 2 mm Hex Wrench	1
15. 3 mm Hex Wrench	1
16. 4 mm Hex Wrench	1
17. 5 mm Hex Wrench	1
18. 5.5 x 7 mm Wrench	1
19. 8 x 9 mm Wrench	1
20. 8 x 10 mm Wrench	1
21. 11 x 12 mm Wrench	1
22. 13 x 16 mm Wrench	1
23. 14 x 17 mm Wrench	1
24. Threading Wire	1
25. Needles (10) 190 R Nm 100 Schmetz	1
26. Bobbins	6
27. Tweezers	1
28. Felt Pads	1
29. Lamp QS 12V W5W E1 2GL W5E	1
30. Lamp 12V 20W	1
31. Parts and Service Manual.....	1

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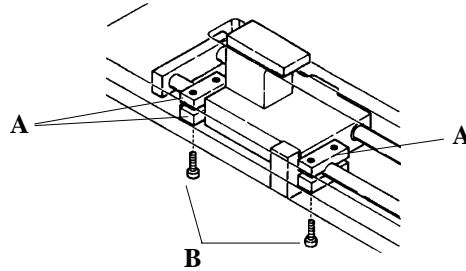
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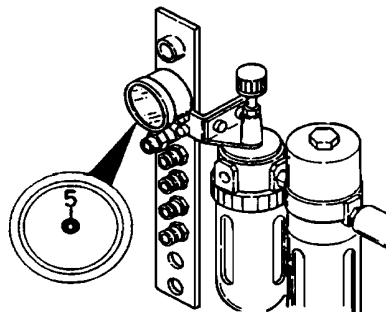
MACHINE INSTALLATION

1. Carefully *unpack* the machine and *ensure* no parts have been damaged in shipping.
2. Using the four adjusting feet, *adjust* and *level* the table height.
3. *Remove* the two shipping lock blocks, used to prevent the carriage from moving during transport, *remove* the left rear side panel and *remove* screws **B** and split clamps **A**.



4. *Connect* the air supply hose with the coupler and *ensure* to fit the hose band correctly and completely. *Set* the air pressure to 0.5 MPa (5 bar/80 PSI) as shown below.

Note: The filter and oil mist separator will automatically remove unnecessary condensation. Drain the filter, as necessary.



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MACHINE INSTALLATION

Power Cord Connections

Install the power plug to the machine power cord.

WARNING! Electrical assembly to be performed by qualified personnel.

European **five wire** connections 3NPE ~ 50Hz 400V/TN-S.

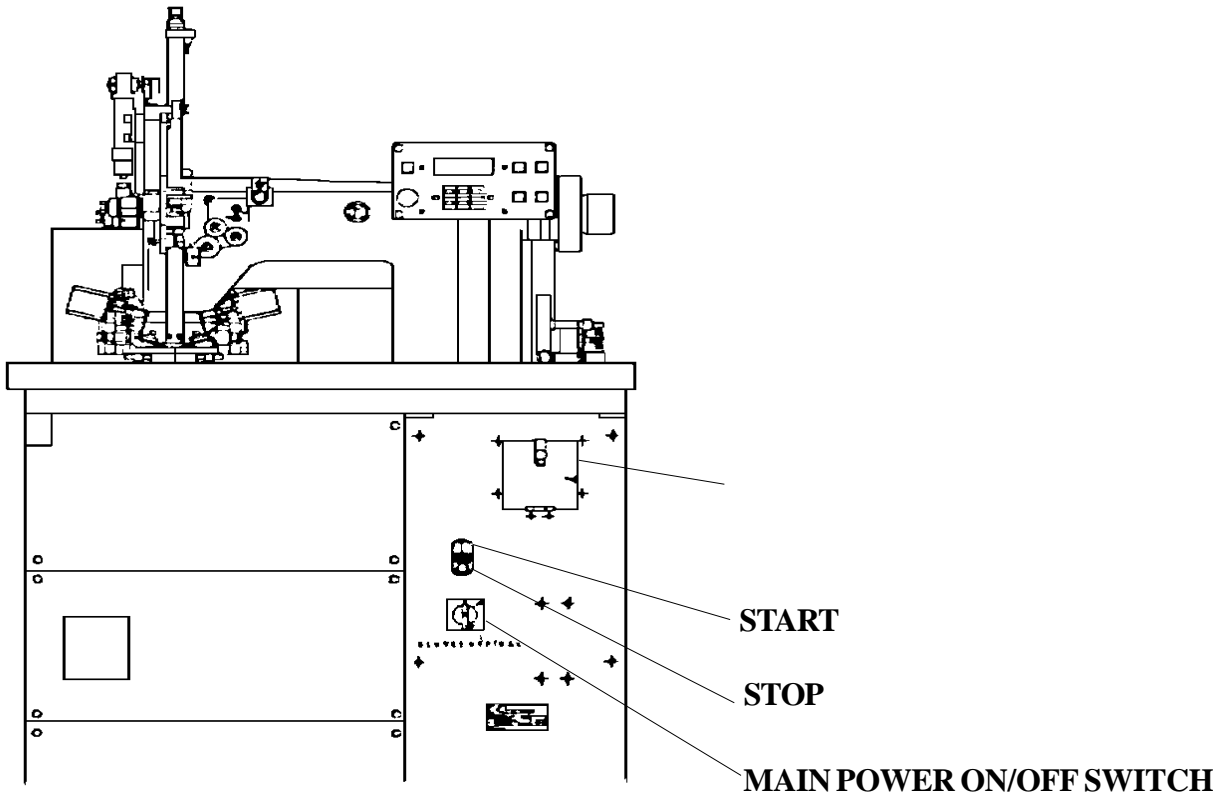
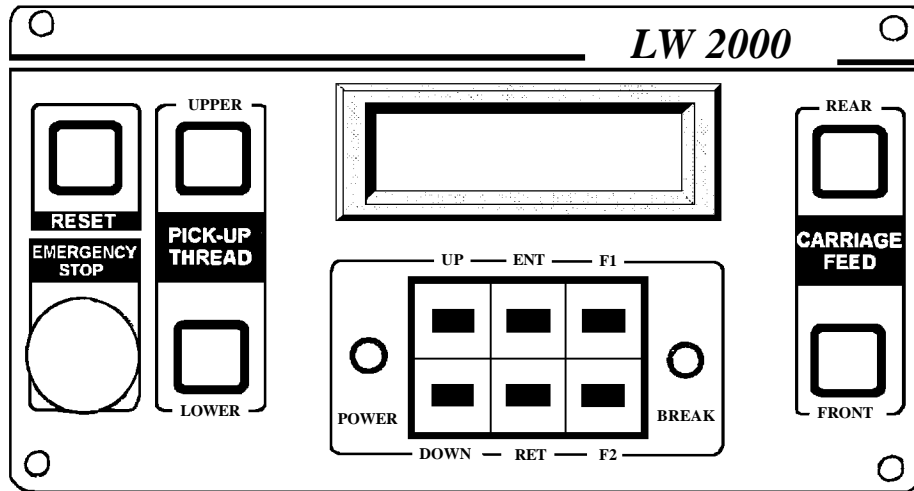
Machine Power Cord Colors	{	Blue	N	}	3 Phase Power
		Black	L1		
		Black	L2		
		Brown	L3		
		Yellow/Green	PE		

Western Hemisphere **four wire** connections 1NPE ~ 50/60Hz 230V/TN-S

Machine Pow Cord Colors	{	Black	L1	}	1 Phase Power
		Blue	L		
		Yellow/Green	PE		

Connect the machine power plug to the factory power supply.

MACHINE CONTROLS



MACHINE CONTROLS

The Main Power Switches

Circuits to control the machine power and the oval-shaped main start switch, are located on the front of the machine stand. The main start switches from 1 which turns the machine power on, to 0 which turns the machine power off. The circuits which control various operations of the Lockwelt 2000 are located in the control panel.

The Manual Start Sew Push Button

The manual “Start Sew” push button is found on the sewing head in front of the locating lights.

Using The Operator Control Panel

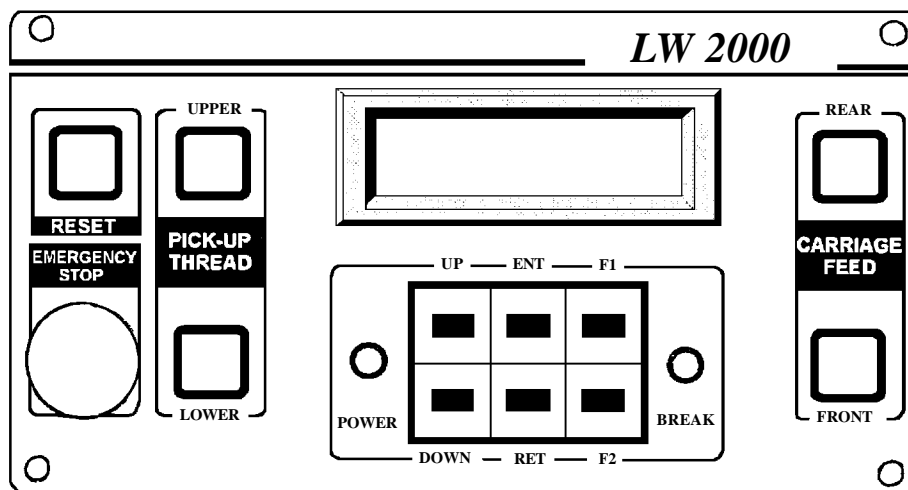
Basic operator adjustments may be accessed by pressing the Up or Down push buttons. These adjustments include:

- Pocket Length
- Tab Knife Start Position
- Tab Knife Finish Position
- Counter Reset

Function adjustments may be accessed by pressing the F1 push button, then Up or Down. These adjustments include:

- End Density
- Length of End Density
- Center Density, etc.

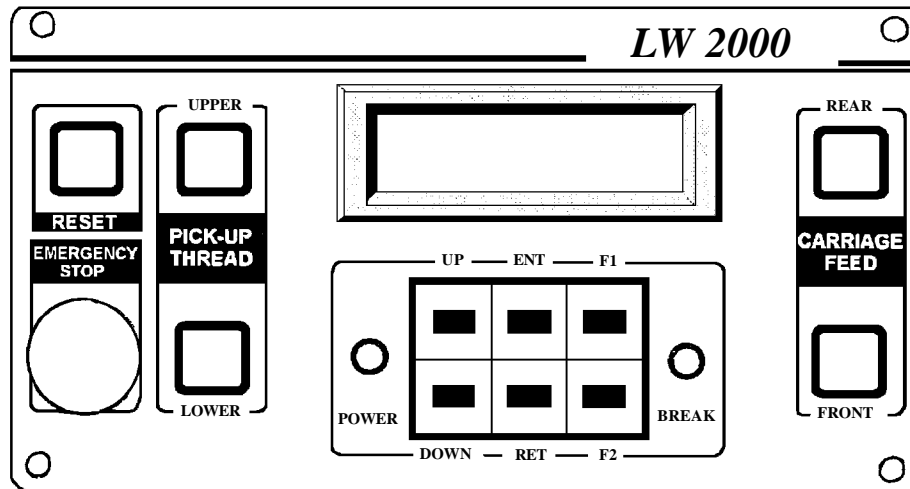
Input/Output tests may be accessed by pressing the F2 push button, then F1 for input tests, or F2 for output tests, then Up or Down.



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MACHINE CONTROLS



Control Panel Push Button Descriptions

Emergency Stop Push Button — when pressed, immediately stops the sewing motor with the needles in the up position. To reset the machine, this button must be pulled outward prior to pressing the Reset button.

Reset Push Button — when pressed, returns the machine to the operating cycle following an emergency stop.

Carriage Feed Front Push Button — if the table is in the back position, pressing this button moves the carriage forward. Pressed during the Emergency Stop, the carriage will slowly jog forward.

Carriage Feed Rear Push Button — if the table is in the front position, pressing this button moves the carriage to the rear position. Pressed during the Emergency Stop, the carriage will slowly jog backward.

Upper Thread Pick Up Push Button — when pressed, pulls thread up, clamps, holds, and trims the needle (upper) thread.

Lower Thread Pick Up Push Button — when pressed, pulls thread up, clamps, holds, and trims the bobbin (lower) thread.

MACHINE CONTROLS

Keypad Descriptions

UP — increases the value when changing operation data and allows moving within the menu.

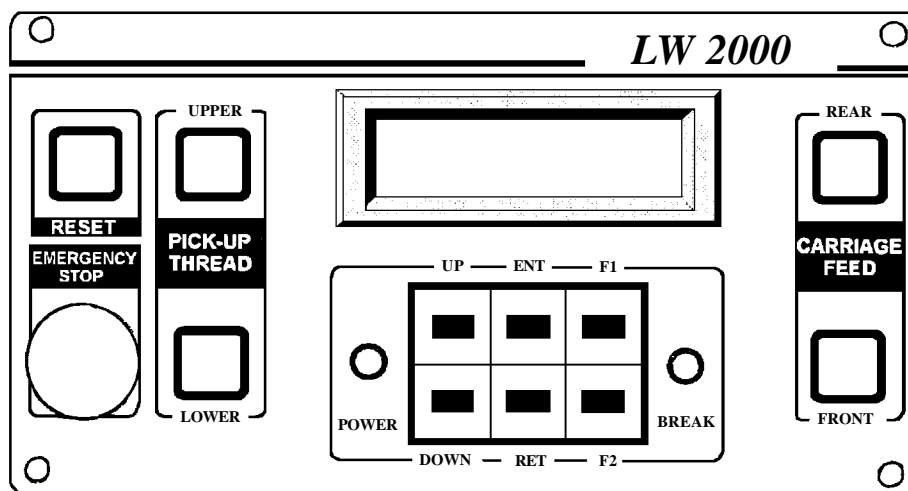
DOWN — decreases the value when changing operation data and allows moving within the menu.

ENT — (Enter) saves changes in the data entered into the control panel.

RET — (Return) returns to the Operator menu anytime and from any other menu.

F1 — Transfers control from the Operator menu to the function adjustments of the Program menu.

F2 — Transfers control from the Operator menu to the Input/Output Tests menu. Pushing F2 again transfers to the Output Test menu for checking the solenoids, while pushing F1 transfers to the Input Test menu for checking the sensor switches. Press Return twice after entering data to return to the Operator menu.



The **green indicator** light means the machine power supply is on.

The **red indicator** light means the machine has entered into an emergency stop and reset must be pressed after pulling the emergency push button outward.

The **LCD screen** displays which menu and function adjustments of the menu are activated.

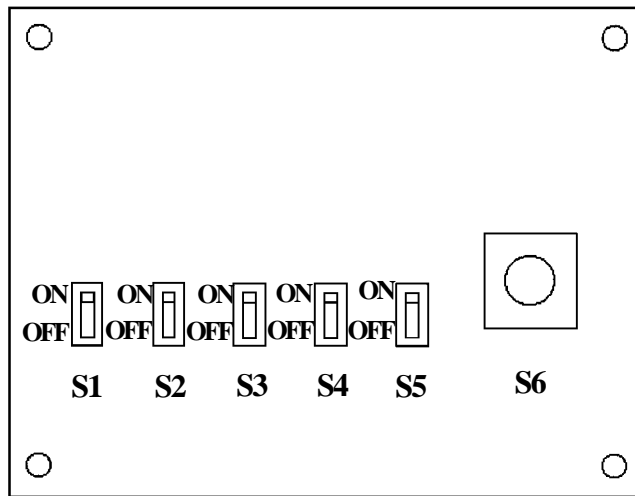
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Phones: +420 582 309 146 (Service), +420 582 309 286 (Spare Parts); Fax: +420 582 360 606

www.promelectroavtomat.ru

MACHINE CONTROLS



The Auxiliary Control Panel

S-1 — **Off** position, allows full operational control of the machine. **On** position, the carriage feeds to the front and the trim of the upper and lower threads are the only functions operational.

S-2 — **On** position, manually lowers the center knife. **Note:** The carriage must be in the rear position for this switch to function.

S-3 — **On** position, manually raises the tab knife and simultaneously lowers the clamps. **Note:** The carriage must be in the rear position for this switch to function.

S-4 — **On** position, engages the center knife and the tab knives

S-5 — **Spare**

S-6 — starts the sewing motor for winding the bobbins. **Note:** The carriage must be in the rear position for this switch to function. The needle thread must be removed to prevent possible bobbin thread jam.

Data renewal

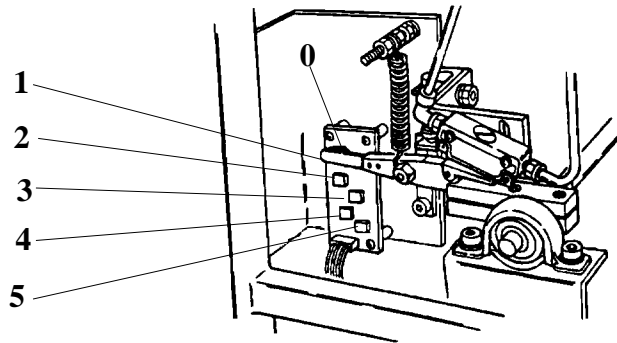
Switch off the main power switch, give the buttons S1 + S5 to the position **on** and switch the machine on. Give the buttons S1 + S5 to the position **off**. If data renewal is done correctly, No Bobbin Thread will appear in the control panel:

No Bobbin Thread

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MACHINE CONTROLS

Pedal Functions

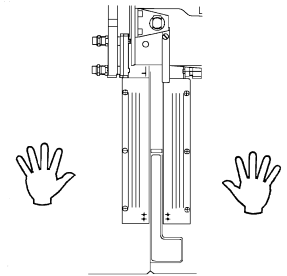


Note: When heeling the pedal, the pocket bag clamp rises.

0 — Home position

WARNING! Keep hands and fingers clear of clamping surface.

1 — according to the adjusted mode, the left or right clamp arm is lowered. If both clamps are lowered together, the position of the pedal is not operational. If the Dart Stretcher option is included in the Program menu, it will start in this pedal position. One clamp lowers then after an adjustable time delay the other clamp lowers.



2 — controls the lowering of both clamps together, or lowering the opposite clamp of the first clamp lowered, according to the mode selected. If the Dart Stretcher option is included in the Program menu, it will be off in this pedal position, after the clamps lower.

3 — lowers the patch guide and closes the brush blades. If the Dart Stretcher option is included in the Program menu, it will be off in this pedal position.

4 — starts sewing cycle in the “Auto” mode if the flap clamps *are* off. If the flap clamps *are* on, they will be lowered and the patch air blow will start.

5 — allows sewing cycle to start when the manual Sew Start push button is pressed in the “Man” mode.

Note: It is possible to start sewing in the “Auto” mode when the flap clamps are on. As the pedal returns to the Home position, the mechanical parts disconnect in the reverse order. (The flap clamps return to the Home position, then the brushes, followed by the patch guide and the clamp arms.)

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LUBRICATION

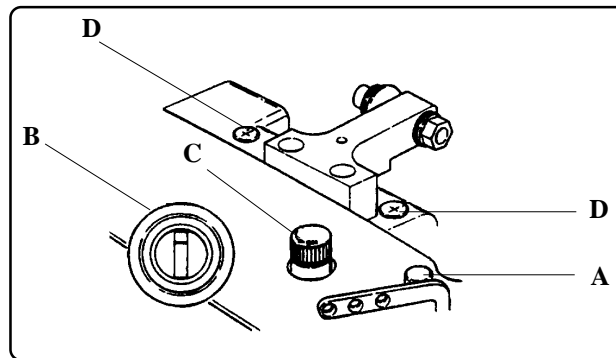
Filling the Oil Reservoir

1. *Remove* the oil seal plug **A** and *fill* the oil reservoir to the mark on the gauge **B**.

Caution: To prevent machine damage, *be sure* to add oil to the reservoir regularly, maintaining the level even with gauge mark.

2. When beginning to operate the sewing head, *push* lubrication button **C** down and *turn* it in the direction of the arrow indicator.

3. *Operate* the machine oiler for only two to three hours per day, to prevent over lubricating and material contamination.

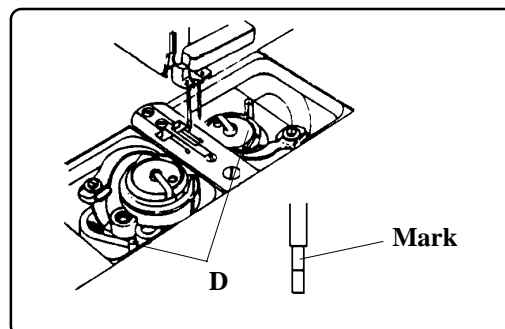


Rotary Hook Lubrication

1. *Remove* the two oil gauges **D**.

2. *Add* oil through the gauge holes, until the oil level aligns with the mark on the gauge.

Caution: When the oil decreases below the tip of the gauge, lubrication to the rotary hook stops.



LUBRICATION

Rotary Hook Oil Flow Adjustments

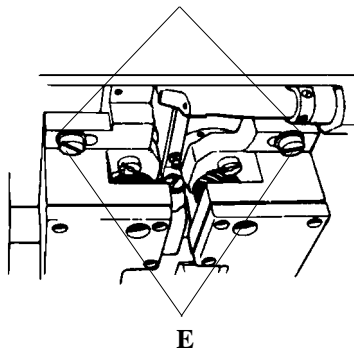
To protect the rotary hooks from damage, *adjust* the oil flow by turning screws **E** toward the base line of the rotary hook. *Check* whenever the rotary hook is replaced.

To check:

1. *Move* the carriage to the rear position.
2. *Open* the left and right slide covers.
3. *Remove* the thread from the needles.
4. *Remove* the bobbins.
5. *Place* a piece of white paper over the bobbin hooks.

Caution! Using switch S6, *operate* the machine for ten seconds, *check* the paper and *adjust* for proper rotary hook oil splash.

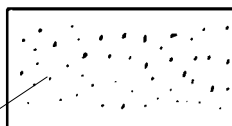
Rotary Hook Base Line



Rotary Hook Base Line



Position



Splash Oil

Sheet of White Paper

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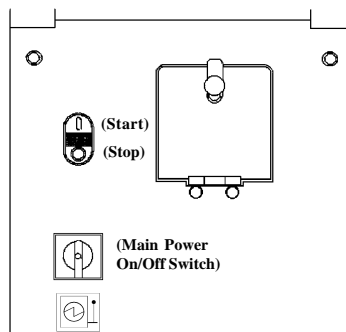
LUBRICATION

Preparing to Sew

1. Observe all safety requirements and ensure all covers are installed.
2. Check for proper operation of each control panel switch.
3. *Feed* oil to the manual oiling points and *ensure* each component of the sewing head has been properly lubricated.
4. *Move* the carriage front and rear, by *pressing* the Carriage Feed switch, to ensure smooth operation.
5. *Ensure* the needle and bobbin threads are held correctly.
5. *Ensure* the white mark on the pulley and the red mark on the sewing head are aligned.
6. *Perform* a final check of the sewing performance, position of the work locating light, and each operation of the machine components.

MACHINE START-UP

1. Connect the power plug and switch the main power selector to the on position. Press the green start push button.



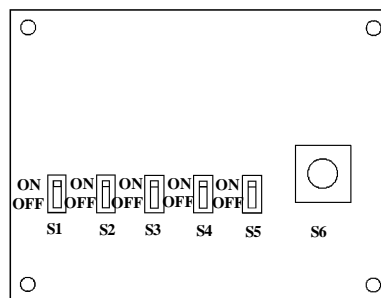
The processors are initialized and data is transferred between the two CPUs. Initialization is noted on the LCD with the message:

Initialize!
Wait, please

When the initial Operator menu appears on the display, the machine is ready for operation.

Caution: Remove the thread from the needles to prevent hook damage and rotate the sewing motor to check for correct rotation.

2. Ensure the motor is rotating in the correct direction by pushing the **S6** button (located on the auxiliary control panel) and observe from the front of the machine if the handwheel is rotating in a counterclockwise direction, same as the arrow in the illustration. **If it is not rotating in the correct direction, change the wiring in the electrical power supply wall plug.**



Note: Before each work operation, the machine self-tests to ensure all operating conditions are correct. If any condition is not correct, machine operations stop and the LCD monitor displays the reason.

In addition, work conditions are tested during each step of the work cycle and work is either interrupted or stopped at the end of a cycle, depending upon the problem. This work stop is followed by the appropriate error message.

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MENU FUNCTIONS

Operator Menu Functions

The LCD screen is operational when the machine is switched to the **On** position. To access the Operator menu, *push* the **Up** or **Down** button.

The First Screen

The first line of the text indicates the length of the seam. (Pock. Lgth: 100 mm, for example). The second line counts the number of machine cycles. (For example, Pock. count: 0001).

Pock. Lgth: 100mm Pock. Count: 0001
--

Note: The pocket counter only works when the tab and center knives are actuated.

Changing the Sew Length

The sew length can be changed in one millimeter intervals from 40 mm to 180 mm, with a +/- one stitch length tolerance. To change the length:

1. Using the Operator menu, *press* the **Up** button one time to advance to the screen and the words “Pock. Lgth” and Change [ENT] will appear, as shown.

Pock. Lgth: 100mm Change [ENT]

2. *Press* the **ENT** button and the screen changes to “Pock. Lgth” and Change [Up, Down] followed by a flashing cursor.

Pock. Lgth: 100mm Change [Up, Down]
--

3. To increase the sew length, *press* the **Up** button until the desired length is displayed on the screen. To decrease the sew length, *press* the **Down** button.

4. To save the adjusted length into memory, *press* the **ENT** button. The screen will read “Data Saved!” To not record the saved data, *press* the **RET** button. The screen will read “Data Not Saved!” Either message will be followed, in about two seconds, by the words “Pock. Lgth” and the flashing cursor will disappear. Advance to the next menu option by *pressing* the **Up** or **Down** button.

MENU FUNCTIONS

Fine Tuning the Start End Tab Knife

The start end of the tab knife may be adjusted in relationship to the starting stitch on a scale of 0-9. To change the entry parameters:

1. Using the Operator menu, *press* the **Up** button two times to advance to the screen and the words “T. Knife Start” and Change [ENT] will appear, as shown.

<p>T. Knife Start: 4 Change [ENT]</p>
--

2. *Press* the **ENT** button and the screen changes to “T. Knife Start” and Change [Up, Down] followed by a flashing cursor. To increase the cut, by 0.5 mm increments, *press* the **Down** button. To decrease the cut, *press* the **Up** button.

<p>T. Knife Start: 4 Change [Up, Down]</p>

Note: Each number in the parameter moves the knife 0.5 mm.

3. *Press* the **ENT** button again. The new data will be saved and the screen will read “Data Saved!” followed in approximately two seconds by the words “T. Knife Start.” The flashing cursor will disappear. Advance to the next menu option by *pressing* the **Up** or **Down** button.

Fine Tuning the Finish End Tab Knife

The finish end of the tab knife may be adjusted in relationship to the finishing stitch on a scale of 0-9. To change entry parameters:

1. Using the Operator menu, *press* the **Up** button three times to advance to the screen and the words “T. Knife Finish” and Change [ENT] will appear, as shown.

<p>T. Knife Finish: 4 Change [ENT]</p>

2. *Press* the **ENT** button and the screen changes to “T. Knife Finish” and Change [Up, Down] followed by a flashing cursor. To increase the cut, by 0.5 mm, *press* the **Down** button. To decrease the cut, *press* the **Up** button.

<p>T. Knife Finish: 4 Change [Up, Down]</p>
--

MENU FUNCTIONS

Note: Each number in the parameter moves the knife 0.5 mm.

3. *Press* the **ENT** button again, the new data will be saved and the screen will read “Data Saved!” followed in approximately two seconds by the words “T. Knife Finish.” The flashing cursor will disappear. Advance to the next menu option by *pressing* the **Up** or **Down** button.

Setting the Number of Bobbin Thread Sewing Cycles

The Lockwelt 2000 may be programmed to sew a pre-selected number of cycles before the bobbin thread must be manually changed. The first line of the menu indicates the selected number of sew cycles. The second line of the menu indicates the number of cycles remaining before the bobbin needs changing.

Note: When the counter is set to zero, the Lockwelt 2000 goes to emergency stop and the red light on the control panel actuates. To start the machine, *press* the **Reset** button. To set the bobbin thread counter:

1. *Press* the **Up** button 24 times to advance to the appropriate screen and the words “Bobb. Thread” and Work. Cycle: will appear, as shown.

Bobb. Thread: 150
Work. Cycle: 148

2. *Press* the **ENT** button and the screen changes to “Bobb. Thread:” and Change [Up, Down] followed by a flashing cursor. To set the bobbin thread counter, *press* the **Up** button to increase the number of cycles from 10 to 300 in one cycle increments. *Press* the **Down** button to decrease the number of cycles.

Bobb. Thread: 150
Change [Up, Down]

3. *Press* the **ENT** button. The new data will be saved and the screen will read “Data Saved!,” followed in approximately two seconds by the words “Bobb. Thread” and the number of cycles entered. The flashing cursor will disappear. Advance to the next menu option by *pressing* the **Up** or **Down** button.

The Program Menu Functions

The LCD screen transfers from the Operator menu to the Program menu when the **F1** button is *pressed*. If changing values, *pressing* the **RET** button returns to the Operator menu.

Program Menu
Return [RET]

MENU FUNCTIONS

Setting the End Density

The end density of the stitches can range from 18 to 22 SPI (stitches per inch). To change stitch end density:

1. *Press* the **Up** button one time to advance to the screen and the words “E. Stitch” and Change [ENT] will appear, as shown.

<p>E. Stitch: 19 SPI Change [ENT]</p>

2. *Press* the **ENT** button and the screen changes to “E. Stitch” and Change [Up, Down] followed by a flashing cursor. To increase the number of stitches, *press* the **Up** button. To decrease the number of stitches, *press* the **Down** button.

<p>E. Stitch: 19 SPI Change [Up, Down]</p>
--

3. To save the adjusted number of stitches into memory, *press* the **ENT** button. To not record the saved data, *press* the **RET** button. The screen will read “Data Not Saved!” Either message will be followed, in about two seconds, by the words “E. Stitch” and the SPI number. The flashing cursor will disappear. Advance to the next menu option by *pressing* the **Up** or **Down** button.

Setting the Number of the Start and Finish Stitches

The number of the end density stitches can range from 3 to 6. To change the number:

1. *Press* the **Up** button two times to advance to the screen and the words “E. Stitch Number” and Change [ENT] will appear, as shown.

<p>E. Stitch Number: 4 Change [ENT]</p>

2. *Press* the **ENT** button and the screen changes to “E. Stitch Number” and Change [Up, Down] followed by a flashing cursor. To increase the number of stitches, *press* the **Up** button. To decrease the number of stitches, *press* the **Down** button.

<p>E. Stitch Number: 4 Change [Up, Down]</p>
--

MENU FUNCTIONS

3. To save this setting, *press* the **ENT** button. The screen will read “Data Saved!” This message will be followed, in approximately two seconds, by the words “E. Stitch Number” and the number. The flashing cursor will disappear. Advance to the next menu option by *pressing* the **Up** or **Down** button.

Setting the Center Density

The number of center stitches can range from 8 to 14 stitches per inch. To change the density:

1. *Press* the **Up** button three times to advance to the screen and the words “C. Stitch” and Change [ENT] will appear, as shown.

C. Stitch: 11 SPI Change [ENT]

2. *Press* the **ENT** button and the screen will change to “C. Stitch” and Change [Up, Down] followed by a flashing cursor. To increase the density of stitches, *press* the **Up** button. To decrease the density of the stitches, *press* the **Down** button.

C. Stitch: 11 SPI Change [Up, Down]
--

3. To save this setting, *press* the **ENT** button. The screen will read “Data Saved!” This message will be followed, in approximately two seconds, by the words “C. Stitch” and the SPI number. The flashing cursor will disappear. Advance to the next menu option by *pressing* the **Up** or **Down** button.

Adjusting the Starting Position of the Center Knife

The starting position of the center knife into the material may be changed to move the cut in relationship to the first stitch.

Note: Entry parameters can be changed on a scale of 0-9, with 0 making the first stitch *closest* to the cut and 9 making the first stitch *furthest away* from the cut. To change the parameters:

1. *Press* the **Up** button four times to advance to the screen, and the words “Start C. Knife” and Change [ENT] will appear, as shown.

Start C. Knife: 5 Change [ENT]

MENU FUNCTIONS

2. Press the **ENT** button and the screen changes to “Start C. Knife” and Change [Up, Down] followed by a flashing cursor. To move the cut further from the first stitch, *press* the **Up** button. To move the cut closer to the first stitch, *press* the **Down** button.

Start C. Knife: 5 Change [Up, Down]
--

Note: Each number in the parameter moves the knife 1 mm.

3. To save this setting, *press* the **ENT** button. The new data will be saved and the screen will read “Data Saved!” followed in approximately two seconds by the words “Start C. Knife.” The flashing cursor will disappear. Advance to the next menu option by *pressing* the **Up** or **Down** button.

Adjusting the Stopping Position of the Center Knife

The stopping position of the center knife can be adjusted to move the cut in relationship to the last stitch.

Note: The center knife stopping position, minimum distance from the needle, is stationary at 7 mm, this distance cannot be decreased. Entry parameters can be varied on a scale of 0-9, with 0 making the last stitch *closest* to the cut and 9 making the last stitch *furthest* from the cut. To change the parameters:

1. Press the **Up** button five times to advance to the screen and the words “Stop C. Knife” and Change [ENT] will appear, as shown.

Stop C. Knife: 5 Change [ENT]

2. Press the **ENT** button and the screen reads “Stop C. Knife” and Change [Up, Down] followed by a flashing cursor. To move the cut further from the last stitch, *press* the **Up** button. To move the cut closer to the last stitch, *press* the **Down** button.

Stop C. Knife: 5 Change [Up, Down]

Note: Each number in the parameter moves the knife 1 mm.

3. Press the **ENT** button. The new data will be saved and the screen will read “Data Saved!” followed in approximately two seconds by the words “Stop C. Knife”. The flashing cursor will disappear. Advance to the next menu option by *pressing* the **Up** or **Down** button.

MENU FUNCTIONS

Positioning the Start End of the Tab Knife

This option lets the mechanic further adjust any changes made by the operator. If the operator menu is set to the minimum or maximum and more adjustment is required for a particular sewing application, this function of the Program menu may be used to make the change.

Note: It may be necessary to move back and forth between the Operator and Program menus to obtain the specific tab cut your application requires.

<p>T. Knife Start: 4 Change [ENT]</p>

To position on a scale of 0-9:

1. *Press* the **Up** button six times to advance to the appropriate screen and the words “T. Knife Start” and Change [ENT] will appear, as shown.

<p>T. Knife Start: 4 Change [Up, Down]</p>
--

2. *Press* the **ENT** button and the screen changes to “T. Knife Start” and Change [Up, Down] followed by a flashing cursor. To increase the cut in 1 mm increments, *press* the **Down** button. To decrease the cut *press* the **Up** button.

Note: The Tab Knife Start is the rear knife. Each number in the parameter moves the knife 1 mm.

3. *Press* the **ENT** button. The new data will be saved and the screen will read “Data Saved!” followed in approximately two seconds by the words “T. Knife Start.” The flashing cursor will disappear. Advance to the next menu option by *pressing* the **Up** or **Down** button.

Positioning the Finish End Tab Knife

This option lets the mechanic further adjust any changes made by the operator. If the operator menu is set to the minimum or maximum and more adjustment is required for a particular sewing application, this function of the Program menu may be used to make the change.

Note: It may be necessary to move back and forth between the Operator and Program menus to obtain the specific tab cut your application requires.

<p>T. Knife Finish: 5 Change [ENT]</p>
--

MENU FUNCTIONS

To position on a scale of 0-9:

1. *Press* the **Up** button seven times to advance to the appropriate screen and the words “T. Knife Finish” and Change [ENT] will appear, as shown.

<p>T. Knife Finish: 4 Change [ENT]</p>
--

2. *Press* the **ENT** button and the screen changes to “T. Knife Finish” and Change [Up, Down] followed by a flashing cursor. To increase the cut *press* the **Down** button. To decrease the cut *press* the **Up** button.

Note: The Tab Knife Finish is the front knife. Each number in the parameter moves the knife 1 mm.

3. *Press* the **ENT** button. The new data will be saved and the screen will read “Data Saved!” followed in approximately two seconds by the words “T. Knife Finish.” The flashing cursor will disappear. Advance to the next menu option by *pressing* the **Up** or **Down** button.

Setting the Timing of the Brush Blades

To set the timer which determines the delay between the lowering of the patch guide and closing of the brush blades:

1. *Press* the **Up** button eight times to advance to the appropriate screen and the words “T1 P.G.” and Change [ENT] will appear, as shown.

<p>T1 P.G.:0.5s Change [ENT]</p>

This value influences the delay time of automatic foot start-up when the carriage is in the starting position. Delay is a quintuple of given value. Recommended value is 0.4.

2. *Press* the **ENT** button and the screen changes to “T1 P.G.” and Change [Up, Down] followed by a flashing cursor. To increase the time in .1 second increments, *press* the **Up** button. To decrease the time, *press* the **Down** button.

<p>T1 P.G.:0.5s Change [Up, Down]</p>

Note: Minimum time .1 second, maximum time 3.2 seconds.

3. *Press* the **ENT** button. The new data will be saved and the screen will read “Data Saved!,” followed in approximately two seconds by the words “T1 P. G.” The flashing cursor will disappear. Advance to the next menu option by *pressing* the **Up** or **Down** button.

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Phones: +420 582 309 146 (Service), +420 582 309 286 (Spare Parts); Fax: +420 582 360 606

MENU FUNCTIONS

Timing the Return of the Carriage to the Front Position

This timer determines the delay between the end of the sew cycle and the automatic return of the carriage to the front position, this timer is ignored if the machine is set on manual return.

For applications which require the timer to be set:

1. *Press* the **Up** button nine times to advance to the appropriate screen and the words “Carr. Return” and Change [ENT] will appear, as shown.

Carr. Return: 0.1s
Change [ENT]

2. *Press* the **ENT** button and the screen changes to “Carr. Return” and Change [Up, Down] followed by a flashing cursor. To increase the time, in .1 second increments, *press* the **Up** button. To decrease the time, *press* the **Down** button.

Carr. Return: 0.1s
Change [Up, Down]

If the stacker is installed and automatic return of carriage to the front position is programmed, it is necessary to set carriage waiting time in rear position to 1.5 sec and more.

Note: Minimum time .1 second, maximum time 3.2 seconds.

3. *Press* the **ENT** button. The new data will be saved and the screen will read “Data Saved!,” followed in approximately two seconds by the words “Carr. Return.” The flashing cursor will disappear. Advance to the next menu option by *pressing* the **Up** or **Down** button.

Setting the Carriage Speed

Determines the speed of the carriage movement to the sew start position, on a scale of 0-15. Number 15 moves the carriage at 21 mm per sec, while the 0 setting moves the carriage at 10 mm per sec.

Note: Changing carriage speed may influence the tab knife cutting position.

1. *Press* the **Up** button ten times to advance to the screen and the words “T3 Car. Speed” and Change [ENT] will appear, as shown.

T3 Car. Speed: 15
Change [ENT]

MENU FUNCTIONS

2. Press the **ENT** button and the screen changes to “T3 Car. Speed” and Change [Up, Down] followed by a flashing cursor. To increase the speed *press* the **Up** button. To decrease the speed, *press* the **Down** button.

<p>T3 Car. Speed: 15 Change [Up, Down]</p>

3. Press the **ENT** button. The new data will be saved and the screen will read “Data Saved!,” followed in approximately two seconds by the words “T3 Car. Speed.” The flashing cursor will disappear. Advance to the next menu option by *pressing* the **Up** or **Down** button.

Note: The carriage speed adjustments do not affect the sewing speed.

Adjusting the Needle Thread Trim Length

The upper thread trim length may be changed from 52 to 72 mm. To adjust:

1. Press the **Up** button 11 times to advance to the appropriate screen and the words “Thread Trm” and Change [ENT] will appear, as shown.

<p>Thread Trm: 52mm Change [ENT]</p>

2. Press the **ENT** button and the screen changes to “Thread Trm” and Change [Up, Down] followed by a flashing cursor. To increase the thread length in 1 mm increments, *press* the **Up** button. To decrease the length, *press* the **Down** button.

<p>T3 Car. Speed: 15 Change [Up, Down]</p>

3. Press the **ENT** button. The new data will be saved and the screen will read “Data Saved!,” followed in approximately two seconds by the words “Thread Trm.” The flashing cursor will disappear. Advance to the next menu option by *pressing* the **Up** or **Down** button.

Note: Trim length also depends on the carriage speed determined in the previous adjustment. Trim length becomes longer as speed increases.

MENU FUNCTIONS

Turning the Center Knife On or Off

The operation of the center knife may be turned off to service the machine. Turning off the center knife automatically shuts off the tab knives and the counter. **Note:** Operating the machine through a full cycle with the center knife off, turns off the counter and the tab knives. To turn the center knife on or off:

1. *Press* the **Up** button 12 times to advance to the appropriate screen and the words “C. Knife ON” and Change [ENT] will appear, as shown.

<p>C. Knife: ON Change [ENT]</p>

2. *Press* the **ENT** button and the screen changes to “C. Knife ON” and Change [Up, Down] followed by the flashing cursor. If the center knife is off, *press* the **Up** button to turn it on. If the center knife is on, *press* the **Down** button to turn it off.

<p>C. Knife: ON Change [Up, Down]</p>

3. *Press* the **ENT** button. The new data will be saved and the screen will read “Data Saved!,” followed in approximately two seconds by the words “C. Knife ON” or “C. Knife OFF”. The flashing cursor will disappear. Advance to the next menu option by *pressing* the **Up** or **Down** button.

Turning the Tab Knives On or Off

The operation of the tab knives may be turned off to service the machine. Turning off the center knife automatically shuts off the tab knives and the counter. **Note:** Operating the machine through a full cycle with the tab knives off turns off the counter. To turn the tab knives on or off :

1. *Press* the **Up** button 13 times to advance to the appropriate screen, and the words “Tab. Knife ON” and Change [ENT] will appear, as shown.

<p>Tab Knife: ON Change [ENT]</p>

2. *Press* the **ENT** button and the screen changes to Tab. Knife ON” and Change [Up, Down] followed by a flashing cursor. If the tab knife is off, *press* the **Up** button to turn it *on*. If the tab knife is on, *press* the **Down** button to turn it *off*.

<p>Tab Knife: ON Change [Up, Down]</p>
--

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MENU FUNCTIONS

Note: Turning off the center knife automatically turns the tab knife to the off position. But turning the tab knives off does **not** affect the center knife, it may operate independently.

3. Press the **ENT** button. The new data will be saved and the screen will read “Data Saved!,” followed in approximately two seconds by the words “Tab. Knife ON” or “Tab. Knife OFF”. The flashing cursor will disappear. Advance to the next menu option by *pressing* the **Up** or **Down** button.

Changing the Clamp Arms Operating Mode

The left and right clamp arms may be programmed to A. Lower together, B. Left first, then right, or C. Right first, then left. To adjust:

1. Press the **Up** button 14 times to advance to the screen and the words “Clamping: L+R” and Change [ENT] may appear, as shown.

Clamping: L+R Change [ENT]

2. Press the **ENT** button and the screen changes to “Clamping: L+R” and Change [Up, Down] followed by a flashing cursor. To program both clamps to lower together L+R, *press* ENT.

Clamping: L+R Change [Up, Down]

To program *the right clamp arm to lower first*, *press Up or Down* and when the R/L message appears on the screen, *press ENT*.

To program *the left clamp arm to lower first*, *press Up or Down* and when the L/R message appears on the screen, *press ENT*.

3. Once the **ENT** button is pressed, the new data will be saved and the screen will read “Data Saved!,” followed in approximately two seconds by the words “Clamping: L/R”

“Clamping: R/L” or “Clamping L+R”, depending upon your programming choice. The flashing cursor will disappear. Advance to the next menu option by *pressing* the **Up** or **Down** button.

MENU FUNCTIONS

Programming Optional Attachments

The stacker is an optional attachment for the Lockwelt 2000. To access:

Turning the Stacker Long Option On or Off

1. *Press* the **Up** button 15 times to advance to the appropriate screen and the words “Stacker L: OFF” and Change [ENT] will appear, as shown.

Stacker L: Off
Change [ENT]

2. *Press* the **ENT** button and the screen changes to “Stacker L: OFF” and Change [Up, Down] followed by a flashing cursor. *Press* the **Up** button to turn the stacker **ON**. *Press* the **Down** button to turn the stacker **Off**.

Stacker L: Off
Change [Up, Down]

3. *Press* the **ENT** button. The new data will be saved and the screen will read “Data Saved!,” followed in approximately two seconds by the words “Stacker L: ON” or “Stacker L: OFF”. The flashing cursor will disappear. Advance to the next menu option by *pressing* the **Up** or **Down** button.

Note: Clamps must be set to **raise** in the rear position or the stacker **will not** operate. See page 1-37.

Turning the Stacker Short Option On or Off

1. *Press* the **Up** button 16 times to advance to the appropriate screen and the words “Stacker S: OFF” and Change [ENT] will appear, as shown.

Stacker S: Off
Change [ENT]

2. *Press* the **ENT** button and the screen changes to “Stacker S: OFF” and Change [Up, Down] followed by a flashing cursor. *Press* the **Up** button to turn the stacker **ON**. *Press* the **Down** button to turn the stacker **Off**.

Stacker S: Off
Change [Up, Down]

3. *Press* the **ENT** button. The new data will be saved and the screen will read “Data Saved!,” followed in approximately two seconds by the words “Stacker S: ON” or “Stacker S: OFF”. The flashing cursor will disappear. Advance to the next menu option by *pressing* the **Up** or **Down** button.

MENU FUNCTIONS

Turning the Work Remover Option On or Off

The work remover is an optional attachment for the Lockwelt 2000. To access:

1. *Press* the **Up** button 17 times to advance to the appropriate screen and the words “Remover: OFF” and Change [ENT] will appear, as shown.

Remover: Off Change [ENT]

2. *Press* the **ENT** button and the screen changes to “Remover: OFF” and Change [Up, Down] followed by a flashing cursor. *Press* the **Up** button to turn the remover **On**. *Press* the **Down** button to turn the remover **Off**.

Remover: Off Change [Up, Down]

3. *Press* the **ENT** button. The new data will be saved and the screen will read “Data Saved!,” followed in approximately two seconds by the words Remover: ON” or “Remover: OFF”. The flashing cursor will disappear. Advance to the next menu option by *pressing* the **Up** or **Down** button.

Turning the Air Eject Option On or Off

The air eject is an optional attachment for the Lockwelt 2000. To access this option:

1. *Press* the **Up** button 18 times to advance to the appropriate screen and the words “Air eject: OFF” and Change [ENT] will appear, as shown.

Air Eject: Off Change [ENT]

2. *Press* the [ENT] button and the screen changes to “Air eject: OFF” and Change [Up, Down] followed by the flashing cursor. *Press* the **Up** button to turn the ejector **ON**. *Press* the **Down** button to turn the ejector **Off**.

Air Eject: Off Change [Up, Down]

3. *Press* the **ENT** button. The new data will be saved and the screen will read “Data Saved!,” followed in approximately two seconds by the words “Air Eject: ON” or “Air Eject: OFF”. The flashing cursor will disappear. Advance to the next menu option by *pressing* the **Up** or **Down** button.

MENU FUNCTIONS

Turning the Dart Stretcher Option On or Off

The dart stretcher is an optional attachment for the Lockwelt 2000. To access:

1. *Press* the **Up** button 19 times to advance to the appropriate screen and the words “D. Stretcher: OFF” and Change [ENT] will appear, as shown.

D. Stretcher: Off
Change [ENT]

2. *Press* the [ENT] button and the screen changes to “D. Stretcher: OFF” and Change [Up, Down] followed by the flashing cursor. *Press* the **Up** button to turn the dart stretcher **ON**. *Press* the **Down** button to turn the dart stretcher **Off**.

D. Stretcher: Off
Change [Up, Down]

3. *Press* the **ENT** button. The new data will be saved and the screen will read “Data Saved!,” followed in approximately two seconds by the words “D. Stretcher: ON” or “D. Stretcher: OFF”. The flashing cursor will disappear. Advance to the next menu option by *pressing* the **Up** or **Down** button.

Turning the Flap Clamp On or Off

Note: This switch operates at position four of the foot pedal and the automatic sew start, if on, operates at position five of the foot pedal. To access this option:

1. *Press* the **Up** button 20 times to advance to the screen, and the words “Flap Clamp: ON” and Change [ENT] will appear, as shown, followed by a flashing cursor.

Flamp Clamp: Off
Change [ENT]

2. *Press* the [ENT] button and the screen changes to “Flap Clamp: ON” and Change [Up, Down] followed by a flashing cursor. *Press* the **Up** button to turn the flap clamp **ON**. *Press* the **Down** button to turn the flap clamp **Off**.

Flamp Clamp: Off
Change [Up, Down]

3. *Press* **ENT** button. The new data will be saved and the screen will read “Data Saved!,” followed in approximately two seconds by the words “Flap Clamp: ON” or “Flap Clamp: OFF”. The flashing cursor will disappear. Advance to the next menu option by *pressing* the **Up** or **Down** button.

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MENU FUNCTIONS

Setting the Sew Start Cycle

The sew start cycle can be controlled two different ways, depending upon the operator preference. When set to start automatically, sewing begins with the pedal in either the fourth or fifth position, based on the setting of the flap clamp mode. When the flap mode is ON sewing starts in position five. When the flap mode is Off sewing starts in position four. Sewing may also begin manually by pushing the Start Sew switch (found on the sewing head in front of the locating lights) when the pedal is in position five. To access:

1. *Press* the **Up** button 21 times to advance to the appropriate screen and the words “Sew Start: Auto” and Change [ENT] will appear, as shown.

Sew Start: Auto Change [ENT]

2. *Press* the [ENT] button and the screen changes to “Sew Start: Auto” and Change [Up, Down] followed by a flashing cursor. *Press* the **Up** button to set the sew cycle on automatic. *Press* the **Down** button to set the sew cycle on manual.

Sew Start: Auto Change [Up, Down]

3. *Press* the **ENT** button. The new data will be saved and the screen will read “Data Saved!,” followed in approximately two seconds by the words “Sew Start: Auto” or “Sew Start: Man”. The flashing cursor will disappear. Advance to the next menu option by *pressing* the **Up** or **Down** button.

Setting the Clamp Arms to Raise in the Front or Rear

The clamps arms may be lifted in rear position after tab cutting, or after the carriage has returned to the front position. To set:

1. *Press* the **Up** button 22 times to advance to the appropriate screen and the words “Clamping Front” and Change [ENT] will appear, as shown.

Clamping Front Change [ENT]

2. *Press* the [ENT] button and the screen changes to “Clamping Front” and Change [Up, Down] followed by a flashing cursor. *Press* the **Up** button to lift the clamps in the front position or *press* the **Down** button to lift the clamps in the rear position.

Clamping Front Change [Up, Down]

3. *Press* the **ENT** button. The new data will be saved and the screen will read “Data Saved!,” followed in approximately two seconds by the words “Clamping: Front” or “Clamping: Rear”. The flashing cursor will disappear. Advance to the next menu option by *pressing* the **Up** or **Down** button.

Note: If the “front” parameter is selected, the stacker option **will not** work even if it has been programmed to be in the ON position.

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e-mail: service@amfreece.cz; parts@amfreece.cz; website: www.amfreece.com

Phones: +420 582 309 146 (Service), +420 582 309 286 (Spare Parts); Fax: +420 582 360 606

www.promelectroavtomat.ru

MENU FUNCTIONS

Setting the Carriage Return

The carriage can be programmed to return *either* automatically or manually at the end of the sew cycle. If manual return is used, the carriage will only return by using either the Sew Start switch (found in front of the locator lights) or the carriage front button (located on the control panel).

1. *Press* the **Up** button 23 times to advance to the appropriate screen and the words “Car. Return-Man” and Change [ENT] will appear, as shown.

<p>Carr. Return-Man. Change [ENT]</p>

2. *Press* the **ENT** button and the screen changes to “Car. Return-Man” and Change [Up, Down] followed by a flashing cursor. *Press* the **Up** button to set the carriage return to the auto position and the **Down** button for the carriage to return manually.

<p>Carr. Return-Man. Change [Up, Down]</p>
--

3. *Press* the **ENT** button. The new data will be saved and the screen will read “Data Saved!,” followed in approximately two seconds by the words “Carr. Return-Auto”. or “Carr. Return-Man”. The flashing cursor will disappear. Advance to the next menu option by *pressing* the **Up** or **Down** button.

Turning the Sewing Motor On or Off

Note: Turning the sewing motor off, turns off the center knife, tab knives, and the counter. *This feature is used to service the machine.* To program the sewing motor:

1. *Press* the **Up** button 24 times to advance to the appropriate screen and the words “Sew Motor: ON” and Change [ENT] will appear, as shown.

<p>Sew Motor: ON Change [ENT]</p>

2. *Press* the **ENT** button and the screen changes to “Sew Motor: ON” and Change [Up, Down] followed by a flashing cursor. *Press* the **Up** button to turn the sewing motor **ON**. *Press* the **Down** button to turn the sewing motor **Off**.

<p>Sew Motor: ON Change [Up, Down]</p>
--

MENU FUNCTIONS

3. *Press* the **ENT** button. The new data will be saved and the screen will read “Data Saved!,” followed in approximately two seconds by the words “Sew Motor: On” or “Sew Motor: Off”. The flashing cursor will disappear. Advance to the next menu option by *pressing* the **Up** or **Down** button.

Counting Sewing Cycles

1. *Press* the **Up** button 25 times to advance to the appropriate screen and the words “Count all” and Change ENT.: will appear, as shown.

Pocket Counter Clear - > [ENT]

2. *Press* the **ENT** button and the screen changes to “Count all:” and Change [Up,Down] followed by a flashing cursor. To set the work cycles counter, *press* the **Up** button to increase the number of cycles from 10 to 300 in one cycle increments. *Press* the **Down** button to decrease the number of cycles.

Pocket Counter Clear - > [ENT]

3. *Press* the **ENT** button. The new data will be saved and the screen will read “Data Saved!”, followed in approximately two seconds by the words “Count all” and the number of cycles entered. The flashing cursor will disappear. Advance to the next menu option by *pressing* the **Up** or **Down** button.

4. When using the center knife, the counter remains on. If the center knife is off, the counter is off. If the Emergency Stop push button is pressed in the middle of a work cycle, the counter does not work.

Setting the Counter to Zero

Each sewing cycle is automatically added to the counter. To reset the counter to zero:

1. *Press* the **Up** button four times to advance to the screen and the words “Pocket Counter” and Clear - [RET] will appear, as shown.

Pocket Counter Clear - > [RET]

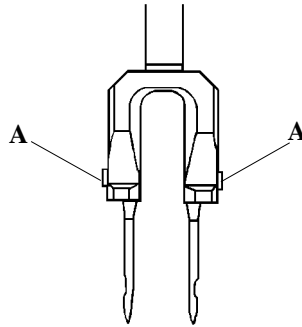
2. *Press* the **RET** button. The screen will read “OK!” followed in approximately two seconds by the words “Pocket Counter.” The machine will count sewing cycles from zero. Advance to the next menu option by *pressing* the **Up** or **Down** button.

MACHINE ADJUSTMENTS

Setting the Needles

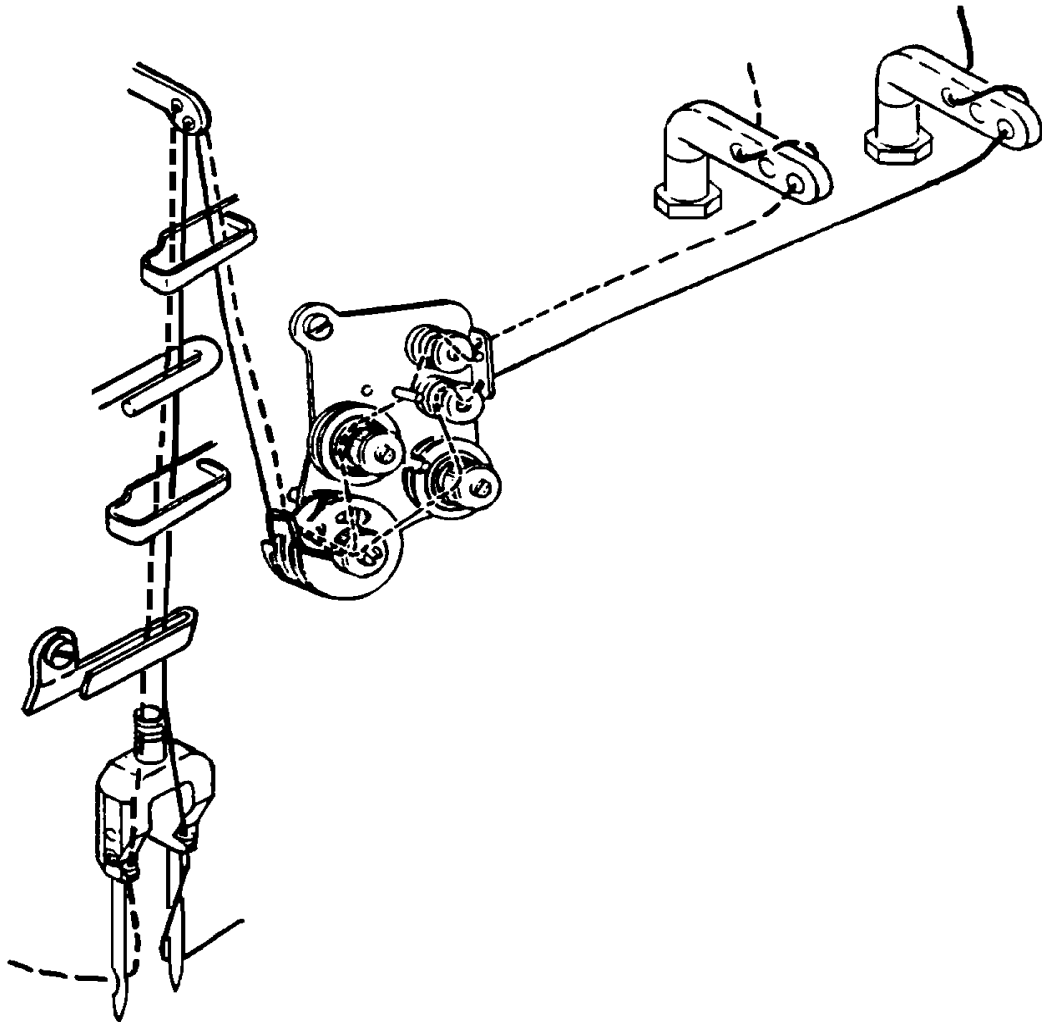
ATTENTION! Before changing needles, press Emergency Stop push button.

1. *Loosen* the screws **A**.
2. With the long thread groove facing inward, *insert* the needles all the way into the needle head.
3. *Tighten* the screws **A**.



MACHINE ADJUSTMENTS

Threading Diagram



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e-mail: service@amfreece.cz; parts@amfreece.cz; website: www.amfreece.com

Phones: +420 582 309 146 (Service), +420 582 309 286 (Spare Parts); Fax: +420 582 360 606

www.promelectroavtomat.ru

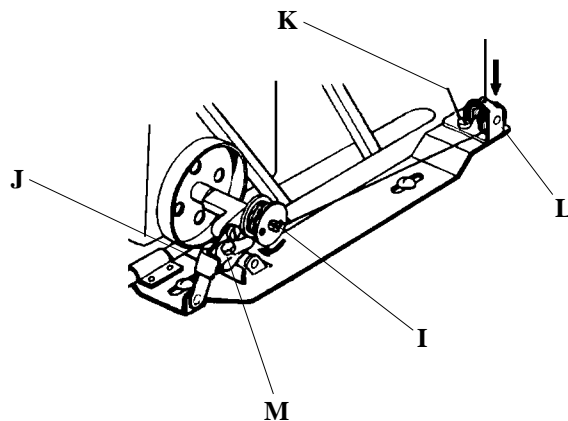
MACHINE ADJUSTMENTS

Winding the Bobbin Thread

ATTENTION! Before changing needles, press Emergency Stop push button.

1. *Ensure* the carriage is in the rear position.
2. *Remove* the thread from the needles.
3. *Remove* the bobbins from the hooks.
4. *Close* the latch on the hooks.
5. *Install* the bobbins onto the bobbin winder shaft **I**.
6. *Press* the bobbin winder stop latch **J** inward, until latched.
7. *Wind* the thread, in the direction of the arrow, around the bobbin several times.
8. *Operate* the sew head by pressing the S6 switch on the auxiliary control panel. The stop latch releases automatically when the bobbin is full.

Note: If the thread is not wound evenly, *loosen* screw **K** and *adjust* by moving the thread guide **L** to the side, as necessary. To wind more thread, *adjust* screw **M** inward.



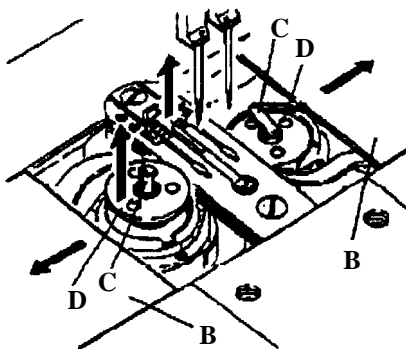
MACHINE ADJUSTMENTS

Removing the Bobbins

ATTENTION! Before changing needles, press Emergency Stop push button.

1. *Send* the carriage to the full rear and the needles to the highest position.
2. *Slide open* the left and right side plates.
3. *Open* the bobbin case covers **B**.
4. *Open* rotary hook latches **C**.

Note: If the threads of bobbins **D** are held by the fixed knife, push “lower” on the “Pick-Up Thread” switch, located on the control panel to release the bobbin thread.

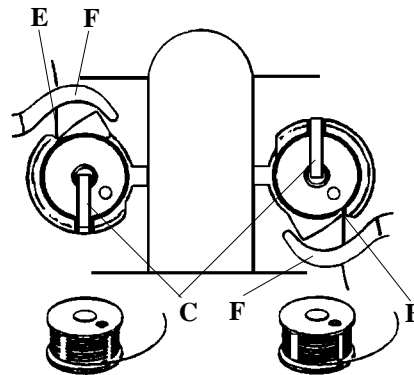
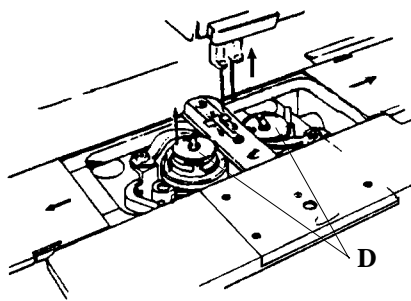


MACHINE ADJUSTMENTS

Loading and Threading the Bobbins

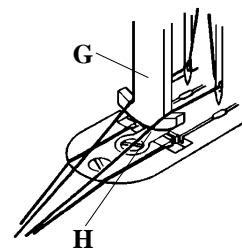
ATTENTION! Before changing needles, press Emergency Stop push button.

1. Holding bobbins **D**, to allow the end of the thread can be turned counter-clockwise, *place* the right and left bobbins into the bobbin case. *Close* the rotary latches **C**.
2. *Draw out* the thread end about 50 mm and *pull* the thread through slit **E** in the rotary hook, *place* the thread under the bobbin case opener **F**.
3. *Thread* the needles and *manually rotate* the machine drive pulley to bring the bobbin thread above the throat plate.
4. To stop rotation, hold the bobbin **D** and *pull* the two threads forward ensuring the thread enters into the tension plate of the basket.



Clamping the Needle and Bobbin Threads

1. *Align* the red mark on the sewing head with the white mark on the machine pulley.
2. *Pull* the two needle threads toward the rear, *press and hold* the upper “Pick Up” switch. The upper Thread Pick Up **G** will lower. *Pass* the two needle threads over the pick up. *Release* the switch, the thread will be trimmed and clamped.
3. *Press and hold* the lower “Pick Up” switch. The bobbin thread trimming knife **H** will shift to the right. *Pass* the two bobbin threads towards the rear through the slit in the throat plate. *Release* the switch, the threads will be trimmed and clamped.

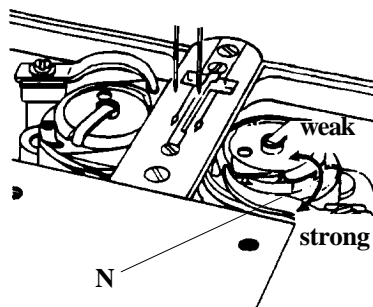


MACHINE ADJUSTMENTS

Bobbin Thread Tension

1. *Adjust* the bobbin thread tension by turning tension screw **N**.

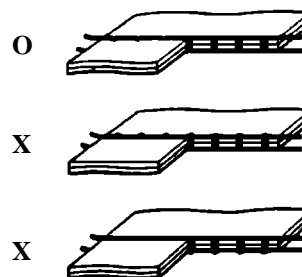
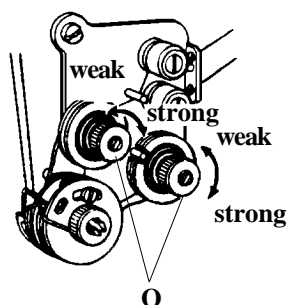
Note: The correct bobbin thread tension varies according to the fabrics and threads used.



Needle Thread Tension

1. *Adjust* the needle thread tension by *turning* tension nuts **O**.

When correct, top and bottom thread tension are shown below.

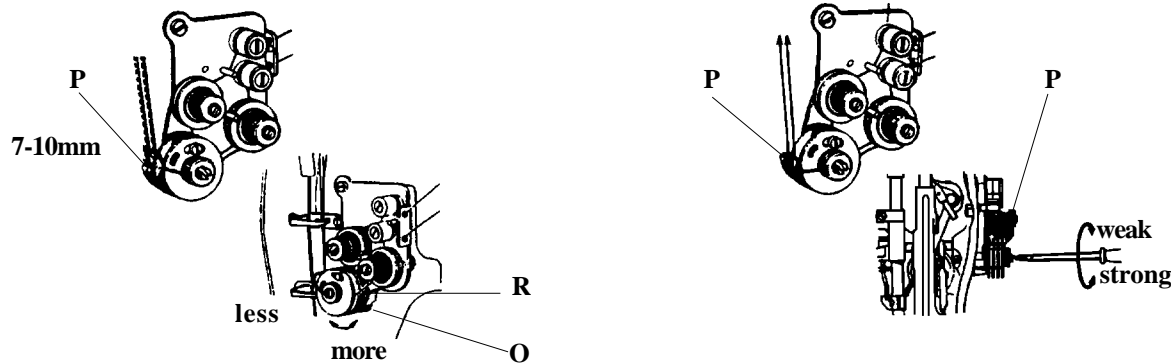


MACHINE ADJUSTMENTS

Adjusting the Thread Take-Up Spring

The operating range of the thread take-up springs **P** is 7-10mm. To adjust:

1. Loosen screw **Q** and turn spring stop **R** to achieve the correct measurement.



Adjusting the Timing Between the Rotary Hook and the Thread Take-Up

1. With the carriage in the rear position, remove the needles and move the slide covers to the left.
2. Tilt the sewing head back and remove timing belt **C**.
3. Align the white mark **B** on the machine pulley, with the red mark **A** on the sewing head. With these marks aligned, the take-up is top dead center.
4. Holding the upper shaft in place, align the arrow mark on the lower belt wheel **D** with the base line of the sewing head and set the timing belt **C**.
5. Lower the sewing head and install the needles.

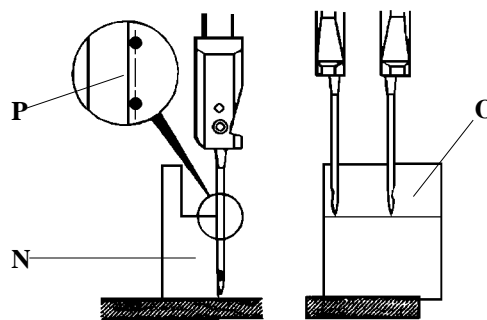
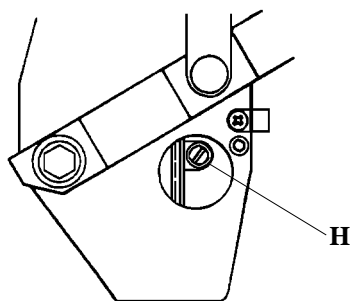
Note: This adjustment is factory set and *is only performed* when replacing a belt or one of the shafts.



MACHINE ADJUSTMENTS

Needle Height Setting

1. *Hold* gauge **N** (part number 46.1001.4.800) against the right side of the throat plate.
2. Manually *rotate* the needle bar to its highest position.
3. *Loosen* the screw **H** and *move* the needle bar up and down until the tips of the needles are flush with surface **O**.
4. Lightly *tighten* the screw **H**.
5. *Hold* gauge **N** against the needles and *ensure* both needles are parallel.
6. *Tighten* screw **H**.

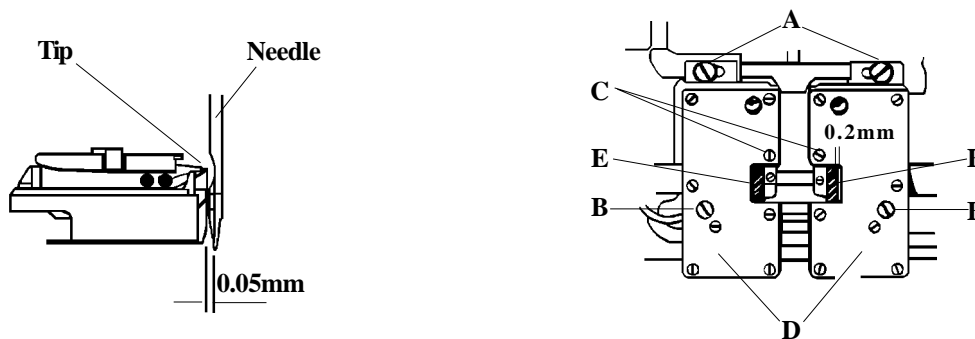


MACHINE ADJUSTMENTS

Setting the Distance Between the Rotary Hook and the Needle

The clearance between the needles and the tip of the rotary hook is .05mm. To adjust:

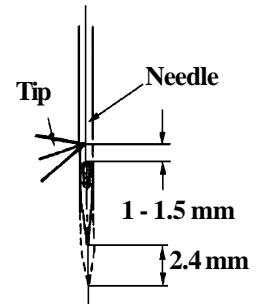
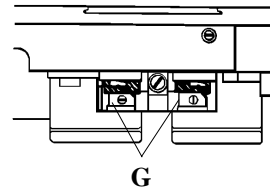
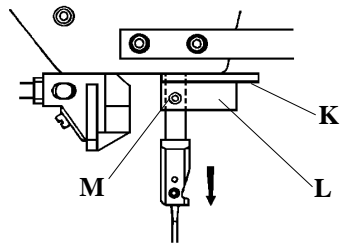
1. *Tilt* the sewing head back on the hinges.
2. *Loosen* the screws **A**, **B**, and **C** and *move* rotary hook bases **D** left and right, as necessary.
3. *Move* the lower shaft gear left and right, until obtaining a 0.2mm clearance between the inside of the rotary hook bases **D** and the end of the lower shaft gear.
4. *Tighten* the screws **C** on the lower shaft gears **E**, ensure the screws align with the slot on the shaft.



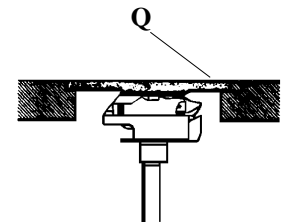
MACHINE ADJUSTMENTS

Setting the Timing Between the Needle Bar and the Rotary Hook

1. *Remove* the throat plate.
2. Manually *rotate* the needle bar to its lowest position.
3. *Install* gauge **K** (part number 46.1001.4.806) to the upper part of the needle bar against the under surface of the arm. *Install* gauge **L** (part number 46.1001.4.805) to the lower part of the needle bar against gauge **K** and *tighten* screw **M**.
4. *Remove* gauge **K**.
5. Manually *turn* the pulley in the correct rotational direction of the machine until gauge **L** contacts the under surface of the arm. The needle must rise 2.4 mm from the bottom dead center.
6. Loosen the three screws **G**.



7. *Align* the tip of the rotary hook with the center of the needle.
8. *Remove* the gauge **L**.
9. *Install* the gauge **Q** (part number 46.1001.4.803, 0.75 mm thick for standard thread, part number 46.1001.4.804, 0.9 mm thick for thick thread) on the machine bed.
10. *Raise* or *lower* the rotary hook against the under surface of the gauge.
11. *Tighten* screws **G**, illustrated above.. The clearance between the rotary hook and the throat plate must be 0.6 to 0.9 mm.



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e-mail: service@amfreece.cz; parts@amfreece.cz; website: www.amfreece.com
 Phones: +420 582 309 146 (Service), +420 582 309 286 (Spare Parts); Fax: +420 582 360 606

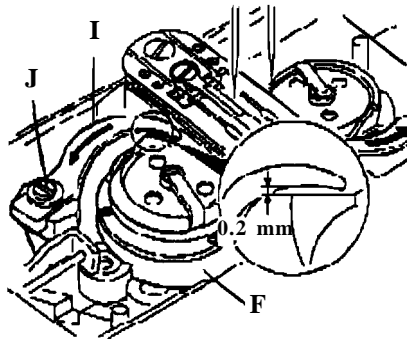
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MACHINE ADJUSTMENTS

Adjusting the Clearance Between the Rotary Hook and Bobbin Case Opener

1. *Loosen* the screw **J** and move the bobbin case opener left or right until a .2 mm clearance exists between the rotary hook **F** and bobbin case opener **I**, when the bobbin case opener retreats.
2. *Rotate* the handwheel to ensure the 0.2 mm is the minimum clearance through a complete rotation.
3. *Tighten* the screw.

Repeat adjustment for the opposite case opener.



MACHINE ADJUSTMENTS

Setting the Bobbin Thread Monitor

Isolated metal pins installed on both the left and right sides of the air cylinder. To adjust:

1. Turn *off* the air supply, *turn on* the power supply and *press* emergency stop push button.
2. *Position* the left-hand sensing bar to the extreme left, the cylinder rod will be extended.
3. *Position* the right-hand sensing bar to the extreme right, the cylinder rod will be retracted.
4. *Loosen* the metal sensing switch screws and *gradually move* the switch to the left and right until LEDs in **SQ5** and **SQ6** actuate, *tighten* the screws.
5. *Move* the sensing bar toward the rotary hook until the bar contacts the bobbin and the left-hand **HL 11** and right-hand **HL 13** actuate.

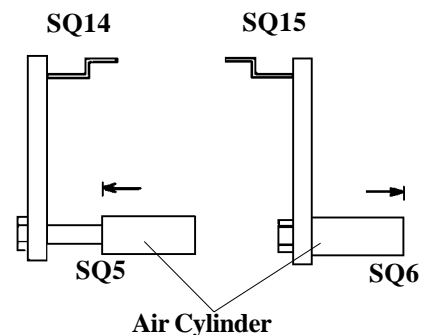
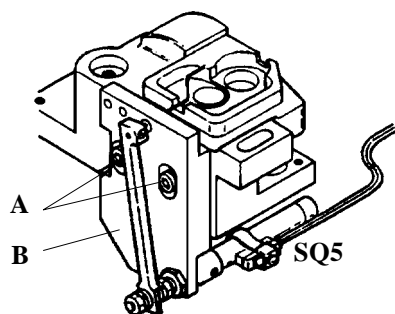
Note: If either **HL 11** or **HL 13** actuate *before* the sensing bar contacts the bobbin, the sensing bar is too close to the rotary hook.

To adjust:

1. *Loosen* the screws **A** and *move* the mounting bracket **B**, to correct the setting.
2. *Ensure* **HL 11** turns off when the sensor bar is moved a little distance past the position where **HL 11** actuates.
3. *Ensure* the tip of the sensing bar does not interfere with the tip of the rotary hook at the point where LEDs in **SQ5** and **SQ6** actuate.

Note: The above adjustments are correct for both the left and right-hand sensing bars.

CAUTION! Even though the air supply has been shut off, the power supply is still on. *To prevent damage to the rotary hook and bobbin thread monitor, ensure the machine does not operate when adjusting the bobbin thread monitor.*



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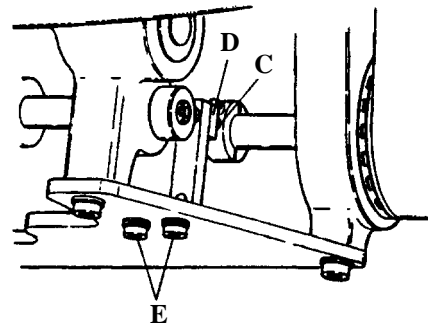
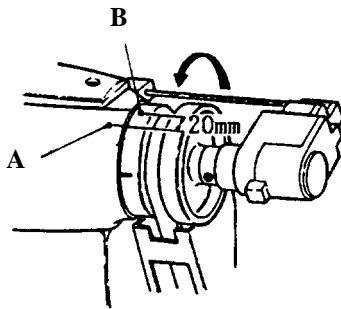
MACHINE ADJUSTMENTS

Adjusting the Optional Needle Thread Monitor

1. *Turn* the machine pulley in the direction of the correct machine rotation and *match* magnet **C** with position detector **D**.

2. Lamp 11 should *come on* approximately 25 mm before the white mark **B**, located on the machine pulley, lines up with the red mark **A** located on the machine arm. The lamp should *turn off* at approximately 20 mm before the red mark **A**. If timing is incorrect, *adjust* by loosening screw and *adjusting* the magnet collar.
Note: The clearance between the magnet **C** and position detector **D** should be between 0.5 to 1 mm.

3. To adjust the magnet to position the detector clearance: *loosen* screws **E** and move as necessary.



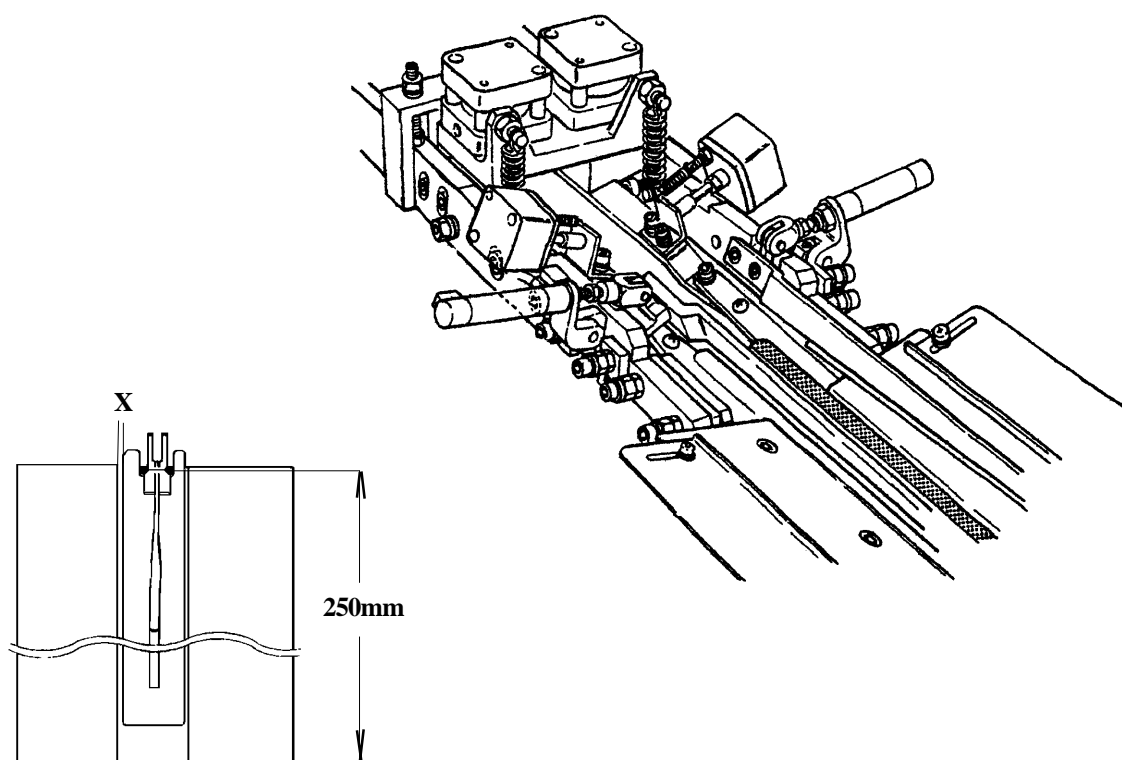
MACHINE ADJUSTMENTS

Carriage Adjustments

Setting the Carriage Home Position

The distance from the center of the needle to the tip of the clamp foot is 250 mm when the carriage is fully forward. To adjust:

1. *Adjust* the metal sensing switch **SQ7** until LED in **SQ7** actuates. See page 1-82.



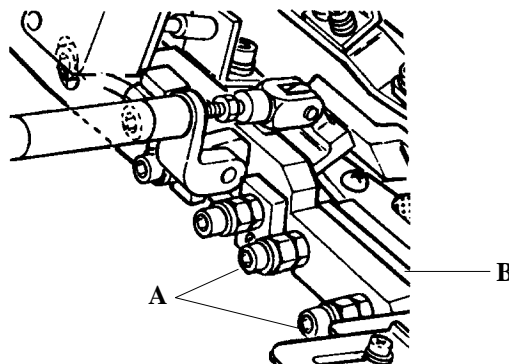
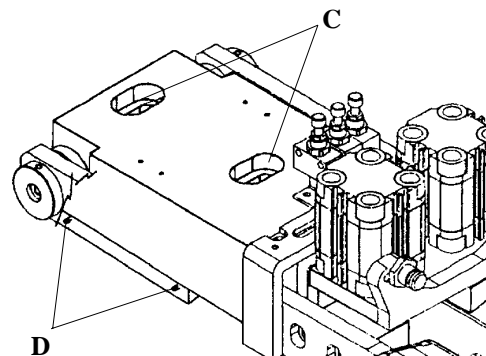
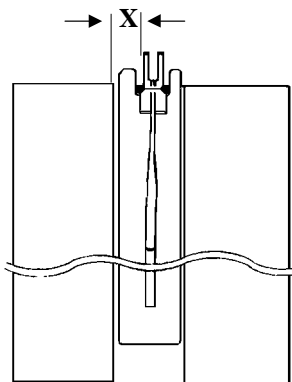
MACHINE ADJUSTMENTS

Setting the Clamp Feet Parallel

The left and right clamp feet must be parallel with the needles. To adjust:

CAUTION! Place material under the clamp feet to avoid rubber padding damage.

1. Partially *back out* the bushing adjusting screws **A**.
2. *Ensure* the correct spacer **B**, provided with the machine, is installed on the left clamp foot.
3. *Tighten* the bushing adjusting screws.
4. *Measure the distance between the needle and the clamp foot.*
5. *Move* the carriage to the front and rear position to ensure equal distances from the clamp feet to the needle.
6. *Loosen* carriage block allen screws **C** and *use* jacking screws **D** to obtain equal distance front and rear. *Check* both distances after each adjustment.

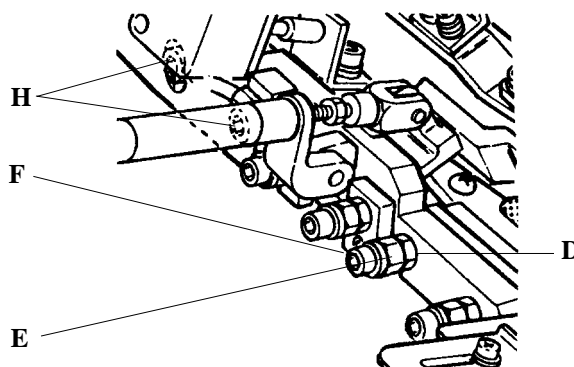


MACHINE ADJUSTMENTS

Setting the Clamp Foot Pressure

The front and rear clamp foot pressure must be equal. To adjust:

1. *Position* a piece of pocket stay material to be clamped by the front of the clamp foot. *Lower* the clamp foot, slide the material in and out to gauge the amount of holding pressure. *Repeat* the procedure in the rear of the clamp foot.
2. *Loosen* the screws **H** on the clamp foot connecting arm and *set* the rear pressure equal to the front.



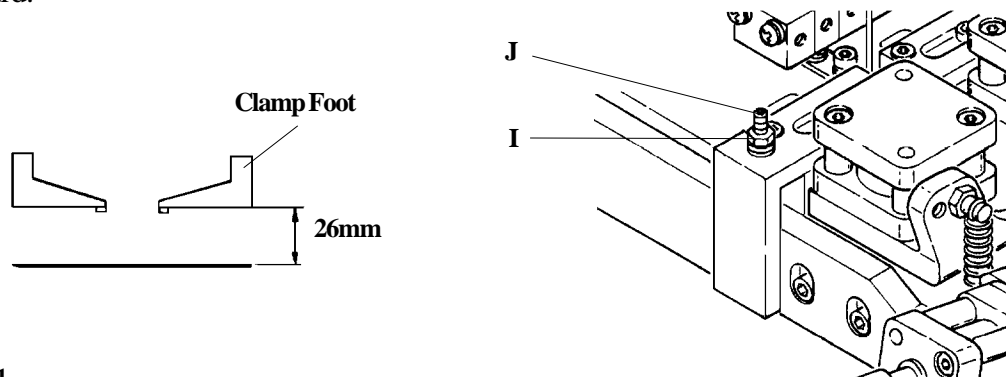
Setting the Clamp Foot Height

Clamp foot height is approximately 26 mm with the clamp foot in the front position. To adjust:

Note: The clamp foot is positioned at an angle, *measure* the **front** of the foot.

1. *Loosen* the lock nut **I** and *adjust* the adjusting screw **J**, as necessary.

Note: If using the flap clamp, **ensure** the flap clamp clears the under side of the sewing head, when the carriage moves forward.



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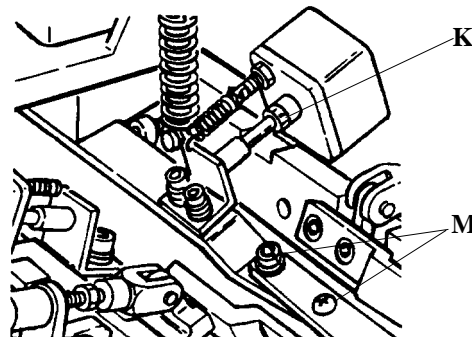
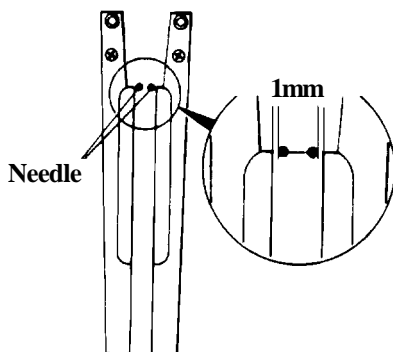
MACHINE ADJUSTMENTS

Setting the Brush Blade Parallel to the Needle

With the carriage in the front position, the needles and brush blade must be parallel and maintain a clearance of 1mm clearance. To adjust:

CAUTION! Place material under the clamp feet to avoid rubber padding damage.

1. Using the foot pedal, *lower* the patch guide, the brushes will close automatically.
2. *Press* the Emergency Stop push button.
3. *Lower* the needle manually to reference the measurement, keep needles above the material to avoid breakage, *measure* the distance from the needle to the brush blade.
4. Using the carriage rear push button, *jog* the machine to the rear position, *measure* the distance from the needle to the brush blade.
5. *Loosen* the nut **K** on the air cylinder and *turn* the piston rod of the air cylinder as necessary, the adjusting block **L** may have to be positioned in the slots to allow proper setting. *Check* the front and rear setting after each adjustment.
6. *Loosen* screws **M** on the brush blade to obtain the parallel setting.
7. *Pull* the Emergency Stop push button.
8. *Press* Reset to open the clamp feet. *Press* Front to return the machine to home position.



MACHINE ADJUSTMENTS

Patch Guide Adjustments

Setting the Patch Guide Parallel

With the patch guide in its lowest position, the patch guide and the slide plate must be parallel. To adjust:

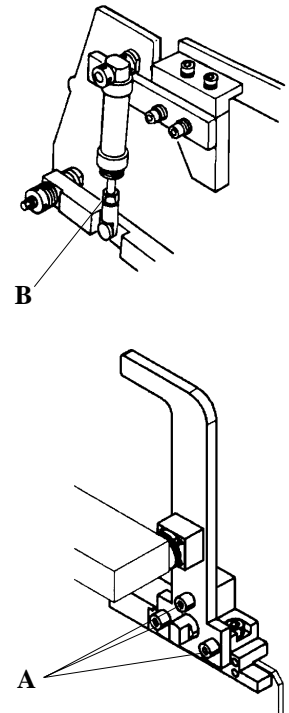
1. With the carriage in the rear position, *place* stay material, welt, pocket material, and body fabric under the patch guide and *ensure* a slight, even drag along the entire surface.

Setting the Patch Guide Height

With the patch guide in the lowest position, the patch guide must hold the material firmly but allow the material to slide smoothly. To adjust:

Note: The proper height will vary according to material thickness. When working with light to medium weight material, the clamp feet must be fitted with thin rubber padding, Part Number 46.1001.4.589, and for medium to heavy weight material, a thicker rubber padding must be used, Part Number 48.1125.5.960.

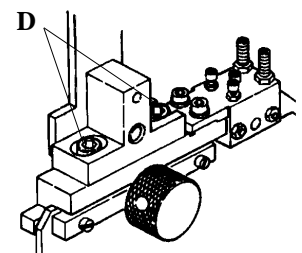
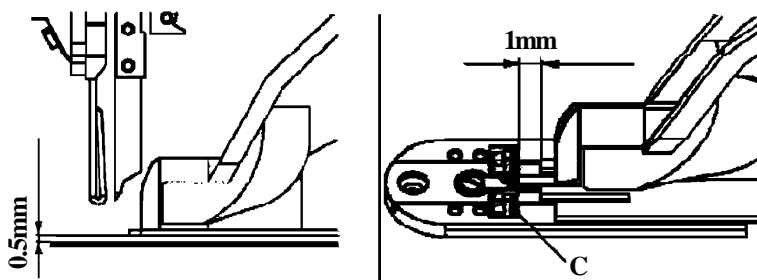
1. *Loosen* the three screws **A** and *adjust* the block, as necessary.
2. To *adjust* the clearance of 0.5 mm between the patch guide and the slide plate, *loosen* the nut **B** on the air cylinder and *turn* the cylinder piston rod in or out, as necessary.



Setting the Patch Guide Parallel to the Clamp Foot with Proper Guard Clearance

The patch guide and center knife guard **C** should be maintain a clearance of 0.5 mm. To adjust:

1. *Loosen* the screws **D** and *move* the patch guide in or out, as necessary.



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MACHINE ADJUSTMENTS

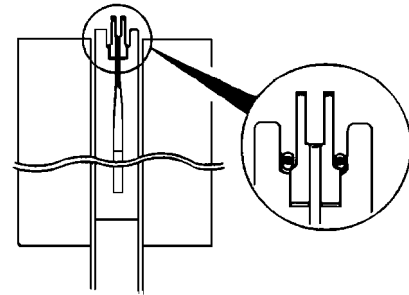
Aligning the Patch Guide to the Throat Plate

For Single or Double Welt Patch Guide Setting:

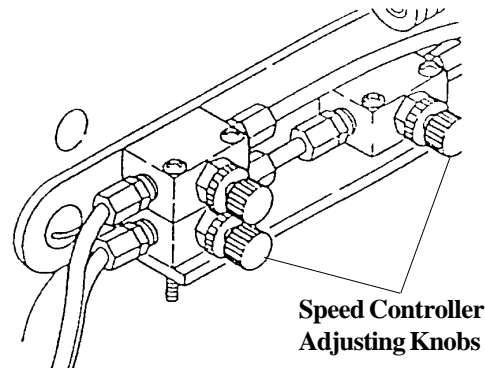
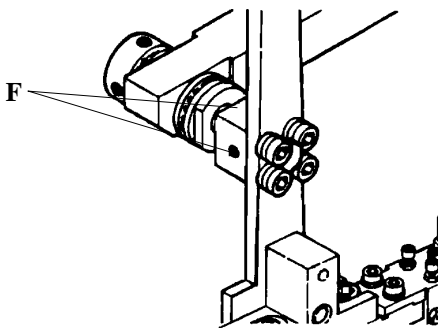
1. With the carriage in the rear position, using the foot pedal, *lower* the patch guide
2. *Press* the Emergency Stop push button.
3. Manually *lower* the needles into the patch guide slots.
4. **For Single Welt Patch Guide**, *Center* the needles to the throat plate. Go to step 7.
4. **For Double Welt Patch Guide**, *Lower* the needles into the patch guideslots. *Measure* the distance from the outer edge of the patch guide to the needle. The distance must be the same on each side of the patch guide.

If the distance is incorrect:

5. *Loosen* the set screws **F** and *move* the patch guide left or right, to obtain equal clearance.
6. When the clearance is correct, *tighten* screws **F**.
7. *Pull* out the Emergency Stop push button.
8. *Press* the Reset push button.
9. *Move* the carriage to the front position.



Note: Using the speed controller, *adjust* the patch guide to move smoothly up and down. The flow control is mounted on the back of the sewing head.



MACHINE ADJUSTMENTS

Clamp Foot to Patch Guide Clearance

When the patch guide lowers, the clearance between the patch guide and the clamp foot is 1.0 mm. To adjust:

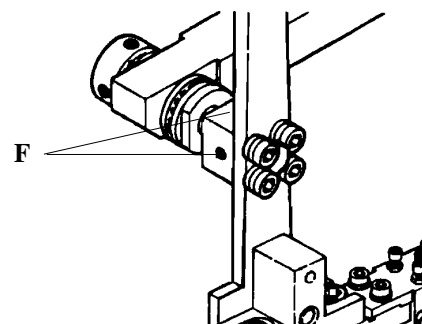
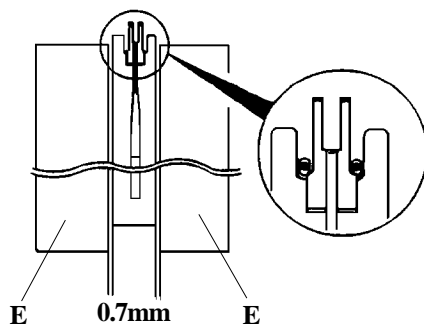
1. With the carriage in the home position, using the foot pedal, *lower* the clamp foot and the patch guide.
2. *Turn off* the two air line toggle switches supplying the brush blades.
3. *Press* the Emergency Stop push button.
4. *Check* the 1.0 mm clearance between the patch guide and the foot clamp.

If incorrect:

5. *Loosen* the screws **D** and locknuts **F**.

Note: *Check* for the proper spacer.

6. *Turn* the adjusting screws **G** until the 1.0 mm clearance is obtained in the front and rear of the patch guides.
7. *Tighten* the screws and nuts, *check* the front and rear clearance, *adjust* as needed.
8. *Pull* out on the Emergency Stop push button.
9. *Press* the Reset push button.
10. *Press* Carriage Front to return the machine to home position.



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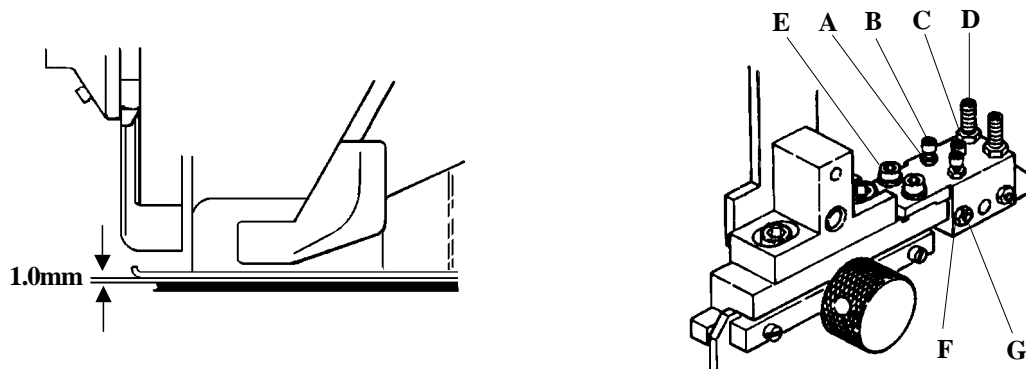
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MACHINE ADJUSTMENTS

Needle Guards Adjustment

The clearance between the surface of the patch guide and the needle guides is 1.0 mm. With thicker material, the required clearance may increase. To adjust:

1. *Loosen* the nuts **A**.
2. *Adjust* screws **B** in or out, to raise or lower the guards as necessary.
3. *Tighten* the nuts **A**.

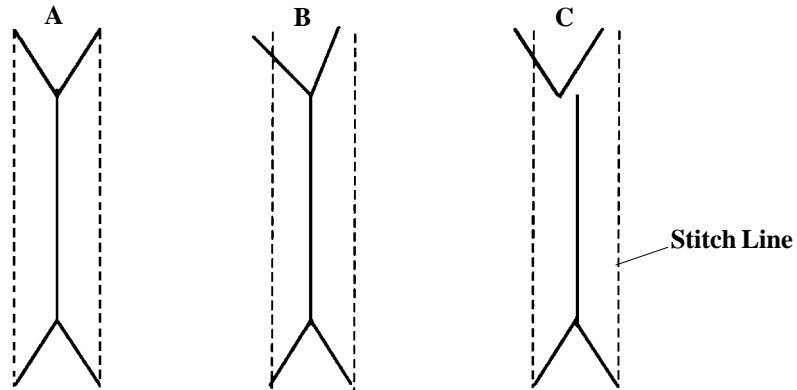


4. Depending on the material thickness, the down pressure of the needle guard is adjustable. When the needle guard is raised manually and the needle is in the lowest position, *loosen* nut **C** and *turn inward* on spring plunger **D** to apply more needle guard pressure.
5. The needle guard should move up and down smoothly without side to side play. To adjust: *loosen* the nuts **F** and *turn* adjusting screws **G**.
6. To make the left and right side needle clearance equal, *loosen* screws **E** on the needle guard mounting block.

MACHINE ADJUSTMENTS

Adjusting the Tab Knife Position

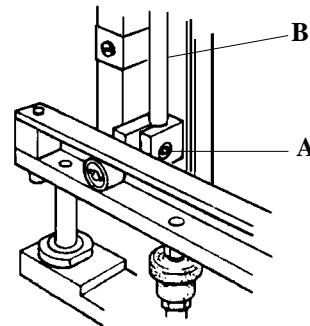
The illustrations below show **A** the correct position, **B** the slanted position, and **C** the knife shifted to either the left or the right.



Tab Knife Holder Rotational Adjustments

To adjust for the slanted position:

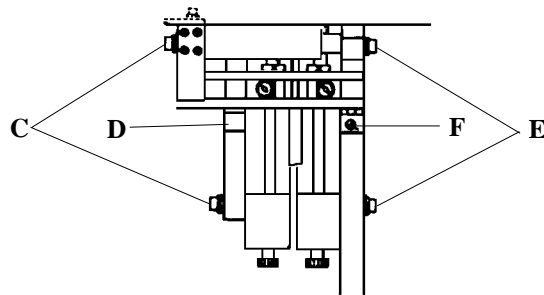
1. *Loosen* the screw **A** of the tab knife shaft holder.
2. *Turn* the tab knife shaft **B**.
3. *Tighten* the screw.



MACHINE ADJUSTMENTS

Tab Knife Side to Side Adjustments

1. When the position of the **start end** is shifted, the adjustment is made by *loosening* screws **C** of the **rear** tab knife holder and *turning* the adjusting screw **D**.
2. *Turn* the screw **D** clockwise to shift the knife to the left, as viewed from above the tab knife.
3. *Turn* the screw **D** counterclockwise to shift the knife to the right, as viewed from above the tab knife.



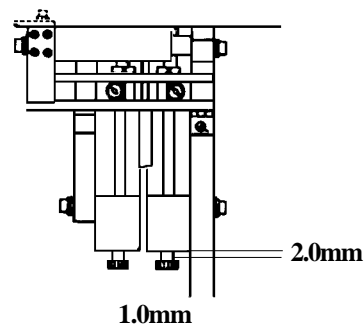
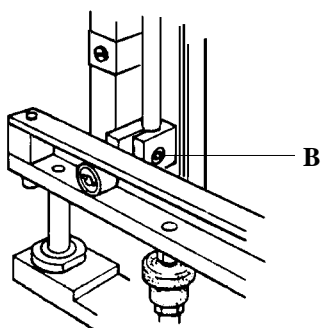
4. When the position of the **finished end** is shifted, the adjustment is made by *loosening* the screws **E** of the **front** tab knife holder and *turning* the adjusting screws **F**.
5. *Turn* the screw **F** clockwise to shift the knife to the left, as viewed from above the tab knife.
6. *Turn* the screw **F** counterclockwise to shift the knife to the right, as viewed from above the tab knife.

MACHINE ADJUSTMENTS

Adjusting the Tab Knives Clearance and Height

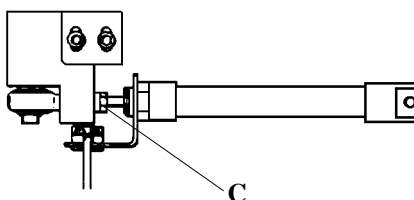
When the tab knives are in the highest position, there should be 2 mm clearance, for 16-20 mm bite size range, the long tab knife, and approximately 60 mm clearance for the 10-14 mm range, the short tab knife, between the fixing bar and the tab knives holder. To adjust:

1. *Loosen* the screw **B**.
2. *Move* the fixing bar up or down, as necessary.
3. *Tighten* the screw **B**.



When the front tab knives return to the home position, there should be 1 mm clearance between the rear holder and the front holder. To adjust:

1. *Loosen* the lock nut **C** on the tab knife cylinder.
2. *Screw* the cylinder piston rod in or out of the clevis, as necessary.
3. *Tighten* the lock nut **C**.



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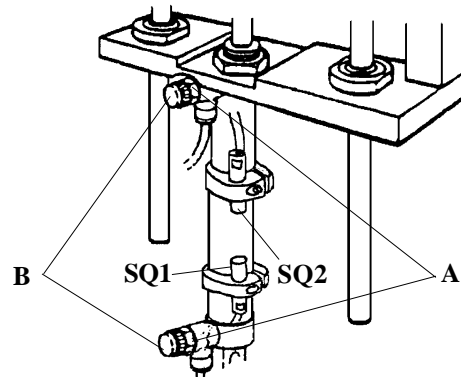
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MACHINE ADJUSTMENTS

Adjusting the Tab Knife Travel Speed

The speed of the raising and lowering of the tab knife is controlled by the air cylinder valves located on the top and bottom of the cylinder. To adjust:

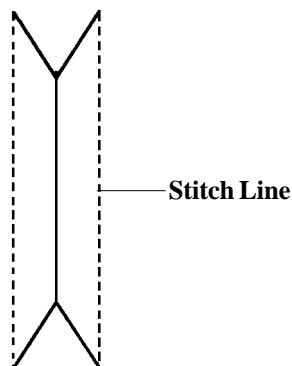
1. *Loosen* the knurled lock **A** and *adjust* the valves **B** to increase or decrease the speed of travel.



Adjusting the Tab Knife to the Stitch Line

SQ1 home position sensor, when the tab knives are down. SQ2 is the tab knife down sensor, when the tab knives are in the automatic up mode. To adjust:

1. To make the cut of the tab knife closer to the stitch line, *position* sensor SQ2 higher on the air cylinder.
2. To move the cut further from the stitch line, *position* SQ2 lower on the air cylinder.

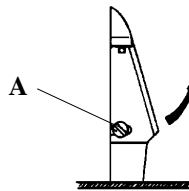


MACHINE ADJUSTMENTS

Replacing the Tab Knives

1. With the carriage in the rear position, *turn on* switch **S3** to raise the tab knives.
2. *Loosen* screws **A** and *remove* the old tab knife.
3. *Install* the new tab knife, align the knife slot with the pin and push upward. *Ensure* the rear edge of the tab knife is flush with the rear edge of the tab knife support.
4. *Tighten* the screws **A**.
5. *Turn off* the switch **S3 (Tab Man)**. The tab knives will lower.

Caution: When using ceramic tab knives, **do not** drop the knives or over *tighten* the screws or the knives may break.

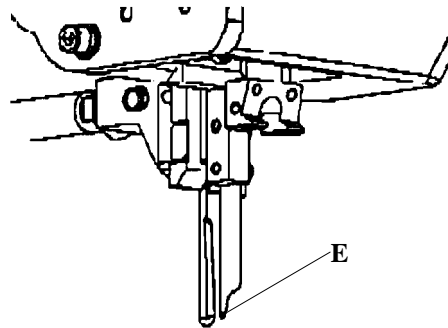
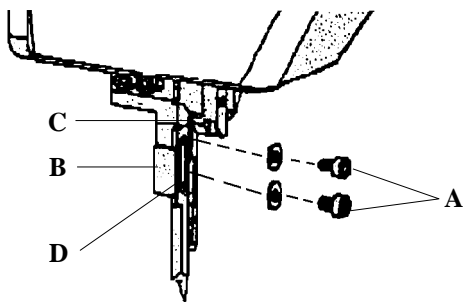


MACHINE ADJUSTMENTS

Replacing the Center Knife

1. With the carriage in the rear position, *turn on* switch **S2** to *lower* the center knife.
2. *Remove* the two screws **A** and the center knife.
3. *Install* the new center knife by placing the knife up against surfaces **C** and **D**.
4. *Install* the screws **A** and tighten securely.
5. *Turn off* switch **S2**.

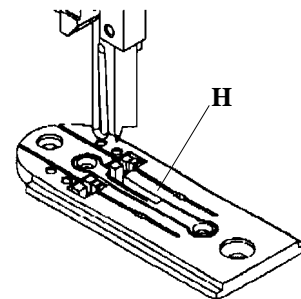
Caution: While installing the center knife, be careful not to damage the knife tip **E**.



Adjusting the Center Knife

The center knife must contact the carbide insert in a scissors motion to trim the material correctly. To adjust:

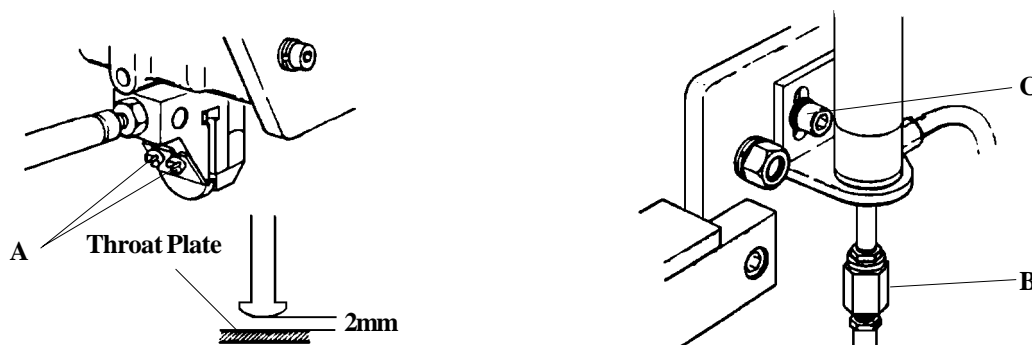
1. With the carriage in the rear position, *turn on* switch **S2** to *lower* the center knife.
2. *Loosen* the screws **F** and *align* the mounting bracket to ensure the knife makes contact with the insert.
3. *Tighten* screws **F**.
4. *Loosen* the screw **G** to *place* the knife against the insert **H**.
5. *Tighten* screw **G**.



MACHINE ADJUSTMENTS

Replacing the Needle Thread Trim Knife

1. *Loosen* the screws **A** and *remove* the knife.
2. *Adjust* the new trim knife to the pick-up.
3. *Tighten* screws **A**.



Adjusting the Pick-Up Hook

When the pick-up hook is in the lowest position there is 2 mm clearance from the throat plate. To adjust:

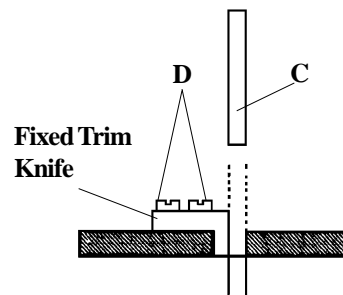
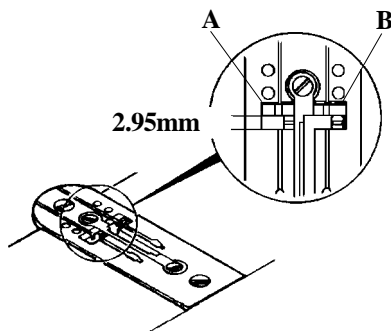
1. *Loosen* nut **B** on the universal joint and rotate the connecting rod in or out as necessary, tighten nut **B**.
2. The upper position is adjusted by loosening the two screws **C** and *moving* the cylinder as needed to ensure proper clamping of the thread.

Note: This required distance is higher than 2 mm when sewing thicker material.

MACHINE ADJUSTMENTS

Replacing the Fixed Bobbin Thread Trim Knives

1. *Remove* the throat plate.
2. *Remove* the screws **D** located on the underside of the throat plate.
3. *Remove* the fixed knives **A** and **B**.



4. *Install* the new fixed knives to the throat plate ensuring proper engagement pressure by using gauge **C** (part number 46.1001.4.807).
5. *Insert* the gauge into the throat plate, *move* the fixed knife against the gauge and align the slots in the fixed knife with the slots in the throat plate, *tighten* screws **D**.

Note: Repeat adjustments for the opposite fixed knife.

Note: When a gauge is not available, *use* the moveable knife as a gauge to set the 2.95mm clearance.

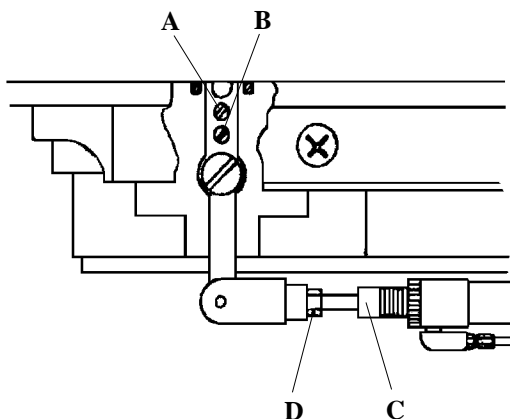
MACHINE ADJUSTMENTS

Replacing the Movable Bobbin Thread Trim Knife

1. With the carriage in the rear position, *swing* the two slide plates to the left, clear of the sewing head bedplate.
2. *Remove* the throat plate.
3. *Tilt* the sewing head back.
4. *Remove* the screw **A** from the movable knife, *loosen* screw **B** and *remove* the knife.
5. *Install* the new movable knife and *replace* screw **A**. (The height of the moveable knife adjustment is aided by *slightly tightening* the screws **A** and **B**.)
6. *Install* the throat plate and manually *position* the movable knife to ensure the highest trimming position does not rise above the throat plate.
7. To adjust the amount of the knife movement to the left, *loosen* screw **C** and *move* the collar left and right, as necessary.
8. To adjust the amount of knife movement to the right, *loosen* the lock nut **D** and *rotate* the cylinder piston rod in or out, as necessary and *tighten* the lock nut **D**.

Note: The moveable knife is correctly adjusted when the knife *does not hit* the sides of the throat plate when moved from left to right, or right to left.

Note: The movable knife may be installed backwards, the sharp cutting edge must face the fixed knives and the dull edge faces the front of the throat plate.



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
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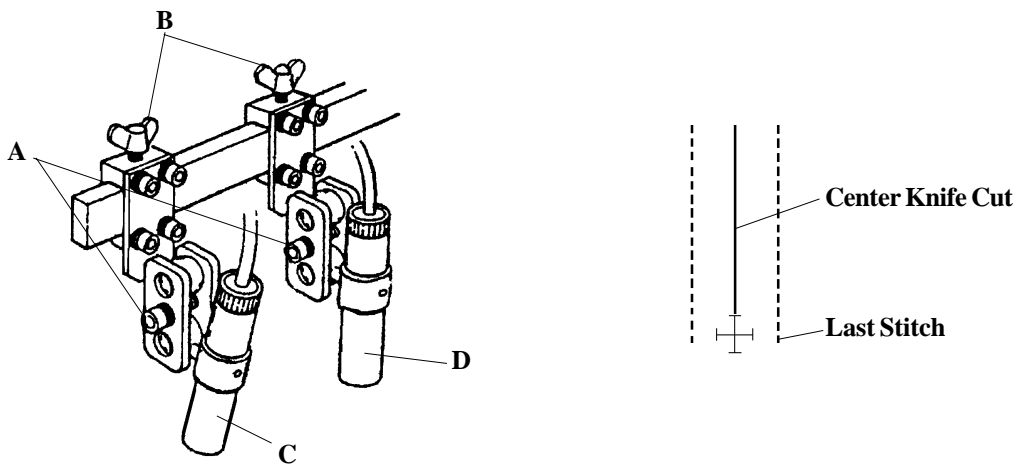
MACHINE ADJUSTMENTS

Adjusting the Work Locating Lamp

The work locating lamp indicates the correct position for the pocket. To adjust:

1. Set mark  at the correct position for attaching the pocket.
2. Loosen the screw **A** to make left and right adjustments.
3. Loosen the wing nuts **B** to make front and rear adjustments.

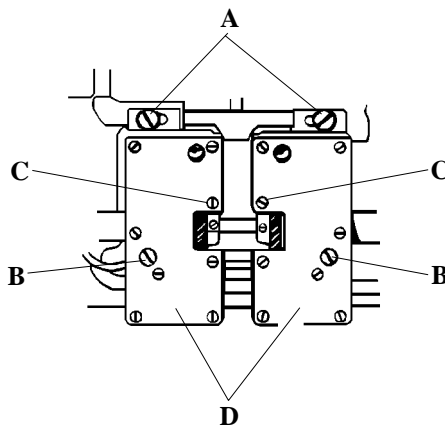
Note: Light **C** is used to adjust for the last stitch and the center cut. Light **D** is set for the center cut, but not for the first stitch, it will vary with different length pockets.



MACHINE ADJUSTMENTS

Changing the Needle Bite

1. *Remove* the needles and the needle holder.
2. *Remove* the throat plate.
3. *Remove* the movable knife.
4. *Install* the new needle holder with the new needles and adjust, page 1-40 .
5. *Loosen* screws **A**, **B**, and **C** and *move* the rotary hook base **D** left or right, as necessary.
6. *Reset* the hook timing, page 1-47 through 1-49.
7. *Install* the throat plate.

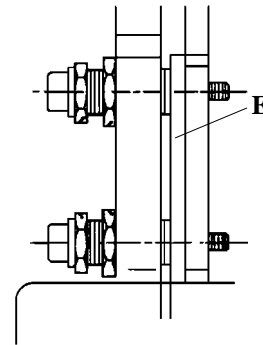
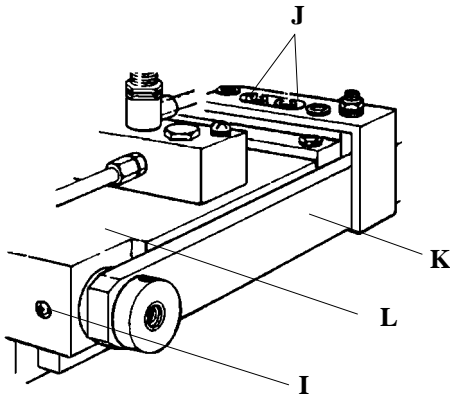


MACHINE ADJUSTMENTS

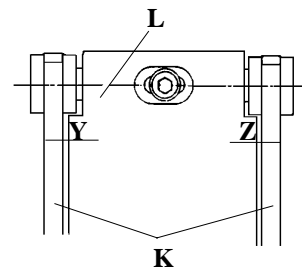
Adjustments Required When Changing the Needle Bite Size

To change the needle bite size:

1. *Loosen* both the left and right screws **I**, located on the foot shaft, and screws **J** on the clamp foot positioner.
2. **Refer** to the table on page 1-76 and *adjust* the clearance **Y** and **Z** between the clamp foot arm **K** and carriage block **L**.



3. *Change* to the proper clamp foot spacer **E**.
4. *Change* the needle head.
5. *Change* the throat plate.
6. *Change* the fixed bobbin thread trimming knife and the movable bobbin thread trim knife.
7. *Change* to the proper patch guide.
8. *Change* to the correct needle guard block and needle guard shaft.
9. *Change* the tab fingers.
10. *Change* the trimming hanger.
11. *Change* the left and right slide plates.
12. *Change* the trimming blade.
13. *Change* the left and right thread holders.



NOTE: Please refer to the charts on pages 3-58 through 3-61 for parts numbers.

MACHINE ADJUSTMENTS

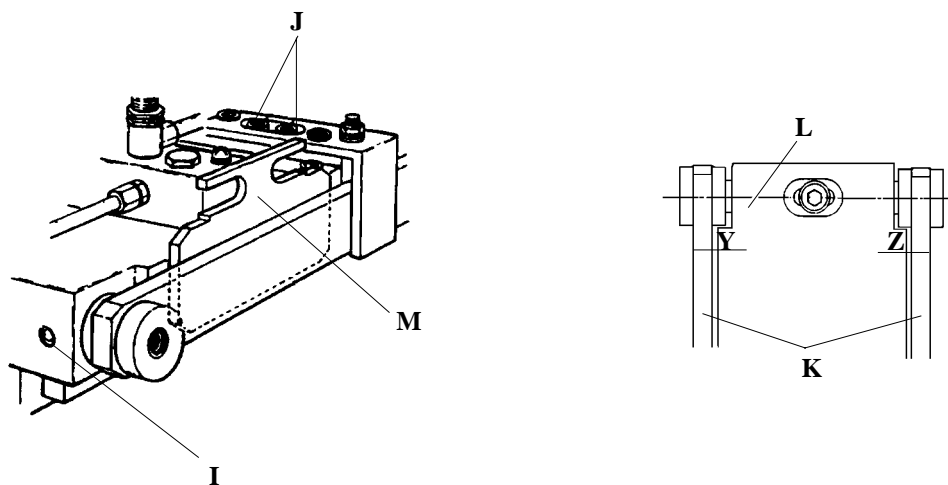
14. Insert the gauge **M** between the clamp foot arm **K** and carriage block **L** and *eliminate* any clearance between them.

15. *Tighten* the screws **I** and **J**.

16. *Run* the machine and *check* the sewing performance and movement of each part.

Note: When the needle bite size and the width of the patch guide are changed, gauge **M** also ***must be changed.***

Refer to page 3-48 in the Illustrated Parts for gauge **M** part numbers.



MACHINE ADJUSTMENTS

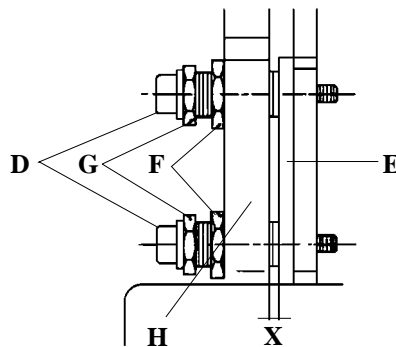
Bite Size Adjustments

Needle holder, patch guide size, spacer thickness, and clearances must all be adjusted when the bite size changes. To make the correct adjustments, refer to the table below.

Needle Holder	Patch Guide Size	Spacer Thickness	Clearance		
			X (left-right)	Y (left)	Z (right)
10mm	17.5mm	3.75mm	Adjust	0	0
10mm	18.5mm	4.25mm	Adjust	0	0
12mm	22.0mm	5.00mm	Adjust	3.5mm	2.25mm

Clearance X Adjustments

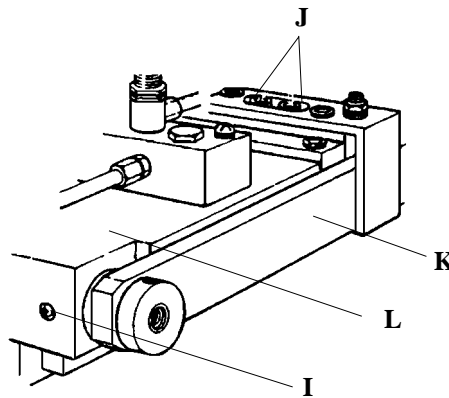
1. *Loosen* the lock nuts **F**, adjusting nuts **G**, and screws **D**.
2. *Adjust* the clearance between the clamp foot connecting arm **H** and the clamp foot spacer **E** according to the fabric thickness.
3. *Tighten* the lock nuts **F** and screws **D**.



MACHINE ADJUSTMENTS

Y and Z Clearance Adjustments

1. *Loosen* the screws **I**, located on the clamp foot shaft, and screws **J**, located on the clamp foot positioner.
2. *Adjust* the clearance between the clamp arm **K** and carriage block **L** according to the bite size.



MACHINE ADJUSTMENTS

Converting Between Single and Double Welt

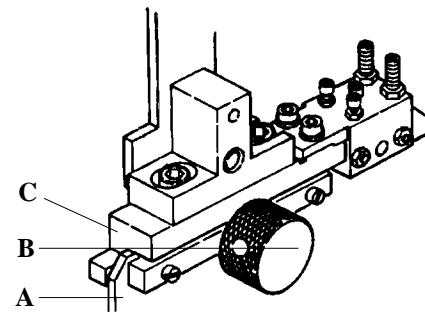
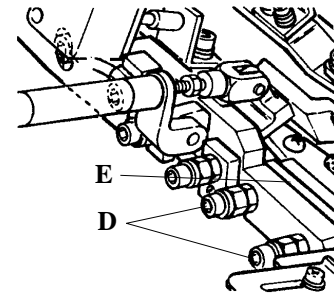
Changing the patch guide.

1. *Hold* surface **A** of the patch guide against surface **B** of the mounting block and *tighten* fixing knob **C**.

2. *Loosen* the screws **D** and *remove* clamp foot spacers **E**.

3. For single welting, *remove* the clamp foot spacer **E** from the left side and *insert* the spacer **E** onto the right side (machine viewed as the operator). For double welting, *insert* the clamp foot spacer onto the left side.

4. *Tighten* the screws **D**.



Machines	Bite Size	Welting	Patch Guide		Spacer	
			Size	Part Number	Thickness	Part Number
LW 2000-C 10-175S	10mm	S (Single)	17.5mm	39.0003.0.001	3.75mm	39.0064.5.019
LW 2000-C 10-175D	10	D (Double)	17.5	39.0003.0.002	3.75	39.0064.5.019
LW 2000-C 10-180S	10	S	18	39.0003.0.003	4	39.0064.5.020
LW 2000-C 10-180D	10	D	18	39.0003.0.004	4	39.0064.5.020
LW 2000-C 10-185S	10	S	18.5	39.0003.0.005	4.25	39.0064.5.021
LW 2000-C 10-185D	10	D	18.5	39.0003.0.006	4.25	39.0064.5.021
LW 2000-C 12-210S	12	S	21	39.0003.0.007	4.5	39.0064.5.022
LW 2000-C 12-210D	12	D	21	39.0003.0.008	4.5	39.0064.5.022
LW 2000-C 12-220S	12	S	22	39.0003.0.009	5	39.0064.5.023
LW 2000-C 12-220D	12	D	22	39.0003.0.010	5	39.0064.5.023
LW 2000-C 12-230S	12	S	23	39.0003.0.011	5.5	39.0064.5.024
LW 2000-C 12-230D	12	D	23	39.0003.0.012	5.5	39.0064.5.024
LW 2000-C 14-270S	14	S	27	39.0003.0.013	6.5	39.0064.5.031
LW 2000-C 14-270D	14	D	27	39.0003.0.014	6.5	39.0064.5.031
LW 2000-C 16-300S	16	S	30	39.0003.0.015	7	39.0064.5.032
LW 2000-C 16-300D	16	D	30	39.0003.0.016	7	39.0064.5.032
LW 2000-C 16-310S	16	S	31	39.0003.0.017	7.5	39.0064.5.033
LW 2000-C 16-310D	16	D	31	39.0003.0.018	7.5	39.0064.5.033
LW 2000-C 18-350S	18	S	35	39.0003.0.019	8.5	39.0064.5.034
LW 2000-C 18-350D	18	D	35	39.0003.0.020	8.5	39.0064.5.034
LW 2000-C 20-390S	20	S	39	39.0003.0.021	9.5	39.0064.5.035
LW 2000-C 20-390D	20	D	39	39.0003.0.022	9.5	39.0064.5.035

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PREVENTIVE MAINTENANCE

It is important to establish a good preventive maintenance program and to use it.

Routine cleaning and upkeep of your machine requires:

- oil
- vacuum cleaner
- paint brush
- parts brush

Warning: Never use an air blower in place of a vacuum. An air blower may circulate dirt particles and damage the cam.

Periodic Maintenance Checklist

Daily




- Oil the machine.
- Remove lint from the rotary hook and bobbin case opener.

Weekly

- Check the belt tension.
- Inspect the knife and block. Replace parts as needed.
- Drain excess water from the compressed air filter.

Monthly

- Ensure the proper stop motion.
- Check for loose hardware. Replace parts as needed.
- Check the throat plate for wear. Replace plate as needed.

Recommended values for screws tightening (Nm):			
			
M3	0,5	0,6	0,8
M4	1,2	1,5	2,0
M5	2,5	3,0	4,0
M6	4,0	5,0	7,0
M8		8,0	16,0
M10		10,0	30,0

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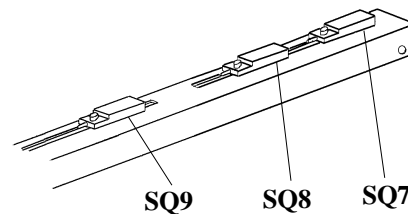
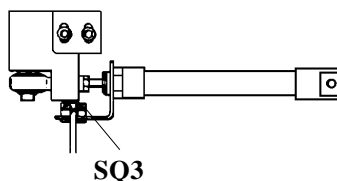
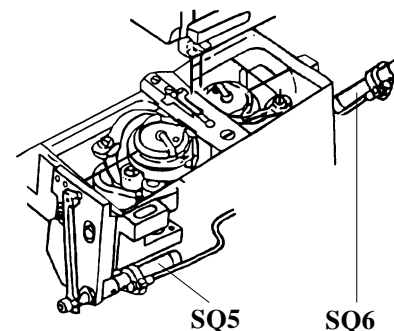
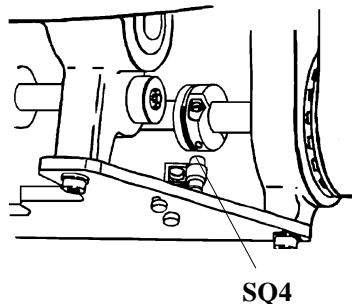
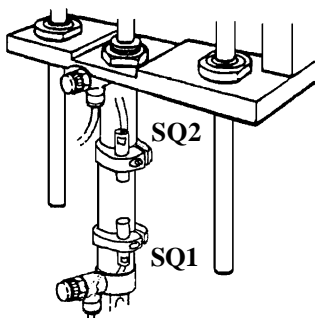
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UNDERSTANDING THE METAL SENSING SWITCHES

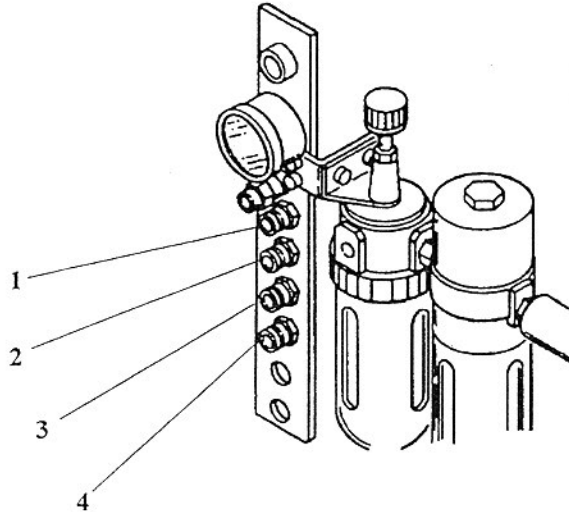
1. The carriage home switch **SQ7** should be adjusted to ensure the distance between the needle and the front of the clamp foot is 250 mm when the carriage is in the full forward position. The LED in **SQ7** and **SQ8** will be actuated.
2. The function of the slow down switch **SQ8** is to fix the point of the carriage slow down, and stop correctly in the home position **SQ7**. **Note:** When the slow down is detected, LED in **SQ8** will be actuated.
3. The function of the carriage rear switch **SQ9** is to fix the position of the carriage when it travels to the full rear position. (**SQ9** is adjusted the head should be tilted back on its hinges with a total end of carriage clearance between the head, of 50 mm.) **Note:** When the carriage is detected in the rear position, LED in **SQ9** will be actuated.
4. The function of the tab knives upper limit switch **SQ2** is to limit the rise of the tab knives to 11 mm above the slide plate after the sewing is completed. **Note:** When the tab knives rise to the correct height, LED in **SQ2** will be actuated.
5. The function of the tab knives lower limit switch **SQ1** is to ensure the tab knives return to the lowest position. **Note:** When the tab knives reach the lowest position, LED in **SQ1** will be actuated.
6. The function of **SQ3**, the tab knives Home position sensor, is to ensure the movable tab knives holder returns to the Home position. **Note:** When the tab knives return to the Home position, LED in **SQ3** will be actuated.
7. When the needles are above the throat plate, sensor **SQ4** allows the stepping motor to move the carriage. **Note:** The machine will not operate, unless switches **SQ1**, **SQ3**, **SQ7**, sensor **SQ4**, and bobbin monitors **SQ5** and **SQ6** are actuated.



MACHINE CONNECTIONS

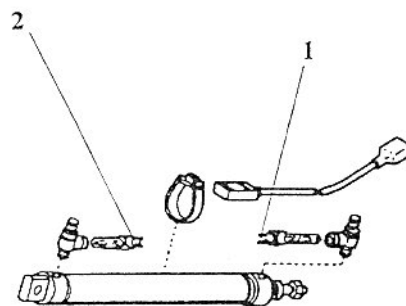
Air Controlled Device Connections

Connect the vinyl tube of each device to numbers one trough four on the panel connector, as shown.

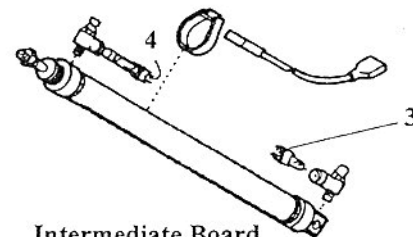


Trouser Stacker Connections

1. Set switch T10, located on the control in the power box to „0“ and *turn on* S4, located on the lower switch panel.



Intermediate Board
 Connector No. 27



Intermediate Board
 Connector No. 26

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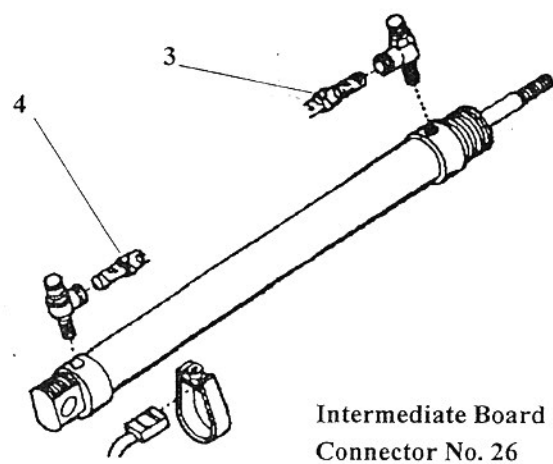
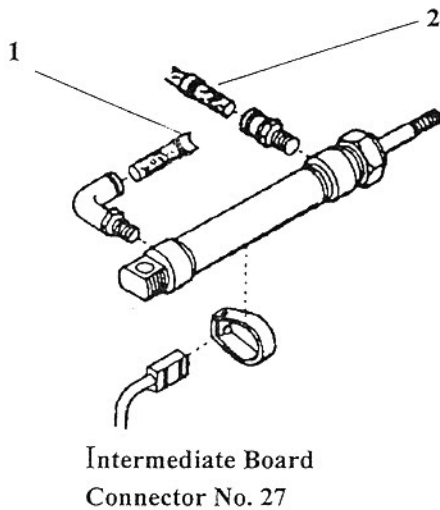
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MACHINE CONNECTIONS

Work Remover Connection

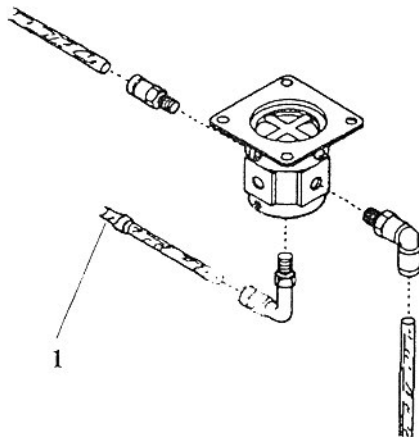
1. Set switch T10, located on the control board in the power box to "1".
2. Turn on S4, located on the lower switch panel.



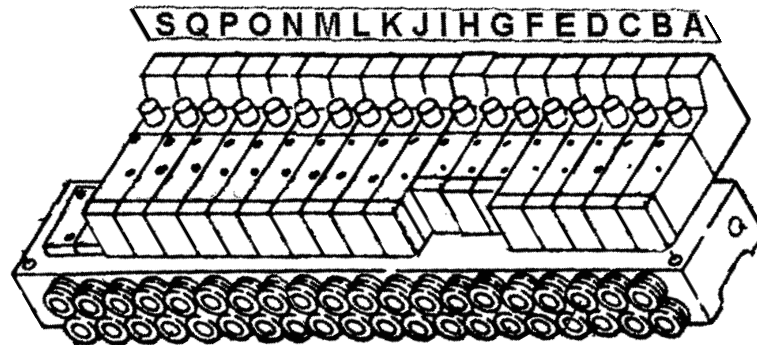
Air Ejector Connection

1. Set switch T10, located on the control board in the power box to "2".
2. Turn on S4, located on the lower switch panel.

Note: To adjust the operating time, use switch T2, found on the control board.



PNEUMATIC VALVE LAYOUT



- A. Ex. Cylinder A
- B. Ex. Cylinder B
- C. Tab Knives Up, Bobbin Thread Monitor Down
- D. Needle Thread Trim
- E. Bobbin Thread Trim
- F. Center Knife
- G. Tab Knife Clamp
- H. Tension Release
- I. Needle Thread Hold
- J. Patch Guide Down, Thread Take-Up
- K. Patch Guide Up
- L. Brush Blade
- M. right Clamp Foot
- N. Left Clamp Foot, Oil Return Pump
- O. Air Blow
- P. Dart Stretcher
- Q. Flap Clamp
- S. Ex. Cylinder S

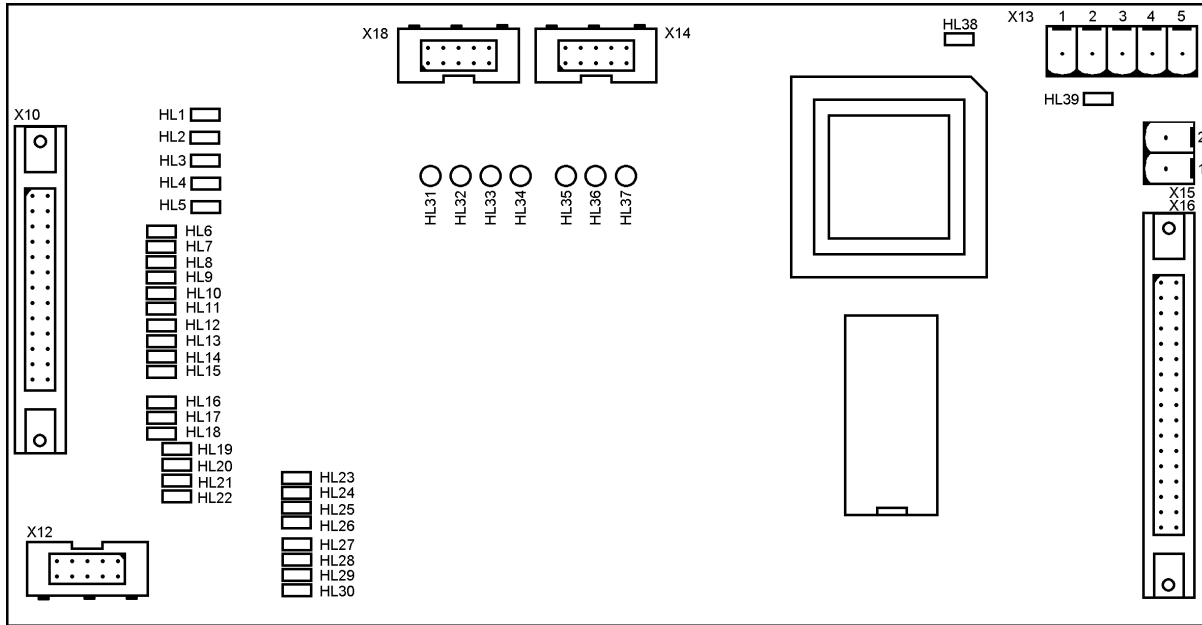
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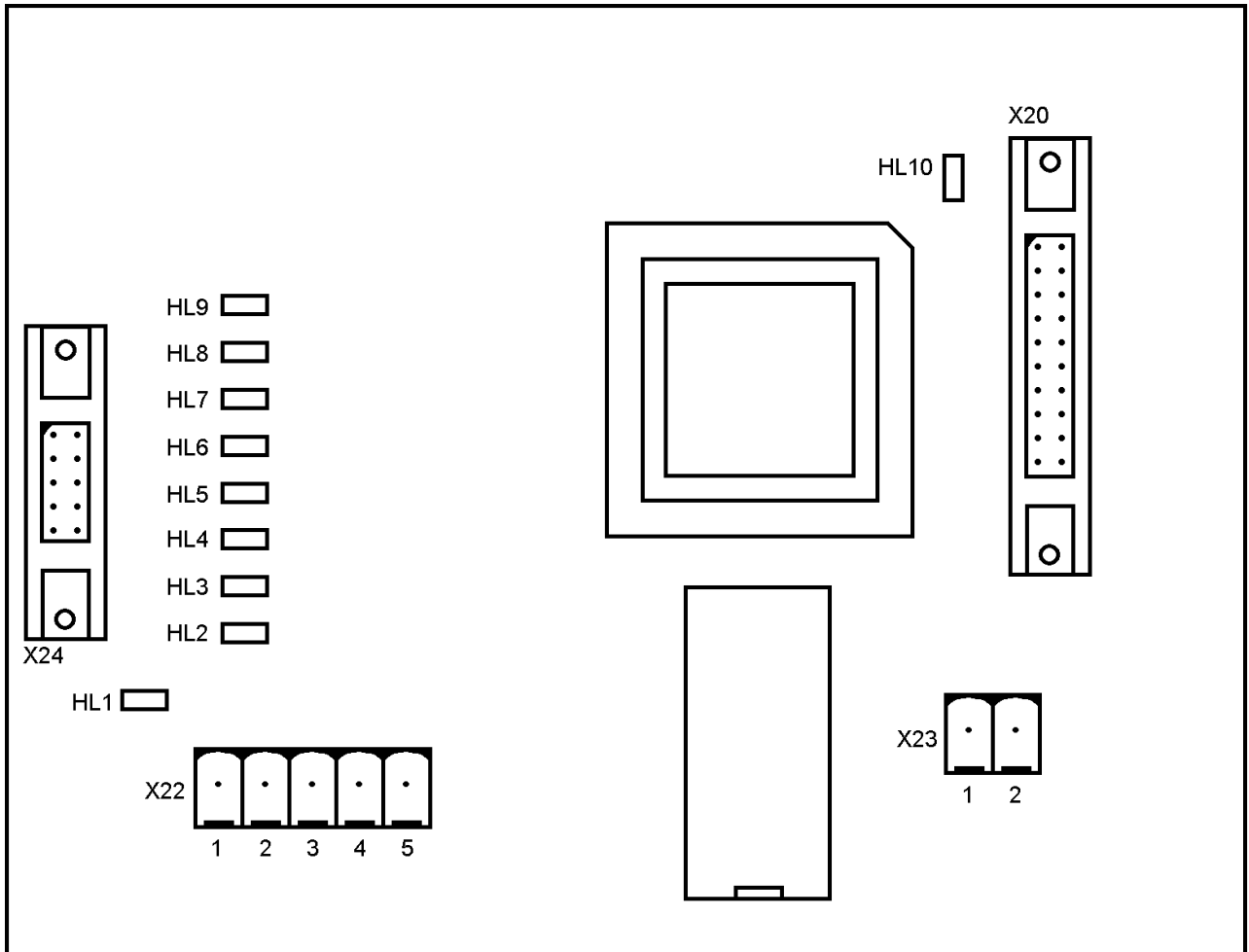
OUTPUT DRIVER BOARD AP1



HL1	GREEN			HL21	GREEN	SQ7	CARRIAGE FRONT POSITION
HL2	GREEN		STEP MOTOR OK	HL22	GREEN	SQ8	CARRIAGE SLOW DOWN POSITION
HL3	GREEN	SQ19	FLAMP CLAMP SENSOR	HL23	GREEN	SQ17	STACKER
HL4	GREEN	SA1	EM. STOP BUTTON	HL24	GREEN	SQ18	FLAMP CLAMP SENSOR
HL5	RED	SQ13	TOP THREAD MONITOR 1	HL25	RED		PEDAL 1
HL6	GREEN	S7	START BUTTON	HL26	GREEN		PEDAL 0
HL7	GREEN	SQ1	TAB KNIFE HOME POSITION	HL27	GREEN		PEDAL 2
HL8	GREEN	SQ2	TAB KNIFE WORKING POSITION	HL28	GREEN		PEDAL 3
HL9	GREEN	SQ5	LEFT BOBBIN MONITOR HOME POSITION	HL29	GREEN		PEDAL 4
HL10	RED	KM2	SEW MOTOR CONTACTOR	HL30	RED		PEDAL 5
HL11	GREEN	SQ14	LEFT BOBBIN MONITOR CONTACT	HL31	GREEN		SEW MOTOR WIRE 3
HL12	GREEN	SQ12	TOP THREAD MONITOR 2	HL32	GREEN		SEW MOTOR WIRE 1
HL13	GREEN	SQ15	RIGHT BOBBIN MONITOR CONTACT	HL33	GREEN		
HL14	GREEN	SQ6	RIGHT BOBBIN MONITOR HOME POSITION	HL34	GREEN		SEW MOTOR WIRE 2
HL15	RED	SQ4	NEEDLE POSITION	HL35	N.C.		
HL16	GREEN	SQ16	DART STRETCHER	HL36	GREEN		STEP MOTOR DIRECTION
HL17	GREEN	SQ11	STACKER	HL37	GREEN		PULSES TO STEP MOTOR
HL18	GREEN	SQ10	STACKER	HL38	GREEN		POWER ON
HL19	GREEN	SQ3	TAB KNIFE CLAM HOME POSITION	HL39	GREEN		(BLINKING) = CPU IS RUNNING
HL20	RED	SQ9	CARRIAGE REAR POSITON				

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OUTPUT DRIVER BOARD AP2



HL1	GREEN	POWER OK
HL2	GREEN	BUTTON S3
HL3	GREEN	BUTTON S4
HL4	GREEN	BUTTON S2
HL5	RED	BUTTON S5
HL6	GREEN	BUTTON S1
HL7	GREEN	BUTTON S6
HL8	GREEN	
HL9	GREEN	
HL10	RED	(BLINKING)=CPU IS RUNNING

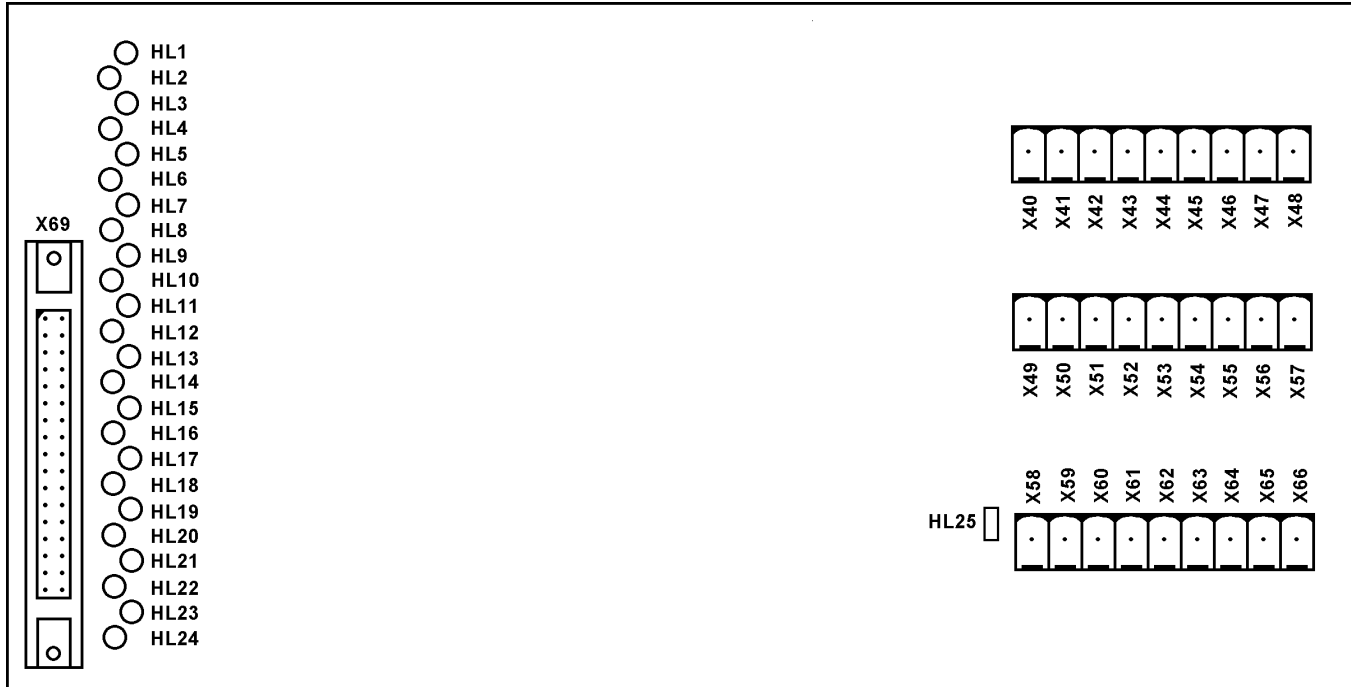
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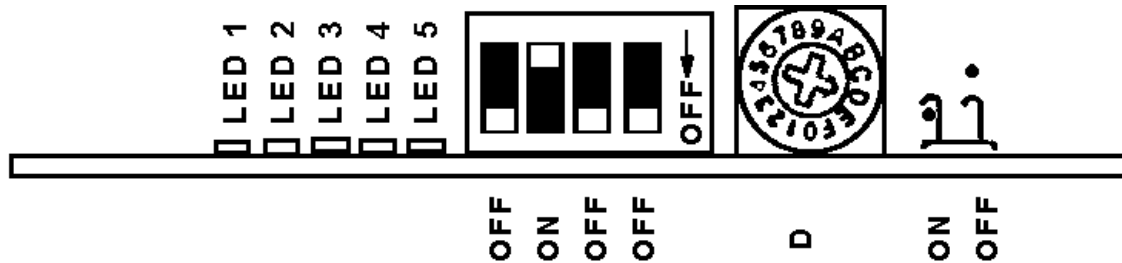
OUTPUT DRIVER BOARD AP3



HL1	GREEN			
HL2	GREEN			
HL3	GREEN			
HL4	GREEN			
HL5	RED	X45	S	EX. CYLINDER S
HL6	GREEN	X46	-	FLAMP CLAMP
HL7	GREEN	X47	Q	FLAMP CLAMP
HL8	GREEN	X48	P	DART STRETCHER
HL9	GREEN	X50	I	NEEDLE THREAD HOLDER
HL10	RED	X51	J	PATH GUIDE DOWN, THREAD TAKE-UP
HL11	GREEN	X52	K	PATCH GUIDE UP
HL12	GREEN	X54	M	RIGHT CLAMP FOOT, OIL RETURN PUMP
HL13	GREEN	X53	L	BRUSH BLADES
HL14	GREEN	X55	N	LEFT CLAMP FOOT
HL15	RED	X56	O	AIR BLOW
HL16	GREEN	X57	H	TENSION RELEASE
HL17	GREEN	X58	A	EX. CYLINDER A
HL18	GREEN	X59	B	EX. CYLINDER B
HL19	GREEN	X60	C	TAB KNIVES UP, BOBBIN MONITOR
HL20	RED	X61	D	NEEDLE THREAD TRIM
HL21	GREEN	X62	E	BOBBIN THREAD TRIM
HL22	GREEN	X63	F	CENTER KNIFE
HL23	GREEN	X64	G	TAB KNIFE ROD CLAMP
HL24	GREEN	X65	KM2	SEW MOTOR CONTACTOR
HL25	RED			POWER ON

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STEPPING MOTOR



LED 1 - lights up when the card is operating properly. The supply voltage exceeds 80 VDC.

LED 2 - lights up in case of a short-circuit between two motor phase leads.

LED 3 - lights up in case of overtemperature ($> 75^{\circ}\text{C}$) at the heat sink.

LED 4 - lights up in case of overvoltage ($> 140\text{ V}$)

LED 5 - lights up in case of undervoltage ($< 80\text{ V}$)

Malfunction	Cause	Rectification
No LED lights	Supply voltage not available	Check supply voltage
	Supply voltage not properly connected	Connect supply voltage properly
Motor does not turn and does not have a holding torque	Zero current signal input active	Deactivate the input
	Motor incorrectly wired	Wire motor properly
Motor does not turn but does have a holding torque	Gate signal input active	Deactivate the input
	Pulse signal input	Adjust timing and signal voltage level
Motor turns irregularly	Pulse and direction signal inputs	Adjust timing and signal voltage level
	Overload	Check load conditions
	Motor defective	Replace motor
Motor turns in wrong direction	Motor phase leads inverted	Connect motor phase leads properly
	Direction signal input incorrectly set	Ensure correct sense of rotation
Motor torque too low	Motor phase current incorrectly set	Adjust phase current

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TROUBLESHOOTING

INPUT/OUTPUT TEST MENU FUNCTIONS

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CHECKING THE SEWING MOTOR CONNECTIONS	2-25
CHECKING THE CONTROL BOARD CONNECTIONS	2-25

TROUBLESHOOTING

Input/Output Test Menu Functions

The two test menus may be accessed from the Operator or Program menu by pushing the **F2** button. In the test menu, Input Tests are accessed by pushing **F1**. Output Tests are accessed by pushing **F2**.

Tests Input - F1
 Tests Output - F2

Note: Input Tests are used to check the sensors, switches, and the foot pedal. Output Tests are used to check the pneumatic components, KM2 contacts, and step motor.

Note: To exit and return to the operator menu, push the RET button two times.

Performing Input Tests - F1

Note: To move forward in the program, *push* the **Up** button; to move back in the program, *push* the **Down** button.

1. *“Carriage Front Position”*

SQ7 (table front sensor)

On carriage in front position.

Off carriage not in front position.

Table Front
 Sensor: On

2. *“Slowing of the Carriage Speed”*

SQ8 (table slow down sensor)

On carriage speed is slower than normal.

Off carriage speed is normal.

Table Slow Down
 Sensor: On

TROUBLESHOOTING

3. “*Carriage Rear Position*”

SQ9 (table back sensor)

On carriage in rear position.

Off carriage is not in the full rear position.

Table Back Sensor: On

4. “*T. Knife Vertical Movement*”

Switch **S3** (located on the lower auxiliary panel) should be **Off**. If an **ON** reading is shown, the manual switch which controls the manual lift of the tab knife, is in the servicing position.

ON the **SQ1** (tab knife down) sensor indicates the tab knives are in the full down (home) position. **Off** reading means the tab knives are not in home position.

ON the **SQ2** sensor indicates the tab knives are in the up position.

Home position is: **S3**: Off, **SQ1**: On; **SQ2**: Off.

T. Knife: S3 - Off SQ1 - On SQ2 - Off
--

5. “*Center Knife*”

On the **S2** switch (located on the lower auxiliary panel) indicates the manual switch of the center knife is active.

Off is inactive.

Home position is: Off.

Center Knife S2: Off

TROUBLESHOOTING

6. “*Tab Knife Horizontal Movement*”

On the **SQ3** (tab knife return) sensor indicates the tab knife start cylinder is in the Home position. **Off** the cylinder is not in the Home position.

T. Knife Return
SQ3 -> On

7. “*Needle Position*”

On the **SQ4** (needle bar position) sensor indicates the needle bar is in the up position. **Off** the needle bar is in the down position.

Needle Position
SQ4 -> On

8. “*Position of the Pedal*”

0-5 correspond to each of the five pedal positions. **No** on the display screen indicates the pedal is between positions.

Home position is: **0**.

Note: Each position should be checked by toeing the foot pedal.

Pedal
Position: 0

9. “*Top Thread Monitor Status*”

Off/Off the thread is breaking the monitor electrical contact. **On/On** the thread is missing and there is electrical contact. Home position is **Off/Off**.

Note: If your machine is not equipped with this option, the reading will be **Off/Off**.

Top Thread
Monitor: Off/Off

TROUBLESHOOTING

10. “*Bobbin Thread Monitor Status*”

Off/Off pin switches S14 and S15, the thread is breaking the pin electrical contact to the metal bobbin.

On/On the thread is missing and there is electrical contact between the pins and the bobbins.

Home position is **Off/Off**.

Note: This monitor functions only if the tab knives are operating.

Bobbin Thread Monitor
 S14 - On S15 - On

11. “*Position of Bobbin Thread Monitor*”

On/On the **SQ5** and **SQ6** (bobbin thread position) sensors indicates both monitors *are* in the Home position.

Off/Off the **SQ5** and **SQ6** sensors (located under the sewing head) indicate both monitors *are not* in the Home positions.

On the **S3** switch (located on the auxiliary panel) is incorrect and means the manual switch of the tab knife is active.

Off the manual tab knife switch is not active.

Home position is: **S3** Off, **SQ5** On, **SQ6** On.

B. Monitor: S3 - Off
 SQ5 - On SQ6 - On

12. “*Start Sew*”

On push button pressed.

Home position is off.

Start Sew
 Button: Off

TROUBLESHOOTING

13. ***“Carriage Front”***

On the carriage feed front push button is pressed.

Home position is off.

Carriage Front Button: Off

14. ***“Carriage Rear”***

On the carriage feed rear push button is pressed.

Home position is off.

Carriage Rear Button: Off

15 . ***“Trim of Upper Thread”***

On the push button is pressed.

Home position is off.

Upper Thread Button: Off

16. ***“Trim of Lower Thread”***

On the push button is pressed.

Home position is off.

Lower Thread Button: Off

TROUBLESHOOTING

17. “Reset”

On the push button is pressed.

Home position is off.

Reset Button: Off

18. “Emergency Stop”

On the button is pulled out and the machine *is not* in emergency stop. **Off** the button is pushed in and the machine **is** in emergency stop.

Home position is on.

Emergency Stop Button: On

19. “Sewing Motor Contacts”

Yes the KM2 contactor, located in the main power control box, is on. **No** the KM2 contractor is off.

Home position is Yes.

Motor Start Relay: Yes

20. “Stepping Motor Is Ready”

Yes the KM1 motor is operational. **No** the KM1 motor has failed.

Home position is Yes.

Step Motor Relay: Yes

TROUBLESHOOTING

21. “Locking the Machine Out of the Sewing Cycle”

On the **S1** switch (located on the auxiliary panel) is turned on, and only allows control of the carriage feed and the upper and lower thread trimmers. No other functions are operational.

Off the switch is turned off and all machine functions are operational.

Home position is off.

Machine Operates S1 - Off

22. “Sew Motor”

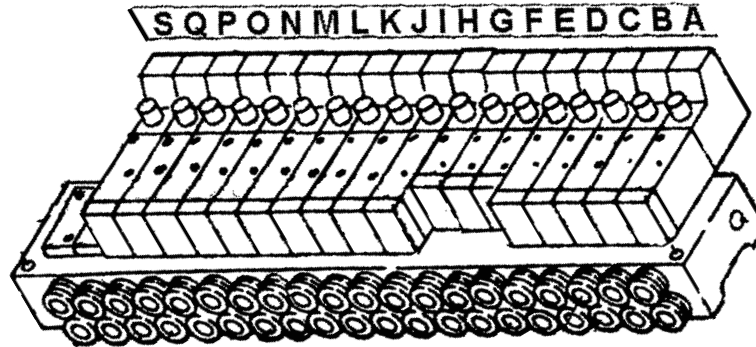
On indicates S6 push button is pressed.

Home position is off.

Sew Motor S6: Off

TROUBLESHOOTING

Pneumatic Valve Layout



- A. Ex. Cylinder A
- B. Ex. Cylinder B
- C. Tab Knives Up, Bobbin Thread Monitor Down
- D. Needle Thread Trim
- E. Bobbin Thread Trim
- F. Center Knife
- G. Tab Knife Clamp
- H. Tension Release
- I. Needle Thread Hold
- J. Patch Guide Down, Thread Take-Up
- K. Patch Guide Up
- L. Brush Blade
- M. Right Clamp Foot
- N. Left Clamp Foot, Oil Return Pump
- O. Air Blow
- P. Dart Stretcher
- Q. Flap Clamp
- S. Ex. Cylinder S

TROUBLESHOOTING

Performing Output Tests - F2

Note: Press **F2** to access output tests. To advance the test menu, *push* the **Up** button; to back up the menu, *push* the **Down** button. *Exit* this menu at any time and *return* to the Operator menu by *pushing* the **RET** button two times.

1. **“Flap Clamp”** — To *check* operation of flap clamp *press* **ENT**.
The P solenoid should turn on and the flap clamp should operate.

Flap Clamp Press [ENT]

2. **“Air Blow”** — To *check* air blowing along the clamp arms *press* **ENT**, *O solenoid should actuate.*

Air Blow Press [ENT]

3. **“Clamp Foot Left”** — To *check* the lowering of the left clamp foot *press* **ENT**, *N solenoid should actuate.*

Clamp Foot Left Press [ENT]

4. **“Clamp Foot Right”** — To *check* the lowering of the right clamp foot *press* **ENT**, *M solenoid should actuate.*

Clamp Foot Right Press [ENT]

5. **“Brush Blades”** — To *check* the closing of the brush blades *press* **ENT**, *L solenoid should actuate.*

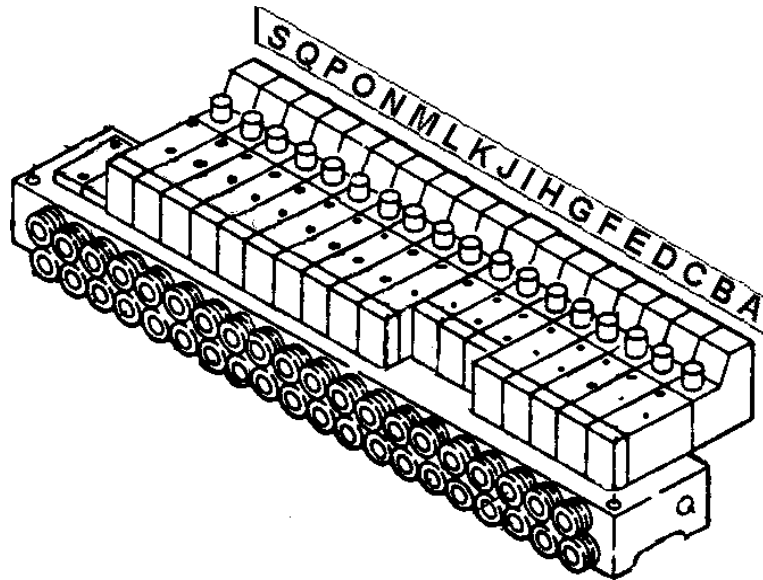
Brush Blades Press [ENT]

6. **“Patch Guide Up”** — To *check* the lowering of the patch guide *press* **ENT**, *K solenoid should be off.*

Patch Guide Up Press [ENT]

TROUBLESHOOTING

Pneumatic Valve Layout



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- E. Bobbin Thread Trim
- F. Center Knife
- G. Tab Knife Clamp
- H. Tension Release
- I. Needle Thread Hold
- J. Patch Guide Down, Thread Take-Up
- K. Patch Guide Up
- L. Brush Blades
- M. Right Clamp Foot
- N. Left Clamp Foot, Oil Return Pump
- O. Air Blow
- P. Dart Stretcher
- Q. Flap Clamp
- S. Ex. Cylinder S

TROUBLESHOOTING

7. **“Patch Guide Down/Thread Pull Off”** — To check the lowering of the patch guide and the thread pull-off press **ENT**, solenoid *J* should activate and the thread pull-off should operate.

Patch Guide Down Press [ENT]

8. **“Needle Thread Tension”** — To check the operation of the needle thread tension release press **ENT**, the tension disc should close. The *H* solenoid is off.

Tension Release Press [ENT]

9. **“Needle Thread Clamp”** — To check the operation of the needle thread clamp press **ENT**, the needle thread should release and solenoid *I* should turn off. Refer to page 3-28, dets. 14 and 15.

Needle Thread Press [ENT]

10. **“Tab Knife Rod Clamp”** — To check the operation of the pneumatic cylinder for the tab knife rod clamp press **ENT**, the clamp should close onto the tab knife rod and the *G* solenoid should actuate.

Tab Knife Rod Press [ENT]

11. **“Bobbin Thread Trim”** — To check the bobbin thread trimmer operation press **ENT**, the movable knife in the throat plate should shift to the right and the *E* solenoid should actuate.

Bobbin Thread Press [ENT]

12. **“Needle Thread Trim”** — To check the needle thread trimmer operation press **ENT**, the thread pickup hook should lower. The *D* solenoid should actuate.

Needle Thread Trim Press [ENT]

TROUBLESHOOTING

Following are customer options, tests are only available for installed options.

The tests of stitching cylinders function short and long.

13. “**External Pneumatic Cylinder A (Solenoid)**” — Function control.

Ex. Cylinder A: Press [ENT]

14. “**External Pneumatic Cylinder B (Solenoid)**” — Function control.

Ex. Cylinder B: Press [ENT]

15. “**External Pneumatic Cylinder S (Solenoid)**” — Function control.

Ex. Cylinder S: Press [ENT]

16. “**Dart Stretcher**” — To *check* whether the dart stretcher is operational *press ENT, solenoid P should actuate.*

Dart Stretcher: Press [ENT]

TROUBLESHOOTING

Caution: When making these adjustments, the carriage *must* be in the full rear position and the needle bar in the home position, align the dots on the sewing machine head and the pulley.

17. **“Tab Knife + Bobbin Monitor”** — To check the operation of the tab knife and bobbin monitor, press **ENT**, the tab knives should raise. The bobbin sensor pins should enter the bobbin case and solenoid C should actuate.

Note: The operation of the tab knife and center knife may be checked separately using switches **S2** and **S3** on the auxiliary control panel.

T. Knife + B. Monitor Press [ENT]

18. **“C. Knife”** - To check engagement of the center knife press **ENT**, C. knife will be lowered.

C. Knife Press [ENT]

TROUBLESHOOTING

Sewing Problems and Possible Solutions

Symptom	Possible Cause	Possible Solution
Needle Thread breakage	Needle distortion or blunt needle point	Replace needle
	Needle installed wrong	Install needle correctly
	Incorrect threading	Refer to standard threading
	Needle thread tension too high	See Needle Thread Tension section
	Incorrect clearance between rotary hook and bobbin case opener	See section describing how to set timing between the needle and rotary hook
Bobbin thread breakage	Incorrect timing between needle and rotary hook	Set timing between needle and rotary hook
	Incorrect threading	Refer to standard threading
	Bobbin thread tension too tight	Adjust tension
Uneven stitches	Oil and chips sticking to bobbin case	Remove chips and wipe off oil
	Needle distortion or blunt needle point	Replace needle
Skipped stitches	Needle distortion or blunt needle point	Replace needle
	Needles installed incorrectly	Install needles
	Incorrect threading	Refer to standard threading
	Incorrect timing between needle and rotary hook	Adjust timing between needle and rotary hook
Weak tightening of thread	Thread take-up spring is weak or its actuating range is too narrow	Refer to Thread Take-up Spring section
	Weak needle thread tension	Refer to Needle Thread section
	Weak bobbin thread tension	Refer to Bobbin Thread Tension
Needle breakage	Needle incorrectly installed	Install new needle correctly
	Needle distortion or blunt needle point	Replace needle
	Incorrect timing between needle and rotary hook	Adjust timing between needle and rotary hook

TROUBLESHOOTING

Machine Problems and Possible Solutions

1. Power supply does not work.

Is circuit breaker open?.....YesClose circuit breaker

•

No

•

Is the voltage correct at the voltage regulator?.....No.....Replace regulator

•

No

•

Replace power board

2. Air cylinder does not work.

Do the correct lamps on the control board light?.....No.....Replace control board

•

Yes

•

Does pneumatic lamp valve come on?.....No.....Replace valve

•

Yes

•

Replace air cylinder.

3. Metal sensing switch does not work.

Is the switch position correct?.....No.....Adjust the position

•

Yes

•

Does the metal sensing lamp light?.....No.....Replace the switch

•

Yes

•

Replace control board

4. Treadle switch does not work.

Are IC and magnet positioned correctly?.....No.....Adjust position

•

Yes

•

Does control board lamp come on?.....No.....Replace treadle switch

•

Yes

•

Replace control board

TROUBLESHOOTING

Understanding and Correcting Communication Error Messages

Note: Errors are shown on the screen only if a failure is detected.

Internal Errors

Symptom:

Communication Error!

- Check:**
1. Communication line RS 485 connection.
 2. The X15 connector on the controlling CPU.
 3. The X23 connector on the data CPS.

Symptom:

Data Error! Press [RST]

Press: The Reset button. The system will try data entry again and display will read:

Data Retry! Wait Please!

TROUBLESHOOTING

Understanding and Correcting Work Error Messages

Symptom: The H1 push button does not light up after the “T” button is pushed.

- Check:**
1. The main switch QS1, the supply of line voltage and the use 1.
 2. Terminal connectors 1, 2, and 3 against terminal connectors PE (ground) and N (neutral), located on the switchboard, to ensure the voltage matches your machine and application.

Symptom: The LED (power) light doesn't come on and there is not enough voltage +5V for the CPU, but the H11 button does light.

- Check:**
1. The fuses FU3 and FU4 on the GS1 board, located in the main terminal box.
- Note:** The display cannot initialize without a +5V voltage supply.

Symptom: The LED lights up, but does not initialize and there is not enough +5V voltage for the CPU.

- Check:**
1. The fuses FU1 and FU2 on the GS1 board, located in the main terminal box.
- Note:** The display cannot initialize without a +24 voltage supply.

Symptom: The LED lights up and the display initialized, but the patch guide remains in the low position after switching on.

- Check:**
1. Input of the air pressure.
 2. The fuses FU5 and FU6 on the GS1 board, located in the main terminal box.

Note: The above problems are main failures which cannot be recorded by the control system and *will not be written on the display*.

Symptom: The LED lights up but the work lamp does not work.

- Check:**
1. The switch.
 2. The fuse FU8 on the main terminal board.

TROUBLESHOOTING

Symptom: The LED lights up but the location cross lights don't light up.

Check: 1. The fuse FU8 on the main terminal board.

Symptom: The carriage is not in the correct position.

Display message:

Carriage Rear Position Error!

This warning will appear during steps which require the rear position of the carriage.

- 1. Push:** The Reset button.
- 2. Move:** The carriage to the required position by pushing the appropriate button.

Symptom: The carriage is not in the front position.

Display message:

Carriage Front Position Error

This warning will appear during steps (such as the start of sewing) which require the carriage to be in the front position.

- 1. Push:** The reset button.
- 2. Move:** The carriage to the required position by pushing the appropriate button.

TROUBLESHOOTING

Symptom: The tab knife is not in the basic vertical position (both tab knives in the down position).

Display message:

Tab Knife Origin Error!

This warning will appear during steps which require the tab knife to be in the basic position.

- 1. Push:** The Reset button.
- 2. Check:** The SQ1 and SQ2 sensors and the S3 switch in the Input Tests menu.
- 3. Check:** The air pressure supply.

Symptom: The tab knife is not in the basic horizontal position (check that movable tab knife has returned to Home position).

Display message:

Tab Knife Return Origin Error!

This warning will appear before the start of the sew cycle.

- 1. Push:** The Reset button.
- 2. Check:** The SQ3 sensor and the S3 switch in the Input Tests menu.
- 3. Check:** The air pressure supply.

Symptom: The bobbin thread monitor is not in the Home position.

Display message:

Bobbin Thread Monitor Error!

This warning will appear before the start of the sew cycle

- 1. Push:** The Reset button.
- 2. Check:** The SQ5 and the SQ6 sensors and S3 switch in the Input Tests menu.
- 3. Check:** The air pressure supply.

TROUBLESHOOTING

Symptom: The needle is not in the up position.

Display message:

Needle Position Error!

This warning will appear before the start of the sew cycle.

- 1. Push:** The Reset button.
- 2. Check:** The SQ4 sensor in the Input Tests with the needle stopped in the top position.
- 3. Move:** The sensor closer to the scanned cam, if the SQ4 is off.
- 4. Check:** The sensor and its terminal board connection, if the Display still reads the word Off.
- 5. Adjust:** The position of the SQ4 sensor and the cam by rotating the sew head counterclockwise.
- 6. Observe:** The LED reading of the sensor in the Input Tests menu. An Off reading indicates the needle is into the throat plate.
Note: Changing the indicator from Off to On *must* be done when the needle point is approximately 10 mm above the throat plate.

Symptom: The stepping motor fails to operate.

Display message:

Stepping Motor Error!

This warning will appear before the start of the sew cycle.

- 1. Push:** The Reset button.
- 2. Check:** In the Input Tests menu, if a Step Motor Ready: “No” reading is indicated, check fuses FU4, FU5, FU6 and FU7 on the main terminal board XT1, there must light green LED on the right side of the drive stepping motor AP8.

TROUBLESHOOTING

Symptom: The sew motor fails to operate.

Display will read:

Sew Motor Error!

This warning will appear before the start of the sew cycle.

- 1. Push:** The Reset button.
- 2. Check:** In the Input Tests menu, if a “No” reading is indicated, check fuses FU3/1, FU3/2 and FU3/3 on the main terminal board.
- 3. Check:** Thermal protection FA1.
- 4. Push:** Manually try to trip KM2 into operating condition.

Symptom: The upper thread is missing.

Display will read:

No Needle Thread !!!

(Optional Needle Thread Monitor)

This warning will appear during the sew cycle.

- 1. Push:** The Reset button.
- 2. Check:** Threading of the needle(s).

Symptom: The lower thread is missing.

Display will read:

No Bobbin Thread !!!

This warning will appear after the sew cycle is completed.

- 1. Push:** The Reset button.
- 2. Change:** Bobbins.

TROUBLESHOOTING

Symptom: The machine is in emergency stop.

Display will read:

Emergency Stop Error!

This warning will appear before and during the sew cycle.

- 1. Release:** The emergency stop on the control panel.
- 2. Push:** The Reset button.

Symptom: The machine is locked in the run position.

Display will read:

Machine Cycle Canceled

This warning will appear before the sew cycle.

- 1. Check:** The appropriate report in the Input Tests menu. If the S1 is On, switch it Off.
- 2. Push:** The Reset button.

Note: The S1 switch is active and the running of the machine is locked. This always appears after stepping on the pedal to the second position.

TROUBLESHOOTING

Checking Electrical Connections

Checking Machine Voltage

1. **Check:** Name plate in front of the machine by the START/Stop switch.

Checking 400 Volt 3 Phase Machine Electrical Connections and Functions

Note: This procedure is only for checking the 400 volt 3 phase machine.

WARNING: Disconnect the electrical power supply.

1. **Disconnect:** all the fuses.
2. **Turn off:** switch QS1 and adjust to the “O” position.
3. **Check:** On the lower part of the switchboard, ensure the electrical resistance measurement between every phase on the terminal boards L1, L2, and L3 are greater than zero. Ensure the electrical resistance measurement between every phase on the terminal connectors KM1.1, KM1.3, and KM1.5 are greater than zero.

WARNING: Connect the electrical power supply.

1. **Check:** On the lower part of the switchboard, ensure the voltage measurement between every phase on the terminal boards L1, L2, and L3 is 380 volts. Ensure the voltage measurement between every phase on the terminal connectors KM1.1, KM1.3, and KM1.5 are approximately zero.

Checking the Operation of Switch SA1

1. **Turn:** switch QS1 off.
2. **Connect:** Fuse FU2 (connect fuses FU2 and FU1 in the U.S. Version 230V 3 Ph).
3. **Turn:** switch QS1 on.
4. **Press:** the green push button SA1, the control light HL1 must activate.
5. **Ensure:** the voltage measurement between every phase on the terminal connectors KM1.1, KM1.3, and KM1.5 are 380 volts.
6. **Ensure:** the input voltage on the source GS1 is 230 volts.
7. **Ensure:** the voltage between terminal connectors XT1.8 and XT1.9 is +5 volts.
8. **Ensure:** the voltage between terminal connectors XT1.10 and XT1.11 is +24 volts.

TROUBLESHOOTING

Checking the Work Locating Light and Halogen Work Light Connections

- 1. Press:** the red push button SA2.
- 2. Connect:** the fuse FU4 (connect fuses FU4 and FU5 in the 230V 3 Ph version).
- 3. Press:** the green push button SA1.
- 4. Ensure:** the voltage on the input terminal connector TR1 is 230 volts.
- 5. Ensure:** the voltage on the output terminal connector TR1 is AC 80 and AC 11V.
- 6. Press:** the red push button SA2.
- 7. Connect:** the fuse FU8.
- 8. Press:** the green push button SA1, the work locating light must activate.

Checking the Stepping Motor Connections

- 1. Press:** the red push button SA2.
- 2. Connect:** the fuses FU6 and FU7.
- 3. Press:** the green push button SA1.
- 4. Ensure:** the green LED on the stepping motor driver has activated.

Checking the Sewing Motor Connections

- 1. Press:** the red push button SA2.
- 2. Connect:** the three fuses FU3.
- 3. Press:** the green push button SA1.
- 4. Ensure:** the voltage between the terminal connectors KM2.1, KM2.3, and KM2.5 are 400 volts in version 400V 3 Ph (European) or 230 volts in version 230V 3 Ph (U.S.).

Checking the Control Board Connections

- 1. Press:** the red push button SA2.
- 2. Ensure:** the voltage between terminal connectors XT1.8 and XT1.9 is +5V.
- 3. Ensure:** the voltage between terminal connectors XT1.10 and XT1.11 is +24V.
- 4. Press:** the green push button SA1.
- 5. Ensure:** the machine will start.

TROUBLESHOOTING
