



**MODEL S-4000**

**STRAIGHT BUTTONHOLE MACHINE**

**PARTS AND SERVICE MANUAL**

**MACHINE SERIAL No.**

**PART NUMBER 97.2400.1.001**



**ANVF® REECE**

*Better Ideas, Better Made*

**S-4000**

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## 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/Africa/Americas

Prostejov, Czech Republic  
Phone: (+420) 582-309-275  
Fax: (+420) 582-360-608  
e-mail: service@amfreece.cz

#### Southwest Asia

Istanbul, Turkey  
Phone: (+90) 212-465-0707  
Fax: (+90) 212-465-0711  
e-mail: amfreeceturkey@superonline.com

#### Southeast Asia

Kowloon, Hong Kong  
Phone: (+852) 2787-2273  
Fax: (+852) 2787-5642  
e-mail: amfreece@netvigator.com





# 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, S311, Decostitch, S4000 BH, 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 582, 796 25 Prostějov, Czech Republic**

**Fax: +420 582 360 606, e-mail: [service@amfreece.cz](mailto:service@amfreece.cz), website: [www.amfreece.com](http://www.amfreece.com)**



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## INTRODUCTION

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### **S-4000 Buttonhole Machine**

The S-4000 buttonhole machine, sold complete with table, motor, and thread stand, may be used to produce work shirts, sleepwear, outer wear, and a variety of other applications.

The S-4000 provides a single thread chain stitch operation, offering the convenience of no bobbin and a single thread spool. The no bobbin feature allows quick and easy thread changes, ensuring production remains high.

The patented rotary needle bar shaft drive, a major benefit, delivers longer needle bar life. The added benefits of lower vibration and less noise, translate into less operator fatigue.

Among the seven patentable mechanisms featured with the S-4000 is a patented over center clamping system, providing smooth, even clamping of varying thickness fabrics. No operator adjustment is required. High speed operation enables the S-4000 to sew straight buttonholes up to 3,800 SPM (Stitches Per Minute), producing up to 10,000 buttonholes during an average eight hour work day.

Simple buttonhole length adjustment located outside the machine, eliminates the need for tilt back, while the quick stop repair function delivers safety and makes repairs easier. Modular construction facilitates speedy, routine maintenance and helps reduce costs.

A halogen work light is included with the S-4000, to enhance operator safety and product quality.

The electrical supply requirement is 220-240 V, 1 phase, 50 or 60 Hz.



## SPECIFICATIONS

Technical parameters for machines S-4000 BH, ISBH

<b>S-4000 Specifications</b>		
	<b>BH</b>	<b>ISBH</b>
Electronic Stop/Start Motion	DC Drive Motor Controlled	DC Drive Motor Controlled
Stitch type	Single Thread Chainstitch	Single Thread Chainstitch
Sewing Speed	1.000-3.800 spm	1.000-3.800 spm
Recommended Thread	Tex Size 40 (good quality polycore with cotton wrap)	Tex size 20-30 (good quality selicora or mercized cotton)
Needle Size and Style	AMF Reece Series 750 (size dependent on application)	AMF Reece Series 750 (size dependent on application)
Maximum Weight of Material	4mm, (5/32")	4mm, (5/32")
Buttonhole Sizes	6.3 mm - 35 mm (1/4" - 1 <sup>3/8</sup> )	15.8 mm - 25 mm (3/4" - 1")
Knife Sizes Available	Millimeters: 6.4, 9.7, 11.2, 12.7, 14.4, 15.8, 19, 22, 25.4, 32, 35 Inches: 1/4, 3/8, 7/16, 1/2, 9/16, 5/8, 3/4, 7/8, 1, 1 <sup>1/4</sup> , 1 <sup>3/8</sup>	-
Stitch Density	4-12 s/cm (10 to 30 spi)	4-12 s/cm (10 to 30 spi)
Number Of Barring Stitches	5	-
Stitch Bite	1.6 mm - 2.3 mm (1/16" - 3/32")	1.6 mm - 2.3 mm (1/16" - 3/32")
Clamp Height	12.7 mm (1/2")	12.7 mm (1/2")
Clearance between the first and second row of stitches	Adjustable according to need	Adjustable according to need
Range of the buttonhole distance from the edge of the fabric (measured by the rear gauge) by crosswise table	6 - 32 mm (1/4" - 1 1/4")	-
Range of the buttonhole distance from the edge of the fabric (measured by the rear gauge) by parallel table	Normal 25 mm (1") Minimal 12 mm (1/2")	-
Clamping	Pneumatic	Pneumatic
Buttonhole Cutting	Pneumatic	Pneumatic
Automatic Thread Trimming	Pneumatic	Pneumatic
Lubrication	Semi-automatic	Semi-automatic
Electrical Requirements	230V, 50/60 Hz, 1Ph	230V, 50/60 Hz, 1Ph
Air Requirements	7 l/m (0.25 cfm) 5.5 bar (80 PSI)	14 l/m (0.5 cfm) 5.5 bar (80 PSI)
Table Type	Parallel, Crosswise or Universal	Crosswise
Dimensions of Tables	Length 1100 mm (43") Width 600 mm (24") Height 700 mm (28")	Length 1100 mm (43") Width 600 mm (24") Height 700 mm (28")
Dimension Sewing Head	Length 470 mm (18")	Length 470 mm (18")
Weight	70 kg (154 lbs) (Gross) 46 kg (102 lbs) (Net)	86 kg (190 lbs) (Gross) 62 kg (137 lbs) (Net)

Revised 01/2005



## SPECIFICATIONS

Technical parameters for machine S-4000 TKF, LS, CAED

<b>S-4000 Specifications</b>			
	<b>TKF</b>	<b>LS</b>	<b>CAED</b>
Electronic Stop/Start Motion	DC Drive Motor Controlled	DC Drive Motor Controlled	DC Drive Motor Controlled
Stitch Type	Single Thread Chainstitch	Single Thread Chainstitch	Single Thread Chainstitch
Sewing Speed	1.000 - 3.800spm	1.000 - 3.800spm	1.000 - 3.800spm
Recommended Thread	Tex Size 40 (good quality polypun or cotton)	Tex Size 20-30 (good quality polypun or cotton)	Tex Size 40 (good quality polypun or cotton)
Needle Size and Style	AMF Reece Series 750 (size dependent on application)	AMF Reece Series 750 (size dependent on application)	AMF Reece Series 750 (size dependent on application)
Maximum Weight of Material	4 mm, (5/32")	4 mm, (5/32")	4 mm, (5/32")
Length of Tack	6.3 mm - 40 mm 1/4" - 1 9/16" (manually adjusted)	6.3 mm - 40 mm 1/4" - 1 9/16" (manually adjusted)	6.3 mm - 40 mm 1/4" - 1 9/16" (manually adjusted)
Knife Sizes Available	-	-	45 mm (1 3/4")
Stitch Density	4-12 s/cm (10 to 30 spi)	4-12 s/cm (10 to 30 spi)	4-12 s/cm (10 to 30 spi)
Stitch Bite	1.6 mm - 3 mm (1/16" - 4/32")	1.6 mm - 3 mm (1/16" - 4/32")	1.6 mm - 3 mm (1/16" - 4/32")
Clamp Height	12.7 mm (1/2")	8 mm (5/16")	8 mm (5/16")
Clamping		Pneumatic	Pneumatic
Buttonhole Cutting			Pneumatic
Automatic Thread Trimming		Pneumatic	Pneumatic
Tension Release		Pneumatic	Pneumatic
Lubrication		Semi-automatic	Semi-automatic
Electrical Requirements		230 V, 50/60 Hz, 1Ph	230 V, 50/60 Hz, 1Ph
Air Requirements	7 l/m (0.25 cfm) 5.5 bar (80 PSI)	7 l/m (0.25 cfm) 5.5 bar (80 PSI)	14 l/m (0.5 cfm) 5.5 bar (80 PSI)
Table Types	Parallel, Crosswise or Universal	Parallel, Crosswise or Universal	Parallel, Crosswise or Universal
Dimensions of Tables	Length 1100 mm (43") Width 600 mm (24") Height 700 mm (28")	Length 1100 mm (43") Width 600 mm (24") Height 700 mm (28")	Length 1100 mm (43") Width 600 mm (24") Height 700 mm (28")
Dimension of Sewing Head	Length 470 mm (18")	Length 470 mm (18")	Length 470 mm (18")
Weight	70 kg (154 lbs) (Gross) 46 kg (102 lbs) (Net)	70 kg (154 lbs) (Gross) 46 kg (102 lbs) (Net)	70 kg (154 lbs) (Gross) 46 kg (102 lbs) (Net)

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

## SAFETY

---

**WARNING!** Before performing machine adjustments, press the red emergency stop push-button located on top of the sewing head, ensure the red lamp flashes and the machine will not start.

The S-4000 buttonhole machine is carefully designed and manufactured to our high quality standards. Special attention is focused on the convenience of operation and effective hazard protection for the operating personnel.

S-4000 safety components:

Needle bar cover      Needle break, eye shield      Belt guard covers

**WARNING!**

Any piece of equipment may become dangerous to personnel when improperly operated or poorly maintained. It is very important all personnel expected to operate or maintain this equipment be familiar with the information contained in the parts and service manual.

It is recommended that AMF Reece service personnel supervise the installation and initial training of your mechanics and operators.

The most effective employee hazard protection is a rigidly enforced safety program which includes effective training in safe operating methods. Supplementary hazard protection, including guards and covers, are useful when attached in the correct manner and properly maintained. Operators and service staff should be required to wear safety glasses.

### Safety Labels

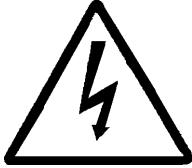


**Possible shock.**  
 Located on the electrical  
 box cover door.

**SAFETY**

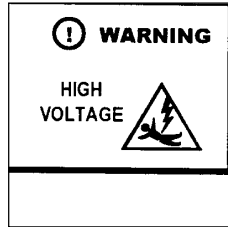
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**Safety Labels**



**Electrical shock**

Located on the electrical box cover door.



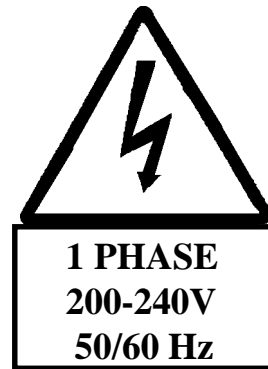
**Hazard area, work with caution**

Located on side cover above the handwheel.



**Ground**

Electrical protection connection.



**Operating voltage**

Located on the electrical box cover door.

**0.50 - 0.60 MPa**

**Air pressure range**

Located on the plate.

Input voltage: 220-240V AC  
Type: LPR-SV3206  
Output voltage: 32V AC

**Transformer label**


Located on the transformer.

---

**SAFETY**


---

**Safety Labels**

		<b>AMF REECE</b>	
		<b>S 4000</b>	
<b>YEAR OF PRODUCTION</b>	<input type="text"/>	<b>No.</b>	<input type="text"/>
<b>VOLTAGE</b>	<input type="text"/>	<b>V</b>	<b>Hz</b>
<b>POWER OUTPUT</b>	<input type="text"/>	<b>kW</b>	<b>CURRENT</b> <input type="text"/> <b>A</b>
<b>AMF REECE a.s.</b>		<b>CZECH REPUBLIC</b>	

**“CE” label**

Meets or exceeds Central Europe standards,  
located on the base.

Clinton Industries, Inc.  
Carlstadt, New Jersey, USA

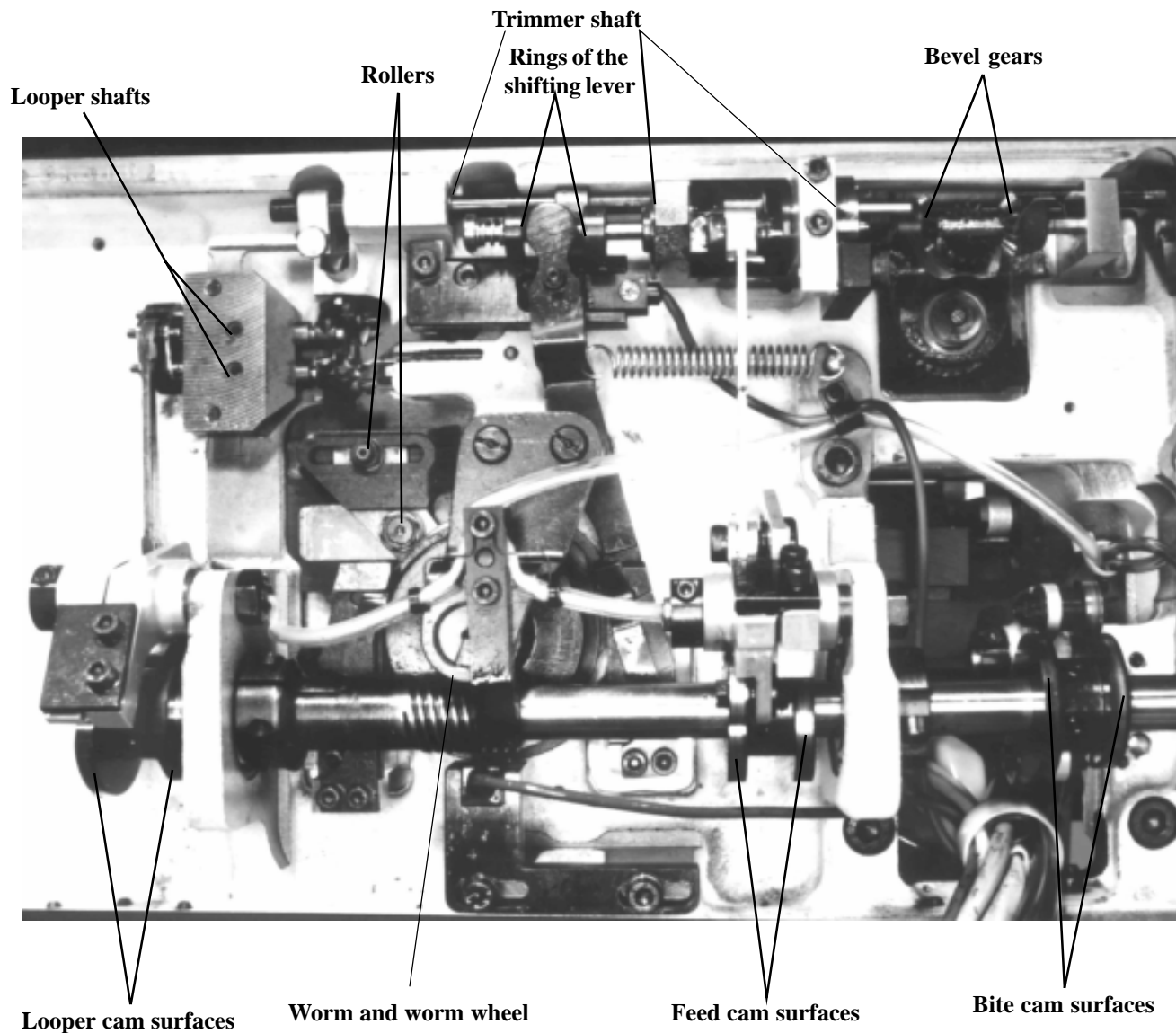
DC SERVO MOTOR  
Operating voltage: 200-240V AC  
Power input: 550W, 3/4 HP  
Torque: 103 oz/inch  
Speed: 3000 spm

**Motor label**

Located on the motor.

**LUBRICATION**

**Underside of the Bedplate**



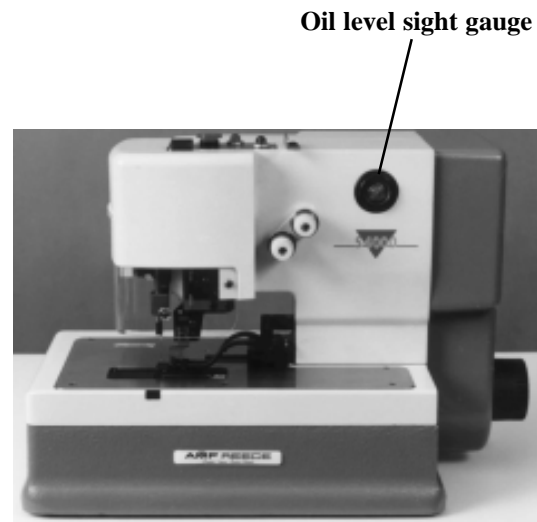
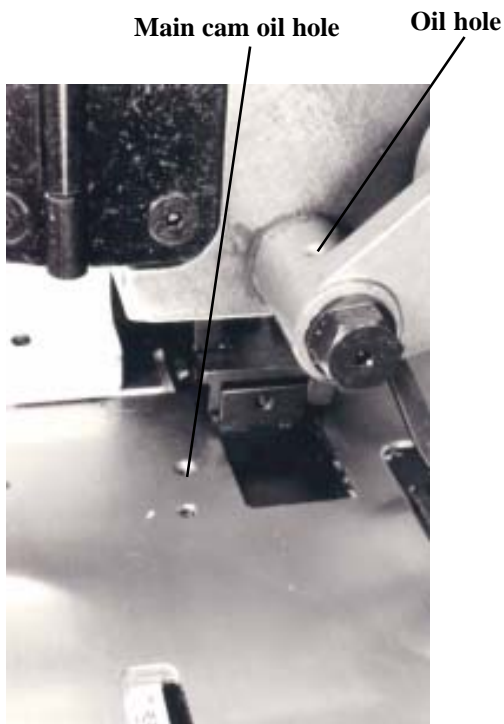
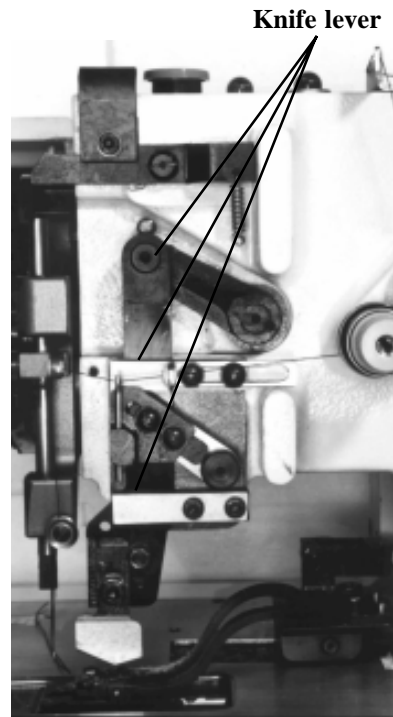
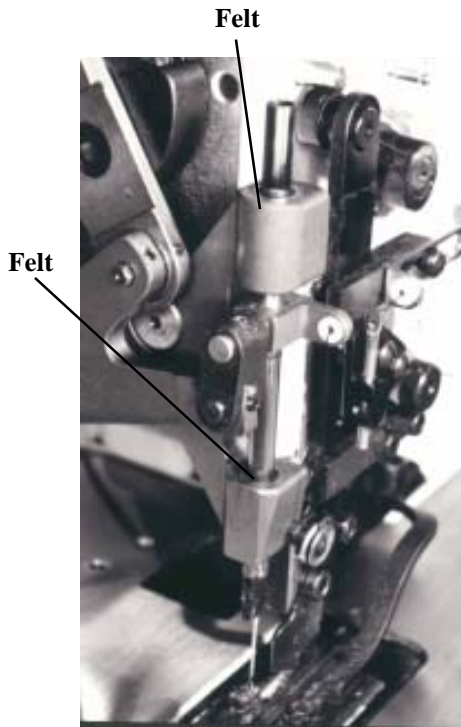
Feed cam surfaces	Once a day	Needle bar felt cups	Once a day
Rings of the shifting lever	Once a day	Rollers	Once a day
Trimmer shaft	Once a day	Bevel Gears	Once a day
Looper cam surfaces	Twice a day	Looper shafts	Once a day
Bite cam surfaces	Twice a day		

Revised 01/2005

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

## LUBRICATION

Check reservoir and oil parts indicated once a day.



## OPERATOR CONTROLS

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### On/Off Push Buttons

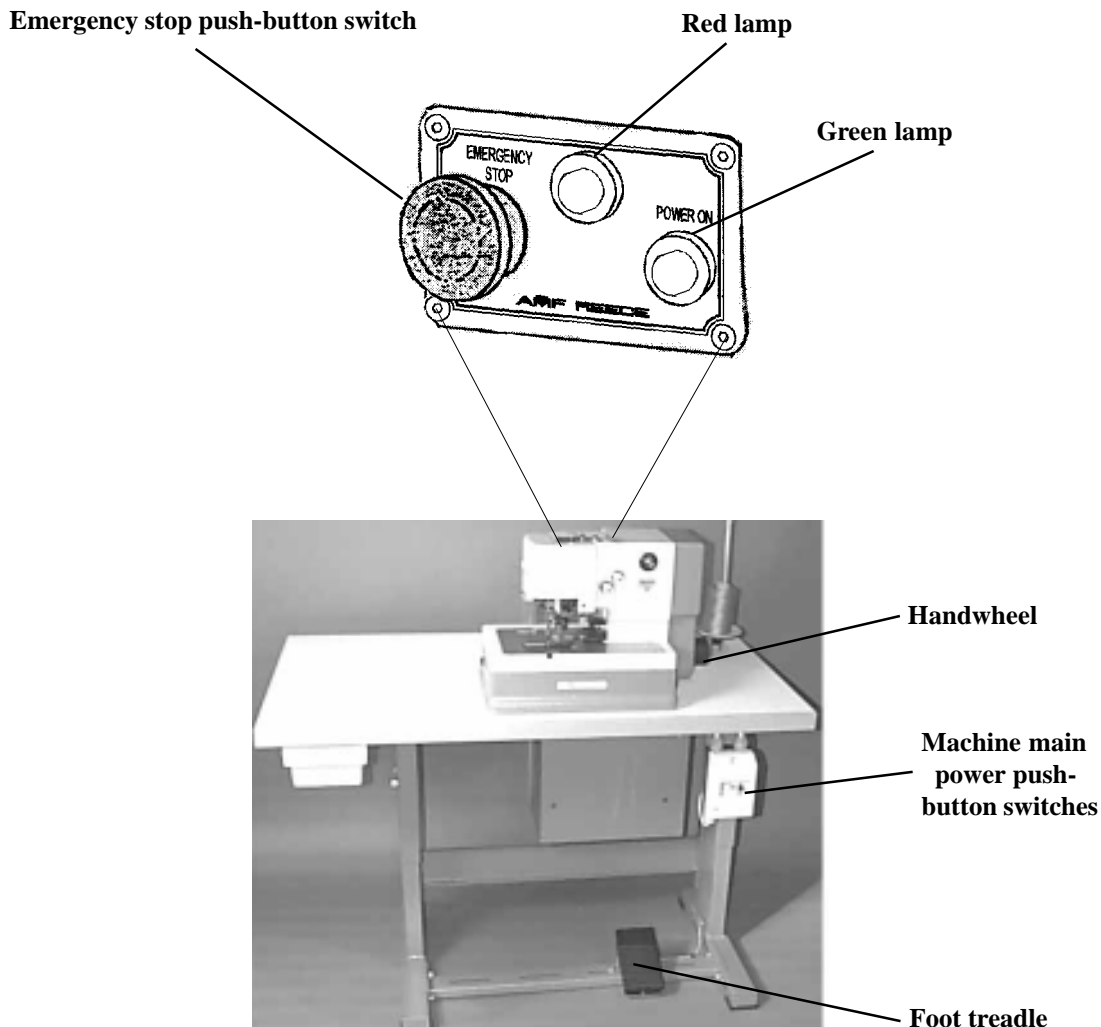
The main switches regulate power supply to the machine. There are two buttons as a part of the main switch:

- black button - for machine switch on
- red button - for machine switch off

When you switch the machine on by means of main switch, green LED lights on the main panel. This LED indicates power supply to the machine.

### Emergency Stop

Pressing the red emergency stop push-button, located on top of the sewing head, immediately stops the sewing cycle. The red lamp flashes and the machine will not start. To release the emergency stop, press the red emergency stop push-button and the green light will activate, the machine is ready to sew. The machine may stop anywhere in the cycle. If the machine stops with the needle in the fabric, the fabric cannot be removed, manually rotate the handwheel to raise the needle out of the fabric.



Revised 01/2005

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

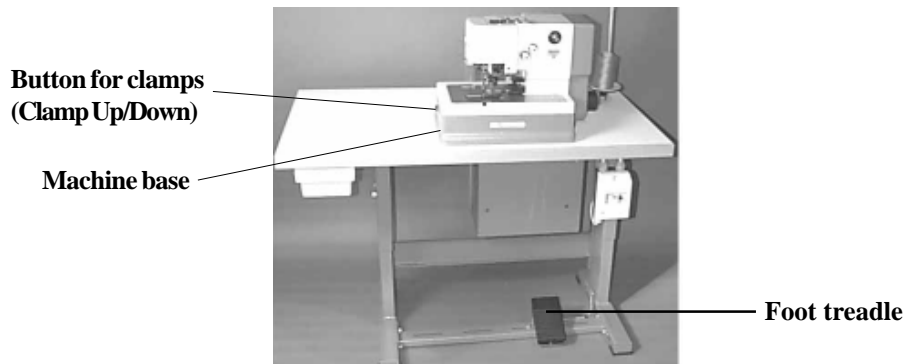
## OPERATOR CONTROLS

### Foot Treadle

The foot treadle includes two positions.

1. position: clamp feet closure
2. position: sewing cycle starting

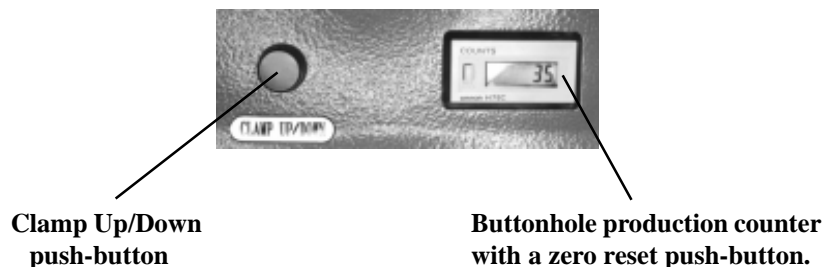
Check of the positions and adjustment of the foot treadle is described in “LCD DISPLAY PROGRAMMING”.



### Button for the clamps

You can control the position of the clamp feet by this button independently on the foot treadle. The big advantage is that you can insert or remove the fabric, but also during threading the thread. When you push the button, you can change the position of the clamp feet.

Position of this button on the machine base is variable and depends on type of table. (Example of the position is shown on the upper picture. Machine is on the parallel table).



### Cycles counter

Cycles counter is placed on the machine base and shows to operator the number of sewn cycles. You can reset this counter to zero by means of the button on the left side of the counter. When you give the button to the position “Lock”, it is possible to lock the button.



## OPERATOR INSTRUCTIONS

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### Needle Installation

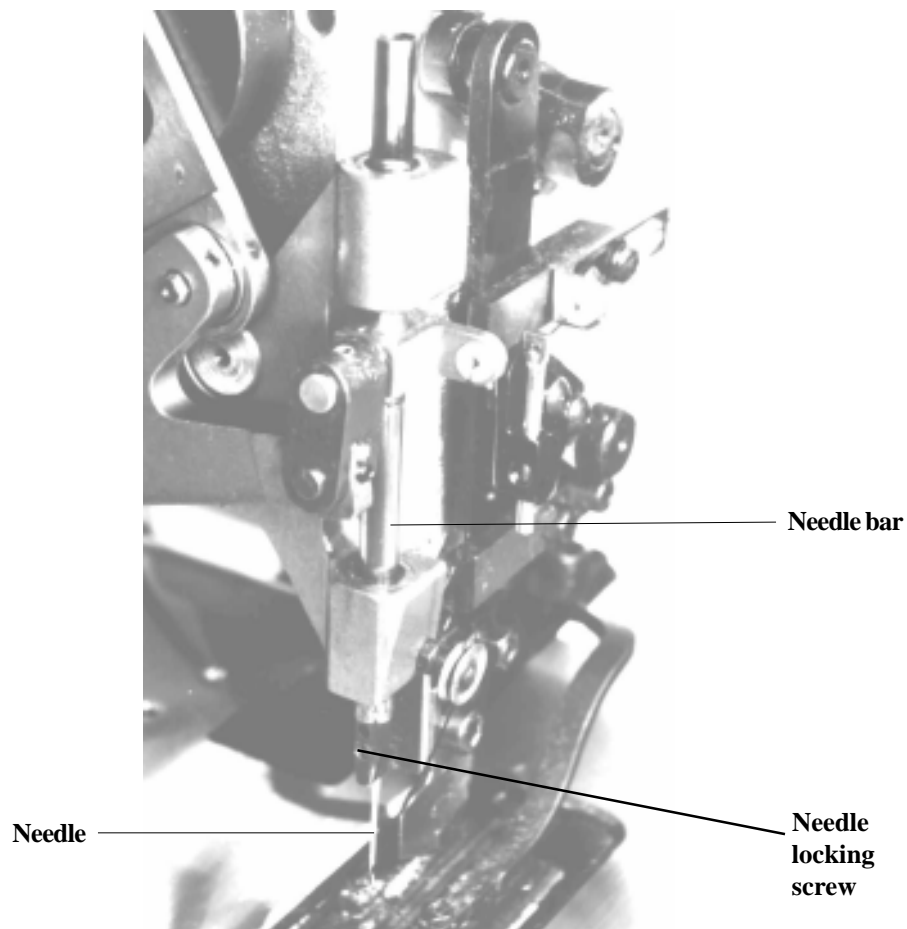
**WARNING!** Press the red emergency stop push-button, located on top of the sewing head to eliminate accidental starting of the machine. Ensure the red lamp flashes and the machine will not start.

Press the clamp up/down push-button to lower the clamps.

Ensure the needle is straight and located in the highest needle bar position with the shank flat facing the needle screw.

Tighten the needle screw.

To release the emergency stop, press the red emergency stop push-button and the green light will activate, the machine is ready to sew.



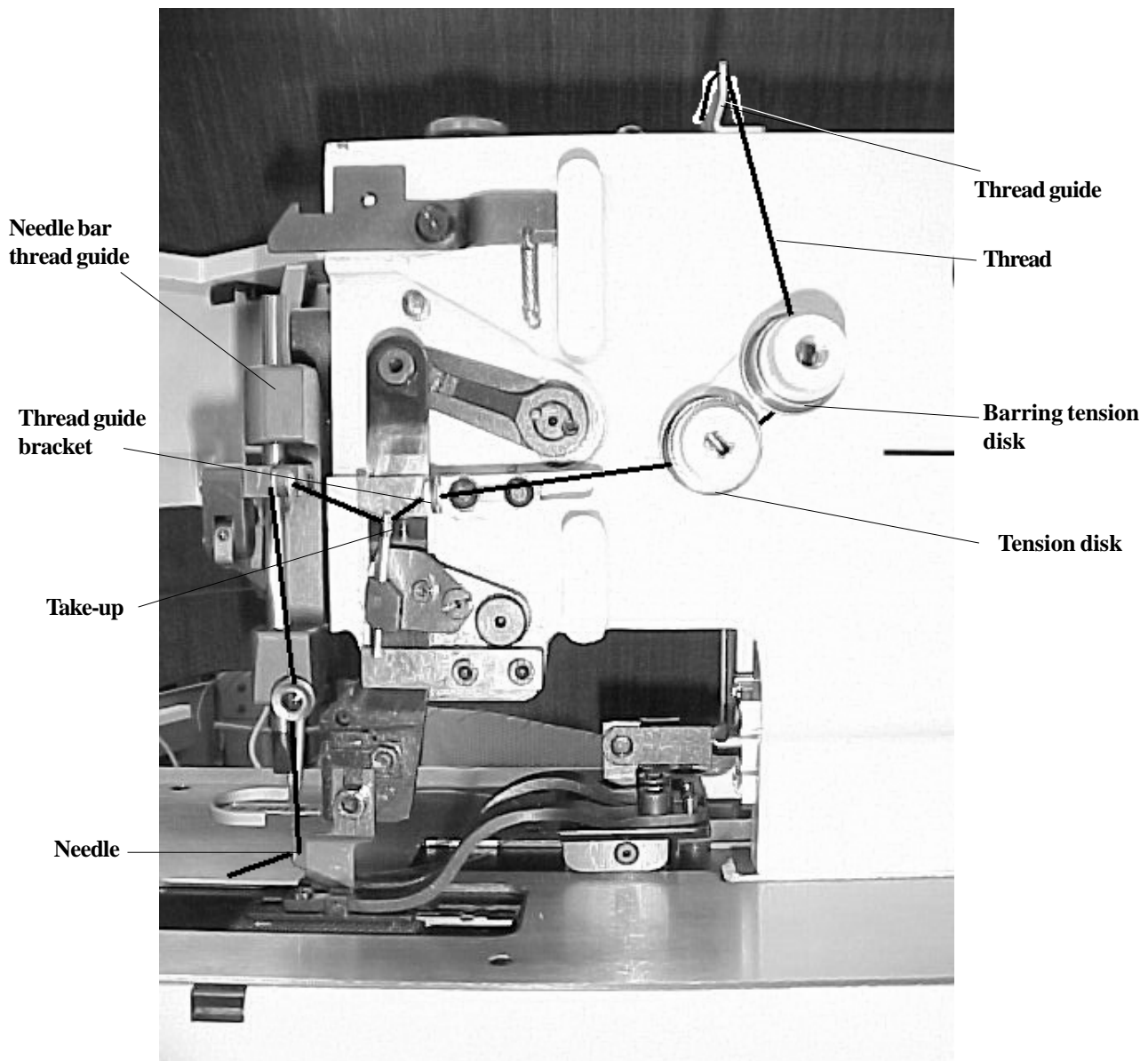
## OPERATOR INSTRUCTIONS

### Machine Threading

**WARNING!** Press the red emergency stop push-button, located on top of the sewing head to eliminate accidental starting of the machine. Ensure the red lamp flashes and the machine will not start.

Thread the machine as illustrated. At first pull the thread through thread guide, then pull the thread between barring tension discs, pull through the thread guide. Pull the thread between the tension discs and thread it through needle eye.

To release the emergency stop, press the red emergency stop push-button and the green light will activate, the machine is ready to sew.



## OPERATOR INSTRUCTIONS

---

### Starting the Machine

Press the black main power on push button and ensure the green lamp on top of the sewing head is activated.

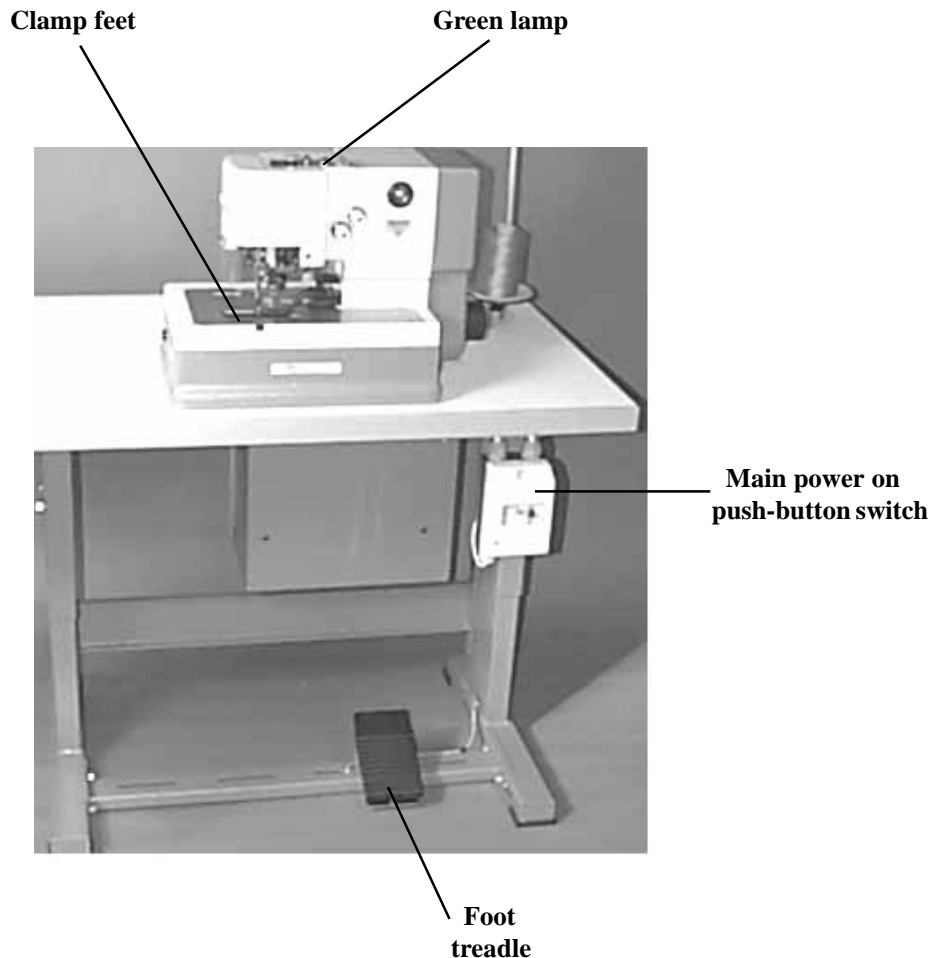
Position a scrap piece of fabric under the clamp feet.

Toe the treadle, if the 1 step mode is active, the clamps will lower, hold the fabric in place, and start the sewing cycle, even if the treadle is released.

Lightly toe the treadle, if the 2 step mode is active, the clamps will lower and hold the fabric in place, releasing the treadle raises the clamps to allow repositioning the fabric. Pressing the treadle fully down, lowers the clamps to hold the fabric position and starts the sewing cycle.

Check of the function positions and foot treadle adjustment is described in “LCD DISPLAY PROGRAMMING”.

**WARNING!** Do not try to hold or move the fabric with your hands, while the machine is sewing.



## OPERATOR INSTRUCTIONS

---

### Stopping the Machine

To perform an emergency stop during a sewing cycle:

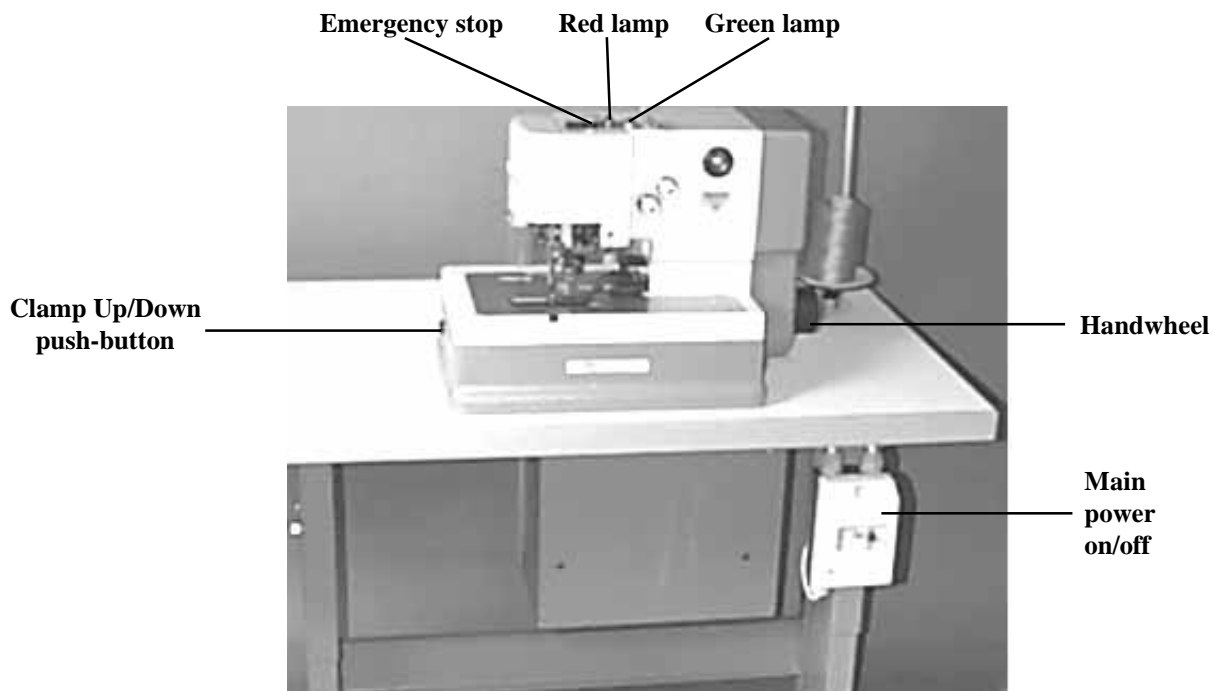
Pressing the red emergency stop push-button, located on top of the sewing head, immediately stops the sewing cycle. The red lamp flashes and the machine will not start.

Press the red main machine power off push button.

To resume operation:

To release the emergency stop, press the red emergency stop push-button, the red lamp stops flashing and the machine is in the ready to sew stage. The machine may stop anywhere in the cycle. If the machine stops with the needle in the fabric, the fabric cannot be removed, manually rotate the handwheel to raise the needle out of the fabric. Press the clamp up/down push-button to raise the clamps.

Press the black power on push button, the machine is ready to sew.



## OPERATOR INSTRUCTIONS

### Start Sewing

Ensure the emergency stop is released, if engaged, press the red emergency stop push-button and the green light will activate, the machine is ready to sew.

Before you start sewing, insert the fabric under the clamps, press Clamp Up/Down button. By pulling the fabric you will ensure if the clamp feet hold the fabric correctly. If the clamps do not clamp the fabric correctly, adjust it by the adjusting screw of the clamp feet.

**Note:** This adjustment is only possible on machines BH, ISBH, CAED

On above mentioned machines it is possible to adjust distance of clamp feet. Generally, nearer clamp feet each other, bigger quality and appearance of the buttonhole. It is possible to adjust the distance between the clamp feet by loosening the screw M6.

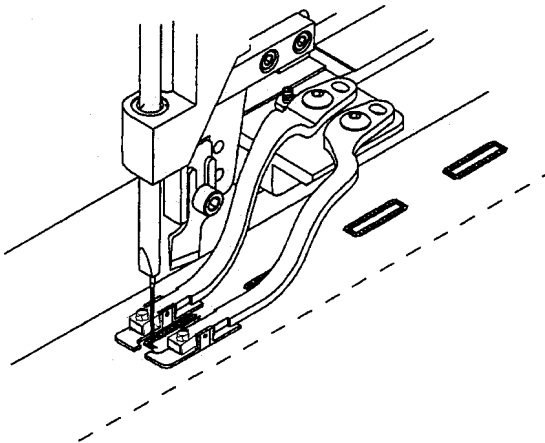
**CAUTION!** When you adjust the distance between the clamp feet, keep the width of the buttonhole in mind and keep minimal safe distance between the needle and clamp feet.

On machine S4000 BH you can sew by two ways”

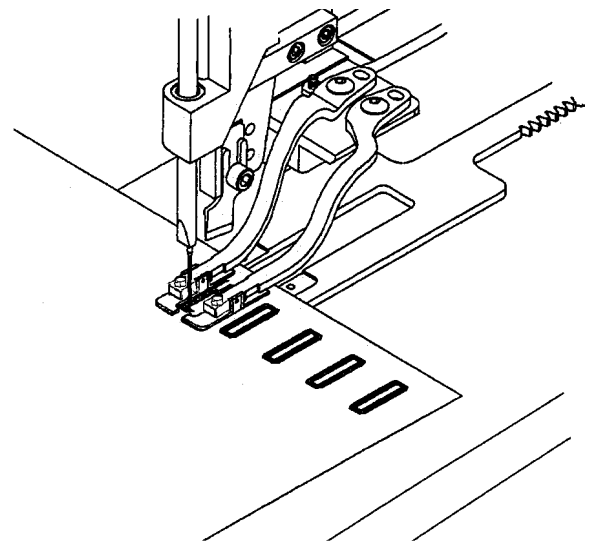
Insert the fabric under the clamps, Figure 1, for sewing buttonholes parallel to the border.

Insert the fabric under the clamps, Figure 2, for sewing buttonholes crosswise to the border. This way is used on machine ISBH.

The stops ensure correct adjustment of the buttonhole position from the fabric edge. You can find the stops in machine accessory (only machine BH).



**Figure 1**



**Figure 2**

The machine will automatically clamp the material, sew and cut the buttonhole, trim the thread, draw off the thread, and stop with the clamps raised, ready for starting the next buttonhole.

Revised 01/2005

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## OPERATOR INSTRUCTIONS

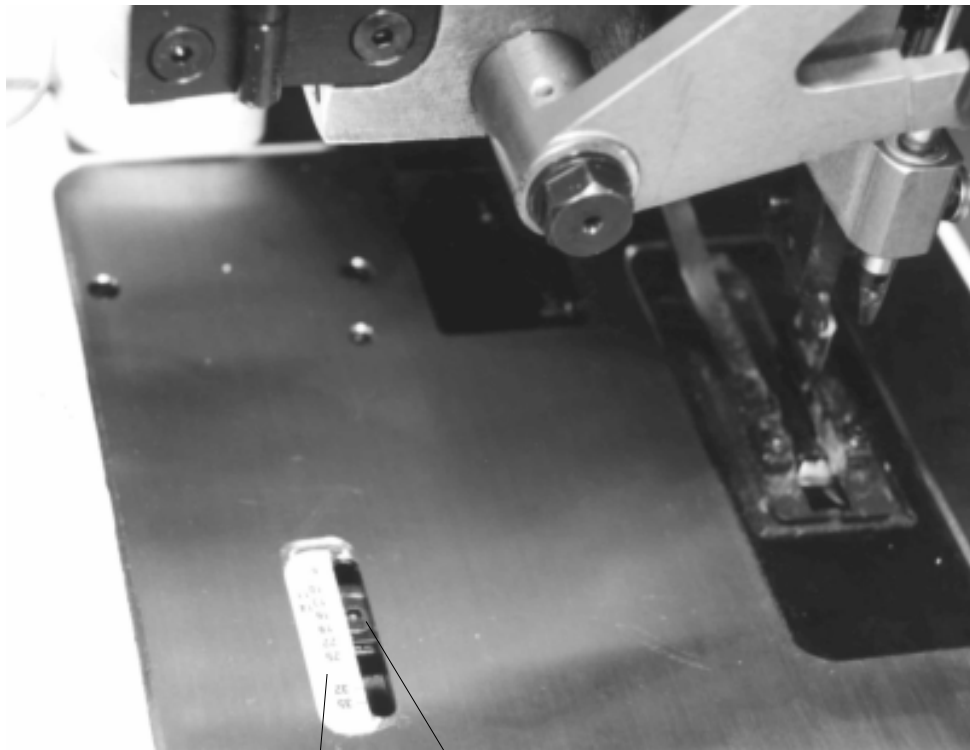
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### Buttonhole Length Change

Using the allen key provided, loosen the screw M4 beside the length gauge. Using the allen key as a pointer, align the screw M4 with the correct buttonhole length indicated on the gauge.

Tighten the screw.

**Note:** When the buttonhole length changes, the knife also changes to correspond with the buttonhole length, indicated on the gauge (for machine S-4000 BH).



Length gauge

Screw M4

## OPERATOR INSTRUCTIONS

---

### Knife

To obtain the highest quality buttonhole cuts, the knife must be sharp and straight in the knife holder. Inspect the knife and cut, if the knife is bent, damaged, or dull, replace or sharpen as needed.

### Knife Sharpening

Remove, stone to a sharp edge and install the knife.

### Knife Change

**Note:** The knife must be changed when the buttonhole length changes.

Remove the knife holder screw and pull the knife downward and out of the slot.

**WARNING!** The knife edges are very sharp, handle and discard old knives safely.

Hold the new knife against the knife holder and insert the knife fully up into the slot, until the base of the knife slot contacts the screw.

Tighten the knife holder screw.

**Note:** Installation is correct when the knife size number is facing the operator.

Switch the main machine air pressure off.

Manually press down on the knife lever and ensure the knife blade goes through the slot in the center of the throat plate.

Switch the main machine air pressure on.

If incorrect:

Adjust the position of the knife in the knife holder.

**CAUTION!** If the cut is not centered and the knife is correctly installed, a service technician will need to perform further knife adjustments.

## PRELIMINARY INSTRUCTIONS - BH MACHINE

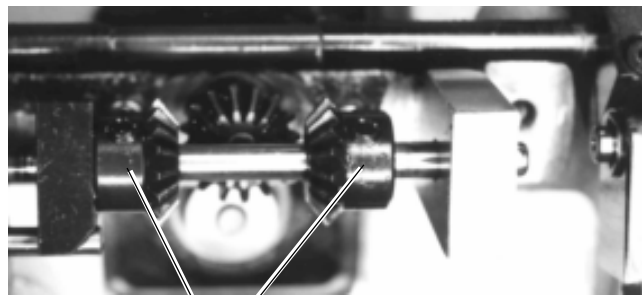
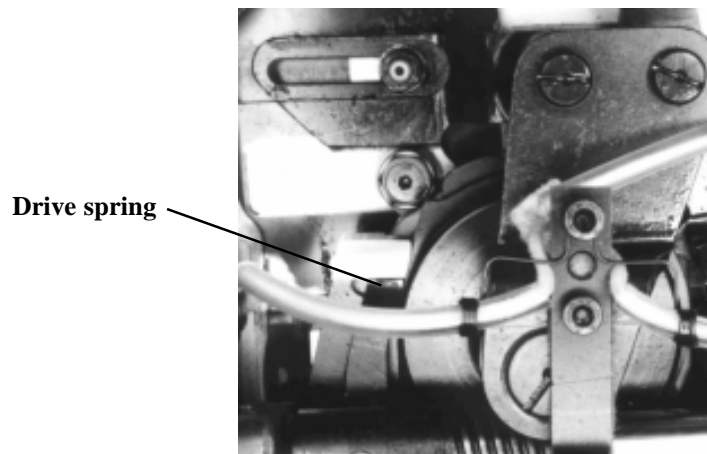
Before performing any machine adjustments, understand how to manually position the machine in the different normal operating cycle stages.

### Normal Operating Cycle Stages

Home position  
 First row of stitches  
 First bar  
 Second row of stitches  
 Second bar

### Home Position

The drive spring is within 2 mm, (1/32") of dropping into the left shifter block detent.  
 The two horizontal bevel gears are slightly disengaged from the vertical gear.  
 The clamp plate is positioned to the right, towards the head casting.  
 The needle bar is in the up position.



Disengaged bevel gears



**PRELIMINARY INSTRUCTIONS - BH MACHINE**

---

**First Row of Stitches**

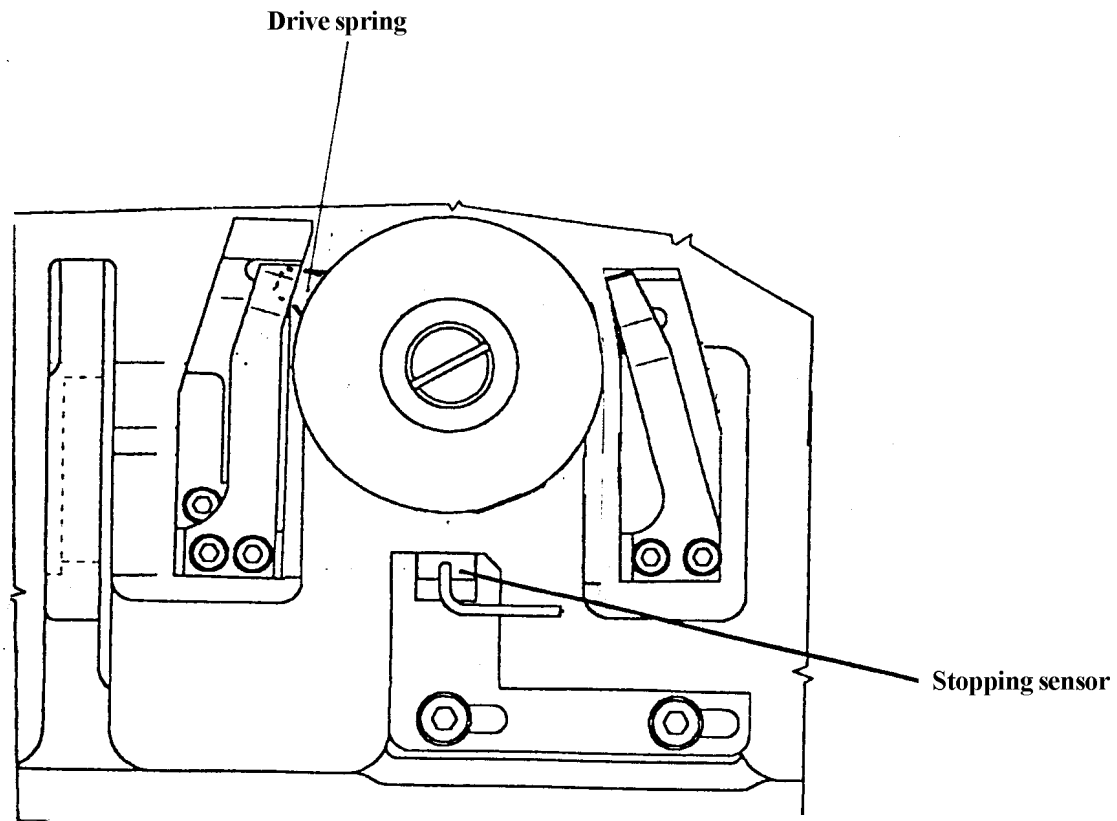
To obtain this position:

Tilt the machine back and manually rotate the handwheel counterclockwise to move the drive spring fully into the detent and engage the right bevel gear with the vertical gear.

Rotate the handwheel to produce the first row of stitches.



Feed direction →

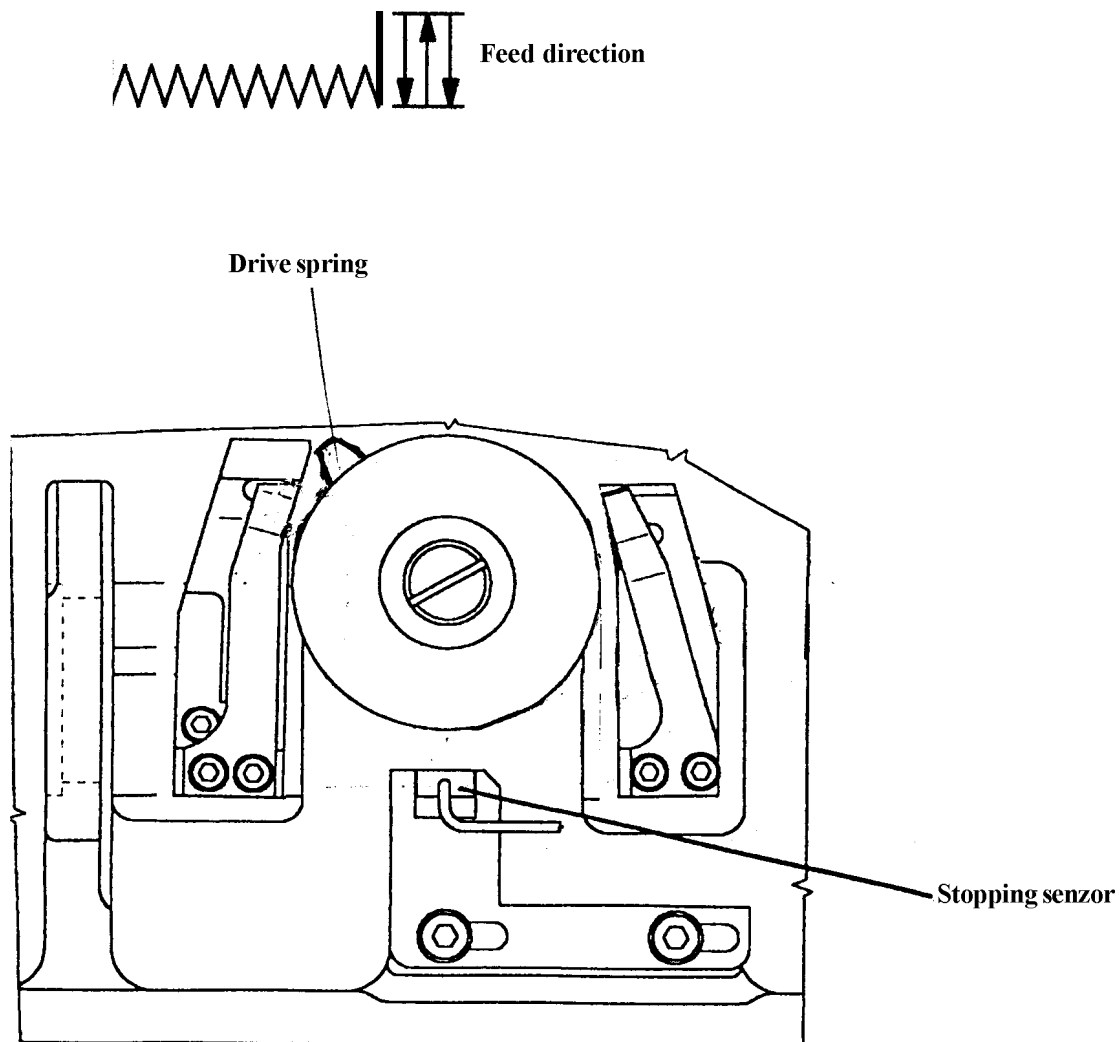


**PRELIMINARY INSTRUCTIONS - BH MACHINE****First Bar**

To obtain the first bar position:

Complete several main shaft revolutions in the first row of stitches, position the shifter assembly to the left, releasing the drive spring from the detent and engaging the spring with the drive hub. Two horizontal bevel gears are not in interlock with vertical gear.

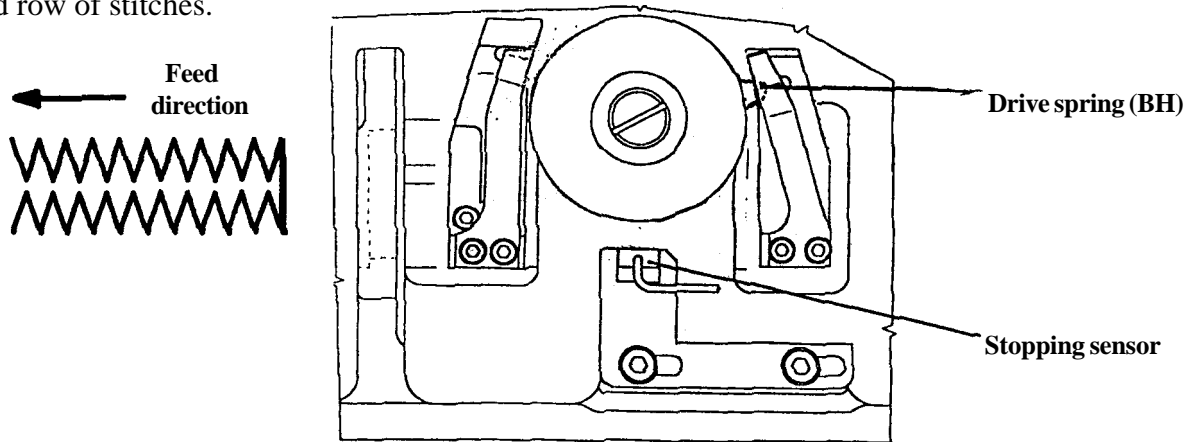
Rotate the handwheel and the machine produces five barring stitches, forming the first bar.



**PRELIMINARY INSTRUCTIONS - BH MACHINE**

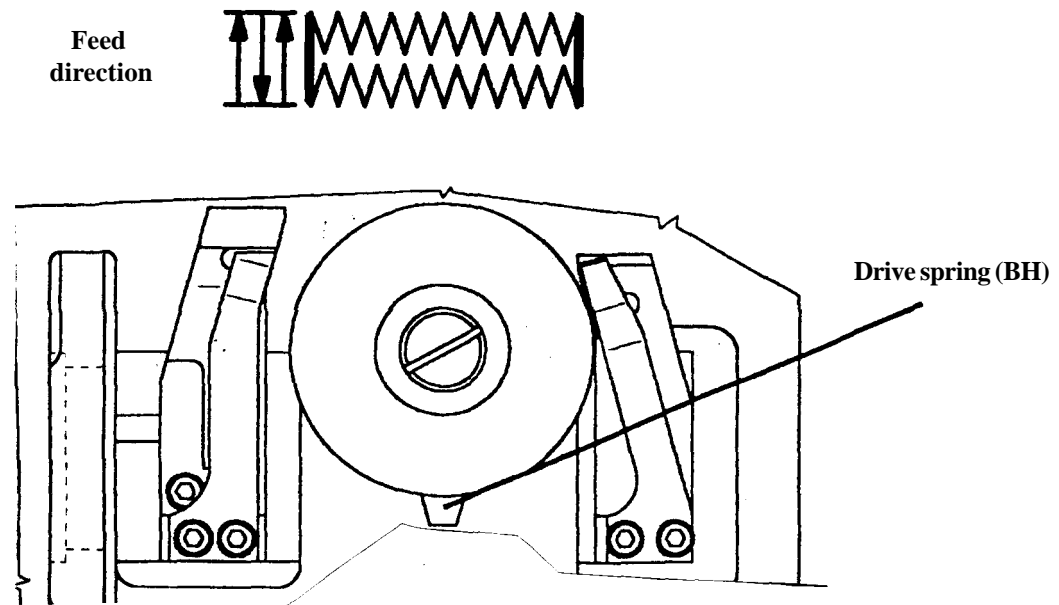
**Second Row of Stitches**

As the drive spring inserts to the stop of the right shifter arm, the spring is pressed down out of engagement and into a detent. The first bar stops and engages the left bevel gear, reversing the feed direction for the second row of stitches.



**Second Bar**

To obtain the second bar position, slide the shifter assembly to the right, releasing the drive spring from the detent and engaging the spring with the drive hub.



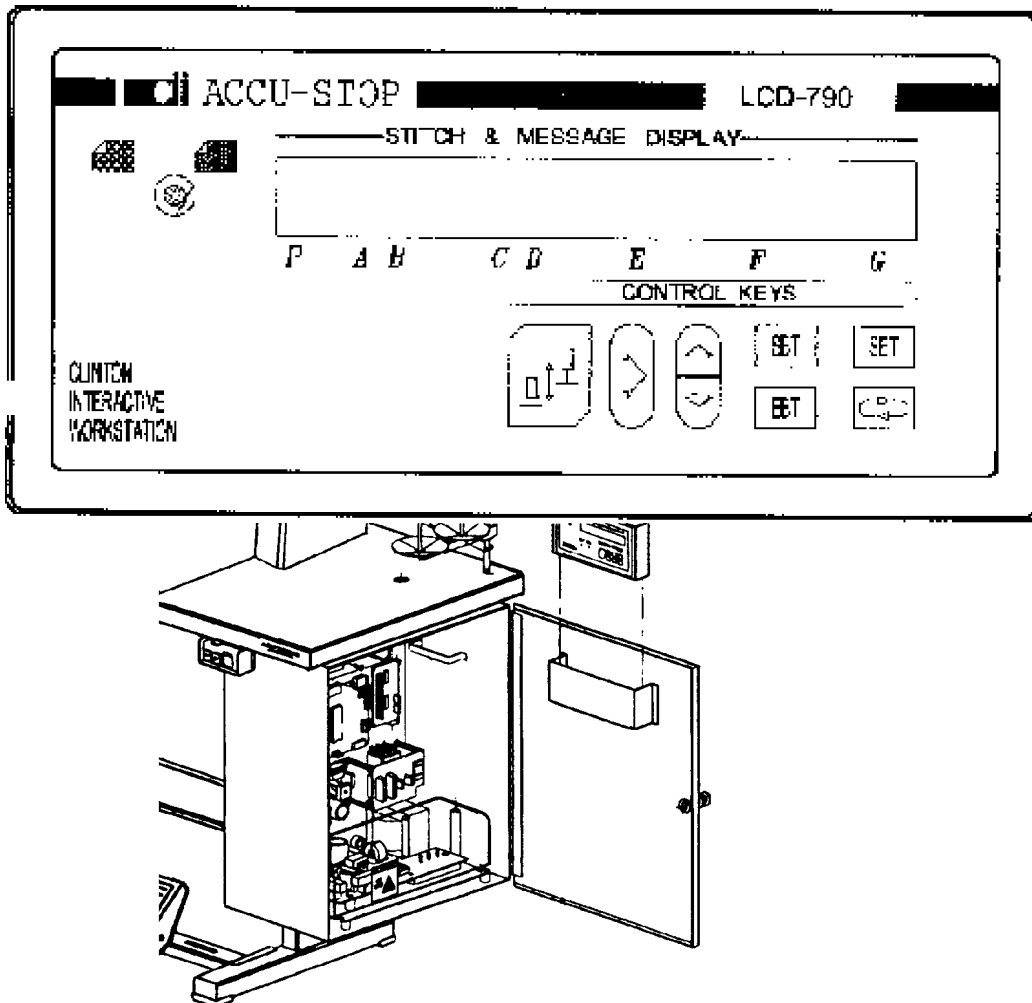
Continued handwheel counterclockwise rotation, centralizes the feed, produces the second six barring stitches, and prepares the machine to stop.

## LCD DISPLAY PROGRAMMING

### LCD Location

The LCD display box is located in a pocket on the back side of the door which protects the electrical panel assembly. To access the display box, open the door and remove the display box from the door pocket. Complete the programming and return the display box to the door pocket and close the door.








### LCD Display



## LCD DISPLAY PROGRAMMING

---

### Keypad Functions

- Round Arrow - Press  to activate the parameter menu.
- Right Arrow - Press  to save parameters to the memory and enter to the operating mode.
- SET - Press  to access the sub-parameters and automatically return to the last parameter changed.
- EBT - Press  Not active with the S-4000.
- Needle Up/Down - Press  to display the cycle count.
- Up Arrow - Press  to increase the parameter settings.
- Down Arrow - Press  to decrease the parameter settings.

**LCD DISPLAY PROGRAMMING - FOR BH, ISBH, TKF and LS**

PARAMETER CHECKLIST (Use the blank spaces to record installation settings for future reference)

PARAMETER	RANGE	SETTING	DEFAULT
<b>SPEEDS</b>			

SOFT STRT	200-1000 S.P. M.	_____	800
ENDspeed	400-1000 S.P.M.	_____	800

<b>TIMERS</b>			
---------------	--	--	--

STRT. DEL	20-200 ms	_____	50
WAIT TM.	100-2500 ms	_____	350
TRIM TME	30-50 ms	_____	50

<b>COUNTERS</b>			
-----------------	--	--	--

SOFT ST	1-3 Stitches	_____	1
---------	--------------	-------	---

<b>TOGGLE SWITCHES</b>			
------------------------	--	--	--

SOFT STRT	On/Off	_____	Off
STRTmode	1Step/2 Step	_____	2 Step
STRT. SW.	Neutral/Continue	_____	Neutral

<b>HIDDEN PARAMETERS</b>			
--------------------------	--	--	--

**\*\*\*SPEEDS**

TRIM/POS	200-400 S.P.M.	_____	300
MAXIMUM	1000-3800 S.P.M.	_____	3800

**\*\*\*MISCEL**

NEEDLEup	0-255	_____	164
CL DUTY	20-100 %	_____	50
KNIFE st	40-230	_____	65
CLMP dly	0-50	_____	30
SEW MODES	1;2; 1or 2	_____	

**\*\*\*TOGGLE SWS** \_\_\_\_\_

GO TWICE	Disabled/Able/	_____	Disabled
TRIM ON	After st/tm	_____	st
STOP PWR	Full/Half	_____	Full

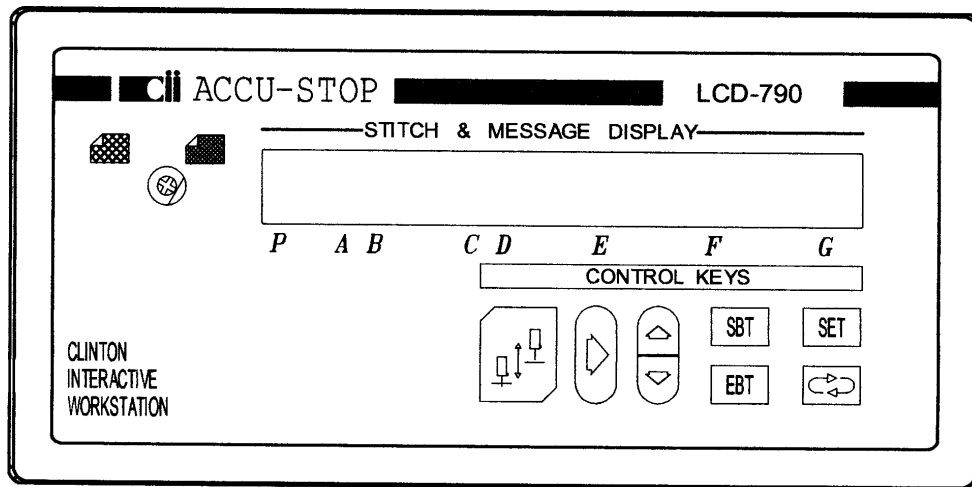
## LCD DISPLAY PROGRAMMING


### Modes of Operation

The LCD display may be operated in three different modes, the Operating, Programming, and Test Modes.


### Programming Mode


There are two ways to change from the Operating mode to the programming mode to vary the parameters.



Press the  Round arrow push button to access the first parameter - menu Speed. Continue pressing to step through all of the categories.

or

Press the  push button to access the last changed parameter.

After changing parameters, press the  push button to save the new parameters and return to the operating mode.

### Air Pressure

Recommended air pressure is 5.5 bar, (80 PSI).

**CAUTION!** Operating the S-4000 without the proper air pressure may cause serious machine damage.

Revised 01/2005

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## LCD DISPLAY PROGRAMMING

---

### Explanation of Parameters

Parameters with direct access:

#### **SPEEDS** (spm, Stitches Per Minute)

**SOFT STRT** (Soft Start) - Check, if in menu “toggle switches” is “soft strt” set “ON” and in parameter “soft start” in menu Counters is set needed number of stitches. “SOFT STRT” - soft start settings, which determines the sewing speed in stitches per minute and the number of stitches to be sewn at the reduced starting speed.

Ranges: 200 to 1,000 spm  
 Step increments: 10 spm  
 Default Setting: 800 spm

**ENDspeed** - After the home sensor is activated, the last stitches are sewn at a reduced speed during the buttonhole cutting, thread trimming, and all end of sewing cycle operations.

Ranges: 400 to 1,000 spm  
 Step increments: 10 spm  
 Default Setting: 800 spm

#### **TIMERS** (ms, Milliseconds)

**STRT. DEL** (Start Delay) - Delays the start after toeing the Start treadle fully down with the clamps in the Up position, allows the clamps time to lower and hold the material before the machine starts sewing.

Range: 20 to 200 ms  
 Step increments: 10 ms  
 Default Setting: 50 ms

**WAIT TM.** (Wait Time) - Wait time between sewing cycles, during continuous sewing, which allows the correct positioning of the fabric for the next buttonhole.

Range: 100 to 2500 ms  
 Step increments: 10 ms  
 Default Setting: 350 ms

**TRIM TME** (Trim Time) - The amount of time the trim knife stays extended before retracting to the home position.

Range: 30 to 150 ms  
 Step increments: 10 ms  
 Default Setting: 50 ms



## LCD DISPLAY PROGRAMMING

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### COUNTERS

**SOFT ST** (Soft Start) - In parameter Soft St set needed number of stitches for slow start.

Range: 1 to 3 stitches  
Step increments: 1 stitch  
Default Setting: 1 stitch

**TOGGLE SWITCHES** - Set by the software.

**SOFT STRT** (Soft Start) - It switches on or off with set values in “Soft Strt”.

Default Setting: Off

**STRTmode** (Start Mode) - Switches the Start mode from 1 step to 2 step.

1 Step: First position: clamp feet close at the same time as start of the sewing cycle.

2 Step: First position the clamp feet close, the second position starts the sewing cycle.

Default Setting: 2 Step

**STRT.SW.** (Start Sew) - Switches foot pedal control dependent on starts the sewing cycle. In conjunction with the wait time, determines the amount of wait time between the sewing cycles, for the clamps to lower, when the foot treadle is pressed. In set “Continue”.

Continue: Stepping on the foot treadle, dependent on wait time, will automatically sew the next buttonhole.

Neutral: Stepping on the foot treadle, the buttonhole is sewn, to start the next buttonhole, release the treadle and press the treadle again.

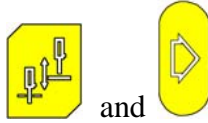
Default Setting: Neutral

## LCD DISPLAY PROGRAMMING

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### HIDDEN PARAMETERS

Switch the main machine power off.



Press and hold the  and  push-buttons at the same time.

Switch on the main machine power.

The display indicates stars (\*\*\*\*\*) which are counting down to zero. Release the push-buttons.

Press the SBT push-button before the stars disappear.

Select the desired parameter as usual. The hidden parameters have stars in front of the group name.

Normal parameters: SPEEDS,      Hidden parameter: \*\*\*\*\*SPEEDS

**Note:** Access to the Hidden parameters is disabled after the power is switched off.

#### \*\*\*\*\*SPEEDS

**TRIM/POS** (Trim and Positioning Speeds) - Determines the trimming and positioning speeds.

Range:	200 to 400 spm
Step increments:	100 spm
Default Setting:	300 spm

**MAXIMUM** - Determines the speed the buttonhole is sewn.

Range:	1,000 to 3,800 spm
Step increments:	10 spm
Default Setting:	3,800 spm

**LCD DISPLAY PROGRAMMING**

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**\*\*\*MISCEL** (Miscellaneous Hidden Parameters)

**NEEDLEup** - Used for determining the home position, where the machine actually stops with the needle in the highest position. Rotate the handwheel either direction and the needle will lower, to ensure correct needle up (home) position.

Range: 0 to 255  
Step increments: 1  
Default Setting: 164

**CL DUTY** (Clamp Duty Cycle) - Based on the percentage of current applied to keep the solenoid energized, the duty cycle must be set to the minimum value required, when the solenoid is energized.

**CAUTION!** Set too high, the solenoid may turn hot and the de-energized time will be too long. Set too low, the solenoid vibrates (creating noise).

**Note:** Ensure correct air pressure before changing parameters.

Range: 20 to 100 %  
Step increments: 10  
Default Setting: 50

**KNIFEst** - Time setting of the intersection dependent on position of the clamp plate.

**Caution:** Intersection must be in the centre of the buttonhole. This is valid only for BH machine.

Range: 40 to 230  
Step increments: 1  
Default Setting: 65

**CLMP dly** (Clamp Delay) - Set the time delay of clamp feet lifting after sewing cycle finishing.

**Note:** The lower the number, the sooner the clamps will lift. The bigger number, the fabric will not lift with knife.

Range: 0 to 50  
Step increments: 1  
Default Setting: 30

**SEW MODES** - single or double buttonhole setting

**1 or 2** - the machine sews single buttonhole, but when the foot pedal is pushed during the sewing cycle, the double buttonhole is sewn.

## LCD DISPLAY PROGRAMMING

---

### \*\*\*\*Toggle Switches - switches are adjusted by the software

**TRIM ON** - Remains activated for all S-4000 sewing operations. Determines when the knife activates. When the setting is tm, time delay, the amount of time is set with the knife parameter, on the previous page. When the is STOP set, the knife is activated as soon as the machine stops sewing.

Range:	After st/tm (After stop or after time delay)
Steps:	1
Default Setting:	st

**STOP PWR** - The amount of braking power applied to the motor during the motor stopping.

Range:	Full/Half
Steps:	1
Default Setting:	Full

**EMERGENCY STOP** - When the “closed” is set, by pushing the Emergency stop button, the machine stops. When the “opened” is set, the Emergency stop button works in reverse regime.

### OPENED / CLOSED

CLOSED - connected to the opening contacts of the button

OPENED - connected to the closing contacts of the button


## LCD DISPLAY PROGRAMMING

---

### Built - In Test Programs

#### Input Test



To enter to the test programs, push  and **SBT** buttons until “SYSTEM TEST” is appeared on the display (in case the Emergency stop button is not pushed).

After several seconds the display will change to “-9- EMERG.STOP”. Push the **EMERGENCY STOP** button and on the display appears “TEST INPUTS”.

Program TEST INPUTS is able to test main inputs functions and motor en-encoder.

When you push following buttons and switches on the machine, on the display of the control panel appear following textes:

This table is only for machines S4000 (BH, ISBH, ISBH+I, TKF, LS)

Stopping sensor	-1-EOC-SENSOR (approach to the sensor with the metallic part)
Draw off sensor	-2-TEN.REL.SENS (approach to the sensor with the metallic part, only for machine S4000 BH)
Pedal - first position	-4-CLAMP DOWN
Pedal - second position	-5-START
Reference point	-6-REFERENCE (reference point appears, when turn the handwheel in position, when needle raises from throat plate after first stitch)
Emergency stop button	-9-EMERG.STOP
Button for clamp feet	-10-TOOG. CLAMP


Machine S 4000 CAED - when you enter to the test programs, on the display appears -7-OPTIC SENSOR. When you want to continue in these tests, overshadow the optic fiber by the piece of fabric.

When you overshadow the optic fiber, on the display appears -9-EMERG.STOP. Push it and then you can continue with testing.

## LCD DISPLAY PROGRAMMING

---

### Output Test





When you push  on the display of the control panel appears “TEST OUTPUTS.”

Program **TEST OUTPUTS** is able to test main output functions and motor.

**Note:** Before testing check, if the air supply is connected to the machine.

When you push following buttons, on the display of the control panel will appear following textes:


This table is for machines S4000 (BH, ISBH, ISBH+I, TKF, LS)

When you push  button, on the display will appear - the red LED lights	-0-EMERG.STOP
When you push  button, on the display will appear - the clamps go down	-1-CLAMP
When you push  button, on the display will appear - knife is activated	-2-KNIFE
When you push <span style="border: 1px solid black; padding: 2px;">SBT</span> button, on the display will appear - pick-up hook is activated	-3-THREAD TRIM
When you push <span style="border: 1px solid black; padding: 2px;">EBT</span> button, on the display will appear - bowls of the draw off are activated	-4-TENSION REL.
When you push <span style="border: 1px solid black; padding: 2px;">SET</span> button, on the display will appear - this function in not used on the machine	-5-WIPER/BLOWER
For machine is available the following ( only diferences):	
When you push  button, on the display will appear - knife is activated	-2-KNIFE/PUNCH
When you push <span style="border: 1px solid black; padding: 2px;">EBT</span> button, on the display will appear - the clamp plate shifts and air blow starts	-4-AIR BLOW
When you push <span style="border: 1px solid black; padding: 2px;">SET</span> button, on the display will appear - cylinder of the shifting mechanism starts shift	-5-CHANGE DIR.

**Note:** It is possible to check the correct function of the electromagnetic valves, when you push orange buttons, which are placed on the valves.


**Test Encoder**

**Caution:** Before this program testing, it is very necessary to take out the belt of the main distribution.


When you push  button, on the display of the control panel will appear “TEST ENCODER”. PUSH START (enc) will appear on the display after several seconds.

By this program the motor encoder is tested.




Push  button, on the display will appear “WAIT PLEASE!!” Encoder senses actual position of the motor. Motor will 4times rotate and when the function is correct, on the display will appear “ENCODER:250pls”. Deviation in range  $\pm 3$  pls is tolerable.




Push  button and on the control panel will appear “CHECK START”. “PUSH START (bal)” will appear on the display after several seconds.



Push  button, on the display will appear “WAIT PLEASE!!” Test check precision of the stopping in the given position. When the function is correct, the motor turns during testing:  
 3x anti-clockwise  
 8x clockwise  
 When the test is finished, “BALANCE:000” appears on the display. The value can be changed in range from ← 003 to → 003.



Push , inputs will save and you will return to “OPERATION MODE”.

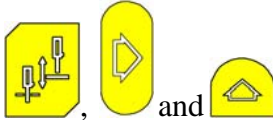
## LCD DISPLAY PROGRAMMING

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### Renewal of the set parameters in program “MASTER RESET”

In case that some parameters have accidental value, it is necessary to use function **MASTER RESET**. This function rewrite set values by the values set from producer, that are saved in program.

**Note:** Before you switch the machine on after MASTER RESET, it is necessary to set the values according to the enclosed example from producer.



Push ,  and  together.

When all three buttons are pushed, switch the machine on by black switch on the switch box.

**PUSH “SET”** and **TO RESET** start alternately flash on the display. If you want to do MASTER RESET, push the SET button during the flashing.

**OPERATING MODE** appears on the display. You can enter to hidden parameters after MASTER RESET.

**Note:** If you do not catch push the SET button during flashing, **OPERATING MODE** appears on the display, but function MASTER RESET is not functional.



**Finding and identification of the basic faults of the control unit Clinton**

Unpacked cabel of the motor

*Switch the machine from operating mode to test and set test encoder on the display.*



*Push the button and on the display appears “PLEASE WAIT!”, motor does not rotate. If you manually turn the pulley, on the display appears “ENCODER FAILED!”*

*“ENCODER FAILED!” does not mean fault of encoder in this case, but motor did not turn in given time by given number of steps, it means number of prospective impulses is different from received impulses. If you turn the pulley quickly, it is possible that on the display appears “ENCODER: 250 pls”.*

Dropped out cabel of motor encoder

*Switch the machine from operating mode to test and set test encoder on the display.*



*Push the button and on the display appears “PLEASE WAIT!”, motor does not rotate. If you manually turn the pulley, display will not change.*

Motor does not rotate.

*Advance as by cabel of the motor.*

Display of the control panel is empty, green LED does not light.

- *check if the power main switch is switched on*
- *check the fuse in “POWER BOARD”*
- *check connection among switch box, filter, POWER BOARD, transformer, SELENOID BOARD*

Display of the control panel is empty, green LED lights.

- *check connection between SELENOID and PC LOGIC BOARD*
- *check SELENOID BOARD*
- *check PC LOGIC BOARD*

On the display appears ■■■■, green LED lights

- *faulty E-PROM*
- *fault PC LOGIC BOARD*

Green LED does not light, machine sews


- *check LED*
- *check connecting cable*
- *check SOLENOID BOARD*

## LCD DISPLAY PROGRAMMING

---

The red LED does not light, EM. STOP is pushed, machine stops



- check in "OUTPUT TEST" button , if the red LED does not light after pushing this button, check:

- check LED
- check connecting cable
- check SELENOID BOARD

EMERGENCY STOP button is pushed, machine does not stop

- check in "INPUT TEST" and if -9- EMERG. STOP does not appear on the display, change the button
- check connecting cable

CLAMP UP/DOWN button is switchen on, clamps do not react

- check in "INPUT TEST" and if -4- CLAMP DOWN does not appear on the display, change the button
- check connecting cable
- check PC BOARD

Valves are not functional during "INPUT TEST", the LED on the valve does not light

- check valve, or change connector with cable
- check SELENOID BOARD

Machine does not stop after sewing the cycle and continue with sewing

- check position of the stopping sensor against stopping desc (control spring)
- check in "INPUT TEST" and if -1- EOC - SENSOR does not appear on the display, change the sensor
- check conntection of the sensor connector to RECEPTICAL PLATE
- check connection of the PC BOARD and connector on the RECEPTICAL PLATE

Needle bar stops irregularly

- fault of the motor
- fault of the POWER BOARD

Ventilator does not rotate, machine is switched on

- check the ventilator fuse
- check, if the connector of the ventilator is connected

Light does not light, the machine is switched on

- check fuse on the switch box
- check the halogen bulb

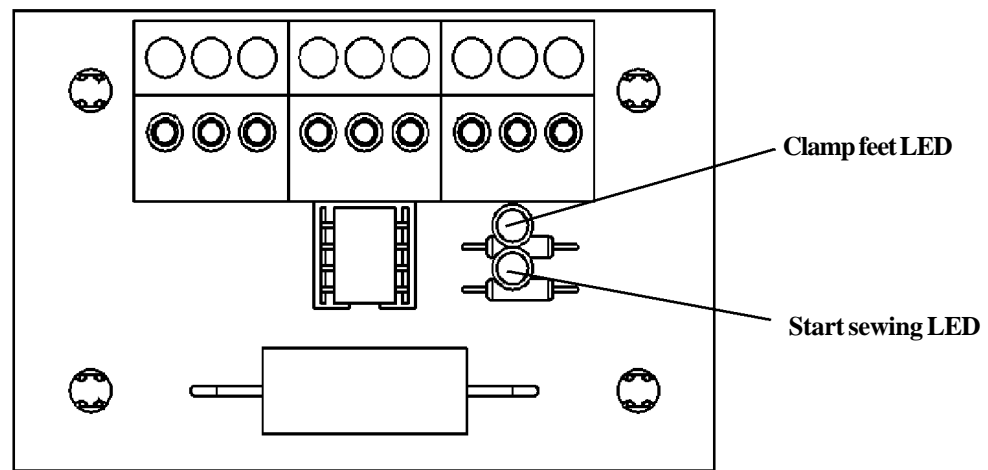
**Machine S 4000 with indexer - operating and controlling of the functions**

**Caution:** Check the air supply before the machine is switched on and by the means of button **MASTER SWITCH** switch the machine on. Then switch on black switch on the switch box of the machine.

For connection of Clinton electronics and indexers (VS 3005, VS 3005 A, VS 3005 AW) is **INTERFACE**.

Functions discription of the interface LEDs

**INTERFACE BOARD**



If the clamp feet LED lights, it signalizes, that clamp feet are in upper position and on the input of control unit of indexer also lights LED IN 10 (E0.01) and IN 8 (E0.06).

**Note:** The value in bracket means for old type of indexer VS 3005.

Push the foot pedal and LED IN 9 (E0.07) on the input of control unit of indexer lights and LED IN 8 (E0.06) goes out.

LED OUT 4(A0.01) shortly lights on the output of the control unit and at the same time start sewing LED lights on the interface. The clamp feet close, the clamp feet LED go out and machine starts sewing cycle. The operation continues after sewing one decorated buttonhole. When the complete sewing cycle is finished, the clamp feet open and the clamp feet LED lights on the interface.

Note: Indexer operating is mentioned for every types in manual, which is inseparable parts of delivery of the machine S-4000 with indexer. Every type of connection is mentioned in service part of the manual S 4000.

### **Finding and identification of the basic faults of the control units Clinton and indexer**

Green LED does not light on the transformer of the indexer control unit or none LED lights on the control unit:

- *check fuse in source of voltage*
- *check fuse in switch box of the machine*

LED IN 9(E0.07) lights on the input of the indexer's control unit and LED IN 8(E0.06) is gone out, or both LEDs light or both are gone out, machine is in home position:

- *check pedal connection according to the connection diagram*

When you push the pedal and LED IN 8(E0.06) lights on the input of the indexer's control unit and LED IN 9(E0.07) is gone out:

- *check pedal connection according to the connection diagram*

The machine is in home position, clamp feet are up and LED of the clamp feet does not light on the interface:

- *check connecting cable between the valve of the clamp feet and interface board*

The machine is in home position, clamp feet are up, LED of the clamp feet lights on the interface but LED IN 10(E0.01) does not light on the input of the control unit of the indexer.

- *check connection between interface board and control unit fo the indexer*
- *check interface board*
- *check control unit*

The machine is in home position, clamp feet are up, LED of the clamp feet lights on the interface and LED IN 10(E0.01) lights on the input of the control unit of the indexer. If you push the pedal, LED OUT 4(A0.01) does not flash on the output of the control unit fo the indexer:

- *change control unit of the indexer*

When you push the pedal and LED OUT 4(A1.01) shortly flashes on the output of the control unit but start sewing LED does not light on the interface:

- *check connection between output of the control unit of the indexer and interface board*

When you push the pedal and LED OUT 4(A0.01) shortly flashes on the output of the indexer's control unit and start sewing LED lights on the interface but sewing cycle does not start:

- *check connection among interface board, terminal board and PC BOARD in control unit of the Clinton electronics.*

## ADJUSTMENTS

---

### Main Shaft End Play Removal

Position the shaft to the right and ensure the retaining ring is contacting the bearing at the looper cam.

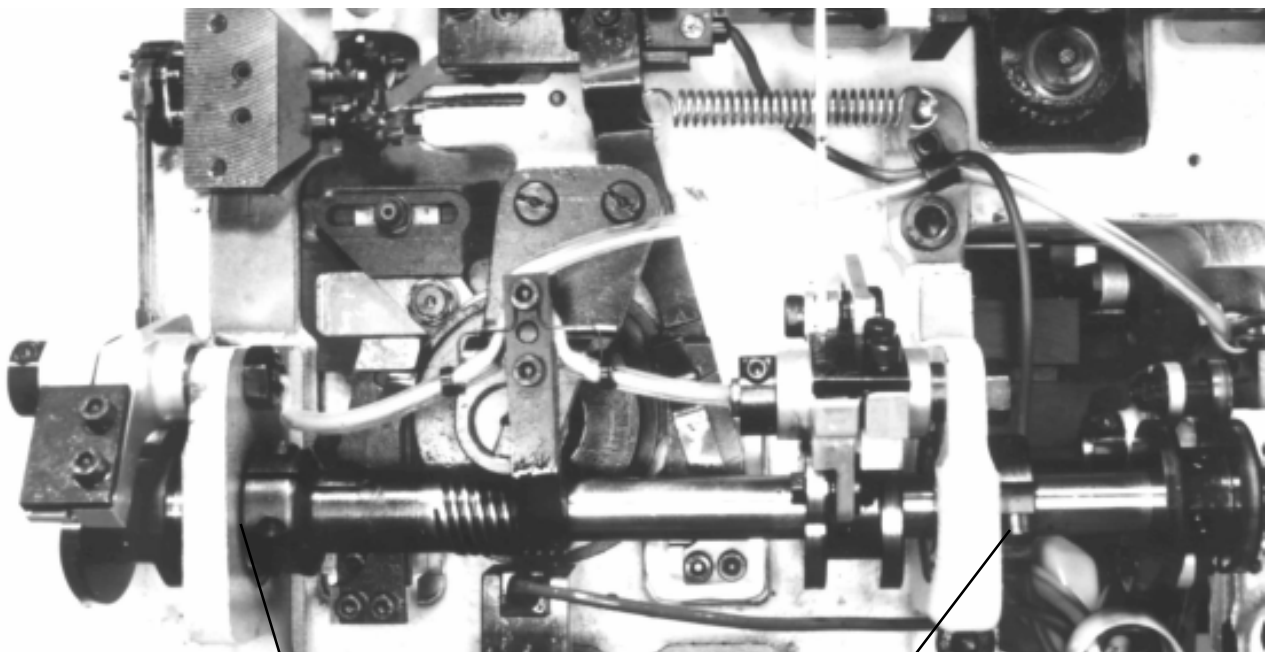
Loosen the clamp collar screw.

Push the shaft to the right and position the retaining ring to contact the bearing.

Push the clamp collar to the left to contact the bearing.

Tighten the clamp collar screw.

Ensure the shaft rotates freely.



**Retaining ring**

**Clamp collar**

## ADJUSTMENTS

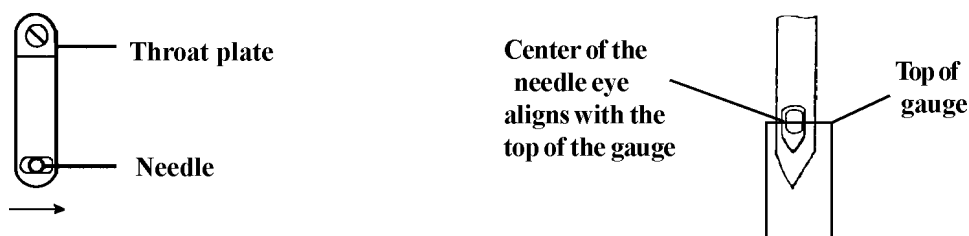
### Needle Bar Bell Eccentric Position

Slightly loosen the bell eccentric clamping screw and rotate the assembly until the needle bar reaches top dead center in the home position.  
Tighten the clamping screw.

**Note:** To confirm the correct adjustment, with the machine in the home position, rotate the handwheel forward and backward, in each direction, the needle bar must lower, not raise.

With the machine in the home position, set the needle bar height to 16 mm (5/8") from the top of the throat plate to the center of the needle eye.

Loosen the set screw and position the needle bar up or down as needed.

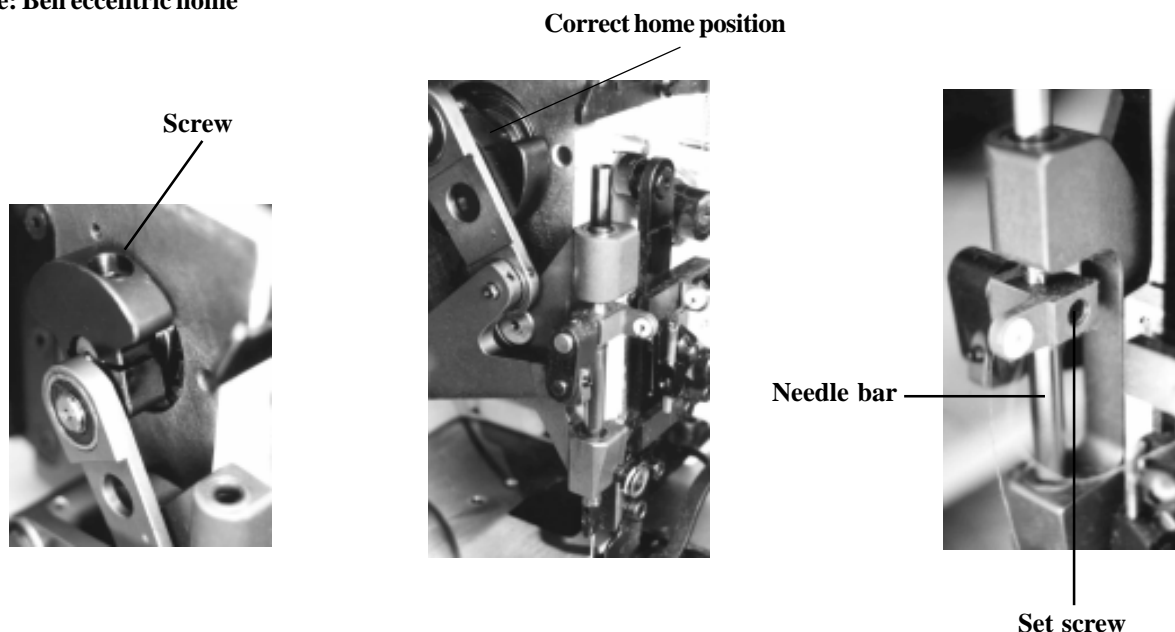


**Note:** The machine must start sewing with the needle toward the operator, using a parallel table.

If the machine starts sewing with the needle away from the operator, the barring stitches will not be sewn.

**Note:** After adjusting the eccentric, ensure the looper and main shaft to upper shaft timing is correct.

**Note:** Bell eccentric home

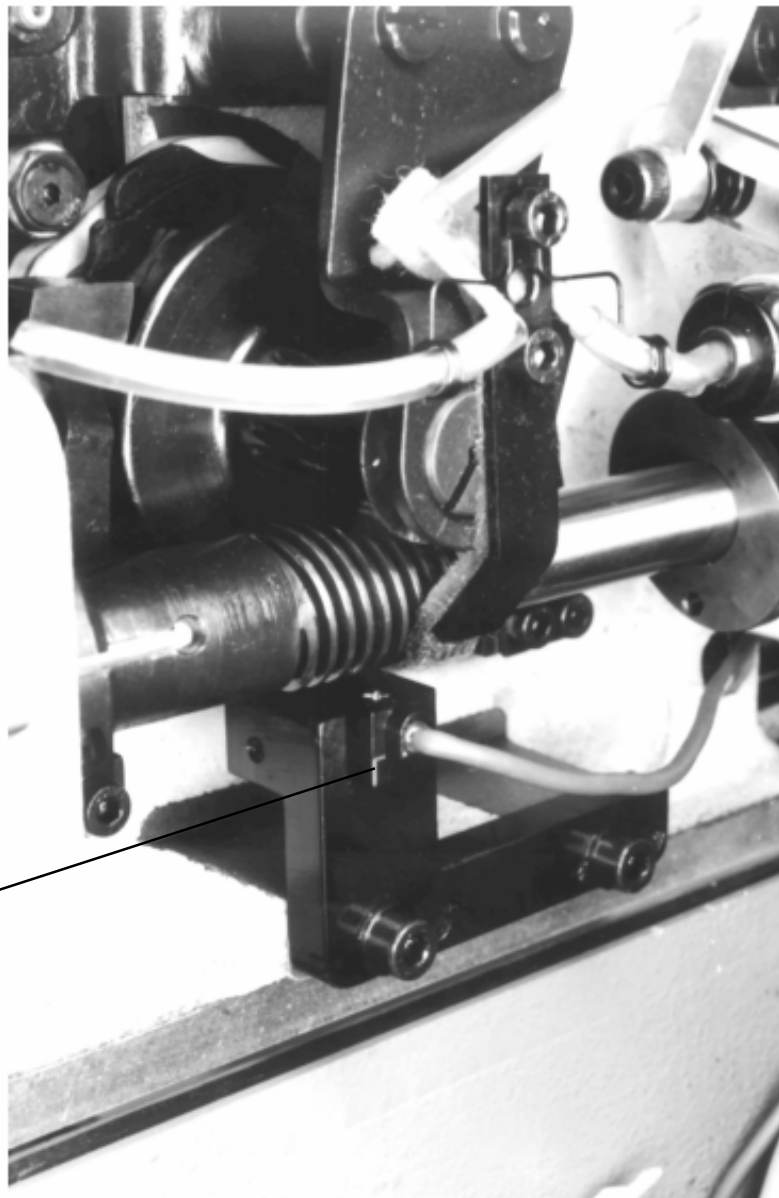


## ADJUSTMENTS

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### Stopping Sensor

The stopping sensor slows the machine before stopping, in the home position.



Stopping sensor

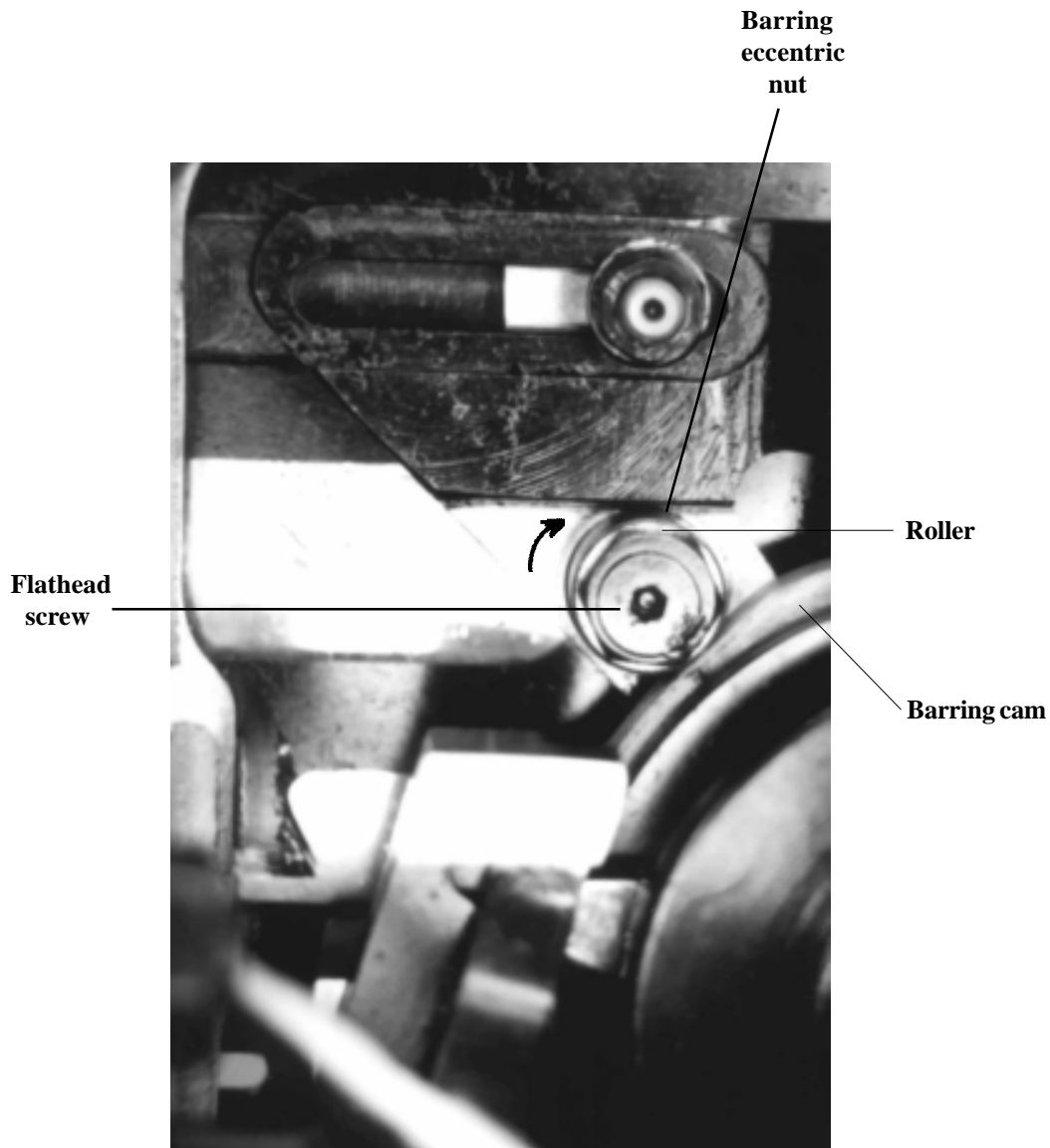
## ADJUSTMENTS

### Barring

The proper adjustment ensures the correct clamp plate position during barring.

With the machine in the barring position, loosen the cap screw and adjust the barring eccentric nut clockwise to obtain minimum clearance between the barring cam and roller on the barring eccentric. Tighten the cap screw.

**Note:** Check correct adjustment of the barring cam and roller in barrings. When the clearance is too small, barring cam can be damaged!





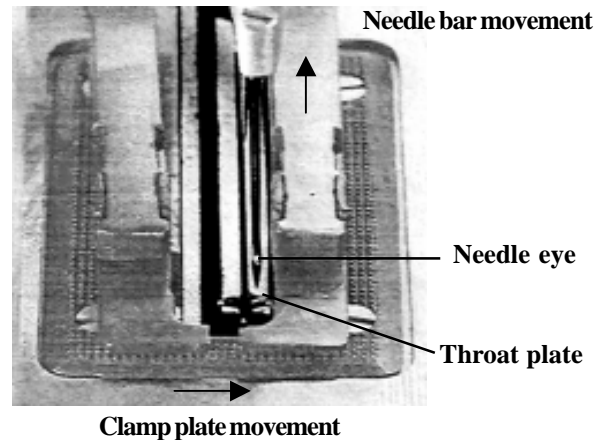
## ADJUSTMENTS

### Barring

Manually rotate the machine and observe the needle movement when the clamp plate starts to move.

If correct:

The clamp plate movement begins when the needle goes up from throat plate between the eye and the needle point, as illustrated.



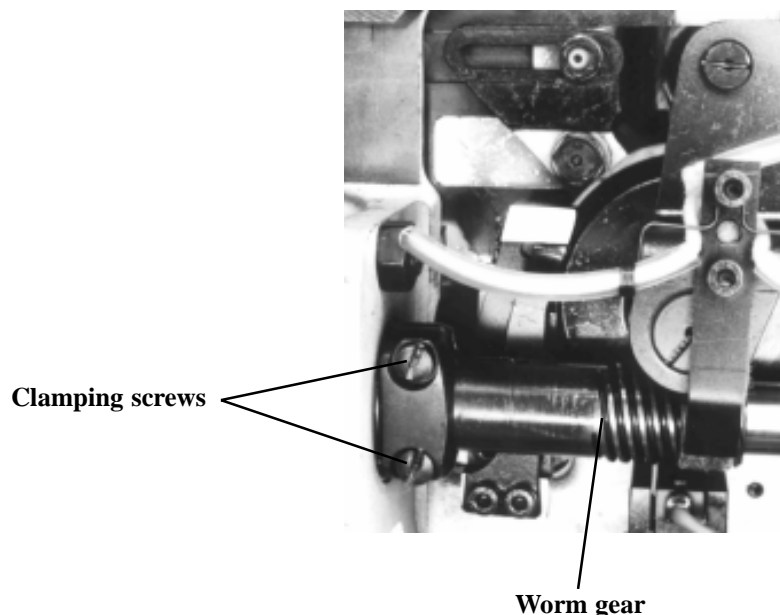
If incorrect:

Loosen the worm gear clamping screws.

If the clamp plate movement is too late, hold the worm firmly against the bearing, to prevent side to side movement and rotate the handwheel clockwise, as needed.

If the clamp plate movement is too soon, hold the worm firmly against the bearing, to prevent side to side movement and rotate the handwheel counterclockwise, as needed.

Tighten the clamping screws.



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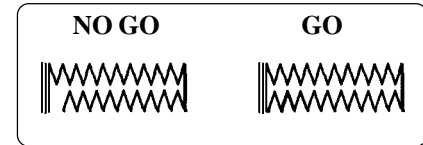
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## ADJUSTMENTS

### Clamp Plate Zero Position For Machine BH

When the machine stops and starts in the same location each time, the possibility of producing buttonholes with gaps is eliminated (between a bar and the first stitch). To achieve consistent stopping and starting positions, the clamp plate must be correctly adjusted for zero position.

**Note:** Manual machine rotation is required to perform the settings, setting up for a shorter stitch length will reduce the amount of manual rotating.



With the machine in the home position, remove the needle and knife. Remove the seven screws securing the cover plate and remove the plate.

Loosen the two screws securing the stop and position the stop out of the way.

**Note:** Since the cover is removed, manually secure the clamp plate when running the machine.

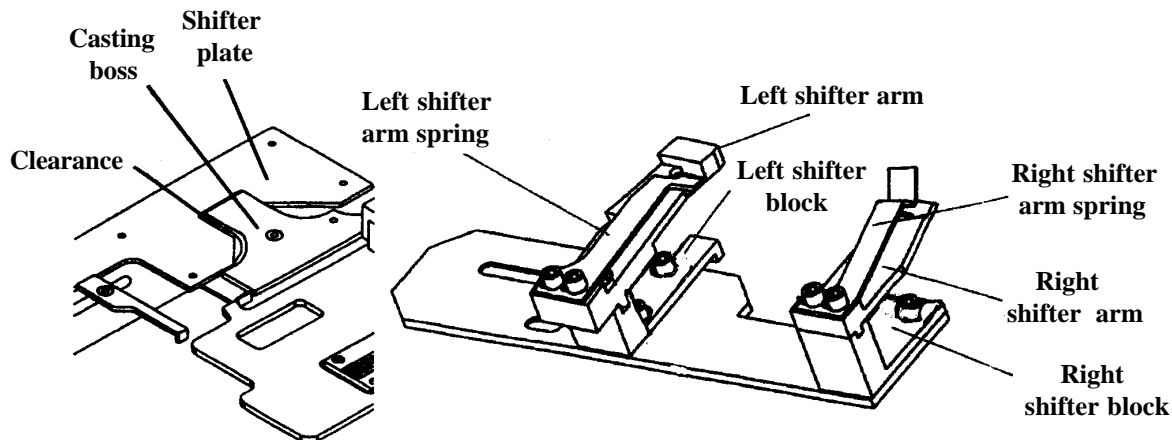
Manually engage and rotate the machine until the drive spring releases from the left shifter spring. The moment the drive spring releases, stop rotating and tilt the machine back. Ensure a minimum .05 mm, exists between the shifter plate and the casting boss.

If incorrect:

Remove the two screws and the left shifter spring. Loosen the two left shifter arm screws connected to the block. Position the arm to the right, moving the shifter plate closer to the boss, or to the left to position the shifter plate farther from the boss, when the drive spring releases, Figure A.

**Note:** The left spring must be installed, to check for the correct position. When installing the left shifter spring, ensure the right side of the spring is even with or past the left arm shifter. If the spring is in front of the shifter arm, the arm will lock up when trying to disengage.

**CAUTION!** If the shifter is located too far to the right, the drive spring will not release and the machine will continue to sew in one spot, without feeding.



**Figure A**

## ADJUSTMENTS

### Clamp Plate Zero Position

Obtain the correct .05 mm clearance and tighten the screws on the shifter arm.  
 Manually rotate the machine through the first bar and the second row of stitches.

**Note:** When the drive spring releases from the right shifter arm, the shifter plate must be .05 mm from the boss.

Loosen the right-hand shifter arm and spring set screws. Positioning the shifter arm and spring to the right increases the shifter arm and boss clearance, when the drive spring releases. Positioning the shifter arm and spring to the left decreases the shifter arm and boss clearance, when the drive spring releases, Figure A.

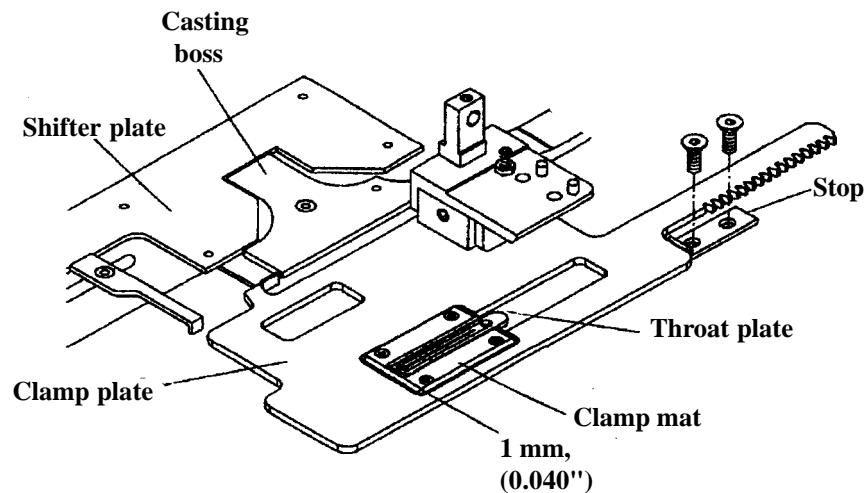
Manually rotate the machine to the home position.  
 Position the stop to contact the clamp plate edge, Figure B.  
 Tighten the screws.

In the correct home position, three conditions must be present:  
 The shifter plate must be .05 mm or less from the casting boss, Figure B.  
 The clamp plate must contact the stop, Figure B.  
 The clamp mat must be 1 mm (0.040") from the throat plate, Figure B.

While holding down the clamp plate, cycle the machine several times and ensure the three conditions remain constant.

If incorrect:  
 Check for worn parts and repeat the settings.  
 Install the cover plate and the seven screws.  
 Sew a few buttonholes on a scrap piece of fabric, to ensure correct settings.

**Note:** It is not unusual to repeat the setting several times to obtain the correct adjustments.



**Figure B**

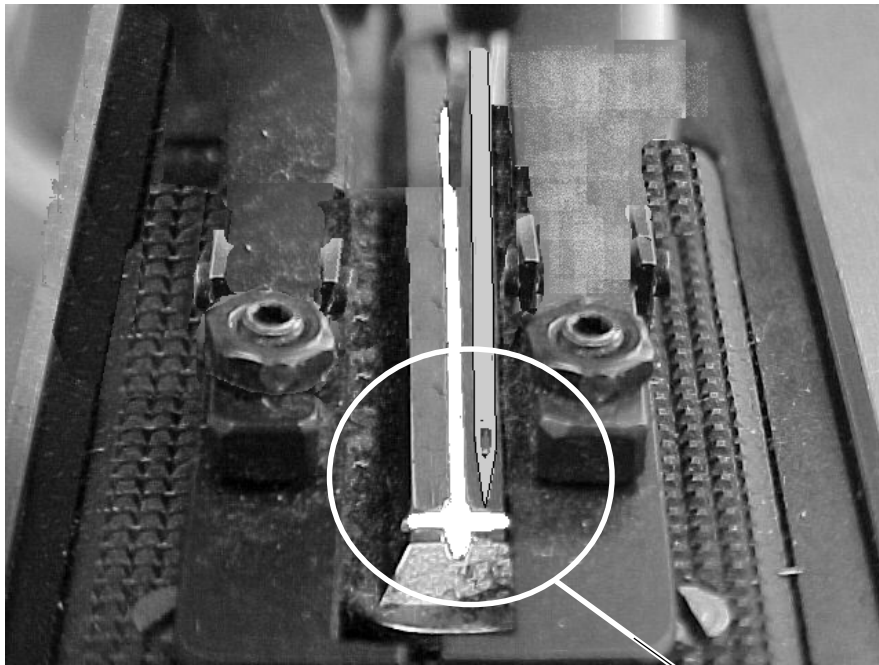
## ADJUSTMENTS

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### Bite Cam

Ensure the machine is in the home position.

Fold the machine head to the pin. When the adjustment is correct, the second adjusting screw of the cam must be (anti-clockwise)vertical to casting of the bedplate.



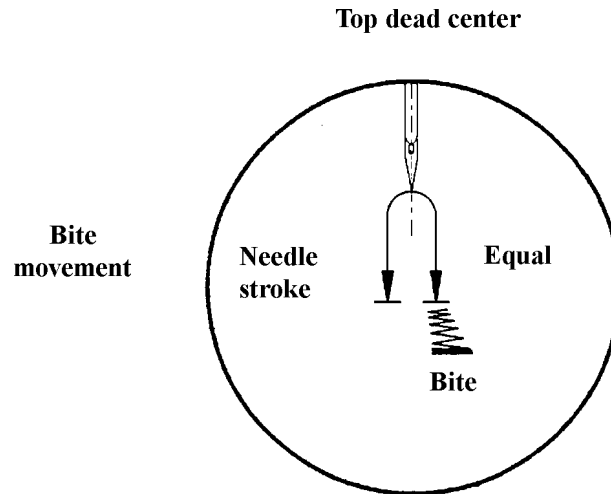
**Figure 1**

Correct needle bite first stitch direction.

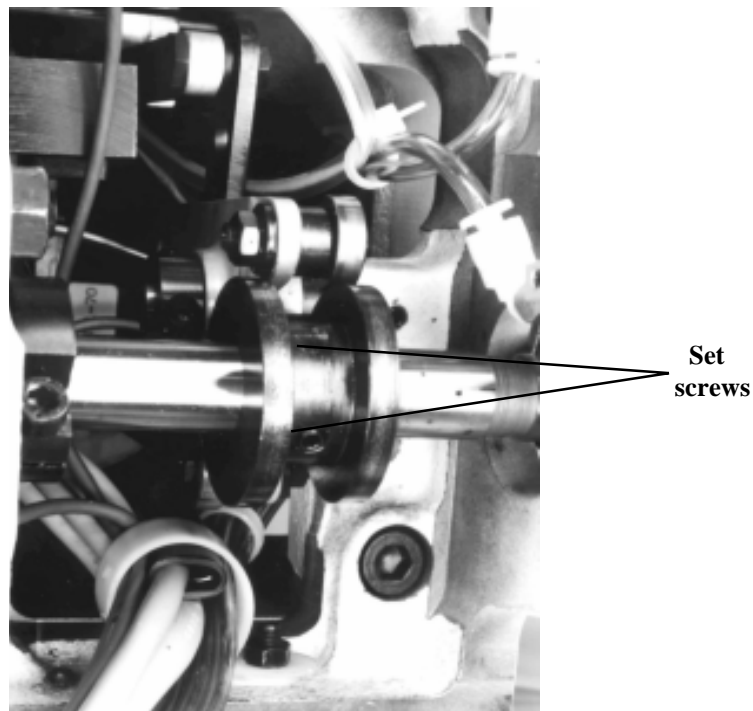
## ADJUSTMENTS

### Bite Cam

The bite movement is preset with a set cam screw tightened into the shaft. The needle must have an equal amount of travel, moving up to and down from top dead center.



**Figure 1**



## ADJUSTMENTS

### Bite Width

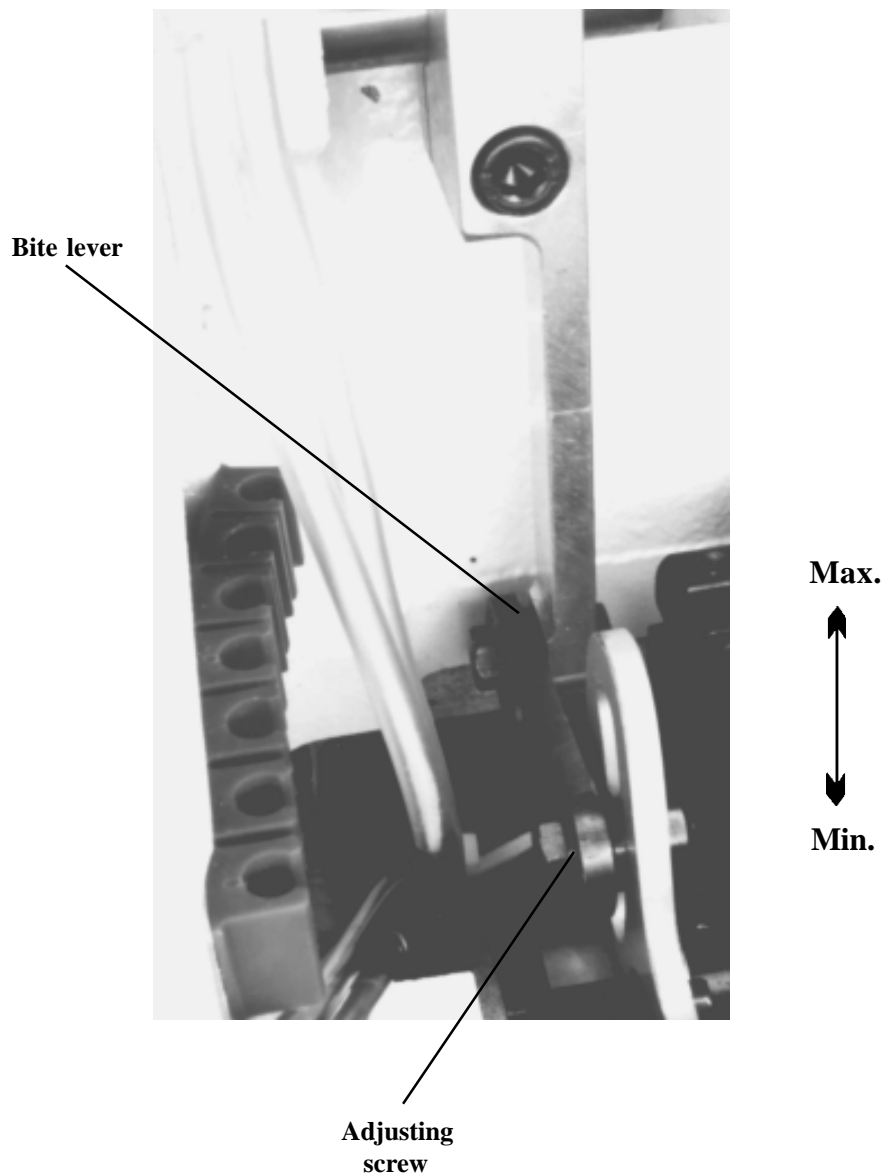
The S-4000 is fitted with a regular bite throat plate, which allows a bite range from a maximum of 2.3 mm (3/32") - it is possible to adjust bite 3 mm after changing of the throat plate on the machine TKF - to a minimum of 1.5 mm (1/16").

Loosen the adjusting screw.

To increase the bite width, raise the bite lever.

To decrease the bite width, lower the bite lever.

Tighten the adjusting screw.



## ADJUSTMENTS

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### Centering the Bite Over the Throat Plate

Loosen the bite lever clamping screw and center the needle bite over the throat plate.

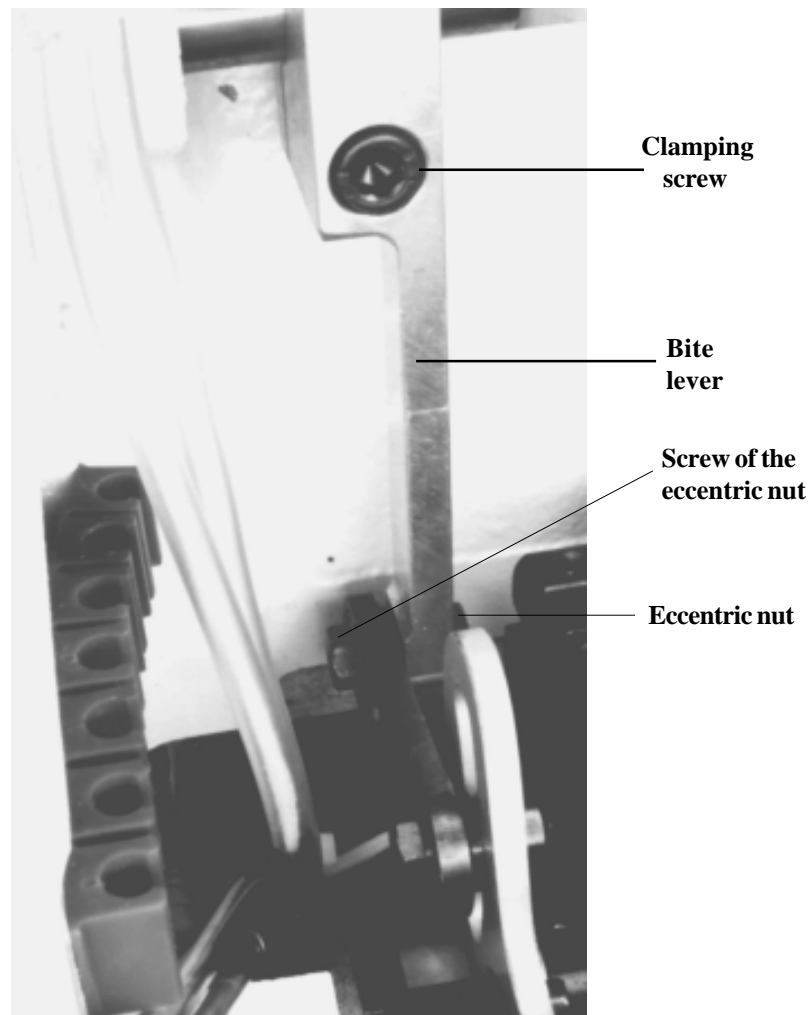
In the first stitch position, position the needle bar to just enter the throat plate.

Loosen the clamping screw.

Adjust the needle for equal distance between the front side and the rear side of the throat plate.

Tighten the clamping screw and ensure the correct setting is maintained.

**Note:** This adjustment is only of orientation.



For soft adjustment loosen screw of the eccentric nut and reach needed adjustment by swinging of the eccentric nut. Tighten screw of the eccentric nut.

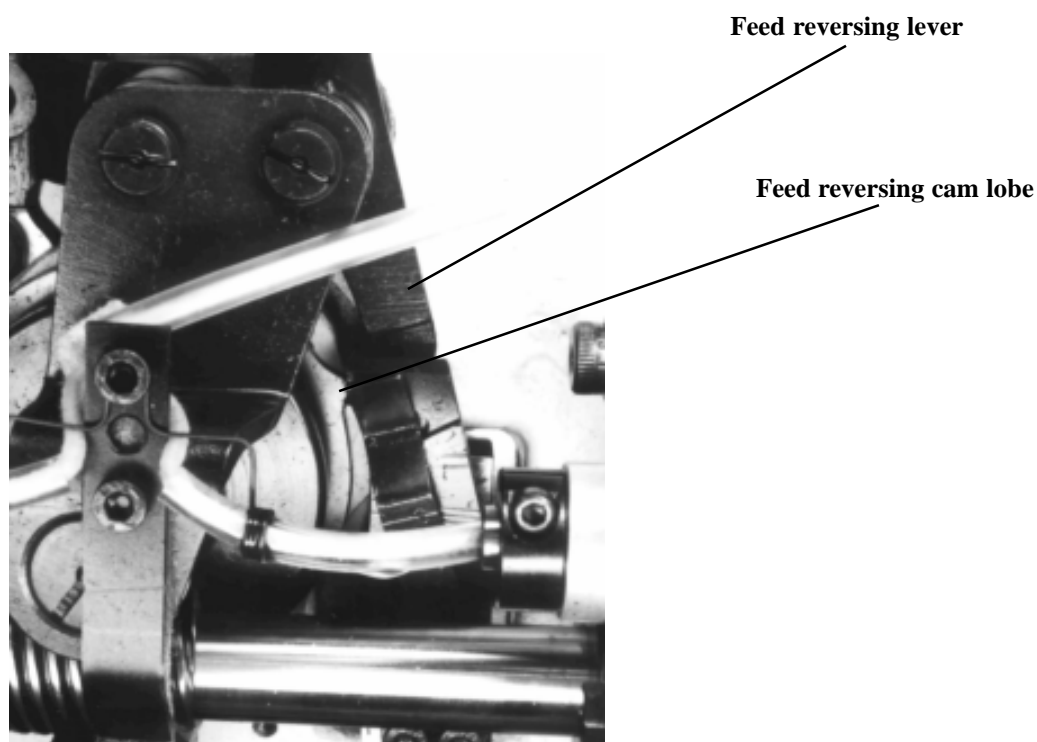
## ADJUSTMENTS

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### Feed Assembly

Tilt the sewing head back against the resting pin.

Manually rotate the handwheel until the feed reversing lever is located at the top of the feed reversing cam lobe and positioned for the first row of stitches.





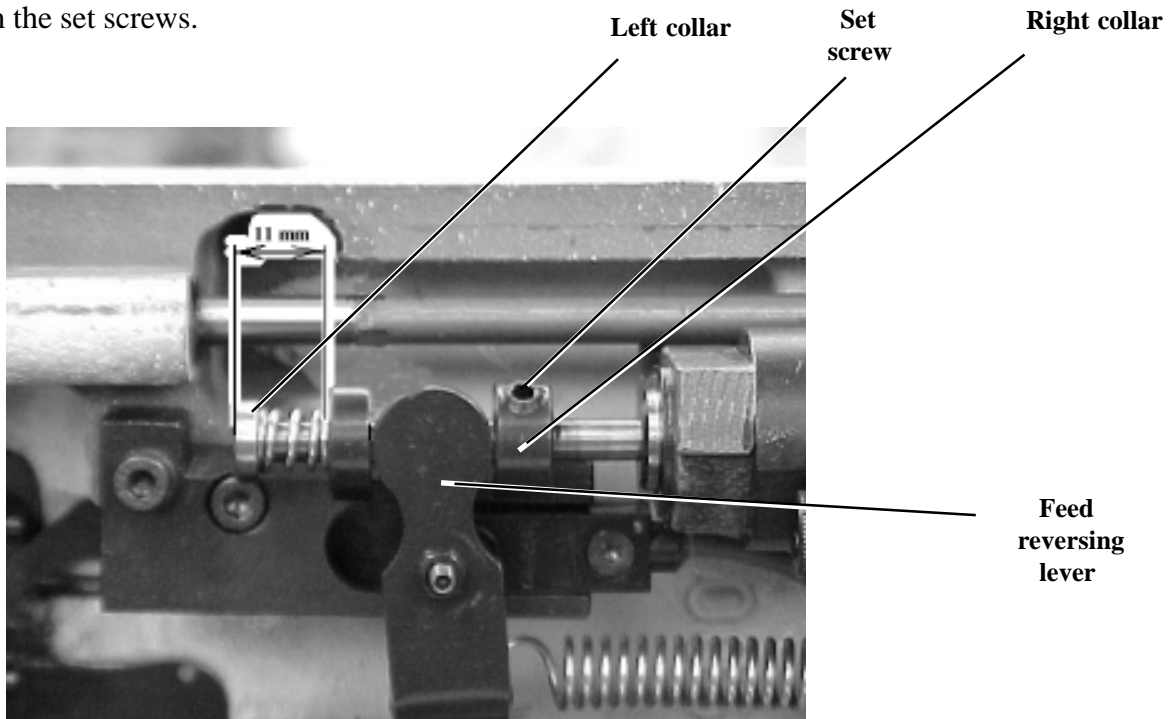
**ADJUSTMENTS**

**Feed Assembly**

Loosen the two set screws in the right collar.

Pressing the end of the feed shaft, position the left collar against the feed reversing lever between the forehead of the shaft end and forehead of the left collar adjust dimension 11 mm. Maintaining the spring dimension sure, position the right collar against the feed reversing lever.

Tighten the set screws.



**First row of stitches**

Rotate the handwheel until the feed reversing lever is in position of the first row of stitches. In this position the feed reversing lever is on the top of the cam.

Loosen the drive crank set screw and the two set screws on horizontal bevel gears.

Position the right bevel gear to engage with the vertical bevel gear.

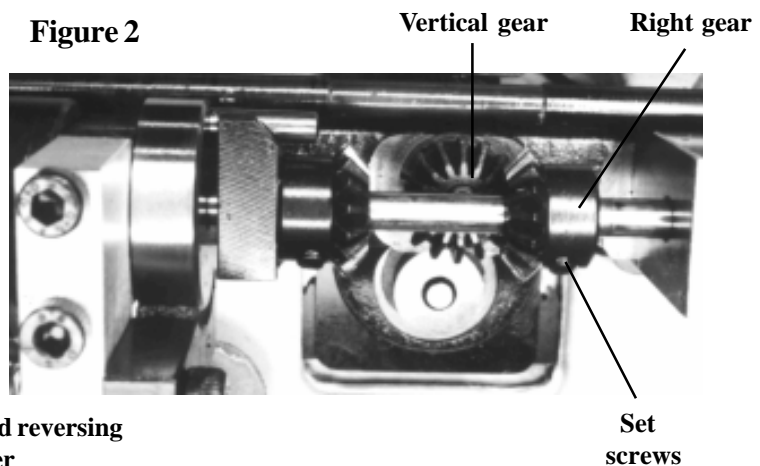
Tighten the set screws.

The left bevel gear is adjusted during the first row of stitches on the machines ISBH.

**Figure 1**



**Figure 2**



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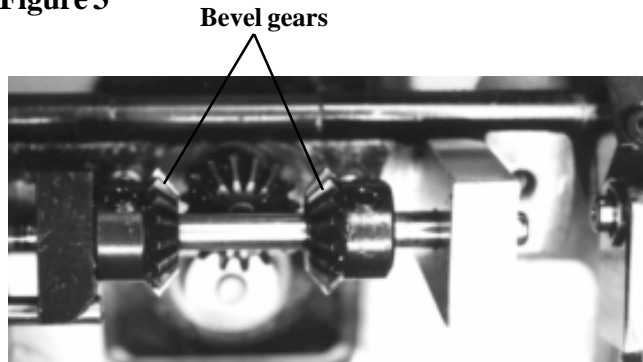
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## ADJUSTMENTS

### First bar

When the control spring of the main cam from the shifter left arm is loosen, disengage bevel gears and the machine feeds in one place.

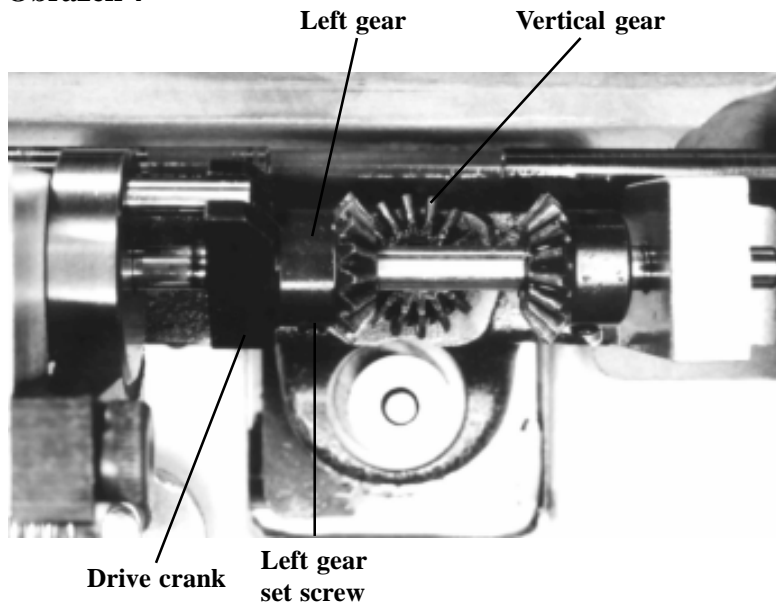
**Figure 3**



### Second row of stitches

Rotate the handwheel and the main cam, until the feed reversing lever is positioned for the second row of stitches. The feed reversing lever will fall into the feed reversing cam cavity, as illustrated.

**Obrázek 4**



## ADJUSTMENTS

---

### Second bar

During the second bar the control spring of the main cam and of the shifter right arm is loosen, disengage the bevel gears and machine feeds in one place.

Position the left bevel gear to engage with the vertical bevel gear.

Tighten the bevel gear set screws.

Position the drive crank firmly against the left bevel gear.

Tighten the drive crank set screw.

### Feed Assembly

Rotate the handwheel to verify all bevel gears are disengaged, when the machine is in the neutral, barring position, as illustrated.

### Slip Clutch

The slip clutch pressure is factory set and under normal conditions will not need adjusting.

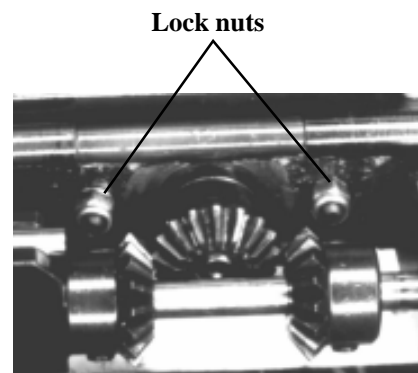
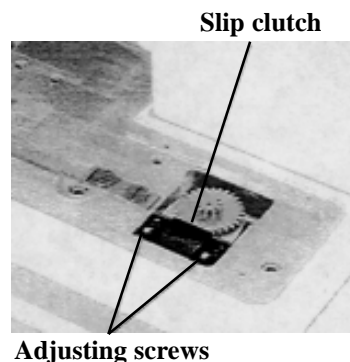
The correct clutch torque setting is 4.3 centimeter kilograms, (60 to 65 inch ounces).

Hold the nut and tighten the adjusting screws with a torque screwdriver. Apply an equal amount of pressure to both sides of the clutch.

**CAUTION!** If a torque screwdriver is not available, position both screw ends, until two screw threads are visible above the lock nut.

**Note:** If disassembling a properly adjusted clutch, count the number of threads extending past the lock nuts and install the clutch to the original setting.

**CAUTION!** Too little torque will produce an improper material feed.  
Too much torque may damage parts.



## ADJUSTMENTS

---

### Feed Timing

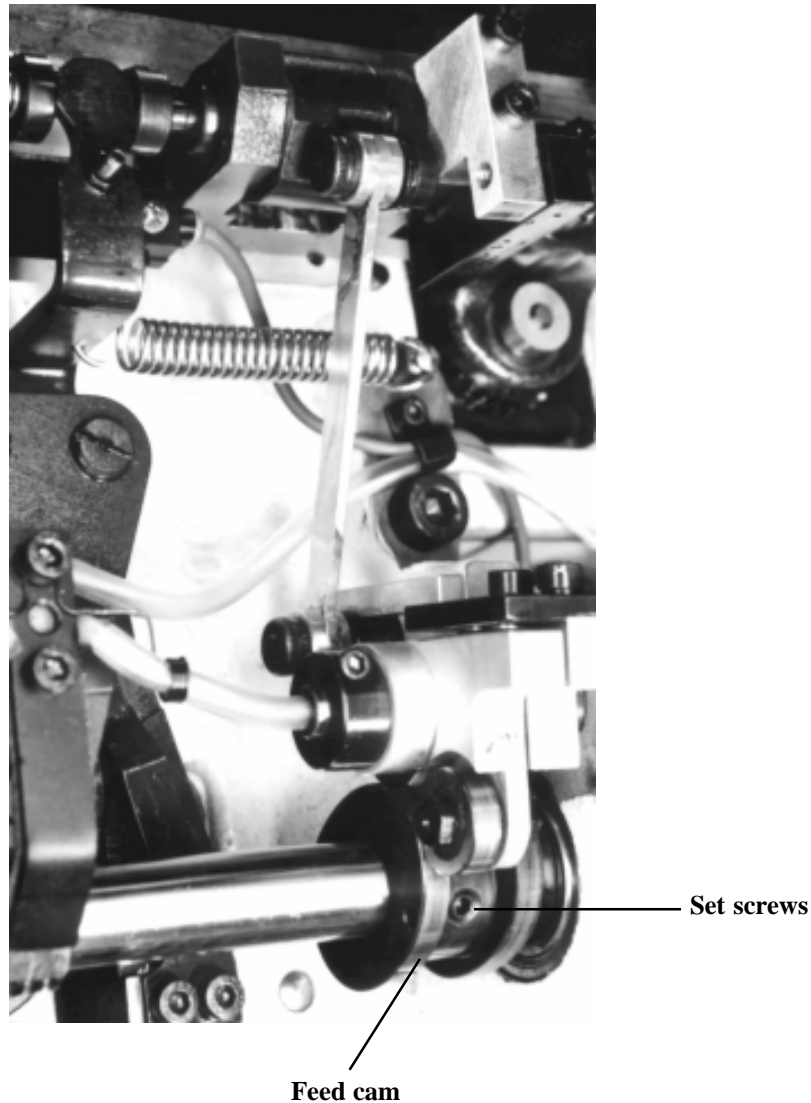
**Note:** Start of the feeding occurs when the needle is out of the fabric and the needle tip is closely above the fabric.

If incorrect:

Position the machine in the first or second row of stitches, not the barring position.

Loosen the feed cam set screws and adjust the feed cam position to move the clamp plate, when the needle is out of the fabric.

Tighten the set screws.



## ADJUSTMENTS

---

### Stitch Density

Adjust the feed connecting link position in the cam follower slot to obtain the correct stitch density.

To increase density:

Loosen the hex socket screw and position the link away from the bedplate to increase the density.

Maximum density = 30 stitches per inch (12 stitches per 10 mm).

Tighten the hex socket screw.

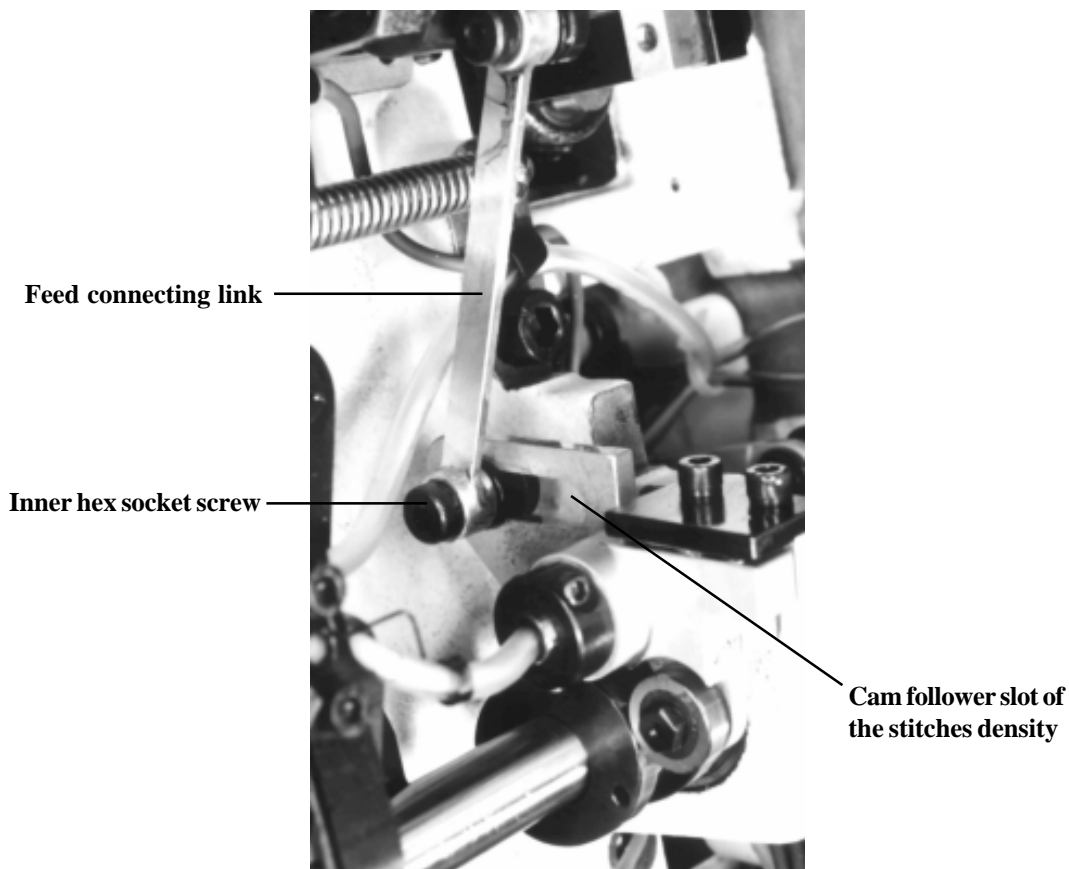
To decrease density:

Loosen the hex socket screw and position the link toward the bedplate to decrease the density.

Minimum density = 10 stitches per inch (4 stitches per 10 mm).

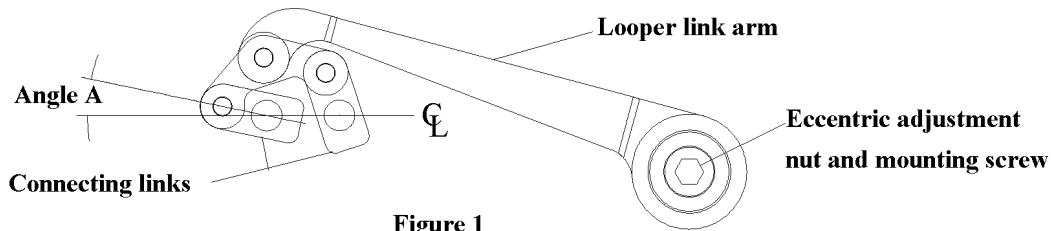
Tighten the inner hex socket screw.

Decrease of the stitches density ← → Increase of the stitches density

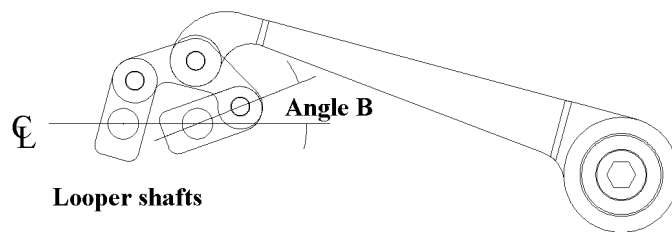


## ADJUSTMENTS

### Looper Drive



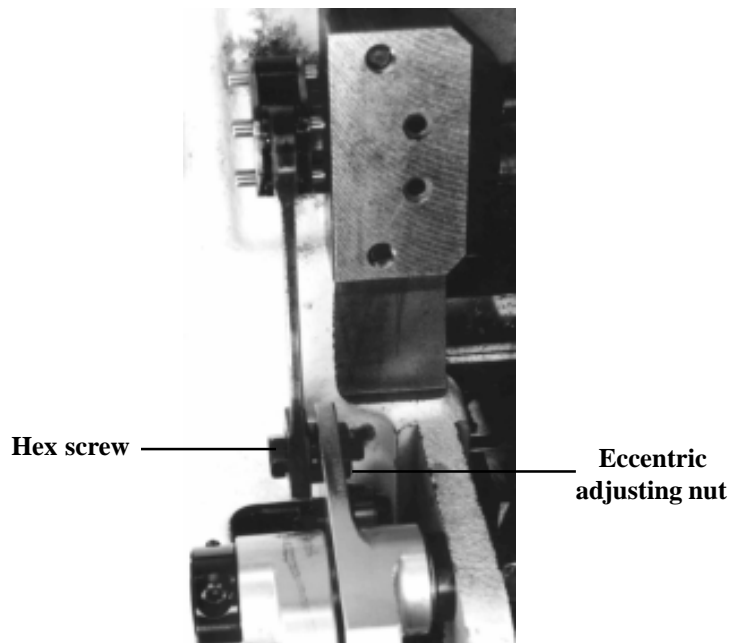
**Figure 1**



**Figure 2**

### Balancing the Position of the Looper Connecting Links

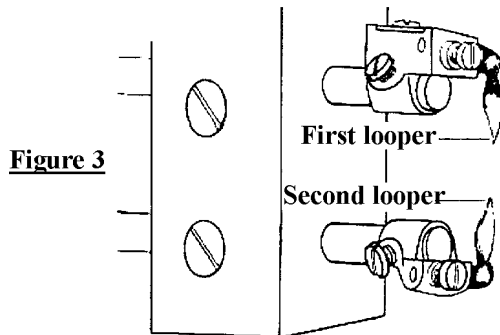
Observe the position of the connecting links at both ends of the looper link arm travel. Angle A in Figure 1, must equal angle B in Figure 2, as illustrated. Loosen the hex mounting screw and rotate the eccentric adjusting nut, as needed. Tighten the adjusting nut.



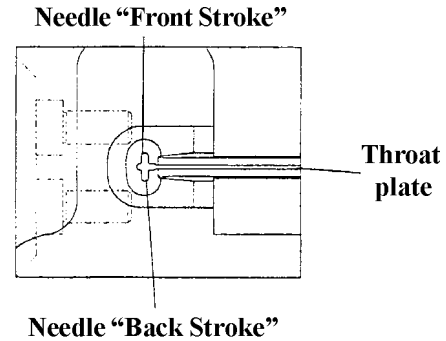
## ADJUSTMENTS

### Looper Position

**Note:** First and second loopers will be referred to as illustrated in Figure 3. Front and back needle strokes will be referred to as illustrated in Figure 4.



**Figure 3**



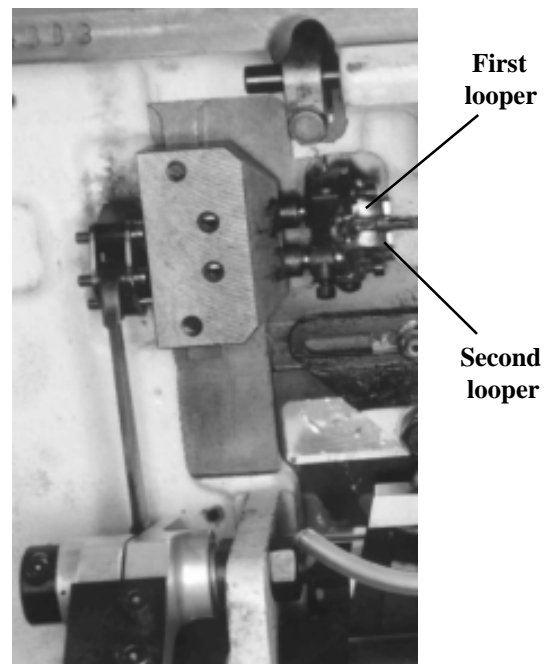
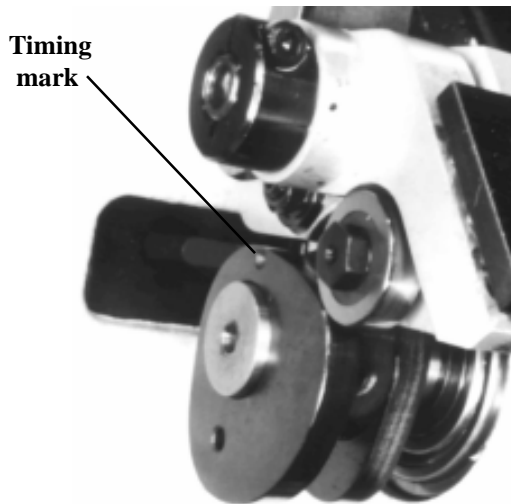
**Figure 4**

**Note:** Before performing the looper adjustments, ensure the needle is straight and inserted fully upward into the needle bar. Ensure the stitch bite is centered over the throat plate, page 1-41.

Ensure the machine is in the home position.

Verify the needle bar is in the top dead center position and the looper drive cam is rotationally positioned with the timing mark illustrated, towards the outside of the bedplate and the immediate end of the shaft.

**Note:** If the timing mark is not on the outside, the cam is assembled in reverse and must be removed and installed correctly. Do not confuse the through hole with the timing mark.



## ADJUSTMENTS

### Looper Position

**Note:** Ensure the machine is in the home position, with the needle top dead center.

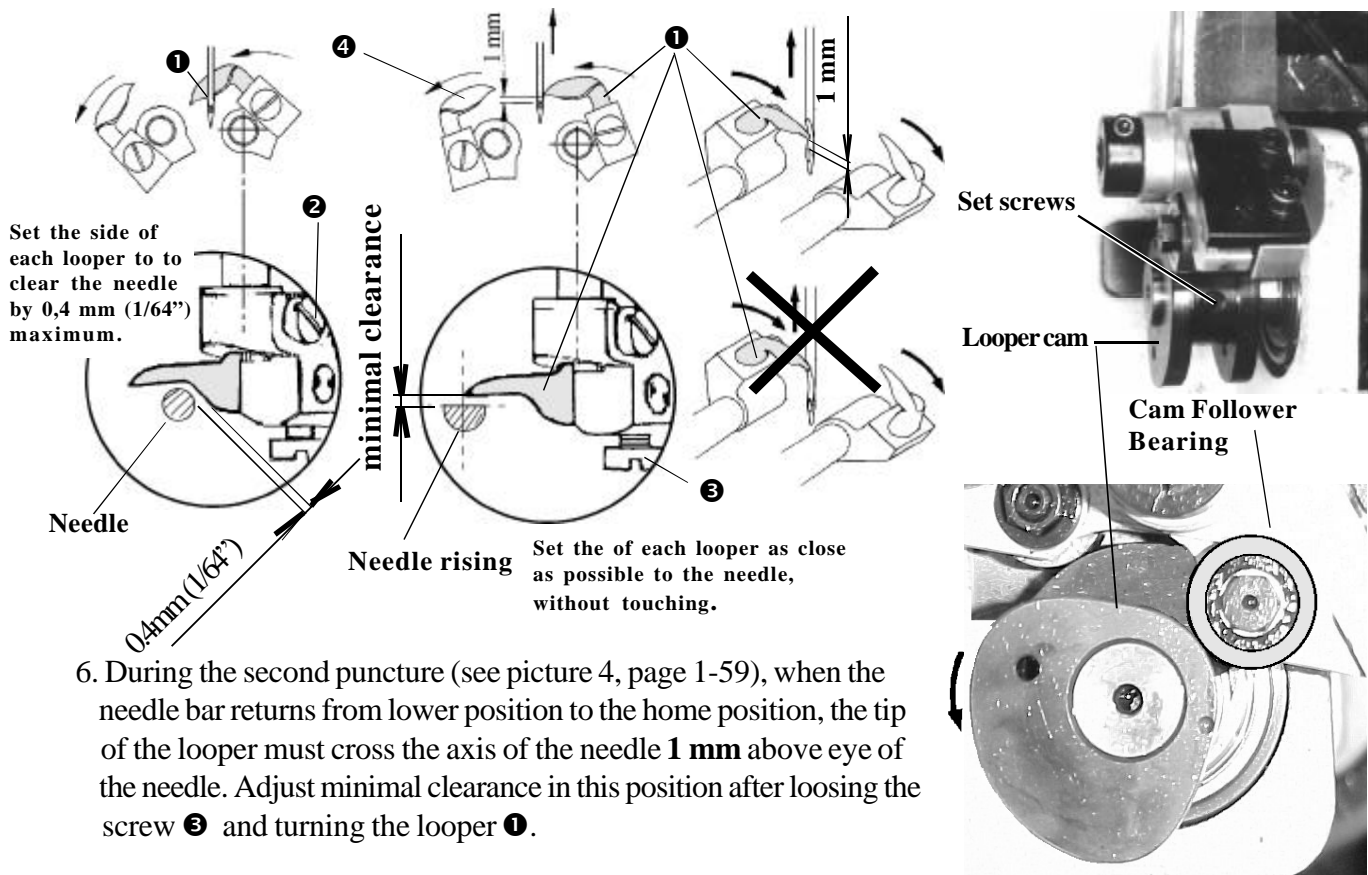
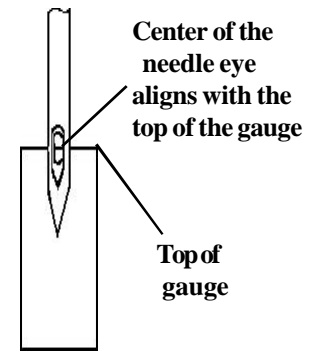
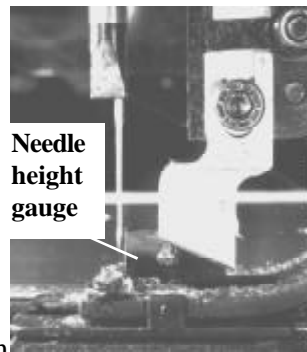
1. Position the needle bar height 16 mm (5/8") from the top of the throat plate to the center of the needle eye. Check the height with gauge number 22.0209.0.000.

2. Dismantle the cover, clamp plate, throat plate and pick-up hook for better adjustment of loopers.

3. Install the first looper with looper holder and trim knife, lightly tighten.

4. Position the looper and holder to ensure the needle will pass on the inside, (right side).

5. When the machine is in home position (the needle is maximum up, cam follower bearing should be on its lowest position on the looper cam (see picture), the needle must freely move around recess of the looper heel **1** with minimal clearance. Adjust this clearance after loosening the screw **2**.



If the crossing of the looper is bigger than 1 mm, turn looper cam anticlockwise.

If you change the looper cam position, it is necessary to check needle to looper heel position.

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## ADJUSTMENTS

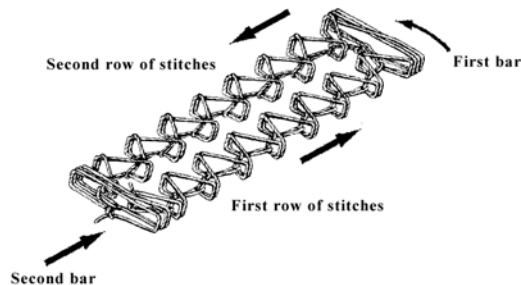
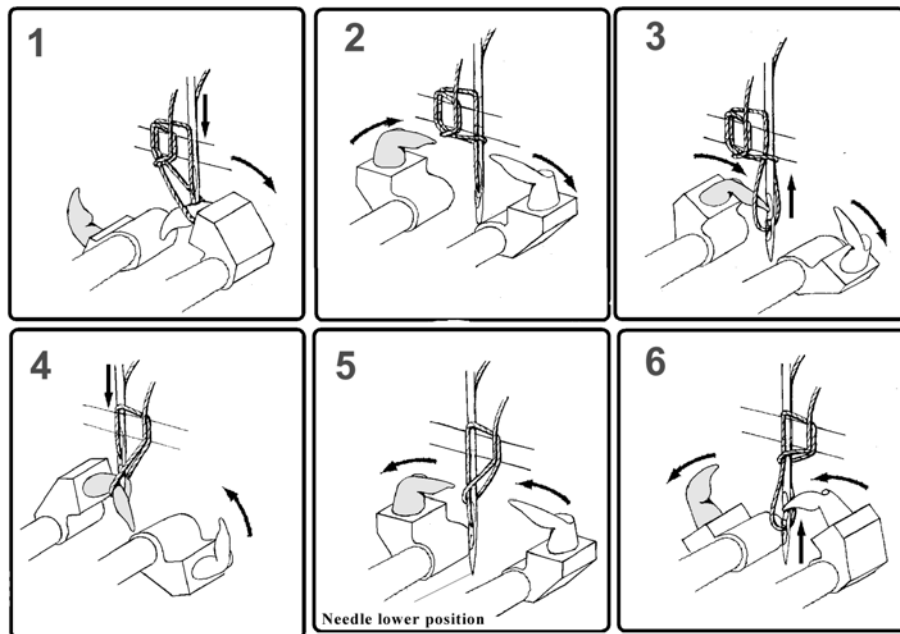
### Second looper adjustment

Since both loopers function is the same, the following instructions and illustrations apply to both the first and second loopers.

Position the second ④ looper adjust similar to the first looper since point 5.

Install the cover, clamp plate, throat plate and pick-up hook.

Thread the needle, place fabric under the clamps, tip the machine back on the hinges and rotate the drive pulley forward while observing the sewing action.



## ADJUSTMENTS

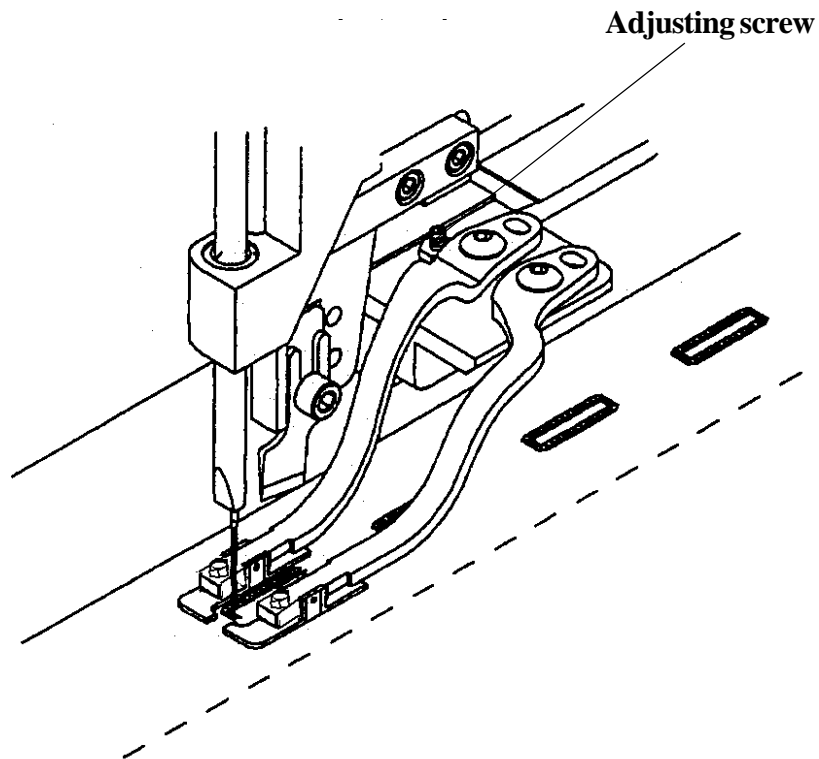
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### Clamp Height

Clamp height is correct when the needle, in the stop position, is slightly above the underside of the clamp feet.

Loosen the adjusting screw nut and rotate the adjusting screw in or out, as needed.

Tighten the adjusting screw nut.



**Figure 1**

## ADJUSTMENTS

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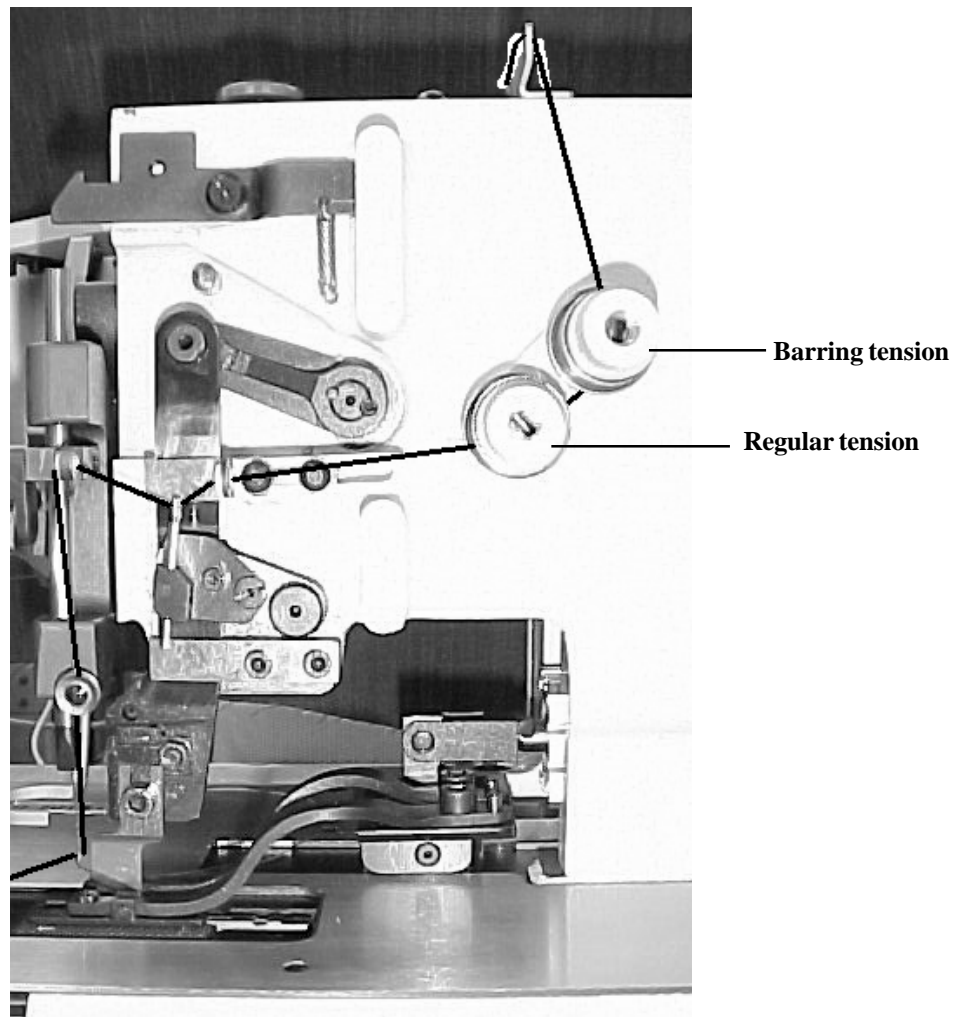
### Regular Tension

Rotate one or both tension disks to obtain the correct straight sewing tension. Rotate clockwise to increase the thread tension and counterclockwise to decrease the thread tension.

### Barring Tension

Rotate the barring tension disk clockwise to increase the thread tension and counterclockwise to decrease the thread tension and correctly adjust the sewing tension during barring. The regular tension disk is deactivated during the barring cycles of the buttonhole.

**Note:** Incorrect tension will cause the fabric to bunch up during sewing.



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

## ADJUSTMENTS

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### Barring Tension Release Sensor

Rotate the machine to the first barring position, the feed reversing cam will move to the center, disengaging the feed.

Loosen the barring tension set screw and move the sensor until the sensor light activates, ensuring the sensor is energized.

If the sensor will not activate:

Loosen the height set screw locking nut and adjust the length of the screw until the end of the screw just activates the sensor.

Lock the height set screw locking nut.

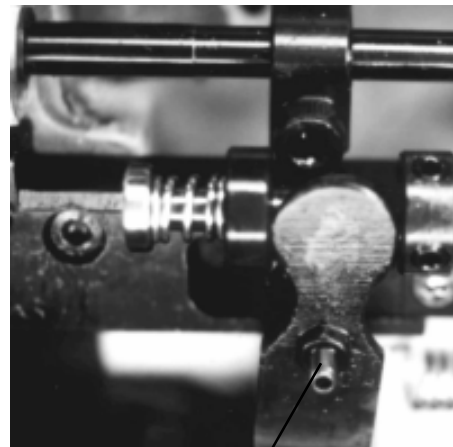
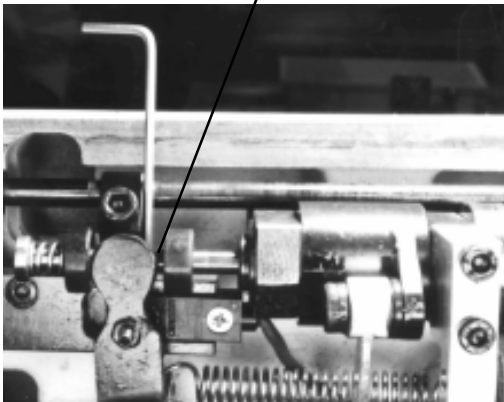
Rotate the handwheel to seat the drive spring and engage the feed.

The sensor must deenergize and the light must deactivate.

Rotate the machine to the second barring position and ensure the cam follower moves to the center.

The sensor must deenergize and the light must deactivate.

Sensor adjusting screw



Sensor height screw

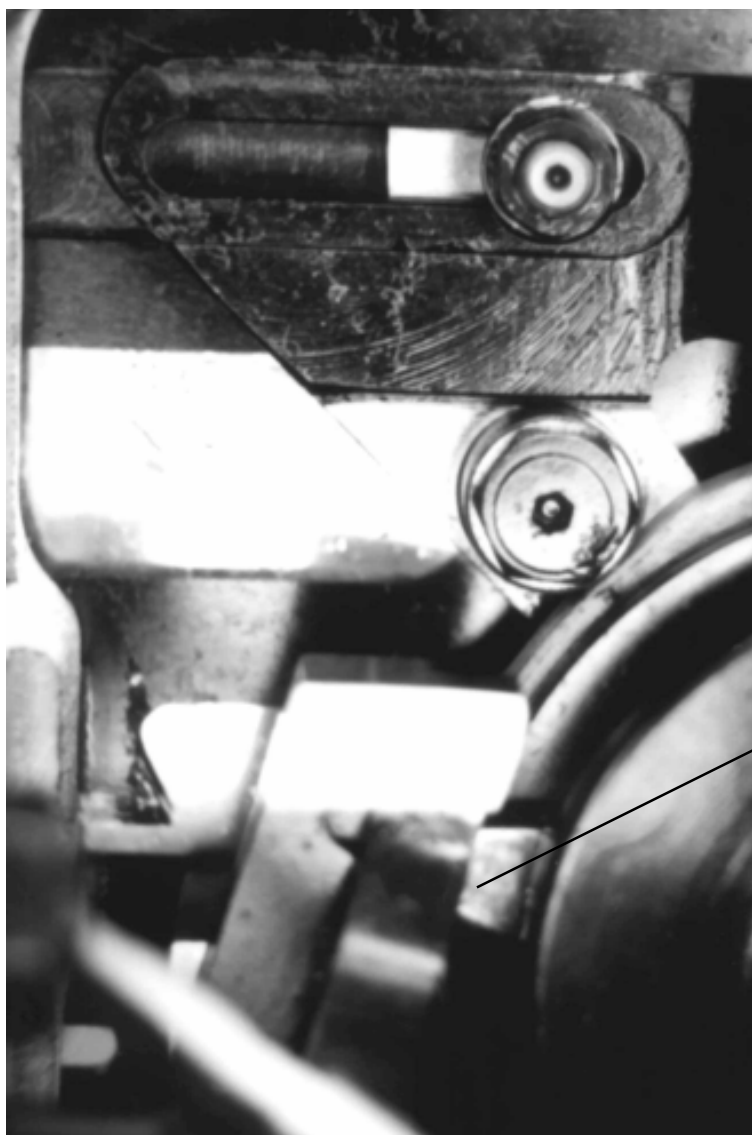
## ADJUSTMENTS

---

### Barring Tension

Rotate the handwheel and position the machine in the second row of stitches, as illustrated, ensuring the barring tension disk is closed.

Ensure the tension opens during barring and remains closed during the rest of the sewing cycle.



Drive  
spring

## ADJUSTMENTS

---

### Draw-Off

Loosen the screws on the take-up, located on the knife arm, and move the take-up to the right for less starting thread and to the left, to obtain more starting thread.

Tighten the screws.

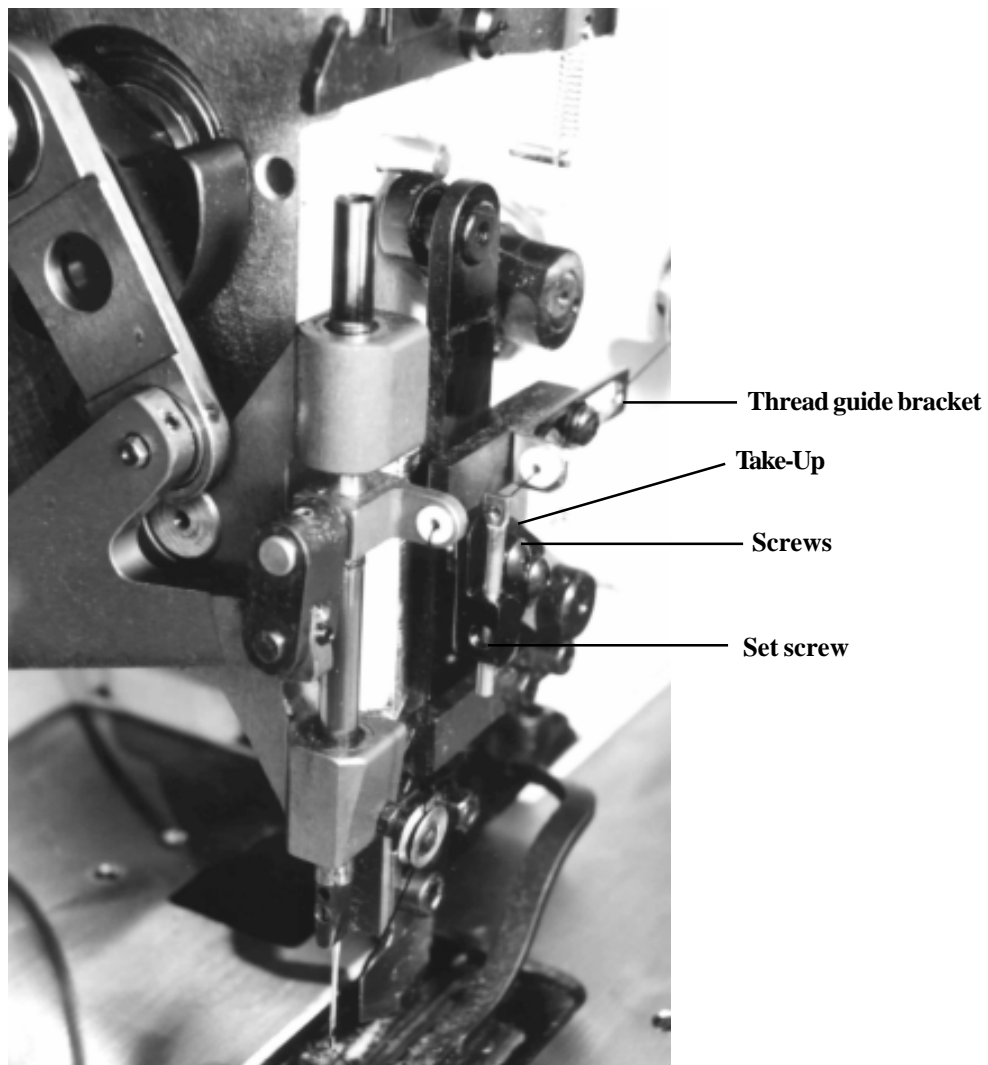
To further increase the starting thread length, loosen the thread guide bracket screws and position the thread guide bracket to the left, as needed.

Tighten the screws.

### Take-Up

Loosen the take-up set screw and position the take-up down, to loosen the stitch, or up to tighten the stitch, as needed.

Tighten the set screw.



## ADJUSTMENTS

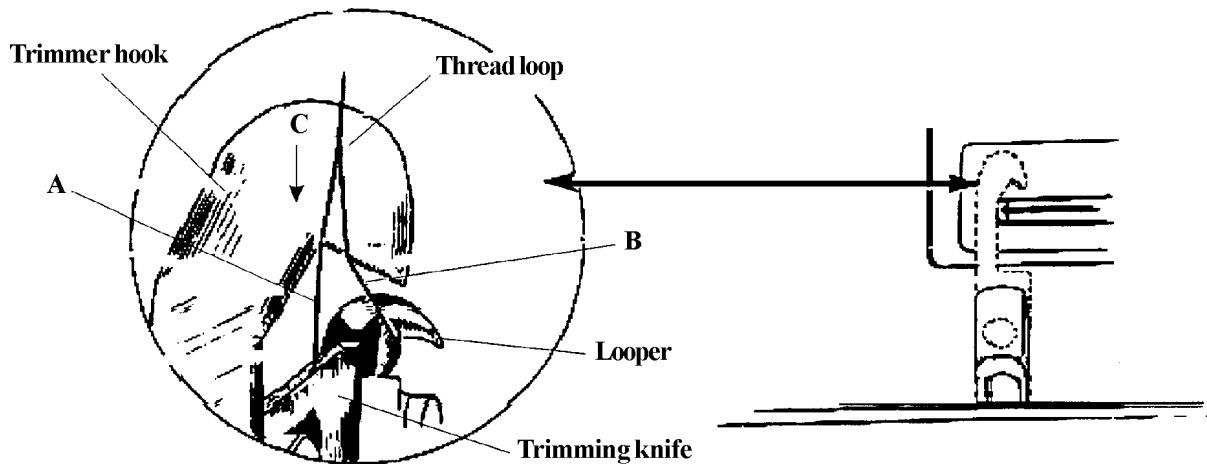
---

### Thread Trimming

Thread trimming occurs after the completion of the last stitch, as illustrated.

As the trimmer hook moves in the direction of arrow C, both thread loop legs A and B are pulled forward.

When the thread hook approaches the end of the stroke, leg A contacts the trimming knife, cutting the thread.



### Trimmer Hook Operation

Ensure the machine air pressure is on and the trimmer hook cylinder is extended.

Set the correct position of the trimmer hook.

Loosen the boss on top of the cylinder, press the boss against the machine casting and lock the position.

Ensure free movement of the shaft.

## ADJUSTMENTS

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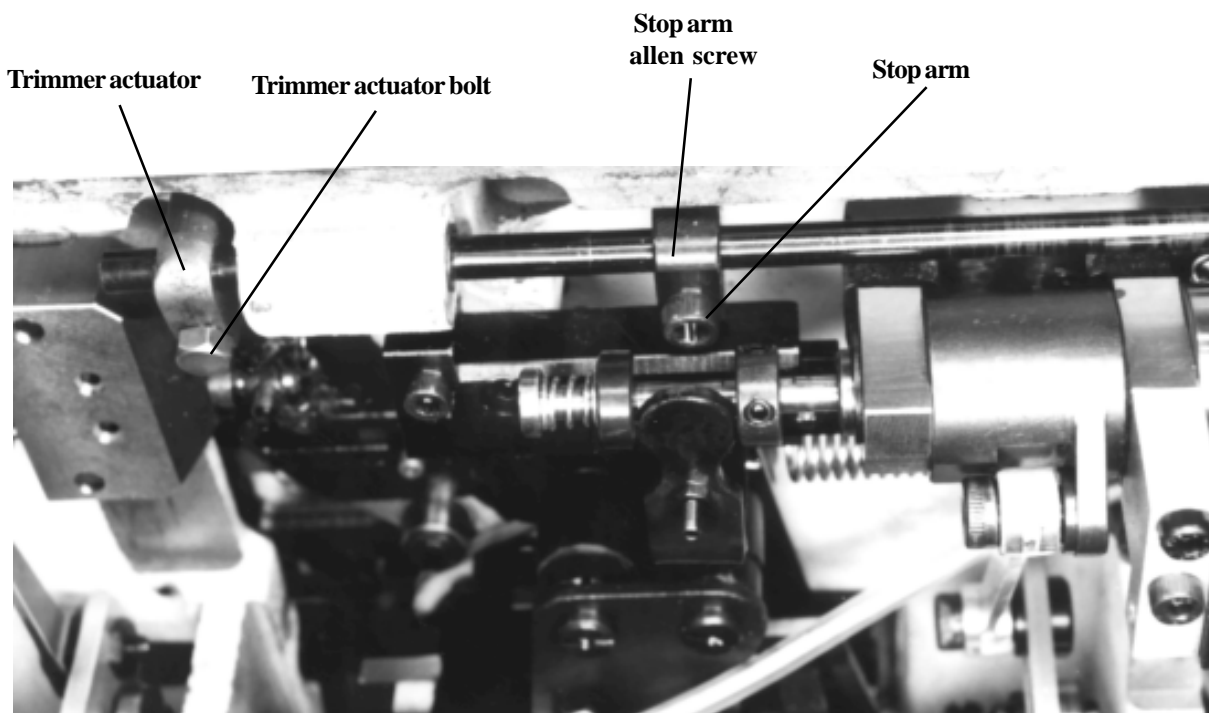
### Trimmer Hook Cylinder Stroke

**WARNING!** Ensure the machine air pressure is off.

Manually move the trimmer actuator to ensure the actuator arm does not touch the machine casting.

If the actuator arm does touch the machine casting:

Loosen the trimmer actuator bolt and lower the actuator arm away from the casting (clearance 1.5 mm), lock the bolt.





## ADJUSTMENTS

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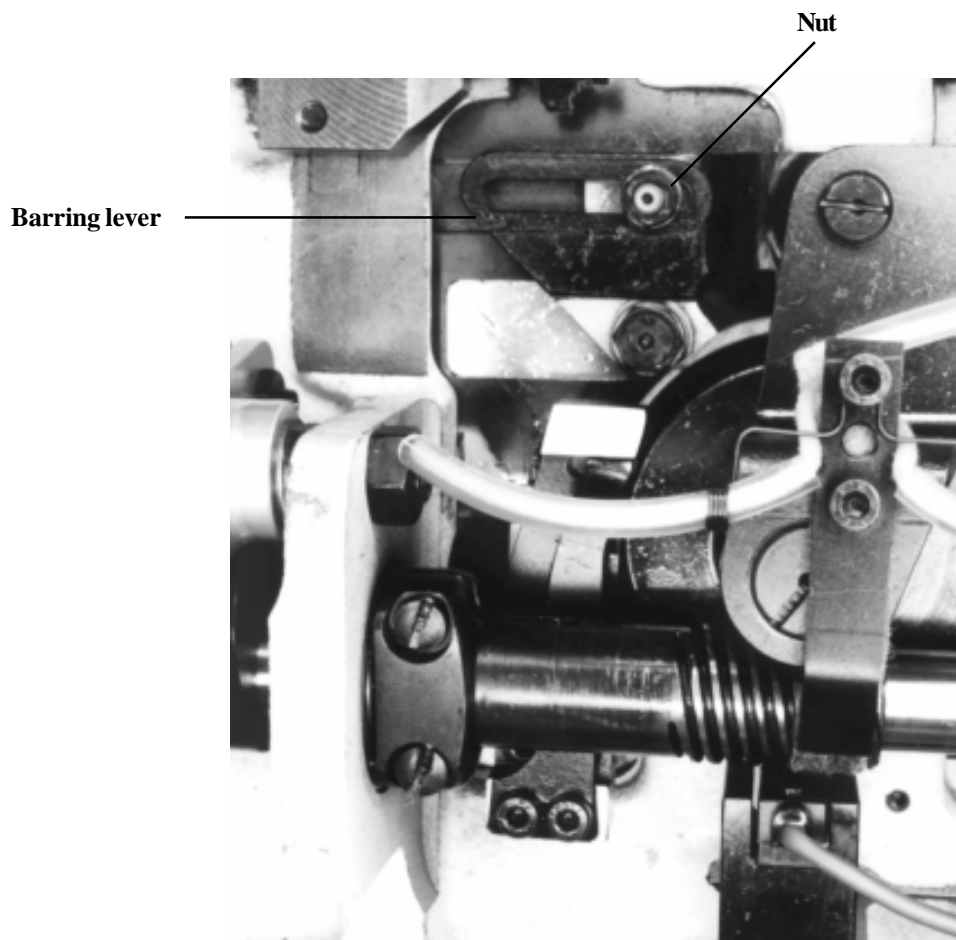
### Cutting Space

To adjust:

Tilt the head back.

Loosen the barring lever nut and move the nut to the left, for a wider cut, or to the right, for a narrower cut.

Tighten the nut.



## ADJUSTMENTS

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### Changing the Motor or the Timing Belt

Adjust shaft in the head so that needle bar is in upper position. Ensure timing wheel by the holder against rotation.

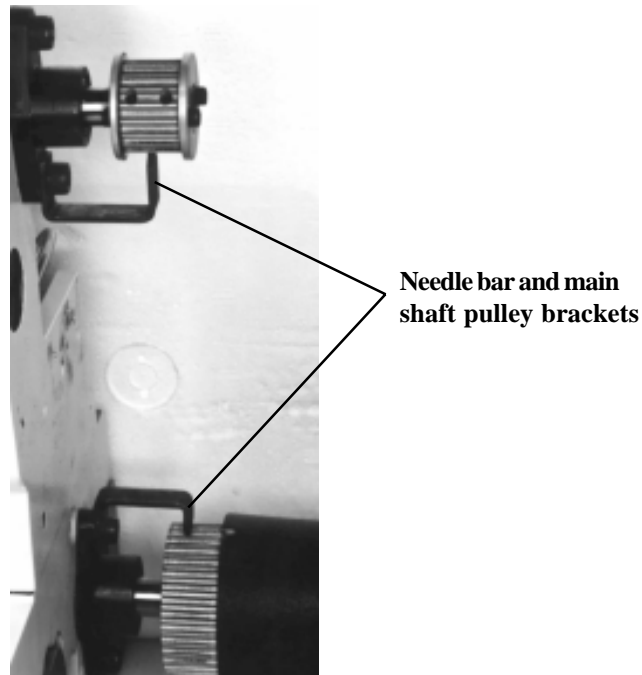
Adjust the shaft in bedplate so that mark on timing wheel was in the axis of the screw of the bearing case and ensure timing wheel by the holder against rotation.

Adjust in parameter “Needle up” 164. Push pedal to turn timing pulley on the motor and insert metal part to stopping sensor. When motor stops, mark this position on motor flange and on timing wheel.

Loosen motor holder and give timing belt on the pulley and wind it up.

Remove holders of the timing wheels.

Check the adjustment. When the sewing cycle is finished, the needle bar must be in upper position. Valid range of set value is  $164 \pm 1$ .



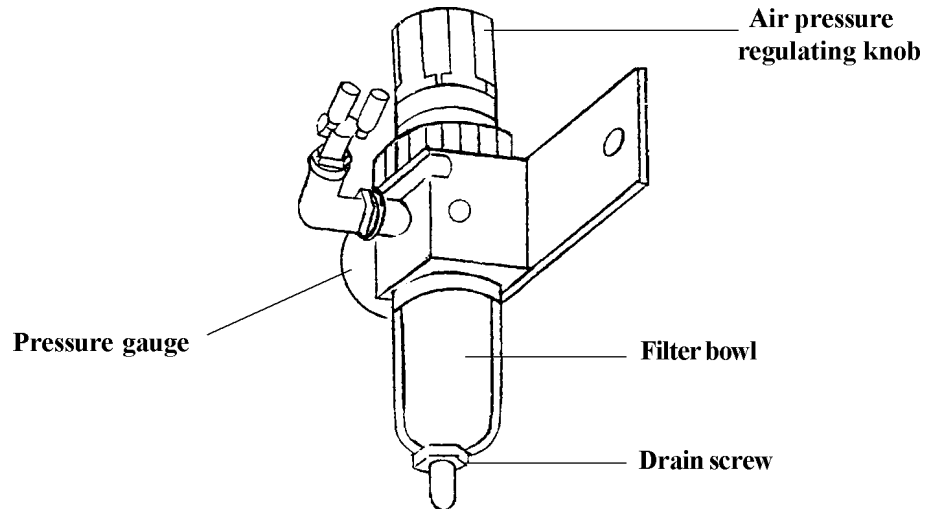
## TABLE ADJUSTMENTS

---

### Air Pressure and Filter

Adjust the regulator knob until the gauge indicates the required pressure of 5.5 bar (80 PSI).

Water accumulating in the filter must be drained, as needed, by loosening the drain screw at the bottom of the filter bowl.



---

**SEW OFF**

---

The perfect straight buttonhole will feature uniform stitching and a crisp, clean cut, after the buttonhole is sewn. Several machine areas affect the quality appearance of the finished buttonhole. Review the following area descriptions with your specific sewing application in mind.

**Stitch density**, the number of stitches within a given area. An increased number of stitches may give the buttonhole a greater quality appearance.

To adjust:

Perform the feed assembly adjustment, page 1-48.

**Bite width**, or stitch bite, the width of the stitch from side to side.

To adjust:

Perform the bite adjustment, page 1-46.

**Buttonhole length**, determined by the knife size.

To adjust:

Perform the changing the knife procedure, page 1-14.

**Stitch tightness**, regulated by two thread tensions.

To adjust either the run stitches tension or the end bar tension:

Perform the thread handling adjustments, page 1-58

**Starting thread length**, controlled by the draw-off and the thread guide bracket.

To adjust:

Perform the thread handling adjustments, page 1-62.

**Buttonhole width**, controlled by the cutting space and the bite adjustments.

To adjust:

Perform the cutting space and the bite adjustments, page 1-66 and 1-46.

**Cutting space**, controlled by the barring lever.

To adjust:

Perform the cutting space adjustment, page 1-66.

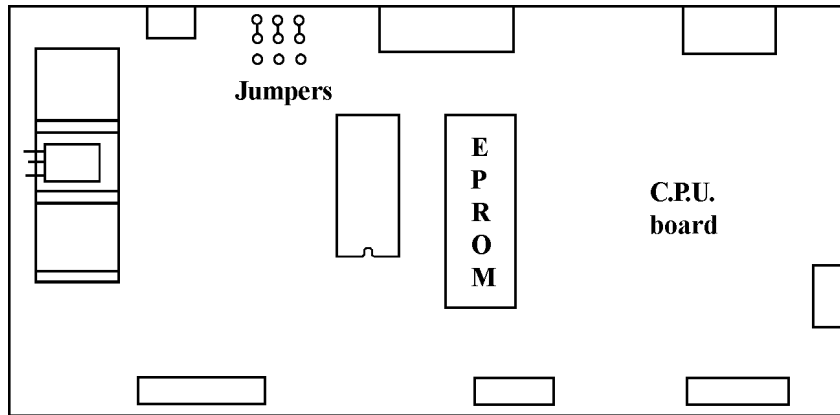
## ELECTRICAL DIAGRAM

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### Jumper Wiring Connections

**Warning!** Incorrect jumper wiring connections may damage the machine.

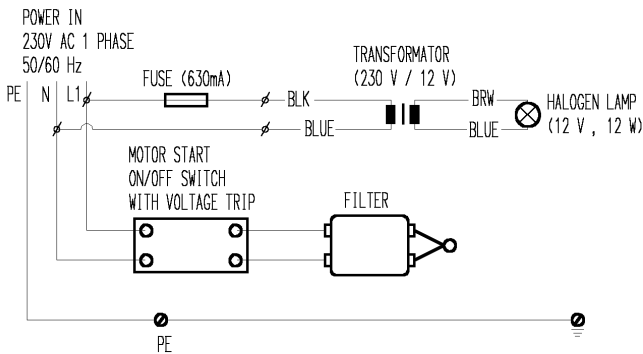
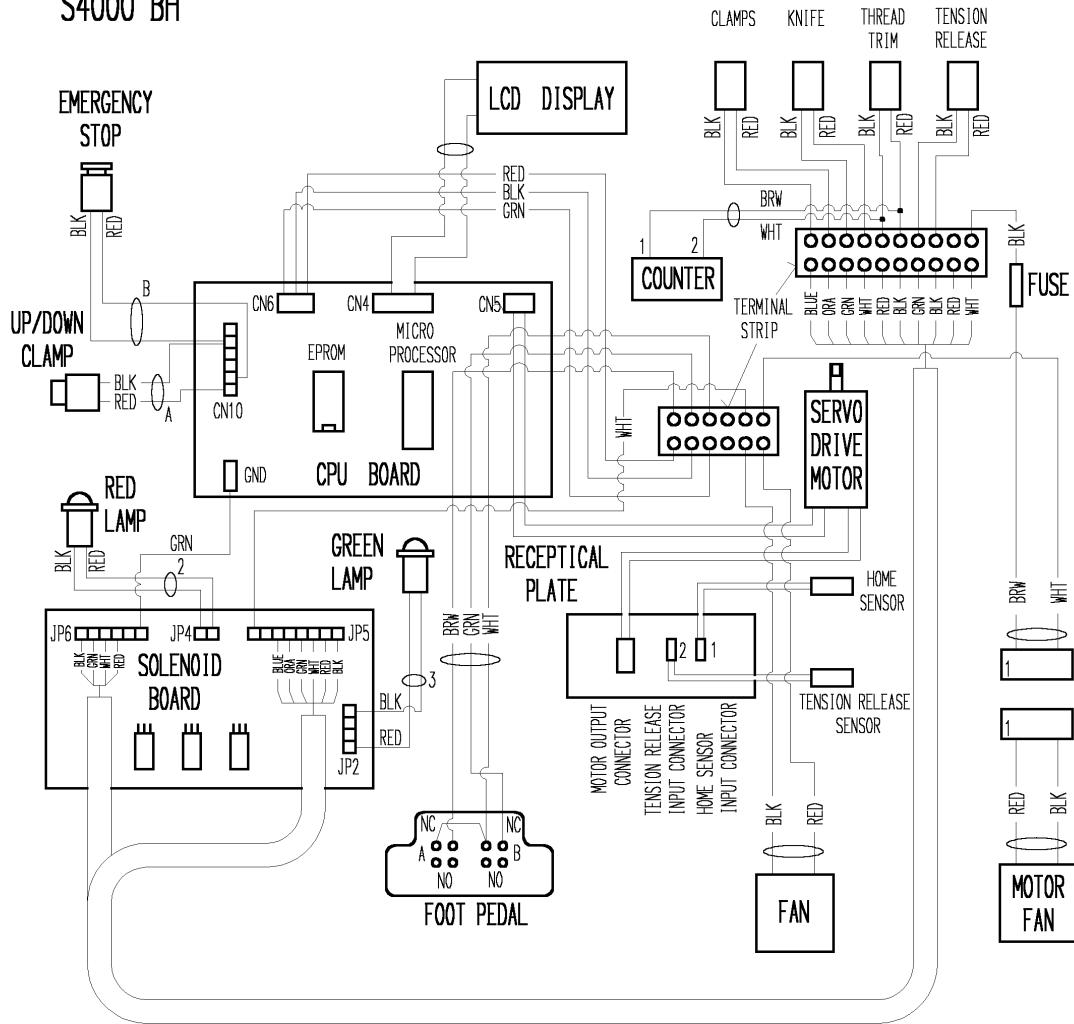
The S-4000 Clinton C.P.U. board utilizes the top jumpers, as illustrated.



# ELECTRICAL DIAGRAM

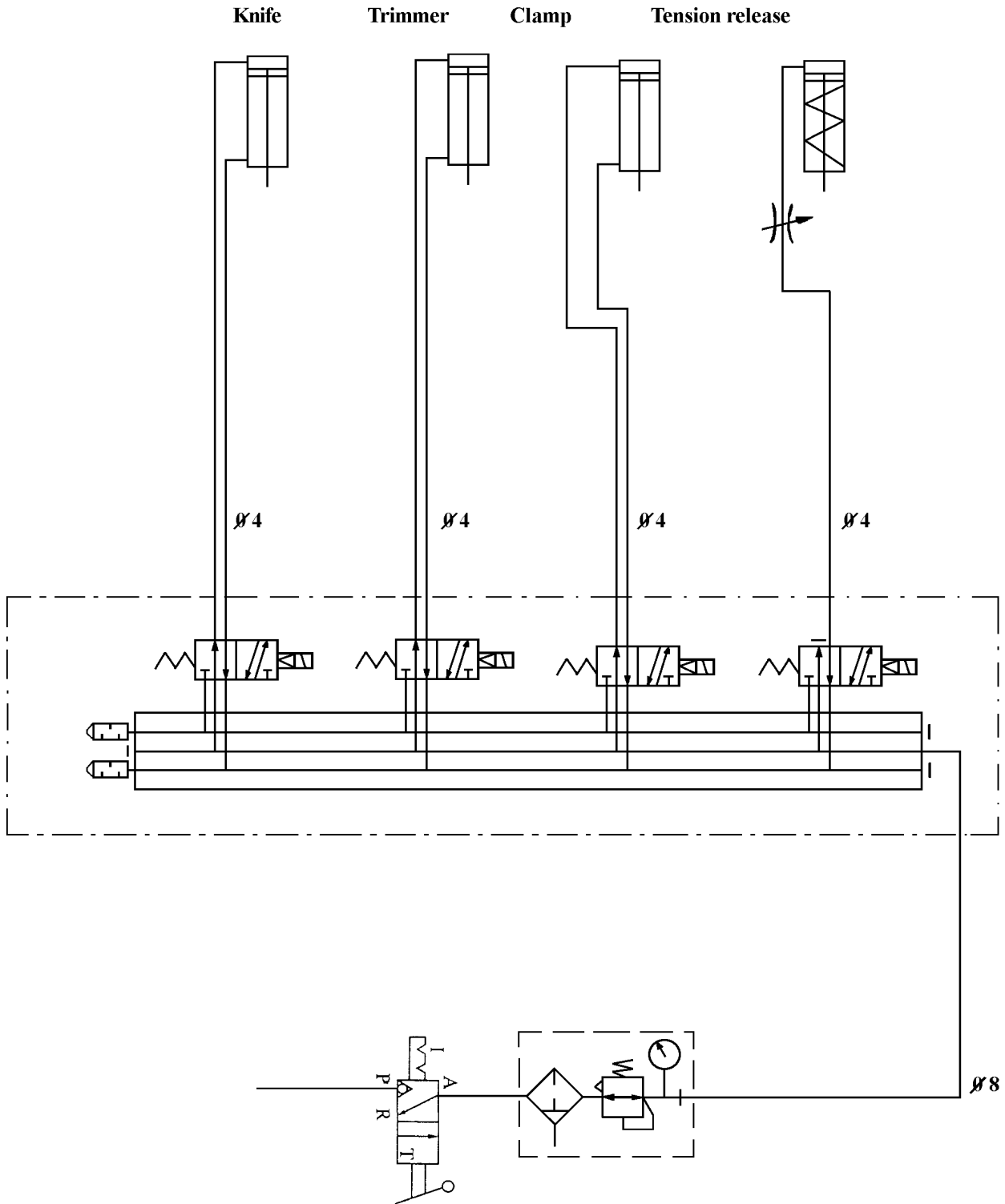
## S-4000 Buttonhole Wiring

S4000 BH



**Note:** Minimal electrical box clearance is 0.8 m, (31,5")!

**PNEUMATIC DIAGRAM**



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## PREVENTIVE MAINTENANCE

---

**WARNING!** Before performing any maintenance, switch the main machine power off to prevent accidental starting of the machine. Disconnect the air supply and dissipate any stored energy.

To obtain the maximum quality product with the least amount of machine down time and cost, a good preventive maintenance program must be regularly enforced.

Routine cleaning and upkeep requires:

- oil
- vacuum cleaner
- paint brush
- parts brush

**WARNING!** Never use an air pressure hose instead of a vacuum. Dirt particles may contaminate the cam causing possible machine damage or personal injury.

### Periodic Maintenance Checklist:

#### Daily:

- Remove lint from the loopers and spreaders.
- Clean the oil pan.

#### Weekly:

- Visual inspection of internal and external mechanisms.
- Inspect and replace the knife and block, if needed.
- Oil the machine according to the lubrication diagram, page 1-6.
- Ensure correct belt tension.

#### Monthly:

- Check for loose fasteners and tighten, if necessary.
- Inspect for worn and damaged parts and replace, if needed.
- Check throat plate wear and replace, if needed.

#### 6 Months:

- Perform complete machine parts inspection.
- Ensure the correct stitch drive clearance.
- Ensure all machine adjustments are accurate.
- Perform complete wiring inspection.
- Change lubricant in the ball bearings.
- Clean the dirt and water from the air pressure regulator filter.



## ISBH ADJUSTMENTS

### Specifications

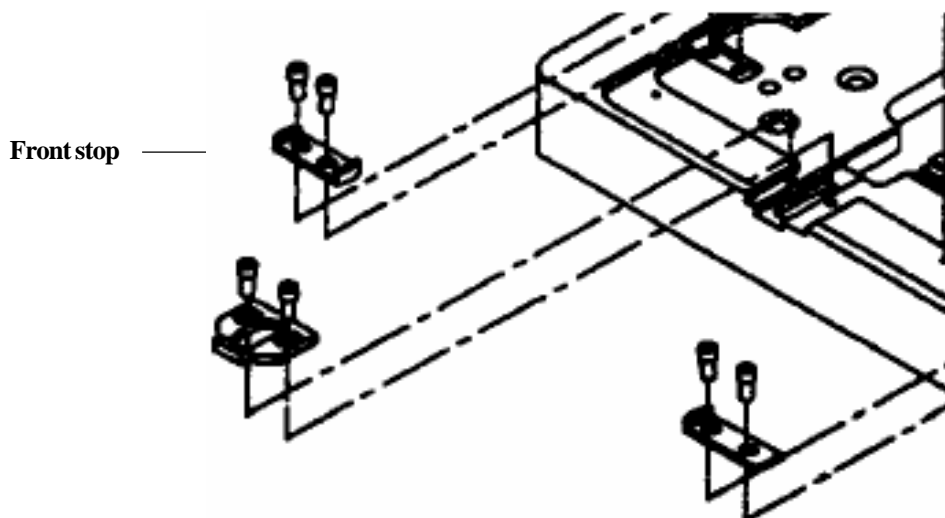
Sewing Length: 15.8 mm, minimum  
 25 mm, maximum

Recommended Thread: Tex size 20 to 30, good quality polispun or cotton.

### Imitation Sleeve Buttonhole Length Change

Using the length gauge screw and clamp plate front stop, the buttonhole length may be changed from 15.8 to 25 mm, (0.620 to 0.984").

**Note:** After a buttonhole length change, start the machine and ensure, when the sewing cycle is complete, the machine is in the home position and the front stop contacts the clamp plate.



### Stitch

If the home position is correct:

The control spring is located approximately 2 mm, (1/32") from the right shifter block stop detent.

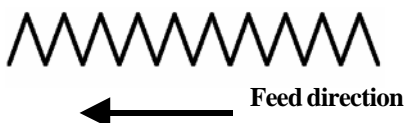
The feed shaft horizontal bevel gears are not engaged with the vertical bevel gear.

The clamp plate is positioned to the left, toward the head casting.

### First Row of Stitches

Rotate the hand wheel counterclockwise until the control spring locks with the right shifter block stop detent and the left horizontal bevel gear engages with the vertical bevel gear.

Rotate the hand wheel and the machine will start sewing the first row of stitches.



## ISBH ADJUSTMENTS

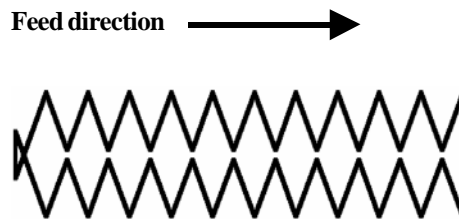
### First Bar

Rotate the handwheel during the first row of stitches to position the shifter to the right. The control spring will disengage from the right shifter block stop and lock with the head drive hub, to produce the ornamental bar.



### Second Row of Stitches

The control spring engages with the left shifter block stop and the right bevel gear engages with the vertical bevel gear to start sewing the second row of stitches.



### Second Bar

Position the shifter to the left, the control spring disengages from the left shifter block stop and engages with the head drive hub.

Rotate the handwheel counterclockwise to sew two second bar stitches and place the machine in the home position.



## ISBH ADJUSTMENTS

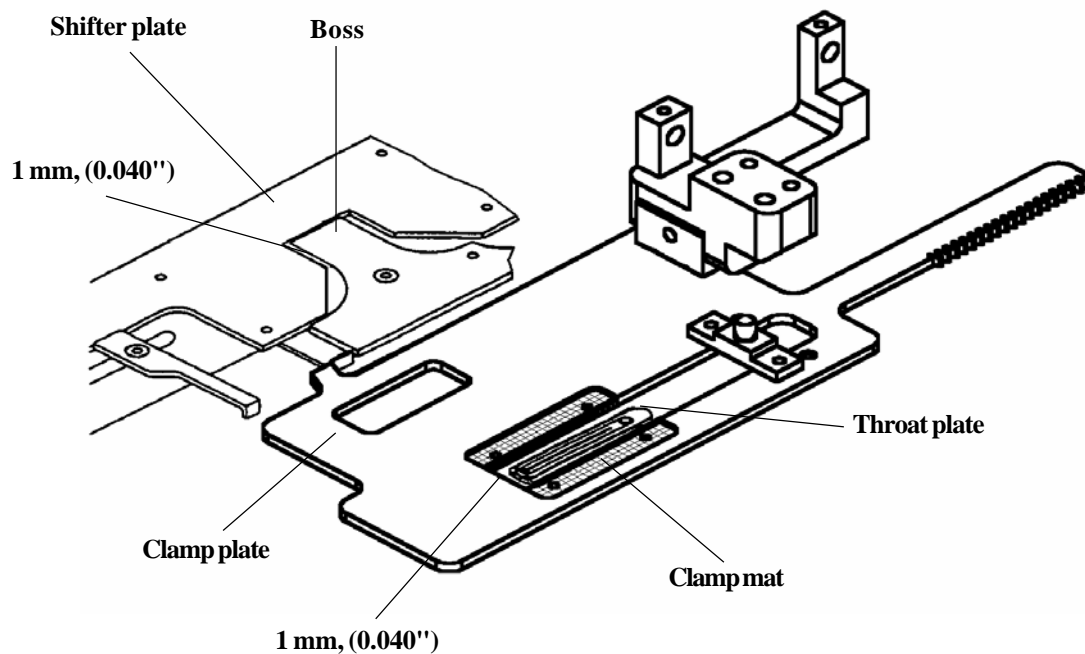
### Bar Stitching

When sewing the second bar, use the worm gear to prevent the clamp plate from moving, as the needle penetrates the fabric.

### Clamp Plate Zero Position

When sewing the first bar, use the screws on the right shifter arm and ensure, when the control spring is disengaged from the right shifter block stop, the clearance between the boss and the left side of the shifter plate is 1 mm, (0.040").

Second bar adjustment, pages 1-36 and 1-37.



### Thread Tension

Only one tensioner is open during the thread draw-off at the end of the second bar sewing cycle.

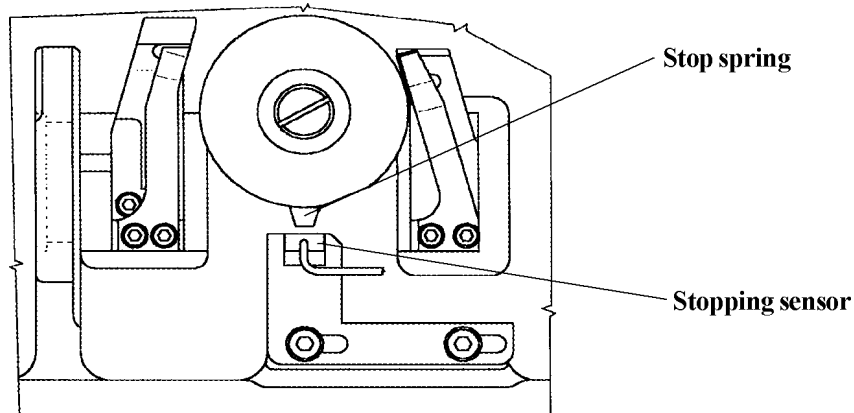
The ISBH model is not equipped with the barring tension sensor.

The barring tension is controlled by the Draw-off solenoid valve, illustrated in the ISBH electrical diagram.

## ISBH ADJUSTMENTS

### Stopping Sensor

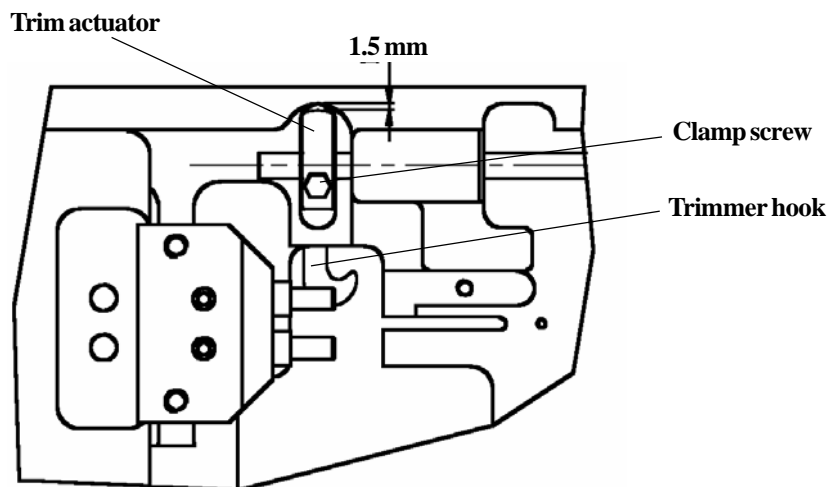
S-4000 BH machine - the control spring activates the stop sewing sensor:



S-4000 ISBH and S-4000 ISBH with Indexer machines - the stop disk activates the stop sewing sensor.

### Trimmer Hook

Press the trim cylinder piston rod to the lowest inactive position and loosen the trim actuator screw. Rotate the trim actuator until a 1.5 mm, (0.060") clearance exists between the boss and the trim actuator. Tighten the trim actuator screw.



**ISBH ADJUSTMENTS**

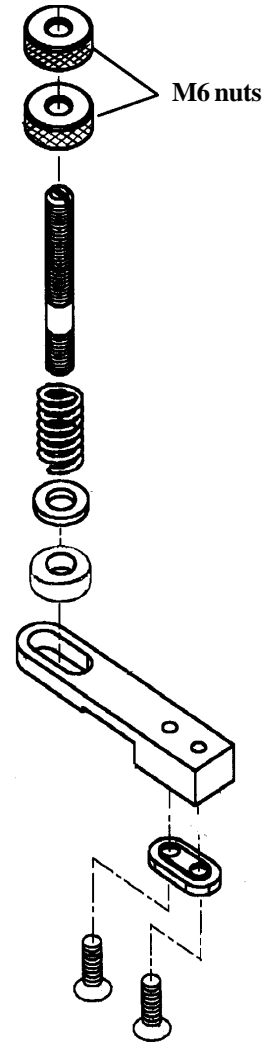
**ISBH and ISBH with Indexer Shifter Plate Brake Adjustment**

Ensure the buttonhole lengths are the same.

If incorrect:

Loosen the M6 nuts and adjust the brake spring tension.  
Manually activate the shifting plate and ensure the correct movement is obtained.  
Tighten the M6 nuts.

**Note:** When the shifter plate engages, too much spring tension may increase the stitch density beyond an acceptable limit.



**S-4000 ISBH and ISBH with Indexer**

**Note:** Using the set values according to the parameter checklist, provided with each machine, increases the quality of the ornamental buttonholes. The recommendations are listed under “Programming the LCD display”, for setting the optional machine speed.

****SPEEDS			
PARAMETER	RANGE	SETTING	DEFAULT
MAXIMUM	1000-3800 S.P.M.		3400-3500 S.P.M.

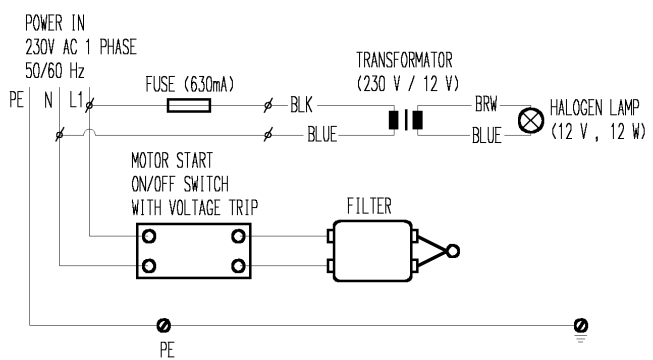
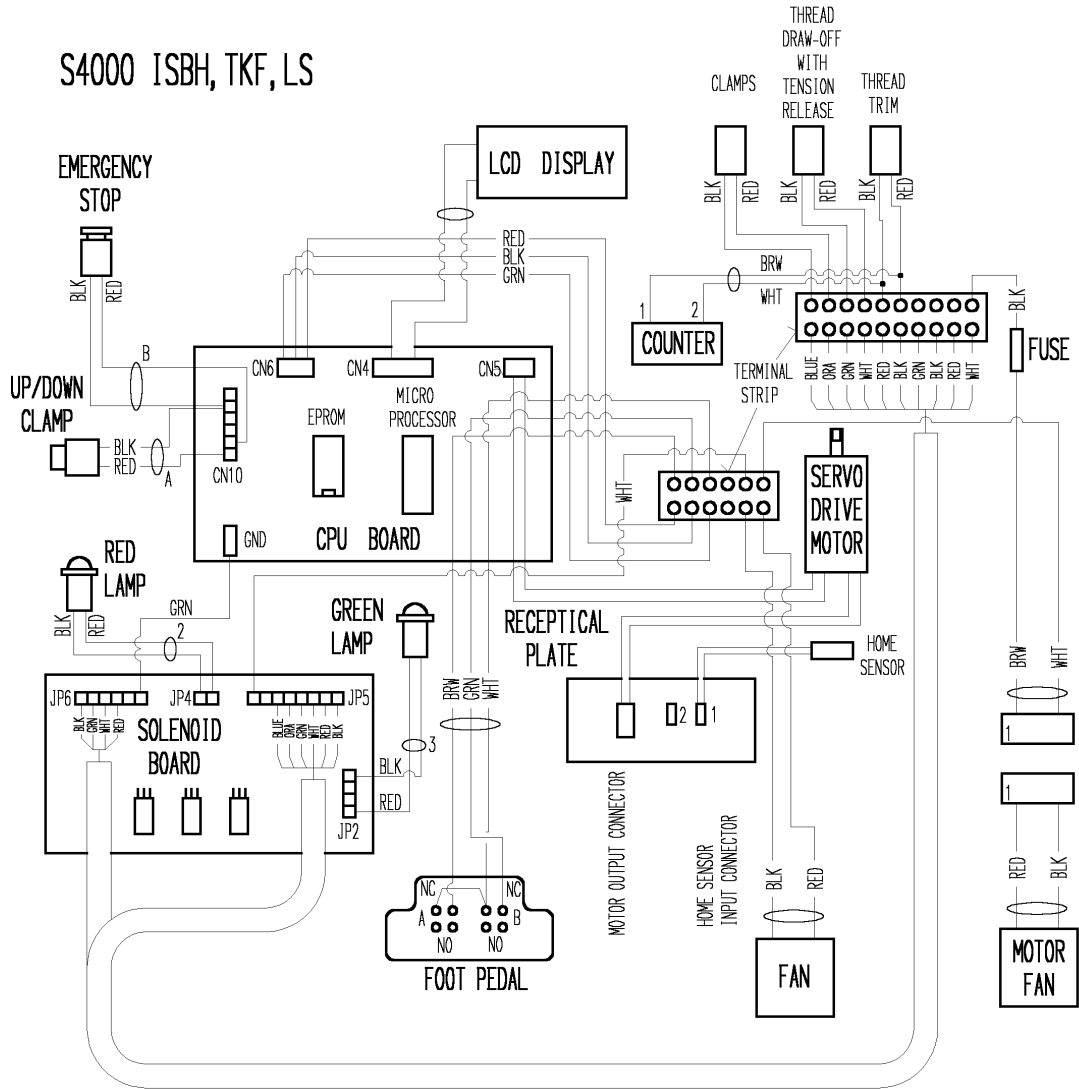
The S-4000 ISBH with Indexer will not start with the clamp plates in the closed position.

The electrical connection diagram is located inside the electrical control box door.

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

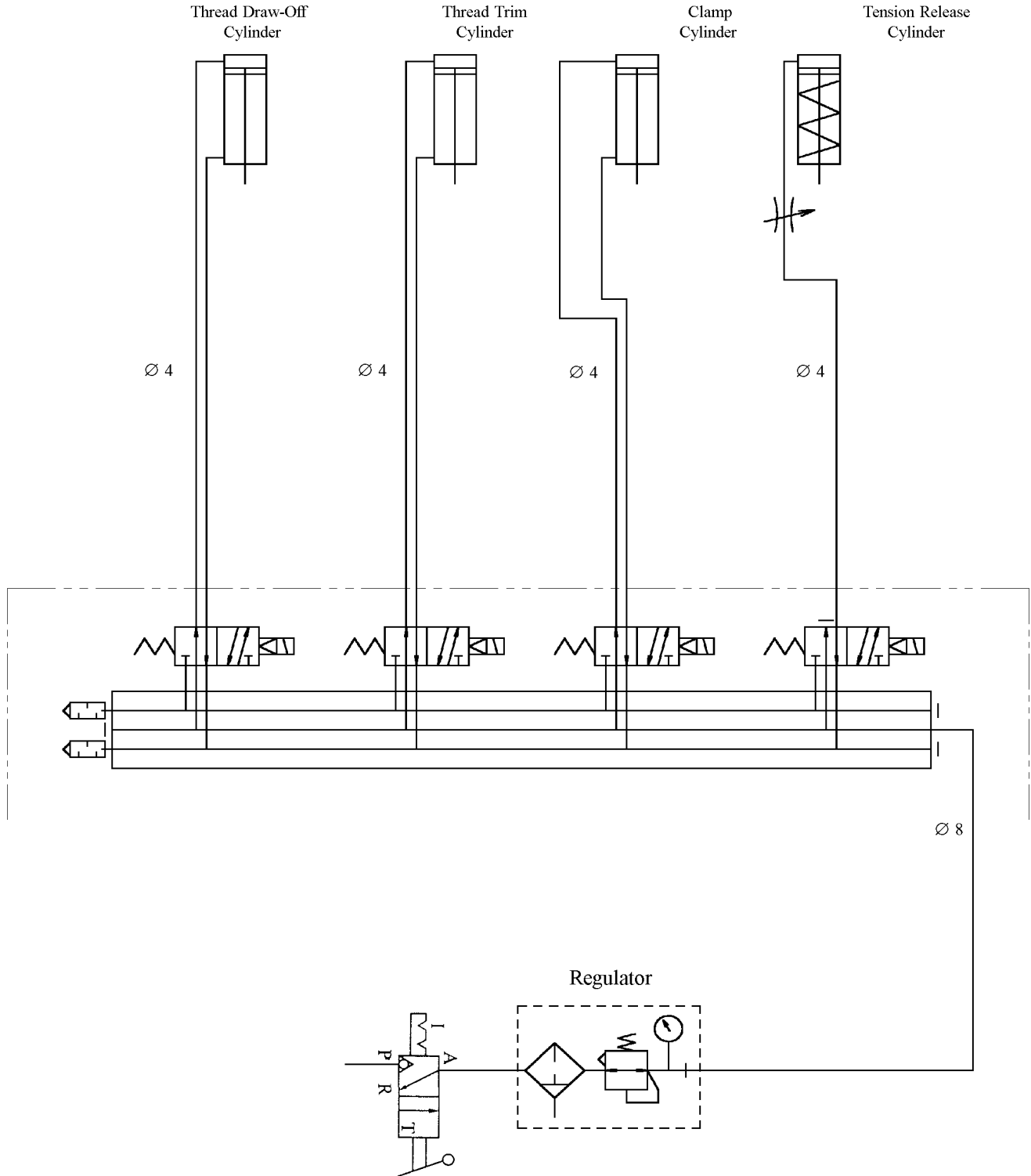
**ISBH ELECTRICAL DIAGRAM**



**Note:** Minimal electrical box clearance is 0.8 m, (31.5").

**PNEUMATIC DIAGRAM ISBH, TKF, LS**

**S-4000 ISBH**  
**S-4000 TKF**  
**S-4000 TKF-LS**



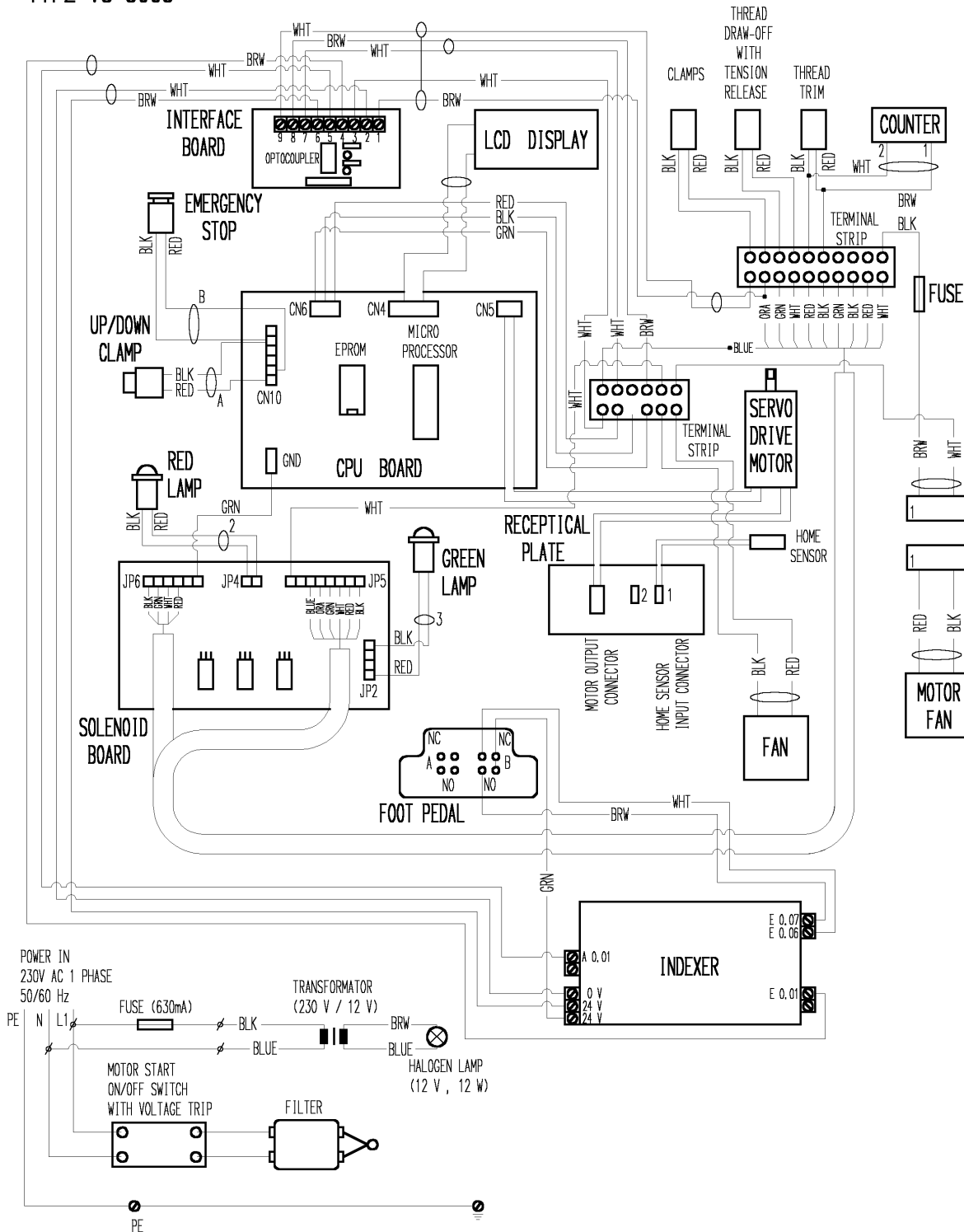
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**ELECTRICAL DIAGRAM ISBH WITH INDEXER**

S4000 ISBH WITH INDEXER  
TYPE VS 3005

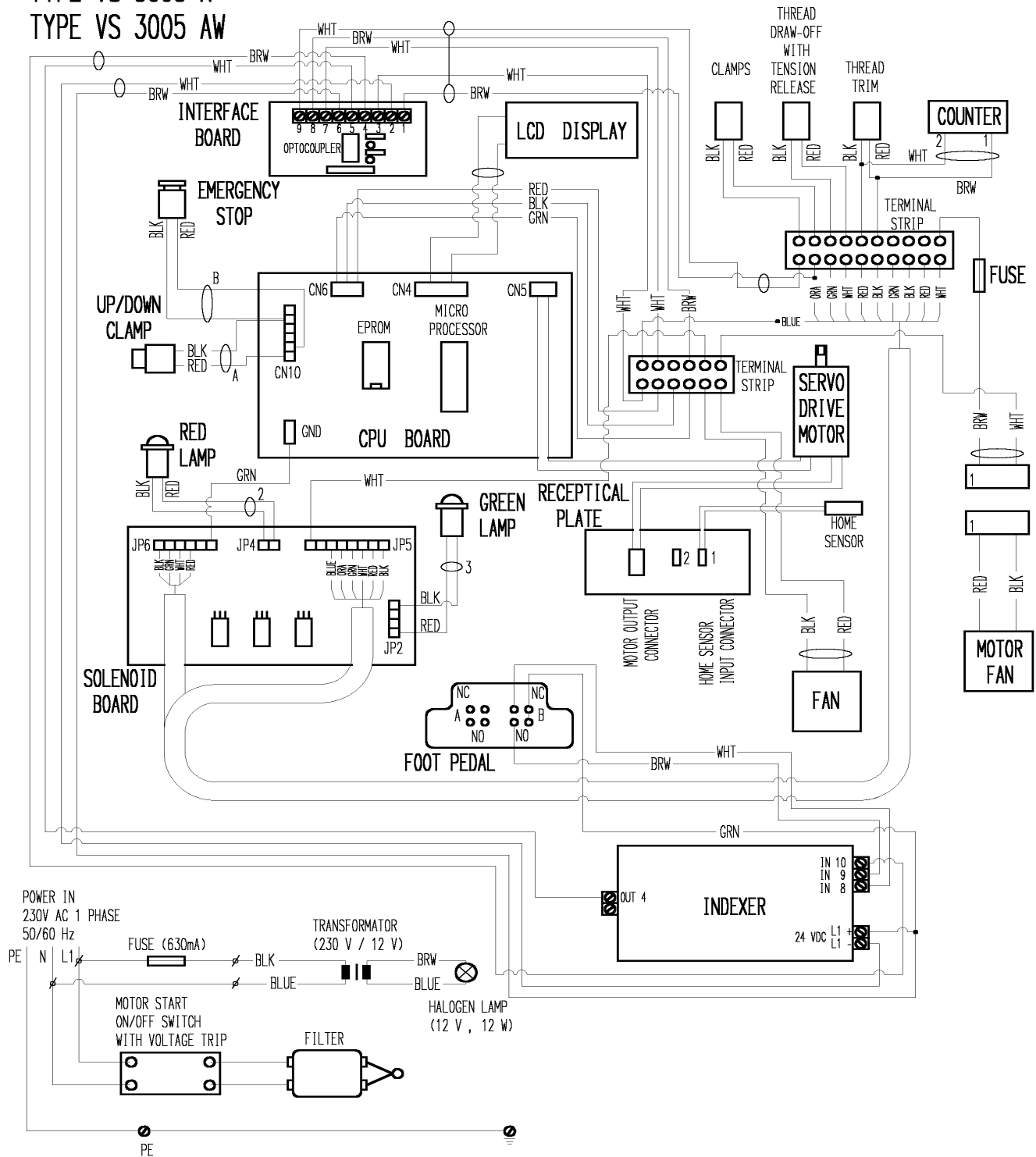


**Note:** Minimal electrical box clearance is 0.8 m, (31.5").



**ELECTRICAL DIAGRAM ISBH WITH INDEXER**

S4000 ISBH WITH INDEXER  
TYPE VS 3005 A  
TYPE VS 3005 AW



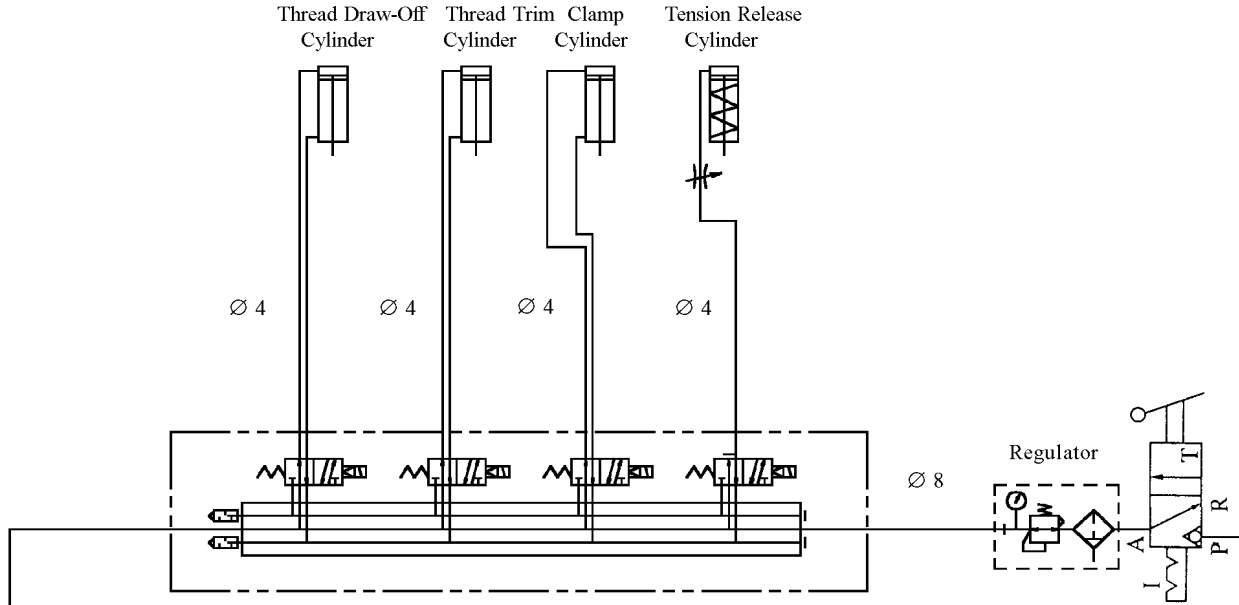
**Note:** Minimal electrical box clearance is 0.8 m, (31.5").

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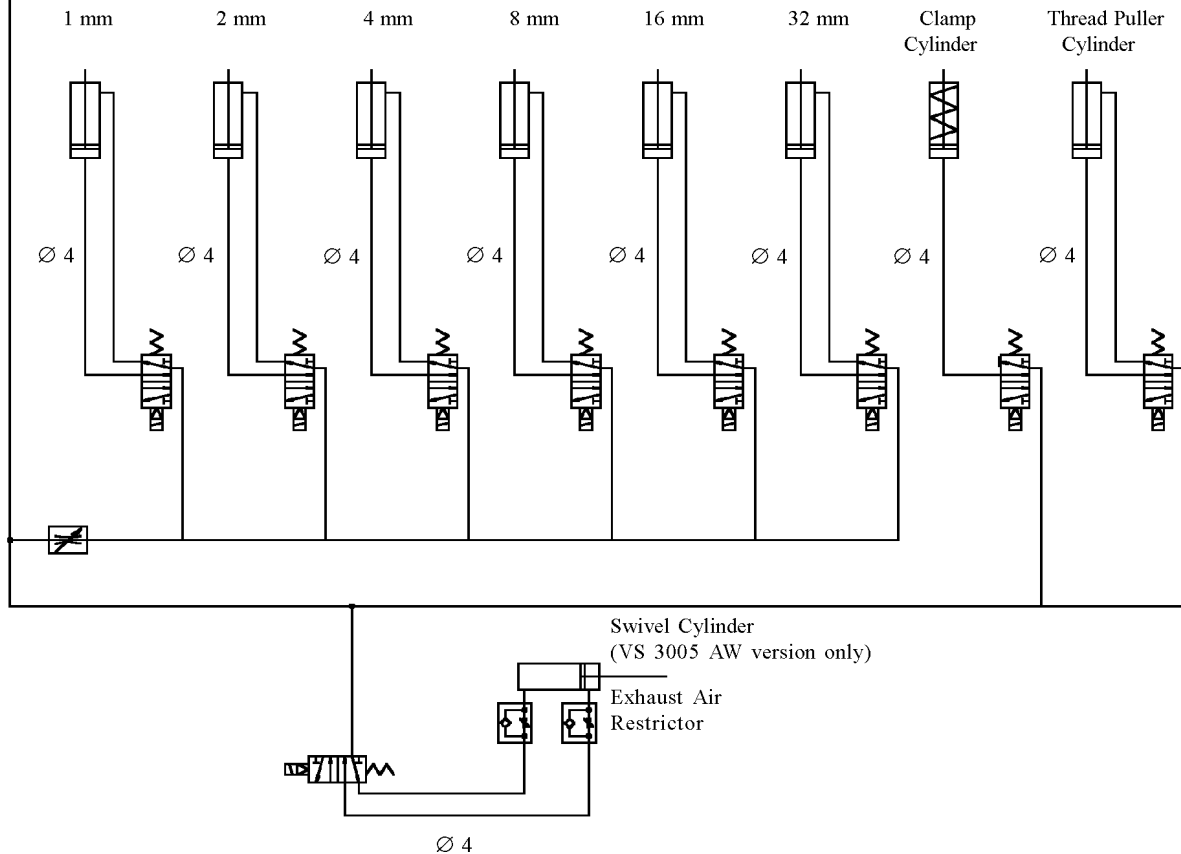
e-mail: [service@amfreece.cz](mailto:service@amfreece.cz); [parts@amfreece.cz](mailto:parts@amfreece.cz); website: [www.amfreece.com](http://www.amfreece.com)

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**PNEUMATIC DIAGRAM ISBH WITH INDEXER**



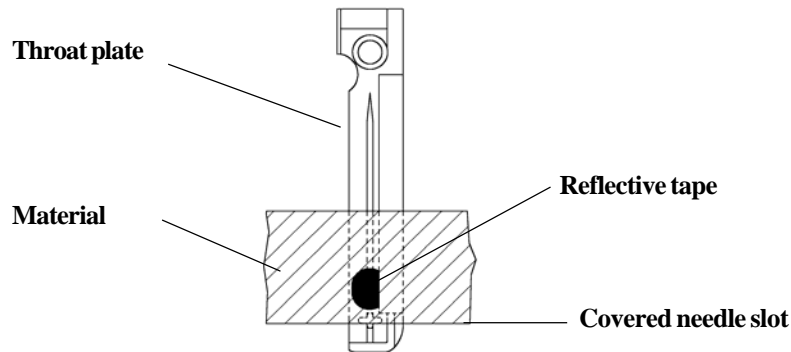
**S 4000 ISBH Model  
Indexer**



## CAED ADJUSTMENT

### Starting the Machine

The procedure of starting the CAED machine is the same like for the machine BH of the model S-4000. See the page 1-13 for more instructions. Edge of the material must be minimally aligned with the center line of the needle slot in the throat plate and the reflective tape of the fibre optic must be covered. Adjust the correct position of the material by using the movable stop, located on the right side from the clamp feet.



### Stitch Length Identification

Set the stitch length gauge to the maximum. The maximal stitch length is 1.57" (40 mm), illustrated page 1-16. To stitch shorter tack use the fiber optic function, which will automatically toggle the machine for the second row of stitches at the moment when the material uncovers the reflective tape.

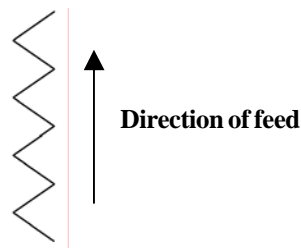
**Caution!** If you wish to adjust the stitch length manually, disconnect the optical fibre from the amplifier. The signal amplifier is attached to the left side of the main machine switchboard plastic cover.

### Home position is when:

- The drive spring** is before detent on the left shifter arm,
- The right horizontal bevel gear** is slightly engaged with the vertical bevel gear,
- The clamp plate** is to the right (towards the head casting),
- The needle bar** is set on its upper stroke and the first needle penetration must be made to the right from the operator.

### First Row of Stitches:

Tip the machine back on the rest pin. Move the machine to the first row of stitches by rotating the hand wheel counterclockwise. The main cam is rotating clockwise until the drive spring is dropping into the detent on the left shifter block. The first row of stitches is finished at the moment when the reflective tape of the fibre optic is uncovered by the material.



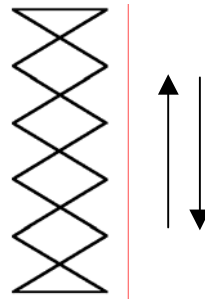
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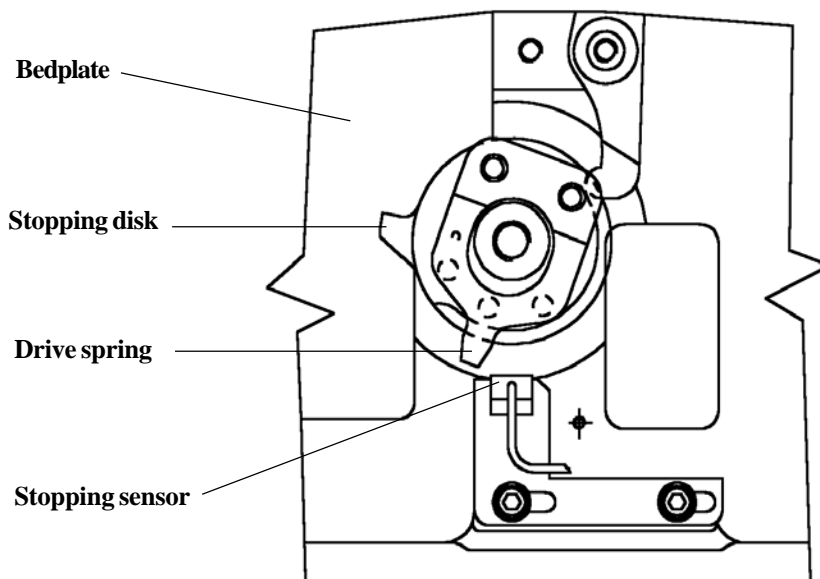
## CAED ADJUSTMENT

### Second Row of Stitches

Sewing of the second row of stitches starts at the moment when the material uncovers the reflective tape, from which the signal given by the fibre optic is reflected back, the air cylinder, activated by engagement of an electromagnetic valve, perform shift. The cylinder reverse the shifter plate. The main cam rotates clockwise to engage the left bevel gear with the vertical bevel gear, the sewing direction reverses to sew the second row of stitches, the main cam continues to rotate until the drive spring engages the detent of the right shifter arm.



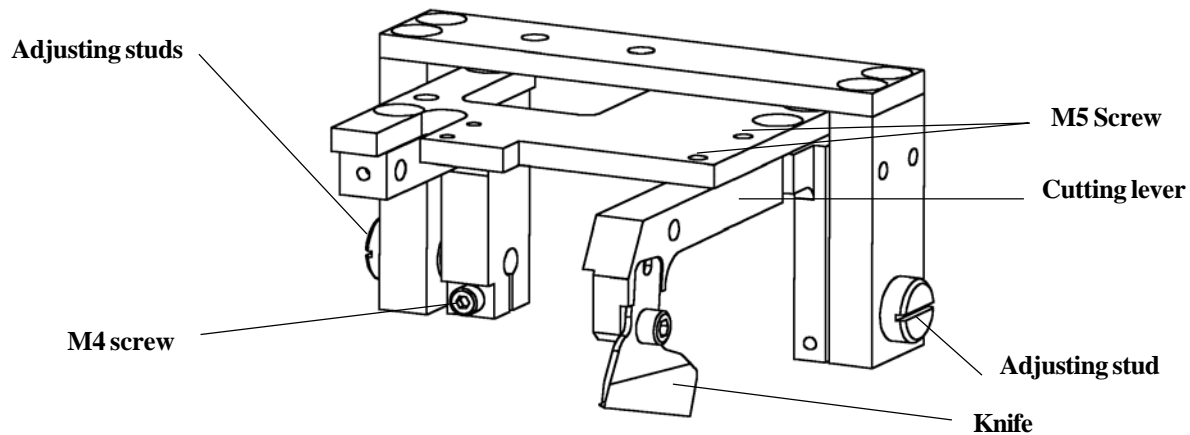
The main cam rotates until the stopping disk gives the signal to the stopping sensor to stop stitching of the second row of stitches. At the moment when the sensor receives the signal to stop the machine, machine revolutions are delayed and machine stops (completion of the sewing cycle).



## CAED ADJUSTMENT

### Cut Knife to the Throat Plate

Ensure the machine is in the home position and loosen both adjusting studs for cutting. Rotate the stud on the left side clockwise to move the knife further from the throat plate. Rotate the stud on the right side to move the knife closer to the throat plate.



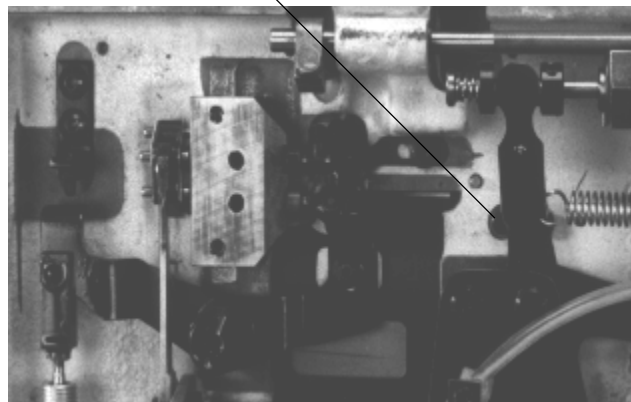
### Correct adjustment is when:

the blades of the knife and the throat plate must slightly cover each other along the cut. If the knife blades and the throat plate are not alligned, adjust by using two M5 screws, located on the cutting lever. After making this adjustment (if necessary) insert the material between the knife and the throat plate a manually press the knife as low as possible. The cut must be clean. Lock the adjusting studs by using the screws M4.

### Thread Guide Adjustment

Tip the machine back on the rest pin. Slightly loosen the thread guide screws (parts section - positions 58,59, Bedplate). Press the knife guide (parts section - position 57, Bedplate) cutting knife to touch each other. The knife can not be possible to bend otherwise the knife cutting edges will be damaged. Tighten the knife guide screws and tip the machine back to sewing position.

Guide screw



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## CAED ADJUSTMENT

### Cutting Lever Stop Adjustment

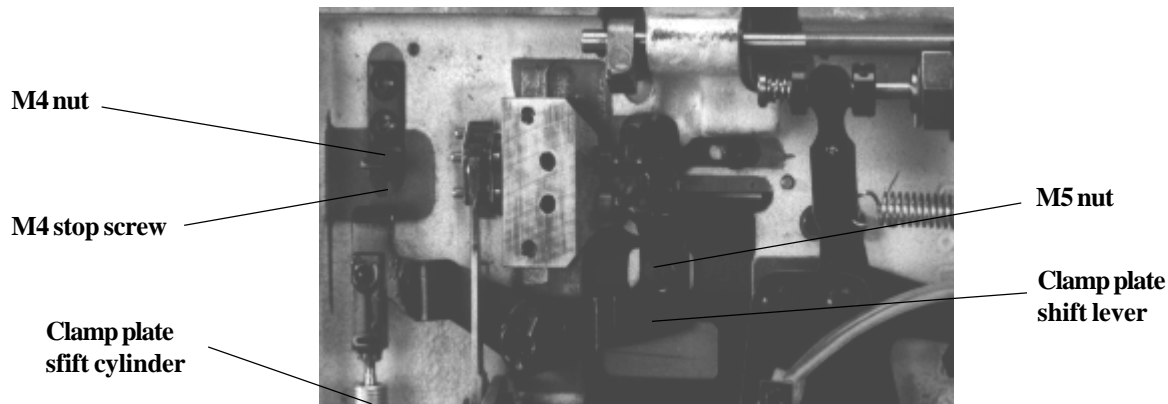
Adjust allignment of the stop (patrs section - position 72, Head) by using the screw and the nut (parts section - positions 34,36 Knife) to obtain the same clearance between the screw (parts section - position 34, Knife) and the stop along the lift. Then adjust the screw to touch slightly the face of the stop. Ensure the clear cut is produced by the knife and lock the screw in the correct position by the nut M6 (parts section - position 36,Knife).

### Home Position of the Clamp Plate

**WARNING!** Before making this adjustment disconnect the air supply release any stored energy and make sure the machine is in the home position.

Adjust as follows:

- loosen the M5 nut,
- move the shifter cylinder of the clamp plate to its lowest position,
- move the clamp plate to the sewing position to obtain minimal clearance (recommended 0.1 mm on the feeler gauge) between the left clamp plate and the knife,
- tightenn the M5 nut .



### Distance Between the Stitch Line and the Knife Cut

The amount of shifting is given by the position of the stop screw M4. Loosen the M4 nut and rotate the screw counterclockwise to increase the amount of shifting or clockwise to decrease the amount of shifting. After obtaining the correct distance, tighten the M4 nut on the adjusting screw.

**Caution!** If you change the amount of shifting it is important to know:

- the minimal amount of shift must provide the knife to go into the slot created when the left clamp mat is moved far from the throat plate,
- the maximal amount of shifting is limited by the distance between the right clamp mat and the throat plate, machine must be in the home position.

## CAED ADJUSTMENT

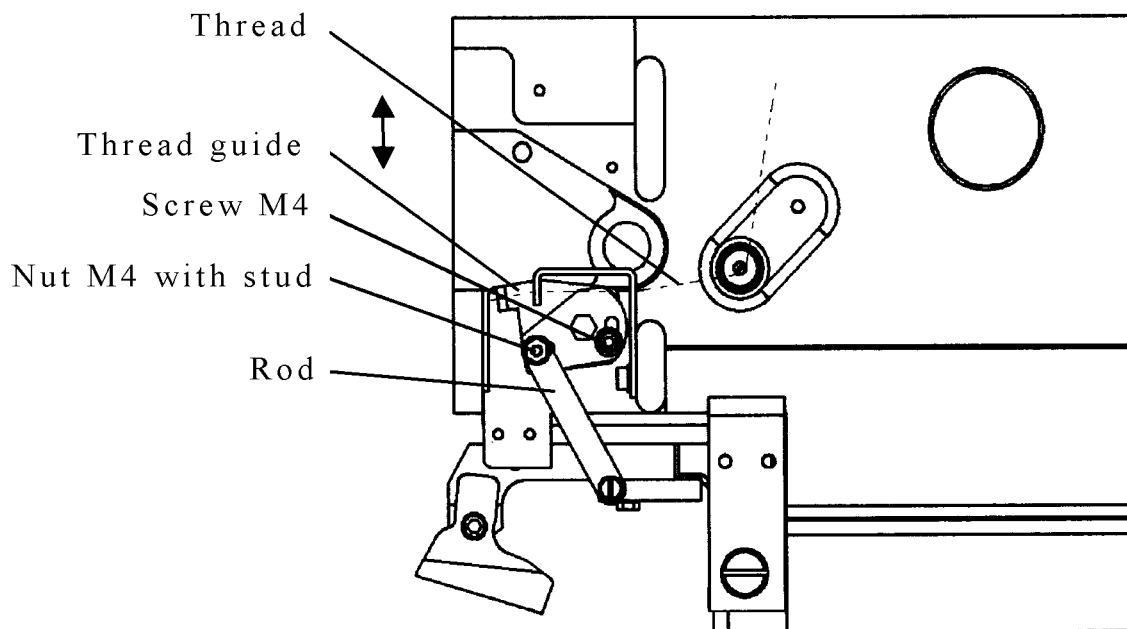
### Thread Draw - Off

Thread Draw-Off mechanism allows regulate the length of the cut thread in range 32 - 60 mm when the sewing cycle is finished.

To adjust the maximal length:

Loosen the nut M4, shift the rod with stud on the right side of the groove, by means of a screwdriver, ensure the stud against turning and tighten the nut.

Loosen the screw M4 and turn the thread guide to the upper position, tighten the screw.



For attainment of the short ends of the cut thread, loosen the nut M4 and shift the rod on the left side.

If you want to obtain stronger stitch on the fabric, loosen the screw M4 and swing the thread guide in the groove anti-clockwise, tighten the screws.

**Caution:** By this adjustment, the length of the cut thread is shorter.

## CAED ADJUSTMENT

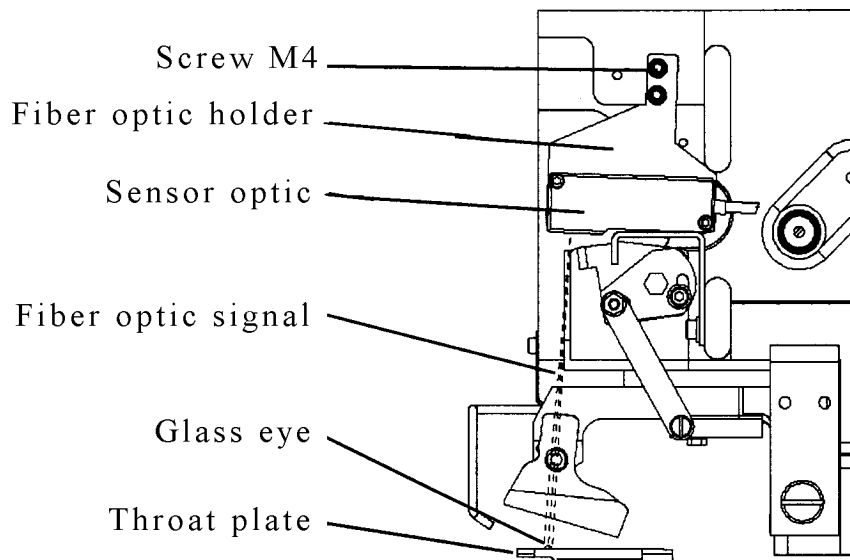
### Fiber Optic

Loosen the fiber optic holder by loosening the screws M4 and adjust it so that the red fibre optic signal, which is transmitted by the sensor, interfered with the glass eye, tighten the screws.

Adjustment of the sensor sensitivity:

By means of a small screwdriver, keep turning the screw on the sensor until the red LED on the sensor starts flashing.

Then turn the screw approximately half a turn until the LED stops flashing and settles. Adjustment of the sensor is completed.



**Caution!** To ensure correct operation of the sensor optic, keep the glass eye clean, especially oil free.

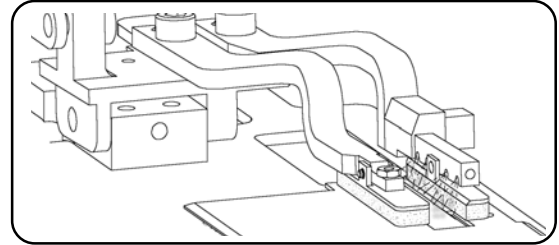


## CAED ADJUSTMENT

### Scrap Blow Off

This function is for the dirt cleaning by the air from the machine working area when the sewing cycle is finished. Time of the blow off is adjustable in the range 10 - 2500 ms.

Find this function in program:



Parameter	Function	Range	Recommended setting
Timers	Airblow	10 - 2500 ms	300 - 600 ms

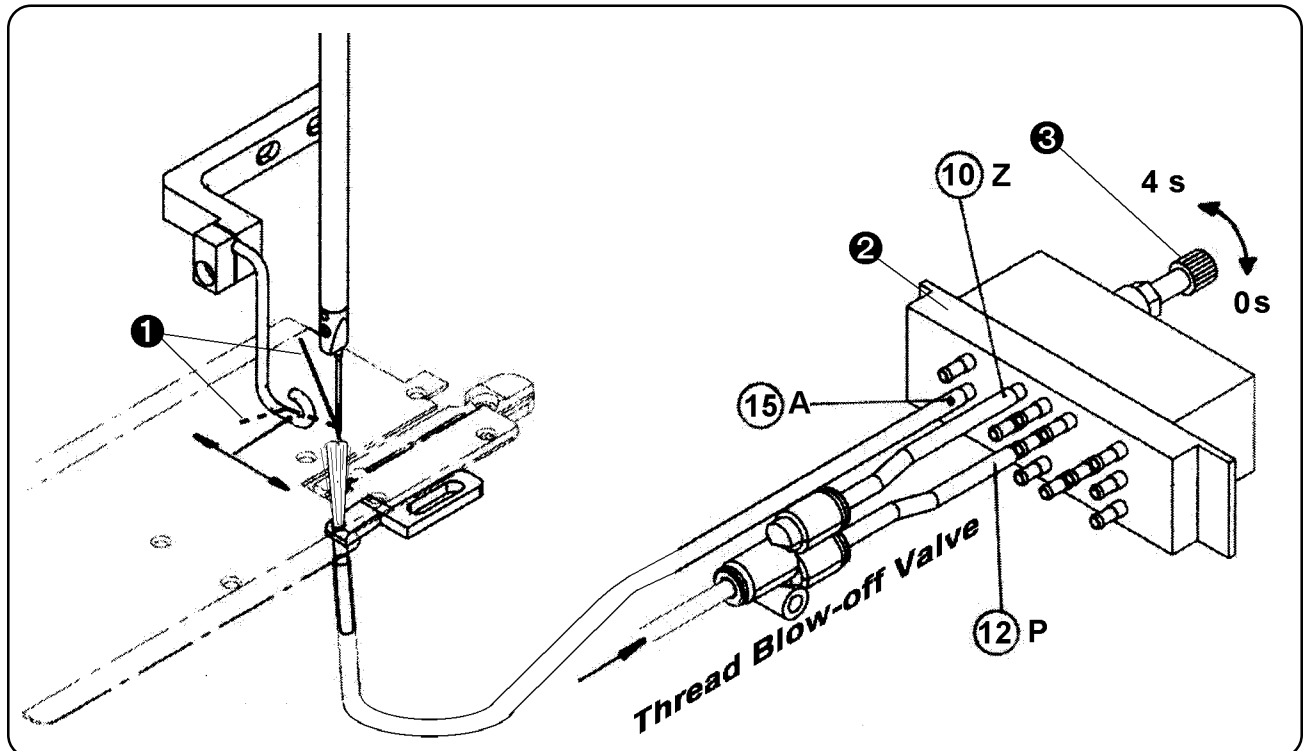
Recommended adjustment is mentioned because it influences the sewing cycle length. The raised value, the longer sewing cycle, which can cause lower operation productivity.

### Thread blow off

It is possible to route the thread **1** position when the sewing cycle is finished. The function is activated when the *Airblow* finished and it is possible to set the time by the "Air Timing Valve" **2**.

#### Thread blow-off range:

- 1) Tighten the screw **3** on the valve to the right - air from the tube is blowing continually.
- 2) Tighten the screw on the valve to the left, time of the blow off decreases from 2.5 s to 0 s.  
(Recommended time for blow-off is approximately 0.5 s.)



Revised 01/2005

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## CAED ADJUSTMENT

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### Sew Off

The S-4000 CAED model features uniform stitching and a crips, clean cut, after the tack is sewn and trimmed. Several machine areas affect the quality appearance of the finished tack and cut.

**Stitch Density** - The number of stitches within a given length. An increased number of stitches may give the tack a greater quality appearance.

***If incorrect:***

Perform the feed assembly adjustment.

**Bite width, or stitch bite** - The width of the stitch from side to side.

***If incorrect:***

Perform the bite adjustment.

**Stitch Length** - Ensures the fabric will not be wider then the maximal stitch length (1.574", 40 mm). If the fabric is wider, stitch length will not be controlled by the fiber optic, but will be controlled by the length set on the adjustable dial.

***If incorrect:***

Use fabric of maximal width 1.574",(40 mm).

**Stitch Tightness** - Regulated by the thread tension.

***If incorrect:***

Rotate by the thread tensioner nut (clockwise is tightened).

**Cutting Edge Space** - Controlled by the stop screw M4.

***If incorrect:***

Change position of the stop screw.

The direction of the thread ends is affected by the blow-off tube position when the sewing cycle is finished. If the direction is incorrect, change the tube position. The signal time is affected by the "Air Timing Valve" adjustment.

### Shreds blow-off

is affected by two parameters in program:

- 1) ***Miscel/Clam delay***  
If the parameter has different value than 0, time for blow-off is shorten.
- 2) ***Timers/Airblow***  
Adjust the time of the blow-off. Recommended values are 0.3 - 0.5s.

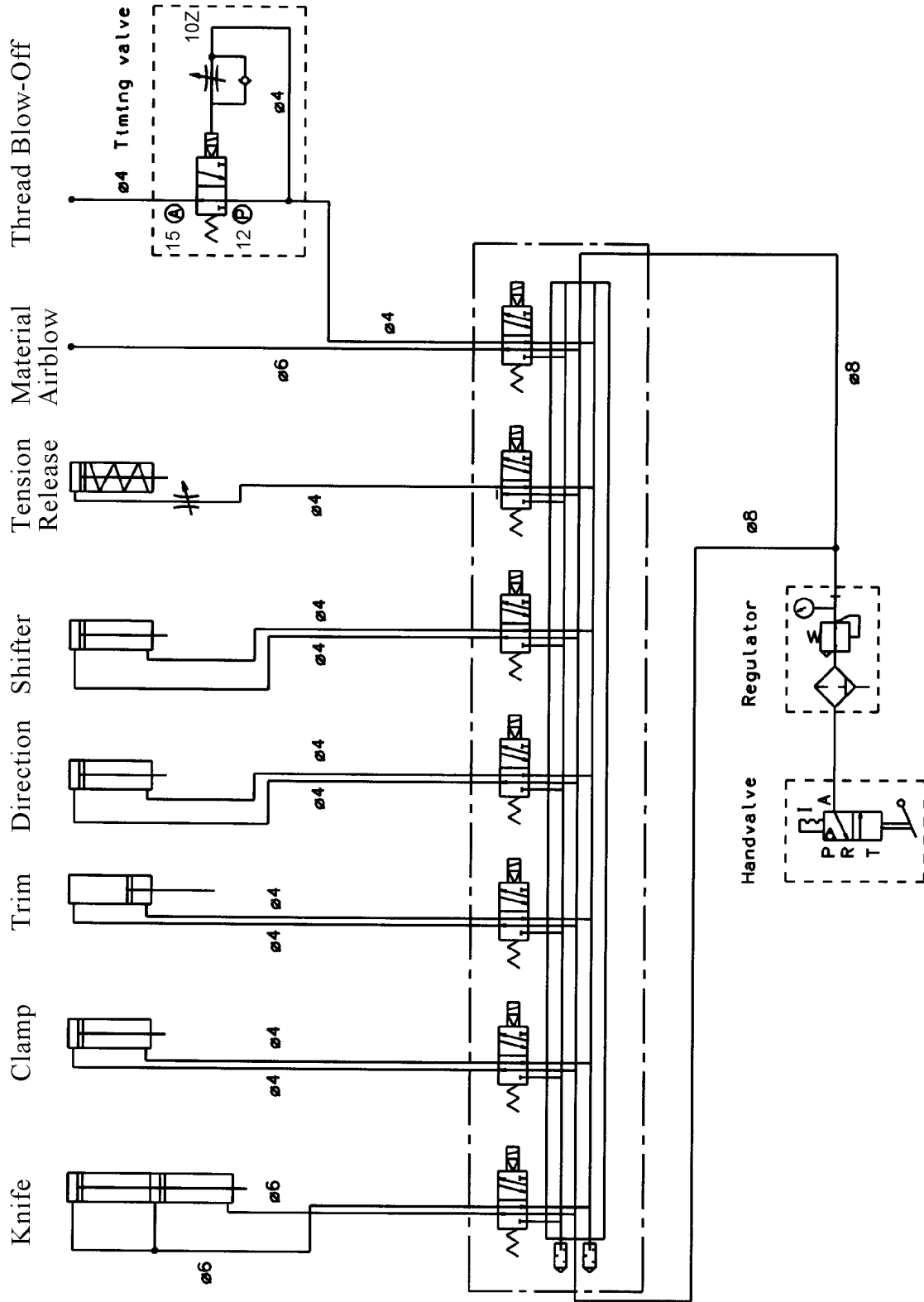
**Note:** If the parameters are bigger, the sewing cycle length increases.

**CAED LCD DISPLAY PROGRAMMING**

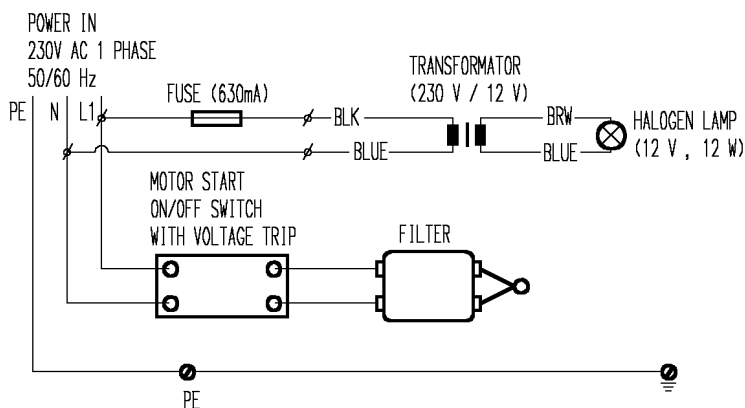
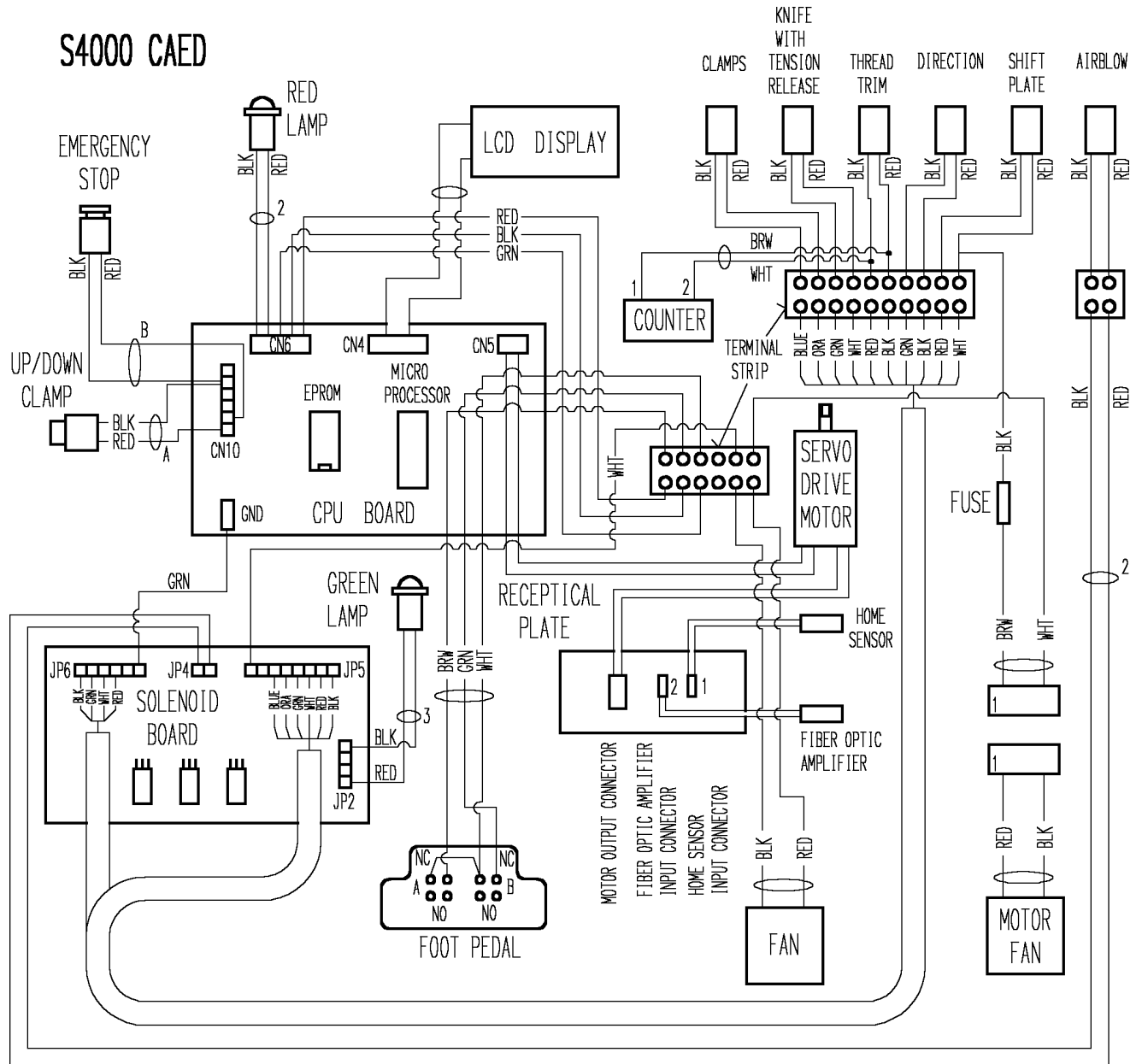
PARAMETER CHECKLIST (Use the blank spaces to record installation settings for future reference)  
**S-4000 CAED**

PARAMETER	RANGE	SETTING	DEFAULT
<b>SPEEDS</b>			
SOFT STRT	300-1000 S.P.M.	_____	1000
END SPEED	400-1000 S.P.M.	_____	800
<b>TIMERS</b>			
STRT DEL	0-500 ms	_____	10
WAIT TM	100-2500 ms	_____	350
TRIM TME	20-2500 ms	_____	80
AIRBLOW	10-2500 ms	_____	500
<b>COUNTERS</b>			
SOFT ST	1-3 Stitches	_____	3
SHIFT DIRECTION	0-10 Stitches	_____	0
<b>TOGGLE SWITCHES</b>			
SOFT STRT	On/Off	_____	Off
STRT MOD	1 Step/2 Steps	_____	2 Steps
STRT SW	Ped.neut./Continuous	_____	Ped.neut.
KNIFE	On/Off	_____	On
<b>HIDDEN PARAMETERS</b>			
<b>****SPEEDS</b>			
TRIM/POS	200-800 S.P.M.	_____	440
MAXIMUM	1000-3800 S.P.M.	_____	3600
<b>****MISCEL</b>			
NEEDLE UP	0-255	_____	164
CL DUTY	20-100%	_____	50
CLAMP DELAY	0-500	_____	30
<b>****TOGGLE SWS</b>			
EM- STOP	Opened/Closed	_____	Closed

**PNEUMATIC DIAGRAM CAED**



**ELECTRICAL DIAGRAM CAED**



**Note:** Minimal electrical box clearance is 0.8 m, (31.5").

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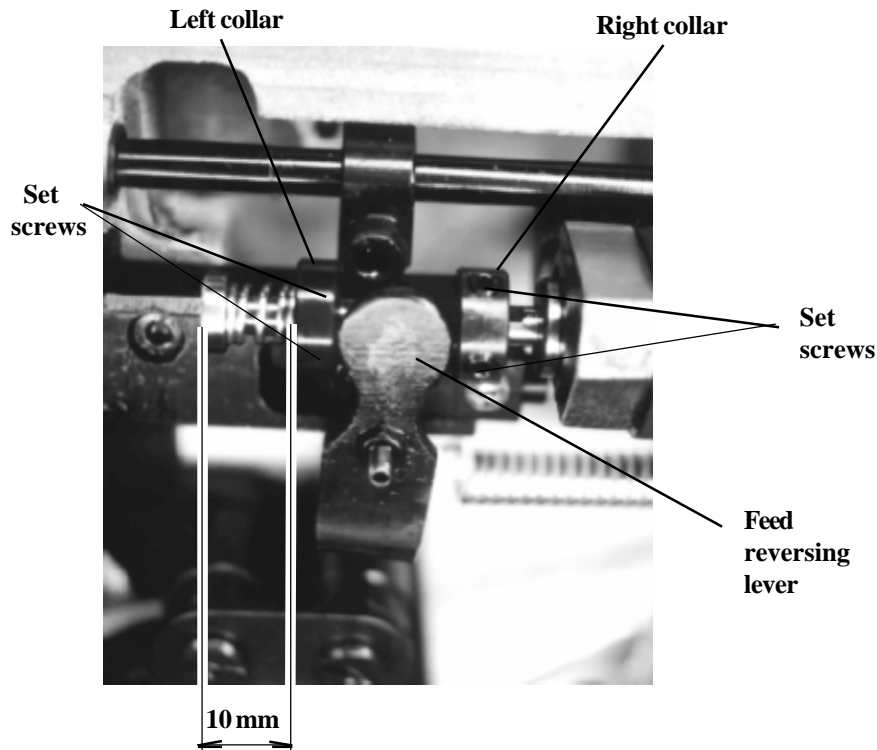
e-mail: [service@amfreece.cz](mailto:service@amfreece.cz); [parts@amfreece.cz](mailto:parts@amfreece.cz); website: [www.amfreece.com](http://www.amfreece.com)

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## TKF ADJUSTMENTS

### Feed Assembly

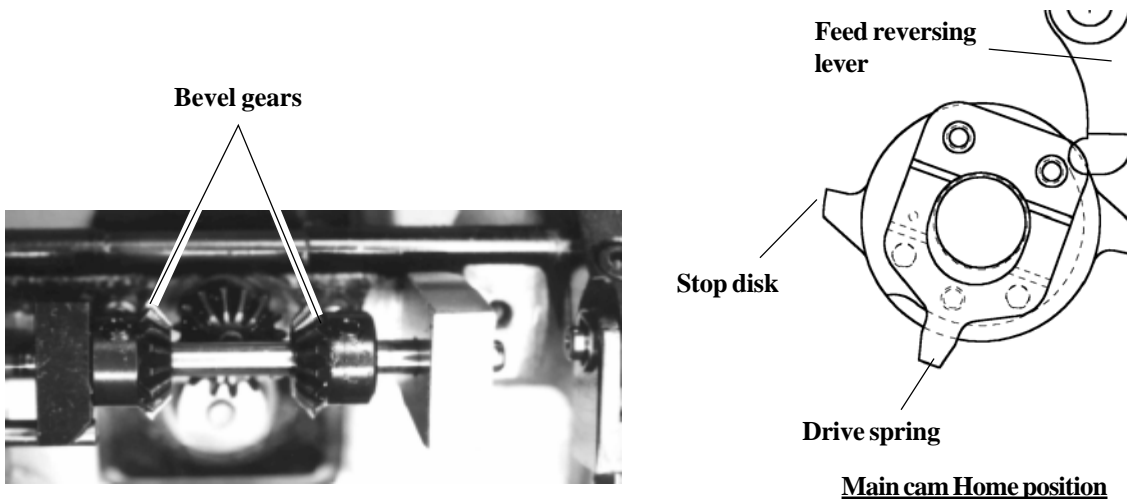
To set the clearance 10mm between the feed shaft and the left collar face loosen the two set screws on the collar and push the end of the feed shaft. Tighten the two set screws.



### Stitching

The home position before sewing as follows:

- the bevel gears on the feed shaft are not engaged with the vertical bevel gear
- the clamp plate is positioned all the way to the right (to the head casting)



## TKF ADJUSTMENTS

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### Stitching

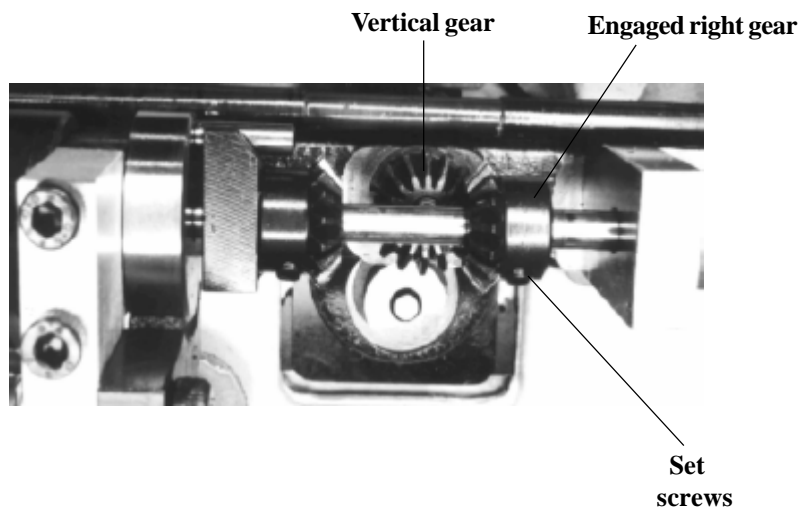
#### Bevel Gears

Adjustment of the bevel gears is made as follows:

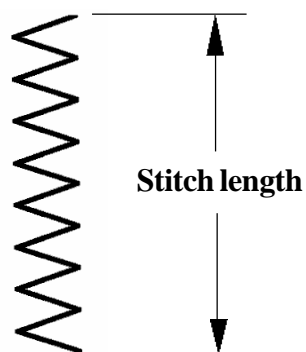
Loosen the main shaft worm gear screws, hold the worm gear and turn the hand wheel clockwise or counterclockwise as needed.

Tighten the screws.

This adjustments ensures correct lower dead needle position (the first needle penetration is closer to the operator), the right bevel gear must be engaged.

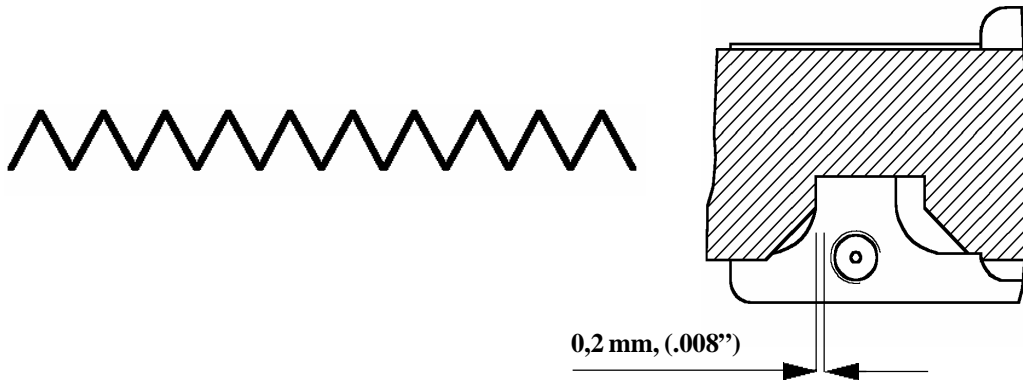


Adjust the machine for the smallest stitch density to easily check correctness of stitching adjustment.



## TKF ADJUSTMENTS

### Stitching - cont.



**Note:** On the S-4000 CAED, TKF, LS machine you can adjust two stitching variants. The standard adjustment is for sewing without the bar.

If you want to sew stich with the bar , the left and right shifter arm must be moved closer to the control spring.



Adjust shifret arms for a clearance 0,2 mm between the shifter plate and the boss after the first and second row of stitches is sewn.



**LCD PROGRAMMING TKF**

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**Double Stitch**

Set the following parameters on the LCD display with the machine in home position and the clamp plate is on the left, toward the head casting).

<b>****MISCEL</b>			
<b>PARAMETER</b>	<b>RANGE</b>	<b>SETTING</b>	<b>DEFAULT</b>
SEW MODES	1.2 1 OR 2	2	2

**Single Stitch**

Set the following parameters on the LCD display with the machine in the home position.

<b>****MISCEL</b>			
<b>PARAMETER</b>	<b>RANGE</b>	<b>SETTING</b>	<b>DEFAULT</b>
SEW MODES	1.2 1 OR 2	1	1

## LABEL SEWER ADJUSTMENTS

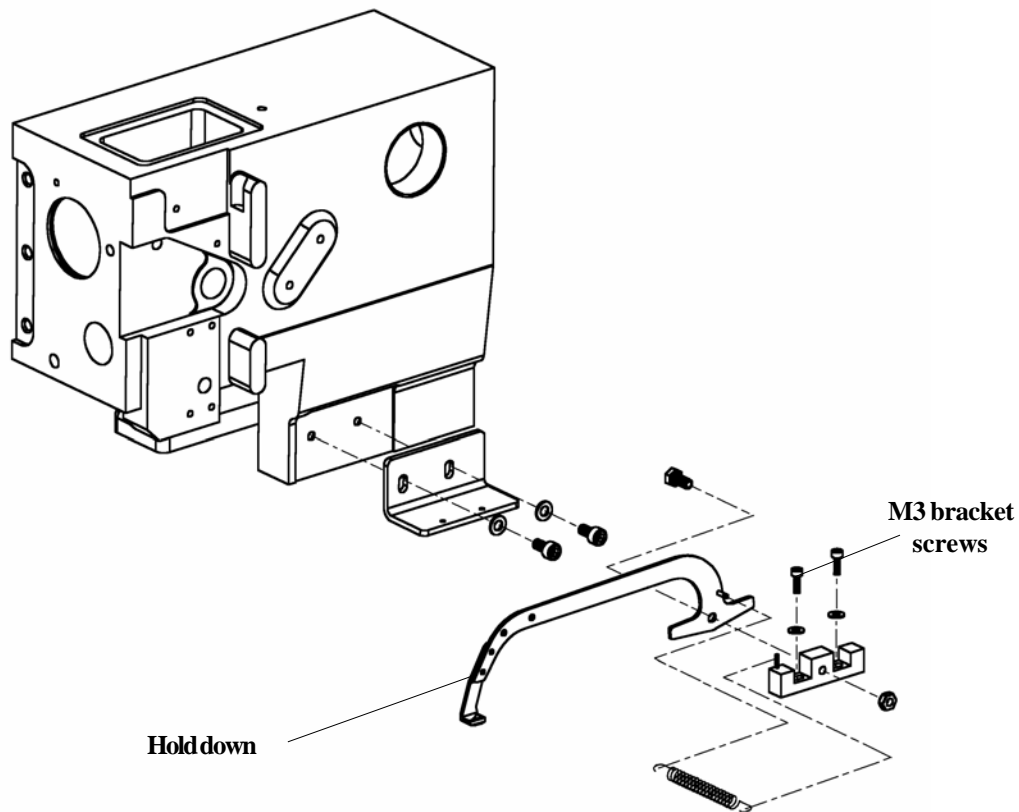
### Specifications

Recommended Thread: Tex size 20 to 30, good quality polispun or cotton.  
Tack Length: 6 to 40 mm.

### Hold Down

Using the M3 x 10 bracket screws, adjust the hold down to accommodate the maximum stitch bite produced.

The hold down must move freely on the clamp foot.



## UNIVERSAL TABLE ADJUSTMENTS

### Changing Between Parallel and Crosswise Sewing Applications

Remove the position pin from the base plate.

Swivel the complete base plate assembly counterclockwise 90 degrees to the crosswise sewing position. A different base plate hole will align with the same table top vibration isolator which held the base plate in the parallel position.

Insert the position pin into the new hole and tighten fully into the vibration isolator.

### 45 Degree Angle Sewing Application

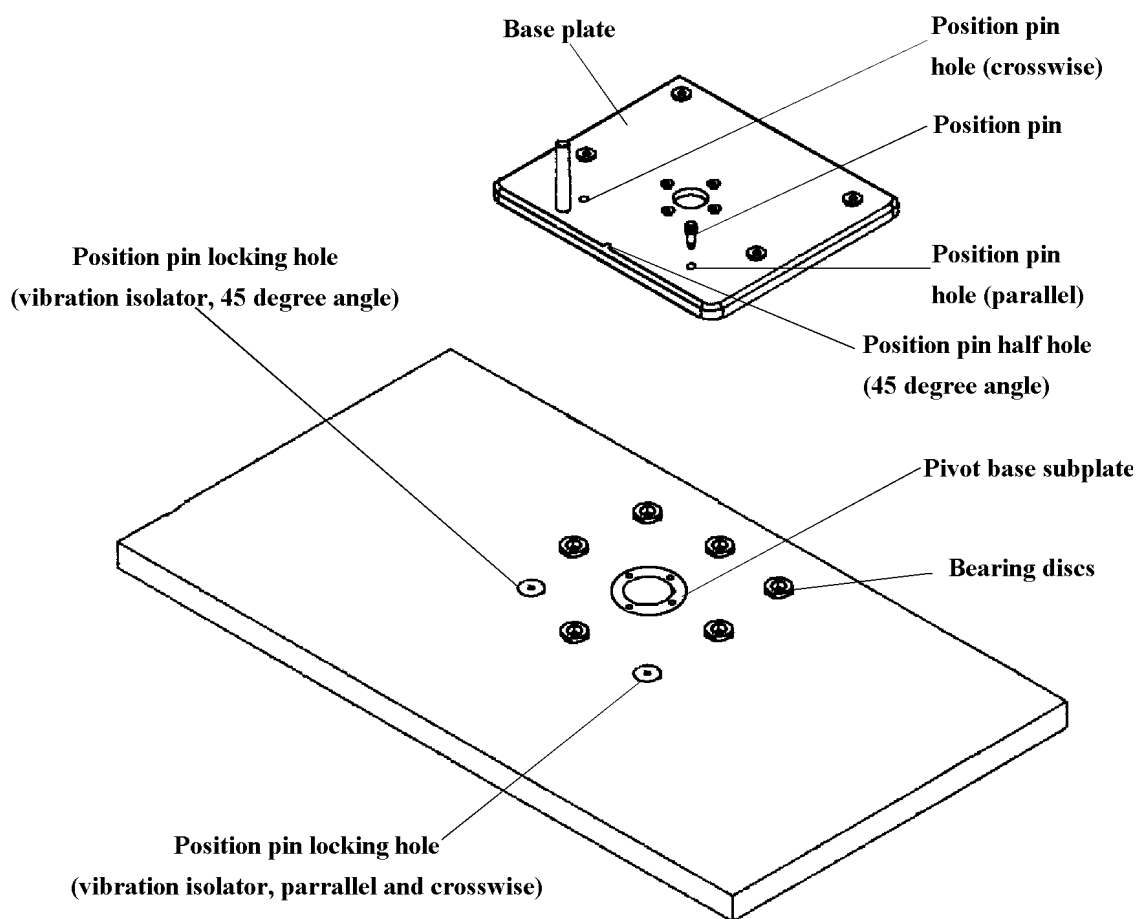
Remove the position pin from the base plate.

Swivel the complete base plate assembly 45 degrees to the angled sewing position.

A half base plate hole located on the edge of the plate will align with the 45 degree angle vibration isolator.

Insert the position pin into the half hole and tighten fully into the vibration isolator.

**Note:** The stops underneath the table top, limit the base plate rotation to a maximum of 90 degrees.





**LCD DISPLAY PROGRAMMING - FOR ISBH with Indexer**

PARAMETER CHECKLIST (Use the blank spaces to record installation settings for future reference)

PARAMETER	RANGE	SETTING	DEFAULT
<b>SPEEDS</b>			
SOFT STRT	200-1000 S.P. M.	_____	800
ENDspeed	400-1000 S.P.M.	_____	800
<b>TIMERS</b>			
STRT. DEL	20-200 ms	_____	50
WAIT TM.	100-2500 ms	_____	350
TRIM TME	30-50 ms	_____	50
<b>COUNTERS</b>			
SOFT ST	1-3 Stitches	_____	1
<b>TOGGLE SWITCHES</b>			
SOFT STRT	On/Off	_____	Off
STRTmode	1Step/2 Step	<b>1 Step *</b>	1 Step
STRT. SW.	Neutral/Continue	_____	Neutral
<b>HIDDEN PARAMETERS</b>			
<b>****SPEEDS</b>			
TRIM/POS	200-400 S.P.M.	_____	300
MAXIMUM	1000-3800 S.P.M.	_____	3800
<b>****MISCEL</b>			
NEEDLEup	0-255	_____	164
CL DUTY	20-100 %	<b>100 *</b>	100
KNIFE st	40-230	_____	65
CLMP dly	0-50	_____	30
SEW MODES	1;2; 1or 2	_____	
<b>****TOGGLE SWS</b>			
GO TWICE	Disabled/Able/	_____	Disabled
TRIM ON	After st/tm	_____	st
STOP PWR	Full/Half	_____	Full

\* If the parameters do not have the above mentioned values, it is not possible to operate the machine

Revised 01/2005

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## TROUBLESHOOTING - CONTENTS

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## TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Motor fails to start.	No power to the electrical panel. Incorrect voltage.	Check the electrical plug and wiring. Check with voltage meter.
Motor runs for a short time, then stops.	Defective motor.	Replace the motor.
The machine fails to cycle.	Missing belt. Insufficient air pressure.	Install the belt. Increase the air pressure.
Uneven feeding.	Feed drive system bind. Clamp plate bind. Bevel drive gears slipping. Excessive play in the drive system.	Eliminate the bind. Eliminate the bind. Tighten the gears. Adjust or replace the worn parts.
Machine fails to stitch.	Incorrect needle installation. Loopers out of adjustment.	Correctly install the needle. Correctly adjust the loopers.
Machine does not reach the home position.	Check needle up parameters.	Correctly set the parameters.
Machine fails to stop properly.	Check home proximity switch.	Repair or replace switch.
Machine does not grip fabric, or releases the fabric to quick.	Check clamp delay parameters. Incorrect clamp mechanism setting.	Correctly set the parameters. Adjust the clamp mechanism.
Machine does not release the fabric.	Check clamp delay parameters. Incorrect clamp disengagement.	Correctly set the parameters. Correctly adjust the clamp disengagement.



## TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Material incorrectly cut.	Check home parameters. Damaged Knife.	Correctly set the parameters. Replace the knife.
Knife is binding in the material.	Check knife parameters. Ensure correct air pressure.  Dull knife. Incorrect knife and throat plate alignment.	Correctly set the parameters. Adjust air regulator to 5.5 bar, (80 psi). Replace the knife. Correct the knife position.
Knife cut is not centered, or is cutting the stitches.	Check home parameters. Incorrect barring adjustments. Incorrect knife installation. Insufficient cutting space. Insufficient clamping pressure. Needle bite not centered over the throat plate.	Correctly set the parameters. Correct barring adjustments. Correctly install the knife. Increase the cutting space. Increase the clamping pressure. Center the bite.
Uneven cutting.	The knife is not centered. Incorrect knife installation.	Center the knife. Correctly install the knife.
Skipping stitches.	Incorrect needle installation. Bent or burred needle point. Excessive clearance between the looper and the needle. Incorrect looper and needle timing. Bent or worn loopers. Excessive clearance between the clamp foot and the needle entry point. Incorrect threading. Incorrect tensions.	Correctly install the needle. Replace the needle. Decrease the clearance.  Correct the timing.  Replace the loopers. Decrease the clearance.  Correctly thread the machine. Correct the amount of tension.
Skipped stitches at the sew start.	Sew start thread length is too short. Incorrect looper timing. Excessive clearance between the clamp foot and the needle entry point. Damaged loopers.	Adjust the thread draw-off.  Adjust the looper timing. Decrease the clearance.  Replace the loopers.

## TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Thread breakage.	Excessive thread tension. Incorrect threading. Burr on the throat plate, the looper, or the needle.	Decrease the thread tension. Correctly thread the machine. Deburr the necessary parts.
Needle breakage.	Incorrect clearance between the needle and the loopers. Incorrect clearance between the needle and the clamp foot.	Correct the clearance between the needle and the loopers. Correct the clearance between the needle and the clamp foot.
Thread is not trimmed at the end of the cycle.	Skipping on the last stitch. Incorrect trimmer hook setting. Dull trim knife.	Ensure correct barring adjustments. Correctly adjust the trimmer hook. Trim knife replacement.
ISBH Model is feeding in place, at the end of the sewing cycle.	Incorrect front stop setting.	Adjust the front stop until the correct home position is obtained at the end of the sewing cycle..