

 **interlake**

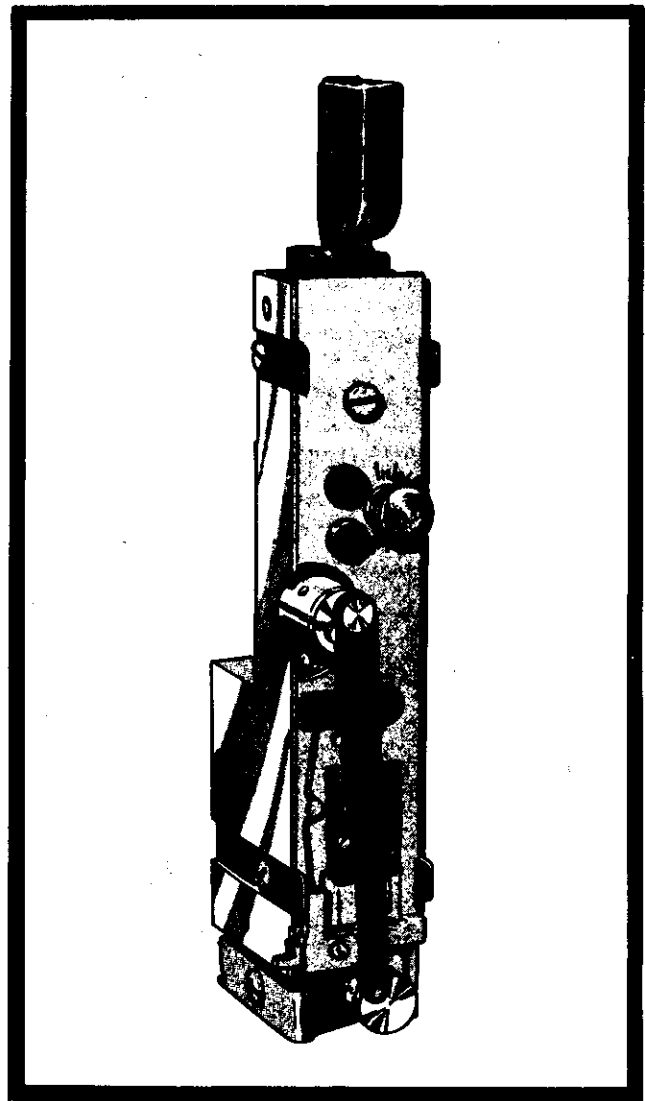
**INSTRUCTION  
MANUAL**



**SINGLE AND  
MULTIPLE HEAD**

**CHAMPION  
STITCHERS**

**MAINTENANCE  
OPERATION  
PARTS LIST**



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A, K, 400, 450, 450A And 450T

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P, 500, 600, 650 And 700

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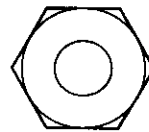
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USE REPLACEMENT PARTS DESIGNED AND MANUFACTURED ONLY BY INTERLAKE SPECIFICALLY FOR YOUR CHAMPION STITCHER

*Here are the instructions on  
how to install,  
operate, maintain and make  
repairs on your ...*

## SINGLE AND MULTIPLE HEAD CHAMPION STITCHER

Serial Number \_\_\_\_\_ Number of Heads \_\_\_\_\_

HEAD SERIAL NUMBER	HEAD PART NUMBER	WIRE GUIDE NUMBER

Crown Width \_\_\_\_\_ Wire Size \_\_\_\_\_

Clincher Type \_\_\_\_\_ Clincher Number \_\_\_\_\_

1

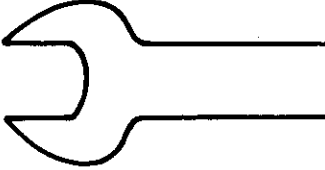
When ordering parts or requesting information, please state: Quantity required, part number part name, model, wire size, crown width and serial number of your stitcher.

Your Stitcher with the Champion Stitching Head has been engineered and developed to provide you with the finest equipment available for your stitching needs. With proper care and maintenance it will give you years of satisfactory, efficient service. This manual shows you how to get top performance from your stitcher and is divided into four major sections. Sections 1, 2, and 3 comprise the main body of the manual, containing all information about the head of the machine for all models. Section 4 contains additional information and part listing on the particular model shown above. Read it thoroughly. Study it carefully. Best stitching performance will be assured, if all the adjustments are made as instructed, so that you get the following desired results.

1. Good cut-off
2. Uniform wire draw
3. Equal leg length
4. Proper clincher alignment
5. Sufficient compression

Section **1**

**INSTALLATION**



**INSTALLATION INSTRUCTIONS**

These instructions must be followed to insure proper installation, efficient operation and the prevention of serious damage to your stitcher.

**Before Unpacking:**

Examine the outside of the crate or carton for any visible damage. If damaged, **DO NOT UNPACK THE STITCHER**. Notify the carrier who delivered the stitcher.

**After Unpacking:**

There should be a small package inside of the main carton. This contains the following items:

Part Name	For Model
Instruction and Parts Manual	All models
Coil of No. 25 round wire mounted on a coil holder - one per stitcher head.	All models
2 side gauges	A
2 thumb screws	A
1 table pivot pin	A
2 table pivot pins	P
1 table lock pin	A, P
1 wire guide spring	A, 400, K
2 wire guide springs	500
1 sheave bracket	P, 600, 700
1 sheave	P, 600, 700
3 back gauges	P
2 side gauges	P
2*, 3** or 4*** wire guide springs	*P, **600, ***700
1 apron table	500
2 spacers for table	600, 700
2 screws for table	600, 700
3 screws for table	600, 700
Included only if ordered as part of original equipment:	
5* or 3** work gauge screws	*P, **600, 700
1 back gauge	600, 700
1 side gauge	600, 700

Examine your stitcher carefully for any damage in transit. If damaged, **DO NOT INSTALL THE STITCHER**. Notify your nearest representative and the carrier who delivered your stitcher.

Make certain that you get a signed copy of the Carrier Inspector's Report of the damage incurred.

**Location of Stitcher:**

Models A, P, 450, 450A and 450T stitchers should rest evenly on the floor. Models K, 400, 500, 600, 650 and 700 are to be set on a table or bench.

**Location of Foot Treadle:**

Models A, P, 450, 450A and 450T have a mechanical foot treadle which is part of the base. Models K, 400, 500, 600, 650, 700 have an electric foot treadle. This treadle can be moved to within easy reach of the operator's foot.

**Required Lubrication:**

Your stitcher should be lubricated at the oiling points indicated in Figure 1.

**Motor:**

The type of motor for your stitcher is specified on your purchase order. Those specifications are noted on a tag and attached to your stitcher. Check this tag before connecting the stitcher to your electrical power supply. Stitchers equipped with 110-volt or 220-volt motors require only one power supply line.

Motors on Champion Model stitchers generally are of the 110-volt, single-phase type.

Models A, K, P, 450A and 450T are powered by a fractional HP, belt-driven motor.

Models 400, 500, 600, 650, 700 are powered by a fractional HP, geared-head motor.

**NOTE:**

Characteristically, the housing of a geared-head motor feels hotter than that of a belt-driven motor. Do not become alarmed at this condition.

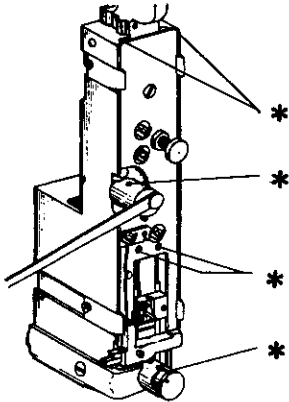
**CAUTION**

Do not operate stitcher until operating instructions have been read and understood—do not operate stitcher at any time without work under the head.

The lubrication information presented on this page plays an important role in safeguarding your equipment from undue wear. A careful check of the items mentioned, within proper indicated time intervals, will assure proper performance of the machine.

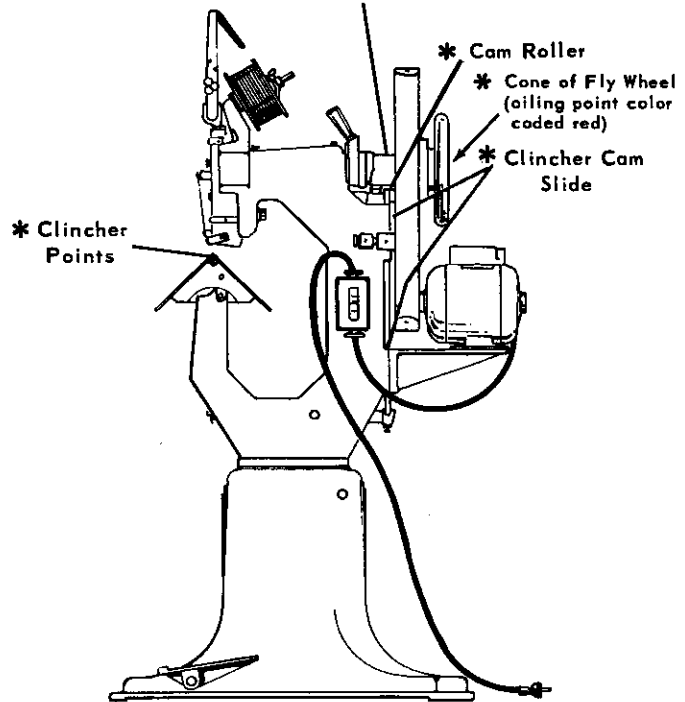
Note: All points indicated by \* or painted red on stitcher are to be lubricated daily with SAE-20 oil.

### Stitching Head—All Models



### Model A, P, 450, 450A and 450T Stitchers

Note: Make sure that brake and braking surface on clutch hub is free of oil.

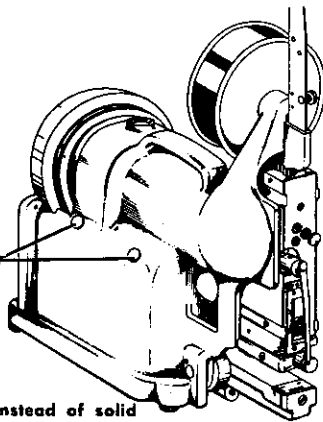


(for motor, see manufacturer's recommendation).

### Model K Stitcher

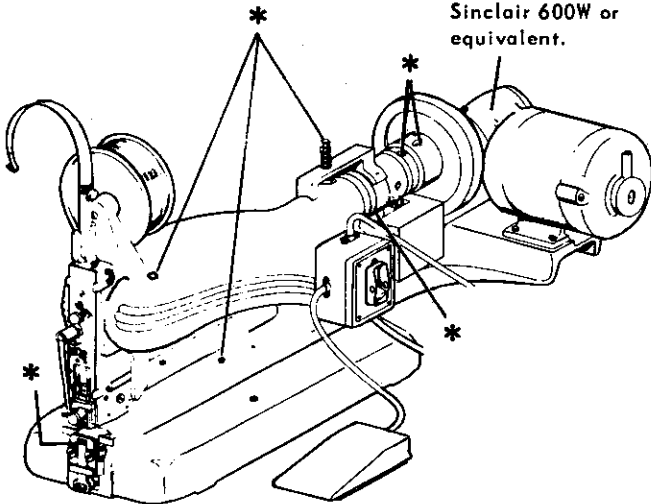
Note: Remove snap plugs to oil motor, oil these cups once every six months with SAE-20 oil.

Cups (located on opposite side) must be oiled once every eight operating hours. For model K with activated instead of solid clincher lubricate the clinchers daily with SAE-20 oil.



### Model 400 Stitcher

Keep gear box full to level plug with Sinclair 600W or equivalent.



### Model 500, 600, 650 and 700 Stitchers

Keep gear box full to level plug with Sinclair 600W or equivalent.

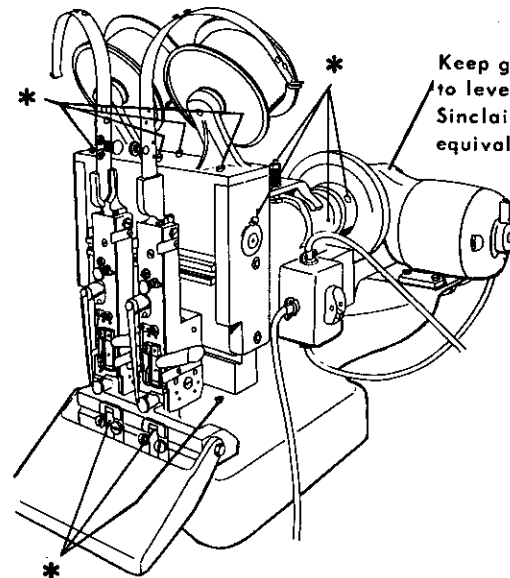


Figure 1

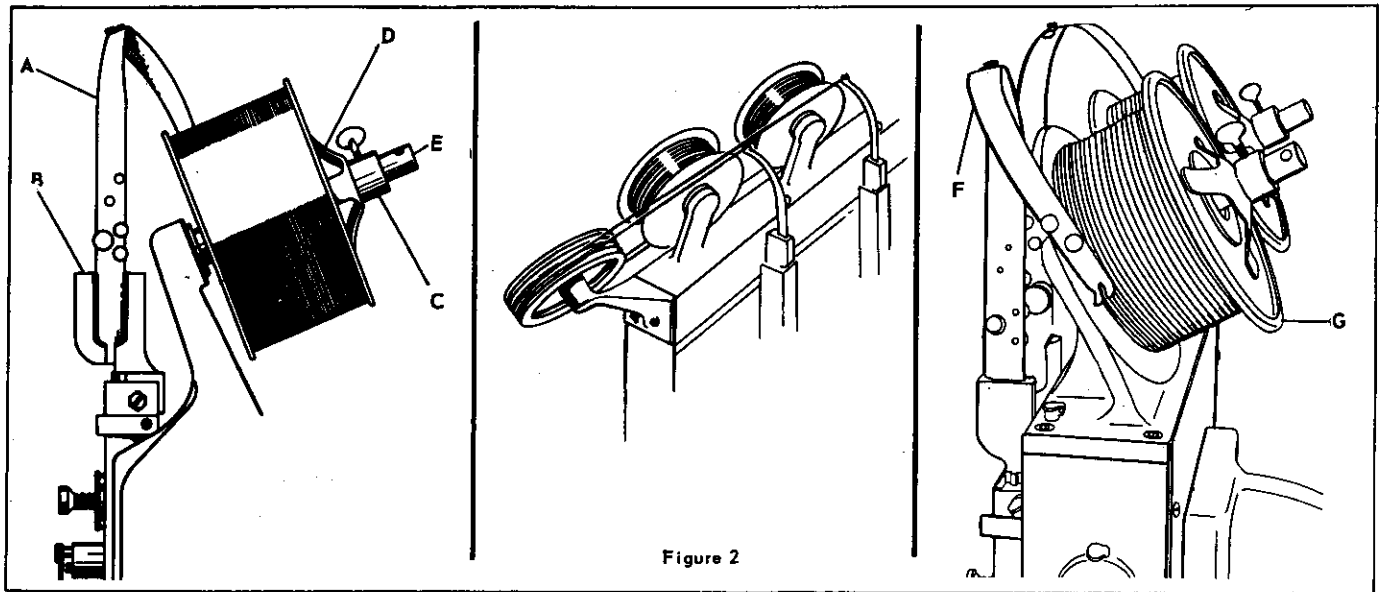


Figure 2

**Install Wire Guide Springs and Coil Holder: (Fig. 2)**

1. Slide wire guide spring (Index A) into slot of the wire guide spring bracket (Index B). Make sure that the end of the spring with the slot is to the left (as you face the stitcher). For the Model 500 with two heads, one wire guide should be installed facing in the opposite direction (Index F).
2. Cut all bindings around the wire coil on the coil holder EXCEPT the binding which holds the wire end.
3. Remove bindings or bend them back over the side plates of the coil holder.
4. Hold wire end in one hand and cut the last binding with your other hand. Insert wire end into one of the holes at the outer edge of the front plate.
5. Remove or bend back the last binding. Make sure that the front plate of the coil holder is snug against the wire coil.
6. Remove the wire coil stud collar (Index C) and the coil holder friction (Index D).
7. Slide coil holder on the stud (Index E). Load the coil holder so that the wire feeds to the left from the bottom of the coil. The right-hand coil on the Model 500 *only* (Index G) should be loaded on the holder so that the wire feeds to the right from the bottom of the coil.
8. Replace the friction. Replace the collar tight enough against the friction so that the pressure keeps the coil holder from turning, yet allows the wire to flow freely. Tighten thumb screw on collar securely.

**CAUTION:**

If the friction does not exert sufficient pressure, the coil holder will turn too freely. This causes the wire to become tangled. If there is excessive pressure, uneven wire feed will result.

**Threading the Wire: (Figure 3)**

Models K, 400, 500, 600, 650, 700 are equipped to use round wire ranging in size from 25 to 27 gauge. Model A is equipped to use 25 to 30 gauge round wire. Model P is equipped to use 25 to 28 gauge round wire.

1. Draw wire by hand, in the direction it is pointing, from the bottom of the coil (Index A).
2. Thread the wire through the slot at the end of the wire guide spring (Index B), through the wire guides (Index C), through the upper wire straightener (Index D), through the lower wire straightener (Index E), and between the tension pawl and tension roll (Index F). On multiple-head stitchers, except the Model 500\*, the wire should first be looped around the grooved sheave, using the lowest groove first, before starting to thread it on the far right-hand head in the manner described above (See Figure 2).
3. Adjust the upper wire straightener (Index D, Figures 3 & 4) so that the wire is parallel to the face plate. Adjust the lower wire straightener (Index E, Figures 3 & 4) so that the wire feeds to the right of the face plate (Index A, Figure 4).
4. To check adjustment, pull wire through the wire straighteners with pliers and release. The wire should curve to the right of (and parallel to) the face plate, as shown in Figure 4. Cut the wire below the tension pawl.
5. Release the swivel operating spring (Index G) from the swivel and swing it to the left.
6. Feed the wire into the wire cutter lead-in hole (Index H) in the bottom of the face plate.
7. Push grip spring to left to open the grip (Index I). Insert wire and release the spring so that the grip engages the wire for feeding into the swivel.
8. Replace the swivel operating spring.

4

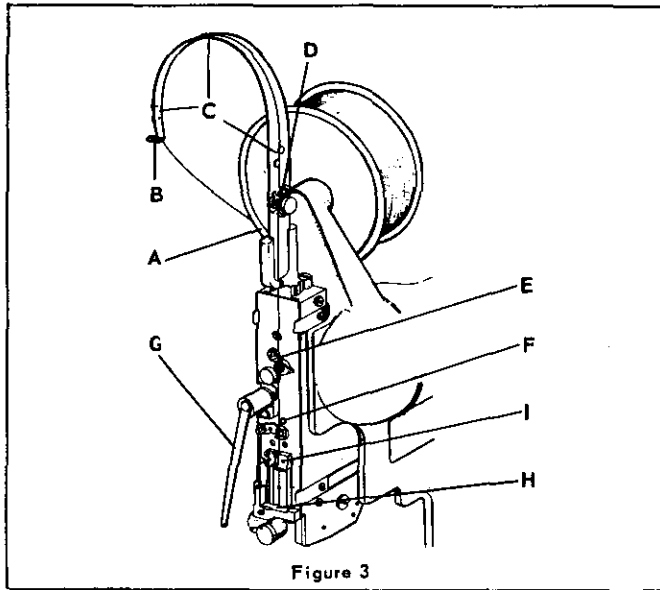


Figure 3

9. Repeat all steps 1-8 on multiple-head models until all the heads are threaded. \* (On two-headed Model 500, one coil feeds to the right and one feeds to the left.)

**Adjust Wire Straighteners: (Figures 3 and 4)**

Adjust nut of the upper wire straightener (Index D, Figures 3 & 4) so that wire hangs parallel to the face plate. Adjust nut of lower wire straightener (Index E, Figures 3 & 4) so wire curves to right as shown.

**NOTE:**

When changing coils or wire sizes, check straighteners to insure proper wire feed.

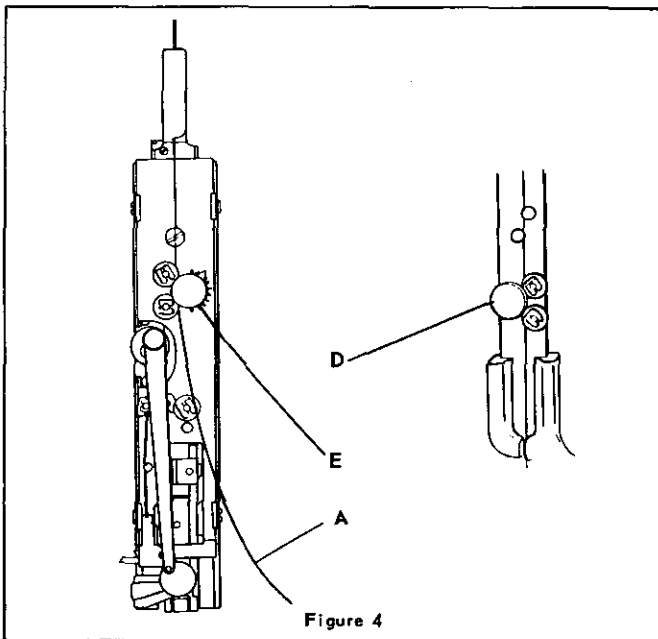


Figure 4

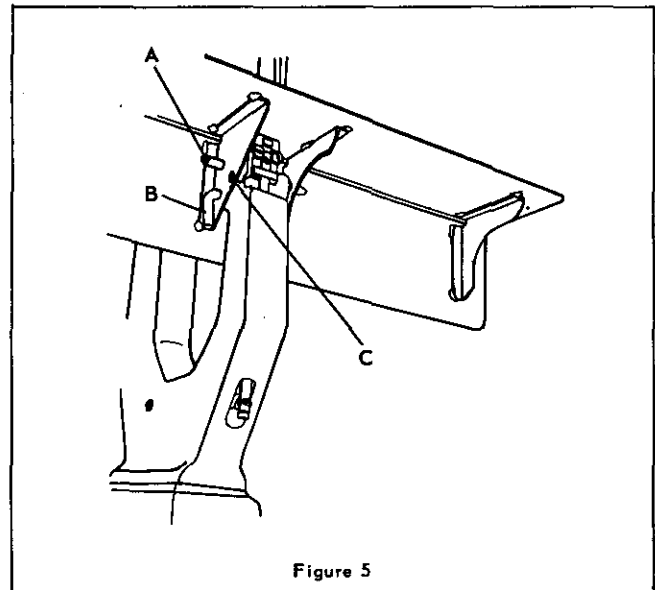


Figure 5

**Setting Up Machine for Stitching: (Figure 5)**

To install the table on Model A, P and 450 stitchers:

1. Set the table in place on the post, off-center with the longest part to the right.
2. Insert the pivot pin (Index A) from the left side on Model A and 450, from both sides on Model P.
3. Insert the lock pin (Index B), on the left side, in the proper hole for either side stitching or saddle stitching.
4. To change position of table for saddle stitching, remove lock pin and swing table down and insert lock pin in new hole (Index C).

To install the table on Models 400, 600, 700: (Figure 6)

1. Remove the five mounting screws (Index A).
2. Slide the table in place.
3. Replace the mounting screws.

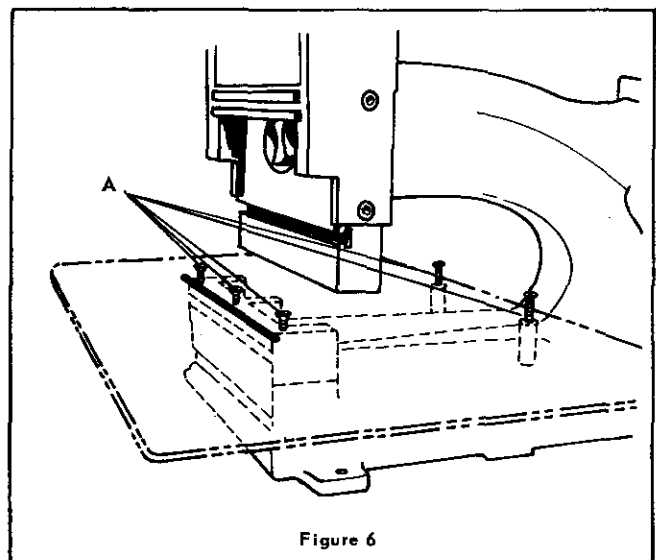


Figure 6

**MACHINE CAPACITIES**

CAPACITY	MIN.	MAX.
A, P, 450, 450A, 450T	2 sheets	1/4"
400, 500, 600, 650, 700, K	2 sheets (standard)	1/8"
400, 500, 600, 650, 700, K	1/8" (special)	1/4"

**Changing for Work Thickness:**

The movement of the face plate regulates the length of stitch legs and the amount of work compression. To decrease compression, which simultaneously increases the leg length, raise the face plate. To increase compression, which simultaneously decreases the leg length, tap the face plate down.

**NOTE:**

If face plate is lowered too much on thin material or light work, the driver end may cut into the work material. Raise face plate slightly.

**I To adjust the face plate on Models K\*, 400, 500, 600, 650, 700: (Figure 7)**

1. Loosen face plate screw (Index A).
2. Insert screw driver between face plate (Index B) and swivel holder bracket (Index C) to raise, or Lower face plate by tapping at top (Index D).
3. Tighten face plate screw securely.

(\*Model K Has a Second Adjustment for Compression Independent of Face Plate Adjustment.)

For the second compression adjustment on the Model K, turn adjusting screw (Index E), under the clincher arm, clockwise to increase compression; counterclockwise to decrease compression.

II On Models A, P, 450, 450A, 450T, wire draw and compression are adjusted simultaneously by gradually moving the eccentric adjusting sleeve handle (Index A, Figure 8) to the left for thin work, to the right for thick work. Extreme left for stitching 2 sheets of paper and extreme right for stitching work 1/4" in thickness.

When a new head has been installed, test compression adjustment by setting work thickness handle to far left (minimum) and determine if face plate setting corresponds.

If necessary to adjust the face plate of the new head on a Model A, 450, 450A, 450T:

1. Loosen set screw located on back of head (Index B1, Figure 8).
2. Turn the eccentric adjusting face plate screw (Index B, Figure 8) as needed until face plate is lowered proper amount—or vice versa if face plate is to be raised.
3. Tighten set screw.

**NOTE:**

The adjusting handle is on a threaded stud. Twist counterclockwise to loosen, clockwise to tighten the handle and keep it from "walking" out of adjustment. For all multiple-head stitchers, except Model P, each head must be adjusted individually when changing work thicknesses. Adjust the face plate.

When making the work thickness adjustment on the Model P with 2 heads, the adjusting handle can be moved to the right or left with the motor OFF. An exception to this is caused by the added friction when there are 3 heads or more which may make it difficult to adjust with the motor OFF. With the motor OFF, adjust as follows:

1. Step on the foot pedal and turn the drive wheel by hand to make sure that the stitching heads will complete their cycle without interference.
2. Release the swivel operating springs (Index F, Figure 7) from the swivels, swing them to the left and let them hang freely.

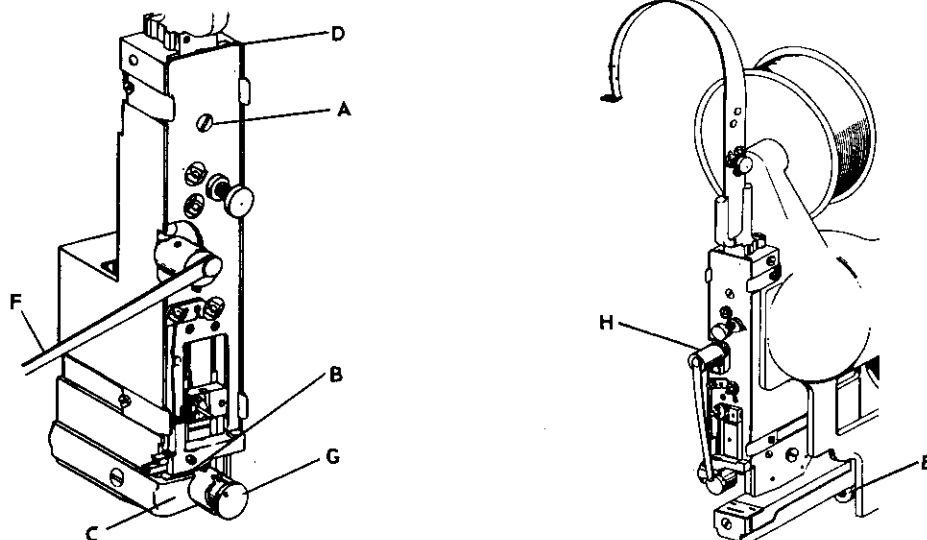


Figure 7



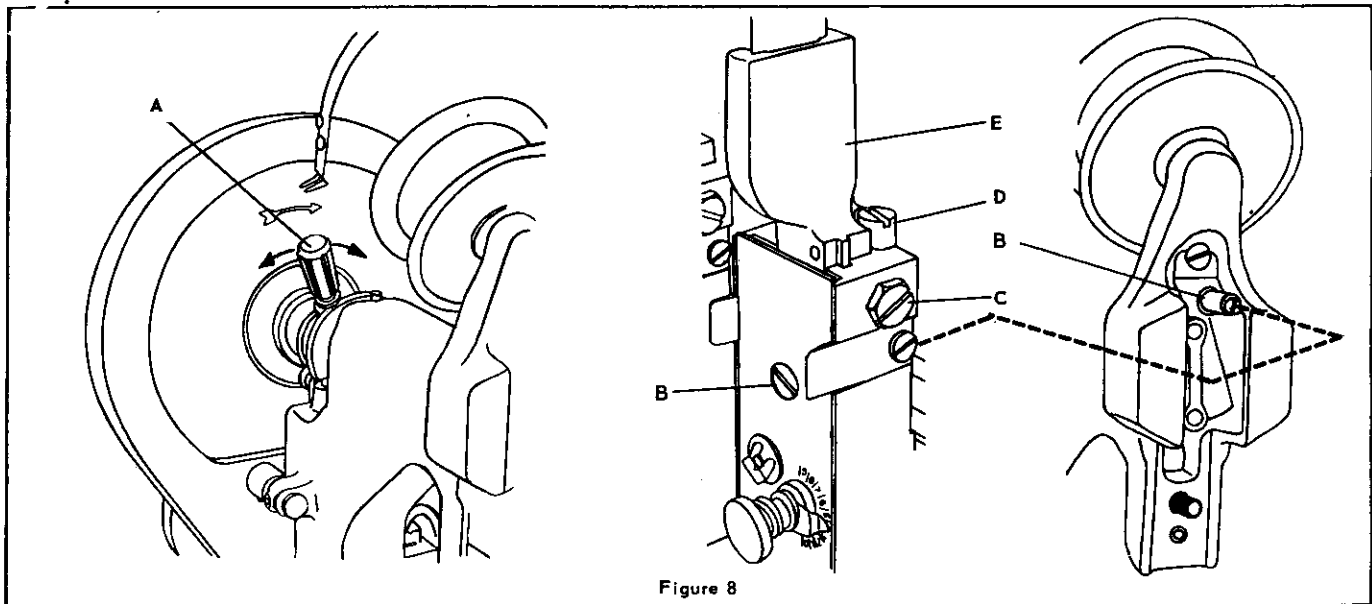
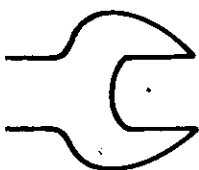


Figure 8

3. Remove the swivel (Index G, Figure 7).
4. Turn the motor ON; step on the foot treadle and while the stitcher is operating, move the work thickness adjusting handle for the desired work capacity. Tighten the handle to lock it in position.
5. Replace the swivels and swivel operating springs.

\*\*Only adjustment made with power ON.

**To Equalize Both Legs of Stitch: (Fig. 8)**

1. Loosen the wire guide locking screw (Index C).
2. Turn adjusting screw (Index D) clockwise to shorten left leg of stitch; counterclockwise to lengthen left leg.
3. Tap bracket (Index E) down before tightening screws (Index C).

**Equalize All Heads:**

All stitching heads on the Model P stitcher are set at the factory for the same amount of wire draw and compression so that all the stitches contain the same amount of wire and all the legs strike their clinchers at the same time. If no additional heads are added to the stitcher, it can now be adjusted for the required stitch leg length and compression for the job at hand. If additional heads are installed, it will be necessary to equalize them with the original heads before adjusting for compression. The length of the legs of stitches formed by these newly added heads must be equal to, and of the same length, as those formed by the original heads. Set work thickness adjusting handle to far left (minimum) and adjust the face plate of each new head as described on page 6, I. To adjust for wire draw and compression of all heads simultaneously, see II.

**IMPORTANT**

If for some reason the swivel operating cam (Index H, Figure 7) was removed from the head, see CAUTION note in Figure 29, page 23 before re-assembling and operating stitcher under power.

7

**RECOMMENDED SPARE PARTS**

Like any equipment that has moving parts, certain parts of your stitcher will be subjected to more wear than others and require replacement. The following listing includes all the parts required for minimum maintenance and good operation of your Champion stitching machine.

PART NAME	QUANTITY
Wire Cutters	2
Grip	1
Grip Spring	1
Driver	1
Clincher	1 set
Tension Roll Clip	2
Swivel	1

**CAUTION**

**NEVER OPERATE THE STITCHER  
WITHOUT WORK UNDER THE HEAD!**

## Section 2



### OPERATION

After having properly installed and set up the machine, it is now ready for stitching. It is recommended that each operator be instructed as to correct operating procedure and normal adjustments necessary for varying work conditions.

#### Operating Instructions

#### WARNING

Prevent accidents by following these rules:

1. Do not put your hands near area to be stitched when machine is operating.
2. Turn the motor off when the stitcher is not in use.

Turn ON the power and place the work material over the clinchers. Press down on the foot pedal (or electric trip) to engage the clutch. The machine will continue to stitch as long as the foot pedal (or electric trip) is depressed. Stitchers equipped with an electric trip have sufficient cord so that operator can place the trip in a convenient location for comfortable operation.

#### CAUTION

AVOID DAMAGE TO YOUR STITCHER BY FOLLOWING THESE RULES:

1. Never operate your stitcher with wire feeding unless you have work material between the clincher and formers.
2. Do not drive one stitch on top of another.

## Section 3

### MAINTENANCE TROUBLE SHOOTING ADJUSTMENTS

#### General

Every Champion Model stitcher has a friction-type head which depends on smooth sliding friction and proper timing to function correctly. Preventive maintenance will go far to insure trouble-free operation. Avoid production down time by keeping your stitcher in top working condition at all times.

#### Cleaning and oiling.

The stitcher head on your machine must be kept clean and lightly oiled. Excessive oil and dirt will cause the head to function improperly. The head should be cleaned periodically by dipping it in a grease and oil solvent and drying it with an air blast. Then oil lightly as described on Page 3. To keep the swivel operating properly, wash it in a grease and oil solvent and lubricate with a light machine oil. This should eliminate most difficulties.

#### CAUTION

MAKE ALL ADJUSTMENTS WITH THE POWER OFF AND THE STITCHING HEAD IN NEUTRAL POSITION! (Fig. 9)

In neutral position, the wire grip assembly (Index A) is stopped at the top of the slot in the face plate.

#### Adjustments: (Figure 10)

Best stitching performance will be assured if all adjustments are made so that you get the following results:

1. Good cut-off
2. Uniform wire draw
3. Equal leg length
4. Proper clincher alignment
5. Sufficient compression

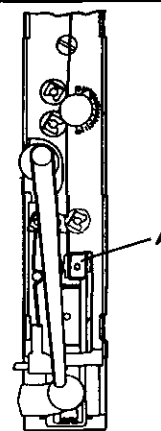


Figure 9



**HERE'S HOW A PERFECT STITCH LOOKS**

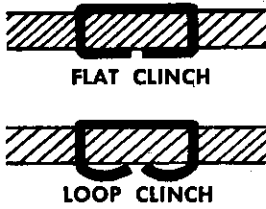
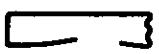

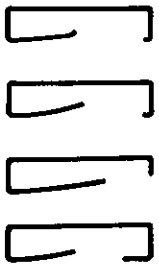
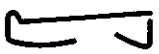
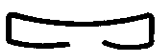
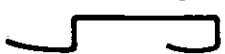





Figure 10

Should stitches appear in any form other than illustrated, one or more kinds of mechanical trouble may have caused the malformation. These possible causes and remedies are given for each kind of mechanical trouble and are listed under each section. The remedies are indexed to the Adjustments Section which gives more detailed information about your stitcher, the mechanical trouble that may occur and suggested remedies. Unless you recognize the correct cause, check each possible cause given.

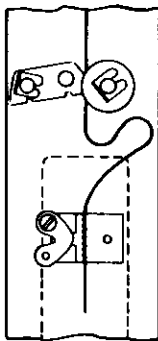
TROUBLE	POSSIBLE CAUSE	REMEDY
<b>A. Defective Stitches</b>		
1. One or both legs buckled  <small>NOTE: Since buckled legs are often concealed in the work and may appear the same as a short leg, always remove two or more stitches to see which condition is occurring.</small> 	1. Clincher is worn or improperly aligned 2. Insufficient compression 3. Unequal leg length 4. Burred stitch leg 5. Incorrect wire size 6. Worn bender bars	"A, B", page 12-13 "C", page 13 See "To Equalize Both Legs of Stitch" page 7 "J", page 16 "L", page 17 "D", page 14
2. Wrinkled crown 3. Length of one leg varies 	1. Leg lengths not adjusted properly 2. Gripper is worn or dirty 3. Grip release slide is worn 4. Excessive tension on coil holder friction 5. Broken wire guide spring (Index A, figure 2) 6. Excessive tension on wire straightener 7. Worn driver bar 8. Worn tension pawl or weak tension pawl spring	See "To Equalize Both Legs of Stitch" page 7 "I", page 16 "T", page 16 "N", page 18 page 4 "O", page 18 "F", page 15 "V", page 20
4. Corner of crown distorted or fractured 	1. Excessive compression 2. Broken driver end 3. Worn bender bars 4. Clincher improperly aligned or worn 5. Incorrect wire size	"C", page 13 "G", page 15 "D", page 14 "A, B", page 12-13 "L", page 17
5. Stitch crown not flat and legs not bent back into work 	1. Insufficient compression	"C", page 13
6. One or both legs turn out 	1. Clincher improperly aligned 2. Dull cutters	"B", page 13 "J", page 16
7. Flat piece of wire 	1. Swivel is dirty 2. Improperly adjusted lower wire straightener 3. Broken or worn swivel 4. Improperly aligned swivel	"M", page 17 "O", page 18 "M", page 17 "M", page 17

Adjustments

TROUBLE	POSSIBLE CAUSE	REMEDY
<p>8. Stitches come out in pieces</p> 	<ol style="list-style-type: none"> <li>1. Improperly aligned swivel</li> <li>2. Weak swivel operating spring</li> <li>3. Improperly adjusted upper wire straightener</li> <li>4. Incorrect wire size</li> <li>5. Wire jammed in bender bar grooves</li> </ol>	<p>"M", page 17                      "M", page 17                      "O", page 18                      "L", page 17                      "D,G", page 14 -15</p>
<p>9. Both stitch legs are either too long or too short</p> 	<p>Face plate not adjusted properly</p>	<p>"C", page 13</p>

**B. Wire Buckles**

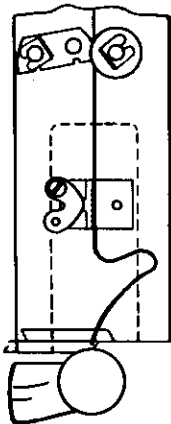
1. Wire buckle above the grip and below the tension pawl



1. Worn driver bar
2. Worn bender bar latch
3. Worn or broken bender bar friction plug and/or spring

"F", page 15  
 "H", page 16  
 "E", page 14

2. Wire buckle above the wire cutters and below the grip



1. Improperly aligned swivel
2. Worn or broken wire cutters
3. Burrs on swivel
4. Improperly adjusted lower wire straightener
5. Worn or broken wire cutter operating slide
6. Wire cutter slot in face plate worn

"M", page 17  
 "J", page 16  
 "M", page 17  
 "O", page 18  
 "K", page 17  
 "J", page 16

**C. Wire Tangles on Coil Holder**

Coil holder friction improperly adjusted

"N", page 18

10



TROUBLE	POSSIBLE CAUSE	REMEDY
<b>D. Clicking Noise</b>		
	<p style="text-align: center;"><b>NOTE</b></p> <p>Always drive one stitch under power since clicking noise will normally occur when motor is turned on after machine has been turned over by hand</p>	
	<ol style="list-style-type: none"> <li>1. Broken clutch pin</li> <li>2. Broken clutch pin spring</li> <li>3. Worn drive pins</li> <li>4. Brake is improperly adjusted</li> </ol>	<p>"R", page 19  "R", page 19  "Q", page 18-19  "S", page 19</p>
<b>E. Rapid wear of V-belt</b>		
	<ol style="list-style-type: none"> <li>1. Improper tension</li> <li>2. Motor pulley improperly aligned with main drive wheel</li> <li>3. Oil on V-belt</li> </ol>	<p>"T", page 20  "U", page 20  "U", page 20</p>
<b>F. Motor Hums or Grinds</b>		
	<p>Check to see if motor specifications are the same as your power supply</p>	
<b>G. Stitcher Repeats Without Pressure on the Foot Pedal</b>		
	<ol style="list-style-type: none"> <li>1. Brake is too loose</li> <li>2. Excessive oil on clutch hub</li> <li>3. Broken clutch pin</li> <li>4. Broken clutch throw-out</li> <li>5. Main drive wheel is frozen on drive shaft</li> </ol>	<p>"S", page 19  "R", page 19  "R", page 19  "R", page 19  "Q", page 18-19</p>
<b>H. Machine Won't Stitch When Foot Pedal Is Pressed As Far As Possible</b>		
	<ol style="list-style-type: none"> <li>1. Defective micro-switch or electric trip</li> <li>2. Loose wire connection on micro-switch or electric trip</li> <li>3. Defective solenoid</li> <li>4. Worn drive pins</li> <li>5. Worn, broken or binding clutch pin or spring</li> </ol>	<p>"U", page 20  "U", page 20  "U", page 20  "Q", page 18-19  "R", page 19</p>

Adjustments

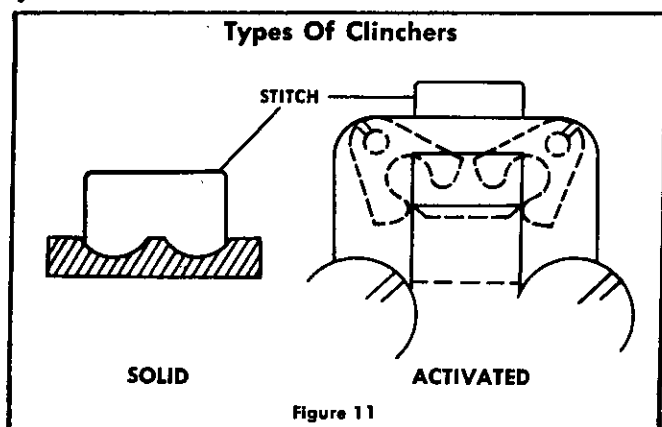


Figure 11

**CAUTION**  
TURN MOTOR OFF BEFORE MAKING ANY ADJUSTMENTS

**A. Clincher (Figure 11)**

The purpose of the clincher is to turn the legs of the stitch back after they have penetrated the work material. There are two types of clinchers used:

1. Solid (stationary) Type—makes a loop clinch. (Only on Models 450A, 450T, K)
2. Activated (moving) Type—makes a flat clinch.

With the Solid (stationary) Type clincher, the legs of the stitch must strike the clincher at the same time and with equal spacing from the outside edges of the grooves. The grooves in the clincher should be smooth. Any interference (particularly worn or pitted grooves), which change the original radii, will cause the stitch legs to buckle and/or the corners of the crown to fracture.

With the Activated (moving) Type clincher, the stitch legs must enter the clincher opening at the same time and with equal spacing from each side. When the stitch legs have fully penetrated the work material, the moving clinchers are raised to bend the legs in towards each other and up flat against the work. The clincher points must bend both legs of the stitch against the work with the same force. Clincher points must always move freely and not bind. Dirt, wire chips, etc., will cause the points to bind.

The clincher points are in a retracted position in the clincher box until the stitch legs penetrate the work material. After the legs penetrate, the clincher points move upward to give a neat, flat clinch against the bottom surface of the work material. If the clincher points remain in the up position, the legs of the next stitch cannot penetrate the work material, causing the stitch legs to buckle and/or the corners of the crown to fracture. Examine the clincher points, clincher slide and clincher cam roller shaft for possible binding. Clean and oil.

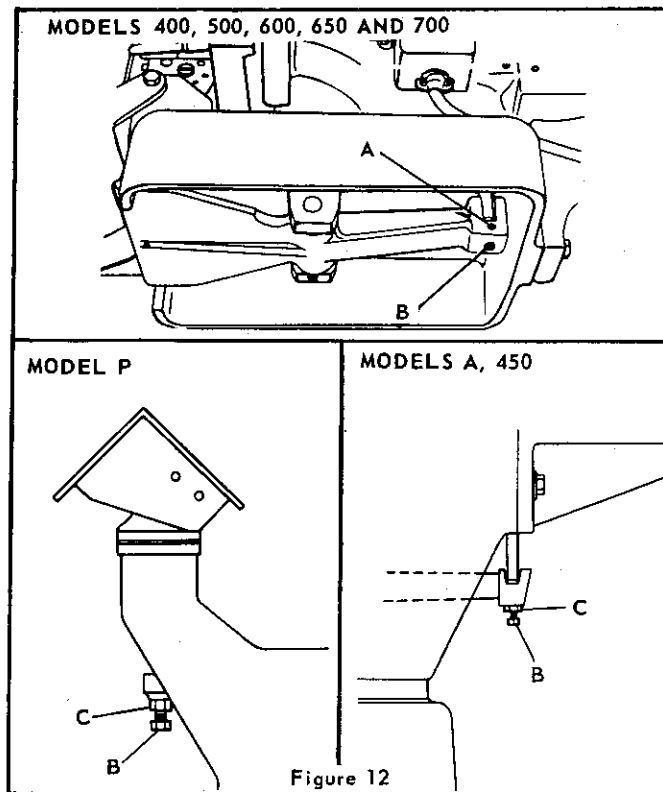


Figure 12

If clincher points rise too high, they fracture the stitch legs and/or mar the work. If the points do not rise high enough, the legs will not clinch flat. Adjust the height of the clincher points.

**To adjust clincher height: (Figure 12)**

1. Loosen set screw (Index A), or jam nut (Index C).
2. Turn adjusting screw (Index B) clockwise to raise clinchers, counterclockwise to lower clinchers.
3. Tighten set screw, or jam nut.

If the clinching surface is worn or the clincher points are broken, the stitch legs will not clinch and/or be deformed. Reverse or replace the clincher points.

**To reverse or replace the clincher points: (Figure 13)**

1. Remove the screw (Index A).
2. Lower the clincher slide (Index B).
3. Raise the clincher and lift out (Index C).
4. Reverse or replace the clincher points.
5. When re-assembling, push the clincher down so that the top lip of the clincher slide will engage the center of the clincher.

The proper alignment of either type of clincher under the formers is one of the most critical adjustments on the stitcher. Therefore, extreme care should be taken to align

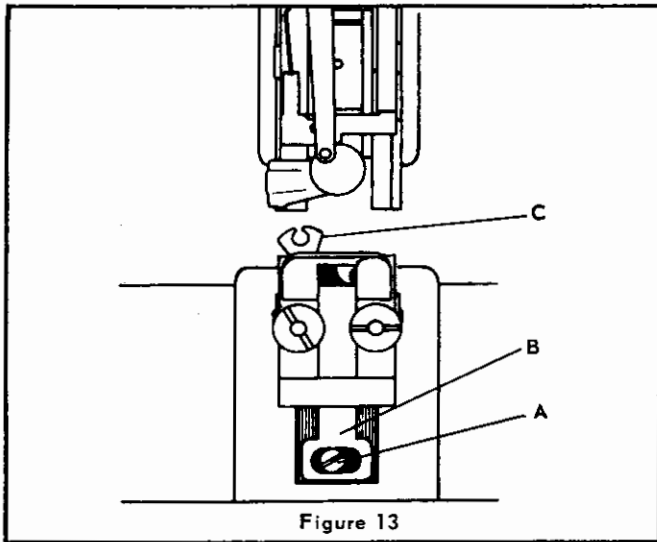


Figure 13

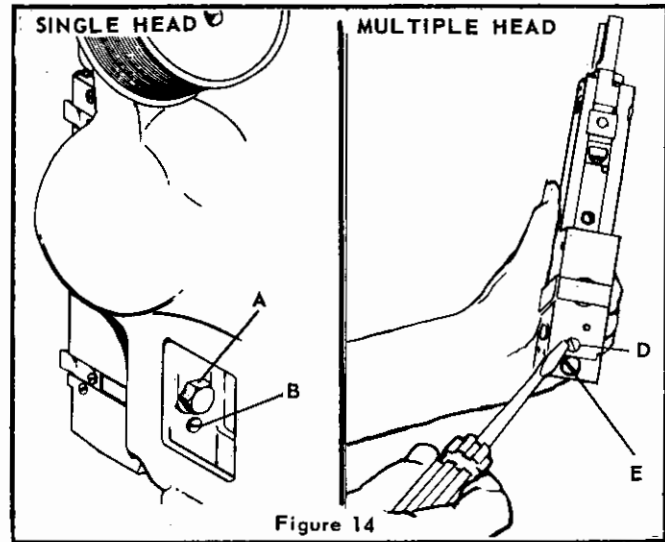


Figure 14

the clincher so that both legs of the stitch strike the clincher at the same time with equal spacing from the outside edges of the grooves (See Figure 11). Also, the clincher must be aligned with the bender bar grooves of the head from front to rear so that the legs enter the clincher at the widest section of the clincher grooves.

If the clincher is out of alignment, any of the following troubles may develop:

1. Stitch legs buckle.
2. Wrinkled stitch crown.
3. Corners become distorted or fracture.
4. One leg turns outward.

**B. Head/Clincher Alignment (Figure 14)**

To test alignment: Drive several stitches into a section of material identical to that which is to be stitched. The clinched legs should be identical and aligned with each other. If the legs are not in alignment, make one of the following adjustments:

**1. To adjust for front-to-rear alignment:**

**(Single head stitchers)**

- a. Step on the foot pedal, with the power OFF, and turn the drive wheel by hand until legs of the stitch appear just below the bender bars to determine if the head should be moved to the front or rear.
- b. Loosen the bonnet clamp screw (Index A).
- c. Turn the head aligning screw (Index B) clockwise to move the head forward; counterclockwise to move the head back.
- d. Tighten the bonnet clamp screw.

**(Multiple head stitchers)**

- a. Step on the foot pedal, with the power OFF, and turn the drive wheel by hand until legs of the stitch

appear just below the bender bars to determine if the heads should be moved to the front or rear.

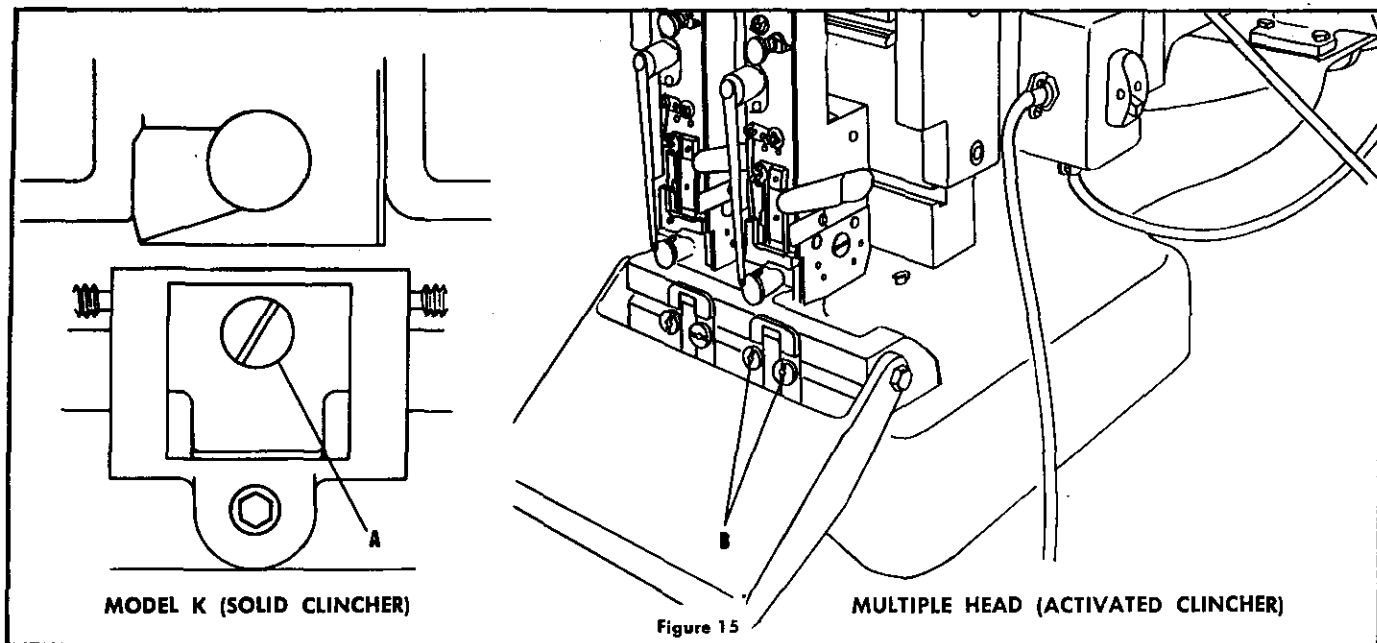
- b. Lift the clamp bar and remove head.
- c. Hold head as shown. Turn adjusting screw (Index D) clockwise to move head back; counterclockwise to move head forward.
- d. Replace head.
- e. Repeat for each head.

**2. To adjust for side-to-side alignment: (Figure 15)**

- a. Step on the foot pedal, with the power OFF, and turn the drive wheel by hand until legs of the stitch appear just below the bender bars to determine how far the heads or clinchers should be moved to the side.
- b. Loosen clincher clamp screw (Index A) or clincher plate binder nut (Index B).
- c. Move clincher to left or right as required.
- d. Tighten clamp screw or binder nut.

**C. Insufficient Or Excessive Compression**

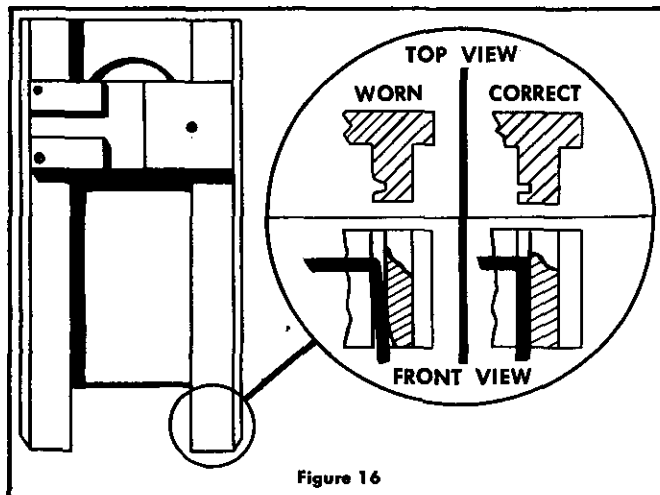
Proper compression of work material between the clincher and the bender bars is necessary so that the stitch penetrates the work material and clinches correctly. To test for compression, drive several stitches into sample work material. With proper compression, stitches hold the work together firmly and the clinched legs do not overlap. In the following instances, either one or all of the conditions may exist: with insufficient compression, stitch legs are buckled, crown is wrinkled or above the work surface; with excessive compression, stitch legs overlap, crown of the stitch is fractured and the work is mutilated.



The method for obtaining proper wire draw and compression is detailed in the Installation Section on Page 6 under the heading, "Changing For Work Thickness."

#### D. Bender Bar (Figure 16)

The bender bar bends the wire over the swivel and forms it into an unclined stitch. The legs of the stitch are guided towards the work material by the bender bar grooves. The legs of an unclined stitch should be perpendicular to the crown. When the bender bar grooves become worn, the legs tend to flare out (Figure 16) as they emerge from the grooves. This causes the legs to strike the clincher improperly. As a result, one or both legs will crumple and a broken driver bar or a broken bender bar can result. If the lower end of the bender bar groove becomes chipped, it will not support the wire and may cause the stitch to break at the crown.



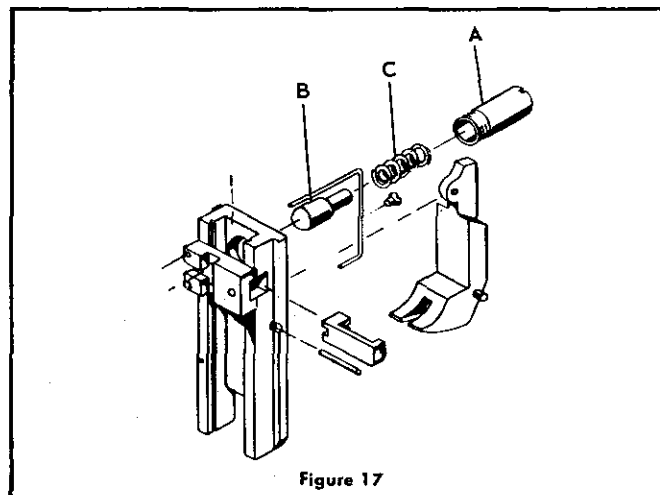
Replace the bender bar assembly. (See Section E or Figure 17.) Other bender bar functions are related to wire cutting (Section J), and driving (Section G).

#### E. Bender Bar Friction Plug And/Or Spring (Fig. 17)

Two parts furnish pressure to coordinate movement of driver bar and bender bar. If pressure is insufficient, proper timing is not maintained for the action of the grip. As a result, wire feeds backwards. Replace the plug and/or spring.

To replace bender bar friction plug and/or bender bar friction spring:

1. Remove bender bar assembly by following Steps 1 through 19 of "How to Dismantle Head," Page 22.
2. Remove bender bar friction bushing (Index A). Bender bar friction plug (Index B) and spring (Index C).





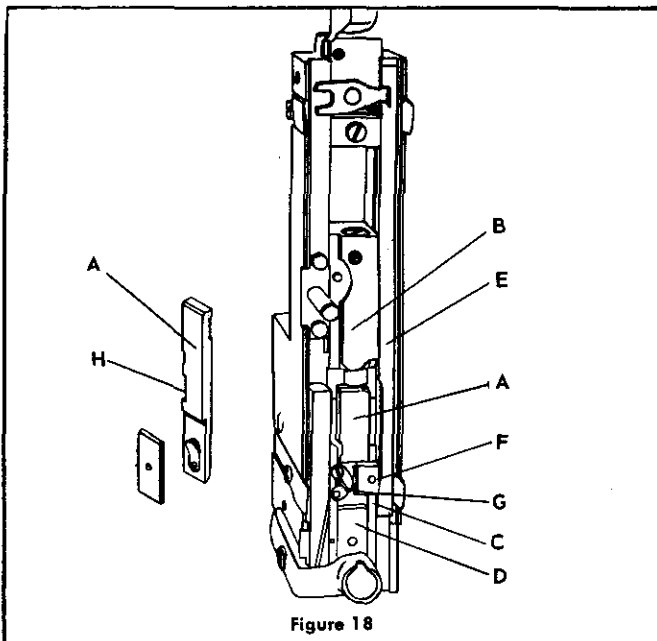


Figure 18

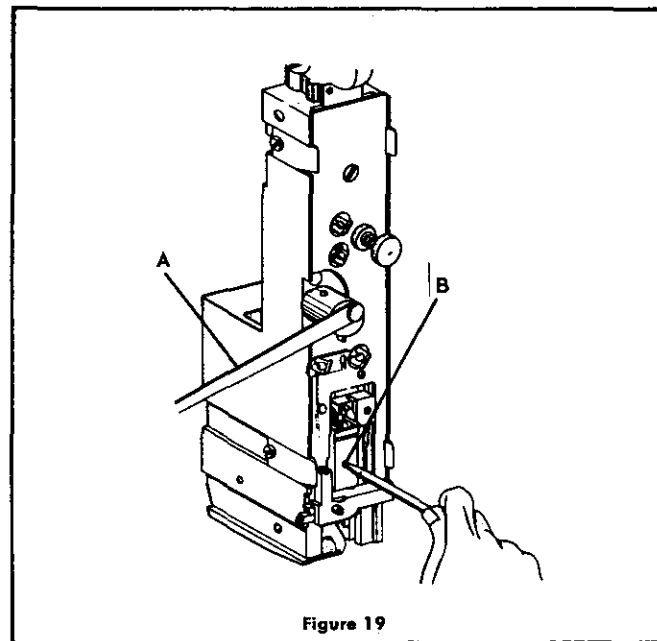


Figure 19

dex C) will be released forward from bender bar assembly.

3. Replace plug and/or spring and re-assemble.

#### F. Driver Bar (Figure 18)

The driver bar (Index A) has several functions:

1. It imparts the downward thrust from the driving slide assembly (Index B) to the bender bar assembly (Index C) and the driver (Index D).
2. It returns these parts to the neutral position on the upstroke.
3. In conjunction with the grip release slide (Index E), it controls the movement of the bender bar latch (Index F) that opens and closes the grip (Index G).

If the notches (Index H) at the top left side of the driver bar become worn, the grip will not remain open on the upstroke. As a result the wire feeds backwards and buckles above the grip and below the tension pawl. Worn notches can also cause uneven wire draw. Replace the driver bar. While driver bar is out for inspection check the driver end retaining spring for proper tension and to make certain there is no dirt lodged behind it.

The notches shown on left side of driver bar play an important part in function of bender bar assembly therefore, corners should be free of dirt and notches not marred.

#### G. Driver

The driver rides within the bender bar grooves as part of the bender bar assembly. As this assembly reaches the lower contact point of the notch in the grip release slide,

the bender bar latch is forced inward, releasing the wire grip and permitting the bender bar assembly to continue downward with the driver riding on top of the formed stitch. When the bender bar is stopped against the work material, the driver continues downward to exert pressure on the crown of the stitch, driving it through the work material.

If the driver is chipped it allows the leg of the stitch to back up into the broken area. This causes the corner of the crown to fracture or a "spike" section to protrude above the crown. A chipped driver is usually the result of driving a stitch on top of another stitch. A worn driver often causes deformed stitches or fracturing at the corners of the crown. The driver is reversible for longer use.

Occasionally, a stitch is caught behind the driver. This causes improper alignment of the driver. As a result, successive stitches are distorted at the crown. Remove the driver and clean the bottom portion of the driver bar.

#### To remove the driver: (Figure 19)

1. Cut the wire at the bracket and pull the loose end out.
2. Swing the swivel operating spring (Index A) to the left.
3. Remove the swivel.
4. Insert a pointed object into the hole (Index B) on the driver and press in on the high end of the spring which is located behind it.
5. Slide the driver down and out of the head.
6. Clean, reverse or replace the driver.
7. Re-assemble.

Adjustments

**H. Bender Bar Latch**

The bender bar latch opens and closes the grip and is actuated by the grip release slide and driver bar. If the contact points of the latch become worn, timing of the grip is erratic and uneven wire feed results. A dirty latch will decrease pressure of the grip on the wire. This causes wire slippage. Clean or replace the latch.

**I. Grip, Grip Release Slide And Face Plate (Figure 20)**

The grip spring (Index A) exerts pressure on the bender bar latch (Index B) to close the grip (Index C) at the start of the down stroke. The grip release slide (Index D) actuates the bender bar latch at point X to open the grip after the correct amount of wire has been fed to make a stitch. The serrated teeth on the grip must be sharp or slippage will occur, producing uneven wire draw.

When the face plate (Index E) is adjusted (See "Changing For Work Thickness," Page 6) a pivotal action (at point F) changes the position of the grip release slide. When the face plate is raised, it moves the grip release slide down. The gripper can then remain closed longer on the downstroke, feeding more wire for the stitch. When the face plate is lowered, it moves the grip release slide up. The gripper then will open sooner on the downstroke, feeding less wire for the stitch.

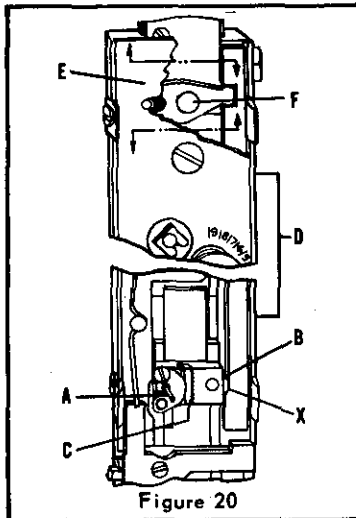


Figure 20

If the grip spring is weak, uneven wire draw will result. Replace the grip spring. If the contact points on the grip release slide and/or the bender bar latch are worn, wire adjustment will not remain accurate.

The face plate stops the bender bar assembly at the top of its stroke and allows the bender bar latch to close the grip. When the face plate is too high, too much of the upstroke has been used before the bender bar hits the face plate. In the remaining portion of the upstroke, the driver bar cannot continue upward enough to release the bender bar latch so that it can close the grip. If the grip does not close, lower the face plate.

**J. Wire Cutters (Figure 21)**

The purpose of the wire cutters is to shear the wire cleanly. There are two wire cutters, upper and lower. The upper wire cutter (Index A) receives wire from the grip through the wire cutter lead-in hole (Index B). It also serves as

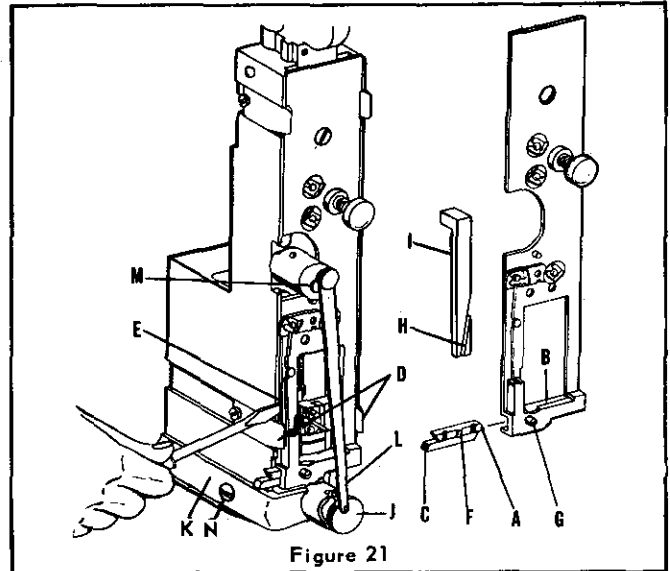


Figure 21

the cut-off die. The lower wire cutter (Index C) is the cutting knife. If the cutter breaks, it will cover the lead-in hole. This prevents the wire from feeding. If the cutting surfaces become worn, burrs will result on the end of the wire. This prevents the wire from feeding into the swivel. As a result, the wire buckles between the cutters and the wire grip. Reverse, interchange or replace the wire cutters.

**To Reverse, Interchange or Replace the Wire Cutters:**

1. Loosen both face plate retaining clips (Index D) at bottom of bonnet.
2. Spring the face plate out 1/8" while holding the cutter slide in position (Index E).
3. Slide the cutters out to the left.
4. Reverse, interchange or replace the cutters.

**NOTE:**

When installing the cutters, make sure that (A): lip on upper cutter (Index F) fits into the recess behind the screw (Index G) and (B): that the lip on the bottom cutter fits into the slot (Index H) in the wire cutter operating slide (Index I).

The wire cutter operating slide actuates the lower wire cutter. If the slide is worn or broken, the wire cutter is not actuated. Replace the operating slide. The slot in the lower part of the face plate contains the wire cutters and maintains a close fit for wire shearing. If this slot becomes oversized, the wire will not be cut off. Replace face plate.

**To Replace The Face Plate:  
(See Steps 1 Through 8, Section K)**

**NOTE: (Figure 22)**

The lug (Index C) in the face plate must match the notch (Index D) in the grip release adjusting lever (Index E) or damage to the head may result.

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## MAINTENANCE

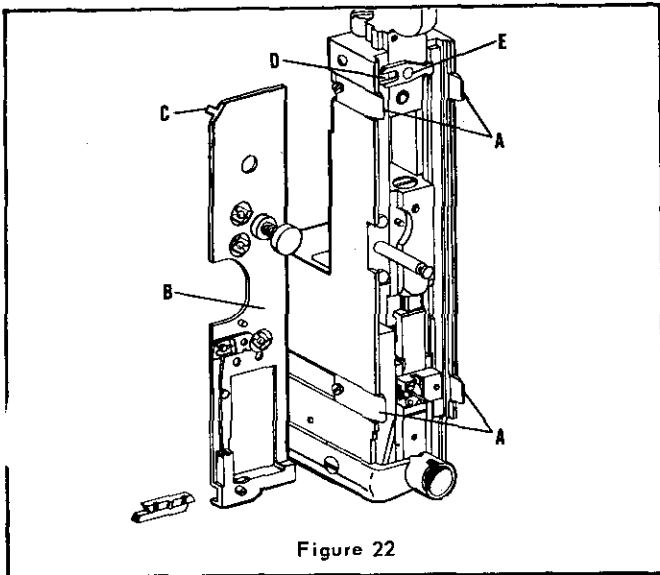


Figure 22

**K. Wire Cutter Operating Slide**

The wire cutter operating slide actuates the lower wire cutter which acts as the cutting knife. If the slide is worn or broken, the wire cutter is not actuated. Replace the operating slide.

**To Replace The Wire Cutter Operating Slide:**

1. Cut the wire at the bracket and pull the loose end out.
2. Remove stitcher head assembly.
3. Lift end of spring (Index L, Figure 21) out of bottom swivel.
4. Swing the spring up to disengage it and lift out.
5. Slip the swivel operating cam (Index M, Figure 21) forward and off the stud.
6. Pull the swivel forward.
7. Loosen the four face plate retaining clips (Index A, Figure 22).
8. Lift the face plate (Index B, Figure 22).
9. Remove the cutter operating slide (Index I, Figure 21).
10. Insert a new cutter operating slide.
11. Re-assemble.

**L. Proper Wire**

Models K, 400, 500, 600, 650, 700 are equipped to use round wire ranging in size from 25 to 27 gauge. Models A, 450, 450A and 450T are equipped to use 25 to 30 gauge round wire. Model P is equipped to use 25 to 28 gauge round wire.

If the wire used is larger than the bender bar grooves were designed for, it will fracture at the stitch corners and come out in pieces. Also, serious damage to the stitcher may result. If the wire used is smaller than the bender bar

grooves were designed for, the legs of the stitch do not fit snugly in the grooves and will tend to buckle when they strike the work material because they are not fully supported.

**M. Swivel (Figure 21)**

The swivel (Index J) (1) receives the wire from the cut-off die, (2) holds the wire while it is being cut, then (3) turns it to a horizontal position, moves it under the bender bar grooves and (4) supports the wire while it is being formed into a "U-shaped" stitch.

The wire lead-in hole of the swivel must be aligned with the wire as it comes through the wire cutters. If the swivel is improperly aligned, the wire hits the swivel and buckles. Adjust upper two wire straighteners until wire slips past swivel. Burrs on the swivel prevent the wire from entering the swivel. This causes wire buckling. Remove the swivel and polish the lead-in radius.

The swivel hook spring exerts pressure on the hook so that the wire is held firmly in the swivel. If the hook is broken or there is not sufficient pressure exerted on the hook, the wire will fall out. To determine if proper pressure is being exerted on the hook, remove the swivel and insert a cut length of wire in the swivel under the hook. Hold swivel between thumb and forefinger. Attempt to jar wire loose by hitting heel of hand on top of table or against other hand. With proper pressure, wire will remain in swivel. With insufficient pressure, wire will fall from swivel. Replace the swivel.

The swivel holder and swivel operating spring are responsible for alignment of the wire beneath the bender bar grooves. The position of the swivel holder determines how far the swivel is pushed forward under the bender bar by the swivel operating spring (Index L). A weak spring will not push the swivel in far enough and with this improper alignment the bender bar will knock the wire from the swivel or will shear the wire into pieces. To secure proper alignment, check the position of the swivel holder and the tension applied by the swivel operating spring. Make any necessary adjustment of the swivel holder or replace the swivel operating spring if weak.

The wire is fed into the swivel and held for forming. If the swivel is dirty, the wire is not gripped securely enough and drops out. Remove and clean the swivel. If the edges over which the wire is formed are sharp, the corners of the stitch crown will fracture. Remove the swivel and polish the edges with a fine emery cloth.

**To Remove, Adjust Or Replace The Swivel Holder:**

1. Swing the swivel operating spring to the left.
2. Remove the swivel.
3. Loosen the swivel holder screw (Index N).
4. Adjust the swivel holder in or out.
5. Tighten the swivel holder screw.
6. Re-assemble.

**Adjustments****N. Coil Holder Friction**

The purpose of the coil holder friction (Index D, Figure 2) is to permit the wire to be unwound without tangling. A smooth flow of wire is essential for good stitching. If the friction is too loose, the coil will continue to rotate after the machine stops. This causes the wire to tangle. If the friction is too tight, a full length of wire will not be fed for each stitch. This causes variation in leg length. Adjust the pressure on the coil holder friction by loosening the wire coil stud collar (Index C, Figure 2) then applying or releasing pressure on the coil holder friction and re-tightening the collar.

Generally, the weight of a full coil of wire creates sufficient friction and no added pressure is needed. If the coil tends to over-ride and peel off more wire than required, a slight adjustment of the friction is necessary.

**O. Wire Straighteners (Figure 23)**

All coils of stitching wire have a certain amount of bundle curve. The purpose of a wire straightener is to remove this curve. There is both an upper wire straightener (Index A) and a lower wire straightener (Index B) on all Champion Model Stitchers.

The upper wire straightener should feed wire parallel to the face plate. This insures that the wire which enters the swivel is straight and will be aligned with the grooves in the bender bar. If the wire is not parallel to the face plate, the wire is sheared in the swivel as the bender bar descends. Adjust the upper wire straightener.

The lower wire straightener curves the wire to the right so that it enters the swivel (Index C). If the wire is not curved enough it hits the swivel and buckles. After the wire has been cut, if there is not enough curve in the wire, it will fall out of the swivel. Adjust the lower wire straightener so that the wire curves as shown in Figure 23. Improper straightening of the wire can also cause the stitch legs to buckle or turn out because they strike the clincher improperly. Excessive tension on the wire straighteners prevents the grip (Index D) from feeding the wire smoothly. This causes variation in leg length.

**NOTE:**

Check the wire straighteners when changing coils or wire sizes to insure the accurate and proper feeding of wire.

**P. Supporter**

The supporter furnishes the necessary support to the inside surface of the stitch so that it does not buckle as it is being driven into the work material. A lack of (or insufficient) support will often cause the stitch crown to wrinkle or the legs of the stitch to buckle. Tighten the supporter spring bushing (Index E, Figure 14) or replace the spring.

If the corners on the top surface of the supporter are too sharp, or nicked, the corners of the stitch crown will fracture. To inspect the supporter:

1. Depress the foot trip and turn the flywheel by hand, until the bender bars touch the work material and the legs of the stitch are about to leave the bender bar

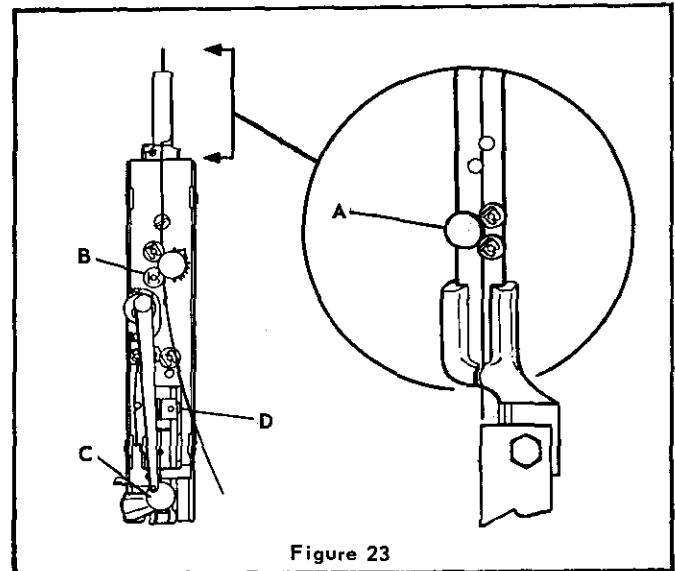


Figure 23

grooves. At this point, the supporter should be touching the underside of the crown. (For models with electric trip, stitcher cord must be connected to power source to energize the solenoid.)

**DO NOT TURN THE MOTOR ON.**

2. Continue turning the flywheel until the stitch is completely driven. Although the supporter is gradually retracted by the driver, it should remain under the crown of the stitch until the last instant before the crown touches the work material.

**Q. Drive Wheel**

The drive wheel rotates continuously on the drive shaft. On models with the bolt-type clutch, when the foot treadle is depressed, the clutch plate releases the clutch pin so that it can engage with the drive pins in the drive wheel. On the Model A, which has a friction-type clutch, the clutch cone is released to make contact with, and grip, the cone-shaped section inside the hub of the drive wheel. In both cases, the drive shaft rotates and activates the stitcher head.

If the stitcher repeats after pressure has been removed from the foot treadle, which withdraws the clutch pin from contact with the drive pins, the drive wheel has seized on the drive shaft. Lack of oil reaching the shaft causes this condition.

**To Correct:**

1. After removing guard, cover plate and V-belt from belt-driven stitchers, remove drive shaft screw from the end of the drive shaft and pull drive wheel from shaft. On models with geared-head motors, the drive wheel can be pulled from the shaft after the motor has been removed. To remove motor, take off the 4 mounting screws and lift motor from the motor support bracket.

If drive wheel has seized severely and does not come off shaft easily, use wheel puller or place wooden block next to hub and pound wheel off with hammer.

2. If end of drive shaft is not scored too severely, clean the end of the drive shaft and the inside of the drive wheel bearing by polishing with a fine emery cloth. Make certain that oil holes and oil grooves are open and free from dirt. If shaft and drive wheel are so deeply scored and damaged that they do not fit properly, they should be replaced.
3. If the stitcher does not begin stitching when pressure is applied on the foot treadle, the drive pins on the drive wheel are worn, chipped or broken and the clutch pin cannot engage with the drive wheel. The drive pins can be used a second time by giving them a quarter turn. If they have already been turned, they should be replaced with new drive pins.

**To Replace Or Turn The Drive Pins:**

After removing drive wheel as described previously,

1. Remove the hand wheel screws and the hand wheel.
2. Insert a drift pin in the holes and knock the drive pins out. **A rather heavy blow is necessary to knock the pins out.**
3. Re-insert drive pins. Make sure that the tops are flush with the top surface of the main drive wheel hub.

**R. Clutch**

Its purpose is to furnish a positive link between the drive wheel and the drive shaft. Models K, P, 400, 500, 600, 650, 700 are equipped with a spring-actuated, bolt-type clutch. Models A, 450, 450A, 450T are equipped with a friction-type clutch.

**Bolt-Type**

The clutch pin will not engage with the clutch face on the drive wheel, if (1) the clutch pin binds in the clutch plate stud collar, (2) the clutch spring breaks, (3) the end of the clutch pin or the clutch face becomes worn. A clicking sound will result or the stitcher will fail to operate when the foot switch is depressed. When pressure is removed from the clutch treadle, the clutch throw-out is pushed upward into a groove in the clutch pin. This action disengages the pin from the clutch face. If the pin breaks, it is always the end which engages the clutch face. The clutch throw-out retracts the main body of the pin, but the broken end often remains in contact with the clutch face. This causes the stitcher to stitch continuously. If the clutch pin is not retracted completely, a clicking noise will result. This can be caused by a worn groove in the clutch pin or a worn clutch throw-out. Wear on the groove in the clutch pin and clutch throw-out will be at the point where they contact each other. The clutch face and the end of the clutch bolt wear at the point they engage each other.

**To Determine Whether The Clutch Pin Or Spring Needs To Be Replaced:**

1. Remove drive wheel (as described in Section Q).
2. While holding your hand in front of the clutch hub opening, step on the foot treadle and catch the clutch pin as it springs forward.
3. While holding clutch plate down, push in new spring or clutch pin.

4. Allow clutch plate to return to normal position while holding clutch pin in place.

**Friction-Type**

As pressure is applied on the foot treadle, the clutch release rod is pulled down, permitting the clutch to move forward. The clutch cone seats itself in the cone-shaped section of the drive wheel and is held there by pressure of the clutch spring. The friction which occurs between the clutch cone and the drive wheel causes the drive shaft to rotate, furnishing power to the stitching head. If the clutch spring is broken, the clutch cone will not be released to seat itself in the drive wheel, and the drive shaft will not rotate. If an excess of grease or oil is on the clutch cone, the clutch will slip, resulting in erratic performance.

**S. Brake (Figure 24)**

The brake applies pressure to the shaft assembly so that the stitcher will stop in neutral . . . that point where the wire grip assembly is stopped at the top of the slot in the face plate. If the wire grip assembly starts to descend, the brake is too loose. This could cause the stitcher to repeat. If the wire grip assembly stops before reaching the top of the slot in the face plate, the brake is too tight. Because the clutch pin will not retract fully if the machine is stopped before reaching full neutral position, it may make a clicking noise in the flywheel.

**To adjust brake tension:**

1. Loosen the lock nut (Index A).
2. Tighten the brake screw (Index B) to increase tension; loosen the screw to decrease tension.
3. Tighten the lock nut.

**NOTE:**

Brake surface must be kept free of oil and dirt.

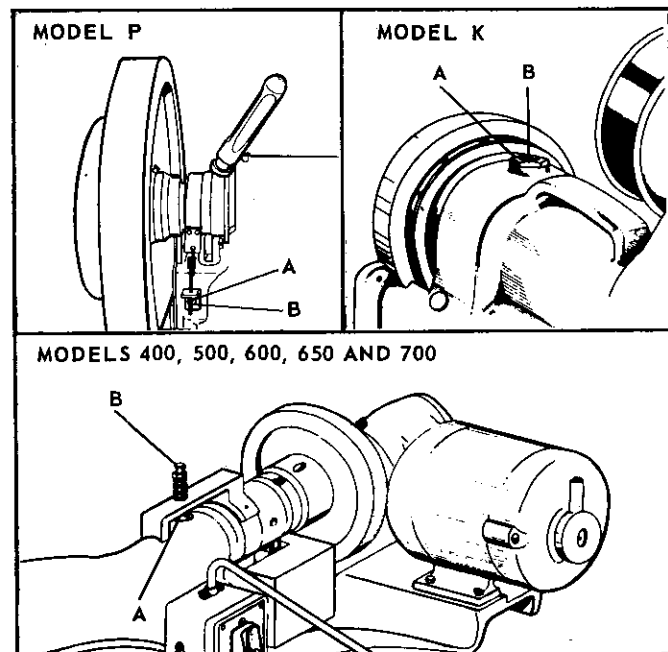


Figure 24

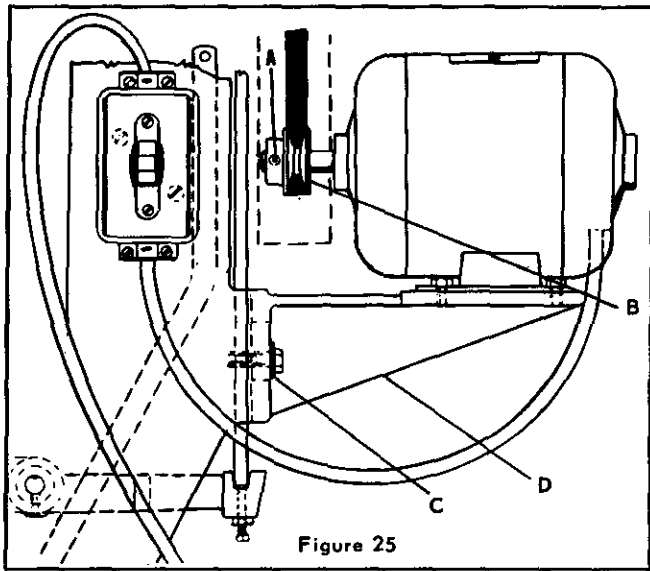


Figure 25

### T. Motor And V-Belt (Figure 25)

The V-belt transmits the power from the motor pulley to the main drive wheel. An improperly adjusted V-belt will wear out rapidly.

If the V-belt is too loose, the stitcher will run slower than normal; if the V-belt is too tight, it will cause excessive wear of the main drive wheel bearing on the drive shaft. A properly adjusted V-belt fits snugly in the grooves of the motor pulley and main drive wheel. These two parts should be centered so that the belt runs in a straight line.

#### To Adjust:

1. Loosen the motor pulley set screw (Index A) and slide the pulley (Index B) on the shaft until it is directly under the main drive wheel.
2. Tighten and lock the motor pulley set screw.

If it is necessary to adjust the tension of the belt, loosen the two screws (Index C) which hold the motor bracket (Index D). The bracket can then be lowered or raised to increase or reduce the tension on the V-belt. This adjustment must be made whenever the V-belt is changed. Since the V-belt contains rubber, make certain that it is kept free of oil which will cause the belt to rot and slip.

### U. Electric Trip (Solenoid)

**Repeat Type**—standard on Models K, 400, 500, 600, 650, 700—energizes the solenoid to cycle the stitcher and permit continuous stitching as long as the foot pedal remains depressed.

**Non-Repeat Type (Figure 26)**—optional on all Models shown above—allows only one stitch to be driven when pedal is depressed. Additional stitches can be made only by continued releasing and depressing of the pedal. The latest type of non-repeat trip is controlled by a pneumatic timing relay that can be set to deliver stitches one at a time or several at a time up to more than 100 stitches, as long as the treadle is kept depressed. This setting is made by turning the adjusting knob on the timer, which can be seen after removing cover.

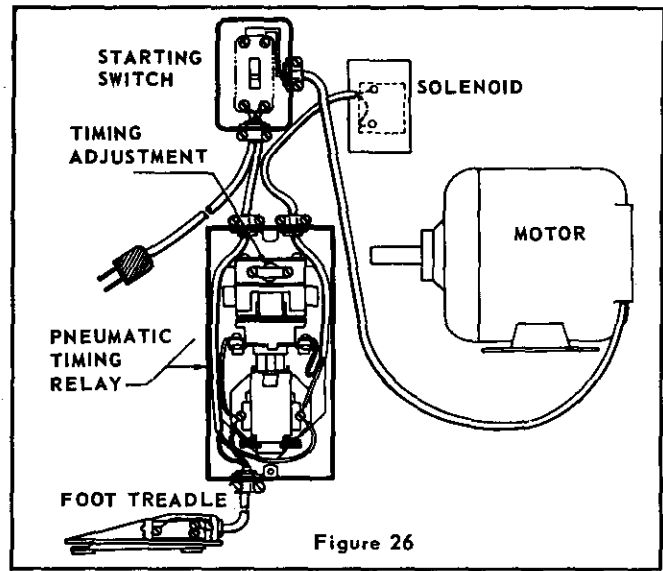


Figure 26

The adjusting knob on the pneumatic timer regulates the flow of air. While air remains in the cylinder its pressure keeps the micro-switch closed, and the stitcher continues to make stitches. When the air has been completely exhausted the switch opens and breaks the circuit to the clutch solenoid. Turning the knob clockwise allows the air to pass through the air vent fast, permitting fewer stitches to be driven than when the knob is turned counterclockwise, which allows slower passage of the air and permits more stitches to be driven.

### V. Tension Pawl (Figure 27)

The tension pawl (Index A) and spring (Index B) apply pressure on the wire to prevent back feed. If the pawl becomes worn or the spring becomes weak, the wire feeds backwards. Reverse or replace the tension pawl and/or spring.

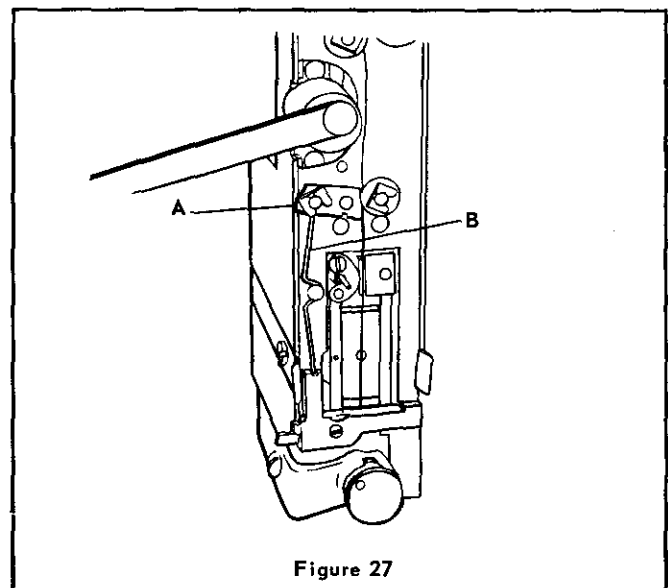


Figure 27



**MAINTENANCE**



**Stitcher Head Assembly**

This table indicates the various stitcher heads available, the crown size of stitches made with these heads, the wire size to be used and the thickness of work which may be handled. All heads of a specific type for the Models shown can, with slight variations (primarily either in the wire guide assembly or wire guide bracket), be interchanged among the Models using that type.

Part No.	Crown Size	Wire Size	Capacity	Used On
<b>BOLT-ON TYPE (See A, page 25)</b>				
CAAA-2001	1/2"	#25 to #30 Rd.	2 sheets to 1/4"	Fits single head Models A, K, 400, 450, 450A, 450T.  When ordering specify Model used on.
CAAA-2001-A	1/2"	20 x 25 21 x 25	2 sheets to 1/4"	
CAAA-2001-B	1/2"	#24 (.023) only	2 sheets to 1/4"	
CAAA-2001-C	1/2"	#24 (.023) only	2 sheets to 1/8"	
CAAA-2001-D	1/2"	20 x 25 21 x 25	2 sheets to 1/8"	
CAAA-2001-E	1/2"	#25 to #30 Rd.	1/8" to 1/4"	
CAAA-2001-R	1/2"	#25 to #30 Rd.	2 sheets to 1/8"	
CAAA-2501-A	3/8"	#25 to #30 Rd.	2 sheets to 1/4"	
CAAA-2501-B	3/8"	20 x 25 21 x 25	2 sheets to 1/4"	
CAAA-2501-R	3/8"	#25 to #30 Rd.	2 sheets to 1/8"	
<b>BOLT-ON TYPE (See B, page 25)</b>				
CTTT-2601-R2	1/2"	#25 to #30 Rd.	2 sheets to 1/4"	Special
<b>CLAMP-ON TYPE (See C, page 25)</b>				
CTTT-2601	1/2"	#25 to #30 Rd.	2 sheets to 1/8"	Fits multiple head Models P, 500, 600, 650 and 700.  When ordering specify Model used on.  For 90° angle mounting, * specify whether it should face to the right or to the left.
CTTT-2601-A	3/8"	#25 to #30 Rd.	2 sheets to 1/8"	
CTTT-2601-B	1/2"	20 x 25 21 x 25	2 sheets to 1/8"	
CTTT-2601-C	1/2"	#25 to #30 Rd.	2 sheets to 1/4"	
CTTT-2601-D*	1/2"	#25 to #30 Rd.	2 sheets to 1/8"	
CTTT-2601-E	3/8"	#25 to #30 Rd.	2 sheets to 1/4"	
CTTT-2601-F	1/2"	20 x 25 21 x 25	2 sheets to 1/4"	
CTTT-2601-G	1/2"	#25 to #30 Rd.	2 sheets to 1/8"	
CTTT-2601-I	3/8"	20 x 25 21 x 25	2 sheets to 1/8"	
CTTT-2601-J*	3/8"	#25 to #30 Rd.	2 sheets to 1/8"	
CTTT-2601-K*	3/8"	#25 to #30 Rd.	2 sheets to 1/8"	
CTTT-2601-L	1/2"	20 x 25 21 x 25	1/8" to 1/4"	
CTTT-2601-N	1/2"	#25 (.022") only	1/8" to 1/4"	
CTTT-2601-O	1/2"	#24 (.023") only	2 sheets to 1/8"	
CTTT-2601-P	3/8"	#22 (.028") only	2 sheets to 1/8"	
CTTT-2601-Q	1/2"	#22 (.028") only	2 sheets to 1/8"	
CTTT-2601-S	1/2"	#25 to #30 Rd.	1/16" to 3/16"	

See pages 26 and 27 for the part numbers of the head (s) originally furnished on your stitcher.

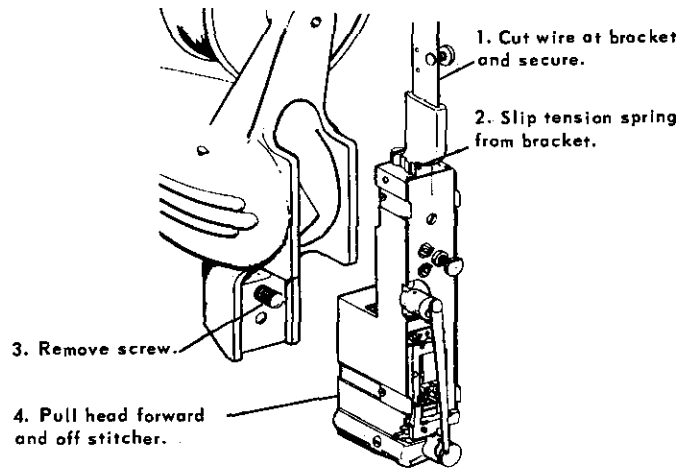
### Removing And Dismantling Stitching Head (Single And Multiple-Head Stitchers)

It is recommended that the entire Stitching Head Assembly be removed every 40 hours and cleaned by dipping the assembled stitching head in a grease solvent, then air drying it. If this does not prove completely satisfactory, dismantle the head and clean the parts individually.

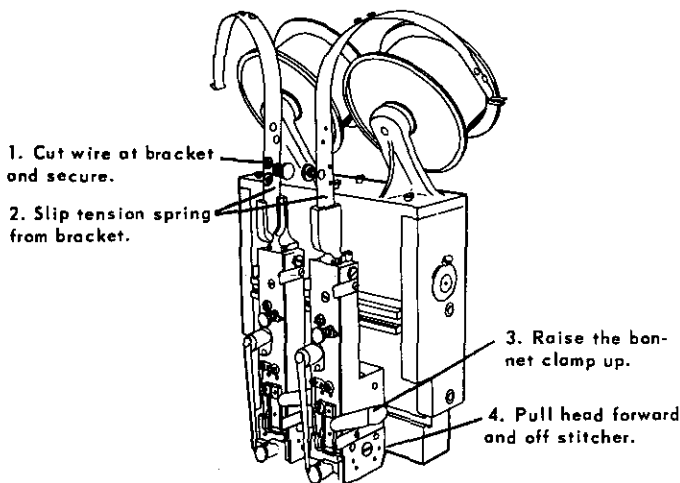
#### CAUTION

As a precautionary measure — when removing the head or heads from any stitching machine make SURE that power to the machine has been turned OFF or disconnected.

#### A—How To Remove From Single-Head Stitcher



#### A—How To Remove From Multiple-Head Stitcher

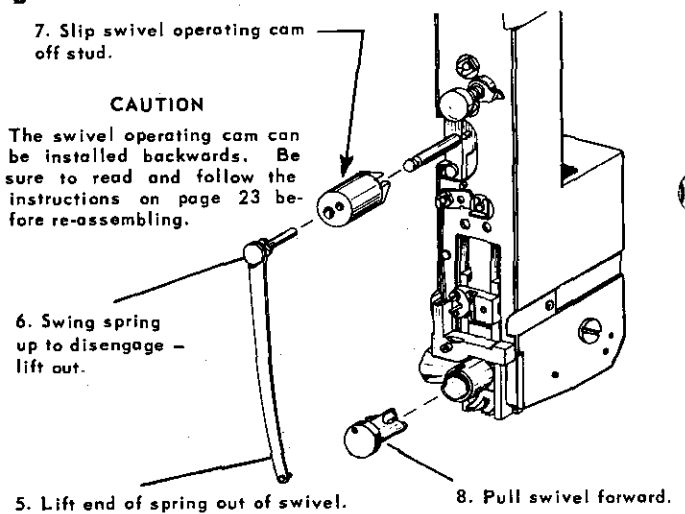


#### B

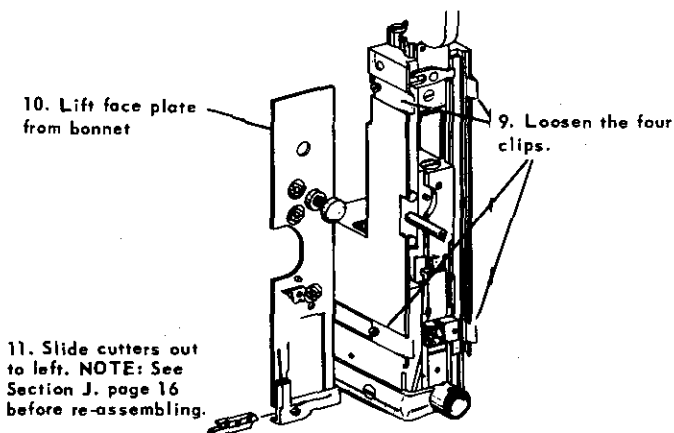
7. Slip swivel operating cam off stud.

#### CAUTION

The swivel operating cam can be installed backwards. Be sure to read and follow the instructions on page 23 before re-assembling.



#### C



#### D

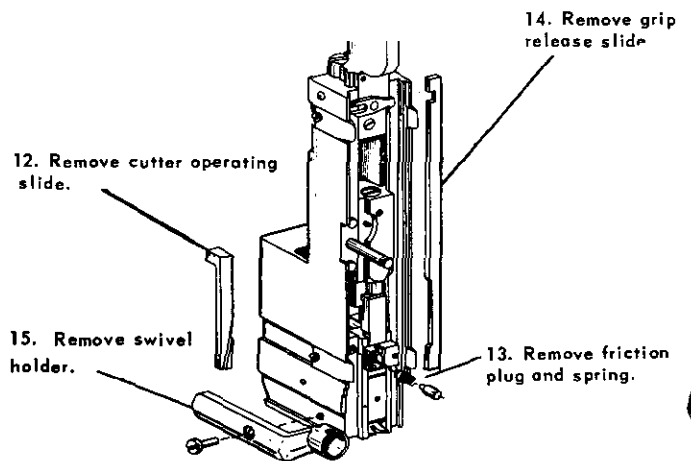


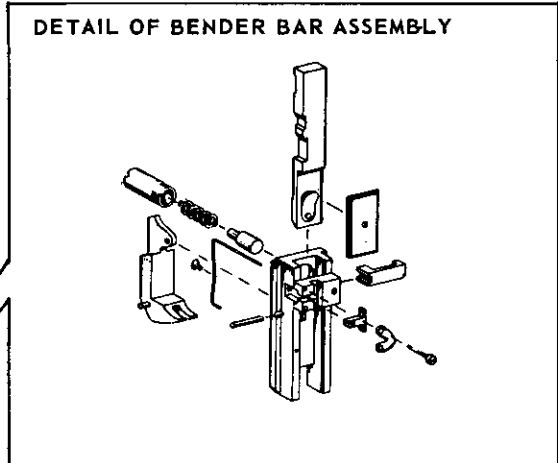
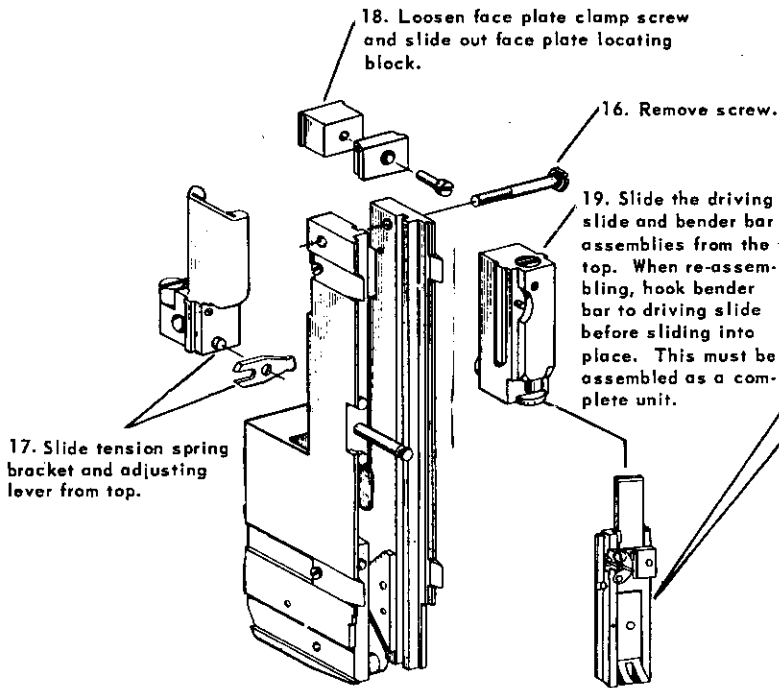
Figure 28

22





E



#### F—How To Install Swivel Operating Cam

#### CAUTION

When re-assembling, make certain that pin (Index A) is visible and is aligned with slot (Index B) of swivel operating cam (Index C). If not assembled in this way, the bonnet casting will crack or break on the next cycle under power. It is recommended that the stitcher be turned over by hand to test that proper re-assembly procedure has been followed.

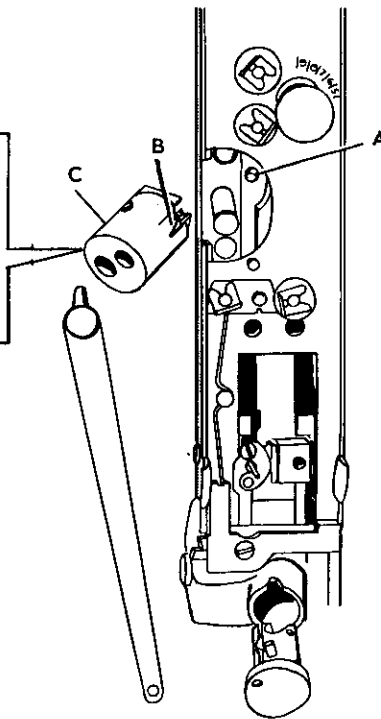



Figure 29



# PARTS LIST

## 4

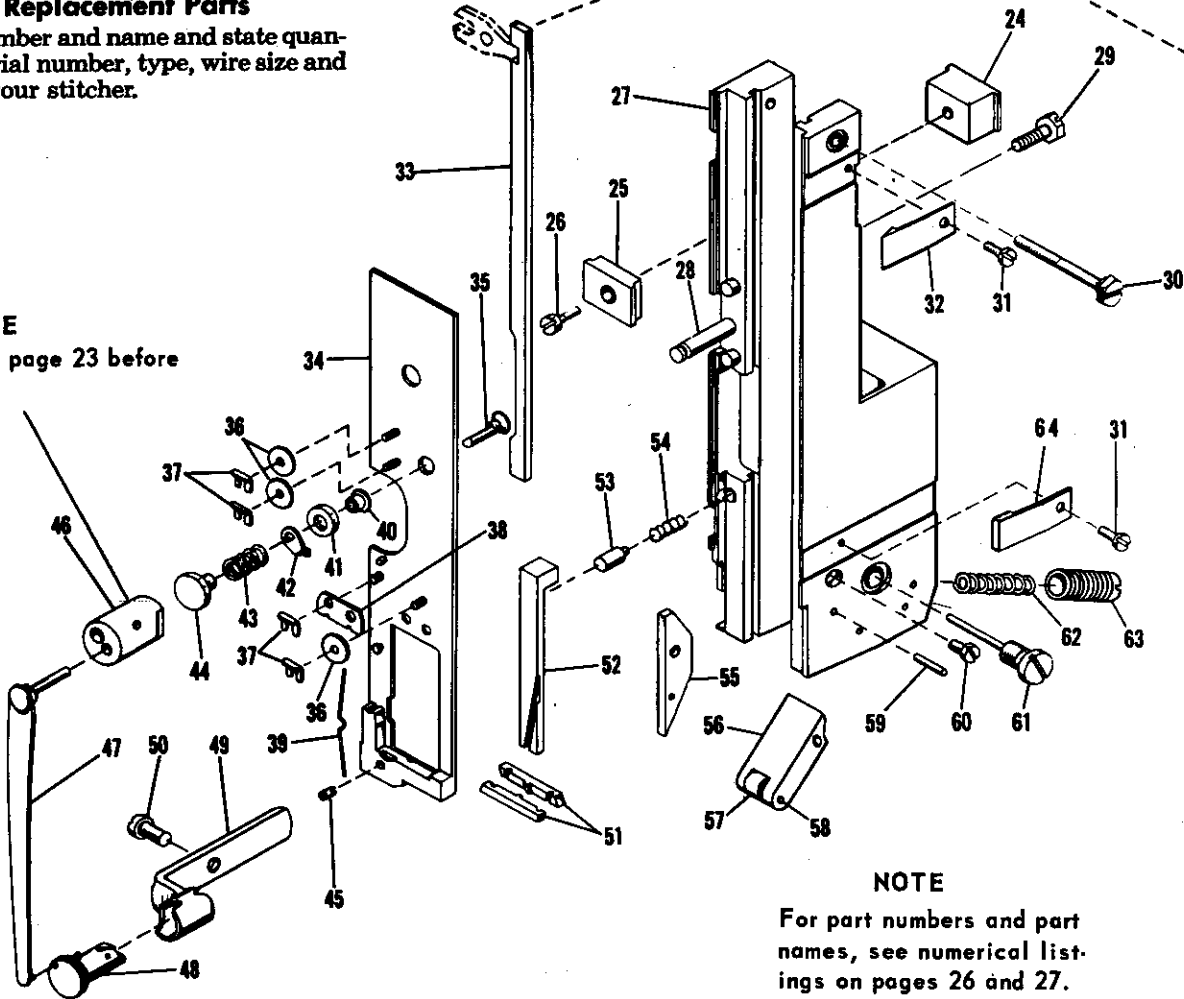
Section

### How To Order Replacement Parts

Order by part number and name and state quantity. Also give serial number, type, wire size and crown width of your stitcher.

**NOTE**

See section F, page 23 before re-assembling.

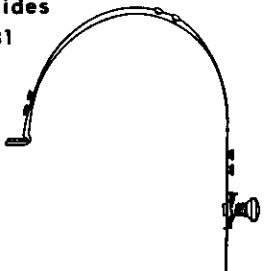


**NOTE**

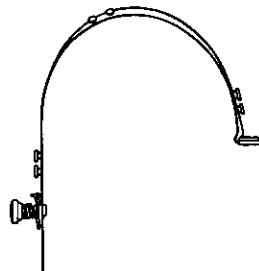
For part numbers and part names, see numerical listings on pages 26 and 27.

Figure 30

**Wire Guides**  
Figure 31



CAAA-2133-L, Used on Models 400, 450, 500, A, K, and Rosback Machines

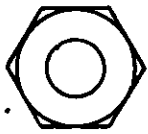


CAAA-2133-R, Used on Model 500 Machines

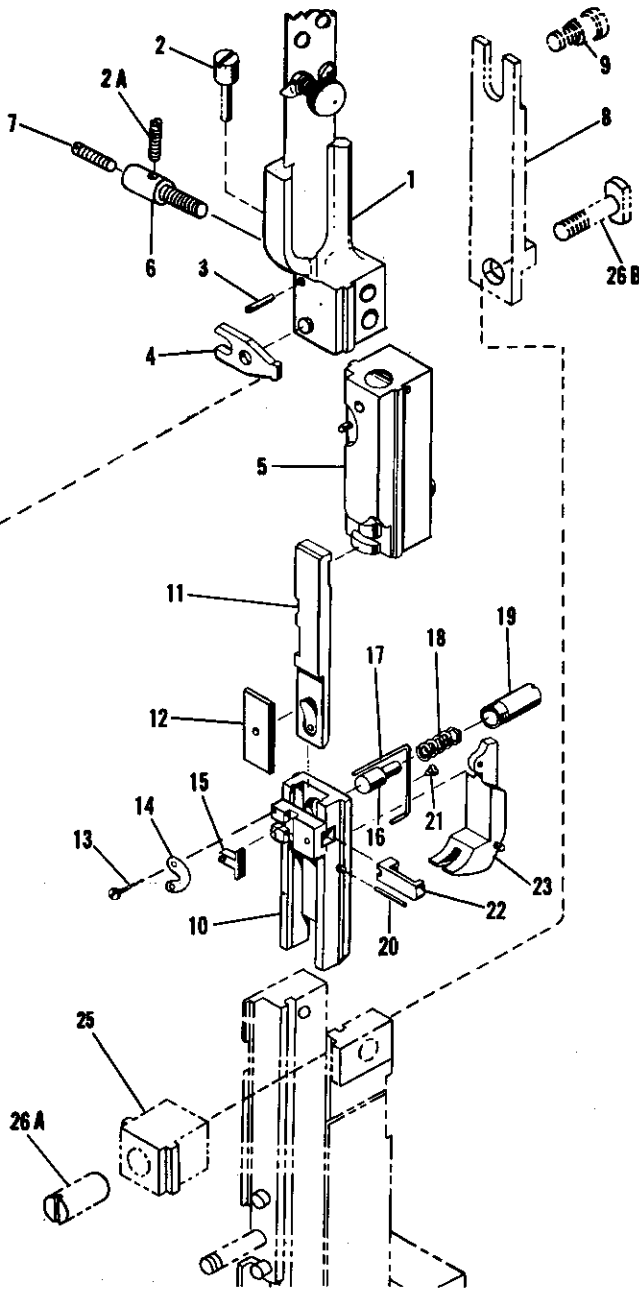


CTTT-2133-A, Used on Models 600, 650, 700 and P Machines

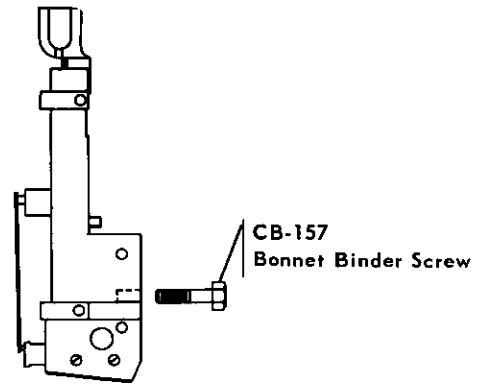
24



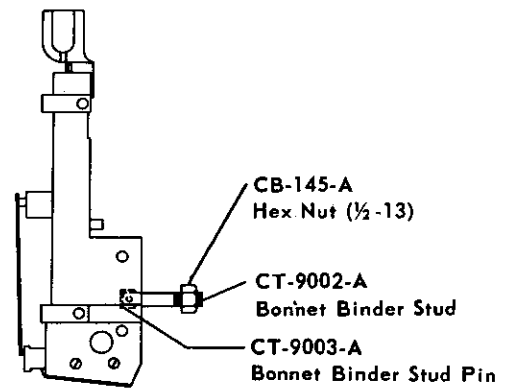
### PARTS LIST



### A BOLT-ON-TYPE HEAD



### B BOLT-ON TYPE HEAD



### C CLAMP-ON TYPE HEAD

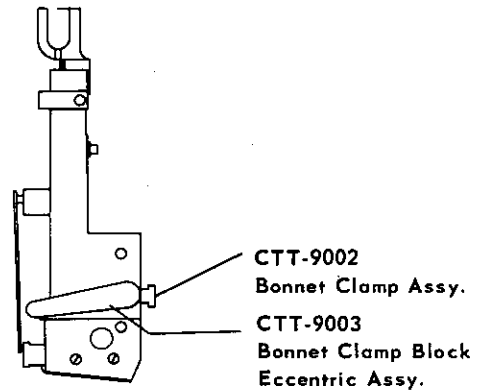
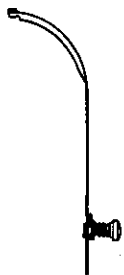
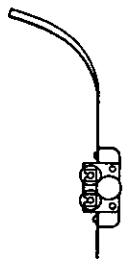


Figure 32

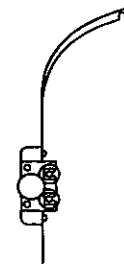
25



CTTT-2133, Used on Model CHRISTENSEN Machines



CTTT-2133-B-R-H Used on Models 500, 600, 650, and 700 Machines



CTTT-2133-C-L-H Used on Models 500, 600, 650, and 700 Machines

**Parts List (Head Only)  
Common For All Models**

The following parts listing for the Champion Model stitching head contains all the parts which are found throughout all versions of this Model head. However, by referring to the proper column you can find the properly identified part which is suitable for your model of stitcher.

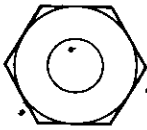
Index Number	Part Number	Part Name	A	K	400	P	500	C.R.	C.C.
			450				600		
1	CAA-9074-R	Wire Guide Bracket Assy.	•	•	•	•	•	•	•
	CTT-2615	Wire Guide Bracket Assy.	•	•	•	•	•	•	•
2	CA-9076	Wire Guide Spring Bracket Adjusting Screw	•	•	•	•	•	•	•
2A	CT-56	Wire Guide Spring Bracket Adjusting Screw	•	•	•	•	•	•	•
3	CA-9077	Wire Guide Spring Bracket Set Screw	•	•	•	•	•	•	•
4	CA-9025	Grip Release Adjusting Lever	•	•	•	•	•	•	•
5	CTT-2623	Driving Slide Assy., With CT-2602 Connecting Lug	•	•	•	•	•	•	•
	CTT-2623-A	Driving Slide Assy. (For 1/8" to 1/4" work capacity)	•	•	•	•	•	•	•
	CTT-2623-B	Driving Slide Assy. (For 1/8" to 3/16" work capacity)	•	•	•	•	•	•	•
	CAA-2623	Driving Slide Assy., With CA-2103 Connecting Lug	•	•	•	•	•	•	•

**NOTE: The above assemblies under index 5 include the following parts**

	CA-2623	Driving Slide (Only)	•	•	•	•	•	•	•
	CA-2007	Driving Slide Spring Plunger	•	•	•	•	•	•	•
	CA-9006	Driving Slide Spring	•	•	•	•	•	•	•
	CA-9021-A	Driving Slide Spring Screw	•	•	•	•	•	•	•
	CA-9028	Driving Slide Swivel Operating Pin	•	•	•	•	•	•	•
	CA-9028-A	Driving Slide Spring Screw Lock Pin	•	•	•	•	•	•	•
6	CT-2616	Wire Guide Bracket Adjusting Screw Stud	•	•	•	•	•	•	•
7	CT-1060	Set Screw	•	•	•	•	•	•	•
8	CT-2610	Face Plate Adjusting Slide	•	•	•	•	•	•	•
9	CT-2614	Face Plate Adjusting Slide Guide Stud	•	•	•	•	•	•	•
10		<b>Bender Bar Assembly Complete</b>							
	CAAA-9013-B	1/2" Crown # 25 to # 30 Rd. Wire	•	•	•	•	•	•	•
	CAAA-9013-D	1/2" Crown # 20 x # 25 & # 21 x # 25 Wire	•	•	•	•	•	•	•
	CAAA-9013-E	1/2" Crown # 22 Rd. (.028) Wire	•	•	•	•	•	•	•
	CAAA-9013-F	1/2" Crown # 24 Rd. (.023) Wire	•	•	•	•	•	•	•
	CAAA-9013-H	1/2" Crown # 25 to # 30 Rd. Wire (McCain)	•	•	•	•	•	•	•
	CAAA-9513-B	3/8" Crown # 25 to # 30 Rd. Wire	•	•	•	•	•	•	•
	CAAA-9513-D	3/8" Crown # 20 x # 25 & # 21 x # 25 Wire	•	•	•	•	•	•	•
	CAAA-9513-E	3/8" Crown # 22 Rd. (.028) Wire	•	•	•	•	•	•	•
	CAAA-9513-F	3/8" Crown # 24 Rd. (.023) Wire	•	•	•	•	•	•	•

**NOTE: The above Bender Bar assemblies include indexes 10 to 23**

10		<b>Bender Bar Sub Assembly</b>							
	CAA-9013-B	1/2" Crown # 25 to # 30 Rd. Wire	•	•	•	•	•	•	•
	CAA-9013-D	1/2" Crown # 20 x # 25 & # 21 x # 25 Wire	•	•	•	•	•	•	•
	CAA-9013-E	1/2" Crown # 22 Rd. (.028) Wire	•	•	•	•	•	•	•
	CAA-9013-F	1/2" Crown # 24 Rd. (.023) Wire	•	•	•	•	•	•	•
	CAA-9013-H	1/2" Crown # 25 to # 30 Rd. Wire (McCain)	•	•	•	•	•	•	•
	CAA-9513-B	3/8" Crown # 25 to # 30 Rd. Wire	•	•	•	•	•	•	•
	CAA-9513-D	3/8" Crown # 20 x # 25 & # 21 x # 25 Wire	•	•	•	•	•	•	•
	CAA-9513-E	3/8" Crown # 22 Rd. (.028) Wire	•	•	•	•	•	•	•
	CAA-9513-F	3/8" Crown # 24 Rd. (.023) Wire	•	•	•	•	•	•	•
11	CAA-9012-A	Driver Bar Assy. 1/2" Crown	•	•	•	•	•	•	•
	CAA-9012-D	Driver Bar Assy. 1/2" Crown (McCain)	•	•	•	•	•	•	•
	CAA-9512-A	Driver Bar Assy. 3/8" Crown	•	•	•	•	•	•	•
12	CA-9009	Driver 1/2" Crown # 24 to # 30 Rd. Wire	•	•	•	•	•	•	•
	CA-9009-C	Driver 1/2" Crown # 20 x # 25 & # 21 x # 25 Wire	•	•	•	•	•	•	•
	CA-9009-D	Driver 1/2" Crown # 22 Rd. (.028) Wire	•	•	•	•	•	•	•
	CA-9509	Driver 3/8" Crown # 24 to # 30 Rd. Wire	•	•	•	•	•	•	•
	CA-9509-F	Driver 3/8" Crown # 20 x # 25 & # 21 x # 25 Wire	•	•	•	•	•	•	•
	CA-9509-K	Driver 3/8" Crown # 22 Rd. (.028) Wire	•	•	•	•	•	•	•
13	CA-9024	Grip Retaining Clip Screw	•	•	•	•	•	•	•
14	CA-9023	Grip Retaining Clip	•	•	•	•	•	•	•
15	CA-9015	Grip	•	•	•	•	•	•	•
16	CA-9112-A	Bender Bar Friction Plug	•	•	•	•	•	•	•
17	CA-9019-B	Grip Spring	•	•	•	•	•	•	•
18	CA-9113-A	Bender Bar Friction Plug Spring	•	•	•	•	•	•	•
19	CA-9115	Bender Bar Friction Bushing	•	•	•	•	•	•	•
20	CA-9029	Supporter Pivot Pin	•	•	•	•	•	•	•
21	CA-9020	Grip Spring Retaining Screw	•	•	•	•	•	•	•
22	CA-9014	Bender Bar Latch	•	•	•	•	•	•	•
	CA-9014-A	Bender Bar Latch (McCain)	•	•	•	•	•	•	•
23	CAA-9026	Supporter Assy. 1/2" Crown	•	•	•	•	•	•	•
	CAA-9526	Supporter Assy. 3/8" Crown	•	•	•	•	•	•	•



PARTS LIST

Parts List (Head Only)  
Common For All Models

Index Number	Part Number	Part Name	A 450 450A 450T	K	400	P	500 600 650 700	C.R.	C.C.
24	CT-2607	Face Plate Locating Block		•	•		•	•	
25	CT-2611	Face Plate Adjusting Slide Block				•			•
	CT-2606	Face Plate Locating Clamp		•	•		•	•	
26	CT-2608	Face Plate Locating Block Screw		•	•		•	•	
26A	CT-2613	Face Plate Locating Block Nut				•			•
26B	CT-2612	Face Plate Locating Block Stud				•			•
27	CTT-2601	Bonnet Casting Sub Assembly				•	•		•
	CAA-2001	Bonnet Casting Sub Assembly	•	•	•				
	CTT-2601-R2	Bonnet Casting Sub Assembly						•	
28	CA-9127	Swivel Operating Cam Stud	•	•	•	•	•	•	•
29	CA-9058	Swivel Operating Cam Stud Screw	•	•	•	•	•	•	•
30	CA-9075	Wire Guide Bracket Screw	•	•	•	•	•	•	•
31	CA-2081	Face Plate Retaining Clip Screw	•	•	•	•	•	•	•
32	CA-9056	Face Plate Retaining Clip	•	•	•	•	•	•	•
33	CA-9022	Grip Release Slide— $\frac{1}{2}$ " Crown	•	•	•	•	•	•	•
	CA-9522	Grip Release Slide— $\frac{3}{8}$ " Crown	•	•	•	•	•	•	•
34		<b>Face Plate Assembly Complete</b>							
	CAA-2132	$\frac{1}{2}$ " Crown #22 to #30 Rd. Wire	•	•	•	•	•	•	•
	CAA-2132-A	$\frac{1}{2}$ " Crown #20 x #25 & #21 x #25 Wire	•	•	•	•	•	•	•
	CAA-2579	$\frac{3}{8}$ " Crown #22 to #30 Rd. Wire	•	•	•	•	•	•	•
	CAA-2579-A	$\frac{3}{8}$ " Crown #20 x #25 & #21 x #25 Wire	•	•	•	•	•	•	•

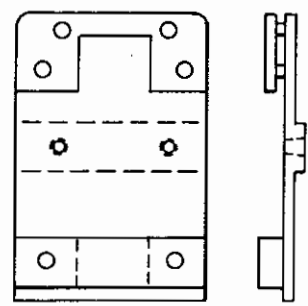
NOTE: The above Face Plate assemblies include indexes 34 to 45

34		<b>Face Plate Sub Assembly</b>							
	CAA-2132	$\frac{1}{2}$ " Crown #22 to #30 Rd. Wire							
	CAA-2132-A	$\frac{1}{2}$ " Crown #20 x #25 & #21 x #25 Wire							
	CAA-2579	$\frac{3}{8}$ " Crown #22 to #30 Rd. Wire							
	CAA-2579-A	$\frac{3}{8}$ " Crown #20 x #25 & #21 x #25 Wire							
35	CA-9066	Wire Straightener Eccentric							
36	CA-9103	Wire Straightener Roll #22 to #30 Rd. Wire							
	CA-9103-A	Wire Straightener Roll #20 x #25 & #21 x #25 Wire							
37	CA-9124	Tension Roll Clip							
38	CA-9098	Tension Pawl							
39	CA-9134	Tension Pawl Spring							
40	CA-9068	Wire Straightener Eccentric Bushing							
41	CA-9065	Wire Straightener Eccentric Roll							
42	CA-9070	Wire Straightener Eccentric Pointer							
43	CA-9069	Wire Straightener Eccentric Spring							
44	CA-9067	Wire Straightener Eccentric Adj. Nut							
45	CA-9166	Wire Cutter Holder Screw							
46	CA-9163	Swivel Operating Cam	•	•	•	•	•	•	•
47	CAA-9046-A	Swivel Operating Spring Assy.	•	•	•	•	•	•	•
48.	CAA-9038	Swivel Assy. Complete— $\frac{1}{2}$ " Crown	•	•	•	•	•	•	•
	CA-9038	Swivel (Only)— $\frac{1}{2}$ " Crown	•	•	•	•	•	•	•
	CAA-9538	Swivel Assy. Complete— $\frac{3}{8}$ " Crown	•	•	•	•	•	•	•
	CA-9538	Swivel (Only)— $\frac{3}{8}$ " Crown	•	•	•	•	•	•	•

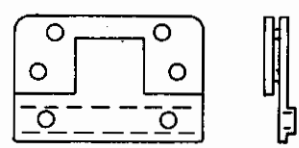
NOTE: The above Swivel assemblies under index 48 include the following 4 parts

	CA-9042-A	Swivel Safety Pin							
	CA-5106	Swivel Hook							
	CA-5107	Swivel Pin							
	CA-5108	Swivel Spring							
49	CA-9043-A	Swivel Holder—#25 to #30 RD. Wire	•	•	•	•	•	•	•
	CA-9043-C	Swivel Holder $\frac{1}{2}$ " CR. #20 x #25 & #21 x #25 Wire	•	•	•	•	•	•	•
	CA-9543-A	Swivel Holder—#25 to #30 RD. Wire	•	•	•	•	•	•	•
	CA-9543-B	Swivel Holder $\frac{3}{8}$ " CR. #20 x #25 & #21 x #25 Wire	•	•	•	•	•	•	•
50	CA-9044-A	Swivel Holder Screw	•	•	•	•	•	•	•
51	CA-9048	Wire Cutter	•	•	•	•	•	•	•
52	CA-9049	Wire Cutter Operating Slide $\frac{1}{2}$ " Crown	•	•	•	•	•	•	•
	CA-9549	Wire Cutter Operating Slide $\frac{3}{8}$ " Crown	•	•	•	•	•	•	•
53	CA-9050-A	Wire Cutter Operating Slide Friction Plug	•	•	•	•	•	•	•
54	CA-9051-A	Wire Cutter Operating Slide Friction Plug Spring	•	•	•	•	•	•	•
55	CA-9030	Supporter Guide Plate	•	•	•	•	•	•	•
56	CAA-9036	Supporter Spring Lever	•	•	•	•	•	•	•
57	CA-9035	Supporter Spring Lever Roller	•	•	•	•	•	•	•
58	CA-9033	Supporter Spring Lever Roller Pin	•	•	•	•	•	•	•
59	CA-9079	Supporter Guide Plate Dowel	•	•	•	•	•	•	•
60	CA-9081	Supporter Guide Plate Screw	•	•	•	•	•	•	•
61	CA-9034	Supporter Spring Lever Screw	•	•	•	•	•	•	•
62	CA-9032	Supporter Spring	•	•	•	•	•	•	•
63	CA-9037	Supporter Spring Bushing	•	•	•	•	•	•	•
64	CA-9056-A	Face Plate Retaining Clip	•	•	•	•	•	•	•

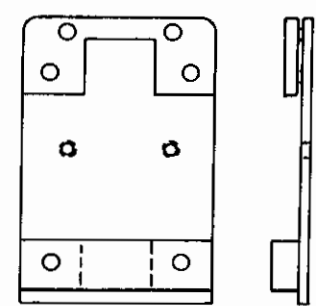
**CLINCHER PLATE ASSEMBLIES**



**TYPE A**

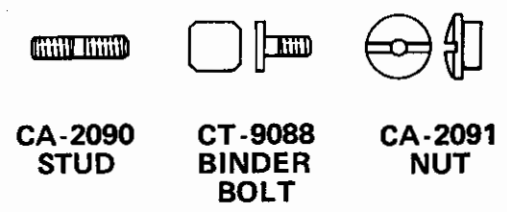


**TYPE B**



**TYPE C**

CROWN SIZE	CLINCHER POINT	TYPE	CLINCHER PLATE ASSY
3/8	CA-9583-A Thick	A	CTT-9586-A
3/8	CA-9583-A Thick	C	CAA-2589-B
1/2	CA-9083 Thin	A	CTT-9086
1/2	CA-9083-A Thick	A	CTT-9086-A
1/2	CA-9083 Thin	A	CTTT-9086*
1/2	CA-9083-A Thick	A	CTTT-9086-A**
1/2	CA-9083 Thin	B	CTT-9086-B
1/2	CA-9083-A Thick	B	CTT-9086-F
1/2	CA-9083 Thin	C	CAA-2089
1/2	CA-9083-A Thick	C	CAA-2089-A

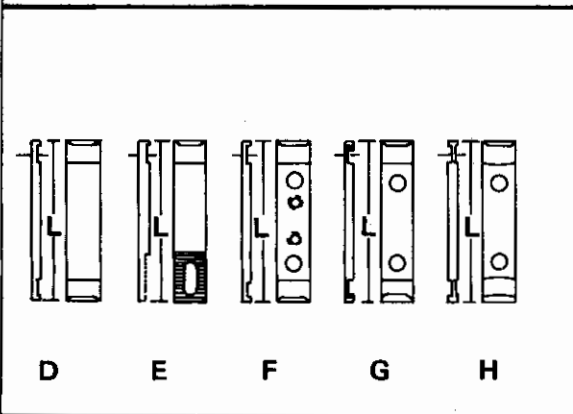
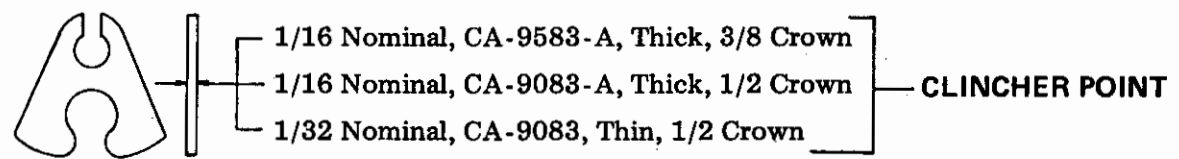


**CA-2090 STUD**

**CT-9088 BINDER BOLT**

**CA-2091 NUT**

\*Includes CA-9083, CTT-9086, CT-9093, CA-2091, CT-9088.  
 \*\*Includes CA-9083-A, CTT-9086-A, CT-9093-A, CA-2091, CT-9088.



TYPE	L	T	CLINCHER SLIDE	CLINCHER POINT
D	3-17/32	3/32	CT-9093	Thin
D	3-37/64	1/16	CT-9093-A	Thick
E	3-9/16	3/32	CT-9093-R	Thin
E	3-9/16	1/16	CT-9093-S	Thick
F	3-31/64	3/64	CA-2095-G	Thick
G	12-25/32	3/64	CA-2095-A	Thick
H	12-25/32	1/16	CA-2095	Thin

Keep your Champion Wire Stitcher in top working condition at all times by giving it proper care at the proper time as detailed in this manual. This preventive maintenance will minimize stitcher down-time and production line delays.

Parts subjected to prolonged, hard use will, of course, show signs of wear and should be replaced when this wear causes any malfunctioning of the stitcher. To assure continued proper operation of your Champion Wire Stitcher, REMEMBER that only genuine Champion replacement parts reflect the same high quality as the original parts and can be depended upon to give the same long, satisfactory service.

A network of parts warehouses and service offices means prompt action on any request that will help you get your stitcher back "on-the-line" with the least possible delay.

**Wire Stitching makes better boxes at the lowest possible cost!**

Wire stitching is a fast, economical method to assemble or close corrugated and solid fibre boxes securely. It utilizes a stitcher and continuous-length coils of steel stitching wire.

### **Protects Your Product**

Wire stitches join more than just the two surfaces of a box joint; they penetrate the total thickness of the fibreboard. The legs are folded flush against the bottom surface and the crown is forced snugly against the top surface. This makes your box strong enough to withstand in-transit shock and damage. Stitches are not weakened by moisture. They hold securely in all climatic conditions, even extreme dampness or dryness.

### **Reduces Material Costs**

Average wire cost is 16¢ per thousand stitches.

### **Speeds Production**

Stitchers drive hundreds of stitches per minute. For example, with a minimum amount of training, an operator (male or female) can easily develop the skill to set up and stitch the bottoms of 200 to 400 boxes per hour! Stitched boxes are ready for immediate use. Thousands of boxes can be stitched with one coil of wire.

### **Cuts Labor Costs**

The increased production rates gained with wire stitching reduce your labor costs.