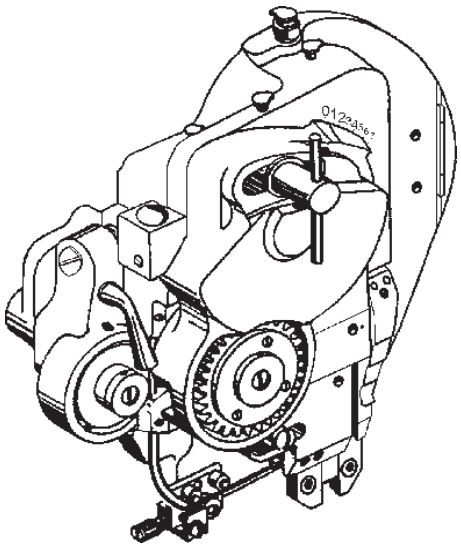
Model Symbol	*Description of Model*
BHS	Short Wire Draw — ½" to 1½"
BH	Standard Wire Draw — ⅞" to 1½"
BHL	Long Wire Draw — 15/16" to 2⅜"
BHX	Extra Long Wire Draw — 1⅝" to 3½"
BHN	Narrow Crown — Short Wire Draw
BHO	Openhead — Standard Wire Draw
BHOL	Openhead — Long Wire Draw
BHM	S13E Metal Stitcher — Standard Wire Draw
BHMB	S13E Metal Stitcher with Bracket Type Clincher — Standard Wire Draw
BHC	Caddy Stitcher — Standard Wire Draw
BH485	Head for #485 Stitcher — Standard Wire Draw
BHL485	Head for #485 Stitcher — Long Wire Draw

OPERATING, MAINTENANCE & PARTS MANUAL

FOR

CRITTENDEN STITCH HEADS



CRITTENDEN
CONVERSION
CORPORATION

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CRITTENDEN
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CORPORATION

INTRODUCTION

Crittenden Conversion, founded 1971, began by making improved parts for existing box-making machinery. We sought the highest grade of materials to make lasting parts; a higher quality of parts than the original manufacturer's. These were not merely spare parts. We converted machines, one part at a time, into better, longer-lasting equiptment. Therefore, our name ***Crittenden Conversion***.

While making parts for other manufacturers' equiptment, we learned their weaknesses. We learned what breaks down and why. Applying those insights to our own equiptment, we have improved longevity, efficiency, and safety.

Throughout the world Crittenden Conversion's machines are meeting today's demands for faster, more reliable and economical production. No matter what industry we serve, we want to provide the highest level in service, product availability and quality. The 700 series stitchers are an example of this effort. These stitchers are designed, engineered and manufactured to provide trouble free operation.

I believe the integrity of the people behind the parts determines the integrity of the parts. We won't settle for anything less than your complete satisfaction.

You have my word on it.

O. D. Crittenden

TABLE OF CONTENTS

STITCH HEAD OPERATING AND MAINTENANCE INSTRUCTIONS

DRAWINGS AND TABLES **DWG. NO.**

OPERATING AND MAINTENANCE INSTRUCTIONS

The stitching heads supplied with the various models of Crittenden Wire Stitchers are essentially identical with variations in some of the component parts, depending whether the head is a standard or long draw model.

The Crittenden Stitch Heads are designed to accommodate a number of wire types and sizes as well as different crown widths. When the work to be stitched requires a wire type and/or size of staple crown not within the capacity of the head being used it may be possible to changeover the head to meet the required specifications. In this event please contact Crittenden Conversion for information on how to accomplish the changeover.

All Crittenden Stitch Heads are interchangeable between any model of Crittenden Stitchers, however many parts are not interchangeable between different models of heads.

Refer to Drawing No. 10I001-A

All heads are equipped with a wire feed brake tension device on the wire feed idler gear (P/N 53). Long draw heads are equipped with a wire straightener assembly (P/N 152). A wire guide (P/N 77) and wire guide plate (P/N 78) is optional on long draw models only.

Operating adjustments are similar on all heads and are easily accomplished. Oil cups, ball oilers and oil holes are provided on all of the Crittenden Stitch Heads for easy lubrication of hidden moving parts. All parts are easily removed for service or replacement.

CAUTION: DISCONNECT POWER TO THE STITCHER BEFORE ANY WORK IS PREFORMED!

OPERATING ADJUSTMENTS

The quality and quantity of work that can be produced by a Crittenden Stitch Head is dependent upon the operator making the various operating adjustments as accurately as possible. The following illustrated instructions are provided so that the operator will clearly understand how to make the various required adjustments.

1. How to Thread Wire on Head (See Figure 1).

A. Disengage the wire feed gears by raising the gear throw-out handle (1) to its open position.

B. Draw wire from the wire spool, if the end of the wire is twisted or bent, cut off the damaged portion.

C. Straighten the end of the wire (about 6”) by drawing it through your fingers. The end portion that is to be threaded into the head must be as straight as possible.

D. Thread the wire through the oiler felt and retainer (2) and into the upper wire tube.

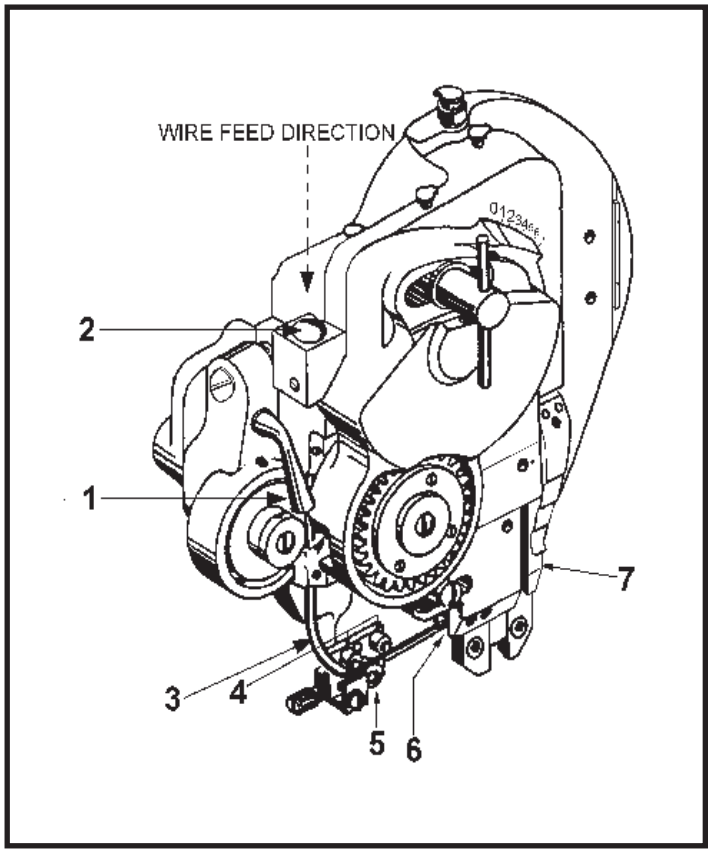


Figure 1-Threading Wire on Head

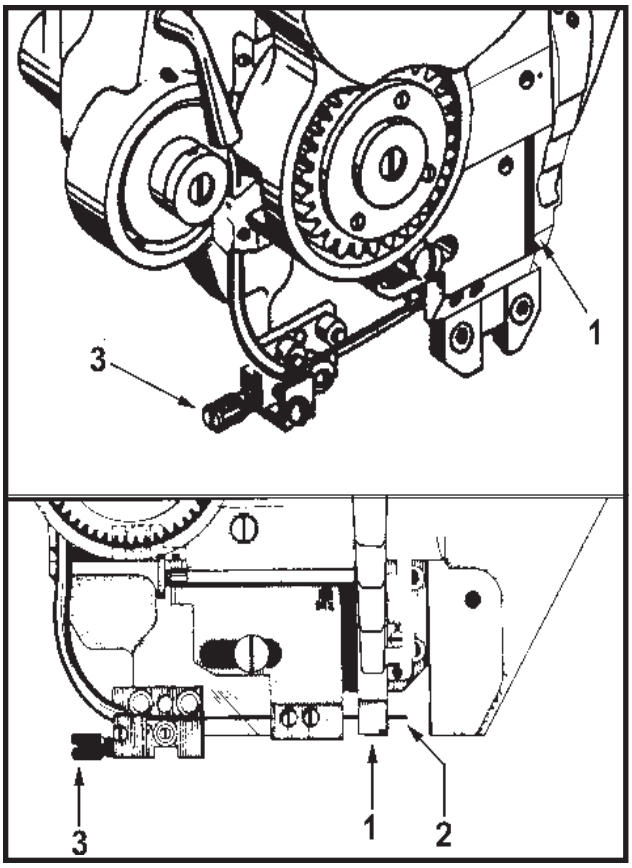


Figure 2-Straightening Wire on Head

E. Push the wire down through the upper wire tube, past the wire feed gears and through the lower wire tube (3) until the wire appears at the bottom opening of the lower wire tube.

F. Thread the wire between the upper wire straightener rolls (4) and the lower adjustable roll (5); then enter and fish the end of the wire into the stationary cutter block (6). *Note: The standard draw head is not supplied with the wire straightener device. When threading this head the wire is drawn through the lower wire tube and inserted directly into the stationary cutter block.*

G. Re-engage the wire feed gears by lowering the gear throw-out handle (1) into it's locked position. Turn the machine over by hand and observe that the wire is feeding freely and is being fed into the gripper (7) in a straight line.

2. *How to Straighten Wire on Head (See Figure 2).*

In order to insure perfect stitching it is essential that the wire enters the gripper in as close to a straight line as possible. To check this condition and make the necessary adjustments proceed as follows;

After the wire has been threaded into the head rotate the machine by hand until the wire has been cut and is being held by the gripper (1). Observe that the wire length, being held by the gripper, does not curl upward or downward. The cut piece should be as close to a straight line as possible, as shown in lower insert (2). If wire tends to curl upward or downward turn the wire straightener adjustment screw (3) clockwise or counter-clockwise until this condition is remedied.

Type of Head	Wire Draw Limits	
	Minimum	*Maximum*
Standard Wire Draw	7/8"	7/8"
Long Wire Draw	15/16"	2-3/8"

Figure 3-Wire Draw

3. How to Determine Correct Wire Draw and Make Necessary Adjustments

A. Determining Wire Draw (See Figures 4 and 5)

The Crittenden Stitch Heads are divided into two types based upon the wire draw capacity (amount of wire being fed per stitch) of the head.

The table in Figure 3 lists the two wire draw types of heads and gives the minimum and maximum wire draw for each type.

In order to insure perfect stitching it is essential that the wire draw be the correct length for the work to be stitched.

The length of the wire draw is dependent upon the crown size of the staple to be used and the thickness of the work to be stitched.

In the corrugated boxmaking industry the most common crown size is 7/16". In some cases ¾" crown size is used with a special heavier wire, such as .037 x .088".

As a general rule stitches having a crown size of 7/16” should have sufficient wire draw so that the clinched legs just about meet, as shown in Figure 4. For a 7/16” crown size stitch the correct length of wire draw would be twice the crown size plus twice the thickness of the work to be stitched or when reduced to a formula:
Wire Draw = 2C + 2T.

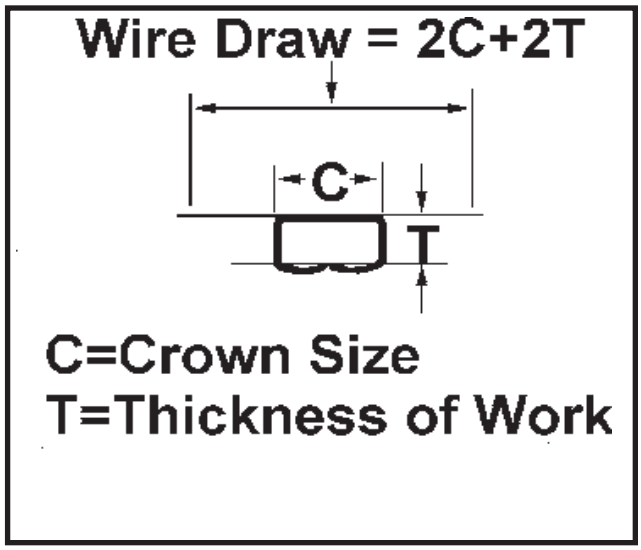


Figure 4-Wire Draw Dimensions

For example: with a crown size (C) of 7/16” and the thickness of the work to be stitched (T) is 3/16”, the correct wire draw would be 2 x 7/16” (= 2C or 7/8”) plus 2 x 3/16” (= 2T or 3/8”) which equals 1-1/4” wire draw. Stitches having a crown size of ¾” should have sufficient wire draw so that each clinched leg of the staple is approximately 3/16” long, as shown in Figure 5. For ¾” crown size the correct wire draw would be crown size (C) plus twice the thickness of work to be stitched (2T) plus 3/8” or when reduced to a formula: Wire Draw = C+2T + 3/8”.

For example: with a crown size of ¾” and the thickness of the work to be stitched is ½”, the correct wire draw would be: 3/4” plus 2 x ½”, (= 1”) plus 3/8” which equals 2-1/8” wire draw.

The above formulas do not take into consideration the type of material to be stitched. Some materials might require staple leg lengths different than those shown in Figs. 4 and 5. However, as a general rule the formulas shown can be used.

B. Wire Draw Adjustments
(See Figure 6).

After determining the correct length of wire draw for the particular work to be stitched make the head wire draw adjustments as follows:

1. Check that the wire feed guard lock screw (1) and cutter block holding screw (2) are in the correct head plate holes for the desired wire draw. The standard and long wire draw head plates have two tapped holes (A) and (B).

2. Both types of head plates have two tapped holes (D) and (E) for insertion of the cutter block holding screw.

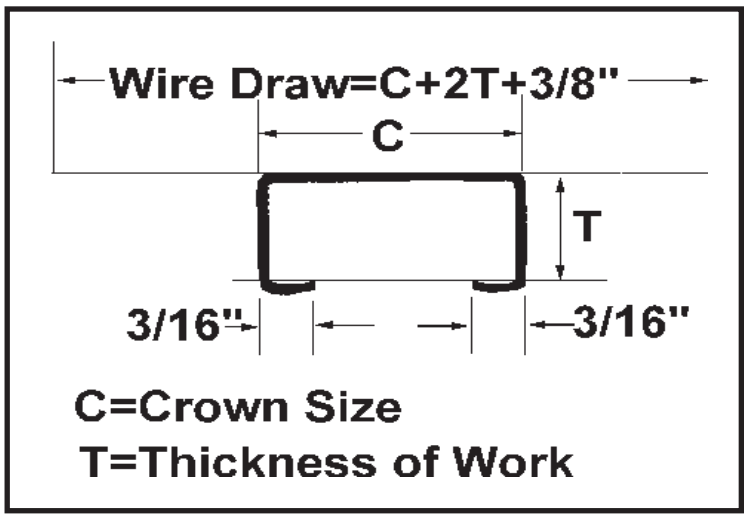


Figure 5-Wire Draw Dimensions

3. If the desired length of wire draw approaches the minimum or maximum limits for the head being operated (refer to Wire Draw Table, Fig. 3) it may be necessary to relocate the wire feed guard lock screw and cutter block holding screw.

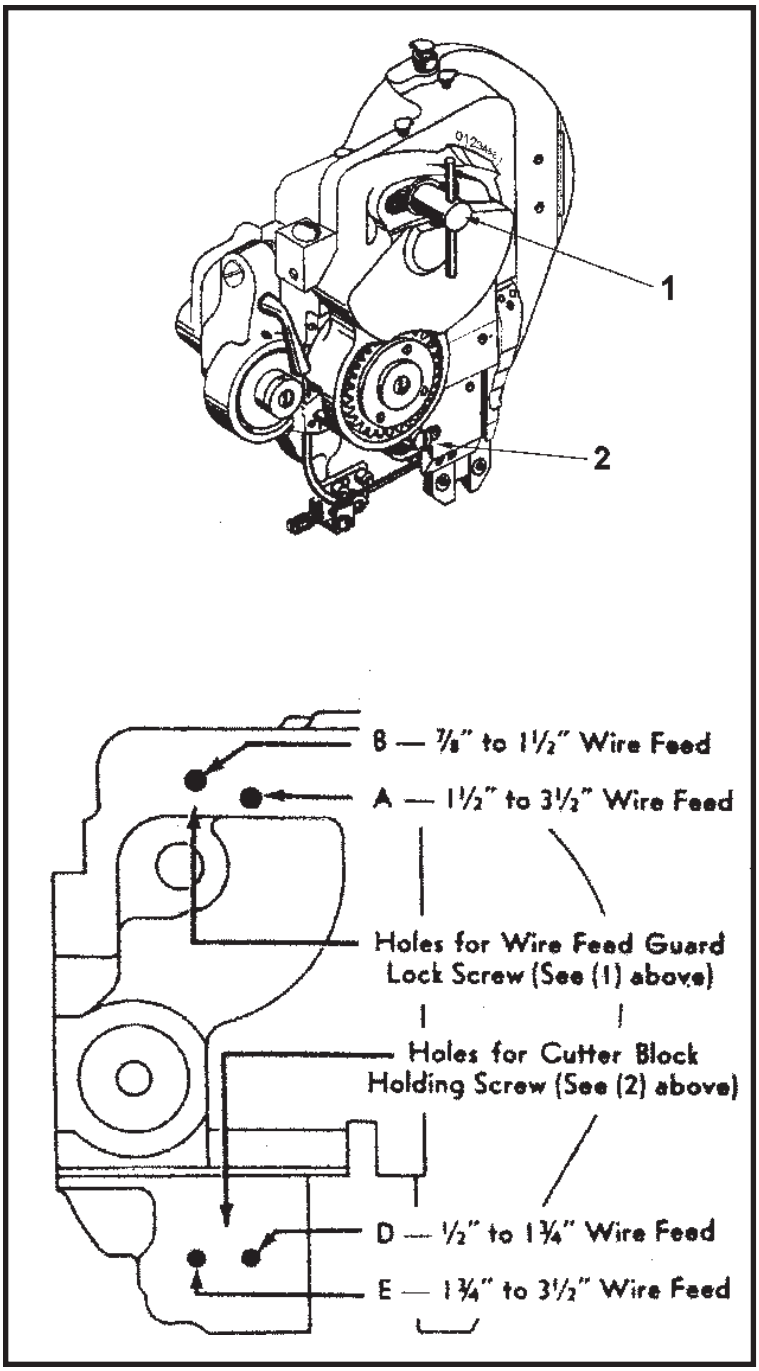


Figure 6-Positioning Wire Feed Lock Screw and Cutter Block Holding Screw

4. The following table (Figure 6A) indicates the correct hole locations for the two screws to obtain the minimun or max-mum wire draw for each type of head.

5. The diagram in Figure 6 shows the four holes and gives the obtainable wire draw range for each hole.

6. If it is found necessary to relocate the wire feed guard lock screw (1) and the cutter block holding screw (2) remove both screws and then shift the wire feed guard casting sufficiently to the left or right, as required, so that the wire feed guard lock screw (1) can be inserted into the alternate hole, A or B. Do Not tighten the screw at this point.

7. The standard wire draw head is so designed that the cutter block (4), Figure 7, automatically shifts to the left or right when the wire feed guard is shifted. If the head being operated is this type relocate the cutter block holding screw (2) in the alternate hole, D or E, Figure 6. and tighten the screw at this point. If the head being operated is the long wire draw type the cutter block must be shifted manually. Move the cutter block as required and relocate the holding screw (2) with its washer. Do Not tighten the screw at this point.

8. If it is not necessary to relocate the wire feed guard lock screw (1) and the cutter block holding screw (2), and the head being operated is the standard wire draw type loosen (do not remove) only the wire feed guard lock screw (1). If the head is the long wire draw type loosen (do not remove) both screws.

9. To increase or decrease the wire draw on the standard wire draw head shift the wire feed guard casting (3), Figure 7, to the right or left. As mentioned in the step above any shifting of the wire feed guard casting automatically adjusts the position of the cutter block so that both legs of the staple are increased or decreased an equal amount.

10. The standard wire draw heads are equipped with a 'length of wire draw' scale (5), Figure 7, on the head plate and an alignment marker (6), Figure 7, on the wire feed guard casting. The scale and marker provide a means of setting the wire draw according to the desired length. The 'length of wire draw' scale is used for a reference point only. The larger numbers correspond a to longer leg length.

Type of Head	Wire Feed Guard Lock Screw		Cutter Block Holding Screw	
	Min. Wire Draw	Max. Wire Draw	Min. Wire Draw	Max. Wire Draw
Standard Wire Draw	Hole B	Hole B	Hole D	Hole D
Long Wire Draw	Hole B	Hole A	Hole D	Hole E

Figure 6A-Table of Hole Locations (See Fig. 6)

11. After the setting has been made tighten the wire feed guard lock screw (1), Figure 7.

On the long wire draw heads wire draw is increased or decreased exactly the same as for the standard wire draw heads, by shifting the wire feed guard casting to the right or left. However the cutter block is not linked to the wire feed guard casting so that any increase or decrease of wire draw affects only the right leg of the staple. It is necessary therefore, when changing the wire draw setting on the long wire draw heads to manually move the cutter block to the left or right, thereby adjusting the length of the staple's legs for equal length. As shown in Step 4-2.

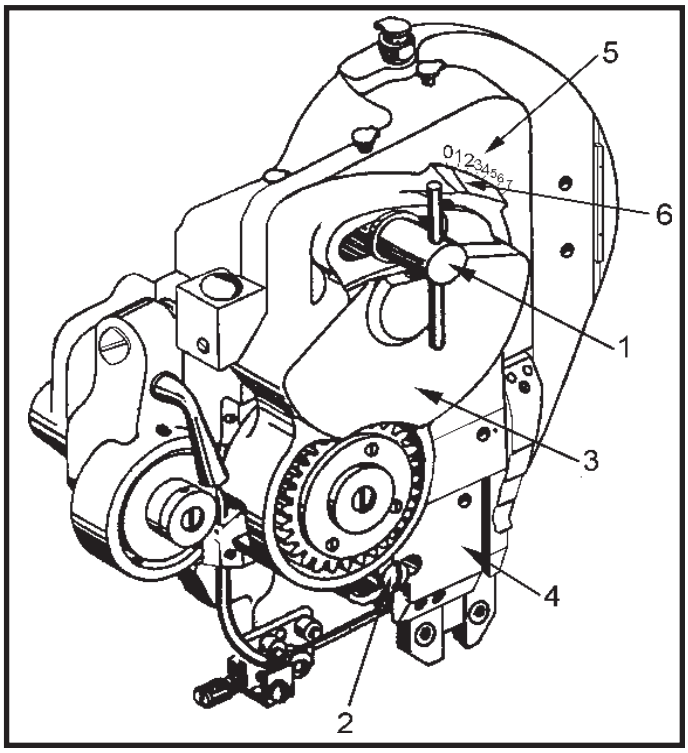


Figure 7-Wire Draw Adjustments and Wire Draw Scale

12. A 'length of wire draw' scale, similar to that on the standard wire draw heads, is provided on the long wire draw head plates. The 'length of wire draw' scale is used for a reference point only. The larger numbers corresponding to longer right leg lengths. After setting the wire feed guard casting and the cutter block tighten the wire feed guard lock screw (1) and the cutter block holding screw (2), Figure 7.

13. After the above settings have been made rotate the stitch head's pulley manually to the point where the new wire length has just been cut off by the cutter and is being held by the gripper. Check that the wire is the desired length, then continue rotating the pulley manually until the staple legs have been formed but not clinched. Check that both legs of staple are of equal length.

14. If head being operated is the standard wire draw type and the legs are of equal length securely tighten wire feed guard lock screw (1).

15. If head being operated is the standard wire draw type and the legs are not of equal length proceed to Step 4-1.

16. If head being operated is the long wire draw type and the legs are of equal length securely tighten wire feed guard lock screw (1) and cutter block holding screw (2).

17. If head being operated is the long wire draw type and the legs are not of equal length proceed to Step 4-2.

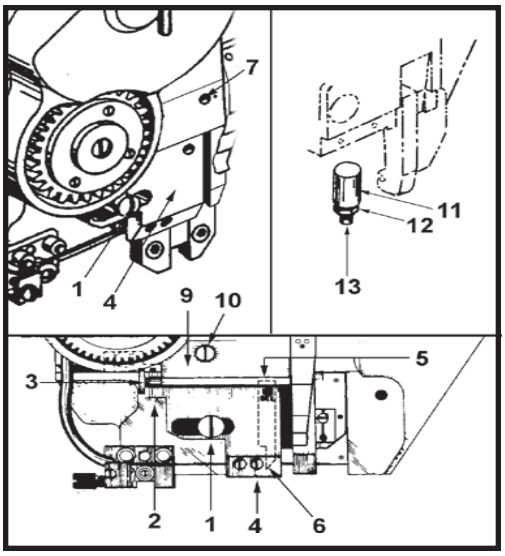


Figure 8-Staple Left Leg and Movable Cutter Adjustment

4. How to Adjust the Staple's Left Leg Length (See Figure 8)

If the staple legs are not equal proceed as follows:

1. If head being operated is the standard wire draw type loosen (do not remove) the adjusting screw lock screw (2). To lengthen the left leg turn cutter block adjusting screw (3) clockwise (moving the cutter block away from the gripper). To shorten the left leg turn the cutter block adjusting screw (3) counterclockwise (moving the cutter block toward gripper). After the adjustment has been made securely tighten the adjusting screw lock screw (2).

2. If the head being operated is the long wire draw type loosen (do not remove) the cutter block holding screw (1). To lengthen the left leg manually move the cutter block (4) to the left (away from the gripper). To shorten the left leg manually move the cutter block to the right (toward gripper). After the adjustment has been made securely tighten the cutter block holding screw (1).

5. How to Set the Movable Cutter (See Figure 8)

The cutter block movable cutter (5) is activated by an adjustable plunger in the head plate. The plunger adjustment should be such that when the movable cutter has reached the limit of its down stroke the cutting edge of the cutter should be just below the wire opening in the stationary cutter (6). If the movable cutter continues down past that point the cut off wire length may be bent downward.

If it is found necessary to adjust the stroke of the cutter proceed as follows:

1. Remove the cutter block holding plate (9) and the cutter block (4). The operating plunger (11) will slide down and out of the head plate.

2. Loosen the plunger adjusting screw nut (12) and adjust the plunger adjusting screw (13) clockwise to raise the cutter stroke or adjust the plunger adjusting screw (13) counterclockwise to lower the cutter stroke. Once the cutter stroke is adjusted properly tighten the plunger adjusting screw nut (12) and repeat Step 1 in reverse.

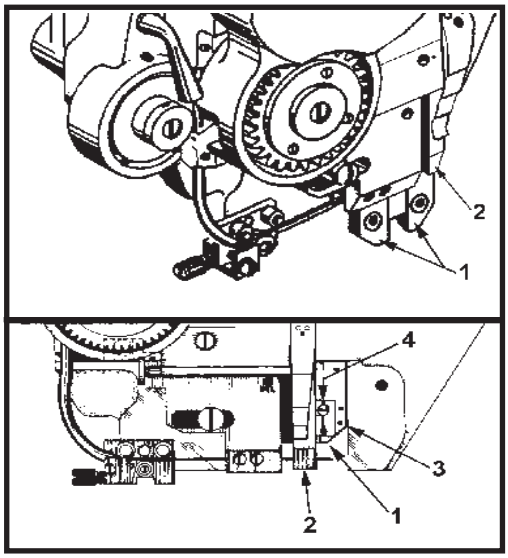


Figure 9-Adjustments for aligning Gripper Bar and Formers

6. How to Align the Gripper Bar and Formers (See Figure 9)

A. Rotate the stitch head's pulley manually as the formers (1) decend check that the groove in the formers are in exact alignment with the wire length being held by the gripper bar (2).

B. If they are not in exact alignment, usually resulting in a deformed crown surface, loosen the clamp block holding screw (3). Adjust the gripper bar adjusting screw (4) clockwise or counterclockwise until the alignment is correct and then tighten the clamp block holding screw (3).

7. How to Adjust the Tension of the Wire Feed Gears (See Figure 10)

The wire feed idler gear (1) operates with the drive gear located behind the wire feed guard (2) to feed the wire into the head. The tension of the two wire feed gears is adjustable by means of the tension adjustment screw (3). Adjusting the tension adjustment screw (3) cloclwise will increase the tension and counterclockwise will decrease the tension.

The tension of the wire feed gears should be such that the wire feeds freely without slipping or binding. If the tension is too loose the wire will slip, usually resulting in varying leg lengths. If the tension is too tight the wire will bind and may be rolled out of shape, causing wire curvature and preventing proper handling in the gripper.

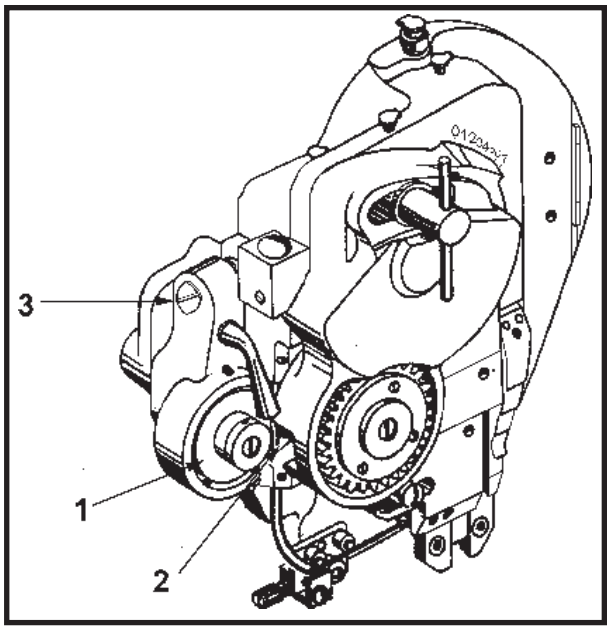


Figure 10-Wire Fed Gear Tension Adjustment

8. How to Adjust the Wire Feed Brake Tension (See Figure 11)

The Crittenden Stitch Heads are equipped with a friction braking device (1) to prevent wire feed overrun. Due to normal wear of the friction brake (2) it may be necessary to increase the tension of the friction spring (3). This is accomplished by means of the brake tension nut (4).

To check the spring tension turn the brake friction spring (3) by hand. If the spring turns too freely tighten the brake tension nut (4), clockwise. If the spring cannot be turned by hand loosen the brake tension nut (4), counterclockwise.

9. How to Adjust the Wire Guide (See Figure 11)

Because of the wide gap between the cutter block and the gripper bar on the long wire draw heads we can equip these heads with a wire guide (5). The guide serves to lead the wire into the gripper bar slot.

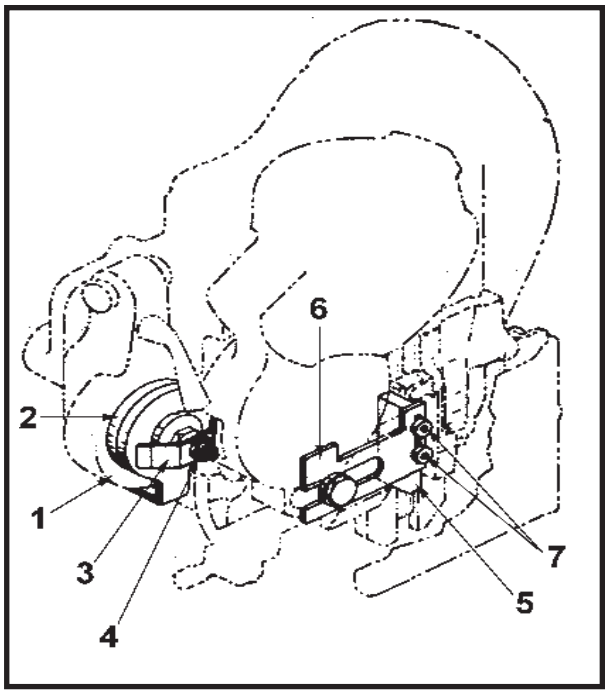


Figure 11-Wire Feed brake Tension and Wire Guide Adjustments **(Long Draw Heads)**

The wire guide plate (6), which supports the wire guide, is adjustable to the left or right for positioning the wire guide depending upon the length of wire draw. The wire guide can be adjusted up or down by loosening the wire guide screws (7). The wire guide should be so positioned that the wire is fed from the cutter block directly into the gripper bar.

MAINTENANCE

To insure continuous operation of Crittenden Stitch Heads the operator should be sure that the head is regularly lubricated and carefully maintained. The operator should periodically inspect all moving parts for signs of wear and, when required, replace any worn part.

The following instructions are provided so that the operator will clearly understand how to lubricate the head, and how to check and replace worn parts.

CAUTION

After replacing any part(s) rotate the stitch head's pulley manually to check that it operates freely and is adjusted properly, per previous instructions. **Do Not operate the machine under power until you are certain that these conditions are met.**

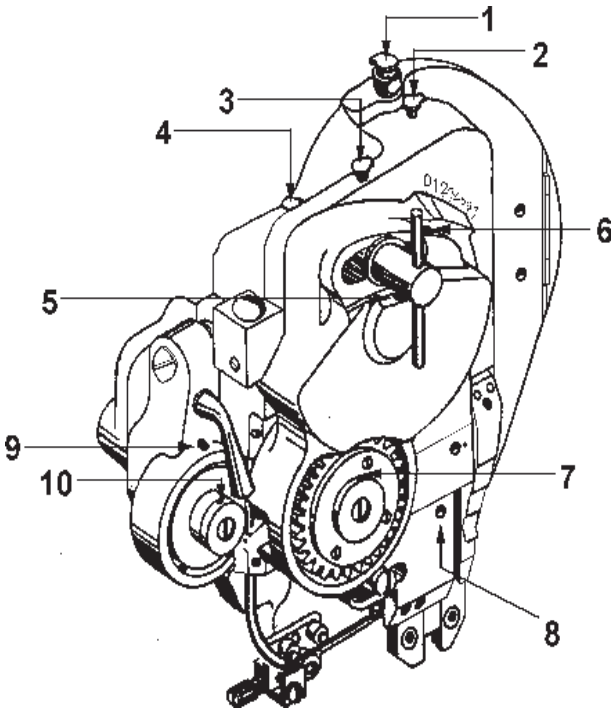
1. *LUBRICATION (See Fig. 12)*

Use an S.A.E. No. 10 oil for lubricating the Stitch Head. Machines that are in constant operation should be lubricated daily. Machines that are operated periodically should be lubricated just prior to running a job.

Usually, only a drop of oil is required at each point of lubrication.

Depending upon the type of work being stitched care must be taken that those parts of the head that contact the work are free of oil. Lubricate regularly instead of excessively. After lubricating the head wipe off any excess oil.

1-Oil cup in the top of the head plate lubricates the former slide, driver bar, and other internal parts.
2-Oil cup in the top of the head plate lubricates the wire feed operating link.
3-Oil cup in the top of the head plate lubricates the wire feed operating lever and sliding head.
4-Oil cup in the top of the head plate lubricates the wire feed operating lever pivot stud.
5-Ball oiler in the wire feed guard lubricates the wire feed guard crank stud.
6-Ball oiler in the wire feed guard lubricates the wire feed crank sector.
7-Oil hole in the retaining washer lubricates the wire feed drive gear stud.
8-Oil hole in the cutter block lubricates the movable cutter.
9-Ball oiler in the wire feed idler gear casting lubricates the wire feed idler gear.
10-Oil hole in the retaining washer lubricates the wire feed idler gear stud.
11-Apply a few drops of oil to the wire oiler felt to clean and lubricate stitching wire.



Friction points of all sliding, rotating or oscillating parts, for which oil cups or holes are not provided, should be oil moistened just prior to running a job. It is recommended that a tooth pick or matchstick tipped with oil moistened cotton dressing be used to lubricate these parts.

Figure 12-Lubrication Points

2. INSPECTION AND REPLACEMENT OF WORN PARTS

All moving parts may eventually require replacement due to normal wear of the parts. However, regular lubrication will aid in lengthening the life of the parts. Usually those parts that are in actual contact with the wire during feeding, cutting, forming and clinching of the wire will be the first parts to show signs of wear. Imperfect stitching, not caused by incorrect machine settings or adjustments, is usually due to the normal wear of the wire feed gears, wire tubes, stationary and moving cutters, gripper parts, formers, driver or supporter. These parts should be regularly inspected for signs of wear and replaced when required, as directed in the following instructions.

A. WIRE FEED GEARS (See Fig. 13)-The wire feed gears (Fig. 13 shows the left, or idler, gear (1), the right, or drive gear (5) being located behind the wire feed guard casting) should be checked for a smooth and parallel wire gripping surface. Worn surfaces may result in wire slipping thereby not feeding properly. If surfaces are not parallel the wire may be rolled on one side causing wire curvature and resulting in imperfect stitches.

If the head being checked is equipped with a grooved wire feed drive gear (5), right, check that the groove is clean (not clogged) and not worn.

B. WIREFEED TUBES (See Figure 13)-The upper (2) and lower (3) wire tubes should be checked for any obstructions in the tube passages, which may interfere with free movement of the wire. Slots may eventually appear in tube passages, due to normal wear, which will cause the wire to catch and bind, thereby resulting in improper feeding.

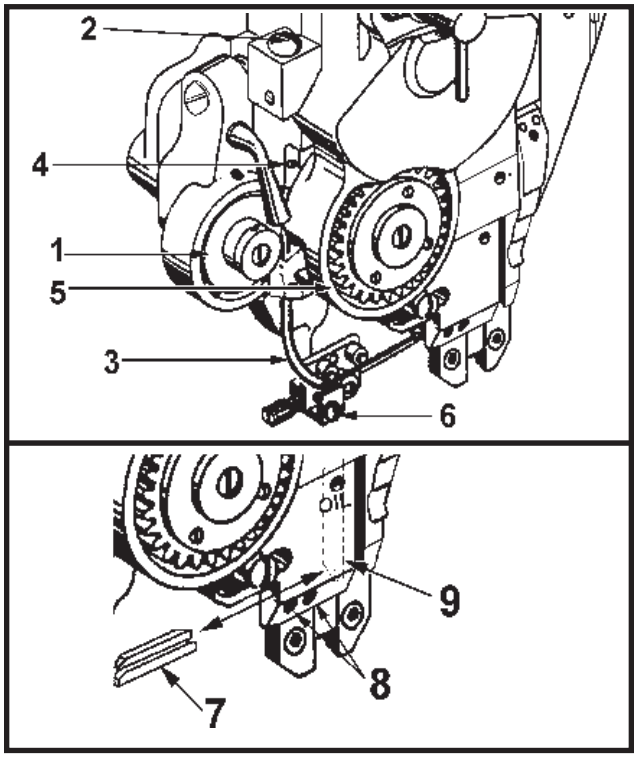


Figure 13-Inspecting Wire Feed Gears, Tubes and Stationary Cutter

To replace a worn upper wire feed tube, loosen the upper wire tube screw (4) and remove the oil felt retainer (2), thus allowing the tube to be replaced. To replace a worn lower wire feed tube, loosen the lower wire tube screw (5) and remove the lower wire tube clamp (6), thus allowing the tube to be replaced.

C. STATIONARY CUTTER (See Figure 13)-The stationary cutter (7) should be periodically checked for any obstructions in the wire passage which may interfere with the free movement of wire. Check that the cutting end is sharp, a dull cutter may be resharpened but eventually must be replaced.

To remove and replace the stationary cutter, proceed as follows:

1. Loosen the stationary cutter screws (8) and withdraw the cutter (7) from the cutter block.

2. When reinstalling the stationary cutter (7) be sure that the cutting end is inserted into the cutter block first. The opposite, countersunk, end is the end which protrudes from the left side of the cutter block. If installing a ribbon wire cutter face the flat side of the cutter toward the front of the head.

3. With the cutter positioned as directed above slide the cutter into the cutter block until the cutting end contacts and is parallel with the flat cutting surface of the movable cutter (9). Upon contact, with the stationary cutter fully inserted in cutter block and aligned with movable cutter, tighten the cutter holding screws (8). Then rotate the stitch head's pulley by hand and check that the movable cutter operates freely.

D. MOVABLE CUTTER (See Figure 14)-The cutting edge of the movable cutter should be periodically checked for sharpness. A dull cutter can be resharpened but eventually must be replaced.

To remove and reinstall the movable cutter for sharpening or replacing proceed as follows:

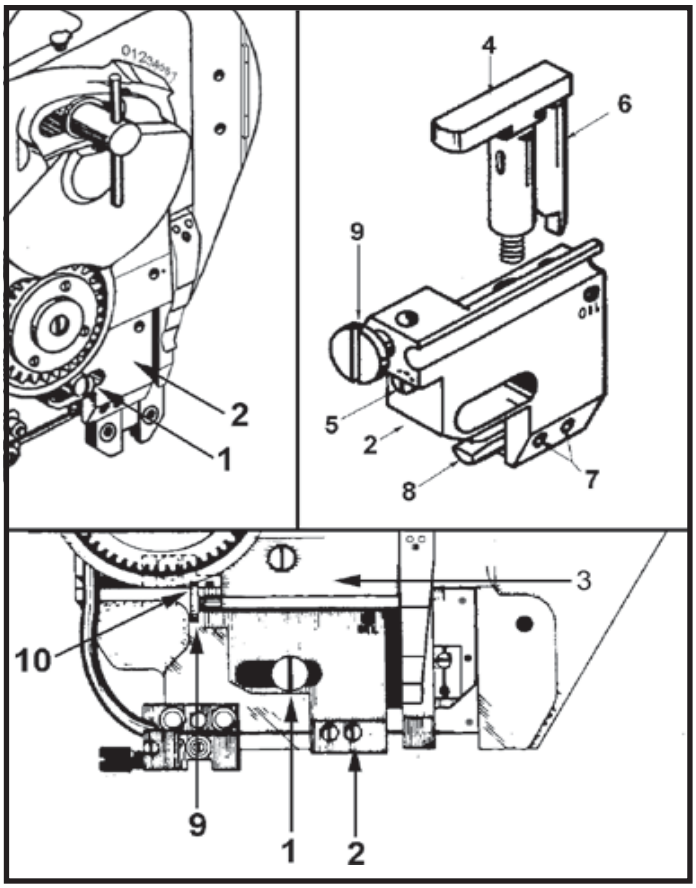


Figure 14-Removing and Replacing The Movable Cutter

1. Remove the cutter block holding screw (1), the cutter block holding plate (3) and the cutter block (2), also loosen the stationary cutter holding screws (7) and slightly back-out the stationary cutter.

2. While manually holding the cutter plunger (4) under spring tension back-out plunger holding screw (5) until the plunger is free. Slide the movable cutter (6) off of the plunger (4) and replace or sharpen the movable cutter.

3. Slide the top of the movable cutter (6) into the groove in the cutter plunger (4) with the flat cutting surface of cutter turned toward plunger.

4. Slide the movable cutter (6) and the cutter plunger (4) into their holes in the cutter block (2). Then compress the plunger by hand until the top of the plunger is just below the top of cutter block body. Then tighten the plunger holding screw (5) until it engages the slot in the side of cutter plunger. Note: If the plunger holding screw (5) protrudes from its hole in the cutter block body (2) it is not correctly engaged with slot in plunger.

5. Slide the stationary cutter (8) back into the cutter block body until its cutting end surface contacts and is parallel with cutting surface of movable cutter (6). The stationary cutter (8) will align the movable cutter (6) automatically with slight pressure. When the cutters are correctly aligned tighten stationary cutter holding screws (7).

6. Reinstall the cutter block (2) onto its holding plate (3). Be sure to position the cutter block (2) so that the cutter block adjusting screw head (9) engages in the first (left side) slot in the cutter block control slide (10). With the cutter block (2) correctly positioned replace and tighten cutter block holding screw (1).

7. Rotate the stitch head's pulley by hand and check that the movable cutter (6) operates freely. Check that cutter stroke is correct. If the movable cutter (6) has been resharpened or a new cutter has been installed the cutter stroke may need resetting, refer to Step 5-How to Set the Movable Cutter.

E. GRIPPER (See Figure 15)-Check for excessive wear on the edges of the gripper bar anvil (1), the surface upon which the staples are formed, usually evidenced by rounded corners on a formed staple. Also check for signs of wear on the surface of the gripper bar that contacts the gripper bar clamp piece spring (2) and for sufficient tension applied to the gripper bar (1) from the gripper bar clamp piece spring (2). If the clamp piece spring is overly worn or the spring tension is not sufficient the wire will slip while being held in the gripper, usually resulting with one-legged staple(s).

To remove and reinstall gripper assembly proceed as follows:

1. Rotate the stitch head's pulley to the neutral (stop) position.

2. Unscrew the gripper spring screw (2) and remove the gripper spring (9) form the head.

3. Unscrew and remove the gripper pivot screw (4). This permits the gripper assembly (1) to be removed from the head.

4. When reinstalling the gripper assembly (1) be sure that the upper stud in the gripper bar clamp piece engages the slot in the gripper clamp piece control slide. Then replace and tighten the gripper pivot screw (4), the gripper spring (9) and the gripper spring screw (2).

5. Check that the gripper bar is in alignment with the formers.

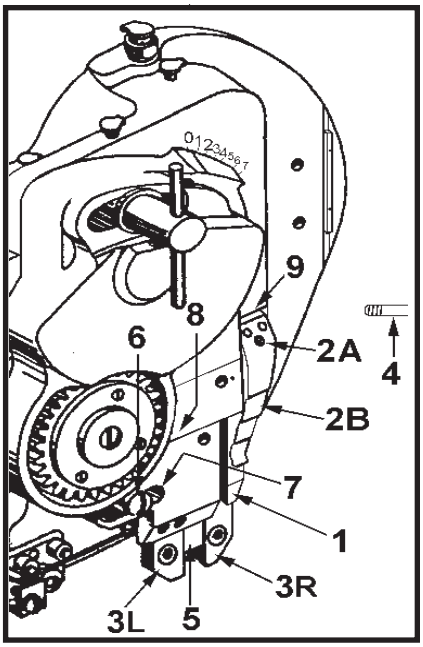


Figure 15-Removing and Replacing Gripper, Formers and Driver

F. FORMERS AND DRIVER (See Figure 15)-Check for wear in the grooves of the formers (3L) and (3R), usually evidenced by buckled staple legs. The driver (5) should be checked for broken tips or worn ends and/or sides. Some types of drivers are double-ended and can be reversed in the drive bar when one end is worn.

To remove and reinstall the formers and/or driver proceed as follows:

1. Remove the gripper spring assembly screw (2A) and remove the gripper spring assembly (2B).

2. Manually rotate the stitch head's pulley to the point where the formers (3L) and (3R) are at the lower end of their stroke and then continue to rotate the sitich head's pulley until clutch is disengaged. Remove the screws from the right former (3R), slide the former down and off of the former slide.

3. The driver (5) can now be removed by sliding it to the right.

4. If it is desired to remove the left former (3L) remove the cutter block holding screw (6), remove the cutter block (7) from its holding plate (8), remove the screws from the left former (3L), slide the former down and off of the former side.

5. To reinstall the left former (3L) slide it up back on the former slide and securely tighten the attaching screws. Reinstall the cutter block (7) into its holding plate (8), in reverse of Step 4.

6. Slide the driver (5) left into place with the driving boss of the driver bar keyed into the slot of the former slide and the left side of the driver (5) is engaged in the groove of the left former (3L).

7. Slide the right former (3R) up into position on the former slide making sure that the driver (5) is engaged in former groove, securely tighten the attaching screws and replace the gripper spring assembly, in reverse of Step 1.

8. Manually rotate the stitch head's pulley and check that the parts operate freely. If new formers and/or driver have been installed oil them and the run machine for a short time, using oiled wire, in order to wear-in former grooves, thereby preventing binding of wire.

G. SUPPORTER (See DWG# 10I001-A)-If the legs of the staple buckle it may be caused by a worn supporter (28). Examine the supporter for signs of excessive wear on the surface that first contacts the wire. Due to the wire always striking the supporting surface at the same point a slight groove may eventually develop at this point causing the wire to jump when it contacts the groove.

The supporter should also be checked for worn (sharp) edges, which may cause wire breakage.

Staple crown buckling may be caused by the supporter retracting too easily due to insufficient tension of the supporter spring, this necessitates replacement of the spring.

H. WIRE FEED CLUTCH (See Figure 16)-The wire feed clutch (1) is a friction roller type of clutch that operates (grips) on the wire feed stroke, counter-clockwise rotation of the clutch ring gear (2), and slips on the return stroke. If the clutch slips on the wire feed stroke, causing uneven wire feed, it is probably due to excessive clutch lubrication. In this event the clutch assembly should be removed and washed with solvent. Be sure to relubricate clutch after clutch is reassembled in head. The clutch is lubricated by an oil hole in the retaining washer (3).

To remove/reinstall the clutch assembly proceed as follows:

1. Remove the retaining washer screw (4) and the retaining washer (3). Slide the clutch assembly from the wire feed drive gear stud (hidden).

2. If clutch is disassembled make sure that clutch rollers and springs, (5) and (6), are reassembled in the clutch spider (7) as shown in the lower portion of Figure 16.

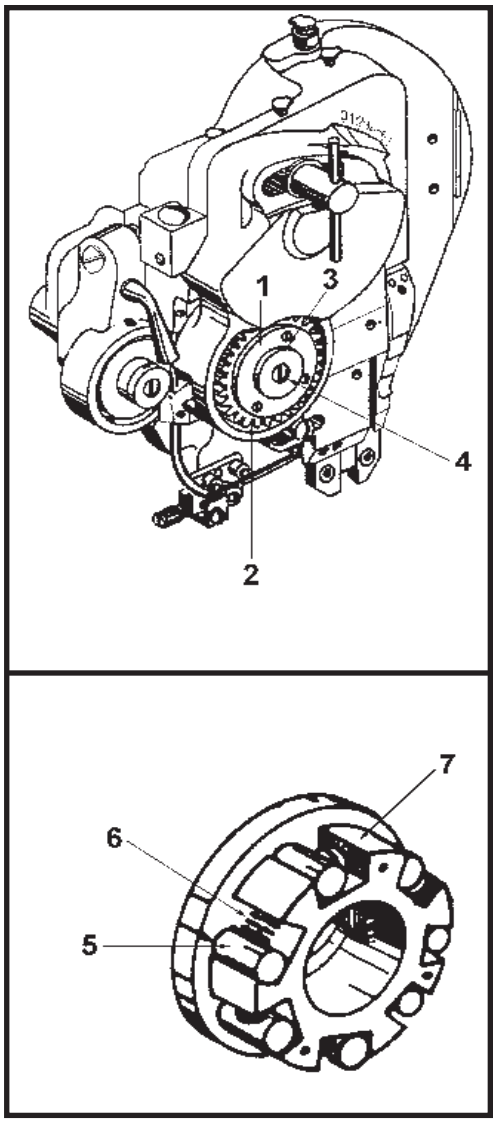


Figure 16-Removing and Assembling the Wire Feed Clutch

CONVERSION TO ARC'D WIRE

(See Drawing Number 10I001-A)

Remove the present Wire Feed Idler Gear (53), Wire Feed Drive Gear (51), Wire Feed Pressure Tension Spring (39), Formers and Drivers (103, 104 & 105), Movable Cutter (68), Stationary Cutter (64) and Lower Wire Tube (47 or 57). Note: the upper protion of the lower wire tube needs to be ground to clear the wire feed gears.

1. After the arc'd wire forming parts have been installed and all standard adjustments have been made, manually rotate the stitch head's pulley by hand to make sure that all parts move freely.

2. Thread the wire between the Wire Feed Gears and turn the throw-out handle to the close gears. Rotate the stitch head's pulley until the wire passes through the cutter block and is being cut off. Check the wire to see that there is the proper amount of arc, the wire should have an arc of .026 to .029.

3. If there is not enough arc in the wire increase the wire feed pressure by turning the wire feed pressure adjusting screw (37) clockwise one or two turns. The Stitcher is now converted for arc'd wire stitching.

TROUBLE SHOOTING

The quality and quantity of work that can be produced with Crittenden Stitch Heads are dependent upon the operator making all adjustments as accurately as possible and carefully maintaining the heads.

The cause of staple imperfections usually can be traced to inaccurate settings or adjustments, or normal wear of parts. If stitch problems do occur the operator can, by referring to the following Trouble Shooting Chart, quickly locate and remedy the cause(s) of the trouble(s), shortening down-time.

The first column of the chart illustrates perfect and imperfect stitches, the second column describes the imperfections, the third column lists the probable cause(s), and the fourth column lists the remedy(ies), as well as to the paragraph in this book were detailed information for making the necessary remedial adjustments will be found.

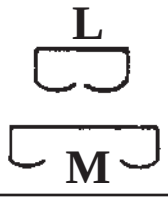
TROUBLE SHOOTING CHART
FORMED STAPLES

Staple	Trouble	Cause	Remedy
 A	Perfect Staple		
 B	Right Leg Short	Wire spool dragging	Adjust wire spool tension
		Wire slipping in wire feed gears	OPERATING ADJUSTMENTS Step 7 MAINTENCE Step 2-A
		Upper and/or lower wire tube clogged or worn	Clean and/or Tube(s)
		Cutter block not properly positioned with relation to gripper	OPERATING ADJUSTMENTS Step 5
		Improper wire feed due to over lubricated or worn wire feed clutch	Check operation of wire feed clutch MAINTENCE Step 2-H
		Wire slipping in gripper due to normal wear of gripper bar clamp piece or insufficient tension in clamp piece spring	Check gripper bar clamp piece and spring MAINTENCE Step 2-E
 C	Left leg short	Cutter block not properly positioned with relation to gripper	Adjust length of left leg OPERATING ADJUSTMENTS Steps 4 & 5
		Wire slipping in gripper due to normal wear of gripper bar clamp piece or insufficient tension in clamp piece spring	Check gripper bar clamp piece and spring MAINTENCE Step 2-E
 D	Staple corner buckled	Chipped or broken driver	Check driver ends for signs of damage, reverse or replace driver MAINTENCE Step 2-F
 E	Either or both legs buckled	Wrong size wire being used for work being stitched	Check wire size for work being stitched Step 3 of OPERATING ADJUSTMENTS
		Dull wire cutters	Check movable and stationary cutters; sharpen or replace cutters MAINTENCE Step 2-C
		Worn supporter, or supporter retracts too easily due to insufficient spring tension	Check for worn supporter and broken or weak supporter spring MAINTENCE Step 2-G

TROUBLE SHOOTING CHART (Cont'd)
FORMED STAPLES

Staple	Trouble	Cause	Remedy
 F	Bent Crown	Wrong size wire being used for work being stitched	Check wire size for work being stitched
		Supporter retracts too easily	Check for weak supporter spring MAINTENCE Step 2-G
		Wrong setting of stitcher adjustment for thickness of work being stitched	Check stitcher adjustment for thickness of work being stitched OPERATING ADJ. Step 3
 G	Left leg missing	Wire slipping in gripper due to normal wear of gripper bar clamp piece or clamp piece sping	Check gripper bar clamp piece and clamp piece spring MAINTENCE Step 2-E
		Gripper out of alignment with formers	Check to see that formers and gripper are in proper alignment OPERATING ADJ. Step 6
 H	Right leg missing	Wire slipping in wire feed gears	Check tension setting of wire feed gears, check for worn gears OPERATING ADJ. Step 7 MAINTENCE Step 2-A
		Refer to causes for "Left leg missing"	Refer to Remedies for "Left leg missing"
		Gripper not operating properly due to broken or weak gripper bar holding springs	Check for broken or weak gripper springs MAINTENCE Step 2-E
 I	Staple comes out in pieces	See Causes for Left and Right legs missing	Refer to Remedies for Left and Right legs missing
		Supporter edges worn sharp	Check for worn supporter MAINTENCE Step 2-G
		Wire too hard	Check wire being used
 J	Corner of staple broken or nearly broken thru	Wire too hard	Check wire being used
		Supporter edges worn sharp	Check for worn supporter MAINTENCE Step 2-G
		Driver corners too sharp or worn formers	Check for worn driver or formers MAINTENCE Step 2-F
 K	Corner of staple rounded	Worn anvil surface of gripper bar	Check for worn gripper bar MAINTENCE Step 2-E

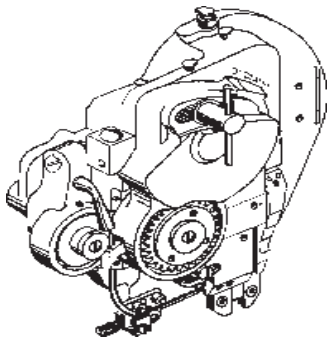
TROUBLE SHOOTING CHART (Cont'd)
FORMED STAPLES

Staple	Trouble	Cause	Remedy
 L M	Perfect Stitch (.175 to 1/2" Crown Width Perfect Stitch (Crown Widths greater than 1/2"		
 N	Loose clinch	Wrong setting of stitcher adjustment for thickness of work and clinchers set too low	Check setting of Stitcher for thickness of work being stitched and raise clinchers OPERATING ADJ. Step 3
 O	Legs spread	Worn wire cutters	Check movable and stationary cutters, sharpen or replace MAINTENCE Step 2-C
		Former grooves worn	Check former for grooves MAINTENCE Step 2-F
		Wire straightener not properly adjusted	Check setting of wire strightener OPERATING ADJ. Step 2
		Thickness of work beyond capacity of machine	Check thickness capacity of Stitcher OPERATING ADJ. Step 3
 P	Staple legs contracted	Worn wire cutters	Check movable and stationary cutters; sharpen or replace OPERATING ADJ. Step 5 MAINTENCE Step 2-C
		Wire straightener not properly adjusted	Check setting of wire straightener OPERATING ADJ. Step 2
 Q	Crown buckled, tearing work	Wrong setting of machine adjustment for thickness of work	Check setting of Stitcher for thickness of work being stitched OPERATING ADJ. Step 3
 R	Only one leg clinched in	Clincher not in alignment with driver	Align clincher and driver OPERATING ADJ. Step 6
 S	Short legs	Insufficient wire draw	Increase amount of wire draw OPERATING ADJ. Step 3
 T	Legs cross	Wire draw too great	Decrease amount of wire draw OPERATING ADJ. Step 3
 U	Uneven clinching	Clincher not level and parallel with formers	Adjust clincher setting

PARTS ORDERING INFORMATION

FOR

CRITTENDEN STITCH HEAD



Refer to the corresponding assembly drawing, identify the part and reference number. Then refer to the part assembly table for a part description and part number.

To order parts please phone or fax your information to the following:

Crittenden Conversion Corporation
145 N. Hamilton Road
Moses Lake, WA 98837
Ph: (509) 764-1747
Ph: (800) 755-7894
Fax: (509) 764-1688
e-mail: mbyrd@crittendenconversion.com
WEB: www. crittendenconversion.com

- Date of Order
- Your Name
- Phone/Fax Number
- Company Name
- Billing Address
- Shipping Address
- Purchase Order Number
- How you would like your order shipped
- Part Number(s)
- Description of Part(s)
- Quantity of each part

STITCH HEAD ASSEMBLY

REF NO	PART NUMBER	QTY	DESCRIPTION
001	C1001S	1	HEAD PLATE-STANDARD DRAW
001	C1001LD	1	HEAD PLATE-LONG DRAW
002	C1002	1	HEAD PLATE KEY
003	C1003	1	UPPER WIRE TUBE-RIBBON TYPE
004	C1004	2	HEAD LOCATING DOWEL
005	C1005	1	OILER CUP-LARGE
006	C1006	2	OILER CUP-SMALL
007	C1007	2	HEAD PLATE KEY SCREW
008	C1008	1	OILER FELT RETAINER
009	C1009	1	OILER FELT
010	C1010	1	OILER FELT RETAINER SCREW
011	C1011	1	SUPPORTER PLUNGER
012	C1012	1	SUPPORTER CAM-RAMP
013	C1013	2	SUPPORTER CAM SPRING PIN
014	C1014	1	SUPPORTER PLUNGER SPRING
015	C1015	1	SUPPORTER CAM SCREW
016	C1016	1	SUPPORTER PLUNGER SHOE STUD NUT
017	C1017	1	SUPPORTER PLUNGER SHOE STUD LOCK WASHER
018	C1018	1	SUPPORTER BRACKET-LEFT HAND
019	C1019	4	SUPPORTER BRACKET SCREW
020	C1020	1	SUPPORTER PLUNGER SHOE STUD
021	C1021	1	SUPPORTER PLUNGER SHOE
022	C1022	1	SUPPORTER BRACKET-RIGHT HAND
023	C1023	1	SUPPORTER PLUNGER SHOE STOP
024	C1024	2	SUPPORTER PLUNGER SHOE STOP LOCK WASHER
025	C1025	2	SUPPORTER PLUNGER SHOE STOP SCREW
026	C1026	1	SUPPORTER ROLL
027	C1027	1	SUPPORTER ROLL STUD
028	C1028	1	SUPPORTER 7/16” CROWN WITH ROLL AND STUD
029	C1029	1	SUPPORTER PIVOT PIN
030	C1030	2	GEAR ARM HOLDING PLATE SCREW
031	C1031	1	GEAR ARM HOLDING PLATE ROD PIN
032	C1032	1	GEAR ARM HOLDING PLATE
033	C1033	1	GEAR ARM PIVOT LOCK SCREW
034	C1034	1	GEAR ARM HOLDING PLATE ROD
035	C1035	1	GEAR ARM HOLDING PLATE LOCATING PIN
036	C1036	1	WIRE FEED IDLER GEAR ARM WITH STUD (ALL MODELS)
037	C1037	1	WIRE FEED PRESSURE ADJUSTING SCREW
038	C1038	1	OILER-BUTTON TYPE
039	C1039	1	WIRE FEED PRESSURE TENSION SPRING
040	C1040	1	WIRE FEED DRIVE GEAR STUD NUT
041	C1041	1	THROWOUT HANDLE STOP PIN
042	C1042	1	LOWER WIRE TUBE HOLDING CLAMP NUT
043	C1043	1	WIRE FEED IDLER GEAR THROWOUT HANDLE
044	C1044	2	WIRE TUBE SCREW-1/4-28 SOC. SET
044	C1044B	2	WIRE TUBE SCREW-1/4-24 SLOTTED
045	C1045	1	WIRE FEED IDLER GEAR ARM PIVOT
046	C1046	1	WIRE FEED IDLER GEAR ARM STUD-W/WASHER & SCREW-S.D.
046	C1046LD	1	WIRE FEED IDLER GEAR ARM STUD ONLY-LONG DRAW

STITCH HEAD ASSEMBLY

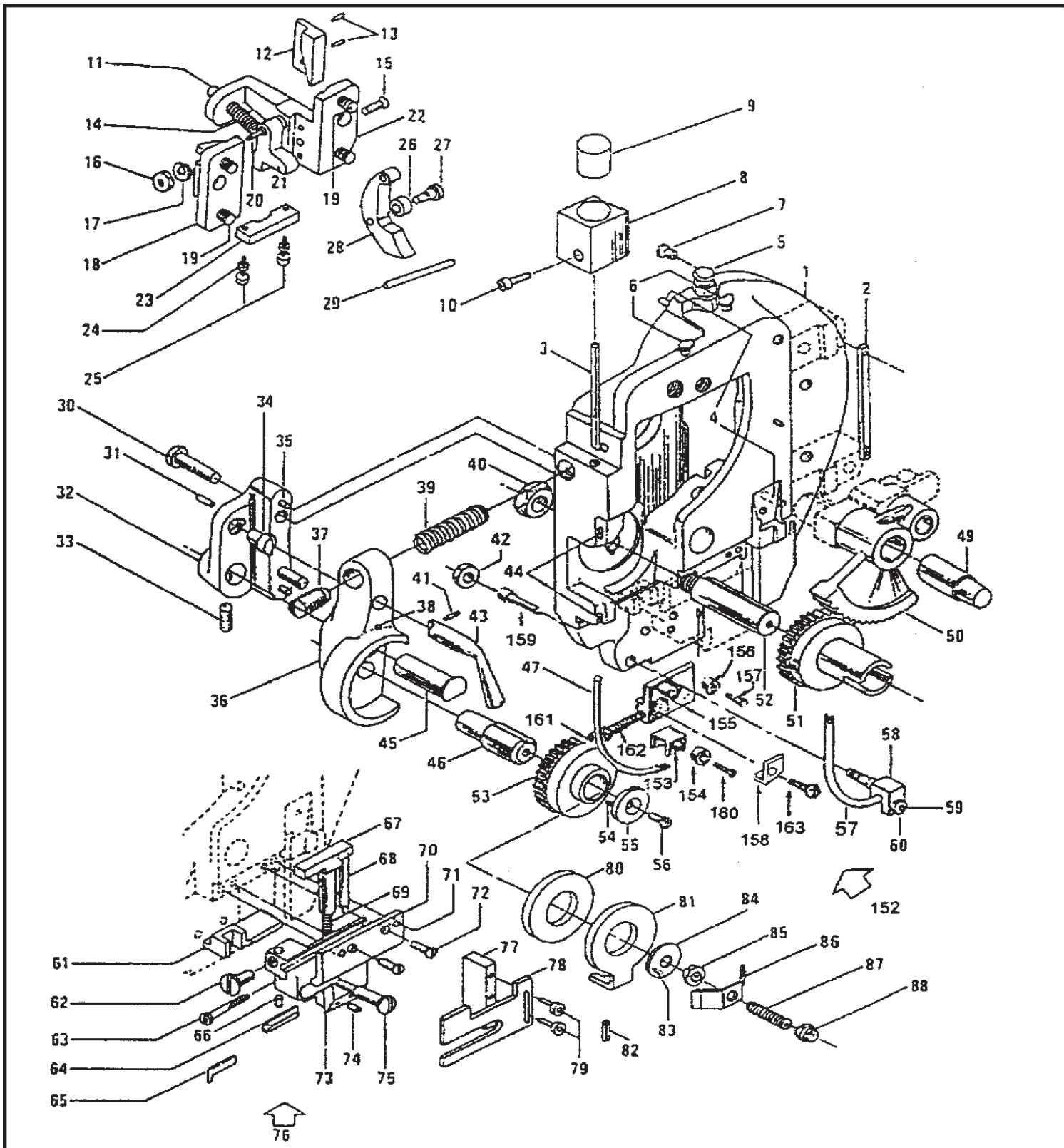
REF NO	PART NUMBER	QTY	DESCRIPTION
047	C1047	1	LOWER WIRE TUBE-RW-USED WITH WIRE STRAIGHTENER
048	C1048	1	WIRE FEED DRIVE GEAR STUD PIN
049	C1049	1	WIRE FEED GUARD CRANK STUD
050	C1050	1	WIRE FEED CRANK SECTOR-STANDARD DRAW
050	C1050LD	1	WIRE FEED CRANK SECTOR-LONG DRAW
051	C1051S	1	WIRE FEED DRIVE GEAR-RIBBON WIRE-STANDARD DRAW
051	C1051LD	1	WIRE FEED DRIVE GEAR -RIBBON WIRE-LONG DRAW
051	C1051AS	1	WIRE FEED DRIVE GEAR -ARC'D WIRE-STANDARD DRAW
051	C1051ALS	1	WIRE FEED DRIVE GEAR -ARC'D WIRE-LONG DRAW
052	C1052S	1	WIRE FEED DRIVE GEAR STUD-STANDARD DRAW
052	C1052LD	1	WIRE FEED DRIVE GEAR STUD-LONG DRAW
053	C1053	1	WIRE FEED IDLER GEAR-RIBBON WIRE
053	C1053A	1	WIRE FEED IDLER GEAR-ARC'D WIRE
054	C1054	1	WIRE FEED IDLER GEAR RETAINER WASHER PIN
055	C1055	1	WF IDLER GEAR RETAINER WASHER-WO/ FRICTION BRAKE
056	C1056	1	WIRE FEED IDLER GEAR RETAINER WASHER SCREW-F.H.C.S.
057	C1057	1	LOWER WIRE TUBE-RIBBON WIRE
058	C1058	1	LOWER WIRE TUBE HOLDING CLAMP
059	C1059	1	LOWER WIRE TUBE RETAINING SCREW
060	C1060	1	LOWER WIRE TUBE RETAINING SCREW NUT
061	C1061	1	CUTTER BLOCK CONTROL SLIDE
062	C1062	1	CUTTER BLOCK ADJUSTING SCREW
063	C1063	1	CUTTER PLUNGER HOLDING SCREW
064	C1064	1	STATIONARY CUTTER-RW-SQUARE CUTOFF
064	C1064-15	1	STATIONARY CUTTER-RW-15 DEGREE ANGLE CUTOFF
064	C1064A	1	STATIONARY CUTTER-ARC'D WIRE
065	C1065	1	STATIONARY KNIFE PLATE
066	C1066	1	CUTTER BLOCK ADJUSTING SCREW LOCK SCREW-1/4-28 SOC.
066	C1066B	1	CUTTER BLOCK ADJUSTING SCREW LOCK SCREW-1/4-24
067	C1067	1	CUTTER PLUNGER
068	C1068	1	MOVEABLE CUTTER-RIBBON WIRE
068	C1068A	1	MOVEABLE CUTTER-ARC'D WIRE
069	C1069	1	CUTTER PLUNGER SPRING
070	C1070S	1	CUTTER BLOCK HOLDING PLATE-STANDARD DRAW
070	C1070LD	1	CUTTER BLOCK HOLDING PLATE-LONG DRAW
071	C10771	2	CUTTER BLOCK HOLDING PLATE DOWEL
072	C1072	2	CUTTER BLOCK HOLDING PLATE SCREW
073	C1073	1	CUTTER BLOCK BODY
074	C1074	2	STATIONARY CUTTER SCREW-1/4-28 SOC. SET
074	C1074B	2	STATIONARY CUTTER SCREW-1/4-24 SLOTTED
075	C1075	1	CUTTER BLOCK HOLDING SCREW
076	C1076	1	CUTTER BLOCK ASSY.-SPECIFY WIRE TYPE & CUTOFF STYLE
077	C1077	1	WIRE GUIDE
078	C1078	1	WIRE GUIDE PLATE
079	C1079	1	WIRE GUIDE SCREW
080	C1080	1	FRICTION BRAKE
081	C1081	1	FRICTION BRAKE PLATE
082	C1082	1	FRICTION BRAKE PLATE SPRING PIN
083	C1083	1	RETAINING GEAR WASHER PIN

STITCH HEAD ASSEMBLY

REF NO	PART NUMBER	QTY	DESCRIPTION
084	C1084	1	RETAINING GEAR WASHER-USED WITH FRICTION BRAKE
085	C1085	1	WIRE FEED IDLER GEAR STUD SCREW NUT
086	C1086	1	FRICTION BRAKE SPRING
087	C1087	1	WIRE FEED IDLER GEAR STUD SCREW
088	C1088	1	FRICTION BRAKE TENSION NUT
089	C1089	1	HARDENED DRIVE CAM-ALL MODELS
090	C1090	1	OILITE CAM BUSHING
091	C1091	1	FORMER SLIDE ROLLER-DRIVE CAM FOLLOWER
092	C1092	1	DRIVER BAR LINK
093	C1093	1	FORMER SLIDE-.190-7/16” CROWN
094	C1094	1	DRIVER BAR 3/8” THRU 1-3/8” CROWN
095	C1095S	1	WIRE FEED OPERATING LINK-STANDARD DRAW 3/4”
095	C1095LD	1	WIRE FEED OPERATING LINK-LONG DRAW 1”
096	C1096	1	GRIPPER THROWOUT CAM BLOCK .175-1/2” CROWN
097	C1097	2	FORMER SLIDE THROWOUT CAM DOWEL
098	C1098	1	DRIVER BAR LOCK STUD
099	C1099	1	GRIPPER THROWOUT CAM BLOCK SCREW
100	C1100	1	GRIPPER CLAMP PIECE CONTROL SLIDE
101	C1101	1	WIRE FEED OPERATING LEVER-WITH STUDS
102	C1102	1	WIRE FEED OPERATING LEVER SLIDING HEAD
103	C1103-020	1	LEFT HAND FORMER .020 RIBBON WIRE
103	C1103-023	1	LEFT HAND FORMER .023 RIBBON WIRE
103	C1103-028	1	LEFT HAND FORMER .028 RIBBON WIRE
103	C1103A	1	LEFT HAND FORMER ARC’D WIRE
104	C1104-020	1	DRIVER .020 RIBBON WIRE
104	C1104-023	1	DRIVER .023 RIBBON WIRE
104	C1104-028	1	DRIVER .028 RIBBON WIRE
104	C1104A	1	DRIVER ARC’D WIRE
105	C1105-020	1	RIGHT HAND FORMER .020 RIBBON WIRE
105	C1105-023	1	RIGHT HAND FORMER .023 RIBBON WIRE
105	C1105-028	1	RIGHT HAND FORMER .028 RIBBON WIRE
105	C1105A	1	RIGHT HAND FORMER ARC’D WIRE
106	C1106	4	FORMER SCREW
107	C1107	1	CUTTER BLOCK TRIP CRANK HOLDING SCREW
108	C1107	1	CUTTER BLOCK TRIP CRANK
109	C1109	1	GRIPPER BAR CLAMP PIECE SPRING PLUG
110	C1110	1	GRIPPER BAR CLAMP PIECE SPRING
111	C1111	1	GRIPPER BAR CLAMP PIECE SPRING-ASSEMBLY
112	C1112	1	CUTTER BLOCK OPERATING PLUNGER-ASSEMBLY ONLY
113	C1113	1	GRIPPER CLAMP PIECE CONTROL SLIDE FRICTION BOLT
114	C1114	1	GRIPPER CLAMP PIECE CONTROL SLIDE FRICTION SPRING
115	C1115	1	FRICTION BOLT SCREW
116	C1116	1	GRIPPER PIVOT SCREW
117	C1117	1	GRIPPER BAR CLAMP PIECE STUD-UPPER
118	C1118	1	GRIPPER BAR CLAMP PIECE STUD-LOWER
119	C1119	1	GRIPPER BAR ADJUSTING SCREW
120	C1120	1	GRIPPER BAR-7/16” CROWN
121	C1121	1	GRIPPER BAR CLAMP ASSEMBLY
122	C1122	1	GRIPPER BAR CLAMP PIECE SPRING RETAINING SCREW

STITCH HEAD ASSEMBLY

REF NO	PART NUMBER	QTY	DESCRIPTION
123	C1123	1	GRIPPER BAR ADJUSTING SCREW CLAMP BLOCK
124	C1124	1	GRIPPER CLAMP BLOCK HOLDING SCREW
125	C1125	1	GRIPPER ASSEMBLY-7/16” CROWN
126	C1126	1	GRIPPER LEAF SPRING
127	C1127	1	GRIPPER LEAF SPRING RETAINING SCREW
128	C1128S	1	WIRE FEED GUARD-STD. DRAW (W/CRANK STUD & STOP STUD)
128	C1128LD	1	WIRE FEED GUARD-LONG DRAW (WITH CRANK STUD)
129	C1129	2	OILER-BUTTON TYPE
130	C1130	1	WIRE FEED GUARD LOCK SCREW WASHER
131	C1131	1	WIRE FEED GUARD LOCK SCREW
132	C1132	3	REAR CLUTCH PLATE RETAINING SCREW
133	C1133	1	REAR CLUTCH PLATE
134	C1134	1	WIRE FEED CLUTCH RING GEAR
135	C1135	1	CLUTCH SPIDER WITH REAR PLATE
136	C1136	1	CLUTCH ROLLER
137	C1137	1	CLUTCH ROLLER SPRING
138	C1138	1	CLUTCH FRONT PLATE
139	C1139	3	CLUTCH FRONT PLATE RETAINING SCREW
140	C1140	1	WIRE FEED CLUTCH ASSEMBLY-STANDARD DRAW
141	C1141	1	WIRE FEED CLUTCH RETAINER WASHER
142	C1142	1	WIRE FEED CLUTCH RETAINER WASHER PIN
143	C1143	1	WIRE FEED CLUTCH RETAINER WASHER SCREW
144	C1144	1	WIRE FEED GUARD STOP STUD
145	C1145	1	WIRE FEED CLUTCH FLANGE & GEAR ASSEMBLY
146	C1146	1	WIRE FEED CLUTCH FLANGE STUD
147	C1147	1	WIRE FEED CLUTCH CONNECTING SLEEVE
148	C1148	1	CLUTCH RING
149	C1149	1	WIRE FEED CLUTCH ASSEMBLY-LONG DRAW
150	C1150	1	STITCH HEAD ASSEMBLY-STANDARD DRAW
151	C1151	1	STITCH HEAD ASSEMBLY-LONG DRAW
152	C1152	1	WIRE STRAIGHTENER ASSEMBLY
153	C1153	1	WIRE STRAIGHTENER SLIDE BLOCK
154	C1154	1	WIRE STRAIGHTENER ROLL-LOWER ADJUSTABLE
155	C1155	1	WIRE STRAIGHTENER PLATE
156	C1156	2	WIRE STRAIGHTENER ROLL-UPPER STATIONARY
157	C1157	2	WIRE STRAIGHTENER UPPER ROLL STUD
158	C1158	1	LOWER WIRE TUBE CLAMP
159	C1159	1	WIRE STRAIGHTENER PLATE SCREW
160	C1160	1	WIRE STRAIGHTENER ROLL SCREW
161	C1161	1	WIRE STRAIGHTENER ADJUSTING SCREW
162	C1162	1	WIRE STRAIGHTENER FRICTION SPRING
163	C1163	1	LOWER WIRE TUBE CLAMP SCREW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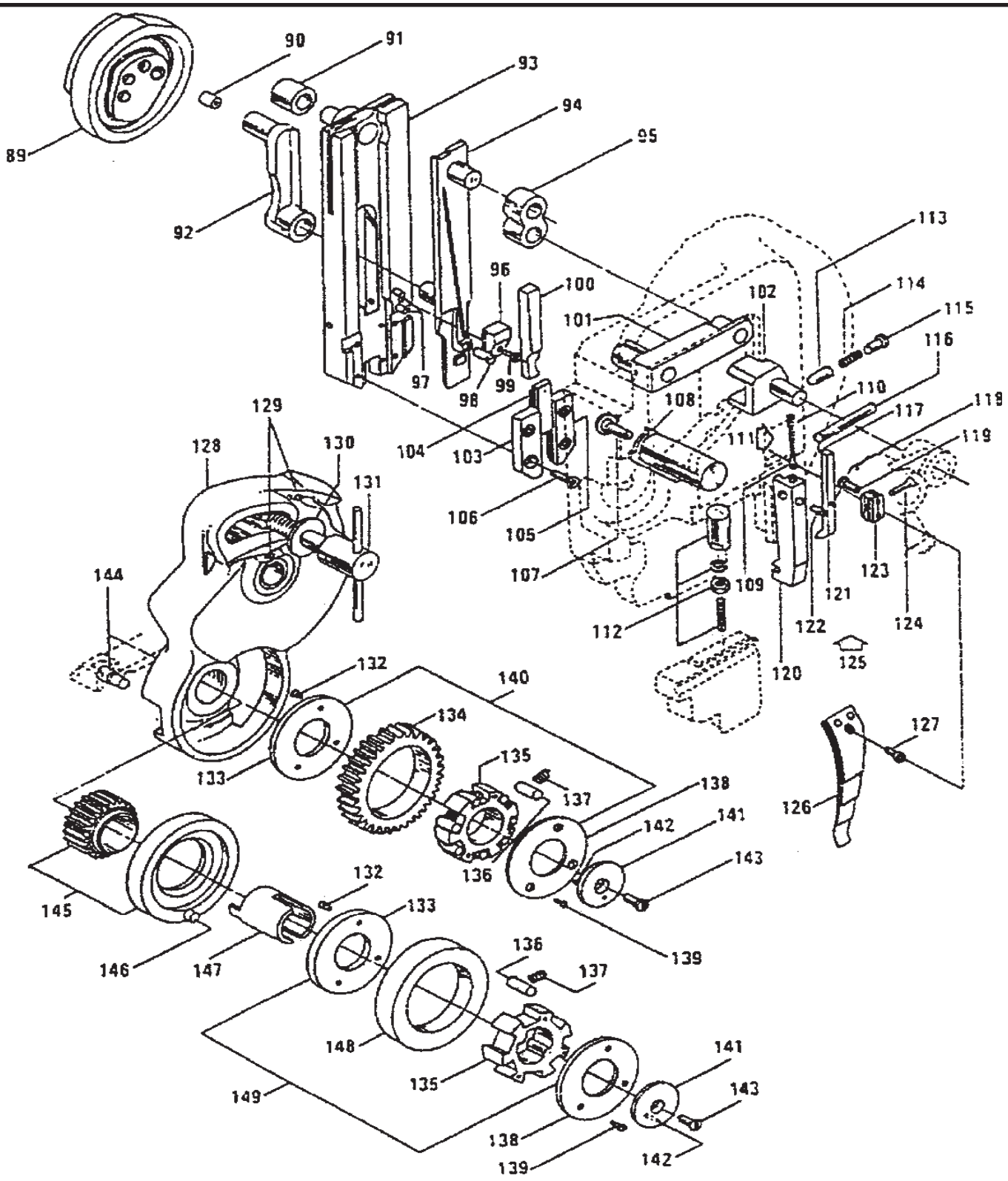
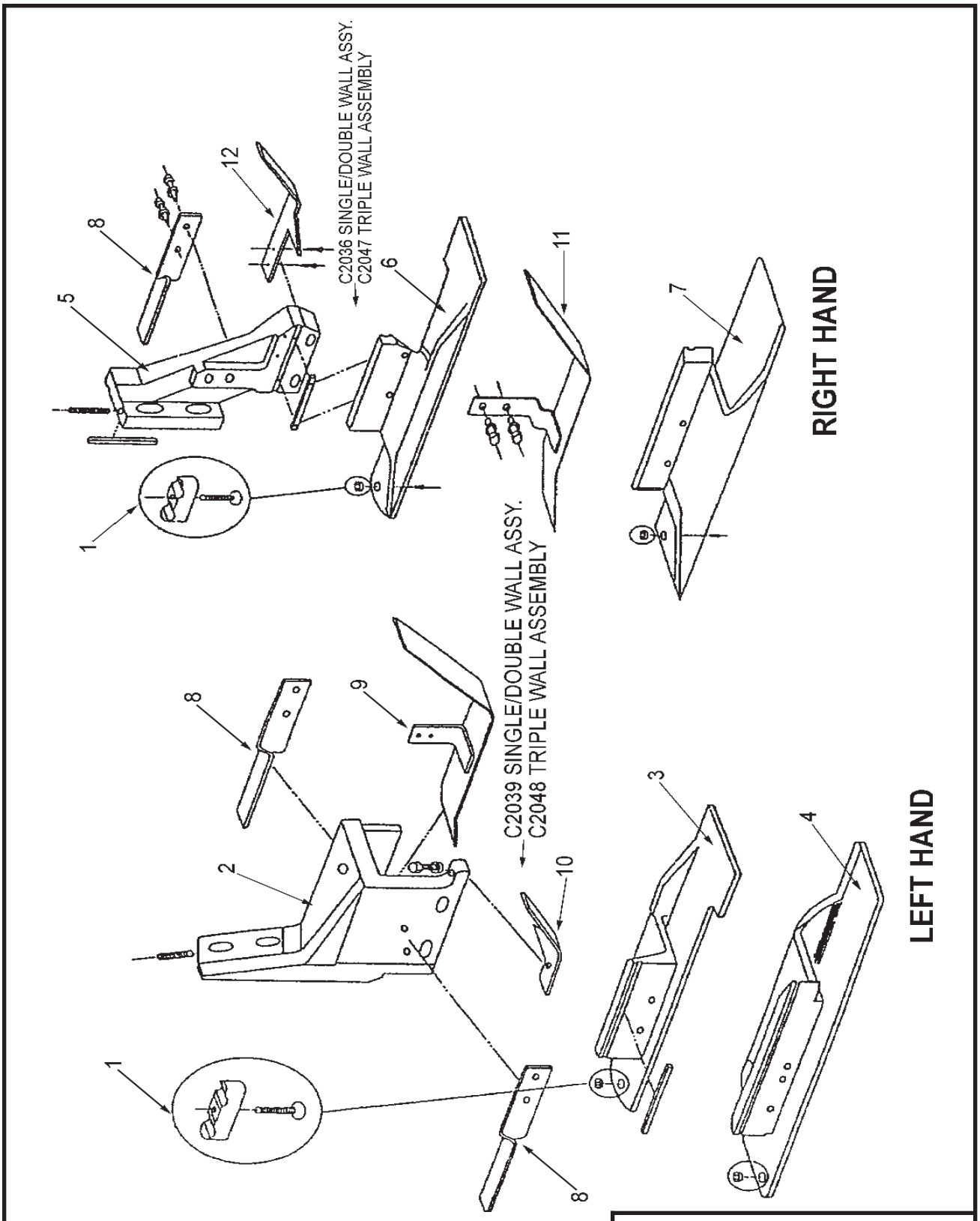


STITCH HEAD ASSEMBLY
DRAWING NUMBER 10I001-A
FIGSH_A.TIF & FIGSH_B.TIF

FIGSH_B.TIF

OPEN HEAD ASSEMBLY

REF NO	PART NUMBER	QTY	DESCRIPTION
1	C2011	1	CLINCHER-7/16” CROWN-ALL BOARDS
2	C2040	1	LEFT HAND OPEN HEAD BRACKET-ALUMINUM
3	C2041	1	LEFT HAND OPEN HEAD STEEL SHOE
4	C2045	1	LEFT HAND TRIPLE WALL SHOE
5	C2037	1	RIGHT HAND OPEN HEAD BRACKET-ALUMINUM
6	C2038	1	RIGHT HAND OPEN HEAD STEEL SHOE
7	C2042	1	RIGHT HAND TRIPLE WALL SHOE
8	C2054	2-3	UNIVERSAL TWIST DEFLECTOR-ALL
9	C2055	1	LEFT HAND TOP DEFLECTOR-ALL
10	C2056	1	LEFT HAND BOTTOM DEFLECTOR-DOUBLE WALL
10	C2057	1	LEFT HAND BOTTOM DEFLECTOR-TRIPLE WALL
11	C2058	1	RIGHT HAND TOP DEFLECTOR-ALL
12	C2059	1	RIGHT HAND BOTTOM DEFLECTOR-DOUBLE WALL
12	C2060	1	RIGHT HAND BOTTOM DEFLECTOR-TRIPLE WALL
	C2039	1	LEFT HAND RIGID OPEN HEAD SHOE ASSEMBLY-COMPLETE
	C2048	1	LEFT HAND TRIPLE WALL SHOE ASSEMBLY-COMPLETE
	C2036	1	RIGHT HAND OPEN HEAD SHOE ASSEMBLY-COMPLETE
	C2047	1	RIGHT HAND TRIPLE WALL SHOE ASSEMBLY-COMPLETE



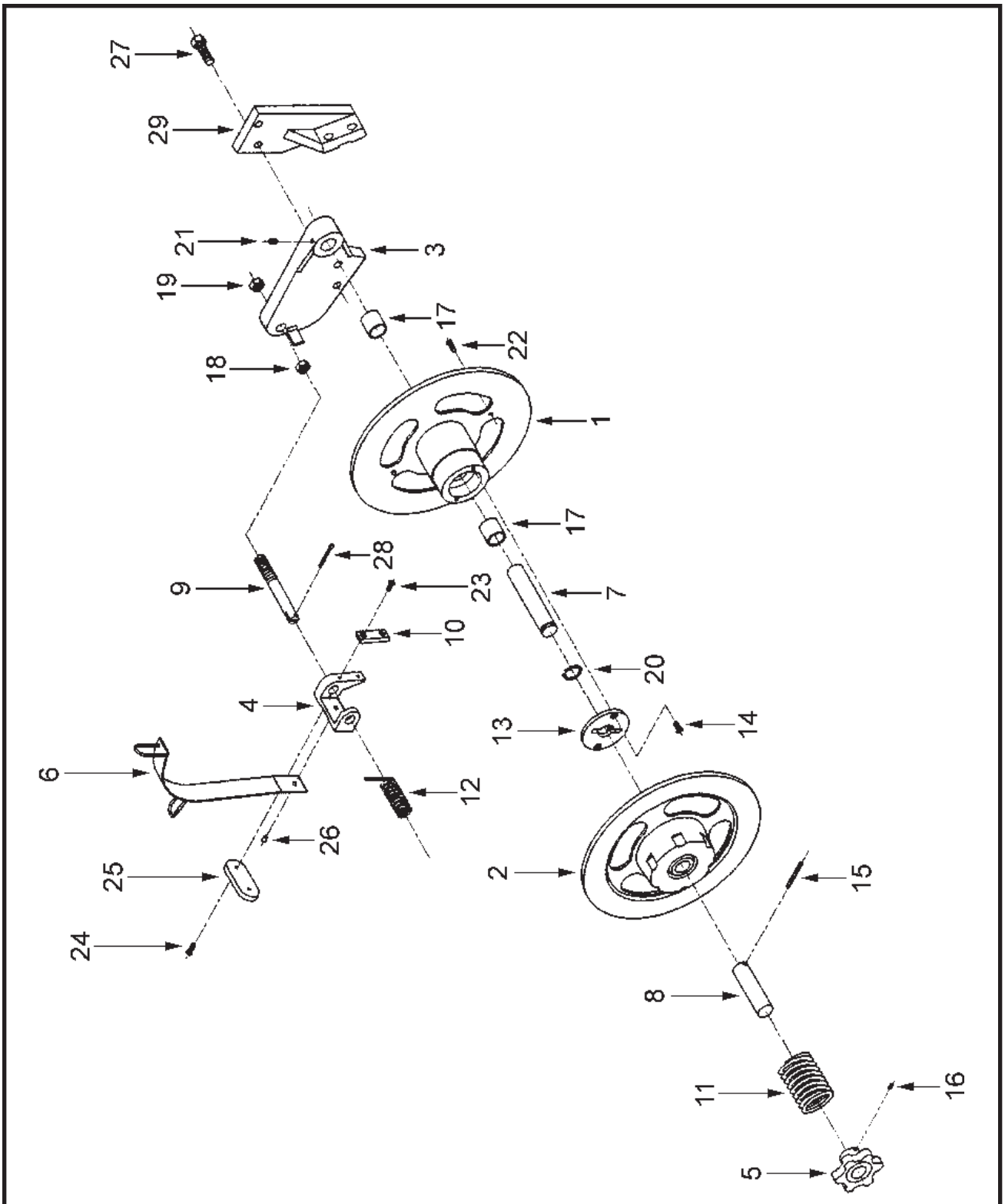
OPEN HEAD SHOE ASSY.

DRAWING NUMBER 10I002-A

10I002-A.TIF

WIRE SPOOL HOLDER

REF NO	PART NUMBER	QTY	DESCRIPTION
1	C2043-1	1	FIXED FLANGE
2	C2043-2	1	REMOVABLE FLANGE
3	C2043-3	1	SUPPORT
4	C2043-4	1	BRAKE SUPPORT
5	C2043-5	1	HANDLE
6	C2043-6	1	WIRE GUIDE SPRING
7	C2043-7	1	SPINDLE
8	C2043-8	1	HANDLE SHAFT
9	C2043-9	1	BRAKE SUPPORT STUD
10	C2043-10	1	BRAKE MATERIAL WITH SCREWS
11	C2043-11	1	COMPRESSION SPRING
12	C2043-12	1	TORSION SPRING
13	C2043-13	1	SLOTTED RETAINER
14	C2043-14	1	SLOTTED RETAINER SCREWS
15	C2043-15	1	LOCK PIN
16	C2043-16	1	SET SCREW
17	C2043-17	2	BUSHING
18	C2043-18	1	LOCK NUT
19	C2043-19	1	LOCK NUT
20	C2043-20	1	RETAINER RING
21	C2043-21	1	SET SCREW
22	C2043-22	2	FLANGE LOCK SCREWS
23	C2043-23	2	BRAKE PAD SCREWS-BRASS
24	C2043-24	2	BRACKET SCREWS
25	C2043-25	1	BRAKE SUPPORT CAP
26	C2043-26	1	WIRE GUIDE PIN
27	C2043-27	1	SUPPORT CAP SCREW
28	C2043-28	1	COTTER PIN
29	C2043-29	1	RIGHT HAND BLISS BRACKET
	C2043-BSA	1	WIRE SPOOL BRAKE SUPPORT ASSEMBLY
	C2043	1	25 POUND WIRE SPOOL HOLDER



WIRE SPOOL HOLDER
DRAWING NUMBER 20I002-A
20I002-A.TIF

NOTES