INSTRUCTIONS FOR INSTALLATION, ADJUSTMENT AND MAINTENANCE OF THE

S13E

BLISS METAL STITCHER

BOSTON WIRE STITCHER COMPANY
EAST GREENWICH, R.I.

INSTALLATION, ADJUSTMENT AND MAINTENANCE OF S13E BLISS METAL STITCHER

3/8 CROWN - #18 WIRE

1. INTRODUCTION

A wire stitcher, like any other machine, will give satisfactory results to its owner only if properly installed, regularly lubricated, intelligently adjusted, and carefully maintained. Moving parts will wear in time and require replacement, while others may break through accident. Trained service men are available but not always to be had at a moment's notice, and a knowledge of the functions of the more important parts of a stitcher is therefore most desirable for every person responsible for its operation, in order to know what to do in case of trouble.

We have, therefore, gathered together the combined experience of our engineers and service men and have attempted to present the information in a manner that will make it quickly available and readily understood.

We would urge, however, in any case of serious difficulty that you notify our nearest sales office, sending samples of the defective work and describing the trouble in detail, so as to obtain the benefit of their experience in arriving at the proper solution. Be sure to report the serial number and model of the machine when corresponding in regard to equipment, so that it may be identified quickly.

2. INSTALLATION (See charts and parts lists for locations and names of parts referred to).

Any machine can be seriously damaged during its installation if it is not properly set up, therefore we recommend close adherence to the following procedure:

a) After uncrating machine, examine carefully for any breakage in transit. If such be found, do not attempt to run machine but report at once to the selling agent. If our service man is present, let him examine machine and then report to the manufacturer.

b) See that motor is free to revolve when large pulley or fly wheel is turned by hand. If tight, clutch is perhaps engaged, in which case shaft will turn also. Turning pulley or flywheel one revolution will release clutch.

c) Examine name plate on motor and see that its specifications are the same as those of the power to be used. If not, do not attempt to operate the machine.

d) Place the machine on a level floor, using shims under base if necessary to prevent any movement or rocking.

e) Lower clincher arm so that clincher is at least 2" below the stitcher head, using the clincher arm adjusting bolt.

f) Be sure that the machine is oiled thoroughly at all points before operating.

Run a little oil on coil of wire, which helps to lubricate wire feed tube and also the formers and drivers, which are tight-fitting when new. Tie a piece of cloth temporarily around the wire above the top end of the upper wire feed tube to remove dirt and excess oil and thus prevent soiling the work.

g) Connect motor cord to power outlet and start motor running. See that it runs freely, without undue noise, and that the large pulley rotates clockwise as viewed from the front of the machine. Should it rotate counter-clockwise, motor wiring should be re-connected by an electrician in order to reverse direction of rotation.

h) Push down foot switch treadle and thus start machine operating, starting and stopping several times.

i) Stop motor and turn pulley by hand in a clockwise direction with connecting link arm pulled down until driver is at lowest point.

j) Hold material to be stitched (using thickness that is to be used) under driver when in lowest position and then raise clincher arm by means of adjusting bolt until stock is just tightly held. Then lock clincher arm in position.

k) Place a spool of wire of proper size on the spoolholder, the wire leading to the left from top of spool, and then tighten spool-holder clamp handle just enough to give a slight drag to the rotation of spool and prevent the wire uncoiling.

If it is too tight, the wire will bind and catch between the coils and thus may cause uneven staple legs. If too loose, the spool may unwind, causing snags in the wire.

Cut binding wires on wire coil and bend same back over edge of spool, holding free end of wire in the hand to prevent unwinding and tangling. Cut off bent and twisted end of the wire, and then straighten out about 6". The end of the wire to be inserted in machine must be just as straight as possible.

Open wire feed gears by raising idler feed gear throwout handle and insert end of wire through eye on upper end of the spring wire guide. Enter the end of the wire into the upper wire tube and push down between the wire feed gears and then through the lower wire tube until it comes out of the lower end. Push it into the hole in the stationary cutter, raising the end of the wire slightly if necessary for proper entrance, then turn down the idler feed gear throwout handle, thus engaging the feed gears.

CAUTION:--Never operate machine with wire feeding and with no material above clincher. Serious damage may result from this too frequent practice.

l) Start motor and drive a few stitches into material and, if necessary, adjust clincher height to get desired tightness of clinching. See instructions for adjusting clincher.

m) Adjust for proper length of wire by loosening lock screw and moving wire feed guard casting to right or left along gauge marks on upper part of head casting. Moving to left reduces wire draw while moving to right increases it. When set at mark "0", head will draw one inch of wire and each mark indicates an additional 1/8" in length. When proper length of wire is being drawn, tighten lock screw in place firmly.

n) Drive several rows of stitches into material to be used, examining crown and legs for proper appearance. If not satisfactory, then adjust machine in accordance with directions given hereafter.

NOTE:--When changing length of wire draw, the first stitch driven, and perhaps the second, will be of the previously used length since it is formed from a piece of wire already cut and held in the anvil. The third stitch, however, will be of the new length.

3. ADJUSTMENT AND MAINTENANCE

The following paragraphs cover briefly the various functions and operating parts of a stitcher and also give the proper methods of adjustment and replacement of parts.

Every Bliss Stitcher should be oiled at least daily, and if machine is in constant use, twice daily. The oil holes and cups are easily found on stitcher head and body. A heavier type of oil should be used for the former, drive bar, and cam. A light machine oil should be used for remainder of head.

a) Clutch

Clutch should be oiled frequently with light machine

oil. Never let clutch run dry. To oil, turn collar at end of shaft until oil hole is exposed. Put a few drops of oil into brake band occasionally.

If clutch hesitates on picking up, turn brake adjusting screw (in brake band 18285B) clockwise about 1/4 to 1/2 turn. If clutch repeats, brake adjusting screw should be backed out until clutch does not repeat. Be sure, however, that brake band is free when clutch is in operation.

NOTE:--Proper action of clutch and brake is as follows:

When clutch engages, brake band should be free and when clutch is disengaged, brake band should be tight and clutch should be free.

b) Wire Feed Wheels

Tension of the wire feed wheels should be adjusted by tension adj. screw, so that the wire feeds regularly without lag. If too loose, wire will slip, causing uneven legs. If too tight, wire will bind and may even be rolled out of shape, causing curvature and preventing proper handling in the gripper.

Surface of the wheels should be smooth and not worn. If worn, wire may feed unevenly and feed wheels should be replaced.

c) Cutting Block Assembly

This part will seldom wear but must be adjusted so that both legs of the staple are cut evenly. The stitcher head is self adjusting for equal leg length with varying lengths of wire draw. To adjust for leg length, loosen the cutting block set screw UA4005.1 and screw SB407, adjust in or out by means of screw SB601 and then tighten set screw UA4005.1 and screw SB407 again. Test for leg length by turning the machine over by hand and measure the legs of the formed stitches with a rule before they are clinched. The legs must be exactly the same length in order to obtain proper stitching.

d) Stationary Cutter

This cutter fits in bottom part of cutting block, being held in position by two holding screws. Cutting end of this cutter must be square and sharp or result may be poor staples. This cutter is removable by loosening the two holding screws and then removing from the cutting block. The cutting end can be re-ground a number of times.

e) Movable Cutter

The end of the movable cutter must be below the hole in the

stationary cutter when at the bottom of the stroke. If too low, wire will not feed through, and if too high, wire will not cut off completely, thus clogging the mechanism. To adjust for position, remove cutting block, loosen screws in cutting block holding plate assembly, take off the latter and remove cutting block operating plunger assembly. The latter has an adjustable screw, held with a lock nut. Loosen the lock nut and move screw up or down to raise or lower the position of the cutter. Then lock tightly and replace the parts.

NOTE:--Watch the ends of the staple legs to see that they are cut square and sharp. If burrs appear or an uneven appearance, look to the condition of the cutters as this is of prime importance in order to secure perfect stitching.

f) Anvil or Gripper

This part receives the cut length of wire and places it in position for the formers to form it into a staple.

1. Anvil or gripper will gradually wear at the edges over which the wire is bent and must eventually be replaced or the stitches will not form properly and wire may bind in anvil and not release.

2. Anvil or gripper adjusting screw rides over the anvil or gripper bar throwout block and will wear in time. Some wear can be compensated for by loosening anvil block holding screw and moving the gripper bar adjusting screw inward by means of a screw driver applied at its front end, then tightening by means of the holding screw. Eventually, this part will have to be replaced with a new one.

   This same adjustment is used to line up the cut wire between the jaws in the anvil and the grooves in the formers. If this adjustment is not made properly sharp edges on the staple crown will result. This part must be adjusted so that the wire is held exactly under the former grooves when the anvil is in its rear position.

3. Anvil or Gripper Spring Unit

   These springs may break or may lose tension in time and if so, the anvil will not operate properly. The remedy is to replace the spring.

4. Anvil bar clamp piece will wear at point of contact with the wire and when badly worn must be replaced.

5. To remove anvil, remove gripper spring unit, then remove gripper pivot screw, allowing the complete gripper to be withdrawn. Always have machine in stop position when changing gripper.

g) Formers

These parts are screwed onto the former slide and as they descend, strike the cut length of wire held by the anvil and bend the legs downward, holding them in the grooves inside their inner faces. The anvil then automatically releases the wire and moves out of the way.

These parts must be tightly attached to former slide or wire may slip out between formers and driver, or may bend outward. It is essential that wire be not over-size in width or thickness or it will stick in formers and driver. When new parts are installed, wire fed should be oiled to prevent binding until parts are worn in. The grooves in the formers will wear in time and eventually must be replaced.

h) Driver

This part moves up and down with driver bar and, in the operation cycle, descends just after staple legs have been formed and anvil has released. It has projecting slides on each side which fit into grooves in the formers, which guide its motion. The driver moves at a faster rate than the former and the driver end strikes the top of the formed staple and drives it through the stock while stitch is being clinched. In time, depending upon the use of the machine, driver will wear on the end and sides and will require replacement. The driver is reversible and may be turned to bring second end in contact with staple, when first end is worn.

i) Supporter or Shoe

The shoe acts as a supporter for the stitch while being driven and automatically retracts as the stitch is driven into the work. Supporter will gradually wear on the side or on the curved end, and when it becomes too loose or out of shape it must be replaced.

j) Supporter Spring

If these springs break or lose tension they should be replaced, as the supporter will not function properly.

k) Clincher

The clincher must be lined up with the staple as closely as possible to insure maximum ease of penetration thru the work by the staple. This is extremely important, especially with the type "D" or aircraft clincher.

To adjust the clincher sidewise proceed as follows:-

1. Loosen bottom nut on arm adj. bolt one or two turns.

2. Loosen lock nut on sq. hd. set scr. on each side of frame just above arm pivot pin.

3. Adjust in direction desired by unscrewing one set scr. and screwing in the one on the opposite side until the arm is properly adjusted.
   For example:- if the arm must be moved to the right, back out the right hand screw and turn in the left hand screw as much as necessary. Turn in right hand screw until arm is held solidly.
4. Tighten lock nuts on side adj. screws and bottom nut on arm adj. bolt.

To Adjust Clincher In and Out

1. Loosen bottom nut on arm adj. bolt and locknuts on arm side adj. screw. Back out adj. screws slightly.
2. Adjust arm in or out by turning arm pivot pin to right or left as required.

3. Tighten arm side adj. screws as outlined in section above and tighten lock nuts.

4. Adjust arm vertically, if necessary by means of the two nuts on arm adj. bolt.

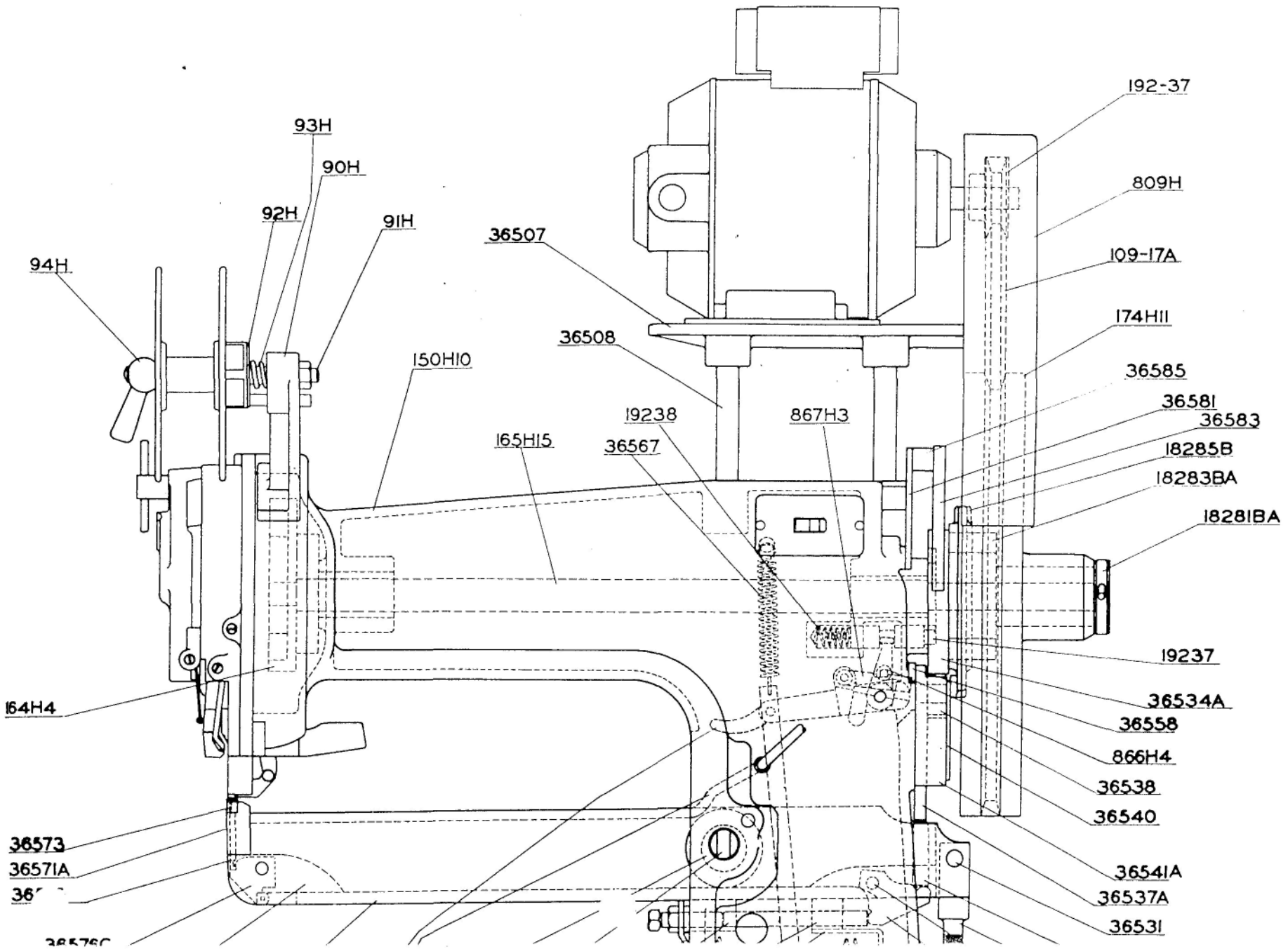
5. Check adj. of clincher operating slide by turning machine over by hand and watching clincher slide. If there is any tendency to bind, loosen lock nut under arm and back out set screw one or two turns. When clincher cam has reached its maximum throwout position turn this screw in until clincher slide is flush with top of clincher. Tighten lock nut and turn over by hand again to be sure nothing binds.
6. Check all adjustments to be sure all are tight and try machine once or twice on scrap pieces of material to be sure.
   The arm should be adjusted so that the work will be just held between formers and clincher and should not deflect enough while the staple is being driven to cause loss of contact between formers and work.

l) Wire Feed Clutch

This is a roller clutch that works in one direction (counter-clockwise) and slips in the other. No adjustment is necessary, but care must be taken not to apply too much oil at oil hole or the oil will get into the roller clutch and allow it to slip, thus causing uneven wire feed. To clean, remove screw in center, take off the clutch and clean with gasoline.

m) To Disassemble the Stitcher Head

1. Remove wire feed guard lock screw.
2. Remove screw in wire feed clutch retaining washer.
3. Take out wire feed clutch assembly.
4. Take off wire feed guard mechanism.
5. Loosen gripper spring bracket screw and remove.
6. Remove cutting block by taking out screw SB407.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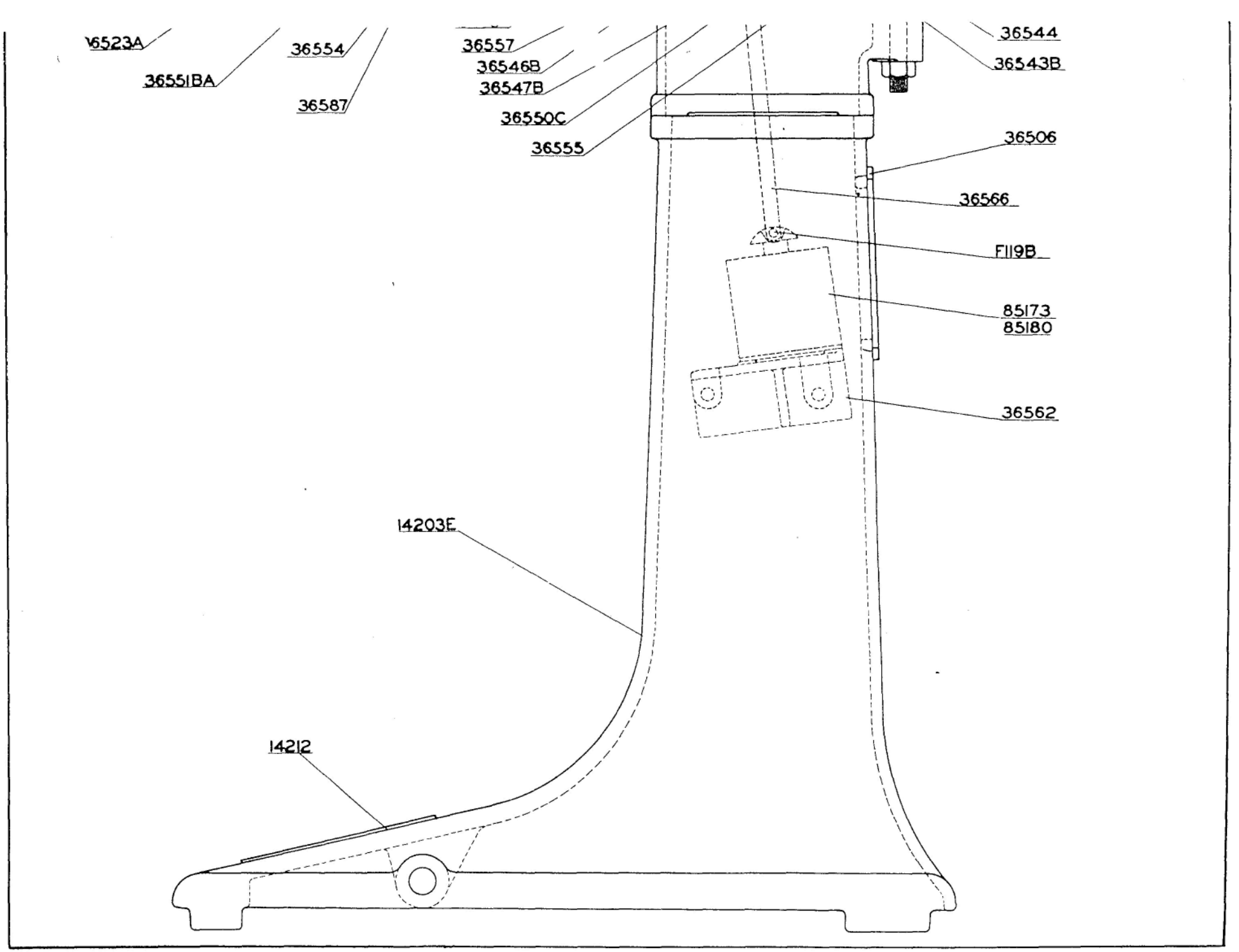
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36506
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85173
85180
36562
14203E
14212

All front parts are now exposed and can be removed or replaced.

n) To remove Complete Head

It is only necessary to remove the three head screws immediately in back of head and take off the head. To replace the head, have the machine in stop position. Insert the pin on the drive bar link in hole in cam, and then move the head slightly until the cam roller drops into groove in cam. Then move into position until the dowels in the head engage in holes in the body and replace the holding screws.

o) Stitching Wire

When stitching metal it has been found that #18 wire is best suited to the majority of work. This wire can be had in various degrees of hardness or temper, such as #18 Bookbinders wire, which is the softest, #18-230, #18-260, #18-290 and #18-330.

It is impossible to give the exact thickness of metal which a given temper of wire will penetrate. Roughly, Bookbinders wire will penetrate a single thickness of .020 soft steel; #18-230, two thicknesses of .020 (total .040); #18-260, two thicknesses of .040 (total .080); #18-290, one thickness of .060 plus .030 (total .090); #18-330 two thicknesses of .060 (total .120).

If the metal is too hard, there may be trouble in stitching so great a thickness; on the other hand, if the metal is soft, the thickness may be increased.

When stitching a soft material like fibre or rubber to metal, especially if this material is thick, there may be trouble in penetrating the metal due to lack of support for the wire in the soft material. For this purpose, the XXXX wire may help, in which case special spool holder equipment will be required.

It is best to use the softest wire that will penetrate the work safely, as the harder wire will cause more wear on the machine.

p) CAUTION:

In operating a stitcher, be careful not to drive one stitch over another, as this may break the driver tips.

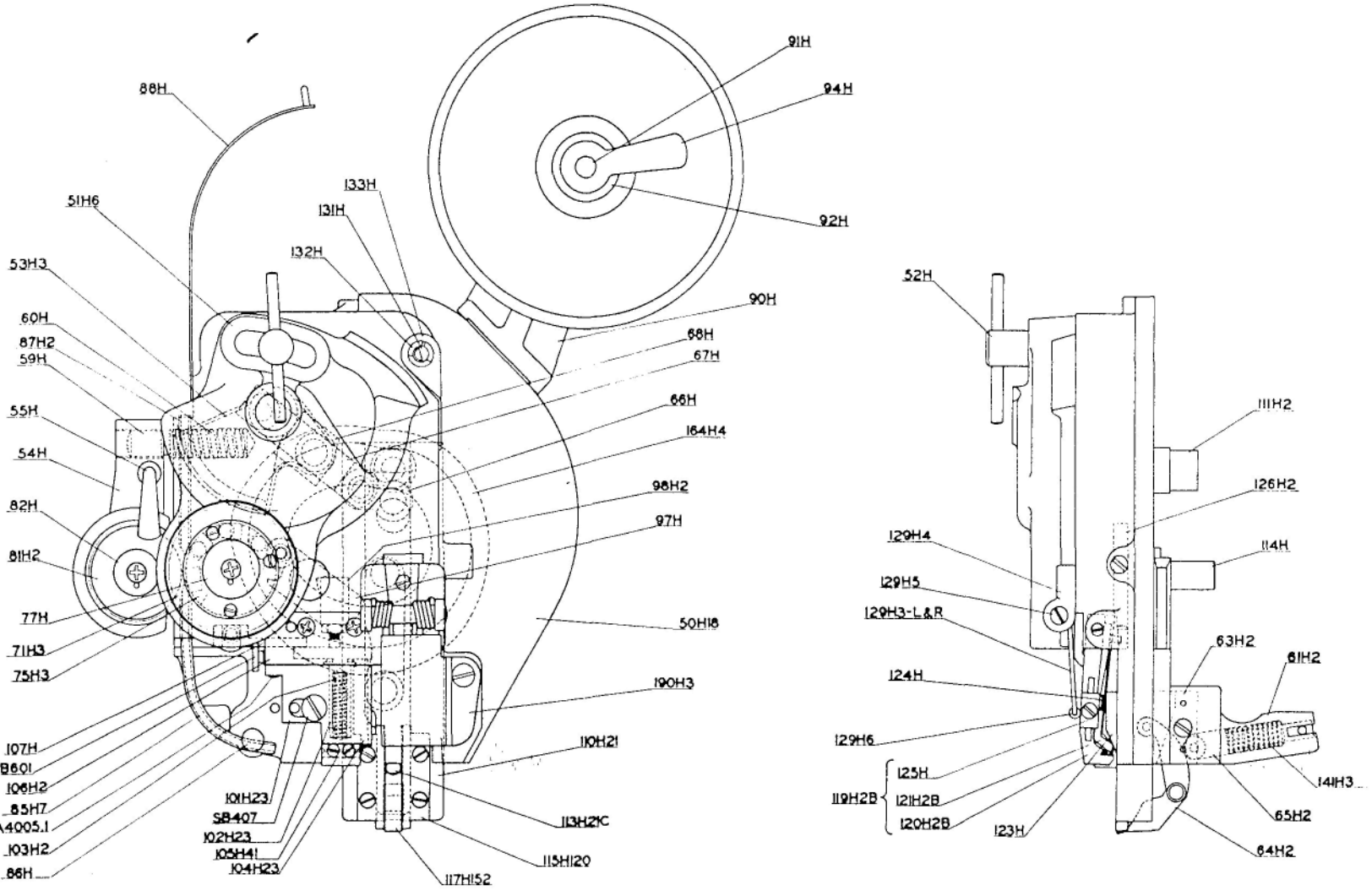
Do not operate the stitcher with wire feed on but without material between driver and clincher.

If a piece of wire gets caught in the gripper or former or shoe, stop the machine and remove carefully before attempting to stitch again.

BOSTON WIRE STITCHER CO.

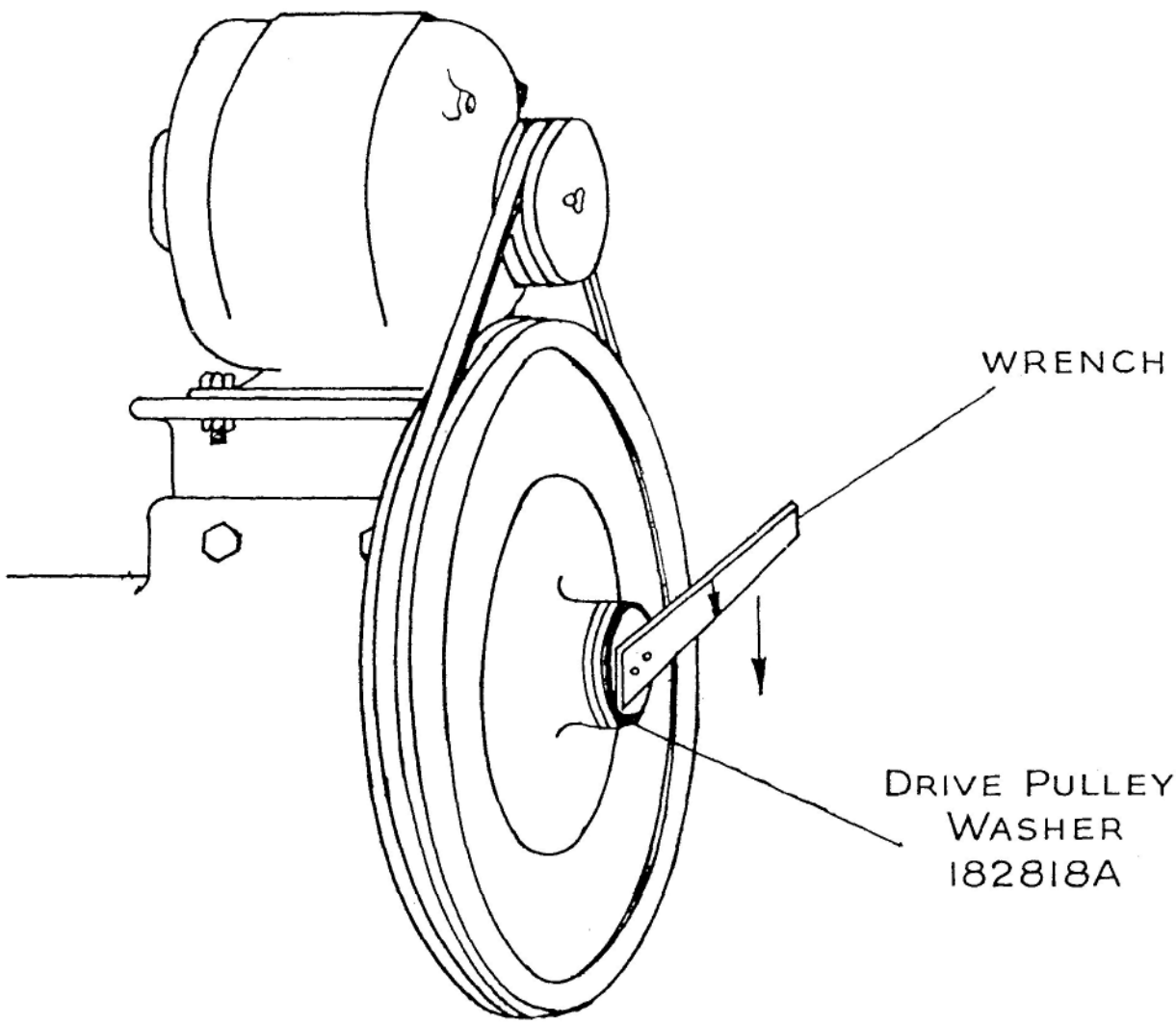
COMPONENT PARTS OF

S13E HEAD



INSTRUCTIONS FOR USE OF JAM RELEASING WRENCH

INSERT PINS IN WRENCH BSA37 INTO TWO HOLES IN DRIVE PULLEY WASHER 18281BA AND TURN IN THE DIRECTION SHOWN ON SKETCH



BLISS METAL STITCHER HEAD PARTS

IMPORTANT:--Order parts by number and name. Give serial number of stitcher parts are used on.

50H18	Head Plate
51H6	Wire feed guard
52H	" " " lock screw
53H3	" " crank sector - 10 teeth
54H	Idler feed gear arm
55H	" " " throwout handle
56H	" " " pivot stud
57H	" " " arm pivot pin
58H	" " " " holding plate
59H	Tension adjusting screw for idler gear
60H	Tension spring for idler gear
61H2	Supporter spring bracket
63H2	Supporter cam
64H2	Supporter
65H2	Supporter plunger assemb.
66H	Wire feed conn. link
67H	Wire feed oper. lever
68H	Sliding head for operating lever
71H3	Wire feed clutch ring gear - 33 teeth
72H	" " " roller spider
73H	" " " roller
74H	" " " " spring
75H3	" " " comp. assembly - 33 teeth
76H	" " " front plate
77H	" " " ret. washer
78H	" " gear stud
80H2	" " " - right or driving
81H2	" " " - left or idling
82H	Idler gear ret. washer
85H7	Lower wire tube
86H	" " " holding clamp
87H2	Upper wire tube
88H	Spring wire guide
95H	Former slide plate - R.H.
96H	" " " - L.H.
97H	Cutting block trip crank
98H2	Cutting block oper. plunger
101H23	" " body
102H23	Cutter Plunger
103H2	" " Spring
104H23	Movable Cutter
105H41	Stationary Cutter
106H2	Cutting block holding plate
107H	" " control slide
110H21	Former slide
111H2	Former slide roller
113H21C	Driver bar
114H	" " link
115H120	Staple former
117H152	Staple driver 3/8 - #18
117H156	" " 3/8 - #18 (short)
119H2B	Gripper assembled
120H2B	Gripper bar

121H2B	Gripper bar clamp piece
122H	" " " " spring
123H	" " throw-out block
124H	" " adjusting screw
125H	" " " " block
126H2	Clamp piece control slide
127H	Control slide friction bolt
128H	" " " " spring
129H3L	Gripper spring - L.H.
129H3R	" " - R.H.
129H4	" " Bracket
129H5	" " Pivot
129H6	" " Roll
141H3	Supporter Plunger Spring
164H4	Drive cam
190H3	Front guard cover
191H	" " " spring
192H5	Finger guard
BD341	Supporter plunger roll pin
BD342	Supporter pivot pin
BF222	" roll stud
BG408	" roll
BG653	" plunger roll
SB403	Stationary cutter screw
SB407	Cutter block holding screw
SB601	" " adj. screw
184-573	Supporter plunger cross pin (pivot type supporter)

PART LIST S13E METAL STITCHER

90H	Spool Holder Bracket	
91H	Spool Holder spindle	
92H	Spool Holder Thrust Washer	
93H	Spring	
94H	Clamp Handle	
150H10	Body	
165H15	Drive Shaft	
174H11	Pulley	
456H	Clutch Pawl	
809H	Pulley Guard	
812H	Motor Pulley Key	
840H	Clincher Cam Key	
866H4	Stop Plunger Lever	
867H3	Latch	
869H	Latch contact	
963H2	Movable Clincher	Type C
964H2	Movable Clincher Pivot	Type C
965H3	Movable Clincher Holder	Type C
965H4	Semi-Solid Clincher Holder	Type B
966H2	Movable Clincher Slide	Type C
967H3	Movable Clincher Front Plate	Type C
967H4	Semi-Solid Clincher Front Plate	Type B
969H2	Semi-Solid Clincher	Type B
29	Clutch Ring Safety Pin	
030	Pulley Washer Screw Lock Spring	
030	Latch Spring	

36562	Solenoid Bracket	
36566	Solenoid Connecting Link	
36567	Solenoid Connecting Link Spring	
36568	Solenoid Connecting Link Spring Screw	
36571A	Aircraft Clincher Holder	Type D
36573	Aircraft Clincher	Type D
36574	Aircraft Clincher Screw	Type D
36575	Aircraft Clincher Slide	Type D
36576C	Clincher Oper. Lever	
36577	Movable Clincher Holding Screw	Type C
36579	Solid Clincher	Type A
36581	Air Valve Bracket	
36583	Air Valve Lever	
36585	Air Valve Lever Pivot	
36587	Air Tube	
36591	Foot Switch Base	
36592	Foot Switch Treadle	
36593	Micro Switch Shield	
36595	Clincher Oper. Slide End Plate	
85033	Hand Switch	
85154	Light Bulb - 110V.	
85154B	Light Bulb - 220V	
85173	Solenoid - 110V 60 cy.	
85174	Micro Switch	
85180	Solenoid	
85202	Oiler	
85325	Air Tube Adapter	
85326	Air Valve	
85327	Air Petcock	
85328	Air Petcock nipple	
85329	Air Line Coupler	
C115	Solenoid Connecting Link Pin Cotter	
E113	Clincher Cam Insert Rivet	
F119B	Solenoid Connecting Link Pin	
109-17A	V Belt	
192-37	Motor Pulley	