
INSTRUCTION MANUAL



Semi-Industrial
Upholstery & Leather Craft
Sewing Machine

5-Year Limited Warranty

All Parts are fully guaranteed against defects in workmanship and material for 5 years under normal use excluding the following:

Exclusions:

- Needles, bobbins, belts, light bulbs, needle plates, feed dogs, and shuttle hooks.
- Electrical equipment (except light bulbs) is guaranteed for 2 years.

Warranty includes 1 year free labor.

Purchaser is responsible for shipping

Date of Purchase _____

Name of Purchaser _____

Name of Dealer _____

Dealer Address:

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PREFACE

This is a semi-industrial sewing machine that makes a single needle lock stitch and is equipped with a high lifting, independent upper and lower feed mechanism. This machine is intended for stitching medium, heavy and extra heavy materials including canvas, upholstery materials and light weight leather. It can also be used for home sewing where even feed on both the upper and lower threads are necessary.

The Semi-Industrial Sewing Machine's feeding mechanism is composed of upper and lower feed dogs which are synchronized to feed the material either forward or reverse. Both lifting and feeding feet alternately press the material tightly together, permitting even stitching.

Getting Ready to Use Your Machine

Packaging

Your machine comes in a special container, designed to protect the machine from any shipping damage. Please save the container with the enclosed packing materials in case you would need to return the machine for repairs.

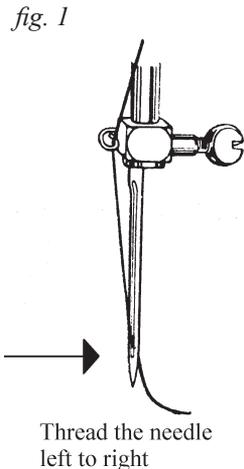
The Portable Case

The Portable Case is an optional accessory for the machine. It comes complete with the foot control and wiring block packaged inside. Slip the machine onto the two hinges and tighten the two set screws on the bottom of the machine to secure the machine into the case. The wiring block has two sockets attached. One marked *light*, the other marked *motor*. Take the cord from the motor and plug it into the socket marked *Motor*.

Needles

This machine uses one of the most common Industrial Needles. They are System 135x17 in sizes that range from 16 to 22. Size 22 is the most common for most Upholstery and canvas work.

When replacing the needle, be sure that the long groove that runs the length of the needle is to the left when facing the machine. **Thread the needle from left to right.** See *Illustration (Fig. 1)*.



Machine Lubrication

The machine was thoroughly oiled prior to shipment. It should be oiled frequently. Oil in all areas where there is metal to metal working parts. Refer to fig. 2 – 5.

Arrows indicate lubrication points.

USE ONLY SEWING MACHINE OIL ON YOUR MACHINE!

fig. 2

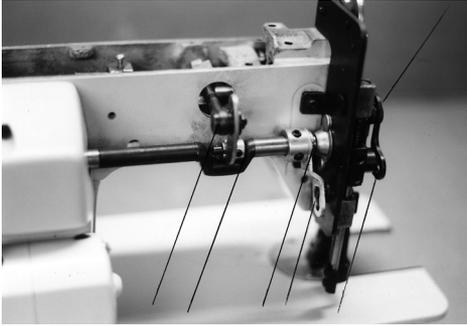


fig. 3

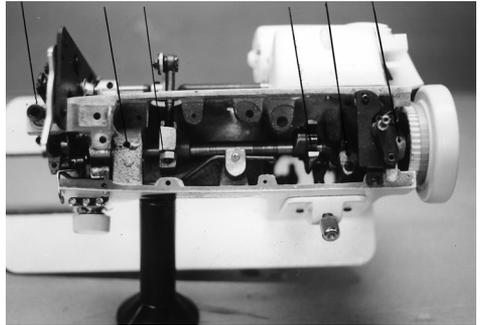


fig. 4

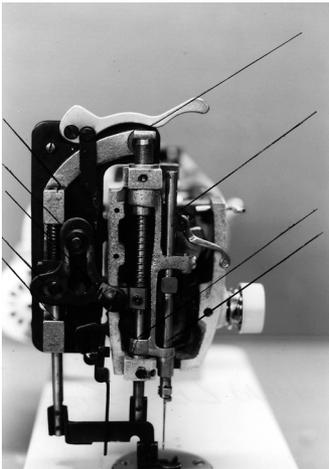
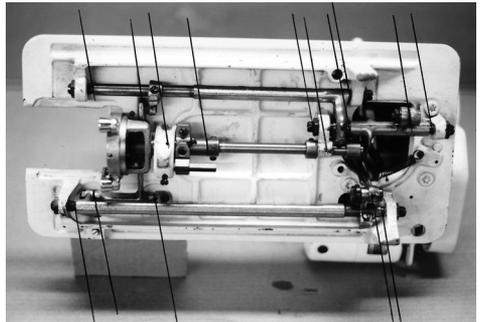


fig. 5

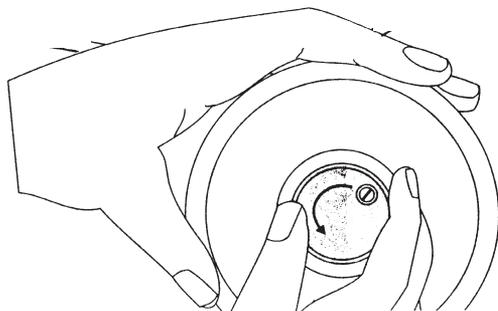
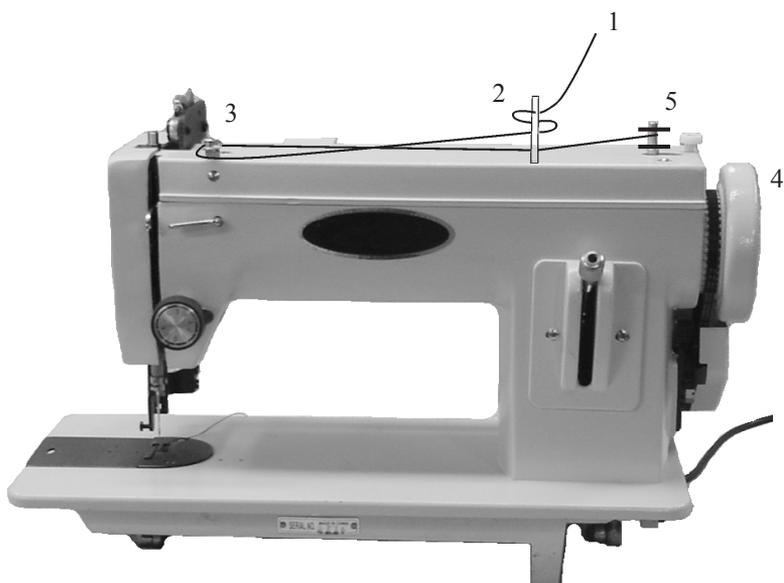


Getting Ready to Sew

Winding the Bobbin

- 1 Thread comes off the top of the cone to thread stand arm
- 2 Thread through the thread post
- 3 Wrap thread around the bobbin tensioner as shown
- 4 Release the clutch prior to winding bobbins
- 5 Run thread through the side of the bobbin and place bobbin on post. Push thread to the right and power machine to wind bobbin.

— Preparing to Sew —



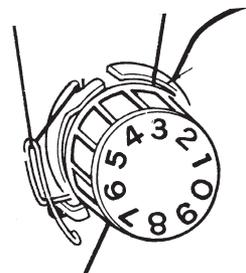
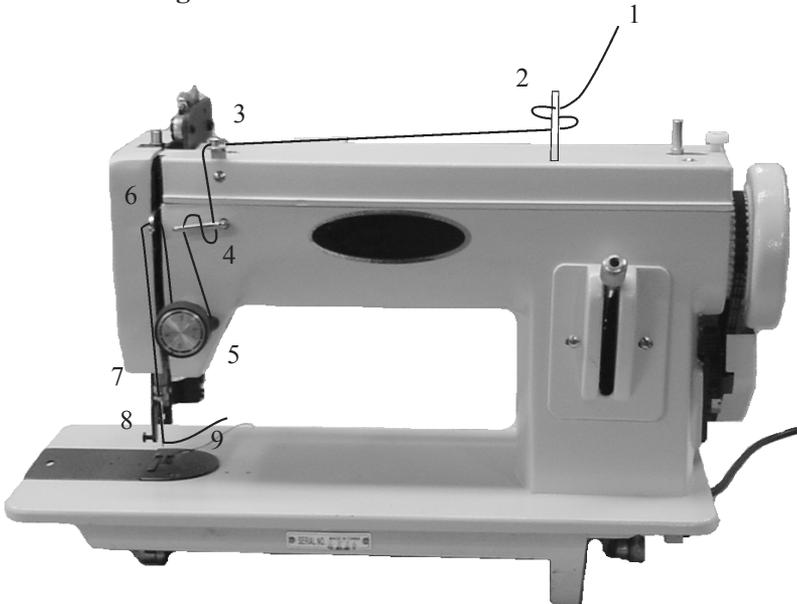
Release the clutch prior to winding bobbins. Disengaging the clutch allows for bobbin winding without running the machine. That is to say, the needle will not move up and down.

If the clutch does not engage or disengage properly, follow the instructions on how to reset the clutch.

Threading the Machine and Needle

- 1 Thread comes off the top of the cone to thread stand arm
- 2 Through holes in the thread post
- 3 Through the pig tail of bobbin tensioner bracket
- 4 Loop thread through ear holes
- 5 Through upper tension (see separate diagram)
- 6 Through take-up lever—then under end cover
- 7 Under the thread guide
- 8 Through the needle (left to right)
- 9 Through the center presser foot hole

Threading the Machine



To Thread Bobbin Case

Holding the bobbin case in your left hand, turn the open side up and place the threaded bobbin into it (Fig. 1).

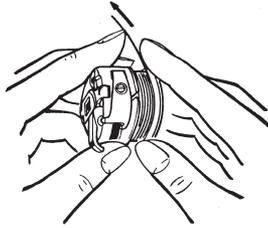


Fig. 1

Guide the thread into the slot in the edge of the bobbin case (Fig. 2).

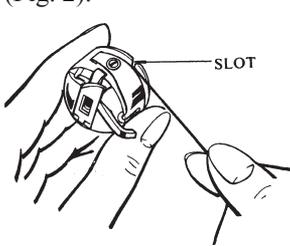


Fig. 2

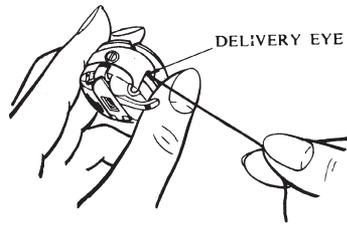


Fig. 3

Pull it under the tension spring and then into the delivery eye (Fig. 3).

To Insert Bobbin Case Into The Machine

Raise the needle bar and take-up lever both to their highest point.

Open the slide plate.

Hold the bobbin case by the latch and place it on the center post with the bobbin case finger in the notch at the top of the shuttle.

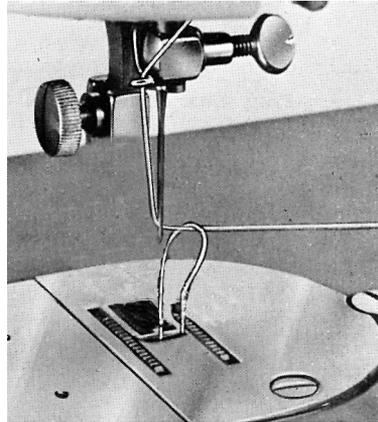
Release the latch and press the bobbin case into the shuttle until the latch catches on the center post with a click.

Permit the thread to hang down freely a few inches.

Drawing Up The Lower Thread

After threading machine and placing filled bobbin in case into shuttle:

- 1 Hold the end of the upper thread loosely with your left hand, so that thread remains slack.
- 2 Turn fly wheel slowly toward you until needle goes down and comes up again to its highest position. In so doing, the upper thread (needle thread) will catch the lower thread (bobbin thread).
- 3 Then pull up needle thread, and at the same time the lower thread will be pulled up through stitch hole in needle plate.
- 4 Both ends of thread must be drawn under and to the rear of presser foot, about 6 inches.



Always turn the top of the balance wheel of the machine toward you to reduce the possibility of a thread jam in the lower mechanism. Never operate the machine without material under the presser foot. Doing so will most likely “lock up” your machine and it will be inoperable until the thread jam is cleared.

To Regulate the Stitch Length

Most sewing will be done with the maximum stitch length. However, the length of the stitch can be adjusted as follows:

- (1) Loosen the thumb nut on the stitch length lever.
- (2) Raise the stitch length (feed regulator) lever until the desired stitch length is obtained.
- (3) Tighten the thumb nut.

See fig. 6.

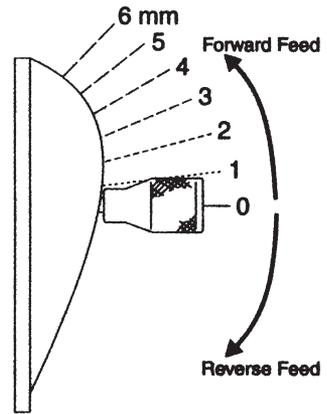


fig. 6

Reverse Sewing

To sew in reverse

- 1 Lower the feed regulator (stitch length) lever all the way to the bottom of the slot in the stitch length plate.
- 2 Hold the lever there until reverse sewing is completed.
- 3 Then return the lever to the forward position.

Straight Sewing and ZigZag Sewing

For straight sewing, set the zigzag width control lever at "0". For zigzag sewing, make sure the presser foot is for zigzag use. Zigzag stitch is controlled by the zigzag width control lever on the front of this machine. By moving this control lever gradually to the left toward "5", the machine will sew a zigzag seam of increasing width depending on the position of the control lever. *see fig. 7*

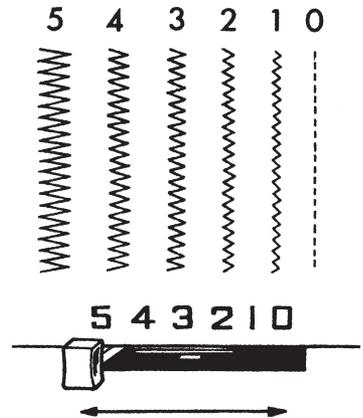


fig. 7

Adjusting Upper Thread Tension

The correct stitch can usually be obtained by varying the upper thread tension.

NOTE: TENSION ADJUSTMENT SHOULD BE MADE WITH THE PRESSER FOOT DOWN.

To increase the tension, turn the tension dial clockwise (Fig. 32). To decrease the tension, turn the tension dial counter clockwise (Fig. 32). When the tension is properly adjusted, the upper and lower threads will cross in the center of the material (Fig. 33-A).

When the upper thread tension is too tight, or the bobbin tension is too loose, the lower thread will lay flat along the top of the material (Fig. 33-B).

When the upper thread tension is too loose or the bobbin tension too tight, the upper thread will lay flat along the bottom of the material (Fig. 33-C).

The tension should be adjusted gradually until the desired tension is obtained.

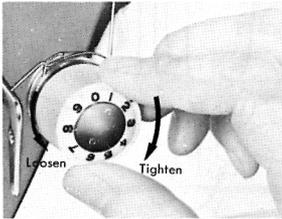


Fig. 32

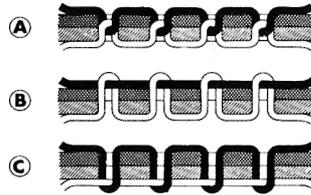
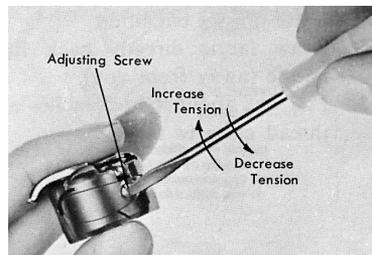


Fig. 33

Adjusting Bobbin Thread Tension

1. The bobbin thread tension on your machine is correctly adjusted before leaving the factory. Therefore, it is seldom necessary to alter the bobbin thread tension. Should it become necessary to do so, the adjusting screw of the tension spring on the outside of the bobbin case can be tightened or loosened to increase or decrease the tension of the bobbin thread.

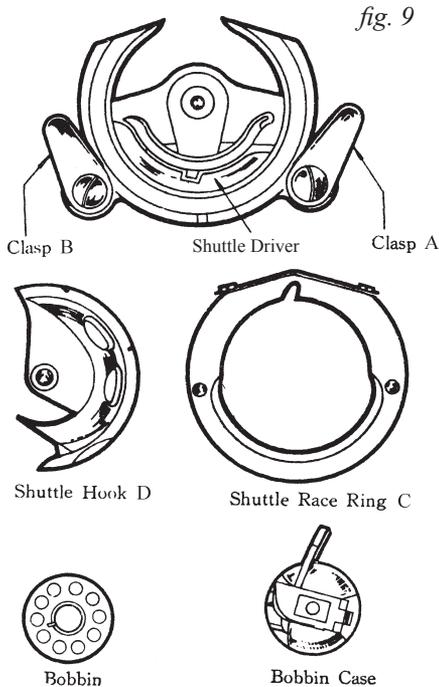
2. To increase the bobbin thread tension, turn the adjusting screw clockwise. To decrease tension of the bobbin thread, turn the adjusting screw counter clockwise.



Remove the Hook to: Clean the Race Free of Jams

In performing these operations, DO NOT FORCE ANY OF THESE OPERATIONS. (see fig. 9)

- 1 Turn the balance wheel by hand until the needle is at its highest point.
- 2 Remove the bobbin and bobbin case
- 3 Turn clasp (A) outward
- 4 Turn clasp (B) outward
- 5 Remove the retaining ring (C) and hook (D) by grasping the axle of the hook.
- 6 Carefully remove all accumulated lint and thread from the retaining ring, hook, and race body.
- 7 Replace the hook (D) into the race body with the axle facing out, forming a perfect circle with the driver.



- 8 Replace the race cover (C) polished side out so that both pins are under knobs (A) and (B).
- 9 Lock the race cover (C) with knobs (A) and (B).
- 10 Replace bobbin case and bobbin, and resume sewing.

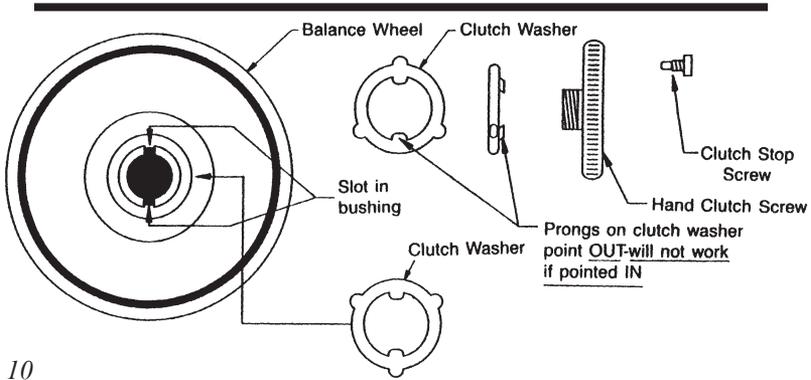


fig. 10

Instructions to repair machine should the Balance Wheel and Motor run But the Machine will not. (See fig. 10)

To Remove the Balance Wheel

- 1 Remove the clutch stop screw.
- 2 Remove the hand clutch screw
- 3 Notice position of prongs on clutch washer in slot of balance wheel bushing.
- 4 Remove clutch washer
- 5 Slide the balance wheel off its shaft.

To Install the Balance Wheel & Clutch Knob

- 1 Slide the balance wheel onto the shaft of the machine.
- 2 Position the clutch washer at the end of the balance wheel with the two inner prongs point out.
- 3 Make note of the position of the outer prongs on the clutch washer. It may have to be changed later
- 4 Screw in the hand clutch screw tightly.
- 5 Screw in the stop screw.
- 6 Turn the hand clutch counterclockwise as far as it will go (the screw will hit a stop prong of the clutch washer)
- 7 Run the motor and check to see if balance wheel turns freely without running the machine. (the needle should not move)
- 8 Tighten the hand clutch screw and the machine should run properly
- 9 If the clutch is not engaging/disengaging correctly, remove the clutch washer & rotate clutch washer 1/2 turn and replace. Repeat steps 4 through 8.

Common Sewing Problems

Skipped stitches are an indication that there needs to be an adjustment made. There are several mechanical adjustments that can be done to correct these problems. In order to adjust the machine properly, here are the fundamental operations of a lock stitch sewing machine.

A shuttle hook rotates around the cage that holds the bobbin thread under the machine. The hook passes right next to the needle as it rises and catches the loop that is formed in the upper thread beside the needle as it comes up. After catching this loop, the hook then pulls the loop down until it circles around the entire bobbin of the lower thread. The two threads are then interlocked and a stitch is formed. The needle continues to rise, and the “take up arm” rises to pull the excess thread up from the bottom of the fabric. The thread then comes up out of the cloth.

Skipped Stitches

If the machine is skipping stitches, then the hook is not catching the thread each time it makes its pass. The cause of this is usually either the thread is not being held down by the fabric as the needle is withdrawn and a loop is not being formed for the hook as it passes the needle, or the hook may not be passing the needle at the proper time. (This would indicate that the timing is off on the machine).

Remedies

1) Change the needle

If the needle has become dulled or slightly bent from sewing, changing the needle would solve the problem.

2) Adjust the Foot Pressure

Check to make sure there is proper foot pressure. Closely-woven materials such as vinyl, and canvas can make it difficult for the needle to be withdrawn from the fabric. If the presser foot is lifting as the needle comes out of the fabric the effect is the same as if the needle were not going far enough into the cloth. The loop will be too small.

The solution to this problem is more downward pressure must be placed on the center presser foot. The presser foot is adjustable because it is spring loaded. The threaded screw that comes out of the top of the machine just above the presser foot needs to be turned so that the knurled head turns clockwise to increase the pressure, thus compressing the spring underneath.

3) Reset the Needle Bar:

If the machine still skips stitches, it is likely the needle bar is too high or too low.

Needle bar height is checked by observing the distance between the eye of the needle to the hook point. (See Fig. 11 & 12)

The preferred technique is to measure the distance between the top of the needle eye and the hook point when the hook is directly behind the needle and the needle is on its way up. This distance is normally between $1/8$ and $3/32$ of an inch as in the illustration.

The needle bar is locked into position of its drive collar with a single screw. There is a hole on the inside of the arm of the machine when the bar is at the lowest point of its travel. The screw has a slotted head. On the zig zag machines, the screw is located on the front of the pillow block drive collar on the needle bar.

fig. 11

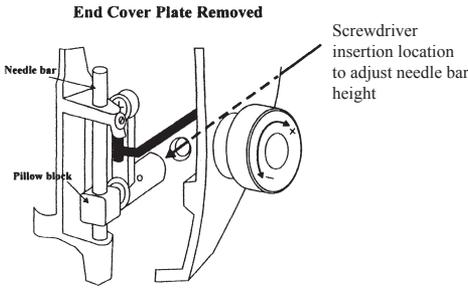
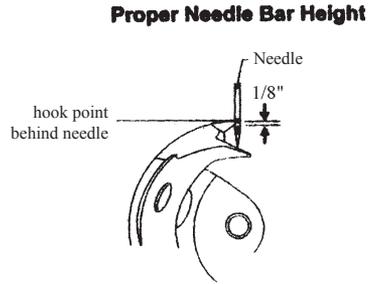


fig. 12

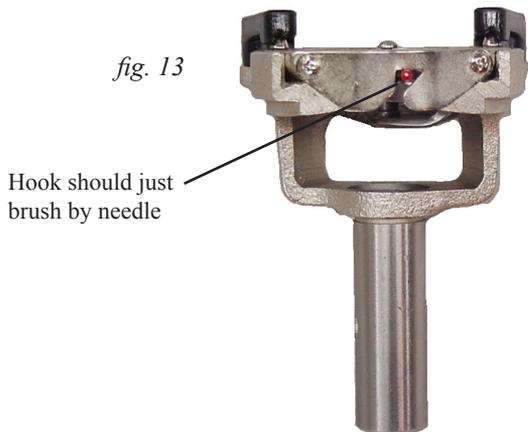


4) To Check the Hook Distance

If poor stitching still occurs after the needle bar height has been set properly, then the distance or the position of the hook must be checked. It is possible to move the entire shuttle assembly left or right to keep it close to the right hand side of the needle.

Before an attempt to change the distance is made, check it visually. The easiest way to see the clearance of the hook and the needle is to remove the presser foot, needle plate and the feed dog. This is easiest to accomplish with a well lit area. Turn the balance wheel until you see the shuttle hook swing back past the needle, then forward past the needle. As you look through the feed dog opening from the top of the machine, the hook should be as close as possible to the needle on its right side, but should not deflect the needle at all (*See fig. 13*).

fig. 13



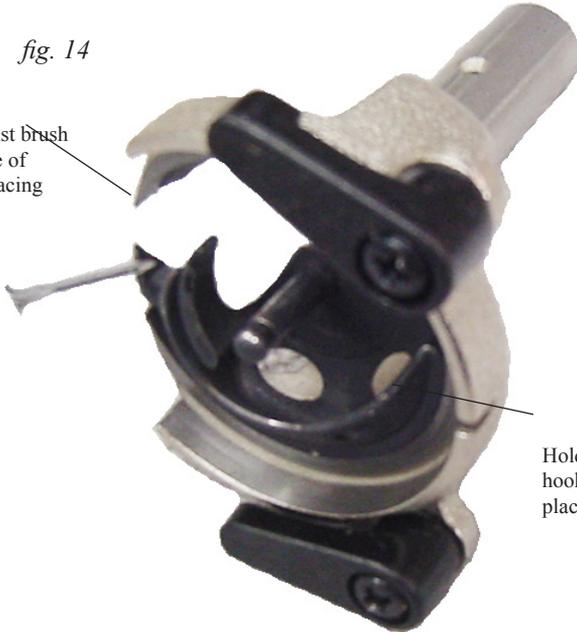
Another way to view the hook position in relation to the needle is to remove only the bobbin case and shuttle hook retainer ring. With your left hand hold the hook in place and with the right hand rotate the hand wheel. You should be able to determine the distance between them by looking at the needle and hook from the bottom. Again they should be as close as possible without causing needle deflection. (See fig. 14).

The gap between the needle and the hook should be zero, the hook must be moved to the left to close the gap. If the needle is being deflected by the hook, then move the hook to the right.

Hook and Needle with Shuttle Cage Removed

fig. 14

Hook should just brush by on right side of needle (when facing machine).



Hold the hook in place here

Shuttle Race Rotation

If it becomes necessary to change the hook distance you must first make a mark on the hook shaft to reference where the proper rotation of the race must be. To provide a reference point, make a mark on the shaft just to the right of the shuttle race clamp (*See fig. 13*). The mark must be aligned with the gap where the clamp comes together. If the shaft accidentally moves or rotates, you can realign the mark with the clamp gap. Because the entire shuttle race can be rotated, this step must be done while the clamp screw is loose.

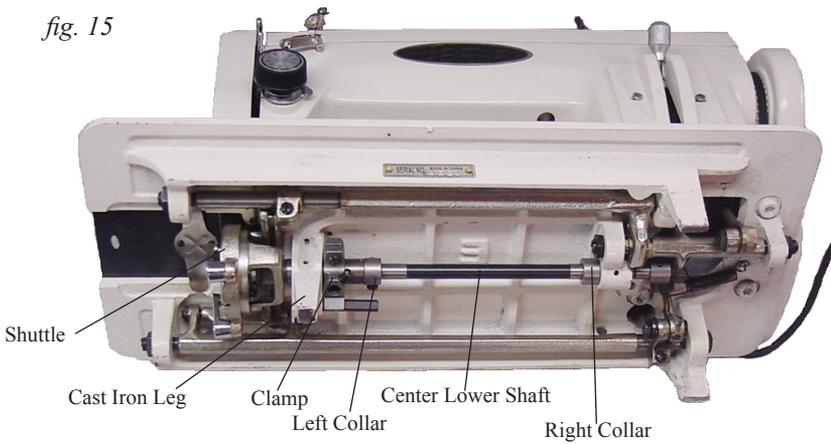
When the mark and the clamp are realigned it allows the entry of the needle in respect to the triangular cut opening in the retaining ring. In some situations the rotation may be part of the problem. In order to check the rotation, remove the hook and bobbin case. Insert the race cover and clip it into place. Rotate the balance wheel until the needle enters the shuttle and view from below to see if the needle is in the center of the triangular opening. If it is not, adjust the rotation of the shuttle in the clamp to make the clearance front and back equal. Make a new mark showing this improved position. When this adjustment is made, it will remain the same no matter what size of needle is being used.

Hook to Needle Distance

Moving the Hook Away from the Needle

At the right of the hook and shuttle cage there is a cast iron leg followed by the shuttle race clamp. Past the shaft to the right are two collars. The “left collar” is the closest to the hook and the “right collar” is the furthest from the hook (*See fig. 15*).

fig. 15



To adjust the hook to the right, loosen the two screws in the right collar. Move the collar to the left on its shaft. Move the shaft to the right. You will notice that the shaft, hook and shuttle will all move together. Rotate the balance wheel so that the hook is at the top of its travel where it would cross the needle. Leave off the retaining ring. To get the hook as close to the needle as possible without touching it, move the shaft. Holding the correct position of the shaft, carefully move the collar to the far right, leaving no lateral play, then tighten its screw.

Holding the shuttle right, loosen the screw on the compressible clamp and move the clamp to the far left position. Be sure that the clamp gap is aligned with the reference mark that was made. When the clamp screw is tightened, there should be no side-to-side play in the shaft.

Moving the Hook Closer to the Needle

To adjust the hook to the left is done by loosening the compressible clamp screw and moving the shaft to the left. The shaft, hook and shuttle all move together. Rotate the balance wheel so that the hook is at its highest point at the top, where it crosses the needle. Leave the retaining ring off. Move the shaft to get the hook as close to the needle as possible without actually touching it. Make sure to align the clamp gap with the reference mark made earlier. Make sure the clamp is still all the way left, firmly against the cast iron foot, then tighten the clamp screw.

Holding the shuttle left, loosen the right collar and move it all the way right leaving no play. Tighten the two collar screws. Make sure there is no side-to-side play in the center shaft.

5) Check the Hook Timing

If the performance of the machine is still off after adjusting the left and right position of the hook, check the hook rotation. The hook is driven by the shuttle driver. The driver must be repositioned on the lower shaft in order to change the rotation of the hook. There are two set screws that secure the driver to the lower shaft. Rotating the driver on its shaft is done by loosening the screws and twisting the shuttle driver. If the shuttle driver is tight it is sometimes necessary to use a screwdriver as leverage. Caution must be taken so that the driver does not slide to the left or right on the shaft. The shuttle driver is correctly positioned when the hook point (sharpest point on the hook) is between 1/8" and 3/16" counterclockwise of the needle. (See fig. 16A) The spacing can only be checked when the machine balance wheel has been turned so that the hook point is at its furthest position counterclockwise and the

needle is at bottom dead center. (See fig. 16A) The hook rotation is critical, and the range of rotation is small, if set too far outside this range the machine may not sew at all or have skipped stitches.

When the point can not catch the loop of thread formed by the needle, the hook point is set too close to the needle. If this happens it will result in all skipped stitches. On the opposite end, if the hook is too far from the needle, by the time the hook point gets to the loop the thread is too high to be caught. When properly timed, the hook will catch the loop consistently. (See fig. 16B)

fig. 16A

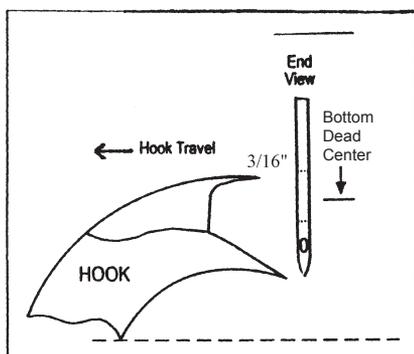
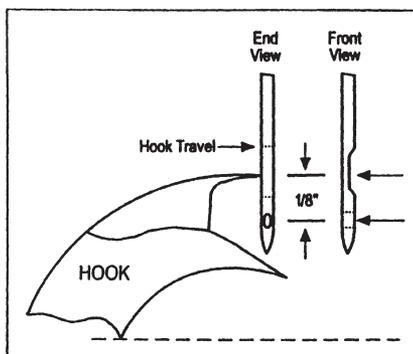
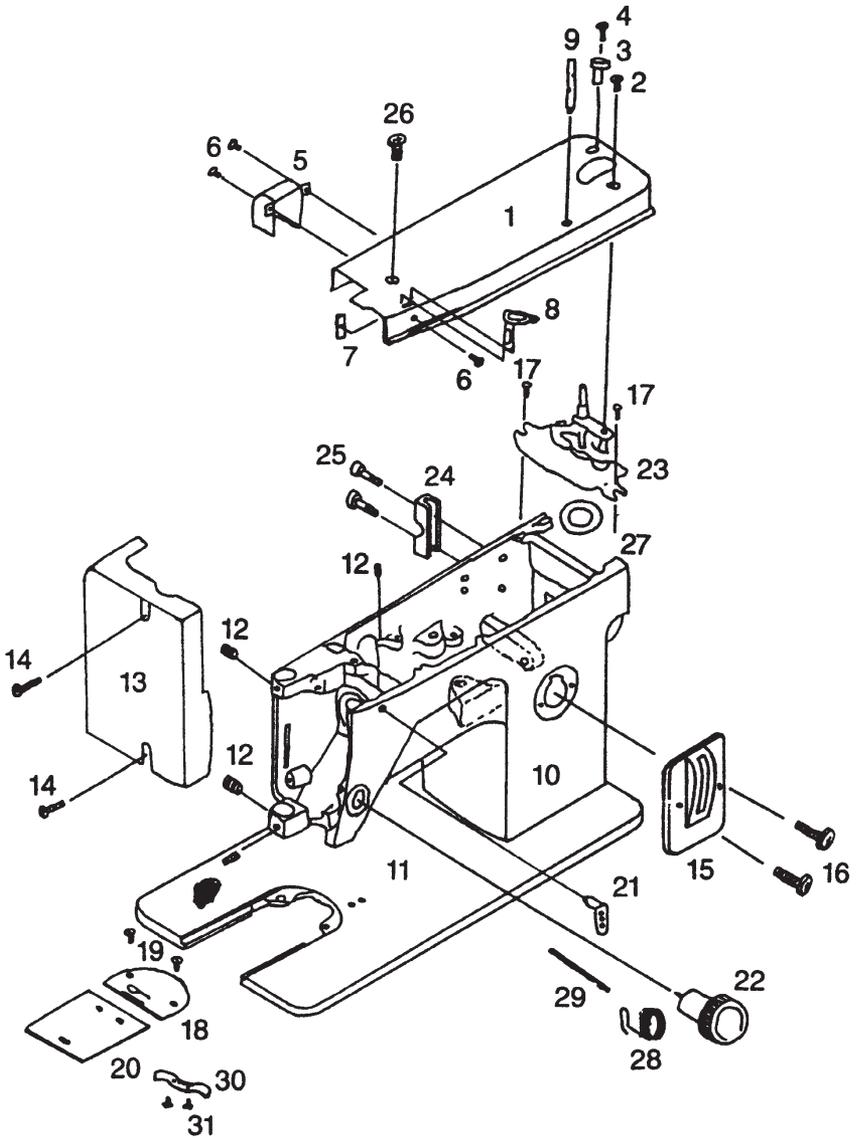


fig. 16B



Timing is correct when the point of the hook is just in line with the needle and approximately $1/8"$ above the top of the eye of the needle.

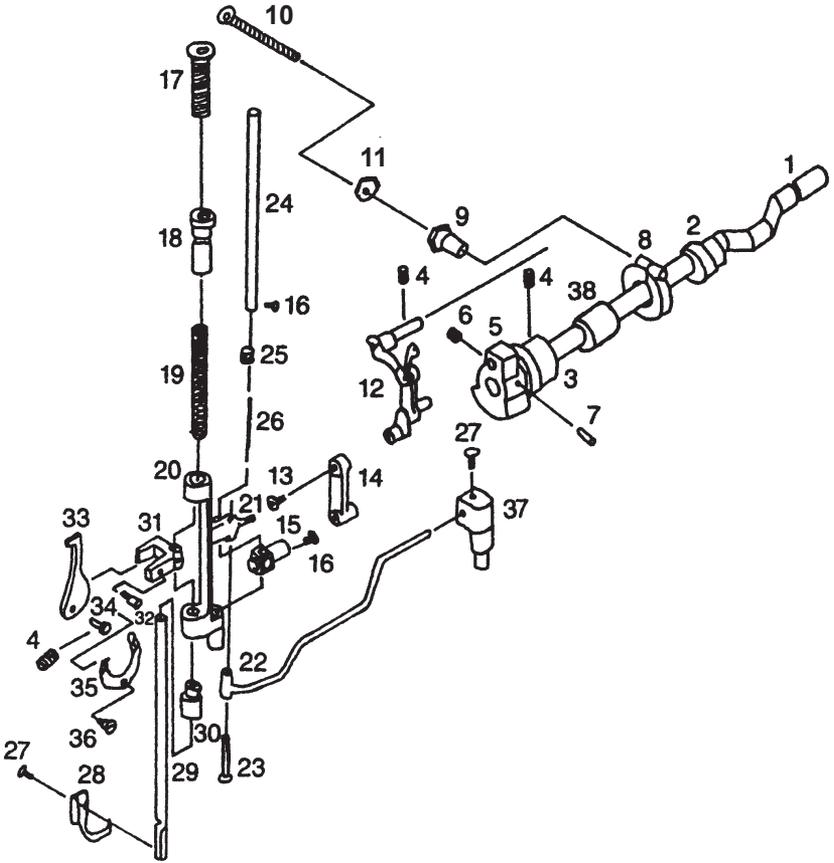
GROUP 1: CONSTRUCTION EXTERNAL GROUP



GROUP 1

KEY NO.	PART NO.	PART NAME	QTY
1	WO47	TOP PLATE	1
2	BO71	TOP PLATE SET SCREW	1
3	EO66	BOBBIN WINDER STOPPER	1
4	EO66-2	BOBBIN WINDER STOPPER SET SCREW	1
5	WO47-1	SMALL PLATE COVER	1
6	AO92	SMALL PLATE COVER SEW SCREW BOBBIN WINDER ASSEMBLY SET SCREW	2 1
7	E070-1	BOBBIN WINDER TENSION ASS. SET NUT	1
8	EO70	BOBBIN WINDER TENSION ASS.	1
9	WO47-2	SPOOL PIN	1
10	W001	ARM BODY	1
11	W002	BED	1
12	DO97	NEEDLE BAR SUPPORT SET SCREW THREE HOLE THREAD GUIDE SET SCREW	2 1
13	WO48	FACE PLATE	1
14	CO97	FACE PLATE SET SCREW	
15	W125	STITCH LENGTH PLATE	1
16	AO75	STITCH LENGTH PLATE SET SCREW	1
17	BO10	BOBBIN WINDER SET SCREW	2
18	WO32	NEEDLE PLATE	1
19	AO52	NEEDLE PLATE SET SCREW	2
20	AO48-B	SHUTTLE RACE SLIDE	1
21	WO29	THREAD GUIDE	1
22	W184-1	DIAL TENSION ASSEMBLY	1
23	WO30	BOBBIN WINDER	1
24	WO25	CRANK ROD BEARING SET BASE	1
25	WO25-1	CRANK ROD BEARING SET BASE SET SCREW	2
26	EO72	TOP PLATE SET SCREW	1
27	A117	BOBBIN WINDER RUBBER RING	1
28	W184-3	THREAD TAKE-UP/CHECK SPRING	1
29	W184-2	TENSION RELEASE PIN	1
30	AO49	SHUTTLE RACE SLIDE SPRING	1
31	A050	SHUTTLE RACE SLIDE SPRING SET SCREW	1

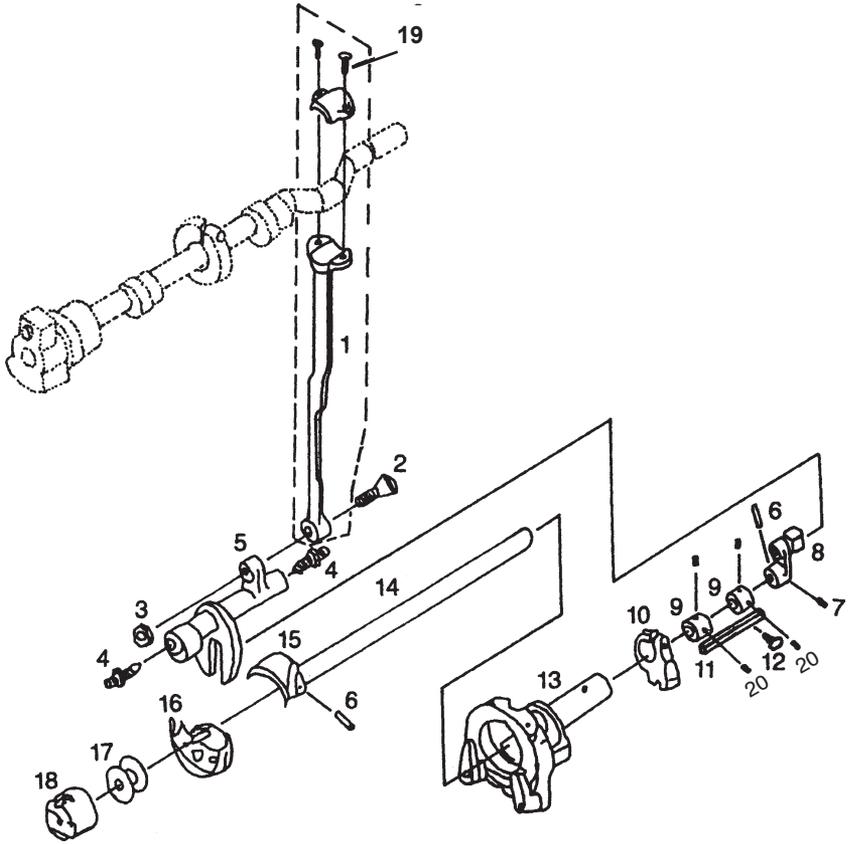
GROUP 2: SEWING TRANSMISSION GROUP



GROUP 2

KEY NO.	PART NO.	PART NAME	QTY.
1	E053	ARM SHAFT	1
2	B007	FEED CAM	2
3	B051	ARM SHAFT BUSHING	1
4	A012	THREAD TAKE-UP ASSEMBLY SET SCREW ARM SHAFT BUSHING SET SCREW TENSION RELEASE LEVER DRAG LINK PIN SET SCREW	1 1 1
5	B048	THREAD TAKE-UP LEVER CAM	1
6	A029	THREAD TAKE-UP ASSEMBLY SET SCREW	1
7	E048-1	THREAD TAKE-UP LEVER CAM SET PIN	1
8	W028-4	CRANK ROD LEVER CAM FOLLOWER	1
9	W028-2	CRANK ROD LEVER CAM FOLLOWER ADJUST NUT	1
10	W028-3	CRANK ROD LEVER CAM FOLLOWER LOCK SCREW	1
11	W028-1	CRANK ROD LEVER CAM FOLLOWER LOCK NUT	1
12	E020	THREAD TAKE-UP ASSEMBLY	1
13	E020-2	NEEDLE BAR CONNECTING ROD SET SCREW	1
14	B018	NEEDLE BAR CONNECTING ROD	1
15	A042	NEEDLE BAR CONNECTING STUD	1
16	A092	NEEDLE SET SCREW	1
17	A031	PRESSER REGULATING THUMB SCREW	1
18	W010	PRESSER REGULATING THUMB SET SCREW	1
19	A032	PRESSER BAR SPRING	1
20	B016	NEEDLE BAR SUPPORT	1
21	A021	NEEDLE BAR CONNECTING JOINT SET SCREW	1
22	W015	ZIGZAG CONNECTING ROD	1
23	B099	NEEDLE BAR CONNECTING JOINT PIN	1
24	W066	NEEDLE BAR	1
25	W067	NEEDLE THREAD GUIDE	1
26	W008	NEEDLE	1
27	A036	PRESSER FOOT SET SCREW	1
28	W012	INSIDE PRESSER FOOT	1
29	A035-1	PRESSER BAR	1
30	B028	PRESSER BAR LOWER BUSHING	1
31	W039	PRESSER BAR BRACKET	1
32	A046	PRESSER BAR ACTUATOR GUIDE SCREW	1
33	W043	TENSION RELEASE LEVER DRAG LINK	1
34	D020	TENSION RELEASE LEVER DRAG LINK SET PIN	1
35	W045	TENSION RELEASE LEVER	1
36	B046	TENSION RELEASE LEVER SET SCREW	1
37	W016	ZIGZAG CONNECTING ROD SET BASE	1
38	W065	PRESSER BAR ACTUATOR "CAM"	1

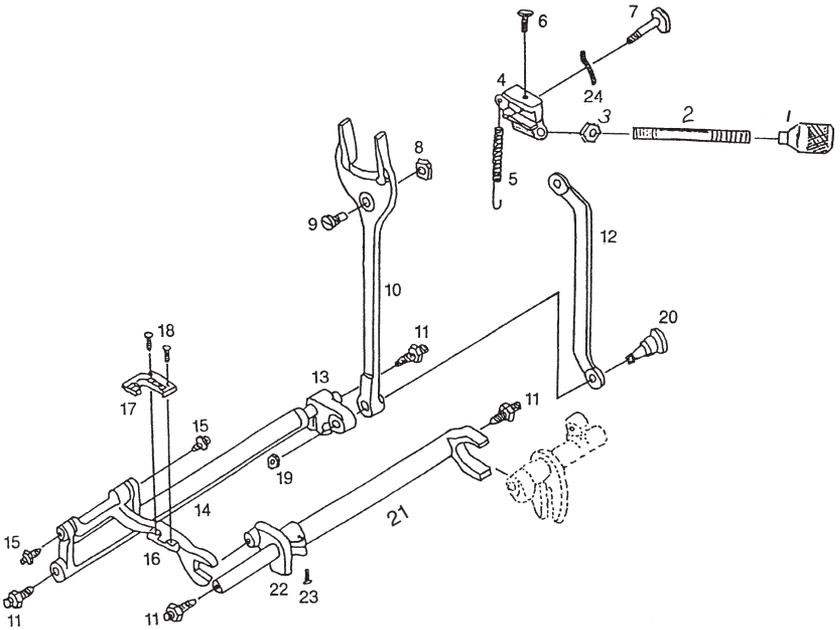
GROUP 3: SHUTTLE TRANSMISSION GROUP



GROUP 3

KEY NO	PART NO.	PART NAME	QTY.
1	B139	CRANK CONNECTING ROD	1
2	A027A	CRANK CONNECTING ROD SET SCREW	1
3	A027B	CRANK CONNECTING ROD SET NUT	1
4	A023	OSCILLATING SHAFT SET SCREW & NUT	2
5	A024	OSCILLATING SHAFT	1
6	A018	SHUTTLE DRIVE SET SCREWS	2
7	A021	OSCILLATING SHAFT CRANK SET SCREW	1
8	B179	OSCILLATING SHAFT CRANK WITH SLIDE BLOCK	1
9	B177	LOWER SHAFT COLLAR	2
10	B155	SHUTTLE RACE CLAMP	1
11	A 084	SHUTTLE RACE GUIDE SHAFT	1
12	B153	SHUTTLE RACE GUIDE SHAFT SET SCREW	1
13	B170	SHUTTLE RACE GUIDE SHAFT COMPLETE	1
14	B172	LOWER SHAFT	1
15	W172	SHUTTLE DRIVER	1
16	D099	SHUTTLE HOOK	1
17	A107	BOBBIN	1
18	D100	BOBBIN CASE ASSEMBLY	1
19	B139-2	CRANK CONNECTING ROD CAP SET SCREW	2
20	B177-1	LOWER SHAFT COLLAR SET SCREW	4

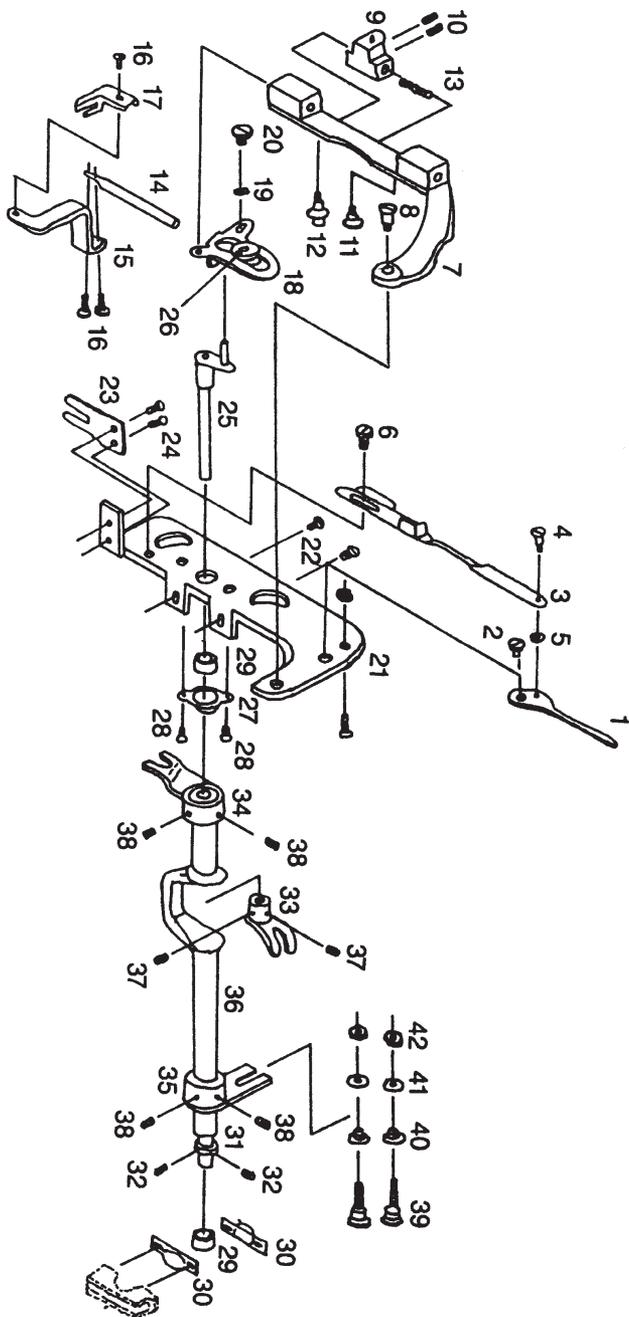
GROUP 4: FEED TRANSMISSION GROUP



GROUP 4

KEY NO	PART NO	PART NAME	QTY
1	W109	FEED REGULATOR THUMB NUT	1
2	W105	FEED REGULATOR LEVER	1
3	A053B-2	FEED REGULATOR LEVER NUT	1
4	W107	FEED REGULATOR	1
5	W106	FEED REGULATOR SPRING	1
6	B010	FEED REGULATOR SCREW SET SCREW	1
7	W108	FEED REGULATOR SCREW	1
8	A069B	FEED CONNECTION SLIDE BLOCK	1
9	A069A	FEED CONNECTION SLIDE BLOCK STUD	1
10	B103	FORKED ROD	1
11	A023	FEED ROCK SHAFT CENTER SCREW FEED LIFTING ROCK SHAFT SCREW & NUT	2 2
12	W046	DRIVING CRANK	1
13	A071B	FEED ROCK SHAFT CRANK	1
14	A071A	FEED ROCK SHAFT	1
15	A076	FEED BAR CENTER SCREW & NUT	2
16	A075	FEED BAR	1
17	W011	FEED DOG	1
18	A078	FEED DOG SCREW	2
19	W046-1	DRIVING CRANK GUIDE NUT	1
20	A061	DRIVING CRANK GUIDE SCREW	1
21	A072	FEED LIFTING ROCK SHAFT	1
22	A073	FEED LIFTING ROCK SHAFT CRANK	1
23	A071B-1	FEED ROCK SHAFT CRANK SET SCREW FEED LIFTING ROCK SHAFT CRANK SET SCREW	2
24	A067	FEED REGULATOR SCREW WASHER	1

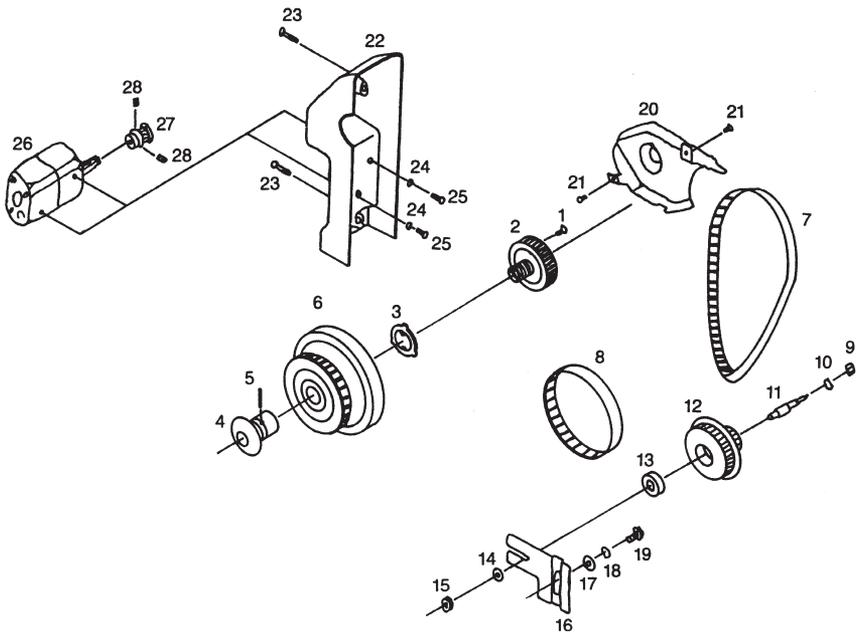
GROUP 5: DRIVING & REVERSING MECHANISM GROUP



GROUP 5

KEY NO.	PART NO.	PART NAME	QTY.
1	W042	PRESSER BAR LIFTER	1
2	W042-3	PRESSER BAR LIFTER HINGE SCREW	1
3	W026	LIFT BAR	1
4	W052-2	UPPER LIFT BAR SCREW	1
5	W042-1	SPACER	1
6	W026-1	LIFT BAR GUIDE SCREW	1
7	W018	PRESSER BAR TRACK	1
8	W018-1	PRESSER BAR TRACK HINGE SCREW	1
9	W020	REAR PRESSER BAR BRACKET	1
10	A029	REAR PRESSER BAR SET SCREW	2
11	W018-2	PRESSER BAR TRACK GUIDE SCREW	1
12	W018-3	PRESSER BAR TRACK FEED STUD	1
13	W019-1	PRESSER BAR LOAD SPRING (REAR)	1
14	W019	REAR PRESSER BAR	1
15	W017	OUTSIDE PRESSER FOOT BRACKET	1
16	B010	OUTSIDE PRESSER FOOT BRACKET SCREW OUTSIDE PRESSER FOOT SET SCREW	2 1
17	W013	OUTSIDE PRESSER FOOT	1
18	W024	PRESSER BAR ACTUATOR	1
19	W020-2	FEED SCREW RING	1
20	W020-1	PRESSER BAR ACTUATOR FEED SCREW	1
21	W041	END PLATE	1
22	W041-1	END PLATE SET SCREW	2
23	W014	OUTSIDE PRESSER FOOT BRACKET LIMITER	1
24	C097	BRACKET LIMITER SET SCREW	2
25	W036	PRESSER BAR FEED ROD	1
26	W024-1	PRESSER BAR ACTUATOR SPACER	1
27	W022	END PLATE BEARING SET PLATE	1
28	W041-2	RIVET	3
29	W021	BEARING BRACKET BUSHING	2
30	W023	LIFT CRANK ROD BEARING BRACKET PLATE	2
31	W052	ROCKER END SET RING	1
32	W052-1	ROCKER SET RING SET SCREW	2
33	W033	PRESSER BAR ACTUATOR UP-DOWN ROCKER	1
34	W034	PRESSER BAR ACTUATOR FEED ROCKER	1
35	W-35	CRANK ROD ROCKER	1
36	W053	CRANK ROD	1
37	D097	PRESSER BAR ACTUATOR UP-DOWN ROCKER SET SCREW	2
38	W034-3	CRANK ROD ROCKER SET SCREW PRESSER BAR FEED ROCKER SET SCREW	2 2
39	W046-2	CRANK ROD ROCKER GUIDE SCREW UP-DOWN ROCKER GUIDE SCREW	1 1
40	W046-3	CRANK ROD ROCKER LOCK SPACER UP-DOWN ROCKER LOCK SPACER	1 1
41	W046-4	CRANK ROD ROCKER LOCK WASHER UP-DOWN ROCKER LOCK WASHER	1 1
42	A061-B	CRANK ROD ROCKER LOCK NUT UP-DOWN ROCKER LOCK NUT	1 1

GROUP 6: ELECTRIC POWER & DYNAMIC TRANSMISSION



GROUP 6

KEY NO.	PART NO.	PART NAME	QTY
1	A004	STOP MOTION CLAMP STOP SCREW	1
2	A002-1	STOP MOTION CLAMP SCREW	1
3	A005	STOP MOTION CLAMP WASHER	1
4	A003	BALANCE WHEEL BUSHING	1
5	A006	BALANCE WHEEL BUSHING SET PIN	1
6	W060	HAND WHEEL	1
7	W006	BELT (130XLO.18)	1
8	W007	BELT (80XLO.25)	1
9	D116	E5 RING	1
10	W061-5	IDLE PULLEY SHAFT WASHER	1
11	W061-1	IDLE PULLEY SHAFT	1
12	W061-3	IDLE PULLEY	1
13	W061-4	IDLE PULLEY BEARING	1
14	W061-6	IDLE PULLEY LOCK WASHER	1
15	W061-2	IDLE PULLEY SET NUT	1
16	W059	PULLEY BRACKET	1
17	LT-2M-4	MOTOR BRACKET SET WASHER	1
18	LT-2M-3	MOTOR BRACKET SET LOCK WASHER	1
19	LT-2M-2	MOTOR BRACKET SET SCREW	1
20	W050	BELT COVER	1
21	A092	BELT COVER SET SCREW	2
22	W049	MOTOR BASE (REAR COVER)	1
23	W049-1	MOTOR BASE SET SCREW	2
24	W049-2	MOTOR SET WASHER	2
25	C097	MOTOR SET SCREW	2
26	W003	MOTOR	1
27	W062-1	MOTOR PULLEY	1
28	C097	MOTOR PULLEY SET SCREW	2

HELPFUL HINTS

REASONS

CORRECTIONS

WHEN THE SHUTTLE HOOK BECOMES JAMMED

It occasionally happens that loose threads become entangled and impede the free movement of the shuttle race.

- a) Remove the bobbin case.
- b) Push the pins sideways.
- c) Remove the shuttle cover from the shuttle.
- d) Remove the shuttle hook, and brush off all thread, lint, etc.,
- e) Insert the shuttle hook, and the shuttle cover which is inserted in its slot to pin of shuttle.
- f) Push the pins back to their original position.

WHEN THE MACHINE RUNS HEAVILY

If the machine runs sluggishly after standing idle for some time, apply a drop of kerosene in place of oil. Run the machine rapidly to clean. Then oil the machine.

WHEN THE MACHINE RUNS HEAVILY FOR OTHER REASONS.

- | | |
|---|---|
| a) The motor belt is too tight. | a) Loosen belt |
| b) Bobbin winder is not released. | b) Push bobbin winder to the left. |
| c) Thread is caught in the shuttle race. | c) Clean the shuttle |
| d) Machine is lubricated with unsuitable gummy oil. | d) (1) Place a few drops of kerosene into each oil hole and run the machine for a few minutes.
(2) Lubricate with proper sewing machine oil. |

REASONS

CORRECTIONS

MAKES LOOSE STITCHES AND LOOPS ON UNDERSIDE OF FABRIC.

- | | |
|---|--|
| a) Threading is incorrect. | a) Correctly thread machine. |
| b) Presser foot is not completely lowered. | b) Check whether Presser foot is down. |
| c) Insufficient needle thread tension. | c) Adjust thread tension. |
| d) Thread take-up spring is bent or broken. | d) Change the spring. |
| e) Poor stitches and bad seams for following reasons: | e) |
| 1. The bobbin is wound unevenly. | 1. Adjust the bobbin winder thread guide. |
| 2. Upper thread tension is too tight or too loose. | 2. Adjust the upper thread tension. |
| 3. Bobbin thread is too coarse for material. | 3. Use thread of same size as the needle thread. |
| 4. The needle is not suited for material. | 4. Use finer needle and thread which is suitable for the fabric. |
| 5. Needle damaged. | 5. Change the needle. |
| 6. Uneven thread tension likely to be caused by thread of poor quality. | 6. Change the thread. |

IF THE MATERIAL PUCKERS

- | | |
|---|---|
| a) The needle thread tension is too tight. | a) Loosen the tension. |
| b) The needle and the bobbin thread are too tight for the fabric. | b) Loosen both tensions. |
| c) Too much pressure applied to the presser foot. | c) Release the pressure of presser foot and adjust. |

IF THE MACHINE JAMS OR CLOGS

- | | |
|---|--|
| a) The machine is not properly threaded. | a) Correct the threading. |
| b) Running the machine without fabric. | b) Do not operate the machine without fabric. Clean the shuttle race.
See "When the shuttle hook becomes jammed" under "Helpful Hints". |
| c) Sewing with the stitch regulator lever at 'O'. | c) Increase stitch length |

REASONS

CORRECTIONS

IF THE MACHINE DOES NOT FEED PROPERLY

- | | |
|--|--|
| a) The stitch regulator lever is at 'O'. | a) Do not set the lever at 'O' position. |
| b) Insufficient pressure is applied to the presser foot. | b) Increase the pressure by turning the pressure regulating thumb screw clockwise. |

IF THE BOBBIN DOES NOT WIND PROPERLY

- | | |
|--|---|
| a) The machine is not threaded correctly. | a) Correct the threading. |
| b) The thread is out of the tension discs. | b) Check thread to the tension discs of the bobbin winder thread guide. |

IF THE NEEDLE THREAD BREAKS

- | | |
|---|--|
| a) The needle is inserted incorrectly. | a) Correct the insertion of needle. |
| b) The needle is not threaded correctly. | b) The needle must be threaded from left to right through needle hole. |
| c) The upper tension is too tight. | c) Loosen the tension. |
| d) Knots in thread. | d) Use better quality thread. |
| e) The needle is too fine for thread. | e) Change to larger size needle. |
| f) The needle is bent or its point is broken. | f) Change needle. |
| g) The stitch hole in the needle plate is rough or sharp. | g) Polish stitch hole or replace needle plate. |
| h) Poor quality thread. | h) Change thread. |

REASONS

CORRECTIONS

IF THE MACHINE STOPS WHILE SEWING

The stop motion knob has not been tightened sufficiently.

IF THE MACHINE SKIPS STITCHES

- | | |
|--|--|
| a) The needle is inserted incorrectly. | a) Correct the insertion of needle. |
| b) The needle is bent or blunt. | b) Change needle. |
| c) The needle is threaded improperly. | c) It must be threaded from left to right. |
| d) Wrong size of needle is used. | d) Change size of needle. |
| e) Thread is too heavy for needle. | e) Change needle to a heavier one. |
| f) The pressure of presser foot is insufficient especially when sewing heavy material. | f) Check pressure. |

IF THE NEEDLE BREAKS

- | | |
|---|---|
| a) The needle is bent. | a) Change to new needle. |
| b) The fabric is pulled from behind while sewing. | b) Do not interfere with feeding action of machine. |

NOTE:

To avoid breaking of needle, firmly tighten screw of needle clamp. Do not sew heavy seams or very thick fabric with fine needle. Heavy needle and thread should be used on heavy fabric. Refer to the list of needle and thread sizes.