

Service Guide

158.1525 1551



IMPORTANT SAFETY INSTRUCTIONS

CAUTION

Your sewing machine is designed and constructed only for HOUSEHOLD use.

Before using this sewing machine, read this manual and follow all Safety Rules and Operating Instructions.

DANGER— To reduce the risk of electric shock:

1. This sewing machine should never be left unattended when plugged in. Always unplug this sewing machine from the electric outlet immediately after using and before cleaning.
2. Always unplug before replacing a sewing machine bulb. Replace bulb with same type rated 15 Watts.
3. Do not reach for a sewing machine that has fallen into water. Unplug immediately.
4. Do not place or store this sewing machine where it can fall or be pulled into a tub or sink. Do not place or drop it into water or other liquid.

WARNING— To reduce the risk of burns, fire, electric shock, or injury to persons:

1. Do not allow this sewing machine to be used as a toy. Close attention is necessary when this sewing machine is used by or near children.
2. Use this sewing machine only for its intended use as described in this owner's manual.
Use only attachments recommended by the manufacturer as contained in this owner's manual.
3. Never operate this sewing machine if it has a damaged cord or plug, if it is not working properly, if it has been dropped or damaged, or dropped into water. Return this sewing machine to the nearest Sears store or service center for examination, repair, electrical or mechanical adjustment.
4. Never operate this sewing machine with any air opening blocked. Keep ventilation openings of this sewing machine and foot controller free from accumulation of lint, dust and loose cloth.
5. Never drop or insert any object into any opening.
6. Do not use outdoors.
7. Do not operate where aerosol (spray) products are being used or where oxygen is being administered.
8. To disconnect, turn all controls to the off ("○") position, then remove plug from outlet.
9. Do not unplug by pulling on cord. To unplug, grasp the plug, not the cord.
10. Keep fingers away from all moving parts. Special care is required around the sewing machine needle.
11. Always use the proper needle plate. The wrong plate can cause the needle to break.
12. Do not use bent needles.
13. Do not pull or push fabric while stitching. It may deflect the needle causing it to break.
14. Switch this sewing machine off ("○") when making any adjustment in the needle area, such as threading the needle, changing the needle, threading the bobbin or changing the presser foot, and the like.
15. Always unplug this sewing machine from the electrical outlet when removing covers, lubricating, or when making any other adjustments mentioned in this owner's manual.

Before using your sewing machine for the first time, place a waste fabric under the presser foot and run the machine without thread for a few minutes. Wipe away any oil which may appear.

Tuning up your machine

Model specific service adjustments page 20-32

There are three main points to a tune-up on a sewing machine.

- Cleaning and oiling
- Hook and feed timing
- Internal tension adjustment

Start by removing the covers on your machine.

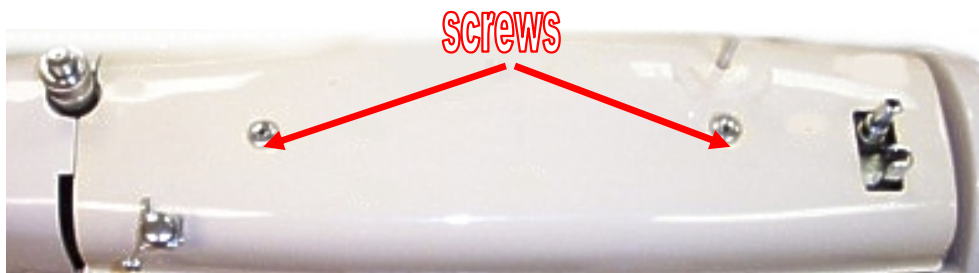
DO NOT START ANY REPAIRS WITH OUT UNPLUGGING THE MACHINE FROM THE WALL OUTLET

Remove the screws on the top cover. Gently lift the cover off of the machine. Fig. A. Different models have top cover screws in different spots. Some 158 models you simply pull off the top cover (there will be no screws).

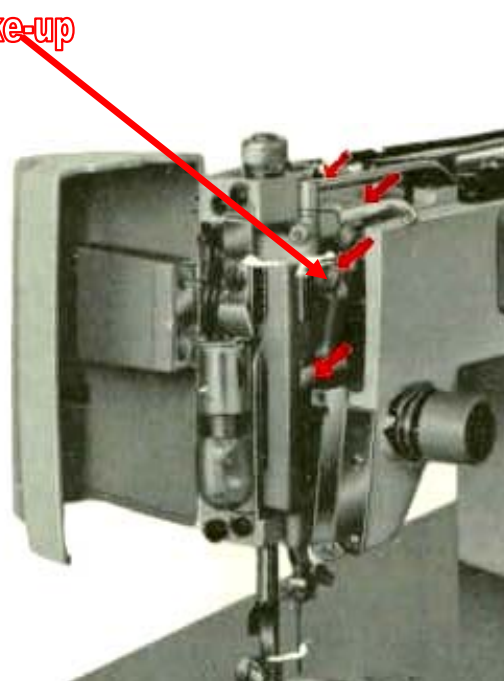
Check for thread or lint caught in any of the parts in the top of the machine



Open the needle bar cover. Check for any thread that may be caught in the take-up. Fig. B. By turning the hand wheel toward you, you can see if there is anything caught.



A



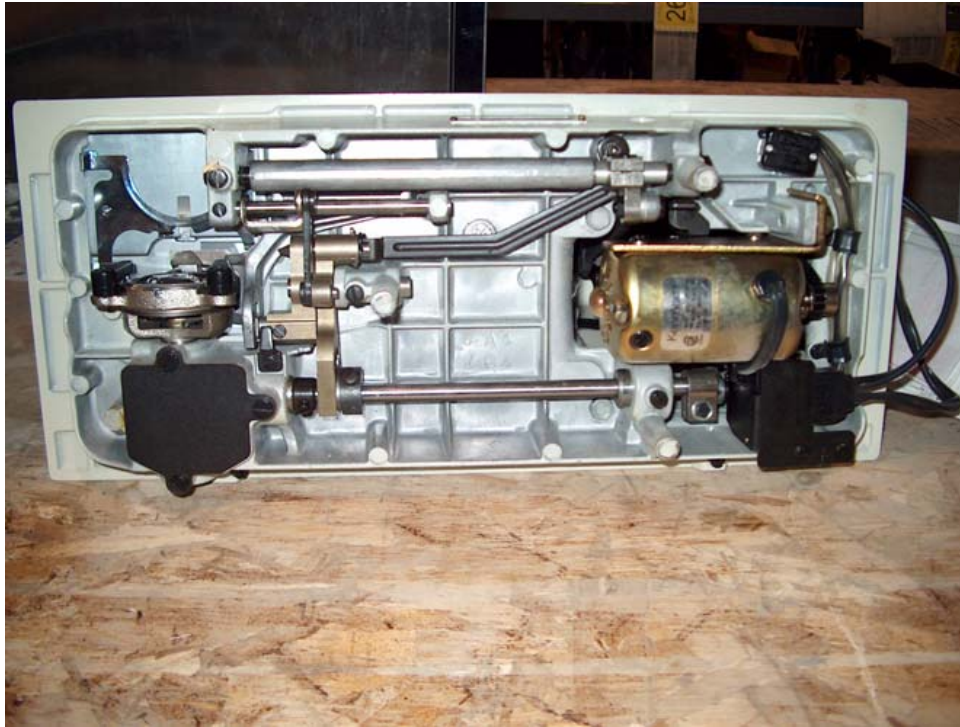
B

Removing covers continued

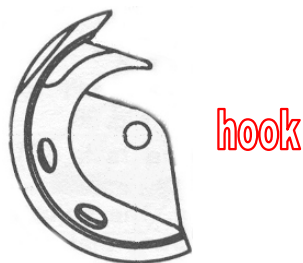
Remove the screws on the bottom covers for open arm machines.

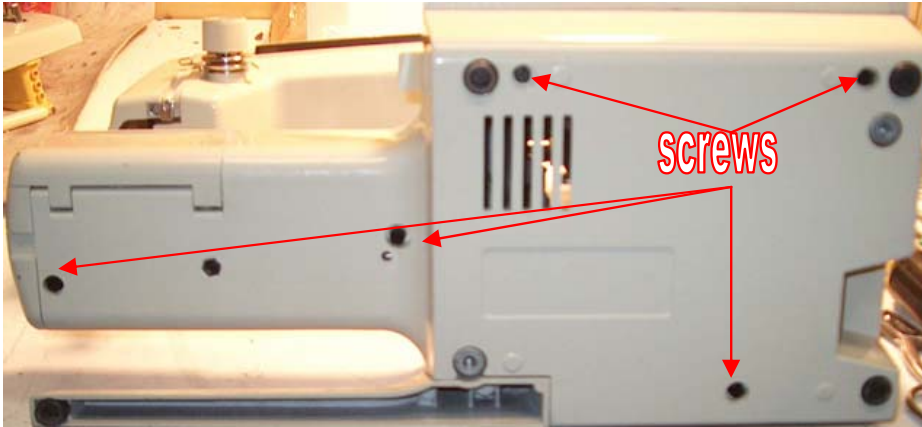
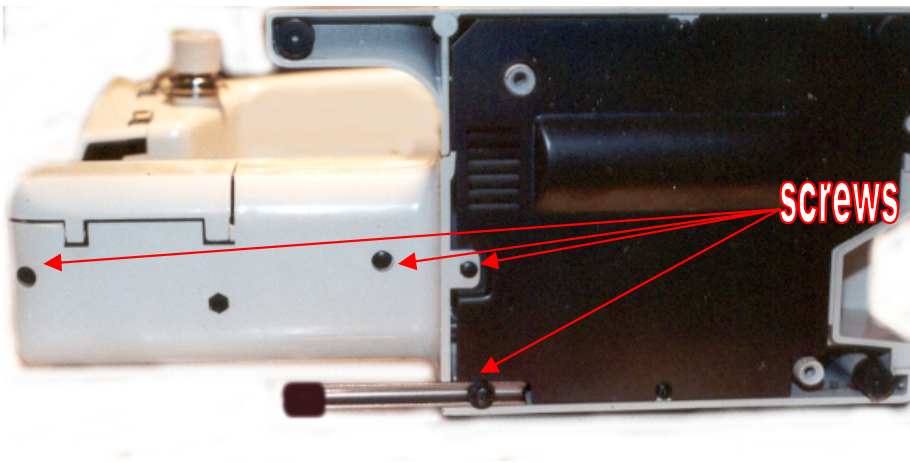
Fig. A. locating all of the screws may be tricky but when they are all removed the covers should come off easily. Remove the covers and check for thread or lint caught in any parts.

For flat bed machines simply lay the machine on its back to check it.

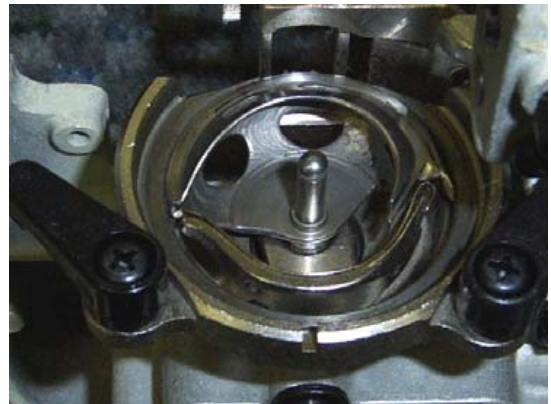
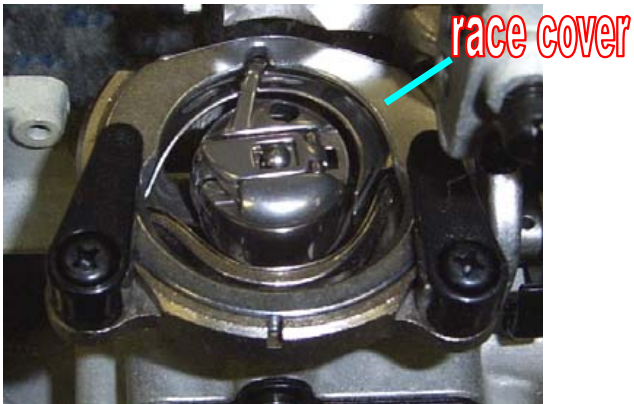


Remove the bobbin case and hook. Fig. B. Check all parts of the hook for burrs. If you have to polish any from the hook be very careful to lightly polish and do not damage it. The hook must be smooth or the thread will get caught. After you check the hook make sure there is no thread caught around the hook. Remove any you find.





A



B

Cleaning and lubrication

The best way to remove lint from the machine is with compressed air. Blow all the lint from the machine. Remove all lint from the gears and again from the bobbin area and feed dogs.

When oiling your machine, make sure you use a good quality oiler and clear sewing machine oil.

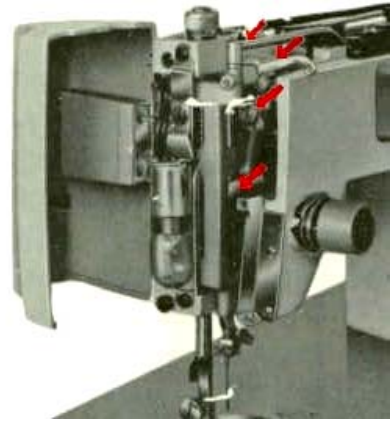
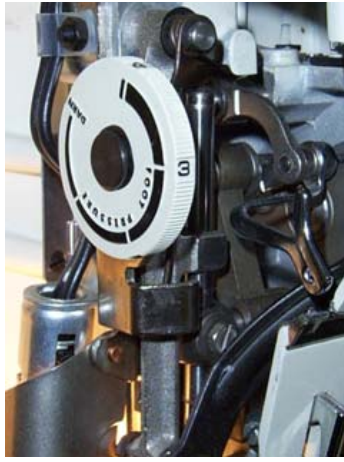


This type of oiler is good because it has an extendable spout and only lets out small drops of oil. A drop of oil is the amount of oil left on the tip of a needle if you dipped it in oil.

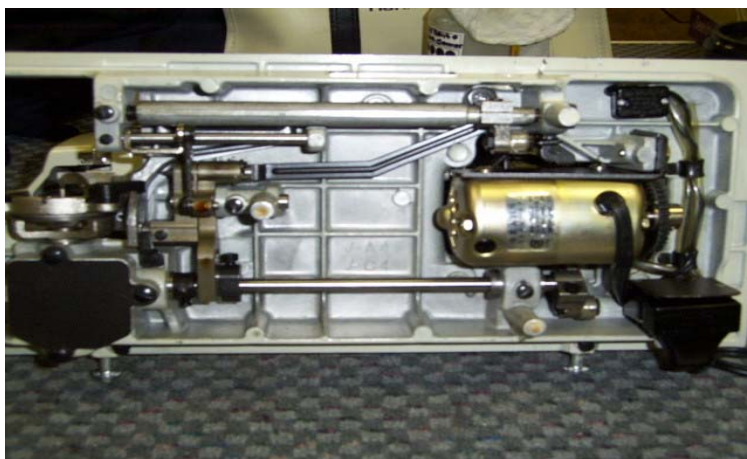
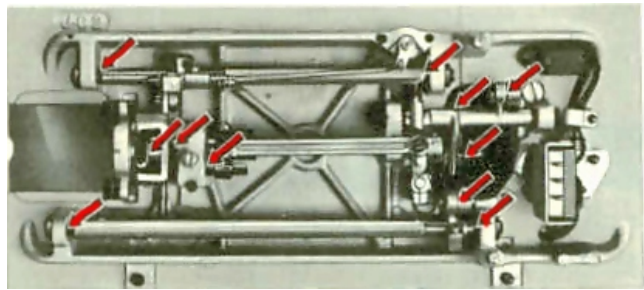
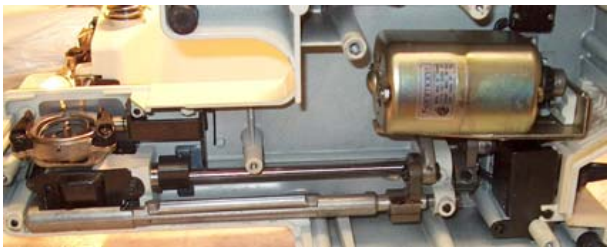
Oil all moving parts in the needle bar area. Fig. A. Make sure only one drop is put on each part. Clean off any excess with a soft cloth. Excess oil will find its way onto the fabric.

Oil all moving parts in the bottom of the machine. Fig. B. Do not oil the motor. Again use small drops of oil. Grease any gears with light sewing machine gear grease.





A

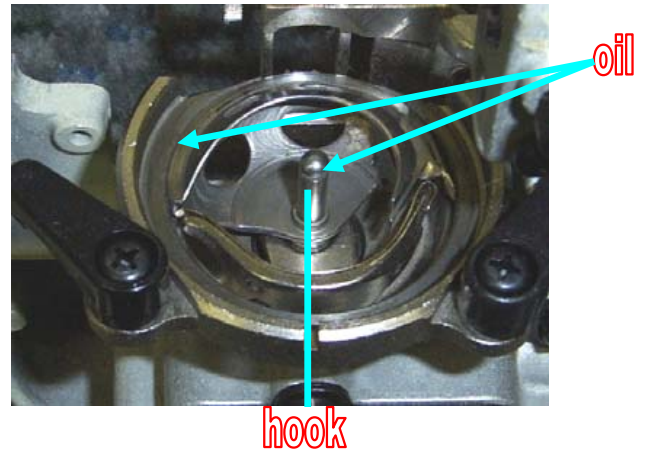
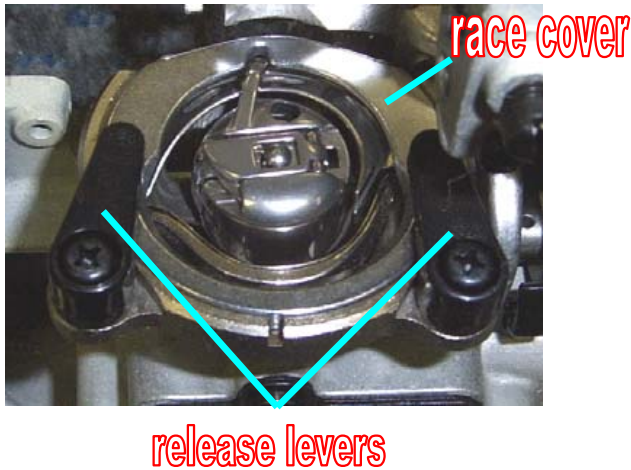


B

Cleaning and oiling continued

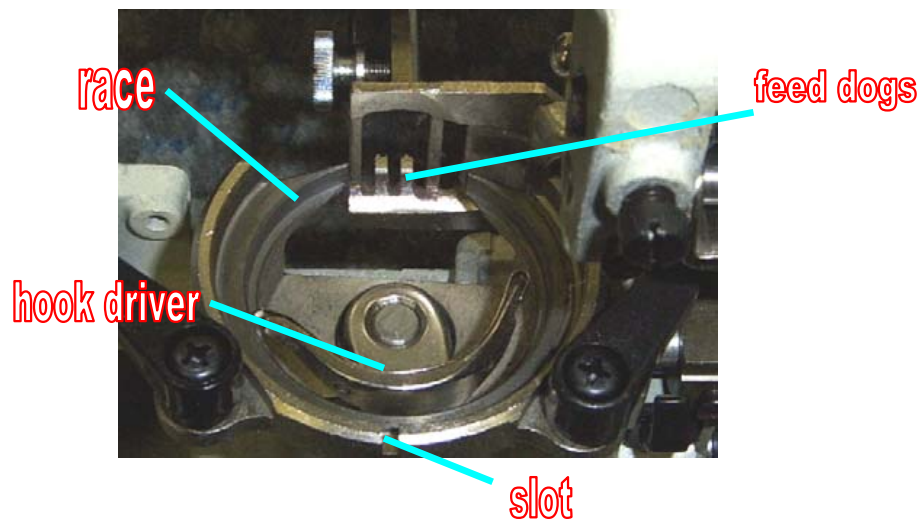
Oil the main parts shown and oil the bobbin winder. Be sure to remove excess oil from the winder before you run it. (bobbin winder is on the top cover on some models) Fig. next page.

Clean all lint from the hook race. Oil the hook and hook pin.

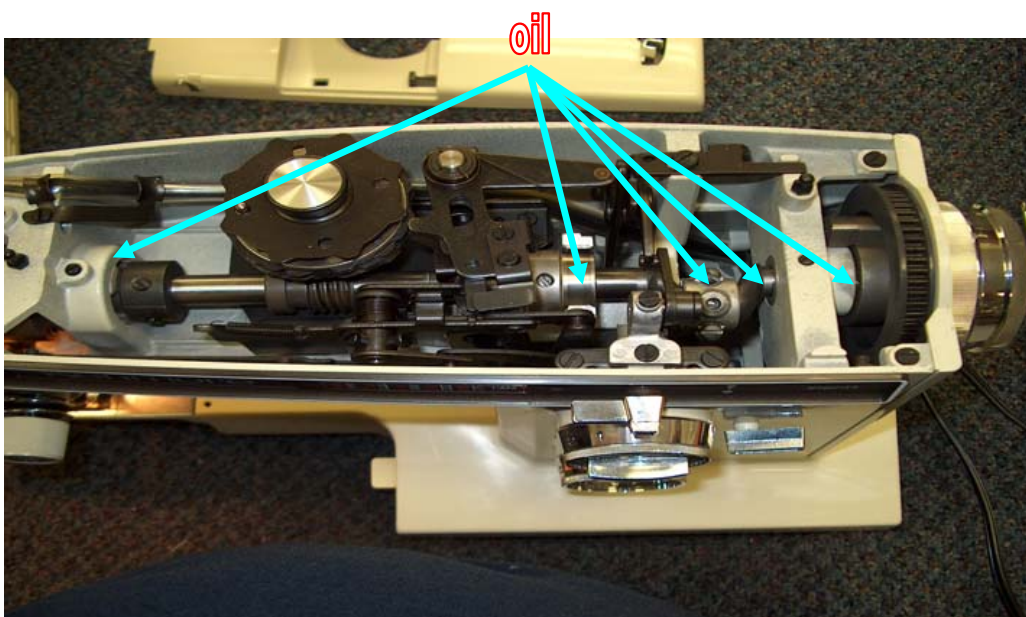
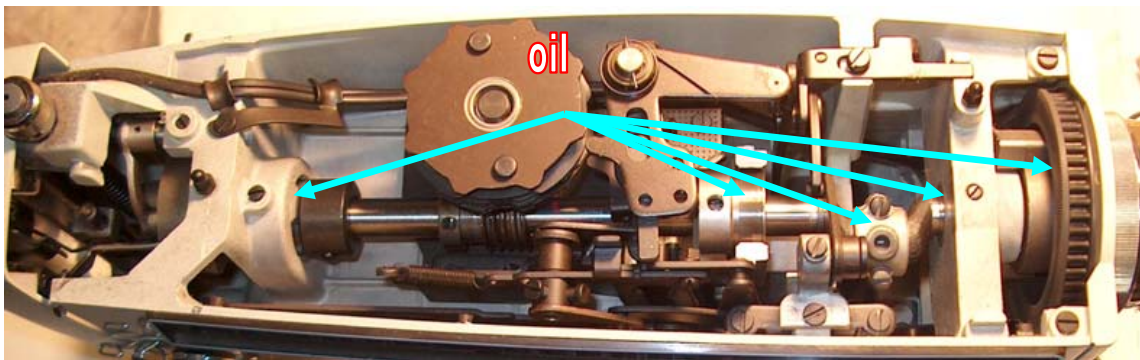
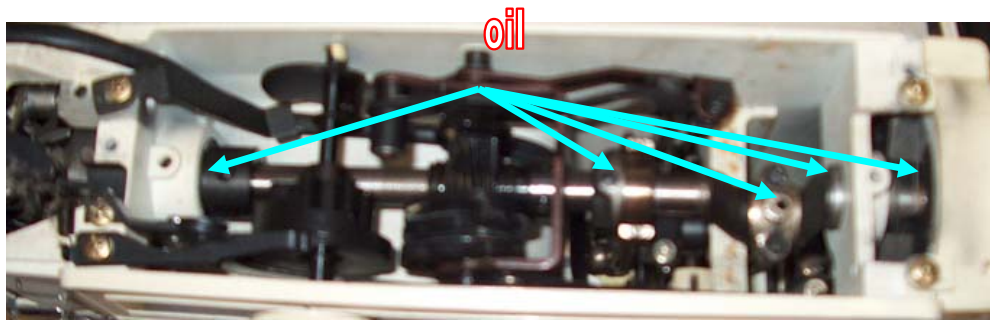
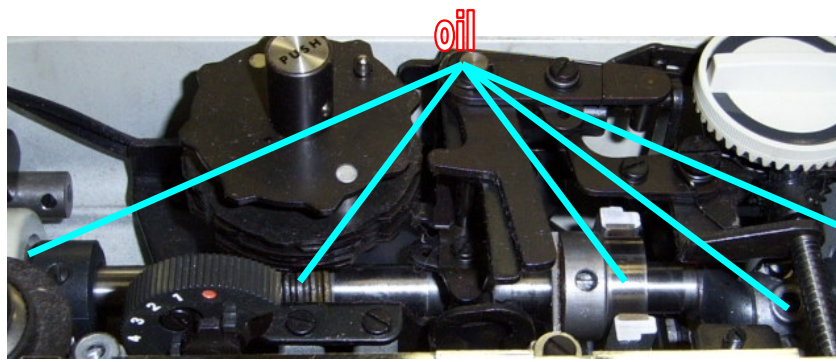


Remove the bobbin case and push the release levers away from the race cover.

Remove the race cover and hook.

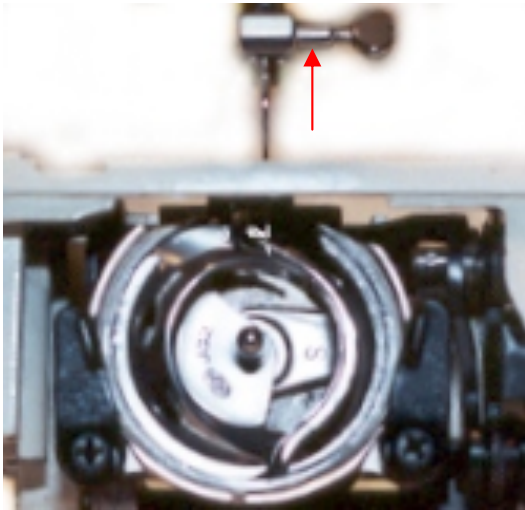


Turn the hand wheel towards you a few times to work in the oil to the whole machine.

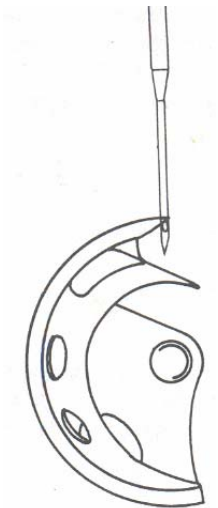


Checking timings

Insert a new needle into the machine. Turn the hand wheel towards you until it is in the lowest position. Set the machine to right needle position (or zigzag right side).

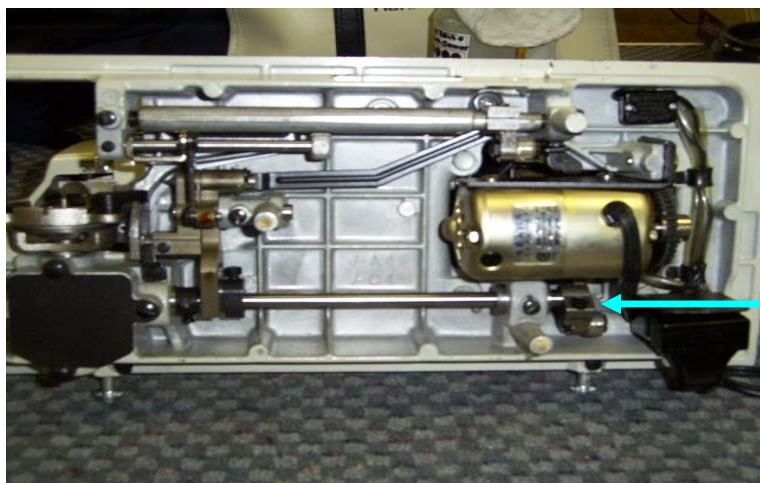


Bring the needle bar up until the hook and needle meet on the right side. The tip of the hook should be in the scarf of the needle and above the eye.



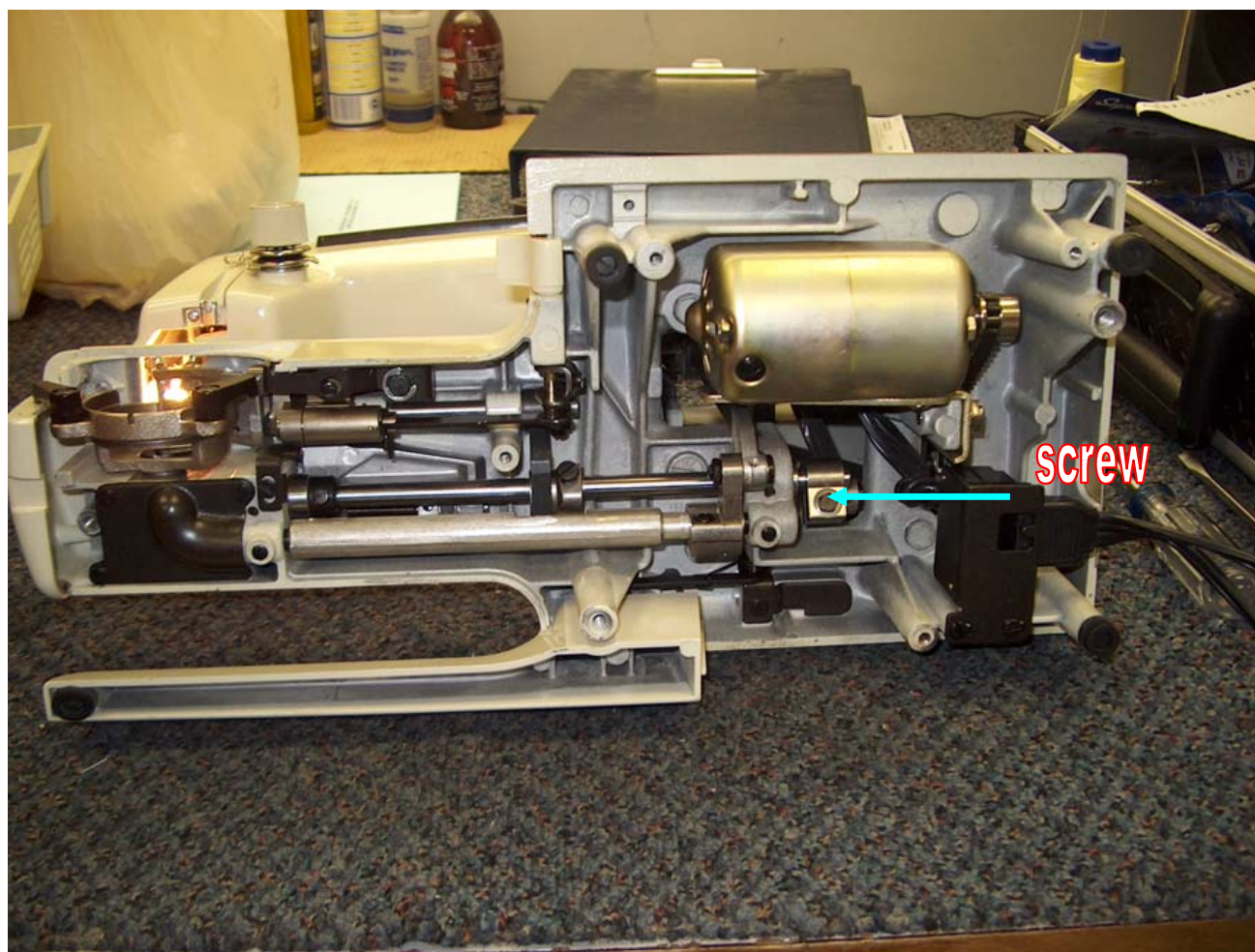
If the needle and hook do not meet as shown, the hook timing will have to be adjusted.

Adjusting timing



screw

Loosen the screw as shown. Some models have a 5 sided nut which requires a special tool available through Sears. Carefully turn the hook until the needle and hook meet. Make sure the feed dogs are in the down position when the hook and needle meet. Tighten the screw and recheck the timing.



screw

Adjusting the tensions



adjusting screw

The bobbin tension on your machine should not be too tight. When pulling the thread from the bobbin case you should feel a good amount of tension but not enough so you have to pull hard. When adjusting move the screw $\frac{1}{4}$ turn at a time and recheck the tension.

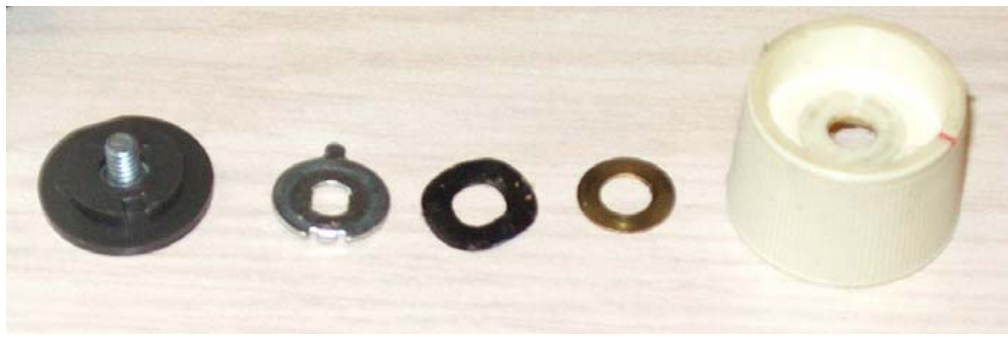


Remove the outer cap off the top tension unit by unscrewing the center screw.



nut

Adjust the inner nut until the best tension is achieved.



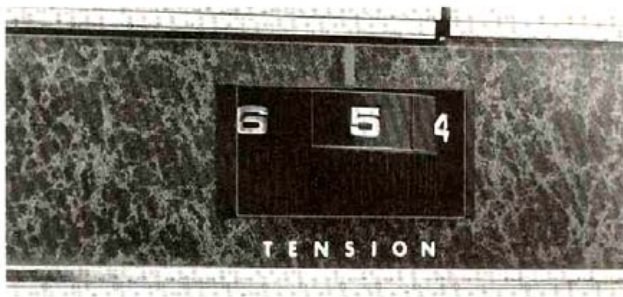
The parts inside the outer dial are shown in order. Replace them as shown then replace the outer dial onto the tension stud with the red line at 4.5. This will give you the best range of adjustment once the dial is back together.

TENSION ADJUSTING

Probably the most important control on your machine is this one that regulates your top thread tension. It consists of discs above the dial between which the thread passes. The pressure on these discs is regulated by turning the dial. The higher the number, the tighter the tension.

There are many reasons for having to reset your tension. The best tension for one fabric may not be correct for another. The required tension depends upon the stiffness of the fabric, thickness of the fabric, numbers of layers of fabric being sewn, as well as the type of stitch you are making.

It is best to test the stitching on a scrap of the fabric you are using before starting to make a garment.





The tension you are trying to get is for the knot to form in the center of the fabric.

When the tension is where you want it, replace the covers.

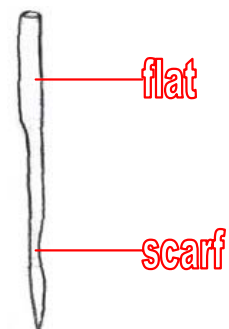
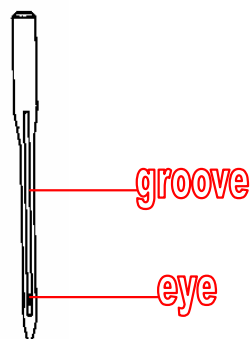
The outside of the machine can be cleaned off with a soft cloth and mild cleaner. Many shops use mild window cleaner. If your machine finish is dull before you clean it do not spray the cleaner directly on the machine. Spray a small amount on the cloth and test to see if you can remove the dull finish. You may require a car wax or cleaner to repair the finish of your machine.

SEWING MACHINE TROUBLESHOOTING GUIDE

In most cases poor sewing results and breakdowns are caused by three main factors:

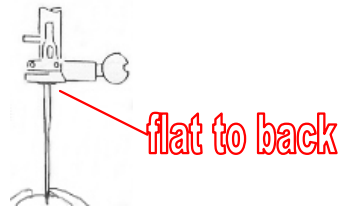
1. The condition of the needle.
2. Threading and the quality of thread being used.
3. Mechanical breakdown or damaged parts.

The condition of the needle is the most common problem. Bent or damaged needles will cause many different sewing problems. The way the needle is inserted into the needle clamp is also very important.



On most machines you install the needle so the flat is to the back of the machine. Side load machines (bobbin case is inserted on the left side of the machine) the flat is to the right. On some older Singer machines the flat is to the left. The needle should be inserted flat to the back on your machine.

Also make sure you use good quality needles. Organ brand which can be found under the Kenmore name are best for your machine.



Thread quality and the type of thread being used can be a problem. Always use good quality thread and try to avoid thread that is old or knotted. When ever possible use the same thread in the top and bobbin tensions. Thread the machine as shown in your manual and make sure the thread is between the tension discs.

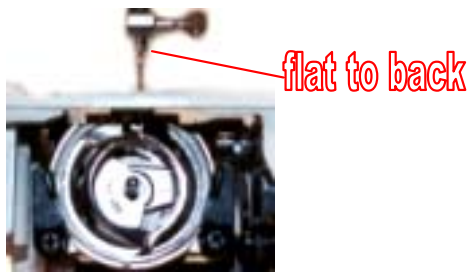
If you start with a new needle (inserted properly) and the machine is threaded as per instructions, sewing problems may be mechanical breakdown or damaged parts.

For best results your machine should be serviced before every large project. This will increase the life of your machine and give you problem free results when sewing.

Here is a checklist we have put together for your type of machine. If you have problems while you are sewing run through the list to correct the problem.

POOR STITCH QUALITY

1. The needle is incorrectly inserted. Check that the flat of the needle is to the back of your machine.



2. The needle is blunt or bent. Your needle should be changed before each large project or if it hits the needle plate or hook. A damaged needle can also snag most fabrics.
3. The tension is not correct. In most cases the top tension is set to a medium number for regular sewing. Make sure the thread is between the tension discs. Make sure the pressure foot is up when threading your machine. (this will release the tension discs) Check for lint or thread caught in the discs.



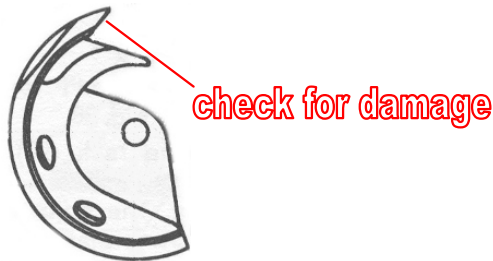
4. Type of thread being used can cause problems. Always use good quality thread. When using heavy thread in the top you will have to use a larger needle. The groove in the needle must fit the thread.

UPPER THREAD BREAKS

1. Check that the needle is inserted correctly and not damaged. Check size of needle for thread.
2. Check your threading. There should be free movement of the thread from spool to needle.



3. Make sure the top tension is not too tight.
4. Check the needle plate for damage.
5. Check the hook for damage.



LOWER THREAD BREAKS

1. Make sure the bobbin is inserted correctly and the right bobbin for your machine is being used. 15 class bobbins metal or plastic can be used in your machine.
2. Check that the thread is in the bobbin tension and the tension is not too tight. Also check for thread or lint caught in the tension spring.

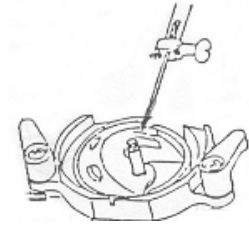


3. Make sure the bobbin is evenly wound.
4. Check the needle plate for damage.

BOBBIN THREAD NOT BEING BROUGHT UP

1. Check that the needle is inserted correctly.

2. Check threading of the machine. If the take-up lever is not threaded properly the thread will not come up.
3. Hook timing may be out. The hook must pick up the thread from



the scarf of the needle.

STITCH LENGTH VARIES OR WILL NOT FEED

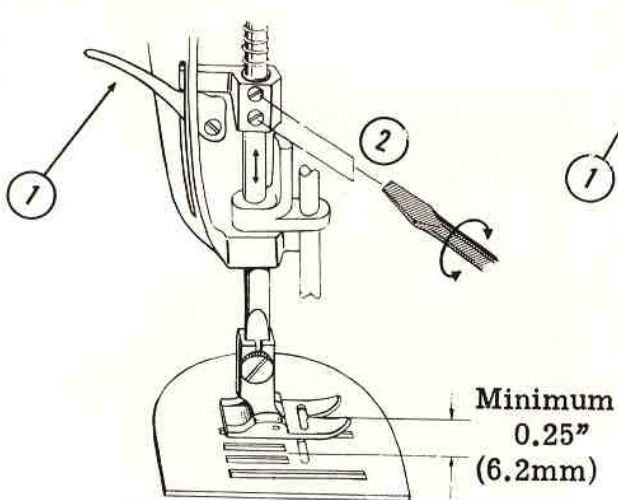
1. Check that your feed dogs are coming up above the needle plate.
2. Check the pressure foot pressure. There must be some pressure on the foot to feed the fabric.
3. Check for lint caught in the feed dogs.
4. Is the pressure foot tight on the pressure bar? Make sure the foot is pushed up all the way and tight.
5. If all points check out the feed timing may be off.

SKIPPING STITCHES

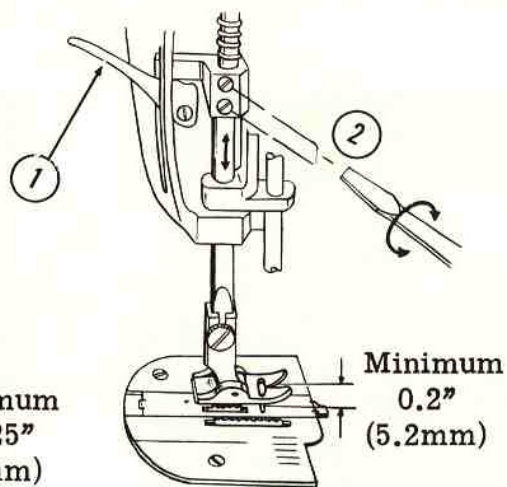
1. Check your threading.
2. Check for needle damage or type of needle being used.
3. Check your hook/needle timing.

Notes

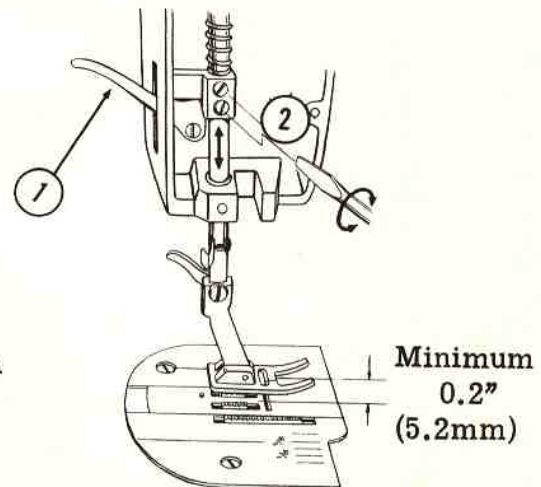
PRESSER FOOT HEIGHT



Side Facing Shuttle Machines



Front Facing Shuttle Machines



Front Facing Shuttle Machines

FIGURE 3A-1

NEEDLE BAR HEIGHT

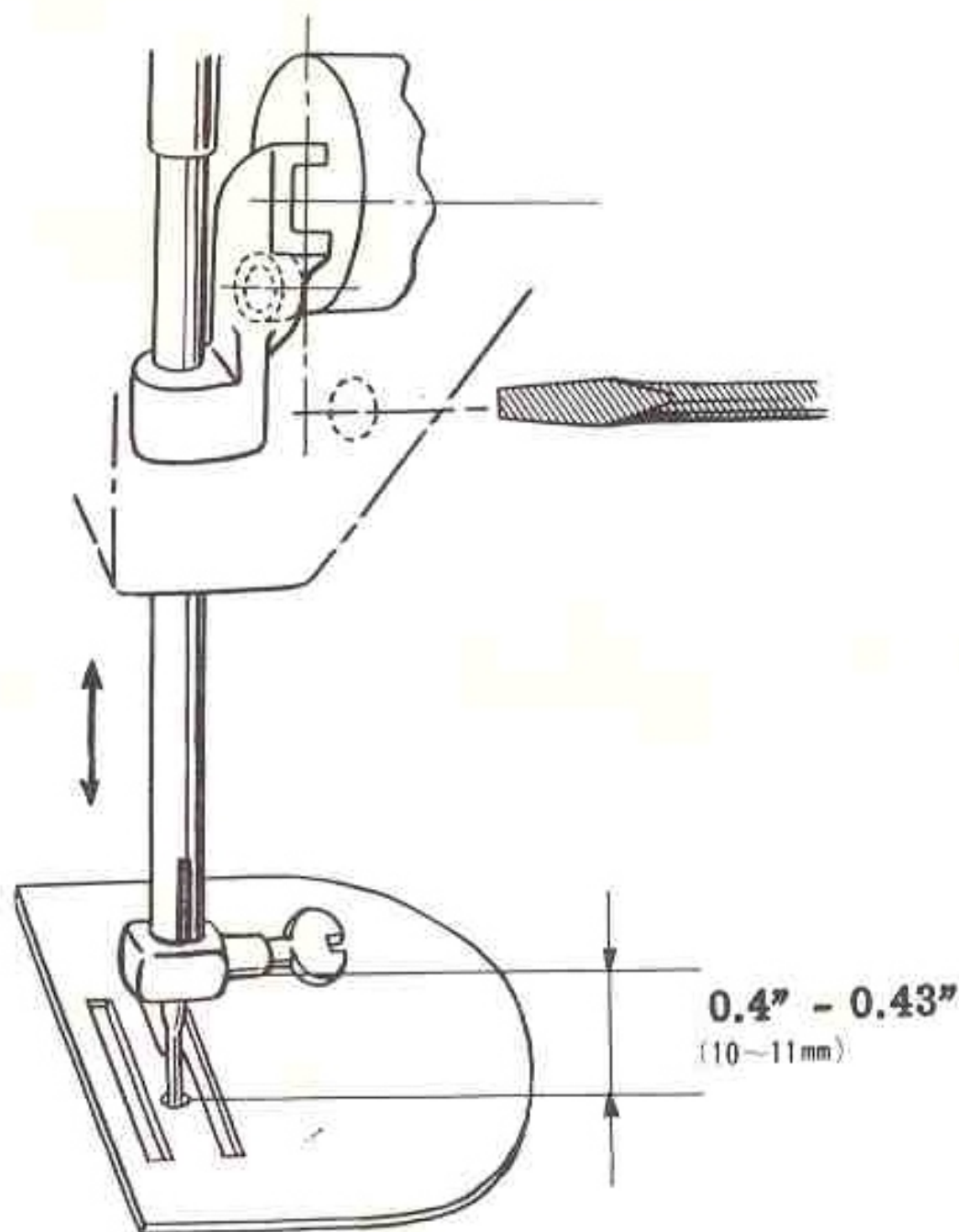


FIGURE 3B-1

Bring the needle bar to its lowest position by turning the handwheel towards you. Loosen the set screw on needle bar holder and adjust the height of needle bar as illustrated. Tighten the screw after adjustment.

SEE FIGURE 3C-19

Set the special stitch dial at red dot and stitch width control at 4. Lower needle to the lowest position. Loosen set screw (A) slightly, and slide the zigzag width bracket (B) to either direction, until you can obtain the equal clearance between the needle and the edge of needle slot a both left and right needle position. Tighten the screw securely after adjustment.

DISTRIBUTION OF NEEDLE SWING

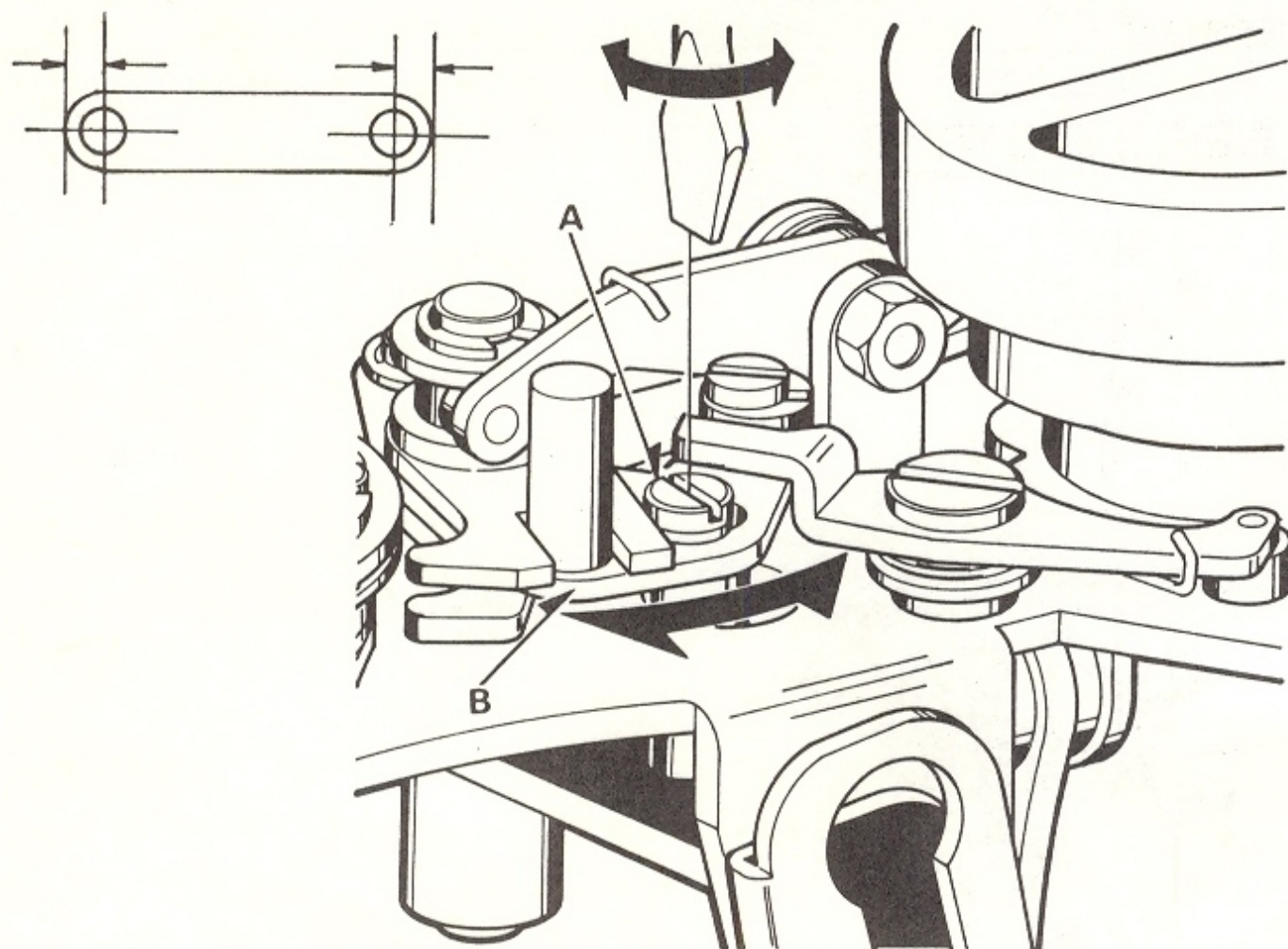


FIGURE 3C-19

SEE FIGURE 3D-2

Set stitch width control at 0. Prepare the needle plate for straight stitching by reversing or sliding the center plate (3). Turning handwheel, check and see if the needle goes through the needle hole at its center. If not, loosen nut (1) and adjust needle position by slightly turning the eccentric roller pin (2). Tighten the nut securely after adjustment.

NEEDLE POSITION

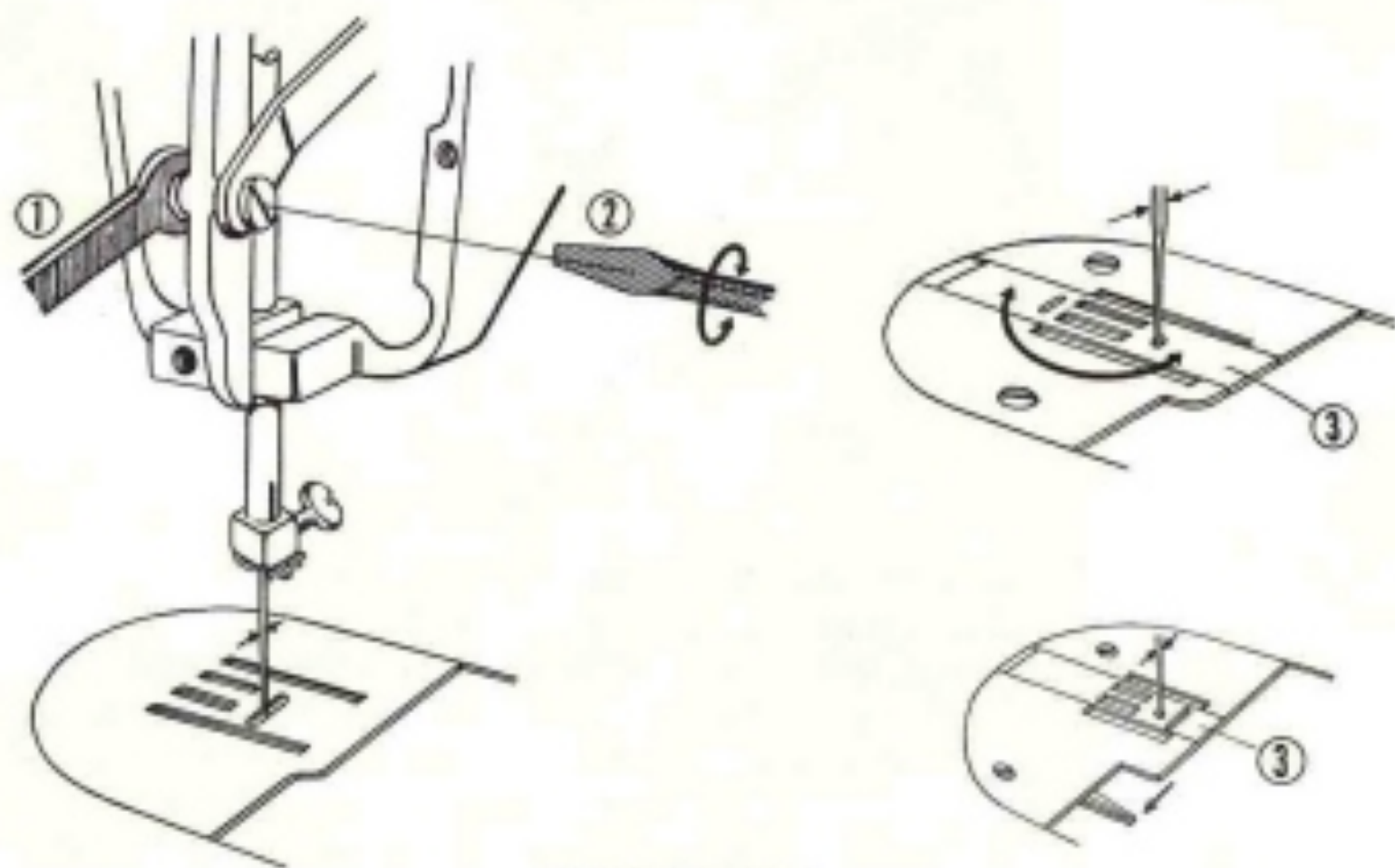


FIGURE 3D-2

For front facing shuttle models, place the feed dog height gauge at the position as illustrated (2) with no-go side of the gauge facing needle plate. Turning the handwheel slowly by hand, check and see if the gauge is moved by the feed dog teeth. If not, feed dog teeth are too low. Then, place the gauge up-sid-down, with go-side facing the needle plate, and repeat same procedure. If the gauge is moved, the feed dog teeth are too high.

To make adjustments, loosen screw (1) on drop feed center block and adjust the feed dog height as specified. Tighten the screw securely after adjustment.

CAUTION:

For side facing shuttle models, be sure the gauge is placed on the surface of needle plate-not with one end resting on the handhole cover plate.

FEED DOG HEIGHT

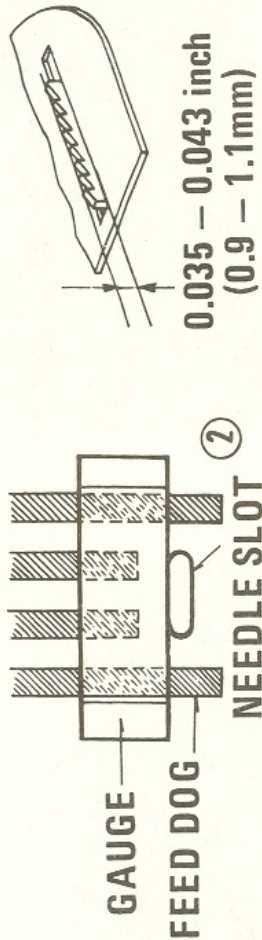
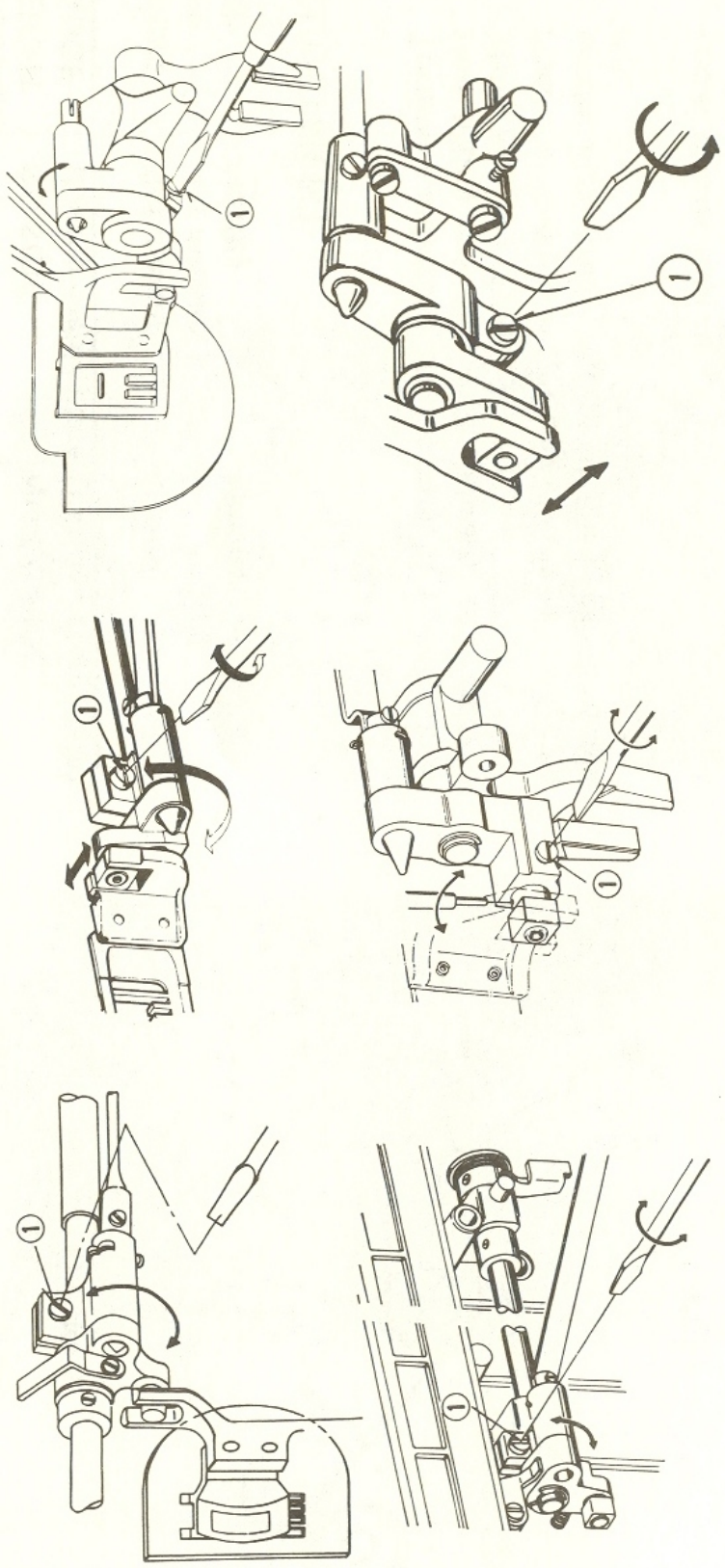


FIGURE 3E-1

Zero-Feeding

Set stitch length control at "0". Turning handwheel, check and see if the feed dog moves horizontally. At "0" position the feed dog should not move. If it does, loosen screw (A) and insert the eccentric tool (B) into the hole (C). Turn the eccentric tool either way to eliminate movement of the feed dog. Tighten the screw (A) after adjustment.

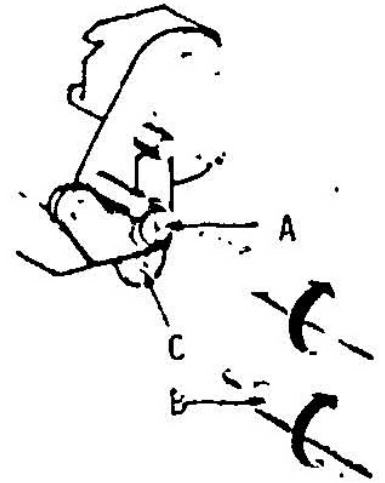


FIGURE F-12

NEEDLE TIMING TO SHUTTLE

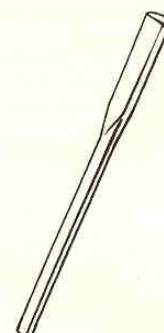
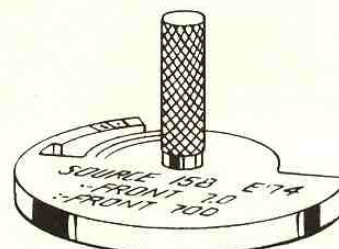
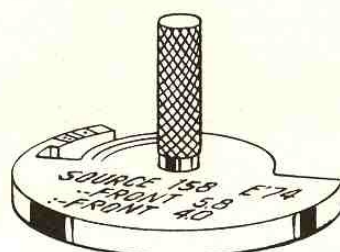
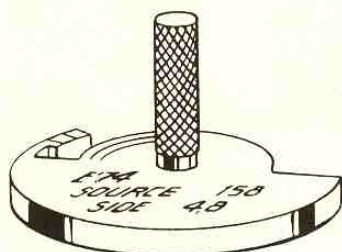
FIGURE 3G-1

(INSTRUCTION FOR RADIAL TIMING GAUGE)

USE GAUGE	SOURCE 158 • FRONT 7.0 : FRONT 7.0D			SOURCE 158 • FRONT 5.8		: FRONT 4.0	SOURCE 158 SIDE 4.8	
USE MARK	• FRONT 7.0	: FRONT 7.0D		• FRONT 5.8		: FRONT 4.0		
MACHINE BITE	7.0	7.0	5.8	5.8	4.0	4.0	4.8	
	160	925	18141	17530	150	15250	650	340
	161	16030	18150	17550	151	16000	10200	341
	162	16031	19130	17560	152	16001	10300	342
	163	17010	19131	17570	680	16010	10301	520
	920	17011	19140	17571	850	16011	10302	521
	921	17012	19141	17572	950	16012	10304	522
	922	17030	19142	17740	960	16020	10400	523
	923	17031		17741	12110	16021	10401	540
	924	17032			12310	16210	10402	541
	17000	17033			13050	16250	10450	542
	17001	17511			13150	16410	10500	880
	17490	17540			13160	16490	10501	881
	17510	18011			13170	16500	10600	882
	18010	18020			13180	16510	16530	900
		18021			13190	16520		901
		18022			13200	16540		902
		18023			13201	16600		903
		18024			13250	17200		904
		18030			13360	17300		905
		18031			13470	17310		18000
		18032			13471	17500		
		18033			13570	17501		
		18034			13571	17520		
		18130			14000	17600		
		18131			14001	19310		
		18140			14002	19311		
					14003	19400		
					14100	19410		
					14101	19411		
					14300	19412		
					14301	19460		
					14310	19461		
					14311	19470		
					15140	19471		
					15150			
					15160			

All Side
Face Shuttle
Models

The radial timing gauges and test pins, as illustrated below, are available through Department 206, Chicago only. The kit is identified as #69659.



SEE FIGURE 3G-3

The following adjustment is allowed only for the side facing shuttle models.

First check the needle with needle gauge to make sure the needle is straight and is the correct needle. Place needle in position. Tighten the needle clamping screw securely. Bring the needle to its lowest position by turning the hand-wheel. Check and see if the clearance between the needle and the shuttle is within the specified limit. If not, loosen the set screw (2) on the shuttle guide bracket and adjust the position of shuttle by sliding it either towards left or right until you

obtain the proper clearance. Tighten the screw securely after adjustment.

Caution: Be sure that shuttle assembly does not rotate during adjustment.

NEEDLE CLEARANCE TO SHUTTLE

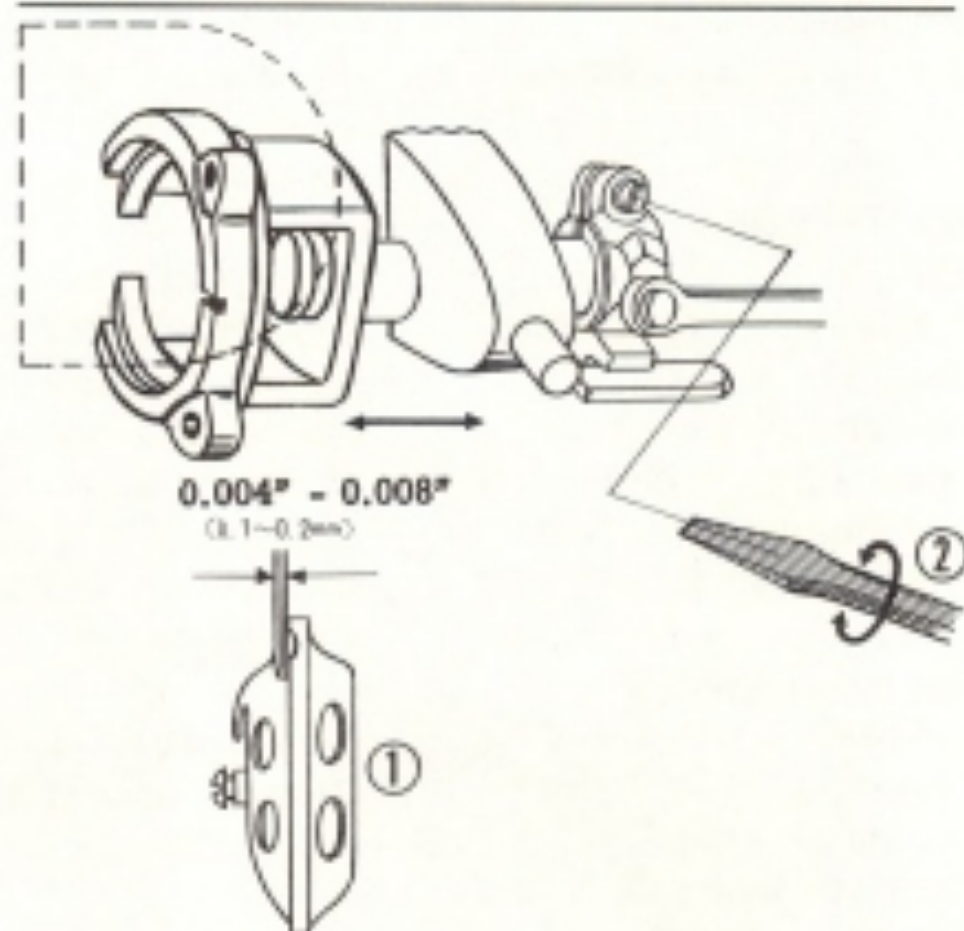


FIGURE 3G-3

ZIGZAG SYNCHRONIZATION

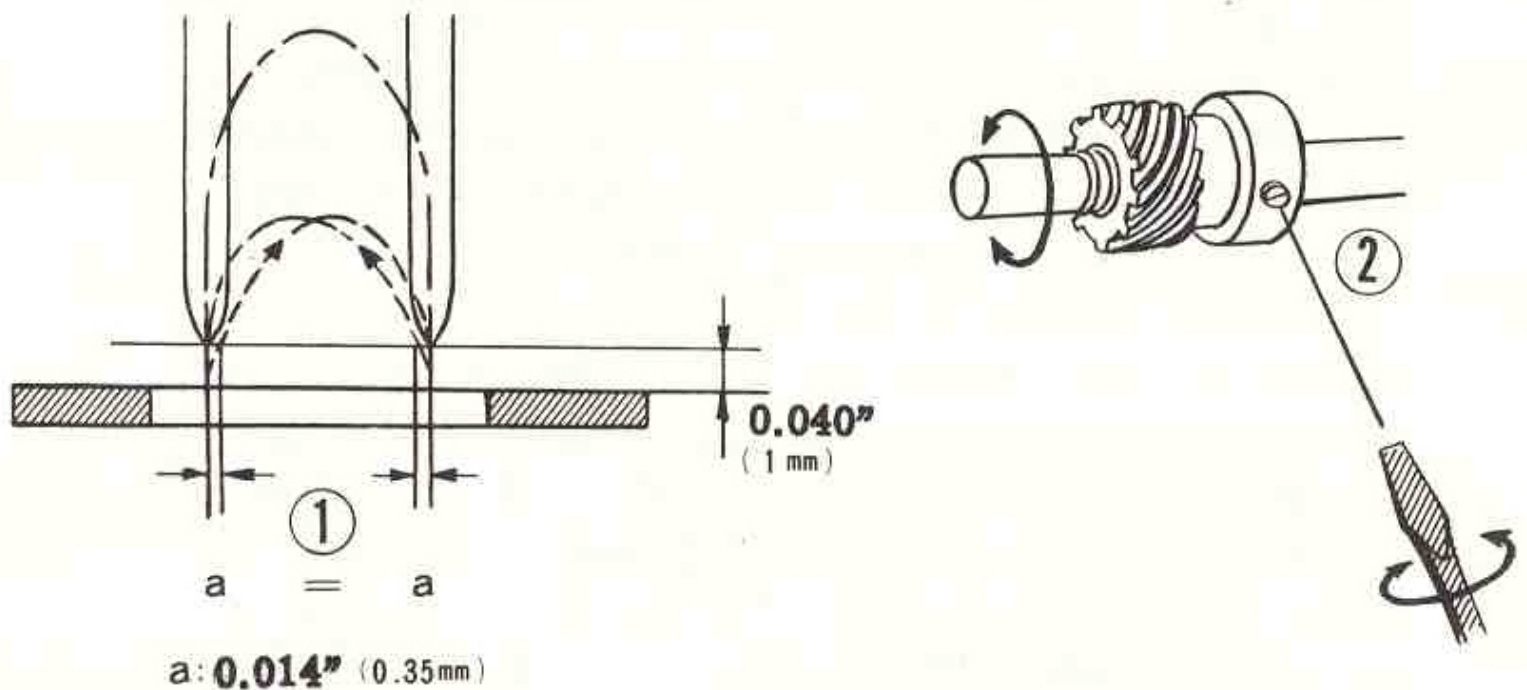


FIGURE 3H-1

Set stitch width control at maximum. Turning the handwheel, check and see if the needle side motion on the standard plane (0.040 inch above the upper surface of the needle plate) at both needle positions come within the engineering limit of 0.014 inch. If not, loosen set screw (2) and then the worm gear in either direction. Tighten the screw (2) securely after adjustment.

SEE FIGURE 3J-25B

Set special stitch dial at red dot, stitch width control at 4, stitch length control at 6 and special stitch modifier at white dot. Place a piece of paper (folded in two) over the feed dogs. Check and see if forward stitches are equal in length with reverse stitches by zigzag stitching on paper. If length of stitches in reverse stitching is shorter or longer than forward stitching, loosen screw (A) slightly, insert the eccentric tool (C) into the hole (D), adjust plate (B) to direction as illustrated by turning the eccentric tool (C). Tighten screw (A) after adjustment.

AUTOMATIC REVERSE STITCH (Stretch Stitch)

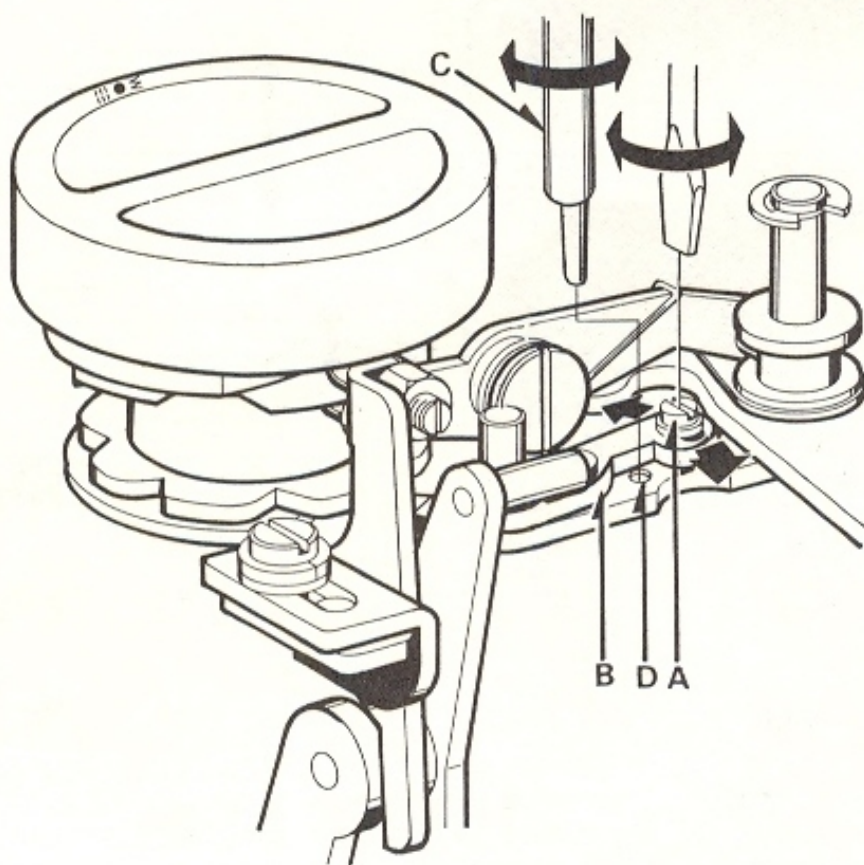


FIGURE 3J-25B

SEE FIGURE 3J-29

If the length of reverse stitches is shorter or longer than that of forward stitches, turn screw (A) either way until you can obtain the correct balance.

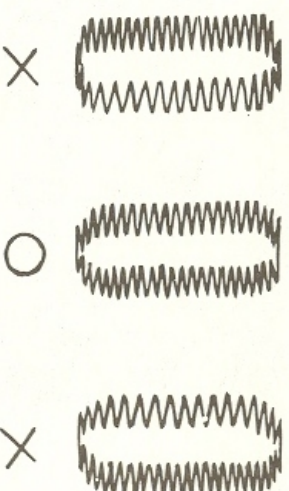
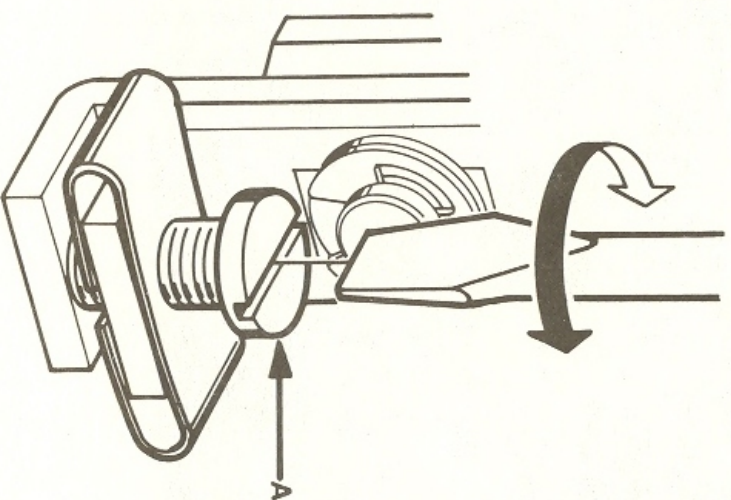
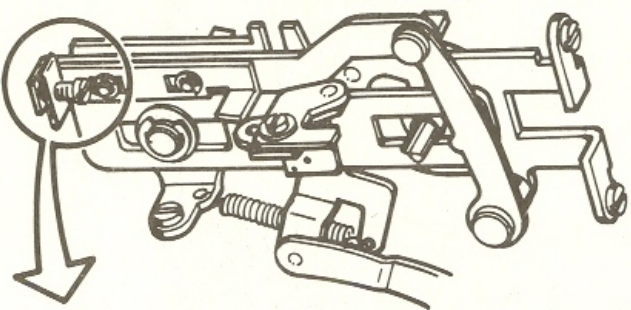


FIGURE 3J-29

Automatic Mechanism Cam and Cam follower Mechanism

If the special stitch dial cannot be turned, it may be due to insufficient clearance between cam (A) and cam follower (B). Excessive clearance will result in an irregular pattern.

To adjust the mechanism, set the stitch width control at 4 and special stitch dial between any two settings, as illustrated. Loosen screw (C) and turn the eccentric collar (D) in either direction as shown, until you can get the correct clearance (0.006 inch) between the highest point of cam (A) and cam follower (B). Tighten screw (C) after adjustment.

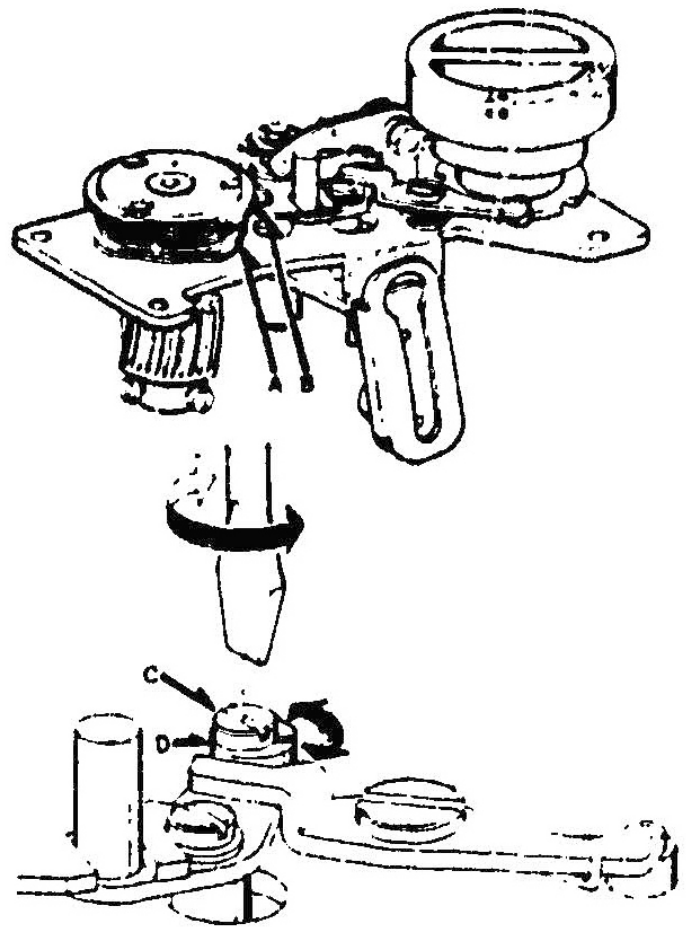


FIGURE K-21