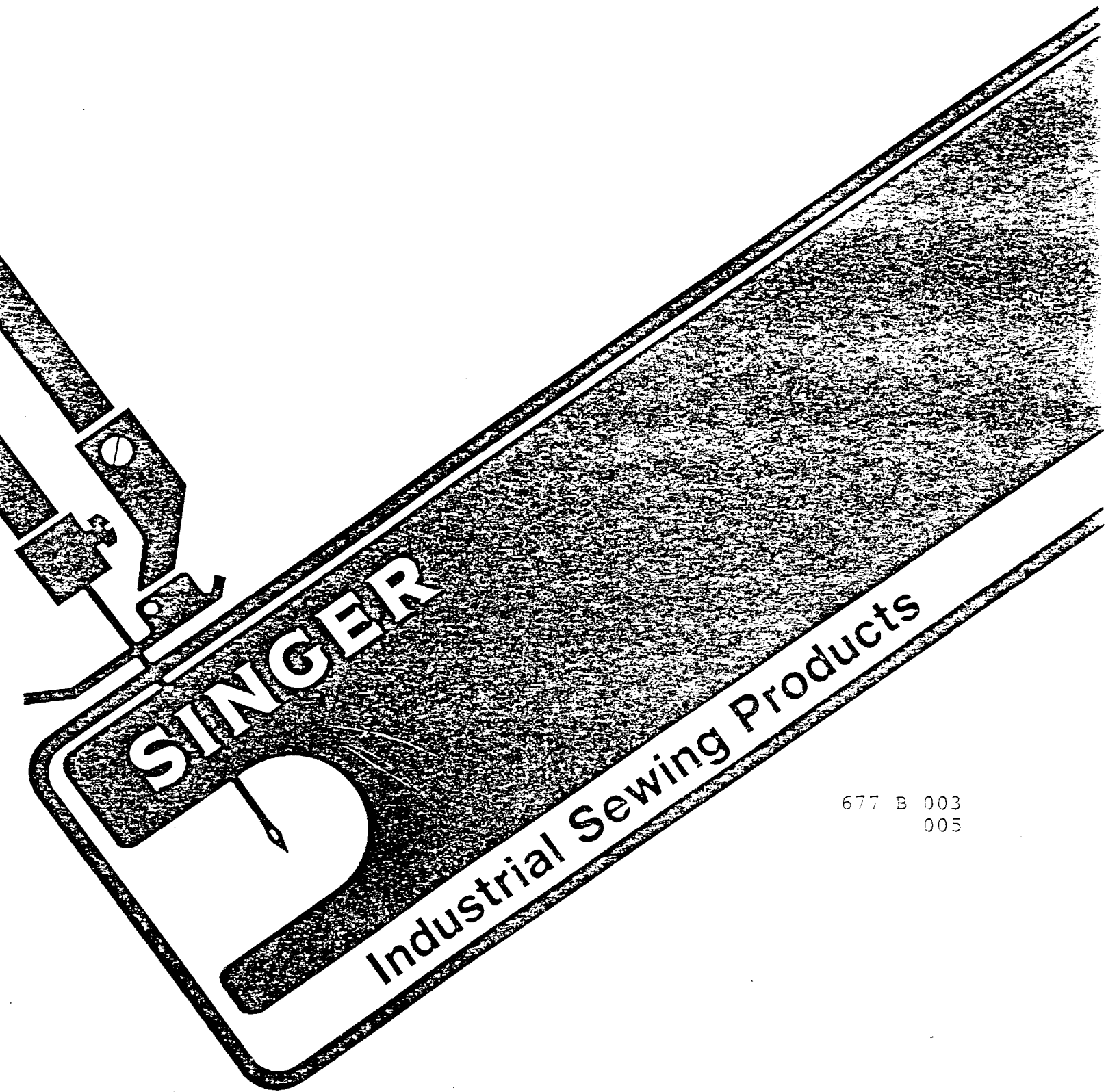


SINGER
677B003,B005

Service Manual and Parts List



677 B 003
005

IDENTIFICATION OF MACHINES

Each 677B machine is identified by a Variety number on a metal plate on the machine.

APPLICATION OF CATALOG

This catalog applies specifically to the Standard Varieties of machines as listed herein. Reference to direction, such as right, left, front, back, etc., are given from the operator's position while seated at the machine. Operating direction of handwheel is toward the operator.

VARIETIES OF MACHINES IN CLASS 677B

Advanced High Speed, Two Needle, One Looper, Plain Feed Flat Bed Machines, Medium Throw, Needle Bearing Needle Bar Drive, Light Weight Presser Bar and Needle Bar Driving Mechanism, Single Reservoir Enclosed Positive Automatic Lubricating System, Filtered Oil Return Pumps for Head and Base, Needle Bearings and Bronze Bearings for Feed Bar and Feed Rocker Shafts, Greased and Sealed. Lateral Looper Travel, Single Disc Take-up, Larger Handwheel and Improved Belt Guard. Prepared for use with Knee Press for Presser Foot Lifter, Equipped with Disc Thread Tensions, Maximum Work Space to Right of Needle Bar 8 1/4 Inches.

677B003 For hemming sides and bottoms of bathrobes, and for similar operations on medium to medium heavy weight woven fabrics. Standard gauges Nos. 12 and 16. Seam specification 406-EFa-1 inverted. Cat. 7292 needle. Maximum recommended speed 6000 R. P. M.

677B005 For attaching elastic bands in long lengths, garment lengths, or with ends joined, to rayon, silk, cotton, nylon and wool, flat, warp, and ribbed knit garments, and for similar operations on light to medium weight material. Automatic stretching device and spool holder for elastic. Standard gauges Nos. 8, 12 and 16. Seam specification 406-LSb-1 inverted. Cat. 7284 needle. Maximum recommended speed 6000 R. P. M.

NEEDLES

The catalog numbers of the needles recommended for each Variety of machine covered by this catalog are given in the machine Variety description. Other needles are available, but the ones indicated are those recommended to produce the most satisfactory results. The catalog numbers of the recommended needle sizes available are listed below:

<u>MACHINE</u>	<u>NEEDLE</u>	<u>SIZES AVAILABLE</u>
677B003	Cat. 7292	10 to 23
677B005	Cat. 7284	9 to 18

ORDERING REPAIR PARTS

ILLUSTRATIONS

This catalog is arranged to simplify ordering replacement parts. Exploded views of various sections of the mechanism are shown on the left hand pages so that parts may be seen in their actual positions in the machine. On the right hand pages opposite the illustrations, the parts are listed with descriptions and the quantity of parts required in the particular view being shown.

Numbers in the first column are reference numbers only, indicating position of a part in the illustration. Do not use the reference numbers in ordering.

In the second column in the examples below are the part numbers as listed in this catalog. In the third column is the coded number to be ordered. The prefix "910" must be used. Additionally, letter suffixes generally are transposed as a prefix to the part number.

Components of sub-assemblies which can be furnished as replacements are indented under the description of the main sub-assembly.

The examples below show how to order using parts on Page 31 of this catalog to illustrate the instructions above:

<u>Ref. No.</u>	<u>Part No.</u>	<u>Order As</u>	<u>Description</u>	<u>Qty.</u>
8	57724-8	910-57724-008	Throat Plate 8 Gauge -----	1
9	57720-8	910-57720-008	Presser Foot 8 Gauge -----	
10	51430 D	910-D 51430	Shank -----	1
11	91	910-91	Screw -----	1
12	22799 B	910-B 22799	Screw -----	1
13	57730-8	910-5773-008	Presser Foot Bottom for No. 57720-8 -----	1

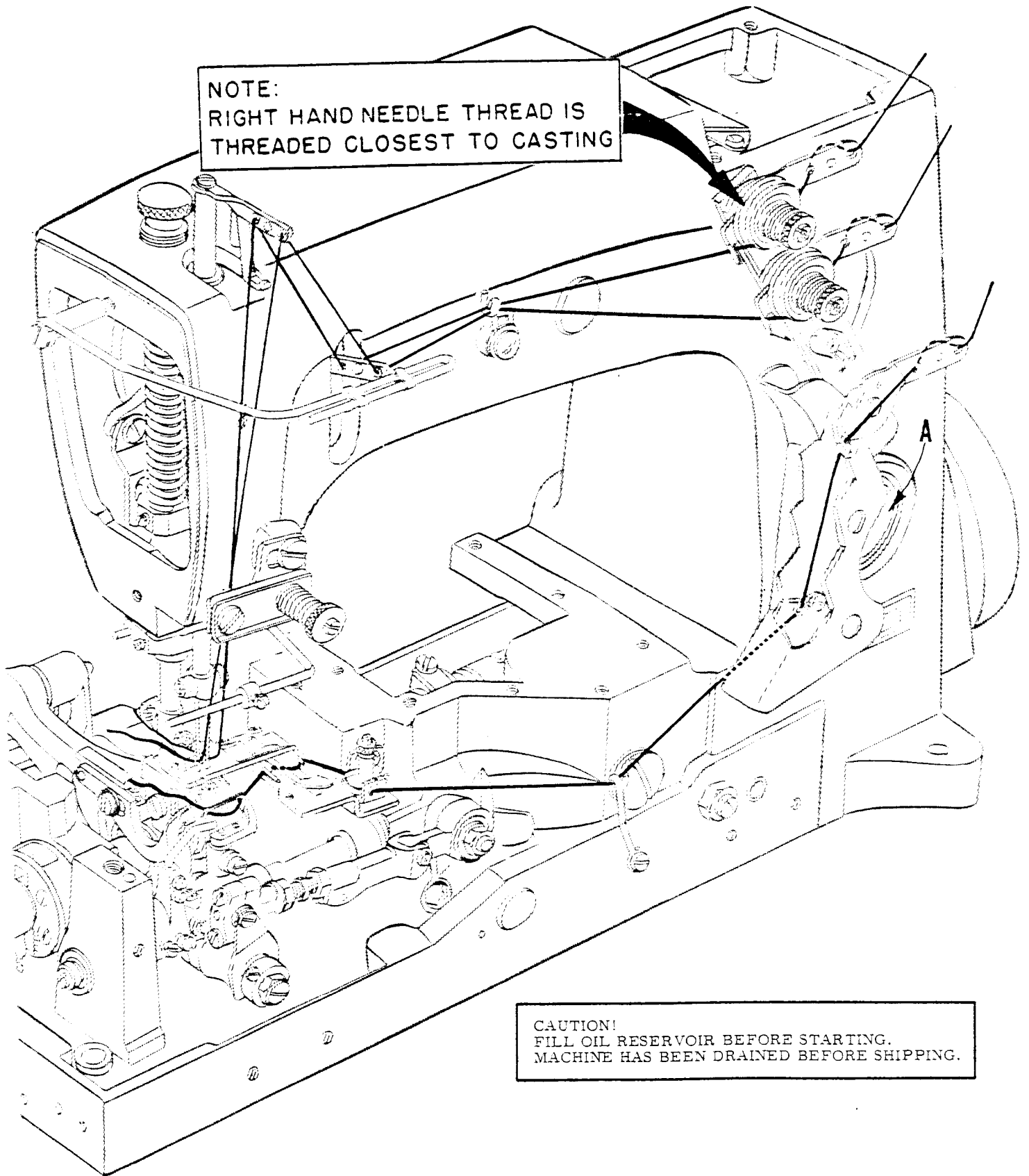
Where the parts for all machine varieties covered in this catalog are not the same, the difference will be shown in the illustrations or mentioned in the descriptions. When a part is used in all machines in this catalog, the variety number is not mentioned.

A numerical list of all parts shown in this catalog appears on Pages 34 and 35 to facilitate locating the illustration and description when the part number is known.

IDENTIFYING PARTS

Where the construction permits, each part is stamped with its part number. On some of the smaller parts, and on those where construction does not permit, an identification letter is stamped in to distinguish the part from similar ones.

THREADING AND OILING DIAGRAM



NOTE:
RIGHT HAND NEEDLE THREAD IS
THREADED CLOSEST TO CASTING

CAUTION!
FILL OIL RESERVOIR BEFORE STARTING.
MACHINE HAS BEEN DRAINED BEFORE SHIPPING.

Fig. 1

INSTRUCTIONS FOR MECHANICS

LUBRICATION

CAUTION! Oil has been drained from the main reservoir before shipment, so the reservoir must be filled to the proper level as indicated on oil gauge (A, Fig. 1) before beginning to operate. Run machine slowly for several minutes to distribute the oil to the various parts. Full speed operation can then be expected without damage.

RECOMMENDED OIL

Use Singer Type C oil or equivalent. Fill main reservoir at plug screw in upper crank chamber cover (A, Fig. 2) and check oil level at gauge (B). Oil is at maximum level when needle is in yellow band marked "Full". Oil should be added when needle is in yellow band marked "Low". Recommended grease No. 28604 P (See Page 10).

CAUTION! It is important that these machines not be over filled.

It is recommended that a new machine, or one that has been out of service for an extended period be lubricated as follows: Remove the head cover, clean out lint and directly oil the needle bar link and the needle bar. Replace head cover as no further hand oiling will be required. Run machine slowly for several minutes to distribute oil to the various parts.

For machines in operation check the oil for dirt and lint deposits at reasonable intervals. If dirty, change the oil. An oil change is recommended every 2000 operating hours. Oil may be drained from main reservoir by removing plug screw (C, Fig. 2) located below the cloth plate at front of the machine, or by removing the lower crank chamber cover, located at the back of machine.

NOTE: Looper avoid and feed lift eccentrics receive oil thru the mainshaft, so when assembling be sure oil holes in the eccentric line up with oil holes in mainshaft when spot screw is in time spot. See paragraph on "Changing Stitch Length" for repacking feed rocker sealed greased bearings.

OIL GAUGE

The oil gauge is set at the factory to show the proper oil level in the reservoir. Should an adjustment become necessary, however, the following steps should be followed:

1. Place the machine upright on a level table or bench.
2. Remove the oil reservoir plug screw (C, Fig. 2) and tip machine forward to drain oil from the reservoir.
3. Make sure all oil is drained from main reservoir.

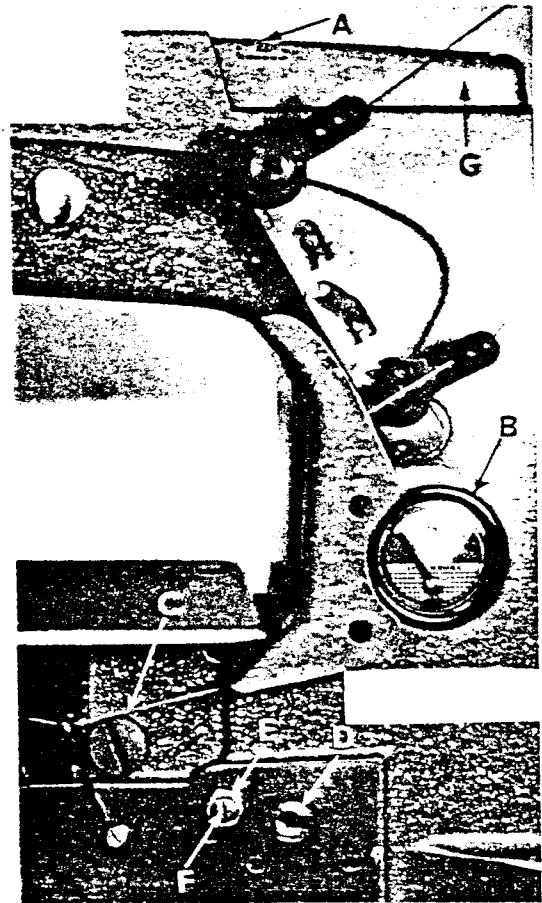


Fig. 2

OIL GAUGE (Continued)

4. Remove lower crank chamber cover, located at the back of the machine.
5. Fill main reservoir to a level even with the bottom contour of the knee press shaft bushing (D, Fig. 2).
6. Loosen lock nut (E) on calibrating screw (F), and turn the screw to the left or right until the gauge needle rests in the middle of the yellow band marked "LOW".
7. Tighten lock nut (E) and replace plug screw (C).
8. Add oil so that gauge needle rests in the middle of the yellow band marked "FULL".

NEEDLE LEVER BEARING OILER

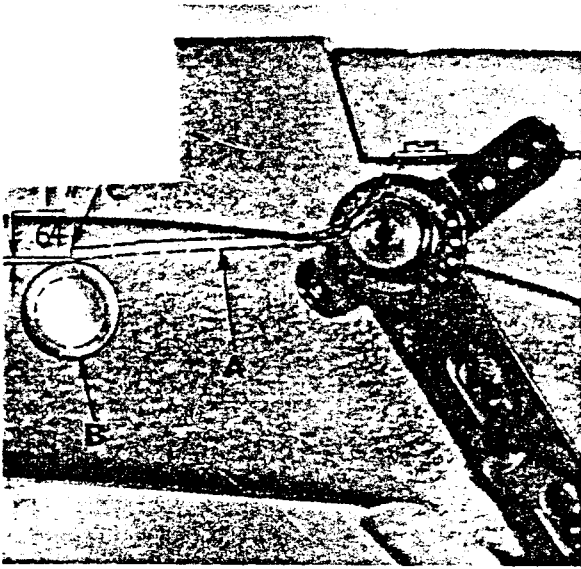


Fig. 3

Remove the head cover and upper crank chamber cover (G, Fig. 2). Check position of needle lever bearings oiler (A, Fig. 3) located inside the arm casting, below the upper crank chamber cover, which lubricates the needle lever stud (B). Make sure it is tilted downwardly and that its delivery end (C) contacts the inside wall of the bed casting at the back, just above the notch of the needle lever shaft stop collar. (Do not allow the oiler to rest on the needle lever.) Allow 1/64 inch clearance as in Figure 3.

ALIGNING THE NEEDLE BAR

Align the needle bar (A, Fig. 4) and set to height, using the proper test pins and test plate of the right gauge.
See chart below:

Machine Style	Test Plate No.	Right Test Pin No.	Left Test Pin No.
677B003-12	698 AV-12	699 R-12	699 L
677B003-16	698 AV-16	699 D	699 L
677B005-8	698 BB-8	699 R-8	699 L
677B005-12	698 BB-12	699 R-12	699 L
677B005-16	698 BB-16	699 D	699 L

Insert test pin No. 699 L in the left seat of the needle holder and the proper right hand test pin (see chart) should be inserted in the right needle seat. Now assemble test plate to machine using the throat plate attaching screws. The needle bar is located properly if the test pins align with the holes in the test plate and the height of the needle bar is correct when the shoulder of the test pins rest on the test plate, when the needle is at its lowest position.

If test plate and test pins are not available, insert a new set of needles (Type and Size as required) and align the needle bar so that the needles correspond with the vertical face of the needle guard. To turn needle bar, loosen needle bar clamp screw (B, Fig. 4) and turn bar as required. Tighten clamp screw.

SYNCHRONIZING LOOPER AND NEEDLE MOTIONS

Insert the looper in the looper rocker and turn handwheel in operating direction until the point of the looper (A, Fig. 5), moving to the left is even with the left side of right needle (B). Note the height of the eye of the needle with respect to the looper point, then turn handwheel in the reverse direction until the looper point again moves to the left, and is even with the left side of the right needle. If the motions synchronize, the height of the eye of the needle with respect to the looper point will be the same. A variation of .005 inch is allowable. If the distance from the eye of the needle to the point of the looper is greatest when the pulley is turned in the operating direction, move the looper drive shaft synchronizing stud (C) to the rear. Moving it in the opposite direction acts the reverse.

Moving of the looper drive lever shaft synchronizing stud is accomplished as follows: Loosen the clamp screw (D, Fig. 5) of the looper drive lever. To move stud to rear (away from operator), a light tap with a small hammer, directly on the stud, is all that is required. To move stud forward (toward operator), remove the cloth plate, throat plate support, oil reservoir top cover and oil reservoir back cover, then, a light tap on the looper drive lever rocker shaft, toward the operator, is all that is required. Then, using the looper drive lever to take up the end play between the looper drive lever rocker shaft and its synchronizing stud, tighten the looper drive lever on the shaft, using screw (D, Fig. 5).

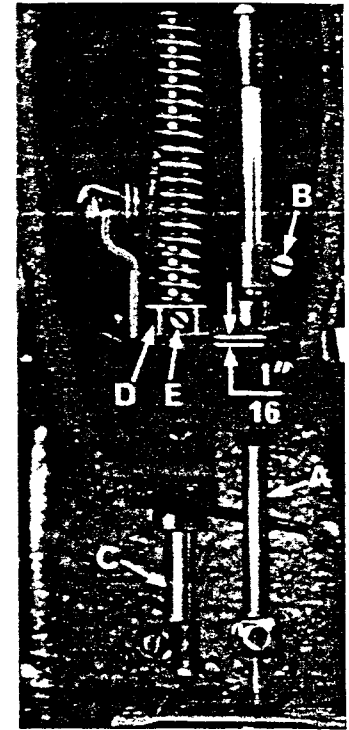


Fig. 4

With the looper at the extreme right end of its travel, check the location of the center line of the right looper connecting rod bearing, using gauge No. 21227 CX. Remove nut (E, Fig. 5) and place hole in gauge over threaded stud. The left end of the gauge should locate against the right side of the looper rocker cone (F). If adjustment is necessary, loosen the clamp screw (D) and reposition the looper drive lever (G) as required. Tighten clamp screw. If gauge is not available setting can be checked with a scale. The distance between the center line of the looper rocker cone and the center line of the looper lever stud should be $4 \frac{1}{16}$ inch (Fig. 6).

SETTING THE LOOPER

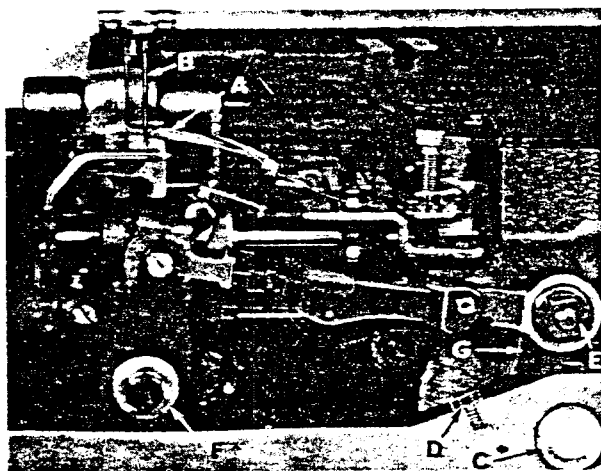


Fig. 5

Insert a new needle in the right needle seat, type and size as specified. If the looper gauge is $\frac{1}{4}$ inch, for example, set the looper (A, Fig. 6) so the distance from the center of the right needle (B) to the point of the looper is $\frac{1}{4}$ inch, when the looper is at its farthest position to the right. Looper gauge No. 21225- $\frac{1}{4}$ (C) can be used advantageously in making this adjustment. Refer to chart on the following page for needle Type, looper gauge setting and looper gauge number for the various styles of machines. If adjustment is required, loosen nut (D) (it has a left hand thread) and nut (E) on connecting rod (F), turn the connecting rod forward or backward to obtain the $\frac{1}{4}$ inch dimension. Retighten both nuts, first nut (E). Then nut (D). Make sure the left ball joint is in vertical

position and does not bind after adjustment.

SETTING THE FEED DOG (Continued)

Should it be necessary to move the feed dog to the left or right, loosen screws (A, Fig. 10) which hold the feed rocker (B) onto the feed rocker shaft (C), and move feed rocker to desired position and retighten screws. Make sure the feed rocker arm (D) does not bind after making this adjustment.

When the handwheel is turned in the operating direction the feed dog should have equal clearance on both ends of the throat plate slots with feed travel set to desired stitch length.

Should it be necessary to move the feed dog forward or backward, loosen nut (E, Fig. 10) which clamps the feed rocker arm to the feed rocker and move the feed rocker forward or backward as needed and retighten nut.

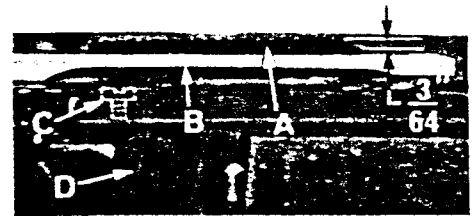


Fig. 8

CHANGING STITCH LENGTH

Set the stitch to required length. This is accomplished by loosening the locknut (F, Fig. 10) 1/2 turn (it has a left hand thread) on the end of the stitch regulating stud and turning the stitch adjusting screw (G) located under the left end of the cloth plate, in the head of the main shaft (H), which is marked with 'L' and 'S'. Turning the screw clockwise shortens the stitch (moves stitch regulating stud toward the 'S') and turning it in a counterclockwise direction lengthens the stitch (moves stitch regulating stud toward the 'L'). Retighten the locknut securely. To prevent destructive damage to the feed drive bearing, the Key screw (J) must engage the 'U' shaped key slot in the ferrule (K).

NOTE: Any change in stitch length will necessitate a corresponding change in the rear needle guard setting.

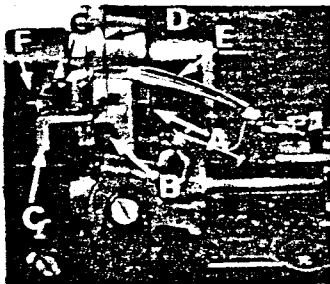


Fig. 9

The feed rocker assembly may require lubrication or repair after years of operation. This can be accomplished as follows: Loosen nuts (E, F, Fig. 10) and remove nut (F). Remove feed rocker arm (D) from machine by rocking slightly. Loosen screws (A) and remove stop collar on right end of shaft (C). The shaft can now be withdrawn. Loosen Allen screw (L) and remove shaft (M). Now, repack bearings.

When packing bearings the parts must be clean and grease should be applied directly from the tube to avoid contamination. Tube of grease can be supplied under the part number 28604 P. Greased bearings are located at (N, P, Fig. 10). If grease sealed bearings are replaced they should be pressed in flush with the casting. To assemble, reverse the procedure described in the previous paragraph. Start tapered end of shafts first, twisting slightly when entering the grease seals to prevent damage. Check for proper adjustment of feed dog as described under 'Setting the Feed Dog'. Also check to see that there is no binding at any point.

SETTING THE REAR NEEDLE GUARD

Set the rear needle guard (C, Fig. 9) horizontally so that it does not quite contact the rear of the right needle (D) when at its most forward point of travel. A clearance of .005 inch is permissible. It should be set as low as possible, yet have its vertical face approach within about 3/64 inch of the needle, until the point of the looper (E), moving to the left, is even with the needle. To move needle guard forward or backward, merely loosen screw (F), move needle guard as required, and retighten screw. To raise or lower needle guard, loosen screw (F), and turn screw (G) clockwise to lower needle guard and counterclockwise to raise it. Retighten screw (F) after guard is properly set.

NOTE: A change in stitch length will require a change in rear needle guard setting.

SETTING FRONT NEEDLE GUARD

Set the front needle guard so that it pushes the left needle back toward the path of the looper as it moves behind the needle. The looper may brush but not pick at the left needle. It should be set as low as possible, yet have its vertical face push the left needle until the point of the looper is just past the left side of the left needle. The front needle guard should not contact the rear needle guard or right needle at any time. To move guard forward or backward, merely loosen screws (A, Fig. 11), move needle guard as required and retighten screws. To raise, lower or rotate needle guard, loosen screws (B), move guard and retighten screws after guard is properly set.

NOTE: A change in stitch length will NOT require a change in front needle guard setting.

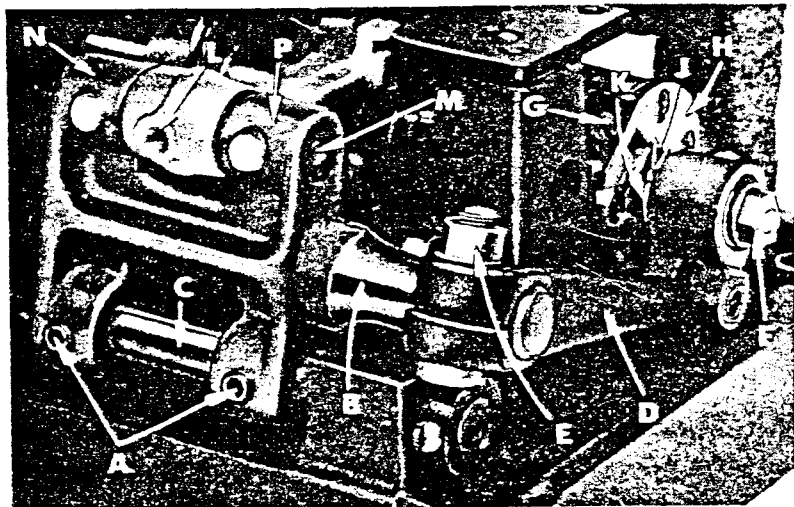


Fig. 10

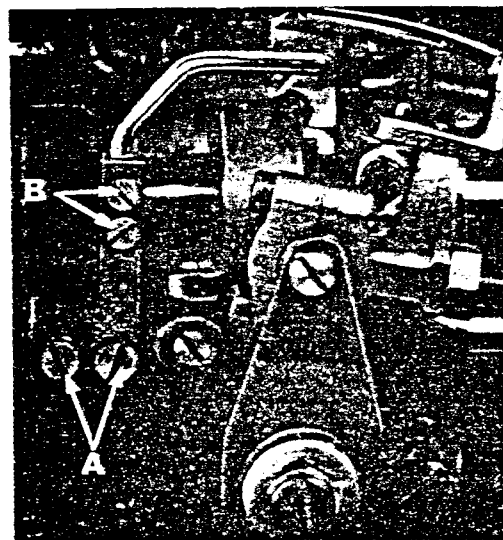


Fig. 11

THREAD TENSION RELEASE

The thread tension release is set correctly when it begins to function as the presser foot is raised to within $1/8$ inch of the end of its travel and is entirely released when the presser foot has reached its highest position.

If adjustment is needed, loosen tension release lever screw (A, Fig. 12), located at the back of the machine and move tension disc separator as required. Retighten screw. After adjustment there should be no binding at any point.

SETTING HEIGHT OF PRESSER BAR

The height of the presser bar (C, Fig. 4) is set correctly if it is possible to remove the presser foot when the foot lifter lever (B, Fig. 12) is fully depressed. Also there should be approximately $1/16$ inch clearance between lower surface of the presser bar connection and guide (D, Fig. 4) and the bottom surface of head opening in the bed when the foot lifter lever is released and the presser foot resting on the throat plate, with the feed dog down below the throat plate.

If adjustment is needed, turn handwheel in operating direction until the needle bar is in the low position. Loosen screw (E). Then, while holding presser foot down on the throat plate surface, pry up presser bar connection and guide with a screw-

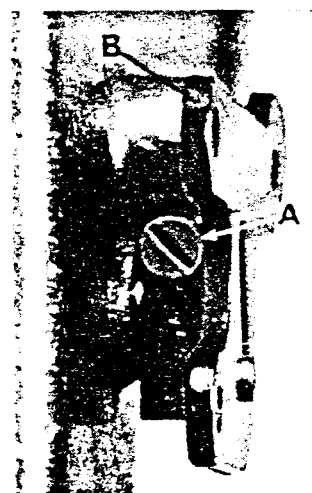
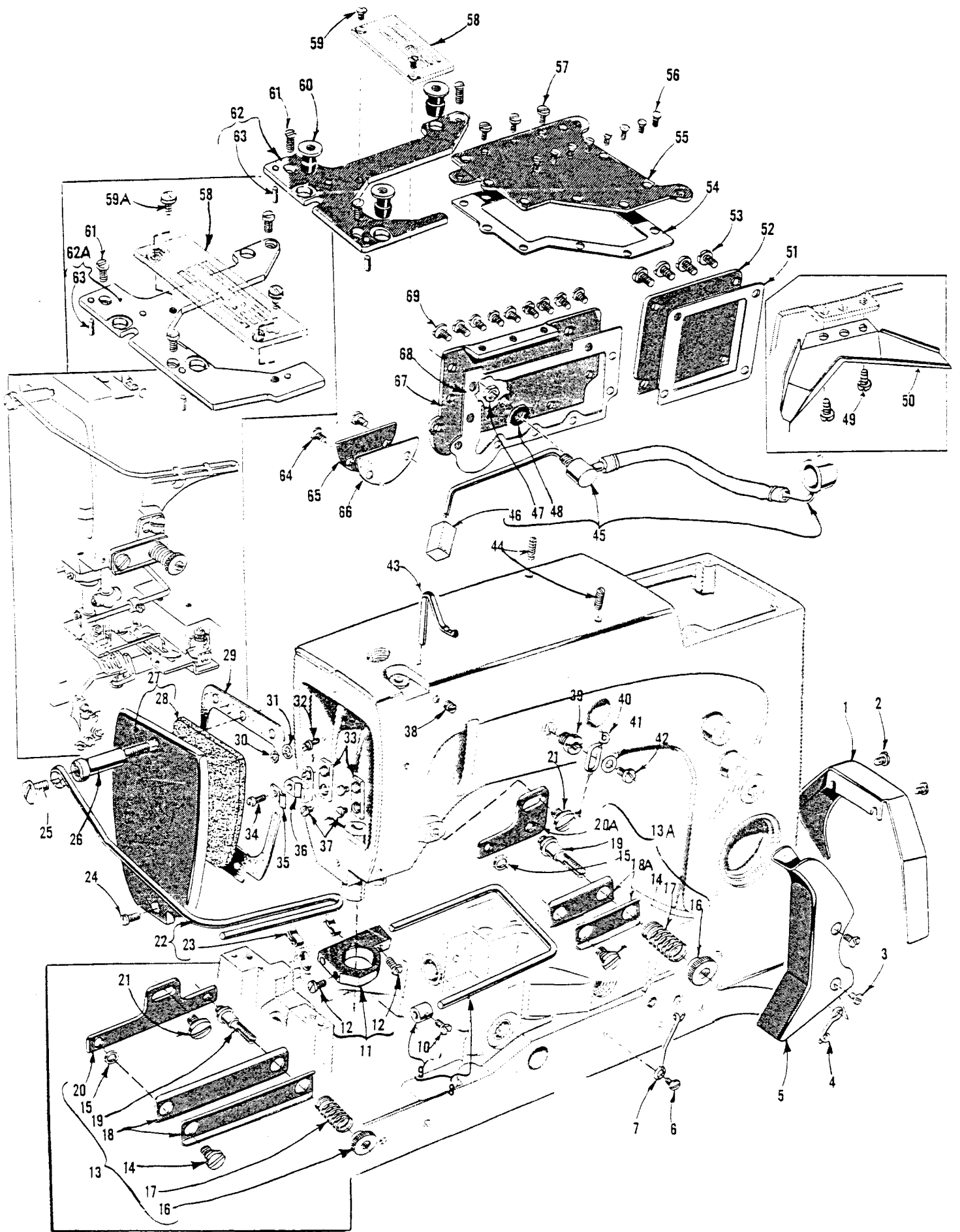


Fig. 12

Before this machine left the factory it was adjusted and inspected to give you the utmost satisfaction and durability at all times. If, however, the machine has been readjusted and is not sewing properly, see the chart below for suggestions which may prove beneficial to you.

SKIPPED STITCHES

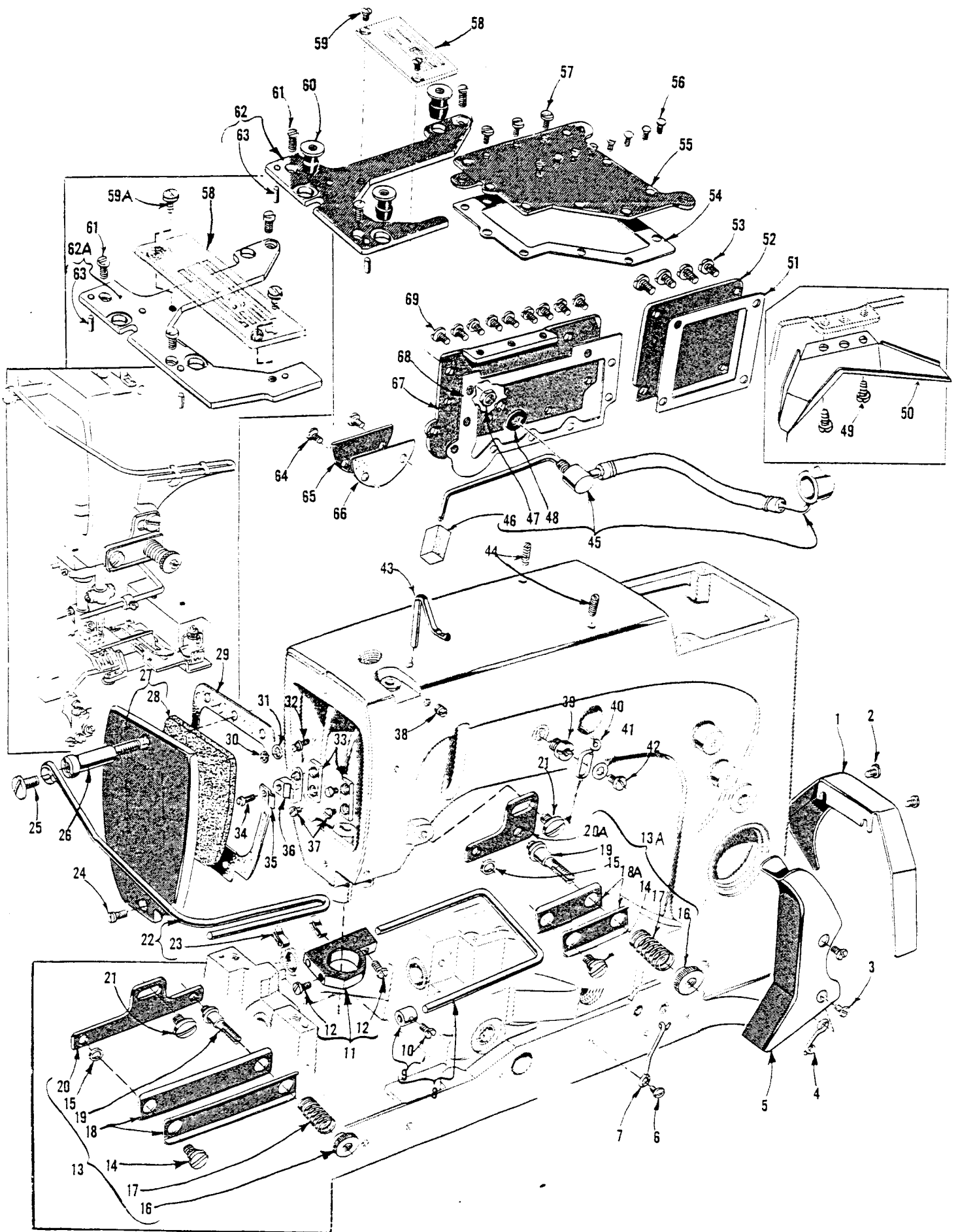
Condition	Causes	Cures
Right needle loop too small	Take-up wire set too low	Raise take-up wire slightly
	Needle thread pinched by rear needle guard, and collapsing needle loop	Lower rear needle guard slightly
Left needle loop too small	Needle thread pinched by front needle guard, and loop pulled back thru needle	Lower front needle guard slightly
All needle loops too small	Needle thread creased because it is too tight and needle is hot	Use bulged eye needle, lower needle frame eyelet, reduce tension
	Needle thread stretched at bottom of stroke, loop not formed till stretch relieved	Lower needle frame eyelet &/or reduce needle thread tension
	Thread sticking in needle grooves, due to heat	Use bulged eye needle to reduce friction
	Length of needle eye too long causing delay in needle loop formation	Drop needle bar slightly or increase looper gauge 1/64 to 1/32 inch
	Needle does not rise enough to form needle loop properly	Drop needle bar slightly or increase looper gauge 1/64 to 1/32 inch
Thread twisting around right needle	Large needle loop, or wrong twist thread	Lower take-up slightly, or increase thread tension. Use a left twist thread
Thread twisting around left needle	Front needle guard pinching needle thread pushing thread thru needle eye, or wrong twist thread	Lower front needle guard slightly, or increase thread tension. Use a left twist thread
Looper misses left needle loop	Left needle not being pushed by front needle guard	Push left needle with front needle guard toward the path of the looper
Looper misses both needle loops as presser foot is coming off a seam	Material is not held down in front of seam and is flagging	See if presser bar is sticking
Looper misses right needle loop as presser foot is coming off a seam	Needle deflecting toward operator	Check needle for burrs. Use sharp point needles.
Looper misses right needle loop when operator is trying to match seams or ends of garments	Needle deflected toward operator who may be holding back on material while matching seams or ends of garment.	Do not hold back excessively on material. Properly adjust feed and maintain a light presser foot pressure so operator does not hold back.
Machine misses right needle loop when stitch length is increased	Needle deflecting toward operator because the rear needle guard is set too far forward	Move rear needle guard to the rear
Both needle loops formed properly but brushed out of the way of looper	Needle bar set too high	Lower needle bar slightly
Needles miss triangle on looper thread side	Looper thread too loose, and not making a good triangle	Increase looper thread tension
	Needle being deflected to the rear by burr on needle point or due to operator pulling on material, or needle glancing off when coming on a seam	Do not pull material at the back. Use a sharp needle to stop needle from glancing off seam. Check needle for burr.



IMPORTANT: BEFORE ORDERING ANY PARTS BELOW, REFER TO THE DETAILED INSTRUCTIONS ON PAGE 4

MAIN FRAME, THROAT PLATE SUPPORTS, STRIP TENSION PARTS, MISCELLANEOUS COVERS AND OILING PARTS

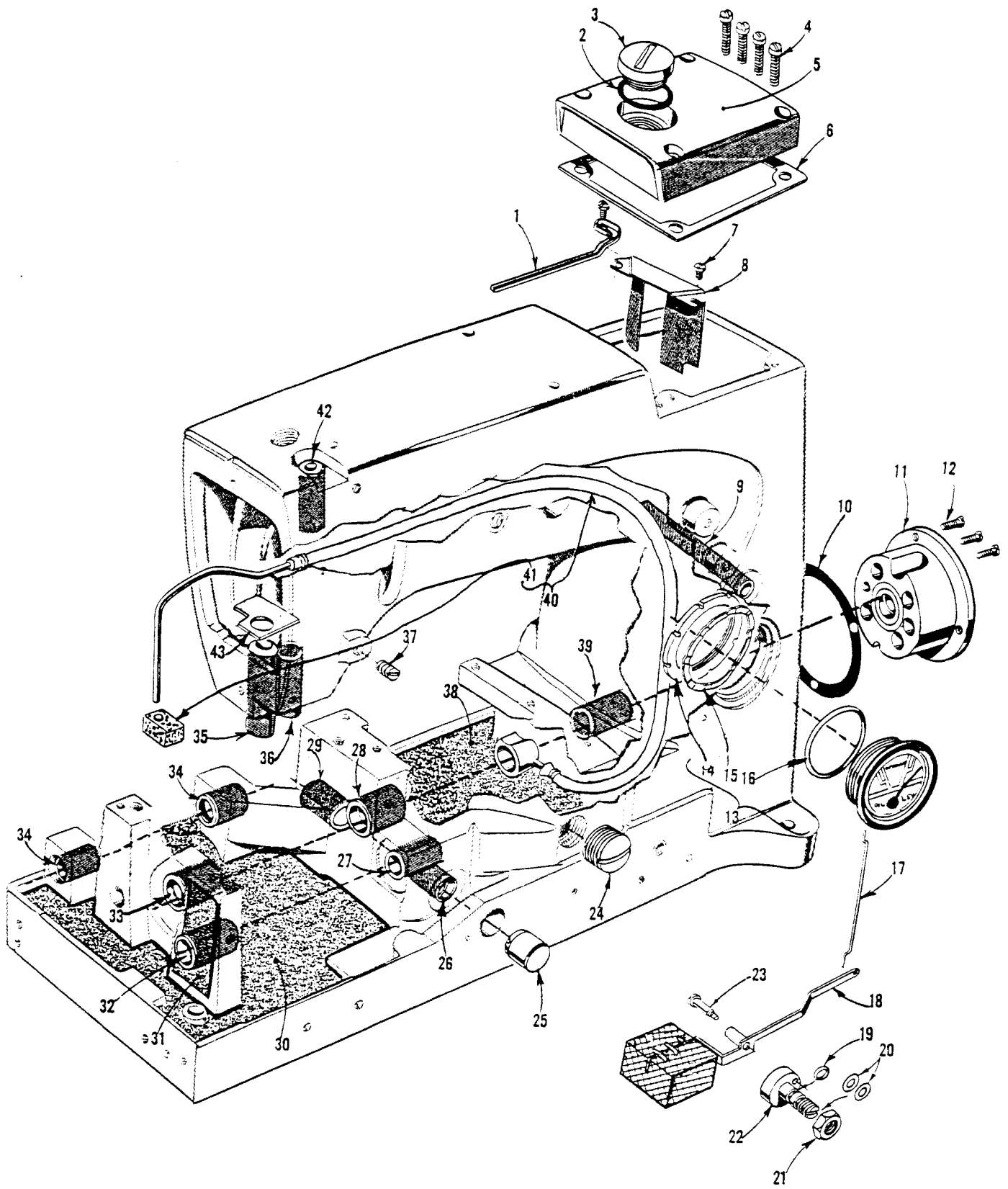
Ref. No.	Part No.	Description	Amt. Req.
1	21375 AV	Belt Guard -----	1
2	22829	Screw-----	2
3	98 A	Screw-----	2
4	52 A	Looper Thread Eyelet -----	1
5	56391	Looper Thread Guard -----	1
6	98 A	Screw-----	1
7	52958 B	Looper Thread Eyelet -----	1
8	23306 AR	Elastic Guide, for 677B005, all gauges -----	1
9	39-79	Collar -----	1
10	18-355	Screw-----	1
11	23306 AT	Elastic Guide Bracket, for 677B005, all gauges--	1
12	22768 B	Screw-----	2
13	23306 AH	Elastic Tension Assembly, for No. 16 gauge, 677B005 -----	1
13A	23306 AG	Elastic Tension Assembly, for Nos. 8 and 12 gauge, 677B005 -----	1
14	22845 N	Screw-----	1
15	54480 A	Washer -----	1
16	51292 C	Lock Nut -----	1
17	51292 F-14	Tension Spring-----	1
18	23306 AJ	Tension Disc, for No. 23306 AH -----	2
18A	23306 AK	Tension Disc, for No. 23306 AG -----	2
19	23306 AN	Tension Post -----	1
20	23306 AL	Tension Bracket, for No. 23306 AH -----	1
20A	23306 AM	Tension Bracket, for No. 23306 AG -----	1
21	25 S	Screw, for tension assembly, 677B005, all gauges-----	1
22	23306 AP	Head Cover Elastic Guide, for 677B005, all gauges-----	1
23	23306 AS	Elastic Stop Guide-----	2
24	22569 C	Screw, for head cover, 677B003, all gauges-----	2
-	22569 C	Screw, for head cover, 677B006, all gauges-----	1
25	88 D	Screw, for 677B005, all gauges-----	1
26	52782 C	Screw, for 677B005, all gauges-----	1
27	56382	Head Cover-----	1
28	56382 A	Felt Liner-----	1
29	56382 N	Gasket-----	1
30	7947	Nut-----	1
31	660-342	Lockwasher-----	1
32	51294 R	Screw-----	1
33	35731 A	Presser Bar Connection Guide Plate-----	2
34	22585	Screw-----	1
35	56393 D	Head Oil Tube Clamp-----	1
36	56393 C	Head Oil Tube Mounting Block-----	1
37	22513	Screw-----	3
38	95	Screw-----	1
39	22889 A	Screw-----	1
40	51758	Needle Thread Frame Eyelet-----	1
41	20	Washer-----	1
42	22848	Screw-----	1
43 to 69		See following page	



IMPORTANT: BEFORE ORDERING ANY PARTS BELOW, REFER TO THE DETAILED INSTRUCTIONS ON PAGE 4

MAIN FRAME, THROAT PLATE SUPPORTS, STRIP TENSION PARTS, MISCELLANEOUS COVERS AND OILING PARTS

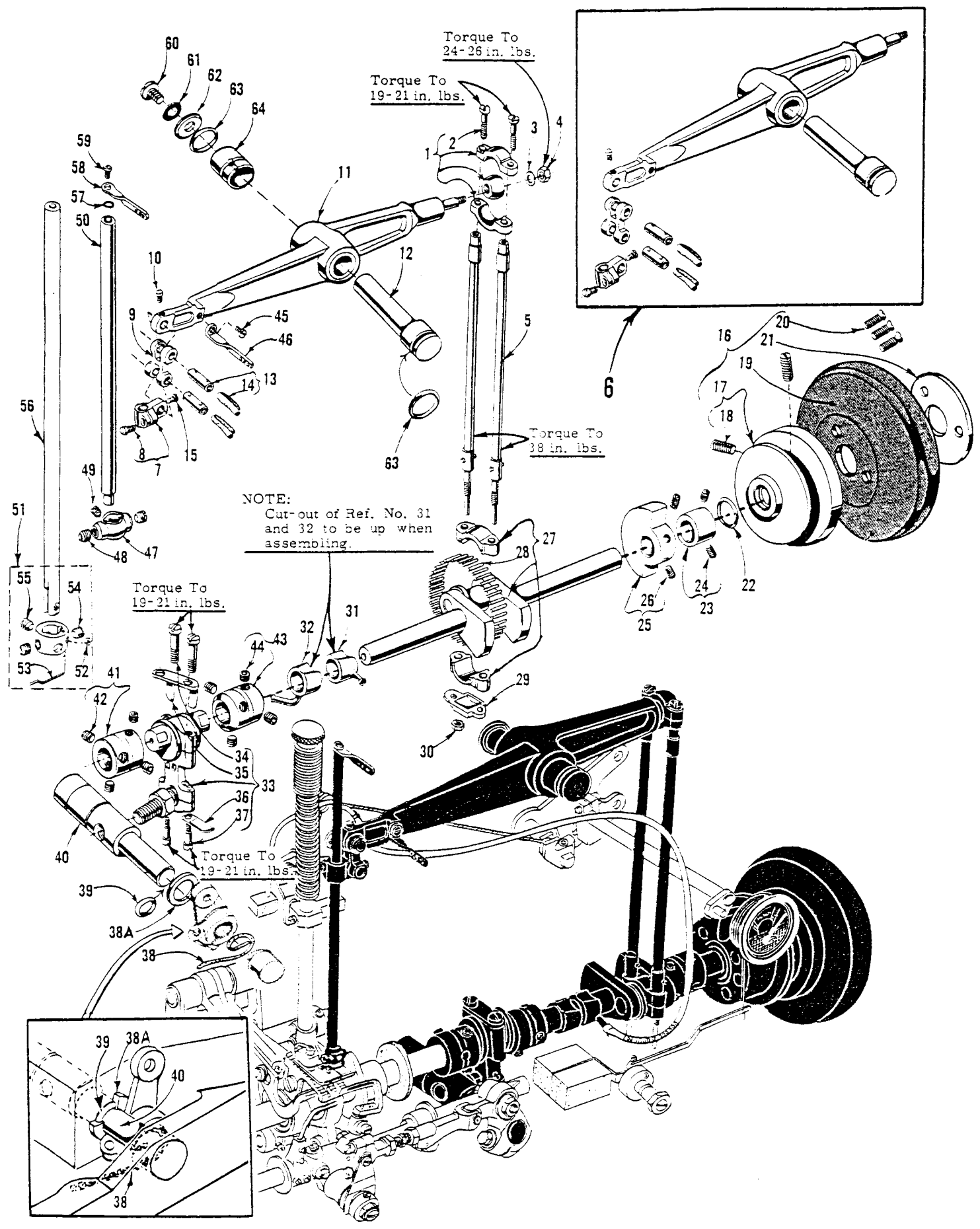
<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1 to 42		See preceding page	
43	57770	Needle Thread Take-up Wire -----	1
44	22894 E	Screw -----	2
45	56393 AC	Base Oil Tube Assembly -----	1
46	666-214	Intake Felt -----	1
47	258 A	Nut -----	1
48	666-230	Gasket -----	1
49	357	Screw -----	2
50	57882 E	Oil Drip Plate -----	1
51	56382 E	Gasket -----	1
52	56382 D	Crank Chamber Cover, lower -----	1
53	22548	Screw -----	4
54	56382 H	Gasket -----	1
55	56382 G	Oil Reservoir Top Cover -----	1
56	22524	Screw -----	8
57	22585 A	Screw -----	3
58		Throat Plate (See Page 31) -----	1
59	87	Screw, for throat plate, 677B005, all gauges ----	2
59A	22570	Screw, for throat plate, 677B003 all gauges ----	2
60	660-313	Well Nut -----	3
*61	22839	Screw, for throat plate support -----	3
*62	57780	Throat Plate Support, for 677B005, all gauges ---	1
62A	56480	Throat Plate Support, for 677B003, all gauges ---	1
63	51280 J	Dowel Pin -----	2
64	22829	Screw -----	2
65	56382 J	Looper Drive Shaft Reservoir Cover -----	1
66	56382 K	Gasket -----	1
67	56382 F	Oil Reservoir Back Cover -----	1
68	56382 L	Gasket -----	1
69	22848	Screw -----	9



IMPORTANT: BEFORE ORDERING ANY PARTS BELOW, REFER TO THE DETAILED INSTRUCTIONS ON PAGE 4

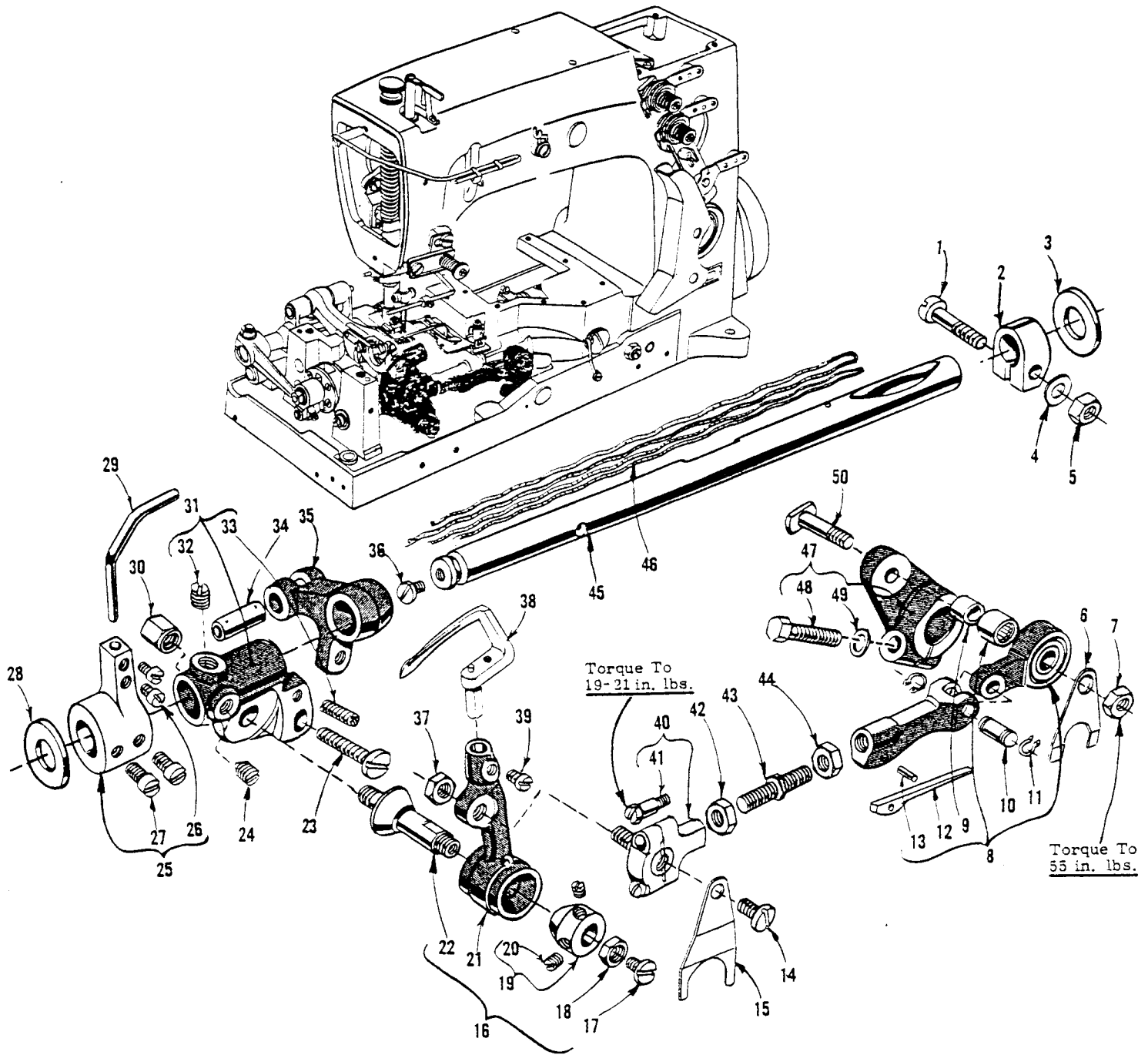
MAIN FRAME, BUSHING, OIL GAUGE AND MISCELLANEOUS OILING PARTS

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	51282 AE	Needle Lever Bearing Oiler-----	1
2	56382 M	Gasket-----	1
3	22733 E	Oil Filler Plug Screw -----	1
4	22541 C	Screw -----	4
5	56382 B	Upper Crank Chamber Cover -----	1
6	56382 C	Gasket -----	1
7	90	Screw -----	2
8	52882 Y	Baffle Plate -----	1
9	21657 X	Tension Release Lever Shaft Bushing -----	1
10	56390 E	Gasket -----	1
11	56390 B	Crankshaft Bushing Housing -----	1
12	22569 B	Screw -----	3
13	63494 K	Oil Gauge Assembly -----	1
14	63494 F	Nut -----	1
15	63494 G	Spring Washer -----	1
16	660-455	"O" Ring -----	1
17	56394 B	Oil Gauge Connecting Rod -----	1
18	56394 C	Oil Gauge Float Assembly -----	1
19	660-221	Oil Retaining Ring -----	1
20	61256 G	Washer-----	2
21	11635 B	Nut -----	1
22	56394 A	Oil Gauge Adjusting Shaft -----	1
*23	22793	Screw -----	1
24	22539 R	Plug Screw -----	1
25	52942 Y	Synchronizing Stud-----	1
26	52942 W	Looper Drive Lever Shaft Bushing, front-----	1
27	50-895 Blk.	Looper Rocker Shaft Bushing -----	1
28	56190	Main Shaft Bushing, middle -----	1
29	52942 X	Looper Drive Lever Shaft Bushing, rear -----	1
30	56393 P	Base Felt, front -----	1
31	666-259	Felt -----	1
32	50-895 Blk.	Looper Rocker Shaft Bushing -----	1
33	56390	Main Shaft Bushing, left-----	1
34	57836 B	Feed Rocker Shaft Bushing -----	2
35	51257 AA	Presser Bar Bushing, lower -----	1
36	56354 B	Needle Bar Bushing, lower -----	1
37	95	Plug Screw, for 677B003 only -----	1
38	56393 Q	Base Felt, rear -----	1
39	56390 A	Main Shaft Bushing, right -----	1
40	56393 T	Head Oil Pump Assembly -----	1
41	56393 L	Intake Felt -----	1
42	51154 E	Needle Bar Bushing, upper -----	1
43	56393 W	Oil Attraction Felt -----	1



CRANKSHAFT, NEEDLE LEVER, NEEDLE BARS AND LOOPER DRIVING PARTS

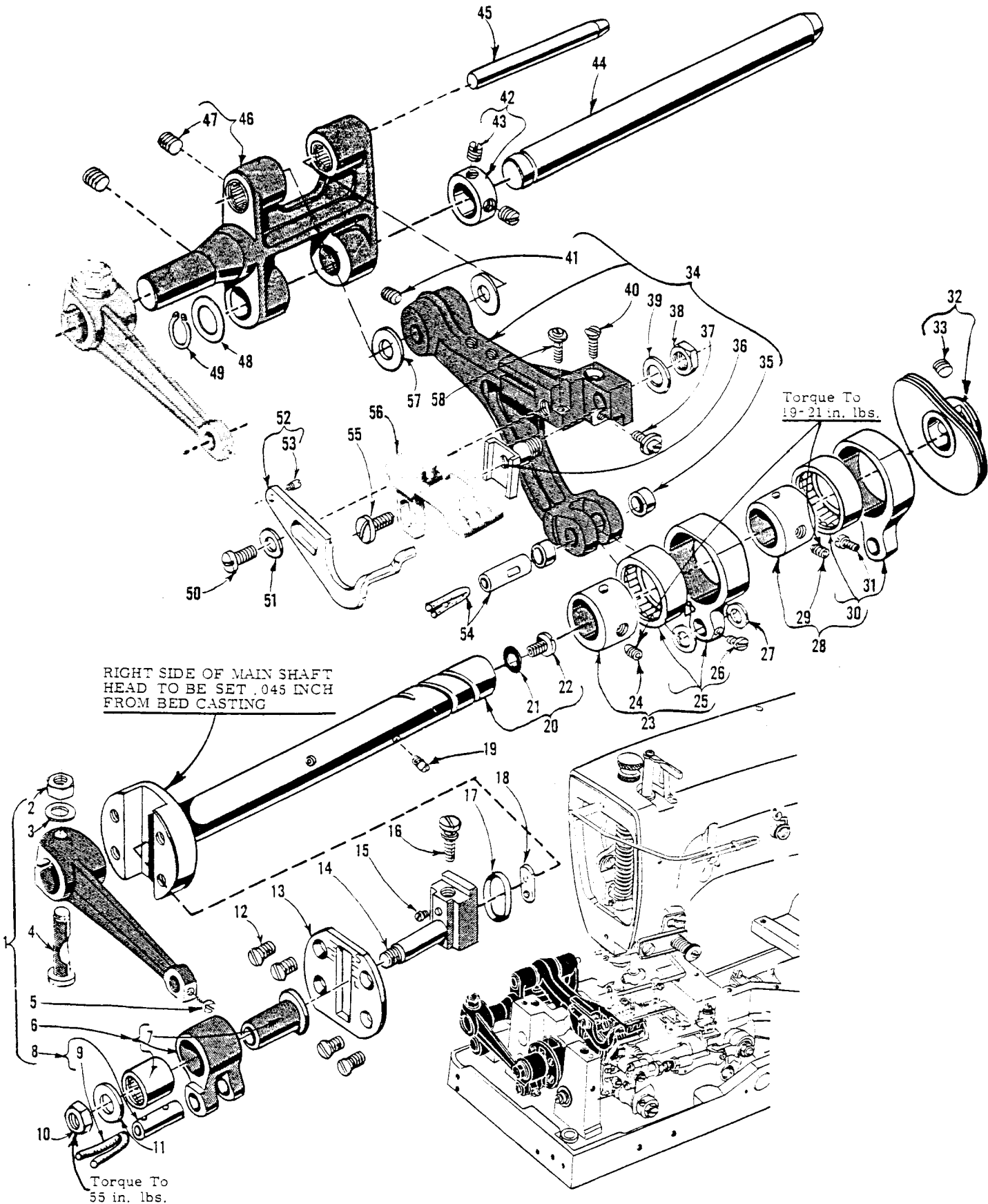
Ref. No.	Part No.	Description	Amt. Req.
1	29066 R	Needle Lever Connecting Rod Upper Ball Joint Assembly -----	1
2	22559 G	Screw -----	2
3	51216 N	Washer -----	1
4	51216 P	Nut -----	1
5	56316	Needle Lever Connecting Rod -----	2
6	29348 Y	Needle Lever Assembly -----	1
7	51254 J	Needle Bar Connection -----	1
8	22562 A	Screw -----	1
9	56354 A	Needle Bar Link -----	1
10	77	Screw -----	1
11	56315	Needle Lever -----	1
12	56350 A	Needle Lever Stud -----	1
13	51054	Link Pin -----	2
14	666-149	Felt Wick -----	1
15	22564	Screw -----	1
16	56321 J	Handwheel Assembly -----	1
17	56321 H	Pulley -----	1
18	22894 AB	Screw -----	2
19	56321 D	Handwheel -----	1
20	22574	Screw -----	3
21	61321 L	Retaining Plate -----	1
22	660-202	"O" Ring -----	1
23	51147	Thrust Collar -----	1
24	95	Set Screw -----	2
25	51247	Counterweight -----	1
26	22894 J	Screw -----	2
27	29476 LL	Crankshaft, marked "56322 A", .910 inch throw -----	1
28	51216 M	Needle Bearing -----	28
29	56316 C	Connecting Rod Guide -----	1
30	12934 A	Nut -----	1
31	56393	Head Oil Pump -----	1
32	56393 AB	Base Oil Pump -----	1
33	29105 AJ	Looper Driving Lever Crank Assembly -----	1
34	22587 K	Bearing Cap Screw, upper -----	2
35	56343 C	Ball Joint Guide Fork -----	1
36	56343 E	Oil Splasher -----	1
37	22559 A	Bearing Cap Screw, lower -----	2
38	CL21	Oil Drain Wick -----	1
38A	56342 B	Spacing Collar -----	1
39	660-202	"O" Ring -----	1
40	52942 A	Looper Drive Lever Rocker Shaft -----	1
41	56343 D	Looper Drive Lever Crank Connection, left -----	1
42	22894 X	Screw -----	4
43	52943 L	Looper Drive Lever and Crankshaft Connection, right -----	1
44	22894 X	Screw -----	4
45	22768	Screw -----	1
46	56958	Needle Lever Thread Eyelet -----	1
47	52718-12	Needle Holder, for Nos. 12 and 16 gauge, 677B003 and 005 -----	1
48	98	Set Screw -----	2
49	89	Spot Screw -----	1
50	52717 E-12	Needle Bar, marked "EJ-12", for No. 12 gauge on 677B003 and 005 -----	1
-	52817-16	Needle Bar, marked "BD-16", for No. 16 gauge on 677B003 and 005 -----	1
51	52818-8	Needle Holder, for No. 8 gauge, 677B005 -----	1
52	28 B	Set Screw -----	1
53	52842 G	Needle Thread Guide -----	1
54	88 B	Set Screw -----	2
55	89	Spot Screw -----	1
56	52817-E-8	Needle Bar, marked "BG-8", for No. 8 gauge 677B005 -----	1
57	27-435 Blk.	Needle Bar Eyelet Lockwasher -----	1
58	56958 A	Needle Bar Thread Eyelet -----	1
59	22768	Screw -----	1
60	22586 R	Screw -----	1
61	51250 F	Gasket -----	1
62	51250 D	Washer -----	1
63	660-212	Oil Seal Ring -----	2
64	51150	Needle Lever Thrust Collar -----	1



IMPORTANT: BEFORE ORDERING ANY PARTS BELOW, REFER TO THE DETAILED INSTRUCTIONS ON PAGE 4

LOOPER ROCKER AND CONNECTING ROD PARTS

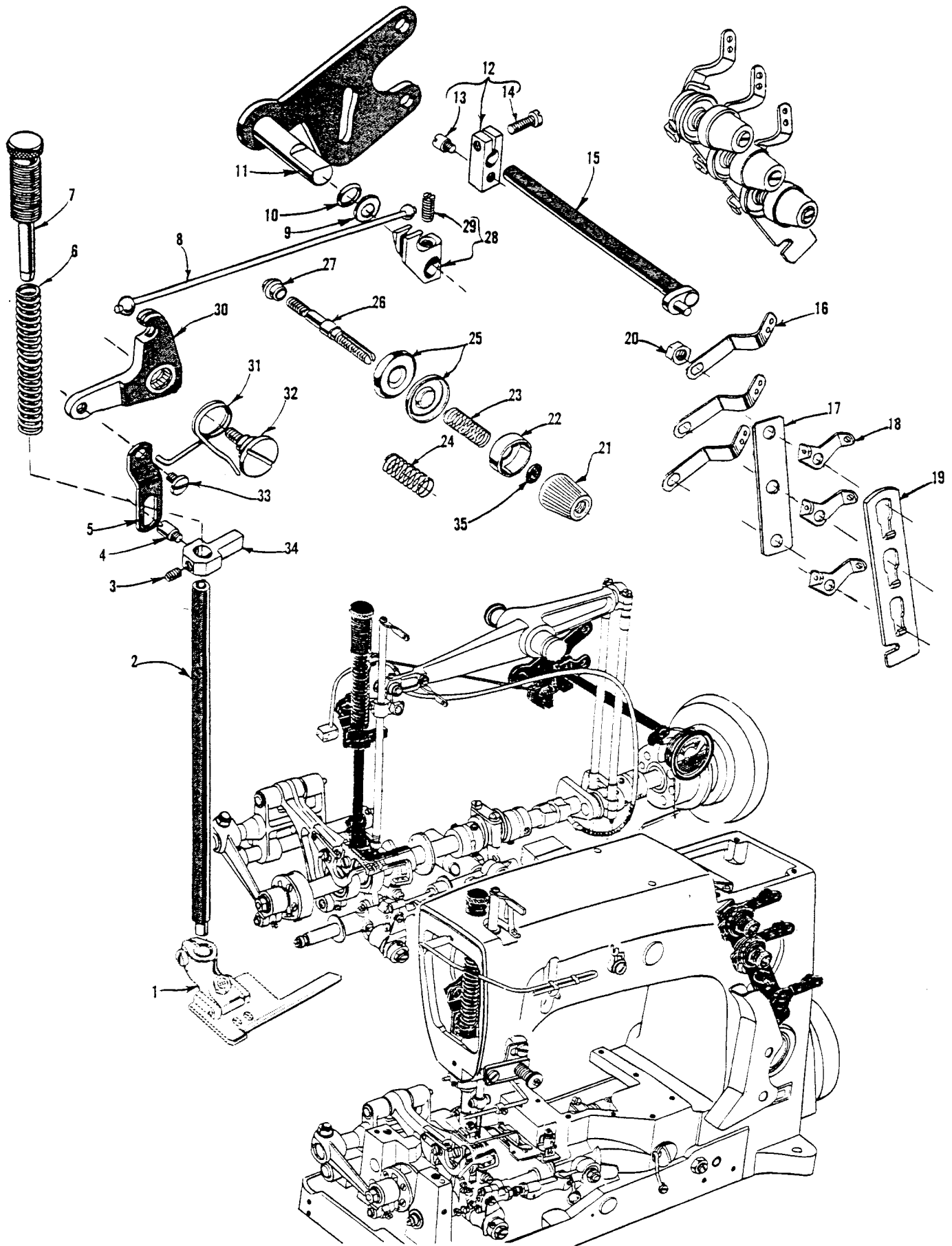
<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	55244 G	Looper Rocker Shaft Collar Stud -----	1
2	51244 N	Looper Rocker Shaft Clamp -----	1
3	51244 L	Thrust Washer -----	1
4	51216 N	Washer -----	1
5	18	Nut -----	1
6	56393 K	Washer -----	1
7	18	Nut -----	1
8	56341 M	Looper Connecting Rod Jointed Section, right -----	1
9	56341 F	Ferrule -----	1
10	56341 E	Hinge Pin -----	1
11	660-310	Truarc Ring -----	2
12	56341 G	Spring -----	1
13	50-458 Blk.	Spring Pin -----	1
14	87 U	Screw -----	1
15	56393 J	Looper Connecting Rod Ball Joint Oiler, left -----	1
16	29192 Z	Looper Rocker Assembly -----	1
17	22829	Lock Nut Screw -----	1
18	258 A	Lock Nut -----	1
19	15465 F	Looper Rocker Cone -----	1
20	88	Screw -----	2
21	57713	Looper Rocker, marked "W" -----	1
22	51745	Looper Rocker Cone Stud -----	1
23	22874	Looper Rocker Frame Lock Screw -----	1
24	96	Screw -----	1
25	52825 D	Looper Needle Guard Holder -----	1
26	22563	Screw -----	2
27	33174 B	Screw -----	2
28	51244 L	Thrust Washer -----	1
29	52825 C	Looper Needle Guard -----	1
30	51246	Looper Rocker Stud Nut -----	1
31	57744 A	Looper Rocker Frame -----	1
32	98	Set Screw -----	1
33	719	Stop Screw -----	1
34	51236 A	Looper Avoid Link Pin -----	1
35	56344 B	Looper Rocker Shaft Arm -----	1
36	22513	Screw -----	1
37	18	Nut -----	1
38	52708 B	Looper -----	1
39	73	Screw -----	1
40	57841	Looper Connecting Rod Ball Joint, left -----	1
41	22729 C	Screw -----	2
42	269	Nut, left hand thread -----	1
43	51240 E	Looper Connecting Rod -----	1
44	18	Nut, right hand thread -----	1
45	57744	Looper Rocker Shaft -----	1
46	WO-3	Columbia Yarn (4 strands 8 inches long) -----	-
47	56342	Looper Drive Lever, marked "A" -----	1
48	22882 C	Screw -----	1
49	51242 M	Washer -----	1
50	52942 R	Looper Lever Stud -----	1



IMPORTANT: BEFORE ORDERING ANY PARTS BELOW, REFER TO THE DETAILED INSTRUCTIONS ON PAGE 4

MAIN SHAFT, TAKE-UP AND FEED DRIVING PARTS

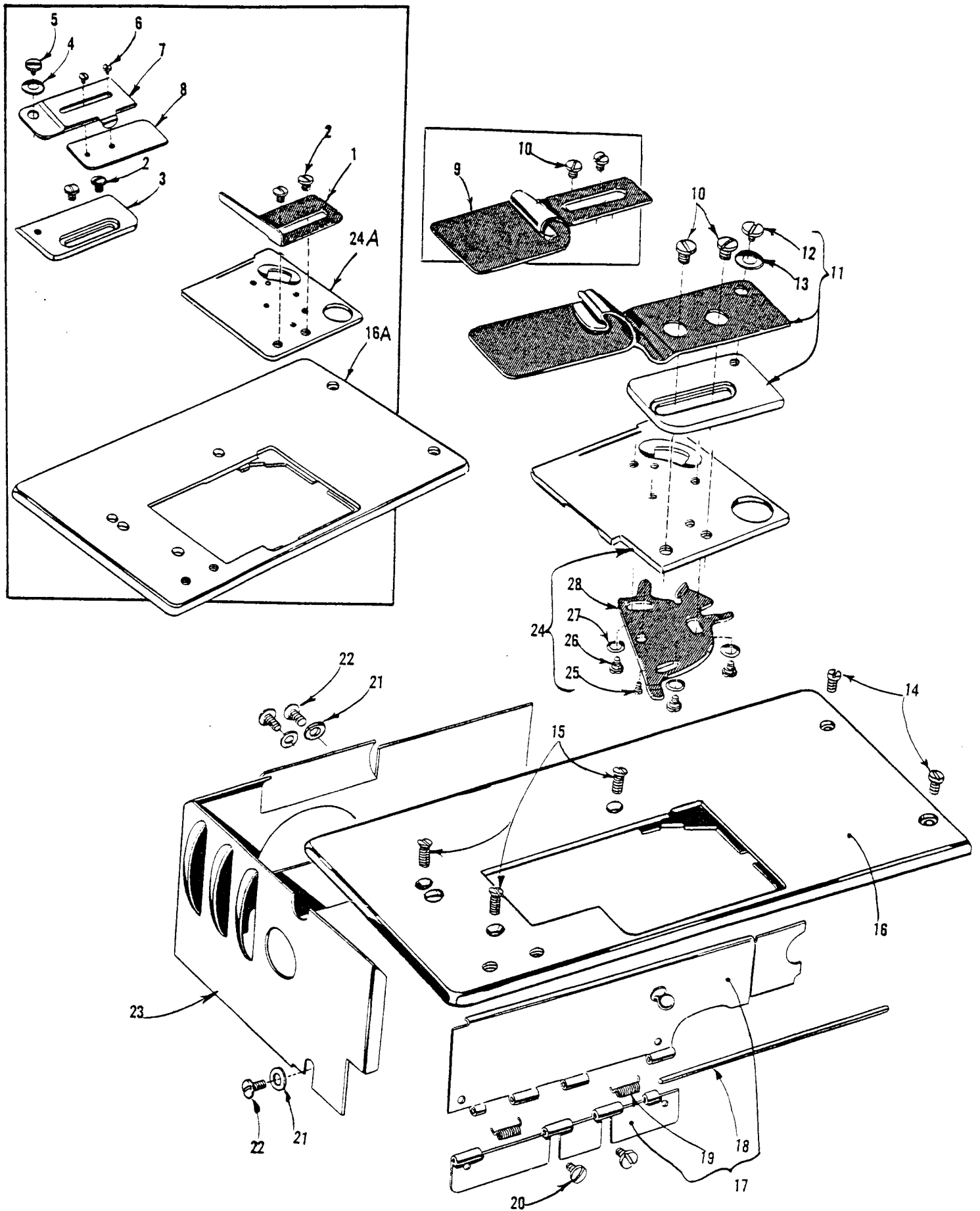
Ref. No.	Part No.	Description	Amt. Req.
1	29476 MJ	Feed Rocker Arm and Feed Crank Link Sub-Assembly-----	1
2	55235 E	Nut -----	1
3	6042 A	Washer -----	1
4	55235 D	Locking Stud -----	1
5	77	Screw, for link pin -----	1
6	56336 B	Feed Crank Link -----	1
7	56336 C	Feed Crank Link Ferrule-----	1
8	51054	Feed Crank Link Pin-----	1
9	666-149	Oil Wick-----	1
10	269	Nut, left thread -----	1
11	21657 E	Washer-----	1
12	22525 A	Screw -----	4
13	56322 C	Main Shaft Head Plate -----	1
14	56336	Feed Crank Stud, marked "A"-----	1
15	22798 C	Screw -----	1
16	22543 A	Stitch Regulating Screw -----	1
17	660-269 B	Quad Ring -----	1
18	56336 D	Feed Crank Stud Insert -----	1
19	22801	Screw, for take-up -----	1
20	57722 E	Main Shaft-----	1
21	56322 B	Gasket -----	1
22	22891 B	Oil Flow Regulating Screw-----	1
23	29476 NM-062	Feed Lift Eccentric Assembly, .062 inch throw-----	1
24	22894 AA	Screw -----	1
25	57845 B	Eccentric Link Assembly-----	1
26	77	Screw -----	1
27	39543 N	Thrust Washer, for feed bar -----	2
28	29476 NM-062	Looper Avoid Eccentric Assembly, .062 inch throw, for 677B005 all gauges -----	1
-	29476 NM-072	Looper Avoid Eccentric Assembly, .072 inch throw, for 677B005 all gauges -----	1
29	22894 AA	Screw -----	1
30	57845 B	Eccentric Link Assembly-----	1
31	77	Screw -----	1
32	52923 D	Looper Thread Take-up -----	1
33	22580 D	Screw -----	2
34	56334 N	Feed Bar -----	1
35	57834 G	Bushing -----	2
36	56334 L	Feed Dog Holder -----	1
37	22863 C	Feed Dog Holder Adjusting Screw -----	1
38	258 A	Nut -----	1
39	6042 A	Feed Dog Holder Washer -----	1
40	22637 P-24	Feed Dog Height Adjusting Screw-----	1
41	22651 CB-4	Screw -----	1
42	56335 D	Feed Rocker Shaft Collar -----	1
43	98	Screw -----	2
44	56335 L	Feed Rocker Shaft -----	1
45	56334 B	Feed Bar Shaft -----	1
46	56335 G	Feed Rocker -----	1
47	22651 CD-4	Screw -----	2
48	41391	Feed Rocker Shaft Thrust Washer -----	1
49	660-438	Retaining Ring -----	1
50	22875 H	Screw, for needle guard -----	1
51	21657 E	Washer-----	1
52	57725	Needle Guard -----	1
53	22801	Screw -----	1
54	51236 A	Link Pin-----	1
55	22528	Screw, for feed dog-----	1
56		Feed Dog (See Page 31)-----	1
57	61341 J	Feed Bar Washer-----	2
58	22834 A	Needle Guard Adjusting Screw -----	1



IMPORTANT: BEFORE ORDERING ANY PARTS BELOW, REFER TO THE DETAILED INSTRUCTIONS ON PAGE 4

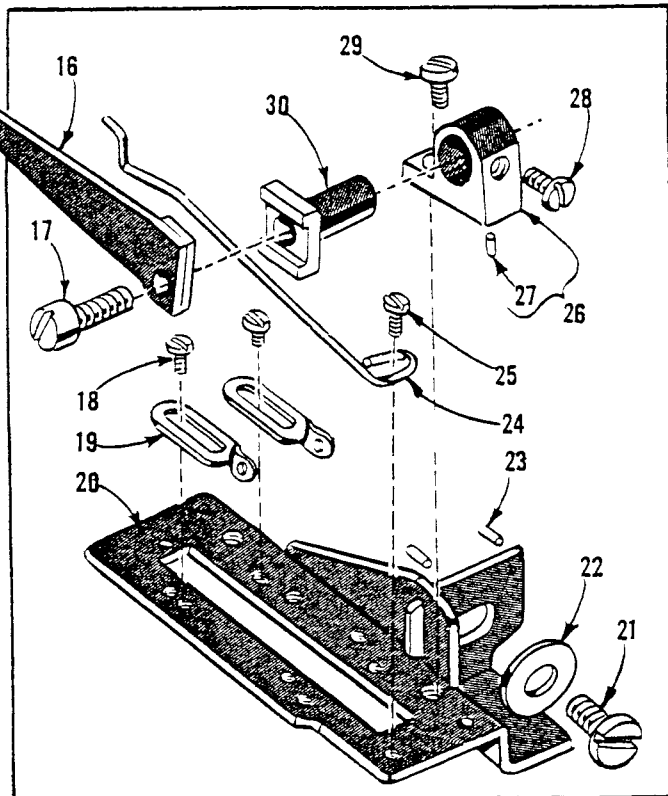
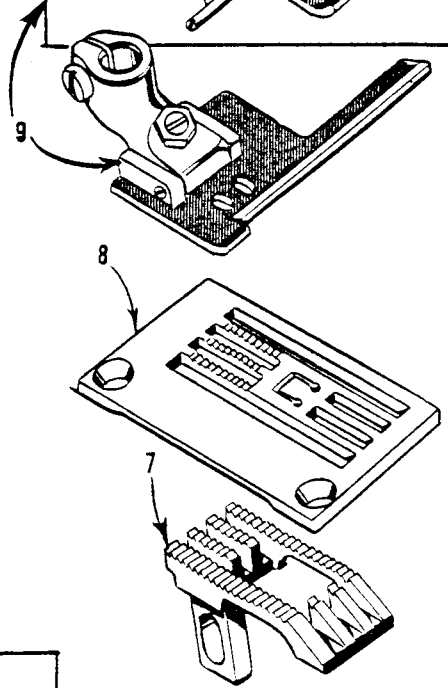
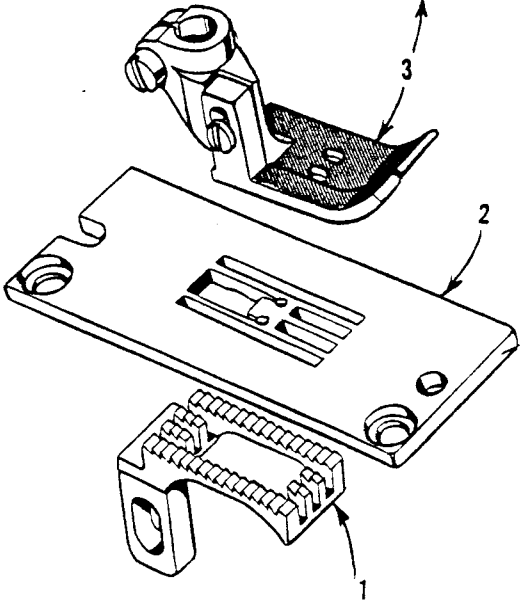
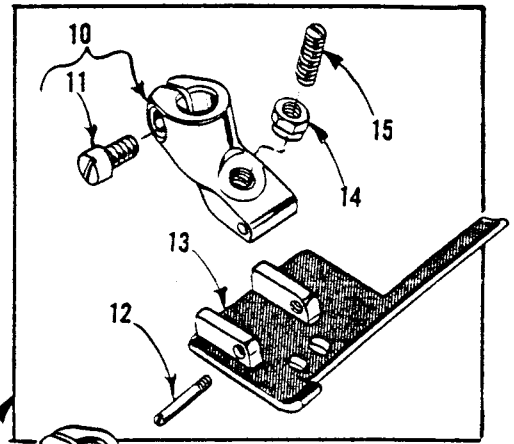
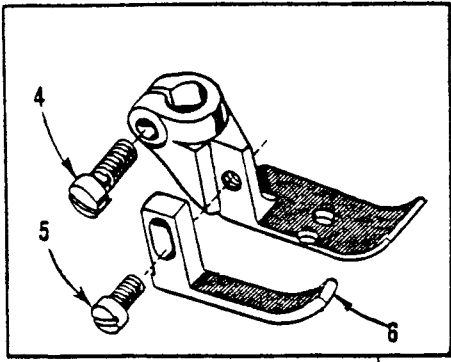
THREAD TENSION AND LIFTER LEVER PARTS

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1		Presser Foot (See Page 31) -----	1
2	51257 K	Presser Bar -----	1
3	531	Screw -----	1
4	402	Screw -----	1
5	56383 A	Lifter Lever Link -----	1
6	51256 C	Presser Spring -----	1
7	56356	Presser Spring Regulator -----	1
8	56383 W	Lifter Lever Cable -----	1
9	39552 C	Washer -----	1
10	660-207	Oil Seal Ring -----	1
11	51283 H	Lifter Lever -----	1
12	21657 Y	Tension Release and Lifter Lever Shaft Connection -----	1
13	402	Screw -----	1
14	22596	Screw -----	1
15	21657 W	Tension Release and Lifter Lever Shaft -----	1
16	51491 C	Thread Lead-in Guide -----	3
17	52892	Tension Post Support -----	1
18	51292 D	Tension Thread Eyelet -----	3
19	21657-3	Tension Disc Separator -----	1
20	43266	Nut -----	1
21	39592 Z	Tension Nut -----	3
22	56392 F	Spring Shield -----	3
23	51292 F-1	Looper Thread Tension Spring -----	1
24	51292 F-5	Needle Thread Tension Spring -----	2
25	109	Tension Disc -----	6
26	56392 E	Tension Post -----	3
27	51292 A	Tension Post Ferrule -----	3
28	56383 X	Lifter Lever Connection -----	1
29	74 E	Screw -----	1
30	56383 Y	Lifter Lever Bell Crank -----	1
31	56383 D	Lifter Lever Bell Crank Spring -----	1
32	22557 G	Screw -----	1
33	22758 C	Screw -----	1
34	51257 M	Presser Bar Connection and Guide -----	1
35	39592 AK	Tension Spring Ferrule -----	3



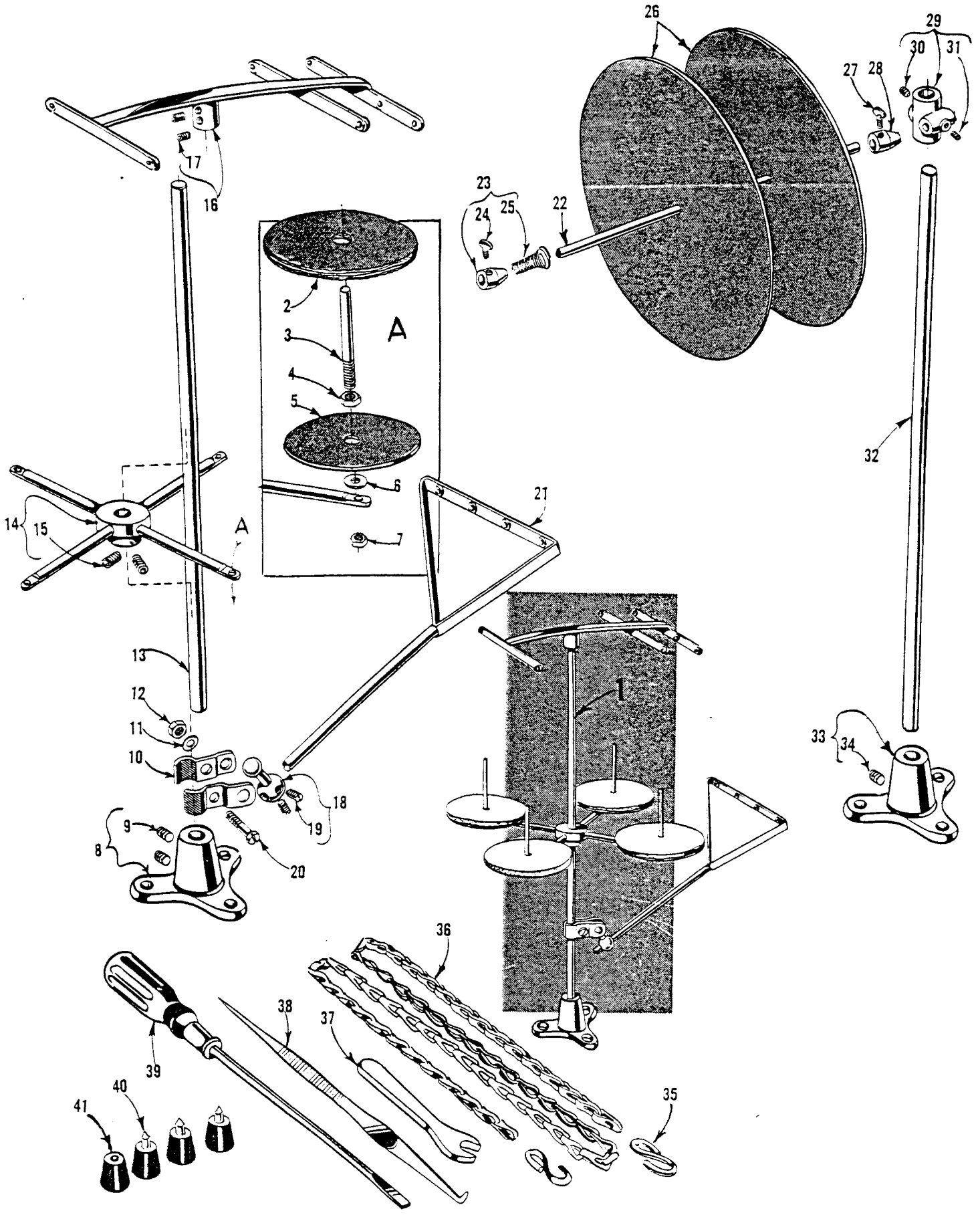
CLOTH PLATES, CLOTH PLATE COVERS AND ATTACHMENTS

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	23440 D	Hemmer Scroll Guide, for 677B003 -----	1
2	25 C	Screw-----	4
3	23440 A	Hemmer Base, for 677B003 -----	1
4	12957 E	Spring Washer, for 677B003 ----	1
5	22726	Screw, for 677B003 ---	1
6	187 A	Screw, for 677B003 -----	2
7	23440 B	Hemmer Swing Arm, for 677B003 ----	1
8	23440 C	Hemmer Blade, for 677B003 ----	1
9	23405 V	Folder, 1/16 inch capacity, 1/8 inch fold turned upwardly, for Nos. 8 and 12 gauge, 677B005 -----	1
10	25 C	Screw-----	1
11	23405 T	Folder, 1/16 inch capacity, 1/8 inch fold turned upwardly, for No. 16 gauge, 677B005 -----	1
12	22726	Screw-----	1
13	12957 E	Spring Washer -----	1
14	22839 C	Screw-----	2
15	22526 C	Screw-----	3
16	56301	Cloth Plate, for 677B005 -----	1
16A	56401	Cloth Plate, for 677B003 ----	1
17	51282 AJ	Hinged Oil Shield, front-----	1
18	52978 G	Hinge Pin -----	1
19	51282 AK	Spring -----	2
20	25 S	Screw-----	2
21	20	Washer -----	3
22	22848	Screw-----	3
23	51282 AH	Oil Shield, left end and back-----	1
24	56381-219	Cloth Plate Cover, for 677B005-----	1
24A	56381-207	Cloth Plate Cover, for 677B003 ----	1
25	22845 B	Pivot Screw -----	1
26	22760 A	Screw-----	3
27	35772 H	Washer -----	3
28	51281 AC	Cloth Plate Cover Spring-----	1



FEED DOGS, THROAT PLATE, PRESSER FEET AND
LOOPER THREAD TAKE-UP PARTS

Ref. No.	Part No.	Description	Amt. Req.
1	7205 A	Feed Dog, 16 teeth per inch, for No. 12 gauge, 677B003 -----	1
-	22 JE	Feed Dog, 16 teeth per inch, for No. 16 gauge, 677B003 -----	1
2	52724 B-12	Throat Plate, for No. 12 gauge, 677B003 -----	1
-	52724 B-16	Throat Plate, for No. 16 gauge, 677B003 -----	1
3	52720 B-12	Presser Foot, for No. 12 gauge, 677B003 -----	1
-	52720 B-16	Presser Foot, for No. 16 gauge, 677B003 -----	1
4	91	Screw -----	1
5	22593	Screw -----	1
6	52730 B	Adjustable Section -----	1
7	57705 M	Feed Dog, 16 teeth per inch, for all gauges, 677B005 -----	1
8	57724-8	Throat Plate, for No. 8 gauge, 677B005 -----	1
-	57724-12	Throat Plate, for No. 12 gauge, 677B005 -----	1
-	57724-16	Throat Plate, for No. 16 gauge, 677B005 -----	1
9	57720-8	Presser Foot, for No. 8 gauge, 677B005 -----	1
-	57720-12	Presser Foot, for No. 12 gauge, 677B005 -----	1
-	57720-16	Presser Foot, for No. 16 gauge, 677B005 -----	1
10	51430 D	Shank -----	1
11	91	Screw -----	1
12	22799 B	Screw -----	1
13	57730-8	Presser Foot Bottom, for No. 57720-8 -----	1
-	57730-12	Presser Foot Bottom, for No. 57720-12 -----	1
-	57730-16	Presser Foot Bottom, for No. 57720-16 -----	1
14	51430 F	Nut -----	1
15	22840 A	Screw -----	1
16	52904 B	Retaining Finger -----	1
17	22516	Screw -----	1
18	73 A	Screw -----	2
19	52958 D	Looper Thread Eyelet -----	2
20	52957 C	Cast-off Support Plate -----	1
21	22528	Screw -----	1
22	21657 E	Washer -----	1
23	50-216 Blk.	Dowel Pin -----	2
24	52904 G	Cast-off Wire -----	1
25	73 A	Screw -----	1
26	52904 E	Retaining Finger Support Bracket -----	1
27	50-216 Blk.	Dowel Pin -----	1
28	87 U	Screw -----	1
29	22768	Screw -----	1
30	52804 E	Retaining Finger Support -----	1



IMPORTANT: BEFORE ORDERING ANY PARTS BELOW, REFER TO THE DETAILED INSTRUCTIONS ON PAGE 4

THREAD STAND, ACCESSORIES AND TAPE REEL

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Amt. Req.</u>
1	21101 H-4	Thread Stand, complete-----	1
2	21104 V	Pad, for thread cone -----	4
3	21114 W	Spool Pin -----	4
4	258 A	Nut -----	4
5	21114	Spool Seat Disc -----	4
6	652-16	Washer -----	4
7	258 A	Nut -----	4
8	21114 A	Thread Stand Base -----	1
9	22651 CD-3	Screw-----	1
10	21114 U	Lead Eyelet Ball Split Socket -----	2
11	652-16	Washer -----	1
12	21104 H	Nut -----	1
13	21104 B-24	Thread Stand Rod -----	1
14	21114 D-4	Spool Seat Support-----	1
15	22651 CD-5	Screw-----	2
16	21114 H-4	Eyelet Support -----	1
17	22651 CD-4	Screw-----	2
18	21114 T	Lead Eyelet Socket Ball-----	1
19	22651 CD-4	Screw-----	2
20	22810	Screw-----	1
21	21114 S-4	Lead Eyelet -----	1
*22	21102 B	Tape Reel Rod -----	1
*23	21177 A	Tape Reel Collar-----	1
*24	22647 K-24	Screw-----	1
*25	1349 A-5	Spring -----	1
*26	21178 A	Tape Holder Disc -----	2
*27	188 D	Screw-----	1
*28	753	Axle Cone -----	1
*29	21217 A	Rod Support -----	1
*30	22651 CD-4	Screw-----	1
*31	22650 CB-4	Screw-----	1
*32	21104 B-20	Tape Reel Support Rod-----	1
*33	21114 A	Tape Holder Base -----	1
*34	22651 CD-3	Screw-----	1
35	660-264	"S" Hook -----	2
36	421 D-34	Treadle Chain, 34 inches long -----	1
37	21388	Wrench, 3/8 inch open end -----	1
38	660-240	Thread Tweezers -----	1
39	21201	Screwdriver, 9/64 inch round blade, length overall 7 5/8 inches -----	1
40	51295 B	Isolator -----	3
41	51295 A	Isolator -----	1

*Available as an optional extra, for use on 677B005.

NUMERICAL INDEX OF PARTS

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20	15, 29	7205 A	31	22726	29
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74 E	27	21114 H-4	33	22839 C	29
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109	27	21657 Y	27	22894 AB	21
187 A	29	22513	15, 23	23306 AG	15
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		22525 A	25	23306 AK	15
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