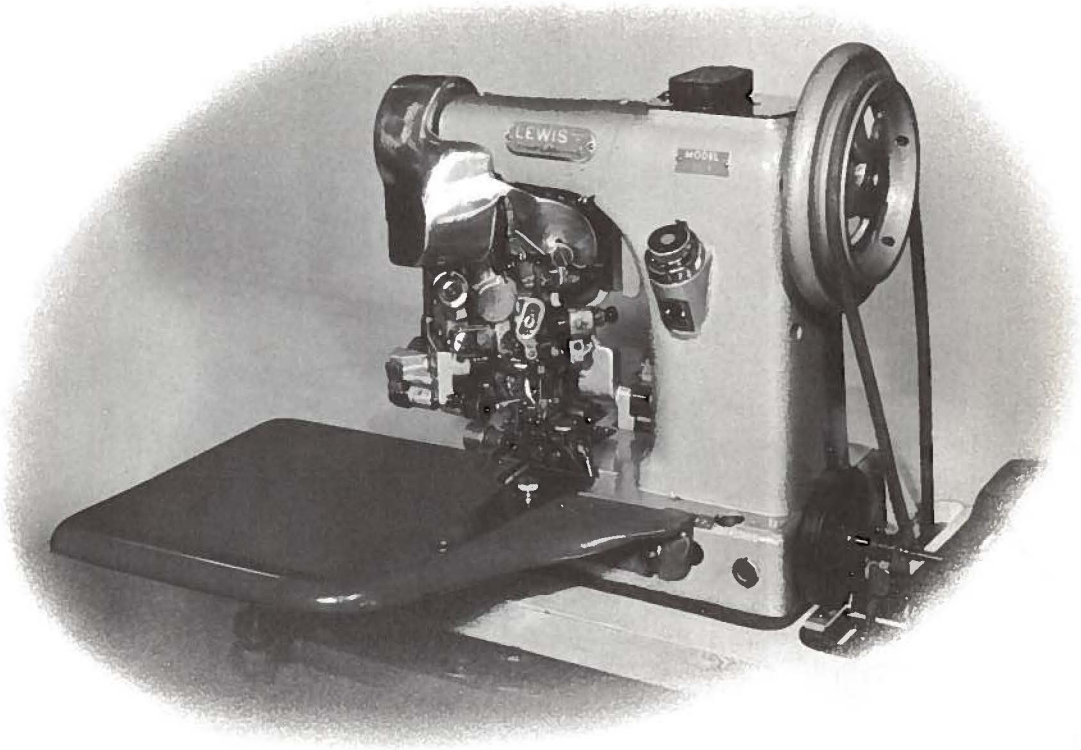
FINEST QUALITY

Union Special®
LEWIS • COLUMBIA

INDUSTRIAL SEWING MACHINES

STYLES
29-4
29-5



CLASS 29

LIST OF PARTS AND INSTRUCTIONS CARPET BINDING MACHINE

CATALOG
No.
194-7

Union Special MACHINE COMPANY
CHICAGO

FOREWORD

There has been a great change in the carpet industry in recent years through demand by the people for rugs that more nearly fit the room, which necessitates a greater variety of sizes to be carried by the carpet dealers. With this change there has come into wide use broadloom carpets that can be cut to any size.

At first, these carpets were bound by hand, but the demand for faster service has made it necessary for the carpet dealers to speed up their methods of carpet binding. Our attention was called to this necessity and resulted in our producing the LEWIS Carpet Binding Machine.

The first operation in sewing binding on carpets is to sew one edge of the binding to the carpet. This operation is usually done on a Union Special Style 81200 AZ. The binding is then carried up and over the edge and is blindstitched by the Lewis Carpet Binding Machine to the backing of the carpet. Using the LEWIS machine for binding carpets results in prompt deliveries and satisfied customers.

The LEWIS Class 29 machines are 45 degree right-hand machines that are mounted on top of the table, requiring no hole for the machine. The feed is very powerful, consisting of the two top rotary feeds with very coarse teeth acting against spring pressed rolls directly under the top feeds. The powerful top rotating feeds, gripping the binding and carpet, pull the carpet, lying on a conveyor, by the machine with a feeding rate of four (4) stitches per inch at 1400 R. P. M.

The carpet is rolled, placed on the conveyor - about 18 inches is unrolled for sewing the edge of binding to the carpet on the Union Special Style 81200 AZ; the carpet continues along on the conveyor, and the corner of the carpet is then placed in the LEWIS Carpet Binding Machine and is pulled along on the conveyor; after the binding has been stretched over the carpet and blindstitched, the carpet is re-rolled and the opposite edge is bound.

The machine is equipped with a device for rolling the binding up and over the edge, including stretching device for laying the binding tightly in place.

The machine will handle threads as coarse as No. 16 and as fine as the finest carpet binding thread. It is recommended that No. 16 to No. 24 thread be used in the needle and No. 30 or finer for the bobbin. Some thread manufacturers are winding a coarse thread on paper bobbins suitable for the LEWIS Carpet Binding Machine. More production can be gained by using these bobbins. The machine is equipped with oil pads for lubricating the thread.

Union Special MACHINE COMPANY

Engineering Department

Catalog No. 194-7

INSTRUCTIONS
FOR
ADJUSTING AND OPERATING

LIST OF PARTS

Styles

29-4 29-5

The parts listed in this catalog are
furnished at list prices for repairs only.

First Edition

Union Special
MACHINE COMPANY
INDUSTRIAL SEWING MACHINES
CHICAGO

Printed in U.S.A.

IDENTIFICATION OF MACHINES

Each Union Special Lewis machine carries a style number, which, in this class of machines, is stamped in the style plate on the front of the column.

The serial number of each machine is stamped in the base, on the right side below the plunger regulator.

APPLICATION OF CATALOG

This catalog applies specifically to the Standard Styles of machines as listed herein. All references to direction, such as right and left, front and back, etc., are taken from the operator's position while seated at the machine. Operating direction of the handwheel is away from the operator.

DESCRIPTION OF MACHINES

High Production, Two Thread, Single Curved Needle, Lockstitch, Blindstitch Machine. Needle travels from right to left and penetrates at an angle of 45° to the line of feed. Calibrated penetration adjustment. Work support plate. Treadle operated for inserting and removing work. Maximum work space to right of needle 4 1/4 inches.

29-4 For the second operation of blindstitching carpet binding to the under side of carpets or rugs. Standard needle Type 29-137.

29-5 Same as 29-4, except wider feed wheels, which increases the feeding power and also reduces marking on the carpet backing. A new plunger driving mechanism greatly reduces carpet backing breakage and cracking on some hard to sew carpets. This new mechanism produces a dwell (pause) of the plunger which minimizes needle blunting. The plunger is smaller in area and has a contoured top with a deeper notch, to greatly reduce needle blunting. Standard needle Type 29-127.

NEEDLES

Use only genuine Union Special Lewis needles. They are stamped with the word "LEWIS" on the shank.

The type number of the needles recommended for each style of machine covered by this catalog are given in the machine style description.

The following types and sizes are available:

Needle Type	Size	Blade
29-127	.070	Uniform
29-136	.060	Ball eye
29-137	.070	Ball eye

Selection of proper needle size is determined by size of thread and weight of material used. Thread should pass freely through the needle eye in order to produce a good stitch formation.

When sewing, immediately discard any needle which may have a hooked or blunt point.

To have needle orders promptly and accurately filled, an empty container, a sample needle, or the Type number should be forwarded. Use the description on the label. A complete order would read: "100 Needles, Type 29-137".

ADJUSTING INSTRUCTIONS

CHANGING NEEDLES

When changing needle, make sure that the needle is inserted in the needle carrier as far as it will go, and tighten clamp screw completely.

Immediately discard any needle which may have a hooked or blunted point, as improper needle penetration will result.

SETTING UP

Class 29 machines are set on a solid board, and it is only necessary to bore six holes, two to permit the belt to operate from the transmitter and four to bolt machine to table. Set machine from four to five inches from the front edge of the table. This is the most convenient position for handling the work. An additional hole will have to be drilled when using treadle for dropping lower roller, when removing the foot or loading work.

To protect the machine from rusting while in transit, all parts are covered with vaseline, which must be carefully wiped off before the machine is put in operation. Take off the aluminum head cover by loosening thumb screw (H, Fig. 13). To remove this cover the take-up (H, Fig. 1) must be at its lowest point. Use gasoline or petrol to remove the grease from the hook and bobbin case, so as to allow the thread to pass over the hook freely. Also wipe off foot, needle and other exposed parts.

THREADING

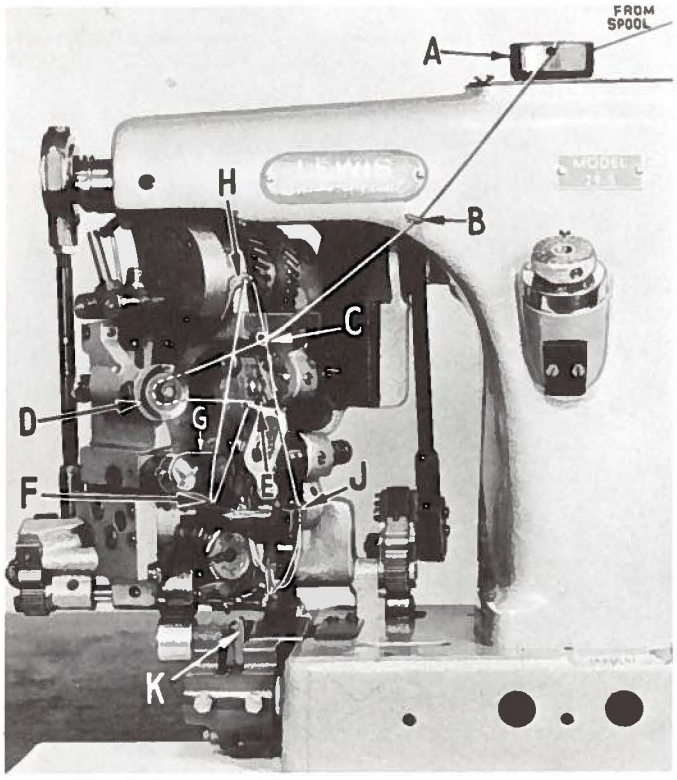


Fig. 1

To thread the machine, turn hand-wheel in operating direction until the take-up lever (H, Fig. 1) is in highest position, and thread in accordance with threading diagram (Fig. 1).

After the spool has been placed in position, lift top oil pad and pass spool thread through thread hole in rear of the oil pad box (A, Fig. 1), located on top of the machine. Now, pass thread through slotted hole in front end of box and place top oil pad on top of thread. Then thread through eyelet (B) on front of arm and eyelet (C) on head, passing thread under take-up lever. Thread around tension disc (D) under the pin, which serves to keep the thread permanently in position. Pass the thread down through eyelet (E) and up through controller spring (F) and eyelet (G). Now pass thread through the take-up lever (H) from left to right and down through needle clamp guide (J). Next, thread the needle from the under or groove side of the needle to the top.

THREADING (Continued)

When passing thread from eyelet (C) to tension disc (D), see that the thread goes under the take-up lever (H). Until thoroughly familiar with threading, we recommend that the take-up lever be at its highest point during the process of threading.

Turn to the Right Turn to the Left

To avoid misunderstanding regarding instructions "Turn to the Right" and "Turn to the Left" we have inserted the above arrows showing what these expressions mean.

THREAD HOLDER

One of the characteristics of this machine is that both hands are needed for loading the work into the machine. There is a thread holder in the form of a spring loaded tension disc located on the gear cover in the back of the machine. It can be used in the following manner: When one end of the carpet is completed and run-off, the needle and hook thread may be carried through and placed between the tension disc in the thread holder, then cut. This allows the operator to use both hands in loading the material as it is not necessary to hold the threads when beginning to sew the next carpet.

INSERTING THE BOBBIN

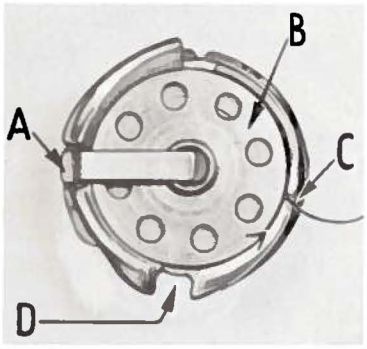


Fig. 2

Turn handwheel until the needle carrier is at its highest point and the needle is farthest away from the bobbin case. Open bobbin case latch (A, Fig. 2) to discharge empty bobbin (B).

When inserting a full bobbin be sure thread unwinds from the under side of the bobbin, as is clearly indicated in Fig. 2. Hold the end of the thread in right hand and insert it in the slot (C, Fig. 2) on right side of the bobbin case. Leave the thread three or four inches long on the outside of the bobbin case. With a new operator, we suggest the needle thread be held and the handwheel turned by hand until the first stitch is completed, which will draw the end of bobbin thread underneath the tension spring.

REMOVING AND REPLACING PRESSER FEET

In order to remove or exchange presser feet on all Lewis lockstitch models, turn handwheel until the plunger (K, Fig. 1) is at the lowest point. (The plunger is that part which serves to raise the material up through the hole in the presser foot.)

Remove both screws No. 1073 L which hold the foot on the frame of the machine. Depress foot treadle or press the knee lift, whichever is in use, to drop the lower feed rollers and give more room to remove the presser foot.

To insert foot or replace the foot removed from the machine, do not change the position of the plunger or turn the handwheel. Press knee against the knee lifter or step on the foot treadle to give more room when placing the foot in position on the frame of the machine.

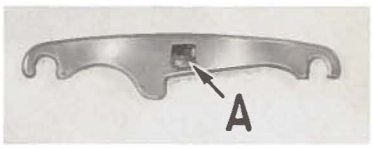


Fig. 3

Replace and tighten the two screws No. 1073 L. Be sure to see that the groove (D, Fig. 2) in the bobbin case fits over the projection or notch (A, Fig. 3) in the bobbin case retainer. This holds the bobbin in position.

REPLACING BOBBIN CASE

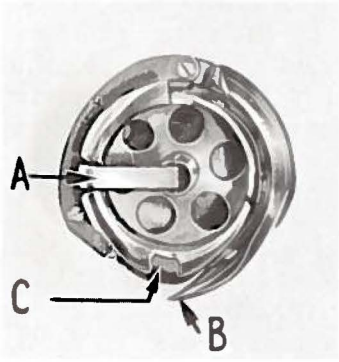


Fig. 4

Should the thread become caught or tangled in back of the bobbin case, causing the machine to lock, it is necessary to remove the bobbin case, inasmuch as the bobbin case latch (A, Fig. 4), which holds the bobbin in position, cannot be raised to release the bobbin and machine will not operate. Under no circumstances use force to open the bobbin case latch; by so doing the latch or spring will very likely become broken, which means the expense of a new bobbin case.

To remove bobbin case on all Lewis lockstitch models, it is first necessary to remove the presser foot, as described previously.

See that the point of the hook (B) is at its lowest point as in Fig. 4. Then remove both gib screws (A, Fig. 5) which hold the gib (B) in position on the hook. After removing gib, turn bobbin case to the left one-quarter turn (Fig. 6). This releases the bobbin case from the hook.

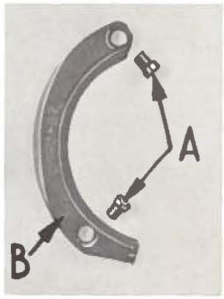


Fig. 5

Inasmuch as the bobbin case fits snugly in the raceway of the hook, it may be necessary to use slight pressure to cause it to release. Use fingers only to remove bobbin case and do not insert screwdriver or any other object as a leverage, as this is apt to break the bobbin case. To insert bobbin case in hook see that the latch is in line with the point of the hook (Fig. 6). Replace hook gib and securely tighten screws. Turn bobbin case so that the groove (C, Fig. 4) is at the bottom and fits into the bobbin case retainer notch, as described in paragraph under "Removing and Replacing Presser Feet".

Fig. 6

TIMING THE BOBBIN CASE RELEASE

Turn the handwheel in operating direction until the needle carrier (A, Fig. 7) reaches the highest point of its travel. (Note: The photograph (Fig. 7) does not show the needle carrier in this position, so that the bobbin case and bobbin case release can be seen.)

At this point, the angular projection on the bobbin case release lever (E) should be bearing against the extension of the bobbin case release (C) so that there is a clearance of about 1/32 inch between bobbin case (B) and the point of the release (C).

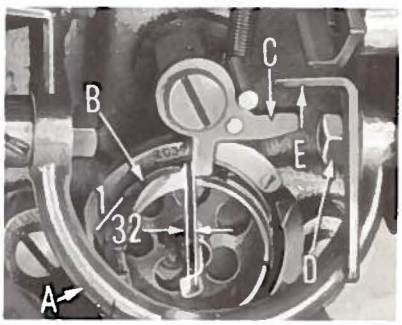


Fig. 7

To obtain this adjustment, loosen nut (D) and move bobbin case release lever (E) up or down as required. Retighten nut (D).

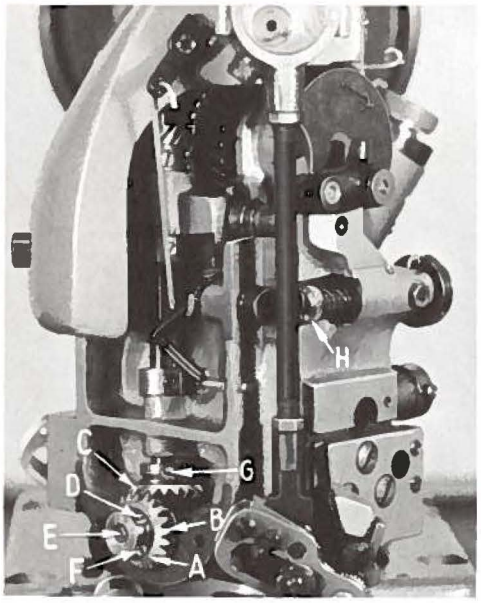


Fig. 8

TIMING THE HOOK

Turn the handwheel in operating direction until the needle has completed its forward travel (away from operator) and has started its backward travel. At this time the point of the hook should be over the center of the needle approximately 1/16 inch from the top of the needle eye. If this is not the case, remove the gear cover, located in the back of the machine, and the presser foot. Check to be sure that the timing line (A, Fig. 8) on gear (B) is in line with a similar timing line on gear (C) and that the spot screw (D) on gear (B) is in the "V" groove on the hook shaft (E). If adjustment is necessary, turn the handwheel until the timing line on gear (C) is in line with the hook shaft. Then, loosen screws (D and F) on gear (B) and turn gear until its timing line is in line with timing line on gear (C). Turn hook shaft (E) until "V" groove is aligned with spot screw (D). Retighten screw (D) in "V" groove and also screw (F) on gear (B).

Loosen screws (G) on gear (C). While holding on to either gear (B or C), turn handwheel in proper direction until the point of the hook is over the center of the needle and approximately 1/16 inch from the top of the needle eye. Retighten screws and replace gear cover and presser foot.

REMOVING AND REPLACING THE HOOK

To remove or replace the hook (Fig. 9) the following parts must also be removed: the needle, presser foot, looper staff, spreader and the bobbin case release.

The removal of these different parts is explained in their respective sections. Once these parts are removed, remove the gear cover, exposing gears (B and C, Fig. 8). Loosen screws (D and F, Fig. 8) and slide the hook out.

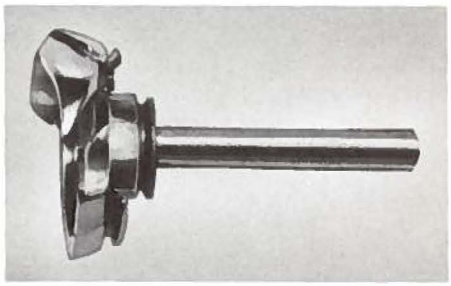


Fig. 9

If the hook removed is the same hook that will be placed back in the machine it will not be necessary to time the hook. All that is needed is to align the timing lines on the two gears and set the spot screw in the "V" groove of the hook shaft. DO NOT LOOSEN SCREWS IN GEAR (C).

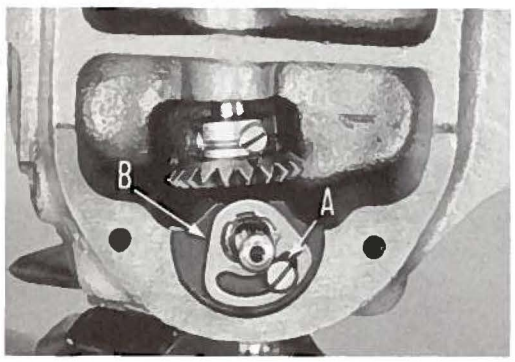


Fig. 10

If a new hook is to be put into the machine, the installation is the same, but timing the hook may be necessary. See paragraph under "Timing the Hook".

SETTING HEIGHT OF HOOK

The point of the hook should be set as close to the needle as possible without striking it. To make this adjustment, loosen screws (D and F, Fig. 8) and remove gear (B), exposing hook bushing flange (B, Fig. 10). Loosen screw (A) and rotate the hook bushing flange in the required

direction to position the hook point as described above. If the hook bushing flange cannot be turned far enough to secure this setting, remove screw (A) and place it in the alternate hole in the casting to secure more adjustment. Tighten screw. Replace gear (B, Fig. 8) as described in "Removing and Replacing Hook".

ADJUSTING THREAD TENSIONS

The needle thread tension is adjusted by turning thumb nut (H, Fig. 8) to the right or to the left. This tension should be set sufficiently tight to make a firm stitch. Do not, however, make this adjustment too tight. Improper adjustment of the needle tension may cause thread breakage.

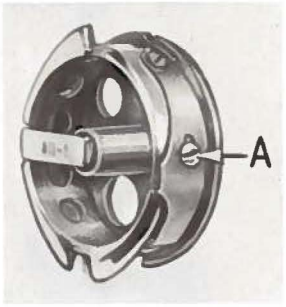


Fig. 11

The bobbin tension is adjusted by means of a screw (A, Fig. 11). By turning this screw to the right the tension is set more tightly as it presses the bobbin case spring more firmly against the thread. This tension should be set rather loosely so as to permit the thread to draw off the bobbin freely, with very little resistance. Experience on various kinds and grades of work will best show what tensions produce the desired results.

ADJUSTING LOOPER STAFF AND SPREADER

The purpose of the looper (A, Fig. 12) and spreader (B) is to form the cross-stitch or overcasting stitch. When properly adjusted, the points of the looper staff and spreader will move freely, without friction or interference with the foot, the plunger, the bobbin case retainer or needle, and stitches will be correctly formed.

If the looper points strike against the foot, move the entire looper mechanism either to the right or to the left, or forward and back, which is accomplished by loosening set screws (A and B, Fig. 13). The looper must move freely and not strike against any part of the foot. Turn handwheel slowly when making adjustment to guard against breaking the looper point or cramping the parts. When loopers are properly set, tighten set screws.

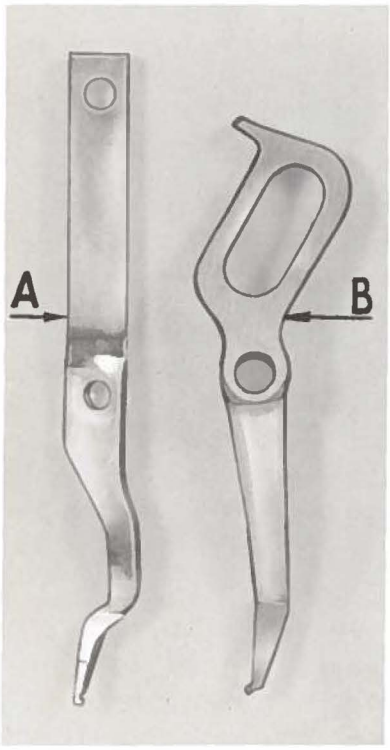


Fig. 12

In the event the looper spreader binds after making the above adjustment, loosen set screw (B) only and turn handwheel a few revolutions. This will cause both the looper and the spreader to find their own relative adjustment, or, in other words, equalize their position. Retighten set screw.

If looper and spreader are adjusted too low, the machine will break the looper points and the machine will skip stitches. To correct this condition, loosen looper head block clamp screw (C, Fig. 13) and raise the entire looper mechanism as required.

If looper and spreader are set too high, skipping of stitches will also result. To correct this condition, loosen screw (C, Fig. 13) and lower the looper mechanism as required. Retighten screw.

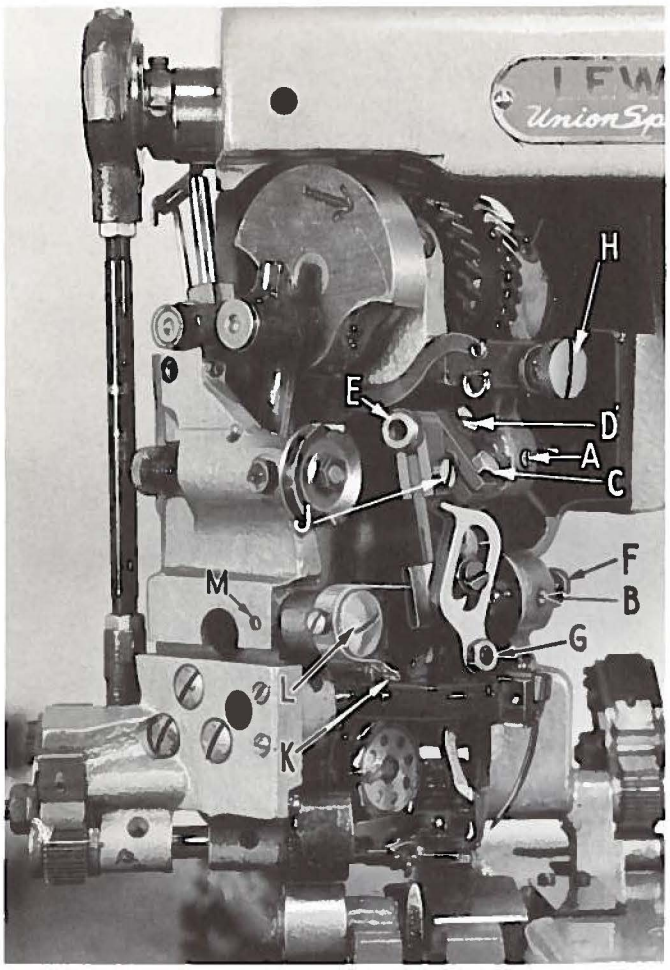


Fig. 13

ADJUSTING THE PLUNGER

The carpet binding is a very stiff job and in order to take the strain off the needle and to keep the needle from deflecting and breaking, the plunger must be timed correctly in order to support the needle. This is done by having the plunger at the highest point when the point of the needle is directly over the plunger; for, if this setting is made correctly, when the machine is sewing, the point of the needle enters the material before the plunger has reached its highest point. By timing the machine in this manner, the point of the needle will enter the carpet before it reaches the center of the plunger, and therefore, the plunger will rise a little higher, just sufficiently to raise the needle slightly so there will be no chance for the needle to be deflected downwardly by the carpet and strike the foot at the rear of the cloth opening.

FOR 29-4 STYLE MACHINES ONLY:

The only way the plunger can be timed is by dropping the head and moving the head gear one tooth more or less. As you know the machines are spotted throughout and this is the only place where you can re-time the machines easily. By changing the timing one tooth at the head gear it makes a difference of about 3/16 inch, more or less, on the needle. That is, the point of the needle will be 3/16 inch nearer the plunger or 3/16 inch further away from the plunger, whichever way the machine is timed.

FOR 29-5 STYLE MACHINES ONLY:

To time the needle to the plunger, loosen the set screws in the plunger driving cam (A, Fig. 14). You will notice that the pressure from the connecting rod return spring will rotate the cam to its lowest position. With the cam loose on the shaft, turn the handwheel in the operating direction until the needle carrier reaches the highest point of its travel. Apply pressure to the left on the cam and re-tighten set screws. In the event the needle is not in line with the groove in the plunger, proper alignment can be established by loosening the plunger locking screws located in back and to the right of the plunger and moving the plunger as required.

NOTE: To increase or decrease needle penetration, turn the plunger regulator (B, Fig. 14) in the required direction. Be sure that the plunger is not raised to a point where the needle will strike it.

REMOVING LOOPER STAFF

In order to provide sufficient clearance for removing looper staff (A, Fig. 12) it is necessary to take out the needle, loosen screw (D, Fig. 13), remove pin (E) and remove screw (F). You may now extract the looper spreader. To remove the looper staff, remove nut (G) and screw (J) and slide looper staff out. Reassemble the various parts in reverse order as per above instructions.

THREAD BREAKAGE: HOW TO OVERCOME

After considerable service, the needle will be inclined to cut a sharp edge in the groove of the needle guide (A, Fig. 15), causing thread breakage. When this occurs, we recommend replacing the needle guide, which can be done at a very small cost. However, if a new needle guide is not conveniently procurable, smooth the groove with an emery cloth to eliminate sharpness.

Other parts of the machine will eventually show wear where the thread passes over, causing sharp corners that create thread breakage.

When thread breakage occurs, check up on the parts through which the thread passes to see if they have become sharp. We refer to the following parts; needle guide, needle clamp and thread guide No. 430-37, looper staff No. 36-14, looper spreader No. 37-4, thread take-up, bobbin case retainer No. 12-16 and the needle.

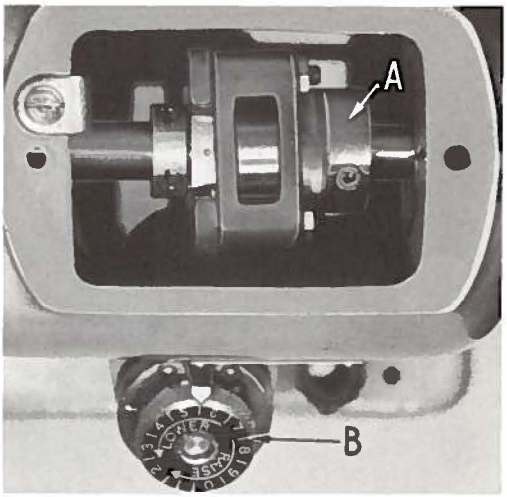


Fig. 14

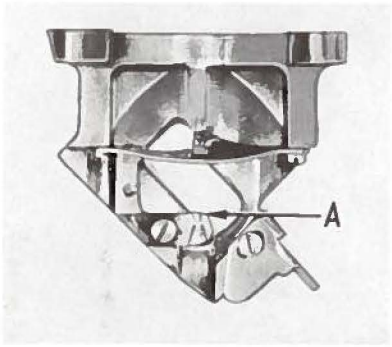


Fig. 15

Thread breakage may be caused by the bobbin being too tight in the bobbin case. While this is not a frequent condition, at the same time as the bobbin becomes old, it has a tendency to warp and bind in the bobbin case. Old bobbins should be discarded.

Thread breakage may also be caused if the hook (Fig. 9) is improperly timed, causing the point of the hook to fail to pick up the loop from the needle at the proper time. When this occurs, re-time the hook as per instructions on "Timing the Hook".

Always see that the needle and bobbin thread tensions are correct. See instructions on "Adjusting Thread Tensions". Also examine the needle guide and presser foot for sharp edges.

If the bobbin is wound too full, or if the thread has become tangled in the bobbin, thread breakage will result.

Inspect the looper staff and looper spreader from time to time to see that there are no sharp points to cause thread breakage. On a new machine just put into operation, thread breakage may be due to accumulation of oil in the hook (Fig. 9), which must be thoroughly removed as per instructions on "Setting Up".

Thread breakage may also occur if the needle tension is set too loose or too tight. Check up on this.

MISSING OR SKIPPING STITCHES

When the machine commences to skip stitches, it is a very simple matter to overcome this difficulty. The sketch immediately below shows how the blind stitching should appear when the machine is operating properly.

MISSING OR SKIPPING STITCHES (Continued)

If the loopers are skipping, the stitch will appear like work produced on a two-needle, plain stitching machine, as follows:

When the looper occasionally picks up the thread and then misses the loop, the stitch will appear like this:

If it is found that the skipping is caused by the looper staff and spreader being out of time, follow instructions on "Adjusting Looper Staff and Spreader". Generally this trouble can be overcome by slightly lowering the point of the loopers into the foot, so that they will carry the thread down sufficiently far to permit the point of the needle to pass over the thread.

If machine skips stitches, see that there is sufficient tension on the thread controller spring (K, Fig. 13) to carry all the slack thread when the looper and spreader are at their lowest point. This spring may be tightened by turning stud (L) to the right which holds thread controller spring in position. Should the thread controller spring become worn out it may be replaced by loosening the small set screw (M, Fig. 13) and removing the stud and thread controller spring.

If the hook is the cause of skipping stitches, or if needle is out of time with the plunger, the stitches will appear as follows:

 or 

The long runs of thread between each stitch on sketch to the left shows that the hook is not picking up the thread from the needle, thereby causing the needle to carry the thread back through the goods without completing the stitch. To overcome this, it is necessary to re-time the hook with the needle. See paragraph on "Timing the Hook". The sketch to the right is an indication that the needle is not doing its work properly, or that it is out of time with the plunger.

Bent or blunt needles are frequently the cause of stitch skipping. Always see that the needle is sharp; also that the point of needle bears on the needle guide. See illustration showing needle guide (A, Fig. 15).

OILING AND CLEANING

Proper lubrication and thorough cleaning of machine is of paramount importance. Lewis Invisible Stitch Machines will give years of service and satisfaction if reasonable care is taken in keeping them properly oiled and cleaned. The machine should be oiled and cleaned daily as lint and dirt accumulate in the moving parts, causing them to function improperly. The places to be oiled are indicated by the red paint.

In cleaning the machine, always remove the cover from the head and wipe off the parts with a clean cloth. Do not use waste. By turning the handwheel you will see the various moving parts, bearings, gears, feed dogs and oil holes. A few drops of oil should be placed on these small parts daily. On a new machine, it is necessary to place a drop of oil in back of the bobbin case raceway every two or

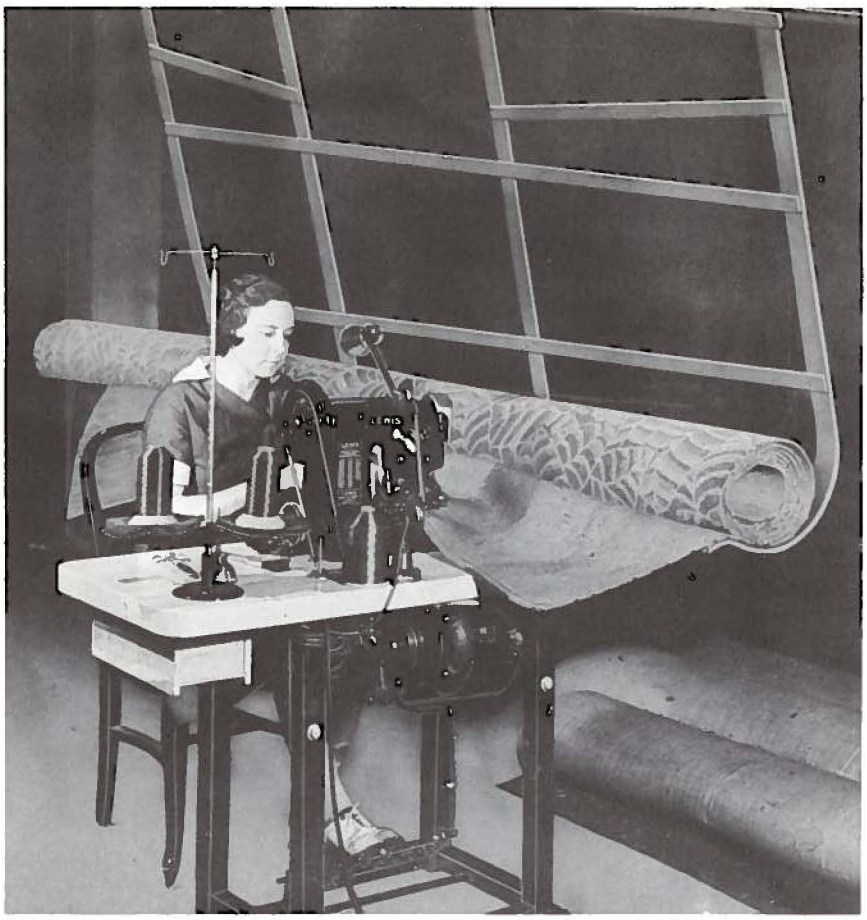
three hours. You will find a hole immediately to the left of the hook. A drop of oil well placed will do more good than ten drops that do not reach the parts requiring it.

Besides thoroughly oiling the head mechanism it is also necessary to lubricate the plunger and feed mechanism. The feed mechanism will be found in the bed of the machine immediately below the presser foot.

On all types of machines there are movable parts that require oiling near the base, immediately below the handwheel.

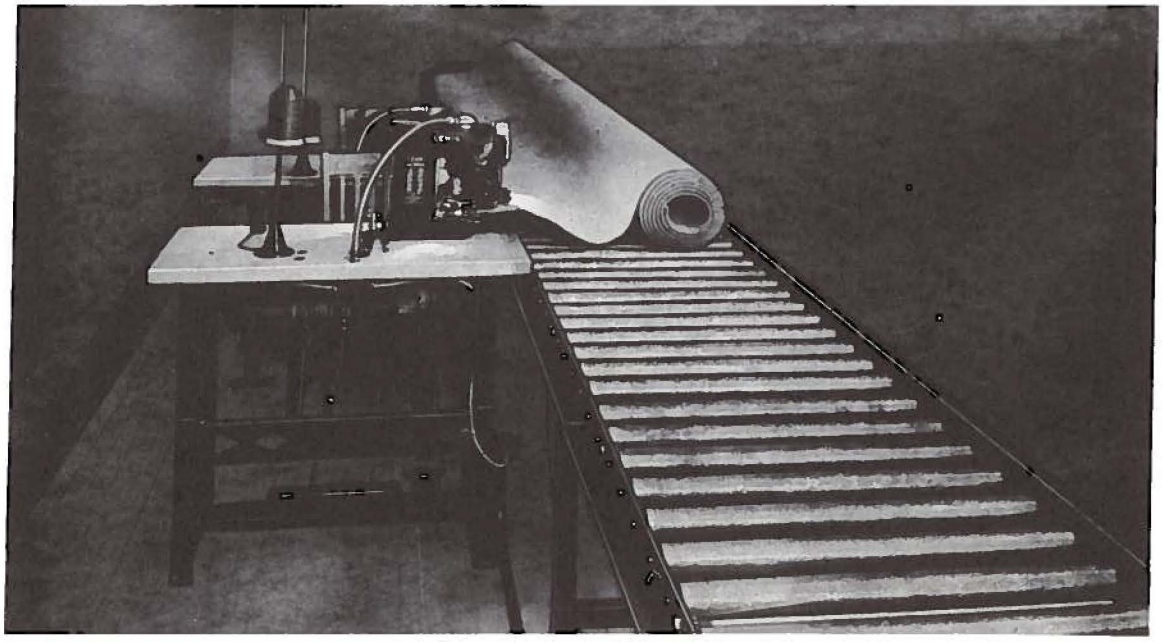
It is also necessary to oil the head of the machine at the top by turning back the plate near the handwheel.

See that the feed wheels are cleaned every day to avoid lint accumulating. Accumulation of lint in feed wheels will cause the machine to feed improperly.



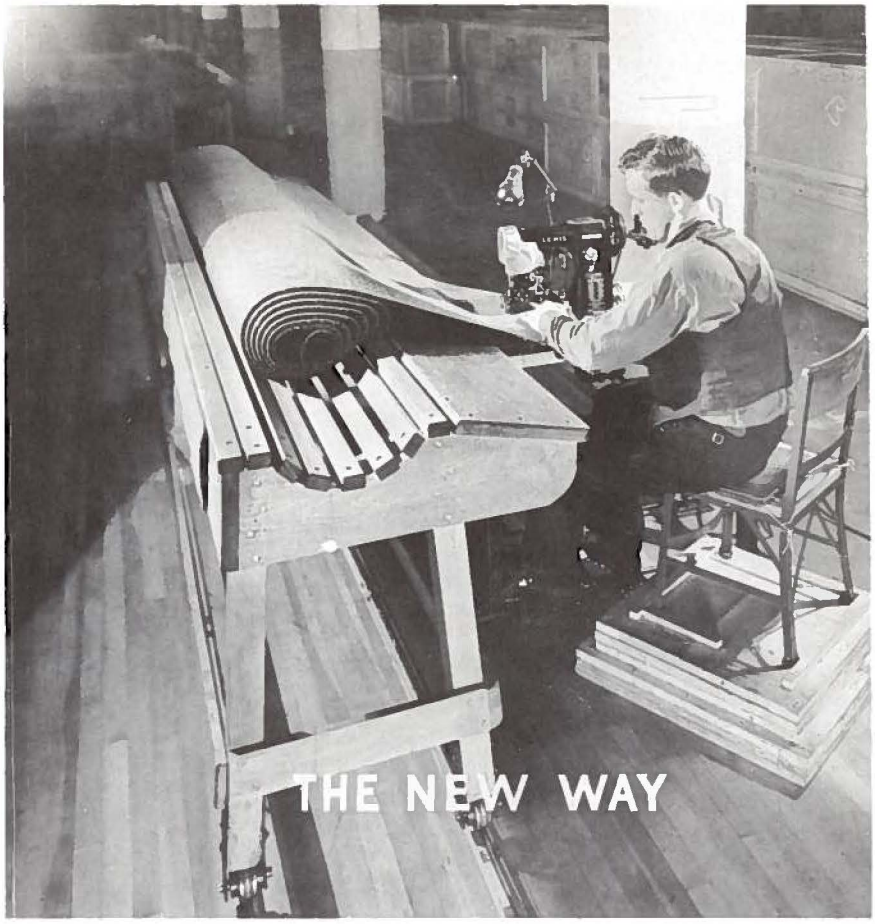
LEWIS CARPET BINDING MACHINE

Binding a carpet which is rolled and held in the trough of a conveyor suspended from an overhead single track. It is of simple construction and does not take much space.



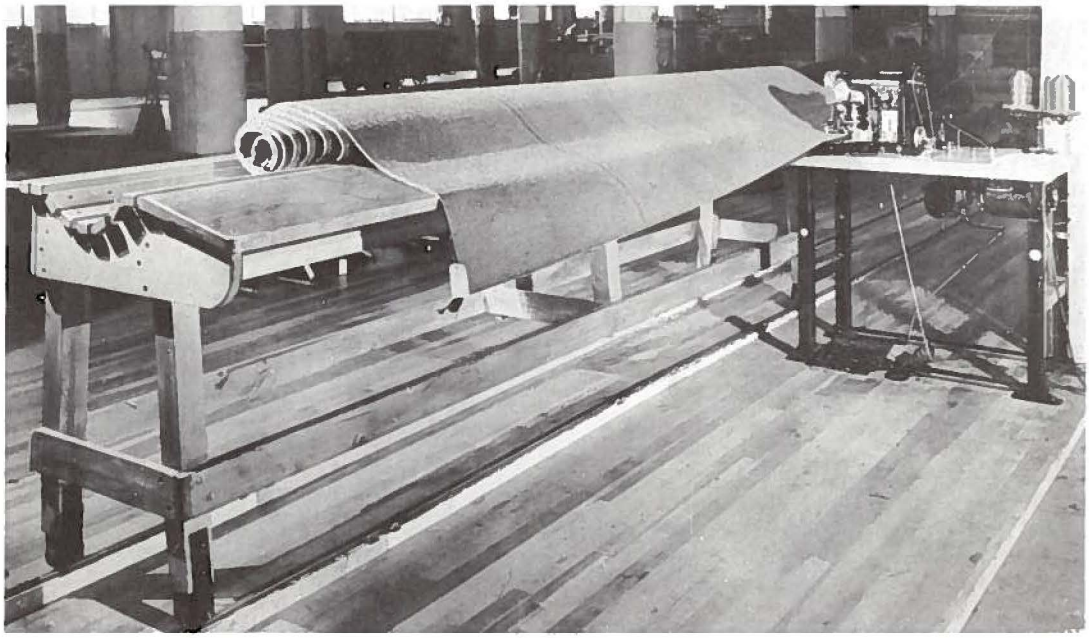
LEWIS CARPET BINDING MACHINE

Roller Conveyor used by some manufacturers for holding the rolled carpet when blind stitching the edge of the binding to the back of the carpet.



LEWIS CARPET BINDING MACHINE

Carriage conveyor with track on floor showing operator binding a rug on a LEWIS Carpet Binding Machine.



LEWIS CARPET BINDING MACHINE

Showing LEWIS Carpet Binding Machine in position to start blind stitching the binding, with the carpet laying on a carriage type conveyor.

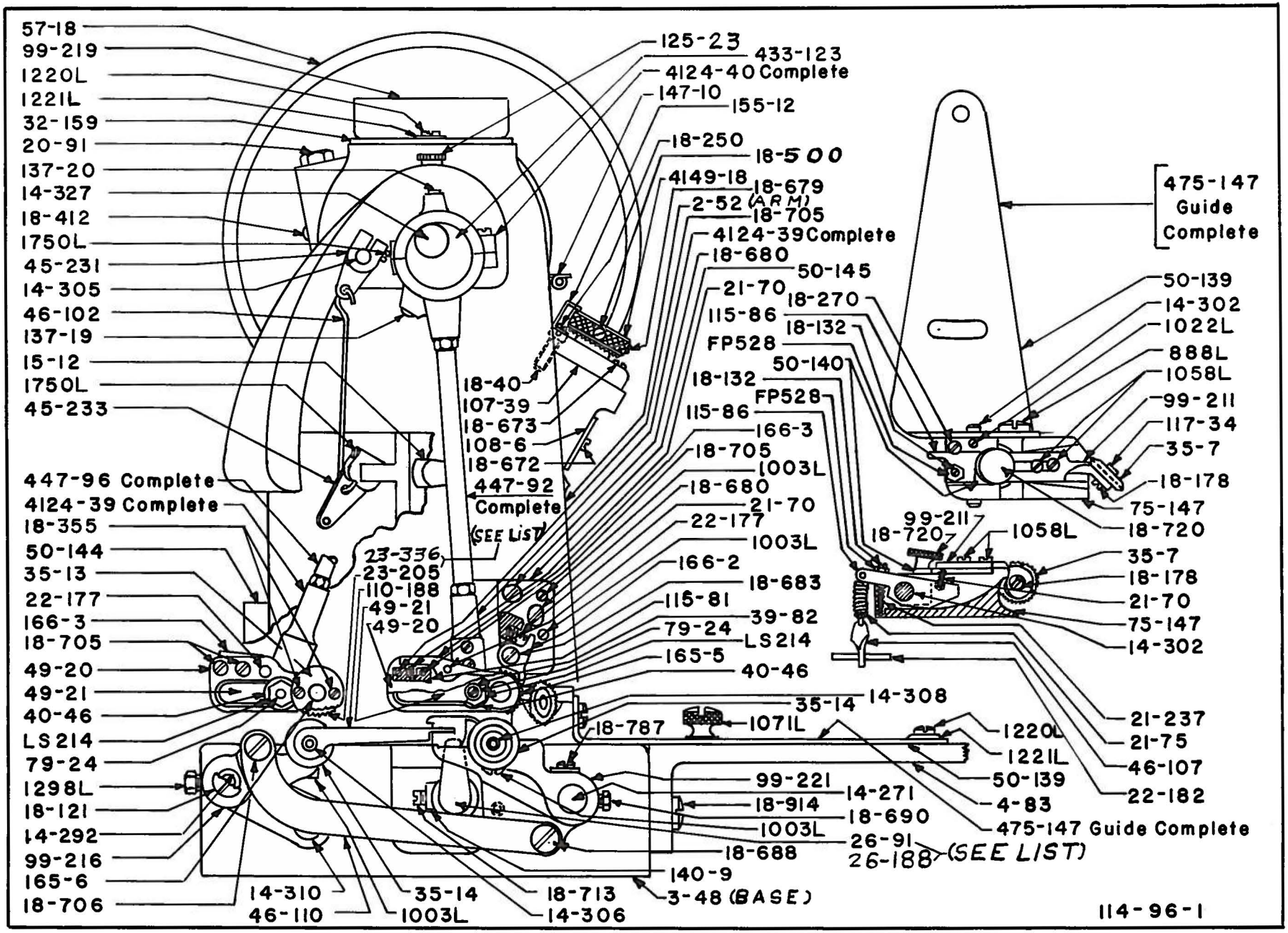


PLATE 1

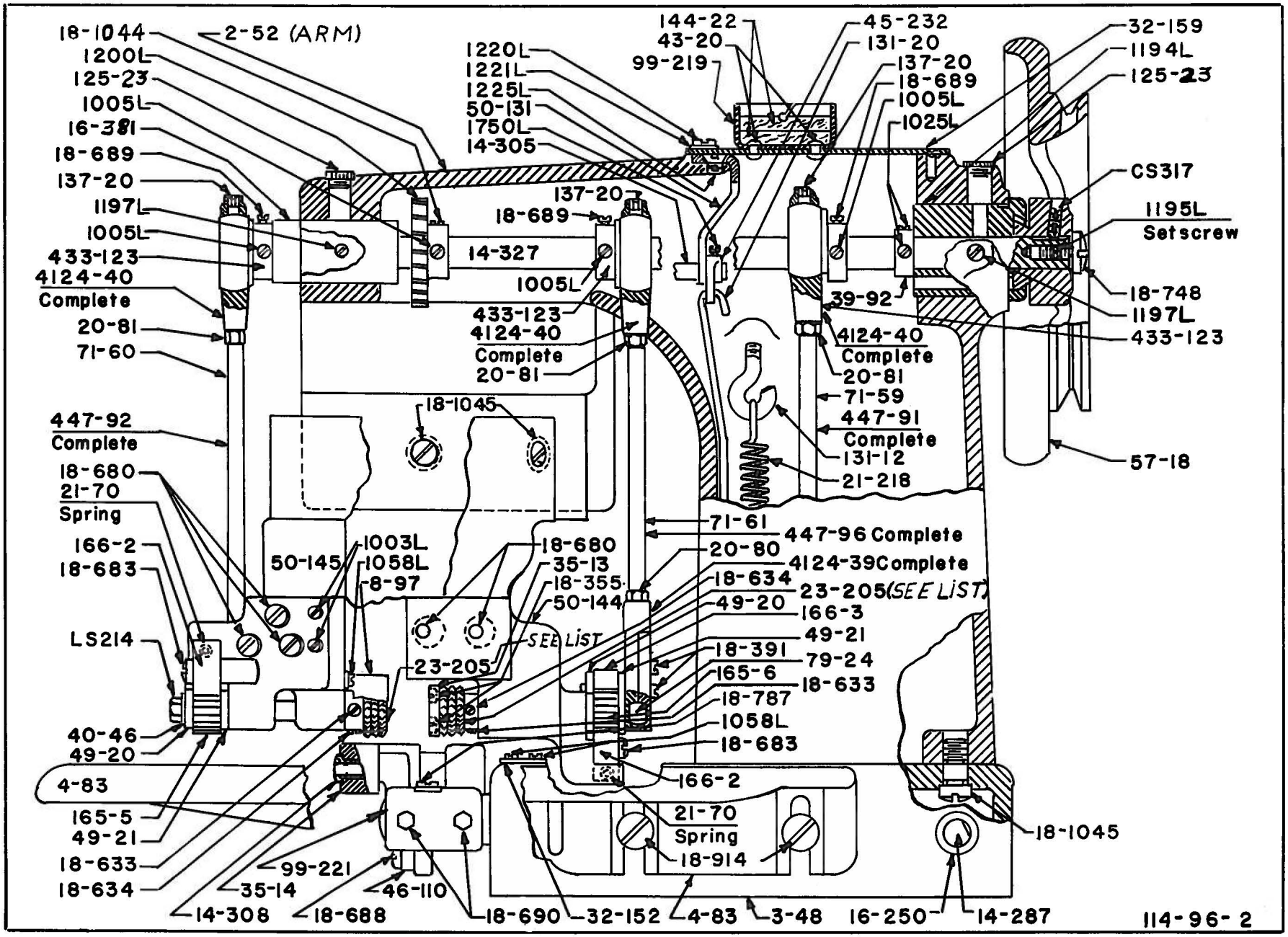


PLATE 2

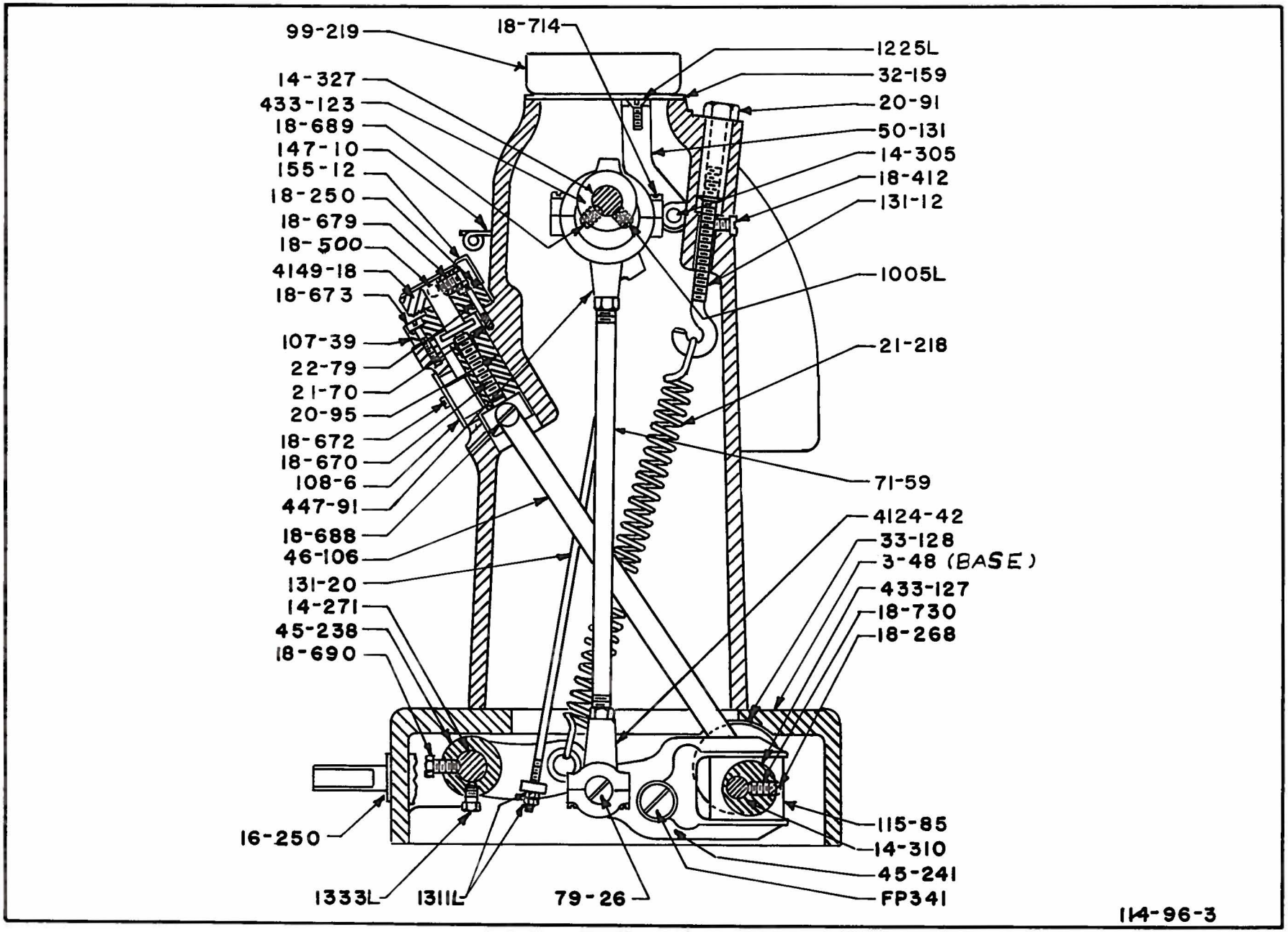
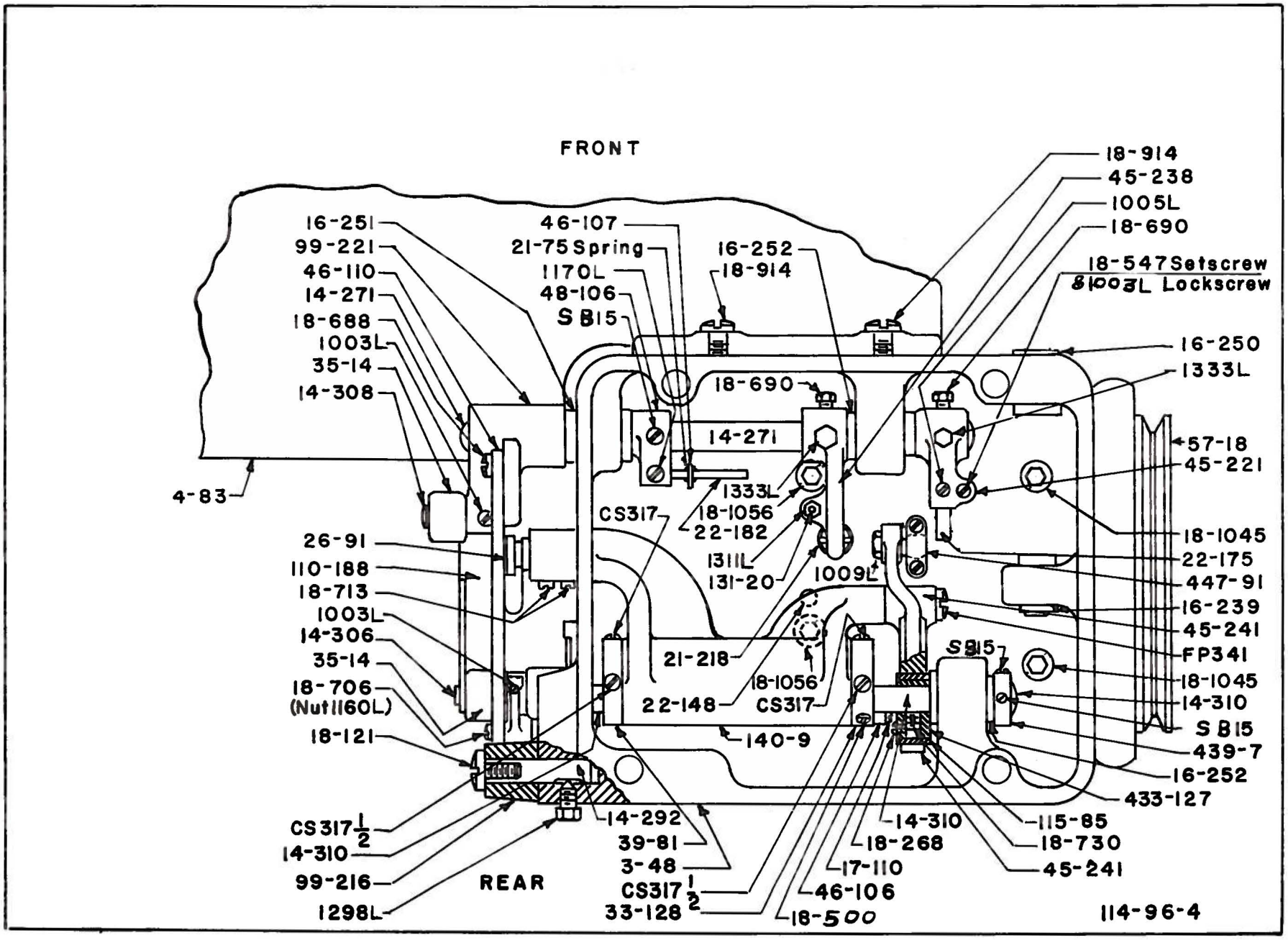


PLATE 3



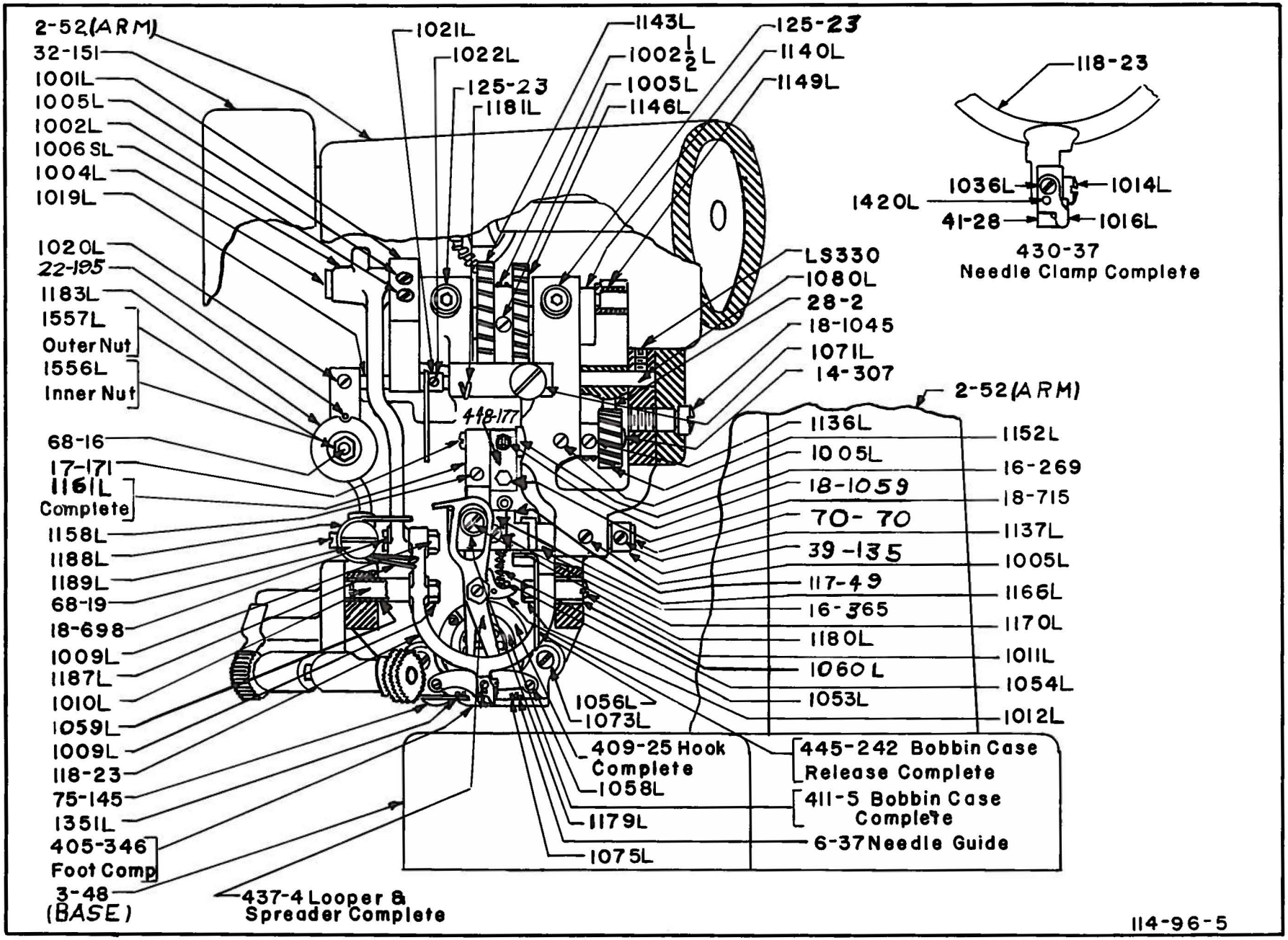


PLATE 5

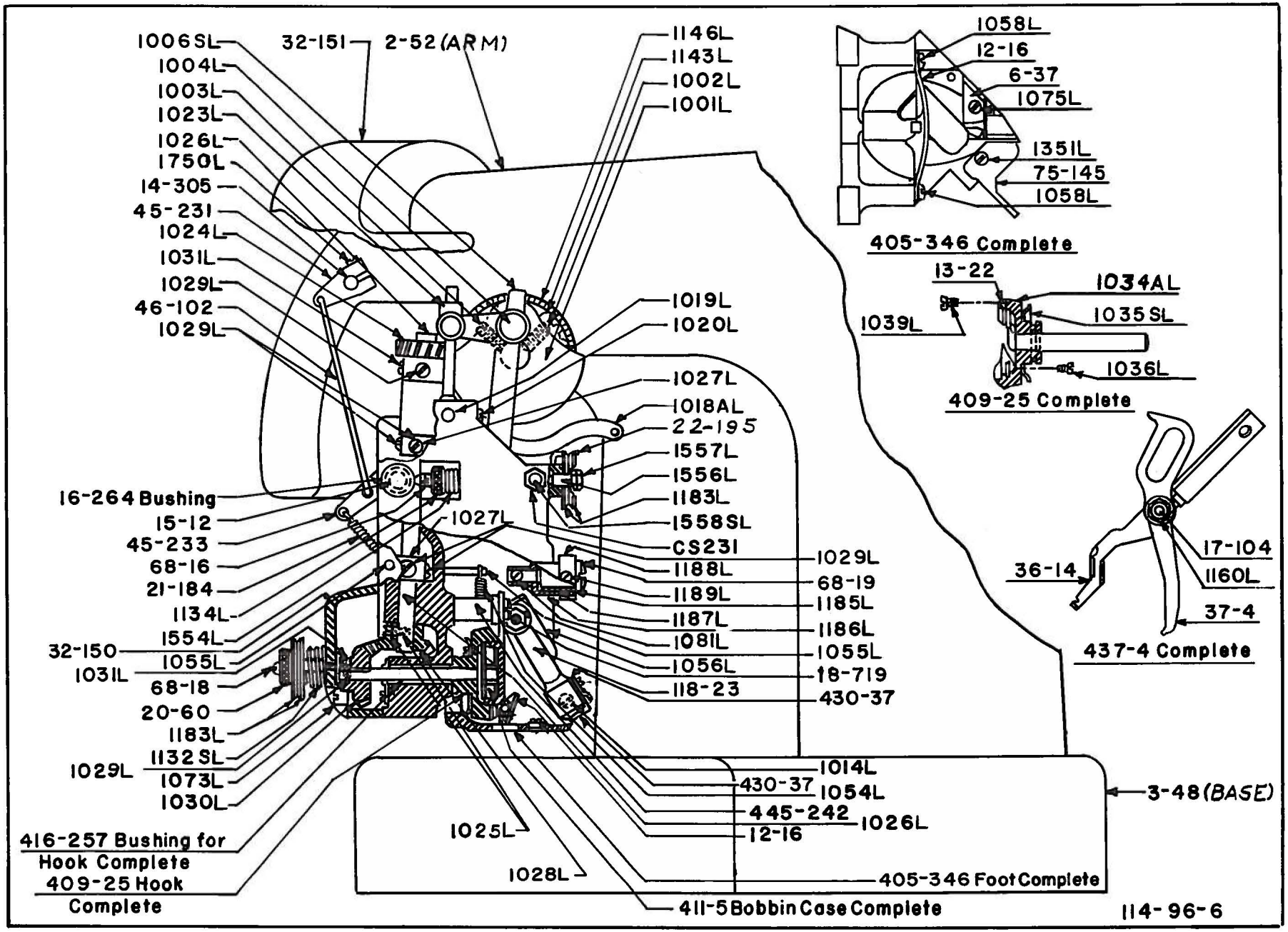
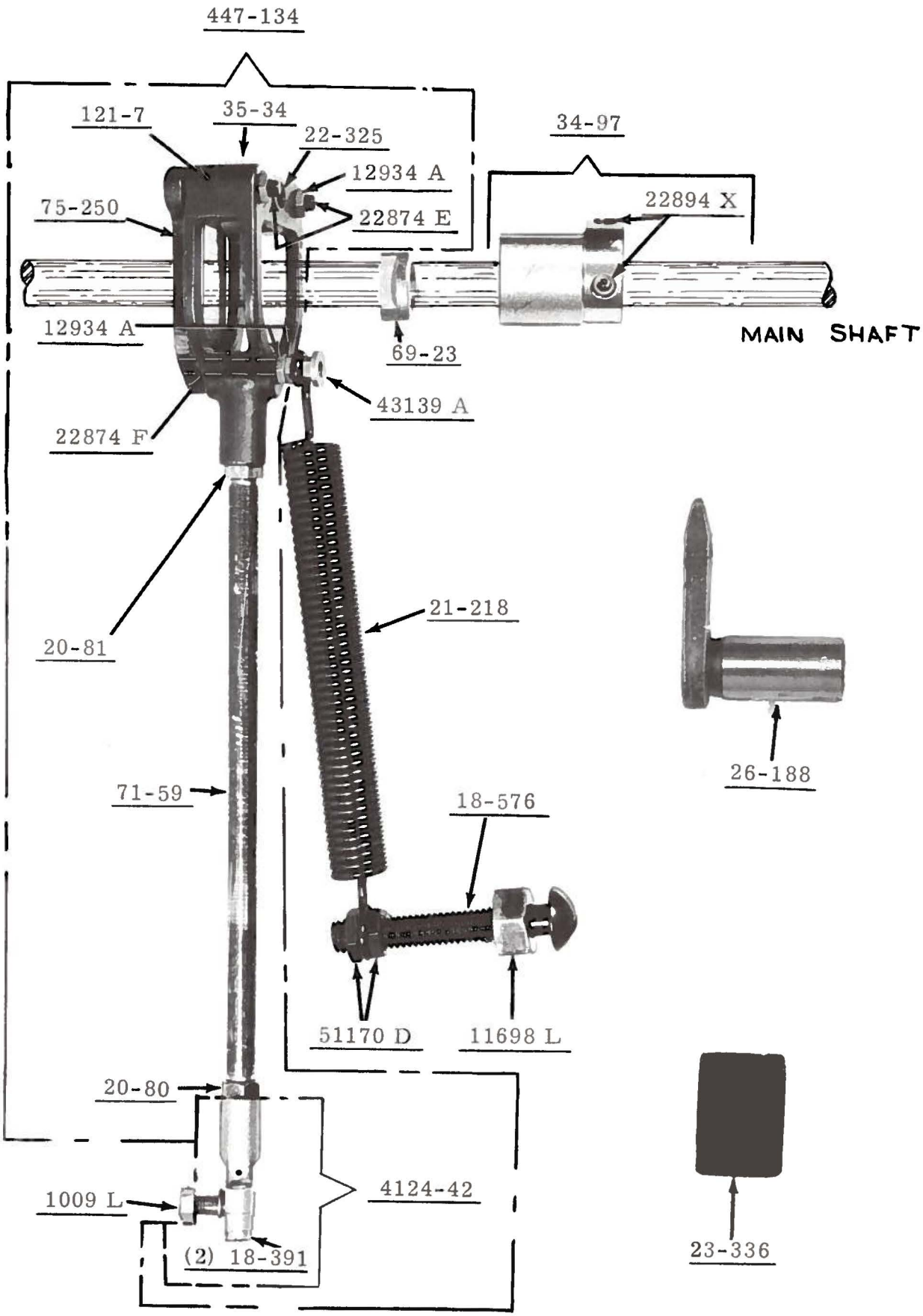


PLATE 6

PLATE 7



PARTS LIST

The following parts list indicates the parts used on Style 29-5 that are not used on Style 29-4. See picture plate No. 7 on opposite page.

Part No.	Description	Amt. Req.
18-576	Screw, for spring No. 21-218	1
21-218	Spring, for connecting rod No. 447-134	1
23-336	Feed Wheel, front and rear	2
26-188	Plunger	1
34-97	Plunger Cam	1
22894 X	Set Screw	2
69-23	Slide Block	1
447-134	Plunger Connecting Rod Assembly	1
20-80	Nut, right hand thread	1
20-81	Nut, left hand thread	1
22-325	Dowel Pin	1
35-34	Cam Follower Roller	1
71-59	Connecting Rod	1
75-250	Guide Fork	1
121-7	Frame	1
4124-42	Ball Joint	1
18-391	Screw	2
12934 A	Nut	4
22874 E	Screw	2
22874 F	Screw	1
*4129-10	Knee Press, complete, for dropping lower roller	1
14-287	Shaft, for No. 45-222	1
18-493	Screw, for No. 70-28	4
22-175	Pin, for No. 45-222	1
45-222	Knee Press Lever	1
18-690	Screw	2
1005 L	Screw	1
70-28	Sleeve, for connecting knee press to base	1
71-87	Knee Press Rod	1
1388 L	Collar, for No. 14-287	1
1025 L	Screw	1
4129-18	Knee Press Pad, complete	1
22508	Screw	1
11698 L	Nut, for screw No. 18-576	1
43139 A	Nut, for connecting rod No. 447-134	1
51170 D	Nut, for screw No. 18-576	2

Component parts of sub-assemblies, which can be furnished for repairs, are indicated by indenting their descriptions under the description of the main sub-assembly.

* Not shown on picture plate No. 7. Available as extra send and charge item, for Styles 29-4 or 29-5.

PARTS LIST

Part No.	Description	Plate No.
4-83	Work Support Plate	1, 2, 4
6-37	Needle Guide, on presser foot No. 405-346	5, 6
8-97	Guard, for front feed wheel	2
12-16	Retainer, for bobbin case, on presser foot No. 405-346	6
13-22	Gib, for hook No. 409-25	6
14-271	Shaft, for front feed roll holder No. 99-221	1, 3, 4
14-287	Shaft, for knee lift No. 4129-10	2
14-292	Shaft, for rear feed roll holder No. 99-216	1, 4
14-302	Shaft, for carpet edge guide No. 75-147	1
14-305	Shaft, in arm for thread tension release No. 45-231	1, 2, 3, 6
14-306	Shaft, for rear feed roll No. 35-14	1, 4
14-307	Shaft, for looper pinion No. 1152 L	5
14-308	Shaft, for front feed roll No. 35-14	1, 2, 4
14-310	Shaft, for plunger cradle No. 140-9	1, 3, 4
14-327	Main Shaft	1, 2, 3
15-12	Crankshaft, in head, for tension release	1, 6
16-239	Bushing, in base, for knee press, rear	4
16-250	Bushing, in base, for knee press, front	2, 3, 4
16-251	Bushing, left, for shaft No. 14-271, for feed roll holder	4
16-252	Bushing, right, for feed roll holder shaft No. 14-271 and cradle shaft No. 14-310	4
16-264	Bushing, for tension release crankshaft No. 15-12	6
16-269	Bushing, for shaft No. 14-307, for looper pinion gear No. 1152 L	5
16-365	Bushing, for adjusting looper spreader No. 437-4	5
16-381	Bushing, for main shaft, head end	2
17-104	Eccentric Stud, for vertical adjustment of loopers	6
17-110	Stud, for lower end of regulator link No. 46-106	4
17-171	Looper Crank Stud	5
18-40	Screw, for flange No. 107-39	1
18-121	Screw, for end of shaft No. 14-292, for rear feed roll	1, 4
18-132	Screw, for spring No. 21-237	1
18-178	Bearing Screw, for roll No. 35-7, for stretching carpet binding	1
18-250	Screw, for plunger adjusting regulator indicator No. 155-12	1, 3
18-268	Screw, for eccentric No. 433-127, for locating plunger slide block in base	3, 4
18-270	Stop Screw, for pivot block No. 115-86, for adjusting roll No. 37-7 in No. 475-147	1
18-355	Screw, for holding roll No. 35-13, for ironing plunger ridge in carpet on Style 29-4	1, 2
18-391	Screw, for ball casing cap on Nos. 4124-39 1/2, 4124-42 1/2	2
18-412	Screw, in arm for spring hook No. 131-12	1, 3
18-500	Set Screw, for plunger regulator No. 4149-18 and stud No. 17-110, for lower end of regulator link No. 46-106	1, 3, 4
18-547	Screw, for No. 45-221	4
18-576	Screw, for spring No. 21-218, on Style 29-5	7
18-633	Spot Screw, for feed wheels Nos. 23-205, 23-336	2
18-634	Set Screw, for feed wheels Nos. 23-205, 23-336	2
18-670	Adjusting Screw, for plunger regulator No. 4149-18	3
18-672	Screw, for key No. 108-6, for plunger adjusting nut No. 20-95, in arm	1, 3

PARTS LIST

Part No.	Description	Plate No.
18-673	Screw, for flange, for regulator No. 107-39	1, 3
18-679	Spot Screw, for plunger regulator No. 4149-18	1, 3
18-680	Screw, for holding brackets (2) No. 50-144 and (3) No. 50-145 on head	1, 2
18-683	Bearing Screw, for short ratchet pawl No. 166-2	1, 2
18-688	Screw, for plunger regulating link, upper end, No. 46-106, front end, No. 46-110	1, 2, 3, 4
18-689	Spot Screw, for No. 433-123	2, 3
18-690	Spot Screw, (2) for front feed roll depressing lever No. 99-221 and feed roll pressure spring lever No. 45-238; also for No. 45-221	1, 2, 3, 4
18-698	Needle Carrier Driving Stud	5
18-705	Screw, for clamping yokes Nos. 49-20 and 49-21, for feed ratchets	1
18-706	Screw Eccentric, in feed roll link No. 46-110, for adjusting rear feed roll No. 35-14	1, 4
18-713	Screw, for clamping plunger Nos. 26-115, 26-91 and 26-188	1, 4
18-714	Screw, for ball casing cap No. 4124-40 1/2	3
18-715	Screw, for clamping No. 448-177	5
18-719	Bearing Screw, for bobbin case release lever No. 445-242	6
18-720	Adjusting Screw, knurled, for adjusting tension of binding roll No. 35-7 in No. 475-147	1
18-730	Set Screw, for eccentric No. 433-127, for plunger fork No. 45-241	3, 4
18-748	Screw, for end of main shaft No. 14-327	2
18-787	Screw, for No. 21-256, on Style 29-4	1, 2
18-914	Screw, for work support No. 4-83	1, 2, 4
18-1044	Spot Screw, for No. 1200 L	2
18-1045	Screw, for holding head to arm (2 used)	2, 5
	Screw, for holding arm to base (2 used)	2, 4
18-1056	Screw, for holding arm to base (2 used)	4
18-1059	Clamp Screw, for looper crank stud No. 17-171	5
18-1060	Knurled Looper Spreader Adjusting Screw, goes inside sleeve No. 70-70	*
20-60	Nut, for staff No. 68-18, for thread clamp in gear cover No. 32-150 on head	6
20-80	Nut, right hand, for connecting rods Nos. 447-91, 447-92, 447-96 and 447-134	2, 7
20-81	Nut, left hand, for connecting rods Nos. 447-91, 447-92, 447-96 and 447-134	2, 7
20-91	Nut, for adjusting feed pressure spring No. 21-218	1, 3
20-95	Nut, for plunger adjusting screw No. 18-670 in arm	3
21-70	Spring, for plunger regulator pin No. 22-79 and for No. 99-211 in carpet guide No. 475-147, for No. 166-2 and No. 166-3	1, 2, 3
21-75	Spring, for attaching rug guide No. 475-147 to machine	1, 4
21-184	Spring, for tension release lever No. 45-233 in head	6
21-218	Spring, for feed pressure in arm and for plunger connecting rod No. 447-134 on Style 29-5	2, 3, 4, 7

PARTS LIST

Part No.	Description	Plate No.
21-237	Spring, for applying pressure to binding roll No. 35-7 in assembly No. 475-147	1
21-256	Spring Brush, for brushing pile on top of plunger No. 26-115, for Style 29-4	*
22-79	Spring Pin, for plunger regulator No. 4149-18	3
22-148	Dowel Pin, (2) for arm and base	4
22-175	Pin, for feed roll depressing lever No. 45-221 in base; also used in No. 45-222 when knee lift is used	4
22-177	Pin, (2) for feed ratchet pawl No. 166-3	1
22-182	Pin, for binding roll opening crank No. 48-106 in base	1, 4
22-195	Pin, for thread tension discs No. 1183 L	5, 6
22-325	Dowel Pin, in No. 447-134	7
23-205	Feed Wheel, front and rear, for Style 29-4	1
23-336	Feed Wheel, front and rear, for Style 29-5; includes screws Nos. 18-633 and 18-634	1, 7
26-91	Plunger, for carpet when not using spring brush No. 21-256, for Style 29-4	1, 4
26-115	Plunger, for presenting carpet to needle when using spring brush No. 21-256, for Style 29-4	*
26-188	Plunger, for Style 29-5	1, 7
28-2	Sector Gear, for looper spreader, complete, No. 437-4	2
32-150	Cover, for hook gears on head	6
32-151	Cover, for head	5, 6
32-152	Cover, for plunger opening in base	2
32-159	Cover Plate, for arm, for holding thread oiling pads	1, 2, 3
33-128	Eccentric Sleeve, for plunger cradle No. 140-9	3, 4
34-97	Plunger Cam, for Style 29-5	7
35-7	Roll, for stretching carpet binding on No. 475-147	1
35-13	Roll, for ironing plunger ridge in carpet, for Style 29-4	1, 2
35-14	Feed Roll, front and rear, in base	1, 2, 4
35-34	Cam Follower Roller, in No. 447-134	7
36-14	Looper, for looper spreader, complete, No. 437-4	6
37-4	Looper Spreader, for looper spreader, complete No. 437-4	6
39-81	Collar, for plunger cradle No. 140-9 in base	4
39-82	Spacing Collar, in yoke, for feed ratchets Nos. 49-20 and 49-21	1
39-92	Thrust Collar, for main shaft No. 14-327, handwheel end	2
39-135	Looper Staff Bearing Collar	5
40-46	Washer, for ball screw No. 79-24 in feed yokes Nos. 49-20 and 49-21	1, 2
41-28	Needle Clamp Thread Guide Plate, lower, in No. 430-37	5
43-20	Rivet, (2) for holder No. 99-219, for thread oil pads	2
45-221	Lever, in base, for depressing feed rolls	4
45-222	Lever, in base, on knee lift shaft No. 14-287, for knee lift No. 4129-10	*
45-231	Lever, front, for tension release in arm, handwheel end	1, 6
45-232	Lever, back, for tension release in arm, handwheel end	2
45-233	Lever, for tension release, on head	1, 6
45-238	Lever, for feed pressure spring No. 21-218	3, 4
45-241	Lever, forked, for plunger adjusting eccentric	3, 4
46-102	Wire Link, front, for tension release joining lever No. 45-231 to lever No. 45-233	1, 6
46-106	Link, for plunger regulator in arm	3, 4

PARTS LIST

Part No.	Description	Plate No.
46-107	Link, for attaching carpet guide No. 475-147 to machine	1, 4
46-110	Link, for feed roll holders No. 99-216 and No. 99-221 in base	1, 2, 4
48-106	Crank, in base, for opening binding roll	4
49-20	Yoke, with wide slots for feed ratchets in head	1, 2
49-21	Yoke, with narrow slots for feed ratchets in head	1, 2
50-131	Bracket, for tension release shaft No. 14-305 in arm	2, 3
50-139	Bracket, for guide No. 75-147 in No. 475-147 carpet guide	1
50-140	Bracket, for holder No. 99-211 in No. 475-147 carpet guide	1
50-144	Bracket, for feed, rear, on head	1, 2
50-145	Bracket, for feed, front, on head	1, 2
57-18	Handwheel	1, 2, 4
68-16	Tension Staff, for thread tension in head	5, 6
68-18	Tension Staff, for clamping thread on gear cover No. 32-150 on head	6
68-19	Thread Controller Staff	5, 6
69-23	Slide Block, for Style 29-5	7
70-70	Sleeve, for No. 16-365 looper spreader bushing	5
71-59	Connecting Rod, for plunger in No. 447-91; also in No. 447-134	2, 3, 7
71-60	Connecting Rod, for front feed in No. 447-92	2
71-61	Connecting Rod, for back feed in No. 447-96	2
75-145	Edge Guide, for carpet binding on presser foot	5, 6
75-147	Edge Guide, for edge of carpets, in No. 475-147	1
75-250	Guide Fork, in No. 447-134	7
79-24	Ball Screw, (2) for lower ball joint No. 4124-39, for feed	1, 2
79-26	Ball Eccentric Screw, for plunger ball joint, lower, No. 4124-42	3
99-211	Holder, for roll No. 35-7 to stretch carpet binding	1
99-216	Holder, for feed roll, rear, in base	1, 4
99-219	Holder, for oil pads, for oiling thread, on arm	1, 2
99-221	Holder, for front feed roll, in base	1, 2, 3, 4
107-39	Flange, for regulator No. 4149-18, on arm	1, 3
108-6	Key, for plunger adjusting nut No. 20-95, in arm	1, 3
110-188	Plate, for supporting carpet under foot	1, 4
115-81	Spacing Block, for feed yoks No. 49-20 and 49-21, in head	1
115-85	Block Slide, for forked lever No. 45-241 for adjusting plunger in base	3, 4
115-86	Pivot Block, for adjusting binding roll No. 35-7 on No. 475-147	1
117-34	Bearing, for No. 35-7 binding stretching roll on No. 475-147 carpet guide	1
117-49	Looper Bearing Staff	5
118-23	Needle Carrier	5, 6
121-7	Cam Follower Frame, in No. 447-134	7
125-23	Head Main Shaft Oil Cap	1, 2, 5
131-12	Hook, for feed pressure spring No. 21-218, in arm	2, 3
131-20	Hook, for tension release lever No. 45-232 in arm	2, 3, 4
137-19	Oil Retainer, for ball joint No. 4124-40 1/2	1
137-20	Oil Retainer, for ball joint No. 4124-40 1/2	1, 2
140-9	Cradle, for raising and lowering plunger	1, 4
144-22	Felt Pad, for oiling needle thread on arm	2

PARTS LIST

Part No.	Description	Plate No.
147-10	Thread Eyelet, in arm	1, 3
155-12	Indicator, for plunger regulator No. 4149-18	1, 3
164-12	Shim, for rear feed roll holder No. 99-216	*
165-5	Ratchet, for front feed wheel	1
165-6	Ratchet, for rear feed wheel	1, 2
166-2	Pawl, short, for feed ratchets No. 165-5 and No. 165-6	1, 2
166-3	Pawl, long, for feed ratchets No. 165-5 and 165-6	1, 2
SB15	Screw, in base, for holding crank No. 48-106, for opening binding roll; also for No. 439-7	4
LS214	Nut, for lower feed ball joint No. 4124-39	1, 2
CS231	Locknut, for tension staff screw No. 1558 SL, for locating No. 68-16 in head	6
CS317	Spot Screw, for Nos. (1) 33-128, (1) 39-81 and (1) 57-18	2, 4
CS317 1/2	Set Screw, for Nos. (1) 33-128, (1) 39-81	4
LS330	Set Screw, for shaft No. 1080 L	5
FP341	Bearing Screw, for holding plunger forked lever No. 45-241 in base	3, 4
FP528	Nut, for spring screw No. 18-132 in carpet guide No. 475-147	1
888 L	Screw, for attaching No. 50-139 to No. 75-147 in carpet guide No. 475-147	1
1001 L	Needle Crank, in head	5, 6
1002 L	Spot Screw, for needle crank No. 1001 L	5, 6
1002 1/2 L	Spot Screw, for head main shaft driving gear No. 1143 L	5
1003 L	Set Screw, for Nos. 45-221, 1001 L and (2) feed brackets No. 50-145	1, 2, 4, 6
1004 L	Needle Driving Stud, in needle crank No. 1001 L	5, 6
1005 L	Set Screw, for Nos. 1001 L, (2) 1143 L, 1146 L, 1200 L, 16-269; also for Nos. 45-221 and 433-123	2, 3, 4, 5
1006 SL	Needle Connecting Link	5, 6
1009 L	Nut, for needle carrier driving stud No. 18-698 and needle carrier bearing stud No. 1010 L	4, 5
1010 L	Needle Carrier Bearing Stud, left	5
1011 L	Needle Carrier Bearing Stud, right	5
1012 L	Nut, for needle carrier bearing stud No. 1011 L	5
1014 L	Clamp Screw, for needle clamp No. 430-37	5, 6
1016 L	Needle Clamp Thread Guide Plate, upper, in No. 430-37	5
1019 L	Take-up Lever Shaft	5, 6
1020 L	Set Screw, for take-up lever shaft No. 1019 L	5, 6
1021 L	Collar, for take-up lever shaft No. 1019 L	5
1022 L	Screw, for collar No. 1021 L, for take-up lever shaft No. 1019 L and in No. 475-147	1
1023 L	Take-up Lever Slide Block	6
1024 L	Top Spiral Gear, for hook timing shaft No. 1026 L	6
1025 L	Set Screw, for bevel gear No. 1028 L and collar No. 39-92	2, 6
1026 L	Hook Timing Shaft	6
1027 L	Collar, for hook timing shaft No. 1026 L	6
1028 L	Bevel Gear, for hook timing shaft No. 1026 L	6
1029 L	Set Screw, for collar No. 1027 L (4) bevel gear No. 1030 L and spiral gear No. 1024 L	6
1030 L	Hook Shaft Bevel Gear	6

PARTS LIST

Part No.	Description	Plate No.
1031 L	Spot Screw, for hook shaft bevel gear No. 1030 L and spiral gear No. 1024 L	6
1034 AL	Hook, with staff, in No. 409-25	6
1035 L	Hook Needle and Thread Guard, on No. 409-25	6
1036 L	Screw, for attaching Nos. 41-28, 1016 L and 1035 L	5, 6
1039 L	Screw, for hook gib No. 13-22 in No. 409-25	6
1047 L	Bobbin, for use in No. 411-5 bobbin case	*
1053 L	Stop Pin, for bobbin case release No. 445-242	5
1054 L	Spring, for bobbin case release No. 445-242	5, 6
1055 L	Spring Pin, for bobbin case release spring No. 1054 L and thread tension release spring No. 21-184	6
1056 L	Bobbin Case Release Lever	5, 6
1058 L	Screw, for guard No. 8-97 for front feed wheel No. 23-205; also for holding No. 99-211 for binding roll in No. 475-147 and for cover No. 32-152, for bobbin case retainer	1, 2, 5, 6
1059 L	Needle Bar Bushing, left	5
1060 L	Needle Bar Bushing, right	5
1071 L	Screw, for holding head cover No. 32-151; also for adjusting No. 475-147	1, 5
1073 L	Clamp Screw, (2) for presser foot No. 405-346 and (2) for hook gear cover No. 32-150	5, 6
1075 L	Screw, for needle guide No. 6-37	5, 6
1080 L	Shaft, for looper sector gear No. 28-2	5
1081 L	Set Screw, for thread controller No. 68-19, in head	6
1132 SL	Tension Spring, for thread controller in head	6
1134 L	Nut, for adjusting thread tension on tension staff No. 68-16	6
1136 L	Spot Screw, for looper pinion gear No. 1152 L	5
1137 L	Set Screw, for collar No. 39-135 and gear No. 1152 L	5
1140 L	Head Main Crank Shaft	5
1143 L	Head Main Shaft Drive Gear	5, 6
1146 L	Head Main Shaft Hook Drive Gear	5, 6
1149 L	Looper Crank Slide Block	5
1152 L	Looper Pinion Gear	5
1158 L	Screw, for attaching looper head block No. 1161 L	5
1160 L	Nut, for eccentric stud No. 17-104; also No. 18-706	4, 6
1161 L	Looper Head Block	5
1166 L	Cap, for looper staff bearing No. 117-49	5
1170 L	Screw, for holding cap No. 1166 L to looper staff bearing and No. 22-182 to No. 48-106	4, 5
1179 L	Roll, for looper spreader No. 37-4	5
1180 L	Screw, for looper spreader roll No. 1179 L	5
1181 L	"Pigtail" Thread Eyelet, on head	5
1183 L	Tension Disc, (2) for thread tension staff and (2) for thread clamp	5, 6
1185 L	Washer, for thread controller staff No. 68-19	6
1186 L	Thread Controller Staff Barrel	6
1187 L	Thread Controller Spring	5, 6
1188 L	Thread Controller Staff Stop	5, 6
1189 L	Screw, for thread controller staff stop No. 1188 L	5, 6
1194 L	Bushing, for main shaft, handwheel end	2
1195 L	Set Screw, for handwheel No. 57-18	2
1197 L	Set Screw, for main shaft bushings Nos. 1194 L, 16-381	2

PARTS LIST

Part No.	Description	Plate No.
1200 L	Gear, on main shaft	2
1220 L	Screw, for top arm cover No. 32-159 and attaching carpet binding guide No. 475-147 to machine	1, 2
1221 L	Spring Washer, for (2) No. 1220 L; also (1) No. 1071 L	1, 2
1225 L	Screw, for tension release shaft bracket No. 50-131	2, 3
1298 L	Screw, for rear feed roll holder shaft No. 14-292	1, 4
1311 L	Nut, for tension release hook No. 131-20	3, 4
1333 L	Set Screw, for lever in base for depressing feed rolls No. 45-221 and feed pressure spring lever No. 45-238	3, 4
1351 L	Screw, for edge guide on presser foot	5, 6
1420 L	Pin, for needle clamp in No. 430-37	5
1554 L	Spring, for thread tension staff No. 68-16	6
1556 L	Inner Nut, for thread tension staff No. 68-16	5, 6
1557 L	Outer Nut, for thread tension staff No. 68-16	5, 6
1558 SL	Locating Screw, for holding tension staff No. 68-16	6
1750 L	Screw, for tension release lever No. 45-231; also for Nos. 45-232, 45-233	1, 2, 6
11698 L	Nut, for screw No. 18-576	7
12934 A	Nut, for Nos. 22874 E and 22874 F in No. 447-134	7
22874 E	Screw, in No. 447-134	7
22894 X	Set Screw, for plunger cam No. 34-97	7
43139 A	Nut, for connecting rod No. 447-134	7
51170 D	Nut, for screw No. 18-576	7

ASSEMBLIES

405-346	Presser Foot, complete; composed of Nos. 5-346, 6-37, 12-16, 75-145, (2) 1058 L, 1075 L, 1351 L	5, 6
409-25	Hook, complete; composed of Nos. 13-22, 1034 AL, 1035 L, (3) 1036 L and (2) 1039 L	5, 6
411-5	Bobbin Case, right hand, complete	5, 6
416-257	Bushing, for hook, complete, marked "C"	6
430-37	Needle Clamp, complete; composed of Nos. 41-28, 1016 L, 1036 L, 430-37 1/2	5, 6
430-37 1/2	Needle Clamp and Pin	*
433-123	Eccentric Ball, with spot screw Nos. 18-689 and 1005 L, (2) for feed connecting rods, (1) for plunger connecting rod	1, 2, 3
433-127	Eccentric, complete with screw No. 18-730 for block No. 115-85 to adjust plunger	3, 4
437-4	Looper and Spreader, complete, composed of Nos. 17-104, 36-14, 37-4 and (2) 1160 L	5, 6
439-7	Collar, with (2) screws No. SB15, for cradle shaft No. 14-310	4
445-242	Bobbin Case Release, complete	5, 6
447-91	Connecting Rod, complete, for plunger; composed of Nos. 4124-40, 4124-42, 71-59, 20-80, 20-81, for Style 29-4	2, 3, 4
447-92	Connecting Rod, complete, for operating front feed; composed of Nos. 20-80, 20-81, 71-60, 4124-39 and 4124-40	1, 2

PARTS LIST

ASSEMBLIES

Part No.	Description	Plate No.
447-96	Connecting Rod, complete, for operating rear feed; composed of Nos. 20-80, 20-81, 71-61, 4124-39 and 4124-40	1, 2
447-134	Connecting Rod, complete, for plunger; composed of Nos. 20-80, 20-81, 22-325, 35-34, 71-59, 75-250, 121-7, 4124-42, 22874 F, (4) 12934 A, (2) 22874 E, for Style 29-5	7
448-177	Looper Crank, complete	5
475-147	Guide, for carpet and binding, complete; composed of Nos. 14-302, 18-132, 18-178, 18-270, 18-720, 21-70, 21-75, 21-237, 35-7, 50-139, 50-140, 75-147, 99-211, 115-86, 117-34, FP528, 888 L, 1022 L and 1058 L	1
4124-39	Ball Joint, lower, complete with ball No. 79-24, for operating both feeds	1, 2
4124-39 1/2	Ball Joint Casing, with (2) screws No. 18-391	*
4124-40	Ball Joint, upper, complete with Nos. 433-123 and 4124-40 1/2	1, 2
4124-40 1/2	Ball Joint Casing, with (2) screws No. 18-714	*
4124-42	Ball Joint, complete, with ball No. 79-26 and No. 4124-42 1/2, lower, for plunger	3, 7
4124-42 1/2	Ball Joint Casing, with (2) screws No. 18-391	*
4129-10	Knee Lift, complete	*
4135-9	Foot Treadle, complete	*
4149-18	Regulator, for plunger	1, 3
1018 AL	Take-up Lever, complete; composed of No. 1230 L, 1231 L, 1232 L	6
61477 L-234	Bobbin Winder, complete	*

* Not shown on picture plate.

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