INSTRUCTIONS FOR ADJUSTMENT AND SERVICING FOR FLAT - BED, ZIGZAG LONG - ARM INDUSTRIAL SEWING MACHINE FOR DECORATIVE ZIGZAG STITCHING

ZZ 567 - 75

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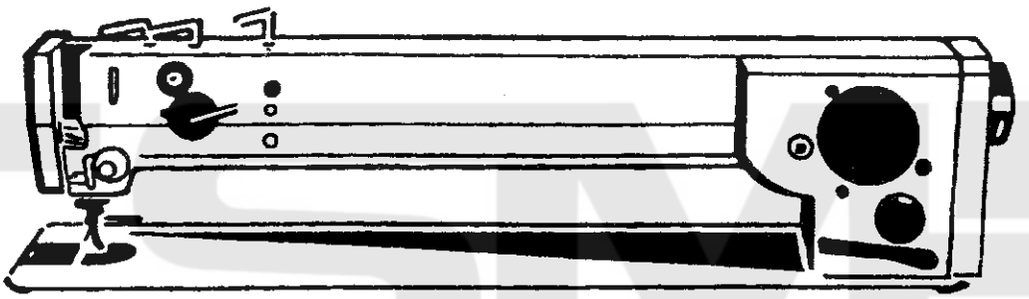


Use of Machine

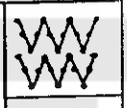
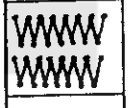
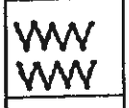
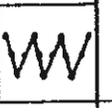
The machine is used for sewing of capacious materials in the outwear within thickness of 4 mm and for sewing of windsurfing sales, shipp ones and rogalo coats.

Specifications

Machine speed	up to 2,000 stitches per min., according to the Equipment used, threads, sewn material, and overall width of the pattern
Stitch	two-thread lockstitch
Stitch length	steplessly adjustable up to 5 mm
Stitching	forward stitching with provision for bartacking
Thickness of sewn material	up to 4 mm
Single-needle and two-needle arrangement, the latter with the needle distance	5 mm, 4 mm, 3 mm
Pattern width	steplessly adjustable up to 10 mm, according to the sewn sample
Needle	797 CFCF, 134 No. 80 - 100
Threads	cotton threads 7.4 tex x 2 x 2, 10 tex x 2 x 2 synthetic threads: PES 10 tex x 3, 12 tex x 3, 25 tex x 1 x 3
Hook	rotary hook R 250
Presser foot stroke	5 mm with hand lever, 7 mm with knee lever (with left-side treadle)
Clear work space	740 x 120 mm
Machine stand	standard profile iron stan

Technical description

The model ZZ 567 - 75 is a flat-bed, zigzag, long-arm two-thread lockstitch industrial sewing machine for stitching forward feed patterns with one or two needles, equipped with horizontal rotary hook driven from the lower shaft via a gearing situated in the gear box and provided with positive bobbin case opening to facilitate the thread passage, with forward and reverse feed actuated by a hand lever. The drive is transmitted from the upper shaft to the lower one by a drive belt. The stitch length, i.e., the stitch density of the patterns, is adjusted by means of a knob situated on the vertical part of the machine arm. The stitch width and the pattern form are defined by an interchangeable cam, one for each pattern (see the List of Equipments). The presser foot can be raised by a hand lever or by a knee lever. The trimmer device for the upper and lower threads, situated under the throat plate, cooperates with the stop motor provided for stopping the machine in a predetermined needle position. The stop motor is equipped with a contactless sensor of the angular position of the machine upper shaft and with an electronic control circuit, thus ensuring long service life and high reliability while requring only moderate maintenance. The principal parts of mechanisms exposed to increased strain are seated in rolling-contact bearings. The machine is fitted with a group wick lubrication and with an automatic hook lubrication.

Equipments and their Use							
Ordering No. / Identification No. of the cam	Number of stitches per 1 revolution of the cam	Number of stitches / Stitch length	Pattern width	Single needle		Two needle	
				Machine top speed admissible (stitches per min.)	Pattern	Machine top speed admissible (stitches per min.)	Pattern
522 791 149 001	Bordering (hemming) equipment						
522 791 630 002	Equipment for two-needle stitching, needle distance 3, 4 or 5 mm						
522 791 642 038 522 080 674 113	12	4 1-3	4,5 - 10	2,000		2,000	
522 791 642 047 522 080 674 122	12	2 1-3	3,5 - 6				
522 791 642 049 522 080 674 124	12	6 1-3	4,5 - 10				
522 791 642 050 522 080 674 125	12	4 1-3	2 - 6				
522 791 947 001	Adjusting jig						
522 792 112 017	Built-in bobbin winder, complete						

I. INSTRUCTIONS FOR SERVICING OF MACHINE

A. GENERAL INSTRUCTIONS

1. Read the instructions of the manual carefully and adhere to them.

2. During transport and while unpacking the machine proceed in accordance with the instructions and marks on the packing.

3. Report any damage which has occured during transport to the railway authorities or to the forwarding agents at once. Immediately after unpacking, check the contets against the order and report any discrepancies to us. We cannot recognize claims submitted at a later date.

4. Having transported the machine to its work site, remove the preserving grease coating and all impurities from the machine head. Make sure that no machine part has become loose and that its mechanism is free of any foreign body.

5. Lubricate the machine daily. Before lubrication, always check whether the lubrication places are clean. It is advisable to lubricate frequently in small quantities rather than contrariwise. Those parts of the machine which are exposed to increased friction or strain should be lubricated several times a day, as needed. Refill oil into the hook lubrication tank as required.

6. Clean the machine daily, in particular the parts which become choked by impurities from the sewn material. During the cleaning, carefully check whether no machine part has become loose.

7. Once a week, during thorough cleaning, carefully check the whole machine to see that no machine parts are damaged and that all machine mechanisms operate correctly. Any faults ascertained must be repaired immediately. Once a year, general overhaul should be carried out. The machine should be dismantled, thoroughly cleaned, individual pieces as well as the parts of the electrical equipment inspected, faulty or worn out pieces repaired or exchanged.

8. Adhere to the safety regulations. Never clean the machine or repair defects until the machine is at rest. Do not remove covers or other safety devices.

9. The electrical equipment of the machine should be kept in a good and faultless state, in accordance with the electrotechnical and safety regulations. If the machine is provided with a plug, make sure always before plugging-in that all switcheds are off. The lead-in cable, supplied as a part of the machine, has a cross section of 4 x 1 mm^2 and must be protected accordingly in each phase. Do not try to repair any fault of the electrical equipment by yourselves but call in an expert mechanician.

10. The forces required for actuating the treadles should lie between 40 and 90 N, those required for the hand control levers of the machine, between 10 and 60 N. The control mechanisms and their respective actuating forces have been designed and chosen in view of the frequency of their use during the usual technological machine operation.

11. We cannot assume any responsibility for the consequences resulting from the non-observance of these instructions.

B. PACKING, UNPACKING, CLEANING AND LUBRICATION OF MACHINE

1. **Packing of machine head**
The machine head is seated in a separate case, the stand either in crating or in another case (for severe climate conditions).

2. **Unpacking of machine**
When taking over the machine from the railway authorities or in the works ascertain whether it has arrived in good order. Report any damage which has occured during the transport to the railway authorities or to the forwarding agents immediately. Unpacking should be carried out carefully so as to prevent damage to machine parts. Further check the accessories of the machine against the order and report any discrepancy immediately, as we cannot consider belated claims.

3. **To set the machine on stand**
After the machine has been brought to its work site, set it on the rubber washers of the stand. When seated properly, a gap of approximately 1.5 mm will appear between the bed plate and the rim of the stand plate on the whole of its circumference. Check the lifting of the presser foot by means of the knee lever. Insert the connector of the synchronizer cable into the synchronizer socket on the motor and secure it by the coupling nut. Pass the cable with the connector from the thread trimmer device through the machine tank, insert it into the socket provided on the machine bed plate, and secure it as well by the coupling nut. As for the rest, the machine is supplied in a mounted and ready-to-work state.

4. **To set and fix the machine**
Fix the machine using the levelling foot of the stand fitted with adjusting screw. Otherwise, the machine is designed as a stable unit with the stand, requiring no fixing to the floor.

5. **To clean and lubricate the machine (Fig. 1)**
Before putting the unpacked machine into operation, remove the protective grease coating and clean the machine thoroughly. For lubrication of all machine mechanismus and of hook is recommended oil with viscosity of 50 $mm^2 .s^{-1}$ at 20°C. With an oil can, drip oil into the marked holes of the machine once a day, before the begining of the work shift. Check also the oil level at the indicator of the hook oil tank. From time to time, use grease nipple to refill with lubrication grease the shafts (15, 25; Table 16), the shaft (7, Table 18), and the shaft (3, Table 19). The hook and its mechanism should be cleaned dailly. Apply two or three drops of kerosene to all soiled parts of the hook and of its surrounding mechanism, let the machine run at high speed, then stop it, wipe off flushed-out dirt and oil the hook with its mechanism with oil. This cleaning should be carried out daily, in particular after the end of the work shift, in order to prevent dirt from drying on the hook and its mechanism. Before proceeding to clean the machine unthread it and take the bobbin out of the hook. Once a week the machine should be thoroughly freed of settled oil and of all impurities.

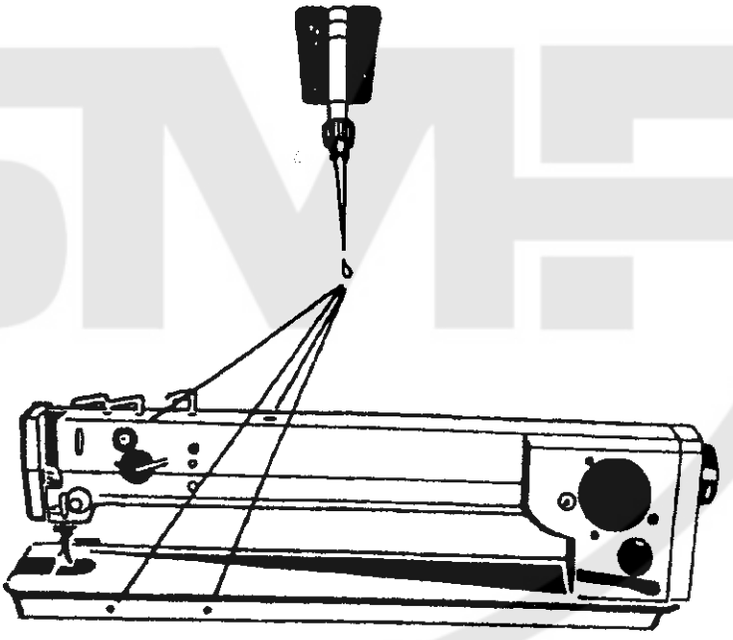


Fig. 1

To observe:
When driving belt is soiled do not use trichlor or perchlor for cleaning.

6. **To adjust hook lubrication (Fig. 2)**
To adjust the oil flow to the hook turn with a screwdriver the adjusting pin (1), situated on the right side wall of the oil tank under the bed plate, from zero to maximum (to the left, anticlockwise). Adjusted at zero, the regulation still provides for a minimum oil flow to the hook preventing it from seizing. After the

machine has been into service, check at regular intervals the oil level both in the hook oil tank and in the oil tank situated on the machine arm.

To observe:

At the beginning of the work after a relatively long interval, e.g., at the beginning of the morning shift, it is advisable to remove first the gathered superfluous oil from the hook, either letting the machine run idly for a short period or by producing a few stitches(about 20 cm) on a test material, to prevent the sewn work from getting soiled by oil.

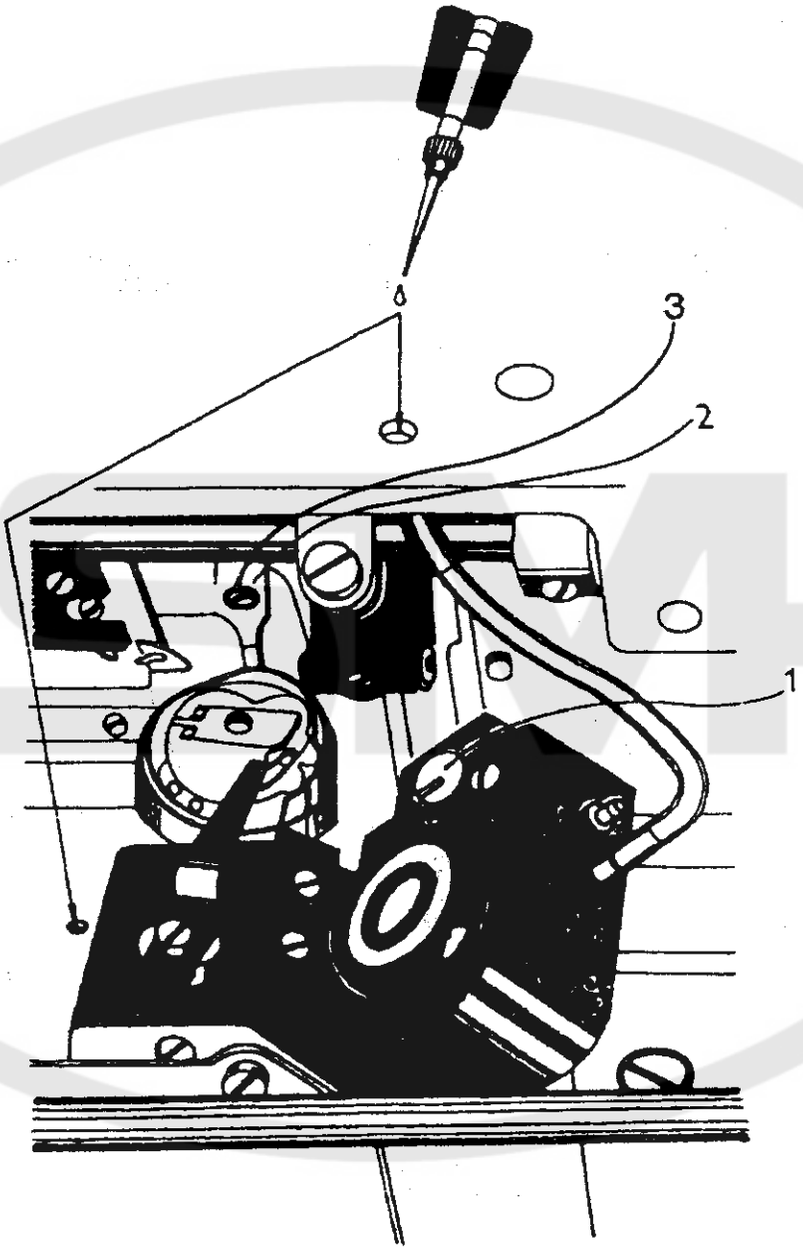


Fig. 2

C. PREPARING THE MACHINE FOR SEWING

1. **General inspection**
Inspect the machine thoroughly for loose parts as well as for the presence of foreign bodies. Rotating the handwheel by hand, first check whether it revolves freely and whether the machine is adjusted the correctly. Further check for correct working the mechanism controlling the lifting of the presser foot by means of the left-side treadle, knee lever and the reverse stitchnig by means of the hand lever.

2. **Sense of rotation**
The correct sense of rotation of the handwheel is shown by red dart on the belt cover.

3. **Electrical equipment**
An electrician connects the machine to the mains. Switch on the electric motor and check whether the pulley turns in the correct direction, i.e., according to the dart on the belt cover. If this is not the case, the plug of the lead-in cable must be taken out of the socket, and the cable must be switched over on the plug or on the terminal board of the electric motor. An incorrect sense of rotation of the pulley is inadmissible.

4. **To lift the presser foot (Fig. 3)**
The lifting and sinking of the presser foot is controlled by the knee lever. To lift the presser foot and to lock it in the lifted position, the hand lifting lever (12) situated at the rear side of the machine arm can also be used. To sink the presser foot onto the sewn work, first slightly depress the knee lever thus disengaging the locking of the lifted presser foot by tilting the hand lever, and then release the knee lever to let the presser foot sink onto the sewn work. Never start the machine if the presser foot has been sunk onto the throat plate directly, with no material interposed between them.

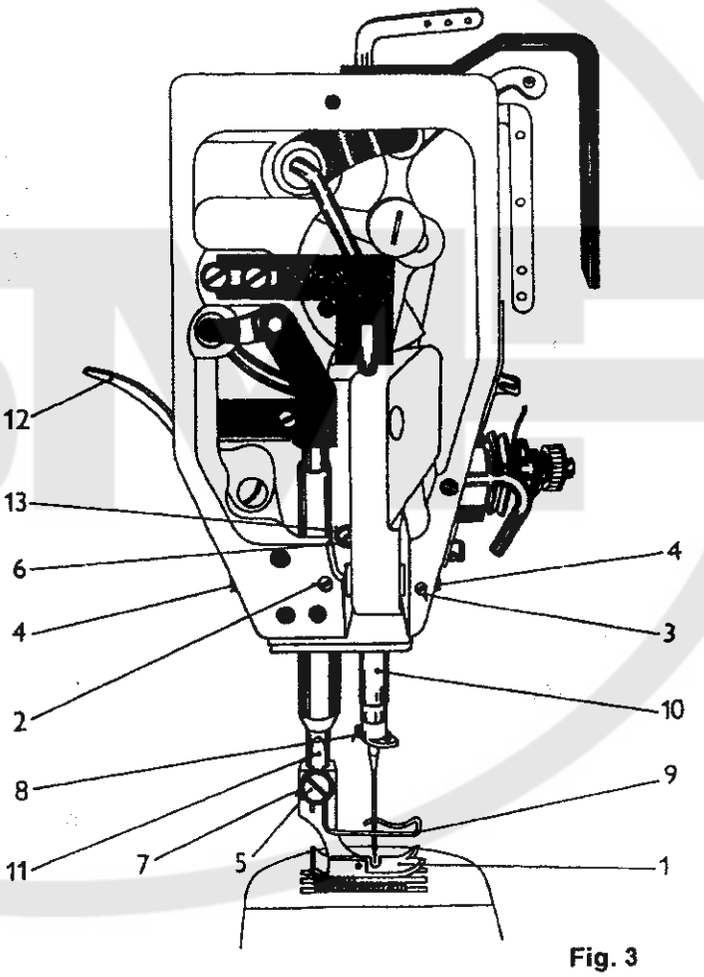


Fig. 3

5. **V-belt and its tension**
The V-belt can be easily tensioned by displacing the electric motor in the groove of its holder after loosening the two clamping screws. The correct belt tension ensures transmission of full power with losses reduced to minimum. To check the tension of the V-belt, depress it lightly in the middle part between the hand wheel and the pulley; if the belt tension is correct, the pressed-on part will yield some 20 mm sideways. Excessive tension of the V-belt reduces the machine output and increases both the power consumption and the wear of bearings. To mount the V-belt, proceed as follows:Screw out the three screws and remove the upper belt guard as well as the sheet preventing the belt from falling out screwed to the stand plate. Tilt the machine, take the V-belt out, put the new V-belt in, set it on the pulley of the electric motor, and prevent it from falling out by mounting the sheet. Then pass the V-belt between the tank and the stand plate and insert it into the handwheel groove. Lift the machine head to its working position, check the V-belt

for correct tension, and mount the upper belt guard back. Be sure to disconnect the machine from the mains before proceeding to carry out any adjustment on the machine.

6. **Needles and threads**
The machine requires the use of needles 134 of current sizes or needles Schmetz 797 CFCF Nos. 90 - 110. Considering the high machine performance and the resulting needle heating, it is advised to use chromium plated needles. The size of the needle depends on the size of the thread, since it must pass freely through the needle eye. It is advisable to choose a rather thin needle, just permitting the free passage of the thread through the needle eye but to some extent preventing the upper thread from being threaded out of the needle eye at the beginning of stitching after the previous thread trimming. A needle too thin with respect to the thickness of sewn work is subject to excessive strain (impacts at the needle punches into the work, upper thread tension, heat generated by friction between the needle and the sewn work etc.) and exposed to the risk of deviation from the correct needle course followed by irregular formation of the upper thread loops and resulting in skipped stitches. Only highclass thread should be used. Especially sutiable are conical cross-wound bobbins. S-twis thread should be used for the needle, while both S-twist and Z-twist thread is sutiable as lower thread. A coarse thread or one which has to overcome considerable resistance when passing through the needle eye reduces the machine performance and increases its trouble incidence. When use heavy synthetic threads it is important to try trimming function. If this one is not in order, please, do not use it.

7. **To insert needle (Fig. 3)**
For easier inserting the needle, sink the presser foot onto a bit of material and rotate the handwheel toward you until the needle bar has reached its top position, i.e., until the greatest possible distance between the needle bar and the throat plate has been reached. Loosen the screw (8) on the lower part of the needle bar and insert the needle up to the stop. Be sure that the long groove of the needle is directed toward the operator. Looking through the cross slot provided in the needle bar check whether the needle shaft has come up to the bottom of the needle channel, and fix the needle by tightening the screw. Each time you insert a new needle check whether it is straight and whether it passes through the centre of the needle aperture provided in the throat plate. Never use a needle chosen haphazardly but choose it with respect to the character of sewn work and to the thread size.

8. **To thread the upper thread (Fig. 4)**
Put the bobbin on the bobbin stand, unwind a sufficient portion of thread, and pass it through the thread guide of the bobbin stand, then through the thread guides (4 and 1) between the tensioner discs (8), then lead it through the adjusting spring (2) and the thread guides (3,6,9) into the thread take-up lever (A), then downwards through the thread guide (6) and the lower thread guide (7) to the thread guide (5) on the needle bar, and from there to the needle. Insert it into the needle eye from the front side, (i.e., from the operator) to the rear side.

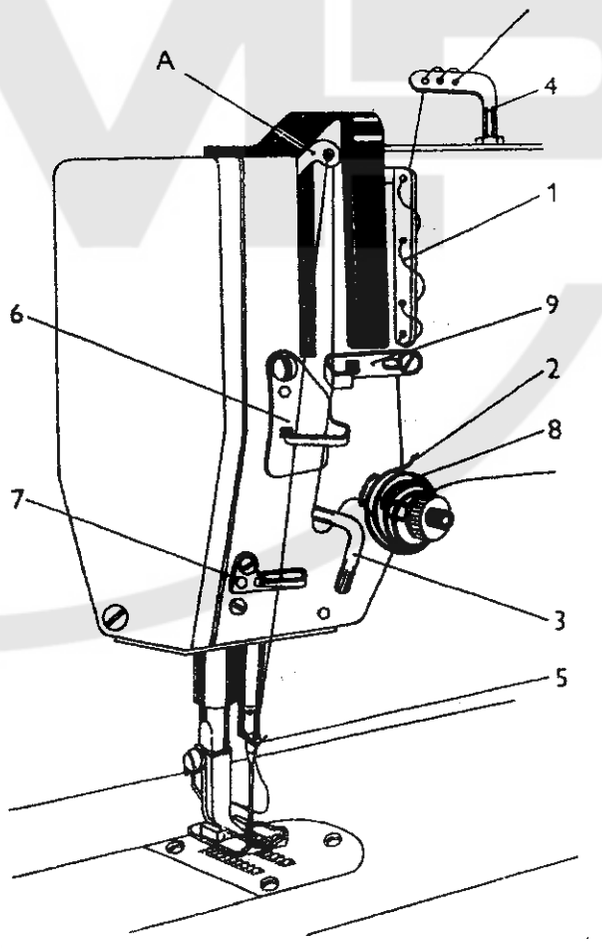


Fig. 4

9. **To wind the hook bobbin (Fig. 5)**
To wind the lower thread on the hook bobbin, a built-in bobbin winder, supplied sepa-

rately as Equipment No. 250, can be mounted on the front side of the machine arm. Lead the thread from the bobbin stand through the aperture provided on the arm of the bobbin stand, through the thread tensioner (6) and through the thread guide apertures to the bobbin mounted on the winder shaft, wind it a few times anticklockwise on the bobbin, lead the thread end to the spring (2), insert it between the spring coils, and apply a mild tension so as to cut it by the knife located inside the spring. When mounting the bobbin on the winder shaft be sure that the carrier spring has entered the notch of the bobbin front. By swinging the on-off-lever (5) between the bobbin fronts you render the bobbin winder operative. Switching on the electric motor and depressing the right-side treadle, you start the machine and the winder as well. During the winding, the thread is evenly distributed along the whole of the bobbin width. As soon as the bobbin is fully wound, the on-off-lever springs off, thus disconnecting the winder drive and braking the winder shaft. The winding is now completed. Using the knife located in the spring (2) cut off the thread end. For timing the winding stop loosen the screw (4) of the on-off-lever (5) mounted on the disconnecting pin (3), hold the disconnecting pin by means of a screwdriver in its position and adjust the angular position of the on-off-lever on the disconnecting pin as required.

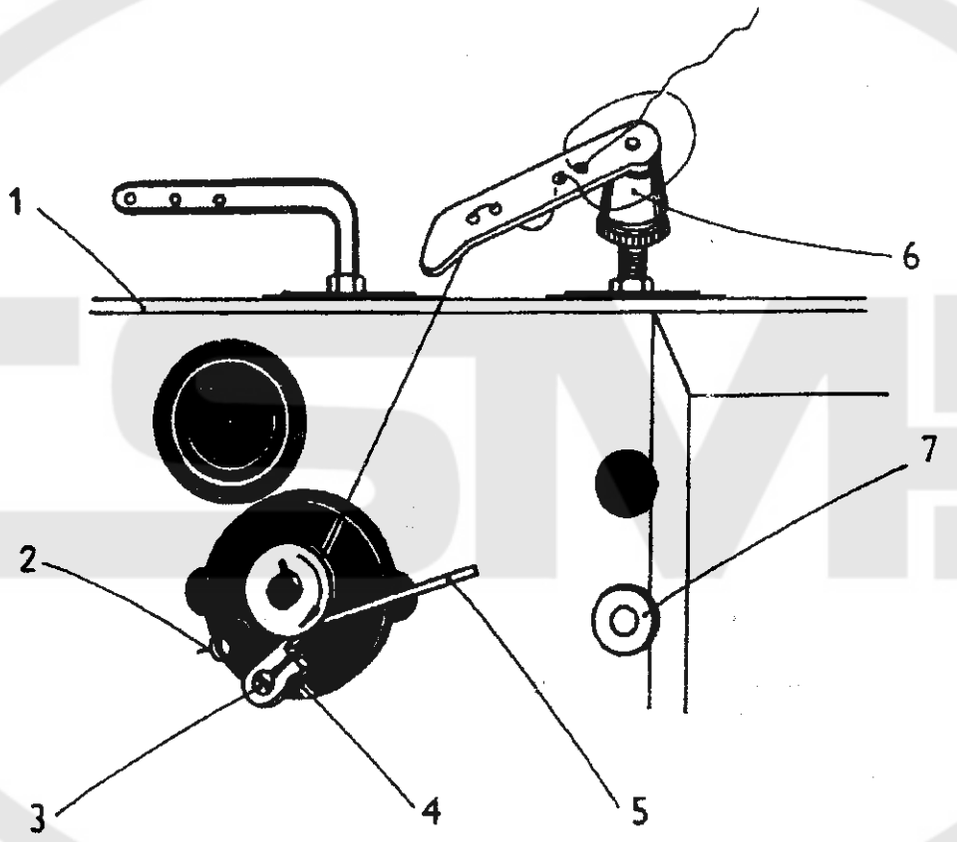


Fig. 5

10. To take out the hook bobbin

Rotate the handwheel until the thread take-up lever has reached its top position. With your left hand, open the lock of the bobbin case and take the bobbin case out. Release the lock and take the bobbin out of the bobbin case. As long as the bobbin case lock is open, the bobbin is held in the case. Loosen the lock, turn the bobbin case upside down, and the bobbin will fall out.

To observe:

When taking the bobbin case out of the hook, hold your feet away from the stand treadles in order to avoid an encidental start of the machine.

11. **To thread the lower thread**
Insert the fully wound bobbin into the bobbin case, and the thread end first into the notch of the bobbin case and then under the pressure spring of the bobbin case. Insert the bobbin case with the bobbin into the hook. To prevent the bobbin from falling out of the case, while being inserted into the hook, tilt the lock fixing the bobbin in the case. With your thumb, push the bobbin case in until you hear a distinct click sound. The correct position of the bobbin case in the hook signalled by this sound is very important, because otherwise a needle repture or another breakdown could occur at the following machine start.

12. **To catch the lower thread**
With your left hand, hold lightly the end of the upper thread without stretching it. With your right hand revolve the hand wheel towards you until the threaded needle reaches subsequently its bottom and top positions, thereby catching the lower thread. Draw then lightly the upper thread until the lower thread shows through the aperture of the throat plate, and lay the two thread ends in the direction behind the needle. While threaded, the machine may be started only after a bit of material has been inserted under the presser foot. If the trimmer device is switched off, the thread take-up lever should be placed in its top position both when starting and when finishing the sewing to avoid the risk of threading out the upper thread and possibly catching it in the hook course.

13. **Sewing - work proper**
Insert the material to be sewn under the presser foot, switch on the stop motor, and start the machine by gradually depressing the right-side treadle. The sewing speed increases up to the maximum obtained when the treadle has reached its lowest position. By releasing the treadle, the clutch of the stop motor is disengaged, the drive pulley braked, and the machine stopped in the lower dead position of the needle. During the sewing, avoid pulling the material but guide it only. By pulling the material, you bend the needle with the risk of breaking it in case of a collision with the edge of the needle aperture provided in the throat plate. Repeated collisions of this kind burr the needle aperture which, in its turn, causes thread ruptures. After the stitching operation is completed, wheel the right-side treadle to start the automatic thread trimming operation that will take place during the needle movement from its bottom to its top position. For removing the sewn work, lift the presser foot only after the machine stop in the needle top position to obtain correctly cut threads and the machine ready for next stitching. A premature presser foot lifting can result in thread trimming failure or in threading the needle eye.

II. INSTRUCTIONS FOR ADJUSTMENT OF MACHINE MECHANISMS

The adjustments described in this section can be carried out on the work site. Larger adjustments, requiring more time, should be carried out by a skilled machine mechanician.

1. **Stitch length adjustment (Fig. 6)**
The stitch length can be steplessly adjusted from 0 to 5 mm by turning the knob (2) provided on the vertical part of the machine arm. By turning it in the sense of the arrow "A" (i.e., to the right), you increase the stitch length, by turning it in the sense of the arrow "B" (i.e., to the left), you decrease it. For reverse stitching, displace the lever (1) downwards. When released, the lever automatically resumes its previous position and the machine restarts forward stitching.

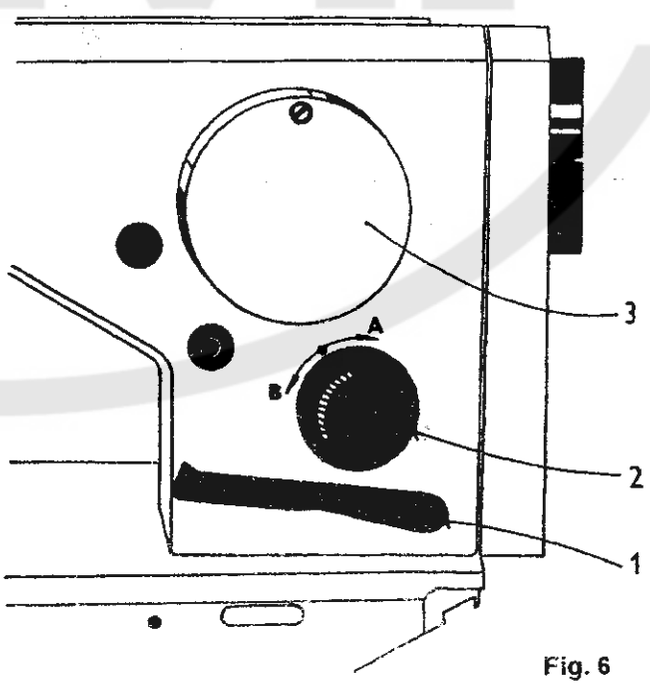


Fig. 6

2. **To adjust the zigzag stitch width (Fig. 6, 7)**
Before any adjustment of the zigzag stitch width, the machine must be stopped with the needle outside the sewn work. Consult the List of Equipments, mount the cam required for the chosen pattern, and adjust the pattern width within the range prescribed as admissible for the cam in question. The stitch width is steplessly adjustable. To adjust it, remove the cover (3, Fig. 6) on the lever (1, Fig. 7) controlling the movement of the needle bar holder, and loosen with a wrench the nut (2) on the bolt (3) on which is mounted the tie rod of the needle bar holder. By displacing the bolt in the notch of the lever downwards, the pattern width is narrowed, by displacing it upwards, it is increased. When increasing the stitch width the to its maximum check that the needle does not collide with the throat plate, and fix the chosen position by means of the bolt with the nut. Be sure that the adjusted pattern width lies within the limits specified for the pattern in question in the List of Equipments. With the two needle version, adjust the stitch width so as to let sufficient play for the needles passing through the groove provided in the throat plate.

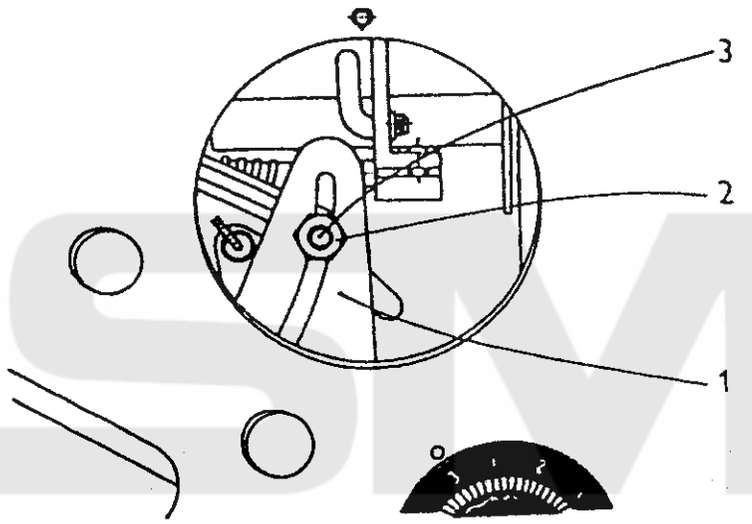


Fig. 7

3. **Thread tension adjustment**
The tension of the upper and the lower thread must be so interrelated that the stitch binding takes place in the middle layer of the sewn material. To adjust the upper thread tension, turn the tensioner nut either to the right, i.e., clockwise, to increase the tension, or inversely, to decrease it. To adjust the lower thread tension, use the screw located in the middle part of the pressure spring on the bobbin case. By turning the screw to the right you increase the pressure of the spring on the bobbin case (the thread passes between the spring and the bobbin case) and, consequently, the lower thread tension, and inversely. If the lower thread tension has been originally adjusted correctly, the adjustment of the upper thread tension by means of the tensioner nut will be sufficient, as a rule, to restore the desired quality of stitching.
To ensure correct thread trimming operation, special care should be paid to the above described thread tension adjustment. Also adjust the upper thread tension on the ancillary thread tensioner whose influence on the stitching proper and on the stitch formation is negligible but which affects the length of the upper thread end reaching out of the needle eye after the trimming operation. By increasing its tension you shorten the end and increase the quality of the subsequent stitching beginning, however, with increase risk of the thread end getting threaded out of the needle eye in that phase. On the other hand, too small tension of the ancillary tensioner means too long thread ends and impairs the stitch quality on the underside of sewn work at the beginning of the next stitching. Therefore, due care should be paid to the correct tension adjustment on the ancillary thread tensioner.

4. **To adjust the feed-dog height above the throat plate (Fig. 8)**
The height of the feed-dog(A) should be adjusted so that its teeth show up the throat plate (B) 0.8 to 1.2 mm, according to the kind of sewn material. To adjust it, loosen the screw (2) of the lifting lever (8) on the shaft (6), adjust the required height of the feed-dog teeth, and retighten the screw thoroughly with a screwdriver. To adjust the teeth horizontally, loosen the screw (1) of the feed lever (9) on the shaft (7) and adjust the rear part of the teeth by correspondingly adjusting the angular position of the eccentric pin (5), then retighten the screw (1) thoroughly.

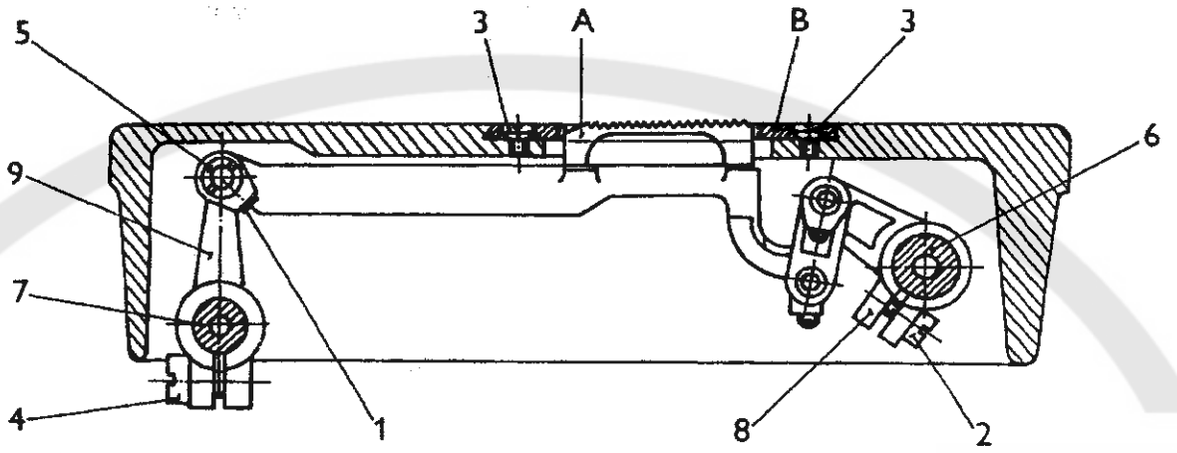


Fig. 8

5. **To adjust the movement of needle with respect to feed-dog**
Loosen the two screws of the lower belt wheel and turn the handwheel by hand so as to set the feed-dog to a position in which the feeding movement ends and the feed-dog teeth are at a level with the throat plate, then rotate the handwheel until the needle point, during the downward movement of the needle, comes to lie about 5 mm above the throat plate, and retighten the screws of the belt wheel.

6. **To adjust the throat plate (Fig. 8)**
The throat plate (B) must be properly seated and fixed by screws (3) in a position ensuring that the needle passes through the centre of the needle aperture. The needle aperture must not be burred or otherwise damaged since it would unfavourably affect the quality of stitching.

7. **To adjust the presser bar pressure**
The presser bar pressure is controlled by the adjusting screw located under the upper cover of the machine arm and accessible through a hole provided in the latter. By turning the adjusting screw to the right increase the pressure, by turning it to the left, decrease it. The pressure of the presser foot must be sufficient to ensure reliable and continuous feeding even at the top speed. On the correct adjustment of the presser bar depends the uniformity of damage-free feeding as well as that of the stitch length.

8. **To adjust in height the needle bar (Fig. 3)**
The hook must be so interrelated with the needle that at the moment when the hook point begins to take up the upper thread loop, the upper edge of the needle eye is approximately 1 mm under the hook point, at the maximum stitch width and in the right-side position of the needle bar. If the needle bar height is not adequate to this requirement, loosen the screws of the front plate, remove it, loosen the screw (6) of the needle bar (10) carrier (13), adjust the needle bar correctly, and mount the front plate.

9. **To adjust the hook course**
Adjust the stitch width to zero and turn the handwheel towards you until the needle bar reaches its bottom position and reascends by 2.1 + 0.3 mm. In this position, the hook point must lie in the needle axis, the distance between the needle and the hook being 0.1 mm or less. If it is not the case remove the throat plate, loosen the screws, adjust the angular position of the hook on the hook shaft, retighten the screws, and mount the throat plate.

10. **To adjust the hook holder (Fig. 2)**
After the hook course adjustment, loosen the fixing jig (3) and adjust the hook holder (2) so as to obtain a gap of approximately 0.7 mm between the holder plug and the bottom of the groove of the inner part of the hook.

11. **To adjust the elliptical path of the feed-dog movement (Fig. 8)**
If the machine is adjusted correctly the feed-dog describes an elliptical path both with forward and with reverse stitching. The adjustable eccentric is positioned by means of a pin in the aperture of the lower shaft and commands the length of feeding. Another eccentric, stationary and situated in front of the adjustable one, commands the correct interrelation between the major and the minor axe of the ellipse. The stationary eccentric is secured by two screws located in its collar. The eccentricity of the stationary eccentric is constant so that the height of the ellipse remains the same regardless of the height adjustment of the feed-dog teeth. The adjustment is to be carried out as follows: When the eccentricity of the adjustable eccentric equals zero (so that no feeding takes place) adjust the feed-dog holder with the feed-dog to the centre of the slot provided in the throat plate, having first loosened the screws (4) of the lever (9) on the feed shaft (7). Ensure that the feed-dog reaches its top height about the middle of the feed-dog movement.

12. **To adjust the length of feeding**
Loosen the screw of the lever on the pin of the reverse stitching hand lever, set the stitch length regulation knob to its zero position, adjust the traversable sleeve of the adjustable eccentric to a position corresponding to zero eccentricity, retighten the screw of the lever, and check whether the feeding is equally long for both forward and reverse stitching.

13. **To adjust the hook opening (Fig. 9)**
During the machine run, the gap between the sides of the groove provided in the inner part of the hook and the hook holder (7) is positively periodically opened by means of the opening lever (8) and eccentric (6) for easier lower thread movement out of the hook. The eccentric is situated in the hook box at the end of the lower shaft. Adjust first the gap between the lug of the hook holder and the recess provided in the inner part of the hook, and simultaneously the opening lever, i.e., the axial play between the lug of the opening lever (8) with

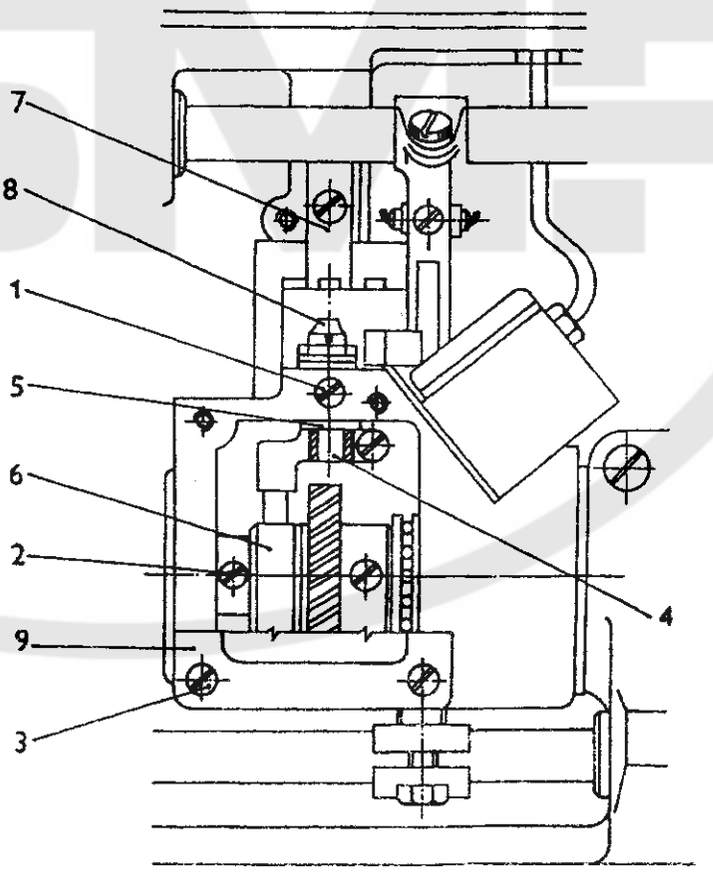


Fig. 9

respect to the face of the inner part of the hook. Loosen the screw (1) fixing the position of the bobbin case (5) contacted by the pin (4) with the opening lever, and adjust a gap of 0.8, between the lug of the opening lever and the lower surface of the inner part of the hook by tapping lightly on the opening lever. At the same time, set the opening lever so as to produce a gap of 0.5 mm, required to let the thread pass, between the recess of the inner part and the hook holder required to let the thread pass. Having adjusted the opening lever, retighten the screw (1). Before proceeding to carry out the adjustment, remove the throat plate. The timing of the opening lever with respect to the hook is best carried out while sewing off the machine. First screw out the four screws (3) on the cover (9) of the hook box, remove the cover, take out the lubrication inlay, loosen the two screws (2) of the eccentric (6) and set its angular position on the lower shaft so as to time the opening of the inner part of the hook to begin prior to the moment the upper thread begins to pass across the recess of the inner part of the hook and the lug of the hook holder. Check also the correct passage of the upper thread around the hook bottom, when the opening lever approaches the opening lug to open the passage around the inner part of the hook for the upper thread. The correct adjustment is best checked on the adjusting spring that must only slightly move while the thread passes freely. After the adjustment of the eccentric, retighten its screws, insert the lubrication inlay, and mount the cover of the hook box.

14. To exchange the presser foot (Fig. 3)

To exchange the presser foot (1), first raise the presser bar (11) to its top position and lock it by the hand lever (12). Lift also the needle to its top position, then loosen the attachment screw (5) of the presser foot together with the washer (7), and remove first the finger guard (9) and then the presser foot from the presser bar. To insert the presser foot, proceed inversely. Having fixed a new presser foot check, in its top position, whether the needle bar, during its movement, does not collide with the presser foot.

15. To dismantle and mount the drive belt (Fig. 10)

Screw out the three screws (4), remove the belt guard from the machine arm, tilt the machine head onto the supporting pin located on the bed plate, take the V-belt out of the handwheel groove, loosen the two screws (2), and remove the handwheel (A) out of the machine arm and from the upper shaft (5). Pass the drive belt (7) through the aperture thus created in the machine arm, set it on the two belt wheels, and mount the complete handwheel on the upper shaft in such a position that the first screw (2) - considered in the sense of rotation of the handwheel - comes to sit on the small flat surface of the upper shaft when tightened. Retighten the two screws (2) of the handwheel, set the V-belt on the handwheel, tilt the machine head back to its working position, and mount the belt guard back.

To observe:

Be sure to adjust the hook course and the feeding after each mounting or exchange of the drive belt as instructed in the preceding paragraphs. Before the drive belt exchange the needle should be taken out of the needle bar.

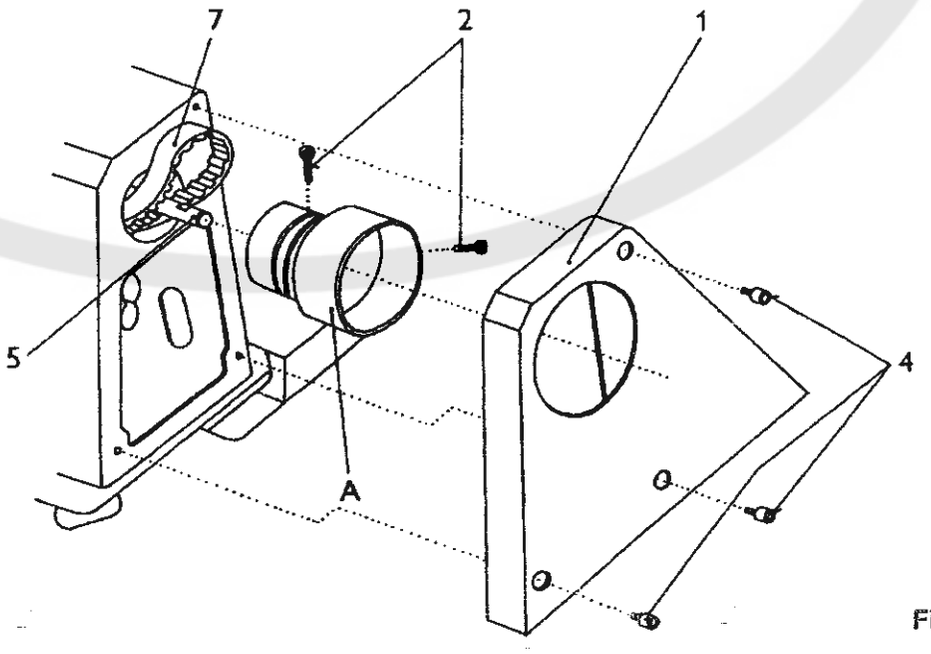


Fig. 10

16. **To adjust the needle punches into the centre of the slot of the throat plate in longitudinal direction (Fig. 3)**
The adjustment is to be carried out with the adjusting cam mounted. Turn the handwheel until the needle bar with the needle reaches its bottom position. The needle should be in the centre of the throat plate slot both longitudinally and transversely. in case of longitudinal deviation (i.e., in the feed direction of sewn work) screw out the two screws of the front plate, remove the latter, loosen the securing screws (2 and 3), and finely adjust the angular position of the screws (4) both on the front and on the rear side of the machine so as to set the needle longitudinally into the centre of the throat plate slot, without impeding the run of the needle bar holder. Retighten the screws (2 and 3) and mount the front plate.
To observe:
When adjusting the position of the needle with respect to the throat plate, do not tighten the adjustment screws (4) completely but leave a minimum play between them and the needle bar holder in order to let proceed unimpeded the transverse movement of the needle bar holder required for the zigzag stitch.

17. **To adjust the lever and the roller of the zigzag stitch mechanism (Fig. 7; Tab. 16)**
The adjustment is to be carried out with the adjusting cam mounted. Remove the cover (12, tab. 16) of the zigzag stitch mechanism and turn the handwheel until the needle bar with the needle reaches its bottom position. Loosen the nut (2, Fig. 7) on the screw (3) on which is mounted the tie rod of the needle bar holder, displace the screw (3) in the slot of the lever between the two end positions and check whether the needle moves in the throat plate groove. In positive case, remove the plug (26, tab. 16) on the rear side of the machine arm, loosen the screw (6) on the lever (5), and adjust with a screwdriver the complete roller by its repeated turning and by displacing the screw (3, Fig. 7) until you find the position in which no displacement of the needle in the groove of the throat plate takes place, then retighten the screw (6, tab. 16), and mount the cover (12).

18. **To adjust the needle punches into the centre of the slot of the throat plate in transverse direction (Tab. 1, 2, 5)**
The adjustment is to be carried out with the adjusting cam mounted. Turn the handwheel until the needle bar with the needle reaches its bottom position. In case of transverse deviation from the central needle position, remove first the circular cover (26, tab. 1) situated on the front side of the machine arm and the upper cover (1, tab. 2). Loosen the nut (1, tab. 5) and rolling of the pin (6) adjust the needle bar holder so as to let the needle pass through the centre of the needle aperture of the throat plate, then retighten the nut carefully, and mount the covers.

19. **To adjust the tooth play of the zigzag stitch transmission mechanism (Tab. 2, 8)**
The tooth play of the zigzag stitch transmission mechanism is controlled by the conical worm (20) tab. 8. To adjust the play, first screw out the six attachment screws (2, tab. 2), remove the upper cover (1), and loosen the screws (14, tab. 8) on the set ring (19) and the four screws (15) on the worm. The mechanism is now ready for adjustment. By displacing the conical worm (20) nearer to the thread take-up lever mechanism, you increase the tooth play, by displacing it to the handwheel you reduce it. The play of the worm transmission mechanism should by adjusted to as low a value as possible on the whole circumference of the worm wheel. The play can well be checked on the cam circumference. Fix the worm position with screws (15), displace the set ring (19) into contact with the worm, and fix it with screws (14).

20. **To adjust the transverse movement of the needle bar holder (Tab. 2, 8)**
The transverse movement of the needle bar holder must take place only at intervals when the needle is outside the sewn material. To meet the requirement, coordinate the movement of the needle bar holder produced by the cam and the worm. Any pattern cam mounted can be used for this adjustment.
Remove the upper cover (1, tab. 2) and loosen the screws (15, tab. 8), of the worm wheel (20). The set ring (19) defines the axial position of the worm and by means of this also the tooth play. Turn the worm on the upper shaft until you find its correct position in which the transverse movement of the needle bar holder takes place only when the needle is outside sewn material. Retighten the screws of the worm and mount the upper cover.

21. **To adjust the needle bar position with respect to the hook shaft (Tab. 10)**
After a rather extensive machine repair is recommended to check the mutual position of the needle bar in its central position with respect to the hook shaft. The hook shaft axis is displaced to the left of the needle bar axis. For adjustment, loosen the two screws (20) joining the gear box of the hook (17) to the bed plate. in its correct position, the gear box of the hook is in direct contact with the lug of the bed plate. Fix the gear box position by retightening the two screws (20).

22. **To adjust the operation of the adjusting spring (Tab. 14)**
Loosen the screw (29) and take the complete upper thread tensioner (36) out of the machine arm. To adjust the tension of the adjusting spring (21), loosen the screw (19) on the bushing (20) and adjust the angular position of the pin (22) with a screwdriver. Turn the pin to the left to reduce the spring tension, and inversely. Adjust in the same manner the value of the spring arm stroke. Sew a few stitches and check the adjustment of the adjusting spring. Slide away the right-side slide plate and check the thread passing around the hook. With correct adjustment, the thread passing around the hook bottom shall produce a slight movement of the adjusting spring without being tensioned.

III. MAINTENANCE

1. **Machine cleaning**
Plain machine lines help to keep clean outer machine parts. From time to time, it is necessary to remove the waste between the feed-dog and the throat plate. Otherwise, the machine should be cleaned daily.

2. **General overhaul and repair of machine**
Should be carried out once a year. The machine should be set out of operation, cleaned, dismantled, faulty pieces exchanged and due repairs carried out. The machine should be then assembled and tested. The electric motor and the electrical equipment should be inspected and tested. The general overhaul of the machine should be carried out so thoroughly as to enable the machine to run without major defects for another year.

3. **To store the machine**
After the machine has been set out of operation, it should be cleaned, inspected, and faulty pieces exchanged, if any. Then, the machine should be tested, coated with protective grease, and stored with all the tools and accessories.

IV. FAULTS AND HOW TO REMOVE THEM

Fault	Cause	Remedy
1. General faults		
a) Heavy machine run.	The machine has been out of use for considerable time: dried oil and impurities deposited in the bearings.	Inject some drops of kerosene into all lubrication holes and on sliding surfaces and let the machine run rapidly so as to clean the lubrication holes in the bearings. Then clean the machine carefully with sewing machine oil (see par. 5, page 5).
b) Slow machine start.	Insufficient tension of belt connecting machine to electric motor.	Increase the belt tension by tilting the electric motor.
c) Upper thread breakage.	1. Slashed thread guides. 2. Too sharp hook point. 3. Faulty feeding. 4. Faulty guiding or threading of upper thread. 5. Incorrect upper thread tension. 6. Bad needle quality or bent needle. 7. The thread size is inadequate to the thickness of sewn material. 8. Machine considerably soiled. 9. Thread wound on the hook. 10. The thread is too thin or not strong enough.	1. Ascertain and exchange them. 2. Repair it. 3. Adjust it (see par. 5, page 12). 4. Thread the upper thread correctly (see par. 8, page 8). 5. Adjust it (see par. 3, page 11). 6. Exchange the needle (see par. 7, page 8). 7. Use adequate thread. 8. Unscrew the throat plate, clean the mechanism, and set the throat (see par. 6, page 12). 9. Remove the thread. 10. Use adequate thread.
d) Lower thread breakage.	1. The thread is incorrectly threaded into the bobbin case. 2. The thread is too thin or not strong enough. 3. The thread is wound incorrectly on the bobbin. 4. Damaged bobbin. 5. Too sharp pressure spring on the bobbin case.	1. Thread it correctly (see par. 11, page 10). 2. Use adequate thread. 3. Wind it on the bobbin correctly. 4. Exchange it. 5. Exchange the spring.
e) Skipped stitches.	1. Needle inserted incorrectly. 2. Blunt or bent needle. 3. Slashed or broken hook point.	1. Insert it correctly (see par. 7, page 8). 2. Exchange it (see par. 7, page 8). 3. Exchange the hook.

Fault	Cause	Remedy
	4. Excessive needle aperture in the throat plate.	4. Exchange the throat plate and set it correctly (see par. 6, page 12).
	5. Broken adjusting spring for upper thread tension.	5. Exchange the spring and adjust the upper thread tension (see par. 3, page 11).
	6. Needle bar positioned too high or too low.	6. Adjust it (see par. 8, page 12).
	7. Overturned hook, incorrect hook course.	7. Adjust the hook course (see par. 9, page 13).
	8. Soiled hook mechanism.	8. Clean it with kerosene and oil it with recommended oil.
f) Needle breakage.	1. Feed-dog positioned too high.	1. Adjust it in height (see par. 4, page 12).
	2. Faulty attendance - pulling the material.	2. Let the material pass freely.
	3. Needle too thin with respect to material.	3. Exchange the needle (see par. 7, page 8).
	4. Needle inserted incorrectly.	4. Insert it correctly (see par. 7, page 8).
	5. Loosened throat plate.	5. Set the throat plate correctly (see par. 6, page 12) and fix it by screws.
	6. Excessive upper thread tension.	6. Adjust it (see par. 3. page 11).
g) Heavy and irregular feeding.	1. Feed-dog positioned too low.	1. Adjust it in height (see par. 4, page 12).
	2. Worn-out feed-dog.	2. Exchange it.
	3. Clogged or blunt teeth of feed-dog.	3. Clean or exchange the feed-dog.
	4. Insufficient pressure of presser foot.	4. Increase the pressure (see par. 7, page 12).
h) Stitch forming below sewn material.	1. Tensioner discs slashed by upper thread.	1. Exchange them and adjust the upper thread tension (see par. 3, page 11).
	2. Thread fails to pass smoothly around the hook or catches the bobbin case.	2. Clean the hook and adjust the bobbin case.
	3. Upper thread is not threaded between the tensioner discs.	3. Thread it correctly (see par. 8, page 8).
	4. Thread broken and caught between the tensioner discs.	4. Clean the thread tensioner and adjust it (see par. 3, page 11).
	5. Incorrect proportion between the upper and lower thread tensions.	5. Correct the proportion (see par. 3, page 11) and check it from time to time.

Fault	Cause	Remedy
i) Stitch forming above.	1. Damaged spring on the bobbin case, lower thread is braked insufficiently.	1. Exchange the spring.
	2. Lower thread is not threaded under the spring of the bobbin case.	2. Thread it correctly (see par. 11, page 10).
	3. Lower thread broken and caught under the spring of the bobbin case.	3. Remove the thread.
	4. Incorrect proportion between the upper and lower thread tensions.	4. Correct the proportion (see par. 3, page 11).
	5. Premature feeding.	5. Adjust (par. 5, page 12).
j) Locked hook.	Thread rests caught in the hook.	Rotate the hand wheel in each direction regardless of the considerable resistance until the caught thread rests are cut to pieces. Remove them and start the unthreaded machine. Let in run for a period, then drip two or three drops of oil remmended in par. 5, page 5 onto the hook.

V. HOW TO USE THE CATALOGUE AND ORDER SPARE PARTS

Please, study carefully the following information.
The catalogue is devided into two sections:

1. The basic section, comprising the technical specifications and instructions for servicing with due illustrations.
2. The Table section, comprising drawing of machine parts with single-or two-digit reference Nos., as well as Tables of accessories and equipments. Each pos. No. in the Table has related there to a twelve-digit number of the respective produced or purchased part in List of parts at the side of the Table.

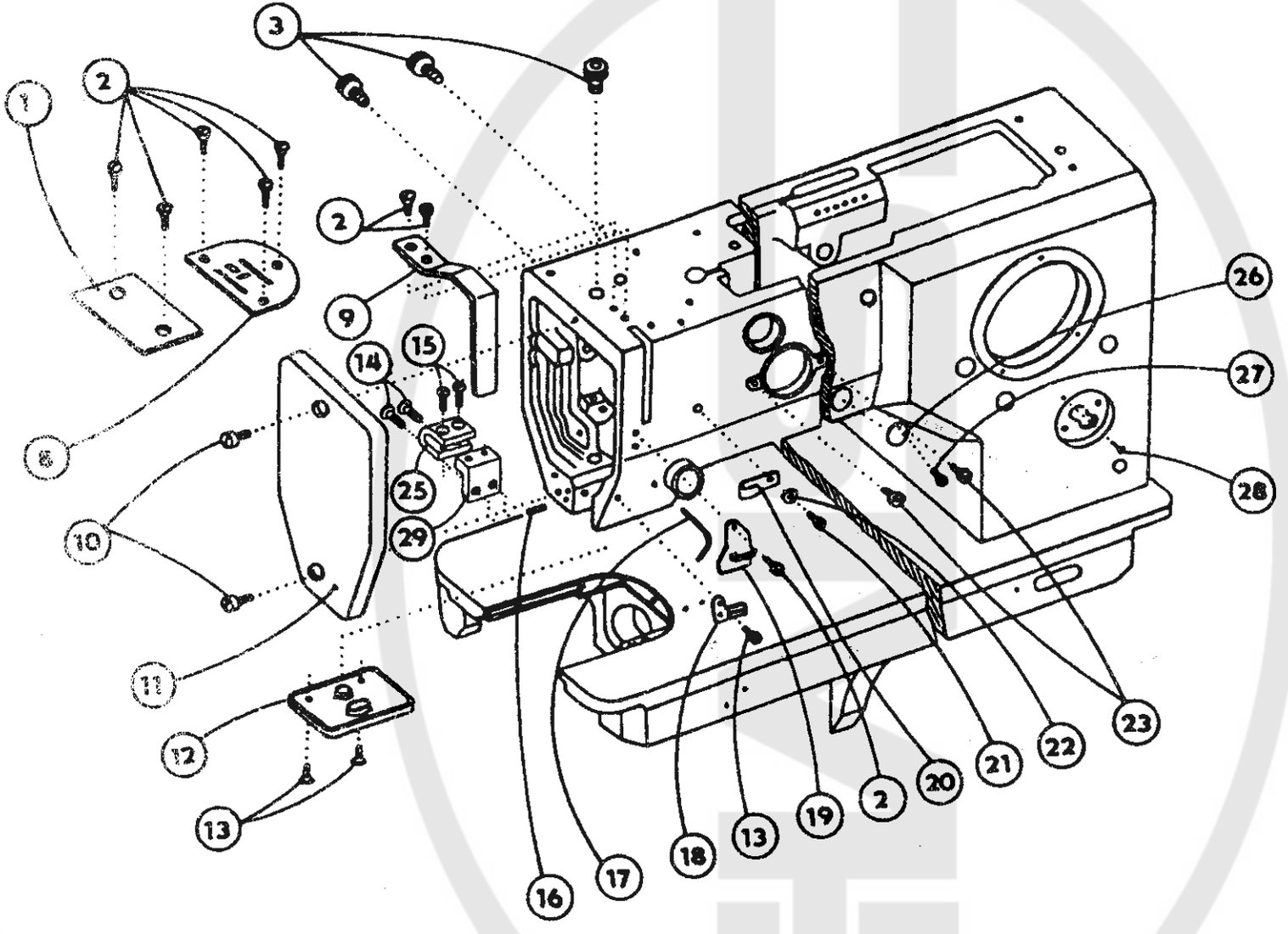
Please, specify in each order for parts:

1. Machine type and its Serial No.
2. The twelve-digit number of the part
3. The number of the parts ordered

Example of an order: **ZZ 567 - 75, Serial No. 215**

324 165 038 387 - 2 pcs
522 080 611 099 - 1 pc

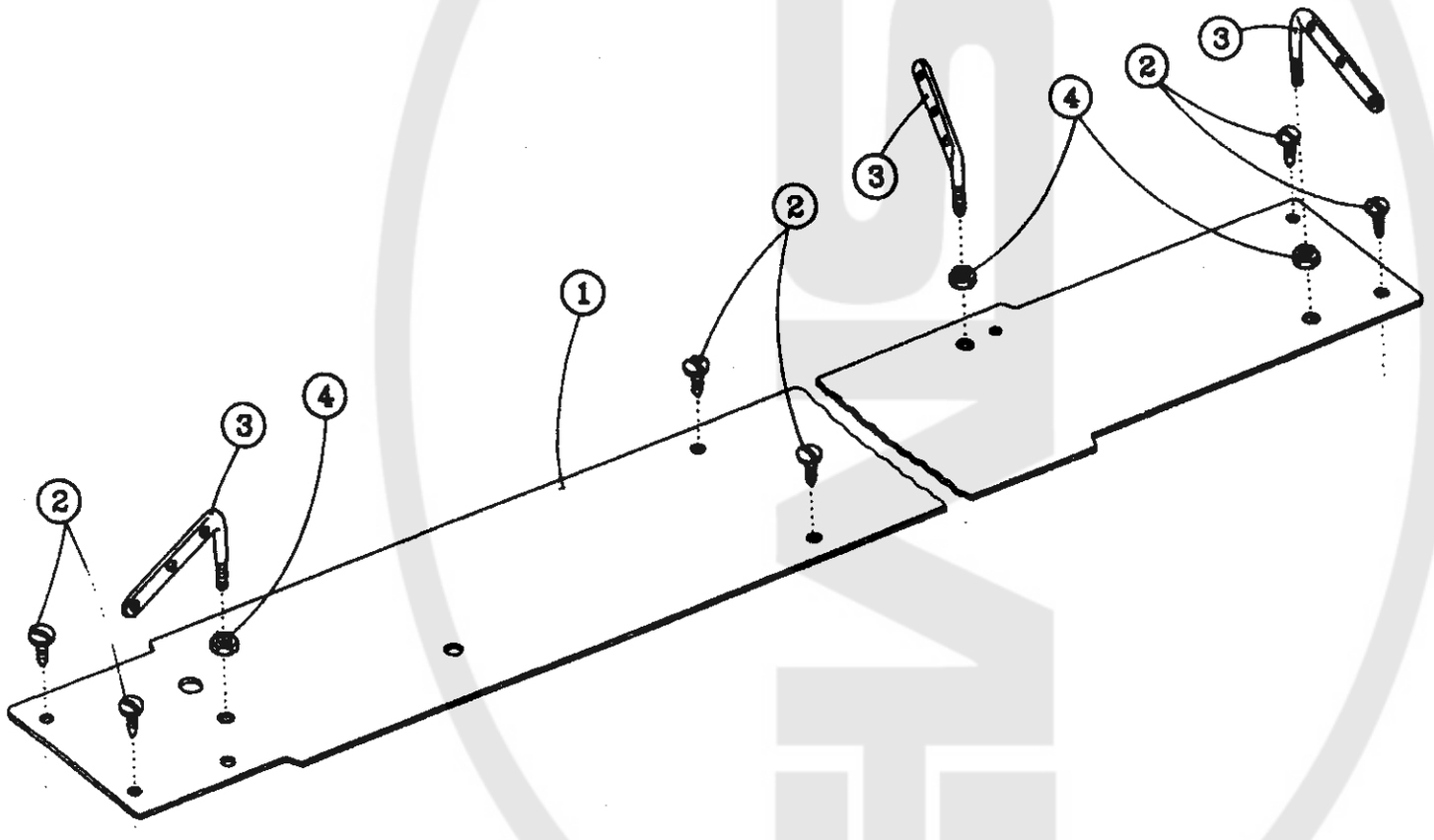
tab. 1



ZZ 567 - 75

1	522 080	647 229
2	522 080	120 117
3	321 161	001 000
8	522 080	811 637
9	522 080	831 348
10	522 080	120 248
11	522 080	721 173
12	522 080	827 160
13	522 080	123 132
14	522 080	126 090
15	522 080	126 035
16	522 080	111 227
17	522 080	271 184
18	522 080	821 116
19	522 080	821 077
20	522 080	821 113
21	522 080	120 361
22	522 080	190 363
23	522 080	132 112
25	522 080	827 068
26	522 080	831 494
27	523 081	114 007
28	522 080	220 011
29	522 080	824 030

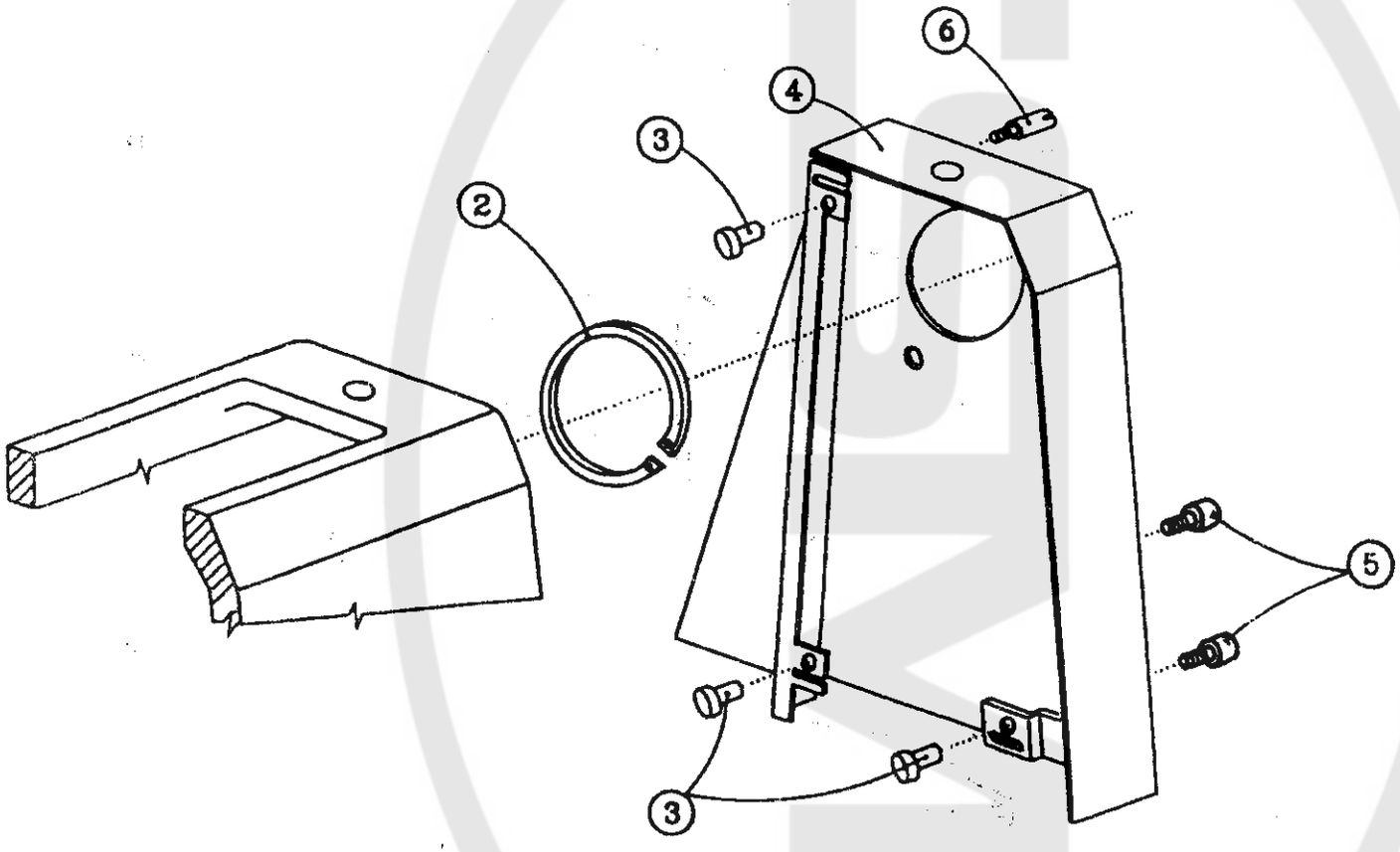
tab. 2



ZZ 567 - 75

1	522 080	815 271
2	522 080	124 070
3	522 080	313 204
4	522 080	161 138

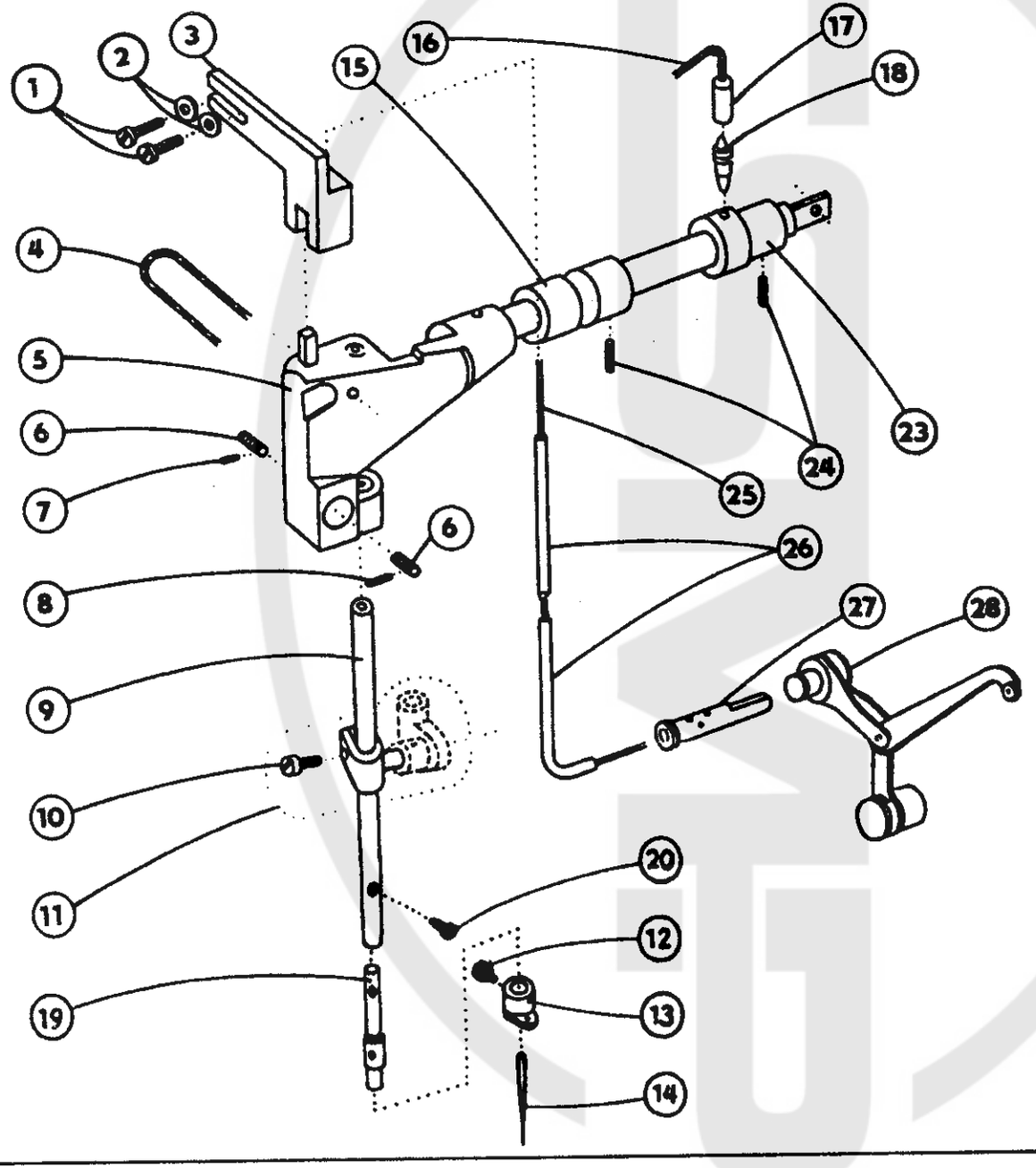
tab. 3



ZZ 567 - 75

2	311 733	100 620
3	273 199	005 000
4	522 980	041 162
5	522 080	120 346
6	522 080	156 049

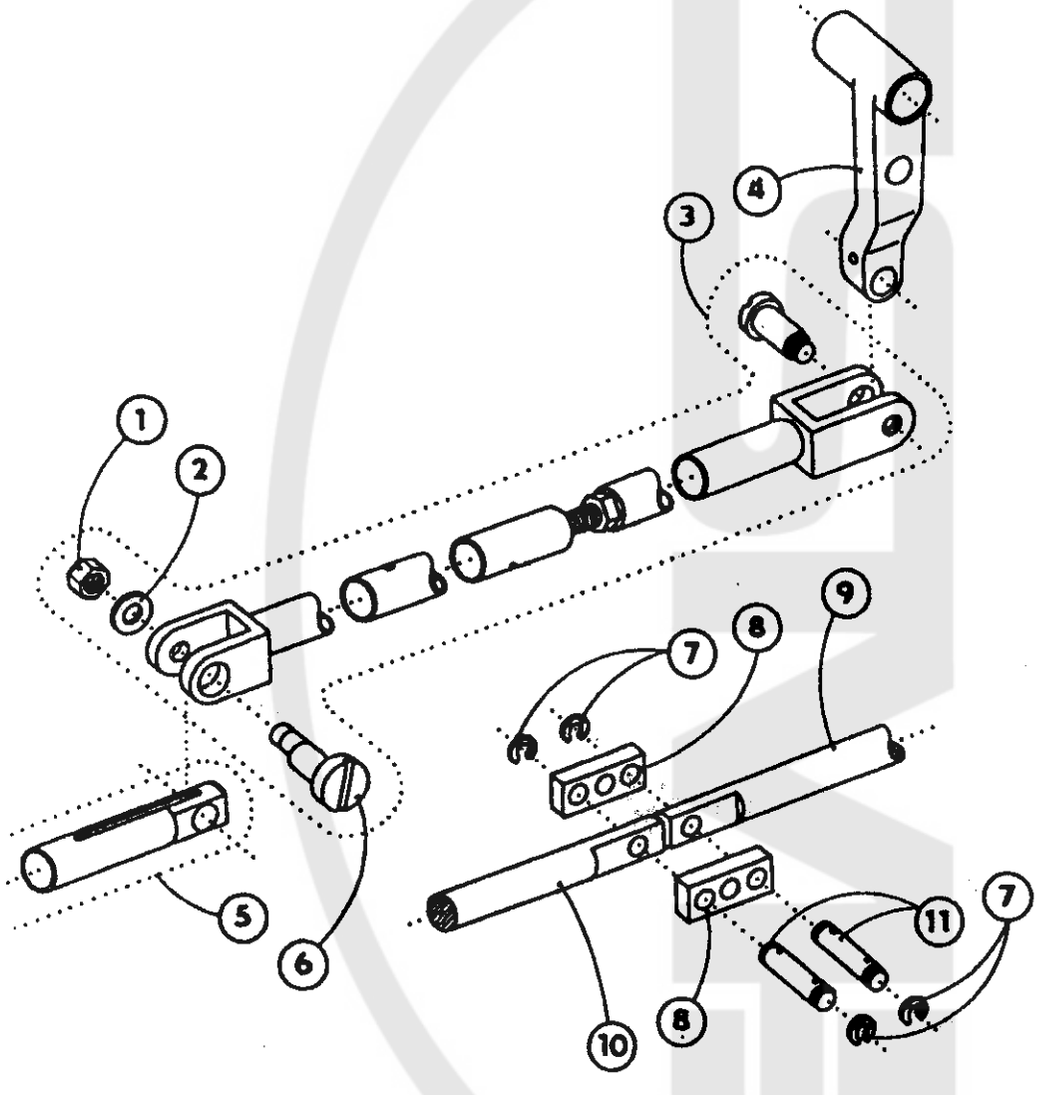
tab. 4



ZZ 567 - 75

1	522 080	120 278
2	522 080	190 353
3	522 080	646 104
4	708 420	030 002
	l = 80 mm	
5	522 980	021 338
6	522 080	113 115
7	522 080	111 229
8	522 080	111 248
9	522 080	391 155
10	522 080	124 050
11	522 980	035 499
12	522 080	135 029
13	522 080	627 170
14	548 300	000 140
15	522 080	413 311
16	708 420	030 002
	l = 250 mm	
17	283 366	002 000
	o 3,5/4,8 x 190	
18	522 080	424 051
19	522 080	394 167
20	522 080	136 082
23	522 080	421 341
24	522 080	111 222
25	708 420	030 003
	l = 300 mm	
26	283 366	003 000
	l = 147 mm	
27	522 080	328 005
28	522 980	044 830

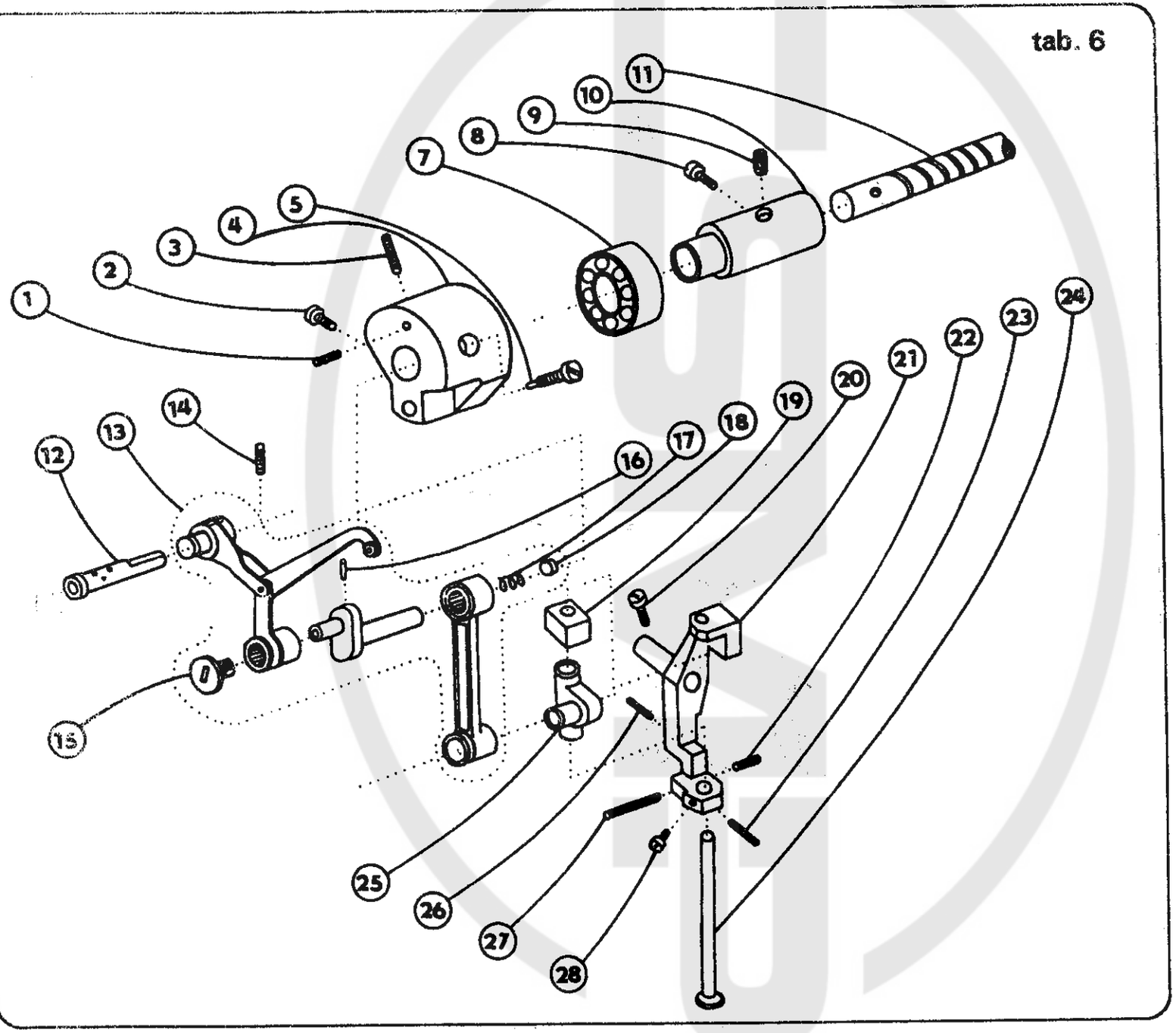
tab. 5



ZZ 567 - 75

1	522 080	161 325
2	522 080	190 502
3	522 980	060 158
4	522 080	613 519
5	522 980	021 338
6	522 080	131 462
7	522 080	274 083
8	522 080	612 109
9	522 080	349 202
10	522 080	349 203
11	522 080	318 144

tab. 6



ZZ 567 - 75

1	522080	111238
2	522080	122008
3	522080	112015
4	522080	611101
5	522080	138 009
7	324165	038356
8	522080	120006
9	522080	953139
10	522080	421321
11	522080	349197
12	522080	328005
13	522980	044830
14	522080	112014
15	522080	120062
16	311515	002006
17	522080	260458
18	522080	951281
19	522080	953159
20	522080	120220
21	522980	049782
22	522080	111214
23	522080	111295
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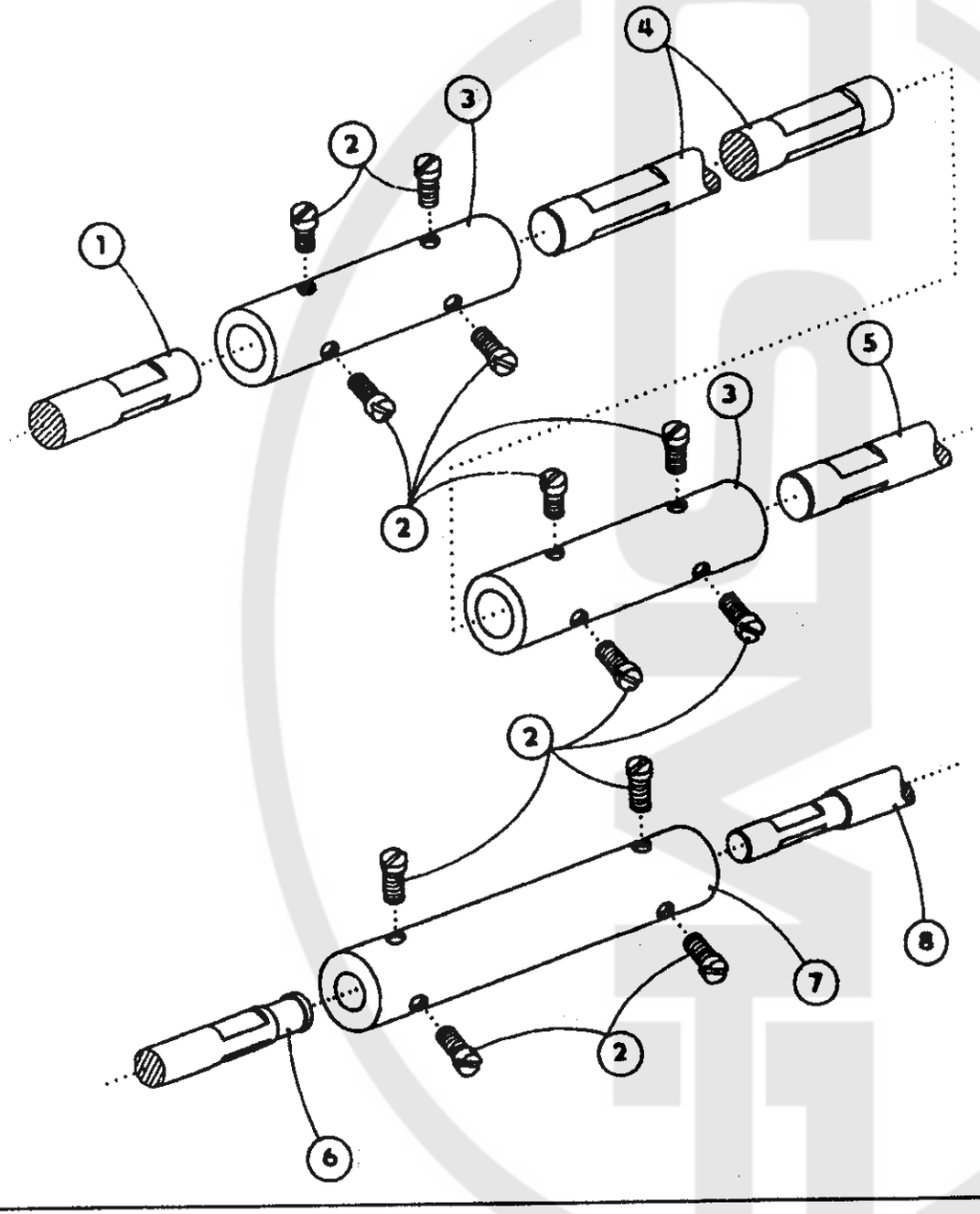
26	522080	111273
27	522080	111126
28	522080	120216

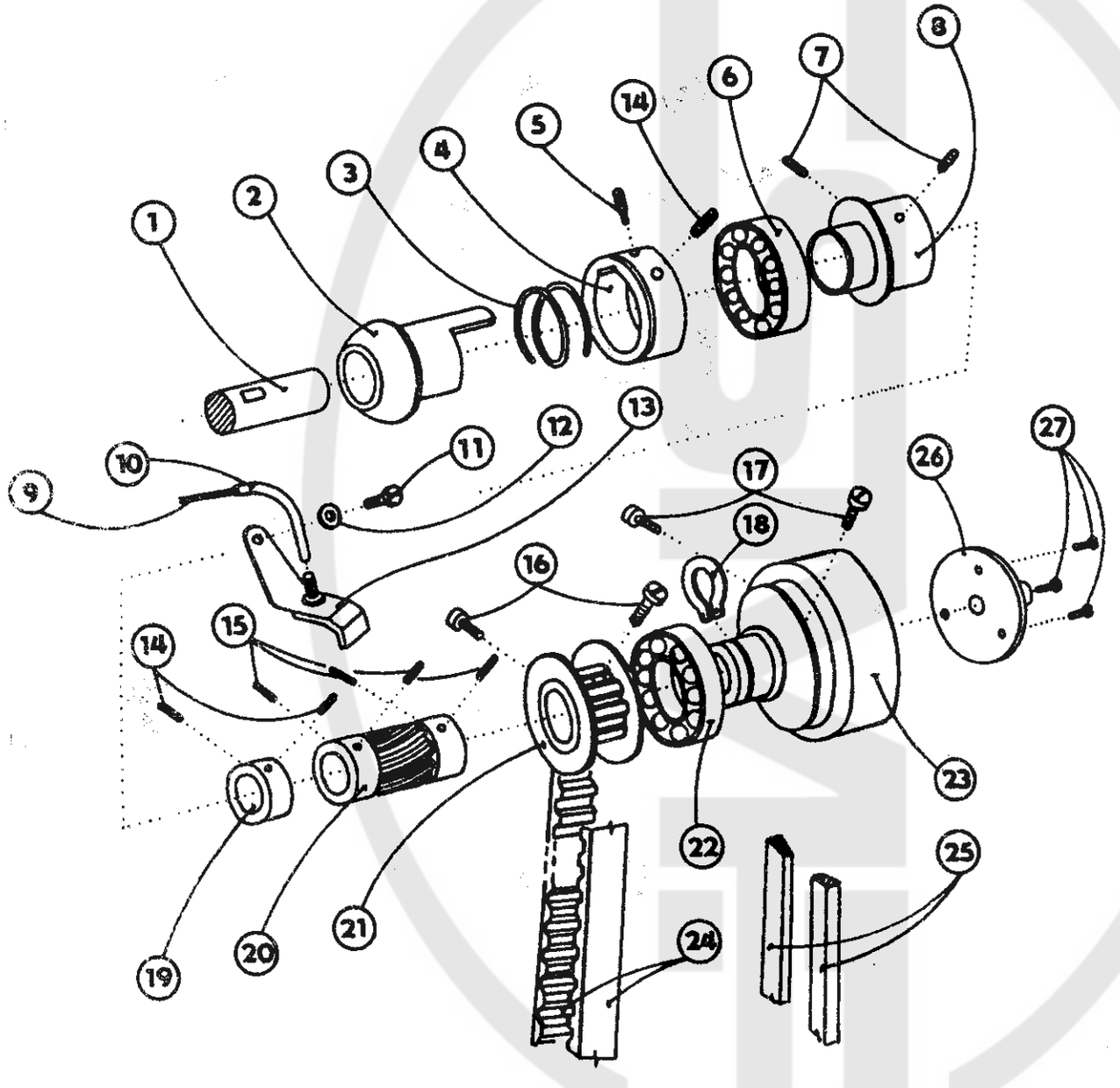
tab. 7



ZZ 567 - 75

1	522 080	340 197
2	522 080	122 029
3	522 080	413 375
4	522 080	340 198
5	522 080	340 199
6	522 080	342 325
7	522 080	412 218
8	522 080	342 326

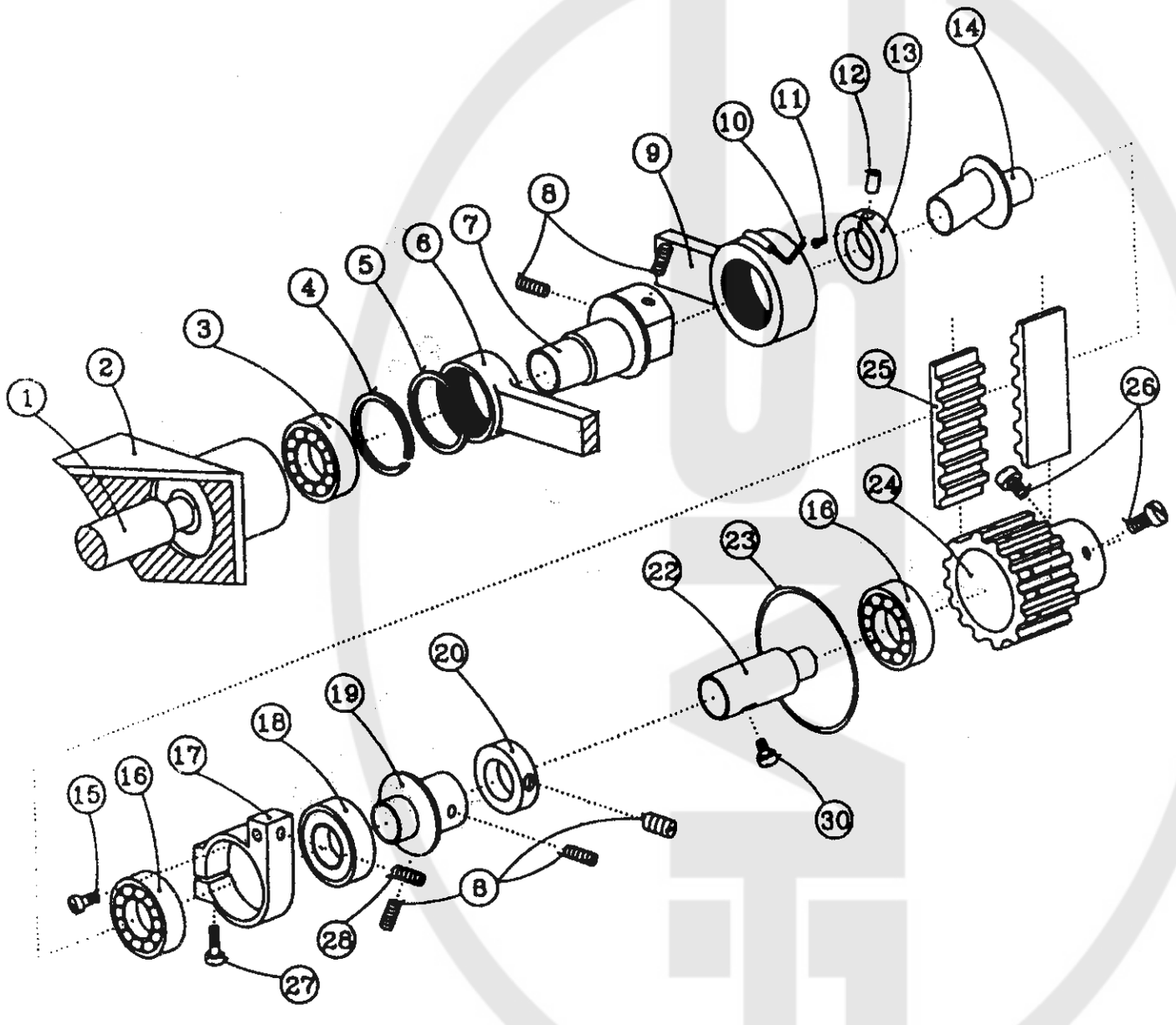
tab. 8



ZZ 567 - 75

1	522 080	340 199
2	522 080	441 541
3	522 080	260 467
4	522 080	436 338
5	522 080	113 115
6	324 165	038 396
7	522 080	111 225
8	522 080	424 068
9	708 420	030 002
	l = 130 mm	
10	283 366	002 000
	l = 90 mm	
11	522 080	120 259
12	522 080	190 369
13	522 080	041 176
14	522 080	112 013
15	522 080	111 102
16	522 080	122 029
17	522 080	120 006
18	311 733	000 300
19	522 080	436 389
20	522 080	570 051
21	522 080	045 315
22	324 162	068 396
23	522 080	511 121
24	272 213	011 015
25	272 711	221 000
	10 x 1060 mm	
26	522 080	442 548
27	522 080	120 252

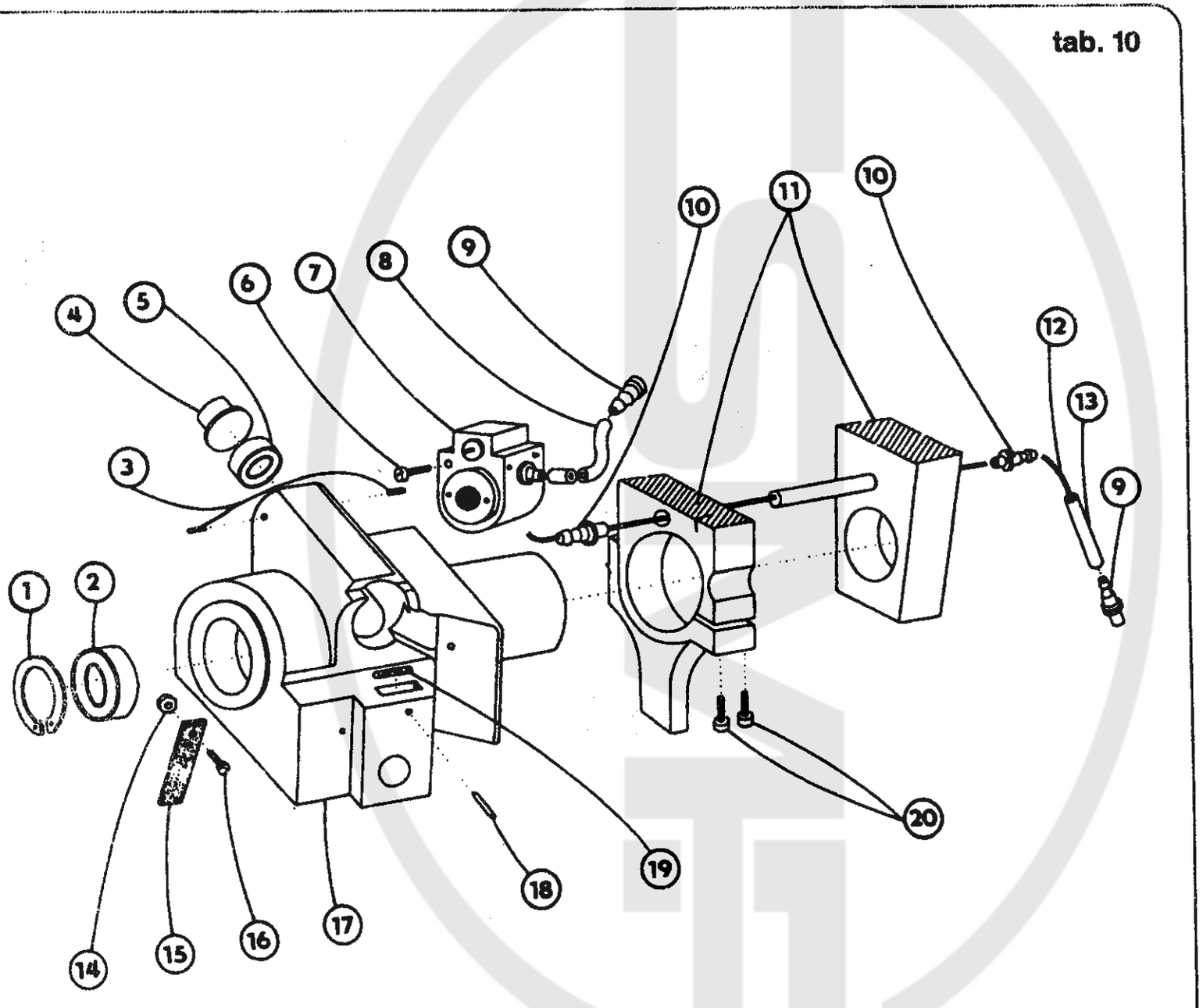
tab. 9



ZZ 567 - 75

1	522 080	342 326
2	522 980	020 386.10
3	324 165	028 396
4	311 733	000 180
5	522 080	814 338
6	522 080	630 248
7	522 080	672 151
8	522 080	112 013
9	522 980	044 045
10	708 420	030 002
	l = 350 mm	
11	522 080	141 088
12	522 080	318 103
13	522 080	445 045
14	522 080	445 048
15	522 080	120 222
16	324 165	038 396
17	522 080	141 102
18	324 165	028 396
19	522 080	424 055
20	522 080	436 346
22	522 080	421 122
23	522 080	272 062
24	522 080	554 077
25	272 213	011 015
26	522 080	122 019
27	522 080	120 222
28	522 080	337 033
30	522 080	122 031

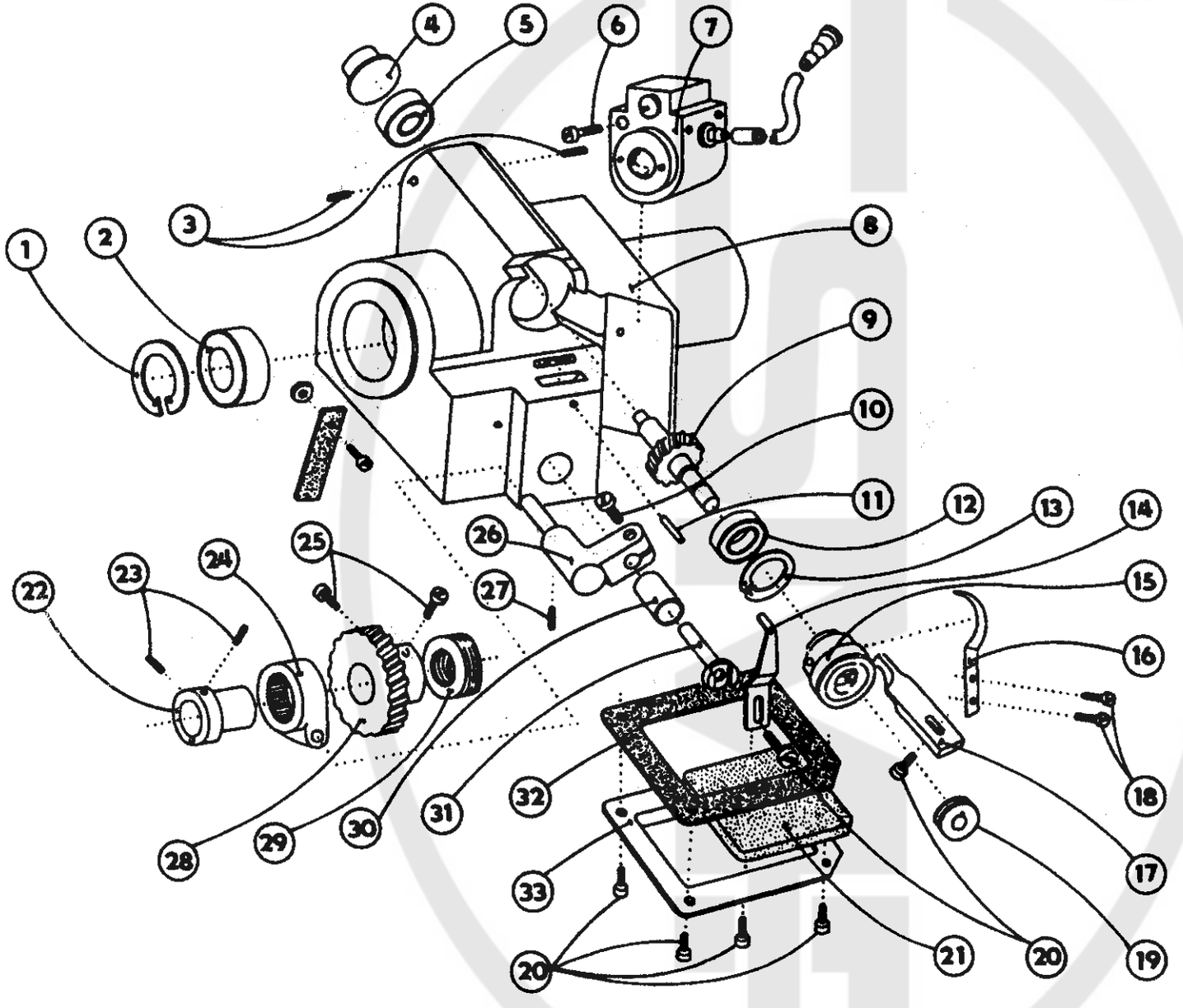
tab. 10



ZZ 567 - 75

1	311 733	100 260
2	324 152	927 796
3	522 080	111 219
4	522 080	441 287
5	324 155	920 020
6	522 080	120 269
7	522 980	035 526
8	283 366	002 000
	l = 100 mm	
9	522 080	424 051
10	522 080	424 060
11	522 980	020 396.10
12	708 420	030 005
	ø 5 x 300 mm	
13	283 366	002 000
	l = 170 mm	
14	522 080	161 143
15	522 080	945 283
16	522 080	120 601
17	522 080	724 134
18	311 515	601 612
19	708 420	030 003
	ø 3 x 40 mm	
20	522 080	120 430

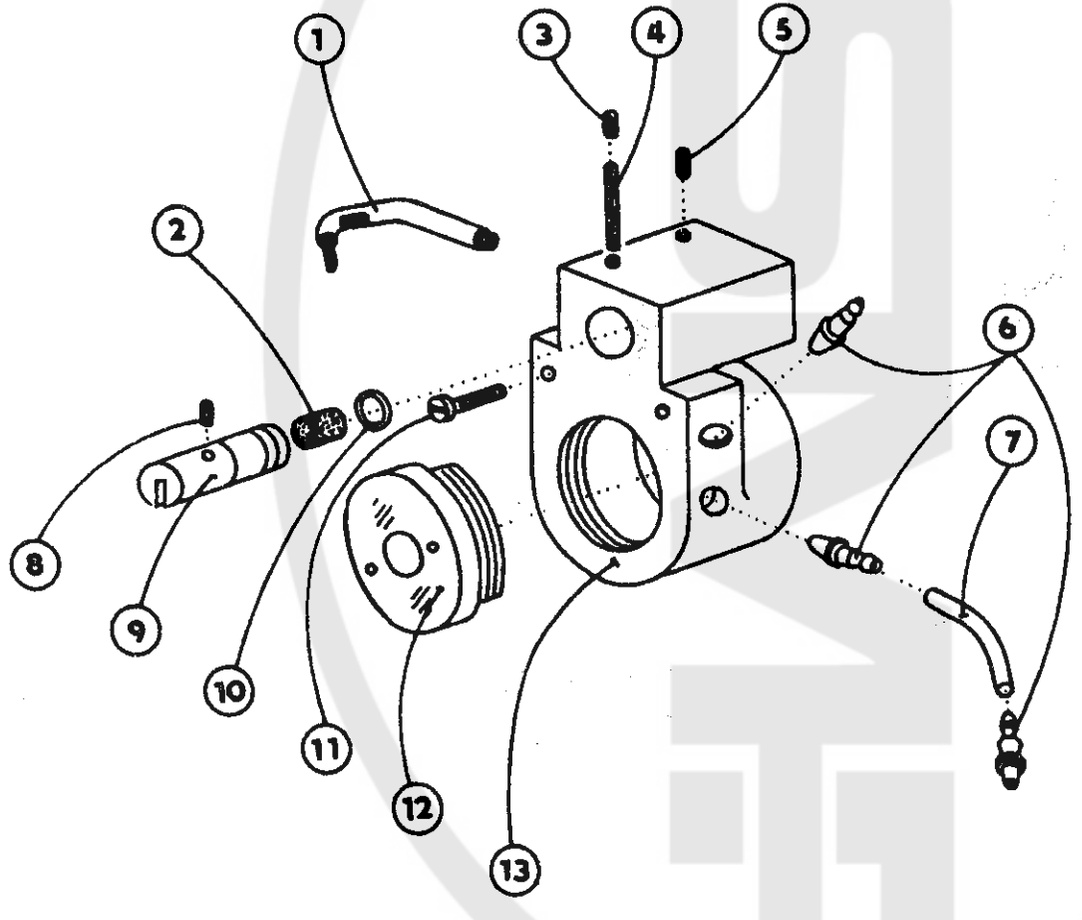
tab. 11



ZZ 567 - 75

1	311 733	100 260
2	324 152	927 796
3	522 080	111 219
4	522 080	441 287
5	324 155	920 020
6	522 080	120 269
7	522 980	035 528
8	522 080	724 134
9	522 080	552 168
10	522 080	120 226
11	311 515	601 612
12	324 155	920 020
13	311 733	100 220
14	522 080	825 740
15	522 960	008 250
16	522 080	821 152
17	522 080	825 744
18	522 080	120 216
19	522 080	685 047
20	522 080	120 246
21	522 080	945 285
22	522 080	671 155
23	522 080	112 013
24	522 980	035 330
25	522 080	122 007
26	522 080	613 466
27	522 080	111 014
28	522 080	552 167
29	324 311	010 000
30	522 080	410 530
31	522 080	323 155
32	522 080	990 134
33	522 080	835 179

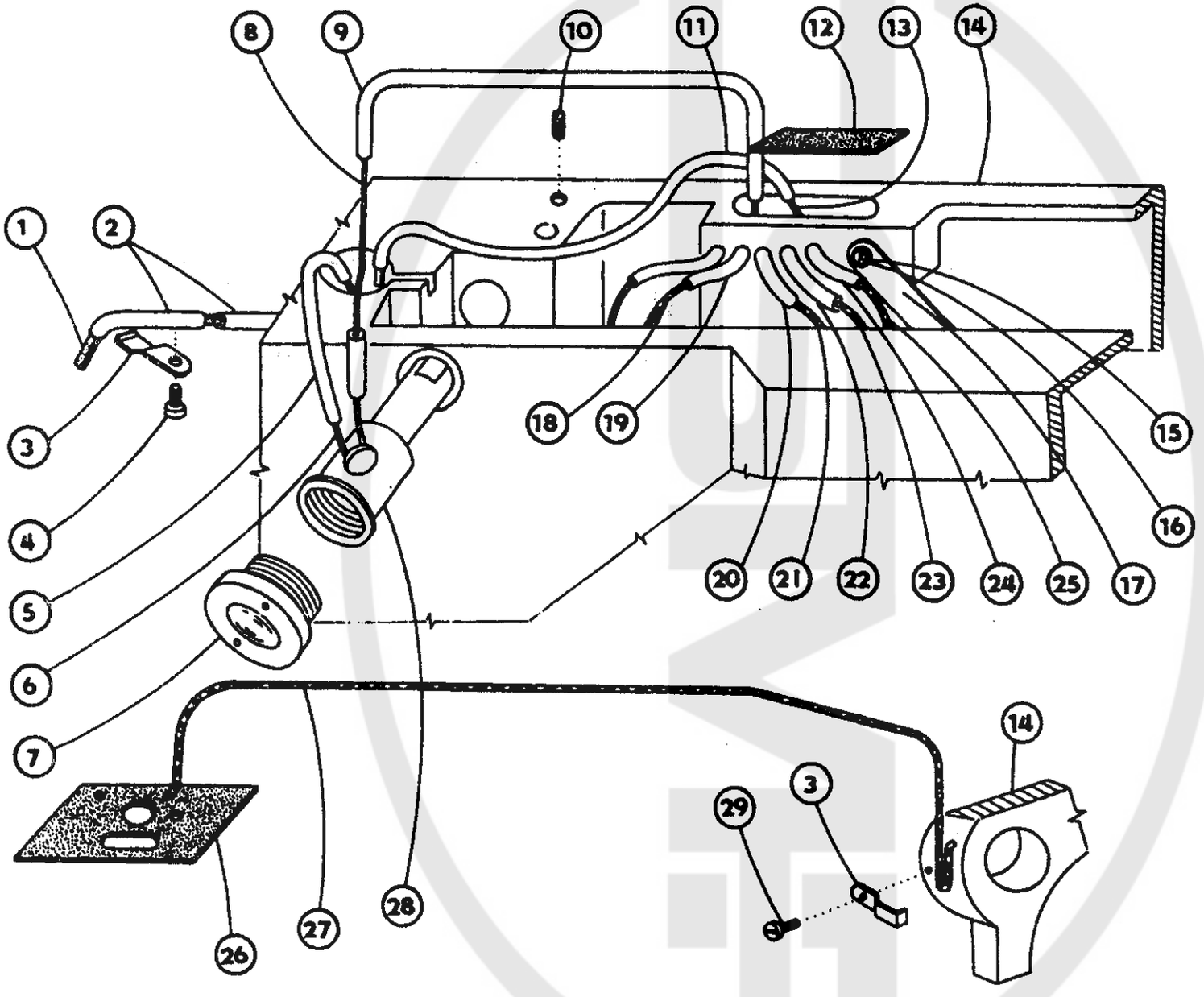
tab. 12



ZZ 567 - 75

1	522 980	035 525
2	522 080	945 077
3	522 080	111 252
4	522 080	945 185
5	522 080	111 233
6	522 080	424 051
7	283 366	002 000
	l = 100 mm	
8	522 080	945 170
9	522 080	346 053
10	273 111	001 000
11	522 080	120 269
12	321 891	001 000
13	522 980	725 023

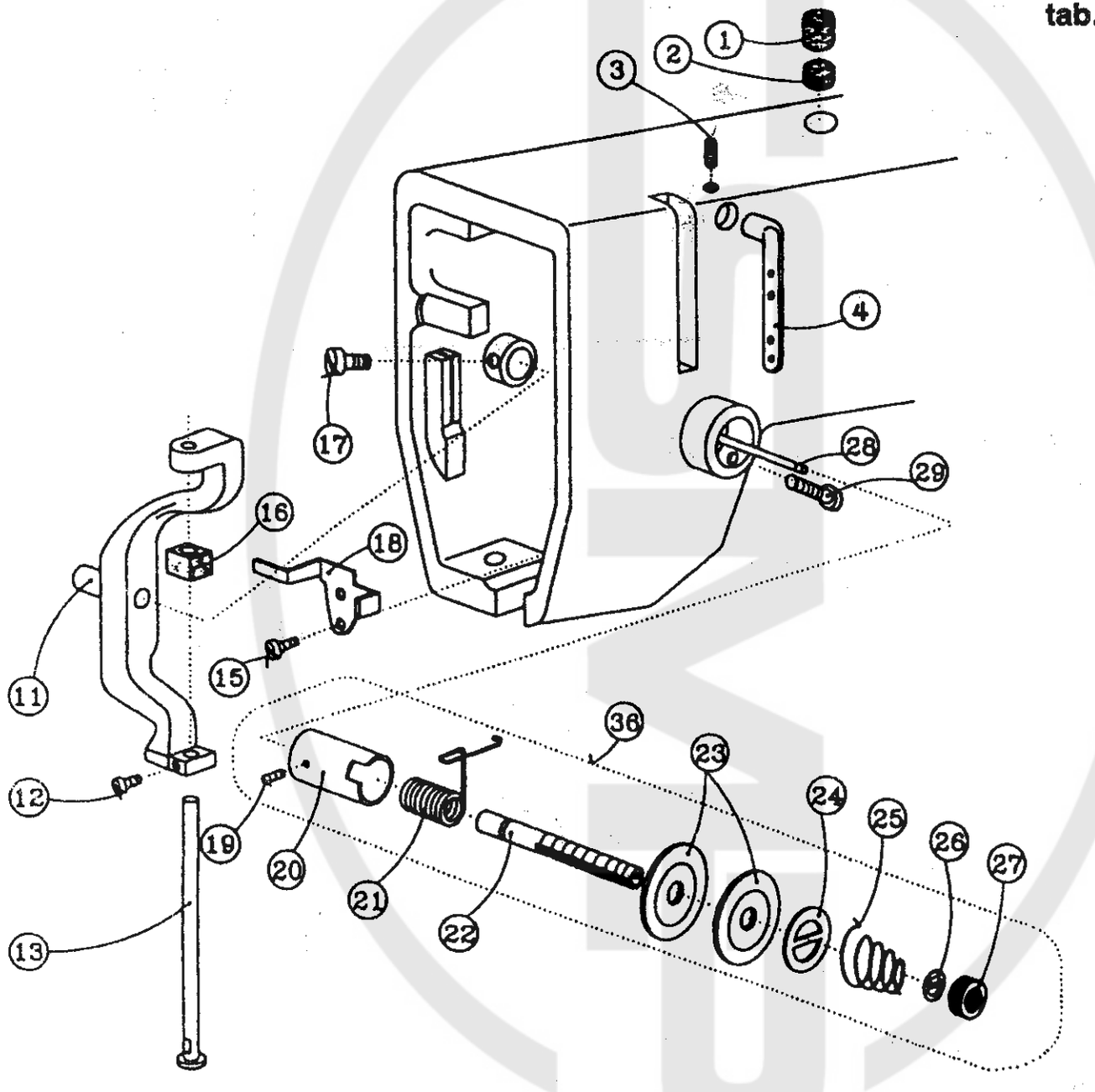
tab. 13



ZZ 567 - 75

1	522 080	945 180
2	283 366	002 000
	o 3,5/4,8 x 65 mm	
3	522 080	824 095
4	522 080	120 245
5	283 366	002 000
	o 3,5/4,8 x 75 mm	
6	708 420	030 003
	l = 110 mm	
7	321 891	001 000
8	708 420	030 004
	l = 300 mm	
9	283 366	002 000
	o 3,5/4,8 x 150 mm	
10	522 080	111 245
11	283 366	002 000
	o 3,5/4,8 x 200 mm	
12	522 080	945 316
13	708 420	030 003
	l = 250 mm	
14	522 980	020 386.10
15	522 080	120 259
16	522 080	190 359
17	522 980	041 176
18	708 420	030 002
	l = 320 mm	
19	283 366	002 000
	o 3,5/4,8 x 250 mm	
20	283 366	002 000
	o 3,5/4,8 x 210 mm	
21	708 420	030 002
	l = 270 mm	
22	283 366	002 000
	o 3,5/4,8 x 90 mm	
23	708 420	030 002
	l = 130 mm	
24	283 366	002 000
	o 3,5/4,8 x 100 mm	
25	708 420	030 002
	l = 140 mm	
26	522 080	945 226
27	708 420	030 004
	l = 640 mm	
28	522 080	441 313
29	522 080	120 216

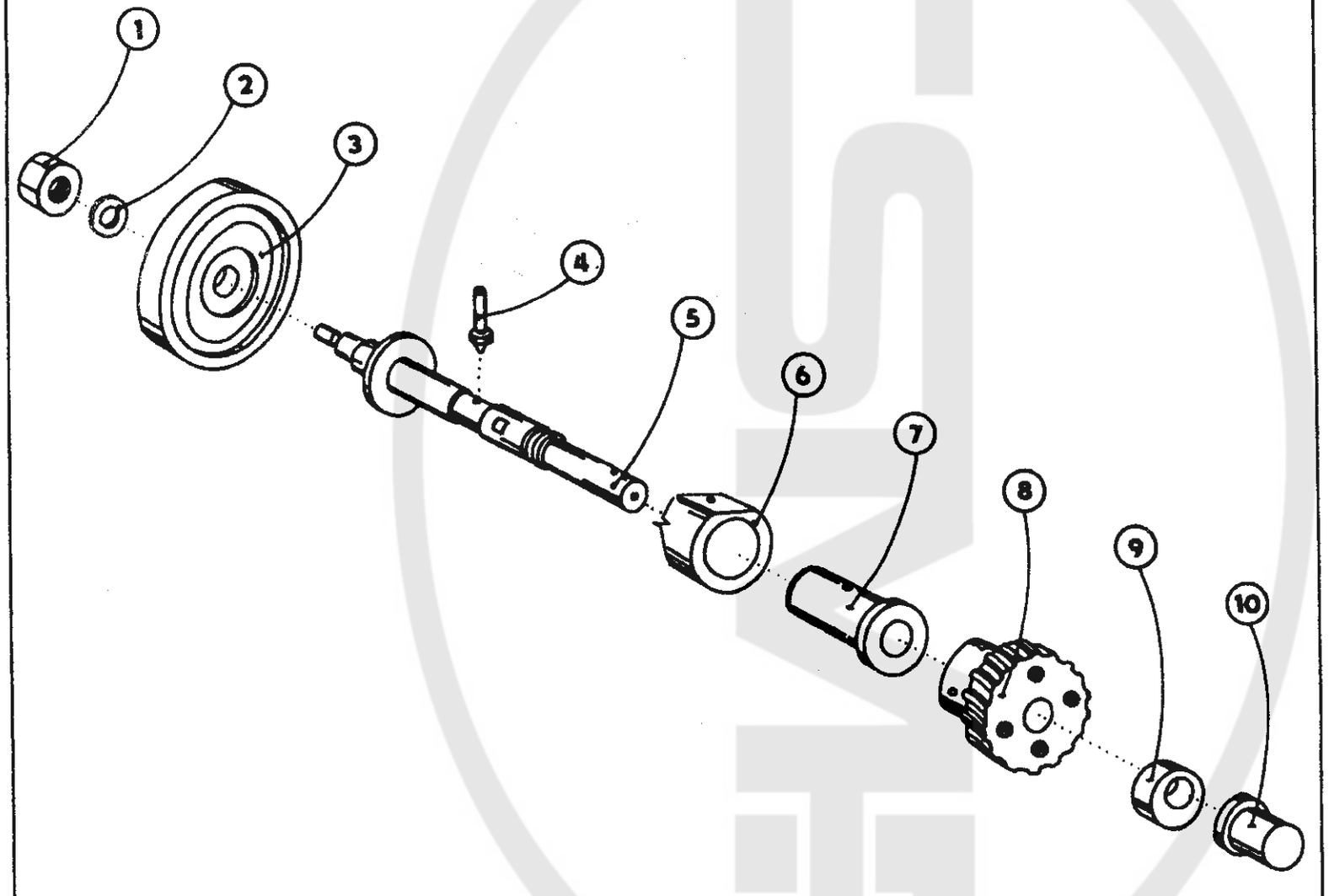
tab.14



ZZ 567 - 75

1	522 080	945 168
2	522 080	945 100
3	522 080	111 227
4	522 080	272 039
11	522 980	049 782
12	522 080	120 216
13	522 080	313 322
15	522 080	131 027
16	522 080	953 159
17	522 080	120 221
18	522 080	822 424
19	522 080	111 227
20	522 080	436 131
21	522 080	264 294
22	522 080	118 039
23	522 080	828 079
24	522 080	828 080
25	522 080	262 073
26	522 080	195 041
27	522 080	171 037
28	522 080	310 428
29	522 080	120 360
36	522 980	025 245

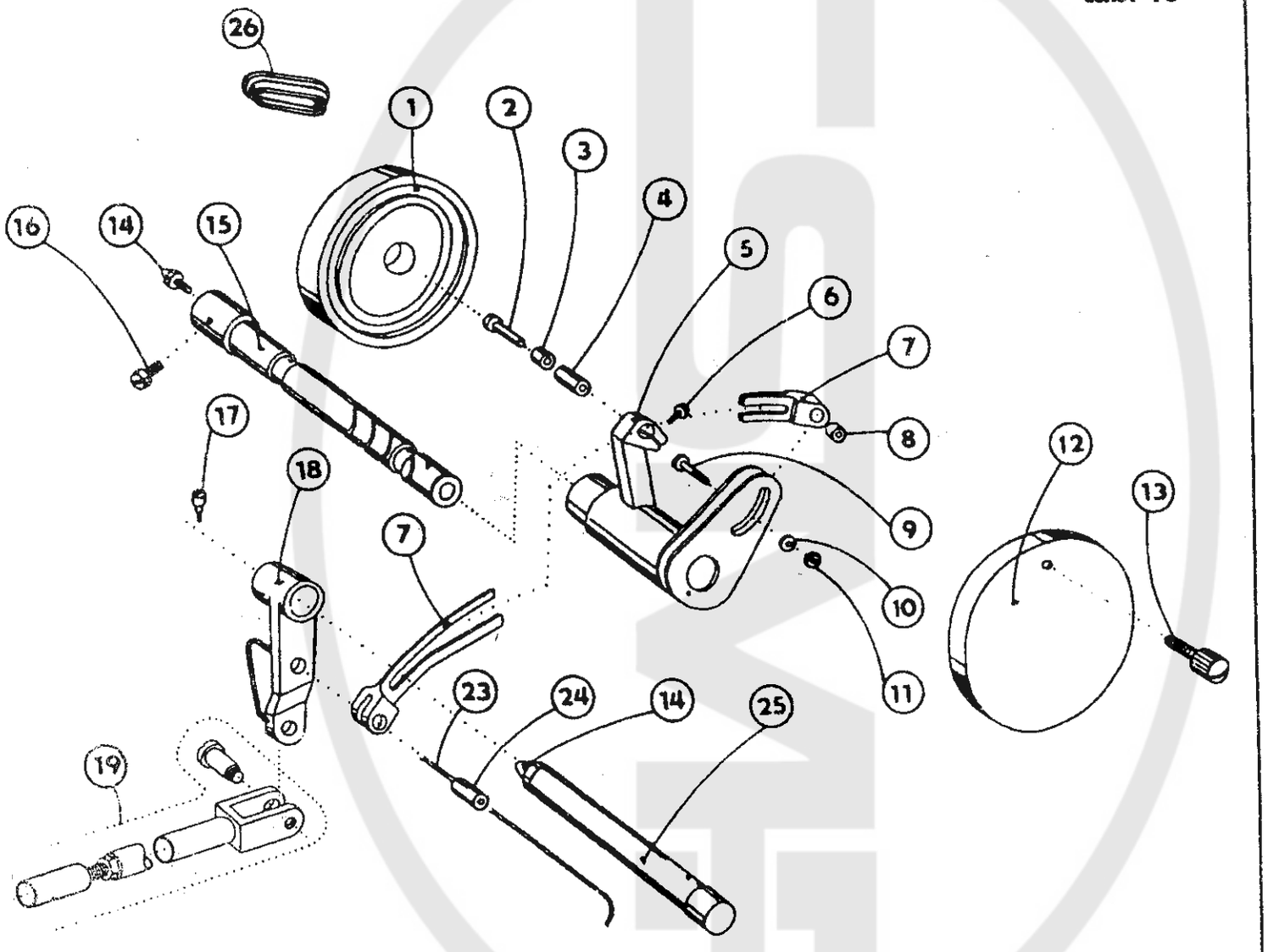
tab. 15



ZZ 567 - 75

1	522080	161234
2	522080	191117
3	522080	674124
4	522080	441251
5	522080	043380
6	522980	020386.10
7	522080	413358
8	522980	045422
9	522080	046984
10	522080	422190

tab. 16



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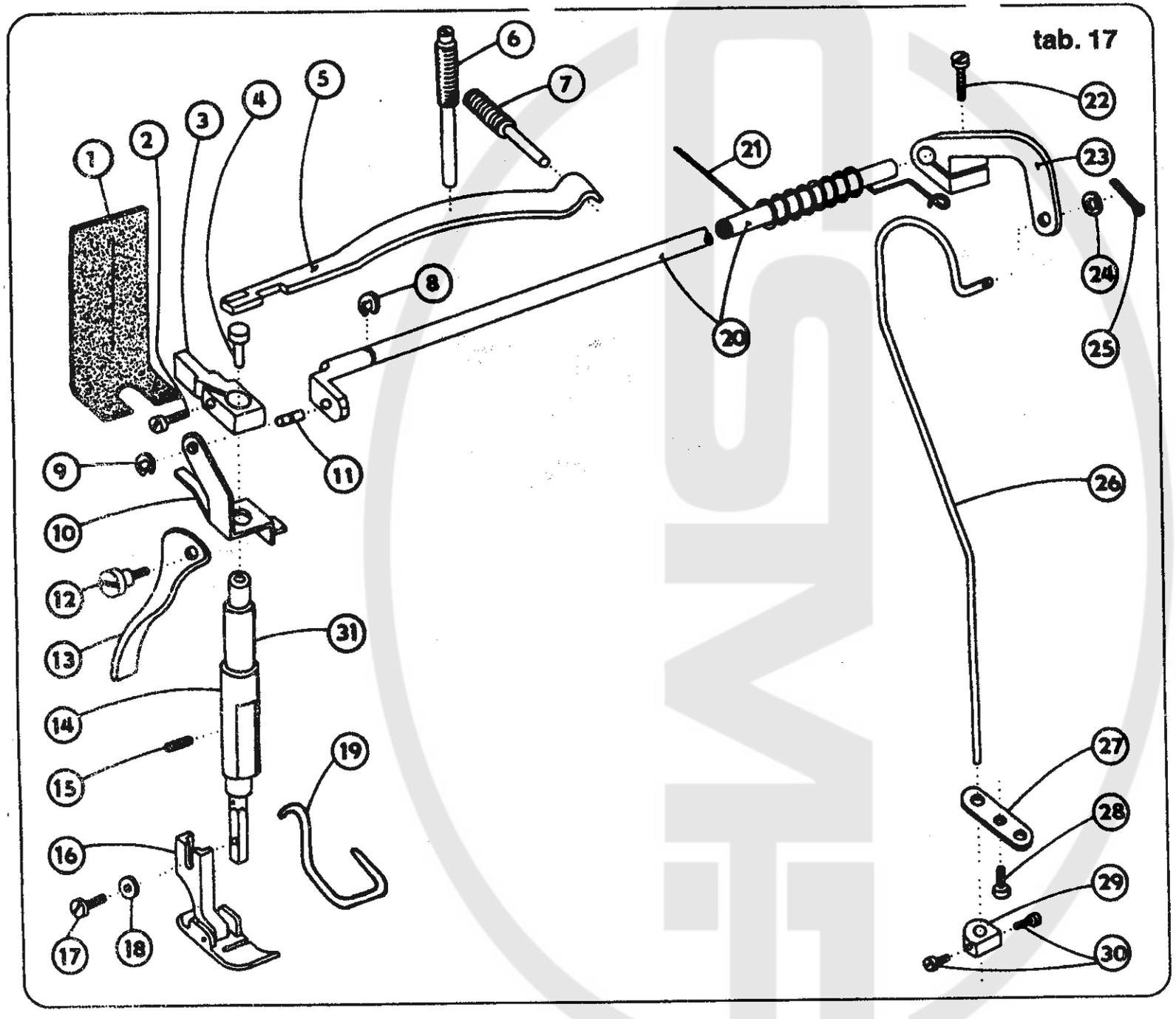
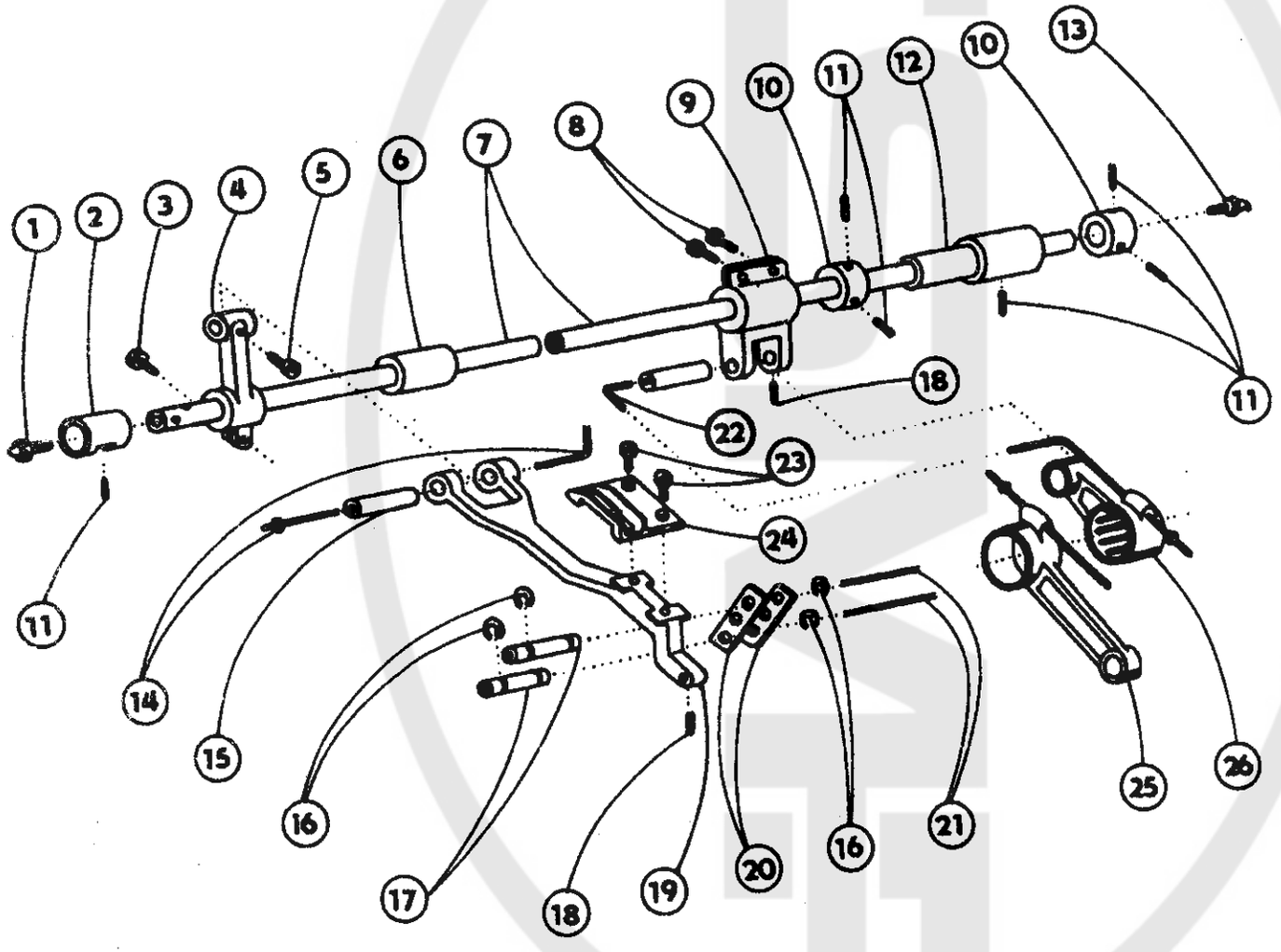
1	522 080	674 124
2	522 080	338 160
3	522 080	442 567
4	522 080	413 338
5	522 080	044 847
6	522 080	141 157
7	522 080	832 166
8	522 080	410 569
9	522 980	043 373
10	522 080	190 346
11	522 080	161 180
12	321 861	951 297
13	522 080	133 022
14	425 111	041 000
15	522 080	335 122
16	522 080	120 006
17	522 080	132 203
18	522 080	613 519
19	522 980	060 158
23	708 420	003 003
	l = 150 mm	
24	522 060	318 210
25	522 080	320 289
26	321 861	012 000



ZZ 567 - 75

1	522 080	945 317
2	522 080	120 548
3	522 080	623 249
4	522 080	326 213
5	522 080	283 152
6	522 080	113 122
7	522 080	113 123
8	522 080	274 084
9	311 732	910 040
10	522 080	839 215
11	522 080	314 150
12	522 080	136 023
13	522 080	615 024
14	522 080	421 330
15	522 080	112 014
16	522 980	031 550
17	522 080	120 239
18	522 080	190 554
19	522 080	271 393
20	522 980	043 480
21	522 080	264 292
22	522 080	120 221
23	522 080	633 196
24	522 080	190 346
25	522 080	271 337
26	522 080	383 178
27	522 080	314 016
28	522 090	120 217
29	522 080	436 331
30	522 080	120 059
31	522 080	392 105

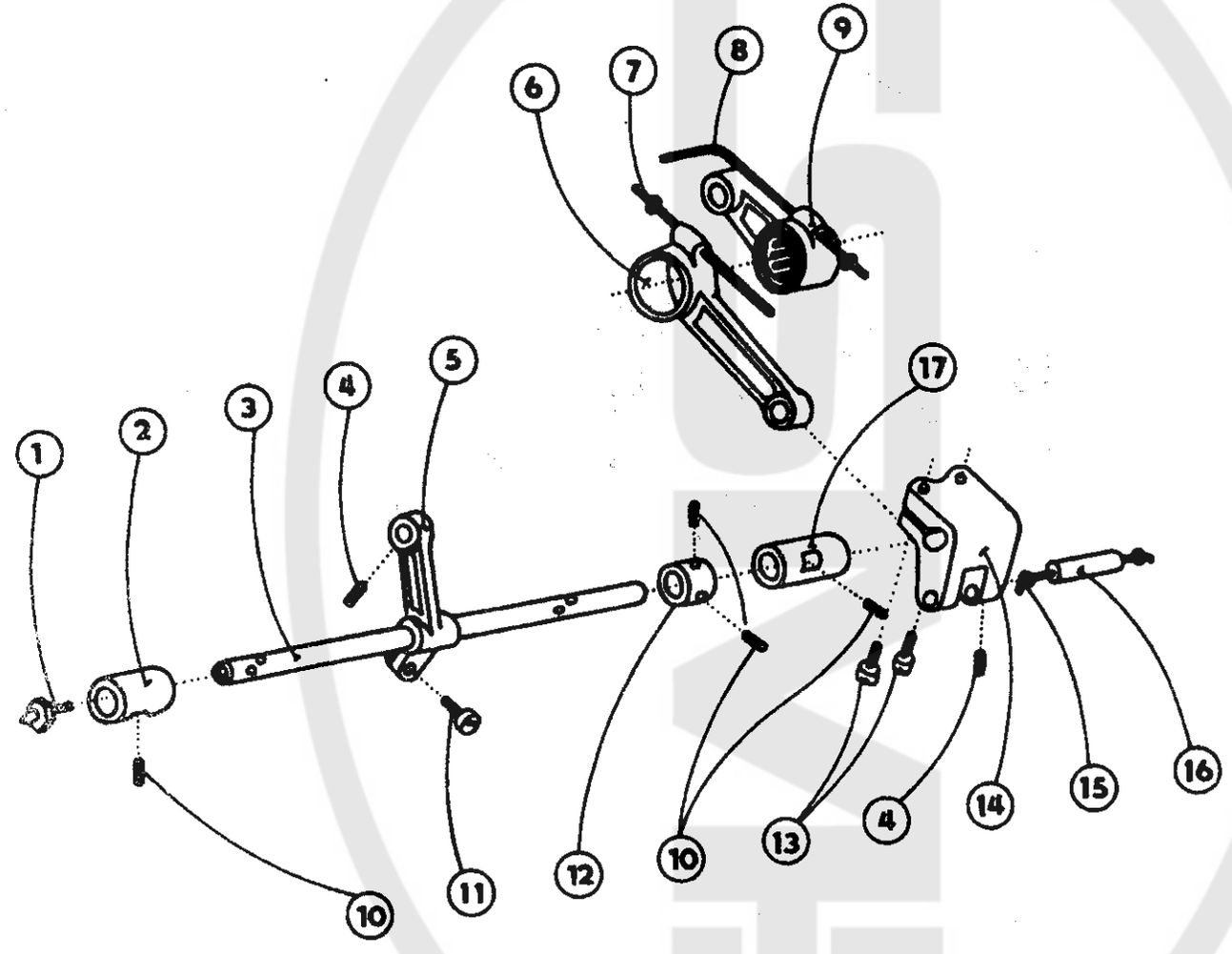
tab.18



ZZ 567 - 75

1	425 111	041 000
2	522 080	413 252
3	522 080	141 133
4	522 080	613 495
5	522 080	124 050
6	522 080	410 532
7	522 080	345 067
8	522 080	120 229
9	522 080	613 216
10	522 080	436 000
11	522 080	112 013
12	522 080	412 193
13	425 111	061 000
14	708 420	030 002
	l = 160 mm	
15	522 080	338 069
16	522 080	274 083
17	522 080	318 144
18	522 080	111 227
19	522 080	622 092
20	522 080	612 109
21	708 420	030 002
	l = 60 mm	
22	708 420	030 002
	l = 350 mm	
23	522 080	121 157
24	522 080	651 472
25	522 080	630 248
26	522 980	044 045

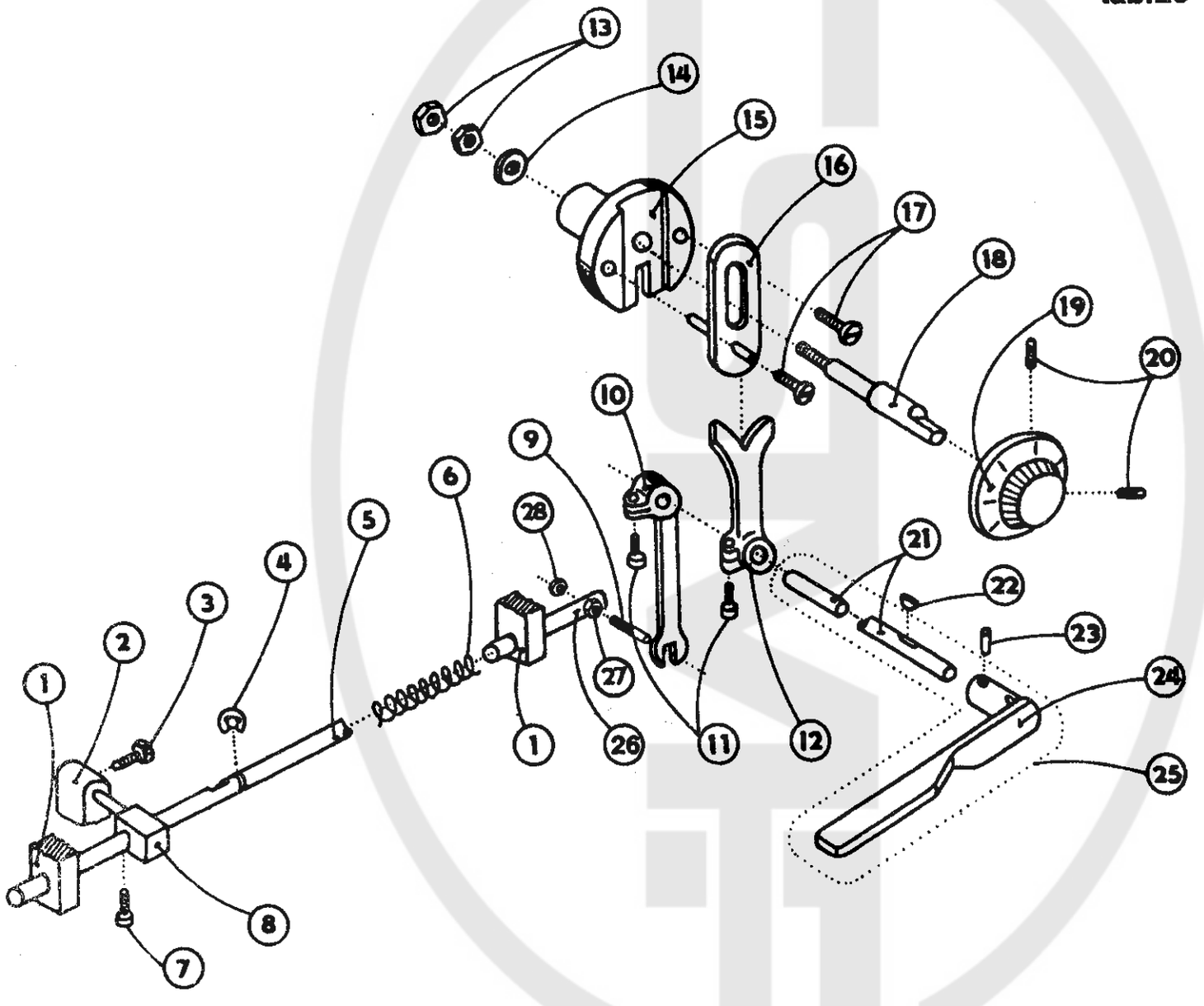
tab.19



ZZ 567 - 75

1	425 111	041 000
2	522 080	413 251
3	522 080	112 013
4	522 080	111 227
5	522 080	613 195
6	522 080	630 246
7	708 420	030 002
	l = 220 mm	
8	708 420	030 002
	l = 350 mm	
9	522 980	044 045
10	522 080	112 013
11	522 080	120 229
12	522 080	436 000
13	522 080	120 231
14	522 080	613 152
15	708 420	030 003
	l = 60 mm	
16	522 080	344 035
17	522 080	410 536

tab.20



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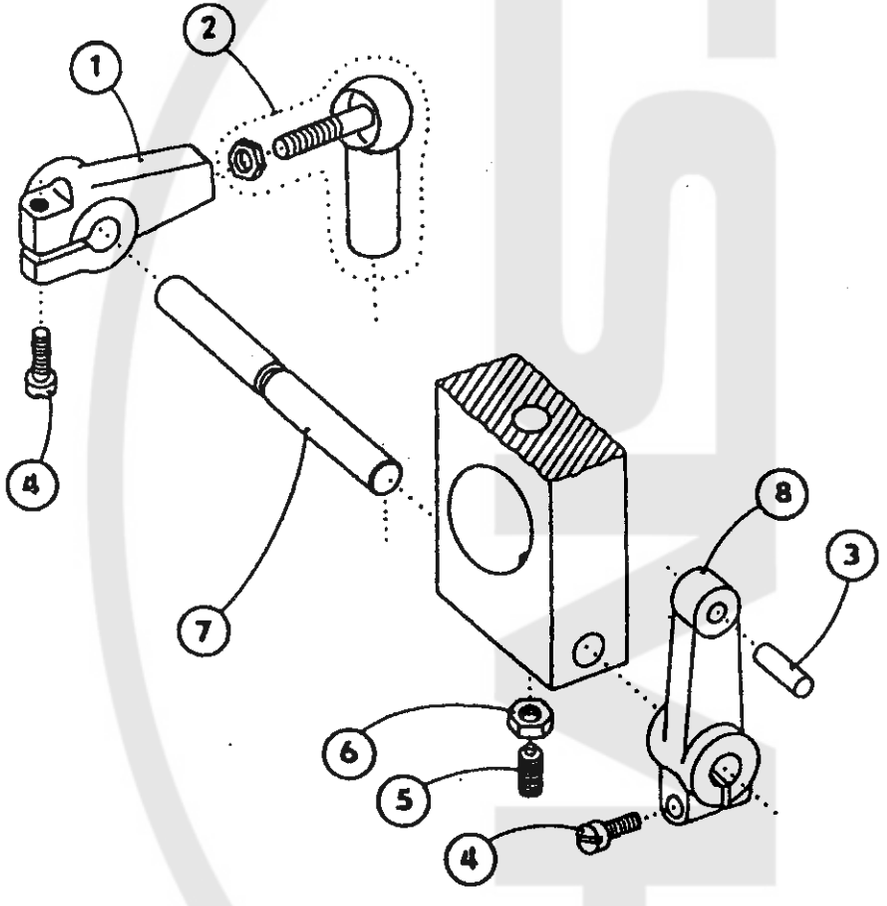
1	522 960	020 386.10
2	522 080	627 023
3	522 080	141 102
4	311 732	910 070
5	522 080	349 203
6	522 080	260 547
7	522 080	120 227
8	522 080	337 033
9	522 080	110 100
10	522 080	613 373
11	522 080	120 221
12	522 080	613 328
13	522 080	161 142
14	522 080	192 161
15	522 080	441 187
16	522 960	049 785
17	522 080	120 246
18	522 080	342 258
19	522 080	233 031
20	522 080	112 013
21	522 080	342 198
22	311 728	502 537
23	311 515	003 012
24	522 960	044 714
25	522 960	060 002
26	522 080	349 202
27	522 080	161 142
28	522 080	161 140

tab. 21



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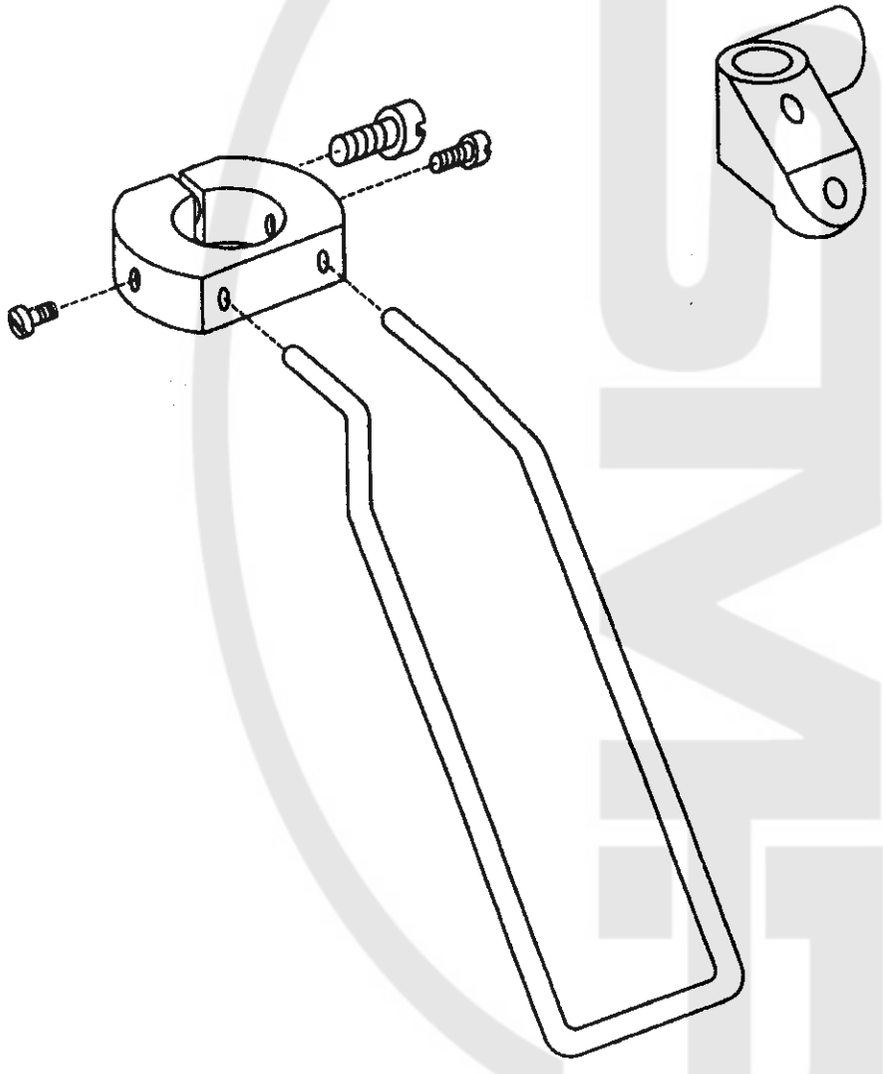
1	522 080	613 574
2	443 985	000 006
3	311 515	006 014
4	522 080	120 230
5	522 080	111 097
6	522 080	161 140
7	522 080	342 327
8	522 080	613 480

tab. 22



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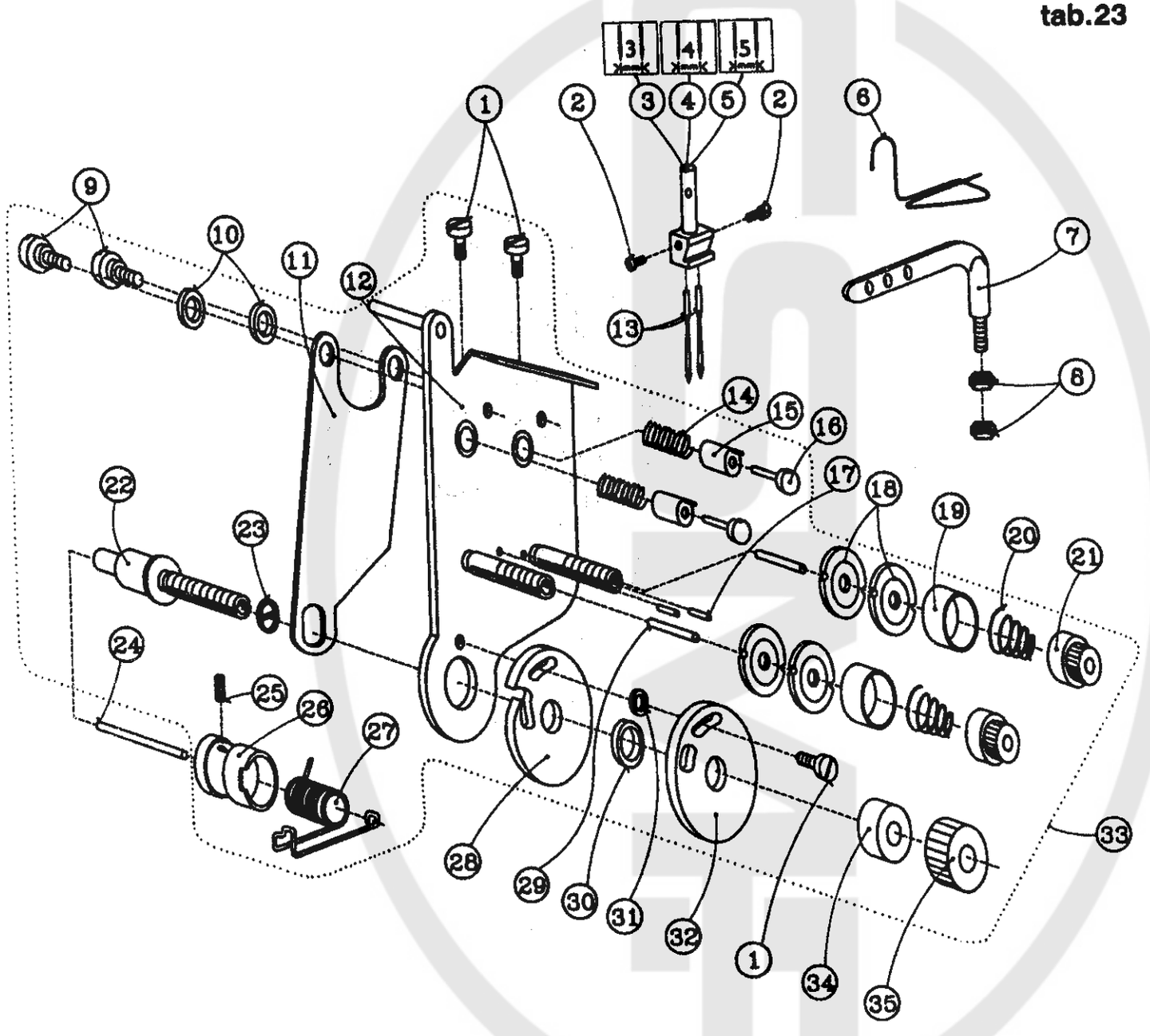
EQUIPMENT
522 791 149 001

1	522 080	120 037
2	522 080	646 136
3	522 080	120 225
4	522 080	271 441
5	522 080	627 037

tab.23



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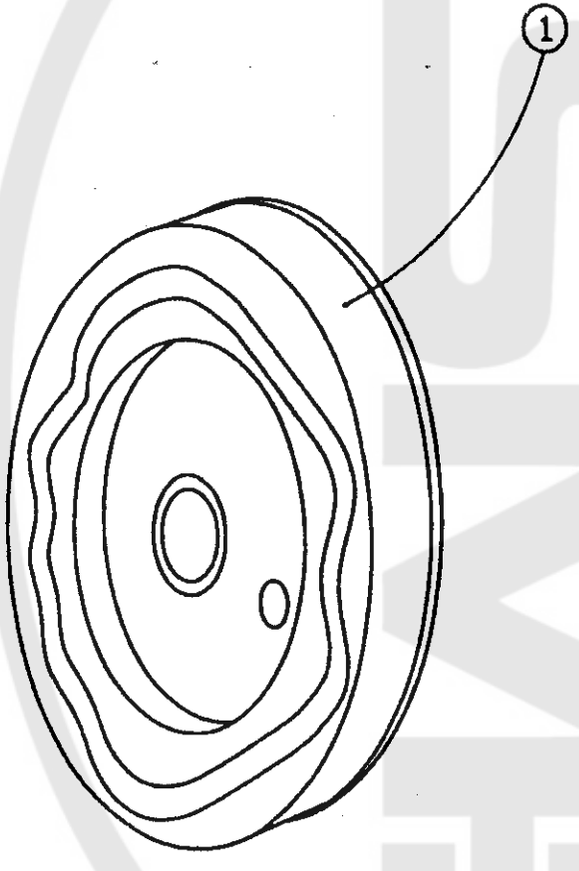
EQUIPMENT
522 791 630 002

1	522 080	120 245	
2	522 080	124 051	6 x
3	522 080	394 157	
4	522 080	394 158	
5	522 080	394 159	
6	522 080	271 409	
7	522 080	313 204	
8	522 080	161 146	
9	522 080	135 023	
10	522 080	190 520	
11	522 080	825 733	
12	522 980	049 805	
13	548 300	000 130	10 x
14	522 080	261 022	2 x
15	522 980	027 414	2 x
16	522 080	320 047	2 x
17	311 515	002 008	2 x
18	522 080	828 046	4 x
19	522 080	827 048	2 x
20	315 231	262 024	2 x
21	522 080	173 017	2 x
22	522 080	118 003	
23	522 080	195 004	
24	522 080	310 436	
25	522 080	112 012	
26	522 080	414 023	
27	315 231	264 162	
28	522 080	828 048	
29	311 510	202 006	2 x
30	522 080	442 034	
31	522 080	418 039	
32	522 080	828 047	
33	522 980	025 204	
34	522 080	421 129	
35	522 080	171 023	

tab.24



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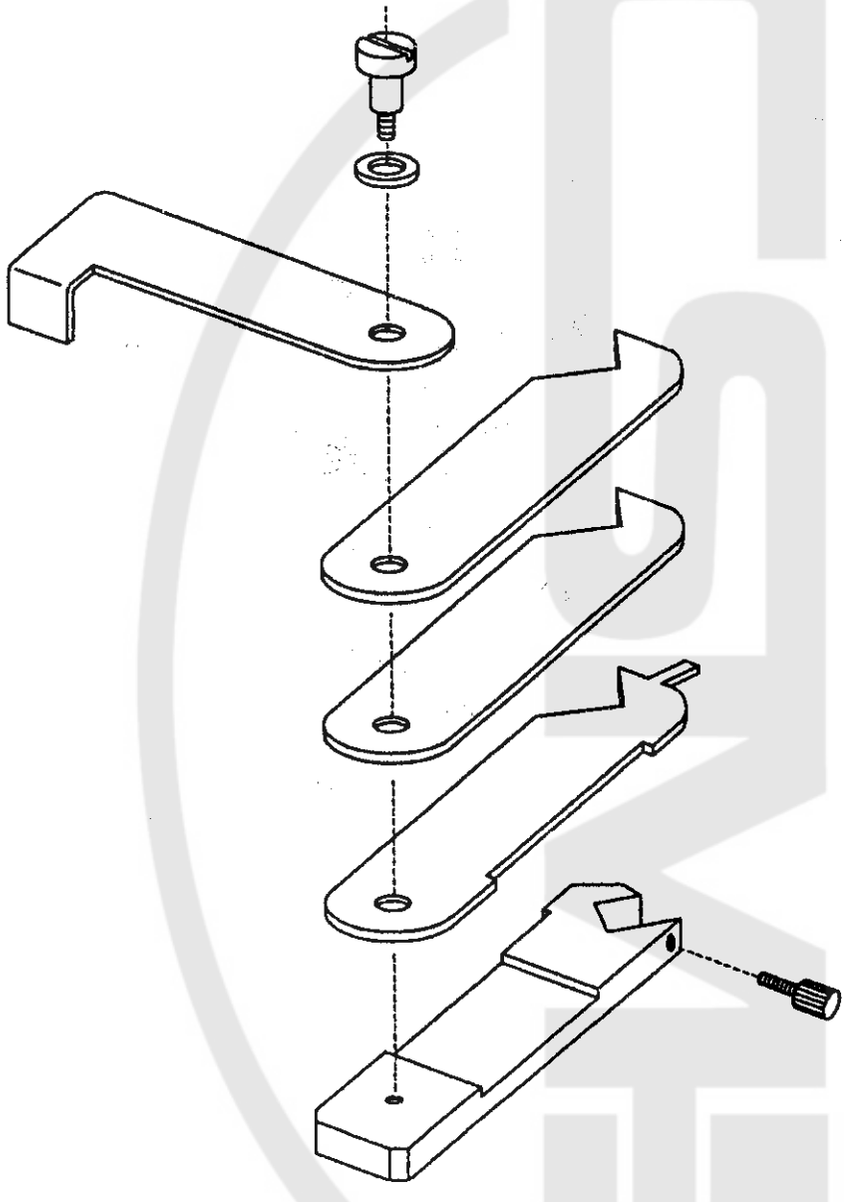
EQUIPMENT

	522 791	**642 038**
1	522 080	674 113
	522 791	**642 047**
1	522 080	674 122
	522 791	**642 049**
1	522 080	674 124
	522 791	**642 050**
1	522 080	674 125

tab.25



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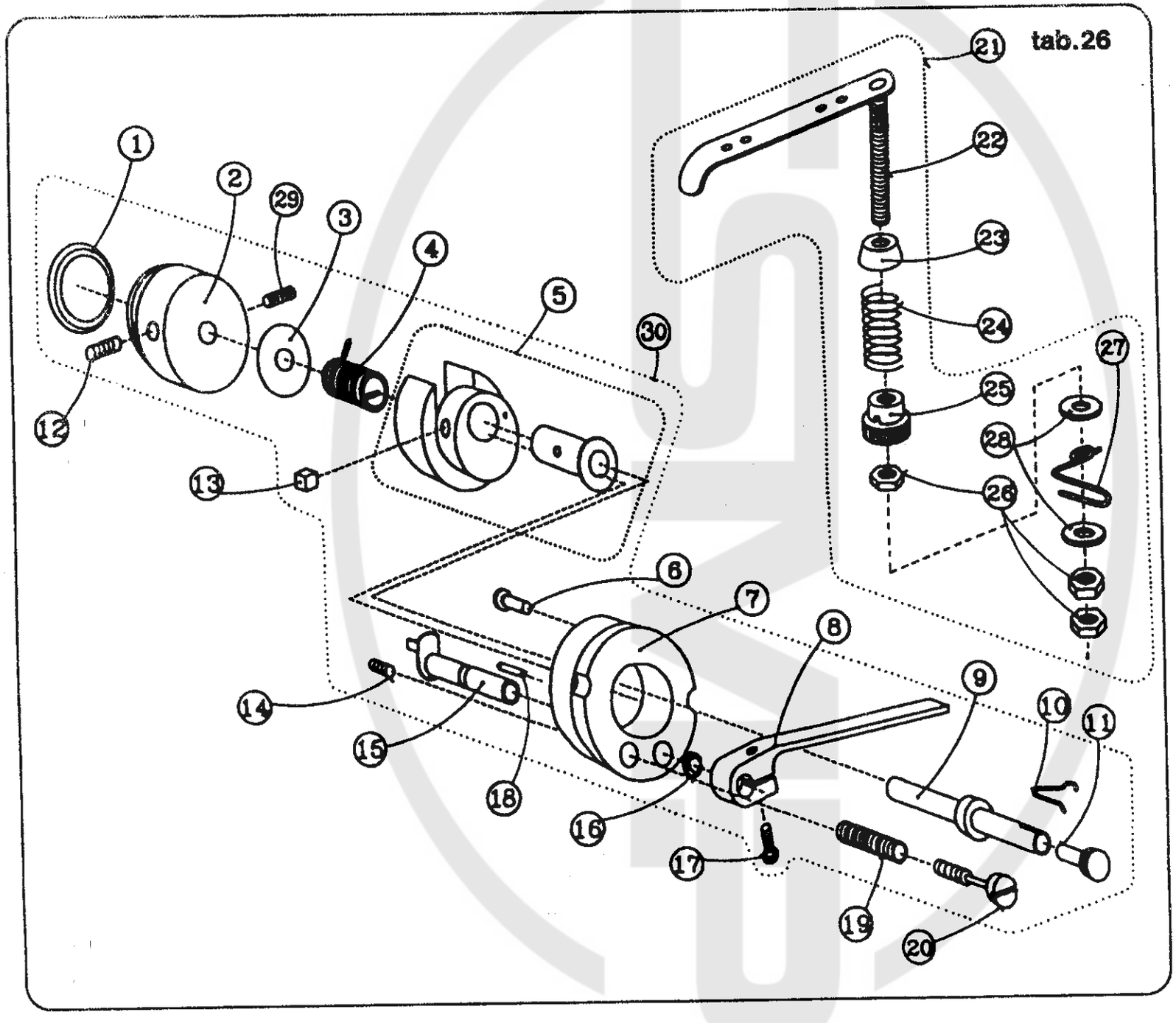
EQUIPMENT

522 791 947 001

1	522 980	035 456
2	522 080	831 412
3	522 080	131 404
4	522 080	192 061
5	522 080	814 364
6	522 080	814 365
7	522 080	646 148
8	522 080	133 112



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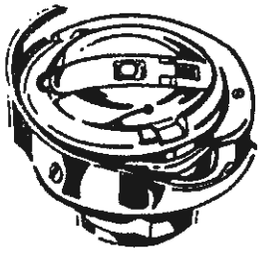
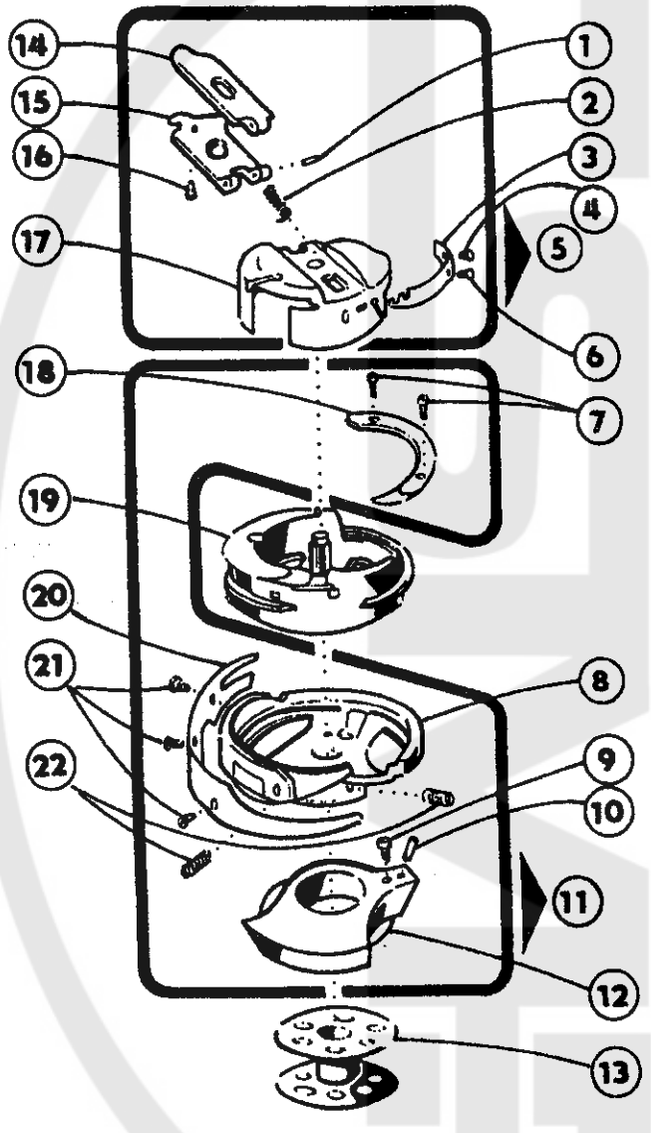
EQUIPMENT
522 792 112 017

1	273 111	025 410
2	522 080	441 560
3	522 080	190 593
4	522 080	264 281
5	522 960	035 664
6	522 080	310 377
7	522 080	441 308
8	522 080	513 468
9	522 080	343 074
10	522 080	285 037
11	321 861	953 200
12	522 080	112 115
13	522 080	945 296
14	522 080	111 094
15	522 080	672 174
16	311 732	910 040
17	522 080	124 060
18	311 515	601 606
19	522 080	260 483
20	522 080	870 170
21	522 960	025 286
22	522 960	025 249
23	522 080	827 194
24	522 080	260 510
25	522 080	163 106
26	522 080	161 138
27	522 080	271 163
28	522 080	190 509
29	522 080	111 230
30	522 960	036 122

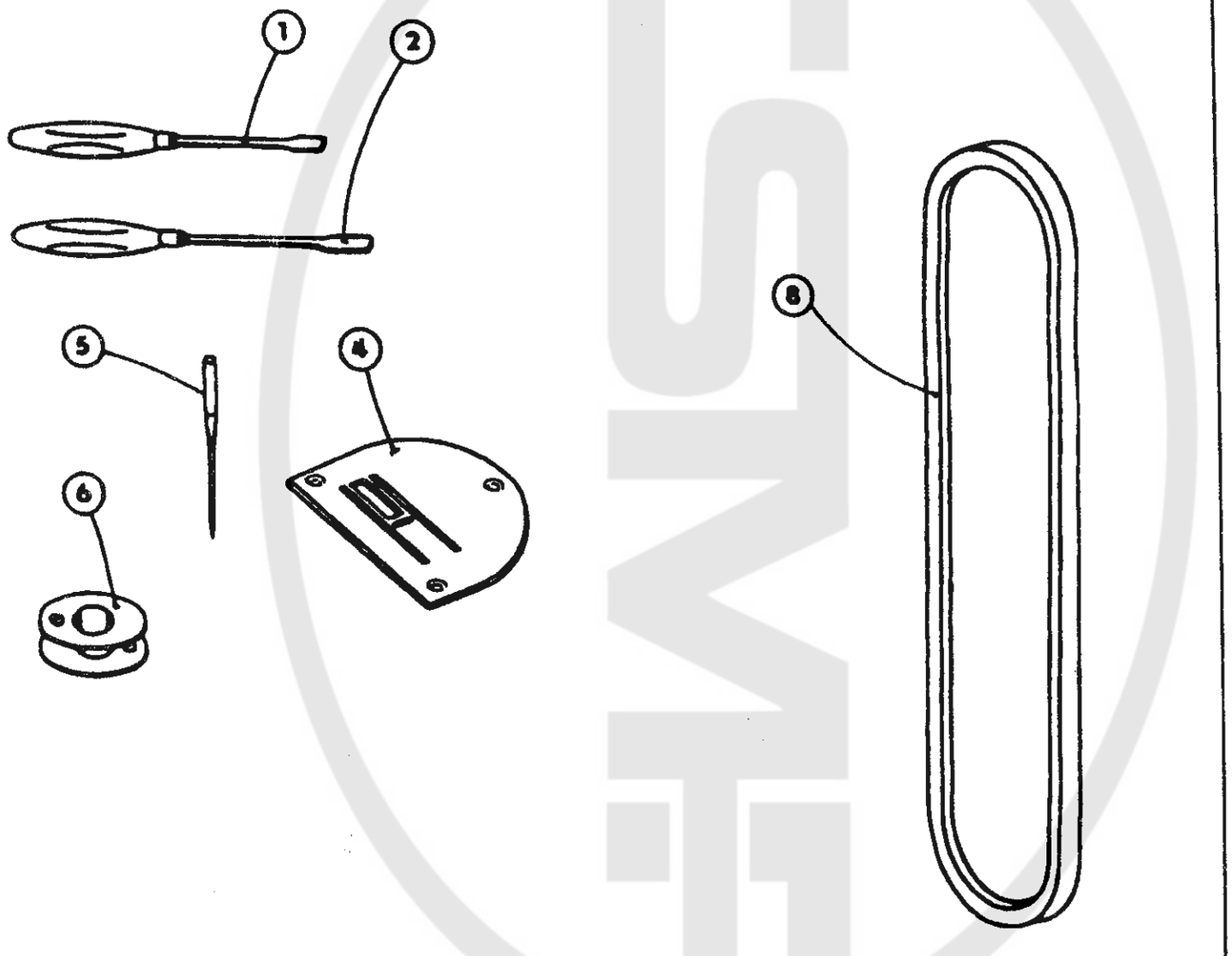
R 250

522 980 008 250





1	522 080	682 017
2	315 231	689 009
3	522 080	690 029
4	522 080	693 063
5	522 980	081 133
6	522 080	683 053
7	522 080	683 064
8	522 080	676 054
9	522 080	683 078
10	522 080	696 029
11	522 980	081 126
12	522 080	688 022
13	522 080	685 047
14	522 080	687 021
15	522 080	687 020
16	522 080	683 052
17	522 080	678 037
18	522 080	681 023
19	522 080	677 023
20	522 080	680 023
21	522 080	683 083
22	522 080	683 067



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ACCESSORIES

1	413 621	731 023
2	413 624	310 002
4	522 080	811 699
5	548 300	000 140
6	522 080	685 047
8	272 711	225 000

10 x 1250 mm