GLOBAL

Service manual and parts list

ZZ 567 TD

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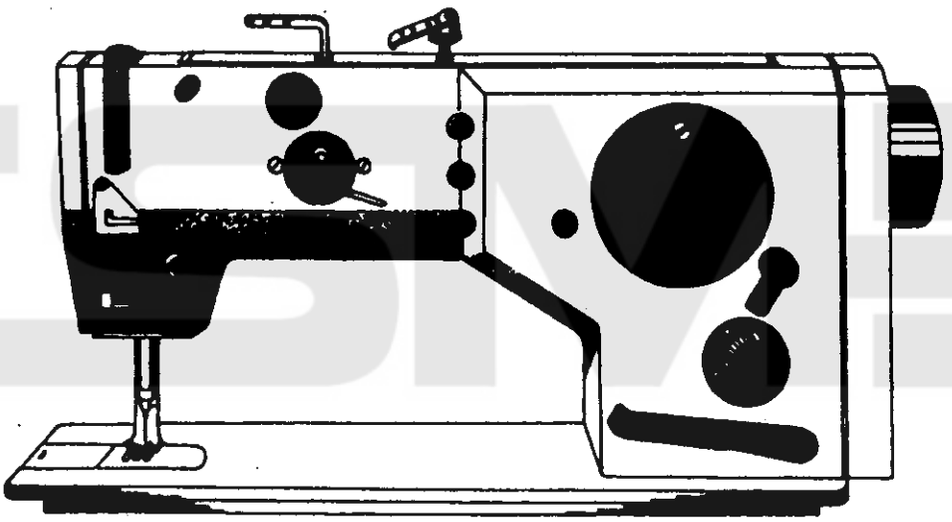
INSTRUCTIONS FOR ADJUSTMENT AND SERVICING FOR FLAT BED ZIGZAG INDUSTRIAL SEWING MACHINE FOR PRODUCING STITCH PATTERNS BY FORWARD STITCHING, WITH TRIMMER DEVICE FOR UPPER AND LOWER THREADS

ZZ 567 TD



Use of Machine

The machine is used for decorative patterns in the outerwear and ladies' linen made of elastic materials, such as Lycra, as well as in textile shoes, and for stitching up to 4 mm thick textile materials.

Specifications

Machine speed	up to 4,400 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 Equipment used
Needle	134 No. 90-110, Schmetz 797 cfcf No. 90-110
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
Hook	rotary hook R 250
Presser foot stroke	5 mm with hand lever, 7 mm with knee lever
Presser foot lift actuation	with hand lever with knee lever
Clear work space	265 x 120 mm
Machine stand	standard profile iron stand
Machine drive	stop motor
Weight of machine head	36 kg
Weight of machine stand with the stop motor	76 kg

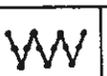
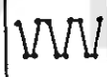
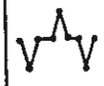
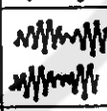
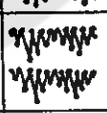
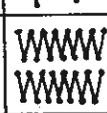
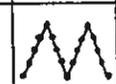
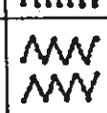
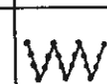
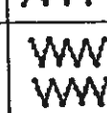
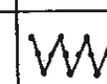
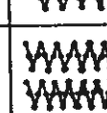
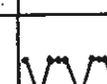
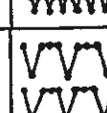
Technical description

The model ZZ 567 TD is a flat bed 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 requiring 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. In its basic version, it is supplied without lighting, but it is adapted to receive a suspension-type lighting.

Equipments and their Use

Comercial designation	Ordering No.	Name
	522 791 224 074	Equipment for stitching fine materials; throat plate with needle aperture of 1.3 by 7.6 mm
	522 791 224 075 35	Stitching set - throat plate with needle aperture of 1.5 by 11.6 mm; needle 134 No. 110
236	522 791 630 003	Equipment for two-needle stitching, must be completed by the cam according to the chosen pattern
202	522 791 642 038	Decorative stitching
203	522 791 642 039	Decorative stitching
204	522 791 642 040	Decorative stitching
205	522 791 642 041	Decorative stitching
206	522 791 642 042	Decorative stitching
211	522 791 642 043	Decorative stitching
214	522 791 642 044	Decorative stitching
218	522 791 642 045	Decorative stitching
219	522 791 642 046	Decorative stitching
220	522 791 642 047	Decorative stitching
221	522 791 642 048	Decorative stitching
224	522 791 642 049	Decorative stitching
229	522 791 642 050	Decorative stitching
230	522 791 642 051	Decorative stitching
234	522 791 947 001	Adjusting jig
235	522 791 149 001	Bordering (hemming) equipment
250	522 792 112 010	Built-in bobbin winder, complete
295	522 791 995 014	Plug for covering the mounting hole of the built-in bobbin winder

Equipments and their Use								
Comercial designation	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
236	522 791 630 003	Equipment for two-needle stitching, needle distance 3, 4 or 5 mm						
202	522 791 642 038 522 080 674 113	12	4 1-3	4,5 - 10	4400		3800	
203	522 791 642 039 522 080 674 114	12	12 1-3	4,5 - 10	3800		3400	
204	522 791 642 040 522 080 674 115	12	6 1,5-3	3,5 - 6	3800		3400	
205	522 791 642 041 522 080 674 116	12	12 1,5-5	4,5 - 10	3800		3800	
206	522 791 642 042 522 080 674 117	12	3 1,5-4	3,5 - 6	3800		3400	
211	522 791 642 043 522 080 674 118	12	6 1-3	4 - 6	3800		3400	
214	522 791 642 044 522 080 674 119	12	6 1-3	4 - 10	3800		3400	
218	522 791 642 045 522 080 674 120	12	12 1,5-3	2 - 5	3800		3400	
219	522 791 642 046 522 080 674 121	12	12 1,5-3	2 - 5	3800		3400	
220	522 791 642 047 522 080 674 122	12	2 1-3	3,5 - 6	3800		3400	
221	522 791 642 048 522 080 674 123	12	12 1-3	4,5 - 10	3800		3400	
224	522 791 642 049 522 080 674 124	12	6 1-3	4,5 - 10	4400		3800	
229	522 791 642 050 522 080 674 125	12	4 1-3	2 - 6	3800		3400	
230	522 791 642 051 522 080 674 221	12	6 1,5-3	3,5 - 6	3800		3400	

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 respecve 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.

To observe:
When assembling the machine head with the stand be sure that the original composition is maintained, i.e., that the machine is mounted on the stand with which it has been sewn off. The correct stand No. is indicated on the check slip attached to the machine head.

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 mechanisms and of hook is recommended oil with viscosity of 18 - 21 $mm^2.s^{-1}$ at 20°C. With an oil can, drip oil into the marked holes of the machine once a day, before the beginning of the work shift. Check also the oil level at the indicator of the hook oil tank. The gear wheels of the hook gear box receive oil from the felt inlay situated on the gear box bottom. The hook and its mechanism should be cleaned several times a day. 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. From time to time, use grease nipple to refill the shafts (7, Tab. 12 and 3, Tab. 14) with lubrication grease. 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.

Warning !
Before proceeding to clean and lubricate the machine, be sure to switch off the main switch and hold your feet away from the machine stand treadles in order to avoid accidental machine start by treadle actuation.

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 put 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.

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 correctly. Further check for correct working the mechanism controlling the lifting of the presser foot by means of the left-side treadle, and the reverse stitching by means of the hand lever.

2. Sense of rotation

The correct sense of rotation of the machine wheel is anticlockwise, viewing the machine from the side of the handwheel.

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., to the left. 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.

Warning !
Avoid any intervention into the electrical equipment of the machine but call in an electrician. Unqualified intervention involves the risk of accident by electric shock.

4. To check the needle stop positions

Disconnect the connector of the trimmer device on the switch box of the stop motor, and set the needle position lever switch to the position "needle down" shown by a symbol under the switch. Shortly toe (depress forward) and again release the control treadle. The machine will start and stop in the "needle down" position. Then heel the treadle. The machine will move by about half a revolution and stop somewhere between 0° and 5° after the top dead point of the thread take-up lever. Should it stop in other needle positions, adjust it as instructed in the Operation instruction of the stop motor Quick.

5. V-belt and its tension (Fig. 10)

To adjust the V-belt tension, loosen the two fixing screws and displace the electric motor in the groove of its holder. 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 handwheel 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 remove the V-belt, proceed as follows: tilt the machine head, screw out the coupling nut of the connecotr plug nof the synchronizer, take out screw out the screws (40) and remove both the upper belt guard and from the lower belt guard (fixed by screws to the stand plate) the metal sheet protecting the V-belt from getting out of the groove of the pulley. Tilt the machine, take the V-belt out, set the new V-belt on the motor pulley, remount the sheet piece, and pass the V-belt between the oil tank and the stand plate, insert the V-belt into the groove of the handwheel, tilt the machine back to its operational position, check the V-belt for correct tension, mount the upper belt guard, and connect the connector plug of the contactless sensor. Any adjustment of the machine must be carried out with the machine switched off.

6. To lift the presser foot (Fig. 8)

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.

7. 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 high-class threads should be used. Especially suitable are conical cross-wound bobbins. S-twist thread should be used for the needle, while both S-twist and Z-twist thread is suitable 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.

Warning !
Before proceeding to exchange the needle, be sure to switch off the main switch and hold your feet away from the machine stand treadles in order to avoid accidental machine start by treadle actuation.

8. To insert needle (Fig. 8)

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.

Warning !
Before proceeding to thread the machine, be sure to switch off the main switch and hold your feet away from the machine stand treadles in order to avoid accidental machine start by treadle actuation.

9. To thread the upper thread (Fig. 3)

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.

10. To wind the hook bobbin (Fig. 4)

To wind the lower thread on the hook bobbin, a built-in bobbin winder, supplied separately 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.

To observe:
In machines equipped with upper and lower thread trimmer, increase the tensioner disc pressure during the winding and pay special attention to the winding uniformity by setting the threaed guide (6) to adequate position.

11. 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.

Warning !
Before proceeding to exchange the bobbin of the hook, be sure to switch off the main switch and hold your feet away from the machine stand treadles in order to avoid accidental machine start by treadle actuation.

12. 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 rupture or another breakdown could occur at the following machine start.

To observe:
In machines equipped with trimmer device for upper and lower threads, the lower thread tension should be somewhat reduced to ensure reliable operation of the trimmer device, but remain high enough to provide for high quality stitch.

13. 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.

14. Sewing - work proper

Insert the material to be sewn under the presser foot, switch on the stoop 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, heel 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.

To observe:
After the new machine has been put in use do not charge it fully from the very beginning. During the first two or four weeks, when the machine is running-in, increase its speed gradually from about 3,500 stitches per min. and check carefully its running. Throughout this time, pay special attention to the mahcine lubrication. By keeping to these rules you will obtain a long service life and perfect precision of the machine even at its full performance.

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 sewing machine mechanician.

1. Stitch length adjustment (Fig. 5)

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.

2. To adjust the zigzag stitch width (Fig. 6)

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. 5) on the lever (1) 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 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 Equipment No. 236, i.e., 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.

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 increased 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. 7)

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 correspondignly adjusting the angular position of the eccentric pin (5), then retighten the screw (1) thoroughly.

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. 7)

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. 8)

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 and adjust the hook holder (2) so as to obtain a gap of approximately 0.7 mm between the holder lug 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. 7)

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 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 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. 8)

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)

Remove first the synchronizer (A). Mark the position of the hub with respect to the handwheel (if it is not marked already), screw out the screw (4), remove the belt guard and then the V-belt from the handwheel. Loosen the two screws (2) and remove the handwheel with the bearing (8) out of the machine arm and from the upper shaft (5). Pass the drive belt (7) through the aperture thus createding the machine arm around the upper shaft and engage it on the two belt wheels, and mount the handwheel with the bearing on the upper shaft in such an angular position that the first screw, considered in the sense of rotation of the handwheel, comes to sit on the small flat surface of the upper shaft when tightened. Fix then the handwheel by retightening the screws (2), engage the V-belt on the handwheel, and mount the belt guard and, in its correct angular position indicated by the mark, the synchronizer.

16. To adjust the needle punches into the centre of the slot of the throat plate in longitudinal direction (Fig. 8)

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 (Tab. 6)

The adjustment is to be carried out with the adjusting cam mounted. Remove the cover (12) of the zigzag stitch mechanism and turn the handwheel until the needle bar with the needle reaches its bottom position. Loosen the nut (11) on the screw (9) on which is mounted the tie rod of the needle bar holder, displace the screw (9) 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, 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 (9) turn the roller and displace the screw (9) in the lever groove 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), retighten the nut (11) and mount the cover (12).

18. To adjust the needle punches into the centre of the slot of the throat plate in transverse direction (Tabs.1, 4)

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 opposite which, on the rear side of the machine arm, is situated another adjusting hole fitted with a plug. Loosen the screws (22, Tab. 4) and 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 screws carefully, and mount the covers.

19. To adjust the tooth play of the zigzag stitch transmission mechanism (Tabs. 1, 11)

The tooth play of the zigzag stitch transmission mechanism is controlled by the conical worm (20, Tab. 11). To adjust the play, first screw out the four attachment screws (2, Tab. 1), remove the upper cover (7), and loosen the screws (14, Tab. 11) 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 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 be 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 (Tabs. 1, 11)

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 (7, Tab. 1) and loosen the screws of the worm wheel (the set ring (19, Tab. 11) defines the axial position of the worm and by means of this also the tooth play). Adjust the angular position of the worm on the upper shaft so as to ensure that no transverse movement of the needle bar holder takes place while the needle is punched in sewn material, then 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. 16)

After a rather extensive machine repair is recommended to check 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 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. The stop pin on the front of the gear box is inserted into the slit part of the bed plate lug and is in contact with its upper part. Fix the gear box position by retightening the two screws (20).

22. To adjust the operation of the adjusting spring (Tab. 2)

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.

23. To time the trimmer actuating cam (Table 13, 20)

The correct and trouble-free function of the thread trimmer device requires the correct setting of the trimmer actuating cam mounted on the lower shaft and commanding the movement of the moving cutter which serves also to catch and draw out the threads prior to their trimming, as well as the mechanism for loosening the thread tensioner. With the machine switched off, rotate the handwheel until the thread take-up lever reaches its top position. Mark this position on the handwheel and on the machine arm (on the belt guard) by provisional signs, then tilt the machine and rotate the handwheel until the two provisional signs are aligned. Loosen the two screws (29, Tab. 13) of the cam (21) and set the cam thus loosened so that its index line (marked in red) coincides with the axis of the pin (32, Tab. 20), then lock the cam by tightening the screws (29, Tab. 13). This is the basic position of the cam which, however, can require some adjustment depending on the kind of threads, sewn work, etc. The timing of the drawing hook movement is governed by the angular position of the cam on the lower shaft. Tilt the machine head and insert the pin (32, Tab. 20) into the straight section of the cam groove by depressing the lever transmitting motion from the electromagnet. Turning then the handwheel towards the operator (anticlockwise) you can time the beginning of the drawing hook movement from its initial to its rear position. If adjusted correctly, the point of the drawing hook comes to lie in immediate vicinity of the throw-away section of the sewing hook at the moment when the lower thread leaves the latter, thus forming the typical triangle. During the subsequent rotation of the hand wheel, the drawing hook point shall pass through the triangle, with one arm of the upper thread together with the lower thread lying on one side, and with the other arm of the upper thread lying on the other side, of the drawing hook. The threads lying on the notched side of the drawing shall enter the notch.
For adjustment, loosen the two screws (29, Tab. 13) on the cam (21) and turn the cam either in the sense of the lower shaft rotation, to speed up the beginning of the drawing hook movement, or inversely. After the adjustment of the cam check whether upon depression of the lever (27, Tab. 20) the pin (32) enters freely the straight section of the cam (21, Tab. 13), press the carrier ring (20) onto the cam thus adjusted, and retighten it by screws (8) on the lower shaft.

24. To adjust the starting position of the drawing hook (Table 18, 19)

The starting position of the drawing hook shall ensure a distance of 2 to 3 mm between its outer edge and the outer edge of the removable slide plate (1, Tab. 18) (aligned with the outer edge of the bed plate). The slide plate should be attached to the bed plate in a position leaving no gap between the slide plate and the throat plate (4). To adjust the drawing hook position, loosen the locking nuts (4, Tab. 19) and turn the connecting tie rod (5), so as to obtain its length required for fixing the correct position of the drawing hook, then retighten the locking nuts.

25. To adjust the stroke of the drawing hook (Table 13, 20)

Insert the pin (32, Tab. 20) into the cam (21, Tab. 13) and rotate the handwheel towards you until the lower thread and one arm of the upper thread enter the notch provided on the side of the drawing hook. If they do not enter, loosen the nut (12, Tab. 20) on the swinging lever (6) and displace the tie rod (4) in the groove of the lever (6). To increase the drawing hook stroke, increase the length of the lever arm, and inversely. Fix the adjusted position by retightening the nut (12).

26. To adjust the pressure of the stationary knife (Table 18)

The correct trimming operation depends among others on the pressure force of the stationary knife (18). The pressure force can be increased by screwing in the screw (3) in the slide plate (1), and reduced by screwing it out. The pressure force should be just sufficient for proper trimming to avoid excessive wear of both the stationary knife and the drawing hook (moving knife). If in spite of this adjustment the trimming operation remains unsatisfactory, check the cutting blade of the stationary knife improve it, or exchange the knife.

27. To adjust the loosening of the upper thread tensioner (Table 2)

For correct operation, the main upper thread tensioner must be loosened during the thread trimming cycle. This loosening is actuated automatically in due phase of thread trimming operation, via a bowden and a lever system during the activation of the trimmer device. If the loosening fails to take place use the displaceable bushing (6) to adjust the mutual position of the two bowden ends and, consequently, the stroke value, having first loosened the screw (14) in the machine arm. The gap between the disks of the tensioner when loosened must ensure free passage of upper thread.

29. Available length of upper thread

The available upper thread length depends on the following factors:

a) Tension of the ancillary thread tesnioner:
The available upper thread length increases with decreasing tension of the ancillary thread tensioner, and inversely.

b) Timing of the main tensioner loosening i.e., setting the time constant C_7 of the resistor R_{36} and of the potentiometer P_2. The potentiometer P_2 serves to set the value of the time delay between the trimming signal and the subsequent release of the control electromagnet. These values have been set at the producer's.

c) Machine stop with respect to thread take-up position: The sooner (before the upper dead point of the thread take-up lever) the machine is stopped, the smaller is the available upper thread length, and inversely.

30. To remove and insert the slide plate (Table 18)

If it is necessary to remove the slide plate (1) it must be borne in mind that it carries the trimmer mechanism. First loosen the screw (13) and disconnect the drive of the trimmer mechanism by taking the pin (15) out of the lever (9), then loosen the screws (2) fixing the slide plate to the machine bed plate, and take the slide plate out. Proceed inversely to insert the slide plate.

31. To remove and to mount the moving trimmer knife (the drawing hook) - (Table 18)

Tilt the machine head onto the support pin located on the stand plate, loosen the screw (13) and disconnect the drive of the trimmer mechanism by taking the pin (15) out of the lever (9).
Tilt the lever together with the trimmer knife to the left (away from the hook) thus taking the cylindrical end of the lever (9) out of the aperture provided in the trimmer knife (5), and take the knife out of the slide plate.
For assembly, proceed inversely.

32. Electrical equipment of machine

The machine is equipped with an electric motor situated in the machine stand. The electrical equipment of the machine should be kept in good state according to the electrotechnical and security regulations. To change the sense of rotation of the electric motor change over the lead-in cable either at the plug or at the terminal board of the electric motor. In the latter case, be sure first to take the plug of the lead-in cable out of the socket.

Warning !
Avoid any intervention into the electrical equipment of the machine but call in an electrician.

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.

Warning !
Before proceeding to clean and lubricate the machine, be sure to switch off the main switch and hold your feet away from the machine stand treadles in order to avoid accidental machine start by treadle actuation.

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 6).
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 looper 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 11). 4. Thread the upper thread correctly (see par. 9, page 9). 5. Adjust it (see par. 3, page 11). 6. Exchange the needle (see par. 8, page 8). 7. Use adequate thread. 8. Unscrew the throat plate, clean the mechanism, and set the throat plate (see par. 6, page 11). 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 9). 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 11).
	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 12).
	8. Soiled hook mechanism.	8. Clean it with kerosene and oil it with oil J1.
f) Needle breakage.	1. Feed-dog positioned too high.	1. Adjust it in height (see par. 4, page 11).
	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 11) and fix it by screws.
	6. Excessive upper thread tension.	6. Adjust it (see par. 4, page 11).
g) Heavy and irregular feeding.	1. Feed-dog positioned too low.	1. Adjust it in height (see par. 4, page 11).
	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 11).
h) Stitch forming below sewn material.	1. Tensioner discs slashed by upper thread.	1. Exchange them and adjust the upper thread tension.
	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. 9, page 9).
	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 9).
	3. Lowerthread 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 11.
j) Locked hook.	Thread rests caugh in the hook.	Rotate the handwheel 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 recommended in par. 5, page 6 onto the hook.

2. Basic faults referring to thread trimmer device

a) Insufficient length of upper thread available resulting in threading out of upper thread out of the needle eye at the machine start: the machine fails to start stitching.	1. Excessive tension of ancillary thread tensioner.	1. Reduce the tension.
	2. Premature timing of he cam.	2. Adjust the timing.
	3. The machine stops before the top dead position.	3. Adjust it correctly.
	4. The electromagnet serving to release.	4. Ascertain the cause and repair the trouble.
	5. Incorrect upper thread unwinding.	5. Repair it.
	6. The edge of the active section of the drawing hook is too sharp and tends to cut the thread.	6. Polish the edge.
	7. Too sharp hook edge.	7. Polish it.
b) Insufficient amount of lower thread, the machine fails to start stitching.	1. The lower thread end is drawn into the bobbin case.	1. Increase the lower thread tension while being wound on the bobbin.
	2. Excessive speed prior to machine stop.	2. Set it at 140 r.p.m. or less.
	3. Excessive lower thread tension.	3. Reduce it.
	4. Burs on the cover sheet of the hook.	4. Polish it.

Fault	Cause	Remedy
c) Thread ends are poorly cut or are not at all.	1. Maladjusted (insufficient) pressure of stationary knife. 2. The stationary or the moving knife (the drawing hook) is blunt.	1. Repair it. 2. Sharpen it.
d) Poor seam beginning at the underside of sewn work.	Too long upper thread.	1. Increase the tension of the ancillary thread tensioner. 2. Adjust the cam timing.
e) The upper or the lower thread fails to be cut.	1. Incorrect cam timing. 2. Skipped stitches at reduced speed. 3. Poor thread separation by the drawing hook. 4. Insufficient stroke of drawing hook.	1. Time it correctly. 2. Adjust the mechanism. 3. Adjust or exchange the drawing hook. 4. Adjust it (see par. 24, page 15).
f) Neither thread is cut but the needle movement from the lower to the upper position foes take place.	1. Incorrect cam timing. 2. The electromagnet controlling the thread cutting fails to operate correctly (gets stuck). 3. Insufficient stroke of drawing hook.	1. Time it correctly. 2. Check the wiring of the electromagnet or exchange it. 3. Adjust it (see par. 24, page 15).
g) Stitch begins only after a few skipped stitches.	1. Insufficient supply of upper thread. 2. Insufficient supply of lower thread hook and the hook.	1. Increase it (see par. 29, page 16). 2. Re-polish the drawing.
h) At the seam begin, the upper thread end protrudes above sewn work.	Excessive supply of upper thread.	1. Increase the tension. 2. Adjust the cam timing. 3. Adjust the machine stop in the needle up position.

V. HOW TO USE THIS CATALOGUE AND ORDER SPARE PARTS

For effective use of the Catalogue, carefully study the following information:
The Catalogue is divided into two sections:

1. Instructions for servicing with figures and technical data
2. Tables of spare parts with spare part list

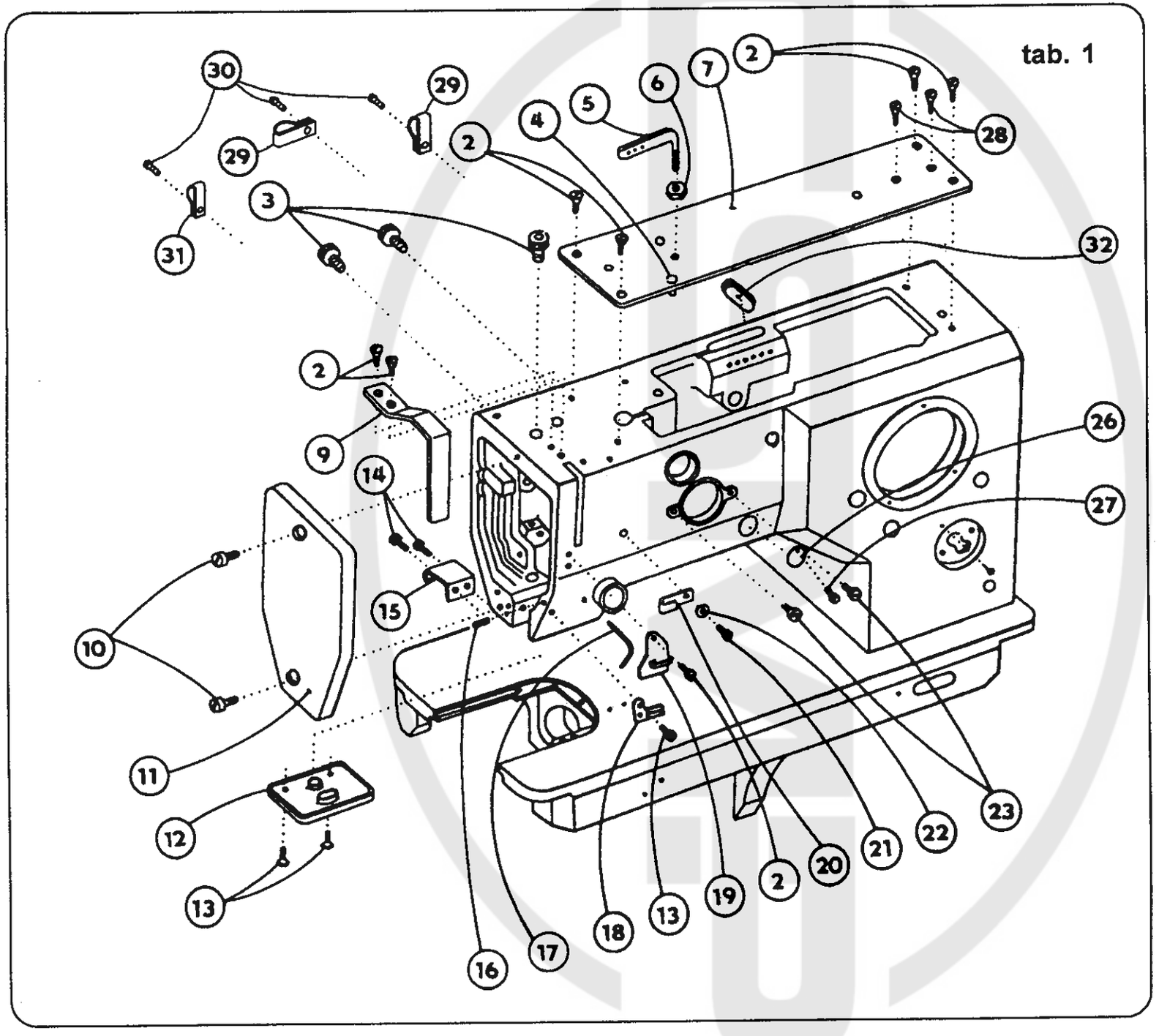
Please, specify in each order for spare parts:

a) the twelve-digit No. of the part
b) number of parts

Example of an order:

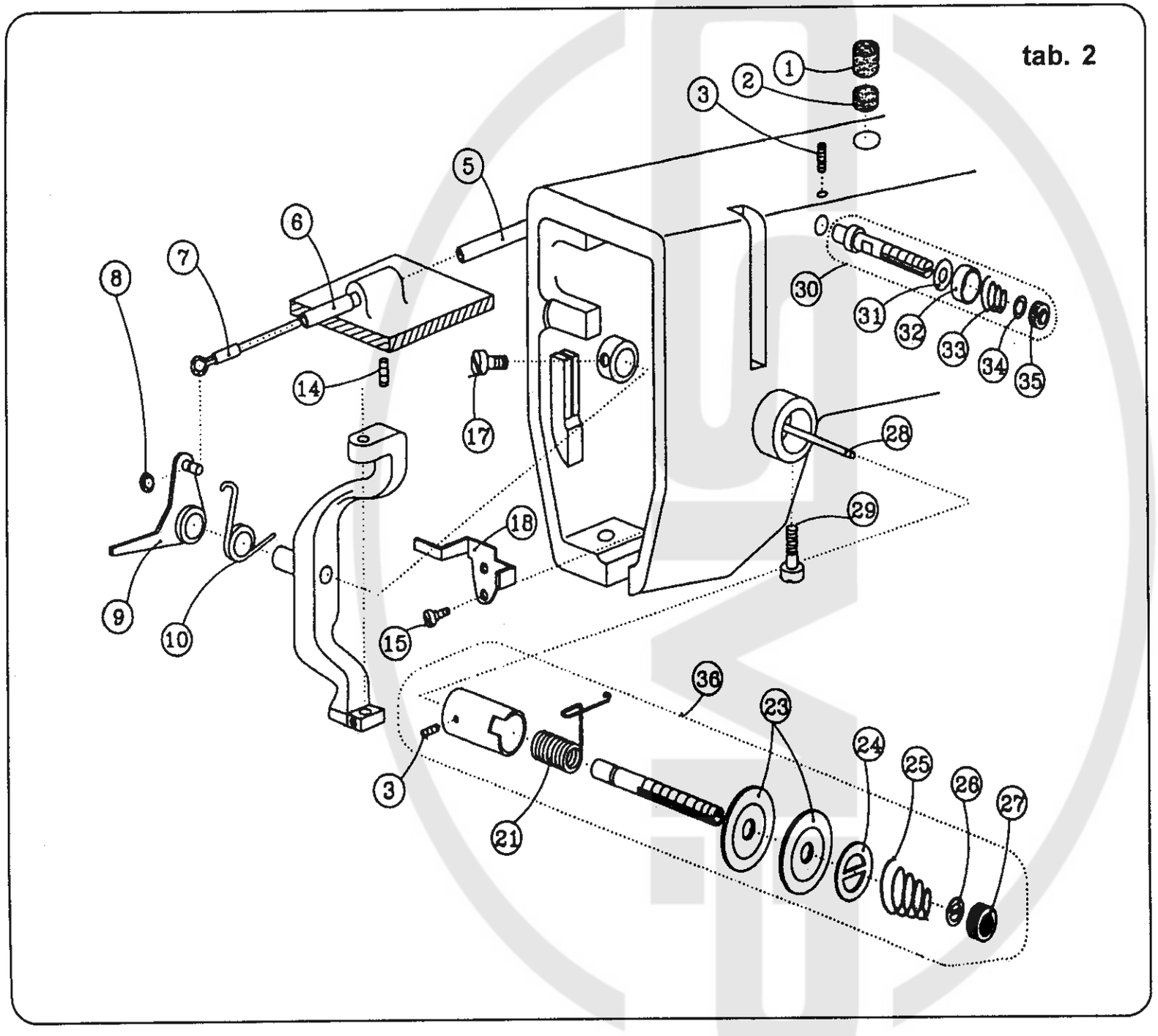
311 515 306 025	-	two pieces
522 080 811 699	-	one piece

TABLES OF SPARE PARTS WITH SPARE PART LIST



ZZ 567 TD

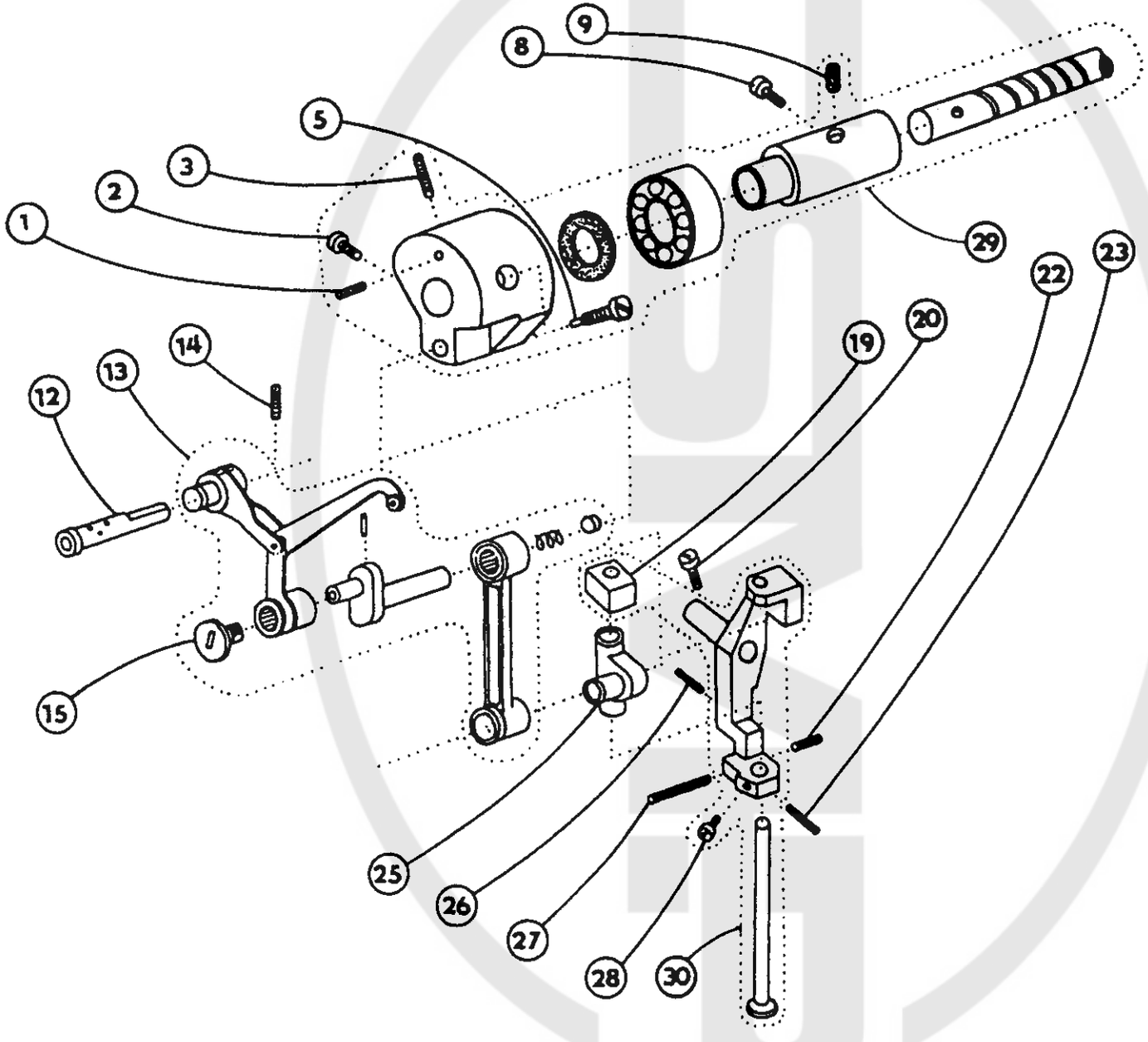
2	522 080	123 117
3	321 161	001 000
4	522 080	840 073
5	522 080	313 204
6	522 080	161 138
7	522 080	815 007
9	522 080	831 348
10	522 080	120 248
11	522 080	721 173
12	522 080	827 180
13	522 080	123 122
14	522 080	126 063
15	522 080	823 149
16	522 080	111 227
17	522 080	271 184
18	522 080	821 115
19	522 080	821 077
20	522 080	821 113
21	522 080	120 361
22	522 080	190 368
23	522 080	132 112
26	522 080	831 494
27	522 080	123 166
28	522 080	132 153
29	522 840	120 030 80
30	522 080	120 331
31	522 840	120 028 80
32	321 861	012 000



ZZ 567 TD

1	522 080	945 188
2	522 080	945 100
3	522 080	111 227
5	522 080	278 009
6	522 080	410 511
7	522 980	049 786
8	522 080	274 104
9	522 980	049 806
10	522 080	264 274
14	522 080	111 245
15	522 080	131 027
17	522 080	120 248
18	522 080	822 424
21	315 231	264 294
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	120 246
30	522 980	025 160
31	522 080	828 051
32	522 080	827 174
33	522 080	262 065
34	523 081	200 025
35	522 080	171 030
36	522 980	025 245

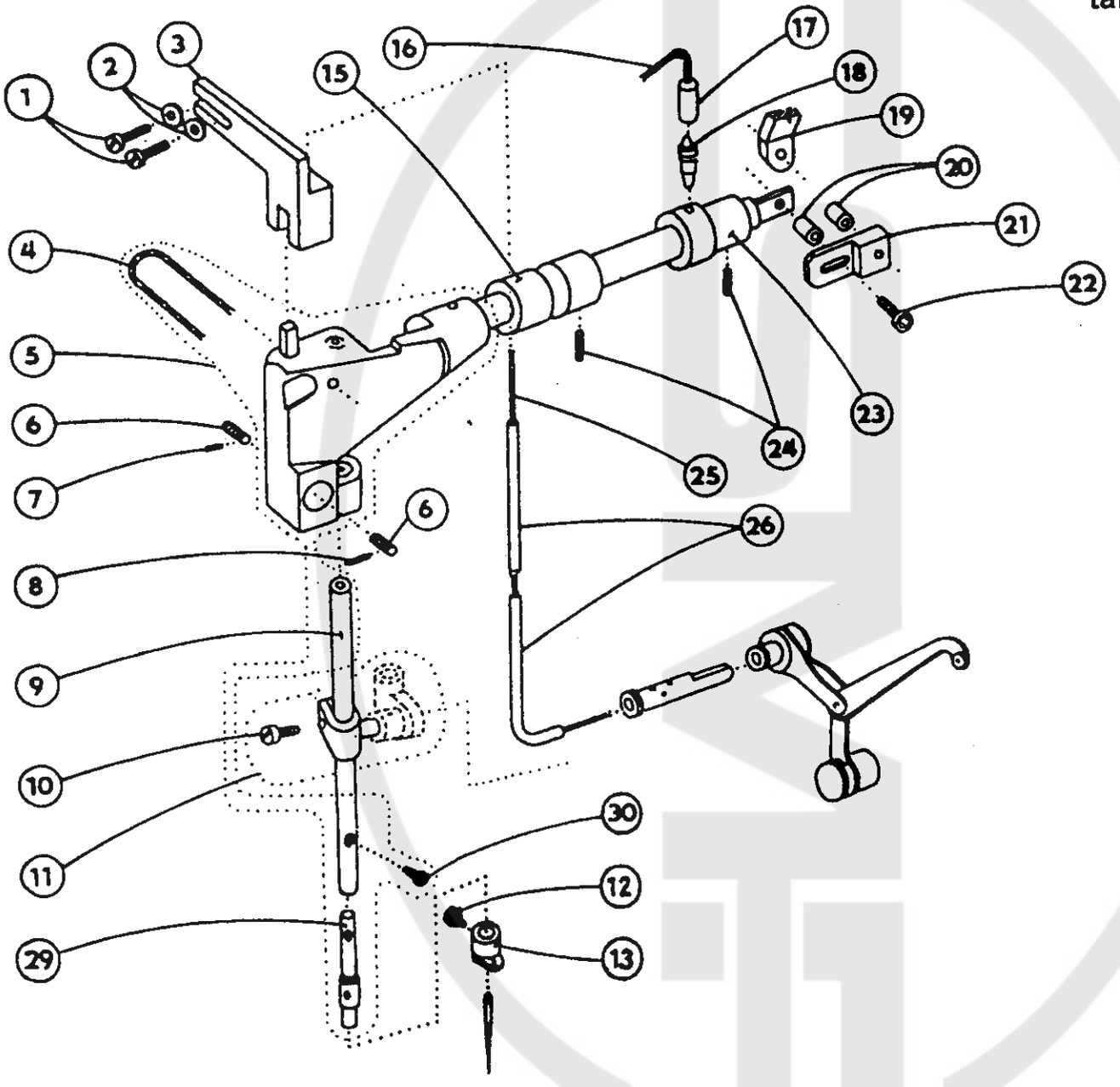
tab. 3



ZZ 567 TD

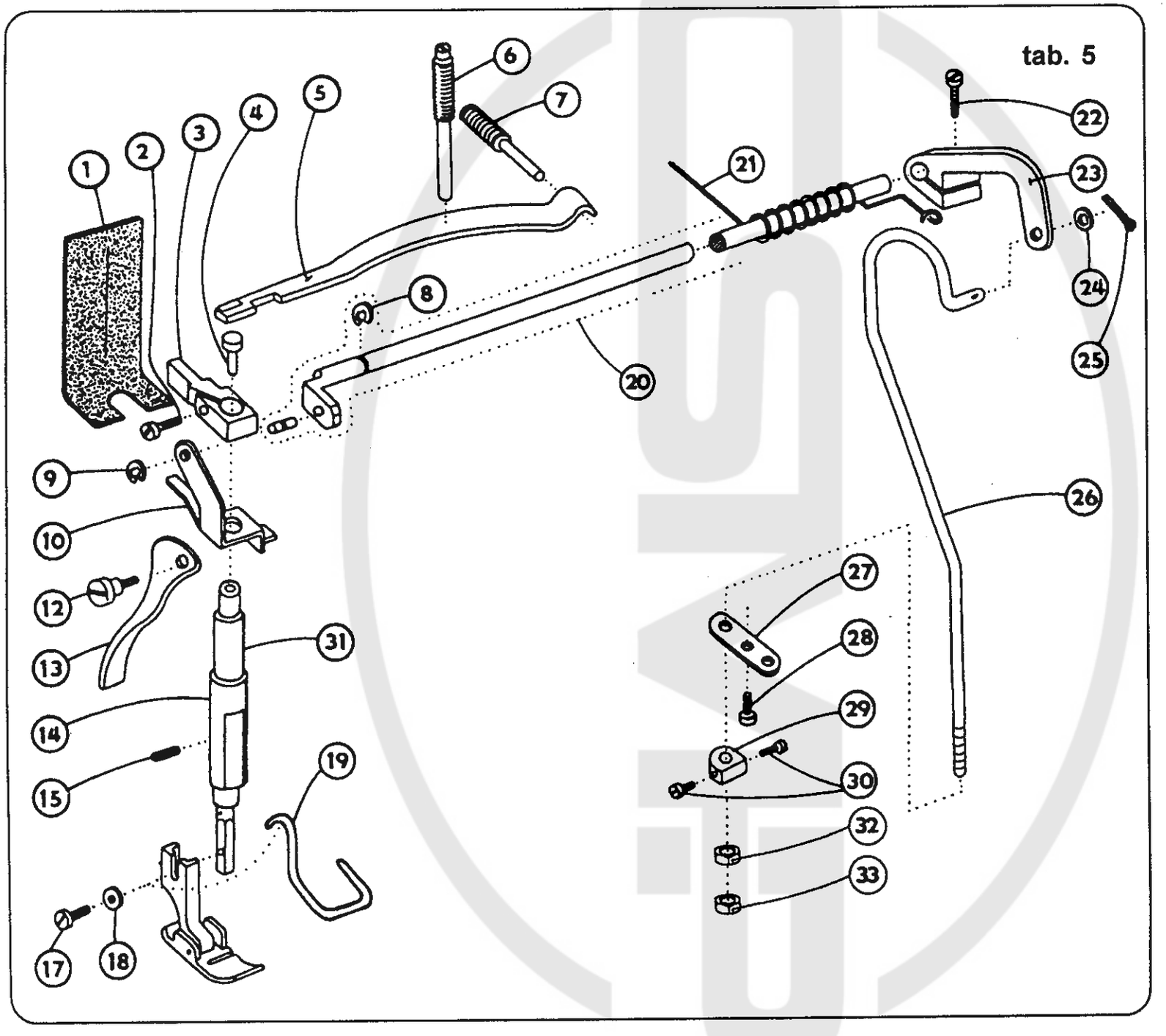
1	522 080	111 238
2	522 080	122 008
3	522 080	112 015
5	522 080	138 009
8	522 080	120 006
9	522 080	953 139
12	522 080	328 005
13	522 980	044 830
14	522 080	112 014
15	522 080	120 062
19	522 080	953 159
20	522 080	120 248
22	522 080	111 214
23	522 080	111 295
25	522 080	452 047
26	522 080	111 273
27	522 080	111 126
28	522 080	120 216
29	522 980	043 298
30	522 980	035 318

tab. 4



ZZ 567 TD

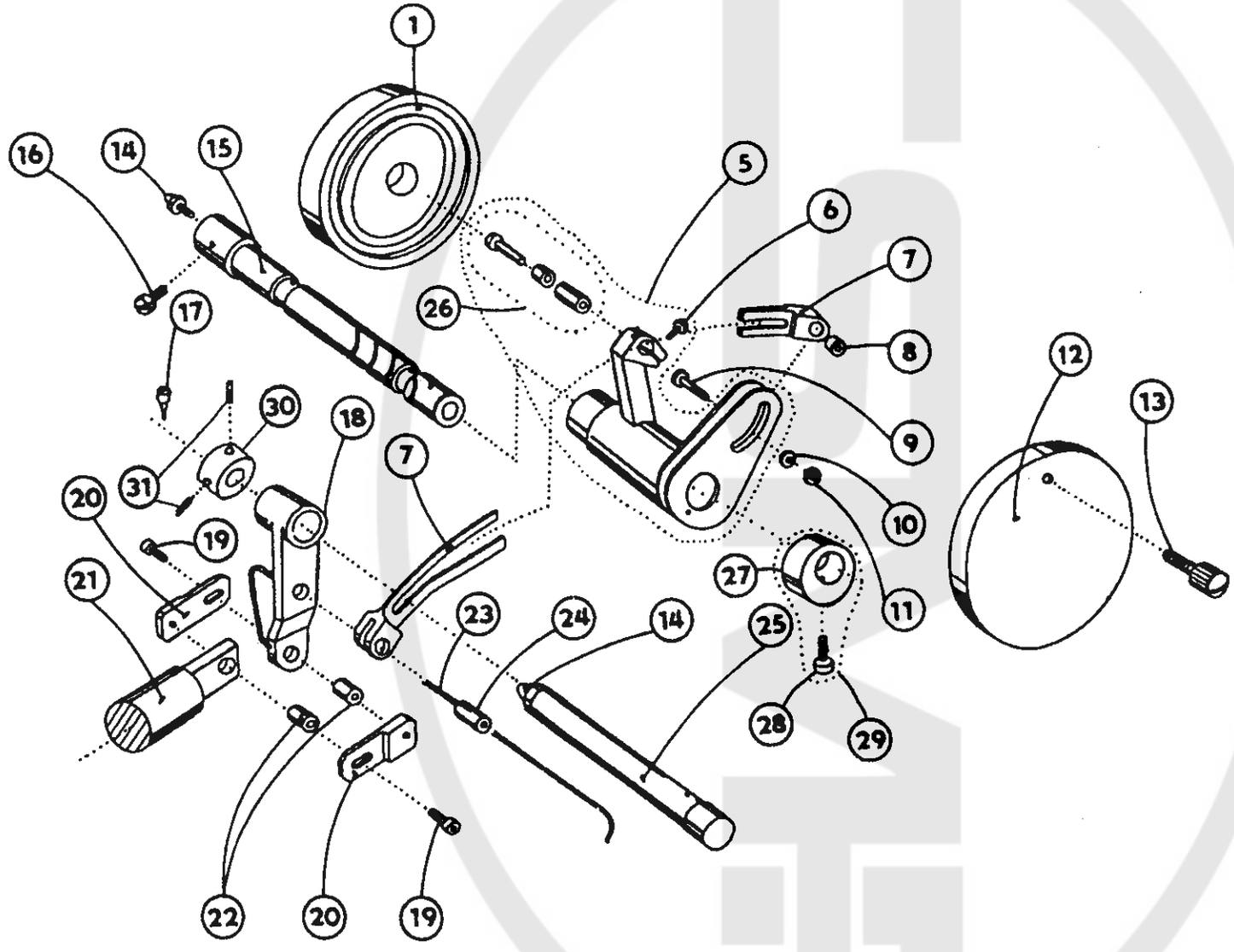
1	522 080	120 276
2	522 080	190 353
3	522 080	646 104
4	708 420	002 105
	ø 1,5 x 80 mm	
5	522 980	021 338
6	522 080	113 115
7	522 080	111 229
8	522 080	111 248
9	522 080	391 155
10	522 080	124 050
11	522 980	035 499
12	522 080	135 029
13	522 080	627 170
15	522 080	413 311
16	708 420	002 105
	ø 1,5x 250 mm	
17	283 366	002 001
	ø 3,5/ø 4,8 x 190 mm	
18	522 080	424 051
19	522 080	613 519
20	522 080	410 595
21	522 080	648 132
22	522 080	120 589
23	522 080	421 341
24	522 080	111 222
25	708 420	002 105
	ø 1,5 x 150 mm	
26	283 366	002 001
	ø 3,5/ø 4,8 x 70 mm	
29	522 080	394 167
30	522 080	136 082



ZZ 567 TD

1	522 080	945 317
2	522 080	120 543
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	311 732	910 060
9	311 732	910 040
10	522 080	839 215
12	522 080	136 023
13	522 080	615 021
14	522 080	421 330
15	522 080	112 014
17	522 080	120 239
18	522 080	190 554
19	522 080	271 393
20	522 980	060 209
21	522 080	264 338
22	522 080	120 221
23	522 080	633 196
24	522 080	190 346
25	522 080	271 337
26	522 080	382 101
27	522 080	814 014
28	522 080	120 217
29	522 080	436 331
30	522 080	120 050
31	522 080	392 105
32	522 080	161 139
33	522 080	161 333

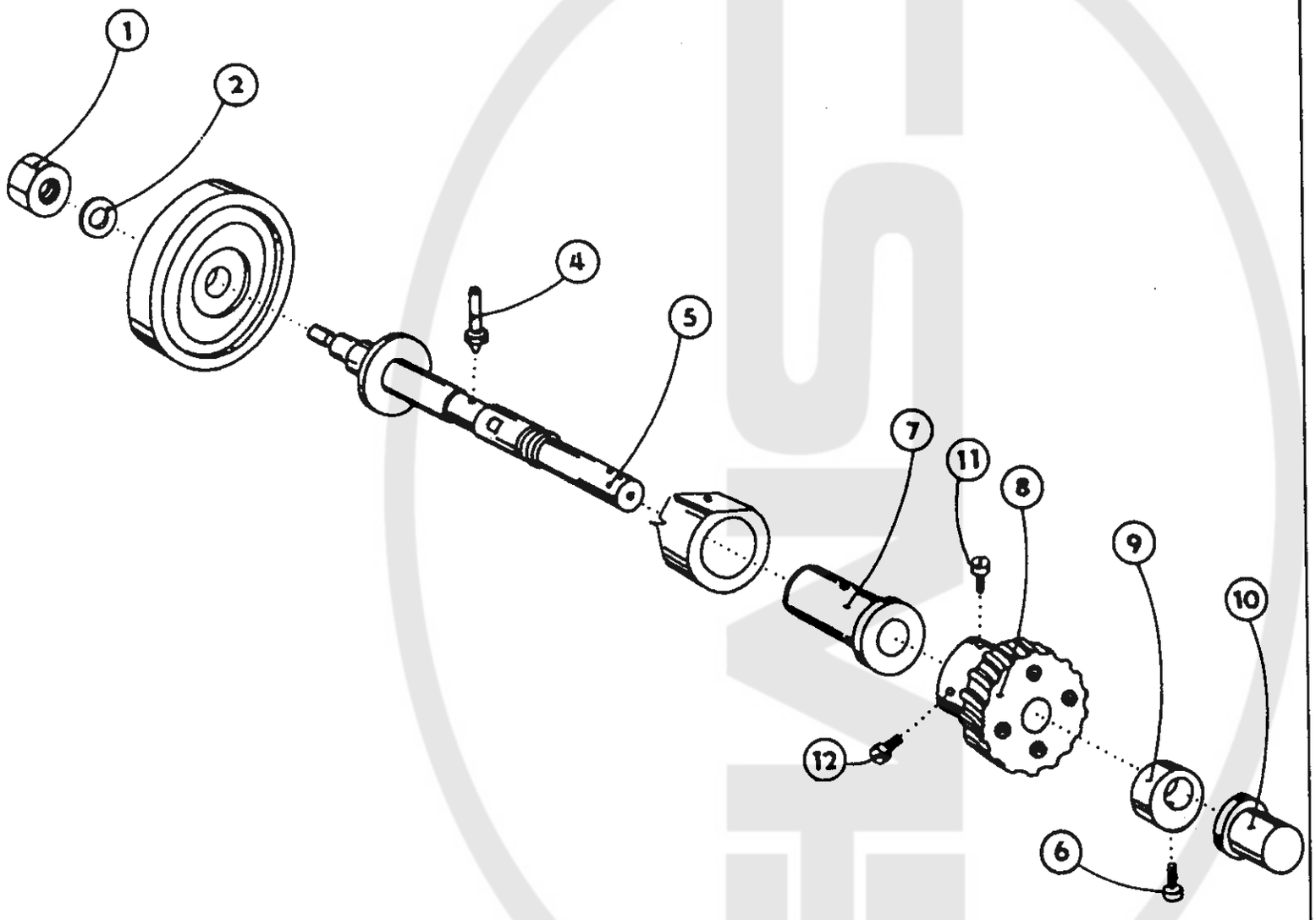
tab. 6



ZZ 567 TD

1	522 080	674 124
5	522 980	044 847
6	522 080	141 157
7	522 080	632 166
8	522 080	410 569
9	522 980	043 379
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	522 080	120 589
20	522 080	648 132
21	522 980	021 338
22	522 080	410 595
23	708 420	130 002
	ø 2 x 150 mm	
24	522 080	318 210
25	522 080	320 289
26	522 080	035 521
27	522 080	436 063
28	522 080	120 276
29	522 980	046 984
30	522 080	436 000
31	522 080	112 013

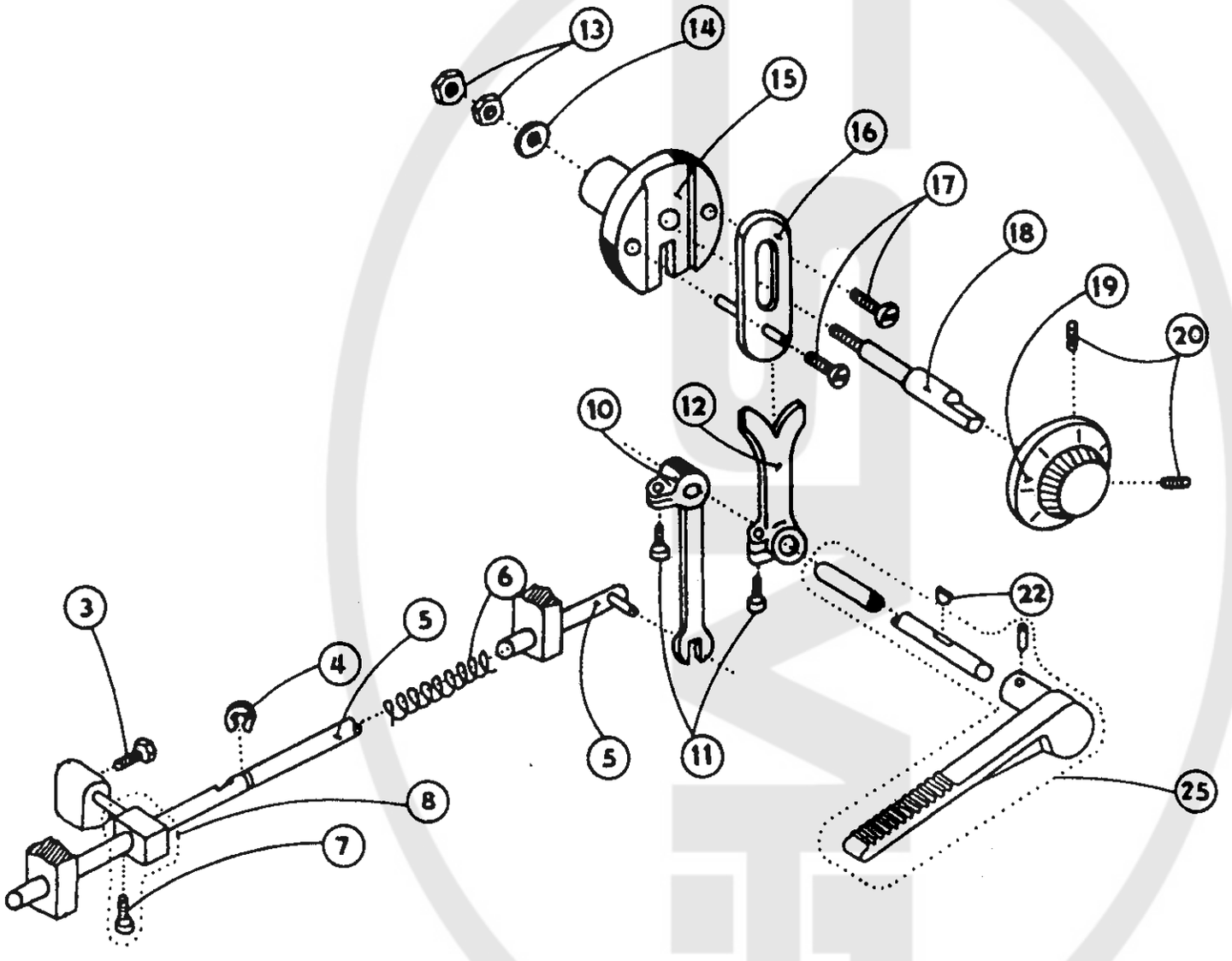
tab. 7



ZZ 567 TD

1	522 080	161 234
2	522 080	191 117
4	522 080	441 251
5	522 980	043 380
6	522 080	120 276
7	522 080	413 358
8	522 980	045 422
9	522 080	436 063
10	522 080	422 190
11	522 080	122 008
12	522 080	135 026

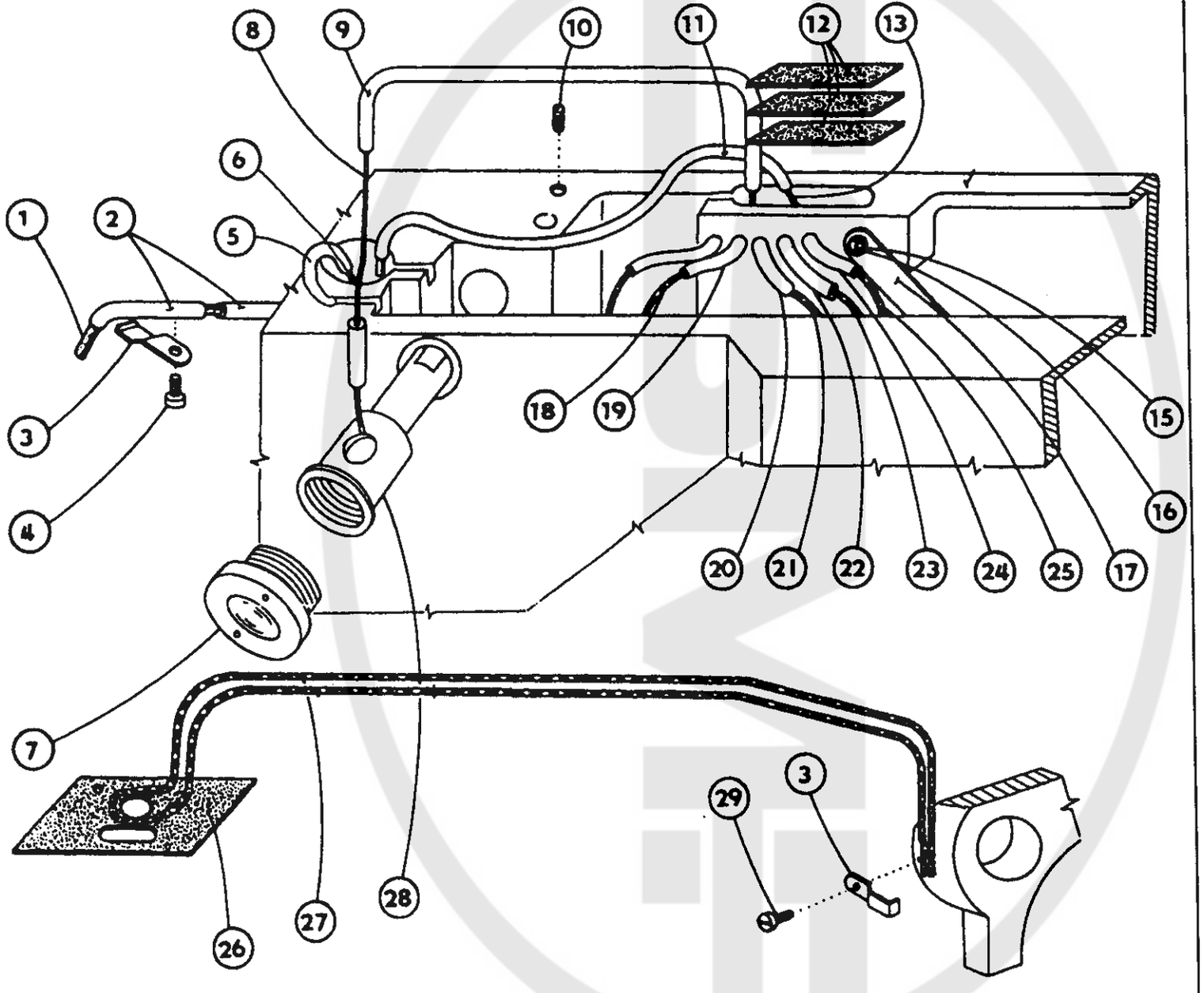
tab. 8



ZZ 567 TD

3	522 080	141 102
4	311 732	910 070
5	522 980	043 301
6	522 080	260 547
7	522 080	120 227
8	522 980	022 126
10	522 080	613 373
11	522 080	120 221
12	522 080	613 328
13	522 080	161 142
14	522 080	192 061
15	522 080	441 187
16	522 980	049 785
17	522 080	120 246
18	522 080	342 258
19	522 980	233 031
20	522 080	112 013
22	311 728	502 537
25	522 980	044 714

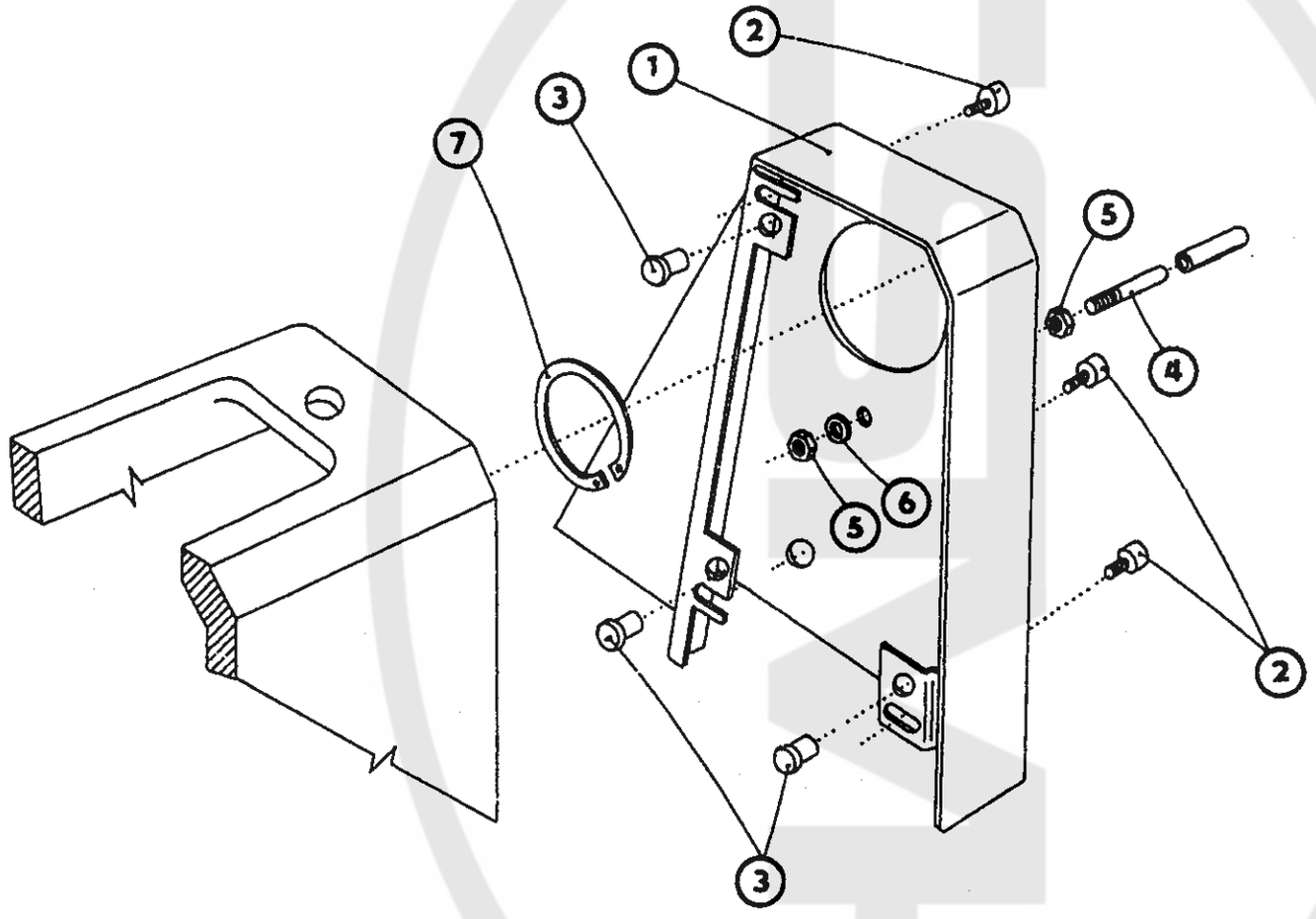
tab. 9



ZZ 567 TD

1	522 080	945 180
2	283 366	002 001
	ø 3,5/ø 4,8 x 65 mm	
3	522 080	824 095
4	522 080	120 245
5	283 366	002 001
	ø 3,5/ø 4,8 x 80 mm	
6	708 420	130 002
	ø 2 x 140 mm	
7	321 891	001 000
8	708 420	002 105
	ø 1,5 x 380 mm	
9	283 366	002 001
	ø 3,5/ø 4,8 x 150 mm	
10	522 080	111 245
11	283 366	002 001
	ø 3,5/ø 4,8 x 150 mm	
12	522 080	945 316
13	708 420	002 105
	ø 1,5 x 380 mm	
15	522 080	120 259
16	522 080	190 359
17	522 980	041 209
18	708 420	130 002
	ø 2 x 320 mm	
19	283 366	002 001
	ø 3,5/ø 4,8 x 250 mm	
20	283 366	002 001
	ø 3,5/ø 4,8 x 160 mm	
21	708 420	130 002
	ø 2 x 200 mm	
22	283 366	002 001
	ø 3,5/ø 4,8 x 90 mm	
23	708 420	130 002
	ø 2 x 130 mm	
24	283 366	002 001
	ø 3,5/ø 4,8 x 100 mm	
25	708 420	130 002
	ø 2 x 140 mm	
26	522 080	945 286
27	708 420	130 004
	ø 4 x 1120 mm	
28	522 080	441 313
29	522 080	120 216

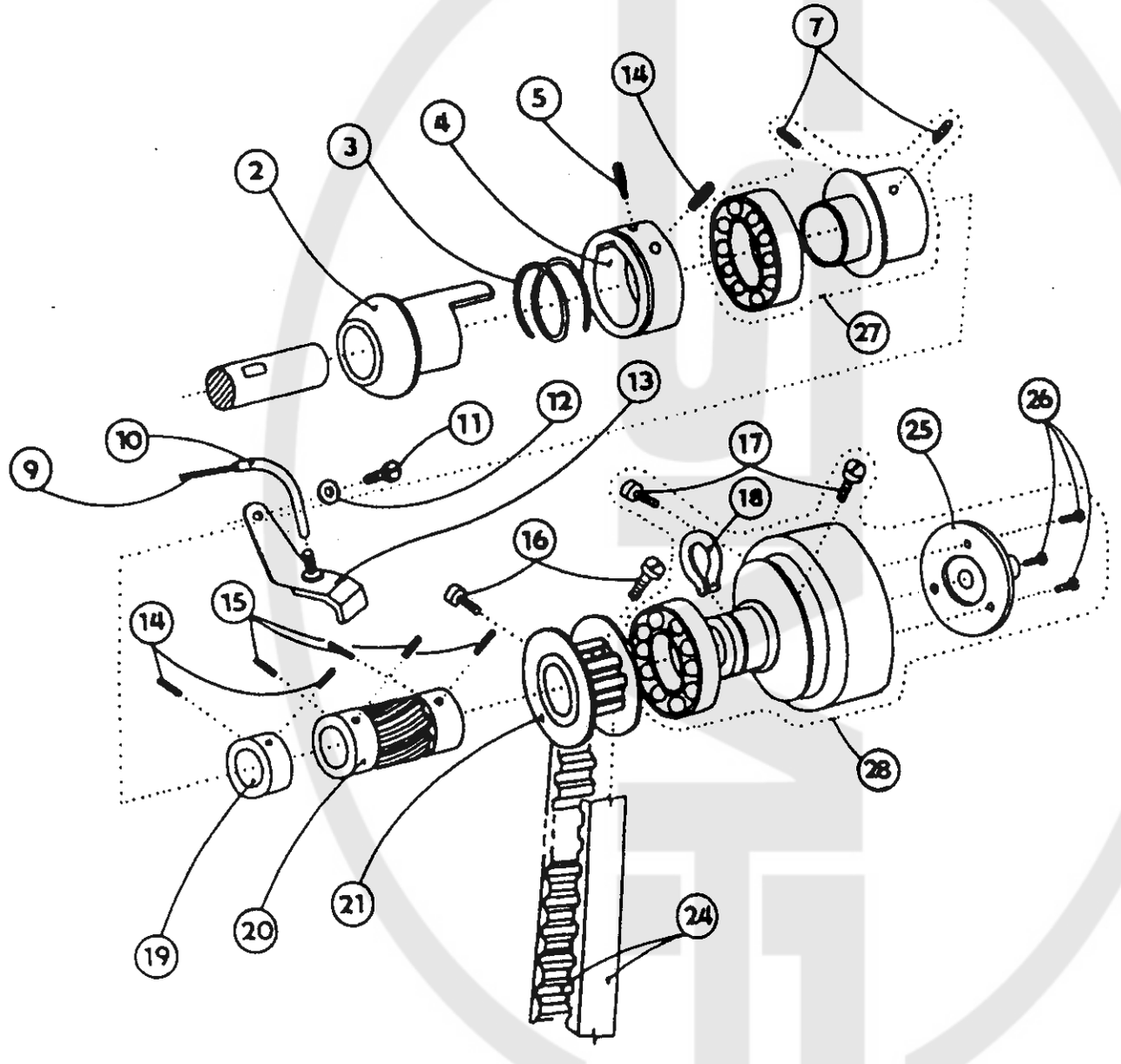
tab. 10



ZZ 567 TD

1	522 980	041 162
2	522 080	120 346
3	273 199	005 000
4	522 080	316 096
5	522 080	161 151
6	522 080	191 112
7	311 733	100 620

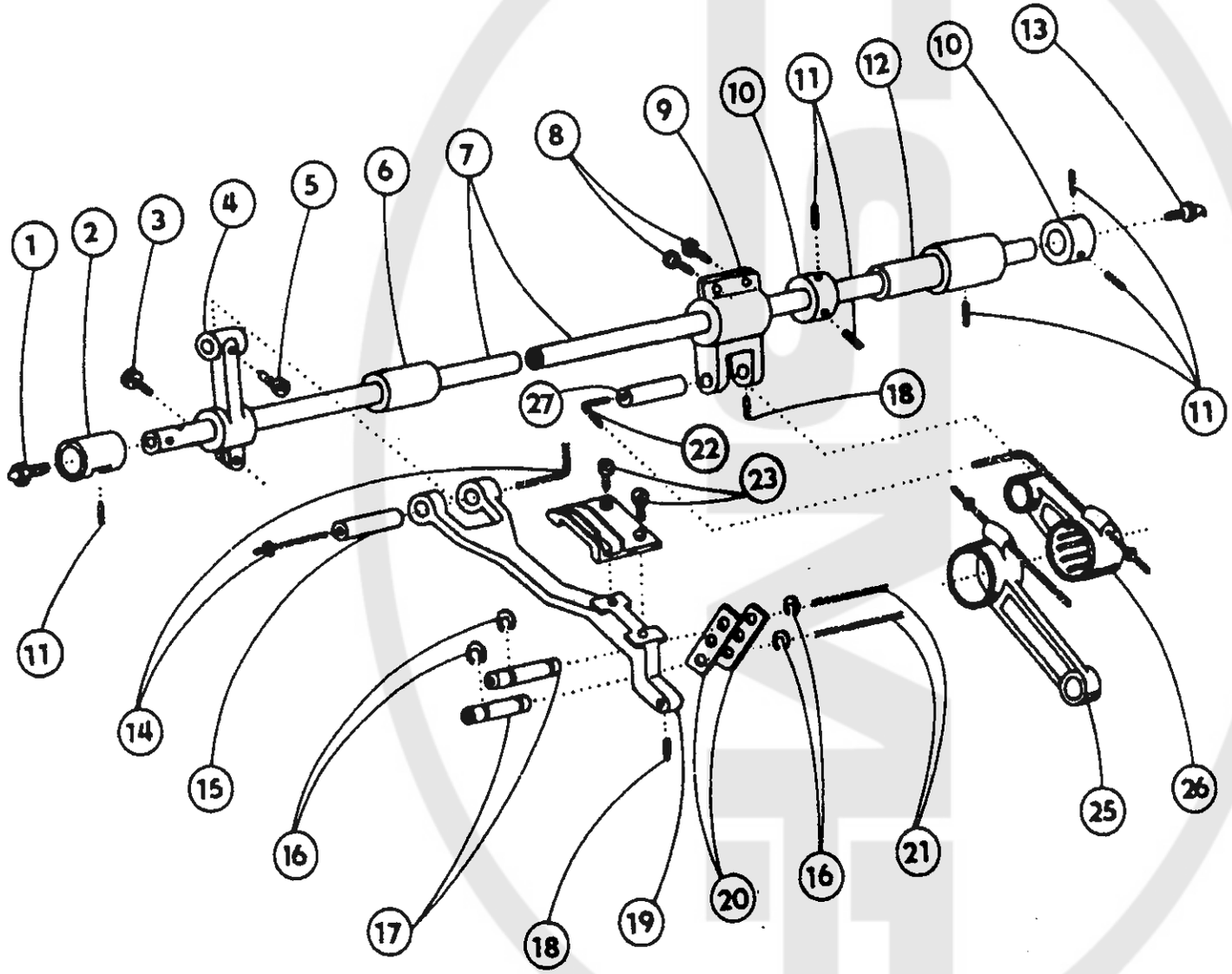
tab. 11



ZZ 567 TD

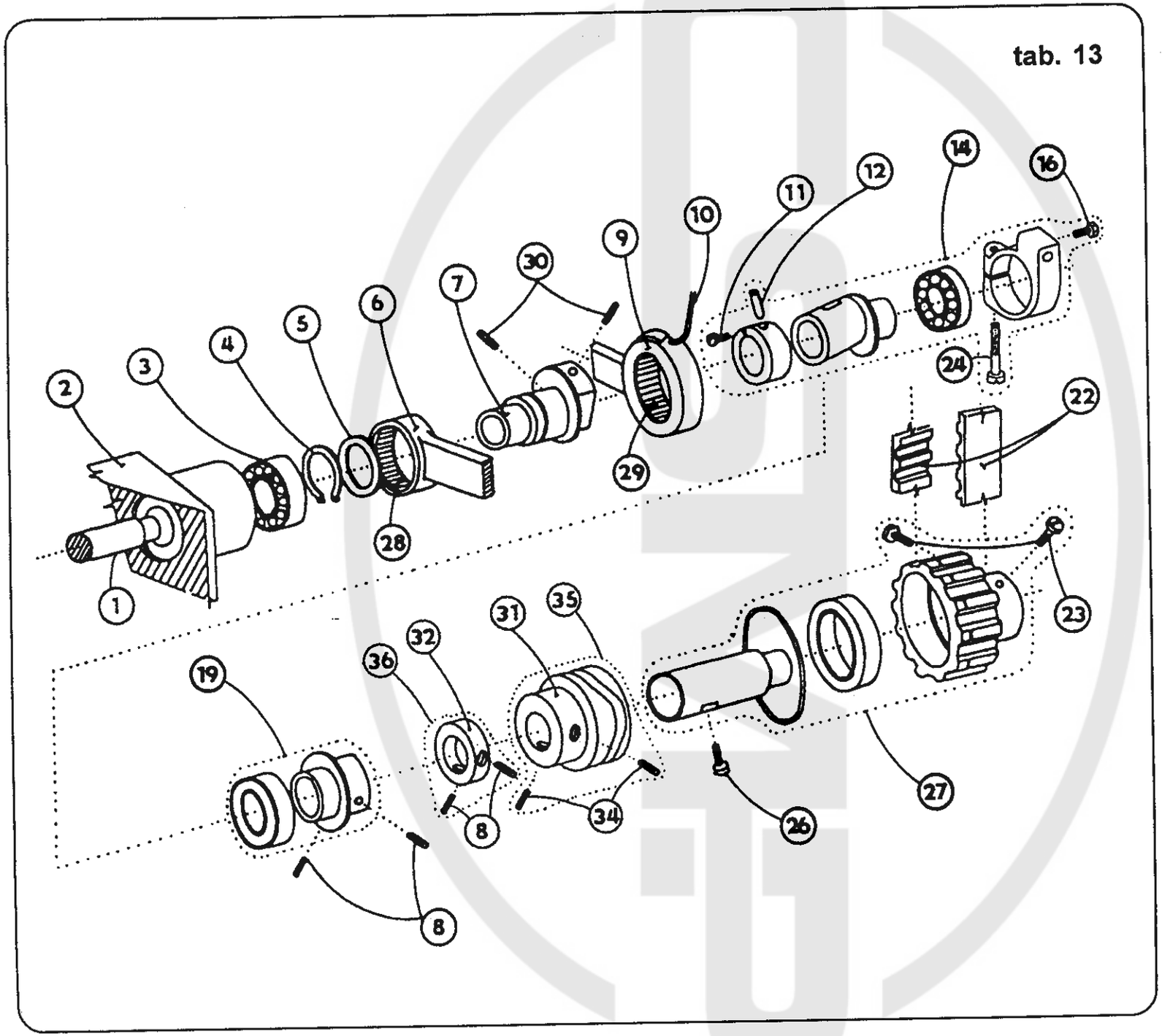
2	522 080	441 541
3	522 080	260 467
4	522 080	436 338
5	522 080	113 115
7	522 080	111 225
9	708 420	130 002
	ø 2 x 130 mm	
10	283 366	002 001
	ø 3,5/ø 4,8 x 90 mm	
11	522 080	120 259
12	522 080	190 359
13	522 980	041 209
14	522 080	112 013
15	522 080	111 102
16	522 080	122 029
17	522 080	120 006
18	311 733	000 300
19	522 080	436 388
20	522 080	570 051
21	522 980	045 315
24	272 213	011 015
25	522 080	442 548
26	522 080	120 252
27	522 980	035 849
28	522 980	045 301

tab. 12



ZZ 567 TD

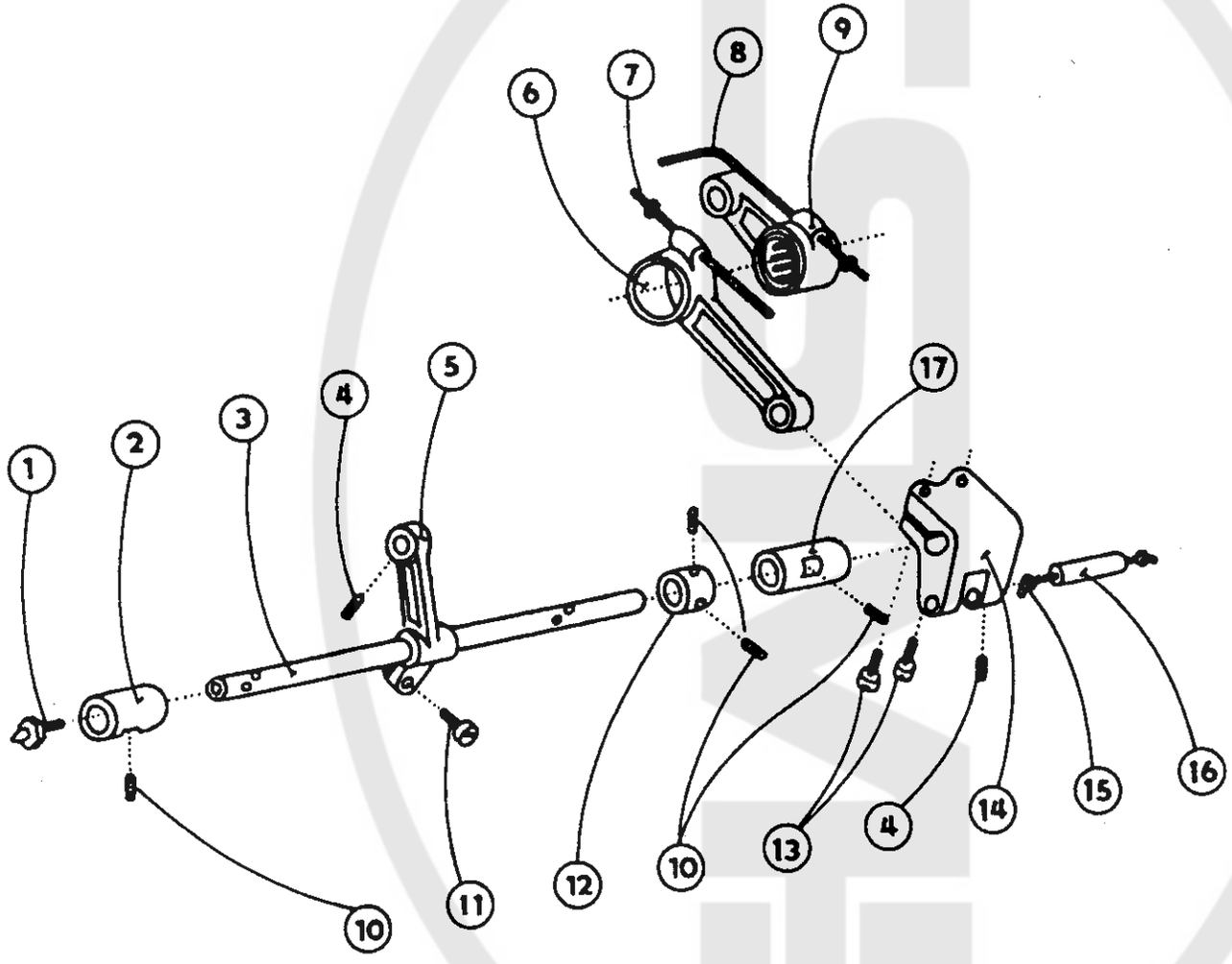
1	425 111	041 000
2	522 080	413 252
3	522 080	141 133
4	522 080	613 495
5	522 080	124 050
6	522 080	410 532
7	522 080	345 067
8	522 080	120 229
9	522 080	613 216
10	522 080	436 000
11	522 080	112 013
12	522 080	412 193
13	425 111	061 000
14	708 420	002 105
	ø 1,5 x 160 mm	
15	522 080	338 069
16	311 732	910 050
17	522 080	318 144
18	522 080	111 227
19	522 080	622 092
20	522 080	612 109
21	708 420	002 105
	ø 1,5 x 60 mm	
22	708 420	002 105
	ø 1,5 x 350 mm	
23	522 080	121 157
25	522 080	630 248
26	522 980	044 045
27	522 080	344 035



ZZ 567 TD

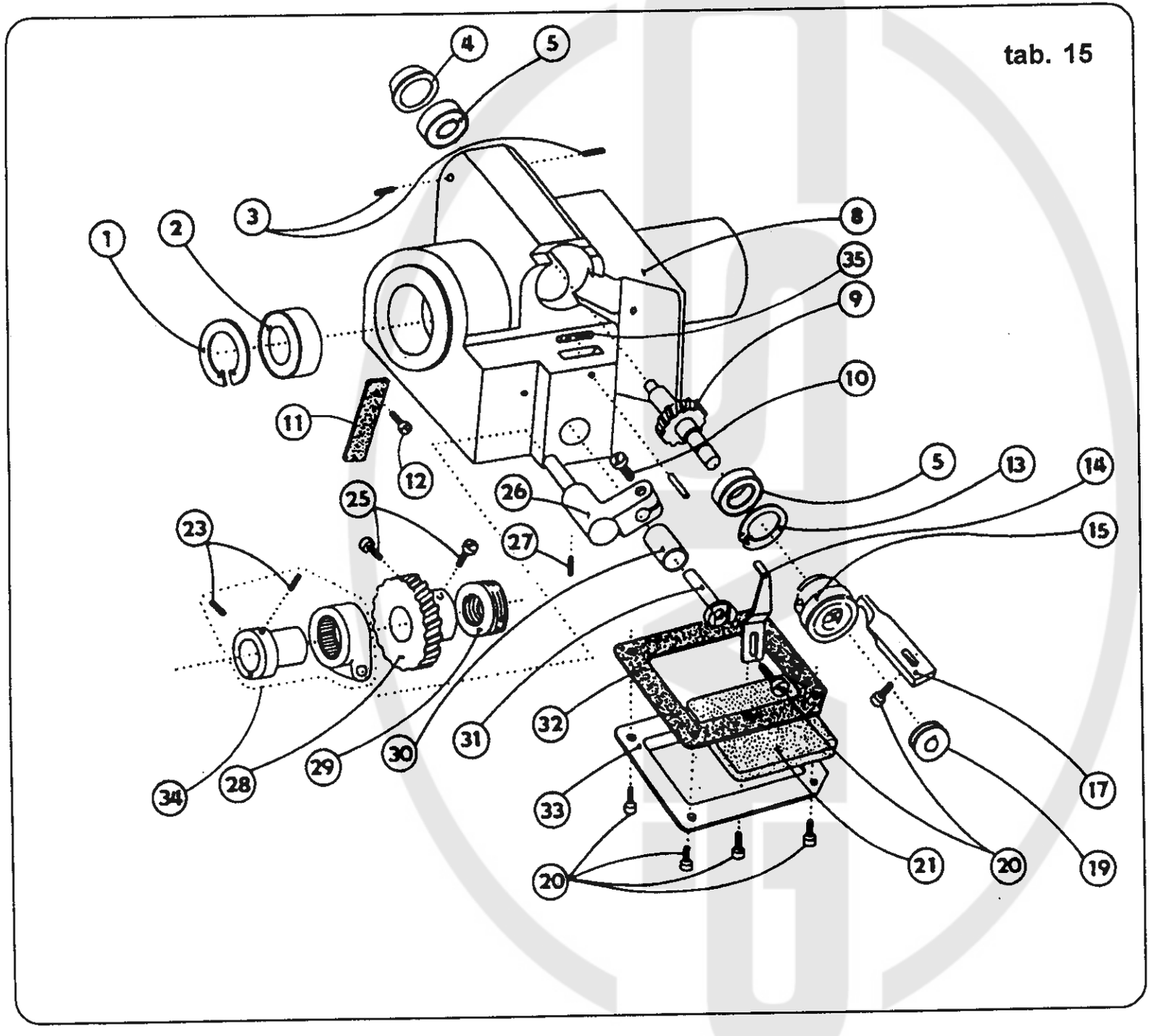
1	522 080	342 243
2	522 080	724 134
3	324 165	020 093
4	311 733	000 180
5	522 080	814 338
6	522 080	630 248
7	522 080	671 152
8	522 080	112 013
9	522 980	044 045
10	708 420	002 105
	ø 1,5 x 350 mm	
11	522 080	141 088
12	522 080	318 103
14	522 980	035 422
16	522 080	141 102
19	522 980	035 420
22	272 213	011 015
23	522 080	122 029
24	522 080	120 222
26	522 080	122 031
27	522 980	045 231
28	324 592	510 900
29	324 592	512 900
30	522 080	111 343
31	522 080	672 166
32	522 080	436 346
34	522 080	120 468
35	522 980	035 570
36	522 980	035 441

tab. 14



ZZ 567 TD

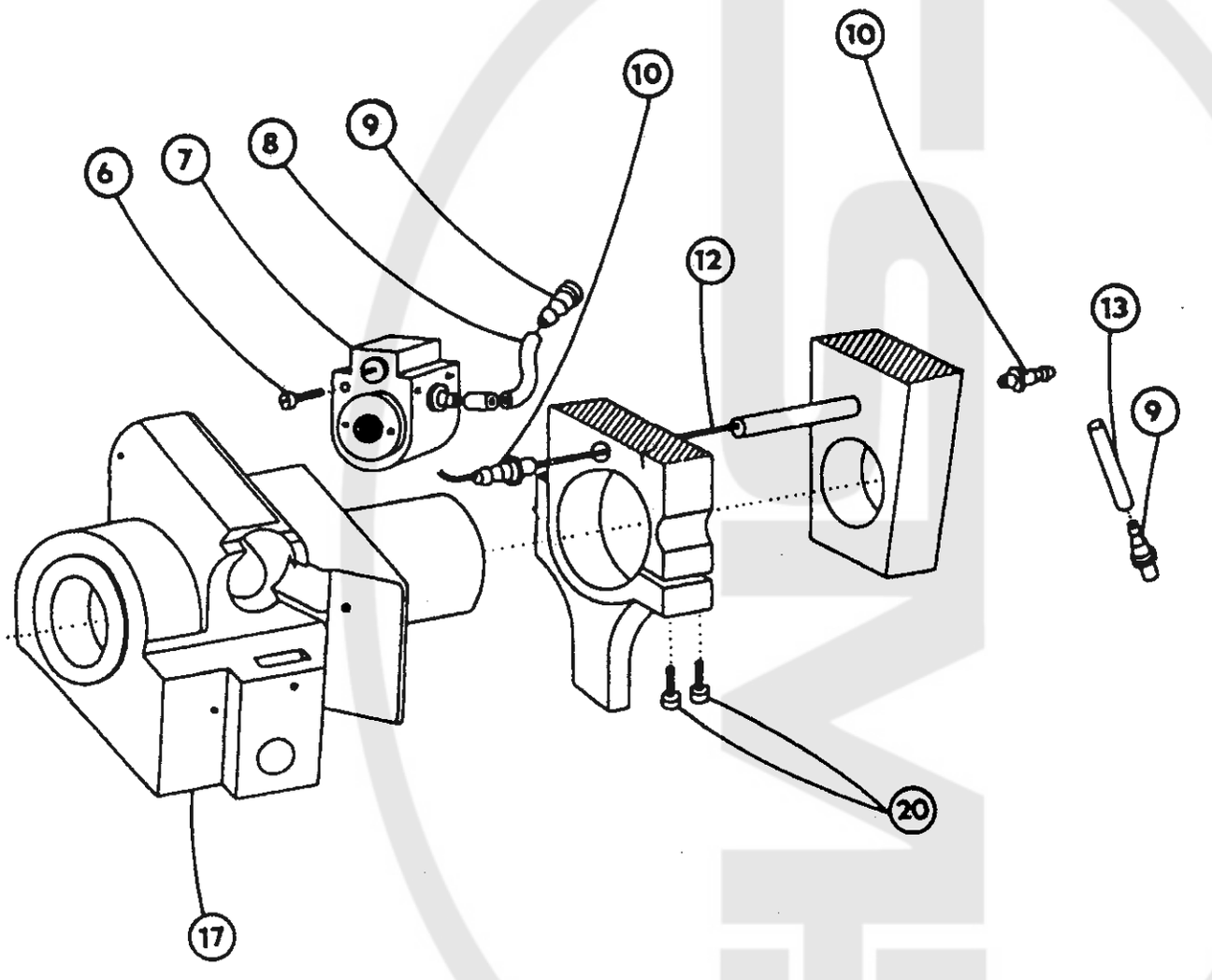
1	425 111	041 000
2	522 080	413 251
3	522 080	345 065
4	522 080	111 227
5	522 080	613 195
6	522 080	630 248
7	708 420	002 105
	ø 1,5 x 220 mm	
8	708 420	002 105
	ø 1,5 x 350 mm	
9	522 980	044 045
10	522 080	112 013
11	522 080	120 229
12	522 080	436 000
13	522 080	120 231
14	522 080	613 152
15	708 420	130 002
	ø 2 x 60 mm	
16	522 080	344 035
17	522 080	410 538



ZZ 567 TD

1	311 733	100 260
2	324 152	920 796
3	522 080	111 219
4	522 080	441 287
5	324 155	910 093
8	522 080	724 134
9	522 080	552 168
10	522 080	120 226
11	522 080	945 283
12	522 080	120 601
13	311 733	100 220
14	522 080	825 740
15	522 980	008 250
17	522 080	825 744
19	522 080	685 051
20	522 080	120 246
21	522 080	945 285
23	522 080	111 343
25	522 080	122 007
26	522 080	613 466
27	522 080	111 094
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	827 179
34	522 980	035 406
35	708 420	130 002
	ø 2 x 40 mm	

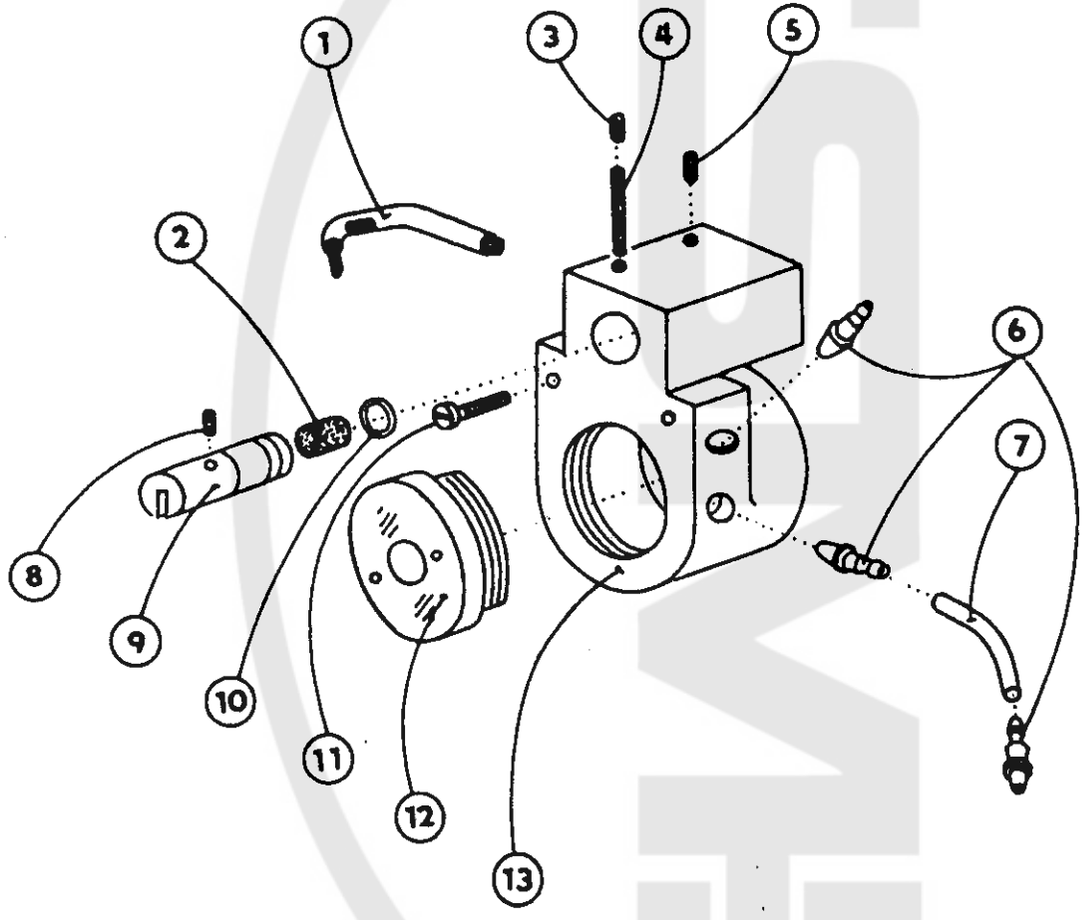
tab. 16



ZZ 567 TD

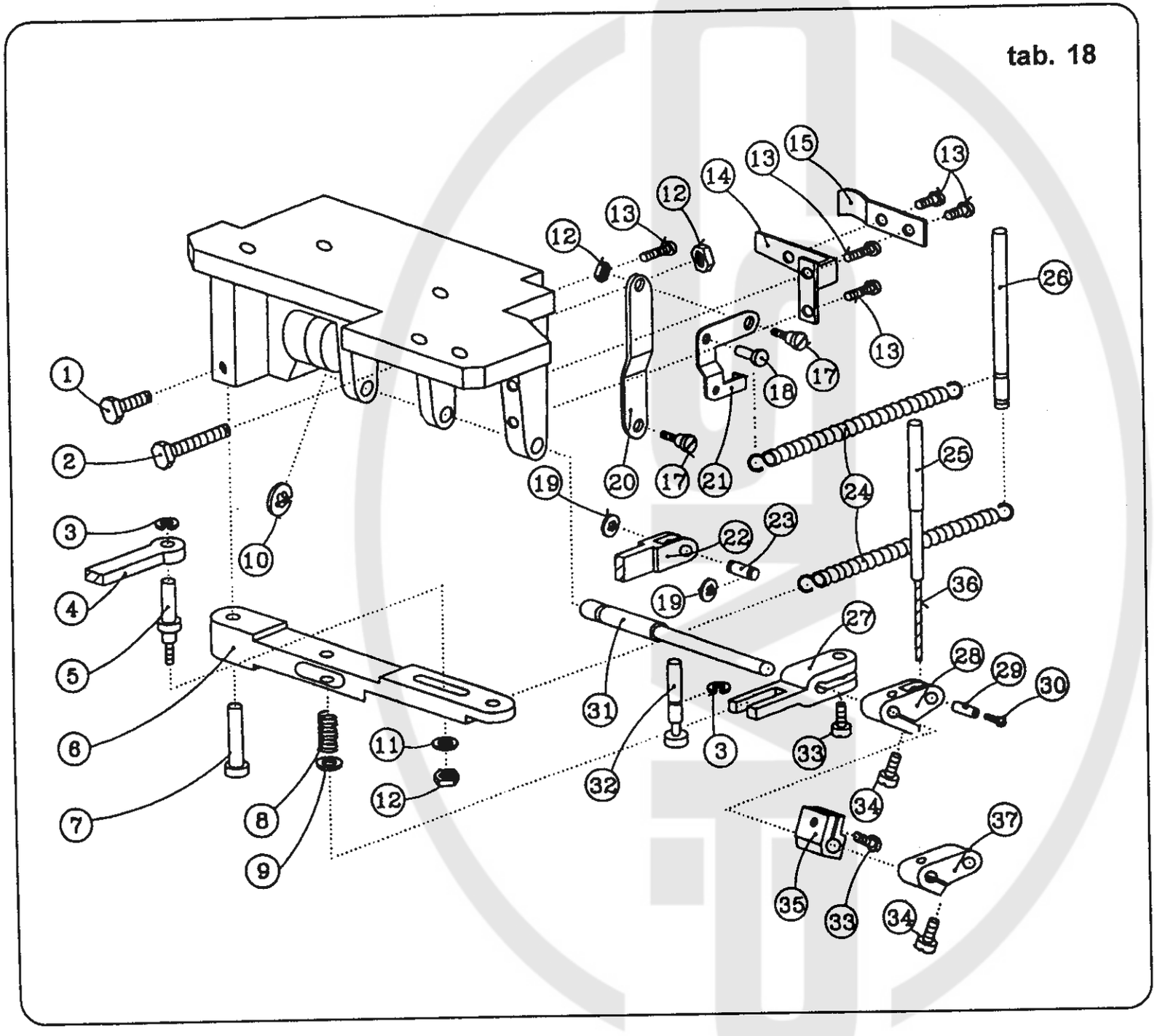
6	522 080	120 269
7	522 980	035 528
8	283 366	002 001
	ø 3,5/ø 4,8 x 100 mm	
9	522 080	424 051
10	522 080	424 060
12	708 420	130 005
	ø 5 x 300 mm	
13	283 366	002 001
	ø 3,5/ø 4,8 x 170 mm	
17	522 080	724 134
20	522 080	120 425

tab. 17



ZZ 567 TD

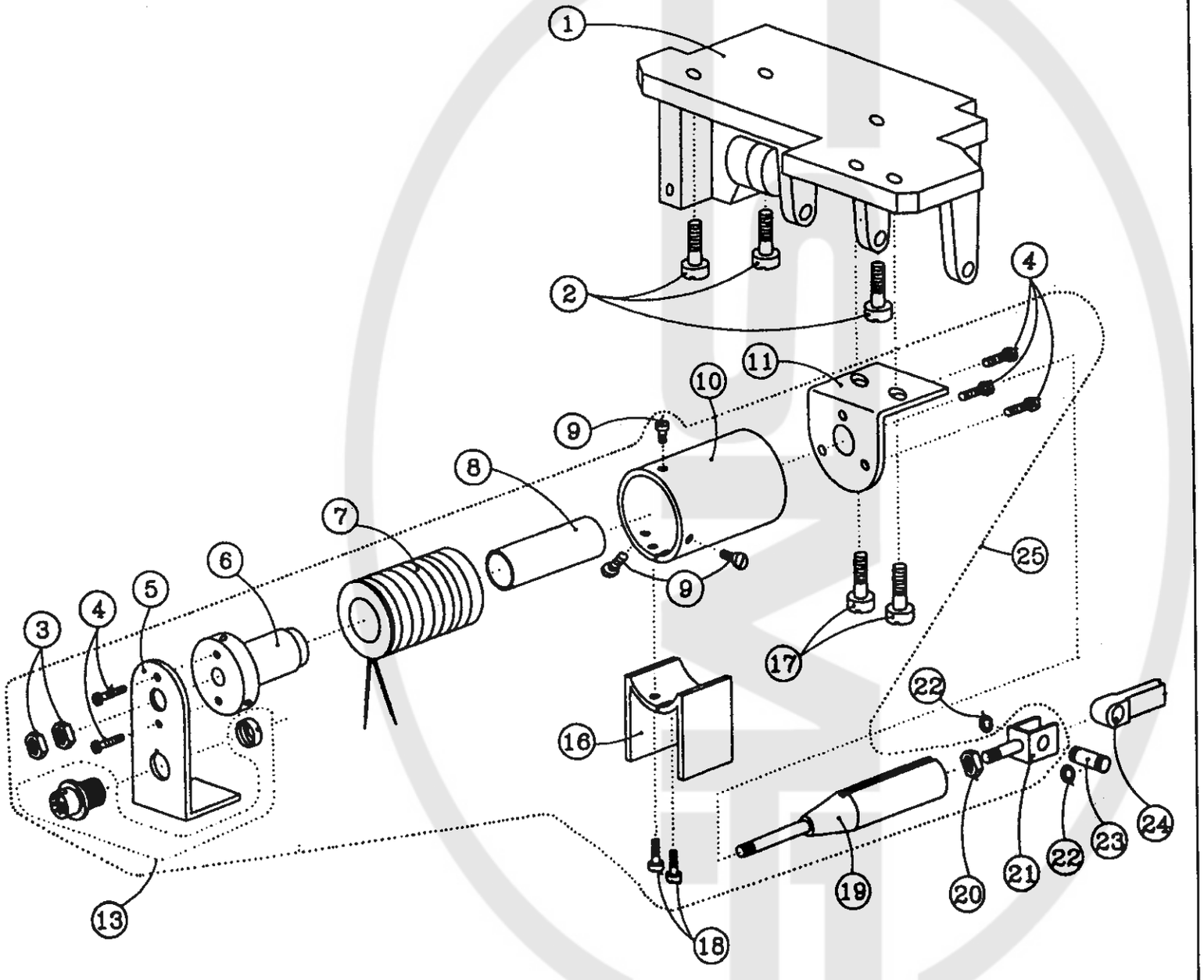
1	522 980	035 525
2	522 080	945 077
3	522 080	111 252
4	522 080	945 185
5	522 080	111 233
6	522 080	424 051
7	283 366	002 001
	ø 3,5/ø 4,8 x 100 mm	
8	522 080	945 170
9	522 080	346 053
10	273 111	001 000
11	522 080	120 269
12	321 891	001 000
13	522 080	725 023



ZZ 567 TD

1	522 080	141 142
2	522 080	141 204
3	311 732	910 040
4	522 080	632 147
5	522 080	333 121
6	522 080	646 145
7	522 080	320 257
8	522 080	260 434
9	522 080	190 359
10	311 732	910 050
11	522 080	190 353
12	522 080	161 144
13	522 080	120 218
14	522 080	825 856
15	522 080	825 586
17	522 080	131 378
18	522 080	320 258
19	522 080	274 104
20	522 080	822 446
21	522 080	822 409
22	522 080	630 272
23	522 080	314 167
24	522 080	263 103
25	522 080	278 009
26	522 080	310 364
27	522 080	625 132
28	522 080	613 482
29	522 080	334 090
30	522 080	120 246
31	522 080	341 202
32	522 080	322 231
33	522 080	120 220
34	522 080	120 221
35	522 080	627 142
36	522 080	049 786
37	522 080	613 420

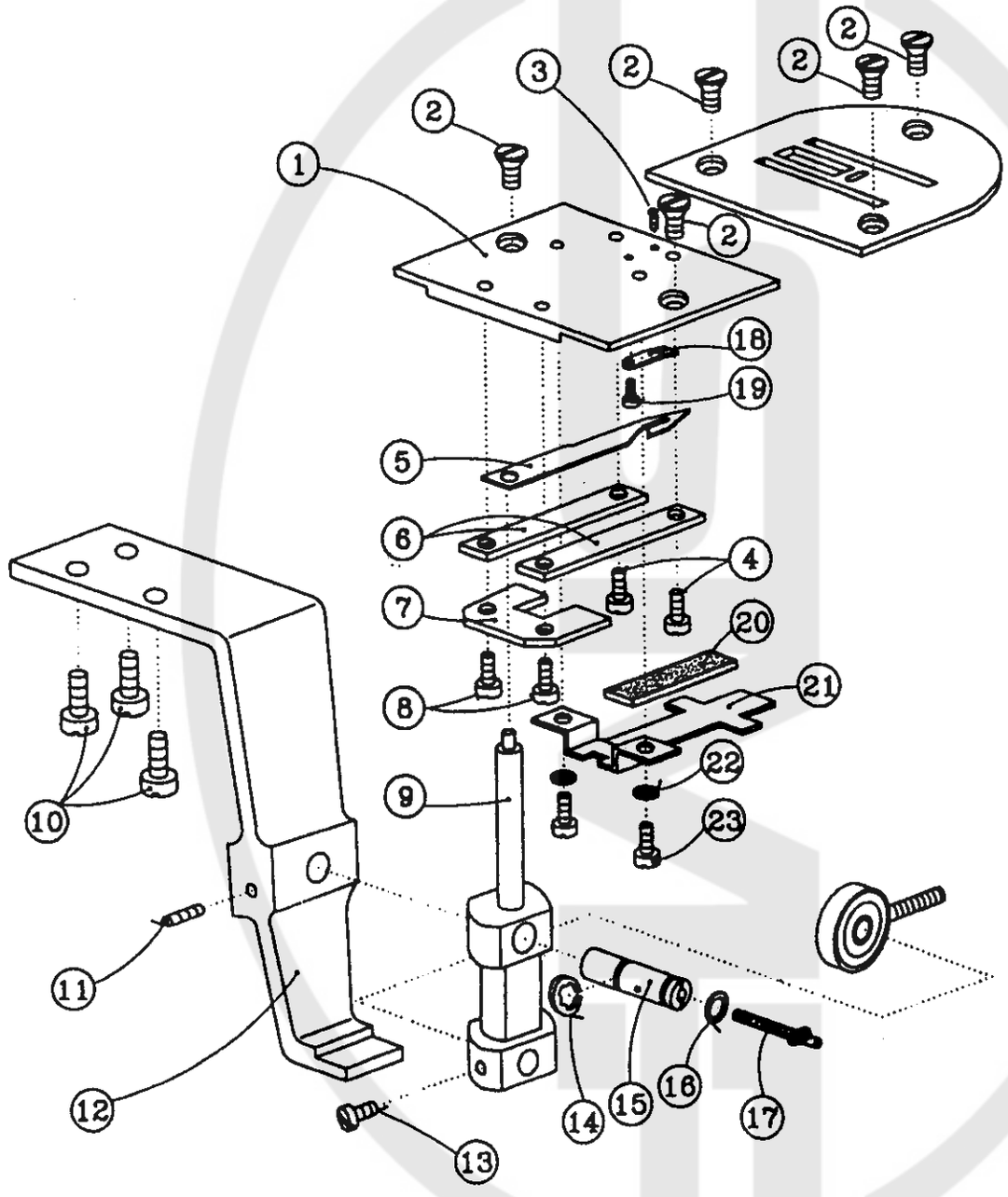
tab. 19



ZZ 567 TD

1	522 080	744 380
2	522 080	120 322
3	522 080	161 165
4	522 080	126 078
5	522 080	825 591
6	522 080	422 155
7	522 980	091 220
8	323 251	914 064
9	522 080	120 252
10	522 080	422 154
11	522 080	825 590
13	374 523	059 099
16	522 080	952 235
17	522 080	120 220
18	522 080	120 245
19	522 980	091 219
20	522 080	161 143
21	522 080	154 033
22	522 080	274 104
23	522 080	314 167
24	522 080	630 272
25	522 980	091 446

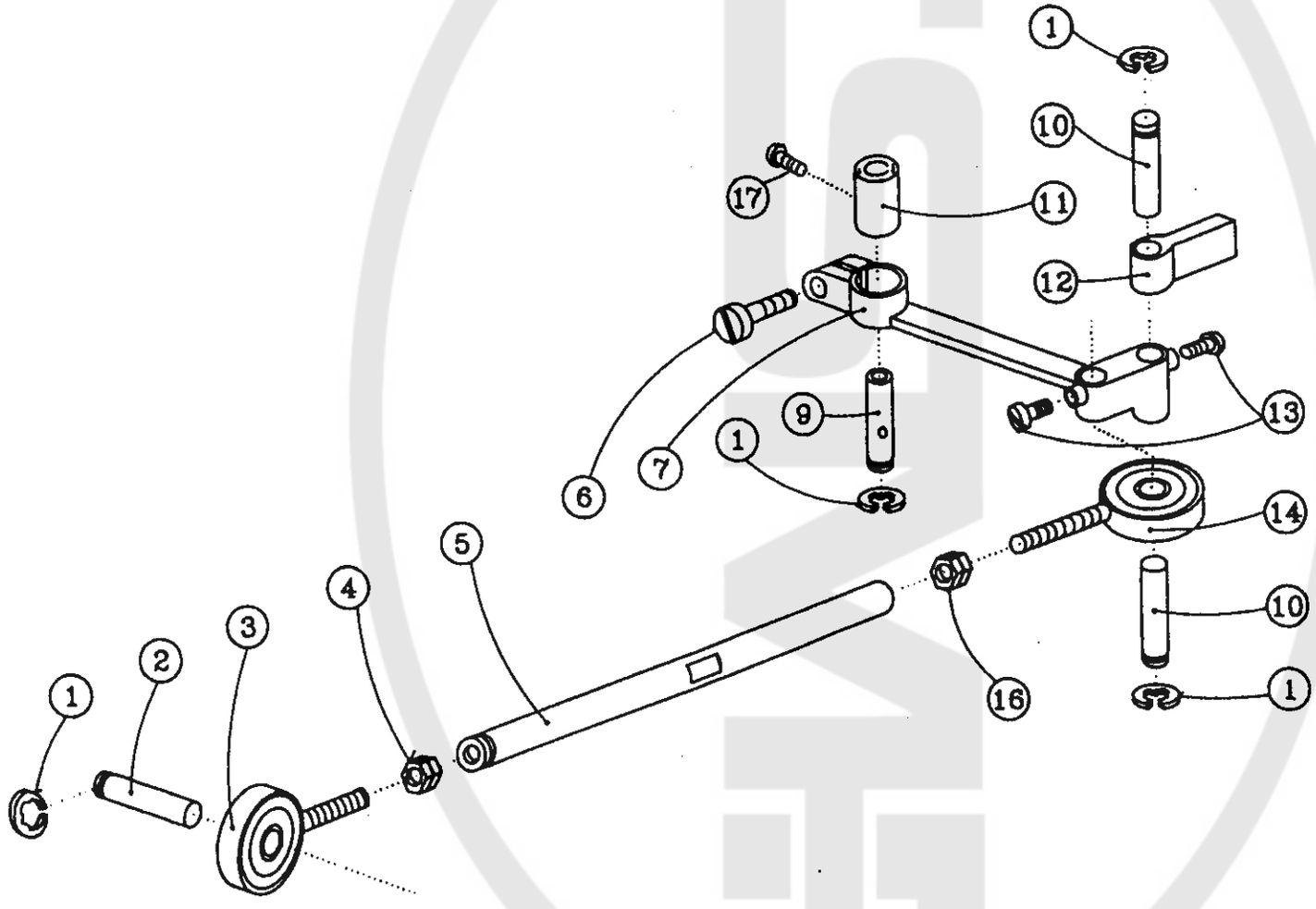
tab. 20



ZZ 567 TD

1	522 080	647 222
2	522 080	123 117
3	522 080	111 328
4	522 080	120 332
5	522 080	870 167
6	522 080	825 868
7	522 080	826 039
8	522 080	132 153
9	522 080	635 171
10	522 080	120 293
11	522 080	111 244
12	522 080	765 090
13	522 080	120 218
14	522 080	274 093
15	522 080	338 190
16	522 080	190 483
17	708 420	130 003
	ø 3 x 80mm	
18	522 080	870 140
19	522 080	132 216
20	522 080	945 315
21	522 080	839 058
22	522 080	191 118
23	522 080	120 215

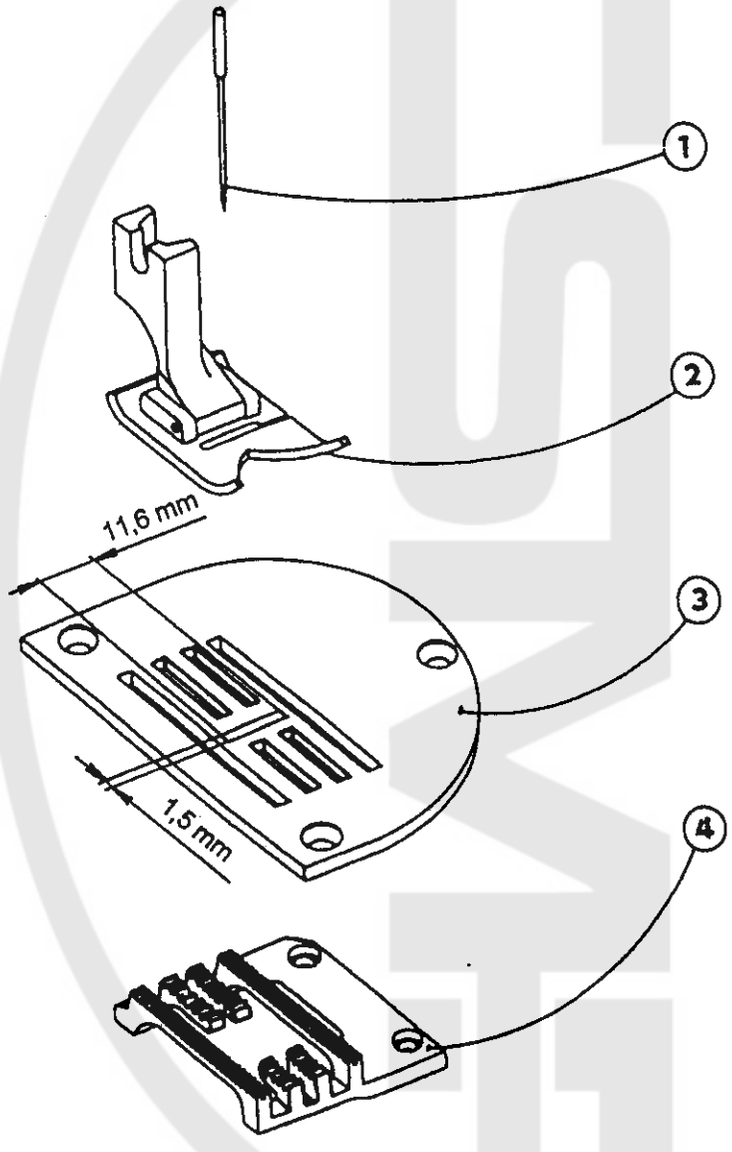
tab. 21



ZZ 567 TD

1	311732	910040
2	522080	314165
3	522980	049811
4	522080	161227
5	522080	334093
6	522080	120229
7	522080	636243
9	522080	318171
10	522080	314166
11	522080	410481
12	522080	632147
13	522080	120218
14	522980	049810
16	522080	161144
17	522080	132183

tab. 24



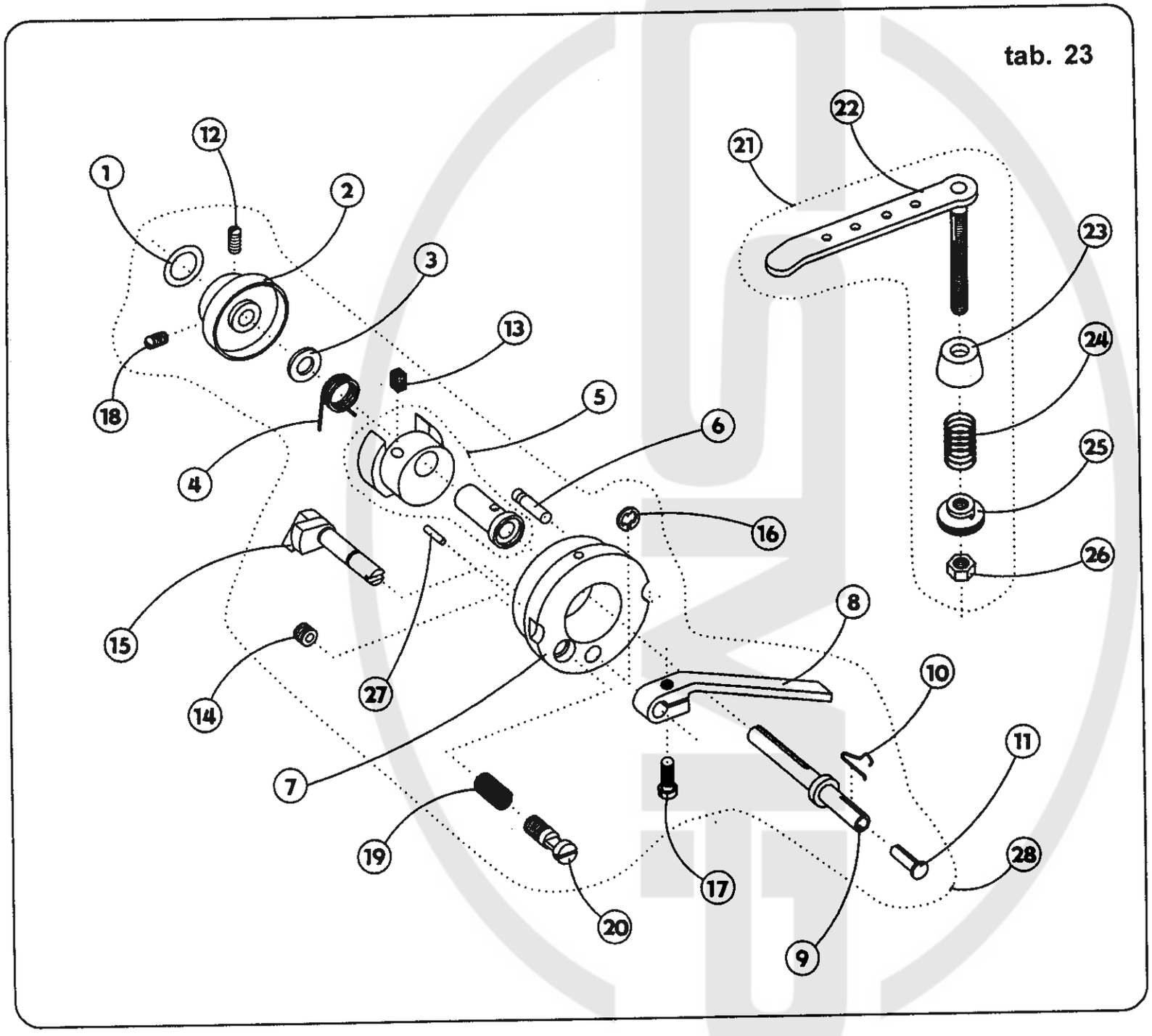
ZZ 567 TD

E 032

STANDARD

522 791 124 032 35

1	134 No. 110 - 11 x
2	522 980 031 603
3	522 080 811 641
4	522 080 651 504

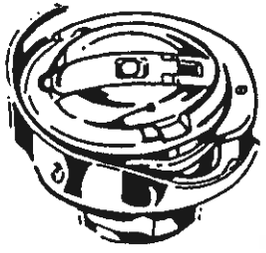


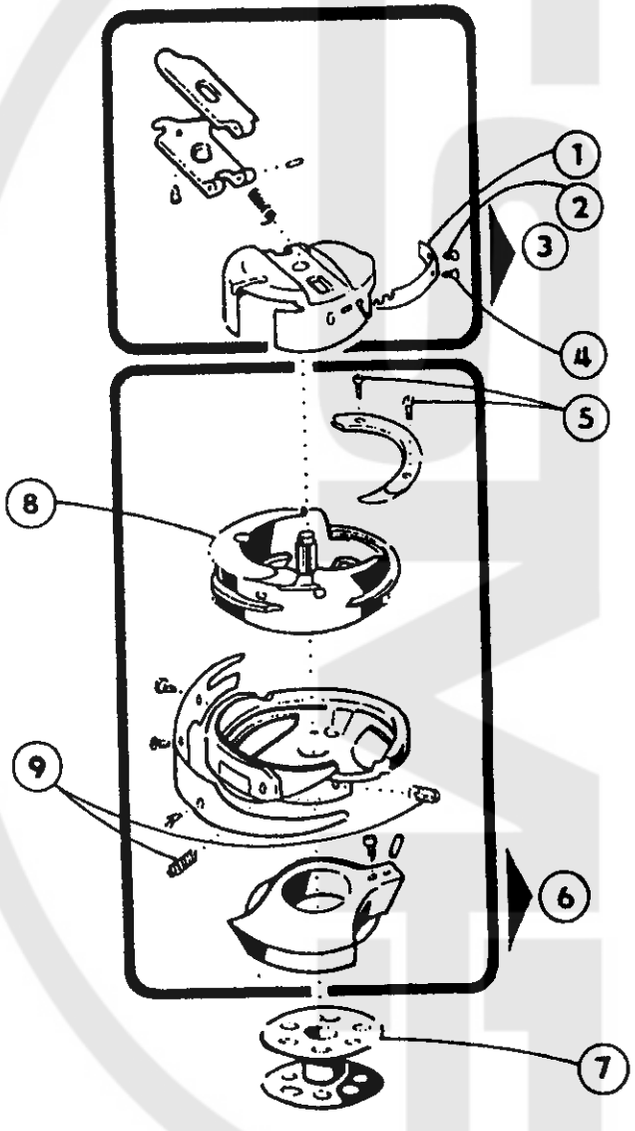
ZZ 567 TD

522 792 112 010 00

1	273 111	025 410
2	522 080	441 560
3	522 080	190 593
4	522 080	264 281
5	522 980	035 654
6	522 080	310 377
7	522 080	441 308
8	522 080	613 468
9	522 080	343 074
10	522 080	265 037
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	124 050
18	522 080	111 230
19	522 080	260 483
20	522 080	870 170
21	522 980	025 248
22	522 980	025 249
23	522 080	827 194
24	522 080	260 510
25	522 080	163 106
26	522 080	161 138
27	311 515	601 606
28	522 980	036 122

tab. 22



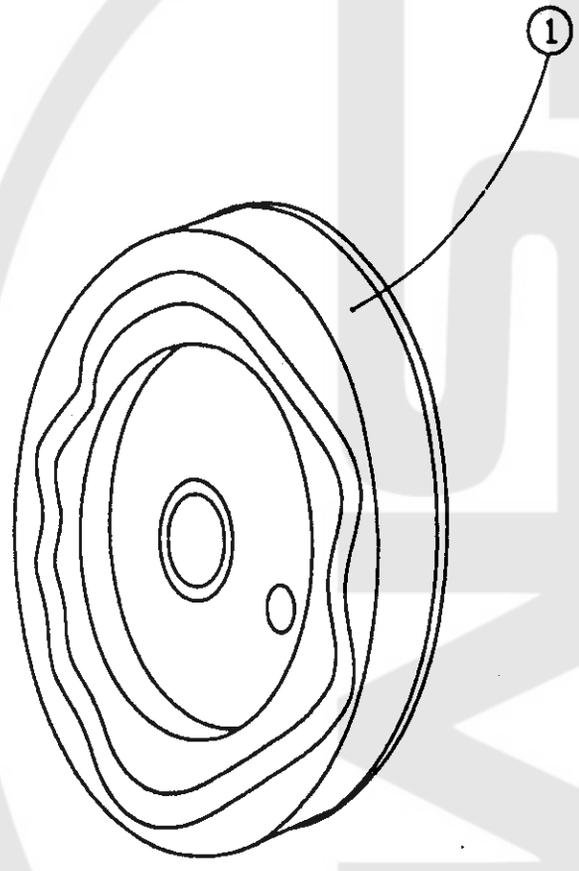


ZZ 567 TD

R 250

1	522 080	690 029	
2	522 080	683 063	
3	522 980	081 133	
4	522 080	683 053	
5	522 080	683 064	2 x
6	522 980	081 126	
7	522 080	685 051	
8	522 080	677 023	
9	522 080	683 067	2 x

tab. 25

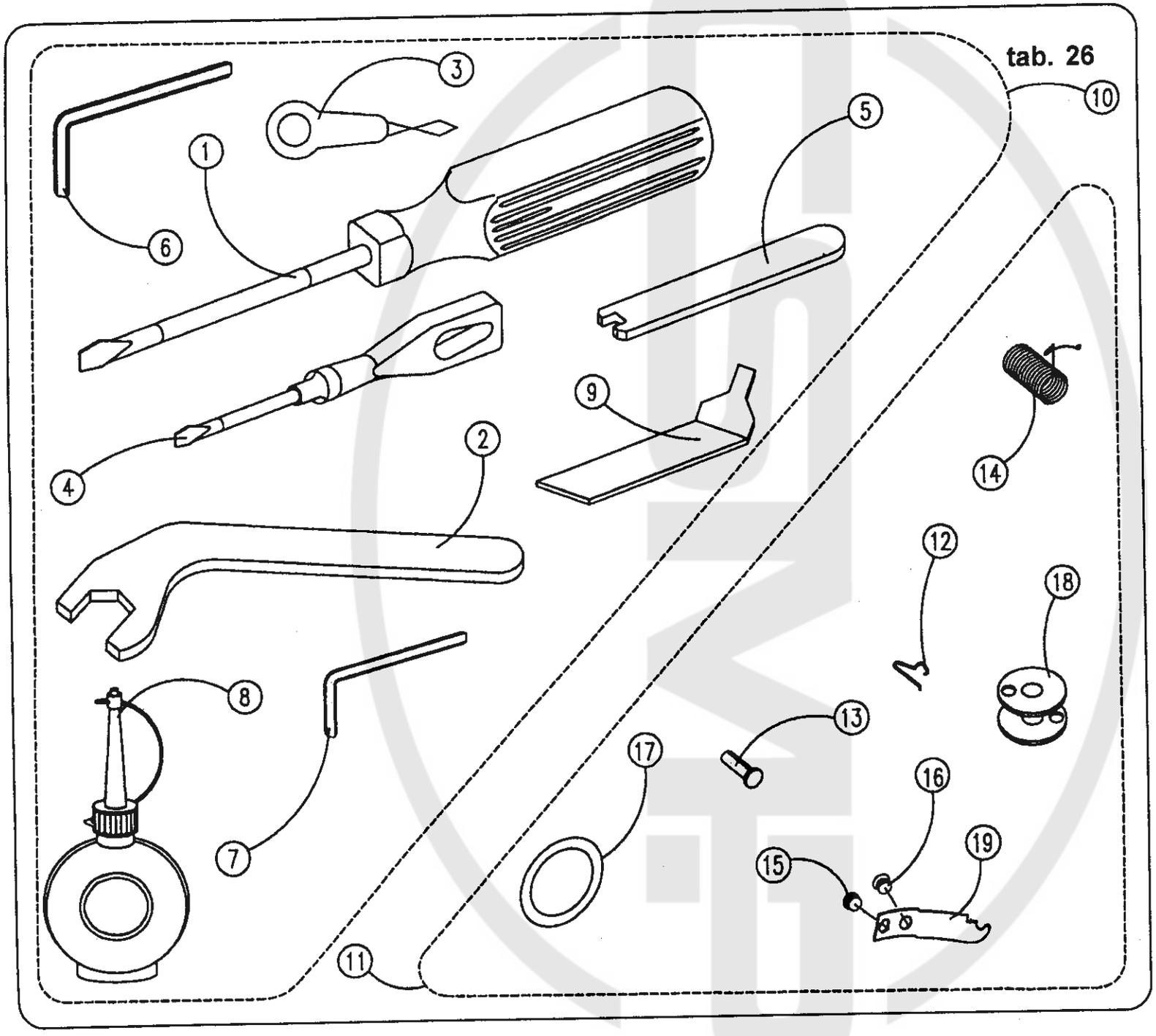


ZZ 567 TD

STANDARD

522 791 642 049 00

1	522 080	674 124

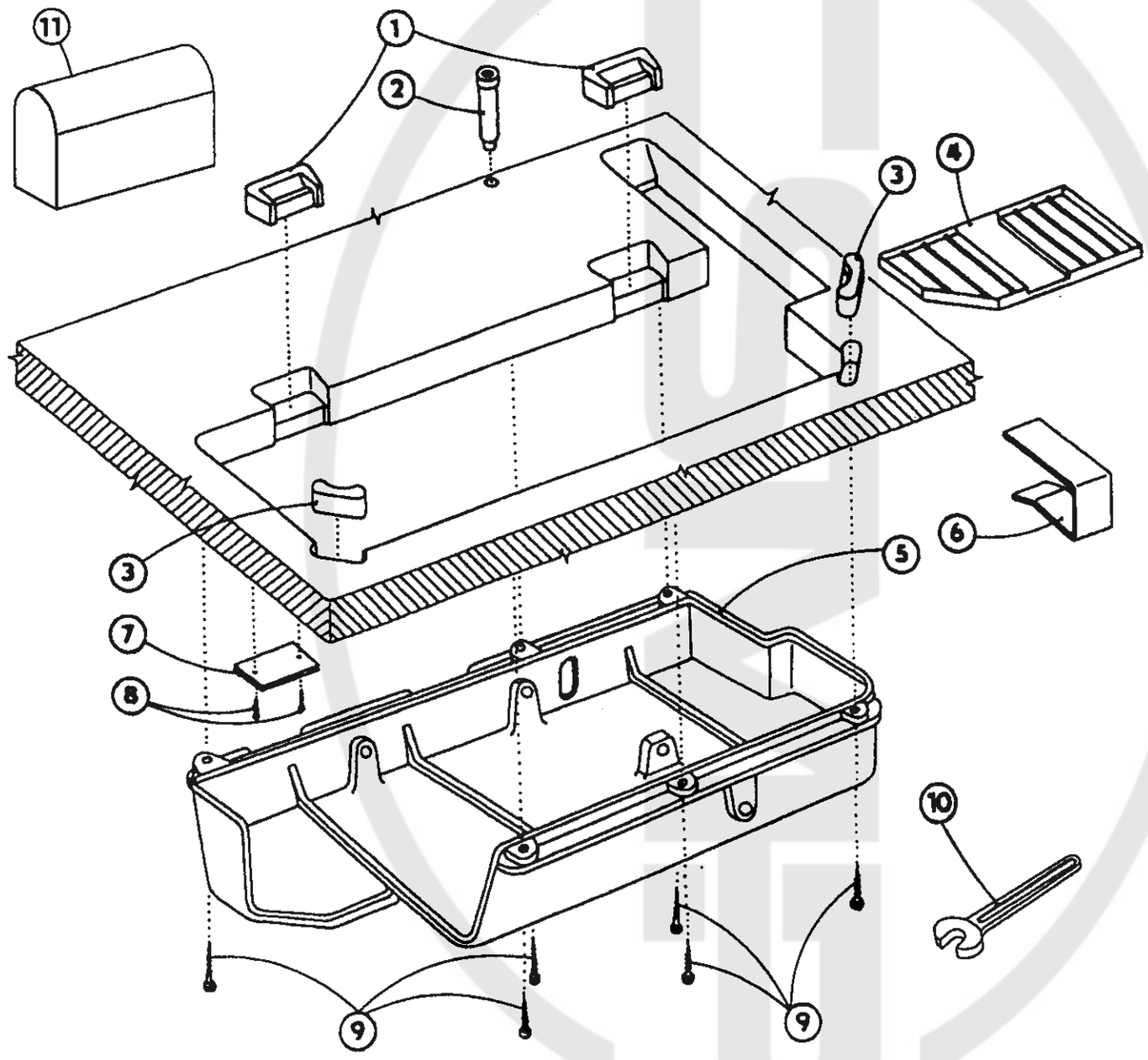


ZZ 567 TD

STANDARD

1	413 621	731 023	
2	522 080	818 273	
3	548 151	001 000	
4	413 624	310 002	
5	522 080	813 481	
6	413 324	000 500	
7	413 324	000 400	
8	562 813	002 000	
9	522 080	829 796	
10	522 980	092 220 35	
11	522 980	092 229 35	
12	522 080	265 037	4 x
13	321 861	953 200	2 x
14	315 231	264 294	4 x
15	522 080	683 063	4 x
16	522 080	683 053	4 x
17	273 111	025 410	4 x
18	522 080	685 051	10 x
19	522 080	690 029	4 x

tab. 27



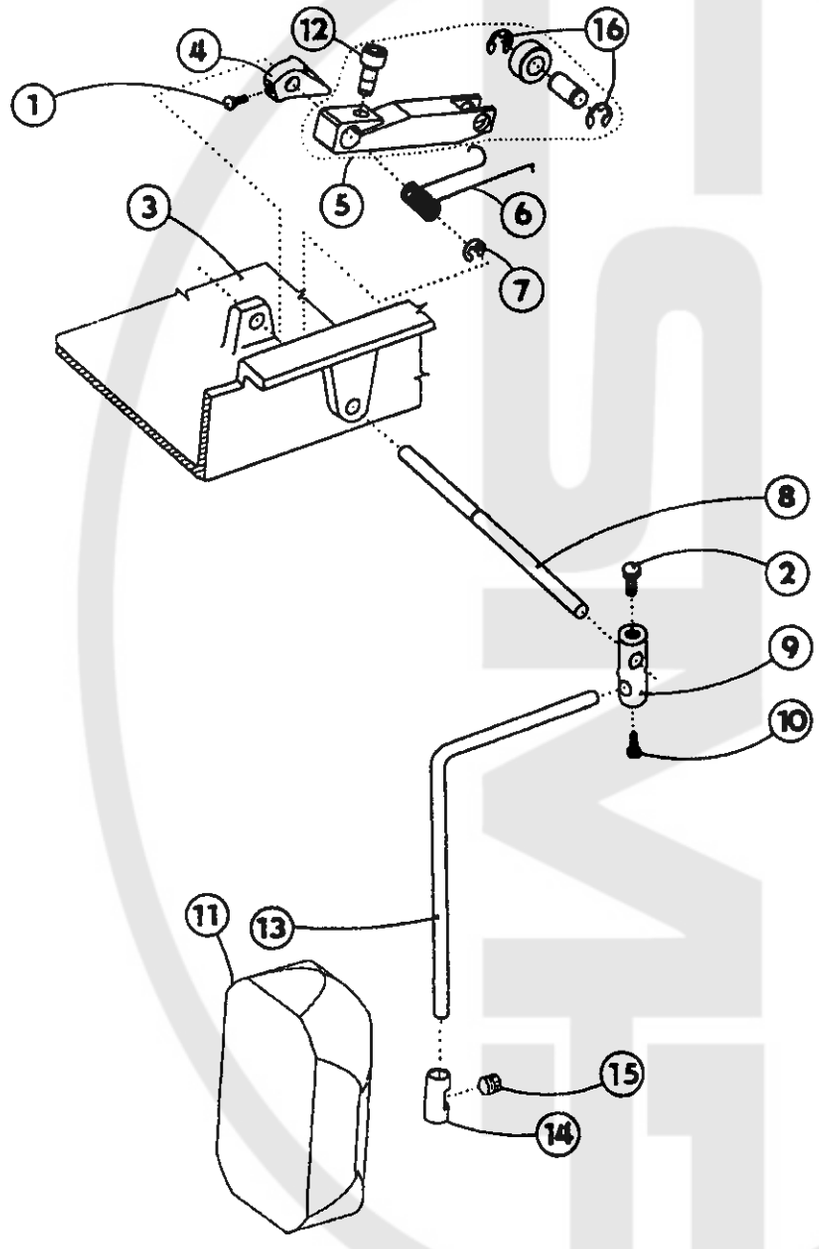
ZZ 567 TD

STANDARD

522 980 099 038 35 /1

1	273 141	940 127
2	522 980	043 051
3	273 141	940 141
4	321 861	953 251
5	522 080	725 050
6	522 080	826 387
7	522 080	941 091
8	314 140	016 020
9	522 080	225 031
10	413 312	100 130
11	522 000	000 301 80

tab. 28



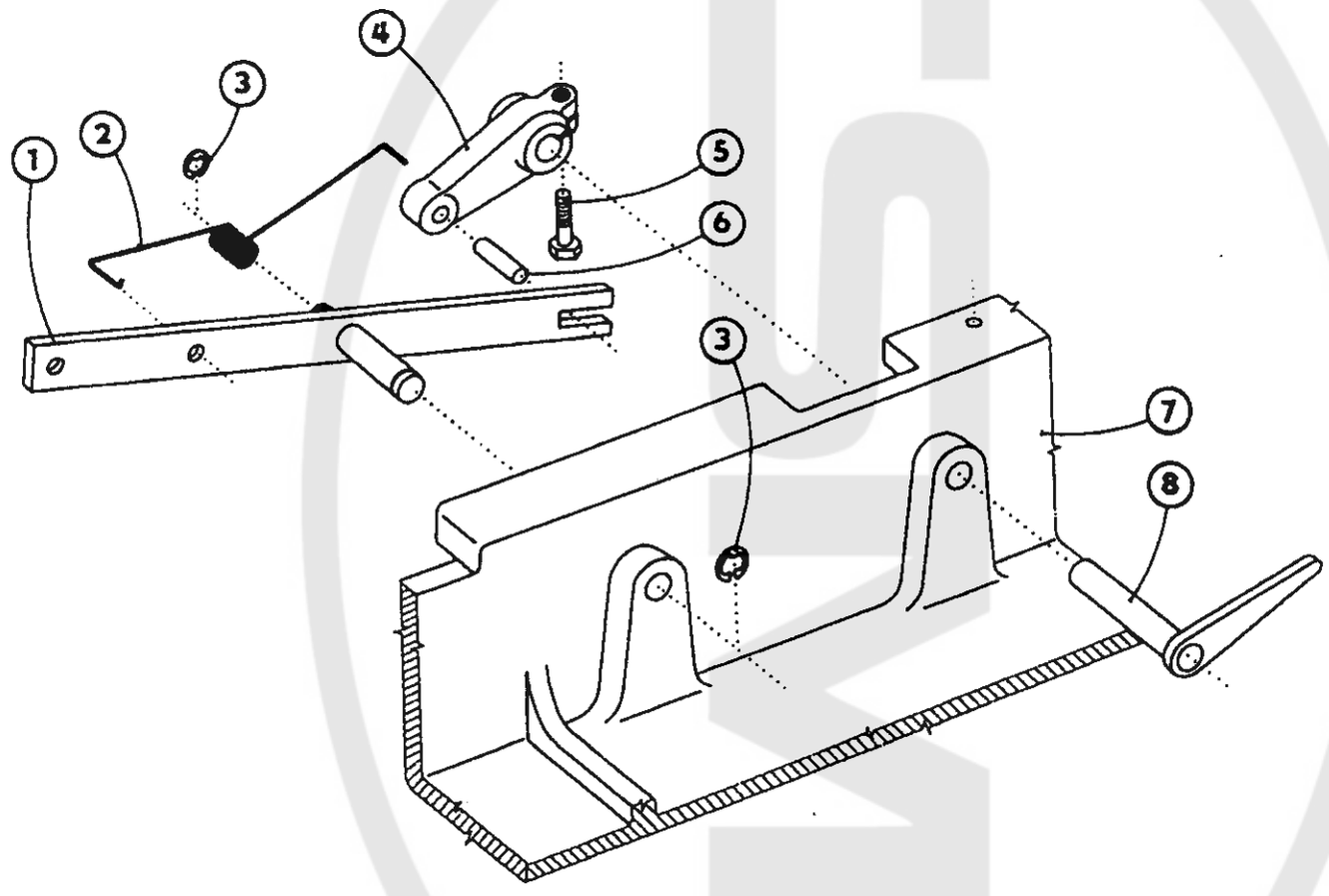
ZZ 567 TD

STANDARD

522 980 099 038 35 /2

1	522 080	141 141
2	522 080	141 121
3	522 080	725 050
4	522 080	625 022
5	522 980	027 603
6	522 080	264 168
7	311 732	910 070
8	522 080	314 065
9	522 080	318 069
10	522 080	141 112
11	522 396	130 013 80
12	522 080	120 295
13	522 080	383 022
14	522 080	416 146
15	522 205	102 788 80
16	311 732	910 060

tab. 29



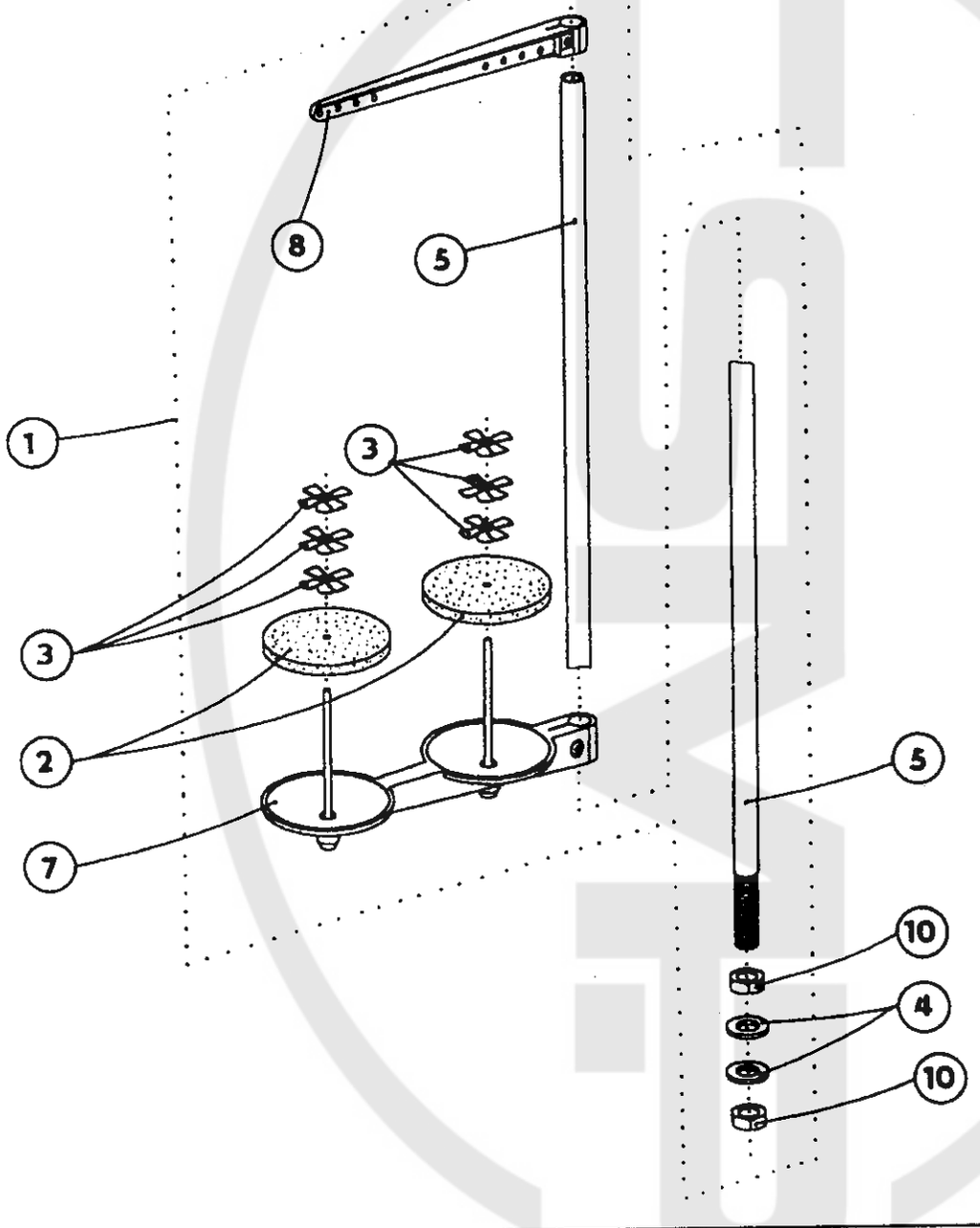
ZZ 567 TD

STANDARD

522 980 099 038 35 /3

1	522 980	049 109
2	522 080	264 290
3	311 732	910 070
4	522 080	613 480
5	522 080	141 109
6	311 515	006 016
7	522 080	725 050
8	522 980	044 142

tab. 30



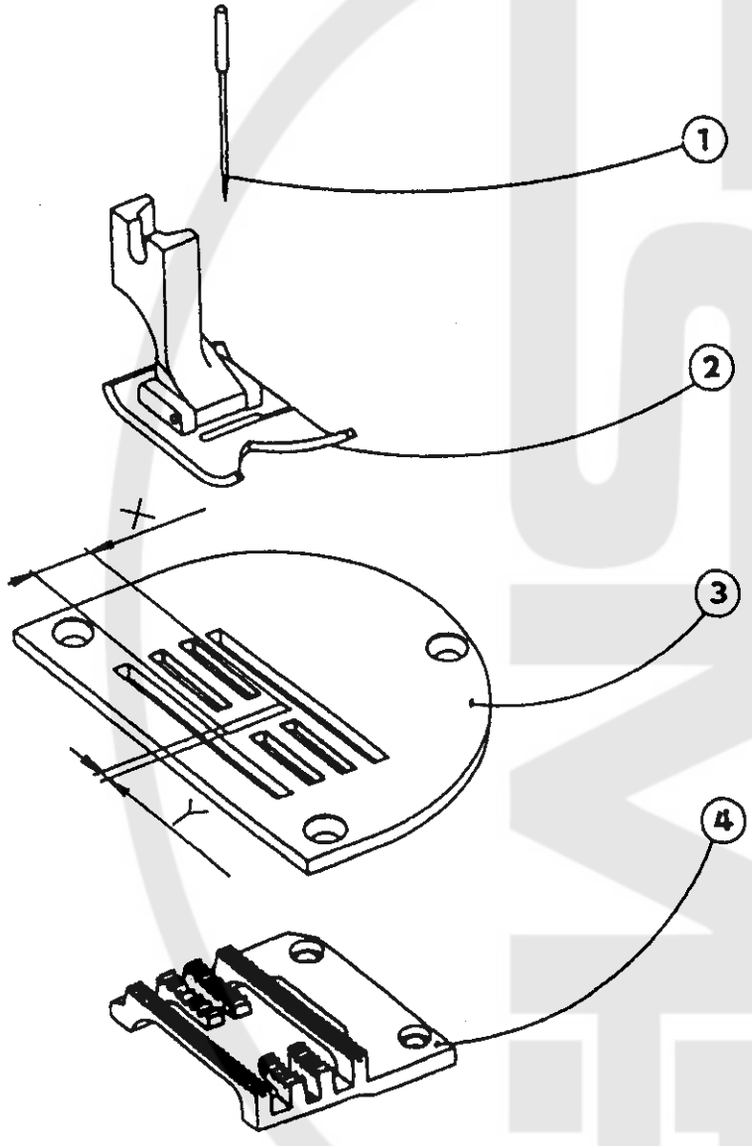
ZZ 567 TD

STANDARD

522 980 099 038 35 /4

1	522 981	036 163 00	
2	522 077	110 220 80	4 x
3	522 077	110 230 80	12 x
4	522 330	000 177 80	
5	522 791	001 081 80	
7	522 791	001 091 80	2 x
8	522 791	001 096 80	2 x
10	522 995	340 617 80	

tab. 31



ZZ 567 TD

E 033

522 791 124 033 35

1 134 No. 110 - 11 x
2 522 980 031 603
3 522 080 811 637
4 522 080 651 336
X = 11,8 mm Y = 1,5 mm

E 034

522 791 124 034 35

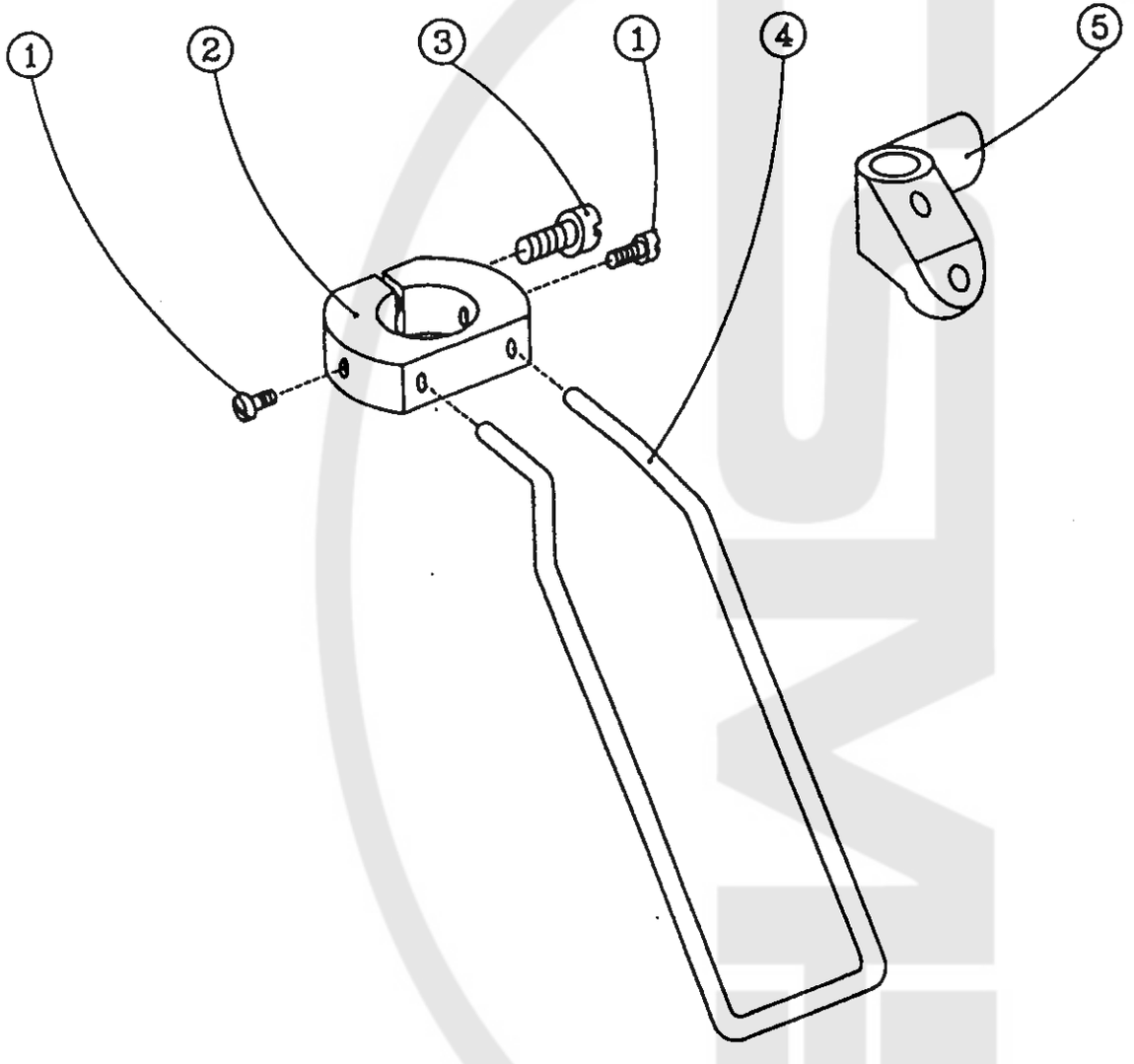
1 134 No. 110 - 11 x
2 522 980 031 603
3 522 080 811 557
4 522 080 651 336
X = 11,8 mm Y = 1,8 mm

E 075

522 791 224 075 35

1 134 No. 110 - 11 x
2 522 980 031 603
3 522 080 811 699
4 522 080 651 472
X = 11,6 mm Y = 1,5 mm

tab. 32



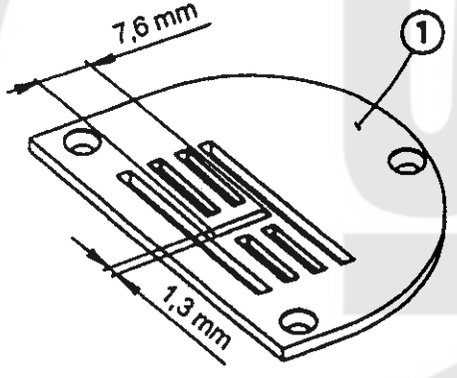
ZZ 567 TD

N 001

522 791 149 001 00

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. 33

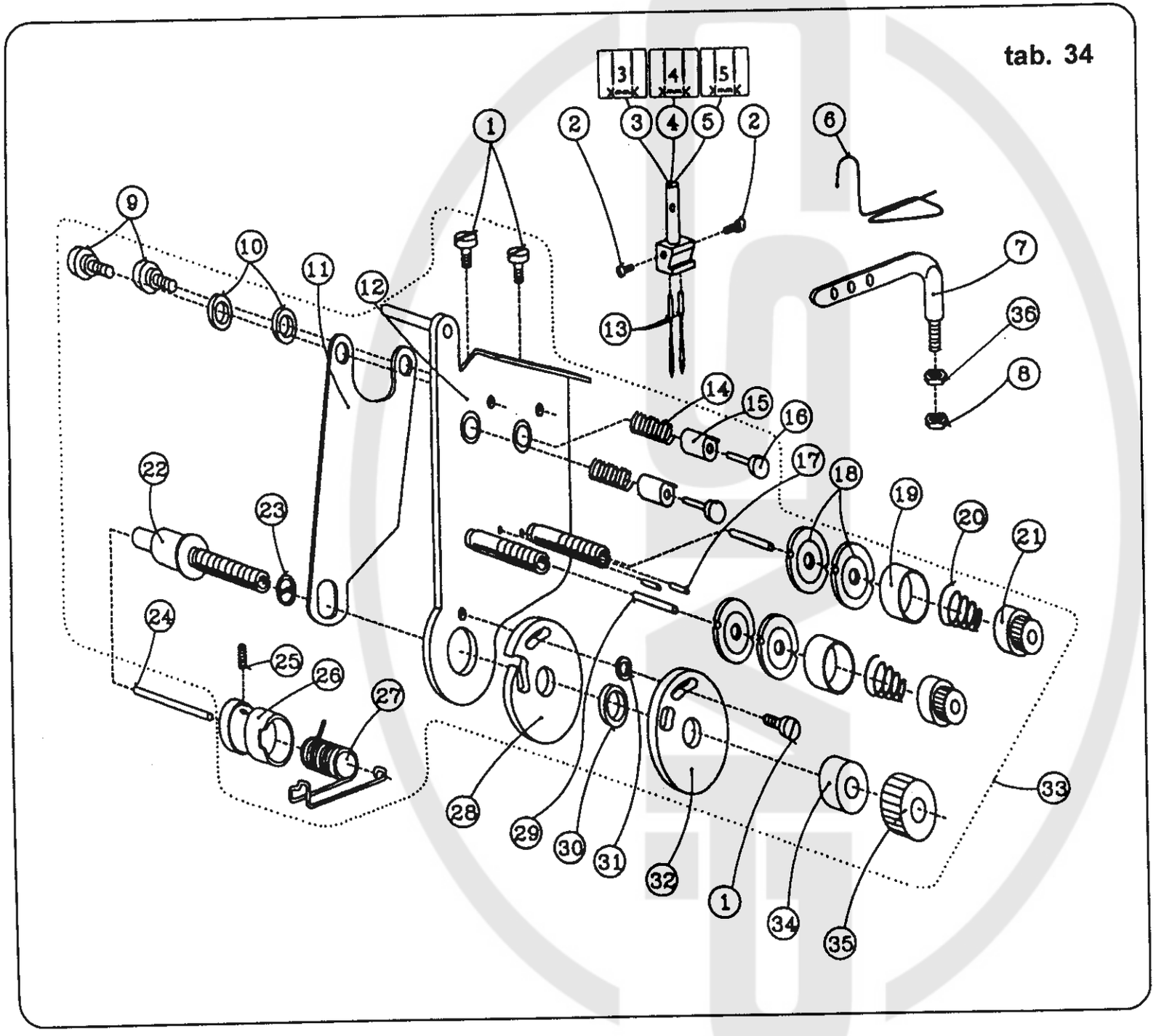


ZZ 567 TD

E 074

522 791 224 074 00

1	522 080	811 768



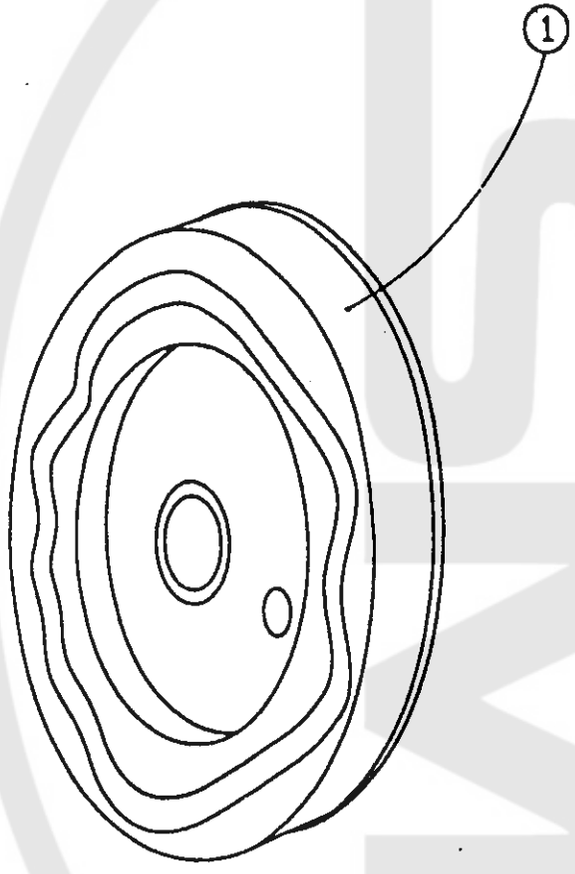
ZZ 567 TD

E 002

522 791 630 002 00

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	202 008	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	
36	522 080	161 138	

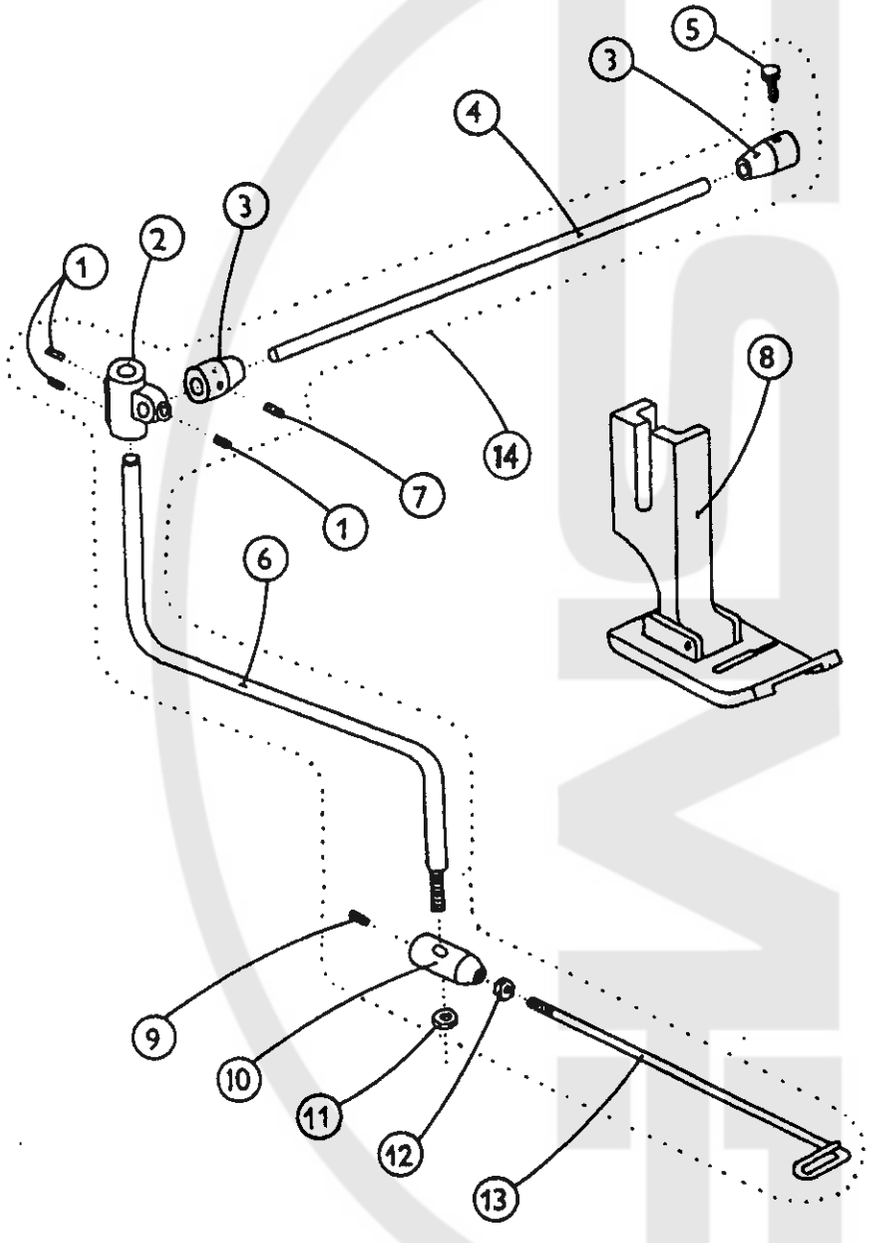
tab. 35



ZZ 567 TD

1	**522 791 642 038 00** 522 080 674 113	
1	**522 791 642 039 00** 522 080 674 114	
1	**522 791 642 040 00** 522 080 674 115	
1	**522 791 642 041 00** 522 080 674 116	
1	**522 791 642 042 00** 522 080 674 117	
1	**522 791 642 043 00** 522 080 674 118	
1	**522 791 642 044 00** 522 080 674 119	
1	**522 791 642 045 00** 522 080 674 120	
1	**522 791 642 046 00** 522 080 674 121	
1	**522 791 642 047 00** 522 080 674 122	
1	**522 791 642 048 00** 522 080 674 123	
1	**522 791 642 050 00** 522 080 674 125	
1	**522 791 642 051 00** 522 080 674 221	

tab. 36



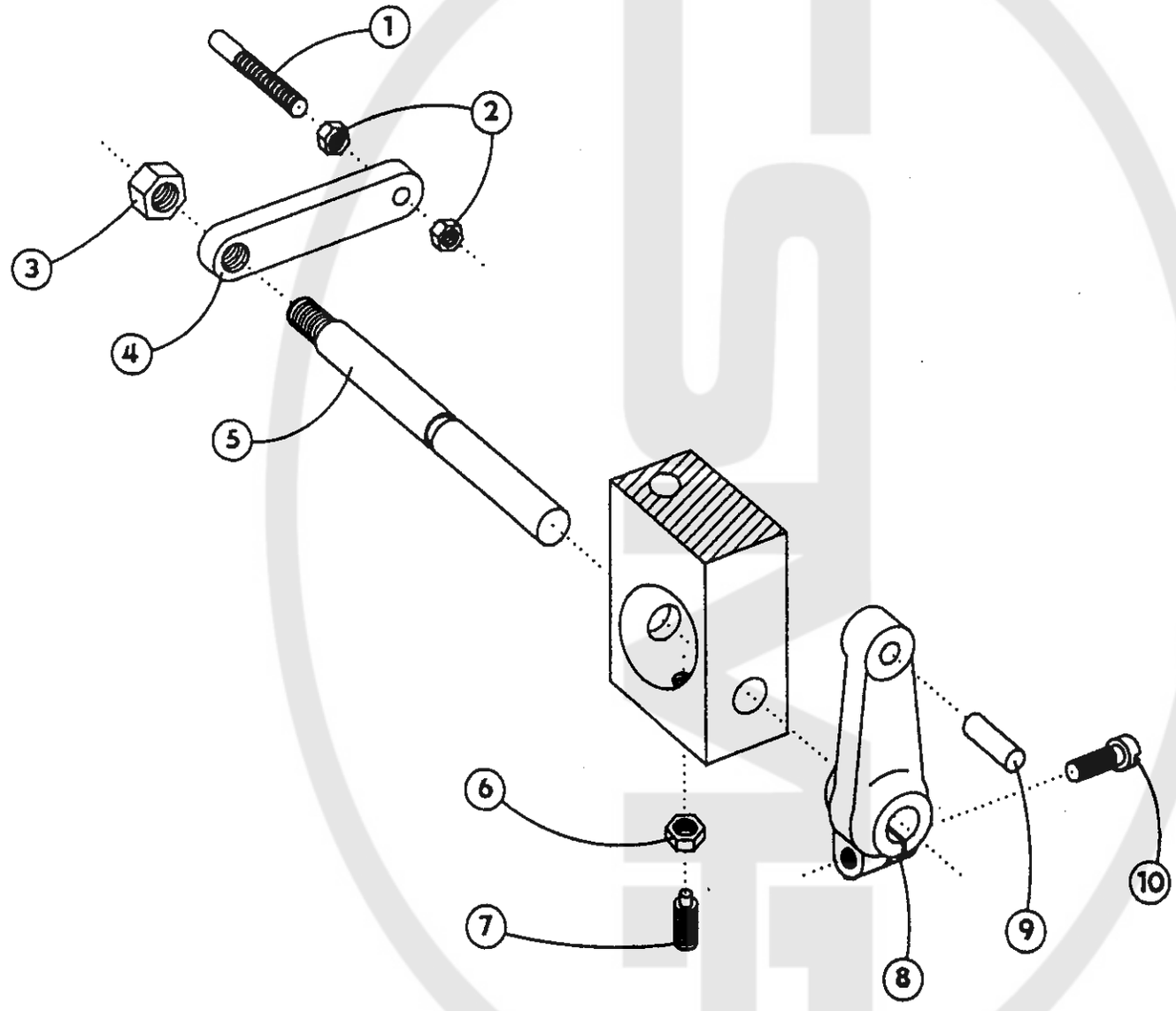
ZZ 567 TD

N 002

522 791 235 002 00

1	523 081	104 002
2	522 080	626 056
3	522 080	426 011
4	522 080	341 127
5	522 080	133 009
6	522 080	382 049
7	522 080	111 268
8	522 980	031 541
9	522 080	112 013
10	522 080	436 109
11	522 080	161 163
12	522 080	161 137
13	522 080	271 185
14	522 980	036 063

tab. 37

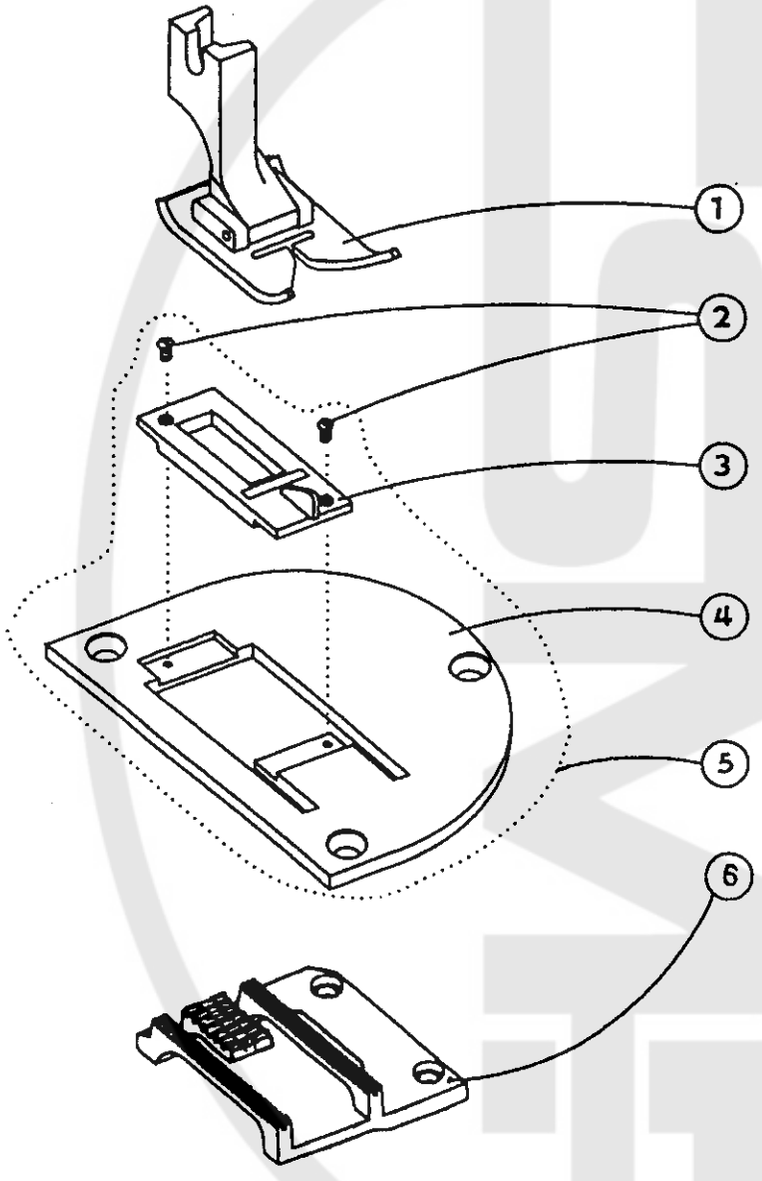


ZZ 567 TD

522 791 995 068 00

1	522 080 316 038
2	522 080 161 143
3	522 080 161 159
4	522 080 632 019
5	522 080 342 096
6	522 080 161 140
7	522 080 111 097
8	522 080 613 480
9	311 515 006 014
10	522 080 120 230

tab. 38



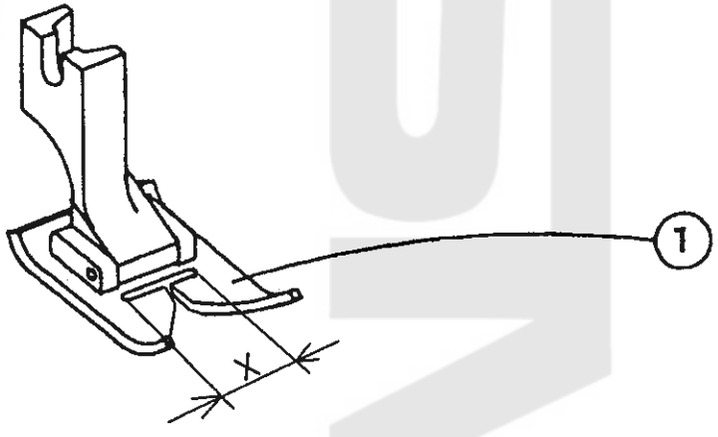
ZZ 567 TD

N 023

522 791 400 023 00

1	522 980	031 604
2	522 080	124 061
3	522 980	049 443
4	522 080	811 633
5	522 980	022 282
6	522 00	651 428

tab. 39



ZZ 567 TD

E 016

522 791 151 016 00

1 522 980 031 586

X = 6 mm

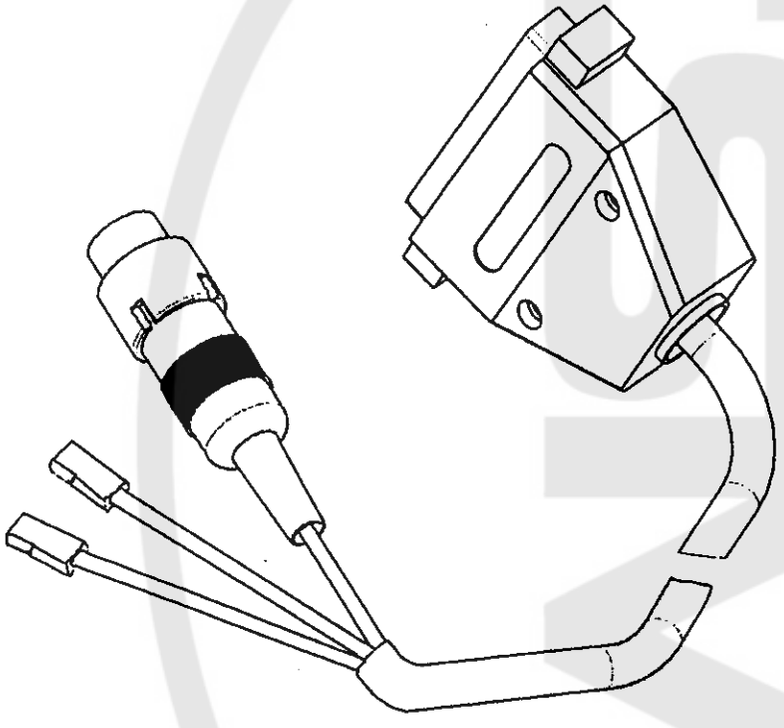
E 017

522 791 151 017 00

1 522 980 031 652

X = 10 mm

tab. 40

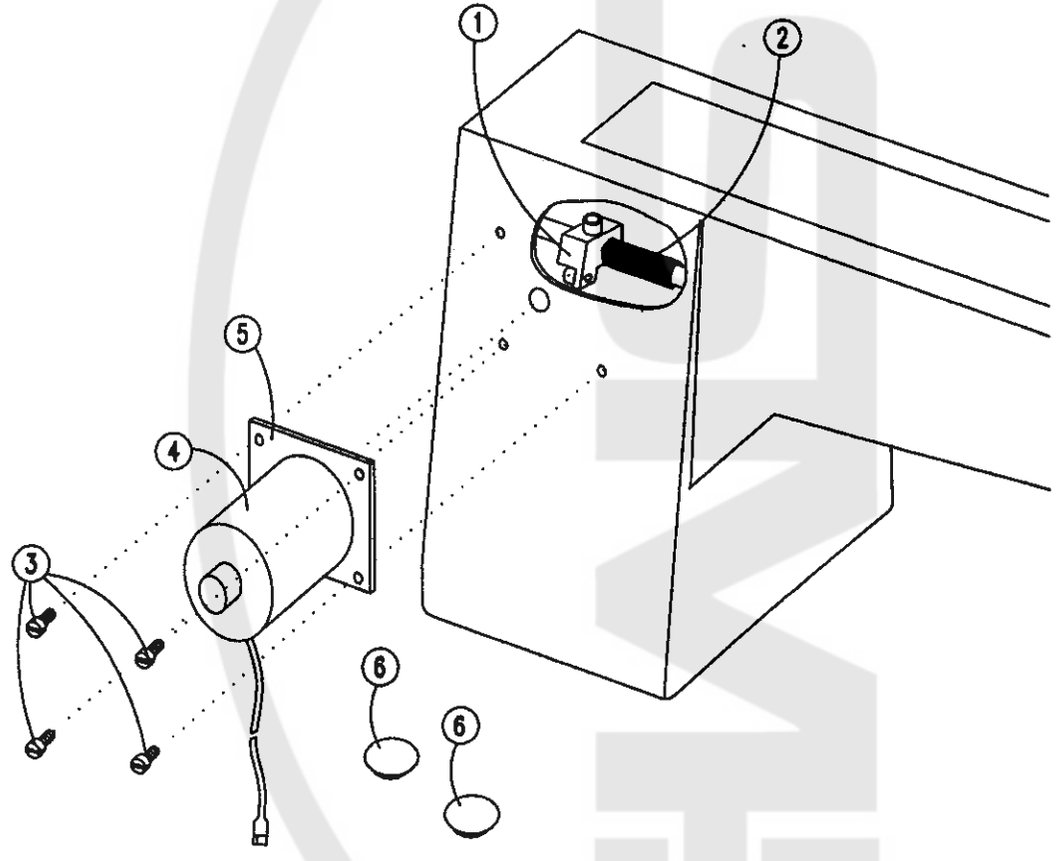


ZZ 567 TD

STANDARD

522 980 094 051 00

tab. 41

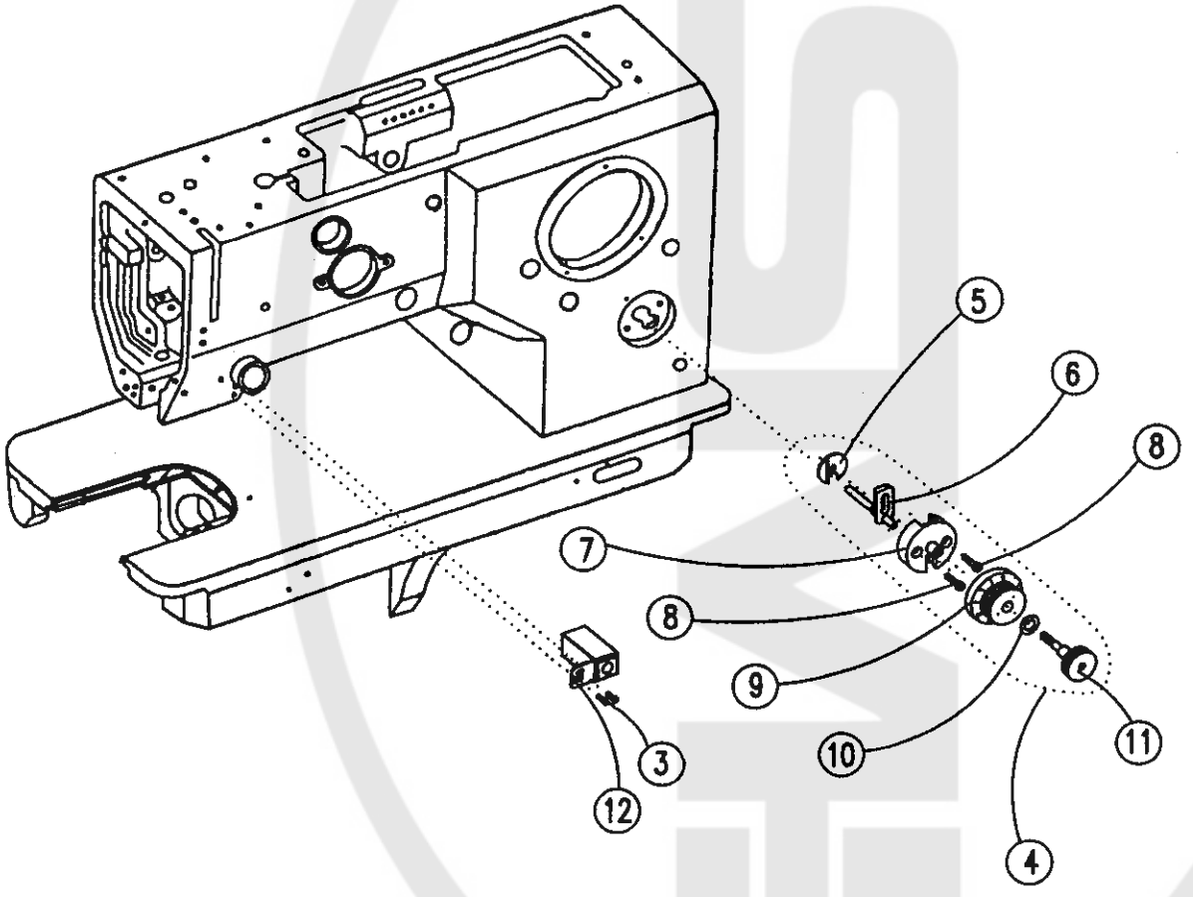


ZZ 567 TD

522 791 995 153

1	522 980	060 208
2	522 080	260 610
3	522 080	120 354
4	522 981	094 041
5	522 080	831 699
6	321 014	000 000

tab. 42

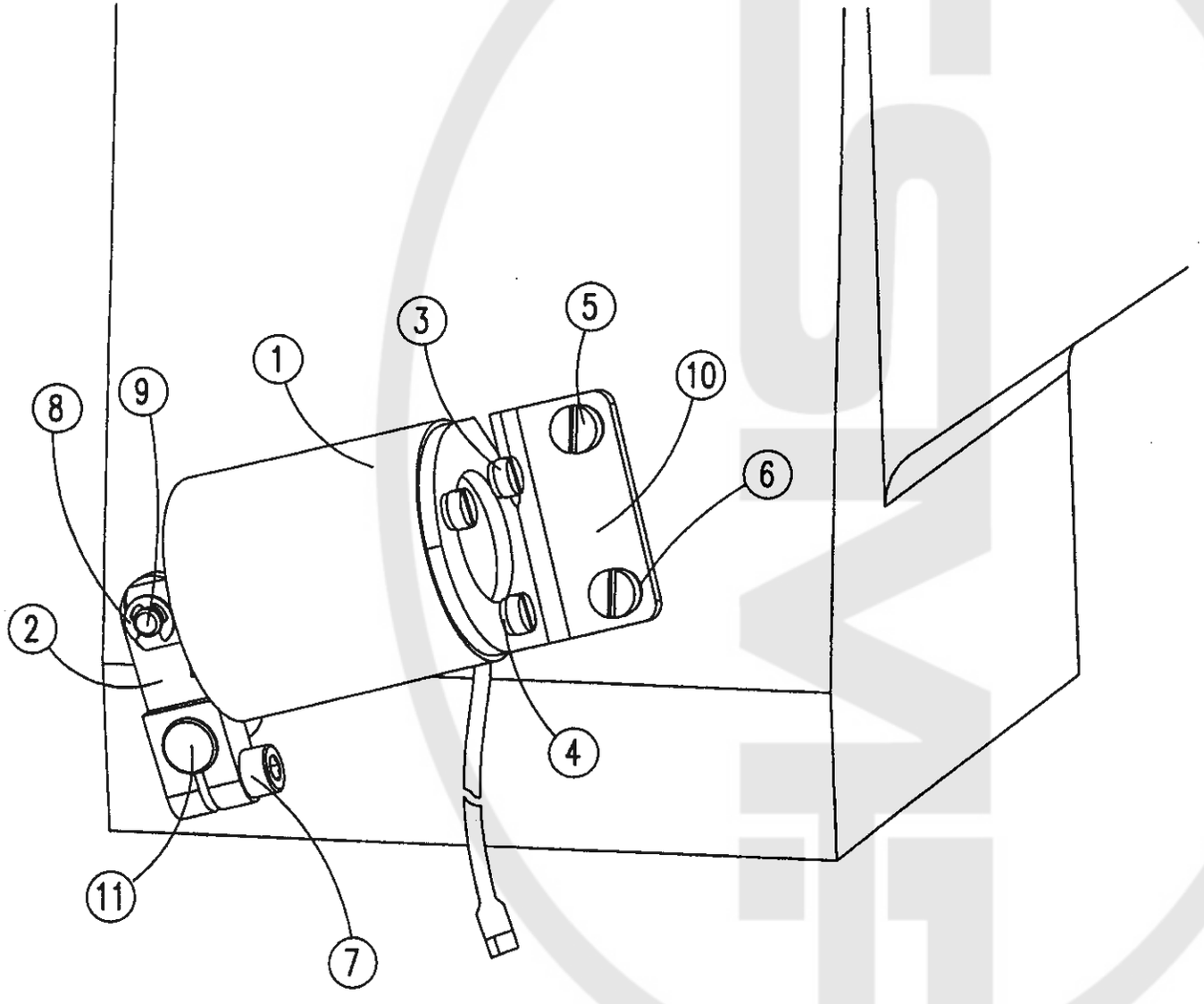


ZZ 567 TD

522 791 995 154 /1

3	522 080	132 153
4	522 980	044 895
5	522 080	441 550
6	522 980	043 369
7	522 080	441 475
8	522 080	120 219
9	522 980	233 053
10	522 080	190 483
11	522 080	342 270
12	522 980	035 914

tab. 43

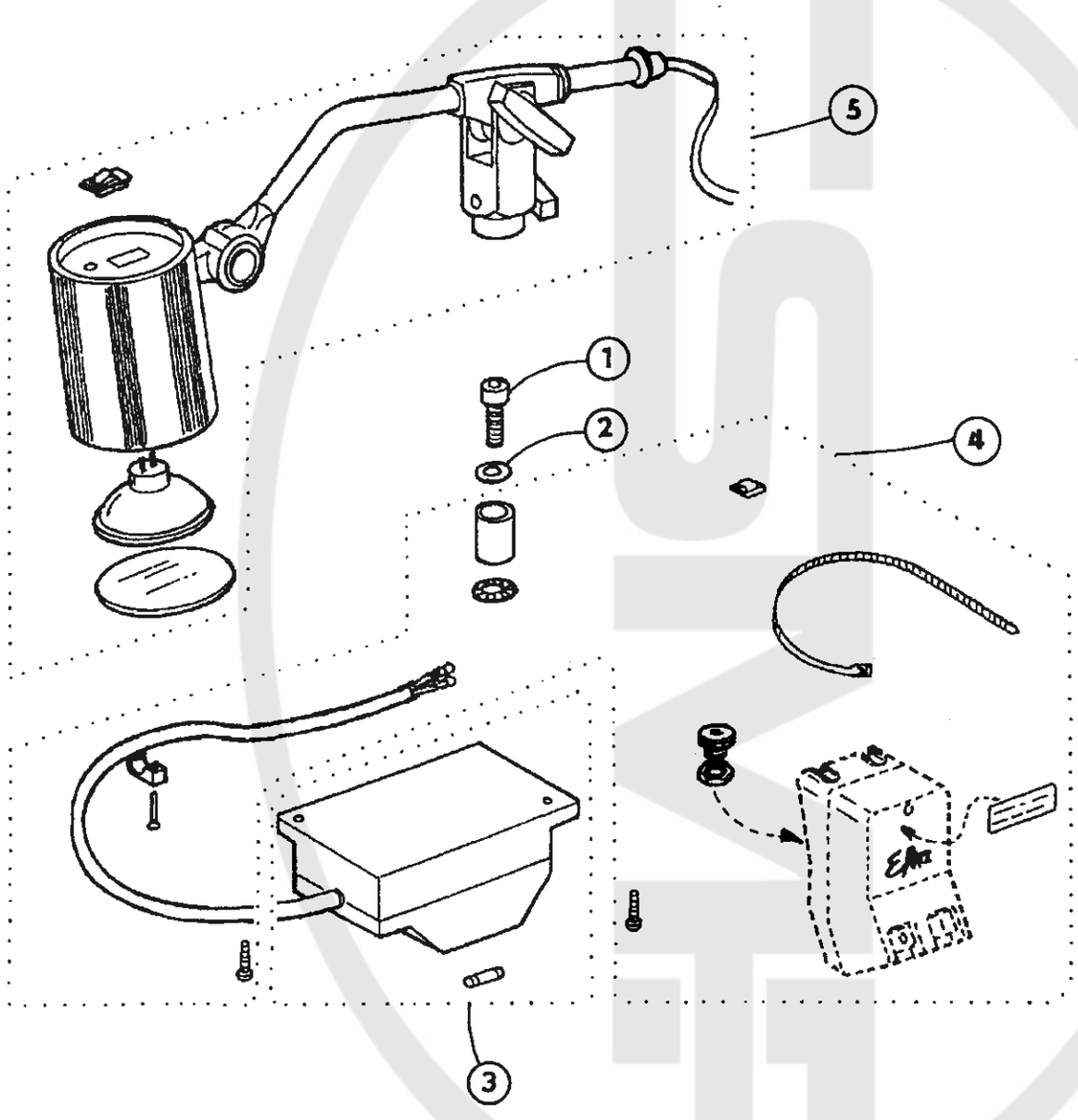


ZZ 567 TD

522 791 995 154 /2

1	522 980	094 047
2	522 080	613 594
3	522 080	120 331
4	522 080	191 135
5	522 080	120 354
6	522 080	191 136
7	522 080	120 364
8	311 732	910 040
9	522 080	314 231
10	522 080	826 396
11	522 080	342 342

tab. 44



ZZ 567 TD

522 794 222 012 00

1	522 080	120 692
2	522 080	190 346
3	522 798	500 088 80
4	522 907	487 519 80
5	522 822	510 001 80