

**72407 - 103 I**

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**INSTRUCTIONS FOR ADJUSTMENT AND SERVICING AND LIST OF PARTS FOR  
SINGLE-NEEDLE POST-BED INDUSTRIAL SEWING MACHINE WITH DROP AND  
NEEDLE FEED WITH TOP ROLLER AND REVERSE FEED**

**72407 - 103 I**

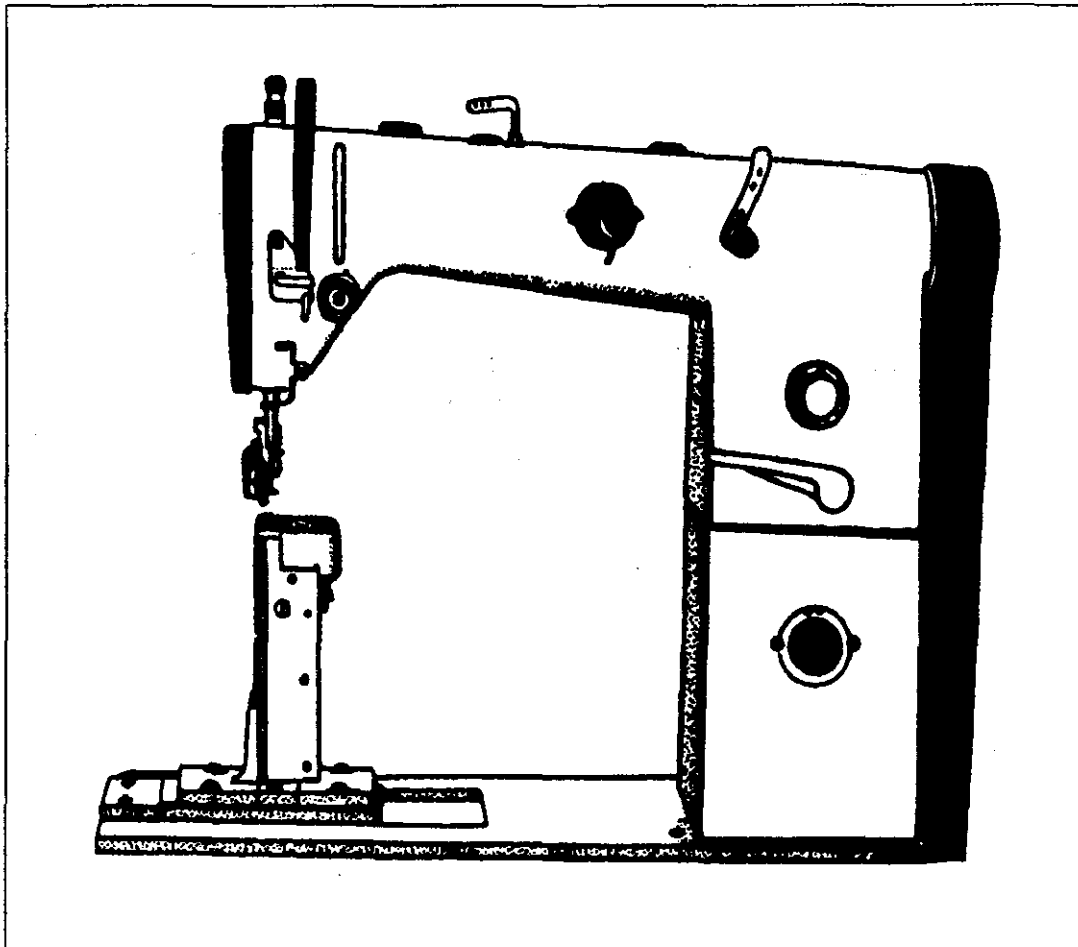
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NEEDLE FEED WITH TOP ROLLER AND REVERSE FEED**

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**Use of Machine**

The machine is used for shoe vamp joining operations, shoe insteps stitching, decorative linking, overedging and similar operations at footwear sewing in the first place.

**Specifications**

Stitch	two-thread lockstitch
Sewing speed	2,500 stitches per min. - depending upon machine technological use
Needle	Schmetz 797 CFCF No. 90 - 120
Stitch length	0 - 6 mm, both forward and reverse stitching
Thickness of sewn material	up to 6 mm - textile up to 4 mm - leather
Hook	perpendicular, rotary, small diameter R 210
Top roller lift	7 mm with hand lever 8 mm with treadle or knee lever
Threads	cotton threads: 14,5 tex x 3 - 29,5 tex x 3 synthetic threads: PES 25 tex x 1 x 2 25 tex x 1 x 3
Post bed height	170 mm
Clear work space	270 x 315 mm
Weight of machine head	40 kgs

**Technical description**

The machine is a single-needle post-bed industrial sewing machine with drop and needle feed, and top roller. The lever for reverse stitching actuating is located on the perpendicular part of the machine arm. It sews with two-thread locked stitch. The principal rotary machine mechanisms are seated in rolling-contact bearings, and the swinging ones are seated in antifriction deposits. The thread take-up lever mechanism is joint seated. The drive transmission from the upper shaft to the lower one is carried out by a drive belt. The hook drive transmission is carried out by means of cog-wheels housed in a gear box. The stitch length is derived from the adjustable excentrics located on the upper and lower machine shafts. The stitch length is controlled with the knob located on the perpendicular machine arm. The sewing set according to your order may be mounted on the machine. The vertical hook is provided with positive bobbin case opening. The machine is provided with compound wick lubrication. The hook lubrication is adjustable from the oil tank with the oil level indicator.

**Equipments and their Use**

Ordering No.	Name
* 522 791 124 057 35	Sewing set - needle Schmetz 797 CFCF No. 120; feed dog with 2 mm wide needle aperture
* 522 791 124 058 35	Sewing set - needle Schmetz 797 CFCF No. 100; feed dog with 1.5 mm wide needle aperture
522 791 422 010 00	Top roller $\varnothing$ 32 mm
522 791 422 011 00	Top roller $\varnothing$ 22.5 mm, roller width 3.5 mm
522 791 422 012 00	Top roller $\varnothing$ 22.5 mm, roller width 4 mm
522 791 422 013 00	Top roller $\varnothing$ 22.5 mm, roller width 3.5 mm roller holder is 4 mm higher
522 791 995 014 00	Plug for aperture provided for inserting and mounting the bobbin winder
522 791 995 068 00	Treadle feed reversing equipment
522 791 995 070 00	Putting aside gutter
522 792 112 015 00	Incorporated bobbin winder
522 794 222 010 00	Suspension-type lighting

\* There is necessity to order one of the top rollers, in addition.

Manufacturer: **MINERVA BOSKOVICE**  
Joint-stock company

## 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 occurred during transport to the railway authorities or to the forwarding agents at once. Immediately after unpacking, check the contents 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. 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 contrarily. Those parts of the machine which are subjected to increased friction or strain should be lubricated several times a day, as needed. Refill the oil into the oil tank of the hook as required.
6. Clean the machine daily, especially the parts which become choked by impurities from the sewn material. During the cleaning, carefully check whether any machine parts have become loose.
7. Once a week, during the thorough cleaning, carefully check the the whole machine to see that no parts are damaged and that all machine mechanisms operate correctly. Any faults ascertained must be repaired immediately. Once a year, a general overhaul should be carried out, i.e., the whole machine should be dismantled, thoroughly cleaned, all individual pieces and parts of electrical equipment inspected, and faulty or worn out pieces repaired or exchanged.
8. Adhere to the safety regulations.  
Never clean the machine or repair defects until the machine has stopped. Do not remove covers or other safety devices.
9. The strength needed for the control treadle motion extends 40 - 90 N. The strength needed for the control levers motion extends 10 - 60 N. The control mechanisms and their power controls have been designed dependantly on frequency of their use during ordinary technological operation.
10. We cannot assume any responsibility for consequences resulting from non-observance of these instructions.

**B. Packing, unpacking, cleaning, and lubrication of machine****1. Packing of machine**

The machine head is seated in a polystyrene package, which is inserted into the carton.

**2. Unpacking of machine**

When taking over the machine from railway or in the works ascertain whether it has arrived in good order. Report any damage which has occurred during transport to the railway authorities or to the forwarding agents at once. 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 and tilt it to its horizontal position. If the machine is seated on the washers correctly, a gap of approximately 1.5 mm will appear between the bed plate and rim of the stand plate on the whole of its circumference. Check the reverse stitching control by means of the left-side treadle. Otherwise, the machine is supplied mounted and ready for work.

**4. To set and fix machine**

The machine is designed as a stable unit with the stand, requiring no fixing to the floor.

**5. To clean and lubricate the machine  
(Figs. 1, 2, 3, 4)**

Before putting the unpacked machine into operation, remove the protective grease coating and clean the machine thoroughly. Heavy duty lucid vaseline oil is recommended for lubrication of machine mechanisms and of the hook. With an oil can drip oil into the marked lubrication holes once a day (adhere to the lubrication scheme), at the beginning of the work shift.

Check also the oil level in the oil level indicator located on the oil tank of the hook. From time to time refill grease to the shafts (344.059, 345.050, see Chart No. 7) with a grease lubrication press. The hook must be cleaned daily. Drip two or three drops of kerosene on all soiled parts of the hook and let the machine run at high speed, then stop it, wipe off flushed-out dirt, and oil the hook. This cleaning should be carried out daily, especially after the end of the work shift, in order to prevent dirt from drying on the hook. Before proceeding to clean the machine, unthread it and take the hook bobbin with thread out of the hook. Once a week, the machine should be thoroughly freed from dirt and settled oil.

**Caution:**

Never use trichlorethylene or perchlorethylene to remove the dirt from the drive belt, when spoiled.

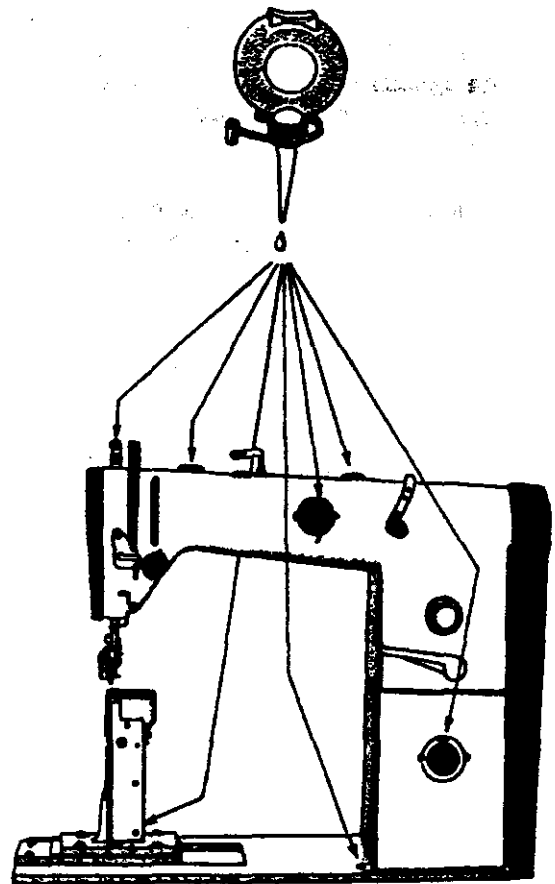


Fig. 1

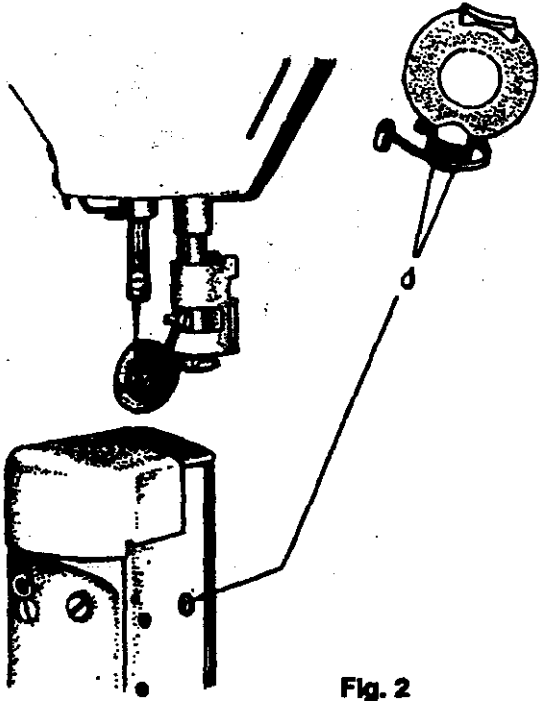


Fig. 2

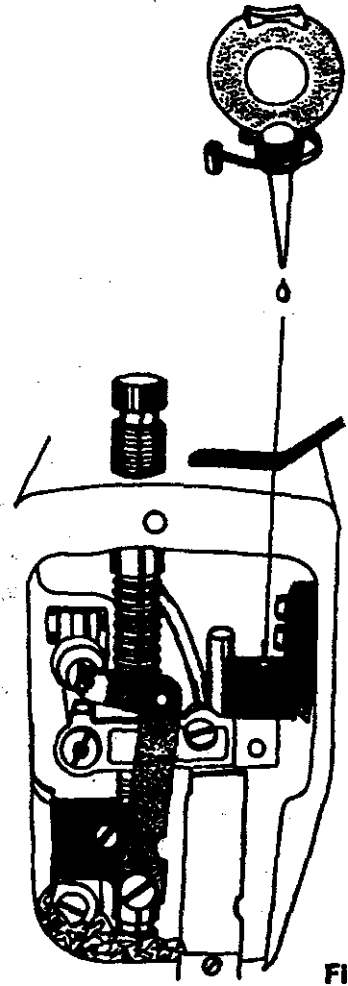


Fig. 3

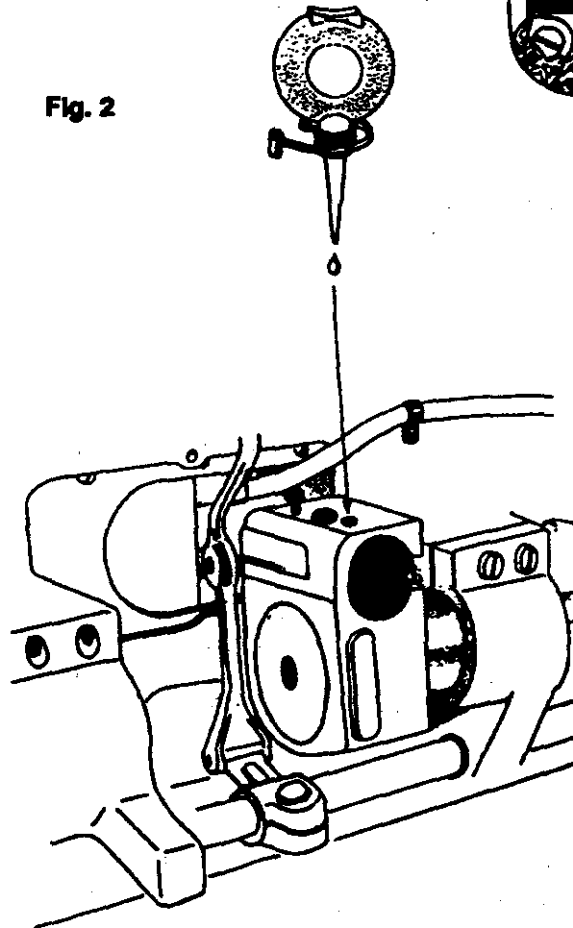


Fig. 4

#### 6. To adjust hook lubrication (Fig. 5)

To adjust the flow of oil to the hook turn with a screwdriver the adjusting pin (1) from zero (0) to maximum (I). The adjusting pin is situated on the right side of the post bed (2). Adjusted at zero (0), the regulation still provides for minimum oil flow to the hook and prevents it from seizing.

After the machine has been put into service, check the oil level in the oil tank at regular intervals.

The hook lubrication should be checked once a week by tilting up the hook guard and applying a piece of white paper to the post bed adjoining the hook. After five seconds of machine run at full speed, the paper must show distinct traces of oil thrown on to it from the hook by centrifugal force. This test should be repeated. If the oil traces are not distinct enough, dismantle the hook and exchange the lubrication inlays either in the hook or in the post bed.

#### Caution:

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

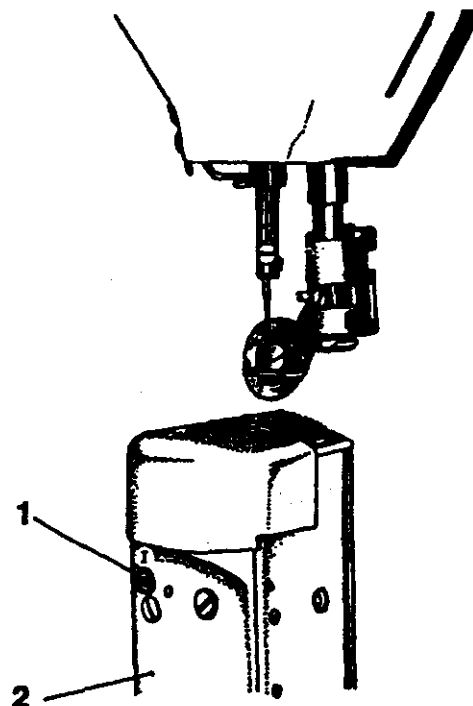


Fig. 5

#### C. To prepare machine for sewing

##### 1. General inspection

Inspect the machine thoroughly for loose parts as well as for the presence of foreign bodies. Rotating the hand wheel by hand, check whether it revolves freely.

Further check the correct working of the command mechanism, i.e., the lifting and sinking of the top roller by means of the hand lever and the reverse feeding function by means of the left-side treadle or the hand lever.

##### 2. Sense of rotation

The correct sense of rotation of the machine hand wheel is marked by red arrow located 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 sense, i.e., in the direction marked by red arrow on the belt cover. If it is not the case, the plug of the lead-in cable must be taken out and the cable must be switched over on the plug or on terminal unit of the electric motor. An incorrect sense of rotation is inadmissible.

##### 4. V-belt and its tension

The V-belt can be easily tensioned by means of the holder of the electric motor tilting together with the electric motor. The correct belt tension ensures the transmission of full power with losses reduced to a 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 machine output and increases both the power consumption and the wear of the bearings. When mounting and removing the V-belt, proceed as follows: Remove the belt guard near the hand wheel, set the V-belt first into the groove of the hand wheel and then on the pulley of the electric motor, check the V-belt for correct tension, and mount the belt guard. To dismantle, proceed vice versa. The belt need not be removed to tilt the machine head.

#### 5. To lift the top roller (Fig. 10)

The lifting and sinking of the top roller is commanded by the hand lever (1) located at the rear side of the machine. Never start the machine if the top roller has been sunk on to the throat plate directly, with no material interposed between it and the throat plate.

#### 6. Needles and threads

The machine requires the use of needle Schmetz 797 CFCF. Considering the high machine performance and the resulting needle heating, it is recommended to use chromium plated needles. The size of the needle to be used depends on the size of the thread, since it must pass freely through the needle ear. For stitching of leather, it is recommended to use the lower thread by one number thinner than the upper one. Only high-class threads should be used. A coarse thread, or one which passes through the needle ear with difficulty, reduces the machine performance and increases its trouble incidence.

#### 7. To insert needle

Lift and tilt away the top roller and turn the hand wheel towards you until the needle bar reaches its top position, i.e., until the greatest possible distance between the needle bar and the throat plate has been obtained. Loosen the screw at the thread guide situated at the end of the needle bar and insert the needle up to the stop. Be sure that the long groove of the needle is directed to the left of the operator, then fix the needle by tightening the screw. Each time you insert a needle, check whether it passes through the middle of the needle aperture provided in the feed-dog. Never use a needle chosen haphazardly but choose it with respect to the character of the sewn work and to the thread size.

#### 8. To thread upper thread (Fig. 6)

Put the wound bobbin on the bobbin stand, unwind a sufficient thread portion, and pass it through the pin (1) and through the thread guide (2), then lead it between the tensioner discs (3), through the adjusting spring (4) and the thread guide (5) into the thread take-up lever (6), then through the thread guide (5) into the lower thread guide (7), to the thread guide (8) located on the needle bar, and from there, from the left to the right (in operator's view), into the needle ear.

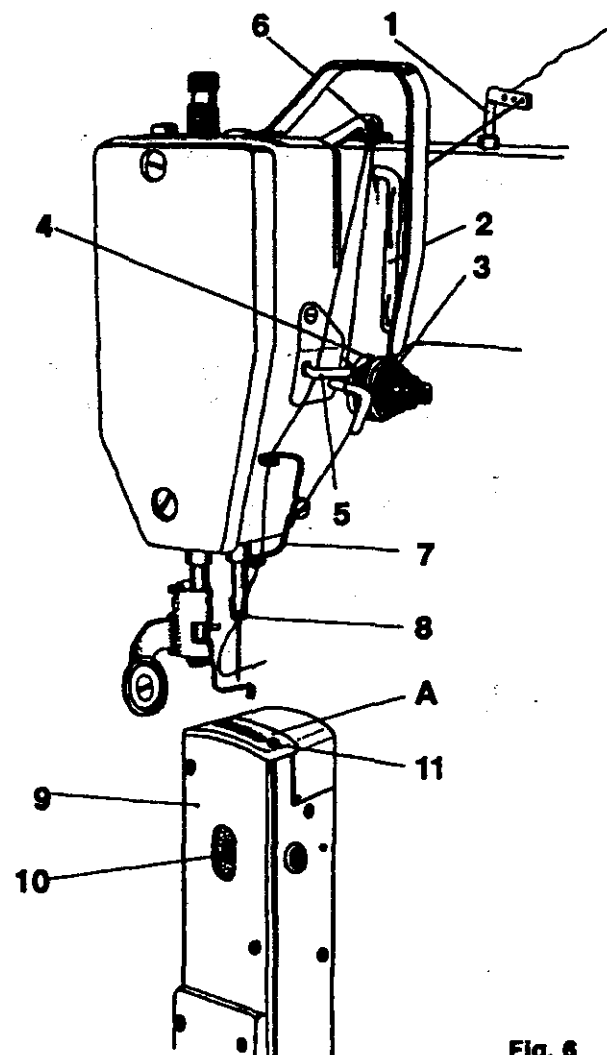


Fig. 6

### 9. To wind the hook bobbin (Fig. 7)

To wind the lower thread on to the hook bobbin, use the bobbin winder situated on the front side of the machine arm, and supplied separately as Equipment No. 522 792 112 015. Lead the thread from the bobbin stand through the aperture provided on the arm of the bobbin stand and through the aperture of the thread guide (1) under the braking plate (2) and then through the other aperture of the thread guide to the bobbin mounted on the shaft of the winder. When mounting the bobbin on to the winder, be sure that the carrier spring (3) on the winder shaft enters the notch provided in the bobbin. Then produce by hand a few thread windings on the bobbin to secure the thread. By tilting the locking lever (4) in the midst of the coil fronts, the winder transmission has been actuated. The winding begins upon starting the machine. During the winding, the thread is distributed evenly along the whole of the bobbin width. As soon as the bobbin is full, the actuating lever resumes its stop position and the winder shaft is set automatically out of engagement with its drive member, thereby stopping the winding. Remove the bobbin from the winder shaft and trim thread with the trimmer (5). The time of the winder stopping, which corresponds with the thread quantity wound on the bobbin, can be adjusted if you proceed as follows: Fix the position of the disconnecting pin (there is mounted the locking lever (4) on it) with screwdriver. Loosen the screw (6) with another screwdriver, and by light turning of the locking lever, which is mounted on the disconnecting pin, precisely adjust the time of winder drive disconnection. Then tighten the screw (6).

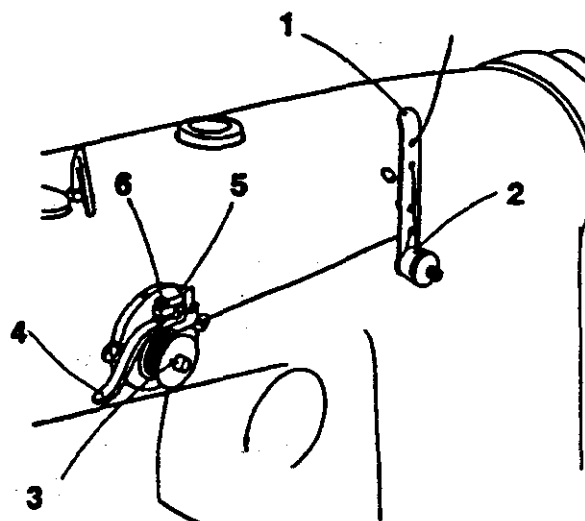


Fig. 7

### 10. To take out the hook bobbin

Rotate the hand wheel until the thread take-up lever has reached its top position, tilt up the hook guard on the post bed, open the lock of the bobbin case by tilting the lever upwards. After the lock has been opened the bobbin is loosened and you can take the bobbin out from the bobbin case in upwards direction.

#### Caution!

When taking the bobbin out of the bobbin case, hold your feet away from the stand treadles to prevent incidental machine starting.

### 11. To thread lower thread

Insert the fully wound bobbin into the bobbin case, and the thread end, into the notch of the bobbin case. Lock the bobbin in the bobbin case, insert the thread under its pressure spring, lay the thread end across the opening hook so that it cannot be grasped by the hook point, and finally tilt the hook guard to its normal position.

### 12. To catch lower thread

Hold lightly with your left hand the end of the upper thread without stretching it. With your right hand, revolve the hand wheel towards yourself until the threaded needle reaches subsequently its bottom and its top position, thereby catching the lower thread. Then lightly draw the upper thread until the lower thread shows through the aperture provided in the feed-dog. Lay the both 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 top roller. Both when starting and when finishing the sewing, the thread take-up lever should be placed in its top position to avoid the risk that the upper thread will thread out and possibly catch in the hook course.

### 13. Sewing - work proper

Insert the material to be sewn under the top roller and switch on the electric motor. Having pressed the top roller upon the material, grip the free ends of both threads with your hand, and gradually depress the right treadle. In this way, the machine is started and the sewing speed increases up to maximum obtained when the treadle has reached its lowest position. By releasing the treadle, the clutch of the electric motor is disengaged, braked, and the machine stopped. During the sewing, avoid pulling the material but guide it only. By pulling the material, you bend the needle with the risk of braking it in case of a collision with the edge of the needle aperture provided in the feed-dog. Repeated collisions of this kind burr the needle aperture which, in its turn, causes thread ruptures. To remove the material, set the thread take-up lever to its top position, lift the top roller, draw the material a bit away, and trim the threads, leaving a sufficient portion of them both from below and from above. Never try to break threads by pulling sewn material, you would bend the needle with the risk of breaking it.

#### Caution:

Having put a new machine into operation, do not charge it fully from the very beginning. During the two or four weeks, when machine is running-in, increase its sewing speed gradually and check carefully its running. Throughout this time, pay special attention to machine 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

In the following part, adjustments are described which can be carried out on the work site of the machine. More extensive and more time-consuming adjustments and accommodations should be effected by a skilled mechanic with an adequate knowledge of, and practice in, repairing sewing machines.

### 1. Stitch length adjustment (Fig. 8)

To adjust the stitch length, turn the knob (1) situated on the vertical part of the machine arm. The stitch length is steplessly adjustable through 300° knob's turning. We follow the principle, by turning it to the right the stitch (arrow 'A') the stitch length is increased, by turning to the left (arrow 'B') the stitch length has been decreased. For reverse stitching, depress the lever (2) downwards (arrow 'C'). When released, the lever automatically resumes its previous position, and the machine restarts forward stitching. The reverse stitching can be actuated also by the left stand treadle when using the No. 522 791 995 068 treadle feed reversing equipment.

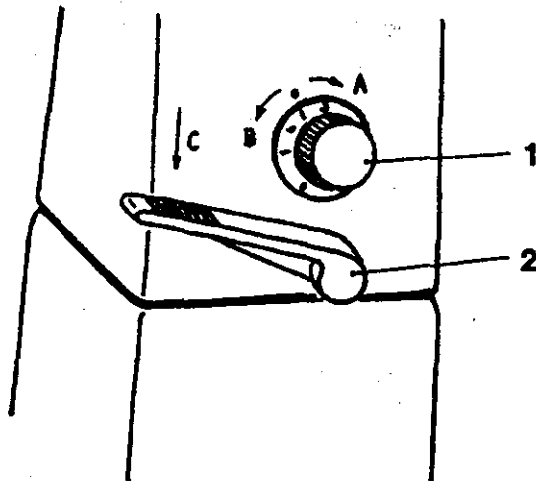


Fig. 8

### 2. 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 of 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 (between which and the spring the thread passes) 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.

### 3. To adjust the height of feed-dog (Fig. 6)

The height of the feed-dog (A) teeth above the throat plate should be adjusted between 0.8 - 1.2 mm according to the kind of sewn work. The side post bed cover aperture (9) makes access to the screw (10) possible. The feed-dog is fixed with this screw to the lifting lever which passes through the post bed. After the feed dog screw has been loosened with screwdriver /after the cover (9) has been dismantled with screw-key 7/, adjust the required height of the feed-dog teeth. Then retighten the screw thoroughly.

### 4. To adjust hook height with respect to throat plate (Fig. 9)

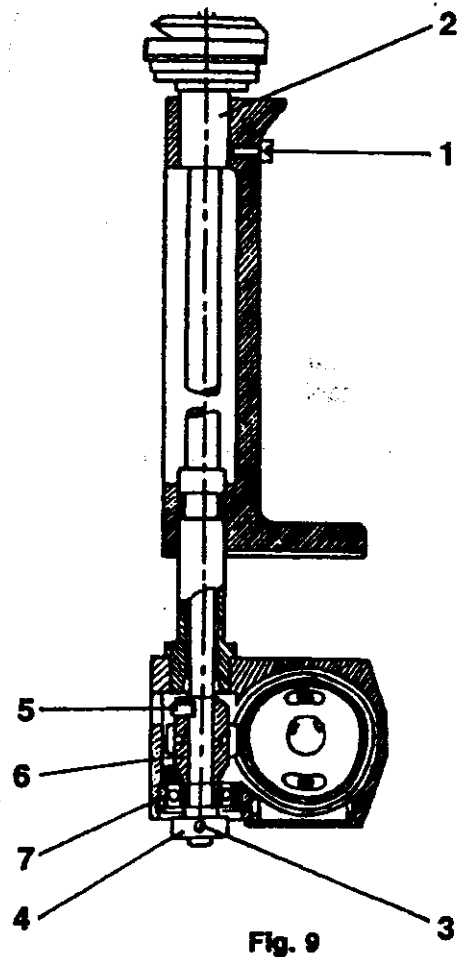
On the right side of the hook post bed, loosen the screw (1) locking the upper bushing (2) of the hook shaft. Then loosen the two screws (3) of the adjusting ring (4) at the lower end of the hook shaft and, using the aperture of the hook gear box loosen the two screws (5) of the cog-wheel (6). By tapping on the hook shaft, adjust the hook height so that the gap between the throat plate recess and the upper surface of the bobbin case of the hook 0.8 to 1 mm has been obtained. Adjust the gap using the special gauge delivered with equipment. Set the ring (4) situated on the hook shaft on to the face of the bearing (7), and retighten the screws (3) both on the ring (4) and those (5) on the cog-wheel (6). Tap mildly on the upper bushing (2) of the hook shaft to set the clearance of the opening hook and lock the bushing on the correct position by retightening the screw (1) on the post bed.

### 5. To adjust throat plate (Fig. 6)

The throat plate (A) is fixed to the post bed by the screws (11). Mount the throat plate on the post bed and check whether the needle passes through the centre of the needle aperture of the feed-dog. At the same time check whether the feed-dog does not collide with the throat plate notch flanks. From time to time, check whether the needle aperture of the feed-dog is not burred or otherwise damaged, since it would unfavourable affect the quality of stitching.

### 6. To adjust the movement of needle with respect to feed-dog and feeding (Fig. 10, Chart No. 12)

- a) Adjust maximum stitch length
- b) Loosen the two screws on the lower belt wheel
- c) By hand turning of the lower shaft set the feed-dog to its highest position above the throat plate. Now depress the feed reversing lever downwards and observe the feed-dog whether it is moving



- d) during the lever's depressing. If it is the case, then seek by next mild revolving with the lower shaft the position when the feed-dog is not moving during reverse feeding.
- e) Turn by the hand wheel until the needle has reached its lowest position. Check again whether the needle is moving against the feed-dog when depressing the feed reversing lever. If it is the case, then seek by hand wheel revolving and feed reversing lever actuating the motionless needle position. Then retighten the screws on the lower belt wheel.

- e) Remove the front post bed cover, loosen the screw (4, Fig. 10) of the lever (5) and adjust the needle onto the feed-dog aperture center. Then retighten the screw.
- f) Adjust zero stitch length when no feeding of the sewn work is achieved. If the needle or the feed-dog is feeding, adjust their zero position by adjustment the adjustable lower and upper eccentrics, using the levers fixed on the feed reversing lever pin located in vertical part of the machine arm. In the case of needle feeding, it is necessary to loosen the lever on this pin (Chart No. 12, 613.208) after the screw (120.224) has been loosened. In the case of the feed-dog feeding, it is necessary to loosen the lever (613.402)

at the same place after the two screws (120.231) have been loosened.

- g) Adjust maximum stitch length. If the different feeding between needle and feed-dog has been accomplished, carry out the adjustment by revolving of the eccentric (7) which is connecting the lever (5) and the conrod (8) with the needle bar holder (9) after the screw (6, Fig. 10) has been loosened. In the end retighten the screw again.
- h) Now we shall carry out final inspection:
- the needle must pass through the feed-dog aperture center
  - when zero stitch length is adjusted, no feeding of the sewn material can be done (the inspection is carried out only visually, since no sewing can be done at this adjustment)
  - when maximum stitch length is adjusted, there must not exist any difference between the needle and feed-dog feeding

## 7. To adjust the forward and reverse stitching length (Chart No. 12, 13)

Loosen the screw (120.224, Chart No. 12) of the lever (613.208) and the two screws (120.231) of the lever (613.402) located on the reverse feeding lever pin inside of the vertical part of the machine arm. Adjust zero stitch length with the controlling knob. Set the lever system inside the vertical part of the machine arm so that the bottom bifurcated arm of the angle-lever (636.236, Chart No. 13) is in perpendicular position approximately. Then retighten the two screws (120.231, Chart No. 12). Now adjust the slide bushing of the upper adjustable eccentric so that zero eccentricity is achieved. Retighten the screw (120.224) in this position. Zero eccentricity of the lower adjustable eccentric is set after the screw on the part (022.126, Chart No. 13) has been loosened. Adjust zero eccentricity by sliding the clamp along the pulling rod (043.474) which the stitch length change controls. Retighten the screw (022.126) of the clamp and check whether the forward and reverse feeding is equal.

In the case you wish the reverse stitch length to differ from the forward one, use the two nuts (161.140 and 171.062) on the pulling rod (043.474) for the adjustment.

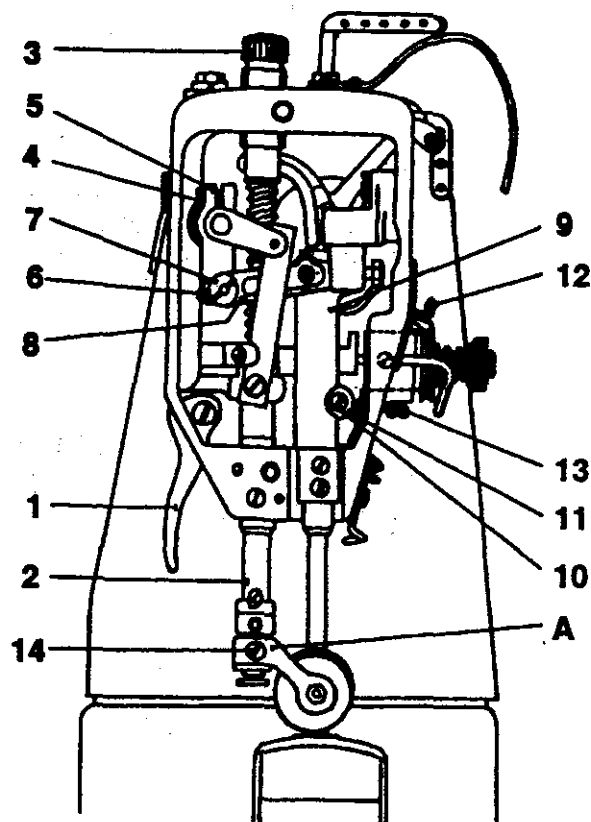


Fig. 10

### 8. To adjust needle bar height (Fig. 10)

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 ear comes to rest approximately 1.5 mm under the hook point.

If the needle bar height is not adequate for this requirement follow this procedure to adjust it correctly: remove the front plate after the relevant screws have been loosened. Loosen the screw (10) of the needle bar carrier (11) and set the needle bar correctly. Then retighten the screw of the carrier carefully, and mount the front plate.

### 9. To adjust the hook course (Fig. 11)

Tilt the hook column guard and dismantle the throat plate. Turn the hand wheel towards yourself until the needle reaches its bottom position and reascends by 2 mm to 2.4 mm. In this position, the hook point must be in the needle axis. The correct position is adjusted by the hook's turning after the two hexagonal screws of the hook gear box have been loosened. The screws are accessible after the cover (1) of the gear box has been removed.

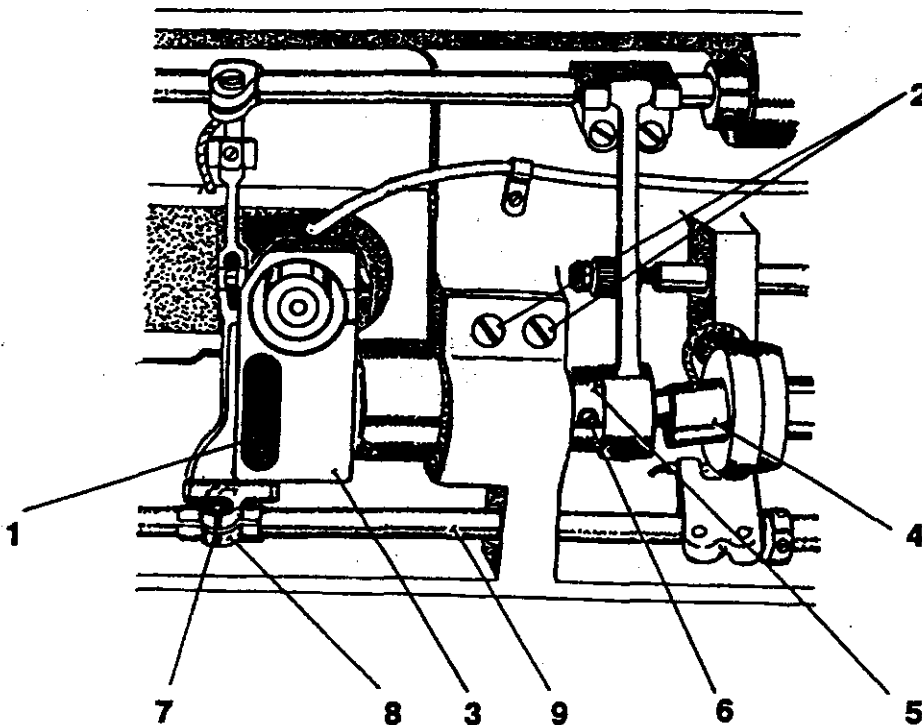


Fig. 11

### 10. To adjust opening hook (Fig. 12)

The adjustment of the opening hook can best be carried out during the stitching test. Loosen the screw (6) and turn the guide plate (7) under the hook to a position ensuring a gap of approximately 0,5 mm between the lug of the bobbin case and the recess of the throat plate at the moment when the upper thread passes across the bottom section of the hook. Check also the passage of the thread loop between the lug of the bobbin case and the opening hook. The upper thread must pass in both cases freely, without jerks. Furthermore, the opening hook must be adjusted so that at the extreme position, when it bears against the lug of the bobbin case, the gap between the throat plate and the



lug of the bobbin case is approximately 1 mm. After the adjustment, carefully retighten the screw (6). There is possible to adjust a vertical gap, in a case of need, between the upper recess of the throat plate and the top area of the hook bobbin case lug. (See par. 4, page 7).

11. To adjust the distance between the hook point and the needle (Figs. 11, 12)

Loosen the two screws (2, Fig. 11) in the bed plate that fix the gear box (3). Remove the plug (1) outside the gear box. Then loosen the two screws in the gear box that fix the cog-wheel to the lower shaft and, finally, the two screws (A, Fig. 12) fixing the hook post bed. Then shift the gear box and the post bed of the hook so to obtain the distance not larger than 0.1 mm between the hook point and the needle which should touch lightly the hook guard, and retighten all the screws mentioned above. The plug (1, Fig. 11) is mounted into the gear box last.

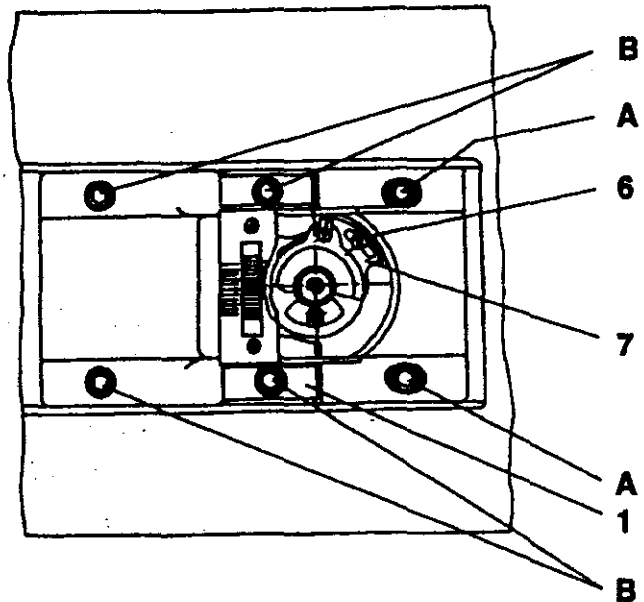


Fig. 12

12. To adjust function of adjusting spring (Fig. 10)

Loosen the screw (13) and turn the whole thread tensioner either clockwise i.e. to the right, to increase the movement of the adjusting spring (12), or to the left, to decrease it, then retighten the screw. To adjust the tension of the adjusting spring, loosen the screw (13) and take out the complete thread tensioner. After the screw of the thread tensioner has been loosened, turn the thread tensioner pin either to the right, to increase the tension, or to the left, to decrease it, then retighten the screw, and mount the thread tensioner. After a few stitches, check the adjusting spring for correct adjustment. If adjusted correctly, it will remain motionless even at the moment when the thread passes across the hook's largest diameter, the thread itself being, however, lightly tensioned. In the following stage of the hook movement, the adjusting spring should start a swining movement to be finished at the moment when the needle ear enters the sewn material. After a substantial change in the thickness of sewn material, it is recommended, to check the function of the adjusting spring and readjust it, if necessary.

13. To adjust pressure of presser bar - top roller (Fig. 10)

The pressure of the top roller (A) fixed to the presser bar (2) is actuated by the adjusting screw (3) located on the upper part of the machine arm. By turning the screw to the right, increase the pressure of the top roller, by turning it to the left decrease it. The pressure of the top roller must be sufficient to provide for reliable and continuous feeding even at top sewing speed. On the correct adjustment of the presser bar pressure depends the uniformity of feeding of the sewn material, without any damaging, as well as the uniformity of the stitch length.

14. To dismantle and mount drive belt (Fig. 13)

First of all, we advise, the needle should be taken out of the needle bar. Remove the screws (2,3) with washers (4), take off the belt guard (1), then loosen the screws (5) and remove the hand wheel with the bearing (6) from the machine arm. Pass the drive belt (7) through thus originated opening along the upper shaft (8), and set it on the two belt wheels. Mount the hand wheel with its bearing, mount the belt guard, and mount the needle onto the needle bar.

**Caution:**

After each assembly or exchange of the drive belt, always adjust the hook course and the feeding, as instructed in the paragraphs above.

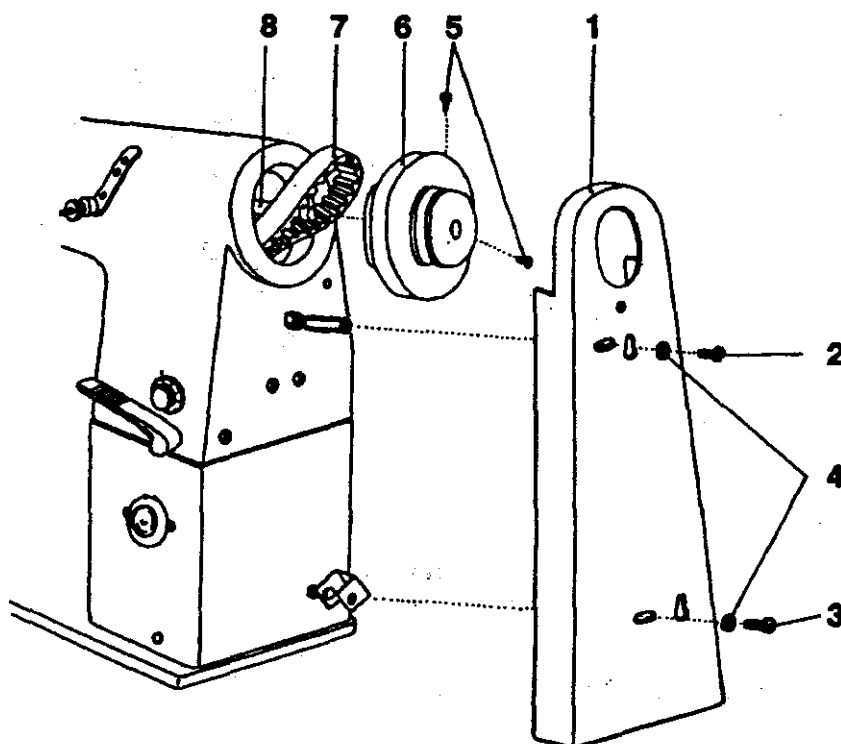


Fig. 13

**15. To adjust elliptical path of feed-dog movement (Fig. 11)**

If the machine is adjusted correctly the feed-dog describes an elliptical path in both directions of feeding.

The adjustable eccentric (4) is set up with the pin into the aperture of the lower shaft and imparts the feeding length. The other fixed eccentric (5) located in front of the adjustable eccentric advises the correct elliptical path. The two screws (6), ensuring the fixed eccentric, are located in its collar. The eccentric has a constant eccentricity so the height of ellipse is the same while the height of the feed-dog teeth under the throat plate is different.

To adjust the elliptical path:

It is carried out at zero eccentricity, i.e. at zero feeding. Loosen the screw (7) of the lever (8) on the feed-dog shaft (9), then set up the feed-dog holder with the feed-dog to the middle of the excision on the throat plate.

There is the principle, the maximum lift of the feed-dog is in the middle of feeding path approximately.

**16. To adjust medium post bed (Fig. 12)**

To adjust the medium post bed (1) with the drop feed-dog and throat plate, turn the hand wheel until the needle bar with the needle reaches its bottom position, loosen the four screws (B) and set the medium post bed laterally so that the needle passes through the middle of the needle aperture provided in the feed-dog, then fix the post bed position by retightening the screws to the bed plate of the machine.



**17. To exchange top roller (Fig. 10)**

To exchange the top roller (A), first lift the presser bar (2) with the hand lifting lever (1) to its top position. Lift also the needle to its top position, then screw out the attachment screw (14) of the top roller and remove the latter from the holder. To mount the top roller, proceed inversely. Having mounted and fixed a new top roller, check (in its top position) whether the needle bar in its bottom position does not collide with the top roller.

**18. Electrical equipment of machine**

The machine is driven by an electric motor with squirrel cage located in the stand, connected to 3 x 380 V. The electrical equipment should be kept in a good state, in accordance with the electrotechnical and safety 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.

**Caution:**

Any failure of the electrical equipment of the machine should be repaired by a skilled 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.

**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 should be exchanged, and due repairs carried out. The machine should then be assembled and tested.

The electric motor and the electrical equipment should be inspected and tested. The general overhaul and repair of the machine should be carried out so thoroughly as to enable the machine to run without defects for another year.

**3. To store machine**

After the machine has been set out of operation, it should be cleaned, inspected, and faulty pieces exchanged, if any. The machine should then be tested, coated with protective grease, and stored with all its tools and accessories.

## IV. FAULTS AND HOW TO REMOVE THEM, IF ANY

Fault	Cause	Removing
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 lubrication holes in the bearings. Then oil the machine properly with the oil recommended for sewing machines (see par. 5, page 4)
b) Slow machine start.	Insufficient tension of the belt of the electric motor.	Increase the belt tension by tilting the electric motor.
c) Upper thread breakage.	<ol style="list-style-type: none"> <li>1. Slashed thread guides.</li> <li>2. Too sharp hook point.</li> <li>3. Faulty guiding or faulty threading of upper thread.</li> <li>4. Incorrect upper thread tension.</li> <li>5. Bad needle quality or bent needle.</li> <li>6. Thread size is inadequate to the thickness of the sewn material.</li> <li>7. Machine is considerably soiled.</li> <li>8. Thread wound on the hook.</li> <li>9. Thread is too thin or not strong enough.</li> </ol>	<ol style="list-style-type: none"> <li>1. Ascertain and exchange them.</li> <li>2. Repair it.</li> <li>3. Thread the upper thread correctly, see par. 8, page 7.</li> <li>4. Adjust it, see par. 2, page 9.</li> <li>5. Exchange the needle, see par. 7, page 7.</li> <li>6. Use adequate thread size.</li> <li>7. Unscrew the throat plate, clean the mechanism, and fix the throat plate again, see par. 5, page 10.</li> <li>8. Remove the thread.</li> <li>9. Use adequate thread.</li> </ol>
d) Lower thread breakage.	<ol style="list-style-type: none"> <li>1. Thread is threaded incorrectly into the bobbin case.</li> <li>2. Thread is too thin or not strong enough.</li> <li>3. Thread is wound incorrectly on the hook bobbin.</li> <li>4. Damaged bobbin.</li> <li>5. Too sharp pressure spring on the bobbin case.</li> </ol>	<ol style="list-style-type: none"> <li>1. Thread it correctly, see par. 11, page 8.</li> <li>2. Use adequate thread.</li> <li>3. Wind it correctly.</li> <li>4. Exchange it.</li> <li>5. Exchange the spring.</li> </ol>
e) Missed stitches.	<ol style="list-style-type: none"> <li>1. Needle inserted incorrectly.</li> <li>2. Blunt or bent needle.</li> <li>3. Slashed or broken hook point.</li> <li>4. Excessive needle aperture in the feed-dog.</li> </ol>	<ol style="list-style-type: none"> <li>1. Insert it correctly see par. 7, page 7.</li> <li>2. Exchange it see par. 7, page 7.</li> <li>3. Exchange the hook.</li> <li>4. Exchange the feed-dog.</li> </ol>

Fault	Cause	Removing
	<ul style="list-style-type: none"> <li>5. Broken adjusting spring for upper thread tension.</li> <li>6. Needle bar positioned too high or too low.</li> <li>7. Overtumed hook, incorrect hook course.</li> <li>8. Soiled hook mechanism.</li> </ul>	<ul style="list-style-type: none"> <li>5. Exchange the spring and adjust it, see par. 2, page 9 and par. 12 page 13.</li> <li>6. Adjust it, see par. 8, page 12.</li> <li>7. Adjust the hook course, see par. 9, page 12.</li> <li>8. Clean it with kerosene and oil it.</li> </ul>
f) Needle breakage.	<ul style="list-style-type: none"> <li>1. Feed-dog is positioned too low.</li> <li>2. Faulty attendance at sewing (pulling of sewn work)</li> <li>3. Needle is too thin with respect to material.</li> <li>4. Needle is inserted incorrectly.</li> <li>5. Feed-dog is loose.</li> <li>6. Excessive upper thread tension.</li> </ul>	<ul style="list-style-type: none"> <li>1. Adjust it in, see par.3, page 10.</li> <li>2. Let the material pass freely.</li> <li>3. Exchange the needle, see par. 7, page 7.</li> <li>4. Insert it correctly, see par. 7, page 7.</li> <li>5. Fix the feed-dog.</li> <li>6. Adjust it, see par. 2, page 9.</li> </ul>
g) Heavy and irregular feeding.	<ul style="list-style-type: none"> <li>1. Feed-dog positioned too low.</li> <li>2. Worn-out feed-dog.</li> <li>3. Clogged or blunt feed-dog teeth.</li> <li>4. Insufficient pressure of top roller.</li> </ul>	<ul style="list-style-type: none"> <li>1. Adjust it in height, see par. 3, page 10.</li> <li>2. Exchange it.</li> <li>3. Clean or exchange the feed-dog.</li> <li>4. Increase the the pressure, see par: 13, page 13.</li> </ul>
h) Stitch formation below sewn material.	<ul style="list-style-type: none"> <li>1. Tensioner discs damaged by upper thread.</li> <li>2. Thread does not pass smoothly around the hook or catches the bobbin case.</li> <li>3. Upper thread is not threaded between the tensioner discs.</li> <li>4. Thread broken and caught between tensioner discs.</li> <li>5. Incorrect proportion between tension of upper and lower thread.</li> </ul>	<ul style="list-style-type: none"> <li>1. Exchange the tensioner discs and adjust the upper thread tension, see par. 2, page 9.</li> <li>2. Clean the hook and arrange the bobbin case.</li> <li>3. Thread it correctly, see par. 8, page 7.</li> <li>4. Clean the thread tesnioner and adjust it, see par. 2, page 9.</li> <li>5. Correct proportion, see par. 2, page 9 and check it from time to time.</li> </ul>
i) Stitch forming above sewn material.	<ul style="list-style-type: none"> <li>1. Damaged spring on bobbin case (lower thread braked in sufficiently).</li> <li>2. Lower thread is not threaded under the spring of bobbin case.</li> </ul>	<ul style="list-style-type: none"> <li>1. Exchange the spring.</li> <li>2. Thread it correctly, see par. 11, page 8.</li> </ul>

Fault	Cause	Removing
	3. Broken thread caught under the spring of bobbin case. 4. Incorrect proportion between the tensions of upper and lower thread. 5. Premature feeding.	3. Remove the thread. 4. Correct the proportion, see par. 2, page 9. 5. Adjust it, see par. 6, page 10.
d) Locked hook.	Thread rests caught in the hook.	Rotate the hand wheel in either direction regardless of the considerable resistance met until caught thread rests are cut to pieces. Remove them and start unthreaded machine. Let it run for some time, then drip two or three drops of the recommended oil onto the hooks.

**V. HINTS HOW TO ORDER SPARE PARTS**

Please, do not omit to specify in each order:

1. Machine type and its production No.
2. Part marking (with the six-number marking - the part, we have manufactured, with the twelve-number marking - the part we have bought).
3. Number of pieces

e.g. 72407 - 103 I, No. 205  
           021.243      2 pcs  
           828.079      4 pcs  
       272 213 017 015      1 pc  
       323 114 618 117      1 pc

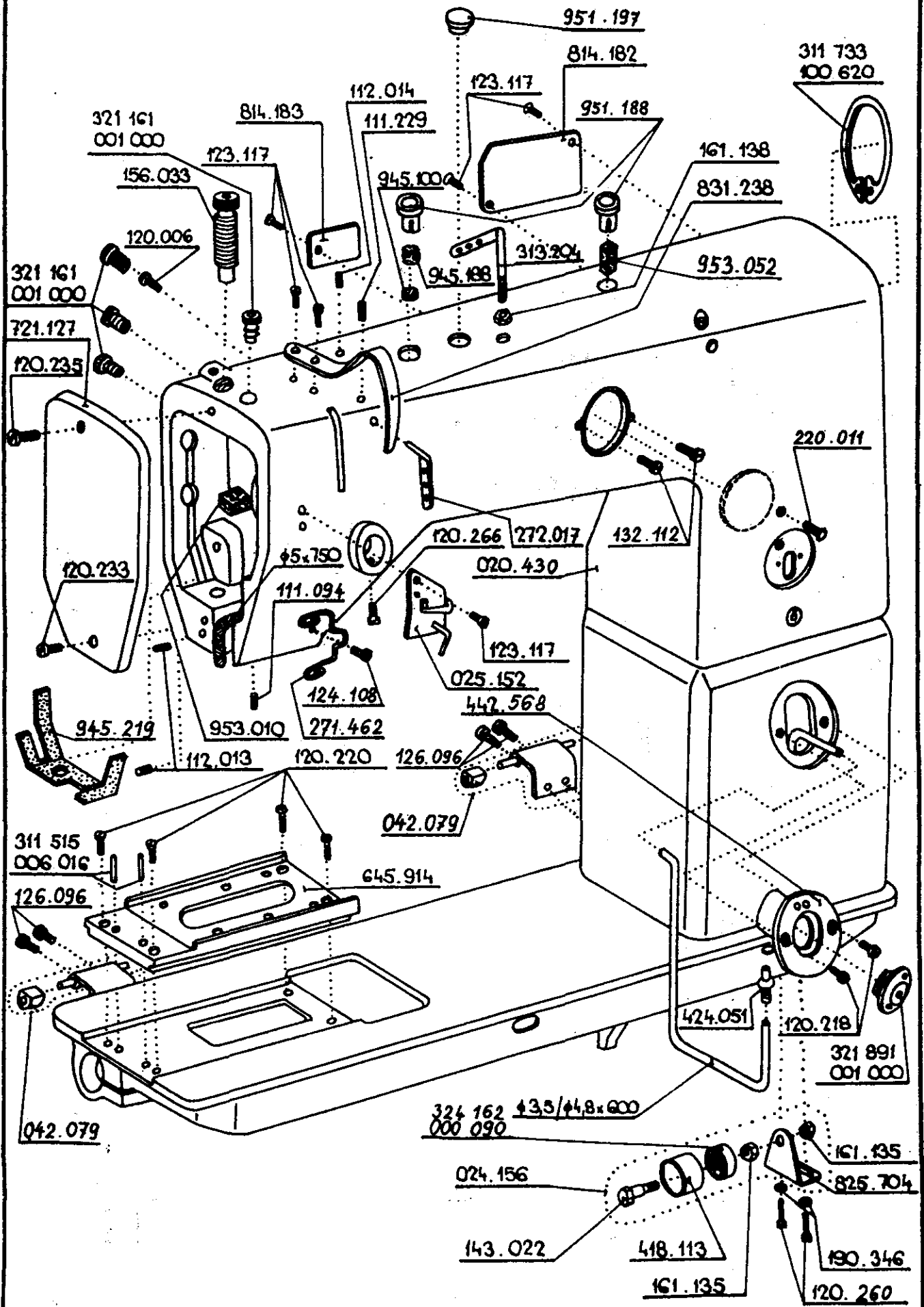
Considering technical innovations which improve our quality of our products, we alter in the correlation to those the original technical documentation, in order to correspond to the delivered up-to-date machine modification. That is why we recommended exclusively to order the machine spare parts using the catalogues enclosed to the delivered machine.

**TABLES OF PARTS**



72407-103 I

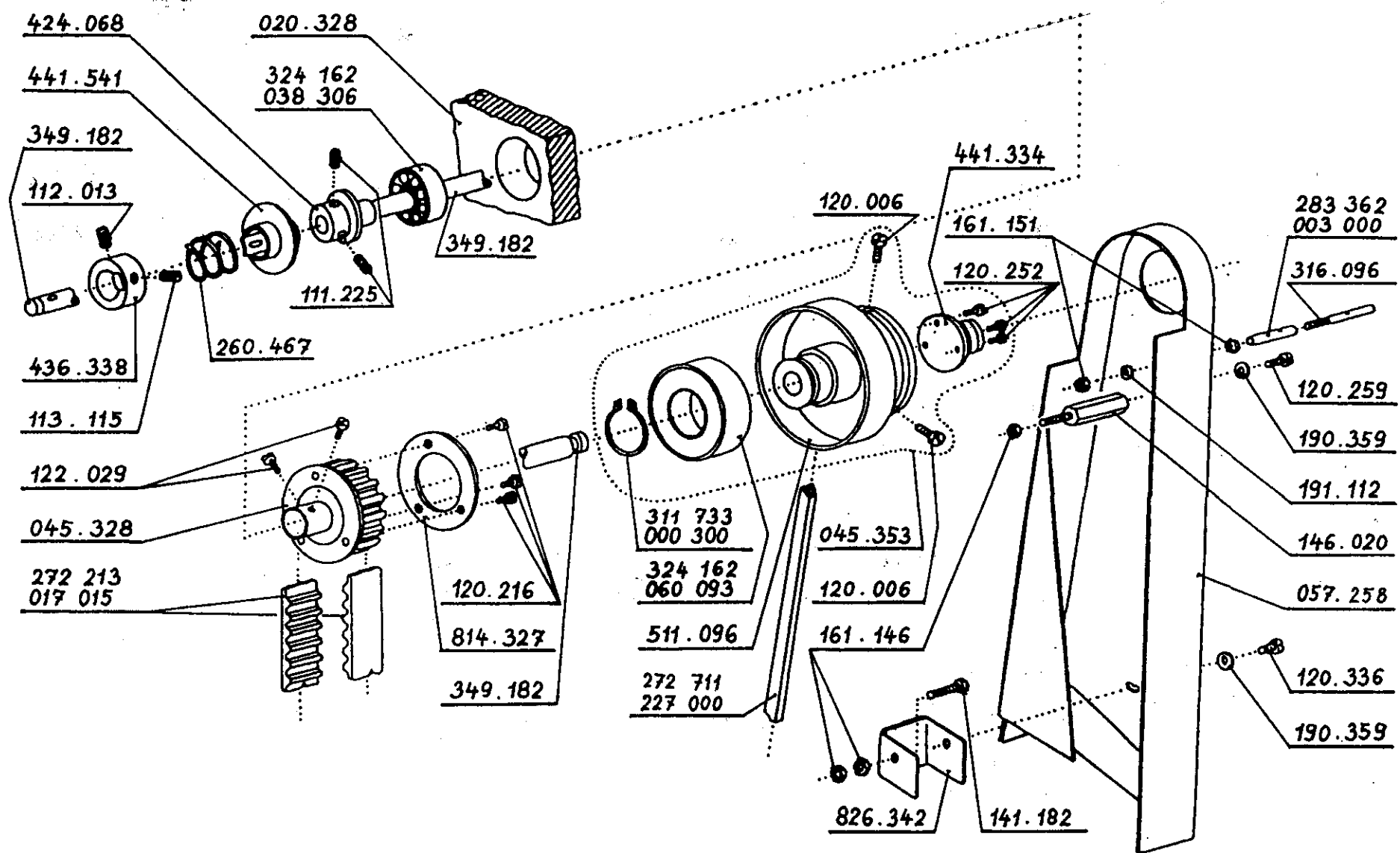
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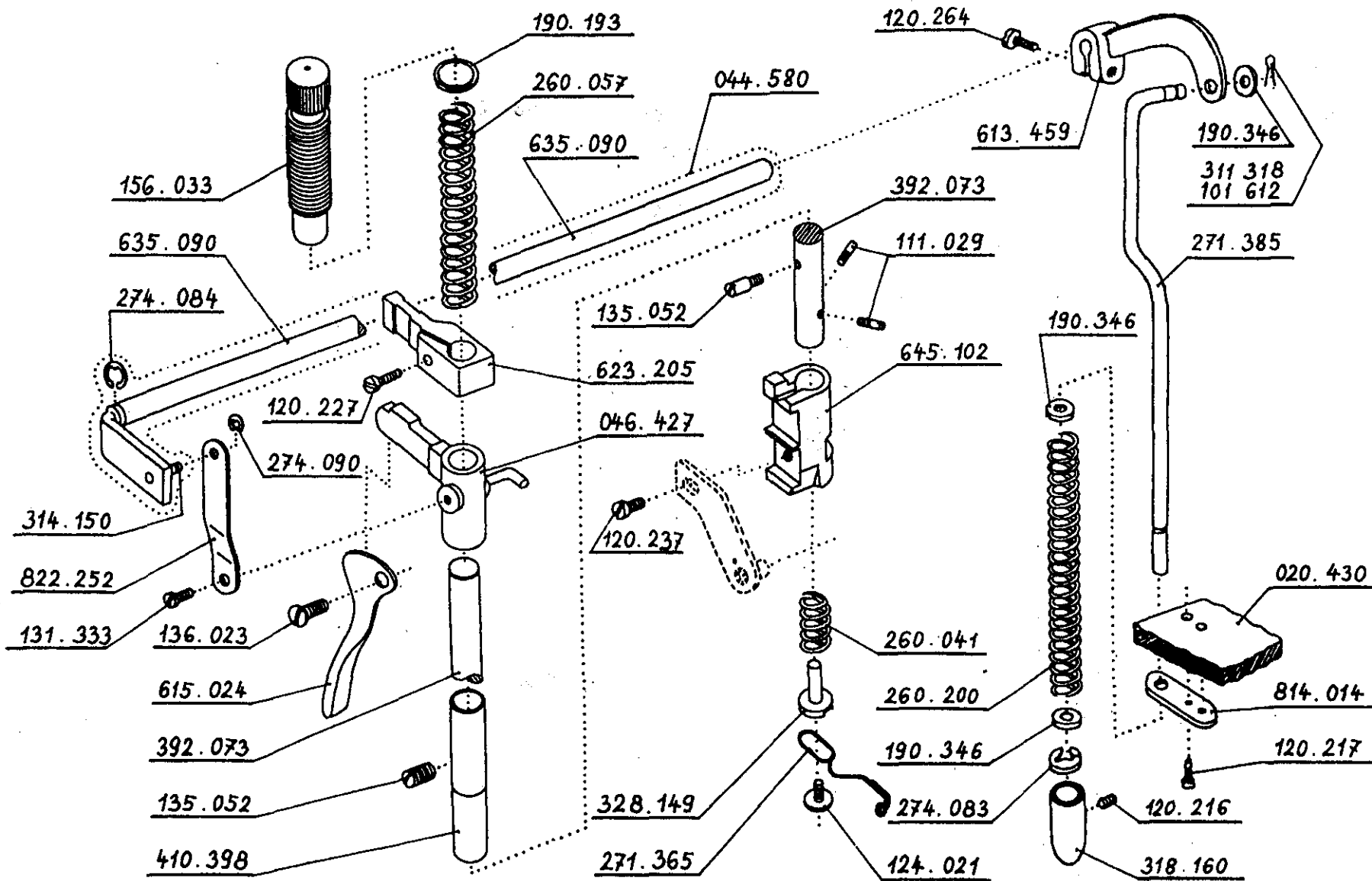
72407-103 I

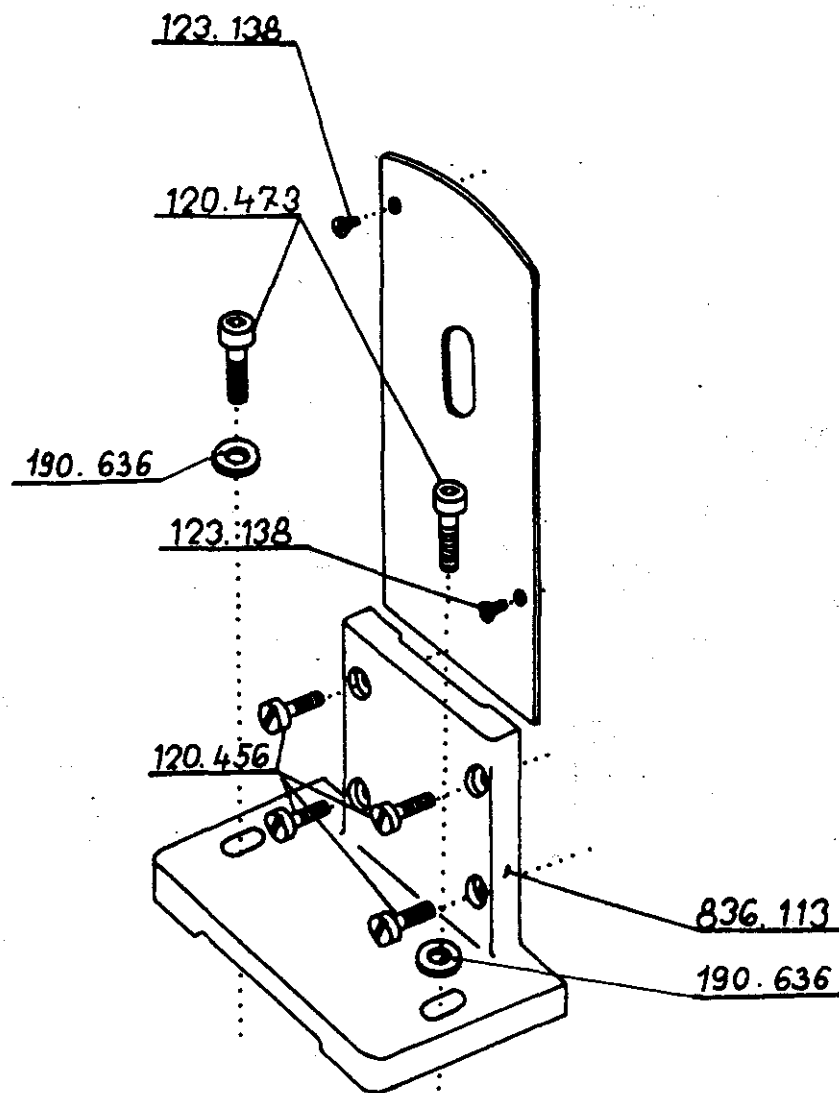


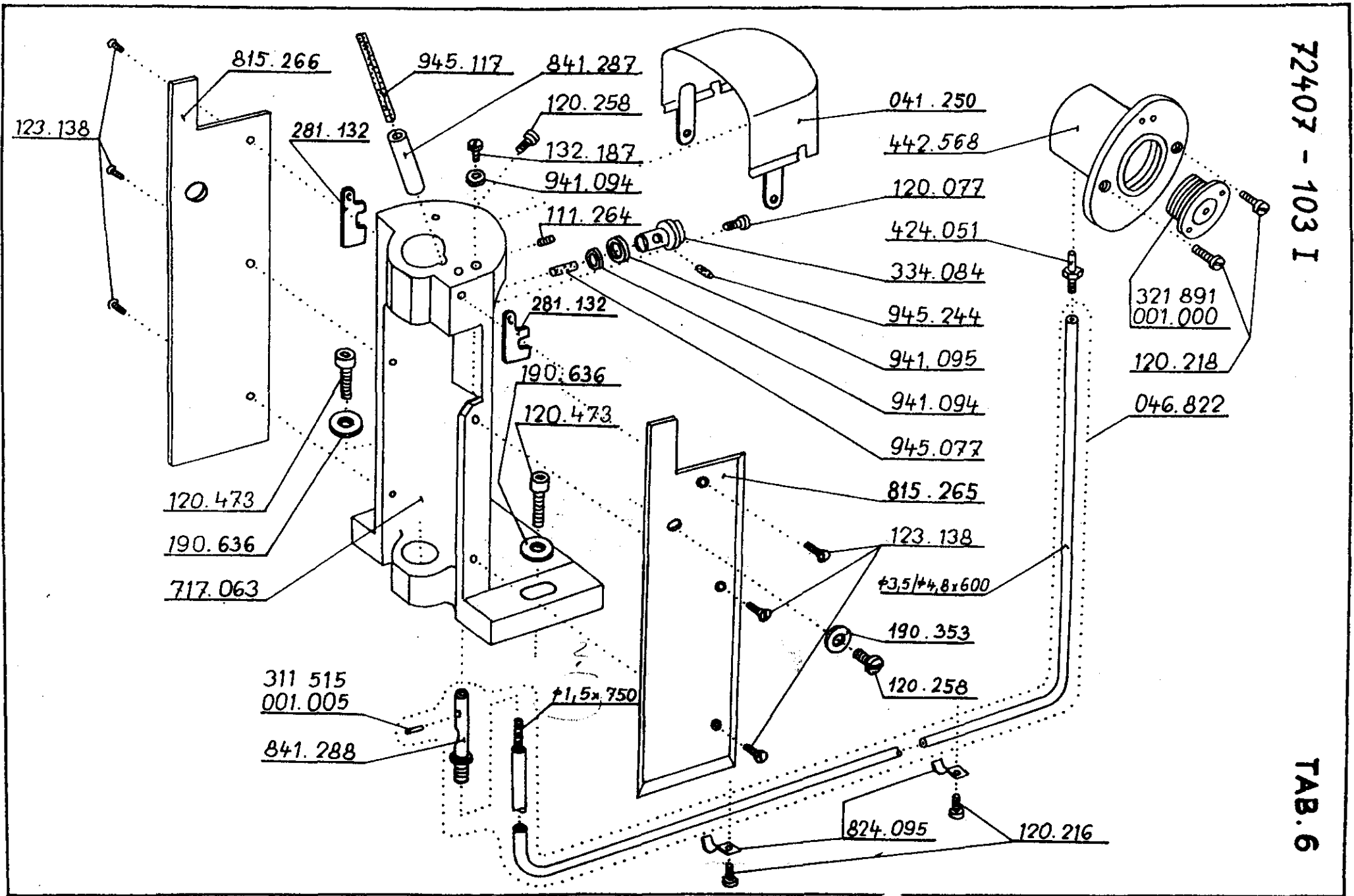
TAB. 3

72407 - 103 I

TAB. 4

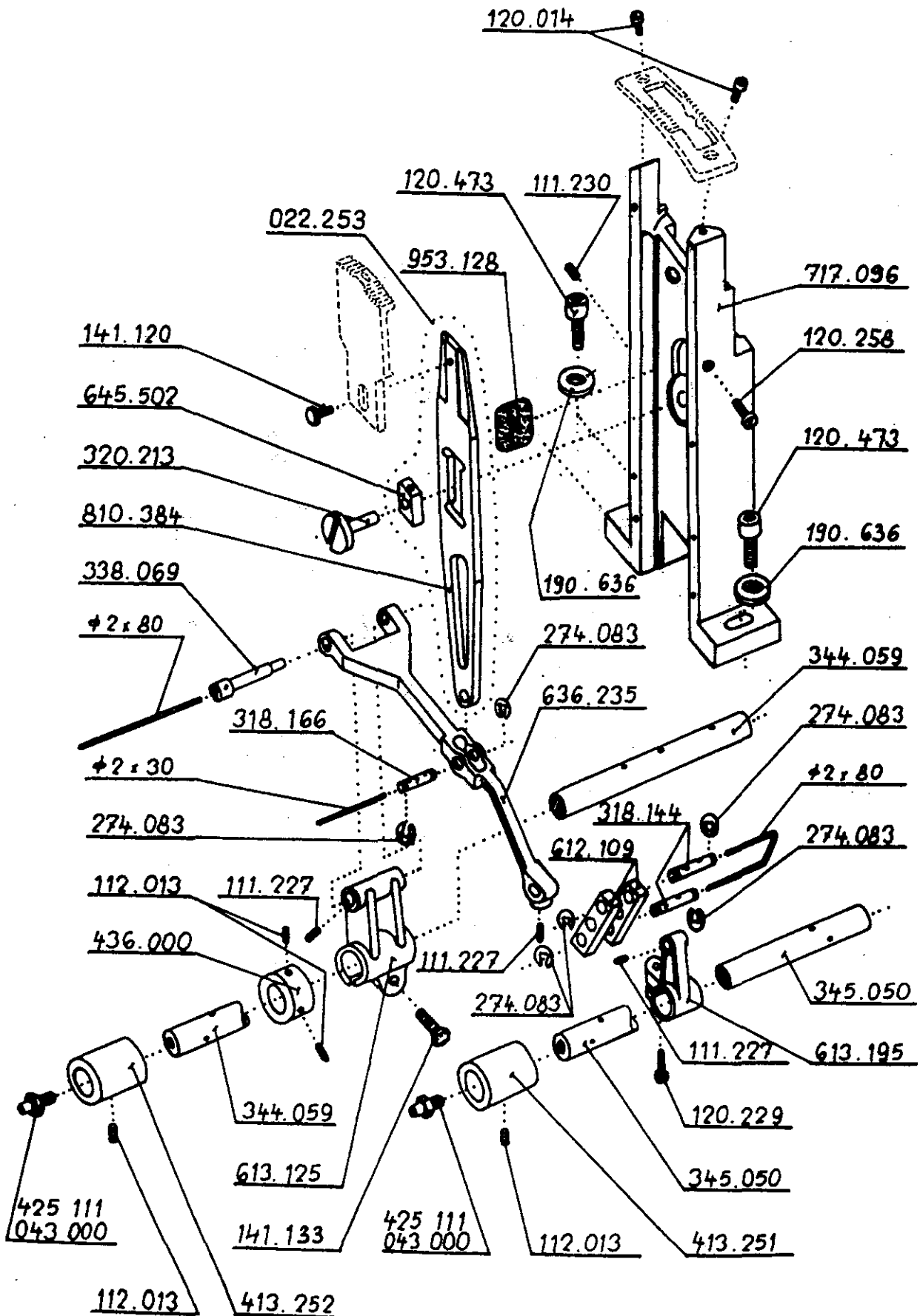


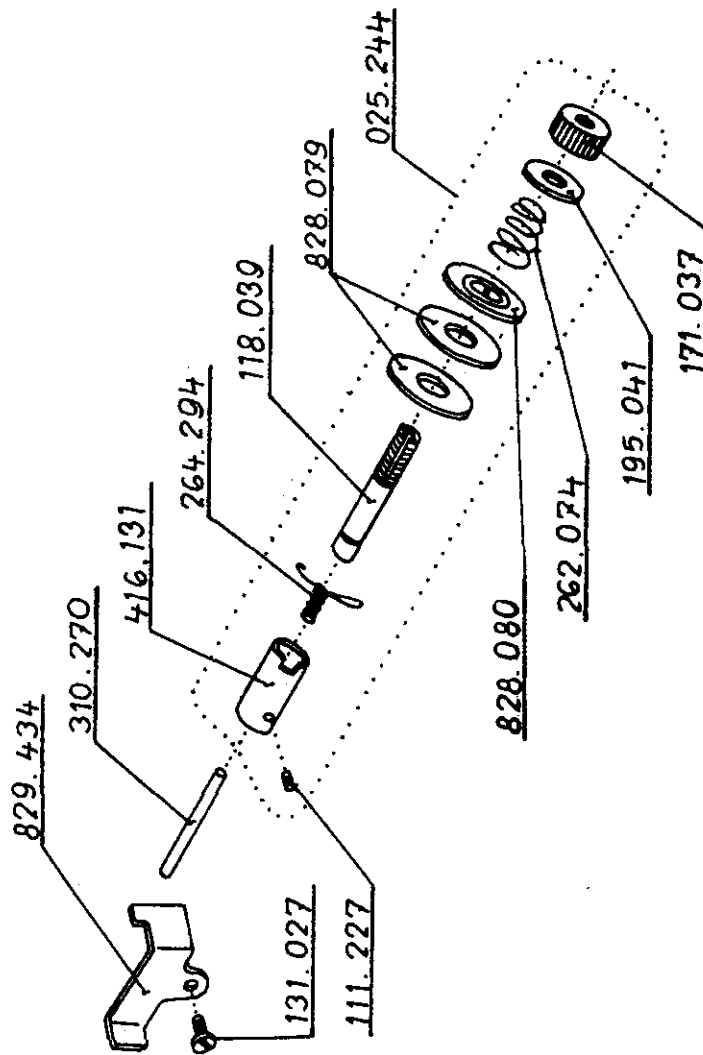


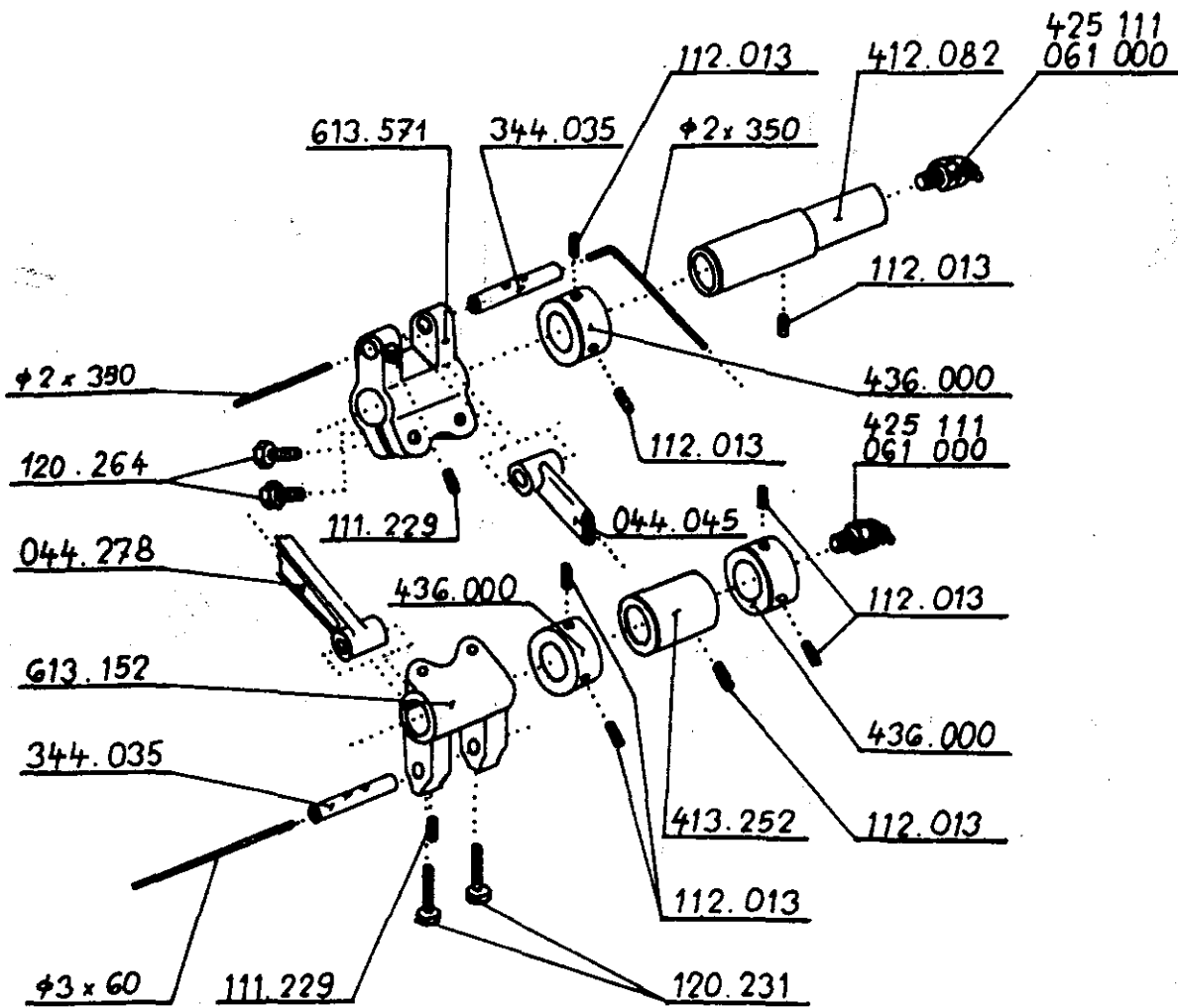


72407 - 103 I

TAB. 6

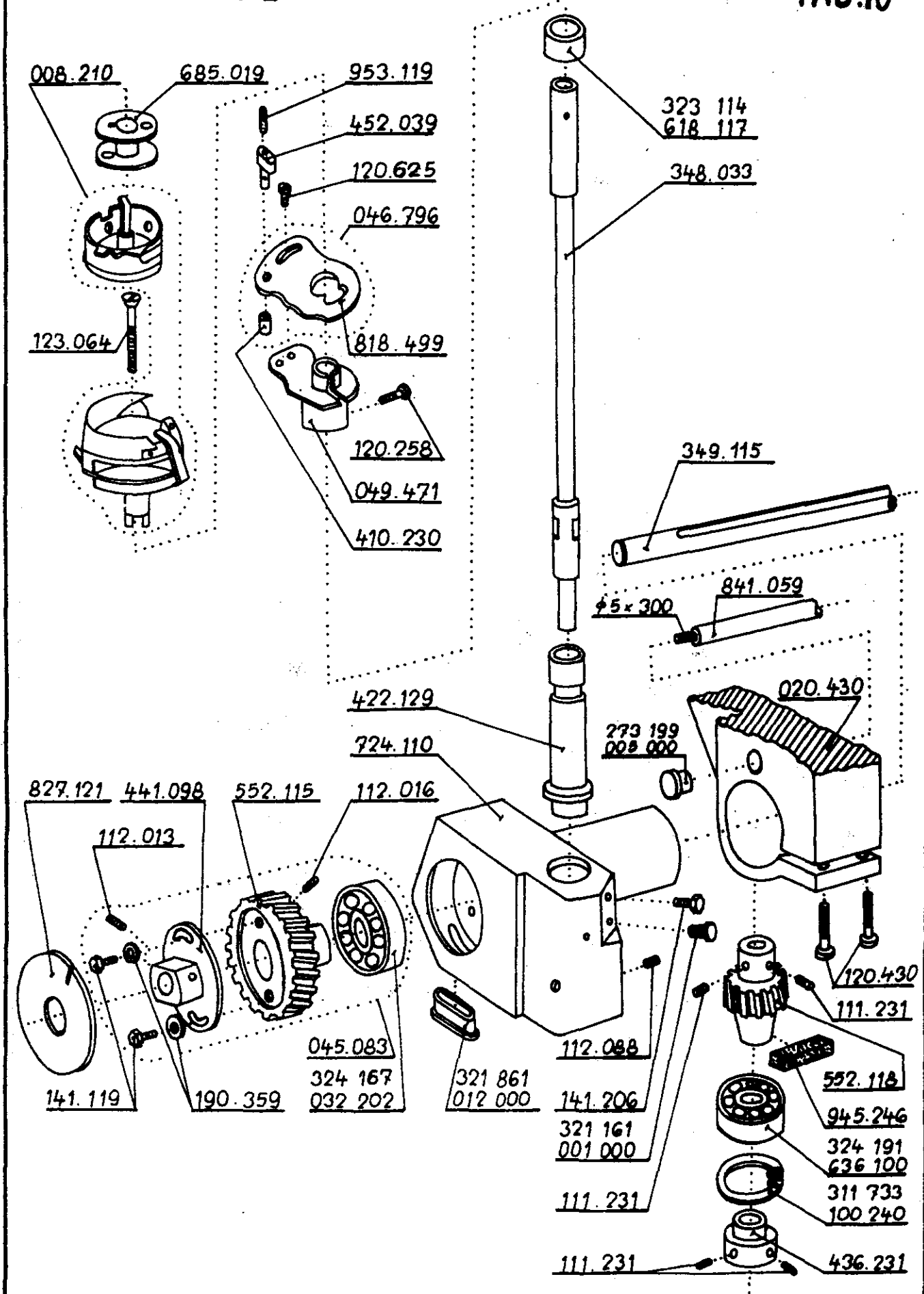




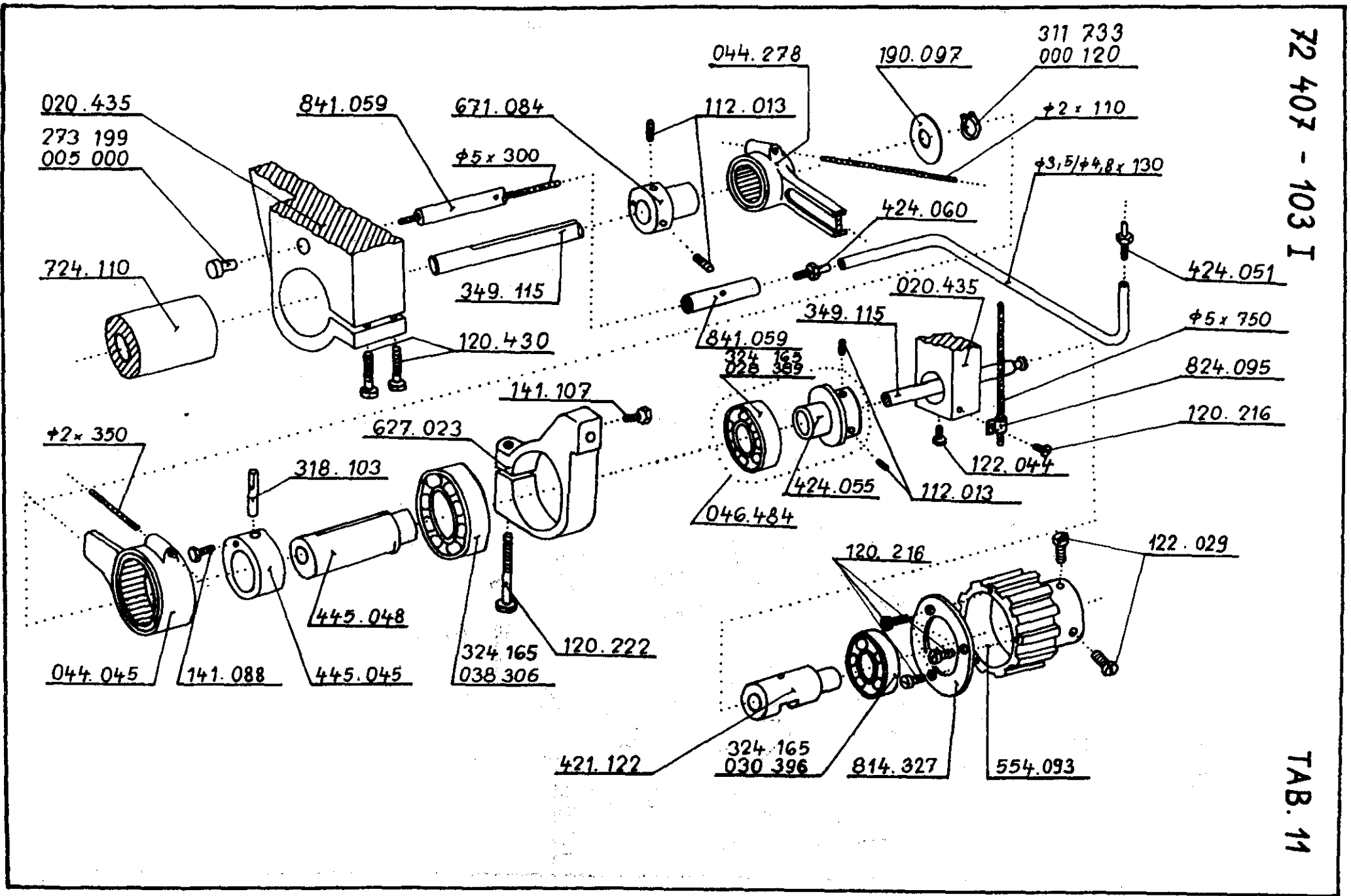


72407 - 103 I

TAB.10

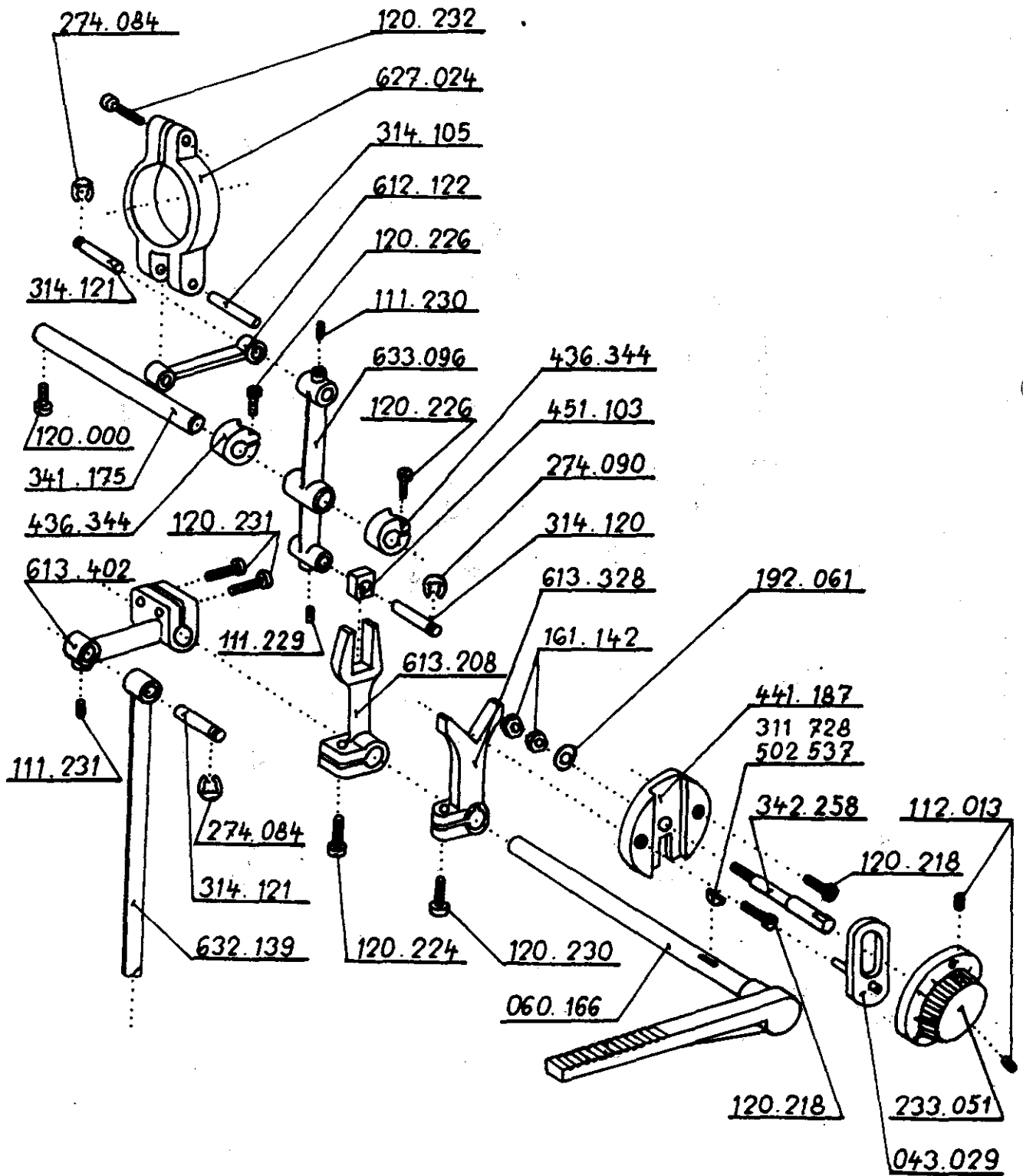




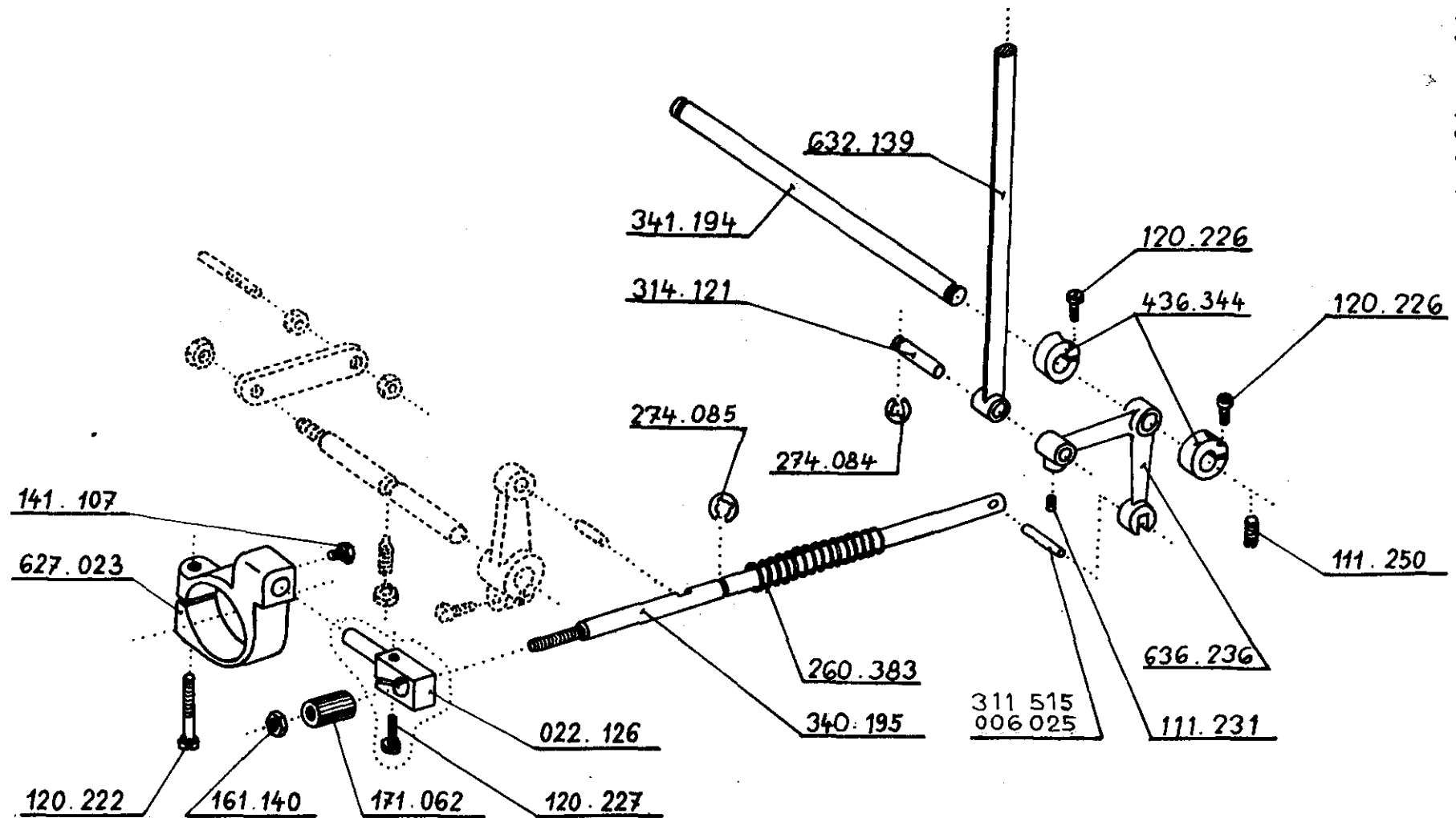


72 407 - 103 I

TAB. 11



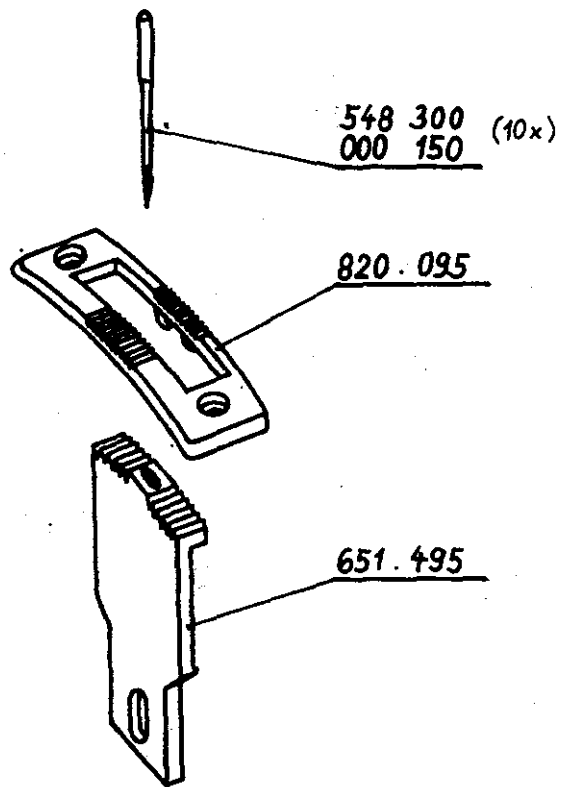
72407 - 103 I



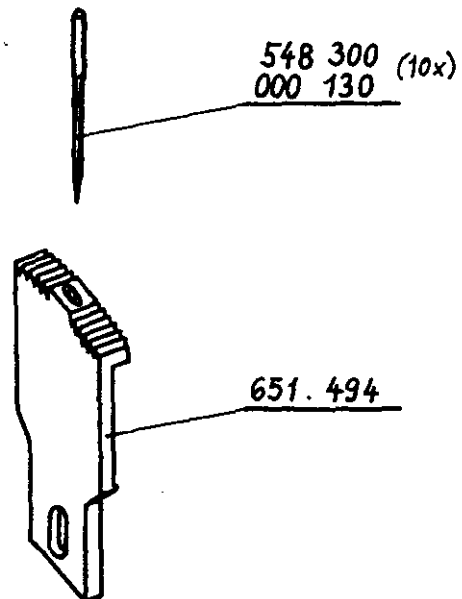
TAB.13

72 407 - 103 I

TAB. 14



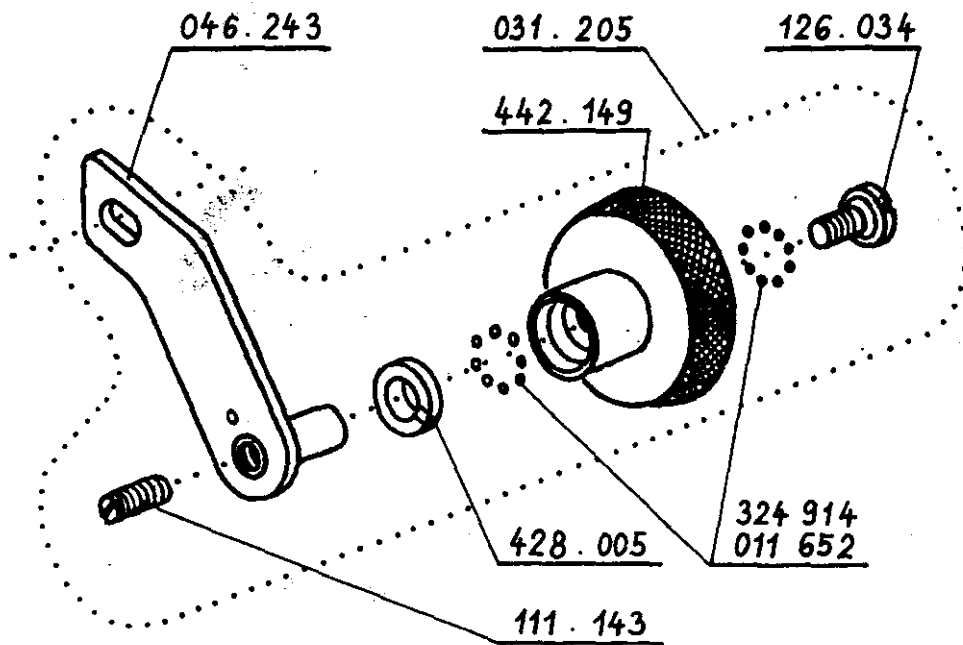
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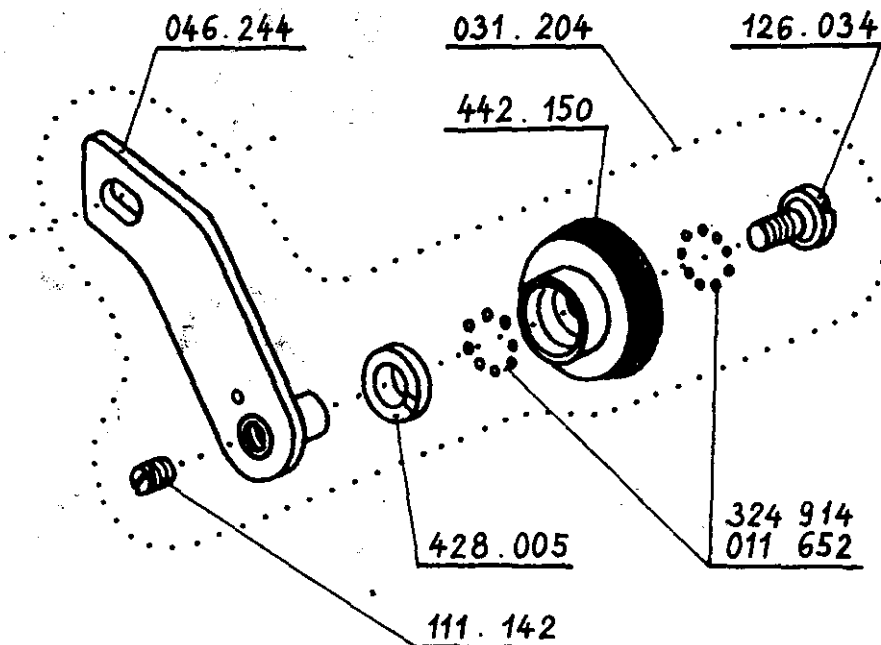
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72 407 - 103 I

TAB. 15



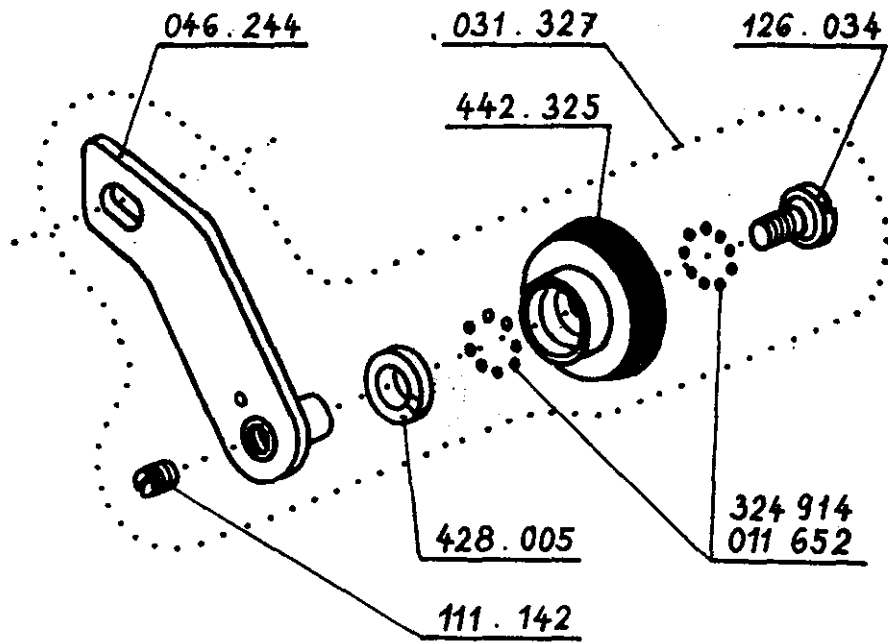
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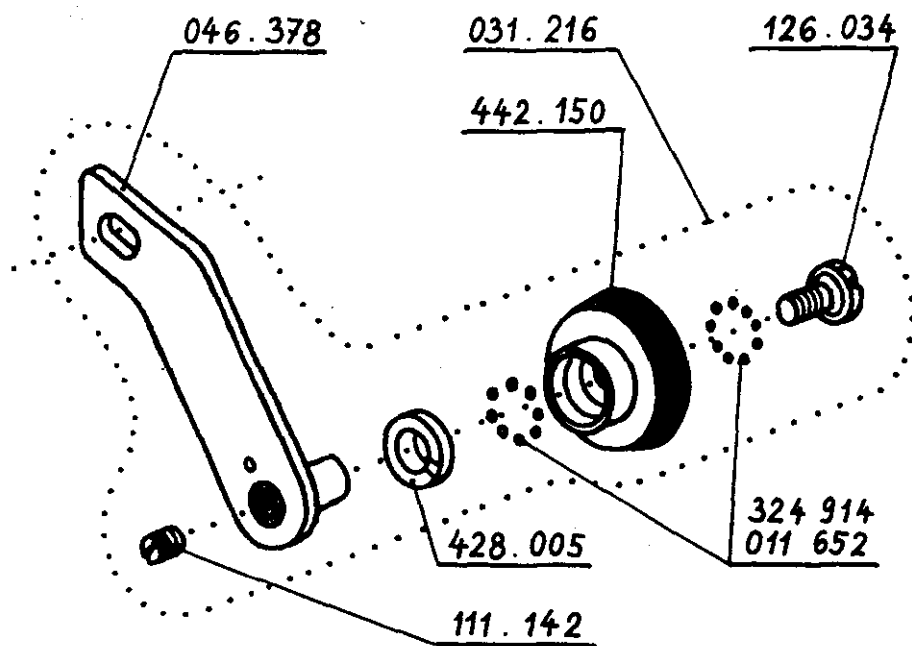
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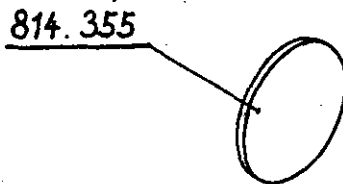
TAB. 16



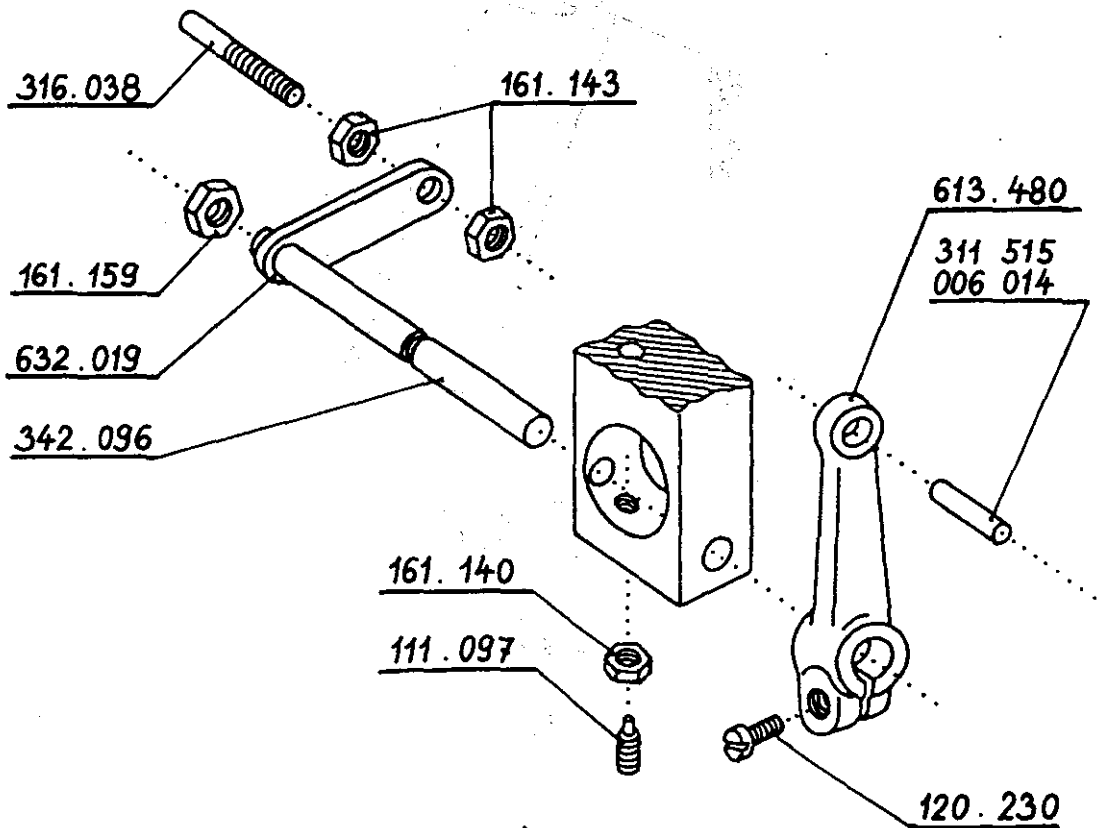
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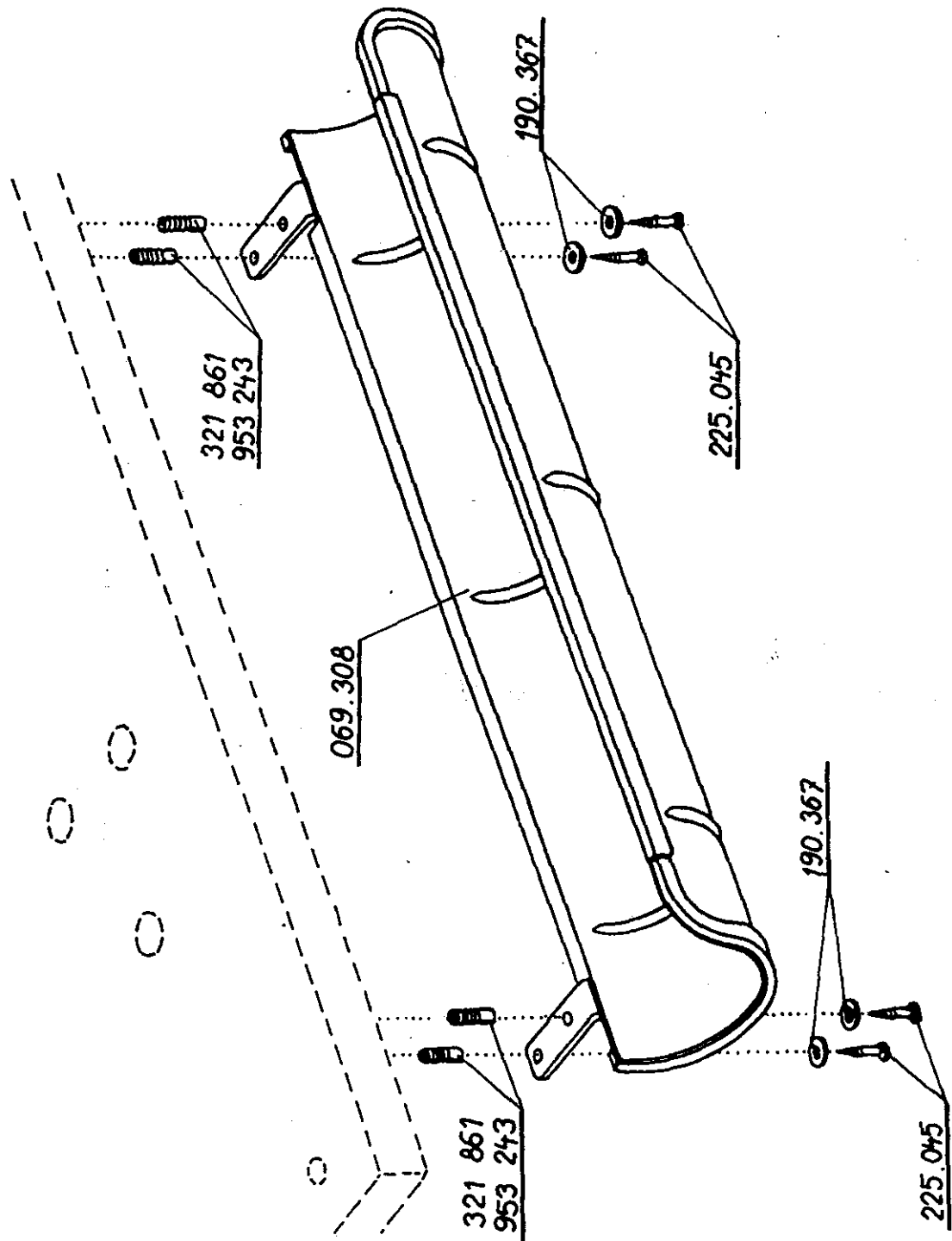
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72 407 - 103 I

TAB. 18

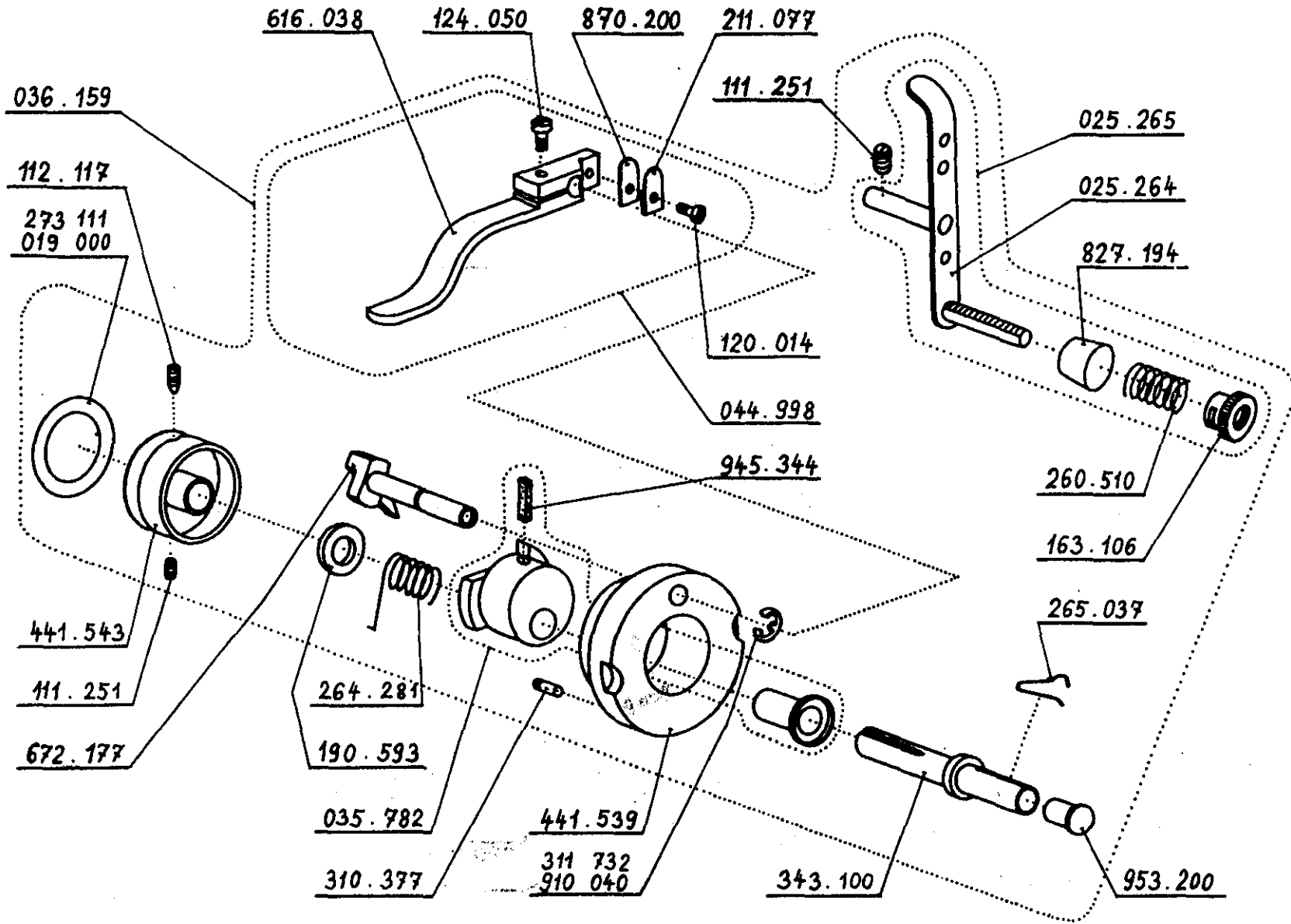


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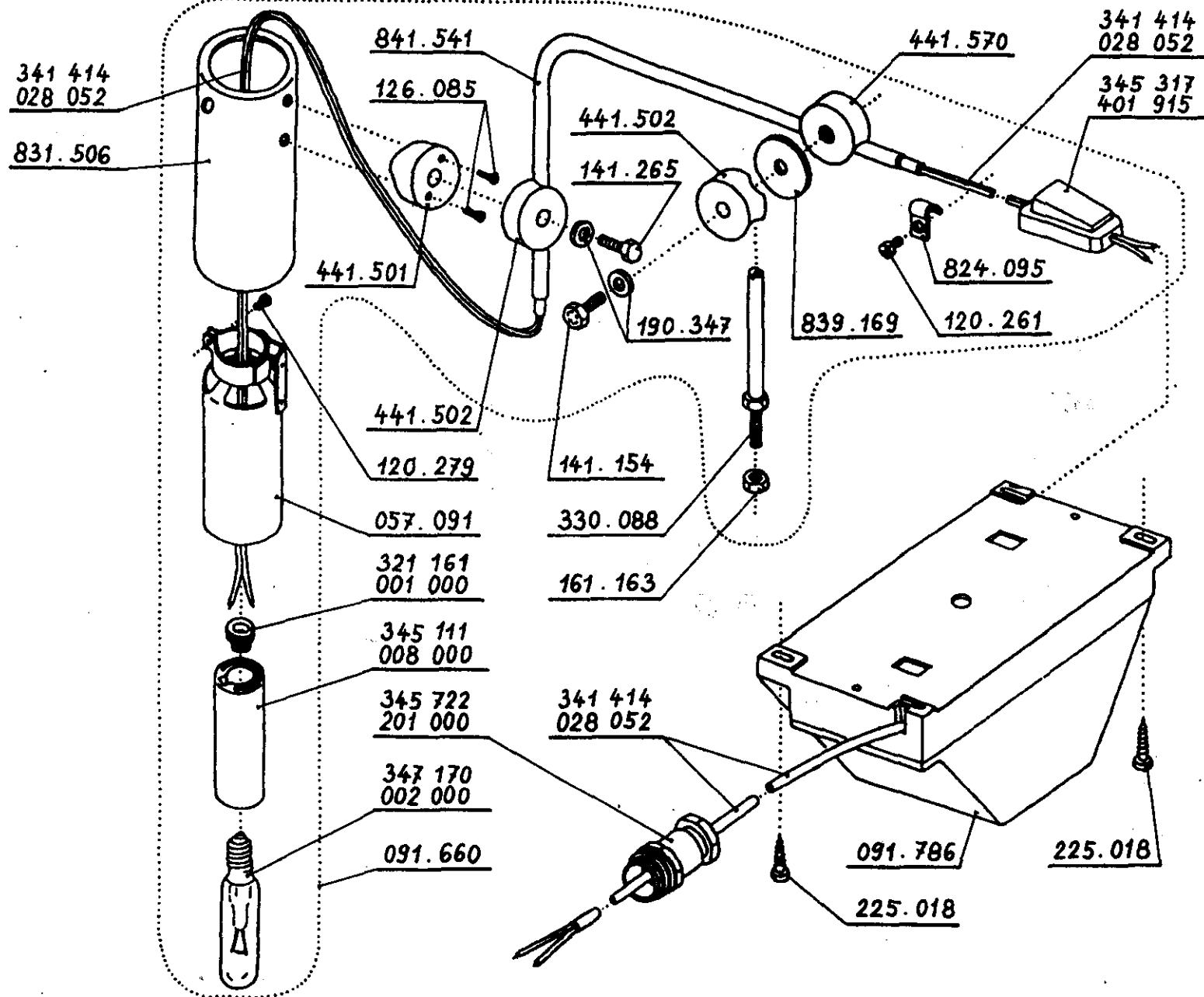
72 407 - 103 I

TAB. 19



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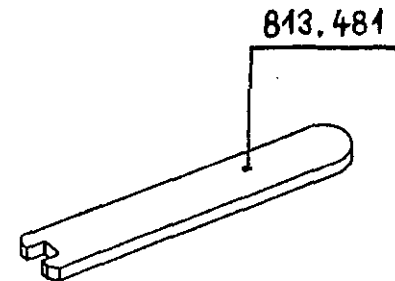
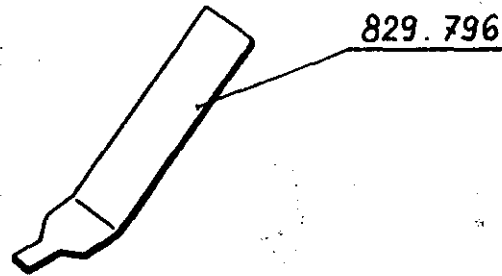
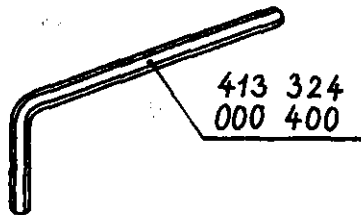
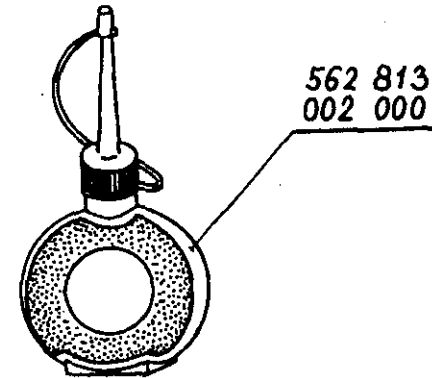
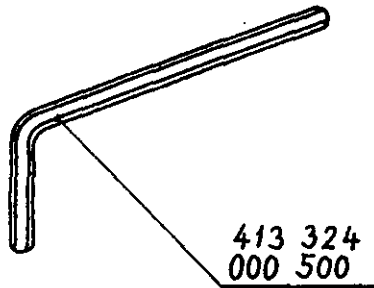
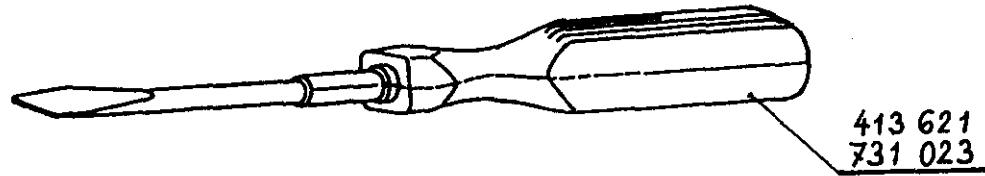
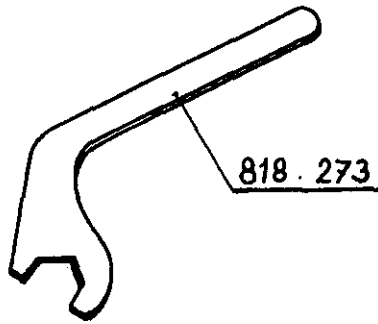
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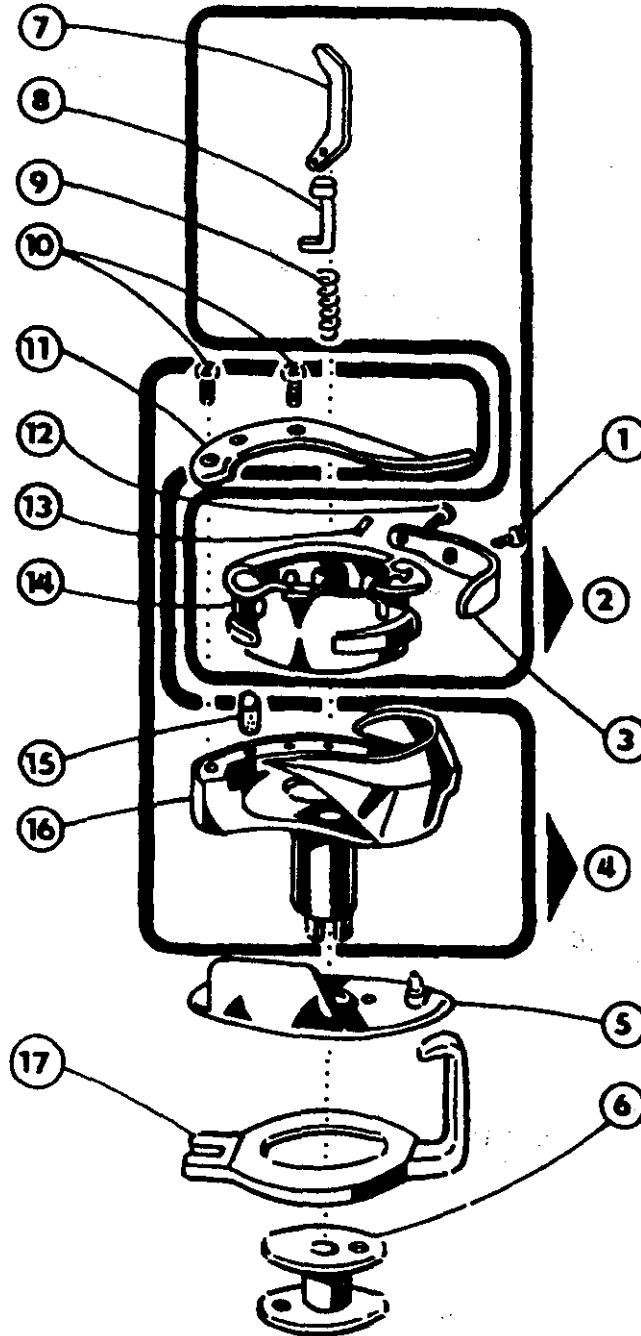
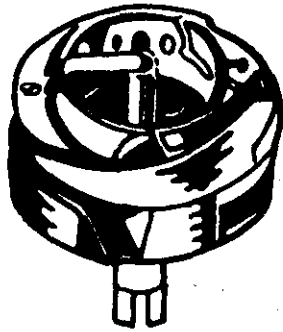
72 407 - 103 I

TAB. 20

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TAB. 21



## R 210

522 980 008 210

1	522 080	683 034
2	522 980	081 002
3	522 080	690 002
4	522 980	081 006
5	522 980	081 018
6	522 080	685 019
7	522 080	687 001
8	522 080	682 001
9	315 231	689 002
10	522 080	683 074
11	522 080	681 020
12	522 080	683 007
13	522 080	682 019
14	522 080	678 015
15	522 080	691 001
16	522 080	676 039
17	522 080	676 002

Vzestupně uspořádaný seznam dílců pro průmyslový šicí stroj  
 Aufsteigend angeordnetes Einzelteilverzeichnis für Industrienahmaschine  
 List of part for industrial sewing machine arranged in ascending number order

List 1  
 Blatt 1  
 Page 1

**72407 - 103 I** 522 724 441 101 35

Č. dílce Bezeichnung des Teiles Marking of the part	Tabulka Tabelle Table	Pozice Position Position	Č. dílce Bezeichnung des Teiles Marking of the part	Tabulka Tabelle Table	Pozice Position Position
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	3				
	4		522 080 111 029	4	
	10		111 094	1	
020 435	11		111 097	17	
022 126	13		111 142	15	
022 253	7			16	
024 156	1		111 143	15	
025 152	1		111 225	3	
025 244	8		111 227	7	
025 264	19			8	
025 265	19		111 229	1	
031 204	15			2	
031 205	15			9	
031 216	16			12	
031 327	16		111 230	7	
035 782	19			12	
036 159	19		111 231	10	
041 250	6			12	
042 079	1			13	
043 029	12		111 238	2	
043 477	2		111 250	13	
044 045	2		111 251	19	
	9		111 264	6	
	11		112 012	2	
044 278	9		112 013	1	
	11			2	
044 580	4			3	
045 083	10			7	
045 310	3			9	
045 353	3			10	
046 243	15			11	
046 244	15			12	
	16		112 014	1	
046 378	16			2	
046 427	4		112 015	2	
046 484	11		112 016	10	
046 796	10		112 088	10	
046 822	6		112 117	19	
046 856	2		113 115	3	
046 857	2		118 039	8	
049 471	10		120 000	12	
057 091	20		120 006	1	
057 258	3			2	
060 166	12			3	
069 308	18		120 014	7	
091 660	20			19	

Vzestupně uspořádaný seznam dílců pro průmyslový šicí stroj List 2  
 Aufsteigend angeordnetes Einzelteilverzeichnis für Industrienähmaschine Blatt 2  
 List of part for industrial sewing machine arranged in ascending number order Page 2

72407 - 103 I 522 724 441 101 35

Č. dílce Bezeichnung des Teiles Marking of the part	Tabulka Tabelle Table	Pozice Position Position	Č. dílce Bezeichnung des Teiles Marking of the part	Tabulka Tabelle Table	Pozice Position Position
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120 077	6		120 625	10	
120 106	2		121 135	2	
120 216	3		122 008	2	
	4		122 029	3	
	6			11	
	11		122 044	11	
120 217	4		123 064	10	
120 218	1		123 117	1	
	6		123 138	5	
	12			6	
120 219	2		124 021	4	
120 220	1		124 050	2	
120 222	11			19	
	13		124 052	2	
120 224	12		124 108	1	
120 226	12		126 034	15	
	13			16	
120 227	4		126 085	20	
	13		126 096	1	
120 229	7		131 027	8	
120 230	12		131 333	4	
	17		132 112	1	
120 231	9		132 187	6	
	12		135 052	4	
120 232	12		136 023	4	
120 233	1		138 009	2	
120 235	1		141 088	11	
120 237	4		141 091	2	
120 257	2		141 107	11	
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120 261	20		141 154	20	
120 264	4		141 182	3	
	9		141 206	10	
120 266	1		141 227	2	
120 276	2		141 265	20	
120 279	20		143 022	1	
120 293	2		146 020	3	
120 336	3		156 033	1	
120 346	2			4	
120 430	10		161 135	1	
	11		161 138	1	
120 456	5		161 140	13	
120 473	5			17	
	6		161 142	12	

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Č. dílce Bezeichnung des Teiles Marking of the part	Tabulka Tabelle Table	Pozice Position Position	Č. dílce Bezeichnung des Teiles Marking of the part	Tabulka Tabelle Table	Pozice Position Position
522 080 161 143	17		522 080 274 084	4	
161 146	3			12	
161 151	3			13	
161 153	20		274 085	13	
161 159	17		274 090	4	
163 106	19			12	
171 037	8		281 132	6	
171 062	13				
190 097	11				
190 193	4		522 080 310 270	8	
190 346	1		310 377	19	
	4		313 204	1	
190 347	20		314 105	12	
190 353	6		314 120	12	
190 359	2		314 121	12	
	3			13	
	10		314 150	4	
190 367	18		316 038	17	
190 593	19		316 096	3	
190 636	5		318 103	11	
	6		318 144	7	
	7		318 160	4	
191 112	3		318 166	7	
192 061	12		320 213	7	
195 041	8		322 145	2	
			326 185	2	
			328 005	2	
522 080 211 077	19		328 149	4	
220 011	1		330 088	20	
225 018	20		334 084	6	
225 045	18		337 043	2	
233 051	12		337 056	2	
260 041	4		338 069	7	
260 057	4		340 195	13	
260 148	4		341 175	12	
260 200	4		341 194	13	
260 383	13		342 096	17	
260 467	3		342 258	12	
260 510	19		343 100	19	
262 074	8		344 035	2	
264 281	19			9	
264 294	8		344 059	7	
265 037	19		345 050	7	
271 365	4		346 013	2	
271 385	4		348 033	10	
271 462	1		349 115	10	
272 017	1			11	
274 083	4		349 182	2	
	7				

Vzestupně uspořádaný seznam dílců pro průmyslový šicí stroj  
 Aufsteigend angeordnetes Einzelteilverzeichnis für Industrienähmaschine  
 List of part for industrial sewing machine arranged in ascending number order

List 4  
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Č. dílce Bezeichnung des Teiles Marking of the part	Tabulka Tabelle Table	Pozice Position Position	Č. dílce Bezeichnung des Teiles Marking of the part	Tabulka Tabelle Table	Pozice Position Position
522 080 349 182	3		522 080 451 098	2	
391 151	2		451 103	12	
392 073	4		452 039	10	
522 080 410 186	2		522 080 511 096	3	
410 230	10		552 115	10	
410 398	4		552 118	10	
412 082	9		554 093	11	
413 169	2				
413 251	7		522 080 611 053	2	
413 252	7		612 109	7	
	9		612 122	12	
416 131	8		612 167	2	
418 113	1		613 125	7	
421 122	11		613 152	9	
422 129	10		613 195	7	
424 051	1		613 208	12	
	6		613 225	2	
	11		613 328	12	
424 055	11		613 402	12	
424 060	11		613 459	4	
424 068	3		613 480	17	
428 005	15		613 571	9	
	16		613 572	2	
436 000	7		615 024	4	
	9		616 038	19	
436 219	2		623 205	4	
436 231	10		627 023	11	
436 338	3			13	
436 344	12		627 024	12	
	13		627 073	2	
441 098	10		632 019	17	
441 187	12		632 139	12	
441 501	20			13	
441 502	20		633 096	12	
441 539	19		635 090	4	
441 541	3		636 235	7	
441 543	19		636 236	13	
441 570	20		645 102	4	
442 149	15		645 502	7	
442 150	15		645 528	2	
	16		645 914	1	
442 325	16		646 007	2	
442 568	1		651 494	14	
	6		651 495	14	
445 045	11		671 084	11	
445 048	11				



Vzestupně uspořádaný seznam dílců pro průmyslový šicí stroj  
 Aufsteigend angeordnetes Einzelteilverzeichnis für Industrienahmaschine  
 List of part for industrial sewing machine arranged in ascending number order

List 5  
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Č. dílce Bezeichnung des Teiles Marking of the part	Tabulka Tabelle Table	Pozice Position Position	Č. dílce Bezeichnung des Teiles Marking of the part	Tabulka Tabelle Table	Pozice Position Position
522 080 672 177	19		522 080 841 288	6	
685 019	10		841 541	20	
			870 200	19	
522 080 717 063	6		522 080 941 094	6	
717 096	7		941 095	6	
721 127	1		945 077	6	
724 110	10		945 100	1	
	11		945 117	6	
743 079	2		945 180	2	
			945 188	1	
522 080 810 384	7		945 219	1	
813 278	2		945 244	6	
813 481	21		945 246	10	
814 014	4		945 344	19	
814 182	1		951 188	1	
814 183	1		951 197	1	
814 327	3		953 010	1	
	11		953 025	2	
814 355	17		953 052	1	
815 265	6		953 119	10	
815 266	6		953 128	7	
818 273	21		953 141	2	
818 499	10		953 200	19	
820 095	14				
821 059	2		272 213 017 015	3	
822 252	4		272 711 227 000	3	
824 095	6		273 111 019 000	19	
	11		273 199 005 000	10	
	20			11	
824 502	2		283 362 003 001	3	
825 704	1		283 366 002 000		
826 342	3		ø 3,5/ø 4,8 x 65 mm	2	
827 120	2		80 mm	2	
827 121	10		130 mm	11	
827 194	19		600 mm	1	
828 079	8			6	
828 080	8		311 318 101 612	4	
829 434	8		311 515 001 005	6	
829 796	21		006 014	17	
831 238	1		006 016	1	
831 506	20		006 025	13	
836 113	5		311 728 502 537	12	
839 169	20		311 732 910 040	19	
841 059	10		311 733 000 120	11	
	11		000 300	3	
841 287	6				

Vzestupně uspořádaný seznam dílců pro průmyslový šicí stroj  
 Aufsteigend angeordnetes Einzelteilverzeichnis für Industrienahmaschine  
 List of part for industrial sewing machine arranged in ascending number order

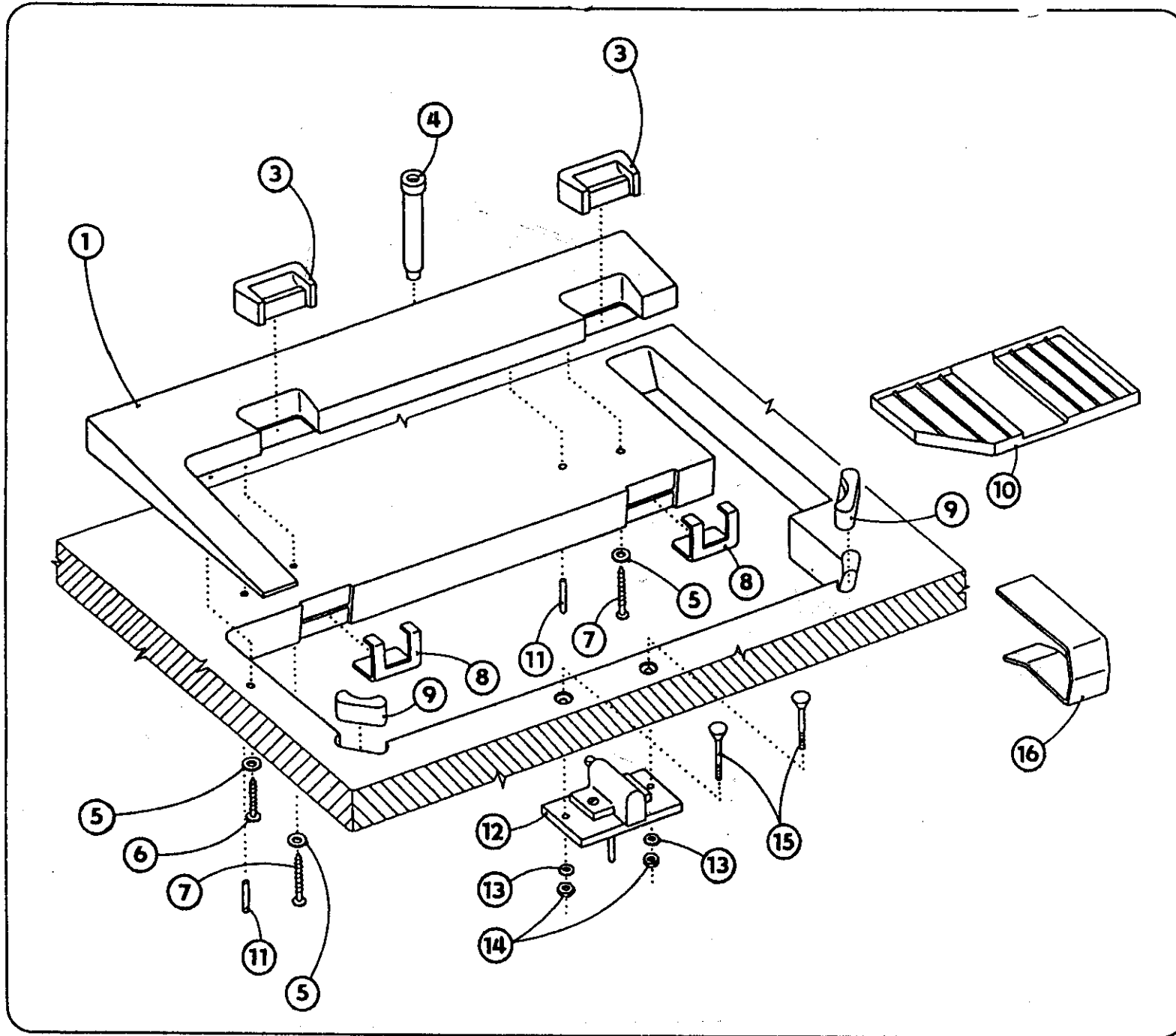
List 6  
 Blatt 6  
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Č. dílce Bezeichnung des Teiles Marking of the part	Tabulka Tabelle Table	Pozice Position Position	Č. dílce Bezeichnung des Teiles Marking of the part	Tabulka Tabelle Table	Pozice Position Position
311 733 100 240	10		708 420 030 003		
100 620	1		ø 3 x 60 mm	9	
321 161 001 000	1		600 mm	2	
	10		708 420 030 004		
	20		ø 4 x 20 mm	2	
321 861 012 000	10		708 420 030 005		
953 243	18		ø 5 x 300 mm	10	
321 891 001 000	1			11	
	6		750 mm	1	
323 114 618 117	10			11	
324 162 000 090	1				
038 306	3				
060 093	3				
324 165 028 389	11				
030 396	11				
038 306	11				
039 698	2				
324 167 032 202	10				
324 191 636 100	10				
324 914 011 652	15				
	16				
341 414 028 052	20				
345 111 008 000	20				
345 317 401 915	20				
345 722 201 000	20				
347 170 002 000	20				
413 324 000 400	21				
000 500	21				
413 621 731 023	21				
413 624 310 002	21				
425 111 043 000	7				
061 000	9				
548 151 001 000	21				
548 300 000 130	14				
000 150	14				
562 813 002 000	21				
708 420 002 000					
ø 1,5 x 750 mm	6				
708 420 030 002					
ø 2 x 30 mm	7				
40 mm	2				
80 mm	7				
100 mm	2				
110 mm	11				
350 mm	2				
	9				
	11				

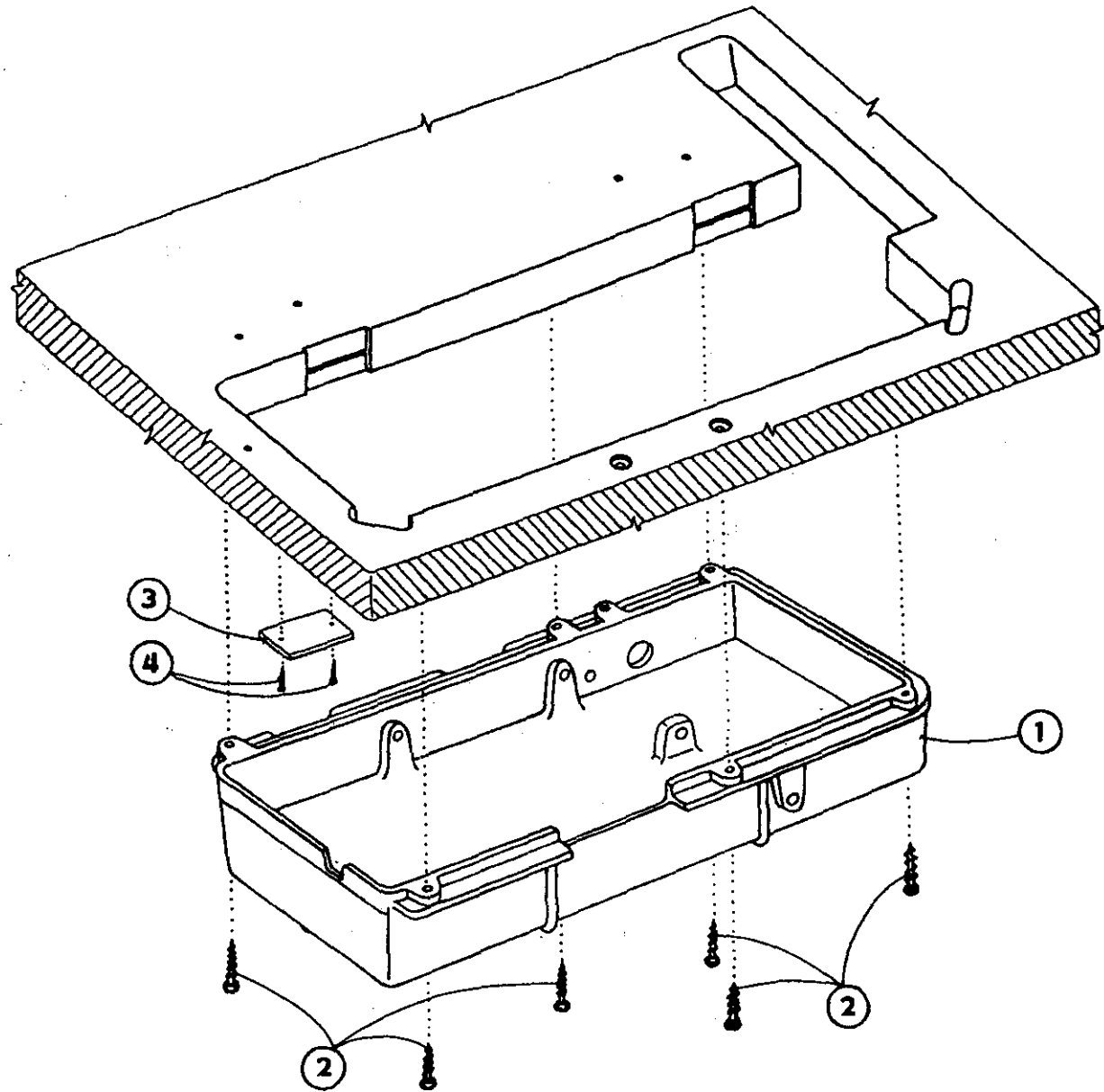
**522 980 099 150 00**

**ACCESSORIES**



**TAB. 1**  
**522 980 099 150 00**

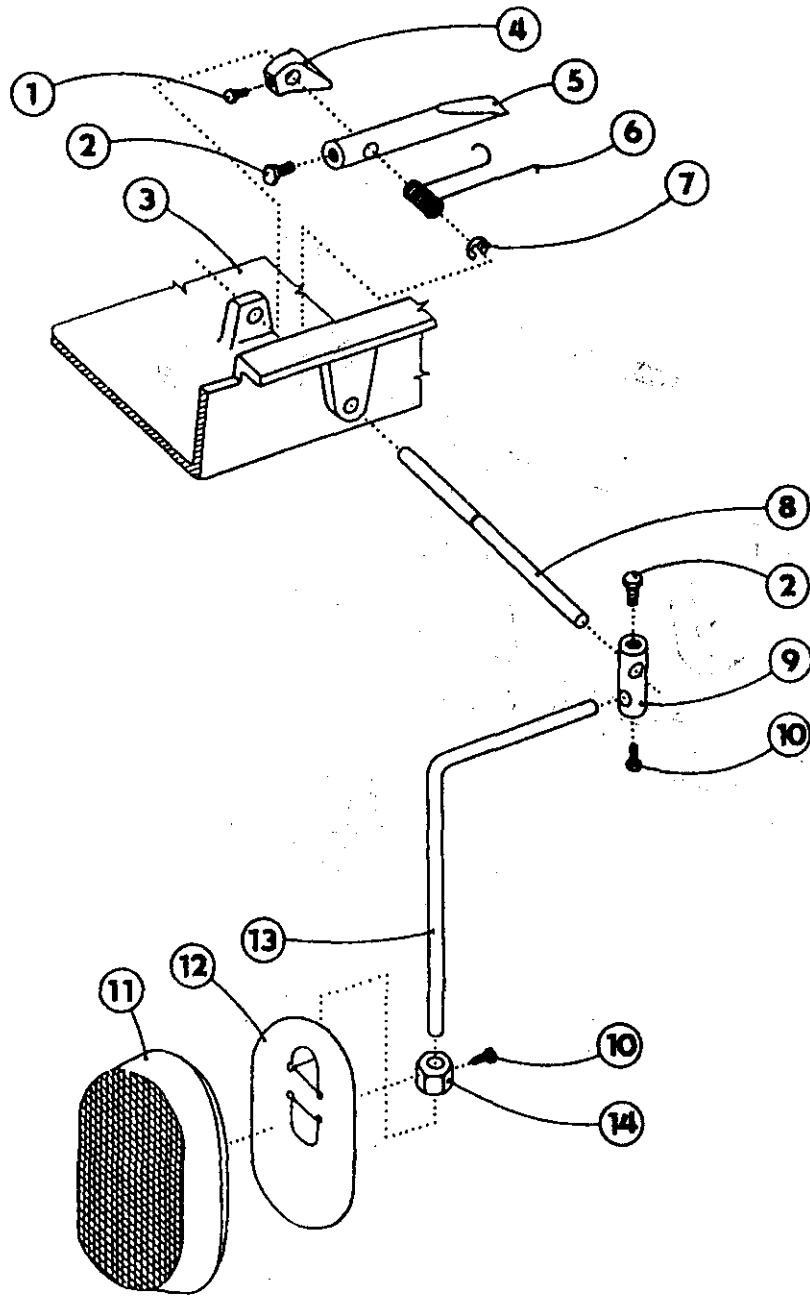
1	522 080	912 019
3	273 141	940 127
4	522 980	043 051
5	522 080	190 379
6	522 080	225 048
7	522 080	225 051
8	522 080	839 241
9	273 141	008 000
10	321 861	953 251
11	311 515	008 032
12	522 980	035 943
13	311 214	000 061
14	522 080	161 142
15	522 080	123 156
16	522 080	826 199



**TAB. 2**

**522 980 099 150 00**

1	522 080	725 101
2	522 080	225 008
3	522 080	945 291
4	314 140	016 025



**TAB. 3**

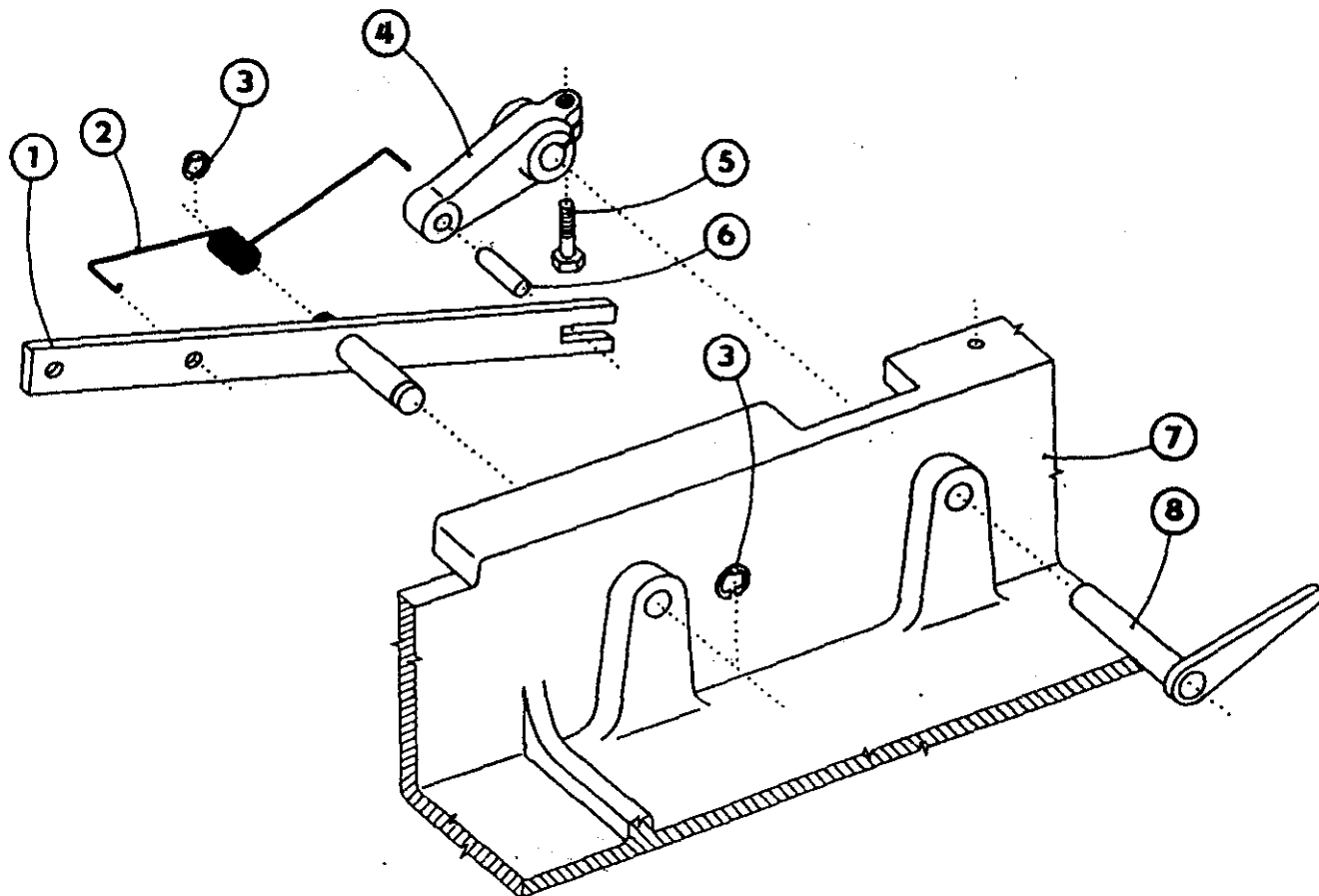
**522 980 099 150 00**

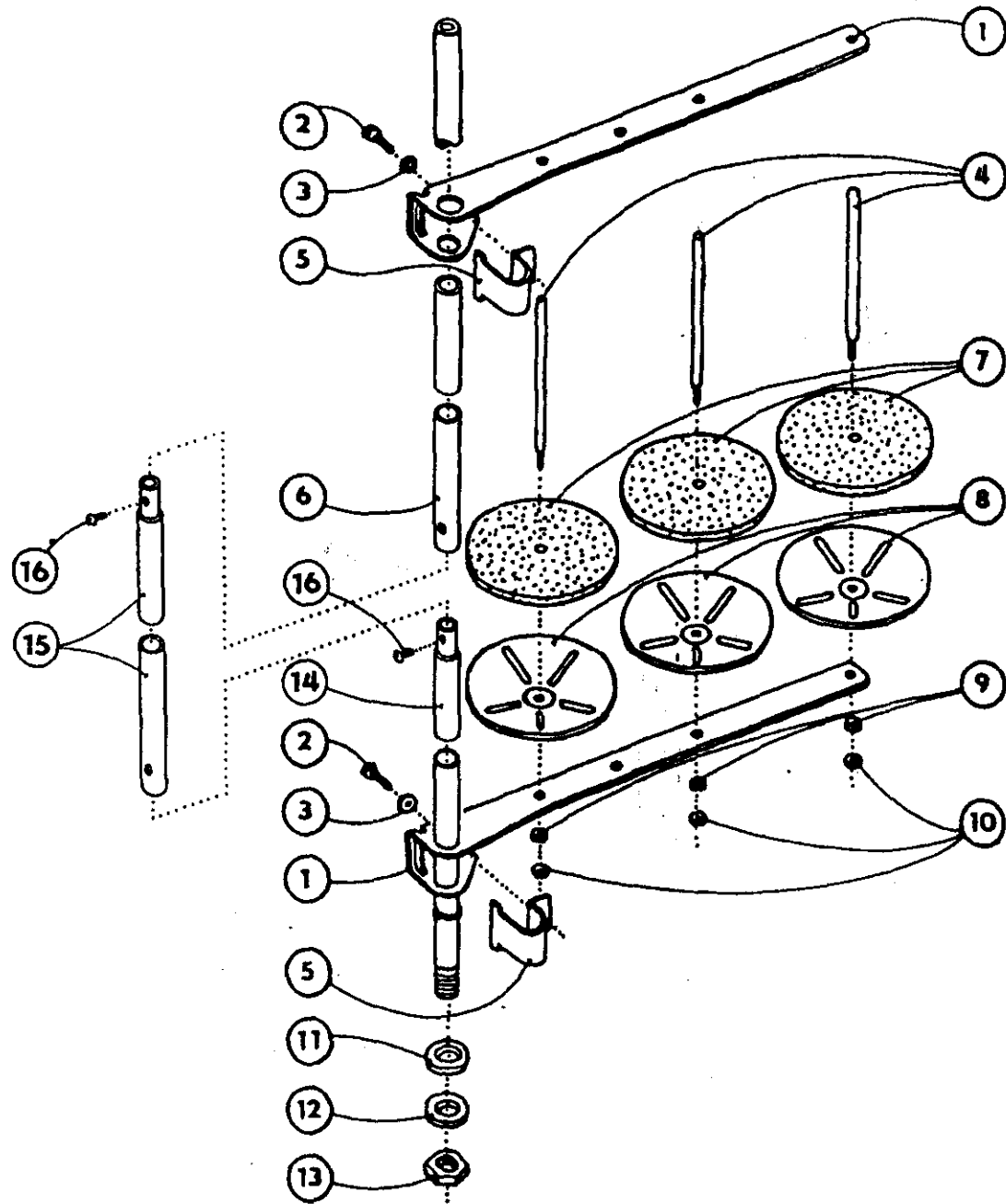
1	522 080	141 141
2	522 080	141 121
3	522 080	725 101
4	522 080	625 022
5	522 080	384 052
6	522 080	264 168
7	311 732	910 070
8	522 080	314 065
9	522 080	318 069
10	522 080	141 112
11	273 412	001 000
12	522 080	827 173
13	522 080	383 022
14	522 080	436 271

**TAB. 4**

**522 980 099 150 00**

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	725 101
8	522 980	044 142



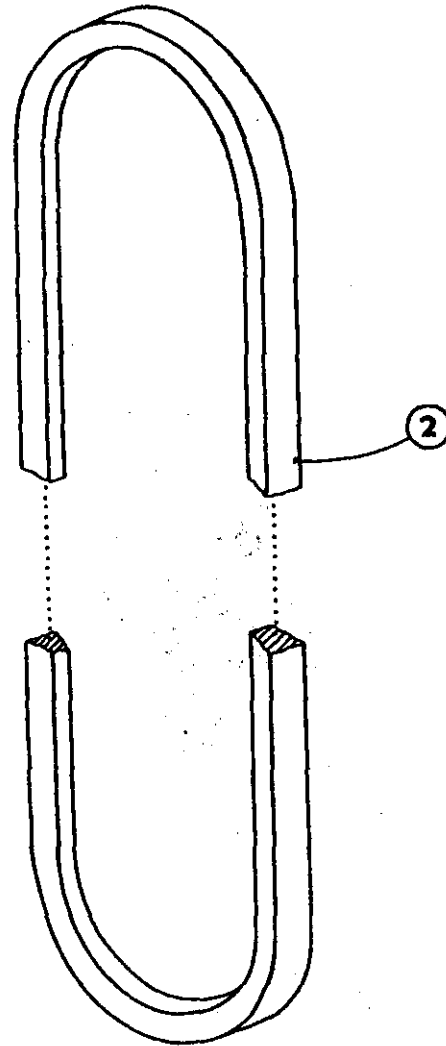
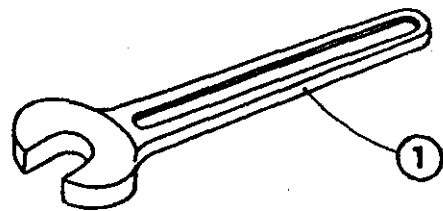


**TAB. 5**

**522 980 099 150 00**

1	522 080	826 162
2	522 080	120 283
3	523 081	200 025
4	522 080	313 277
5	522 080	826 159
6	522 080	841 590
7	522 080	953 042
8	522 080	839 031
9	522 080	191 107
10	522 080	161 137
11	522 080	441 509
12	522 080	190 585
13	522 080	161 255
14	522 980	035 992
15	522 080	841 610
16	522 080	124 085





**TAB. 6**

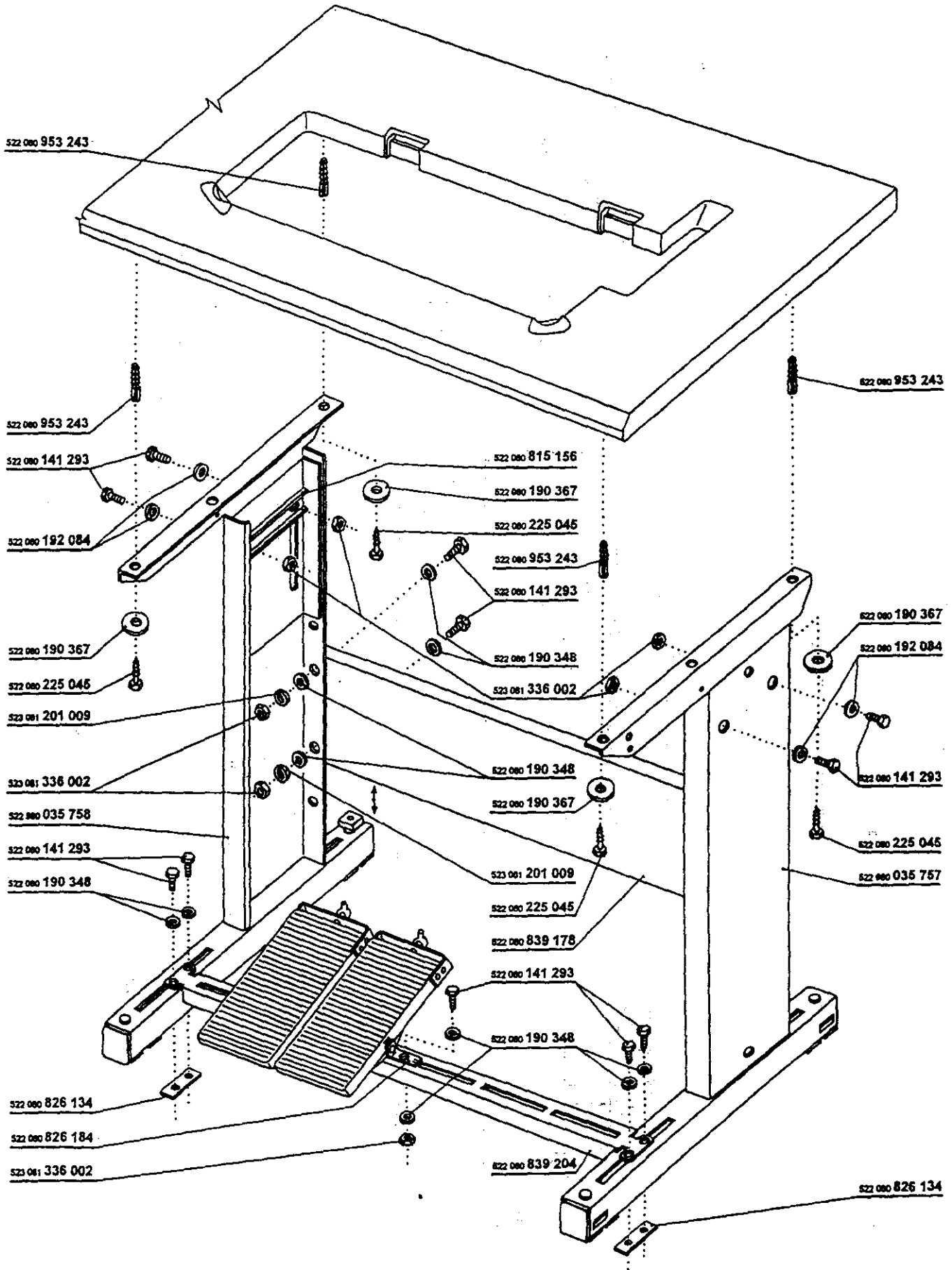
**522 980 099 150 00**

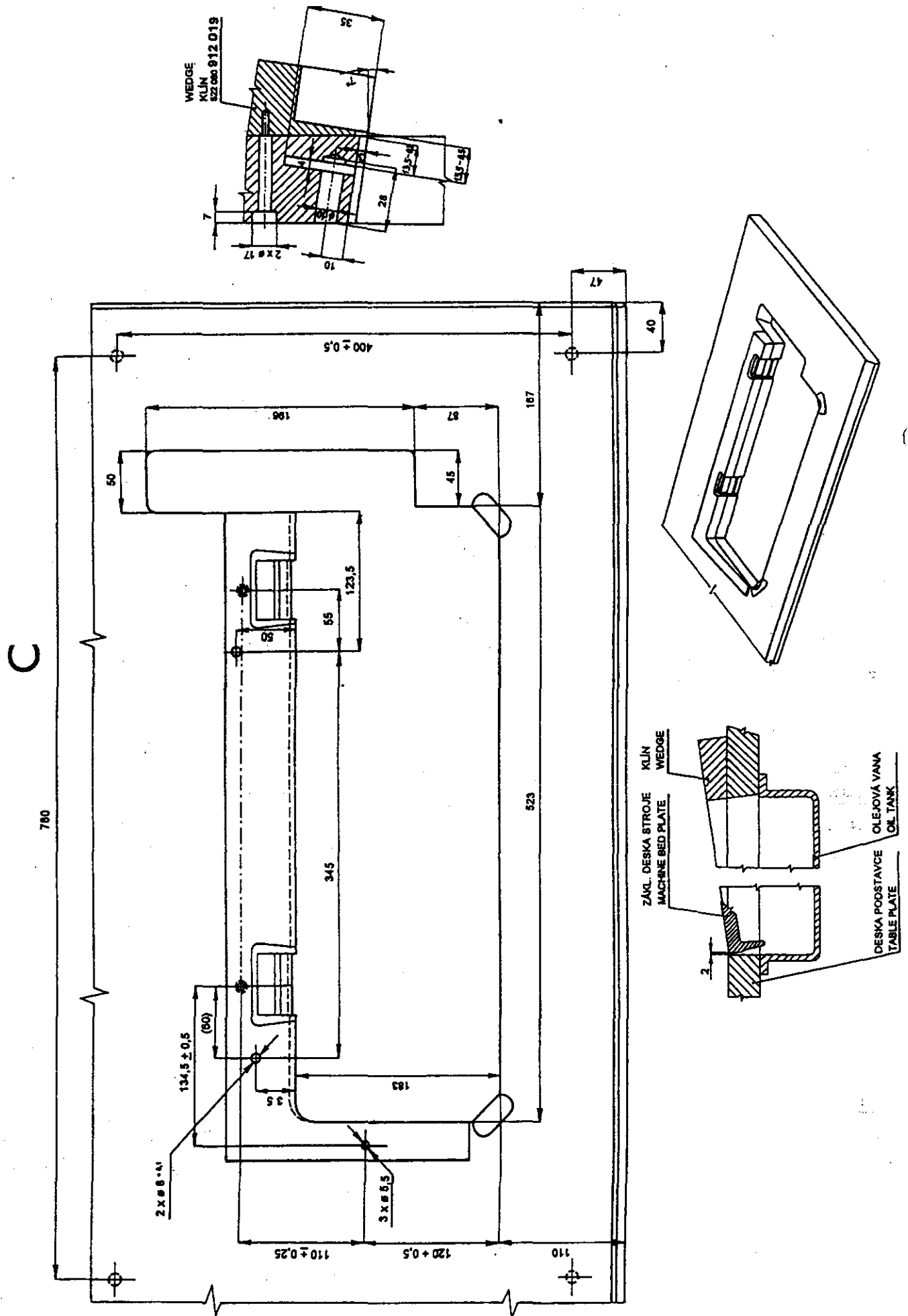
1	413 312	100 130
2	272 711	227 000
		10 x 1400 mm

**CATALOGUE OF PARTS OF MACHINE STAND**



A





D

