Contents

DÜRKOPP 265, 267 and 269 5
1. Installing the machine 6

Instructions for Operators 12
2. Raising the presser foot 12
3. Maintenance of the machine 13
   a) Cleaning 13
   b) Oiling 14
4. Needles and threads 14
5. Removing the bobbin case top with bobbin 16
6. Winding the bobbin 17
7. Threading the bobbin 17
8. Inserting the bobbin case top with bobbin 18
9. Threading the needle 19
10. Drawing up the bobbin thread 20
11. Regulating the thread tensions 20
   a) Upper thread 20
   b) Lower thread 20
12. Regulating the sewing foot pressure 20
13. Adjusting the feeding length and changing over to reverse feed . . 21
   a) On DÜRKOPP 265 (except -15135) 21
   b) On DÜRKOPP 265-15135 23
   c) Adjusting the feeding length of the upper puller feed on DÜRKOPP 265-10204 23
14. Adjusting the zigzag stitch width (except on DÜRKOPP 265-15135) 23
   On DÜRKOPP 265-15135 24
15. Adjusting the stitch position 24
   a) On DÜRKOPP 265 (except 265-4103, -15135 and -18103) 24
   b) On DÜRKOPP 265-4103, -15135 and -18103 24
16. Switching on and off the upper knife on DÜRKOPP 265-4103 and -18103 25
17. Adjusting the knife stroke on DÜRKOPP 265-4103 and -18103 . . . 25
18. Sewing 26

Instructions for Mechanics 27
19. Lubrication 27
   a) Adjusting the oil supply to the hook 27
   b) Lubricating the hook driving gears 29
20. Adjusting the sewing foot stroke and the puller stroke 29
   a) Limiting the lifting movement of the cloth presser bar 29
   b) Adjusting the height of the cloth presser bar 30
   c) Eliminating the play in the knee lever action 30

d) Adjusting the height of the cloth presser bar for the puller stroke in 265-10204 30
e) Adjusting the sewing foot stroke in 265-10204 31
f) Adjusting the transmission lever for lifting the puller for reverse feed (applies only to 265-10204) 31
21. Adjusting the drop feed 32
a) Adjusting the drop feed motion 32
b) Adjusting the feed zero point and the equal feed length for forward and reverse feed 32
c) Adjusting the final feeding movement 33
22. Adjusting the feed dog 34
a) Adjusting the height of the feed dog 34
b) Longitudinal adjustment of the feed dog 35
23. Adjusting the needle oscillation 35
24. Adjusting the zigzag crank for setting the position and the width of stitches 37
a) Adjusting the maximum throw width 37
b) Setting the stitch position 37
c) Setting the needle with respect to the needle hole 38
d) Setting the needle zero position for straight stitches 38
e) Adjusting the "middle" stitch position 39
25. Adjusting the hook and the height of the needle bar 40
a) Adjusting the height of the needle bar 40
b) Adjusting the loop stroke 41
c) Adjusting the distance between the hook point and the needle in the sewing direction 42
26. Adjusting the distance between the bobbin case retaining lug and the bottom of the bobbin case 43
27 The bobbin case lifter 43
a) Purpose of the bobbin case lifter 43
b) Adjusting the distance between the lifter finger of the bobbin case and the bobbin case base 43
c) Adjusting the movement of the bobbin case lifter 43
28. Adjusting the bobbin winder 46
29. Changing the hook 49
30. Dismounting the hook 49
31. Changing the belt 50
32. Changing and adjusting the thread pulling spring 51
a) Changing the thread pulling spring 51
b) Adjusting the thread pulling spring 51
33. Adjusting the teeth play and changing the worm wheel in the hook gear case 52
a) Adjusting the tooth play between the worm and the worm wheel 52
b) Changing the worm and the worm wheel 54
34. Setting the hook gear case 55
35. Adjusting the tooth play of the bevel gears for the zigzag drive . . . 56

Additional Instructions for DÜRKOPP 265-4103 and -18103 57
36. Changing the knives 57
a) Upper knife 57
b) Lower knife 58
37. Adjusting the lifting movement of the upper knife 58
a) Zero position of the switching bush 58
b) Lowest position of the lifting movement 58
c) Highest position of the lifting movement 60
38. Adjusting the neutral position for the upper knife 60
39. Adjusting the set collar 60

Additional Instructions for DÜRKOPP 265-208 61
40. Needles and threads 61
41. Threading the needle 62
42. Regulating the sewing foot pressure 62
43. Adjusting the drop feed (the final movement)
(applies also to class 265-203) 62
44. Adjusting the needle bar height and the hook 63
a) When using the hook 2654021 and the needle system 265-5
(Up to machine number 26510322) 63
b) When using the hook 2654024 and 2654029 and the needle system
265-50 EO (including and above machine number 26510323) . . 64
45. Adjusting the hook gear case 64

Instructions for DÜRKOPP 267 65
46. Regulating the sewing foot pressure 65
47. Adjusting the pushing and lifting motion of the drop feed 65
a) Pushing eccentric 65
b) Lifting eccentric 66
48. Adjusting the needle oscillation 66
49. Adjusting the needle bar height and the hook 67
a) Needle bar height 67
b) Hook stroke 68
c) Distance of the hook point with respect to the needle
in the sewing direction 68

Instructions for DÜRKOPP 269 68
50. Adjusting the feed lenght 68
51. Adjusting the pushing and lifting motion of the drop feed 70
Pushing cam 70
Lifting eccentric 70
52. Adjusting the needle oscillation 71
53. Adjusting the needle bar height and the hook 72
Needle bar height 72
Hook stroke 72
Distance of the hook point with respect to the needle
in the sewing direction 72

Instructions for DÜRKOPP 265-15000 and 267-15000 in their different sub-classes 73
54. Installing the machine 74
a) Motor 74
b) Coinnecting to the motor control 75
c) Treadle rods and pedal 75
d) Positioner 75
55. Operation 79
56. Adjusting the thread cutter 80
a) Timing the knife motion 80
b) Adjusting the roller bolt 54 82
c) Adjusting the tension release 82
d) Adjusting the safety pin 60 84
e) Adjusting the engagement stroke 84
f) Adjusting the hook shaped knife, the counter knife and the clamping sheet 84

Instructions for DÜRKOPP 265 and 267 above -100000 87
57. Installing the machine 87
a) Motor 88
b) Connecting to the motor control 88
c) Positioner 90
58. Backtacking 90
Initial backtacking 90
Backtacking speed 90
Adjusting the seam pattern for double backtacking 91
Final backtacking 91
Backtacking speed 91
Cutting stitch 92
59. Operation 92
60. Remedy in case of trouble 93
61. Instructions for DÜRKOPP 265-4903 and -18903 95

DÜRKOPP 265, 267 and 269

are high speed lockstitch zigzag sewing machines with central oil wick lubrication and individual lubrication of the hook.

DÜRKOPP 265 with drop feed.
Throw width up to 10 mm, depending on the sub-class.

DÜRKOPP 267 with drop feed and upper stitch pattern control.
Throw width up to 8 mm, depending on the sub-class.

DÜRKOPP 269 with drop feed, upper and lower stitch pattern control.
Throw width up to 6 mm.

These basic models are subdivided into sub-classes according to their use. The sub-class designation is indicated on the type plate on the machine base.

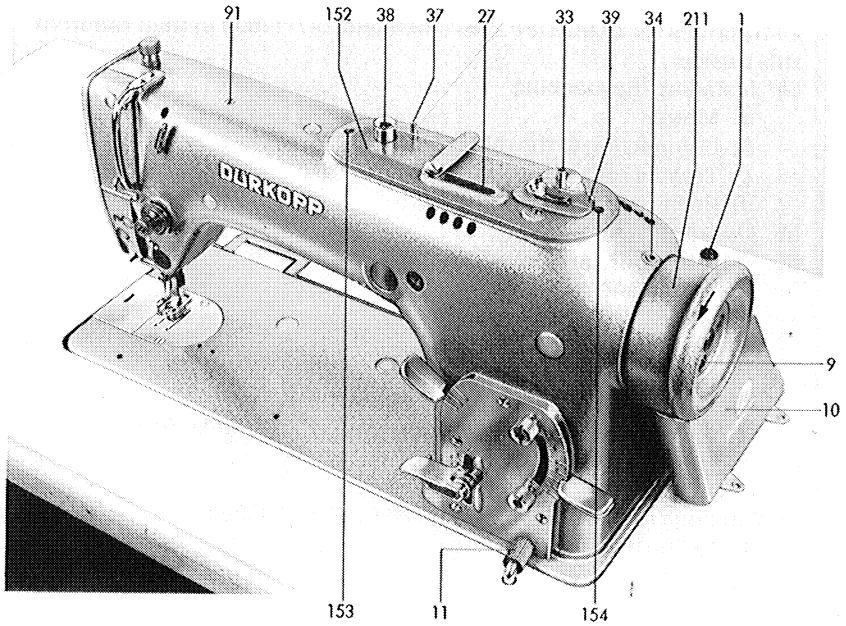

fig. 1

1. Installing the machine

All parts required for installing are included in the accessories.

Table top and stand

The table cutout, the drilled holes and the location of the screw-in nuts must correspond to the measurements indicated in the dimensioned table top sketch.

Fasten the prepared table top on the stand according to the reference marks on the bottom.

Insert the prepared rubber rests for the machine hinges and the front corner rubber rests in the prepared table top.

By means of wood screws fasten the oil drip pan under the table top so that the distance between the right edge of the oil drip pan and the right edge of the table top cutout amounts to 55 mm.

The knee lever should not touch the oil drip pan, taking into account all adjustment possibilities.

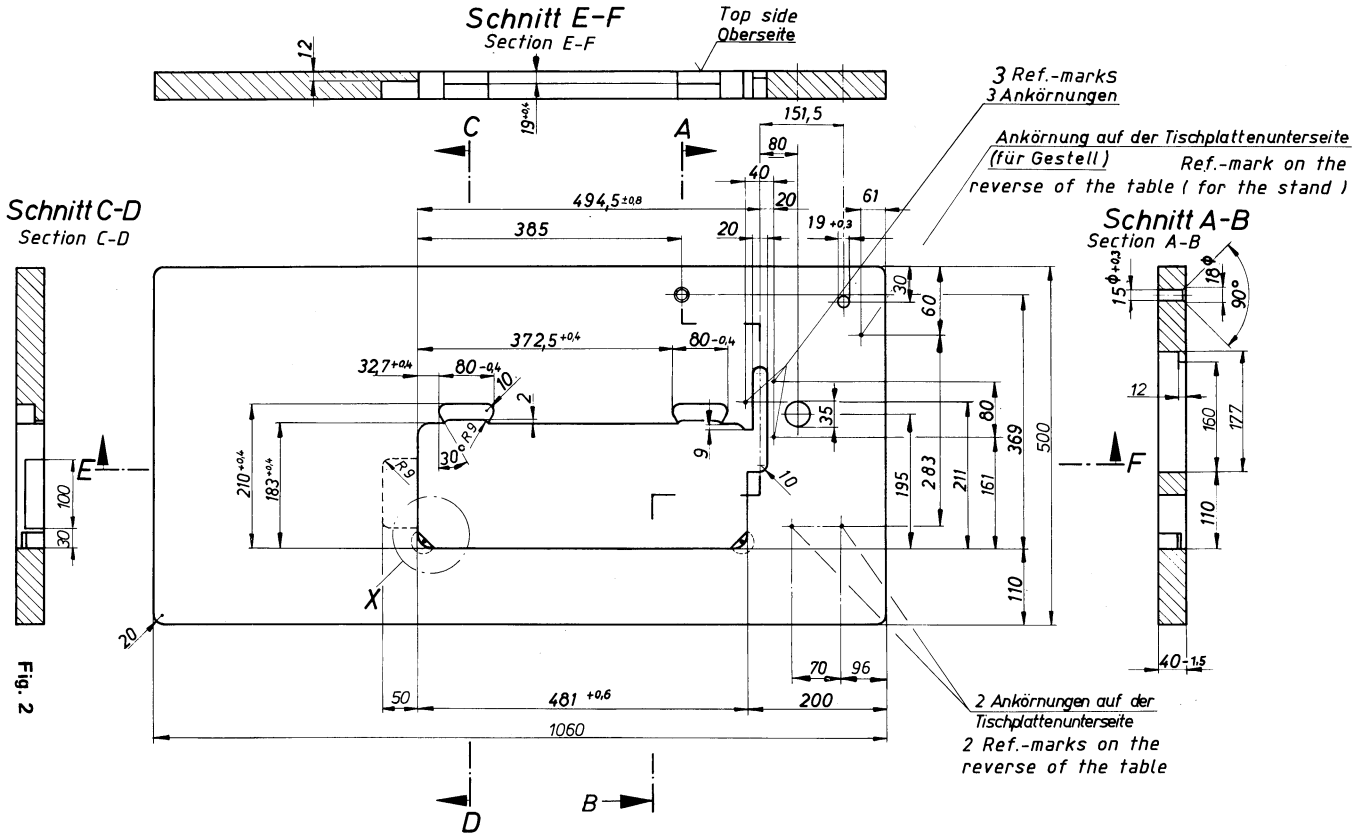
Schnitt E-F
Section E-F
Top side
Oberseite
3 Ref.-marks
3 Ankörnungen
Ankörnung auf der Tischplattenunterseite
(für Gestell)
Ref.-mark on the
reverse of the table (for the stand)
Schnitt C-D
Section C-D
Schnitt A-B
Section A-B
2 Ankörnungen auf der
Tischplattenunterseite
2 Ref.-marks on the
reverse of the table
494,5
385
372,5
327
481
1060
200
50
70
96
151,5
80
40
20
61
19
30
60
35
80
369
500
195
283
211
161
110
210
183
100
177
160
12
15
18
90°
40
A
B
C
D
E
F
X

Fig. 2

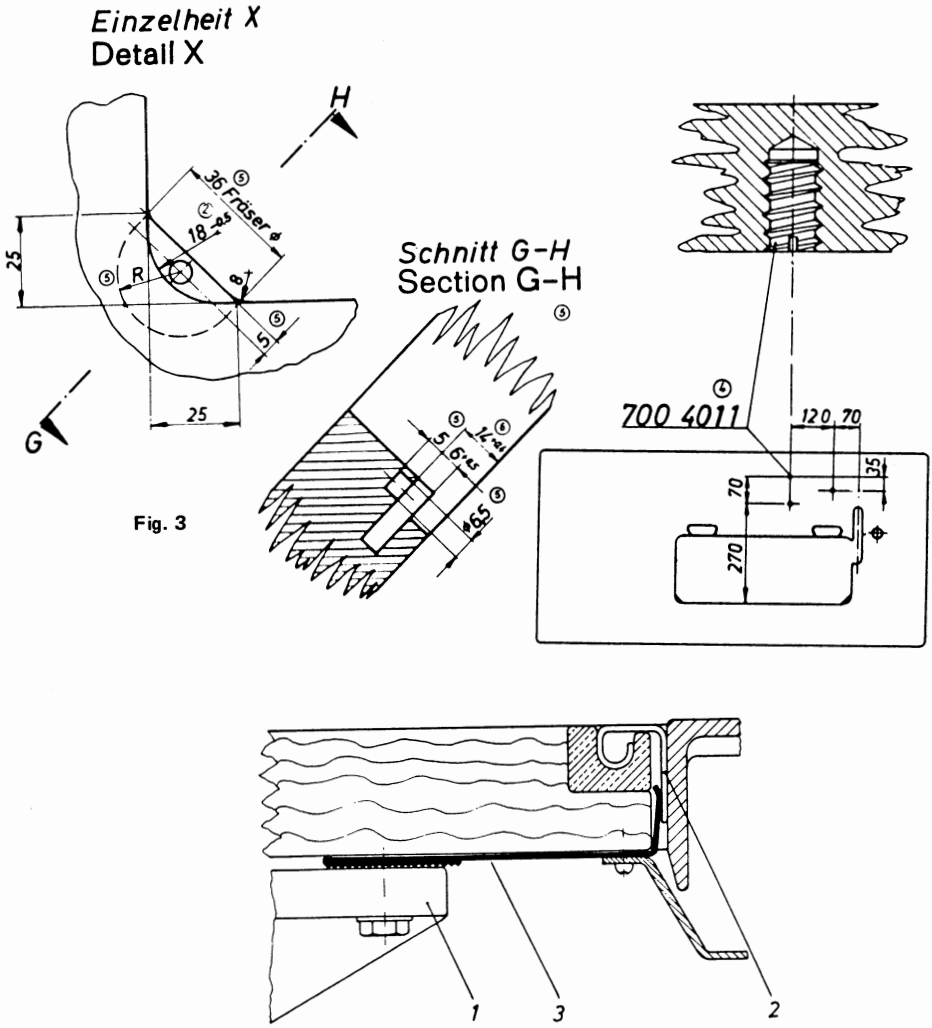

Fig. 3

Fasten the potential sheet 3, included in the accessories, by a screw of the oil collector sheet under the table top as shown by the sketch.

It serves for conducting the static charge from the machine head via motor to the mass.

It is necessary that the sheet is in contact with the right machine hinge 2 and with the motor foot 1.

Motor

Fasten the motor to the screw-in nuts (DIN 7965) in the table top by using hexagon screws M 8x35, washers and nuts.

The size of the motor foot and the distance between the motor suspension and the middle of the belt pulley must correspond to DIN 42706.

The motors are wired for the 3 phase a.c. 220/380 V 50/60 Hz. Motors for other voltages at request.

Connect the power supply cable of the motor according to the motor wiring diagram and in compliance with the available mains voltage.

The respective sub-classes should not exceed the speed indicated hereinafter.

Machine type	Max. speed st/min.	Recommended speed* (number of stitches set in the factory)
265-15135	5000	1500
265-305, -15305	4000	4000
265-101, -201, -203, -4103, -4903, -10204, -15203, -18103, 18903, -115203 267-508 SM 4, -703 SM 9, -15508 SM 4	5000	4500
-15205 SM 5, -115205 SM 5	4200	4000

*When using these machines for special sewing operations it is recommended, for technical reasons, to sew at the speed recommended.

To obtain the required sewing speed with a current of 50 cycles, driving pulleys with the following medium diameters should be used:

1400 rpm motor	1500 st/min.	= 63 mm
2800 rpm motor	3800 st/min.	= 80 mm
	4000 st/min.	= 85 mm
	4200 st/min.	= 90 mm
	4500 st/min.	= 95 mm
	4700 st/min.	= 100 mm
	5000 st/min.	= 106 mm

In case of any other frequency, a driving pulley of corresponding dimensions must be used.

Motor protective switch

Depending on the motor type set the motor protective switch as follows:

Motor type		
	220 V Mains voltage	380 V
KOKD 23	2,7 A	1,6 A
NDK 600 V/22	2,7 A	1,6 A
DQ ... QD 552/.....	3,3 A	1,9 A
VD 374/.....	3,5 A	2,2 A
VD 552/.....	4,2 A	2,5 A

Setting up the machine head

Insert the machine head in the table top. Ensure that there is no contact with the wood.

For placing the V-belt remove the right half of the handwheel. By swinging the motor tension the V-belt so that the belt can still be pressed towards the centre by approx. 10 mm.

Check the proper alignment of the belt.

When fastening the belt guard ensure that the passage in the table top is fully covered and that the V-belt does not touch its guard.

Note:
If the table top is veneered with plastic material, the fastening holes for the belt guard must be pre-drilled so that the wood screws have free passage.

In machines with thread cutter remove the protective bow 10 (fig. 4). Therefore remove screw 20.

Knee lever (fig. 4)

The knee lever is connected to its joint by a bayonet type union and, therefore, it is easy to detach. It must be removed before tilting the machine head backwards.

The pressure pad of the knee lever can be adjusted according to the requirements of the operator.

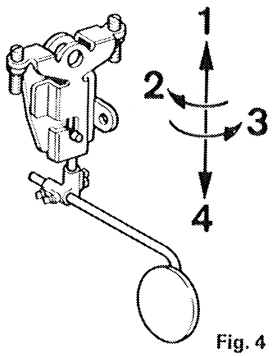

Fig. 4

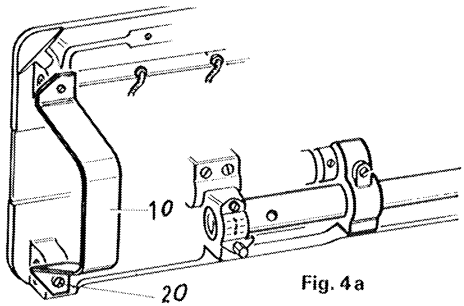

Fig. 4a

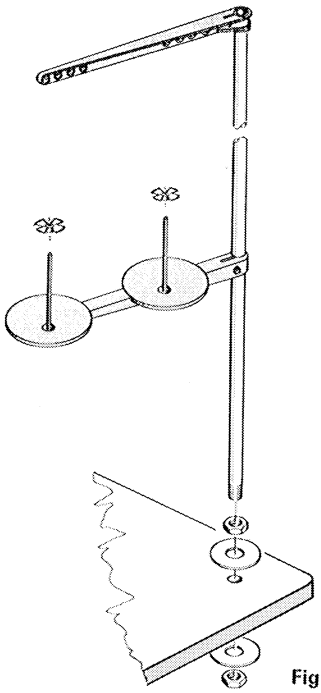
Fig. 4b

Fastening the thread unwinder (fig. 4b)

Fasten the thread unwinder to the table top according to the sketch.

Fitting the treadle rods

On DÜRKOPP 265 with S-equipment fit the treadle rods to the coulisse block 12 (fig. 5) by means of a ball joint and adjust it so that the machine can be freely tilted backwards and that there is no excessive dead travel when operating the pedal.

The figs. 6 and 7 show the location of the treadle rods on the DÜRKOPP 265-135.

Test run

Operate the machines with thread cutter only if the positioner is properly set. See chapter 54. d).

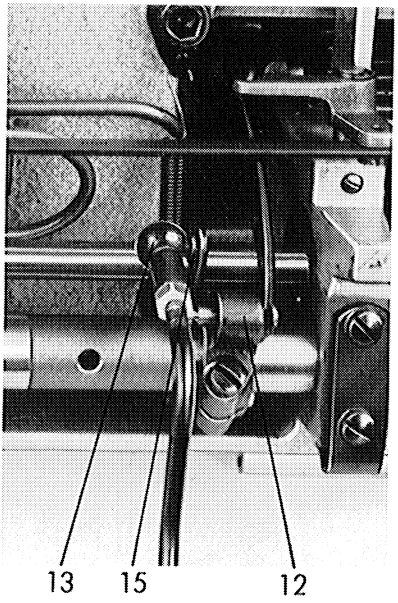

Fig. 5

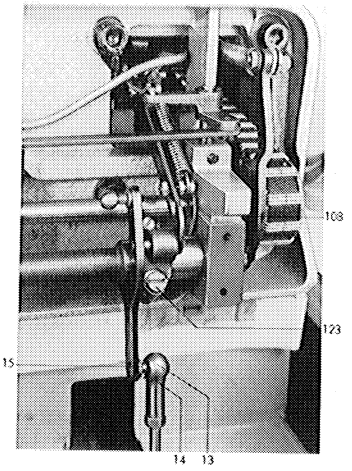

Fig. 6

Clean and lubricate the machine, fill the oil container up to the "maximum" mark. Use Spinesso 10 oil or an equivalent quality. See chapter 3.

The arrow in fig. 1 shows the proper direction of rotation. If required, repole the motor.

Note:

Do not remove the protective devices while the machine is in operation.

Instructions for Operators

2. Raising the presser foot (fig. 12)

To retain the presser foot in the raised position, the knob 22 on the face plate should be depressed while actuating the knee lever which, in turn, locks the presser bar in position.

Slight pressure against the lever will cause the knob 22 to jump back, thus releasing the locking position.

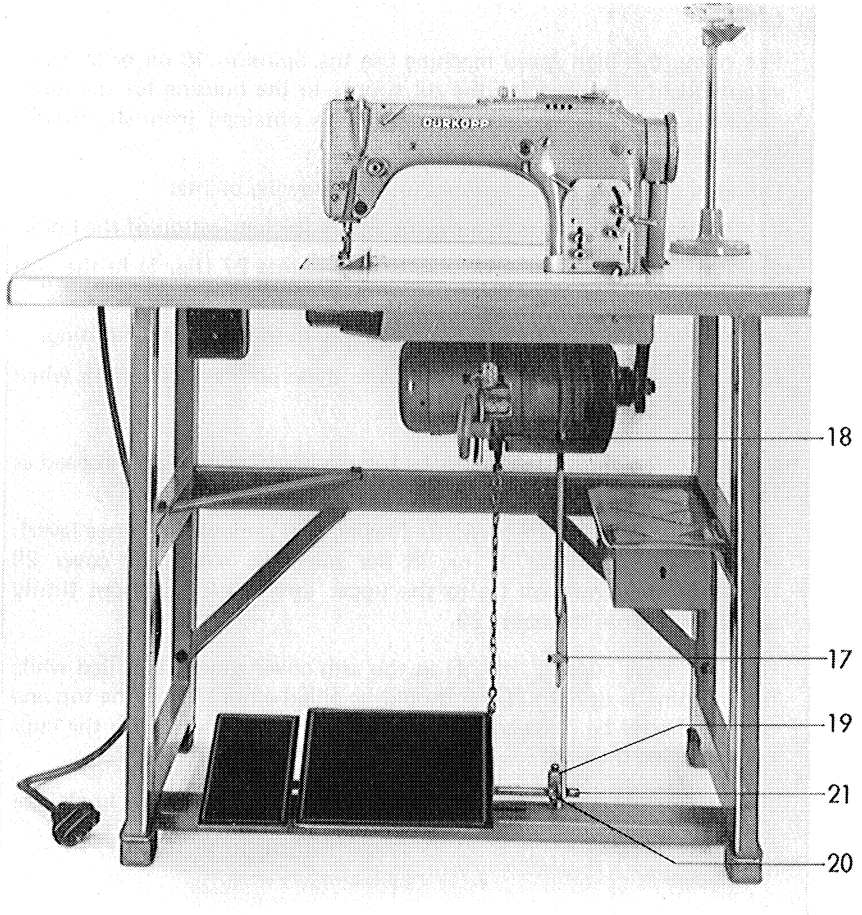

Fig. 7

3. Maintenance of the machine

a) Cleaning

A machine which is kept clean is unlikely to give any trouble. Therefore, clean regularly the vicinity of the hook and of the thread cutter and the space below the throat plate.

For cleaning the parts located below the base plate tilt the machine head backwards (remove first the knee lever!). The oil gathered behind the sight glass 23 (fig. 12) will return to the machine arm, so that there will never be too much oil in the arm head if the cleaning is done regularly.

b) Oiling

For oiling this high speed machine use the **Spinesso 10** oil or an equivalent quality (except for the oil supply in the housing for the hook driving gears). The **Spinesso 10** oil can be obtained from DÜRKOPP sales centers.

Oiling of the machine is confined to the following points:

1. Checking and replenishing the oil supply for lubrication of the hook.
2. Replenishing the oil supply in the oil points 27 (fig. 1) in the arm cover.
3. Checking and replenishing the oil supply in the hook gear housing.

Normally it will be enough to lubricate these points once a week when cleaning the machine.

Re. 1: To replenish the oil supply for the hook lubrication, proceed as follows:

Tilt the machine head backwards (having first removed the knee lever). Remove screw 28 (fig. 8) or, in the sub-class -4103, lift cover 29 (fig. 20). Replenish oil up to the upper long mark, retighten firmly screw 28 or close the cover 29.

Re. 2: The oil cups 27 (fig. 1) in the arm cover should be filled while the machine is upright. They should be filled almost up to the top and the oil should be allowed to soak into the wick underneath the cups before tilting the machine backwards.

Re. 3: For checking and replenishing the oil supply in the hook gear housing see chapter 19.b).

4. Needles and threads

Proper operation of the machine and the quality of the seam depend to a large extent on the needles and threads used. The size of the needle is determined by the size of the thread. The needle eye should be wide enough for the thread to pass tightly and easily. This is very important when using rough and irregular threads.

The machine being suitable for a great variety of operations, it is impossible to suggest with any degree of accuracy what threads and needles should be used together.

The needle system to be used depends on the basic model of the machine. See the following table.

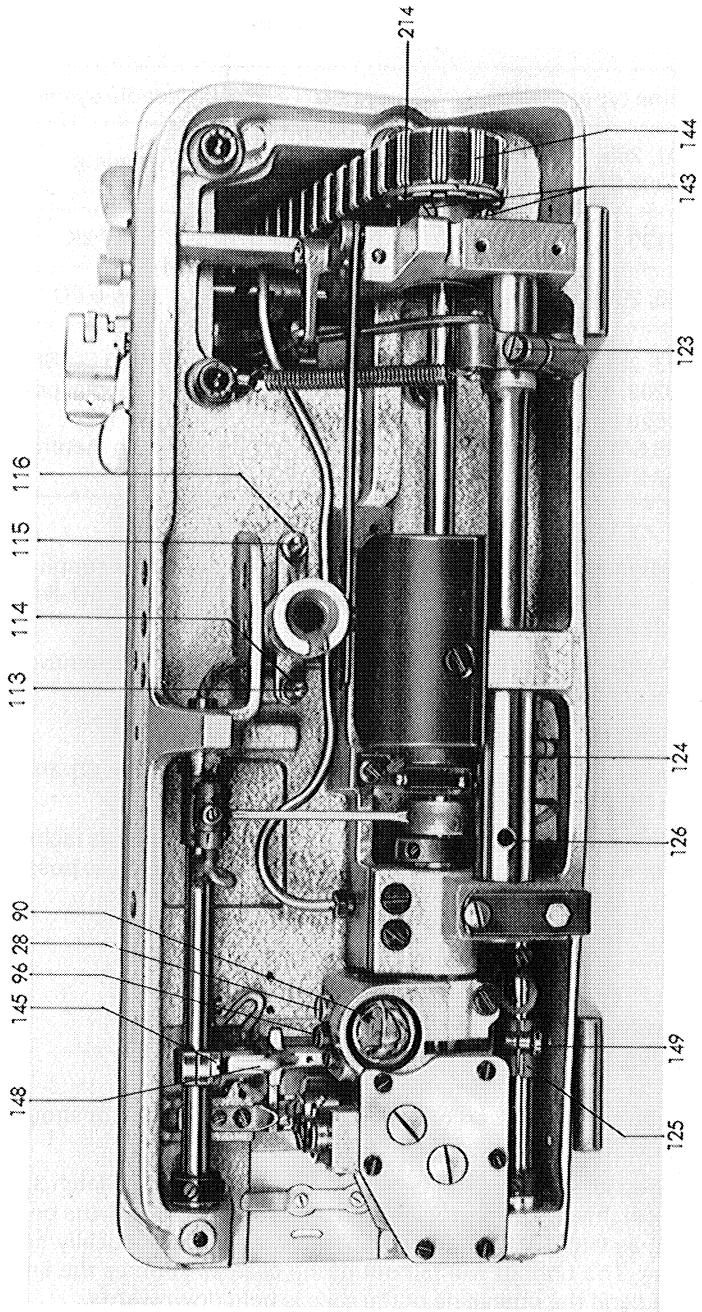

Fig. 8

The following needles will normally be used:

Maschine type	Needle system
265-101, 265-101 267-15205 SM 5, 267-115205 SM 5	265-5
265-15135	797 kK
265-305, 265-15305	265-5 EO
265-203, 265-4103, 265-4903, 265-10204, 265-15203, 265-18103, 265-18903, 265-115203 267-508 SM 4, 267-703 SM 9, 267-15508 SM 4 269-208 SM 12	265-50 EO SI* with special point for elastic material

* The designation of the point shape is, varying with the supplier, as follows: Lammerts 265-50 EO SIN; Rheinnadel 265-50 EO R-SUK; Schmetz 265-50 EO SUK.

Needle systems will have an additional designation if the points of the needles are different from those mentioned above.

The additional designation "EO" means **narrow eye.**

This signifies that the needle Nm 90 has an eye of Nm 80 and the needle Nm 100 has an eye of Nm 90 etc.

When inserting a new needle ensure that the long groove is facing the operator and that is introduced in the needle bar as deep as possible.

5. **Removing the bobbin case top with bobbin** (figs. 9 and 10)

When removing or inserting the bobbin case top the motor should be disconnected and braked down.

Set thread take-up lever to its topmost position. Lift then latch 35 and take out at the same time the bobbin case 36 together with the bobbin. As long as latch 35 is lifted, the bobbin will be automatically held in the case. The bobbin will fall out of the case as soon as the latch is released and the open side of the case is held downwards.

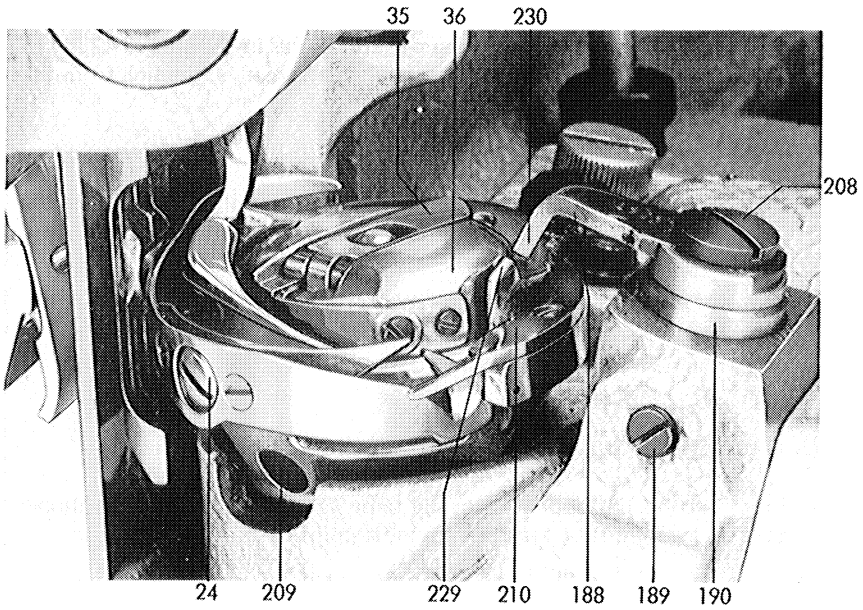

Fig. 9

6. Winding the bobbin (fig. 1)

The bobbin winder is positioned inside the arm plate and is operated by the upper belt pulley via a friction disk.

To save time, the thread can be wound while sewing.

The thread extends from the thread unwinder, through the hole in the thread guide pin 37, round the spindle of the thread tension 38 to the bobbin winder.

To wind the bobbin, first push it on the winder spindle as far as it will go, wind the end of the thread clockwise several times around the bobbin and press the bobbin flap 39 against the bobbin winder hub until it snaps. The winding process takes place while the machine is in operation, the winding device cutting out automatically as soon as the bobbin is fully wound. If a fully wound bobbin is not required, the winding device can be cut out prematurely by pulling back the flap 39.

7. Threading the bobbin (figs. 10 and 11)

Hold the bobbin between the finger tips of the right hand so that the free end of the thread extends from the front to the left (see fig. 11) into bobbin case 36. Pull then the thread through the slot 40 and

underneath thread tension spring 41, until is lies in the groove 42 at the end of the tension spring 41. Pass then the thread, extending from the rear, in the hole 44.

Note:

If you want the machine to sew mainly with straight stitches, pass the bobbin thread only up to the groove 42 of the tension spring 41, and do not pass it throught the hole 44.

This will produce a considerably better stitch pattern.

8. Inserting the bobbin case top with bobbin

For inserting the bobbin case, the same as for removing it, the thread take up lever must be set to its topmost point.

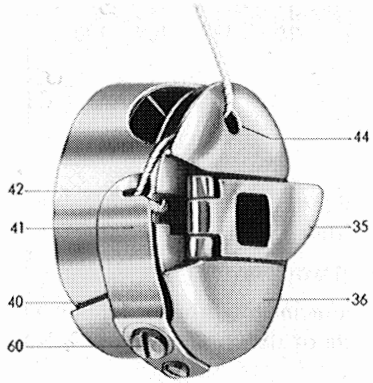

Fig. 10

With thumb and index finger of the right hand seize the flap 35 (fig. 10) so that with the completely lifted flap the bobbin is held in the case. Slip the case onto the centre pin of the bobbin case base so that the end of the flap shows right down. Press the bobbin case firmly with the thumb. If the bobbin case is not closed properly, damage may be caused to the needle and to the case.

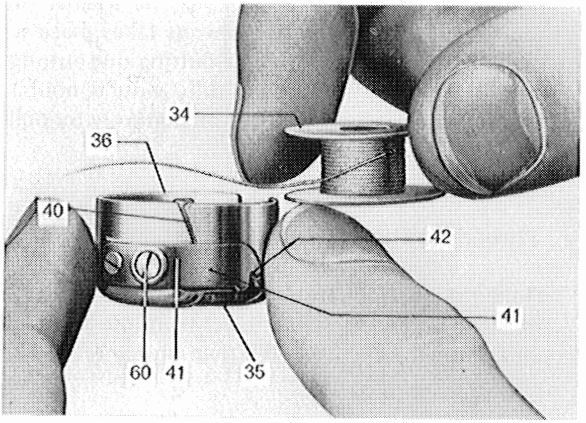

Fig. 11

9. Threading the needle

Before threading, the motor should be switched off and braked.

The path of the needle thread is shown in fig. 12. For threading, the thread take up lever should be set to its topmost point.

Pass then the thread:

1. through the guide on the thread pull-off arm of the thread unwinder (without illustration),

2. through the thread guide 45, from left to right and from right to left through the holes,

3. from right between main tension disks 47,

4. to the left over thread take up spring 48,

5. upwards through thread guide 49,

6. from right to left through the eye of the lever 50,

7. downwards through thread guide 49,

8. through thread guide 51,

9. underneath the wire 52 and through the hole 53 (see fig. 12); in 265-15135 according to fig. 13 through the guide 66 and synthetic threads should be passed additionally (fig. 13) between the guide and the leaf spring.

10. from face to rear through the eye of the needle.

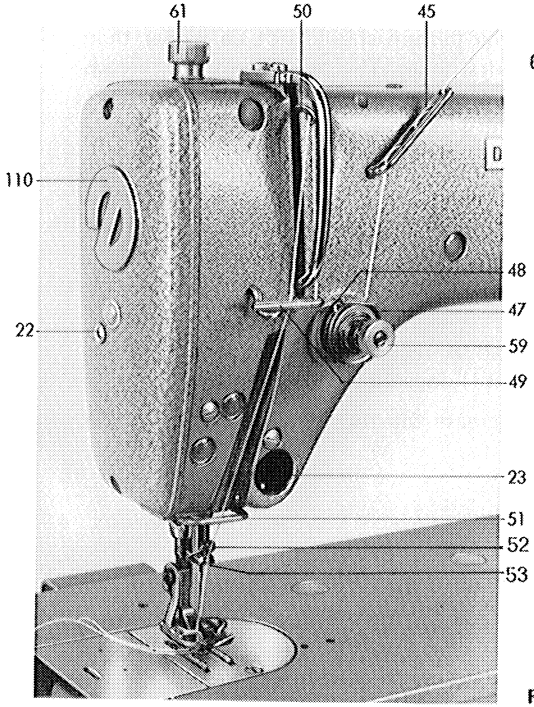

Fig. 12

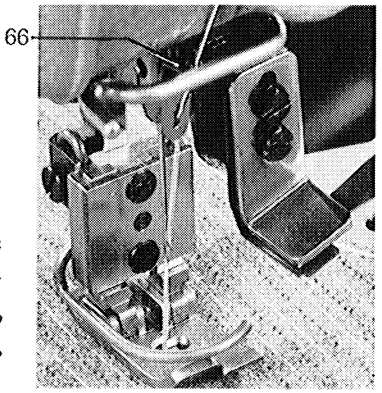

Fig. 13

10. Drawing up the bobbin thread

Having threaded the needle thread, hold its free end loosely between the fingers of the left hand and make a so-called empty stitch by turning the handwheel clockwise with your right hand in order to bring the thread take up lever to its highest point. With the left hand, draw up the needle thread which, in turn, will pull up the bobbin thread looped round it. Pass some suitable object underneath the raised presser foot, bringing both threads under the foot to the rear.

11. Regulating the thread tensions

Both upper and lower threads are properly tensioned if the stitches lock exactly in the middle of material.

If the interlocking of stitches is visible on the surface of material, then there is too much tension on the upper thread or insufficient tension on the lower thread.

If the interlocking is visible on the lower face of the work, then there is too much tension on the lower thread or insufficient on the upper one.

Thick and hard cloth require a stronger thread tension than light and soft materials.

Too tight thread tensions may cause undesirable puckering of the material or thread breakage. The tension should not be higher than required for a good formation of stitches. The tensions of the threads can be regulated as follows:

a) Upper thread

The tension of the upper thread is regulated by turning the knurled nut 59 (fig. 12). Turn to the right to increase the tension and to the left to reduce ist.

b) Lower thread

The tension of the lower thread is regulated by the tension spring regulating screw 60 (figs. 10 and 11), located on the bobbin case.

Turn the screw clockwise to increase the thread tension and counter clockwise to reduce it.

12. Regulating the sewing foot pressure (fig. 12)

The pressure exerted by the sewing foot must be adapted to the kind of work. Thick and rough materials require higher pressure than thin and soft materials. The foot pressure should be such as to ensure even feeding of the material without damaging its lower side by the feed dog. Increase the tension by screwing down the bush 61 and viceversa.

In 265-10204 fhe foot pressure is adjusted by knurled nut 295 (fig. 23). The presser exerted by the feeding roller on the fabric is adjusted by the bush 61 (fig. 12).

13. Adjusting the feeding length and changing over to reverse feed

a) **On DÜRKOPP 265** (except -15135)

The stitch length is regulated by the lever 62 (fig. 15). A spring pulls said lever upwards up to a stop, adjustable by knurled nut 63.

By moving the lever from its topmost position to the centre, the for-

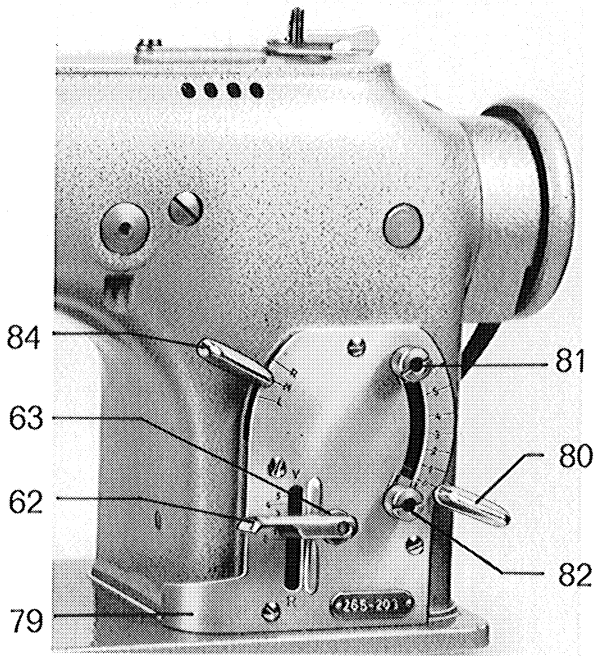

Fig. 15

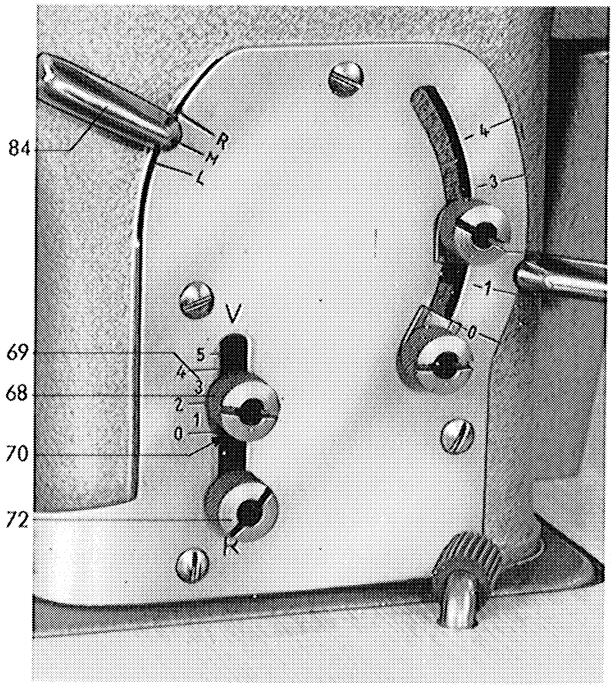

Fig. 16

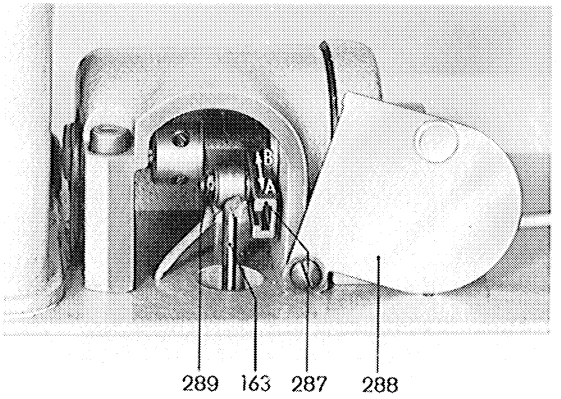

Fig. 17

ward stitch becomes shorter until, at "0" position, feeding of the work ceases alltogether. When the lever is pushed downwards below "0", the machine sews reverse.

By lowering the lever as far as it will go, the machine will produce reverse stitches of the same length as those sewn forwards.

The change from forward to reverse stitch can be done with the machine stopped and in operation.

When switching over while sewing, the lever must be moved very quickly past the "0" position, because otherwise the needle might cut the thread.

On machines with S-equipment the change from forward to reverse stitches can be done not only by hand but also by a pedal operated by the left foot. When using this equipment both hands are free for guiding the material.

b) **On DÜRKOPP 265-15135**

The length of the forward feed can be set by the knurled nut 68 (fig. 16). The state of adjustment is shown by the scale 69 in conjunction with top edge of the stitch regulator pin 70.

A spring pulls the pin 70 constantly against the knurled nut 68.

For sewing backwards, treadle the left pedal to the front. The width of throw will then be equal to 0.

The length of the reverse feed is regulated by the knurled nut 72 (fig. 16).

c) **Adjusting the length of the upper puller feed on DÜRKOPP 265-10204**

The drop feed and the intermittent upper puller feed of this machine are individually adjustable.

The drop feed is adjusted as described under item a) of the present chapter.

The length of the upper puller feed is adjusted by displacing the traction bar 163 (fig. 17) in the coulisse 287. Displace the bar in the arrow direction "A" for reducing the feed length and in the arrow direction "B" for increasing it.

Following the adjustment, retighten the nut 289.

14. Adjusting the zigzag stitch width (except DÜRKOPP 265-15135)

The zigzag stitch width is regulated by the lever 80 (fig. 15). The range of adjustment can be limited by the stop screws 81 and 82.

By pressing back the springy stitch width regulator lever it is possible to exceed the range limited by stop screws 81 and 82.

On DÜRKOPP 265-15135

On this sub-class the stitch width regulator lever 80 (fig. 15) is constantly adjusted – by a traction spring – to the zigzag stitch width limited by the stop screws 81.

By treading the pedal to the front the machine will be switched for straight stitches and for reverse feed, permitting thus neat bartacking of the seam extremeties.

15. Adjusting the stitch position

a) **On DÜRKOPP 265** (except 265-4103, -15135 and -18103)

The needle zero position is regulated by the lever 84 (fig. 15).

For the normal straight and zigzag stitches the stitch position regulator lever is set on the mark "M".

To make the needle oscillate to one or the other side, set the springy stitch position regulator lever on "R" or "L".

Legend:

M = needle zero position in the middle
R = needle zero position on the right
L = needle zero position on the left

b) **On DÜRKOPP 265-4103, -15135 and -18103**

On these sub-classes the stitch position regulator lever 84 (fig. 16) is continuously adjustable.

On the sub-class 265-15135 said lever is used for the fine adjustment of the needle penetration and on the sub-class 265-4103 for adjusting the distance to the cutting edge.

16. Switching on and off the upper knife on DÜRKOPP 265-4103 and -18103

The upper knife can be switched on and off by the lever 85 (fig. 19). The switching can be done both at the standstill of the machine and during its operation at any speed.

Move the lever 85 in the A direction of the arrow for switching on the knife and in the B direction for switching it off.

17. Adjusting the knife stroke on DÜRKOPP 265-4103 and -18103

The knife stroke should be adjusted according to the thickness of the material to be cut. An excessive stroke will deteriorate the feeding of the upper material (lace). The stroke can be adjusted by turning the knurled nut 86 (fig. 20). Turn the nut 86 counter-clockwise for reducing the knife stroke and clockwise for increasing it.

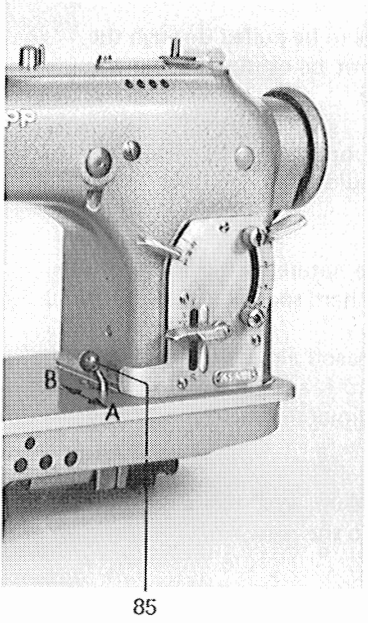

Fig. 19

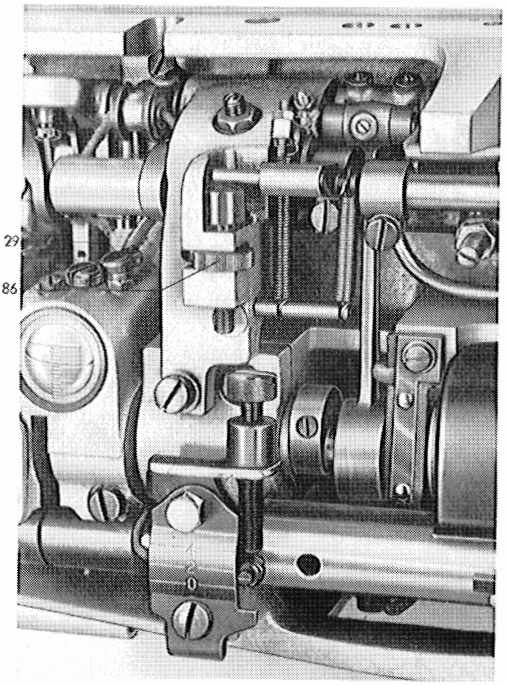

Fig. 20

18. Sewing

Before positioning the workpiece or starting to sew a new seam, and when removing the work the thread take-up lever must be in its top-most position. The machine should only be operated with the work in position and with the presser foot lowered.

Ensure that the handwheel rotates in the proper direction, because otherwise the thread will be broken and the hook race will be jammed.

Since the machine operates at a relatively high speed, it is advisible first to practise guiding the work without threading the machine. Only after having attained sufficient practice in guiding the work the real working can be started.

Now thread the needle, replace the bobbin with its case and draw up the bobbin thread. Position the work and lower the sewing foot by the knee lever.

Hold the free ends of upper and lower threads loosely while sewing the first stitches. If the lower thread is covered by the work, then it is only necessary to hold the upper thread.

If, at the seam beginning, the needle thread is to be pulled through the fabric on to the underside, then it should not be clamped under the sewing foot.

The work should be feed by the feed dog only. Do not pull while sewing forwards or backwards, because this could cause needle breakage or damage to the throat plate.

Adapt the speed to the type of work and the nature of the operation. Reduce the speed when sewing over thick and hard spots.

For sewing sharp corners, let the needle descend almost to its lowest position, lift the presser foot and turn the work around the needle as required. Then lower the foot again and continue sewing in the desired direction.

For removing the work, set the thread take-up lever to its topmost point, lift the presser foot and pull the work to the rear.

The following chapters describe the function and the adjustment of the main components.

19. Lubrication (see chapter 3b)

All working parts, except the hook, are lubricated centrally from four oiling points in the arm plate, containing enough oil for about 50 service hours. The left oil point ensures the lubrication of the parts in the arm head and of the front and middle arm shaft bearing. The two middle oiling points lubricate the zigzag equipment and the right hand oiling point ensures the lubrication of the parts below the base plate. The hook is lubricated by the oil which flows from an oil chamber 90 (fig. 8), located beside the hook, ensuring thus a constant supply of perfectly clean oil to the hook. Here also, one filling will normally suffice for at least 50 hours of operation.

a) Adjusting the oil supply to the hook

The amount of oil required for lubrication of the hook depends on the type of material and the thread used. The oil supply should therefore be adjusted as required.

If the hook gets very warm, runs noisily or breaks the thread, this indicates that it is not receiving enough oil. In such cases loosen slightly the regulating screw 96 (figs. 8 and 21).

Note:

For more oil turn the regulating screw counter-clockwise.
For less oil, turn the regulating screw clockwise.

If, after a certain period of service, the vicinity of the hook becomes excessively contaminated with oil, then, in case of delicate materials, it is necessary to reduce the oil supply by tightening the adjusting screw 96.

The fig. 21 shows the arrangement of the hook lubrication system.

The oil is fed from the oil chamber 90 through oil wick 97 to a felt ring 98 on the hook shaft. From here it is fed through felt-filled ducts 99 to the rear surface of the hook collar 100. The oil disk 101 with oil ducts 99 does not follow the rotation of the hook, so that the oil which accumulates on the felt protruding from the ducts is picked up by the

rear surface of the hook collar 100, whence, by centrifugal force, it is projected into cavity 102.

From this cavity the oil is fed, also by centrifugal force, through oil duct 103 to hook base 104, where from it passes to the hook race 109.

The spring disk 105 keeps the oil disk 101 slightly pressed against the rear surface of the hook collar 100, ensuring thus a steady contact between the latter and the felt, projecting from oil ducts 99. The fig. 21 shows the way of reducing the oil supply. The regulating screw 96 presses with its pin 106 against a flexible tube 107, containg oil wick 97. The deeper the screw is turned, the lower will be the permeability of the oil at this place.

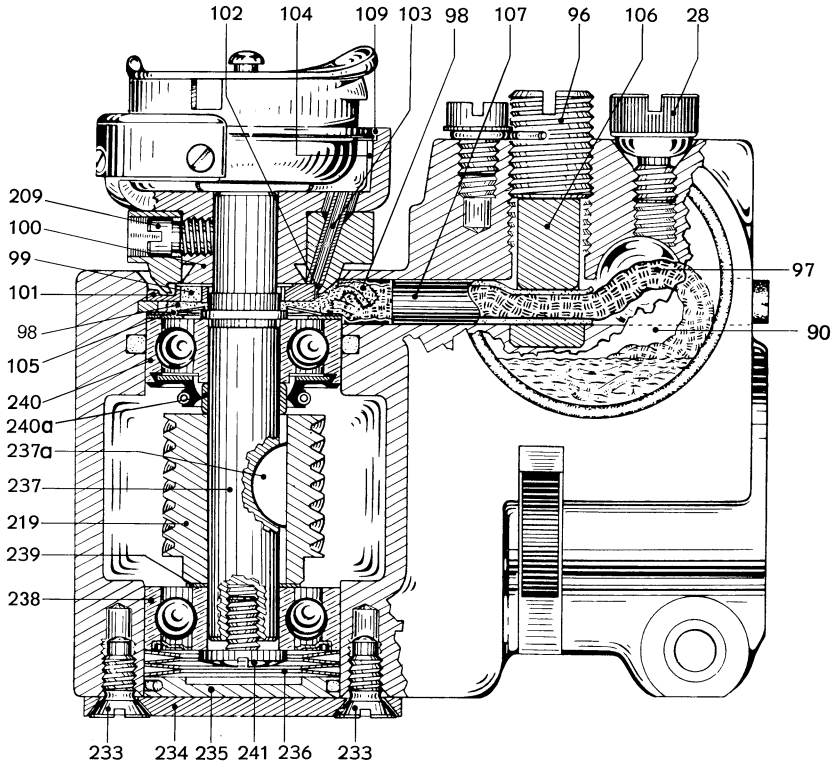

Fig. 21

e) **Adjusting the sewing foot stroke in 265-10204**

Make the adjustment so that the sewing foot is not lifted before the puller is about 2 mm above the throat plate.

The adjustment can be made by displacing the stop screw 291 after having loosened the counter nut 290 (fig. 23). For sewing materials of different thicknesses and in case of bulky cross seams, the aforementioned adjustment must be modified.

Make then the adjustment so that with the puller on the transversal seam, the presser foot still keeps down the material.

f) **Adjusting the transmission lever for lifting the puller for reverse feed (applies only to 265-10204)**

When the stitch regulator lever, lowered for reversing the feed, reaches the mark "0", e.g. when there is no transport, the puller should be high enough above the throat plate to permit free passage of the material between the puller and the throat plate.

This lifting of the puller is determined by the position of the transmission lever 293 (fig. 24) on the stitch regulator coulisse 292. Its position must be adapted to the thickness of the material sewn. The transmission lever 293 can be adjusted after having loosend the screws 294.

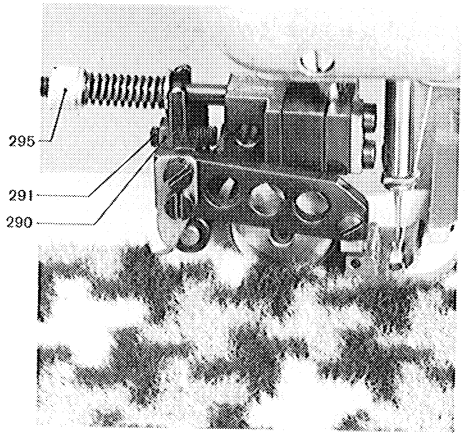

Fig. 23

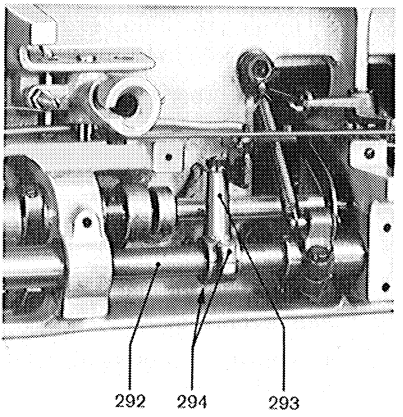

Fig. 24

21. Adjusting the drop feed

Sub-class	Stitch length
265-101, -201, -203, -15203, -115203 267-703 SM 9	forwards up to 4 mm backwards up to 4 mm
265-10204	forwards up to 4 mm backwards up to 2 mm
265-305, -15305 267-15205 SM 5, -115205 SM 5	forwards up to 5 mm backwards up to 5 mm
265-4103, -18103, 265-4903, -18903	forwards up to 2.5 mm backwards up to 2.5 mm
265-15135	forwards up to 2.5 mm backwards up to 2 mm
267-508 SM 4, -15508 SM 4	forwards up to 1.5 mm backwards up to 1.5 mm
269-208 SM 12	only forwards 1–3 mm

a) **Adjusting the drop feed motion**

By turning the lifting and pushing eccentric on the lower shaft adjust the drop feed motion as follows:

With the thread take-up lever being at its upper dead point the lifting and pushing eccentric should stand reciprocally so that the first screw of the lifting eccentric (left eccentric) and the second screw of the pushing eccentric, seen in the direction of rotation are flush with the fastening screw of the medium bearing of the lower shaft.

b) **Adjusting the feed zero point and the equal feed length for forward and reverse feed**

To adjust the drop feed, set this first to its zero position. This means that when turning the handwheel in the direction of rotation, the stitch regulating lever standing on zero, the lever 125 (fig. 8) should oscillate as little as possible, i. e. there should be not feed.

Should it be necessary to correct this adjustment, proceed as follows:

Set the stitch regulator lever 62 (fig. 15) on "0" by turning the knurled

nut 63 and loosen the thumb screw 123 (fig. 8). While turning the handwheel in the direction of rotation, revolve crank 124 so that the lever 125 has its minimum side movement (zero position).

Following the adjustment, retighten firmly thumb screw 123. To revolve crank 124 use a pin introducing it into the bore 126.

For balancing any stitch length difference when sewing forwards and backwards proceed as follows:

Set stitch position lever 84 (fig. 15) on "M", the stitch width lever 80 on "0", and the stitch length regulator lever 62 for a certain forward or reverse stitch length (preferably for about 2 mm). Furthermore, insert a perfect, straight needle.

Place a piece of stiff paper under the presser foot and make 10 forward stitches by revolving the handwheel in the direction of rotation. Lower the stitch regulator lever 62 as deep as possible and sew 10 reverse stitches.

The distance covered by the 10 reverse stitches should be of the same length as that covered by 10 forward stitches. If these distances are of different length, loosen clamp screw 123 (fig. 8) and turn the coulisse 124 accordingly. Retighten then the clamp screw.

c) **Adjusting the final feeding movement**

The drop feed must have finished its advance movement above the throat plate when the point of the descending needle is level with the surface of the throat plate.

Check with the maximum stitch length. If the adjustment is not correct, loosen the two fastening screws 143 (fig. 8) and turn the lower pulley 214 on the lower shaft.

Prior to retightening the two fastening screws ensure that the lower pulley is in line with the upper pulley. Following the adjustment, verify and, if necessary, rectify the position of the hook according to the chapter 25 and that of the bobbin case lifter according to the chapter 27.

For adjusting the final feeding movement adjust first the feed dog height according to the following chapter 22a).

Note:

When sewing reverse (backtacking) over bulky spots, the needle may be

deflected by the final movement and may, therefore, touch the throat plate and break.

This can happen particularly when backtacking at slow speed with long stitches. In order to avoid this, the machine must be adjusted so that there is no final movement.

Indication for sub-classes 265-203, -208, -15203 and -115203

In these sub-classes the final feeding movement is adjusted not according to the preceeding description but according to chapter 43 of the present instructions.

22. Adjusting the feed dog

a) **Adjusting the height of the feed dog**

The extent to which the feed dog should project above the surface of the throat plate when being at its topmost point depends on the thickness and on the type of the material to be sewn. On white goods machines it should project normally by 0.9 mm and on clothing machines by 1.2 mm, except the sub-classes 265-305 and -15305 on which the feed dog should project by 0.9 mm.

For adjusting the feed dog height loosen the thumb screw 145 (fig. 8). Following the adjustment retighten the screw.

The adjustment of the feed dog height can also be made by the gauge no. 2653055.

This gauge is used to adjust the height of the **feed dog carrier.** Proceed to the adjustment as follows:

1. Remove needle, sewing foot, throat plate slide, throat plate and feed dog.

2. Loosen thumb screw 145 and lower slightly feed dog carrier 148 (fig. 25), so that the gauge can be easily screwed on.

3. Fasten the gauge (ref. no. 2653055) for the feed dog carrier with the throat plate fastening screws as shown in fig. 25.

4. Set feed dog carrier 148 so that the feed dog bearing surface is in contact with the gauge (see also fig. 25).

5. Retighten the thumb screw 145.

After having adjusted the feed dog carrier as described above, screw on it a feed dog suitable for the sewing equipment. The feed dog height will then be correct.

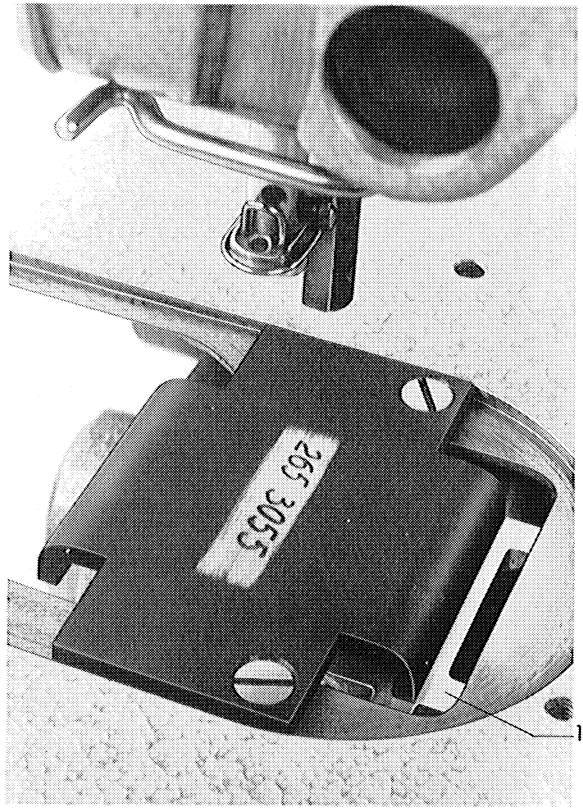

Fig. 25

b) **Longitudinal adjustment of the feed dog**

The feed dogs should be adjusted in the longitudinal direction so that with the machine set for the maximum stitch length they do not touch the table top. This adjustment can be made after having loosened the thumb screw 149 (fig. 8).

23. Adjusting the needle oscillation

The needle oscillation must be adjusted in accordance with the upwards and downwards movement of the needle, i.e. the needle should not oscillate when it is in the material.

To adjust the needle oscillation, proceed as follows:

1. Set stitch width regulator lever 80 (fig. 15) for the maximum throw width.
2. Set stitch position regulator lever 84 on "M".
3. Remove the screws 153 and 154 and take off the cover 152 (fig. 1).

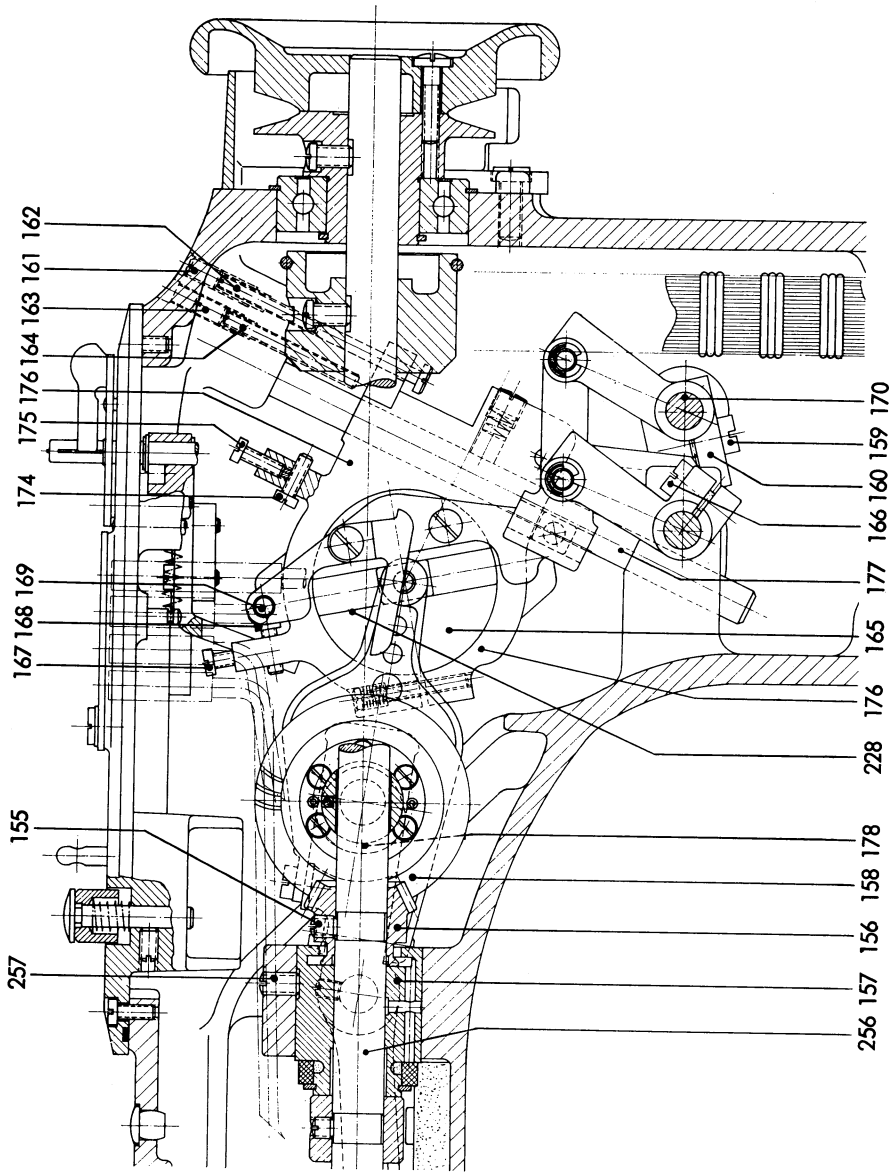
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Fig. 26

4. Loosen thumb screws 155 (fig. 26), hold in position the bevel gear 156 and, by turning the handwheel, set the arm shaft so that the needle oscillates as explained in the preceeding description.

5. When retightening the thumb screws 155 ensure that the bevel gear 156 is pressed to the left against the bearing 157, eliminating thus any axial play in the arm shaft. Check also the teeth play of the bevel gears 156 and 158 and adjust, if required, according to chapter 35.

Checking the proper needle oscillation

The needle oscillation is correct if the needle bar, set to its topmost point, is absolutely immobile when stitch width regulator lever 80 (fig. 15) is moved from the maximum to the minimum throw.

24. Adjusting the zigzag crank for setting the position and the width of stitches

a) **Adjusting the maximum throw width** (fig. 26)

The maximum throw width is obtained when the guide 228 of the zigzag crank is parallel to the guide 177 of the crank bearing 176. In this position the stop 169 should touch the stop screw 174.

To effect the adjustment, remove the arm cover 152 (fig. 1), loosen the clamp screw 175 and turn the stop screw 174.

For checking the maximum throw width, set crank 165 by means of the stitch width regulator lever 80 (fig. 15) so that the stop 169 touches the stop screw 174.

If the adjustment is correct, the needle bar should not make any material movement when stitch position regulator lever 84 is shifted from "R" to "L".

Following the adjustment, retighten firmly the clamp screw 175.

b) **Setting the stitch position**

To set needle zero position **on the right,** shift stitch position regulator lever 84 (fig. 15) on "R" up to the stop and lift eccentric 178 (fig. 26) to its **topmost point** by turning the handwheel in the direction of rotation.

To set the zero position **on the left,** shift stitch position regulator lever

on "L" up to the stop and lower the eccentric 178 to its **lowest** position by turning the handwheel in the direction of rotation. If the adjustments are correct, the needle bar should make no lateral movement when stitch width regulator lever 80 (fig. 15) is shifted from the maximum to the minimum throw width.

To correct this adjustment for the needle position on the right, remove counter screw 163 (fig. 26) and turn, as required, stop screw 164, to correct it for the needle position on the left, remove screw 161 and turn the stop screw 162 as required.

To check the adjustment made, set crank bearing 176 by stitch position regulator lever against the respective stop screw.

Following the adjustment, retighten firmly the counter screws 161 and 163. To adjust the needle zero position in the middle, proceed as described under item e) of the present instructions.

c) **Setting the needle with respect to the needle hole**

When turning the machine and with the stitch width regulator lever 80 (fig. 15) adjusted for the maximum stitch width, the needle should penetrate at equal distance to either side of the stitch hole.

For correcting this adjustment, proceed as follows:

1. Remove face plate 110 (fig. 12),
2. Remove plug 171 (fig. 27),
3. Loosen nut 172 (fig. 22), and
4. Adjust the needle accordingly by turning the eccentric bolt 173,.
5. Following the adjustment, retighten firmly the nut 172, replace the plug 171 and the face plate.

d) **Setting the needle zero position for straight stitches**

With the stitch position regulator lever 84 (fig. 15) set on "M" and stitch width regulator lever 80 set on "0", adjust the zigzag coulisse 165 (fig. 26) so that by turning the machine the needle bar makes no lateral movement.

To make an adjustment, proceed as follows:

1. Set stitch position regulator lever 84 (fig. 15) on "M" and stitch width regulator lever 80 on "0" and lock the latter by the stop 82.
2. Loosen thumb screws 166 and 167 (fig. 26),
3. Adjust correspondingly the crank 165 by regulating the stop screw

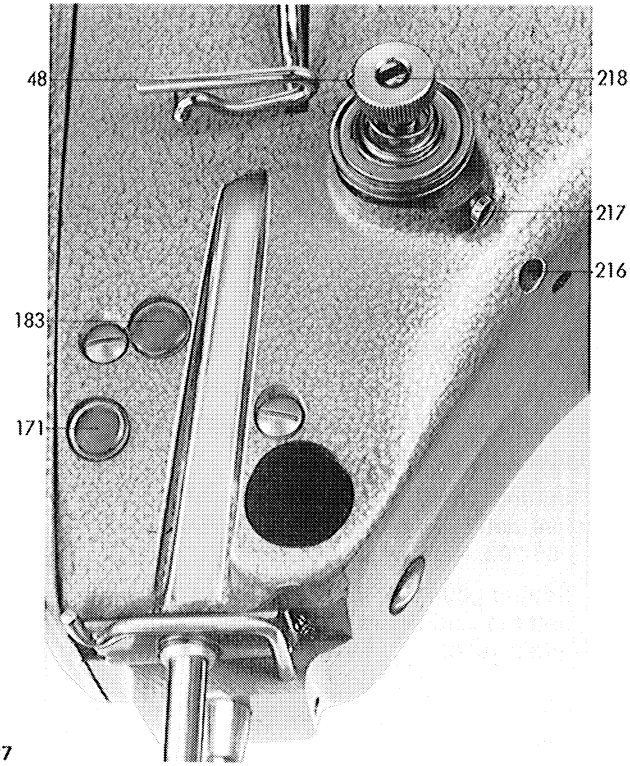

Fig. 27

168 and pressing the stop 169 against the stop screw 168,

4. Following the adjustment, retighten firmly the thumb screws 166 and 167.

The position of the needle with respect to the centre of the stitch hole is unimportant. It must be adjusted as described under the following chapter e).

e) **Adjusting the "middle" stitch position**

With the stitch width regulator lever 80 (fig. 15) set on "0" and stitch position regulator lever 84 set on "M", the needle should be exactly in the centre of the stitch hole.

To make an adjustment, loosen thumb screw 159 (fig. 26) and turn the block 160 on the axle 170 as required. Retighten the thumb screw 159 after having completed the adjustment.

25. Adjusting the hook and the height of the needle bar

In order to obtain with this high speed machine an impeccable formation of stitches it is absolutely necessary to correctly adjust the needle bar with respect to the sewing hook. This means that the needle bar stroke, loop height and the distance between the hook point and the needle, seen in the sewing direction, should be adjusted as described hereinafter.

Such an adjustment is, however, only possible if the hook gear case has been adjusted according to the descreption under the chapter 34.

a) Adjusting the height of the needle bar

The lower dead point of the needle bar depends on the sub-class.

For precise adjustment use needle bar setting gauges, which can be obtained form the factory.

Setting gauge ref. 2653041, consisting of the gauge no. 2653042 and five setting pins specified hereinafter, for all sub-classes, except 265-203, -15203 and -115203.

Setting gauge ref. no. 2653057, consisting of the gauge no. 2653058 and the setting pin no. 2653050, for the sub-classes 265-203, -15203 and -115203.

Sub-class	Setting pin
265-101, -4103, -4903, -15135, -18103, -18903	265 3049
265-201, -203, -10204, -15203, -115203	265 3050
265-305, -15305	265 3051
267-508 SM 4, 267-703 SM 9, 267-15508 SM 4, 269-208 SM 12	265 3052
267-15205 SM 5, 267-115205 SM 5	268 1073

For adjusting, proceed as follows:

1. Remove sewing foot, needle, throat plate slide, throat plate, feed dog, and bobbin case holder 179 (fig. 28). Loosen to this effect only the screw 180.

2. Set stitch width regulator lever 80 (fig. 15) on "0" and stitch position regulator lever 84 on "M".

3. Introduce the respective setting pin181 (fig. 31) in the drilled hole of the base plate 182, so that it is positioned under the needle bore of

the needle bar.

Lift for this purpose the cloth presser bar by pushing the knee lever to the right as far as possible.

4. Set needle bar cross head to its lowest point by turning handhweel in the direction of rotation.

5. Remove plug 183 (fig. 27) from the arm head and loosen needle bar fastening screw which is accessible through the plug hole.

6. Push the needle bar downwards until it rests with the end of the needle bore on the setting pin. Retighten then firmly the needle bar fastening screw, making sure that the thread catch is faced to the front and the needle bar fastening screw to the right/rear.

7. Fit the bobbin case holder 179.

b) **Adjusting the loop stroke**

The loop stroke means the way which the needle bar,ascending from its lowest point, must cover until the moment when the hook tip coincides with the middle of the needle and enters the loop. For a good formation of the loop, the loop stroke must be, depending on the subclass, as follows:

Loope stroke	Stroke setting gauge, ref. no.	Sub-classes
2 mm	223 536 c	265-101, -201, -208, -15135 267-508 SM 4, -15205 SM 5 -15508 SM 4, -115205 SM 5 269-208 SM 12
1.8 mm	223 536 b	265-203, -305, -4103, -4903, -15203, -15305, -18103, -18903, 115203, 266-703 SM 9
1.4 mm	223 536 l	265-10204

By using a setting block 184 (fig. 32), ref. no. 223531, and the respective setting gauge set the loop stroke as follows:

1. Set stich position regulator lever on "M" and stitch width regulator lever on "0",

2. Fit a new, straight needle in the needle bar,

3. Loosen hook fastening screws,

4. Set needle bar to its lowest point by turning the handwheel,

5. Slip block 184 on the needle bar and press with it the lift measuring gauge of 1.8 or 2.0 mm against the needle bar coulisse,

6. Fasten the block 184 by screws and remove the setting gauge 185.

7. By turning the handwheel in the direction of rotation lift the needle bar until said block touches the needle bar coulisse.

8. Turn the hook until its tip coincides with the middle of the needle and retighten firmly the hook fastening screws.

c) **Adjusting the distance between the hook point and the needle in the sewing direction**

Seen in the sewing direction, the hook should pass along the needle as close as possible, but without touching it. For adjusting, loosen hook fastening screws and turn the hook on its shaft as required. Note that the hook should be in contact with the oil disk, as otherwise the lubrication will be interrupted.

To control the contact between the hook collar and the oil disk, hold under the hook, while sewing, a mirror or a piece of unprinted paper.

If after a short while the mirror or the paper is sprayed with oil, there is the required contact between the hook and the oil disk.

Retighten the hook fastening screws.

Following the adjustment, replace the plug 183 (fig. 27) in the arm head, the feed dog, the throat plate, the throat plate slide and the foot.

Note:

After having carried out the adjustments of the needle bar height, of the loop stroke and oft the distance between the hook point and the needle in the sewing direction and when using the **needle system 265-50 EO,** the hook point should pass very closely along the hump above the eye of the needle when the needle stitches on the extreme left hand side. The hind part of the hook point can deflect said hump. Therefore, it must be ensured that the **front part of the hook point does not touch the needle.**

If necessary, modify the height of the needle bar.

26. Adjusting the distance between the bobbin case retaining lug and the bottom of the bobbin case

When the distance between the hook point and the needle is correct, the distance between the bobbin case retaining lug and the base of the bobbin case should amount to about 0.5 mm.

To adjust this distance, loosen the screw 180 (fig. 28) as required to shift bobbin case holder 179 on the shifting plate. Retighten fastening screws 180 and 186.

For removing the bobbin case support it is only necessary to remove the screw 180. This ensures that the bobbin case support will always be fitted correctly.

27. The bobbin case lifter

a) Purpose of the bobbin case lifter

The high rotational speed of the sewing hook produces considerable friction between the hook race and the bobbin base and, consequently in case of machines without this device, a certain degree of pressure at the thread exit exists between the bobbin case retaining lug 179 (fig. 32) and the contact surface 187 of the bobbin base. The purpose of this lifter is to pull the bobbin case slightly contrary to the direction of rotation of the hook at the moment when the upper thread loop passes the retaining lug, in order to allow the thread to slide past this point unhindered.

b) Adjusting the distance between the lifter finger of the bobbin case and the bobbin case base

Seen in the sewing direction, the distance between the lug 230 of the lifter finger 188 (figs. 9 and 28) and the base of the bobbin case should be of 0.8 mm ≈ 1/32, corresponding to about half the height of the cam 229 of the bobbin case base.

For adjusting the correct distance, loosen the stud 189 and displace the bush 190 with lifter finger 188 as required. After having completed the adjustment, retighten firmly the stud 189.

c) Adjusting the movement of the bobbin case lifter

Adjust the bobbin case lifter so that when turning the machine and pressing the bobbin case in the turning direction of the hook, the loop

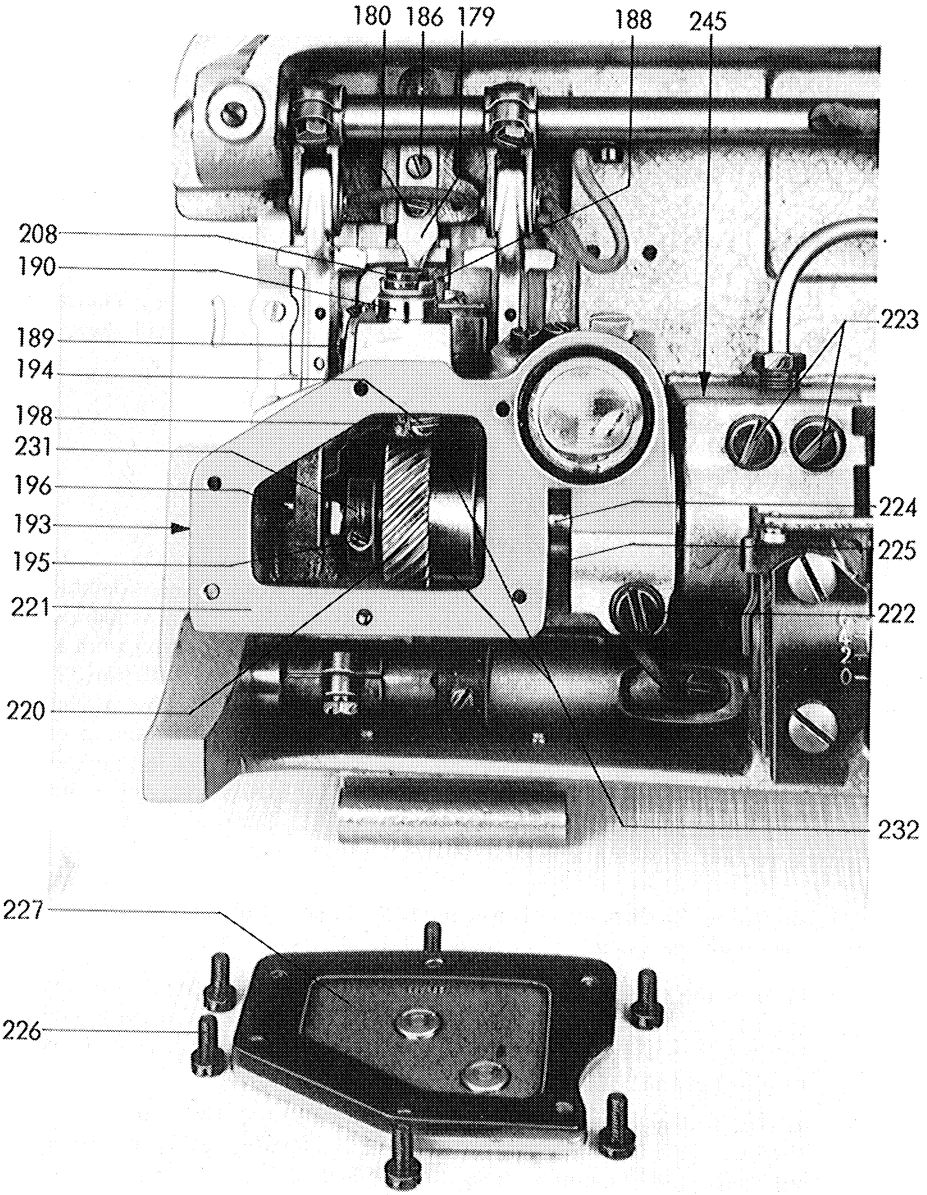
180
186
179
188
245
208
190
189
194
198
231
196
193
195
221
220
223
224
225
222
232
227
226

Fig. 28

of the upper thread can freely pass along the lug 230 of the lifter finger 188 (fig. 9) and the lug of the bobbin case holder 179 (fig. 32). To adjust the movement of the bobbin case lifter – this should be adjusted very precisely – proceed as follows:

1. Take out the two screws 191 and 192 (fig. 29) with the gaskets and remove plug 193. If the hook gear box is filled with oil, lift slightly the left hand side of the backwards tilted machine, so that no oil can leak from the open hole of the plug 193.

2. Loosen the thumb screw 194 (fig. 28) through the hole of screw 191 and the thumb screw 195 through the hole of the screw 192.

3. Adjust the bobbin case lifter by turning the eccentric bolt 196 (by a screwdriver, introduced through the hole of the plug 193) and lifter finger 188 so that at the moment when the needle has reached its topmost position and with the bobbin case pressed in the direction of the sewing hook, lifter finger 188 touches the stop cam 229 (fig. 9) and pulls bobbin case base to the left until on either side of the lug of the bobbin case support 179 there is an equal distance between the surface 187 and 197 (fig. 32) and the bobbin case base.

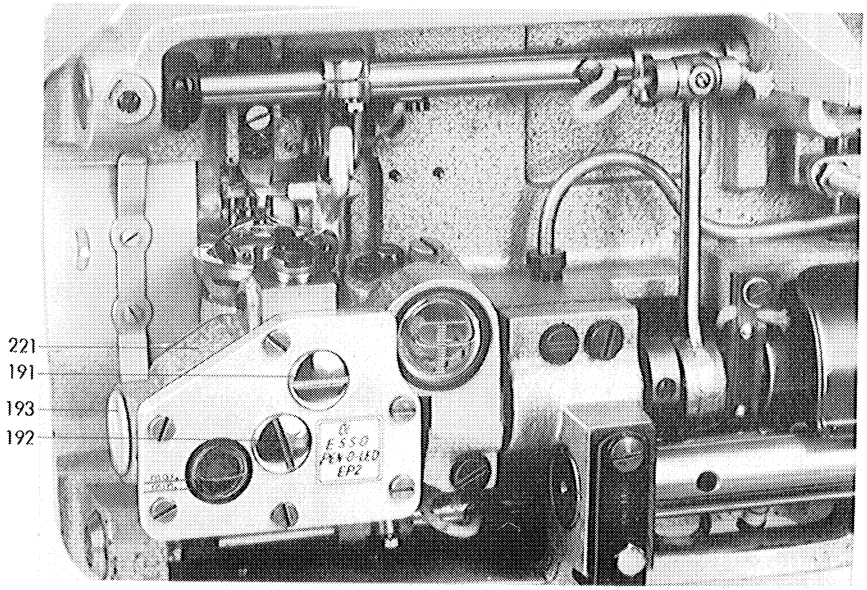

Fig. 29

4. After having completed the adjustment retighten firmly the clamp screws 194 and 195, ensuring that the transmission lever 198 is pressed upwards and that, therefore, the lifter finger shaft has no axial plays.

5. Replace the screws 191 and 192 with gaskets and plug 193.

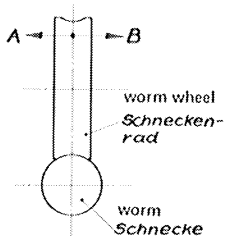

Fig. 30

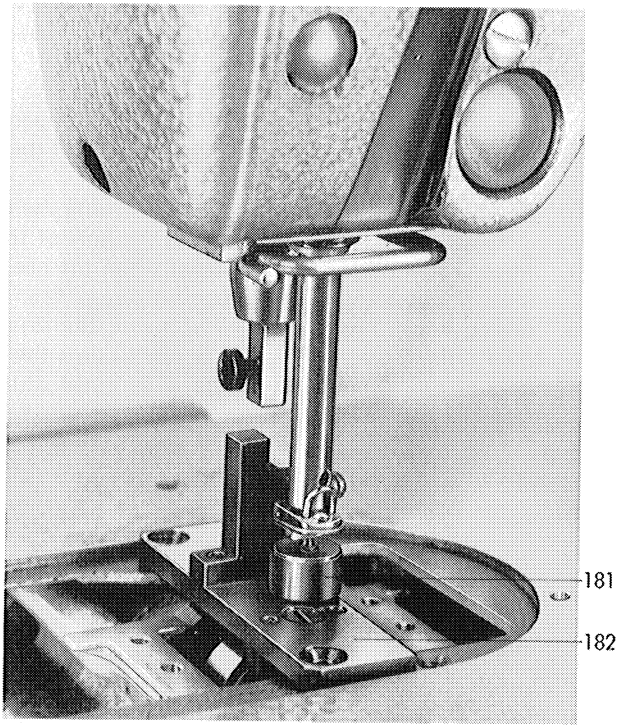

Fig. 31

28. Adjusting the bobbin winder (figs. 33 and 34)

In order to adjust the bobbin winder in the arm cover 152 it is necessary to remove the arm cover from the machine.

The bobbin winder operates as follows:

When the bobbin winder flap 39 is pushed against the winder spindle 199, the tripping cam 200, fastened to the spindle, lifts the leaf spring 202 connected to the spring bearing 201 and forces the bobbin spindle wheel 204 with a friction ring 203 against the upper belt pulley.

As the bobbin is being wound, it gradually forces back the bobbin flap 39. The back of the cam 200 slides along underneath the spring 202 until the bobbin is fully wound. At this moment, the spring 202 should slip off the cam 200, allowing the wheel 204 to be drawn back

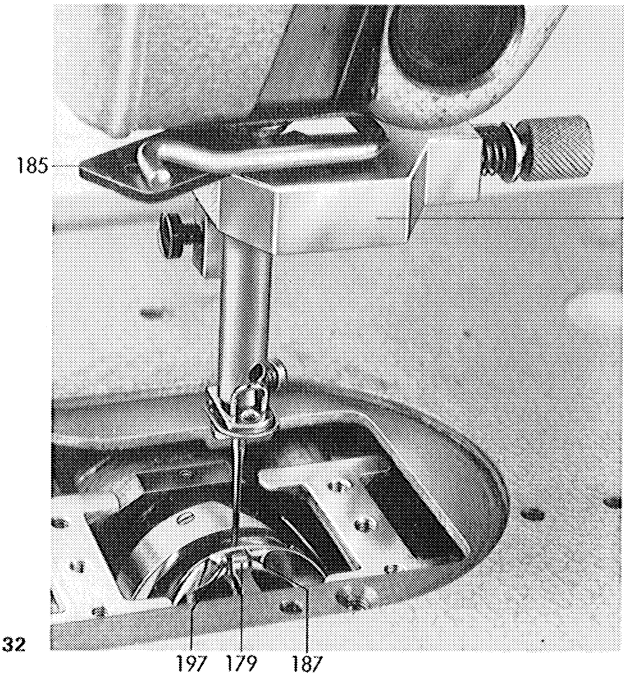

Fig. 32

from the upper belt pulley by tension spring 205. To prevent the bobbin winder from running on further, it is held in position by the pin 206. The moment when the bobbin winder should cut out can be timed by loosening the screw 207 and by turning the cam 200.

When the bobbin winder is in operation, rubber ring 203 should only press slightly against the belt pulley. This adjustment can be made by shifting the upper belt pulley laterally on the arm shaft.

In order to avoid that when the handwheel revolves counter clockwise the thread unwinds from the bobbin and winds around the bobbin spindle, the bobbin winder is fitted with a device preventing the bobbin winder from turning reverse. This is obtained by a torsion spring ref. no. 211535 (see fig. 35), surrounding the bobbin spindle. When fitting a new torsion spring, make sure that the bobbin spindle is not impeded when it revolves clockwise and that it is retained when it has the tendency to revolve counter clockwise.

In machines of the latest design the back-run is impeded by an incorporated clamp roller.

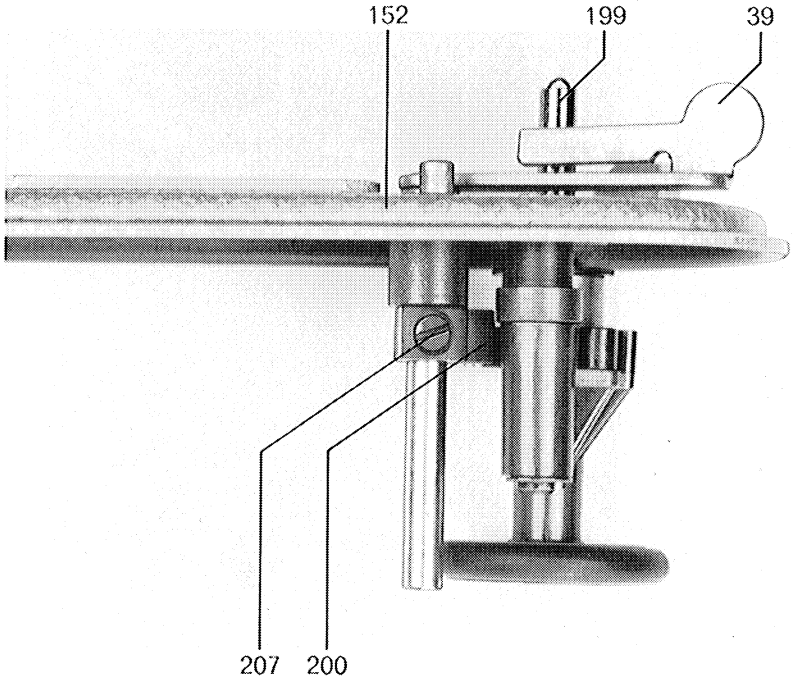

Fig. 33

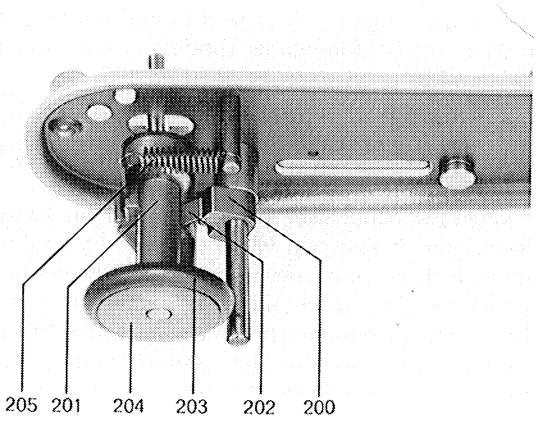

Fig. 34

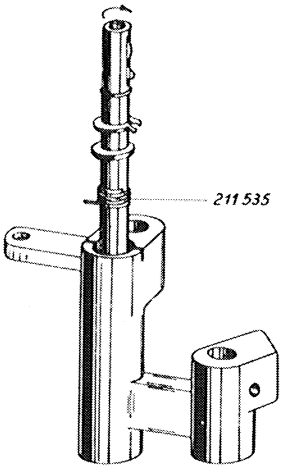

Fig. 35

29. Changing the hook (fig. 28)

Before changing the sewing hook, bobbin case lifter 188 and bobbin case holder 179 must be removed.

To remove the bobbin case lifter, simply take out the screw 208.

The bobbin case holder can be removed after removing the screw 180. Do not loosen the screw 186.

Having set the feed dog at its topmost position and loosened the fastening screws 209 (figs. 9 and 21), the hook can be pulled off the hook shaft and can be replaced by a new hook. When replacing the bobbin case holder 179, make sure that the retaining lug fits into the groove of the bobbin case.

Adjust the sewing hook according to chapter 25, replace the bobbin case lifter and check the adjustment of the latter according to chapter 27.

30. Dismounting the hook

It is not necessary to take the hook out of the machine in order to remove the base of the bobbin case from the hook.

Proceed as follows:

1. Remove bobbin case top 36 (fig. 9).

2. Turn out the screw 208 and remove the bobbin case lifter 188.

3. Remove the screws of the hook cover 210 (fig. 9) and take off the hook cover.

4. Set the hook so that its tip is just a little over 45^{o} beyond its topmost point.

5. With the hook in this position and while turning the handwheel gently to and fro, take out the base of the bobbin case.

To re-assemble the hook, proceed in the reverse order, making sure that the lug of the bobbin case holder 179 (fig. 32) fits into the notch in the base of the bobbin case.

31. Changing the belt

To change the belt 144 (fig. 8), proceed as follows:

1. Remove the positioner (if any), the handwheel, the belt guard, the arm cover, the head cover, the needle, and the throat plate.

2. Remove the V-belt, remove the two retaining springs 211 (fig. 36a) and refasten the handwheel.

3. Remove the belt from the upper pulley to the left.

Loosen the screws 213 and 212. The screw 213 (first screw in the direction of rotation) presses against the surface of the arm shaft. Therefore, it must be unscrewed sufficiently.

Note:

When carrying out any work specified hereinafter under the items 4., 5., 6. and 7. be careful not to exert a considerable pressure against the arm shaft in the axial direction of the arm head and not to displace it because this might cause damages to the driving parts in the arm head sector. When exerting an axial pressure against the arm shaft it is necessary to balance it by a corresponding counter pressure against the arm shaft crank.

4. By giving the handwheel a short and sharp jerk, pull the entire arm shaft bearing (ball bearing) out of the machine. If there are difficulties, pull out the arm shaft bearing after placing two thick screwdrivers between the machine and the belt pulley.

5. Lift the belt off the lower belt pulley and pull it out through the opening of the arm shaft bearing.

6. Insert the new belt through the opening of the bearing. Ensure that the open side of the belt sprokets is pointing outwards and that the ends of the threads of which the belt is made are showing to the rear in the direction of rotation. Place the belt on the arm shaft on the left of the upper pulley.

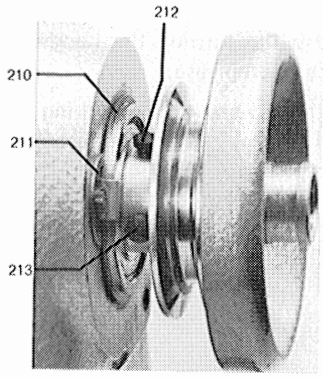

Fig. 36 a

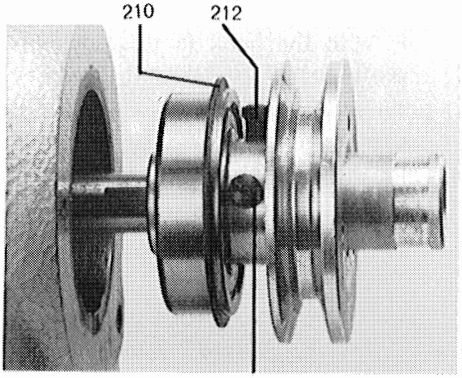

Fig. 36 b

7. Insert again the arm shaft bearing, ensuring that the safety ring 210 (fig. 36b) touches the machine arm. Fasten the retaining springs 211.

8. Retighten the screws 213 and 212 (first screw 213 in the direction of rotation on the surface). **Press against the crank of the arm shaft, so that the latter operates without any play.**

9. Set the stitch regulator lever 62 (fig. 15) for the maximum feeding length.

10. Set the thread take-up lever 50 (fig. 12) to its topmost point by revolving the handwheel.

11. Turn the lower belt pulley 214 (fig. 8) with the lower shaft in the direction of rotation, so that when the feed dog is descending, its surface is level with the surface of the throat plate.

12. Turn back the belt pulley 214 according to the required measure of the feed dog final movement (see chapter 21, item c) and, while maintaining the thread take-up lever in the position described under 10., slip the belt onto the upper and lower belt pulley.

13. Replace the needle, check the loop stroke according to 25b) and rectify it, if necessary.

14. Remove the handwheel, fit again the removed parts, place the V-belt in position and re-mount the handwheel.

Mount and adjust the positioner, if available.

32. Changing and adjusting the thread pulling spring

a) Changing the thread pulling spring

To change the thread pulling spring 48 (fig. 27) loosen the screw 216 and take out the entire thread pulling device.

Having changed the pulling spring, replace the thread pulling device, ensuring that it rests against the collar of the tension axle.

b) Adjusting the thread pulling spring

The thread pulling spring should exert slight tension on the upper thread until the needle penetrates in the fabric. If, at this moment, the

thread is too slack, the descending needle might pierce in its own thread. Both the deflection and the tension of the pulling spring can be regulated.

To adjust the deflection of the thread pulling spring, loosen the screw 217 (fig. 27) and turn as required the tension sleeve behind the thread tension disks.

To adjust the tension of the thread pulling spring, loosen the screw 216 (fig. 27) and turn as required the tension spindle 218. Turn to the right to increase and to the left to decrease the spring tension.

33. Adjusting the teeth play and changing the worm wheel in the hook gear case

a) Adjusting the teeth play between the worm and the worm wheel

A smooth operation of the worm wheel depends on a proper adjustment of the worm wheel with respect to the worm. The adjustment is correct if the center of the worm wheel coincides with the revolving center of the worm (see fig. 30) and if a smooth running is obtained with the minimum teeth play.

For adjusting, proceed as follows:

1. Fasten the gauge 182 (fig. 37), ref. no. 2653042, on the throat plate support as described under chapter 34, items 1 to 8, and turn the hook gear case so that the hook shaft touches the two surfaces of the angular section 251 (fig. 37).

Note:

When carrying out the adjustments described in this chapter ensure that the hook shaft is always in contact with the two surfaces of the angular section 251 (fig. 37) of the gauge 182.

If a rectification is required, it will be necessary to modify the position of the hook gear case and to reset the tooth play.

2. In addition to the thumb screw 222 (fig. 28), already loosened, loosen the thumb screws 223 and 232.

3. Introduce then a mandrel in the hole 225 of the eccentric bush 224, turn the latter by means of the mandrel slowly upwards and downwards (upwards to reduce and downwards to increase the teeth play),