

CEDAR *Special*

CS-1541S

**1-Needle, Unison Feed, Lockstitch Machine
(with Safety Mechanism)**

ENGINEER'S MANUAL



www.cedarspecial.com

**Collier Equipment
100 Mill Creek Circle/Po Box 175
Lexington, Alabama 35648 USA
Phone: (256)229-6595 Fax: (256)229-6779**

CONTENTS

1. SPECIFICATIONS	1
2. STANDARD ADJUSTMENT	2
(1) Needle entry position	2
(2) Longitudinal position of the feed dog	2
(3) Lateral position of the feed dog	4
(4) Height of the feed dog	4
(5) Adjusting the opener (CS-1541S)	6
(6) Needle-to-hook timing	6
(7) Lift of the presser foot	8
1) Hand lifter	8
2) Knee lifter	8
(8) Feed motion	10
1) Amount of alternate vertical movement	10
2) Alternate momentum	12
(9) Feed cam timing	12
1) Horizontal feed cam timing	12
2) Top feed cam timing	14
(10) Needle sway (Optional selection only of CS-1541-7)	16
(11) Stitch length of normal/reverse feed	16
(12) Balancer (CS-1541, CS-1541S)	18
(13) Position of the reverse feed control lever	20
(14) Safety clutch (CS-1541S)	22
(15) Lubrication	22

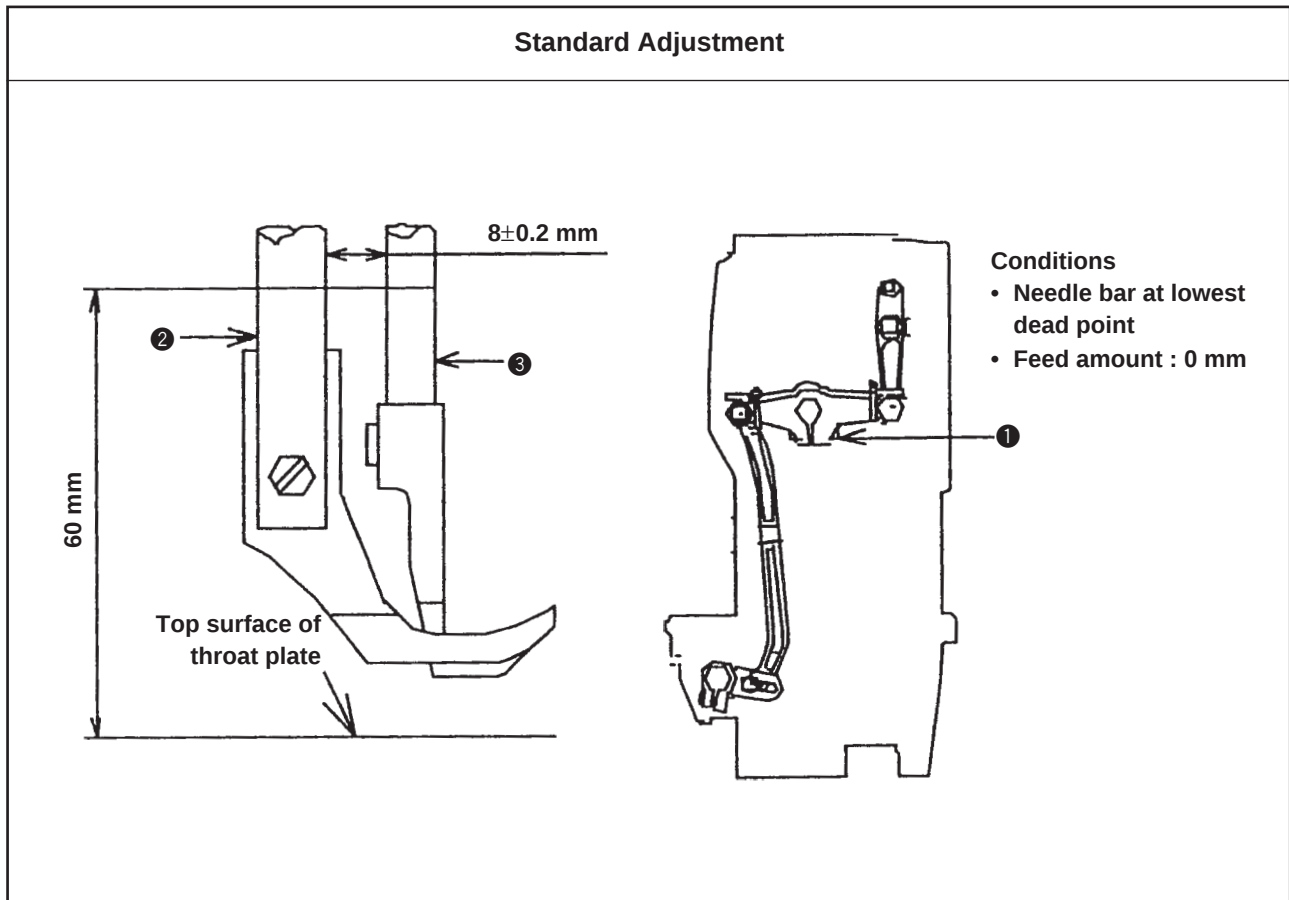
5. PORTION TO WHICH LOCKTITE IS APPLIED	42
6. SELECTIVE PARTS AND CONSUMABLE PARTS	43
7. ENGRAVED MARKER DOTS ON THE HANDWHEEL.....	44
8. LUBRICATION ROUTE DIAGRAM	44
11. TABLE OF TROUBLES AND CORRECTIVE MEASURES	49
(1) With regard to sewing	49
(2) With regard to lubrication	50
(3) With regard to thread trimming	51
(4) Others	52
12. DRAWING OF THE TABLE	53

1. SPECIFICATIONS

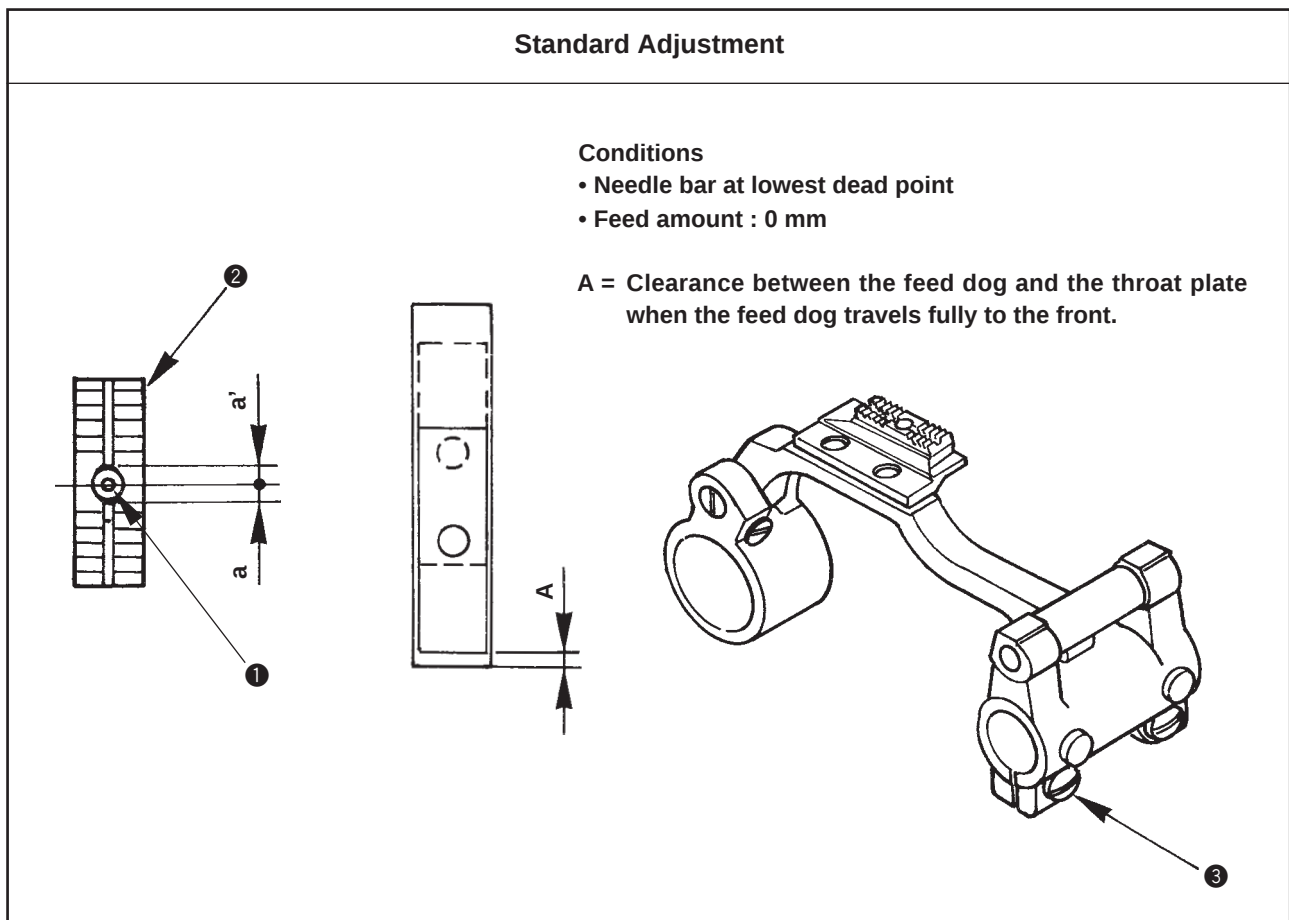
No.	Item	Specifications
1	Model	CS-1541S
2	Model name	1-needle, unison-feed, lockstitch machine (with safety mechanism)
3	Application	For heavy-weight materials
4	Sewing speed	Max. 2,500 rpm
5	Needle	SCHMETZ 135 X 17 Nm 125 to 180 Standard : Nm 160
6	Thread possible to be sewn	#30 to #5
7		
8	Stitch length	Max. 9 mm (normal/reverse feed)
9	Presser foot lift	Hand lifter : 9 mm Knee lifter : 16 mm
10	Stitch length adjusting mechanism	By dial
11	Reverse stitch selection method	Lever type
12	Thread take-up	Slide thread take-up
13	Needle bar stroke	36 mm
14	Alternate foot stroke	1 mm to 6.5 mm Alternate foot stroke adjusted by dial
15	Hook	Horizontal-axis, 2-fold hook
16	Feed mechanism	Ellipse feed
17	Top and bottom feed actuation mechanism	By timing belt
18		
19	Lubrication	Hook : automatic lubrication Others : Concentration tank type oil wick lubrication (excluding some parts)
20	Lubricating oil	New Defrix Oil No. 2 (equivalent to ISO VG32)
21	Bed size	476.6 mm x 178 mm
22	Free space for sewing	255 mm x 99 mm
23	Size of handwheel	V belt effective diameter : $\varnothing$ 93.3 mm Outer diameter : $\varnothing$ 160 mm
24	Motor	1Ph, 750W Servo

2. STANDARD ADJUSTMENT

(1) Needle entry position



(2) Longitudinal position of the feed dog

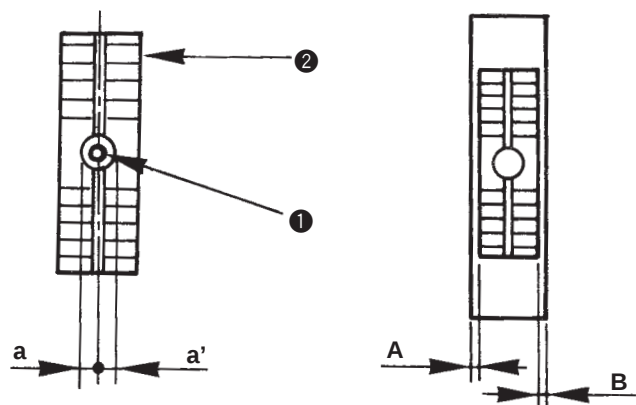


Adjustment Procedures	Results of Improper Adjustment
1. Set the stitch dial to "0". 2. Turn the handwheel to bring the needle bar to the lowest dead point of its stroke. 3. Loosen clamping screw ❶ in the needle bar rocking rear arm. 4. Provide a clearance of 8 ± 0.2 mm between presser bar ❷ and walking bar ❸ and securely tighten the clamping screw. (In the state that the presser foot is raised, adjust the clearance to 8 ± 0.2 mm at the position where the distance from the top surface of the throat plate to the presser foot is 60 mm.) (Caution) Tighten the screw so that the needle bar rocking shaft has no thrust play.	○ Stitch skipping or needle breakage will result. ○ Poorly tensed stitches will result.

Adjustment Procedures	Results of Improper Adjustment
1. Set the stitch dial to "0". 2. Turn the handwheel to bring the needle bar to the lowest dead point of its stroke. 3. Loosen clamping screw ❸ in the feed rocker. 4. Move the feed base and adjust so that needle ❶ enters in the center of the needle hole in feed dog ❷. Then securely tighten the clamping screw in the feed rocker. (a = a') (Standard) When the feed amount is maximum, A = approximately 1.5 mm.	○ The throat plate comes in contact with the feed dog and contacting noise occurs and the throat plate or the feed dog may be damaged. ○ Irregular stitches may result.

(3) Lateral position of the feed dog

Standard Adjustment



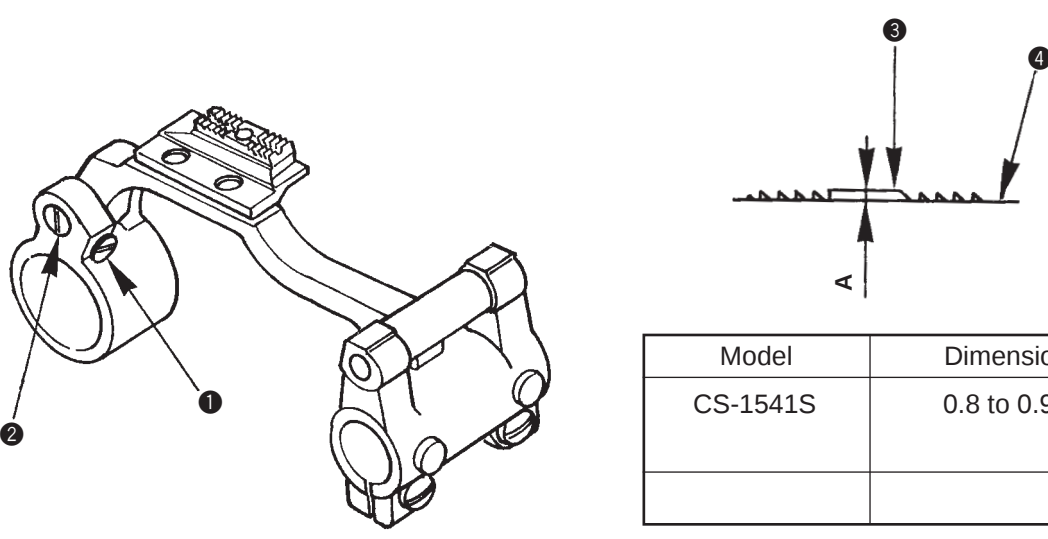
Conditions

- Needle bar at lowest dead point
- Feed amount : 0 mm

Adjust the position to almost $A = B$.

(4) Height of the feed dog

Standard Adjustment



Model	Dimension A
CS-1541S	0.8 to 0.9 mm

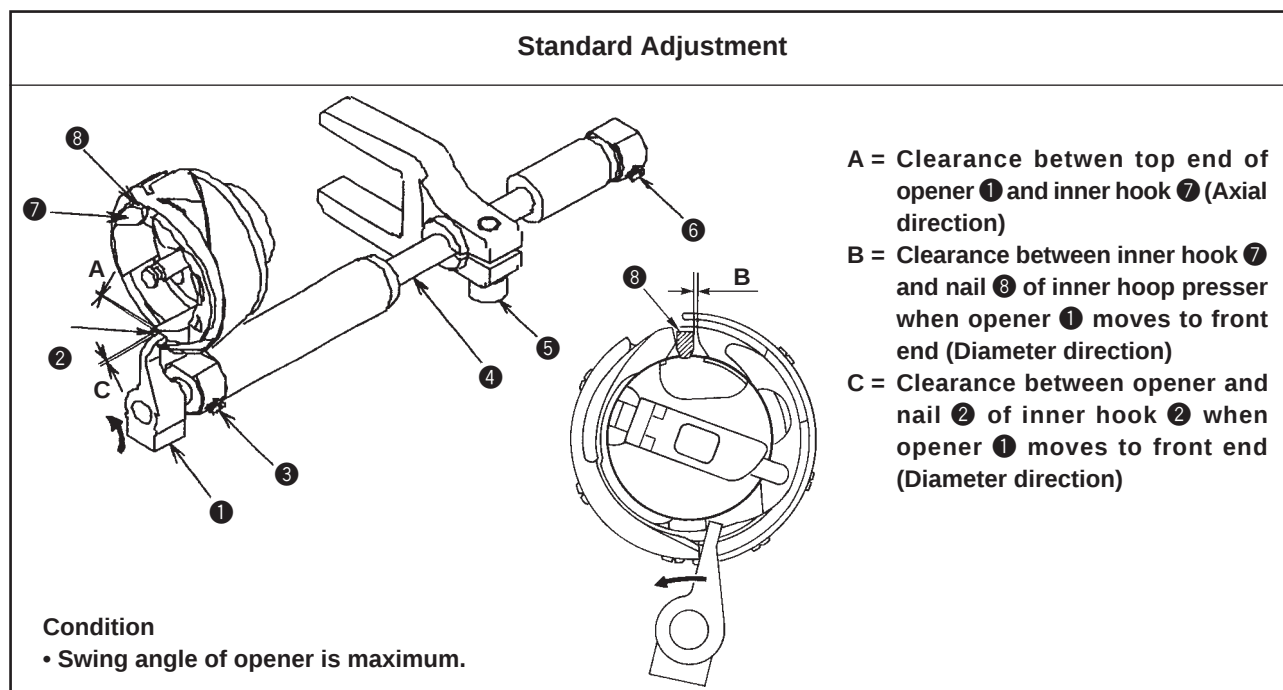
Conditions

- Feed amount : 0 mm
- Height of feed dog is maximum.

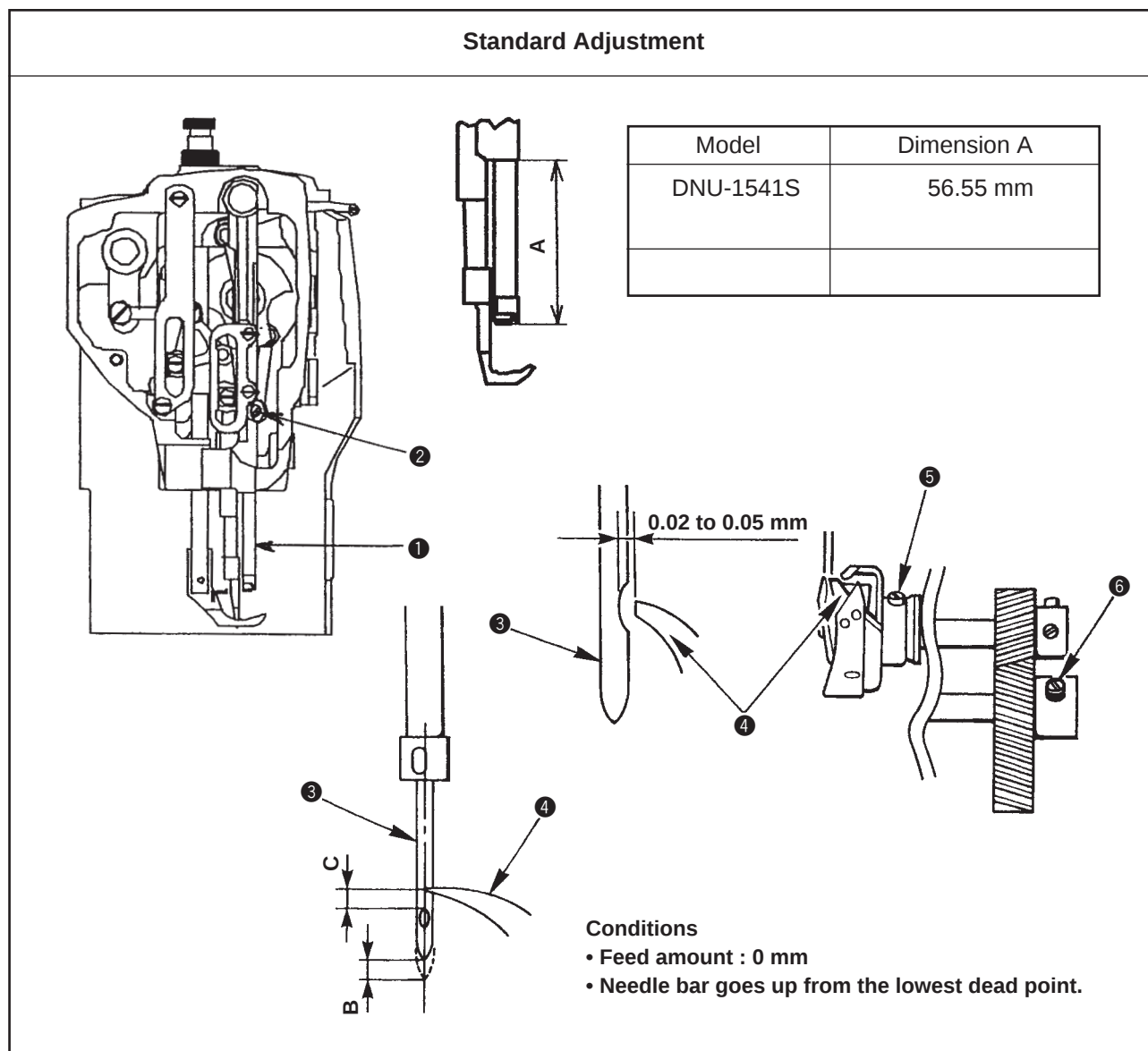
Adjustment Procedures	Results of Improper Adjustment
1. Set the stitch dial to "0". 2. Turn the handwheel to bring the needle bar to the lowest dead point of its stroke. 3. Loosen the clamping screw in the feed rocker described in the previous item (2). 4. Move the feed base and adjust so that needle ❶ enters in the center of feed dog ❷. Then securely tighten the clamping screw. (a = a') In addition, adjust the lateral clearances (A, B) of the feed dog in terms of the window of throat plate to almost equal values.	○ Stitch skipping or thread breakage will result. ○ Poorly tensed stitches will result. ○ Needle breakage will result.

Adjustment Procedures	Results of Improper Adjustment
1. Set the stitch dial to "0". 2. Turn the handwheel to bring the height of the feed dog to the maximum. (Bring the needle bar to the lowest dead point of its stroke.) 3. Loosen setscrew ❶ in the vertical feed bar shaft, turn vertical feed bar shaft ❷ and adjust feed dog ❸ from top surface ❹ of the throat plate (center section) to the dimension A. Then securely tighten the setscrew.	When the height of the feed dog is higher than the specified value : ○ Stitch pitch becomes larger than the scale of the feed dial. ○ Balloon stitches will result. ○ Return of sewing product will occur. When the height of the feed dog is lower than the specified value : ○ Stitch pitch becomes smaller than the scale of the feed dial. ○ Feed force will be deteriorated.

(5) Adjusting the opener (DNU-1541S)



(6) Needle-to-hook timing



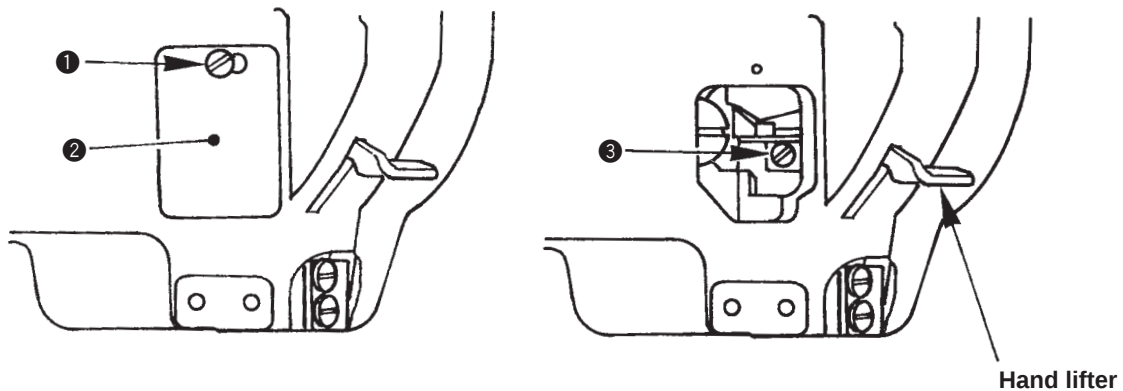
Adjustment Procedures	Results of Improper Adjustment
Timing of the opener 1. Turn the handwheel to move the opener ❶ to the front end in the direction of the arrow mark. 2. Loosen clamping screw ❺ in the opener arm and turn opener shaft ❷ to adjust the clearance B to $B = 0.4^{+0}_{-0.15}$ mm in the state that opener ❶ comes in contact with nail ❷ of inner hook. Then tighten the clamping screw. (Reference : C = 0.8 mm) (Standard) Screw No. 2 of the opener cam faces almost directly below at the lowest dead point of the thread take-up. Adjusting the position of the opener 1. Loosen setscrews ❸ and ❹ in the thrust collars of opener shaft. 2. Move the opener shaft and adjust the clearance A to $A = 0.8 \pm 0.15$ mm. Then tighten the setscrews. (Caution) Tighten the screws so that the opener shaft ❷ has no thrust play.	○ Poorly tensed stitches will result.

Adjustment Procedures	Results of Improper Adjustment
Standard of the lowest dead point of the needle bar 1. Set the scale of stitch dial to "0". 2. Turn the handwheel to bring needle bar ❶ to the lowest dead point of its stroke. 3. Loosen the setscrew in the face plate to remove the face plate. 4. Loosen clamping screw ❷ in the needle bar bracket. At this time, if the screw is fully loosened, needle bar ❶ falls. Loosen the screw to such an extent that needle bar ❶ is moved up or down by hand. 5. Adjust the distance from the bottom end of the needle bar frame to the bottom end of the needle bar to the dimension A, and tighten the clamping screw. (For DNU-1541-7, there is a marker line engraved on needle bar ❶.) Timing between the needle and the blade point of the hook 1. Set the scale of stitch dial to "0". 2. Loosen clamping screw ❷ in the needle bar bracket, turn the handwheel, and adjust so that the distance from the top end of needle eye in needle ❸ to blade point ❹ of the hook to 2.0 ± 0.2 mm (C) when needle bar ❶ is raised by 2.15 ± 0.15 mm (B) from its lowest dead point. Then retighten the screw. (For DNU-1541-7, there is a marker line engraved on needle bar ❶.) 3. Turn the handwheel to raise the needle bar by 2.15 ± 0.15 mm (B) from its lowest dead point. Loosen hook setscrews ❺ and adjust so that blade point ❹ of the hook almost aligns with the center of the needle ❸. Then retighten the screws. For CS-1541S, loosen setscrews ❻ in the lower shaft gear to perform the adjustment. Then retighten the screws. 4. Loosen hook setscrews ❺, move the hook to the left or the right and adjust so that a clearance of 0.02 to 0.05 mm is provide between blade point ❹ of the hook and needle ❸ at the position where blade point ❹ of the hook almost aligns with the center of needle ❸. Then securely tighten the screws.	○ Stitch skipping or thread breakage will result. ○ Poorly tensed stitches will result.

(7) Lift of the presser foot

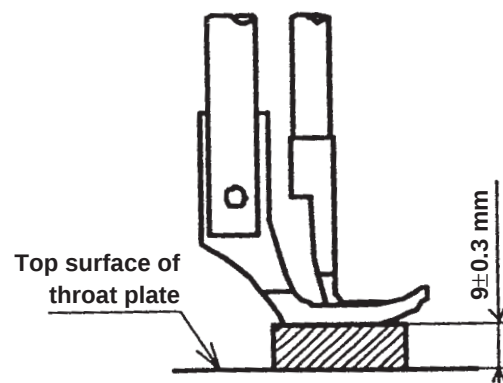
Standard Adjustment

1) Hand lifter

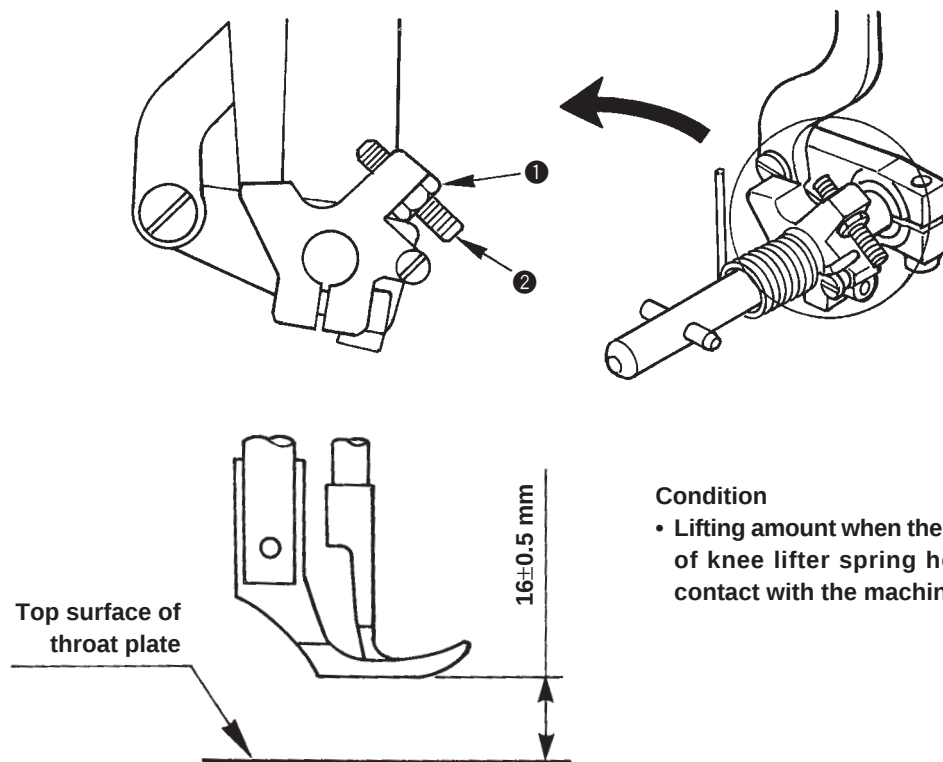


Condition

- State that the hand lifter is raised



2) Knee lifter



Condition

- Lifting amount when the stopper screw of knee lifter spring hook comes in contact with the machine bed

Adjustment Procedures	Results of Improper Adjustment
1. Loosen setscrew ❶ in the side cover located on the antioperator's side of the machine arm and remove side cover ❷. 2. Loosen clamping screw ❸ in the presser bar bracket to set the hand lifter to the raised state. 3. Adjust the lifting amount to 9 ± 0.3 mm. At this time, the adjustment can be easily performed when inserting a thing of 9 mm thick between the top surface of the throat plate and the bottom face of the presser foot. 4. Tighten clamping screw ❸ in the presser bar bracket. Move the presser foot to the left or the right and tighten the screw in the state that the presser foot does not interfere with the walking foot. 5. Remove the thing inserted between the top surface of the throat plate and the bottom face of the presser foot, and attach side cover ❷.	When the lifting amount is higher than the specified value ○ The presser foot is held raised from the top surface of the throat plate even when the hand lifter is returned to its home position. When the lifting amount is lower than the specified value ○ The presser foot is not sufficiently raised and the working property may be deteriorated.
1. Remove the knee press plate and tilt the machine arm. 2. Loosen stopper screw nut ❶ and adjust the lifting amount by the screwing amount of stopper screw ❷. Adjust the height from the top surface of the throat plate to the bottom face of the presser foot to 16 ± 0.5 mm. 3. Taking care not to move stopper screw ❷, tighten stopper screw nut ❶. ○ Tighten stopper screw ❷ → Lifting amount is decreased. ○ Loosen stopper screw ❷ → Lifting amount is increased.	When the lifting amount is higher than the specified value ○ The top end of the needle bar interferes with the walking foot and the walking foot may be damaged when the presser foot is raised. When the lifting amount is lower than the specified value ○ The presser foot is not sufficiently raised and the working property may be deteriorated.

(8) Feed motion

Standard Adjustment

1) Amount of alternate vertical movement

- In case of the machine without the thread trimmer

Table of sewing speed

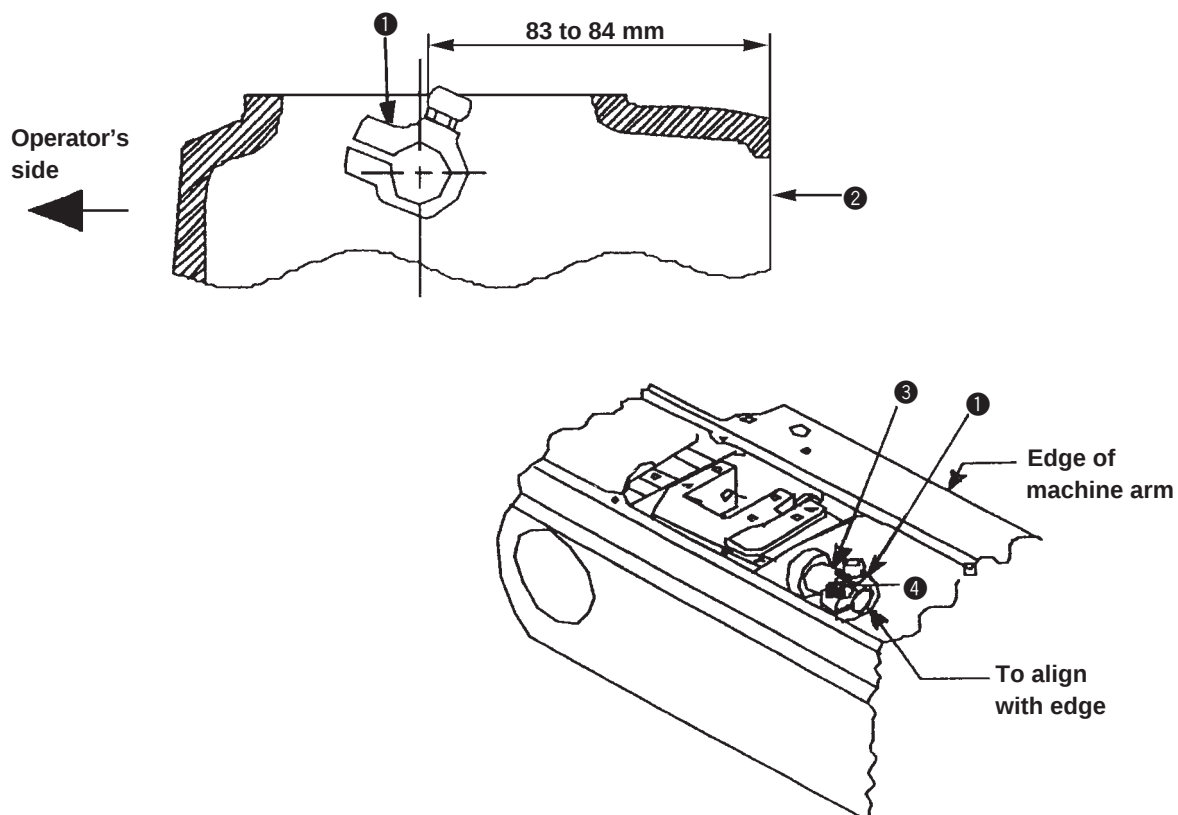
- In case of CS-1541S

Amount of alternate vertical movement of the walking foot and presser foot	Stitch length : 6 mm or less	Stitch length : More than 6 mm and 9 mm or less
Less than 3 mm	2500 rpm	2000 rpm
3 mm to less than 4 mm	2000 rpm	2000 rpm
4 mm to less than 6.5 mm	1600 rpm	1600 rpm

Standard of amount of alternate vertical movement

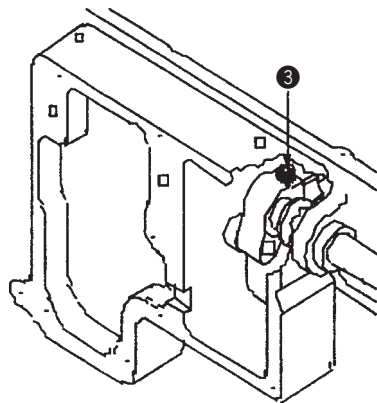
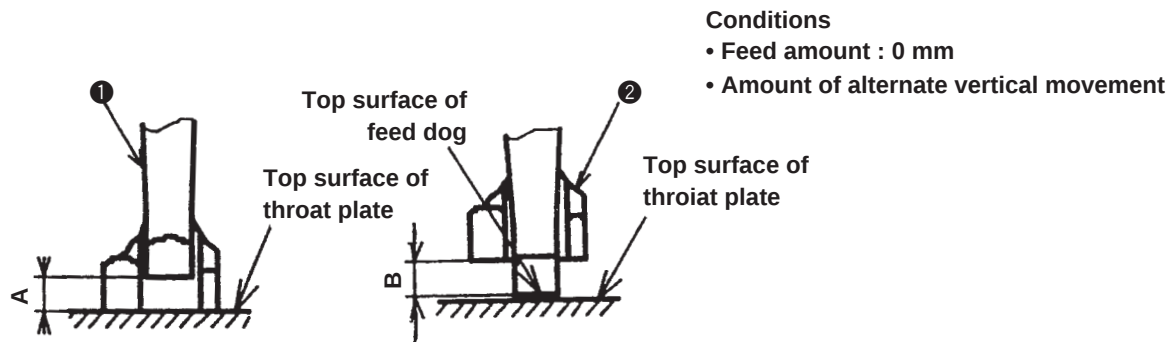
- Upper engraved marker line : Approx. 5 mm
- Medium engraved marker line : Approx. 4 mm
- Lower engraved marker line : Approx. 3 mm (Standard)

- In case of the machine with the thread trimmer



Standard Adjustment

2) Alternate momentum

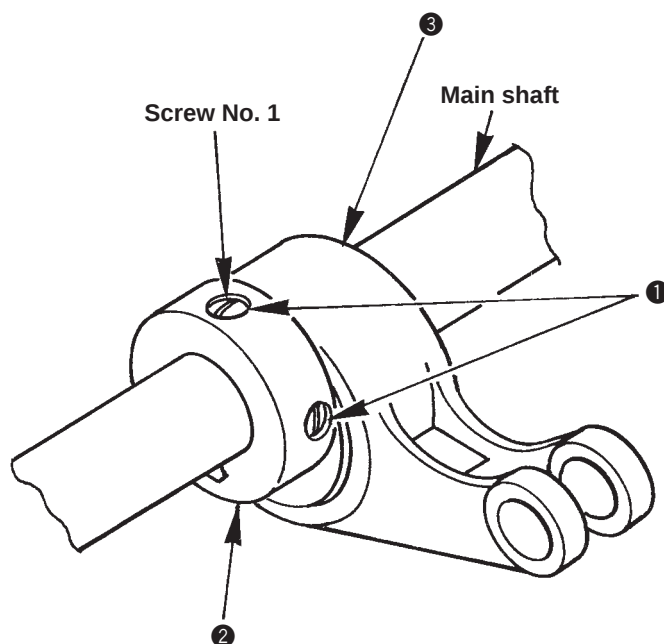


In case of the machine without thread trimmer

(9) Feed cam timing

Standard Adjustment

1) Horizontal feed cam timing



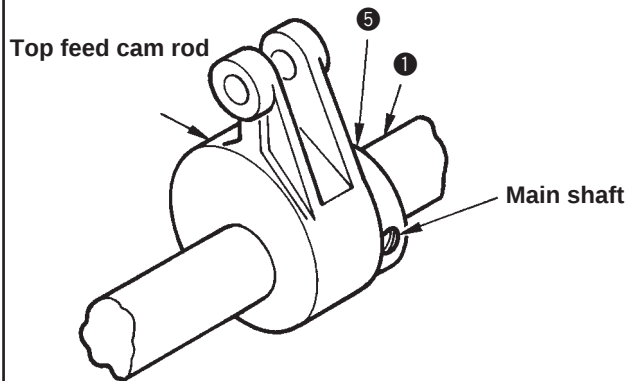
Adjustment Procedures	Results of Improper Adjustment
2) Alternate momentum 1. Set the stitch dial to "0". 2. Turn the handwheel to make sure that the amount of alternate vertical movement of walking foot ❶ and presser foot ❷ is almost equal. 3. When the amount is not equal, loosen setscrew ❸ in the top feed rear arm and adjust so that the amount should be equal. Adjust the amount almost to A = B. ○ When the amount of alternate vertical movement of the walking foot is larger than that of the presser foot : 1) Loosen setscrew ❸ in the top feed rear arm in the state that walking foot ❶ is raised a little, press walking foot ❶ to the feed dog. 2) Re-tighten the setscrew and turn the handwheel to make sure of the amount of the amount of alternate vertical movement of the walking foot and the presser foot.	Adjust the vertical stroke of the walking foot so that it is larger than that of the presser foot in accordance with the sewing products. ○ Sewing sponge material or the like ○ Sewing material with overlapped sections When the alternative vertical strokes of the walking foot and presser foot are considerably different ○ The stitch pitch is different from the value set by the dial. ○ Decrease the number of revolution of the motor a little since the feed efficiency is decreased.

Adjustment Procedures	Results of Improper Adjustment
1) Horizontal feed cam timing 1. Set the scale of stitch dial to "0". 2. Loosen two setscrews ❶ in the horizontal feed eccentric cam. 3. Turn the handwheel to make the blade point of the hook align with the center of needle. 4. Set the scale of stitch dial to the maximum. 5. Turn feed eccentric cam ❷ and adjust the timing so that the feed dog no longer moves even when the reverse feed control lever is moved. 6. Securely tighten the setscrews. (Standard) The setscrew No. 1 in the horizontal feed eccentric cam faces almost right above when the blade point of hook aligns with the center of needle. (Caution) 1. If the cam slips in the axial direction at the time of adjustment, torque becomes heavy. So, be careful. 2. Adjust the horizontal feed rod so that it comes almost in the center between the edge of horizontal feed cam lid ❸ and that of horizontal feed eccentric cam. 3. After adjusting the horizontal feed timing, re-adjust the vertical feed timing.	○ Pitch error at high or low speed is apt to occur. ○ Needle thread tension will vary. ○ Stitch tightness at normal and reverse feed will vary.

Standard Adjustment

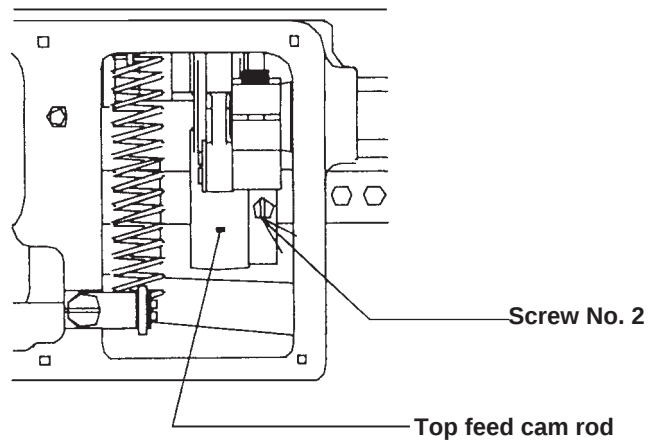
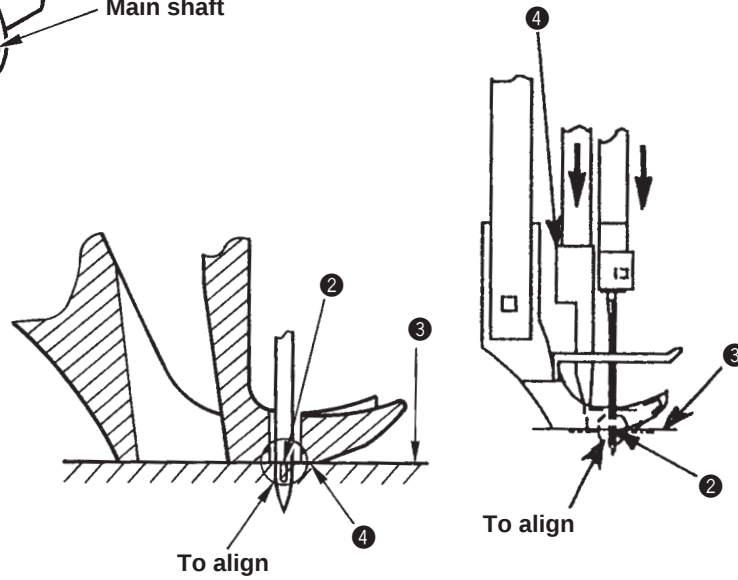
2) Top feed cam timing

○ In case of CS-1541S



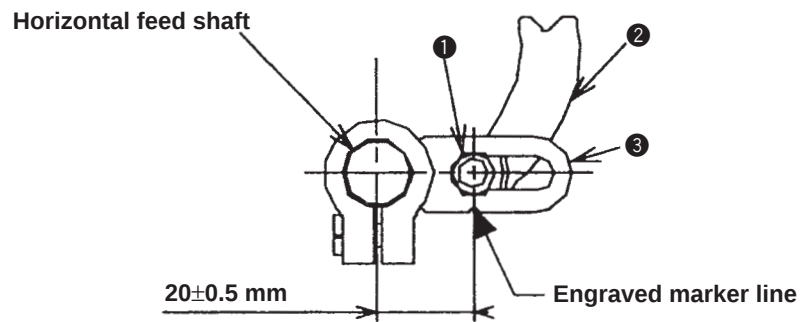
Conditions

- Feed amount : 6 mm
- When needle and walking foot are lowered.



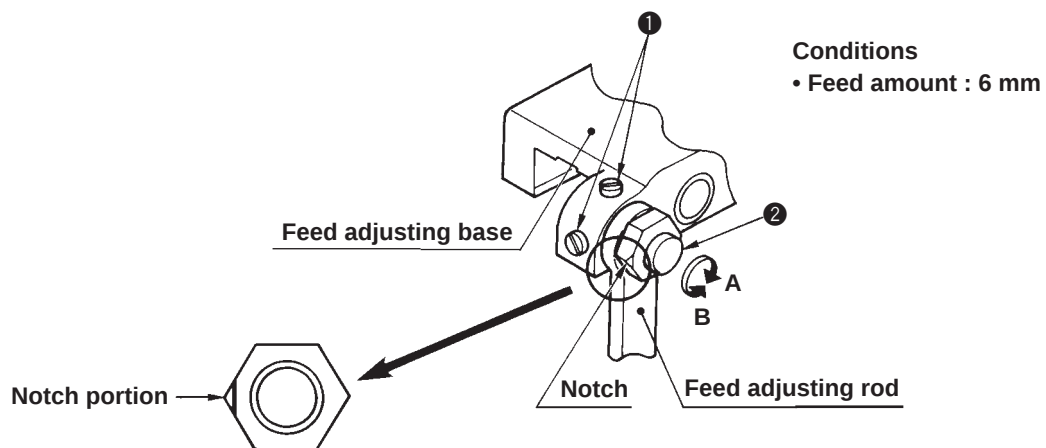
(10) Needle sway (Optional selection only of DNU-1541-7)

Standard Adjustment



(11) Stitch length of normal/reverse feed

Standard Adjustment



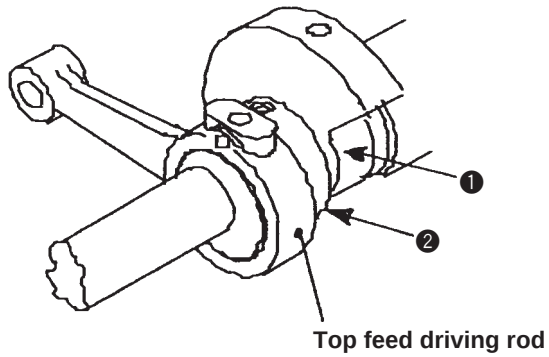
Adjustment Procedures	Results of Improper Adjustment
1. Loosen hinge screw nut ❶ in the horizontal feed rear arm. 2. Move horizontal feed connecting rod ❷ so that the distance from the center of the horizontal feed shaft to that of the hinge screw is 20 ± 0.5 mm and tighten the nut. 3. Turn the handwheel to check the needle sway. (Standard) The engraved marker line on horizontal feed rear arm ❸ aligns with the center of the hinge screw.	○ Needle breakage or stitch skipping will result.

Adjustment Procedures	Results of Improper Adjustment
1. Set the stitch dial to "6". 2. Loosen two setscrews ❶ in the feed adjusting eccentric pin. 3. Turn feed adjusting eccentric pin ❷ to adjust the stitch ○ length. Direction A → reverse feed pitch is increased. ○ Direction B → normal feed pitch is increased. 4. After the adjustment, securely tighten the setscrews. (Standard) When the direction of the notch of eccentric pin is set to the right sideway as shown in the illustration, the feed amount of normal and reverse feeds are nearly the same.	○ Respective stitch lengths of normal and reverse feeds do not match.

(12) Balancer (DNU-1541, DNU-1541S)

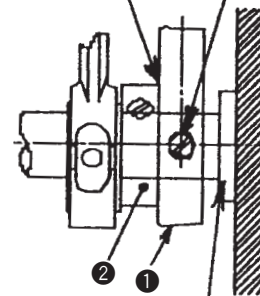
Standard Adjustment

Condition : Needle bar is at the lowest dead point.



To come in close contact
with each other

Screw No. 1



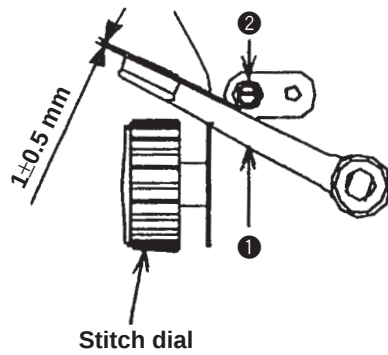
Main shaft intermediate bushing

Adjustment Procedures	Results of Improper Adjustment
1. Turn the handwheel to bring the needle bar to the lowest point of its stroke. 2. Set the screw No. 1 of balancer ❶ so that it faces directly above and securely tighten the setscrews. At this time, the edge of top feed cam ❷ comes in close contact with that of balancer ❶.	○ Vibration is increased.

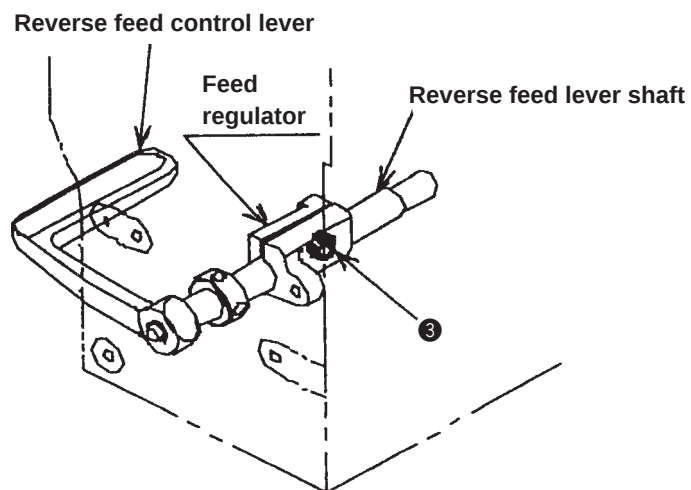
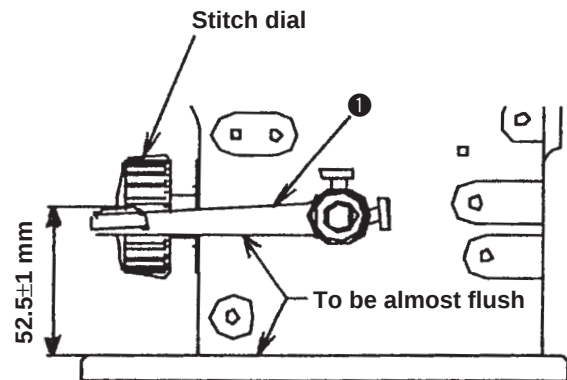
(13) Position of the reverse feed control lever

Standard Adjustment

○ In case of DNU-1541-7

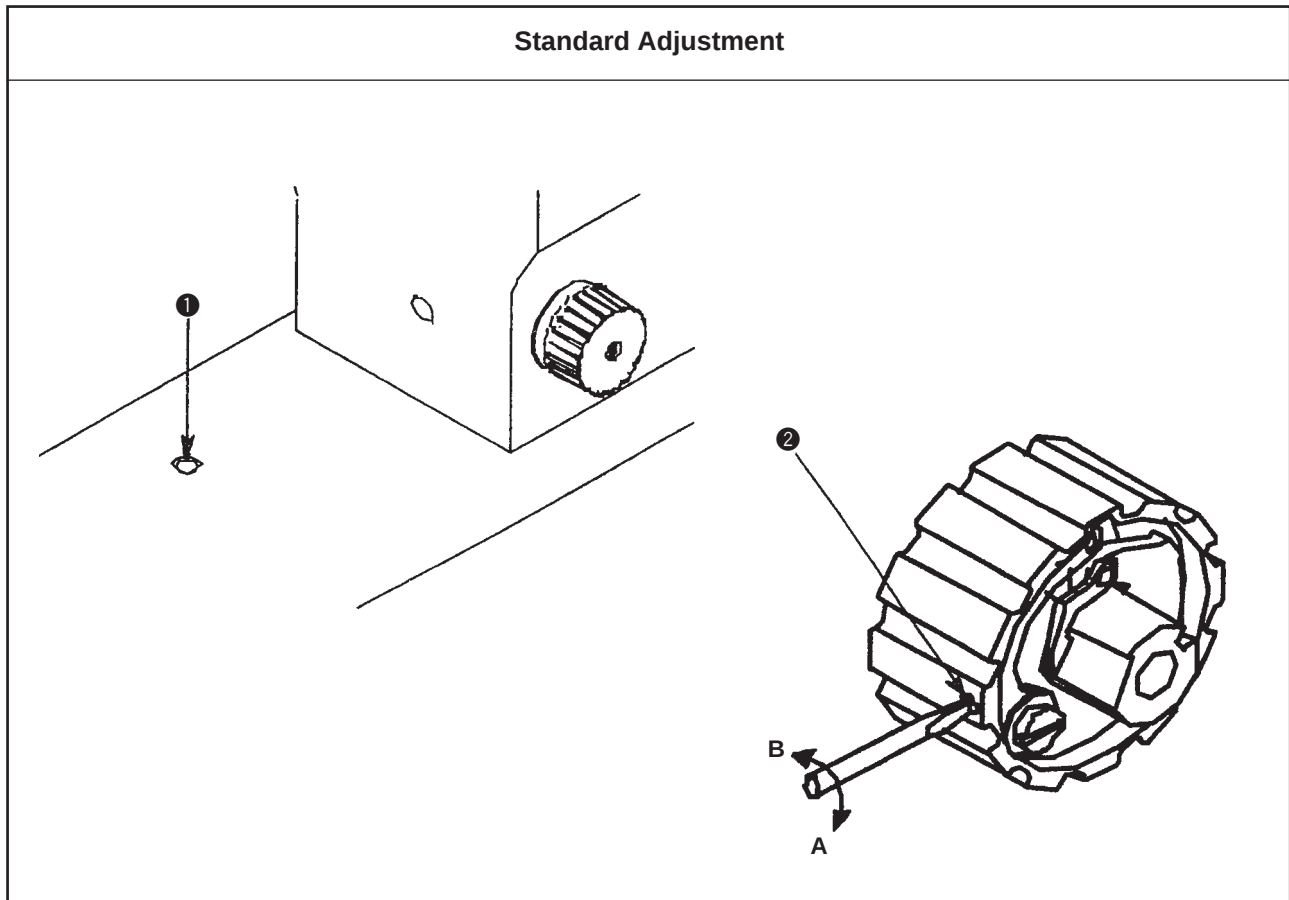


○ In case of DNU-1541 and DNU-1541S

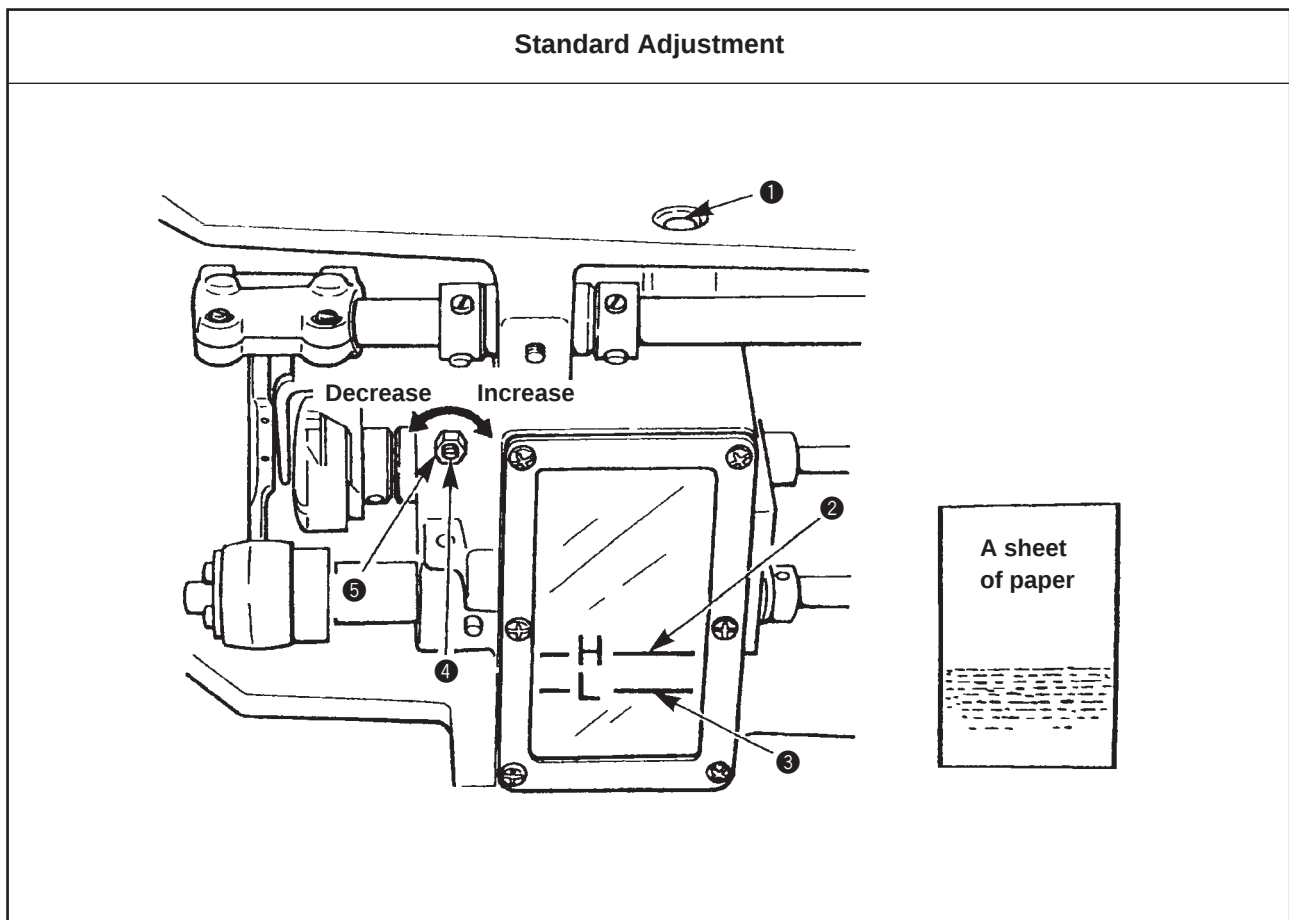


Adjustment Procedures	Results of Improper Adjustment
○ In case of DNU-1541-7 1. Set the stitch dial to the maximum. 2. At this time, loosen hexagon headed bolt ❸ in the feed regulator to adjust so that a clearance of 1 ± 0.5 mm is provided between reverse feed control lever ❶ and reverse feed control lever stopper ❷. ○ In case of DNU-1541 and DNU-1541S 1. Set the stitch dial to "0". 2. At this time, loosen hexagon headed bolt ❸ in the feed regulator to adjust so that a distance of 52.5 ± 1 mm is provided between the top surface of the machine bed and reverse feed control lever ❶. (Standard) Bottom surface of reverse feed control lever ❶ is almost flush with the top surface of the machine bed. (Caution) Check that reverse feed control lever ❶ does not interfere with the machine bed or machine arm when the stitch dial is set to the maximum.	When the position of the reverse feed control lever is low ○ Reverse feed control lever interferes with the machine bed and the stitch length of the reverse feed stitching will be decreased. When the position of the reverse feed control lever is high ○ Reverse feed control lever interferes with the stopper or the machine arm and stitch length of the normal feed stitching will be decreased.

(14) Safety clutch (DNU-1541S)



(15) Lubrication



Adjustment Procedures	Results of Improper Adjustment
The safety clutch functions when an excessive load is applied to the hook driving shaft or the like during sewing. When the safety clutch functions, the hook will not rotate even if turning the handwheel, and the hook driving shaft sprocket wheel only will run idle since the power is not transmitted to the hook driving shaft. ○ Resetting procedure 1. Checking the moving part of the sewing machine, and look for and remove the cause which the safety clutch has functioned. 2. Pressing push button ❶ located on the top surface of the machine bed, strongly turn the handwheel in the reverse direction of rotation. 3. Resetting procedure completes when the handwheel cannot be turned with “click”. ○ Adjusting the working torque of the safety clutch 1. Tilt the machine head. 2. Turn working torque adjusting screw ❷ located at the periphery of hook driving shaft sprocket wheel to adjust the working torque. ○ Direction A : Working torque is large. ○ Direction B : Working torque is small.	

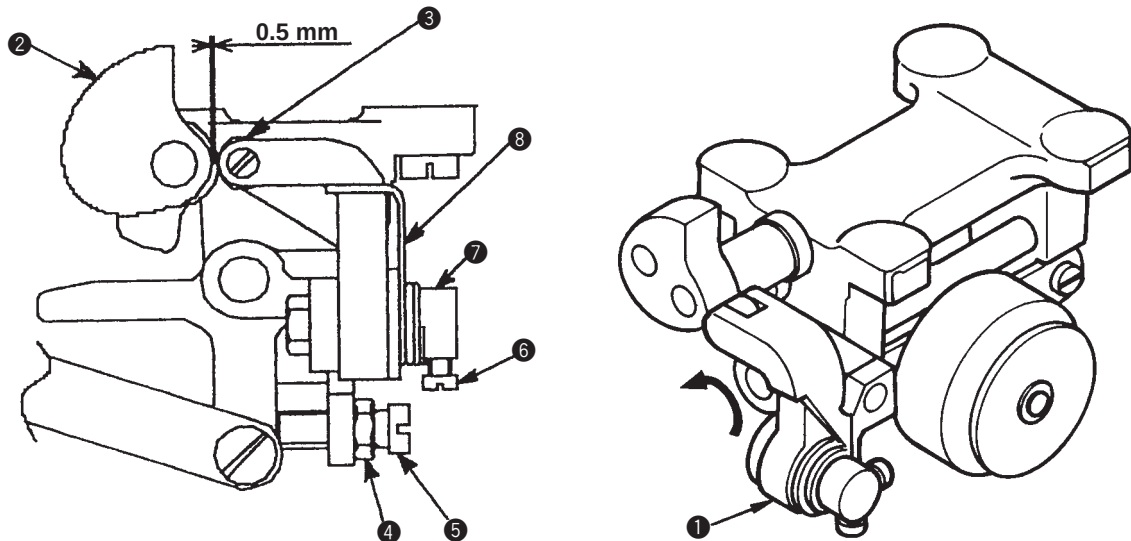
Adjustment Procedures	Results of Improper Adjustment
1. Remove the plug of lubricating hole of oil tank. 2. Fill JUKI New Defrix Oil No. 2 up to line ❷ of H (high) level from lubricating hole ❶ of oil tank. Check the oil amount once a day and refill oil if it is below line ❸ of L (low) level. 3. Adjustment of the amount of oil in the hook is performed with oil amount adjustment screw ❹ after loosening nut ❺. Turning the screw clockwise will increase the amount of oil in the hook, or counterclockwise will decrease it. 4. The appropriate amount of oil, when a sheet of paper is placed near the periphery of the hook, is to such an extent that splashes of oil from the hook appear in approximately five seconds as shown in the figure on the left.	When the amount of oil is short ○ Loose stitches will result. ○ Irregular stitches will result. ○ Hook is heated resulting in seizure. When the amount of oil is too much ○ Thread is stained with oil. In addition, the cloth may be stained.

3. STANDARD ADJUSTMENT OF THREAD TRIMMER COMPONENTS (DNU-1541-7)

(1) Thread trimmer device

Standard Adjustment

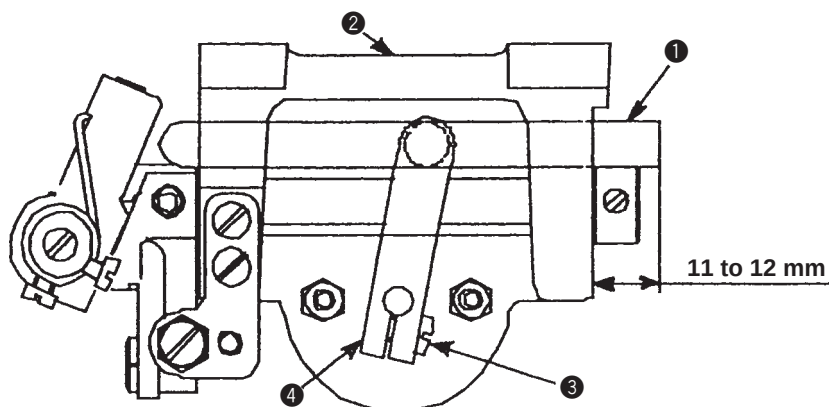
1) Cam follower



2) Solenoid arm

Conditions

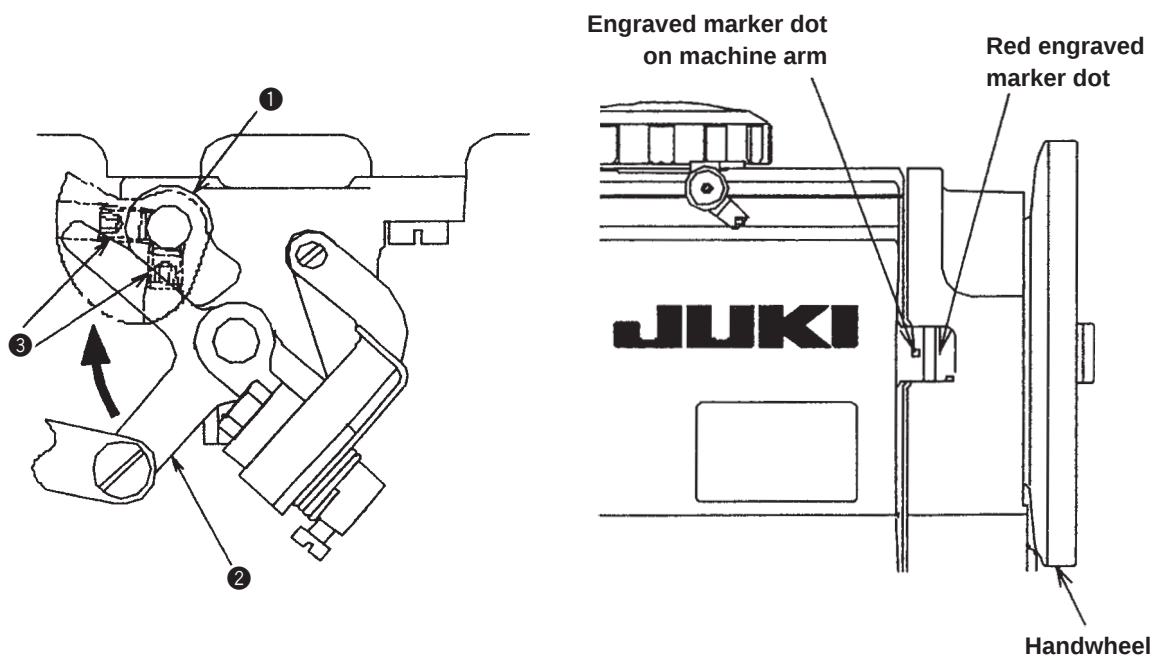
- Thread trimmer solenoid is at rest.



Adjustment Procedures	Results of Improper Adjustment
1. Raise cam follower ❶ in the direction of the arrow mark. 2. Loosen stopper screw nut ❷ and adjust by screwing amount of stopper screw ❸ so that a clearance of 0.5 mm is provided between thread trimmer cam ❹ and cam roller ❺. 3. Taking care not to move stopper screw ❸, tighten stopper screw nut ❷. ○ Cam follower return spring ❽ Adjust the cam follower so that it returns with the minimum force which is required. 1. Loosen two setscrews ❻ of the spring rack. 2. Turn spring rack ❼ to adjust the return force of the spring. 3. Taking care not to move spring rack ❼, tighten setscrews.	When the clearance is larger ○ Stroke of the rotary knife is insufficient and double trimming will result. When the clearance is smaller ○ When the thread trimmer works, the cam roller comes in contact with the side face of the thread trimmer cam and thread trimming mechanism may not function.
1. Loosen clamping screw ❸ in the solenoid arm. 2. Adjust solenoid arm ❹ so that protruding amount of thread trimmer driving shaft ❶ in terms of the edge of thread trimmer base ❷ is 11 to 12 mm. 3. Tighten clamping screw ❸ in the solenoid arm.	When the protruding amount is high ○ Cam follower dose not come in contact with the thread trimmer cam and thread trimmer machanism may not work. When the protruding amount is low ○ Cam follwer comes in contact and contact noise occurs. Cam roller or thread trimmer cam may be broken.

Standard Adjustment

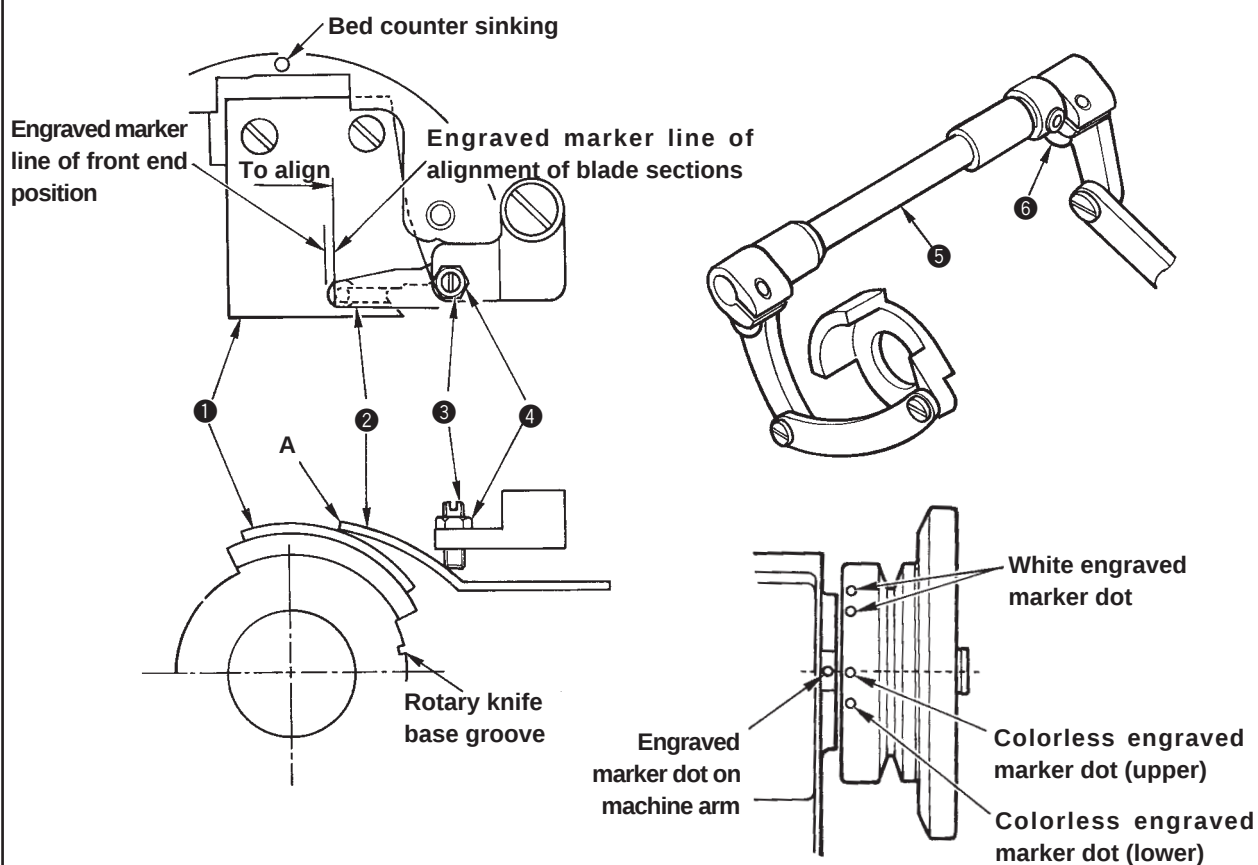
3) Thread trimmer cam timing



Conditions

- Engraved marker dot on the handwheel is aligned with engraved marker dot on the machine arm.

4) Rotary knife and fixed knife

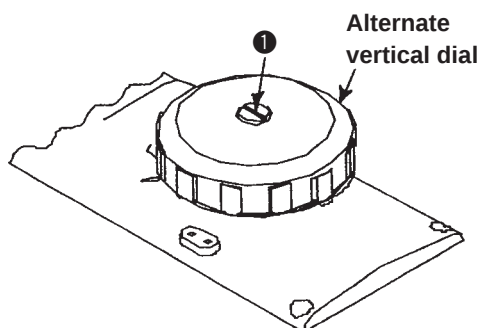


Adjustment Procedures	Results of Improper Adjustment
1. Tilt cam driving bracket ❷ in the direction of the arrow mark and make it come in contact with the periphery of thread trimmer cam ❶. 2. Turn the handwheel in the reverse direction of rotation, loosen setscrews ❸ in the thread trimmer cam and adjust so that the engraved marker dot on the machine arm is aligned with the red engraved marker dot on the hand wheel when thread trimmer cam ❶ comes in contact with cam driving bracket ❷. 3. Tighten setscrews ❸ in the thread trimmer cam. (Caution) Tighten setscrews ❸ in the thread trimmer cam so that there is no thrust play at the hook shaft.	When the timing is retarded ○ Thread trimming action does not complete even at the needle-up stop position and thread is not trimmed. ○ Length of needle thread remaining on the needle after thread trimming will be longer. When the timing is advanced ○ Defective thread trimming will result. ○ Length of needle thread remaining on the needle after thread trimming will be shorter and needle thread may slip off at the start of sewing or after thread trimming. ○ Stitch skipping at the start of sewing will result.
○ Rotary knife 1. Raise the cam follower in the direction of the arrow mark. "Refer to the item 1) Cam follower". 2. Turn the handwheel in the normal direction of rotation in the state that the cam follower is raised. 3. Loosen clamping screw ❹ in the knife driving shaft rear arm, turn knife driving shaft ❺ and adjust so that the engraved marker dot on the machine arm aligns with the colorless marker dot (upper) engraved on the handwheel when the blade section of rotary knife ❶ aligns with the top end of the blade section of fixed knife ❷ (there is an engraved marker line on rotary knife ❶). 4. Tighten the clamping screw. (Standard) The rotary knife base groove is almost aligned with the bed counter sinking at the initial position of rotary knife ❶. (Checking) Make sure that the distance between the top end of the blade section of fixed knife ❷ and the engraved marker line of the front end position of rotary knife ❶ is 0 ± 0.5 mm when rotary knife ❶ travels to the front end. ○ Knife pressure 1. Loosen knife adjustment screw nut ❹. 2. Adjust the pressure by screwing amount of knife pressure adjusting screw ❸ so that the maximum deflection amount is 0.25 to 0.3 mm at point A in the section where the rotary knife travels to the front end from the initial position ○ Tighten knife pressure adjusting screw ❸ → Pressure is increased. ○ Loosen knife pressure adjusting screw ❸ → Pressure is decreased. 3. Tighten the nut ❹.	When the amount of engagement is large ○ Length of needle thread remaining on the needle after thread trimming will be shorter. ○ Double trimming will result. When the amount of engagement is small ○ Single thread remaining will result. ○ Length of needle thread remaining on the needle after thread trimming will be longer. When the knife pressure is high ○ Blade section of the fixed knife or rotary knife may be broken. ○ Torque at the time of thread trimming becomes heavy and motor-stop will result. ○ Defective thread trimming will result. When the knife pressure is low ○ Failure of thread trimming will result.

(2) Alternate vertical dial

Standard Adjustment

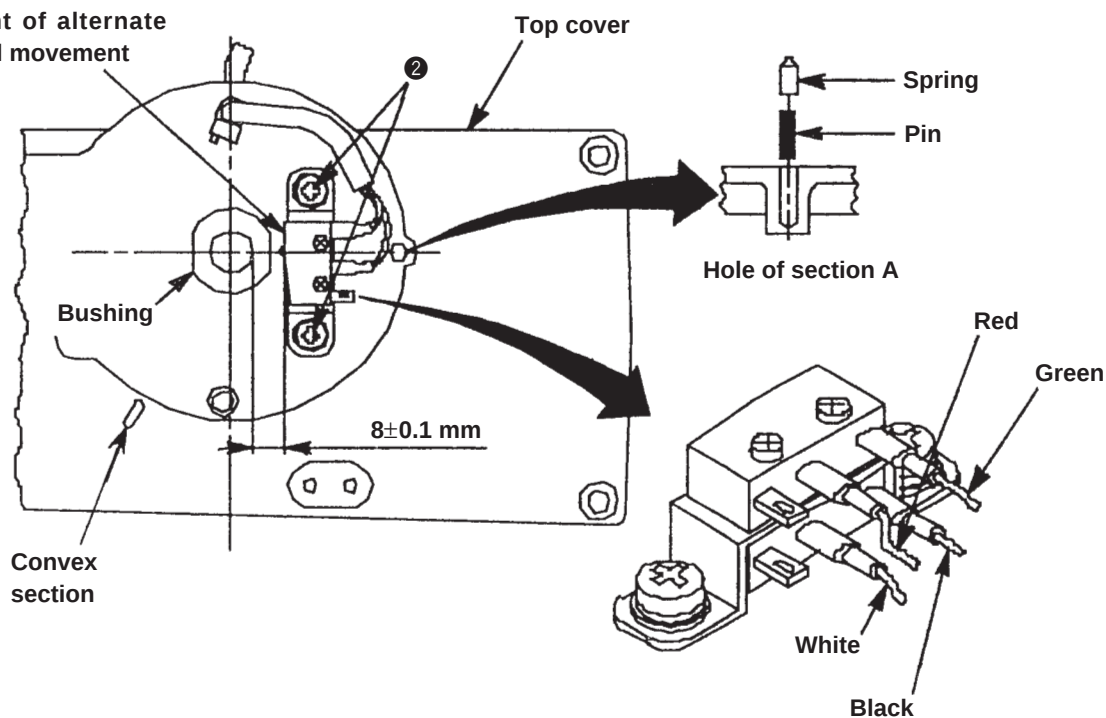
- Installing position of the detection switch of the amount of alternate vertical movement



- Sewing speed of DNU-1541-7

Amount of alternate vertical movement of the walking foot and presser foot	Stitch length : 6 mm or less	Stitch length : More than 6 mm and 9 mm or less
Less than 2.5 mm	3000 rpm	2000 rpm
2.5 mm to less than 4 mm	2400 rpm	2000 rpm
4 mm to less than 4.75 mm	2000 rpm	2000 rpm
4.75 mm to less than 6.5 mm	1800 rpm	1800 rpm

Detection switch of amount of alternate vertical movement



Scale of alternate vertical dial	Switch (upper) (Red and green lines)	Switch (lower) (White and black lines)
1 to 2.5	OFF	OFF
2.625 to 4	OFF	ON
4.125 to 4.75	ON	ON
4.875 to 6.5	ON	OFF

Adjustment Procedures	Results of Improper Adjustment
1. Turn the alternate vertical dial to adjust the scale "1" to the convex section on the top cover. 2. Loosen setscrew ❶ in the alternate vertical dial and remove the alternate vertical dial. At this time, be careful that a pin and a spring are in the hole of section A. 3. Loosen installing screws ❷ of the detection switch of the amount of alternate vertical movement and adjust the distance from the inner diameter of the bushing to the edge of the switch body to 8 ± 0.1 mm. Then tighten the installing screws. 4. Adjust the scale "1" to the convex section on the top cover, place the pin and the spring in the hole of section A, install the alternate vertical dial and tighten setscrew ❶ in the alternate vertical dial. (Caution) When the position of the detection switch of the amount of alternate vertical movement is changed, check whether the relation between the alternate vertical dial and the sewing speed is normal.	○ Sewing speed may not change even when turning the alternate vertical dial.

(3) Adapting SC-380 to DNU-1541-7

When using SC-380 for DNU-1541-7, it is necessary to set the parameters below.

However, the manufacturing No. (Mfg. No.) of SC-380 is :

In case of "***** A" (in case there is "LU51" of the model LU-1510 is in the table of simplified setting value for JUKI sewing machine of SC-380) and in case of "*****" (in case there is no "LU51" of the model LU-1510 in the table of simplified setting value for JUKI sewing machine of SC-380), the contents to be set are different. So, be careful.

1) In case the manufacturing No. (Mfg. No.) is "***** A" :

1. Select LU-1510 (LU51) from the table of simplified setting value for JUKI sewing machine. (Select program mode [1] : ↓ + [A] + [B])
2. Change the parameters below.

For the selection of each program mode from the normal mode and the details of functions, refer to the Engineer's Manual for the SC-380.

① P mode (selection : ↓ + ↑) : setting of number of rotations of the machine head used, stopping angle, etc.

Function name	Symbol	Initial value	Modified value	Remarks
Thread trimming mode	TR	PRG	J1	
Presser lifter output duty	FUD	MF	FL	

② C mode (selection : ↓ + C) : setting of input

Function name	Symbol	Initial value	Modified value	Remarks
Change-over of input signal function	ID	TL	U	Needle lifting signal
	I2	U	F	Presser lifting signal (Caution) 1.
	I7	no	BTL	Cancel signal
	IF	F	no	Refer to (Caution) 2.
	OB	W	no	

(Caution) 1. In case of the machine head with DL device, set as I2 = IO1.

(Caution) 2. In case of the machine head with 2-pitch device, set as IF = IO4, IFA = ON and OB = OT4.

③ D mode (selection : ↓ + D) : setting of improving the quality of tacking alignment

Function name	Symbol	Initial value	Modified value	Remarks
No. of stitch compensation for tacking	BT3	1	2	End tacking OFF compensation

2) In case the manufacturing No. (Mfg. No.) is "*****" :

1. Select LU-22*0 (LU2S) from the table of simplified setting value for JUKI sewing machine. (Select program mode [1] : ↓ + A + B)

(Caution) Do not select LU2v. The alternate vertical movement amount device does not work normally with LU2v.

2. Change the parameters below.

For the selection of each program mode from the normal mode and the details of functions, refer to the Engineer's Manual for the SC-380.

① Normal mode : slow start OFF → ON

② P mode (selection : ↓ + ↑) : setting of number of rotations of the machine head used, stopping angle, etc.

Function name	Unit	Symbol	Initial value	Modified value	Remarks
Max. speed	(rpm)	H	3500	3000	
Start tacking speed	(rpm)	N	1200	600	
End tacking speed	(rpm)	V	1200	600	
Medium speed	(rpm)	M	2000	1800	
No. of stitches of slow start	(stitch)	SLN	0	1	
Reverse revolution angle	(deg)	R8	60	48	Reverse revolution after thread trimming
Needle DOWN stop angle	(deg)	D8	32	24	
Presser lifter output duty	—	FUD	MF	FL	
Thread trimming mode	—	TR	PRG	J1	

③ C mode (selection : ↓ + C) : setting of input

Function name	Symbol	Initial value	Modified value	Remarks
Change-over of input signal function	I2	IO1	F	Presser lifting signal (Caution) 1.
	IF	F	no	Refer to (Caution) 2.
	OB	W	no	

(Caution) 1. In case of the machine head with DL device, set as I2 = IO1.

(Caution) 2. In case of the machine head with 2-pitch device, set as IF = IO4, IFA = ON and OB = OT4.

④ D mode (selection : ↓ + D) : setting of improving the quality of tacking alignment

Function name	Symbol	Initial value	Modified value	Remarks
Stop immediately before end tacking	CSJ	OFF	ON	Stop before tacking
Tacking alignment	BM	OFF	ON	Tacking compensation
No. of stitch compensation for tacking	BT1	C	1	Start tacking ON compensation
	BT2	2	0	Start tacking OFF compensation
	BT3	5	2	End tacking OFF compensation

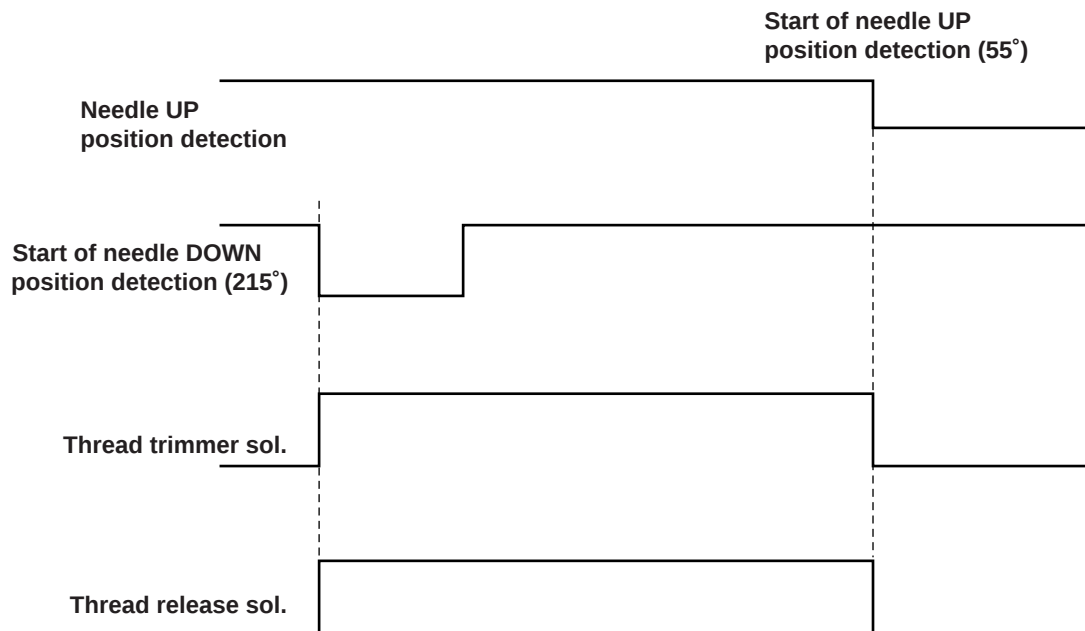
⑤ Q mode (selection : ↓ + A + C) : setting of the speed inflection point by means of the alternate vertical dial

Function name	Symbol	Initial value	Modified value	Remarks
Max. speed when speed is limited	VL1	86	80	
VC 2 speed inflection point 1	VP1	56	60	
VC 2 speed inflection point 2	VP2	71	67	

⑥ H mode (selection : ↓ + ↑ + D) : setting of the speed that does not exceed maximum speed of machine head

Function name	Symbol	Initial value	Modified value	Remarks
Limitation of maximum speed	LHH	41	31	

3) Thread trimming sequence (DNU-1541-7)

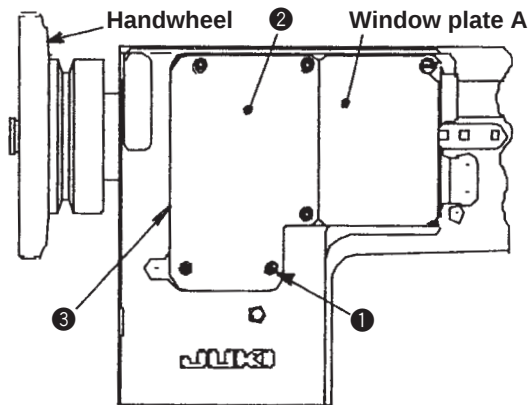


4. INSTALLATION OF THE OPTIONAL PARTS

(1) Automatic reverse feed device

1) Removing the window plate

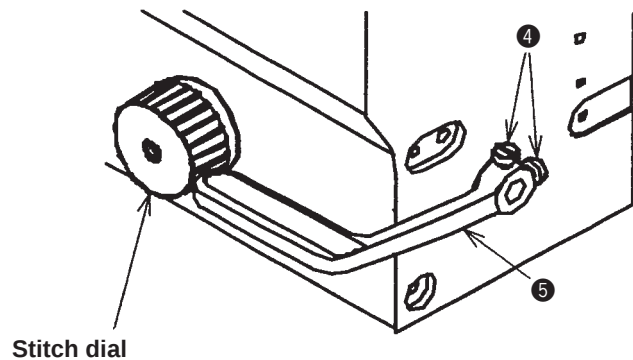
(List of the parts to be removed)



1. Loosen setscrew ① in the window plate B located at anti-operator's side of the machine arm.
2. Remove window plate B ②.
3. Remove window plate packing B ③.

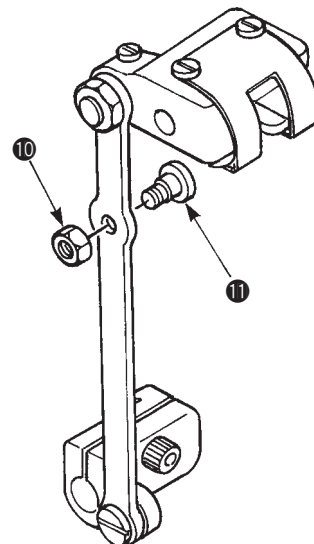
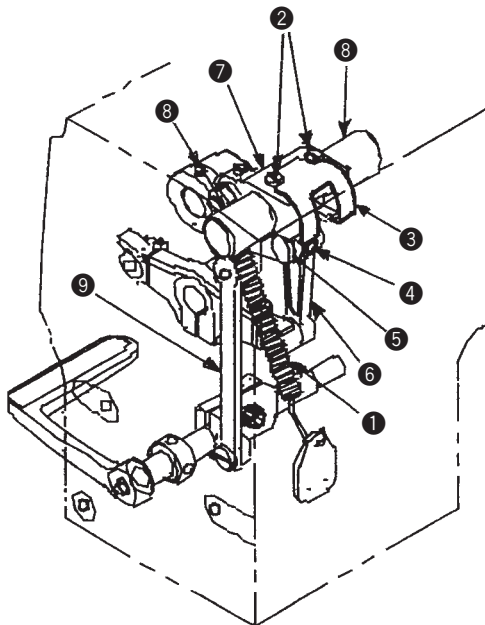
2) Removing the reverse feed control lever

(List of the parts to be removed)



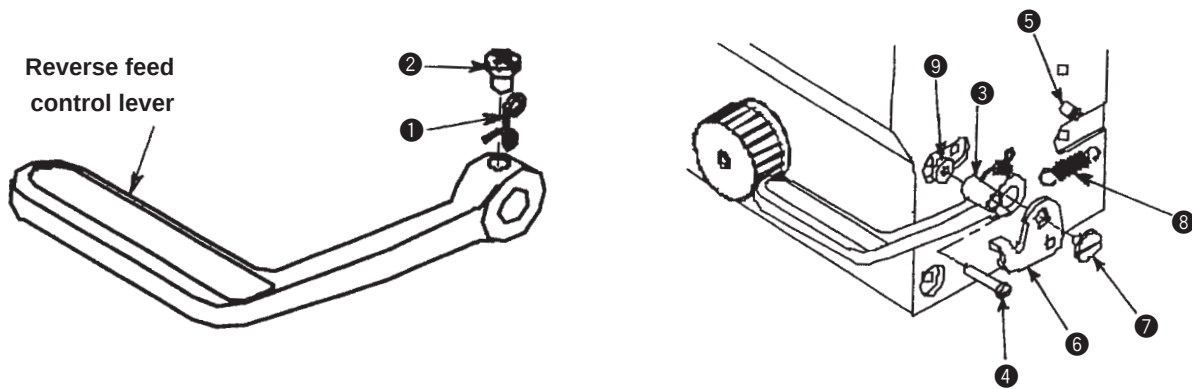
1. Loosen the respective setscrews in the belt cover and remove the belt cover.
2. Remove two setscrews ④ in the reverse feed control lever.
3. Remove reverse feed control lever ⑤.

3) Installing the reverse feed link hinge screw (List A)



1. Remove feed driving rocker tension spring ①.
2. Loosen felt presser setscrews ② and remove felt presser ③.
3. Loosen setscrew ④ in the feed rocker link pin and remove feed rocker link pin ⑤.
4. Remove feed rocker link ⑥ from feed driving rocker ⑦.
5. Loosen the setscrew in the feed driving rocker support and move feed driving rocker support ⑧ to the right or left.
6. Draw out feed driving rocker ⑦.
7. Install reverse feed link hinge screw nut ⑩ and reverse feed link hinge screw ⑪ to feed regulator connecting rod ⑨.
8. Install the above parts by reversing the above order.

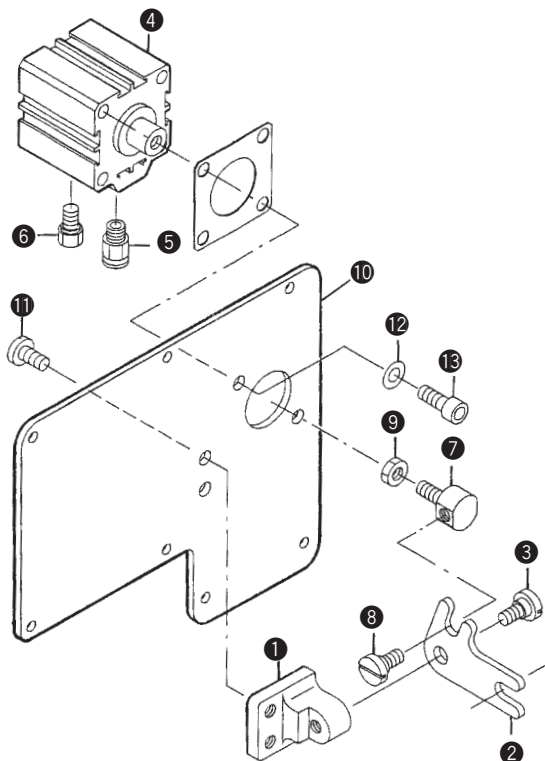
4) Installing the reverse feed control lever¹. Reverse feed control lever (List B)



1. Install reverse feed control lever spring bracket ① with setscrew ②.
2. Install reverse feed control lever stopper ③ to the machine arm with setscrew ④.
3. Install lever return spring bracket ⑤ to the machine arm.
4. Insert the reverse feed control lever into the reverse feed control lever shaft, and install reverse feed shaft link ⑥ with push screw ⑦.
(Install so that the projection of the reverse feed shaft link enters under the reverse feed control lever.)
5. Hook lever return spring ⑧ to the lever spring bracket and the tension spring bracket.
6. Adjust the position of the reverse feed control lever.

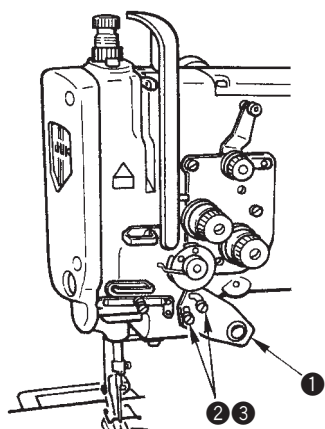
For the adjusting procedure, refer to “14) Position of the reverse feed control lever”.

5) Installing the automatic reverse feed device (List C)



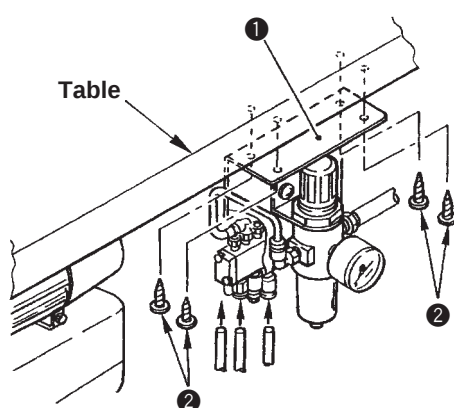
1. Install reverse feed link ② to reverse feed link installing base ① with reverse feed link hinge screw ③.
2. Install straight joint ⑤ to the inlet port of reverse feed cylinder ④ and install muffler ⑥ to the exhaust port.
3. Install reverse feed link hinge screw ⑧ and cylinder connecting screw nut ⑨ to cylinder connecting screw ⑦.
4. Install cylinder connecting screw ⑦ to reverse feed cylinder ④.
5. Temporarily tighten the reverse feed link installing base ① to window plate D ⑩ with setscrew ⑪.
6. Enter reverse feed cylinder ④ to window plate D ⑩ and tighten with washer ⑫ and setscrew ⑬.
(Adjust so that straight joint ⑤ and muffler ⑥ face downward and enter reverse feed link hinge screw ⑧ in the groove of reverse feed link ②.)
7. Move the piston rod of reverse feed cylinder ④ by hand and tighten setscrew ⑬ so that reverse feed cylinder ④ smoothly moves.
8. Tighten the window plate packing B and window plate D ⑩ in order with the setscrew.
At this time, place the groove of reverse feed link ② in the reverse feed link hinge screw on the side of the feed regulator connecting rod.
9. Insert the air hose into straight joint ⑤.

6) Installing the touch-back switch (List D)



1. Install touch-back switch ❶ with switch installing plate setscrew ❷ and switch installing plate washer ❸.

7) Installing the pneumatic components (List E)



1. Install pneumatic components (asm.) ❶ onto the table with setscrews ❷.
2. Connect the air hose with pneumatic components (asm.) ❶.

8) Parts list

- List of the parts to be removed

Note	No.	Part No.	Name of part	Q'ty
	❶	SS4110815SP	Window plate B setscrew	5
	❷	21331806	Window plate B	1
	❸	21332002	Window plate packing B	1
	❹	SS6120930SP	Reverse feed control lever setscrew	2
	❺	22610505	Reverse feed control lever	1

- (Caution) 1. The parts with (asterisk) mark are those to be used after replacing.
 2. The part with mark is the exclusive part for the machine without the automatic reverse feed device.

- List of the installing parts
- Part No. of the automatic reverse feed device set

(Caution :This part No. is the set part No. of the parts from list A to E.)

Note	No.	Part No.	Name of part	Q'ty
		21348552	Automatic reverse feed device set	1

○ Reverse feed link hinge screw components (List A)

Note	No.	Part No.	Name of part	Q'ty
	⑩	NS6150430SP	Reverse feed link hinge screw nut	1
	⑪	SD0800402TP	Reverse feed link hinge screw	1

○ Reverse feed control lever components (List B)

Note	No.	Part No.	Name of part	Q'ty
	①	22656003	Lever spring bracket	1
	②	SS4150615SP	Lever spring bracket setscrew	1
	③	11100500	Reverse feed control lever stopper	1
	④	SS7112420SP	Reverse feed control lever stopper setscrew	1
	⑤	10120004	Lever return spring bracket	1
	⑥	22656102	Reverse feed shaft link	1
	⑦	SS7120760SP	Reverse feed shaft link push screw	1
	⑧	13515606	Lever return spring	1
	⑨	WP0502616SD	Reverse feed control lever stopper screw washer	1

○ Automatic reverse feed device components (List C)

Note	No.	Part No.	Name of part	Q'ty
	①	21348503	Reverse feed link installing base	1
	②	21348701	Reverse feed link	1
	③	SD0800352SP	Reverse feed link hinge screw	1
	④	PA320150200	Reverse feed cylinder	1
	⑤	PJ301065104	Straight joint	1
	⑥	PX015101000	Muffler	1
	⑦	21348602	Cylinder connecting screw	1
	⑧	SD0800352SP	Reverse feed link hinge screw	1
	⑨	NM6060003SC	Cylinder connecting screw nut	1
	⑩	21348909	Window plate D	1
	⑪	SS7151210SP	Reverse feed link installing base setscrew	2
	⑫	WP0641601SD	Washer	2
	⑬	SM6061602TP	Setscrew	2

○ Touch-back switch components (List D)

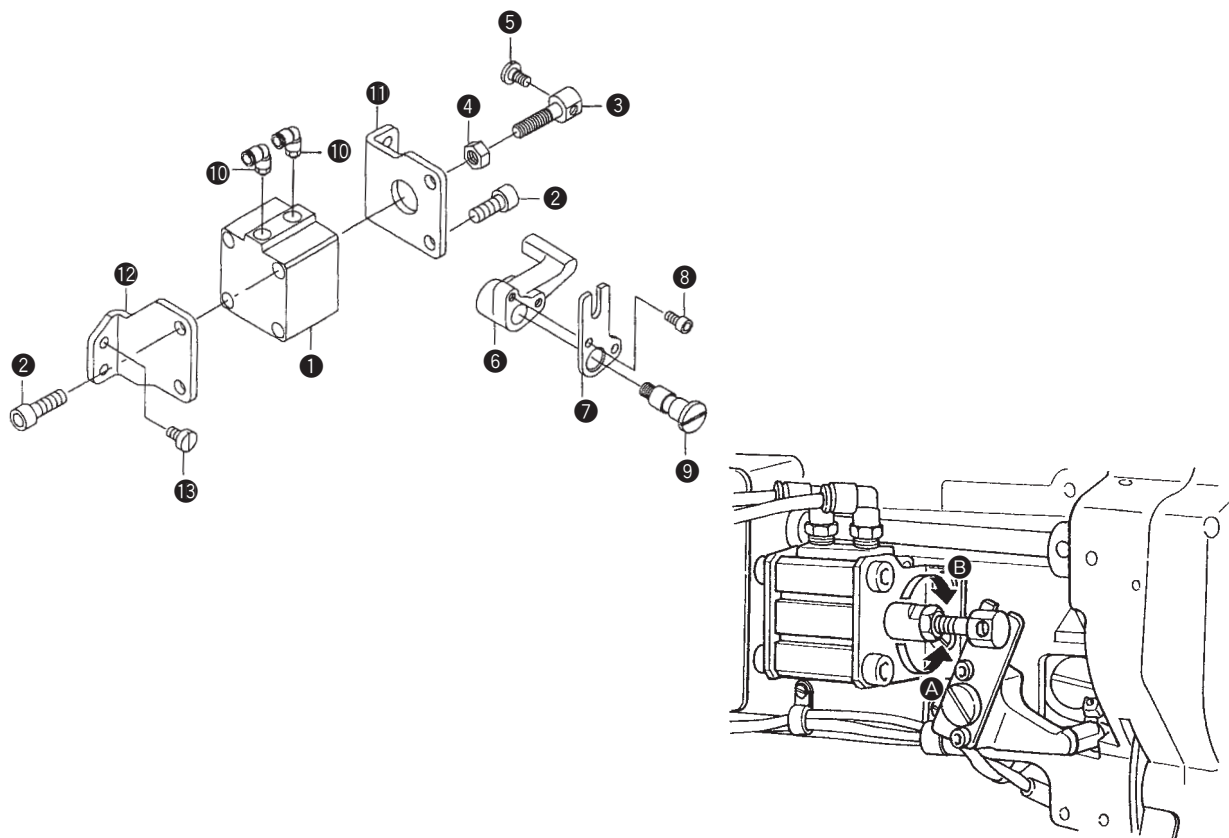
Note	No.	Part No.	Name of part	Q'ty
	①	21348859	Touch-back switch	1
	②	SS7110840SP	Switch installing plate setscrew	2
	③	WP0501016SD	Switch installing plate washer	2

○ Pneumatic components (List E)

Note	No.	Part No.	Name of part	Q'ty
	①	23105554	Pneumatic components (asm.)	1
	②	SK3482500SC	Setscrew	4

(2) Automatic presser foot lifter

1) Installing the automatic presser foot lifter (List A)

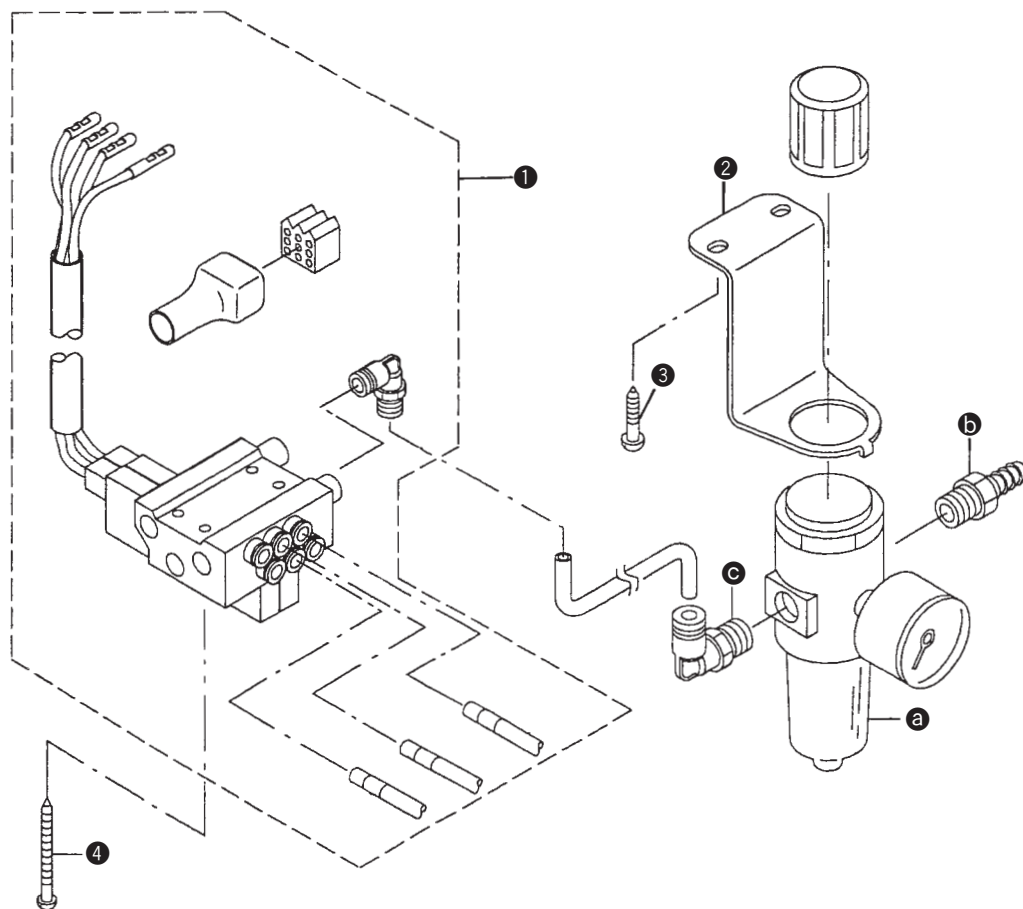


1. Remove the side plate located on the anti-operator's side of the machine arm. (Removing parts list)
2. Install two elbows 10 to automatic presser foot lifter cylinder 1.
3. Install cylinder connecting screw 3 to the presser foot lifter cylinder.
For the standard, adjust the distance from the end face of piston rod of the presser foot lifter cylinder to the end face of cylinder connecting screw to 24 mm, and tighten nut 4.
4. Tighten cylinder stay, front 11 and presser foot lifter cylinder stay, rear 12 to the presser foot lifter cylinder with cylinder installing screw 2.
5. Install the presser foot lifter cylinder which has been assembled at the above step 4. to to the machine arm with cylinder stay installing screw 13.
6. Assemble automatic presser foot lifter lever B 7 with automatic presser foot lifter lever A 6.
(Insert automatic presser foot lifter lever shaft 9 into the holes of both levers and tighten with hexagon headed bolt 8.)
7. Install automatic presser foot lifter lever A which has been assembled at the above step 6. to the machine arm with automatic presser foot lifter lever shaft 9.
(Groove of automatic presser foot lifter lever B 7 enters hinge screw 5 attached to cylinder connecting screw 3.)
8. Install pneumatic components.
9. Insert the air hose and check the operation.
When actuating the automatic presser foot lifter, make sure that the distance from the bottom face of the presser foot to the top surface of the throat plate is 16 ± 0.5 mm.
When adjustment is required, remove automatic presser foot lifter lever shaft 9 and automatic presser foot lifter lever A 6, loosen nut 4, and turn cylinder connecting screw 3. (Turning in the direction of A will decrease the distance, or in the direction of B will increase it.)
After the completion of adjustment, tighten the nut.
10. Make sure that a clearance of 0.5 to 1.5 mm is provided between automatic presser foot lifter lever A 6 and the thread release supporting plate when the presser foot is lowered.
11. For the kit A, tighten knee lifter knee switch B (asm.) 1 with wood screws 2. (List D)

2) Installing the pneumatic device components

When installing the automatic presser foot lifter to DNU-1541 and DNU-1541S after set-up of the machine (List B)
Refer to “4. (1)-7) Installing the pneumatic components”.

When installing the automatic presser foot lifter to DNU-1541-7 after set-up of the machine (List C)



1. Assemble the additional parts (List C) to filter regulator **a**, air joint **b** and quick joint A (elbow) **c** which are included in the pneumatic components (asm.) being used now.
2. Install on the table filter regulator **a** with wood screws **3** and pneumatic device B (asm.) **1** with wood screws **4**.
3. Connect the air hose with pneumatic device B (asm.) **1**.

3) Parts list

○ Removing parts list

Note	No.	Part No.	Name of part	Q'ty
		21332309	Side cover	1
		SS4110815SP	Side cover setscrew	1

○ Installing parts list

○ Set part No. of automatic presser foot lifter

(Caution : These parts Nos. are the set parts Nos. of the parts from lists A to D.)

NO.	Set Part No.	Set name of part	Q'ty	Contents of set (List No.)				Applicable model
				A	B	C	D	
1	GAKA20010A0	Kit AK120A	1	○	○		○	DNU-1541
2	GAKA20010B0	Kit AK120B	1	○	○			DNU-1541S
3	GAKA2300AA0	Kit AK123A	1	○		○	○	DNU-1541-7
4	GAKA2300BA0	Kit AK123B	1	○		○		

○ Automatic presser foot lifter components (For all models) (List A)

Note	No.	Part No.	Name of part	Q'ty
	①	PA400150100	Automatic presser foot lifter cylinder	1
	②	SM6082502TP	Cylinder installing screw	4
	③	21356506	Cylinder connecting screw	1
	④	NM6080001SE	Nut	1
	⑤	SD0720331SP	Hinge screw	1
	⑥	21356605	Automatic presser foot lifter lever A	1
	⑦	21356803	Automatic presser foot lifter lever B	1
	⑧	SM6051002TP	Hexagon bolt	2
	⑨	21356704	Automatic presser foot lifter lever shaft	1
	⑩	PJ304065102	Elbow	2
	⑪	21356308	Presser foot lifter cylinder stay, front	1
	⑫	21356407	Presser foot lifter cylinder stay, rear	1
	⑬	SS6151040SP	Cylinder stay installing screw	4
	⑭	CM3002000B1	Caution seal for being caught	1
	⑮	CM300200001	Caution seal for injury to finger	1

○ Pneumatic device components (For DNU-1541 and DNU-1541S) (List B)

Note	No.	Part No.	Name of part	Q'ty
	①	GAKA14010A0	Pneumatic components (asm.)	1
	②	SK3482500SC	Setscrew	4

○ Pneumatic device components (For DNU-1541-7) (List C)

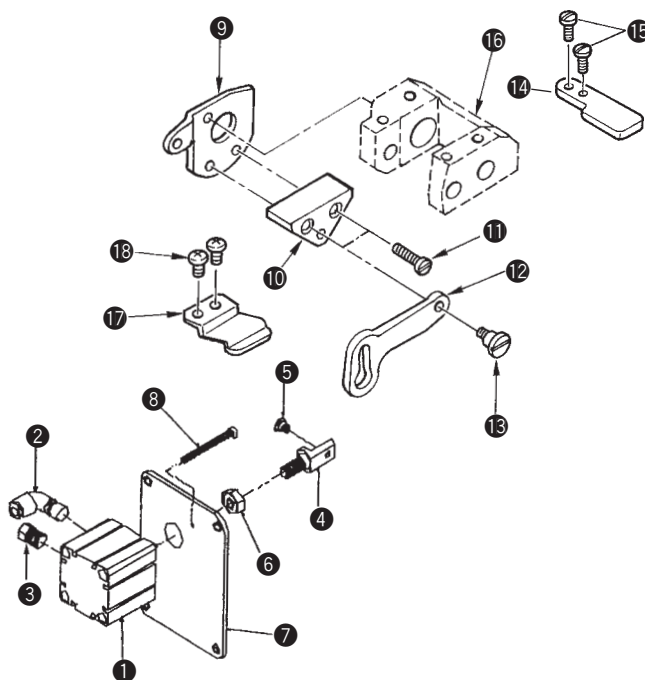
Note	No.	Part No.	Name of part	Q'ty
	①	GAKA2301BA0	Pneumatic device B (asm.)	1
	②	GAKA2304000	Regulator installing plate	1
	③	SK3482501SE	Wood screw	2
	④	SK3415001SE	Wood screw	2

○ Kit A (Knee lifter switch) (List D)

Note	No.	Part No.	Name of part	Q'ty
	①	GAKA14040C0	Presser foot lifter knee switch B (asm.)	1
	②	SK3514000SC	Wood screw	2

(3) Installing the DL device

1) When installing the DL device to DNU-1541-7 after set-up of the machine (List A)



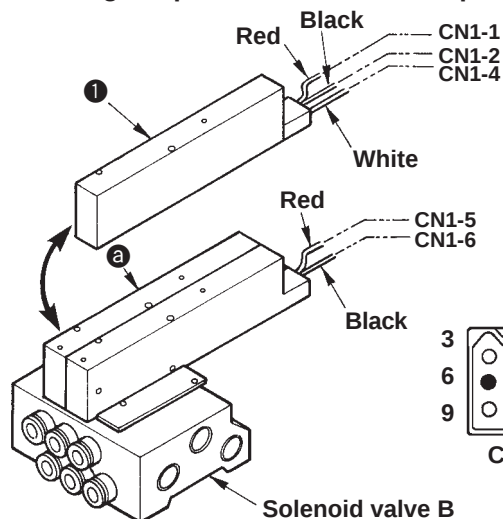
1. Remove the window plate E located on the anti-operator's side of the machine arm. (Removing parts list)
2. Attach elbow ②, muffler ③, cylinder connecting screw ④, alternate vertical link hinge screw ⑤ and nut ⑥ to jig cylinder ①.
3. Attach the cylinder which has been assembled at the above step 2. to window plate F ⑦ and tighten it with jig cylinder setscrew ⑧.
4. Remove the top feed stopper plate A attached to alternate vertical change base ⑬ and attach top feed stopper plate B ⑨.
5. Tighten alternate vertical link spacer ⑩ to top feed stopper plate B ⑨ with setscrew ⑪ and tighten alternate vertical link ⑫ with hinge screw ⑬.
6. Remove the top feed stopper plate attached to the machine arm and tighten top feed stopper plate ⑭ with setscrew ⑮.
7. Tighten alternate vertical link support ⑰ to the machine arm with setscrews ⑱.
8. When installing window plate F ⑦, enter alternate vertical link hinge screw ⑤ to the hole of alternate vertical link ⑫ and attach it to the machine arm.
9. Install the pneumatic device components (asm.).

10. Install the 5-step switch (asm.) and connect the relay cord with it.

11. Insert the air hose and check the operation.

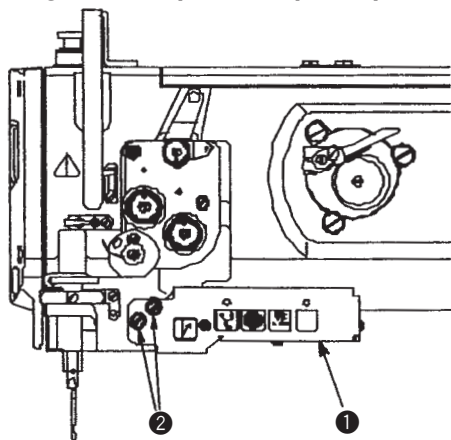
- When actuating DL, the amount of the alternate vertical movement becomes maximum and the walking foot goes up.

2) Installing the pneumatic device components (List B)



1. Replace manifold ① attached to the solenoid valve B being used now with solenoid valve D ①.
2. Caulk the pin terminal, male and female, to the top end of the cord.
3. Insert the pin terminal, male and female, into the plug CN1.
 - Insert it after making sure of the inserting position.
4. Connect the air hose with solenoid valve B.

3) Installing the 5-step switch (List C)



1. Install 5-step switch ① with 5-step switch setscrews ②.

4) Parts list

○ Removing parts list

Note	No.	Part No.	Name of part	Q'ty
	1	21339601	Top feed stopper plate A	1
	2	21339700	Top feed stopper plate	1
	3	21437108	Window plate E	1

○ Attaching parts list

○ Set part No. of DL device

Note	No.	Part No.	Name of part	Q'ty
		GDL21000DA0	Kit DL-21D	1

○ DL device components (List A)

Note	No.	Part No.	Name of part	Q'ty
	①	PA320200101	Jig cylinder	1
	②	PJ304065102	Elbow	1
	③	PX015101000	Muffler	1
	④	21438403	Cylinder connecting screw	1
	⑤	SD0600403TP	Alternate vertical link hinge screw	1
	⑥	NM6080721SE	Nut	1
	⑦	21437207	Window plate F	1
	⑧	SM6044002TP	Jig cylinder setscrew	2
	⑨	21438106	Top feed stopper plate B	1
	⑩	21438601	Alternate vertical link spacer	1
	⑪	SS6111610SP	Setscrew	2
	⑫	21438502	Alternate vertical link	1
	⑬	SD0600452TP	Hinge screw	1
	⑭	21438205	Top feed stopper plate	1
	⑰	21438700	Alternate vertical link support	1
	⑱	SS4110815SP	Setscrew	2

○ Pneumatic device components (List B)

Note	No.	Part No.	Name of part	Q'ty
	①	GAKA2302D00	Solenoid valve D	1
	②	BT0600401EB	Air hose	1 (1.3M)
	③	HX00295000C	Wire mark [4]	1
	④	D6043555B00	Pin terminal, male	1

○ 5-step switch components (List C)

Note	No.	Part No.	Name of part	Q'ty
	①	21442553	5-step switch (asm.)	1
	②	SS7110840SP	5-step switch setscrew	2

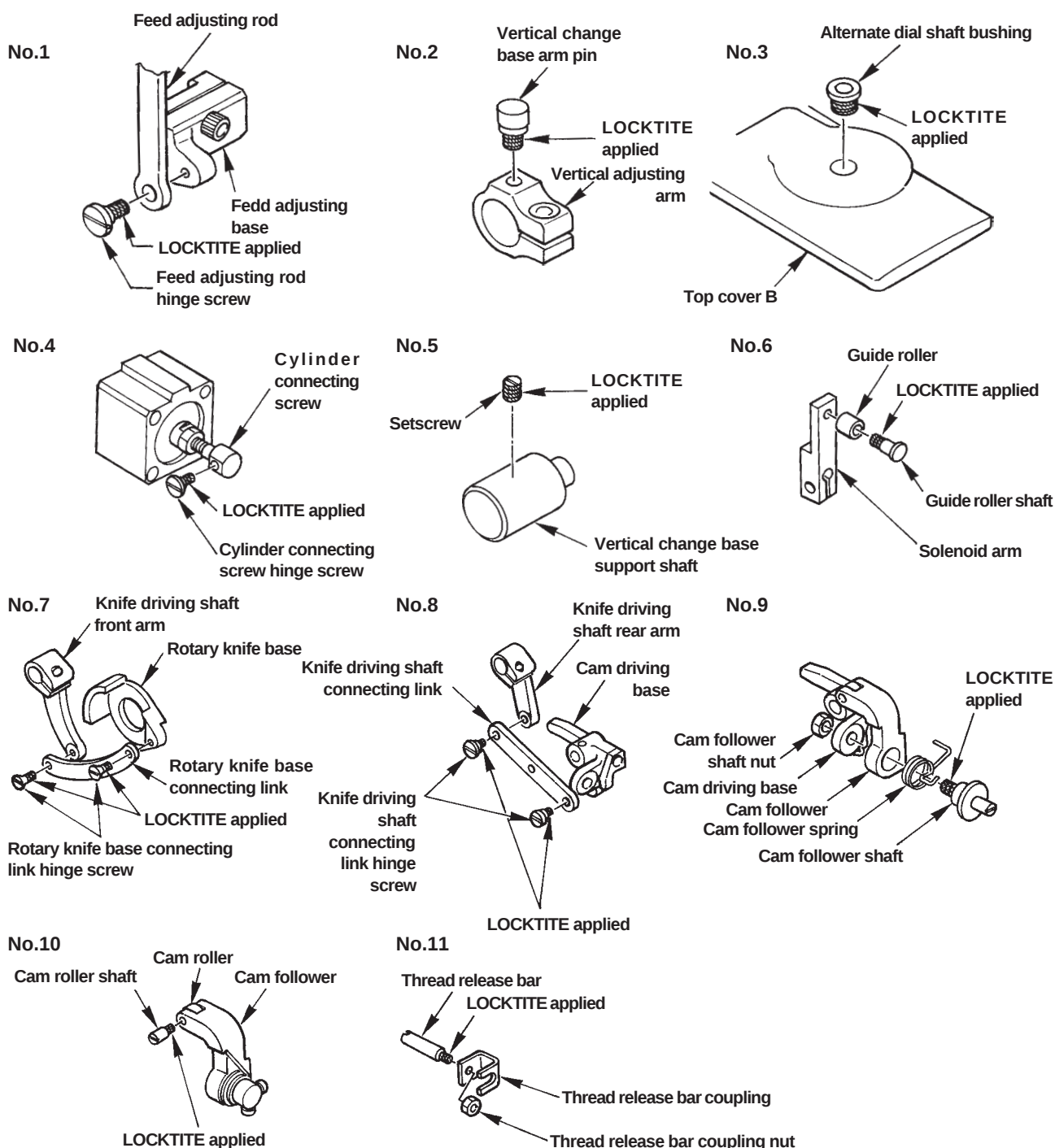
5. PORTION TO WHICH LOCKTITE IS APPLIED

LOCKTITE has been applied to the following parts at the time of assembly at the factory.

Avoid disassembling these parts to the most. When an assembly which includes the aforementioned parts has been forced to be disassembled, be sure to wash the LOCKTITE applied part using a paint thinner or the like, and reassemble it using LOCKTITE after removing any moisture from the mating faces.

If it is hard to remove a part which has been fixed using LOCKTITE, heat it using a torch lamp or the like to help remove the part.

No.	Portion to which LOCKTITE is applied	Part No.	LOCKTITE No.
1	Feed adjusting rod hinge screw	SD0800402TP	LOCKTITE #638
2	Vertical change base arm pin	10715308	LOCKTITE #638
3	Alternate dial shaft bushing	10715100	LOCKTITE #638
4	Cylinder connecting screw hinge screw	SD0720331SP	LOCKTITE #243
5	Alternate vertical change base support shaft setscrew	SS8150710SP	LOCKTITE #243
6	Guide roller shaft	D2423245E00	LOCKTITE #638
7	Rotary knife base connecting link hinge screw	SD0500301SP	LOCKTITE #243
8	Knife driving shaft connecting link hinge screw	SD0600403TP	LOCKTITE #243
9	Cam follower shaft	D2434141E00A	LOCKTITE #243
10	Cam roller shaft	D2444141E00	LOCKTITE #638
11	Thread release bar	21441209	LOCKTITE #243



6. SELECTIVE PARTS AND CONSUMABLE PARTS

- Common to all models

Name of selective part	Part No.	Remarks
Roller bearing	SB32000060A	Tolerance 0 to -2 μ m (standard)
Roller bearing	SB32000060B	Tolerance -2 to -4 μ m
Roller bearing	SB32000060C	Tolerance -4 to -6 μ m

Name of selective part	Part No.	Marking	Remarks
Hook shaft gear A	21404009	A	Tolerance -36 to -24 μ m
Hook shaft gear B	21404108	B	Tolerance -24 to -12 μ m
Hook shaft gear C	21404207	C	Tolerance -12 to 0 μ m (standard)
Hook shaft gear D	21404306	D	Tolerance 0 to 12 μ m

Name of selective part	Part No.	Remarks
Tension release bar	23006406	L = 57.4 mm (standard)
Tension release bar	21348206	L = 57.9 mm
Tension release bar	10321107	L = 58.5 mm

- For DNU-1541

Name of consumable part	Part No.	Remarks
Needle	MC372001600	SCHMETZ 135 X 17 Nm 160
Hook (asm.)	B1830241HC0	With bobbin case
Bobbin	B9117201000	

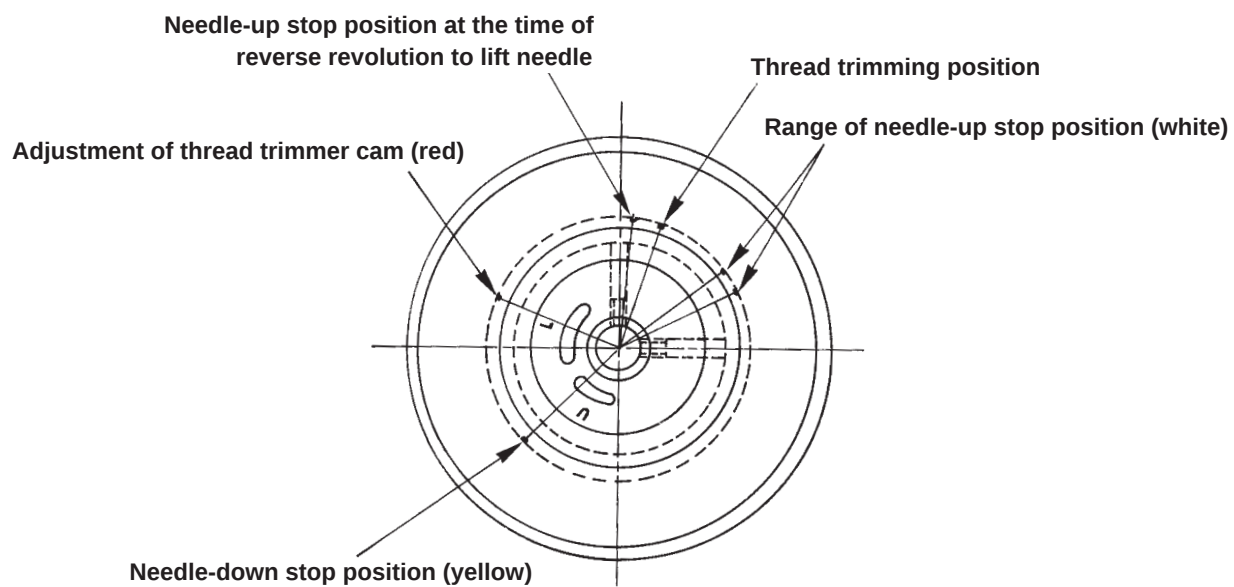
- For DNU-1541S

Name of consumable part	Part No.	Remarks
Needle	MC372001600	SCHMETZ 135 X 17 Nm 160
Hook (asm.)	B1830241SB0	With bobbin case
Bobbin	B9117201000	

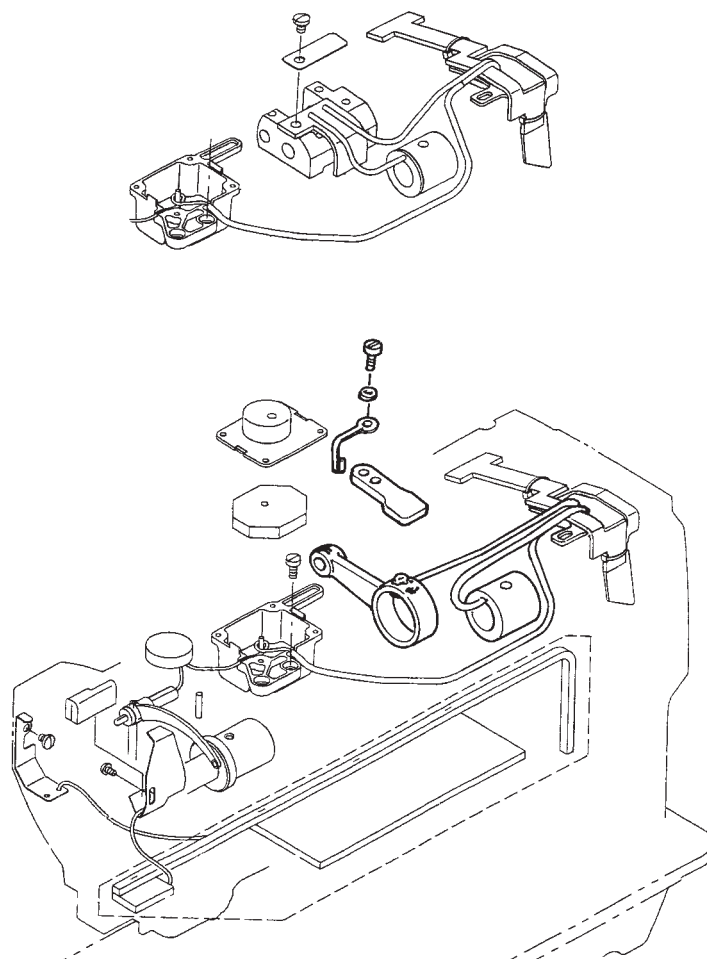
- For DNU-1541-7

Name of consumable part	Part No.	Remarks
Needle	MC372001600	SCHMETZ 135 X 17 Nm 160
Hook (asm.)	D1830241EA0	
Bobbin case	D1837141EA0	
Bobbin	D9117141E00	Aluminum bobbin
Rotary knife	D2423241E00	
Fixed knife	D2424241E00	
Clamp spring	D2429241E00	

7. ENGRAVED MARKER DOTS ON THE HANDWHEEL

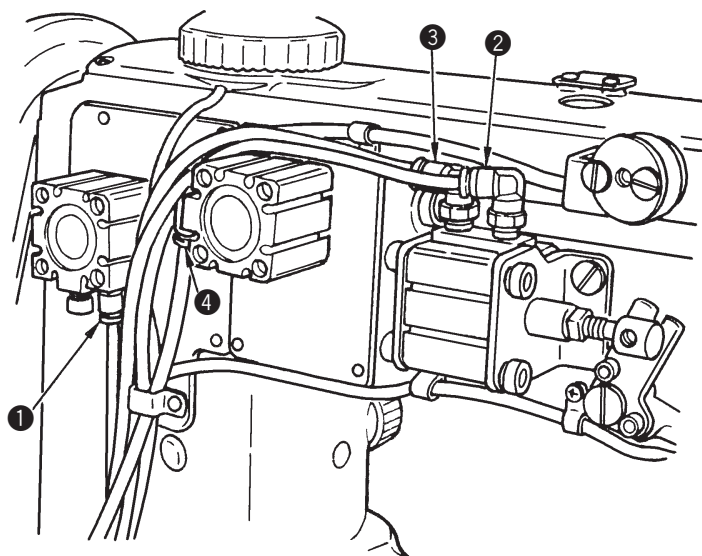
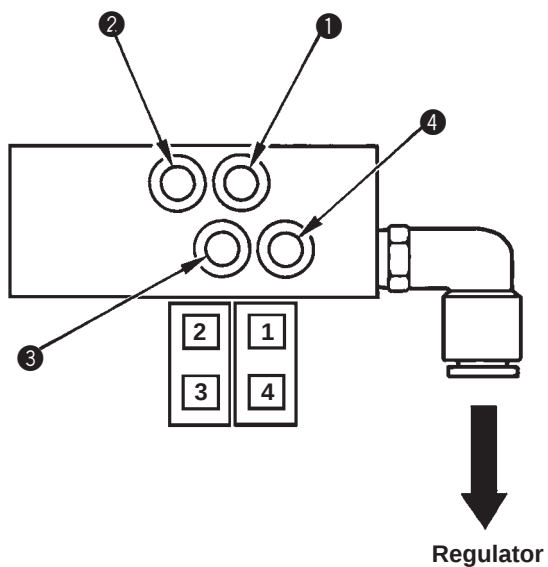


8. LUBRICATION ROUTE DIAGRAM



9. PNEUMATIC PIPING

Name of cylinder	Display No.	Remarks
Automatic reverse feed stitching	①	
Presser lifter	②	Cylinder drawing side (AK type only)
Presser lifter	③	Cylinder pushing side (AK type only)
DL	④	(DL type only)



10. MACHINE HEAD WIRING (WITH THREAD TRIMMER ONLY)

(1) Connector coming from the machine head

○ 12-pin connector

Name of part	Pin No.	Remarks
DL control switch	1	G N D (Green and Black)
DL control switch	2	SW1(White)
DL control switch	5	SW2(Red)

○ 6-pin connector

Name of part	Pin No.	Remarks
Synchronizer	1	SGND(Black)
Synchronizer	4	UDET(White)
Synchronizer	5	DDET(Green)
Synchronizer	6	+5V(Red)

○ 14-pin connector

Pin No.	
1	Thread trimmer (–) (Black)
2	_____
3	_____
4	_____
5	BT switch (Black)
6	BT (–) (Black)
7	Tension release (–) (White)
8	Thread trimmer (+) (White)
9	_____
10	Earth (Green/Yellow)
11	_____
12	GND (White)
13	BT (+) (White)
14	Tension release (+) (White)

○ 15-pin connector (DL type only)

Name of part	Pin No.	Remarks
5-string switch	1	BTSW(Brown)
5-string switch	2	GND (Red)
5-string switch	3	Needle UP (Orange)
5-string switch	4	BT cancel (Yellow)
5-string switch	5	DL (Pink)
5-string switch	6	DL (–) (Gray)
5-string switch	10	DL (LED 24V) (White)
5-string switch	13	No function
5-string switch	14	No function

○ 9-pin connector (DL type only)

Name of part	Pin No.	Remarks
5-string switch	1	DL (+) (Brown)
5-string switch	2	BT (–) (Red)
5-string switch	3	BT (+) (Orange)
5-string switch	4	DL (–) (Yellow)
5-string switch	5	FL (+) (Pink)
5-string switch	6	FL (–) (Gray)
5-string switch	7	2P (–) (White)
5-string switch	8	2P (24V) (Black)
5-string switch	9	_____

(2) Connector coming from the pneumatic device

○ 2-pin connector

Name of part	Pin No.	Pneumatic components(asm.) Part No. : 23105554
Solenoid valve 1	1	BT (+) (Red)
Solenoid valve 1	2	BT (–) (Black)

○ 9-pin connector

Name of part	Pin No.	Pneumatic device B(asm.) Part No. : GAKA2301BA0	Pneumatic device C(asm.) Part No. : GAKA2301CA0
Solenoid valve 1	1	BT (+) (Red)	BT (+), DL(+) (Red)
Solenoid valve 1	2	BT (–) (Black)	BT (–) (Black)
Solenoid valve 1	4		DL (–) (White)
Solenoid valve 2	5	AK (+) (Red)	AK (+) (Red)
Solenoid valve 2	6	AK (–) (Black)	AK (–) (Black)

(3) Connector coming from the relay cable (Inserting side to the control box)

○ 14-pin connector

Pin No.	Relay cable (asm.) : 21443957
1	Thread trimmer (–) (Red)
2	2P LED (–) (Black)
3	Needle UP switch (Yellow)
4	2P switch (White)
5	BT switch (Brown)
6	BT (–) (Blue)
7	Tension release (–) (Yellow)
8	Thread trimmer (+) (Orange)
9	_____
10	Earth (Green/Yellow)
11	_____
12	GND (Red)
13	BT (+) (Green)
14	Tension release (+) (Blue)

○ 15-pin connector

Pin No.	Relay cable (asm.) : 21443957
1	GND (Yellow)
2	DL switch 1 (Red)
3	DL LED (–) (Yellow), DL (–) (Black)
4	_____
5	DL switch 2 (Orange)
6	DL switch (Orange)
7	_____
8	LED (+) (Blue)
9	_____
10	_____
11	_____
12	_____
13	ABT switch (Red)
14	_____
15	_____

○ 2-pin connector

Pin No.	Relay cable (asm.) : 21443957	Relay cable (asm.) : 21414958
1	AK (–) (Black)	AK (–) (Black)
2	AK (+) (White)	AK (+) (White)

11. TABLE OF TROUBLES AND CORRECTIVE MEASURES

(1) With regard to sewing

Troubles	Causes	Checking	Corrective measures
Thread breakage	Thread path, needle point, hook blade point or inner hook resting groove on the throat plate has sharp edges or burrs.	Check the sharp edge or burr on the respective parts.	Remove the sharp edges or burrs on the blade point of hook using a fine emery paper. Buff up the groove section on the throat plate.
Thread is worn out.	Needle thread tension is too high.		Adjust the needle thread tension.
	Needle comes in contact with the blade point of hook.	Check the clearance.	Refer to "(6) Needle-to-hook timing"
Needle thread trails 2 to 3 cm from the wrong side of the fabric.	Needle thread tension is too low.		Adjust the needle thread tension. (This trouble occurs a lot when using synthetic threads.
	Thread take-up spring works excessively or the stroke of the spring is too small.		Decrease the tension of of the thread take-up spring and increase the stroke of the spring.
	Feed timing is not proper.		Refer to "(9) Feed cam timing".
	Timing between the needle and the hook is excessively advanced or retarded.	Check the specified dimension.	Refer to "(6) Needle-to-hook timing".
	Thread melts due to needle heat.		Decrease the sewing speed. Use silicone oil. (Refer to "(4) Others *".)
Stitch skipping	Clearance between the needle and the blade point of hook is too large.	Check the clearance.	Refer to "(6) Needle-to-hook timing".
	Needle-to-hook timing is excessively advanced or retarded.	Check the specified dimension.	
	Height of the needle bar is improper.	Check the lowest point of the needle bar.	
	Presser foot is rising.	Check the pressure of the presser foot.	Tighten the presser spring regulator.
	Blade point of the hook is blunt.	Check the blade point of the hook.	Correct the blade point of the hook or replace the hook.
	Improper typr of needle is used.		Replace the needle with one which is thicker than the current needle by one count.
	Thread take-up spring excessively works or the stroke of the spring is too small.		Decrease the tension of the thread take-up spring and increase the stroke of the spring.
	Feed timing is not proper.		Refer to "(9) Feed cam timing".

Troubles	Causes	Checking	Corrective measures
Loose stitches (Balloon stitches or isolated idling loop)	Bobbin thread is not passed to the fork end of bobbin case tension spring.	Check the bobbin thread route.	Correctly pass thread to the bobbin case.
	Thread paths have been poorly finished.	Check the finish of the respective thread paths.	Finish using a fine emery paper or buff.
	Bobbin fails to move smoothly.	Check the change of bobbin thread tension.	Replace the bobbin or the hook.
	Bobbin case is improperly engaged.		Replace the bobbin case or the hook.
	Thread is not well tightened in the reverse feed.		Use the optional walking foot and presser foot.
	Height of the feed dog is too high.	Compare the height with the standard value.	Refer to “(4) Height of the feed dog”. Lower the height by 0.2 mm than the standard value.
	Feed timing is excessively advanced.		Retard the feed timing.
	Hard-to-slip thread is used.		Use silicone oil. (Refer to “(4) Others **”).
Loose stitches (Needle thread rises.)	Needle thread has not been fully pulled up.		Increase the needle thread tension.
			Use the optional walking foot. (Top-devided type)
Irregular stitches	Stroke of the thread take-up spring is improper.	Check the stroke of the thread take-up spring.	Adjust the thread take-up spring to move to approximately 1 mm from the initial position when hook draws thread maximumly.
	Thread paths have been poorly finished.	Check the finish of the respective thread paths.	Finish with a fine emery paper or buff.
	Bobbin thread tension is too low.		Increase the tension of the bobbin thread.
	Bobbin has been wound too tight.	Check the state of bobbin winding.	Decrease the tension applied to the bobbin winder.
	Pressure of the idle prevention spring is too high.	Check the idling amount of the bobbin.	Decrease the pressure of the idle prevention spring.

(2) With regard to lubrication

Troubles	Causes	Checking	Corrective measures
Oil does not enter the hook.	Oil amount in the oil tank is too small.	Check the oil level.	Refer to “(15) Lubrication”.
	Oil amount adjusting screw is improperly adjusted.		
	Lead groove in the hook shaft is clogged with dust.		Draw out the hook shaft and wash the lead groove.

(3) With regard to thread trimming

Troubles	Causes	Checking	Corrective measures
One or several stitches skip at the start of sewing.	Needle thread remaining at the needle top after thread trimming is short.	Check the routing of needle thread.	Thread the needle thread correctly. Adjust so that abnormal thread tension is not applied to the needle thread.
		Thread tension given by the tension controller No. 1 is too high.	Decrease the tension given by the tension controller No. 1.
		Check the rising amount of the thread tension disk No. 2 at the time of thread trimming.	Adjust so that the disk is raised by means of the thread release solenoid.
		Thread trimming timing is excessively advanced.	Refer to "3. (1)-3) Thread trimmer cam timing".
		There are scratches on the hook.	Polish with buff or replace the part.
	Bobbin thread remaining after thread trimming is short.	Tension of the bobbin thread is too high.	Decrease the tension of the bobbin thread.
	Needle is too thick.		Replace the needle with a thinner one.
Thread slips off the needle eyelet.	Needle hole in the feed dog is too large.		Replace the feed dog with an optional one with small needle hole.
	Pressure of the presser foot is too low.		Increase the pressure of the presser foot.
	Needle thread slips off the needle eyelet at the start of sewing.	Check whether the needle thread remaining at the needle top at the start of sewing is short.	Refer to the Cause of the previous item "Needle thread remaining at the needle top after thread trimming is short".
	Needle thread slips off the needle eyelet immediately after thread trimming.	Check whether the needle thread remaining at the needle top after thread trimming is short.	
Defective thread trimming	Thread cannot be trimmed.	A hard-to-slip thread is used.	Decrease the number of threading of the needle thread.
		The blades of rotary knife or fixed knife have worn out or broken.	Replace the rotary knife or the fixed knife with a new one.
		Pressure of the knife is insufficient.	Refer to "3. (1) -4) Rotary knife and fixed knife".

To the next page



Troubles	Causes	Checking	Corrective measures
From the next page			
Thread remains uncut after thread trimming.	The blades of rotary knife and fixed knife have worn out or broken.		Replase the rotary knife or fixed knife with a new one.
		Check whether a synthetic thread is used.	Refer to "3. (1)-3) Thread trimmer cam timing".
		Pressure of the fixed knife is insufficient.	Refer to "3. (1)-4) Rotary knife and fixed knife".
Rotary knife stops during operation.	Thread is too thick.		Use a thread within the specified value.
		Thread trimming timing is excessively retarded.	Refer to "3. (1)-3) Thread trimmer cam timing".
		Pressure of the knife is too high.	Refer to "3. (1)-4) Rotary knife and fixed knife".
Needle thread is not caught.	Check the thread trimmer cam timing.		Refer to "3. (1)-3) Thread trimmer cam timing".
		Top end of the rotary knife has broken or been scratched.	Replace the fixed knife with a new one.
Bobbin thread is not caught.	Check the routing of bobbin thread.		Correctly thread the bobbin thread.
		Top end of the rotary knife has broken or been scratched.	Replace the rotary knife.
Both needle and bobbin threads cannot be trimmed.	Pressure of the knife is too low.		Refer to "3. (1)-4) Rotary knife and fixed knife".
		Rotary knife fails to work.	Adjust the synchronizer timing. Replace the thread trimmer solenoid.

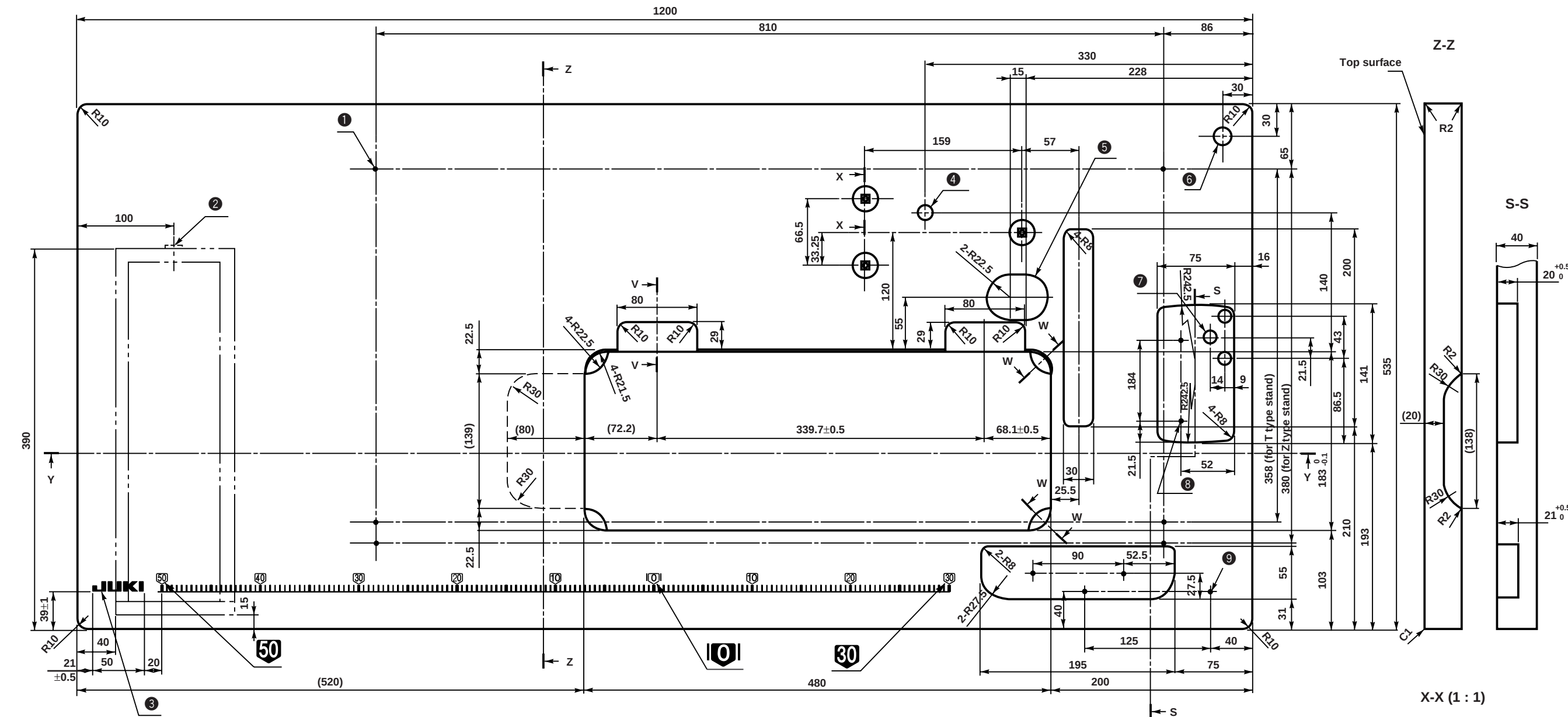
(4) Others

* Use separately available "21144308 Needle thread lubricator"
 "B1114012000 Thread guide bar"
 "B91351230B0 Silicone oiler"

Adjustment of the thread take-up spring

- Decrease the tension of the thread take-up spring and decrease the stroke of the spring to improve irregular stitches.

12. DRAWING OF THE TABLE



- ① 4- ϕ 3.4 Depth 10
(Drill a hole at the time of set-up.)
- ② Installing position of stopper for drawer
(on the reverse side)
- ③ JUKI logotype
- ④ 16 depth 30
- ⑤ Top surface C1.5
- ⑥ 18 drill
- ⑦ 3- ϕ 13 drilled hole
- ⑧ 2- ϕ 3.5 depth 10
- ⑨ 2-3.4 depth 10

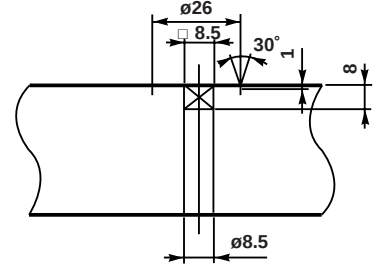
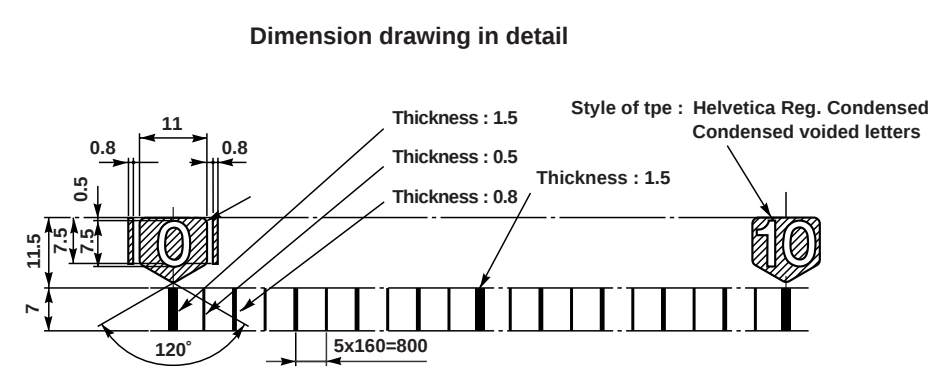
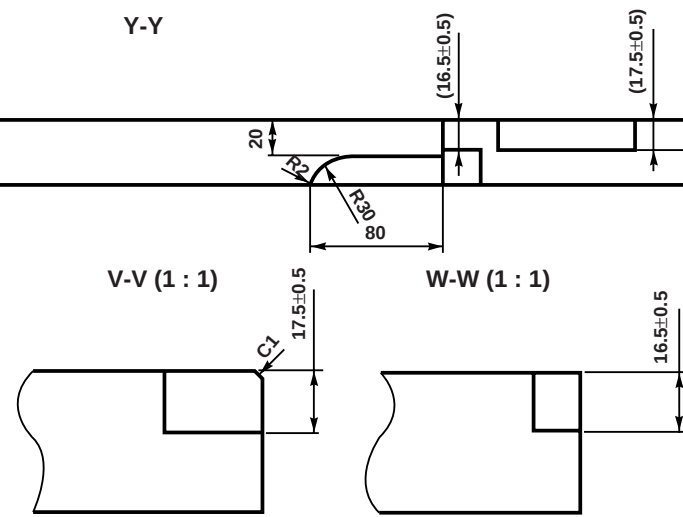


Table Part No. : 21413703

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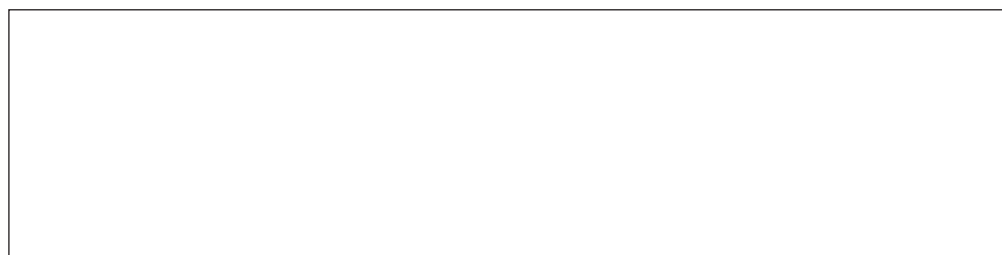
Collier Equipment
100 Mill Creek Circle/Po Box 175
Lexington, Alabama 35648 USA
Phone: (256)229-6595 Fax: (256)229-6779

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JUKI CORPORATION

INTERNATIONAL SALES H.Q.
8-2-1, KOKURYO-CHO,
CHOFU-SHI, TOKYO 182-8655, JAPAN
PHONE : (81)3-3430-4001 to 4005
FAX : (81)3-3430-4909 • 4914 • 4984
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