

JUKI

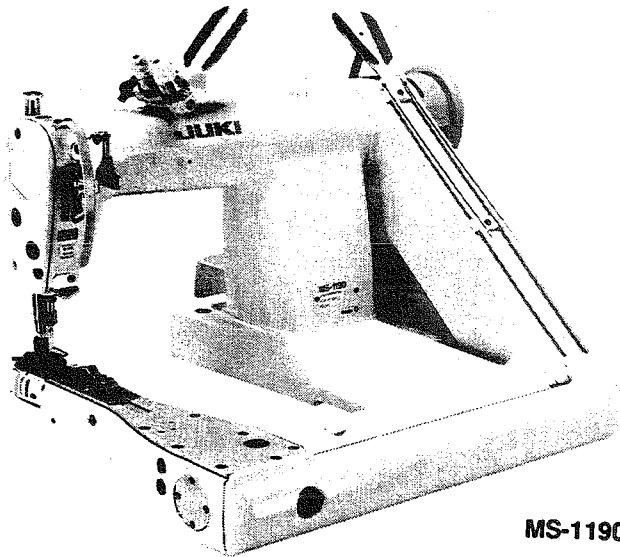
High-speed, feed-off-the-arm,
double chainstitch machine

Cloth Puller

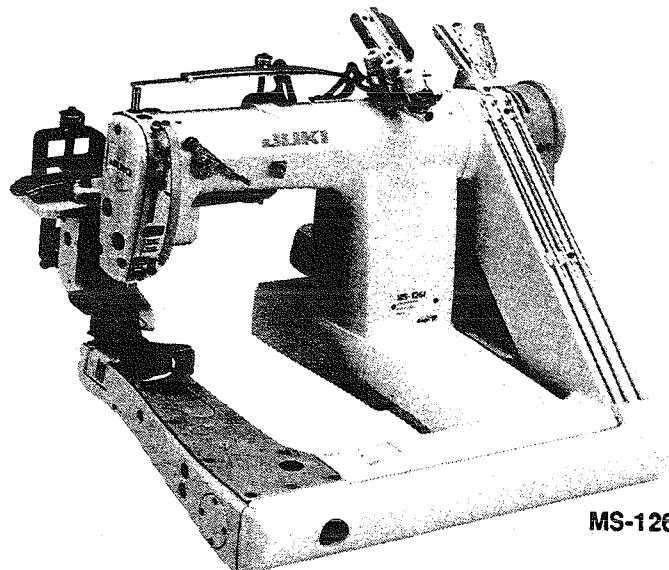
V045, V046

MS-1190 MS-1190M MS-1261

ENGINEER'S MANUAL



MS-1190



MS-1261/V045

No. II-10
1994. 1

PREFACE

This Engineer's Manual is written for the technical personnel who are responsible for the service and maintenance of the sewing machine.

This manual describes "How to adjust," "Results of improper adjustment," and other functions which are not covered by the Instruction Manual intended for the maintenance personnel and sewing operators at a sewing factory.

All personnel engaged in repair of the sewing machine are required to carefully read the Instruction Manual and Parts List for the sewing machine for reference as well as this Engineer's Manual.

This Engineer's Manual consists of two parts, the former part "Standard adjustment" presents the most basic adjustment values and the latter part provides "Results of improper adjustment" which describes sewing and mechanical failures and "How to adjust."

CAUTION

1. Do not put your hands under the needle while the sewing machine is in operation.
2. Keep your hands away from the thread take-up lever while the sewing machine is in operation.
3. Operate the handwheel after the sewing machine has completely stopped.
4. When installing V045 or V046, be careful in handling it because it is very heavy.
5. During sewing machine operation, do not insert a hand near the rollers (V045, V046).

BEFORE OPERATION

1. Never operate your machine unless it has been properly lubricated.
2. The machine normally rotates toward you. Take care not to allow your machine to rotate in the reverse direction. (The machine rotates counterclockwise as observed from the handwheel side.)
3. For the first month after the installation of your machine, run it at a lower speed (approx. 2,800 s.p.m.)

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V045, V046

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1. Specifications

1	Model	MS-1190	MS-1190M	MS-1260/V045	MS-1261/V045	
2	Stitch system	2-needle, 4-thread, double chainstitch			3-needle, 6-thread, double chainstitch	
3	Application	For light-weight materials	For medium-weight materials		For heavy- to extra heavy-weight materials	
4	Sewing speed	Max. 4,000 s.p.m. (Normal 3,500 s.p.m.)		Max. 3,600 s.p.m. (Normal 3,000 s.p.m.)		
5	Needle bar stroke	28.0 mm		33.2 mm		
6	Needle	ORGAN	TVx64-NY #8 to #16 (Standard #12)	TVx64-NY #12 to #19 (Standard #16)	UYx128GAS-NY #16 to #22 (Standard #19)	UVx128GAS-NY #16 to #22 (Standard #21)
		SCHMETZ	B-64 Nm60 to Nm100 (Standard #80)	B-64 Nm80 to Nm120 (Standard #100)	UY128GAS Nm100 to Nm140 (Standard #120)	UY128GAS Nm100 to Nm140 (Standard #130))
7	Needle gauge	1/8", 5/32", 3/16", 7/32", 1/4"		3/16"	7/32", 1/4", 9/32", 5/16", 3/8"	
8	Stitch length	1.2 to 3.2 mm		1.4 to 4.2 mm (with a cloth puller)		
9	Lift of the presser foot	10 mm or more				
10	Thread take-up lever	Thread pulling cam type thread take-up lever	Needle bar thread take-up lever	Needle bar thread take-up lever		
11	Circumference of tube at the needle entry	171mm		190mm		
12	Needle guard	Longitudinally-fixed needle guard		Backward traveling needle guard		
13	Stitch adjusting system	By a push-button (with a locking mechanism)				
14	Lubrication	Semi-automatic lubrication				
15	Lubricating oil	New Defrix Oil No. 1				
16	Cloth puller	Optional		V045 is equipped as standard		

2. Needle gauge and finished gauge

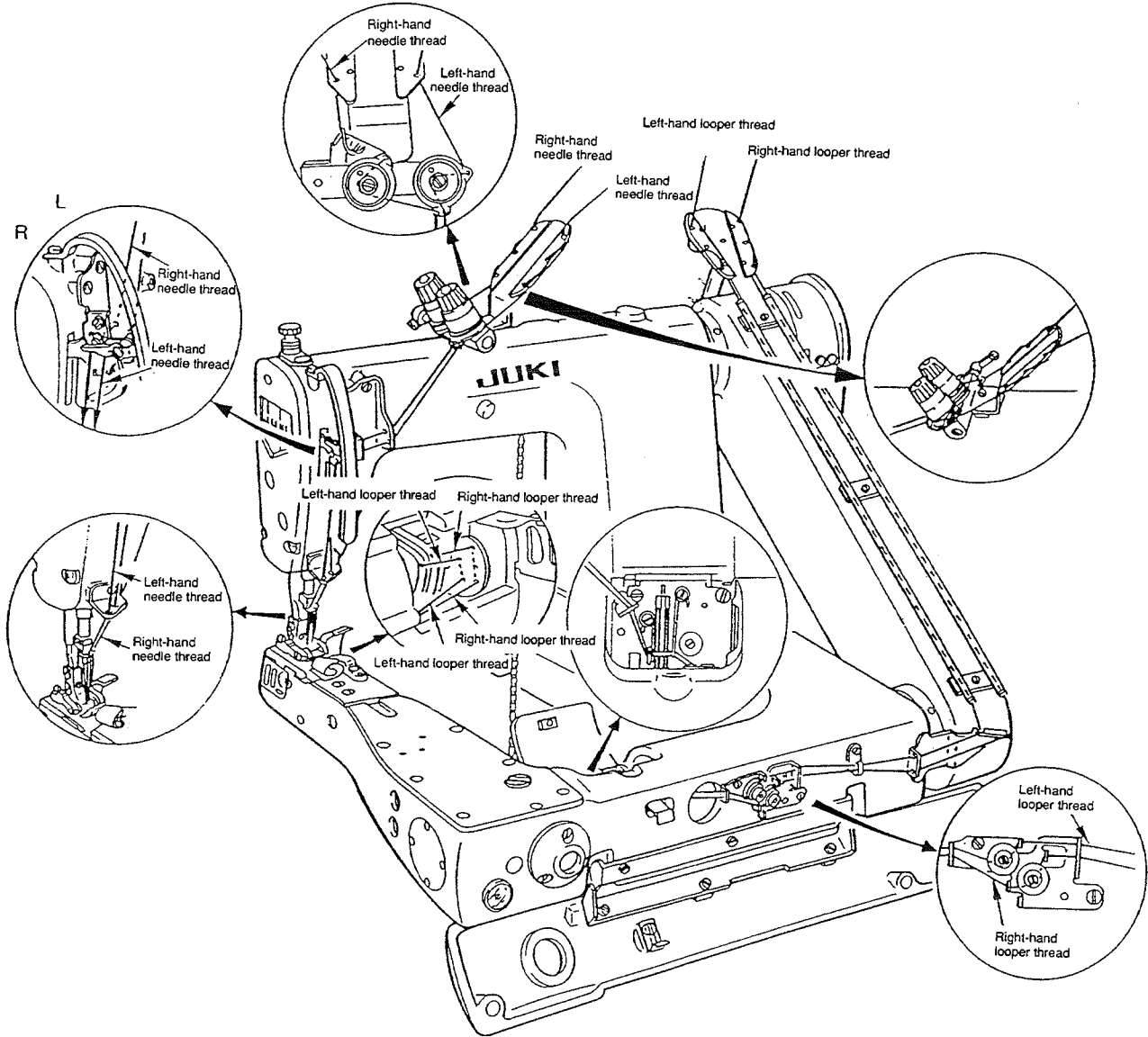
Model	Needle gauge (size)	Finished gauge	Symbol
MS-1190 MS-1190M	1/8" (3.2 mm)	5.2 mm	B
	5/32" (4.0 mm)	6.0 mm	C
	3/16" (4.8 mm)	6.8 mm	D
	7/32" (5.6 mm)	7.6 mm	E
	1/4" (6.4 mm)	8.4 mm	F
MS-1260	3/16" (4.8 mm)	8.0 mm	D
MS-1261	7/32" (5.6 mm)	9.0 mm	E
	1/4" (6.4 mm)	10.0 mm	F
	9/32" (7.2 mm)	11.0 mm	G
	5/16" (8.0 mm)	11.6 mm	H
	3/8" (9.5 mm)	13.2 mm	K

* For a finished width other than those shown in the aforementioned table, the corresponding presser foot will be made to order.

3. Threading the machine head

MS-1190

Threading diagram



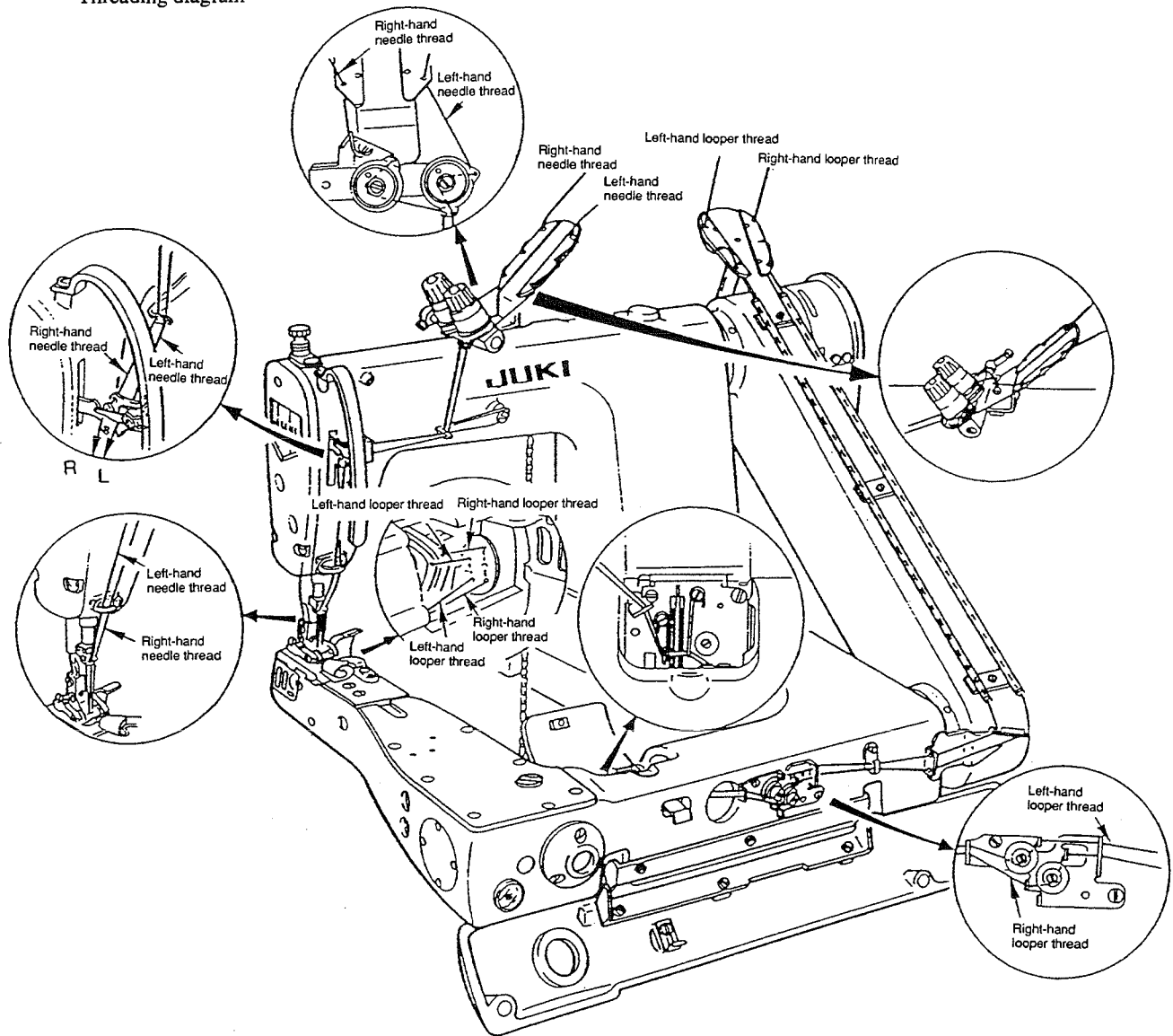
Thread the machine head in the order shown in the figure.

* Pass the needle threads along the marks L and R.

L : Left-hand needle thread R : Right-hand needle thread

MS-1190M

Threading diagram



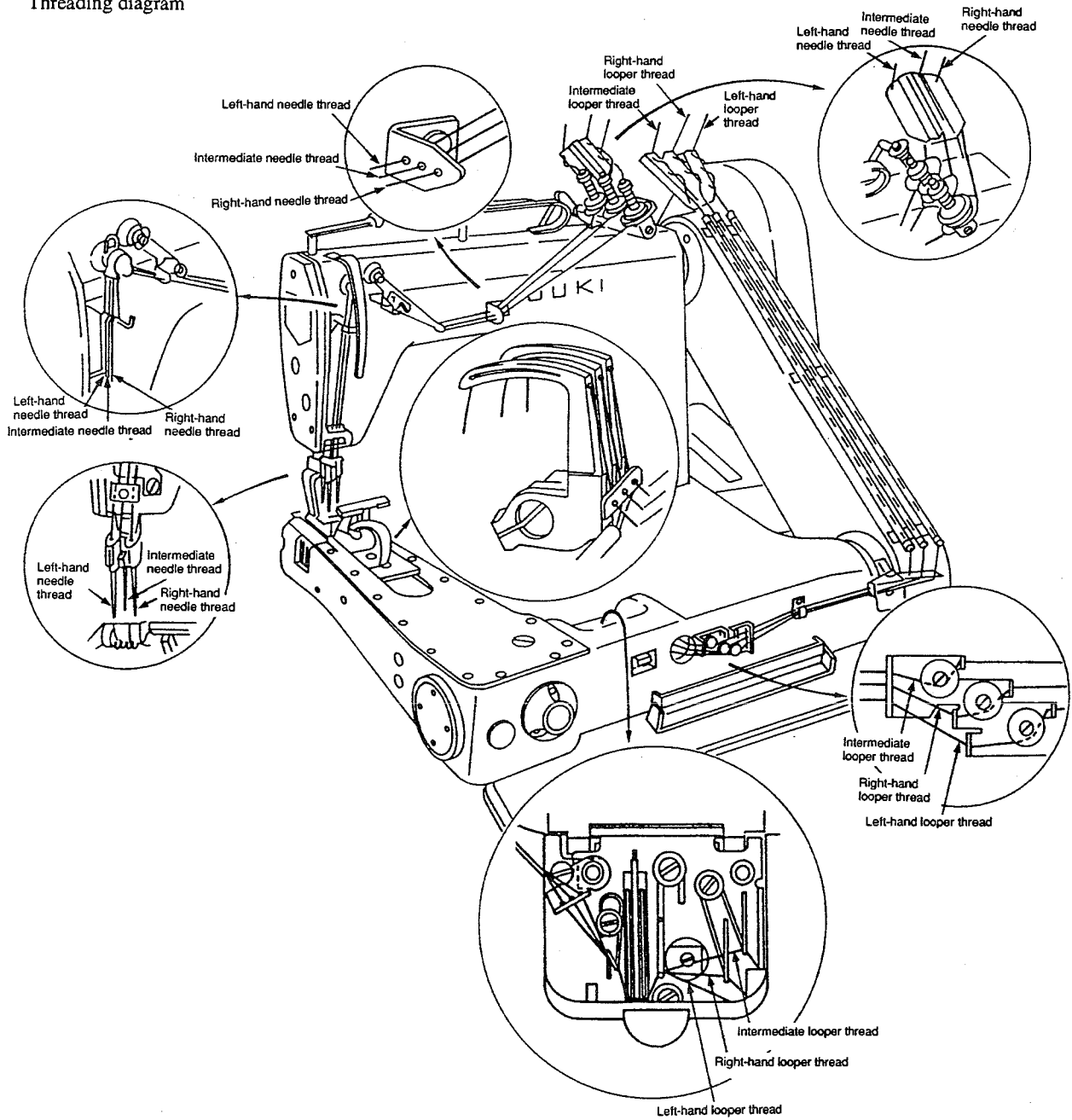
Thread the machine head in the order shown in the figure.

* Pass the needle threads along the marks L and R.

L : Left-hand needle thread R : Right-hand needle thread

MS-1261

Threading diagram



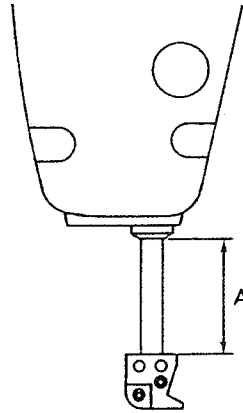
Thread the machine head in the order shown in the figure.

4. Standard adjustment

STANDARD ADJUSTMENT

(1) Height of the needle bar

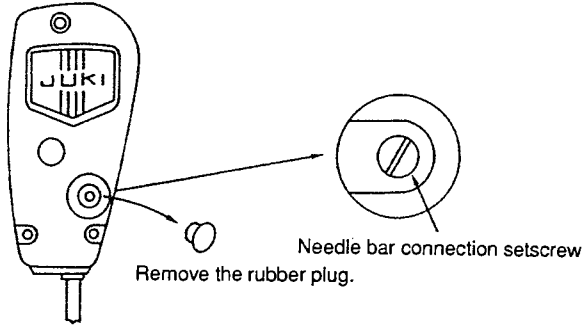
When the needle bar is in the lowest position of its stroke, the distance shown in the table below should be provided between the lowest end face of the needle bar lower bushing to the top surface of the needle clamp.



	Dimension A
MS-1190	36.8 mm
MS-1190M	
MS-1261/V045	39.1 mm
MS-1260/V045	40.4 mm

HOW TO ADJUST

- 1) Loosen the needle bar connection setscrew, and properly adjust the needle bar height.



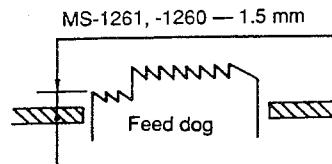
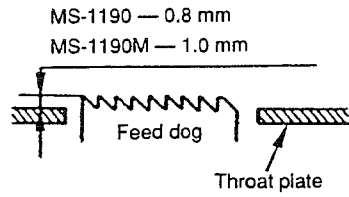
RESULTS OF IMPROPER ADJUSTMENT

- After the needle bar height is changed from the proper height, the looper timing to tuck the thread and the relation between the needle and the feed mechanism will also change. This causes troubles such as stitch skipping and needle breakage. So, do not change the needle bar height.

STANDARD ADJUSTMENT

(2) Height of the feed dog **MS-1190, -1190M, -1261, -1260**

The top of the feed dog should rise 0.8 mm above the surface of the throat plate for the MS-1190 or 1.0 mm above it for the MS-1190M when the feed dog is in the highest position of its stroke.
For the MS-1261, the rise of the feed dog above the throat plate should be adjusted to 1.5 mm.

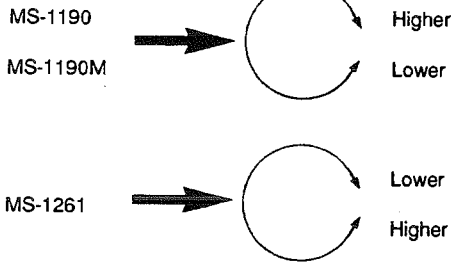
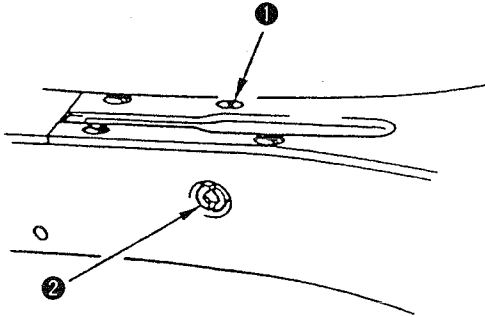


HOW TO ADJUST

Adjusting the height of the feed dog

- 1) Loosen screw ① in the side plate of the bed and remove it.
- 2) When the screw has been removed in the aforementioned step of procedure, you can find a hexagon socket head screw that is located under the removed screw. Loosen the screw with an L-shaped hexagon wrench key supplied with the machine.
- 3) Adjust the feed dog height by turning feed driving amount adjusting shaft ②.
- 4) Fix the shaft with the hexagon socket head screw and tighten screw ①.

(Caution) It is not necessary to firmly fix the feed driving amount adjusting shaft.



RESULTS OF IMPROPER ADJUSTMENT

When the feed dog height is lower than the specified value

- Feeding failure
- Stitch length specified cannot be provided.
- Efficiency of feed is too low.

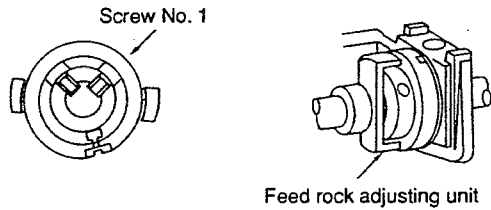
When the feed dog height is higher than the specified value

- Puckering MS-1190
- Needle sway MS-1261

STANDARD ADJUSTMENT

(3) Feed timing **MS-1190**

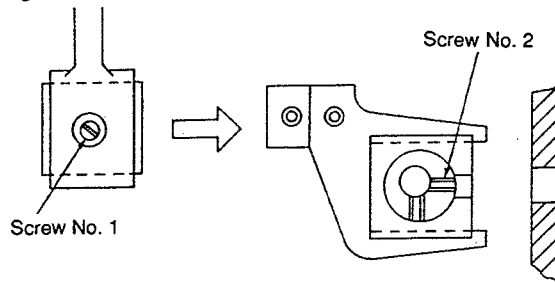
- 1) Tighten the screw No. 1 of the feed rock adjusting unit in the flat portion No. 1 on the looper driving shaft.



- 2) Adjusting the timing of the feed driving cam

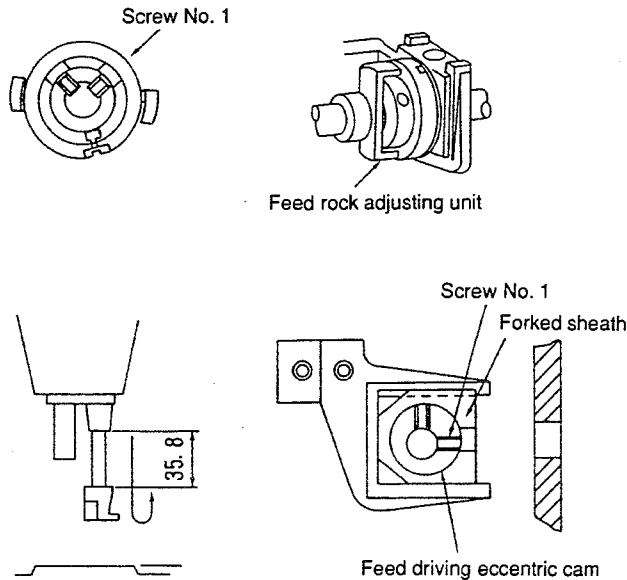
< Standard adjustment >

When the screw No. 1 in the eccentric cam of the feed bar is aligned with the tapped hole in the feed bar, align the screw No. 2 in the feed driving cam with the tapped hole in the forked sheath. Then, tighten the screw there to fix the feed driving cam.



(4) Feed timing **MS-1190M**

- 1) Tighten screw No. 1 of the feed rock adjusting unit in the flat portion No. 1 on the looper driving shaft.
- 2) When the bottom face of the lower bushing of the ascending needle bar is located 35.8 mm above the top face of the needle clamp, align the screw No. 1 of the feed driving eccentric cam with the tapped hole in the forked sheath and tighten it there.

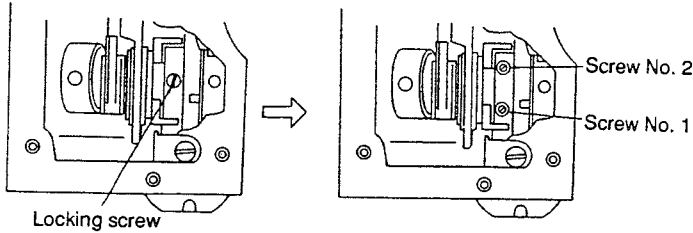


HOW TO ADJUST

RESULTS OF IMPROPER ADJUSTMENT

[Adjusting the timing of the feed rock cam]

- 1) Remove the side plate from the bed.
- 2) Loosen the locking screw in the feed rock cam. Turn the feed cam until the two screws in the feed cam are aligned with the holes in the feed cam. (Press the push-button and turn the handwheel.)



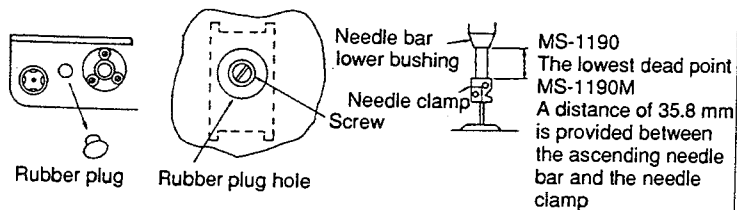
- 3) Loosen screw No. 2 in the feed cam. (Do not completely draw it out.)
- 4) Loosen screw No. 1 and remove it from the feed cam.
- 5) Securing the feed rock cam by hand, turn the handwheel and you can observe the flat portion of the looper driving shaft from through the tapped hole for the screw No. 1. (There are two flat sections No. 1 and No. 2.)
For the MS-1190, align the screw No. 1 of the feed cam with the flat portion No. 1 on the looper driving shaft. For the MS-1190M, align it with the flat portion No. 2 on the shaft. Now tighten the screw No. 1. Then, tighten the screw No. 2.
- 6) Attach the side plate to the bed.

[Adjusting the timing of the feed driving cam]

- 1) Remove the rubber plug from this side of the bed.
- 2) You can observe the tapped hole in the forked sheath from through the hole from which the rubber plug has been removed.
- 3) Turn the handwheel until the screw No. 2 is aligned with the hole and loosen the screw. (Do not remove the screw No. 2.)
- 4) Then, loosen the screw No. 1.
- 5) Fitting a screwdriver on the screw No. 1, turn the handwheel to properly adjust the timing of the feed driving cam.

For the MS-1190, adjust as described in "(3)-2." For the MS-1190M, tighten the screw No. 1 when the bottom face of the lower bushing of the ascending needle bar is located 35.8 mm above the top face of the needle clamp.

Then, tighten the screw No. 2 to fix the feed driving cam.

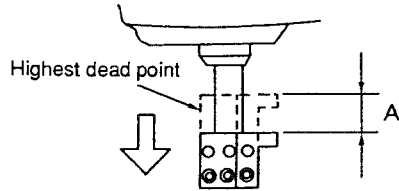


Stitch skipping and needle breakage
Puckering
Failed stitching on the overlapped section of a material

STANDARD ADJUSTMENT

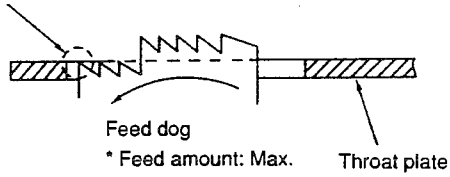
(5) Feed timing **MS-1261/-1260**

Maximize the feed amount (stitch length). Distance A which indicates the descending amount of the needle bar from the highest dead point, when the front end of the feed dog is flush with the top surface of the throat plate, should be adjusted to the value shown in the table.



	Dimension A
MS-1261	9.7 mm
MS-1260	8.4 mm

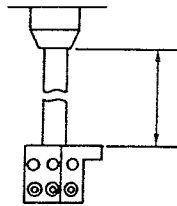
Flush with the top surface of the throat plate



HOW TO ADJUST

1) Check the needle bar height.

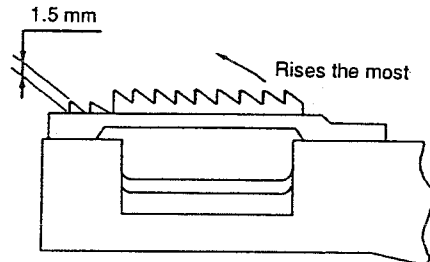
Adjust the height of the needle bar so that the bottom face of the needle bar lower bushing is positioned 39.05 ± 0.1 mm above the top face of the needle clamp when the needle bar is in the lowest dead point.



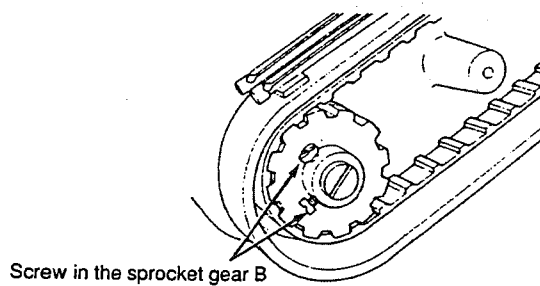
1261/V045	1260/V045
39.1 mm	40.4 mm

2) Check the height of the feed dog.

Adjust the height of the feed dog so that the top end of the feed dog is spaced 1.5 mm from the top surface of the throat plate when the feed dog rises the most.



3) Maximize the feed amount (stitch length), loosen the screw in the sprocket gear B and adjust the height of the feed dog.



RESULTS OF IMPROPER ADJUSTMENT

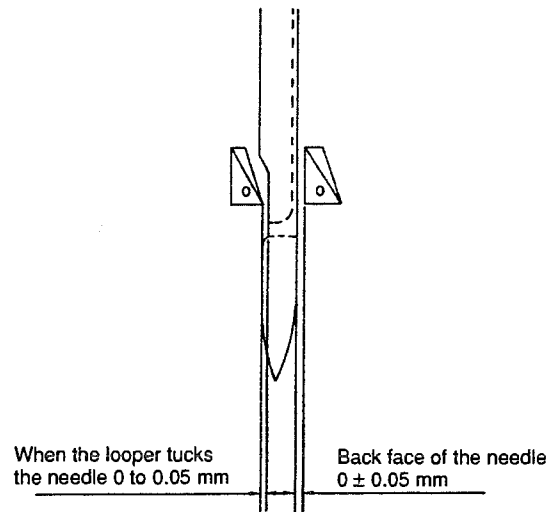
- If the feed dog timing is later than the specified one, the needle will sway resulting in stitch skipping or needle breakage.
- If the feed dog timing is earlier than the specified one, the feed mechanism starts to feed the material while the needle has not yet come off the material, causing the needle to bend.

STANDARD ADJUSTMENT

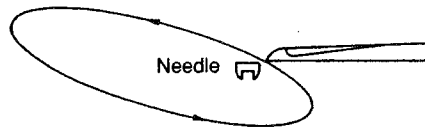
(6) Clearance provided between the needle and the looper **MS-1190, -1190M**

Clearance between the needle and the looper when the looper tucks the thread 0 to 0.5 mm

Clearance between the back of the needle and the looper 0 ± 0.05 mm [The needle and the looper are allowed to overlap with each other (the back of the needle is allowed to come in contact with the looper)]



Locus of the looper The left-hand side of the locus is raised.



HOW TO ADJUST

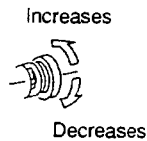
The clearance provided between the needle and the looper changes in accordance with the number count of the needle to be used. So, appropriately adjust the clearance provided between the needle and the looper when necessary.

- 1) Remove the side plate from the bed.
- 2) Turn the handwheel until the screw in the feed rock eccentric cam with the hole in the forked sheath. Loosen two screws (by turning them by approximately 90°). Fitting a screwdriver to the loosened screw so that the feed rock cam does not rotate, adjust the position of the eccentric cam by turning the handwheel.

The clearance provided between the needle and the looper when the looper tucks the thread and the clearance provided between the back of the needle and the looper :

Turn the handwheel toward you to decrease the clearance.

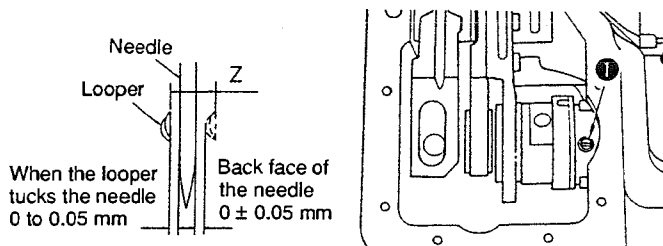
Turn the handwheel away from you to increase it.



Adjustment value for the clearance provided between the needle and the looper

The clearance provided between the needle and the looper when the looper tucks the thread 0 to 0.5 mm

Clearance between the back of the needle and the looper 0 ± 0.05 mm
(The needle and the looper are allowed to overlap with each other.)

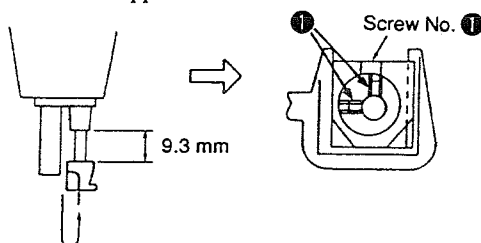


* When you have adjusted the extent of eccentricity, the clearance provided between the needle and the looper when the looper tucks the thread should be re-adjusted. (Loosen the looper support arm and re-adjust the clearance.)

- 3) Reference for adjustment

Standard adjustment when using a needle of which needle count is #12 (Nm80)

Turn the handwheel to raise the needle until the needle bar lower bushing is spaced 9.3 mm from the top face of the needle clamp. Now, securely tighten screws ① with the screw No. 1 in the eccentric cam aligned with the tapped hole in the forked sheath.



* When a needle of which number count is #16 (Nm100), the aforementioned dimension should be approximately 9.5 mm.

RESULTS OF IMPROPER ADJUSTMENT

If the clearance provided between the needle and the looper is larger than the specified value:

Stitch skipping will be caused.

If the clearance provided between the needle and the looper is smaller than the specified value:

Needle will break, bend or the needle tip will become blunt.

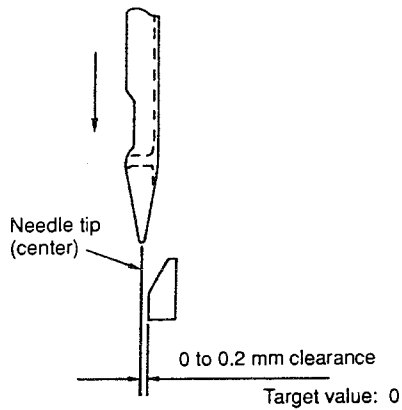
Looper will be damaged.

Thread breakage will result.

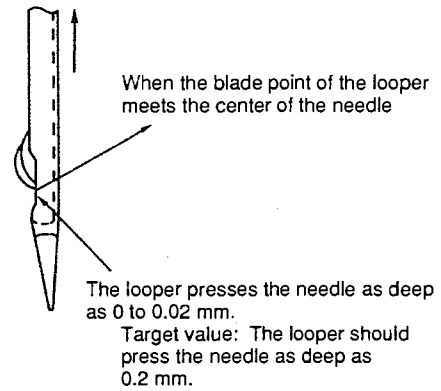
STANDARD ADJUSTMENT

(7) Clearance provided between the needle and the looper MS-1261/-1260/V045

When the needle and the looper intersect each other, the clearance, as shown below, should be provided between them.



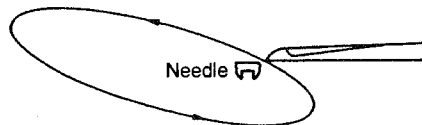
When the needle enters the material



When the looper tucks the thread

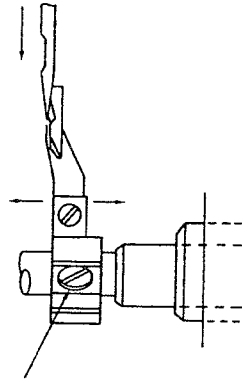
* When adjusting the clearance provided between the needle and the looper, attach importance on the clearance provided between them "when the needle enters the material."

Locus of the looper The locus of which left-hand side is raised is made.



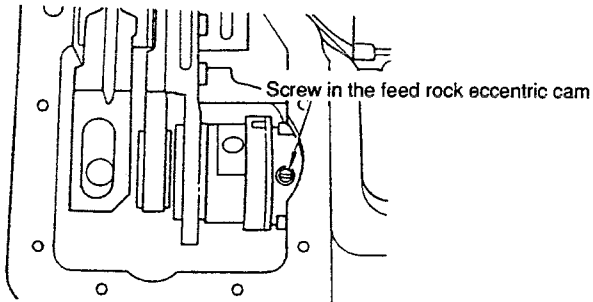
HOW TO ADJUST

- 1) When the needle enters the material, a clearance of 0 to 0.2 mm should be provided between the back of the looper and the tip of the needle. Loosen the screw in the looper support arm and properly adjust the clearance by moving the looper back or forth.

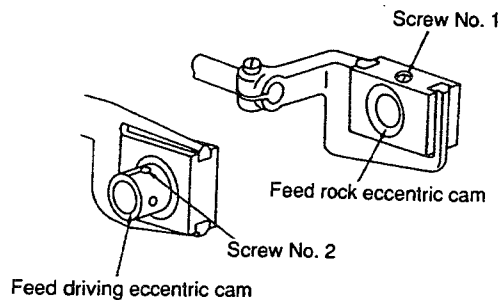


Screw in the looper support arm

- 2) Adjust the clearance provided between the needle and the looper when the looper tucks the thread, by moving the feed rock eccentric cam, so that the looper presses the needle as deep as 0 to 0.2 mm.



(Caution) If the feed rock eccentric cam is turned excessively toward you, the left-hand side of the locus of the looper will be lowered. So, be careful.



* As reference to be taken when adjusting the position of the feed rock eccentric cam, position it so that the screw No. 2 in the feed driving eccentric cam is almost aligned with the screw No. 2 in the feed rock eccentric cam.

RESULTS OF IMPROPER ADJUSTMENT

When the needle enters the material:

- If the needle overlaps the looper, the top end of needle will be blunt or the needle will break.
- If the clearance between the looper and the needle is larger than the specified value, stitch skipping will occur at the back of the looper.

When the looper tucks the thread:

- If the looper excessively presses the needle, the needle will break.
- If the looper is positioned too far from the needle, stitch skipping will occur when the looper tucks the thread.

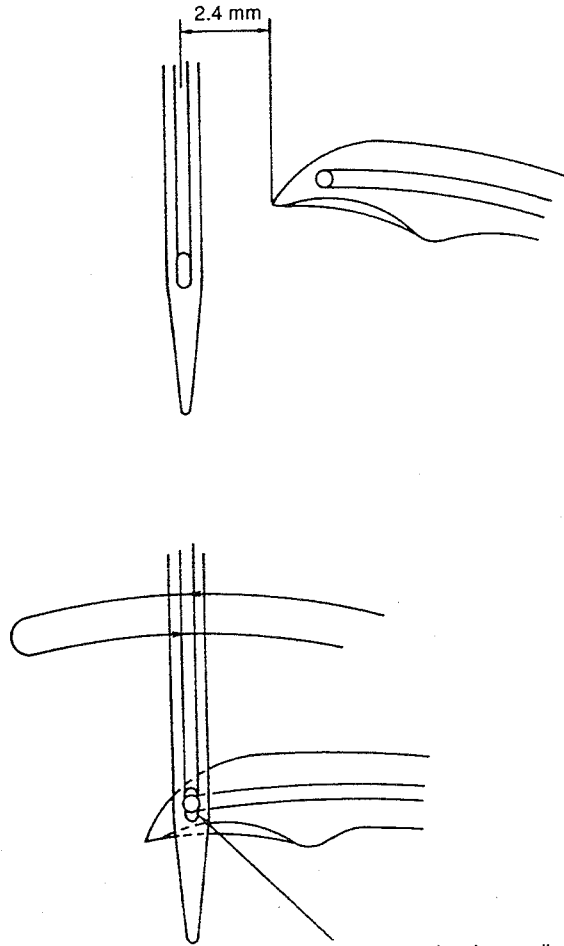
Locus of the looper

- If the left-hand side of the looper is lowered, stitch skipping or needle breakage will occur.

STANDARD ADJUSTMENT

(8) Looper timing **MS-1190/-1190M**

- 1) The looper should reach the backward travel end when the needle bar is in the lowest dead point.
- 2) When the needle bar is in the lowest dead point, the returning amount of the looper should be adjusted to 2.4 mm.
- 3) During the looper stroke, the thread hole in the looper should be aligned with the needle eyelet.

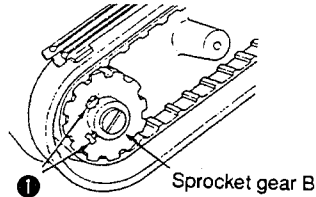


During the looper stroke, the needle eyelet should be aligned with the thread hole in the looper.

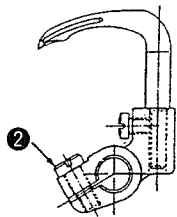
HOW TO ADJUST

RESULTS OF IMPROPER ADJUSTMENT

- 1) Turn the handwheel to bring the needle bar to the lowest dead point. Now, loosen screws ❶ in the sprocket gear B and adjust so that the looper reaches the backward travel end of its stroke. Then, temporarily tighten screws ❶.



- 2) Loosen screw ❷ in the looper support arm and adjust the looper support arm so that the returning amount of the looper from the center of the needle becomes 2.4 mm. Then, temporarily tighten screw ❷.



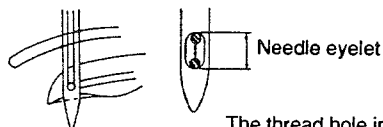
- 3) Turning the handwheel, check the relation between the needle and the looper.

The thread hole in the looper should be aligned with the needle eyelet while the looper makes the reciprocating motion.

If the thread hole in the looper is located higher or lower than the needle eyelet during the looper stroke, loosen screws ❶ in the looper driving gear sprocket gear B and adjust the relation between the needle and the looper.

If the needle hole in the looper is located higher or lower than the needle eyelet (the needle hole in the looper is located at the same position during the inward stroke and the outward one), loosen screw ❷ in the looper support arm and adjust the returning amount of the looper.

When adjusting the looper timing, give priority to the relation between the needle and the looper described in step 3 and use the returning amount of the looper described in step 2 for reference. Allowable dislocation of the thread hole in the looper, with respect to the needle eyelet, is such that the thread hole in the looper is not dislocated from the needle eyelet when the center of the needle eyelet aligns with the center of the thread hole in the looper.



The thread hole in the looper (⊗) should rest within the range shown in the figure on the left.

- 4) Securely tighten screws ❶ in the sprocket gear B and screw ❷ in the looper support arm.

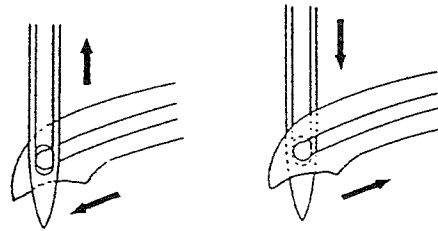
(Caution) This adjustment should be applied to the looper (L). After the adjustment, adjust only the returning amount of the looper (R) to align the needle eyelet with the thread hole in the looper.

- Stitch skipping or thread breakage will result.

STANDARD ADJUSTMENT

(9) Looper timing **MS-1261/-1260/V045**

During the looper stroke, the thread hole in the looper should be aligned with the needle eyelet.



Forward travel of the looper

Backward travel of the looper

Range of allowable dislocation

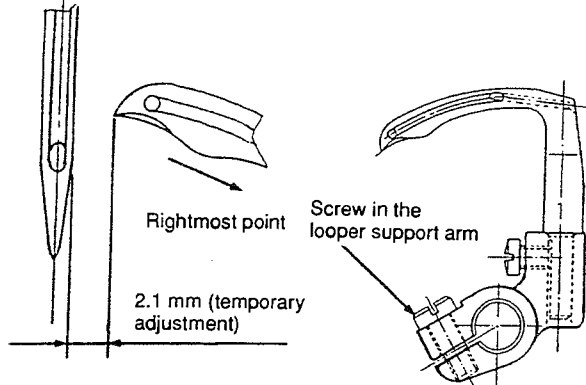


When the needle eyelet aligns with the hole in the looper, the hole in the looper should not move out of the needle eyelet in terms of the vertical direction.

HOW TO ADJUST

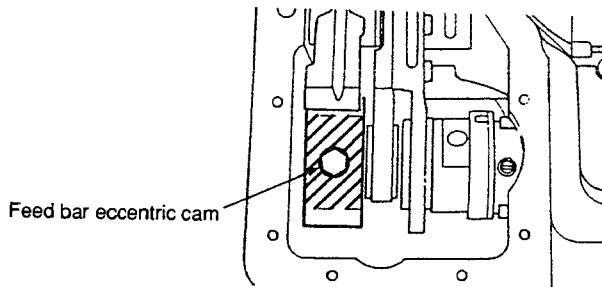
RESULTS OF IMPROPER ADJUSTMENT

- 1) Loosen the screw in the looper support arm and temporarily adjust the clearance provided between the end face of the needle and the blade point of the looper, when the looper is in the rightmost point of its stroke, to 2.1 mm.



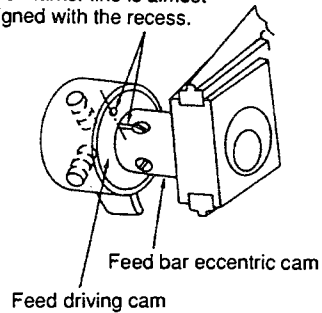
* Temporarily tighten the screw in the looper support arm.

- 2) Move the feed bar eccentric cam to adjust so that the hole in the looper aligns with the needle eyelet while the looper makes reciprocation motion.



* As reference to be used when adjusting the feed bar eccentric cam, position the cam so that the marker line engraved on the feed driving cam should be almost aligned with the recess on the end face of the feed bar eccentric cam.

The marker line is almost aligned with the recess.



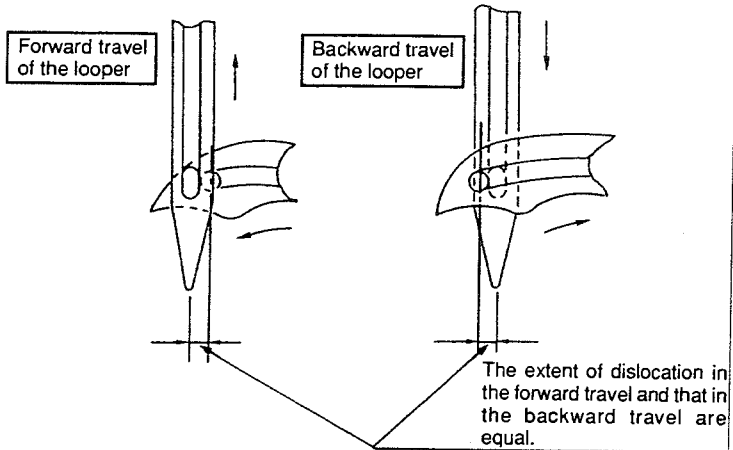
Stitch skipping or thread breakage will result.

STANDARD ADJUSTMENT

HOW TO ADJUST

RESULTS OF IMPROPER ADJUSTMENT

- 3) If the thread hole in the looper fails to be aligned with the needle eyelet during the looper stroke even after the feed bar eccentric cam timing has been properly adjusted, move the looper to adjust so that the thread hole in the looper meets the needle eyelet.



The extent of dislocation in the forward travel and that in the backward travel are equal.

This indicates that the timing of the feed bar eccentric cam timing has been correctly adjusted.

So, move the looper to adjust so that the thread hole in the looper is aligned with the needle eyelet.

<Item to be confirmed after the adjustment>

The range of allowable dislocation of the thread hole in the looper during the looper stroke should not exceed the top and bottom ends of the needle eyelet.

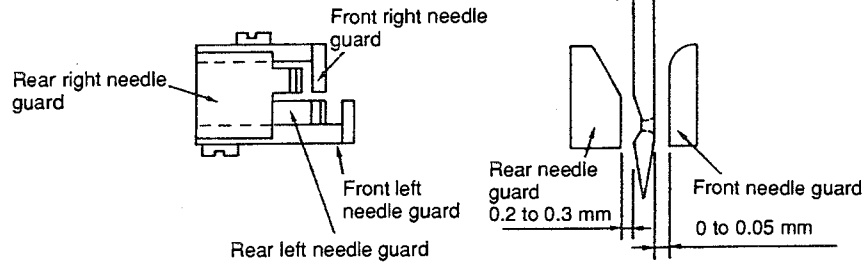
STANDARD ADJUSTMENT

(10) Clearance provided between the needle and the needle guards MS-1190/-1190M

Clearance between the needle and the needle guards

Front needle guards 0.2 to 0.3 mm

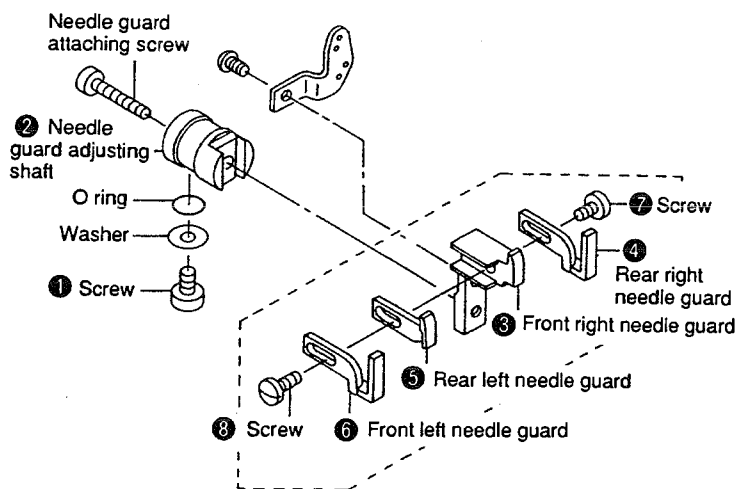
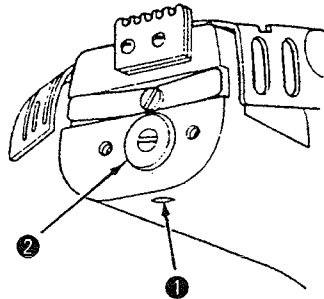
Rear needle guards 0 to 0.05 mm



HOW TO ADJUST

The clearance provided between the needle and the respective needle guards will change in accordance with the number count of a needle to be used. So, adjust the aforementioned clearance when necessary.

- 1) Loosen screw ① located on the underside of the bed. Then adjust the position of rear right needle guard ③ by moving needle guard adjusting shaft ② back or forth.



- 2) Adjust the clearance provided between the needle and front right needle guard ④. Then fix the needle guard with screw ⑦.
- 3) Adjust the clearance provided between the needle and rear left needle guard ⑤. Then fix the needle guard with screw ⑧.

RESULTS OF IMPROPER ADJUSTMENT

Rear needle guards

- Clearance provided between the needle and the rear needle guards is smaller than the specified value :
Needle will bend.
Needle thread will break.
- Aforementioned clearance is larger than the specified value :
Stitch skipping will occur at the overlapped section of a material.
Needle will break.

Front needle guards

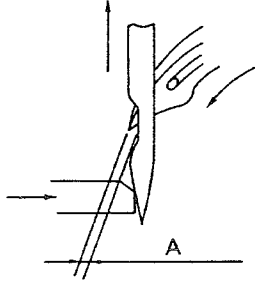
- Clearance provided between the needle and the front needle guards is smaller than the specified value :
Needle thread will break.
- Aforementioned clearance is larger than the specified value :
Stitch skipping will occur.

STANDARD ADJUSTMENT

(11) Adjusting the needle guards **MS-1261/-1260/V045**

Longitudinal position

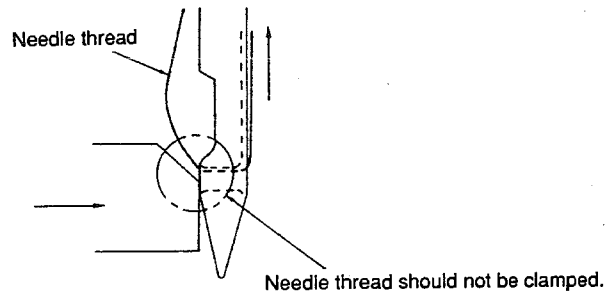
When the looper tucks the thread, clearance A provided between the needle and the looper when the blade point of the looper meets the center of the needle should be adjusted as shown in the table below.



	Clearance A
For heavy- to extra heavy-weight materials	0.1 to 0.2 mm
For medium-weight materials	0.05 to 0.1 mm

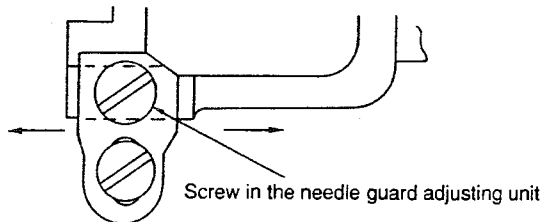
Vertical position

Raise the needle guard so that it does not clamp the needle thread when it starts to press the needle.

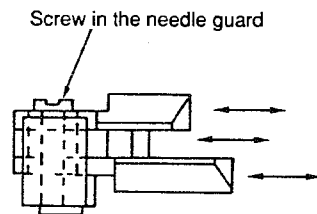


HOW TO ADJUST

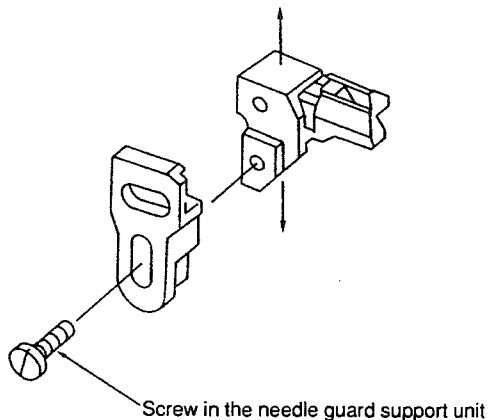
- 1) Loosen screws in the needle guard adjusting unit located on the left-hand side face of the feed dog.
Then adjust the longitudinal position of the needle guard by moving the entire unit of the needle guard.



- 2) If an equal clearance is not provided between the respective needles and needle guards, loosen the screw in the respective needle guards and adjust so that the clearances provided between the respective needles and needle guard are uniform.



- 3) Loosen the screw in the needle guard support unit of the needle guard adjusting unit. Then adjust the vertical position of the needle guard by moving the entire unit of the needle guard up or down.



RESULTS OF IMPROPER ADJUSTMENT

Longitudinal position

- Clearance provided between the needle and the needle guard is smaller than the specified value :
Stitch skipping will occur when the looper tucks the thread.
- Aforementioned clearance is larger than the specified value :
The blade point of the looper will come in contact with the needle.
Needle breakage will result.

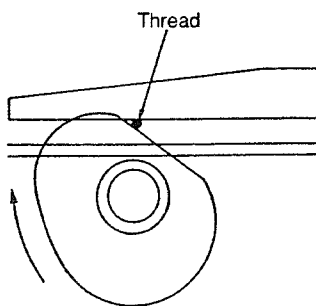
Vertical position

- The needle guard is excessively raised.
Thread loop for clamping the needle thread will tilt causing stitch skipping.
- The needle guard is excessively lowered.
The needle guard will fail to retain the needle.
This causes stitch skipping or causes the needle to come in contact with the looper when the looper tucks the thread.

STANDARD ADJUSTMENT

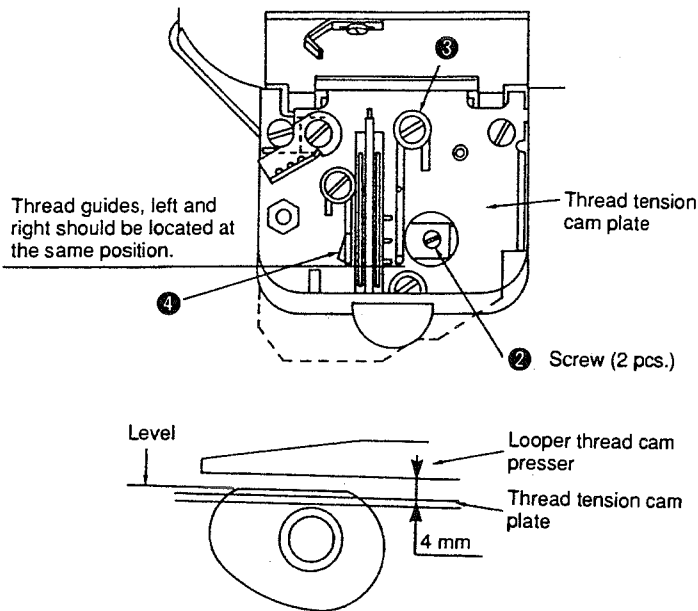
(12) Timing of the looper thread cam **MS-1190/-1190M**

The looper thread cam should be positioned so that it draws the thread when the looper starts to go backward.



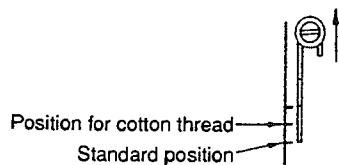
HOW TO ADJUST

- 1) Open the cam cover.
- 2) Loosen two screws ② in the looper thread cam, and adjust the timing of the looper thread cam.



A 4 mm clearance should be provided between the thread tension cam plate and the looper thread cam presser over the length.

- 3) Adjusting the looper thread cam thread guide
Adjust the position of the top end of the thread guide to the marker line engraved on the thread tension cam plate.
The standard position is obtained by adjusting the top end of the thread guide to the marker line this side.
To use a cotton thread, loosen screw ③, and adjust the top end of the thread guide to the center marker line. At this time, it is not necessary to adjust the timing of the looper thread cam.



(Caution) Thread guide, left ④ should be fixed to this side of the marker line engraved on the right-hand side of the thread tension cam plate. When performing adjustment step 3., keep thread guide, left ④ fixed at the aforementioned position.

RESULTS OF IMPROPER ADJUSTMENT

If the timing of the looper thread cam is earlier than the specified one:

Excessively-tensed seam will result, thereby impairing feeling of the finished seam.
Stitch skipping will result.

If the timing of the looper thread cam is later than the specified one:

Stitch skipping will result.

If the clearance between the thread tension cam plate and the looper thread cam presser is smaller than 4 mm:

Excessively-tensed seam will result, thereby impairing feeling of the finished seam.

If the clearance between the thread tension cam plate and the looper thread cam presser is larger than 4 mm:

Stitch skipping will result.

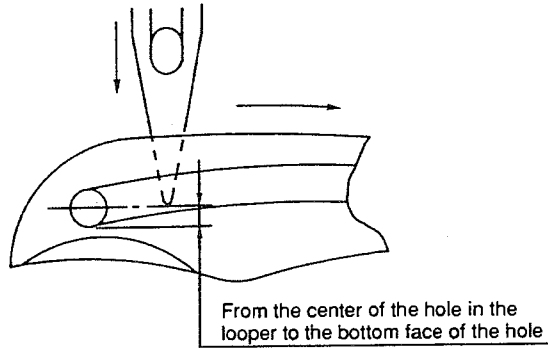
If the thread guides are not properly positioned:

Stitch skipping will result.
Excessively-tensed seam will result, thereby impairing feeling of the finished seam.

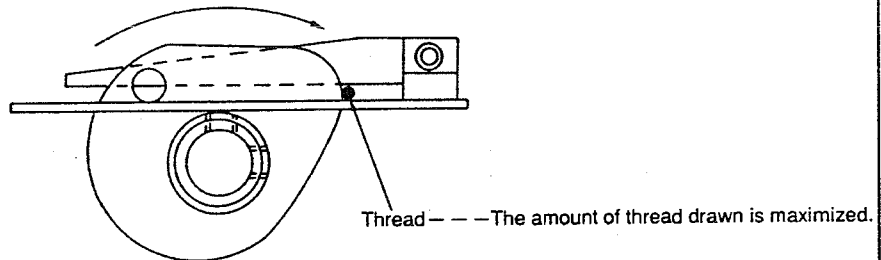
STANDARD ADJUSTMENT

(13) Timing of the looper thread cam MS-1261/-1260/V045

When the needle enters the material, the amount of thread drawn by the looper thread cam is maximized when the needle tip moves from the center of the hole in the looper to the bottom face of the hole.

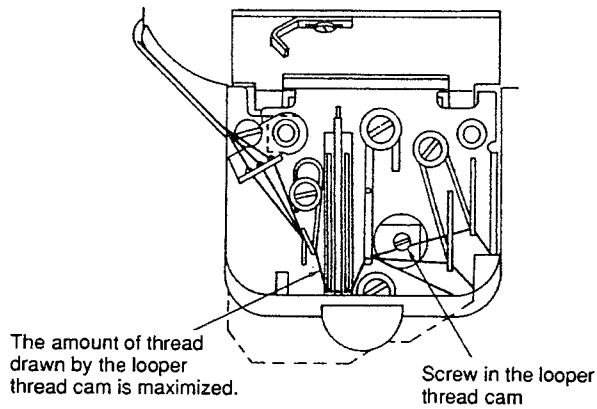


* Check the timing from which the looper starts drawing the thread when the looper moves backward from the leftmost position of its stroke.

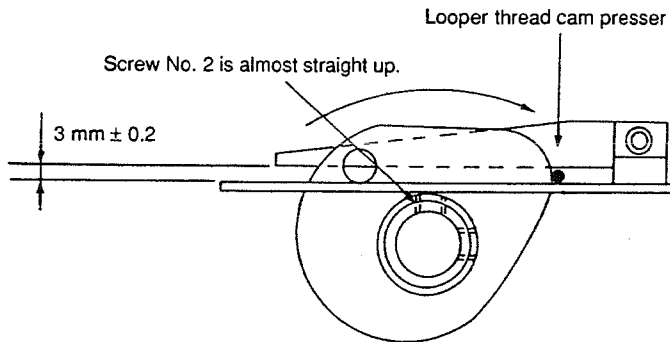


HOW TO ADJUST

- 1) Open the cam cover.
- 2) Loosen the two screws in the looper thread cam and adjust the timing of the looper thread cam. (The screw No. 2 is nearly straight up.)



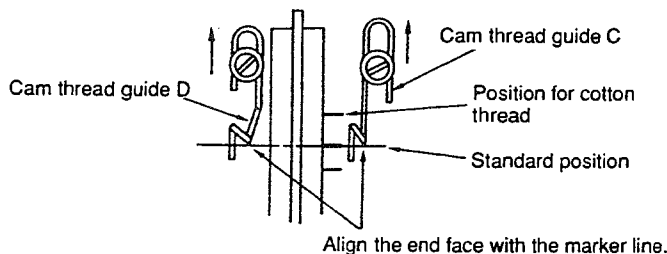
(Caution)



Also confirm that a clearance of $3 \pm 0.2 \text{ mm}$ is provided between the looper thread cam and the installing plate.

- 3) Thread guides C and D of the looper thread cam unit should be adjusted while selecting the marker line in accordance with the type of thread (span thread type and cotton thread type).

* The amount of thread to be fed changes in accordance with the type of thread and feed amount (stitch length) specified. So, adjust the looper thread cam when necessary.



RESULTS OF IMPROPER ADJUSTMENT

If the timing of the looper thread cam is earlier than the specified one:

- The looper thread will be loosened, causing stitch skipping at the back of the looper.

If the timing of the looper thread cam is later than the specified one:

- The timing at which the looper draws the thread is late, causing stitch skipping.

If the clearance provided between the looper thread cam presser and the installing plate is larger than the specified value :

- The timing at which the thread comes off the cam will be advanced. This slackens the thread at the back of looper, causing stitch skipping.

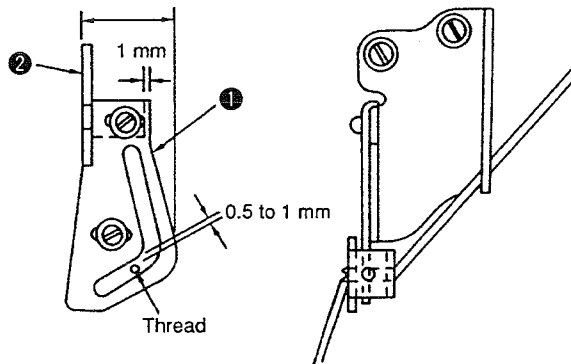
If the aforementioned clearance is smaller than the specified value :

- Since the thread will be twisted, feeling of the finished seam will be impaired.

STANDARD ADJUSTMENT

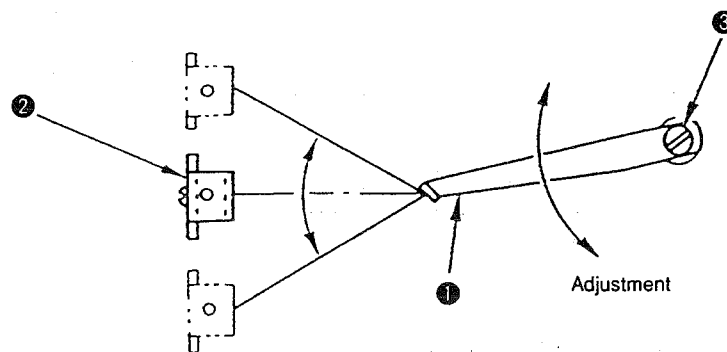
(14) Adjusting the position of the needle thread take-up thread guide **MS-1190**

- Span thread — Adjust the height (longitudinal position) of needle thread take-up guide ① to 1 mm above the mounting base ② .
- Tetron thread — When the needle bar is in the lowest dead point, a clearance of 0.5 to 1 mm should be provided between the thread and needle thread take-up guide ① .
- Cotton thread — To use a cotton thread, change the height of the needle thread take-up guide from 1 mm to 0. (The needle thread take-up guide should be flush with the mounting base.)
When the needle bar is in the lowest dead point, a 0.5 to 1 mm clearance should be provided between the thread and needle thread take-up guide ① .



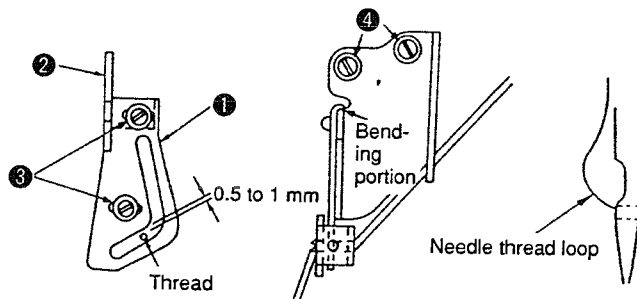
(15) Adjusting the intermediate thread guide **MS-1190M**

Loosen screw ③ and adjust the position of intermediate thread guide ① so that the thread is raised and lowered by an equal angle by the vertical movement of thread take-up ② .



HOW TO ADJUST

- Tension applied to the needle thread can be adjusted by changing the position of the thread take-up guide. Loosen screws ③ and adjust the position of the thread take-up guide using the bending section of thread take-up guide ① as reference.
 - Adjust the size of thread loop when using a cotton thread by changing the position of thread take-up guide ①. The size of thread loop will change in accordance with the type of thread and material to be used. So, adjust it when necessary.
- 1) Loosen two screws ④, and adjust the position of the thread take-up guide by moving it up or down.
 - 2) Adjust so that a clearance of 0.5 to 1 mm is provided between the needle thread and thread take-up guide ①.
 - 3) Lowering the position of the thread take-up guide will make thread loops smaller or raising it will make thread loops larger.



RESULTS OF IMPROPER ADJUSTMENT

If the height of needle thread take-up guide is smaller than 1 mm :

Balloon stitches will not be made.
Needle thread tension will be defective.

If the height of needle thread take-up guide is larger than 1 mm :

Thread breakage will result.
(For cotton thread, change the height of the thread take-up guide from 1 mm to 0 mm.)

If the clearance provided between the needle thread and the thread take-up guide is smaller than 0.5 to 1 mm :

Stitch skipping will result.

If the aforementioned clearance is smaller than 0.5 to 1 mm:

Stitch skipping will occur.
Balloon stitches will not be made.
Needle thread tension is insufficient.

- Adjust the position of the intermediate thread guide, when necessary, in accordance with the type or number count of thread and the type of material to be used.

Raise the position of the intermediate thread guide, and needle thread loops will be larger. In this case, the tension applied to the needle thread at the back of the looper will be higher.

Lower the position of the intermediate thread guide, and needle thread loops will be smaller. In this case, the tension applied to the needle thread at the back of the looper will be lower.

If the position of the intermediate thread guide is too high:

Stitch skipping will result.
Thread breakage will result.

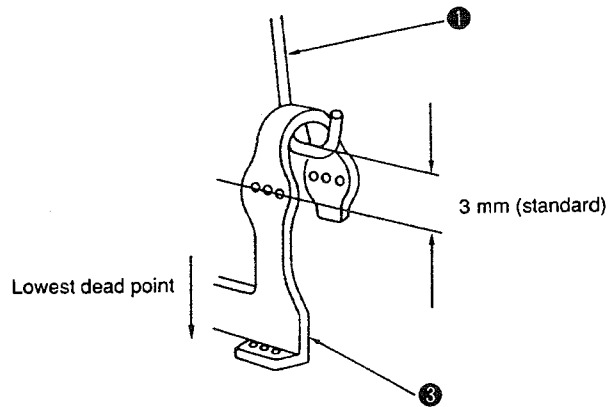
If the position of the intermediate thread guide is too low:

Stitch skipping will result.

STANDARD ADJUSTMENT

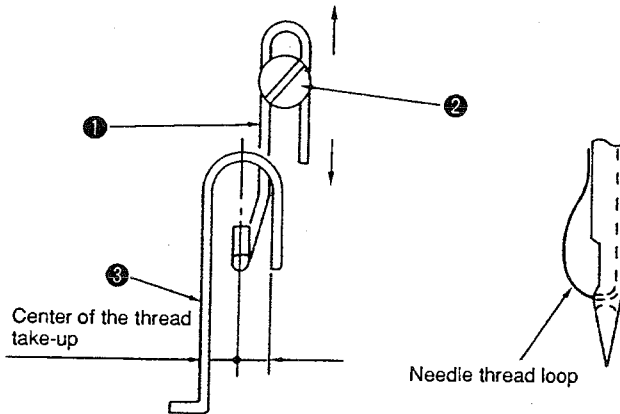
(16) Adjusting the take-up thread tension control lever **MS-1261/V045**

When the needle bar is in the lowest dead point, top end of take-up thread tension control lever ❶ should be 3 mm above the top end of thread holes in needle thread take-up lever ❸.



HOW TO ADJUST

- 1) The needle thread loop size changes in accordance with the type of material, thread or needle to be used. So, adjust it when necessary.
- 2) Loosen screw ② in the take-up thread tension control lever and adjust the needle thread loop size by moving the lever.



(Caution) After the completion of the adjustment, confirm that the take-up thread tension control lever is positioned almost at the center of the thread take-up lever. (Carefully prevent the take-up thread tension control lever from coming in contact with the thread take-up lever.)

For the sewing machine for medium-weight materials (including MS-1260/V045), larger needle thread loops will be made when sewing a medium-weight material with a thin thread. In this case, loops will tilt resulting in stitch skipping. So, lower the take-up thread tension control lever to appropriately adjust the amount of thread to be drawn while checking the thread loops.

RESULTS OF IMPROPER ADJUSTMENT

If the amount of thread to be drawn is excessively increased:

Larger needle thread loops are made. In this case, loops tilt when the looper tucks the thread, resulting in stitch skipping.

If the amount of thread to be drawn is excessively decreased:

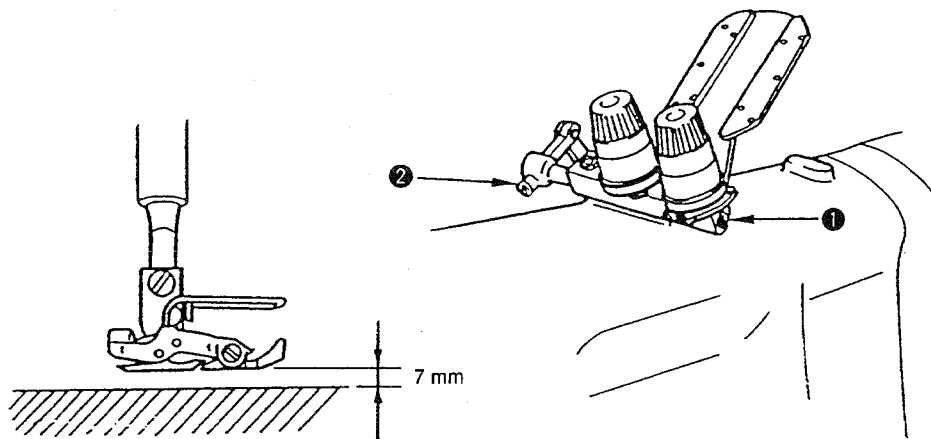
Smaller needle thread loops are made. In this case, stitch skipping occur when the looper tucks the thread.

STANDARD ADJUSTMENT

(17) Adjusting the position of the tension releaser **MS-1190/-1190M/-1261**

Adjust so that the needle thread tension is released when the presser foot is raised 7 mm above the top surface of the throat plate.

Loosen screw ② in tension releasing shaft ①, and turn the tension releasing shaft clockwise or counterclockwise for adjustment.



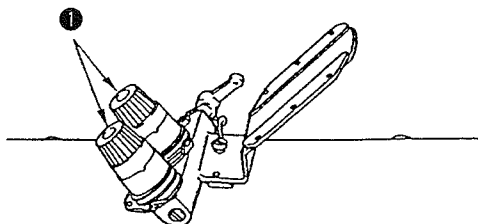
HOW TO ADJUST	RESULTS OF IMPROPER ADJUSTMENT
<p>Same as the description on the previous page.</p>	<ul style="list-style-type: none">• If the tension releaser actuates before the presser foot goes up as high as 7 mm, the thread tension will be released when a thick part of material is sewn. As a result, the needle thread will not be tensed.

STANDARD ADJUSTMENT

(18) Adjusting the thread tension **MS-1190/-1190M**

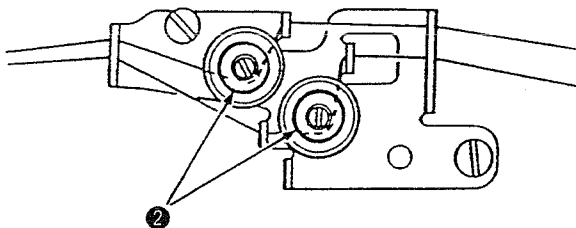
1) Adjusting the needle thread tension

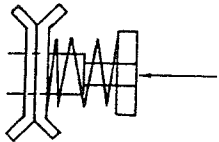
Turn tension nut ❶ clockwise, and the needle thread tension will be increased. Turn the nut counterclockwise, and the needle tension will be decreased.



2) Adjusting the looper thread tension

Turn the looper thread tension adjusting screw ❷ clockwise, and the looper thread tension will be increased. Turn the adjusting screw counterclockwise, and it will be decreased.



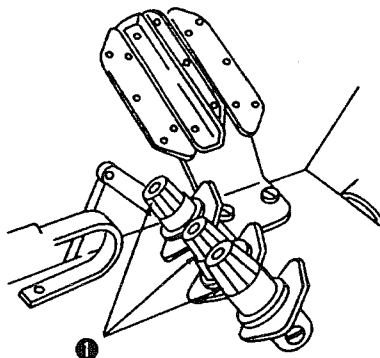
HOW TO ADJUST	RESULTS OF IMPROPER ADJUSTMENT
<p data-bbox="289 268 991 331">Adjust the thread tension, when necessary, in accordance with the type or number count of the thread or type of material to be used.</p> <p data-bbox="322 426 987 457">Position of the looper thread tension adjusting dial (standard position)</p> <div data-bbox="383 499 892 640">  <p data-bbox="602 552 892 604">Make the top end of the tension post flush with the dial surface.</p> </div>	<div data-bbox="1044 275 1430 338" style="border: 1px solid black; padding: 2px;"> <p data-bbox="1044 275 1430 338">If the needle thread tension is too high :</p> </div> <p data-bbox="1070 346 1354 405">Thread breakage will occur. Puckering will occur.</p> <div data-bbox="1044 432 1430 495" style="border: 1px solid black; padding: 2px;"> <p data-bbox="1044 432 1430 495">If the needle thread tension is too low :</p> </div> <p data-bbox="1070 504 1326 531">Loose stitches will result.</p> <div data-bbox="1044 564 1430 627" style="border: 1px solid black; padding: 2px;"> <p data-bbox="1044 564 1430 627">If the looper thread tension is too high :</p> </div> <p data-bbox="1070 636 1417 695">Finished seam with stiff appearance will result.</p> <div data-bbox="1044 722 1430 785" style="border: 1px solid black; padding: 2px;"> <p data-bbox="1044 722 1430 785">If the looper thread tension is too low :</p> </div> <p data-bbox="1070 793 1326 821">Stitch skipping will result.</p>

STANDARD ADJUSTMENT

(19) Adjusting the thread tension MS-1261/-1260/V045

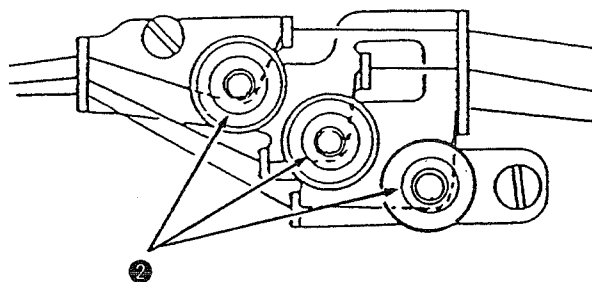
1) Adjusting the needle thread tension

Turn tension nut ❶ clockwise to increase the needle thread tension, or counterclockwise to decrease it.



2) Adjusting the looper thread tension

Turn looper thread tension control plate adjusting screws ❷ clockwise to increase the looper thread tension, or counterclockwise to decrease it.

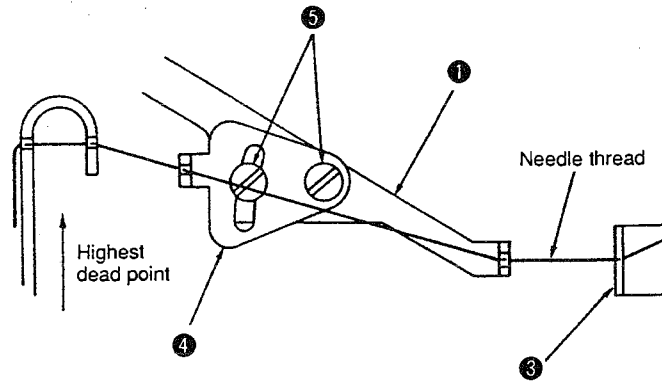


HOW TO ADJUST	RESULTS OF IMPROPER ADJUSTMENT
<p>Adjust the thread tension, when necessary, in accordance with the type of thread or material to be used.</p>	<p>Needle thread tension</p> <ul style="list-style-type: none"> • If the needle thread tension is too high : Needle thread breakage will occur. • If the needle thread tension is too low : Needle thread of finished stitches will rise. <p>Looper thread tension</p> <ul style="list-style-type: none"> • If the looper thread tension is too high : Stitches will be excessively tensed causing the needle thread to rise. • If the looper thread tension is too low : Thread will slack.

STANDARD ADJUSTMENT

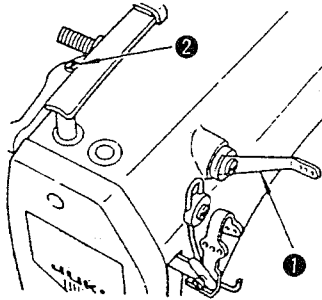
(20) Position of the intermediate tension releasing lever and the thread guide of needle thread tension controller **MS-1261/-1260/V045**

- 1) When the needle bar is in the highest dead point, intermediate tension releasing lever ① should be position to make the thread coming from intermediate needle thread guide ③ in parallel to the intermediate tension releasing lever.
- 2) In addition, thread guide ④ of the needle thread tension controller should be positioned to make the thread coming from the intermediate tension releasing lever straight-line.

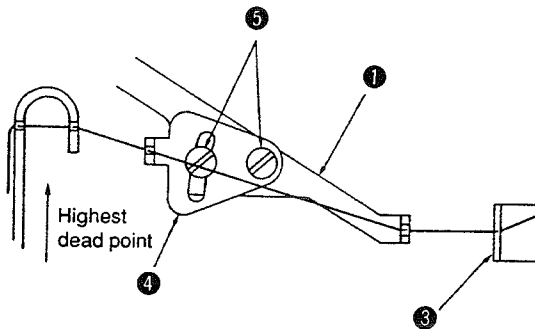


HOW TO ADJUST

- 1) Loosen screw ② in the intermediate tension releasing arm and adjust intermediate tension releasing lever ① so that the thread coming from intermediate needle thread guide ③ is in parallel to the intermediate tension releasing lever.



- 2) Loosen two screws ⑤ and adjust the position of thread guide ④ of the needle thread tension controller.



RESULTS OF IMPROPER ADJUSTMENT

Position of the intermediate tension releasing lever

- If the intermediate tension releasing lever is positioned too high :
Larger thread loops will be made.
- If the intermediate tension releasing lever is positioned too low :
Smaller thread loops will be made when the overlapped section of a material is reached.

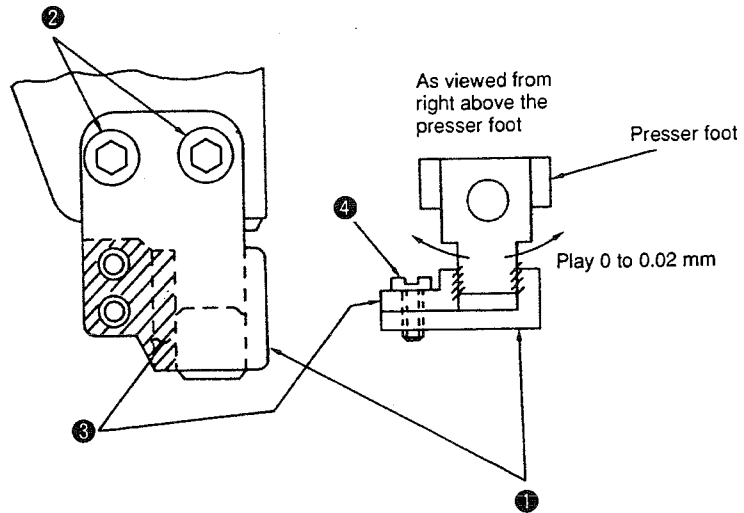
Position of the thread guide of the needle thread tension controller

- If the thread guide is positioned too high :
Needle thread will be excessively tensed.
- If the thread guide is positioned too low :
Needle thread will not be sufficiently tensed.

STANDARD ADJUSTMENT

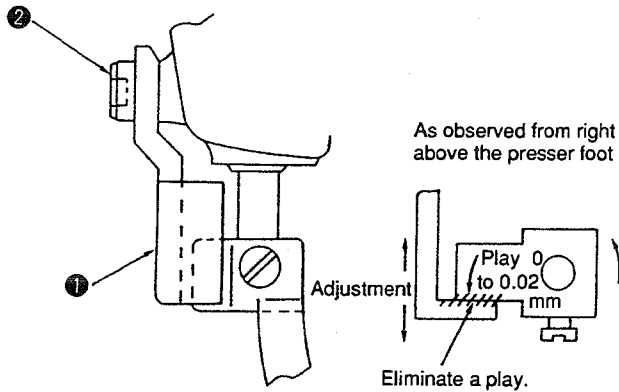
(21) Eliminating a play in the presser foot **MS-1261/-1260/V045**

Lateral play in the presser foot should be 0 to 0.02 mm. The presser foot should fall by its dead weight.

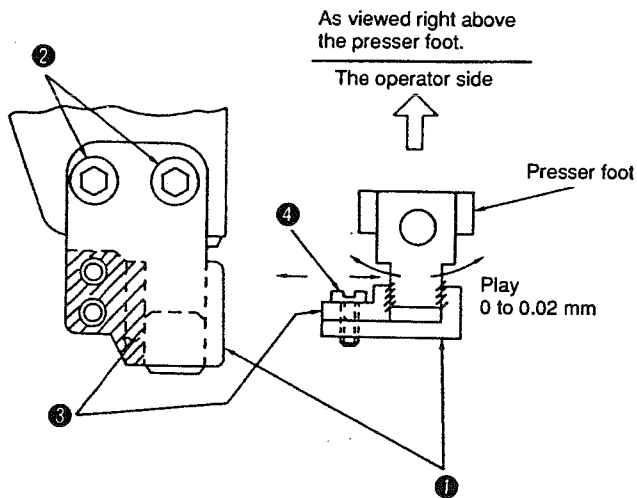


HOW TO ADJUST

- 1) Check the needle entry in the presser foot.
- 2) Loosen screw ② which retains presser foot guide (A) ①. Remove a play in the presser foot by moving the presser foot guide (A).



- 3) Loosen the screw ④ used to retain the presser foot guide (B) ③ and eliminate a play by moving the guide (B).



(Caution) Confirm that the play in the presser foot is 0 to 0.02 mm within the operating range and that the presser foot falls by its dead weight.

RESULTS OF IMPROPER ADJUSTMENT

If the play in the presser foot is too large :

The presser foot vibrates side to side when the machine sews the overlapped section of a material. This will cause failed lift of the presser foot. This will also cause stitch gathering on the overlapped section of the material.

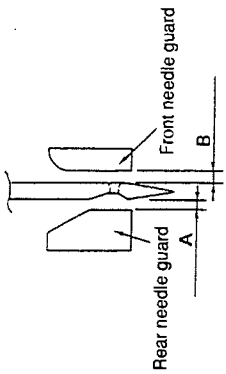
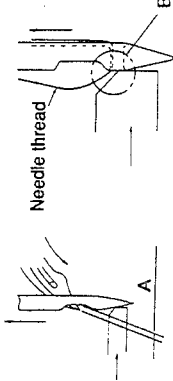
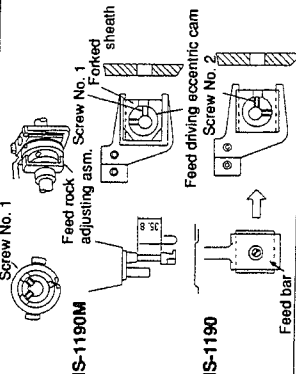
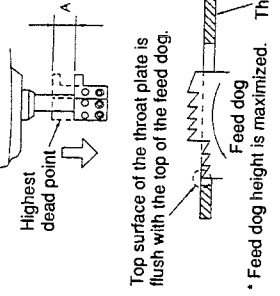

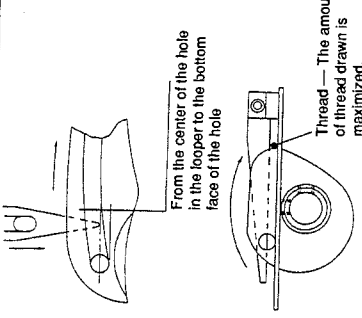
If the play in the presser foot is insufficient (If the presser foot is pushed against the related components):

Failed operation of the presser foot will result.

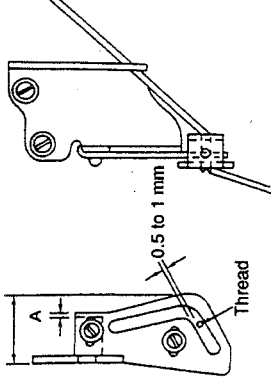
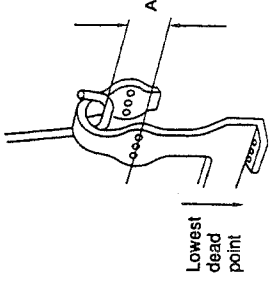
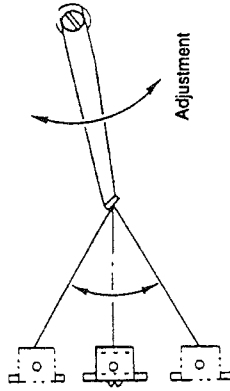
5. Major adjustment value table

Model		Standard adjustment	Item	Standard adjustment	Model	
MS-1190M	MS-1190				MS-1261/V045	MS-1260/V045
↑	Dimension A : 36.8 mm		Needle bar height		Dimension A : 40.4 ± 0.1 mm	↓
Dimension A : 1.0 mm	Dimension A : 0.8 mm		Feed dog height		Dimension A : 1.5 mm	↓
↑	Needle eyelet is aligned with the hole in the looper during the looper stroke.		Looper timing		Needle eyelet is aligned with the hole in the looper during the looper stroke.	↓
↑	Dimension A : 0 to 0.05 mm (When the looper tucks the thread) Dimension B : 0 ± 0.05 mm (Back of the looper) (Caution) Adjust the clearance between the needle and the looper in accordance with the number count of needle to be used.		Clearance between the needle and the looper		Dimension A : 0 to 0.02 mm (When the looper tucks the thread) The looper pushes the needle. Dimension B : 0 to 0.02 mm (Back of the looper)	↓

Major adjustment value table

Model		Standard adjustment	Item	Standard adjustment	Model	
MS-1190M	MS-1190					
<p>↑</p> <p>Fix the screw No. 1 of the feed rock cam on the flat portion No. 2 on the hook driving shaft.</p> <p>Fix the screw No. 1 of the feed driving eccentric cam when dimension A is 35.8 mm (in terms of the ascending direction of the needle bar).</p>	<p>Dimension A : 0 to 0.05 mm (Rear needle guard)</p> <p>Dimension B : 0.2 to 0.3 mm (Front needle guard)</p> <p>(Caution) Adjust the clearance between the needle and the needle guard in accordance with the number of count of needle to be used.</p>	 <p>Rear needle guard</p> <p>Front needle guard</p>	<p>Clearance between the needle and the needle guard</p>	 <p>Needle thread</p>	<p>MS-1261/V045</p> <p>When the looper point meets the center of the needle during the thread tucking process of the looper, clearance A provided below should be stated between the needle and the looper. For heavy- to extra heavy-weight materials 0.1 to 0.2 mm For medium-weight materials 0.05 to 0.1 mm * The position of the needle guard should be slightly raised to adjust so that the needle thread is not clamped by portion B.</p>	<p>MS-1260/V045</p> <p>↓</p>
<p>↑</p> <p>Fix the screw No. 1 of the feed rock cam on the flat portion No. 1 on the looper driving shaft.</p> <p>When the screw No. 1 of the feed bar eccentric cam is aligned with the hole in the feed bar, fix the feed driving eccentric cam with its screw No. 2 aligned with the tapped hole in the forked sheath.</p>	<p>MS-1190M</p> <p>MS-1190</p>		<p>Feed timing</p>	 <p>Highest dead point</p> <p>Top surface of the throat plate is flush with the top of the feed dog.</p> <p>* Feed dog height is maximized.</p>	<p>Dimension A : 9.7 ± 0.1 mm</p> <p>Dimension A : 8.1 ± 0.1 mm</p>	<p>↓</p>
<p>↑</p> <p>Fix the looper thread cam so that the looper thread starts to draw the thread when the looper starts to go backward.</p>		 <p>Thread</p>	<p>Looper thread cam timing</p>	 <p>From the center of the hole in the looper to the bottom face of the hole</p> <p>Thread - The amount of thread drawn is maximized.</p>	<p>Fix the looper thread cam so that, when the needle enters the material, the amount of thread drawn by the looper thread cam is maximized when the needle tip moves from the center of the hole in the looper to the bottom face of the hole.</p>	<p>↓</p>

Major adjustment value table

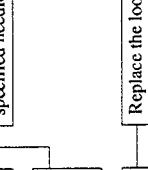
Model		Standard adjustment	Item	Standard adjustment	Model	
MS-1190M	MS-1190				MS-1261/V045	MS-1260/V045
	<p>Height of the thread take-up guide Dimension A</p> <p>Span thread, tetron thread → 1 mm Cotton thread → 0 mm</p> <p>Clearance between the thread take-up guide and the thread : 0.5 to 1 mm (when the needle bar is in the lowest dead point)</p>		Adjustment of the thread take-up lever		<p>Dimension A : 0 mm (Dimension A) (The amount of thread drawn is 0 mm)</p>	
<p>The thread should be raised and lowered by an equal angle by the vertical movement of the thread take-up lever.</p>			Adjusting the intermediate thread guide			

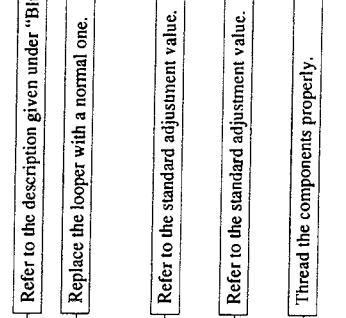

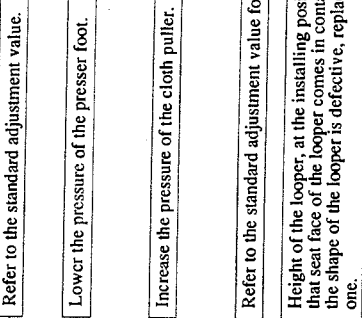
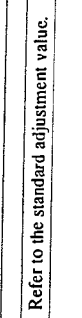
6. Troubles and corrective measures

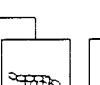

Trouble	Cause (1)	Cause (2)	Order of inspection and adjustment procedure
1. Needle thread breakage	Threading	Thread has tangled round the take-up thread guide or the machine head has been improperly threaded.	Refer to the threading diagram.
	Thread path	Scratches, burrs, stains or the like on the periphery of the needle slot in the throat plate, looper, needle bar, thread take-up lever, thread guide of the needle clamp, tension disk, take-up thread guide or other components result in a resistance.	Remove the scratches or burrs and properly finish the thread path. However, if an important part such as looper and needle is defective and it will be deformed by the correction, replace it with a new one.
	Needle guard	If the needle guard is positioned too high and the needle thread comes in excessive contact with the needle guard, the needle guard rubs the needle thread resulting in thread breakage.	Refer to the standard adjustment value.
	Needle	The needle used is too thin for the thread used.	Replace the needle with an appropriate one.
	Needle becomes hot.	The needle becomes hot in accordance with the type of material, the number of plies of the material and sewing speed causing the thread to break.	Use a needle of higher number count. Reduce the sewing speed. Use a needle cooler or a silicon oil lubricating unit.
	Thread	The thread used is poor in quality and lacks durability.	Replace the thread with a high-quality one.
	Thread tension	The thread tension is too high.	1190 Lower the thread tension. Check whether the needle thread take-up guide is positioned too high. 1190M Lower the thread tension. Set the intermediate thread guide to the correct position. 1261 Lower the looper thread tension and needle thread tension. Properly position the thread guide of needle thread tension controller.
	Contact	The installing height of the looper is not proper, causing the looper to come in contact with the feed dog and the throat plate.	Set the looper to the correct position while pressing the looper against the support arm.
	The looper tucks the thread twice.	The needle thread which has not been properly drawn up in the previous operation step is tucked by the looper again.	1190 Increase the needle thread tension. Set the needle thread take-up guide to the correct position. 1190M Increase the needle thread tension. Set the intermediate thread guide to the correct position. 1261 Increase the needle thread tension. Set the thread guide of the needle thread tension controller to the correct position.
	Defective chain-off thread	Refer to the description given under the "Defective chain-off thread."	

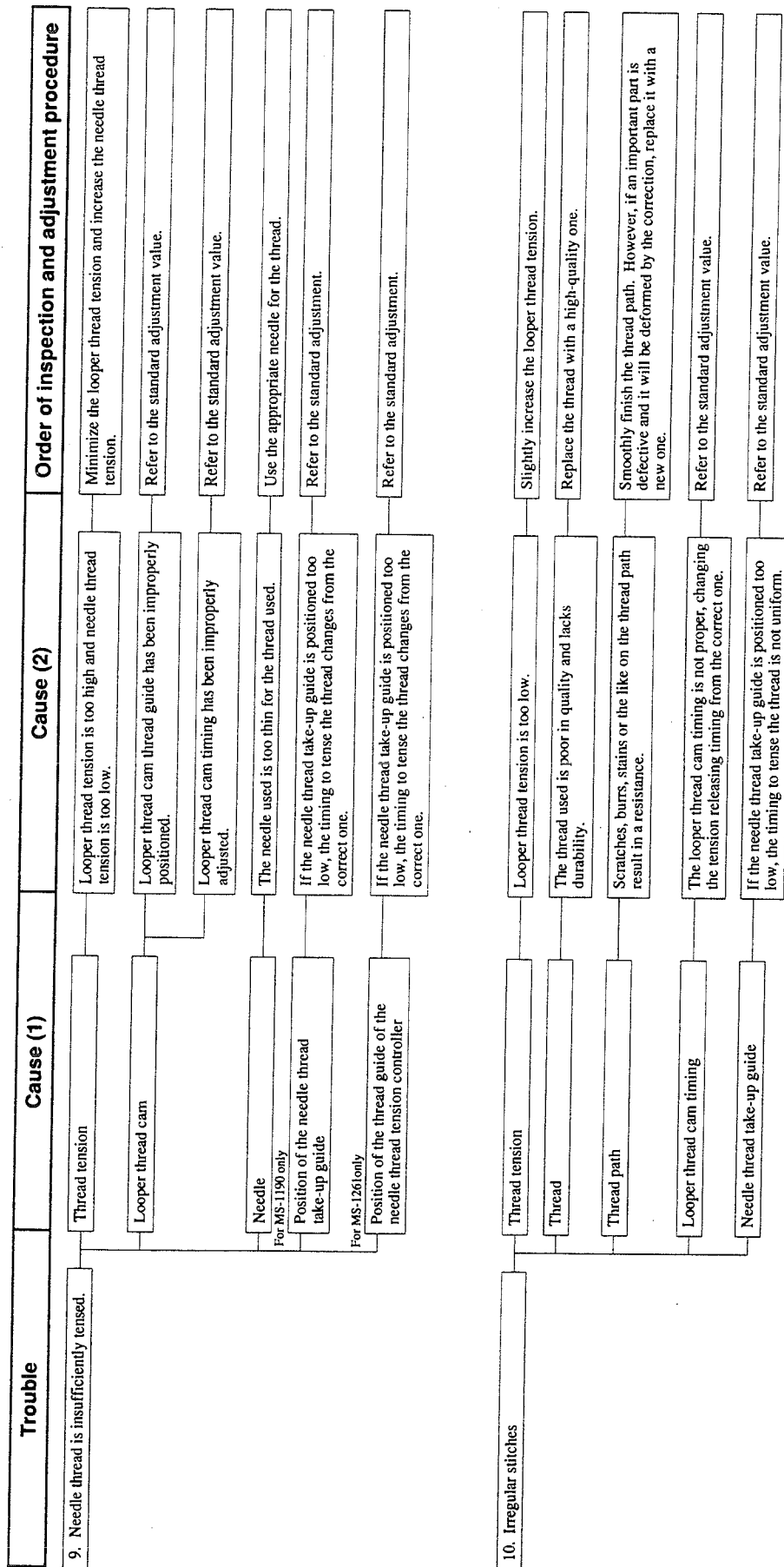
Trouble	Cause (1)	Cause (2)	Order of inspection and adjustment procedure
2. Loper thread breakage	Thread path	Scratches, burrs, stains or the like on the looper, looper thread cam, take-up thread guide and tension disk or other components result in a resistance.	Remove the scratches or burrs and properly finish the thread path. However, if an important part such as looper is defective and it will be deformed by the correction, replace it with a new one.
	Looper thread cam timing	The looper thread cam timing is improper resulting in an excessive looper thread tension.	Refer to the standard adjustment value.
	Thread tension	The looper thread tension is too high.	Decrease the looper thread tension while checking the thread balance between the needle thread and other looper threads.
	Thread	The thread used is poor in quality and lacks durability.	Replace the thread with a high-quality one.
	Position of the looper thread cam thread guide	The tension controller is improperly positioned. In this case the amount of thread drawn by looper is not correct.	Set the tension controller to the correct position so that the proper amount of thread is drawn by looper.
	Needle becomes hot.	If the needle becomes hot, particularly when the sewing machine stops, the looper thread comes in contact with the hot needle and breaks.	Refer to the description given under "Needle thread breakage."

Trouble	Cause (1)	Cause (2)	Order of inspection and adjustment procedure
3. Needle breakage	Needle entry	The needle entry in the throat plate is not aligned with the needle entry in the presser foot. As a result, the needle hits against the throat plate or the presser foot.	Properly adjust the needle entry.
	The needle has a blunt tip.	The needle bends excessively resulting in needle breakage.	Refer to the description given under "Blunt tip of the needle."
	The needle comes in contact with the looper.	The needle comes in contact with the looper, resulting in needle breakage.	Refer to the standard adjustment value.
	Needle guard	The needle comes in excessive contact with the needle guard. The needle tip comes in contact with the needle guard since the needle guard is improperly positioned.	Refer to the standard adjustment value.
	Number count of the needle	The needle used is too thin for the material used.	Replace the needle with a thicker one.
	Thread tension	The needle thread tension is too high.	Decrease the needle thread tension.
	Height of the feed dog and height of the needle	If the feed dog is positioned too high or the needle is positioned too low, the needle will sway resulting in needle breakage.	Refer to the standard adjustment value.
	Timing between the needle and the feed mechanism	If the timing of the feed mechanism with respect to the needle is excessively retarded, the needle will come in contact with the needle guard.	Refer to the standard adjustment value.
	Needle guard	The needle guard is positioned too low.	Refer to the standard adjustment value.
	Needle comes in contact with the looper.	The clearance provided between the needle and the looper has been improperly adjusted.	Refer to the standard adjustment value.
	Needle entry	The needle entry in the throat plate is not aligned with the needle entry in the presser foot. As a result, the needle hits against the throat plate or the presser foot.	Properly adjust the needle entry.
4. Blunt tip of the needle			


Trouble	Cause (1)	Cause (2)	Order of inspection and adjustment procedure
<p>5. Stitch skipping of needle thread of double chainstitches</p>	<p>Height of the needle</p>	<p>If the needle height is not properly adjusted, stitch skipping occurs even when the feed amount is properly adjusted.</p>	<p>Refer to the standard adjustment value.</p>
<p>The double chainstitch looper fails to tuck the needle thread loop.</p>	<p>Needle</p>	<p>The needle is bent or the installing direction is not correct. Use a needle of TVx64-NY or B-64 (SCHMETZ).</p>	<p>Replace the needle with a new one (and remove the cause to make the needle bend) while orienting the needle in the correct direction. Use a specified needle.</p>
<p>As observed from the back</p>  <p>Two stitches are deformed.</p>	<p>MS-1190 MS-1190M MS-1261</p>	<p>The needle is bent or the installing direction is not correct. Use a needle of UYx128GAS-NY or UY128GAS (SCHMETZ).</p>	<p>Replace the needle with a new one (and remove the cause to make the needle bend) while orienting the needle in the correct direction. Use a specified needle.</p>
	<p>Looper</p>	<p>The blade point of the looper is worn out. As a result, the looper fails to tuck the thread properly.</p>	<p>Replace the looper with a normal one.</p>
	<p>Looper timing</p>	<p>The clearance between the looper and needle and the timing of the looper are not properly adjusted.</p>	<p>Refer to the standard adjustment value.</p>
	<p>Thread tension</p>	<p>The thread tension is too high. As a result, proper thread loops cannot be made.</p>	<p>Properly adjust the thread tension.</p>
	<p>Needle guard</p>	<p>The needle guard is positioned too high, deforming the thread loops. The needle vibrates heavily since the clearance provided between the needle guard and the needle.</p>	<p>Refer to the standard adjustment value.</p>
	<p>Needle becomes hot.</p>	<p>The needle is seized in accordance with the type of material used, the number of piles of the material and sewing speed.</p>	<p>Use a needle with a higher number count. Reduce the sewing speed. Use a needle cooler or a silicon oil lubricating unit.</p>
	<p>Adjustment of the thread take-up lever</p>	<p>The take-up thread guide is improperly positioned, resulting in stitch skipping.</p>	<p>Refer to the standard adjustment value.</p>
	<p>MS-1190 MS-1190M MS-1261</p>	<p>The intermediate thread guide is improperly positioned, resulting in stitch skipping.</p>	<p>Refer to the standard adjustment value.</p>
	<p>MS-1190 MS-1190M MS-1261</p>	<p>The thread tension control lever of the thread take-up lever is improperly positioned, resulting in stitch skipping.</p>	<p>Refer to the standard adjustment value.</p>

Trouble	Cause (1)	Cause (2)	Order of inspection and adjustment procedure
<p>6. Stitch skipping of looper thread triangle of double chainstitches</p>  <p>The needle fails to tuck double chainstitch looper thread.</p> <p>As observed from the back</p> <p>One stitch is deformed.</p>	<p>The needle has a blunt tip.</p> <p>Looper</p> <p>Needle-to-looper timing</p> <p>Looper thread cam timing</p> <p>Threading failure MS-1261</p> <p>Locus of the feed mechanism</p> <p>Pressure of the presser foot</p> <p>Pressure of the cloth puller</p> <p>Feed pitch of the cloth puller</p>	<p>The blunt needle tip is short and thick.</p> <p>Thread hole at the top of the looper has worn out and has burrs. In this case, the thread is fed behind the looper.</p>  <p>The timing between the needle and the looper is not proper. As a result, the needle fails to enter the thread triangle.</p> <p>The looper thread slackens before the needle tip enters the thread triangle since the cam moves too early.</p> <p>The components around the looper thread cam have been improperly threaded.</p> <p>The locus of the feed mechanism is defective. As a result, the needle tip sways and fails to enter the thread triangle.</p> <p>If the pressure of the presser foot is too high, stitch gathering occurs at the overlapped section of the material resulting in stitch skipping.</p> <p>If the pressure of the cloth puller is too low, stitch gathering occurs at the overlapped section of the material resulting in stitch skipping.</p> <p>If the feed pitch is too small, resulting in slackened thread.</p>	<p>Refer to the description given under "Blunt tip of the needle."</p> <p>Replace the looper with a normal one.</p> <p>Refer to the standard adjustment value.</p> <p>Refer to the standard adjustment value.</p> <p>Thread the components properly.</p> <p>Refer to the standard adjustment value.</p> <p>Lower the pressure of the presser foot.</p> <p>Increase the pressure of the cloth puller.</p> <p>Refer to the standard adjustment value for the cloth puller.</p>
<p>7. Stitch skipping of needle thread triangle of double chainstitches</p>  <p>The needle fails to tuck the needle thread loop that is put on the double chainstitch looper. The needle enters outside or inside the needle thread loop.</p> <p>Loops are not completely tucked.</p> <p>The needle thread is brought to the next stitch.</p>	<p>Looper</p> <p>Needle-to-looper timing</p> <p>Thread tension</p> <p>Needle guard</p> <p>Feed timing of the cloth puller</p> <p>Feed pitch of the cloth puller</p> <p>Pressure of the presser foot</p> <p>Pressure of the cloth puller</p>	<p>The looper is positioned so high as to nearly come in contact with the throat plate. The shape of the thickest part of the looper is defective.</p>  <p>The timing between the needle and the looper is not proper. As a result, the needle fails to enter the thread triangle.</p> <p>Needle thread tension is too low.</p> <p>The needle guard is positioned too high, needle thread loops are caught by the needle guard.</p> <p>The feed timing of the cloth puller is improper. As a result, the needle sways.</p> <p>If the feed pitch is too small, resulting in slackened thread.</p> <p>If the pressure of the presser foot is too high, stitch gathering occurs at the overlapped section of the material resulting in stitch skipping.</p> <p>If the pressure of the cloth puller is too low, stitch gathering occurs at the overlapped section of the material resulting in stitch skipping.</p>	<p>Refer to the standard adjustment value for the cloth puller.</p> <p>Height of the looper, at the installing position, should be adjusted so that seat face of the looper comes in contact with the support arm. If the shape of the looper is defective, replace the looper with a new one.</p> <p>Refer to the standard adjustment value.</p> <p>Slightly increase the needle thread tension.</p> <p>Refer to the standard adjustment value.</p> <p>Refer to the standard adjustment value for the cloth puller.</p> <p>Refer to the standard adjustment value for the cloth puller.</p> <p>Lower the pressure of the presser foot.</p> <p>Increase the pressure of the cloth puller.</p>

Trouble	Cause (1)	Cause (2)	Order of inspection and adjustment procedure
8. Defective chain-off thread	Needle-to-looper relation	If the looper moves along the locus of which right-hand side is raised, the thread will slack, resulting in stitch skipping.	Refer to the standard adjustment value.
	Needle-to-looper timing	The needle-to-looper timing is improper when the looper tucking the thread or at the back of the looper.	Refer to the standard adjustment value.
	Needle guard	If the needle guard is positioned too high, it will deform the loops.	Refer to the standard adjustment value.
	Installing position of the throat plate	The needle entry in the throat plate is not correct.	Properly position the throat plate.
	Throat plate	<small>Only for MS-1190</small> If the throat plate is improperly positioned in terms of lateral direction with respect to the feed dog, chain-off thread will fail. 	Chain-off thread is not clamped, resulting in defective chain-off thread. So, correct the throat plate or replace it with a new one which has a flat cross-over section.
	Presser foot	<small>Only for MS-1190</small> If the cross-over section at the rear of the needle entry slot in the throat plate is indented, chain-off thread will not be clamped. 	Correct the chain-off thread presser so that it is flush with the sole of the presser foot or replace it with a new one.
	Feed dog	The top end of the main feed dog is so sharp that it cuts chain-off thread.	Buff up the top end of the feed dog.
	Looper thread cam timing	If the timing of the looper thread cam is not correct, thread will slack or will be excessively tensed, resulting in defective chain-off thread.	Refer to the standard adjustment value.
	Position of the thread guide of the looper thread cam	If the thread guide is moved too far from the position at which it draws an appropriate amount of thread, the thread will slack causing stitch skipping.	Properly position the thread guide of the looper thread cam so that it draws an appropriate amount of thread.
	Thread tension	If the needle thread tension is higher than the specified value, chain-off thread will fail, resulting in stitch skipping.	Lower the thread tension to an adequate value.
	Feed pitch	If the feed pitch is too small (1.5 mm or less), stitch skipping will result.	Increase the feed pitch.
	Position of the cloth puller	If the cloth puller is too far from the needle entry, chain-off thread will come off.	Refer to the Engineer's Manual for the cloth puller.
		If a larger clearance is provided between the cloth puller and the throat plate, chain-off thread will fail, resulting in stitch skipping.	Refer to the Engineer's Manual for the cloth puller.



Trouble	Cause (1)	Cause (2)	Order of inspection and adjustment procedure
11. Uneven material feed	Presser foot pressure	If the presser foot pressure is too high, uneven material feed will be caused.	Lower the pressure of the presser foot. However, this measure cannot be used to prevent uneven material feed caused by puckering.
	Presser foot	Presser foot hinge cannot be moved smoothly.	Adjust so that the hinge is smoothly moved while preventing a play at the hinge.
		Scratches on the sole of the presser foot or poorly finished sole cause a resistance.	Smoothly finish the sole of the presser foot (using a buff or the like) since the lower cloth is excessively fed and the upper cloth is insufficiently fed because the presser foot sole impairs the smooth feed of the upper cloth.
		If the presser bar fails to smoothly operate, the presser foot pressure is increased.	Adjust so that the presser bar smoothly operates.
	Stepped part of the presser foot	If the recess on the center of the presser foot, a resistance will be applied to the upper cloth, resulting in uneven material feed.	Replace the defective presser foot with a normal one.
		Difference in height between the right- and left-hand sides of the presser foot is not appropriate for the material thickness.	Adjust the difference in height in accordance with the material thickness.
	Height of the feed dog	Feed dog height is not proper.	Refer to the standard adjustment value.
	Stepped part of the feed dog	Stepped part of the feed dog is not appropriate for the material thickness.	Adjust the stepped part in accordance with the material thickness.
	Pressure of the cloth puller	If the cloth puller is positioned with its left-hand side down, efficiency of feed will be lowered retarding the timing to feed the upper material.	Increase the pressure of the presser foot.

Trouble	Cause (1)	Cause (2)	Order of inspection and adjustment procedure
12. Puckering	MS-1190		
	Needle	The number count of the needle is too low. (The needle is too thick.)	Use a needle with a number count as high as possible.
	Thread	Thread used is too thick.	Use a thread as thin as possible.
	Needle thread tension	Both the needle thread tension and looper thread tension are too high.	Reduce the looper thread tension as low as possible and minimize the needle thread tension as far as the beautifully finished seam is obtained.
	Throat plate	The throat plate with a larger needle slot is used.	Use a throat plate with a small needle slot.
	Looper thread cam timing	The looper thread cam timing is excessively advanced.	Retard the looper thread cam timing. Refer to the standard adjustment value.
	Feed dog	Top end of the feed dog teeth is excessively rounded.	Replace the feed dog with a new one.
	Locus of the feed mechanism		Refer to the standard adjustment value.
	Presser foot pressure	If the presser foot pressure is insufficient, ironing effect is impaired.	Increase the presser foot pressure.
	Position of the looper thread cam thread guide	If the amount of looper thread drawn by the thread guide is excessive, stitches will be excessively pulled impairing the finished quality of seam.	Refer to the standard adjustment value.
	Stepped part of the presser foot	The roll guide groove on the presser foot is too deep. (Defect)	Replace the presser foot with a normal one.
	Timing of the cloth puller	The cloth puller fails to tense the material sufficiently.	Refer to the standard adjustment value.
	Feed pitch of the cloth puller	The feed pitch of the cloth puller is too small. As a result, the cloth puller fails to stretch the material sufficiently.	Set the feed pitch of the cloth puller to a larger value than that of the machine head.
13. Feeling of finished seam	Threading	Thread tangles round the thread guide. The machine head is improperly threaded.	Refer to the threading diagram.
	Thread tension	Needle thread tension is too low.	Increase the needle thread tension.
	Looper thread cam timing	Looper thread tension is too high.	Decrease the looper thread tension.
	Position of the looper thread cam thread guide	Thread drawing timing is excessively advanced.	Refer to the standard adjustment value.
	Avoid of the looper	The amount of looper thread drawn by the thread guide is excessive.	Refer to the standard adjustment value.
MS-1190	Position of the needle thread take-up guide	Avoid of the looper is not normal.	Refer to the standard adjustment value.
MS-1190	Feed timing	Needle thread take-up guide is positioned too low.	Refer to the standard adjustment value.
MS-1261	Position of the take-up thread guide of the needle thread tension controller	Thread drawing timing is excessively retarded.	Refer to the standard adjustment value.
		The feed motion fails to complete before the looper reaches the forward travel end.	Refer to the standard adjustment value.
		If the take-up thread guide is positioned too low, the timing to tense the thread will be retarded.	Refer to the standard adjustment value.

7. Motor pulley and belt

MS-1190/-1190M

- (1) Use a clutch motor of 3-phase and 300 W (1/3 HP).
When a servo motor is used, the synchronizer installing base is prepared as an optional device.
- (2) Use an M-type V belt.
- (3) Relationship between the motor pulley, belt length and sewing speed is as shown in the table below.

Frequency	Sewing speed	Outside diameter of motor pulley	Part No. of motor pulley	Belt length	Part No. of belt
50 Hz	4,038 s.p.m.	100 mm	MTKP0095000	43"	MTJVM004300
	3,613 s.p.m.	90 mm	MTKP0085000		
60 Hz	4,071 s.p.m.	85 mm	MTKP0080000	42"	MTJVM004200
	3,562 s.p.m.	75 mm	MTKP0070000		

* The effective diameter of the motor pulley is obtained by subtracting 5 mm from the outside diameter.

* The direction of rotation of the motor is counterclockwise as viewed from the pulley side.

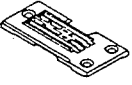
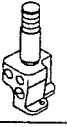
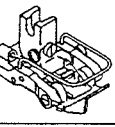
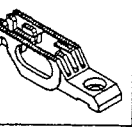
MS-1261



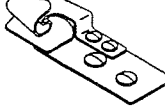
- (1) Use a clutch motor of 3-phase and 400 W (1/3 HP).
When a servo motor is used, the synchronizer installing base is prepared as an optional device.
- (2) Use an M-type V belt.
- (3) Relationship between the motor pulley, belt length and sewing speed is as shown in the table below.

Frequency	Sewing speed	Outside diameter of motor pulley	Part No. of motor pulley	Belt length	Part No. of belt
50 Hz	3,607 s.p.m.	90 mm	MTKP0085000	43"	MTJVM004300
	2,970 s.p.m.	75 mm	MTKP0070000	42"	MTJVM004200
60 Hz	3,562 s.p.m.	75 mm	MTKP0070000		
	3,053 s.p.m.	65 mm	MTKP0060000	41"	MTJVM004100

8. Table of exchanging gauge

Table of exchanging gauge for MS-1190

Description 品名		1		2		3		4		5		6		
		Gauge set		Gauge set (with finger guard)		Throat plate		Needle clamp asm.		Presser foot asm. (with finger guard)		Feed dog		
Needle gauge size 針番														
Code ゲージ 記号														
	inch	mm												
B	1/8	3.2	12923553	12923561	12923504	12926051	12927869	12932307						
C	5/32	4.0	12923652	12923660	12923603	12926150	12927968	12932307						
D	3/16	4.8	12923454	12923462	12923405	12925954	12927760	12932307						
E	7/32	5.6	12923751	12923769	12923702	12926259	12928065	12932307						
F	1/4	6.4	12923850	12923868	12923801	12926358	12928164	12932406						

Description 品名		7		8		9		10		11		
		Looper asm. (L)		Looper asm. (R)		Lap seam folder asm.		フォルダ - (組)				
Needle gauge size 針番						M295		M296		M297		
Code ゲージ 記号												
	inch	mm										
B	1/8	3.2	12941555	12940656	MAM2950AAA	MAM2960AAA	MAM2970AAA					
C	5/32	4.0	12941654	12940755	MAM2950BAA	MAM2960BAA	MAM2970BAA					
D	3/16	4.8	12941456	12940557	MAM2950CAA	MAM2960CAA	MAM2970CAA					
E	7/32	5.6	12941753	12940854	MAM2950DAA	MAM2960DAA	MAM2970DAA					
F	1/4	6.4	12941852	12940953	MAM2950EAA	MAM2960EAA	MAM2970EAA					

Folder mark
フォルダ - 記号

M295 - Extra light-weight

M296 - Light-weight (MS-1190 Standard equipment)

M297 - Medium-weight (MS-1190M Standard equipment)

The folder is not included in gauge set.

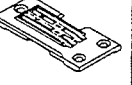

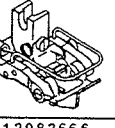
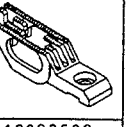
軽量物用



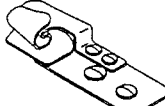
軽物用 (MS-1190標準装備)

中厚物用 (MS-1190M標準装備)

フォルダ - はゲージセットには含まれません。

Table of exchanging gauge for MS-1190M

Description 品名		1		2		3		4		5		6		
		Gauge set		Gauge set (with finger guard)		Throat plate		Needle clamp asm.		Presser foot asm. (with finger guard)		Feed dog		
Needle gauge size 針番														
Code ゲージ 記号														
	inch	mm												
B	1/8	3.2	12980553	12980561	12980504	12926051	12982666	12983508						
C	5/32	4.0	12980652	12980660	12980603	12926150	12982765	12983508						
D	3/16	4.8	12980454	12980462	12980405	12925904	12982567	12983508						
E	7/32	5.6	12980751	12980769	12980702	12926259	12982864	12983508						
F	1/4	6.4	12980850	12980868	12980801	12926358	12982963	12983607						

Description 品名		7		8		9		10		
		Looper asm. (L)		Looper asm. (R)		Lap seam folder asm.		フォルダ - (組)		
Needle gauge size 針番						M296		M297		
Code ゲージ 記号										
	inch	mm								
B	1/8	3.2	12941555	12940656	MAM2960AAA	MAM2970AAA				
C	5/32	4.0	12941654	12940755	MAM2960BAA	MAM2970BAA				
D	3/16	4.8	12941456	12940557	MAM2960CAA	MAM2970CAA				
E	7/32	5.6	12941753	12940854	MAM2960DAA	MAM2970DAA				
F	1/4	6.4	12941852	12940953	MAM2960EAA	MAM2970EAA				

Folder mark
フォルダ - 記号

M296 - Light-weight (MS-1190 Standard equipment)

M297 - Medium-weight (MS-1190M Standard equipment)

The folder is not included in gauge set.

軽物用 (MS-1190標準装備)

中厚物用 (MS-1190M標準装備)

フォルダ - はゲージセットには含まれません。

Exchanging gauge for MS-1261/V045 (extra heavy-weight materials)

Description 品名	1		2		3		4	
	Gauge set		Gauge set (with finger guard)		Throat plate		Needle clamp asm.	
	ゲージセット		ゲージセット (指カート付)		針板		針番 (組)	
Needle Gauge size 針番								
Code ゲージ 記号	inch	mm						
	E 7/32	5.6	12953352	12953360	12953303	12956355		
F 1/4	6.4	12953253	12953261	12953204	12956256			
G 9/32	7.2	12953451	12953469	12953402	12956454			
H 5/16	8.0	12953550	12953568	12953501	12956553			
K 3/8	9.5	12953659	12953667	12953600	12956652			

Description 品名	5		6		7		8		9	
	Presser foot asm. (with finger guard)		Feed dog asm.		Looper asm. (L)		Looper asm. (R)		Looper asm. (C)	
	押さえ (組) (指カート付)		送り歯 (組)		ルーバ (L) (組)		ルーバ (R) (組)		ルーバ (C) (組)	
Needle Gauge size 針番										
Code ゲージ 記号	inch	mm			Mark No.		Mark No.		Mark No.	
	E 7/32	5.6	12960167	12963450	12968558	1	12968855	1	12969150	1
F 1/4	6.4	12960068	12963351		↑	1		↑	1	
G 9/32	7.2	12960266	12963559		↑	1		↑	1	
H 5/16	8.0	12960365	12963658	12968657	2	12968954	2		↑	
K 3/8	9.5	12960464	12963757		↑	2		↑	1	

Exchanging gauge for MS-1261/V045 (Heavy-weight materials) (Optional)

Description 品名	1		2		3	
	Gauge set		Throat plate		Feed dog asm.	
	ゲージセット		針板		送り歯 (組)	
Needle Gauge size 針番						
Code ゲージ 記号	inch	mm				
	E 7/32	5.6	12972253	12972204	12974259	
F 1/4	6.4	12972154	12972105	12974150		
G 9/32	7.2	12972352	12972303	12974358		
H 5/16	8.0	12972451	12972402	12974457		
K 3/8	9.5	12972550	12972501	12974556		

Exchanging gauge for MS-1260/-1261/V045 (medium-weight material) (Optional)

Description 品名	1		2		3		4		5	
	Gauge set		Gauge set (with finger guard)		Throat plate		Needle clamp asm.		Presser foot asm. (with finger guard)	
	ゲージセット		ゲージセット (指カート付)		針板		針番 (組)		押さえ (組) (指カート付)	
Needle Gauge size 針番										
Code ゲージ 記号	inch	mm								
	MS-1260/V045	D 3/16	4.8	12977955	12977963	12977906	12925954	12978268		
MS-1261/V045	E 7/32	5.6	12972956		12972907					
	F 1/4	6.4	12972857		12972808					
	G 9/32	7.2	12973053		12973004					
	H 5/16	8.0	12973152		12973103					
	K 3/8	9.5	12973251		12973202					

Description 品名	6		7		8		9		10	
	Feed dog asm.		Looper asm. (L)		Looper asm. (R)		Looper asm. (C)		Thread guide	
	送り歯 (組)		ルーバ (L) (組)		ルーバ (R) (組)		ルーバ (C) (組)		針糸系案内	
Needle Gauge size 針番										
Code ゲージ 記号	inch	mm	Mark No.		Mark No.		Mark No.		Mark No.	
	MS-1260/V045	D 3/16	4.8	12978755	12979258	3	12979357	2		B1130051000
MS-1261/V045	E 7/32	5.6	12975058							↑
	F 1/4	6.4	12974952							↑
	G 9/32	7.2	12975157							↑
	H 5/16	8.0	12975256							↑
K 3/8	9.5	12975355								↑

11. Spacer for presser 押さえ用スパーサ					Screw for spacer スパーサ取付けねじ				
No.	Thickness 板厚 (mm)	Part No.	Description 品名	Part No.	Qty 数量	No.	Thickness 板厚 (mm)	Part No.	Description 品名
①	0.3	12973509	Adjusting plate B 押さえ調節板 B	SS5060310SP	2	①	0.3	12975702	Adjusting plate B 送り歯調節板 B
②	0.5	12973608	Adjusting plate C 押さえ調節板 C	SS5060310SP	2	②	0.8	12975801	Adjusting plate C 送り歯調節板 C
③	0.8	12973707	Adjusting plate D 押さえ調節板 D			③	1.0	12975900	Adjusting plate D 送り歯調節板 D
④	1.2	12973806	Adjusting plate E 押さえ調節板 E						

The spacer and installing screws are not included in gauge set. スパーサおよびスパーサ取付けねじは、ゲージセットには含まれません。

12. Spacer for feed dog 送り歯用スパーサ				
No.	Thickness 板厚 (mm)	Part No.	Description 品名	Part No.
①	0.3	12975702	Adjusting plate B 送り歯調節板 B	
②	0.8	12975801	Adjusting plate C 送り歯調節板 C	
③	1.0	12975900	Adjusting plate D 送り歯調節板 D	

The spacer is not included in gauge set. スパーサは、ゲージセットには含まれません。

Description 品名	13		14		15	
	M297		M298		M299	
Needle gauge size 針番	MH		H		XH	
Code ゲージ 記号						
Code ゲージ 記号	inch	mm				
	D 3/16	4.8	MAM2970CCBA			
E 7/32	5.6	MAM2970DDBA	MAM2980AABA	MAM2990AABA		
F 1/4	6.4	MAM2970EEBA	MAM2980BBBA	MAM2990BBBA		
G 9/32	7.2	MAM2970FFBA	MAM2980CCBA	MAM2990CCBA		
H 5/16	8.0	MAM2970GGBA	MAM2980DDBA	MAM2990DDBA		
K 3/8	9.5	MAM2970HHBA	MAM2980EEBA	MAM2990EEBA		

The folder is not included in gauge set. フォルダは、ゲージセットには含まれません。

Folder mark
フォルダ記号
M297 — Medium-weight 中厚物用
M298 — Heavy-weight 厚物用
M299 — Extra heavy-weight 極厚物用 (MS-1261/V045 Standard equipment) 標準装備

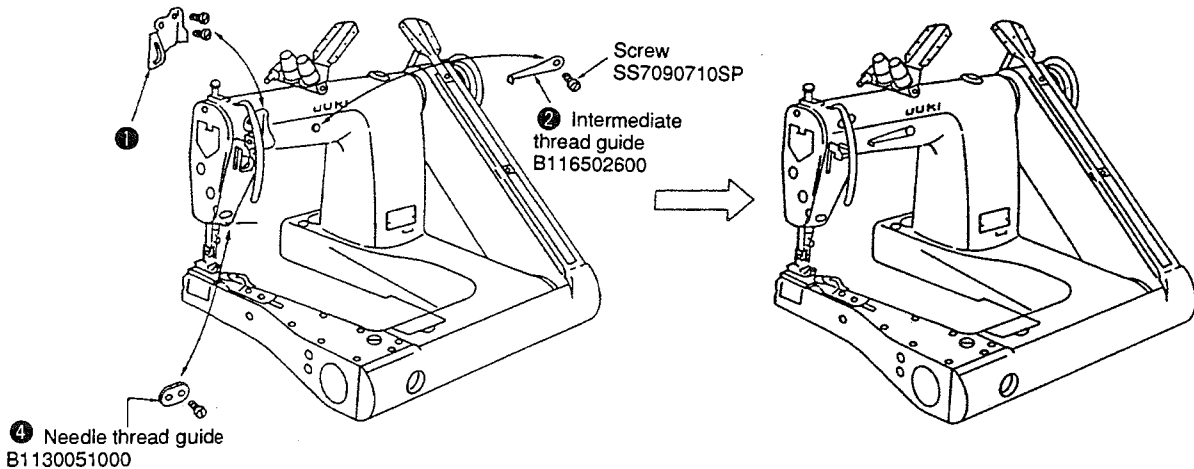
Description 品名	16		17	
	Cloth puller asm. 先引きローラ (組)		Steel roller スチールローラ	
Needle Gauge size 針番	Urethane roller ウレタンローラ			
Code ゲージ 記号	inch	mm		
	D 3/16	4.8	MAV045450A0	MAV045500B0
E 7/32	5.6	↑	↑	
F 1/4	6.4	↑	↑	
G 9/32	7.2	↑	↑	
H 5/16	8.0	↑	↑	
K 3/8	9.5	↑	↑	

The cloth puller is not included in gauge set. 先引きローラは、ゲージセットには含まれません。

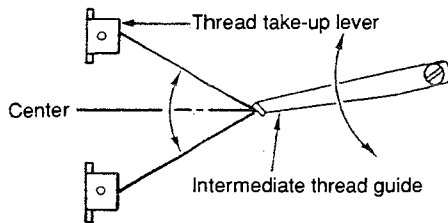
The kind of puller
先引きローラ種類
Steel roller — Heavy & extra heavy-weight (MS-1261/V045 Standard equipment) 厚物・極厚物用 (MS-1261/V045 標準装備)
Urethane roller — Medium-weight 中厚物用

9. How to remodel the sewing machine to the MS-1190M (MS-1190)

- (1) Remove thread take-up guide ❶ and attach intermediate thread guide ❷ for the MS-1190M to the MS-1190.
- (2) Replace needle thread guide ❸ with needle thread guide ❹ for the MS-1190M.



- (3) Replace the presser foot, throat plate and feed dog with those for the MS-1190M.
(Refer to the replacement gauge table for the MS-1190M.)
- (4) Adjust the position of the intermediate thread guide as illustrated in the figure below.



Adjust so that the thread exit of the intermediate thread guide is brought to the center of the vertical stroke of the thread take-up lever.

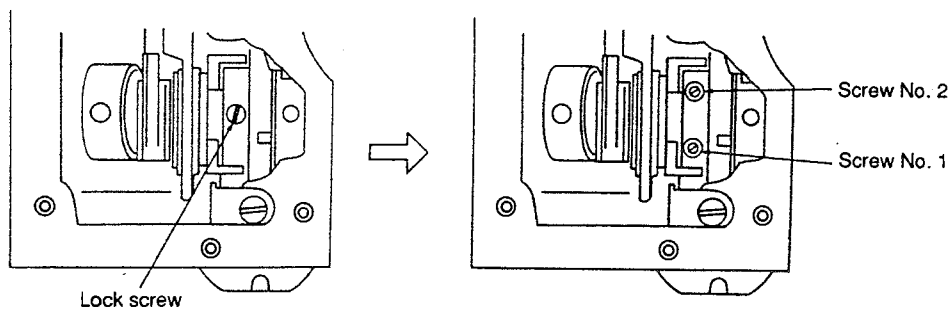
- (5) Adjust the height of the feed dog.



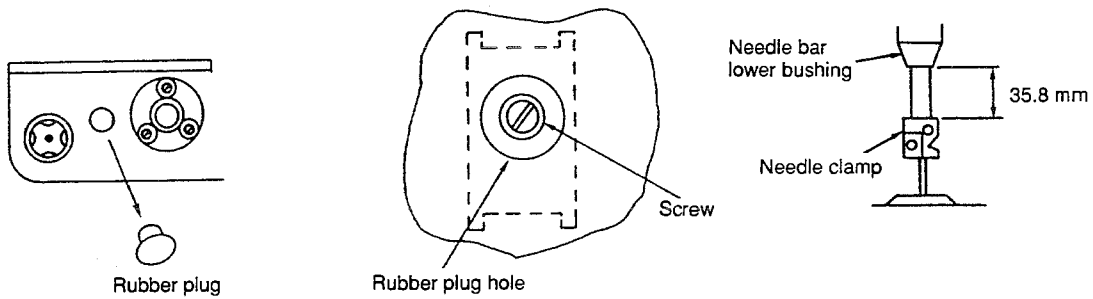
Adjust so that the top end of the feed dog teeth rises 1 mm above the top surface of the throat plate. (Refer to the description of the standard adjustment in the Engineer's Manual for how to adjust the height of the feed dog.)

- (6) Adjusting the feed rock cam timing

- 1) Remove the side plate from the bed.
- 2) Loosen lock screw in the feed rock cam and turn the feed cam until the two screws in the feed cam are aligned with the holes in screws. (Pressing the push-button, turn the handwheel.)



- 3) Loosen the screw No. 2 in the feed cam. (Do not draw out the screw from the feed cam.)
 - 4) Loosen the screw No. 1 in the feed cam and remove it.
Now, you can observe the flat portion on the looper driving shaft under the screw hole for the screw No. 1.
 - 5) Securing the feed cam by hand, turn the handwheel toward you by approximately 45°. Now, you can observe the second flat portion on the looper driving shaft under the screw hole for the screw No. 1.
 - 6) Aligning the screw hole for the screw No. 1 with the second flat portion on the looper driving shaft, tighten the screw No. 1. Then, tighten the screw No. 2.
 - 7) Attach the side plate to the bed.
- (7) Adjusting the timing of the feed driving cam
- 1) Remove the rubber plug from this side of the bed.
 - 2) You can observe the screw hole in the forked sheath from through the hole from which the rubber plug has been removed.
 - 3) Turn the handwheel and loosen the screw No. 2. (Do not remove the screw No. 2.)
 - 4) Then, loosen the screw No. 1. At this time, the needle bar is almost brought to the lowest position of its stroke.
 - 5) Fitting a screwdriver on the screw No. 1, turn the handwheel toward you until the bottom end of the needle bar lower bushing is positioned 35.8 mm above the top face of the needle clamp (the needle bar ascends 1 mm from the lowest position of its stroke). Now, tighten the screw No.1. Then, tighten the screw No. 2.

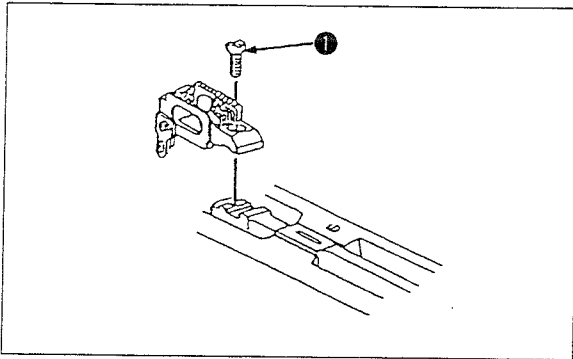


Precaution to be taken

- 1) After the aforementioned remodeling procedure, divisions on the scale of the stitch dial will differ from the actual stitch length.
- 2) Make a selection of the folder in accordance with the sewing product to be used.
MH type (M297 type) folder is prepared for medium-weight materials.
- 3) To set the feed pitch (stitch length) to 3.2 mm or more, the feed dog will interfere with the throat plate. So, use the machine while setting the feed pitch (stitch length) to 3.2 mm or less.

10. To use the sewing machine for heavy- to medium-weight materials (MS-1261)

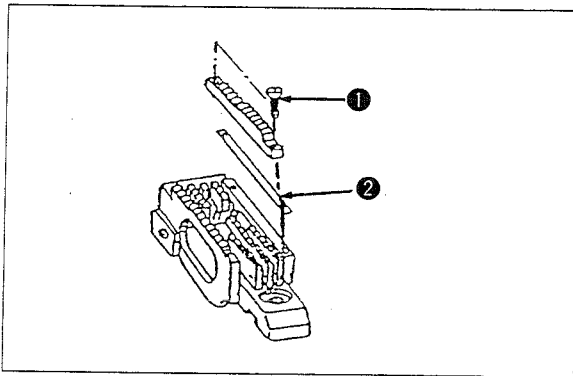
The MS-1261/V045 has been developed for extra heavy-weight materials. To use the machine for heavy- to medium-weight materials, replace the gauge with an appropriate gauge since many different types of gauges are prepared.



(1) Replacing the feed dog

Remove the throat plate. Loosen screw ① in the feed dog and remove it. Then, replace the feed dog with an appropriate one.

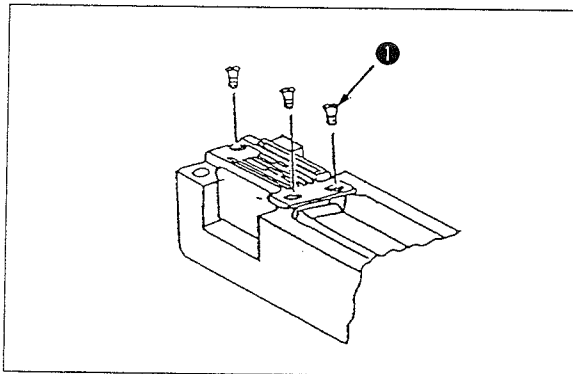
(Caution) The feed dogs for heavy- to medium-weight materials have been designed so that no adjustment of the feed dog height is required after the installation. However, it is really necessary to adjust the feed dog height, refer to "11. Feed dog height."



* To change only the stepped part on the right-hand side of the feed dog :

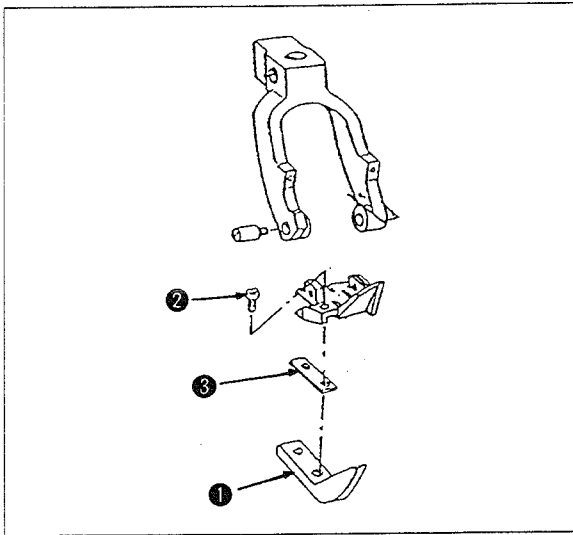
Remove two screws ① in the adjusting feed dog and remove spacer ② (plate thickness : 0.5 mm).

Many kinds of spacers are prepared. Refer to the feed dog spacers shown on page 86.



(2) Replacing the throat plate

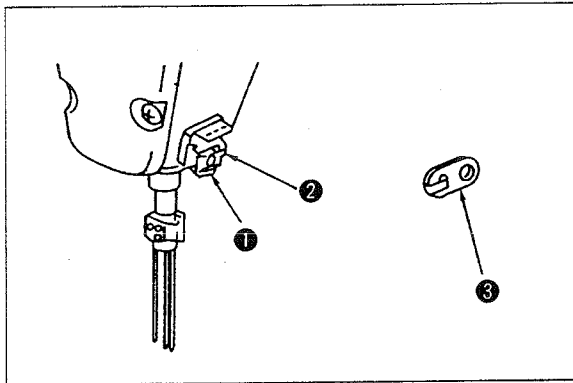
Remove three screws ① from the throat plate and replace the throat plate with an appropriate one.



- (3) Adjusting the stepped part of the presser foot
 Remove two screws ② which are used to retain adjusting presser ①, and adjust the stepped part of the presser foot by replacing spacer ③.

Thickness of the spacers which match the throat plates and feed dogs are as shown in the table below.

No.	Plate thickness	Specifications
1	1.0 mm	For extra heavy-weight materials (standard)
2	0.5 mm	For heavy-weight materials
3	None	For medium-weight materials



- (4) Replacing the needle thread guide
 To sew medium-weight material using a thin thread, larger needle thread loops will be made. These loops are likely to tilt, resulting in stitch skipping. To prevent this, replace thread guide ① located above the needle clamp with an appropriate one.

Remove screw ② which is used to retain thread guide ① and replace the thread guide with thread guide ③ for medium-weight materials.

11. Installing procedure of the synchronizer (Synchronizer : M8512120BBA)

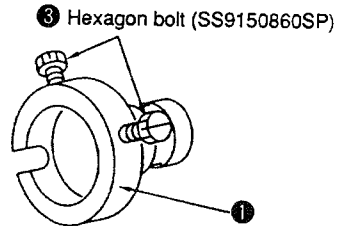
(1) Components described below are required.

- 1) B1812026000 Lower sprocket flange
- 2) B1813019000 Synchronizer retaining plate
- 3) SS9150860SP Hexagon bolt (15/64 thread 28 L=8)

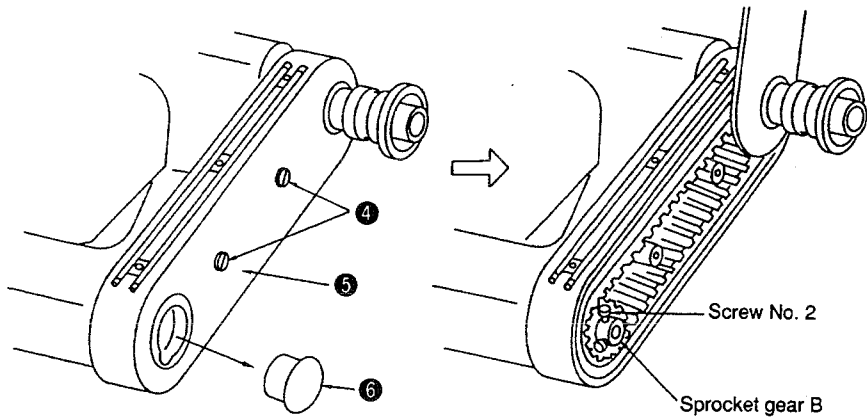
(2) Installing procedure

- 1) Screw hexagon bolt ③ in lower sprocket flange ①.

Do not allow the top end of the screw to protrude from the inner periphery of the flange.

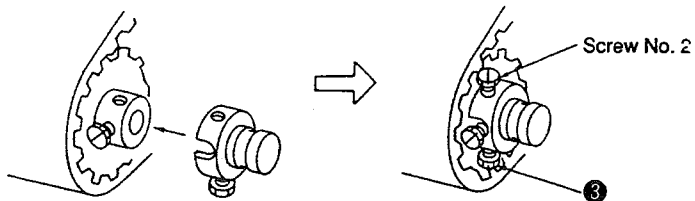


- 2) Remove two screws ④ and lift up rid ⑤ of sprocket gear cover. Remove plug ⑥ from the rid of the sprocket gear cover.

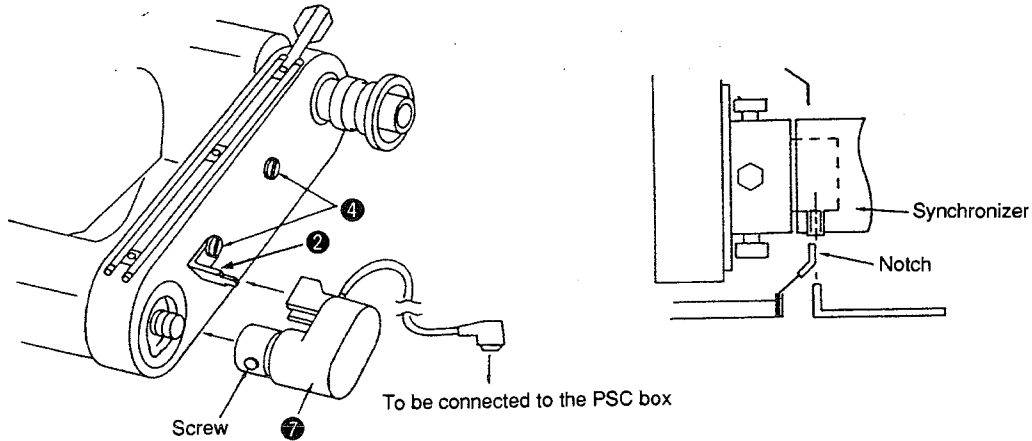


- 3) Remove the screw No. 2 from the sprocket gear B.

Fitting the U-slit on the lower sprocket over the screw No. 1 of the sprocket gear B, put the screw No. 2, which has been removed, of the sprocket gear B in the hole in the lower sprocket flange and tighten it. Then, secure the lower sprocket flange by tightening two hexagon bolts ③.

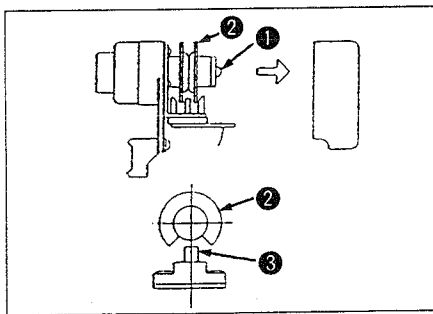


- 4) Attach the rid to the sprocket gear cover and fix the upper section of the rid with screws ④. Fix the lower section of the rid by putting synchronizer retaining plate ② over screws ④.
- 5) Set synchronizer ⑦ in position and fix it with a screw. Fix the synchronizer by fitting the top end of synchronizer retaining plate ② in the slit in the synchronizer. Tighten the screw in the synchronizer using a hexagon wrench key through the notch in the sprocket gear cover.



6) Adjusting the synchronizer

- ① Remove the cover from the synchronizer and slightly loosen screw ① located at the top end of the rotor.
- ② Turn detecting plate ② until the notch in the detecting plate meets the detecting element. Turn the sewing machine pulley by hand to bring the needle to the lowest dead point and adjust detecting plate ④ on the sewing machine pulley side. Then, bring the needle to the highest dead point and adjust outer detecting plate ②.

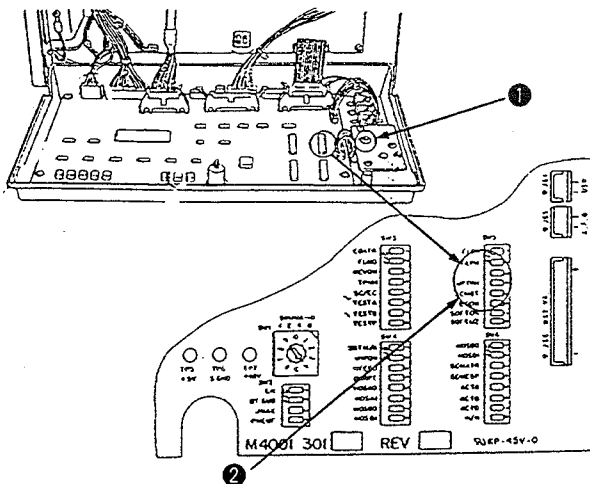


Needle position	Detecting plate to be adjusted
Lowest dead point 	
Highest dead point 	

(Caution)

Do not turn ON the power to the motor until the synchronizer is properly connected. Doing so will make the motor at high speed, which will break the sewing machine head.

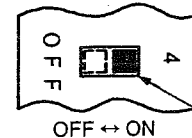
7) Adjusting the PSC box



- ① Turn speed regulating variable resistor ① to set the sewing speed to the number of revolutions specified for the machine head to be used. At this time, turn the variable resistor knob on the PSC box cover clockwise until it will go no further.
Specified number of revolutions (Max.)
MS-1190/-1190M .. 4,000 s.p.m.
MS-1261/V045 .. 3,600 s.p.m.

- ② Needle-up or needle-down stop mode can be selected by changing over DIP switch ②.

SW5 : UPTRM



OFF side : Needle-down stop

ON side : Needle-up stop

OFF ↔ ON

DIP switch

(Caution) Change over the switch with the power to the machine turned OFF. The function will not change if changing over the set position of the switch with the power ON.

Cloth puller

V045 • V046

1. Specifications

1	Model	V045 (Proximity type)	V046 (With a lower roller type)
2	Sewing speed	Max. 4,000 s.p.m. Normal 3,500 s.p.m.	
3	Feed pitch	1.0 to 7.0 mm	
4	Feed system	Intermittent feed by one-way clutch	
5	Lift of the roller (by lever)	10 mm	
6	Diameter and width of the roller	ø30, 14 mm	ø52, 14 mm (lower roller ø38)
7	Material of the roller	Steel, urethane	
8	Feed pitch adjusting method	By long slit sliding	
9	Lubricating method	Non lubrication	

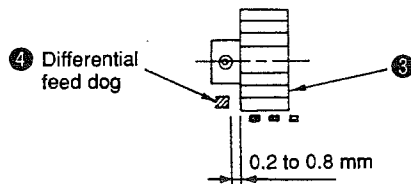
2. Standard adjustment

STANDARD ADJUSTMENT

(1) Adjusting the position of the roller (lateral position)

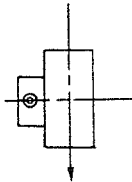
V045

(MS-1261)



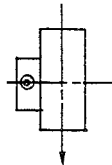
Move the entire unit to the right or left so that a clearance of 0.2 to 0.8 mm is provided between the roller and the differential feed dog.

(MS-1190)



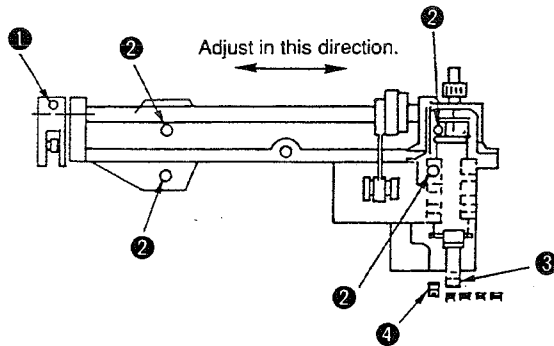
Aligned with the center of the needle

V046



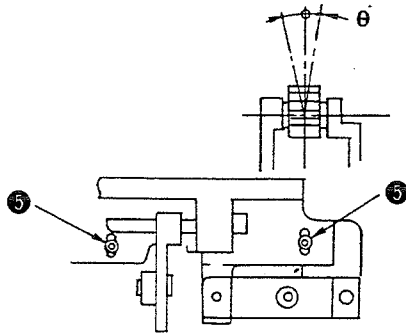
Aligned with the center of the needle

HOW TO ADJUST



- 1) Loosen screw ① in the rocking rod.
- 2) Loosen screws ② .
- 3) Adjust the position of the roller so that a clearance of 0.2 to 0.8 mm is provided between the roller ③ and differential feed dog ④ .
- 4) Tighten screws ② .
- 5) Confirm that the rocking rod smoothly moves (by turning the handwheel several times) and tighten screw ① in the rocking rod.

(Caution)



If the roller inclines (θ°), loosen screws ⑤ and adjust so that the roller is almost horizontal to the slit on the throat plate. Then adjust the lateral position of the roller.

RESULTS OF IMPROPER ADJUSTMENT

If the clearance provided between the roller and the differential feed dog is larger than the specified value

Chain-off thread will come off the roller.

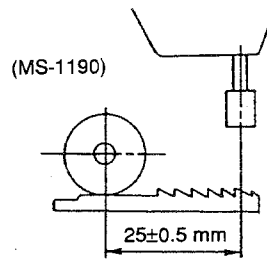
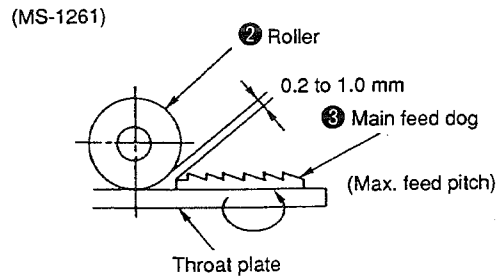
If the clearance is smaller than the specified value

The roller will come in contact with the feed dog.

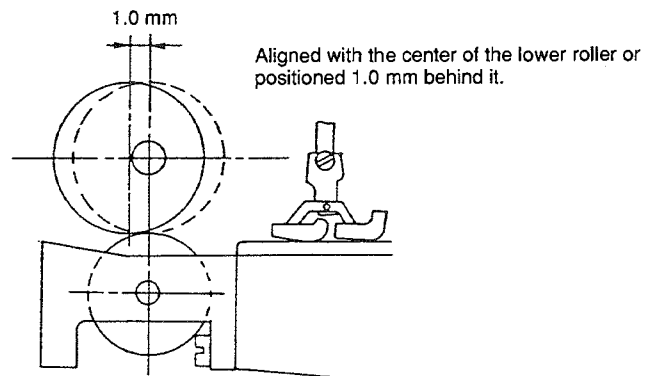
STANDARD ADJUSTMENT

(2) Adjusting the position of the roller (longitudinal position)

V045

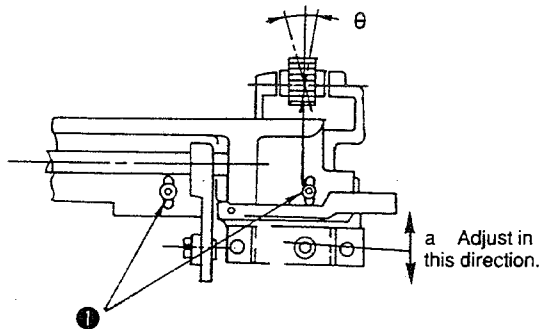


V046



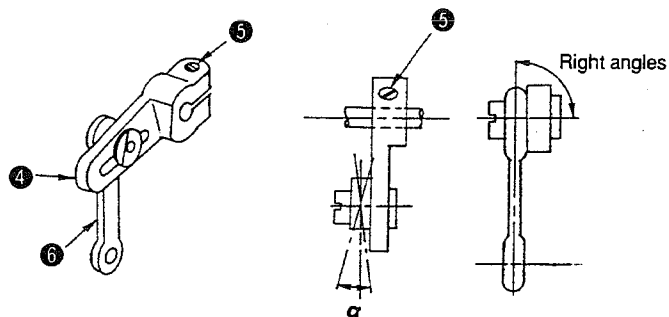
HOW TO ADJUST

1)



- ① Maximize the feed pitch (stitch length) of the sewing machine.
- ② Loosen screws ① in the clutch base.
- ③ Adjust so that a clearance of 0.2 to 1.0 mm is provided between roller ② and feed dog ③.
- ④ When adjusting the longitudinal position of the roller, carefully check inclination θ of the roller. It should be positioned in parallel to the slit on the throat plate.
- ⑤ Tighten screws ① in the clutch base.

2)



- ① After the clutch base has been adjusted in terms of the longitudinal direction, check that adjust rod ④ is not pushed against joint rod ⑥.
- ② If the adjust rod is pressed against the joint rod, loosen screw ⑤ and adjust the position of the adjust rod by moving it to the right or left.
- ③ If the roller is not leveled, joint rod ⑥ will be inclined by α . In this case, re-adjust the longitudinal position of the roller properly.

RESULTS OF IMPROPER ADJUSTMENT

If the clearance provided between the roller and the feed dog is smaller than the specified value

Looper thread breakage will result.

If the clearance is larger than the specified value

Stitch gathering will occur because of failed feeding of the overlapped section of a material.

V046

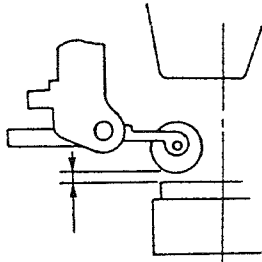
If the center of the upper roller is located forward side (closer to the operator) of the center of the lower roller :

- The overlapped section of a material will not be smoothly fed.

STANDARD ADJUSTMENT

(3) Clearance between the roller and the throat plate

V045 For the steel roller
0.01 to 0.1 mm



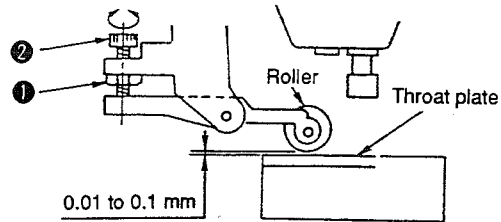
V045 Urethane roller

V046 Steel roller
Urethane roller

No clearance should be provided between the roller and the throat plate.

HOW TO ADJUST

Adjusting the clearance between the roller and the throat plate



- 1) Loosen nut ①, and adjust so that a clearance of 0.01 to 0.1 mm is provided between the roller and the throat plate by turning adjustment screw ②.
- 2) After the adjustment, fix the roller by tightening nut ①.

(Caution) Adjust the clearance properly in accordance with the type of thread to be used.

RESULTS OF IMPROPER ADJUSTMENT

If the clearance provided between the roller and the throat plate is smaller than the specified value

Chain-off thread breakage will occur.

If the clearance is larger than the specified value

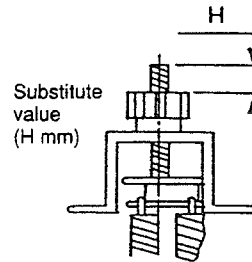
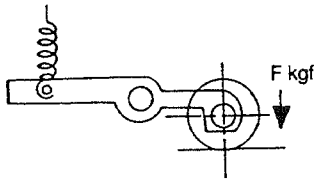
Chain-off thread will return and chain-off thread will not be properly produced.

STANDARD ADJUSTMENT

(4) Adjusting the pressure of the roller

The table below shows the standard pressure of the roller.

(The pressure should be re-adjusted when the material to be sewn is changed.)

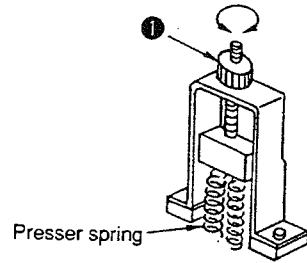


Model	Sewing specification	Standard pressure (kg)	Substitute value (mm)
1 V045	For heavy-weight materials	9	11
2 V045	For medium- to light-weight materials	5	0
3 V046	For heavy-weight materials	6	13
4 V045	For medium- to light-weight material	5	7

(Caution) The presser spring for the V045 is different from that for the V046.

HOW TO ADJUST

- 1) Adjust the pressure of the roller by turning presser spring regulator **1**.
Turn the presser spring regulator clockwise to increase the pressure or counterclockwise to decrease it.



RESULTS OF IMPROPER ADJUSTMENT

If the pressure of the roller is too high

- The overlapped section of a material may not be smoothly fed under the roller.
- The material will be damaged.

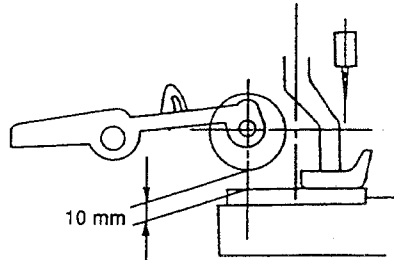
If the pressure of the roller is too low

Efficiency of feed will be insufficient, causing stitch gathering.

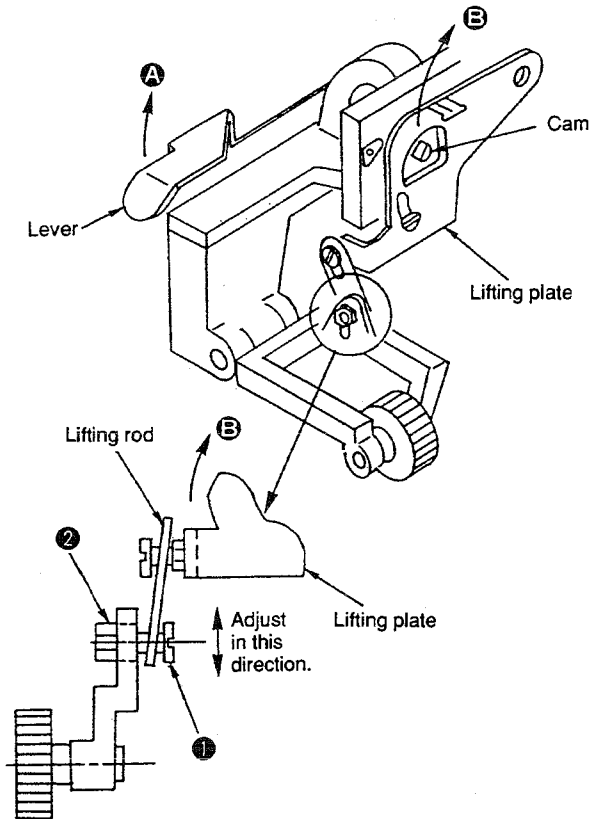
STANDARD ADJUSTMENT

(5) Lifting amount of the roller

The roller can be raised as high as 10 mm by operating the lever.



HOW TO ADJUST



To lift the roller, operate lever **A** to turn the cam so as to make lifting plate **B** go up. Then the lifting rod lifts the roller.
Adjust the lifting amount of the roller by moving screw **1** and nut **2** up or down along the slit.
(The lifting amount of the lifting plate is constant. So, the lifting amount of the roller is adjusted by changing the lifting timing.)

RESULTS OF IMPROPER ADJUSTMENT

If the roller goes up higher than the specified value

- The roller will come in contact with the presser foot of the sewing machine.

If the roller fails to go up sufficiently

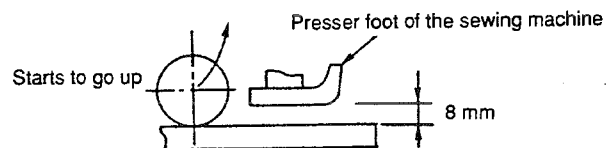
- The screw in the throat plate cannot be removed with ease in case of maintenance.
- The material cannot be taken from the sewing machine with ease.
(In case of a sewing trouble)

STANDARD ADJUSTMENT

(6) Adjusting the interlocking lifting mechanism

To lift the roller with interlocked with the presser foot of the sewing machine, the roller should be adjusted as described below.

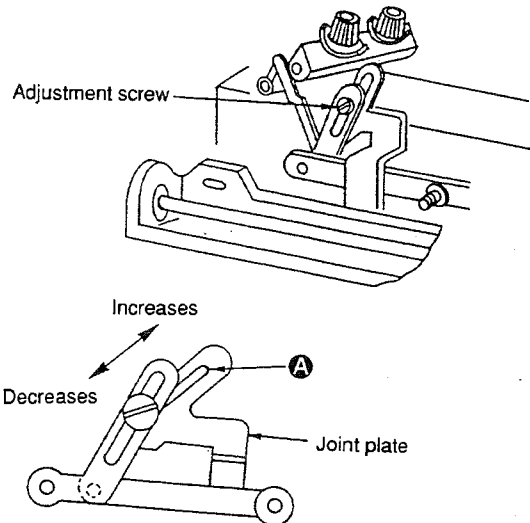
To adjust the lift of the roller as illustrated below, when the presser foot of the sewing machine goes up 8 mm, for convenience's sake, follow the procedure described in "How to adjust" shown on the next page.



* If it is not necessary to lift the roller with interlocked with the presser foot of the sewing machine, attach the roller at the lowest point of the slit on the joint plate.

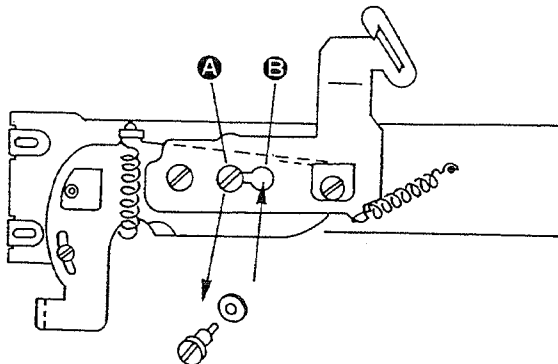
HOW TO ADJUST

RESULTS OF IMPROPER ADJUSTMENT



Adjust the timing to make the roller start to go up by moving the fixing screw along the slit on the joint plate.
(The lifting amount of the roller is regulated by the stroke of the presser bar lifting lever. The timing to make the roller start to ascend is adjusted within a certain range of the stroke of the presser bar lifting lever.)

To increase the lifting amount of the roller when the roller goes up with interlocked with the presser foot
To enable the roller to go up higher than the standard value, change the position of the screw in the joint plate.



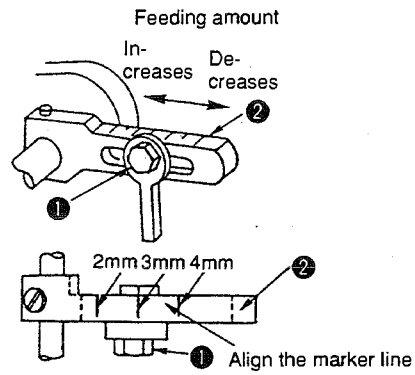
Change the position of the screw in the joint plate from **A** to **B**.

(Caution) If the screw in the joint plate is fixed at **B**, a higher pressure will be required to depress the pedal as compared with the case where the screw is fixed at **A**.

STANDARD ADJUSTMENT

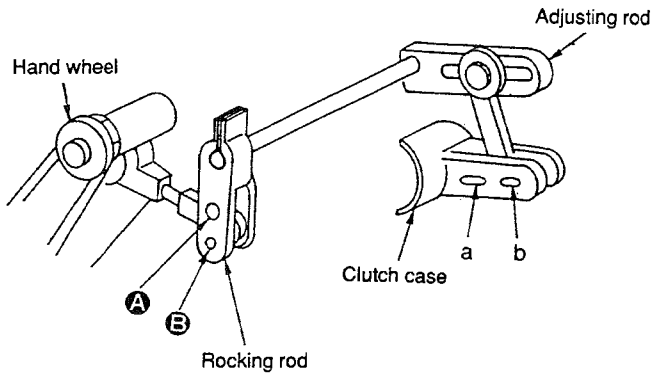
(7) Adjusting the feed pitch

- 1) Loosen adjustment screw ① .
- 2) Move the screw back or forth along the slit on adjusting rod ② .
* The feeding amount near the values shown below is obtained in accordance with the scale on adjusting rod ② .
- 3) After the adjustment of the feed pitch, tighten adjustment screw ① .



HOW TO ADJUST

The feed pitch, with respect to the traveling amount of the adjusting rod, can be changed by changing over the fulcrum of the connecting section of each rocking components.



Rocking rod	Clutch case	Feed pitch (mm)
Ⓐ	b	1.8 to 4.9 (standard)
Ⓐ	a	2.5 to 7.0
Ⓑ	b	1.0 to 2.5
Ⓑ	a	1.2 to 3.5

Loosen the nut and remove the check pin from the rocking rod. Then, insert the check pin into another hole in the rocking rod and tighten the nut.

(Caution) The divisions on the scale of the adjusting rod cannot be used as reference in any case other than the assembling method which provides the standard feed pitch.

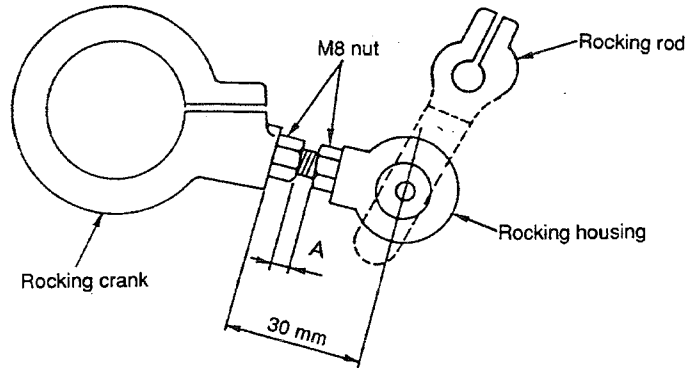
RESULTS OF IMPROPER ADJUSTMENT

- The specified feed pitch cannot be obtained.
- Sufficient efficiency of feed cannot be obtained.

STANDARD ADJUSTMENT

(8) Adjusting the rocking housing

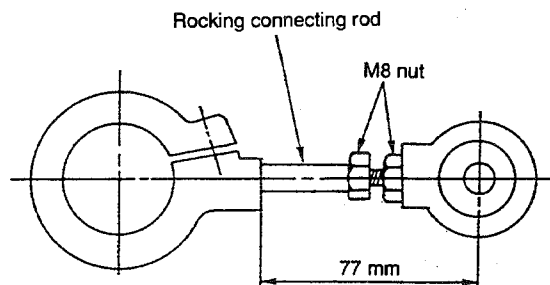
V045



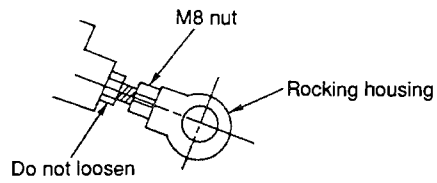
A is a substitute value.

Dimension A
1.0 to 2.5 mm

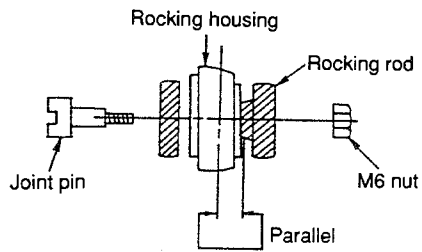
V046



HOW TO ADJUST



Loosen the M8 nut and adjust the rocking housing by turning it. After the adjustment, attach the rocking housing to the rocking rod and adjust the inclination of the rocking housing so that the rocking housing is in parallel to the end face of the rocking rod.



RESULTS OF IMPROPER ADJUSTMENT

If the rocking housing and rocking rod are inclined:

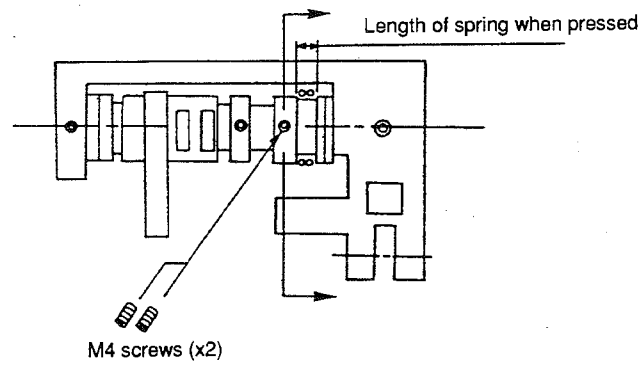
- A rocking torque will be developed.
- The joint pin cannot be inserted in position.

STANDARD ADJUSTMENT

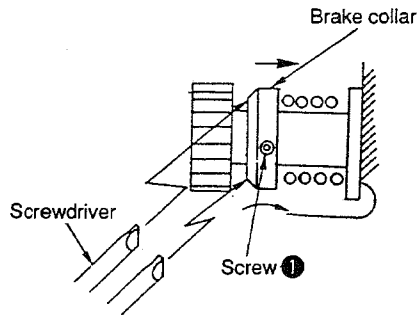
(9) Adjusting the brake pressure

V045 Length of spring when pressed: 16 mm

V046 Length of spring when pressed: 12 mm



HOW TO ADJUST



Loosen two screws ❶ (when the roller is turned in the cloth feeding direction, the brake collar also rotates) and press the brake collar with a screwdriver or the like equally upward and downward. Then, tighten screw ❶.

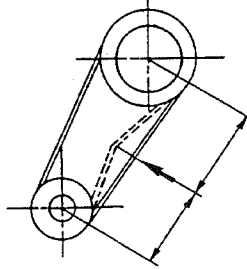
RESULTS OF IMPROPER ADJUSTMENT

- If the spring pressure is too low, the feed pitch error will occur when the sewing machine runs at high speed or low speed.

STANDARD ADJUSTMENT

(10) Adjusting the tension of the timing belt

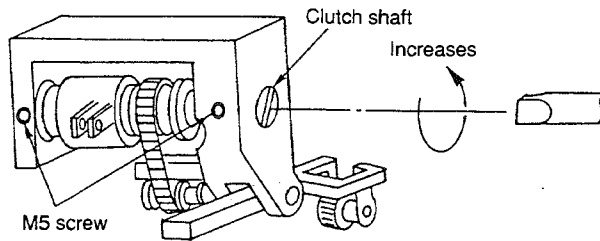
- Timing belt of the clutch
When a 0.2 kgf load is applied: Slackens by 0.5 to 1.0 mm (at the center of the belt)
- Timing belt of the roller
When a 0.2 kgf load is applied: Slackens by 0.5 to 1.0 mm (at the center of the belt)



HOW TO ADJUST

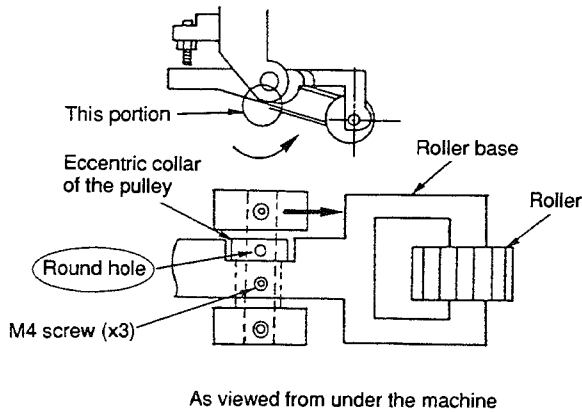
RESULTS OF IMPROPER ADJUSTMENT

1) Timing belt of the clutch



- ① Loosen the two M5 screws.
- ② Adjust the belt tension by turning the clutch shaft.
- ③ Fix the clutch shaft by tightening the two M5 screws.

2) Timing belt of the roller



- ① Loosen the three M4 screws in the eccentric collar of the pulley.
- ② Fit a rod in the round hole in the eccentric collar of the pulley and turn the eccentric collar with the rod to properly adjust the belt tension.
- ③ Tighten the screws.

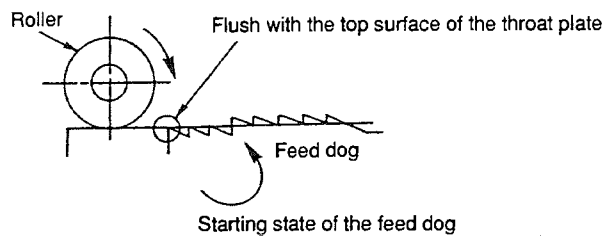
- (Caution)**
- 1) Adjust the belt tension with the roller lowered. If the roller is released, the eccentric collar of the pulley cannot be turned.
 - 2) Adjust the belt tension by turning the eccentric collar of the pulley in the direction of the arrow from the position at which the belt tension is minimized. (If the belt tension is adjusted by turning it in the reverse direction, the fulcrum of the roller will change.)

- If the belt tension is too low:
- The roller fails to rotate without a play.
 - Belt teeth skipping
- If the belt tension is too high:
- Failed vertical motion of the roller base

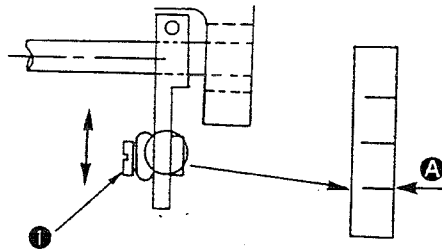
STANDARD ADJUSTMENT

(11) Adjusting the timing of the roller

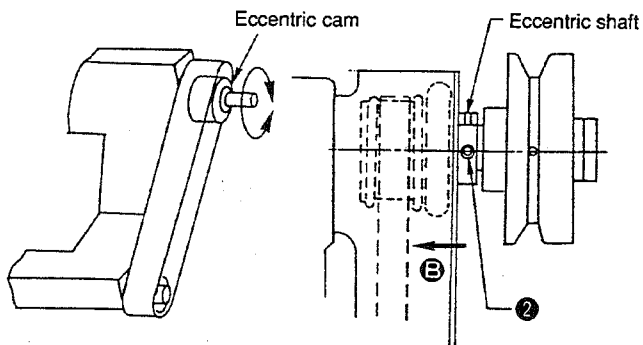
The relation between the sewing machine and the roller is as described below.
(This is the standard adjustment. So, the relation between the roller and the sewing machine should be adjusted in accordance with the type of material to be used.)



HOW TO ADJUST



- 1) Set the feed amount (stitch length) of the main unit of the sewing machine to 3.5 mm.
- 2) Loosen adjustment screw ❶ of the V045, and position the adjustment screw at ❸ re-tighten it there.
- 3) Adjust so that the roller starts to rotate when the feed dog is flush with the top surface of the throat plate by turning the handwheel.



- 4) Loosen two screws ❷ in the eccentric shaft that is installed on the handwheel. Then adjust the timing as described in aforementioned step 3) by turning the eccentric cam.
- 5) After the adjustment, move the eccentric cam in direction ❹ and tighten two screws ❷.

RESULTS OF IMPROPER ADJUSTMENT

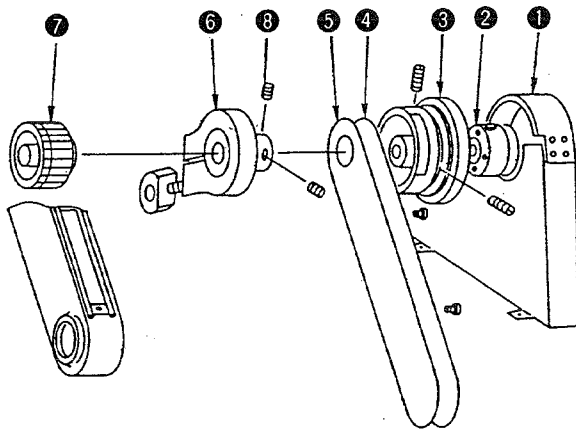
- Failed feeding of the overlapped section of a material
- Feed pitch specified cannot be obtained.
- The material slackens.
- Needle breakage or stitch skipping

3. Disassembly and assembly

DISASSEMBLING/ASSEMBLING PROCEDURE

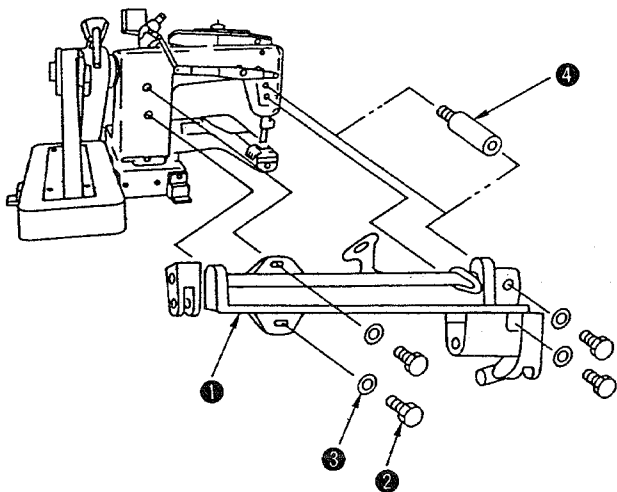
(1) Attaching the device to the main unit

1) Installing the device in the rocking crank



- ① Remove belt protecting base ① , oil cup unit ② , handwheel ③ , sprocket gear cover rid ④ and gasket ⑤ .
- ② Attach rocking crank ⑥ to sprocket gear ⑦ and temporarily tighten screws ⑧ .
- ③ Assemble gasket ⑤ , sprocket gear cover rid ④ , handwheel ③ , oil cut unit ② and belt protecting base ① .

2) Installing the device in the main unit of the sewing machine



- ① Attach main unit ① of the device to the sewing machine using four screws ② and four washers ③ .

For V046

- ① Attach the device to the sewing machine while placing base float pin ④ between them.

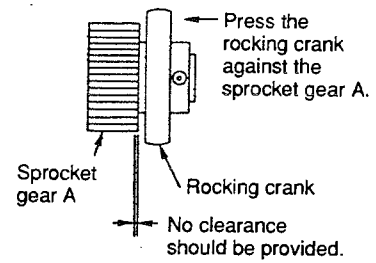
CAUTION IN DISASSEMBLY

- Take care not to damage the O ring when removing oil cup unit ②.

CAUTION IN ASSEMBLY

Align the screw No. 1 of the handwheel with the flat portion of the main shaft.

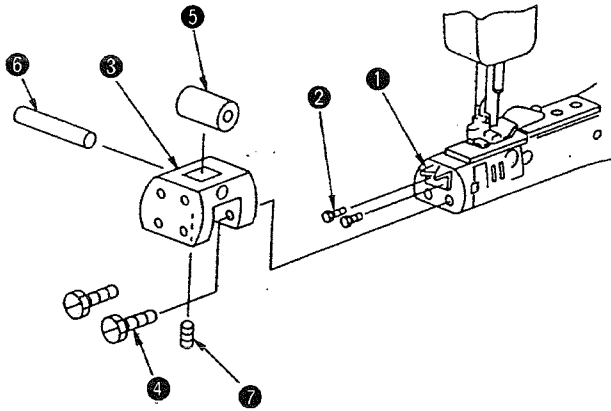
Install the rocking crank while pressing it closely against the end face of sprocket gear A.



When attaching the V046 to the sewing machine, a base float pin should be placed between them.

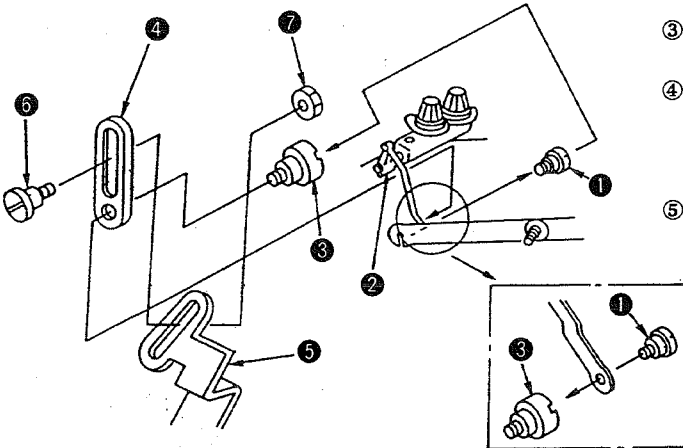
DISASSEMBLING/ASSEMBLING PROCEDURE

3) Attaching the lower roller (only for the V046)



- ① Loosen screws ② and remove thread trimming knife ①.
- ② Attach lower roller base ③ in place using screws ④.
- ③ Attach lower roller ⑤ to the lower roller base using lower roller shaft ⑥. Then fix lower roller shaft ⑥ with screw ⑦.
- ④ Loosen screws ④, and adjust so that lower roller ⑤ is horizontal to the top surface of the throat plate. Then, fix the lower roller by tightening the screws.
- ⑤ Attach thread trimming knife ① to lower roller base ③ using screws ②.

4) Attaching the interlocking lifting mechanism (V045)

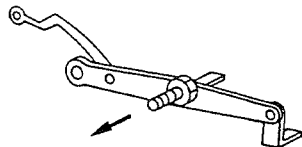


- ① Remove screw ① and loosen screw ②.
- ② Attach knee-lifter lever collar ③ to the portion from which the screw ① has been removed while placing presser bar lifting link ④ between them.
- ③ Attach screw ① to knee-lifter lever collar ③.
- ④ Tighten screw ②.
(Refer to the Instruction Manual for the main unit of the MS model of sewing machine for the thread tension releasing timing.)
- ⑤ Join joint plate ⑤ with presser bar lifting link ④ of the main unit of the device using hinge screw ⑥ and nut ⑦.

CAUTION IN DISASSEMBLY

- When removing the lower roller from the sewing machine, loosen screw ⑦, draw out shaft ⑥ and remove roller ⑤.
- Do not remove lower roller base ③ with roller ⑤ attached to it. The screw will come in contact with the roller and the roller will be damaged.

Remove screw ① with an L-shape wrench key for the screw in the throat plate. If the wrench key is not available, remove the knee-lifter lever of the main unit.



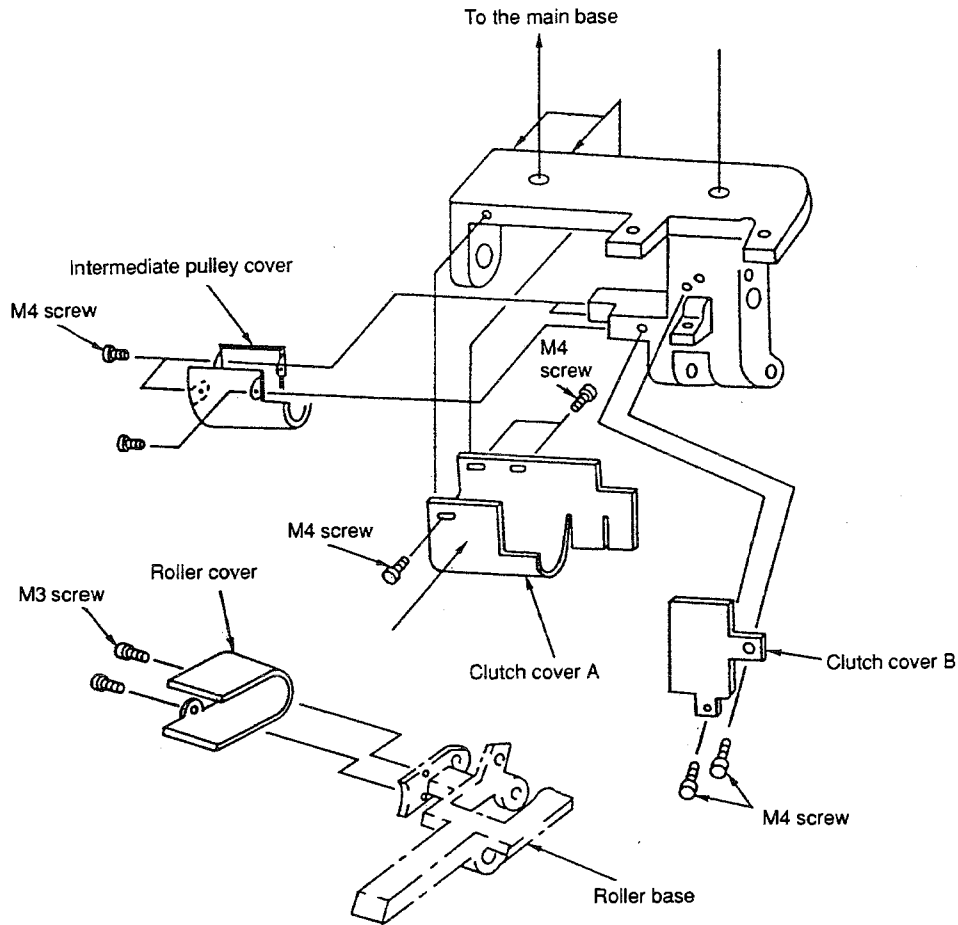
CAUTION IN ASSEMBLY

- Temporarily fix the lower roller base onto the sewing machine bed. Then, attach the lower roller to the base. If the lower roller base is attached to the sewing machine with the lower roller fixed on the base, the screw will come in contact with the lower roller. In this case, the lower roller base cannot be attached to the bed with ease.
- Adjust so that the top surface of the roller is in parallel to the top surface of the throat plate.

Screw ② is loosened at the time of disassembly. So, adjust the timing to release the thread tension at the time of assembly. Adjust so that the thread tension starts to be released when the presser foot ascends 7 mm from the lowest position of its stroke.

DISASSEMBLING/ASSEMBLING PROCEDURE

(2) Removing the covers

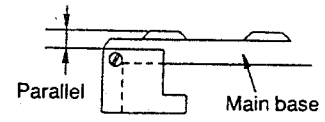


- 1) Loosen the two M4 screws and remove the clutch cover B.
 - 2) Loosen the three M4 screws and remove the clutch cover A.
 - 3) Remove the three M4 screws. Then, remove the intermediate pulley cover.
 - 4) Remove the two M3 screws. Then, remove the roller cover.
- * To replace the roller or the timing belt of the roller, only the roller cover should be removed.

CAUTION IN DISASSEMBLY

CAUTION IN ASSEMBLY

Attach the clutch cover A so that it is in parallel to the clutch base.

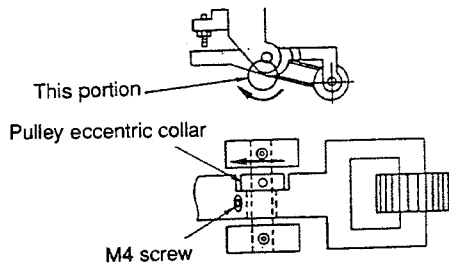


Confirm that the respective covers do not come in contact with the related components.

DISASSEMBLING/ASSEMBLING PROCEDURE

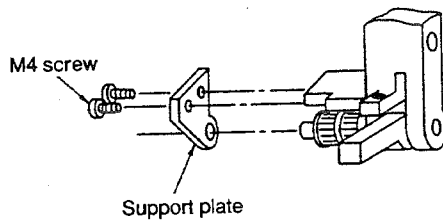
(3) How to replace/disassemble the clutch (asm.) and clutch belt

- 1) Remove the clutch cover A, clutch cover B, intermediate pulley cover and roller cover.
Detach the joint rod from the clutch case.
- 2) Release the tension applied to the timing belt of the roller.



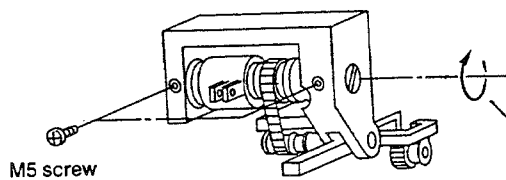
- Loosen the screw (M4) in the pulley eccentric collar. Now, reduce the tension applied to the timing belt of the roller by turn the pulley eccentric collar in the direction of the arrow.

- 3) Remove the support plate.



- Remove the M4 screws, then remove the support plate.

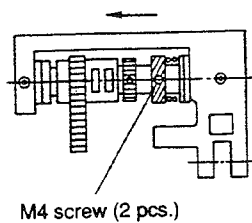
- 4) Reduce the tension applied to the timing belt of the clutch. (The clutch case should be brought to the lowest position.)



- Loosen the two M5 screws and reduce the belt tension by turning the clutch shaft.

* In case of assembly, turn the clutch shaft counterclockwise.

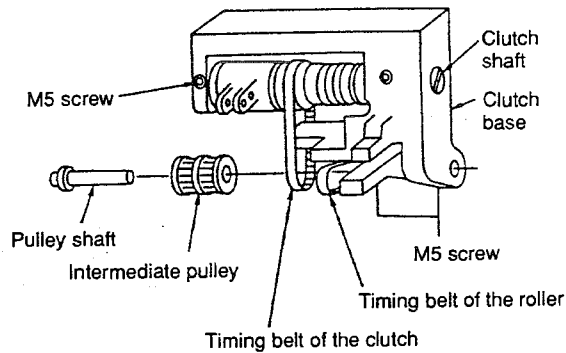
- 5) Loosen the screws in the clutch brake collar to set the spring pressure to 0 (zero).



CAUTION IN DISASSEMBLY	CAUTION IN ASSEMBLY
<p>If the pulley eccentric collar is turned excessively, the timing belt will be tensed. So, turn the collar by 90° to 180°.</p>	<ul style="list-style-type: none"> • In case of assembly, adjust the belt tension referring to the description given in "Adjusting the tension of the timing belt." • Attach the support plate in position when the timing belt of the clutch and the timing belt of the roller are not tensed (when the tension applied to them are reduced). If the timing belts are tensed, the shaft will be installed with bent. • In case of assembly, adjust the belt tension referring to the description given in "Adjusting the tension of the timing belt." • Adjust the spring pressure specified at the time of assembly referring to the description given in "Adjusting the brake pressure." • If the spring is not applied with the specified pressure, the roller will be likely to overrun.

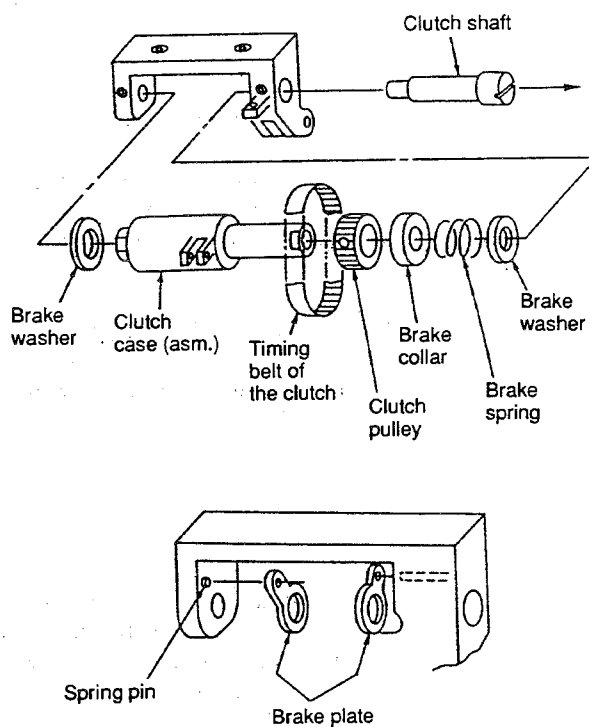
DISASSEMBLING/ASSEMBLING PROCEDURE

6) Draw out the pulley shaft and remove the intermediate pulley.



- Loosen the two M5 screws in the clutch base.
- Draw out the roller shaft.
- Remove the intermediate pulley.

7) Draw out the clutch shaft and remove the assembled components.



- Replacing the clutch case
When you want to replace the clutch, replace the clutch case (asm.) since it is difficult for you to replace the clutch bearing (the bearing has been driven into the clutch).
- Replacing the timing belt of the clutch
Replace the timing belt of the clutch in the state as shown in the figure on the left.
- Replacing the brake plate
If the brake plate has worn out, replace it in the state as shown in the figure on the left.

8) Assembly is carried out analogously in reverse order.

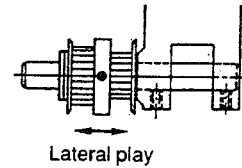
CAUTION IN DISASSEMBLY

- After the clutch shaft has been drawn out, remove the assembled components in whole.
- If the brake spring is held pressed, the components will be sprung by the spring pressure when they are removed. So, be careful.

- Take care not to apply, by mistake, grease or lubricating oil for the sewing machine to the brake plate.

CAUTION IN ASSEMBLY

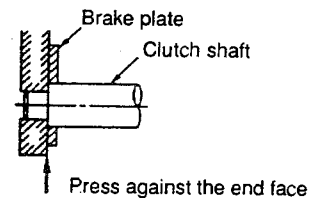
When assembling the pulley shaft and the intermediate pulley, adjust so that a lateral play of 0 to 0.05 mm is provided at the intermediate pulley.



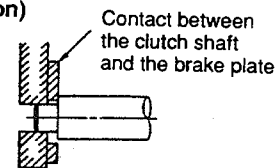
After the pulley shaft and the intermediate pulley have been attached in position, the intermediate pulley should smoothly rotate.

Be sure to fit the clutch shaft in the brake plate without fail.

The clutch shaft should be pressed against the end face of the brake plate.

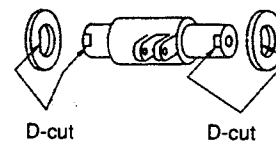


(Caution)



Attach the brake plate to the clutch base while fitting the hole in the brake plate over the spring pin. Then attach the clutch case in position.

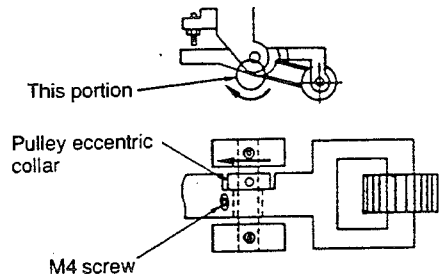
Align the D-cut portion of the washer with the D-cut portion of the clutch rocking shaft.



DISASSEMBLING/ASSEMBLING PROCEDURE

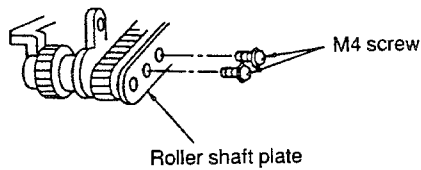
(4) Replacing the timing belt of the roller

- 1) Remove the clutch cover A, clutch cover B, intermediate pulley cover and roller cover.
- 2) Release the tension applied to the timing belt of the roller.



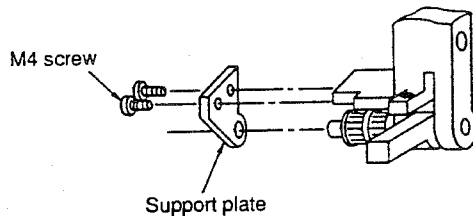
- Loosen the screw (M4) in the pulley eccentric collar. Now, reduce the tension applied to the timing belt of the roller by turn the pulley eccentric collar in the direction of the arrow.

- 3) Remove the roller plate shaft.



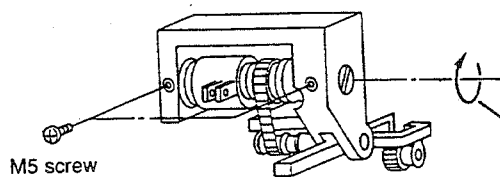
- Remove the M4 screws.
- Remove the roller plate shaft.

- 4) Remove the support plate.



- Remove the M4 screws, then remove the support plate.

- 5) Reduce the tension applied to the timing belt of the clutch. (The clutch case should be brought to the lowest position.)



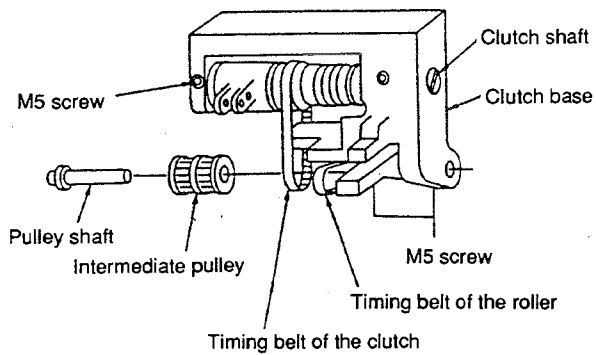
- Loosen the two M5 screws and reduce the belt tension by turning the clutch shaft.

* In case of assembly, turn the clutch shaft counterclockwise.

CAUTION IN DISASSEMBLY	CAUTION IN ASSEMBLY
<p>If the pulley eccentric collar is turned excessively, the timing belt will be tensed. So, turn the collar by 90° to 180°.</p>	<ul style="list-style-type: none"> • In case of assembly, adjust the belt tension referring to the description given in “Adjusting the tension of the timing belt.” • Attach the roller plate, in case of assembly, with the timing belt of the roller slackened. If the roller plate is installed with the timing belt held tensed, the roller shaft will be kept twisted, thereby developing a torque. • Attach the support plate in position when the timing belt of the clutch and the timing belt of the roller are not tensed (when the tension applied to them are reduced). If the timing belts are tensed, the shaft will be installed with bent. • In case of assembly, adjust the belt tension referring to the description given in “Adjusting the tension of the timing belt.”

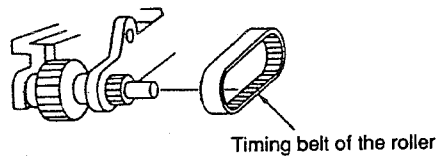
DISASSEMBLING/ASSEMBLING PROCEDURE

6) Draw out the pulley shaft and remove the intermediate pulley.



- Loosen the two M5 screws in the clutch base.
- Draw out the roller shaft.
- Remove the intermediate pulley.

7) Remove the timing belt of the roller.



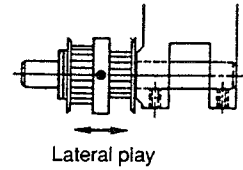
8) Assembly is carried out analogously in reverse order.

CAUTION IN DISASSEMBLY

If the timing belt is turned, the clutch shaft will rotate since the shaft is not fixed. This may tense the timing belt of the clutch. So, it is recommended to temporarily fix the clutch shaft with the M5 screws when the belt tension is minimized. This will make it easy to replace the timing belt.

CAUTION IN ASSEMBLY

- When assembling the pulley shaft and the intermediate pulley, adjust so that a lateral play of 0 to 0.05 mm is provided at the intermediate pulley.

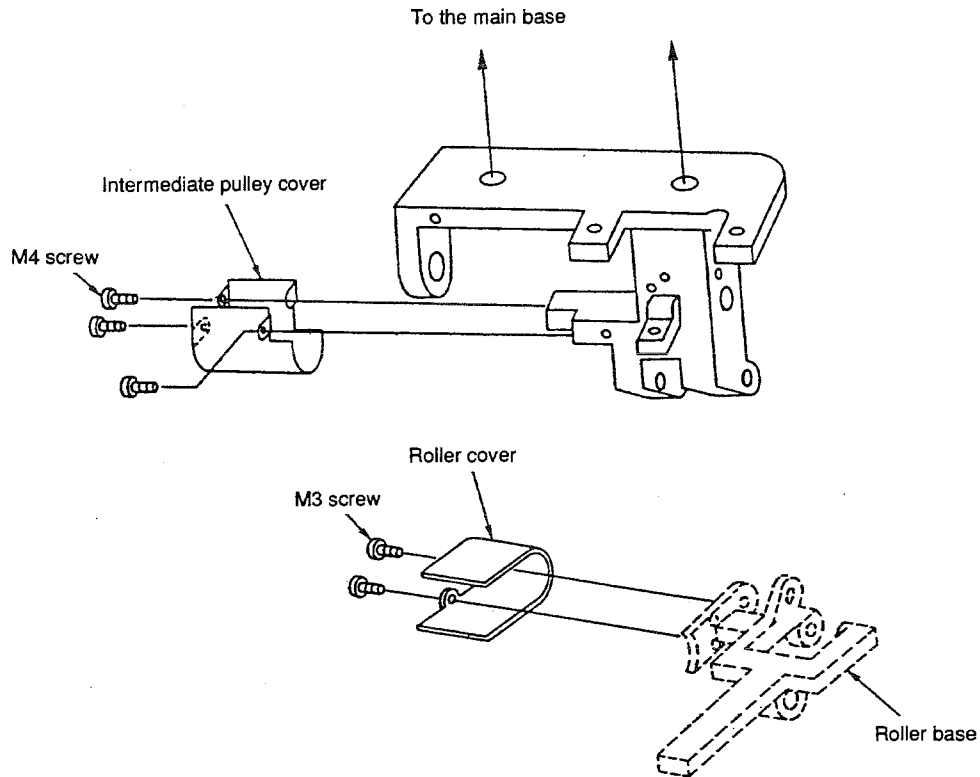


- After the pulley shaft and the intermediate pulley have been attached in position, the intermediate pulley should smoothly rotate. Be sure to fit the clutch shaft in the brake plate without fail.
- Take care not to damage the roller pulley.

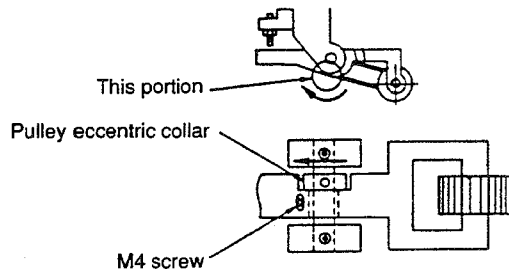
DISASSEMBLING/ASSEMBLING PROCEDURE

(5) Replacing the roller

- 1) Remove the roller cover and the intermediate pulley cover.

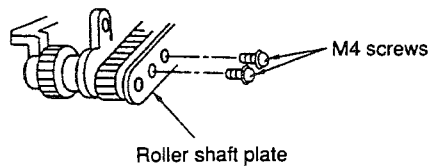


- 2) Release the tension applied to the timing belt of the roller.



- Loosen the screw (M4) in the pulley eccentric collar. Now, reduce the tension applied to the timing belt of the roller by turn the pulley eccentric collar in the direction of the arrow.

- 3) Remove the roller plate shaft.



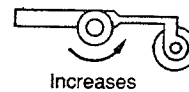
- Remove the M4 screws.
- Remove the roller plate shaft.

CAUTION IN DISASSEMBLY

CAUTION IN ASSEMBLY

If the pulley eccentric collar is turned excessively, the timing belt will be tensed. So, turn the collar by 90° to 180°.

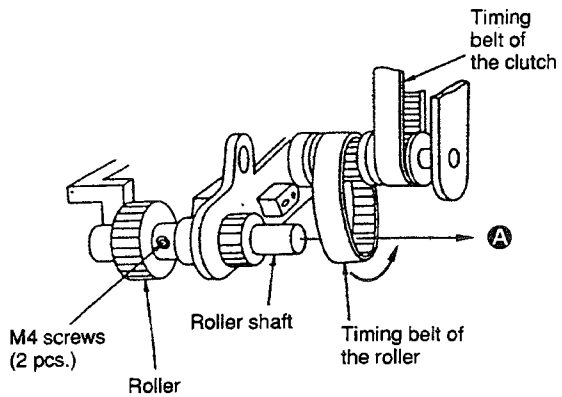
- In case of assembly, adjust the belt tension referring to the description given in "Adjusting the tension of the timing belt."
- To adjust the belt tension, turn the eccentric collar of the pulley in the direction of rotation as shown in the figure below.



If the belt tension is decreased by turning the collar in the aforementioned direction of rotation, further turn it by 180°. Then re-adjust the belt tension.

DISASSEMBLING/ASSEMBLING PROCEDURE

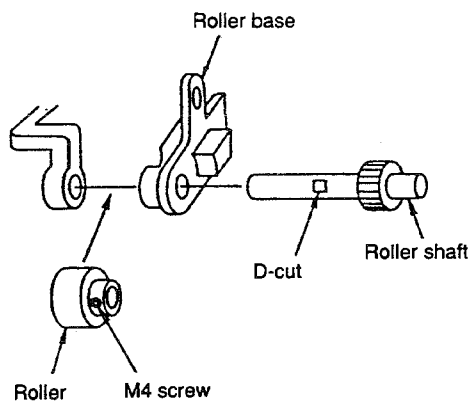
4) Draw out the roller shaft.



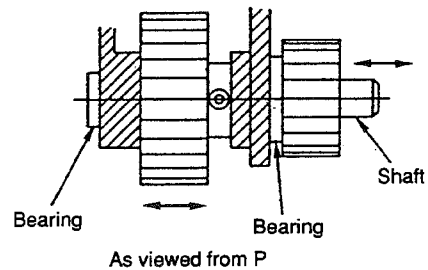
- Turn the timing belt of the roller until it comes off.
- Loosen the two M4 screws in the roller.
- Draw out roller shaft in direction **A**.
- Remove the roller

Assembling procedure

1)



- Put the roller in the roller base.
- Insert the roller shaft into the roller.
At this time, align the M4 screw (screw No. 1) in the roller with the flat portion of the D-cut section.



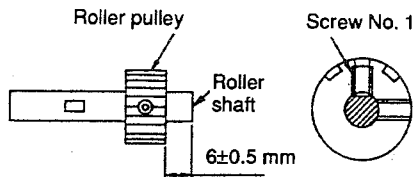
- Remove a lateral play by pressing the roller against the roller pulley. (Acceptable lateral clearance is 0 to 0.05 mm.) At this time, confirm that the roller smoothly rotates.

2) Assembly is carried out analogously in reverse order.

CAUTION IN DISASSEMBLY

- Do not damage the oil seal which has been driven into the roller base.
(If the oil seal is damaged, dust will enter the roller base or grease will leak from the roller base.)
- Take care not to allow thread waste to enter the bearing.
(The bearing is seized resulting in rotation failure.)

- If you have removed the roller pulley by mistake, re-attach it in the procedure as illustrated below.



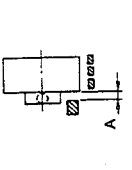
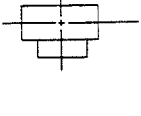
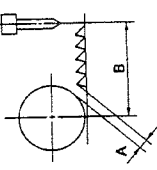
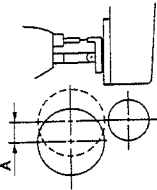
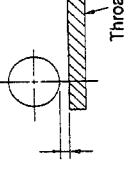
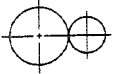
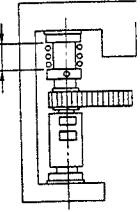

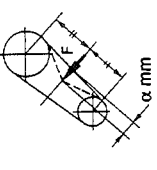

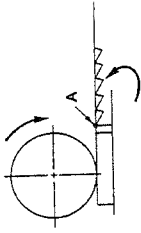

- 1) Align the screw No. 1 with the flat portion of the roller shaft.
- 2) Adjust so that the end face of the roller pulley is spaced 6 ± 0.5 mm from the end face of the roller shaft.

CAUTION IN ASSEMBLY

- Put the timing belt onto the roller while turning the belt.
- Do not fold the timing belt.

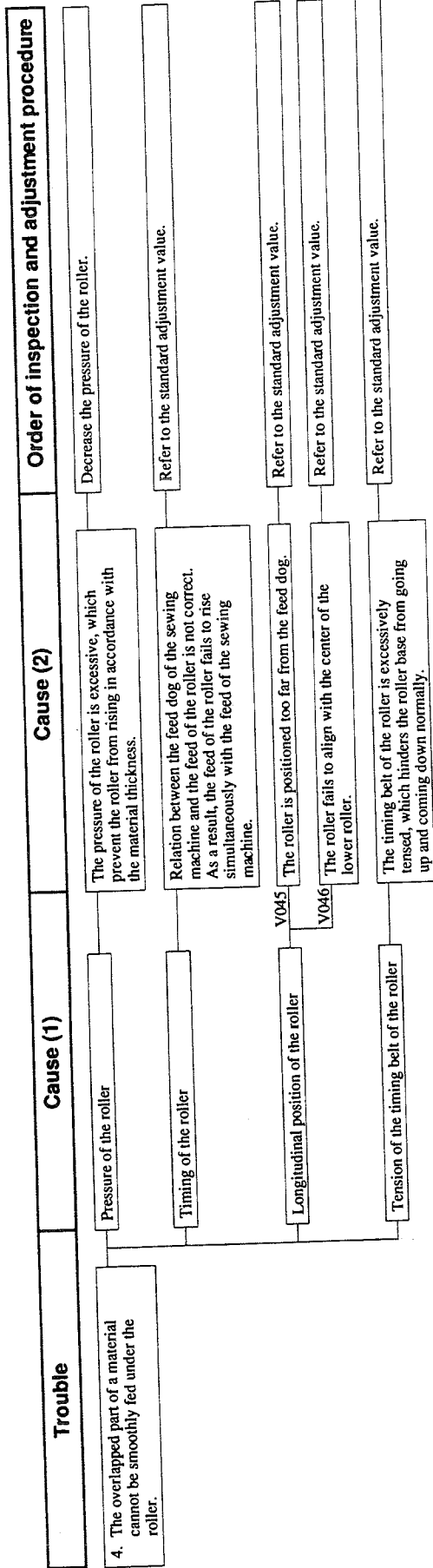
Be sure to align the screw No. 1 in the roller with the flat portion on the roller shaft.

4. Major adjustment value table

Model		Standard adjustment	Item	Standard adjustment	Model	
MS-1190/V045	MS-1261/V045				MS-1261/V046	MS-1190/V046
Center of the roller should be aligned with the center of the needle bar.	Clearance between the differential feed dog and the roller (0.2 to 0.8 mm) (Dimension A)		Lateral position of the roller		Center of the roller should be aligned with the center of the needle bar.	↓
The roller should be spaced 2.5±0.7 mm from the center of the needle. (Dimension B)	Clearance between the feed dog and the roller when the feed pitch (stitch length) of the sewing machine is maximized 0.2 to 1.0 mm (Dimension A)		Longitudinal position of the roller		The roller should be aligned with the center of the lower roller or positioned 1 mm or less behind it. (Dimension A)	↓
↑	For a steel roller 0.01 to 0.1 mm For an urethane roller No clearance		Clearance between the roller and the throat plate		The roller should be closely fitted with the lower roller.	↓
↑	16 mm		Clearance between the roller and the brake collar		12 mm	↓
↑	In case of "F=0.2 kgf," Slack of the belt a=0.5 to 1.0 mm		Tension of the timing belt		In case of "F=0.2 kgf," Slack of the belt a=0.5 to 1.0 mm	↓
↑	The roller should start to feed the material on the machine when the top end of the feed dog is flush with the top surface of the throat plate.		Feed timing of the roller		The roller should start to feed the material on the machine when the top end of the feed dog is flush with the top surface of the throat plate.	↓

5. Troubles and corrective measures

Trouble	Cause (1)	Cause (2)	Order of inspection and adjustment procedure	
1. Defective chain-off thread	Position of the roller	The roller is improperly positioned in lateral direction with respect to the needle.	Refer to the standard adjustment value.	
		The roller is improperly positioned in longitudinal direction.	Refer to the standard adjustment value.	
		Chain-off thread returns since the clearance provided between the roller and the throat plate is larger than the specified value.	Reduce the clearance between them.	
		Feed timing of the roller fails to match that of the sewing machine.	Refer to the standard adjustment value.	
2. Insufficient efficiency of feed	Pressure of the roller	The roller slips on the material since the pressure of the roller is inadequate.	Increase the pressure of the roller up to the adequate value specified.	
		Timing of the roller	Relation between the feed dog of the sewing machine and the feed of the roller is not correct. As a result, efficiency of feed provided by both feed mechanisms is reduced.	Refer to the standard adjustment value.
			The feed amount provided by the roller is insufficient as compared with the feed amount provided by the sewing machine.	Increase the feed amount of the roller.
			Loss of efficiency of feed is caused by inadequate tension of the timing belt.	Refer to the standard adjustment value.
3. Irregular feed pitches	Feed amount of the roller	Relation between the feed dog of the sewing machine and the feed of the roller is not correct. As a result, feed pitch failure occurs.	Refer to the standard adjustment value.	
		Timing belt vibrates when the feed mechanism actuates because of insufficient tension of the timing belt.	Refer to the standard adjustment value.	
		Brake spring pressure is insufficient. As a result, the roller overruns.	Increase the spring pressure.	
		One-way clutch has worn out.	Replace the one-way clutch asm. with a new one.	



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