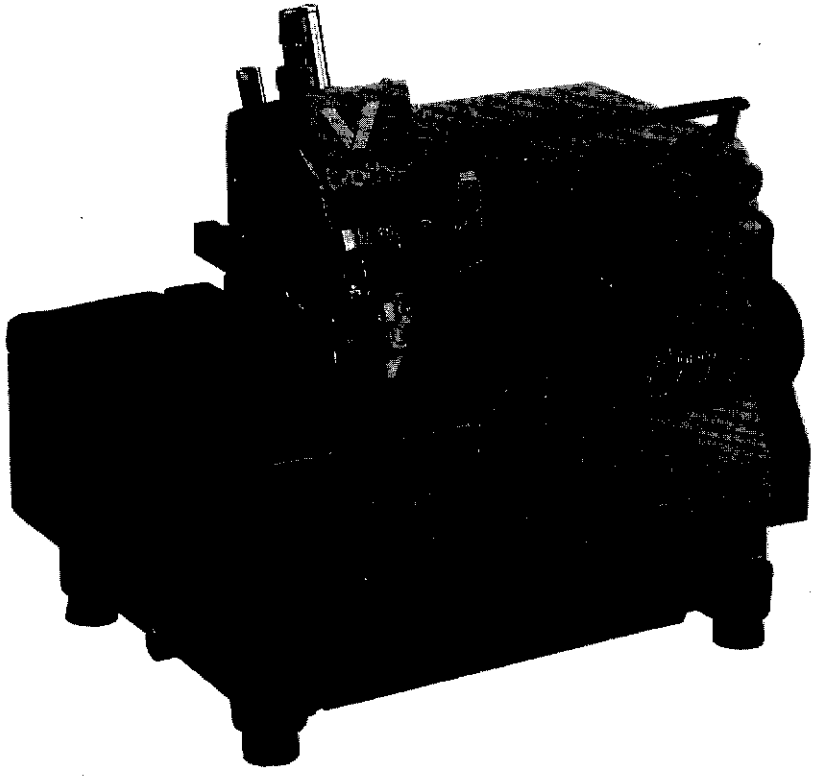
brother

SERVICE MANUAL
FOR
V SERIES
OVERLOCK SEWING MACHINE

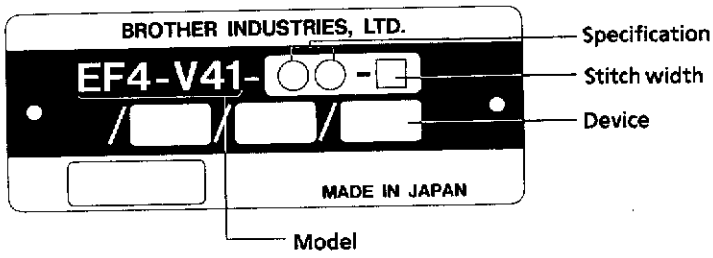
EF4-V41·V51·MA4-V61
EF4-V71·V81·MA4-V91
EF4-V72·V82·MA4-V92



CONTENTS

PRODUCT SPECIFICATION CODE SETTING STANDARD

Model plate



[Model] (Max. sewing speed 7500 - 8500 spm)

EF4-V41 (Ultra high speed single needle overlock sewing machine)

EF4-V51 (Ultra high speed twin needle overlock sewing machine)

MA4-V61 (Ultra high speed safety stitch sewing machine)

* Refer to SPECIFICATION LIST for details.

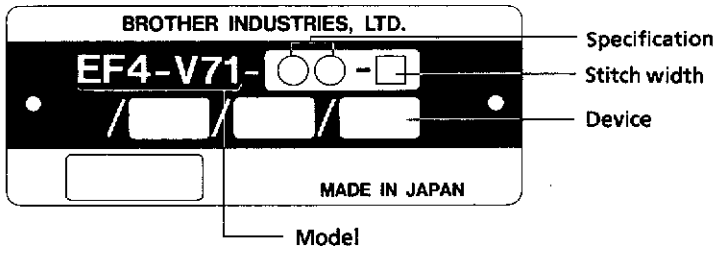
[Specification]

01	-	17
22	-	57
69	-	93

[Stitch width]

2	.....	Stitch width 2 mm	
3	.....	Stitch width 3 mm	
4	.....	Stitch width 4 mm	
5	.....	Stitch width 5 mm	
6	.....	Stitch width 6 mm	
7	.....	Stitch width 7 mm	

Model plate



[Model] (Max. sewing speed 6000 - 6500 spm)

EF4-V71 EF4-V72 (High speed single needle adjustable top and bottom feed overlock sewing machine)

EF4-V81 EF4-V82 (High speed twin needle adjustable top and bottom feed overlock sewing machine)

MA4-V91 MA4-V92 (High speed top and bottom feed safety stitch sewing machine)

[Sewing type]

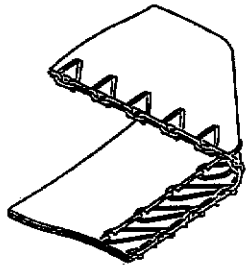
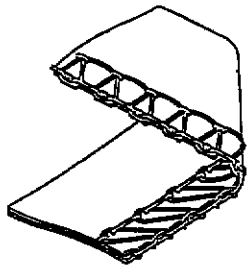
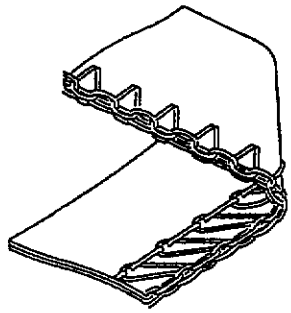
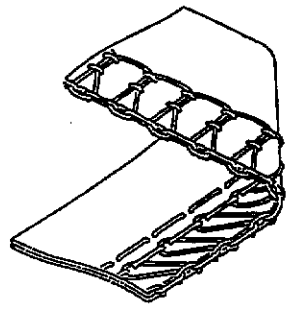
1	.....	Back feed type
2	.....	Front feed type

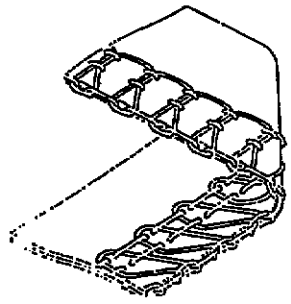
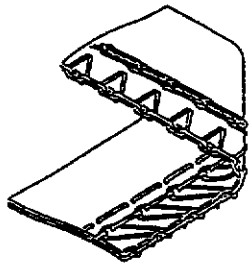
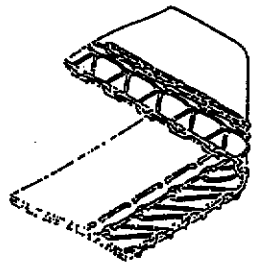
[Device]

Device \ Model			V41	V51	V61	V71 V72	V81 V82	V91 V92
Automatic tape cutter	Stitch number control	ATC1	○	○	○	○	○	○
	Suction pipe, tension release, stitch number control	ATC3	○	○	○	○	○	○
	Suction pipe, stitch number control	ATC5	○	○	○	○	○	○
Automatic tape feeder	Horizontal	TFH	○	○	○	○	○	○
	Vertical	TFV	○	○	○	○	○	○
Semi-auto backtack device	For single needle with NP tension release	SBL1	○	—	—	—	—	—
	For twin needle with NP tension release	SBL2	—	○	—	—	—	—
Vertical chain cutter	Pneumatic rear suction	CV1	○	○	○	○	○	○
	Pneumatic front suction	CV3	○	○	○	—	—	—
	Vacuum type rear suction	CV4	○	○	○	○	○	○
	Vacuum type front suction	CV6	○	○	○	—	—	—
	Chain cutter only, rear suction	CV7	○	○	○	○	○	○
	Chain cutter only, front suction	CV9	○	○	○	—	—	—
Horizontal chain cutter	Pneumatic	CH1	○	○	○	○	○	○
	Vacuum type	CH2	○	○	○	○	○	○
	Chain cutter only	CH3	○	○	○	○	○	○
Tape cutter	Pneumatic knee switch	TC1	○	○	○	○	○	○
	Solenoid knee switch	TC3	○	○	○	○	○	○
	Solenoid hand switch	TC5	○	○	○	○	○	○
Automatic presser foot lifter	Pneumatic	PL1	○	○	○	○	○	○

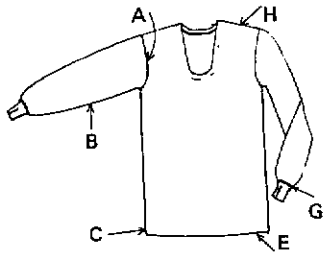
* The blower motor for the chain cutter vacuum type is optional.

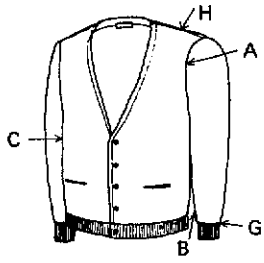
[Stitch type]

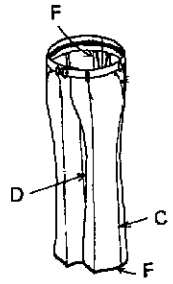
Stitch formation (503)	(504)	(505)	(512)
One needle with two threads Serging	One needle with three threads Plain stitching	One needle with three threads Blind-hemming	Two needles with four threads Mock-safety
			

Stitch formation (514)	(515)	(516)
Two needles with four threads	Two needles with four threads Safety stitching	Two needles with five threads Safety stitching
		

SPECIFICATION LIST







A: Sewing sleeves on
E: Blind-hemming

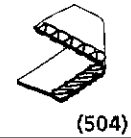
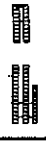
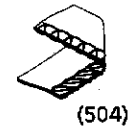
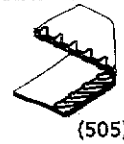
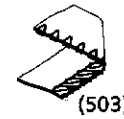
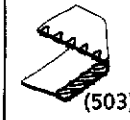
B: Forming sleeves
F: Serging

C: Joining body parts
G: Sewing frills on

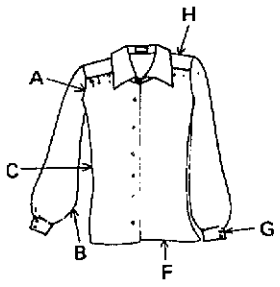
D: Joining inner leg
H: Joining shoulder

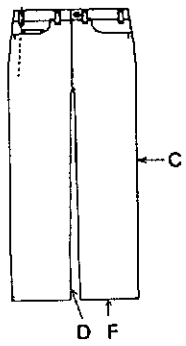
Ultra high speed single needle overlock sewing machine
EF4-V41

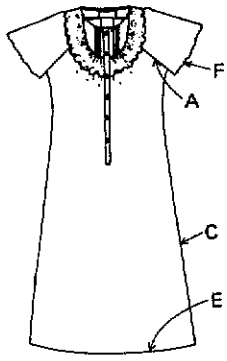
S: Standard specification
H: High lift specification

Subclass	Stitch type	No. of needles	No. of threads	Needle gauge (mm)	Stitch width (mm) Ⓐ	Max. stitch length (mm) Ⓑ	Differential ratio	Height of presser foot (mm)	Pitch of feed dog (mm)	[Main] Type of feed dog	Needle size DCx27	Max. sewing speed (spm)	Looper path	Usage (Material)	Attachment
01-3 -4 -5 -6	 (504)	1	3	–	3 4 5 6	0.9 - 3.8	0.7 - 2	5	1.6		#11	8500	S H (-6)	Thin and medium thick materials A, B, C, D	—
02-5 -6 -7	 (504)	1	3	–	5 6 7	0.6 - 2.6	1 - 3	6	2.5		#14	8000	H	Bulky knits A, B, C	(With angle knife)
03-3 -4 -5	 (505)	1	3	–	3 4 5	0.9 - 3.8	0.7 - 2	5	1.6		#9	8500	S	Blind-hemming E	Blind-hemming ruler
04-3 -4 -5	 (503) (Using spreader)	1	2	–	3 4 5	0.9 - 3.8	0.7 - 2	5	1.6		#9	8500	S	Blind-hemming E	Blind-hemming ruler
05-4 -5	 (503) (Using spreader)	1	2	–	4 5	1.4 - 5.9	0.7 - 1.3	5	1.6		#14	8500	S	Serging F	Serging ruler

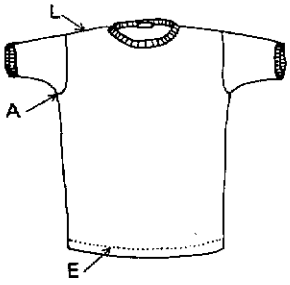
NOTE: The rotating speed has been set according to Brother's standard sewing specification.

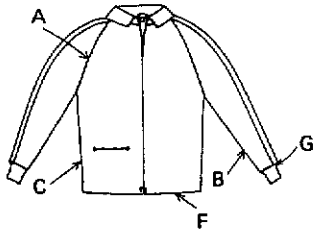


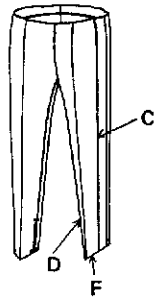




Subclass	Stitch type	No. of needles	No. of threads	Needle gauge (mm)	Stitch width (mm) Ⓐ	Max. stitch length (mm) Ⓑ	Differential ratio	Height of presser foot (mm)	Pitch of feed dog (mm)	[Main] [Differential] Type of feed dog	Needle size DCx27	Max. sewing speed (spm)	Looper path	Usage (Material)	Attachment
06-4 -5	(504)	1	3	–	4 5	1.4 - 5.9	0.7 - 1.3	5	1.6		#14	8500	S	Serging F	Serging ruler
07-2 -3	(504)	1	3	–	2 3	0.9 - 3.8	0.7 - 2	5	1.6		#11	8500	S	Curling (lower curling) —	—
08-5	(504)	1	3	–	5	0.8 - 3.2	0.8 - 2.8	5	1.6		#11	7500	S	Ruffling A, G	Ruffling attachment
09-5	(504)	1	3	–	5	0.8 - 3.2	0.8 - 2.8	5	1.6		#11	7500	S	Ruffling (with piping) A, G	Parts of ruffling attachment
10-4 -5 -6	(504)	1	3	–	4 5 6	0.9 - 3.8	0.7 - 2	5	1.6		#11	8500	S H (-6)	Taping with thin and medium thick materials H	Tape guide
11-5 -6 -7	(504)	1	3	–	5 6 7	0.6 - 2.6	1 - 3	6	2.5		#14	8000	H	Taping with bulky knits H	Tape guide (with angle knife)
12-3 -4 -5	(504)	1	3	–	3 4 5	0.9 - 3.8	0.7 - 2	5	1.6		#11	8500	S	Backtacking with thin and medium thick materials A, B, C, D	Backtacking parts
17-3 -4 -5	(504)	1	3	–	3 4 5	0.9 - 3.8	0.7 - 2	5	1.6		#11	8500	S	Soft chaining with thick and medium thick materials	—



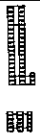
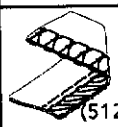
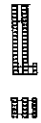
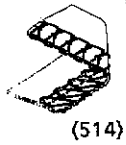
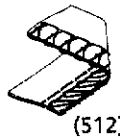
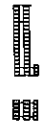
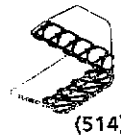
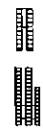
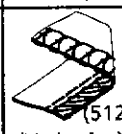
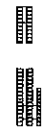
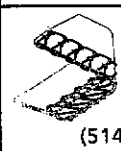
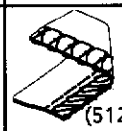
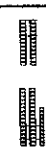
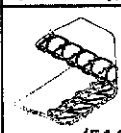
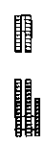
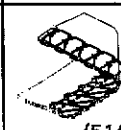
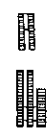


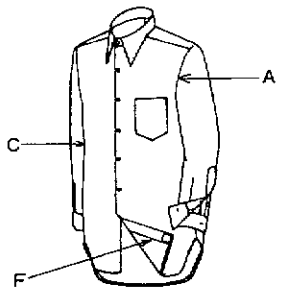


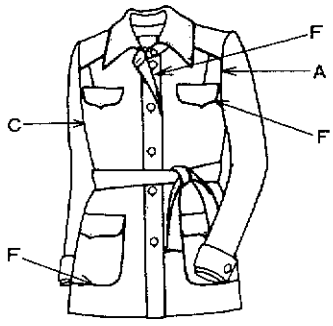
Ultra high speed twin needle overlock sewing machine
EF4-V51

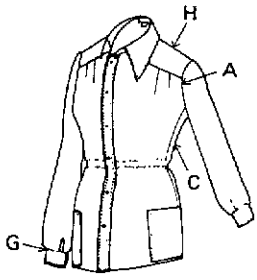
H: High lift specification
E: Extra high lift specification

Subclass	Stitch type	No. of needles	No. of threads	Needle gauge (mm)	Stitch width (mm) Ⓐ	Max. stitch length (mm) Ⓑ	Differential ratio	Height of presser foot (mm)	Pitch of feed dog (mm)	[Main] [Differential] Type of feed dog	Needle size DCx27	Max. sewing speed (spm)	Looper path	Usage (Material)	Attachment
22-4 -5 -6 -7	(514)	2	4	2.2	4 5 6 7	0.9 - 3.8	0.7 - 2	5.5	1.6		#11	8000	H	Medium thick and heavy materials A, B, C, D	—
23-4 -5 -6 -7	(514) (Mock-safety)	2	4	2.2	4 5 6 7	0.9 - 3.8	0.7 - 2	5.5	1.6		#11	7000	H	Medium thick and heavy materials A, B, C	—
24-5 -6 -7	(514)	2	4	3	5 6 7	0.9 - 3.8	0.7 - 2	5.5	1.6		#11	8000	H	Thin and medium thick materials A, B, C	—
25-5 -6 -7	(512) (Mock-safety)	2	4	3	5 6 7	0.9 - 3.8	0.7 - 2	5.5	1.6		#11	7000	H	Thin and medium thick materials A, B, C	—
27-5 -6 -7	(514)	2	4	2.2	5 6 7	0.6 - 2.6	1 - 3	5.5	2.5		#14	7500	H	Bulky knits A, B, C	(With angle knife)
28-5 -6 -7	(512) (Mock-safety)	2	4	2.2	5 6 7	0.6 - 2.6	1 - 3	5.5	2.5		#14	7000	H	Bulky knits A, B, C	(With angle knife)
31-6 -7	(514)	2	4	3	6 7	1.2 - 5.0	0.7 - 1.4	6	2.5		#18	6500	E	Extra heavy materials A, B, C, D	(With angle knife)
32-6 -7	(512) (Mock-safety)	2	4	3	6 7	1.2 - 5.0	0.7 - 1.4	6	2.5		#18	6500	E		

Subclass	Stitch type	No. of needles	No. of threads	Needle gauge (mm)	Stitch width (mm) Ⓐ	Max. stitch length (mm) Ⓑ	Differential ratio	Height of presser foot (mm)	Pitch of feed dog (mm)	[Main] [Differential] Type of feed dog	Needle size DCx27	Max. sewing speed (spm)	Looper path	Usage (Material)	Attachment
33-5	 (514)	2	4	2.2	5	0.8 - 3.2	0.8 - 2.8	5.5	1.6		#11	7500	H	Ruffling A, G	Ruffling attachment
34-5	 (512) (Mock-safety)	2	4	2.2	5	0.8 - 3.2	0.8 - 2.8	5.5	1.6		#11	7500	H	Ruffling A, G	Ruffling attachment
37-5 -6	 (514)	2	4	2.2	5	0.8 - 3.2	0.8 - 2.8	5	1.6		#11	7500	H	Ruffling (with piping) A, G	Ruffling attachment, piping parts
38-5	 (512)	2	4	2.2	5 6	0.8 - 3.2	0.8 - 2.8	5	1.6		#11	7500	H	Ruffling (with piping) A, G	Ruffling attachment, piping parts
41-5 -6	 (514)	2	4	2.2	5 6	0.9 - 3.8	0.7 - 2	5.5	1.6		#11	8000	H	Taping with thin and medium thick materials H	Tape guide
42-5 -6	 (512) (Mock-safety)	2	4	2.2	5 6	0.9 - 3.8	0.7 - 2	5.5	1.6		#11	7500	H	Taping with thin and medium thick materials H	Tape guide
45-5 -6 -7	 (514)	2	4	2.2	5 6 7	0.6 - 2.6	1 - 3	5.5	1.6		#14	8000	H	Taping with bulky knits H	Tape guide (with angle knife)
46-5 -6 -7	 (512) (Mock-safety)	2	4	2.2	5 6 7	0.6 - 2.6	1 - 3	5.5	1.6		#14	7500	H	Taping with bulky knits H	Tape guide (with angle knife)
49-5 -6	 (514)	2	4	2.2	5 6	0.9 - 3.8	0.7 - 2	5.5	1.6		#11	8000	H	Backtacking with thin and medium thick materials A, B, C, D	Backtacking parts
57-6 -7	 (514)	2	4	2.5	6 7	0.6 - 2.6	1 - 3	7	2.5		#14	6500	E	Bulky knits A, B, C	(With angle knife)



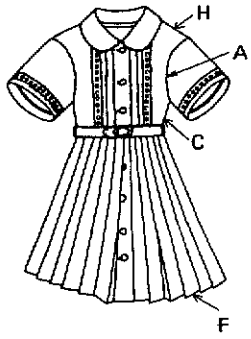


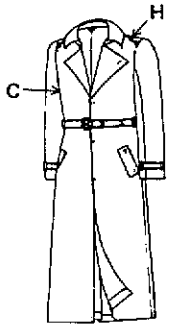


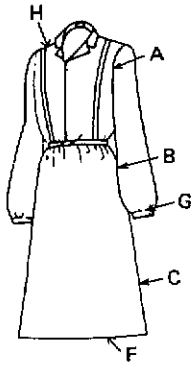
Ultra high speed safety stitch sewing machine
MA4-V61

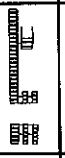
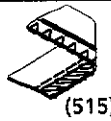
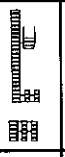
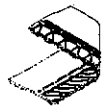
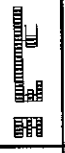
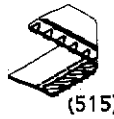
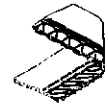
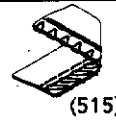
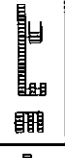
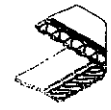
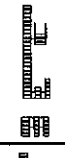
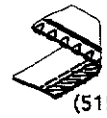
S: Standard specification
H: High lift specification
E: Extra high lift specification

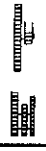
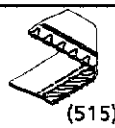
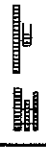
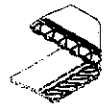
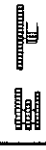
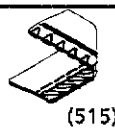
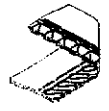
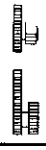
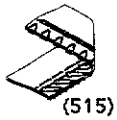
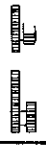
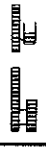
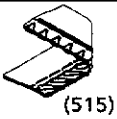
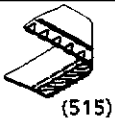
Subclass	Stitch type	No. of needles	No. of threads	Needle gauge (mm)	Stitch width (mm) Ⓐ	Max. stitch length (mm) Ⓑ	Differential ratio	Height of presser foot (mm)	Pitch of feed dog (mm)	[Main] [Differential] Type of feed dog	Needle size DCx27	Max. sewing speed (spm)	Looper path	Usage (Material)	Attachment
61-2 -3 -4 -5	(516)	2	5	2	2 3 4 5	0.9 - 3.8	0.7 - 2	5	1.6		#11	7500	S	Thin materials A, B, C	—
62-2 -3 -4 -5	(515) (Using spreader)	2	4	2	2 3 4 5	0.9 - 3.8	0.7 - 2	5	1.6		#11	7500	S	Thin materials A, B, C	—
63-3 -4 -5 -6 -7	(516)	2	5	3	3 4 5 6 7	0.9 - 3.8	0.7 - 2	5	1.6		#14	7500	S H(-6) (-7)	Thin and medium thick materials A, B, C, D	—
64-3 -4 -5 -6 -7	(515) (Using spreader)	2	4	3	3 4 5 6 7	0.9 - 3.8	0.7 - 2	5	1.6		#14	7500	S H(-6) (-7)	Thin and medium thick materials A, B, C, D	—
65-4 -5 -6 -7	(516)	2	5	5	4 5 6 7	0.9 - 3.8	0.7 - 2	5	1.6		#16	7500	S H(-7) (-6)	Medium thick and heavy materials A, B, C, D	—
66-4 -5 -6 -7	(515) (Using spreader)	2	4	5	4 5 6 7	0.9 - 3.8	0.7 - 2	5	1.6		#16	7500	S H(-7) (-6)	Medium thick and heavy materials A, B, C, D	—
67-4 -5	(516) (Using spreader)	2	5	2	4 5	0.8 - 3.2	0.8 - 2.8	5	1.6		#14	7000	S	Ruffling with thin and medium thick materials A, G	Ruffling attachment
68-4 -5	(516) (Using spreader)	2	4	2	4 5	0.8 - 3.2	0.8 - 2.8	5	1.6		#14	7000	S	Ruffling with thin and medium thick materials A, G	Ruffling attachment







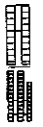
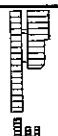
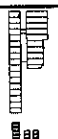
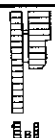
Subclass	Stitch type	No. of needles	No. of threads	Needle gauge (mm)	Stitch width (mm) Ⓐ	Max. stitch length (mm) Ⓑ	Differential ratio	Height of presser foot (mm)	Pitch of feed dog (mm)	[Main] [Differential] Type of feed dog	Needle size DCx27	Max. sewing speed (spm)	Looper path	Usage (Material)	Attachment
69-4 -5	 (516)	2	5	3	4 5	0.8 - 3.2	0.8 - 2.8	5	1.6		#14	7000	S	Ruffling with thin and medium thick materials A, G	Ruffling attachment
70-4 -5	 (515) (Using spreader)	2	4	3	4 5	0.8 - 3.2	0.8 - 2.8	5	1.6		#14	7000	S	Ruffling with thin and medium thick materials A, G	Ruffling attachment
71-5 -6	 (516)	2	5	5	5 6	0.8 - 3.2	0.8 - 2.8	5	1.6		#14	7000	S H (-6)	Ruffling with medium thick and heavy materials A, G	Ruffling attachment
72-5 -6	 (515) (Using spreader)	2	4	5	5 6	0.8 - 3.2	0.8 - 2.8	5	1.6		#14	7000	S H (-6)	Ruffling with medium thick and heavy materials A, G	Ruffling attachment
75-5	 (516)	2	5	3	5	0.8 - 3.2	0.8 - 2.8	5	1.6		#14	7000	S	Ruffling (and piping) with thin and medium thick materials A, G	Ruffling attachment, piping parts
76-5	 (515) (Using spreader)	2	4	3	5	0.8 - 3.2	0.8 - 2.8	5	1.6		#14	7000	S	Ruffling (and piping) with thin and medium thick materials A, G	Ruffling attachment, piping parts
77-5 -6	 (516)	2	5	5	5 6	0.9 - 3.8	0.8 - 2.8	5	1.6		#14	7000	S H(-6)	Ruffling (and piping) with medium thick and heavy materials A, G	Ruffling attachment, piping parts
78-5 -6	 (515) (Using spreader)	2	4	5	5 6	0.8 - 3.2	0.8 - 2.8	5	1.6		#14	7000	S H(-6)	Ruffling (and piping) with medium thick and heavy materials A, G	Ruffling attachment, piping parts

Subclass	Stitch type	No. of needles	No. of threads	Needle gauge (mm)	Stitch width (mm) Ⓐ	Max. stitch length (mm) Ⓑ	Differential ratio	Height of presser foot (mm)	Pitch of feed dog (mm)	[Main] Differential Type of feed dog	Needle size DCx27	Max. sewing speed (spm)	Looper path	Usage (Material)	Attachment
81-4 -5	 (516)	2	5	3	4 5	0.9 - 3.8	0.7 - 2	5	1.6		#14	7500	S	Taping with thin and medium thick materials H	Tape guide
82-4 -5	 (515) (Using spreader)	2	4	3	4 5	0.9 - 3.8	0.7 - 2	5	1.6		#14	7500	S	Taping with thin and medium thick materials H	Tape guide
83-4 -5 -6	 (516)	2	5	5	4 5 6	0.9 - 3.8	0.7 - 2	5	1.6		#16	7500	H(-6)	Taping with medium thick and heavy materials H	Tape guide
84-4 -5 -6	 (515) (Using spreader)	2	4	5	4 5 6	0.9 - 3.8	0.7 - 2	5	1.6		#16	7500	H(-6)	Taping with medium thick and heavy materials H	Tape guide
85-3 -5	 (516)	2	5	3	3 5	1.2 - 5	0.7 - 1.4	3.5	2.5		#18	6500	E	Extra heavy materials A, B, C	Tractor foot (with angle knife)
86-5	 (515) (Using spreader)	2	4	3	5	1.2 - 5	0.7 - 1.4	3.5	2.5		#18	6500	E	Extra heavy materials A, B, C, D	Tractor foot (with angle knife)
89-4 -5	 (516)	2	5	3	4 5	0.9 - 3.8	0.7 - 2	5	1.6		#14	6500	S	Binding with thin and medium thick materials C, H, J	Binding parts, tape guide
90-4 -5	 (515) (Using spreader)	2	4	3	4 5	0.9 - 3.8	0.7 - 2	5	1.6		#14	6500	S	Binding with thin and medium thick materials C, H, J	Binding parts, tape guide
92-5 -6 -7	 (516)	2	5	5	5 6 7	1.2 - 5	0.7 - 1.4	3.5	2.5		#18	6500	E	Extra heavy materials A, B, C, D	Tractor foot (with angle knife)
93-5 -6 -7	 (515) (Using spreader)	2	4	5	5 6 7	1.2 - 5	0.7 - 1.4	3.5	2.5		#18	6500	E	Extra heavy materials A, B, C, D	Tractor foot (with angle knife)

High speed adjustable top and bottom feed overlock sewing machine (Back type)

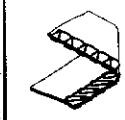
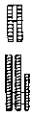
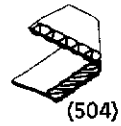
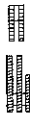
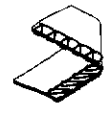
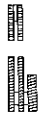
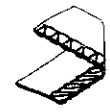
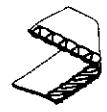
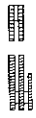
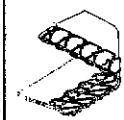
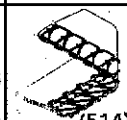
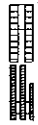
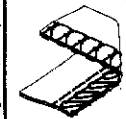
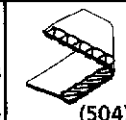
EF4-V71·V81, MA4-V91

E: Extra high lift specification

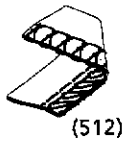
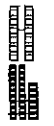
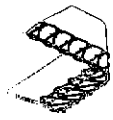
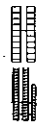
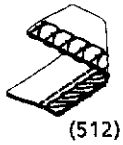
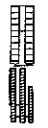
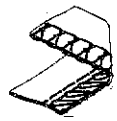
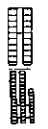
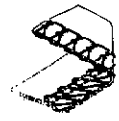
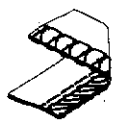
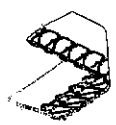
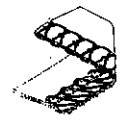
Subclass	Stitch type	No. of needles	No. of threads	Needle gauge (mm)	Stitch width (mm) Ⓐ	Stitch length (mm) Ⓑ	Lower feed differential ratio	Height of presser foot (mm)	Height of upper feed dog (mm)	Max. upper feed amount	Shape and pitch of lower feed dog	Needle size (DCx27)	Max. sewing speed (spm)	Looper path	Usage (Material)	Attachment
71-01-3 -4 -5 -6	 (504)	1	3	-	3 4 5 6	0.9 - 3.8	0.7 - 2	5.5	5	6	 (1.6)	#11	6500	H	Thin and medium thick materials	—
81-22-4 -5 -6 -7	 (514)	2	4	2.2	4 5 6 7	0.9 - 3.8	0.7 - 2	5.5	5	6	 (1.6)	#11	6500	H	Thin and medium thick materials	—
91-63-3 -4 -5 -6 -7	 (516)	2	5	3	3 4 5 6 7	0.9 - 3.8	0.7 - 2	5	5	6	 (1.6)	#14	6500	H	Thin and medium thick materials	—
91-65-3 -4 -5 -6 -7	 (516)	2	5	5	3 4 5 6 7	0.9 - 3.8	0.7 - 2	5	5	6	 (1.6)	#16	6500	H	Medium thick and heavy materials	—
91-92-5 -6 -7	 (516)	2	5	5	5 6 7	0.9 - 3.8	0.7 - 2	3.5	6	6	 (1.0)	#18	5500	E	Extra heavy materials	Tractor foot (with angle knife)

High speed adjustable top and bottom feed overlock sewing machine (Front feed type)
EF4-V72·V82, MA4-V92

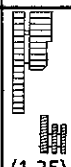
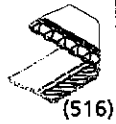
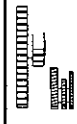
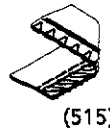
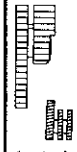
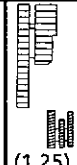
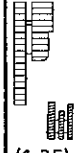
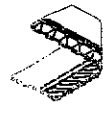
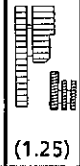
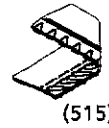
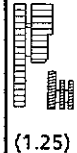
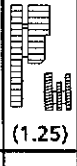
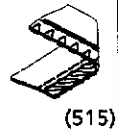
H: High lift specification
E: Extra high lift specification

Subclass	Stitch type	No. of needles	No. of threads	Needle gauge (mm)	Stitch width (mm) Ⓐ	Stitch length (mm) Ⓑ	Lower feed differential ratio	Height of presser foot (mm)	Height of upper feed dog (mm)	Max. upper feed amount	Shape and pitch of lower feed dog	Needle size (DCx27)	Max. sewing speed (spm)	Looper path	Usage (Material)	Attachment
72-01-3 -4 -5 -6	 (504)	1	3	-	3 4 5 6	0.9 - 3.8	0.7 - 2	5.5	4.6	6	 (1.25)	#11	6000	H	Thin and medium thick materials	—
72-01-4 -5	 (504) (Using small-type presser foot)	1	3	-	4 5	0.9 - 3.8	0.7 - 2	5.5	4.6	6	 (1.25)	#11	6000	H	Thin and medium thick materials	—
72-02-5 -6 -7	 (504)	1	3	-	5 6 7	0.6 - 2.6	1 - 3	6.5	6.2	8	 (1.25)	#14	5000	E	Bulky knits	(With angle knife)
72-08-5	 (504)	1	3	-	5	0.9 - 3.8	0.7 - 2	5.5	3.5	8	 (1.25)	#11	5000	E	Shirring	—
72-09-5	 (504)	1	3	-	5	0.9 - 3.8	0.7 - 2	5.5	4.7	8	 (1.25)	#11	5000	E	Shirring with piping	—
82-22-4 -5 -6 -7	 (514)	2	4	2.2	4 5 6 7	0.9 - 3.8	0.7 - 2	5.5	4.6	6	 (1.25)	#11	6000	H	Thin and medium thick materials	—
82-22-5 -6	 (514) (Using small-type presser foot)	2	4	2.2	5 6	0.9 - 3.8	0.7 - 2	5.5	4.6	6	 (1.25)	#11	6000	H	Thin and medium thick materials	—
82-23-4 -5 -6 -7	 (512) (Mock-safety)	2	4	2.2	4 5 6 7	0.9 - 3.8	0.7 - 2	5.5	4.6	6	 (1.25)	#11	6000	H	Thin and medium thick materials	—
82-31-6 -7	 (504) (Using small-type presser foot)	2	4	3	6 7	0.9 - 3.8	0.7 - 2	6.5	6.2	6	 (2.5)	#18	5500	E	Extra heavy materials	—

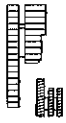
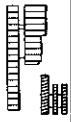
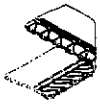
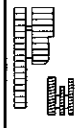
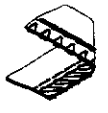
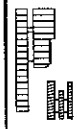
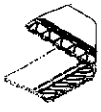
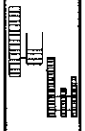
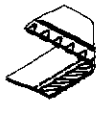
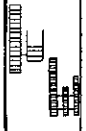
High speed adjustable top and bottom feed overlock sewing machine (Front feed type)
EF4-V72·V82, MA4-V92

Subclass	Stitch type	No. of needles	No. of threads	Needle gauge (mm)	Stitch width (mm) Ⓐ	Stitch length (mm) Ⓑ	Lower feed differential ratio	Height of presser foot (mm)	Height of upper feed dog (mm)	Max. upper feed amount	Shape and pitch of lower feed dog	Needle size (DCx27)	Max. sewing speed (spm)	Looper path	Usage (Material)	Attachment
82-32-6 -7	 (512) (Mock-safety)	2	4	3	6 7	0.9 - 3.8	0.7 - 2	6.5	6.2	6	 (2.5)	#18	5500	E	Extra heavy materials	— (With angle knife)
82-33-5 -6	 (514)	2	4	2.2	5 6	0.9 - 3.8	0.7 - 2	5.5	3.5	8	 (1.25)	#11	5000	E	Shirring	—
82-34-5 -6	 (512) (Mock-safety)	2	4	2.2	5 6	0.9 - 3.8	0.7 - 2	5.5	3.5	8	 (1.25)	#11	5000	E	Shirring	—
82-37-5 -6	 (514)	2	4	2.2	5 6	0.9 - 3.8	0.7 - 2	5.5	4.7	8	 (1.6)	#11	5000	E	Shirring with piping	—
82-38-5 -6	 (512)	2	4	2.2	5 6	0.9 - 3.8	0.7 - 2	5.5	4.7	8	 (1.6)	#11	5000	E	Shirring with piping	—
82-41-5 -6 -7	 (514)	2	4	2.2	5 6 7	0.9 - 3.8	0.7 - 2	5.5	4.6	6	 (1.6)	#11	6000	H	Taping with thin and medium thick materials	Tape guide
82-42-5 -6 -7	 (512)	2	4	2.2	5 6 7	0.9 - 3.8	0.7 - 2	5.5	6	6	 (1.6)	#11	6000	H	Taping with thin and medium thick materials	Tape guide
82-51-5 -6 -7	 (514)	2	4	2.5	5 6 7	0.7 - 3.2	0.8 - 2.8	6.5	6.2	8	 (1.25)	#14	5000	E	Bulky knits	(With angle knife)
82-57-5 -6 -7	 (514)	2	4	2.5	5 6 7	0.7 - 3.2	0.8 - 2.8	6.5	6.2	8	 (1.25)	#14	5000	E	Bulky knits	(With angle knife)

High speed adjustable top and bottom feed overlock sewing machine (Front feed type)
EF4-V72·V82, MA4-V92

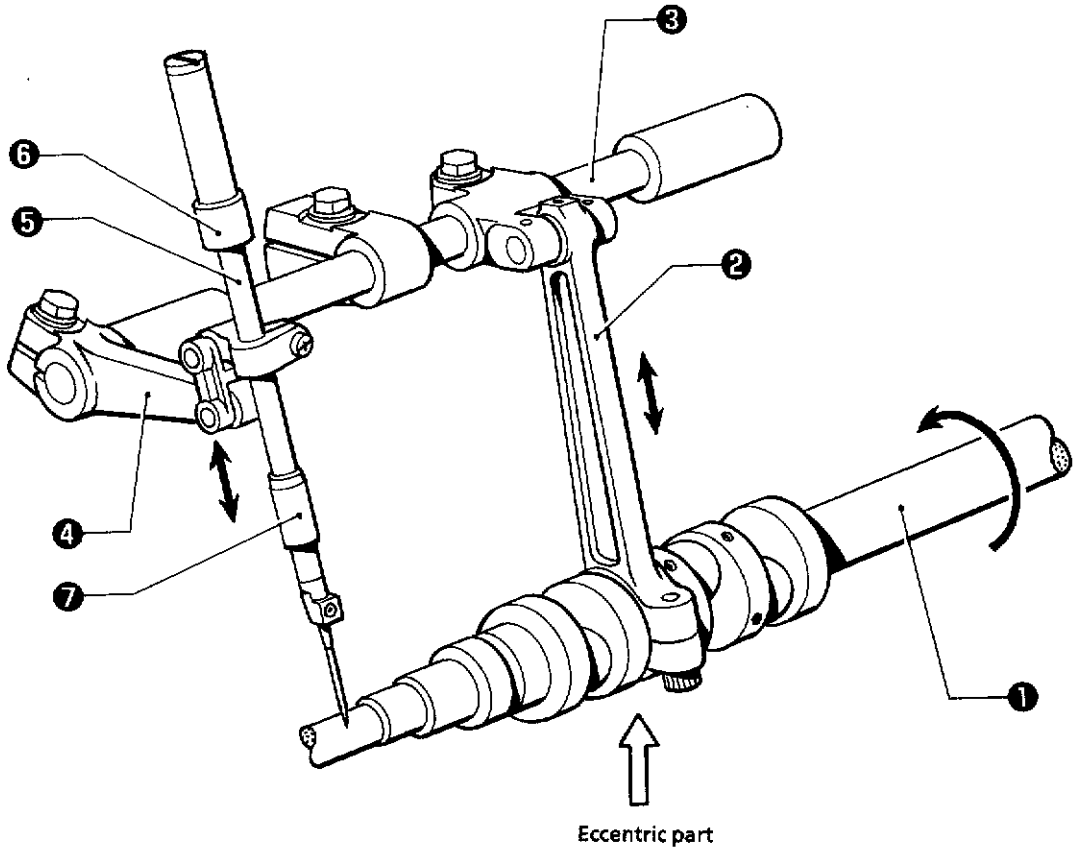
Subclass	Stitch type	No. of needles	No. of threads	Needle gauge (mm)	Stitch width (mm) Ⓐ	Stitch length (mm) Ⓑ	Lower feed differential ratio	Height of presser foot (mm)	Height of upper feed dog (mm)	Max. upper feed amount	Shape and pitch of lower feed dog	Needle size (DCx27)	Max. sewing speed (spm)	Looper path	Usage (Material)	Attachment
92-63-3 -4 -5 -6 -7	 (516)	2	5	3	3 4 5 6 7	0.9 - 3.8	0.7 - 2	5.5	4.6	6	 (1.25)	#14	6000	H	Plain stitching	—
92-63-4 -5	 (516) (Using small-type presser foot)	2	5	3	4 5	0.9 - 3.8	0.7 - 2	5.5	4.6	6	 (1.25)	#14	6000	E	Plain stitching	—
92-64-3 -4 -5 -6 -7	 (515) (Using spreader)	2	4	3	3 4 5 6 7	0.9 - 3.8	0.7 - 2	5.5	4.6	6	 (1.25)	#14	6000	H	Plain stitching	—
92-65-3 -4 -5 -6 -7	 (516)	2	5	5	3 4 5 6 7	0.9 - 3.8	0.7 - 2	5.5	4.6	6	 (1.25)	#16	6000	H	Plain stitching	—
92-66-3 -4 -5 -6 -7	 (515) (Using spreader)	2	5	5	3 4 5 6 7	0.9 - 3.8	0.7 - 2	5.5	4.6	6	 (1.25)	#16	6000	H	Plain stitching	—
92-69-4 -5 -6	 (516)	2	5	3	4 5 6	0.9 - 3.8	0.7 - 2	5.5	3.5	8	 (1.25)	#14	5000	E	Shirring	—
92-70-4 -5 -6	 (515) (Using spreader)	2	4	3	4 5 6	0.9 - 3.8	0.7 - 2	5.5	3.5	8	 (1.25)	#14	5000	E	Shirring	—
92-71-5 -6	 (516)	2	5	5	5 6	0.9 - 3.8	0.7 - 2	5.5	3.5	8	 (1.25)	#14	5000	E	Shirring	—
92-72-5 -6	 (515) (Using spreader)	2	4	5	5 6	0.9 - 3.8	0.7 - 2	5.5	3.5	8	 (1.25)	#14	5000	E	Shirring	—

High speed adjustable top and bottom feed overlock sewing machine (Front feed type)
EF4-V72·V82, MA4-V92

Subclass	Stitch type	No. of needles	No. of threads	Needle gauge (mm)	Stitch width (mm) Ⓐ	Stitch length (mm) Ⓑ	Lower feed differential ratio	Height of presser foot (mm)	Height of upper feed dog (mm)	Max. upper feed amount	Shape and pitch of lower feed dog	Needle size (DCx27)	Max. sewing speed (spm)	Looper path	Usage (Material)	Attachment
92-75-4 -5 -6	 (516)	2	5	3	4 5 6	0.9 - 3.8	0.7 - 2	5.5	4.7	8	 (1.25)	#14	5000	E	Shirring (with piping)	—
92-76-4 -5 -6	 (516) (Using spreader)	2	4	3	4 5 6	0.9 - 3.8	0.7 - 2	5.5	4.7	8	 (1.25)	#14	5000	E	Shirring (with piping)	—
92-77-5 -6	 (516)	2	5	5	5 6	0.9 - 3.8	0.7 - 2	5.5	4.7	8	 (1.25)	#14	5000	E	Shirring (with piping)	—
92-78-5 -6	 (515) (Using spreader)	2	4	5	5 6	0.9 - 3.8	0.7 - 2	5.5	4.7	8	 (1.25)	#14	5000	E	Shirring (with piping)	—
92-92-5 -6 -7	 (516)	2	5	5	5 6 7	0.9 - 3.8	0.7 - 2	3.5	5.7	6	 (2.5)	#21	5500	E	Extra heavy materials	Tractor foot (with angle knife)
92-93-5 -6 -7	 (515) (Using spreader)	2	4	5	5 6 7	0.9 - 3.8	0.7 - 2	3.5	5.7	6	 (2.5)	#21	5500	E	Extra heavy materials	Tractor foot (with angle knife)

MECHANICAL DESCRIPTIONS

1 Needle bar mechanism

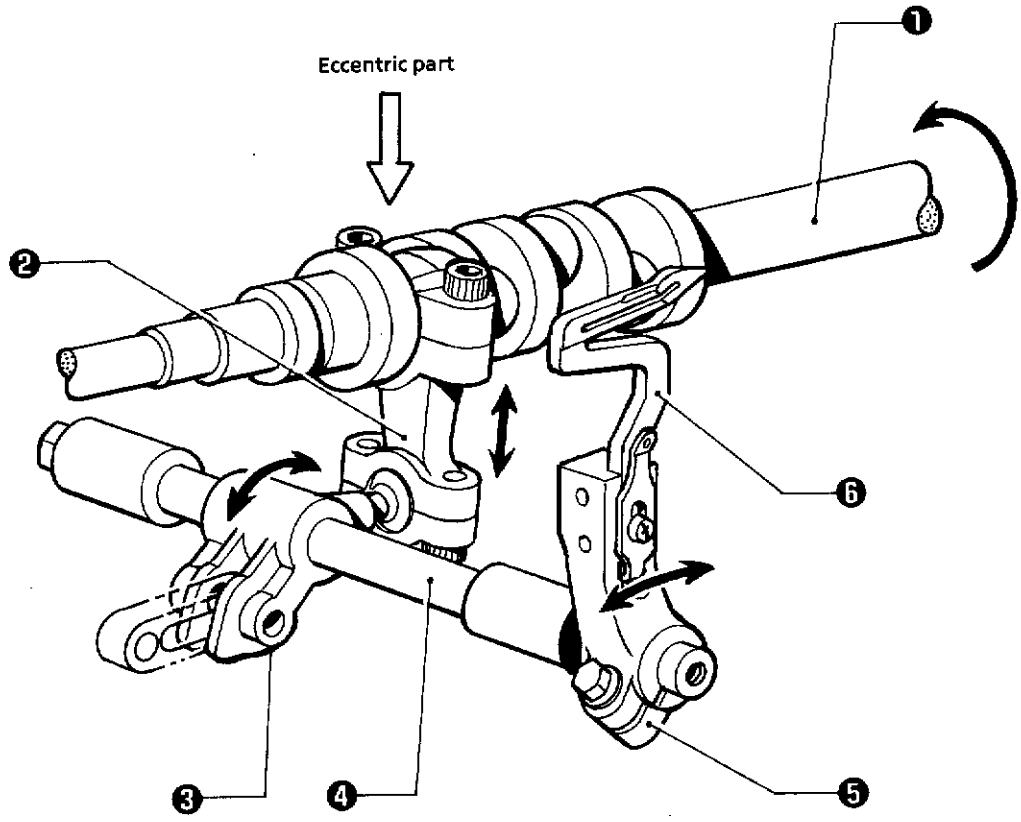


(1) When the crank shaft ❶ rotates in the direction of the arrow, the needle driving crank rod assembly ❷ moves up and down on the eccentric part of the crank shaft.

(2) The needle driving crank rod assembly ❷ moves the needle bar clamp assembly ❹ up and down via the needle shaft ❸.

(3) The needle bar ❺ attached to the needle bar clamp assembly ❹ is guided by needle bar bushes (U) ❻ and (D) ❼, and is moved up and down.

2 Under looper mechanism

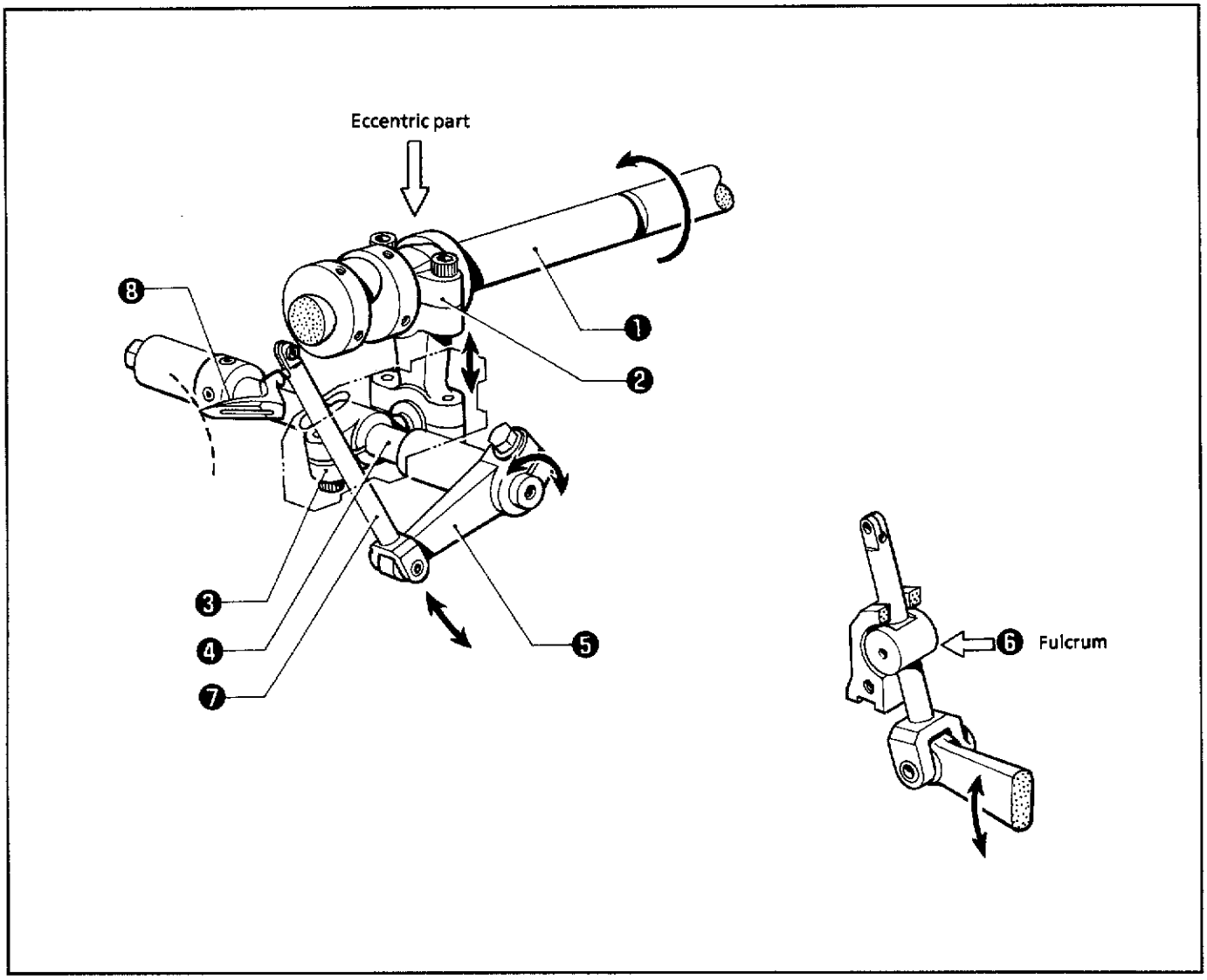


(1) When the crank shaft ❶ rotates in the direction of the arrow, the under looper connecting rod ❷ mounted on the eccentric part of the crank shaft moves up and down.

(2) The under looper shaft arm ❸ oscillates.

(3) The motion is transmitted to the under looper holder ❺ and the under looper ❻ via the under looper shaft ❹.

3 Over looper mechanism



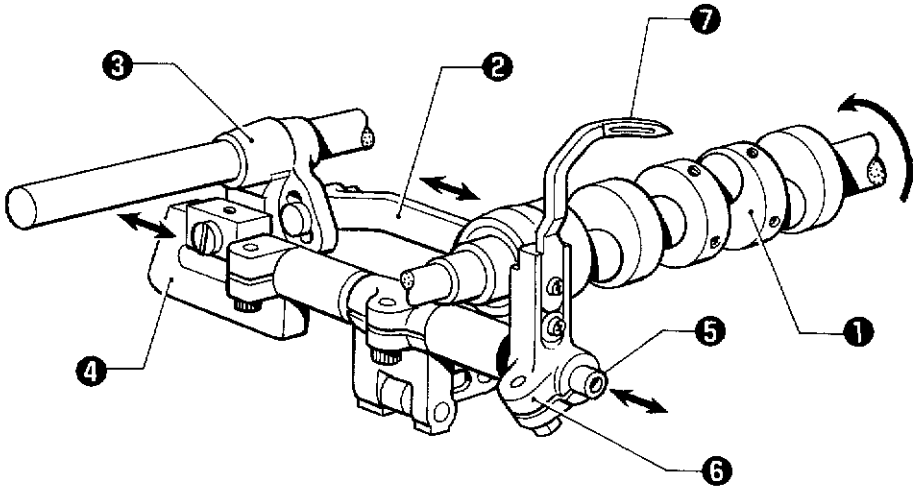
(1) When the crank shaft ❶ rotates in the direction of the arrow, the over looper connecting rod assembly ❷ moves up and down on the eccentric part of the crank shaft.

(2) The over looper connecting rod assembly ❷ oscillates the over looper arm ❺ via the shaft arm ❸ and the over looper shaft ❹.

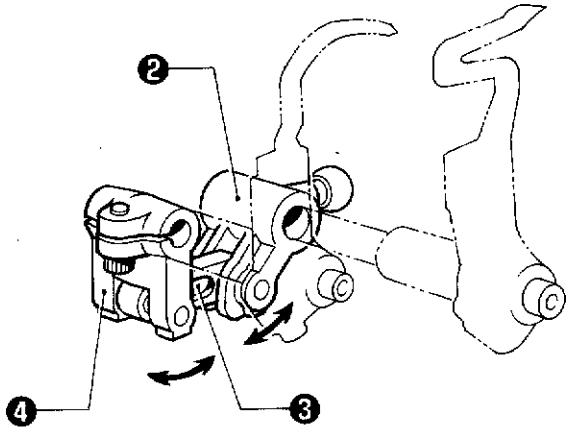
(3) The motion is transmitted to the over looper holder ❼ via the over looper guide holder ❻, then the over looper ❽ follows the ideal track.

4 Double chain stitch looper mechanism (V61, V91, V92)

[Longitudinal feed mechanism]



[Oscillating mechanism]



[Double chain stitch looper longitudinal feed mechanism]

(1) When the crank shaft ❶ rotates in the direction of the arrow, the longitudinal feed rod ❷ moves the longitudinal feed arm ❸, and the slide block clamp ❹ is moved up and down.

(2) The motion is transmitted to the chain stitch looper holder ❻ and the chain stitch looper ❼ via the longitudinal feed shaft ❺.

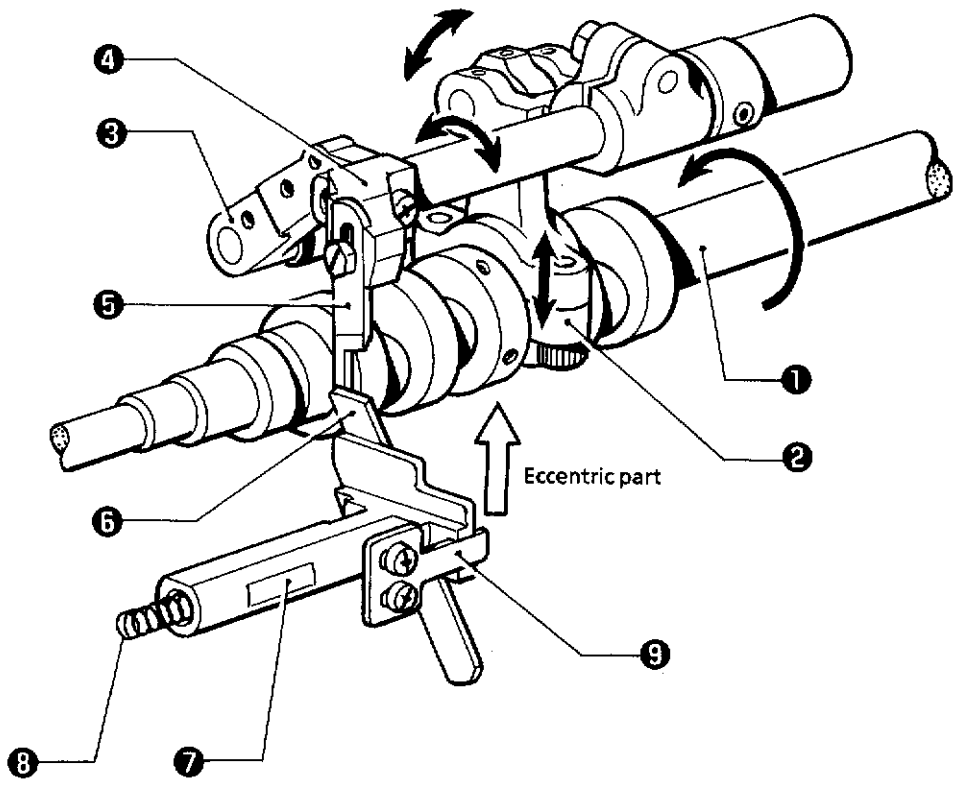
[Double chain stitch looper oscillating mechanism]

(1) When the crank shaft ❶ rotates in the direction of the arrow, the under looper shaft arm ❷ oscillates.

(2) The motion is transmitted to the chain stitch looper lever ❹ via the chain stitch looper link ❸.

(3) The chain stitch looper lever ❹ moves the chain stitch looper holder ❻ and the chain stitch looper ❼ via the longitudinal feed shaft ❺.

5 Knife mechanism



[Upper knife mechanism]

(1) When the crank shaft ❶ rotates in the direction of the arrow, the upper knife driving rod assembly ❷ moves up and down on the eccentric part of the crank shaft ❶.

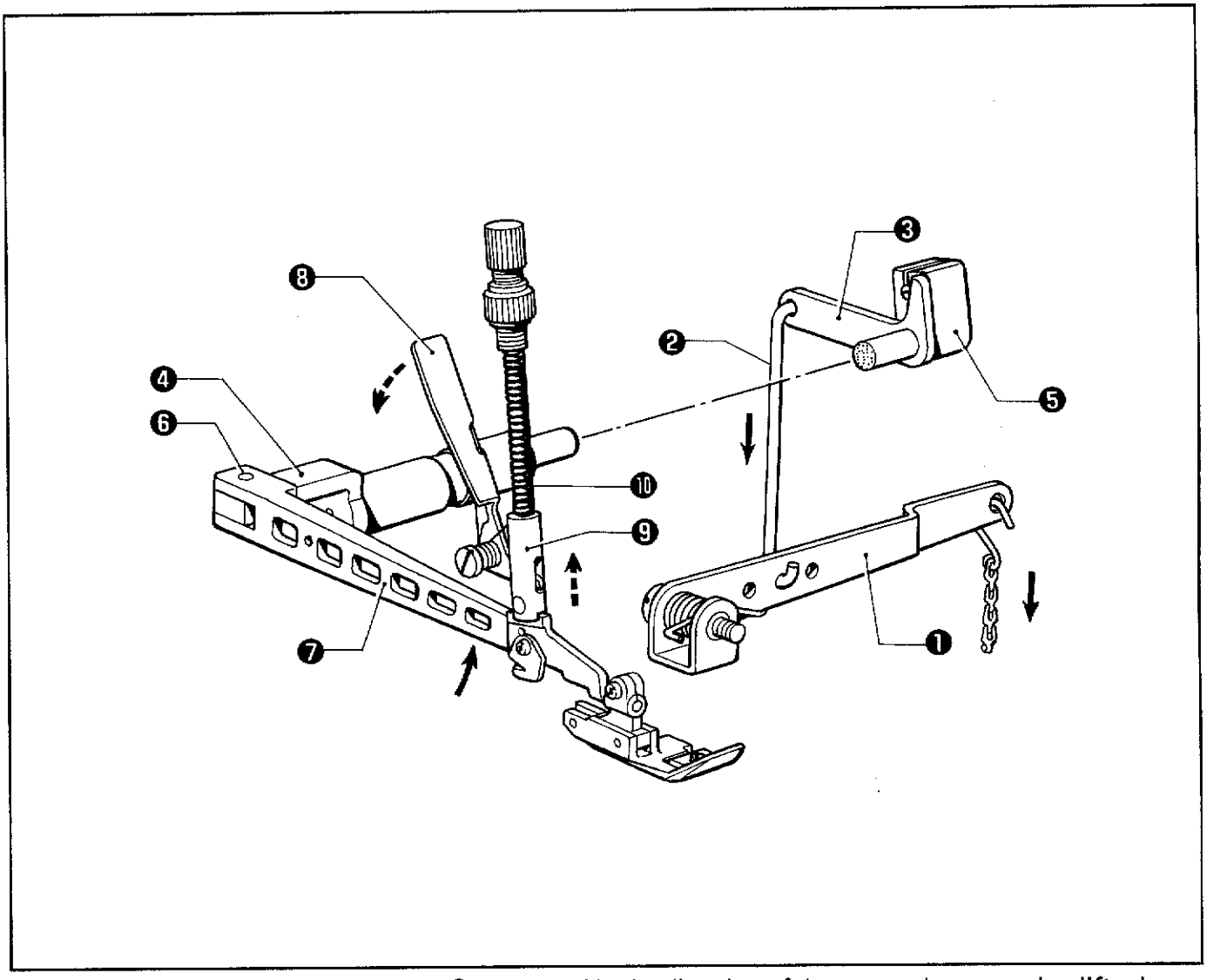
(2) The upper knife differential arm ❸ connected to the upper knife driving rod assembly ❷ oscillates.

(3) The upper knife differential arm ❸ oscillates the attached upper knife holder ❹ and the upper knife ❺.

[Lower knife mechanism]

(4) The lower knife ❻ is attached to the lower knife holder ❼, and is engaged with the upper knife ❺ via the spring ❽.
The lower knife holder guide ❾ positions the lower knife ❻, and guides the lower knife holder ❼.

6 Presser foot mechanism (1) (V41, V51, V61)

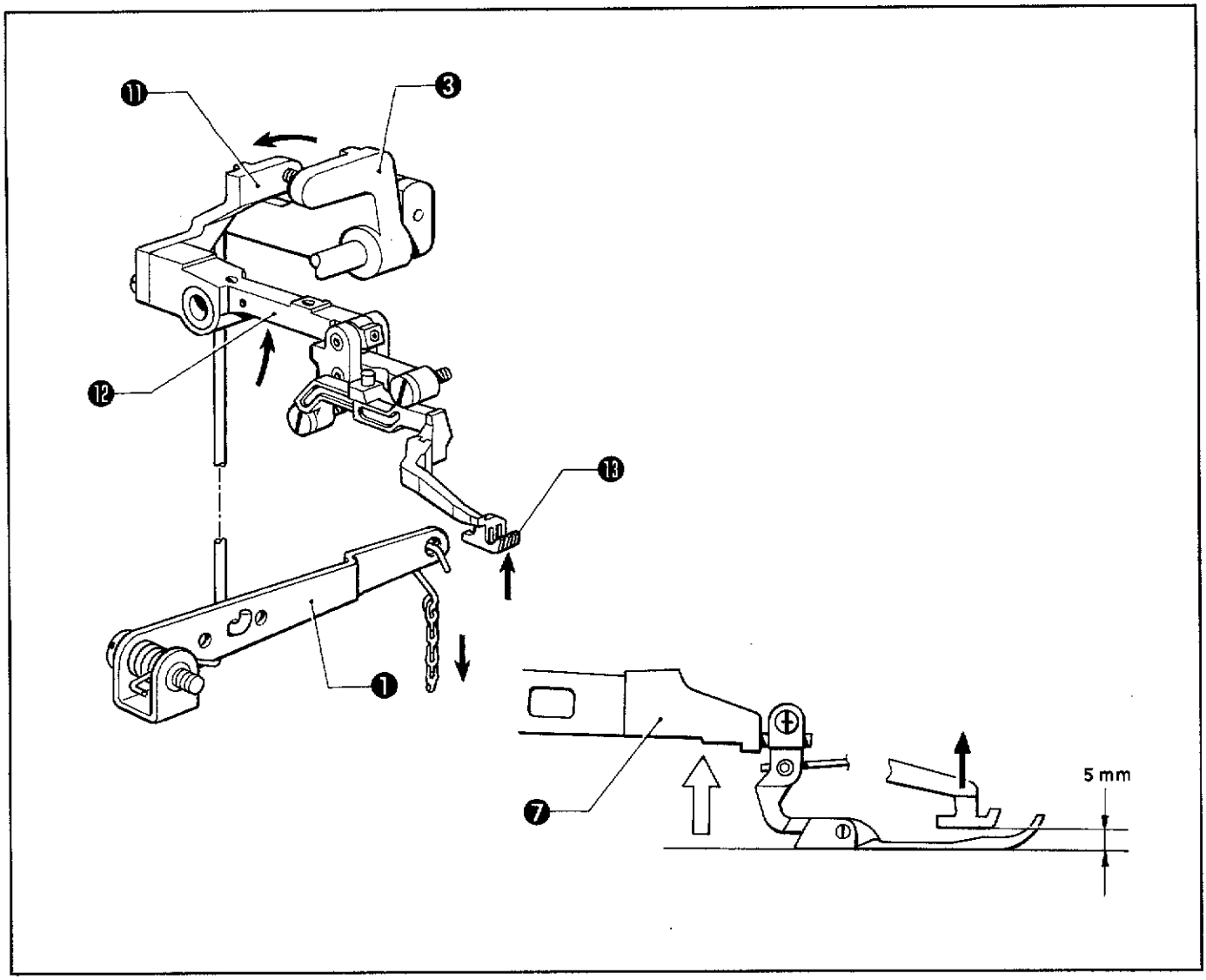


(1) When the presser foot lifter lever ❶ is lowered in the direction of the arrow, the presser bar lifter lever ❸ is moved downward via the presser bar lifter link ❷.

(2) The presser bar lifter arm ❺, attached to the presser bar lifter lever ❸ and the presser arm shaft ❹, moves the presser arm ❼ up via the presser arm shaft ❹ and the pin ❻.

(3) When the presser bar lifter ❽ is lowered in the direction of the arrow, the presser bar assembly ❾ is caught by the end of the presser bar lifter ❽, and is raised. The presser arm ❼ is released from the pressure of the presser spring ❿.

[6] Presser foot mechanism (2) (V71, 72, 81, 82, 91, 92)



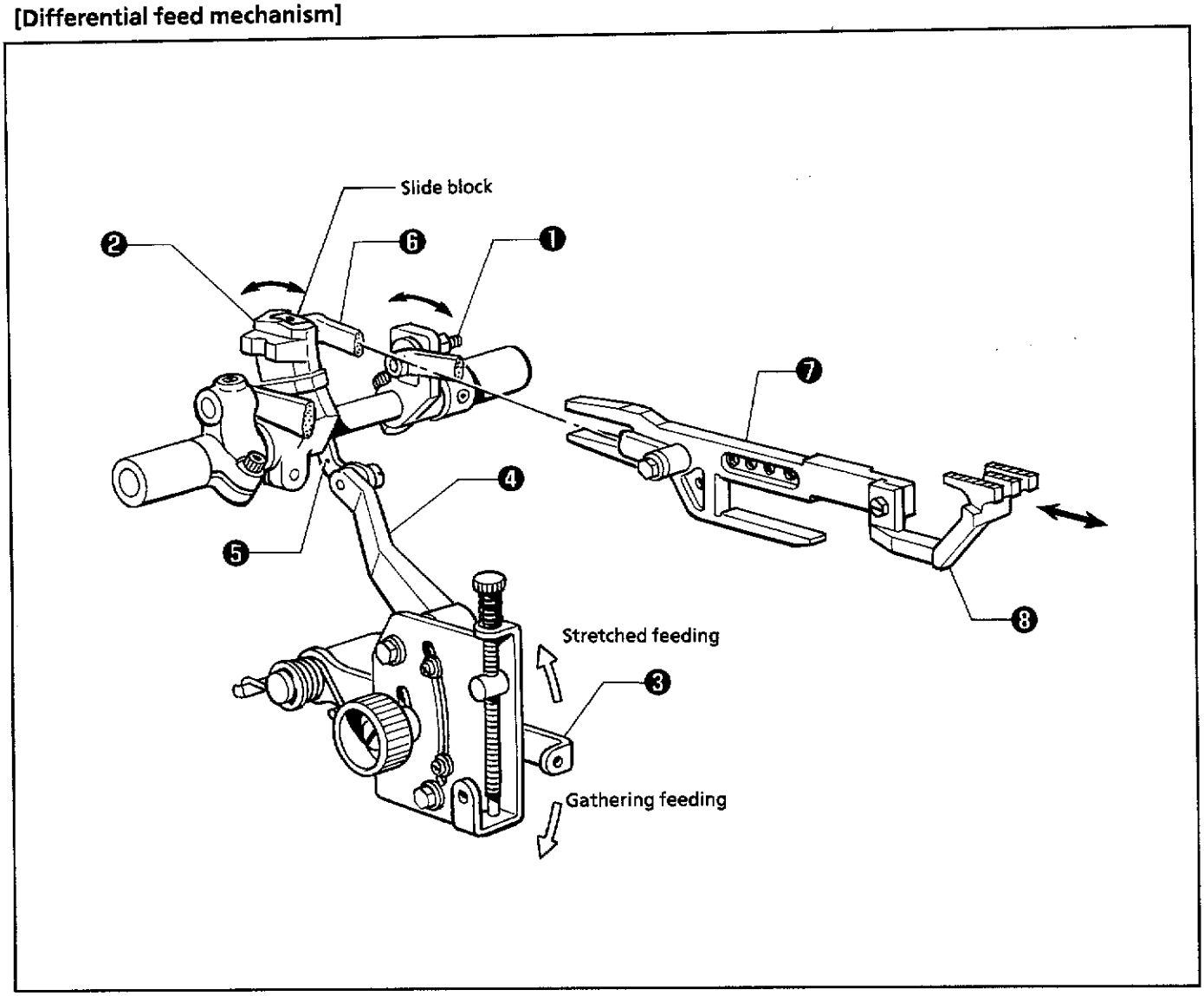
Adjustable top and bottom feed overlock sewing machine

(1) When the presser foot lifter lever ❶ is lowered, the presser bar lifter lever ❸ rotates, and the upper feed bar lifter ⓫ moves the upper feed support bar ⓬ up and down.

(2) When the upper feed dog ⓭ attached to the tip of the upper feed support bar ⓬ is raised 5 mm, the presser arm ❼ starts to rise.

7 Feed mechanism (1)

[Differential feed mechanism]



* The differential ratio is adjusted by changing the height of the slide block against that of the main feed shaft ❶. To acquire a bigger differential ratio, change the height of the main feed shaft ❶.

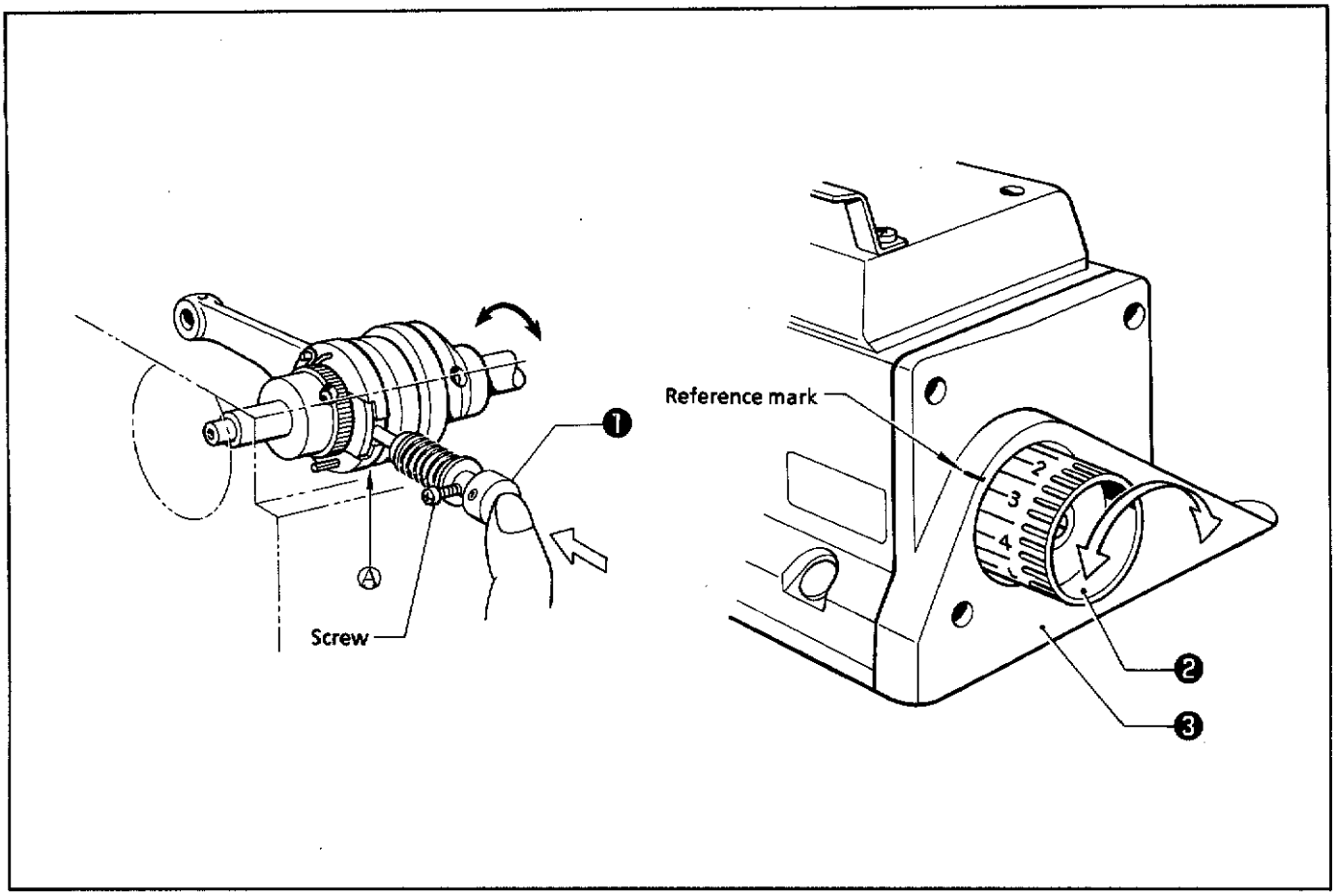
(1) The differential feed lever ❸ moves the slide block on the differential feed arm ❷ vertically via the differential link lever ❹ and the differential feed adjust link ❺.

(2) The differential feed amount is transmitted to the differential feed bar ❼ via the differential feed link ❻, and the differential feed dog ❽ operates.

* For gathering feeding, the differential feed lever ❸ is set to lower position.
For stretched feeding, the differential feed lever ❸ is set to upper position.

7 Feed mechanism (2)

[Stitch length changing mechanism]



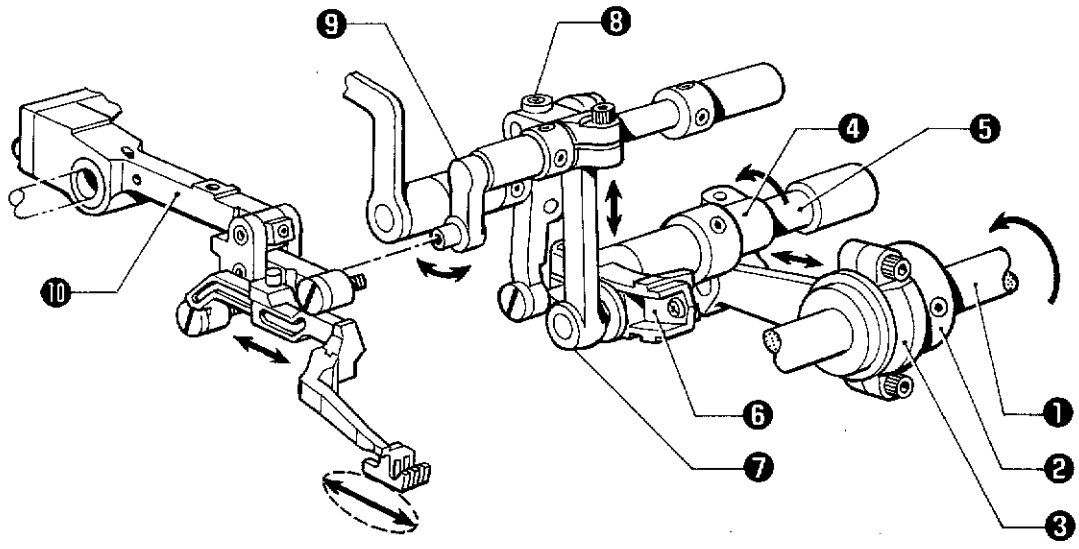
(1) When the feed adjust shaft ❶ is pressed around the eccentric cam of the eccentric wheel assembly with a finger and the pulley ❷ is turned in the direction of the arrow, the tip of the feed adjust shaft ❶ enters part Ⓐ of the eccentric cam.

(2) The stitch length can be adjusted by turning the pulley while the tip of the feed adjust shaft ❶ enters part Ⓐ of the eccentric cam with the feed adjust shaft ❶ pressed.
It is convenient to align the graduations on the pulley ❷ with the reference mark on the belt cover ❸.

* After changing the stitch length, it can be fixed using the screw.

[8] Upper feed mechanism (1)

[Horizontal feed mechanism]



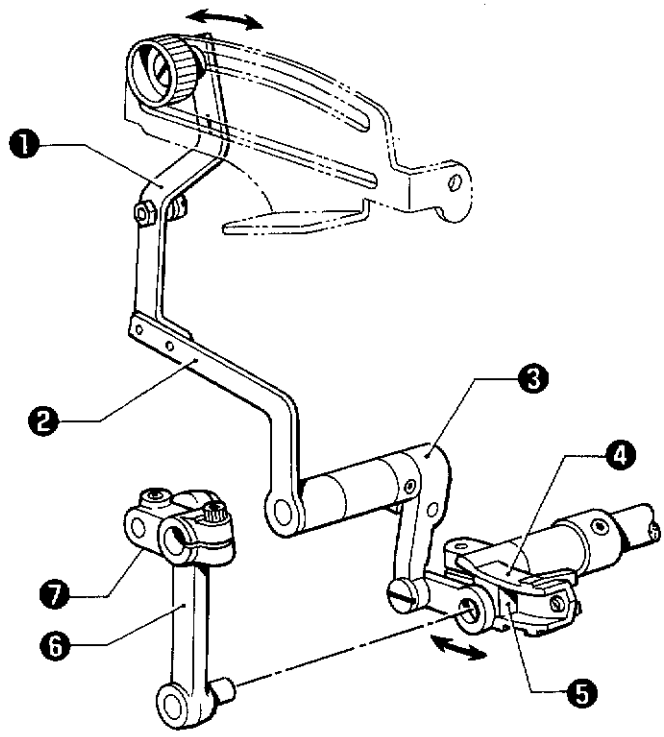
(1) When the crank shaft ❶ rotates in the direction of the arrow, the feed rod ❸ moves back and forth on the eccentric wheel ❷.

(2) The motion is transmitted to the level feed adjust arm block assembly ❻ via the feed arm ❹ and the feed shaft ❺. The horizontal feed amount is transmitted to the feed arm ❽ via the feed rock link ❼, and the feed arm ❽ oscillates.

(3) The level feed crank shaft ❾ transmits the motion to the upper feed bar ❿, and the upper feed bar ❿ is moved horizontally.

8 Upper feed mechanism (2)

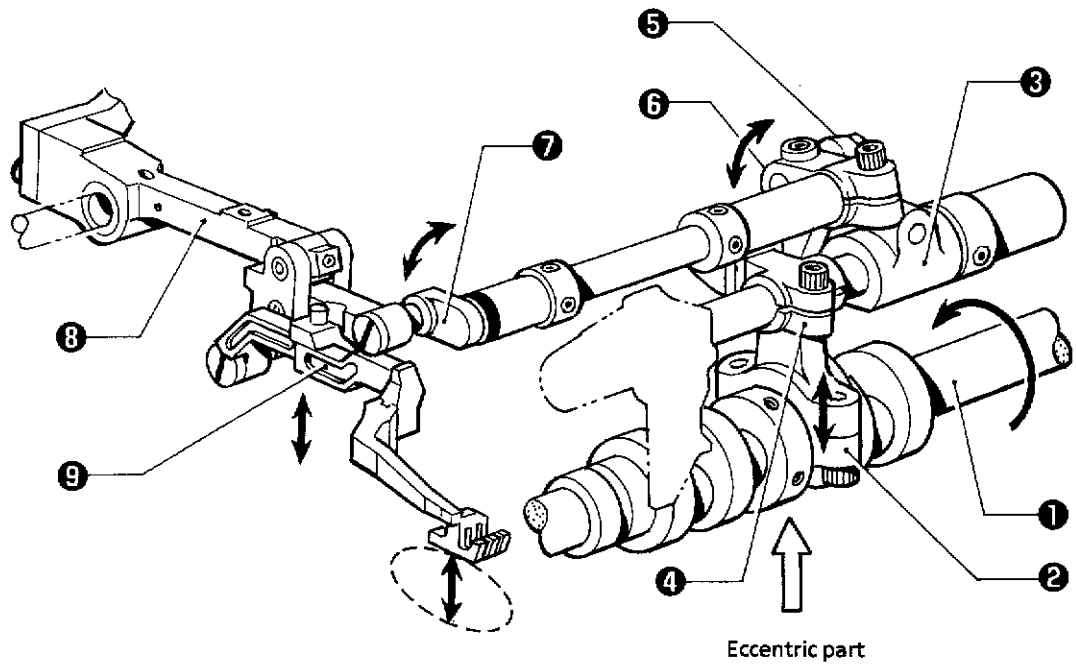
[Horizontal feed adjusting mechanism]



When the position of the slide block ❺ is changed using the level feed adjust lever ❸ via the feed adjust plate ❶ and the level feed adjust lever shaft ❷, the rocking amount of the feed arm ❼ is changed via the feed rock link ❻. Then, the horizontal feed amount of the upper feed dog is changed.

[8] Upper feed mechanism (3)

[Vertical feed mechanism]



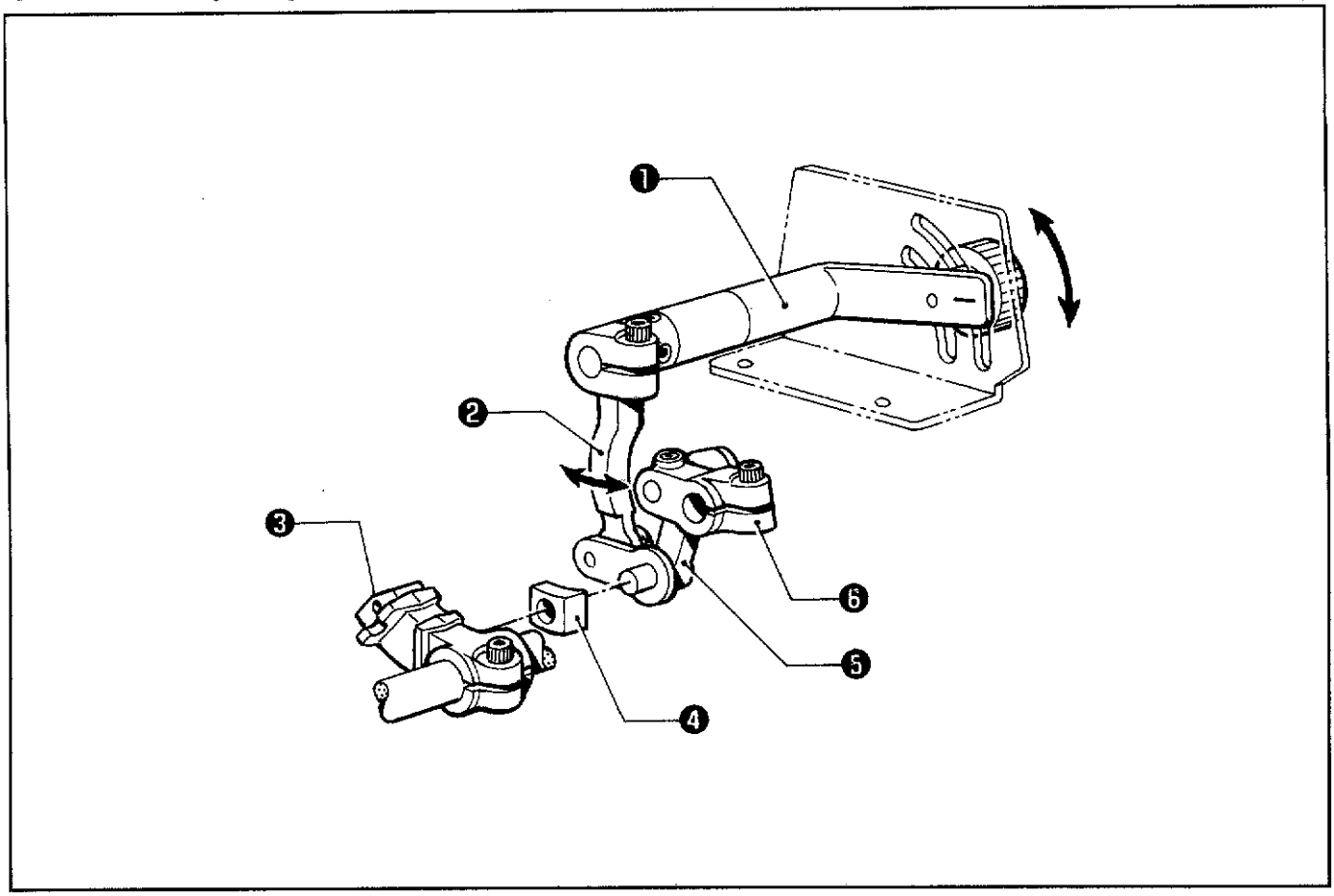
(1) When the crank shaft ❶ rotates in the direction of the arrow, the upper knife driving rod ❷ moves up and down.

(2) The motion is transmitted to the vertical feed adjust arm block assembly ❹ via the upper knife differential arm ❸, the vertical feed amount is transmitted to the feed lifting link ❺, and the feed arm ❻ oscillates.

(3) The vertical feed crank shaft ❼ transmits the motion to the upper feed bar assembly ❽, and the upper feed bar ❾ is moved up and down.

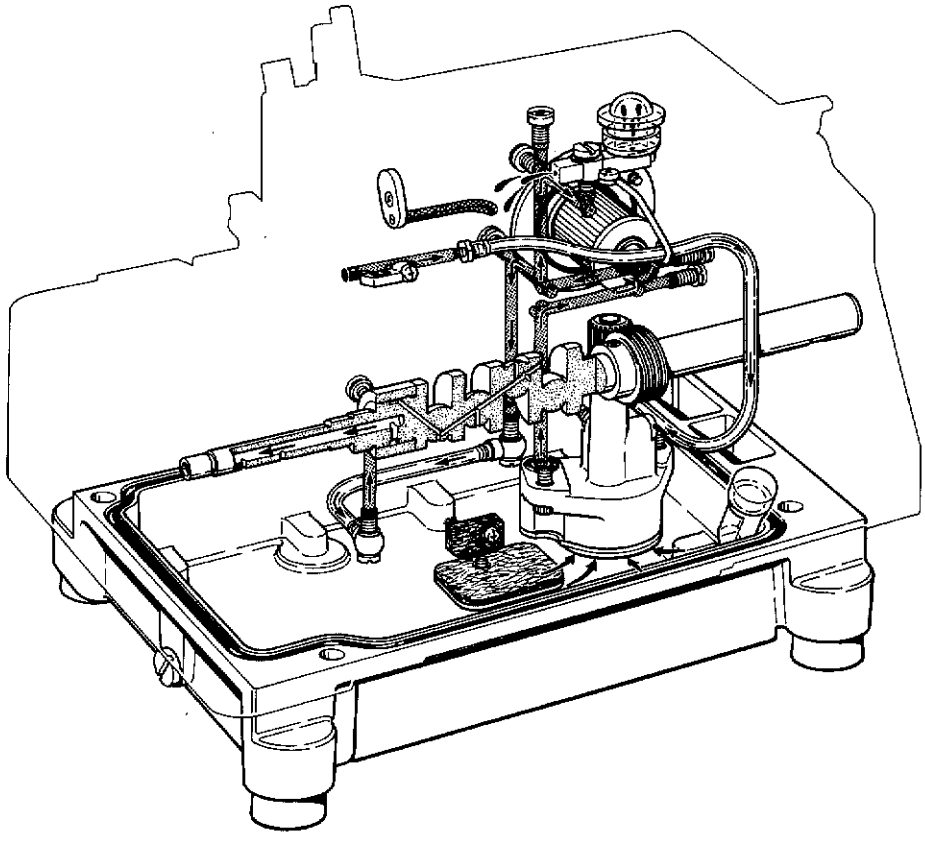
[8] Upper feed mechanism (4)

[Vertical feed adjusting mechanism]



When the position of the slide block ❹ is changed using the vertical feed adjust lever ❷ via adjust lever shaft (UL) ❶, the rocking amount of the feed arm ❻ is changed via the feed lifting link ❺. Then, the horizontal feed amount of the upper feed dog is changed.

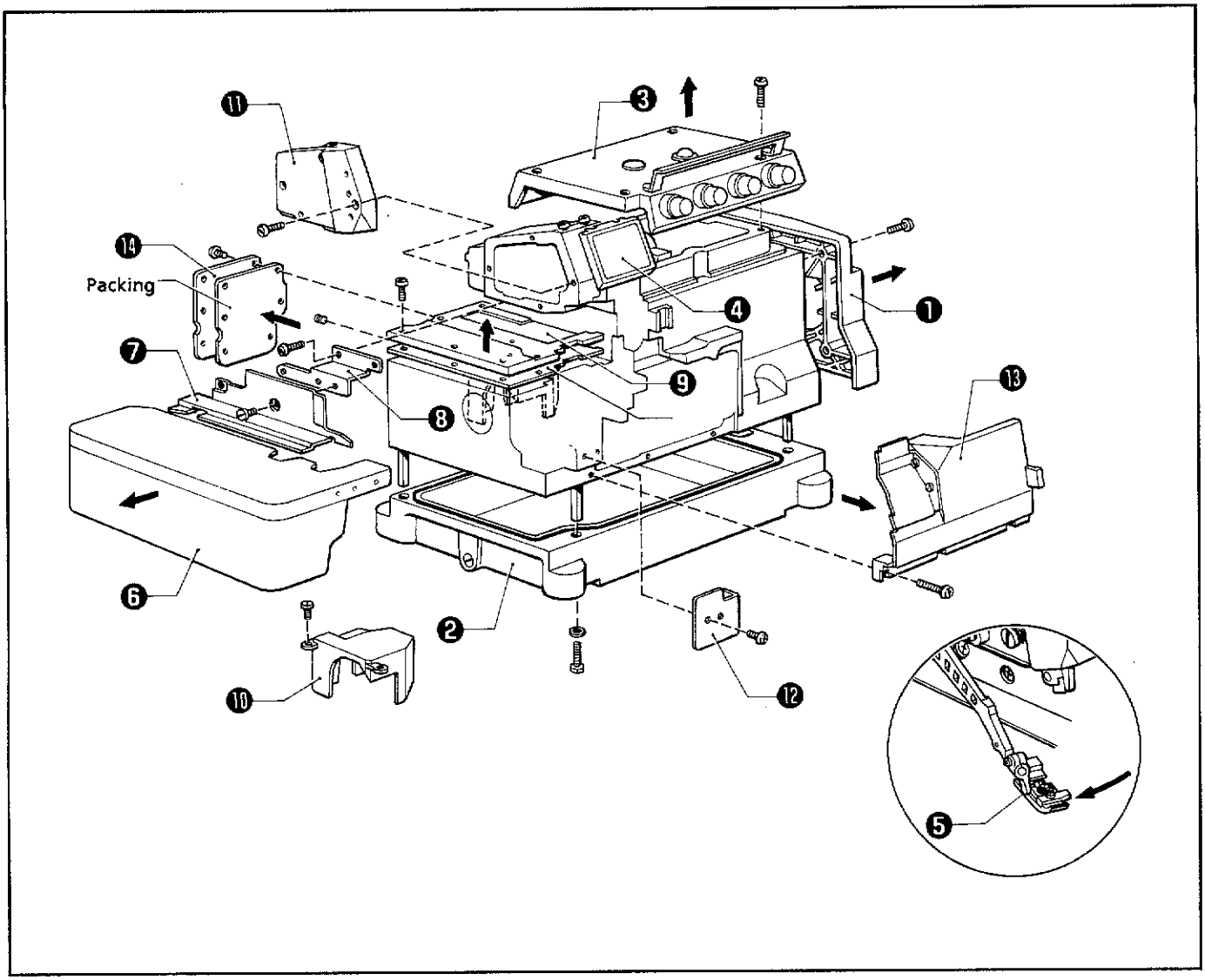
9 Lubrication



DISASSEMBLY

1 Covers

NOTE: Drain the oil from the pump by turning the pulley a few times before removing the cover.



(1) Remove the three screws and the belt cover ❶.

(2) Remove the four bolts and the oil reservoir ❷.

(3) Remove the four screws and the top cover ❸.

(4) Loosen the two screws, and remove the face plate cover ❹ by sliding it to the front.

(5) Remove the presser arm assembly ❺ from the needle plate.

(6) Loosen the set screw, and remove the cloth plate along with the cloth plate (lower) ❻.

(7) Remove the two screws, and the cloth guide ❼.

(8) Remove the two screws and the cloth guide set plate ❽.

(9) Remove the six screws, the feed bar cover ❾, and the packing.

(10) Remove the two screws, and the eccentric wheel cover ❿.

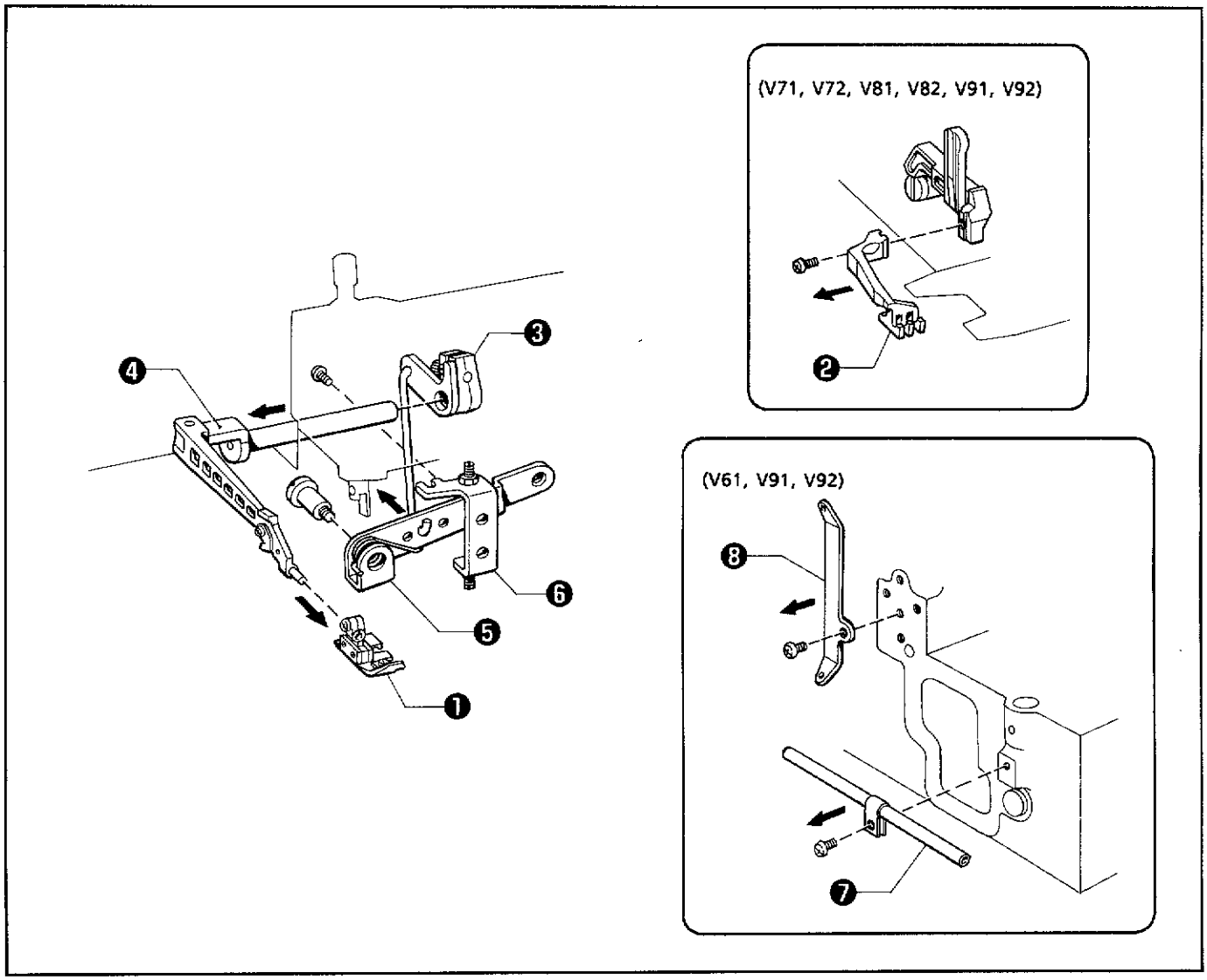
(11) Remove the four screws, and the frame side cover ⓫.

(12) Remove the two screws, and the front cover (L) guide ⓬.

(13) Remove the three screws, and the front cover (L) assembly ⓭ by sliding it to the front.

(14) Remove the six screws, the cover for feed mechanism (B) ⓮, and the packing.

2 Presser foot mechanism



(1) Loosen the screw, and remove the presser foot ❶.

(2) Remove the screw, and the upper feed dog ❷. (This step is for only adjustable top and bottom feed overlock sewing machine.)

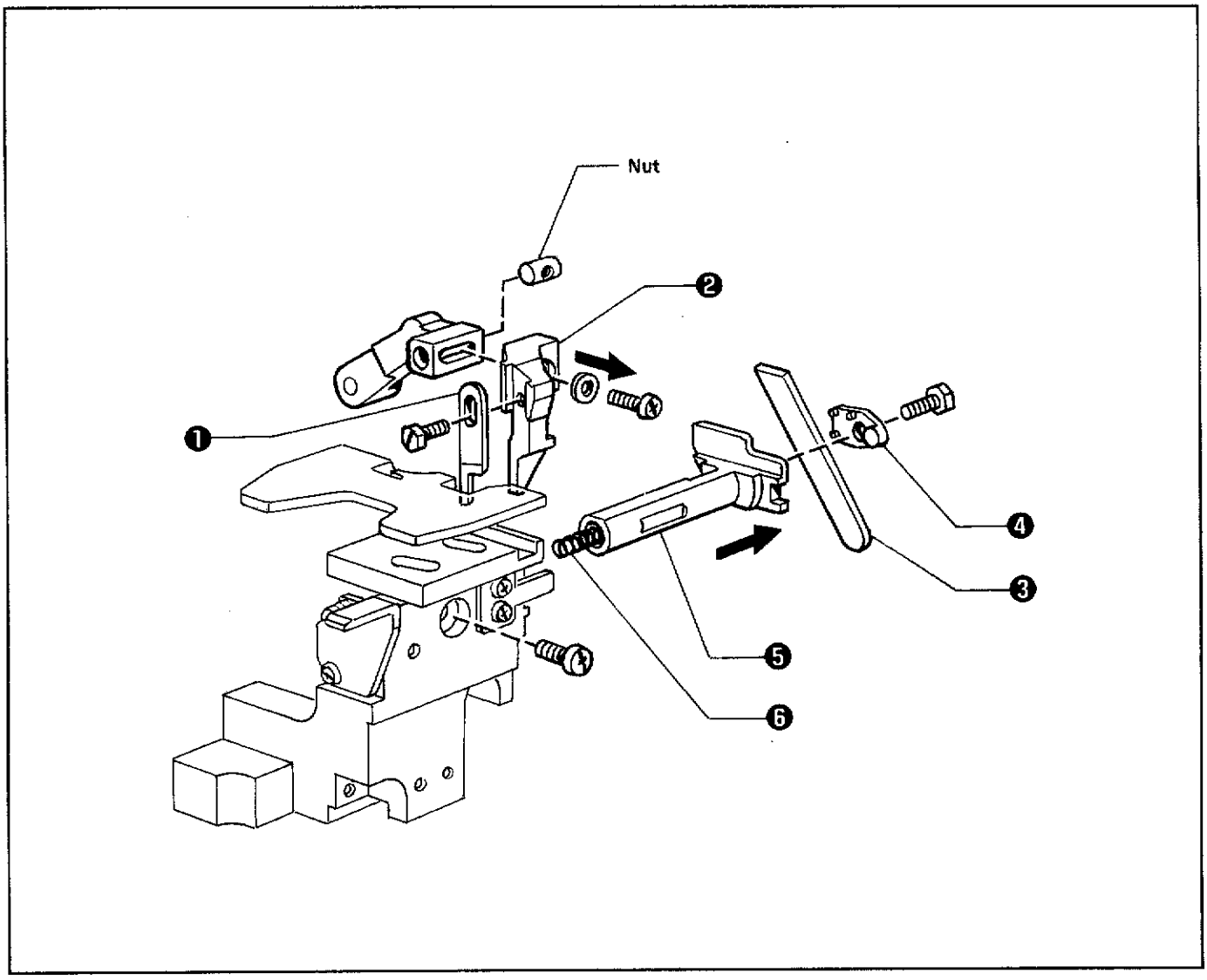
(3) Loosen the bolt for the presser bar lifter arm ❸, and remove the presser arm shaft ❹.

(4) Remove the stud screw, and the presser bar lifter link from the presser foot lifter lever ❺. Then, remove the presser bar lifter lever ❺.

(5) Remove the two screws, and the lever adjust plate ❻.

(6) Remove the screws, the thread guide pipe ❼, and the looper thread guide ❽ (for the safety stitch sewing machine only).

[3] Knife mechanism



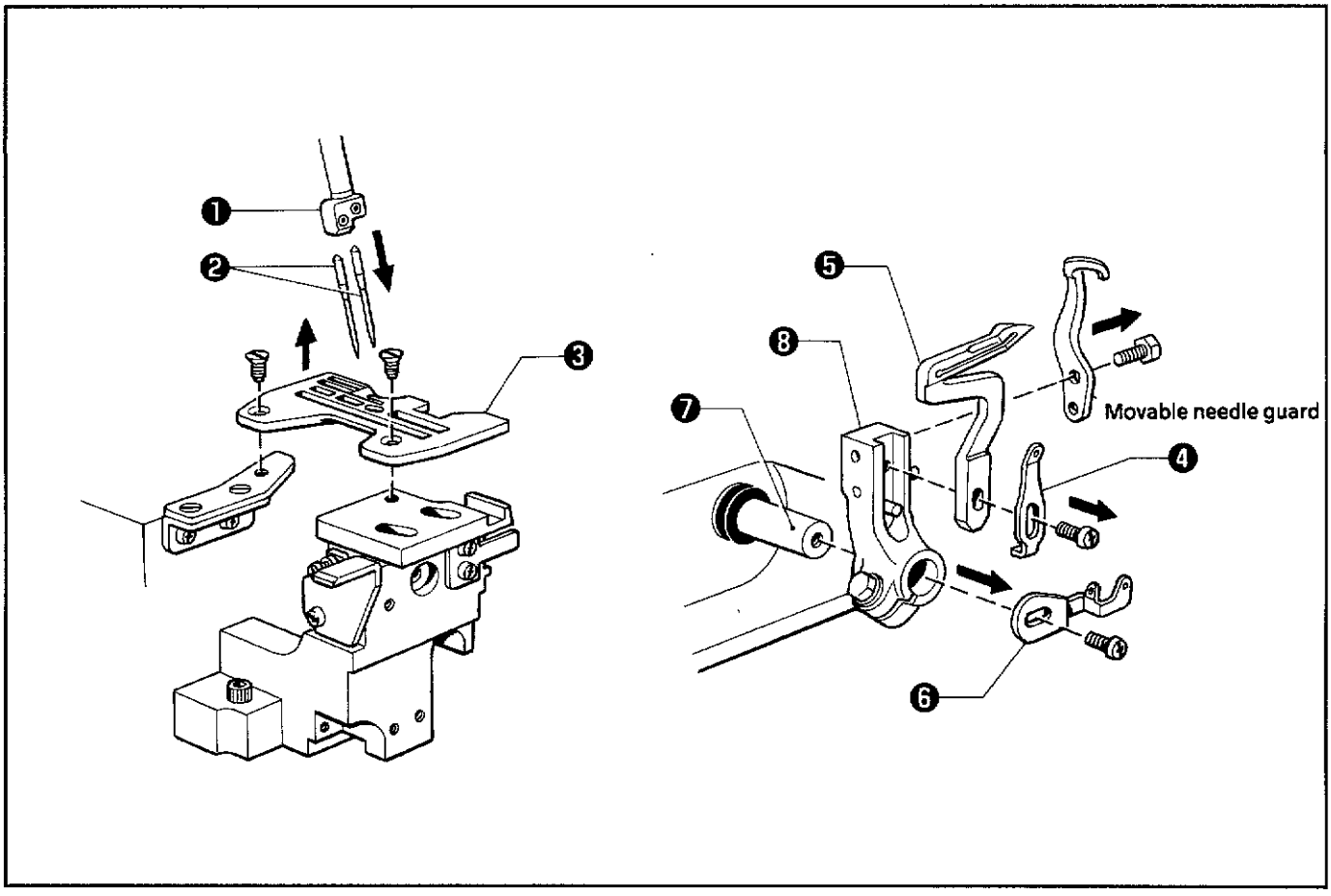
(1) Remove the screw and the upper knife ❶.

(2) Remove the screw, the upper knife holder ❷, and the nut.

(3) Remove the bolt, the lower knife ❸, and the lower knife presser ❹.

(4) Loosen the screw, and remove the lower knife holder ❺ and the spring ❻.

4 Under looper mechanism



(1) Loosen the set screws of the needle clamp ❶, and remove the needles ❷.

(2) Remove the two screws and the needle plate ❸.

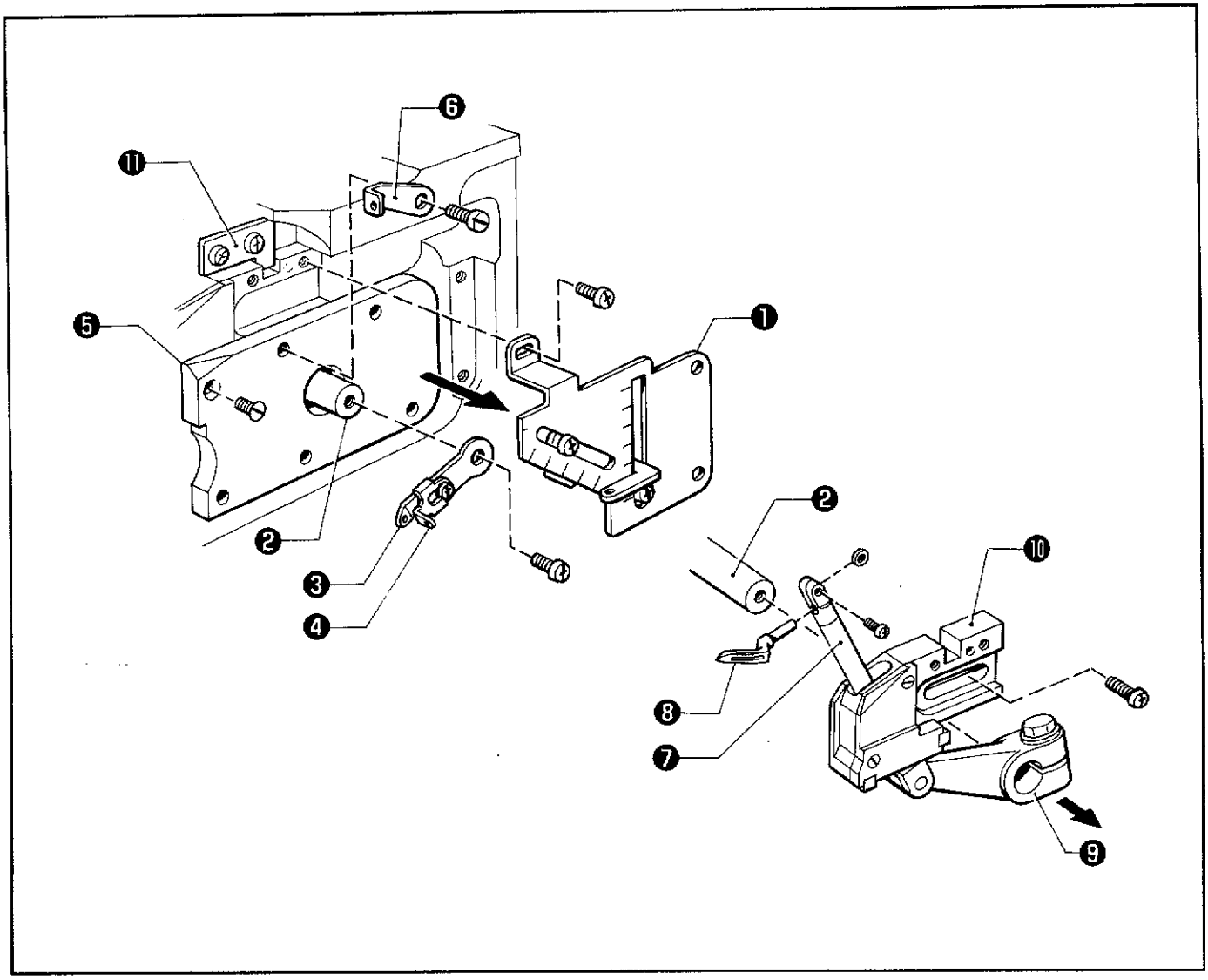
(3) Remove the screw, under looper thread guide (L) ❹, and the under looper ❺.

(4) Remove the screw and looper thread take-up (L) ❻.

(5) Loosen the screw of the movable needle guard, and the bolt, and remove the under looper holder ❽ from the under looper shaft ❼.

(6) Remove the movable needle guard from the under looper holder ❽.

5 Over looper mechanism



(1) Remove the three screws and the thread guide bracket ❶.

(2) Loosen the screw, and remove over looper thread take-up (R) ❸ from the over looper shaft ❷. (Under looper thread take-up (R) ❹ will come off.)

(3) Remove the five screws, the inside cover ❺, and the looper thread guide ❻.

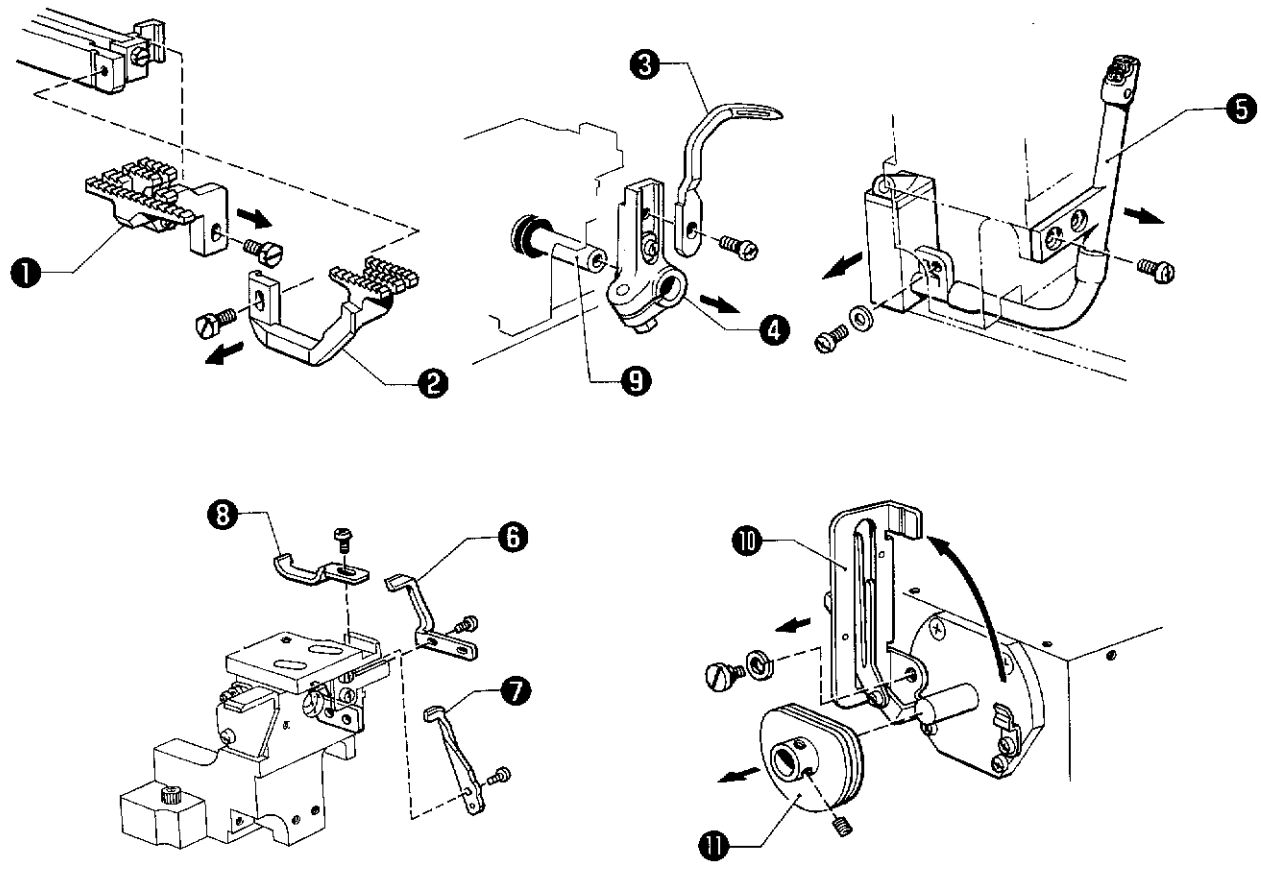
(4) Loosen the screw, and remove the over looper ❽ from the over looper holder ❼.

(5) Loosen the bolt for the over looper arm ❾.

(6) Remove the two screws, the over looper mechanism assembly ⓾ from the over looper shaft ❷.

NOTE: The guide bush positioning plate ⓫ has already been adjusted before shipping. Do not remove it unless it is necessary.

6 Double chain stitch looper mechanism (V61, V91, V92)



(1) Remove the bolt, the main feed dog ❶, and the differential feed dog ❷.

(2) Remove the screw, the chain stitch looper ❸ from the chain stitch looper holder ❹.

(3) Remove the screw and the felt support assembly ❺.

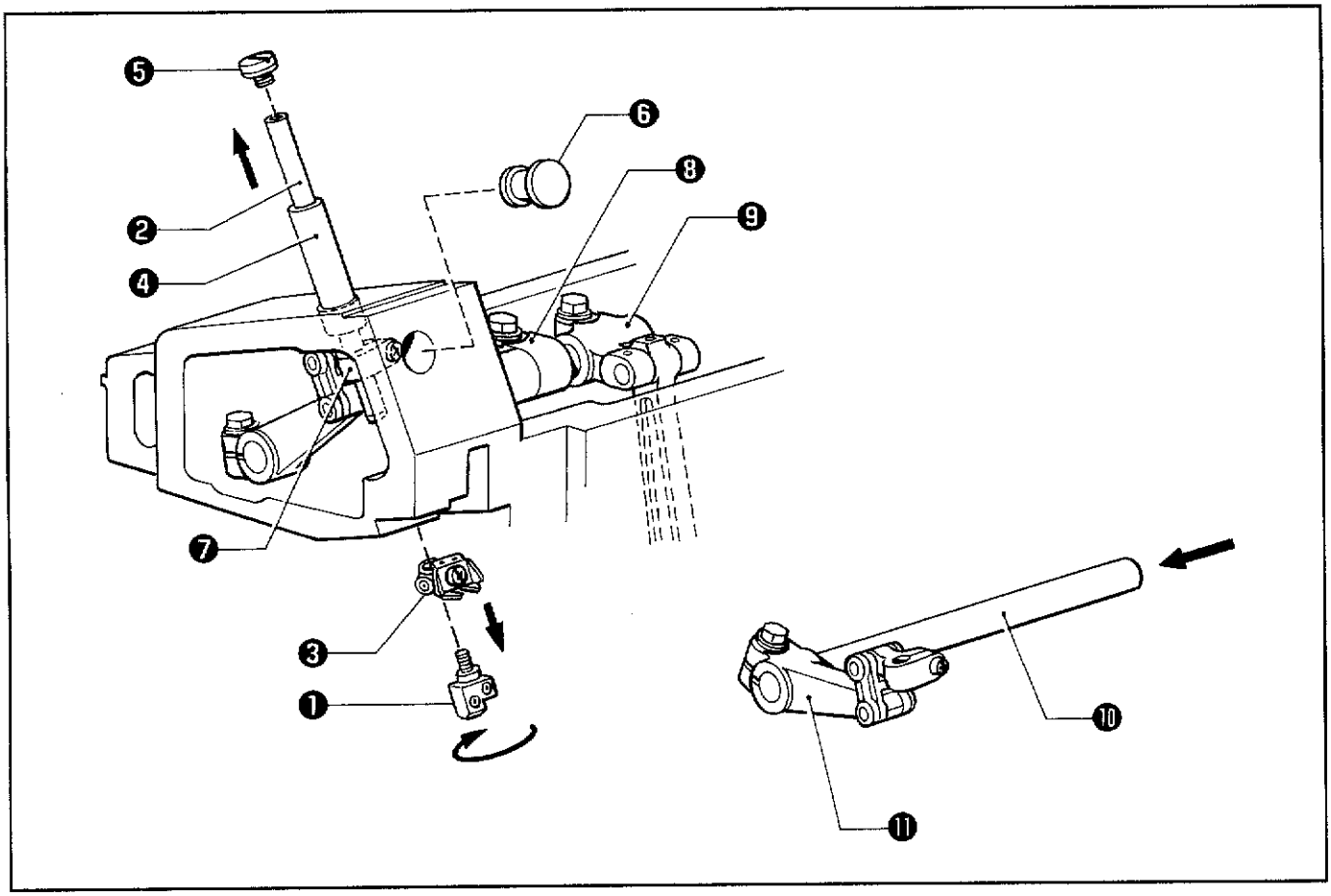
(4) Remove the screw, chain stitch needle guard (B) ❻, needle guard (F) ❼, and chain stitch needle guard (F) ❽.

(5) Loosen the bolt, and remove the chain stitch looper holder ❹ from the longitudinal feed shaft ❾.

(6) Remove the stud screw and the thread handler bracket ❿.

(7) Loosen the two set screws, and remove the thread take-up assembly ⓫.

7 Needle bar mechanism



(1) Remove the needle bar ❷ by turning the needle clamp ❶ in the direction of the arrow.

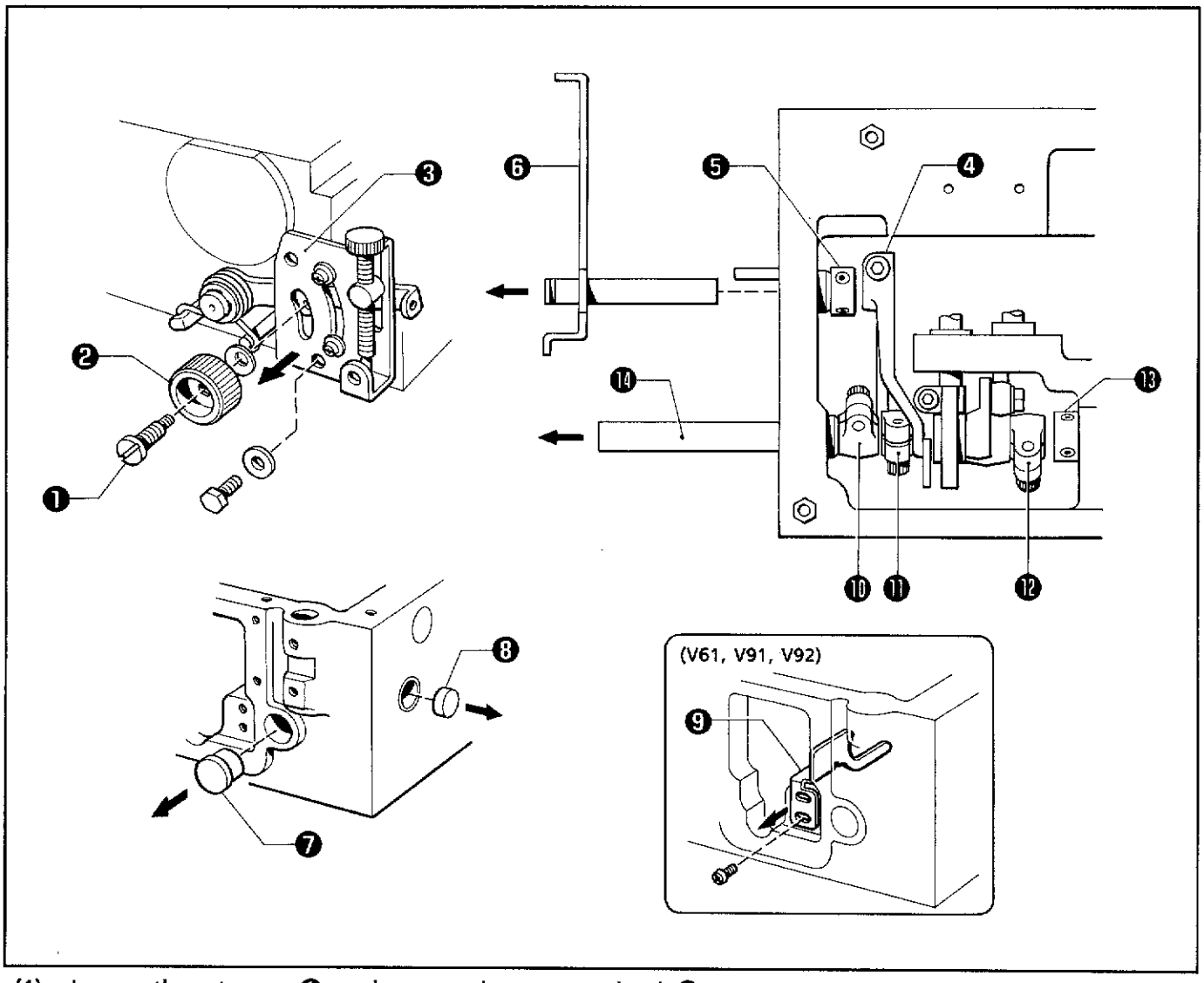
(2) Loosen the set screw, and remove the needle thread holder ❸ from the needle bar ❷.

(3) Remove the screw ❺ of needle bar bush (U) ❹.

(4) Remove the oil cap ❻, and loosen the screw of the needle bar clamp ❼. Remove the needle bar ❷ by lifting it from above.

(5) Loosen the bolts for the needle balance ❽ and the needle driving crank rod assembly ❾. Remove the needle bar clamp assembly ⓫ along with the needle shaft ❿.

[8] Feed mechanism



(1) Loosen the set screw ❶, and remove the set screw knob ❷.

(2) Remove the two bolts, and the differential stitch control plate ❸.

(3) Tilt the machine head until it stops. Loosen the bolt of the differential link lever ❹, and the set screws of the set collar ❺. Remove the differential feed adjust lever ❻.

(4) Return the machine head to its original position. Remove the oil cap ❼ on the rear side of the machine head, and the oil cap ❽ on the machine side.

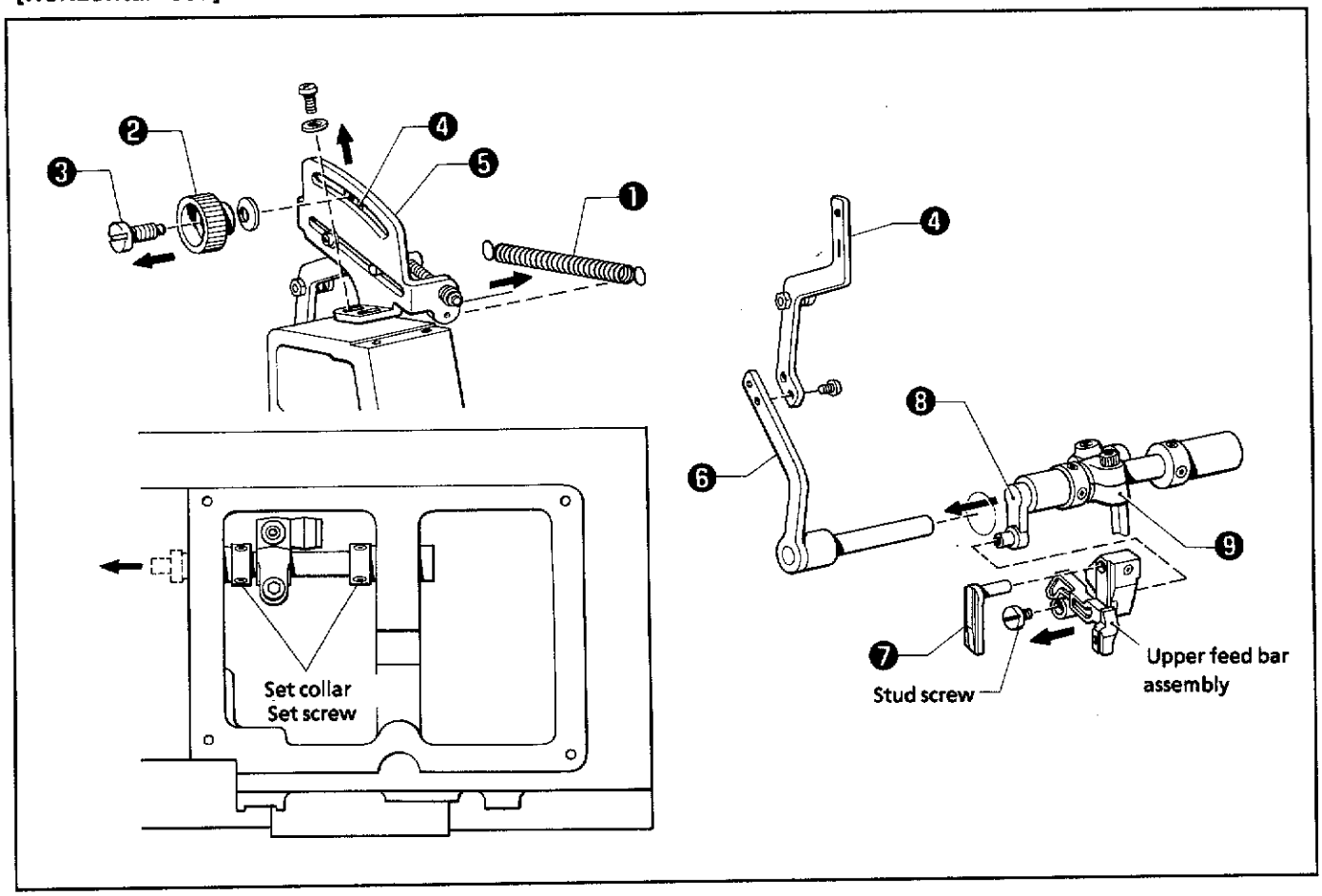
(5) Remove the two screws and the longitudinal feed arm stopper ❾ (for the safety stitch sewing machine only).

(6) Loosen the bolts for the feed arm assembly ❿, the differential feed arm ⓫, and the main feed arm ⓬.

(7) Tilt the machine head until it stops. Loosen the set screw of the set collar ⓭, and remove the feed shaft ⓮.
* After the feed shaft ⓮ is removed, return the machine head to its original position.

[9] Upper feed mechanism (1)

[Horizontal feed]



(1) Remove the spring ❶.

(2) Loosen the set screw knob ❷, and remove the set screw ❸ from the feed adjust plate ❹.

(3) Remove the two screws and the level feed length control plate ❺.

(4) Remove the two screws and the feed adjust plate ❹ from the level feed adjust lever shaft ❻.

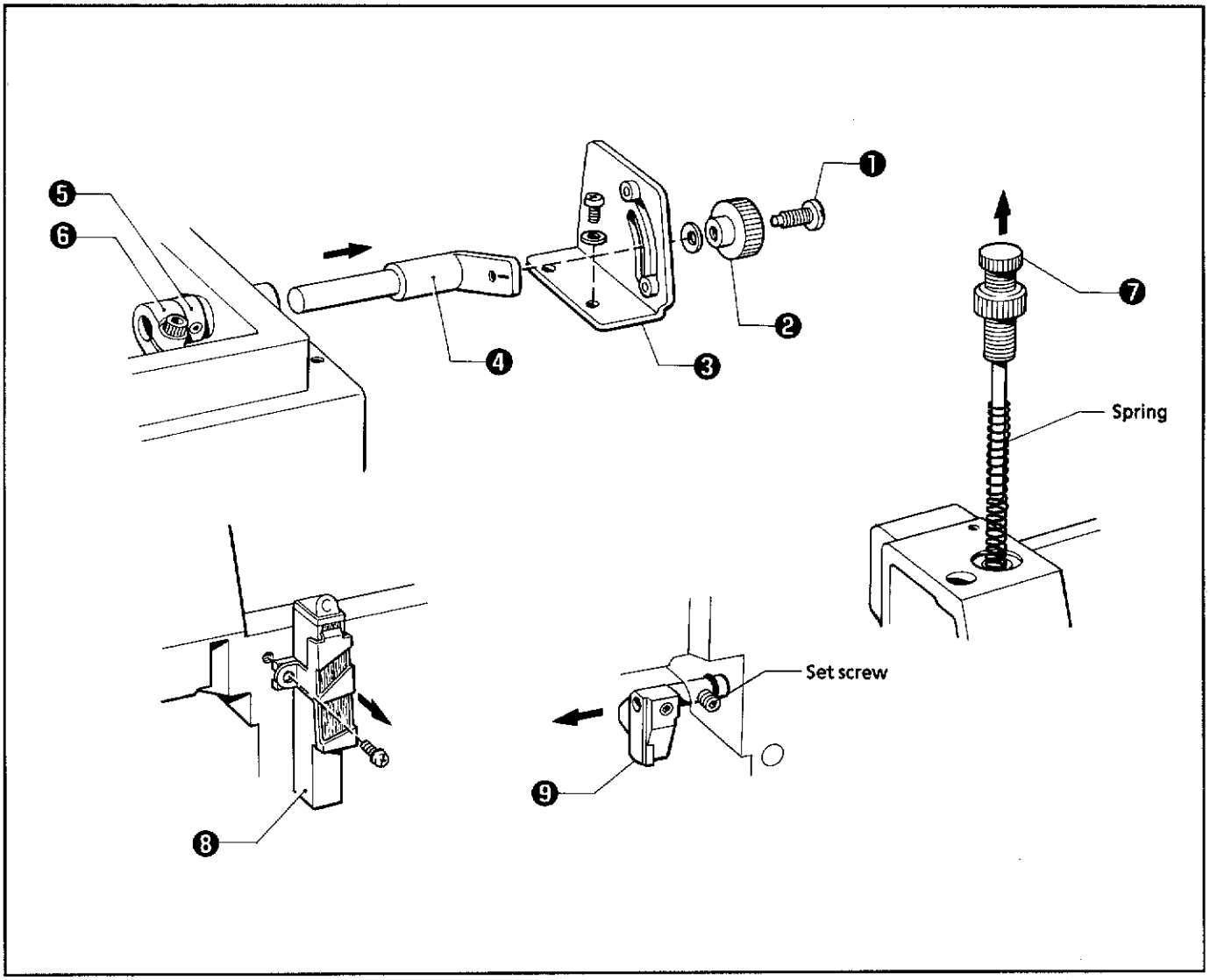
(5) Loosen the set screw, and remove upper feed bar guide (L) ❼.

(6) Remove the stud screw of the level feed crank shaft ❽. (The upper feed bar assembly will come off.)

(7) Loosen the set screws for the two set collars attached to the level feed crank shaft ❽, and the bolt of the feed arm ❾.
Remove the level feed crank shaft ❽.

[9] Upper feed mechanism (2)

[Vertical feed]



(1) Loosen the set screw ❶, and remove the set screw knob ❷.

(2) Remove the two screws and the vertical feed length control plate ❸.

(3) Loosen the set screw for the set collar ❺ attached to adjust lever shaft (UL) ❹, and the bolt of the vertical feed adjust lever ❻. Remove adjust lever shaft (UL) ❹.

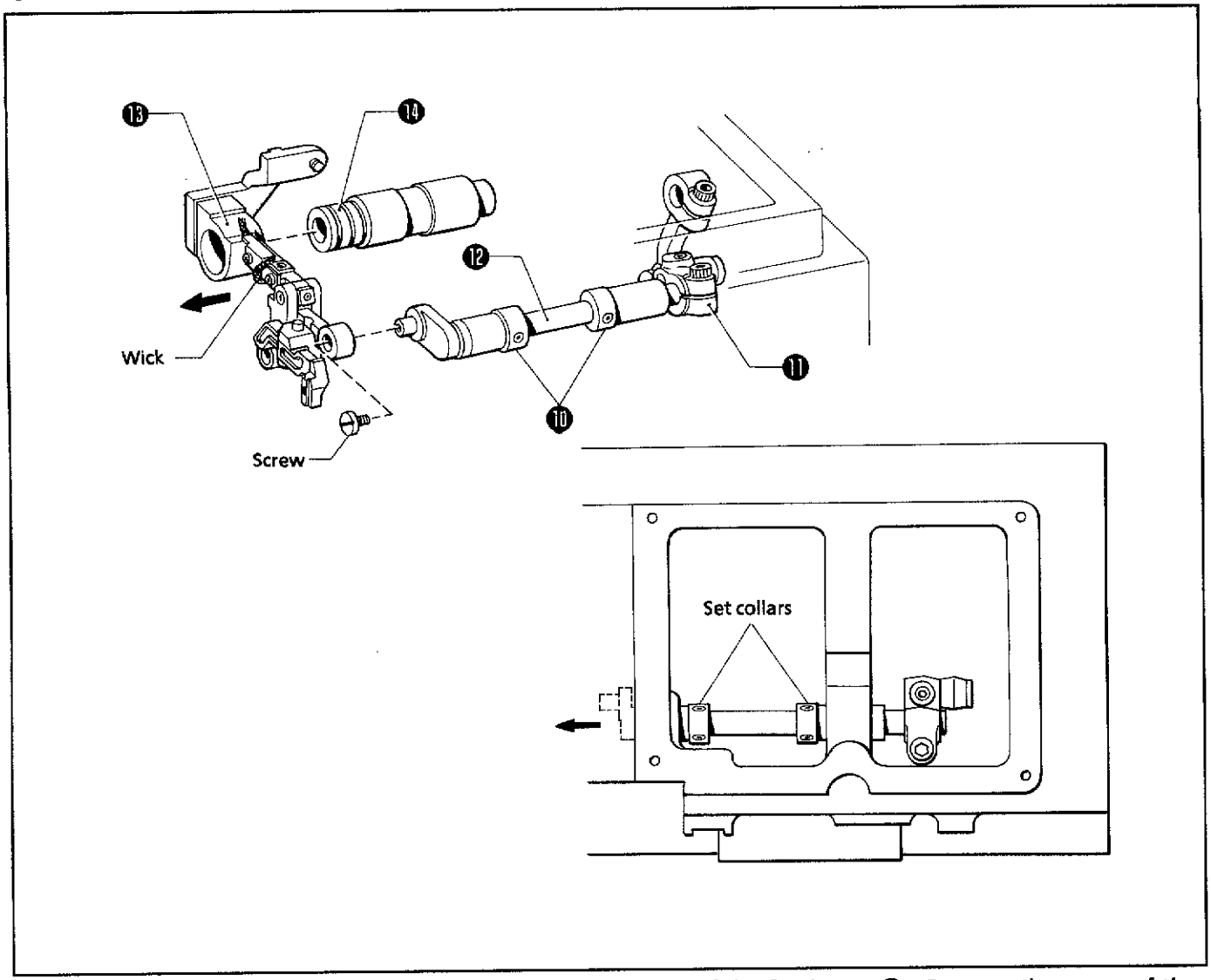
(4) Loosen the adjust screw ❼, and remove it along with the spring.

(5) Remove the screw and silicone tank assembly (U) ❽.

(6) Loosen the set screw, and remove upper feed bar guide (R) ❾.

[9] Upper feed mechanism (3)

[Vertical feed]



(7) Loosen the set screws of the set collars ⓾, and the bolt of the feed arm ⓫. Remove the screw of the vertical feed crank shaft ⓬.

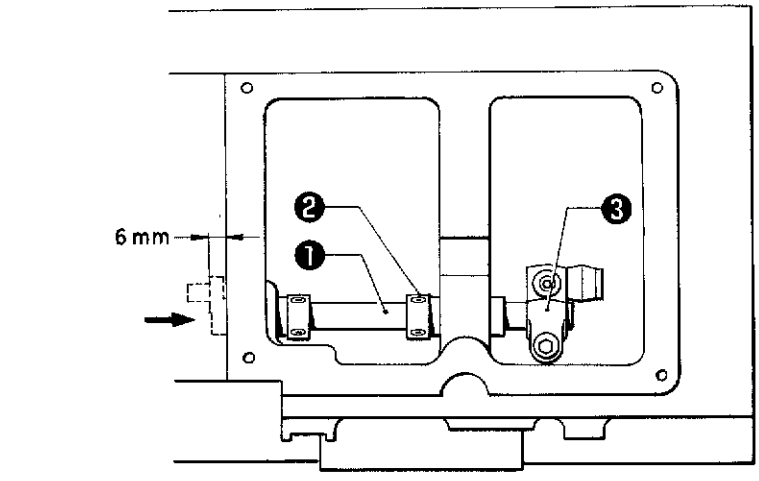
(8) Remove the upper feed bar assembly ⓭ from the presser arm shaft bush ⓮. (The wick is attached to the upper feed bar assembly.)

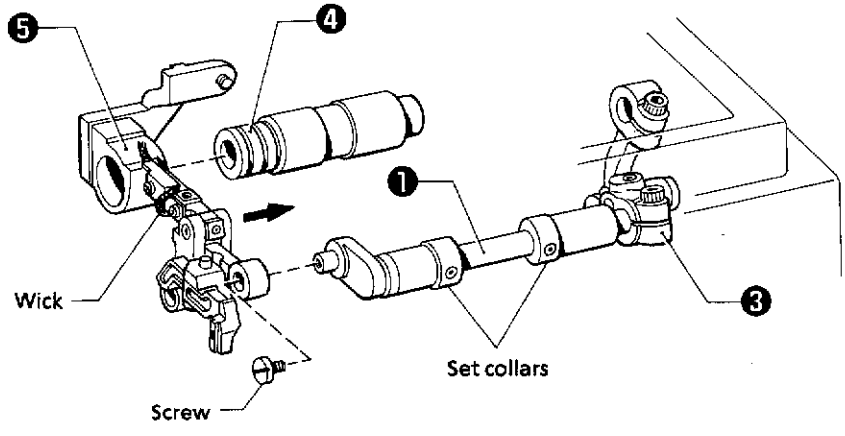
(9) Remove the vertical feed crank shaft ⓬.

ASSEMBLY

1 Upper feed mechanism (1)

[Vertical feed]





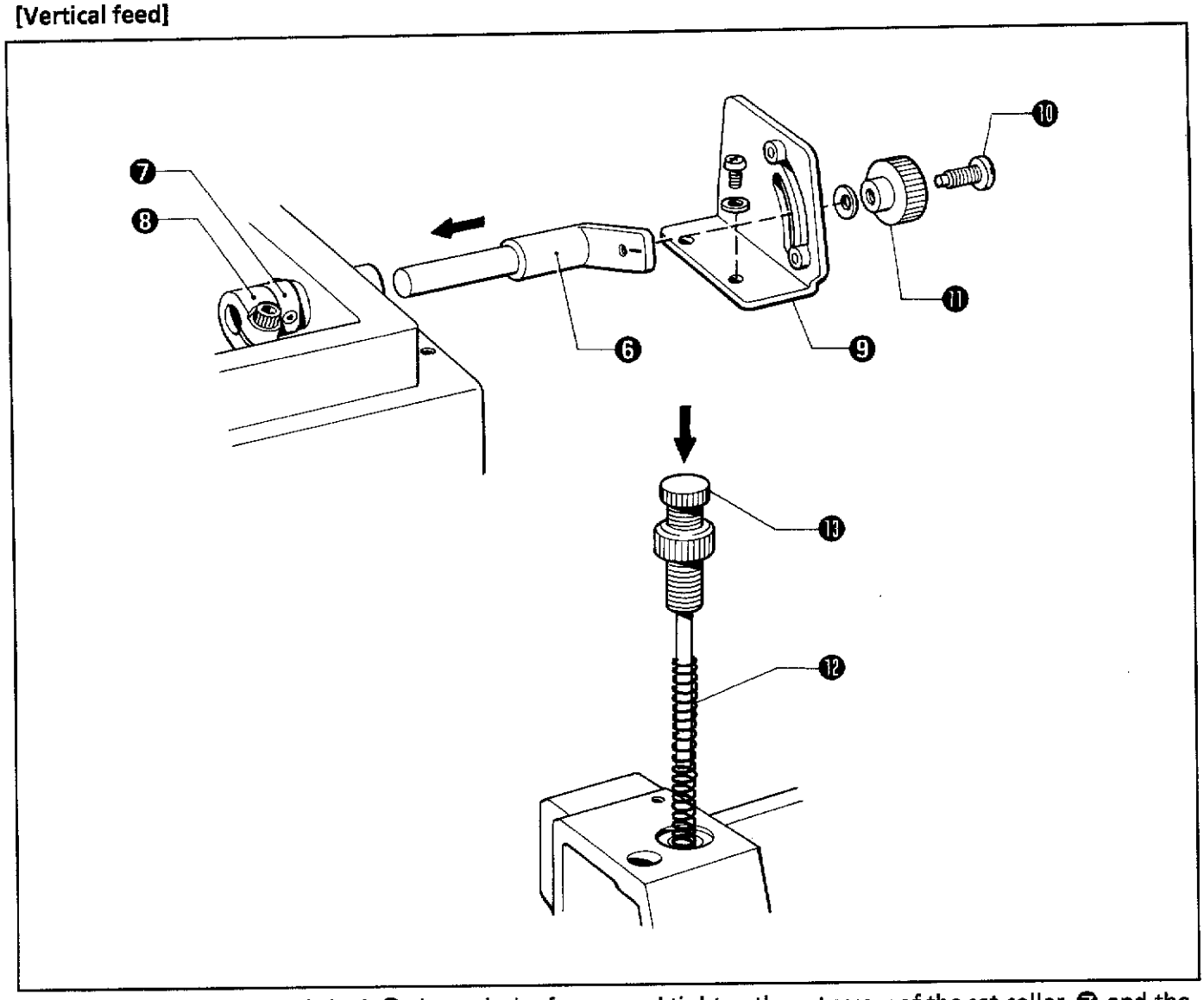
(1) Pass the vertical feed crank shaft ❶ through the frame. (Position the vertical feed crank shaft ❶ using the set collar ❷ so that the end of the vertical feed crank shaft ❶ protrudes 6 mm from the frame surface.)

(2) Attach the upper feed bar assembly ❺ along with the wick to the presser arm shaft bush ❹.

(3) Secure the vertical feed crank shaft ❶ using the screw.

1 Upper feed mechanism (2)

[Vertical feed]



(4) Pass adjust lever shaft (UL) ⑥ through the frame, and tighten the set screw of the set collar ⑦ and the bolt of the vertical feed adjust lever ⑧.

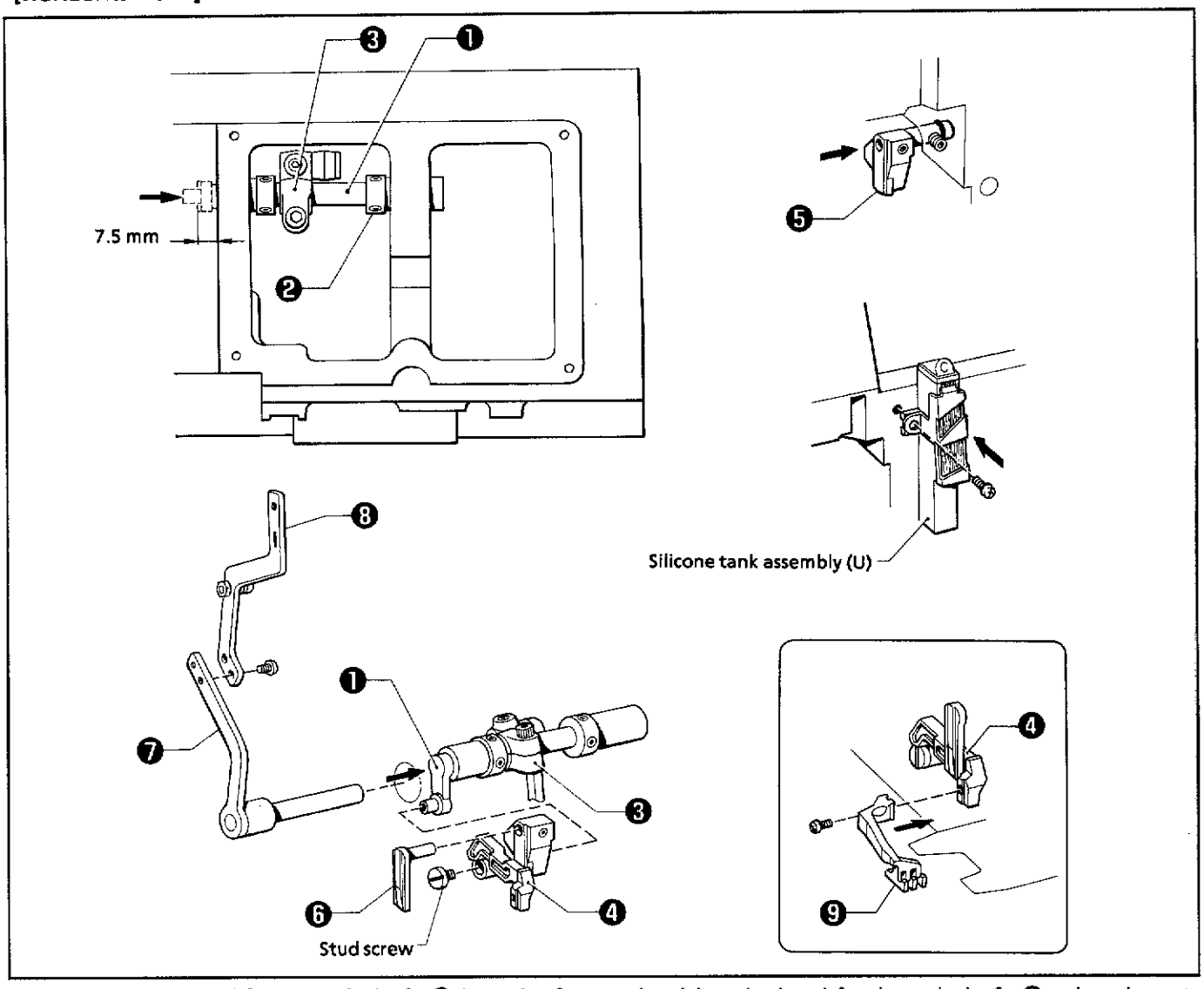
(5) Secure the vertical feed length control plate ⑨ using the screw.

(6) Attach the set screw knob ⑪ to adjust lever shaft (UL) ⑥ using the set screw ⑩.

(7) Insert the spring ⑫ into the frame, and tighten the adjust screw ⑬.

1 Upper feed mechanism (3)

[Horizontal feed]



(1) Insert the level feed crank shaft ❶ into the frame. (Position the level feed crank shaft ❶ using the set collar ❷ so that the end of the level feed crank shaft ❶ protrudes 7.5 mm from the frame edge. Then tighten the set screw and the bolt of the feed arm ❸.)

(2) Insert the upper feed bar assembly ❹ into the level feed crank shaft ❶, and tighten the stud screw.

(3) Secure upper feed bar guide (R) ❺ using the set screw. (Move the upper feed bar assembly ❹ backward or forward, and position upper feed bar guide (R) ❺ so that it does not touch the upper feed bar assembly ❹.)

(4) Attach silicone tank assembly (U) using the screw.

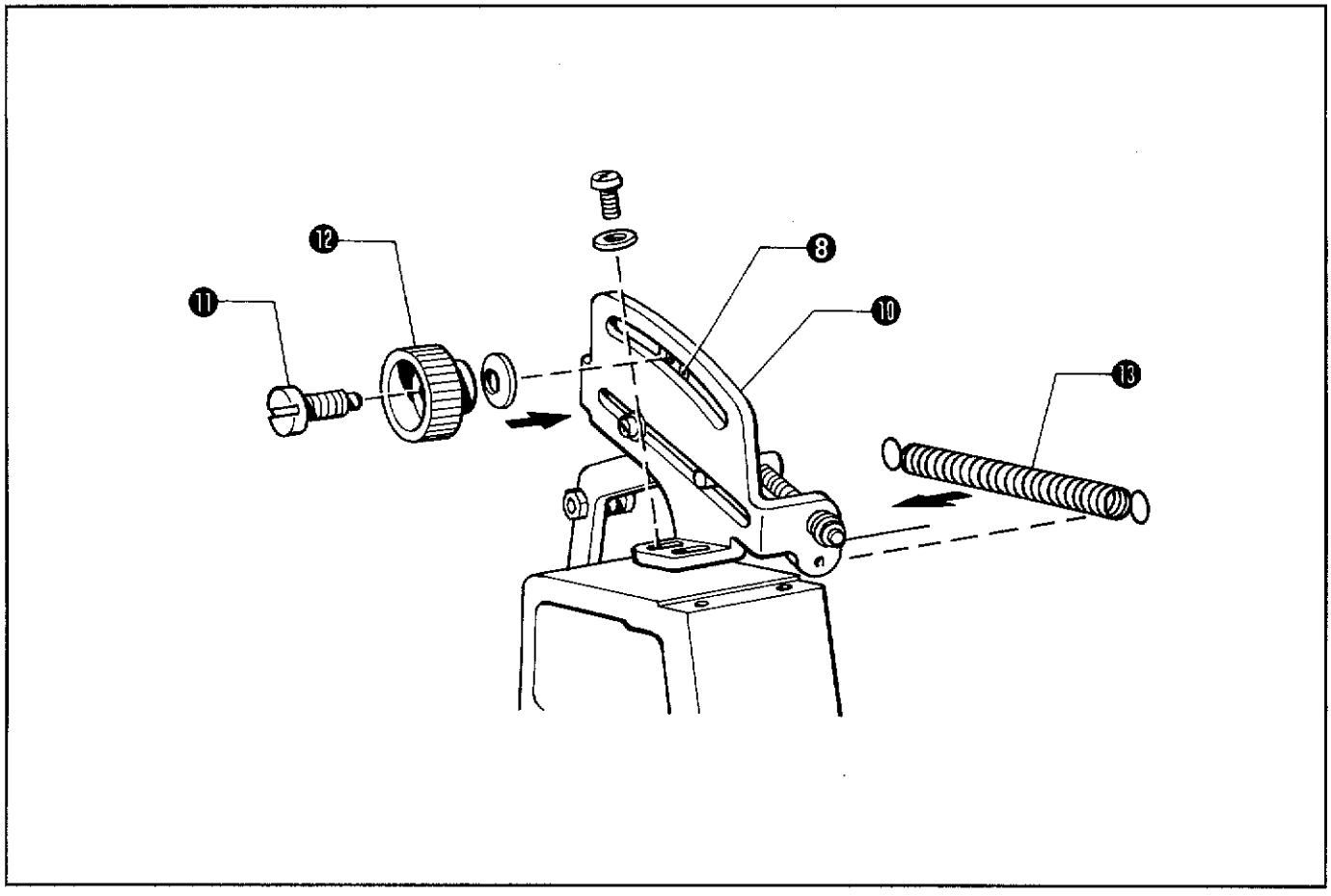
(5) Attach upper feed bar guide (L) ❻ using the set screw.

(6) Attach the feed adjust plate ❽ to the level feed adjust lever shaft ❼ using the screw.

(7) Attach the upper feed dog ❾ to the upper feed bar assembly ❹ using the screw.

1 Upper feed mechanism (4)

[Horizontal feed]

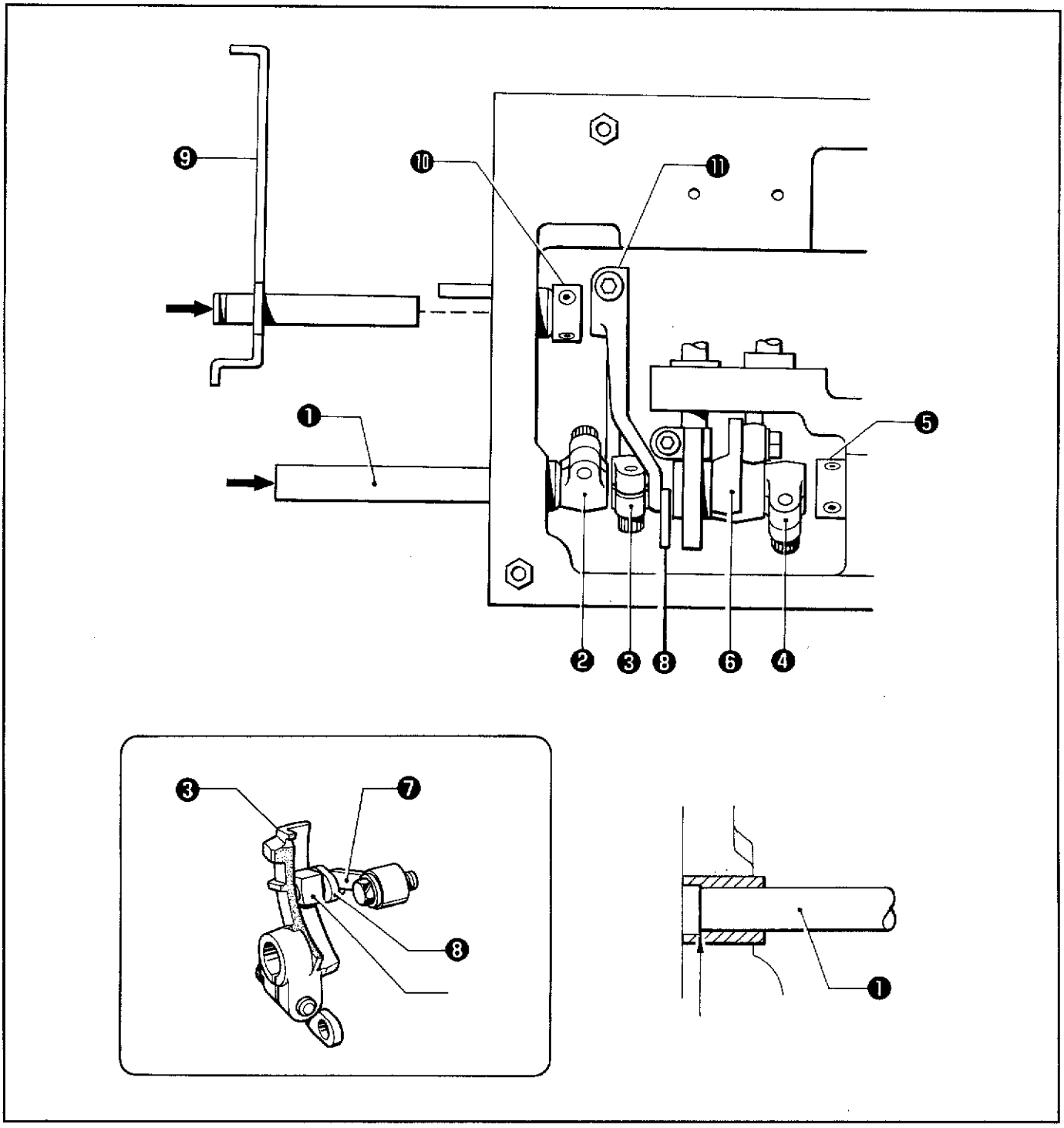


(8) Attach the level feed length control plate ⑩ using the screw.

(9) Attach the set screw knob ⑫ to the feed adjust plate ⑧ using the set screw ⑪.

(10) Attach the spring ⑬.

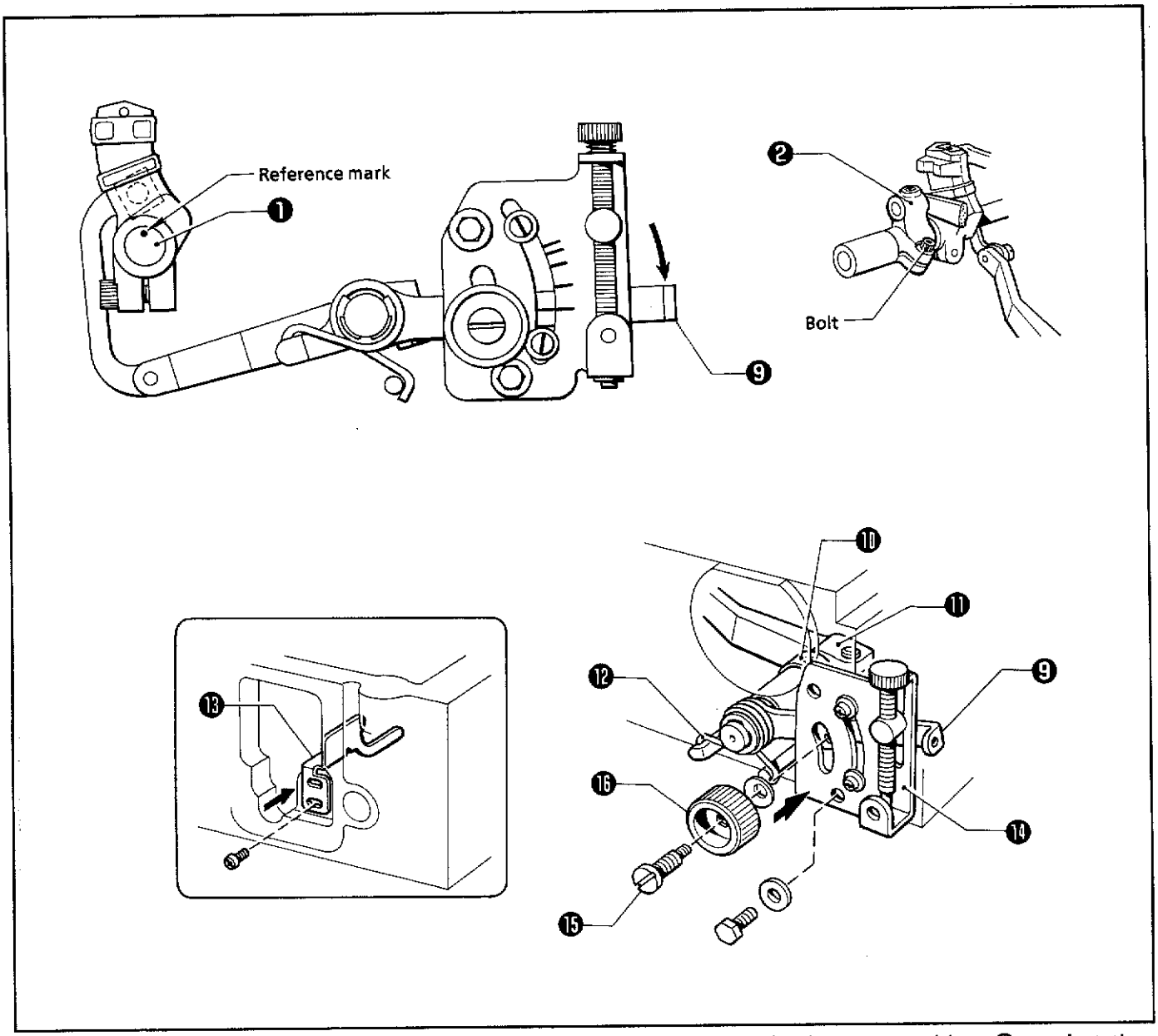
2 Feed mechanism (1)



(1) Tilt the machine head until it stops. Pass the feed shaft ❶ through the bush, the feed arm assembly ❷, the differential feed arm ❸, the main feed arm ❹, and the set collar ❺ in that order. (For the safety stitch sewing machine, the longitudinal feed arm ❻ should be also inserted.)
(Insert the shaft of the differential feed link ❼ into the differential feed adjust link ❽ and the slide block, and place them on the differential feed arm ❸.)

(2) Position the feed shaft ❶ using the set collar ❺ so that the end of the feed shaft ❶ is flush with the inside face of the bush.)

2 Feed mechanism (2)



(3) Set the stitch length to the maximum. Tighten the bolt of the feed arm assembly ❷ so that the reference mark of the feed shaft ❶ is on the top when the feed arm assembly ❷ is extremely retracted.
NOTE: When tightening the bolt of the feed arm ❷, make sure that no looseness of the feed arm ❷ is on both sides.

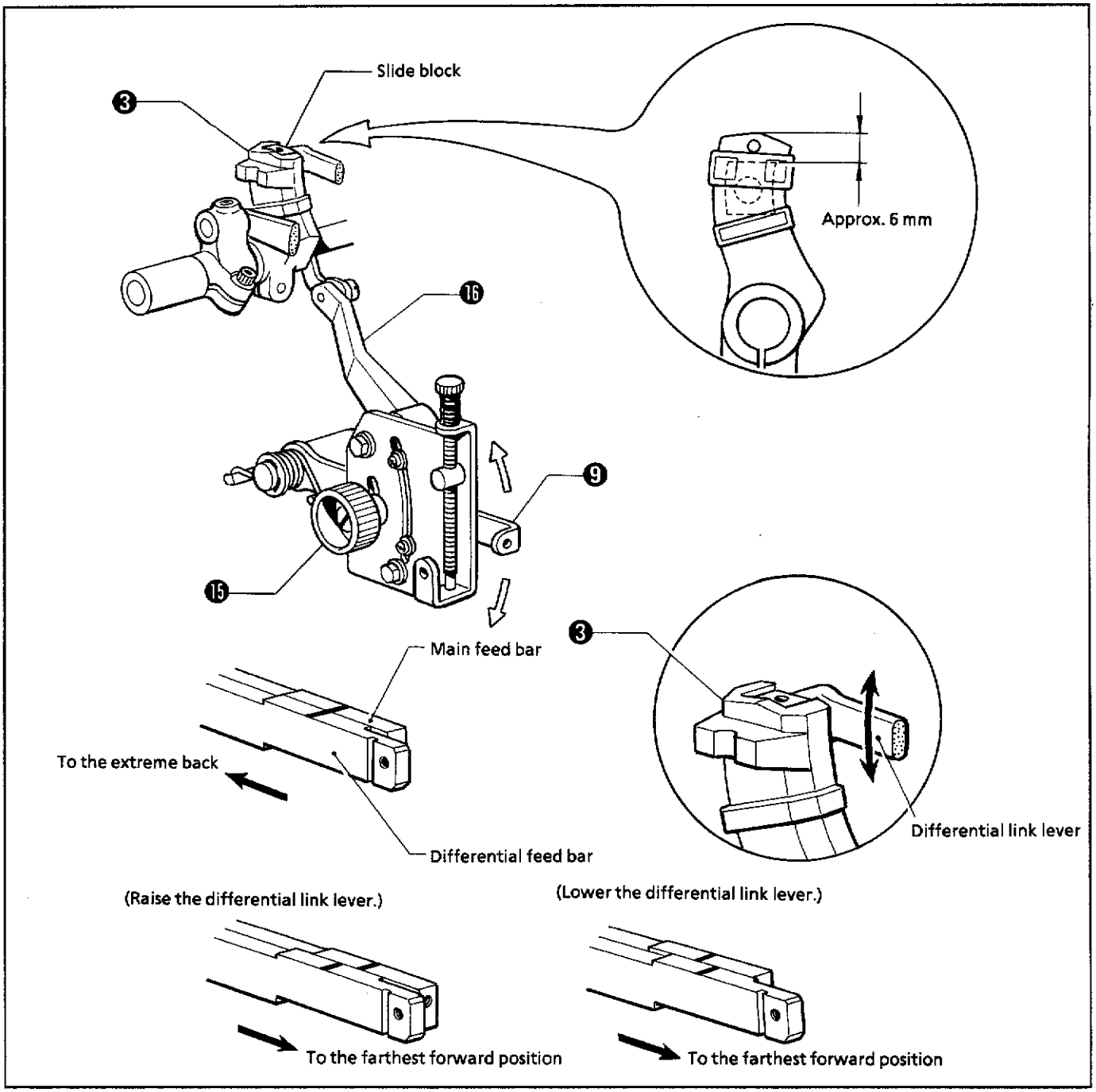
(4) Pass the differential feed adjust lever ❾ through the bush, set collar ❿, and the differential link lever ⓫, and remove any looseness on the left and right of the differential feed adjust lever, and tighten the set screw of the set collar ❿. (Hang the spring ⓬.)

(5) Attach the longitudinal feed arm stopper ⓭ using the screw. (Only for V61, V91, V92.)

(6) Attach the differential stitch control plate ⓮ using the bolt.

(7) Attach the set screw knob ⓰ to the differential feed adjust lever ❾ using the set screw ⓯.

[2] Feed mechanism (3)



[Adjusting the standard feeding position of the differential feed arm]

(1) Set the stitch length to the maximum, and turn the pulley to set the differential feed arm ❸ to the extreme back.

(2) Temporarily tighten the bolts for the differential link lever ⓰ and the differential feed arm ❸.

(3) Loosen the set screw knob ⓯. Adjust the back and forth inclination of the differential feed arm ❸ so that it stops by moving the differential feed adjust lever ❾. Then tighten the bolts again.

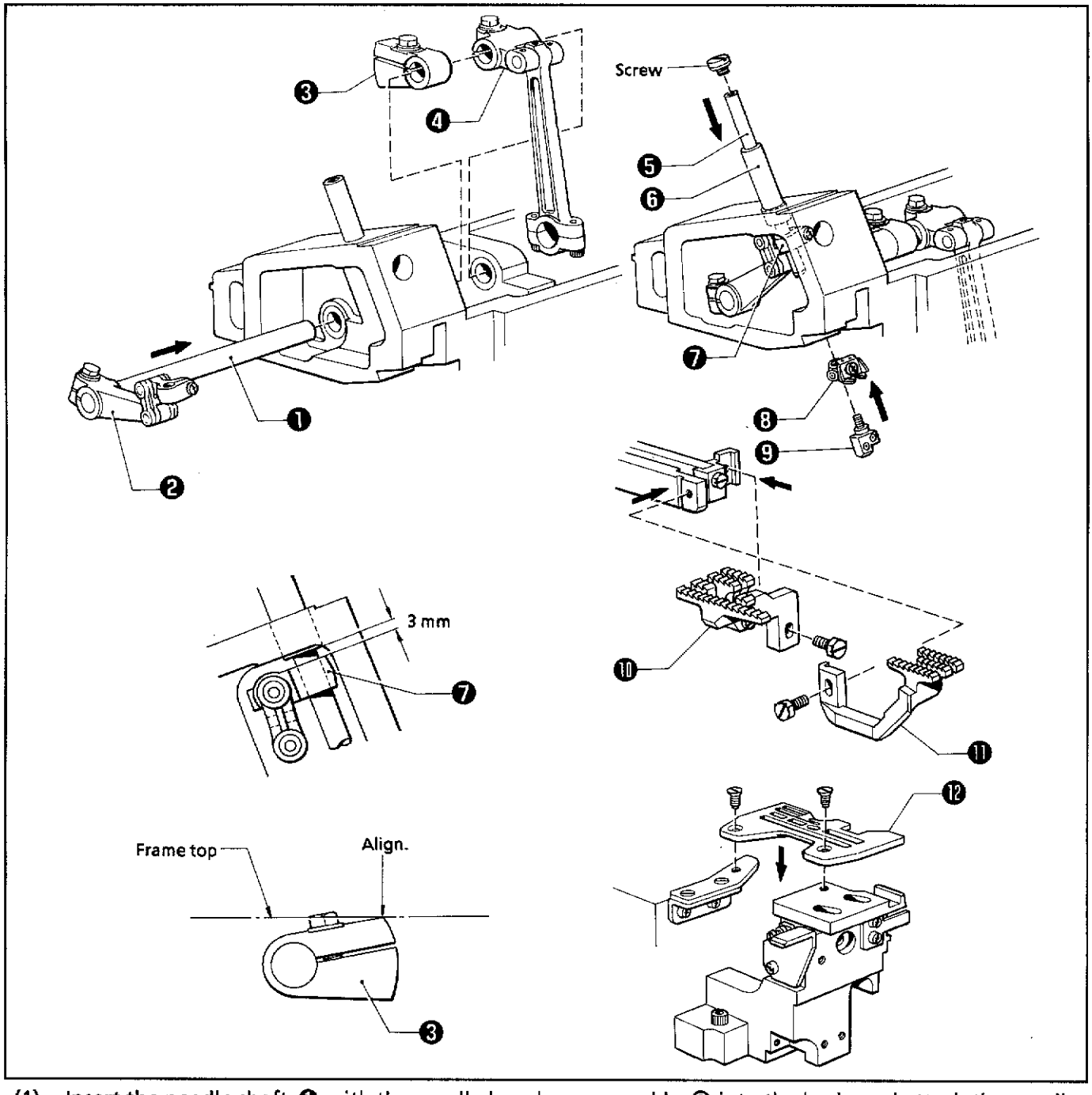
[Adjusting the feed of the main feed bar and the differential feed bar]

* Before this adjustment, set the movement of the main feed dog to 3.8 mm.

(1) Temporarily tighten the differential link lever ⓰ until the slide block of the differential feed arm ❸ is positioned 6 mm above the differential feed arm ❸ when the differential feed adjust lever ❾ is aligned with the maximum setting.

(2) Align the differential feed adjust lever ❾ to the upper third reference line (for plain stitching). Adjust the timing between the main feed bar and the differential feed bar by moving the differential link lever ⓰ up or down so that the main feed bar is even with the differential feed bar when they move to the farthest forward position.

3 Needle bar mechanism (1)



(1) Insert the needle shaft ❶ with the needle bar clamp assembly ❷ into the bush, and attach the needle balance ❸ and the needle driving crank rod assembly ❹ so that there is no looseness in the direction of the thrust.

(2) Insert the needle bar ❺ into needle bar bush (U) ❻. Pass them through the needle thread holder ❽ and the needle bar clamp ❼, and attach the needle clamp ❾.

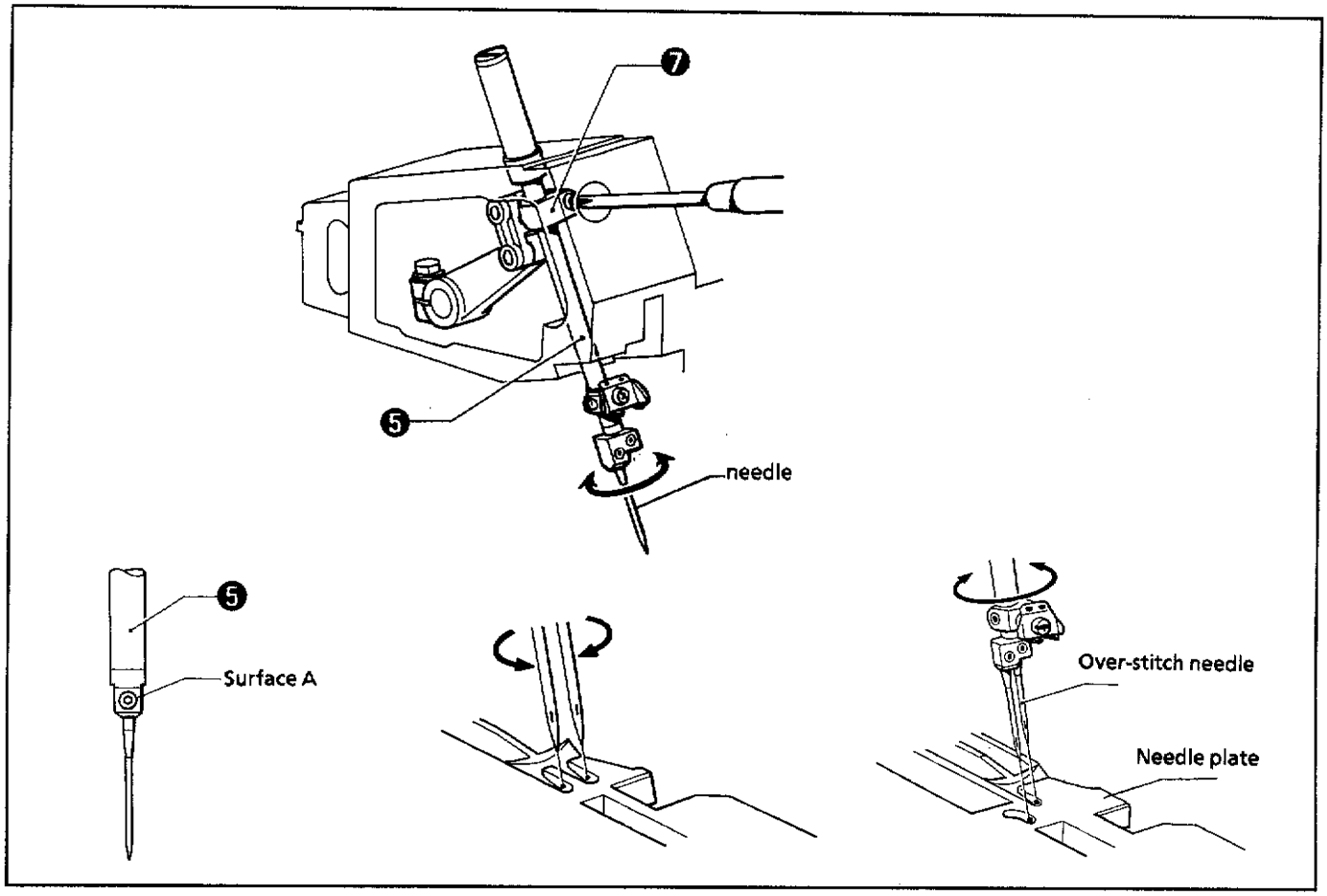
(3) Attach the screw of needle bar bush (U) ❻.

(4) Turn the pulley to set the needle driving crank rod ❹ to its highest position, then tighten the bolt of the needle driving crank rod ❹ so that the needle bar clamp ❼ is positioned 3 mm under the end of the bush.
NOTE: Make sure that the pulley turns easily.

(5) Tighten the bolt of the needle balance ❸ so that it aligns with the top of the frame when the needle bar is at its lowest position.

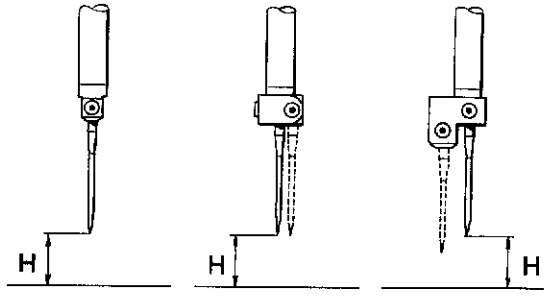
(6) Temporarily attach the main feed dog ❿, the differential feed dog ⓫, and the needle plate ⓬.

3 Needle bar mechanism (2)



(7) Loosen the screw of the needle bar clamp assembly ⑦. Turn the pulley slowly to insert the needle tip into the needle hole on the needle plate.

* For a single-needle machine, turn the needle bar ⑤ to face surface A of the screw toward the front.
* For a twin-needle or safety stitch sewing machine, turn the needle bar ⑤ to find needle location.



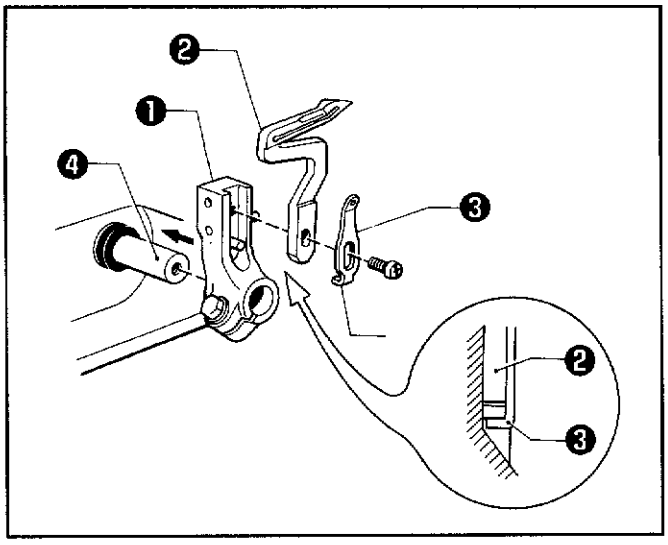
Dimension H

	S (Standard)	H (High lift)	E (Extra high lift)
V41, V61, V71 V72, V91, V92	10±0.2 mm	10.9±0.2 mm	12±0.2 mm
V51, V81, V82		11.4±0.2 mm	12±0.2 mm

(8) Turn the pulley to move the needle bar ⑤ to its highest position. Refer to the above table, adjust the clearance between the needle tip and the needle plate top, and fix it.

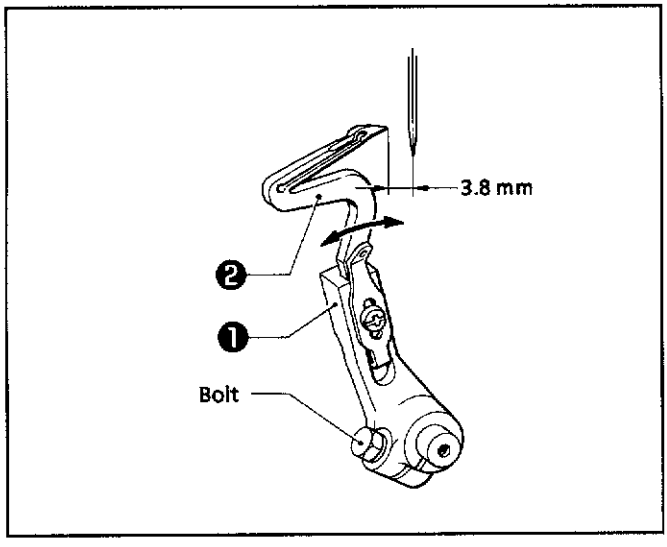
(9) Remove the needle ⑱, the needle plate ⑫, the main feed dog ⑩, and the differential feed dog ⑪.

4 Under looper mechanism (1)



(1) Attach the under looper ❷ and under looper thread guide (L) ❸ to the under looper holder ❶ using the screw. Temporarily attach the under looper holder ❶ to the under looper shaft ❹ using the bolt.

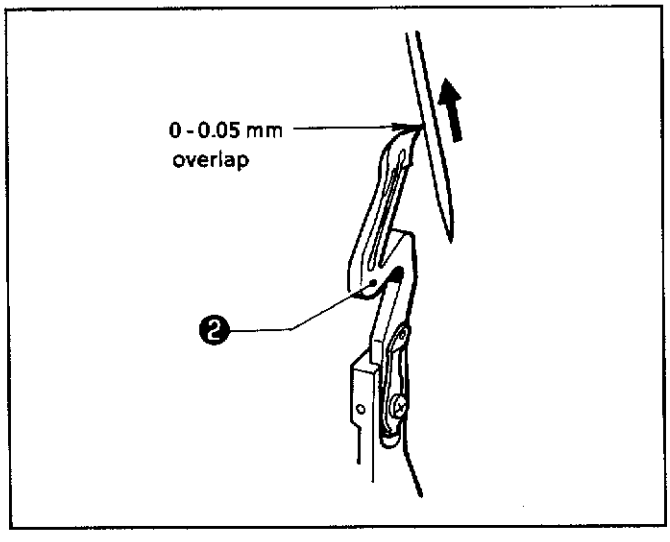
NOTE: The under looper ❷ should be attached so that its bottom sticks to the pin of the under looper holder ❶.



[Adjusting the farthest left position of the under looper]

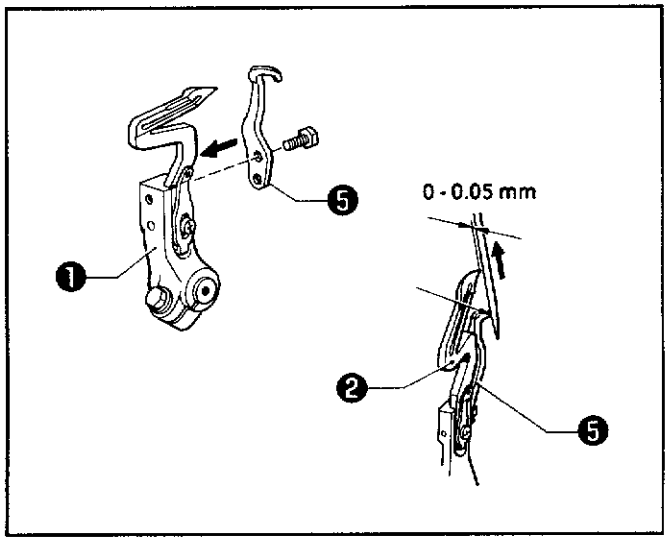
① Turn the pulley to move the under looper all the way to the left.

② Loosen the bolt. Move the under looper holder ❶ so that there is a 3.8 mm clearance between the center of the needle and the under looper point.



③ Raise the needle from its lowest position. Adjust the under looper holder ❶ so that the under looper ❷ point overlaps the needle 0 - 0.05 mm when the under looper ❷ point aligns with the center of the needle.

4 Under looper mechanism (2)

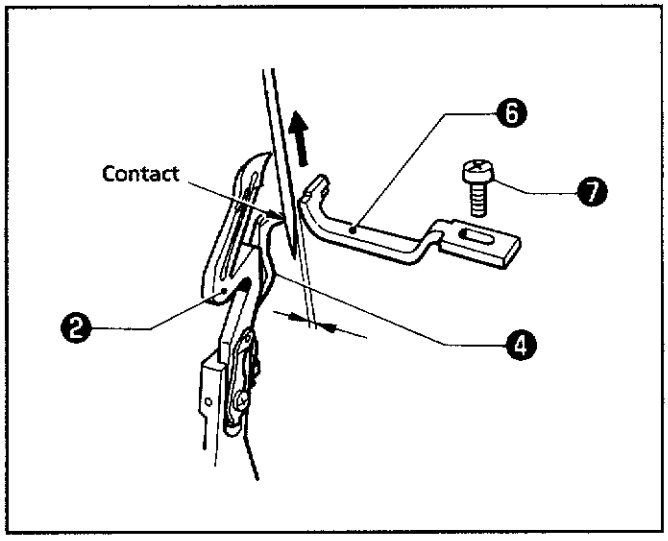


[Adjusting the movable needle guard]

① Attach the movable needle guard ❺ to the under looper holder ❶ using the bolt.

② Raise the needle from its lowest position to align the under looper ❷ point with the center of the needle.

③ Loosen the bolt. Adjust the position of the movable needle guard ❺ by moving it so that there is a 0 - 0.05 mm clearance between the needle and the under looper ❷.

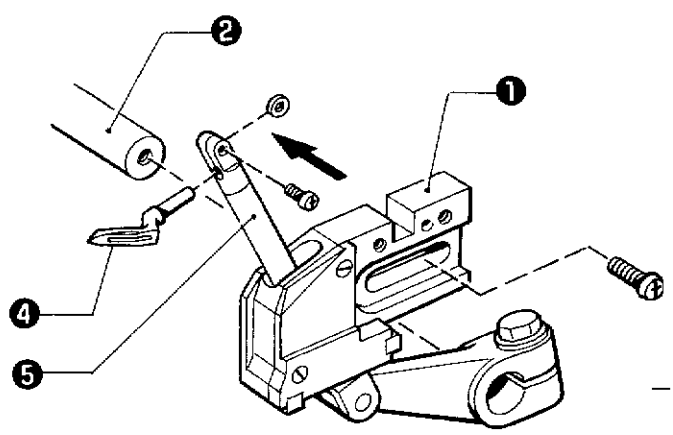


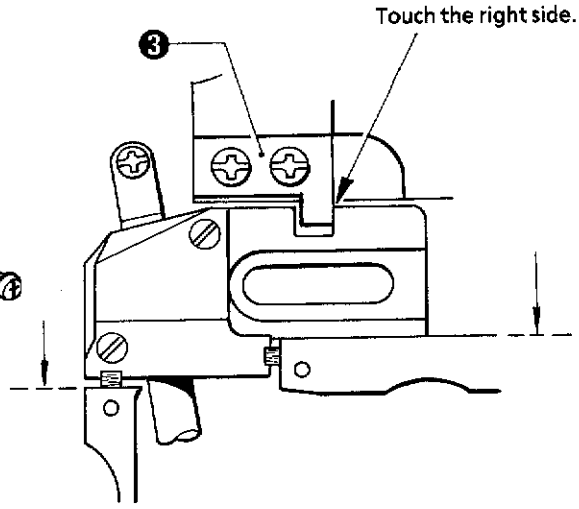
[Adjusting needle guard (F)]

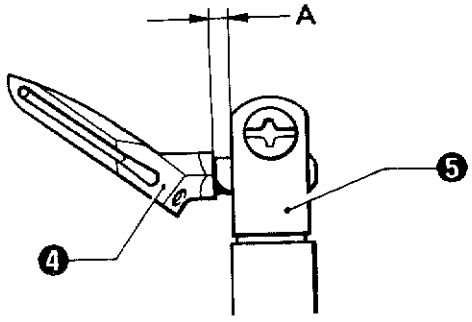
① Attach needle guard (F) ❻ to the needle plate support bracket using the screw ❼.

② Raise the needle from its lowest position to align the under looper ❷ point with the center of the needle. Adjust the position of needle guard (F) ❻ so that the clearance between needle guard (F) ❻ and the needle is 0.05 - 0.2 mm for using threads with a thread number over and including #50 (thin thread); approx. 0.3 mm using #30 thread (thick thread).

5 Over looper mechanism (1)





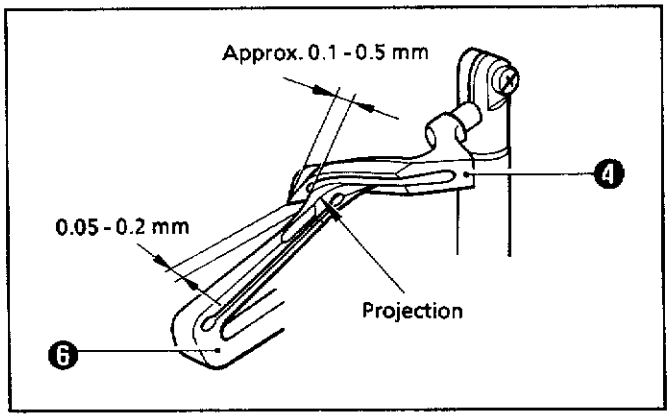


	S (Standard)	H (High lift)	E (Extra high lift)
A	1.6±0.2	0	1±0.2

(1) Insert the over looper mechanism assembly ❶ into the over looper shaft ❷, and secure them using the screw so that the over looper guide holder touches the right side of the guide bush positioning plate ❸.

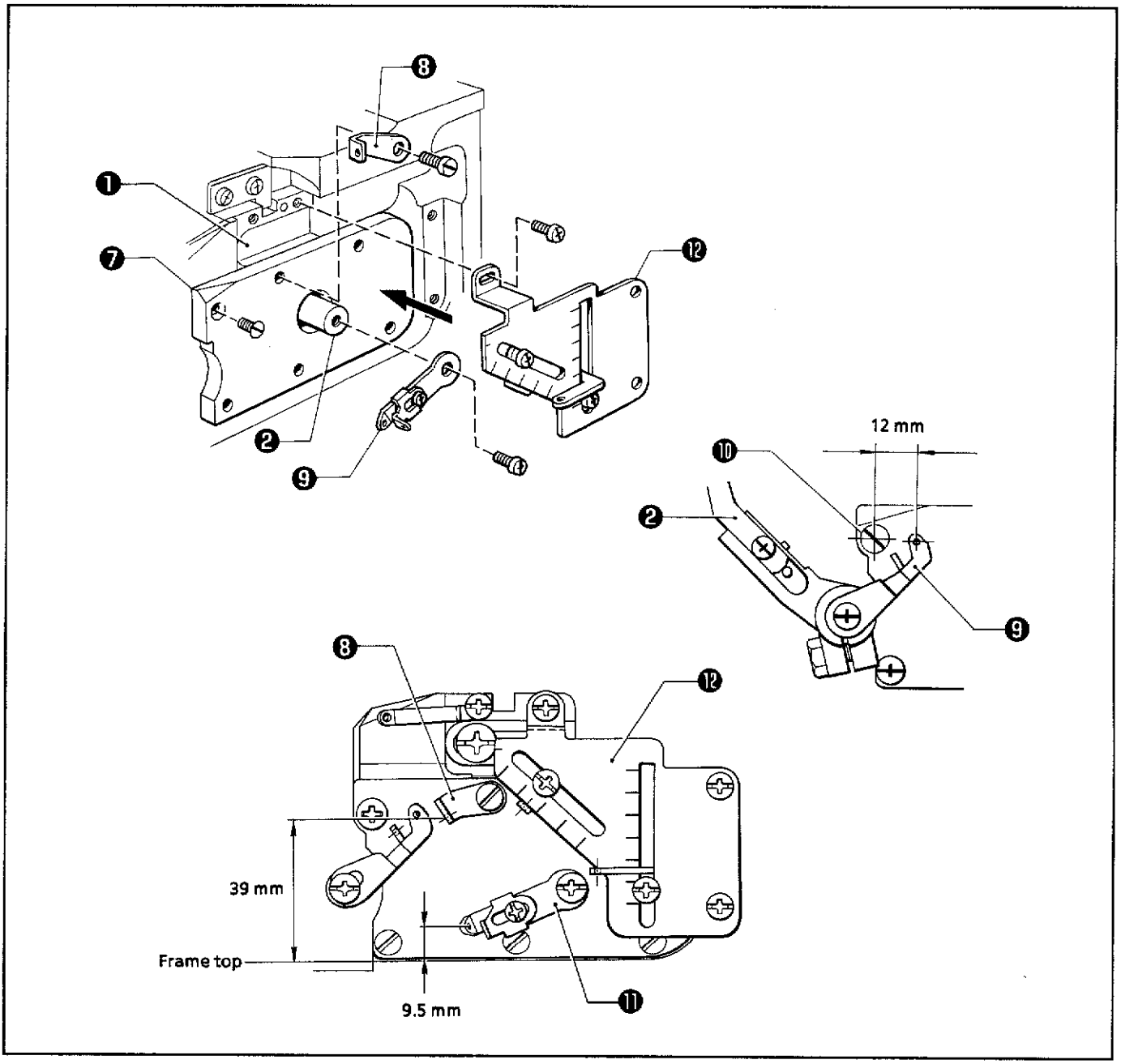
NOTE: Make sure that the over looper holder ❺ moves smoothly in the over looper mechanism assembly.

(2) Attach the over looper ❹ to the over looper holder ❺ using the screw.
Adjust the clearance between the over looper ❹ and the over looper holder ❺ as follows;
(S (standard) = 1.6 ± 0.2, H (high lift) = 0, E (extra high lift) = 1 ± 0.2)



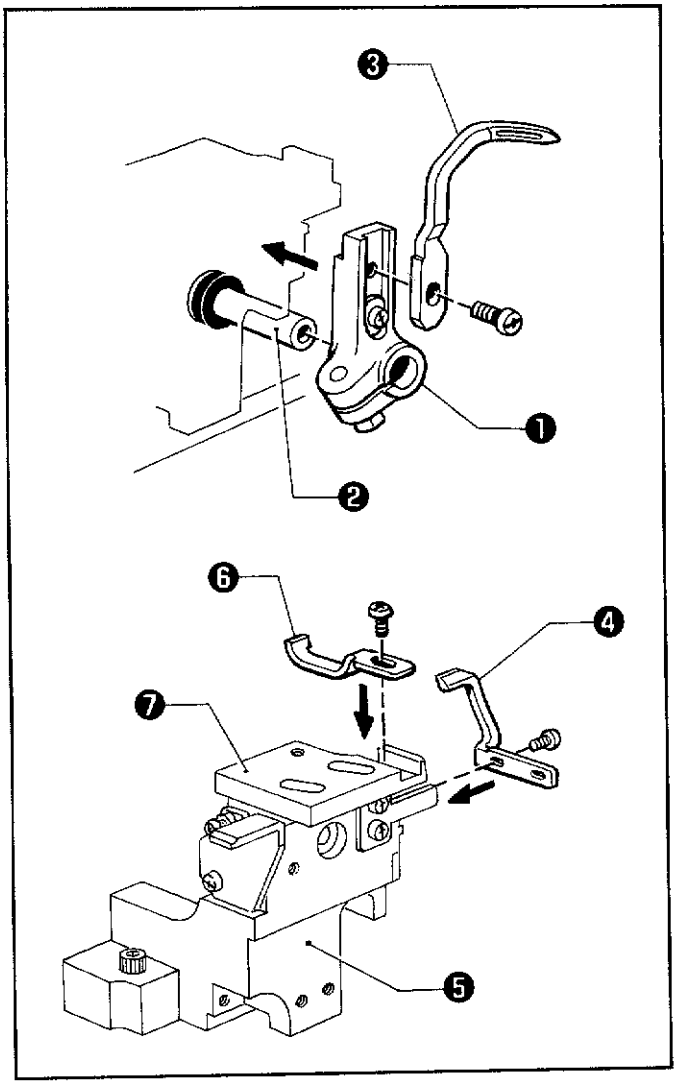
(3) Turn the pulley slowly to pass the over looper ❹ under the projection of the under looper ❻ without contacting each other, and adjust the position of the under looper ❻, and temporarily tighten the screw.

5 Over looper mechanism (2)



(4) Attach the inside cover ❼ and the looper thread guide ❽ to the frame using the screws.
Attach looper thread take-up (L) ❾ so that the distance from the center of the screw ❿ to the hole of looper thread take-up (L) ❾ is 12 mm when the under looper ❷ is positioned all the way to the left.
(The looper thread guide ❽ should be positioned 39 mm above the top of the frame.)
Turn the pulley so that over looper thread take-up (R) ⓫ is positioned 9.5 mm above the frame when the over looper ❹ is at its lowest position. Then tighten the screw of over looper thread take-up (R) ❹.
Attach the thread guide bracket ⓬ to the over looper mechanism assembly ❶ and the frame using the screws.

[6] Double chain stitch looper mechanism (1) (V61, V91, V92)

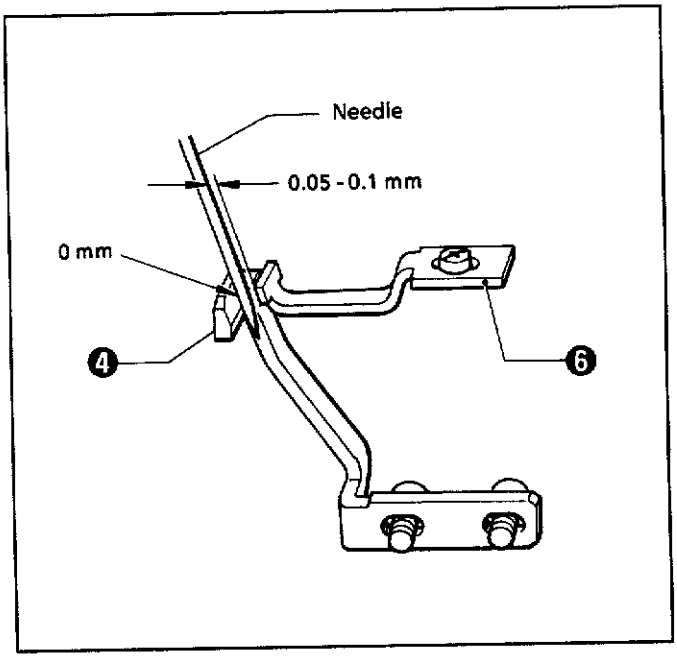


(1) Attach the chain stitch looper holder ❶ to the longitudinal feed shaft ❷ using the bolt.

(2) Attach the chain stitch looper ❸ to the chain stitch looper holder ❶ using the screw.

(3) Attach chain stitch needle guard (B) ❹ to the needle plate support bracket ❺ using the screw.

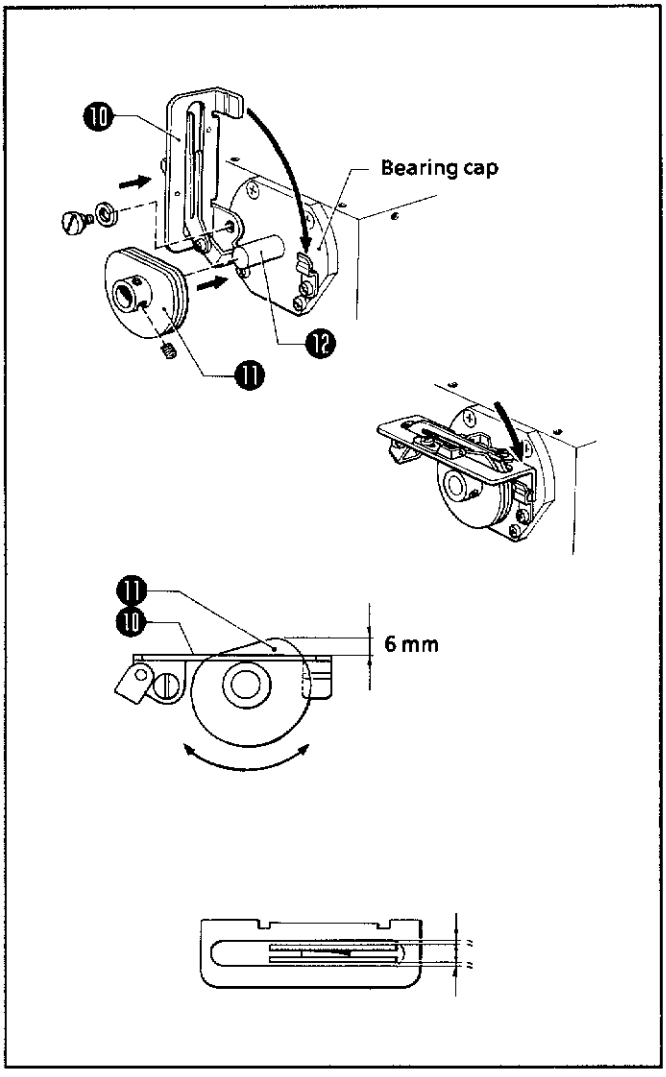
(4) Attach chain stitch needle guard (F) ❻ to the needle plate support plate ❼ using the screw.



(5) Adjust the clearance between chain stitch needle guard (B) ❹ and the needle to 0 mm with the needle at its lowest position.

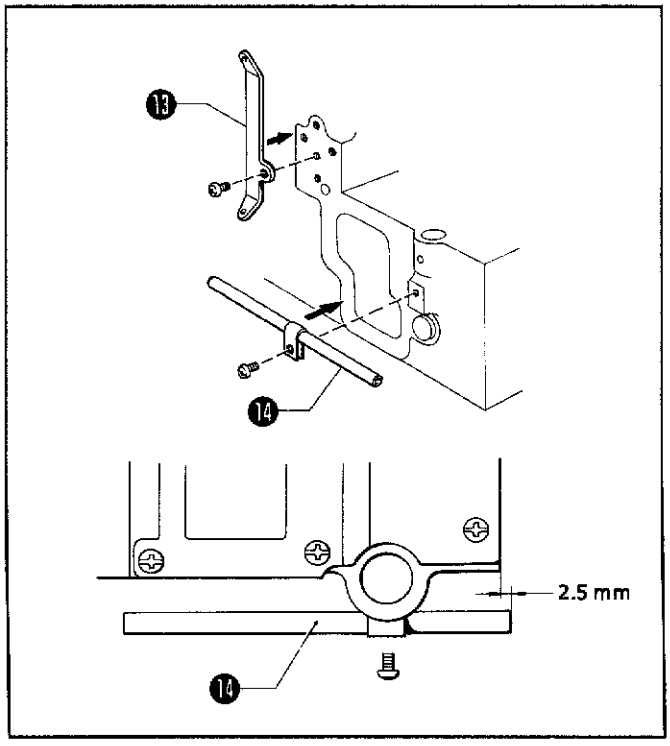
(6) Adjust the clearance between chain stitch needle guard (F) ❻ and the needle to 0.05 - 0.1 mm with the needle at its lowest position.

6 Double chain stitch looper mechanism (2)



(7) Attach the thread handler bracket ⑩ to the bearing cap using the stud screw.

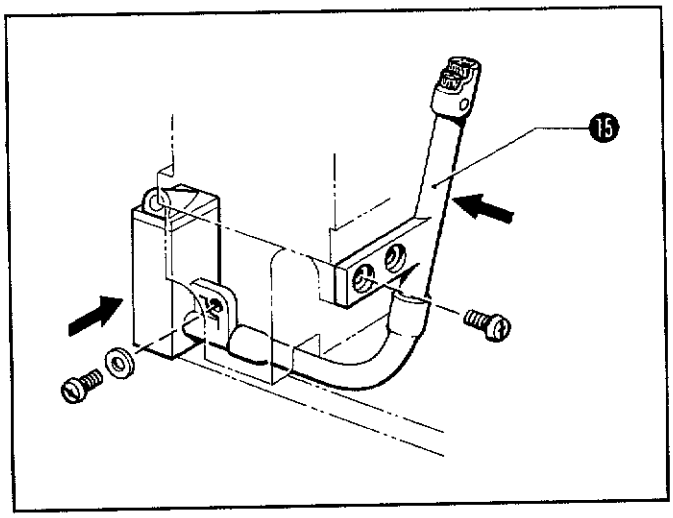
(8) Attach the thread take-up assembly ⑪ to the chain stitch thread take-up shaft ⑫ using the set screw so that the thread take-up assembly ⑪ is 6 mm above the thread handler bracket ⑩ when the needle bar is at its highest position.
NOTE: Adjust the position of the thread take-up assembly ⑪ so that it is centered at the slot of the thread handler bracket ⑩.



(9) Attach the looper thread guide ⑬ to the frame using the screw.

(10) Position the thread guide pipe ⑭ so that it protrudes 2.5 mm from the side of the machine head, and secure it to the frame using the screw.

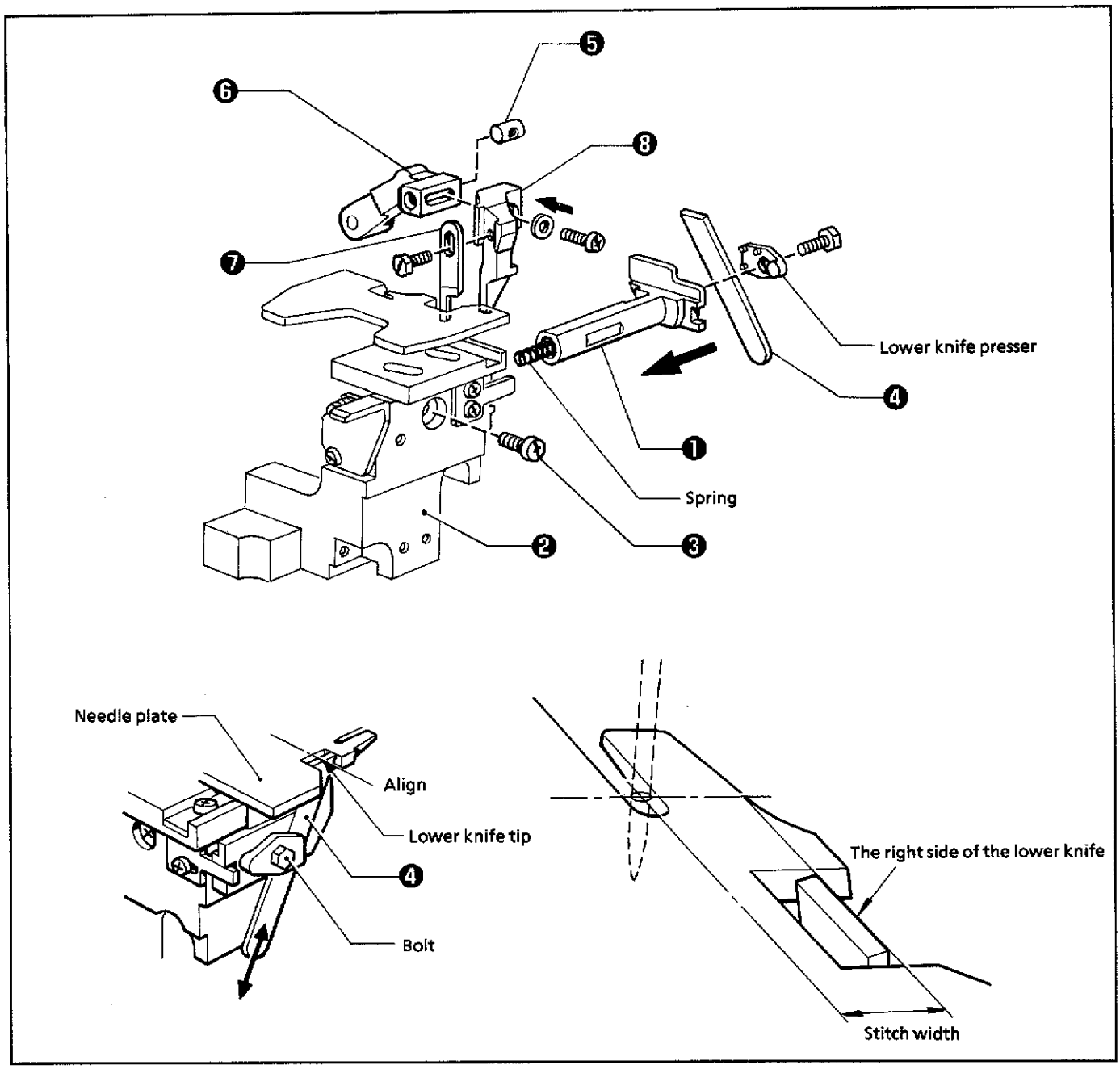
6 Double chain stitch looper mechanism (3)



(11) Attach the felt support assembly ⑮ using the screw.

NOTE: When attaching the felt support assembly ⑮, it should not touch the movable needle guard.

[7] Knife mechanism (1)



(1) Insert the spring into the lower knife holder ❶, and attach them to the needle plate support plate ❷ using the screw ❸.

(2) Temporarily attach the lower knife ❹ to the lower knife holder ❶ using the lower knife holder and the bolt.

(3) Align the tip of the lower knife ❹ with the needle plate top, and tighten the bolt.

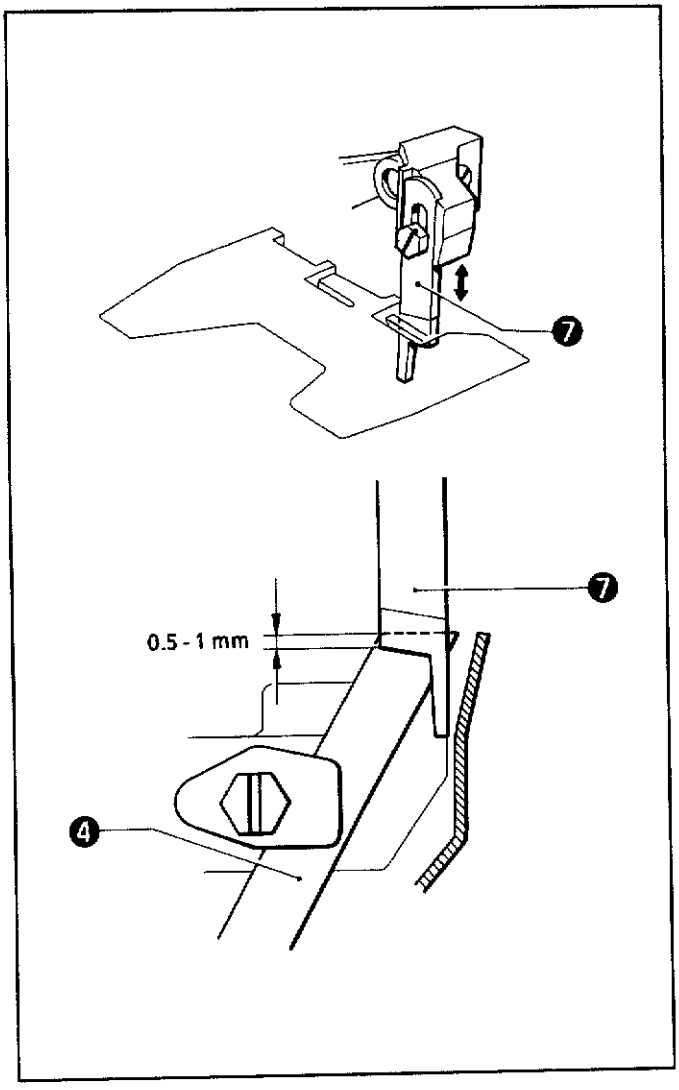
(4) Loosen the screw ❸. Adjust the position of the lower knife holder ❶ by moving it to the left or right so that the stitch width is equal to the stitch tongue width. (The right side of the lower knife ❹ should be aligned with the extended line equal to the stitch width.)

(5) Insert the nut ❺ into the upper knife differential arm ❻.

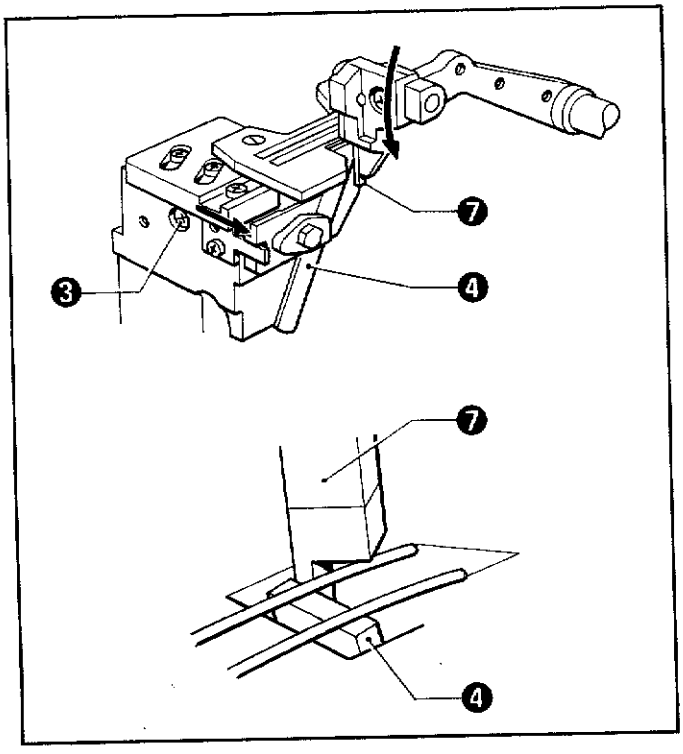
(6) Temporarily attach the upper knife ❼ to the upper knife holder ❽ using the bolt.

(7) Temporarily attach the upper knife holder ❽ to the upper knife differential arm ❻.

7 Knife mechanism (2)



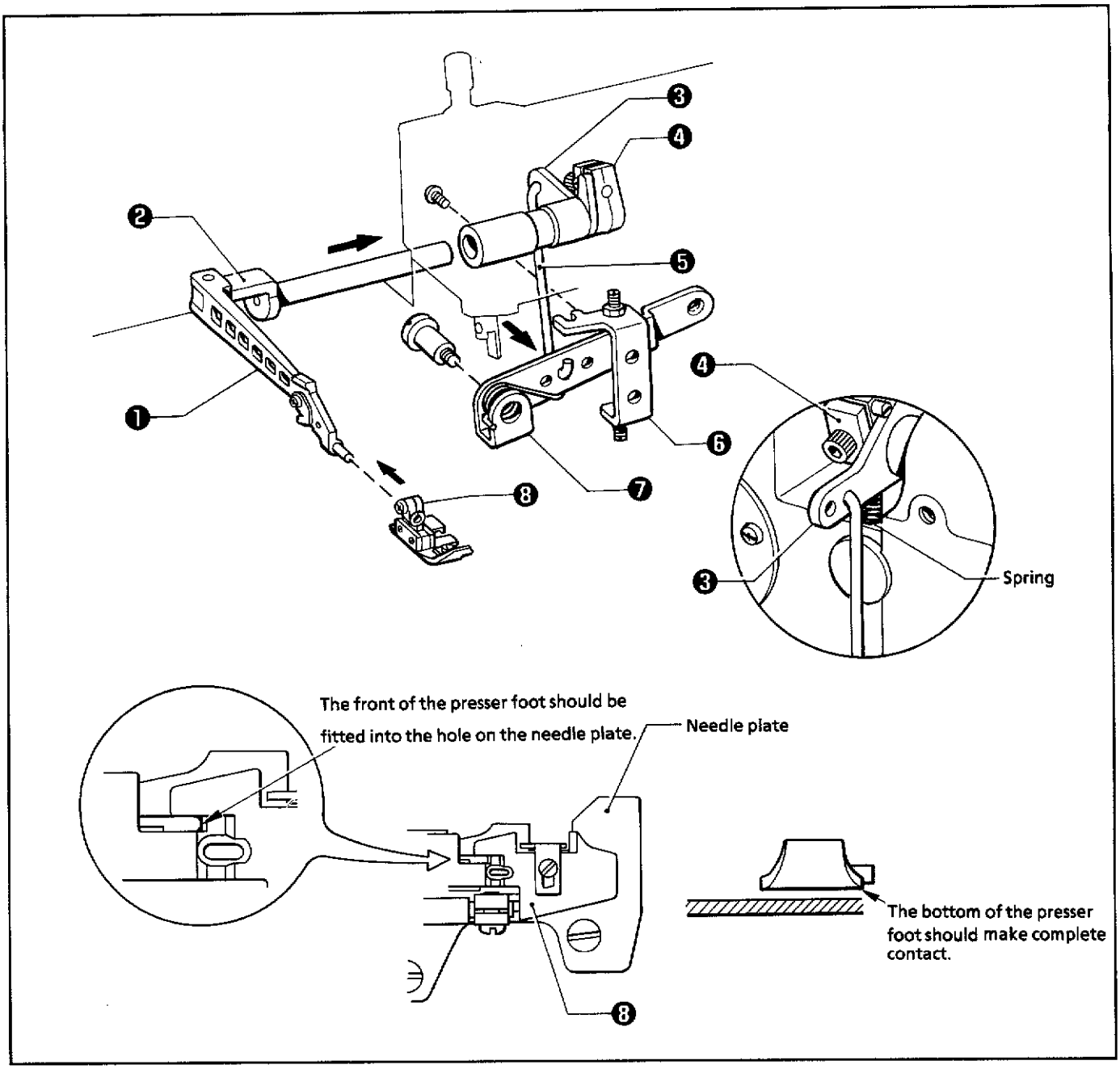
(8) Turn the pulley to set the upper knife ❼ to its lowest position. Loosen the screw, and adjust the position of the upper knife ❼ so that there is a 0.5 - 1 mm overlap between the upper knife ❼ and the lower knife ❹ when they engage.



(9) Engage the upper knife ❼ with the lower knife ❹. Loosen the screw ❾. (The lower knife ❹ presses the upper knife ❼ due to pressure of the spring.) Then, tighten the screw ❾ again.

(10) Insert the thread in between the upper knife ❼ and the lower knife ❹, and make sure that the thread is trimmed.

[8] Presser foot mechanism (1)



(1) Insert the presser arm shaft ❷ along with the main presser arm ❶ into the bush, and attach the presser bar lifter lever ❸ and the presser bar lifter arm ❹ to the bush.

(2) Insert the link ❺ into the presser bar lifter lever ❸, and put the spring under the presser bar lifter lever ❸. Temporarily tighten the bolt of the presser bar lifter arm ❹.

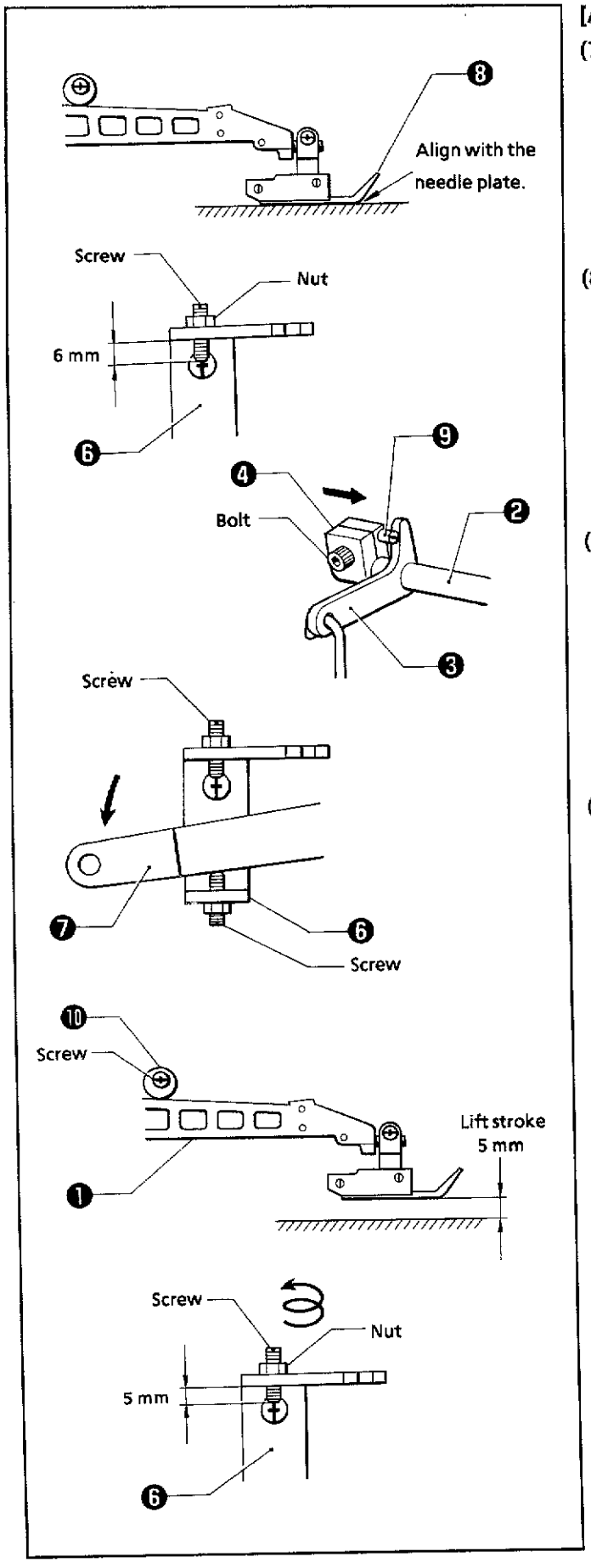
(3) Attach the lever adjust plate ❺ to the frame using the screw.

(4) Attach the presser foot lifter lever ❼ and the spring to the frame using the stud screw.
(Before attaching, make sure that the link is inserted into the presser bar lifter lever.)

(5) Attach the presser foot ❽ to the main presser arm ❶ so that the front of the presser foot ❽ is fitted into the hole on the needle plate.

(6) Adjust the inclination of the presser foot ❽ so as to match the shape of the slots on the needle plate.

8 Presser foot mechanism (2)



[Adjusting the lift stroke of the presser foot]

(7) Turn the pulley to align the presser foot ❽ with the needle plate.

(8) Turn the upper screw ❻ until it protrudes 6 mm from the underside of the lever adjust plate ❻, then temporarily tighten the nut.

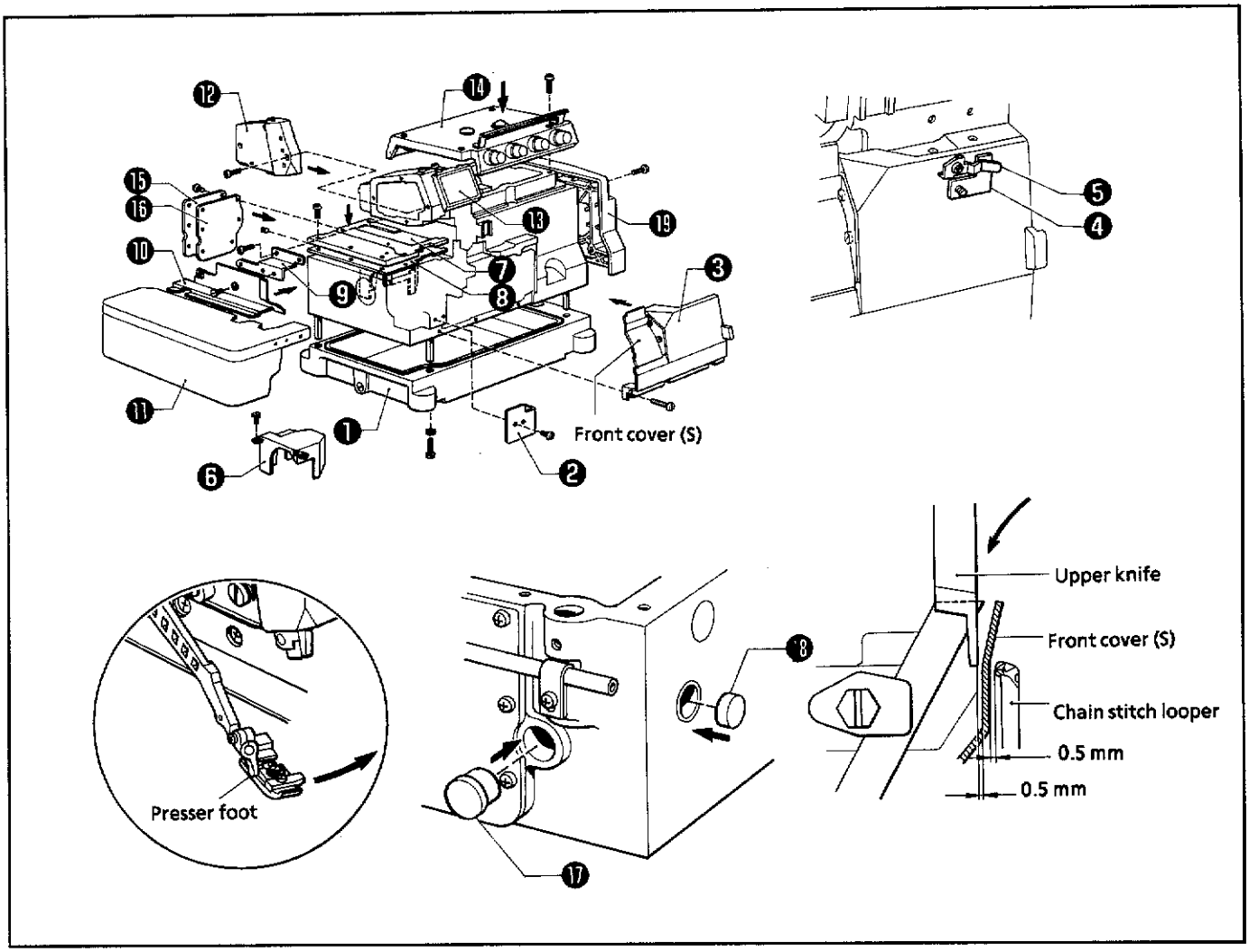
(9) Loosen the bolt of the presser bar lifter arm ❹. Just allow the stopper screw ❾ to make contact with the presser bar lifter lever ❸, and tighten the bolt.
NOTE: Tighten the bolt so that there is no looseness of the presser arm ❷ in the direction of the thrust.

(10) Press the presser foot lifter lever ❼ downward, and adjust the lift stroke of the presser foot to 5 mm by inserting or removing the lower screw of the lever adjust plate ❻.
* The lift stroke is different depending on the specification.

(11) Loosen the screw of the presser arm stopper ❿. Just allow the presser arm stopper ❿ to make contact with the main presser arm ❶. Then, tighten the screw.

(12) Turn the upper screw ❻ until it is raised 1 mm, and then tighten the nut.

9 Covers



(1) Attach the oil reservoir ❶ using the bolt.

(2) Attach the stopper plate for front cover ❹ and the stopper spring for front cover ❺ to the front cover (L) assembly ❸ to reduce the looseness of the front cover (L) assembly ❸, and then secure it using the screws.

(3) Adjust the position of the front cover (L) guide ❷ so that front cover (S) does not touch the felt support at the farthest left position, and attach the front cover (L) guide ❷ using the screw.
NOTE: Make sure that the clearances between the upper knife tip and front cover (S) and between the chain stitch looper and front cover (S) are 0.5 mm respectively when the upper knife is at its lowest position.

(4) Attach the eccentric wheel cover ❻ using the screw.

(5) Attach the feed bar cover ❼ and the packing ❽ using the screw.

(6) Attach the cloth guide set plate ❾ using the screw.

(7) Attach the cloth guide ❿ using the screw.

(8) Attach the cloth plate and the cloth plate (lower) ⓫ using the set screw.

(9) Attach the frame side cover ⓬ using the screw.

(10) Attach the face plate cover ⓭ using the screw.

(11) Attach the top cover ⓮ using the screw.

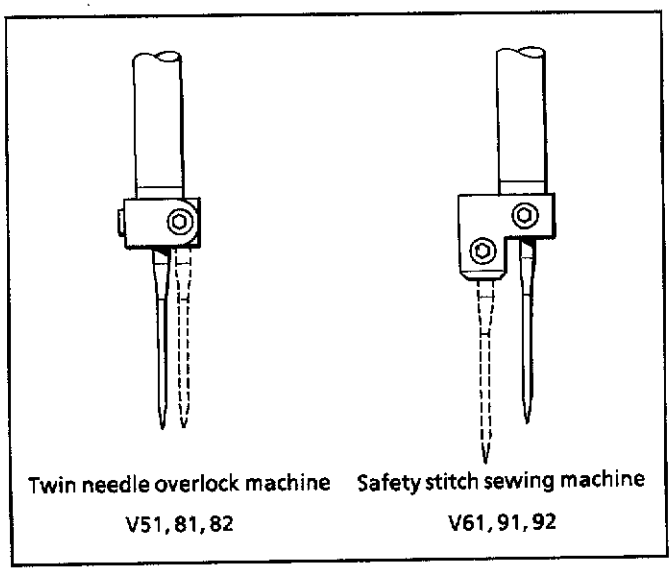
(12) Attach the cover for feed mechanism (B) ⓯ and the packing ⓰ using the screw.

(13) Attach the oil caps ⓱ and ⓲.

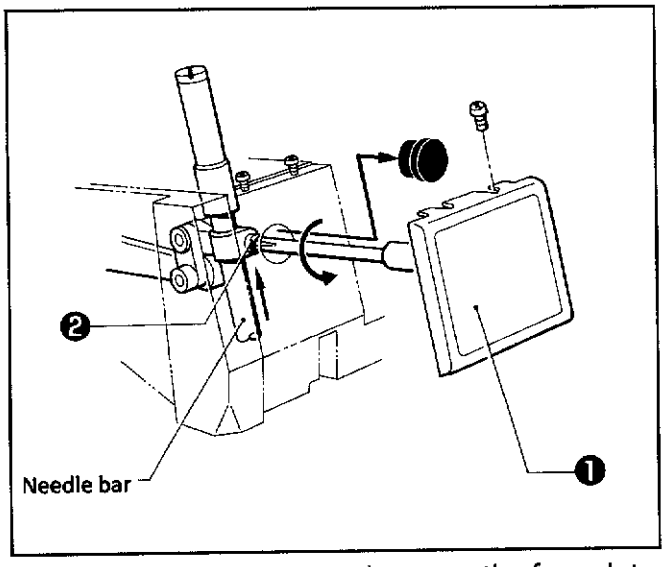
(14) Position the presser foot over the needle plate.

(15) Attach the belt cover ⓳ using the screw.

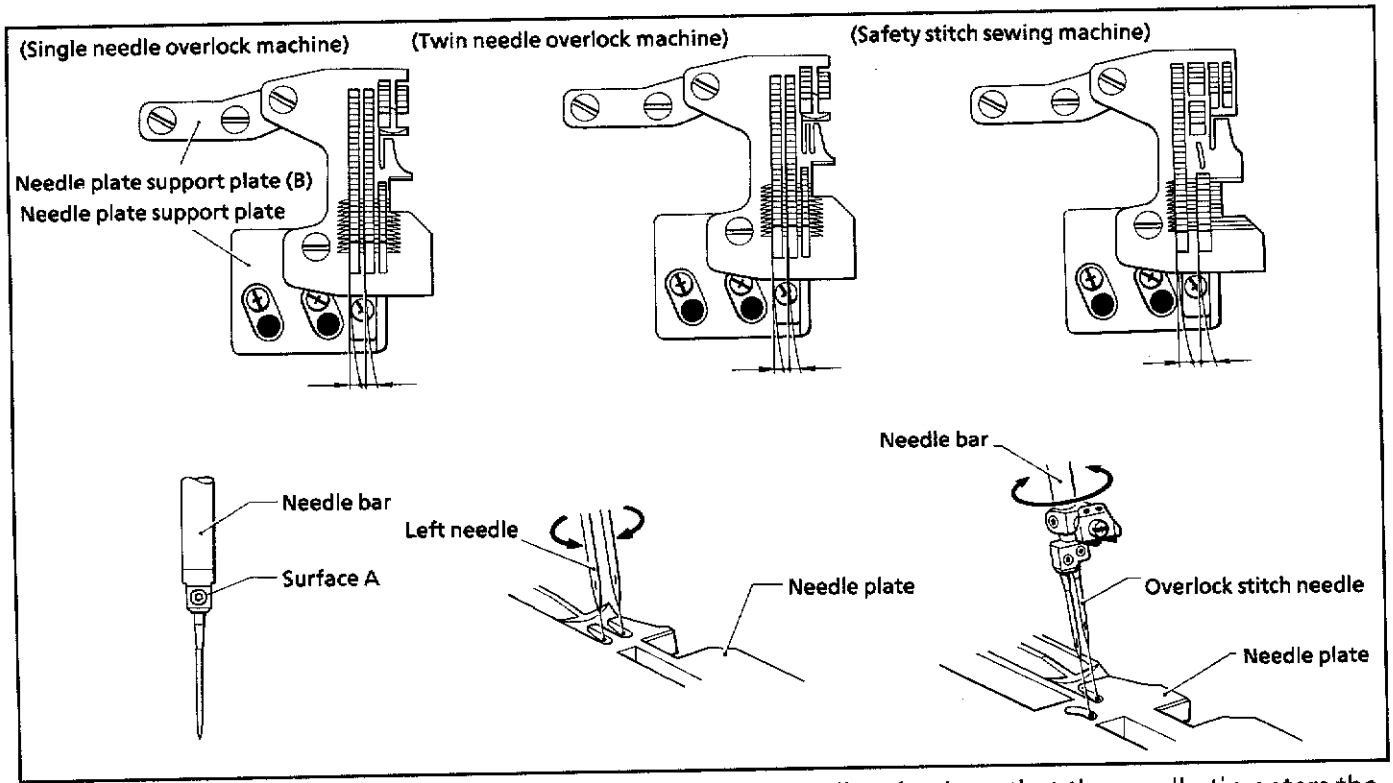
1 Adjusting the height and location of the needle



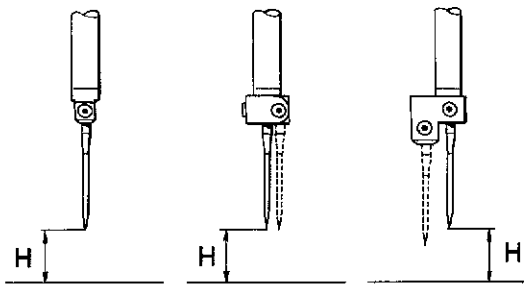
Adjustment reference needle
The adjustment reference needle for twin-needle sewing is the left needle.
The adjustment reference needle for safety stitching is the overlock needle.



(1) Loosen the screws, and remove the face plate cover ❶ and the oil cap.



(2) Loosen the screw ❷ of the needle bar clamp. Turn the pulley slowly so that the needle tip enters the hole of the needle plate slightly.
Adjust the positions of the needle plate support plate and needle plate support plate (B) so that the slot of the needle plate is centered at the needle tip and the feed dog.
* For single-needle sewing machine, turn the needle bar to face surface A of the screw toward the front.
For twin-needle sewing machine or safety stitch sewing machine, turn the needle bar to set the needle location.



Dimension H

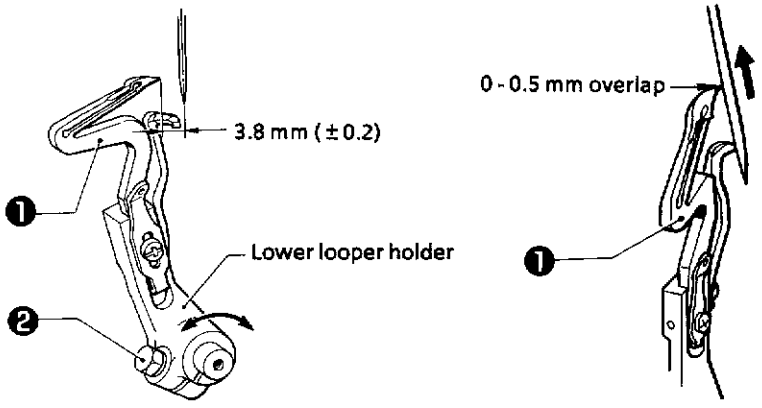
	S (Standard)	H (High lift)	E (Extra high lift)
V41, V61, V71 V72, V91, V92	10 ± 0.2 mm	10.9 ± 0.2 mm	12 ± 0.2 mm
V51, V81, V82		11.4 ± 0.2 mm	12 ± 0.2 mm

(3) Turn the pulley to move the needle bar to its highest position. Refer to the above table, and adjust the clearance between the needle tip and the needle plate top by moving the needle bar up or down.

(4) Remove the needle, the needle plate, the main feed dog, and the differential feed dog.

2 Adjusting the under looper, the movable needle guard, and needle guard (F)

[Adjusting the under looper]

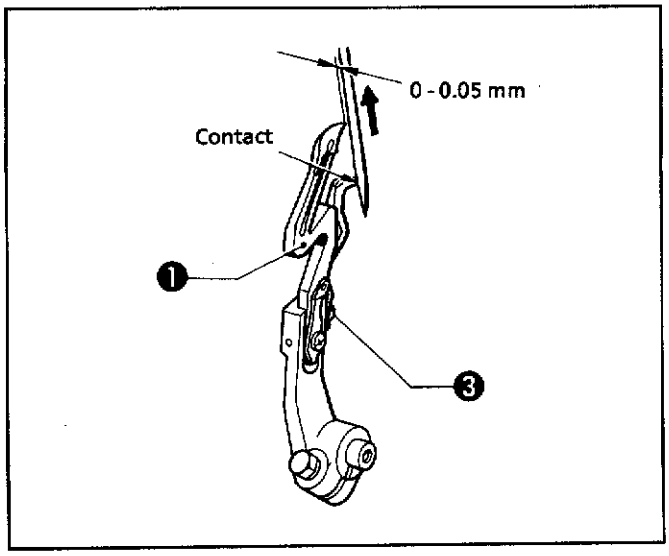


(1) Insert an adjustment reference needle.
NOTE: Before adjustment, position the movable knife so that it is behind the under looper point.

(2) Turn the pulley to move the under looper ❶ all the way to the left. Loosen the bolt ❷. Adjust the clearance between the under looper ❶ point and the center of the needle so that it is 3.8 mm. Adjust the position of the under looper holder so that the under looper ❶ point and the needle overlap 0 - 0.05 mm when they align.

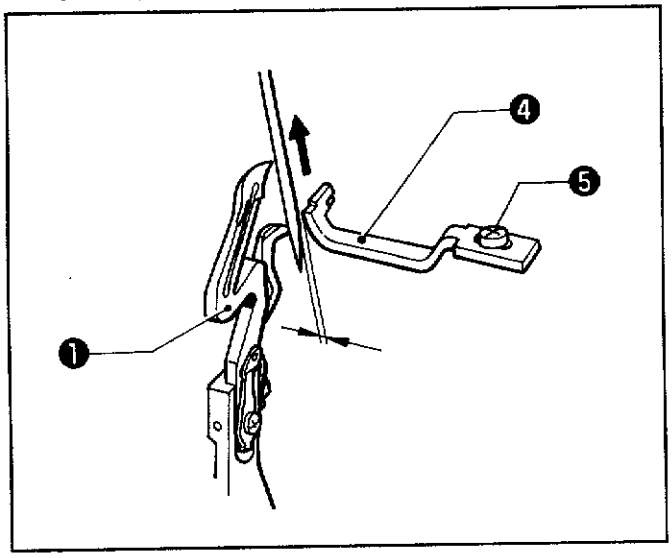
(For twin-needle sewing machine)
Insert the right needle. Turn the needle bar until the under looper ❶ point touches each needle evenly.

[Adjusting the movable needle guard]



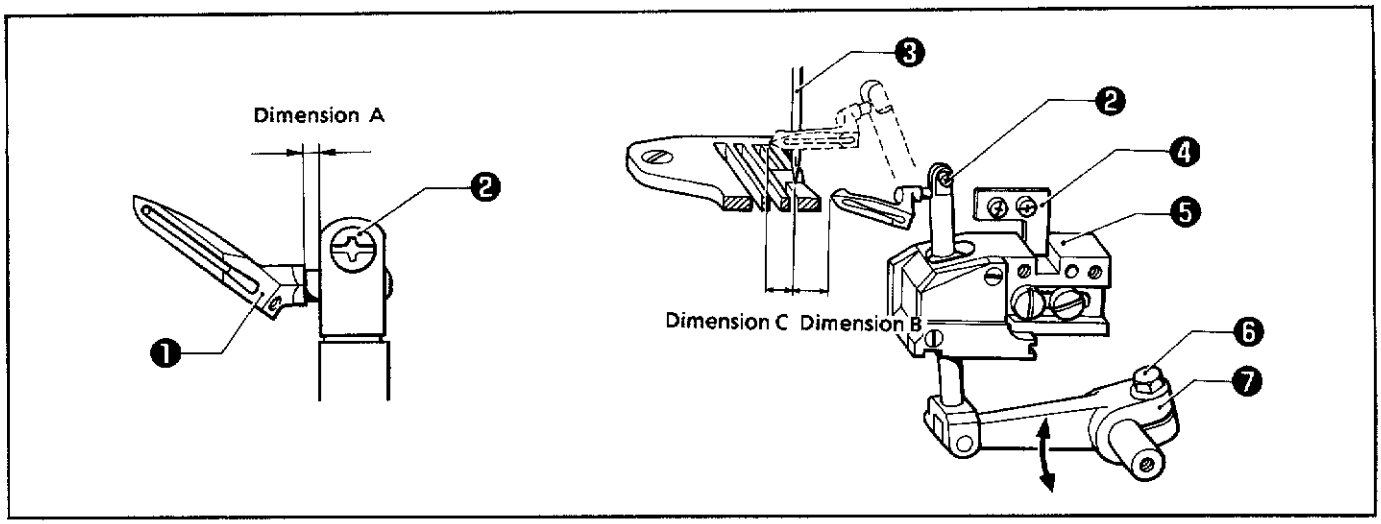
Raise the needle from its lowest position until the under looper ❶ point is aligned with the center of the needle.
Loosen the bolt ❸ of the movable needle guard ❷, and adjust the position of the movable needle guard ❷ so that there is a 0 - 0.05 mm clearance between the under looper ❶ point and the needle.
NOTE: When the under looper ❶ point is aligned with the center of the needle, the movable needle guard ❷ should touch the needle.

[Adjusting needle guard (F)]



Align the center of the needle with the under looper ❶ point, and loosen the screw ❺. Adjust the clearance between the needle and needle guard (F) ❹ to 0.05 - 0.2 mm for using threads with a thread number over and including #50 (thin thread) or approx. 0.3 mm for using #30 thread (thick thread).

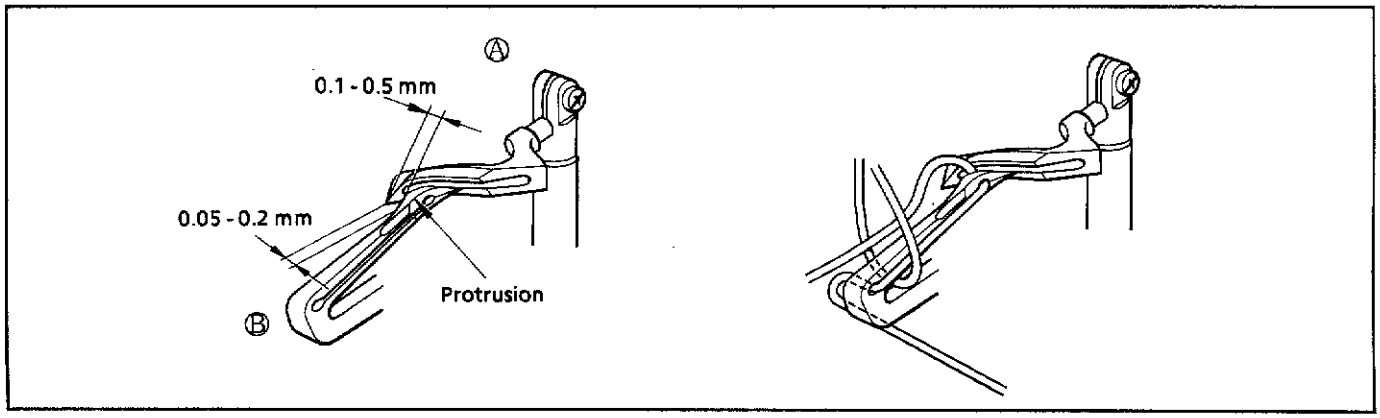
3 Adjusting the over looper



(1) Loosen the screw ❷. Adjust the position of the over looper ❶ to dimension A (clearance between the over looper and the over looper holder) by moving the over looper ❶ to the left or right. Make sure that the clearance between the over looper ❶ tip and the center of the needle ❸, when the over looper tip is aligned with the needle plate top (dimension B), is as in the following table.
Before shipping, the bush ❺ has already been adjusted so that it touches the right side of the guide bush positioning plate ❹.
Do not change the position of the bush ❺.

(2) Loosen the bolt ❻. Adjust dimension C (the clearance between the center of the needle and the tip of the over looper when it is in its farthest left position) by moving the over looper arm ❼ vertically.

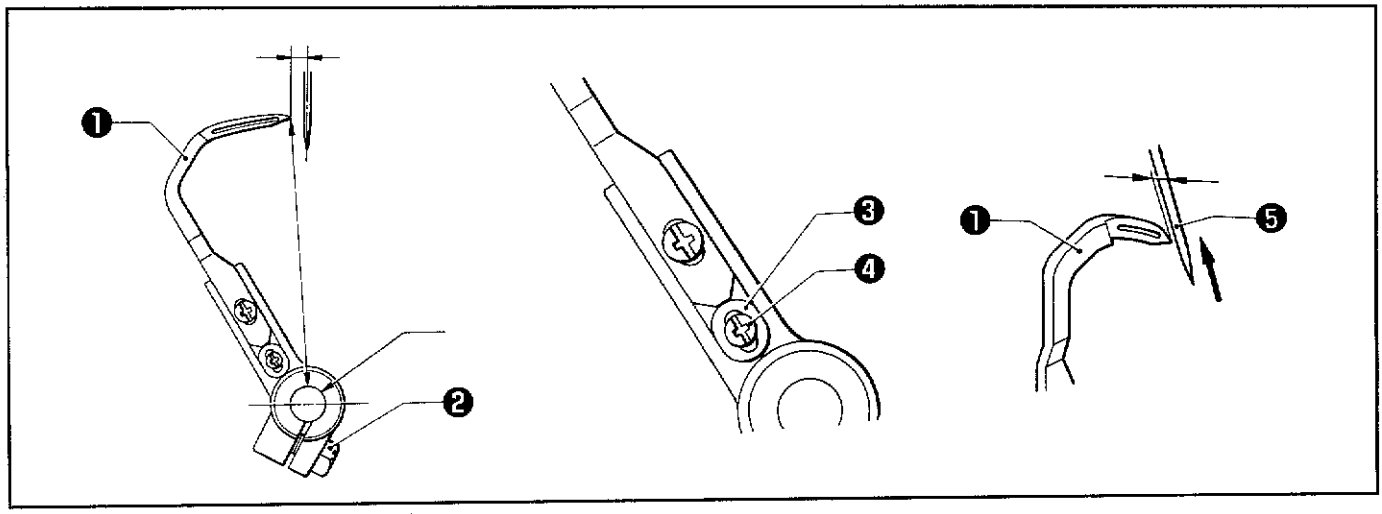
Specification			Standard	High lift	Extra high lift
Dimension A			1.6 mm	0	1.0 mm
Dimension B			6.8 mm	8.4 mm	9.6 mm
Dimension C	Single needle overlock machine Safety stitch sewing machine		4.8 mm		
	Twin needle overlock machine	Two needle four threads		5.6 mm	
		Mock-safety		4.8 mm	



(3) Remove the needle plate.

(4) Adjust clearance Ⓐ to 0.1 - 0.5 mm, clearance Ⓑ to 0.05 - 0.2 mm when the tip of the over looper passes over the protrusion of the under looper.
* If clearance Ⓐ becomes larger, the over looper can not catch the loop, resulting in skipped stitches.

4 Adjusting the chain stitch looper, chain stitch needle guards (B) and (F)

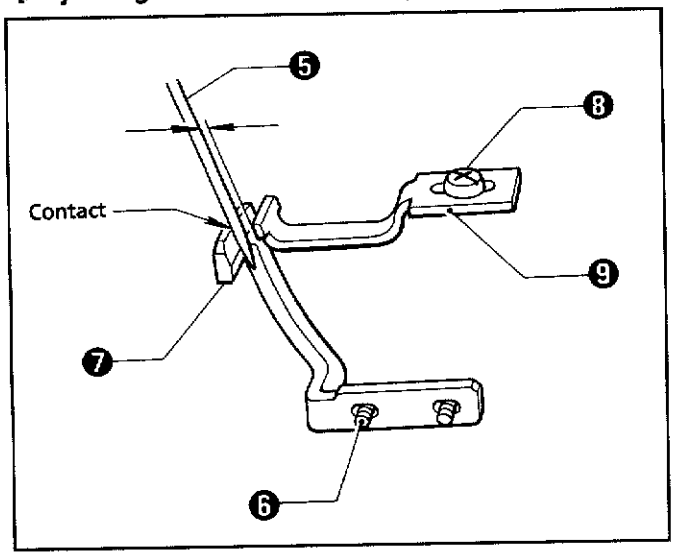


[Adjusting the chain stitch looper]

(1) Turn the pulley to move the chain stitch looper ❶ all the way to the left, and loosen the bolt ❷. Adjust the chain stitch looper ❶ so that the clearance between the chain stitch looper ❶ point and the center of the needle is 1.8 - 2.0 mm.
(The standard distance from the circumference of the shaft to the tip of the chain stitch looper ❶ is 60 mm except for special specifications. Adjust the distance using the stopper plate ❸ and the set screw ❹.)

(2) Raise the needle from its lowest position until the chain stitch looper ❶ point is aligned with the center of the needle.
Loosen the bolt ❷. Adjust the clearance between the needle and the chain stitch looper ❶ to 0.05 mm. (Make sure that chain stitch needle guard (B) ❼ does not touch the needle.)
* For denim specification, adjust the clearance to 0.05 - 0.1 mm.

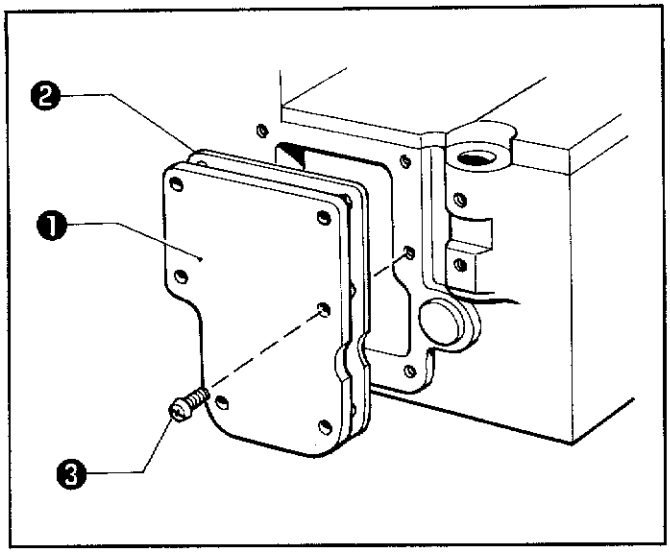
[Adjusting chain stitch needle guards (B) and (F)]



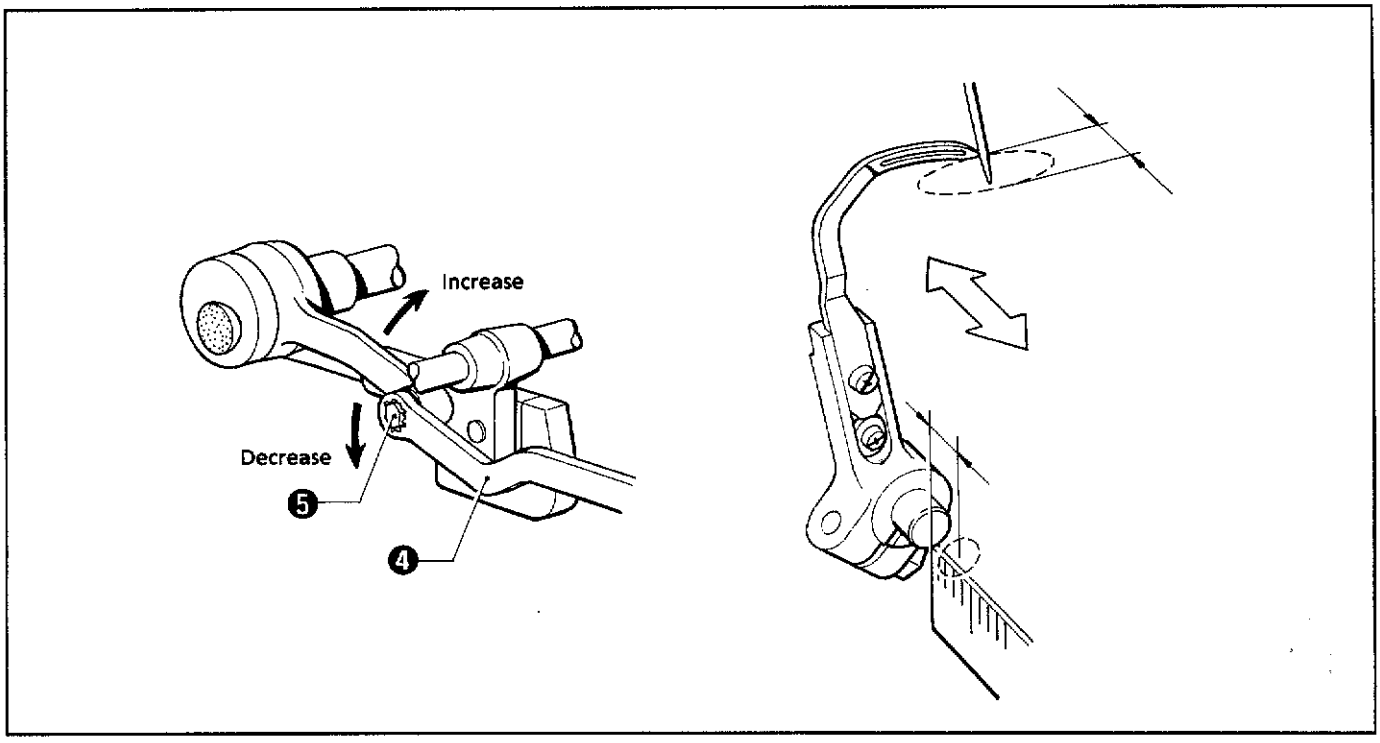
(3) Loosen the screw ❻ when the needle is at its lowest position, and make contact chain stitch needle guard (B) ❼ with the needle ❺. Loosen the screw ❽, and adjust the clearance between chain stitch needle guard (F) ❾ and the needle ❺ to 0.05 - 0.1 mm for using threads with a thread number over and including #50 (thin thread) or approx. 0.2 mm for using #30 thread (thick thread).

5 Adjusting the backward and forward movement of the chain stitch looper

* The backward and forward movement of the chain stitch looper may be required to change depending on the needle size and sewing condition.



(1) Loosen the screw ❸, and remove the cover for feed mechanism (B) ❶ and the packing ❷.

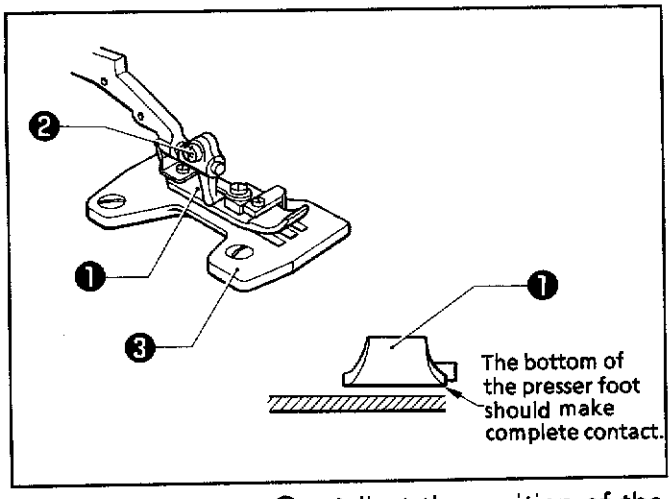


(2) Loosen the nut ❺ for the longitudinal feed arm screw using the attached wrench. Sliding the nut ❺ to the upper end of the longitudinal feed arm will increase the backward and forward movement; sliding it to the lower end will decrease it.

Needle type and size	DCx27 #9 - #11	DCx27 #12 - #17	DCx27 #18 - #21
Backward and forward movement	2.8 mm	3.1 mm	3.4 mm

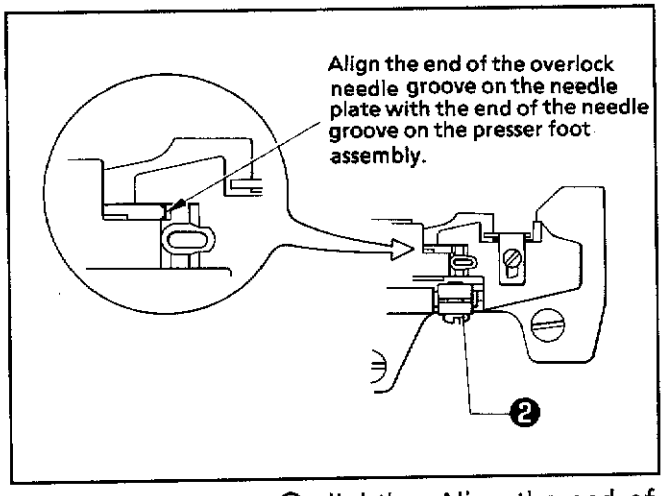
⑥ Adjusting the presser foot (1)

[Adjusting the inclination of the presser foot in the left and right direction]



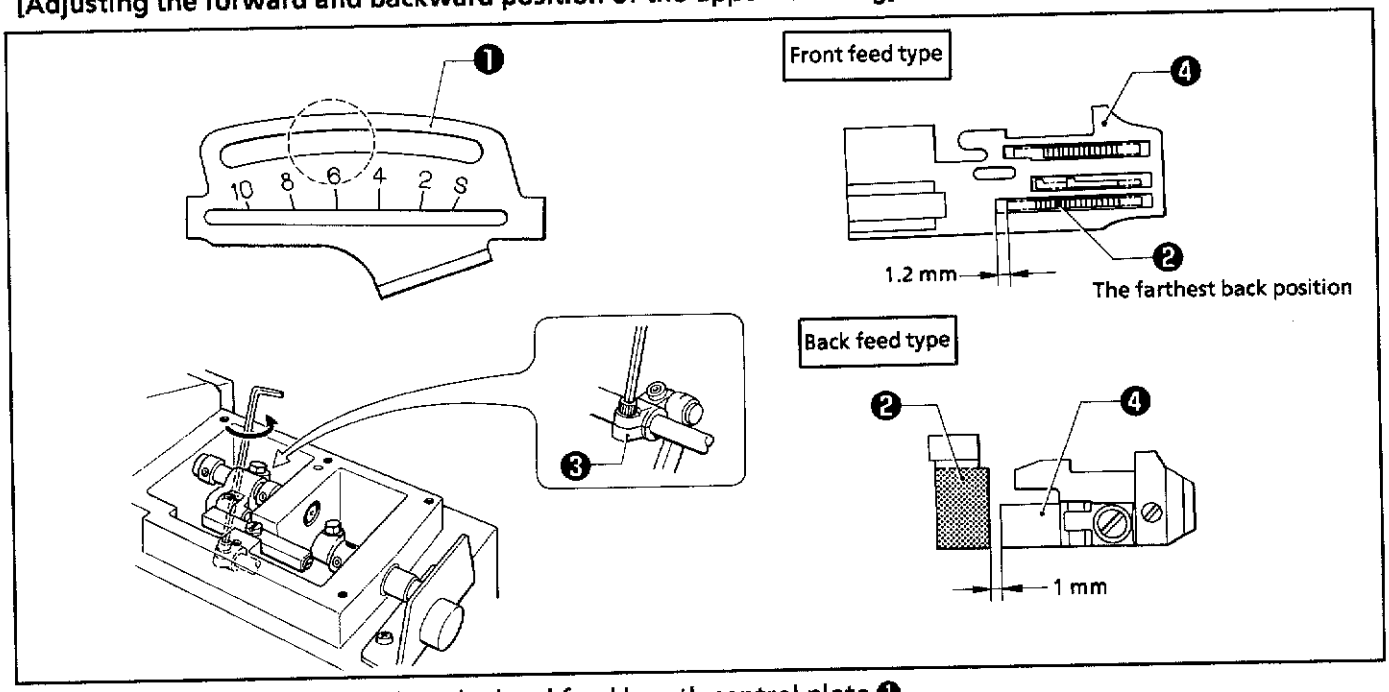
Loosen the screw ❷. Adjust the position of the presser foot assembly ❶ so that the bottom of the presser foot touches the needle plate ❸ top evenly when the presser foot assembly ❶ is lowered.

[Adjusting the backward and forward position of the presser foot]



Loosen the screw ❷ slightly. Align the end of overlock needle groove on the needle plate ❸ with the end of the needle groove on the presser foot assembly ❶ as shown in the figure above.

[Adjusting the forward and backward position of the upper feed dog]



(1) Set the feed amount to 6 on the level feed length control plate ❶.

Front feed type

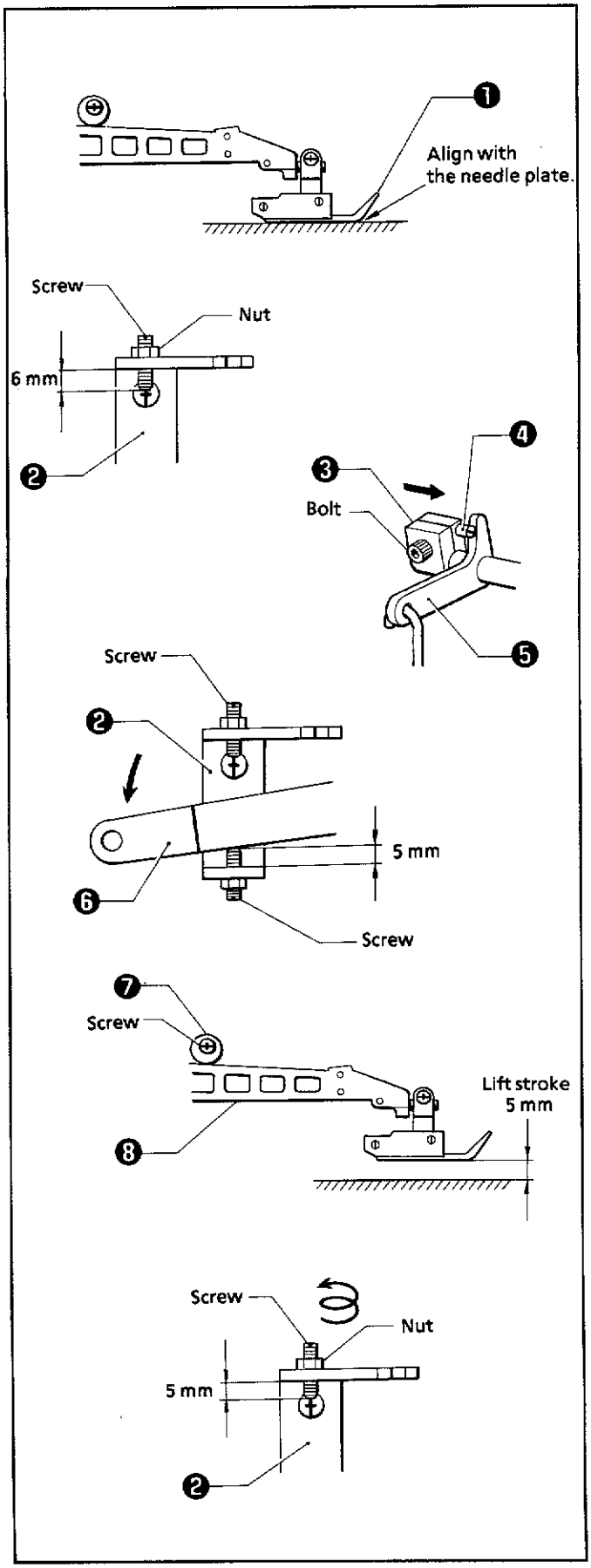
(2) Loosen the bolt of the feed arm ❸. Adjust the position of the upper feed dog ❷ by moving it backward or forward so that the clearance between the upper feed dog ❷ and the presser foot assembly ❹ is 1.2 mm when the upper feed dog ❷ is fed at the farthest back position. Then tighten the bolt of the feed arm ❸.

Back feed type

(3) Loosen the bolt of the feed arm ❸. Adjust the position of the upper feed dog ❷ by moving it backward or forward so that the clearance between the upper feed dog ❷ and the presser foot assembly ❹ is 1.0 mm when the upper feed dog ❷ starts to feed. Then tighten the bolt of the feed arm ❸.

6 Adjusting the presser foot (2)

[Adjusting the lift stroke of the presser foot]



(1) Turn the pulley to align the presser foot ❶ with the needle plate.

(2) Turn the upper screw of the lever adjust plate ❷ until it protrudes 6 mm from the underside of the lever adjust plate ❷, and temporarily tighten the nut.

(3) Loosen the bolt of the presser bar lifter arm ❸. Just allow the stopper screw ❹ to make contact with the presser bar lifer lever ❺, and tighten the bolt.

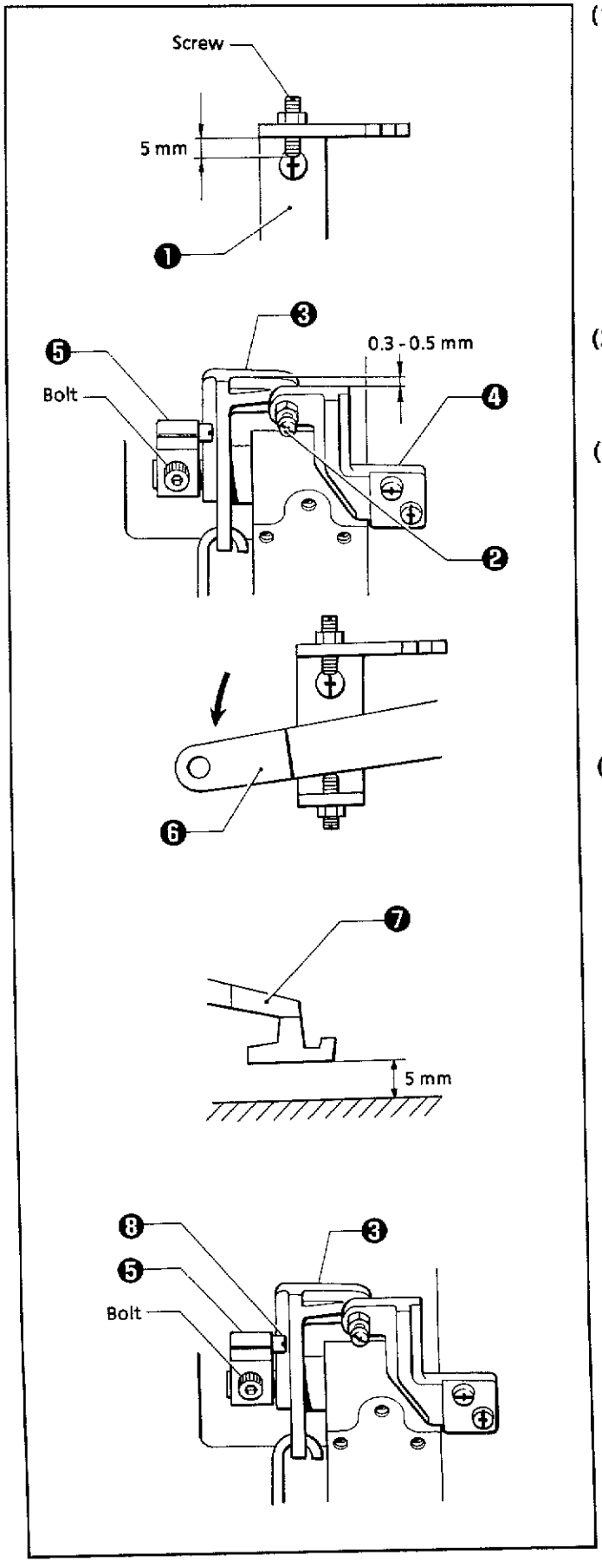
(4) Adjust the lift stroke of the presser foot to 5 mm by taking the bottom screw of the lever adjust plate ❷ in and out.
* The lift stroke is different depending on the specification.

(5) Loosen the screw of the presser arm stopper ❼, make contact the presser arm stopper ❼ with the presser arm ❽ slightly. Then tighten the screw.

(6) Loosen the upper screw of the lever adjust plate ❷ so that it is raised 1 mm, and tighten the nut.

6 Adjusting the presser foot (3)

[Adjusting the rising timing between the upper feed dog and the presser foot]



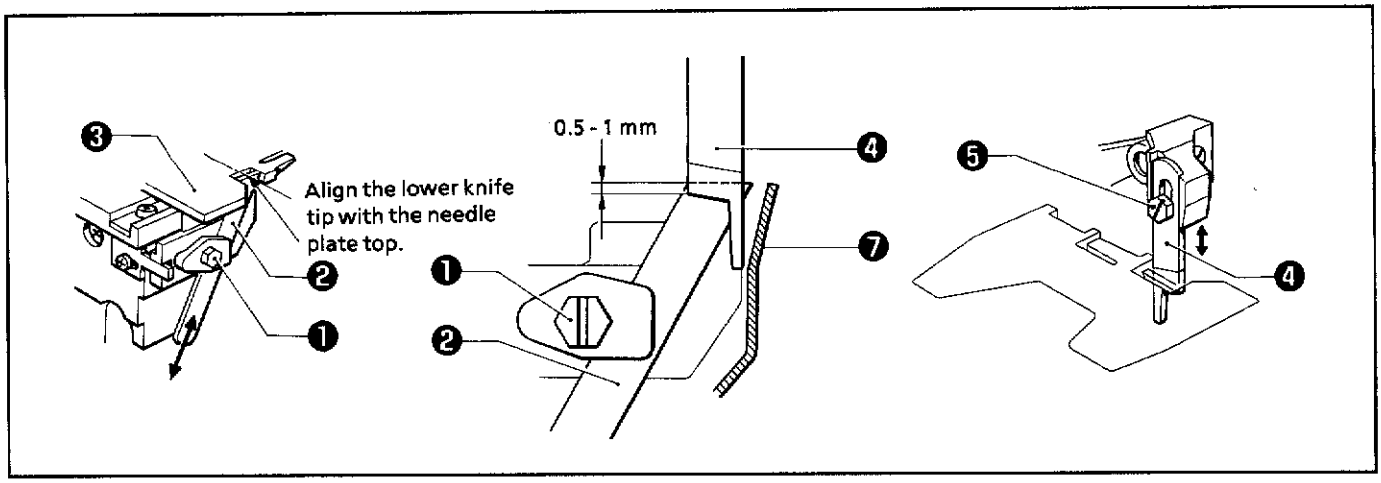
(1) Turn the upper screw of the lever adjust plate ❶ until it protrudes 5 mm from the underside of the lever adjust plate ❶.

(2) Adjust the adjust screw ❹ so that the clearance between the upper feed bar lifter ❷ and the presser bar lifter lever ❸ is 0.3 - 0.5 mm.

(3) Loosen the bolt of the presser bar lifter arm ❺.

(4) Press the presser foot lifter lever ❻ downward until the upper feed dog ❼ is raised 5 mm above the needle plate top. Make contact stopper screw ❽ of the presser bar lifter arm ❺ with the presser bar lifter lever ❸, and tighten the bolt of the presser bar lifter arm ❺.

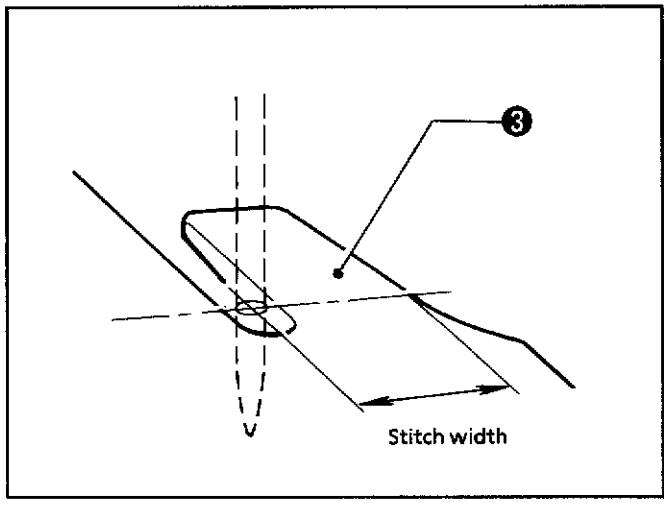
7 Adjusting the height of the knife



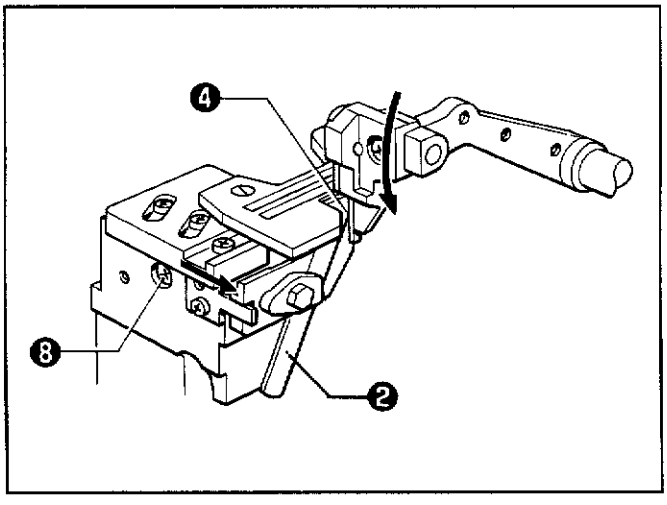
(1) Loosen the bolt ❶. Align the tip of the lower knife ❷ with the top of the needle plate ❸.

(2) Turn the pulley to move the upper knife ❹ to its lowest position.

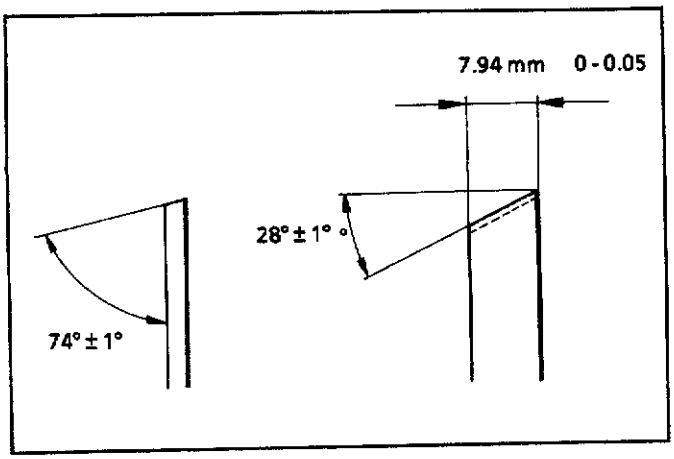
(3) Loosen the bolt ❺. Move the upper knife ❹ up or down to set the overlap between the upper knife ❹ and lower knife ❷ to 0.5 - 1 mm.
* Make sure that the upper knife ❹ does not strike front cover (S) ❼.



(4) Position the lower knife ❷ so that it is equal to the width of the stitch tongue of the needle plate ❸.

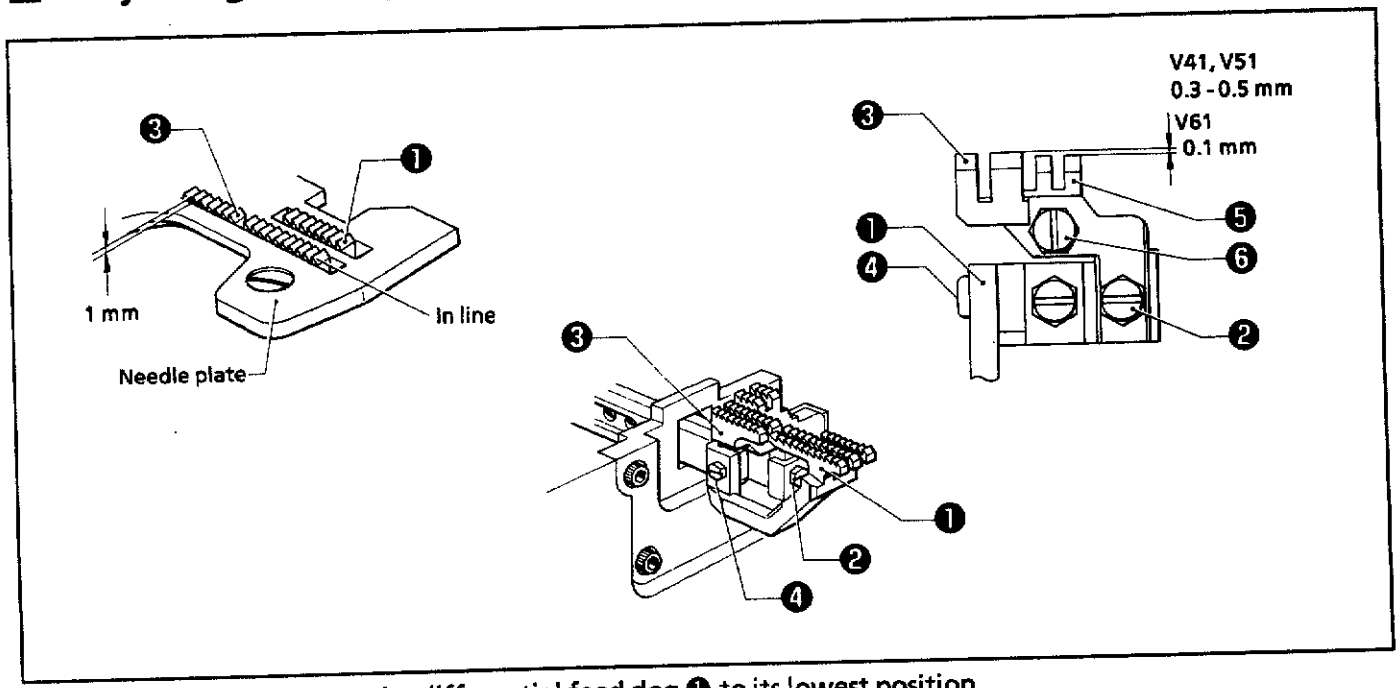


NOTE: In order to establish the position of the knives, move the upper knife ❹ overlap the lower knife ❷, and temporarily loosen the set screw ❽ (so that due to the action of the spring the lower knife ❷ will push up against the upper knife ❹), and tighten the set screw ❽.



* If the cutting capability decreases, sharpen the lower knife as shown in the figure on the left. Because the tip of the upper knife is constructed of super hard metal, sharpening of the upper knife is not necessary for extremely long periods of time.

[8] Adjusting the height of the feed dog (V41, V51, V61)



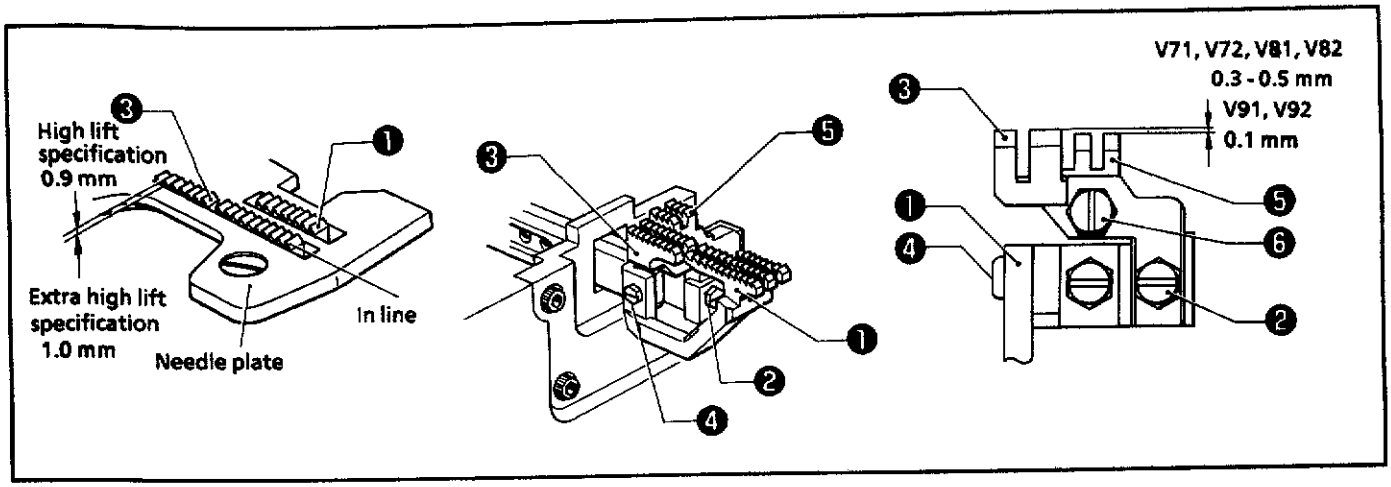
(1) Turn the pulley to set the differential feed dog ❶ to its lowest position.

(2) Loosen the bolt ❷. Adjust the main feed dog ❸ so that its second tooth from the rear is raised 1 mm above the needle plate top (1.2 mm for using V61).

(3) Loosen the bolt ❹. Adjust the height of the differential feed dog ❶ so that it is flush with the main feed dog ❸.

(4) Loosen the screw ❻. Adjust the height of the chain feed dog ❺ so that it is positioned 0.3 - 0.5 mm below the main feed dog ❸ for using V41 or V 51, 0.1 mm (0.15 mm for denim specification) below the main feed dog ❸ for using V61.

[8] Adjusting the height of the feed dog (V71, V72, V81, V82, V91, V92)



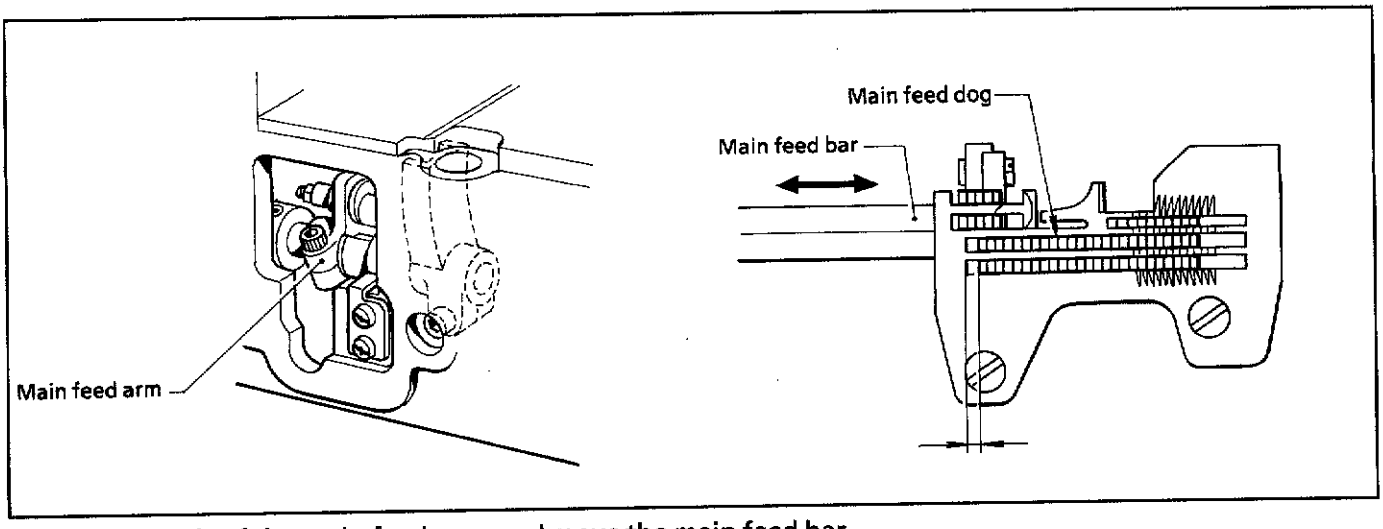
(1) Turn the pulley to set the feed dog to its highest position.

(2) Loosen the bolt ❷. Adjust the height of the main feed dog ❸ so that its second tooth from the rear is raised 0.9 mm for high lift specification or 1 mm for extra high lift specification above the needle plate top.

(3) Loosen the bolt ❹. Adjust the height of the differential feed dog ❶ so that it is as same as the main feed dog ❸.

(4) Loosen the screw ❻. Adjust the height of the chain feed dog ❺ so that it is positioned 0.3 - 0.5 mm below the main feed dog ❸ for using V71, V72, V81, or V82, or 0.1 mm (0.15 mm for denim specification) below the main feed dog ❸ for using V91 or V92.

[Adjusting the backward and forward position of the main feed dog for the needle plate]



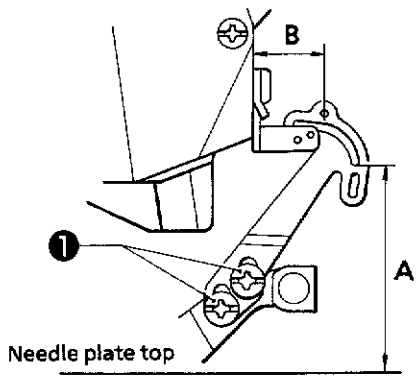
Loosen the bolt of the main feed arm, and move the main feed bar.
Refer to the following table, and adjust the clearance between the needle plate and the main feed dog.

Specification	[V41] Main feed dog m/m	[V51] Main feed dog m/m	[V61] Main feed dog m/m
Plain stitching	2.1	2.1	0.8
Bulky	2.8	2.8	–
Serging	1.0	–	–
Backtacking	0.7	0.7	–
Ruffler	2.4	2.4	1.2
Thick material	–	0.9	–
Extra thick material	–	–	0.6

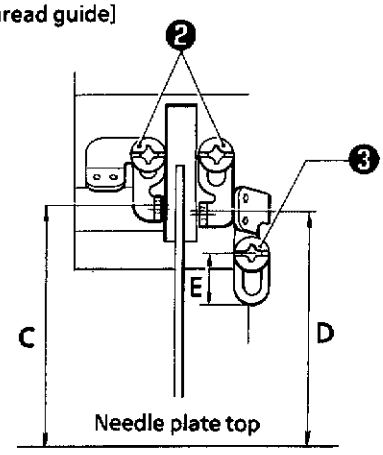
* Each value in the above table shows the clearance between the feed dog and the slot on the needle plate when the main feed amount is set to the maximum and the main feed dog is at the end of the feeding. When viewing the machine from the front, you can see the clearance at the farthest position.

[9] Adjusting the positions of the needle thread take-up and the needle thread guide

[Needle thread take-up]



[Needle thread guide]



※Dimension table for V41, V61, V71, V72, V91, V92

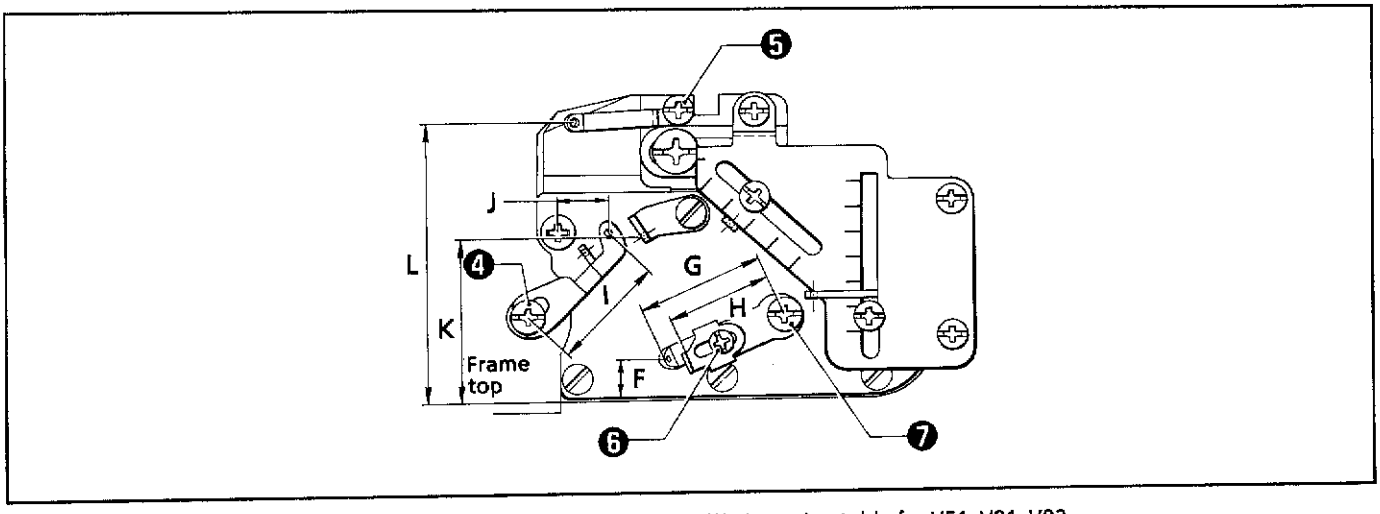
		A	B	C	D	E
3 threads	cotton	51	12	55 (min.)	55	11.5 (min.)
2 threads	cotton	49.5	8	58	58.5	11.5 (min.)

※Dimension table for V51, V81, V82

		A	B	C	D	E
Two needle four threads	cotton	48	16.5	55 (min.)	53.5 (min.)	11.5 (min.)
	woolen yarn	48	16.5	55 (min.)	53.5 (min.)	11.5 (min.)
Mock-safety	cotton	48	16.5	55 (min.)	53.5 (min.)	11.5 (min.)
	woolen yarn	48	16.5	55 (min.)	53.5 (min.)	11.5 (min.)

Loosen the screws ❶, ❷, and ❸. Adjust the clearance referring to the tables above.
NOTE: Dimensions A and B are the measured values when the upper knife is at its lowest position.

10 Adjusting the position of the looper thread take-up



※Dimension table for V41, V61, V71, V72, V91, V92

		F	G	H	I	J	K	L
3 threads	cotton	9.5	30 (max.)	26.5	27.5 (max.)	12	39	66
2 threads	cotton	9	28 (max.)	19	23.5 (max.)	0		

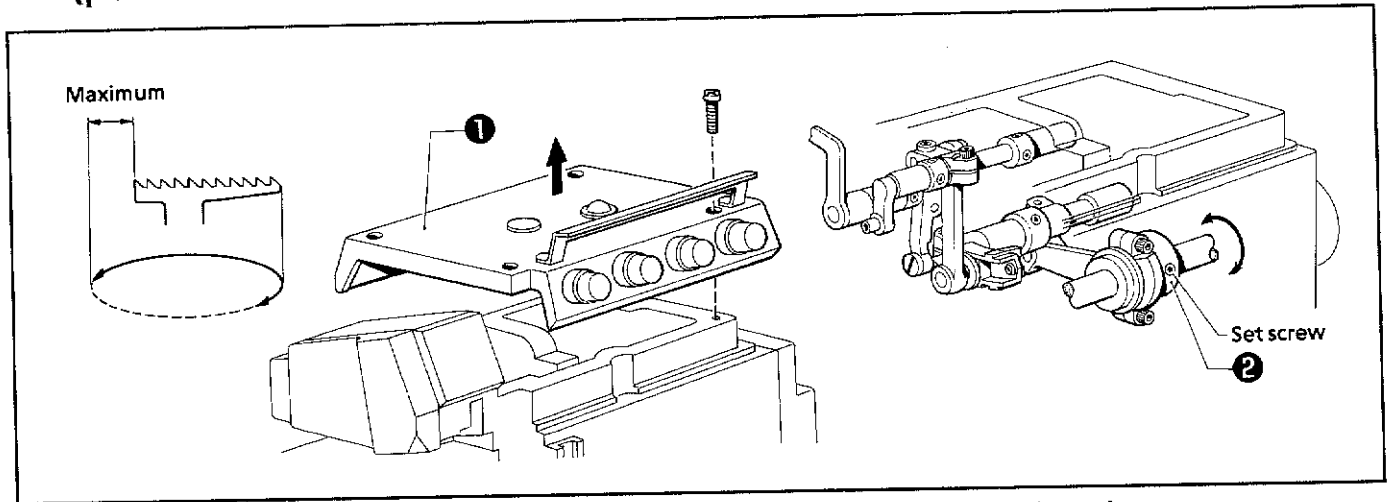
※Dimension table for V51, V81, V82

		F	G	H	I	J	K	L
Two needle four threads	cotton	9.5	30 (max.)	26.5	27.5 (max.)	12	39	66
	woolen yarn	9.5	30 (max.)	21.5	27.5 (max.)	12	39	66
Mock-safety	cotton	9.5	30 (max.)	26.5	27.5 (max.)	13.5	39	66
	woolen yarn	9.5	30 (max.)	21.5	27.5 (max.)	12	39	66

Loosen the screws ❹, ❺, ❻, and ❼. Adjust each clearance referring to the tables above.

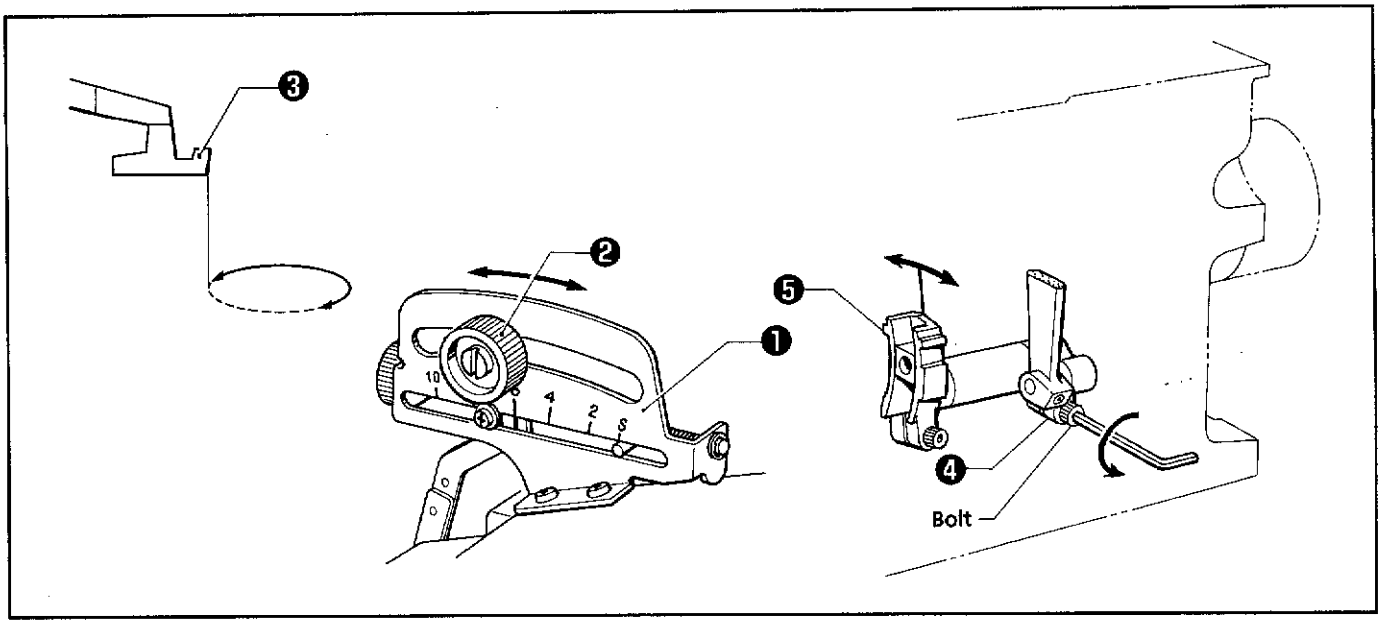
NOTE: Dimension F is the measured value when the over looper is at its lowest position.
Dimension J is the measured value when the under looper is at the farthest left position.

11 Adjusting the horizontal feeding timing (position of the level feed eccentric wheel)



(1) Set the lower feed amount to the maximum (set the stitch length to the maximum).
(2) Set the machine so that the lower feeding starts.
(3) Remove the screw and the top cover ❶.
(4) Adjust the timing by turning the level feed eccentric wheel ❷ so that the upper feeding starts.

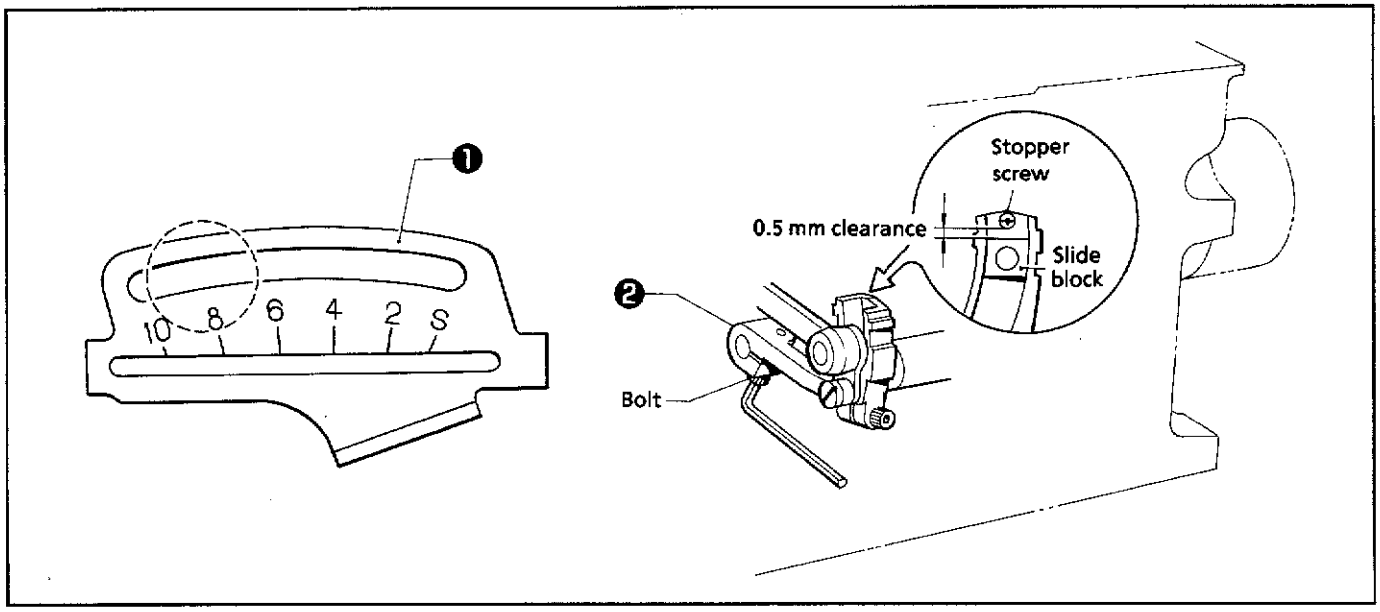
12 Adjusting the standard position of the horizontal feeding (level feed adjust arm)



(1) Set the machine with the horizontal feed finished.

(2) Tilt the machine head until it stops. Loosen the bolt of the feed arm ❹. Adjust the angle of the level feed adjust arm ❺ by sliding the set screw knob ❷ of the level feed length control plate ❶ so that the upper feed dog ❸ does not move.

13 Adjusting the horizontal feed amount



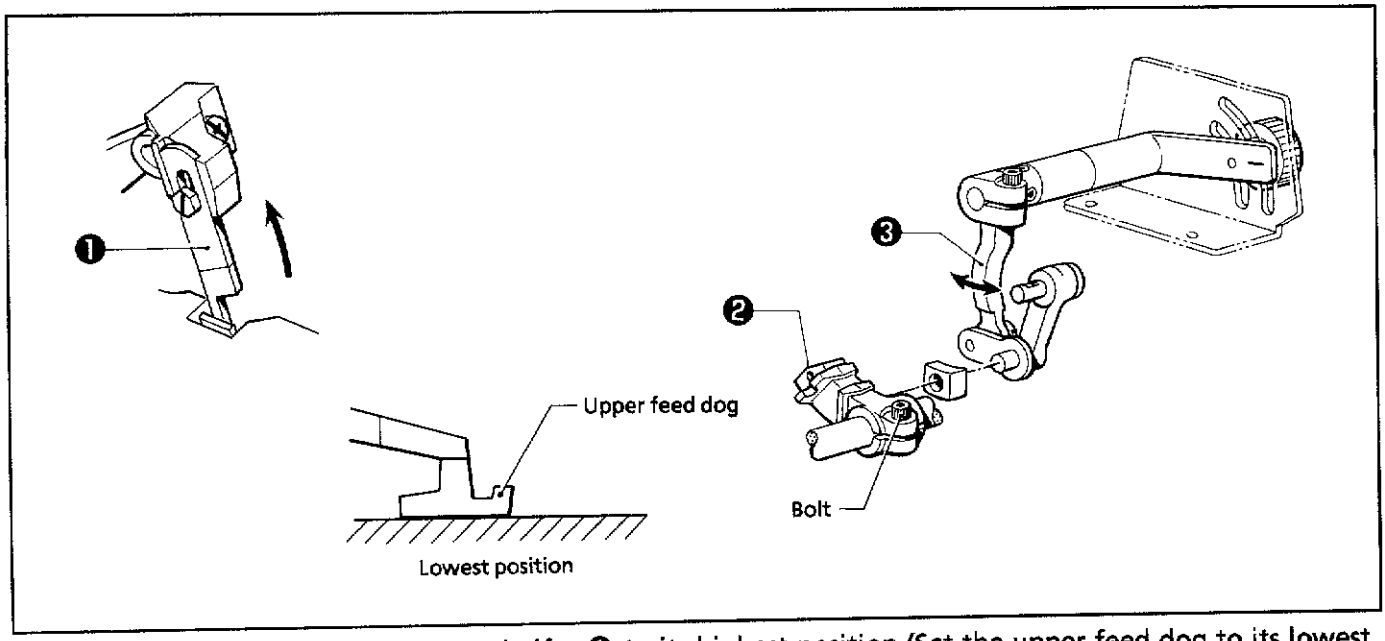
(1) Set the feed amount to 10 on the level feed length control plate ❶.

(2) Set the machine so that the horizontal feeding starts.

(3) Loosen the bolt of the level feed adjust lever ❷. Push the slide block against the stopper screw, then adjust the clearance between them to 0.5 mm.

(4) Make sure that moving the lever can changes the feed amount reading from S to 10. Then position the stopper to the maximum feed amount for each specification.

14 Adjusting the standard of the vertical feeding

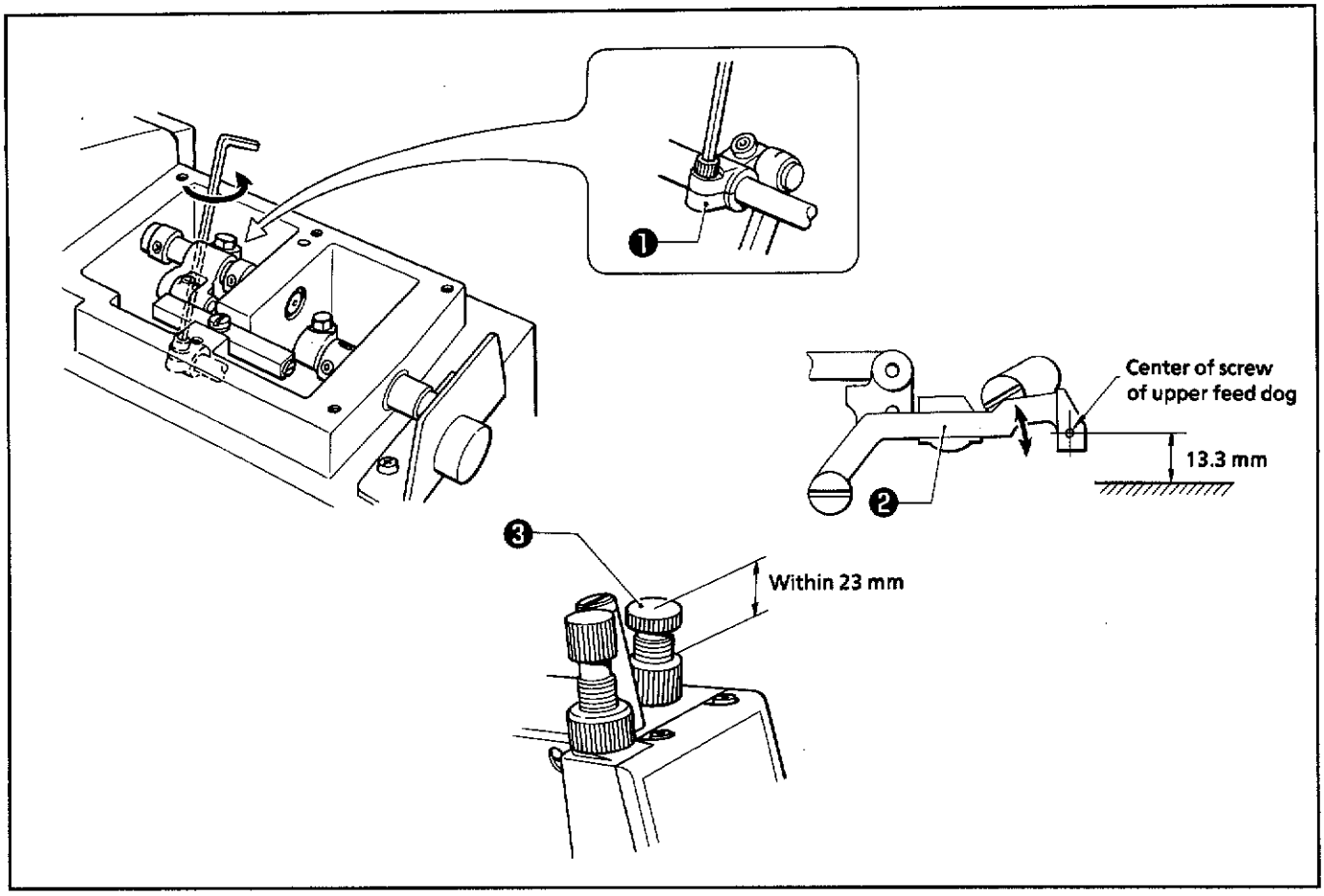


(1) Turn the pulley to set the upper knife ❶ to its highest position (Set the upper feed dog to its lowest position).

(2) Remove the screw and the top cover.

(3) Loosen the bolt of the vertical feed adjust arm block assembly ❷. Move the vertical feed adjust lever ❸ until the vertical feed adjust arm block assembly ❷ does not move, and tighten the bolt again.

15 Adjusting the height of the upper feed bar



(1) Turn the pulley to move the upper feed dog to its lowest position when the horizontal feed amount reading is 6.

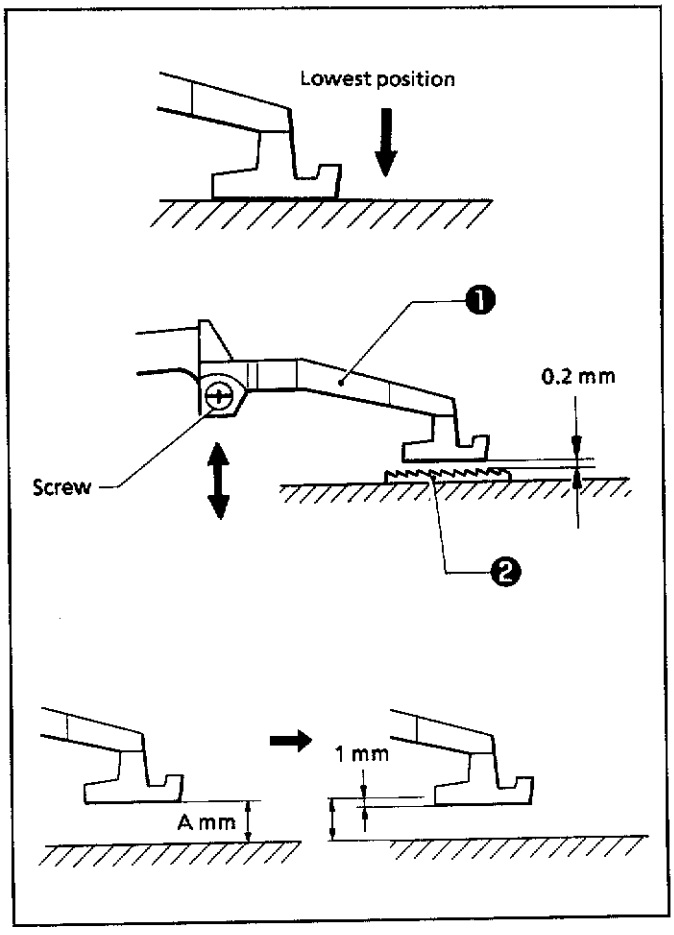
(2) Loosen the bolt of the feed arm ❶. Adjust the position of the upper feed bar ❷ by moving it so that there is a 13.3 mm clearance between the center of the screw of the upper feed dog and the needle plate top.
NOTE: Loosen the adjust screw ❸, and release the spring pressure.
Make sure that the upper feed support bar ❹ is positioned horizontally.

(3) Tighten the bolt of the feed arm ❶.

(4) Apply the pressure of the spring by tightening the adjust screw ❸. (The adjust screw ❸ is positioned 23 mm above the nut.)

16 Adjusting the clearance between the upper feed dog and the lower feed dog

Check the height of the lower feed dog before adjusting.



(1) Set the horizontal feed amount to 6.

(2) Turn the pulley to set the upper feed dog ❶ to its lowest position.

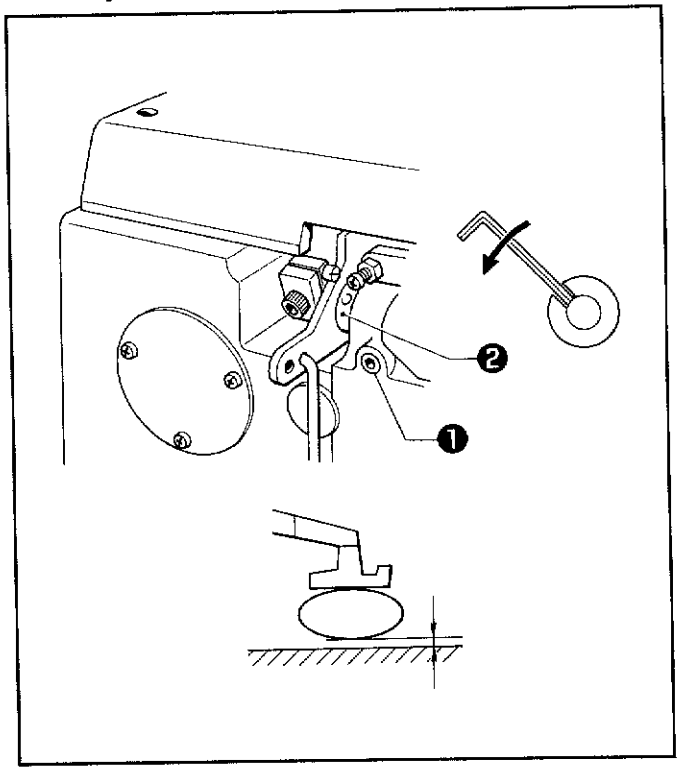
(3) Loosen the screw of the upper feed dog ❶. Adjust the clearance between the upper feed dog ❶ and the lower feed dog ❷ to 0.2 mm.

For gathering

(1) After adjusting the above steps, turn the pulley to set the upper feed dog ❶ to its highest position.

(2) Loosen the screw of the upper feed dog ❶. Adjust the clearance between the upper feed dog ❶ and the needle plate top so that it is decreased 1 mm from A mm.

Fine adjustment

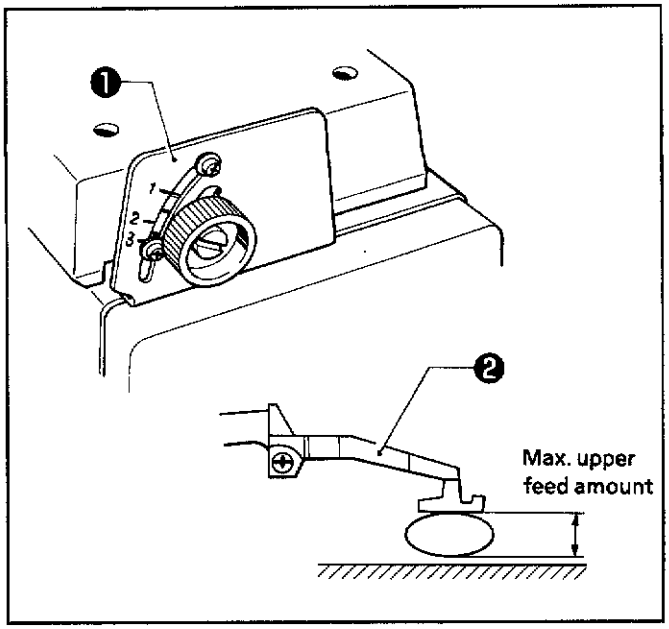


(1) Loosen the set screw ❶ of the machine head.

(2) Insert a wrench into the adjusting hole of the presser arm shaft bush ❷.
Turn the wrench clockwise to lower the upper feed dog.
Turn the wrench counterclockwise to raise the upper feed dog.

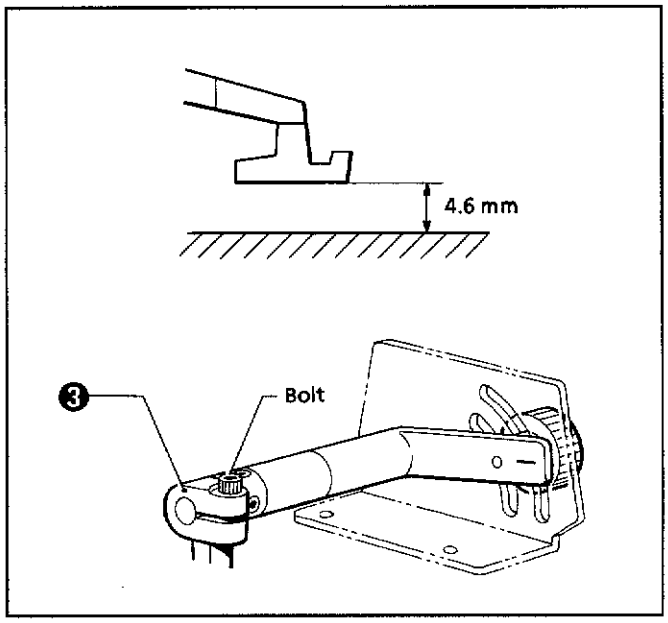
* The adjusting hole of the presser arm shaft bush ❷ has already been adjusted to 45° before shipping.

17 Adjusting the vertical feed amount of the upper feed dog



(1) Set the set screw knob of the vertical feed length control plate ❶ to 1 - 2 for front feed type, 1 - 3 for back feed type.

(2) Turn the pulley to set the upper feed dog ❷ to its highest position.



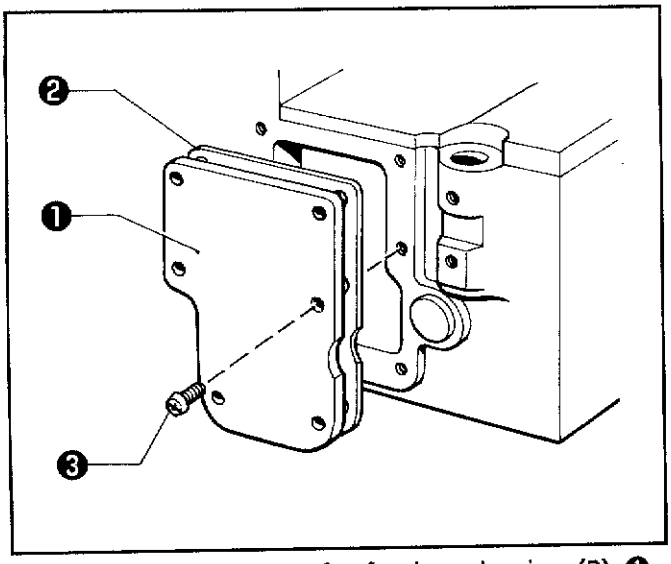
(3) Loosen the bolt of the vertical feed adjust lever ❸. Adjust the position of the vertical feed adjust lever ❸ so that the upper feed dog is raised 4.6 mm above the needle plate top. (The distance is different depending on specification.)

* For front feed type with plain stitching
For example, when the set screw knob of the vertical feed length control plate is set to 2, the actual vertical feed amount of the upper feed dog is as follows:
4.6 - (0.9 + 0.2) = 3.5
(upper feed dog height) - (lower feed dog height + clearance between upper and lower feed dogs) = actual vertical feed amount

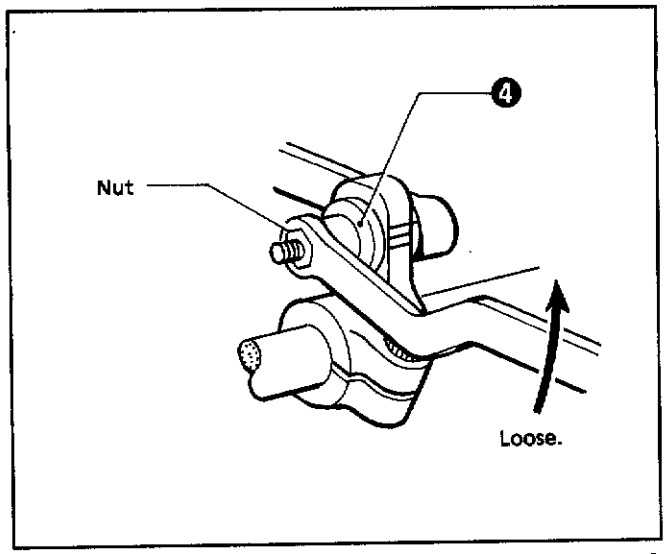
* If the material is thin, set the vertical feed amount lower. If it is thick, set the vertical feed amount higher.

18 Adjusting the differential ratio

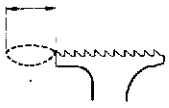
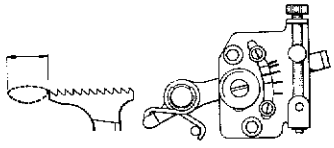
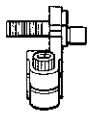
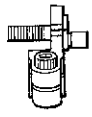
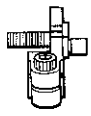
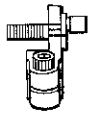
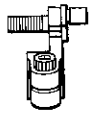
* The differential ratio can be changed according to the position of the main feed shaft (the length of the main feed arm).

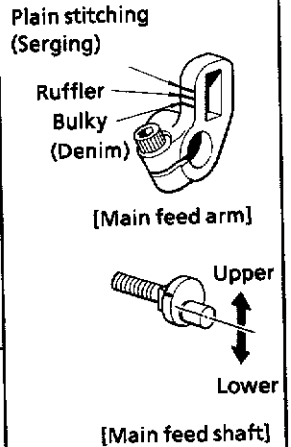


(1) Remove the cover for feed mechanism (B) ❶, the packing ❷, and the screw ❸.

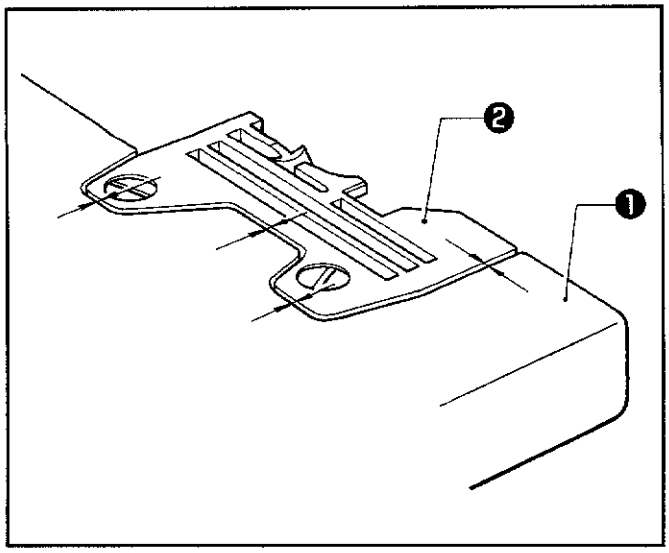


(2) Loosen the nut, and change the position of the main feed shaft ❹.

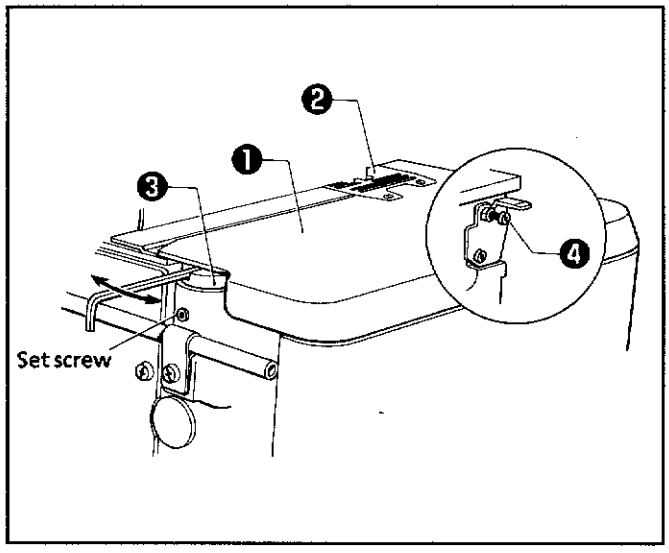
Specification	Max. stitch length 	Differential ratio 	Position of match mark of main feed arm		Main feed arm
Plain stitching	3.8 mm	0.7 - 2.0		Upper	Lower
Ruffler	3.2 mm	0.8 - 2.8		Middle	Lower
Bulky	2.6 mm	1.0 - 3.0		Lower	Lower
Denim	5.0 mm	0.7 - 1.4		Lower	Upper
Serging	5.9 mm	0.7 - 1.3		Upper	Upper



19 Adjusting the clearance between the cloth plate and the needle plate



Adjust the clearance between the cloth plate ❶ and the shape of the needle plate ❷ to 0.3 mm - 1 mm.

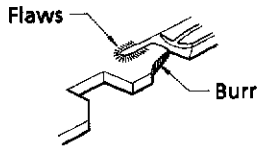
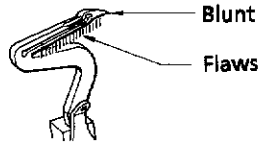


Loosen the set screw to adjust the backward and forward clearance between the cloth plate ❶ and the needle plate ❷ by turning the cloth plate support collar ❸.

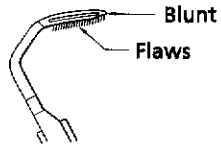
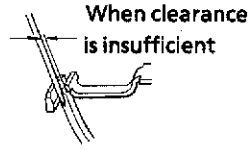
Use the adjust screw ❹ to adjust the sideways clearance.

TROUBLESHOOTING

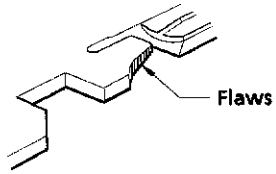
1 Needle thread breakage (overlocking)

PROBLEM		ADJUSTMENT
① Incorrect threading.	→	Refer to "Threading diagram."
② Excessive pressure of tension disk.	→	Adjust to suitable pressure.
③ Poor thread quality.	→	Use thread of good quality.
④ Needle groove or needle eye poorly finished.	→	Change needle for a good one.
⑤ Incorrect looper thread take-up position.	→	Adjust to proper position.
⑥ Thread passage has flaws.	→	Change part with new one.
⑦ Needle plate has flaws.	→	Replace it with new one, or smooth or buff surface with oil and stone.
		
⑧ Under looper has flaws.	→	Replace it with new one, or smooth or buff surface with oil and stone.
		
⑨ Incorrect timing of needle and looper.	→	Adjust to correct timing, needle clearance and position of needle guard.

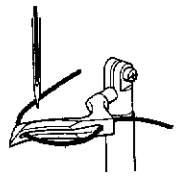
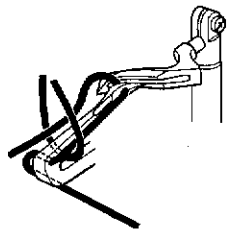
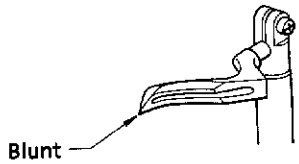
Needle thread breakage (double chain stitching)

PROBLEM		ADJUSTMENT
① Incorrect threading.	→	Refer to "Threading diagram."
② Excessive pressure of tension disk.	→	Adjust to suitable pressure.
③ Poor thread quality.	→	Use thread of good quality.
④ Needle groove or needle eye poorly finished.	→	Change needle for a good one.
⑤ Incorrect needle thread guide position.	→	Adjust to proper position.
⑥ Incorrect looper thread take-up position.	→	Adjust to proper position.
⑦ Thread passage has flaws.	→	Change it for a new one or smooth surface with oil stone or buff.
⑧ Chain stitch looper has flaws.	→	Change it for a new one or smooth surface with oil stone or buff.
		
⑨ Insufficient clearance of needle guard.	→	Adjust to correct clearance between needle and needle guard.
		
⑩ Incorrect timing of needle and looper.	→	Adjust to correct timing, needle clearance and position of needle guard.

[2] Looper thread breakage

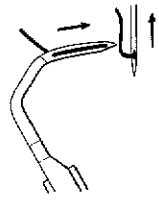
PROBLEM		ADJUSTMENT
① Incorrect threading.	→	Refer to "Threading diagram."
② Excessive pressure of tension disk.	→	Adjust to suitable pressure.
③ Poor thread quality.	→	Use thread of good quality.
④ Incorrect looper thread take-up position.	→	Adjust to proper position.
⑤ Thread passage has flaws.	→	Change it for a new one or smooth surface with oil stone or buff.
⑥ Needle plate has flaws.	→	Change it for a new one, or smooth or buff surface with oil and stone.
		

Skipped stitches (overlocking)

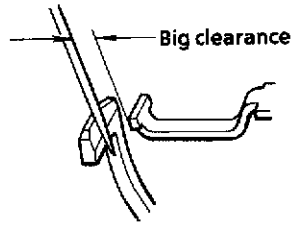
PROBLEM	ADJUSTMENT
① Incorrect threading.	→ Refer to "Threading diagram."
② Excessive or insufficient pressure of tension disk. In the case skipping between over looper and needle.	→ Adjust to suitable pressure. 
① Incorrect position of looper thread take-up	→ Adjust to correct position.
② Insufficient or too much movement to the left of over looper	→ Adjust the position of over looper so it is appropriate.
③ Large clearance between needle and over looper.	→ Adjust over looper and under looper to appropriate clearance between needle and over looper.
④ Incorrect height of needle bar. In the case of skipping between over looper and under looper	→ Adjust to suitable height. 
① Large clearance between under looper and over looper	→ Adjust to appropriate clearance.
② Top of over looper blunt or bent. In the case of skipping between under looper and needle.	→ Change it for a new one or smooth with oil stone or buff.  
① Large clearance between under looper and over looper	→ Adjust to appropriate clearance.
② Top of under looper blunt or bent.	→ Change it for a new one or smooth with oil stone or buff.
③ Incorrect position of needle guard.	→ Adjust to correct position.
④ Incorrect height of needle bar.	→ Adjust to suitable height.
⑤ Incorrect timing of under looper.	→ Adjust to correct timing.

Skipped stitches (double chain stitching)

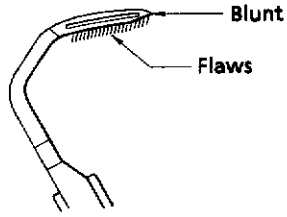
PROBLEM		ADJUSTMENT
① Incorrect threading.	→	Refer to "Threading diagram."
② Excessive pressure of needle thread.	→	Adjust to suitable pressure.
③ Tension disk pressure too weak.	→	Adjust to appropriate pressure.
④ Incorrect looper thread take-up position. In the case of skipping during rightward movement of looper.	→	Adjust to correct position.



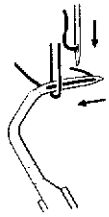
① Large clearance between looper and needle.	→	Adjust to appropriate position.
② Incorrect position of needle guard.	→	Adjust to correct position.



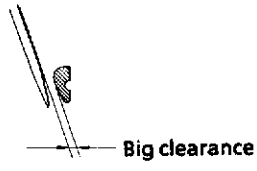
③ Top of looper blunt or bent.	→	Change it for a new one or smooth with oil stone or buff.



④ Incorrect timing of double chain stitch looper In the case of skipping during leftward movement of looper.	→	Adjust to correct timing.



① Large clearance between looper and needle.	→	Adjust to provide small clearance.



② Incorrect timing of double chain stitch looper.	→	Adjust to correct timing.

3 Needle breakage

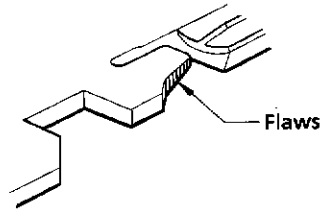
PROBLEM		ADJUSTMENT
① Poor thread quality.	→	Use thread of good quality.
② Needle size too small.	→	Change it for larger one.
③ Incorrect needle location.	→	Correct needle location.
④ Needle and looper out of sequence.	→	Adjust the position of needle guard and looper properly.
⑤ Incorrect adjustment of needle guard.	→	Adjust to correct position for needle guard.

4 Improper thread tension

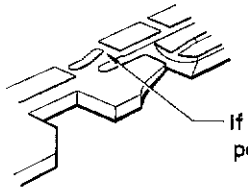
PROBLEM		ADJUSTMENT
① Poor thread quality.	→	Use thread of good quality.
② Needle size too small.	→	Change it for larger one.
③ Tension disk pressure too weak.	→	Adjust to suitable pressure.
④ Incorrect position of thread take-up.	→	Adjust to correct position.

5 Improper chaining-off (overlocking)

PROBLEM		ADJUSTMENT
① Incorrect threading.	→	Refer to "Threading diagram."
② Excessive pressure of tension disk.	→	Adjust to suitable pressure.
③ Tension disk pressure too weak.	→	Adjust to appropriate pressure.
④ Incorrect position of looper thread take-up.	→	Adjust to correct position.
⑤ Incorrect position of needle thread take-up.	→	Adjust to correct position.
⑥ Incorrect installation of chain feed dog.	→	Adjust to correct position.
⑦ Needle plate has flaws.	→	Change it for a new one, smooth with oil stone, or buff.
⑧ Incorrect timing between needle and looper.	→	Adjust to correct timing.



Improper chaining-off (double chain stitching)

PROBLEM		ADJUSTMENT
① Incorrect threading.	→	Refer to "Threading diagram."
② Poor thread quality.	→	Replace with good quality thread.
③ Excessive tension disk pressure.	→	Adjust to suitable pressure.
④ Tension disk pressure too weak.	→	Adjust to suitable pressure.
⑤ Excessive presser foot pressure	→	Adjust to suitable pressure.
⑥ Incorrect position of thread guide.	→	Adjust to correct position.
⑦ Incorrect position of looper thread take-up	→	Adjust to correct position.
⑧ Incorrect installation of main feed dog and differential feed dog	→	Adjust position while maintaining the same level.
⑨ Chains get out of feed dog.	→	Move feed dog to right or left.
⑩ Existence of clearance at pressing part for chaining-off of presser foot.	→	Change it for a new one. For model V61, replace presser foot.  If there is a clearance here, you can not perform chaining-off sewing.
⑪ Incorrect timing between needle and looper.	→	Adjust to correct timing.

6 Puckering

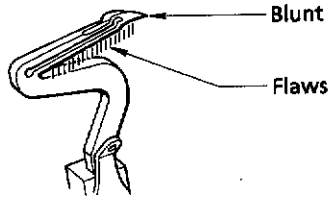
PROBLEM		ADJUSTMENT
① Excessive tension disk pressure.	→	Adjust to appropriate pressure.
② Thread size too thick.	→	Change it for thinner thread.
③ Excessive presser foot pressure.	→	Adjust to suitable pressure.
④ Needle size too big.	→	Change it for one suitable for thread and materials.
⑤ Incorrect differential ratio.	→	Adjust to correct ratio.
⑥ Height of feed dogs.	→	Adjust to appropriate height.
⑦ Knife width too large.	→	Adjust to proper width.
⑧ Knives are not sharp.	→	Change them for new ones, or regrind. (If the engagement of the upper and the lower knives is not correctly adjusted, the knives do not cut the materials well. In this case, adjust so the engagement is correct.)

7 Slippage cloth

PROBLEM		ADJUSTMENT
① Excessive pressure of presser foot.	→	Adjust to suitable pressure.
② Knives are not sharp.	→	Change them for new ones or regrind.
③ Feed dog too high.	→	Adjust to a lower level.

8 Double scooping (overlocking)

PROBLEM		ADJUSTMENT
① Under looper have flaws.	→	Change it for a new one or smooth surface with oil stone or buff.
② Insufficient angle of under looper.	→	Increase angle.



NEEDLE SIZE AND UPPER LOOPER

Refer to the following table when replacing a needle or upper looper, to find one appropriate to the material thickness.

1 V41, V61, V71, V72, V91, V92

(1) Three threads

Looper path / Over looper	Standard	High lift	Extra high lift
A (2·25)	#9 - 12		
B (2·15)	#13 - 16	#17 - 21	
C (2·35)		#13 - 16	
H (2·45)		#9 - 12	
G (2·5)			#9 - 21
K (2·5) For woolen yarn			#9 - 21

The numbers in the ( ) show the thickness of the over looper.

(2) Two threads

Looper path / Over looper	Standard	High lift	Extra high lift
P (2·55)		#9 - 12	
(N) (2·4)		#13 - 16	
L (2·35)	#9 - 12		
M (2·2)	#13 - 16	#17 - 21	
Q (2·5)			#9 - 21

The numbers in the ( ) show the thickness of the over looper.

2 V51, V81, V82

(1) Two threads with four needles

Looper path / Needle gauge / Over looper	High lift			Extra high lift			
	2.2	2.5	3	1.8	2.2	2.5	3
B (2·15)	#9 - 12						
D (2·0)	#13 - 16	#9 - 12	#9 - 10				
J (1·9)		#13 - 16	#11 - 14				
G (2·5)					#9 - 18	#9 - 18	#9 - 18
K (2·5) For woolen yarn					#9 - 18	#9 - 18	#9 - 18

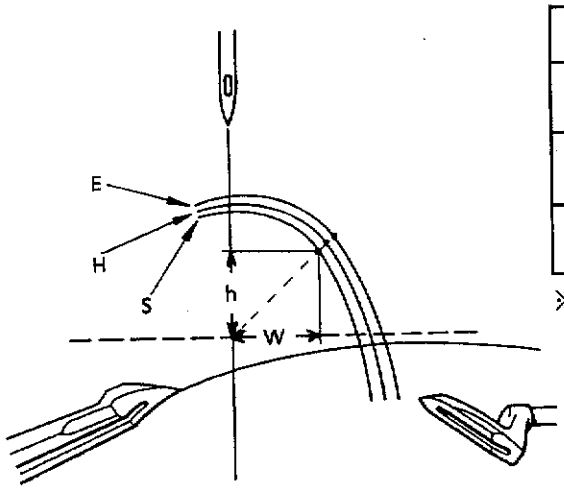
The numbers in the ( ) show the thickness of the over looper.

(2) Mock-safety stitching

Looper path / Over looper	High lift	Extra high lift
F (2·0)	#9 - 12	
E (1·8)	#13 - 16	
R (2·0)		#9 - 18

The numbers in the ( ) show the thickness of the over looper.

MATERIAL THICKNESS AND STITCH WIDTH



Looper path		Looper height	Stitch width	Use
E	Extra high lift	7.5 mm	7.5 mm	For extra heavy materials and bulky knits
H	High lift	6.5 mm	6.5 mm	For thin and medium thick materials, bulky knits
S	Standard	5.3 mm	5.3 mm	For thin and medium thick materials

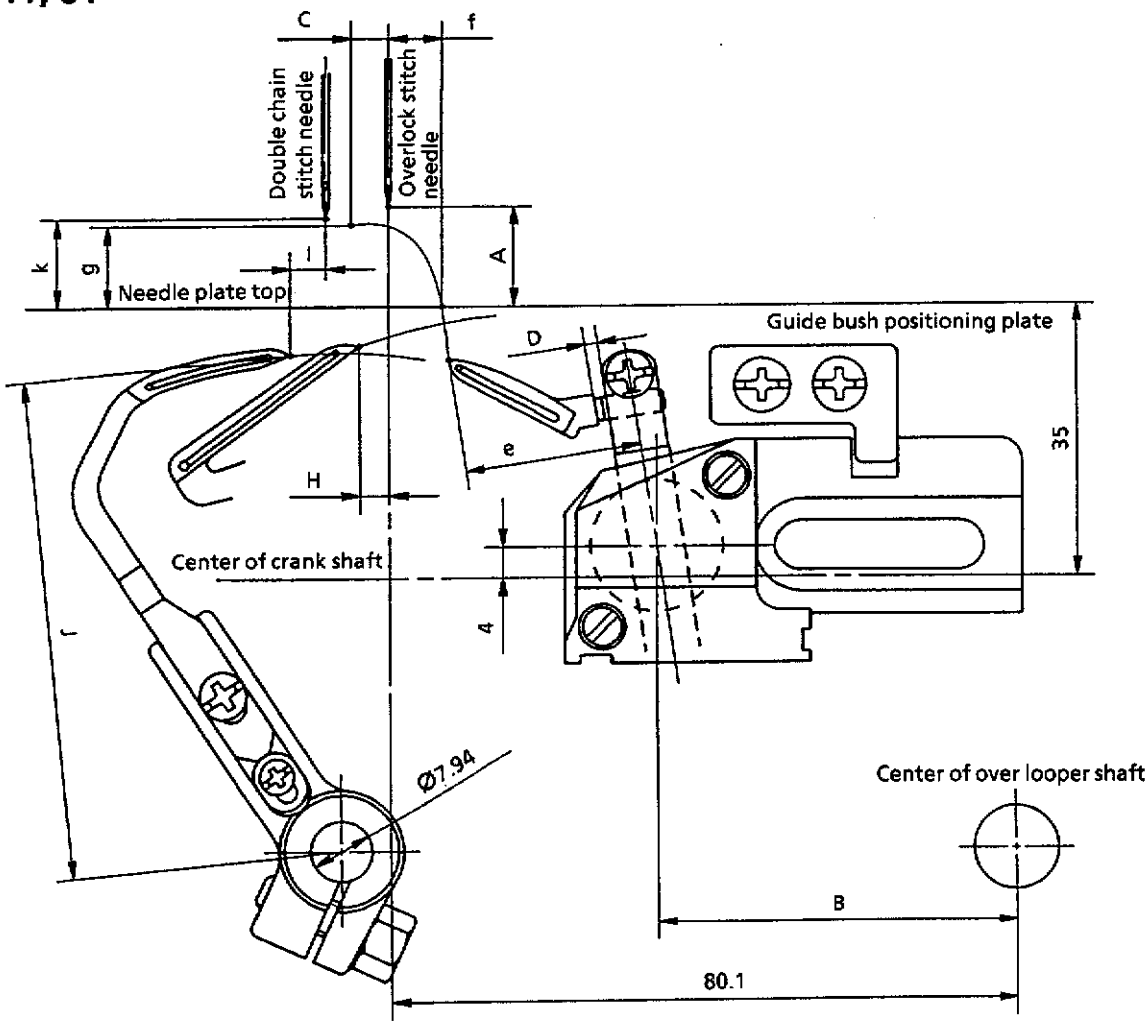
※ Use the high lift specification when the stitch width is 6 mm or more.
Use the high lift specification or extra high lift specification when the material thickness is 6 mm or more.

Stitch width

Model	Standard (height 5.3 mm)	High lift (6.5 mm)	Extra high lift (7.5 mm)
V41	01, 10 (stitch width 5 mm or less) 03, 05, 07, 09, 15 specifications	When the stitch width is 6 mm or more 02, 11 specifications	
V51		22, 24, 27, 33, 37, 41, 45, 49, 57 specifications	31 specification
V61	When the stitch width is 5.9 mm or less	When the stitch width is 6 mm or more	85 - 92 specifications
V72		01, 02 specifications	02, 08, 09, 11 specifications
V82		22, 41 specifications	31, 33, 51, 57 specifications
V92		63, 65, 95 specifications	69, 71, 75, 77, 92 specifications

TIMING GAUGE TABLE

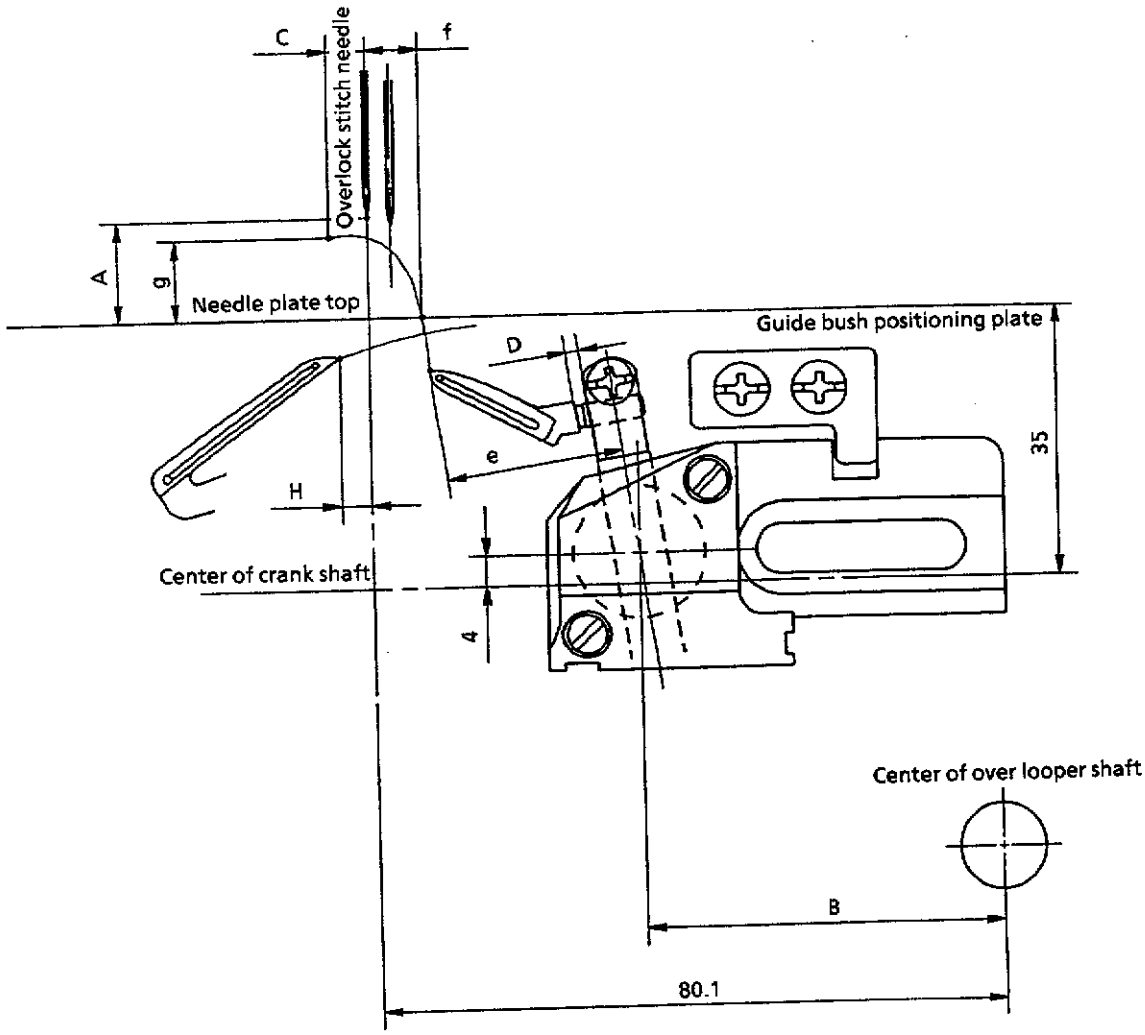
1 V41, 61



		Standard (S)	High lift (H)	Extra high lift (E)	Ultra high lift (U)
Overlock stitch needle	A	10 ±0.2	10.9 ±0.2	12 ±0.2	
Over looper	B	46.1 ±0.1	46.1 ±0.1	46.1 ±0.1	
	C	4.8 ±0.3	4.8 ±0.3	4.8 ±0.3	
	D	1.6 ±0.2	0	1 ±0.2	
	e	22.4	20.8	21.2	
	f	6.8	8.4	9.6	
	g	10.6	10.8	10.9	
Under looper	H	3.8 ±0.2	3.8 ±0.2	3.8 ±0.2	
Double chain stitch looper	I	$2^{0}_{-0.2}$	$2^{0}_{-0.2}$	$2^{0}_{-0.2}$	
	J	64 ±0.1	64 ±0.1	64 ±0.1	
Double chain stitch needle	k	8.4	9.3	9.9	

NOTES: Letters I, J, and K show the dimensions for the V61.
For specification S, H, and E, push the over looper guide holder against the right of the guide bush positioning plate. For specification U, push the over looper guide holder against the left of the guide bush positioning plate.
Letters e, f, and g, show the reference dimensions.

2 V51



		High lift (H)	Extra high lift (E)	Ultra high lift (U)
Overlock stitch needle	A	11.4±0.2	12±0.2	
Over looper	B	46.1±0.1	46.1±0.1	
	C	5.6±0.3	5.6±0.3	
	D	0	1±0.2	
	e	20.8	21.2	
	f	8.4	9.6	
	g	10.5	10.5	
	C▼	4.8±0.3	*	
	D▼	0	*	
	e▼	20.4	*	
	f▼	8.9	*	
	g▼	10.8	*	
Under looper	H	3.8±0.2	3.8±0.2	

NOTES: Letters with a ▼ mark show the dimensions for mock-safety stitching (stitch formation 512).
For specification H and E, push the over looper guide holder against the right of the guide bush positioning plate. For specification U, push the over looper guide holder against the left of the guide bush positioning plate.
Letters e, f, and g, show the reference dimensions.

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