

DFB

Parts List Instruction Manual

**DFB-1412PS'
DFB-1012PS'
DFB-1412P-SM
DFB-1012P-SM**

Specification

Model	1012P	1412P	1012P-SM	1412P-SM
Needle	12	12	12	12
Looper	12	12	12	12
Spreader	0	12	0	12
Thread	12	24	24	36
Service needle	DV x K25 (#18, #21)	UO x 113 (#11 ~ 18)	DV x K25 (#18, #21)	DV x 57 (#11~18)
Needle gauge	4.76 x 11 = 52.36, 6.35 x 11 = 69.85		4.76 x 11 = 52.36	
Feeding mechanism	Plain			
Stitch length	3.5 ~ 4 stitches/inch	8 ~ 14 stitches/inch	3.5 ~ 4 stitches/inch	8 ~ 14 stitches/inch
Max. speed	2,000 rpm	4,500 rpm	2,000 rpm	
Needle thread	Elastic thread (U.S.A.) #2T or #3M	Spun thread #50 ~ 80	Elastic thread (U.S.A.) #2T or 3M	Spun thread #50 ~ 60
Looper thread				Spun thread #50 ~ 60
Ornament thread			Rayon and synthetic thread	Rayon and synthetic thread

DFB-1412P, DFB-1412P-SM

1. Needle bar's height adjustment

Needle bar height (length of needle bar from needle plate) of this unit is 13.3–13.5mm

Adjust as follows.

- 1) Turn the pulley to lift the needle bar to the highest position, and loosen the screw (B) in Fig.2 fixing needle bar.
- 2) Adjust needle clamp so that needles enter needle holes when the needle bar is lowered. After adjustment, tighten screw (B) in Fig.2 fixing the needle bar.

Fig. 1

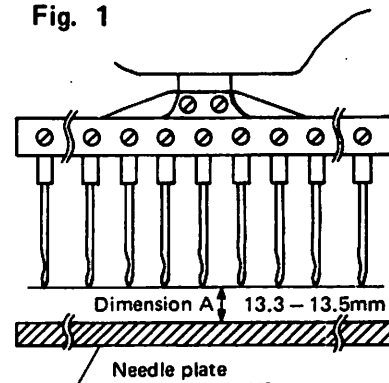
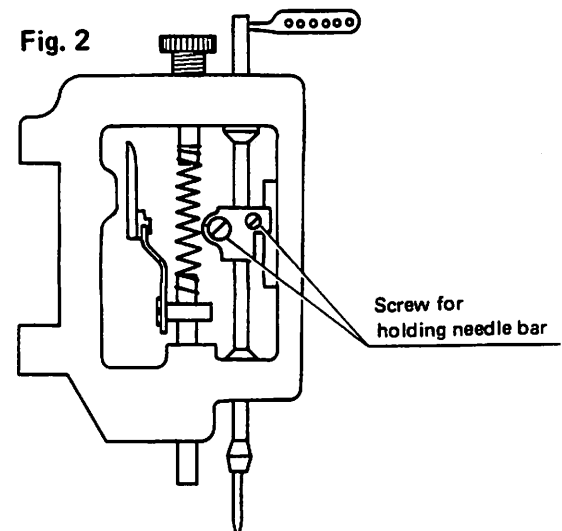


Fig. 2



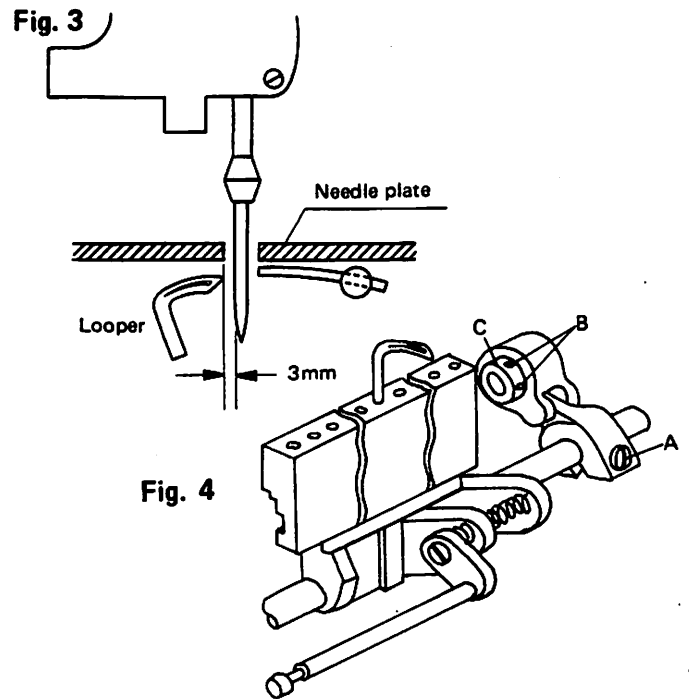
2. Installation of looper and looper holder

Install looper holder and hand tighten screws for loopers. Lower the needle clamp to the lowest point and adjust the clearance between the loopers and needles after the end of backward movement to 3.0 mm.

At this time, check for the parallelism between needle looper holder and needle clamp.

Adjust as follows.

- 1) Remove the upper cloth plate and oil reservoir top cover.
- 2) Fasten retainer lever (A) in Fig.4 on looper retainer lever. Adjust the clearance between looper and needle using a 3.0 mm bar gauge. Then, fasten screw (A).

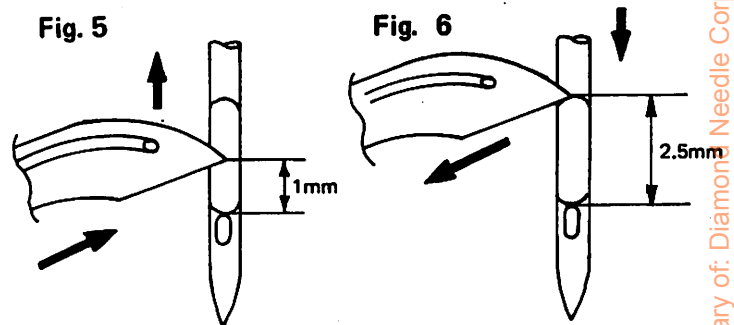


3. Timing of needle bar and looper

Time the looper to needle bar movement so that looper tip is 1mm higher than needle hole (See Fig. 5) during forward movement when the needle bar locates 7mm above its lowest position, and looper tip is 2.5mm higher than needle hole (See Fig.6) during backward movement when the needle bar locates 28mm below its highest position.

Adjust as follows.

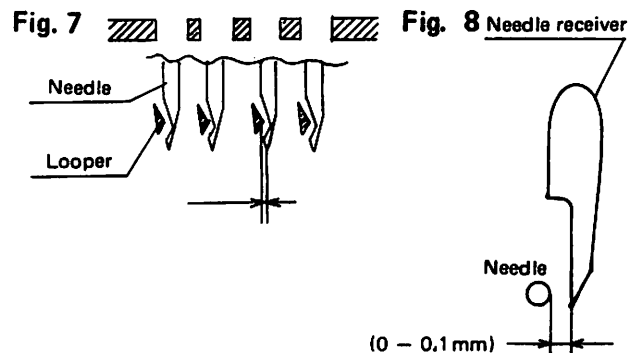
- 1) Remove the upper cloth plate and oil reservoir top cover.
 - 2) Loosen screw (B) in Fig.4 for retainer eccentric ball.
 - 3) Setting retainer eccentric ball toward the operator increases the speed of looper movement, while setting it opposite to the operator slows the speed.
- When the best timing is obtained by turning the pulley, tighten screw (B) in Fig.4.



4. Needle guide installation (Looper installation)

Adjust the clearance between the needle guide and needle to 0 – 0.1mm as shown in Fig. 7.

- 1) Install loopers and needle guide on looper holder. Adjust the clearance between needle and looper to mm. Set looper straight.
- 2) Set the needle guide as shown in Fig.7 and secure it with setscrew. Recheck the clearance between loopers and needles after the end of backward movement is 3.0mm. Then, fasten screw for loopers completely.

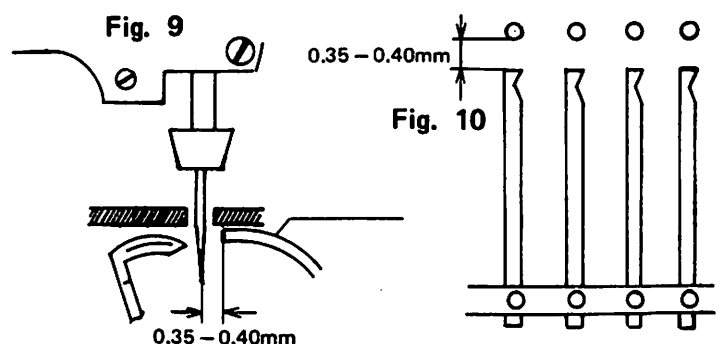


5. Spreader alignment

The right clearance between needles and spreaders is 0.35 – 0.40mm as shown in Fig.9.

Adjust as follows.

- 1) Loosen screws for spreaders (A) in Fig. 10.
 - 2) Lower the needle bar to the lowest position, and check for parallelism of spreaders. After adjustment to 0.35 – 0.40 mm clearance, fasten the screw.
- * Check the parallelism of spreader again.



6. Relative position between looper and spreader

- 1) When the spreaders locate at the extremely left position, right side of spreader must meet the right side of looper.

Adjust as follows.

- 1) Temporarily tighten screw (A) for spreader holder.
- 2) Turn pulley to move the spreader to the extremely left position. Fastening screw (A) in Fig. 11 when the above relative position is satisfied.

Note: For spreader adjustment, adjust A and B at the same time. The clearance between loopers and spreaders should be within 0.1mm as shown in Fig. 12. (Use the clearance gauge.)

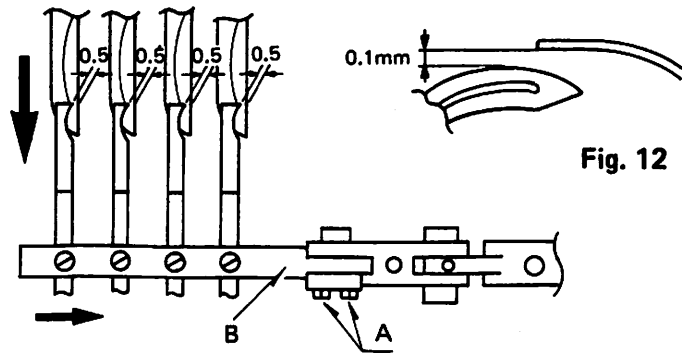


Fig. 11

Fig. 12

Looper retainer adjustment

The looper retainer should be adjusted so that the needle bar is 20mm below the upper end position (at this time, the needle is at the center behind the looper) so that the retainer bar can move upwards.

To adjust, do as follows.

- 1) Loosen the retainer eccentric screw H in Fig. 13, and then, tighten this crew temporarily.
- 2) Rotate the pulley and adjust the looper retainer. Turn the retainer eccentric I in Fig. 13 to increase looper retainer speed, and clockwise to decrease speed.
- 3) For fine adjustment, loosen screw G in Fig. 13, and then, move the retainer thread eyelet up and down.

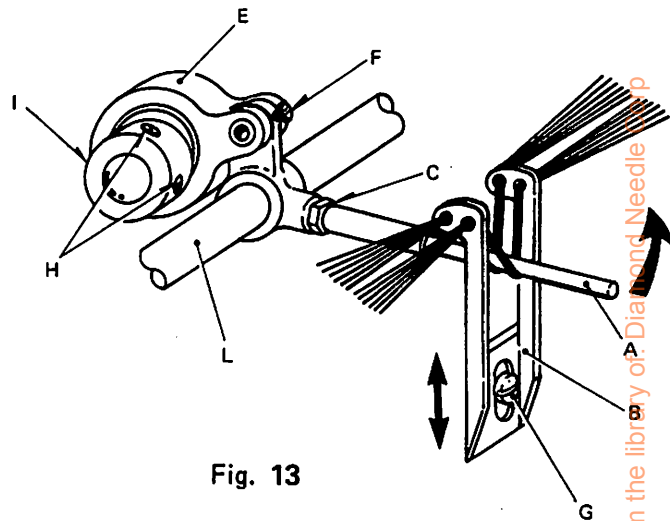


Fig. 13

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12. Adjustment of feed gear rack

(A) Height of feed gear rack

The proper height of the feed gear rack from the needle plate top is 0.8 – 1.2mm as shown in Fig. 14, when the rack is at the uppermost position.

Adjust the height as follows.

1. Loosen the feed gear rack fixing screw (C in Fig. 14).
2. Adjust and set the feed gear rack to the height described above, and tighten the fixing screw (C in Fig. 14).

(B) Parallel alignment of feed gear rack

Install the feed gear rack parallel to the needle plate. Adjust parallelism as follows.

1. Loosen the Y-screw.
2. Adjust the X-screw so that the feed gear rack is parallel to the needle plate.
3. After adjustment, tighten the Y-screw.

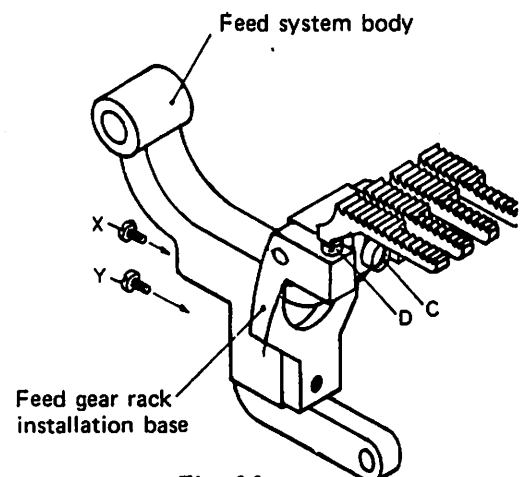
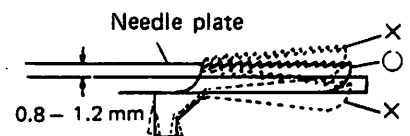


Fig. 14

DFB-1012P, DFB-1012P-SM

1. Feed teeth height

Set feed teeth height to 1 – 1.2mm from the needle plate upper surface.

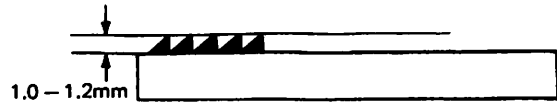


Fig. 1

2. Needle bar's height adjustment

Needle bar height (length of needle bar from needle plate) of this unit is 12.3mm

Adjust as follows.

- 1) Turn the pulley to lift the needle bar to the highest position, and loosen the screw (B) in Fig.2 fixing needle bar.
- 2) Adjust needle clamp so that needles enter needle holes when the needle bar is lowered. After adjustment, tighten screw (B) in Fig.2 fixing the needle bar.

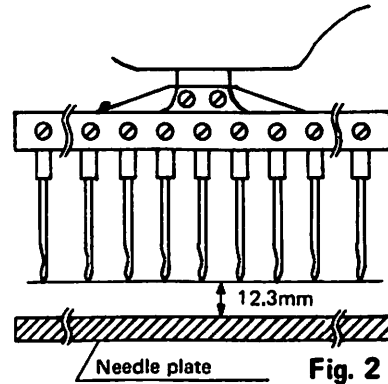


Fig. 2

Note: Compression of presser foot spring
Decrease spring compression with the adjusting screw for thin cloth.
Increase spring compression with the adjusting screw for thick cloth.

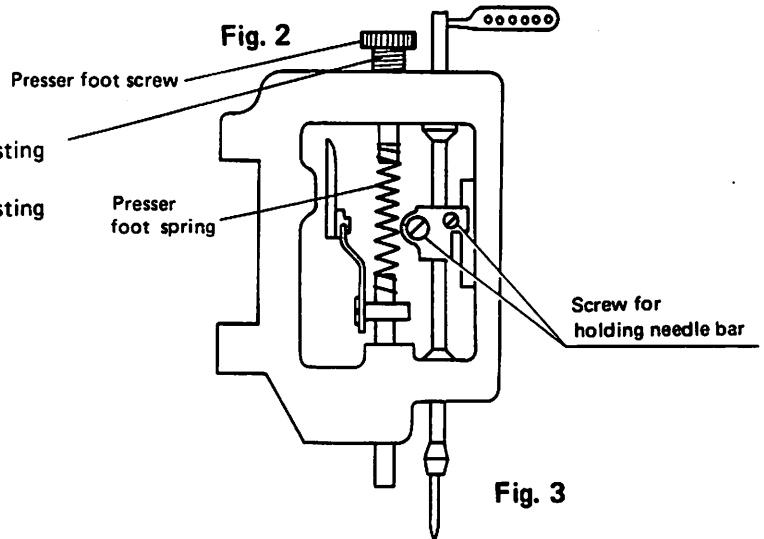


Fig. 3

3. Loper

This sewing machine uses Organ needles.

DVK-20 #21: 1.8mm

DVK-20 #18: 2.0mm

Install looper holder and hand tighten screws for looper. Lower the needle clamp to the lowest point and adjust the clearance between the loopers and needles after the end of backward movement to 1.8 mm.

At this time, check for the parallelism between needle looper holder and needle clamp.

Adjust as follows.

- 1) Remove the upper cloth plate and oil reservoir top cover.
- 2) Fasten retainer lever (A) in Fig.4 on looper retainer lever. Adjust the clearance between looper and needle using a 1.8 mm bar gauge. Then, fasten screw (A).

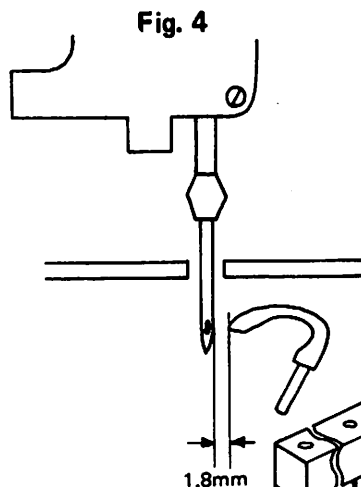


Fig. 4

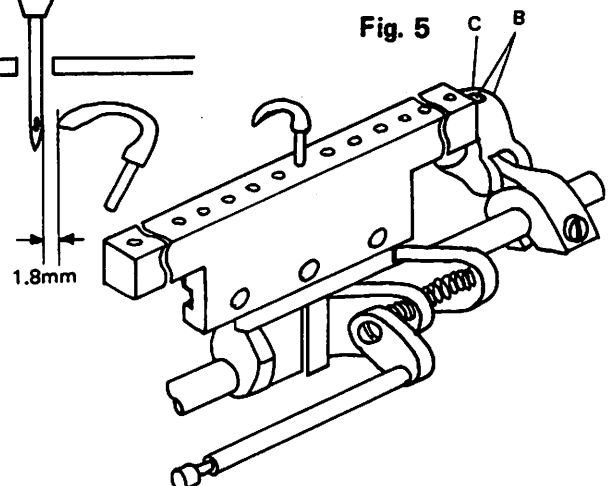
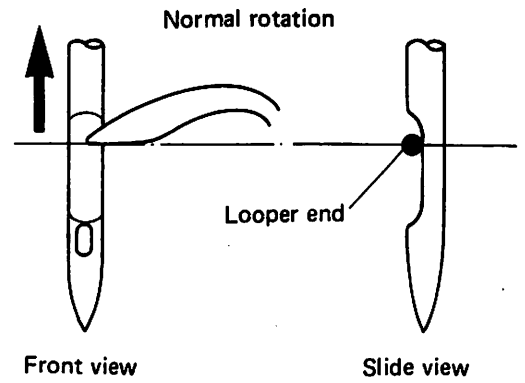


Fig. 5

4. Needle bar and looper timing

Synchronize the timing between the looper and needle. When the timing is proper, the looper passes the same route both in normal and reverse rotations.

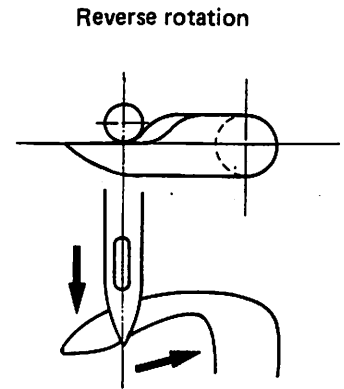
Fig. 6



5. Looper setting angle

Set loopers so that looper center and needle center are on a center line.

Fig. 7

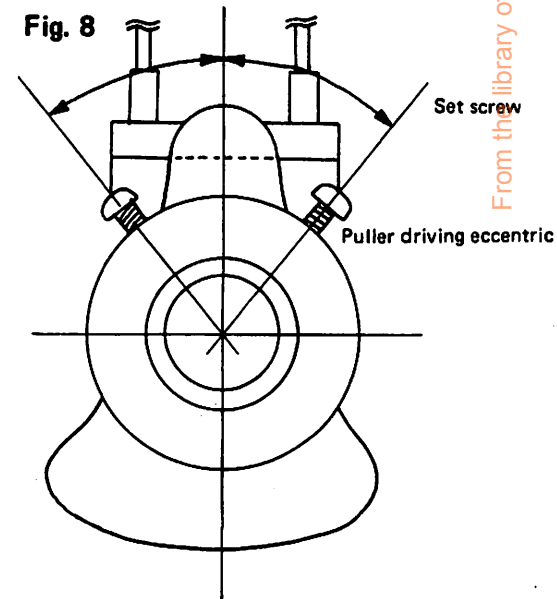


6. Rear puller timing

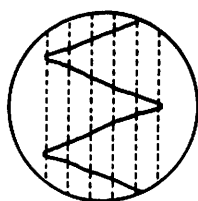
Adjust rear puller timing so that the center of puller driving eccentric set screws meets the center of crankshaft when the need bar is at its lowest position.

Note that puller roller reaches its extreme end when needle just enters the needle plate hole.

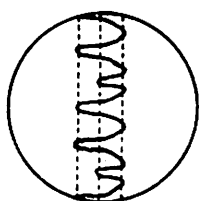
Fig. 8



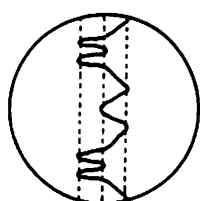
Kinds of standard cams (9 pieces)



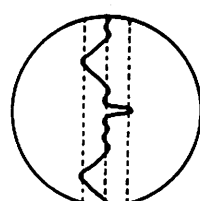
No. 1 EX 01055



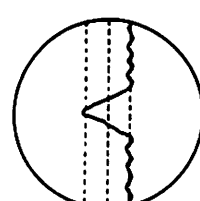
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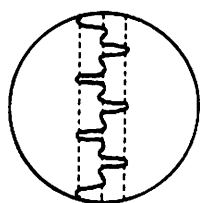
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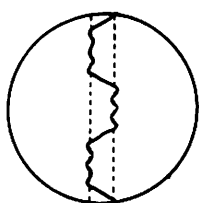
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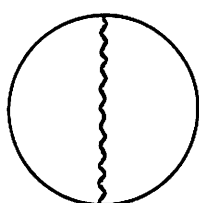
No. 5 EX 01059



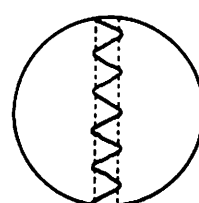
No. 6 EX 01060



No. 7 EX 01061



No. 8 EX 01062



No. 9 EX 01063

Adjustment of cams and ornament spreaders

1. Cam usage

- * The two cams must be set properly at all times. The inner cam acts on the upper spreader of the three stacked ornament spreaders, and the outer cam acts on the two lower spreaders. The outer cam can cross the lower two spreaders, and is used to obtain voluminous ornament stitching at the thread passing position. Be sure to use the No.8 cam for the inner cam.

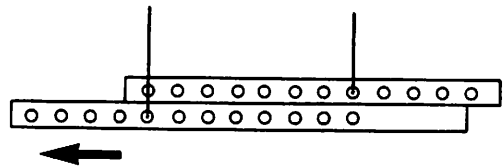
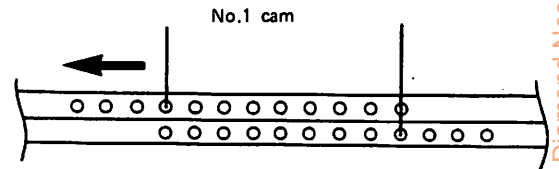
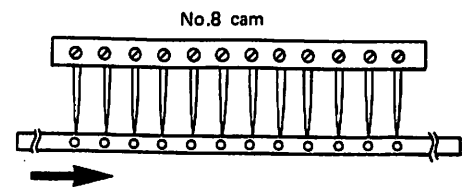
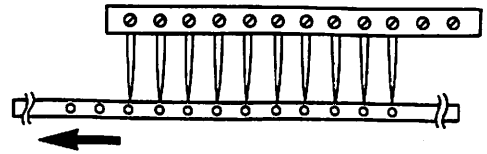
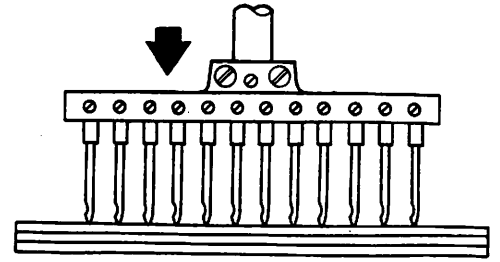
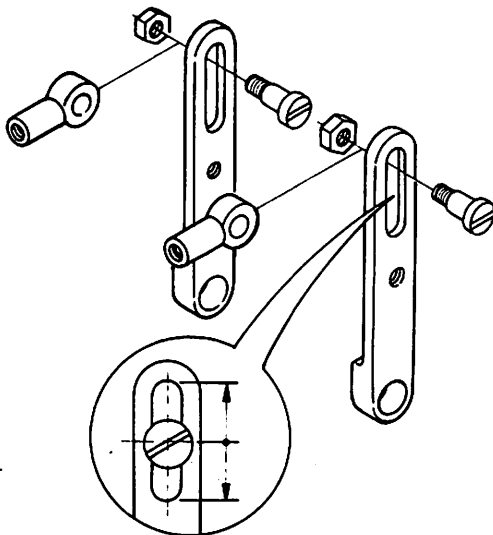
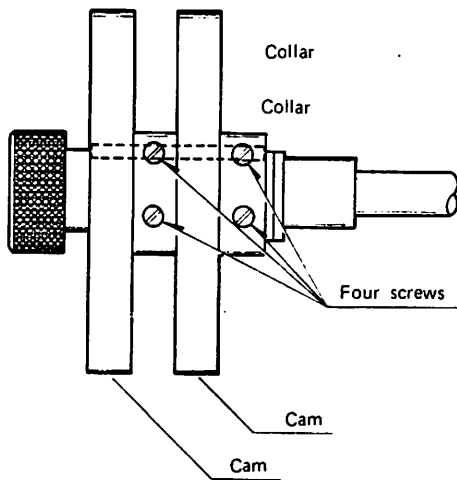
2. Inner cam replacement

- * To replace the cams, remove the hex head screw tightening the connection link on the upper ornament connection lever (A), and shift the upper ornament connection lever to the right. Next, remove screw (B). Note that this screw has a left-handed thread. Then, remove the outer cam (C). The collar (D) is exposed. Remove three tightening screws, and take out the collar. Then, cam (E) can be easily replaced. Before mounting a new cam, be sure to apply grease in the cam groove. Do not loosen screws other than those described above. Otherwise, upper ornament timing will become defective.

3. Cam timing

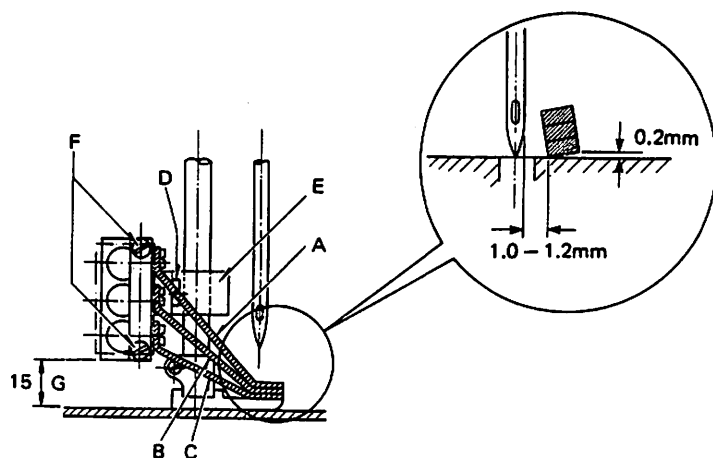
- * Set No.8 cam at the inner side, and No.1 cam at the outer side.

Set the both outer and intermediate levers (A) around the center of the slots, and connect them to the feed eccentrics which are connected to the ornament spreaders. After connection, the three spreader start moving. To adjust cam timing, loosen and set the four screws for tightening the collars (C) so that the three spreaders stop moving when the needle ends reach the uppermost spreaders. After adjustment, securely tighten the four screws.



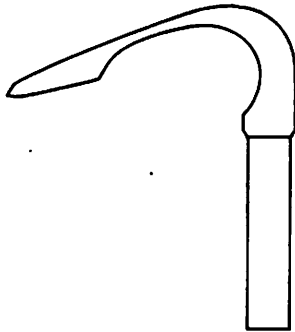
Adjustment of upper ornament spreaders

- * First, install the upper ornament spreader so that the bottom surface of the base on which the spreader is installed is 15mm (distance (G)) from the upper surface of the needle plate. When the above distance (15mm) is set at both right and left sides, tighten the two hex head screws (D), and then tighten the other two screws (E) after checking the distance. Next, install the lowest spreader (C) of the three so that it moves smoothly without contacting the presser foot when the spreader is slide from right to left while it is lifted by approx. 0.2mm. The clearance between the spreader and needles should be 1.0 – 1.2mm. When the spreader is not parallel to the twelve needles, loosen screws (D) slightly and correct the spreader so that it is parallel to the needles, and then retighten the screws (D). Next, install spreader (B) in the same way as spreader (C) while eliminating the clearance between spreaders (B) and (C). Care should be used to prevent the spreaders from coming too close to one another, since this causes unsmooth movement. They must move smoothly. Next, install spreader (A) in the same way as spreaders (C) and (B). After installing the three spreaders, try to move them up-to-down. Adjust four screws on spreader (B) so that the clearances between the spreaders in the vertical direction is approx. 0.5mm.

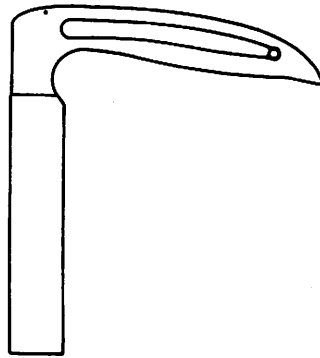


12 needle-gauge parts list

Model	Presser	Needle plate	Feed dog	Looper rocker	Tread collector bar
DFB-1412PSM	EX01016 17-046 (3/16")	14-497	15-497	19-497	18-497
DFB-1012PS	17-499 (3/16") 17-498 (1/4")	14-046 (3/16") 14-047 (1/4")	15-046 15-047	19-496 19-497	
DFB-1412PQ	17-491 (1/4") 17-492 (3/16")	14-499 (1/4") 14-500 (3/16")	15-499 15-500	19-496 19-497	18-496 18-497
DFB-1412PQSM	Optional	14-499 (1/4") 14-500 (3/16")	15-499 15-500	19-496 19-497	18-496 18-497
DFB-1012PS-SM	17-046 (3/16")	14-046 (3/16")	15-046	19-497	18-497



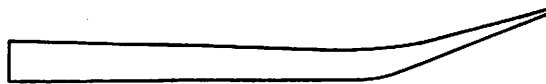
Single chain looper
(19-112)



Double chain looper
(19-431)



Needle guid (19-416)
(for 25-needle use only;
not required for 33-needle use)

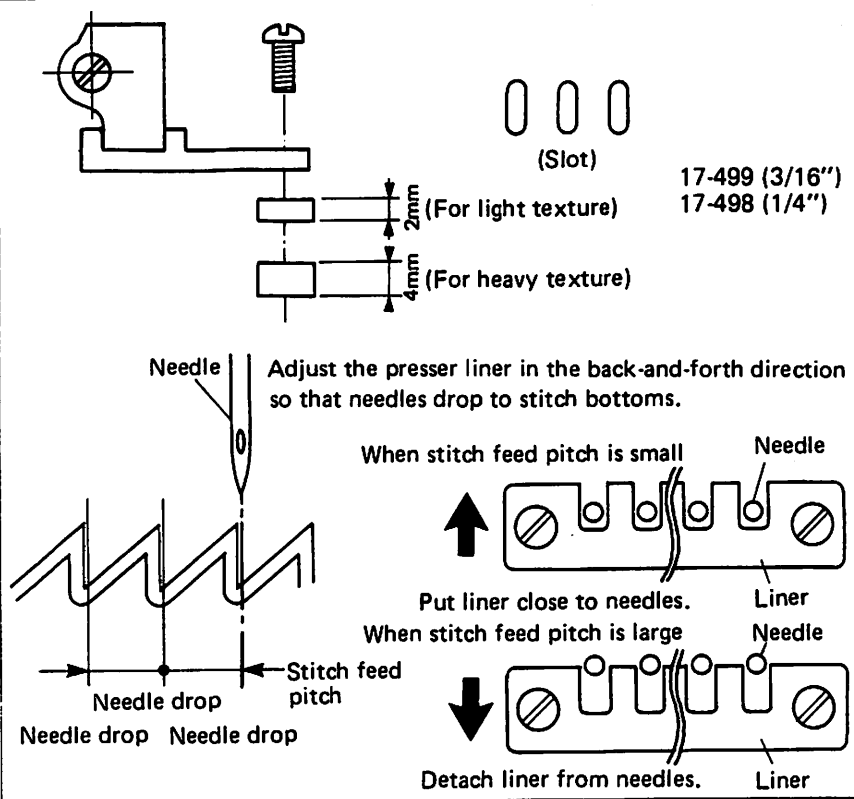
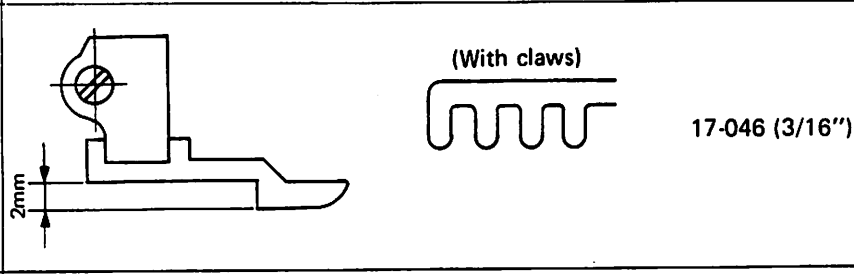
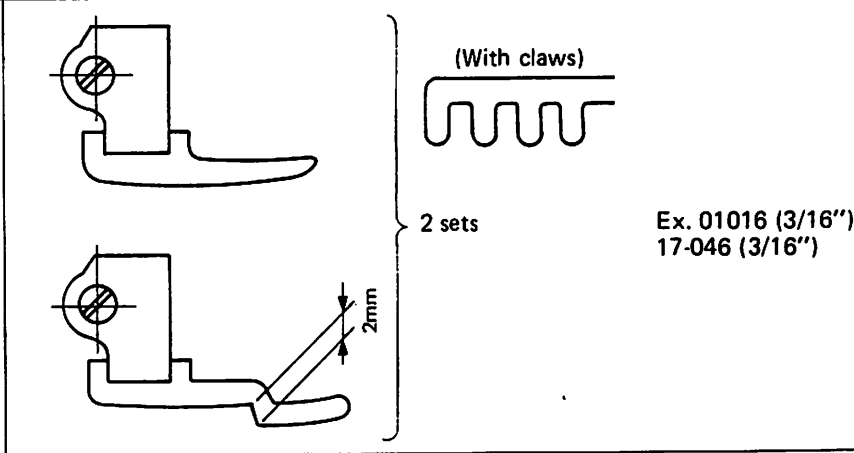
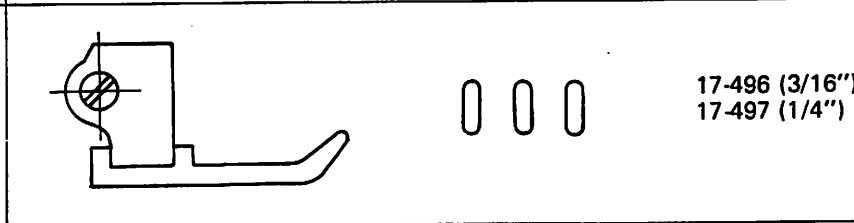


Thread collector looper (19-437)
(excluding Models DFB-1412, DFB-1406)

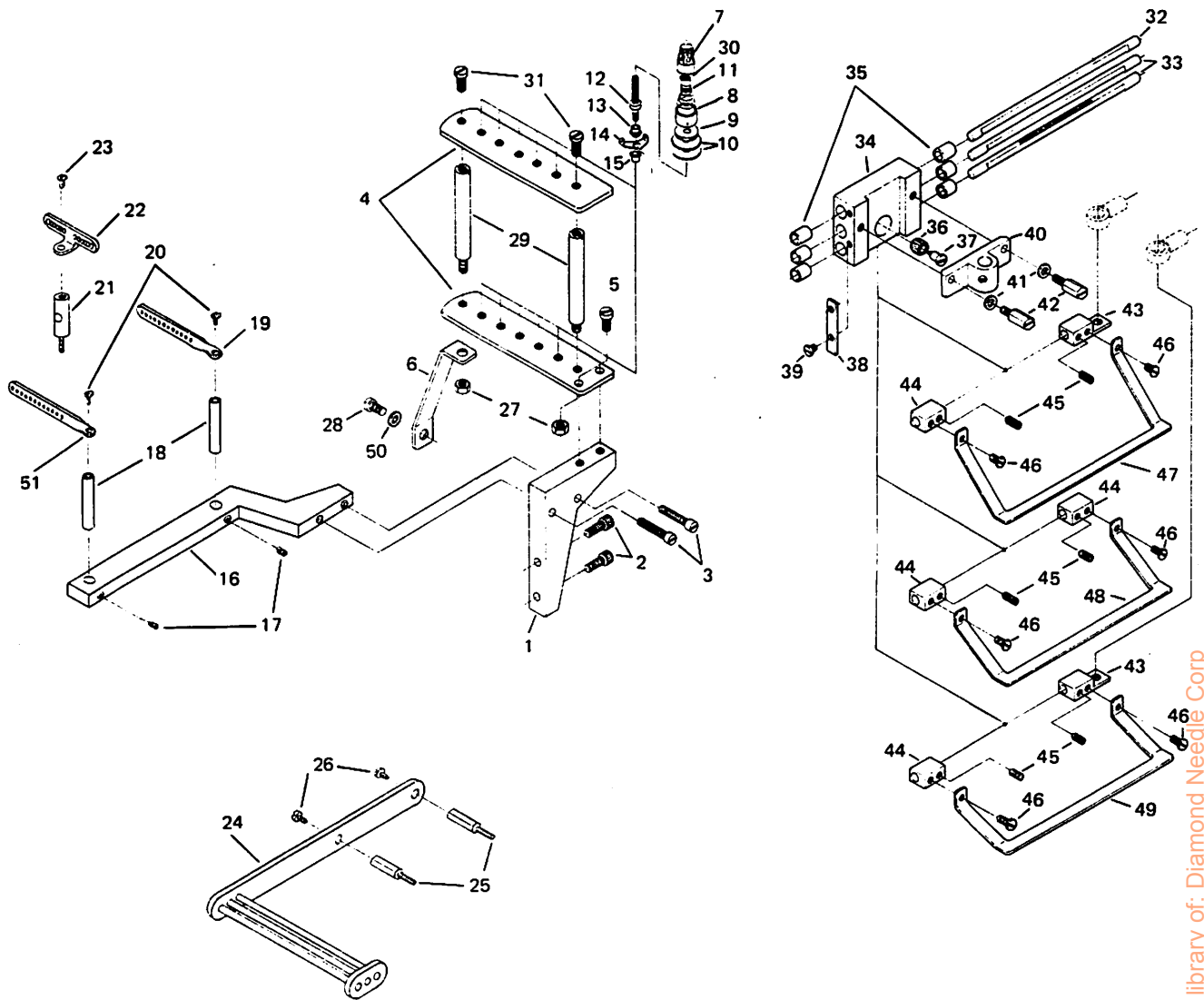


Rubber thread collector looper (19-439)
(for Models DFB-1412PS, DFB-1406PS)

Parts list for 12-needle presser

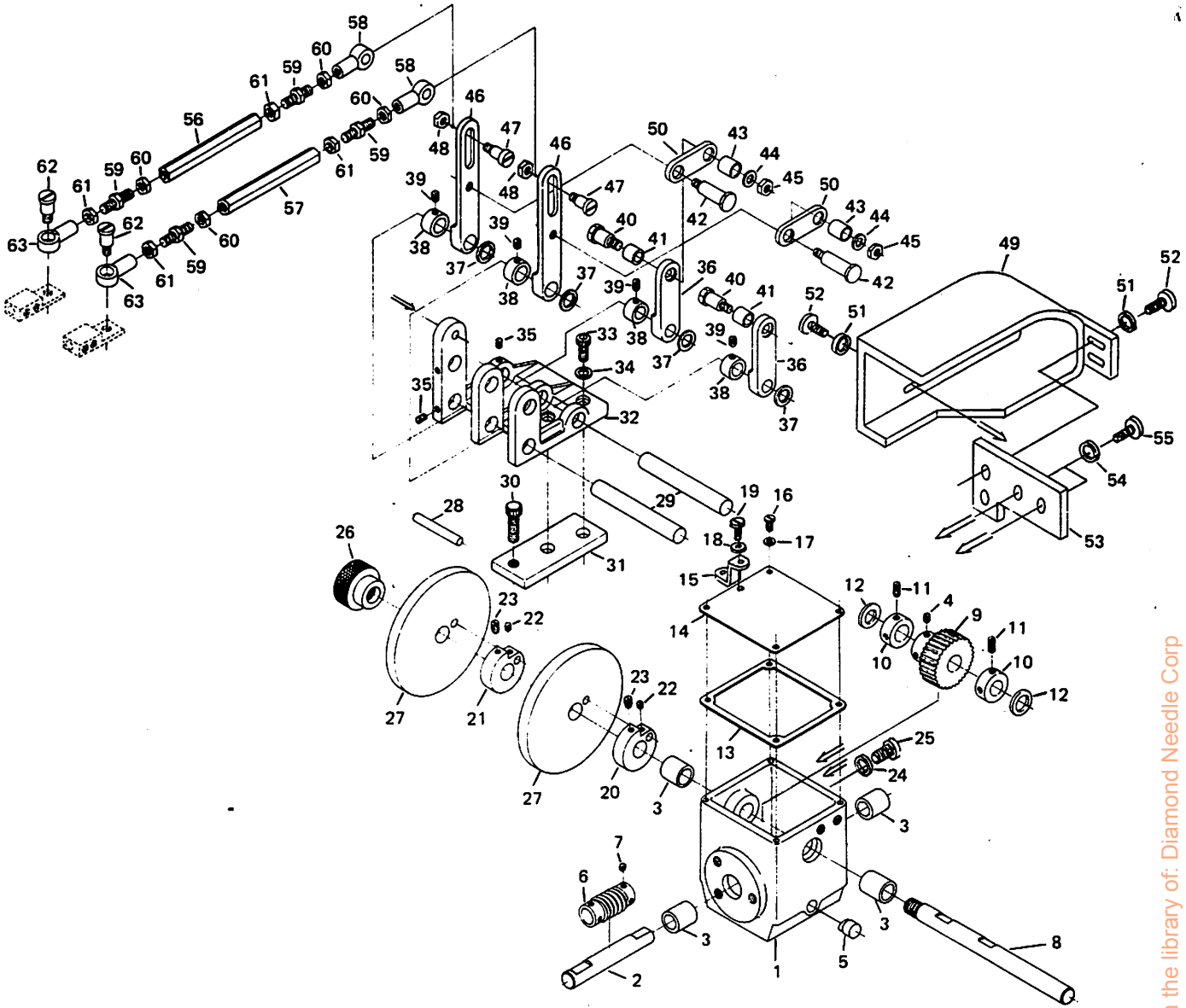
<p>DFB-1012P (PS) DFB-1412PS</p>	<p>Line 2 sets 2mm liner 4mm liner</p>	 <p>(Slot) 17-499 (3/16") 17-498 (1/4")</p> <p>2mm (For light texture) 4mm (For heavy texture)</p> <p>Needle Adjust the presser liner in the back-and-forth direction so that needles drop to stitch bottoms.</p> <p>When stitch feed pitch is small Needle Put liner close to needles. Liner When stitch feed pitch is large Needle Detach liner from needles. Liner</p>
<p>DFB-1012PSM</p>	<p>Fixed step presser</p>	 <p>(With claws) 17-046 (3/16")</p> <p>2mm</p>
<p>DFB-1412PSM</p>	<p>Flat presser (with claws) Fixed step presser</p>	 <p>(With claws) 2 sets Ex. 01016 (3/16") 17-046 (3/16")</p> <p>2mm</p>
<p>DFB-1412P</p>	<p>Flat presser</p>	 <p>(Slot) 17-496 (3/16") 17-497 (1/4")</p>

From the library of: Diamond Needle Corp



Ref. No.	Part No.	Part Name	Q'ty
1	41-439	Bracket A	1
2	85-186	Screw	2
3	84-765	Screw	2
4	41-326	Tension disc plate 6	2
5	84-761	Screw	2
6	41-438	Arm plate	1
7	41-101	Tension disc nut	12
8	41-107	Tension disc cover	12
9	23-324	Felt	12
10	41-111	Tension disc	24
11	41-702	Spring	12
12	41-172	Tension post	12
13	41-131	Collar A	12
14	41-115	Needle thread eyelet	12
15	41-132	Tension post collar B	12
16	41-461	Bracket B	1
17	84-521	Screw	2
18	71-370	Eyelet pin	2
19	45-342	Thread eyelet	1
20	84-374	Screw	2
21	41-462	Bracket	1
22	45-344	Thread eyelet	1
23	84-374	Screw	1
24	45-343	Thread guide	1
25	26-709	Mount bracket	2
26	84-566	Screw	2

Ref. No.	Part No.	Part Name	Q'ty
27	86-411	Nut	2
28	84-761	Screw	1
29	41-349	Plate bracket bar	2
30	41-105	Tension disc ratchet	12
31	84-763	Screw	2
32	71-460	Looper shaft	1
33	71-459	Rack shaft A	2
34	69-321	Rack housing	1
35	81-141	Bushing	6
36	04-328	Pinion	1
37	84-179	Pin	1
38	04-414	Stopper	2
39	84-361	Screw	4
40	04-415	Bracket	1
41	75-455	Washer	2
42	84-612	Screw	2
43	04-416	Rack bracket	2
44	04-417	Looper bracket	4
45	84-521	Screw	6
46	84-364	Screw	6
47	04-418	Spreader C	1
48	04-419	Spreader B	1
49	04-420	Spreader A	1
50	75-453	Washer	1
51	45-137	Thread eyelet	1



Ref. No.	Part No.	Part Name	Q'ty	Ref. No.	Part No.	Part Name	Q'ty
1	69-320	Gear housing	1	29	71-529	Cam lever shaft	2
2	71-706	Joint shaft	1	30	85-627	Screw	1
3	81-690	Bushing	4	31	04-411	Plate	1
4	85-113	Screw	2	32	04-342	Flame	1
5	39-214	Oil gage	1	33	85-627	Screw	2
6	04-412	Worm	1	34	75-452	Washer	2
7	85-113	Screw	4	35	84-521	Screw	2
8	71-942	Cam drive shaft	1	36	67-431	Lever	2
9	04-413	Worm wheel	1	37	75-433	Washer	4
10	75-112	Collar	2	38	75-152	Collar	4
11	84-761	Screw	4	39	84-521	Screw	8
12	75-332	Washer	2	40	84-607	Screw	2
13	23-412	Gasket	1	41	75-260	Roller	2
14	21-412	Gear housing cover	1	42	84-605	Screw	2
15	77-412	Chain guide	1	43	75-257	Link roller	2
16	84-566	Screw	4	44	75-389	Washer	2
17	75-455	Washer	4	45	86-311	Nut	2
18	75-455	Washer	1	46	67-432	Lever (3/16")	2
19	84-563	Screw	1	47	84-606	Screw	2
20	75-181	Cam collar A	1	48	86-311	Nut	2
21	75-182	Cam collar B	1	49	21-488	Cam cover	1
22	84-512	Screw	2	50	66-433	Link	2
23	84-718	Screw	2	51	75-455	Washer	3
24	75-470	Washer	3	52	84-579	Screw	3
25	85-522	Screw	3	53	21-489	Cam cover arm B	1
26	88-462	Cam fixing nut	1	54	75-455	Washer	2
27	04-351	Cam 1	1	55	84-566	Screw	2
27	04-352	Cam 2	1	56	65-346	Connecting bar (L)	1
27	04-353	Cam 3	1	57	65-347	Connecting bar (S)	1
27	04-354	Cam 4	1	58	04-348	Ball joint R	2
27	04-355	Cam 5	1	59	65-341	Connecting screw	4
27	04-356	Cam 6	1	60	88-157	Nut R	4
27	04-357	Cam 7	1	61	88-158	Nut L	4
27	04-358	Cam 8	1	62	84-587	Screw	2
27	04-359	Cam 9	1	63	04-349	Ball joint L	2
28	71-266	Cam collar pin	1				

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