DFB

Parts List
Instruction Manual

DFB-1412PS
DFB-1012PS
DFB-1412P-SM
DFB-1012P-SM
Specification

<table>
<thead>
<tr>
<th>Model</th>
<th>1012P</th>
<th>1412P</th>
<th>1012P-SM</th>
<th>1412P-SM</th>
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<td>Needle</td>
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<tr>
<td>Looper</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Spreader</td>
<td>0</td>
<td>12</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Thread</td>
<td>12</td>
<td>24</td>
<td>24</td>
<td>36</td>
</tr>
<tr>
<td>Service needle</td>
<td>DV x K25 (#18, #21)</td>
<td>UO x 113 (#11 ~ 18)</td>
<td>DV x K25 (#18, #21)</td>
<td>DV x 57 (#11 ~ 18)</td>
</tr>
<tr>
<td>Needle gauge</td>
<td>4.76 x 11 = 52.36, 6.35 x 11 = 69,85</td>
<td>4.76 x 11 = 52.36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeding mechanism</td>
<td>Plain</td>
<td>Plain</td>
<td>Plain</td>
<td></td>
</tr>
<tr>
<td>Stitch length</td>
<td>3.5 ~ 4 stitches/inch</td>
<td>8 ~ 14 stitches/inch</td>
<td>3.5 ~ 4 stitches/inch</td>
<td>8 ~ 14 stitches/inch</td>
</tr>
<tr>
<td>Max. speed</td>
<td>2,000 rpm</td>
<td>4,500 rpm</td>
<td>2,000 rpm</td>
<td></td>
</tr>
<tr>
<td>Needle thread</td>
<td>Elastic thread (U.S.A.) #2T or #3M</td>
<td>Spun thread #50 ~ 80</td>
<td>Elastic thread (U.S.A.) #2T or #3M</td>
<td>Spun thread #50 ~ 60</td>
</tr>
<tr>
<td>Looper thread</td>
<td>Spun thread #50 ~ 60</td>
<td></td>
<td></td>
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<tr>
<td>Ornament thread</td>
<td>Rayon and synthetic thread</td>
<td>Rayon and synthetic thread</td>
<td></td>
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</tbody>
</table>

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 pully to lift the needle her 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.
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 1 mm higher than needle hole (See Fig. 5) during forward movement when the needle bar locates 7 mm above its lowest position, and looper tip is 2.5 mm higher than needle hole (See Fig. 6) during backward movement when the needle bar locates 28 mm 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 — 0.1 mm as shown in Fig. 7.
1) Install loopers and needle guide on looper holder. Adjust the clearance between needle and looper to 3 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 3.0 mm. Then, fasten screw for loopers completely.

5. Spreader alignment

The right clearance between needles and spreaders is 0.35 — 0.40 mm 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 guage.)

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.

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

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.

   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.

3. Looper
   This sewing machine uses Organ needles.
   DVK-20 #21: 1.8mm
   DVK-20 #18: 2.0mm
   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 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).
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.

5. Looper setting angle
Set loopers so that looper center and needle center are on a center line.

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.
Kinds of standard cams (9 pieces)

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

<table>
<thead>
<tr>
<th>Model</th>
<th>Presser</th>
<th>Needle plate</th>
<th>Feed dog</th>
<th>Looper rocker</th>
<th>Tread collector bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFB-1412PSM</td>
<td>EX01016</td>
<td>14-497</td>
<td>15-497</td>
<td>19-497</td>
<td>18-497</td>
</tr>
<tr>
<td>DFB-1012PS</td>
<td>17-499(3/16&quot;)</td>
<td>14-046(3/16&quot;)</td>
<td>15-046</td>
<td>19-496</td>
<td>18-496</td>
</tr>
<tr>
<td>DFB-1412PQ</td>
<td>17-491(1/4&quot;)</td>
<td>14-499(1/4&quot;)</td>
<td>15-499</td>
<td>19-496</td>
<td>18-496</td>
</tr>
<tr>
<td>DFB-1412PQSM</td>
<td>Optional</td>
<td>14-499(1/4&quot;)</td>
<td>15-499</td>
<td>19-496</td>
<td>18-496</td>
</tr>
<tr>
<td>DFB-1012PS-SM</td>
<td>17-046(3/16&quot;)</td>
<td>14-046(3/16&quot;)</td>
<td>15-497</td>
<td>19-497</td>
<td>18-497</td>
</tr>
</tbody>
</table>

- **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

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Liner Sizes</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFB-1012P (PS)</td>
<td>Line 2 sets</td>
<td>2mm liner, 4mm liner</td>
</tr>
<tr>
<td>DFB-1412PS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DFB-1012PSM</td>
<td>Fixed step presser</td>
<td></td>
</tr>
<tr>
<td>DFB-1412PSM</td>
<td>Flat presser (with claws)</td>
<td></td>
</tr>
<tr>
<td>DFB-1412P</td>
<td>Flat presser</td>
<td></td>
</tr>
</tbody>
</table>

**Adjustments and Liner Placement**

- **DFB-1012P (PS), DFB-1412PS:**
  - Adjust the presser liner in the back-and-forth direction so that needles drop to stitch bottoms.
  - Needle drop position varies with stitch feed pitch.
  - Use a 2mm liner for light texture and a 4mm liner for heavy texture.

- **DFB-1012PSM:**
  - Use 3mm liner for all textures.

- **DFB-1412PSM:**
  - Use 2mm liner for all textures.

**Needle Drop Positions**

- **Needle drop position** changes with stitch feed pitch.

**Notation**

- **(Slot)**
- **(For light texture)***
- **(For heavy texture)***
- **(With claws)***

**Examples:**

- **DFB-1012P (PS), DFB-1412PS:**
  - Needle drop position varies with stitch feed pitch.
  - Use **17-499 (3/16")** for light texture.
  - Use **17-498 (1/4")** for heavy texture.

- **DFB-1012PSM:**
  - Use **17-046 (3/16")** for all textures.

- **DFB-1412PSM:**
  - Use **Ex. 01016 (3/16")** for all textures.

**Additional Information:**

- **17-046 (3/16")**
- **17-496 (3/16")**
- **17-497 (1/4")**

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