

Section 3.4

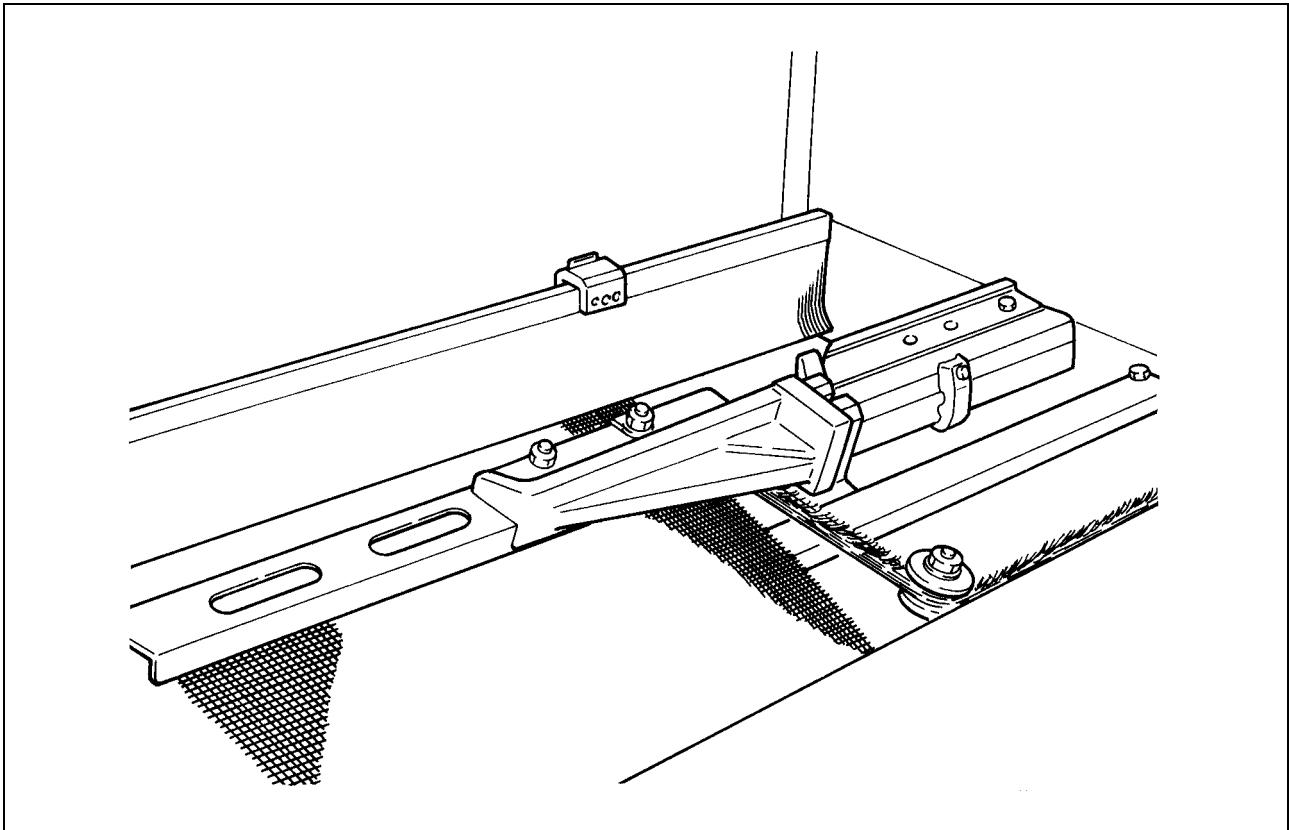
Temple

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3. CLOTH TAKE-UP MOTION

3.4 Temple

The temple prevents the woven fabric from shrinking in width and ensures stable cloth fell, by spreading the fabric in the direction of its width to an extent which does not influence the fabric quality.



3.4.1 Temple with Upper Cover

[1] Front-to-rear positioning

- (1) Set the crank angle at 0°.
- (2) Press the emergency stop button down until it locks itself and the machine.
- (3) Loosen nut **2** which secures temple bar bracket **1** located at both sides of the weaving machine.
- (4) Loosen bolt **5** holding bar bracket **4** on breast beam **3**.
- (5) Move temple bar **6** forwards or backwards so that there is the following clearance "a" between reed **9** and yarn guide plate **8** mounted on the front end of temple cover **7**.

■ For 800 rpm or less

Fabric	Clearance "a"
Standard-density	1.5 mm
High-density	1 mm

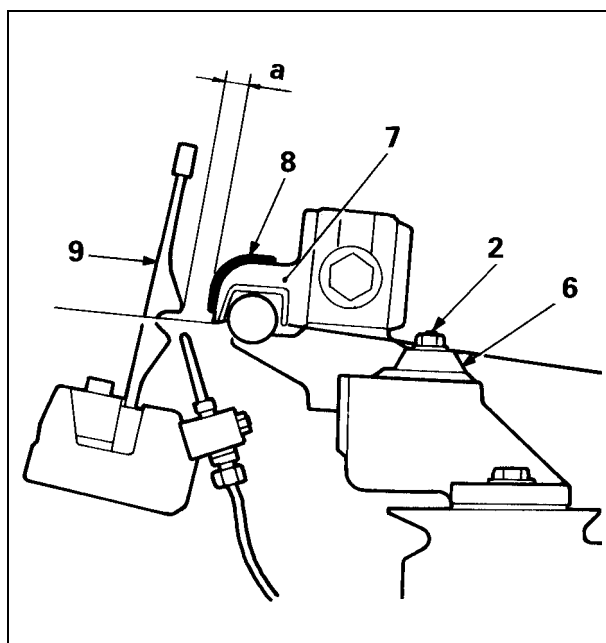
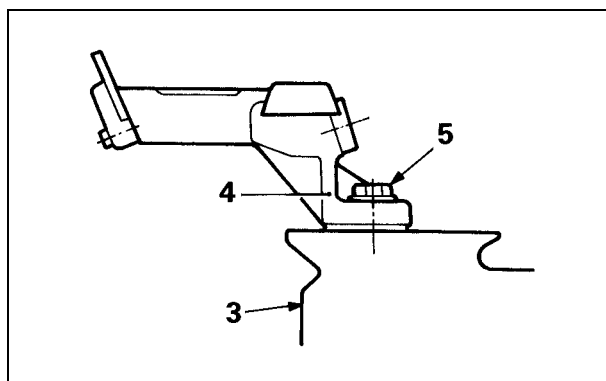
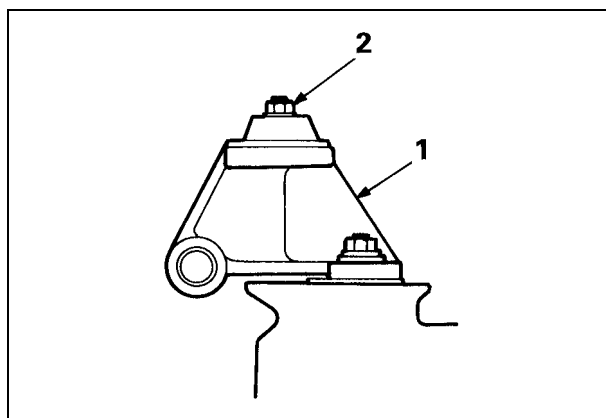
■ For 800 rpm or more

Fabric	Clearance "a"
Standard-density	1.5-2 mm
High-density	1-1.5 mm

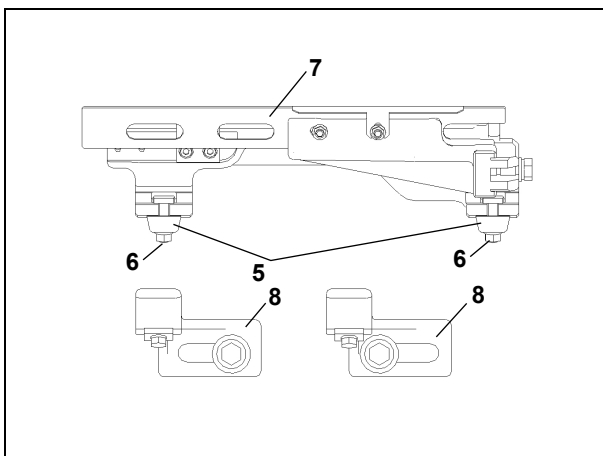
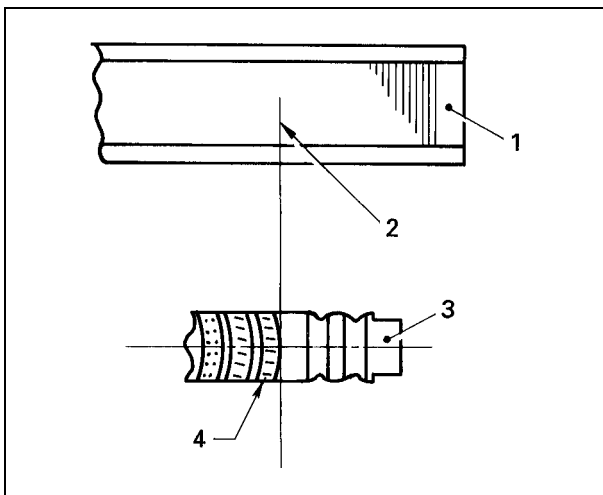
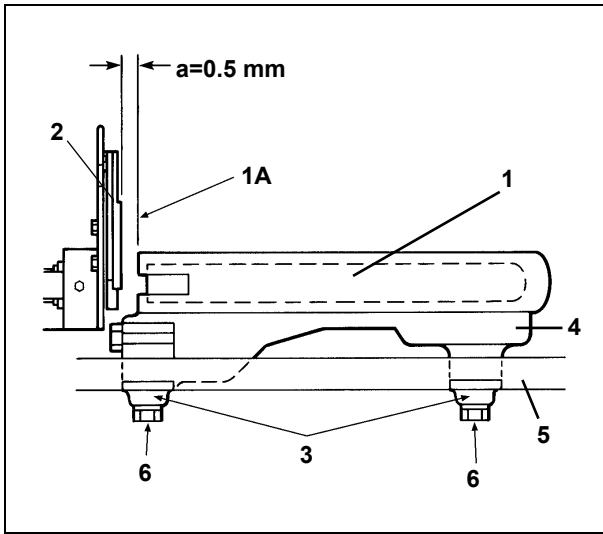
NOTE: The adjustment of clearance "a" should be accurate. If reed **9** comes into contact with yarn guide plate **8** when the machine is in operation, the reed will be broken.

- (6) Tighten nut **2**.
- (7) Tighten bolt **5**.
- (8) Release the emergency stop button.

IMPORTANT: Run the machine to check that reed **9** does not come into contact with yarn guide plate **8**.



3. CLOTH TAKE-UP MOTION



[2] Right-to-left positioning

[2.1] At the left-hand side of the machine

- (1) Loosen bolts **6** holding clampers **3**.
- (2) Move temple case **4** so that clearance "a" between left end **1A** of temple ring **1** and upper cutter blade **2** becomes 0.5 mm.
- (3) Mount temple case **4** onto temple bar **5** with clampers **3**.

NOTE: For the weaving machine equipped with the half-leno selvage device, apply different adjustment and clearance. Refer to Chapter 8, Section 8.2 "Half-leno Selvage Device (Klöcker)."

[2.2] At the right-hand side of the machine

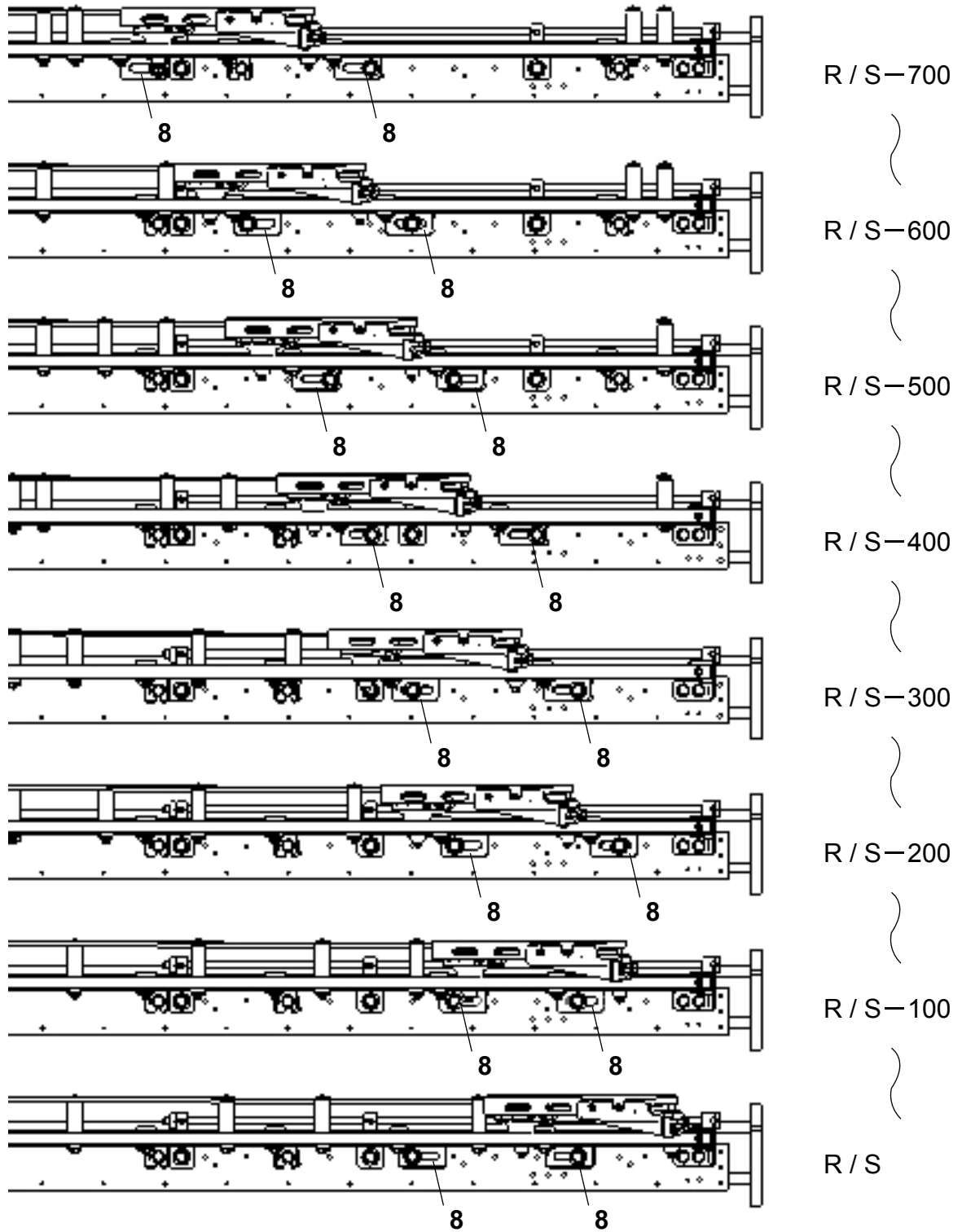
- (1) Pull warps drawn through reed **1** towards the operator, at right angles to reed **1**.
- (2) Adjust temple **3** so that the right end of first ring **4** on temple **3** is aligned with rightmost warp **2**.
- (3) After weaving start-up, make sure that the right end of the fabric is supported by the whole surface of the first ring **4**. If not supported by the whole surface, readjust temple **3**.

- (4) To change the drawing-in width, loosen bolts **6** (holding clampers **5**), move temple ring **7** to the desired position, and tighten bolts **6**.
- (5) Position temple bar brackets **8**, referring to the illustrations given on the next page.

Tightening torque of bolts:

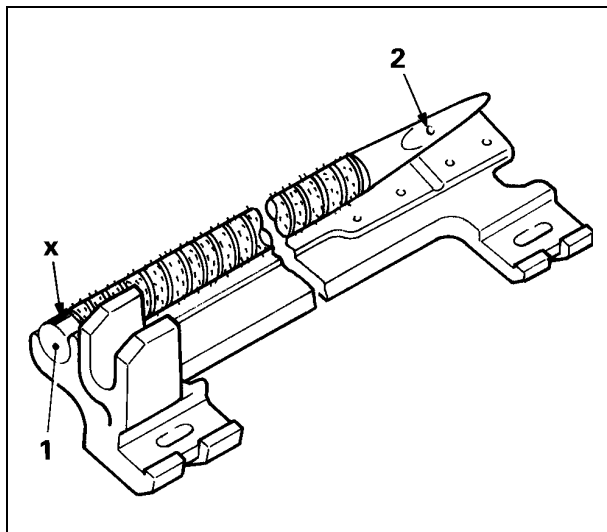
44.1 to 49.0 N•m
(450 to 500 kg•cm)

■ Shown below are clamping positions of temple bar brackets 8.



IMPORTANT: It is important to set temple bar brackets 8 as close to temple case clampers 3 as possible.

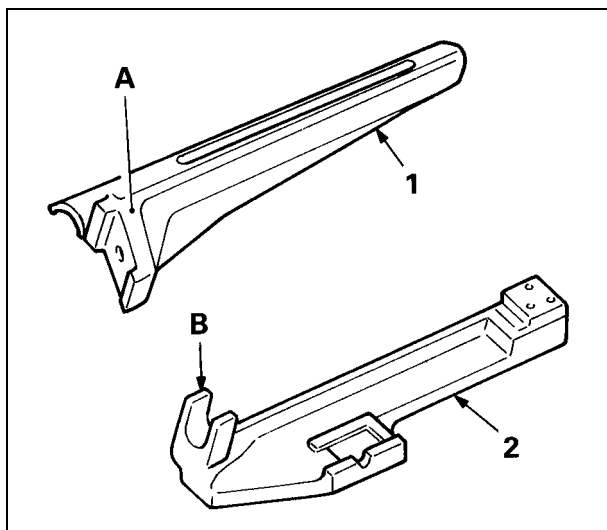
3. CLOTH TAKE-UP MOTION



[3] Adjusting the inclination of the temple ring

Loosen clamping bolt 2 and turn temple ring 1 so that alignment mark x faces up. Then, tighten clamping bolt 2.

- To make the pulling force of the temple stronger, bring alignment mark x to the opposite side of the reed (that is, tilt the temple to the rear). Take care not to allow the cloth edge to work out of the temple edge; otherwise, slacked warp yarns may result.
- To make the pulling force of the temple weaker, bring alignment mark x to the reed (that is, tilt the temple to the front).



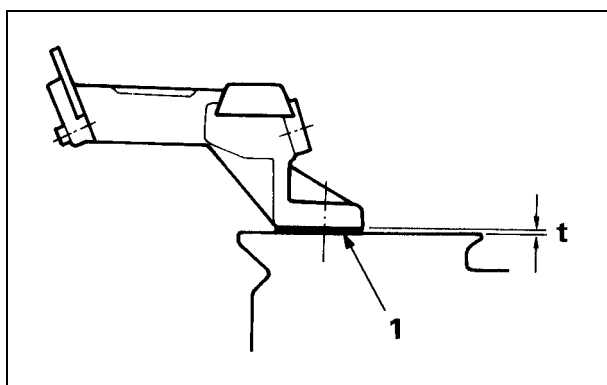
[4] Fitting the temple cover

Fit temple cover 1 onto temple case 2 so that the upper ends A and B comes flush with each other.



⚠ CAUTION

Never carry out the above job while the machine is in operation. There is the possibility of crushing hands between the temple cover and the reed.



[5] Positioning the fell plate

- (1) Determine the thickness "t" of temple bar shim 1 according to the fabric construction, by referring to the table below.

For the cam shedding motion or doobby

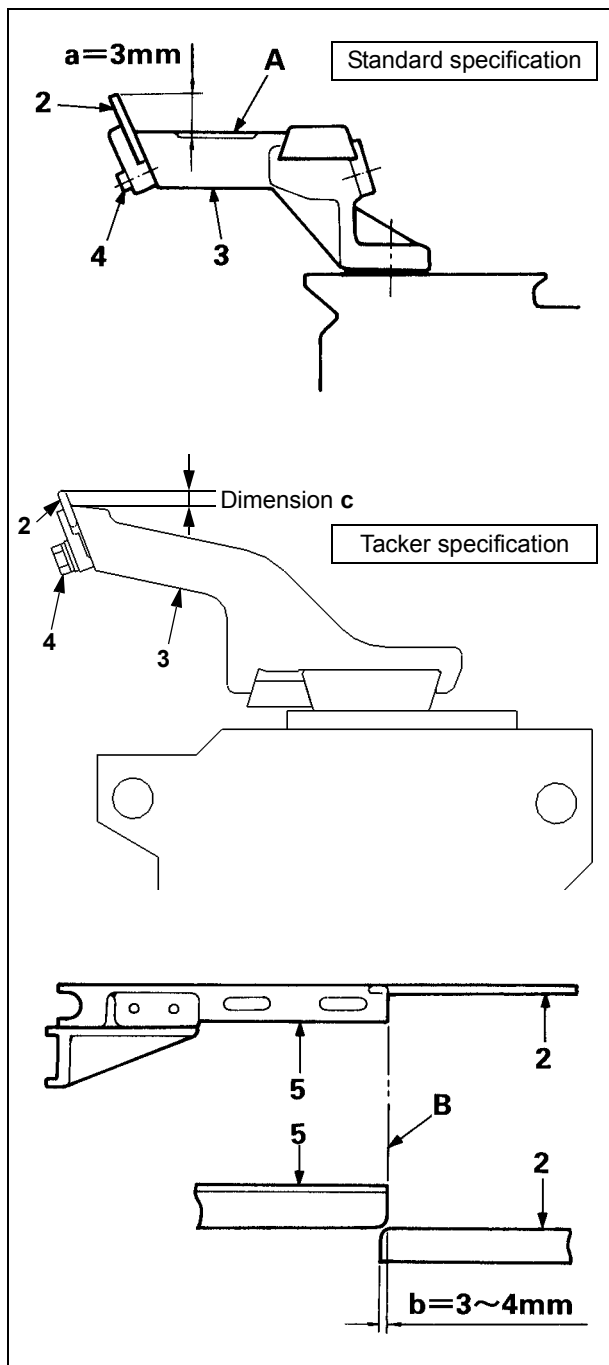
Fabric construction	Shim thickness "t"
1/1 2/2 1/2 1/3 1/4	4 mm
2/1 3/1 4/1	2 mm

For the crank shedding motion

Fabric construction	Shim thickness "t"
1/1	2 mm

NOTE: Make sure that temple bar shim (t=2 mm or longer) is inserted.

When driving without insertion of temple bar shim, the feeler may be damaged by hitting temple cover.



Prior to proceeding to the following steps, make sure that the temple is positioned.

■ **Standard specification**

- (1) Loosen bolts **4** holding fell plate **2** at both sides of the weaving machine.
- (2) Adjust fell plate **2** vertically so that its top end is positioned 3 mm above surface **A** of plate bracket **3**.
- (3) Adjust fell plate **2** to the right or left so that it overlaps temple cover **5** by 3 to 4 mm from each end **B** of temple cover **5**.
- (4) Tighten bolts **4**.

■ **Tacker specification**

- (1) Loosen bolt **4** than fastens fell plate **2**.
- (2) Adjust fell plate **2** vertically to the height from fell plate bracket **3** that is determined for each fabric texture.

Cam and dobbie specification

Texture	Dimension "c"
1/1, 2/2, 1/2, 1/3, 1/4	6 mm
2/1, 3/1, 4/1	4 mm

Crank specification

Texture	Dimension "c"
1/1	4 mm

- (3) Adjust fell plate **2** to the right or left so that it overlaps temple cover **5** by 3 to 4 mm from each end **B** of temple cover **5**.
- (4) Tighten bolts **4**.

3. CLOTH TAKE-UP MOTION

[6] Types of temples

(1) The table below lists the standard temples to be used for each type of fabrics.

No.	Type of temples	Fabric type	Lawn		Poplin, broad cloth, and other fine cloth		Fabric woven with 2-ply yarns, drill, and corduroy		High-density fabric with 60s or less		High-density fabric with more than 60s	
			Reed space (cm)	150 170	190	150 170	190	150 170	190	150 170	190	150 170
1	16 rings with 3 needles each (from 5° to 20° in increments of 1°)	Medium			✓							
2	Same as above.	Fine			✓							
3	Same as above.	Extra fine										
4												
5	24 rings with 3 needles each (from 5° to 20° in increments of 1°)	Medium				✓	✓	✓				
6	Same as above.	Fine	✓	✓		✓			✓	✓		
7	Same as above.	Extra fine	✓	✓							✓	
8	30 rings with 3 needles each (from 5° to 20° in increments of 1°)	Medium						✓				
9	Same as above.	Fine								✓		
10	Same as above.	Extra fine		✓		✓					✓	✓
11	48 rings with 1 needle each	Fine		✓							✓	✓

NOTE: For some low-density fabrics or filament fabrics, use the following types of temples:

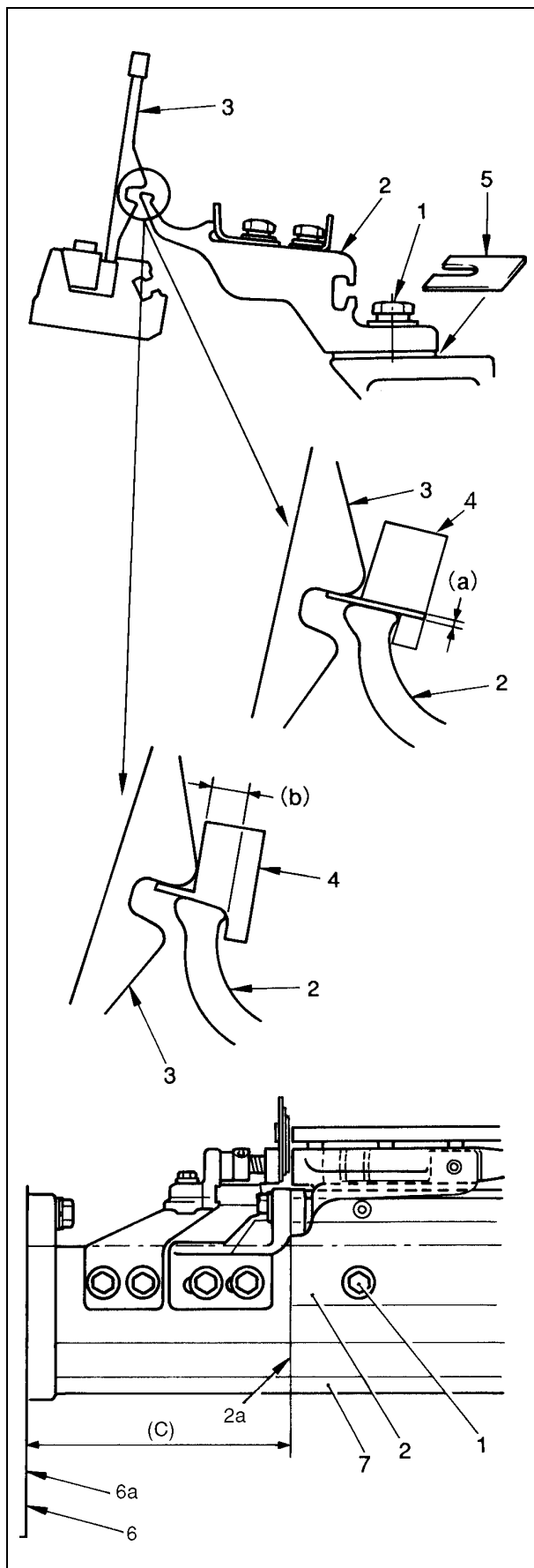
- 1 ring with 3 needles
- 1 ring with 5 needles
- 3 rings with 1 needle each
- Rubber temple

Temples to be used will differ depending upon the fabric types, so contact TOYOTA for details.

(2) Adjusting the angle of the temple

Temples should be positioned without tilt so that the alignment mark on the temple faces up. However, if any of the following problems occur, adjust the angle of the temple. Note that the following are merely general hints for adjustment and they differ depending upon the fabric texture and weaving conditions.

- | | | |
|--|---|--|
| <ul style="list-style-type: none"> a) If wefts are cut by the temple, b) If needle marks are found, c) If the woven fabric slips off the temple corner, d) If the woven fabric is entangled between the rings, | } | ⇒ Tilt the temple towards the reed (to the front). |
| <ul style="list-style-type: none"> e) If the woven fabric is not spread sufficiently, f) If the rings are unstable during machine operation so that the woven fabric slips off the temple needles, | } | ⇒ Tilt the temple towards the opposite side of the reed (to the rear). |



3.4.2 Temple with Lower Cover

[1] Positioning the fell support

[1.1] Up-down positioning

Adjust the position of fell support **2** relative to reed **3**.

- (1) Set the crank angle at 0° .
- (2) Loosen bolt **1**.
- (3) Apply gauge **4** (J8205-02010-00) to both the top of fell support **2** and the upper jaw of reed **3** as shown at left (" a " = 0.7 mm), and then adjust the fell support **2** vertically by increasing or decreasing the number of shims **5** (t = 0.5 mm) underneath the fell support.
- (4) Temporarily tighten bolt **1**.

[1.2] Front-to-rear positioning

Adjust the position of fell support **2** relative to reed **3**.

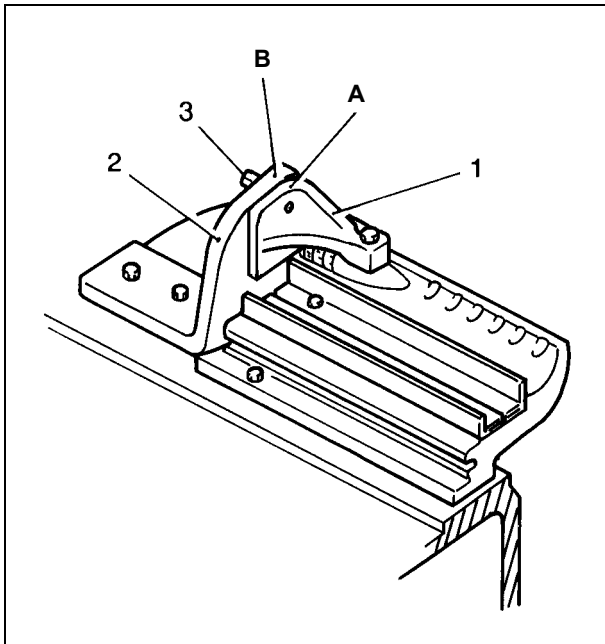
- (1) Make sure that the crank angle is set at 0° .
- (2) Apply gauge **4** to both the top of fell support **2** and the upper jaw of reed **3** as shown at left (" b " = 6.0 mm), and then position the fell support **2** by moving it towards the front or rear.

[1.3] Right-to-left positioning

- (1) Adjust the position of fell support **2** towards the right or left so that the distance " c " from left end **2a** of fell support **2** to inside face **6a** of side frame **6** is 200 mm.
- (2) Firmly tighten bolt **1** to secure fell support **2** to breast beam **7**.

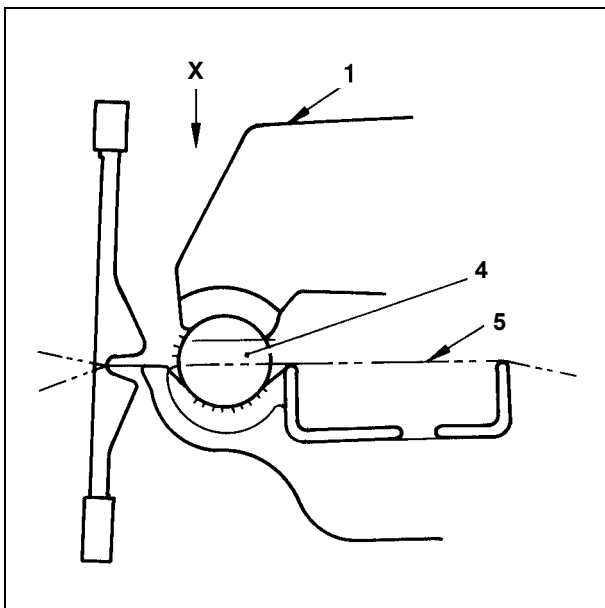
TIP: The positioning (up-down, right-to-left, front-to-rear) procedure and dimensions as described above can be applied to any fell support **2**, irrespective of the yarn type (spun, filament, or glass fiber) and the temple type (ring temple or full-width temple).

3. CLOTH TAKE-UP MOTION

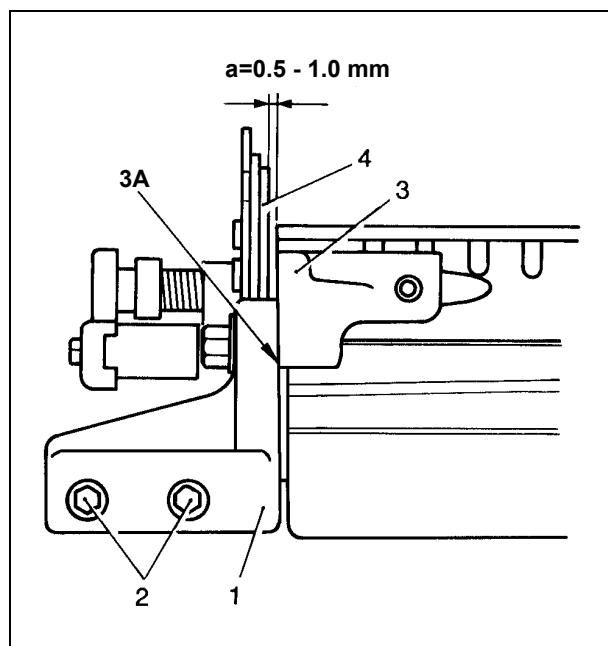


[2] Up-down positioning of temple ring

- (1) Adjust the position of temple support 1 upwards or downwards so that its top A becomes flush with top B of temple holder bracket 2. Then, tighten bolt 3.



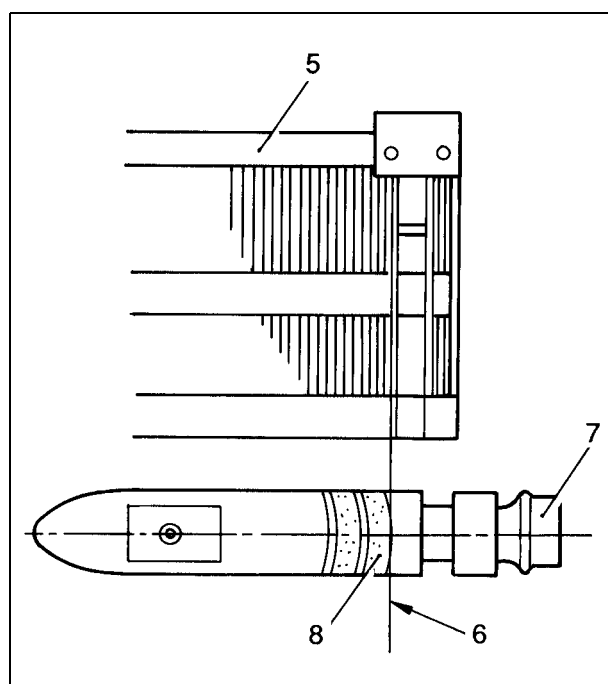
- (2) If the temple spreads the fabric poorly, shift down temple support 1 (in the direction of arrow X) to make temple ring 4 catch more fabric 5 for a proper fabric spreading. Basically, the first temple ring 4 should be aligned with the edge of the fabric.



[3] Right-to-left positioning of temple

[3.1] At the left-hand side of the machine

- (1) Loosen bolts 2 securing temple holder bracket 1.
- (2) Move temple holder bracket 1 to the right or left so that clearance "a" between left end 3A of temple support 3 and cutter's upper blade 4 is 0.5-1.0 mm.
- (3) Firmly tighten bolts 2.



[3.2] At the right-hand side of the machine

- (1) Pull warps drawn through reed 5 towards the operator, at right angles to reed 5.
- (2) Adjust temple 7 so that the right end of first ring 8 on temple 7 is aligned with rightmost warp 6.
- (3) After weaving start-up, make sure that the right end of the fabric is supported by the whole surface of first ring 8. If not supported by the whole surface, re-adjust temple 7.

3. CLOTH TAKE-UP MOTION

[4] Types of temples

(1) The table below lists the standard temples to be used for each type of fabrics.

No.	Type of temples	Fabric type	Lawn		Poplin, broad cloth, and other fine cloth		High-density fabric with 60s or less		Thin fabric of finished filament		Medium or thick fabric of finished filament		Filament taffeta	
			Reed space (cm)	150 170	190	150 170	190	150 170	190	150 170	190	150 170	190	150 170
1	16 rings with 3 needles each (from 5° to 20° in increments of 1°)	Medium			✓									
2	Same as above.	Fine			✓									
3	24 rings with 3 needles each (from 5° to 20° in increments of 1°)	Medium				✓								
4	Same as above.	Fine	✓	✓		✓	✓	✓						
5	Same as above.	Extra fine	✓	✓										
6	30 rings with 3 needles each (from 5° to 20° in increments of 1°)	Fine						✓						
7	Same as above.	Extra fine		✓		✓								
8	48 rings with 1 needle each	Fine		✓										
9	1 ring with 5 needles	Fine											✓	✓
10	2 rings with 4 needles, rubber (16-ring length)								✓	✓				
11	2 rings with 4 needles, rubber (24-ring length)										✓	✓		

NOTE: For some low-density fabrics or filament fabrics, use the following types of temples:

- 1 ring with 3 needles
- 1 ring with 5 needles
- 3 rings with 1 needle each
- Rubber temple

Temples to be used will differ depending upon the fabric types, so contact TOYOTA for details.

(2) Adjusting the angle of the temple

Temples should be positioned without tilt so that the alignment mark on the temple faces up. However, if any of the following problems occur, adjust the angle of the temple. Note that the following are merely general hints for adjustment and they differ depending upon the fabric texture and weaving conditions.

- | | | |
|--|---|---|
| a) If wefts are cut by the temple, | } | ⇒ Tilt the temple to the front (to the reed). |
| b) If needle marks are found, | | |
| c) If the woven fabric slips off the temple corner, | | |
| d) If the woven fabric is entangled between the rings, | } | ⇒ Tilt the temple to the rear (to the opposite side of the reed). |
| e) If the woven fabric is not spread sufficiently, | | |
| f) If the rings are unstable during machine operation so that the woven fabric slips off the temple needles, | | |