

Section 7.1

IR Feeler

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7.1 IR Feeler

7.1.1 General

[1] Major Features

This optical feeler has the following features:

- (1) Easier to set and adjust as well as possible to adjust feeler amplifier without using oscilloscope. Also more precisely adjustment can be done by use of oscilloscope displaying signal wave.
- (2) It is almost unnecessary to adjust the feeler when changing the weaving yarn type or rotation speed (in case of 100 rpm or less).

[2] Principle of IR Feeler

- (1) When weft yarn passes through the clearance of feeler head, IR feeler senses signal intercepting optical light from the sensor as a weft signal.
- (2) Input of this yarn signal is judged to determine whether to operate the loom or to stop it.

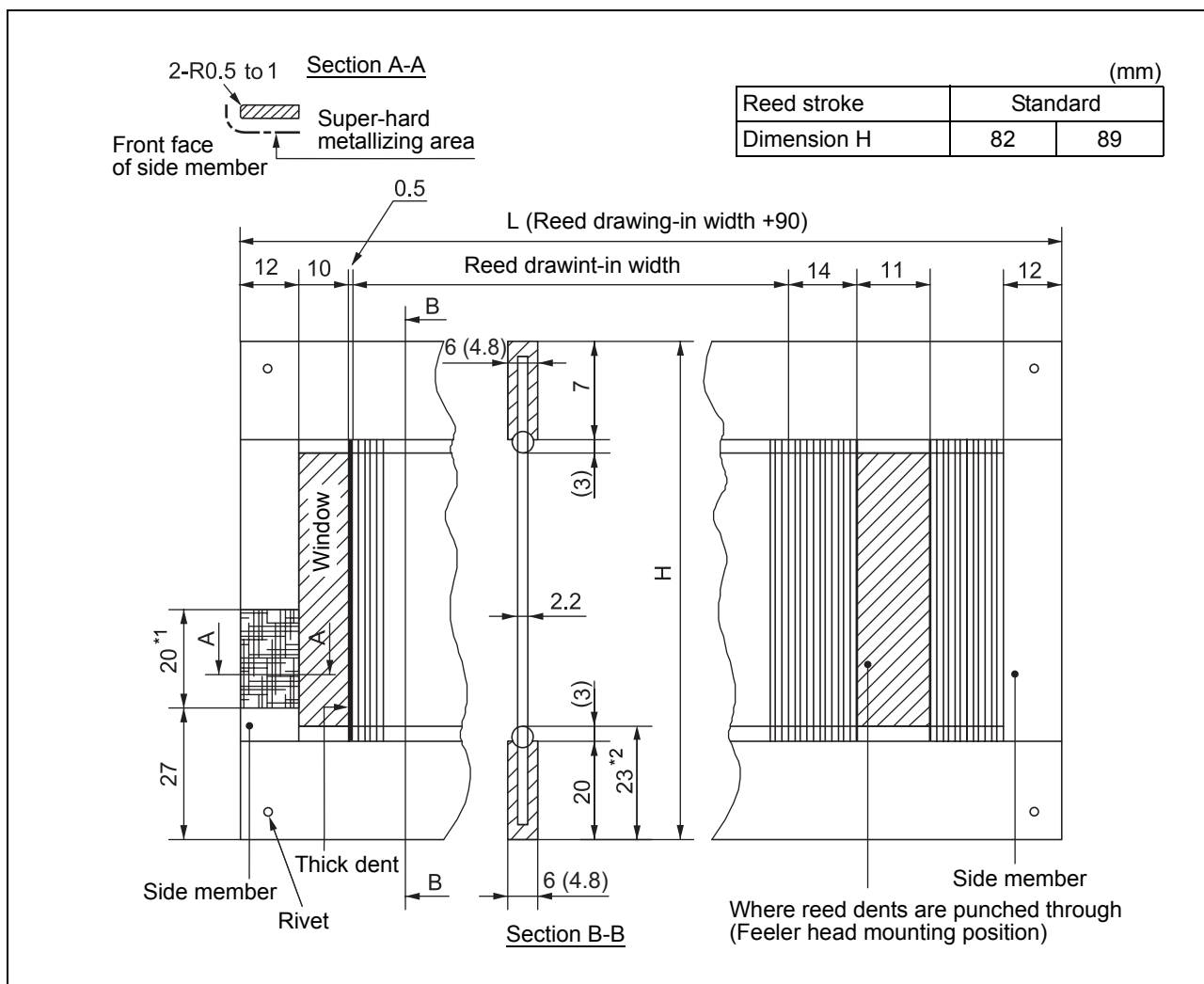
NOTE: When the timing light beam is irradiated at near the feeler head during loom running, the light may enter the light receiving block to cause wasteful stop or empty weaving. Be careful when the timing light is to be used for a long period.

[3] Dimensions of Reed

See Figs. 1 and 2.

- (1) The IR feeler may be used dent punching as shown in Figs. 1 and 2 on the reed in use. The channel height under the punched portion, however, should be kept at 23 mm or less. If 23 mm is exceeded, contact with the bottom surface of the feeler head may arise.
- (2) This reed does not allow use in reversed state between right and left.

■ Fig. 1 Reed for IR feeler (Punched dent type)

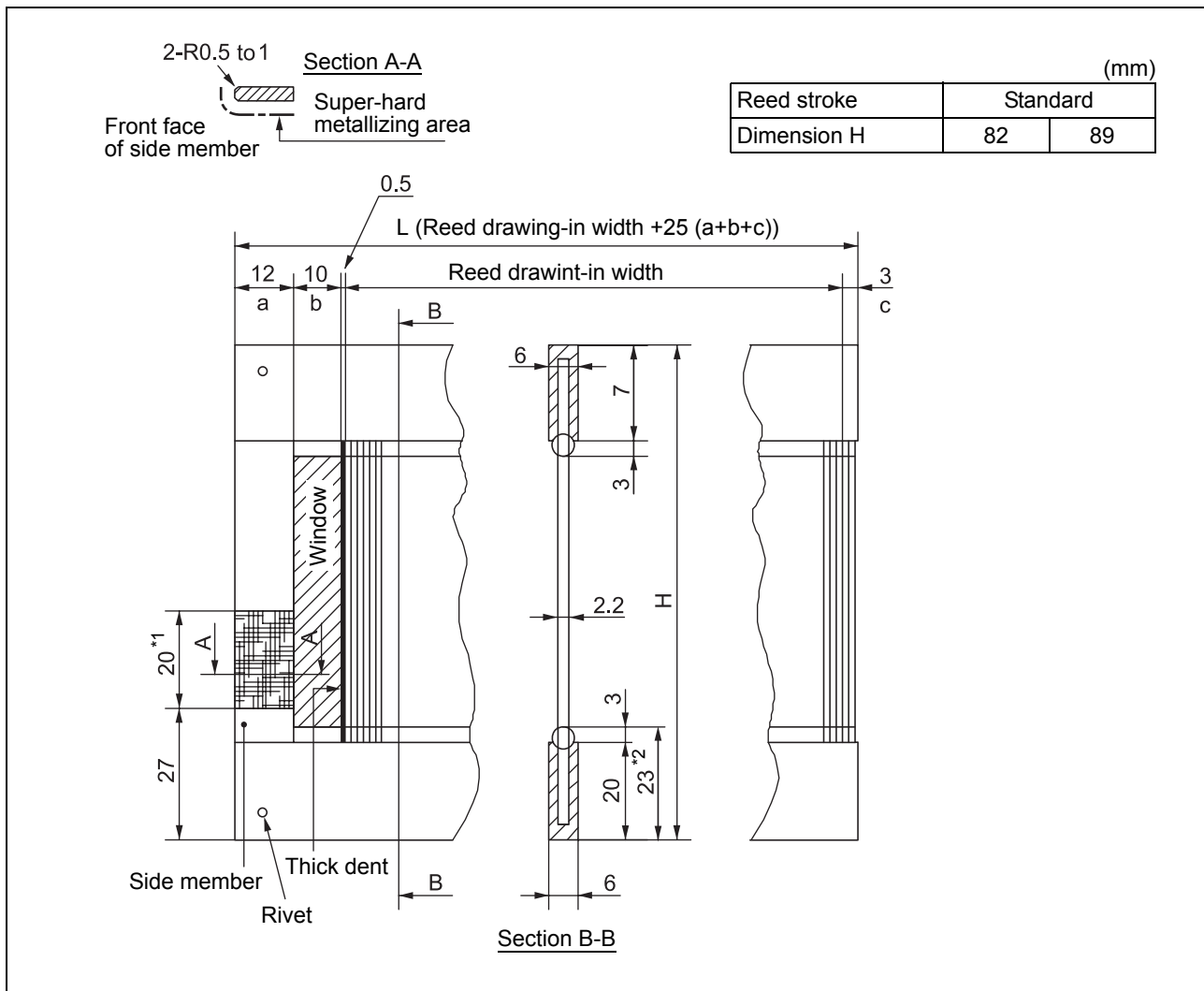


NOTE:

- (1) This reed is for the use of water looms.
- (2) Provide a 10 mm wide window and 0.5 mm thick dent on either side of the reed as illustrated. (for cutter)
- (3) There should be no density dispersion. The reed dent should be perpendicular to the bottom member within $90^{\circ} \pm 30'$.
- (4) Punch reed overall length and reed density on the member (channel) surface.
- (5) The two *-marked areas on the front and the back of the LH side-member should be treated with super-hard metallizing. (Praxair, Inc.: LW-IN30)
- (6) Reed wire (SUS304) should be used.
- (7) Use the stainless steel member (channel) if its thickness is 4.8 mm.
- (8) If the upside-down reed is used, change the dimension of the upper member (channel) from 7 mm to 20 mm, and add super-hard metallizing in top and bottom symmetrical positions on the rear side. In case of the upside-down reed, raise the reed curtain to prevent interference with the reed. Also be careful since water spray on the cloth reverse side increases to increase warp yarn desizing. For high speed operation, use the standard reed (7 mm).
- (9) Dimension marked *2 should be less than 23 mm. If exceeding 23 mm, the upper side of reed may touch the lower face of the feeler head.

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■ Fig. 2 Reed for IR feeler (Dummy reed type)



NOTE:

- (1) This reed is for the use of water looms.
- (2) Provide a 10 mm wide window and 0.5 mm thick dent on either side of the reed as illustrated. (for cutter)
- (3) There should be no density dispersion. The reed dent should be perpendicular to the bottom member within $90^\circ \pm 30'$.
- (4) Punch reed overall length and reed density on the member (channel) surface.
- (5) The two *-marked areas on the front and the back of the LH side-member should be treated with super-hard metallizing. (Praxair, Inc.: LW-IN30)
- (6) Reed wire (SUS304) should be used.
- (7) Use the stainless steel member (channel) if its thickness is 4.8 mm.
- (8) If the upside-down reed is used, change the dimension of the upper member (channel) from 7 mm to 20 mm, and add super-hard metallizing in top and bottom symmetrical positions on the rear side. In case of the upside-down reed, raise the reed curtain to prevent interference with the reed. Also be careful since water spray on the cloth reverse side increases to increase warp yarn desizing. For high speed operation, use the standard reed (7 mm).
- (9) Dimension marked *2 should be less than 23 mm. If exceeding 23 mm, the upper side of reed may touch the lower face of the feeler head.

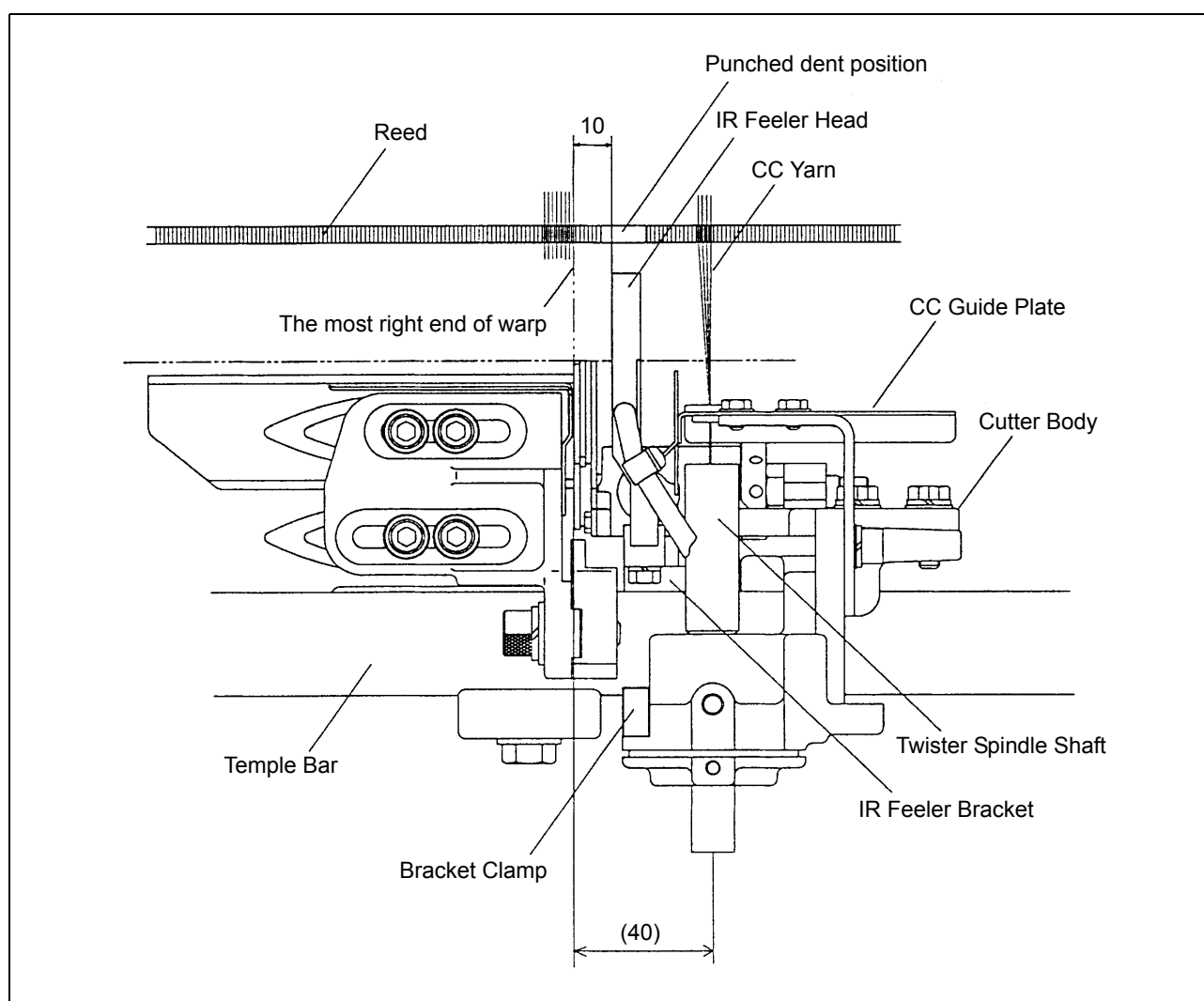
7.1.2 Adjustments of the Mounting Position of the IR Feeler Head

[1] Attaching Reed

- (1) Attach reed in the horizontal position to the reed holder as feeler may touch the reed if attached upper in the right side.
- (2) Adjust the eccentric-head type bolt so as to set reed in the lowest position.

[2] The Crosswise Position of Feeler Head

- (1) So that the feeler head comes 10 mm from the most right end of warp, fix feeler head bracket to temple bar by bracket clamp after moving IR feeler head bracket.

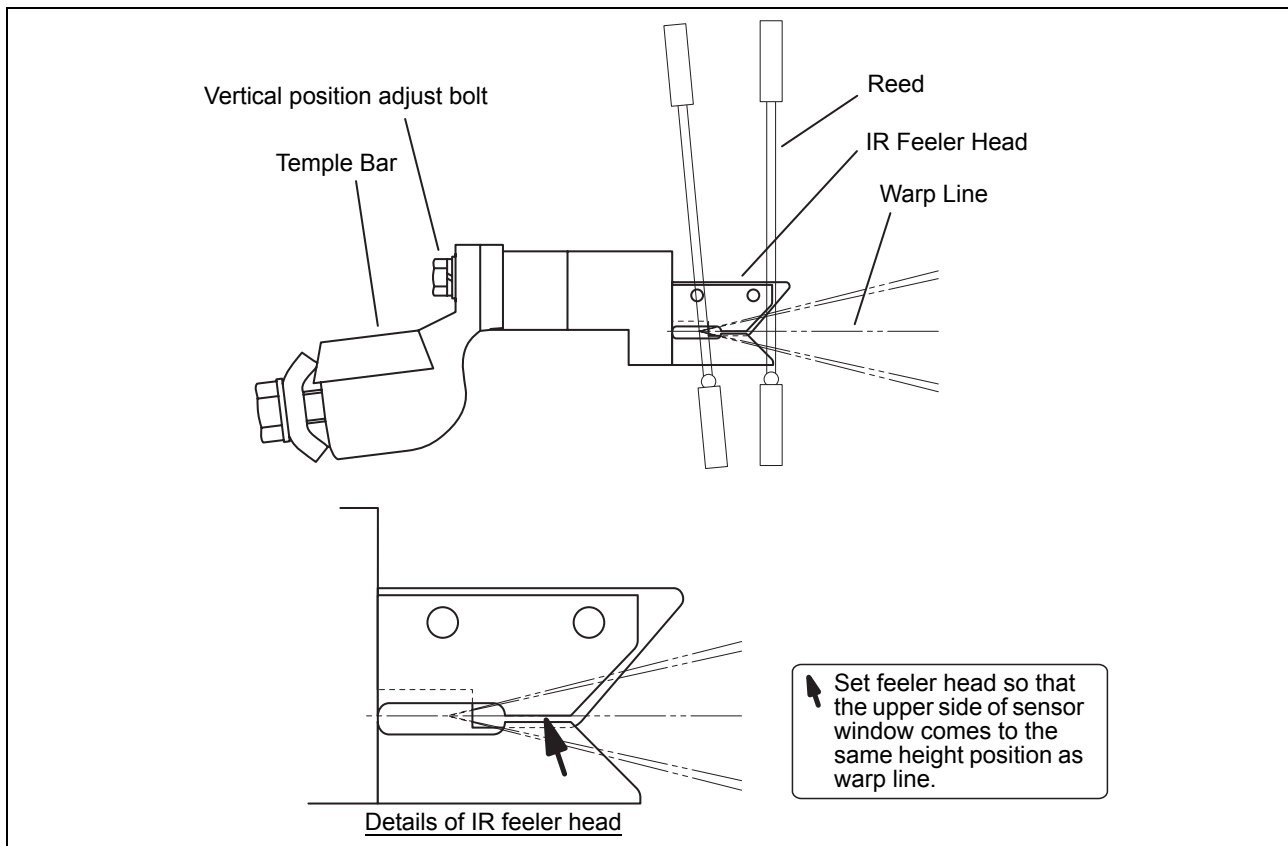


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[3] The Vertical Position of Feeler Head

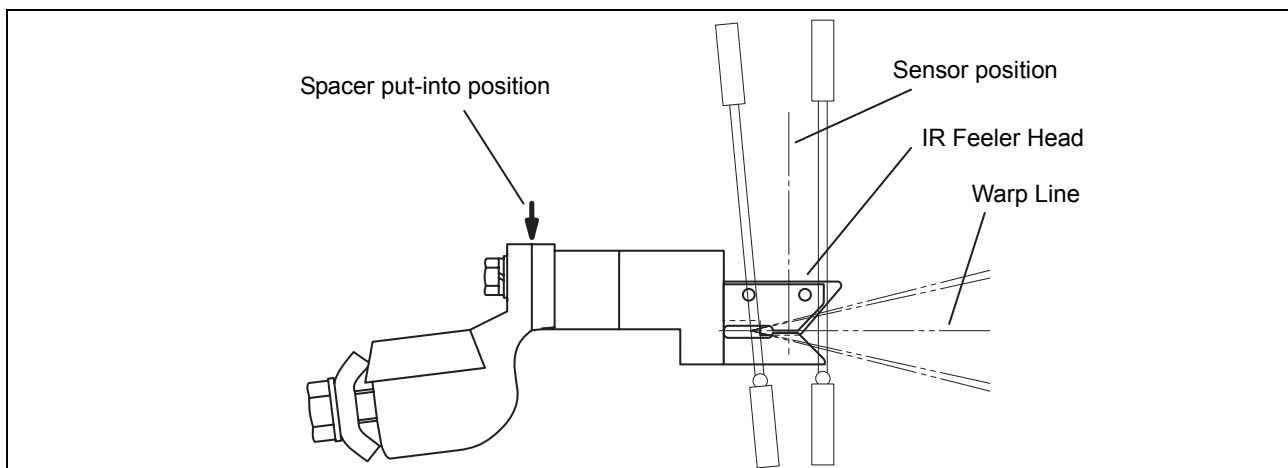
Set the feeler head so that the upper side of the sensor window comes to the same height position as warp line.

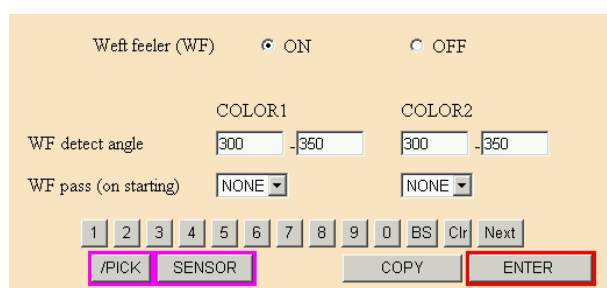
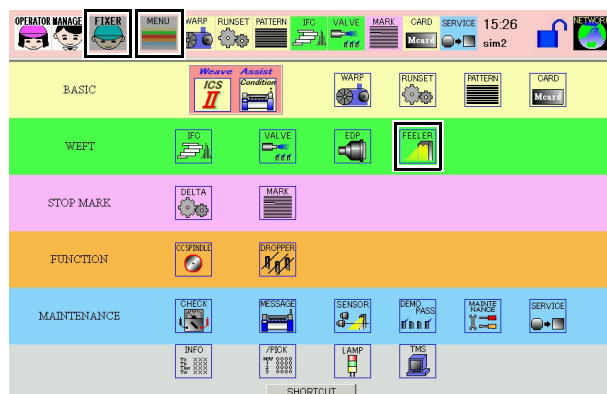
- (1) Make shed closed.
- (2) Remove Jet Funnel.
- (3) After adjusting so that the upper side of the sensor window comes to the same height position as warp line, fix it by vertical position adjust bolt.



[4] The Front and Back Position of Feeler Head

Adjust the front and back position of feeler head by a spacer so that weft yarn passes through the sensor of feeler head at the machine timing of 310° to 330° .





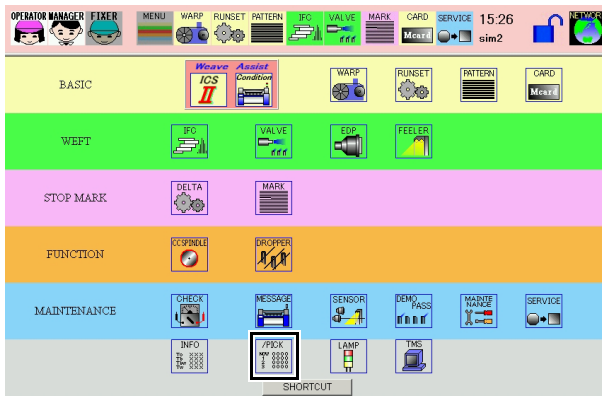
7.1.3 Adjustment

[1] IR Feeler Setting on Function Panel

Press [FIXER] – WEFT on [MENU] – [FEELER] switch to change as follows:

- (1) Set the weft feeler to [ON]. Touch [OFF] when the weft feeler is not to be used.
- (2) Set the feeler detection angle as the WF detection angle.
Set the “angle of yarn passing between head transmitter and receiver -10° ” and “angle of yarn passing between head transmitter and receiver $+20^{\circ}$.” If the yarn passes at 320° , set [310] – [340]. If the remaining yarn is loose to cause wasteful stop, increase the detection end angle by 10° to set [310] – [350].
- (3) WF pass (on starting)
When a value is input, weft miss is passed from the start until that input pick count. The loom, therefore, does not stop is any weft miss occurs within the set count.
Standard setting is [NONE].
The setting range is 1, 2, and 3.

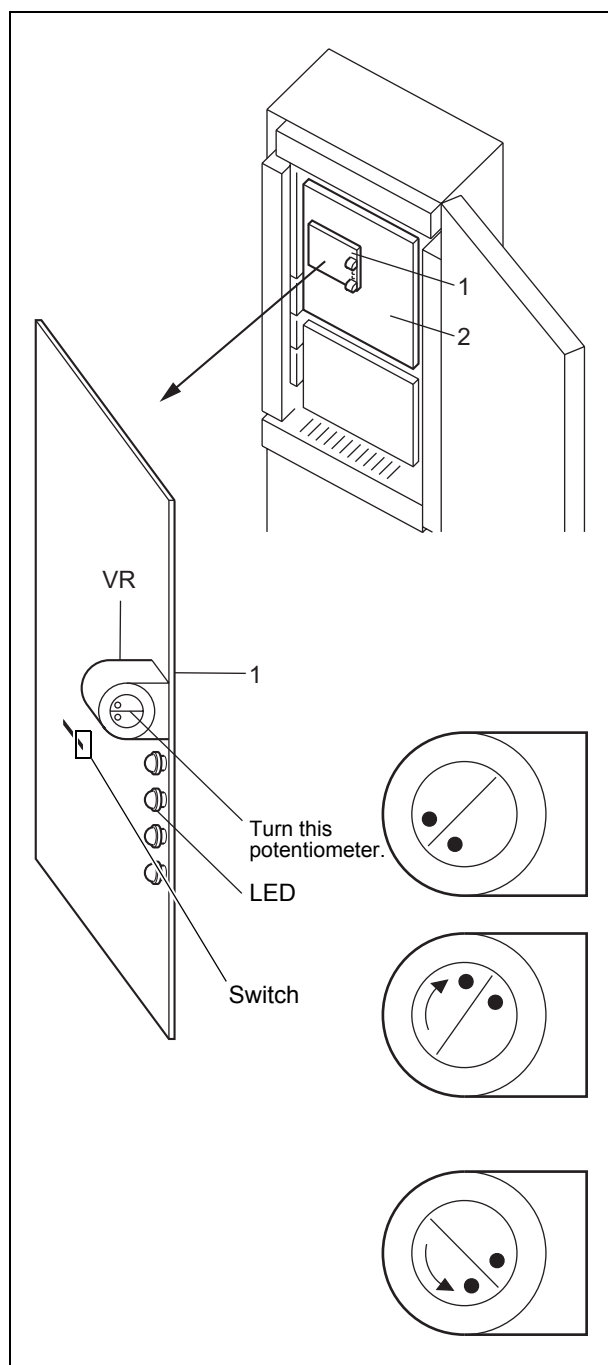
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The angle at which the yarn passes between the light transmitter and receiver and the yarn signal intensity can be checked on the screen.

- Touch WF1 in the [/PICK] switch in the FIXER mode.
This screen indicates the WF1 pulse detection angle.

	Pin <input type="radio"/> Pin <input checked="" type="radio"/> WF1 <input type="radio"/> Baloon												
	Color <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3			Page <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3									
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	N		
01	0	0	0	0	0	0	0	0	0	0	0		
02	0	0	0	0	0	0	0	0	0	0	0		
03	0	0	0	0	0	0	0	0	0	0	0		
04	0	0	0	0	0	0	0	0	0	0	0		
05	0	0	0	0	0	0	0	0	0	0	0		
06	0	0	0	0	0	0	0	0	0	0	0		
07	0	0	0	0	0	0	0	0	0	0	0		
08	0	0	0	0	0	0	0	0	0	0	0		
09	0	0	0	0	0	0	0	0	0	0	0		
10	0	0	0	0	0	0	0	0	0	0	0		



[2] IR Feeler Sensitivity Adjustment

Weft feeler board **1** is located on main control I/O board **2** in the control box. Use a straight-head screwdriver to turn variable resistor VR on feeler board **1** to adjust the WF sensitivity.

The green LED comes on upon detection of the yarn signal to indicate it.

The switch should be set in the upper position (H side: state upon shipment).

Set the variable resistor to the standard sensitivity (7 o'clock position).

Run the loom. If wasteful stop occurs, turn it counterclockwise by 60° (for two hours).

If overlooking occurs, turn it clockwise by 60° (for two hours).

Standard sensitivity (7 o'clock position).

To decrease the sensitivity (when overlooking occurs), turn the VR clockwise to decrease the sensitivity. 2 o'clock position on left side is the weakest.

To increase the sensitivity (upon occurrence of wasteful stop), turn the VR counterclockwise to weaken the sensitivity. 4 o'clock position on the left side is the strongest.

