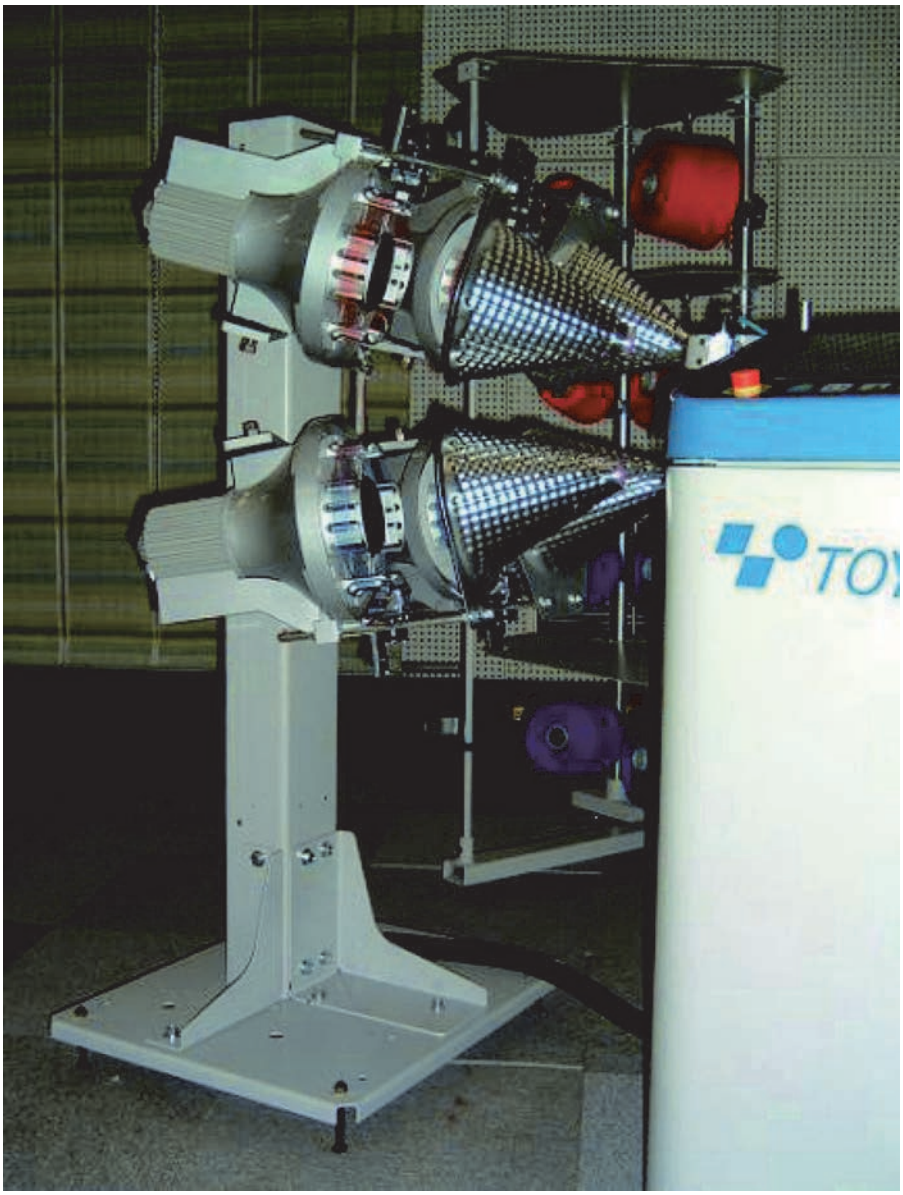
Section 5.7
Arbitrary 4-color Shift

Contents

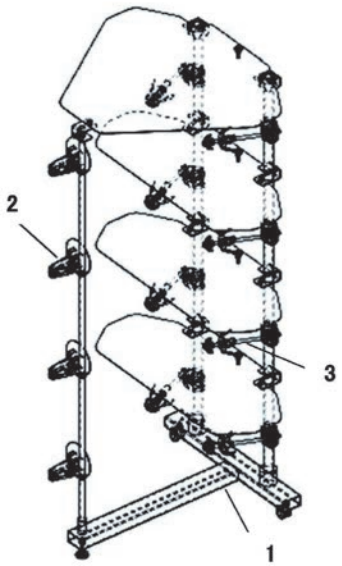
Arbitrary 4-color shift allows you to set the pressure and the timing per each color, making it possible to insert wefts of different materials or different number counts.
The free combination of the weft insertion pattern with the electronic dobby or the electronic shedding motion enables the weaving of complicated patterns and special-purpose textures.



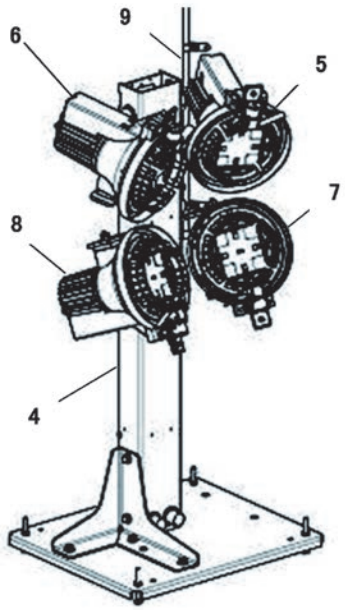
5.7.1 4-color Drum Feeder

The 4-color drum feeder consists of four-tier cheese stand and a 4-color drum stand. It is located at the left side of the weaving machine.

[1] Names of Components

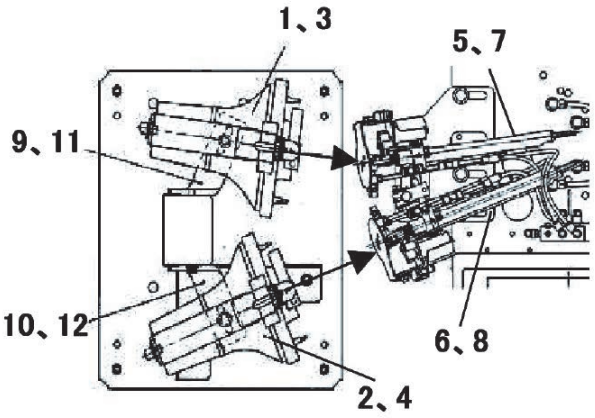


1 : Cheese stand
2 : Cheese tensers (4 pieces)
3 : Cheese holders (8 pieces)



4 : Drum stand
5 : Drum No. 1
6 : Drum No. 2
7 : Drum No. 3
8 : Drum No. 4
9 : Yarn Guide

[2] Drum stand



Position the electric drum (EDP) according to the following procedure.

⚠ CAUTION

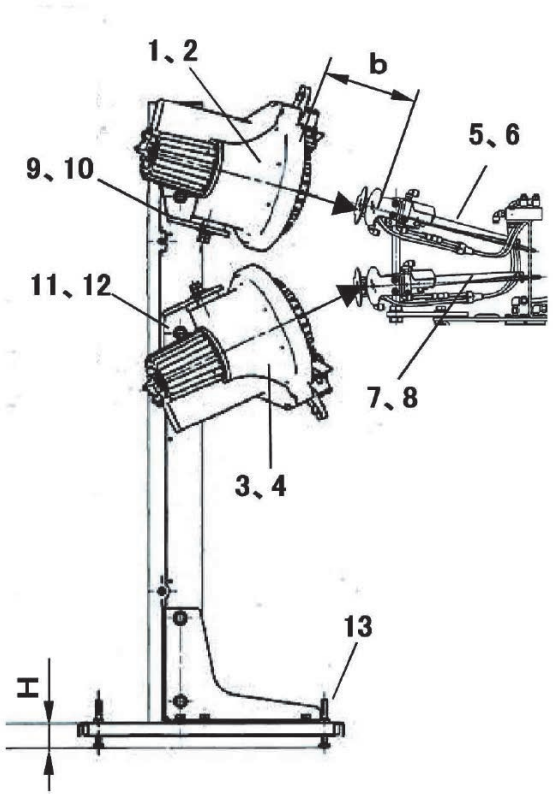
When moving the drum stand, be sure to have at least two persons handle the job. The drum stand is very HEAVY.

NOTE: Prior to starting the adjustment work, shift the measuring bands of each drum to the position where they will not come into contact with the electromagnetic pin. Otherwise, the measuring bands may be broken.

[2.1] Up-down positioning

Adjustment bolt 13 for adjusting the height of the drum stand is shipped with H dimensions as 50 mm.
Please make a fine adjustment to an irregularity of the floor for the stand to be stable.
In addition, please adjust the height when a lot of packing is inserted under a weaving machine frame at installation.

[2.2] Right-to-left positioning



Please adjust the position of the drum stand so that space b dimension that is between No. 1 drumhead 1 and No. 1 tandem nozzle 5 (dimension of the gap between the measurement band mounting surface and the tandem nozzle) becomes 200-400mm.

- For standard weft yarns (e.g. C40^{s})
  First, make distance "**b**" 250 mm. Then, adjust it within the range of 200 to 300 mm.
- For weft yarns of large number count or weak yarns
  First, make distance "**b**" 350 mm. Then, adjust it within the range of 300 to 400 mm.

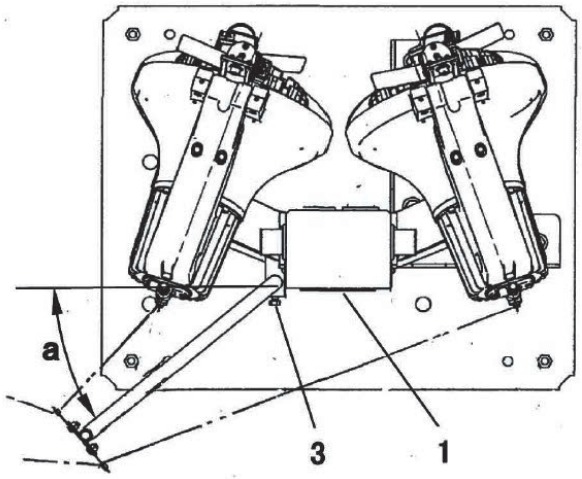
The optimum position of the EDP stand is where weft insertion becomes stable even with low main pressure.

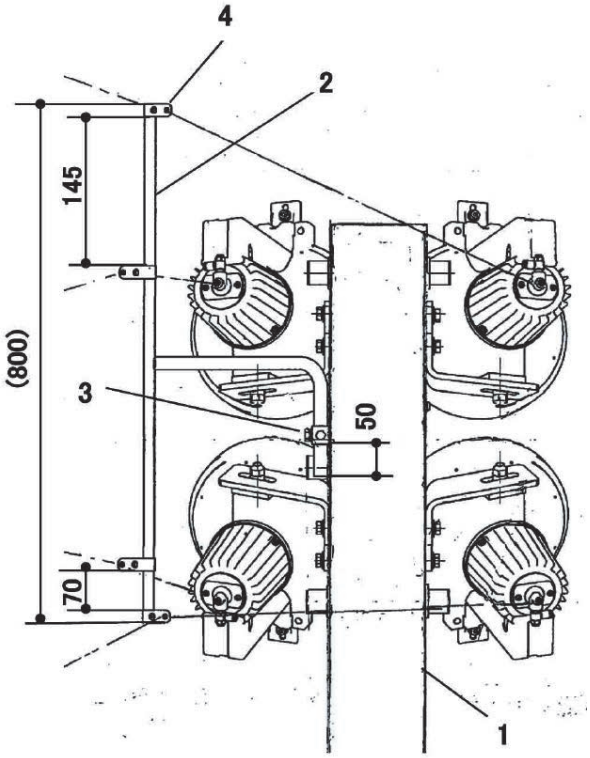
[2.3] Position of Inclination

(1) Up-down inclination
Incline the drum head by adjusting the mounting angle of drum bracket 9-12 so that the center of the drum head points toward the entrance of each tandem nozzle 5-8.

(2) Right-to-left inclination
Adjust the direction of the head so that the center of the head points toward the entrance of the tandem nozzle in the same way as topto- bottom direction.

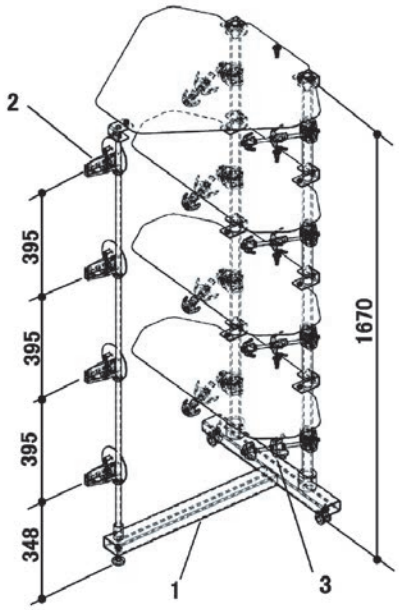
[2.4] Adjustment of Yarn Guides



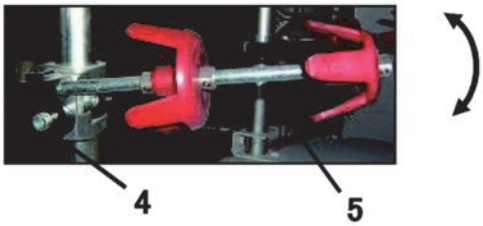


Attach a yarn guide in between a cheese stand and the drums.
At shipping, it is mounted with dimensions specified in the chart at left.
At installation, adjust the mounting angle a and the height of yarn guide stay 2 and yarn guide 4 so that the bending of the yarn at yarn guide 4 is minimized according to the position of the cheese stand and the height of drum stand 1.
You can adjust the mounting angle and the height of yarn guide stay 2 by loosening set screw 3.

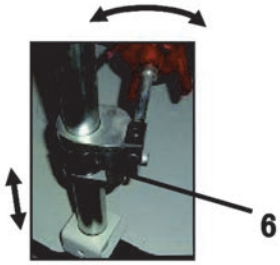
[3] Cheese Stand



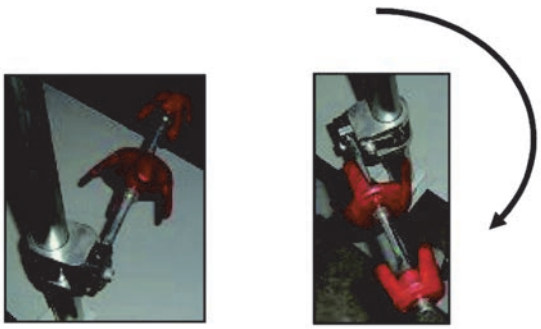
(1) Install the cheese stand by mounting cheese tenser 2 with the dimensions in the left so that cheese holder 3 faces to cheese tenser 2.
(2) Make a fine adjustment as needed according to the size of the cheese in use or the relation between the position of the cheese stand and the one of the drum stand.



・Loosen bolt 4 and adjust an angle of spindle 5 to change the angle of the top and bottom direction of cheese holder 3.



・Loosen bolt 6 to change the angle of the right and left direction and height of cheese holder 3.



・Please turn spindle 3 outward when replacing the cheeses.

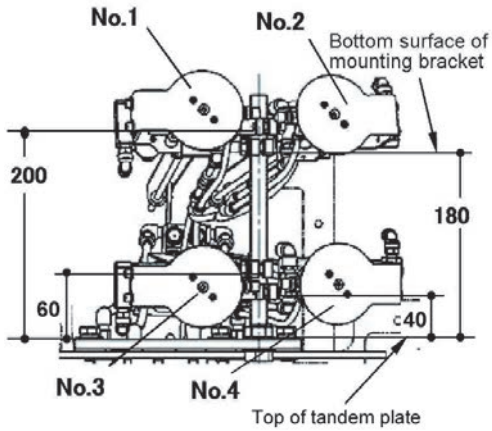
5.7.2 Tandem Nozzles and Main Nozzles

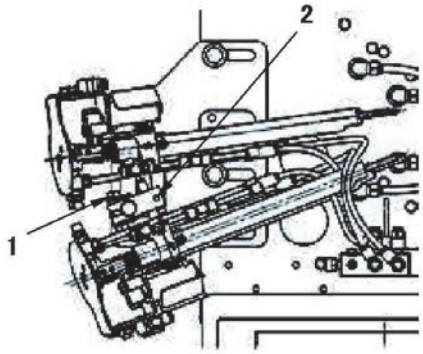
⚠ CAUTION

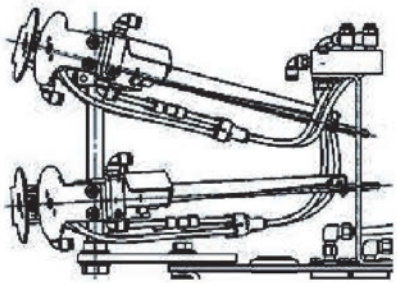
NEVER touch the main nozzles while the machine is in operation. They are swinging towards front and rear at ultra-high speed.

[1] Positioning of the Tandem Nozzles

Adjust the tandem nozzles with the following height dimensions as standard.







(1) Adjust a weaving machine crank angle as 160-180 degrees.

(2) Adjust the direction of the tandem nozzle so that the acceleration pipe of the tandem nozzle points to the entrance (thread guide) of the main nozzle.。

- Loosening set bolt 1 enables change of the top-to-bottom position and the angle of the anteroposterior direction.
- Loosening set bolt 2 enables change of the angle of the top-to-bottom direction.

[2] Positioning of the Main Nozzles

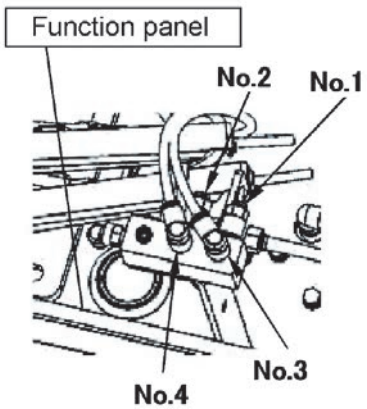
Position the main nozzles in the same way as 2-color.

・Refer to 5.1.3. [2] of Chapter 5 Weft Insertion Motion.

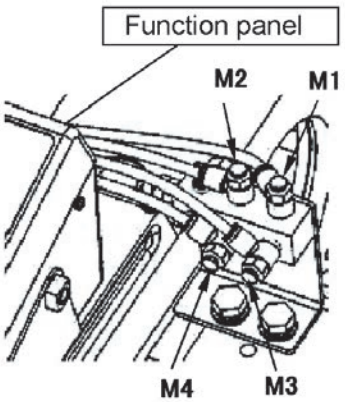
After the above positioning, do some actual weaving to check the posture of standby weft at each of the main nozzles with a stroboscope or check whether the LH selvage is well matched. According to the practical states, determine the final position of the tandem nozzles.
If standby wefts come out of the main nozzles at an excessive length, they will interfere with a picked weft, resulting in a weft miss.

[3] Operation of Weft Insertion

Use the push button below to thread the yarn into the tandem nozzles and main nozzles as instructed in 0.1.1.[5] of Chapter 0 Overview.



(1) You may thread weft through tandem nozzles Nos. 1 through 4 with the push buttons Nos. 1 through 4 shown at left, respectively.
・You can thread weft through tandem nozzles Nos. 1 by pressing the push button No. 1.
You can do the same for tandem nozzles No. 2 through 4.



(2) You can thread the weft through each main nozzle by pressing the push buttons [M1] through [M4] located on the right side of the function panel as shown in the left.
・You can thread the weft through main nozzle No. 1 by pressing the push button M1.
You can do the same for main nozzles M2 through M4.