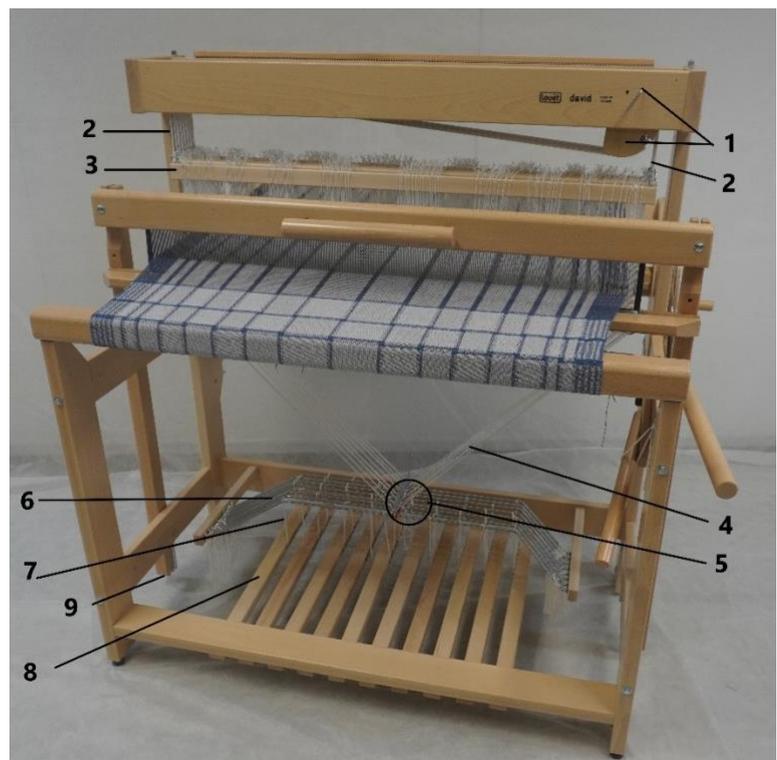
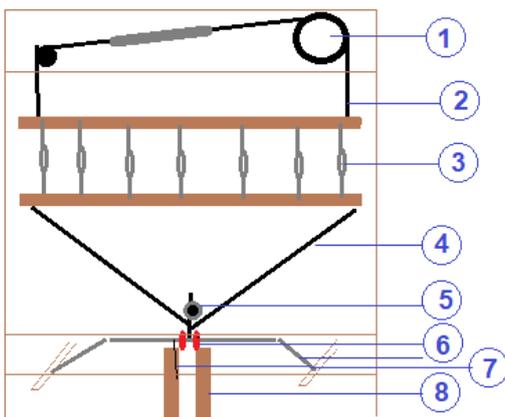


In order for the David III to operate correctly, it is important that the shafts and the beater are adjusted to the proper heights and positions. We have written this additional instruction to clarify the assembly manual.

### Parts of the shaft system

Let's identify the various parts of the loom before explaining how to set the shaft heights, correct terminology is important.

- 1- Cam and blocking pin
- 2- Shaft cords
- 3- Shaft bars and heddles
- 4- Lam cords
- 5- Eye bolt with adjusting nut
- 6- Red C-clamp to keep eye bolt centered
- 7- Treadle tie-up cord
- 8- Treadles
- 9- Beater hinge hook



The David is a sinking shed loom, so the shafts are pulled downward to make a shed.

In the castle you see cords that are connected to a cam disc on the right side, and a spring on the left. The cam rotates as you depress a treadle, and by its design and mechanical properties, the cam reduces the force required to depress the treadle, the further the cam rotates.

The spring pulls on the cam ensuring the shafts are pulled back up to their rest position.

In order to get a good shed, it is important to adjust the shaft height properly. During assembly you adjust the height so that you can weave on it. Once you have threaded the first warp, you fine-tune the shaft positions to optimize your shed. Further on in these instructions you will find a detailed description of how to set the shaft height. In addition to adjusting the shaft height, it is important to adjust the beater height.

On the next page you will find pictures and descriptions of the components of the system followed by how to make the adjustments.



**Cam** – after adjustment, cam 1 for shaft 1, is turned more to the right than cam 8 (shaft 8).



On the bottom of the cam, there is another adjusting screw. The horizontal position of a shaft can be adjusted with this screw.



Use the blocking pin to block the cam while threading and tying up treadles. The shafts and lams are all at the same height.

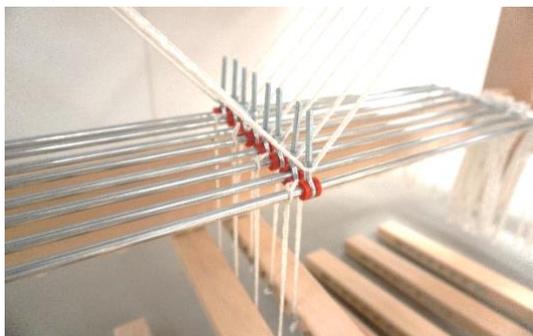
Insert the blocking pin from back to front. Shafts are blocked part way down.

**TIP:** By pressing two treadles that are tied-up for plain weave (1-3-5-7 / 2-4-6-8) halfway through, all shafts will move and you can easily insert or remove the blocking pin.



The shafts are attached to the shaft and lam cords with hooks. All hooks must be screwed in to the same depth.

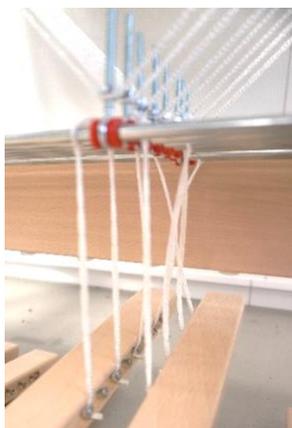
Always make sure there are a few heddles on both the left and right of each shaft.



The lams are the metal arches that connect the shafts to the treadles.

The eye bolt with adjusting nut are placed exactly in the middle of the lams and are held in place with the red C-clamps

By tightening a nut further (downward), a shaft will hang lower - see instruction below



**Treadles and treadle tie-up cords:** the treadles are connected to the lams with Texsolv tie-up cords that are already attached to the lams. It is important to use the correct hole of the texsolv cord. To verify this, you should have 10 empty loops in the cord between connection points.

## Adjust shafts

During assembly of the loom you make the first 'rough' set up of the shafts. Fine tuning the shafts is best done when you have threaded and tied up a warp, using all eight shafts. After you have made an initial adjustment and have woven a piece, you can fine-tune the shaft heights even further.

### Preparation:

- Tie up the middle two treadles in plain weave. One treadle connected to shafts 1, 3, 5 and 7 and the other treadle to shafts 2, 4, 6 and 8
- While the blocking pin is in the blocking position, check that the shafts are level (left to right).
- Check that the eyebolt on the lams are positioned exactly in the middle of the lam.
- While the blocking pin is in place, the lams and shafts should hang at the same height
- Check that all shafts have a number of heddles on both the left and right sides.
- Now remove the shaft blocking pin, the shafts will be pulled upwards

You adjust the height by tightening the nut on the eyebolt in the middle of the lam. The further it is tightened, the lower the shaft will be.

### To get an even shed, the front shaft needs to be 2cm lower than that back shaft



- You can adjust the height by tightening the nuts on the eyebolt on the lams



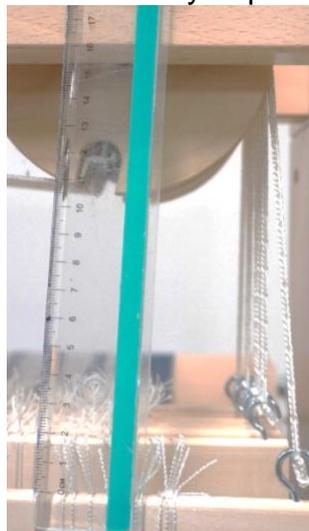
- First adjust the height of the front shaft (Shaft 1) by **tightening the nut** on the lam as far as possible.
- Check that the distance between the castle of the loom and the top of the shaft bar is 8 cm.
- Adjust as necessary by **tightening** or loosening the nut on the eyebolt on the lam



- Then adjust the height of the rear shaft.
- The distance between the castle and the top of the rear shaft bar should be 6 cm.
- Next adjust the other shafts so that they gradually increase in height from the front of the loom to the back



- Check that when both treadles are fully depressed, all shafts descend to the same height
- The distance to the top of the shaft bar measured from the underside of the castle is 16 cm when a treadle is fully depressed.



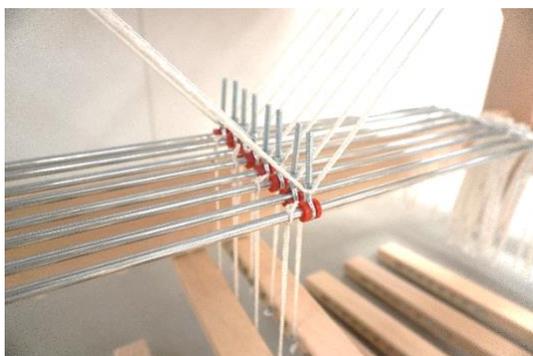
## Fine tuning shaft height adjustment and reed height

To get the perfect shed and shed position where the lower half of the shed rests on the shuttle race, you will need to make an additional adjustment. You do this when you have threaded a warp on all eight shafts and have started weaving so that the tie-on bar is past the breast beam.

### Before starting the adjustment, check the following:

- There is a warp threaded on 8 shafts.
- The blocking pin is removed during weaving and when adjusting the shaft and beater heights.
- With the first series David-III (2021) you could still depress a treadle while the blocking pin was in place. This is no longer possible with the later series.
- The warp has been advanced so that the tie-on bar is past the breast beam
- The distance from the reed to the fabric is at least 18 cm (7 inches).
- If you continue weaving closer to the reed, the shed gradually becomes smaller and the lower half of the shed starts to move up away from the shuttle race.
- Two treadles are attached for plain weave
- Check that all treadle tie-up cords have the correct loop connected to the screw that belongs to the corresponding lam. There are 10 empty holes between the connection to the lam and the connection to the screw on the treadle
- Remove the lease sticks from the warp or place them behind the back beam.

### Check shaft height



- Remove the blocking pin (if it is still in place).
- When depressing a treadle tied up for plain weave, half of the warp threads should be pulled down.
- Check to make sure your shed is even, none of the threads are higher than the rest
  - **If not:** then correct the shaft height for the effected shaft. By slightly pressing a shaft with your hand you can see which shaft you need to correct
  - Correct the shaft height by turning the nut on the corresponding lam eyebolt up or down (tighten or loosen).
- Check the same thing with the second treadle tied up for plain weave.
- All warp threads are forced to move with a plain weave tie up, thus, by depressing each of the two treadles, you will have verified all warp threads.

## Beater height adjustment

With the David, the shed is created by shafts being pulled down.

The optimum shed has the lower half of the shed lying on the shuttle race so that your shuttle slides smoothly over shuttle race.

As you weave and the fell line gets closer to the reed, the shed becomes smaller and the lower half of the shed can start to lift off of the shuttle race. For optimal weaving comfort, we recommend the distance between fell line and the reed be 18 cm (7") or more. After every 5 cm (2") of weaving, advance the warp a little further.

The warp will deflect upwards when you start weaving and the tie-up bar has not yet passed the breast beam. At this point the shed can be a little higher above the shuttle race, decreasing the size of your shed.

It is also important that the left and right sides of the beater are flush against the buffers on the castle. This is mainly determined by placing the hinge hooks of the reed exactly flush and perpendicular to the side upright.

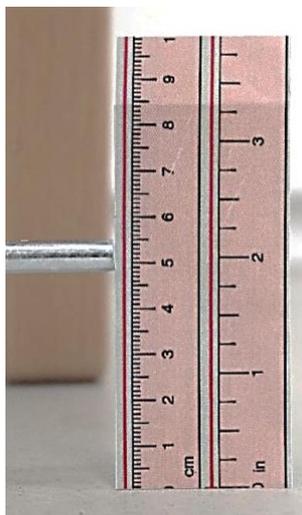
Position of the warp in the reed when the blocking pin is removed



When the treadle is pressed, the lower half of the shed is on the shuttle race.



- The hinge hooks mounted on the lower cross bar must be exactly level and perpendicular to the side.
- The locking nut must be tight.
- The distance measured from the flat ground must be 5 cm (2") to the center of the shaft.
  - Measured from the bottom of the cross bar, the center of the hinge hook needs to be 8.5 cm (3 3/8").



5 cm from floor Or 8.5 cm from the cross bar