

LOOM ASSEMBLY INSTRUCTIONS

General Information

The Cyrefco loom assembles quickly and easily with practice, although the first time, we would advise going slowly, step by step so that it goes together properly.

There are several things which are generally important to consider during assembly.

If parts don't assemble reasonably easily, there may be something wrong with your approach. For example, if a cross brace or roller does not slide into place without binding, chances are that they are being put in at an angle other than 90 degrees to the side frames.

Always be certain that the wedges are inserted in cross braces at the wide side of the slot with the curved side of the wedges out or away from the side frame. The ten degree angle of the slot must match the ten degree angle of the wedges.

When the cross pieces and rollers are assembled into one side frame prior to the assembly of the second side frame, please keep in mind that there is tremendous leverage at the end of the cross pieces and rollers to the side frame. Pushing hard in any direction (up, down, left or right) could break or damage parts of the loom. We have never broken a side frame or cross piece in this manner, but it is certainly possible through rough handling.

Though the Watco Danish Oil finish is very durable, it is still possible to scratch your finely finished loom parts, so care in storage and handling is recommended. Cardboard or pieces of cloth between parts when they are stored should be adequate protection.

Protect your loom and its parts from dampness and moisture as the parts may swell and easy assembly or disassembly may no longer be possible.

Paraffin is an excellent lubricant for wooden parts. We suggest that you rub paraffin on warp and cloth roller shafts, harness roller bearings, etc. each time you assemble the loom.

Assembly Instructions

The components of your loom may certainly be assembled in more than one sequence. The suggestions that follow represent ways which seem to us to be straightforward and generally easy. Also, although it is easier to assemble our loom with two persons, assembly may readily be done by one person following these steps.



The assembly photographs are to help in assembly sequence, but keep in mind that Cyrefco designs are modified and improved from time to time and parts and assemblies of your loom may be somewhat different from those shown in the photographs.

If you have difficulty, check back and forth through the pictures, because there is a good chance one of them will show the components that you are assembling. In the assembly text, photos are referred to by number (ie. #27), but in addition to the ones noted, others showing the same area may be helpful.

#1. Get all your parts organized and within easy reach. This should include both side frames, top cross brace, front cross brace, rear cross brace with treadles installed, cloth roller, warp roller or rollers and six wedges.

Normally, treadles are shipped assembled to the rear cross brace. If they are disassembled, rub the 3/8" steel shaft with paraffin before assembly. Slide the shaft part way into a shaft support block and then slide the treadles onto the shaft so that the treadles are evenly spaced. (If the tie-up cord holes in the treadles are chamfered on one side, that side should be up.) Slide the shaft through the treadles as you add treadles. After treadles are installed and the shaft is sticking out both ends through the shaft support blocks, add washers and cotter pins at the shaft ends. (If you have a four harness loom with six treadles, then washers and cotter pins should be added on the shaft next to the treadles to prevent them from sliding along the shaft.) (In general, washers should be put between cotter pins and wooden parts wherever they occur in loom assembly.)

#2. Insert the rear cross brace with treadles pivoted from the top front into the square hole at the back, bottom of the right side frame. Install the wedge loosely. On older Cyrefco looms the wedge slot is from front to back. On more recent looms it is from top to bottom.

#3. Insert the bottom front cross brace. The cross section of the cross brace should be vertical as shown in the picture and not laying flat.

#4. Drop the wedge in loosely. Be certain the curved edge of the wedge is out. Be certain that the wide end of the slot in the cross brace is up so that the ten degree angle of the slot matches the ten degree angle of the wedge.

#5. Slide the long end of the shaft of the warp roller or rollers and the long end of the cloth roller shaft into the warp roller and cloth roller holes in the side frame. Because the shaft lengths are different, be certain that the warp rollers are to the

rear and the cloth roller is to the front. (The loom can be supplied with either one warp roller or with a second supplemental warp roller. (The supplemental warp roller and braking system may be added later if they were not included on the original order.)

#38 will help identify parts by name.

#6. Insert the top cross brace into the square hole in the right side frame overarm. The cross brace cross section should be vertical as shown in the picture. The wide edge of the wedge slot should be toward the front. Insert the wedge loosely from front to back being certain that the ten degree wedge angle and the ten degree slot angle match.

#7. The poor thing is sitting there, leaning at an angle with the right side frame supported by the two lower cross braces and rollers and top cross brace are supported by the right side frame. Its look of distress will disappear as the left side frame is installed and then the whole apparatus will loom more respectably.)

#8 Start by sliding the rear cross brace into the left side frame square hole approximately two inches. Support the left side frame with your shoulder, or leg so that it can't fall over.

#9. Slide the bottom front cross brace into its square hole about two inches. Slide the top cross brace into its square hole about two inches.

#10. Slide the warp roller or rollers into their shaft holes in the left side frame. The shafts in the right side frame are long enough to allow you to do this without falling out of the right side frame.

#11. Slide the cloth roller into its shaft hole in the left side frame. The shaft at the right end of the cloth roller is long enough to allow you to do this without falling out of the right side frame.

#12. Push the side frames together so that the cross braces are snug and the rollers are in place properly. Put the left side frame wedges loosely in place, again being certain that they enter from the wide side of the wedge slots. Stand back and take a good look at the loom to be certain that it is square and not wracked or skewed on the floor. If it is skewed, the rollers will not turn freely, but will probably bind.

#13. Whap all six wedges in good and tight with a rubber or wooden mallet. A hammer may be used, but should be used very carefully. Holding a wooden block between the hammer and wedges will help protect the wedges. The wedges should be checked occasionally for tightness as the rigidity of the loom depends on the wedges being

secure.

To remove wedges, give them a sharp rap from the opposite direction. The vertical wedges on the front cross brace may be easily removed by lifting a front corner of the loom slightly and sliding a short 2" x 4" block (or any block that is slightly higher than the bottom of the wedge) under the wedge. Then lift that corner of the loom two or three inches above the block and drop it. Usually the wedge will pop up on the first try.

#14 Install the breast beam. It should be pushed vertically downward over the two half inch dowels in the side frame notch. When removing the breast beam it is usually necessary to lift it a bit at a time from each side or otherwise it may bind. The purpose of the dowels is to hold the vertical side frame front pieces in position.

#15. Install the cloth protector stick with curved side at the ends down to match the curved slot. (Actually, the cloth protector may be installed or removed at any time. This is just a convenient time to do it.)

#16. Install the knee beam.

#17. Install the back roller beam. The bearing block shaft bearing holes should be toward the top of the blocks. (If a auxilliary warp roller system is being installed, the upper roller beam bearing blocks should have the bearing holes toward the bottom of the blocks.) The bearing blocks will probably have the word "up" stamped on the top. If there are two sets of bearing blocks, one set will probably be labeled "upper" and the other set labeled "lower". After the rollers are installed, check carefully that they are installed properly and turn freely. In order for the warp braking system to work properly, the roller back beams must turn freely.

At this point, prior to installing warp and cloth roller hand wheels and the braking system, it would be a good time to install the lam system.

#24. In the older looms the lam shaft was installed on the left side of the loom, approximately three inches below the upper side frame horizontal piece.

The lams are slid on the shaft so that the attached spacer blocks cause them to be evenly spaced. Before sliding them on the shaft, rub the shaft with paraffin and if there are chamfered holes on one side of the lams, the chamfer should be down.

The lams, after the shaft is installed will be approximately one inch behind the central vertical side frame piece.

There should be four holes in the shaft for cotter pins. The holes at each end keep the shaft in place between the side frame vertical pieces. The other two holes keep the lams in place on the shaft.

Slide two washers over each end of the shaft. Slide the shaft into the hole on the rear vertical side frame and then slide it back into the hole in the central side frame piece.

Slide a washer to each end and install a cotter pin next to the washer, bending one leg of the cotter pin slightly to hold it in place, but to allow it to be easily removed for disassembly. (The washers are always between the cotter pins and the wood to prevent the cotter pins from scratching the wood.)

Slide the other two washers over next to the lams and install the cotter pins to keep the lams from working from side to side.

Take a look at your finished assembly and make sure that the lams are installed approximately one inch behind the central vertical side frame piece and approximately three inches below the top side frame piece.

The center line of the lams on the lam shaft should be directly below the center line of the harnesses and the harness rollers when they are installed later.

#22, #23 & #36. On later looms with lam guides, the lam shaft is installed on the right side of the loom. This allows the weaver to adjust tie-up and test the shed by pushing down on the lams in the lam guides without interference from the braking system apparatus.

#22, #23 & #36. On looms with lam guides, the lam shaft is installed on the right side of the loom. This permits easy access for the weaver to the sliding ends of the lams in the lam guides. The weaver can then adjust the tie-up and shed by pushing the lams down by hand in the guides and observing the shed while doing so.

The lam shaft is installed half way between the upper and lower side frame horizontal pieces. In some of the looms, the lam shaft may be moved up or down in adjustment holes in the support system shown in the photos. For simplicity, on later looms the adjustment block was eliminated and the lam shaft runs the full distance between the central side frame piece and the rear side frame piece.

Rub the shaft with paraffin. Slide the lams on the shaft with washers between each lam and two washers at each end.

Install the shaft so that its cotter pin holes will locate the lams near to the front of the space between the central side

frame upright and the rear side frame upright.

Install cotter pins at each end of the shaft adjacent to the side frame vertical pieces so that the shaft cannot slide from side to side. Washers should be between the cotter pins and frame to prevent the cotter pins from scratching the wood. Bend one leg of the cotter pins out slightly to keep them from falling out.

As you install the lams, slide their slotted ends over the lam guide rods. Later looms have ten guide rods for eight lams to allow the lams to be moved back from the cloth roller an extra 3/4 inch or one and a half inches. The lams would normally be installed in the lam guides nearest to the front. If large amounts of yardage or very bulky yardage is to be woven without individual pieces being cut off, then the weaver will need to decide if it is a good idea to locate the lams and harnesses further back.

Whatever the decision, after the lams are installed in the guides, slide them on the lam shaft so that they are parallel with the cloth roller. Then install the cotter pins in the holes that correctly locate the lams in this position. Washers should be between the lams and cotter pins to protect the wood. The cotter pins should have one leg bent outward enough to prevent them from falling out. This makes them easy to remove when the loom is disassembled.

#19 & #35. Install the cloth roller hand wheel assembly. (IT IS IMPORTANT TO PUT A PLASTIC WASHER BETWEEN THE WARP ADVANCE LEVER AND THE HAND WHEEL ASSEMBLY TO PREVENT SCRATCHING OF THE WOOD.) The dowel pin is driven in snugly after the holes in the hand wheel assembly and the shaft are lined up. (To remove the dowel, tap it out from the other side using a smaller diameter dowel.)

#20 & #36. Install the warp roller brake drum/hand wheel assembly. (IT IS IMPORTANT TO PUT A PLASTIC WASHER BETWEEN THE RATCHET WHEEL AND THE REAR SIDE FRAME TO PREVENT SCRATCHING OF THE WOOD.) The dowel pin is driven in snugly after the holes in the brake drum/hand wheel assembly and the warp roller shaft are lined up. (To remove the dowel, tap it out from the other side using a smaller diameter dowel.)

#21 & #36. Setting up the brake system for the warp roller is not difficult once the functions of the various components are understood. The constant tension braking is accomplished by the slipping of three turns of the brake rope on the brake drum. Until the rope starts to slip, tension isn't established and tension will get greater until the controlled slippage occurs.

First, set up the block and tackle as shown in the photographs. MAKE CERTAIN THAT YOUR KNOTS ARE SECURE AS SPRINGS WILL BE UNDER CONSIDERABLE TENSION. ALWAYS CHECK KNOTS AND

SPRINGS TO BE CERTAIN THAT THEY ARE SECURELY HOOKED AND FASTENED SO THAT THEY CANNOT COME LOOSE AND SPRING BACK ON YOU.

The left hand pulley is tied to the hole in the cleat support block with a short length of rope. A fisherman's knot is a good one for this. (A square knot will do.)

Secure the end of the brake tackle rope to the bar (or becket) on the right pulley. (The other end of the pulley from the swivel.) A bowline is a good knot for this, although two half hitches would also work well.

String the tackle rope through the left pulley, back through the right pulley and then through the fairlead in the cleat.

Put a figure eight knot in the end of the tackle rope to restrain it and prevent it from pulling back through the cleat fair lead.

The heavier brake drum rope should be tied to the end of the heavy spring and run counterclockwise around the brake drum THREE TURNS. The other end of the brake drum rope is tied to the lighter spring with 2 or 3 inches of rope between spring and brake drum. Two half hitches work well to tie rope ends to springs.

Hook the other ends of both springs to the swivel eye of the right hand pulley.

Be certain that the ratchet pawl has been flipped over and is not engaged with the ratchet wheel at the brake drum. THE RATCHET AND PAWL are most useful during winding on of warp, BUT ARE NOT ENGAGED WHEN THE BRAKING SYSTEM IS BEING USED.

Test the brake action by turning the hand wheel counterclockwise. You should feel a constant drag against turning as the rope starts to slip on the brake drum. Tighten the rope in the clam cleat and note the difference in drag. Warp tension may be set from very light to quite heavy by adjusting the rope in the cleat. For even tighter warp tension a heavier spring may be used.

The function of the lighter spring is to allow movement of the warp as the shed opens and closes without having the brake rope slip.

#27, #28, #30 & #31. This is a good time to set up your upper harness roller with its two bearing blocks. Also, hang the harness hanger cords between the bearing blocks and the harness roller on the harness roller shafts. The bearing block shaft holes, or notches if you have a notched block should be moved forward or back as necessary to have this roller centered directly over the center of your group of lams.

If you are setting up your harnesses as a single four harness tie-up, then generally you would use the front four lams, although, at your option you may locate over any four lams if you have an eight harness loom.

If you are setting up for eight harness counterbalance tie-up, then the upper roller is centered over eight lams.

If you are setting up other combinations, such as a double four harness, a four harness/two harness, a four harness/two harness/two harness, then each upper roller would be centered over the lams for that harness system. The same would be true for a two harness tie-up or a multiple two harness tie-up.

Rub the shafts with paraffin before inserting them in the bearing blocks.

#31 & #35. This would be a good time to set up your beater. One of the nice things about the Cyrefco traditional loom is that the reed may be installed or removed easily at any time. The beater may be moved forward and back in its pivot blocks to satisfy the comfort and weaving technique of the weaver. The beater may be easily raised or lowered using pegs in the beater vertical arms to best relate the bottom of the beater with the lower half of the shed. During tie-up, the warp should be centered in the reed so that the shed doesn't touch it during tie-up adjustment. After tie-up the beater may be raised to allow the lower half of the shed to rest on it when the beater is pushed away from you, which will provide a shuttle race and help stabilize the warp, particularly in the case of sticky warp or a warp with threads of varying tension. It helps guide the shuttle particularly in the case of a very loose set warp under low warp tension. (There is a fair degree of discouragement at seeing the shuttle disappear through the warp, nose diving on a toe or the floor. The shuttle race helps prevent this.)

When you look at #37, be certain that the beater is hung with the beater angle as shown. The reed is in front of the beater vertical pieces, and in the case of a reed longer than the width of the beater, may hang out on either side.

The reed should sit clear to the bottom of the slot so that warp threads may not touch the bottom of the beater.

The pivot blocks mounted at the top front of the loom side frames, which support the beater pivots, are adjustable, front to back. When the loom is set up, warped and ready to weave, give the beater a slight push and let it swing by itself to equilibrium. Then measure from each side of the reed to the breast beam. The beater should be parallel with the breast beam. If it is not, then loosen the lag screws holding the pivot blocks and slide them slightly forward or back until the beater is parallel to the breast beam. Tighten the lag bolts gently.