

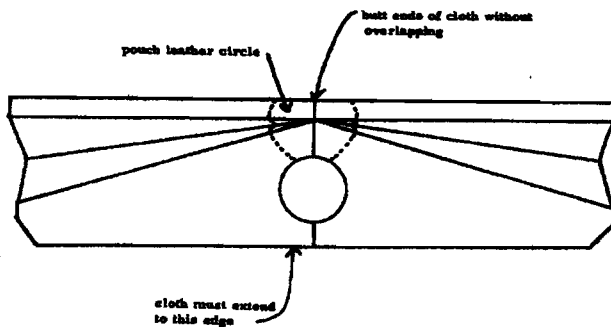
Motor

Number or mark all the components before disassembling the motor.

The hinges in the see-saw pneumatics are of thick leather and are usually in good condition. If these must be replaced, use a hacksaw blade to clean out the slits. The new leather should be quite stiff and unfinished on both sides. It is a good idea to paint a little rubber cement on these hinges to seal them, followed with a dusting of talcum powder.

Lap the valve slide surfaces of each pneumatic on sandpaper spread on top of a sheet of glass to get the valve surface perfectly flat. These are sometimes worn quite unevenly and require a good bit of sanding to get them flat.

When recovering the pneumatics, leave at least a 3/4" extra width of cloth hang over the front of the pneumatics so that the entire side will be covered with cloth. If bare wood shows along the sides of the pneumatics, the motor will not screw together flat.



Cover one pneumatic on each see-saw and set it aside to dry. After drying, hold the movable board exactly parallel to the front and slice the cloth with a razor blade straight across the hinge on each side (see diagram). Cover the other pneumatic and slice the cloth in the same way; try to slice it so that the two ends of cloth butt together closely without overlapping. Glue a 1 1/4" diameter circle of pouch leather over this joint on each pneumatic pushing the leather down into the fold. Test both sides of each pneumatic by closing off the valve port to a section while holding the pneumatic shut then trying to open the pneumatic.

Duo-Art motors have a tendency to clatter when they run, therefore, make sure that all the bushings are tight, especially the bushings located on the valve slide and at the point where the crank arms join the pneumatic.

It is usually best to replace the thick cloth on the fronts of the slide valves; use extra heavy bellows cloth for this. This cloth should overhang the sides of the slide by about 1/16th" so that the wood does not rub against the valve guides. Some motors use felt strips for this purpose. When replacing this cloth, sand the surface clean, apply a liberal amount of hot glue, and clamp the slide between two boards in a vise until the glue dries. This will insure that all voids formed by the coarse

surface of the cloth are sealed. Lap the sliding surface of the valves on fine sandpaper. Graphite the valves and the valve surfaces on the pneumatics, using the method described in the section on rebuilding the expression box.

The crankshaft should be polished and dry graphite applied to the bushings in the connecting rods.

Make new rubber seals and spacers for between the pneumatics out of an automobile inner tube of the same approximate thickness; dip the two seals in shellac before screwing the pneumatics together.

When the three sections are screwed together, they should form a reasonably even and flat surface.

Time the motor by adjusting each slide valve until it travels an equal distance beyond the two ports it slides over. Tighten the two leather adjusting nuts firmly after this adjustment is made.

Block off the vacuum supply nipple and turn the motor backwards. It should turn very slowly without much variation in resistance as you rotate the crankshaft through 360°.

Spoolbox.

Most of the rebuilding procedures for the Duo-Art spoolbox are fairly straightforward. If the piano still has the original tubing intact, you may want to make up a diagram of the spool box connections, particularly the tubing going to the manual switches in the spoolbox. There appear to have been a number of different tubing schemes for Duo-Art pianos, all accomplishing the same result in slightly different designs.

Look for a tee in the tubing leading from the Shutoff-Replay slide valve. This tee, if present in your piano, contains two strictures and has to be installed correctly. The following diagram shows the placement of this tee:

