

SPECIAL TOOLING FOR WURLITZER RESTORATION AND MAINTENANCE

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Experienced organ buffs undoubtedly have developed tooling to facilitate the restoration of theatre organs, particularly in chapters with diversified know-how in their organ crews, such as is the case at the OVC-ATOS Emery Theatre. But what of the individuals who, by good fortune, acquire or are called upon to work on a theatre organ in less than acceptable condition, even needing rebuilding or basic general maintenance?

On the Ohio Valley Chapter ATOS Wurlitzer (originally a 260 Special 3/19, Opus 1680, now a 3/26 with piano) a complete rebuild was accomplished, which included adding a Wurlitzer five-rank chest, a one-rank chest, a style H Special 3/11 Wurlitzer relay, two switch stacks and two new tremis. The project involved releathering approximately 5000 pneumatics.

Described in this article and pictured herein with construction details are some fixtures and tooling we designed and built for the project, which we hope will give some ideas to other

buffs in our great hobby. These tools have made our restoration task much easier, and they have been very useful in ongoing maintenance. The illustrations show the tool details and how they are used in practice.

Pneumatic Remover (Plate I)

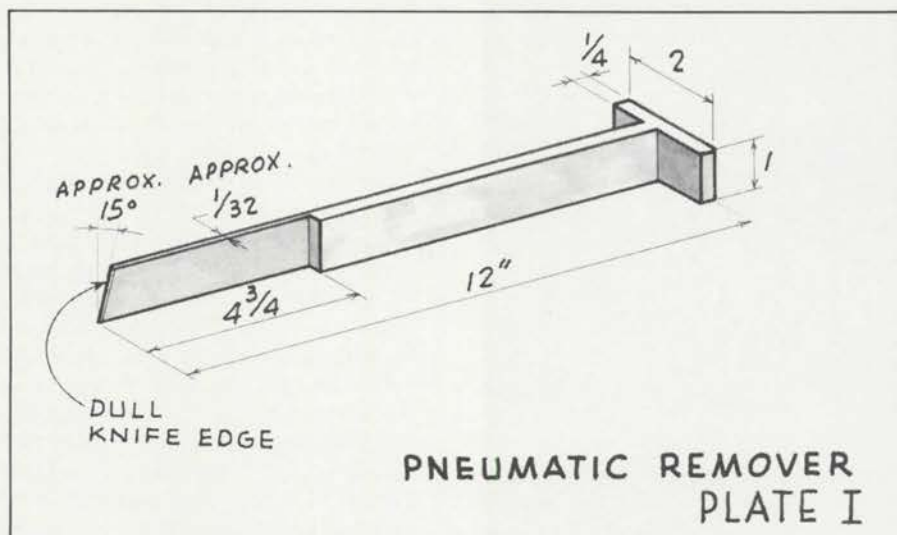
The first hurdle facing one is to remove old pneumatics for releathering easily, quickly and without damage to pneumatic or chest. We designed and built this removal tool. It is made of stainless steel bar stock milled down to $1/32$ " thickness at one end and bias cut with a slightly sharp edge. The handle at the other end is of the same stock welded on so the tool can be driven with the palm of the hand. The tool is inserted between the pneumatic and the chest, and *must* be kept flat against the chest to prevent gouging of chest or pneumatic. By angling the tool, more than one pneumatic can be removed at a time, rotating the tool 180° to cut the other side of the pneumatic seal gaskets. This applies to both primary and secondary pneu-

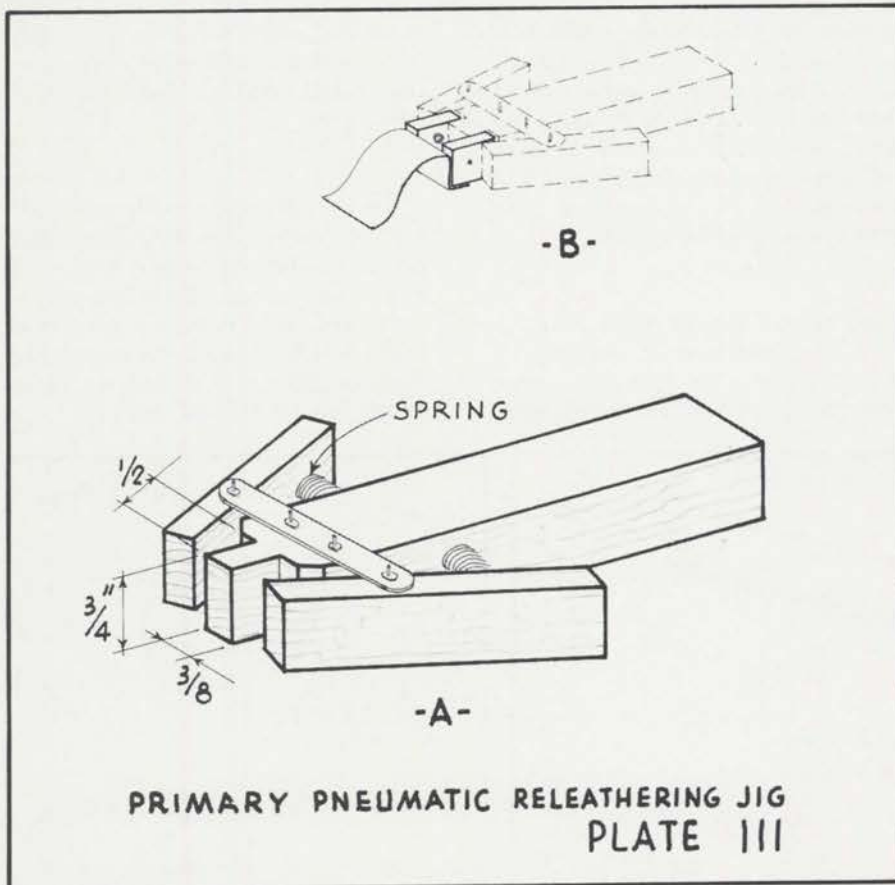
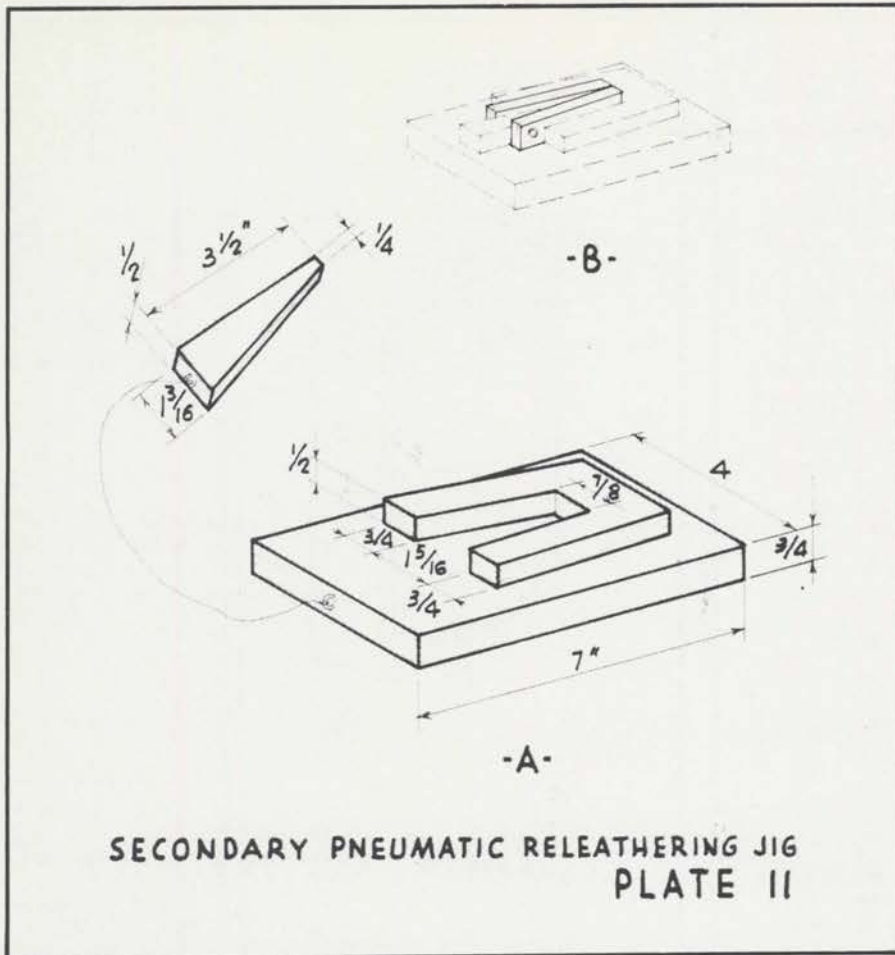
matics. If the gasket is not damaged, reuse it by matching breaks and gluing carefully, or preferably replace with a new packing leather gasket (and spacer, using punch cut-out from the new gasket).

Secondary Pneumatic Releathering Jig (Plate II)

This special jig (we have four for Wurlitzer pneumatics) makes releathering easy. By using four jigs an assembly line can be set up. A thoroughly cleaned and sanded pneumatic blank unit with tab removed is placed in the "V" slot and the aluminum wedge driven in to hold it at the right maximum opening size.

A word on releathering technique: Leather (thin tan) is cut in a rectangular strip slightly wider than the maximum opening when in the jig. The length varies with the size of the pneumatic being covered. The cut skin should be long enough to go around the pneumatic and lap at least $1/4$ " on the back. With the rough side of the leather against the pneumatic, lay the strip on top of the pneumatic blank extending halfway down the back at the hinge end, then down as far as the wedge in front (excess length will be glued later). Spread glue (we use white furniture glue) on the edges of the bare pneumatic. Wipe away all but a thin coating; excess glue will ooze out onto the part of the leather which must be flexible, and when hardened can damage the skin and cause leaks. Place leather at the back (hinge end) of the pneumatic first, pressing to assure good contact, then continue leathering on the long side of the pneumatic, being sure that the corner is snugly sealed firm, and then finally go around the movable end the same way. Glue only half of the front. Wait about five minutes,





remove pneumatic carefully and lay on the table, leather side down. Do not move the pneumatic itself yet; keep it at full open position. A second pneumatic can be started in the jig while this is happening, and so with four jigs a continuous flow of pneumatics can be available for the final operation.

Now, with the pneumatic in maximum open position continue gluing the leather around the rest of the front, along the other long side and up the back, overlapping the starting point by 1/4". Glue tightly, then trim excess leather with sharp scissors. All that is left to do is to put the spoon tab back on the pneumatic, glue on a packing leather gasket and spacer, and the pneumatic is finished! If the tab felt pad is worn or missing, replace with *woven* felt to resist wear from the spoon during operation. Check for leaks when dry. Form leather at the movable end into a double "V" inside fold.

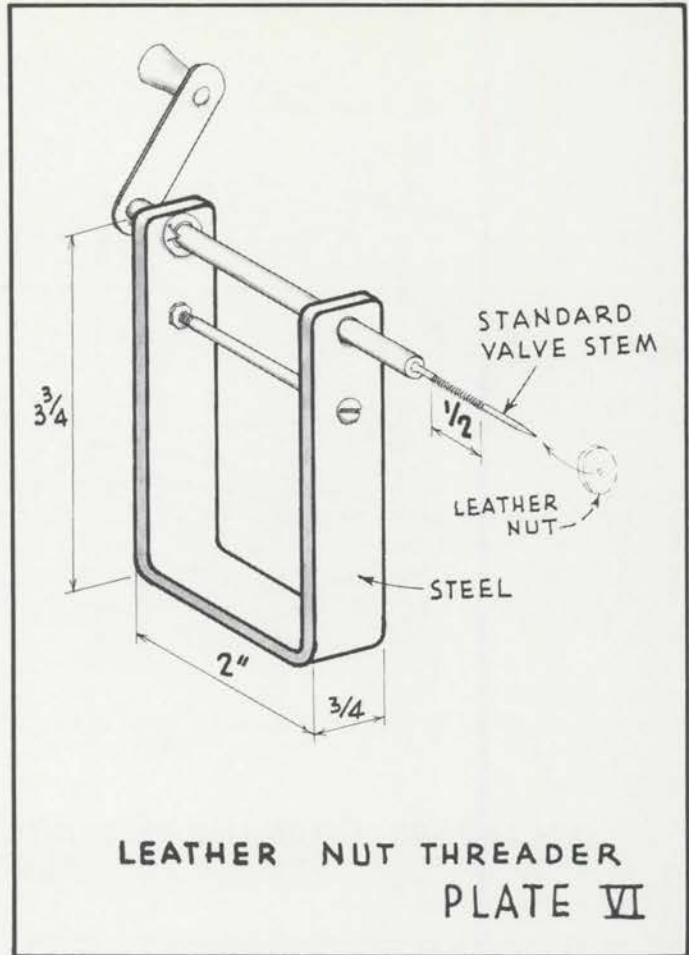
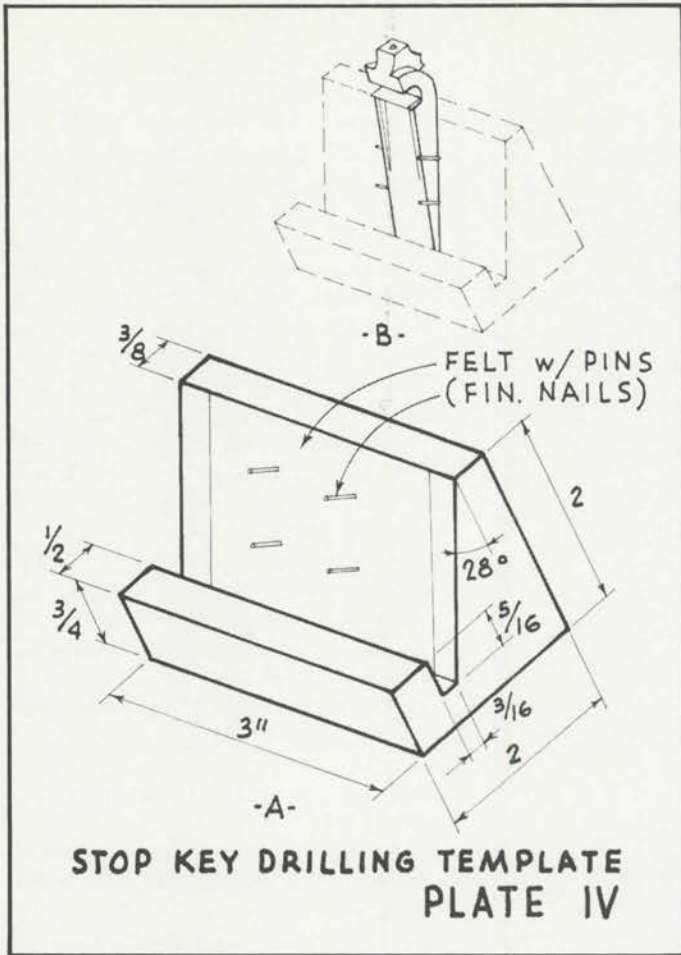
Primary Pneumatic Releathering Jig (Plate III)

The operation is basically the same as the above, except that these pneumatics, of course, are not hinged, so the seam has to be on one long side of the pneumatic.

Place cleaned blocks in the clamp jig. In any given application (i.e., chest, relay, console, etc.) all are the same size. Start halfway up on the long side and glue the sides of the pneumatic which are exposed. Wait five minutes, remove from jig and complete the other sides, except for the 1/4" overlap. Before gluing the seam, let the pneumatic dry for ten minutes or so, then carefully put a thin layer of glue on the leather overlap. Stretch (open) the pneumatic gently to pull seam together to seal it. Press the seam together. Wipe off all glue squeezed out. Hold it in the stretched position for one minute. Check for leaks when dry.

Console Stop Tab Drilling Fixture (Plate IV)

When adding new stop keys supplied by Hesco (Hagerstown, Maryland) from Wurlitzer templates, the fulcrum end is not drilled for the stop key arm when delivered. To facilitate drilling at the correct angle for the arm, we made a fixture to hold the stop key in the proper position while drilling in a drill press.



Magnet Tool (Plate V)

To aid in adjusting lead-base magnet caps we designed a three-way tool consisting of a dag wrench, a tube screw adjust driver and a small-diameter rod to push up on the armature to check for dirt, or general magnet armature operation. This is a small unit which can be used in such close quarters as console stop tab combination primaries and relay switch stacks. The overall dimensions can vary to fit particular clearance conditions (ours is 2-1/2" long).

Leather Nut Pre-threader (Plate VI)

This tool starts a thread in a leather nut, making it easier to thread the nut onto the valve stem. Most useful on switch stacks and console primary boxes where access is difficult. The threaded end of the tool is a valve stem soldered to the spindle.

metal disc with a set screw to grip the stem, which can then be turned by thumb and finger to adjust the valve movement.

Valve Stem Adjuster (Plate VII)

As it is sometimes difficult to get a pin vise on a valve stem because of tight quarters, we have made a knurled

These tools and ideas have made our task easier and it is hoped that others can benefit from their use. If more information is needed, please don't hesitate to contact the writer at OVC-ATOS, Emery Theatre, 1112 Walnut Street, Cincinnati, Ohio 45210, or call 513/861-2869. □

