

## Pneumatic Installation Guidelines

### Appendix L

#### Use and Installation of Shaft to Hub Air Seals

When installing an *Ortlinghaus* pneumatic clutch/brake, clutch, or brake on a shaft, particularly when keys are used, a common method of sealing the air passages between the shaft to hub interface is with shaft to hub air seals. These are elastomeric rings that are set into counterbores at the shaft air holes. Following is a suggested procedure for a typical installation of shaft to hub air seals.

The proper size and part number of shaft to hub air seal can be selected from Table L1 (which is the same as Table 2b in the Installation Guidelines). This table also lists the diameter and depth of the counterbore required for the shaft to hub air seal. Please note that the depth given is from the intersection point of the outside diameter of the shaft and the cross hole centerline. Figure L1 shows the cross hole, counterbore, and a shaft to hub air seal properly installed in the shaft.

When the shaft has been prepared for the installation of the clutch/brake, clutch, or brake, the shaft to hub air seals can be installed. They should be placed in the counterbores with the chamfered end against the bottom of the counterbore. To keep them in place, a glue or adhesive (such as “super glue”, contact cement, or rubber cement) may be used. The next step is to contour the exposed end of the shaft to hub air seal to match the curvature of the shaft diameter, and to protrude .005 to .015 inch beyond the shaft diameter. This can be done with a strip of emery cloth (between 100 and 220 grit), a file, or a power sander. One way to make it easy to obtain the proper protrusion is to take a piece of steel shim stock the same thickness as the desired protrusion, punch or cut a hole in it the same as the outside diameter as the shaft to hub air seal, and tape it to the shaft around the seal. Then the shaft to hub air seal can be sanded or filed flush with the shim stock. When the shim stock is removed, the seal protrusion will be correct.

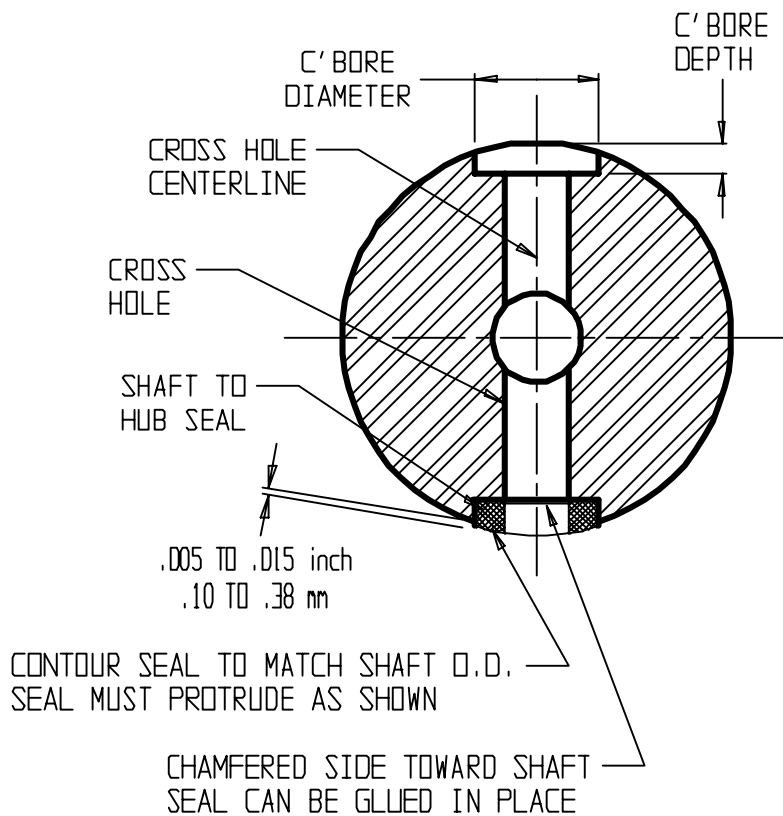
To make it easier to install the clutch/brake, clutch, or brake over the shaft to hub air seals, they can be lubricated with a light coat of oil or grease. Just as the hub approaches them, the shaft to hub air seals should be pressed down into the counterbores with a blunt tool to prevent them from being sheared off as the hub slides over them. The recommended protrusion of .005 to .015 inch is optimum. A greater protrusion will make installation of the clutch/brake, clutch, or brake more difficult and greatly increase the chance that the shaft to hub air seal will be sheared off during assembly.

If the protrusion of the shaft to hub air seals is insufficient after they have been contoured, shims may be placed between the seat of the shaft counterbore and the seal to obtain the proper protrusion.

If you have any questions on this, please contact Orttech or your local Orttech Representative.

**Table L1**  
**Shaft to Hub Seal Dimensions**

C/B Size			Air Seal Part No.	Seal & C'Bore Dia.		C'Bore Depth	
0-420	0-406	0-400		mm	inches	mm	inches
23	---	---	1-400-550-23-000	12	.472	3	.118
29	---	---	1-400-550-29-000	15	.591	3	.118
40	29	---	1-400-550-40-000	20	.787	5	.197
50	40	---	1-400-550-50-000	25	.984	7	.276
61,62,67	50,61	71	1-400-550-71-000	30	1.181	7	.276
72,77	71	74,76,79	1-400-550-79-000	35	1.378	9	.354
80,83,87	76,79	82,85	1-400-550-85-000	40	1.575	11	.433
90	82	88	1-400-550-88-000	50	1.969	15	.591
91	90	---	1-400-550-91-000	55	2.165	15	.591
92	---	---	1-400-550-92-000	60	2.362	17	.669
93	---	---	1-400-550-93-000	65	2.559	17	.669



**Figure L1**  
**Shaft to Hub Air Seal and Counterbore Required**