

## INDUCT MOUNT CONTROL DAMPERS INSTALLATION INSTRUCTIONS

### RECEIVING/INSPECTION

Upon delivery, inspect shipping containers and contents closely. If shipping containers are damaged, contents could also be damaged. Note any damage on trucker's receipt. Contact the freight company within 24 hours for a representative to come and inspect.

### STORAGE

Store in a safe location away from construction traffic, material, etc., to prevent damage. Cover with plastic sheeting to protect from excessive moisture, dirt, and debris or store in an area protected from the elements.

### INSTALLATION

Inspect for damage and corrosion prior to installation. Handle dampers by frame only. Do not lift by blades, linkage, axle, actuator, or jackshaft components. When handling multiple section assemblies, use sufficient support to evenly lift at each section mullion. Do not drop, drag, step on, or apply excessive bending, twisting, or racking. **Use operator shaft to cycle damper. Do not twist or turn damper blades to cycle damper.**

1. Inspect ductwork or opening where damper will be installed for any obstruction or irregularities that might interfere with blades or linkage rotation or actuator mounting. Duct opening should measure  $\frac{1}{4}$ " (6) larger than damper dimension and should be straight and level. **Support ductwork in area of damper to prevent sagging due to damper weight.**
2. Determine proper location of extended shaft or jackshaft before installing the damper. A sticker on the damper face shows recommended extended shaft location. **Attach shaft on labeled side of damper and preferably to that blade.** Use the shaft support bracket with snap-on extended shaft. See figure #1. Shaft must be attached to a power blade. On parallel blade units, all blades are power blades. On opposed blade units, blade with sticker and every other blade from the sticker blade are power blades.

3. If damper is shipped in multiple ship sections, position damper ship sections in duct or opening. Align and match frame markings or labels on adjacent sections. See figure #2. **Unless specifically designed and ordered for vertical blade application, damper must be mounted with blade axis horizontal.**
4. If no holes are present in frame, drill  $\frac{1}{4}$ " (6) dia. holes at 6" (52) centers and fasten frames together with  $\frac{1}{4}$ " 20 (6 - .03) bolts and nuts.
5. Use appropriate shims between damper frame and duct opening to prevent distortion of frame by fasteners holding it in place. Appropriately brace at every horizontal mullion and vertically brace at every 8 feet (2.4m) of damper width for strength. Dampers in high velocity systems (2000 fpm [610m per minute]) require more bracing. **Note: Ruskin dampers are specifically designed and engineered for structural integrity based on model and conditions. Attachment, framing, mating flanges, and anchoring of damper assemblies into openings, ductwork, or walls is the responsibility of the installer. Design calculations for these retaining and supporting members should be determined by field engineers for that particular installation.**
6. If damper assembly is provided with unjoined jackshaft ends, drill two  $\frac{1}{4}$ " (6) diameter holes and install roll pins as shown in figure #3. Completely drive roll pins through the jackshaft. Jackshaft may have been repositioned to prevent damage during shipment. To reposition, loosen bolts on crank arms, reposition clamps, and slide jackshaft to desired position. If damper actuator is to be mounted out of airstream, the jackshaft should extend through the jackshaft bearing assembly and approximately 6" (152) beyond the frame. Secure jackshafts in place with the clamps provided and retighten bolts on crank arms.
7. If applicable, link lower and upper jackshafts with the crossover bar through the ball joint on crank arm at each jackshaft. Locate crank arm close to jackshaft bearing assembly. See figure #3.

**Note:** Dimensions shown in parentheses ( ) indicate millimeters

(continued on back)

FIGURE 1

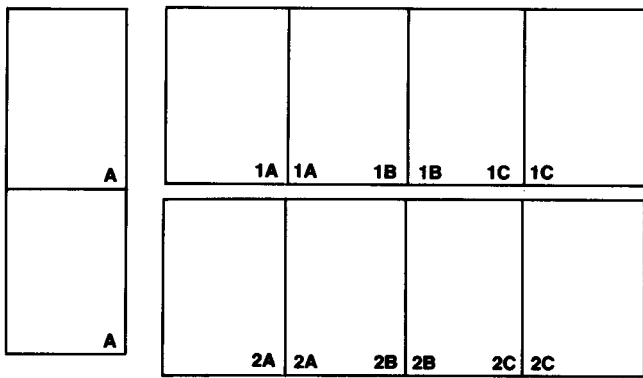
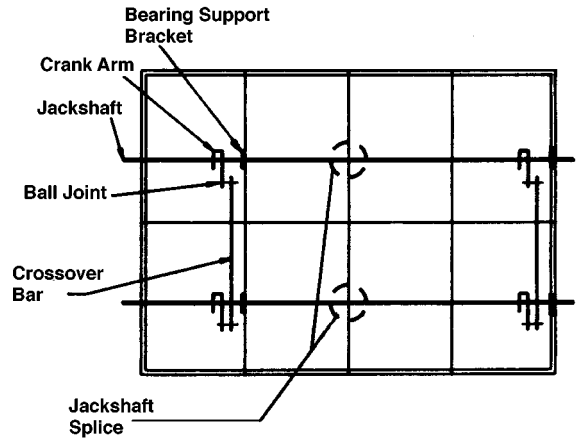
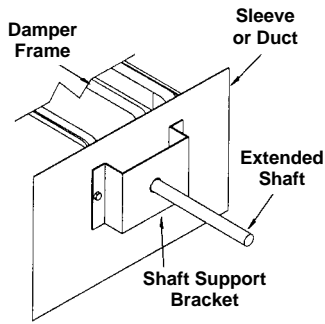


FIGURE 2

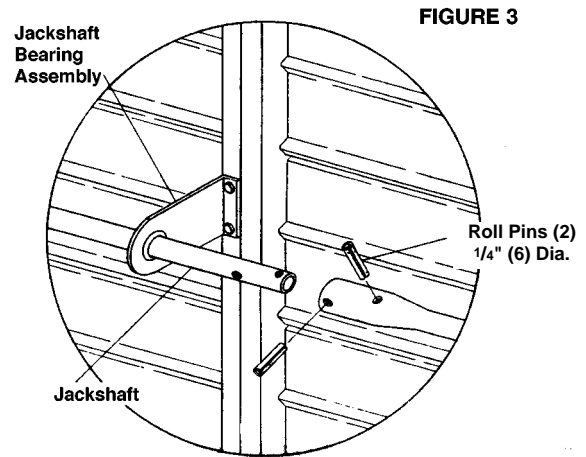


FIGURE 3

## INDUCT MOUNT CONTROL DAMPERS

8. Individual damper sections, as well as entire multiple section assemblies, must be completely square and free from racking, twisting, or bending. Measure diagonally from upper corners to opposite lower corners of each section as shown in Figure 4. Both dimensions must be equal  $\pm 1/8"$  (3).

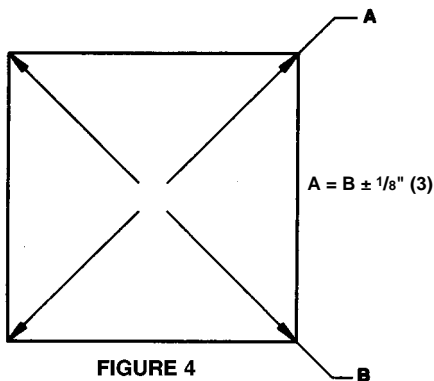


FIGURE 4

9. A clearance of  $1/8"$  (3)  $\pm 1/16"$  (1.5) must be maintained between bearing within frame and blade end. Move blade solidly against bearing on one side and measure clearance at other end of blade. See Figure 5. If jamb seals are present, compress to determine clearance.

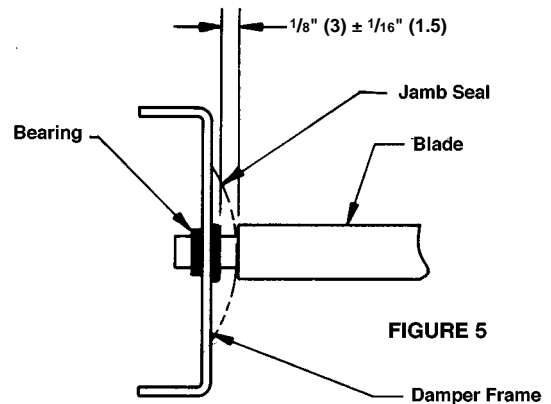


FIGURE 5

10. Damper blades, axles, and linkage must operate without binding. Before system operation, cycle damper after installation to assure proper operation. On multiple section assemblies, all sections should open and close simultaneously.
11. After installation of low leakage dampers with seals, caulk between frame and duct or opening to prevent leakage around perimeter of damper.

**Note:** Dimensions shown in parentheses ( ) indicate millimeters