

# DAMPER AND LINKAGE

The D524A Damper controls the flow of air through the ducts of a zoned heating or heating-cooling system. It includes a No. 124857A Mounting Plate which provides a rigid mounting surface on the duct for the M833A or M835A Honeywell Damper Actuator, and covers the hole made in the duct for inserting the damper blade.

Blade construction allows simplified, rapid damper installation.

Blade (and the 28½ x ¼ inch shaft) can be easily trimmed to fit the duct.

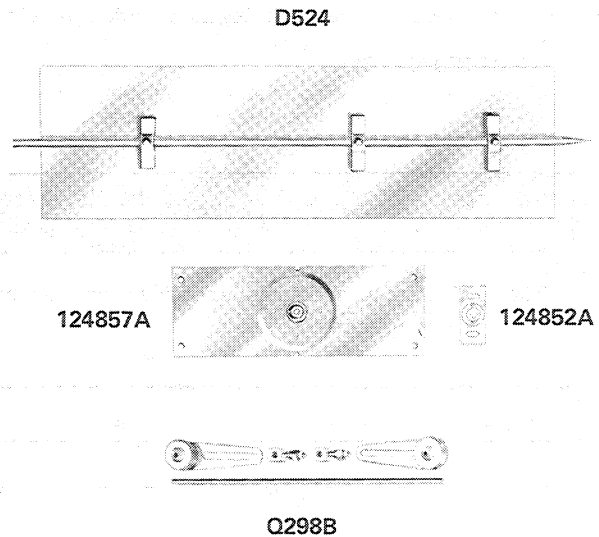
An additional damper shaft bracket is included for use when one D524 blade is cut to make two smaller blades.

Blades are available in two sizes: 8-3/8 x 24 inches (for ducts 6 to 8 inches deep; ); 12½ x 24 inches (for ducts 10 to 12 inches deep).

No. 124857A Mounting Plate accurately positions damper actuator, and provides a bearing surface for the shaft.

Q298 Linkage (must be ordered separately) connects the M833 Motor to one or two D524A Dampers.

A Crank Arm and Shaft Assembly, No. 121825AA, is available for connecting the M835A Actuator Motor to D524A Dampers. This assembly must also be ordered separately. See ACCESSORIES for full description.



## D524A Q298B

# SPECIFICATIONS

**MODELS:**

**D524A DAMPER**

**DIMENSIONS (INCHES):** Specify either 8-3/8 x 24 (for ducts 6 to 8 inches deep and 10 to 24 inches wide) or 12-1/2 x 24 (for ducts 10 to 12 inches deep and 10 to 24 inches wide).

**MATERIAL:** Steel.

**124857A MOUNTING PLATE (INCLUDED)**

**DIMENSIONS (INCHES):** 5 wide, 15 long. Includes 1/4 inch diameter bearing hole for damper shaft.

**MATERIAL:** Steel.

**124852A BEARING BRACKET (INCLUDED WITH MOUNTING PLATE)**

**DIMENSIONS (INCHES):** 1-1/8 wide by 3 long, with 1/4 inch diameter bearing hole for damper shaft.  
**MATERIAL:** Steel.

**Q298B LINKAGE**

For linking the motor to an additional damper. Consists of two crank arm assemblies, two ball joint assemblies, and variable-length push rods (in 10, 16, or 24-inch lengths). Bushings are provided for adapting the Q298B to the 1/4-inch shaft of the D524A.

**121825AA AUXILIARY CRANK AND SHAFT ASSEMBLY**

Used for connecting M835A Motor to a damper. Includes crank arm, shaft assembly, and necessary screws for installing.

# INSTALLATION

The following procedures are identical for both sizes of the D524A Damper.

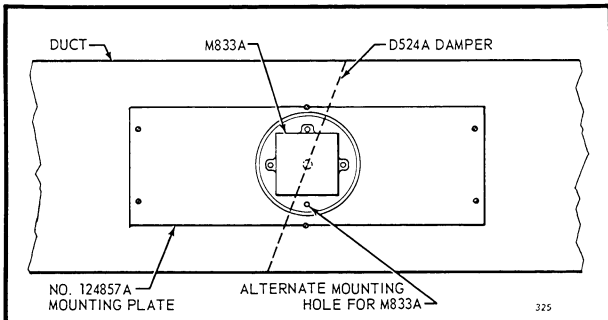


Fig. 1 — Damper installed in a typical zone control system using the M833A. Motor shaft rotates clockwise to open damper.

NOTE: motor may also be mounted by rotating it 1/4-, 1/2-, or 3/4-turn from position shown.

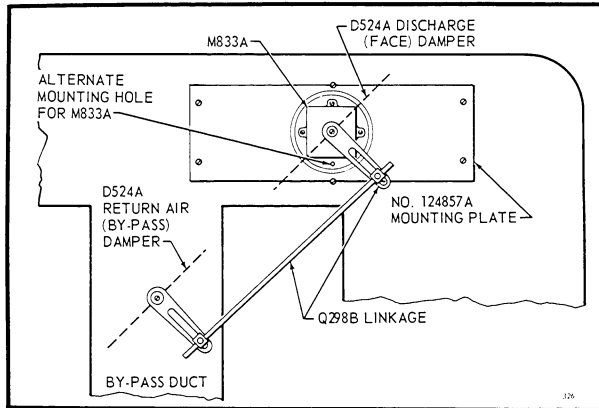


Fig. 2 — Typical damper and linkage arrangement for a single actuator face-and-bypass (mixed air) forced air heating or heating-cooling system using the M833A. Motor shaft rotates clockwise to open face damper, close by-pass damper. See Note after Fig. 1.

(Continued on page 3)

# ORDERING INFORMATION

WHEN ORDERING—REFER TO TRADELINE CATALOG OR PRICE SHEET FOR COMPLETE ORDERING SPECIFICATION NUMBER OR...

**SPECIFY —**

- A. DAMPER MODEL NUMBER (D524A).
- B. DAMPER BLADE WIDTH (8-3/8 OR 12-1/2).
- C. LINKAGE MODEL NUMBER (Q298B).
- D. AUXILIARY CRANK ARM FOR M835 (121825AA).

**ORDER FROM —**

- 1. YOUR USUAL SOURCE, OR
- 2. HONEYWELL  
1885 DOUGLAS DRIVE, NORTH  
MINNEAPOLIS, MINNESOTA 55422  
(IN CANADA — HONEYWELL CONTROLS LIMITED  
740 ELLESMERE ROAD  
SCARBOROUGH, ONTARIO)

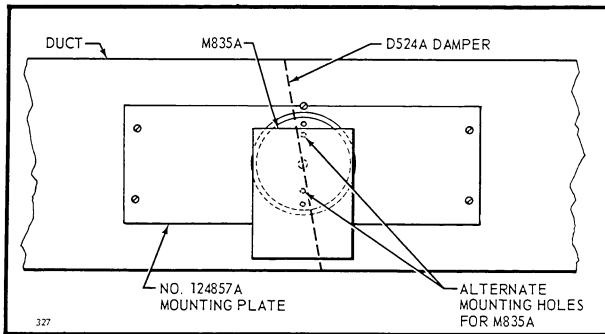


Fig. 3 — Damper installed in a typical zone control system using the M835A. Motor shaft rotates counterclockwise to open damper. Note after Fig. 1 also applies to M835A.

## STEP BY STEP INSTALLATION PROCEDURE

Note: If backside of duct is inaccessible, see steps 6A-G before proceeding.

**STEP 1** Choose a convenient location on the side of the duct that will allow attachment of the 124867A Mounting Plate. By inspection or by holding the mounting plate against the side of the duct, determine approximate position of damper shaft.

Caution: Do not attempt to install damper or mounting plate on a curved duct.

SPECIAL INSTRUCTIONS applicable to cooling or to heating-cooling installations:

- a. Carefully remove enough insulation from duct to allow mounting plate to be installed directly on side of duct.
- b. Proceed to install damper and mounting plate.

**STEP 2** Use a square and cross-mark the exact center of the duct in the previously selected location. Be sure to extend the mark to both edges of duct. Center-punch and drill 1/8 inch pilot hole.

**STEP 3** From the line established in 2, use a square and draw a line around to the back side of the duct. Cross mark the back side of duct at its exact center; center-punch, and drill 1/8 inch pilot hole. (Drill a 5/16 inch hole if 124852A Bearing Bracket is to be used.)

**STEP 4** From the front side of the duct, drive the shaft, pointed end first, through the pilot holes in both front and rear sides of the duct. Caution: Support the back side of the duct to prevent its being distorted and/or damaged when the shaft is driven through it.

A large nut, a piece of wood with a hole drilled in it or any other available device held firmly in place while the shaft is driven through the sheet metal of the duct should provide adequate support.

**STEP 5** Place 124857A Mounting Plate over the shaft on front side of duct; make sure the plate is parallel with upper and lower edges of duct. Locate mounting screw holes, using plate as a template. Then hold plate in place and mark or scribe a line all the way around it. Remove plate and drill holes in duct for mounting screws. A 1/8 in. drill is recommended for the six 3/16 in. mounting screws supplied.

**STEP 6** Remove mounting plate and damper shaft from duct. Cut a rectangular hole in duct 1 inch inside the rectangle drawn in STEP 5. This hole should be large enough to permit easy installation of damper. If back side of duct is accessible, proceed to STEP 7.

**IF BACK SIDE OF DUCT CANNOT BE REACHED  
BECAUSE OF A WALL, ANOTHER DUCT,  
OR OTHER OBSTACLE, PROCEED AS FOLLOWS:**

**STEP 6A** Select damper location and cross-mark the exact center of the front of the duct (follow applicable instructions in STEPS 1 and 2, above). Center-punch and drill 1/8 inch pilot hole in the cross mark.

**STEP 6B** From the vertical line on the front of the duct, square and draw a line across the bottom side to the back edge. In the position shown at back edge, use a prick punch and hammer to raise a small bulge on the inside bottom of duct.

**STEP 6C** Place 124857A Mounting Plate against front of duct, aligning the bearing hole in the plate with the drilled hole in the duct. (Edges of mounting plate must be parallel with top and bottom edges of duct.) Using mounting plate as a template, mark mounting screw hole locations (6) on duct, then draw a line all the way around mounting plate.

**STEP 6D** Remove mounting plate and drill holes in duct for the six mounting screws.

**STEP 6E** Cut a rectangular hole in the duct, as in STEP 6, above.

**STEP 6F** Reach through the rectangular hole and align a square over the center of the small bulge made in STEP 6B. Be sure bottom edge of square rests flush against bottom of duct. Mark a point one-half the height of the duct on a vertical line drawn up from the bulge. The point just marked is the center point of the duct. Drill a 1/8 inch hole at this point.

**STEP 6G** Use a hammer to drive the pointed end of the damper shaft through the 1/8 inch hole. NOTE: After the pointed end of the shaft has been driven through the hole, move the other end in as large an arc as possible and rotate the shaft to help loosen the hole, so that the shaft can rotate freely in the hole. Remove shaft.

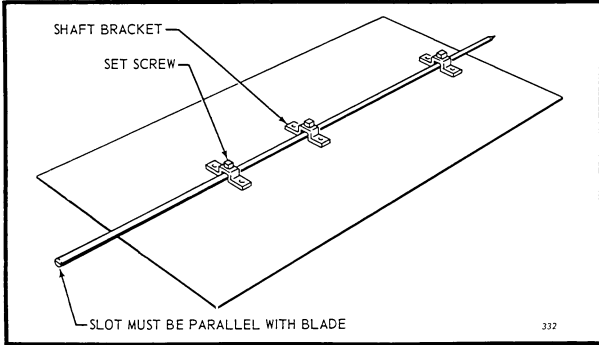
**STEP 7** Measure the width of the duct, then cut end off damper blade so it will be 1/2 inch shorter than duct width. This will allow 1/4 inch clearance on both ends of damper blade when installed. NOTE: If desired, the damper blade may be cut to make two smaller blades; for example, from one 12-1/2 by 24 inch blade, two 12-1/2 by 12 inch blades may be cut, or one 12-1/2 by 16 inch blade and one 12-1/2 by 8 inch blade may be cut:

An additional damper shaft bracket is supplied for use when the blade is cut to make two smaller blades; use the bracket for a template and mark and drill holes for mounting screws.

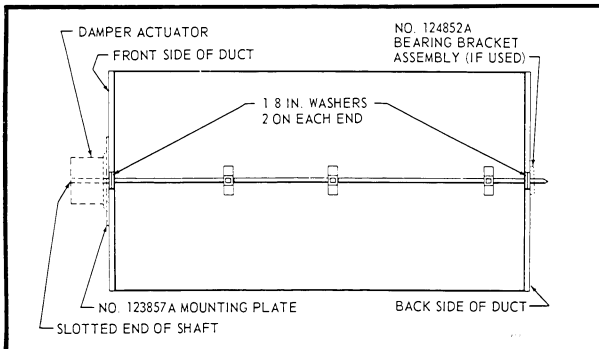
**STEP 8** Measure the height of the duct, then cut damper lengthwise, cutting off an even amount on both sides of blade, according to the following table:

If duct height is	Maximum damper height is
12 inches	12-1/2 inches
10 inches	10-3/8 inches
8 inches	8-3/8 inches

Over-sizing the damper blade height permits the damper to close at an angle to the vertical, reducing the possibility of damper binding in closed position.



**STEP 9** Assemble damper shaft to blade by inserting shaft thru the shaft brackets. Tighten set screws against shaft. Scratch or cut a slot in motor end of shaft to serve as a damper position indicator after damper is installed. This end of the shaft should extend from duct the distance required by the instructions for the damper motor.

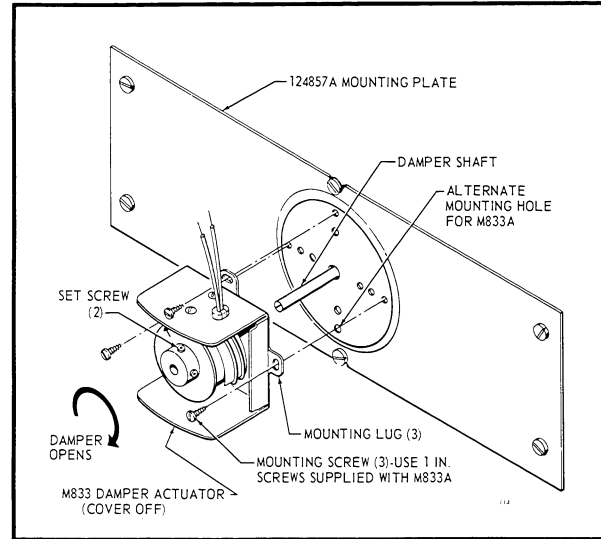


**STEP 10** Place two 1/8 inch washers (supplied) on each end of shaft to minimize blade end play and to prevent ends of blade from scraping against duct. If damper blade is cut to provide more than 1/4 inch clearance on each end, add sufficient washers to center the blade and to provide a good fit. If 124852A Bearing Bracket is used, align bearing hole with 5/16 inch hole drilled in back of duct, then secure bracket with 2 screws.

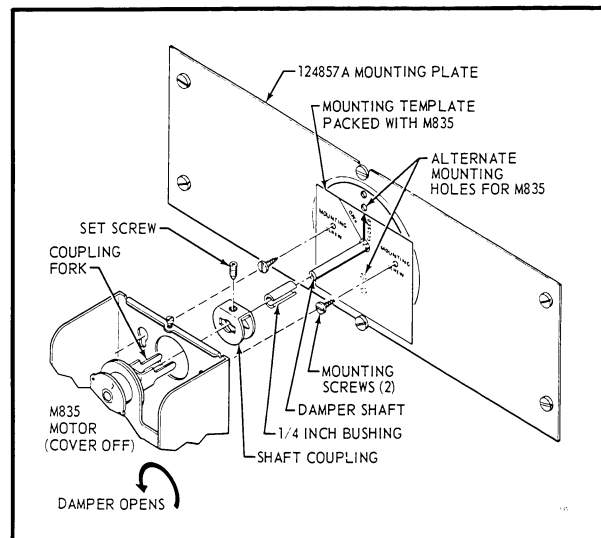
**STEP 11** Insert damper into duct with slotted end of shaft towards front of duct, and in a position that allows the controlling motor to open the damper (M833 rotates clockwise, M835 rotates counterclockwise to open damper). NOTE: WHEN USING THE M835, BE SURE THE DAMPER WILL BE ABLE TO SWING FREELY THROUGHOUT ITS TRAVEL FROM CLOSED TO OPEN POSITION WITHOUT BEING BLOCKED BY THE MOTOR MOUNTING SCREWS. If necessary, cut notches in side of damper blade to allow clearance for actuator mounting screws. Do NOT do this for the M833, since the mounting screws function as damper stops when damper is open.

**STEP 12** Slide 124857A Mounting Plate over damper shaft and attach to side of duct with 6 sheet metal screws. BEFORE MOUNTING DAMPER ACTUATOR, rotate damper shaft manually to open and closed positions to be sure it turns freely.

Replace insulation previously removed from duct. Be sure to cover the entire mounting plate, leaving openings only for the shaft and the M833 or M835 mounting feet.



**STEP 13** If M833 Damper Actuator is used, attach it to the 124857A Mounting Plate with the three long screws supplied with the M833 (these screws extend into the duct and act as stops, limiting damper travel). See note after Fig. 1, page 2. Follow installation instructions packed with M833.



If M835 Damper Actuator is used, attach it to the 124857A Mounting Plate with the two mounting screws supplied with the M835. For alternate mounting positions, see NOTE after Fig. 1, page 2. Follow installation instructions packed with M835.