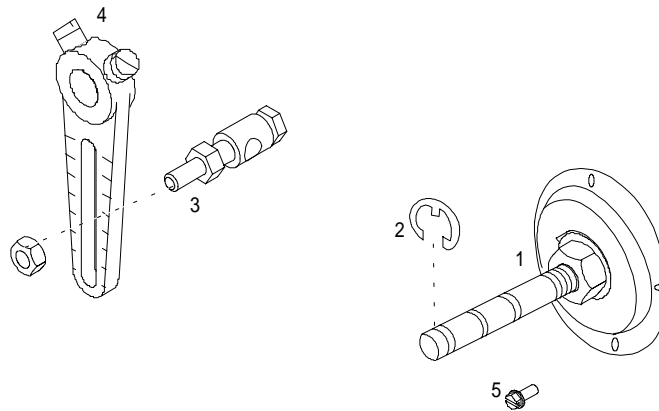


D-3153 with Auxiliary Mounting Bracket Installation



Item	Description	Qty
1	Auxiliary Mounting Bracket Assembly	1
2	E-ring Clip	3
3	Crank Arm	1
4	Swivel Ball Joint Assembly	1
5	No. 12 x 1/2 inch (13 mm) Pan-head Thread-forming Screws	4
	Actuator (not shown)	1

Tools Required

- standard screwdriver, 6 inch shank with 5/16 inch blade
- open end wrench adjustable to 1 inch
- drill bit (3/16 inch, 4.8 mm, No. 9 or 10) and drill

General

The D-3153 with auxiliary mounting bracket is designed for use with small dampers primarily on multizone units. This kit is used where swivel mounting is required and/or space limitations inhibit the use of the standard universal mounting bracket. The swivel mounting feature reduces the side load on the shaft bearing to provide smooth operation.

The D-3153 pneumatic actuator is designed for use with UL leakage rated dampers in smoke control applications up to 250°F (121°C). All models are UL component recognized. Two models have a factory installed and calibrated D-9502 Positioner for proportional volume control applications.

All models incorporate several internal and external features that add functional flexibility:

- A 2-way swivel connection on the actuator cylinder provides non-binding movement to compensate for damper alignment conditions.
- All actuators have a telescoping piston rod for easy linkage to the damper for attachment points up to 8-3/4 inches (222 mm) away from the face of the actuator.
- A swivel ball joint and slotted crank arm connector are furnished for optional methods of linkage to the damper.

- A stop screw kit is available for special applications to limit the power stroke of the actuator when required.

IMPORTANT: For safety dampers, copper tubing must be used between the actuator and the controller. The tubing must be looped at the actuator so that pivoting of the actuator does not cause stress on the tubing.

Mounting

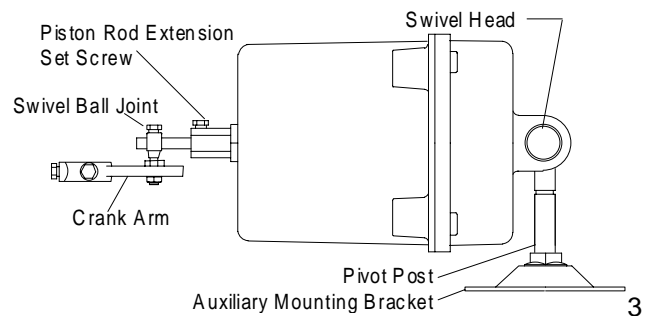


Figure 1: Mounting Components

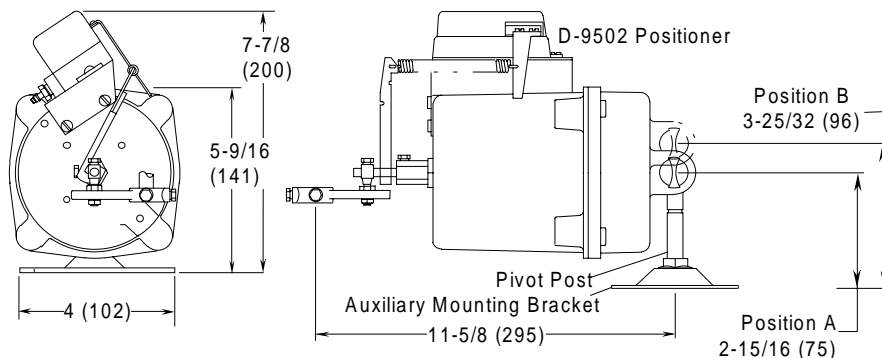


Figure 2: Mounting Dimensions

Special Linkages and Offset Surfaces

In order to achieve the desired mounting bracket location, it may be necessary to extend the piston rod. This can be done by loosening the set screw on the shaft extension hex nut and telescoping the piston rod.

If the actuator axis is perpendicular to the drive shaft, the normal crank arm radius of 2-1/8 inches (54 mm) will result in a 90° shaft rotation with a 3 inch stroke. If the actuator axis is at a moderate angle to the drive shaft, the crank arm radius will need to be adjusted in order to achieve a 90° shaft rotation.

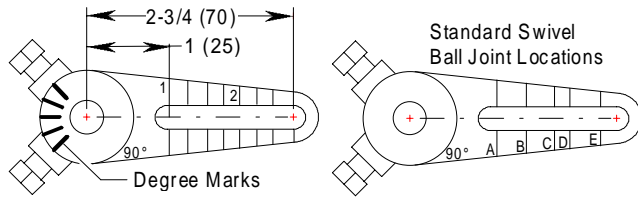


Figure 3: Crank Arm Detail

Note: The part of the crank arm that fastens over the shaft is marked in 1/2 inch increments, and one side of the arm is marked in 1/4 inch increments in order to facilitate crank arm adjustments.

To minimize axis angles for best operation and maximum thrust, or to reach a more remote mounting location, up to 4 feet (122 cm) of 5/16 inch rod stock (D-3153-102) may be substituted as required. The rod must be ordered separately and cut to the required length.

Drive Shaft Linkage

1. Determine whether clockwise or counterclockwise damper shaft rotation is required.
2. Slide the crank arm onto the blade shaft.
3. Align the linkage point for 90° rotation at a 3 inch (76 mm) stroke. Try to maintain the factory settings for the crank arm (2-1/8 inch radius or point "D" on the crank arm) and the piston rod length. The correct line of action goes through the start and end points of rotation.
4. Finger tighten the crank arm set screws and make sure that the actuator is in a level position.

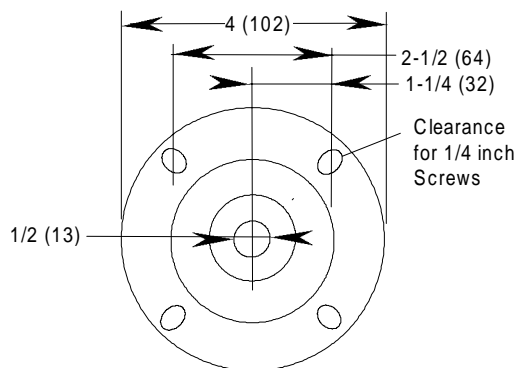


Figure 4: Auxiliary Mounting Bracket, inches (mm)

5. If there are no adjustments necessary, mark the four mounting holes using the auxiliary bracket as a template and swing the actuator and mounting bracket aside.

If adjustment is required:

- Loosen the piston rod extension set screw.
 - Telescope the piston rod to allow attachment to the swivel ball joint; the crank arm and swivel ball joint assembly should be positioned on the damper shaft extension to allow the damper blades to be in their normal position when the actuator is fully retracted.
 - Tighten the crank arm, swivel ball joint, and piston rod set screws before making the air line connections.
6. Make sure that the mounting surface is solid and stable (that it can retain thread-forming screws).
 7. Drill a 3/16 inch (5 mm) hole at each of the marked places and mount the auxiliary bracket using four No. 12 x 1/2 inch pan-head, thread-forming screws supplied.
 8. Tighten the crank arm set screws and check all other linkage fasteners before making air line connections.

Direct Blade Linkage

1. Remove the swivel ball joint from the crank arm.
2. Determine whether normally open or normally closed damper operation is desired and either select or fabricate a blade arm (leaf connection). The swivel ball joint on the end of the piston rod is adaptable.

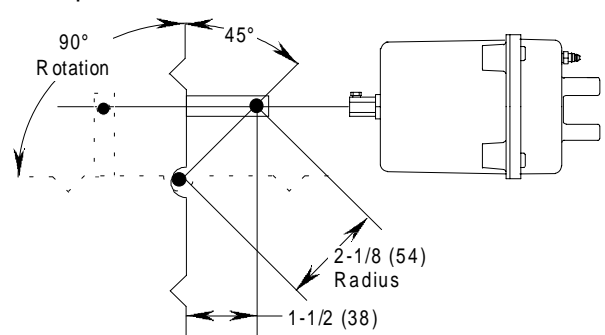


Figure 5: Normally Closed Location

For normally closed operation, form an angle of 45°.

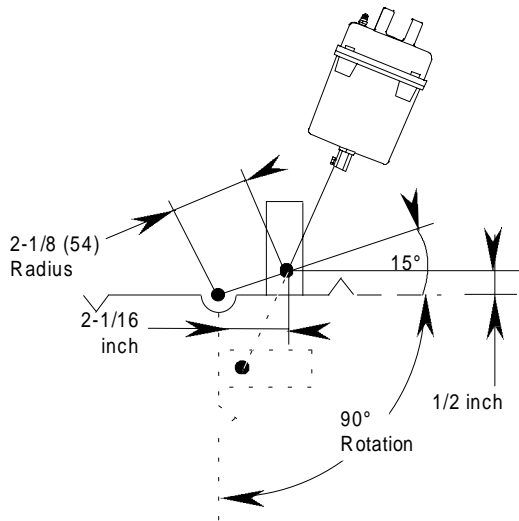


Figure 6: Normally Open Location

For normally open operation, form an angle of 15°.

3. Choose the auxiliary bracket mounting position (usually on the existing or on the adjacent duct or wall).

Note: Whenever possible, locate the auxiliary mounting bracket in a level position where alignment can be readily maintained.

4. The pivot post location should be within 10 to 16-1/2 inches (254 to 419 mm) (Figure 2) from the blade arm linkage point to use the telescoping piston rod feature of the D-3153. Make sure that the damper blades will clear the actuator when rotated.
5. Mark the four mounting holes using the auxiliary bracket as a template and swing the actuator and mounting bracket aside.

6. Make sure that the mounting surface is solid and stable (that it can retain thread-forming screws).
7. Drill a 3/16 inch (5 mm) hole at each of the marked places and mount the auxiliary bracket using four No. 12 x 1/2 inch pan-head, thread-forming screws supplied.

Note: For heavier gauge mounting surfaces, 1/4 inch diameter bolts can be substituted for the bracket attachment.

8. If the extension of the piston rod is required, loosen the set screw located on the shaft extension hex nut.
9. Telescope the piston rod to allow attachment of the swivel ball joint to the blade bracket.
10. Tighten the crank arm, swivel ball joint, and piston rod set screws before making the air line connections.

Check Out Procedures

1. Supply air pressure to the actuator and operate the damper for at least three complete cycles.
2. Verify that the damper blades open or close fully.
3. Run the actuator to close the damper. If the blades are not fully closed, adjust the position of the linkage rod.
4. Run the actuator to open the damper. The blades should not rotate more than 90° or past full open. Adjust the crank arm or blade arm radius by repositioning the ball joint if necessary.
5. Repeat procedures as necessary.

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