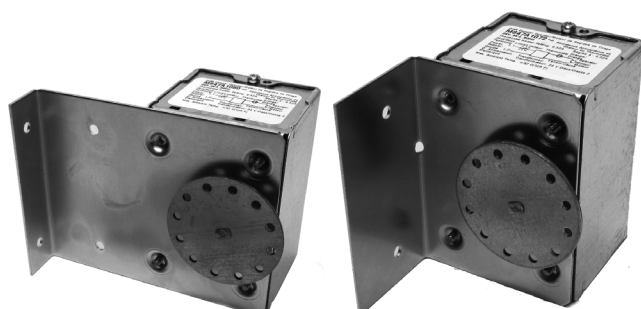




M847A Draft Damper Operator

INSTALLATION INSTRUCTIONS



**EXTENDED BRACKET
MODEL**

**SHORT BRACKET
MODEL**



**CHAIN
LINKAGE**



**ARM
LINKAGE**

APPLICATION

The M847A is a two position, low voltage spring return damper operator designed for use with 24 VAC room thermostats, or other low voltage controllers, to operate the draft damper on solid fuel furnaces or boilers, or other similar light duty applications.

The damper operator is equipped with a mounting bracket and is intended for wall, duct, direct furnace or boiler mounting to control a draft damper through a direct actuator arm, or a chain linkage arrangement, depending on the model selected.

SPECIFICATIONS

Models: with 965 mm (38") length of chain, or with actuator arm.

Electrical Rating: 24 V 8VA 60Hz

Thermostat Heater Setting: — .32 amp.

Nominal Angular Rotation of Wheel: 45 degrees.

Torque (at actuator wheel): 212 mN•m* (30 inch ounces).

Motor Timing: 20 seconds maximum in the powered direction, 20 seconds maximum on spring closing.

Ambient Temperature Rating: 5 to 50° C (+40 to 125° F).

Finish: zinc plated

Direction of Rotation of Actuator Wheel: when energized, this wheel rotates in the clockwise direction when facing the wheel.

Mounting Means: bracket provided may be secured to any flat surface within the temperature limitations stated above.

Mounting Position: any position except when using chain linkage where actuator wheel should be vertical (see Fig. 3).

Dimensions: See Figs. 1 & 2.

* mN•m — MILLI NEWTON METRE

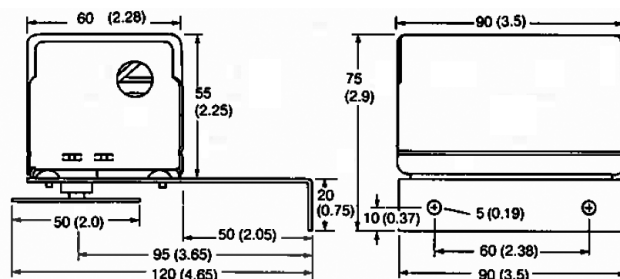


Fig. 1. Extended Bracket Model. Dimensions in mm (inches) are nominal.



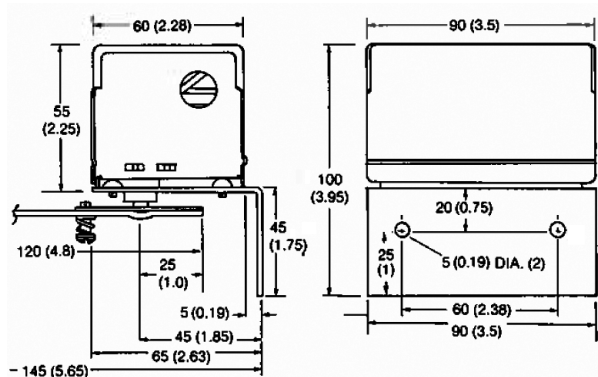


Fig. 2. Short Bracket Model with arm linkage attached.
Dimensions in mm (inches) are nominal.

INSTALLATION

The M847 can be mounted using the mounting bracket attached to the operator. The motor should be mounted to allow convenient connection of the drive linkage involved with the type of draft damper on the heating appliance. See Figs. 3 and 4 for typical arrangements of both types of linkages.

It is essential that the location of the operator is such that the draft damper is fully closed and the chain linkage slack or the arm free of engagement when the draft operator is de-energized. The M847 should be protected by a shield or remotely located, to protect it from damage by solid fuel which might be dropped when the furnace or boiler is being loaded.

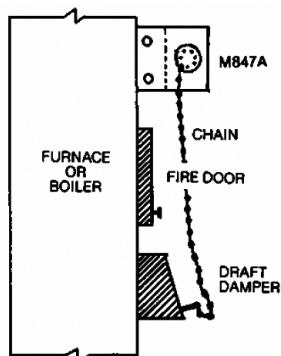


Fig. 3. Chain linkage arrangement.

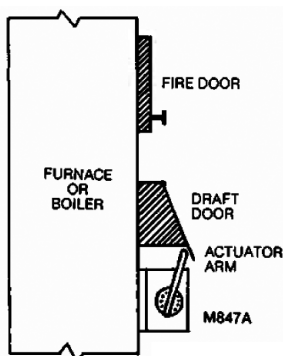


Fig. 4. Actuator arm arrangement.

MOUNTING CHAIN MODEL

1. Select the applicable location for the M847 on a wall, duct, or furnace which is within the temperature limitations of the operator (See Specifications section).
2. Using the mounting plate as a template, drill two 3 mm (1/8" or .125") diameter holes.

3. Fasten the operator to the surface selected using the two number 8 sheet metal screws provided.
4. Drill a 5 mm (3/16") hole in the draft damper near the bottom edge. Fasten the chain to the damper using the bolt and nuts provided as illustrated in Fig. 5. Hook the other end of the chain through one of the holes on the lower segment of the actuator wheel which will provide the maximum lift, or vertical chain movement. The exact length of the chain used must be determined by the location of the damper operator with respect to the draft damper being controlled, keeping in mind that the draft damper must be fully closed, and the drive chain slack, when the operator is de-energized and has returned to its fully closed position.

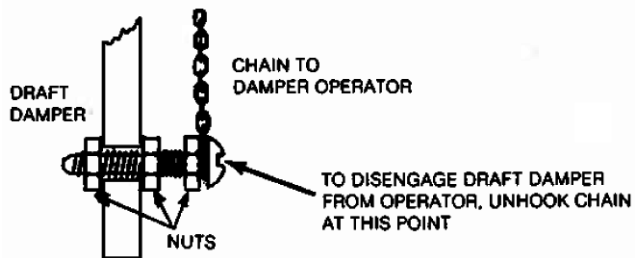
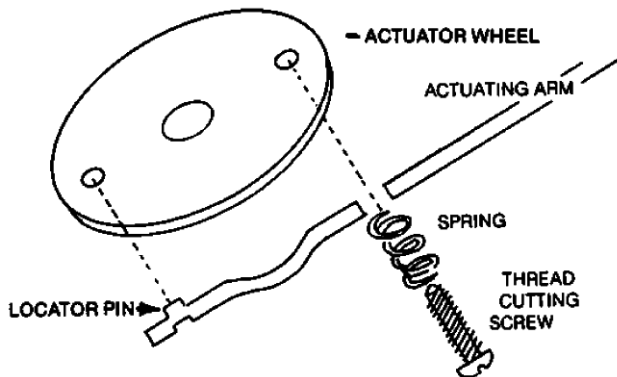


Fig. 5. Attachment of chain linkage to draft damper.

ACTUATOR ARM MODEL

1. Assemble the arm as shown in Fig. 6.



Screw to be tightened only enough to seat locator pin arm into hole in wheel so arm can be disengaged from wheel by depressing arm. See Fig. 8.

Fig. 6. Assembly of arm to operator wheel.

2. Locate the operator beneath the draft damper as shown in Fig. 7, positioning it so the extreme rotation of the arm will open (raise) the damper the required amount. The arm must physically engage the draft damper when the operator is energized.

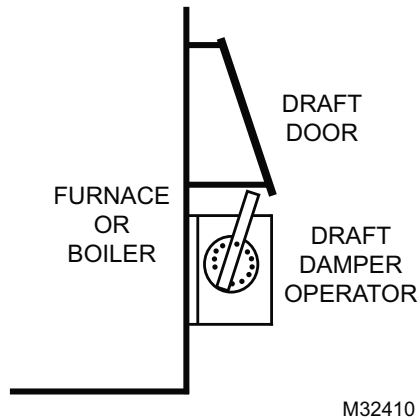


Fig. 7. Typical location of draft damper operator with arm.

3. The selection of the appropriate arm mounting holes in the wheel will depend upon the location of the operator with respect to the lower edge of the draft damper. Energize and de-energize the operator and note the exact angular rotation of the wheel to confirm the correct positioning.
4. The actuator arm can be disengaged from the wheel to manually close the draft damper when the damper operator is energized, or to prevent operation of the draft damper as the damper operator responds to the controller. In this position, the actuator arm can be pivoted so as to be clear of the draft damper during the operator's rotation. See Fig. 8.

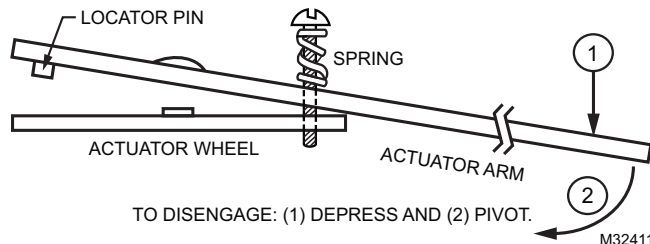


Fig. 8. Disengaging actuator arm from draft damper.

⚠ WARNING

1. Do not attempt to simulate operation of the operator by rotating the wheel, or depressing the actuator arm so as to rotate the wheel. Abuse of this type can result in stripping the gears in the drive train of this operator.
2. When the operator is de-energized and at its extreme closed position, the actuator arm **MUST BE** clear of the damper, or the chain linkage slack.

WIRING

All wiring must comply with local electrical codes and ordinances. Low voltage connections between the operator and thermostat and a Class 2 24 VAC transformer can be made using the two wire nuts supplied. See Fig. 9 for typical wiring hookup of the M847.

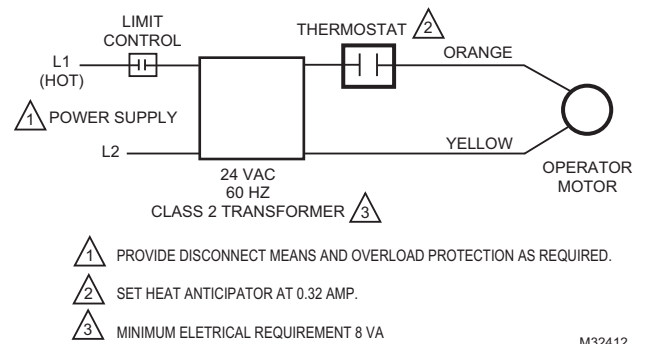


Fig. 9. Typical M847A hookup.

CHECKOUT

Energize the system, set the thermostat to call for heat, and verify that the actuator wheel rotates in a clockwise direction to open the draft damper. Lower the thermostat setting and ensure that the operator fully closes the draft. Raise the thermostat setting again, allow time for the operator to fully open the draft damper, carefully note the setting of the limit control, and then turn the limit control setting down to its lowest scale value. The operator should go to the fully closed position. If this checkout is being performed when there is no fire in the furnace or boiler, simulate limit control operation by opening the system disconnect switch, removing one lead to the limit control, and then closing the disconnect again. If the operator functions as detailed above, re-connect the wiring, and re-set the thermostat to the normal setting. Be sure the **LINKAGE IS ADJUSTED TO FULLY CLOSE** the draft door whenever the operator is in the closed position. See warning note above.



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