

## Installation Instructions

The Motor Switch Terminal, Model MST, is a 24 Volt, AC two-position motor. This motor is used with the Automatic Opposed Blade Dampers, automatic registers and diffusers.

The MST requires a Single Pole-Double Throw (SPDT) to operate the motor to the open and closed position. Once the motor reaches the Open or Closed position, the motor's internal end switches cuts power to the motor. Therefore the MST only uses power while moving between open and closed. Once the motor is in either the open or closed position it consumes no power.

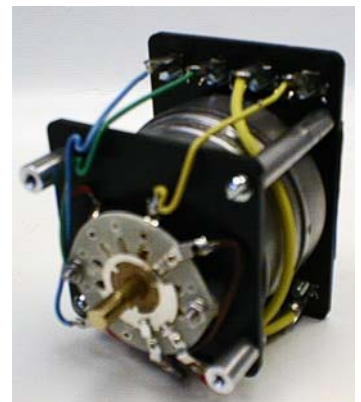
The MST also has 3 auxiliary end switches that can be used to turn on the furnace, fan or cooling when the damper is open, as well as control a secondary slave damper. See the legend below for the function of each terminal.



Front Terminal Side

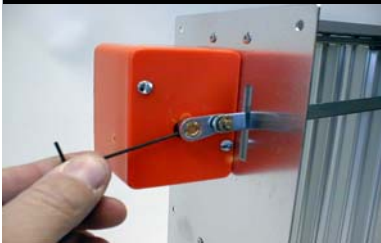
### Terminal Functions

1. 24 Volt Power Common – C
2. 24 Volt Power Hot – R
3. End Switch, makes to 2 when damper is 50% Open and breaks when 50% closed. Typically used to turn furnace on for Heating Only.
4. Makes with 5 to drive motor OPEN.
5. Common of switch and makes to either 4 or 6 to operate damper.
6. Makes with 5 to drive damper CLOSED.
- X End switch that makes with 2 when damper is closed. Typically used to control slave damper.
- Z End switch that makes with 2 when damper opens. Typically used to control a slave damper.

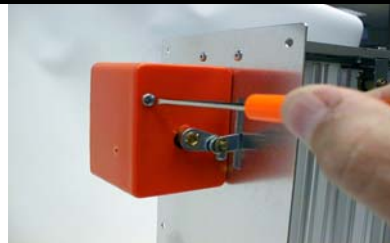


Rear Switch Side

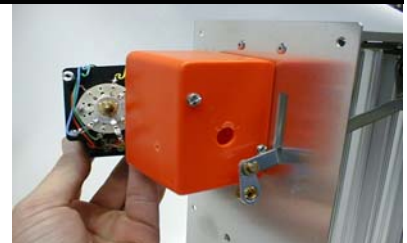
### TO REPLACE THE MOTOR ACTUATOR



1 – Using a 6/32" hex wrench, loosen the set screw and the damper crank arm.



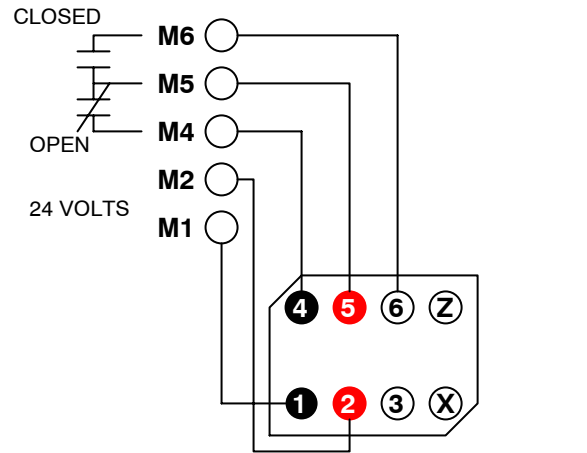
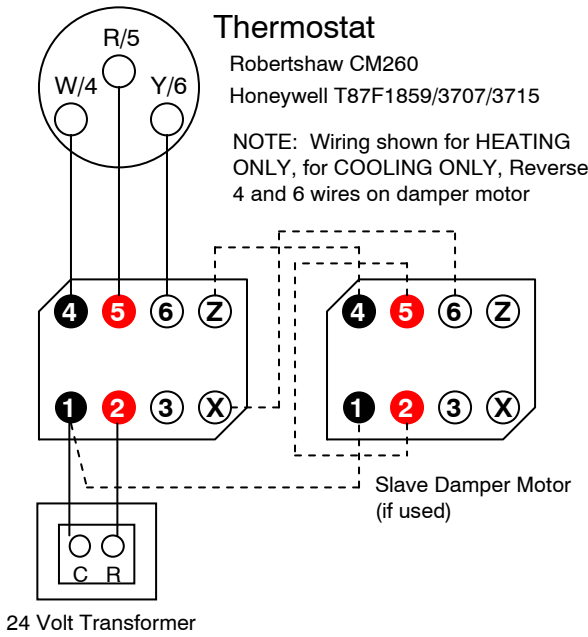
2 – Loosen motor captive screws holding motor in motor box.



3 – Remove crank arm from motor shaft and push motor shaft into box sliding motor out of the opposite end of the motor box.

**WIRING A DAMPER TO A 3 WIRE THERMOSTAT AND SHOWN WITH AN OPTIONAL SLAVE DAMPER.**

**WIRING A DAMPER TO A 5 CONTROL PANEL. MOTOR TERMINALS ON MASTERTROL MARK IV, V, VII, VIII, X, XXX, AND XXXI.**



**CHECKOUT** – When using either of the above diagrams, use the following checkout procedure.

- 1 – Check for 24 Volts, AC on motor terminals 1 and 2.
- 2 – Remove wires from terminals 4 and 6.

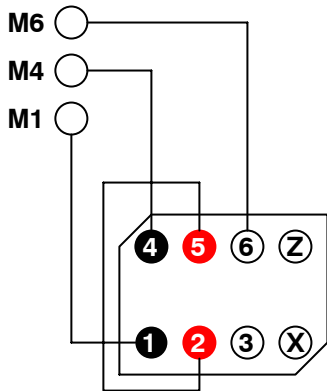
- 3 – Jumper terminals 4 and 5, damper should OPEN, move jumper to terminals 5 and 6 damper should CLOSE.

To check Slave Motor: *(It is important to remember that the master motor end switches drives the slave. Check Master end switches to determine if the X and Z terminals are providing power to the slave motor before replacing the slave motor.)*

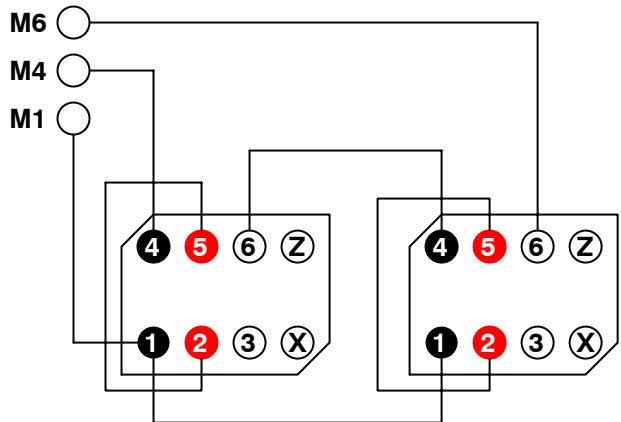
- 1- Check for 24 Volts AC on Master Motor, on terminals 1 and X when Closed and 1 and Z when Open.
- 2 – Make sure Slave Motor terminals 2 and 5 are jumped.

- 3 – Put 24Volts AC to terminals 1 and 4, damper should Open, remove power from terminal 4 and move to terminal 6 and damper should Close.

**WIRING A SINGLE DAMPER TO A 3 WIRE CONTROL PANEL.**



**WIRING TWO DAMPERS TO A 3 WIRE CONTROL PANEL IN TANDEM.**



**CHECKOUT** – When using the above diagrams, use the following procedure.

- 1 – Remove 4 and 6 wires from motor. Check motor terminal 1 with 4 and 6 wire individually, to see which wire has 24 Volts AC.
- 2 – Place wire with 24VAC on motor terminal 4, damper will Open.
- 3 – Place wire with 24VAC on motor terminal 6, damper will Close.
- 4 – If motor operates with 180° stroke as power is placed on 4 and then 6, but damper is in other position beside open or close, loosen crank arm set screw and re-adjust crank arm for damper to be in the full Open or closed position.