

## ML6174, ML7174 Non-Spring Return Direct Coupled Actuators

### PRODUCT DATA



### FEATURES

- Damper shaft direct mount.
- 70 lb-in. torque.
- 45°, 60°, and 90° selectable stroke in either clockwise (cw) or counterclockwise (ccw) directions.
- 90-second timing models suitable for use with pressure-independent VAV systems.
- Seven-minute timing models suitable for use with pressure-dependent VAV systems.
- Magnetic coupling provides 130 lb-in. (or less) stall torque, eliminating the need for mechanical stops or limit switch adjustments.
- Two field-addable auxiliary switches.
- Auxiliary feedback potentiometer field-addable on some models.
- 0° to 30° minimum position adjustment (cw or ccw direction) on some models.
- Manual declutch on all models.
- W7620 Terminal Unit Controller compatibility.
- 2 to 10 Vdc or 4 to 20 mA control input for ML7174.
- Commercial Zone Damper in W7600 Commercial Zone System compatibility.
- UL94-5V rated.

### APPLICATION

The ML6174 and ML7174 are non-spring return direct coupled actuators (DCA) used to control dampers in applications such as variable air volume (VAV) terminal units. Suitable for use with single pole double throw (spdt) floating thermostats and electronic systems.

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## SPECIFICATIONS

### Models:

70 lb-in. torque with declutch, selectable 45°, 60° and 90° stroke in both cw or ccw directions.

ML6174A: 90 second, 3 minute and 7 minute timing, spdt Floating Series 60. Includes auxiliary potentiometer drive for use with field-addable feedback potentiometer, minimum position adjustment setscrews for cw or ccw operation, and 4074ENJ Bag Assembly.

ML6174B: 90 second, 7 minute timing, spdt Floating Series 60. Available with minimum position adjustment setscrews. Includes 4074ENJ or 4074ENY Bag Assembly.

ML6174C: 90 second, 3 minute and 7 minute timing, spdt Floating Series 60. Includes auxiliary potentiometer drive for use with field-addable feedback potentiometer, minimum position adjustment setscrews for cw or ccw operation, 4074ENJ Bag Assembly, and integral conduit cover.

ML6174D: 90 second, 7 minute timing, spdt Floating Series 60. Available with minimum position adjustment setscrews. Includes 4074ENJ or 4074ENY Bag Assembly, as appropriate, and integral conduit cover.

ML7174A: 90 second timing, 2 to 10 Vdc or 4 to 20 mA control input. Includes 4074ENJ Bag Assembly.

### Electrical Ratings:

Input Voltage: 24 Vac  $\pm$ 20%, 50/60 Hz.

### Power Consumption (Maximum), at 24 Vac:

ML6174A,B: 2.3W, 0.1A, 2.4 VA.

ML7174A: 5.2W, 0.22A, 5.4 VA

### Control Inputs:

100K ohm input impedance for voltage.

### Outputs:

500 ohm and 2K ohm outputs for ML6174A,C.

### Temperature Ratings:

Ambient: 20° to 125°F (-18° to 50°C).

Derated Timing to: -20°F (-29°C).

Shipping and Storage: -40° to 150°F (-40° to 66°C).

### Humidity Ratings:

5% to 95% RH noncondensing.

### Torque Ratings (ML6174 and ML7174):

Running: 70 lb-in. (8.0 N•m).

Breakaway: 70 lb-in. (8.0 N•m).

Stall: 70 lb-in. (8.0 N•m) minimum;  
130 lb-in. (14.0 N•m) maximum.

### Auxiliary Switch Ratings:

Electrical selective NO or NC, not simultaneous.

### Pilot Duty:

50 VA, 24 Vac.

### Switch Differential:

Three angular degrees maximum.

### Dimensions:

See Fig. 1, 1A, and 1B.

### Feedback Potentiometer Ratings (ML6174A,C):

Electrical Rating (200976A,C Potentiometer): 24 Vac,  
50/60 Hz, 2.25W.

Resistance Output (Resistance Linear as Measured  
Between Terminals R-B):

0 ohms (at 0°, cw stroke).

250 ohms (at 45°, cw stroke).

333 ohms (at 60°, cw stroke).

500 ohms (at 90°, cw stroke).

### Actuator Timings (at 50 Hz Nominal):

90-second Models:

90°—108 sec.

60°—72 sec.

45°—54 sec.

Three-Minute Models:

90°—216 sec.

60°—144 sec.

45°—108 sec.

Seven-Minute Models:

90°—504 sec.

60°—336 sec.

45°—252 sec.

### Actuator Timings (at 60 Hz Nominal):

90-second Models:

90°—90 sec.

60°—60 sec.

45°—45 sec.

## ORDERING INFORMATION

When purchasing replacement and modernization products from your TRADELINE® wholesaler or distributor, refer to the TRADELINE® Catalog or price sheets for complete ordering number.

If you have additional questions, need further information, or would like to comment on our products or services, please write or phone:

1. Your local Home and Building Control Sales Office (check white pages of your phone directory).
2. Home and Building Control Customer Logistics  
Honeywell Inc., 1885 Douglas Drive North  
Minneapolis, Minnesota 55422-4386 (612) 951-1000

In Canada—Honeywell Limited/Honeywell Limitée, 155 Gordon Baker Road, North York, Ontario M2H 3N7.

International Sales and Service Offices in all principal cities of the world. Manufacturing in Australia, Canada, Finland, France, Germany, Japan, Mexico, Netherlands, Spain, Taiwan, United Kingdom, U.S.A.

**Three-Minute Models:**

- 90°—180 sec.
- 60°—120 sec.
- 45°—90 sec.

**Seven-Minute Models:**

- 90°—420 sec.
- 60°—276 sec.
- 45°—210 sec.

**Damper Shaft Mounting:**

Actuator can be mounted with shaft in any position.  
 Damper Shaft: 3/8 to 1/2 in. (10 to 13 mm) square or round. Minimum Damper Shaft Length: 1-3/4 in. (45 mm).  
 Secured Using: Two 1/4 in. (6 mm) 28 NF Allen screws (see Fig. 6).  
 Declutch Feature: Provided for ease of mounting.

**Approvals:**

*Underwriter's Laboratories Inc. Component Recognized:*  
 File No. E4436; Guide No. XAPX2. Meets UL94-5V plenum requirements.  
*Canadian Standards Association Certified* (includes auxiliary switch).

**Noise Output:**

45 dBA at 1 meter maximum.

**Accessories:**

- 200976A Auxiliary Potentiometer (0 to 500 ohm).
- 200976C Auxiliary Potentiometer (0 to 2000 ohm).
- 201052A Auxiliary Switch (one).
- 201052B Auxiliary Switch (two).
- 4074ENJ Bag Assembly—includes stop pin, shaft adapter, and two minimum position screws.
- 4074ENY Bag Assembly—includes stop pin and shaft adapter.
- 4074EVK Short Shaft Extender.
- 7640QW Metal Enclosure—for attaching conduit to actuator.
- T641 Floating Thermostat—for use with seven-minute models.
- T6984 Floating Thermostat—for use with 90-second and seven-minute models.
- T7984 Modulating Thermostat—for use with ML7174.

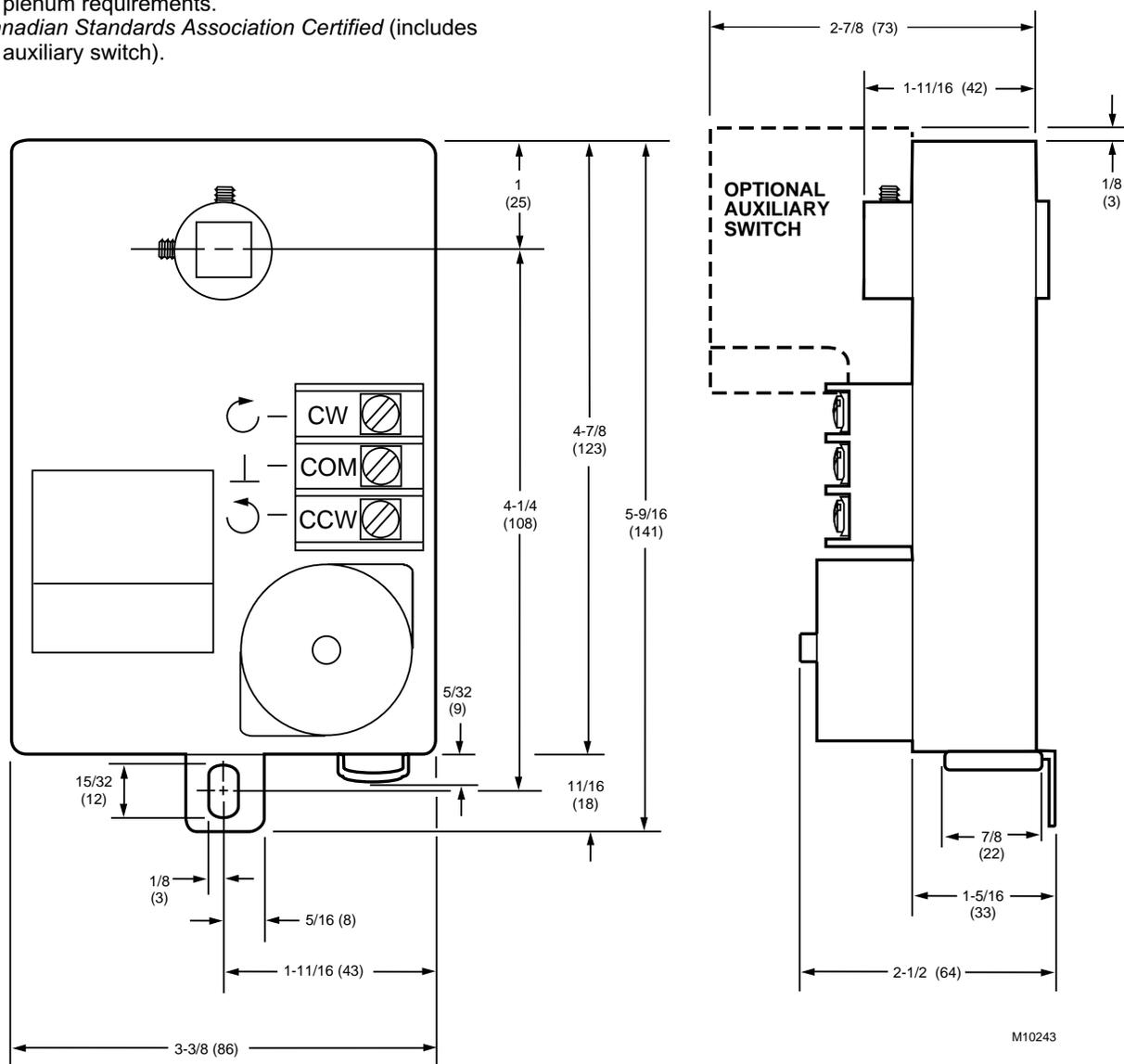


Fig. 1. Approximate dimensions of ML6174A,B DCA in in. (mm).

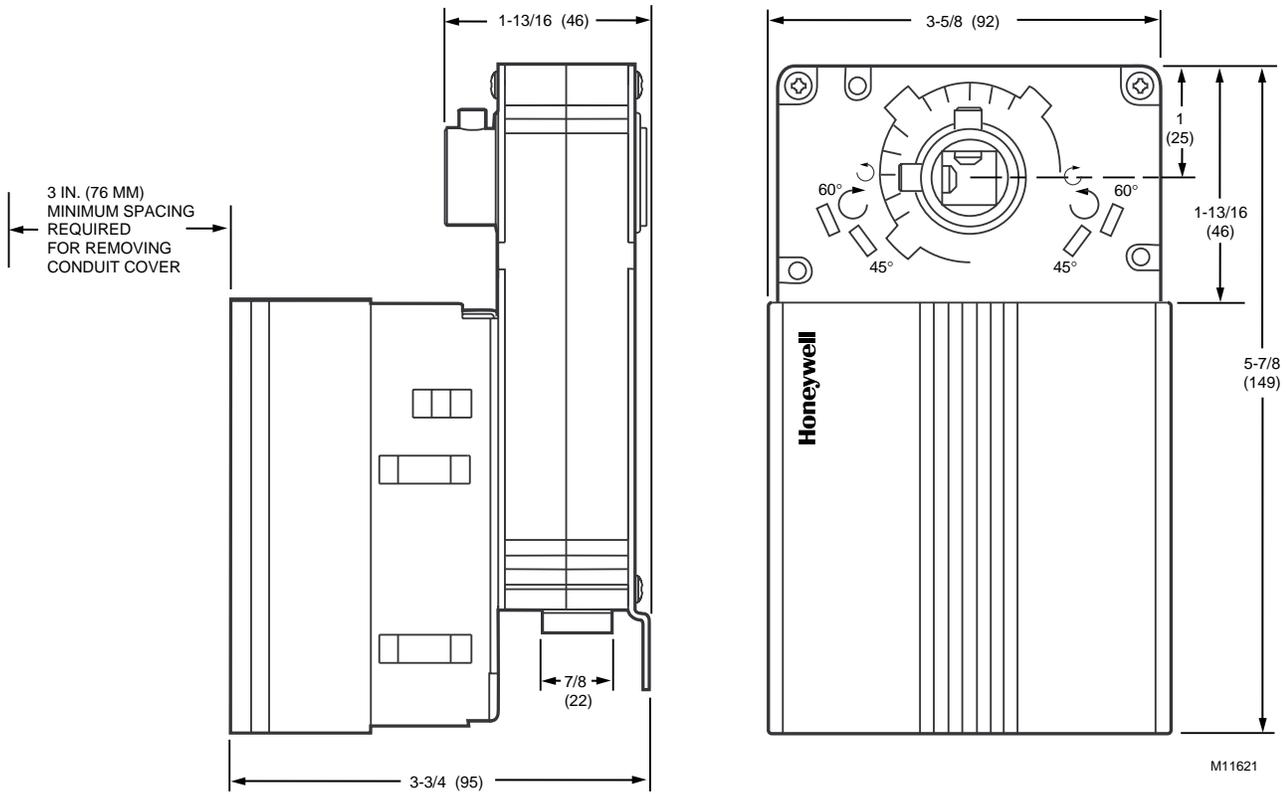


Fig. 1A. Approximate dimensions of ML6174C,D DCA in in. (mm).

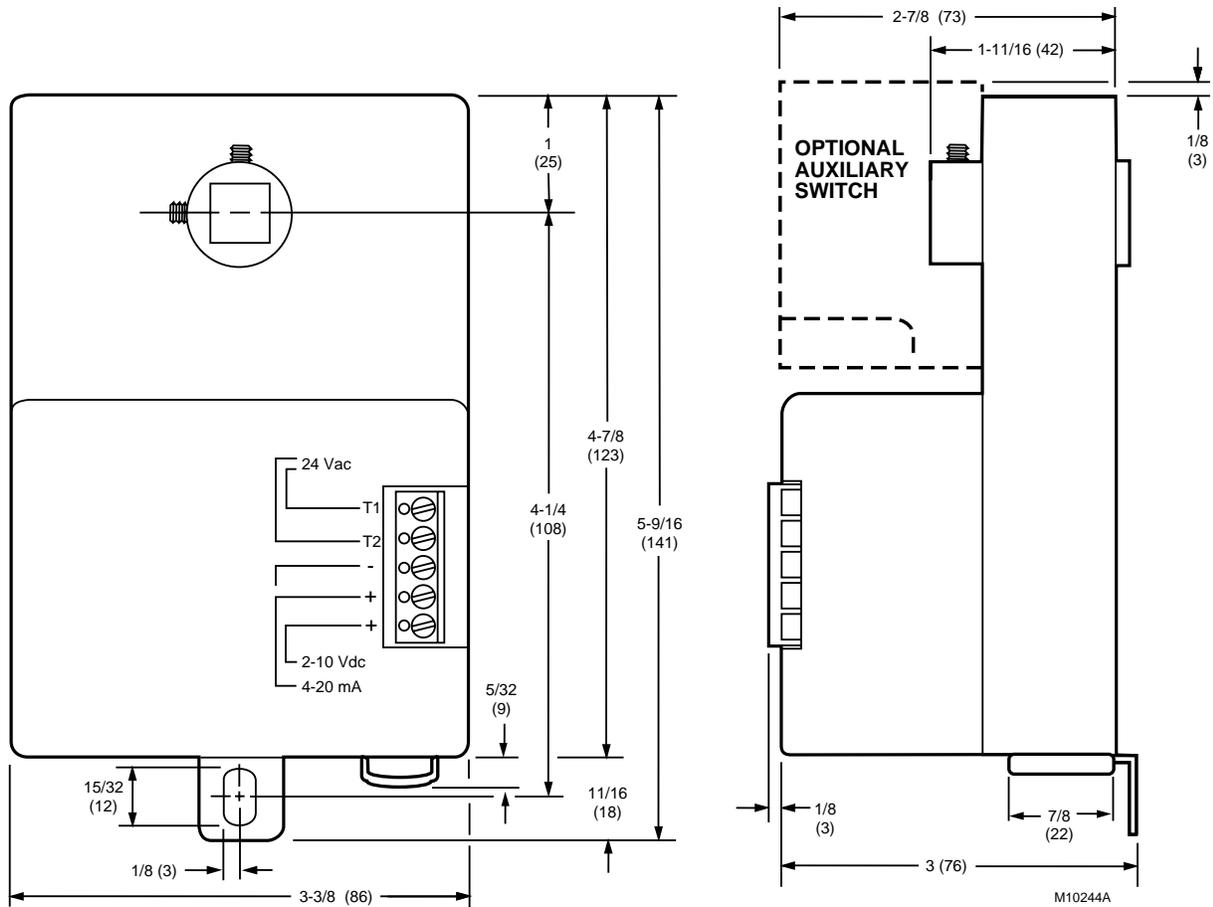


Fig. 1B. Approximate dimensions of ML7174 DCA in in. (mm).

## INSTALLATION

### When Installing this Product...

1. Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.
2. Check the ratings given in the instructions and on the product to make sure the product is suitable for your application.
3. Installer must be a trained, experienced service technician.
4. After the installation is complete, check out the product operation as provided in these instructions.

### WARNING

#### Explosion Hazard.

#### Can result in serious injury or death.

Install the actuator in areas free of escaping gas and other explosive vapors to prevent a spark from actuator or attached accessories from igniting escaping gas or vapors.

### CAUTION

#### Electrical Shock or Equipment Damage Hazard. Disconnect power before installation.

Disconnect all power supplies before installation. Motors with auxiliary switches can have more than one disconnect.

### CAUTION

#### Actuator Damage Hazard. Deteriorating vapors and acid fumes can damage the actuator metal parts.

Install actuator in areas free of acid fumes and other deteriorating vapors.

### Location

Choose a location for the actuator that allows enough clearance for mounting accessories and for servicing.

### Mounting

The ML6174/ML7174 Direct Coupled Actuators are designed to open a damper by driving the damper shaft in either the clockwise or counterclockwise direction. The actuator has a mounting tab on the bottom that secures it to a damper box. When mounted correctly, this tab allows the actuator to *float* without rotating relative to the damper shaft. The tab is sized for 1/4 in. (6 mm) self-tapping sheet metal screws (not provided).

### CAUTION

#### Equipment Damage Hazard. Tightly securing mounting tab to damper housing can damage actuator.

Do not fully tighten the screw, when mounting, to allow the actuator to float.

ML6174 and ML7174 Direct Coupled Actuators are shipped in the fully clockwise [cw arrow] 90° position as viewed from the end of the damper actuator shaft.

### CAUTION

#### Equipment Damage Hazard.

#### Mounting actuator unevenly with damper housing can damage actuator.

Mount the actuator flush with the damper housing or add a spacer between mounting tab and the damper housing (see Fig. 2).

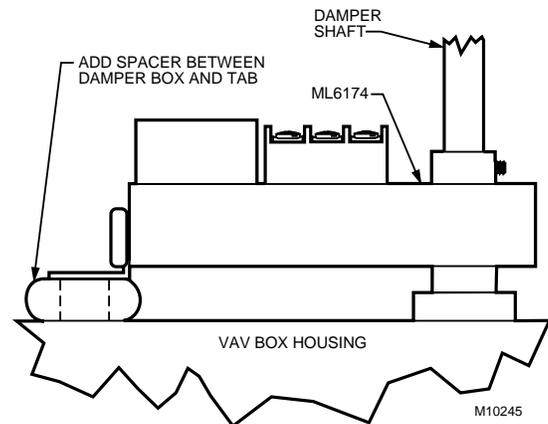


Fig. 2. Mounting ML6174/ML7174 to VAV box when actuator is not flush with box.

### Preparation

Before mounting the actuator onto the damper shaft, determine the following:

1. Size of the damper shaft (3/8 in. to 1/2 in.).
2. Direction the damper shaft rotates to open the damper (cw or ccw). See Fig. 3.
3. Angle of the damper opening (45°, 60°, or 90°).

If the damper shaft is 3/8 in. round or square, use part number 201391 Shaft Adapter provided inside the bag assembly shipped with the actuator. Place the adapter opposite the setscrews (see Fig. 4).

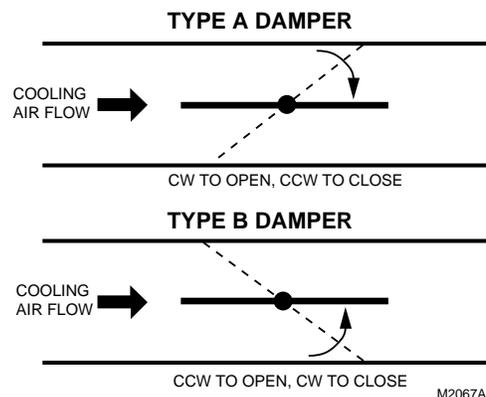


Fig. 3. Determining direction damper shaft rotates when opening.

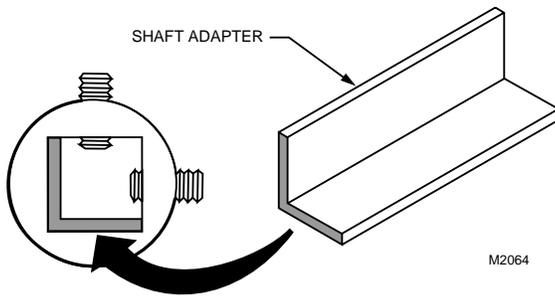


Fig. 4. Using damper shaft adapter for 3/8 in. damper shafts.

## Manual Operation (Declutch)

### ! CAUTION

**Personal Injury and Product Damage Hazard.**  
Do not use manual declutch without supporting the load.

Support load independent of actuator immediately prior to and while using manual declutch lever.

Use the manual declutch lever to manually adjust the actuator setting. Fig. 5 shows the location of the manual declutch lever. To operate, push the lever in the direction of the arrow on the lever cover.

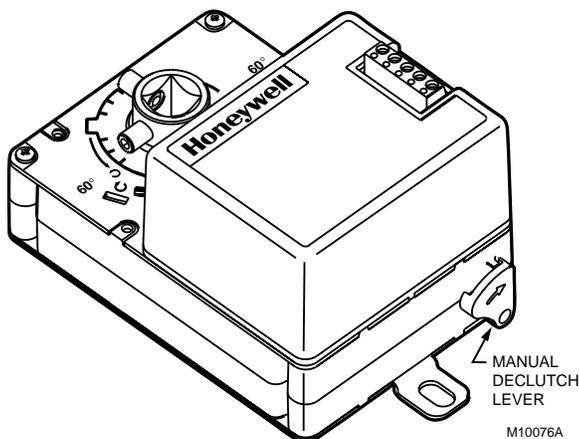


Fig. 5. Location of manual declutch lever.

## Installation

After determining the direction of the damper shaft rotation (cw or ccw), proceed as follows:

1. Place the actuator onto the damper shaft.
2. If the angle of the damper opening is 60°, close the actuator using the manual declutch:
  - a. Disengage the hub using the declutch lever; see Manual Operation (Declutch) section.
  - b. Rotate the hub until the actuator gear train passes the 60° setting. (Do not insert the pin until the actuator has passed this point.)
  - c. Release the declutch lever.

NOTE: Dampers with 90° stroke do not require the range stop pin.

3. Insert the range stop pin into the appropriate (cw or ccw) 60° slot. The range stop pin is clipped into its final position only after the pin passes through both actuator plates (see Fig. 6). The range stop pin should *snap* into position and not be removable by hand (see Fig. 7).
4. With the actuator placed in its final position, secure the mounting tab to the damper box with a sheet metal screw.

### ! CAUTION

**Equipment Damage Hazard.**

**Tightly securing mounting tab to damper housing can damage actuator.**

Do not fully tighten the screw, when mounting, to allow the actuator to float.

5. Position the damper in the open position and tighten the Allen screws securely into the damper shaft.
6. If the angle of the damper opening is 45°, close the actuator using the manual declutch.
  - a. Disengage the hub using the declutch lever; see Manual Operation (Declutch) section.
  - b. Rotate the hub until the actuator gear train passes the 45° setting. (Do not insert the pin until the actuator has passed this point.)
  - c. Release the declutch lever.
7. Insert the range stop pin into the appropriate (cw or ccw) 45° slot. The range stop pin is clipped into its final position only after the pin passes through both actuator plates (see Fig. 6). The range stop pin should *snap* into position and not be removable by hand (see Fig. 7).

### ! CAUTION

**Equipment Damage Hazard.**

**Using incorrect range stop can damage light duty dampers.**

Be sure to select the correct range stop.

## Minimum Position Setscrew

Certain ML6174 and all ML7174 models are equipped with two tapped holes located in the plastic housing at the top of the actuator. These holes can be used with the minimum position setscrew and locknut inside the 4074ENJ Bag Assembly (see Fig. 8). The setscrew provides for a 0° to 30° minimum position adjustment.

NOTE: Before starting operation, note that the 1/4 in. minimum position setscrew limits closing motion, while the range stop pin limits opening motion.

1. Determine the direction of the desired closing rotation.
2. Move the actuator to the position fully opposite of the desired closing rotation (if cw closing rotation is desired, move the actuator to the full ccw position).
3. Establish the correct hole for the setscrew using Fig. 8 and the results of step 1.
4. Remove the red cap from the desired hole. Leave the other cap in position. The caps ensure that dust and other impurities do not enter the gear train through unused holes.

5. Thread the locknut fully onto the setscrew.
6. Insert 1/4 in. setscrew into the desired hole, turning clockwise until resistance is encountered or the locknut contacts the housing.
7. If resistance is met before the setscrew is fully inserted, stop and review the initial setup procedures as detailed in steps 1 through 3.

**CAUTION**

**Equipment Damage Hazard.**  
**Improper actuator positioning or hole selection can result in permanent damage to the actuator and housing.**  
 Avoid backdriving the actuator with the setscrew.

8. Determine the angle of minimum position required for the application. With the setscrew fully inserted, the minimum position is 30°. With the setscrew fully out, the minimum position is 0°.
9. Using the conversion of approximately 1.7 angular degrees per turn of the setscrew, back the screw out of the housing and stop slightly short of the calculated position. This allows for accurate setscrew setting while taking air flow measurements.

**IMPORTANT**

*After step 10 is initiated, the setscrew cannot be turned back into the housing without returning the actuator to the fully open position as determined in step 1. The actuator will follow the setscrew without damaging the housing only if the setscrew is backed out of the housing (turned ccw).*

10. Rotate the actuator to the minimum position using the manual declutch, see Manual Operation (Declutch) section.
11. After the actuator is at minimum position, adjust the position more accurately by using air flow measurements. After each adjustment, be sure to check that the actuator is completely stopped before proceeding with the next adjustment. To reduce the minimum position, turn the setscrew out (ccw). The actuator will drive toward the closed position. Turning the setscrew in (cw) results in damage to the actuator housing. If the damper is too far closed, return to step 1.
12. When proper air flow is achieved, tighten the locknut until it contacts the housing, then turn it an additional 1/8 turn to lock the setscrew in place.

NOTE: Be sure to completely check out the operation after completing this procedure.

**Wiring**

**CAUTION**

**Electrical Shock or Equipment Damage Hazard.**  
**Can shock individuals or short equipment circuitry.**

Disconnect all power supplies before installation. Motors with auxiliary switches can have more than one disconnect.

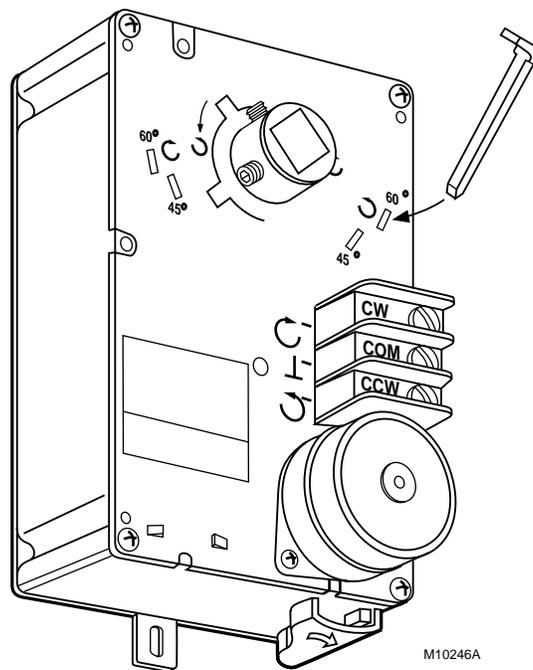
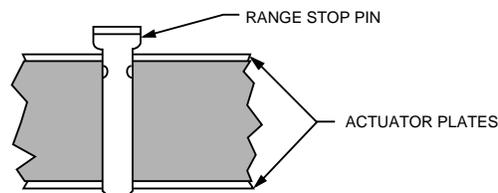


Fig. 6. Range stop pin properly inserted.

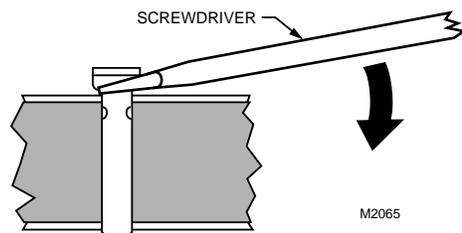


Fig. 7. Lifting range stop pin out of its slot.

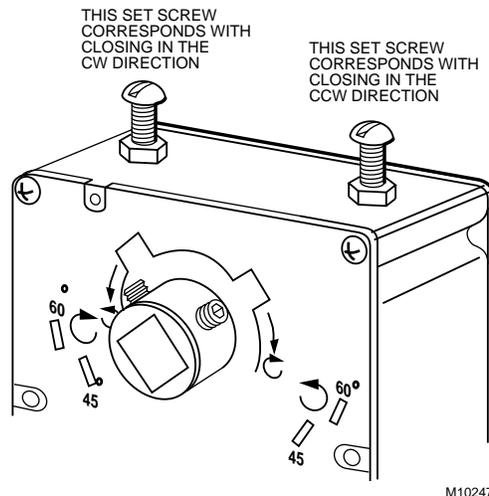


Fig. 8. Setscrew location for ML6174.

All wiring must comply with local electrical codes, ordinances and regulations. Voltage and frequency of the transformer used with the ML6174 must correspond with the characteristics of the power supply and of the actuator. Screw terminals are provided for easy hookup. See Fig. 10, 11 and 13-17 for typical wiring hookups.

### Connecting Wiring to Conduit Cover Actuators (Fig. 9)

1. Remove the cover from the actuator by lifting the top and pivoting the cover to the rear of the actuator.
2. Remove the conduit knockouts with a flat-bladed screwdriver. Discard the knockouts.
3. Install the conduit connector.
4. Run the connecting wire through the conduit connector, strip the wire ends (if necessary) and connect to the CW, COM and CCW terminals using Fig. 10, 11 or the control manufacturer instructions.

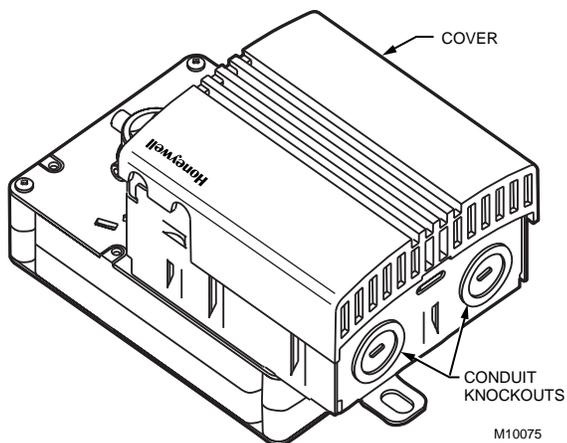


Fig. 9. Conduit cover for ML6174/ML7174 DCA.

5. Apply power to the actuator.
6. After operational checkout, replace the cover by reversing the procedure in step 1.

### Auxiliary Switches

The 201052A or B Auxiliary Switch is used with the ML6174/ML7174 DCA. It allows for control of equipment external to the actuator (for example, electric reheat coils and fan) at an adjustable point in the actuator stroke (0° to 90°).

The 201052 Auxiliary Switches are field-addable. For installation instructions, see form 63-2218.

### Auxiliary Potentiometers

The 200976A,C Auxiliary Potentiometers mount on the face of the ML6174A,C (as shown in Fig. 12). The potentiometer shaft has a slipping collar. If one of the two limits of the potentiometer is exceeded, the collar continues to rotate, causing no damage to the potentiometer itself. To mount the potentiometer on the actuator:

1. Turn the potentiometer to align the shaft key with the slot in the potentiometer drive.
2. Tilt the potentiometer slightly so the key faces down toward the slot.
3. Insert the potentiometer into the slot, and push down so the potentiometer is flush with the actuator body and the bracket is aligned over the screw hole.
4. Insert the provided screw into the hole and fasten securely.

### IMPORTANT

Remove the range stop pins and minimum position setscrews prior to calibration.

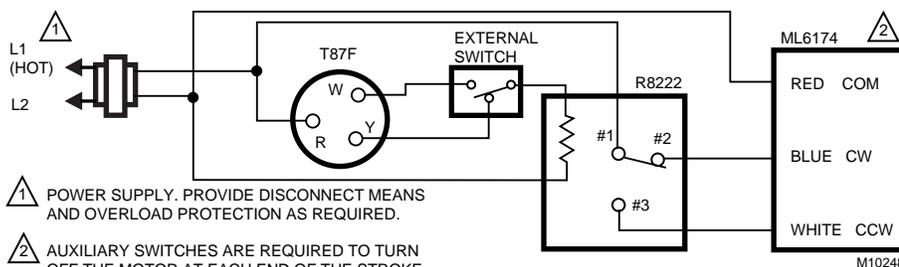


Fig. 10. ML6174 used with T87F in heating or cooling application.

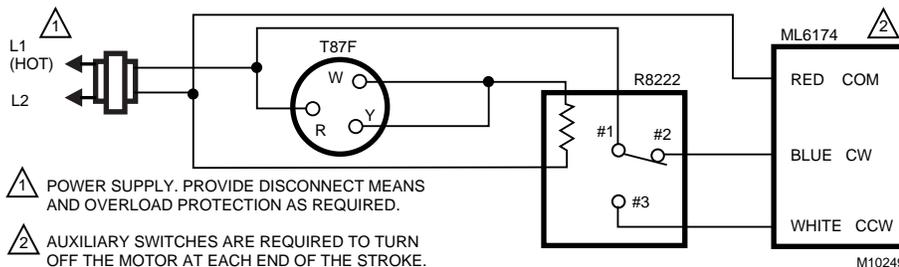


Fig. 11. ML6174 used with T87F in heating and cooling application.

**IMPORTANT**

Failure to follow the calibration procedures can result in improper resistance values at the desired stroke.

**200976A,C Calibration**

1. Drive the actuator fully closed (0°) to fully open (90°) and back again to the fully closed position to receive the correct resistance readings at the appropriate degree of stroke.
2. Check the resistance values of the potentiometer with an ohmmeter at intervals in the stroke while referring to the table in Fig. 12 and feedback potentiometer ratings in the Specifications section.
3. Replace the range stop pins and/or the minimum position setscrews using the appropriate procedures.

AUXILIARY POTENTIOMETER

MOTOR POSITION	RW RESISTANCE	RB RESISTANCE
FULL CW 24V (COM-CW)	0 OHMS	500 OR 2000 OHMS
FULL CCW 24V (COM-CCW)	500 OR 2000 OHMS	0 OHMS

MOTOR ROTATION	AUXILIARY POTENTIOMETER LEADS	
	RW OHMS	RB OHMS
CCW	↑	↓
CW	↓	↑

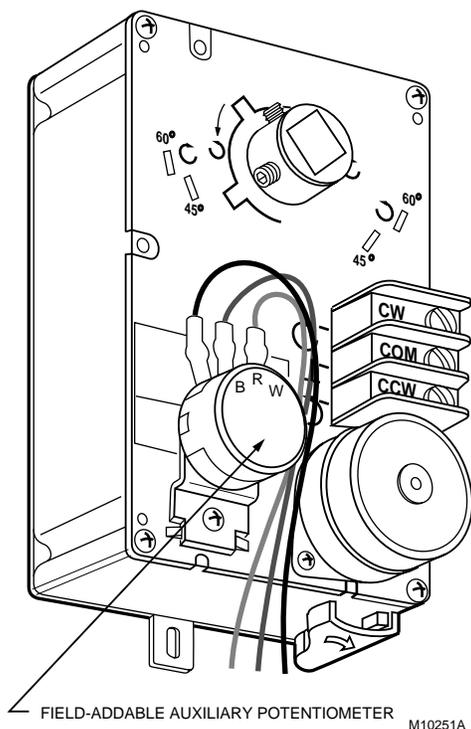


Fig. 12. ML6174A,C with field-addable potentiometer.

**OPERATION**

**VAV Systems**

VAV systems control the temperature within a space by varying the volume of supply air temperature. The system delivers air to the space at a fixed temperature. The space thermostat controls the volume of supply air by modulating the supply air damper. When full heating and cooling flexibility is required in a zone, it is handled by the air temperature system, or with reheat capability in the air terminal units. As individual zones shut down, a central duct static pressure controller regulates the total air flow in the system. The fan system is sized to handle an average peak load, not the sum of the individual peaks. As each zone peaks at a different time of day, extra air is borrowed from the off-peak zones. This transfer of air from low-load to high-load zones occurs only in true VAV systems.

In pressure-independent systems, individual zone airflow sensors maintain the zone air flow rate regardless of fluctuation in the total system pressure. When used with controllers such as the W7620, pressure-independent systems can react faster to changes in air flow demand; therefore, these systems can use the faster 90-second ML6174 models.

Pressure-dependent systems do not incorporate an individual zone air flow sensor and depend on a stable system pressure to maintain flow. These systems require slower actuators such as the seven-minute ML6174 models that are typically controlled by spdt floating wall thermostats.

The T641 is a mercury bulb floating control type thermostat designed for use with the seven-minute ML6174 on pressure-dependent systems (see Fig. 13 and 14). The T6984 is an electronic floating control thermostat designed for use with the 90-second and seven-minute ML6174 models (see Fig. 15).

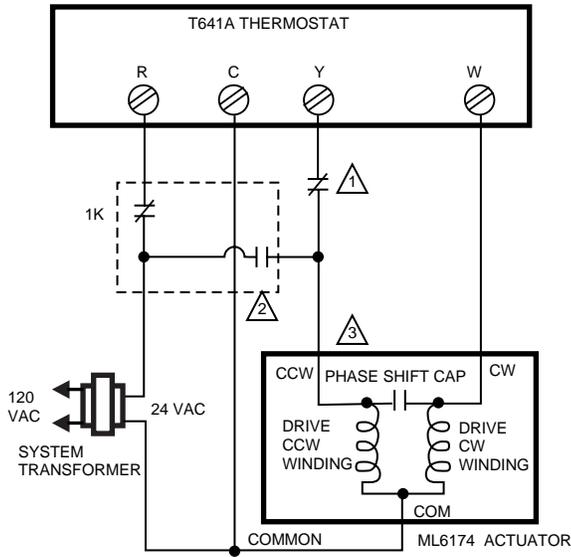
**Parallel Actuators**

**IMPORTANT**

Over time, multiple actuators with similar timing that are driving in parallel may not be in sync with each other. In normal operation, driving all actuators to the fully open or fully closed position restarts them in sync with each other.

**ML6174 Actuators**

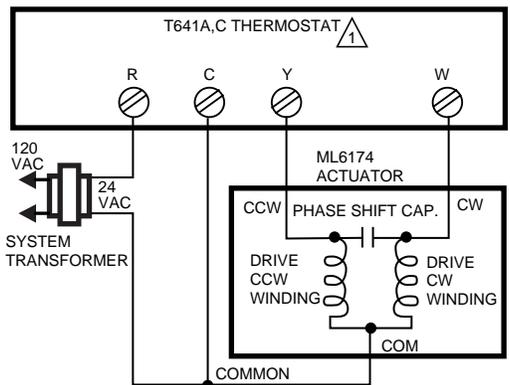
Using Fig. 16, parallel the CW, COM and CCW terminals. Up to five actuators can be wired in parallel. Make certain the total connected load does not exceed the current capacity of the controller or thermostat.



- ⚠️ 1 USE NC CONTACT OF AUXILIARY SWITCH (PIN 201052A). CONTACT OPENS WHEN ACTUATOR DRIVES CLOSED (CCW) TO CAM SETTING POSITION.
- ⚠️ 2 USE SPDT RELAY OUTPUTS FROM FIRE AND ALARM SYSTEM, OR OVERRIDE SYSTEM, AS DRAWN. THIS OVERRIDES MINIMUM POSITION LIMITATION, AND DRIVES ACTUATOR FULLY CCW.
- ⚠️ 3 AS DRAWN, ACTUATOR OPENS DAMPER TO CW ROTATION. TO OPEN DAMPER TO CCW, REVERSE CCW AND CW CONNECTIONS AT ACTUATOR. THIS ALSO CAUSES ALARM CONDITION TO DRIVE ACTUATOR TO FULLY CW.

M10253B

**Fig. 13. Minimum position set with auxiliary switch contacts, override provided by fire and alarm contacts.**



- ⚠️ 1 AS SHOWN, T641 MAKES R-Y CONTACTS TO DRIVE ML6174 ACTUATOR CCW, AND MAKES R-W CONTACTS TO DRIVE ML6174 ACTUATOR CW.

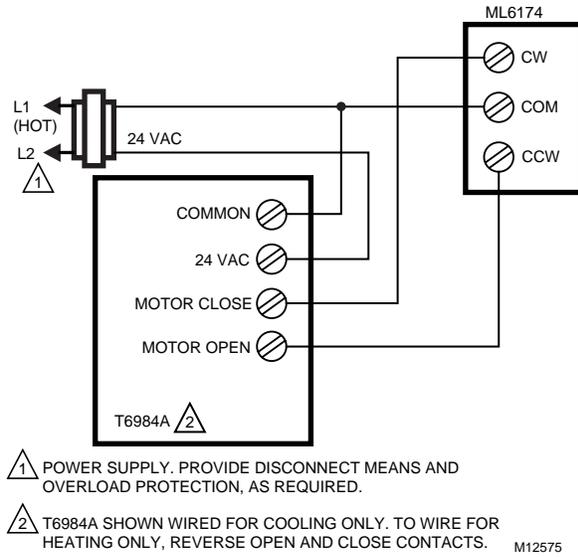
M12574

**Fig. 14. T641A,C controlling ML6174.**

## ML7174 Actuators

### Voltage input (2 to 10 Vdc)

Wire the (+Vdc) and (-) terminals of each actuator in parallel. Make certain the total connected load does not exceed the current capacity of the input signal source.

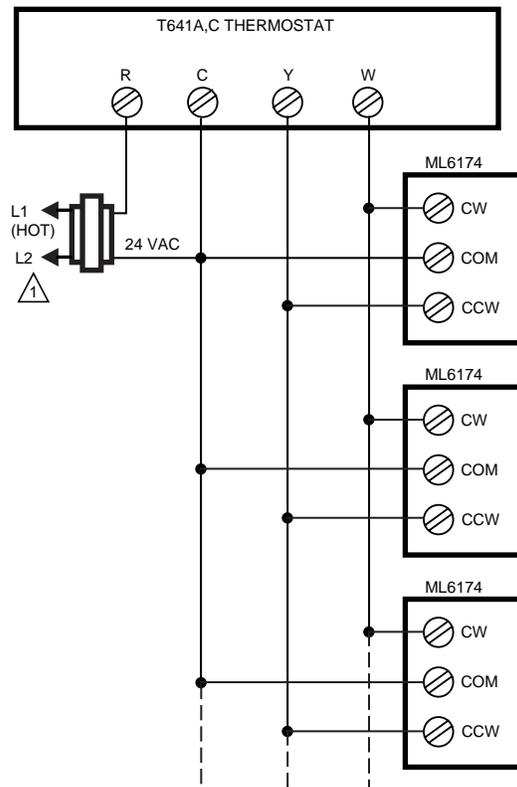


- ⚠️ 1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION, AS REQUIRED.

- ⚠️ 2 T6984A SHOWN WIRED FOR COOLING ONLY. TO WIRE FOR HEATING ONLY, REVERSE OPEN AND CLOSE CONTACTS.

M12575

**Fig. 15. T6984A controlling ML6174 for cooling or heating application.**



- ⚠️ 1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION, AS REQUIRED. ENSURE THAT EQUIPMENT TRANSFORMER IS CORRECTLY SIZED.

M12576

**Fig. 16. Parallel ML6174 actuators from an spdt controller.**

### Current input (4 to 20 mA)

When using a current controller (such as the W7600), parallel the ML7174 voltage input terminals (+Vdc) and (-). Use a bridging resistor in parallel with the 4 to 20 mA signal. See Fig. 17 for resistor values.

NOTE: The actuator has 45,000 ohm impedance.

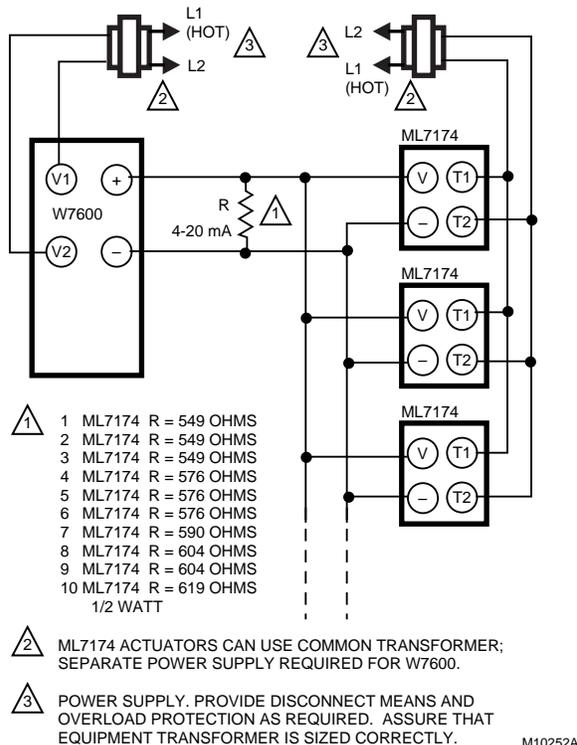


Fig. 17. Parallel ML7174 actuators from a 4-20 mA signal source.

## CHECKOUT

### ML6174 Checkout

1. Determine the direction the damper shaft moves to open the damper (cw or ccw). See Fig. 3.
2. Place 24 volts across the appropriate common cw or common ccw terminals to energize the actuator. The ML6174 should begin to open the damper.
3. If the actuator does not run, try switching the 24 volts across the opposite common cw or ccw terminals to determine if the damper begins to close.
4. If the actuator does not run in either direction, replace the ML6174.

NOTE: To check out ML6174 actuators controlled by electronic control systems such as the W7620, override the control system by programming the controller to open or close the zone damper, as appropriate.

For an ML6174 issued with an spdt floating wall thermostat (for pressure-dependent systems), use the following checkout procedure:

1. Adjust the setpoint of the thermostat to call for cooling.
2. Observe the operation of the actuator; if the damper is closed, it should begin to open.
3. If not, adjust the setpoint of the thermostat higher to determine if the wiring is correct.
4. If no movement is observed, check for the presence of 24 volts.
5. If using the T641 Thermostat, the 24 volts should be present between terminals C and Y during a call for cooling. With proper wiring and 24 volts present, the actuator should operate correctly. If not, replace the actuator.

NOTE: Using a seven-minute actuator results in a longer response time before noticeable damper movement.

### ML7174 Checkout

Check input impedance on the ML7174 with an ohmmeter.

#### IMPORTANT

*Be sure to disconnect all wiring to the actuator before connecting the ohmmeter.*

1. Verify resistance readings are as follows:  
 45K ohms  $\pm$ 5K ohms, across the (+Vdc) and (-) terminals.  
 536 ohms  $\pm$ 10 ohms, across the (+mA) and (-) terminals.
2. If the resistance readings are correct, reconnect the actuator and check for 24 Vac at terminals T and T2. With the correct power present at T and T2, check the motion of the damper/actuator by ramping the setpoint up and down. This causes the actuator to move from one limit to the other and back (from fully ccw to fully cw and back to fully ccw).

NOTE: Remember that the ML7174 takes 90 seconds to move from one limit to the other.

3. When the ML7174 is used with electronic control systems such as the W7600 Commercial Zone System, override the control system by programming the controller to open or close the damper, as appropriate.
4. If the actuator continues to operate incorrectly, check Table 1 for the proper input signal/actuator drive relationship at the (+Vdc) and (-) terminals.
5. If the ML7174 does not operate according to Table 1 values, replace the actuator.

Table 1. Input Signal/Actuator Drive Relationship.

Input Signal	Actuator Drive Relationship
1.50 $\pm$ 0.2 Vdc	Actuator drives to extreme ccw position.
2.00 $\pm$ 0.2 Vdc	Actuator remains at ccw position.
3.00 $\pm$ 0.2 Vdc	Actuator leaves ccw position.
10.70 $\pm$ 0.7 Vdc	Actuator drives to extreme cw position.
10.00 $\pm$ 0.7 Vdc	Actuator remains at cw position.
8.50 $\pm$ 0.6 Vdc	Actuator leaves cw position.

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