
INSTALLATION INSTRUCTIONS

Honeywell Black Box Actuator Replacement Kit 8620-353*

* Replaces Honeywell M8405A1006 Actuator

For Replacement of Bard 8602-020 Actuator
in Bard Ventilation Options with On/Off Operation



Climate Control Solutions

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Manual: 2100-768
Supersedes: **NEW**
Date: 6-3-22

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Overview

The replacement actuator kit should only be installed by a trained heating and air conditioning technician. These instructions serve as a guide to the technician installing a vent actuator, not as a step-by-step procedure with which the mechanically inclined owner can install the kit.

The actuator kit is shipped in one carton, which contains the actuator motor, crank arm kit, miscellaneous hardware, updated wiring diagram and installation instructions.

This kit is for use in vent packages with on/off operation. It will replace the actuator and crank arm in the vent package.

Kit includes:

- 8602-108 spring-return actuator motor, 22 in/lb
- 8602-116 actuator crank arm adapter kit
- 8602-008 ball joint crank arm pivot
- 7961-966 actuator mounting template
- 7961-312-0562 actuator replacement label
- Electrical connectors and mounting hardware
- 2100-768 installation instructions

Field-supplied tools needed:

- Appropriate personal protection equipment, including gloves and safety glasses
- Drill/driver
- 5/16" hex driver bit
- 1/8" drill bit
- Phillips driver bit or screwdriver
- 7/16" wrenches (2)
- 5/16" wrench
- Wire cutter/stripper/crimp tool

Operating Modes

This kit can be set up to function in two modes:

Minimum Position

This kit can be installed with an adjustable limit stop (included) that will stop the damper blade at a predetermined position to provide adequate outdoor airflow for the given space when the thermostat or building management system sends an occupied signal to the unit. Refer to the unit or vent manual for blade adjustment airflow information.

Maximum Position

This kit can be installed without a limit stop. This will allow the vent to open completely, allowing the maximum amount of outdoor air to enter the conditioned

space when the thermostat or building management system sends an occupied signal to the unit.

NOTE: *This kit may be set up to operate using either minimum or maximum position settings. For multi-position or modulating operation, a Bard modulating actuator replacement kit or a replacement unit ventilator with modulating operation is required.*

Special Installation Situations

In some cases, space constraints or arm positioning may require that the actuator be oriented or mounted differently than described in the installation instructions provided on the following pages. The actuator may be oriented one of three ways on the actuator mounting plate, and may be flipped to allow both clockwise and counter-clockwise operation. Additionally, the plate may be mounted anywhere within the vent package (as space allows) using the included self-tapping screws. If an alternate placement or orientation is required, review the considerations noted below to determine the best way to install the actuator assembly.

For proper operation of the new actuator:

- The new actuator must be mounted so that the arm rotates in the same direction (CW, CCW) as the original actuator. (Actuator can be mounted with either side facing out. Each face is marked with the rotation direction on CLOSING of the actuator as seen from that face.)
- The assembly must be located so that the center of rotation on the new actuator arm is in the same place as the original actuator.
- The assembly must be located so that the centerline of the crank arm ball joint aligns with the center of the damper blade rod and pin.

Refer to the crank arm adapter kit instruction sheet (Figure 4 on page 8) for general assembly diagrams and instructions.

INSTALLATION

WARNING

Electrical shock hazard.

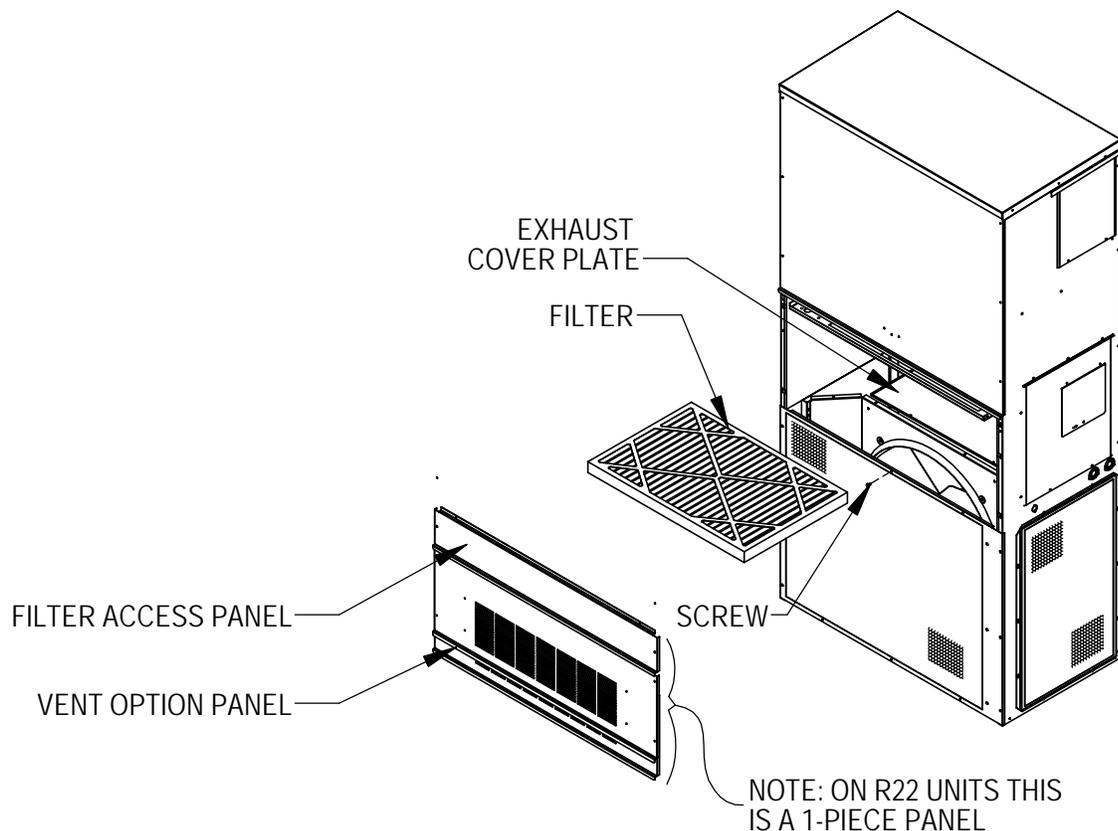
Disconnect remote power supply or supplies before servicing.

Failure to do so could result in electric shock or death.

Basic Installation

1. Unpack the 8620-353 kit, which includes the actuator, crank arm kit, hardware, motor mounting template and installation instructions.
2. Disconnect power to the unit using the unit breaker or disconnect switch.
3. From existing wall-mount unit, remove and save the filter access panel and vent option panel (see Figure 1). Remove and save the existing filter.
4. Unhook the pushrod from the black box motor crank arm.
5. Make a note of the position of the crank arm on the black box actuator—the new actuator arm must be oriented in the same way. Also, make a note of the final open position of the crank arm—the new actuator includes a limit stop that will need to be set so that the new arm is stopped at this position.
6. Disconnect the control wires from the black box motor. Remove the motor and discard.
7. Using a punch or other sharp object, punch out the four (4) #1 holes in the adhesive motor mounting template. Orient the arrows towards the front of the unit, line up the #1 holes with the black box mounting holes and adhere template to the vent base. Using a punch and a 1/8" drill bit, drill out the three (3) #2 holes in the template. Remove adhesive template from base.
8. Assemble the new actuator and crank arm kit using the crank arm adapter kit instruction sheet provided in Figure 4 on page 8. Be sure

FIGURE 1
Remove Panels and Filter



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to orient the crank arm in the same position as the original, paying attention to the direction of rotation. (Actuator can be mounted with either side facing out. Each face is marked with the rotation direction on CLOSING of the actuator as seen from that face.) For minimum position operation, set the limit stop so that the new actuator will open to the same final position as the original. See Figure 2 for a final assembly diagram.

9. Mount the assembly to the vent base with three (3) hex-head screws (provided) using the new holes drilled in Step 7.
10. Attach the push rod to the new crank arm. Make sure the damper is fully closed before tightening the bolt on the crank arm pivot assembly.
11. Cut the new actuator lead wires to an appropriate length and strip each wire. Crimp a 1/4" male

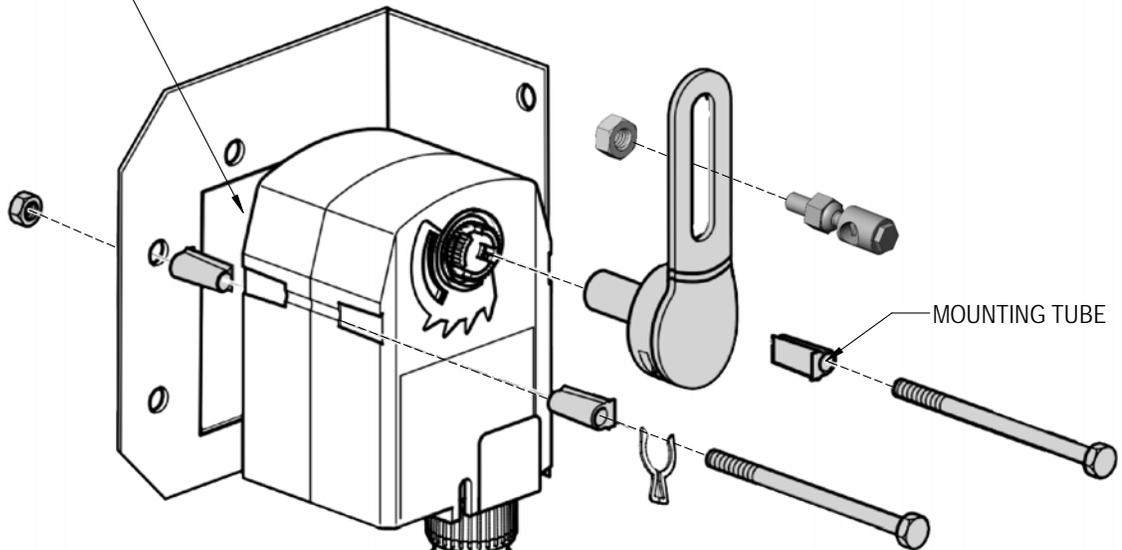
quick connector (provided) on both wires. Connect the black actuator wire to the existing common wire and connect the red actuator wire to the existing actuator power wire. Secure excess wire using the included zip ties. See Figure 3 on page 6 for wiring diagram.

12. Once installation is complete, adhere the 7961-312-0562 label (included) to the vent base or blade near the existing vent wiring diagram to indicate that an actuator kit has been installed.
13. Re-install unit air filter, filter access panel and vent option panel.
14. Restore unit power.
15. Verify actuator operation by following the steps provided on page 7.

FIGURE 2
Actuator/Crank Arm Kit Assembly

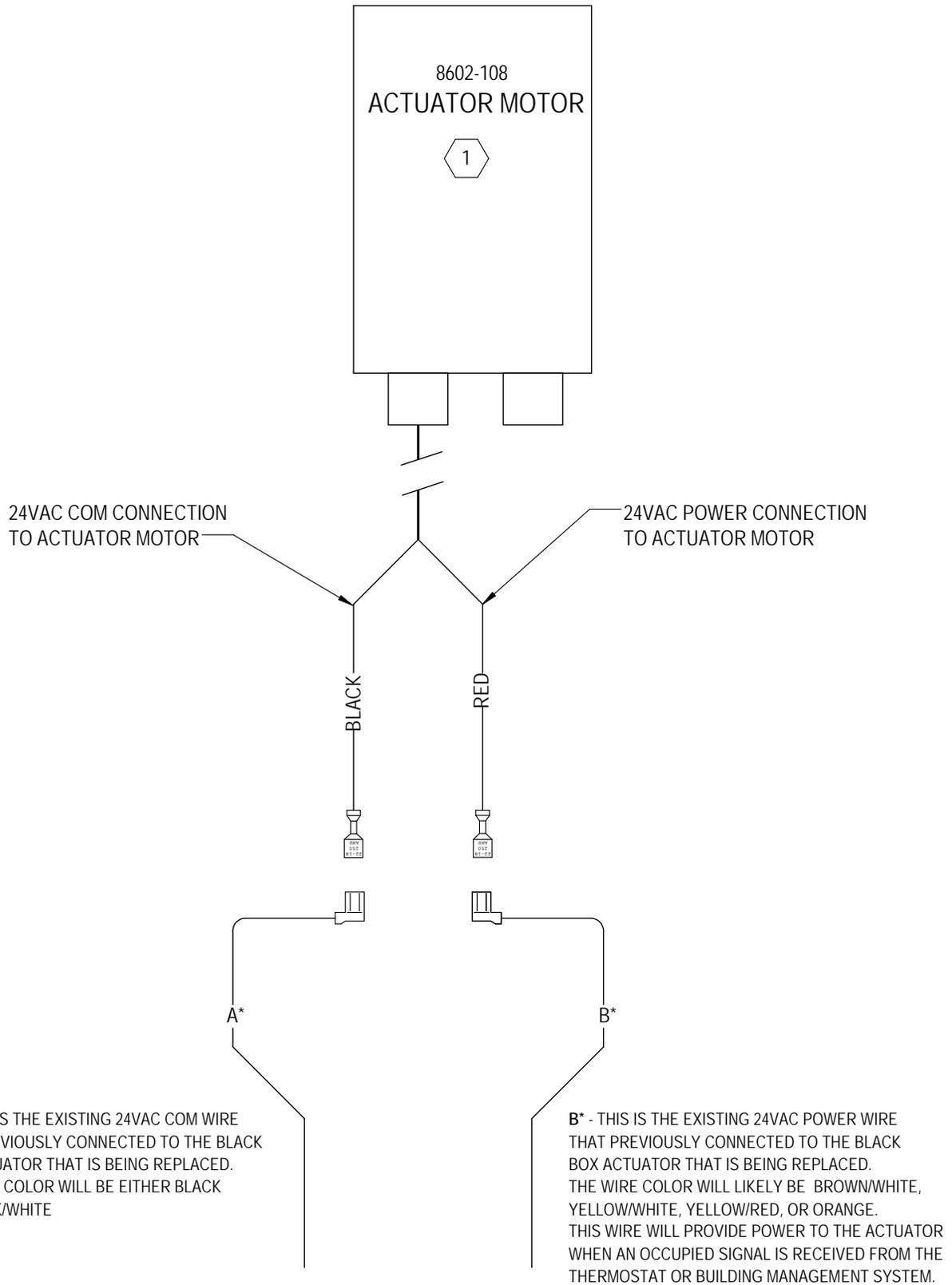
INSTALL ACTUATOR LIMIT STOP MECHANISM ON THIS SIDE OF ACTUATOR FACING THE MOUNTING BRACKET. ADJUST LIMIT STOP FOR VENTILATION INTAKE BLADE POSITION BY LOOSENING PHILLIPS HEAD SCREW. REFER TO UNIT MANUAL AND VENT SIDE LABEL FOR VENTILATION CFM PER BLADE POSITION

ORIENT ACTUATOR SO THAT THE CRANKARM ROTATES IN THE PROPER DIRECTION. EACH FACE IS LABELED WITH THE CLOSING DIRECTION FROM THAT SIDE - CW OR CCW



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FIGURE 3
Actuator Wiring



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Operation Verification

The Bard wall-mount unit will have a terminal on the low voltage strip in the unit control panel labeled either "A" or "O1" (refer to vent or unit wiring diagram). This terminal is energized by the thermostat or building management system to indicate occupancy in the conditioned space. To verify operation of the replacement actuator, follow the steps below.

With the unit powered:

1. Connect a jumper from the "R" terminal to the "O1" or "A" (occupied) terminal on the low voltage terminal strip in the unit control panel.
2. Observe that the vent damper blade opens to either the minimum position (set using the limit stop) or to the full-open position without interference or excessive noise.
3. Disconnect the jumper from the "A" or "O1" terminal.
4. Observe that the vent damper blade returns to the completely closed position

This concludes the vent operation checkout procedure.

FIGURE 4
Additional Actuator Assembly Instructions

Crankarm Adaptor Kit
 Instruction Sheet

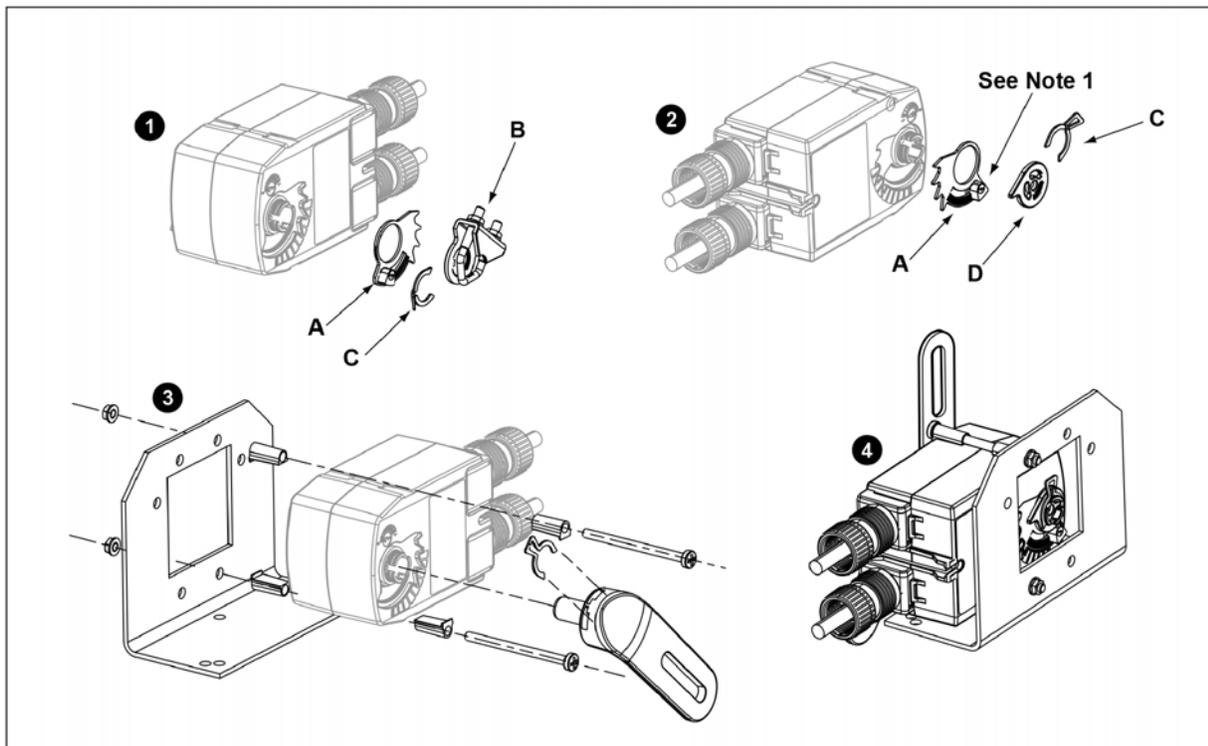
The crankarm adaptor kit allows the actuator to be mounted in either a horizontal or vertical position to meet space requirements.

The mounting bracket is designed to mount the actuator in the same mounting locations as common foot mounted, crankarm style actuators. Hole patterns in the base match common Honeywell™, Siebe™ (Barber Coleman™), and Johnson Controls™ actuators for easy retrofit.

Kit includes:

1. 1 mounting bracket
2. 2 bolts (M5 x 70)
3. 2 nuts (M5)
4. 4 mounting tubes
5. Crankarm
6. Pointer (for limit stop)
7. 3 sheet metal screws (not shown)

IMPORTANT: Mounting bracket must be in place first and securely fastened with the supplied sheet metal screws before assembling actuator onto the bracket. All four mounting tubes must be used when fastening the actuator to the bracket.



When installing the crankarm, follow these easy steps:

- 1** Remove clamp clip C and remove clamp B (can be discarded). Save clip C for step 2. Pry and remove limit stop A and save for step 2.
- 2** On the opposite side of the actuator's hollow axle, reinstall limit stop piece A (**Note 1:** adjustable stop must be removed and reassembled on opposite side of piece via screw). Then place supplied pointer D onto hollow axle and secure with clip C from step 1.
- 3** Install crankarm into hollow axle and insert accompanying clip into crankarm slot. Finish assembly of actuator with crankarm onto bracket with supplied hardware.
- 4** Final assembly.

If limit stop is needed (if not, go to step 3):

- 2** On the opposite side of the actuator's hollow axle, reinstall limit stop piece A (**Note 1:** adjustable stop must be removed and reassembled on opposite side of piece via screw). Then place supplied pointer D onto hollow axle and secure with clip C from step 1.

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