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# GAS FURNACE KITS AND ACCESSORIES

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## MOTOR AND CONTROL MODULE REPLACEMENT KIT

### INSTALLATION INSTRUCTION FOR MOTOR REPLACEMENT KITS (72W99 & 73W00) AND CONTROL MODULE REPLACEMENT KITS (70W17 - 70W26) USED WITH TWO-STAGE 80% EFFICIENCY FURNACES

RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE

#### **⚠ WARNING**

Improper installation, adjustment, alteration, service or maintenance can cause personal injury, loss of life, or damage to property.

Installation and service must be performed by a licensed professional HVAC installer (or equivalent) or a service agency.

#### **⚠ CAUTION**

Physical contact with metal edges and corners while applying excessive force or rapid motion can result in personal injury. Be aware of, and use caution when working near, these areas during installation or while servicing this equipment.

#### **⚠ WARNING**

Electric Shock Hazard.

Can cause injury or death.

Foil-faced insulation has conductive characteristics similar to metal. Be sure there are no electrical connections within a 1/2" of the insulation. If the foil-faced insulation comes in contact with electrical voltage, the foil could provide a path for current to pass through to the outer metal cabinet. While the current produced may not be enough to trip existing electrical safety devices (e.g. fuses or circuit breakers), the current can be enough to cause an electric shock hazard that could cause personal injury or death.

#### Shipping and Packing List For Module Kits

Package 1 of 1 contains:

- 1 - Replacement control module
- 2 - Module mounting bolts
- 1 - Plastic tab

#### Shipping and Packing List For Motor kits

Package 1 of 1 contains:

- 1 - Replacement motor

#### Application For Module Kits

These module replacement kits are used to replace the control module on a variable speed blower motor.

All replacement control modules look alike; however, each module is factory-programmed to be used with a specific motor. It is very important to make sure that you use the correct replacement module. **USE OF THE WRONG CONTROL MODULE MAY RESULT IN UNEXPECTED UNIT OPERATION.** Refer to table 1 to ensure that you are matching the correct replacement module kit with your unit. In addition, a sticker affixed to the blower motor identifies the correct replacement kit that is to be used with that particular unit. Check the module replacement kit number against the number identified on that sticker before continuing with the replacement.

#### Application For Motor Kits

Use kit 72W99 for ALL applications that require a 1/2 HP motor. Use kit 73W300 for all applications that require a 1 HP motor.

Table 1

Unit Model No.	Kit Catalog No.	Module Part No.
SL280UHV36A-070	70W17	39L3601
SL280UHV36B-090	70W18	39L3601
SL280UHV48B-090	70W19	39L3701
SL280UHV60C-090	70W20	39L3701
SL280UHV60C-110	70W21	39L3701
SL280UHV60D-135	70W22	39L3701
SL280DFV36A-070	70W23	39L3601
SL280DFV48B-090	70W24	39L3701
SL280DFV60C-090	70W25	39L3701
SL280DFV60C-110	70W26	39L3701



## Control Module Removal

- 1 - Disconnect electrical power to unit. Wait five minutes before continuing service procedures to avoid electrical shock. This will allow internal capacitors time to fully discharge.
- 2 - Remove blower access panel.
- 3 - Slide blower assembly forward to access blower motor wiring. It is not necessary to remove blower motor from blower assembly.
- 4 - Unplug the 16-pin and 5-pin connectors from the motor control. See Figure 1 for location.

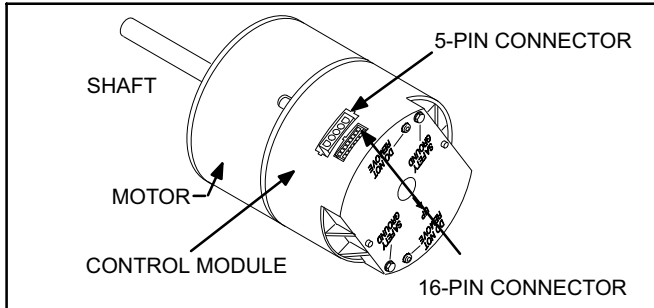


Figure 1. Module Connectors

- 5 - Locate and loosen the two hex-head bolts on the flat end of the motor control module casting as illustrated in Figure 2. Hold the control module while you remove these two bolts.

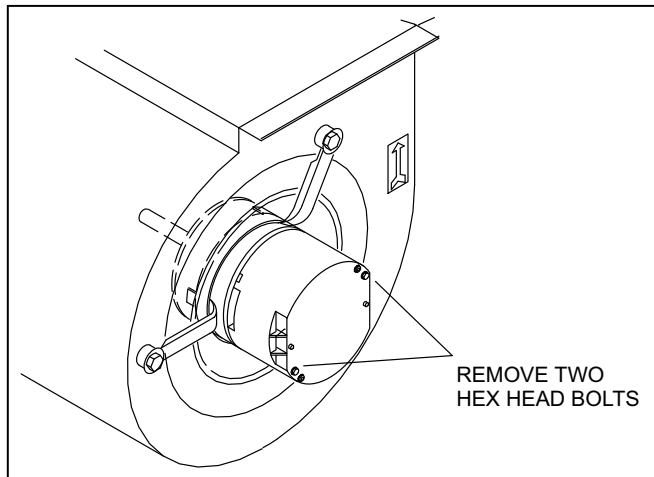


Figure 2. Fasteners

- 6 - Carefully rotate the control module to gain access to the 3-pin plug. Squeeze the plug release latch and gently pull the plug out of the control module. **Do not pull on the wires.**

## Motor Testing

Ensure that motor windings are not damaged by performing the following tests:

**NOTE** - If your ohm meter is not an auto-ranging type, set it to the highest ohm scale (100k ohms or greater) before performing tests.

Scale	Measurement Range	
	in words	ohms
2M	two megohm -- two million ohms	0-2,000,000
200k	two hundred kilohm -- two hundred thousand ohms	0-200,000
20k	twenty kilohm -- twenty thousand ohms	0-20,000
2k	two kilohm -- two thousand ohms	0-2,000
200	two hundred ohm	0-200

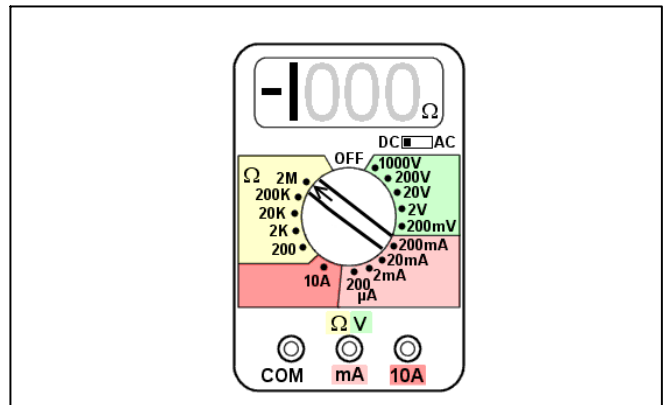


Figure 3. Typical Digital Multimeter

### TEST A

Measure the resistance between each of the three motor leads (3-pin plug) and the unpainted part of the end shield.

**If the winding resistance to ground is <100k ohms, replace the complete motor assembly.**

**If the resistance to ground is >100k, the motor windings are fine. Proceed to Test B.**



Figure 4. Test A

### TEST B

Use an ohmmeter to measure the motor phase-to-phase resistance by checking these combinations of the the 3-pin motor plug. For the purpose of this test, start at either end of the connector as lead 1.

- 1 - The lead-to-lead resistance across any two leads should be less than 20 ohms.
- 2 - Each lead-to-lead resistance should be the same.

If the measured resistance is greater than 20 ohms, replace the complete motor assembly. See "Motor Removal and Replacement" in this instruction.



Figure 5. Test B

### Control Module Installation

Again, check the replacement module kit number to make sure it matches the number given on the sticker on the blower motor. If the kit numbers match, continue.

- 1 - Examine the equipment to see if there is an obvious reason for the failure. Is there any sign of corrosion on the inside or outside of the casting? If so, this is evidence of possible water damage. Make sure the unit is properly leveled and that drains are unplugged.
- 2 - Carefully insert the motor 3-pin plug into the receptacle on the replacement module until it latches. The 3-pin plug will click when it latches properly. Verify that the wires will not back out of the plug.
- 3 - Insert the provided plastic tab into the slot on the perimeter of the open end of the control module. Position the tab so that the flat side faces the outside of the module. See figure 6.

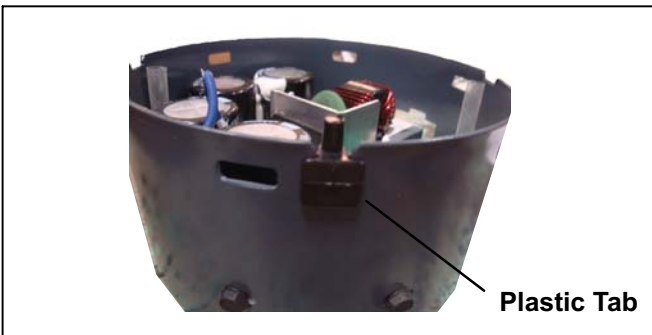


Figure 6. Plastic Tab

- 4 - Align the tab on the control module with the tab locator hole in the end shield of the motor. Slide the control module onto the motor housing.
- 5 - Use the provided bolts to secure the replacement module to the motor housing.
- 6 - Make sure that the blower motor assembly is properly oriented and that there is a suitable drain loop in all cables.
- 7 - Slide the blower assembly back into the cabinet. Plug the 16-wire harness into the replacement module. Make sure the plug is properly positioned and that it latches securely.
- 8 - Connect the 5-pin power plug into the control module. Make sure it is properly oriented. It should plug in easily and snap latched. **Reversal of this plug will cause immediate failure of the control module.**
- 9 - After the replacement control module has been installed, restore electrical power to the unit and verify that the new control module is operating properly in all modes.

### Motor Removal and Replacement

- 1 - Remove the bolts that secure the blower motor mounting bracket to the blower housing. Gently ease blower motor out of housing.
- 2 - Remove bolt from motor mounting bracket and ease four-legged bracket from existing motor. *Make note of four-legged bracket orientation and dimensions for re-installation.*
- 3 - Carefully insert the replacement motor 5-pin plug into the receptacle on the control module until it latches. The 5-pin plug will click when it latches properly. Verify that the wires will not back out of the plug.
- 4 - Secure the module to the replacement motor housing with existing hex head screws removed in step 7.. Tighten to 15-19 inch pounds.
- 5 - Re-install four-legged mounting bracket and make sure that the motor assembly is properly oriented and that there is a suitable drain loop in all cables.
- 6 - Use existing motor mounting bolts and install motor module assembly back into the blower housing.
- 7 - Slide the blower assembly back into the cabinet. Plug the 16-wire harness into the module. Make sure the plug is properly positioned and that it latches securely.
- 8 - Connect the 5-pin power plug into the control module. Make sure it is properly oriented. It should plug in easily and snap latched. **Reversal of this plug will cause immediate failure of the control module.**
- 9 - Restore electrical power to the unit and verify that the new motor is operating properly in all modes.