NOTE: Read the entire instruction manual before starting the installation.

SAFETY CONSIDERATIONS

Installing and servicing heating equipment can be hazardous due to gas and electrical components. Only trained personnel should install or service heating equipment.

Untrained personnel can perform basic maintenance functions such as cleaning and replacing filters. All other operations should be performed by trained service personnel. When working on heating equipment, observe precautions in the literature, on tags, and on labels attached to the unit.

Follow all safety codes. Wear safety glasses and work gloves. Have a fire extinguisher available.

Recognize safety information. This is the safety-alert symbol. When you see this symbol on the furnace and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal words DANGER, WARNING, and CAUTION. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which will result in severe personal injury or death. WARNING signifies a hazard which could result in personal injury or death. CAUTION is used to identify unsafe practices which would result in minor personal injury or product and property damage.

WARNING

Turn off gas and electrical supplies to unit before beginning any installation or modification. Follow operating instructions on label attached to furnace. Failure to follow this warning could result in electrical shock, fire, personal injury, or death.

INTRODUCTION

This instruction covers installation of an ICM compatible wiring harness kit Part No. 323055-751 in 398BAZ/58SXB Upflow Variable-Speed Condensing Gas Furnaces. A complete installation will include an additional blower motor: 1/2 hp ICM HD44AE116 or 1hp ICM HD52AE120.

NOTE: Due to reduced accessibility to the filter caused by ICM motor on right-side return-air installations, an accessory side filter may be required to complete installation.

For kit contents, see Table 1.

DESCRIPTION AND USAGE

This kit is designed as a service wiring harness kit in 398BAZ/58SXB Upflow Furnaces with a 2-piece, 1/3 hp electronically commutated motor (ECM) design, or for replacement of ICM-1 motors utilizing a square control box attached to motor end bell.

Table 1—Kit Contents

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>PART NO.</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wire Harness</td>
<td>320050-301</td>
<td>1</td>
</tr>
<tr>
<td>Wire Harness</td>
<td>320745-301</td>
<td>1</td>
</tr>
<tr>
<td>Plug Bracket</td>
<td>320052-201</td>
<td>1</td>
</tr>
<tr>
<td>Plug</td>
<td>320051-301</td>
<td>1</td>
</tr>
<tr>
<td>Installation Instructions</td>
<td>IIK 398B-60/8/58SXB-21SI</td>
<td>1</td>
</tr>
</tbody>
</table>

IMPORTANT: A complete installation will include an additional blower motor: 1/2 hp ICM HD44AE116 or 1hp ICM HD52AE120.

INSTALLATION

Step 1—Removal of Blower Housing

1. Turn off gas and electrical supplies to furnace.
2. Remove control and blower access doors.
3. Disconnect 9-pin connector from blower housing.
4. Disconnect thermostat leads and remove control box from bottom side of blower shelf. Position control box to 1 side.
5. Using a backup wrench, disconnect drain pipe at coupling in blower compartment.
7. Loosen hose clamp and disconnect 5/8-in. diameter drain hose at bottom of inducer housing located under blower shelf.
8. Remove drain trap assembly.
9. Remove screws securing blower assembly to blower shelf and slide assembly out of furnace.
10. For 1/3 hp, 2-piece ECM motor only:
   a. Remove screws securing plug bracket to left side of blower housing.
   b. Disconnect motor connector from blower controller on back side of blower housing.
   c. Remove blower controller and mounting brackets from back side of blower housing. Discard mounting bracket. Discard controller or return it for warranty credit if applicable.
   d. Install blower door switch.

WARNING

The blower door switch MUST be replaced with field-supplied Part No. HR54ZA101 when replacing a 1/3 hp, 2-piece ECM motor.
The blower door switch MUST be replaced when converting to an ICM motor. The new motor in-rush current will damage existing blower door switch.

1. Remove auxiliary J-box from furnace casing.
2. Remove auxiliary J-box cover.
3. Remove blower door switch from auxiliary J-box and disconnect both wires. Discard blower door switch and position wire to 1 side.
4. Replace 3/16-in. quick-connects with field-supplied, insulated 1/4-in. quick-connects on power leads inside auxiliary J-box.
5. Connect power leads to new blower door switch and reinstall switch in auxiliary J-box.
6. Reinstall auxiliary J-box on furnace casing. Ensure mounting screws do not pierce power leads.
7. Reinstall auxiliary J-box cover.

Step 2—Installation of Motor

1. Loosen setscrew holding blower wheel on motor shaft.
2. Remove bolts holding motor mount to blower housing and slide motor and mounts out of housing.
3. Remove belly band and motor mounting arms from motor. Discard motor or return it for warranty credit if applicable.
4. Mount belly band and motor mounting arms on motor portion of ICM-2 motor as shown in Fig. 1.

NOTE: Before tightening belly band around motor, ensure mounting arms are aligned properly so motor connectors will point down when motor and mounts are assembled into blower housing. (See Fig. 1.)

5. Reassemble blower by reversing items 1 and 2. Ensure blower wheel is centered in blower housing. Rotate wheel to check clearance.

Step 3—Standard Installation

For all furnace applications except when furnace is used with variable-speed or 2-speed outdoor units, perform the following items:

1. For ICM-1 motors with square control box attached to motor end bell only:
   a. Remove screws securing plug bracket to right side of blower housing.
   b. Discard plug bracket (if used) and old blower adapter harness.
2. Connect blower adapter harness Part No. 320745-301 to motor. (See Fig. 1.)
3. Install 9-pin receptacle on blower adapter harness Part No. 320745-301 into new plug bracket supplied in kit.
4. Install new bracket in same position as old bracket (9-pin connector will be at the bottom) using screw to secure bracket and ground wire.

NOTE: Failure to connect ground wire may affect operation. (See Fig. 1.)

Step 4—Variable-Speed Outdoor Unit

For furnace setup in variable-speed operation with a compatible variable-speed outdoor unit, perform the following items:

1. Remove screws securing plug bracket to right side of blower housing. Discard plug bracket and old blower adapter harness.
2. Connect blower adapter harness Part No. 320745-301 to blower motor. (See Fig. 1.)
3. Connect 6-pin plug from tap harness Part No. 320050-301 to 6-pin receptacle on blower adapter harness Part No. 320745-301.
4. Install 9-pin receptacle on blower adapter harness Part No. 320745-301 and 15-pin receptacle on tap harness Part No. 320050-301 into new plug bracket supplied in kit.
5. Install new bracket in same position as old bracket (15-pin connector will be at the top).
6. Install 15-pin tap plug into 15-pin receptacle in tap harness Part No. 320050-301. (See Fig. 2.)
7. Connect wires in tap plug as shown in Table 2.

Step 5—Two-Speed Outdoor Unit

For furnace setup in 2-speed operation with a compatible 2-speed outdoor unit, perform the following items:

1. Remove 9-pin receptacle on old blower adapter harness from plug bracket on right side of blower housing and disconnect blue and pink wires from relay mounted in plug bracket. Discard old blower adapter harness.
2. Connect blower adapter harness Part No. 320745-301 to blower motor. (See Fig. 1.)
3. Install 9-pin receptacle on blower adapter harness Part No. 320745-301 into plug bracket on right side of blower housing.
4. Cut wire tie on blower adapter harness Part No. 319067-301 and plug blue wire into pin 12 and pink wire into pin 8 of relay mounted on plug bracket.
5. Connect 6-pin plug from tap harness Part No. 320050-301 to 6-pin receptacle on blower adapter harness Part No. 320745-301.
6. Install 15-pin tap plug into 15-pin receptacle in tap harness Part No. 320050-301. (See Fig. 2.)
7. Mount plug bracket to blower wrapper as shown in Fig. 3 using 2 field-supplied sheet metal screws.
8. Install 15-pin tap plug into 15-pin receptacle in tap harness Part No. 320050-301. (See Fig. 2.)

Table 2—Variable-Speed Torque Taps

<table>
<thead>
<tr>
<th>OUTDOOR UNIT</th>
<th>UNIT SIZE</th>
<th>WHITE WIRE</th>
<th>BLACK WIRE</th>
<th>RED WIRE</th>
</tr>
</thead>
<tbody>
<tr>
<td>024</td>
<td>060</td>
<td>B</td>
<td>D</td>
<td>A</td>
</tr>
<tr>
<td>036</td>
<td>060</td>
<td>B</td>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>080</td>
<td>B</td>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>B</td>
<td>D*</td>
<td>A</td>
</tr>
</tbody>
</table>

* When installing 1/2 hp motor HD44AE116 in 100 size unit, connect black wire to B.

Table 3—Two-Speed Torque Taps

<table>
<thead>
<tr>
<th>OUTDOOR UNIT</th>
<th>UNIT SIZE</th>
<th>WHITE WIRE</th>
<th>BLACK WIRE</th>
<th>RED WIRE</th>
</tr>
</thead>
<tbody>
<tr>
<td>036</td>
<td>060</td>
<td>A</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>080</td>
<td>A</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>A</td>
<td>A</td>
<td>D*</td>
</tr>
<tr>
<td>048</td>
<td>100</td>
<td>A</td>
<td>A</td>
<td>B</td>
</tr>
</tbody>
</table>

* When installing 1/2 hp motor HD44AE116 in 100 size furnace, connect red wire to B.

9. Connect wires in tap plug as shown in Table 3.

Step 6—Reassembly of Blower Housing

1. Reinstall blower assembly in furnace.
2. Inspect drain trap and hoses to ensure they are not blocked or restricted. Reinstall drain trap and hoses. Ensure hose clamps are properly positioned.
3. Using a backup wrench, attach drain pipe and tighten compression coupling.
4. Reinstall control box on bottom side of blower shelf.
5. Reconnect thermostat leads.
6. Connect 9-circuit connector from control box to blower adapter harness connected to motor. Connector is polarized for correct assembly. DO NOT FORCE.
7. When using tap harness Part No. 320050-301, connect red wire to thermostat terminal R and blue wire to terminal C.
8. Reinstall control and blower access doors.
9. Turn on gas and electrical supplies to furnace.
10. Check blower for proper rotation and speed changes between low- and high-heat and cooling. Operate unit 10 min and check for condensate leaks.
SERVICE TRAINING

Packaged Service Training programs are an excellent way to increase your knowledge of the equipment discussed in this manual, including:

- Unit Familiarization
- Maintenance
- Installation Overview
- Operating Sequence

A large selection of product, theory, and skills programs is available, using popular video-based formats and materials. All include video and/or slides, plus companion book.

Classroom Service Training plus "hands-on" the products in our labs can mean increased confidence that really pays dividends in faster troubleshooting, fewer callbacks. Course descriptions and schedules are in our catalog.

CALL FOR FREE CATALOG 1-800-962-9212

[ ] Packaged Service Training [ ] Classroom Service Training