

Installation Instructions

Blower Packages
Electric Furnaces


KCABA0301ACD
KCABA0401HPD

NOTE: Read entire applicable section of instruction manual before starting installation.

SAFETY CONSIDERATIONS

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

Untrained personnel can perform basic maintenance functions such as cleaning and replacing air filters. All other operations must be performed by trained service personnel. When working on heating equipment, observe precautions in the literature, tags, and labels attached to or shipped with the unit and other safety precautions that may apply.

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 word DANGER, WARNING, or 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 that **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.

INTRODUCTION

These instructions cover the installation of KCABA0301ACD and KCABA0401HPD kits into Inthertherm (See page 1) and Coleman (See page 5) electric furnace.

INSTALLATION—INTERTHERM ELECTRIC FURNACES

This section of the instructions covers the installation of kits KCABA0301ACD and KCABA0401HPD into Intertherm furnaces FEHA and the FEB, air conditioner models above 3 ton and heat pump models above 2.5 ton. Note that the FEY furnace is air conditioner ready and therefore does not need a blower kit.

PROCEDURE 1—REMOVE BLOWER FROM CARTON

Remove blower from carton. Unit is heavy, so exercise care when handling. Straighten any flanges bent during shipment. Remove cardboard packing from blower wheel. Check rotation of wheel in housing. If any rubbing occurs between blower wheel and housing, adjust blower on motor shaft by loosening blower wheel set screw and sliding wheel along shaft until rubbing stops. Check fan wheel set screw for tightness. When tightening set screw, be sure that screw is on the flat side of motor shaft. Check control box for shipping damage. File claim with shipper if shipment is damaged or incomplete.

PROCEDURE 2—REMOVE EXISTING BLOWER FROM FURNACE

1. Turn off electric power at main electric service entrance.
2. Remove furnace door.
3. Remove furnace disconnect.
4. Unplug motor connector plug from receptacle on furnace wiring box by pinching clasping tabs on sides of plug and pulling plug straight up from receptacle.
5. Remove blower mounting screws then remove blower from the front of the furnace. Retain these screws for new blower installation.

PROCEDURE 3—INSTALL BLOWER ASSEMBLY

A. Mount control box and adapter frame to blower

1. Remove cover from the blower control box by removing screw. Retain this screw for reinstallation later.
2. Mount control box cover on blower wrapper using 2 No. 10 x 5/8- in. screws supplied in kit KCACK0201INT. Note that this may require drilling 5/32-in. diameter holes. (See Fig. 1.)
3. Make proper fan motor connections
 - a. Determine the proper cfm from Table 1 and Table 2.
 - b. Located inside the blower control box are 4 wires connected to the 6-pin receptacle. One is a red jumper wire to the 15-pin receptacle. The remaining 3 wires control the blower cfm as follows: red - 950 cfm, blue - 1200 cfm, and black - 1450 cfm. Refer to Table 1 and Table 2. Terminal number 4 on the relay is for air conditioner/heat pump operation. (See Fig. 3A.) Terminal number 6 on the relay is for furnace operation. Make proper cfm connections. (See Fig. 3A or 3B.)

Table 1—Furnace CFM Selection

FURNACE MODEL NO.	-010,-012 -015,-017	-020,-023
Nominal Air Delivery	950 cfm	1200 cfm

Table 2—Air Conditioning/Heat Pump CFM Selection

AIR CONDITIONER MODEL	-024	-030,-036	-042,-048
Heat Pump Model	-018,-024	-030,-036	-042,-048
Nominal Air Delivery*	950 cfm	1200 cfm	1450 cfm

*If cfm is used for furnace operation, use next higher cfm for air conditioner/ heat pump.

- c. Make sure unused terminal is insulated.
- d. Mount control box to cover on blower with screw removed in Procedure 3 -1 above. (See Fig. 2.) Make sure bottom of cover engages inside of control box flange.
- e. Mount adapter frame, supplied in kit KCACK0201INT, to blower using 4 No. 10 x 5/8-in. screws. (See Fig. 1.) The mounting bracket should be flush with blower opening.

B. Install blower into unit

1. Rotate blower so that opening is down and motor is on the left.
2. Start blower rail flanges into blower slots and push blower into furnace until mounting bracket flange sits against furnace. (See Fig. 2.)
3. Secure blower with 2 screws removed earlier in Procedure 2 - 5. Attach blower ground lead under screw in blower compartment that contacts an unpainted surface.

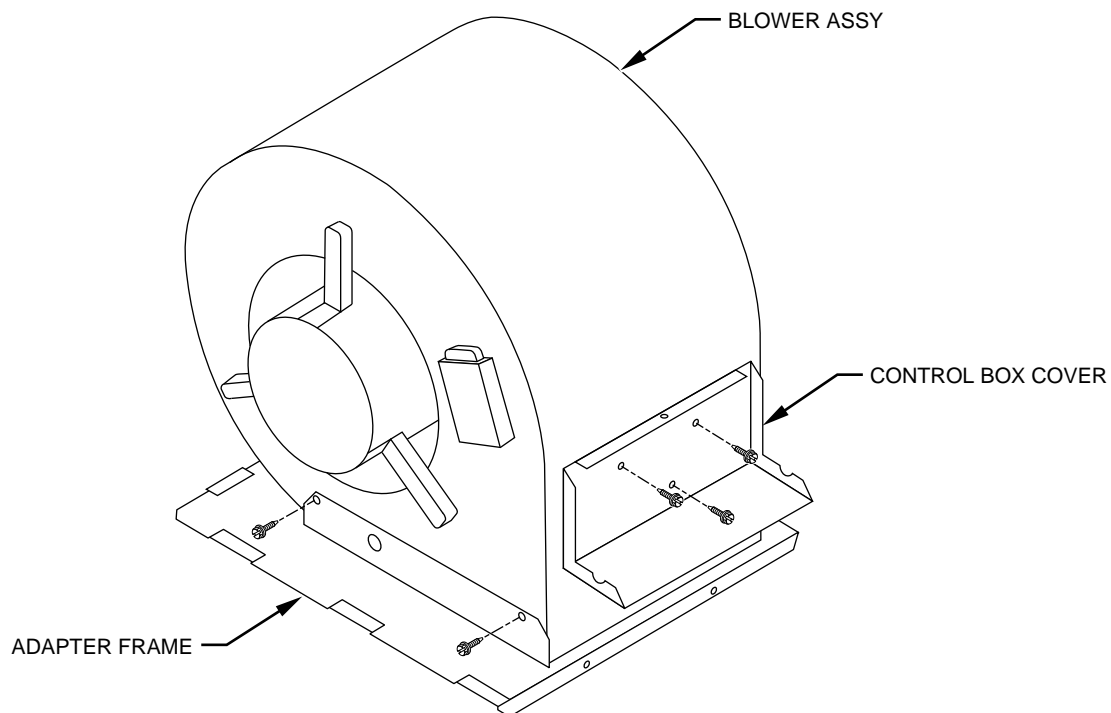


Fig. 1—Control Box Mounted to Blower Wrapper

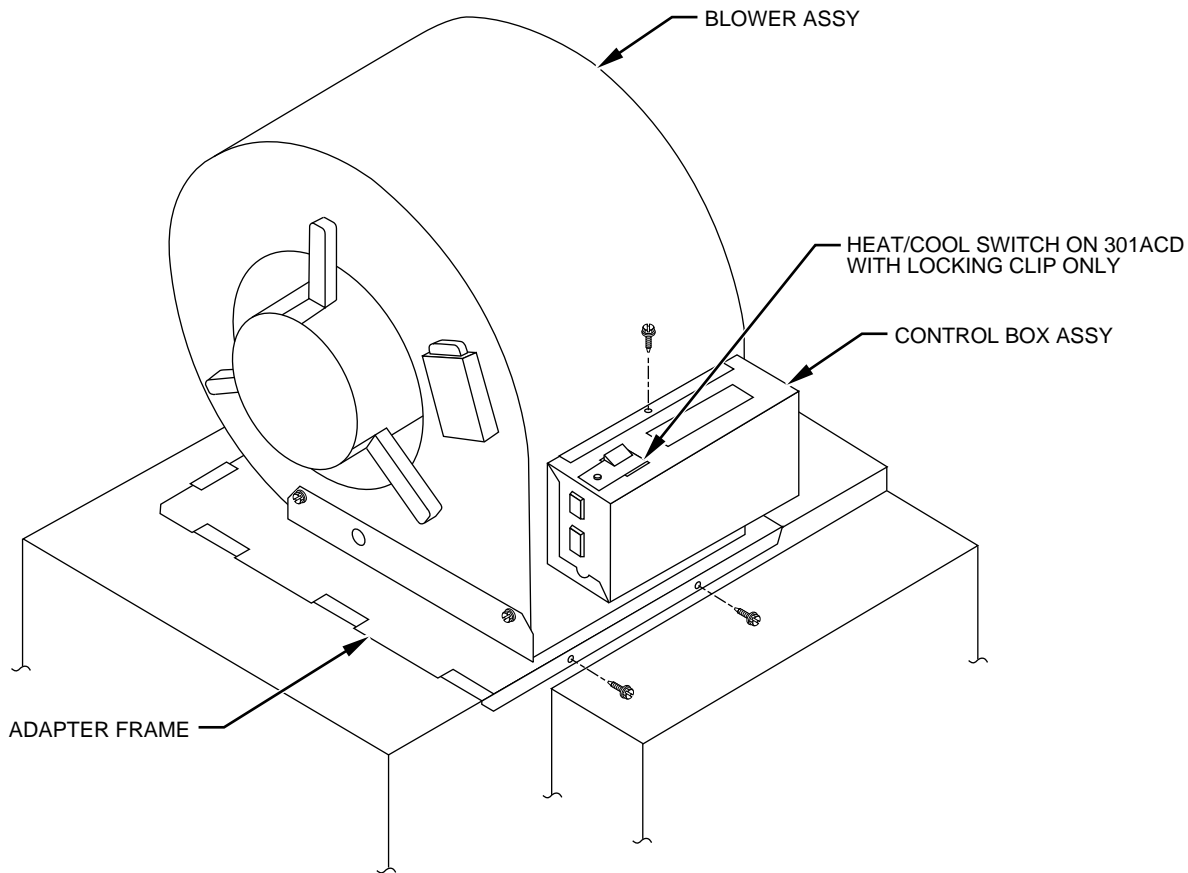


Fig. 2—Blower Mounted in Unit

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PROCEDURE 4—CONNECT WIRING HARNESS AND MODIFY FURNACE CONTROL BOX

A. Connect wiring harnesses

1. Plug 6-pin plug of the blower motor leads, into 6-pin receptacle on the blower control box. (See Fig. 4.)
2. Connect 15-pin plug of 15- to 12-pin wiring harness, supplied in kit KCACK0201INT, into blower control box.
3. Connect 12-pin plug, of 15- to 12-pin wiring harness, into furnace control box. (See Fig. 4.)

B. Modify furnace control box wiring

1. Open furnace control box.
2. Remove black and red wire from low-voltage side of the transformer in the furnace control box. (See Fig. 5.)
3. Remove terminals from black and red wires.
4. Connect these 2 wires together with wire nut provided and secure with electrical tape. (See Fig. 5.)
5. Close furnace control box.
6. Set fan switch located on top of furnace control box to AUTO position. (See Fig. 4.)

PROCEDURE 5—MOUNT CF5A

1. Mount coil per Installation Instructions supplied with CF5A coil.
2. Provide a suitable condensate drain tube and trap.

PROCEDURE 6—KCABA0301ACD THERMOSTAT CONNECTION

A. Heating only thermostat (2 - wire)

1. Connect thermostat wires W and R to W and R, respectively, of low-voltage terminal board of blower control box.
2. Remove locking clip on HEAT/COOL switch of blower control box. (See Fig. 4.)
3. Explain to homeowner that HEAT/COOL switch must be set manually in the appropriate position for heating or cooling.

B. Heat/Cool thermostat (3 - wire)

1. Connect thermostat wires W, R and Y to W, R, and Y, respectively, of low-voltage terminal board of blower control box.
2. Remove external jumper wire from G and Y of low-voltage terminal board of blower control box.
3. Do not remove locking clip from HEAT/COOL switch.

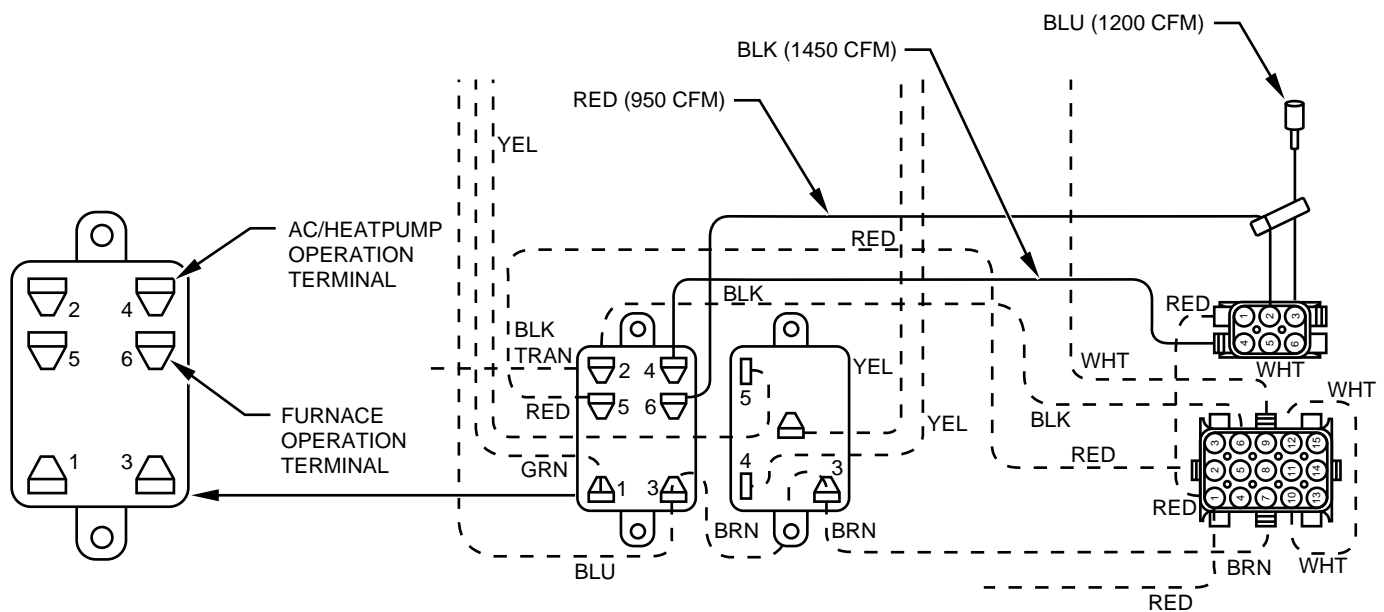


Fig. 3A—CFM Selection Wiring Layout

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C. Heat/Cool thermostat (4 - wire)

1. Connect thermostat wires R, W, Y, and G to R, W, Y, and G, respectively of low-voltage terminal board of blower control box.
2. Remove external jumper wire from G and Y of low voltage terminal board of blower control box.
3. Do not remove locking clip from HEAT/COOL switch.

PROCEDURE 7—KCABA0401HPD THERMOSTAT CONNECTION

Connect thermostat wires R to R, G to G, etc., to the low voltage terminal board of the blower control box.

PROCEDURE 8—CONNECT CONDENSING UNIT

Connect condensing unit control relay or contactor to Y and C on blower terminal board.

PROCEDURE 9—COMPLETE UNIT INFORMATION PLATE

1. Using ball point pen, complete information requested on information plate. Peel backing off plate, and affix near furnace rating plate.
2. Select proper wiring diagram based on furnace model, peel backing off and place on blower housing.

PROCEDURE 10—RESTORE POWER TO FURNACE

1. Make sure that fan switch located on top of furnace control box is in the AUTO position.
2. KCABA0301ACD kit reminder
 - a. 2 - wire thermostat

Position HEAT/COOL switch to appropriate mode.

Explain to homeowner that HEAT/COOL switch must be manually set to appropriate mode.

- b. 3 or 4 wire thermostats

Modes are automatically selected, so locking clip should not be removed from HEAT/COOL switch.

3. Replace furnace disconnect.
4. Replace furnace door.
5. Restore power to unit.
6. Cycle furnace in both heating and cooling modes.

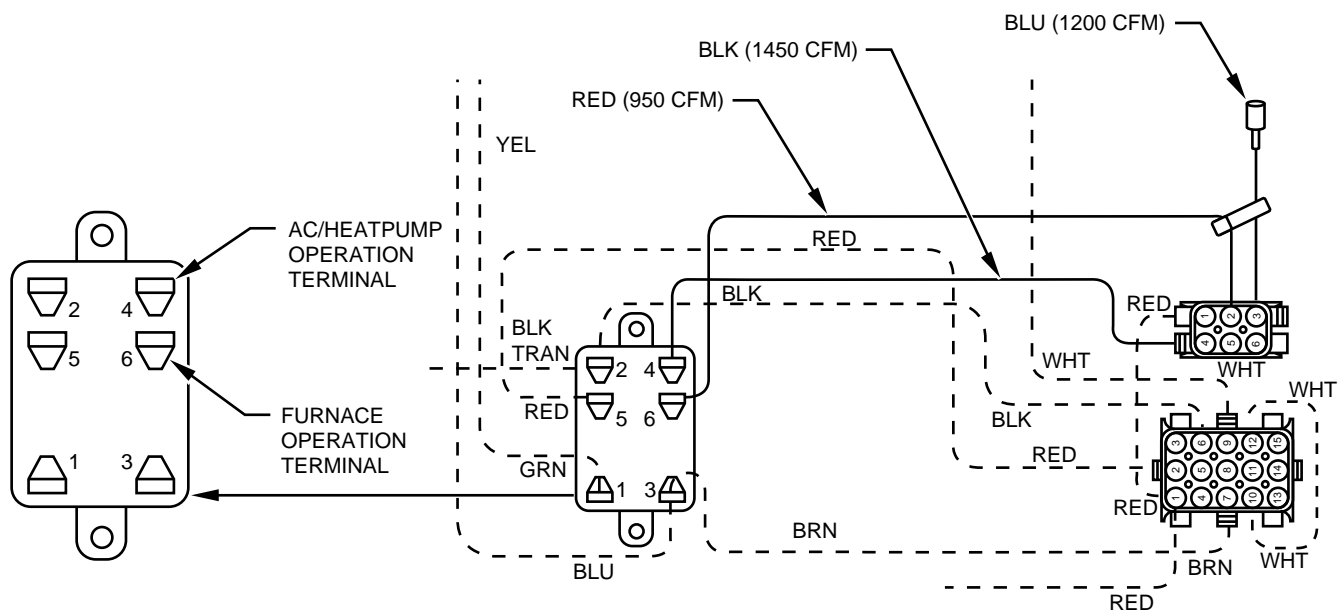


Fig. 3B—CFM Selection Wiring Layout

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PROCEDURE 11—SERVICE

A qualified service person should clean and lubricate the blower unit. It should be only necessary to clean when cooling coil is cleaned. Lubricate motor every 5 years if motor is used intermittently, or every 2 years if motor is in continuous operation. Remove motor to lubricate. Place approximately 8 drops of SAE 20 non-detergent oil in oil port. Plug port securely.

Check blower motor and wheel for cleanliness and check lubrication each heating and cooling season.

Check electrical connections for tightness, and controls for proper operation each heating and cooling season. Service as necessary.

INSTALLATION—COLEMAN 3400 AND 3500 ELECTRIC FURNACES

This section of the instructions covers the installation of kits KCABA0301ACD and KCABA0401HPD into Coleman 3400 and 3500 electric furnaces, air conditioner models above 3 ton and heat pump models above 2.5 ton.

PROCEDURE 1—REMOVE BLOWER FROM CARTON

Remove blower from carton. Unit is heavy, so exercise care when handling. Straighten any flanges bent during shipment. Remove cardboard packing from blower wheel. Check rotation of wheel in housing. If any rubbing occurs between wheel and housing, adjust blower on motor shaft by loosening blower wheel set screw and sliding wheel along shaft until rubbing stops. Check fan wheel set screw for tightness. When tightening set screw, be sure that screw is on the flat side of motor shaft. Check control box for shipping damage. File claim with shipper if shipment is damaged or incomplete.

PROCEDURE 2—REMOVE EXISTING BLOWER FROM FURNACE

1. Turn off electric power at main electric service entrance.
2. Remove furnace door.
3. Remove furnace disconnect.
4. Unplug motor connector plug from receptacle on furnace wiring box by pinching clasp tabs on sides of plug and pulling plug straight up from receptacle.
5. Remove blower mounting screws then remove blower from the front of the furnace. Retain these screws for new blower installation.

PROCEDURE 3—INSTALL KCABA301ACD OR KCABA401HPD BLOWER ASSEMBLY

A. Mount adapter frame to blower

1. Mount adapter frame, supplied in kit KCACK0101COL, to blower using 4 No. 10 x 5/8-in. screws. (See Fig. 6A or 6B.) The mounting bracket should be flush with blower opening.

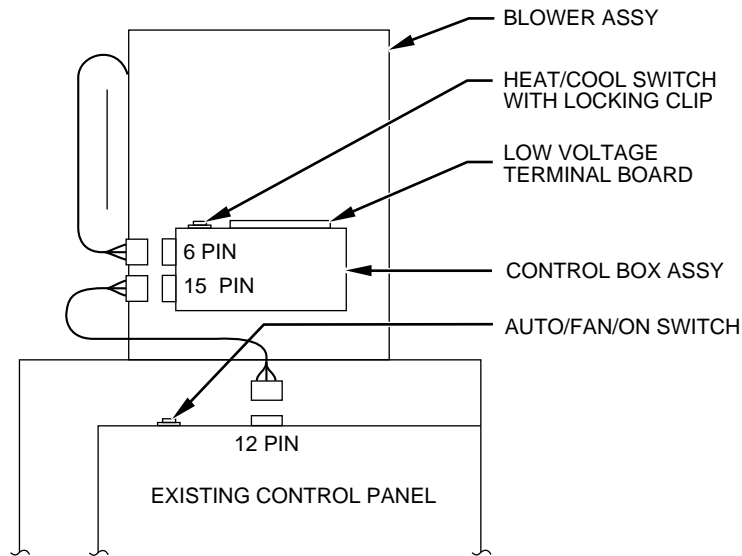


Fig. 4—Connecting Wiring Harnesses

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B. Mount coil support

1. Secure coil support angles, supplied in kit KCACK0101COL, to casing sides and back using 2 screws, No. 8 x 3/8-in. in each of the 3 angles. (See Fig. 8.)
2. Place coil support, supplied in kit KCACK0101COL, into furnace on coil support angles. (See Fig. 8.) Support should be positioned with edges of side rail, front tray down and edge of back rail up.
3. Secure coil support to back of furnace with 1 No. 8 x 3/8-in. screw. Drill 5/32-in. diameter holes if necessary.
4. Insulate furnace casing (insulation not provided).

C. Install blower into unit

1. Start blower rail flanges into blower slots and push blower into furnace. (See Fig. 7A or 7B.)
2. Secure blower with 2 screws removed earlier in Procedure 2 - 5. Attach blower ground lead under screw in blower compartment that contacts an unpainted surface.

PROCEDURE 4—MOUNT CF5A COIL

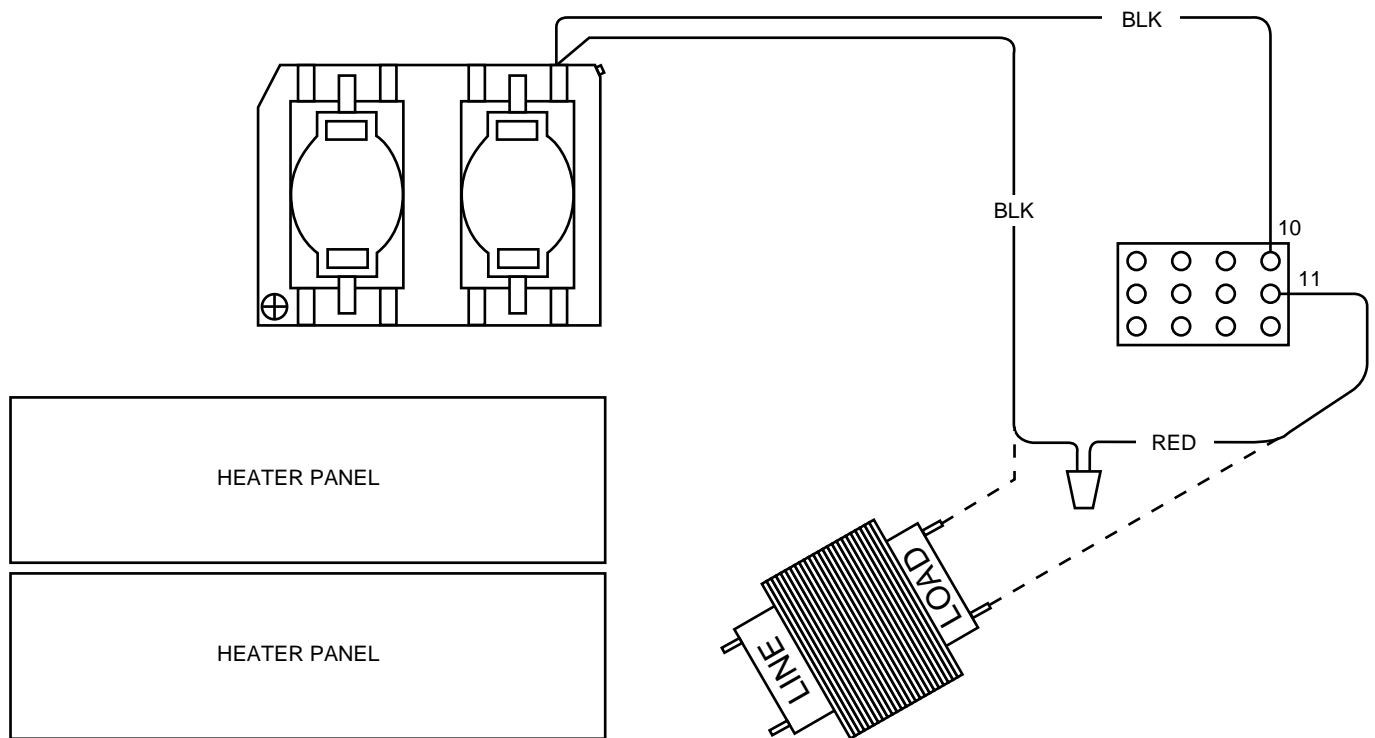
1. Mount CF5A air conditioning coil using Installation Instructions supplied with coil.
2. Provide a suitable condensate drain tube and trap.

PROCEDURE 5—CONTROL BOX MOUNTING AND WIRING HARNESS ASSEMBLY

1. Line up blower control box mounting bracket holes with 4 holes in door flanges of furnace casing. Note hole pattern in 3. Mount bracket to furnace with 4 No. 8 x 3/8-in. screws. Use bracket as a template if holes are not present and drill 4 5/32-in. diameter holes 14-1/2 in. from inside of top of furnace. (See Fig. 8.)
2. Remove cover from the blower control box by removing screw. Retain this screw for re-installation later.
3. Mount cover onto mounting bracket using 3 No. 10 x 1/2-in. screws supplied in kit KCACK0101COL. (See Fig. 8.)
4. Mount blower control box to cover with screw removed in 2 above. Make sure bottom of cover engages inside of control box flange.

A. Connect wiring harnesses

1. Feed 15-pin plug, of 15- to 15-pin wiring harness supplied in KCACK0101COL kit, through snap bushing and plug into blower control box. (See Fig. 9A or 9B.)
2. Plug other end of 15-pin wiring harness into furnace control box. (See Fig. 9A or 9B.)
3. Feed blower motor harness through snap bushing and plug into blower control box receptacle. (See Fig. 9A or 9B.)



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Fig. 5—Modifying Furnace Control Box Wiring

PROCEDURE 6—CONNECT THERMOSTAT KCABA0301ACD

Insulate each end of red and white wires from furnace control box. Do not connect these wires together. (See Fig. 9A or 9B.)

A. Heating only thermostat (2-wire)

1. Connect thermostat wires W and R to W and R, respectively, of low-voltage terminal board of blower control box.
2. Remove locking clip on HEAT/COOL switch of blower control box. (See Fig. 9A and 9B.)
3. Explain to homeowner that HEAT/COOL switch must be manually set in the appropriate position for heating or cooling.

B. Heat/Cool thermostat (3-wire)

1. Connect thermostat wires W, R and Y to W, R, and Y, respectively, of low-voltage terminal board of blower control box.
2. Remove external jumper wire from G and Y of low-voltage terminal board of blower control box.
3. Do not remove locking clip from HEAT/COOL switch.

C. Heat/Cool thermostat (4-wire)

1. Connect thermostat wires R, W, Y, and G to R, W, Y, and G, respectively, of the low voltage terminal board of blower control box.
2. Remove external jumper wire from G and Y of low-voltage terminal board of blower control box.
3. Do not remove locking clip from HEAT/COOL switch.

PROCEDURE 7—KCABA0401HPD THERMOSTAT CONNECTION

1. Insulate each end of red and white wires from furnace control box, do not connect these wires together. (See Fig. 9A or 9B.)
2. Connect thermostat wires R to R, G to G, etc., to low-voltage terminal board of blower control box.

PROCEDURE 8—CONNECT CONDENSING UNIT

Connect condensing unit control relay or contactor to Y and C on blower terminal board.

PROCEDURE 9—COMPLETE UNIT INFORMATION PLATE

1. Select proper wiring diagram based on furnace model.
2. Place label on blower housing.

PROCEDURE 10—RESTORE POWER TO FURNACE

1. KCABA0301ACD kit reminder
 - a. 2-wire thermostat

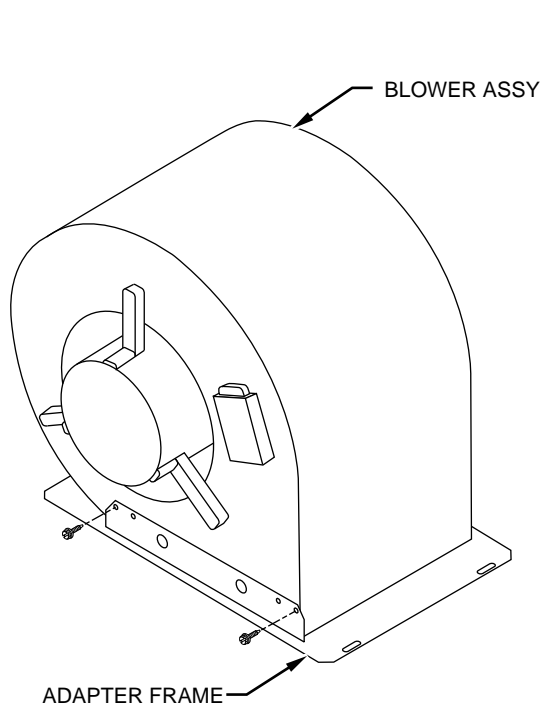


Fig. 6A—Coleman 3400 Series Blower

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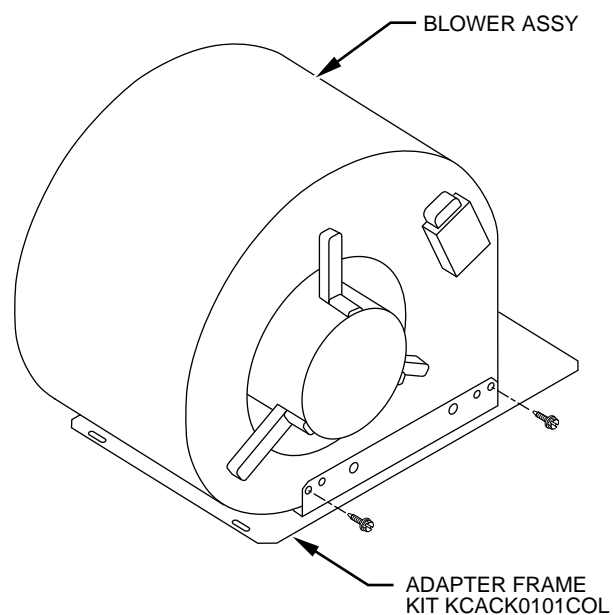


Fig. 6B—Coleman 3500 Series Blower

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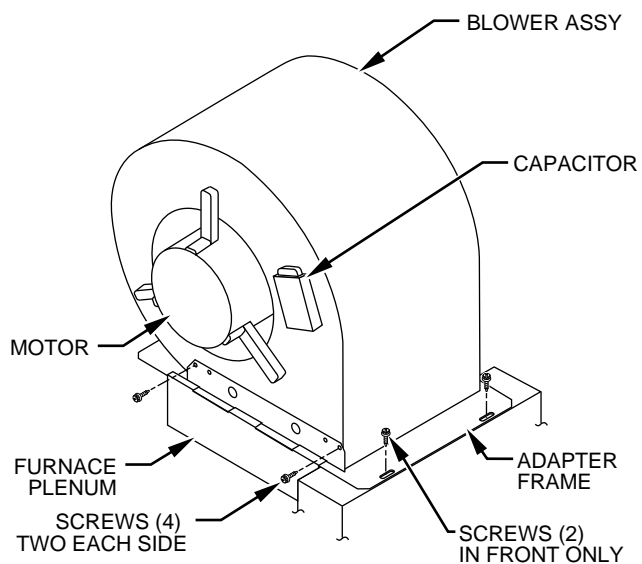


Fig. 7A—Coleman 3400 Series Installation

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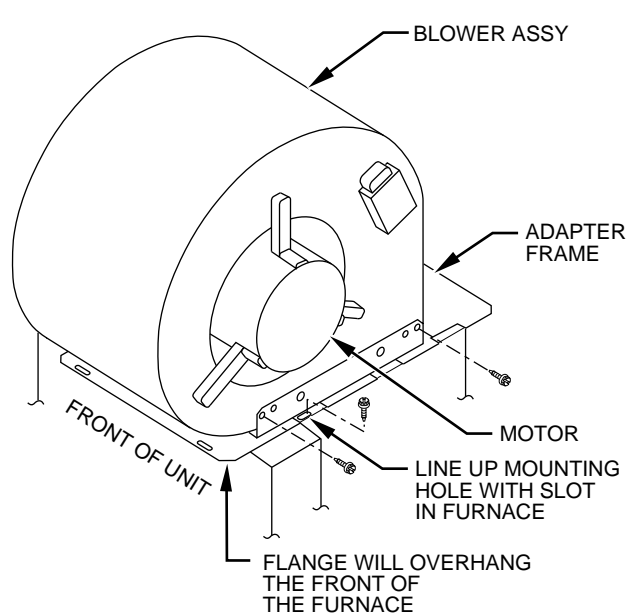


Fig. 7B—Coleman 3500 Series Installation

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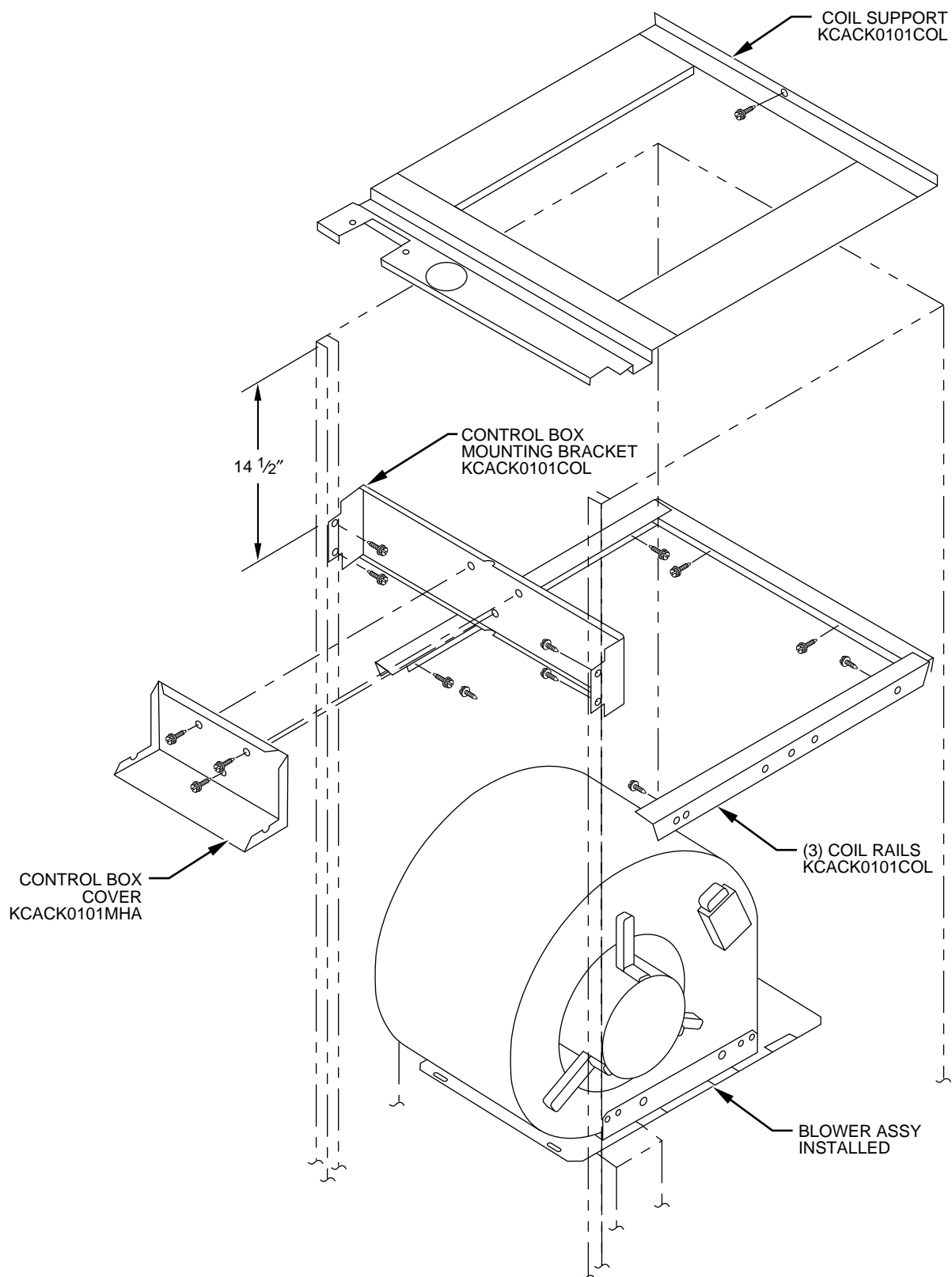
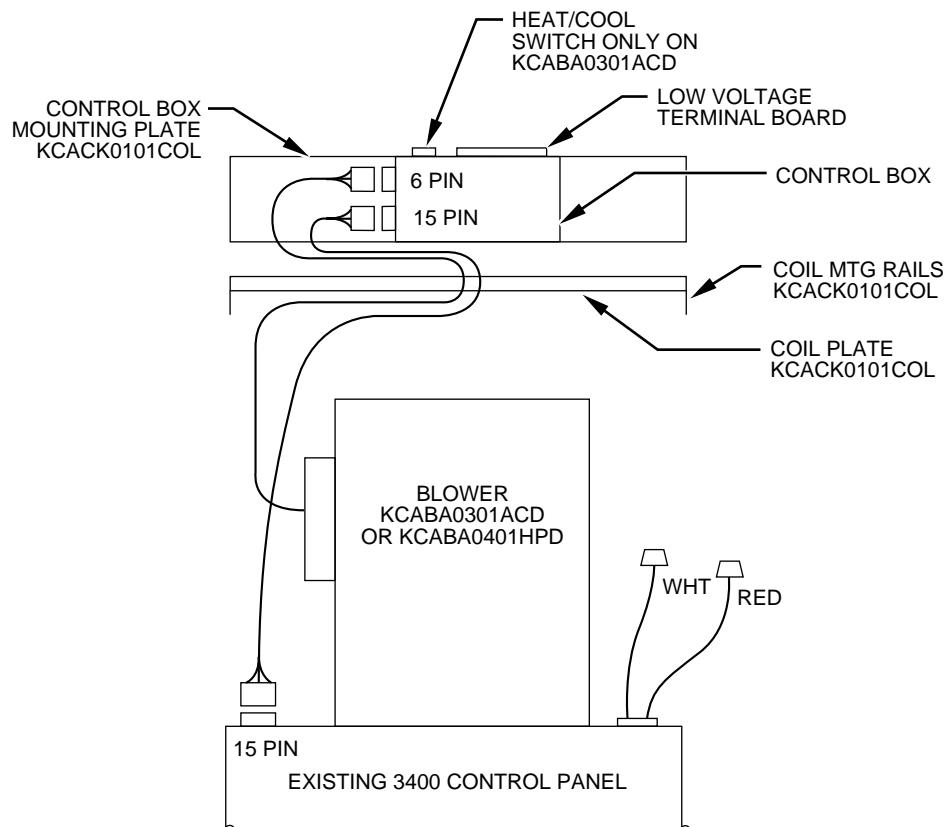


Fig. 8—KCACK0101COL Installation



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Fig. 9A—3400 Series Wiring Harness Connection

- (1.) Position HEAT/COOL switch to appropriate mode.
- (2.) Explain to homeowner that HEAT/COOL reversing switch must be manually set to appropriate mode.
- b. 3 or 4 wire thermostats
 - (1.) Reverse modes automatically so locking clip should not be removed from HEAT/COOL switch.
2. Replace furnace disconnect.
3. Replace furnace door.
4. Restore power to unit.
5. Cycle furnace in both heating and cooling modes.

PROCEDURE 11—SERVICE

A qualified service person should clean and lubricate the blower unit. It should be only necessary to clean when cooling coil is cleaned. Lubricate motor every 5 years if motor is used intermittently, or every 2 years if motor is in continuous operation. Remove motor to lubricate. Place approximately 8 drops of SAE 20 non-detergent oil in oil port. Plug port securely.

Check blower motor and wheel for cleanliness and check lubrication each heating and cooling season.

Check electrical connections for tightness, and controls for proper operation each heating and cooling season. Service as necessary.

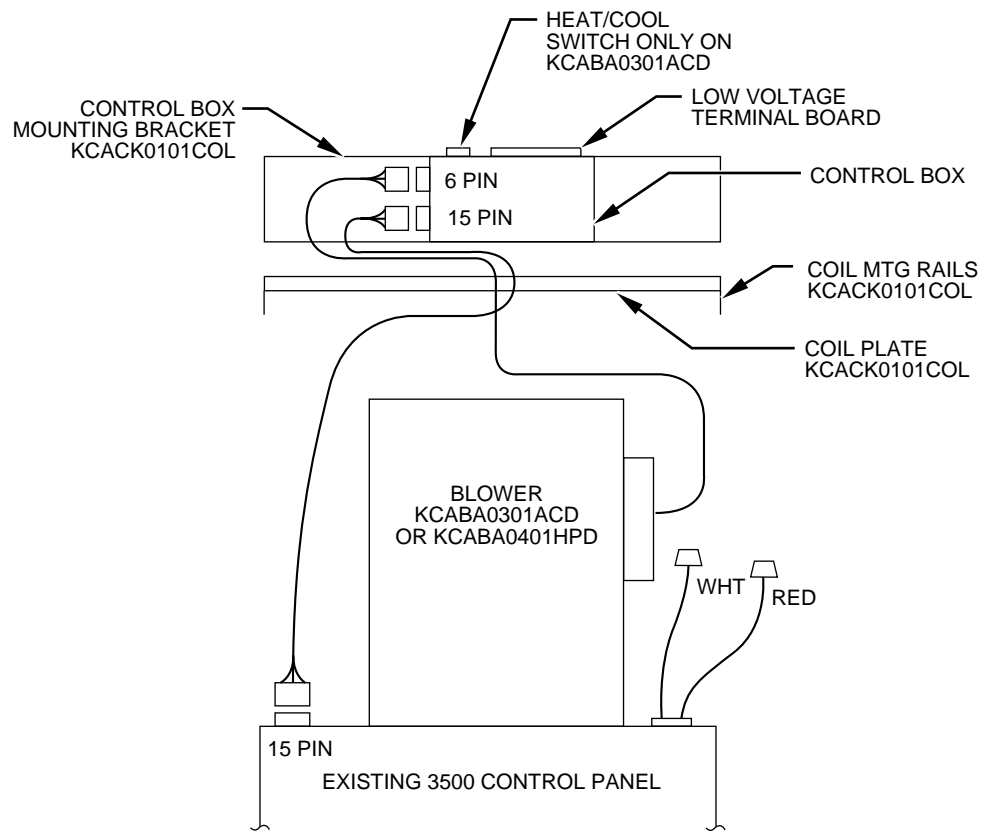


Fig. 9B—3500 Series Wiring Harness Connection

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