Williams
THE COMFORT PRODUCTS PEOPLE

owner's manual

MODEL NO.
3144030

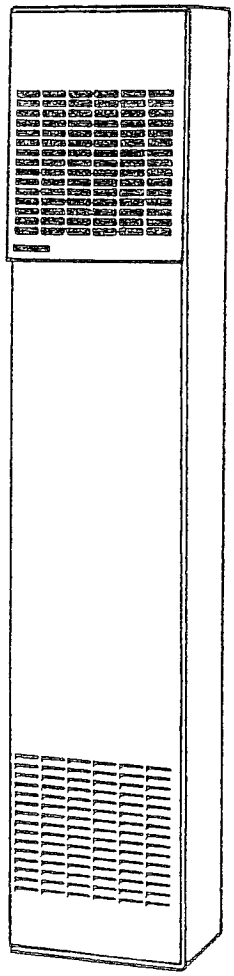
UL UNDERWRITERS LABORATORIES INC.
LISTED AIR HEATER
137T

- Unpacking
- Installation
- Operation
- Repair Parts

Save This Manual For Future Reference.

OPERATING INSTRUCTIONS & PARTS MANUAL

ELECTRIC COUNTERFLOW WALL FURNACE



READ THIS OWNERS MANUAL CAREFULLY BEFORE YOU INSTALL YOUR NEW WILLIAMS WALL FURNACE

FAILURE TO COMPLY WITH INSTRUCTIONS COULD RESULT IN PERSONAL INJURY, PROPERTY DAMAGE AND/OR DEATH.

FOR YOUR SAFETY

WARNING: DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS AND LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.

IF YOU SMELL SMOKE:

DANGER OF ELECTRICAL SHOCK

1. DO NOT TOUCH FURNACE!
2. IMMEDIATELY SHUT DOWN MAIN ELECTRICAL SUPPLY TO FURNACE.
3. EXTINGUISH ANY OPEN FLAME.
4. CALL YOUR LOCAL WILLIAMS SERVICE CENTER.

Williams Furnace Co., 225 Acacia St., Colton, CA 92324

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Your Warranty

The Manufacturer, Williams Furnace Co., warrants this wall furnace or heater to the original purchaser under the following conditions:

LIMITED ONE-YEAR WARRANTY

1. Any part thereof which proves to be defective in material or workmanship within one year from date of original purchase for use will be repaired or replaced at the Manufacturer's option, FOB its factory.
2. No liability is assumed by the Manufacturer for removal or installation labor costs, nor for freight or delivery charges.

LIMITED EXTENDED WARRANTY

1. In addition to the above limited one-year warranty on the complete unit, any heat exchanger which burns out or rusts under normal installation, use and service conditions during a period of nine years following expiration of the one-year warranty period will be exchanged for a like of functionally similar part, FOB Manufacturer's factory.
2. No liability is assumed by the Manufacturer for removal or installation labor costs, nor for freight or delivery charges.

LIMITATIONS

1. THIS LIMITED WARRANTY IS THE ONLY WARRANTY MADE BY THE MANUFACTURER. IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE ARE LIMITED TO THE SAME ONE YEAR TERM AS THIS EXPRESS WARRANTY. UNDER NO CIRCUMSTANCES SHALL THE MANUFACTURER BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL, SPECIAL OR CONTINGENT DAMAGES OR EXPENSES ARISING DIRECTLY OR INDIRECTLY FROM ANY DEFECT IN THE PRODUCT OR ANY COMPONENT OR FROM THE USE THEREOF. THE REMEDIES SET FORTH HEREIN ARE THE EXCLUSIVE REMEDIES AVAILABLE TO THE USER AND ARE IN LIEU OF ALL OTHER REMEDIES.

   Some states do not allow limitations on how long an implied warranty lasts, and some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.
2. This warranty does not include any charge for labor or installation.
3. This warranty does not extend to painted surfaces nor to damage or defects resulting from accident, alteration, misuse or abuse, or improper installation.
4. This warranty does not cover claims which do not involve defective workmanship or materials.

DUTIES OF THE CONSUMER

1. The heating equipment must be installed by a qualified installer and operated in accordance with the installation and homeowner's instructions furnished with the equipment.
2. Any travel, diagnostic costs, service labor, and labor to repair the defective unit will be the responsibility of the owner.
3. A bill of sale, cancelled check, payment record or permit should be kept to verify purchase date to establish the warranty period.
4. Have the installer enter the requested information in the space below.

GENERAL

1. The Manufacturer neither assumes nor authorizes any person to assume for it any other obligation or liability in connection with said equipment.
2. Service under this warranty should be obtained by contacting your dealer. Provide the dealer with the model number, serial number and purchase date verification.
3. If, within a reasonable time after contacting your dealer, satisfactory service has not been received, contact: Customer Service Department, 225 Acacia St., Colton, CA 92324, for assistance.
4. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

INSTALLATION INFORMATION

Model No._____ Serial No. _____

Orig. Purchaser_____

Address_____

City and State_____ Zip _____

Dealer _____

Address_____

City and State_____ Zip _____

Installation date _____ Signed by_____(Dealer or authorized representative who certifies that this appliance has been installed in accordance with Manufacturer's instructions and local codes.)

Introduction

Please read our instructions before you install and use your furnace. This will help you obtain the full value from this furnace. It will also help you avoid any needless service costs if the problem is something we cannot control and cannot cover in our Warranty.

Always consult your local Heating Inspector, Building Department or Electric Utility company regarding regulations, codes or ordinances which apply to the installation of an Electric Furnace.

Basic Description

Your electric counterflow wall furnace is shipped ready to install on an exterior or interior wall. The furnace may be recessed up to 5-3/8 inches with studs spaced 16 inches center to center, or may be mounted directly to the wall surface.

Air is drawn in through a grille at the top of the furnace by a single speed fan pushing it down over the heating element and discharged into the room through a grille near the floor.

The heating element uses 240V line voltage to produce a heating output of 31,400 BTU/HR.

The furnace is fully automatic by utilizing a wall mounted thermostat for temperature control.

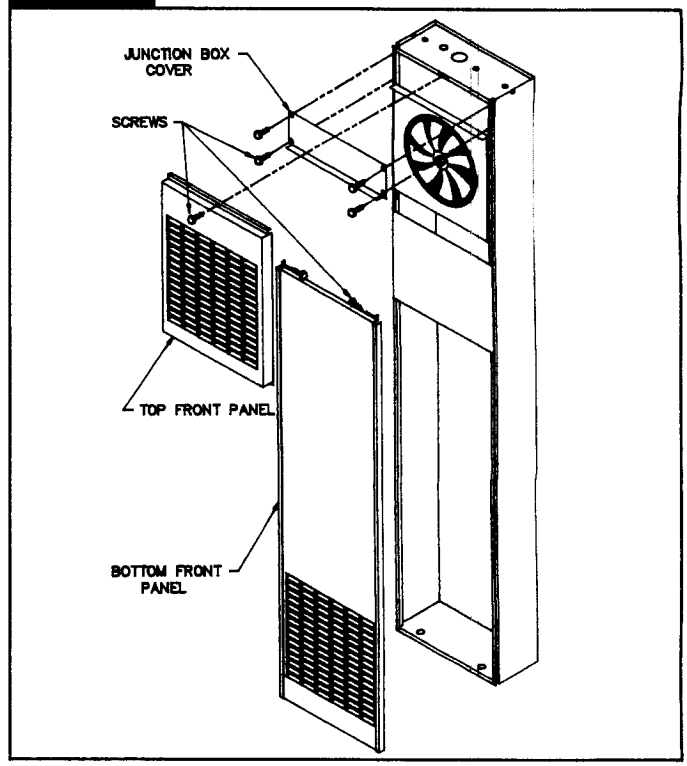
The furnace cabinet is constructed of heavy gauge steel with a baked on neutral beige enamel finish.

Unpack Your Furnace

The shipping carton contains the furnace and the items required for installation.

1. With furnace still in carton, lift straight up on top of furnace. Remove top trim cover with its packing and the hardware package containing thermostat, wire, allen wrench, screws and metal anchors used for surface mount installation. Set package aside where it cannot be lost or damaged.
2. Remove furnace from carton and lay furnace on back. Remove remaining cardboard packing supports from around furnace and set aside.
3. Remove screw from top front panel; raise top of panel ½ inch, gently tug panel toward top of cabinet and remove panel from cabinet. Set top front panel and screw aside where they cannot be lost or damaged.
4. Check the fan blade to ensure that it spins freely.
5. Take out four screws holding the junction box cover above the fan. Cover is marked "TOP". Set cover and screws aside where they cannot be lost or damaged. Electrical junction box and transformer are accessible now. See section on electrical wiring.
6. Take out two screws at top of bottom front panel; raise top of panel ½ inch, gently tug panel toward top of cabinet and remove panel from cabinet. Set bottom front panel and screws aside where they cannot be lost or damaged.
7. Examine all packing materials carefully. Look for loose parts before discarding. Properly dispose of shipping materials.

FIG. 1



Basic Tools Needed

Hand drill or properly grounded electric drill
#33, 1/8", 3/16" and 1/2" drill bit (metal)
6 ft. folding rule or tape measure
Screwdriver (med. flat blade)
Screwdriver (med. Phillips blade)
Pliers (wire cutting)
Hammer
Stud locator or small finish nails
Tin snips
Key hole saw or sabre saw
Hack saw
Gloves and safety glasses

Basic Materials

Electrical wiring supplies as needed.

For supply connections use 6 AWG or larger wires suitable for at least 60 C (140 F).

Use copper wire only.

2" x 4" x (length as required) (See close off stud space, page 7).

Safety Rules

WARNING

READ THESE RULES AND THE INSTRUCTIONS CAREFULLY. FAILURE TO FOLLOW THESE RULES AND INSTRUCTIONS COULD CAUSE A MALFUNCTION OF THE FURNACE. THIS COULD RESULT IN DEATH, SERIOUS BODILY INJURY, AND/OR PROPERTY DAMAGE.

INSTALLATION MUST BE ELECTRICALLY GROUNDED IN ACCORDANCE WITH LOCAL CODES OR, IN THE ABSENCE OF LOCAL CODES, WITH THE NATIONAL ELECTRICAL CODE, ANSI/NFPA NO. 70 - 1993.

1. USE ONLY MANUFACTURER'S REPLACEMENT PARTS. USE OF ANY OTHER PARTS COULD CAUSE INJURY OR DEATH.
2. DO NOT install this furnace in an alcove.
3. DO NOT install this furnace in a travel trailer or recreational vehicle.
4. MAINTAIN all clearances specified in section "Locating Wall Furnace and Thermostat."
5. Provide adequate air circulation around cabinet inside the open room.
6. ALLOW furnace to cool before servicing. Always shut-off electricity to furnace when working on it. This will prevent any electrical shocks or burns.
7. DUE TO HIGH TEMPERATURES, locate the furnace out of traffic and away from furniture and draperies.

WARNING

ANY SAFETY SCREEN, GUARD OR PARTS REMOVED FOR SERVICING AN APPLIANCE MUST BE REPLACED PRIOR TO OPERATING THE APPLIANCE TO AVOID PROPERTY DAMAGE, BODILY INJURY OR DEATH.

8. ALERT children and adults to the hazards of high surface temperature and to keep away to avoid burns or clothing ignition.
9. CAREFULLY supervise young children when they are in the same room with the furnace.
10. DO NOT place clothing or other flammable material on or near furnace.
11. INSTALLATION and REPAIR must be done by a qualified service person. The appliance should be inspected before use and at least annually by a professional service person. More frequent cleaning may be required due to excessive lint from carpeting, bedding material, etc. It is imperative that the circulating air passages of the appliance be kept clean.
12. BEFORE INSTALLING: To avoid electrical shock, turn-off electrical circuits that pass through the wall where you are going to install the furnace.
13. BE AWARE of good safety practices by wearing personal protective equipment such as gloves and safety glasses to avoid being injured by sharp metal edges in or around furnace and while cutting or drilling holes in wood and/or sheet metal.

WARNING

IF YOU SMELL SMOKE:

DANGER OF ELECTRICAL SHOCK.

1. DO NOT TOUCH FURNACE!
2. IMMEDIATELY SHUT DOWN MAIN ELECTRICAL SUPPLY TO FURNACE.
3. EXTINGUISH ANY OPEN FLAME.
4. CALL YOUR LOCAL SERVICE CENTER.

Helpful Installation Information

The following booklets will help you in making the installation. Check at the library or they may be purchased from the source listed below.

ANSI/NFPA 70 - 1993 or current edition "National Electrical code."

Optional Accessories

Trip Strip Kit 4701

Provides finished edge at sides of wall furnace. Neutral beige enamel steel.

Rear Outlet Kit 6501

Lets you route some heated air to a second room behind the furnace. Finished wall of second room must be within 10 inches of furnace. Built-in damper lets you shut off air flow to second room if desired.

Installing Your Wall Furnace

The following steps are all needed for proper installation and safe operation of your furnace. If you have any doubts as to any requirements, check with local authorities for local and state codes affecting the installation.

Always obtain professional help where needed.

Locating Wall Furnace & Thermostat

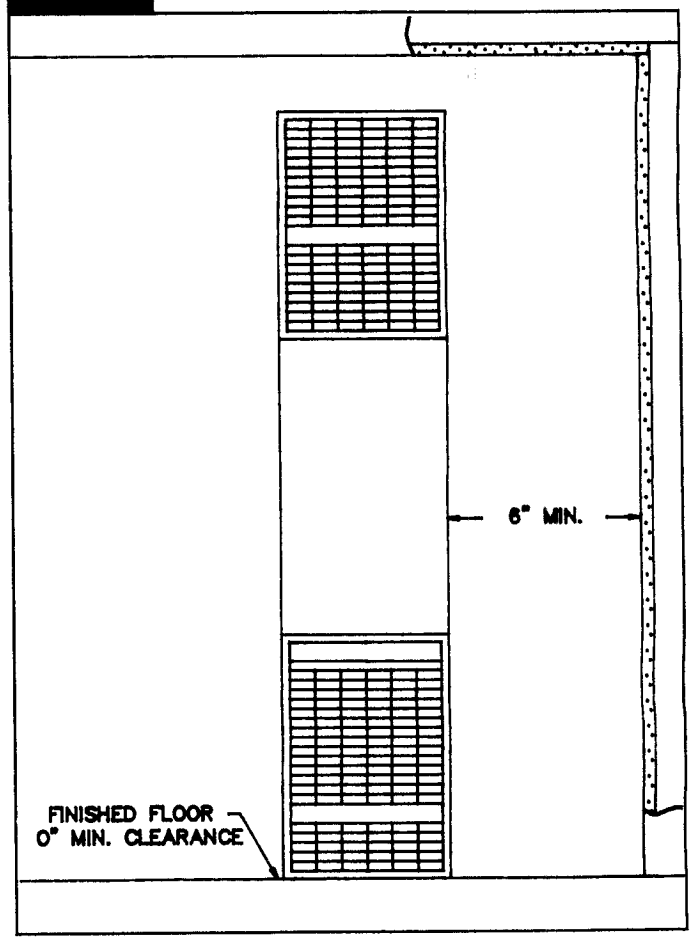
Consider the following points before attempting to install the furnace:

1. Furnace may be surface mounted or recessed in any interior or exterior wall if you are not using the optional rear outlet.
2. If you are using the optional rear outlet, you must mount on an interior wall.
3. Maximum depth of recess is 5-3/8 inches.
4. Check the clearances needed. The side of the furnace must be at least 6 inches from a corner or wall divider (Fig. 2).
5. Try to place the furnace near the center of the space to be heated for good air circulation. Do not install where a door or draperies could swing over furnace or optional rear outlet. Do not put in a closet, alcove, hallway or other confined space.
6. Be sure that electrical wiring can be brought to the furnace.
7. To provide adequate clearance and service access, the front of the furnace must face the open room.
8. Choose a location for the thermostat about 5 feet above the floor on an inside wall. The thermostat wire supplied with your furnace is 20 feet long, which should be enough to run up through the attic so the thermostat can be a maximum of 16 feet from furnace measured in a straight line, or approximately 12 feet from the furnace if the wire is run under the floor. The thermostat should be sensing average room temperature, avoid the following:

HOT SPOTS:	COLD SPOTS:
Concealed pipes or ducts	Concealed pipes or ducts
Fireplaces	Stairwells-drafts
Registers	Doors-drafts
TV sets	Unheated rooms on other side of wall
Radios	DEAD SPOTS:
Lamps	Behind doors
Direct sunlight	Corners, and alcoves
Kitchen	

9. After picking a location that meets the requirements, inspect the wall. Make sure there are no pipes, wiring, or anything else that would interfere with furnace or thermostat installation. If required, move them or pick a new location.

FIG. 2



Recessed Mount Installation

BEFORE YOU BEGIN: To avoid electrical shock, turn off electrical circuits that pass through the wall where you are going to install the furnace.

If you intend to use the optional rear outlet, turn to page 10 for rear outlet installation procedure before you begin to install the furnace. Use only the optional grille and boot extension supplied by the manufacturer.

FIND THE STUDS

Use a stud locator or small finishing nails. Repeatedly drive and remove a nail into the wall in the area of the stud until you find it. Then find one side. Leave the nail there. Drive another nail just on the other side of the same stud.

Inside edge of the other stud should be about 14½ inches from the one found. Drive finishing nail on inside edge of this stud.

NOTE

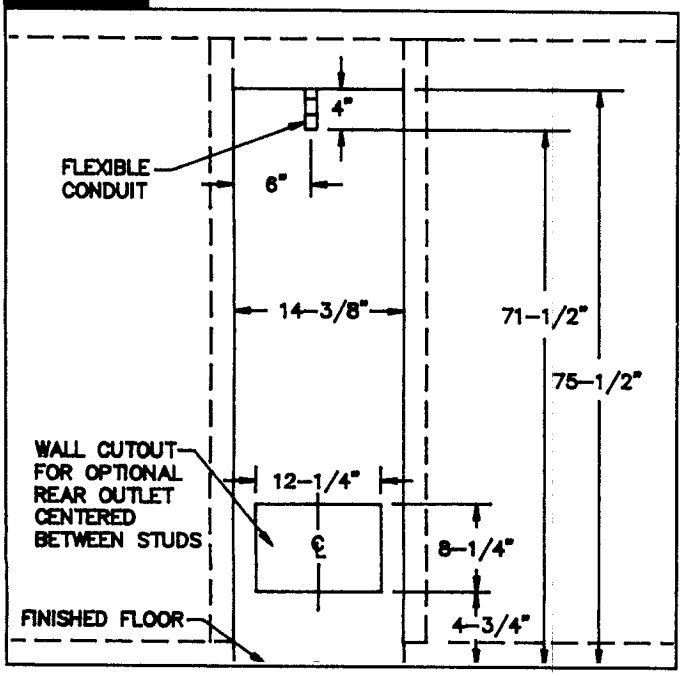
IF STUDS ARE NOT ON 16 INCH CENTERS, SEE CLOSE OFF STUD SPACE, PAGE 7.

CUT WALL OPENING

Lay out and cut the required opening(s) in wall per Fig. 3.

The vertical height of the opening shown is 3 inches greater than height of furnace to allow space for connection of wiring after furnace is installed.

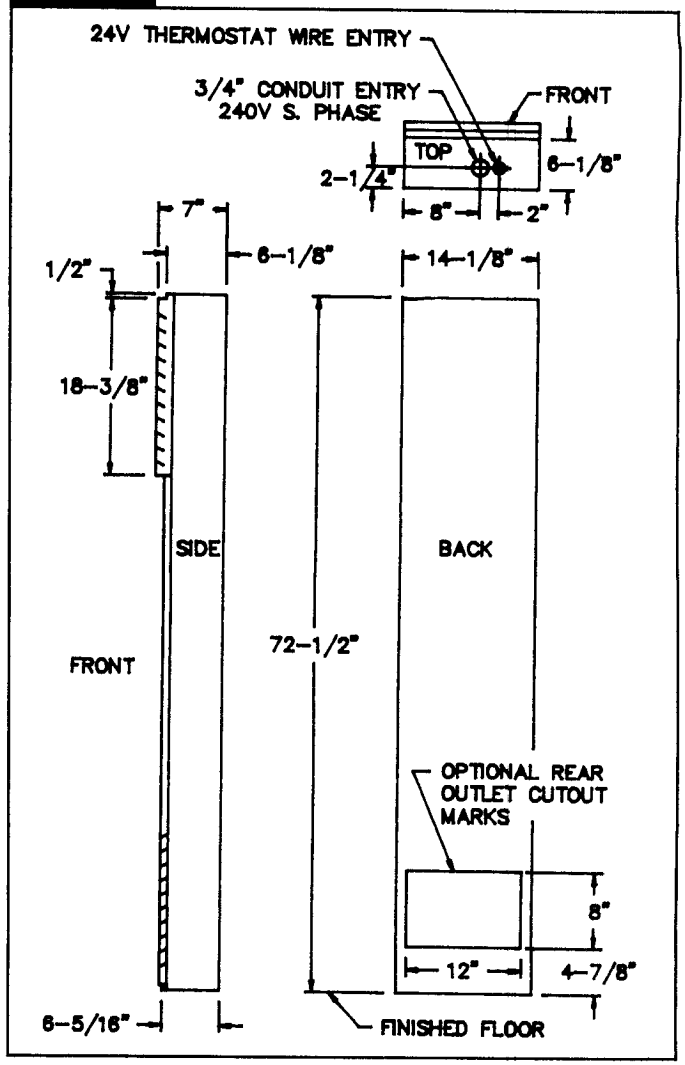
FIG. 3 CUT WALL OPENING



ELECTRICAL SUPPLY ROUGH-IN

1. To properly route the conduit, electrical power supply wires and the thermostat wiring to furnace top, you can make entry holes in the ceiling wall plate above the furnace.
2. If unpractical to bring wiring to the furnace from the attic space, you may drill the entry holes through either wall stud above the furnace and route the conduit and wiring from an adjoining stud space, crawl space or basement to a point above the furnace to match the openings in Fig. 4.
3. At your selected location, drill a 1 inch hole for the electrical conduit and a ½ inch hole for the thermostat wires.
4. Install the conduit and allow it to extend 4 inches below the top of the furnace wall opening. (This will allow 1 inch of conduit to extend inside the furnace cabinet.) See Fig. 3.

FIG. 4



Recessed Mount Installation (Con't)

NOTE

Flexible conduit may be used only if approved by your local codes and ordinances. If you have any doubt, consult your local Electrical or Building Inspector.

5. The electrical supply wires, ground wire and the thermostat wires may now be routed to the furnace location. See sections THERMOSTAT INSTALLATION pages 8 and 9, and ELECTRICAL WIRING page 11.
6. Be sure to leave enough excess wire at the furnace to make the connections inside the furnace junction box.
7. If it is more convenient for you to do so, you may pull the wiring to the furnace after it is mounted.

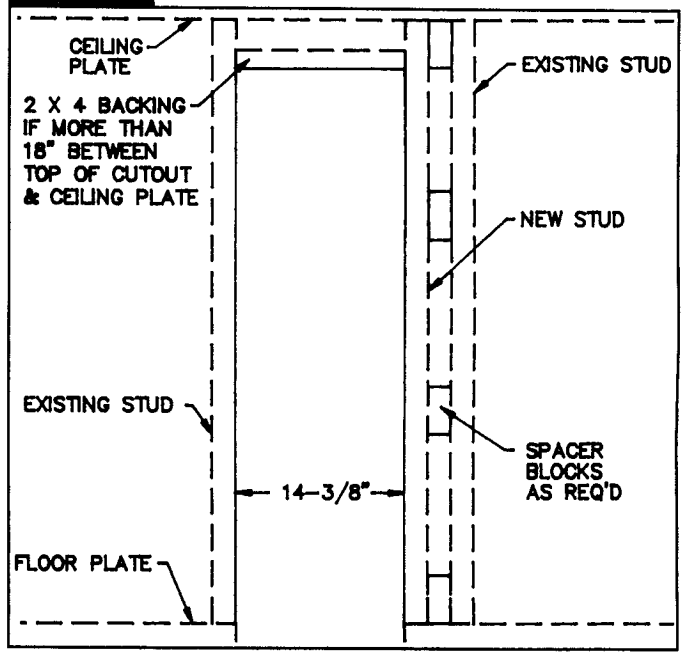
CLOSE OFF STUD SPACE (If Required)

If studs are not on 16 inch centers, cut the hole for the furnace next to an existing stud and frame in the other side using a 2x4 and spacer blocks as required. See Fig. 5.

If the distance from the top of the cutout to the ceiling wall plate is more than 18 inches it is recommended that it be closed off.

Nail a 2x4 long enough to go between the studs at the top of the opening to close off the stud space.

FIG. 5 CLOSE OFF STUD SPACE



Surface Mount Installation

BEFORE YOU BEGIN: To avoid electrical shock turn off electrical circuits that pass through the wall where you are going to install the furnace.

If you intend to use the optional rear outlet, turn to page 10 for rear outlet installation procedure before you begin to install the furnace. Use only the optional grille and boot extension supplied by the manufacturer.

FIND THE STUDS

1. Find two studs at spot where furnace is to be placed. Use a stud locator or small finishing nails. Repeatedly drive and remove a nail into the wall in the area of the stud until you find it. Then find one side. Leave the nail there. Drive another nail just on the other side of the same stud.
2. Inside edge of the other stud should be about 14½ inches from the one found. Drive finishing nail on inside edge of this stud.

CUT WALL OPENING

If you intend to use the OPTIONAL REAR OUTLET, cut the 8¼ inch by 12¼ inch opening ONLY as shown in Fig. 3, page 6. Also see OPTIONAL REAR OUTLET INSTALLATION on page 10.

ELECTRICAL SUPPLY ROUGH-IN

1. If unpractical to route the wiring to the furnace from the attic, you may make entry holes through either wall stud above the furnace and route the conduit and wiring from an adjoining stud space, crawl space or basement.
2. To properly route the conduit, electrical power supply wires and thermostat wires to the furnace top, you must also make entry holes in the wall board above the furnace location.
3. The electrical supply openings should be located at 2 inches above furnace top to match openings shown in Fig. 4, page 6.
4. At selected locations, drill a 1 inch hole for the electrical supply wiring and a ½ inch hole for the thermostat wires.
5. Route the flexible conduit to the 1 inch hole in the wallboard and allow it to extend at least 1 inch below the furnace top (71½ inches from the finished floor). See Fig. 3, page 6.

Surface Mount Installation (Con't)

NOTE

Flexible conduit may be used only if approved by your local codes and ordinances. If you have any doubt, consult your local Electrical or Building Inspector.

6. The electrical supply wires, ground wire and the thermostat wires may now be routed to the furnace location. See sections THERMOSTAT INSTALLATION pages 8 and 9, and ELECTRICAL WIRING page 11.
7. Be sure to leave enough excess wire at the furnace to make the connections inside the furnace junction box.
8. If it is more convenient for you to do so, you may pull the wiring to the furnace after it is mounted.

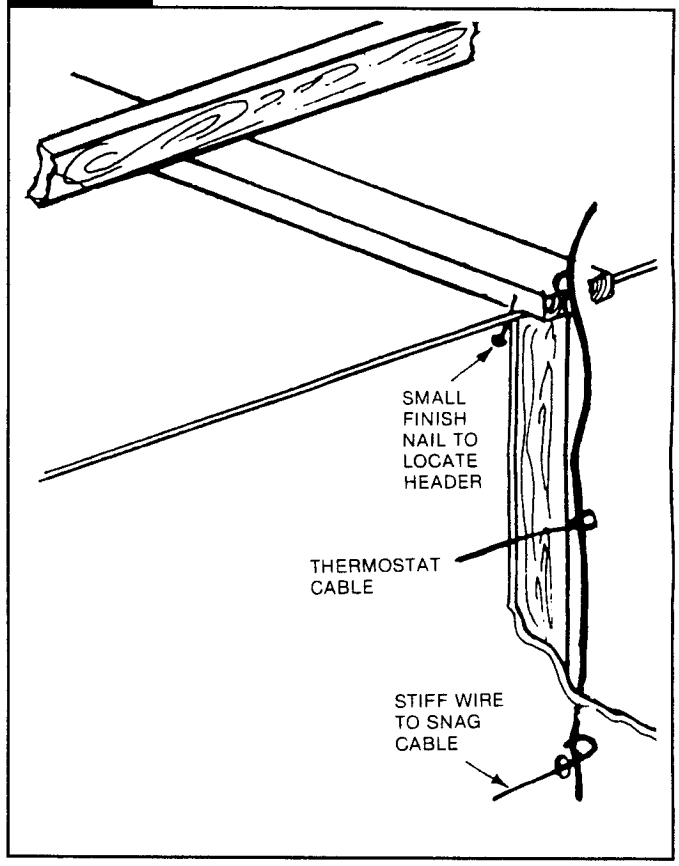
Thermostat Installation

1. If an old thermostat is being replaced and is in a satisfactory location and the wiring appears to be in good condition, use existing wiring. If in doubt, use new wire.
2. If a new location is chosen, or if this is a new installation, thermostat cable must first be run to the locations selected. All wiring must agree with local codes and ordinances. These instructions cover bringing the wire down from the attic but it can be run from a basement or crawl space using similar methods.
3. Before drilling hole in wall at selected location, drive a small finishing nail through the ceiling in the corner of the wall and ceiling above the thermostat location. Pull the nail out and push a small stiff wire through the hole so it can be found in the attic. Drill a ½ inch hole through the ceiling wall plate.
4. Probe for obstructions in the partition. Then drill ½ inch hole through wall at selected location for thermostat.
5. From the attic, feed the thermostat cable or a stiff wire through wall until even with thermostat location.
6. Snag thermostat cable through hole and pull cable through hole in wall so that 6 inches of cable protrudes.
7. Route cable to wall furnace.

MOUNTING THE THERMOSTAT

1. To remove thermostat cover, grasp cover and pull straight outward. Carefully remove and discard the packing tab protecting the switch and contacts.
2. Connect thermostat wires to the terminal screws on the back of thermostat base.
3. Push any excess wire back through hole in wall and plug hole with insulation to prevent drafts from affecting thermostat operation.
4. Be sure to level thermostat for best appearance, fasten thermostat base to wall through mounting holes with screws provided.
5. Replace the thermostat cover.

FIG. 6 ROUTE THERMOSTAT CABLE



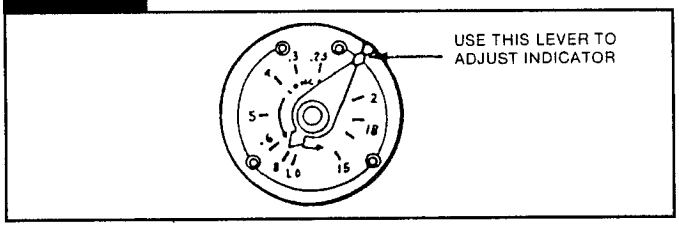
THERMOSTAT HEAT ANTICIPATOR

A simple method of setting the heat anticipator in a 24 volt thermostat (without an A.C. ammeter) is first to set anticipator to 0.2. Since many factors affect this setting (room size, length of thermostat wire, thermostat location, *etc.*), additional small adjustments to increase or decrease heating cycles (4-6 per hour typical) may be required. If an A.C. ammeter is available, see *instructions supplied* with thermostat.

The furnace is provided with 20 feet of twin lead 18 ga. thermostat wire. Use heavier wire size if more than 20 feet of wire is required.

Thermostat Installation (Con't)

FIG. 7 HEAT ANTICIPATOR - TYPICAL



When all is adjusted properly the furnace burner should shut off slightly before the desired room temperature is reached. The stored heat in the appliance is enough to bring room temperature up to the desired level. The heat anticipator thus makes it possible to maintain very close temperature control.

NOTE

Refer to installation instructions packed in the thermostat carton if you have any doubt about the above procedures.

Mounting Your Furnace

NOTE

If you are using the optional rear outlet, follow those installation instructions before proceeding here.

1. If recessed mounted, clear recess of all debris.

2. Place furnace into position. Be sure to drop flex conduit through hole provided in top of furnace.

3. **FASTEN FURNACE TOP (Recessed Mounting)**

   Fasten furnace top to studs through holes provided into top flanges using (2) long screws provided (Fig. 8).

   FASTEN FURNACE TOP (Surface Mounting)

   Fasten furnace top to wall using (2) metal anchors (packed in plastic bag with thermostat) by placing them over the back flange of furnace top and screwing to wall with (2) long screws provided. See Fig. 8.

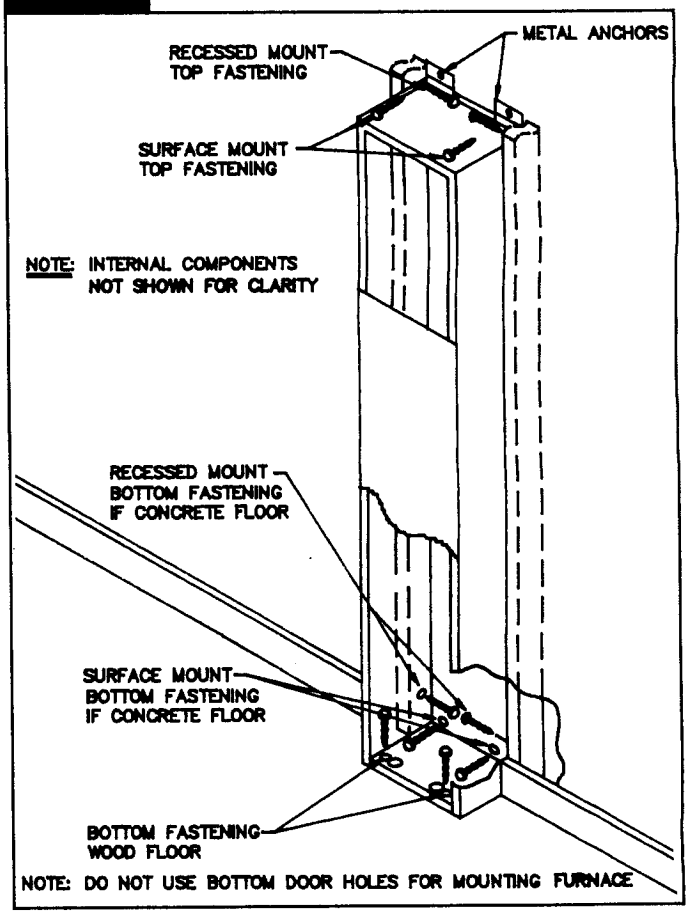
   NOTE

   All fasteners are not furnished, and all holes are not pre-drilled because of the different requirements of various types of wall construction. Suitable fasteners which will meet your particular situation are available at your local hardware store.

4. **FASTEN FURNACE BOTTOM (Surface and REcessed Mount)**

   Drill (2) holes in the bottom of the furnace cabinet near each side. Fasten the furnace through these holes to the floor. If you have concrete flooring, use an alternate fastening location per Fig.8, page 9.

FIG. 8 FURNACE MOUNTING



Optional Rear Outlet Installation

RECESSED MOUNT FURNACE

1. Cut 8-¼ inch x 12-¼ inch hole in wall as shown in Fig. 3, page 6.
2. Cut 8 inch x 12 inch opening in back of cabinet following scored lines stamped on the cabinet. See Fig. 4, page 6.
3. Mount furnace in recess. (See MOUNTING YOUR FURNACE, page 9.)
4. Place plaster ground in opening and nail into studs (Fig. 9).

IN NEW CONSTRUCTION install plaster ground before wall finish is applied.

NOTE

In drywall construction, the plaster ground may be omitted.

5. Center grille over hole in rear wall and mark location of holes in grille on wall.
6. Using a 1/8 inch diameter drill, drill (2) holes through plaster (or drywall) and cabinet for attaching grille.
7. Attach grille with screws provided (Fig. 10). The 10 inch boot is not required for recessed installation.

SURFACE MOUNT FURNACE

1. Cut 8-¼ inch x 12-¼ inch hole in wall as shown in Fig. 3, page 6.
2. Cut 8 inch x 12 inch opening in back of cabinet following scored lines stamped on the cabinet. See Fig. 4, page 6.
3. Place boot against cabinet with inner side of boot exactly on the edges of the hole.
4. Mark screw locations, remove boot and drill #33 holes for sheet metal screws.
5. Attach boot to back of furnace with screws provided.
6. Place plaster ground in opening and nail into studs (Fig. 9).

IN NEW CONSTRUCTION install plaster ground before wall finish is applied.

7. Place furnace with boot attached through hole in wall and mark end of boot so it can be cut off flush with outer wall.
8. Remove furnace from wall and cut boot where marked.
9. Place furnace with trimmed boot attached, through holes in wall and mount the furnace. (See MOUNTING YOUR FURNACE, page 9.)
10. Center grille over hole in rear wall and mark location of holes in grille on wall.
11. Using a 1/8 inch diameter drill, drill (2) holes through plaster ground and plaster (or drywall).
12. Attach grille with screws provided (Fig. 11).

FIG. 9

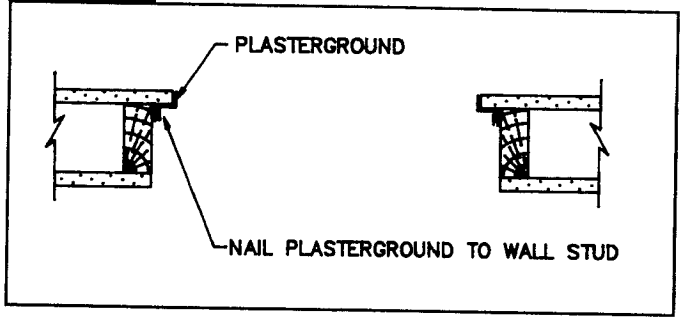
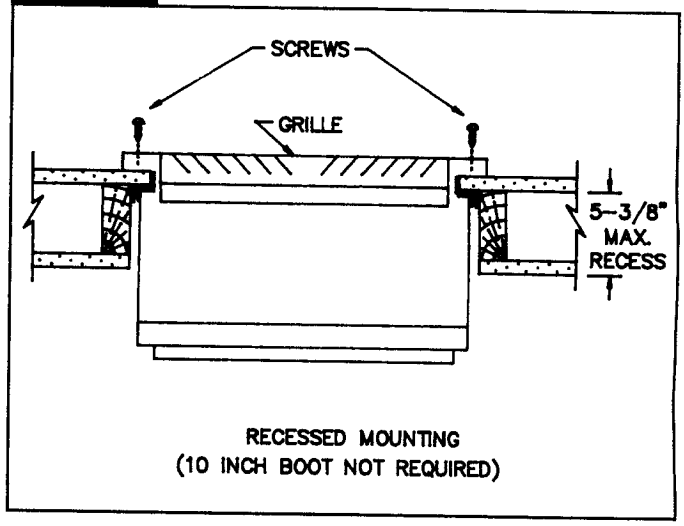
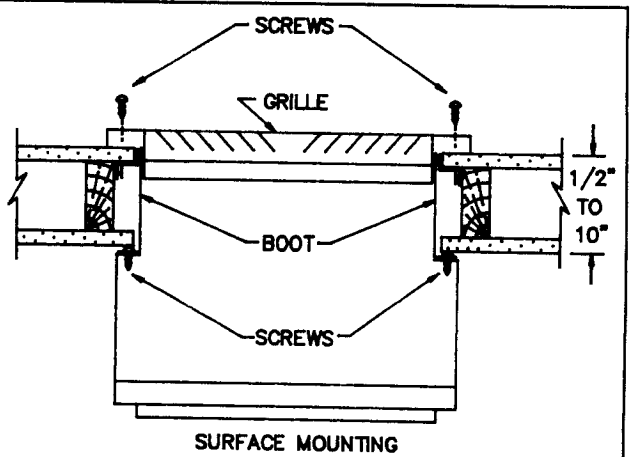


FIG. 10



RECESSED MOUNTING
(10 INCH BOOT NOT REQUIRED)

FIG. 11



SURFACE MOUNTING
(BOOT TRIMMED FLUSH WITH WALL)

Electrical Wiring

WARNING

DANGER OF PROPERTY DAMAGE, BODILY INJURY OR DEATH.

TURN OFF ELECTRIC POWER AT FUSE BOX OR SERVICE PANEL BEFORE MAKING ANY ELECTRICAL CONNECTIONS.

INSULATE WHERE NECESSARY.

ALL LINE VOLTAGE AND GROUND CONNECTIONS MUST BE COMPLETED BEFORE ELECTRICAL POWER IS RESTORED.

CAUTION

Label all wires prior to disconnection when servicing. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.

All electrical work must conform to your local codes and ordinances or in their absence, with National Electrical Code, NFPA70/ANSI C1-1993. If you are not familiar with wiring codes in general, have a competent electrician do this job.

ELECTRIC POWER SUPPLY

Run a separate 240 volt, single phase, 60 cycle, 40 ampere circuit from a separate circuit breaker or fuse in your service entrance panel to the furnace junction box.

Do not run supply wires inside the furnace cabinet, except from the top of cabinet down to junction box.

JUNCTION BOX

Power supply connections are made inside the junction box located in the upper end of the cabinet. See Fig. 12 and Fig. 1, page 3.

ELECTRICAL CONNECTION

Connect 240V conduit to top of furnace as shown in Fig. 12.

Pull supply wires through conduit and into junction box. Attach 240V supply wires to "LINE" connection at terminal board. Refer to wiring diagram on junction box cover plate.

If you have any doubt regarding electrical hookup or compliance with code or ordinance, consult your electrical inspector or a licensed electrician.

GROUNDING

Provide ground connection from the unit's terminal board to a grounded connection in the electrical service panel or a properly driven and electrically grounded ground rod.

LOW VOLTAGE CONNECTIONS

Run thermostat wire to the furnace. See THERMOSTAT INSTALLATION, page 8.

Connect the thermostat wires to the two (thermostat) wires extending inside the junction box. Refer to wiring diagram on junction box cover plate and Fig. 12.

When furnace mounting has been completed, see steps 1, 2 and 3 below.

Refer to Fig. 1, page 3.

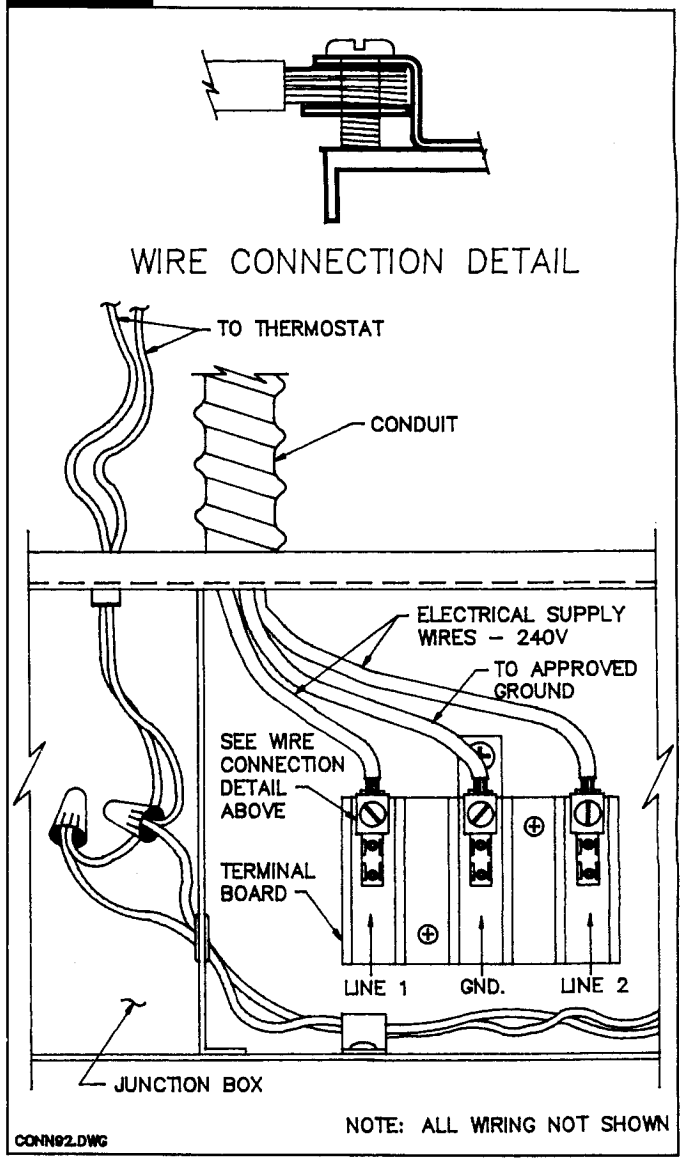
1. Replace junction box cover plate. Tighten screws securely.
2. Replace bottom front panel
3. Replace top front panel.

NOTE

For supply connections use 6 AWG or larger wires suitable for at least 60 C (140 F).

Use copper wire only.

FIG. 12 WIRING CONNECTIONS



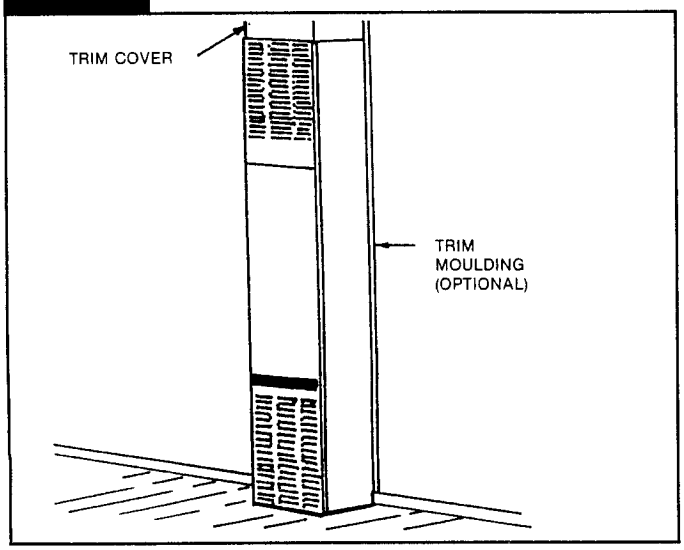
Trim

TRIM STRIP KIT 4701

When desired, optional Trim Strip Kit may be used to cover the crack between furnace and wall. See Fig. 13.

Place strips tight against furnace with other edge against wall surface and fasten to wall with escutcheon pins provided. Cut off trim strips to fit each furnace as required.

FIG. 13 FURNACE TRIM



NOTE

Quarter-round wood molding may be used for trim if desired, which may be painted to match the wall.

TRIM COVER (SURFACE MOUNT)

1. To conceal the furnace wiring, set top trim cover inside the flanges of furnace top.
2. Fasten to the furnace cabinet with (2) short screws provided.

TRIM COVER (RECESSED MOUNT)

1. Trim off the back edges of the top trim cover (a little at a time) until it fits between the front cabinet flange and the wall.
2. When trimmed to your satisfaction, set in place on furnace top and drill (2) #33 holes through top trim cover and furnace side flanges.
3. Fasten cover to furnace with (2) short screws provided.

Operating Your Furnace

The heater is controlled by means of 24 volt wall-mounted thermostat. When the thermostat circuit is energized, low voltage relays are actuated which close circuits to heating element and blower motor. The relay actuates after thermostat calls for "turn on" or "turn off".

Protection against overheating is provided by means of a limit switch located near heating elements, which acts to open relay circuits controlling the heated elements if circulating air volume is decreased. The limit switch automatically restores operation when temperatures reach a normal level. As an additional safeguard, each heating element is equipped with micro temp heat limiters to protect against excessive and prolonged current surges. If these protectors open the heating circuit, the heat limiter must be replaced by your Service Technician who will determine and correct the cause of failure.

Air volume may be adjusted at the operational rear grilles, if so equipped. Do not attempt to reduce flow of air from main panel (front) grille. To do so would cause shutdown through the high limit control. For best heating results, do not obstruct air flow by placing furniture in front of outlets. Make sure the free flow of air returning to the blower is not reduced by closing doors between heated spaces.

How To Care For Your Furnace

ANNUAL UPKEEP NEEDED

a. Heating Element and Optional Rear Outlet

Keep clean at all times. Clean all foreign materials from rear outlet and top of heating element. Use a soft brush or vacuum cleaner.

For access to heating element, remove (2) screws (Fig. 1, page 3) and grasp face panel near bottom and pull up and out.

After cleaning back of optional rear outlet and heating element, replace face panel.

b. Motor and Fan

For maximum motor life of fan, the manufacturer recommends the fan be inspected yearly, dust blown out of the ventilating holes and a few drops of #20 non-detergent oil added to bearing cavity (Fig. 14).

To get to the motor:

1. Take out four screws holding fan shroud to side flanges of cabinet and remove shroud (Fig. 1, page 3).
2. Before removing the fan blade, remember its position by examining the blade nut and the amount of shaft visible. Scribe or mark the motor shaft in order to reinstall the fan blade to its original place on the shaft.
3. Using wrench provided, loosen 5/32 inch "allen head" set screw holding fan blade to motor shaft and remove the fan blade.
4. To replace fan blade, reverse steps 1-3 above.

WARNING

DANGER OF BODILY INJURY OR DEATH

TURN OFF ELECTRIC POWER SUPPLY AT DISCONNECT SWITCH, FUSE BOX OR SERVICE PANEL BEFORE REMOVING ANY DOORS OR ACCESS OR SERVICE PANELS FROM UNIT.

c. Appliance Area

For better circulation and more effective heating, do not place obstructive furniture closer than 4 feet to the front of the cabinet or 2 feet to the side of the cabinet.

CAUTION

SOURCE OF POSSIBLE IGNITION.

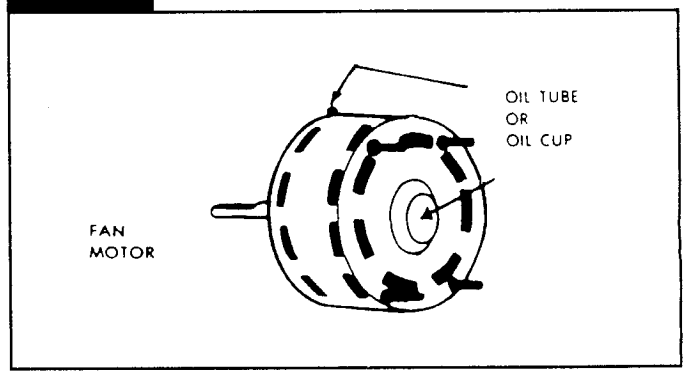
HIGH TEMPERATURE, KEEP COMBUSTIBLE MATERIAL AWAY FROM FRONT OF HEATER.

The appliance area must be kept clear and free from combustible material, gasoline and other flammable vapor and liquids.

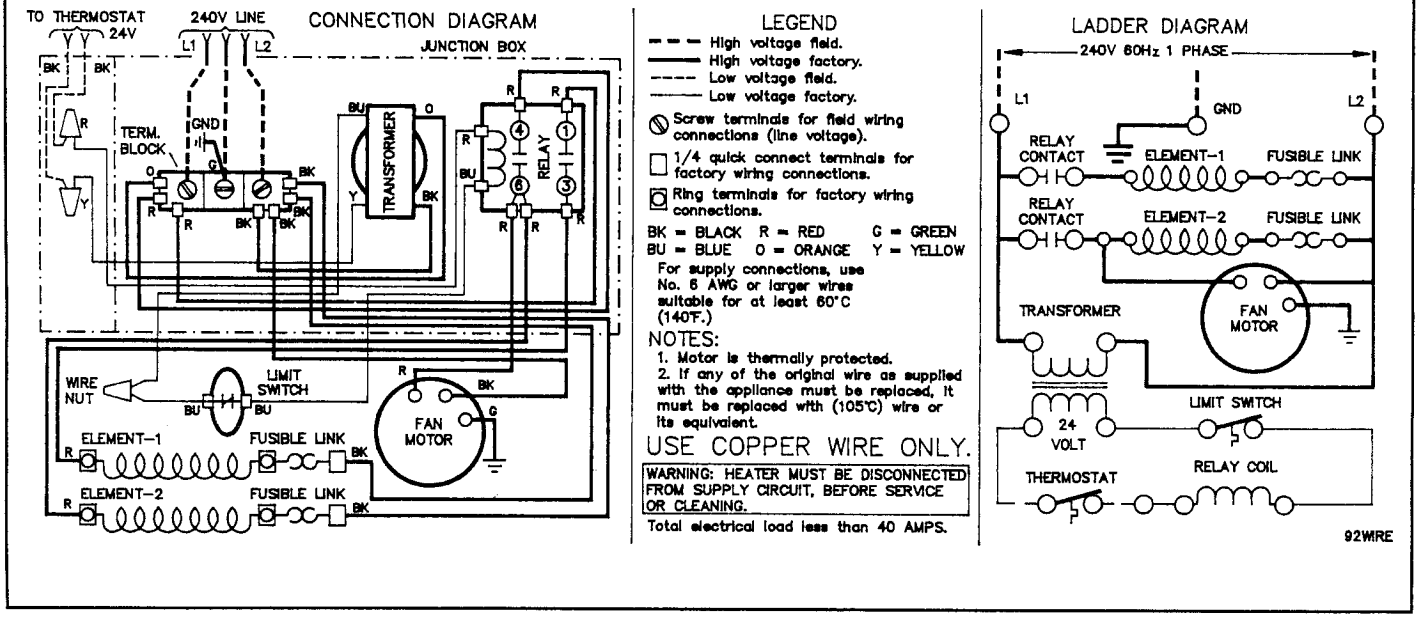
d. Cabinet Finish

Clean cabinet with damp rag. Never use abrasive cleaners. Cabinets are finished in heat resistant baked enamel — DO NOT refinish with wall paint.

FIG. 14 MOTOR OIL HOLE



WIRING DIAGRAM MODEL 3144030



Furnace Technical Information

SPECIFICATIONS & DIMENSIONS

Model	3144030
Volts	240 1ϕ
Hz	60 A.C.
k.W.	9.2
AMP	38.3
B.T.U. Output	31,400
Width	14-1/8
Depth	7
Height	72-1/2
Total Amperes	39.0 F.L.A.
Fuse Size	50 Amp.
* Wire GA.	6AWG

MOTOR & FAN DATA

Volts	240 1ϕ
Hz	60 A.C.
H.P. (approx.)	1 / 40
R.P.M. (approx.)	1000
C.F.M. (approx.)	375
F.L.A.	.6

CONTROL DATA

Thermostat – 24V. Wall Mounted
Anticipator Setting – .2
Relay – 24V./240V. Full On
Transformer – 24V./240V. Class II.

TECHNIFO

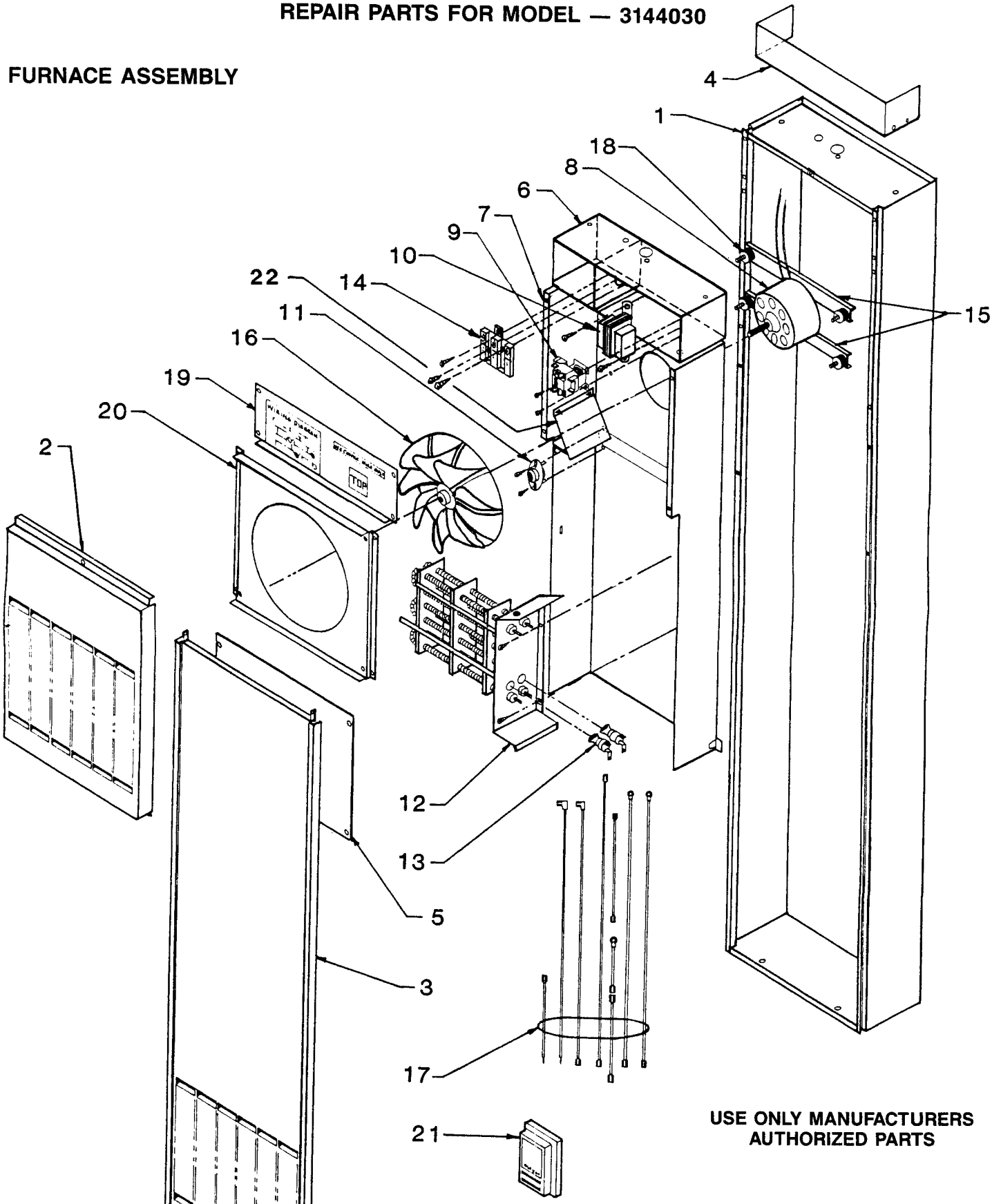
*Max. recommended run 200 feet with 6.5 volt drop.

Btuh = British Thermal Units per hour.

The efficiency rating of these appliances is a product thermal efficiency rating determined under continuous operating conditions was determined independent of any installed system.

REPAIR PARTS FOR MODEL — 3144030

FURNACE ASSEMBLY



USE ONLY MANUFACTURERS AUTHORIZED PARTS

FOR PARTS LIST SEE PAGE 16

WILLIAMS ELECTRIC COUNTERFLOW WALL FURNACE

REPAIR PARTS FOR MODEL — 3144030

REF. NO.	DESCRIPTION	PART NO.
1	OUTER CASING	16C01
2	TOP FRONT PANEL	16B01
3	BOTTOM FRONT PANEL	16B09
4	TOP TRIM COVER	16A07
5	ELEMENT COVER	16A04
6	JUNCTION BOX ASSEMBLY	16B15
7	ELEMENT CASING BODY ASSEMBLY	16C04
8	MOTOR	P021504
9	RELAY	P154700
10	TRANSFORMER	P154802A
11 *	LIMIT SWITCH — SEE NOTE BELOW —	———
12	HEATING ELEMENT	P155001
13	FUSE–LIMITER (2 REQ'D)	P154000
14	TERMINAL BLOCK	P154400
15	MOTOR SUPPORT (2 REQ'D)	16A06
16 **	FAN BLADE	P200600
17	WIRING HARNESS	16B06
18	VIBRATION MOUNT–MOTOR (4 REQ'D)	P022800
19	JUNCTION BOX COVER W/P320734 WIRING DIAGRAM	16A09
20	ORIFICE PLATE	16B04
21	THERMOSTAT	P322017
22	SIDE BAFFLE ASSEMBLY	16A18
☆	OWNERS MANUAL (REV 5/94)	P321008
☆	★ OUTER CASING EXTENSION BOOT ★ PLASTERGROUND ★ PLASTERGROUND–END ANGLE ★ PLASTERGROUND–SIDE ANGLE ★ GRILLE — REAR OUTLET PKG.	6501
☆	★ TRIM STRIP KIT	4701

☆ NOT SHOWN

★ NOT AVAILABLE SEPARATELY (KIT FORM ONLY)

FOR PARTS ILLUSTRATION, SEE PAGE 15.

NOTE: SCREWS AND BOLTS ARE STANDARD HARDWARE ITEMS, AVAILABLE LOCALLY

* THE THERMO CUT OFF (LIMIT SWITCH – P154900) IS NOT FIELD REPLACEABLE AND SERVICING SHOULD BE REFERED TO A QUALIFIED SERVICE TECHNICIAN.

** DYNACONE FAN BLADE SHOWN PICTORIALLY (ALT. PART NO. P014300)

PL92WILL.DWG

Service Record

DATE	MAINTENANCE PERFORMED	COMPONENTS REQUIRED

Service Record

DATE	MAINTENANCE PERFORMED	COMPONENTS REQUIRED

Service Record

DATE	MAINTENANCE PERFORMED	COMPONENTS REQUIRED

Williams
THE COMFORT PRODUCTS PEOPLE

owner's manual

SERVICE

MODEL NO.
3144030

Electric Counterflow Wall Furnace

Service Hints

If your furnace fails to work right, you may avoid inconvenience and the cost of a service call by checking the following points before you call for service.

FOR YOUR SAFETY	FOR YOUR SAFETY
Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance	ALWAYS DISCONNECT HEATER CIRCUIT SWITCH BEFORE OPENING FURNACE FOR INSPECTION OR SERVICE.

POSSIBLE CAUSE	WHAT TO DO
If your furnace is not heating or not giving enough heat —	
Thermostat is not set correctly.	Reset thermostat to desired setting.
Air flow restricted	Check that doors, drapes or furniture are not blocking louvers.
If fan does not run —	
Fuse is blown.	Replace fuse.
Blower motor not connected to electric power.	Connect to electric power.
If blower is noisy —	
Housing rattling.	Tighten screws.
Blower fan dirty.	Clean blower fan.
Blower fan bent.	Straighten or replace.
Motor needs oiling.	Oil motor. See Pg. 13.

How to Order Repair Parts

When ordering repair parts, always give the following information:

1. MODEL NUMBER
2. MFG. DATE CODE
3. PART NUMBER
4. PART DESCRIPTION

All parts listed herein may be ordered from your equipment supplier.

The Model Number of your Williams wall furance will be found on the rating plate.

Williams
THE COMFORT PRODUCTS PEOPLE

WILLIAMS FURNACE COMPANY
225 Acacia Street
Colton, CA 92324 USA
(909) 825-0993 • (800) 266-0993

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IN THE U.S.A.
Established 1916
FAX: (909) 824-8009

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