PLAINTIFF'S EXHIBIT

ASI-612

ARCOLEADER

by

AMERICAN-Standard

INSTALLATION–OPERATION AND MAINTENANCE MANUAL

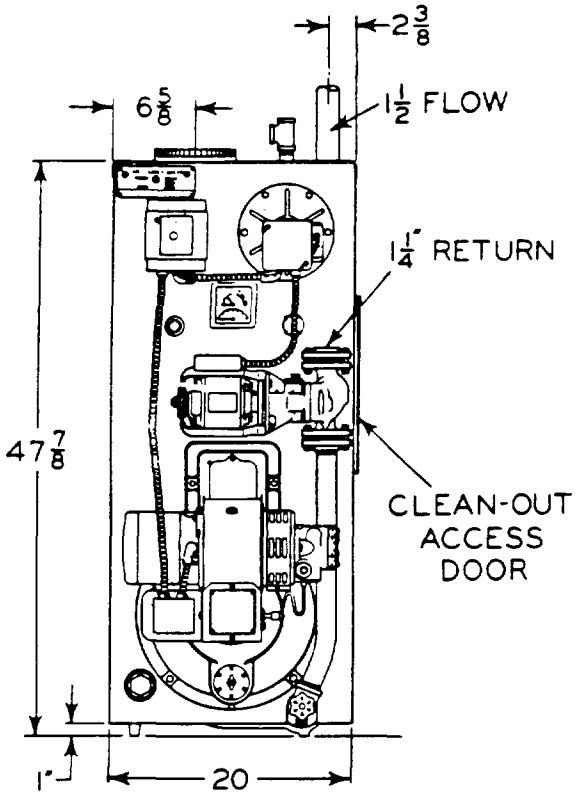
FOR PACKAGED OIL HEATING UNITS

AMERICAN-Standard

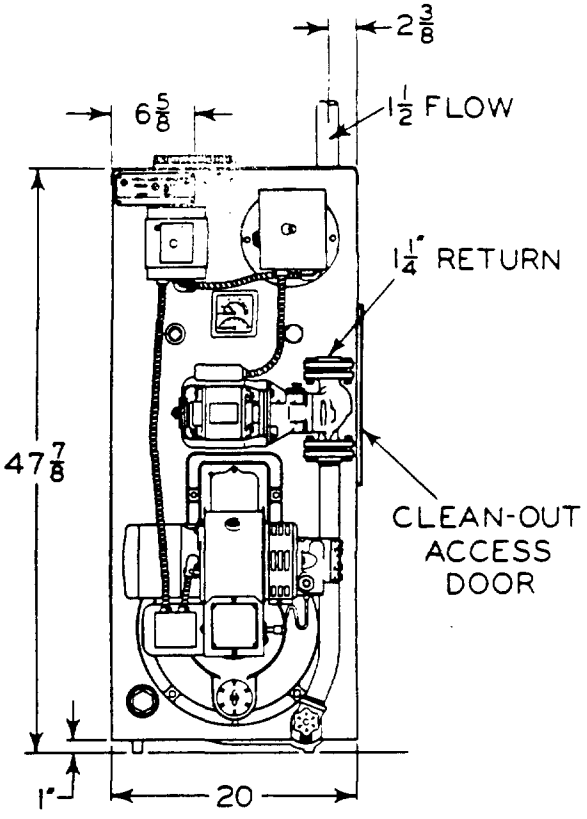
First in heating . . . first in plumbing

17925

IP-13330 | REV. 8-62

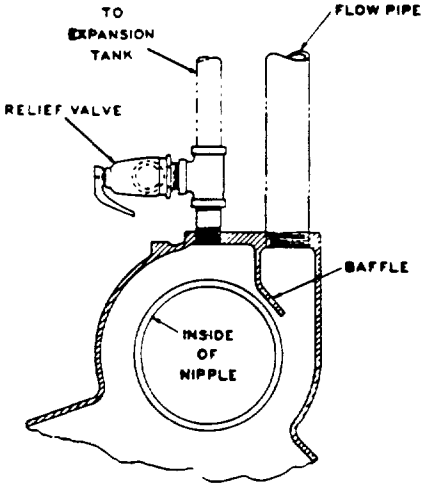


FRONT VIEW
PACKAGED BOILER
WITHOUT WATER HEATER
Fig. 1



FRONT VIEW
PACKAGED BOILER
WITH WATER HEATER
Fig. 2

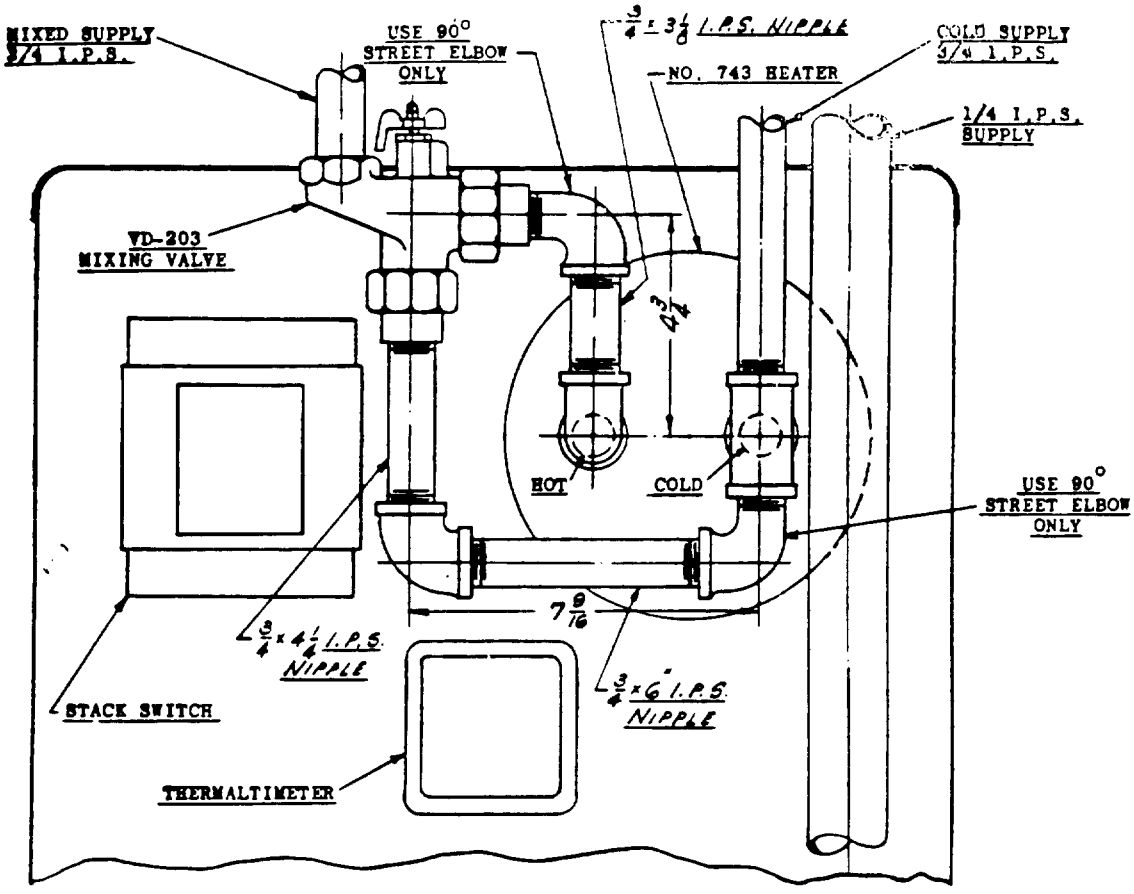
Packaged



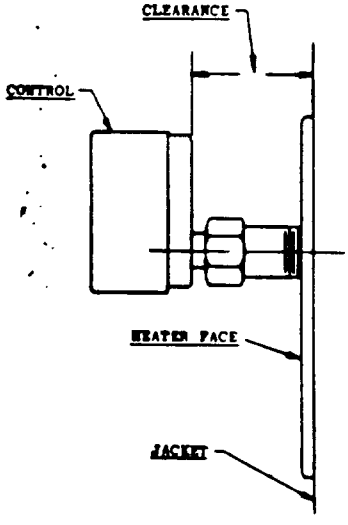
PIPING FOR FLOW PIPE AND RELIEF VALVE

Fig. 3

The Eliminaire is a unique built-in air separator which prevents air from being transmitted to the system and directs the air to the compression tank. External air separators such as dip tube or inlined accessories are not required. This important feature on the Arcoleader boiler also allows for considerable simplification of the near boiler piping (See Figure 3) and assures positive air separation essential to proper system performance. The Eliminaire plus the recommended piping provides for a substantial saving in material and installation cost.



ARCOLEADER BOILER
SUGGESTED PIPING ARRANGEMENT FOR MIXING VALVE

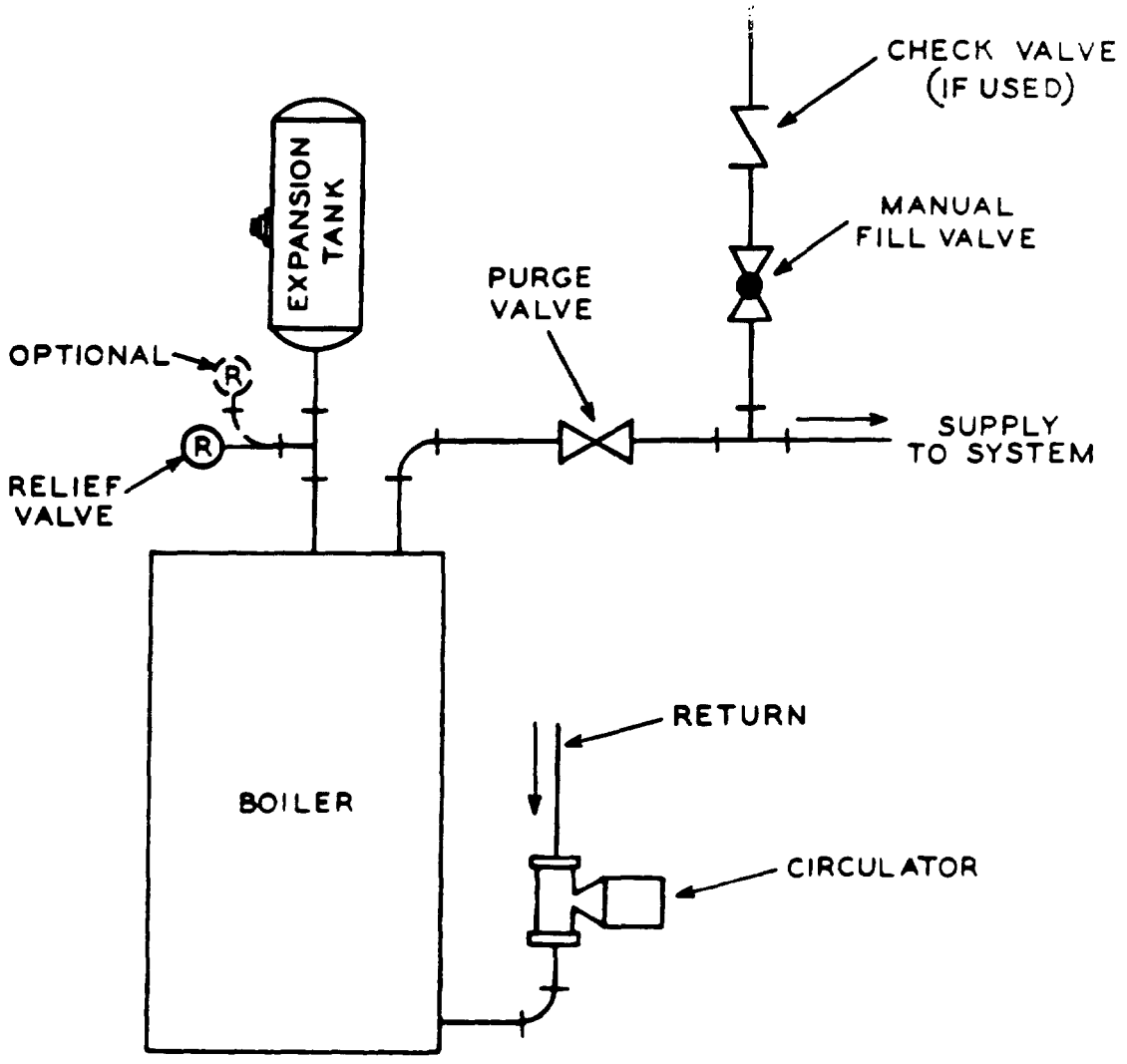


AVAILABLE CLEARANCES BETWEEN BACK OF CONTROL AND TANKLESS WATER HEATER FACE

BOILER	CONTROL	CLEARANCE, IN.
ARCOLEADER	CA-610	2-1/2

Water Heater Piping "Roughing In" Dimensions Must Not Be Greater Than The Clearance Dimension Listed Above.

BOILER PIPING RECOMMENDATIONS WITH THE ELIMINAIRE



PROCEDURE FOR FILLING SERIES LOOP HEATRIM SYSTEM

1. Open fill valve.
2. Close purge valve.
3. Vent air from boiler by manually opening relief valve.
4. When water appears at relief valve, release lever and allow to close.
5. Continue filling until pressure gauge reads approximately 12 pounds. (Close fill valve)
6. Open purge valve.

Note:- For a single loop heatrim system no additional vents, cocks, valves, drains, or other accessories are required except: When tankless heater is used and heatrim is above the boiler outlet. install a flow check valve to prevent gravity circulation.

INSTALLATION - OPERATION

AND

MAINTENANCE INSTRUCTIONS
FOR

PACKAGED ARCOLEADER OIL HEATING UNITS

Boiler is shipped completely packaged except for the burner which is in a separate carton. The sections are arranged in the sequence as listed below:

CODE

F	Front Section
C	Center Section
B	Back Section

SECTION ARRANGEMENT

Unit Number	Assemblage
A1-3-P	F-C-B
A1-4-P	F-C-C-B
A1-5-P	F-C-C-C-B

When locating the boiler, be sure to allow a 20" Clearance for removal of the water heater from the front section. Also allow 24" clearance on the right side of the boiler for cleaning.

If a water condition exists in the basement, or where it has been necessary to waterproof the basement floor, the boiler should be mounted on a concrete or hollow tile base, preferably to a height of at least three inches.

CAUTION

The expansion tank should not be set in a cold or an exposed place. If the pipe leading to or from the tank freezes, serious damage may result. If valve of any description is installed in the piping leading to or from the expansion tank BE SURE THAT IT IS OPEN WHILE THE BOILER IS IN OPERATION.

Locate boiler near the final position before removing the crate.

Locate on a level floor as close to the chimney as possible.

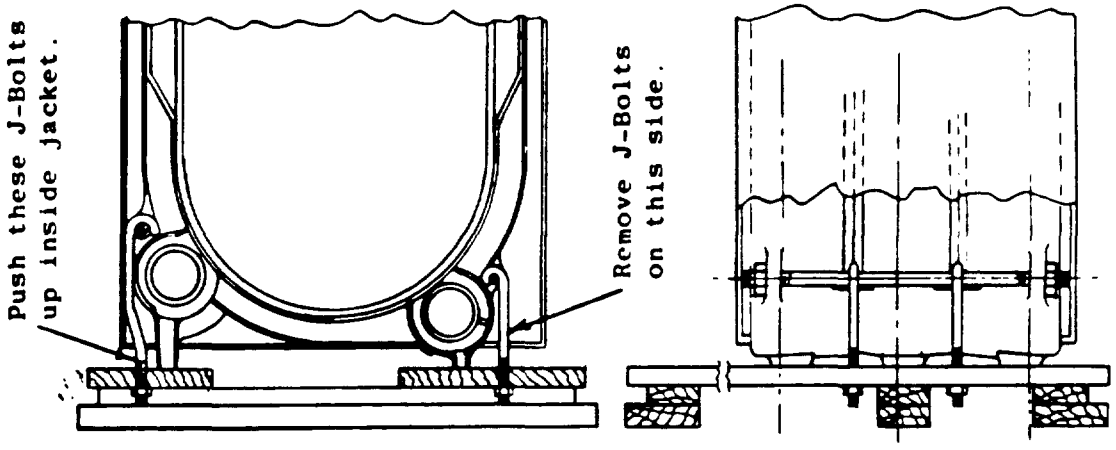
Remove the crate after locating near the final position.

1. Unfasten all crating wire at the corner of the crate.

2. Remove nails fastening crate sides to top and bottom of crate. Lift off crate top and unwrap crate side from crate base. After removal of the plastic bag, remove and discard the short nipple from the flow tapping on top of the boiler.

3. Remove box containing draft stabilizer, relief valve and miscellaneous parts.

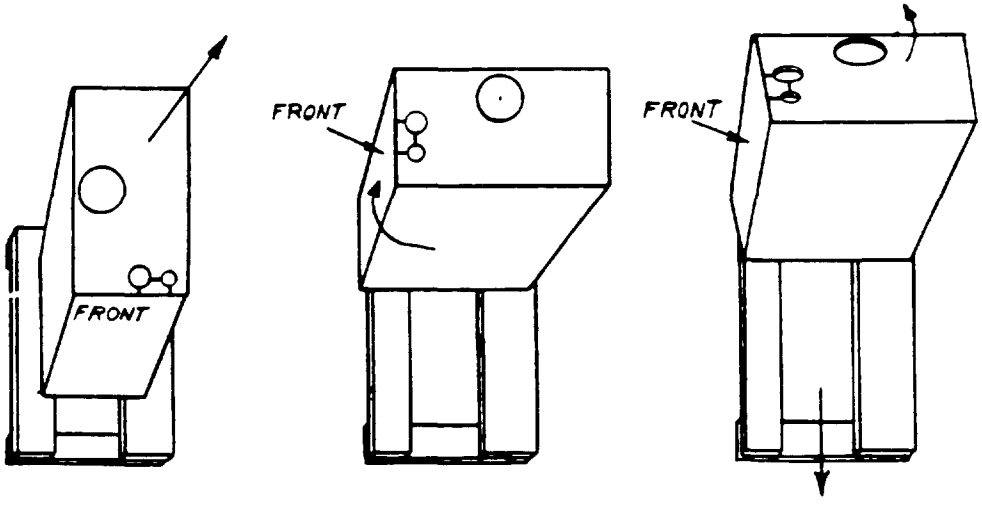
4. Unbolt four J-bolts securing boiler to the crate base from below. Raise two bolts on right side until they clear crate base. Bolts will then be loose and fall out. Push two bolts on left side up inside jacket where they will stay. The above steps are important to prevent jacket damage while removing boiler from base.



5. Tilt boiler to rear and to right.

6. Pivot boiler on right rear leg, rotate 90°, and lower to floor.

7. Tilt boiler so that crate base can be completely removed.



(The above procedure is quite simple and can be very easily accomplished by two men. In an emergency, it can be accomplished by one man with comparative ease.)

8. After the boiler is removed from the crate base, it can be easily walked to its final location.

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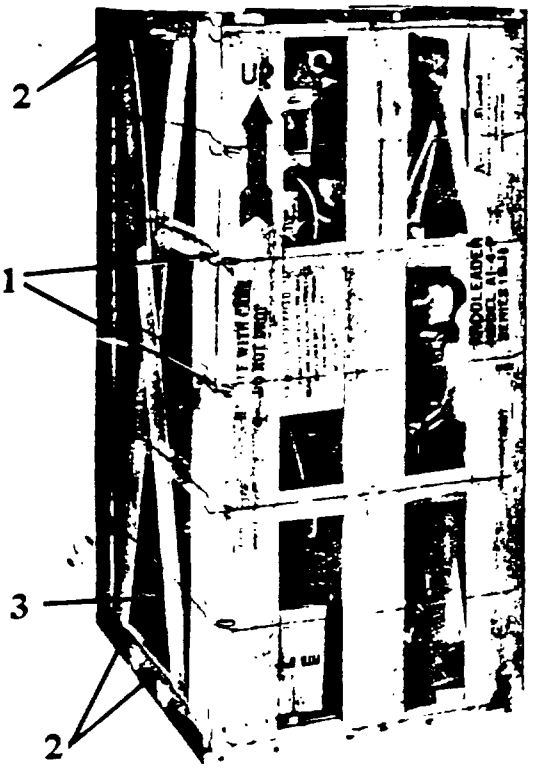


Fig. 4

1. Side Fasteners
2. Nails
3. J-Bolts

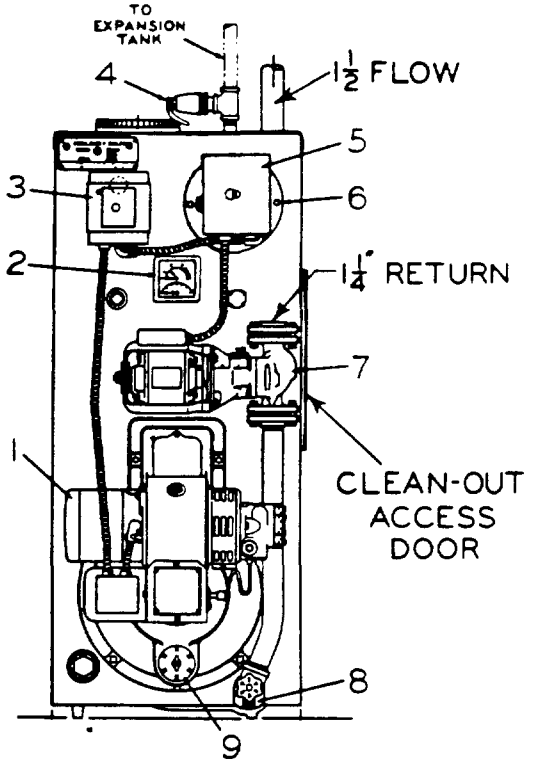
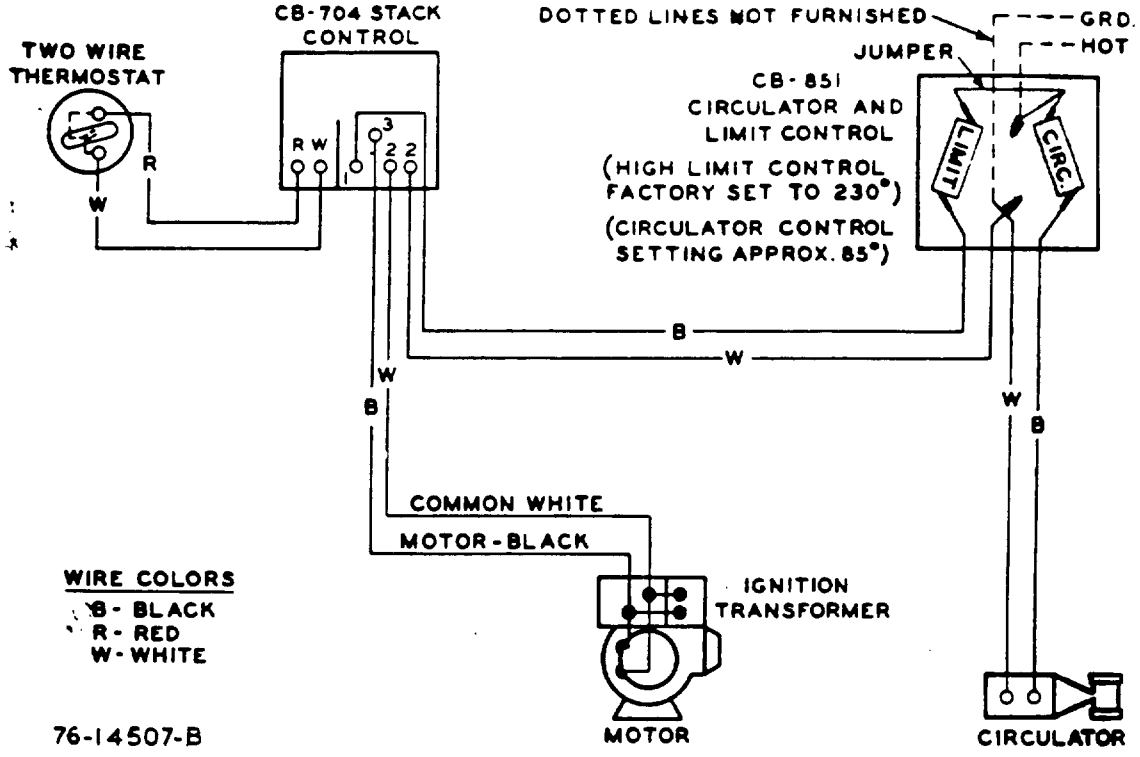


Fig. 5

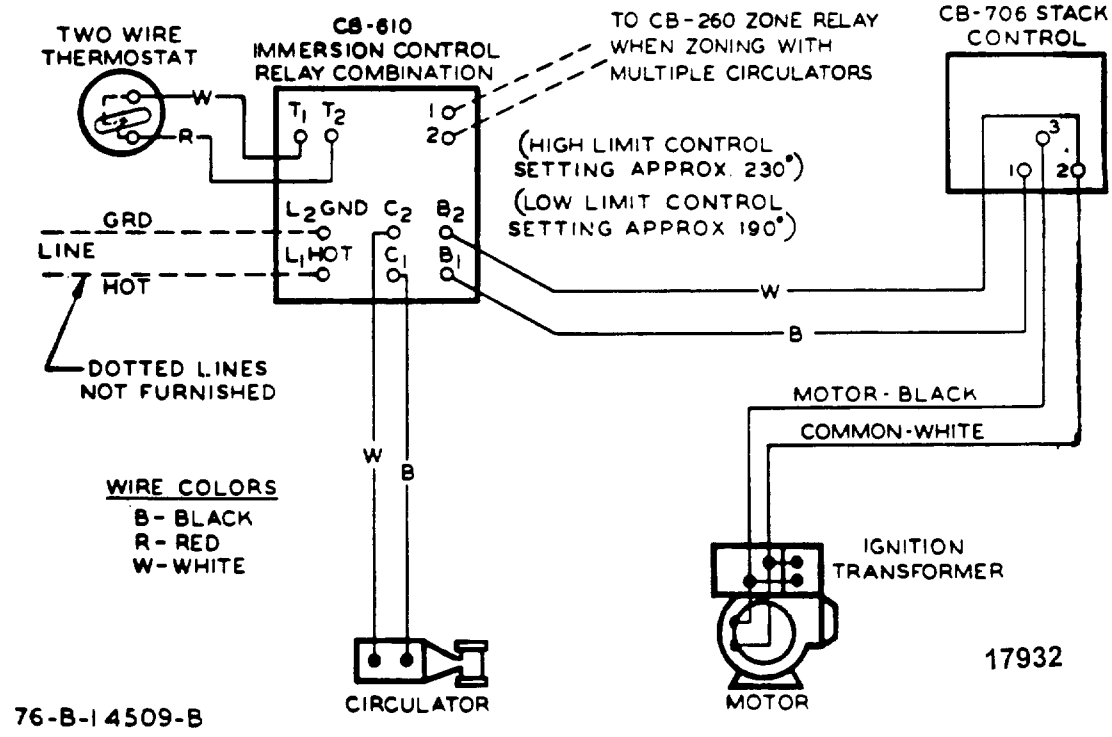
1. Oil Burner
2. Altitude and Temperature Gauge
3. Stack Control
4. Relief Valve
5. Immersion Control Relay Combination
6. Water Heater
7. Circulator Pump
8. Drain Valve
9. Secondary Air Shutter

Above view shows boiler with water heater. Refer to Fig. 1, Page 1, for boiler without water heater. Circulator and Limit Control is mounted on water heater opening cover plate.

Attach burner to the boiler per instructions accompanying the burner. Attach the color **coded** wires from the stack control to the wires in the burner junction box as shown on **the wiring diagram.**



ARCOLEADER PACKAGED BOILER LESS WATER HEATER
WIRING DIAGRAM FOR CONSTANT IGNITION



ARCOLEADER PACKAGED BOILER WITH WATER HEATER
WIRING DIAGRAM FOR CONSTANT IGNITION

CAUTION:

The high temperature stainless steel combustion chamber assembled in this boiler has been especially designed to give the best possible oil burner operation and boiler efficiency. It is, therefore, essential that this combustion chamber be used as designed.

DO NOT BACK-FILL OR OTHERWISE INSULATE as this would have a detrimental effect upon the function of the stainless steel combustion chamber.

FOR NORMAL INSTALLATIONS THE STACK CONTROL TUBE MUST BE INSERTED INTO THE SMOKEHOOD OPENING AS FAR AS POSSIBLE, AND THE SET SCREW TIGHTENED.

If jacket extension is to be used, assemble per instructions accompanying same. IMPORTANT - Make certain that piping connected with the hot water heater and also the boiler return piping to the circulator is so arranged as to pass through the arched opening in either the top or sides of the jacket extension.

Screw drain valve into tee at lower right front of boiler.

Install relief valve and fittings in top of Front section. See Fig. 3.

The upper flange of the circulator should be installed on the return piping, then bolted to the circulator flange. Be sure that the flange gasket is not damaged and that the flange bolts are drawn up equally tight.

See decal on circulator for lubrication instructions.

Install the flue pipe and draft stabilizer using the instructions provided with the stabilizer. The flue pipe should not extend beyond the inside wall of the chimney flue. Horizontal runs of flue pipe should be kept at a minimum with approximately 1/4" pitch per foot maintained.

Run electric service line from switch (not supplied by AR & SS Corp.) to the control which is mounted on the built-in water heater or on the water heater opening cover plate in case of boilers without water heater. Install the room thermostat, then make all electric connections according to the applicable wiring diagram. The boiler is now ready for operation.

ATTENTION TO BOILER WHILE IN OPERATION

Keep open type system filled to 1/3 of expansion tank (as indicated when automatic pointer of altitude gauge is even with adjustable pointer). ON A CLOSED HOT WATER SYSTEM, THE PRESSURE MUST NOT EXCEED 30 LBS., IF IT DOES, IT MUST BE RELIEVED IMMEDIATELY AND THE CAUSE OF THE FAILURE OF THE RELIEF VALVE INVESTIGATED AND CORRECTED; OTHERWISE, PRESSURE MAY BUILD UP AND CAUSE DAMAGE TO THE HEATING SYSTEM.

Altitude and temperature gauge on front of boiler serves to indicate the following;

1. Temperature of water at the boiler.
2. Height of water level in feet above the gauge for OPEN SYSTEMS where expansion tank is used.
3. Water pressure in pounds per square inch for CLOSED SYSTEMS.

When system has been filled remove rim and glass in gauge after loosening two screws or other means of holding rim in place.

It will be found that the automatic pointer on the ALTITUDE SCALE, which indicates HEIGHT IN FEET and PRESSURE IN POUNDS has moved up and indicates height of water level, above the boiler in the expansion tank.

The adjustable pointer (generally finished in color) should then be moved by hand UNTIL DIRECTLY UNDER AUTOMATIC POINTER.

Any loss of water within the system will be indicated by the AUTOMATIC POINTER receding to a smaller figure on the altitude scale at which time the water supply should be opened until the automatic pointer is again directly over the adjustable pointer.

After setting adjustable pointer, replace rim and glass and tighten screws.

Clean boiler surfaces at regular intervals.

Do not draw water from boiler while in use. When adding water while boiler is in operation, do not open supply valve fully, but add water slowly.

ATTENTION TO BOILER WHILE NOT IN OPERATION

At end of heating season, clean boiler thoroughly and spray flue surfaces with light lubricating or crankcase oil using gun with extended stem so as to reach all corners.

Clean and remove flue pipe where feasible.

Keep system filled with water; in other words DO NOT DRAIN BOILER.

IF BOILER IS NOT USED DURING WINTER TIME, IT MUST BE FULLY DRAINED TO PREVENT DAMAGE CAUSED BY FREEZING.

PACKAGED & NON-PACKAGED

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