INSTALLATION MANUAL

for Coleman

OIL WATER HEATER

The Coleman Company, Inc.

Wichita 1, Kansas

INSTALLATION INSTRUCTIONS

To insure the user of the Coleman Automatic Oil Water Heater a most satisfactory service, we recommend that these instructions be carefully followed for proper installation.

Oil burners listed as standard by the Underwriters' Laboratories, Inc., shall be installed in accordance with the regulations of the National Board of Fire Insurance Underwriters covering the class. Local authorities having jurisdiction should be consulted before installations are made.

The following regulations are in conformance with the building code recommended by The National Board of Fire Underwriters:

> "The smoke pipe should not pass through any combustible partition. The clear distance between a smoke pipe or metal breeching and combustible material or construction, including plaster on combustible base, should be not less than 18 inches, provided that the clearance may be reduced to 9 inches when the smoke pipe or breeching is protected with not less than 1 inch of asbestos or equivalent protection, or such combustible material or construction is protected by sheet metal or equivalent covering placed at least 1 inch from the surface to be protected and extending the full length of the smoke pipe and not less than 12 inches beyond it on both sides."

Carry the heater to the place where it is to be installed before uncrating. Use care in removing the crate to avoid damaging the heater. Do not use the oil control bracket for a handle to lift the heater. The oil control is adjusted level with the burner at the factory and must not be changed.

The Coleman Company, Inc.

GENERAL OFFICES and FACTORY: WICHITA 1, KANSAS, U.S.A.
CANADIAN OFFICE and FACTORY: TORONTO, ONTARIO

PHILADELPHIA, PA.
401 N. Broad St.
Terminal Commerce Bldg.

CHICAGO, ILL.
589 East Illinois St.

LOS ANGELES, CALIF.
332-342 East Third St.
Box 2979 Terminal Annex

HONOLULU, T. H.
29 South King St.

FORM S915 2500 3-46

INSTALLATION OF WATER HEATERS

IMPORTANT FACTORS

To insure consumer satisfaction and a permanently profitable business, the dealer should keep constantly in mind the following important points:

(1) Coleman Oil Water Heaters are made in three sizes. It is important to select the right size so that the customer will always have a plentiful supply of hot water.

(2) Locate the Water Heater as close to the chimney as possible.

(3) Check the flue—make sure the draft is constant and is sufficient to insure efficient operation of the Water Heater.

(4) Be sure purchaser thoroughly understands operating instructions.

(5) Study this Manual thoroughly. It contains valuable information not to be found elsewhere.

Location

The heater must be located as close to the chimney as possible. Long horizontal runs of vent pipe will reduce the draft in summer when warm outside temperatures have a tendency to lower the draft. For this reason, always locate heater close to chimney.

The foundation on which the heater rests should be solid and reasonably level. If necessary, level the heater with the leveling screws located under the base. Place level on top of oil control valve when leveling heater.

Chimney

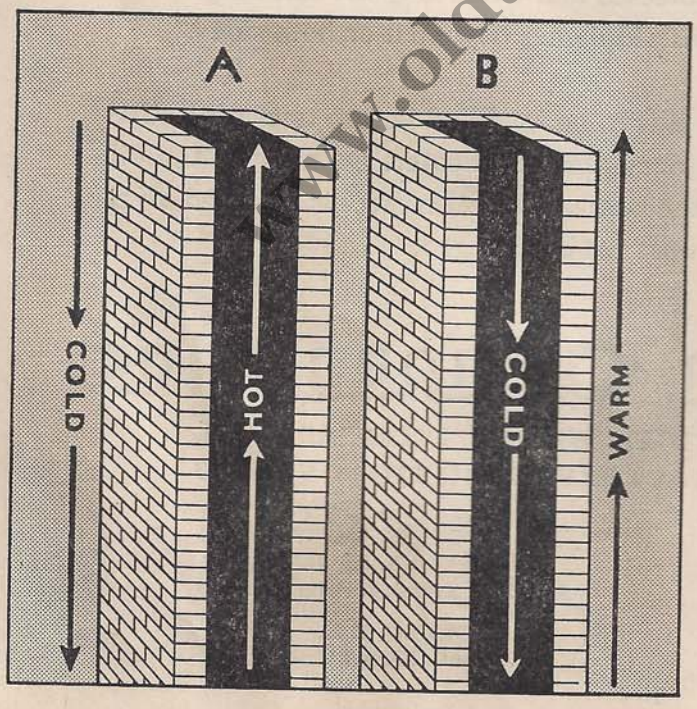


Plate No. 1

Most important of all to a satisfactory installation is a correct draft condition. The draft in a chimney is created when the air inside the chimney is hotter than the air on the outside. Hot air is lighter than cold air; so, when the air inside the chimney is heated, it will rise creating a strong upward current. The hotter the air is kept, the stronger the draft becomes.

Plate No. 1 clearly shows the difference in the direction of air currents when the air inside the chimney is colder or warmer than the outside air.

Inspecting the Outside of the Chimney

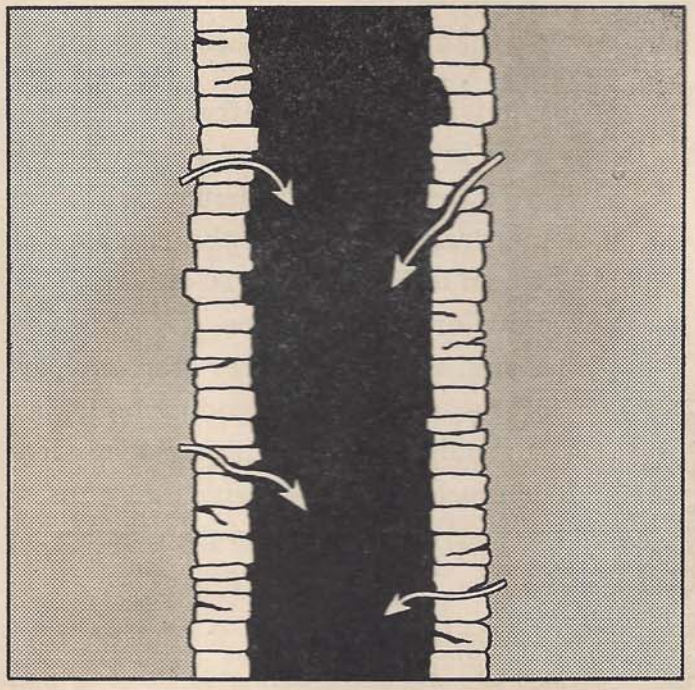


Plate No. 2

No air should enter the chimney which has not first passed through the heater. Outside air is colder than air which passes through the heater; therefore, air allowed to seep into the chimney through cracks as illustrated in Plate 2 will very definitely restrict the upward current of hot air. All openings where such outside air might filter in through the chimney should be tightly sealed with cement.

Draft Obstructions

A poor draft may also be the result of obstructions in the chimney such as shown in Plate No. 3. If the chimney is not delivering sufficient draft, inspect the interior to be sure that there are no obstructions. The interior of a chimney may be inspected by inserting a hand mirror through the opening and placing it at an angle so that one can look up the chimney. All obstructions must be removed to maintain an unrestricted draft.

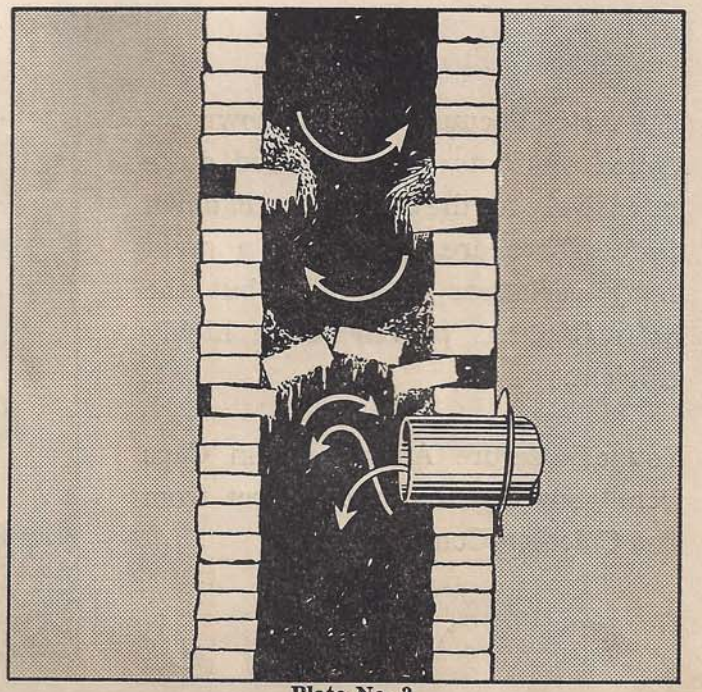


Plate No. 3

Down Drafts

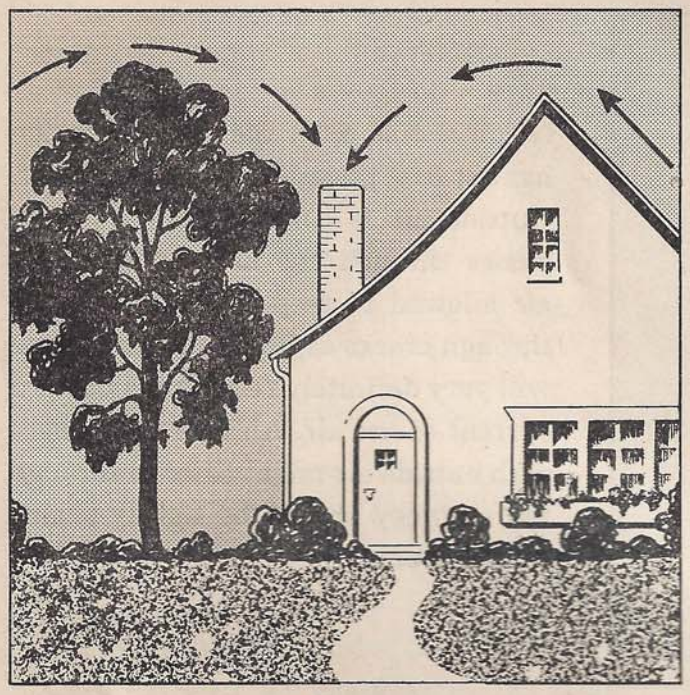


Plate No. 4

Wind blowing from the direction of trees in the immediate vicinity which are taller than the chimney, will force the draft back down the chimney as shown in Plate No. 4. To eliminate the down-draft condition, a chimney should always be higher than any part of the house or surrounding buildings. It should always be higher than trees or nearby buildings which may throw air currents down into the chimney.

Down Draft Controls

The Artis Vacuum Cap as shown installed on Plate No. 5 is used quite extensively for the elimination of down draft. There are, of course, a great many variations in design, but the Artis Cap has proven to be highly efficient.

You can secure Artis Vacuum Caps from your distributor or direct from The Coleman Company, Inc.

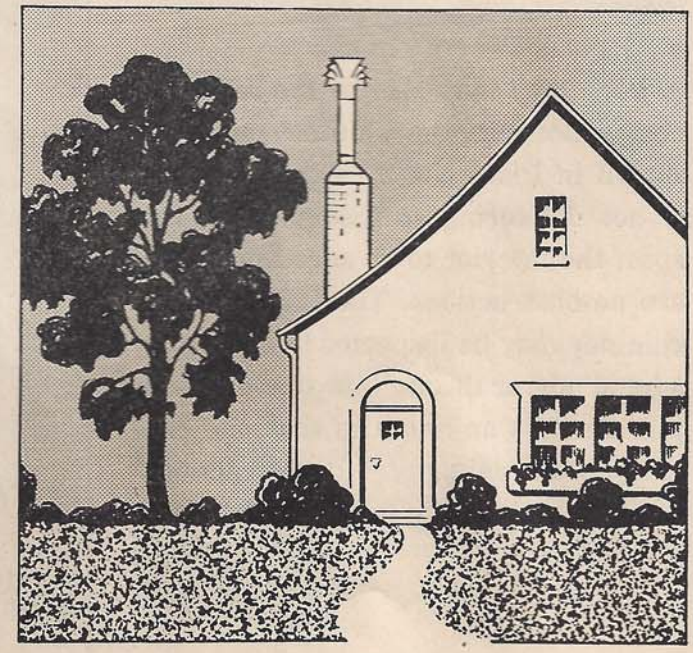


Plate No. 5

Connecting Vent Pipe to Chimney

Use standard 6″ stove pipe. Use only one 90° elbow if possible because elbows have a tendency to reduce the draft. The horizontal section of the vent pipe should slope upward toward the chimney at least ½″ per foot (never downward). Make all joints tight and fasten together with sheet metal screws. Cement pipe into chimney to prevent air leaks. The end of the pipe should be flush with the nearest wall of the chimney as shown in Plate No. 6, "C".

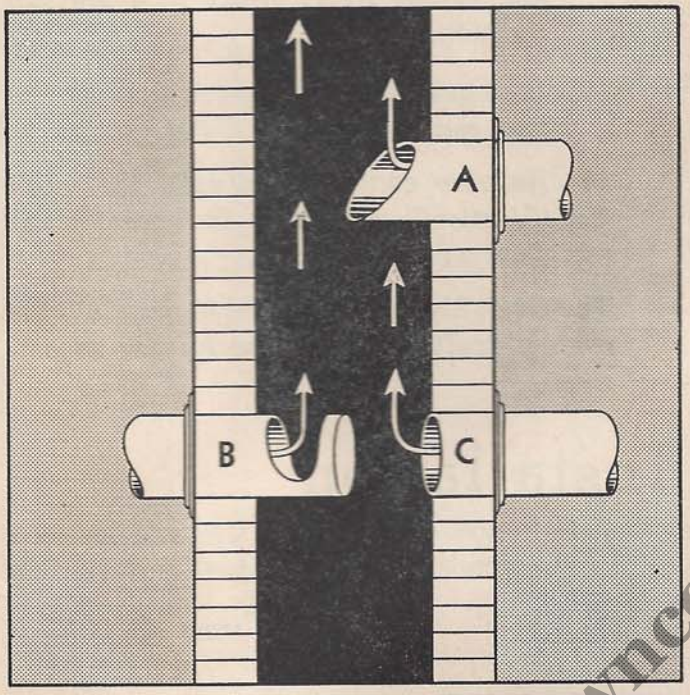


Plate No. 6

For best results install water heater to chimney not used for other appliances. When it is necessary to use the same chimney as used for other appliances, the vent pipe from the water heater should be installed above the flue pipe for the other appliances. Where a central heating plant equipped with a power type oil burner is connected to the chimney, the flue connection for the water heater should be as shown in Plate No. 6, "A", the pipe may be cut at 45° angles and extended into the chimney about half way across to prevent the draft from the furnace from interfering with the draft of the water heater.

Directions for Installing Coleman Draft Meter

No. 162-688

VERTICAL POSITION

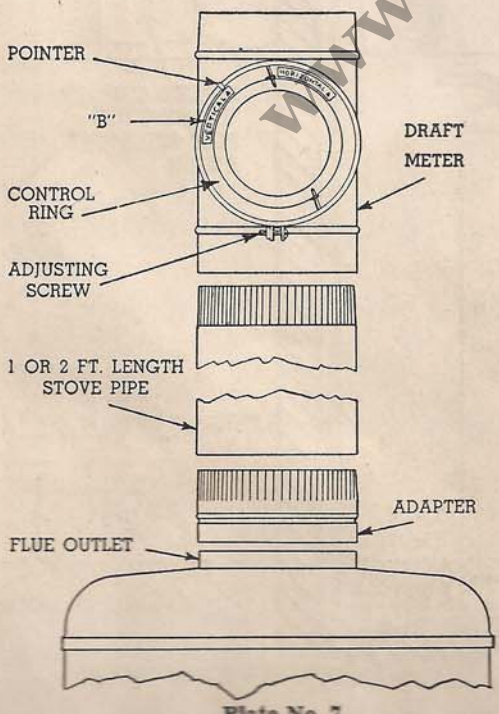


Plate No. 7

HORIZONTAL POSITION

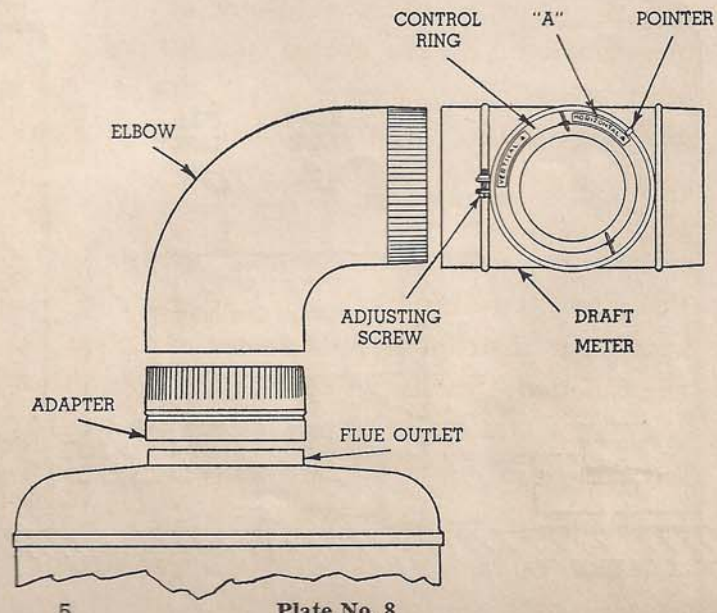


Plate No. 8

The Coleman Draft Meter which is supplied as standard equipment with the Water Heater automatically compensates for the varying draft conditions and prevents draft from pulling an undue amount of heat up the chimney.

To Install in Horizontal Position

(1) Set adapter on water heater flue outlet.

(2) Place elbow on adapter.

(3) Install Coleman Draft Meter on elbow without making any adjustments of control ring.

For shipping purposes, the control ring is held firmly in place with adjusting screw and with control ring set for use in horizontal position. See Plate No. 8.

To Install in Vertical Position

(1) Set adapter on water heater flue outlet.

(2) Place a length of stove pipe on adapter and install Draft Meter in a vertical position.

(3) Loosen adjusting screw so that control ring can be revolved.

(4) Revolve control ring until the word "Vertical" is under the pointer, as shown in Plate No. 7.

The Draft Meter is designed to maintain the correct draft and needs no further adjustment.

Oil Tank Installation

The fuel tank, or the fuel supply tank, should be installed to meet the local requirements. Consult local authorities having jurisdiction covering the size and location of fuel tanks as well as fuel and venting lines.

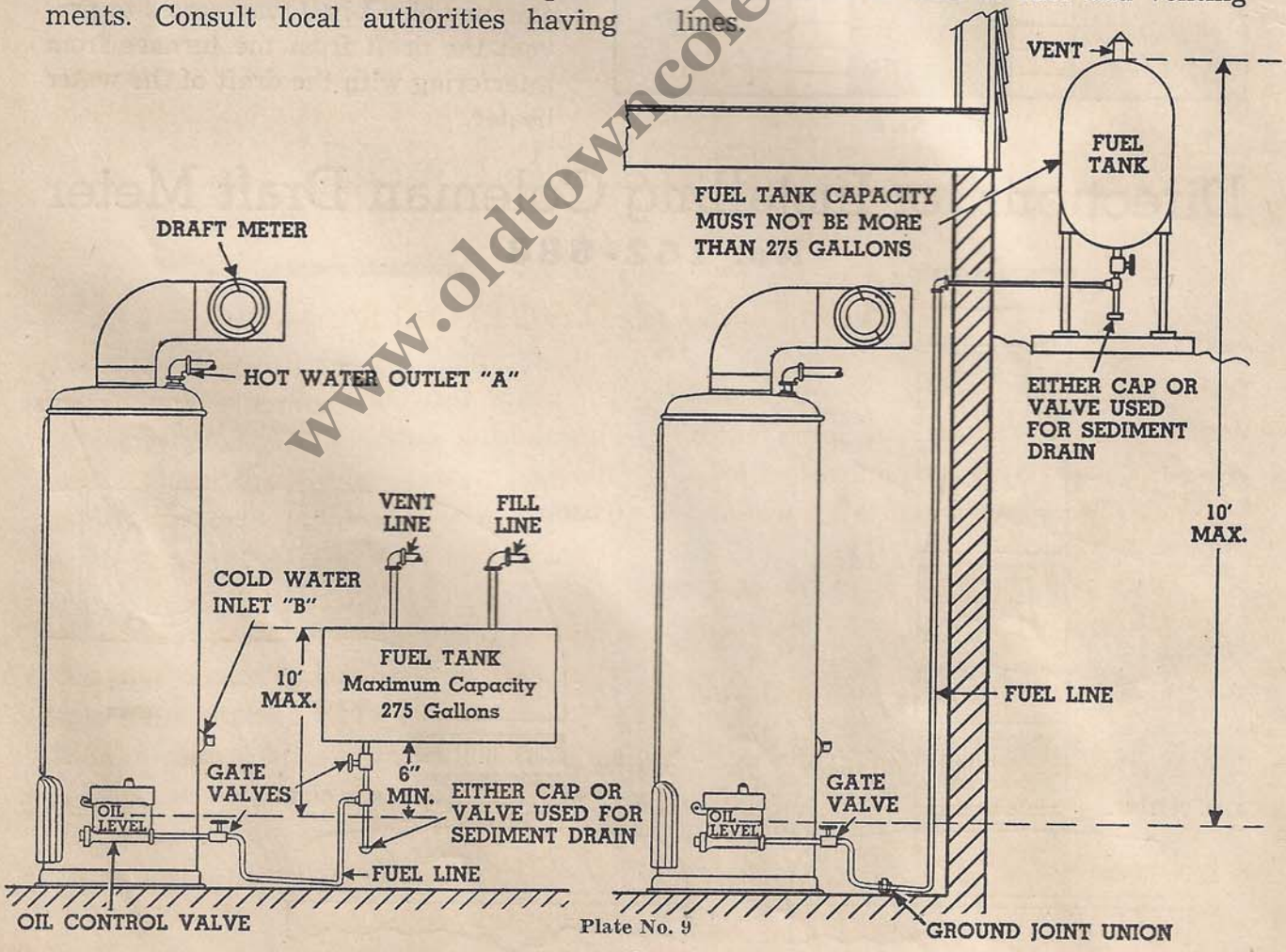


Plate No. 9

The top of the fuel tank should not be more than 10′ above, or the bottom not less than 6″ above, the fuel line on the oil control valve. Fuel tank capacity must not be more than 275 gallons. See Plate No. 9.

⅜″ size iron pipe, or ⅜″ copper tubing, with wall thickness not less than .049 inches may be used for the fuel line and reduced to ¼″ at the oil control valve inlet on the heater. Place a gate valve in the line near th oil control valve· also, one at the tank, as shown in the illustration. Use only ground joint unions to prevent oil leaks. Use pipe dope of a type for oil to make joints tight (we recommend orange shellac and graphite). A means of draining the fuel tank should be provided and the tank should be drained at regular intervals to keep it clean and free from water sediment.

Important: The fuel lines should be absolutely straight and free from sharp bends. The fuel line should drop vertically from the tank to the floor and from this point have a gradual slope upward to the oil control valve to avoid air traps in the fuel lines.

Fuel

We recommend 38-40 gravity fuel oil. This oil is sometimes known as No. 1 Distillate. Make sure that oil is free from water and dirt for best service. No. 2 Distillate can also be used if a good clean oil is available, but oil heavier than No. 2 Commercial Standard should not be used. Kerosene may be used.

Never use gasoline, crank case oil, or oil containing gasoline.

Consult your dealer as to his recommendations of the most suitable oil available in your community.

Water Connections

Follow the regulations of plumbing authorities having jurisdiction. In some cities, pressure relief valves are required. A pressure relief valve must be installed when:

1. There is a check valve in the city water system (usually at a meter).
2. Where a water softener is installed.
3. Where cold water is delivered to the water heater through a furnace coil.
4. Where homes have an automatic water system.

The hot water connection is at the top behind the flue outlet. See "A", Plate No. 9. The cold water connection is located near the bottom at the rear of the heater. See "B", Plate No. 9.

Caution: The Coleman Water Heater is equipped with a galvanized water tank; and when installed to water systems using copper supply lines, install 6″ brass nipples tinned inside and out, or a 6″ piece of steam hose, at both the cold water inlet and the hot water outlet to prevent electrolysis setting up between the two metals.

To Light Heater

Caution: Do not light hot burner. Before lighting, always allow burner to cool until you are able to place your hand on the burner bottom. Be sure storage tank is full of water.

1. Open all valves between the fuel tank and water heater.

2. Push down the reset lever on oil control valve. (See Plate 10.)

3. Set regulator knob for water temperature desired. (See Plate 10.)

4. Allow a few minutes for the oil to flow through pipes into the burner.

5. Open lighter door and insert a roll made from a small piece of paper or rag about 2" square. Light with match and push into burner.

6. Close lighter door.

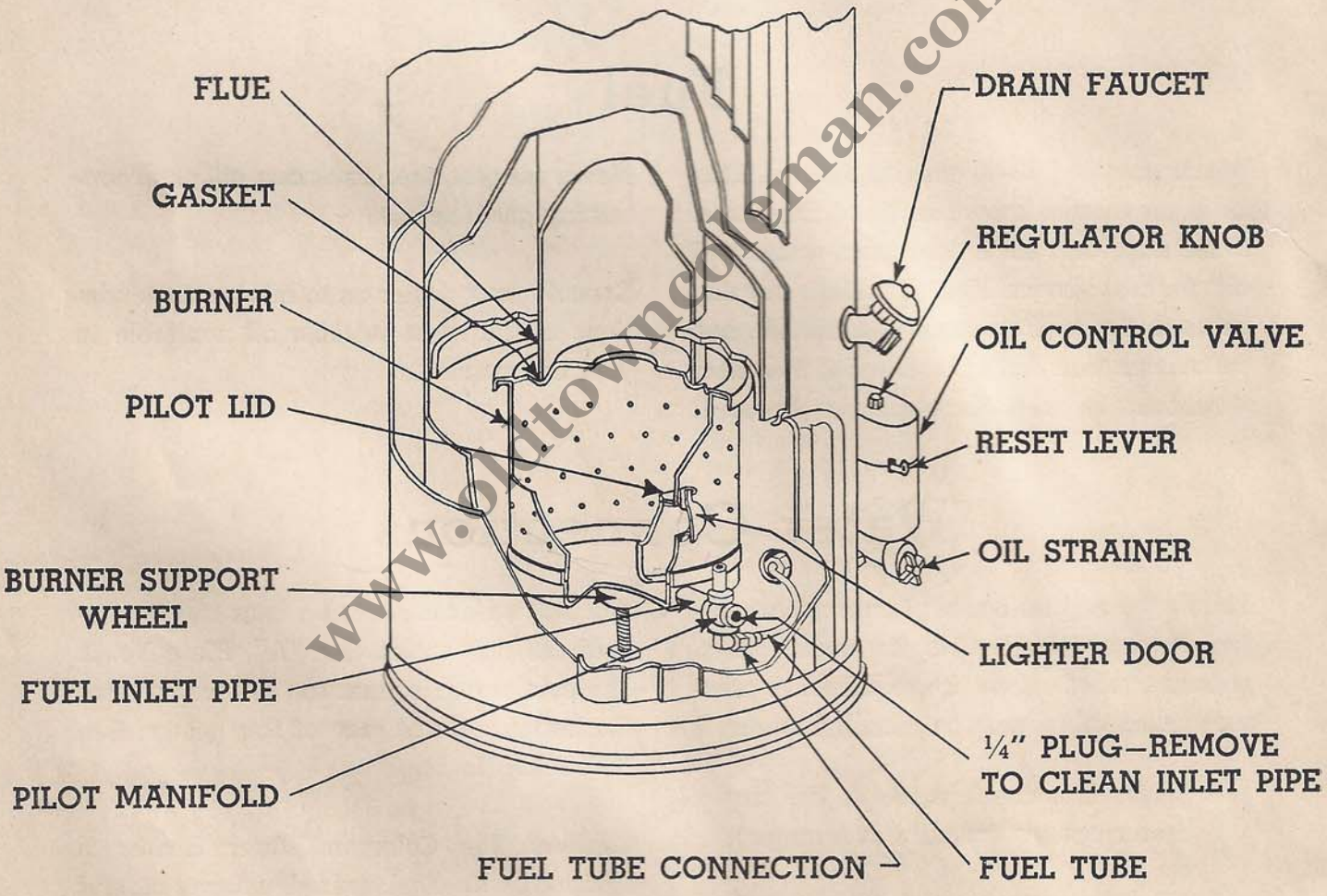


Plate No. 10

To Turn Out Heater

1. Raise reset lever. (See Plate 10.)
2. Close valves between heater and fuel tank.

Caution: Do not inspect burner with lighted match or torch until burner has cooled off.

Oil Control Adjustments

The oil control valve has been adjusted at the factory and will need no further adjustment **except when** it is necessary to use a heavier or lighter grade of oil than recommended. Also the height and the distance of the fuel tank from the water heater may make it necessary to adjust the oil flow to the correct ratings as shown in the following table:

Model	High Fire With .03 Draft	Pilot
162	10 to 12 cc. per min.	7 cc.
163	14 to 16 cc. per min.	per
164	22 to 24 cc. per min.	6 min.

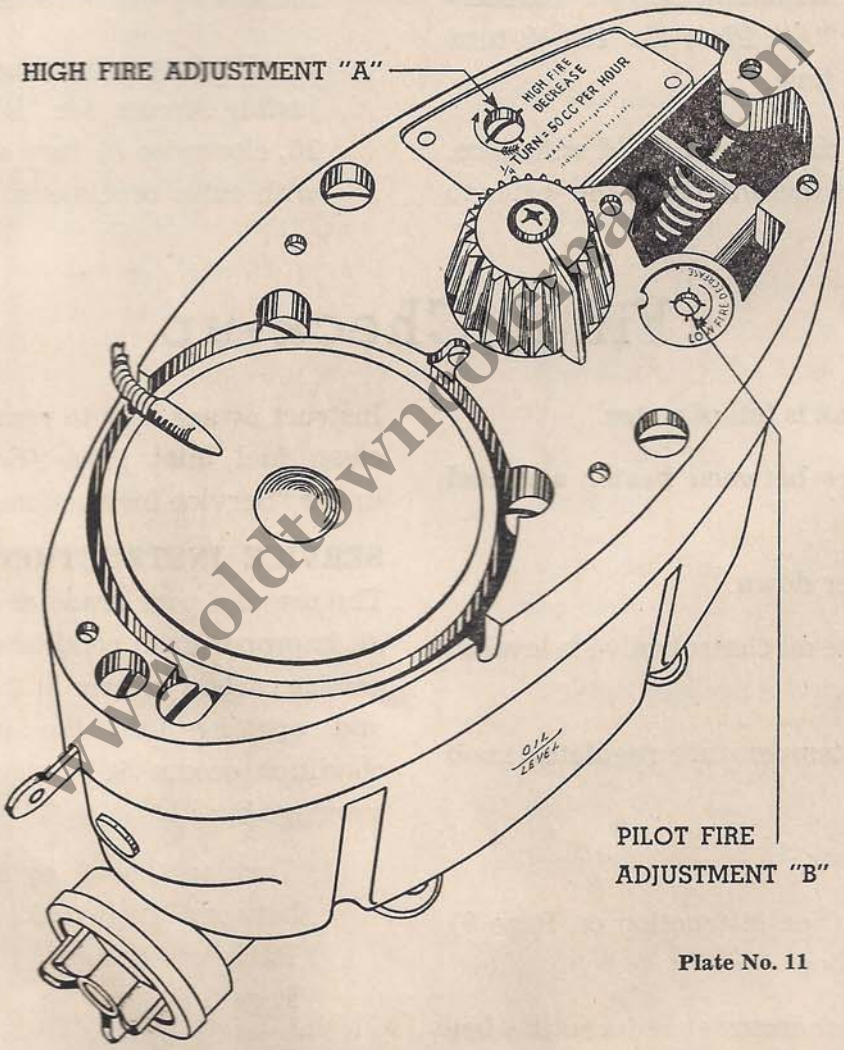


Plate No. 11

TO ADJUST OIL FLOW

To adjust the oil flow of the oil control valve, first remove name plate cover which gives access to adjusting screws illustrated in Plate No. 11, "A", High Fire Adjustment; "B", Pilot Fire Adjustment.

The next step is to disconnect the fuel tube at the burner and turn the burner around to the left just enough to permit placing a measure under the open end of the fuel tube for checking the oil flow. The measure should be a cubic centimeter graduate.

To check "High Fire" flow, turn water temperature control knob to "Hot" and allow oil to flow out of the fuel tube for at least one or two minutes or until there is a full flow of oil. Then insert graduate under outlet for one minute. Compare results with table as shown on Page 9.

If "High Fire" flow is too high, turn adjusting screw (See "A", Plate No. 11) clockwise ¼ turn and recheck the oil flow by use of a cubic centimeter graduate. If "High Fire" is too low, turn adjusting screws counter-clockwise (See "A", Plate No. 11) ¼ turn and recheck oil flow.

The Pilot flow must be adjusted with care. Too high a pilot fire will cause the water to become too hot or go to steam. To make adjustments on the pilot, turn water temperature control knob to "Pilot" so that the valve will be set on "Pilot Flow". Upon checking the pilot flow with cubic centimeter graduate, if it is found that the flow is more or less than 7 cc. per 6 minutes, adjustment is made as follows:

If pilot flow is too low, turn adjusting screws, see "B" Plate No. 10, counter-clockwise ¼ turn, then recheck by use of measure.

If pilot flow is too high, turn adjusting screws, see "B" Plate No. 10, clockwise ¼ turn and recheck with cubic centimeter graduate.

Final Check-up

Be sure that tank is full of water.

Open all valves between heater and fuel tank.

Push reset lever down.

Check to be sure oil control valve is level in both directions.

Set the water temperature regulator knob at "Warm".

Open lighter door.

Light Burner. (See instruction on Page 8) Close lighter door.

Wait until the thermostat reduces the fire to pilot fire, to make sure it is working.

Instruct owner how to light the heater and to regulate the water temperatures.

Hang operation card near heater for customer's use.

Instruct owner how to remove ¼" plug to clean fuel inlet pipe. (See paragraph 2 under "Service Instructions".)

SERVICE INSTRUCTIONS:

The use of a poor grade or dirty fuel oil or an improper draft condition may cause excessive carbon to form in the fuel inlet pipe and opening into the burner. If this condition occurs, it is easy to remove the stoppage by:

1. Turn out heater by closing valve between fuel tank and heater. Raise reset lever. (See Plate 9, Page 6.)
2. Remove ¼" pipe plug in pilot manifold burner and push clean-out rod (provided) through fuel inlet pipe into burner to remove stoppage. (See Plate 9, Page 6.)
3. Replace ¼" pipe plug.

4. Relight burner. (See Page 8 for Lighting Instructions.)

To Remove Burner For Cleaning, read instructions below: (See Plate 10 on Page 8.)

1. Raise reset lever on oil control valve.
2. Close valve between heater and fuel tank.
3. Loosen fuel tube connection at oil control valve.
4. Disconnect fuel tube at burner and allow to drop down out of way.
5. Grasp burner support wheel and turn to the left. Screw down until burner is low enough to slide forward through the door.
6. Scrape carbon loose and dump out of burner.

To Replace Burner:

1. Be sure gasket fits in groove in top of the burner.
2. Be sure pilot lid (See Plate 10) is in place on top of pilot.
3. Insert burner through door and place it up against bottom of flue. (See Plate 10.)
4. Screw burner support up against bottom of burner to hold it in position.
5. Connect fuel tube from oil control valve to burner.
6. Tighten fuel tube connection at oil control valve and burner.
7. Relight burner. (See Page 8 for Lighting Instructions.)

If Burner Goes Out:

1. Check oil supply.
2. Clean strainer in oil control valve. Remove die cast plug (See Plate 10) which carries strainer with it. Wash in clean oil.
3. Remove ¼" pipe plug in pilot manifold at burner and push clean-out rod (Attached to the Instruction Card) through fuel inlet pipe into burner to remove stoppage.
4. Remove fuel tube between oil control valve and burner and make sure the line and connecting fittings are clean.

Caution: Do not light flooded burner. Remove ¼" plug in pilot manifold and drain burner before relighting.

Water Temperature Adjustment

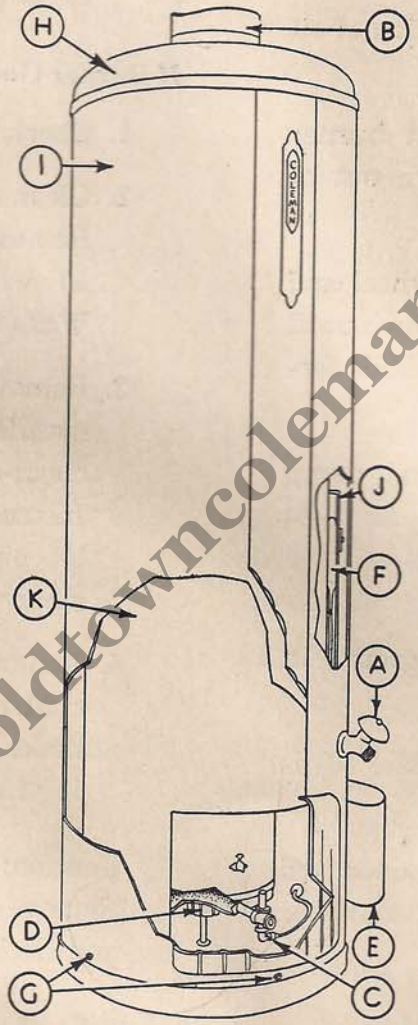
The water temperature is automatically maintained at the temperature desired by the regulator knob located on top of the oil control valve. The approximate range of temperature is warm, 120°; medium, 140°; and hot, 160°. The medium position should take care of all average requirements. High water temperature will increase lime deposit inside water tank.

Drain and flush sediment out of water storage tank three times a year.

Note: For further information, consult your dealer, or THE COLEMAN CO., INC.

Directions, How to Remove and Replace Water Tank on Coleman Oil Water Heater

1. Close all Fuel Line Valves.
2. Shut off water supply leading to heater.
3. Open water valve, "A" (located at lower right side of heater) and drain water tank.
4. Disconnect hot and cold water lines from heater.
5. Remove vent pipe, "B."
6. Disconnect fuel line leading from constant level valve to burner at "C" and remove burner. Hand operated screw releases burner, "D."
7. Disconnect lead in fuel line at constant level valve.
8. Remove constant level valve, "E," and slip tubing and bulb out through slot in oil heater jacket. (Use caution not to kink tubing or damage bulb.)
9. Remove the five Phillips head screws at base, "G," of heater jacket. (Two of which are located in bottom of constant level valve bracket.)
10. Remove hot and cold water nipples from tank.
11. Remove tank drain valve, "A."
12. Lift off top of heater jacket, "H," and remove insulation and insulation retaining ring.
13. Lift off heater jacket, "I," from around water tank.
14. Remove bulb channel, "J," from lower side of water tank.
15. Now lay water tank down on its side and disassemble baffle and base. (Baffle and base are secured to water tank with three "L" bolts.)
16. You are now ready to install new water tank, "K," and assemble heater.



1. Lay new tank on side and assemble base to tank with the three "L" bolts. (Make certain the long open slot in base is at front at burner box opening.)
2. Install the three spacers on "L" bolts; replace baffle plate and secure with three nuts.
3. Attach bulb channel, "J," to lower side of water tank.
4. Set water tank upright and replace jacket, "I"; secure jacket to base with five (5) Phillips head screws, "G."
5. Assemble hot and cold water nipples (use sealing compound on threads) to water tank and replace rubber washers.
6. Install constant level valve to bracket by first inserting bulb and tubing, "F," through slot in jacket and into channel, "J," attached to water tank. (To determine if bulb is in channel, use flashlight by looking down from top of heater between water tank and jacket.)
7. Replace insulation retainer ring, insulation and jacket top cover, "H."
8. Replace burner and connect fuel line from burner to constant level valve. Also fuel line to constant level that leads from fuel supply tank.
9. Replace water drain valve, "A."
10. Make hot and cold water pipe connections.
11. Replace vent pipe, "B."
12. Test all connections for oil and water leaks before attempting to light heater.

Write to Major Appliance Service Department if Additional Information Is Needed