BELL SYSTEM PRACTICES
Outside Plant Construction and Maintenance

SECTION G81.831.1
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AT&TCo Standard

C KEROSENE FURNACE

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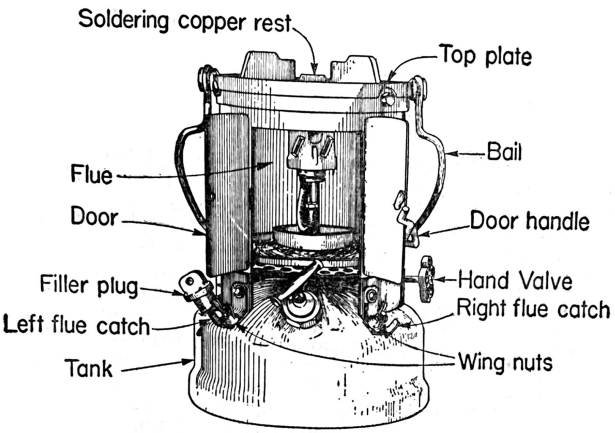
1. GENERAL

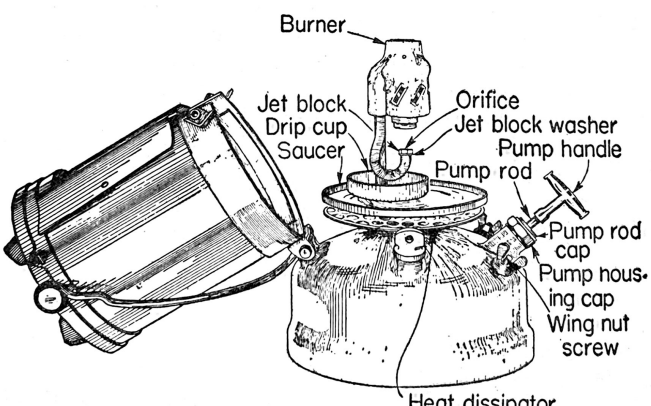
1.01 This section replaces Issue 1. It describes the C Kerosene Furnace which supersedes the HV Kerosene Furnace. The C furnace is similar to the HV furnace except for the jet block. The jet block in the C furnace is equipped with a filter to minimize clogging of the orifice. The new jet block can be used to replace a defective block in an HV furnace. The method of operating the furnace to obtain the best results and information regarding field maintenance are covered in detail.

1.02 If kerosene is not available, **white gasoline** can be used as the fuel. In order to obtain the best results with white gasoline, the Gasoline Jet Block (obtainable as an optional part) should be used in place of the jet block supplied with the furnace. The instructions are applicable to both types of fuel.

2. DESCRIPTION

2.01 The C furnace is illustrated in the following sketches. The names of the various parts are indicated. The furnace is 15 inches high and 10-3/8 inches in diameter.





2.02 **Optional Parts:** The optional parts listed below must be ordered separately, if needed.

Block, Jet, Gasoline, for Kerosene Furnace ←
Wrench, Furnace, Kerosene ←

3. OPERATING INSTRUCTIONS

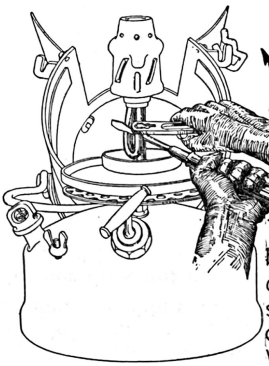
3.01 **Filling the Furnace:** Remove the filler plug using the wrench and pour fuel into the tank until it is nearly full (about 1/2 inch below the opening). Make sure that the plug is free of foreign matter, coat the threads with stearine and then replace the plug, tightening it with the wrench.

3.02 **Lighting the Furnace:** Place a piece of muslin about 2 inches square in the top opening of the burner, close the vent screw in the filler plug and operate the pump two or three strokes. Release the pressure in the tank when the drip cup is 1/4 to 1/2 full, the latter in cold or windy weather. An excess of fuel will cause needless delay as the furnace will not operate properly until all of the fuel in the cup is consumed. Do not permit fuel to overflow on the tank.

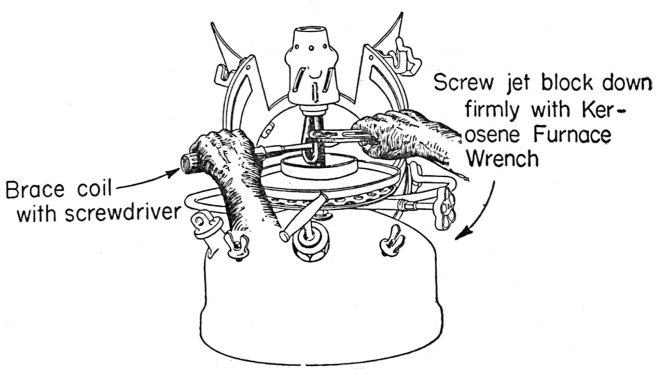
3.03 Remove the piece of muslin from the top of the burner. Then ignite the fuel-soaked asbestos wick in the drip cup and close the furnace doors. In cold weather or if a strong wind is blowing, use a shield around the furnace and place a pot on the top plate to confine the heat. If the wick is missing, the piece of muslin which was placed on the top of the burner, should be used as a wick. Ordinarily 5 to 8 minutes are necessary to preheat the burner. When most of the fuel in the cup has burned, close the vent screw and pump the furnace until the desired flame is obtained.

3.04 If the burner does not operate satisfactorily, it may be due to clogged jet block or insufficient preheating of the burner. The method of overcoming these difficulties is described in the following paragraphs. ↵

3.05 **Clogged Jet Block:** If the filter in the jet block becomes clogged, the jet block should be replaced. The method of removing and replacing a jet block is illustrated below.



REMOVING JET BLOCK



REPLACING JET BLOCK

3.06 The jet block is equipped with a copper-asbestos washer to provide a leakproof fit using moderate pressure on the wrench. When removing or replacing the jet block, brace the coil against the direction of the applied force in order to

prevent turning the burner or bending the coil and throwing the orifice out of alignment.

3.07 **Burner:** As the furnace is subject to shocks during transportation and handling, some of the carbon that has accumulated in the burner during previous burnings may jar loose and be forced through the burner, lodging on the inner end of the jet block. If examination of the block shows considerable deposit of carbon, the burner should be replaced as covered in Paragraph 5.02.

3.08 **Insufficient Preheating:** A large and bushy yellow flame or one which rapidly increases to abnormal size, or a thin stream of yellow flame which spurts high above the top plate are indications that the burner has not been heated sufficiently. When this occurs, open the vent, swing the flue back and after the burner has cooled, pour fuel directly into the drip cup. Do not pour the fuel on the burner. Restore the flue to its normal position, ignite the wick and close the doors. If, after the burner has been heated a second time, it continues to act as though it is insufficiently heated, it is an indication that the burner has become carbonized and needs to be replaced.

3.09 Preheating the burner a second time results in considerable lost time. It is, therefore, desirable to determine as soon as practicable for a particular furnace just how much fuel is required for preheating. Furthermore, insufficient preheating may create a hazard as a stream of burning fuel may be thrown several feet in the air. Do not start a furnace in a tent.

4. EXTINGUISHING THE FLAME

4.01 The flame should be extinguished by closing the hand valve tightly. In case the hand valve is too difficult to turn or is inoperative, the flame can be extinguished by releasing the pressure in the tank by unscrewing the filler plug slowly. Extinguish the flame when the furnace is not needed for an hour or more in order to prolong the life of the burner and conserve fuel.

5. MAINTENANCE

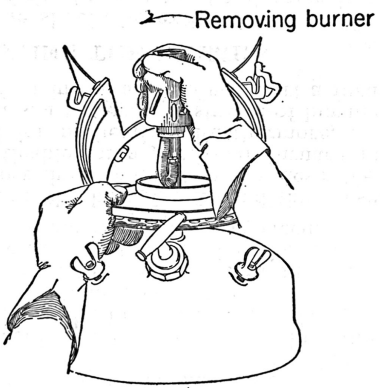
5.01 A furnace in daily use should be inspected about once each week and the following operations performed:

(a) Clean the furnace thoroughly. Remove soot from the inside of the flue and remove paraffin or solder drippings from the drip cup and saucer.

(b) Lubricate the leather of the pump by applying a few drops of oil along the pump rod.

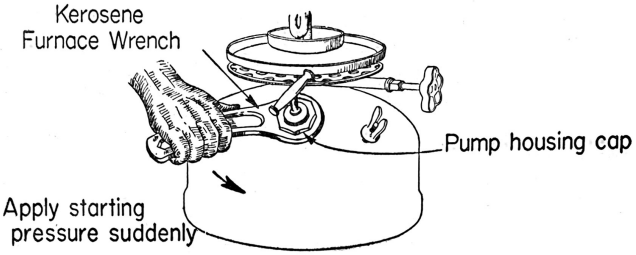
(c) Take up any loosening that has developed in the jet block.

5.02 **Burner:** A defective burner can be replaced in the field as follows: Expose the burner by swinging back the flue. To remove the burner grasp the upper part of the burner with one hand and the saucer and heat dissipator with the other hand. Then twist the burner sharply in a counterclockwise direction. As a guide for installing the new burner, note the number of turns required to remove the old burner. The replacement burner is equipped with a pipe cap to protect the threads on the end of the coil. Remove the cap with a pair of combination pliers and transfer it to the old burner. Coat the threads with stearine and screw the new burner in place by hand. Line up the opening in the burner with the opening in the top plate, otherwise part of the flame will strike the bottom of the top plate. If the burner leaks at the threads, take up one full turn on the burner.



5.03 If the old burner is carbonized but not badly burned or otherwise damaged, it should be returned in accordance with local routine.

5.04 **Pump:** If the pump is defective, it should be returned in accordance with local routine. The pump can be removed as shown in the following sketch. Coat the threads on the new pump cap with stearine, place the pump in the tank and tighten the cap firmly with the wrench. Lubricate the cup leather by applying a few drops of oil along the pump rod.



5.05 **Replacement Parts:**

Block, Jet, for Kerosene Furnace

Burner, for Kerosene Furnace

Needle, Cleaning*

Plug, Filler, for Kerosene Furnace

Pump, for Kerosene Furnace

*For cleaning the orifice in the jet block of an HV Furnace that is not equipped with a filter.