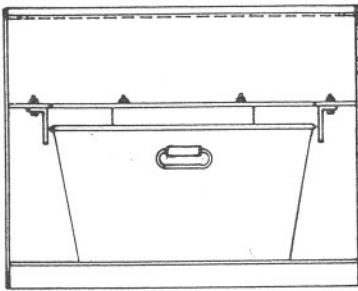
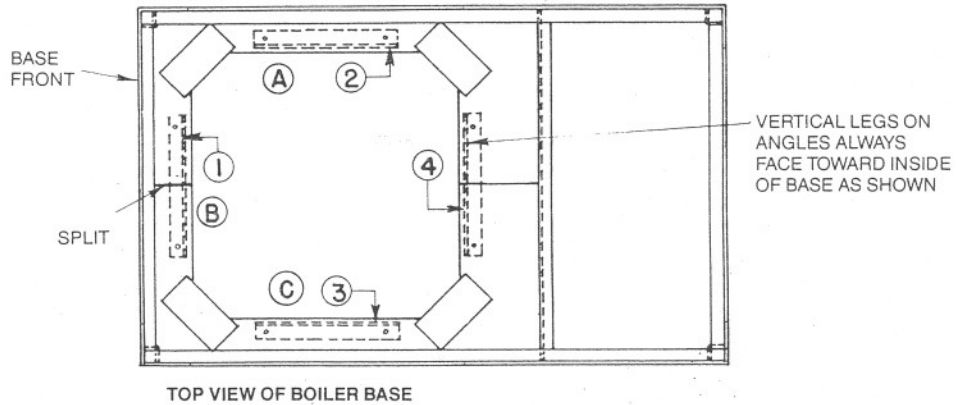


TO SET UP BASE AND INSTALL ASH CAN GUIDE ANGLES



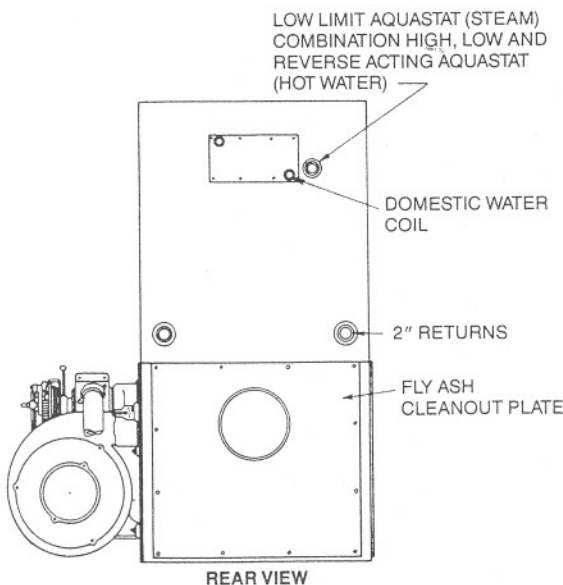
SECTIONAL VIEW OF
BOILER BASE



TOP VIEW OF BOILER BASE

1. Make sure that foundation for boiler base is level and smooth.
2. Locate base so that ash pit door has ample clearance, is in a convenient location for can removal, that bin feed pipe will be in proper position in bin, and so there will be enough room behind boiler for removal of the water coil. The ash pit door and stoker may be installed on either side or front of base convenient to coal bin. The bin feed on the stoker can be assembled to feed from either the right or left side of the stoker.
3. When ash pit door is installed at position "A" bolt ash can guide angles in positions 1, 3 and 4.
4. When ash pit door is installed at position "B" bolt ash can guide angles in positions 1, 2, 3 and 4. When bolting the guide angle in position 1 be sure to place it on top of the ash guide (used in this case to hold 2 halves of ash guide together), with bolt head on underside of ash guide.
5. When ash pit door is installed at position "C" bolt ash can guide angles in positions 1, 2 and 4.

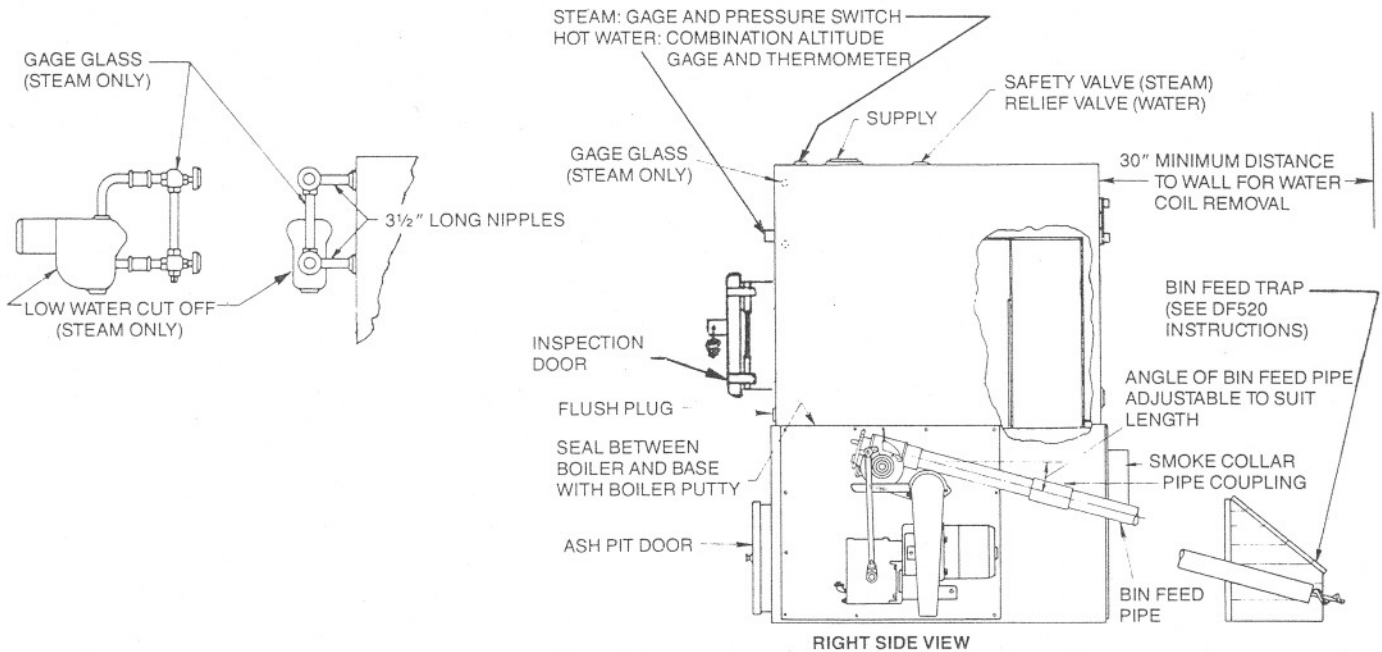
TO SET UP BOILER



REAR VIEW

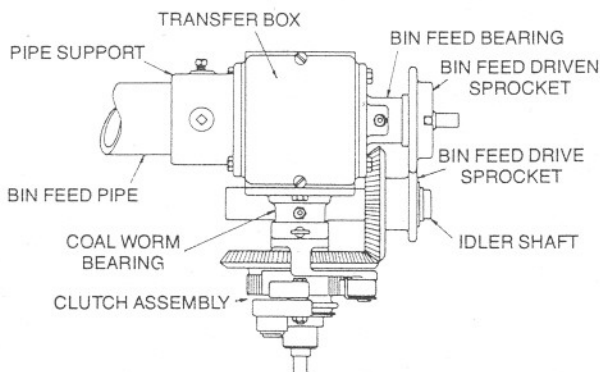
1. Apply boiler putty on top edge of base and set boiler in place. Carefully seal between boiler and base, including space between boiler and top of divider plate in base.
2. Steam Boiler: Install pressure gage and limit switch (use siphon loop as shown on piping diagram), safety valve, low limit aquastat. Water gage and low water cut off shall be installed as shown on next page. (Do not install until finished jacket is on boiler). Gage glass mounted low water cut off must be used.
Hot Water Boiler: Install combination altitude gage and thermometer and combination high, low and reverse acting aquastat.
3. Bolt ash pit door in place.
4. Wrap boiler with insulation which is furnished in 3 pieces. The large piece covers the top and sides of the boiler. The 2 smaller pieces cover the front and rear of the boiler. 2 straps and clips are furnished to secure insulation to the boiler.

TO INSTALL STOKER



1. Stoker is shipped assembled ready for installation with bin feed pipe, for 8' of coal worm. Longer lengths of bin feed pipe are supplied by dealer. Bin feed worms, sprocket and drive chain are packed separately. Bin feed parts as assembled can be reversed to suit installation.
2. Ash guide inside boiler base must be dropped down on the base floor plate in order to install the stoker. The ash guide is split in two pieces to facilitate dropping it.
3. Bolt assembled stoker and plate to side of boiler base. Be sure plate gaskets are in place.
4. Insert first length of bin feed pipe into support on transfer housing, tighten set screws.
5. Insert bin feed drive worm into pipe and push shaft through bearing. Place bronze thrust washer, sprocket, $\frac{1}{4}$ " x 1" offset head cotter pin on shaft in that order. Assemble bin feed drive chain over sprockets.
Angle of bin feed pipe is adjusted by loosening two screws that hold transfer housing to mounting bracket. Raise or lower to proper angle and tighten screws securely.
6. Slide cast iron coal pipe coupling over bin feed pipe that is in place. Assemble remaining coal worm sections and pipe. Coal worm shaft couplings have a right hand thread. Bin feed pipe sections butt together inside coal pipe coupling. Block up end of pipe in bin so that bin feed worm clears the floor. Installation of a bin feed trap, to facilitate servicing, is recommended as shown.
7. Before starting stoker, be sure to put proper oil in oil reservoir (supplied with stoker). Lubricate motor and other parts as indicated on instruction card.
8. The coal feed setting should not be less than 4 teeth of ratchet drum to maintain hold fire during periods when no heat is required. The approximate air settings, as numbered on air indicator plate, correspond to number of teeth of ratchet drum coal feed. This will vary slightly to suit grade of coal being used. No. 2 buckwheat (rice) anthracite is recommended. The check pawl of the ratchet drive shall be adjusted by rotating the check pawl stud, so that the check pawl tooth contacts with a minimum of back lash.

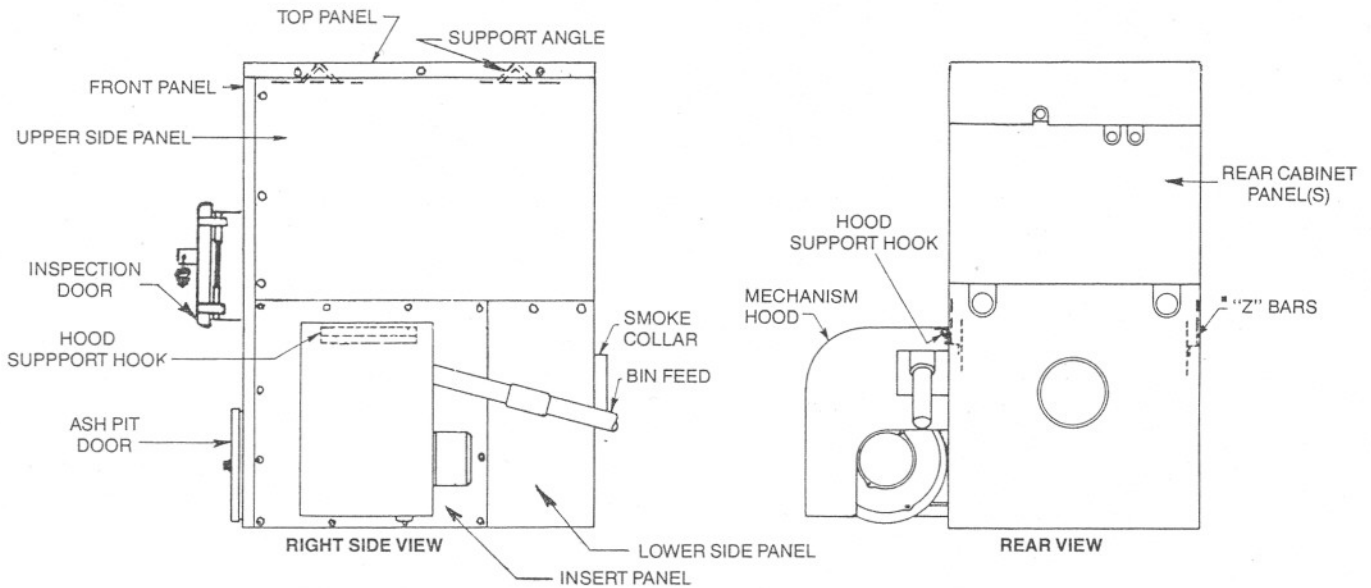
TO REVERSE BIN FEED



The bin feed bearing and pipe support can be assembled on either side of the transfer box. When switching the bin feed bearing from one side to the other the idler shaft with bevel gear and bin feed drive sprocket must also be switched. This is accomplished by unscrewing the idler shaft and reassembling it on the opposite side of the coal worm bearing.

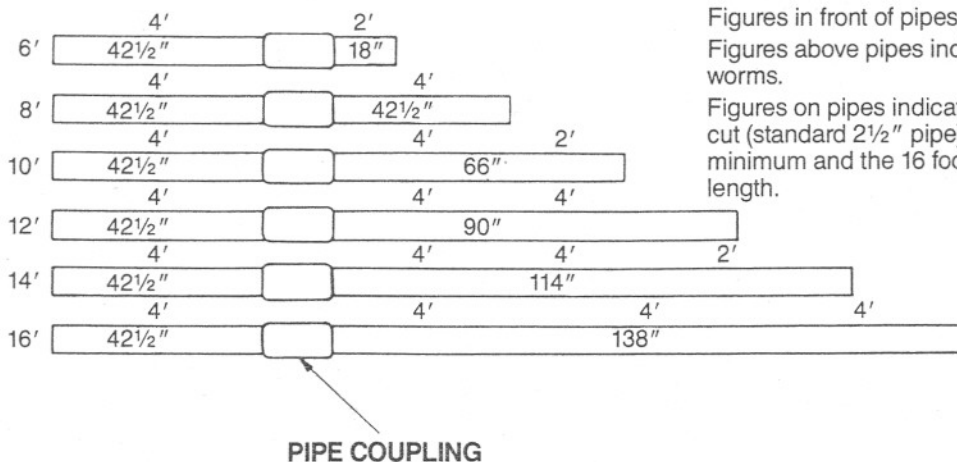
TO ASSEMBLE CABINET

(Cabinet is supported from top of boiler)



1. Place cabinet support angles on top of boiler approximately 12 inches from front of boiler and 6 inches from rear of boiler. On the end of each angle is a tab with hole. Thread a sheet metal screw into each hole. Turn screw in as far as possible. Point of screw touches side of boiler which holds support angles in position.
2. Place upper side panels in position and hang from support angles by placing flange along top edge over ends of support angles. Flanged end of panel goes toward rear of boiler.
3. Place front panel in position inside upper side panels and fasten with 3 sheet metal screws on each side.
4. The cabinet top panel is furnished in two halves. Place in position with flanges located to the outside of both side panels, front and rear panels. The two halves of the top panel lap over each other along the center. Fasten in place with sheet metal screws as required.
5. Fasten lower side panels to upper side panels with 2 sheet metal screws on each side. Flanged edges go to rear and bottom.
6. Place rear panels in position. Fasten to rear flange of each side panel and along the edge where they overlap with sheet metal screws as required.
7. Fasten "Z" Bars to top edge of boiler base side plates by placing slots over 2 center studs of base plates. Leg of "Z" Bar with $\frac{1}{8}$ " holes points upward. Use flat washers over these studs before turning on the nuts. The 2 top center sheet metal screws for fastening the side panel insert plates in position are threaded into the above mentioned "Z" Bars.
8. Mount 3 insert panels in appropriate locations. Insert panel for stoker location is split in two to facilitate mounting around stoker.
9. Hang stoker hood in position, support on hook strip.

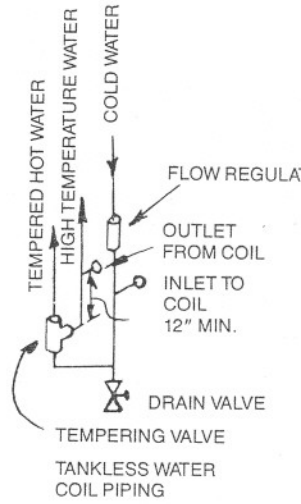
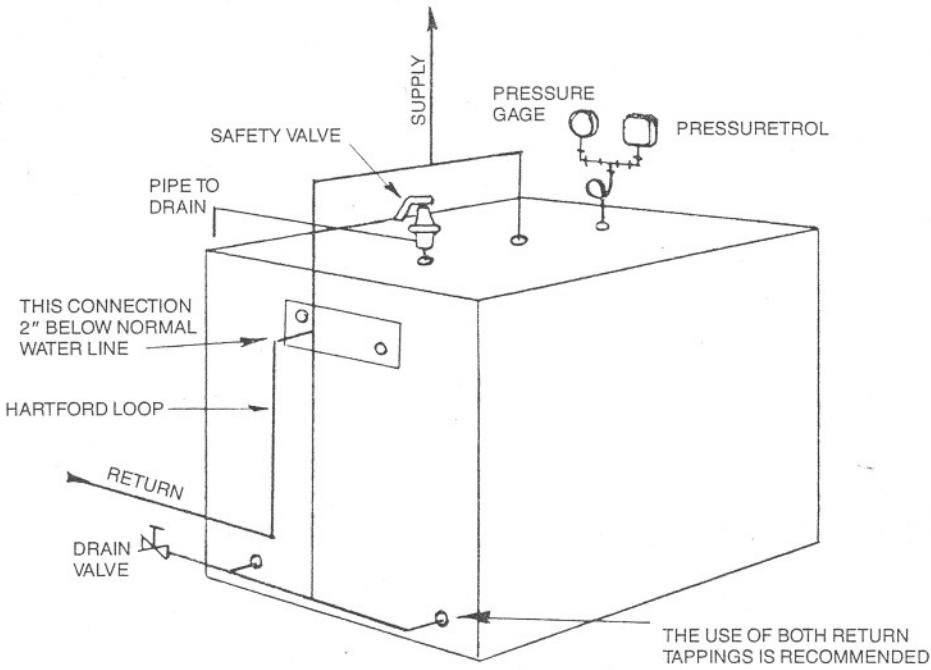
BIN FEED PIPE LENGTHS



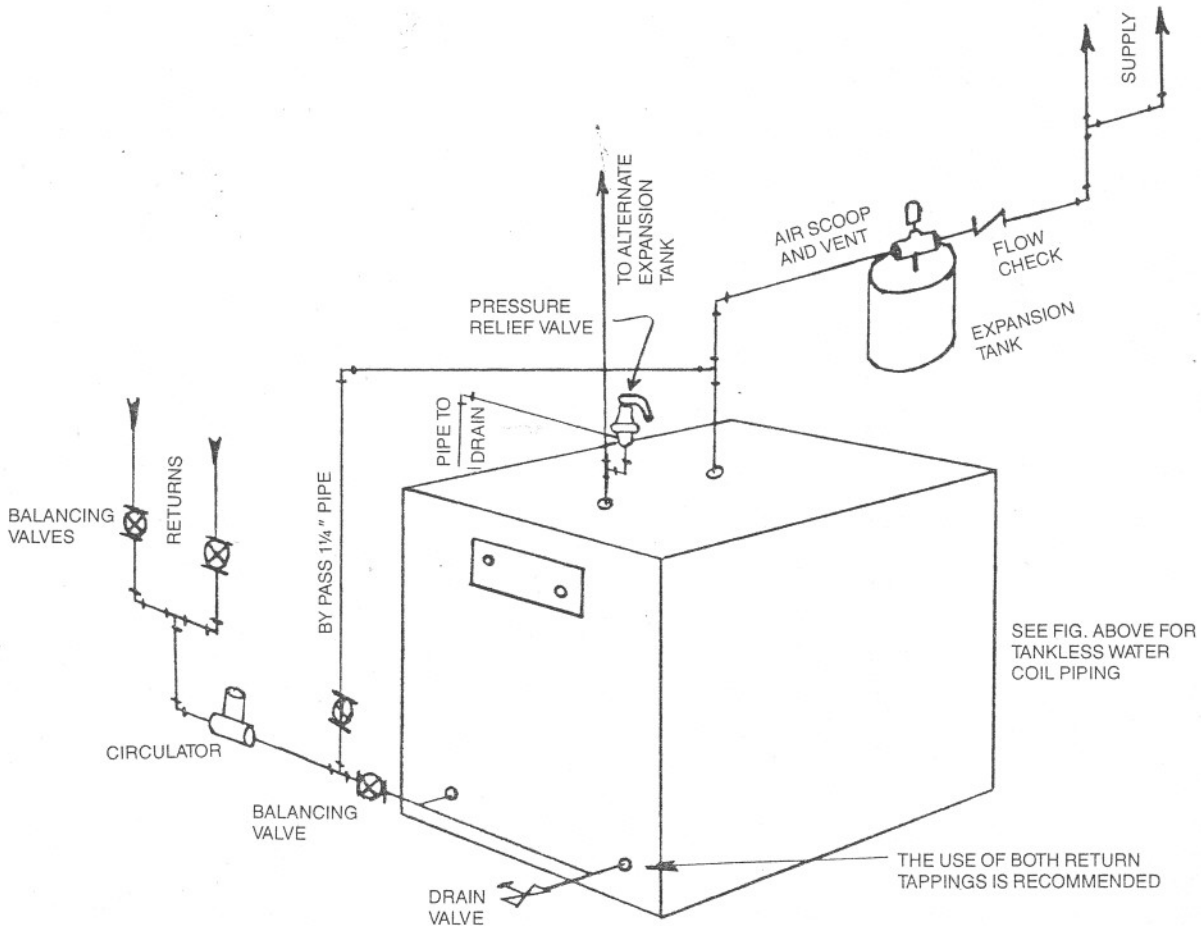
Figures in front of pipes indicate total length of bin feed. Figures above pipes indicate length and location of coal worms.

Figures on pipes indicate lengths to which pipes must be cut (standard 2½" pipe). The 6 foot long bin feed is the minimum and the 16 foot is the maximum recommended length.

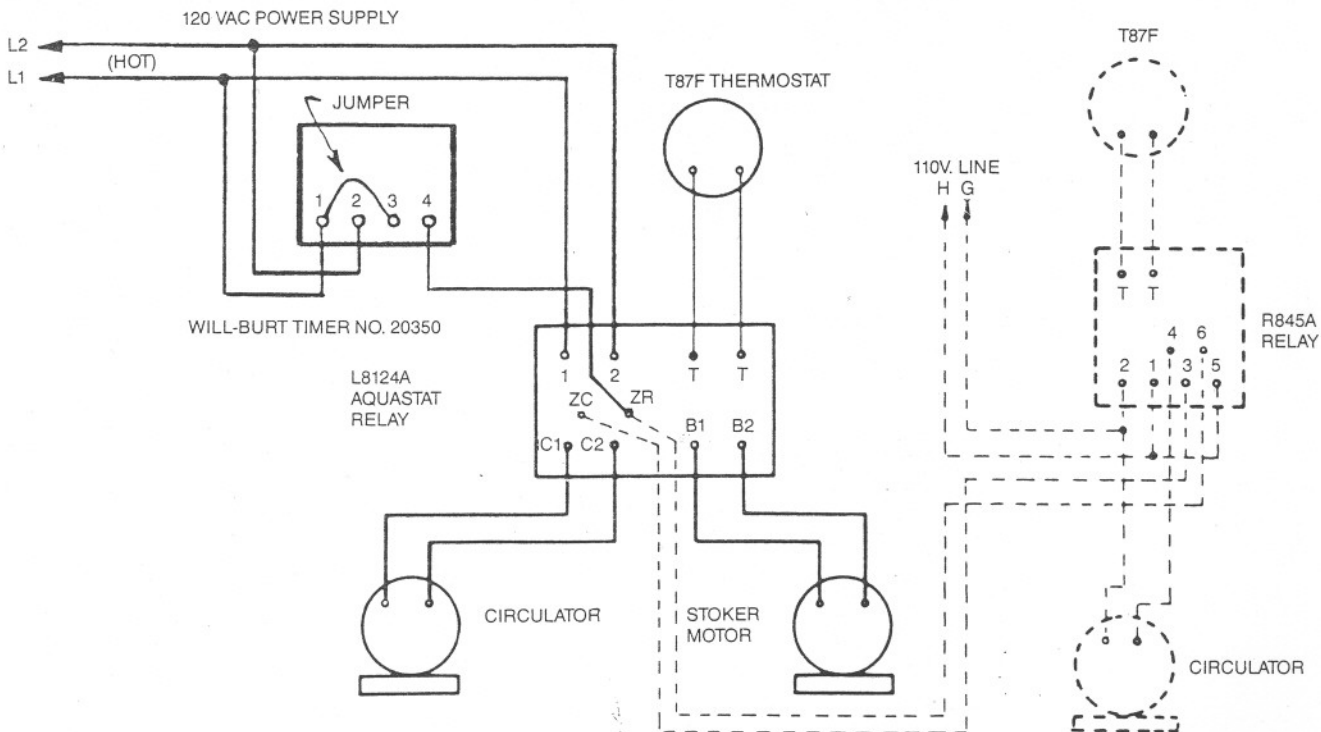
STEAM PIPING LAYOUT



FORCED CIRCULATING HOT WATER PIPING LAYOUT



FORCED HOT WATER SYSTEM



STOKER CONTROLS
FORCED CIRCULATING HOT WATER
WITH DOMESTIC HOT WATER
PACKAGE NO. 2

NOTE:
**DOTTED PORTION IS FOR ADDITIONAL
ZONE IF DESIRED**
ALL WIRING SHOWN IS FIELD WIRING
THERMOSTAT TO TT ON AQUASTAT IS 24 VAC
ALL OTHER WIRING IS 120 VAC

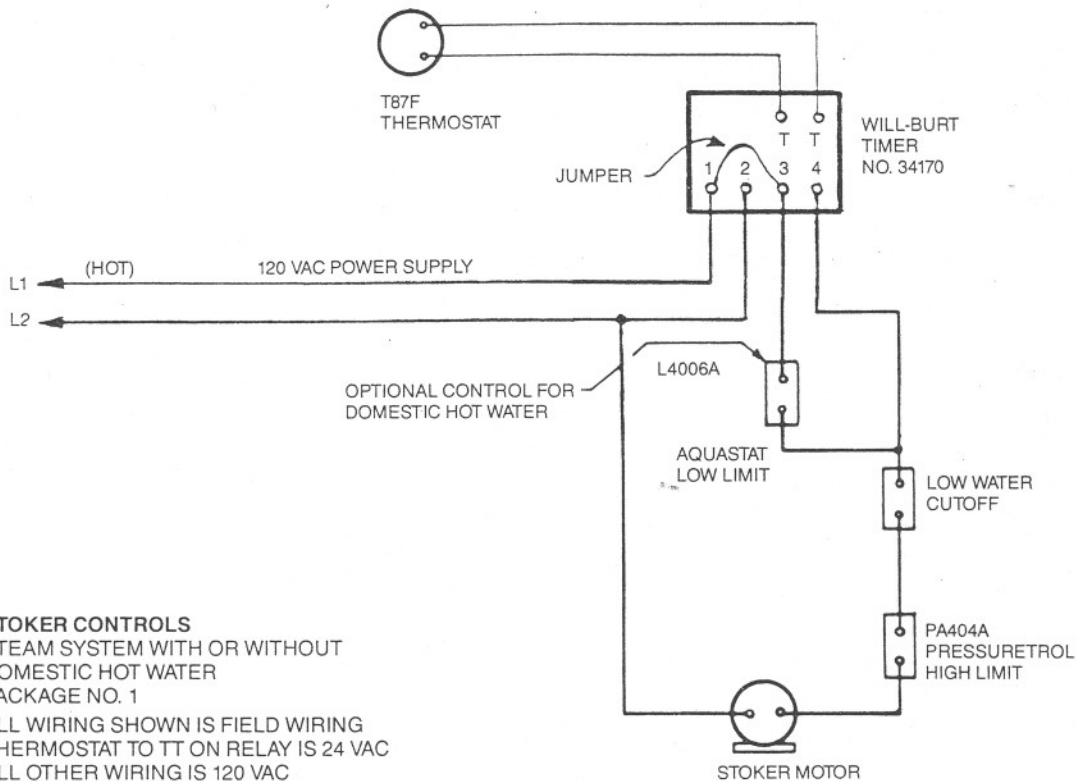
Wiring Diagram of Stoker Control Package No. 2: Controls for Forced Circulating Hot Water System with Domestic Hot Water: includes controls which permit both the stoker and circulator to start simultaneously when the thermostat calls for heat. This method of operation is sometimes preferred, as it eliminates a possible lag in boiler water temperature pickup if stoker operates only on a low water temperature setting. The L8124A is a combination control consisting of a relay for circulator and stoker operation and a triple function aquastat serving as high limit controller to shut down the stoker if the boiler water temperature exceeds the setting of the high limit control; a low limit controller for maintaining a minimum boiler water temperature for domestic hot water service and a circulator controller to prevent circulator operation when boiler water temperature is too low to provide both domestic hot water and house heating.

The relay starts the circulator and the stoker when the ther-

mostat calls for heat, provided the boiler water temperature is above the low limit setting. The high limit is usually set at 200° or higher, if boiler operating temperature must be 190°. The low limit is set at 160°. If varied from these settings, there must never be less than 20° between the high limit and low limit for proper operation. The reverse acting aquastat setting is made at the differential which is set for the number of degrees desired below low limit setting. The timer is set for two (2) minutes operation every hour. This may vary to suit the coal feed setting for "hold fire" purposes.

The dotted portion of this wiring diagram shows the use of an additional thermostat and an R845A relay to operate a separate circulator when zoning a system. One or more of these additional zone sets may be used and still retain the functions of the L8124A.

STEAM SYSTEM



STOKER CONTROLS

STEAM SYSTEM WITH OR WITHOUT DOMESTIC HOT WATER PACKAGE NO. 1

ALL WIRING SHOWN IS FIELD WIRING
THERMOSTAT TO TT ON RELAY IS 24 VAC
ALL OTHER WIRING IS 120 VAC

Wiring Diagram of Stoker Controls for Steam System Control Package No. 1 consists of thermostat, stoker relay, and low limit aquastat. The timer is set for two (2) minutes operation each hour. This may vary to suit the coal feed setting for "hold fire" operation. The low limit aquastat is set for 150° to 160° to maintain a minimum

boiler water temperature for domestic water supply. The high limit pressuretrol PA404A is set for 1 lb. to 3 lb. maximum on average domestic heating systems. Set differential of this control to suit job, as per M-H instructions. The low water cutoff should be installed in accordance with manufacturer's instructions.



EFM Heating Equipment Division

General Machine Corporation
Emmaus, PA 18049