Giant Factories Inc.

40 AVE. LESAGE • MONTREAL EST H1B 5H3

PLUMBING AND ELECTRICAL INSTALLATION INSTRUCTIONS FOR 100 GAL. & 80 GAL. ELECTRIC WATER HEATERS

GENERAL

The Information contained herein is applicable to all 80 & 100 gal. electric water heaters.

SINGLE PHASE: 120V, 208V, 240V
THREE PHASE: 208V, 240V, 416V, 600V

HANDLING

See Fig. No. 1 for suggested method of handling and hoisting heater into position.

Do Not Use the shipping nipple for the installation of plumbing fittings.

Do Not Hoist heater by the hot outlet nipple.

PLUMBING

1. Refer to Fig. No. 2 for outline dimensions and identification of fittings.

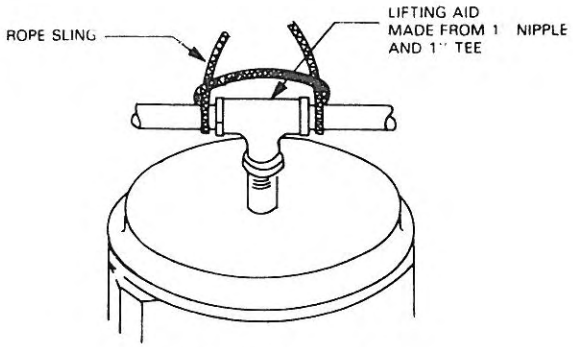
   Refer to Fig. Nos. 4 and 5 for multiple heating installations. Note that for a twin heater installation, one half of Fig. No. 5 applies.

2. The nipples in the water heaters are usually plastic lined galvanized nipples. The plastic lining serves as a corrosion barrier and will safely withstand boiling water. It will not, however, withstand the heat from a soldering torch.

   Refer to Fig. Nos. 3A and 3B for recommended method of connections.

3. Use pipe sizes adequate to handle the expected flow and volume of water. Copper tubing or galvanized pipe should be used. See Plumbing diagrams for minimum piping sizes.

   Select a location for the water heater which will provide hot water piping as short as possible to the various fixtures.



SUGGESTIONS FOR HANDLING AND HOISTING

FIG. 1

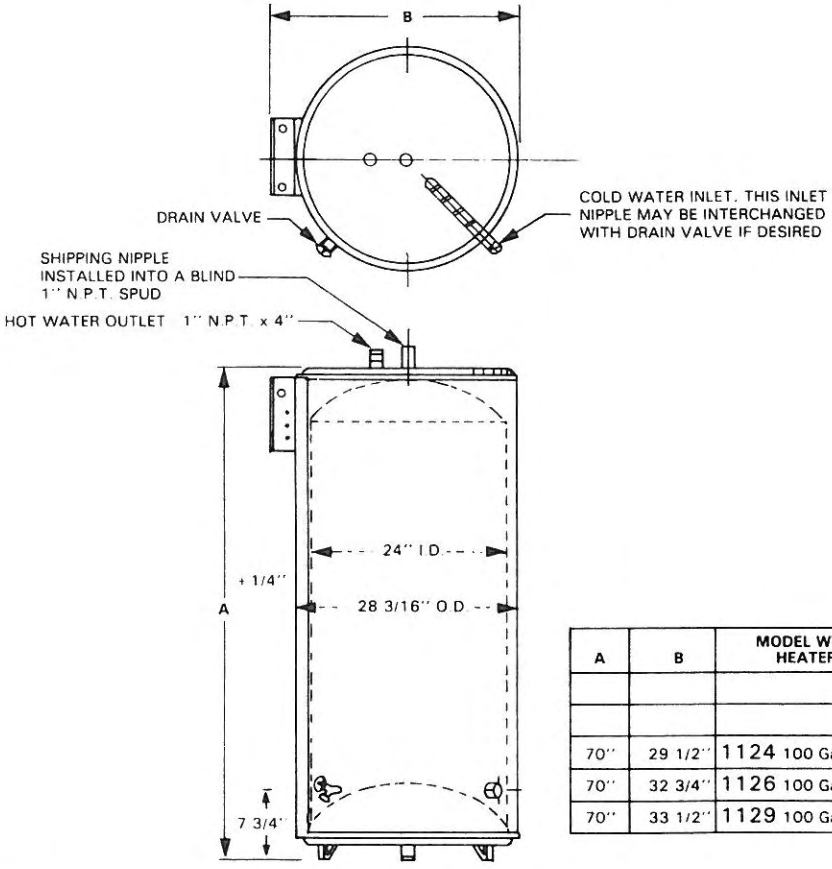
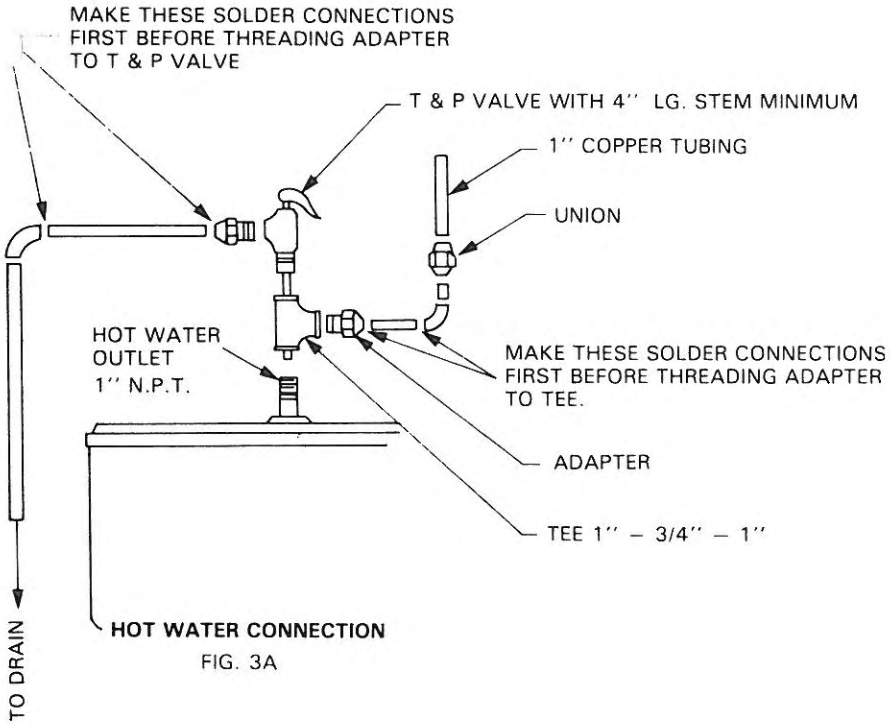


FIG. 2

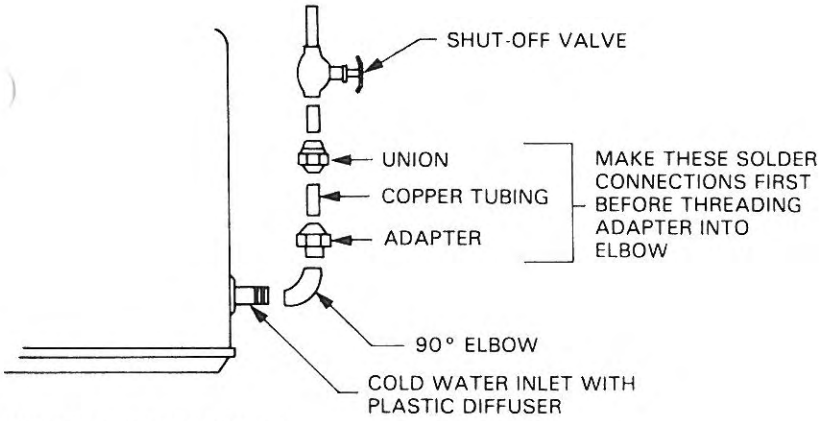
A	B	MODEL WTR. HEATER
70"	29 1/2"	1124 100 Gallon
70"	32 3/4"	1126 100 Gallon
70"	33 1/2"	1129 100 Gallon

SINGLE HEATER INSTALLATION



HOT WATER CONNECTION

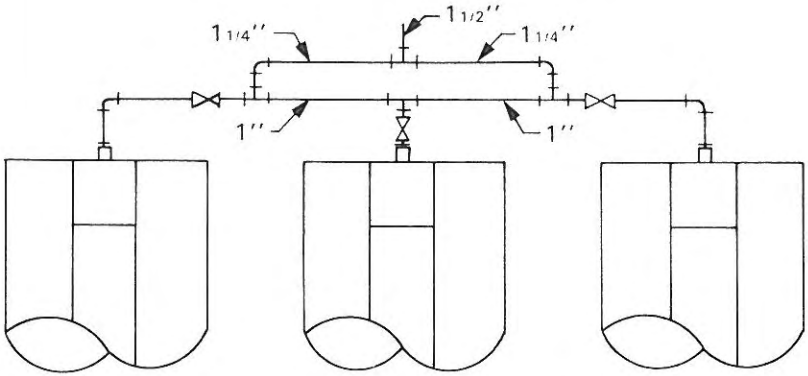
FIG. 3A



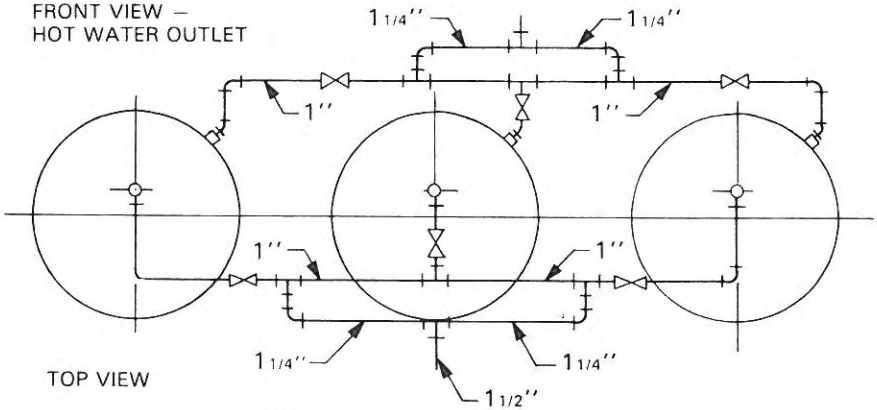
COLD WATER CONNECTION

FIG. 3B

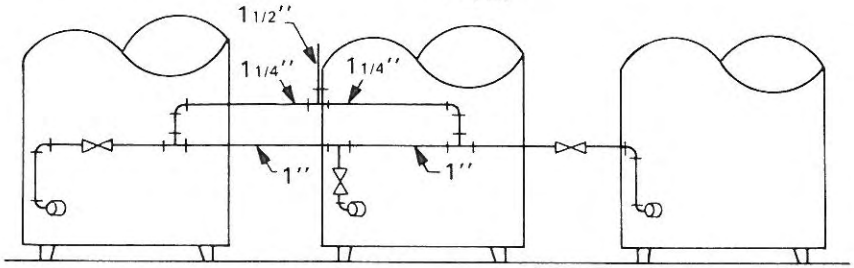
MANIFOLD LAYOUT
SCHEMATIC HOT AND COLD WATER – THREE HRT. CONN.



FRONT VIEW –
HOT WATER OUTLET



TOP VIEW



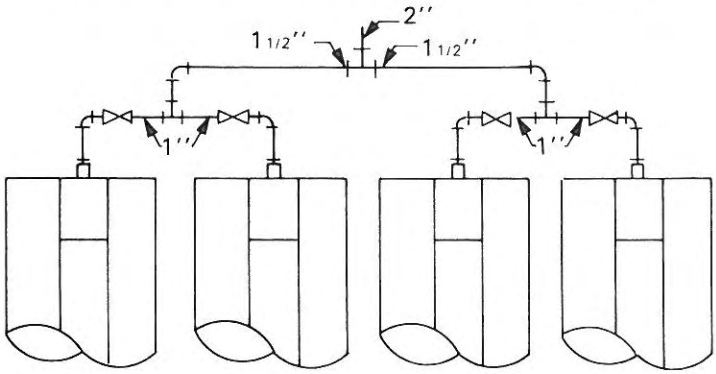
REAR VIEW –
COLD WATER INLET

FIG. 4

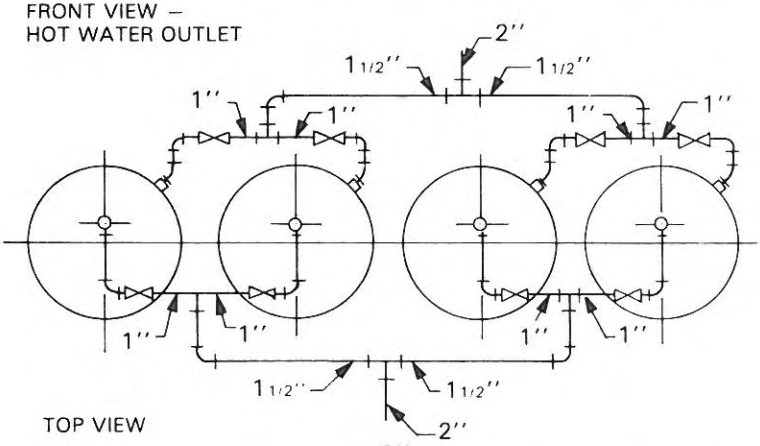
NOTE: 1. MINIMUM SPACING OF HEATERS
34'' CENTRE TO CENTRE OR AS
CONVENIENT PER INSTALLATION.

2. PIPE SIZES ARE MINIMUM RECOMMENDED

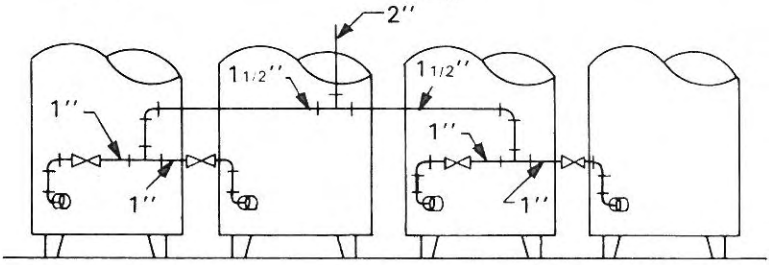
MANIFOLD LAYOUT
SCHEMATIC HOT AND COLD WATER – FOUR HTR. CONN.



FRONT VIEW –
HOT WATER OUTLET



TOP VIEW



REAR VIEW –
COLD WATER INLET

FIG. 5

NOTE: 1. MINIMUM SPACING OF HEATERS
34'' CENTRE TO CENTRE, OR AS
CONVENIENT PER INSTALLATION.

2. PIPE SIZES ARE MINIMUM RECOMMENDED

PLUMBING (cont'd)

4. After cutting pipe or tubing, clean out all chips and cuttings from pipe.

5. Install a shut-off valve near the cold inlet to the tank.

6. Install a temperature and pressure relief valve at the hot outlet of the tank. The valve must have a 150 psi. pressure rating and 210° maximum relieving temperature. Valve must be installed as shown in the diagram. No shut-off of any kind must be installed at the outlet end of the valve. The outlet end must be open, and a pipe installed to carry possible run-off to a suitable drain.

7. After completing all plumbing connections, test for leaks before turning on power to the heater: TANK MUST BE ABSOLUTELY FULL OF WATER BEFORE POWER IS TURNED ON.

8. When heater is installed on mezzanine or above equipment that may be damaged in case of water leaks; heater must be placed into a shallow drip pan which has a pipe leading to drain.

ELECTRICAL

1. Elements have been standardized in the past few years. They are marked with a rating in volts and watts.

   Elements marked 120V are applicable for supply voltages from 110V to 125V, elements marked 208V are intended for a supply voltage of 208V, and elements marked 240V are for supply voltages of 220V to 240V, and elements marked 600V are intended for a supply voltage of 600V, connected in delta. Elements marked 347V are for a supply voltage of 600V and are installed in a 3 phase Y or star configuration. For simplicity, when discussing voltages, the voltage marked on the element will be used.

2. All heaters require a separate ground wire for hookup to the electric fuse panel. All wires have to be of adequate size to handle the load. Follow local codes for all electrical work. Listed below is a tabulation of amps. vs. watts, for single phase and three phase heaters.

ELECTRICAL (cont'd)

TABLE 1

ELEMENT WATTS	RATED VOLTAGE		
	120V	208V	240V
	AMPS.	AMPS.	AMPS.
2000	16.6	9.6	8.3
3000	25.0	14.4	12.5
4000	33.3	19.2	16.6
5000	41.6	24.0	20.8
6000		28.8	25.0

For single phase water heaters

TABLE 2

ELEMENT WATTS	ELEMENT RATED VOLTAGE				
	208V	240V	347V	480V	600V
	AMPS.	AMPS.	AMPS.	AMPS.	AMPS.
2000	16.6	14.4	5.8	7.2	5.8
3000	25.0	21.6	8.7	10.8	8.7
4000	33.3	28.8	11.5	14.4	11.5
4500	37.4	32.4	13.0	16.2	13.0
5000	41.6	36.0	14.4	18.0	14.4
6000	50.0	43.2	17.3	21.6	17.3

For three phase heaters. **NOTE**: Ampere ratings are for elements in delta connection except 347V elements. This rating is in Y or star connection.

The amperages given in tables 1 and 2 are for heaters wired to operate in a flip-flop manner. For simultaneous operation multiply amperages by two (2).

3. All heaters listed in this manual are shipped from the factory wired for simultaneous operation, with the exception of models 1122 & 1124 which are wired for flip-flop operation. With the flip-flop method of wiring, only one element or group of elements can be on at a time. Refer to wiring diagrams for details, and also how to change from simultaneous operation to flip-flop or vice versa. (Fig. 8, 9, 10, 11, 12, 13 & 14).

ELECTRICAL (cont'd)

4. If replacement elements are required, it is recommended that only elements supplied by Giant Factories used. These elements are specifically designed for the GIANT glass lined tanks and substitute elements should be avoided.

5. Thermostats are factory set to 150°F. This should provide adequate hot water in the majority of cases. Is a dishwasher is used, follow the recommendations of the manufacturer for temperature settings. Before replacing the door over the elements, make sure insulation is properly placed over the thermostats. This will ensure proper functioning of the thermostats.

6. Before turning on power, make sure tank is filled with water. Turning the power on without filling tank will in a short time - usually a few minutes - burn out the elements. To be sure tank is completely filled and no air cushion is left in the tank, leave one hot water tap open while filling until water runs evenly without evidence of air.

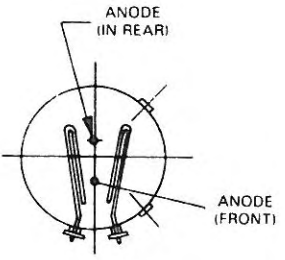
7. Turn on power and left the tank heat up.

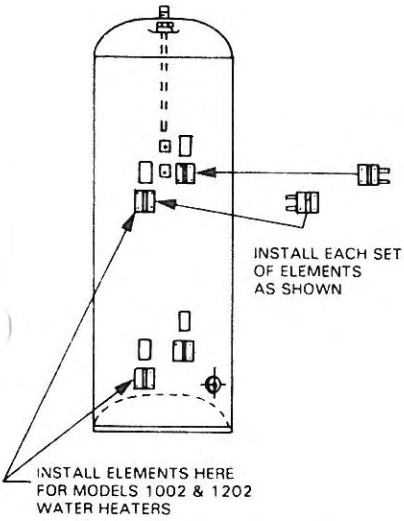
IMPORTANT

If local regulations require that a check valve must be installed in the cold water line to the tank, the pressure relief valve will open to discharge water when the tank heats up. This is normal and provision must be made to keep the discharge line from the relief valve open at all times and pipe the water to a point where no damage will occur.

100 gallons of water will expand by approximately 2 gallons when heated through 100°F temperature rise.

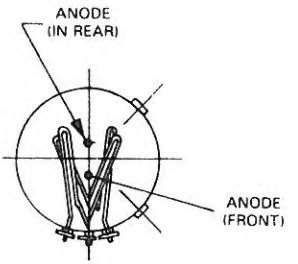
METHOD OF INSTALLING HEATING ELEMENTS IN COMMERCIAL ELECTRIC WATER HEATERS

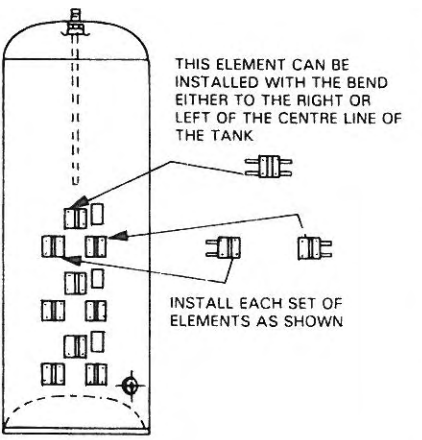




MODELS: 1122-1124

FIG. 6





MODELS: 1123-1126-1129

FIG. 7

WIRING DIAGRAM
6000W 240V; 5000W 208V;
MAXIMUM WATTAGE PER ELEMENT 3000W 120V
MODELS 1122, 1124, 1022 & 1024

NOTE: DOUBLE ELEMENT TANKS – THE BLUE & BLACK WIRES ARE CONNECTED TO ONE SIDE OF THE LINE AND THE YELLOW & RED WIRES CONNECTED TO THE OTHER IN THE JUNCTION BOX. ALL HEATERS ARE WIRED FOR FLIP-FLOP OPERATION.

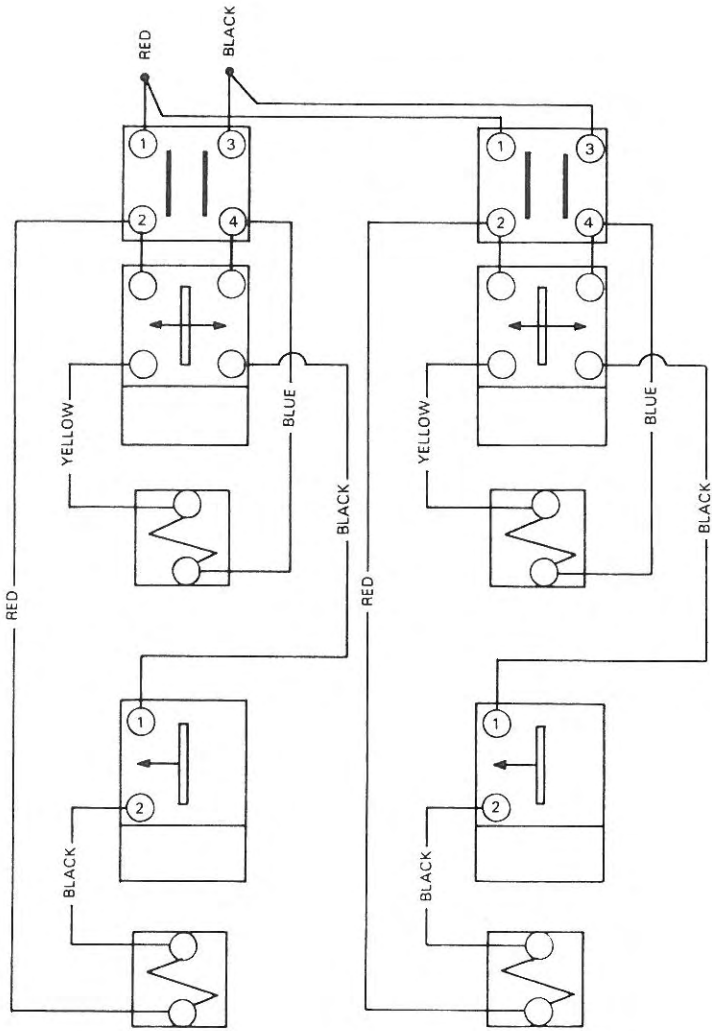


FIG 8

WIRING DIAGRAM
208V/204V SINGLE PHASE 100 GAL. HTR.
MODELS 1126 & 1026

NOTE: THESE MODELS ARE NORMALLY SHIPPED FROM THE FACTORY WIRED FOR SIMULTANEOUS OPERATION. TO CONVERT TO FLIP-FLOP OPERATION, MOVE BLACK WIRE FROM TERMINAL 1 ON UPPER THERMOSTAT AND CONNECT TO TERMINAL 4.

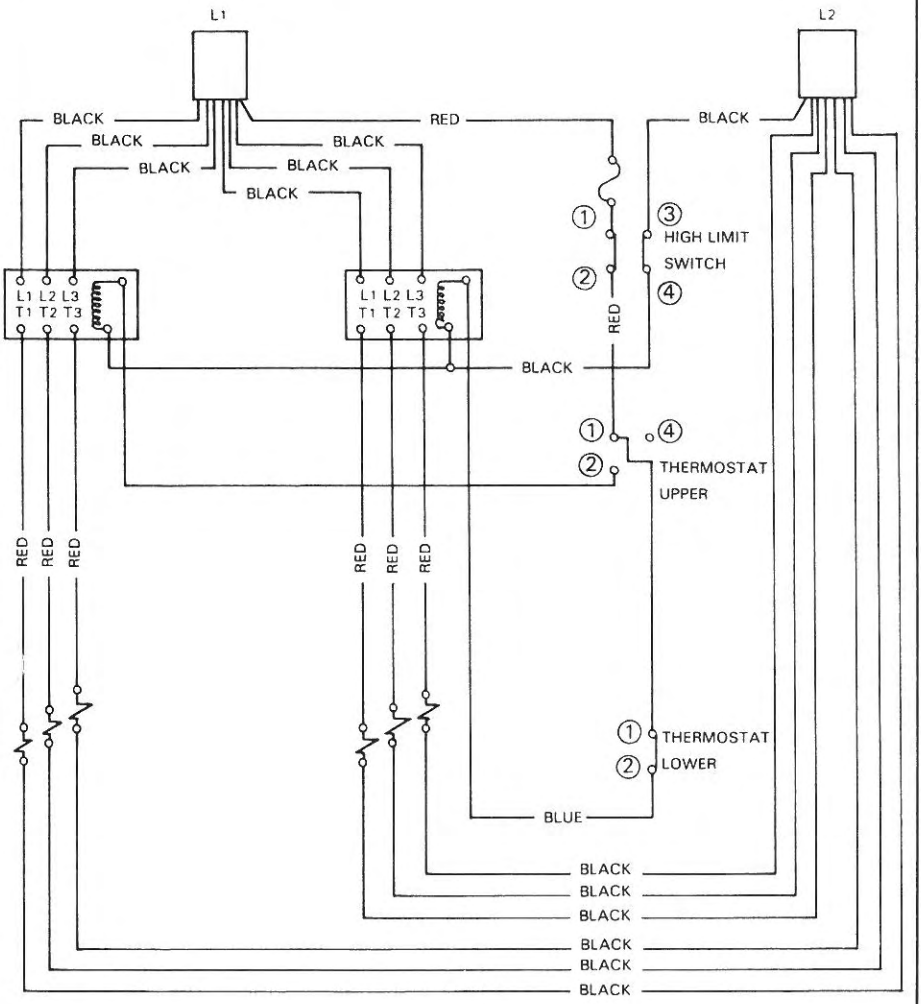


FIG. 9

WIRING DIAGRAM
208V/204V/600V 3-PHASE SINGLE 100 GAL. HTR.
MODELS 1126 & 1026

NOTE: THESE MODELS ARE NORMALLY SHIPPED FROM THE FACTORY WIRED FOR SIMULTANEOUS OPERATION. TO CONVERT TO FLIP-FLOP OPERATION, MOVE BLACK WIRE FROM TERMINAL 1 ON UPPER THERMOSTAT AND CONNECT TO TERMINAL 4

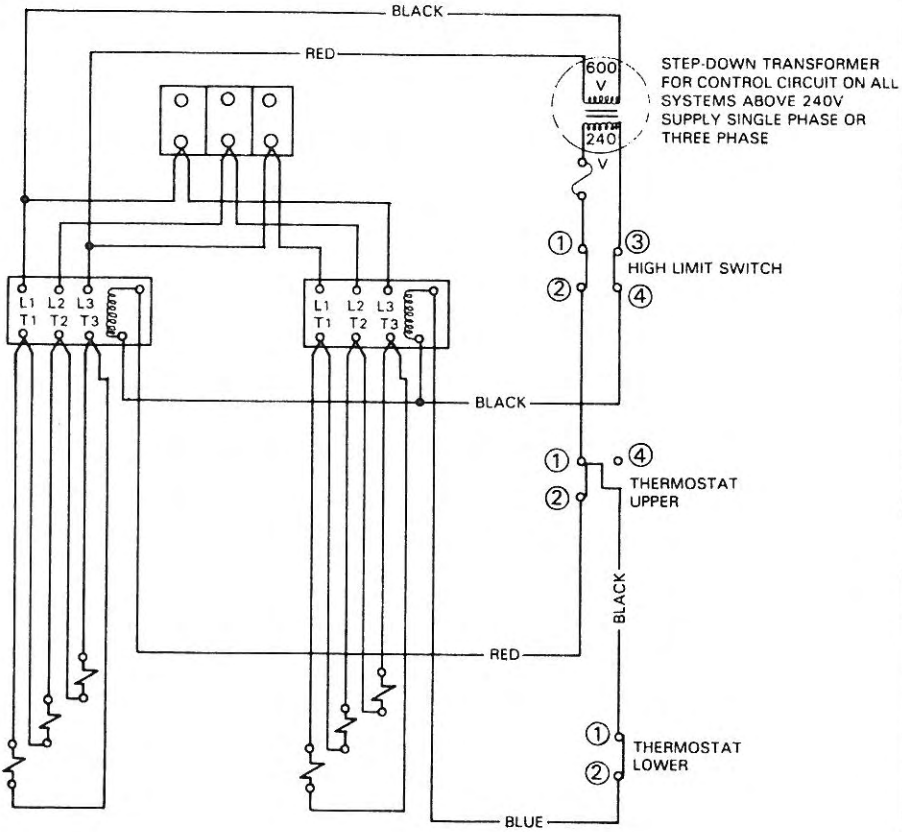


FIG. 10

WIRING DIAGRAM
208V/240V SINGLE PHASE 100 GAL. HTR.
MODELS 1129

NOTE: MODEL 1129 HEATERS ARE NORMALLY SHIPPED FROM THE FACTORY WIRED FOR SIMULTANEOUS OPERATION. TO CONVERT TO FLIP FLOP OPERATION REMOVE BLACK WIRE FROM TERMINAL 1 ON UPPER THERMOSTAT AND CONNECT TO TERMINAL 4. REMOVE RED WIRE FROM TERMINAL 1 ON CENTRE THERMOSTAT AND CONNECT TO TERMINAL 4.

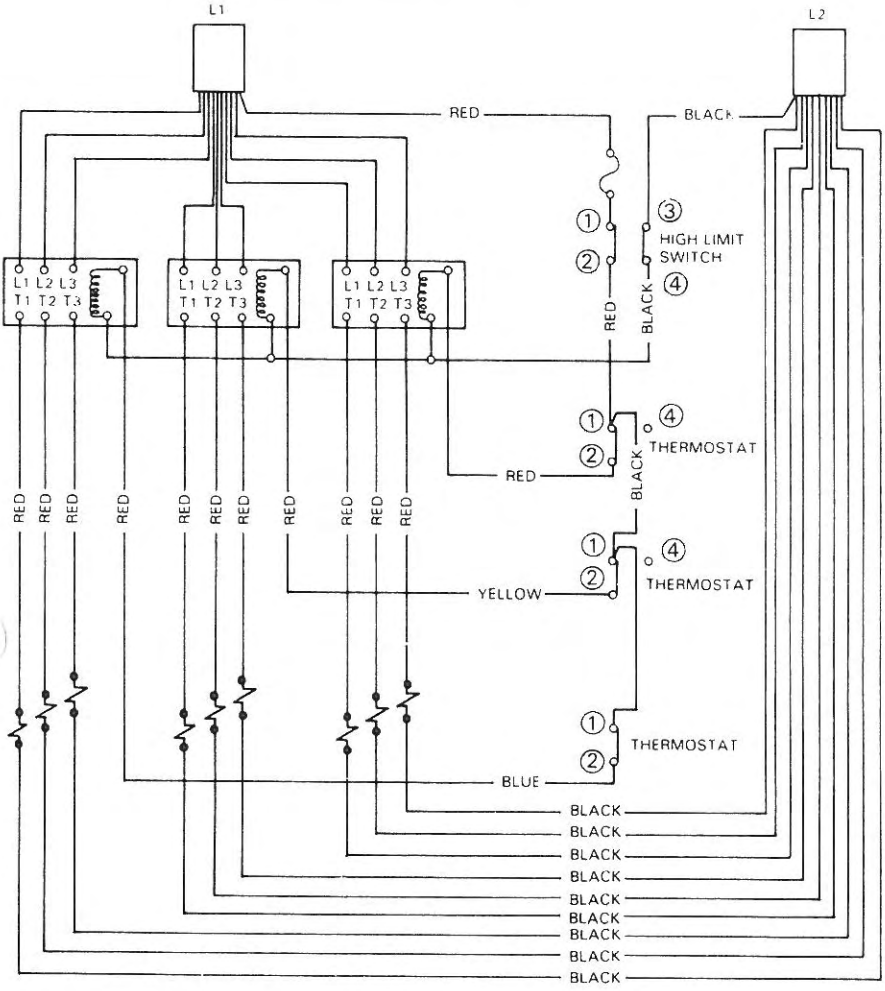


FIG 11

WIRING DIAGRAM
240V/600V 3PH 100G
MODELS 1129

NOTE MODEL 1129 HEATERS ARE NORMALLY SHIPPED FROM THE FACTORY WIRED FOR SIMULTANEOUS OPERATION. TO CONVERT TO FLIP-FLOP OPERATION, REMOVE BLACK WIRE FROM TERMINAL 1 ON UPPER THERMOSTAT AND CONNECT TO TERMINAL 4. REMOVE RED WIRE FROM TERMINAL 1 ON CENTRE THERMOSTAT AND CONNECT TO TERMINAL 4.

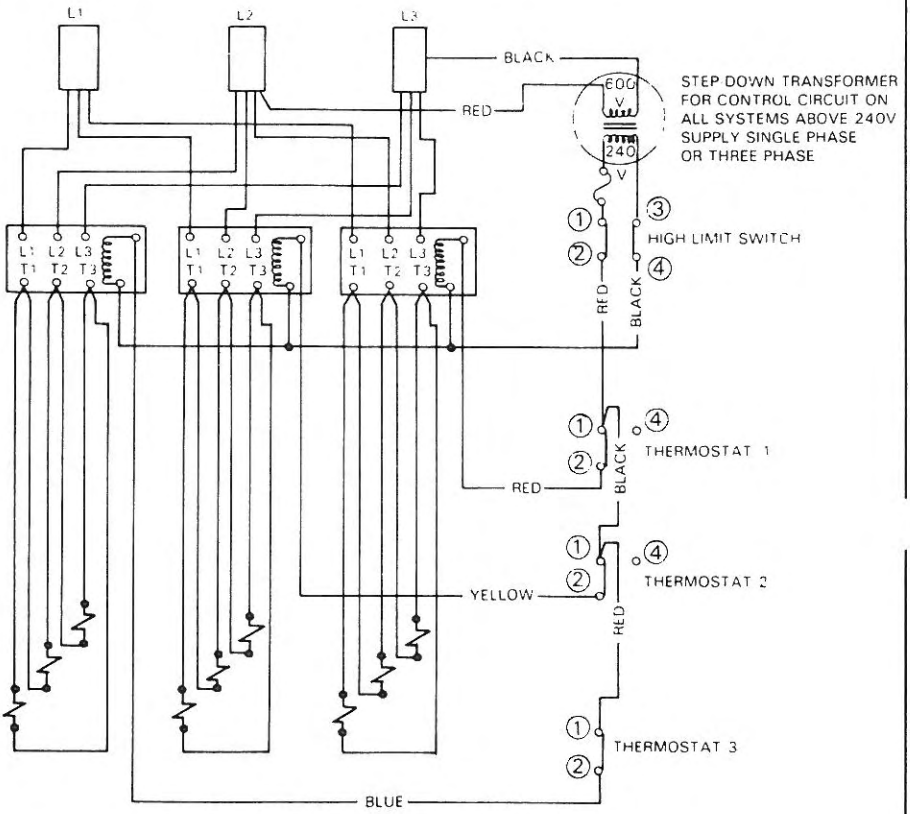


FIG 12

WIRING DIAGRAM
3-PHASE 416V LINE, 240V ELEMENTS
3-PHASE 600V LINE, 347V ELEMENTS
MODELS 1126 & 1026

NOTE: THESE MODELS ARE NORMALLY SHIPPED FROM THE FACTORY WIRED FOR SIMULTANEOUS OPERATION. TO CONVERT TO FLIP-FLOP OPERATION, MOVE BLACK WIRE FROM TERMINAL 1 ON UPPER THERMOSTAT AND CONNECT TO TERMINAL 4.

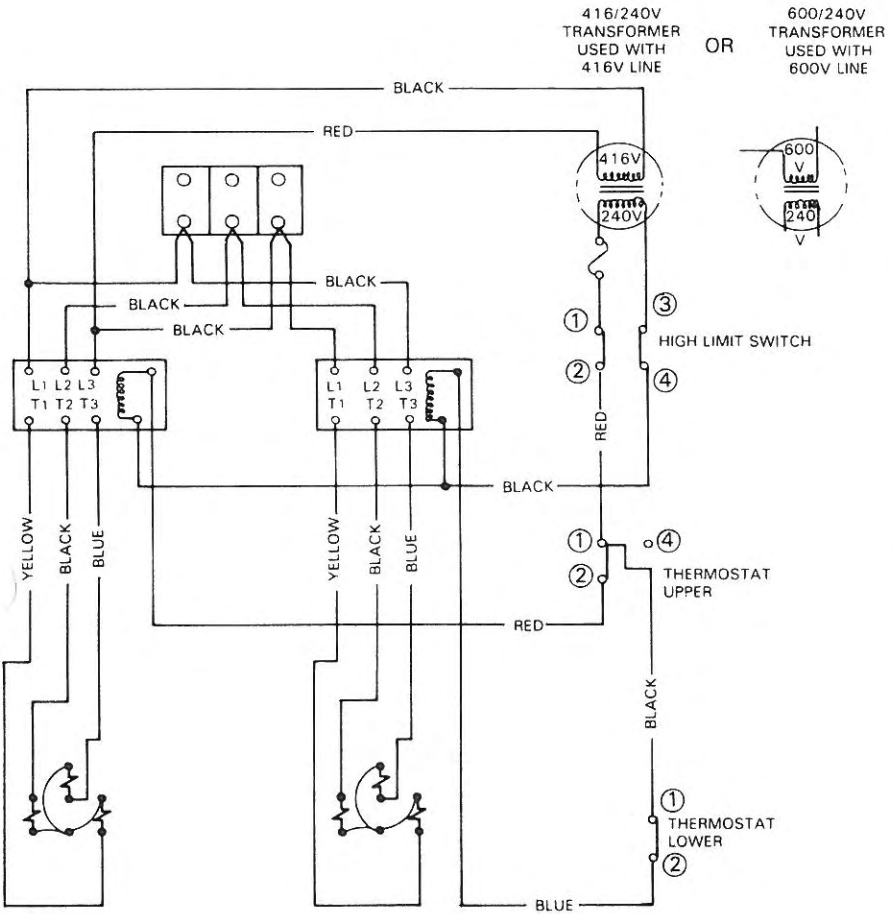


FIG. 13

WIRING DIAGRAM
3-PHASE 416V LINE, 240V ELEMENTS
3-PHASE 600V LINE, 347V ELEMENTS
MODELS 1129

NOTE MODELS 1129 HEATERS ARE NORMALLY SHIPPED FROM THE FACTORY WIRED FOR SIMULTANEOUS OPERATION TO CONVERT TO FLIP-FLOP OPERATON, REMOVE BLACK WIRE FROM TERMINAL 1 ON UPPER THERMOSTAT AND CONNECT TO TERMINAL 4. REMOVE RED WIRE FROM TERMINAL 1 ON CENTRE THERMOSTAT AND CONNECT TO TERMINAL 4.

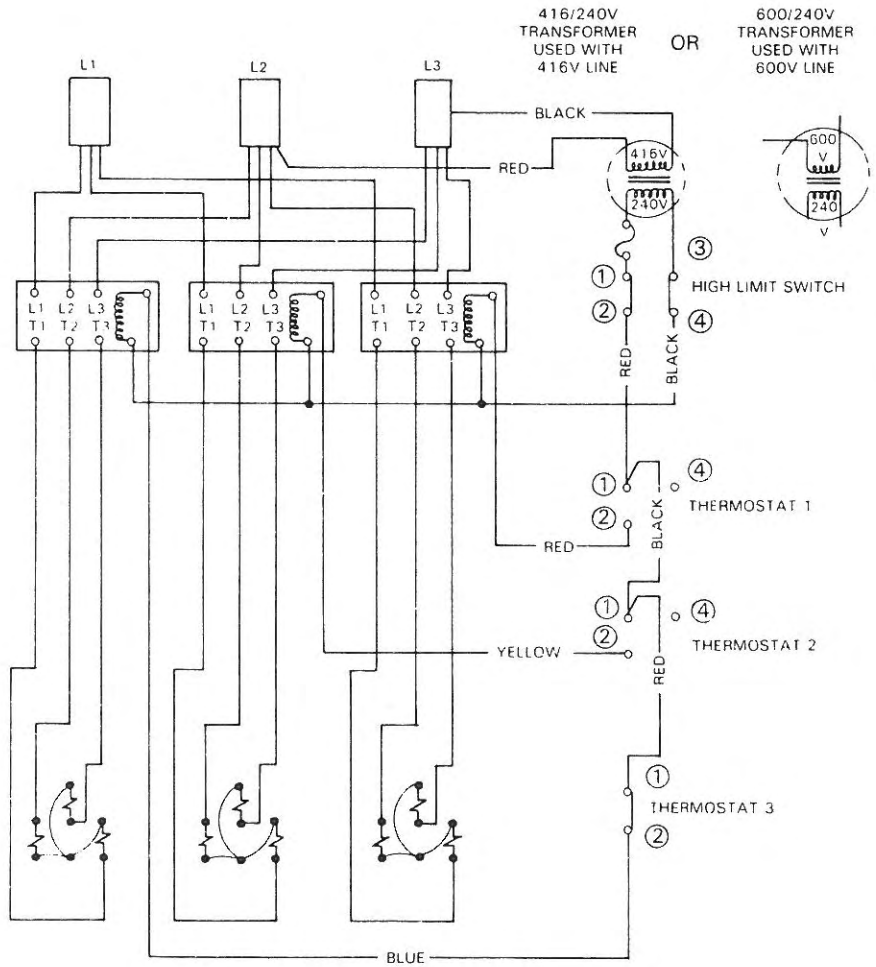


FIG 14