



TUBE HEATER TROUBLESHOOTING GUIDE

MODELS: HL-2 Series Tube Heater

THESE HEATERS **MUST** BE INSTALLED AND SERVICED BY TRAINED GAS INSTALLATION AND SERVICE PERSONNEL ONLY. READ AND UNDERSTAND ALL INSTRUCTIONS THOROUGHLY BEFORE ATTEMPTING TO INSTALL, OPERATE OR SERVICE THE DETROIT RADIANT PRODUCTS COMPANY HEATER. FAILURE TO COMPLY WITH THESE WARNINGS AND INSTRUCTIONS, AND THOSE ON THE HEATER, COULD RESULT IN PERSONAL INJURY, DEATH, FIRE, ASPHYXIATION AND/OR PROPERTY DAMAGE. RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE.

CAUTION! Heater may be hot. Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance. Note presence of flammable gas and electrical shock hazard.

WARNING! Extinguish open flame while servicing heaters. Test for gas leaks with soap and water solution only. Wear safety glasses while servicing unit.

FOR YOUR SAFETY!

IF YOU SMELL GAS:

1. Open windows.
2. Do not touch electrical switches.
3. Extinguish any open flame.
4. Immediately call your gas supplier.

SHUTDOWN INSTRUCTIONS!

1. Open electrical circuit.
2. Rotate heater's manual gas valve knob to "OFF" position.

Approval Standards and Certifications

Detroit Radiant Products units comply with or are certified by the following Organizations or Standards:

- American National Standards (ANSI Z83.6)
- Occupational Safety and Health Act (OSHA)
- American Gas Association (AGA)
- International Approval Services (IAS)

IMPORTANT: Any alteration of the system or of the factory-authorized components specified either in this manual or by Detroit Radiant Products Company voids all certification and warranties.

Detroit Radiant Products Company

21400 Hoover Road • Warren • Michigan • 48089 • (586) 756-0950 • Fax: (586) 756-2626
website: www.reverberray.com email: engineering@detroitradiant.com

HL-2 Series

⚠ WARNING!

NOT FOR RESIDENTIAL USE!

Do not use in the home, sleeping quarters, attached garages, etc.

⚠ WARNING!

This heater must be installed and serviced by trained gas installation and service personnel only. Read and understand these instructions thoroughly before attempting to install, operate or service this heater. Failure to comply could result in personal injury, asphyxiation, death, fire, and/or property damage. Retain these instructions for future reference.

⚠ WARNING!

This is not an explosion-proof heater. Where there is the possibility of exposure to flammable vapors, consult the local fire marshal, the fire insurance carrier and other authorities for approval of the proposed installation.

⚠ WARNING!

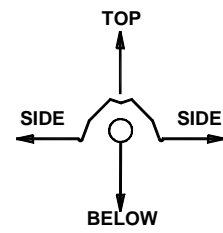
Failure to comply with the stated clearances to combustibles could result in personal injury, death and/or property damage.

⚠ WARNING!

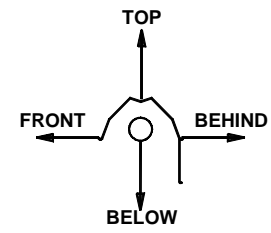
This heater should be installed so that the minimum clearances to vehicles, as marked on the heater, will be maintained. If vehicle lifts are present, ensure that these clearances will be maintained from the highest raised vehicle.

CLEARANCES TO COMBUSTIBLES (IN.)

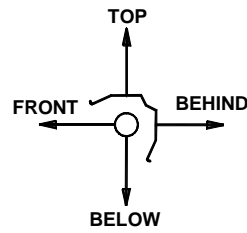
| MODEL NO. | MOUNTING ANGLE | SIDE | | TOP | BELOW | |
|------------------------------|------------------|-------|--------|-----|-------|----|
| | | FRONT | BEHIND | | | |
| HL (20,30,40) - 65, 75 [N,P] | | 9 | 9 | 6 | 60 | |
| | 45° | 39 | 8 | 10 | 60 | |
| | W/1 side shield | 0° | 29 | 8 | 6 | 60 |
| | W/2 side shields | 0° | 9 | 9 | 6 | 60 |
| 20 ft from burner | 0° | 7 | 7 | 6 | 30 | |
| HL (20,30,40,50) - 100 [N,P] | 0° | 14 | 14 | 6 | 66 | |
| | 45° | 39 | 8 | 10 | 66 | |
| | W/1 side shield | 0° | 29 | 8 | 6 | 66 |
| | W/2 side shields | 0° | 16 | 16 | 6 | 66 |
| 20 ft from burner | 0° | 7 | 7 | 6 | 30 | |
| HL (30,40,50,60)-125 [N,P] | 0° | 20 | 20 | 6 | 76 | |
| | 45° | 58 | 8 | 10 | 76 | |
| | W/1 side shield | 0° | 42 | 8 | 6 | 76 |
| | W/2 side shields | 0° | 20 | 20 | 6 | 76 |
| 20 ft from burner | 0° | 7 | 7 | 6 | 30 | |
| HL (40,50,60) - 150 [N,P] | 0° | 24 | 24 | 6 | 81 | |
| | 45° | 58 | 8 | 10 | 81 | |
| | W/1 side shield | 0° | 42 | 8 | 6 | 81 |
| | W/2 side shields | 0° | 23 | 23 | 6 | 81 |
| 20 ft from burner | 0° | 11 | 11 | 6 | 44 | |
| HL (40,50,60,70) - 175 [N,P] | 0° | 34 | 34 | 6 | 92 | |
| | 45° | 63 | 8 | 10 | 92 | |
| | W/1 side shield | 0° | 50 | 8 | 6 | 92 |
| | W/2 side shields | 0° | 30 | 30 | 6 | 92 |
| 20 ft from burner | 0° | 11 | 11 | 6 | 44 | |
| HL (50,60,70) - 200 [N,P] | 0° | 41 | 41 | 6 | 94 | |
| | 45° | 63 | 8 | 10 | 94 | |
| | W/1 side shield | 0° | 54 | 8 | 6 | 94 |
| | W/2 side shields | 0° | 30 | 30 | 6 | 94 |
| 20 ft from burner | 0° | 11 | 11 | 6 | 44 | |



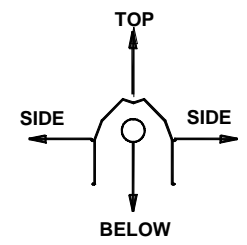
0° MOUNTING ANGLE



0° W/1 SIDE SHIELD



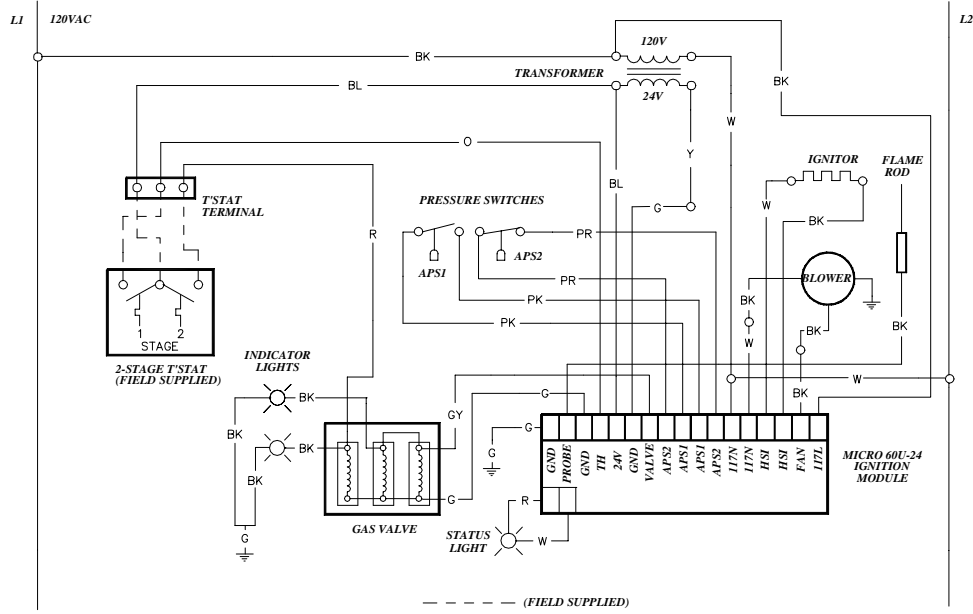
45° MOUNTING ANGLE



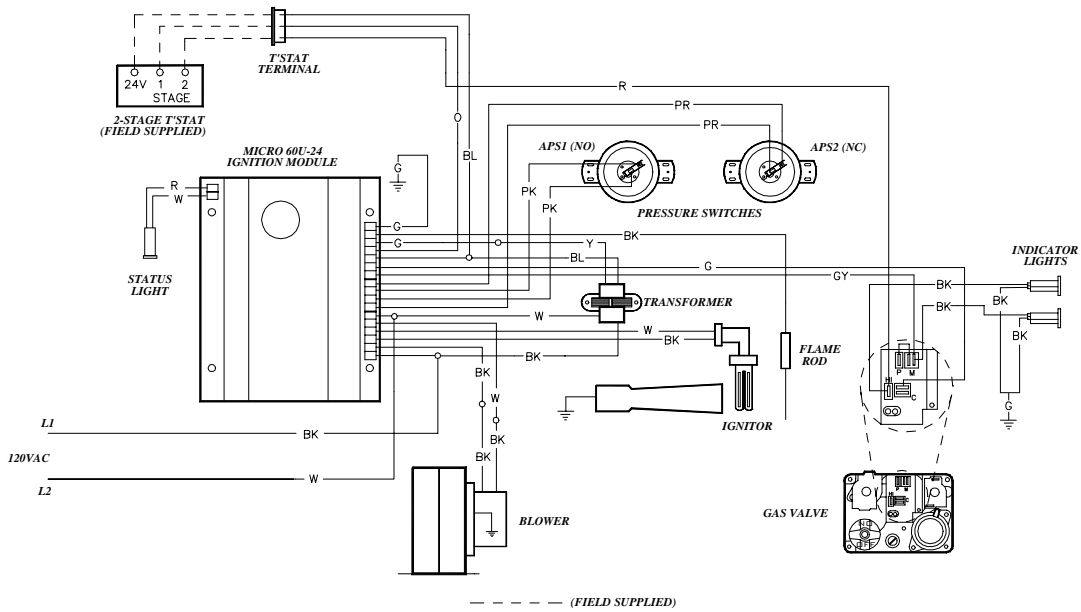
0° W/2 SIDE SHIELDS

MICRO 60U-24

MICRO 60U-24 LADDER DIAGRAM

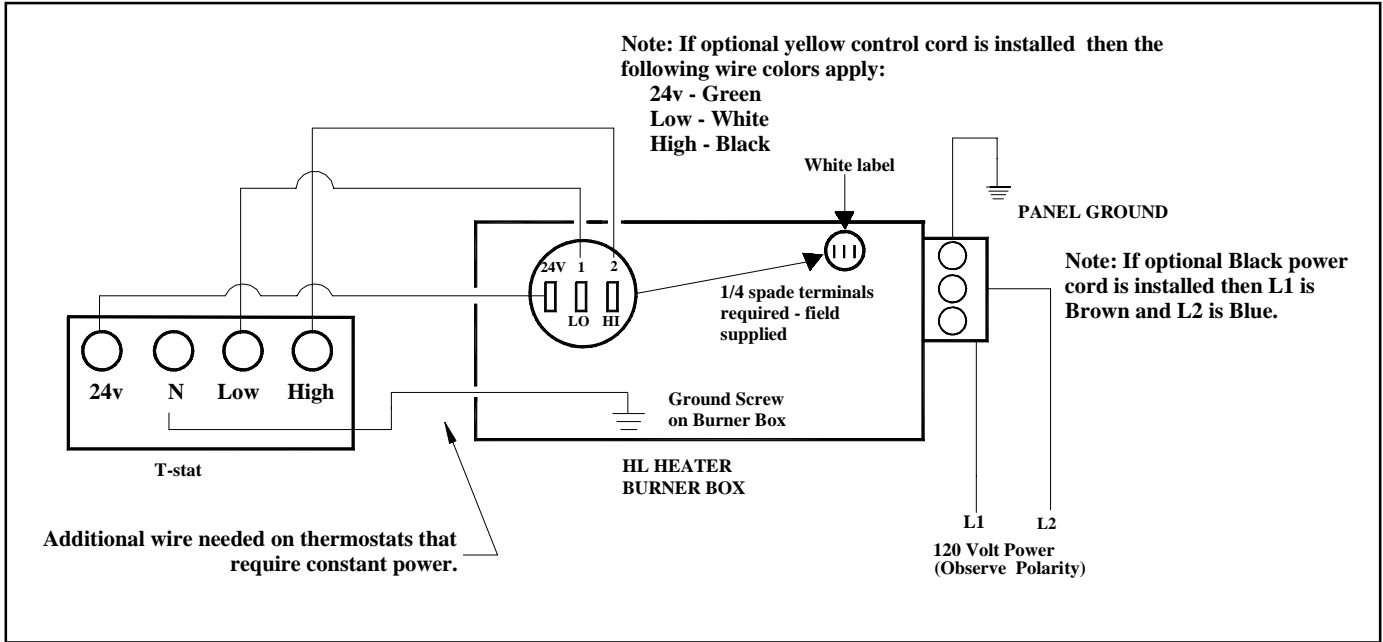


MICRO 60U-24 BLOCK DIAGRAM

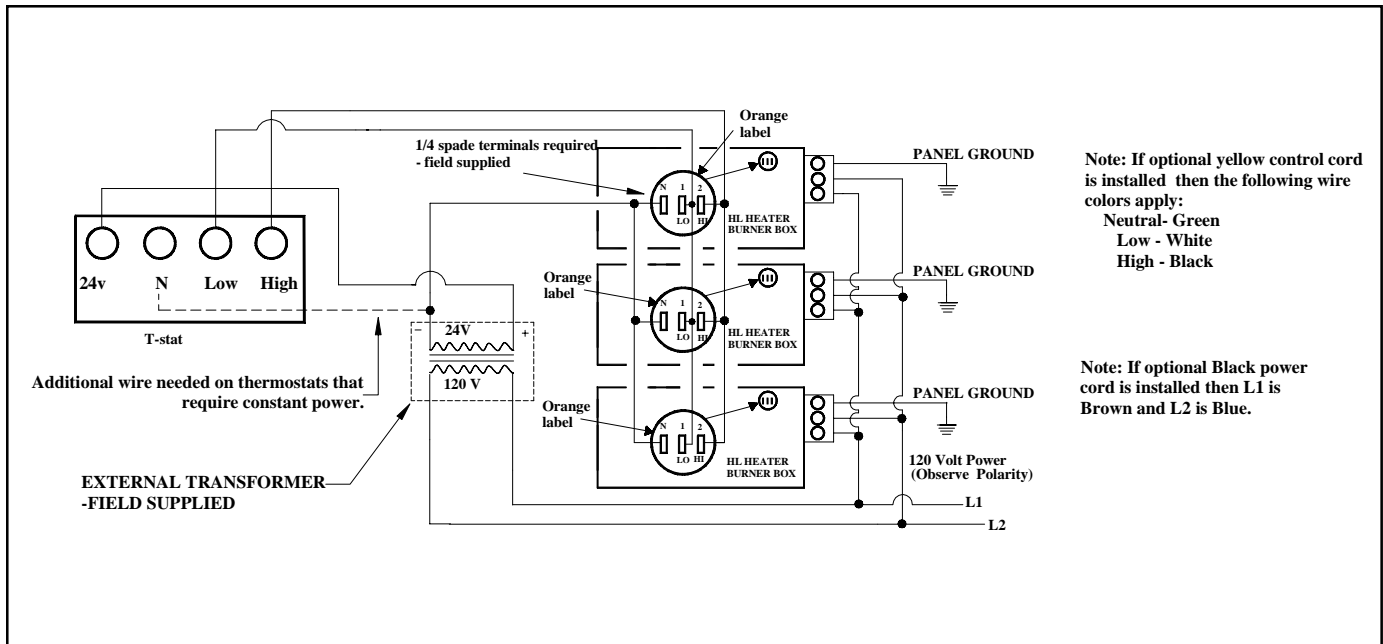


HL-2 Series

Field Wiring Diagrams



Single heater, single thermostat, no relay board (white label).

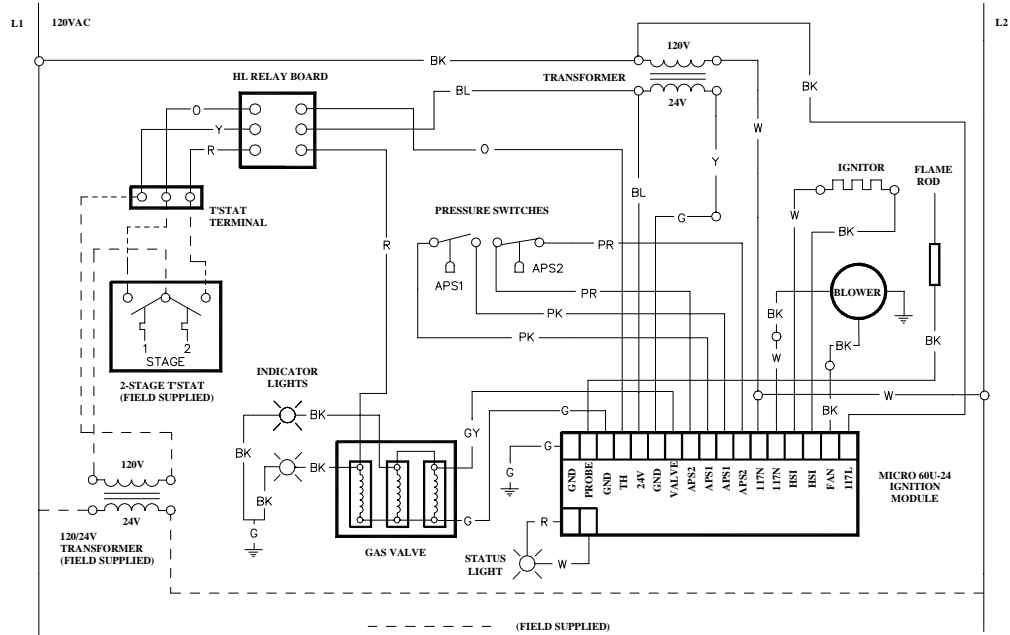


Multiple heaters, single thermostat, with HLRB (relay board - orange label).

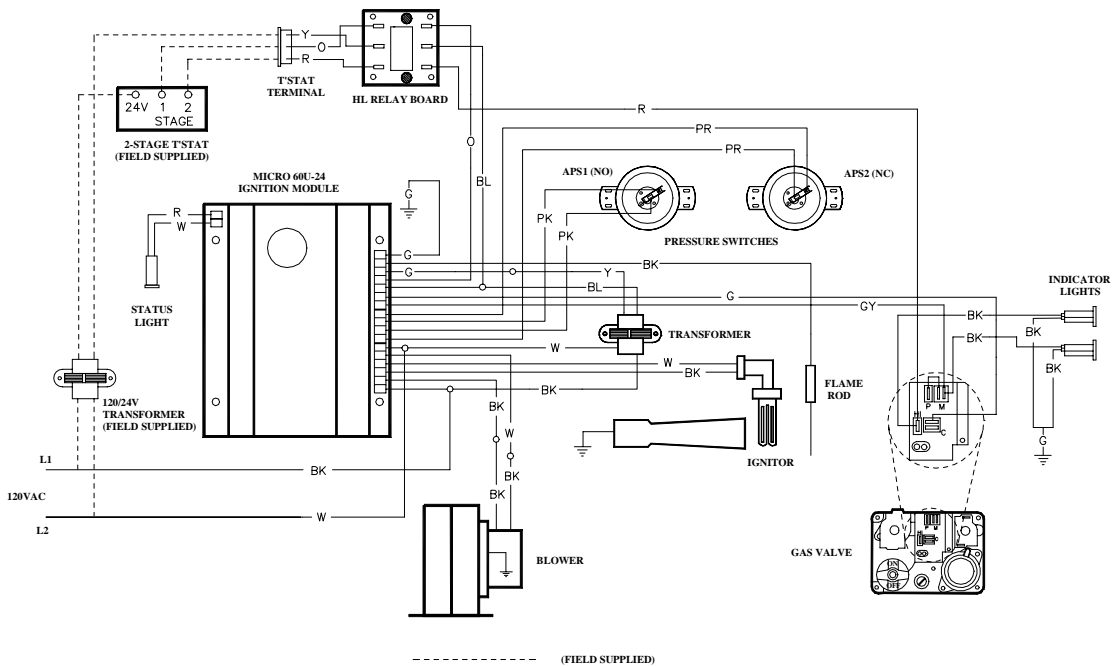
Alternative Wiring Diagrams

MICRO 60U-24 WITH HLRB RELAY BOARD

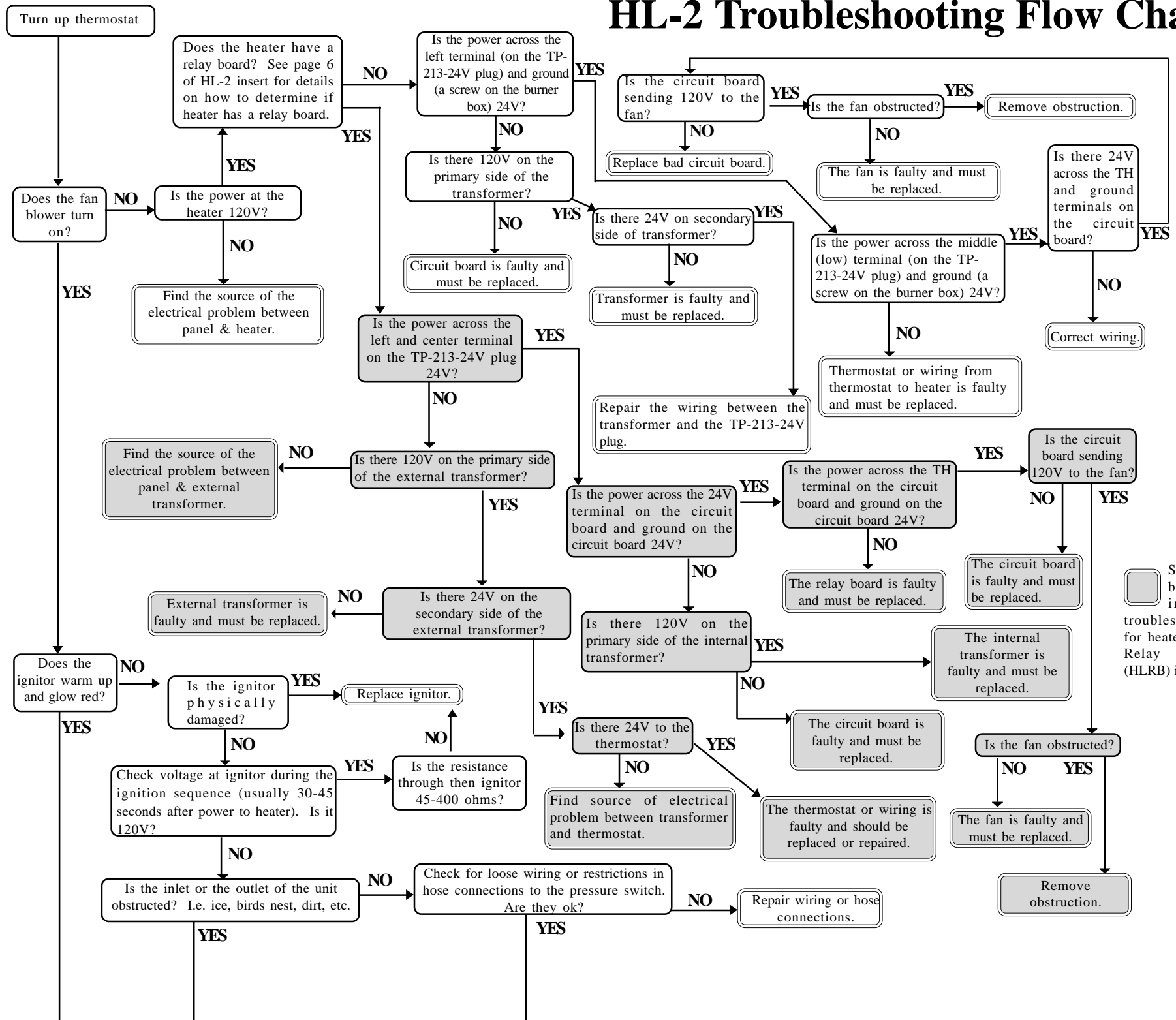
MICRO 60U-24 LADDER DIAGRAM - WITH RELAY BOARD



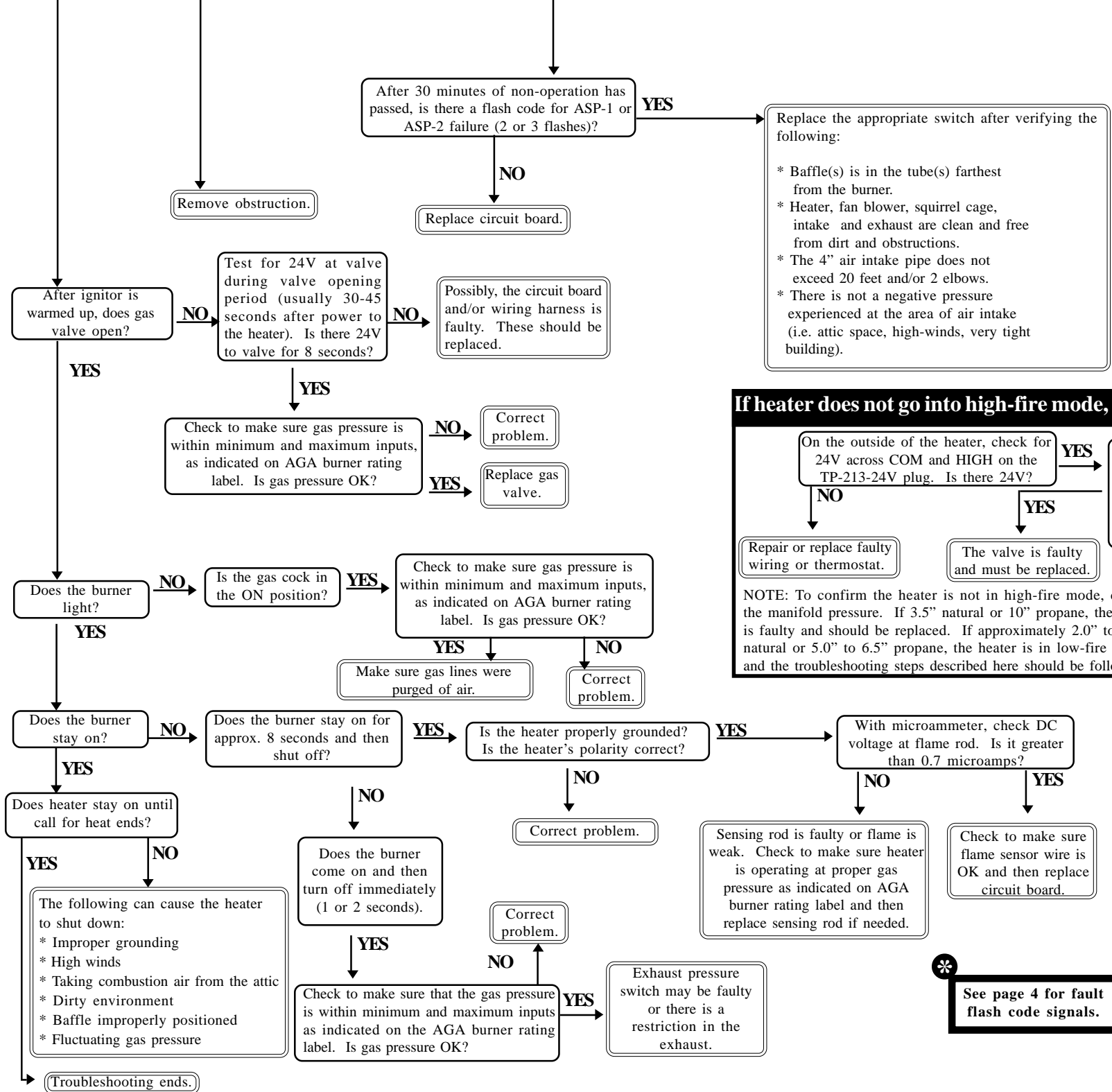
MICRO 60U-24 BLOCK DIAGRAM - WITH RELAY BOARD



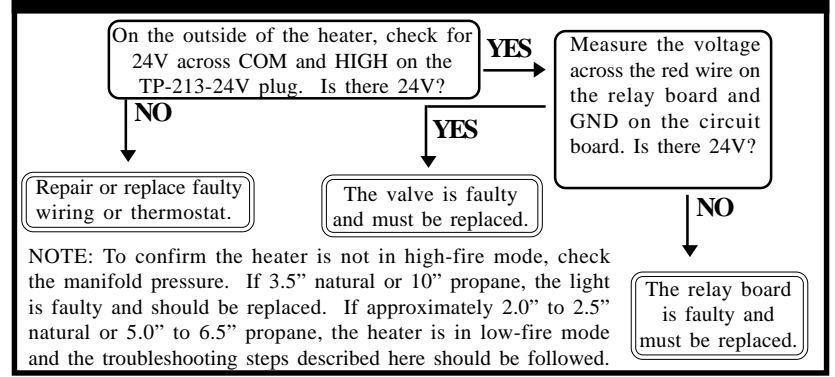
HL-2 Troubleshooting Flow Chart



Shaded boxes indicate troubleshooting for heaters with Relay Boards (HLRB) installed.



If heater does not go into high-fire mode, check the following.

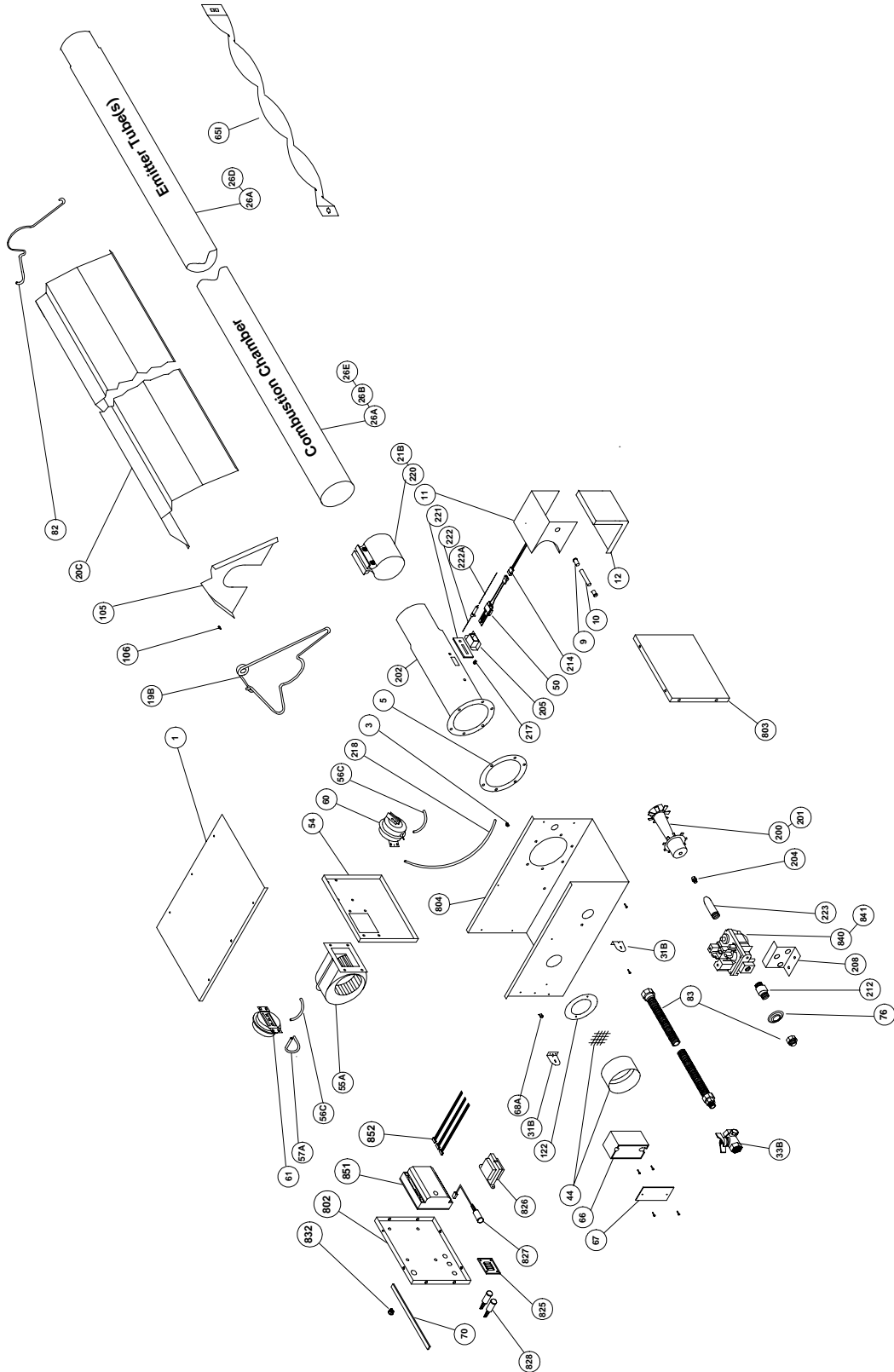


WARNING:
Bypassing any switch is for testing purposes only. Do not leave switch bypassed during normal operation or heater's built-in safety mechanisms will be compromised.

See page 4 for fault flash code signals.

HL-2 Series

Parts Breakdown



Basic Parts List

HL-2 SERIES PARTS LISTING

| TP# | ITEM | TP# | ITEM |
|--------|---|---------|---|
| TP-1 | CONTROL BOX COVER | TP-83 | STAINLESS STEEL FLEX CONNECTOR |
| TP-5 | FLANGE GASKET | TP-105 | REFLECTOR END CAP |
| TP-9 | CONDUIT COUPLING | TP-106 | REFLECTOR CLIP |
| TP-10 | CONDUIT 4" X 1/2" | TP-108 | 5' AL-TI TUBE, PAINTED W. ONE CLAMP |
| TP-11 | GLO-BAR IGNITOR BOX | TP-111 | 5' ALUM. TUBE, PAINTED W/1 CLAMP |
| TP-12 | GLO-BAR IGNITOR BOX COVER | TP-112 | 5' REFLECTOR |
| TP-14 | SIGHT GLASS GASKET | TP-122 | GASKET FOR AIR ORIFICE & AIR COLLAR |
| TP-15 | SIGHT GLASS | TP-200 | BURNER (50 TO 100 MBTU/H) |
| TP-16 | SIGHT GLASS WASHER | TP-201 | BURNER (125 MBTU/H TO 200 MBTU/H) |
| TP-19B | WIRE HANGER | TP-202 | 16" BURNER TUBE W/ FLANGE |
| TP-20C | 120" REFLECTOR | TP-204 | GAS ORIFICE - CONSULT FACTORY |
| TP-21B | TUBE CLAMP | TP-205 | GLO-BAR HOLDER |
| TP-26A | 10 FT. ALUMINIZED RADIANT/COMBUSTION TUBE | TP-208 | "Z" MOUNTING BRACKET |
| TP-26B | 10 FT. TITANIUM COATED COMBUSTION TUBE | TP-211 | MARK 17X-24 CIRCUIT BOARD |
| TP-26D | 10 FT. 304 STAINLESS RADIANT TUBE | TP-211A | MARK 17U-24 CIRCUIT BOARD (REMOTE SENSE) |
| TP-26E | 10 FT. 409 STAINLESS COMBUSTION TUBE | TP-212 | 1/2" X 3" PIPE NIPPLE |
| TP-31B | MOUNTING BRACKET | TP-214 | GLO-BAR WIRING HARNESS |
| TP-33B | 1/2" GAS COCK | TP-217 | PRESSURE BARB FITTING |
| TP-44 | AIR ORIFICE W/SCREEN (CONSULT FACTORY) | TP-218 | EXHAUST PRESSURE TUBE (VINYL) |
| TP-50 | GLO-BAR IGNITOR | TP-220 | STAIN. STL. TUBE CLAMP (175 & 200 MBTU/H) |
| TP-54 | BURNER BOX CENTER PANEL | TP-221 | GLO-BAR HOLDER GASKET |
| TP-55A | FAN BLOWER | TP-222 | FLAME ROD |
| TP-56C | 1/4" ATMOSPHERIC TUBE (VINYL) | TP-222A | FLAME ROD WIRE |
| TP-57A | 1/4" PRESSURE TUBE | TP-223 | GAS MANIFOLD |
| TP-60F | EXHT PRESSURE SWITCH - 50 TO 150 MBTU/H | TP-802 | END PANEL - LEFT |
| TP60G | EXHT PRESSURE SWITCH - 175 & 200 MBTU/H | TP-803 | END PANEL - RIGHT |
| TP-61B | BURNER PRESSURE SWITCH - 50 - 100 MBTU/H | TP-804 | CONTROL BOX |
| TP-61C | BURNER PRESSURE SWITCH - 200 MBTU/H | TP-825 | OPTIONAL HLRB RELAY BOARD |
| TP-61D | BURNER PRESSURE SWITCH - 150 & 175 MBTU/H | TP-826 | 40VA TRANSFORMER (OLD TP219) |
| TP-65I | 33" INTERLOCKING HEAT DIFFUSER (BAFFLE) | TP-827 | RED LED DISPLAY DIAGNOSTIC LIGHT |
| TP-66 | 2" X 4" OUTLET BOX | TP-828 | YELLOW OPERATIONAL IND. LIGHT (OLD TP216) |
| TP-67 | 2" X 4" OUTLET BOX COVER | TP-832 | THERMOSTAT TERMINAL STRIP (OLD TP213) |
| TP-68A | STRAIN RELIEF BUSHING | TP-840 | 36E96-224 TWO STAGE GAS VALVE-NAT (OLD TP210) |
| TP-70 | CONTROL BOX COVER GASKET (PER FOOT**) | TP-841 | 36E96-226 TWO STAGE GAS VALVE-LP (OLD TP210P) |
| TP-76 | RUBBER GROMMET | TP-851 | MICRO-60-24 DIAGNOSTIC CIRCUIT BOARD |
| TP-82 | REFLECTOR CENTER SUPPORT | TP-852 | WIRE HARNESS SET (3 PCS.) FOR MICRO 60 BOARD |

6" TOTAL NEEDED TO COVER OUTER EDGES OF A BURNER BOX INDICATES THAT THE PART IS BEING USED IN CURRENT PRODUCTION.