FLAME GUARDIAN WFFP PANEL

AGA-
ANSI-Z21.13

FOR PROVEN MAIN FLAME FOR USE WITH LGB SERIES 2 NATURAL GAS UNIVERSAL CONTROL SYSTEM (UCS)

CONTROL SUPPLEMENT

WARNING This manual to be used only by a qualified installer/service technician. Failure to follow all instructions in proper order can cause severe personal injury, death or substantial property damage. Read all instructions before installing.

The following defined terms are used throughout this manual. They bring attention to presence of hazards of various risk levels, or to important information concerning life of product.

WARNING This is used throughout this manual to bring attention to the presence of hazards which can cause severe personal injury, death or substantial property damage if ignored.

NOTICE Indicates special instructions on installations, operation, or maintenance which are important but not related to personal injury hazards.

Section I: Installation

NOTICE When installing WFFP Panel on LGB boiler, replace corresponding instructions and diagrams in Natural Gas Control Supplement with the following instructions and diagrams. All other installation procedures are unchanged.

WFFP-1 for use with LGB-6 thru 12 boilers
WFFP-2 for use with LGB-13 thru 23 boilers

WARNING For your safety, turn off electrical power supply before making any electrical connections to avoid possible electrical shock hazard.

1. Assemble WFFP panel to boiler. See Figure 1.
2. Wire boiler:
   a. WFFP-1: Figures 2 or 3
      Wiring Diagrams, pages 3-4.
   b. WFFP-2: Figures 2 or 3
      Wiring Diagrams, pages 5-6.
3. Replace LGB wiring diagram on jacket door with LGB WFFP wiring diagram.

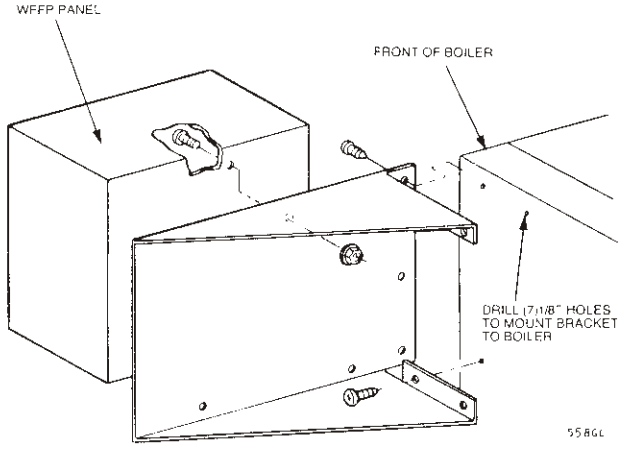
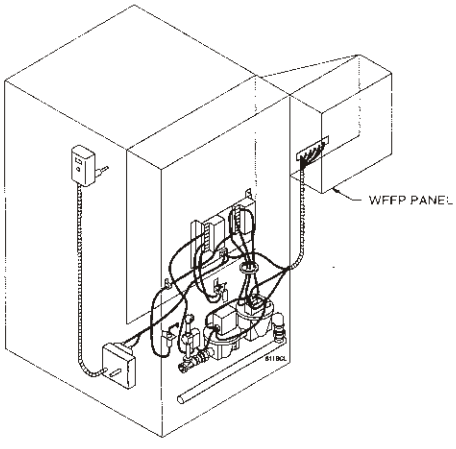
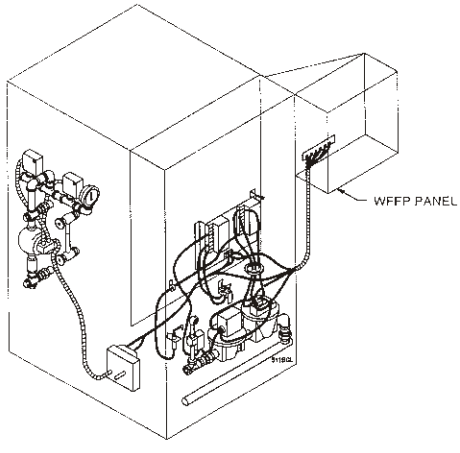


FIGURE 1



WATER BOILER WIRING
FIGURE 2



STEAM BOILER WIRING
FIGURE 3

WARNING For your safety, turn off electrical power supply before making any electrical connections to avoid possible electrical shock hazard.

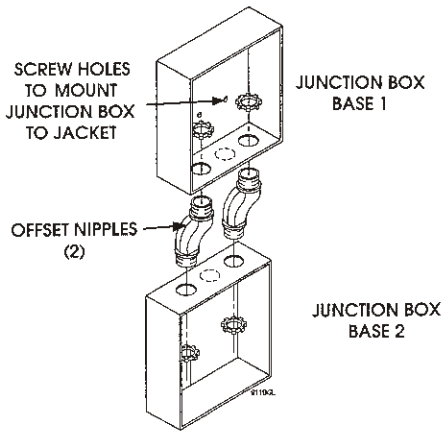
All wiring must be installed in accordance with the requirements of the National Electrical Code and any additional national, state, or local code requirements having jurisdiction. All wiring external to boiler jacket must be N.E.C. Class 1.

The boiler must be electrically grounded in accordance with the National Electrical Code, ANSI/NFPA No. 70-latest edition. Use 105°C thermoplastic wire, or equivalent, if any original wire must be replaced. Gnd (burner) lead wires must be 125° C. wire.

Wiring to boiler must be No. 14 gauge or heavier. Install in conduit.

A separate electrical circuit with a fused disconnect switch (15 amp. recommended) should be used for the boiler.

1. Determine right or left electrical supply wiring.
2. Attach electrical junction box(es) to inside jacket end panel. Screws and nuts are provided. For dual base boilers, use offset nipples (provided) to connect junction boxes together, then hang junction boxes by screwing top box to boiler jacket.



JUNCTION BOX ASSEMBLY DUAL BASE BOILERS

3. Attach control transformer(s) to junction box(es).
4. Install wiring harness (furnished) as shown in Figure 2 or 3 and wiring diagram.

SEQUENCE OF OPERATION

NORMAL OPERATION

1. Operating controls begin start-up sequence.
   a. Limit control contacts are closed.
2. Control cabinet energized by control transformer.
   a. "Call For Heat" lamp on.
   b. Pilot proving module energized.
      1) Pilot solenoid valve opens.
      2) Pilot ignition spark begins.
      3) Pilot ignites.
      4) Pilot proves.
   c. "Pilot Proven" lamp on.
3. Main flame proving module energized by pilot proving module.
   a. Secondary gas valve opens and Main gas valve opens to low fire position.
      1) Main burners ignite at low fire.
      2) Main flame sensor proves carryover.
   b. "Main Flame Proven" lamp on.

PILOT FLAME FAILURE CONDITION

1. Pilot fails to ignite after call for heat.
   a. "Pilot Proven" lamp does not light.
   b. Main flame sensor module does not energize.
   c. Control relay 1R does not energize.
   d. Time delay relay times out after 30 seconds.
   e. Control relay 2R energizes.
      1) Contact 2R1 locks out control modules.
      2) "Flame Failure" lamp on.
      3) Alarm contact closes.
2. Interruption of power to controls by power on switch or operating control will reset system.

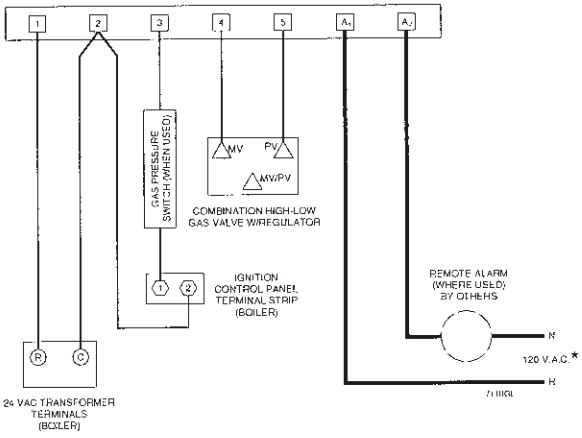
MAIN FLAME FAILURE CONDITION

1. Main flame sensor does not detect flame after pilot ignites.
   a. "Pilot Proven" lamp is on.
   b. Main flame sensor module energizes.
   c. "Main Flame Proven" lamp does not light.
   d. Control relay 1R is not energized.
   e. Time delay relay times out after 30 seconds.
   f. Control relay 2R is energized.
      1) Contact 2R1 locks out control modules.
      2) "Pilot Proven" lamp goes out.
      3) "Flame Failure" lamp on.
      4) Alarm contact closes.
2. Interruption of power to contacts by power on switch or operating control will reset system.

PARTS LIST

DESCRIPTION	VENDOR/PART NUMBER	W-M REFERENCE NUMBER
Light Indicator – White, Blue, Green or Red	Drake	■
Electric Bulb 24V	Sylvania 24MB	■
Fuse 6 Amp.	Bussman MTH-6	■
Time Delay Relay 30 Sec.	SSAC TS12130	10C074
Relay 24V DPDT	Stancor 91-901/HW R8222D1014	10C042

■ Listed part or equivalent can be purchased at local supply house.

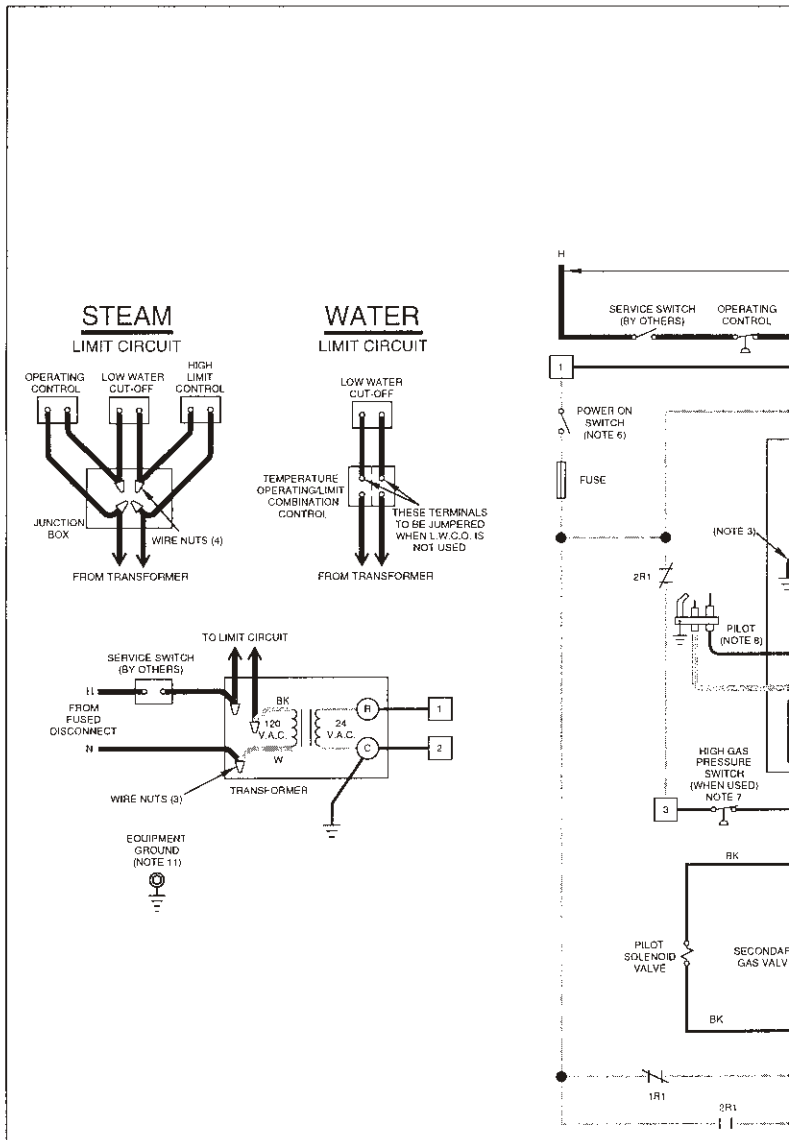


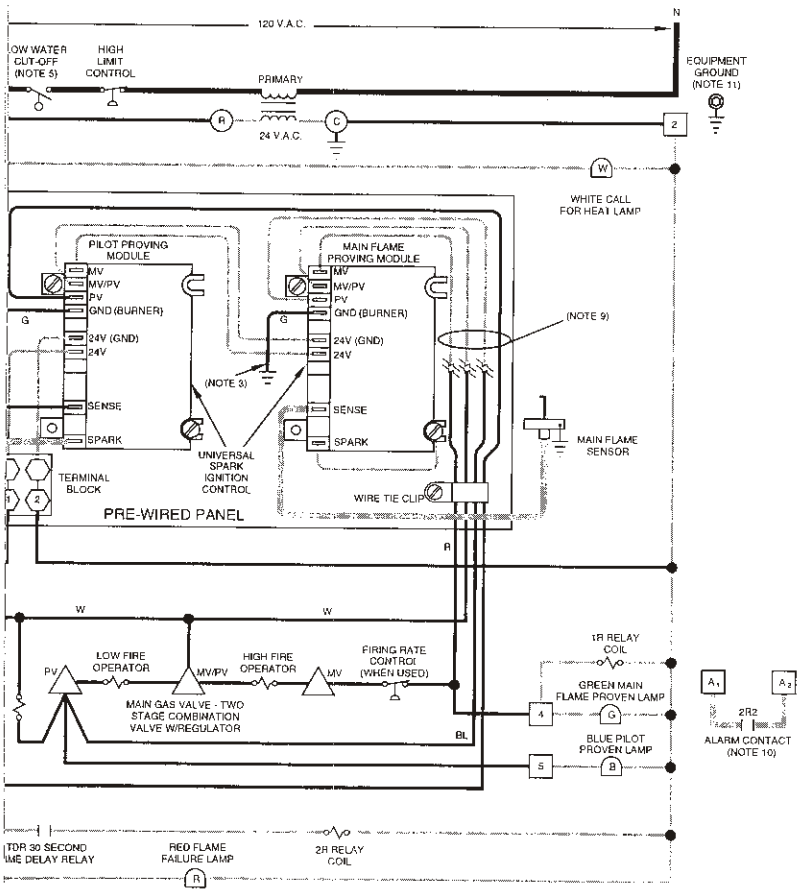
* EXTERNAL ALARM POWER SUPPLY TO BE SIZED ACCORDING TO REMOTE ALARM REQUIREMENTS AND WIRED TO DRY CONTACTS A, AND A. CONTACT RATING. 120 V.A.C./2 A.

LOW VOLTAGE FIELD WIRING
HIGH VOLTAGE FIELD WIRING

WFFP PANEL TERMINAL
IGNITION CONTROL PANEL TERMINAL
TRANSFORMER TERMINAL
GAS VALVE TERMINAL

FIELD WIRING DIAGRAM
LGB-6 thru 12 BOILERS





WARNING

ELECTRICAL SHOCK HAZARD. CAN CAUSE SEVERE INJURY OR DEATH.
DISCONNECT POWER BEFORE INSTALLING AND/OR SERVICING.

NOTES:

1. ALL WIRING MUST BE INSTALLED IN ACCORDANCE WITH:
   A. U.S.A. - NATIONAL ELECTRICAL CODE AND ANY OTHER NATIONAL, STATE, OR LOCAL CODE REQUIREMENTS.
   B. CANADA - C.S.A. C22.1 CANADIAN ELECTRICAL CODE PART 1 AND ANY OTHER NATIONAL, PROVINCIAL, OR LOCAL CODE REQUIREMENTS.
2. ALL WIRING EXTERNAL TO BOILER JACKET MUST BE:
   A. U.S.A. - N.E.C. CLASS 1.
   B. CANADA - C.S.A. C22.1 C.E.C. PART 1.
3. REFER TO CONTROL SUPPLEMENT FOR GROUND LEADWIRE ATTACHMENT. IF ORIGINAL GROUND LEADWIRE AS SUPPLIED WITH THE APPLIANCE MUST BE REPLACED, TYPE 125°C OR ITS EQUIVALENT MUST BE USED.
4. REFER TO CONTROL COMPONENT INSTRUCTIONS PACKED WITH BOILER FOR APPLICATION INFORMATION.
5. STANDARD ON STEAM BOILERS.
6. USE "POWER ON" SWITCH TO RESET FLAME FAILURE SYSTEM.
7. STANDARD EQUIPMENT FOR LGB-21 THRU LGB-23.
8. PILOT LEADWIRES ARE NOT FIELD REPLACEABLE. REPLACE PILOT ASSEMBLY IF NECESSARY.
9. WIRES ARE FACTORY INSTALLED TO CONTROL PANEL, BUT MUST BE FIELD CONNECTED TO GAS VALVES AND FIRING RATE CONTROL TERMINALS (WHEN USED).
10. ALARM CONTACTS RATED AT 120 V.A.C./2 A.
11. ⏚ DENOTES FIELD INSTALLED CHASSIS GROUND.
12. ALL CONTACTS SHOWN WITHOUT POWER APPLIED - OFF SHELF CONDITION.

LOW VOLTAGE FIELD
HIGH VOLTAGE FIELD
LOW VOLTAGE FACTORY
HIGH VOLTAGE FACTORY
IGNITION/SENSING CABLE

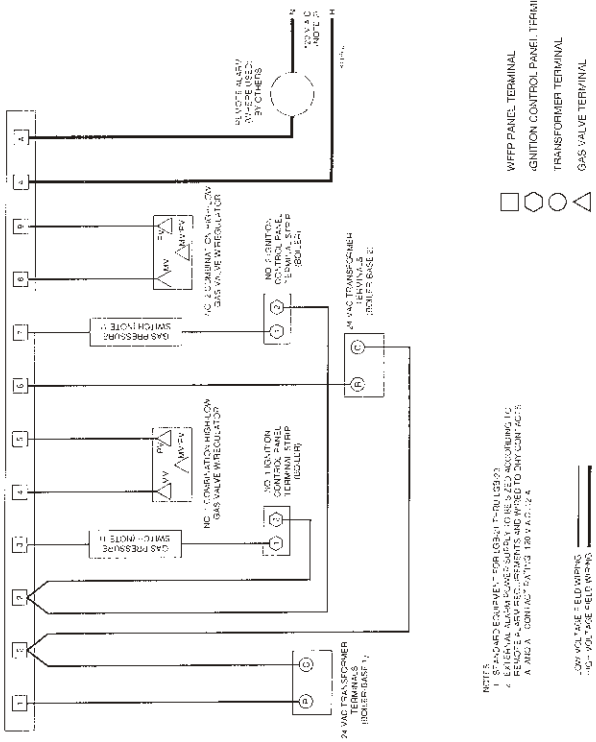
WFFP PANEL TERMINAL
WFFP CABINET LAMP
CONTROL MODULE TERMINAL
IGNITION CONTROL PANEL TERMINAL
TRANSFORMER TERMINAL
GAS VALVE TERMINAL
FACTORY WIRED TO CONTROL - FIELD WIRED TO GAS VALVE OR FIRING RATE CONTROL.

LGB
Natural Gas
WFFP-1

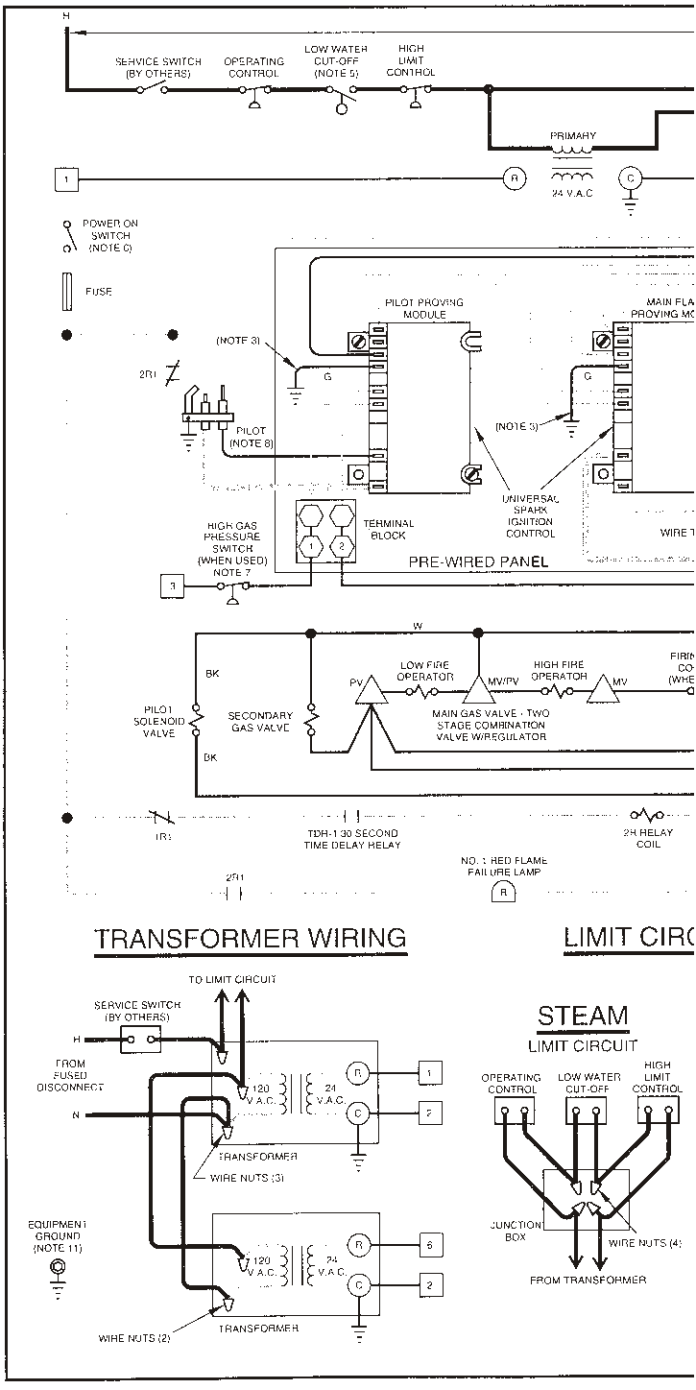
- Intermittent Pilot
- Universal Control System
- Steam or Water
- 6 thru 12

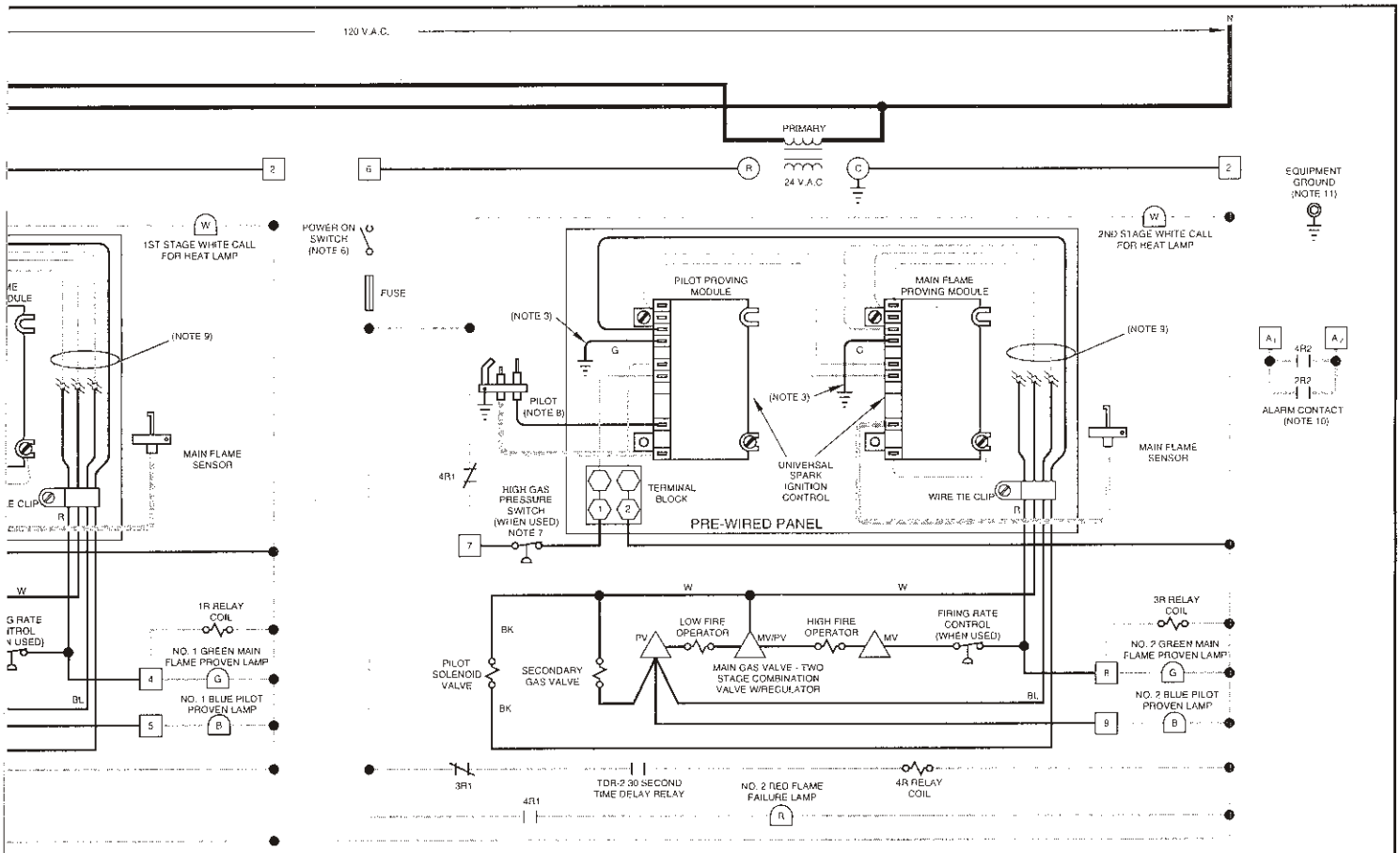
WEIL-McLAIN
A Division of The Marley Company
Michigan City, Indiana 46360

PART NUMBER 550-141-592/1196WM



FIELD WIRING DIAGRAM
LGB-13 thru 23 BOILERS

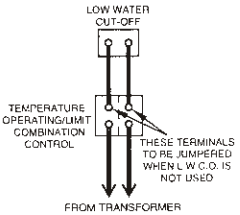




CUIT WIRING

LOW VOLTAGE FIELD
HIGH VOLTAGE FIELD
LOW VOLTAGE FACTORY
HIGH VOLTAGE FACTORY
IGNITION/SENSING CABLE

WATER
LIMIT CIRCUIT



- WFFP PANEL TERMINAL
- WFFP CABINET LAMP
- CONTROL MODULE TERMINAL
- IGNITION CONTROL PANEL TERMINAL
- TRANSFORMER TERMINAL
- GAS VALVE TERMINAL
- FACTORY WIRED TO CONTROL - FIELD WIRED TO GAS VALVE OR FIRING RATE CONTROL

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LGB
Natural Gas
WFFP-2

- Intermittent Pilot
- Universal Control System
- Steam or Water
- 13 thru 23

WEIL-McLAIN
A United Dominion Company
Weil-McLain • 500 Blaine St. • Michigan City, IN 46360-2388

PART NUMBER 550-141-593/1196WM

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A United Dominion Company

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