Protectofier

COMBUSTION SAFEGUARD

Form 6642 VBL

Multi-Burner Supervision, Automatic or Manual Pushbutton Ignition, Plug-in SS100A FLAME-PAKS, Plug-in Control Relays, Built-in SSN TELEFIER for Flame Failure Position Indication.

Power on PROTECTOFIER terminal L1 and L2 provides power to electronic network.

AUTOMATIC IGNITION

Provide wire jumper between terminal 12 and terminal 13 on PROTECTOFIER. Connect ignition transformer to PROTECTOFIER terminal 6.

Power on PROTECTOFIER terminal 12 (thru permissive safety limits and cycling circuit).

1. "ACF" CHECK relay "C" is energized thru N.C. contacts of "ACF" FLAME relays "F", LOAD relay "L", low votage winding of SS3CP TRANSFORMER, and SAFETY LOCKOUT switch circuit.

2. Ignition transformer is energized from terminal 6 (thru N.C. contact of LOAD relay "L" to provide electric spark ignition to the pilots. Pilot solenoid valve is energized from terminal 4.

3. With pilot flames established, respective "ACF" FLAME relay "F" is energized and series circuit of "F" contacts energizes "ACF" LOAD relay "L".

   a. LOAD relay "L" contacts transfer.

      1) N.C. "L" contact in safe-start checking and SAFETY LOCKOUT circuit opens.

      2) N.C. "L" contact in ignition transformer circuit opens to de-energize the ignition system in series circuit with N.O. "C" contact.

      3) N.O. "L" contact in series circuit with N.O. "C" contact between PROTECTOFIER terminals 13 and 8 closes to energize main gas valve. FLAME-ON indicator light to indicate all flame circuits established can also be connected in parallel with main valve between PROTECTOFIER terminals 8 and L2.

      4) Neon lamps on PROTECTOFIER chassis will glow to indicate pilot flames established. Neon lamp will glow as its respective FLAME relay "F" responds to flame signal upon establishment of flame. These indicator lights may be extended and brought to the face of operating panel but they must be NE51H(B2A) neon type and extended lamps and sockets must NOT have resistors.

MANUAL PUSHBUTTON IGNITION

No jumper required between terminal 12 and terminal 13 on PROTECTOFIER. Use momentary type pushbutton with two normally open contacts. Connect one set of normally open contacts between terminal 12 and 13. Connect other set of normally open contacts between terminal 4 and ignition transformer primary.

Power on PROTECTOFIER terminal 12 (thru safety limits circuit).

1. Press and hold "START" button.
   a. "ACF" CHECK relay "C" is energized thru N.C. contacts of "ACF" FLAME relays "F", LOAD relay "L", low voltage winding of SS3CP TRANSFORMER, and SAFETY LOCKOUT switch circuit.

   b. Ignition transformer is energized thru contact of "START" button to provide spark ignition to the pilots. Pilot solenoid valve is energized from terminal 4.

2. With pilot flames established, respective "ACF" FLAME relay "F" is energized and series circuit of "F" contacts energizes "ACF" LOAD relay "L".

(over)

PROTECTION CONTROLS, INC.

Power Equipment Company
Manufacturers Representative
2011 Williamsburg Rd. Richmond, VA 23231
(804) 236-3800 Fax (804) 236-3882

a. LOAD relay "L" contacts transfer.

1) N.C. "L" contact in safe-start checking and SAFETY LOCKOUT circuit opens.

2) N.C. "L" contact in ignition transformer circuit opens to de-energize the ignition system in series circuit with N.O. "C" contact.

3) N.O. "L" contact in series circuit with N.O. "C" contact between PROTECTOFIER terminals 13 and 8 closes to energize main gas valve. FLAME-ON indicator light to indicate all flame circuits established can also be connected in parallel with main valve between PROTECTOFIER terminals 8 and L2.

4) Neon lamps on PROTECTOFIER chassis will glow to indicate pilot flames established. Neon lamp will glow as its respective FLAME relay "F" responds to flame signal upon establishment of flame. These indicator lights may be extended and brought to the face of operating panel but they must be NE51H(B2A) neon type and extended lamps and sockets must NOT have resistors.

3. Release "START" button. Ignition transformer is de-energized.

Failure to establish flame during limited ignition trial cycle will cause SAFETY LOCKOUT switch contacts to open circuit to CHECK relay "C" coil. CHECK relay "C" is de-energized, pilot valve is de-energized and electric ignition is stopped. With no flame signal, main valve remains de-energized.

SAFETY LOCKOUT requires manual reset.

Flame failure during operation de-energizes fuel valves. Automatic ignition model will automatically make one attempt to relight. Manual pushbutton start model requires manual pushbutton start to relight.

Power interruption to PROTECTOFIER terminal 12 de-energizes relays and fuel valves. Resumption of power on automatic ignition model will cause PROTECTOFIER to go thru another safe-start check and relight cycle. Manual pushbutton start model requires manual pushbutton start to relight.

Failure of CHECK relay "C" to prove safe-start check will prevent energizing fuel valves and ignition system.

The built-in SSN TELEFIER will indicate the flame postion initially causing shutdown, by the flame signal neon light of the faulty position remaining lighted at reduced brilliance with one element glowing. All other neon lights will go out.

SSN TELEFIER WIRING FOR AUTOMATIC IGNITION

Connect jumper wire between PROTECTOFIER terminals L1 and 3 to obtain SSN TELEFIER flame response neon light indication on PROTECTOFIER being used for automatic ignition. One of the neon lights on the chassis will glow when PROTECTOFIER terminal 3 is energized - this is normal.

SSN TELEFIER WIRING FOR MANUAL PUSHBUTTON IGNITION

One of the SSN TELEFIER neon indicator lamps on the PROTECTOFIER chassis will glow when PROTECTOFIER terminal 3 is energized. Connect one N.C. contact of "START" pilots pushbutton between PROTECTOFIER terminals L1 and 3. When "START" button is depressed during light-off period, terminal 3 will be de-energized and neon light will gradually be extinguished. Neon lights on chassis will then glow in response to respective flame signal.

PROTECTOFIER

TOMATIC OR MANUAL OPERATION

-5100A FLAME PAK

ACF { C - CHECK RELAY
F - FLAME RELAY
L - LOAD RELAY

TWO BURNER
PROTECTOFIER
(FORM 6642 VBL
GROUP M3102.)

5 7 9 11
□ □ □ □
NO CONNECTIONS.

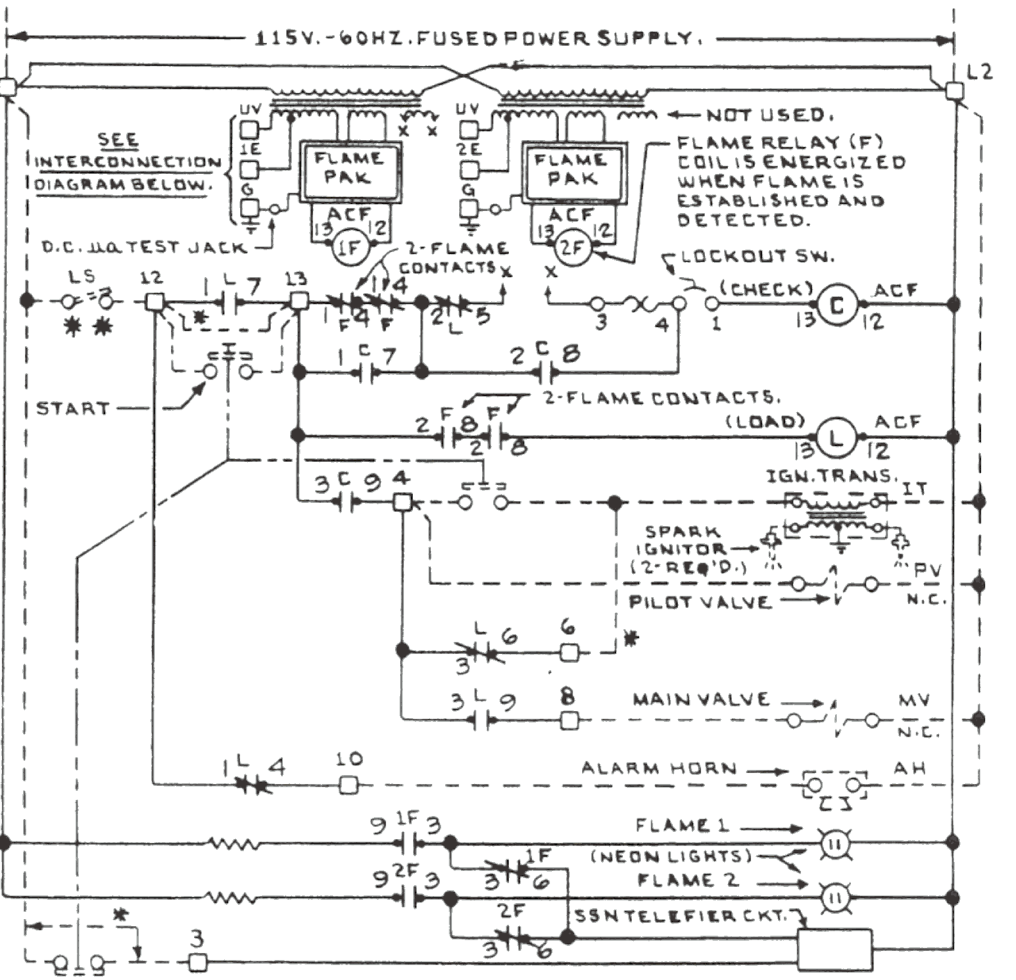
✱ - P.B. FOR MANUAL OPERATION.
ADD JUMPERS AS INDICATED
FOR AUTOMATIC OPERATION.

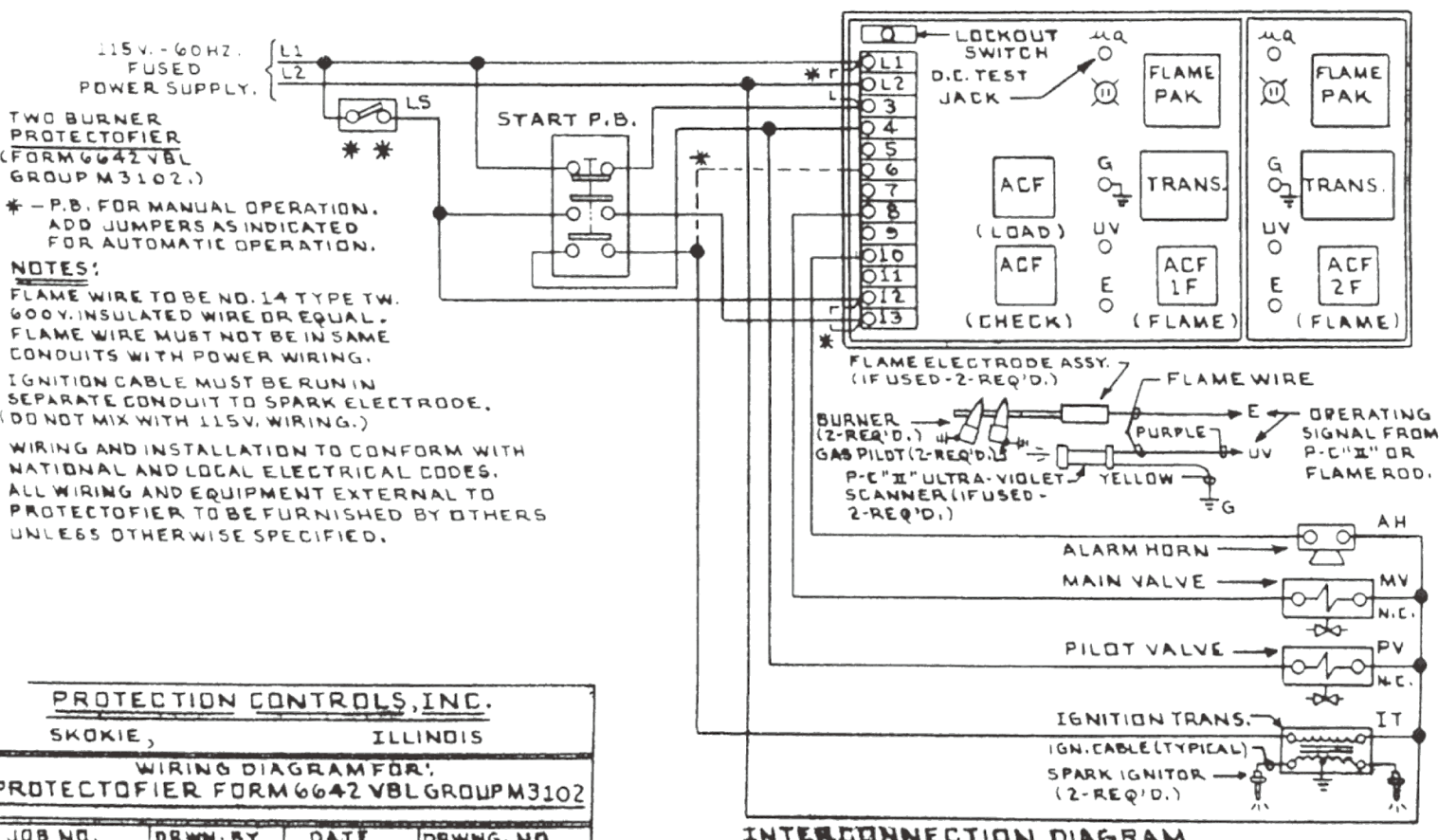
□— INTERNAL WIRING.
- - - EXTERNAL WIRING.

NOTE:
INSTALLATION, OPERATION AND MAINTENANCE SHALL CONFORM WITH NATIONAL FIRE PROTECTION ASSOCIATION STANDARDS, NATIONAL AND LOCAL CODES, AND AUTHORITIES HAVING JURISDICTION.

WIRING DIAGRAM

✱ ✱ - SAFETY INTLK. SERIES CIRCUIT.
FUEL AND AIR PRESS. SWS.,
VENT, FANS, ETC. AS REQ'D.





INTERCONNECTION DIAGRAM

REVISED AND REDRAWN, REV. 9-30-81

PROTECTION CONTROLS, INC.			
SKOKIE, ILLINOIS			
WIRING DIAGRAM FOR: PROTECTOFIER FORM 6642 VBL GROUP M3102			
JOB NO.	DRWN. BY	DATE	DRWNG. NO.
	M.Q.V.	5-31-79	X-240