



Single Burner Supervision, Automatic Ignition, Non-Relight,  
Plug-in Type SS100A FLAME-PAK, Plug-in Type Control Relays.

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

Power on PROTECTOFIER terminal 13 (thru safety limits circuit).

Power on PROTECTOFIER terminal 12 (thru operating control).

1. "ACF" CHECK relay "C" is energized thru N.C. contact of "ACF" FLAME relay "F", low voltage winding of SS3CP TRANSFORMER, and SAFETY LOCKOUT switch circuit.
2. Ignition transformer is energized from terminal 6 (thru N.C. contact of FLAME relay "F" to provide electric spark ignition to the pilot). Pilot solenoid valve is energized from terminal 4.
3. With pilot flame established "ACF" FLAME relay "F" is energized. FLAME relay "F" contacts transfer.
  - a. N.C. "F" contact in safe-start checking and SAFETY LOCKOUT circuit opens.
  - b. N.C. "F" contact in ignition transformer circuit opens to de-energize the ignition transformer.
  - c. N.O. "F" contact in main valve circuit closes.
  - d. N.O. "F" contact paralleling N.C. "NR" contact closes.
  - e. N.O. "F" contact in non-relight circuit closes to energize "ACF" NON-RELIGHT relay "NR" thru N.O. "C" contact. NON-RELIGHT relay "NR" contacts transfer.
    - 1) N.O. "NR" contact in SAFETY LOCKOUT circuit closes and electrically seals in "NR"

relay thru a second N.O. "NR" contact in series with a N.O. "C" contact.

- 2) N.C. "NR" contact in pilot valve circuit opens. (Pilot valve remains energized thru N.O. "F" contact).
- 3) N.O. "NR" contact in main valve circuit closes to energize the main valve. Neon indicator light on PROTECTOFIER chassis will glow to indicate flame is established.

Failure to establish pilot 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 shuts off fuel supply by de-energizing fuel valves. NON-RELIGHT relay "NR" is held energized through series circuit of two N.O. "NR" contacts and N.O. "C" contact preventing a relight attempt. Safety lockout circuit is energized to lockout system.

Interruption in safety limits between PROTECTOFIER terminals L1 and 13 de-energizes fuel valves. When FLAME relay responds to loss of flame, safety lockout circuit is energized to lockout system.

Power interruption to PROTECTOFIER terminal L1 or opening of operating control circuit to terminal 12 will de-energize relays and fuel valves. Resumption of power will cause PROTECTOFIER to go thru another safe-start check and relight cycle.

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



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INSTALLATION, OPERATION AND MAINTENANCE SHALL CONFORM WITH NATIONAL FIRE PROTECTION ASSOCIATION STANDARDS, NATIONAL AND LOCAL CODES, AND AUTHORITIES HAVING JURISDICTION. ANY MODIFICATION VOIDS APPROVALS.

**PROTECTOR**  
WITH  
SS100A FLAME PAK  
CHECK RELAY  
FLAME RELAY  
NR-NON-RECYCLE RELAY

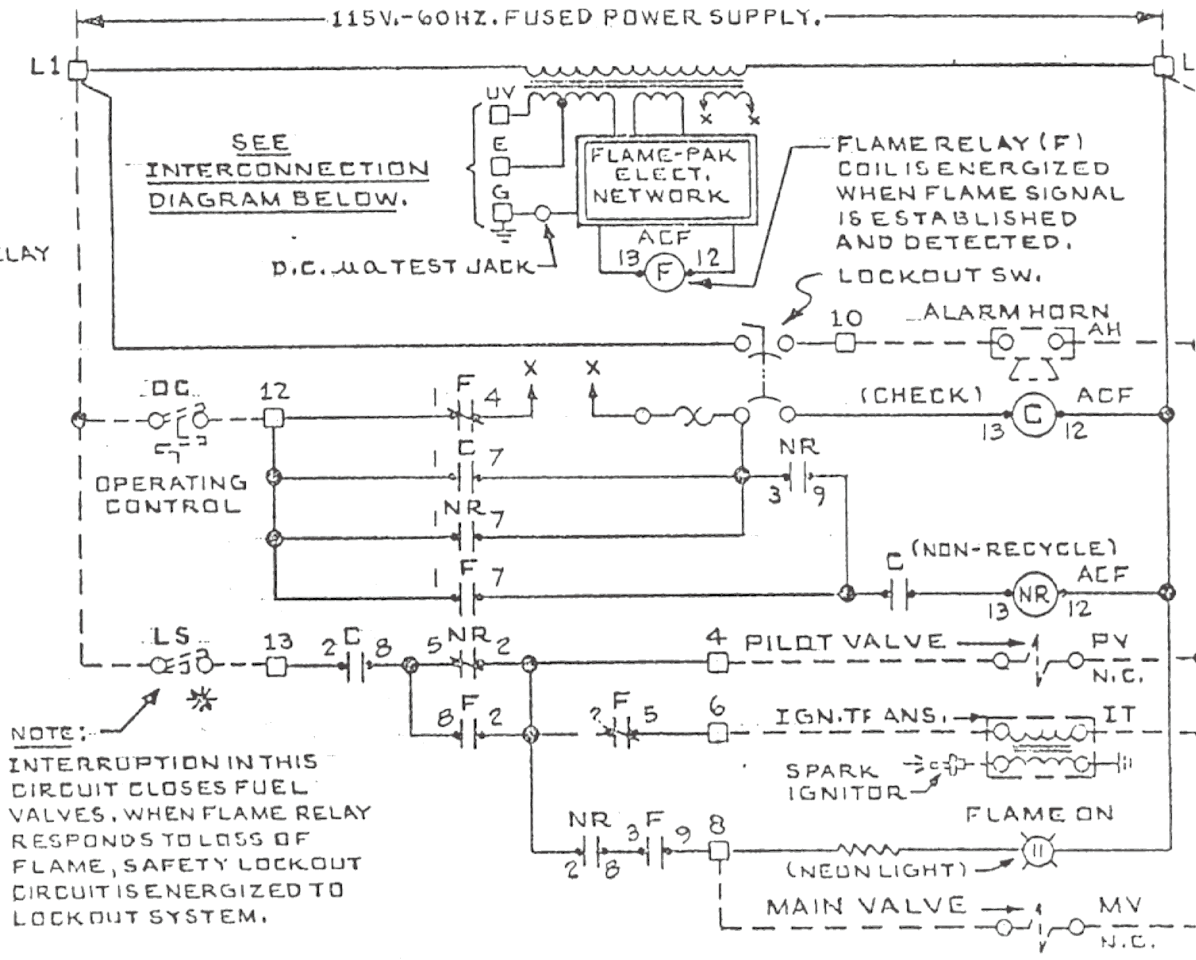
3 5 7 9 11  
□ □ □ □ □  
NO CONNECTIONS.

SINGLE BURNER  
PROTECTOR  
(FORM 6642 VB-NR  
GROUP M2101.)

□ — INTERNAL WIRING.  
--- EXTERNAL WIRING.

**WIRING DIAGRAM**

\* — SAFETY INTLK.  
SERIES CIRCUIT.  
FUEL AND AIR  
PRESS. SWS.,  
VENT, FANS,  
ETC. AS REQ'D.



SINGLE BURNER  
PROTECTOR  
(FORM 6642 VB-NR  
GROUP M2101.)  
NOTES:

FLAME WIRE TO BE NO. 14 TYPE TW, 600V, INSULATED WIRE OR EQUAL. FLAME WIRE MUST NOT BE IN SAME CONDUITS WITH POWER WIRING.

IGNITION CABLE MUST BE RUN IN SEPARATE CONDUIT TO SPARK ELECTRODE. DO NOT MIX WITH 115V. WIRING.

WIRING AND INSTALLATION TO CONFORM WITH NATIONAL AND LOCAL ELECTRICAL CODES. ALL WIRING AND EQUIPMENT EXTERNAL TO PROTECTOR TO BE FURNISHED BY OTHERS UNLESS OTHERWISE SPECIFIED.

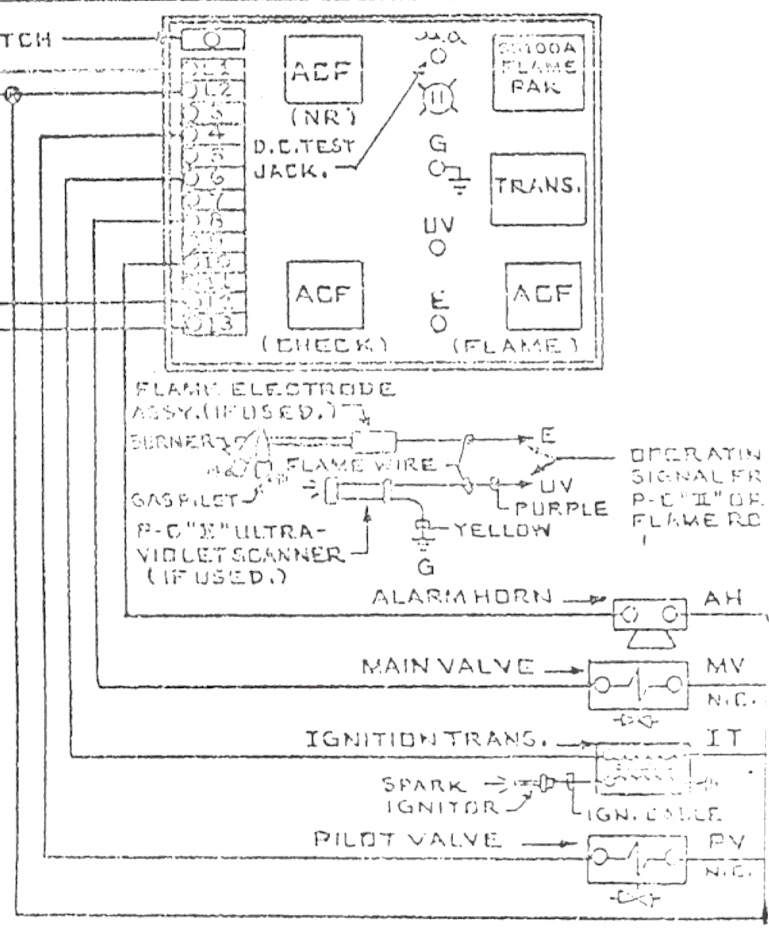
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**INTERCONNECTION DIAGRAM**

PROTECTION CONTROLS, INC.  
SKOKIE, ILLINOIS

WIRING DIAGRAM FOR:  
PROTECTOR FORM 6642 VB-NR GROUP M2101

JOB NO.	DRAWN BY	DATE	DRAWING NO.
	H.R.V.	6-6-79	X-329



REVISED AND REDRAWN: 10-1-81