

PROTECTION CONTROLS, INC.

Skokie, Illinois

PROTECTOFIER
Form 7256BNRH
(Drawing X-342)

Single Burner Supervision, Automatic ignition, Plug-in Type SS100A
FLAME-PAK, Plug-in Type Control Relays.

OPERATING SEQUENCE

AUTOMATIC IGNITION

Power on PROTECTOFIER terminal 1 and 2 provide power to electronic network (thru safety and cycling limit switch circuits).

- 1 - "ACF" CHECK relay "C" is energized thru N.C. contacts of "ACF" FLAME relay "F"; SAFETY LOCKOUT switch circuit and component check "TD" circuit.
- 2 - Ignition transformer is energized from terminal 4 (thru N.C. contact of FLAME relay "F") to provide electric spark ignition to the pilot. Pilot solenoid valve is energized from terminal 3.
- 3 - With pilot flame established "ACF" FLAME relay "F" is energized.
 - a - FLAME relay "F" contacts transfer.
 - 1) N.C. "F" contact in safe-start checking and SAFETY LOCKOUT circuit opens.
 - 2) N.C. "F" contact in ignition transformer circuit opens to de-energize the ignition transformer.
 - 3) N.O. "F" contact in main valve circuit closes.
 - 4) N.O. "F" contact in series to "ACF" NON-RECYCLE relay coil "NR" closes to energize "NR" relay.
 - 5) N.O. "NR" relay contact closes to electrically hold in "NR" coil.
 - 6) N.C. "N.R." relay contact opens to prevent attempt to relight on flame failure condition.
 - 7) N.O. "NR" relay contact closes, permitting main valve circuit to be energized. 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-RECYCLE relay "NR" remains energized. N.C. "NR" relay contact remains open to prevent re-opening of pilot gas valve and re-ignition. SAFETY LOCKOUT switch contacts will open circuit to CHECK relay "C" coil at

end of safety switch timing period. Alarm horn, if used, will sound.

SAFETY LOCKOUT requires manual reset.

Suffix letter "H" in Form number indicates Alarm circuit option is provided. Alarm circuit will be energized when SAFETY LOCKOUT switch trips on failure to light pilot or flame failure. Alarm load to be limited to 50VA maximum.

Power interruption to PROTECTOFIER terminal 1 de-energizes 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 opening of fuel valves and also prevent ignition.

Suffix letter "E" in Form number indicates PROTECTOFIER is enclosed type.

8/28/74

POWER EQUIPMENT CO.

Manufacturers Representative

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**PROTECTOFIER
AUTOMATIC START**

SS100A FLAME-PAK

ACF { C - CHECK RELAY
F - FLAME RELAY
NR - NON-RECYCLE RELAY

SINGLE BURNER
PROTECTOFIER
(FORM 7256 - BNRH)

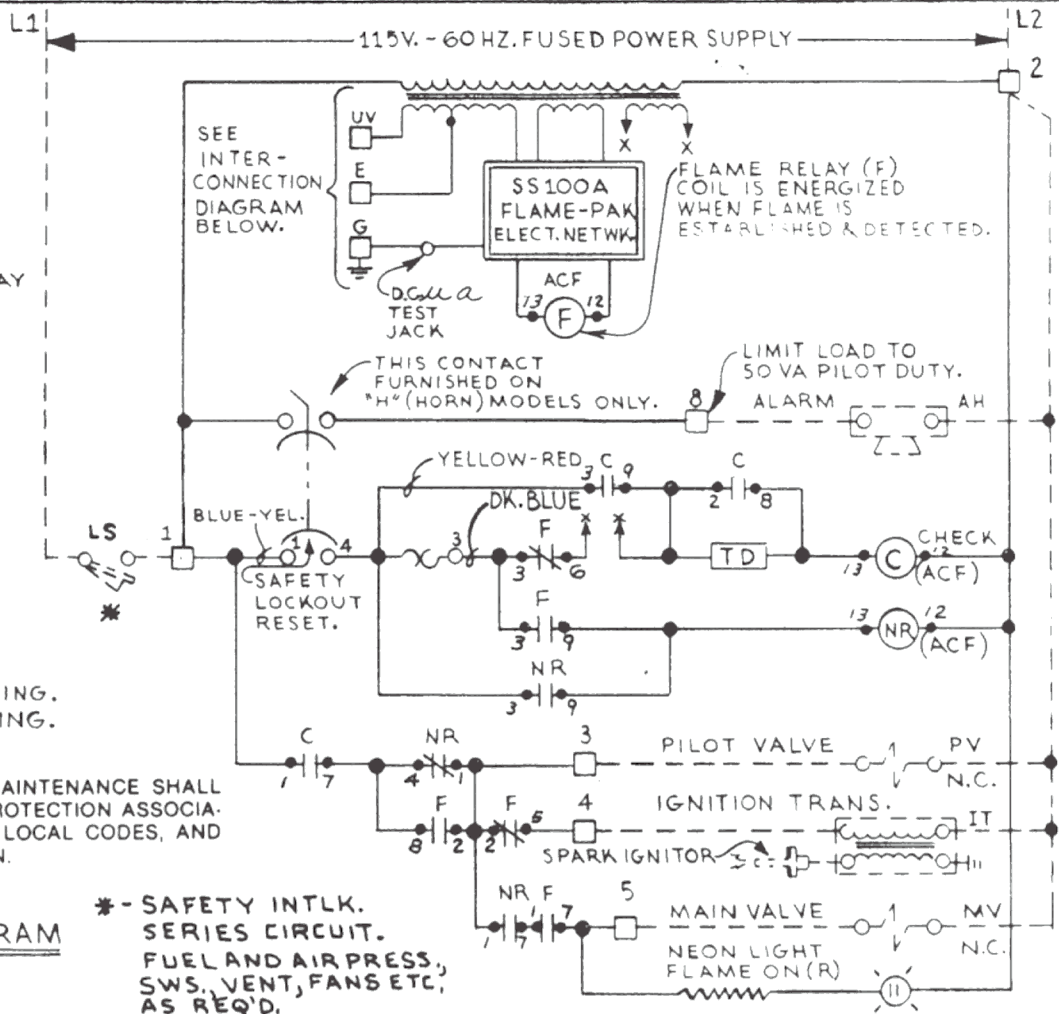


———— INTERNAL WIRING.
----- EXTERNAL WIRING.

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, FAN ETC., AS REQ'D.

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.

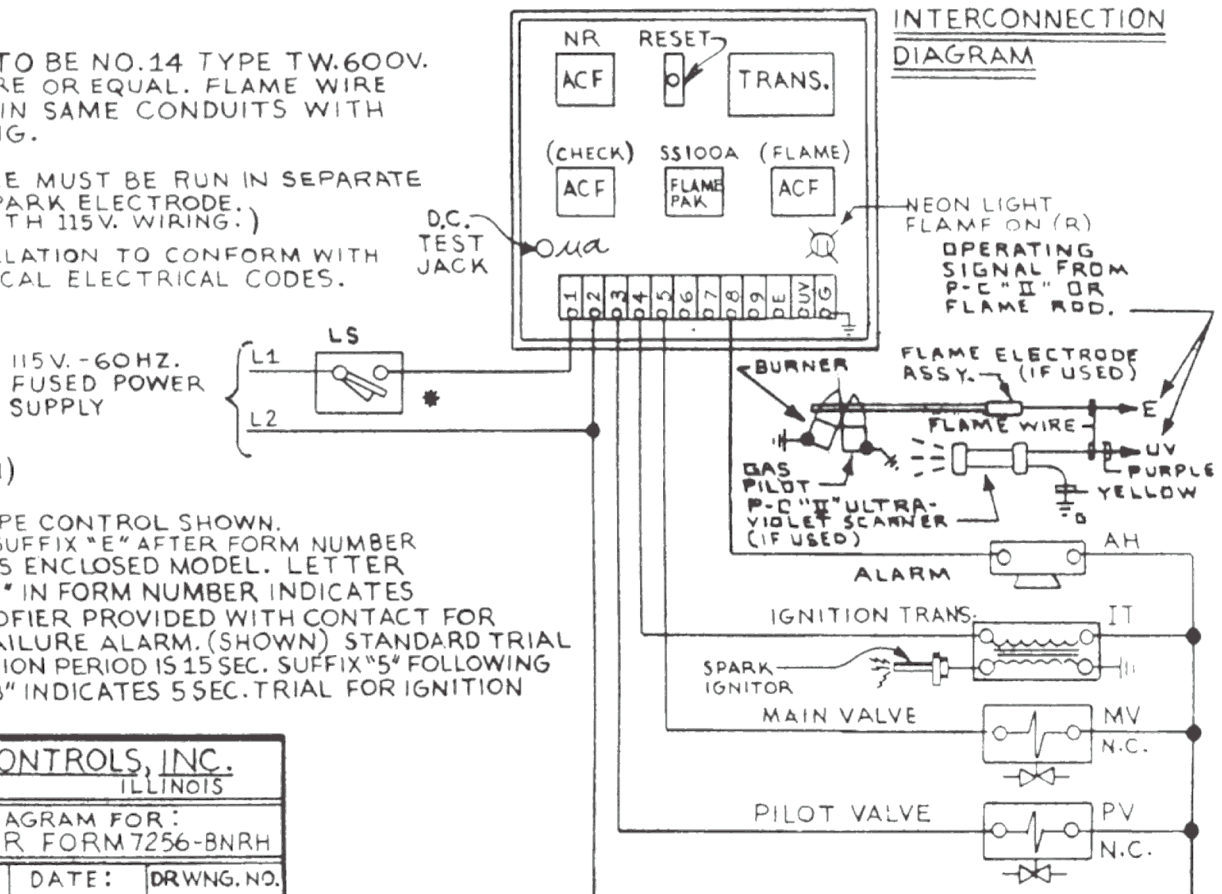
IGNITION CABLE MUST BE RUN IN SEPARATE CONDUIT TO SPARK ELECTRODE. (DO NOT MIX WITH 115V. WIRING.)

WIRING & INSTALLATION TO CONFORM WITH NATIONAL & LOCAL ELECTRICAL CODES.

SINGLE BURNER
PROTECTOFIER
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NOTES: OPEN TYPE CONTROL SHOWN. LETTER SUFFIX "E" AFTER FORM NUMBER INDICATES ENCLOSED MODEL. LETTER SUFFIX "H" IN FORM NUMBER INDICATES PROTECTOFIER PROVIDED WITH CONTACT FOR FLAME FAILURE ALARM. (SHOWN) STANDARD TRIAL FOR IGNITION PERIOD IS 15 SEC. SUFFIX "5" FOLLOWING LETTER "B" INDICATES 5 SEC. TRIAL FOR IGNITION PERIOD.

INTERCONNECTION
DIAGRAM



PROTECTION CONTROLS, INC.
SKOKIE, ILLINOIS

WIRING DIAGRAM FOR:
PROTECTOFIER FORM 7256-BNRH

JOB NO.	DRAWN BY:	DATE:	DRWNG. NO.
	<i>O. J. V.</i>	9-24-73	X-342

REVISED & REDRAWN 10-1-81