

PROTECTION CONTROLS INC.
Skokie, Illinois

PROTECTOFIER
Form 7256BT - * - NRH
(Drawing X-343)

Single Burner Supervision, Automatic Purge and Ignition with limited ignition trial Period, Plug-in Type SST Solid State Purge Timer, Plug-in type "ACF" Control Relays, Plug-in Type SS100A FLAME PAK.

OPERATING SEQUENCE

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

- 1 - Blower motor starter coil (115V) is energized from PROTECTOFIER terminal 8.
- 2 - Blower air pressure switch connected between terminals 6 & 7 close to prove adequate air movement energizes purge timer (thru SAFETY LOCK-OUT switch circuit, N.C. Flame Relay "F" contact and "NON-RECYCLE" "NR" relay coil) to start purging cycle.
- 3 - At end of Purge cycle, CHECK relay "C" is energized.
 - a) N.O. "C" relay contact in SAFETY LOCK-OUT circuit closes to start limited ignition trial cycle period.
 - b) N.O. "C" relay contact in "SST" timer circuit closes to electrically hold in "C" coil.
 - c) N.O. "C" relay contact in pilot/burner/ignition circuit closes to energize pilot solenoid valve and ignition transformer. Pilot solenoid valve is energized from terminal 3. Ignition transformer is energized from terminal 4.
- 4 - With pilot flame established, "ACF" FLAME relay "F" is energized
 - a) FLAME relay "F" contacts transfer.
 - 1 - N.C. "F" relay contact in safe-start checking and SAFETY LOCK-OUT circuit opens.
 - 2 - N.O. "F" relay contact in NON-RECYCLE relay coil "NR" circuit closes to energize "NR" relay and by-pass purge timer.
 - 3 - N.O. "F" relay contact in pilot/burner circuit closes to hold in pilot solenoid valve and also to energize Main valve thru N.O. "NR" relay contact. Neon indicator light on PROTECTOFIER chassis will glow to indicate flame is established.
 - 4 - N.C. "NR" relay contact in ignition transformer circuit opens to de-energize ignition transformer.

Failure to establish pilot flame during limited ignition trial cycle will cause SAFETY LOCK-OUT switch to open circuit to blower motor starter coil, purge timer, primary winding of internal transformer and also to pilot/burner/ignition circuits. Alarm horn, if used, will sound.

SAFETY LOCK-OUT requires manual reset.

Flame failure during operation shuts off fuel supply by de-energizing fuel valves. N.C. FLAME relay "F" contact in SAFETY LOCK-OUT circuit closes to

activate lockout timing function (thru N.O. "C" relay contact. NON-RECYCLE relay "NR" remains energized. N.C. "NR" relay contact remains open to prevent re-opening of pilot valve and re-ignition.

SAFETY LOCK-OUT switch contacts opens circuit to fuel valve and ignition circuits, blower starter coil circuit and internal transformer at end of safety switch timing period. Alarm horn, if used, will sound.

SAFETY LOCK-OUT requires manual reset.

Power interruption to PROTECTOFIER terminal 1 de-energizes relays blower starter coil and fuel valves. Resumption of power will cause PROTECTOFIER to go thru another purge and re-light cycle.

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

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

POWER EQUIPMENT CO.

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**PROTECTOFIER
AUTOMATIC
OPERATION**

SS100A FLAME-PAK

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

**SINGLE BURNER
PROTECTOFIER**

(FORM 7256 BT- *NRH)

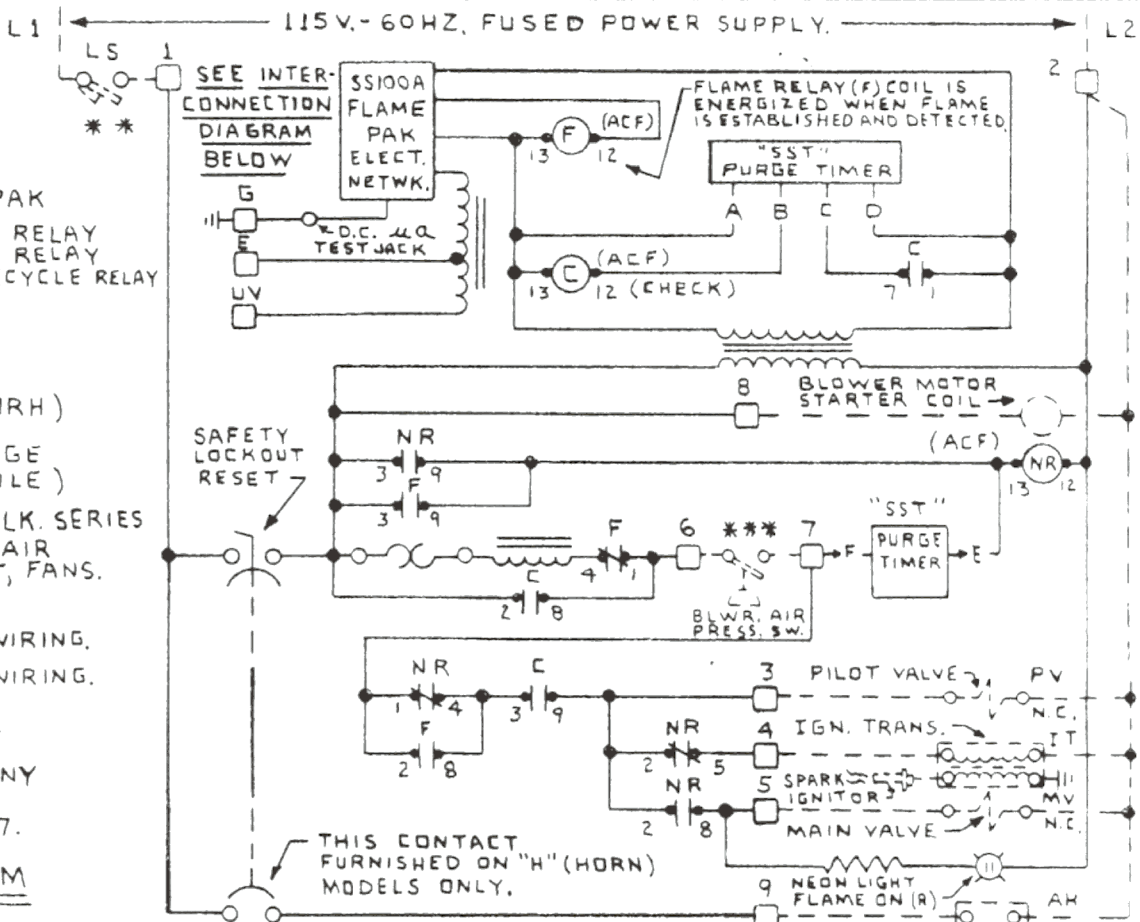
* — TIMING RANGE
(SEE TIMING SCHEDULE)

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

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

*** - IMPORTANT
DO NOT CONNECT ANY
LOAD CIRCUITS TO
TERM. 6 OR TERM. 7.

WIRING DIAGRAM



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).

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

SAFETY LOCKOUT RESET

IGN. AND NON RELIGHT

D.C. TEST JACK

LS **

**SINGLE BURNER
PROTECTOFIER**
(FORM 7256 BT- *NRH)

SOLID STATE TIMER
NEON LIGHT FLAME ON (R)
OPERATING SIGNAL FROM P-C II OR FLAME ROD.

NOTES:

OPEN TYPE CONTROL SHOWN. LETTER SUFFIX "E" AFTER FORM NUMBER INDICATES ENCLOSED MODEL. LETTER SUFFIX "H" AFTER 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.

TIMING SCHEDULE			
* RANGE	TIME IN SECONDS		
	PURGE	IGN.	
15 - 5	15	5	
15 - 15	15	15	
30 - 5	30	5	
30 - 15	30	15	
60 - 5	60	5	
60 - 15	60	15	
90 - 5	90	5	
90 - 15	90	15	

PROTECTION CONTROLS, INC.
SKOKIE, ILLINOIS

WIRING DIAGRAM FOR:
PROTECTOFIER FORM 7256 BT- *NRH

JOB NO. TR
DRAWN BY
DATE 3-17-88
DRWG NO. X-343

INTERCONNECTION DIAGRAM

REV. 3-17-88