

MASTER COPY

ECNS' 2574, 2575 & 2576

B. P. Eng.

ELECTRONIC CONTROL SYSTEMS

WITH OR LESS PANELS
FOR

G-40 & G-60 GAS BOILERS

Superseded by 12-62 issue

APPROVED BY AMERICAN GAS ASSOCIATION

NOTICE TO INSTALLER AND OPERATOR
THIS BOOKLET MUST BE AFFIXED ON
OR ADJACENT TO THE HEATING EQUIPMENT

*THIS MANUAL EFFECTIVE
PRIOR TO IBN-J3 SERIES*

AMERICAN-Standard

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BP-15095

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SUPPLEMENTARY INSTRUCTIONS FOR GAS BOILERS
WITH ELECTRONIC CONTROLS

CAUTION: All wiring should be installed in accordance with the National Electric Code. Reference should also be made to the electric company regulations and local codes covering the installation.

The installer should carefully study the printed forms provided with the equipment and become familiar with the terminology and purpose of the parts. Particular attention should be given to the diagram covering the location of the pilots and controls for the system adopted. The installation of the pilot gas supply line (s) is shown in the Installation, Operating and Maintenance Manual furnished with the boiler.

TYPES OF SYSTEMS:

- EG-0 - Electronic Control System is specifically designed for F.M. and F.I.A. installation. This system provides electric ignition on all pilots (auxiliary and safety) also electronic control of all safety pilots and 100% shutoff. A protectorelay is required for each individual combustion chamber.
P. 23-26
- EPG-0 - Electronic Control System - Same as the EG-0 System, except furnished with a pre-wired Master Panel with Protectorelay for one combustion chamber and one sub-panel with a protectorelay for each additional combustion chamber.
P. 27-30
- EG-1 - Electronic Control System - This system requires manual ignition of all pilots and provides electronic control of the last pilot on each pilot gas supply line. A protectorelay is required to serve each Manifold and its electronic safety pilot.
P. 31 & 32
- EPG-1 - Electronic Control System - Same as the EG-1 System, except furnished with a pre-wired Master Control Panel also with a sub-control panel for boilers having two manifolds.
P. 33 & 34
- EG-2 - Electronic Control System - This system requires manual ignition of all pilots, provides electronic control of the last pilot on the pilot gas supply line and 100% Shutoff on all pilots.
P. 35 & 36
- EPG-2 - Electronic Control System - Same as EG-2 except furnished with a pre-wired Master Control Panel also with a Sub-Control Panel for boilers having two Manifolds.
P. 37 & 38
- EG-3 - Electronic Control System - This system requires manual ignition of all pilots except the electronically controlled pilot which lights automatically. The system provides 100% Shutoff on all pilots. A Protectorelay is required to serve each manifold and its electronic safety pilot.
P. 39 & 40
- EPG-3 - Electronic Control System - Same as EG-3, except furnished with a pre-wired Master Control Panel also with a Sub-Control Panel for boilers having two Manifolds.
P. 41 & 42

TERMINOLOGY:

Non-100% Shutoff - Pilot gas supply is controlled manually.

100% Shutoff - Pilot gas is supplied through a valve which will automatically close upon pilot flame failure.

Continuous Pilot - (Standby or Auxiliary) - the pilot burns at all times and is manually ignited.

Safety Pilot - Pilot with flame sensing device which prevents main burner operation in event of pilot flame failure. The flame sensing device is a thermocouple on the Baso type pilot and a flame rod on the M-H (Q-179) type pilots.

Q-179-A Pilot - Has an igniter electrode for spark ignited gas pilot and a flame electrode. This Model is used for electric ignition, 100% pilot gas shutoff on intermittent pilot applications.

Q-179-B Pilot - Has only the flame electrode and is used for Manual Ignition, Non-100% pilot gas shutoff.

Q-179-B Modified Pilot - Has special adapter for installing a thermocouple in place of an igniter electrode. Q-179-B modified pilot is used for manual ignition, 100% pilot gas shutoff.

Protectorelay - This control provides electronic flame safeguard protection for the boiler by supervising the control of gas valve (s).

CAUTION - Remove the circuit jumper screw located on top side of the relay base if Q-179 Continuous Flame (not electrically ignited) safety pilot (s) is used. This screw MUST BE removed before installing the relay (s) in the Pre-wired Panel (s).

BASO PILOT VALVE - Located in the pilot line and actuated by a thermocouple. Used for 100% pilot gas shutoff. To light pilot, depress the plunger on top of pilot valve and hold approximately 30 seconds until the thermocouple becomes hot.

GAS PILOT VALVE - M-H No. V-495-A or No. V-495-B, 115 Volt., 60 Cycle. Used for Electric Ignition, 100% Pilot Gas Shutoff. Model "A", less manual opener is furnished with manual opening device packed in envelope (attached to the pilot valve) as standard equipment.

IGNITION TRANSFORMER - Used with Q-179-A pilot for automatic electric ignition. Secondary (hot) connection provides 6000 Volts and is grounded internally to the case. TO COMPLETE IGNITION CIRCUIT, CASE MUST BE GROUNDED. Transformer operates on 115 Volt, 60 Cycle current.

GAS VALVE TRANSFORMER - Converts 110 Volt., 60 Cycle current to 24 Volts for use with low voltage gas valves. Must be mounted on junction box. NOTE: If line voltage gas valves are supplied, this transformer is omitted from the circuit and the valves are connected to the same terminal on the relay as shown for the transformer.

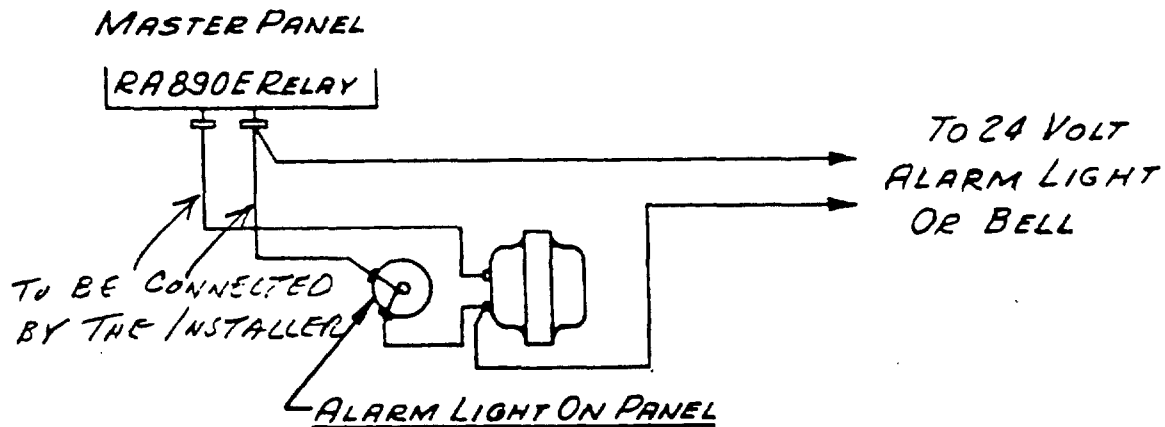
DISCONNECT SWITCH - Double pole single throw switch should be installed in the line to the installations without a pre-wired panel. All power to the boiler should be supplied through the disconnect switch.

MASTER PANEL - Pre-wired, electronic control panel with protectorelay base has "Pilot" and "Automatic Gas Valve" lights and switches. Protectorelay with alarm contacts to be mounted within the panel.

SUB-PANEL - Panel with protectorelay base, pilot light and switch. Sub-panel (s) are factory assembled and wired to Master Panel as required. Protectorelay with alarm contacts to be mounted within the panel.

SPECIAL CONTROLS - When required, additional electrical safety controls that act to limit temperature or pressure should be wired in series with limit control shown on applicable wiring diagrams.

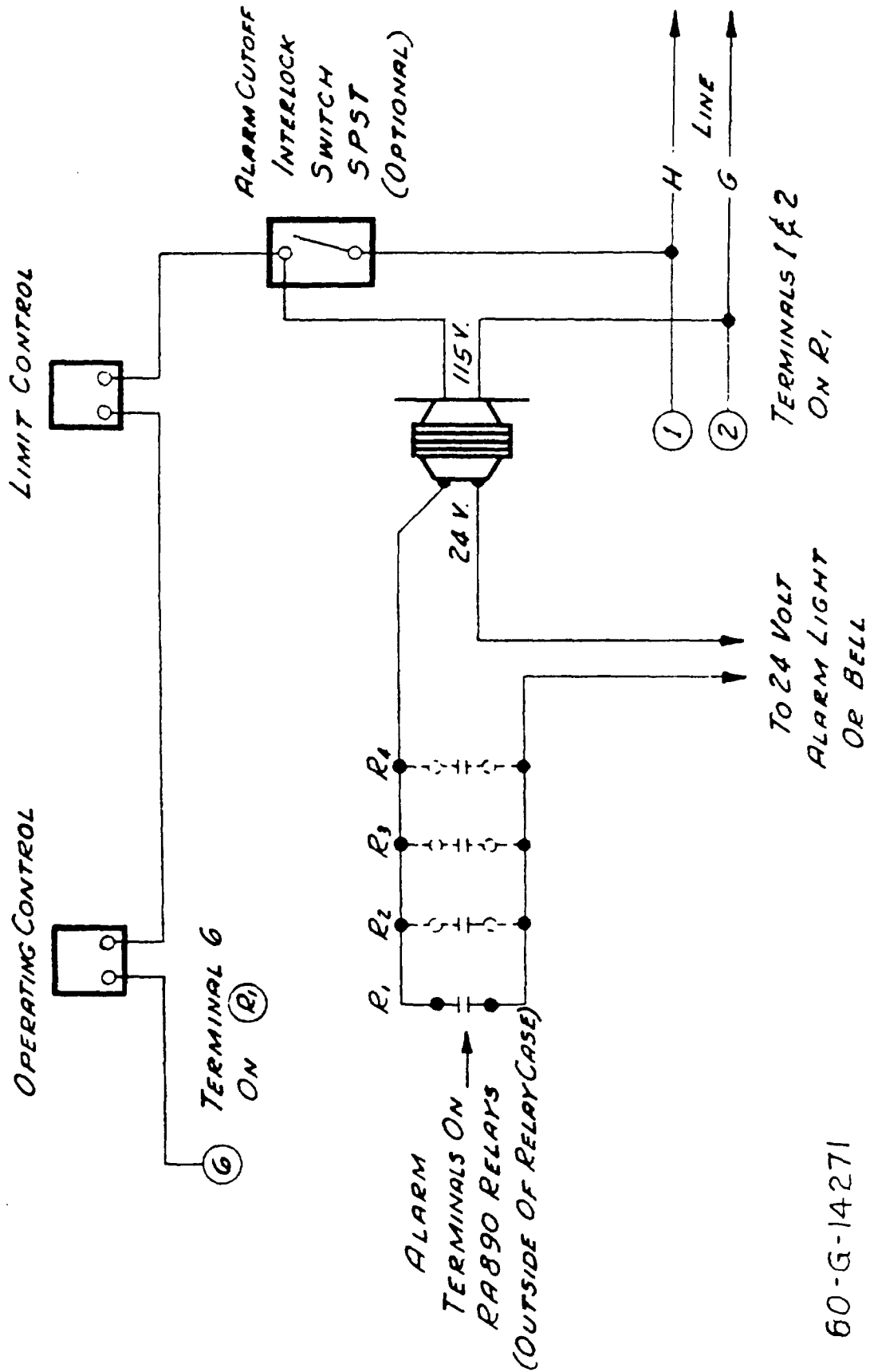
ALARM CIRCUIT: - The M-H RA-890 relay (s) supplied with the boiler are provided with low voltage alarm contacts which close within approximately 15 seconds after pilot flame failure. These contacts energize the "Pilot Failure Alarm Light" on pre-wired panels. A remote alarm light or alarm bell may be connected in the system as shown in the two following diagrams.



REMOTE ALARM CIRCUIT WIRING
FOR USE WITH PREWIRED CONTROL PANELS

BP-7814

*New negative to Prod 3/30/62 with change
per J. R. Griffin's letter of 3-20-62 covering the
connecting of panel light and transformer
wires*



ALARM CIRCUIT WIRING DIAGRAM FOR USE WITH M.H. RA890E
PROTECTOR RELAYS WITHOUT PREWIRED CONTROL PANELS.

INSTALLATION RECOMMENDATIONS:

Relays - The M-H RA-890 Protectorelay should be mounted on a wall or permanent fixture as close to the boiler as possible. On installations less pre-wired panel, it is recommended that all electrical power to the boiler be controlled by a line disconnect switch located near the relay (s). A separate disconnect switch is not needed when the pre-wired panel is used.

All wiring should be completed to the relay sub-base or panel before installing the relay. When pre-wired panels are used, the internal circuit jumper screw located on the top side of the black relay base must be removed if the Q-179 safety pilot is to burn continuously (not electrically ignited). This screw must be removed before installing the relay (s) in the pre-wired panel (s).

Wiring - All wiring between boiler controls and relays should be protected. Wiring to Q-179 electronic pilot flame rod should be M-H spec. 1298-1 or equivalent high temperature (350° F) wire. This wire may be spliced outside of the heat zone to standard 14 gauge wire. The splice should be a soldered connection. Wire from ignition transformer secondary (hot) connection to the Q-179-A Pilot igniter electrode should be M-H Spec. 1061-4.

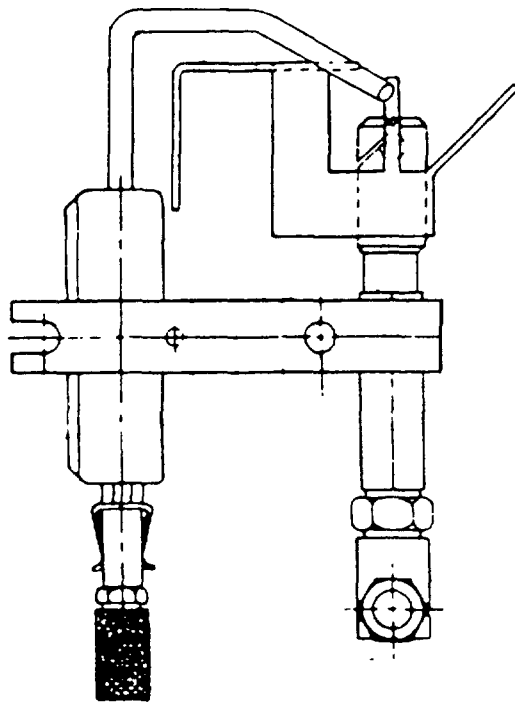
Low Voltage wiring (flame rod circuit) should not be located in same conduit as line voltage wire.

START-UP PROCEDURE:

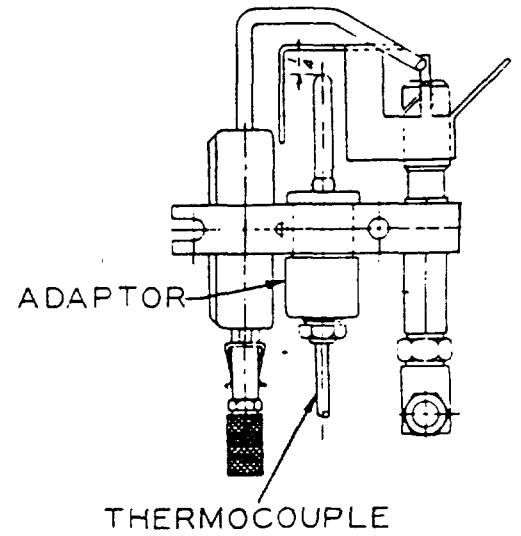
On initial start-up (or after long shutdown it is recommended that air be eliminated from pilot lines before attempting start-up on EG-O or EPG-O systems with automatic electric ignition. When pilot lines are full of air, the electronic relay safety switch may lock out on safety (15 seconds) before gas reaches the pilot burner. If "Lock out" occurs, wait approximately 3 or 4 minutes, actuate reset lever on relay (s) and proceed with lighting sequence.

MAINTENANCE:

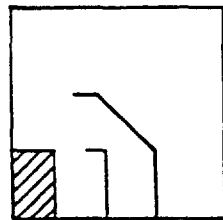
1. All limit controls should be checked for proper operation once a year.
2. Replace tube (s) in relay (s) once a year. Replacement tubes should be obtained from Minneapolis-Moneywell. In case of emergency replacement, regular tubes (with proper number) may be used, however, they should be replaced as soon as possible with M-H pre-tested tubes.



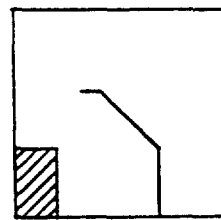
Q-179B PILOT



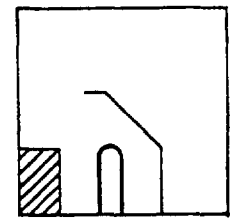
7159-14170-3 P.30
Q-179B MODIFIED
PILOT



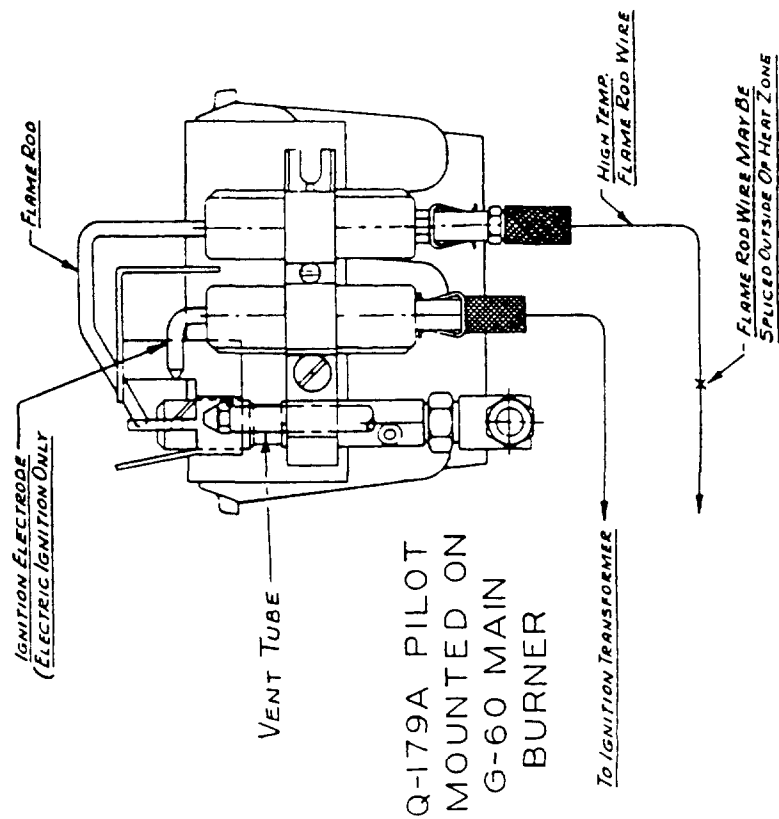
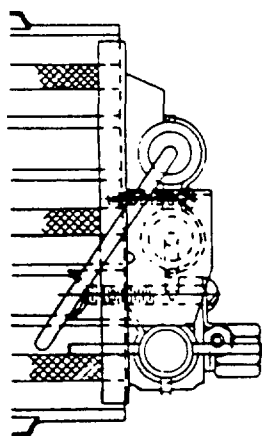
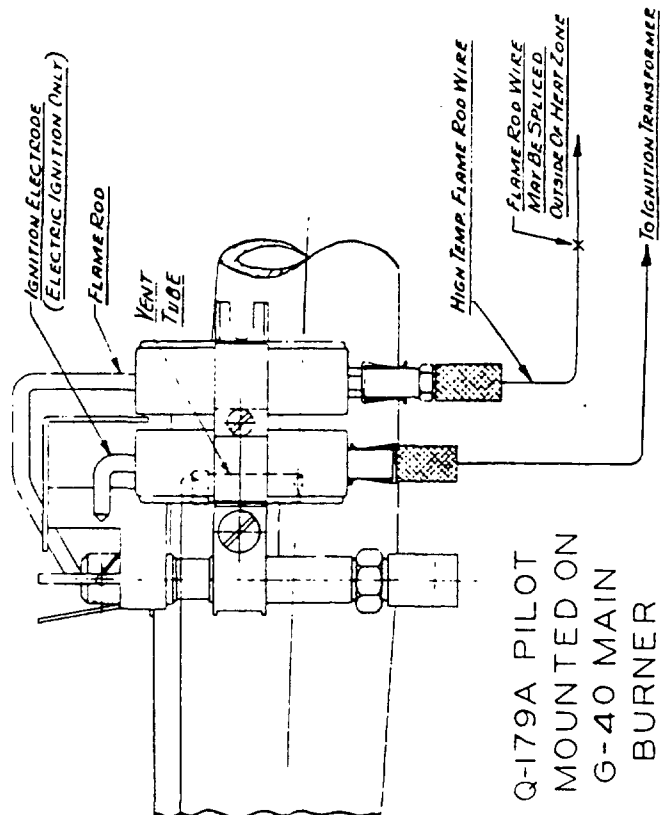
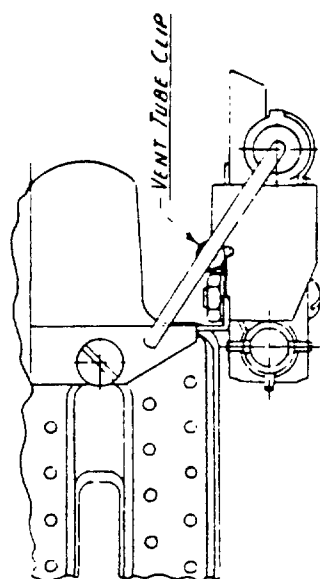
Q-179A



Q-179B

Q-179B
MODIFIED

PILOT SYMBOLS



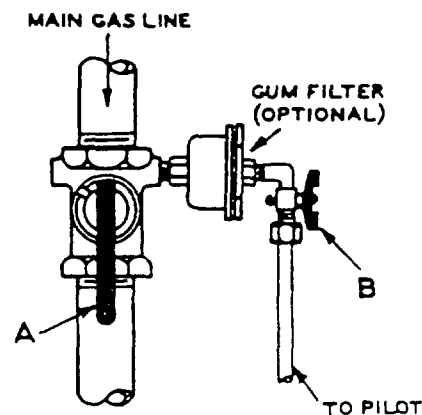
INSTRUCTIONS FOR SHUTTING OFF AND LIGHTING ELECTRIC IGNITION — 100% SHUTOFF

TO SHUT OFF:

1. OPEN LINE SWITCH
2. CLOSE MANUAL SHUTOFF VALVE(S) "A" AND PILOT VALVE(S) "B".

TO LIGHT:

1. BE SURE MANUAL SHUTOFF VALVE(S) "A", PILOT VALVE(S) "B", AND LINE SWITCH HAVE BEEN SHUT OFF FOR AT LEAST FIVE MINUTES BEFORE PROCEEDING.
2. OPEN PILOT VALVE(S) "B".
3. ACTUATE RESET LEVER(S) (RED LEVER ON PROTECTORELAY).
4. SET OPERATING CONTROL TO DESIRED TEMPERATURE OR PRESSURE.
5. CLOSE LINE SWITCH AND WAIT APPROX. 30 SECONDS.
6. MAKE SURE AUTOMATIC GAS VALVE IS NOT IN MANUAL OPEN POSITION.
7. OPEN MANUAL SHUTOFF VALVE(S) "A".



I-ST-12019

EG-0 ELECTRONIC CONTROL SYSTEM

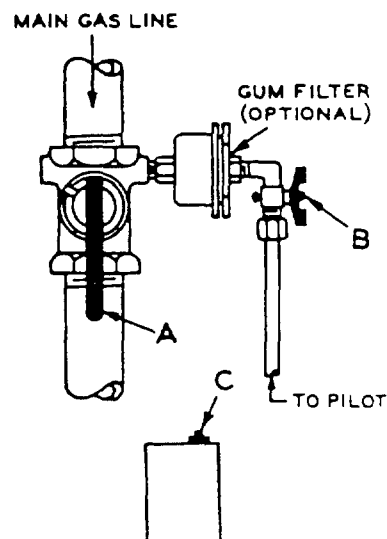
INSTRUCTIONS FOR SHUTTING OFF AND LIGHTING MANUAL IGNITION — NON 100% SHUTOFF

TO SHUT OFF:

1. OPEN LINE SWITCH.
2. CLOSE MANUAL SHUTOFF VALVE(S) "A" AND PILOT VALVE(S) "B".

TO LIGHT:

1. BE SURE MANUAL SHUTOFF VALVE(S) "A", PILOT VALVE(S) "B", AND LINE SWITCH HAVE BEEN SHUT OFF FOR AT LEAST FIVE MINUTES BEFORE PROCEEDING.
2. OPEN PILOT VALVE(S) "B". LIGHT ALL PILOT BURNERS.
3. RESET PILOT SWITCHES "C" (IF USED).
4. ACTUATE RESET LEVER(S) (RED LEVER ON PROTECTORELAY).
5. SET OPERATING CONTROL TO DESIRED TEMPERATURE OR PRESSURE.
6. CLOSE LINE SWITCH AND WAIT APPROX. 30 SECONDS.
7. OPEN MANUAL SHUTOFF VALVE(S) "A".



I-ST-14278

EG-1 ELECTRONIC CONTROL SYSTEM

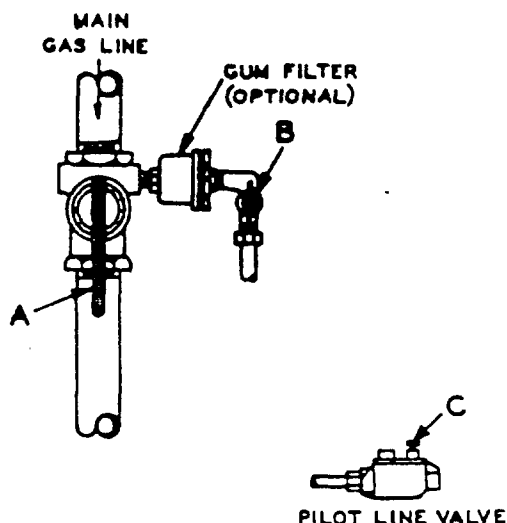
INSTRUCTIONS FOR SHUTTING OFF AND LIGHTING MANUAL IGNITION — 100% SHUTOFF

TO SHUT OFF:

1. Close Manual Shutoff Valve(s) "A" And Pilot Valve "B".
2. Open Line Switch.

TO LIGHT:

1. Be Sure Manual Shutoff Valve(s) "A", Pilot Valve(s) "B" And Line Switch Have Been Shutoff For At Least 5 Minutes Before Proceeding.
2. Open Pilot Valve "B".
3. Press Plunger "C" On 1st Pilot Line Valve And Light Pilot. Hold Plunger "C" For One Minute. Repeat For Additional Pilots.
4. Actuate Reset Lever(s) (Red Lever On Protectorelay)
5. Set Operating Control To Desired Temperature Or Pressure.
6. Close Line Switch.
7. Open Manual Shutoff Valve(s) "A".



I-ST-14279

EG-2 ELECTRONIC CONTROL SYSTEM

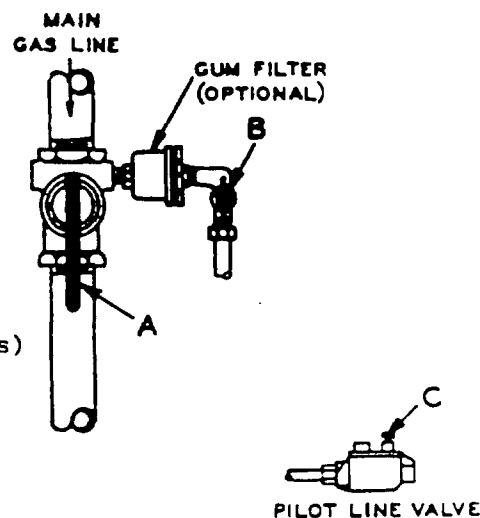
INSTRUCTIONS FOR SHUTTING OFF AND LIGHTING ELECTRIC IGNITION — 100% SHUTOFF

TO SHUT OFF:

1. Close Manual Shutoff Valve(s) "A" And Pilot Valve "B".
2. Open Line Switch.

TO LIGHT:

1. Be Sure Manual Shutoff Valve(s) "A", Pilot Valve(s) "B" And Line Switch Have Been Shutoff For At Least 5 Minutes Before Proceeding.
2. Open Pilot Valve "B".
3. Press Plunger "C" On 1st Pilot Line Valve And Light Pilot. Hold Plunger "C" For One Minute. Repeat For Additional Pilots. Electronic Pilot(s) Will Light Automatically.
4. Actuate Reset Lever(s). (Red Lever On Protectorelay)
5. Set Operating Control To Desired Temperature Or Pressure.
6. Close Line Switch.
7. Open Manual Shutoff Valve(s) "A".



I-ST-14280

EG-3 ELECTRONIC CONTROL SYSTEM

POWERPILOTAUTO GAS VALVELIGHTING INSTRUCTIONS

1. **CAUTION!** BE SURE MAIN GAS SHUTOFF VALVE(S) AND PILOT VALVE(S) HAVE BEEN SHUT OFF AT LEAST 5 MINUTES BEFORE PROCEEDING.
2. TURN POWER SWITCH ON. (PUSH RESET LEVER IF PILOT OUTAGE OCCURRED.)
3. OPEN MANUAL PILOT VALVE(S):
 - A) MANUAL IGNITION - LIGHT PILOTS, RESET PILOT SWITCHES
 - B) MANUAL IGNITION WITH PILOT VALVES - PUSH RED BUTTON ON PILOT VALVE, LIGHT PILOT AND HOLD BUTTON FOR APPROX. ONE MINUTE
 - C) ELECTRIC IGNITION (LESS PILOT VALVES) - LIGHT PILOTS, RESET PILOT SWITCHES. (MAIN SAFETY PILOT WILL LIGHT AUTOMATICALLY)
 - D) ELECTRIC IGNITION (WITH ELECTRIC PILOT VALVES) - PILOTS WILL LIGHT AUTOMATICALLY.
4. TURN PILOT SWITCH(ES) ON. (TURN ON PILOT SWITCHES ON SUB-PANELS FIRST WHEN PROVIDED.) PILOT LAMPS WILL LIGHT ONLY WHEN ALL THE FOLLOWING CONDITIONS EXIST.
 1. ALL SAFETY PILOTS ARE LIT.
 2. OPERATING CONTROL "CALLING FOR HEAT."
 3. ALL LIMIT CONTROLS INDICATE SAFE CONDITIONS.

RESET

BE SURE CONDITION CAUSING SAFETY LOCKOUT HAS BEEN CORRECTED.

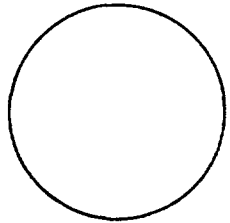
5. SET OPERATING CONTROL TO DESIRED TEMPERATURE OR PRESSURE.
6. OPEN MANUAL MAIN GAS SHUTOFF VALVE(S).
7. TURN AUTO GAS VALVE SWITCH ON TO LIGHT MAIN BURNERS

SHUTDOWN INSTRUCTIONS

1. TURN ALL SWITCHES ON PANEL TO OFF POSITION.
2. CLOSE MAIN GAS SHUTOFF VALVE(S) AND PILOT VALVE(S).

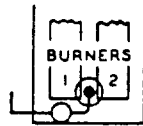
NOTE:

"PILOT" AND "AUTO GAS VALVE" LAMPS WILL CYCLE "ON" AND "OFF" WITH OPERATING CONTROL.

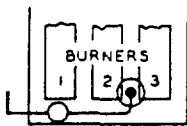

PILOT FAILURE
ALARM LIGHT

1-ST-14261

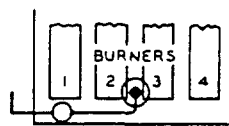
EPG-0, EPG-1, EPG-2 and EPG-3 SYSTEMS
LIGHTING INSTRUCTIONS FOR
PREWIRED ELECTRONIC CONTROL PANEL



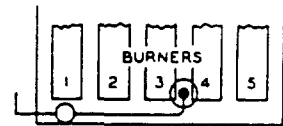
G-403



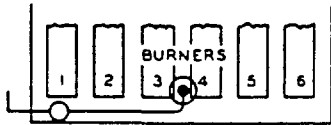
G-404



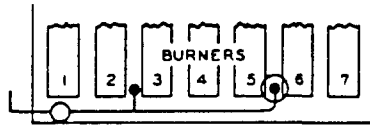
G-405



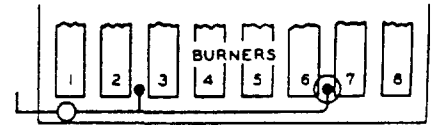
G-406



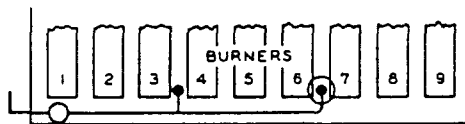
G-407



G-408



G-409



G-4010

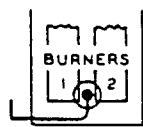
LEGEND.

- MH Q-179 PILOT WITH VENT
- MH Q-179 PILOT
- MH PILOT LINE VALVE

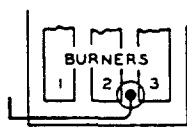
G-40 GAS BOILER

PILOT LOCATION FOR EG-O & EPG-O ELECTRONIC CONTROL SYSTEMS *40-G-14303-C*
 ELECTRIC IGNITION - 100 % SHUTOFF - 3 TO 10 SECTION BOILERS

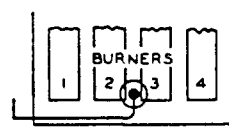
FOR ALL GASES



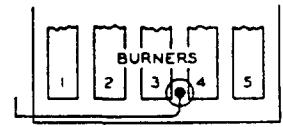
G-403



G-404



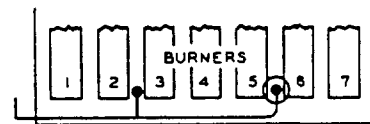
G-405



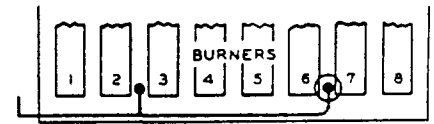
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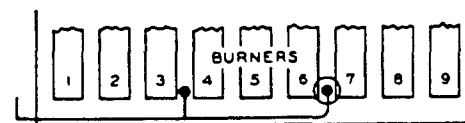
G-407



G-408



G-409



G-4010

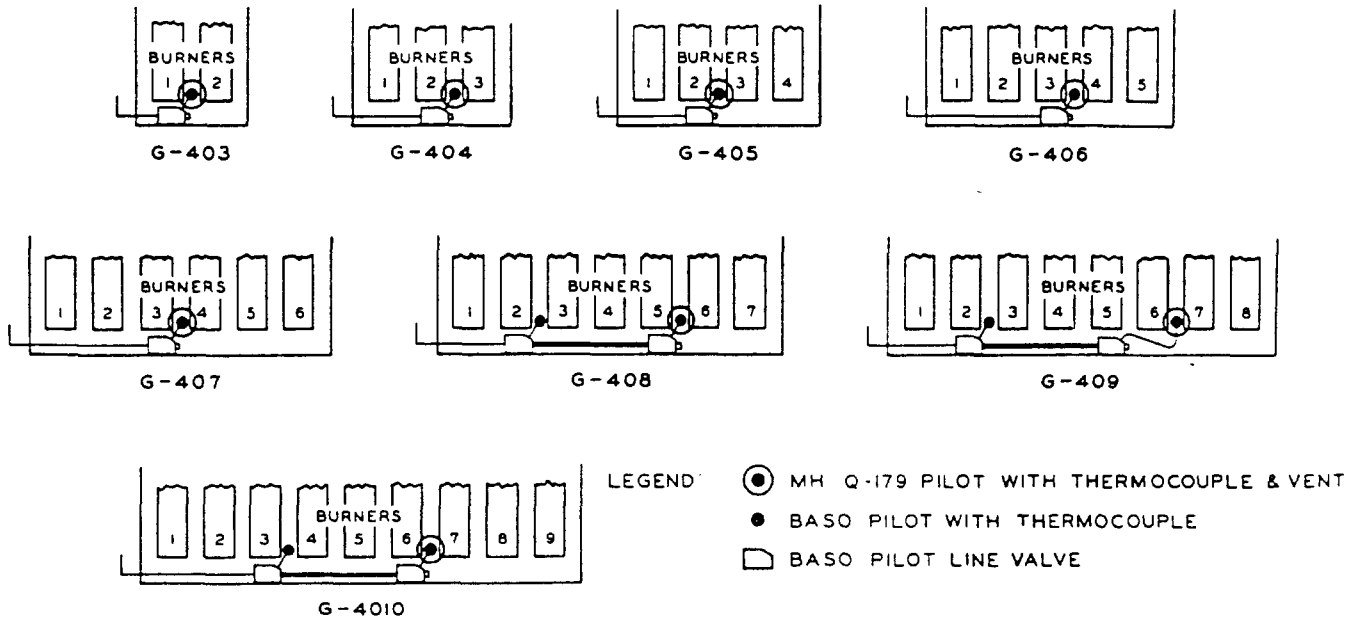
LEGEND

- MH Q-179 PILOT WITH VENT
- BASO PILOT WITH THERMOCOUPLE ?
AS SHOWN IN FIELD NOTES

G-40 GAS BOILER

PILOT LOCATION FOR EG-1 & EPG-1 ELECTRONIC CONTROL SYSTEMS *3*
 MANUAL IGNITION - NON-100 % SHUTOFF - 3 TO 10 SECTION BOILERS
 FOR MFD NAT & MIXED GASES

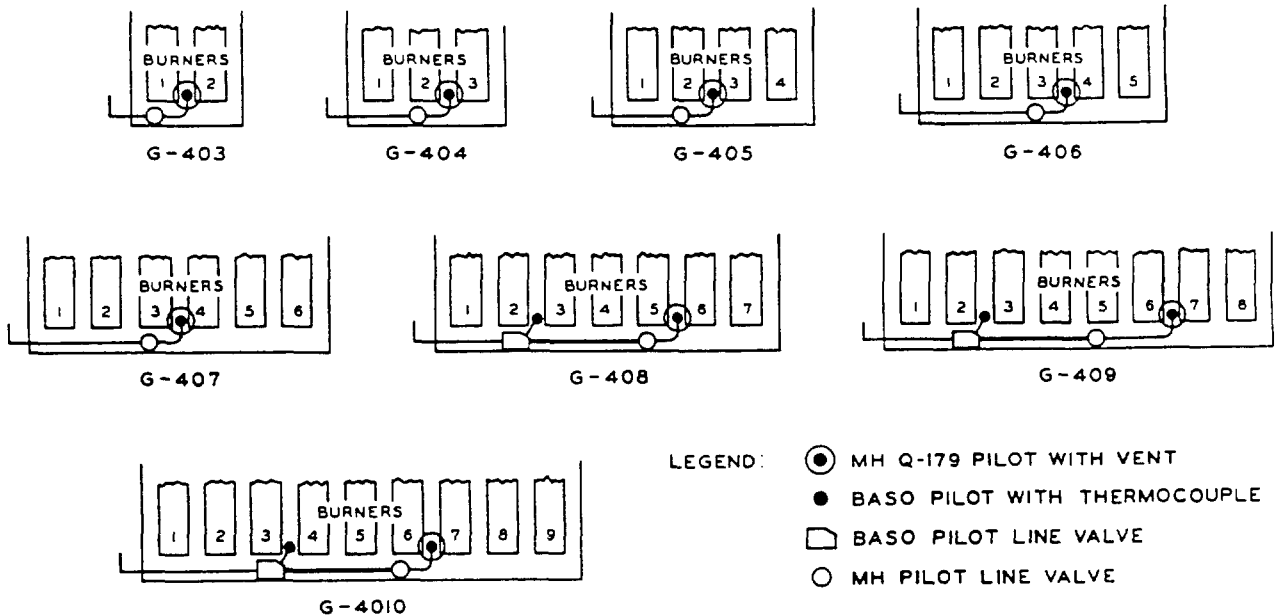
40-G-14304-C
 ↑
 REVISED PRINT
 RECD W/GRIFIN'S
 LETTER 7-3-62
 (IN DRAWER)



G-40 GAS BOILER

40-G-14305-C

PILOT LOCATION FOR EG-2 & EPG-2 ELECTRONIC CONTROL SYSTEMS
 MANUAL IGNITION - 100 % SHUTOFF - 3 TO 10 SECTION BOILERS
 FOR ALL GASES

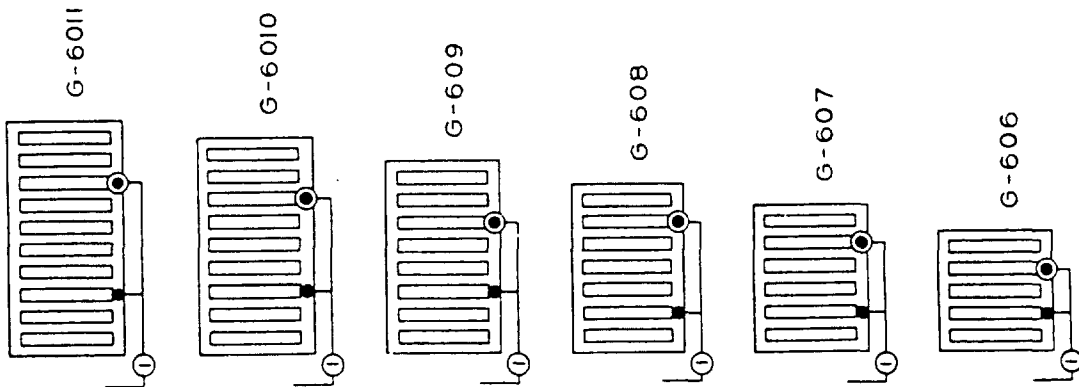


G-40 GAS BOILER

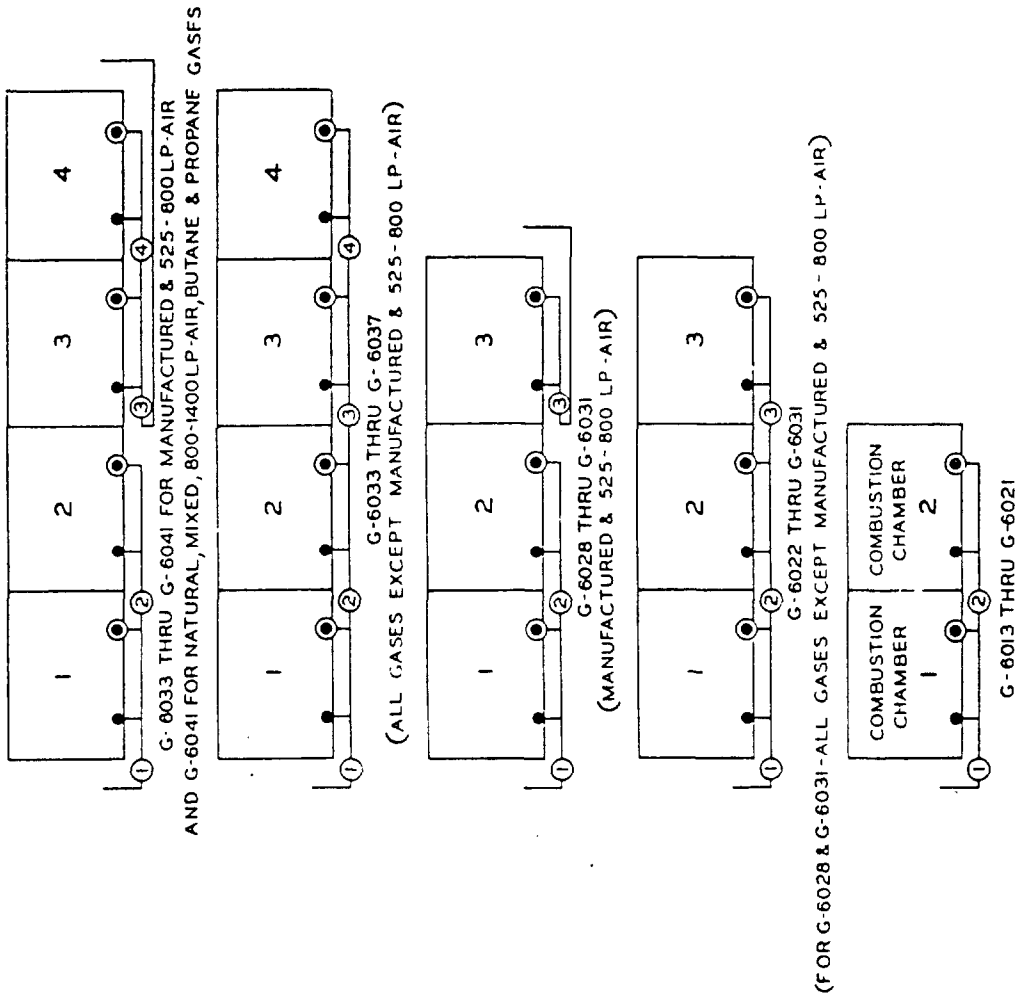
PILOT LOCATION FOR EG-3 & EPG-3 ELECTRONIC CONTROL SYSTEMS
 ELECTRIC IGNITION - 100 % SHUTOFF - 3 TO 10 SECTION BOILERS
 FOR ALL GASES

EG-O and EPG-O Systems

SINGLE COMBUSTION CHAMBERS



MULTIPLE COMBUSTION CHAMBERS

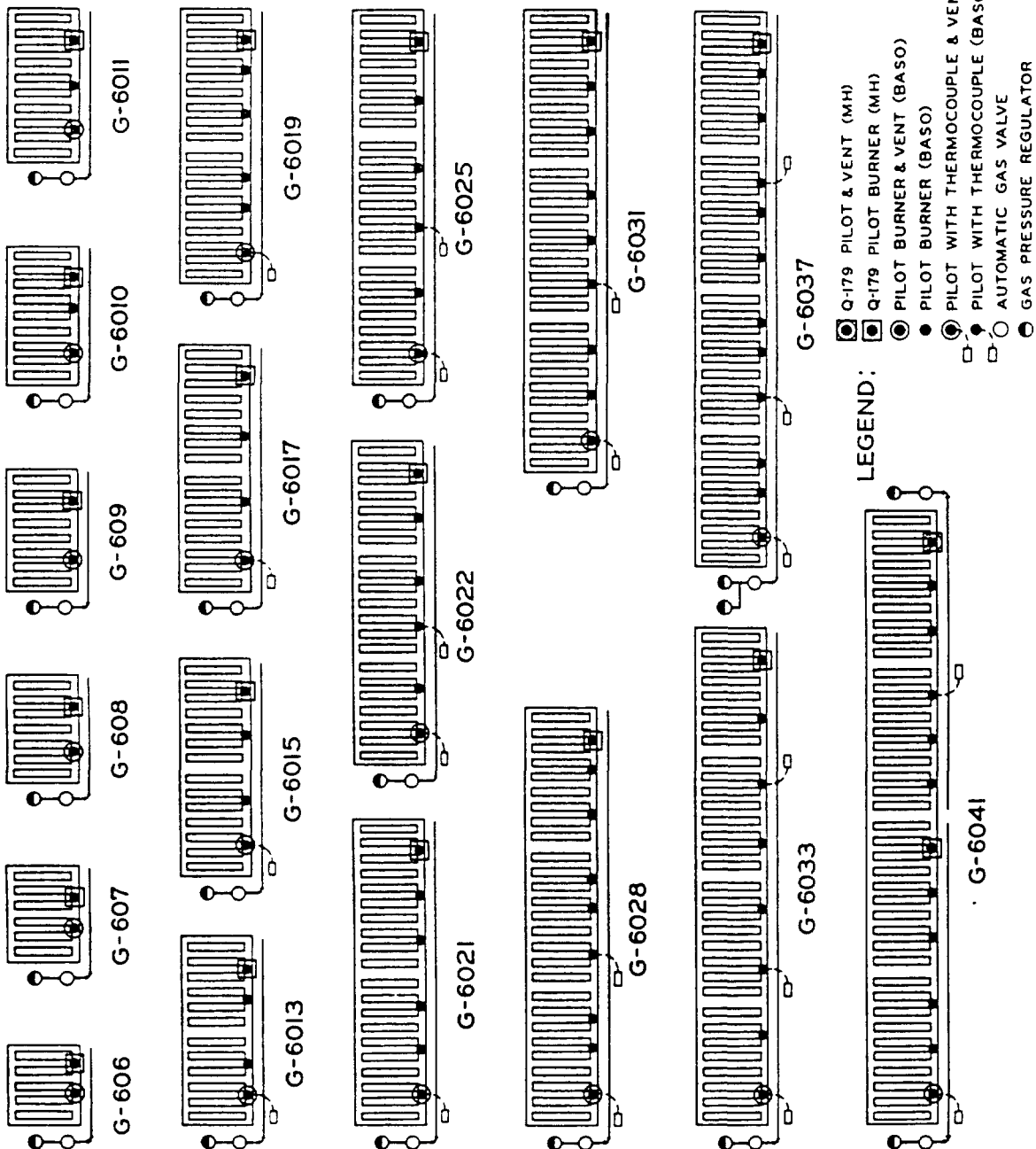


LEGEND:

- SAFETY PILOT WITH FLAME ROD CONNECTED
 - AUXILIARY PILOT WITHOUT FLAME ROD CONNECTED
 - ① ② ③ ④ CIRCLE WITH NUMBER IS PILOT VALVE
 - NUMBER INDICATES RELAY ON WIRING DIAGRAM TO WHICH VALVE IS ELECTRICALLY CONNECTED
- G-60 - Location of Pilots and Pilot Valves for EG-O and EPG-O Systems with Electric Ignition and 100% Shutoff.

EG-1 and EPG-1 Systems

Change Request
Dwg 60-G-14294-D, Rev A

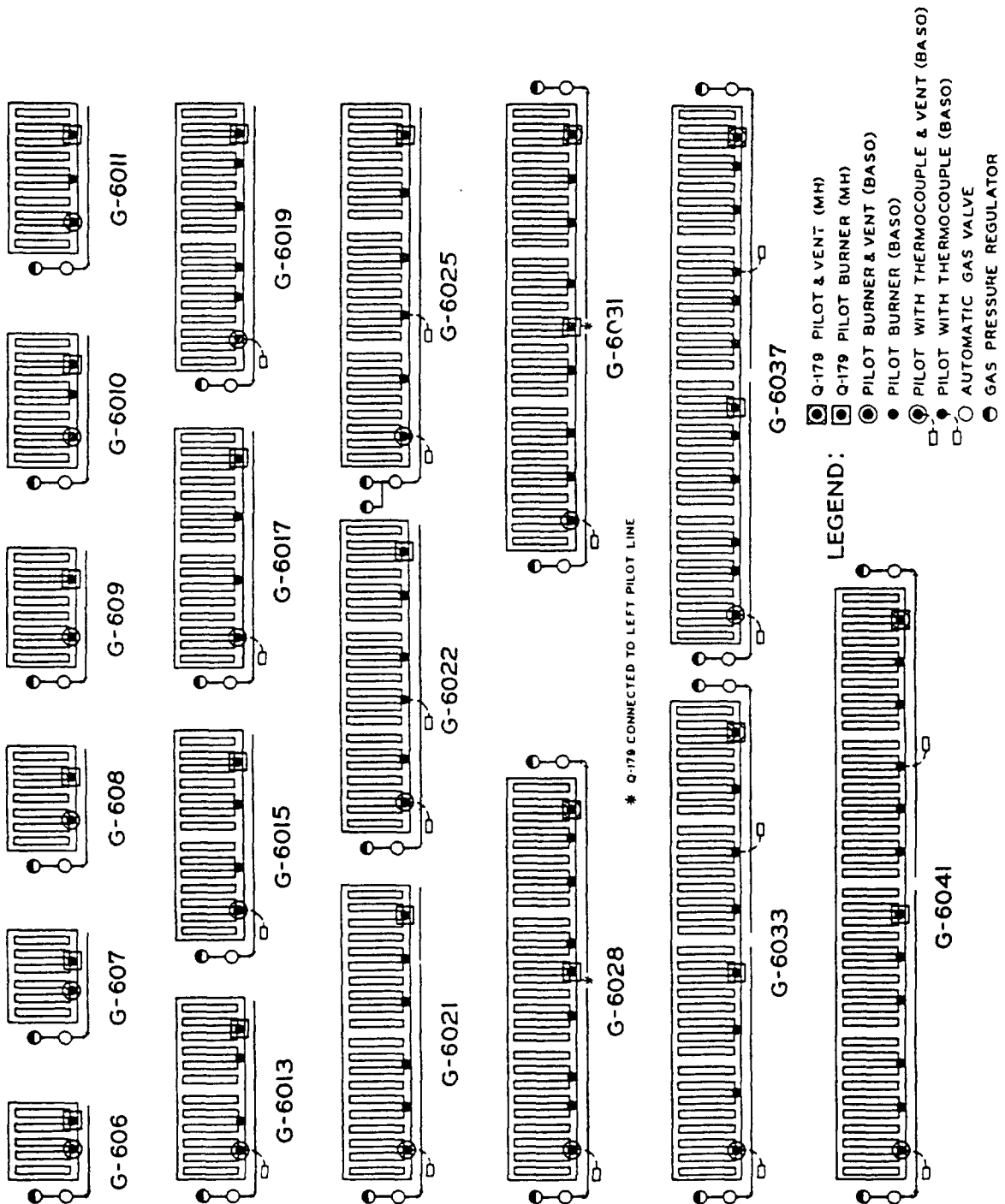


G-60 - Location of Pilot and Controls for EG-1 and EPG-1 Systems for Natural and Mixed Gases - Manual Ignition, Non-100% Shutoff.

DWG 60-G-14294-D

EG-1 and EPG-1 Systems

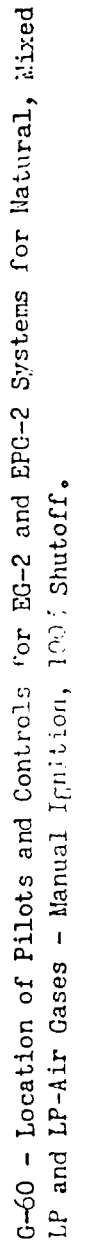
Change in title
Aug 60-G-14295-D, Rev A



Q-60 - Location of Pilot and Controls for EG-1 and EPG-1 Systems for Manufactured Gas Manual Ignition, Non-100% Shutoff

DWG 60-G-14295-D

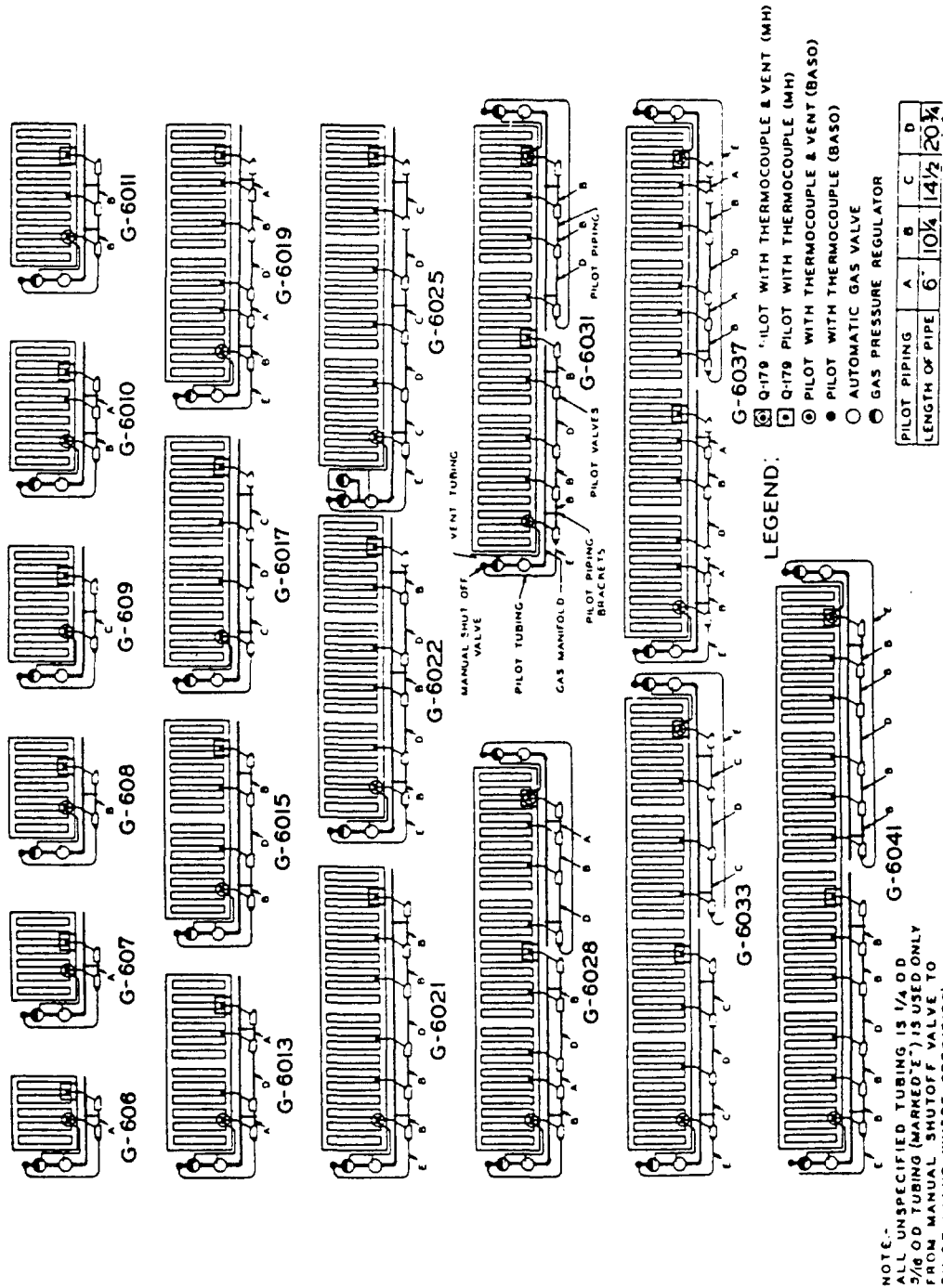
Changes Requested
 Aug 60-G-14297-D, Rev A



Handwritten:

EG-2 and EPG-2 Systems

Change in Title
bug 60-G-14296-D, Per A

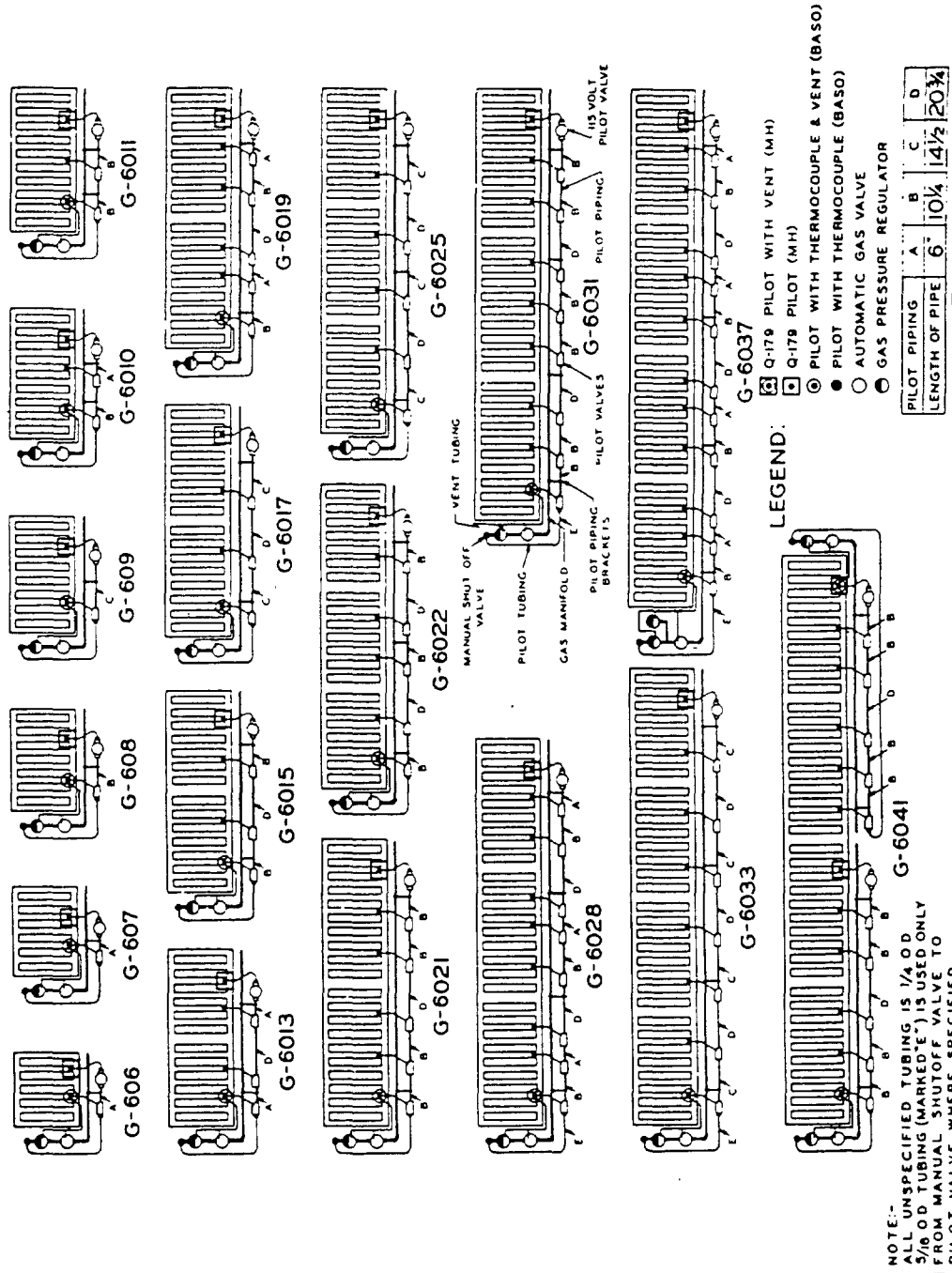


G-60 - Location of Pilots and Controls for EG-2 and EPG-2 Systems for Manufactured and 525 Btu LP-Air Gases - Manual Ignition, 100% Shutoff.

Draft 60-G-14296-D

EG-3 and EPG-3 Systems

*Change Epgl
Aug 66-G-14284-D
Rev B*

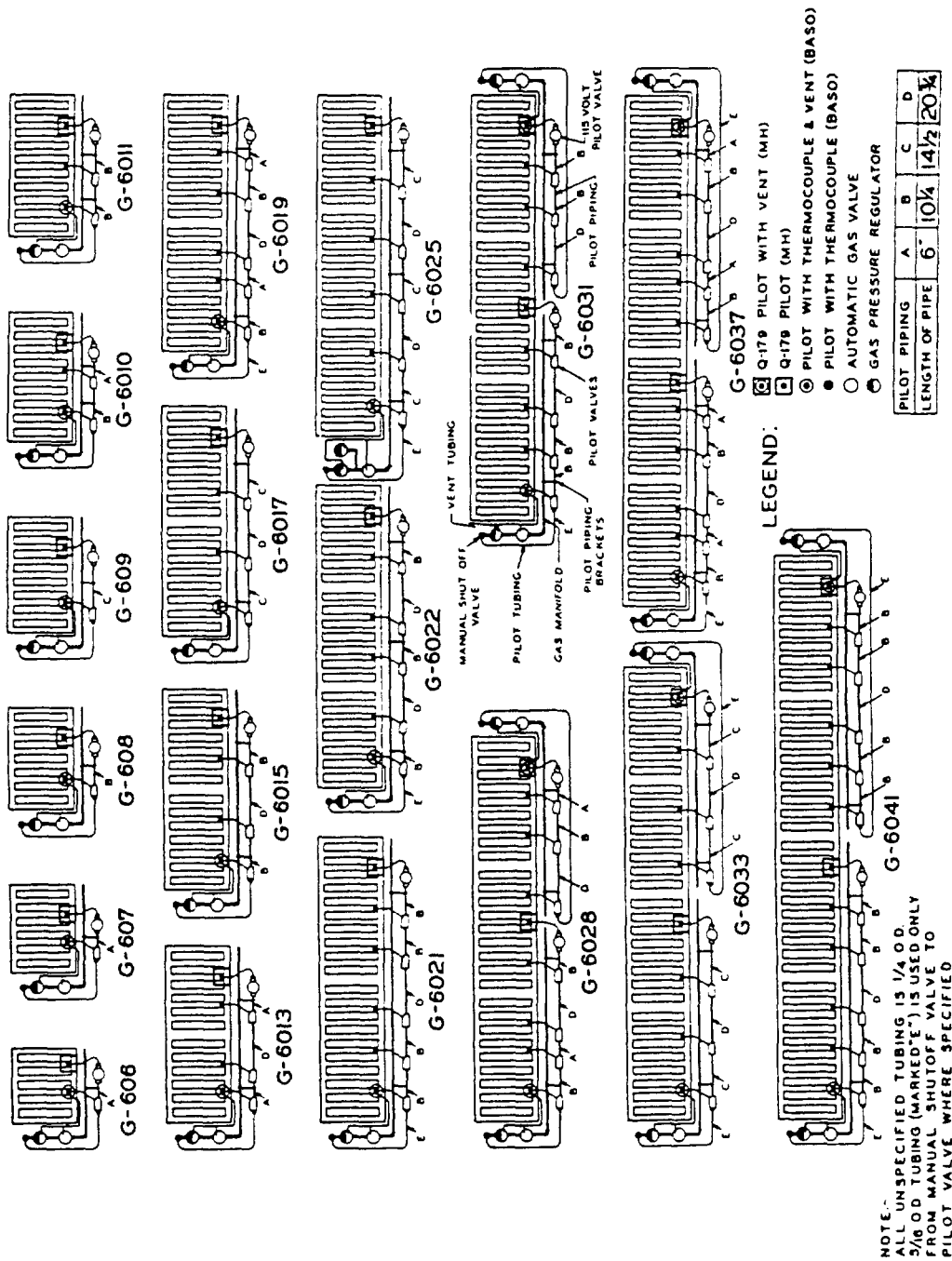


G-60 - Location of Pilots and Controls for EG-3 and EPG-3 Systems for Natural, Mixed, LP and 1400 LP-Air Gases - Electric - Electric Ignition, 100% Shutoff

DWG- 14284-D

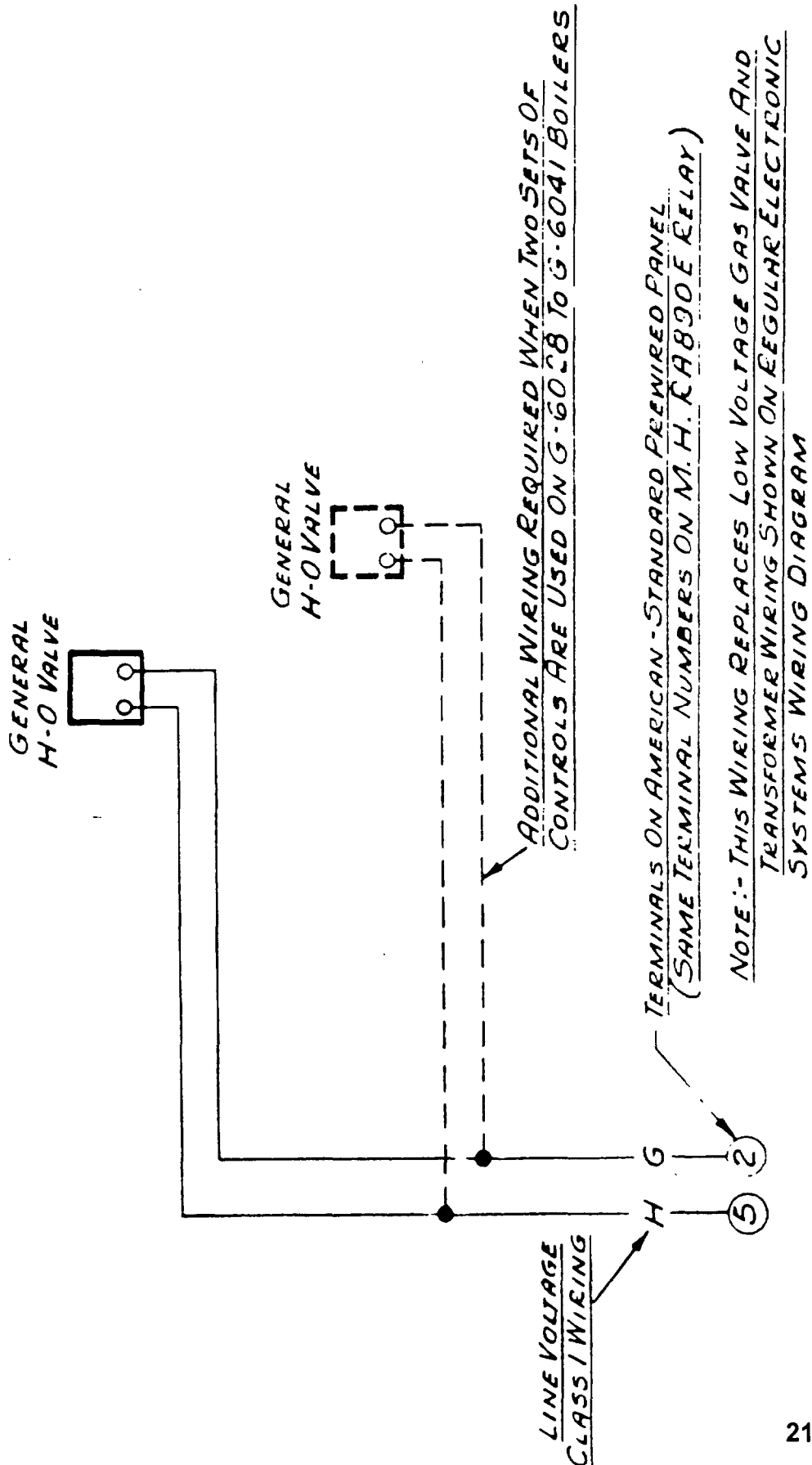
EQ-3 and EPG-3 Systems

Letter changed
Aug 60-6-14293-D Per B



G-60 - Location of Pilots and Controls for EQ-3 and EPG-3 Systems for Manufactured and 525 Btu
 LP-Air Gases - Electric Ignition, 100% Shutoff.

DWG 606-14293-D



21309

SUPPLEMENT TO EG-O and EPG-O WIRING DIAGRAMS FOR

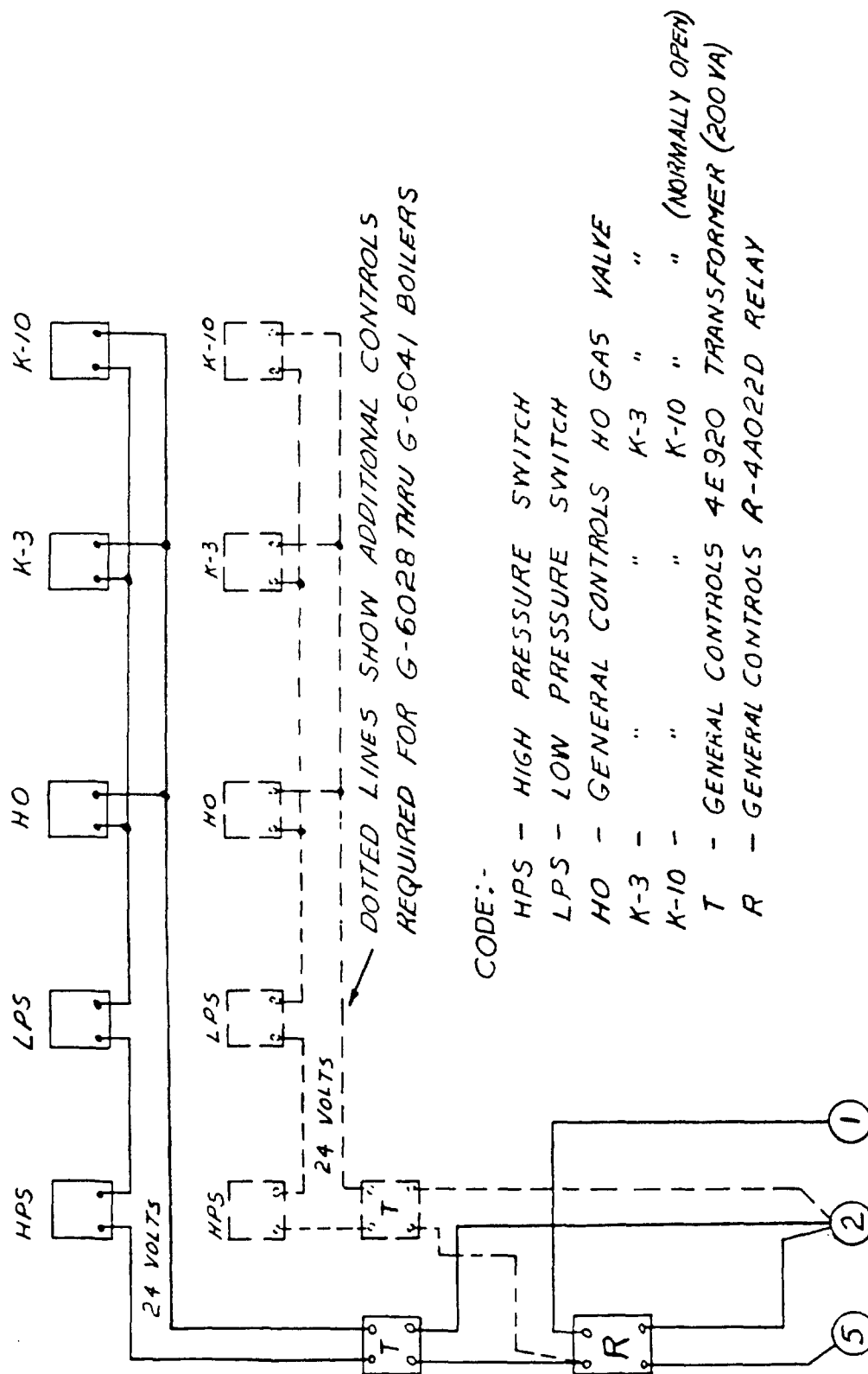
FACTORY MUTUAL (F.M.) REQUIREMENTS

110 VOLT GAS VALVES.

60-G-14309

F.M.

12

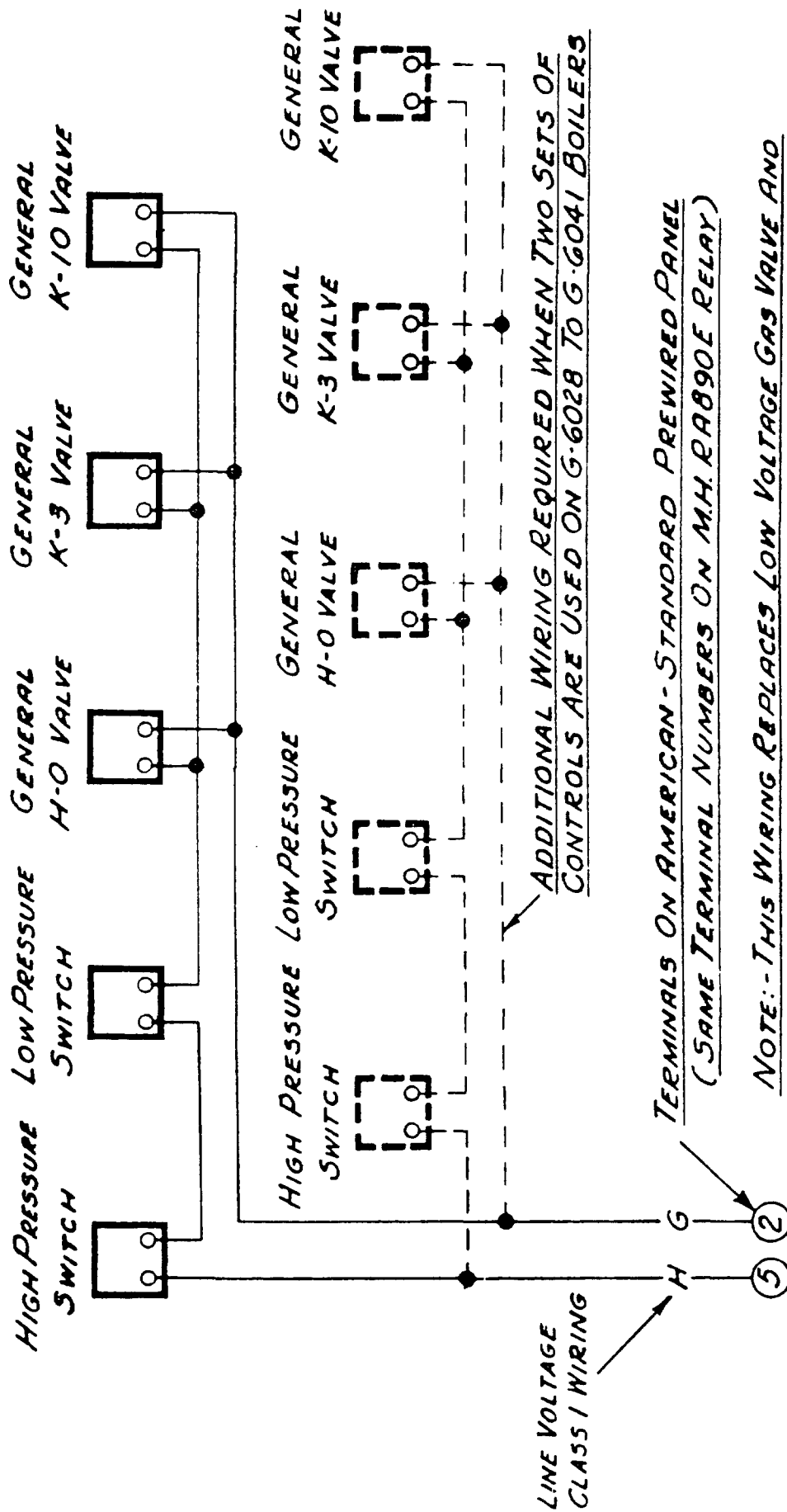


TERMINALS ON MH RA890E PROTECTORELAY
OR AMERICAN-STANDARD PREWIRED CONTROL PANEL

SUPPLEMENT TO EG-0 and EPG-0 WIRING DIAGRAMS FOR
FACTORY INSURANCE ASSOCIATION (F. I. A.)
24 VOLT GAS VALVES

BP-7813

F.I.A.



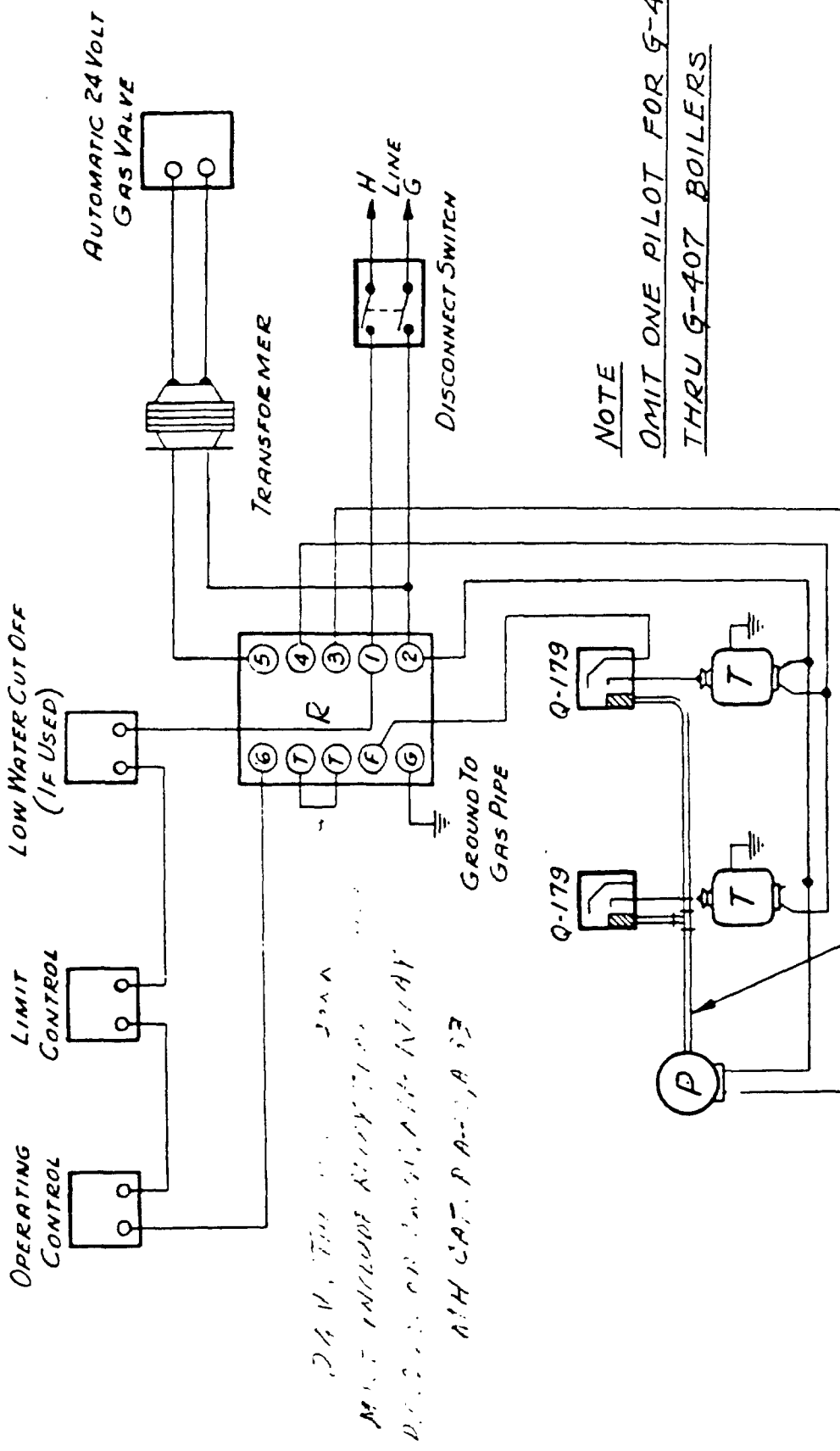
TERMINALS ON AMERICAN-STANDARD PREWIRED PANEL
(SAME TERMINAL NUMBERS ON M.H. RA890E RELAY)

NOTE:- THIS WIRING REPLACES LOW VOLTAGE GAS VALVE AND TRANSFORMER WIRING SHOWN ON REGULAR ELECTRONIC SYSTEMS WIRING DIAGRAMS

SUPPLEMENT TO EG-0 and EPG-0 WIRING DIAGRAMS FOR
FACTORY INSURANCE ASSOCIATION (F. I. A.)

110 VOLT GAS VALVES.

60-G-14270



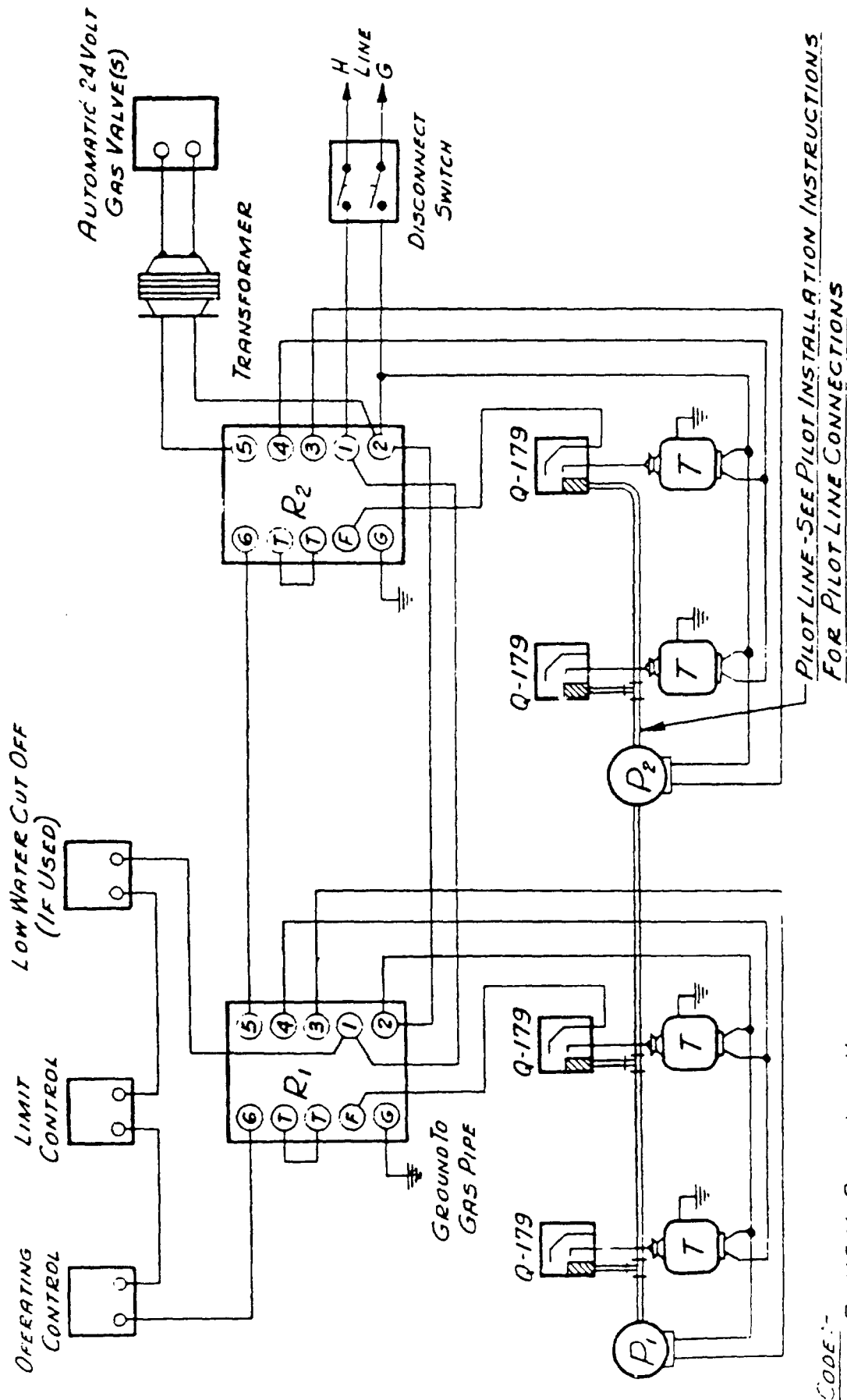
NOTE
OMIT ONE PILOT FOR G-403
THRU G-407 BOILERS

PILOT LINE - SEE PILOT INSTALLATION INSTRUCTIONS
FOR PILOT LINE CONNECTIONS

CODE:-
 P-115 V PILOT LINE VALVE
 T-IGNITION TRANSFORMER, 6000 VOLT,
 CASE TO BE GROUNDED TO PILOT TUBING
 R-MM RA890E PROTECTORELAY

ALL WIRING 110V, EXCEPT GAS VALVE

EG-0 ELECTRONIC CONTROL SYSTEM - ELECTRIC IGNITION - 100% SHUTOFF
 FOR G-40 AND G-606 THRU G-6011-ALL GASES



CODE:-

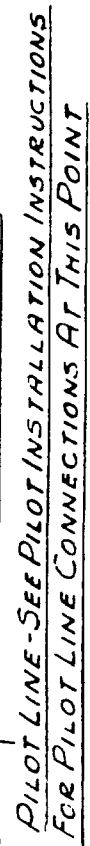
P-115 V. PILOT LINE VALVES

T- IGNITION TRANSFORMER, 6000 VOLT,

CASE TO BE GROUNDED TO PILOT TUBING

R-MH RA890E PROTECTOR RELAY

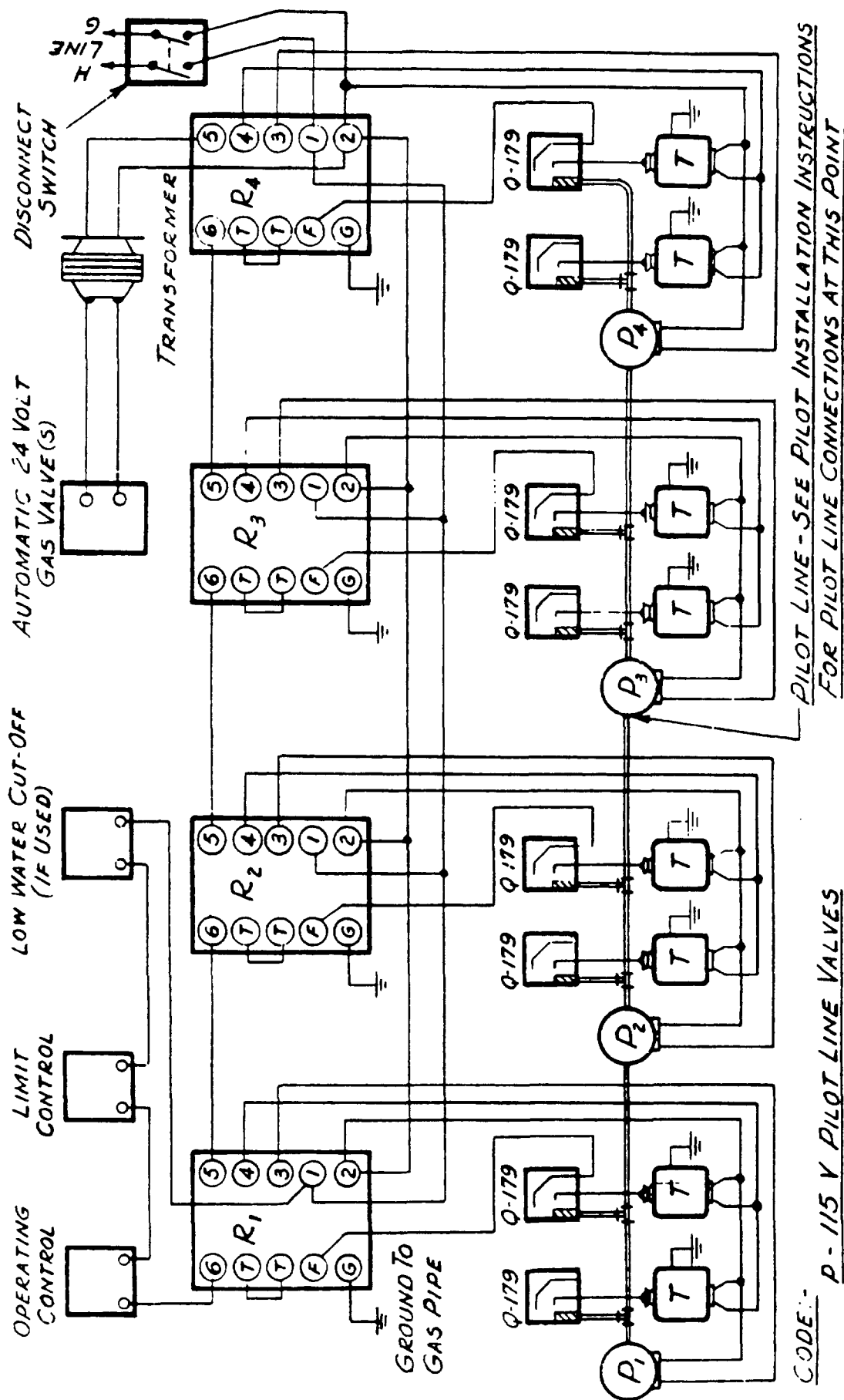
EG-O ELECTRONIC CONTROL SYSTEM - ELECTRIC IGNITION - 100 % SHUTOFF
FOR G-6013 THRU G-6021 - ALL GASES



EG-O ELECTRONIC CONTROL SYSTEM - ELECTRIC IGNITION - 100% SHUTOFF
FOR G-6022 THRU G-6031 - ALL GASES

FOR G-6022 THRU G-6031 - ALL GASES

EG-O



21315

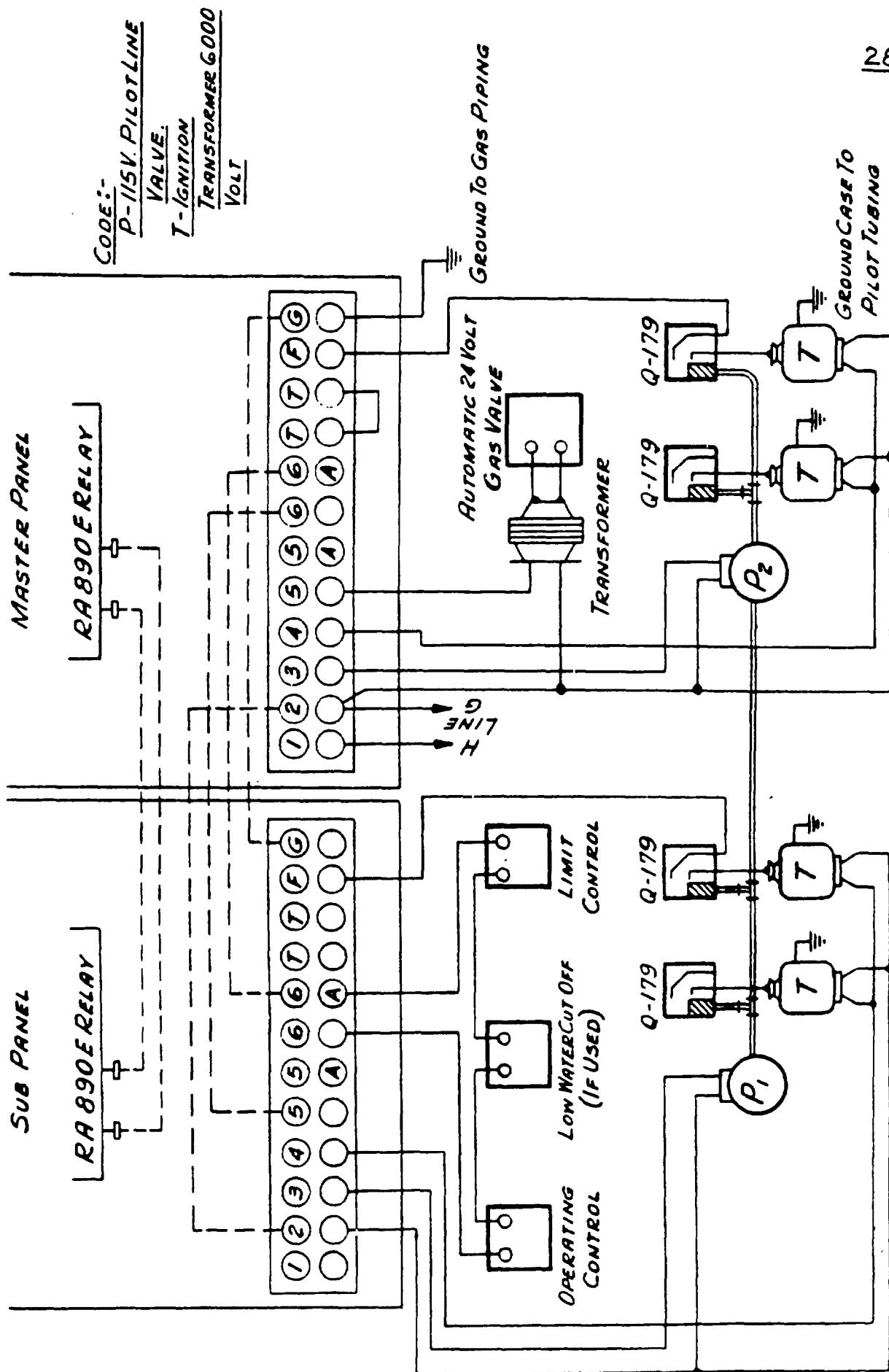
26

EG-0 ELECTRONIC CONTROL SYSTEM-ELECTRIC IGNITION-100% SHUTOFF
FOR G-6033 THRU G-6041 - ALL GASES

EG-0

6-G-12151





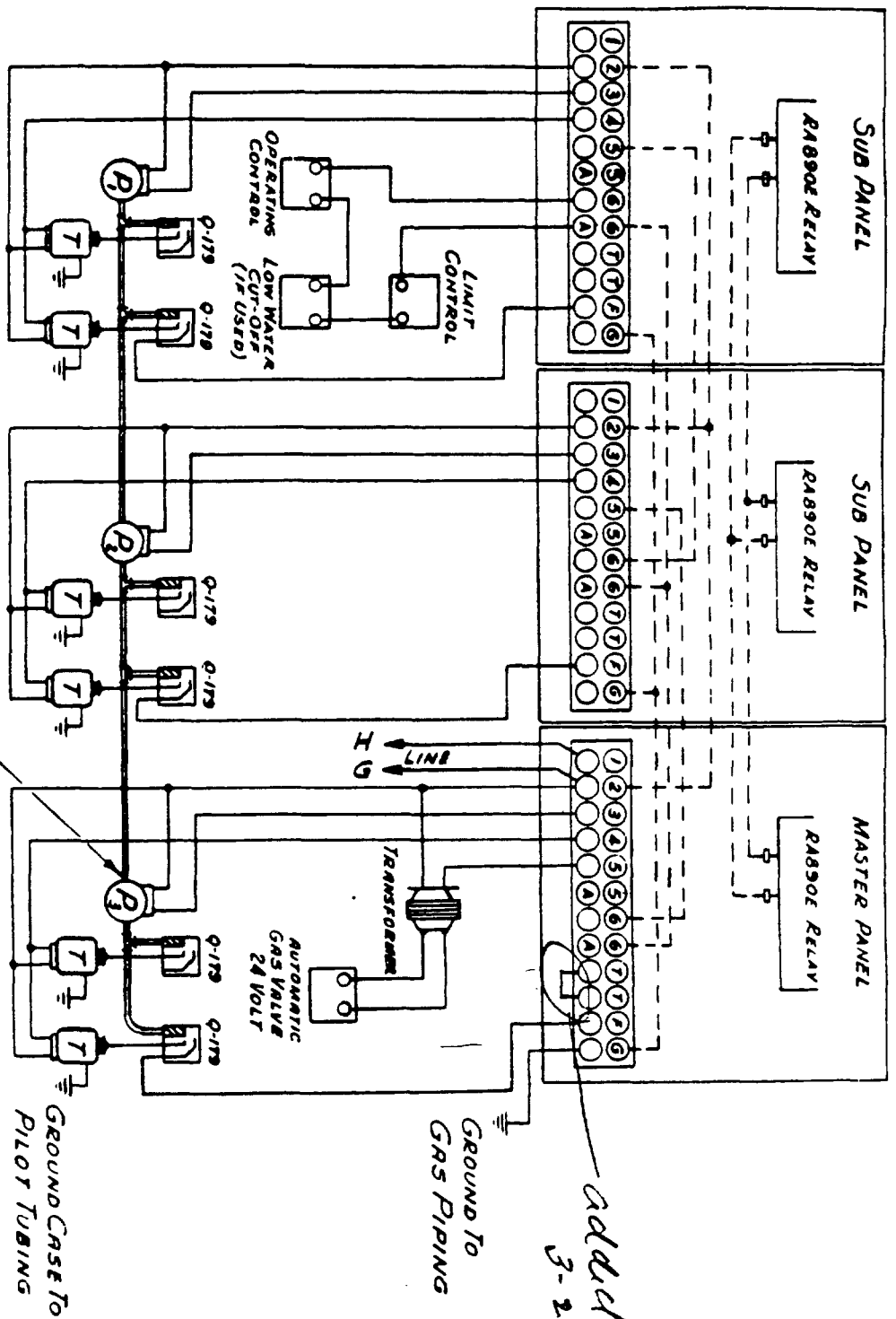
CODE:-
P-115V PILOT LINE
VALVE
T-IGNITION
TRANSFORMER 6000
VOLT

28

EPG-0 ELECTRONIC CONTROL SYSTEM - ELECTRIC IGNITION 100% SHUTOFF
FOR G-6013 Thru G-6021-ALL GASES

EPG-0

60-6-14258



CODE:-

P-115 V. PILOT LINE VALVES

T-IGNITION TRANSFORMER, 6000 VOLT,

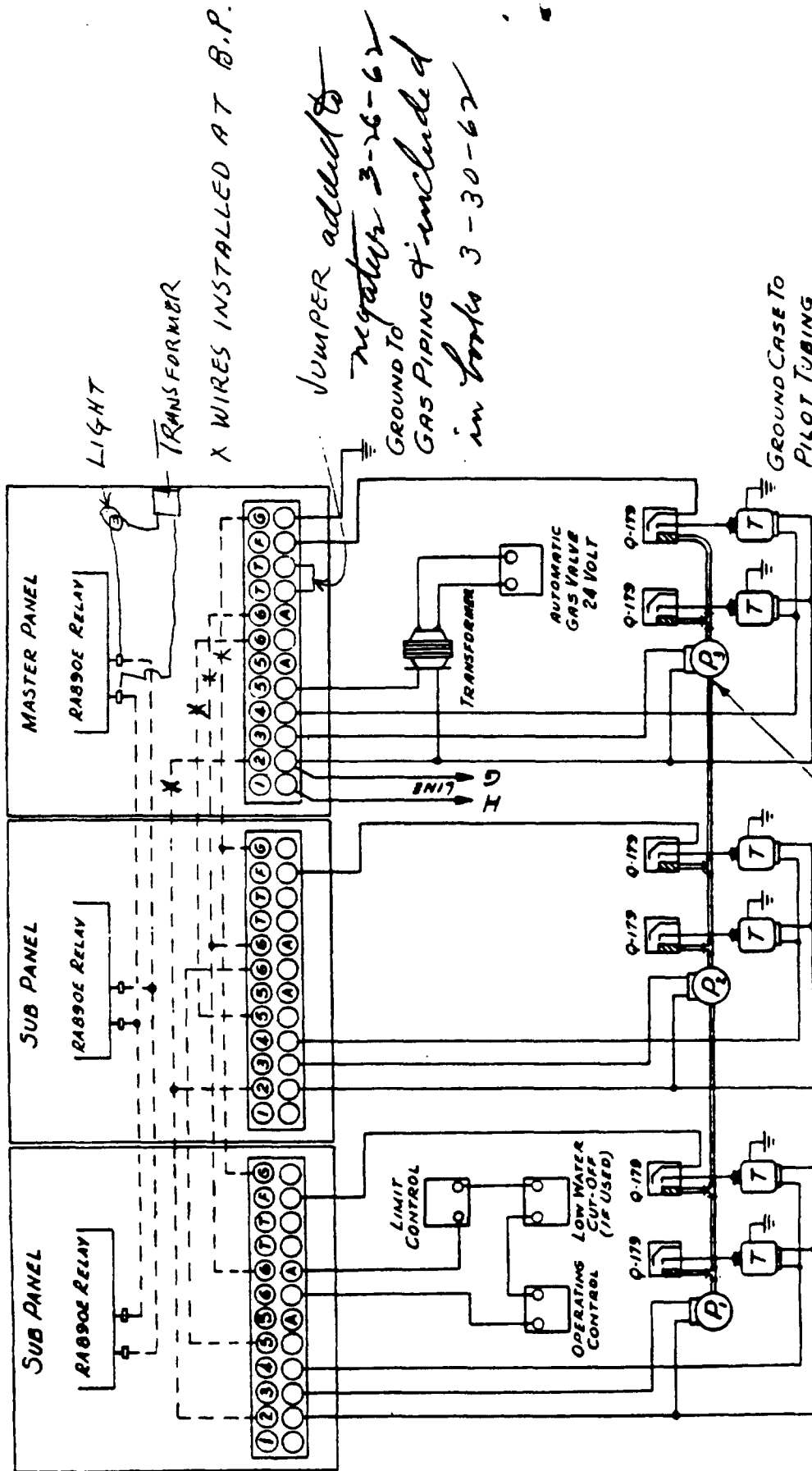
CASE TO BE GROUNDED TO PILOT TUBING

PILOT LINE-SEE PILOT INSTALLATION INSTRUCTIONS
FOR PILOT LINE CONNECTIONS AT THIS POINT

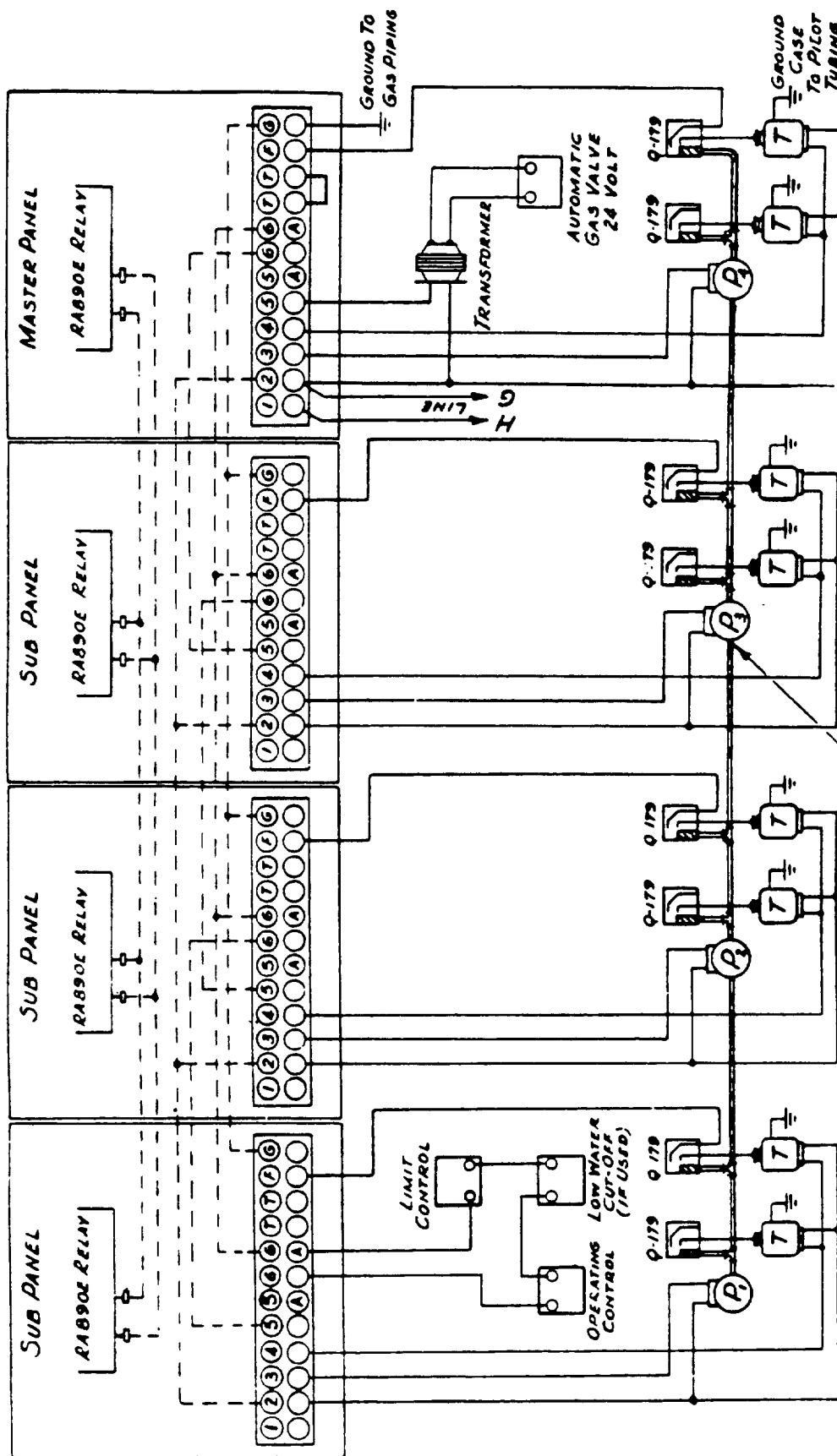
EPG-O ELECTRONIC CONTROL SYSTEM-ELECTRIC IGNITION-100% SHUTOFF
FOR G-6022 THRU G-6031-ALL GASES

EPG-O

KA-G-14259



CODE:-
 P-115 V. PILOT LINE VALVES
 T- IGNITION TRANSFORMER, 6000 VOLT,
 CASE TO BE GROUNDED TO PILOT TUBING



CODE:-

P - 115 V. PILOT LINE VALVES

T - IGNITION TRANSFORMER, 6000 VOLT,

CASE TO BE GROUNDED TO PILOT TUBING

PILOT LINE - SEE PILOT INSTALLATION INSTRUCTIONS
FOR PILOT LINE CONNECTIONS AT THIS POINT

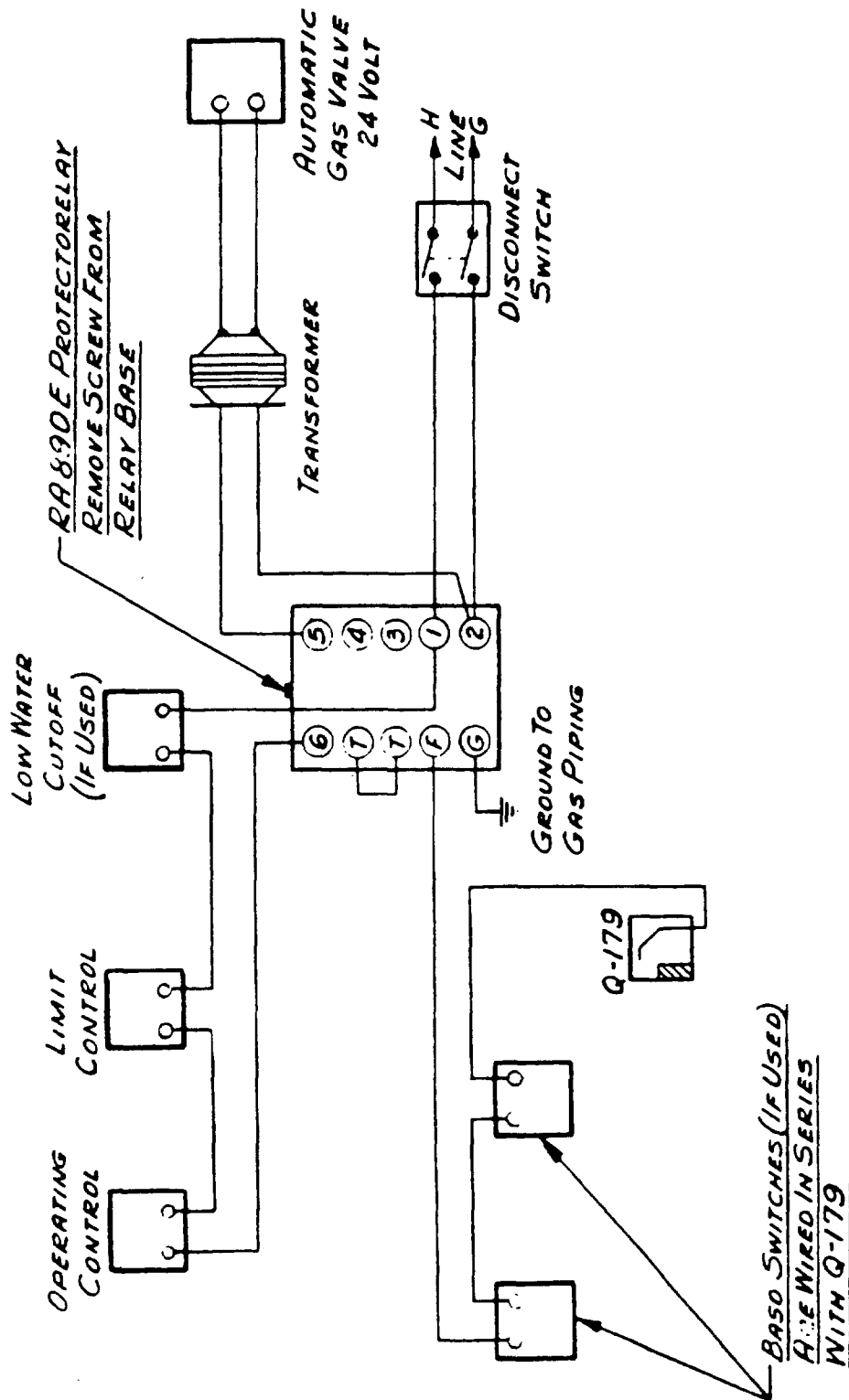
13

EPG-0 ELECTRONIC CONTROL SYSTEM-ELECTRIC IGNITION-100% SHUTOFF

FOR G-6033 THRU G-6041 - ALL GASES

EPG-0

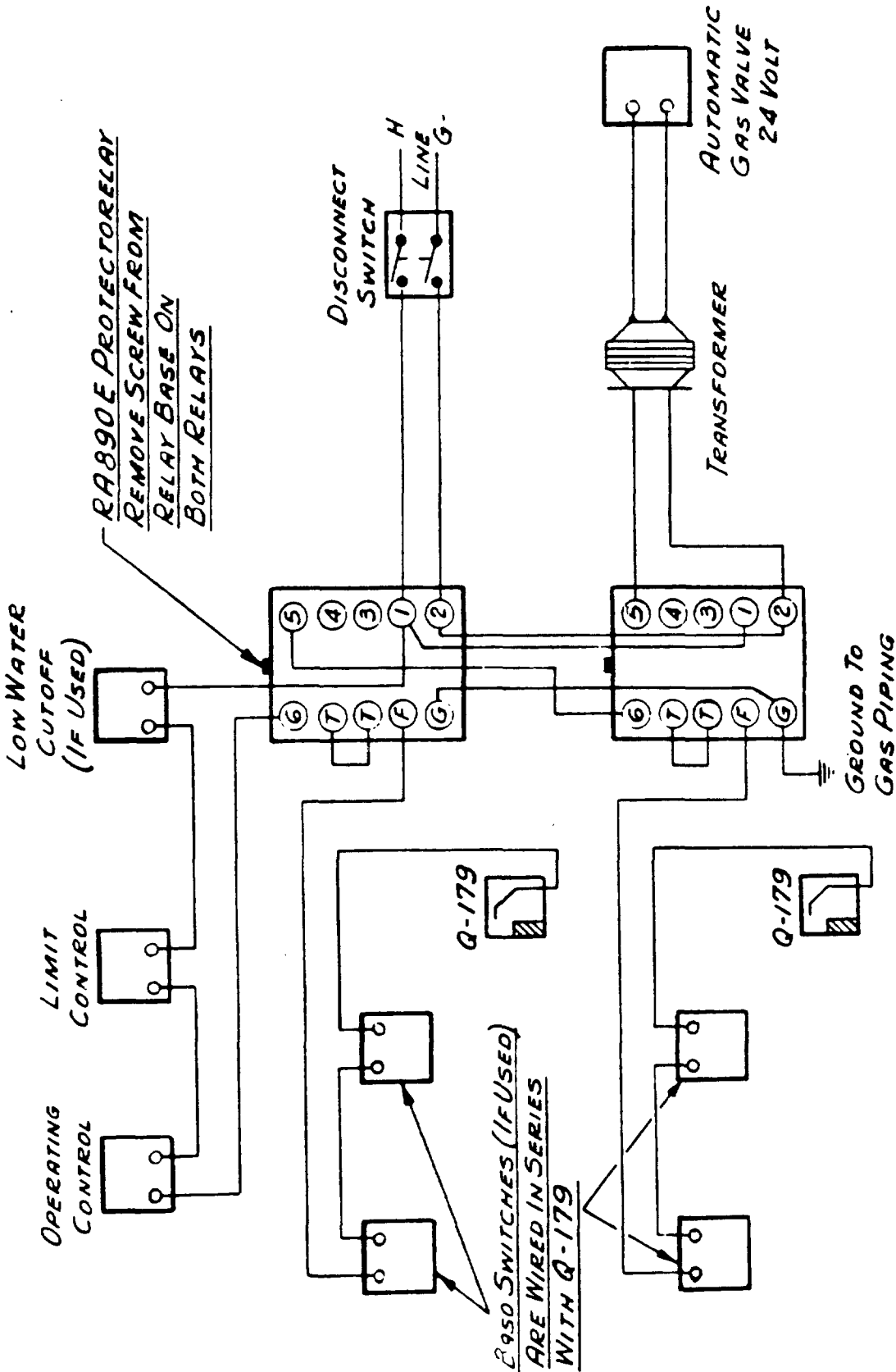
60-G-14260



EG-1 ELECTRONIC CONTROL SYSTEM - MANUAL IGNITION - NON 100% SHUTOFF
 FOR: - G-403 THRU G-4010 - NAT. MIXED AND MFD.
 G-606 THRU G-6037 - NAT. AND MIXED
 G-606 THRU G-6025 - MFD.

EG-1

60-G-14276

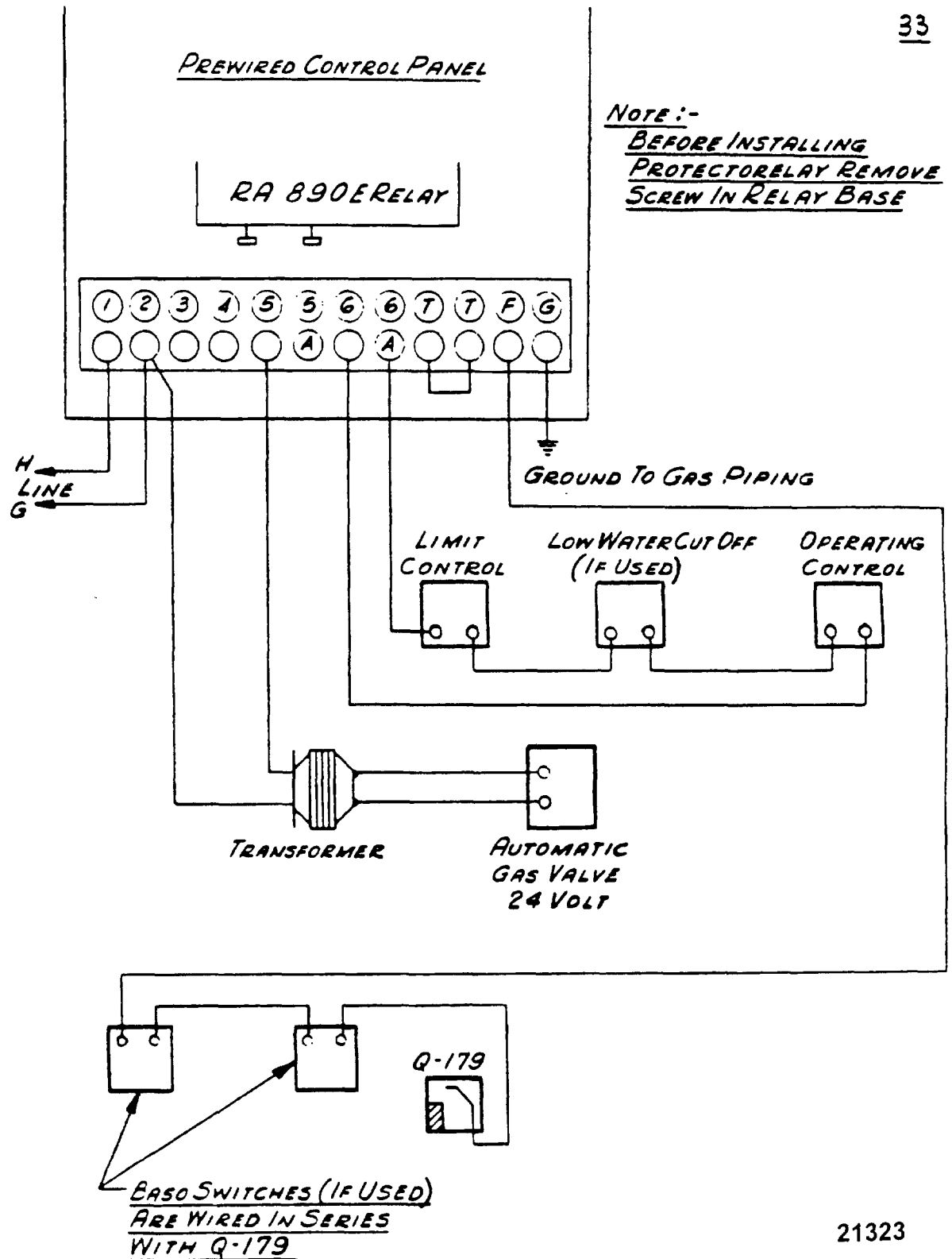


EG-1 ELECTRONIC CONTROL SYSTEM - MANUAL IGNITION NON 100% SHUTOFF
FOR :- G-6041 - NAT. AND MIXED
G-6028 THRU G-6041 - MFD.

60-G-14277

change relay

33



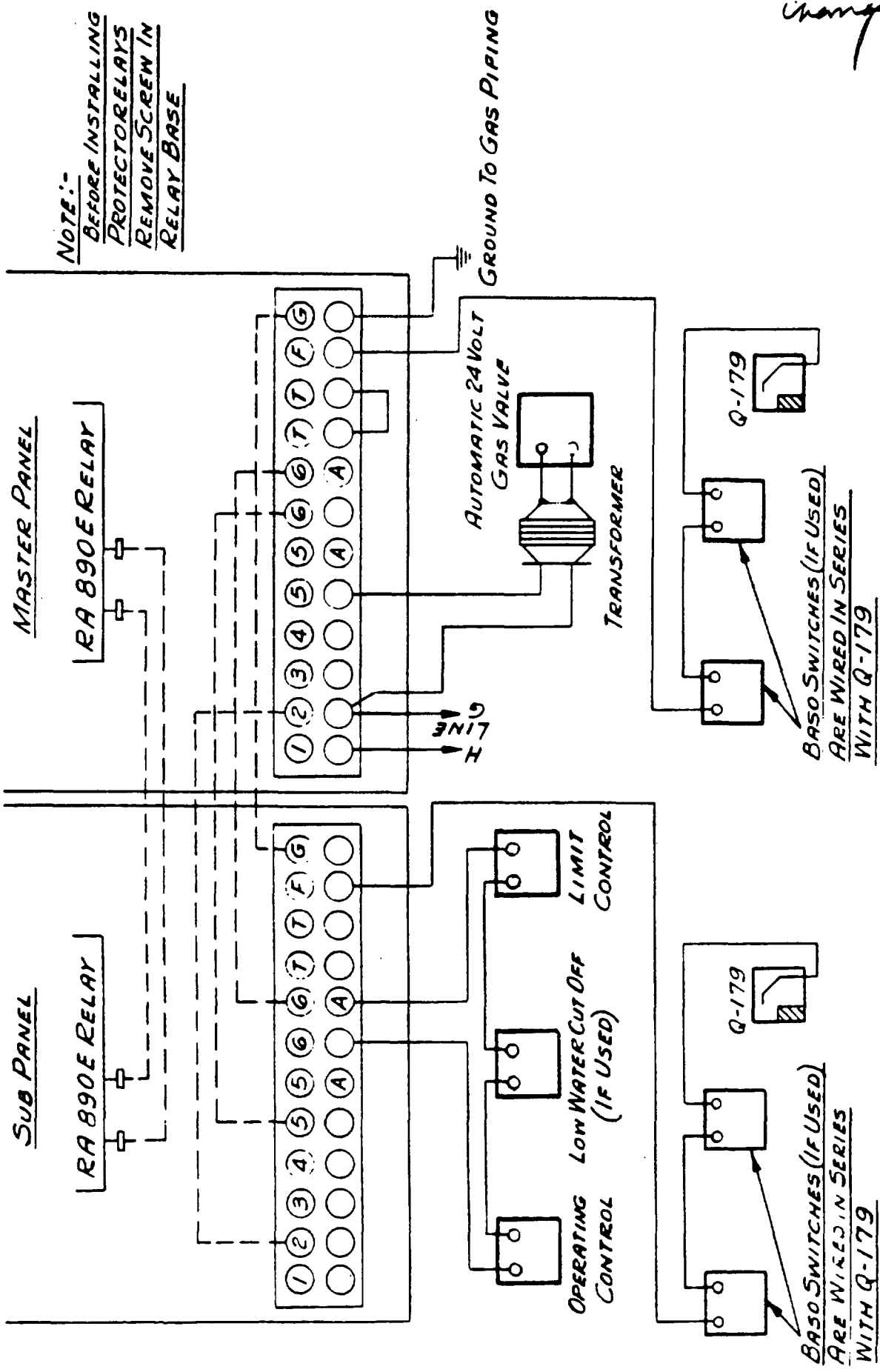
21323

EPG-1 ELECTRONIC CONTROL SYSTEM - MANUAL IGNITION - NON 100% SHUTOFF
FOR:- G-403 THRU G-4010 - NAT. MIXED AND MFD.
G-606 THRU G-6037 - NAT. AND MIXED
G-606 THRU G-6025 - MFD. GAS

60-G-14281

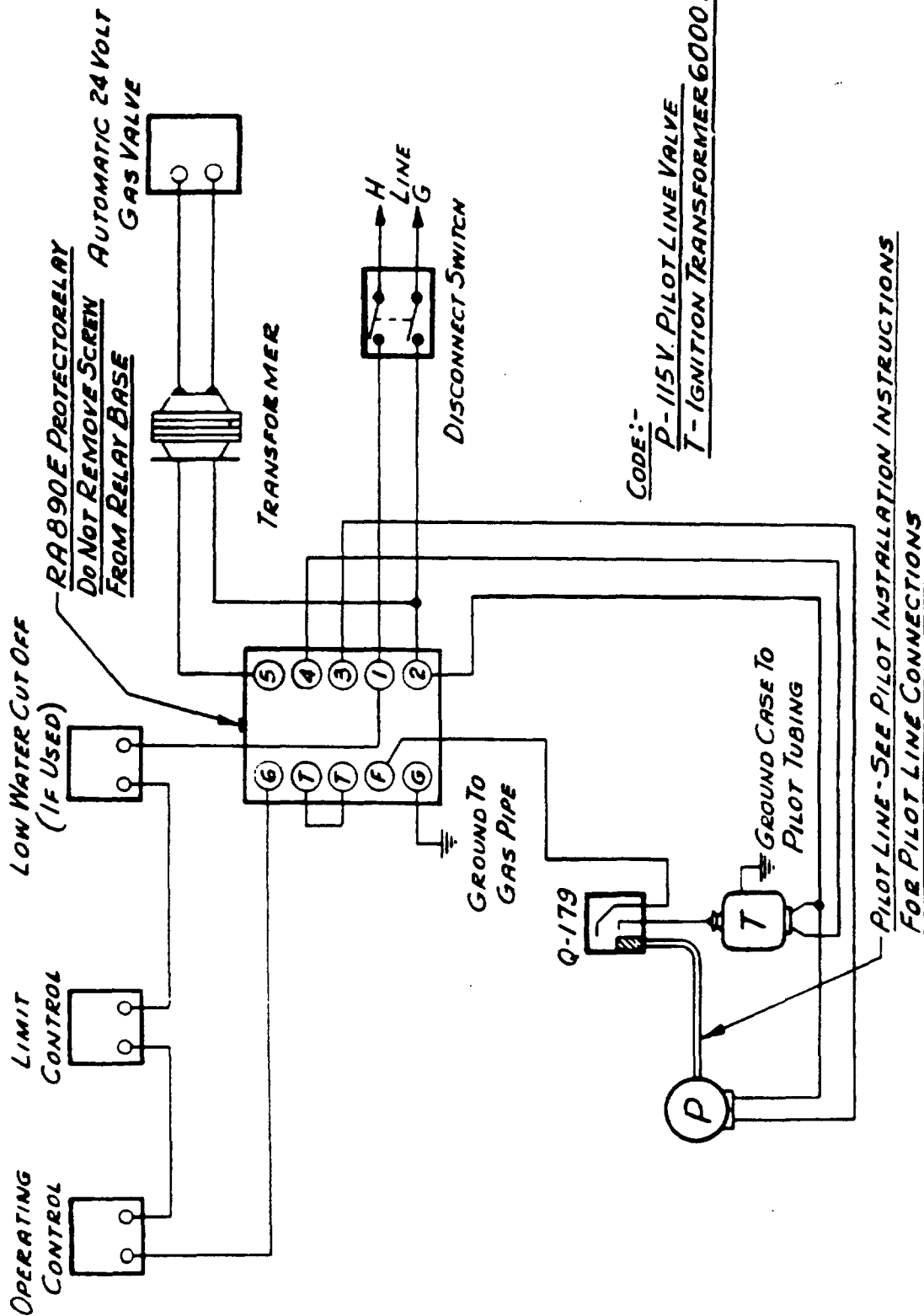
EPG-1

NOTE:-
BEFORE INSTALLING
PROTECTOR RELAYS
REMOVE SCREEN IN
RELAY BASE



EPG-I ELECTRONIC CONTROL SYSTEM - MANUAL IGNITION NON 100% SHUTOFF
FOR: - G-G041-NAT. AND MIXED
G-G028 THRU G-G041-MFD. GAS

60-G-14282



21329

EG-3 ELECTRONIC CONTROL SYSTEM - ELECTRIC IGNITION - 100% SHUTOFF
FOR:- G-403 THRU G-4010 ALL GASES

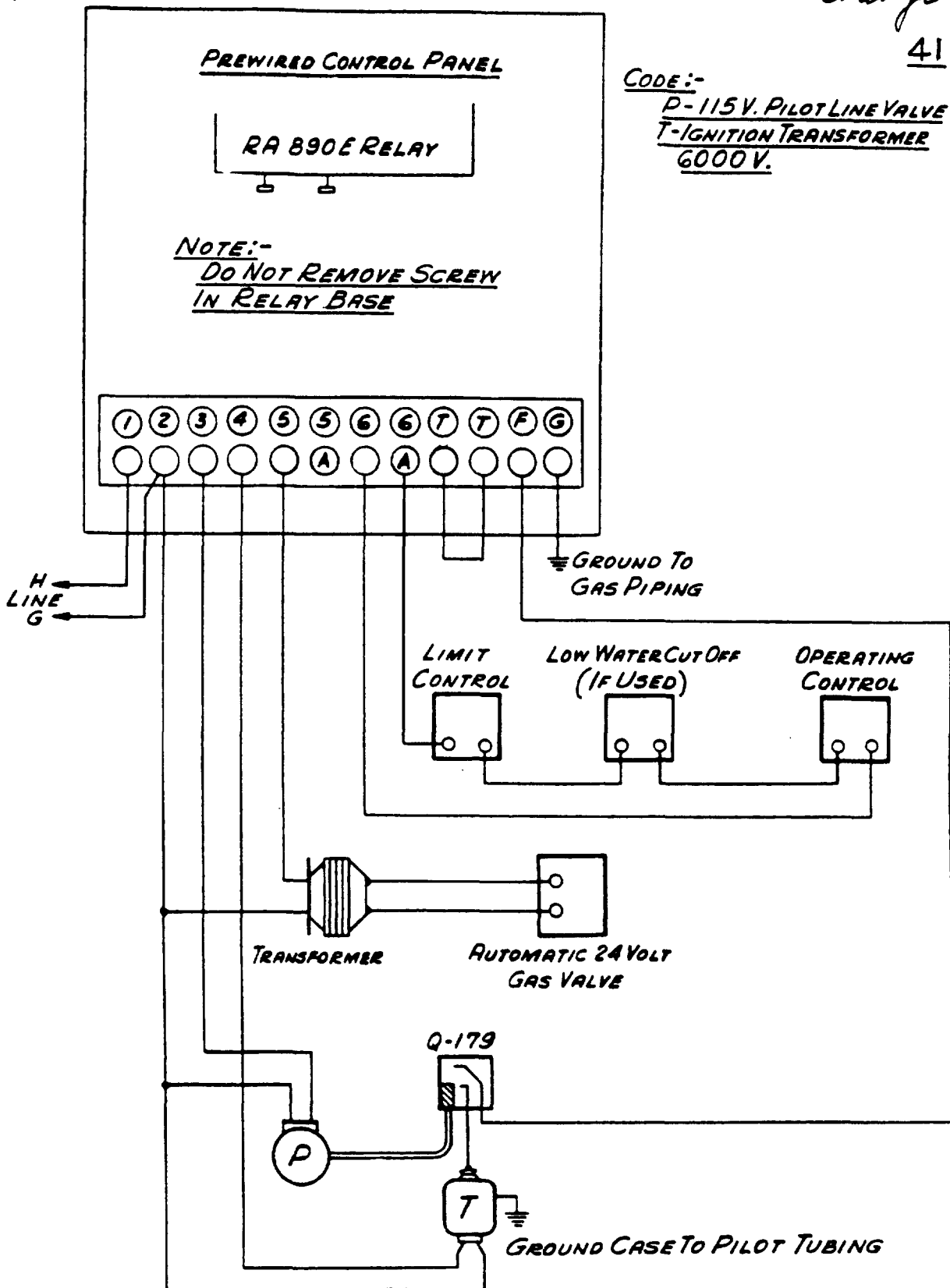
G-606 THRU G-6037 NAT., MIXED, L.P. AND 1400 L.P.-AIR
G-606 THRU G-6025 MED. AND 525 L.P.-AIR

60-G-14285

EG-3

Change Regd

41



EPG-3 ELECTRONIC CONTROL SYSTEM - ELECTRIC IGNITION - 100% SHUTOFF

FOR:- G-403 THRU G-4010 - ALL GASES

G-606 THRU G-6037 - NAT., MIXED, L.P. AND 1400 L.P. AIR

G-606 THRU G-6025 - MFD. AND 525 L.P. AIR

60-6-14287

EPG-3

MASTER PANEL

RA 890 E RELAY

SUB PANEL

RA 890 E RELAY

CODE:-

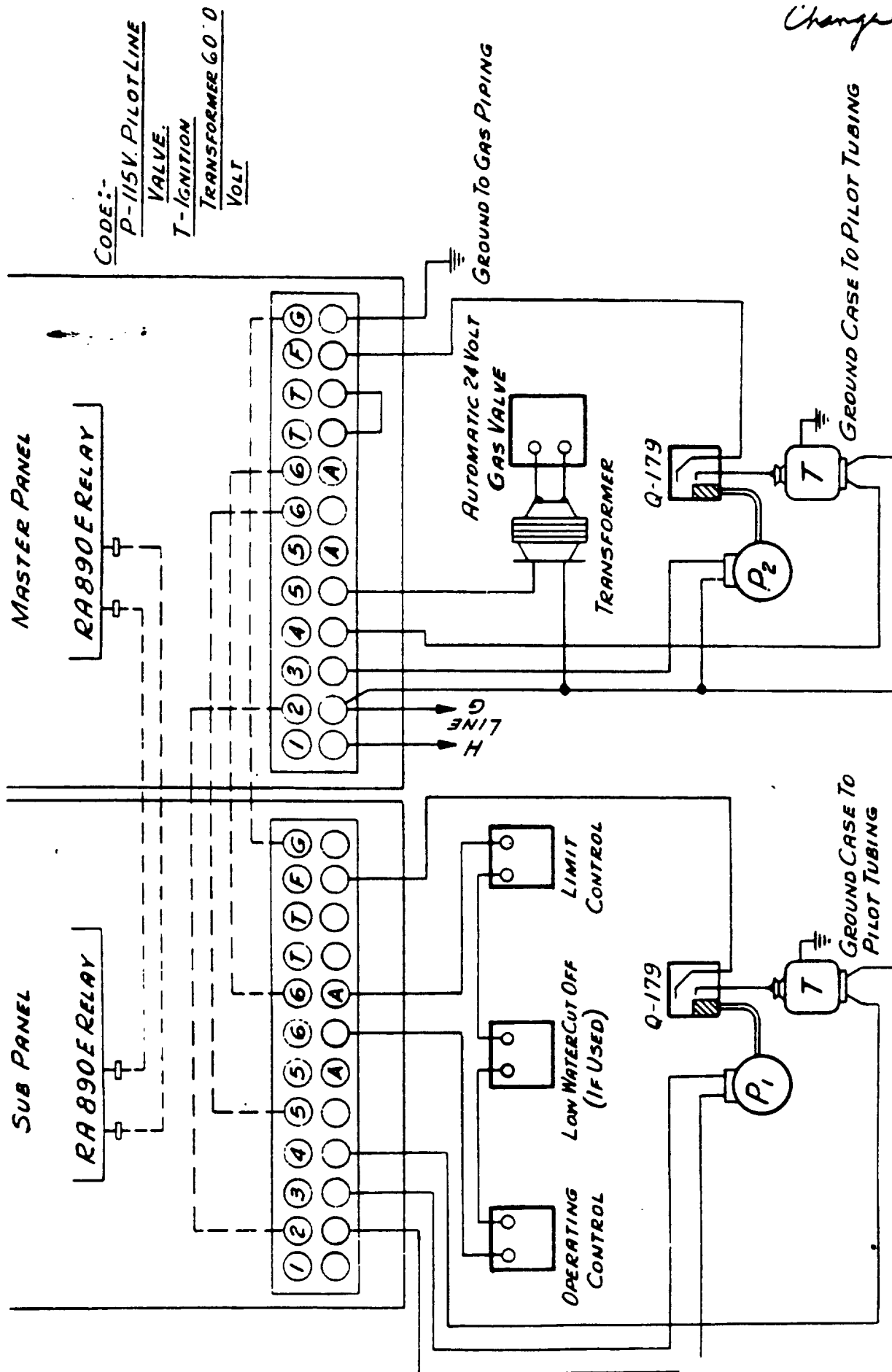
P-115V. PILOT LINE

VALVE

T-IGNITION

TRANSFORMER 60.0

VOLT



21332

Change Request
42

EPG-3 ELECTRONIC CONTROL SYSTEM - ELECTRIC IGNITION - 100% SHUTOFF
For: - G-6041 NAT., MIXED, L.P. AND 1400 L.P.-AIR
G-6028 THRU G-6041-MED. AND 525 L.P.-AIR

EPG-3

60-G-14288