Conversion Wiring Diagrams for RM7895

The diagrams and instructions contained in this booklet are for converting the following models of primaries and programmers to RM7895 microprocessor based integrated burner control.

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⚠ *WARNING*

Improper configuration jumper selection could cause a fire or explosion hazard that could lead to property damage, severe injury or death.

⚠ *CAUTION*

1. Installer must be a trained, experienced, flame safeguard control service technician.
2. Disconnect power supply before beginning installation to prevent electrical shock and equipment damage. More than one power supply disconnect may be involved.
3. All wiring must comply with applicable local electrical codes, ordinances, and regulations.
4. All line voltage terminal wiring shall be no. 14, 16 or 18 copper conductor TTW (60C) or THW (75C) or THHN (90C), 600 volt insulation wire. A maximum of two conductors can be wired to each Q7800 Subbase terminal.
5. Voltage and frequency of the power supply and flame detector(s) connected to this control must agree with those marked on the device.
6. Loads connected to the control terminals must not exceed ratings listed in Specification sheet 65-0086, or on the RM7895 label.
7. All external timers must be listed or component recognized by authorities having jurisdiction for the specific purpose for which they are used.
8. Perform all required checkout tests after installation is complete.

IMPORTANT:

1. *For on-off gas-fired systems, some authorities having jurisdiction prohibit the wiring of any limit or operating contacts in series between the flame safeguard control and the main fuel valve(s).*
2. *Do not connect more than two C7012E,F or C7076A Ultraviolet Flame Detectors (with self-checking shutter) in parallel to the same terminals.*
3. *This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions may cause interference to radio communications. It has been tested and found to comply with the limits for a Class B computing device of Part 15 of FCC rules which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area may cause interference, in which case, users at their own expense may be required to take whatever measures are required to correct this interference.*
4. *This digital apparatus does not exceed the Class B limits for radio noise for digital apparatus set out on the Radio Interference Regulations of the Canadian Department of Communications.*

NORMAL OPERATION:

					Main Flame Establishing Period			
Device	Initiate	Standby	Purge	Pilot	Main	Run	AFSC[1]	DMV[2]
RM7895A	10 sec.	*	**	4 or 10 sec.		*	No	No
RM7895B	10 sec.	*	**	4 or 10 sec.		*	Yes	No
RM7895C	10 sec.	*	**	4 or 10 sec.	10 sec.	*	No	Yes
RM7895D	10 sec.	*	**	4 or 10 sec.	10 sec.	*	Yes	Yes

* STANDBY and RUN can be an infinite time period.

** PURGE will be determined by which ST7800A Purge Card is selected.

[1] AFSC - Airflow Switch Check

[2] DMV - Delayed Main Valve

APPROVAL BODIES:

Underwriters Laboratories Inc. listed: File No. MP268, Guide No. MCCZ.
Canadian Standards Association certified: LR9S329-3.
Factory Mutual approved: Report No. JI1V9A0.AF.
Industrial Risk Insurers acceptable.
Federal Communications Commission, Part 15, Class B.
Canadian Department of Communications, CS-03, Certification No. 5733459A.

MOUNTING: Q7800A for panel mount or Q7800B for wall or burner mount.

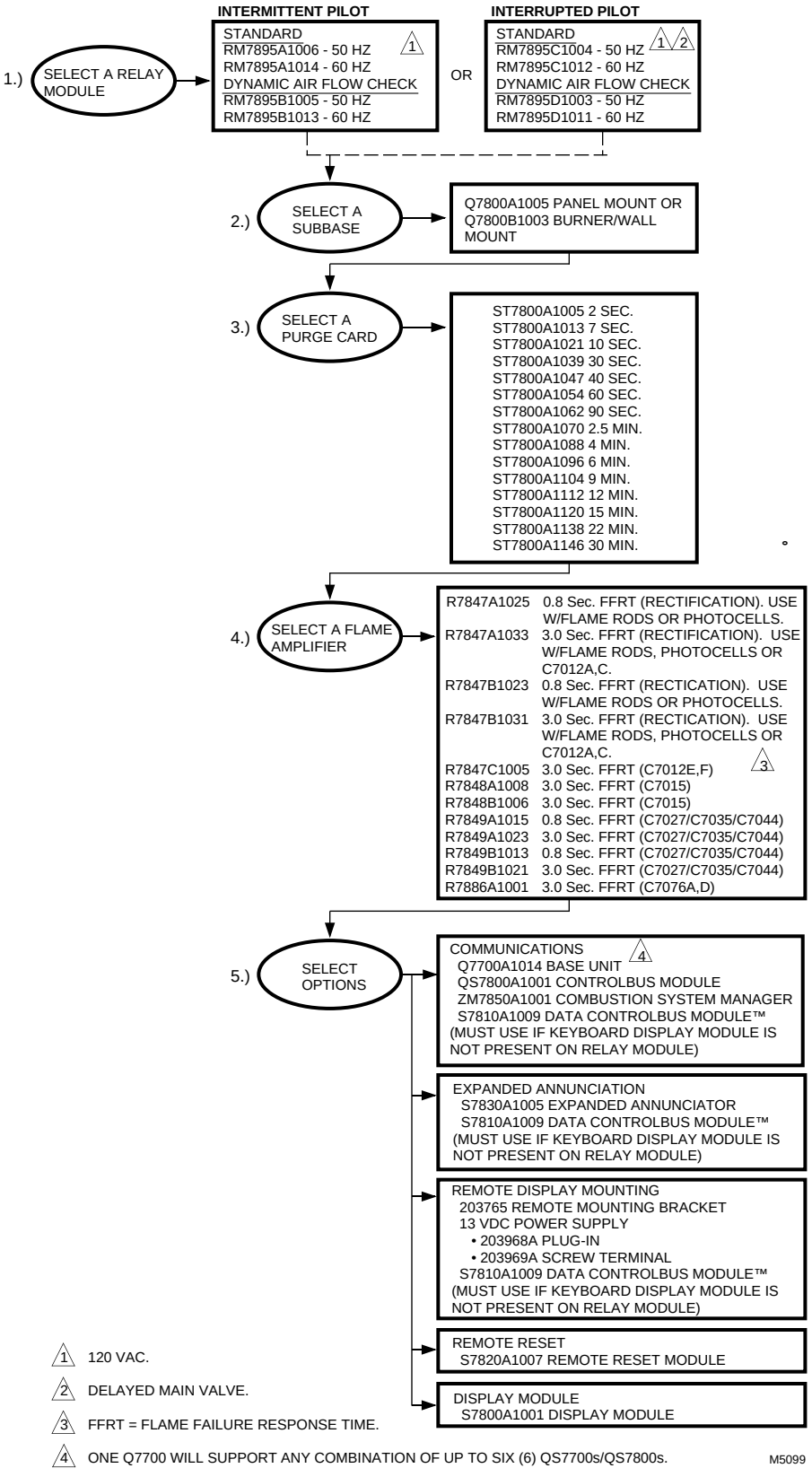
REQUIRED COMPONENTS:

Q7800 Subbase
ST7800 Purge Timer
RM7847/48/49/86 Flame Amplifier

ACCESSORIES:

5-Wire Connector
—part no. 203541.
Combustion Service Manager
—part no. ZM7850A1001.
Communication Interface Base Unit
—part no. Q7700A1014.
Communication Interface ControlBus Module
—part no. QS7800A1001.
DATA CONTROLBUS MODULE™
—part no. S7810A1009.
Dust Cover
—part no. 221729.
Electrical Access Slot Cover
—part no. 203765.
Expanded Annunciator
—part no. S7830A1005.
Flame Simulators
—part no. 203659 UV Flame Simulator.
—part no. 123514A Rectification Simulator.
Keyboard Display Module
—part no. S7800A1001.
Remote Display Mounting Bracket
—part no. 203765.
Remote Reset Module
—part no. S7820A1007.
Remote Display Power Supply
—part no. 203968 Plug-in.
—part no. 203969 Screw Terminal.
Tester
—part no. A7800A1002.

PRODUCT SELECTION MATRIX



DIRECTIONS:

1. Disconnect all power to primary or programmer.
2. Remove old primary or programer from subbase.
3. Mark all wires on subbase; i.e., mark wires connected to terminal "1" with a "1".
4. Disconnect wires from subbase.
5. Remove old subbase.
6. Mount Q7800 subbase.
7. Connect wires to subbase per wiring conversion for control being replaced. Pay close attention to footnotes. The symbol "△1△" indicates a footnote.
8. Install the RM7895. Make sure the proper ST7800 purge card and flame detector have been selected for the application.
9. The RM7895 has three site configurable jumper options that are used to select Pilot Flame Establishing Period, Flame Failure Action and Airflow Switch (interlock) Failure. Refer to the RM7895 Instructions (form 60-0086) for assistance and proper selection.
10. If a low voltage controller is used on the RA890 or UVM-1, remove it and replace it with a line voltage controller. Connect the line voltage controller in series with the limits.
11. If a low voltage airflow switch is used on the R4795, replace it with a line voltage switch such as the Honeywell C645.
12. Refer to the RM7895 Instructions (form 60-0086) for checkout and startup.

GENERAL FOOTNOTES:

△1△ Be sure system is modernized to 120 Vac. The replacement 7800 SERIES control is 120 Vac.

△2△ Select subbase.

△3△ Select proper prepurge card according to the Cross Reference Table.

NOTE: If the control being replaced does not have prepurge, then use the ST7800A1005 two second purge card.

△4△ If the control being replaced does not have an air flow switch, then use either an RM7895A or C control. Install a jumper between subbase terminal 6 and terminal 7.

△5△ Select proper flame amplifier according to the Cross Reference Table.

NOTE: The RM7895 control can be used with R7847/48/49/86 Flame Amplifiers.

△6△ Select proper flame detector when converting from a competitive control to Honeywell or if a different flame detection system is desired; i.e., the old flame amplifier was flame rectification and the new flame amplifier is to be ultraviolet. Refer to the Production Selection Matrix on page 4 for proper flame detector.

△7△ Proper grounding of the green subbase terminal screw to an electrical earth ground is a MUST for proper operation of the 7800 SERIES control.

△8△ NOTE: UL allows only two electrical wires to each subbase terminal.

Wiring information may show more than two wires to a particular terminal, which may require an external connection to accomplish the termination.

△9△ Select proper site configurable jumper configuration as required by the application. Refer to the Cross Reference Table and to the Specifications, form 65-0086.

NOTE:
Jumper 1 selects Pilot Flame Establishing Period.
Jumper 2 selects Flame Failure Action.
Jumper 3 selects Airflow Switch (interlock) Failure Action.

△10△ Do not use any unused subbase terminals as a wiring junction or termination point.

△11△ If a low voltage alarm has been used, remove it and replace it with a line voltage alarm. Connect the alarm directly to the Q7800 Subbase terminal 3.

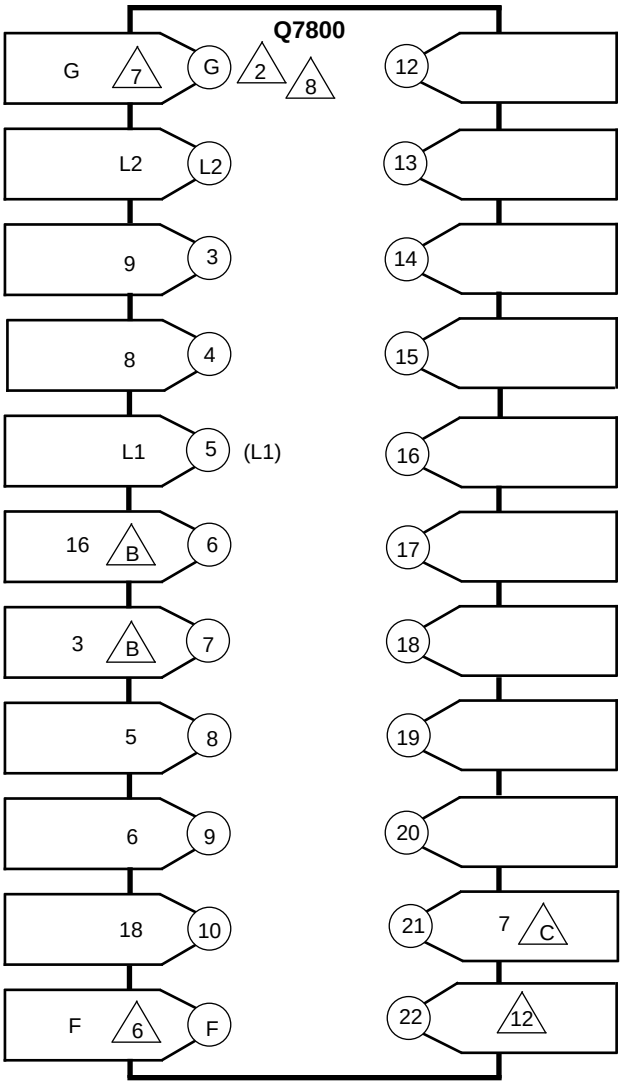
△12△ If Dynamic Self-Check has been selected for the flame amplifier, then connect one of the shutter leads (white) of the C7012E/F or C7076A/D flame detector to the Q7800 subbase terminal 22.

△13△ If a low voltage controller is being used, remove it and install a line voltage controller in series with the limits.

7800 SERIES CONVERSION WIRING DIAGRAM

FROM R7795 TO RM7895 △A

(DEVICE TO BE MODERNIZED) (O.S. NUMBER OF RELAY MODULE TO BE USED)



△A SELECT PROPER RELAY MODULE PER CROSS REFERRENCE TABLE.

△B THE LINE VOLTAGE AIRFLOW SWITCH IS TO BE INSTALLED BETWEEN Q7800 SUBBASE TERMINAL 6 AND TERMINAL 7. ON THE CONTROL BEING REPLACED, THE AIRFLOW SWITCH MAY HAVE BEEN INSTALLED BETWEEN THE BLOWER OUTPUT TERMINAL (8) AND THE AIRFLOW SWITCH INPUT TERMINAL (3).

△C R7795 C/D/G/H ONLY.

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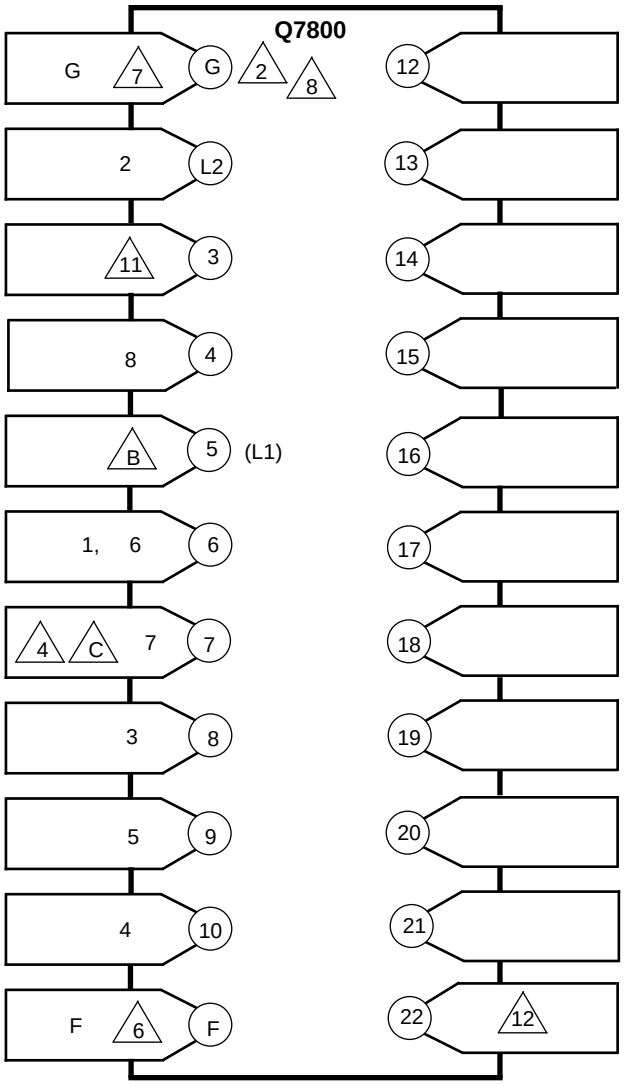
GENERAL FOOTNOTES, SEE PAGE 4.

7800 SERIES CONVERSION WIRING DIAGRAM

FROM R4795 TO RM7895 (A)

(DEVICE TO BE MODERNIZED) (O.S. NUMBER OF RELAY MODULE TO BE USED)



(A) SELECT PROPER RELAY MODULE PER CROSS REFERRENCE TABLE.

(B) CONNECT 120 VAC POWER TO TERMINAL 5 (L1).

(C) IF A LOW VOLTAGE AIR FLOW SWITCH IS USED ON THE R4795, REMOVE IT AND REPLACE IT WITH A LINE VOLTAGE AIR FLOW SWITCH. INSTALL THE LINE VOLTAGE AIRFLOW SWITCH BETWEEN Q7800 SUBBASE THRMINALS 6 AND 7.

(1) (2) (3) (4) (5) (6)

(7) (8) (9) (10) (11) (12)

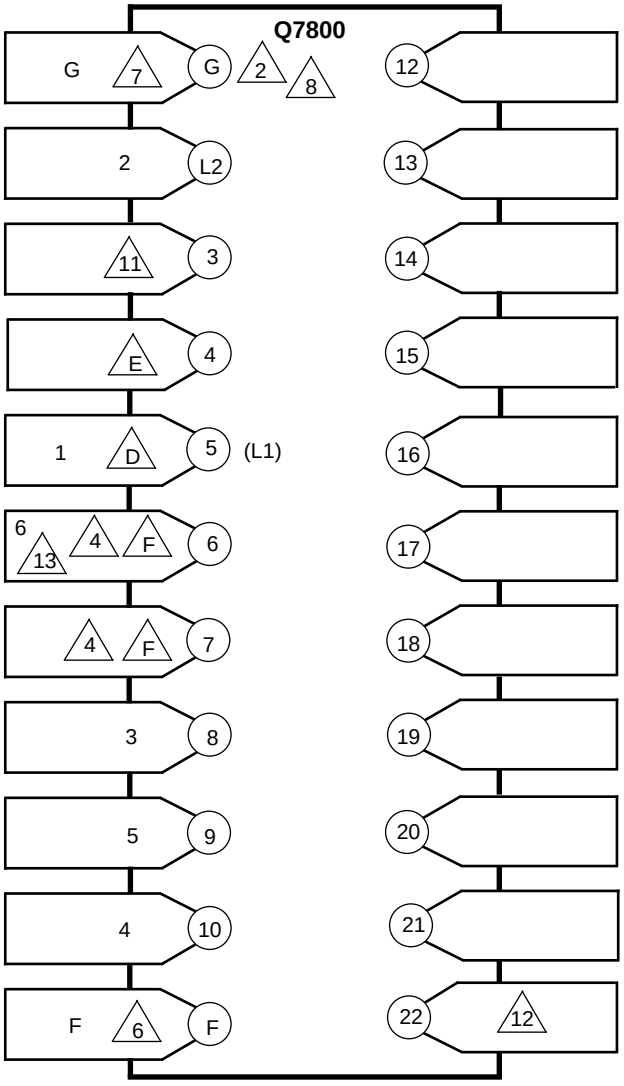
M6011

GENERAL FOOTNOTES, SEE PAGE 4.

7800 SERIES CONVERSION WIRING DIAGRAM

FROM RA890 △A △B TO RM7895 △C

(DEVICE TO BE MODERNIZED) (O.S. NUMBER OF RELAY MODULE TO BE USED)



△1 △2 △3 △4 △5 △6

△7 △8 △9 △10 △11 △12 △13

△A IF THE APPLICATION HAS EXTERNAL PURGE TIMING AND/OR ON AN EXTERNAL INTERRUPTED PILOT RELAY, THEN CONVERT TO RM7895. OTHERWISE CONVERT RA890 TO RM7890.

△B REMOVE EXTERNAL PURGE TIMER AND/OR INTERRUPTED PILOT RELAY.

△C SELECT RELAY MODULE:
- RM7895A - INTERMITTENT PILOT WITHOUT AIRFLOW SWITCH CHECK.
- RM7895B - INTERMITTENT PILOT WITH AIRFLOW SWITCH CHECK.
- RM7895C - INTERRUPTED PILOT WITHOUT AIRFOLW SWITCH CHECK.
- RM7895D - INTERRUPTED PILOT WITH AIRFLOW SWITCH CHECK.

△D CONNECT 120 VAC POWER TO Q7800 TERMINAL 5 (L1).

△E ON POWER BURNERS, IDENTIFY BURNER MOTOR WIRE ON Q270 SUBBASE TERMINAL 3 AND CONNECT IT TO Q7800 SUBBASE TERMINAL 4.

△F THE LINE VOLTAGE AIRFLOW SWITCH (IF USED) IS TO BE INSTALLED BETWEEN SUBBASE Q7800 TERMINAL 6 AND TERMINAL 7.

△G IF APPLICATION HAD AN EXTERNAL PURGE TIMER, THEN SELECT A PURGE CARD THAT MATCHES THE TIMING OF THE EXTERNAL PURGE TIMER.

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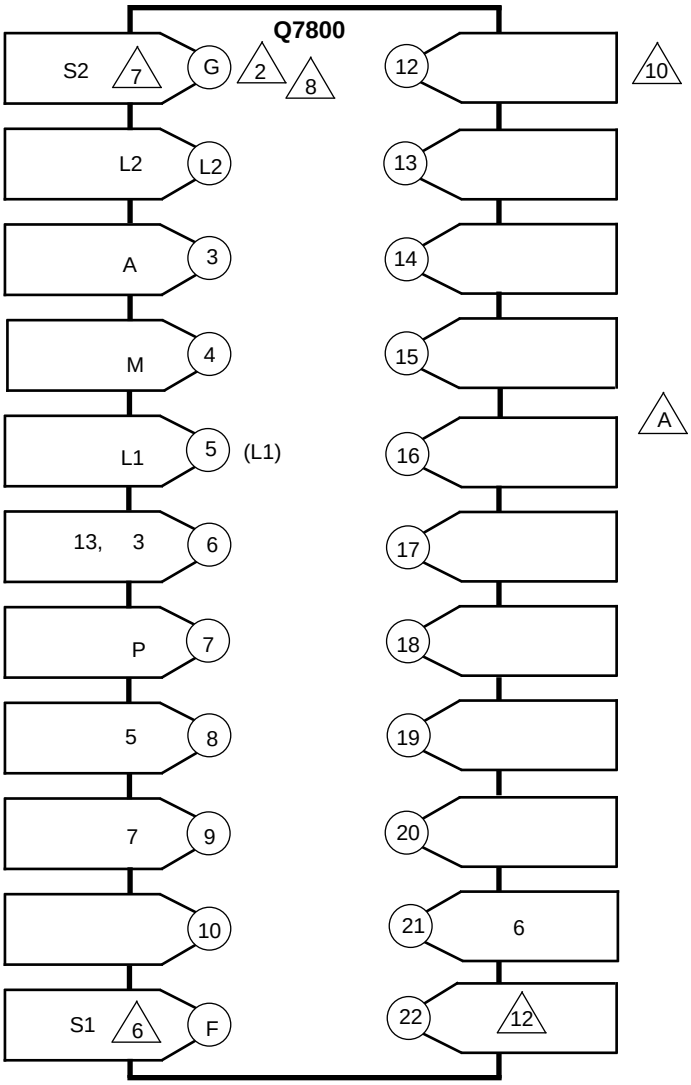
GENERAL FOOTNOTES, SEE PAGE 4.

7800 SERIES CONVERSION WIRING DIAGRAM

FROM R4140P TO RM7895 △A

(DEVICE TO BE MODERNIZED) (O.S. NUMBER OF RELAY MODULE TO BE USED)



△2 △3 △5 △6 △7

△8 △9 △10 △12

GENERAL FOOTNOTES, SEE PAGE 4.

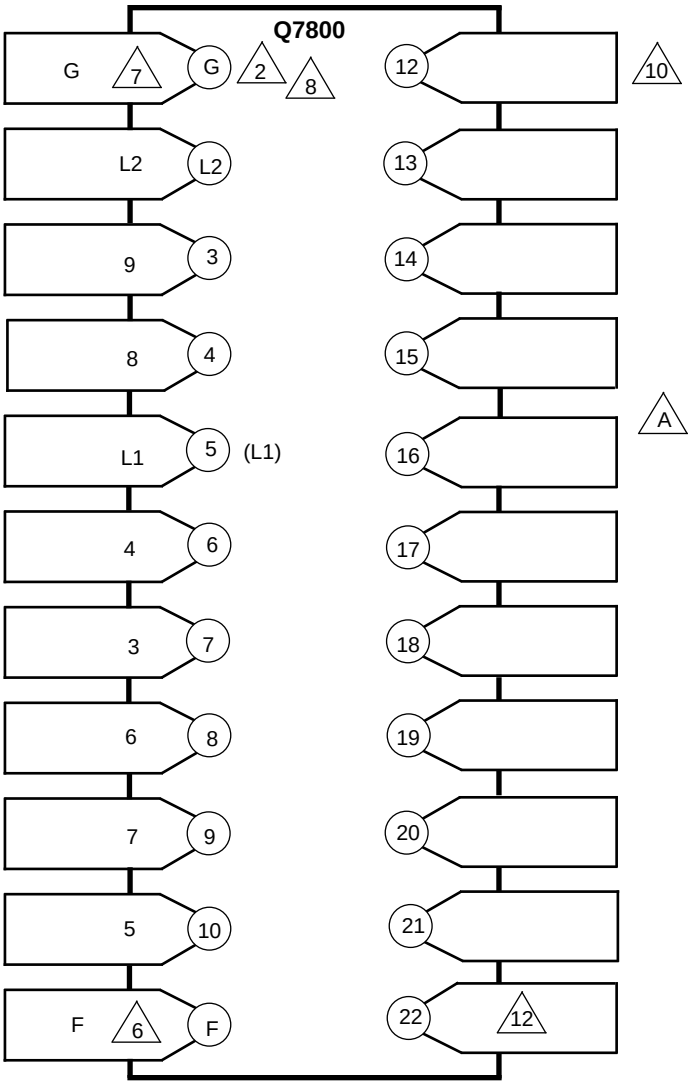
△A SELECT PROPER RELAY MODULE PER CROSS REFERENCE TABLE.

M6013

7800 SERIES CONVERSION WIRING DIAGRAM

FROM R4140Y TO RM7895 A

(DEVICE TO BE MODERNIZED) (O.S. NUMBER OF RELAY MODULE TO BE USED)



2 3 5 6 7

8 9 10 12

GENERAL FOOTNOTES, SEE PAGE 4.

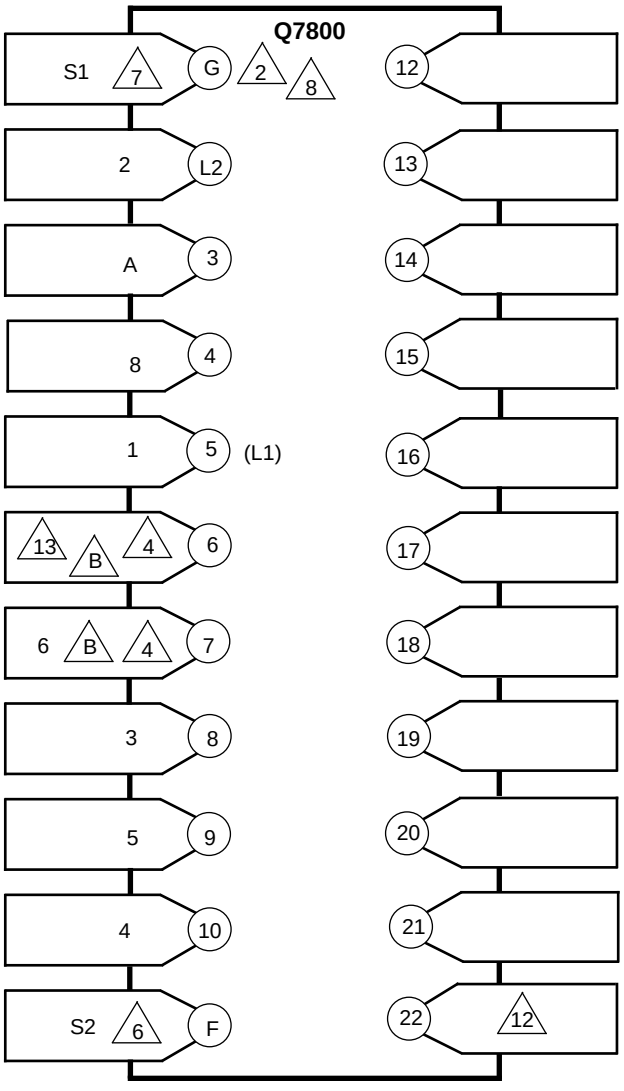
A SELECT PROPER RELAY MODULE PER CROSS REFERENCE TABLE.

M6014

7800 SERIES CONVERSION WIRING DIAGRAM

FROM FIREYE UVM △C TFM M - SERIES II (DEVICE TO BE MODERNIZED)

TO RM7895 △A (O.S. NUMBER OF RELAY MODULE TO BE USED)



△A SELECT PROPER RELAY MODULE PER CROSS REFERRENCE TABLE.

△B INSTALL THE LINE VOLTAGE AIRFLOW SWITCH BETWEEN Q7800 SUBBASE TERMINALS 6 AND 7. ON THE CONTROL BEING REPLACED, THE AIRFLOW SWITCH MAY HAVE BEEN INSTALLED BETWEEN THE BLOWER OUTPUT TERMINAL (8) AND THE AIRFLOW SWITCH INPUT TERMINAL (6).

△C IF THE CONTROL IS A UVM -1 OR TFM -1 AND THE APPLICATION HAS AN EXTERNAL PURGE TIMER AND/OR AN EXTERNAL INTERRUPTED PILOT RELAY, THEN CONVERT TO RM7895. OTHERWISE, CONVERT THE UVM -1 OR TFM -1 CONTROL TO RM7890:

- REMOVE THE EXTERNAL PURGE TIMER AND/OR INTERRUPTED PILOT RELAY.
- SELECT A PURGE CARD THAT MATCHES THE TIMING OF THE EXTERNAL PURGE TIMER.
- SELECT RELAY MODULE:
  - RM7895A - INTERMITTENT PILOT WITHOUT AIRFLOW SWITCH CHECK.
  - RM7895B - INTERMITTENT PILOT WITH AIRFLOW SWITCH CHECK.
  - RM7895C - INTERRUPTED PILOT WITHOUT AIRFOLW SWITCH CHECK.
  - RM7895D - INTERRUPTED PILOT WITH AIRFLOW SWITCH CHECK.

△1 △2 △3 △4 △5 △6

△7 △8 △9 △10 △12 △13

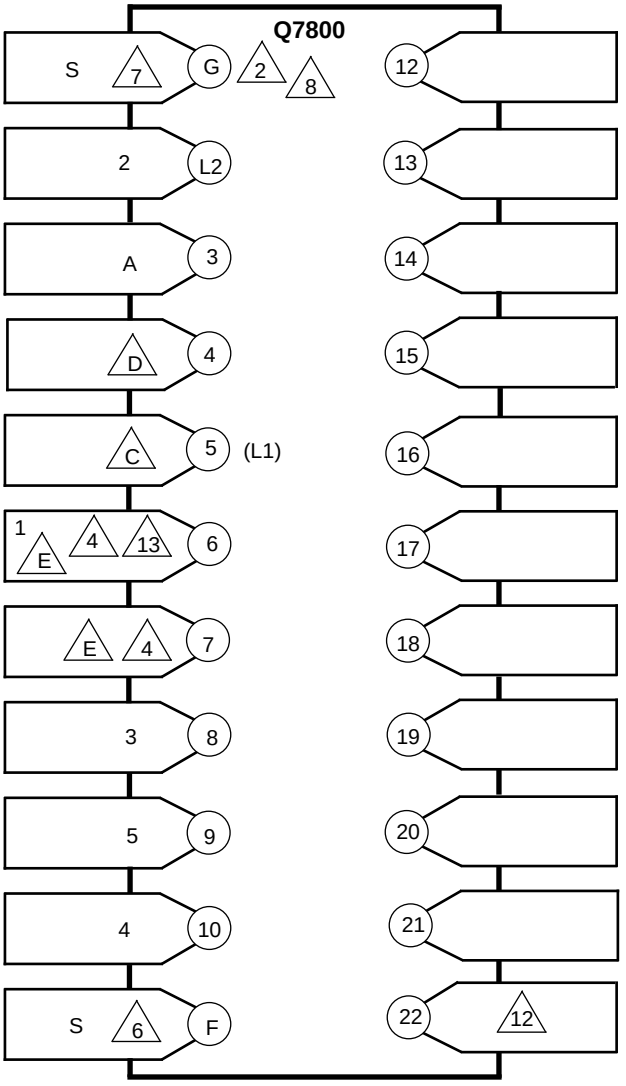
M6015

GENERAL FOOTNOTES, SEE PAGE 4.

7800 SERIES CONVERSION WIRING DIAGRAM

FROM FIREYE UVM -1 (PRIOR TO 1968) [A] TO RM7895 [B]

(DEVICE TO BE MODERNIZED) (O.S. NUMBER OF RELAY MODULE TO BE USED)



[A] IF THE APPLICATION HAS EXTERNAL PURGE TIMING AND/OR ON AN EXTERNAL INTERRUPTED PILOT RELAY, THEN CONVERT TO RM7895. OTHERWISE CONVERT UVM-1 CONTROL TO RM7890.
- REMOVE EXTERNAL PURGE TIMER AND/OR EXTERNAL INTERRUPTED PILOT RELAY.
- SELECT A PURGE CARD THAT MATCHS THE TIMING OF THE EXTERNAL PURGE TIMER.

[B] SELECT RELAY MODULE:
- RM7895A - INTERMITTENT PILOT WITHOUT AIRFLOW SWITCH CHECK.
- RM7895B - INTERMITTENT PILOT WITH AIRFLOW SWITCH CHECK.
- RM7895C - INTERRUPTED PILOT WITHOUT AIRFOLW SWITCH CHECK.
- RM7895D - INTERRUPTED PILOT WITH AIRFLOW SWITCH CHECK.

[C] CONNECT 120 VAC POWER TO Q7800 TERMINAL 5 (L1).

[D] ON POWER BURNERS, IDENTIFY BURNER MOTOR WIRE ON FIREYE 63-3060 WIRING BASE TERMINAL 3 AND CONNECT IT TO Q7800 SUBBASE TERMINAL 4.

[E] THE LINE VOLTAGE AIRFLOW SWITCH (IF USED) IS TO BE INSTALLED BETWEEN Q7800 SUBBASE TERMINAL 6 AND TERMINAL 7.

[1] [2] [3] [4] [5] [6]

[7] [8] [9] [10] [12] [13]

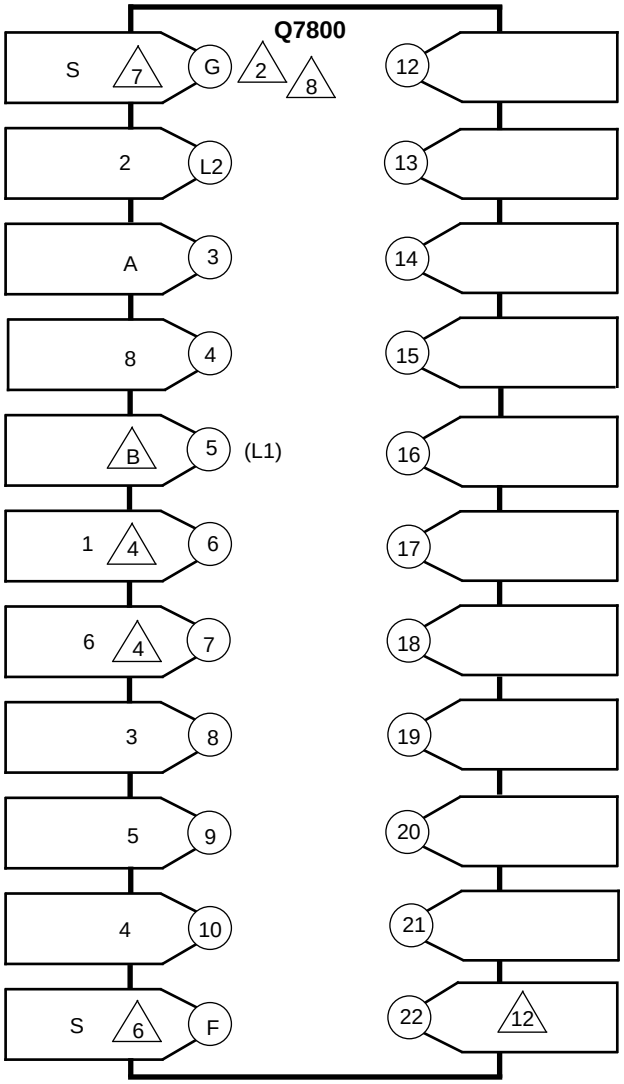
M6016

GENERAL FOOTNOTES, SEE PAGE 4.

7800 SERIES CONVERSION WIRING DIAGRAM

FROM FIREYE UVM-2 (PRIOR TO 1968) (DEVICE TO BE MODERNIZED)

TO RM7895 △A (O.S. NUMBER OF RELAY MODULE TO BE USED)



△A SELECT PROPER RELAY MODULE PER CROSS REFERRENCE TABLE.

△B CONNECT 120 VAC POWER TO TERMINAL 5 (L1).

△1 △2 △3 △4 △5 △6

△7 △8 △9 △10 △12

M6017

GENERAL FOOTNOTES, SEE PAGE 4.

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