

INSTALLATION DOCUMENT PACKAGE

Installation Instructions

HONEYWELL

RA890F 1304

RA890F FLAME SAFEGUARD PRIMARY CONTROL

Applicable product family: Honeywell RA890F burner controls

OFFICIAL SOURCE

RA890F 1304.pdf

The following pages are selected from the supplied manufacturer document and retain their original page content.

Installation

WHEN INSTALLING THIS PRODUCT...

1. Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.
2. Check the ratings given in the instructions and on the product to make sure the product is suitable for your application.
3. Installer must be a trained, experienced, flame safeguard control technician.
4. After installation is complete, check out product operation as provided in these instructions.



CAUTION

1. Disconnect power supply before beginning installation to prevent electrical shock and equipment damage.
2. All external timers must be Listed or Component Recognized by authorities that have jurisdiction for the specific purpose for which they are used.

Refer to Fig. 3 and 4 for typical field wiring connections. See Fig. 5 for schematic diagram. Follow the burner manufacturer's instructions if supplied. Otherwise proceed as follows.

LOCATION

Temperature

Install the RA890F where the surrounding temperatures remain within the Ambient Operating Temperature Ratings listed in the SPECIFICATIONS section.

Humidity

Install the RA890F where the relative humidity never reaches the saturation point. Condensation of moisture on the RA890F may cause enough leakage to short the flame signal to ground and prevent the burner from starting.

Vibration

Do not install the RA890F where it could be subject to excessive vibration. Vibration shortens the life of the electronic and mechanical components.

Weather

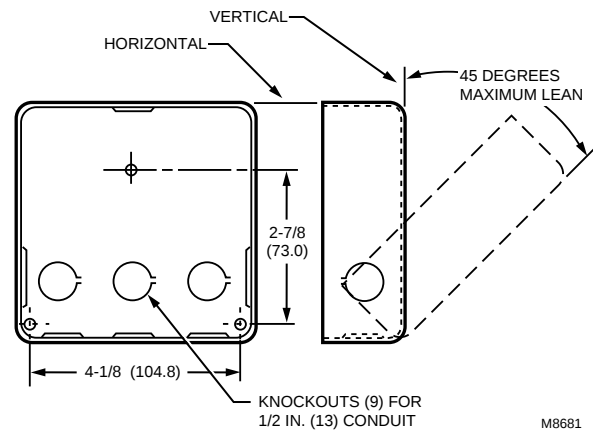
The RA890F is not designed to be weathertight. If it is installed outdoors, use a suitable weathertight enclosure.

Mount Subbase

Locate the subbase where ambient temperature is within the specified rating.

Mount the subbase so the top and bottom are horizontal and the back is vertical. The subbase can lean backward as much as 45 degrees when necessary. See Fig. 1.

Fig. 1—Mounting subbase in in. (mm).



WIRE SUBBASE

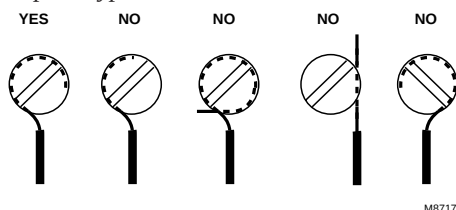
1. Disconnect power supply (see Fig. 2) before making wiring connections to avoid electrical shock and equipment damage. Assure all wiring complies with applicable electrical codes, ordinances, and regulations. Use NEC Class 1 (line voltage) wiring.

When wiring the Q270A Universal Mounting Base for use with the RA890F, use the terminal designations 6, T and T (printed in white).

- 2A. *For normal installations*, use moisture-resistant No. 14 wire suitable for at least 167°F (75°C). *For high temperature installations*, use moisture-resistant No. 14 wire selected for a temperature rating above the maximum operating temperature for all but the ignition and flame detector F leadwires.
 - a. *For the ignition*, use Honeywell Specification no. R1061012 Ignition Cable or equivalent. (This wire is rated at 350°F (175°C) for continuous duty, and up to 500°F (260°C) for intermittent use. It was tested to 25,000V.)
 - b. *For the flame detector F leadwire*, use Honeywell Specification no. R1298020 or equivalent. (This wire is rated up to 400°F (205°C) for continuous duty. It was tested for operation up to 600V and breakdown up to 7500V.)
- 2B. *For ignition installations in a contaminating environment*, use Honeywell Specification no. R1239001 High Tension Ignition Cable or equivalent. This wire is very resistant to severe conditions of oil, heat, and corona, and is tested to withstand high voltages up to 25,000V rms in a salt bath for one minute without breakdown. It is rated at 200°F (93°C) for continuous duty, and up to 350°F (175°C) for intermittent use.

IMPORTANT: Do not run high voltage ignition transformer wires in the same conduit with the flame detector wiring.

IMPORTANT: When connecting wire to screw terminal of terminal strip, wrap wire at least 3/4 of distance around screw without overlapping. With appropriately sized screwdriver, tighten screw until wire is snugly in contact with underside of screw and contact plate. Tighten screw additional one-half turn. Do not use a push-type ratchet screwdriver.

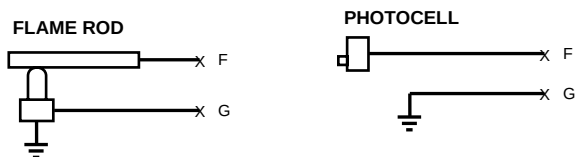


HOOKUP RA890E Replacement

When replacing an RA890E with an RA890F, no changes are required in the wiring to the subbase. Leave the hot line connected to terminal 1 even though it is not required to operate the control.

Fig. 2—Flame detector wiring.

TYPICAL FLAME DETECTOR CONNECTIONS



C7012 ULTRAVIOLET DETECTOR

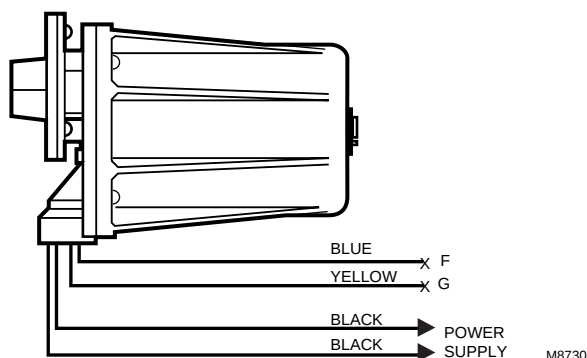
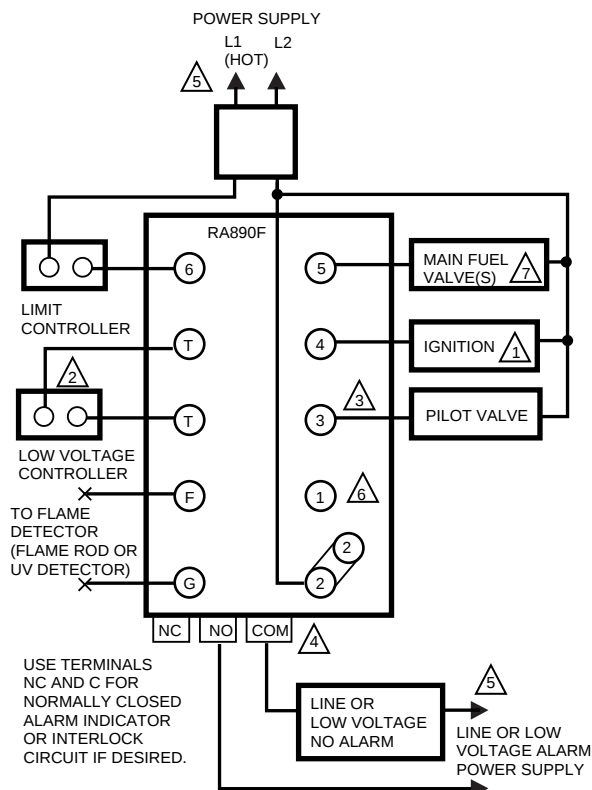


Fig. 3—Gas system with interrupted ignition.



- 1 FOR INTERMITTENT IGNITION, CONNECT TO TERMINAL 3.
- 2 IF LINE VOLTAGE CONTROLLER IS USED, CONNECT IT BETWEEN THE LIMIT CONTROLLER AND TERMINAL 6. JUMPER T-T.
- 3 HOOKUP FOR CONTINUOUS (STANDING) PILOT IS THE SAME AS FOR INTERRUPTED IGNITION EXCEPT IGNITION AND PILOT VALVE CONNECTIONS ARE NOT MADE.
- 4 SPDT ALARM TERMINALS OPTIONAL. IF LINE VOLTAGE IS USED, RA890F MUST BE MOUNTED IN SUITABLE ENCLOSURE. ALARM TERMINALS ARE ENERGIZED THROUGH RA890 SAFETY SWITCH. ALARM WILL NOT SOUND UNTIL SAFETY SWITCH TRIPS OUT.
- 5 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- 6 FOR RA890E REPLACEMENT, LEAVE POWER CONNECTED TO TERMINAL 1. SUBBASE WIRING CHANGES ARE NOT REQUIRED.
- 7 SOME AUTHORITIES HAVING JURISDICTION PROHIBIT THE WIRING OF ANY LIMIT OR OPERATING CONTACTS IN SERIES WITH THE MAIN FUEL VALVES (S).

M8752

Fig. 4—Oil system with interrupted ignition.

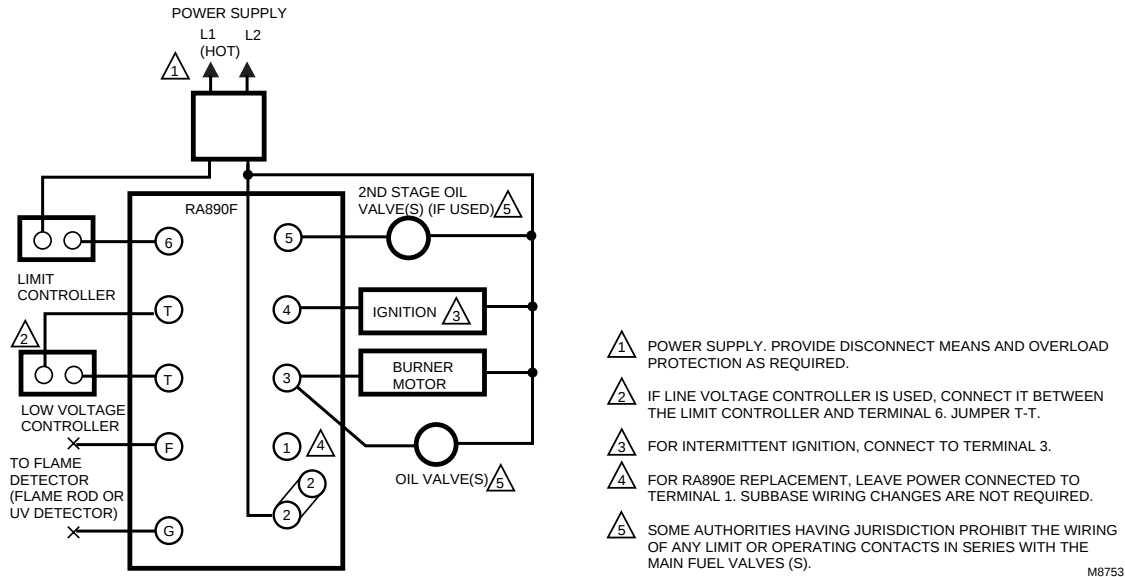
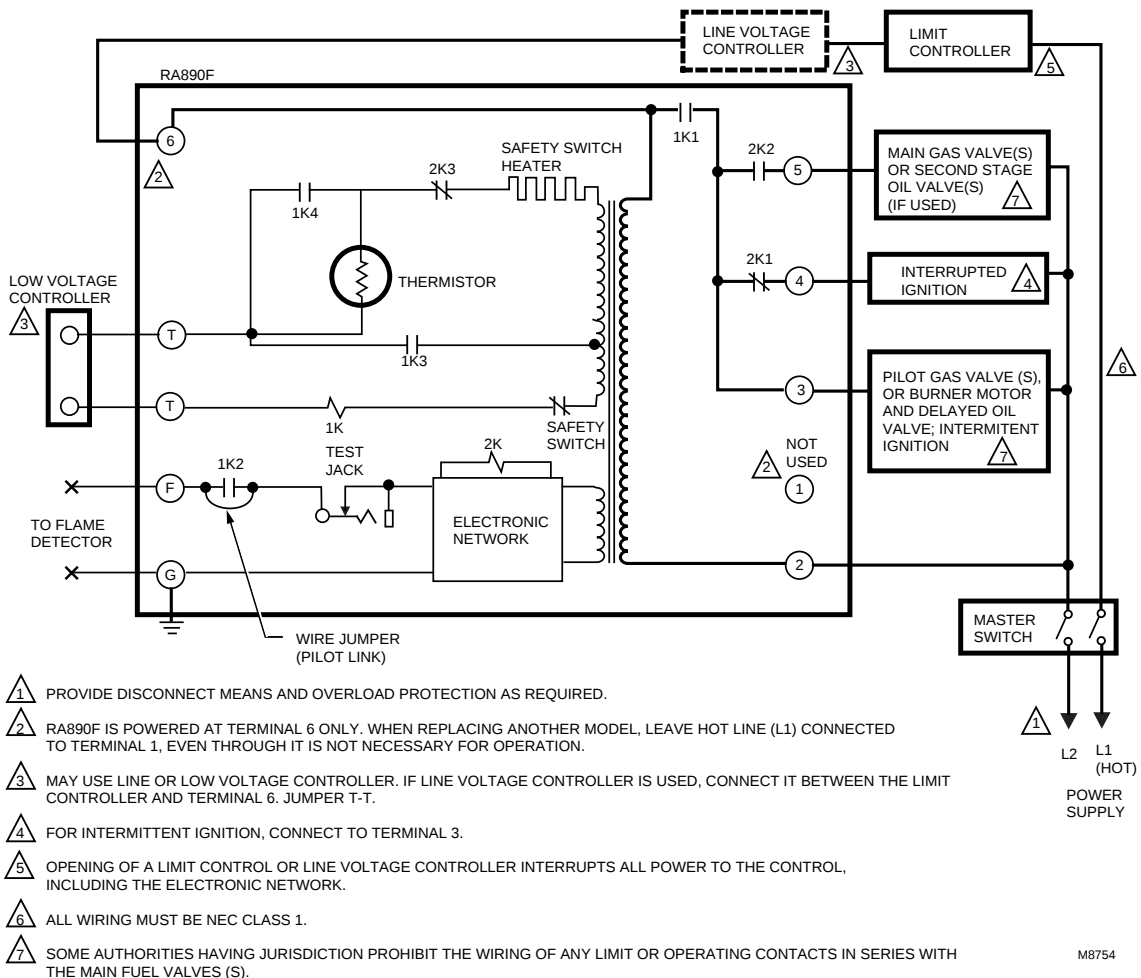


Fig. 5—Schematic of the RA890F.



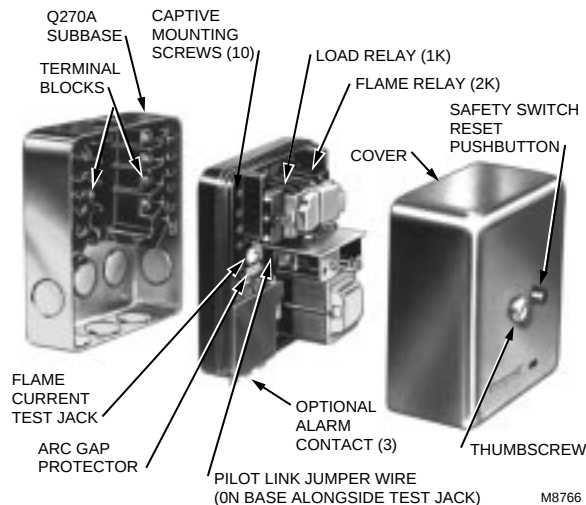
MOUNT RA890F

Disconnect power supply.

Remove relay cover (see Fig. 6) and position the RA890F over the Q270A Subbase. Start all ten mounting screws and tighten uniformly. These screws complete electrical circuits (terminal 1 excepted) and hold the RA890F to the subbase.

As shipped from the factory, the RA890F is suitable for use with interrupted or intermittent systems.

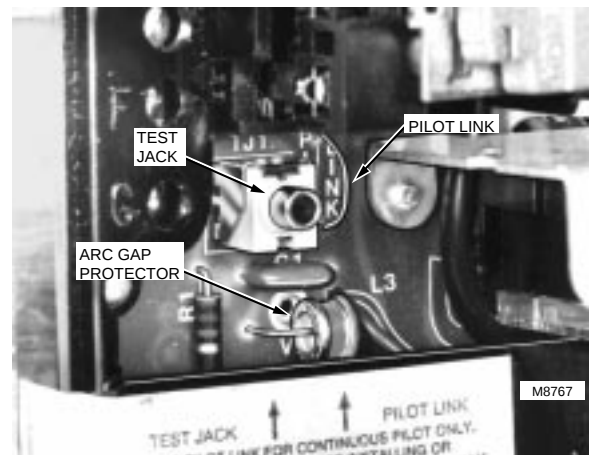
Fig. 6—RA890F and Q270A Subbase.

**FOR STANDING PILOT SYSTEMS ONLY**

For use with standing pilot systems. Clip the pilot link (wire loop in Fig. 7) as follows:

1. Turn off power.
2. Clip pilot link with side cutters. *Do not twist off because damage to circuit board can result.* Remove any pieces of the wire.
3. Be sure there is electrical clearance between the two ends of the link, and from link ends to the test jack or relay frame. Then restore power.

Fig. 7—Location of arc gap protector on RA890F.



Operation

NORMAL OPERATION SUMMARY

Normal control operation is summarized below. Refer to Fig. 5 for the internal schematic of the control.

1. *Call for heat*—Load relay pulls in after a slight delay (flame relay must be out), ignition starts, pilot valve or burner motor is powered. Safety switch heats.
2. *Flame proved*—Flame relay pulls in, safety switch heater is de-energized, main valve is powered, ignition is cut off (when used for interrupted ignition).
3. *Call for heat satisfied*—Load relay drops out, fuel valves close, burner motor stops, and flame relay drops out.

NOTE: The pull-in of the load relay is delayed by a thermistor with a nominal delay time of 3 to 5 seconds. The thermistor is affected by ambient temperature, and the delay time may be as short as 2 seconds when the temperature is high and as long as 30 seconds when the temperature is low. As the thermistor warms up, the 1K relay might hum slightly before it pulls in. This is normal.