C554A
Cadmium Sulfide Flame Detector

INSTALLATION INSTRUCTIONS

APPLICATION

The C554A Cadmium Sulfide Flame Detector (cad cell) is a photoconductive flame detector (see Fig. 1) used with oil primary controls such as R4166, R4184, R8182, R8184, R8185, R8404 and R8991. It consists of a plug-in, light sensitive cell and a socket with factory-installed mounting bracket and leadwire. The detector is installed inside the air tube of the burner where the cell can view the flame. It is wired to the F-F terminals of the oil primary control.

The photocell is a ceramic disk coated with cadmium sulfide and overlaid with a conductive grid. Electrodes attached to the ceramic disk transmit an electrical signal to the primary control. In darkness, cadmium sulfide has a very high resistance to the passage of electrical current. In visible light, its resistance is very low and current is allowed to pass. The entire cell is hermetically sealed (glass to metal) to prevent cell deterioration.

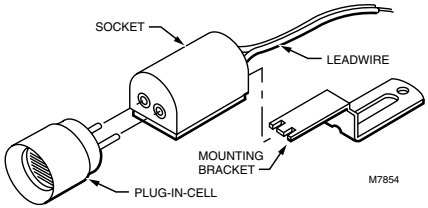

Fig. 1. C554A Cadmium Sulfide Flame Detector (cad cell).

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 service technician.
4. After installation is complete, check out product operation as provided in these instructions.

⚠ CAUTION

Disconnect power supply before beginning installation to prevent electrical shock or equipment damage.

Location

The burner manufacturer determines the cad cell location (see Fig. 2). If an alternate location must be used, make sure that:

❶ The cell has a clear view of the flame.
❷ Ambient light does not reach the cell.
❸ Ambient temperature at the cell location is below 140°F (60°C).
❹ Movement, shielding, or radiation of metal surfaces near the cell do not affect cell function.

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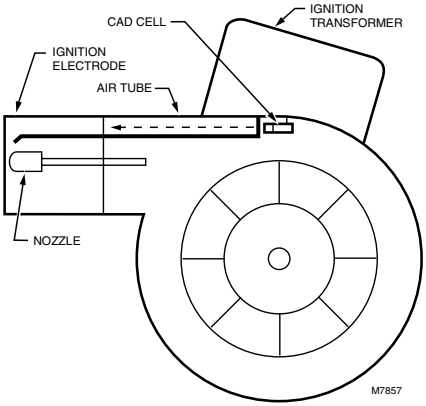

Fig. 2. Cad cell location.

The orifice (available on some models) reduces the amount of light available to the photocell minimizing the chance that the cell will respond to the glow from the hot refractory. See Fig. 3 for a cutaway view of the orifice.

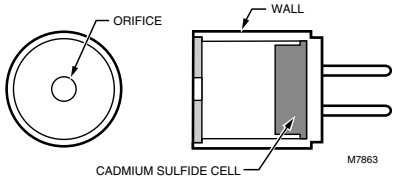

Fig. 3. Cutaway view of orifice.

Mounting

Mount the C554A at the rear of the burner. The mounting bracket can be bent to fit, if necessary.

Wiring

Disconnect power supply before beginning wiring to prevent electrical shock or equipment damage.

All wiring must comply with local electrical codes and ordinances. See Fig. 4 for a typical C554A hookup to the oil burner primary control.

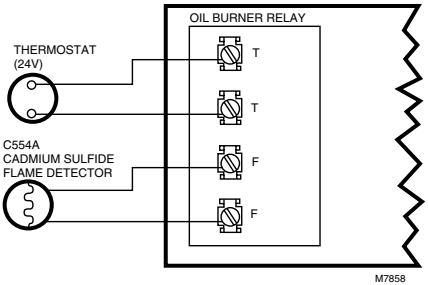

Fig. 4. Typical hookup for C554A to oil burner primary control.

CHECKOUT

To check cad cell operation, use the following procedure:

1. Disconnect cad cell leadwires; then start the burner. Shortly after the burner starts, place a temporary jumper between terminals F-F. Connect an ohmmeter across the cad cell leadwires; resistance should be less than 1600 ohms.
2. Stop burner and remove temporary jumper.
3. With the burner off, check the dark cell resistance across the cad cell leadwires. Resistance should be greater than 20,000 ohms.

   NOTE: If cell resistances are different than specified, recheck the wiring and the location of the cell. If necessary, replace plug-in portion of cell, Honeywell part no. 130367 Replacement Cad Cell.

4. Reconnect cad cell leadwires. Check the Protectorelay® (burner sequencing relay) control according to the instructions packed with the control.

SERVICE AND REPLACEMENT

Under normal operating conditions, the C554A does not require cleaning. If a badly adjusted burner causes heavy accumulation of dirt and soot on the cell surface, carefully wipe the cell surface to restore full view of the oil flame.

If the C554A is damaged, replace the plug-in portion of the cell. Order Honeywell part no. 130367 Replacement Cad Cell.

Honeywell

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