



C554A Cadmium Sulfide Flame Detector

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 plugin, light sensitive cell and a socket with factory-installed leadwire; five different mounting brackets (Type A,B,E,J,P); and an oil line adapter bracket. Leadwire length is 60 in. (1520 mm). The detector is installed inside the air tube of the burner where the cell can view the flame and 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.

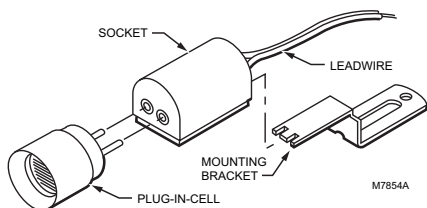


Fig. 1. C554A Cadmium Sulfide Flame Detector (cad cell).

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.

INSTALLATION INSTRUCTIONS

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:

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

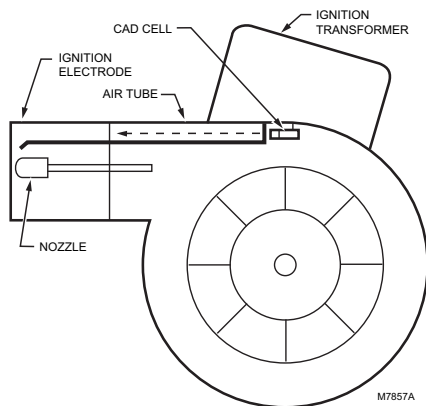


Fig. 2. Cad cell location.



Mounting

Direct Replacement

1. Select the mounting bracket that most closely matches the existing mounting bracket.

NOTE: Bend the mounting bracket to fit, if necessary.

2. Remove the cell from the socket.
3. Insert the mounting bracket into the socket slot (Fig. 3) as far as it will go.

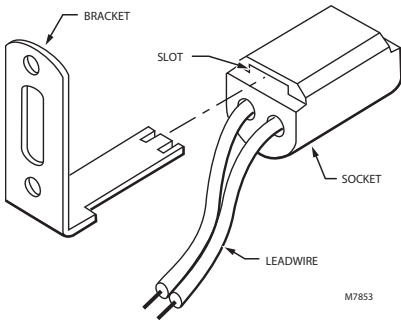


Fig. 3. Insert mounting bracket into socket slot.

4. While holding the mounting bracket in the slot, insert the screwdriver in the other end of the slot (Fig. 4). Bend the screwdriver first to the left, then to the right, to crimp the end of the mounting bracket and hold it in position.
5. Remove the screwdriver and replace the cell.
6. Mount the new cell and bracket assembly in the location of the old assembly.

Oil Line Mounting

If desired, mount the C554A on the oil line using the oil line adapter bracket and one of the five mounting brackets supplied.

1. Select the bracket that gives the C554A the best view of the flame.

NOTE: Bend the mounting bracket to fit, if necessary.

2. Remove the cell from the socket.
3. Insert the mounting bracket into the slot on the socket (Fig. 3) as far as it will go.
4. While holding the mounting bracket in the slot, insert the screwdriver in the other end of the slot (Fig. 4). Bend the screwdriver first to the left, then to the right, to crimp the end of the mounting bracket and hold it in position.
5. Remove the screwdriver and replace the cell.
6. Slide the mounting bracket into the sleeve on the oil line adapter bracket. Push firmly to lock the cell and the bracket assembly in position.
7. Mount the oil line adapter bracket on the oil line using the screw and nut provided (Fig. 5).

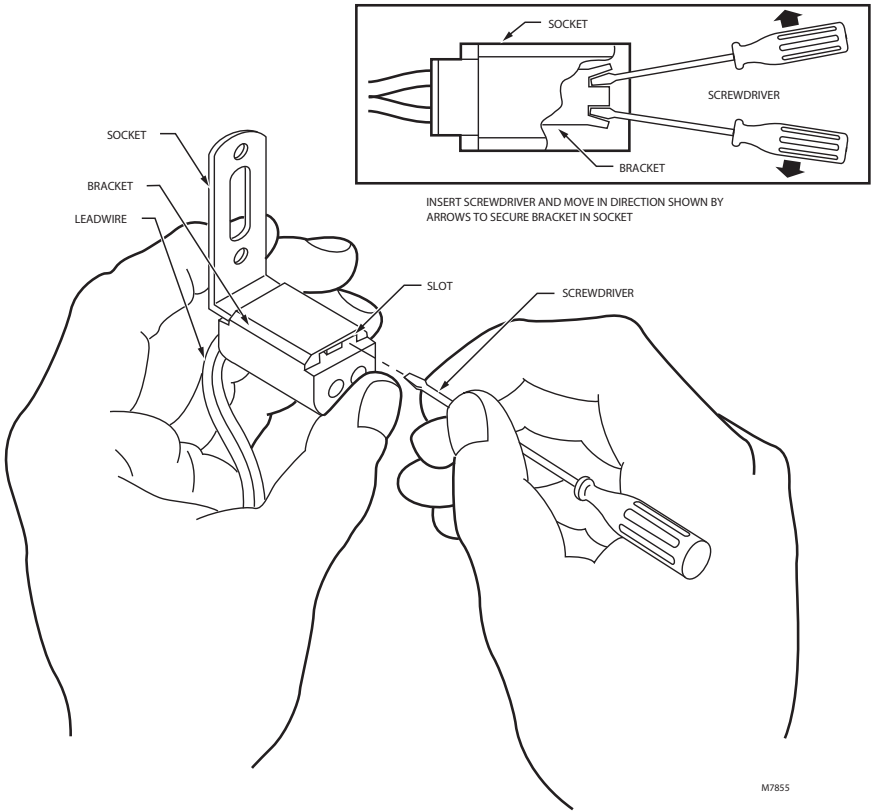


Fig. 4. Insert screwdriver to secure bracket in socket.

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All wiring must comply with local electrical codes and ordinances. See Fig. 6 for a typical C554A hookup to the oil burner primary control.

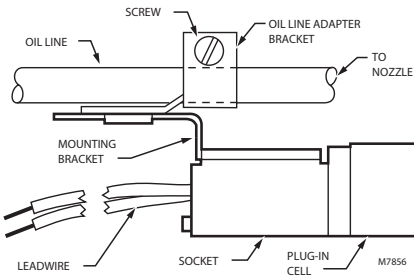


Fig. 5. Use oil line adapter bracket to mount C554A on oil line.

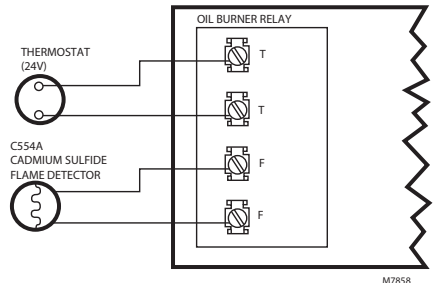


Fig. 6. Typical hookup for C554A to oil burner primary control.

Wiring

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

CHECKOUT

To check cad cell operation, use the following procedure:
Disconnect cad cell leadwires; then start burner.

1. Shortly after burner starts, place a temporary jumper between terminals F-F. Connect an ohmmeter across cad cell leadwires; resistance should be less than 1600 ohms.
2. Stop burner and remove temporary jumper.
3. With burner off, check 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 wiring and location of cell. If necessary, replace plug-in portion of cell, Resideo 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 Resideo part no. 130367 Replacement Cad Cell.



Resideo Technologies, Inc.
1985 Douglas Drive North, Golden Valley, MN 55422
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www.resideo.com