

Model 850 Investigator's Aid

Accelerant and Gas Detector
Operation and Maintenance



GRACE
INDUSTRIES, INC.
Solutions for Life Safety

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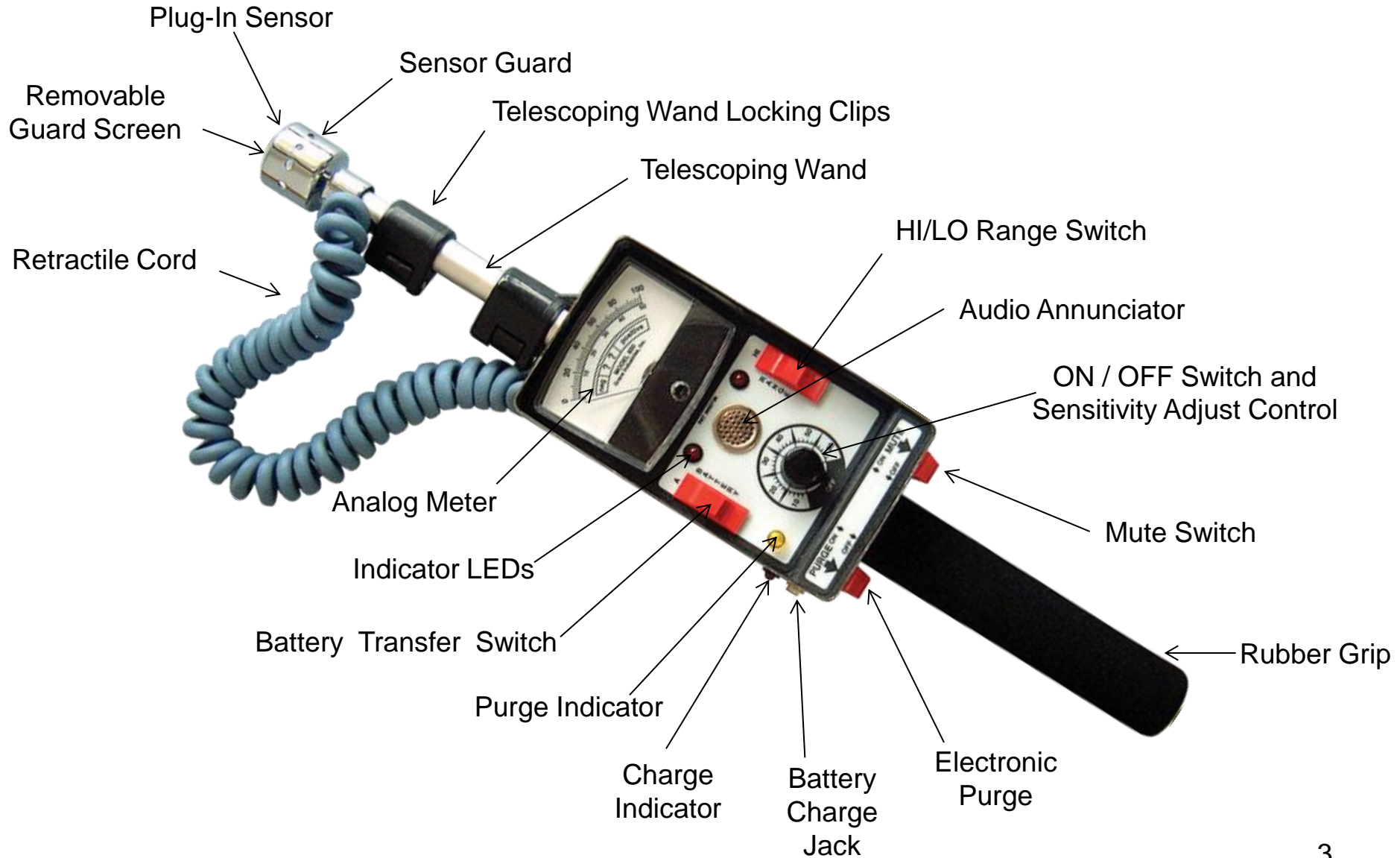
Model 850

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Model 850

Top View



Model 850

Features & Benefits

- Detects approx. 125 toxic/combustible gases and/or vapors including heating gases
- Adjustable Sensitivity aids in pinpointing the source of high gas concentration
- Solid State Sensor, housed in a protective guard, with a 6 foot coiled sensor cord
- Audio and Visual displays indicate the detection of suspect gases
- Powered by Nickel Cadmium rechargeable batteries with operating time of approximately 8 hours of use
- Corrosion resistant, painted steel enclosure
- Electronic Purge permits quick recovery of sensor element
- Mute Switch turns off audio tones and permits discreet investigation
- Applications: Arson Investigation, Leak detection, General purpose gas detection

Model 850 Operation

Turning ON

- Turn the Model 850 **ON** by rotating the **ON/OFF & Sensitivity Adjust Control** clockwise until a click is heard.
- Allow approximately three (3) minutes for the sensor to attain operating temperature and stabilize.
- A **Mute switch** is located on the side of the detector and can be switched **ON** to silence the audio.



ON/OFF &
Sensitivity Adjust
Control

Mute
Switch

Model 850 Operation

Adjusting Sensitivity

- Rotate the **Sensitivity Adjust Control** knob clockwise until meter just starts to deflect.
- Place the **Range** switch in the “**HI**” position.
- Place the **Purge** and **Mute** switches in the **down** position.
- The Model 850 is now ready for use and has a sensitivity of approximately 50 parts per million (ppm) for methane as the test gas.

ON/OFF &
Sensitivity
Adjust
Control

Purge
Switch

Mute
Switch



Model 850 Operation

Scanning for Gases



- Because the Model 850 is constantly sampling the atmosphere and is dependent upon (hydrocarbon) aerosol particles or gas molecules to diffuse into the sensor, sufficient time should be allowed for this to occur - usually 4 to 5 seconds.
- When attempting to locate very small leaks or hydrocarbon vapors, slowly scan the area in question, holding the Model 850 at a 45 degree angle and one inch from the area being examined.
- When gas or accelerants are detected, the audio and visual indicators will beep and flash in synchronism. Beep and flash rates will increase when higher concentrations of gas/hydrocarbons are discovered.

Model 850 Operation

Scanning for Gases

- Consideration must be given to factors such as time, temperature and relative humidity.
- Most accelerants/hydrocarbons are more pronounced as aerosol particles on warm, dry days than on cold, damp days. These factors will influence the volatility of hydrocarbons.
- If there is an area of suspicion and you do not get a reading, put the Model 850 in its most sensitive mode (indicated by a very slow beep and flash rate) and observe if any change in beep rate occurs upon further investigation of the suspect area.

Model 850 Operation

Electronic Purge



- The **Electronic Purge** feature permits a rapid recovery of the sensor element.
- After the Model 850 has detected the presence of an accelerant, simply slide the **Purge Switch** to the **ON** position; the **Yellow Purge Indicator Light** will glow Red.
- Leave the **Purge Switch** in the **ON** position for 15 to 30 seconds. There may be rapid beeping as the sensor burns off residual vapors.
- After 15 to 30 seconds, slide **Purge Switch** to **OFF** position.
- The unit will rapidly cease to annunciate and the Model 850 is now ready to detect another sample.
- Before attempting to detect another sample: Turn **Purge Switch OFF** and reset sensitivity.

Model 850 Operation

Electronic Purge



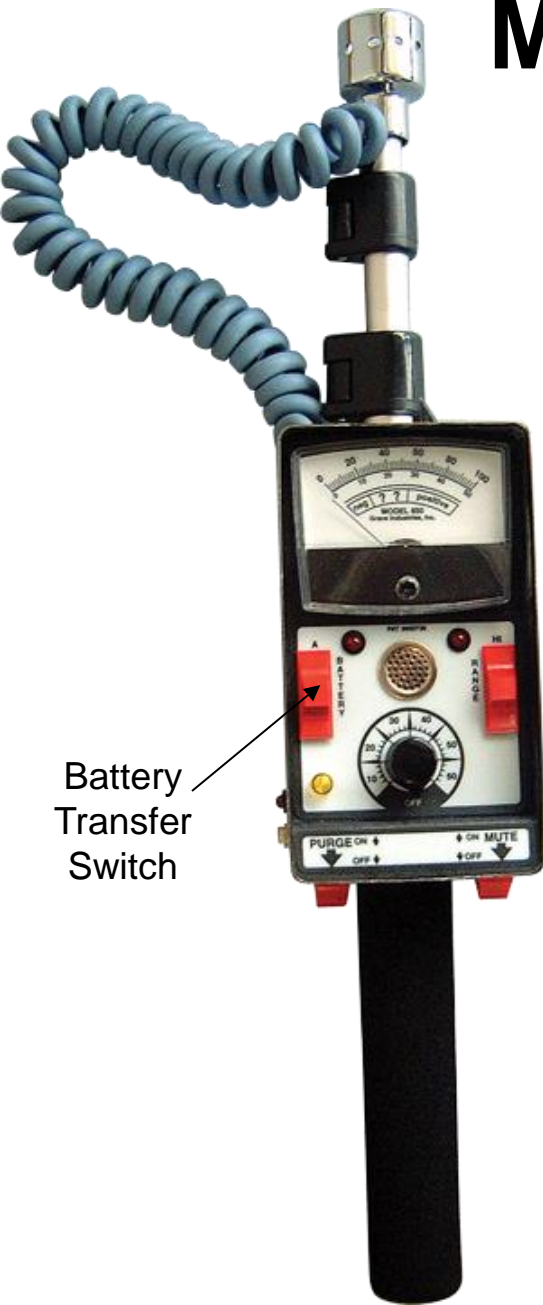
- The **Purge Switch** may also be used to speed the warm-up period when the unit is initially turned on.
- When the **Purge Switch** is in the **ON** position, the detector's circuits are disabled and the Model 850 will **NOT** detect the presence of gas or accelerants in this mode.
- Turn **Purge Switch OFF** before attempting to detect a suspect area.

Model 850 Operation

Battery Life

- Model 850 is powered by two nickel cadmium cells.
- Operating time for each cell is 4 hours.
Total operating time is approximately 8 hours.
- When battery power is low, a slow beeping sound will be observed. **Note:** the low-battery indication is audio only.

Battery
Transfer
Switch

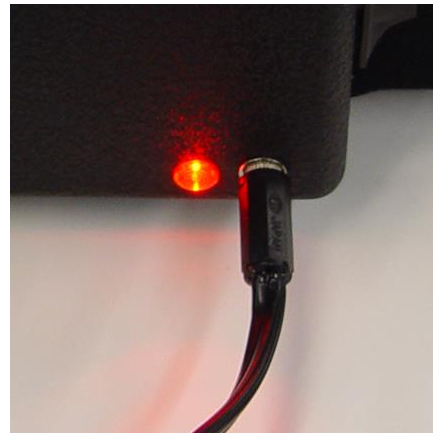


Model 850 Operation

Charging the Battery

To charge your Model 850:

- Turn unit **OFF** and insert charger plug into the **Battery Charging Jack** on the side of the unit.
- Plug the charger/adaptor into power source/outlet. **Battery Charging Indicator Light** will glow **Red** while the unit is charging.
- **NOTE:** Both battery banks charge simultaneously.



Model 850 Maintenance

Battery Maintenance



- For optimum performance from your Model 850, the following procedures are recommended:
- Be certain the Model 850 is used a minimum of ten (10) hours per month, preferable several hours each week. If the unit is used less than ten hours, the following procedure should be observed to maintain peak performance.
- Turn the unit **ON** and let the batteries completely discharge.
- When battery power is low, a slow beeping sound will be observed. Let the batteries fully discharge before turning the unit **OFF** and recharging the batteries.
NOTE: the low-battery indication is audio only.
- This procedure conditions the battery for maximum power and also re-sensitizes the sensor by removing any absorbed gases that may have absorbed into the sensor.

Model 850 Maintenance

Sensor Maintenance



- Avoid getting debris or foreign material in the sensor.
- If the sensor becomes contaminated, let the unit warm up and then lightly tap the sensor over a white piece of paper and observe if any material is dislodged.
- The white paper will readily show any foreign debris that may have been lodged in the sensor.
- If the sensor should accidentally become submerged in liquid, let the sensor dry out for 24 hours. Turn unit **ON** for 8 hours until the batteries are exhausted.
- Charge the batteries and repeat above procedure.
- Spare sensors are available from the factory if replacement becomes necessary.

Model 850 Maintenance

Replacement of Sensor

- Remove sensor guard screen.
- Remove damaged or malfunctioning sensor from the socket located at the end of the telescoping probe.
- Use a small screwdriver to carefully and incrementally loosen the sensor from the socket.
- Once it is loose, pull the sensor out of the sensor housing.



Model 850 Maintenance

Replacement of Sensor

- Plug in new replacement sensor by carefully aligning the sensor pins into the socket.



Model 850 Maintenance

Replacement of Sensor

- Gently and firmly press the replacement sensor into the socket until it is secure.
- Allow for required warm-up period (approximately three (3) minutes) before use.



Model 850

Warranty Information

Grace Industries, Inc. warrants Grace Industries, Inc. portable hydrocarbon detector Model 850 to be free from defects in workmanship and materials for a period of one year from the date of purchase. Grace Industries, Inc. will not repair or replace any merchandise under warranty which has been damaged because of accident, misuse or abuse while in possession or control of the consumer. This warranty is void if any attempt to repair or replace parts was made or attempted by other than qualified Grace Industries, Inc. personnel. This warranty is void if any of the sealed compartments are opened or tampered with. Send all returned merchandise, prepaid to: Grace Industries, Inc., Repair Division, 305 Bend Hill Road, Fredonia, PA 16124 USA. Grace Industries, Inc. shall not be liable for any direct, incidental or other consequential loss or damage arising out of the failure of the product to operate.

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