

In order to provide operational and service assistance to the end user of this instrument, these instructions must accompany the instrument to its final installation.

INSTRUCTIONS

Non-Indicating High Temperature Limit Devices MODELS OHL63X & OH63X



Models OHL63X and OH63X are non-indicating high-temperature limit devices with element failure protection. The Model OHL63X is the factory-set version and carries FM and UL approval — the FM and UL emblems appearing on its rating plate. The Model OH63X instrument is for field setting and carries FM and UL component approval. Since UL component approval cannot apply until after instrument is installed and set in the field, the Model OH63X rating plate carries only the FM emblem.

INSTALLATION

LOCATION

1. The element head assembly is subject to ambient temperature limitations of $-30^{\circ}\text{F. to } 125^{\circ}\text{F.}$ ($-35^{\circ}\text{C. to } 52^{\circ}\text{C.}$) for 112 and 217 range elements, and $+32^{\circ}\text{F. to } 150^{\circ}\text{F.}$ ($0^{\circ}\text{C. to } 66^{\circ}\text{C.}$) for all other ranges. These temperature limitations must be considered when locating instruments.
2. Locate the device where it will be as free from vibration as possible.

MOUNTING

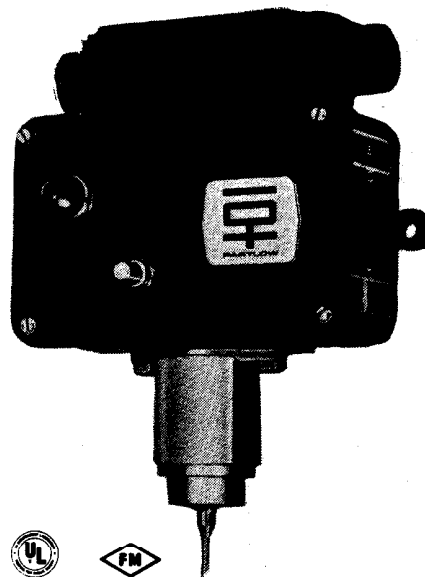
1. Surface mount through ears on body using $\frac{1}{4}$ " screws.

ELEMENT INSTALLATION

1. Position the instrument's thermal sensing bulb adjacent to the sensing bulb of the primary controller. Both sensors should be located in the most agitated part of the controlled medium.
2. Completely immerse sensing bulb in medium (when U or Y-type bulb, note separation coupling between bulb and capillary).

SPECIFICATIONS

DIMENSIONS	$5\frac{1}{16}$ " W x 5" H x $2\frac{1}{4}$ " D
MOUNTING	Wall-mounting ears on body for $\frac{1}{4}$ " screws
SWITCH TYPES	Manual reset: Partlow No. 63, 2-wire, N.C., trip-free Element failure: Partlow No. 57, 3-wire, SPDT
ELECTRICAL HOOKUP	Pigtails brought out through outlet conduit box
ELECTRICAL RATING	125 or 250 V, AC only, 250 VA pilot duty
CONDUIT OPENINGS	Threaded $\frac{1}{2}$ -NPT inlet and outlet
INSTRUMENT ACCURACY	1% of element range



3. Do not bend capillary to less than $\frac{1}{2}$ " radius and never bend too close to element bulb or element head (two finger-widths distant).
4. Anchor excess capillary securely to prevent vibration damage.
5. If bulb is to be subjected to corrosive or scouring conditions, it should be protected by a thermal well, separable socket, or other protective material.
6. Bulbs may be elevated up to 40 feet above the instrument without affecting calibration. For elevations over 40 feet, consult factory.

STUFFING BOX INSTALLATION (if applicable)

Overtightening of 21-T-105 steel or stainless steel stuffing boxes can damage the thermal element by restricting the

Dynapar, Veeder Root, and Eagle Signal Brands:

Sales, Repair, and Application Support:
1675 Delany Rd.
Gurnee, IL. 60031
847-662-4150 Sales/Order Entry Fax
847-782-5277 Applications Support Fax
800-873-8731 Sales/Order Entry
800-234-8731 Applications Support

NorthStar Brand:

Sales, Repair, and Application Support:
1675 Delany Rd.
Gurnee, IL. 60031
847-782-5288 Sales/Order Entry Fax
847-782-5277 Applications Support Fax
800-326-6216 Sales/Order Entry
800-326-6216 Applications Support

Partlow, West, Rustrak, and LFE Brands:

Sales, Repair, and Application Support:
1675 Delany Rd.
Gurnee, IL. 60031
847-662-4150 Sales/Order Entry Fax
847-782-5277 Applications Support Fax
800-873-8731 Sales/Order Entry
800-866-6659 Applications Support

Please disregard all phone numbers and addresses in this manual. The phone numbers and address on this page are the correct phone number and addresses to use for sales, repair, and application support.

capillary bore. To prevent damage, the stuffing box gland nut should be turned $\frac{1}{2}$ to $\frac{3}{4}$ of a revolution from a finger-tight position. This is equivalent to a torque of 65 to 100 inch-pounds for steel and 130 to 180 inch-pounds for stainless steel.

WIRING

Check applicable local electrical codes, ordinances and regulations regarding use of conduit, etc. **If acceptable, make connections using short section of flexible cable or conduit.**

Switch wires are brought out through conduit box outlet as pigtails. See Wiring Diagram below and make the necessary electrical connections.

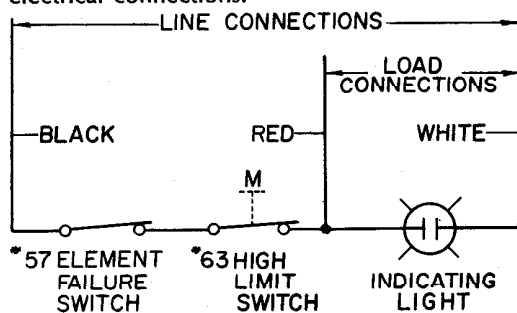


Diagram illustrates condition of switches when temperature is below setting of high-limit switch and above setting of element-failure switch.

PRE-START-UP

The factory-set Model OHL63X should be checked against a test thermometer of known accuracy before being put into service. The unset version, Model OH63X, must be field set before being placed in operation. For switch checking and setting procedures, see MAINTENANCE section.

OPERATION

The Model OHL63X is factory-set at the desired high-limit and element failure temperatures, and the high-limit switch adjusting screw factory-sealed to prevent unauthorized field setting. Model OH63X, the unset version, must be set and setting adjustment sealed in the field at time of installation. To further guard against unauthorized tampering, both instruments are equipped with two capstan cover screws through which a wire may be threaded and secured with a lead seal.

The instrument's high-limit switch should always be set at a safe temperature above the primary controller setting. The element failure switch, connected in series with the high-limit switch, is set at some point below normal ambient temperature (normally 50°F.).

In the event the primary temperature controller setting is exceeded, the high-limit switch in the limit device will actuate when its setting is reached—shutting down equipment, energizing alarms, etc. The amber signal light, which remains on during normal operation, is de-energized the instant either switch is actuated.

When process temperature has returned to a point below the high-limit setting (and any problem corrected) the high-limit switch can be reset by pressing the switch reset button on the instrument cover.

The element-failure switch will prevent appliance start-up whenever:

1. The ambient temperature is lower than the setting of the element-failure switch.
2. The instrument's thermal element has lost some of its mercury-fill.

MAINTENANCE

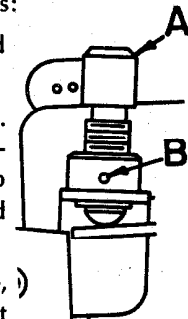
TO CHECK SETTING OF HIGH-LIMIT SWITCH (MODEL OHL63X):

1. Use test thermometer of known accuracy.
2. Position test thermometer sensing bulb or probe adjacent to the Model OHL63X sensing bulb.
3. Equipment should be operating and cover-mounted amber signal light should be on. If equipment will not start and signal light is off, reset switch by pressing manual reset button on cover.
4. The high-limit switch setting is stamped on rating plate at side of instrument case. This is the setting to be checked—the switch should actuate when this temperature is reached.
5. Run process temperature up through high-limit setting and, observing test thermometer, note at what temperature the switch actuates (amber signal light goes out). The switch should actuate just as switch set point temperature is reached.
6. After switch actuation has taken place and the process temperature has returned to a point below switch setting, the setting may be rechecked by pressing switch reset button on cover and repeating Step 5.
7. Although unlikely, if it is found that temperature at which switch actuates (light goes out) differs from switch setting (shown on instrument rating plate) by more than 1% of element range, the switch should be reset (see Resetting High-Limit Switch below).

RESETTING HIGH-LIMIT SWITCH (MODEL OHL63X)

If, after following the above switch-checking procedure, resetting is necessary, proceed as follows:

1. Withdraw the four cover screws and remove instrument cover.
2. Note the instrument's two switches. The larger of the two switches (left-hand) is the high-limit switch. Also note high-limit adjusting screw A and its sealed Allen-head set screw B.
3. Before any adjustment can be made, set screw B must be cleared of sealant



(use No. 53 drill, then scribe or pointed tool) to accommodate a 1/16" hex wrench.

4. Run process temperature up to the high-limit setting (note test thermometer). If the switch actuates (amber signal light goes off) before high-limit temperature is reached, loosen set screw B and turn adjusting screw A clockwise a few turns. This will raise switch actuation point and will prevent further premature actuation. After this adjustment, press reset point C to reset switch and turn signal light on.
5. Bring process temperature to the desired high-limit setting (note test thermometer) and allow it to stabilize at this point; then slowly turn adjusting screw A counterclockwise until switch actuates (signal light goes off).
6. Lower process temperature and reset switch by pressing reset point C.
7. Check new switch setting by again running up process temperature and noting at what test thermometer reading the switch actuates (signal light goes off). A few fine screw A adjustments may be necessary to zero-in setting—amber light should go out just as test thermometer reading reaches the desired high-limit temperature.
8. After final adjustment has been made, tighten set screw B.
9. To meet Underwriters Laboratory requirements, the Allen-head set screw B must be re-sealed to prevent unauthorized changing of switch set point. Seal using G.E. Glyptol, Duco cement, or equivalent.

TO SET MODEL OH63X HIGH-LIMIT SWITCH:

The high-limit switch in the Model OH63X must be set, and setting adjustment sealed, at time of installation. Procedure for setting Model OH63X high-limit switch is the same as for the OHL63X model, i.e. set screw B is loosened and switch adjusting screw A turned until switch actuates at the desired setting (see resetting procedure for Model OHL63X high-limit switch). **Note**—In order to comply with Underwriters Laboratories component recognition requirements, be sure to seal set screw B after completing adjustments.

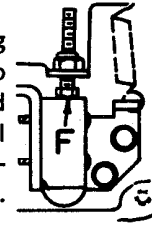
TO CHECK OR SET ELEMENT-FAILURE SWITCH (RIGHT-HAND SWITCH):

The element-failure switch operates in reverse to the high-limit switch, i.e. its switch pin is held depressed when bulb temperature is below the setting of the switch. The switch should always be set at some point below normal ambient temperature. Unless otherwise specified on order, the switch is factory-set to actuate at 50°F. on a temperature drop.

1. Position test thermometer sensing bulb or probe adjacent to the Partlow thermal sensing bulb.
2. Switch adjustment is accomplished by turning adjusting screw F. Turning screw F to the **right** (clockwise) **lowers**

actuation point of switch; turning screw F **counterclockwise** (left) **raises** switch actuation point.

3. Using testing bath and ice cubes, bring bulb temperature down to 50°F. (or to factory-set temperature specified) and stabilize. Switch should actuate (signal light should go out) just as test thermometer reaches the desired set temperature.
4. If switch does not actuate when set temperature is reached, turn adjusting screw F slowly counterclockwise (left) until switch does actuate. Conversely, if switch actuates before reaching its setting, turn screw F clockwise (right) until switch de-actuates—then slowly back counterclockwise until actuation occurs (signal light goes out).
5. To recheck switch setting, remove instrument sensing bulb from test bath (simulating a rise in bath temperature); then re-immerses bulb and note at what test thermometer reading actuation occurs.



SWITCH REPLACEMENT

High-Limit Switch (Left-Hand)

1. Turn off power; remove instrument's front cover.
2. Remove the two switch holding-screws E (see Dimensional Drawing).
3. Take out switch and remove wires. Reattach wires to **identical** terminals of new switch, and reassemble back in case.
4. Switch replacement may slightly alter switch actuation point. Check setting of new switch according to instructions.
5. Replace instrument cover; restore power.

Element-Failure Switch (Right-Hand)

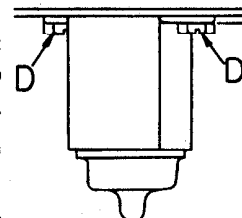
1. Turn off power; remove instrument cover.
2. Remove the two screws holding switch bracket to back of case.
3. Unhook spring from bracket and pull switch assembly out of case.
4. Remove screws (2) holding switch to bracket, take switch out of insulator, and remove wires.
5. Reattach wires to **identical** terminals of new switch and reassemble switch, insulator and bracket back in case. Reattach spring.
6. Switch replacement may slightly alter switch actuation point. Check setting of switch according to instructions.
7. Replace instrument cover and restore power.

ELEMENT REPLACEMENT

To change a thermostatic element:

1. Withdraw screws D and drop element from instrument body.
2. Install new element and tighten screws D.

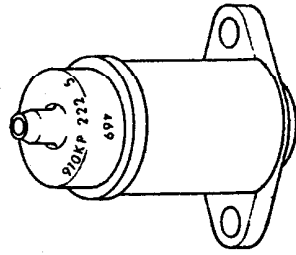
Note—After element replacement,



switch settings should be checked. See MAINTENANCE section.

ELEMENT IDENTIFICATION

An element designation number is stamped on the **bottom** of the element head. This is a coded description of element specifications and should be used whenever a replacement element is ordered. The last digit (or digits) of the designation number indicates the

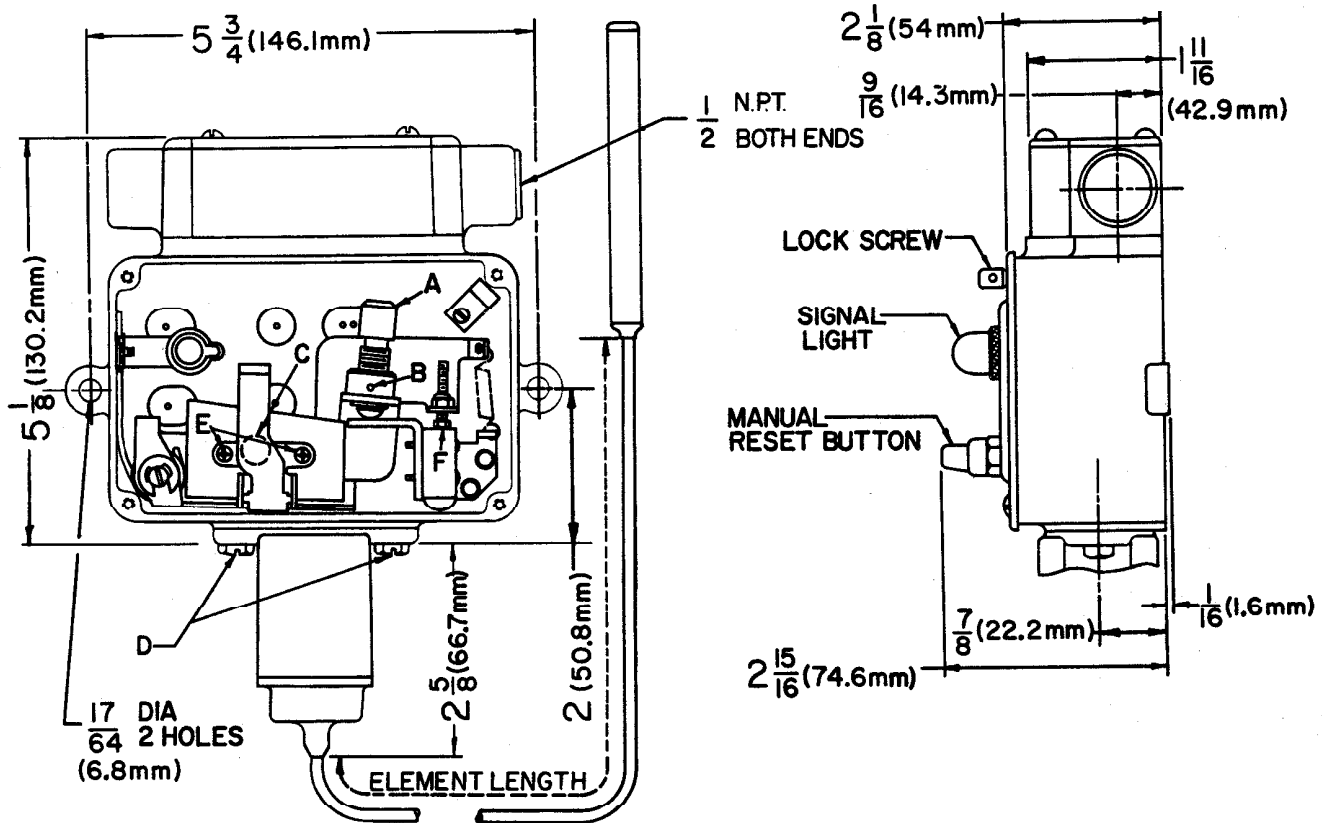


length of the element in feet. The number appearing on the **side** of the element head is the element age code, which may be required in establishing warranty.

CAUTION

The inside mechanisms, particularly the inside of the element housing, should never be oiled. However, if the instrument interior is subject to corrosion or gunking conditions, the mechanical linkage should be sprayed periodically with corrosion-inhibiting **CRC3-36**. Use **only CRC3-36**, as other lubricants may cause buildup and sticking of internal parts.

DIMENSIONS

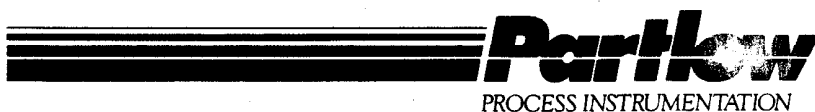


These products are sold by The Partlow Corporation ("Partlow") under the warranties set forth in the following paragraph. Such warranties are extended only with respect to a purchase of these products, as new merchandise, directly from Partlow or from a Partlow distributor, representative or reseller, and are extended only to the first buyer thereof who purchases them other than for the purpose of resale.

These products are warranted to be free from functional defects in materials and workmanship at the time the products leave the Partlow factory, and to conform at that same time to the specifications set forth in the relevant Partlow instruction sheet (or sheets) for such products.

Partlow's sole and exclusive obligation and buyer's sole and exclusive remedy under the above warranties is limited to repairing or replacing, at Partlow's option, free of charge, the products which are reported in writing to Partlow at its main office - The Partlow Corporation, Campion Road, New Hartford, New York 13413 - and which, if so advised by Partlow, are returned with a statement of the observed deficiency to the designated facility during normal business hours, transportation charges prepaid, and which upon examination by Partlow are found not to comply with the above warranties. **PARTLOW SHALL NOT BE LIABLE FOR ANY INCIDENTAL DAMAGES, CONSEQUENTIAL DAMAGES, SPECIAL DAMAGES, OR ANY OTHER DAMAGES, COSTS OR EXPENSES, EXCEPTING ONLY THE COST OR EXPENSE OF REPAIR OR REPLACEMENT AS ABOVE DESCRIBED.**

THERE ARE NO EXPRESSED OR IMPLIED WARRANTIES WHICH EXTEND BEYOND THE WARRANTIES HEREINABOVE SET FORTH. PARTLOW MAKES NO WARRANTY OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE PRODUCTS.



The Partlow Corporation
Two Campion Road
New Hartford, NY 13413
315-797-2222
Telex 937428

MADE IN U.S.A.

REVISED 12-81
REPRINTED 7-85 250