Before You Begin
Remove the cap from the bottom of the tester to expose the electrode bulb and reference junction. DO NOT BE ALARMED if white crystals are present on the cap or electrode assembly. This is normal and will dissolve during the conditioning presoak. For the conditioning presoak, pour a small amount (about 1” deep) of electrode storage solution, pH 4 buffer or tap water into a small cup and soak the electrode for at least 30 minutes. If the electrode dries out between uses, re-condition by using this soaking procedure.

Calibration
Calibration is necessary and should be done regularly, typically every day that the tester is used. Some applications will need less frequent calibrations but this can only be determined by trial and error. Model PH2 can be calibrated at 1-, 2-, or 3-points with 4.0 pH, 7.0 pH or 10.0 pH buffers.

Calibration Instructions
1. Turn the tester on by pressing the ON/OFF button.
2. Dip 1/2 to 1” of the electrode into a pH 7.0 buffer.
3. Press the CAL button to enter the Calibrate (CA) mode. A ‘CA’ will flash on the display and then a pH value close to the pH buffer value will flash repeatedly.
4. After at least 30 seconds (about 30 flashes) press the HOLD/CON button to confirm the calibration. The display will show ‘CON’ and switch back to a pH reading of the pH 7.0 buffer.
Rinse the electrode with de-ionized water or tap water. No further calibration is needed if all measurements are expected.

PHYSICAL DATA
Range: -1.0 to 15.00 pH.
Resolution: 0.1 pH.
Accuracy: ±0.1 pH
Calibration: 1, 2 or 3-point @ 4.0, 7.0 or 10.0 pH.
Reference Type: Ag/AgCl.
Operating Temperature: 32 to 122°F (0 to 50°C).
Automatic Temperature Compensation: 32 to 122°F (0 to 50°C).
Power: Three 1.5V alkaline batteries (included).
Battery Life: 40 hrs continuous use.
Weight: 3.25 oz (90 g).
Housing: Valox®
Display: 2½ -digit, 5/16” High LCD.
to be between pH 6 and 8 for general purpose use. Repeat the calibration using pH 4.0 buffer if readings below pH 6 are expected, and repeat the calibration using pH 10.0 buffer if readings above pH 9 are expected. Perform three calibrations for maximum accuracy throughout the entire range.

Error Messages
ER 1 means the batteries are low and should be replaced.
ER 2 means the wrong buffer value has been selected for calibration or the electrode is contaminated.
OR means the signal is out of range, possibly from a voltage applied to the solutions.

Possible Problems with Calibrations
The most common problem is failing to press the HOLD/CON button to confirm and exit calibration. Pressing the CAL button instead will stop the flashing and resume measuring mode but will not enter the calibration; the meter will not show the buffer value or measure accurately.

Another problem is failing to allow the tester to sample the pH buffer for at least 30 seconds prior to pressing the HOLD/CON button confirming the calibration. If the tester does not get a long enough exposure to the buffer, a stable calibration point will not be reached and small errors can occur.

The last common problem is failure to re-hydrate the electrode after it has dried out and before attempting a calibration. A dry electrode will give fluctuating readings while it re-hydrates in a buffer, causing errors.

pH Testing
1. Remove cap from the electrode assembly and press the ON/OFF button to turn the tester on.
2. Dip the electrode a 1/2 to 1” into the test solution. Stir once and let the reading stabilize.
3. Note the pH or press HOLD/CON button to freeze the reading. Press HOLD/CON again to release the reading.
4. Press ON/OFF to turn off tester. If you do not press a button for 8.5 minutes the tester will automatically shut off to conserve batteries.

Maintenance
Rinse the electrode with tap water after each measurement to extend its useful life. In aggressive chemicals, dirty or viscous solutions, and solutions with heavy metals or proteins, take readings quickly and rinse electrode immediately in de-ionized water afterward. Periodic soaks in warm pH 4 buffer or 4M KCl will help remove any contaminants that may ruin electrodes. If possible keep a small piece of paper or sponge in the electrode cap — moistened with clean water or electrode storage solution 4M KCl (NOT DE-IONIZED WATER) — and close the cap over the electrode.

The useful life of a tester is entirely dependent on the care the electrode and meter get. But it must be expected that in applications where the electrode is exposed to material that contaminate the electrode reference junction, electrode life will be shortened. This is not a defect in the electrode but a NORMAL EVENT.

Changing the batteries
Flip up the battery compartment lid. Remove old batteries and replace with fresh ones noting polarity as shown in the battery compartment.