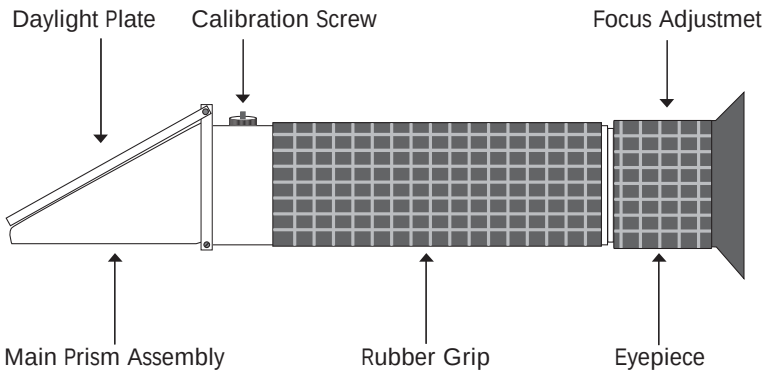
MARINE DEPOT REFRACTOMETER

Operation Manual

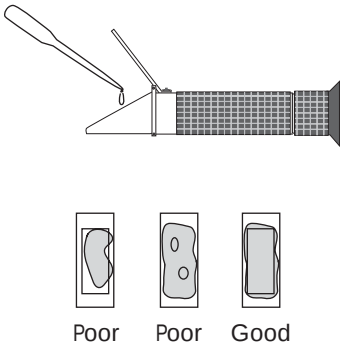
Hand Held Salinity Refractometer w/ Automatic Temperature Compensation

Ranges Measured: 0–100 ppt and 1.000 to 1.070 specific gravity
Minimum Division: 1 ppt, 0.001 specific gravity
Accuracy: 1 division

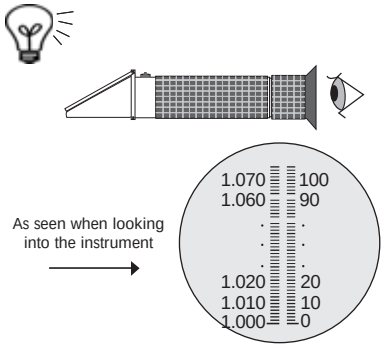
Parts Diagram



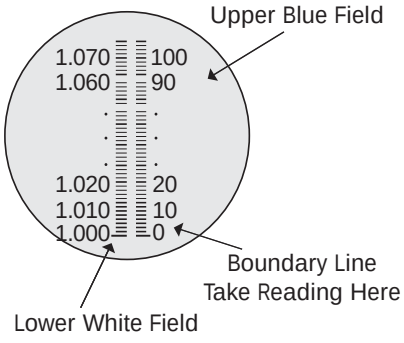
Calibration Procedure



1) Open daylight plate, and place 2–3 drops of distilled water on the main prism. Close the daylight plate so the water spreads across the entire surface of the prism without air bubbles or dry spots. Allow the sample to rest on the prism for approximately 30 seconds before going to step #2. (This allows the sample to adjust to the ambient temperature of the refractometer)

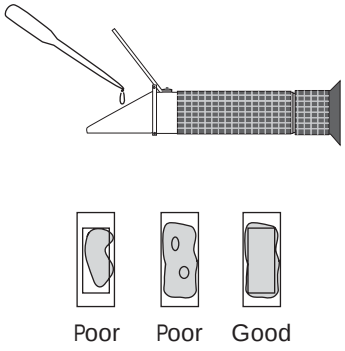


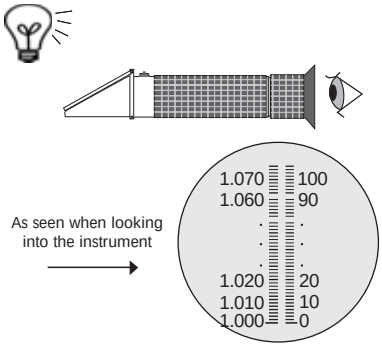
2) Hold daylight plate in the direction of a light source and look into the eyepiece. You will see a circular field with graduations down the center (you may have to focus the eyepiece to clearly see the graduations). The upper portion of the field should be blue, while the lower portion should be white.

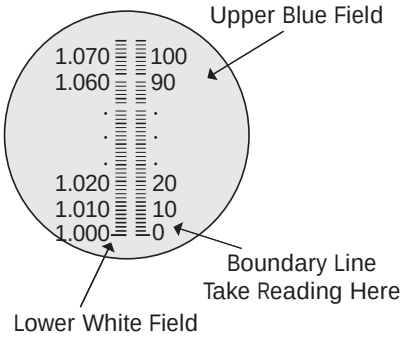


3) Because this instrument is equipped with Automatic Temperature Compensation, the ambient working temperature of the room must be 20°C (68°F) whenever the instrument is recalibrated. Once calibrated, shifts in ambient temperature within the acceptable range, should not effect accuracy (10–30°C). Using distilled water as a sample, look into the eyepiece and turn the Calibration Screw until the boundary between the upper blue field and the lower white field meet exactly on the 0.0 ppt (or 1.000 spec. grav.).

Basic Operation







1) Operation is done in essentially the same manner as calibration. Open daylight plate, and place 2–3 drops of the liquid sample on the main prism. Close the daylight plate so the sample spreads evenly across the entire surface of the prism without air bubbles or dry spots. Allow the sample to rest on the prism for approximately 20 seconds before going to step #2. (This allows the sample to adjust to the ambient temperature of the refractometer)

2) Hold daylight plate in the direction of a light source and look into the eyepiece. You will see a circular field with graduations down the center (you may have to focus the eyepiece to clearly see the graduations). The upper portion of the field should be blue, while the lower portion should be white.

3) Take the reading where the boundary line of blue and white cross the graduated scale. The scale will provide a direct reading of the concentration and specific gravity of salt (NaCl) in water. Clean the prism carefully using a damp soft cloth. Do NOT immerse in water. Read warnings below carefully before use. Recalibrate occasionally to maintain accuracy.

Warnings - Maintenance

1) Accurate measurement depends on careful calibration. Follow the instructions above closely. Note: Shifts in ambient room temperature will necessitate recalibration and the sample must be allowed ample time to adjust to the temperature of the prism prior to measurement. The prism and sample MUST be at the same temperature for accurate results.
2) Do not expose the instrument to damp working conditions, and do not immerse the instrument in water. If the instrument becomes foggy, water has entered the body. Call a qualified service technician or contact your dealer.
3) Clean the instrument between each measurement using a soft, damp cloth. Failure to clean the prism on a regular basis will lead to inaccurate results and damage to the prism's coating.
4) Do NOT measure abrasive or corrosive chemicals with this instrument. They can damage the prism's coating.
5) This is an optical instrument. It requires careful handling and storage. Failure to do so can result in damage to the optical components and its basic structure. With care, this instrument will provide years of reliable service.