

# MULTIFUNCTION REFRACTOMETER

Item Number W80158

## OWNER'S MANUAL



Performance Tool®

### 1 YEAR LIMITED WARRANTY

PERFORMANCE TOOL® extends only the following warranties, and only to original retail purchasers. These warranties give specific legal rights. Except where prohibited by local law, the law of the State of Washington governs all warranties and all exclusions and limitations of warranties and remedies. There may be other rights which vary from state to state.

PERFORMANCE TOOL® warrants the product to be free from defects in materials and workmanship under normal use and service. A defective product may be returned for a free replacement within 90 days from the date of purchase, provided that product is returned to place of purchase immediately after discovery of defect. After 90 days and up to one year from date of purchase, PERFORMANCE TOOL® will replace at no charge any parts which our examination shall disclose to be defective and under warranty. These warranties shall be valid only when a sales receipt showing the date of purchase accompanies the defective product or defective part(s) being returned. For part(s) after 90 days, please remit your request, postage prepaid to:

PERFORMANCE TOOL, P.O. Box 88259 Tukwila, WA 98138

These warranties exclude blades, bits, punches, dies, bulbs, fuses, hoses, and other consumables which must be replaced under normal use and service. These warranties shall not apply to any product or part which is used for a purpose for which it is not designed, or which has been repaired or altered in any way so as to affect adversely its performance or reliability, nor shall these warranties apply to any product or part which has been subject to misuse, neglect, accident or wear and tear incident to normal use and service.

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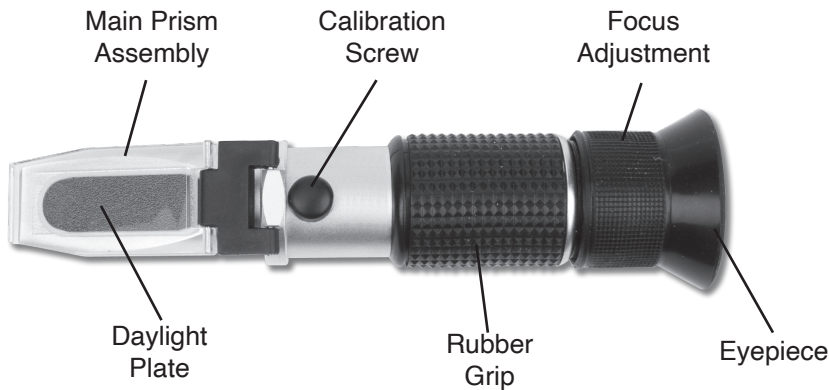
**▲WARNING: READ, UNDERSTAND AND FOLLOW ALL INSTRUCTIONS AND WARNINGS BEFORE OPERATING THIS TOOL. FAILURE TO DO SO MAY RESULT IN PERSONAL INJURY AND/OR PROPERTY DAMAGE AND WILL VOID WARRANTY.**

**PT**  
Performance Tool

## FEATURES

- Refractometers is a field device for the measurement of an index of refraction.
- Used to calculate the composition of various automobile fluids.
- Measures DEF, ethylene glycol, propylene glycol, battery fluid, and cleaning fluids.
- Precision instrument features high-quality optics with ultra-smooth focusing
- ATC - Automatic Temperature Compensation
- Heavy duty lightweight aluminum construction, includes a protective storage case.

## PARTS DIAGRAM



## WARNINGS & MAINTENANCE

1. Accurate measurement depends on careful calibration. 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. Do not measure abrasive or corrosive chemicals with this instrument. They can damage the prism's coating.
4. 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.
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.

## OPERATION

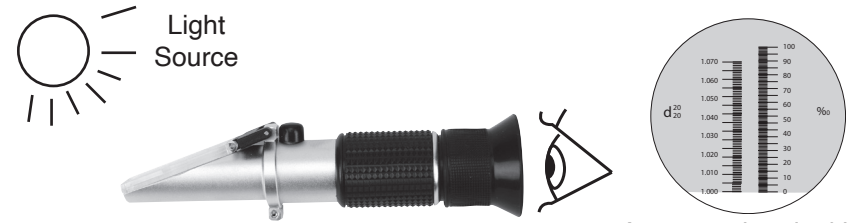
### Step 1

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 temperature adjust 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).



### Step 2

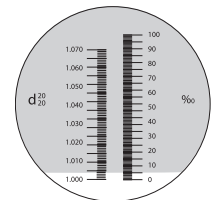
Hold daylight plate in the direction of a light source and look into the eyepiece. You will see a circular field with graduations down the center (you may have to focus the eyepiece to clearly see the graduations). The upper portion of the field should be blue, while the lower portion should be white. (The pictures shown here and shown in step 3 & step 4 are only as reference the right specific scale is listed the product.)



As seen when looking into the instrument

### Step 3

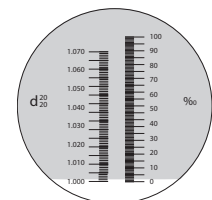
Look into the eyepiece and turn the Calibration Screw until the boundary between the upper blue field and the lower white field meet exactly on the zero scale, such as shown in the image. That is the end of the calibration process. Make sure the ambient room temperature is correct for the solution you are using (20° C/ 68° F). When working temperature of the room or environment (not the sample) changes by more than 5 F, we recommend recalibrating to maintain accuracy. If the instrument is equipped with Automatic Temperature Compensation system, 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 (10° C- 30° F) should not affect accuracy.



Calibrate to "0"

### Step 4

Now place a few drops of the sample to be tested onto the main prism, close the daylight plate and check reading. 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.



Reading of Sample