



## OPERATING INSTRUCTIONS UW-115 AND UW-12 UNDERWATER CONTOUR PROBES

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The UW-115 and UW-12 underwater Contour Probes are rugged high performance Magnetic Yokes designed for underwater Magnetic Particle inspection, in compliance with applicable specifications.

**DESCRIPTION:** The Parker underwater Contour Probes are electromagnets capable of inducing a strong magnetic field in ferromagnetic materials for the purpose of performing Magnetic Particle Inspections. The UW-115 produces an A.C. magnetic field from a GFI protected 115 VAC power source. The UW-12 produces a D.C. magnetic field from a 12V battery or 12 VDC power supply.



Figure 1: UW-12 / UW-115

The flexibility of the articulating legs provides for maximum surface contact and allows application of the magnetic field to the precise area of inspection. The leg assemblies may be removed for cleaning and lubrication or replacement.

The Contour Probe body is molded from high impact glass filled Nylon® and is internally encapsulated with polyurethane. The leg joint exiting through the body is sealed between the laminates to prevent water migration.

The UW-115 or UW-12 is provided with a four foot Neoprene, #16, 3-conductor “Pig Tail”. This Pig Tail/cord is to be used in conjunction with the users approved underwater connector or spliced to a #16, 3-conductor underwater cable.

The UW-115 and UW-12 have an IP68 rating.

**WARNING:** The UW-115 Underwater Contour Probe must be operated from a Grounded, 115VAC, 4 amps, 60 Hz power source. The power source must be protected with a Ground Fault Interrupter (GFI) device. Failure to do so may result in electrical shock hazard.

### **OPERATION UW-115:**

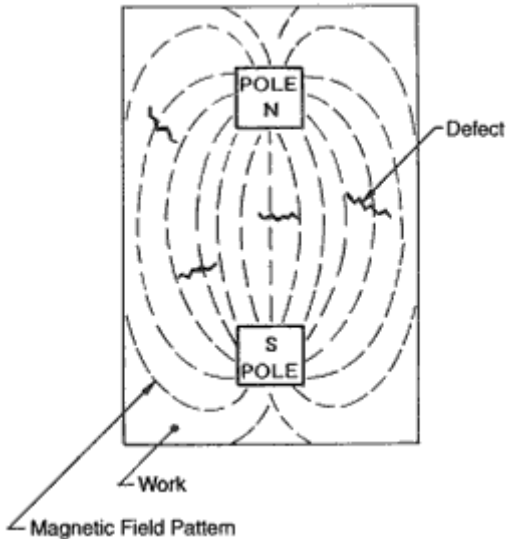
Power supplied to the units must be controlled by “top side” switching or by an approved underwater switching device provided in line with the power cable. No switch is provided on the UW-115. Duty cycle is 100%. A check should be made to determine that adequate field strength is maintained due to voltage/current drop through the supply cable.

**OPERATION UW-12:** The UW-12 underwater Contour Probe is designed to operate from a 12V portable battery or from a 12VDC, 2.5 amp power supply. The D.C. power supply should have (primary) A.C. circuit isolation protection to preclude any electrical hazard. Power supplied to the unit must be controlled by “top side” switching or by an approved underwater switching device provided in line with the power cable. No switch is provided on the UW-12. Duty cycle is 100%. Checks should be made to determine that adequate field strength is maintained due to voltage/current drop through the supply cable.

**GENERAL OPERATION:** Typically the strongest magnetic field and therefore the most sensitive test result is achieved by placing the Contour Probe on the test specimen with both leg “feet”

squarely in contact with the test surface. The ferromagnetic structure or part being inspected acts as the pathway for the completion of the magnetic flux between the two poles (legs).

Defect Indications will be best produced at right angles (up to 45 degrees) to the magnetic path. See **Figure 2**. The magnetic particles are applied while the Contour Probe is energized and should remain energized for a two or three second dwell time to allow particles to migrate and attract to the defect. If defects are suspected in the opposite direction of the first test, the Probe should be turned 90 degrees and the test procedure repeated.



**Figure 2**

The A.C. magnetic field produced by the UW-115 offers the optimum test results for surface breaking defects due to the “skin” effect of the A.C. field. The D.C. magnetic field produced by the UW-12 is adequate for most inspection applications and offers greater convenience and safety factor.

The UW-115 and UW-12 should be thoroughly rinsed in fresh water and the leg joints lubricated after each use. The entire leg assembly may be replaced in the event of corrosion.

**LIMITED WARRANTY:** The UW-115 and UW-12 Contour Probes are warranted against defective material and workmanship for a period of ninety (90) days from the date of purchase.

In the event service is required, the Contour Probe must be returned to the factory prepaid. The obligation of Parker Research Corporation is limited to the repair or replacement of the defective unit. No other obligation is expressed or implied. Parker Research Corporation assumes no liability arising from the use of this equipment.

**CAUTION:** Proper training of operating personnel to required inspection techniques, specifications and safety requirements is necessary for the safe use of this equipment and is the obligation of the user.

