



—OPERATING INSTRUCTIONS—
MODEL B-100 and B-100S SERIES
CONTOUR PROBES

BULLETIN 245-3
FEB 2009

PARKER RESEARCH CORP.

NONDESTRUCTIVE TEST METHODS, SYSTEMS, INSTRUMENTS
 BOX 1406, DUNEDIN, FLORIDA, U.S.A. 34697
 PHONE: (727)796-4066 FAX: (727)797-3941

The B100 Contour Probe is a rugged high performance instrument for Magnetic Particle inspection to accepted Nondestructive testing standards. Certain operating procedures and safety precautions should be observed.

ELECTRICAL: The B100 is designed to operate from a standard 115VAC, 60Hz, 1P, grounded power source. The model B100S is designed to operate from a 230VAC, 50Hz, 1P, grounded power source. Both instruments may be operated from the optional DC300 or DC300S power supply.

The instrument should be wiped clean with a general purpose cleaner after each use.

The B100S model is sold without an electrical power plug. Only approved plugs should be used and installed by certified personnel.

 **Duty Cycle:** Two Minutes “On”, Two Minutes “Off”.

Operating Environment: Temperature: 32° to 104°F (0° to 40°C). Relative humidity: 10% to 95%, non-condensing.

Shipping and Storage Environment: Temperature: -40° to 140°F (-40° to 60°C). Relative humidity: 5% to 95%. Vibration and shock: As encountered in normal shipping and handling with no degradation.

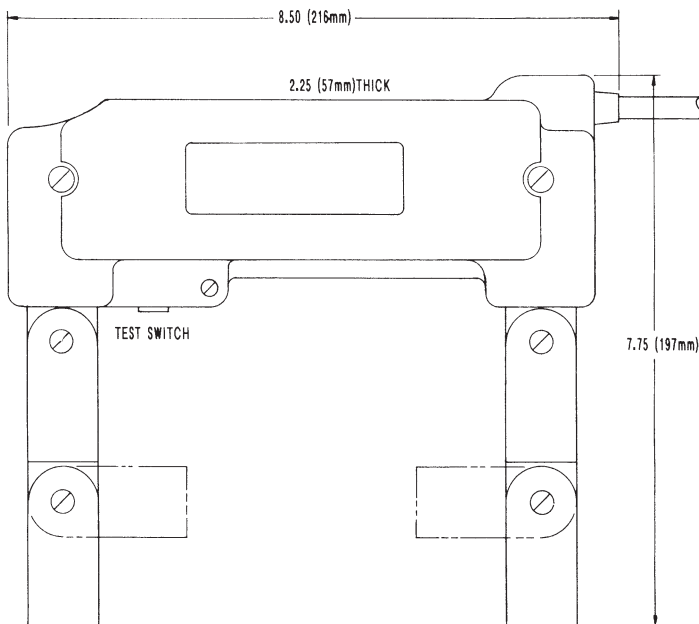


FIG. 1

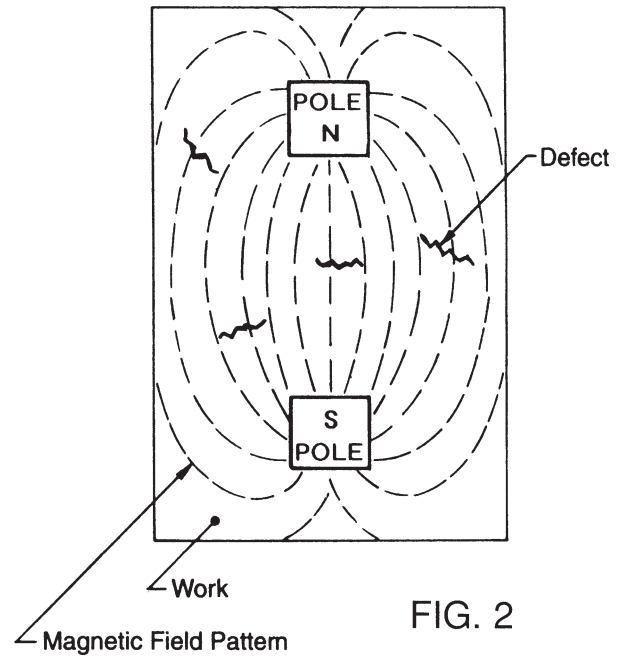


FIG. 2

INSTRUMENT DESCRIPTION: Basically the B100 Contour Probe is an electromagnet producing a strong AC magnetic field. Placement of the two poles (legs) upon ferrous materials merely provides a path for the intense magnetic field to pass from one pole to the other. The part completes the flux path and becomes highly magnetized.

In overall design and performance, the Contour Probe comprises a coil wound on a laminated steel leg assembly contained within the rugged molded housing. Flexibility of the legs allows the field to actually be “focused” at the precise area of inspection.

OPERATION: Plug the B100 Contour Probe into a Grounded power source. Place the Probe legs upon the work surface with the suspected defect at right angles to the legs. Push the test switch and lightly dust or float inspection powder over the area being inspected. Defect indications will be revealed in a direction shown on figure 2. Turn the Probe 90 degrees from the first test and repeat the procedure. Test switch should be released after powder application. However, if excess powder is to be lightly blown away, as is the procedure to reveal minute indications, the Probe should remain energized while this procedure is performed.

DEMAGNETIZATION: Small pieces which have become residually magnetized, may be easily demagnetized by the following procedure. Energize the Probe and pass small parts through the area between the pole ends “feet” and withdraw to a distance of about two feet. On large pieces, place the Probe in the same position as inspection, energize and lift from the work surface to a distance of about two feet. This procedure may need to be repeated more than once to remove the residual field.

USE OF AC AND DC FIELDS: The following is a brief outline of the advantages and limitations of the two magnetic fields. Familiarization will greatly increase the utilization of your Probe and the reliability of your inspection work.

AC MAGNETIZATION: An AC field induced into a part is a skin or surface field and does not penetrate the cross section of the material. A bi-product of AC is in the form of eddy currents which tend to to guide or direct the magnetic field in a basically narrow pattern between the poles. Another bi-product is a vibratory action which adds mobility to the inspection particles to form a highly defined powder build-up at the defect. For these reasons, an AC field is the most desirable for the detection of surface or surface breaking defects.

USE OF THE OPTIONAL PULSED DC POWER SUPPLY: The DC-300 power supply provides a strong DC magnetic field described below. The DC-300 contains an electronic circuitboard completely sealed within the housing. As directed by the markings on the power supply, the Probe should be connected to the output power cord, while the input plug of the power supply should be connected to a Grounded power source. **CAUTION:** The DC-300 is designed to be used with the B100, B300 and B310 series Contour Probes only. **They should not be used for operating any other electrical instruments.**

PULSED DC MAGNETIZATION: A DC field induced into a small work piece penetrates a larger cross section of the part and is inclined to spread out on each side of the line between the poles. The field energy is dispersed over a greater area. Thus, DC provides greater penetration for the detection of near-surface defects in small parts.

CAUTION: Often, on small parts, it is possible that an excessive amount of field will saturate the part and cause a masking effect to the point where it is impossible to define a defect.

**PARKER RESEARCH
YOU BREAK IT — WE FIX IT
ONE YEAR GUARANTEE**

All new Parker Contour Probes, with the exception of those units that have been altered, will be repaired or replaced due to malfunction or user damage at no charge for a period of one year from the date of sale.

The warranty shall cover repair or replacement of the returned Probe(s) due to malfunction caused by defective material and workmanship, and including repair or replacement of user damaged Probe(s). Warranty does not apply to altered units.

Simply return the unit(s) (prepaid) to the factory. Repair versus replacement of the Probe(s) will be made at the discretion of Parker Research Corporation. Repaired or replacement unit(s) will be returned to the original customer 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 Corp. assumes no liability from any claim arising from the use of this equipment.

CAUTION: For the correct and safe use of this equipment, proper training of operating personnel to required inspection techniques, specifications and safety requirements is necessary, and is the obligation of the user. **ALWAYS WEAR SAFETY GLASSES WHEN USING THE EQUIPMENT.**

Repairs should not be attempted on these units during the guarantee period. Units are sealed and should be returned to the factory for service.

SPECIFICATIONS				REPLACEMENT PART NUMBERS			
MODEL	VOLTS AC	AMPS	WEIGHT	COIL	SWITCH	CORD	BUTTON
B-100	115 V, 50/60Hz	4A	6 1/2 lbs.	2037-1	2038-1	2084-1	2318-1
B-100S	230 V, 50/60Hz	3A	2.95 kg	2042-1	2038-1	2085-1	2318-1

**SHIP TO:
PARKER RESEARCH CORP.
2642 ENTERPRISE ROAD WEST
CLEARWATER, FL 33763**