

ED-520 PORTABLE EDDY CURRENT INSTRUMENT

EQUIPMENT SPECIFICATION ES-102

- 1 -

1.0 Description

- 1.1 The Model ED-520 is a portable, compact, self-contained, electronic instrument which offers high sensitivity, versatility, and simplicity of operation. A continuously variable frequency control tunes an oscillator which drives a bridge circuit, one leg of which contains the test probe or coil.
- 1.2 The instrument will locate surface and near-surface discontinuities in nonmagnetic materials and surface defects in magnetic materials where permeability is relatively constant throughout the test area. The ED-520 will sort both classes of materials according to such properties as hardness, alloy type, carbon content, heat treat condition, tensile strength, and grain structure where these relate to changes in the magnetic and electrical characteristics of the test part. Also, it will measure coating thickness and relative conductivity.

2.0 Mechanical and Construction

- 2.1 Dimensions: 4.75”(12cm) x 9”(22.9cm) x 6”(15.2cm) deep (cover closed)
- 2.2 Weight: 6 lb. (2.72kg)
- 2.3 Readout: Rectangular meter, 3.5” (8.9cm) wide. Scale numbered from 0 to 500 in 50 divisions.
- 2.4 The ED-520 is housed in a lightweight, aluminum case fitted with a removable cover and positive action latches. The cover contains an accessory storage pocket for quick storage of line cord, probe and test block.
- 2.5 Dustproof and weather-resistant construction allows operation of the instrument within a temperature range of 0° to 120° F, and at 85% relative humidity, and under inclement field conditions. The instrument is sealed to keep out moisture and dust and it is built to withstand normal shock and vibrations.

3.0 Electrical and Performance

ED-520 PORTABLE EDDY CURRENT INSTRUMENT

EQUIPMENT SPECIFICATION ES-102

- 2 -

- 3.1 The frequency range is variable from 55 KHz to 220 KHz.
- 3.2 The instrument is operated from a single self-contained, rechargeable nickel cadmium battery pack or from 115 or 220 volts, AC, 50/60 Hz power.
- 3.3 Power consumption from the battery is 4.8 volts, DC, at 120 mA and from the line 115 volts, AC, 10 watts.
- 3.4 The battery charger is built into the instrument and is energized through a 3-wire grounded power cord with polarized molded vinyl plug.
- 3.5 The batteries are rated for approximately 10 hours continuous operation from the fully charged state, at 70° F, before recharging is necessary. The recharge time required is 10 to 14 hours.

4.0 Operation

- 4.1 The Mode Switch is a seven position switch. The positions are marked "OFF", "TEST", "LO", "MED", "HI", "FREQ", and "CHRG". These positions determine the mode of operation for the unit. In the "TEST" position, the meter indicates the state of battery charge. In the "LO", "MED", and "HI" positions, each position changes the sensitivity by approximately a factor of 2. The "FREQ" position indicates the operating frequency of the unit.
- 4.2 The "BALANCE" control is a ten-turn potentiometer. The control adapts the probe used to the bridge circuit and is used to position the meter pointer on the scale.
- 4.3 The "LIFT-OFF/FREQUENCY" control is a ten-turn potentiometer with a locking counting dial. It provides a continuously variable frequency range of 55 KHz to 220 KHz to select the proper operating frequency for lift-off compensation.

ED-520 PORTABLE EDDY CURRENT INSTRUMENT

EQUIPMENT SPECIFICATION ES-102

- 3 -

- 4.4 The "SENSITIVITY" control is a single turn potentiometer used to set the sensitivity level at any point between coarse steps on the Mode Switch. Maximum sensitivity is obtained with this control set fully clockwise.
- 4.5 There are two BNC type connectors used on the unit. One is the "PROBE" used for connecting the probe cable to the unit. The other is the "ANALOG OUTPUT" used for connecting an external recorder or monitor.
- 4.6 The light emitting diode for the charge circuit is mounted on the front panel and is marked "CHARGE". The LED indicates when line voltage is being applied to the battery charging circuit.
- 4.7 The "THRESHOLD" switch is a three position switch. The positions are marked "OFF", "DN", and "UP". These positions determine the mode of operation of the threshold circuit. In the "OFF" position, the threshold gate is inactive. In the "DN" position, the threshold alarm is triggered as the meter needle swings down scale. In the "UP" position, the threshold alarm is triggered as the meter needle swings up scale.
- 4.8 The "GATE" control is a single turn potentiometer which adjusts the position of the meter pointer. This position is the point at which the threshold gate activates. As the threshold gate is activated, the "GATE" LED lights and the internal audio annunciator sounds.

5.0 Order Reference

- 5.1 The model ED-520 Portable Eddy Current Instrument, **P/N 222900**, in metal case with removable cover, operation on self-contained batteries or 115/50-60/1 (or 220/50-60/1 not interchangeable) including: aluminum sensitivity standard, line cord, general purpose probe, and probe cable.

5.2 Standard Accessories

- 5.2.1 Aluminum Sensitivity Standard, **P/N 205156**
- 5.2.2 Line Cord, **P/N 216214**

ED-520 PORTABLE EDDY CURRENT INSTRUMENT

EQUIPMENT SPECIFICATION ES-102

- 4 -

5.2.3 General Purpose Probe, **P/N 222296**

5.2.4 Probe Cable, Microdot to BNC, **P/N 210816**

5.3 Addendum Accessories

5.3.1 General Purpose Miniprobe, 1-1/8" long x 5/16" diameter, **P/N 207067**

5.3.2 General Purpose Probe, 4" long x 3/8" diameter, **P/N 62743**

5.3.3 General Purpose Probe, 5" long x 1/4" diameter, **P/N 200634**

5.3.4 General Purpose Probe, 4" long x 1/8" diameter, **P/N 223400**

5.3.5 Various Bolt Hole Probes (Consult Probe Catalog)

5.3.6 Various Hemispherical Probes (Consult Probe Catalog)

5.3.7 Various Sorting Coils (Consult Probe Catalog)

5.3.8 Strip Chart Recorder, **P/N 519354**

5.3.9 Aluminum Test Block, .008", .020", .040" deep slots, **P/N 207066**

6.0 References

6.1 Instruction Manual, Form No: 20609A, Effective March 17, 1993

6.2 Price Pages EC-5