



## **LAYCOCK SYSTEMS, INC.**

**1601 North 43<sup>rd</sup> Street, Tampa, FL 33605**

**Ph: 813-248-3555 / Fax: 813-242-0514**

**Email: [sales@laycocksystems.com](mailto:sales@laycocksystems.com) / Web: [www.laycocksystems.com](http://www.laycocksystems.com)**

### **INSTRUCTIONS FOR EXTERNAL METER GROWLER**

#### **CROWN MODEL 2501 (115VAC) & 2503 (230VAC)**

Model 2501 and 2503 are handy, all-purpose instruments that offer you a wide variety of tests on armature sizes from 1/2" through 8" diameter.

#### **ATTENTION**

Use only on power supply of correct voltage and frequency as indicated on the nameplate.

#### **PURPOSE**

These Growlers are designed to test for "short" or "open" circuits and "grounds" in armatures. The standard Growler tests armatures 2" in diameter and larger. For smaller armatures (down to 1/2" in diameter) the small iron block is simply placed between the Growler lamination to reduce the space and reduce the power so that small armatures can be suitably tested. The Growler consists essentially of a primary coil and a portion of the iron of a transformer. The iron of the armature under test completes the magnetic circuit. When an alternating current is passed through the Growler primary circuit, it sets up an alternating magnetic field around the armature, reproducing the approximate magnetic effect under which it operates when assembled in a motor.

#### **OPERATION**

An armature should be placed on the Growler before turning on the current. Failure to do so may cause current to rise above the capacity of the coil and cause overheating.

## TESTING

### ***The "Short" Test:***

The most common way of using the Growler is the so-called "feeler method", in which the feeler is a hacksaw blade. Turn the selector switch to "SHORT" position. The armature should be placed in the Growler and slowly rotated by hand with the feeler held just above the top slot of the armature. If the coil is short circuited, the feeler will stick and vibrate. If coils are not shorted, no pull will be felt on the feeler. This action is quite evident and positive, so that with a little practice, short circuits are recognized quickly. **NOTE: Always turn the selector switch "OFF" when armature is removed from the Growler.**

### ***The "Open" Test:***

Place the armature on the Growler and turn the selector switch to "VOLTS HI" and rotate the armature slowly. As each coil comes in position between the pole pieces, touch the corresponding commutator bar with one test prod and the adjacent bar with the other prod. Watch the meter and if it reads "Low", turn the selector switch to "VOLTS LOW". No readings on the meter indicates broken winding or open coil. If coils are OK, the meter readings should remain the same for each coil as the commutator is rotated. Assuming the first coil tested is OK, a lower meter reading, while testing the other coils, would indicate an insufficient number of turns. A higher reading indicates there are too many turns in the coil.

### **The "Ground" Test:**

To perform this test, which is really a circuit continuity check, turn the selector switch to "GRND. TEST". Place one test prod on the rotor shaft and trace around the commutator with the other. A grounded coil or commutator bar will be indicated by the glow of the lamp.

**CAUTION: DURING THIS TEST THE PRODS HAVE A VOLTAGE POTENTIAL APPLIED WHICH COULD CAUSE A SHOCK.**

### **De-magnetizing/Magnetizing:**

These Growlers may be used for either de-magnetizing or magnetizing.

To De-magnetize tools or other objects, turn the selector switch to "SHORT" position, place the object between the jaws of the Growler and raise object slowly.

To Magnetize tools or other objects, connect the parallel blades of the power cord to a 12 volt DC, 6 amp battery charger, place the object across the jaws, then turn on the power and strike the object sharply with a hammer or mallet. CAUTION: do not leave the unit on for more than 2 minutes at one time to avoid Growler coil damage.

## MAINTENANCE and STORAGE

When not in use, store unit within a plastic bag.

## WARRANTY

*Crown's Motor Repair Equipment is warranted to the original owner against defects in materials and workmanship for ninety (90) days from date of purchase. Any part found to be defective (except by overloading, misuse, neglect, fire, accident, tampering with by unauthorized serviceman, or other cause beyond the manufacturer's control), will be replaced or repaired free of charge.*

## SPECIFICATIONS FOR EXTERNAL METER GROWLER

### CROWN MODEL 2501 (115VAC) and 2503 (230VAC)

**Primary Power:** 50/60Hz, 1-phase, 115VAC (2501), 230VAC (2503).

**Capacity:** Test armatures  $\frac{1}{2}$ " to 8" in diameter (for "Short" test, use a hacksaw blade or other soft iron material).

**Meter:**

Panel mounted type.

Full-scale range, 250mA.

Accuracy  $\pm 2\%$ .

Rugged construction.

2" diameter.

**Leads with Test Prods:**

One (1) red & one (1) black Test Lead Wires (#18 AWG, 5000wv) with Prod, three (3) feet in length. Test Prods: one (1) red & one (1) black are completely insulated except for a  $\frac{1}{2}$ " portion from the pointed tip. Provision for storing Prods.

**Features:** Warning Light to indicate grounded coils or shorts.

**Construction (packaging):** Metal, corrosion protected. Bench type tester.

**Accessories:** Supplied Iron-insert Block for testing smaller armatures to  $\frac{1}{2}$ " in diameter.

**Spare Parts:** To be recommended upon request.

**Model:  
2501 & 2503**

**PART LIST**

ITEM	P/N	DESCRIPTION	QUANT
1	C500028	Coil Assy., 230VAC (2503 only)	1
1	C500026	Coil Assy .,115VAC (2501 only)	1
2	C500039	Cover Case assy.	1
3	C800010	Base Plate	1
4	C800007	Fiber Plate	2
5	C500025	Rotary Switch assy.	1
6	C800015	Meter, 250mA, w/Bracket	1
7	C801013	Pilot Light, Neon	1
8	C800041	Isolation Transformer	1
9	C800043	Test Prod Holder	1
10	C800004	Bracket	4
11	C800025	Test Prod, Red	1
12	C800026	Test Prod, Black	1
13	C800030	Test Lead Wire, Red, 4-ft	1
14	C800031	Test Lead Wire, Black, 4-ft	1
15	C809004	Power Cord	1
16	C800022	Nameplate, Switch Position	1
17	C800023	Pointer Knob	1
N/A	C800046	Steel Block, 1-15/16"x2"x1/2"	1

