Model RSD-AV ROTOR-STATOR-DIODE TESTER

INSTRUCTIONS (*6D)

GENERAL. This Tester is especially designed to test components found in automotive alternators. The Tester may not be exactly like equipment with which you are familiar so please read these instructions carefully. Use only on 115 V.A.C. (grounded outlet) 60 Hertz power.

STATOR TESTING A good stator test should answer 3 questions.

Most important -- are the three phases BALANCED?
Next - is the winding GROUNDED?
Finally - what is the expected OUTPUT?

1. Turn Tester on to RSD (UP) position. Set center switch to right (AC) position. In this mode, meter sensitivity can be adjusted to compensate for differences between stators of various manufacturers. The calibration chart found on top of the Tester is a guide to proper settings for most stators. You may want to alter these settings to come closer to your own test results.

2. Calibration is done as follows: With Tester set to AC position and test probes not connected, depress left-hand (silver) push button. Meter will read. Using right-hand adjustment (black knob), adjust meter reading to the setting shown on the chart for the particular stator you want to test. Release push button. Meter is now calibrated. Do not touch adjusting control any more as this will disturb the setting.

To calibrate Tester for stators not shown on chart, take a good stator whose output is known and attach it to the test probes. Adjust meter until it reads the correct output. Remove stator from test probes. depress push button and note meter reading. this is the calibrate point for this type stator. Write it down! Delta wound stators will have a different calibrate point than Wye wound.

To check stators over 120 amps, calibrate to HALF readings. For example - a known good 140 amp stator would be set to 70 amps. Then get calibrate point. When testing, simply DOUBLE your reading.

3. Test stator on a non-conductive surface as follows: If the three stator leads are marked (A), (B) and (C), test readings should be taken between A&B, B&C and A&C. These three readings should be within one meter line (2 amps) of each other. Make sure stator leads are clean and good contact is achieved between test probes and stator leads (use the aligator clips) to avoid erroneous readings. If tester is properly calibrated, readings will indicate approximate stator output.

4. Test between any stator lead and steel frame. Even a slight meter movement indicates a GROUNDED winding. NOTE - When stator is connected to diodes (in the case) BALANCE and OUTPUT tests (step 3 above) are performed as outlined above. The GROUND test, however, must be done with the Tester set to DC to eliminate "grounding" by the negative diodes. Touch black test lead to case and red test lead to any stator lead. Any meter movement is unacceptable.

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ROTOR TESTING To test alternator rotors, proceed as follows:

1. Set left hand (on-off) switch UP which turns Tester on to its RSD function. Pilot light and RED and GREEN polarity lights should come on. Be sure test lead probes are not shorted together.

2. Set center switch to its left (DC) position. Red probe is POS. Black probe is NEG.

3. Touch test probes to the two rotor slip rings (either probe to either ring) and note meter reading. This reading (on the 0-12 amp scale) indicates the current draw (from a 12 volt battery) for the rotor under test. Normal readings will fall in the 2-6 amp range. Higher readings usually denote stronger rotors. Determine your own (GO) and (NO-GO) specs for each type rotor by testing a group of the same rotors.
Current readings also indicate rotor resistance (ohms) indirectly as follows: OHMS = 12 divided by AMPS.

AMPS	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
OHMS	6.0	4.8	4.0	3.4	3.0	2.7	2.4	2.2	2.0

4. Touch one probe to either slip ring and the other probe to the rotor shaft. Even a slight movement of the meter denotes a grounded winding.

When testing 24 volt rotors, double meter reading to get true amp draw.

DIODE TESTING This test determines if the diode is performing its normal duty by rectifying an AC signal. Set on-off switch to up (RSD) position. Set center switch to right (AC) position. Connect a "known good" power diode to the test leads and set meter to center scale (60). To test other diodes, (remove aligator clips) touch black test probe to diode body or metal frame (heat sink) in which diode is mounted. Touch red test probe to diode pigtail or copper strap. A good positive diode will cause meter to deflect to 60 and the green polarity light to go out (red light stays on). A good negative diode will read 60 on the meter and cause the red light to go out (green light stays on). An OPEN diode will cause no meter deflection while a SHORTED diode results in full scale deflection. Stator leads need not be disconnected for diode testing. When connected to the stator assembly, however, an open diode will read about 45 on the meter instead of zero.

When testing small diodes (trios, etc.) limit test time to 5 seconds. Diode trios can also be tested without disconnecting.

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AVALANCHE DIODE TESTING

After testing all of the alternators power diodes in the RSD test mode, u can now determine whether a diode is of the "Avalanche" type as follows. Set main ON-OFF switch to its DOWN (AVALanche) position. Pilot light will come on but red and green polarity indicator lights will not.

Remove alligator clips!

NEGative (ground) diodes -

- BLACK test probe goes to heat sink.
- RED test probe goes to pigtail or copper strap.

For a good avalanche diode, meter should read anywhere between 2 and 4.

4 = 24 volt (zener voltage).
2 = 32 volt (zener voltage).

POSitive (output) diodes -

- RED test probe goes to heat sink.
- BLACK test probe goes to pigtail or copper strap.

Meter reading should be between 2 and 4.

A diode which tests good in the RSD diode test but does not show the proper leakage reading (2-4) in the Avalanche test is a good diode but NOT an avalanche!

When the tester is set for avalanche testing, the test probes carry a DC voltage. When testing any diode, therefore, the meter will read (approx. 9 - 10) when connected to the diode in the FORWARD direction. For normal (non-avalanchE) diodes, there should be no meter reading when the probes are reversed (connected in the reverse direction). Any meter movement when probes are connected to a diode in reverse direction indicates LEAKAGE. In avalanche diodes, this "built-in" leakage should cause the meter to read between 2 and 4. In non-avalanche diodes, this leakge (if any) should not exceed 0.4 (2 small lines on the meter scale).

CAUTION! - Don't leave test leads shorted together for more than 60 seconds!

Be sure main ON-OFF switch is in its CENTER (off) position (pilot out) when you're finished using the tester.

ANY QUESTIONS ? - Call NEW ENGRG. Co. at 908-295-0722.

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