

METHODS OF DIODE TESTING

There are several methods and kinds of equipment for testing alternator rectifier diodes, each with advantages and disadvantages. Only you can determine what method best fits your needs. Those recommended by **JIMCO** are indicated.

1. LOAD TESTING -

Diode load testing utilizes an A.C. high current to make the diode operate just like it would in an alternator. An example of equipment that operates in this manner is the **JIMCO SR200**. The significant advantage of this type of test is that our confidence as to the ability of a diode to actually perform in an alternator is increased when we "stress it" by passing approximately 25 amps through it rather than one amp or less. A secondary but extremely convenient advantage is that this type of tester can test diodes while they are still connected to the stator. This is certainly an important advantage considering the increasing use of soldered and/or welded stator-diode connections. If both the stator and rectifier assembly test good as a unit why separate them? When looking at this type of tester select one that can also load test diode trios (at an appropriately lower amperage) while also connected to the stator. It doesn't make much sense to buy a tester that can test the main rectifier diodes while connected to the stator to find that you must unsolder the rectifier to test the diode trio!

IT IS OUR OPINION THAT THIS TYPE OF LOAD TEST SHOULD BE USED AS THE PRIMARY TEST AND OTHER TESTS (AVALANCHE OR LEAKAGE) USED AS SECONDARY TESTS .

2. AVALANCHE TESTING -

This type of test verifies that a diode is the avalanche type and still has the ability to zener within the intended voltage range. Although the avalanche function has little if any affect on the ability of the alternator to produce current and maintain stable voltage, it must be considered important to the protection of the system and its function should, therefore, be verified. When you stop to think about it you're checking the voltage "setting" of the diode. One of the easiest ways to check the voltage "setting" is on your regulator tester. The **AD100** adapter for the **JIMCO RT1224C** voltage regulator tester is intended for this purpose. Again, however, it is our opinion that load testing has to take priority in all diode testing.

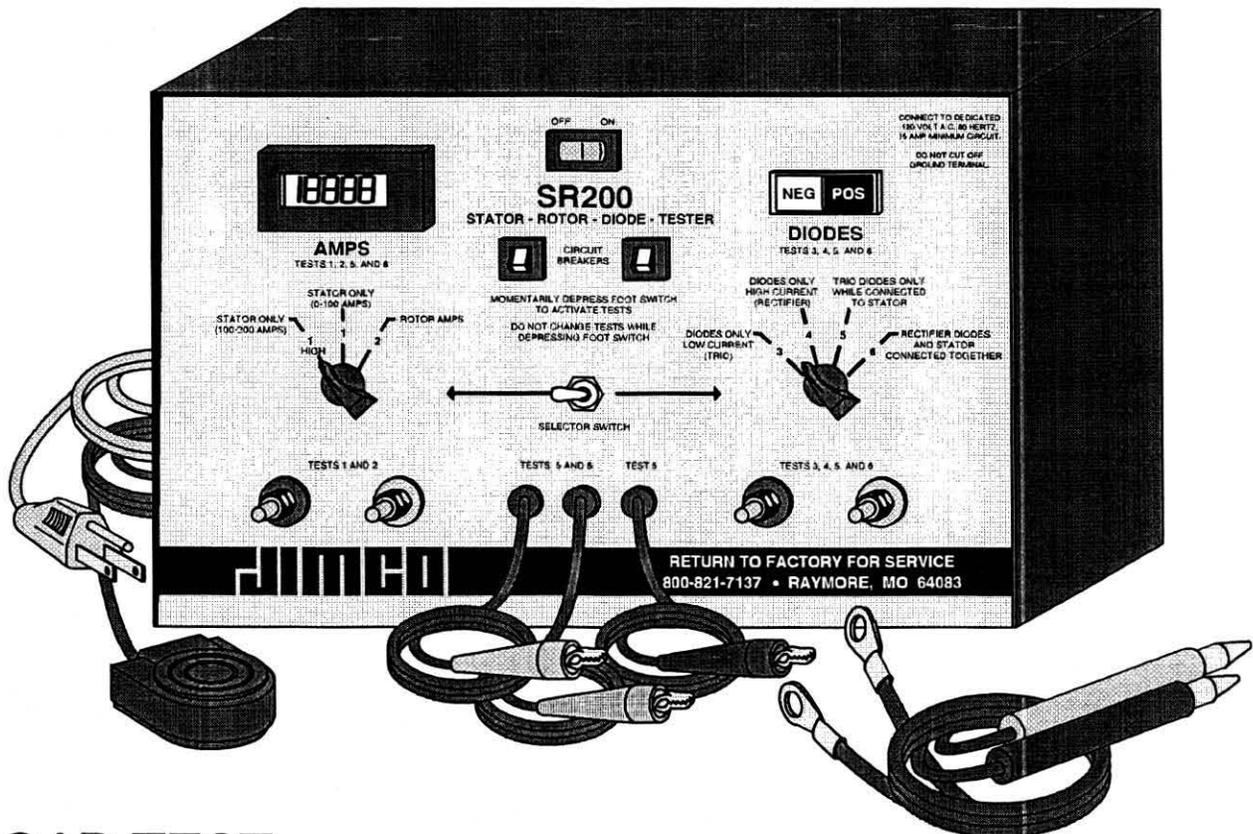
3. REVERSE DIODE LEAKAGE -

Reverse diode leakage, or the diode's resistance in the reverse direction, is another parameter of diode performance. Although this is a legitimate test, **JIMCO** believes that diode failure due to leakage is extremely rare, IF the diode has passed a load test. **THIS IS TRUE IF THE DIODES ARE CLEAN AND GREASE FREE.** Grease and metal shot dust on the diode stem are one of the main culprits mistaken as diode leakage. Our only complaint with this type of test is why buy a \$700.00 tester to perform it when a good \$30.00 to \$50.00 analog ohmmeter (not digital) will do the job as well. Remember, on avalanche diodes be sure to use an ohmmeter with battery voltage of less than 20 volts.

4. FORWARD DIODE CURRENT VOLTAGE DROP -

This, too, can be used as a good indicator of a diode's ability to continue operating. This type of test is based on the premise that the higher the forward voltage drop, the hotter the diode will operate, and the greater the probability of diode failure. Again, the frustrating thing about the equipment on the market that tests for this is that the current passed through the diode during this measurement is **ONE** amp or less. This extremely small amount of current is too small to create a voltage drop in a diode that has been overheated, become unsoldered internally, cooled and resoldered which created a cold solder joint (almost guaranteeing future trouble). Again, in our opinion, a high current load test will catch more potentially bad diodes.

SR200 COMBINATION STATOR - ROTOR - DIODE TESTER



LOAD TEST:

- ✓ **STATORS** — UP TO 200 AMP — FOR OPENS, SHORTS, GROUNDS, EVEN WHILE CONNECTED TO THE RECTIFIER
 - ✓ **STATORS** — GRADES AMPERAGE OUTPUT
 - ✓ **DIODES** — INCLUDING AVALANCHE AND DIODE TRIOS — EVEN WHILE CONNECTED TO THE STATOR
 - ✓ **ROTORS** — FOR FIELD DRAW — FOR SHORTS, OPENS AND GROUNDS
- | | |
|---------------------------|-----------------------------|
| * FAN COOLED | * JIMCO TECH SUPPORT |
| * FOOT SWITCH CONTROLLED | * 110 VOLT, 60 HZ |
| * EXTRA HEAVY GAUGE LEADS | * CIRCUIT BREAKER PROTECTED |