

DEVELOPMENTS IN STARTER AND ALTERNATOR TECHNOLOGY AND HOW THESE RELATE TO BATTERIES

Remy Automotive is the UK's largest rotating electrics remanufacturer. This gives us particular experience of examining the types of problems that occur with both alternators and starters which are linked directly to the battery. What we have therefore done is to provide technicians with some simple, positive troubleshooting tips in both product categories:

ALTERNATOR TROUBLESHOOTING

In the majority of problem cases related to the battery the warning lamp on the vehicle dashboard will indicate a charging circuit problem. A voltmeter should then be used to isolate a faulty component within the charging system.

To test the charging circuit, all of the following three tests should be performed with the engine running at approx. 2,000 rpm – and with the lights and heater switched on. **Please remember to always use extreme caution when working around an operating engine.**

* **Voltage test:** First measure the voltage from the positive battery post to the negative battery post. A good reading is between approx 13v-15v. A higher reading may indicate a bad regulator and the vehicle must not then be operated. If the reading is lower than 13v then check both the following: battery – a weak or defective battery will cause other components to appear faulty – and belts – loose, worn, cracked or glazed belts will slip resulting in low output from the alternator.

* **Negative battery cables and connections:** Connections from the battery to the frame/chassis and engine block must be clean, tight and corrosion free. To verify this, take a voltage measurement from the alternator case - ground - to the negative battery post. A reading higher than 0.25v indicates a problem with the negative side of the circuit, such as negative battery cable, connection to the frame or chassis engine block.

* **Positive battery cables and connections:** Connections from the positive battery post to the alternator output terminal, positive cable, fusible links, should all be clean, tight and corrosion free. To verify this, measure from the alternator output terminal to the positive battery post. A reading higher than 0.35v indicates a problem with the positive side of the circuit. If the reading is higher than 0.75v, look for blown fuses, swollen or discoloured fusible links or an open/broken wire/cable.

STARTER MOTOR TROUBLESHOOTING

When a starting problem occurs after mounting the replacement starter motor, immediately check for correct voltage on the vehicle through the following steps. **Remember again to use extreme caution when working around an operating engine:**

Install the starter motor and fasten all electrical connections securely.

Connect a voltmeter to the starter motor - black lead to the starter frame/case, red lead to the "S" terminal. Attempt to crank the engine. If the engine does not crank and the voltage is less than 12v, check for poor ground connection, weak battery, bad ignition switch or defective neutral safety switch. If the engine does not crank and the voltage is more than 12v, move the red wire of the voltmeter to the starter B+ terminal, turn the ignition key to crank the engine and observe the voltmeter reading:

If there is no crank and the voltage is less than 12v, then check for a weak/bad battery, loose or corroded cables.

If there is no crank and the voltage is less than 9v this could possibly damage the new starter. This condition must be corrected to prevent a repeat failure. Check for a weak/bad battery, loose or corroded cables.

As the UK's leading remanufacturer of rotating electrics, Remy fully understand the need to keep the UK garage and bodyshop equipped with all of the latest remanufactured starters and alternators. In this way they can begin to service vehicles effectively as soon as demand arises. That is why we have introduced a minimum of 10 new starter motors and alternators every month – bringing our total range to over 3,500 – and are constantly working on the remanufacture of 'core' product so that we can help the Aftermarket stay ahead of the game.