

System Diagnosis

Proper vehicle diagnosis requires a plan before you start

Following a set procedure to base your troubleshooting on will help you find the root cause of a problem and prevent unnecessary repeat repairs .

STEP ONE: Understand the Customer's Concern

Information collection beyond the basics.

Questions asked MUST be related To the system you will be working on and the customer complaint

STEP TWO: Check for Technical Service Bulletins

Every vehicle that comes into the shop for a repair (not necessary for routine maintenance) should be checked for TSB's , This can save you hours of troubleshooting.

STEP THREE: Conduct a Systematic Diagnosis

This step will be different for every system

Follow the troubleshooting steps for the system you are working on.

Make sure to check EVERY component of the system and that they are in proper working order.

Document your diagnosis including tests and results.

STEP FOUR: Complete and Confirm the Repair

Make sure you have taken care of the customers concerns.

Try to duplicate the conditions that were present when the vehicle failed

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Charging System Troubleshooting Chart

Symptom	Possible Cause	Corrective Action
Batteries not charging	<ol style="list-style-type: none">1. Insufficient belt tension, worn belt2. Defective battery(s) or battery connections3. Blown fuse or fusible link4. Defective wiring5. Faulty alternator6. Excessive electrical load	<ol style="list-style-type: none">1. Tighten or replace2. Check battery and battery terminal connections3. Check fuse and fusible link; replace as needed4. Check voltage drop5. Replace alternator6. Reduce load by turning off all unnecessary accessories

Charging System Troubleshooting Chart

Symptom	Possible Cause	Corrective Action
Constantly overcharging (battery electrolyte is depleted in a short time)	Battery Poor contact at voltage detection point of alternator Faulty voltage regulator	Faulty battery; replace Clean contact area Replace alternator
Abnormal Noise	Insufficient belt tension Faulty bearing	Tighten or replace Replace alternator

Charging System Inspection

Begin with a thorough visual inspection of system and components

System tests:

Battery

Load test

Alternator drive belt

Belt condition

Alignment

Proper tension

System cables & wires

Make sure all connections are clean and tight

Check wires for fraying, insulation damage, and other physical damage

Voltage drop test

Check positive side of the charging circuit. (0.2volts of less)

Check negative side of the charging circuit. (0.2 volts or less)

High voltage drop indicates poor connections or damaged cables

Alternator Output test

Start vehicle and adjust engine speed to approximately 2,000RPM

Check voltage at alternator and at battery voltage should be between 13 and 15 volts

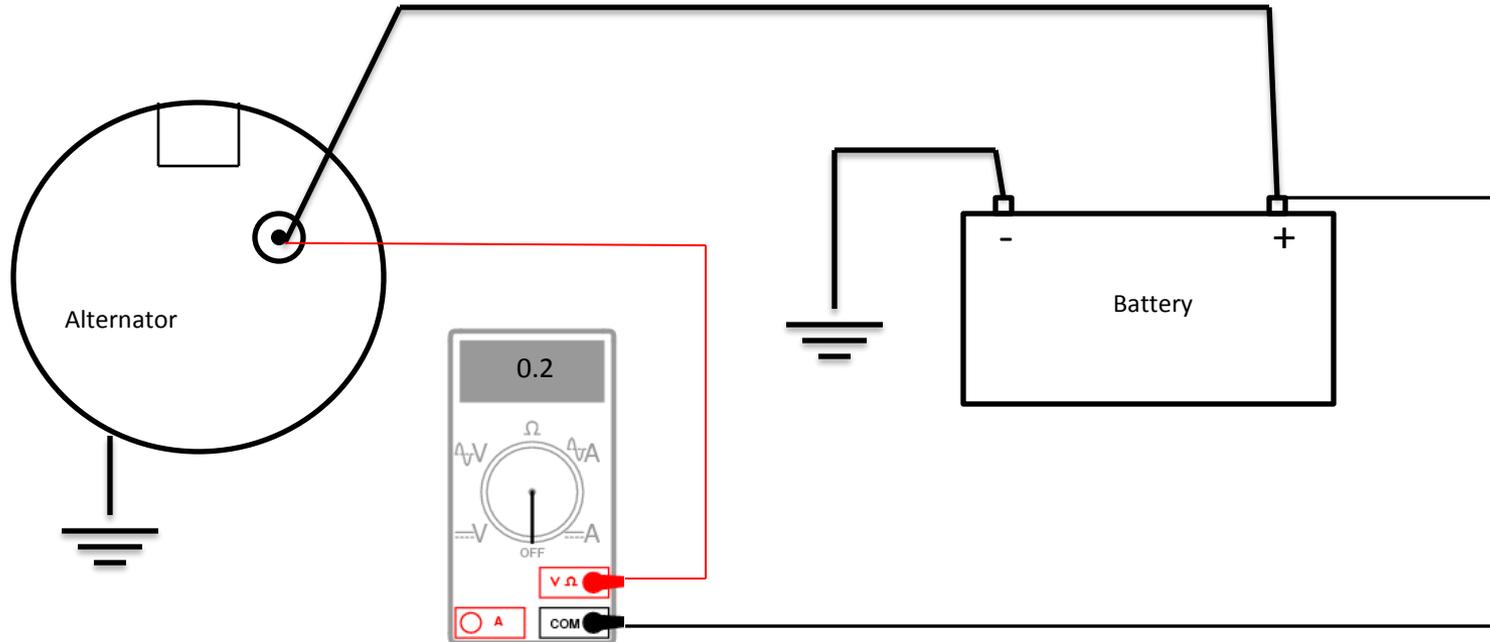
Turn on vehicle loads (headlights, blower motor, defrosters) and repeat test

Refer to vehicle service manual for correct specifications

Voltage drop test positive side

Attach your meter's positive lead to the alternator output stud and your negative lead to battery positive post.

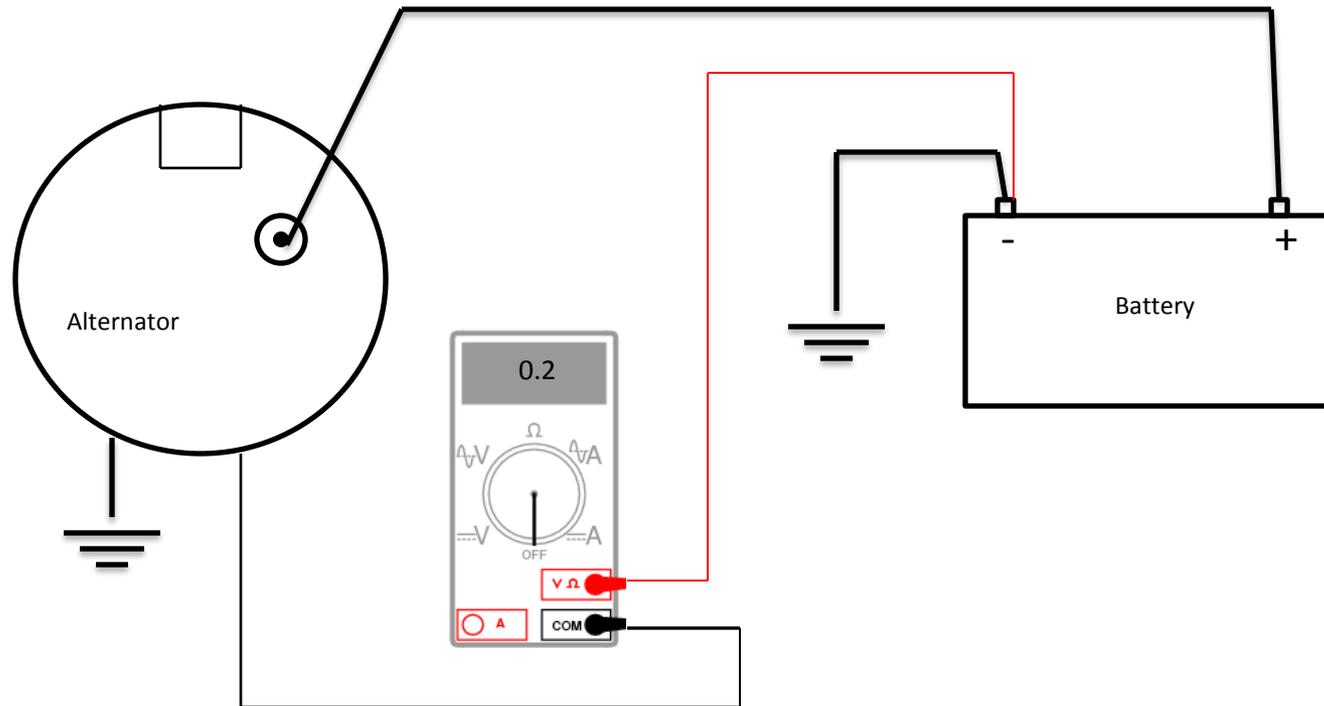
Run engine at 2,000 RPM with the lights, blower motor, and radio on, the reading on meter, should be less than .2 volts



Voltage drop test negative side

Attach your meter's negative lead on the alternator case, or ground strap if equipped, and the positive lead on the battery negative post.

Run the engine at 2,000 RPM with the lights, blower motor, and radio on, the reading on your meter should be .2 volts or less.





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