TECH TIP

Group:	0-GENERAL
Bulletin No:	TT-17-007
Issue Date:	5-9-2017

CHARGING SYSTEM TROUBLESHOOTING PROCEDURE

SUBJECT VEHICLES: All Hino trucks

Note: This tech tip is provided as technical information and is not authorization for a warrantable repair.

Visit the Delco-Remy website at: http://tinyurl.com/delcoremyvideos to watch their tech tip videos.

DESCRIPTION OF CONDITION

The majority of alternators replaced for a battery or charging system concern are found to be free of defect. This tech tip outlines the proper steps to diagnose a customer concern of a charging system issue. If submitting a TechAssist case, please fill out the Diagnosis Results Check Sheet on the following page and attach it to the case. For additional information on 2017 and earlier Conventional trucks, refer to TT-16-012 Charging System Diagnostic Procedure.

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DIAGNOSIS RESULTS CHECK SHEET

1. Is the belt tension and condition ok?	
1. Are the electrical connections and cables ok?	
1.Is the alternator mounted properly?	
2A. Does the battery have any corrosion, loose connections or damage?	
2A. What was the voltage reading at the battery?	
2B. What was the reading of the battery load test?	
3A. What was the voltage reading at the alternator?	
3A. If a voltage drop test is needed, what was the results of the voltage drop test?	
4. What is the alternator output?	

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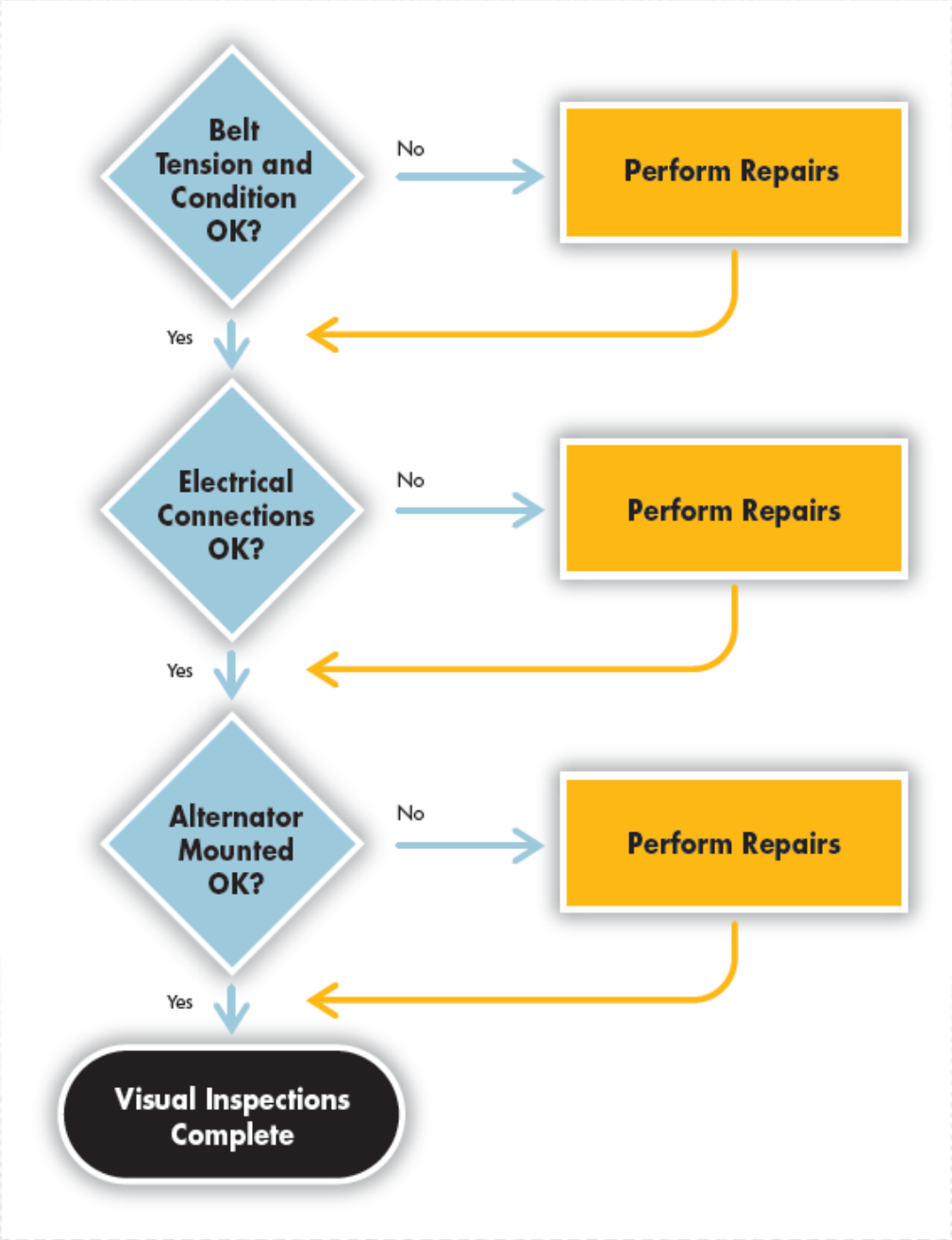
PERFORM VISUAL INSPECTION

1. Look at the belt tension and condition. Next, check electrical connections and cables for corrosion and proper tightness. Finally, make sure the alternator is mounted properly.



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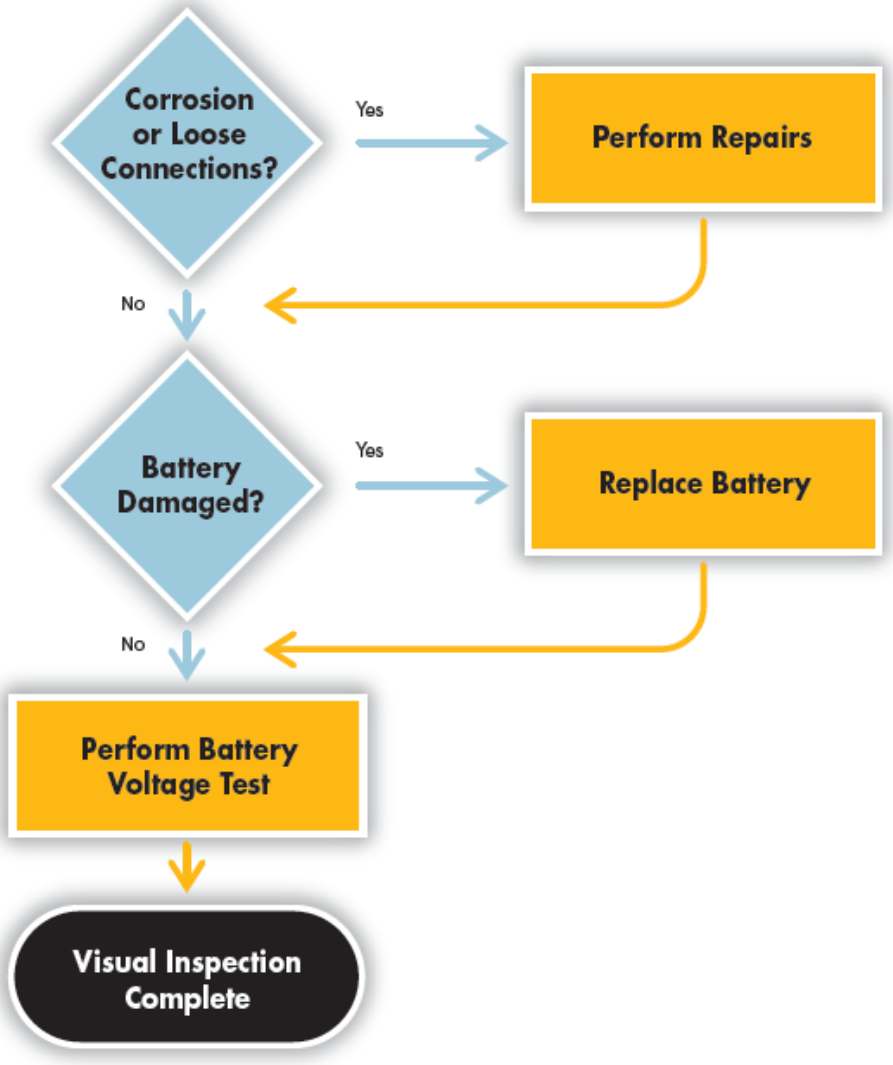
VISUALLY INSPECT AND TEST THE BATTERIES

2A. Inspect the batteries for any signs of physical damage, cracks in the casing, loose terminals or leaking fluid. Clean, repair connection and replace any damaged batteries found. Ensure that all batteries used in the same circuit are of the same manufacturer, CCA rating type and age. Then test the batteries using a standard battery test. Remember that realistic testing, as well as successful operation, requires a fully charged battery, capable of supplying the starting system's current needs.



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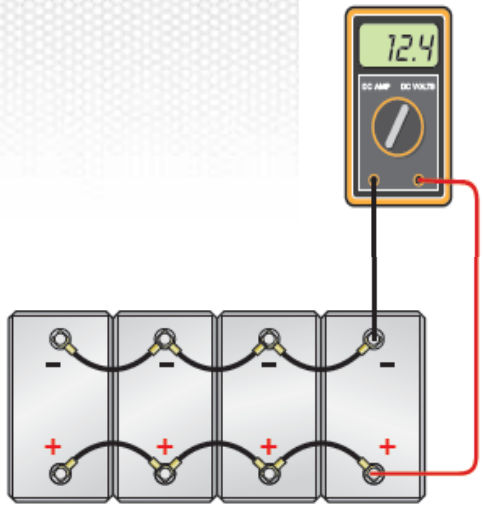
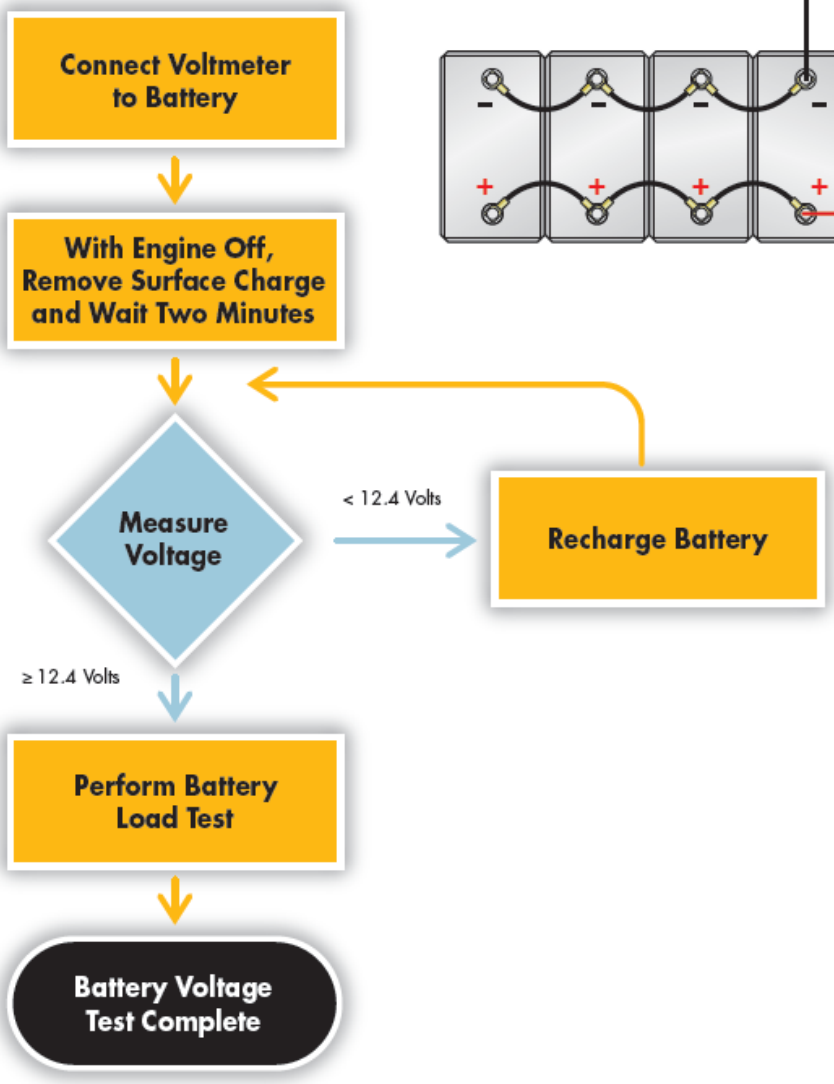
BATTERY VOLTAGE TEST

2B. Test the batteries using a standard battery test. Remember that realistic testing, as well as successful operation, requires a fully charged battery, capable of supplying the starting system's current needs.





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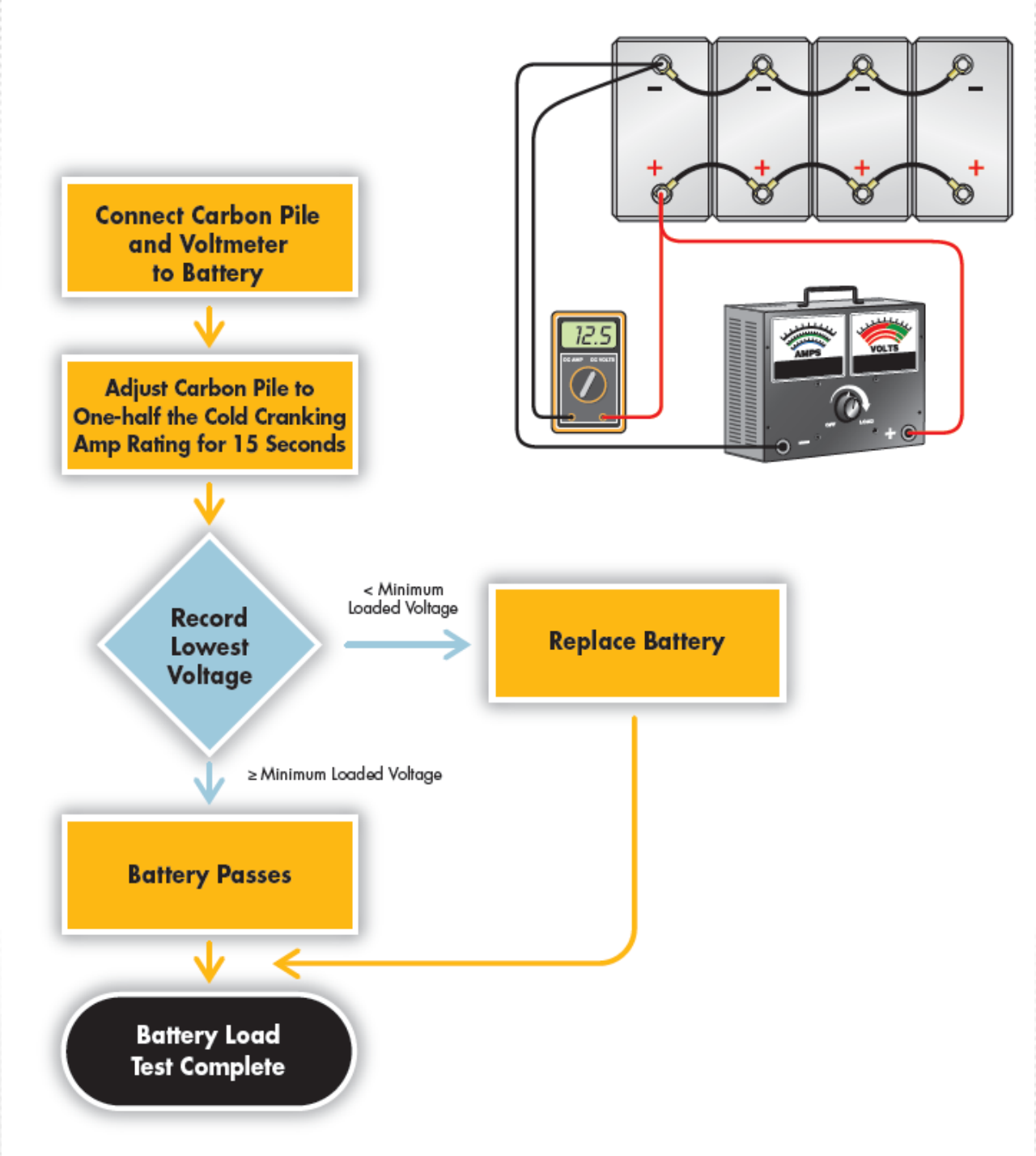
2C. BATTERY LOAD TEST



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3A. MEASURE VOLTAGE AT BATTERY

Fig 1. With the engine running, use a voltmeter to measure voltage at the battery. If voltage is greater than or equal to 13.8 volts, you can move on to Step 4.

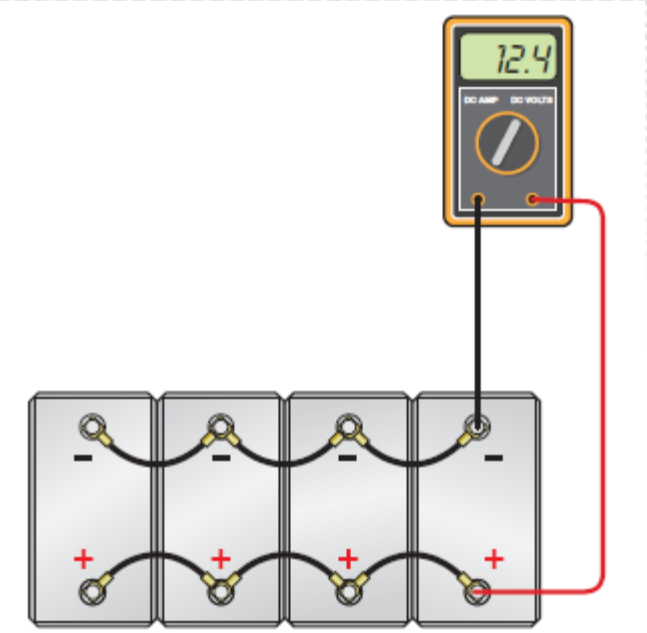

Fig 1.

Learn how to perform a voltage drop test by visiting our YouTube page and watching our *Tech Tip - Voltage Drop Test* video.
Link:
http://tinyurl.com/delcoremyvideos

Fig 2. However, if it is less than 13.8 volts, then you should measure voltage at Alternator B+ and the alternator case. (Note: If the model is insulated, you have to use a ground stud to get a reading.)
At that point, if the voltage falls between 12.6 and 13.7 volts, you need to replace your alternator. If it's greater than or equal to 13.8 volts, a voltage drop test needs to be performed.

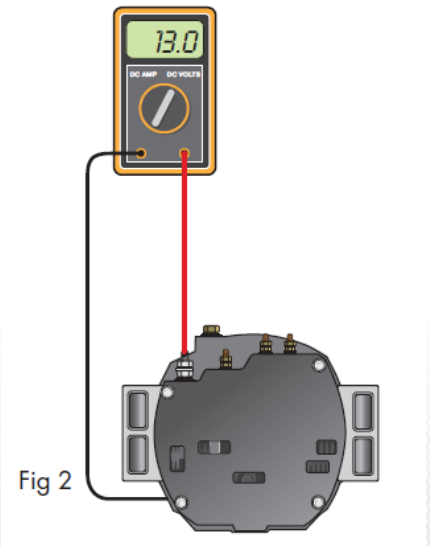

Fig 2

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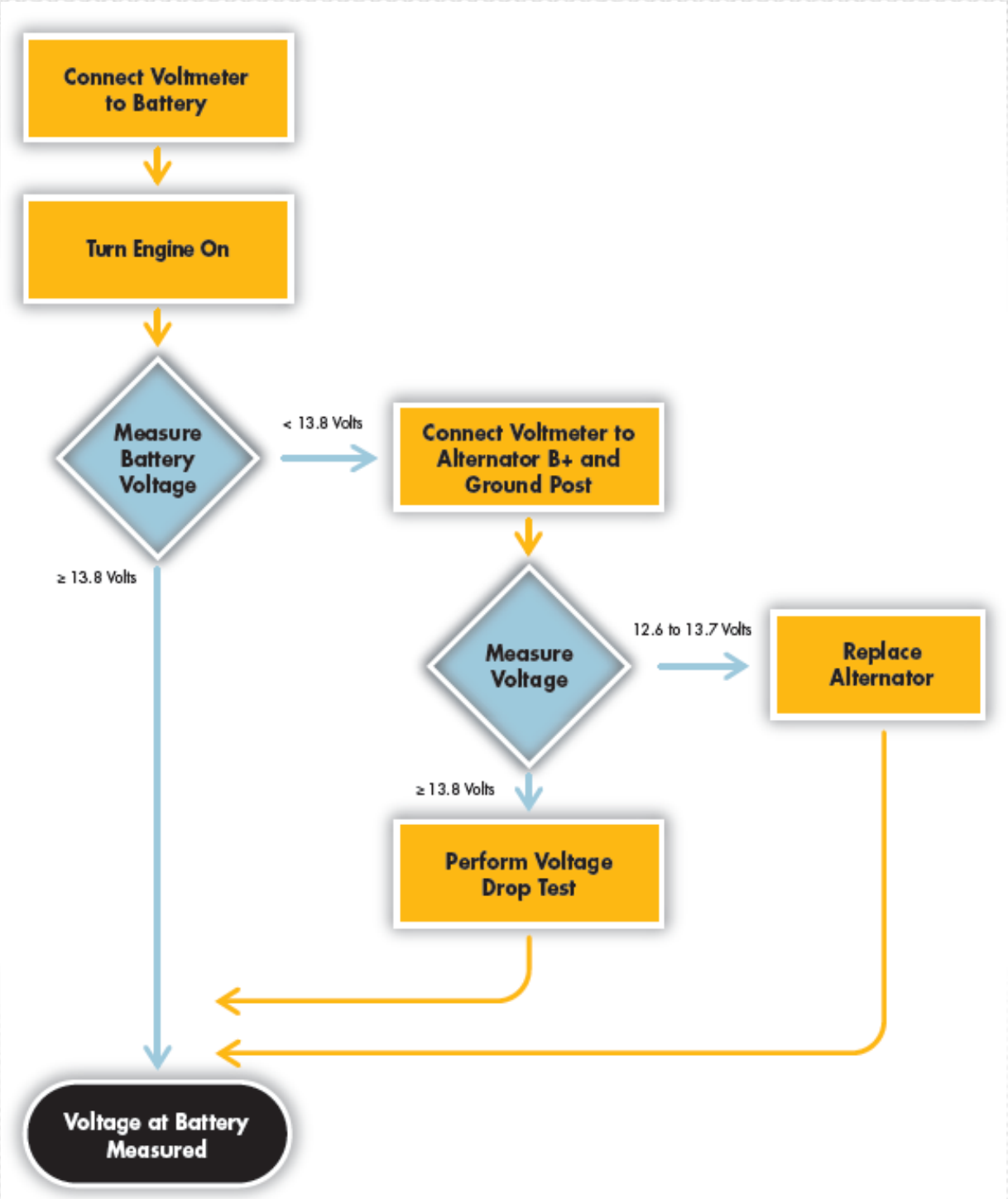
3B. MEASURE VOLTAGE AT BATTERY



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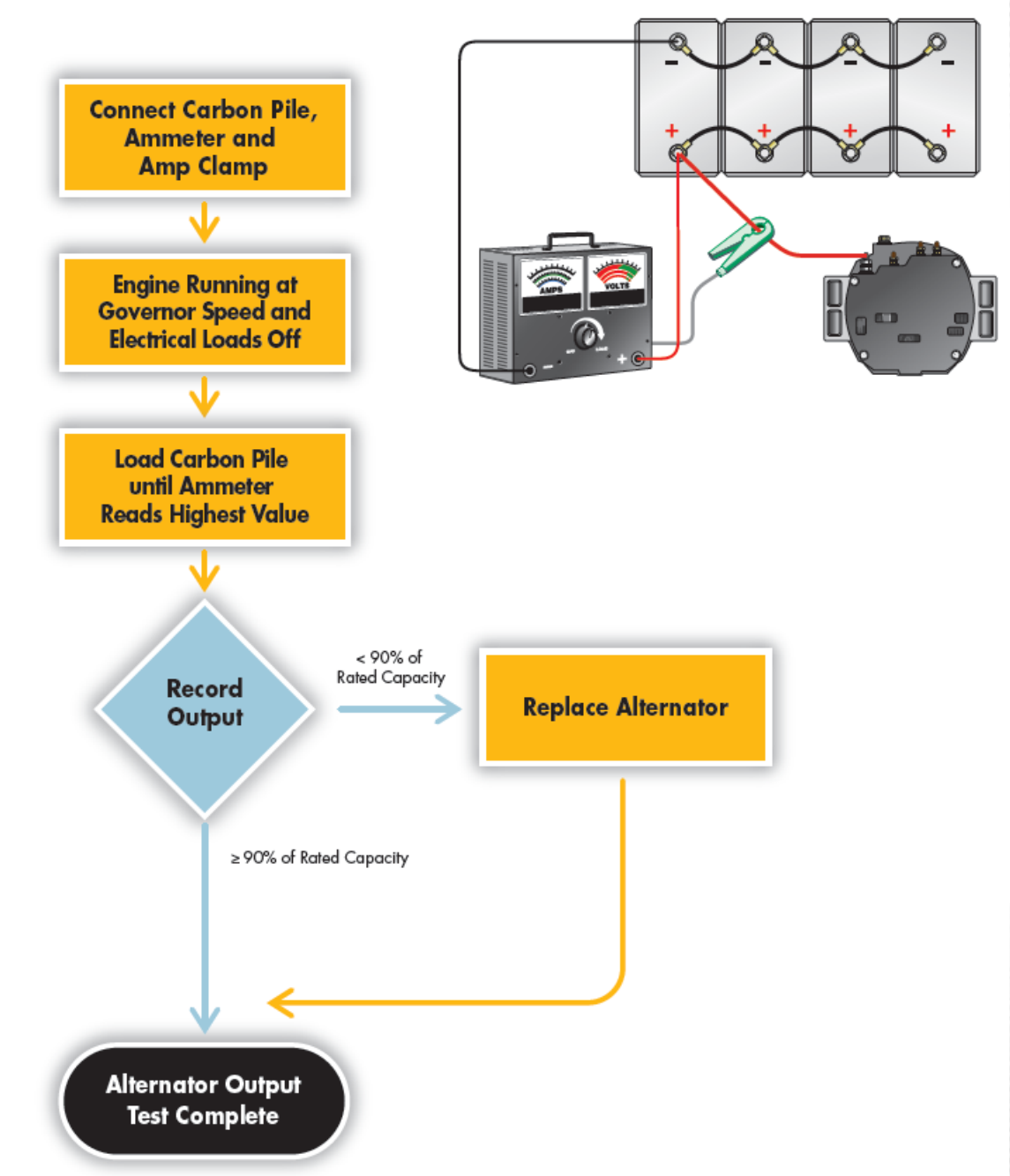
4. TEST ALTERNATOR OUTPUT

You can use either an automated tester or a manual process to determine the output of the alternator. If the alternator doesn't pass this test, then it needs to be replaced.



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5. TEST ALTERNATOR OUTPUT

If you've passed through the first four steps, then the alternator is working as designed and your problem is likely caused by something external to the alternator.