

## Foster PEM Junior Lab Off-Site Learning Packet Day 9

### Instructional Objective(s):

1. Student will be able to list the three electrical systems of a small engine to 100% accuracy
  2. Student will be able to list three tools that can be used to test a battery to 100% accuracy
  3. Student will be able to list three items in the ignition system that need to be inspected if you have no spark at the spark plug to 100% accuracy
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1. Electrical system troubleshooting of a small engine will include the starting system, charging system, and ignition system.
  2. If the engine is equipped with an electric starter you also have a starter solenoid, starter switch, battery, and battery cable. If the engine is not turning over with the key the first thing you need to test is the battery you can do this with a battery load tester, digital multimeter, or a hydrometer. Once you have the proper battery voltage the next item you need to check your cables to be sure they are properly fastened and they are not shorted as they go from the battery to the solenoid and then to the starter. After confirming that circuit is good you will need to check to see if the solenoid is receiving signal voltage on the small lead if you are not receiving signal voltage you will need to inspect the various safety switches which may be found on the seat, clutch linkage, mower linkage. If you have voltage to the solenoid and is sending voltage to the starter and it still does not crank most likely you have a bad starter.
  3. When troubleshooting the ignition system you first need to check for spark if you have no spark start by checking the spark plug then back to your magneto or Magnetron ignition system. In this step you will be checking the condition of your spark plug wire, your kill switch wire, and if these are both good check your flywheel magnets and the airgap between the magnets and the magneto legs.

We will go back to the Sears Craftsman lawn mower model# 917.273061 serial# 063099A006644

1. How much voltage should you have in the battery if it is fully charged ?
2. Where do you find safety switch's on this machine?
3. How will you test for spark?
4. What gap should there be between the flywheel magnets and coil legs?