

Starting System Diagnosis and Repair

Student/Intern information:

Name _____ Date _____ Class _____

Vehicle used for this activity:

Year _____ Make _____ Model _____

Odometer _____ VIN _____

Learning Objective/Task	CDX Tasksheet Number	2017 MAST NATEF Reference Number; Priority Level
• Perform starter current draw tests; determine needed action.	C309	6C1; P-1
• Perform starter circuit voltage drop tests; determine needed action.	C310	6C2; P-1
• Inspect and test switches, connectors, and wires of starter control circuits; determine needed action.	C313	6C5; P-2
• Inspect and test starter relays and solenoids; determine needed action.	C311	6C3; P-2
• Remove and install starter in a vehicle.	C312	6C4; P-1
• Differentiate between electrical and engine mechanical problems that cause a slow-crank or no-crank condition.	C314	6C6; P-2
• Demonstrate knowledge of an automatic idle-stop/start-stop system.	C1002	6C7; P-2

Time off _____

Time on _____

Total time _____

Materials Required

- Vehicle or simulator
- Starting and/or charging system tester
- Digital multimeter (DMM)
- Test light
- Fused jumper wire(s)
- Floor jack and stands or vehicle hoist (preferred)

Some Safety Issues to Consider

- Be cautious around electricity. High voltage (enough to injure or kill you) is present on many vehicles. Ignition systems, hybrid vehicles, and 42-volt electrical systems are just a few hazards to be careful of.
- Accidental deployment of the airbag system could happen if you inadvertently probe the wrong wire. Most manufacturers use yellow-colored wiring to denote wiring for the airbag system. Always be aware of the system/circuit you are working on.
- Use extreme caution when working around batteries. Immediately remove any electrolyte that may come into contact with you. Electrolyte is a mixture of sulfuric acid and water. Please consult with the shop safety and emergency procedures when working with or around batteries.
- Never exceed 16 volts when charging a 12-volt battery. Overheating and explosion hazards are greatly increased.

- Disconnect the battery before using wrenches or sockets to remove wires from the starter or solenoid to prevent short circuits and fires.
- Starter motors are heavy, always use another person to hold the starter while it is being removed and installed.
- Be careful when cranking engines while working under the hood. Keep away from moving belts, pulleys, and other parts.
- Comply with personal and environmental safety practices associated with clothing; eye protection; hand tools; power equipment; proper ventilation; and the handling, storage, and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations.

Performance Standard

0–No exposure: No information or practice provided during the program; complete training required

1–Exposure only: General information provided with no practice time; close supervision needed; additional training required

2–Limited practice: Has practiced job during training program; additional training required to develop skill

3–Moderately skilled: Has performed job independently during training program; limited additional training may be required

4–Skilled: Can perform job independently with no additional training