

# Manual Drive Train and Axles: Drive Shaft, Half Shaft, Universal, and Constant-Velocity Joint 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	2013 MLR NATEF Reference Number; Priority Level	2013 AST NATEF Reference Number; Priority Level	2013 MAST NATEF Reference Number; Priority Level
• Diagnose constant-velocity (CV) joint noise and vibration concerns; determine necessary action.	C132		3D1; P-1	3D1; P-1
• Inspect, service, and replace shafts, yokes, boots, and universal/CV joints.	C849	3D2; P-2	3D4; P-1	3D4; P-1
• Inspect, remove, and replace front wheel drive (FWD) bearings, hubs, and seals.	C134	3D1; P-2	3D3; P-1	3D3; P-1
• Diagnose universal joint noise and vibration concerns; perform necessary action.	C133		3D2; P-2	3D2; P-2
• Check shaft balance and phasing; measure shaft runout; measure and adjust driveline angles.	C779		3D5; P-2	3D5; P-2

Time off \_\_\_\_\_

Time on \_\_\_\_\_

Total time \_\_\_\_\_

## Materials Required

- Vehicle hoist
- Dial indicator
- Driveline angle gauge
- Hydraulic press
- U-joint press or equivalent
- Torque wrench
- Manufacturer-specific tools

## Some Safety Issues to Consider

- Diagnosis of this fault may require test-driving the vehicle on the school grounds. Attempt this task only with full permission from your instructor and follow all the guidelines exactly.
- Vehicle hoists are important tools that increase productivity and make the job easier. However, they can also cause severe injury or death if used improperly. Make sure you follow the manufacturer's operation procedures. Also, make sure you have your supervisor's/instructor's permission to use any particular type of lifting equipment.

- Lug nuts must always be tightened to the proper torque. Always use a properly calibrated torque wrench.
- CV joints may contain grease made with lead, which can be harmful to your health. Avoid getting it on your skin and hands. Wash your hands thoroughly before eating.
- 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