

Manual Drive Train and Axles: Clutch 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 clutch noise, binding, slippage, pulsation, and chatter; determine necessary action.	C106		3B1; P-1	3B1; P-1
• Remove and reinstall transmission/transaxle.	N/A	N/A	N/A	N/A
• Measure flywheel runout and crankshaft end play; determine necessary action.	C848		3B7; P-2	3B7; P-2
• Inspect flywheel and ring gear for wear and cracks; determine necessary action.	C847		3B6; P-1	3B6; P-1
• Inspect engine block, core plugs, rear main engine oil seal, clutch (bell) housing, transmission/transaxle case mating surfaces, and alignment dowels; determine necessary action.	N/A	N/A	N/A	N/A
• Inspect and replace clutch pressure plate assembly, clutch disc, release (throw-out) bearing and linkage, and pilot bearing/bushing (as applicable).	C608		3B3; P-1	3B3; P-1

Time off _____

Time on _____

Total time _____

Materials Required

- Vehicle with manual transmission/transaxle
- Vehicle hoist
- Transmission jack
- Flashlight or shop light
- Dial indicator
- Flywheel wrench (holding tool)
- 1/8" to 3/16" pin punch
- Clutch alignment tool
- Torque wrench

Some Safety Issues to Consider

- Only students who have their supervisor's/instructor's direct permission should perform this task due to the safety concerns involved.
- 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.
- **Caution:** Clutch dust may contain asbestos, which has been determined to cause cancer when inhaled or ingested. Treat all clutch dust as if it contains asbestos and use OSHA-approved asbestos removal equipment. DO NOT allow clutch dust to become airborne by using anything that would disturb the dust. Also, wear protective gloves during this procedure and dispose of or clean them in an approved manner.
- 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.
- 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