

MANUAL DRIVE TRAIN AND AXLES



Tasksheet Manual for NATEF Proficiency

CDX Automotive



JONES & BARTLETT
LEARNING



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The procedures and protocols in this book are based on the most current recommendations of responsible sources. The publisher, however, makes no guarantee as to, and assume no responsibility for, the correctness, sufficiency, or completeness of such information or recommendations. Other or additional safety measures may be required under particular circumstances.

For every task in ASE 3: Manual Drive Train and Axles, the following safety requirement must be strictly followed: 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.

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Resource Preview

2008 NATEF and CDX tasksheet numbers appear at the beginning and end of every task, as well as in the general information for the section.

Required and recommended materials and equipment are listed for each task.

Safety issues relevant to the tasks are listed at the beginning of every section.

Vehicle, Customer, and Service Information

Student/Intern Information: _____ Date _____ Class _____

Vehicle Used: _____
 Year _____ Make _____ Model _____
 Odometer _____

Learning Objective/Task	CDX Tasksheet Number	2008 NATEF Reference Number	2008 NATEF Priority Level
• Complete work order to include customer information, vehicle identifying information, customer concern, related service history, cause, and correction.	C761	3A1	P-1
• Locate and interpret vehicle and major component identification numbers.	C762	3A4	P-1
• Research applicable vehicle and service information, such as drive train system operation, fluid type, vehicle service history, service precautions, and technical service bulletins.	C102	3A3	P-1
• Identify and interpret drive train concern; determine necessary action.	C101	3A2	P-1
• Describe the operational characteristics of an electronically controlled manual transmission/transaxle.	C611	3C17	P-3

Recommended Resource Materials

- CDX Automotive program
- Technical service bulletins, shop manuals, and any other information applicable to the specific vehicle or components you are working on
- Class notes

Materials Required

- Blank work order
- Vehicle with available service history records
- Depending on the type of concern, special diagnostic tools may be required. See your supervisor/instructor for instructions to identify what tools may be required.

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.
- When running any vehicles in the shop, make sure you use the shop's exhaust ventilation system to discharge all exhaust gas safely outside.
- Lifting equipment such as vehicle jacks and stands, vehicle hoists, and engine 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/instructor's permission to use any particular type of lifting equipment.
- Always wear the correct protective eyewear and clothing and use the appropriate safety equipment, as well as fender covers, seat protectors, and floor mat protectors.
- Make sure you understand and observe all legislative and personal safety procedures when carrying out practical assignments. If you are unsure of what these are, ask your supervisor/instructor.

Time off _____
 Time on _____
 Total time _____

Vehicle, Customer, and Service Information 1

Performance Rating

CDX Tasksheet Number: C764 2008 NATEF Reference Number: 3C1

0 1 2 3 4

Supervisor/instructor signature _____ Date _____

TASK Measure flywheel runout and crankshaft end play; determine necessary action. C848 3B8

- Research the specifications and procedure for measuring flywheel runout and crankshaft end play in the appropriate service information.
 - Flywheel runout: _____ in/mm
 - Crankshaft end play: _____ in/mm
- Following the specified procedure, remove the transmission/transaxle. List any observations:
- Following the specified procedure, remove the pressure plate and clutch disc.

NOTE It is good practice to remove the pressure plate bolts evenly. This requires backing each bolt out a turn or two at a time to avoid warping the pressure plate. Also, have an assistant hold the pressure plate and clutch disc when they get close to becoming loose to avoid dropping them on the floor and damaging them or injuring your feet.

- Clean up any debris using an approved method for disposing of hazardous dust.
- Following the specified procedure, measure the following.
 - Flywheel runout: _____ in/mm
 - Crankshaft end play: _____ in/mm
- Determine any necessary action/s:
- Have your supervisor/instructor verify satisfactory completion of this procedure, any observations found, and any necessary action/s recommended.

Performance Rating

CDX Tasksheet Number: C848 2008 NATEF Reference Number: 3B8

0 1 2 3 4

Supervisor/instructor signature _____ Date _____

Clutch Diagnosis and Repair 23

Time card feature appears at the beginning of every task and allows students to track the time they spend on each task.

Note boxes offer students vital information to consider while performing the task.

Performance standard and rating areas simplify the sign-off process for instructors.

Acknowledgments

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CDX Automotive

Designed to help automotive programs meet NATEF requirements, this interactive automotive training system introduces students to the fundamental principles and applications of automotive education. It also equips instructors with a complete set of easy-to-use course materials. This innovative resource will enrich your conventional course, or can be used as a primary management source to deliver an online program that accommodates increasing student enrollments.

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CDX Automotive includes easy-to-use and state-of-the-art learning performance management tools to help schools manage and report student performance data that meet NATEF's ASE e-learning certification requirements. **CDX Automotive** offers a turnkey solution to high schools, vocational schools, community colleges, and skill centers wishing to join the e-learning initiative announced by NATEF that allows programs to qualify for reduced curriculum hour requirements through e-learning completed outside of regular program hours.

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