

ENGINE PERFORMANCE



Tasksheet Manual for NATEF Proficiency

CDX Automotive



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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 8: Engine Performance, 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.

Exhaust System Testing

Student/Intern information: _____ Date _____ Class _____

Vehicle used for this activity: _____
 Year _____ Make _____ Model _____
 Odometer _____

Learning Objective/Task	CDX Tasksheet Number	2008 NATEF Reference Number	2008 NATEF Priority Level
Inspect the integrity of the exhaust manifold, exhaust pipes, mufflers, catalytic converters, resonator(s), tail pipe(s), and heat shields; perform necessary action.	C428	8D8	P-1
Perform exhaust system back-pressure test; determine necessary action.	C429	8D9	P-1
Test the operation of turbocharger/supercharger systems; determine necessary action.	C869	8D10	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

- Vehicle
- Large Channellock® (arc joint) pliers
- Exhaust back-pressure gauge
- Tachometer (if the vehicle is not equipped with one)
- Problem-specific tools and equipment such as: scan tool, lab scope, etc.

Some Safety Issues to Consider

- 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 hoist and vehicle manufacturer's operation procedures.
- You will be working under the hood of a running vehicle. Keep your hands and fingers away from moving belts, fans, and other parts.
- When running any vehicles in the shop, make sure you use the shop's exhaust ventilation system to discharge all exhaust gas safely outside.
- Diagnosis of this fault may require test driving the vehicle on the school grounds or on a hoist, both of which carry severe risks. Attempt this task only with full permission from your supervisor/instructor and follow all the guidelines exactly.
- 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.

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

Exhaust System Testing 49

TASK Perform exhaust system back-pressure test; determine necessary action. C429 8D9

- Research the procedure to test exhaust back-pressure on this vehicle in the appropriate service manual.
 - List the location for installing the back-pressure gauge: _____ in/hg at _____ RPM.
 - List the maximum allowable back-pressure: _____ in/hg at _____ RPM.
- Install the back-pressure gauge according to the service manual procedure.
 - List your readings obtained: _____ in/hg at _____ RPM.
- Measure the exhaust back-pressure, being careful to follow the service manual procedure.
 - List your readings obtained: _____ in/hg at _____ RPM.
- Determine any necessary action/s:

5. Have your supervisor/instructor verify satisfactory completion of this procedure, any observations found, and any necessary action/s recommended.

Performance Rating

CDX Tasksheet Number: C429 2008 NATEF Reference Number: 8D9

0 1 2 3 4

Supervisor/instructor signature _____ Date _____

TASK Test the operation of turbocharger/supercharger systems; determine necessary action. C869 8D10

Vehicle used for this activity: _____
 Year _____ Make _____ Model _____
 Odometer _____ VIN _____

NOTE This task is extremely hazardous and should be performed only under close supervisor/instructor supervision. Diagnosis of this fault may require test driving the vehicle on the school grounds or on a hoist, both of which carry severe risks. Attempt this task only with full permission from your supervisor/instructor and follow all the guidelines exactly.

- Research the following testing procedure and any specifications for this vehicle in the appropriate service manual.
 - Maximum boost: _____
 - List, or print off and attach to this sheet, the procedure for testing the turbocharger/supercharger:
- Have your supervisor/instructor approve the specifications and testing procedure.
 - Supervisor/instructor's initials: _____
- Following the manufacturer's procedure, test the turbocharger/supercharger.
 - List your observations:

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

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

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

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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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- Support for both 2005 and 2008 NATEF standards with tasksheets and updated tasksheet reporting, making ASE recertification even easier for instructors nationwide
- *CDX Automotive Access Pack* option for students looking to purchase required or recommended access to **CDX Automotive** from their local college bookstore

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