

Wheel and Tire Maintenance

Student/intern information:

Name _____ Date _____ Class _____

Vehicle used for this activity:

Year _____ Make _____ Model _____

Odometer _____ VIN _____

Learning Objective/Task	CDX Tasksheet Number	2008 NATEF Reference Number	2008 NATEF Priority Level
• Inspect tire condition; identify tire wear patterns; check and adjust air pressure; determine necessary action.	C619	4F1	P-1
• Rotate tires according to manufacturer's recommendations.	C222	4F3	P-1
• Reinstall wheel; torque lug nuts.	C227	4F8	P-1
• Dismount, inspect, and remount tire on wheel; balance wheel and tire assembly (static and dynamic).	C620	4F6	P-1
• Dismount, inspect, and remount tire on wheel equipped with tire pressure monitoring system sensor.	C621	4F7	P-2

Time off _____

Time on _____

Total time _____

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

- Worn tire assigned by supervisor/instructor
- Tread depth gauge
- Tire pressure gauge
- Tire inflator
- Vehicle hoist
- Lug wrench (or impact wrench with appropriate impact socket)
- Torque wrench and appropriate socket
- Tire mounting and balancing equipment
- 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

- Worn or damaged tires may have steel cords sticking out of the tire. These wires are very sharp and will severely cut you. Do not rub your hand across a tire without checking first for exposed cords.
- Vehicle hoists are important tools that increase productivity and make the job easier. However, they also can cause severe injury or death if used improperly. Make sure you follow the hoist and vehicle manufacturer's operation procedures.
- Compressed air can be very dangerous. Never blow it at someone. Never use it to remove dirt or dust from your skin or clothing. Never use it without an OSHA-approved nozzle.
- Over-inflating tires could cause the tire to explode with great force. Never exceed the maximum tire pressure for the tire you are working on.
- Lug nuts must always be torqued to the proper torque. Always use a properly calibrated torque wrench. Never use an impact wrench to tighten lug nuts. This could cause the wheel to come loose and fall off if undertightened. Or, if overtightened, the lug studs might get damaged which could also cause the wheel to fall off the vehicle. It could also cause the brake rotors to become warped.

- 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

TASK Inspect tire condition; identify tire wear patterns; check and adjust air pressure; determine necessary action.

C619 4F1

1. Research tread wear patterns in the appropriate manual.
2. Research the following specifications on the vehicle's tire decal and on the tire itself:
 - a. Tire decal (usually located on the vehicle door, door pillar, or glove box lid):
 - i. Recommended tire designation: _____
 - ii. Recommended tire pressure: Front: _____ psi/kPa
Rear: _____ psi/kPa
 - b. Information on sidewall of tire:
 - i. Tire designation: _____
 - ii. Maximum pressure: _____ psi/kPa
 - iii. Tread wear rating: _____
 - iv. Traction rating: _____
 - v. Temperature rating: _____
3. Measure the tread depth across the tire tread and list your measurements below:
 - a. Tread depth (inside of tread): _____ in/mm
 - b. Tread depth (center of tread): _____ in/mm
 - c. Tread depth (outside of tread): _____ in/mm
4. Check to make sure there are no exposed steel cords. Carefully run your hand across the tread and feel for a feathered condition. Also, run your hand in line with the tread to feel for lumps and bulges.
 - a. Is the tire feathered? **Yes/No** (Circle one)
 - b. Are there any bulges? **Yes/No** (Circle one)
5. Based on your observations and measurements, determine what, if any, wear patterns exist and list them here: _____
6. Measure the pressure in this tire/s and record it here: _____ psi/kPa
7. If the tire is not at the correct pressure, add or remove pressure.
 - a. Record final pressure: _____ psi/kPa
8. Determine any necessary action/s: _____

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

Performance Rating

CDX Tasksheet Number: C619

2008 NATEF Reference Number: 4F1



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Supervisor/instructor signature _____ Date _____

TASK Rotate tires according to manufacturer's recommendations.

C222 4F3

Time off _____

Time on _____

Total time _____

NOTE Vehicles equipped with a tire pressure monitoring system (TPMS) may need the system reset after rotating the tires. Verify that you have all the necessary tools and manufacturer's procedure prior to removing the wheels on these vehicles.

1. Research the following specifications in an appropriate manual.
 - a. Is this vehicle equipped with TPMS? **Yes/No** (Circle one)
 - i. If yes, do you have the specified tools and procedures to reset this? **Yes/No** (Circle one)
 - b. Lug nut torque: _____ ft-lbs/Nm
 - c. Manufacturer's recommended tire rotation pattern. Draw diagram below:

 - d. Manufacturer's recommended lug nut torque sequence. Draw diagram below.

2. Remove the wheel/tire assemblies from the vehicle.

NOTE When removing hub caps and wheels, please store them in such a manner as not to damage the visible side of the hub cap or wheel. Laying them face down will cause them to become scratched and damaged. Also, store the lug nuts so they will not get lost or kicked.

3. Have your supervisor/instructor verify removal and initial here:
 - a. Supervisor/instructor's initials: _____
4. Rotate the tires according to the manufacturer's recommendation. As part of this procedure, check the tire pressure. If a tire is found to be under-inflated, check the tire for a leak. If a leak is found, notify your supervisor/instructor for further directions. Also, inspect each tire for nails or other foreign objects. Notify your supervisor/instructor if a problem is found. List your observations:

5. Torque the lug nuts to manufacturer's specifications in the specified sequence.
 - a. Record torque: _____ ft-lbs/Nm
6. Reset TPMS if necessary. Follow manufacturer's procedure.
7. Reinstall hub caps, if equipped. Make sure they are fully seated to prevent them from falling off while driving. If in doubt, ask your supervisor/instructor.

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

Performance Rating

CDX Tasksheet Number: C222

2008 NATEF Reference Number: 4F3



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Supervisor/instructor signature _____ Date _____

▶ TASK Reinstall wheel; torque lug nuts.

C227 4F8

NOTE ▶ The above task also satisfies the requirements for task C227: Reinstall wheel; torque lug nuts. Have your instructor sign off this task at the same time.

Performance Rating

CDX Tasksheet Number: C227

2008 NATEF Reference Number: 4F8



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Supervisor/instructor signature _____ Date _____

▶ TASK Dismount, inspect, and remount tire on wheel; balance wheel and tire assembly (static and dynamic).

C620 4F6

NOTE ▶ Verify that this wheel is not equipped with TPMS.

1. List the customer concern, if any:

2. Prepare the vehicle and remove the wheel concerned.
3. Inspect the outside of the tire and wheel and list your observations:

4. Using the correct procedure, dismount the tire from the wheel.
5. Inspect the inside of the tire, the tire bead, the inside of the rim, and the valve stem. List your observations:

6. Have your supervisor/instructor verify removal and initial here:
 - a. Supervisor/instructor's initials: _____

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7. Remount tire on wheel using the correct equipment and procedure.
8. Balance wheel and tire assembly (static and dynamic) and record your results:

9. Determine any necessary action/s:

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

Performance Rating

CDX Tasksheet Number: C620

2008 NATEF Reference Number: 4F6



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Supervisor/instructor signature _____ Date _____

TASK Dismount, inspect, and remount tire on wheel equipped with tire pressure monitoring system sensor.

C621 4F7

Vehicle used for this activity:

Year _____ Make _____ Model _____

Odometer _____ VIN _____

Time off _____
 Time on _____
 Total time _____

1. List the customer concern, if any:

2. Research the following in the appropriate service information:
 - a. Tire removal/installation on TPMS equipped vehicles
 - b. TPMS maintenance needs and service
 - c. TPMS reset procedure, if necessary
3. Prepare the vehicle and remove the wheel concerned.
4. Inspect the outside of the tire and wheel and list your observations:

5. Using the correct procedure, dismount the tire from the wheel. Be careful not to damage the TPMS sensor.
6. Inspect the inside of the tire, the tire bead, the inside of the rim, the valve stem, and TPMS sensor. List your observations:

7. Have your supervisor/instructor verify removal and initial here:
 - a. Supervisor/instructor's initials: _____
8. Perform any needed maintenance/service on the TPMS system.
9. Remount tire on wheel using the correct equipment and procedure. Be careful not to damage the TPMS sensor.
10. Balance wheel and tire assembly, if necessary, and record your results:

11. Reinstall wheel/tire assembly on the vehicle and torque lug nuts to the proper torque.
12. Reset the TPMS according to the manufacturer's procedure.
13. Determine any necessary action/s:

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

Performance Rating

CDX Tasksheet Number: C621

2008 NATEF Reference Number: 4F7



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Supervisor/instructor signature _____ Date _____