

Medium Heavy Vehicle–Wheels and Tires-1

Student/intern information:

Name _____ Date _____ Class _____

Vehicle used for this activity:

Year _____ Make _____ Model _____

Odometer _____ VIN _____

Learning Objective/Task–Wheels and Tires Diagnosis and Repair	2007 NATEF Reference Number	2007 NATEF Priority Level
<ul style="list-style-type: none"> Diagnose unusual tire wear patterns; check tread depth, mismatched tread design; determine needed action. 	D1-1	P-1
<ul style="list-style-type: none"> Diagnose wheel/tire vibration, shimmy, pounding, hop (tramp) problems; determine needed action. 	D1-2	P-3

Time off _____

Time on _____

Total time _____

Recommended Resource Materials

- CDX automotive program
- CDX eTextbook
- 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 with possible tire/wheel alignment concern
- Vehicle manufacturer’s workshop manual
- Manufacturer-specific tools depending on the concern
- Vehicle-lifting equipment, if applicable

For every task in Suspension and Steering, the following safety task must be strictly enforced:

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 federal, state, and local regulations.

Some Safety Issues to Consider

- 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.
- Caution: If you are working in an area where there could be “brake dust” present (may contain asbestos, which has been determined to cause cancer when inhaled or ingested), ensure that you wear and use all OSHA-approved asbestos protective/removal equipment.
- 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’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 federal, state, and local regulations.
- 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 Diagnose unusual tire wear patterns; check tread depth, mismatched tread design; determine needed action.

D1-1

1. Diagnose unusual tire wear patterns; check tread depth, mismatched tread design; determine needed action.
2. Reference the appropriate manufacturer's workshop to correctly diagnose unusual tire wear patterns; check tread depth, mismatched tread design; determine needed action.

3. List all the potential areas that can cause unusual tire wear patterns:

- i. _____
- ii. _____
- iii. _____
- iv. _____
- v. _____

Alternative causes:

4. Following all procedures and safety requirements, carry out a diagnosis of unusual tire wear patterns:

- Inspect the tires:
 - * Are the tires the same make, type, and size?
 - * Manufacturer's recommended tire sizes and construction:
Make: _____
Size: _____
Construction type: _____
- Check tire pressure:
 - * Recommended tire pressure: _____ psi (kPa)
 - * Actual pressure: Front Axle
 - L/F tire: _____ psi (kPa)
 - R/F tire: _____ psi (kPa)
 - 1st Rear Axle
 - L/R tires: ____/____ psi (kPa)
 - R/R tires: ____/____ psi (kPa)
 - 2nd Rear Axle
 - L/R tires: ____/____ psi (kPa)
 - R/R tires: ____/____ psi (kPa)
 - 3rd Rear Axle
 - L/R tires: ____/____ psi (kPa)
 - R/R tires: ____/____ psi (kPa)
 - 4th Rear Axle
 - L/R tires: ____/____ psi (kPa)
 - R/R tires: ____/____ psi (kPa)

Time off _____

Time on _____

Total time _____

Serviceable: _____ Unserviceable: _____

If tire pressures are not within the specific pressure range, adjust as necessary.

- Inspect the tire treads for unusual tire wear patterns:

Serviceable: _____ Unserviceable: _____

* Within manufacturer's specifications: Yes: _____ No: _____

* If no:

List the problems, and list your recommendation(s) for rectification:

* If the treads are showing signs of abnormal wear patterns, list the probable cause(s):

1. _____
2. _____
3. _____
4. _____

Other causes:

5. Check tire tread depths:

Front Steer Axle(s)	Actual Tread Depth		Rear Axle(s) Forward Dual Axle	Actual Tread Depth
Left Front			L/R - Outer	
Right Front			L/R - Inner	
Twin Steer 2nd Front Axle(s)			R/R - Outer	
L/F/Rear			R/R - Inner	
R/F/Rear			Rear Axle(s) 2nd Dual Axle	
			L/R - Outer	
			L/R - Inner	
			R/R - Outer	
			R/R - Inner	
			Rear Axle(s) 3rd Dual Axle	
			L/R - Outer	
			L/R - Inner	
			R/R - Outer	
			R/R - Inner	

- Within manufacturer's specifications: Yes: _____ No: _____
- If no:
List the problems, and list your recommendation(s) for rectification:

6. Check tread design matches:

- Within manufacturer's specifications: Yes: _____ No: _____
- If no:
List the problems, and list your recommendation(s) for rectification:

Discuss the findings with instructor.

Performance Rating

2007 NATEF Reference Number: D1-1

0

1

2

3

4

Supervisor/instructor signature _____ Date _____

► TASK Diagnose wheel/tire vibration, shimmy, pounding, hop (tramp) problems; determine needed action.

D1-2

1. Diagnose wheel/tire vibration, shimmy, pounding, hop (tramp) problems; determine needed action.
2. Reference the appropriate manufacturer's workshop to correctly diagnose wheel/tire vibration, shimmy, pounding, hop (tramp) problems; determine needed action.
3. List all the potential areas that can cause wheel/tire vibration, shimmy, pounding, hop (tramp):
 - i. _____
 - ii. _____
 - iii. _____
 - iv. _____
 - v. _____
 - vi. _____
 - vii. _____
 - viii. _____
 - ix. _____
 - x. _____

Alternative causes:

Time off _____

Time on _____

Total time _____

4. Following all procedures and safety requirements, carry out diagnostic procedures to determine the cause(s) for any wheel/tire vibration, shimmy, pounding, hop (tramp):

- Within manufacturer's specifications: Yes: _____ No: _____

- If no:

List the problems, and list your recommendation(s) for rectification:

Discuss the findings with instructor.

Performance Rating

2007 NATEF Reference Number: D1-2

0

1

2

3

4

Supervisor/instructor signature _____ Date _____