

Medium Heavy Vehicle–Steering Linkage-1

Student/intern information:

Name _____ Date _____ Class _____

Vehicle used for this activity:

Year _____ Make _____ Model _____

Odometer _____ VIN _____

Learning Objective/Task– Steering Linkage	2007 NATEF Reference Number	2007 NATEF Priority Level
• Inspect and align pitman arm; replace as needed.	A3-1	P-1
• Inspect drag link (relay rod) and tie rod ends (ball and adjustable socket type); adjust or replace as needed.	A3-2	P-1
• Inspect steering arm and levers, and linkage pivot joints; replace as needed.	A3-3	P-1

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 steering/suspension 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 Inspect and align pitman arm; replace as needed.

A3-1

1. Inspect and align pitman arm; replace as needed.
2. Reference the appropriate manufacturer’s workshop for the correct procedure to inspect and align the pitman arm; replace as needed.
3. Following all procedures and safety requirements, carry out the inspection and alignment of the pitman arm; replace as needed.
 - Within manufacturer’s specifications: Yes: _____ No: _____
 - If no:
If directed by your instructor, replace the worn pitman arm.
4. Following all procedures and safety requirements, replace the worn pitman arm and correctly torque pitman arm nut:
 - Manufacturer’s specifications: _____ ft/lbs
 - Final tension setting: _____ ft/lbs

Discuss the findings with instructor.

Performance Rating

2007 NATEF Reference Number: A3-1

0

1

2

3

4

Supervisor/instructor signature _____ Date _____

Time off _____

Time on _____

Total time _____

▶ TASK Inspect drag link (relay rod) and tie rod ends (ball and adjustable socket type); adjust or replace as needed.

A3-2

1. Inspect drag link (relay rod) and tie rod ends (ball and adjustable socket type); adjust or replace as needed.
2. Inspect the drag link (relay rod) and tie rod ends (ball and adjustable socket type); adjust or replace as needed.
3. Following all procedures and safety requirements, inspect the drag link (relay rod):
 - Within manufacturer’s specifications: Yes: _____ No: _____
 - If no:
If directed by your instructor, adjust/replace the drag link (relay rod).

Time off _____

Time on _____

Total time _____

4. Following all procedures and safety requirements, replace the worn tie rod ends (ball and adjustable socket type):

- Manufacturer's specifications: _____ ft/lbs
- Final tension setting: _____ ft/lbs

Discuss the findings with instructor.

Performance Rating

2007 NATEF Reference Number: A3-2

0

1

2

3

4

Supervisor/instructor signature _____ Date _____

▶ TASK Inspect steering arm and levers, and linkage pivot joints; replace as needed.

A3-3

1. Inspect steering arm and levers, and linkage pivot joints; replace as needed.
2. Inspect the steering arm and levers, and linkage pivot joints; replace as needed.
3. Following all procedures and safety requirements, inspect the steering arm and levers:
 - Within manufacturer's specifications: Yes: _____ No: _____
 - If no:
If directed by your instructor, adjust/replace the steering arm and levers.
4. Following all procedures and safety requirements, replace the steering arm and levers:
 - Manufacturer's specifications: _____ ft/lbs
 - Final tension setting: _____ ft/lbs
5. Following all procedures and safety requirements, inspect the linkage pivot joints:
 - Within manufacturer's specifications: Yes: _____ No: _____
 - If no:
If directed by your instructor, adjust/replace the linkage pivot joints.
6. Following all procedures and safety requirements, replace the linkage pivot joints:
 - Manufacturer's specifications: _____ ft/lbs
 - Final tension setting: _____ ft/lbs

Time off _____

Time on _____

Total time _____

Discuss the findings with instructor.

Performance Rating

2007 NATEF Reference Number: A3-3

0

1

2

3

4

Supervisor/instructor signature _____ Date _____