

071604T4AUT

AUTOMOTIVE TECHNOLOGY LEVEL 4

ENG/OS/AUT/CR/4/4/A

Service Vehicle Steering and Suspension Systems

Mar/Apr 2025



**TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION
COUNCIL (TVET CDACC)**

WRITTEN ASSESSMENT

INSTRUCTIONS TO CANDIDATE

1. This paper consists of two sections; **A** and **B**.
2. Attempt **ALL** questions in both sections.
3. Marks for each question are as indicated in the brackets.
4. You are provided with a separate answer booklet to answer the questions.
5. Do not write in this question paper.

This paper consists of FIVE (5) printed pages
Candidates should check the question paper to ascertain that all pages
are printed as indicated and that no questions are missing

SECTION A (10 MARKS)

Attempt all questions in this section. Each question carries one mark

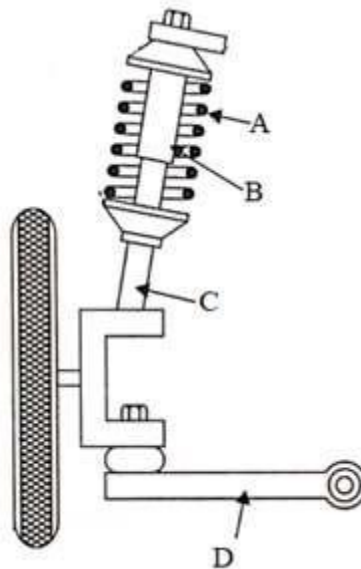
1. The first step when preparing to inspect the steering and suspension components of a vehicle is;
 - A. Raise the vehicle using a hydraulic jack
 - B. Remove the wheels and tires
 - C. Assembling the necessary tools and equipment
 - D. Perform a road test to assess the suspension
2. _____ is the function of the steering rack in a vehicle's steering system.
 - A. To control the vehicle's braking system
 - B. Converting the rotational movement of the steering wheel into linear motion
 - C. To control the movement of the suspension system
 - D. To regulate the vehicle's speed
3. The component responsible for providing cushioning and shock absorption in a vehicle's suspension system is;
 - A. Shock absorber
 - B. Tie rod
 - C. Steering wheel
 - D. Sway bar.
4. Select the statement from the mentioned below that indicates the suspension components have "excessive play" during inspection.
 - A. The suspension is operating normally
 - B. The suspension needs more lubrication
 - C. The shock absorbers are too stiff.
 - D. The components may be worn out or damaged and require replacement.
5. The type of steering suspension system that typically uses a coil spring to absorb shock is;
 - A. Independent suspension system
 - B. Leaf spring suspension system
 - C. Air suspension system
 - D. McPherson strut suspension system

6. _____ must be checked when setting the steering geometry after component replacement.
- A. The fuel levels.
 - B. The engine oil level.
 - C. The wheel alignment and toe-in settings
 - D. The tire tread depth
7. The correct procedure for disposal of waste after working on a vehicle's steering and suspension system should be;
- A. Disposal of waste in any available trash bin
 - B. Disposal of fluid waste in designated containers according to HSE regulations
 - C. Leave waste in the workshop for future disposal
 - D. Burn waste to get rid of it quickly.
8. In the event of a worn-out ball joint, which of the following symptoms is most likely to be noticed.
- A. A squeaky noise while driving
 - B. Vibration in the steering wheel
 - C. Steering feels loose and
 - D. Excessive fuel consumption.
9. Name the type of suspension system most commonly used in front-wheel-drive vehicles.
- A. Leaf spring suspension
 - B. MacPherson strut suspension
 - C. Air suspension
 - D. Coil over suspension
10. The purpose of tyre rotation on automobile is to;
- A. Avoid ply separation.
 - B. Equalize wear.
 - C. Get better ride.
 - D. Get higher cornering power.

SECTION B (40 MARKS)

Attempt ALL questions in this section.

11. Identify THREE key maintenance checks to perform on the suspension system during a routine inspection and service. (3 Marks)
12. State FOUR symptoms of a faulty steering system that would require immediate inspection. (4 Marks)
13. List THREE common causes of poor vehicle handling that may be linked to the suspension system. (3 Marks)
14. State the uses of the following tools commonly used to diagnose issues with steering and suspension systems. (4 Marks)
15. Figure 1 shows parts of MacPherson strut assembly. Identify the parts labeled; A, B, C and D. (4 Marks)



16. Name THREE safety precautions taken when working with steering and suspension systems in an automotive workshop. (3 Marks)
17. State THREE importance of setting the correct steering geometry during vehicle repair. (3 Marks)
18. Outline THREE types of suspension failures that could occur due to improper maintenance or faulty components. (3 Marks)

19. Figure 2 shows parts of simplified rack and pinion components. State the functions of the labeled parts. (4 Marks)

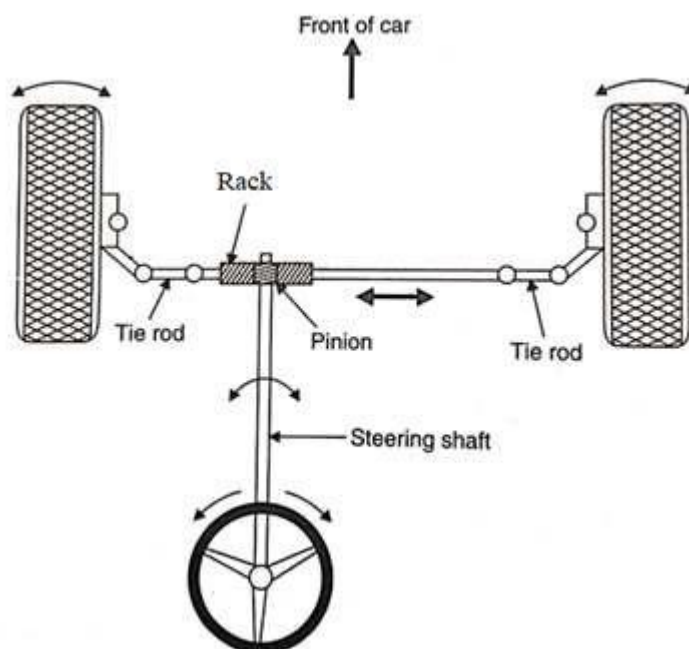


Figure 2

20. Name THREE types of steering systems used in modern vehicles. (3 Marks)
21. List THREE symptoms that (3 Marks)
22. Give THREE environmental considerations when working with steering suspension system fluids like hydraulic fluid or lubricants. (3 Marks)