

071605T4AUT

AUTOMOTIVE TECHNICIAN LEVEL 5

ENG/OS/AUT/CR/7/5/A

SERVICE VEHICLE SUSPENSION SYSTEM

March/April 2025



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

**WRITTEN ASSESSMENT
Time: 3 HOURS**

INSTRUCTIONS TO CANDIDATE

1. This paper consists of **TWO** sections: **A** and **B**.
2. Answer **ALL** questions in section A and **ANY THREE** (3) questions in section B.
3. Marks for each question are indicated in the brackets.
4. Candidates are provided with a separate answer booklet.
5. Do not write on the question paper.

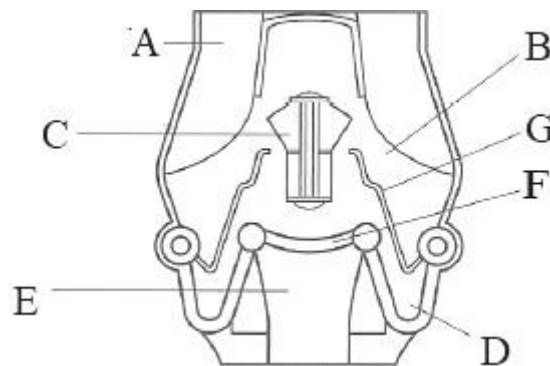
This paper consists of FOUR (4) printed pages
Candidates should check the question paper to ascertain that all
pages are printed as indicated and that no questions are missing.

SECTION A: (40 MARKS)***Attempt ALL Questions in This Section***

1. Job cards serve as an essential tool for automotive service centres. Outline FOUR importance of using job card. (4 Marks)
2. A clean and well-ordered workshop is not only safer but also attractive to customers. Describe TWO rules and regulations that must be devised to make the garage a safe, efficient and healthy place to work. (4 Marks)
3. Personal safety is given the first priority before beginning any service work. Outline THREE personal protection equipment used in a motor vehicle workshop. (3 Marks)
4. The MacPherson's strut suspension system is an improvement from the Double Wishbone type. Outline THREE advantages of this system that make it suitable for use in saloon cars. (3 Marks)
5. An important design consideration for any suspension system is the sprung and unsprung weights. Explain the difference between these two terms. (4 Marks)
6. A customer complaint of the car being low at the front. Outline FOUR causes of these problem.
7. Depending on the type and the purpose for which the vehicle is used, manufacturers have come up with different designs for shock absorbers. Identify TWO main types of these shock absorbers. (2 Marks)
8. As a vehicle moves, the suspension and tires must react to the current driving conditions. Outline FOUR functions of the suspension system. (4 Marks)
9. The suspension system has become more advanced through the years and manufacturers have come up with various types of springs. Outline FOUR examples of steel springs. (4 Marks)
10. Most front wheels today employ independent suspension system. List FOUR disadvantages of this system. (4 marks)
11. Some vehicles are fitted with rubber suspension springs as an alternative to steel. Explain TWO reasons for these. (4 Marks)

SECTION B: (60 MARKS)***Attempt THREE Questions in This Section***

12. As the vehicle turns a corner, the side forces cause it to roll making it difficult for the driver to control the vehicle. Anti-roll bars are used to help overcome this reaction.
- Explain how the anti-roll bars help to prevent rolling. (8 Marks)
 - Describe THREE inspection checks carried out on anti-roll bars. (6 Marks)
 - Outline THREE pieces of information you would put on the job card after servicing anti-roll bars. (6 Marks)
13. Figure 1 shows the diagram for the Hydrolastic suspension system.
- Identify the parts labelled A to F (6 Marks)
 - You were asked to service the suspension above and issued with the service manual. Name FOUR pieces of information you would source from the manual (4 Marks)
 - Explain the operation of this system;
 - When the vehicle travels over un-even road surface (2 Marks)
 - On compression (6 Marks)
 - When the road wheel (2 Marks)

**Figure 1**

14. **Figure 2** shows a type of car suspension system which uses the axis of a telescopic damper as the upper steering pivot
- When removing part **b** on the suspension above, outline the precautionary measure you will take before you disconnect it from **c** (2 Marks)
 - Outline TWO functions of the part labelled **e** (2 Marks)
 - As a technician, explain reasons that will call for replacing any or all of the parts labelled **a** to **d** (4 Marks)

- d) Explain **four** functions of the components of the double transverse link suspension system. (12 Marks)

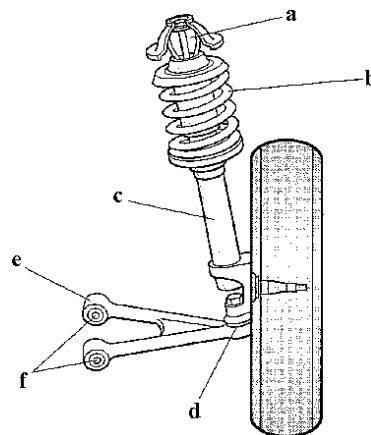


Figure 2

15. A vehicle was brought to the workshop with a suspension system shown in **figure 3** below.

- Identify TWO applications of the suspension system (2 Marks)
- Identify the components (3 Marks)
- 2 and 3 (3 Marks)
- You were asked to service the suspension system; identify FOUR tools and equipment you would use. (4 Marks)
- Describe THREE factors that may cause damage of the suspension system. (6 Marks)

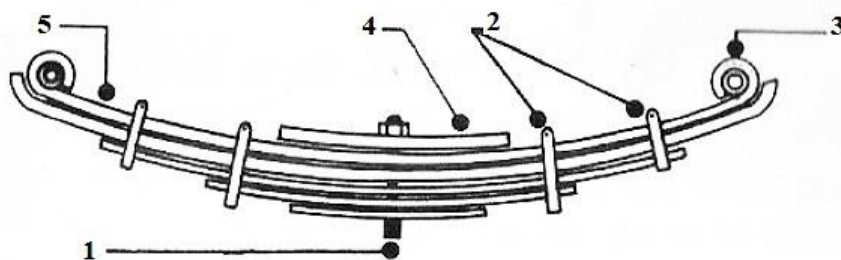


Figure 3