

071606T4AUT

AUTOMOTIVE TECHNICIAN LEVEL 6

ENG/OS/AUT/CR/7/6/A

Service Vehicle Braking 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 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 (40 MARKS)

Attempt Any THREE Questions in This Section.

1. A vehicle is brought to the workshop with faulty braking system. You are required to perform a diagnosis to establish the problem. Identify FOUR key components which should be checked (4 Marks)
2. Regular maintenance of the braking system is necessary for ensuring its effectiveness. Outline FOUR key indicators that signal the need for service and attention of the vehicle's braking system. (4 Marks)
3. The quality of the brake fluid affects the braking system optimal performance. Outline FOUR factors that affect the condition of the brake fluid (4 Marks)
4. Motor vehicle braking system consists of several mechanisms that work together to stop the vehicle. Identify FOUR key mechanisms involved in the functioning of the disc braking system (4 Marks)
5. The vehicle's wheels may skid during emergency braking. A safety feature is integrated into the braking system to prevent this skidding. Identify FIVE ways in which this feature functions
6. Figure 1 below shows a type the function of the parts labeled P, Q, R, S and T (4 Marks)

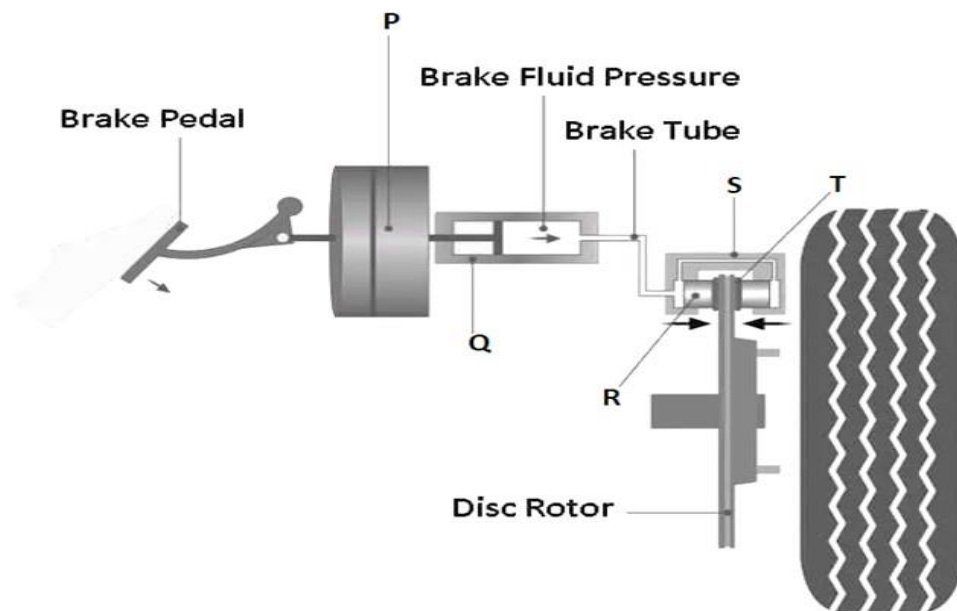


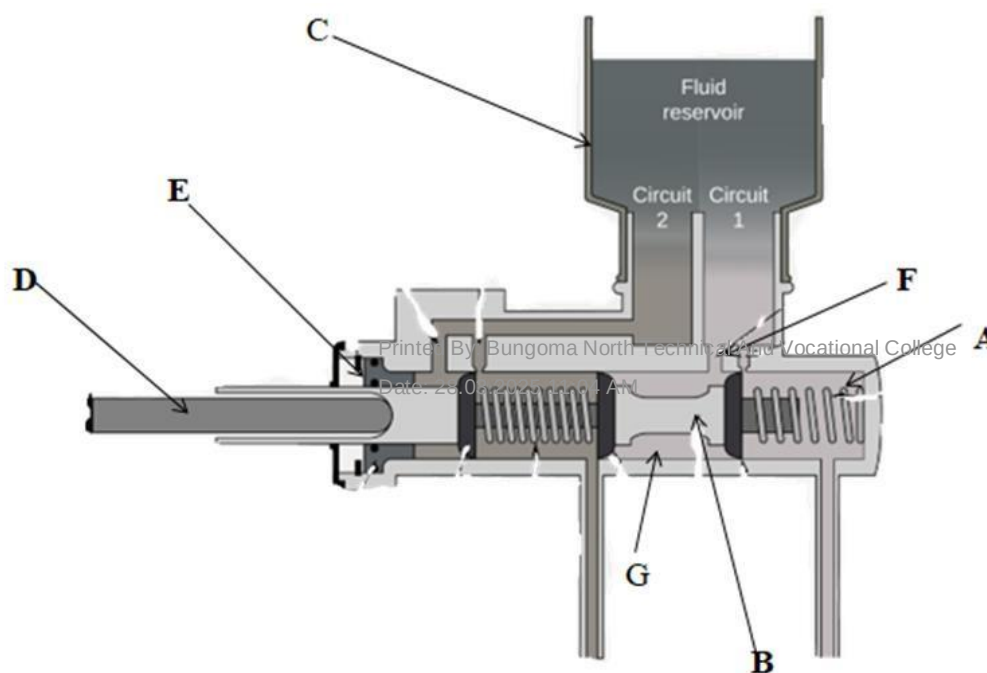
Figure 1

7. Flexible pipes/hoses are often used in conjunction with steel in a motor vehicle braking system. Outline FOUR advantages of choosing these pipes. (4 Marks)

8. A vehicle is brought to the workshop for service with a problem of the brake booster failure. Identify FOUR common causes of the brake booster failures (4 Marks)
9. A fleet of company vehicles were brought for servicing in the workshop, Outline ONE visual inspection involved in the following brake components when servicing.
 - i. Brake pads
 - ii. Brake rotors
 - iii. Brake pipelines
 - iv. Brake fluid (4 Marks)
10. Parking brakes are an important feature for motor vehicles braking system. You are tasked with inspecting and testing the parking brake system of a passenger car. Identify THREE parts of parking brakes which should be checked. (3 Marks)

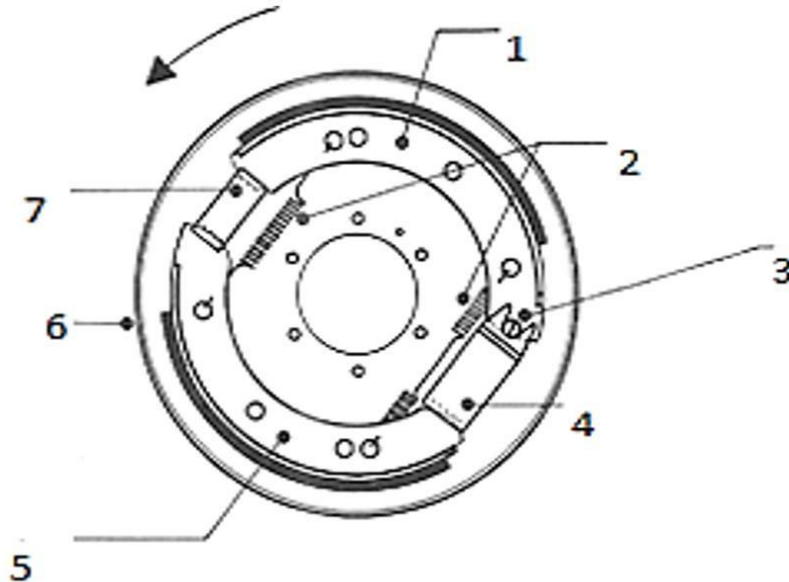
SECTION B (60 MARKS)***Attempt Three Questions in This Section***

11. Maintaining the performance of the braking system is essential for vehicle safety and efficiency. One critical aspect of this maintenance is the inspection and replacement of wheel bearings.
- Identify FIVE importance of wheel bearing inspection in relation to brake system performance. (5 Marks)
 - Figure 2 below shows the main part of a hydraulic brake system.
 - Identify the component depicted by the layout (1 Mark)
 - Explain, the functions of the parts labeled **A to G** (14 Marks)

**Figure 2**

12. A client brought a vehicle into the workshop for service with a problem of the brakes.
- Identify TWO possible faults for each of the following brake system symptoms
 - Brake pedal pulsation at high speed
 - Unresponsive brakes
 - Brakes making noise.
 - Brakes Pulling to One Side (4 Marks)
 - With aid of a well labeled diagram, describe the constructional features and operation of vacuum assisted braking system. (16 Marks)

13. Use the figure 3 below to answer the following questions
- Identify the type of the braking system.in the diagram (1 Mark)
 - Explain the functions of the key components labelled. **1 to 7** (14 Marks)
 - Outline THREE advantages and TWO disadvantages of these brake assembly (5 Marks)



14. The foot brake of a vehicle moving down a hill failed but the driver could still manage to control the speed until the vehicle came to rest with the help of the exhaust retarder.
- Identify THREE mechanisms of the braking systems that the driver could use to stop the vehicle. (3 Marks)
 - With an aid of a well labelled diagram describe the construction and operation of the exhaust retarder. (13 Marks)
 - Outline TWO advantages and TWO disadvantages of the exhaust brakes. (4 Marks)