



NZQA accredited and registered provider

## Brake Systems

# PRACTICE PAPER ONLY

**Test Paper One / Time allowed 90 mins**

To be completed by the student

**Student Name** \_\_\_\_\_ **Date** \_\_ / \_\_ /2020

**School/Provider** \_\_\_\_\_

To be completed by the School Invigilator/Coordinator/Tutor

**I confirm that this assessment was completed by the student named above as a closed book exercise under exam conditions**

**Invigilator Name** \_\_\_\_\_

**Invigilator Sign** \_\_\_\_\_

**Assessed By** \_\_\_\_\_

**Date** \_\_ / \_\_ / 2020

**Assessor's  
Stamp**

**Assessors Note: Materials relate to unit standard 23817**

# SAMPLE ASSESSMENT INSTRUCTIONS

## PLEASE MAKE SURE TO READ AND SIGN THIS SECTION

### ASSESSMENT INSTRUCTIONS

- Before starting this assessment you should have achieved a mark of at least 80% for your workbook.
- Use a black or blue ball point pen. (do not use pencil)
- Write your full name on the cover page.
- This is a closed book assessment, so you cannot bring any reference material in, or seek help from anyone else.
- You need to answer all the questions.
- Read the questions carefully, and give detailed answers when asked to.
- You must complete the assessment under exam conditions.
- To achieve the unit standard you must show competency for each outcome.

Complete the following by circling Yes or No as appropriate:

Are you ready to be assessed? **Yes** **No**

Have the assessment instructions these been explained to you? **Yes** **No**

Do you understand the assessment instructions? **Yes** **No**

Have you all the materials/resources that you need for this assessment? **Yes** **No**

Please sign to acknowledge that you have read these instructions and are ready to be assessed.

Student Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**You must complete the assessment instructions on Page 2 before starting this assessment!**

**ELEMENT ONE**

Demonstrate knowledge of braking principles.

**1. What is 'Friction'?**

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**2. What is 'Kinetic Energy'?**

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**3. What is the 'law' that relates to fluid in an enclosed system?**

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**4. What is 'Vapour Lock'?**

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**5. Name the component that multiplies the brake pedal pressure to the master cylinder.**

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**6. State whether TRUE or FALSE in the following statements. Write T or F in the box provided.**

The Proportioning valve limits the fluid pressure to the front brakes the rear brake shoes have started to move.

The pressure differential valve is responsible for warning the driver of low brake booster pressure.

The metering valve regulates pressure differences to the front and rear brakes.

**7. What are the two types of brake calliper designs?**

1: \_\_\_\_\_

2: \_\_\_\_\_

**8. Brake lining or friction materials are manufactured to meet high standards. Name 3 qualities of good friction materials.**

1: \_\_\_\_\_

2: \_\_\_\_\_

3: \_\_\_\_\_

**9. In the following statements state whether TRUE or FALSE. Write T or F in the box provided.**

Is hydraulic force doubled at the wheel cylinder if the surface area of the Master cylinder is half that of the piston in the wheel cylinder?

Will a wheel cylinder piston travelling distance be double that of the master cylinder's piston travelling distance, if the master cylinder piston area is double that of the wheel cylinder?

**10. What are the THREE most common brake shoe configurations used on vehicles?**

1: \_\_\_\_\_

2: \_\_\_\_\_

3: \_\_\_\_\_

**11. Describe the working action of the ' Duo Servo 'or self-energising brake shoe system**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**12. Describe the operation of a vacuum brake booster**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**13. What is 'vehicle weight distribution' and describe its effect on brake operation?**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**14. What is a height sensing brake proportioning valve?**

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**15. Why does a brake calliper have a square shouldered internal seal and not a round type?**

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**16. What is the purpose of the 'Self adjusting mechanism' in rear drum type brakes, and describe its function?**

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**17. What factors can influence brake performance?**

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**ELEMENT TWO**

Demonstrate knowledge of braking system componentry and operation.

**1a. Name two types of braking system arrangements?**

1: \_\_\_\_\_

2: \_\_\_\_\_

**1b Describe the operation of a 'Diagonal split braking system?**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**2. Name the two types of brake master cylinders and give a brief description of their operation?**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3a. Explain the purpose of the check valve in a brake booster?

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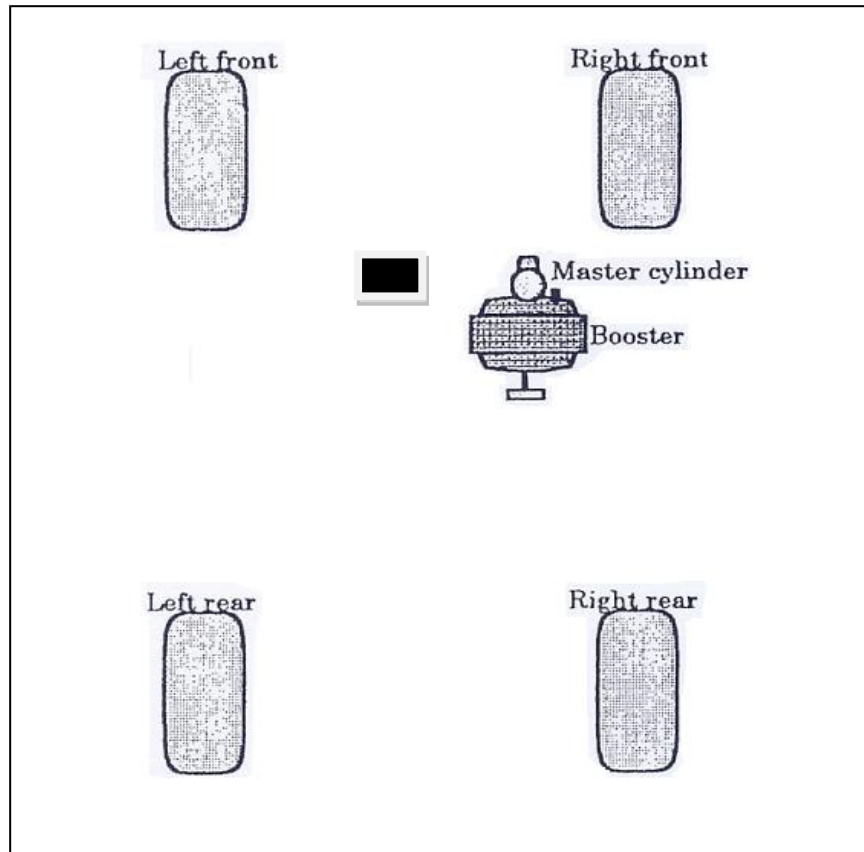
3b. Name 3 requirements for brake booster operation?

1: \_\_\_\_\_

2: \_\_\_\_\_

3: \_\_\_\_\_

4. The diagram below shows an incomplete layout of a diagonally split braking system. Draw on the diagram below the brake pipes and the proportioning valve.





**5. What type of brake calliper is generally found on motorcycles?**

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**6. Describe the main difference between the floating and sliding calliper arrangements.**

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**7. Name three types of wheel cylinders?**

1: \_\_\_\_\_

2: \_\_\_\_\_

3: \_\_\_\_\_

**8. If the brake pedal creeps to the floor under steady foot pressure, what could the problem be?**

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### ELEMENT THREE

Demonstrate knowledge of electronic braking system componentry and operation.

#### 1. Match up each braking system with its description

A	<b>EBD</b>		1	Safety feature designed to prevent wheel lock up under emergency braking.
B	<b>ABS</b>		2	Takes the place of a mechanically operated brake proportioning valve.
C	<b>Brake Assist</b>		3	This brake system design uses a small electric motor near the wheels that generate the braking pressure.
D	<b>Brake By Wire</b>		4	System detects if the driver is trying to execute an emergency stop, and if the brake pedal is not fully applied, the system overrides and fully applies the brakes.

#### 2. Name the 3 types of anti-lock braking systems

1: \_\_\_\_\_

2: \_\_\_\_\_

3: \_\_\_\_\_

#### 3. Explain the function of the **ONE** channel type abs system?

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**4. How are ABS sensors used in the “Traction Control System”?**

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