



NZQA accredited and registered provider

Engine assembly

PRACTICE PAPER ONLY

Test Paper One / Time allowed 90 mins

To be completed by the student

Student Name _____ **Date** __ / __ /2021

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 __ / __ / 2021

**Assessor's
Stamp**

Assessors Note: Materials relate to unit standard 21688

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: _____

ELEMENT ONE

Demonstrate knowledge of disassembling an engine.

1.a Identify 5 safety precautions when disassembling and reassembling an engine?

1 _____

2 _____

3 _____

4 _____

5 _____

1.b What is the correct procedure to clean the engine assembly to remove oil and dirt and what equipment would be required?

2. List the tools and equipment that are used when disassembling an engine?

Tools: _____

Equipment: _____

3. In the boxes below number the correct dismantling procedure for a 4 cylinder petrol engine?

	Remove pistons and connecting rods		Remove cylinder head assembly
	Remove crankshaft assembly		Remove rocker cover and cylinder head bolts
	Remove camshaft and rocker assemblies		Remove oil pump
	Remove sump		Remove ancillary components
	Remove cylinder head bolts		Remove the cam belt cover and cam belt

4. Explain the procedure to disassemble the cylinder head and valves?

5. How should pistons, valves and camshaft bearing caps be stored to ensure correct reassembly?

6. What equipment would be used to clean the following engine components?

Cylinder Head Assembly: _____

Sump: _____

Piston and Connecting Rods: _____

Crankshaft Assembly: _____

Valves and springs: _____

Cylinder Block: _____

Cylinder Head Bolts: _____

ELEMENT TWO

Demonstrate knowledge or reassembling an engine to a running state.

- 1. List five tools that would be used when assembling a motor?**

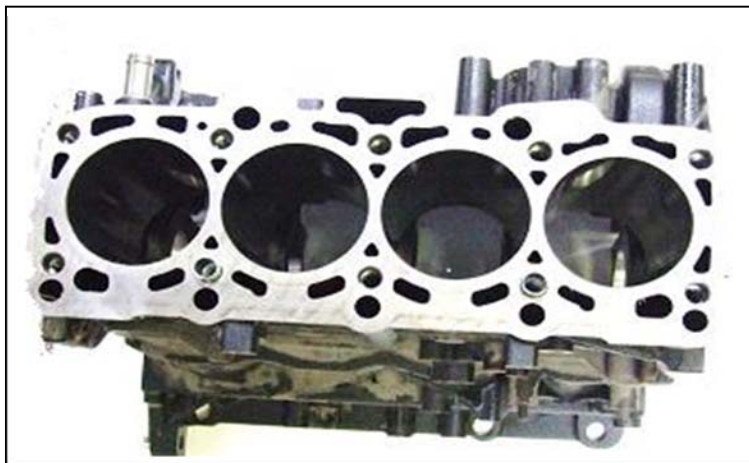
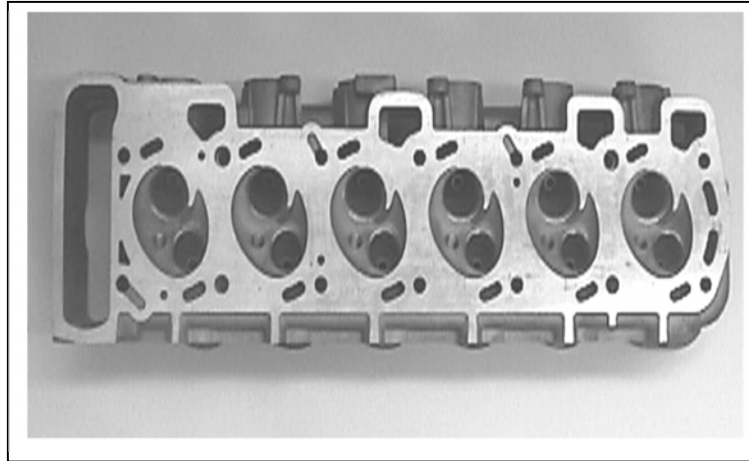
- 2. List 2 items of equipment used when assembling a motor?**

- 3. Give a method of cleaning parts of a dismantled engine and protecting them from corrosion?**

4. In the illustrations below identify the cooling and oil galleries of both the engine block and the cylinder head?

Cooling Galleries with a 'X'

Oil Galleries with a 'O'



5. Describe the flow of lubricating oil from the sump to the top of a 4 cylinder engine?

6. In the left hand column of the table below list the correct order for assembling an engine?

	Install oil pump assembly and sump.
	Fit both intake and exhaust manifolds with new gaskets.
	Fit water pump, install cambelt and tension to correct settings and fit cambelt covers.
	Lubricate cylinder bores, install pistons and connecting rods in the correct numerical order and secure the connecting rods to the crankshaft.
	Install crankshaft and main bearing caps and torque to manufacturers specifications.
	Fit a new cylinder head gasket and secure cylinder head to block ensuring correct torque and installation method as per manufacturer's specifications.
	Fit camshaft to cylinder head and secure to correct torque. Install rocker arms and set valve clearances.
	Install valve cover with new gasket and secure to correct torque.

7. What is the correct sequence when tightening crankshaft and camshaft bearings caps?

8. What is the correct tightening sequence for cylinder head bolts if no workshop manual is available?

9. You have been asked to set the valve clearances for a 4 cylinder engine. Describe what method you would use?

10. Why is a clearance required between the crankshaft journal and main bearing?

11. How can this clearance be measured?

12. You have finished fitting a rebuilt engine back into the engine bay. Give 2 important tasks to do with the cooling system before starting the engine?

13. The engine will have no oil pressure for a short time when first started. What can you do before starting to ensure oil pressure will be provided by the oil pump quickly?

14. Once the engine has been started and run to operating temperature what checks will now need to be done?



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