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Unit Standard 21687

Demonstrate knowledge of basic engine tuning on a four stroke petrol engine

Level 2 Credit 3 v2

Student Name:	
School:	
Date:	

Marked By: _____ **Mark** _____%

Feedback:

Excellent work ☐

Good work ☐

Please attempt all questions ☐

Please resubmit ☐

USEFUL WEBLINKS

Fluid Level Checks
http://youtu.be/uvUPsk2bN0A
http://youtu.be/zmwLj1pnreg
http://youtu.be/-jU8JIfDwIU
http://youtu.be/vEdtHZwLKZ8
http://youtu.be/CVEmn4KKLsM
http://youtu.be/BR5lZkRuSt4
http://youtu.be/42lGSISsKys
http://youtu.be/NS6phSxHlC0

Compression Test
http://youtu.be/X_tbksFYhl4
http://youtu.be/YnV7FjLLt2s

Vacuum Test
http://youtu.be/vh3Z-F6KGkI
http://youtu.be/SdlNwm8OHco

Cylinder Leakage Test
http://youtu.be/ofSiTGeLXvc
http://youtu.be/dJhsavxX6HE

Valve Clearance
http://youtu.be/x0H7CP2QLxA
http://youtu.be/MoQbmuMploc

Ignition Timing
http://youtu.be/rDXDV0ZO280

Spark Plugs
http://youtu.be/KwhKl22DQaM
http://youtu.be/1-p1xPYCTzQ

Exhaust Gas Analyser
http://youtu.be/R4gMfgt78e0
http://youtu.be/oIdVc1pxq70

REVIEW QUESTIONS ONE

Q1 List eight safety points to be considered when working on a vehicle.

Q2 Explain the function of an engine tune-up.

Q3 When may it be necessary to recharge a battery?

Q4 What action is required if discolouration is evident in the cooling system coolant?

Q5 Complete the following sentence:

To check belt _____, apply moderate _____ pressure _____ between the _____ to assess belt _____. If _____ is necessary consult the _____ specifications.

Q6 Explain the purpose of a compression test.

Q7 List five possible results of low compression.

Q8 When is it necessary to carry out a test for faulty compression rings?

Q9 A compression test carried out on a six cylinder engine recorded the following results:

No 1 cylinder 1400 kPa	No 4 cylinder 1300
No 2 cylinder 1320 kPa	No 5 cylinder 1250
No 3 cylinder 1270 kPa	No 6 cylinder 900

Evaluate these results and offer suggestions for further action. Note manufacturer's recommended compression is 1400 kPa.

Q10 Explain the purpose of a cylinder leakage test.

Q11 List four areas that should be checked for leaks during a cylinder leakage test.

REVIEW QUESTIONS TWO

Q12 Outline the procedure involved in adjusting valve clearances.

Q13 Explain why it is important that valve clearances are held to the correct specifications?

Q14 Explain two possible causes of burned breaker points.

Q15 Why is it important that breaker points are correctly aligned?

Q16 What must be ensured when measuring the contact gap at each distributor cam lobe?

Q17 Explain the term “Dwell”.

Q18 Complete the following sentences.

The rate of _____ is controlled by the _____ of the _____ reacting _____ the _____ pull of the _____. Controlling the _____ movement of the _____ controls _____ advance.

Q19 Name the piece of equipment used to check centrifugal advance.

Q20 List three checks that should be made when inspecting a distributor cap.

Q21 Explain why it is important to clean spark plug threads.

Q22 Why is it important not to prolong the use of a sandblaster when cleaning spark plugs?

Q23 Explain how each of the following spark plug conditions can be identified.

Oil-fouled

Carbon fouled

Pre ignited

Splash fouled

Q24 Why is it important not to over-tighten spark plugs when installing?

Q25 Explain the procedure to adjust a spark plug gap.

Q26 What is the purpose of an air filter?

Q27. Outline the procedure involved in determining the operation of the mechanical advance mechanism.

Q28. List three possible causes of incorrect ignition timing.

Q29 Explain in your own words, what happens when the ignition timing is retarded.

Q30 Explain the dangers associated with the following pollutants:

HC

CO

Q31. Explain the purpose of an exhaust gas analyser.

Q32. What adjustment should be made if a low CO reading is recorded on the exhaust gas analyser?

Q33. List three possible causes of a high HC reading.