

Unit Standard **30437**

Demonstrate knowledge of the operation of a diesel fuel system

Level 3 Credit 2 v1

Student Name:

School:

Date:

Marked By: _____ **Mark** _____ **%**

Feedback: **Excellent work**
 Good work

Please attempt all questions
Please resubmit

USEFUL WEBLINKS

Diesel Fuel

<http://youtu.be/hTfHHCJL-G8>

Cetane Fuel

<http://youtu.be/WdQ4J-NFoU8>

Direct and Indirect Injection

<http://youtu.be/NSvfdP4urak>

Difference between Petrol and Diesel

<http://youtu.be/8Rsl8jzlgno>

Diesel Engines

<http://youtu.be/s2WGFELXPNg>

<http://youtu.be/fTAUq6G9apg>

Lift Pump

<http://youtu.be/9-GSNR7W73M>

<http://youtu.be/veEONfhL3Uk>

Injectors

http://youtu.be/EbjDH7fr_J8

Removing Injectors

<http://youtu.be/2ONEodNkwJ8>

Common Rail Diesel Injection

<http://youtu.be/N-RPdRH7tGw>

Bleeding Diesel Engines

<http://youtu.be/rM511zCDgxI>

Replacing a Fuel Filter

<http://youtu.be/UCkRCT1iOGg>

REVIEW QUESTIONS ONE

- Q1 A diesel fuel should have eight qualities, these are:
- Q2 Explain the importance of having the correct specific gravity in a diesel fuel.
- Q3 Explain the difference in the spray pattern obtained from high and low viscosity diesel fuel.
- Q4 What is meant by the term Cetane number?

Q5 What is meant by the term flash point?

Q6 (a) Name the substance in diesel fuel that forms into crystals at low temperature

(b) The temperature at which the crystals form is called

Q7 Describe the effect of the following substances in diesel fuel.

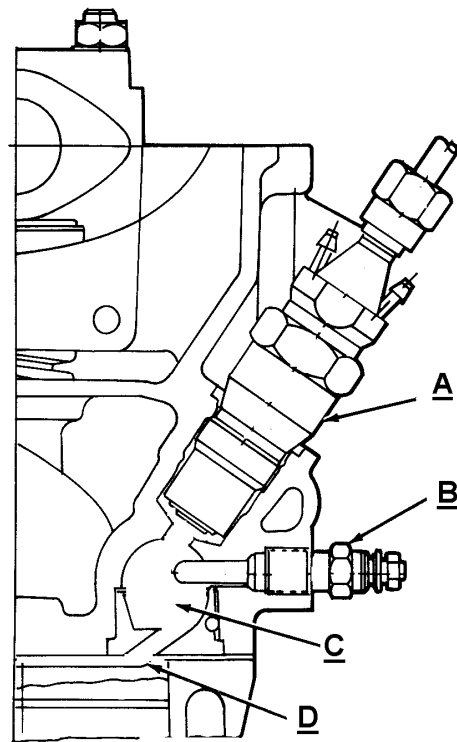
Water

Sulphur

REVIEW QUESTIONS TWO

Q8 Outline a typical fuel flow cycle for a diesel engine.

Q9 Name the components labelled in the Diesel engine diagram.



Q10 There are six main components in a diesel fuel system. These are:

Q11 Why is it important that lift pumps be fitted with some sort of hand primer?

Q12 In common rail systems explain why Piezo injectors are more efficient.

Q13 Fuel injector pumps carry out four functions. These are:

Q14 What is the main purpose of a governor?

Q15 Describe the difference between mechanical and electronic governors.

Q16 Outline the main purpose of each of the following components:

Throttle delay mechanism

Start aid mechanism

Lift pump

REVIEW QUESTIONS THREE

Q17 Injectors carry out two functions these are:

Q18 Complete the following statement, using the key words below.

Injectors are operated by _____ generated in the
pump. This acts on the _____ and lifts the
from its _____ as soon as _____ pressure is overcome.

Hole type injectors have a _____ at their end, which serves as a _____ .

In multi holed nozzles, the holes form an _____ to obtain
fuel _____ .

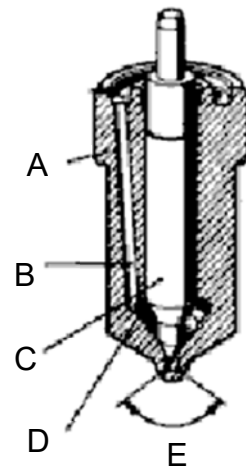
Needle, cone, optimum, fuel, valve, pressure, seat, seat, nozzle, spring, angle,
injector, distribution.

Q19 A glow plug is suspected of being faulty. How should it be checked?

Q20 Describe the procedure to service an air filter.

Q21 When should you replace a fuel filter?

Q22 Name the components labelled in the diagram of the injector nozzle



Q23 An injector is suspected of being faulty. How can a check be carried out in the vehicle to isolate the faulty unit?

Q24 Injectors can be fitted into the cylinder head by one of two methods. These are:

- Q25 Describe the precautions that should be observed with the injector pipes when injectors are removed and replaced.
- Q26 What is the function of the water separator?
- Q27 When replacing fuel filter units what should be done to remove air from the fuel system?
- Q28 Describe the procedure for bleeding a fuel system that is equipped with a hand primer.
- Q29 How is the high pressure side of the fuel system bled?