



**UNIVERSITI KUALA LUMPUR
Malaysia France Institute**

**FINAL EXAMINATION
JULY 2010 SESSION**

SUBJECT CODE : FVD 30102
SUBJECT TITLE : NGV INSTALLATION AND MAINTENANCE
LEVEL : DIPLOMA
TIME / DURATION : 4.00pm – 6.00pm
(2 Hours)
DATE : 10 NOVEMBER 2010

INSTRUCTIONS TO CANDIDATES

1. Please read the instructions given in the question paper **CAREFULLY**.
 2. This question paper is printed on one side of the paper.
 3. Please write your answers on the answer booklet provided.
 4. Answer should be written in blue or black ink except for sketching, graphic and illustration.
 5. This question paper consist of 2 (two) sections. Section A and B. Answer all questions in Section A. For Section B, answer 2 (two) questions only.
 6. Answer all questions in English.
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THERE ARE 3 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

SECTION A (Total: 60 marks)**INSTRUCTION: Answer ALL questions.****Please use the answer booklet provided.**

Question 1

- (a) With the aid of a sketch show the correct location of a petrol solenoid valve in the NGV fuel system
(5 marks)
- (b) Explain the operation of the petrol solenoid valve in the NGV fuel system
(6 marks)

Question 2

Draw a flow-chart of the NGV installation procedures from receiving to the handing over of the vehicle to the customer

(10 marks)

Question 3

Explain the purpose of the following:

- i. The loops on the high pressure pipeline
- ii. The burst disc
- iii. The filler valve that can withstand the force of 40kg
- iv. The regulator that must not be positioned higher than the radiator header tank
- v. The petrol hose must not run above the ignition system

(10 marks)

Question 4

- a) A customer comes to you complaining that his vehicle cannot be started on NGV but ok on petrol develop a flow-chart to show the trouble-shooting sequence that you employ to find out the causes of the problem
(10 marks)
- b) Give three probable causes each of the following:
- i. Engine rough idle on NGV
 - ii. Engine cannot be started on both NGV and petrol

iii. Engine loss power on NGV more than normal

(9 marks)

Question 5

After installing all the NGV mechanical components you are about to fix the selector switch to the system. With the aid of a diagram explain how the various wires of the switch to be connected to the following components/items:

- i. Gas solenoid
- ii. Petrol solenoid
- iii. Power input
- iv. Safety device (fuse)
- v. Earth (ground)

(10 marks)

SECTION B (Total: 40 marks)

INSTRUCTION: Answer TWO (2) questions only.

Please use the answer booklet provided.

Question 1

(a) Explain clearly the procedures (step by step) how you check the NGV fuel system for leakages

(10 marks)

(b) List four factors to be considered when determining the location of the NGV filler valve

(8 marks)

(c) Explain why is it mandatory for the NGV decals to be affixed in front and at the back of the vehicle?

(2 marks)

Question 2

- (a) Explain the importance of conducting a pre-conversion check on vehicles to be installed with NGV system
(10 marks)
- (b) (i) Name two NGV characteristics that may cause a loss of engine power when used as fuel in a bi-fuel vehicle
(2 marks)
- (ii) Explain the reasons why the above phenomena happen
(8 marks)

Question 3

- (a) List seven factors to be considered before deciding the correct location of the NGV cylinder to be installed on the vehicle
(14 marks)
- (b) (i) Explain the function of the hermetically sealed container
(2 marks)
- (ii) Explain two procedures that can be applied when installing the hermetically sealed container on the cylinder shut-off valve
(4 marks)

END OF QUESTION