



UNIVERSITI KUALA LUMPUR
Malaysia France Institute

FINAL EXAMINATION
JANUARY 2010 SESSION

SUBJECT CODE : FVD 30302
SUBJECT TITLE : COMFORT SAFETY AND INFORMATION SYSTEM
LEVEL : DIPLOMA
TIME / DURATION : 9.00am – 11.00am
(2 HOURS)
DATE : 29 APRIL 2010

INSTRUCTIONS TO CANDIDATES

1. Please read the instructions given in the question paper **CAREFULLY**.
2. This question paper is printed on both sides 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 questions paper consists of **TWO (2)** sections. Section A and B. Answer **ALL** questions in Section A. For section B answer **TWO (2)** questions only.
6. Answer all questions in English.

THERE ARE 8 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

SECTION A (Total: 40 marks)**INSTRUCTION: Answer ALL questions.****Please use the answer booklet provided.****Question 1****Draw the symbol and state the function of each component below:-**

- i) ON & OFF switch, (2 marks)
- ii) Electrical dc motor, (2 marks)
- iii) Normally open relay (4 marks)

Question 2

You are given the components of the power window system as below:

- 12V dc battery 1 unit
- Ignition switch 1 unit
- Fuse 20 A 1 unit
- Power Window sub switch 1 unit
- Normally Open Relay 1 unit
- Ground Connection 1 unit
- Power window motor 1 unit

- a) Construct a complete electrical circuit diagram to operate the power window motor. (8 marks)
- b) Referring to the power window circuit diagram that you have constructed, describe how the system works? (12 marks)

Question 3

- a) List down **FOUR (4)** basic methods to diagnose circuit problem. (4 marks)
- b) Sketch an example of the circuit problem for each of the methods mentioned above. (8 marks)

SECTION B (Total: 60 marks)**INSTRUCTION: Answer TWO(2) questions only****Please use the answer booklet provided.****Question 1**

These are typical cases of problems with the alarm system that a technician often needs to diagnose. Knowledge of the basic alarm circuit and simple test procedures will help you perform the diagnosis quickly and efficiently. Please refer to **figure 1.1 and 1.2** for the vehicle alarm wiring diagram.

Customer Complaint

A customer towed his vehicle into the workshop with an alarm system problem and complained that:-

- i) She cannot start the engine
- ii) The siren is not triggered

Known Information

- Vehicle operating voltage = 13.7 volt
- All circuit fuses are OK
- Alarm module is in good condition
- The H.F (High Frequency) remote unit is OK

Answer the following question.

- a. With the known information above, what is the most likely cause of the problem in (i) and (ii). (10 marks)

2. What diagnostic steps would you use to find the suspected problem in (i) and (ii)? Draw the flow chart to show the steps taken. (20 marks)

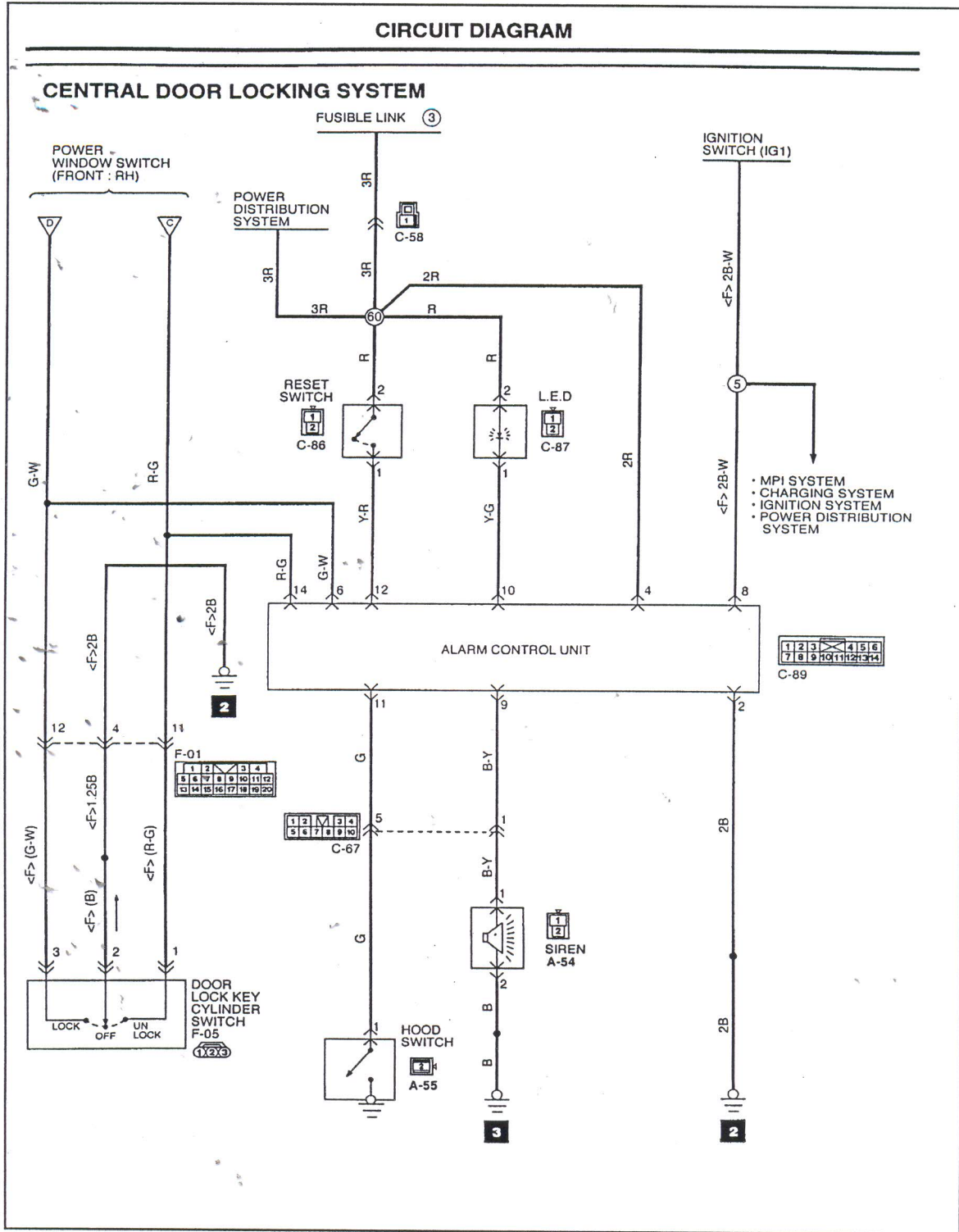


Figure 1.1

CIRCUIT DIAGRAM

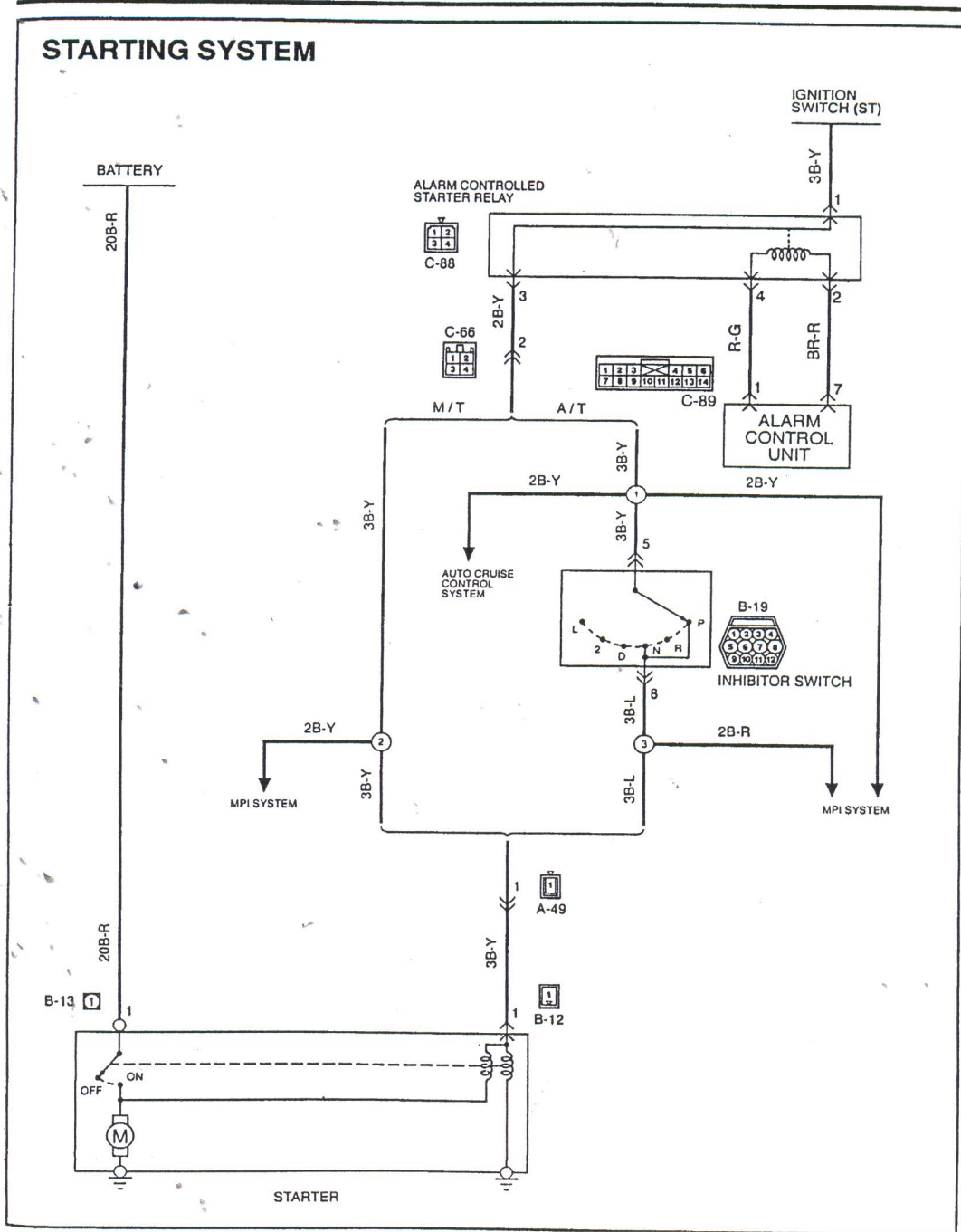


Figure 1.2

Question 2

These are typical cases of problems with the seat adjustment system that a technician often needs to diagnose. Knowledge of the basic seat adjustment circuit and simple test procedures will help you perform the diagnosis quickly and efficiently.

Please refer to **figure 2** for the seat adjustment wiring diagram.

Customer Complaint

The rear height (Up and Down position) of the seat adjustment is not functioning.

Known Information

- vehicle operating voltage = 14 volts
- the switch is OK

Answer the following questions on answer paper given.

- a. With the above known information, what is the most likely cause for the defective seat adjustment system?
(6 marks)
- b. What happens to the seat if we press and hold the forward position seat switch for a certain time and release? State your reason.
(6 marks)
- c. What happens to the system if the connector at ground wire (C310) in figure 2 is disconnected? State your reason.
(6 marks)
- d. What diagnostic steps would you use to find the suspected problem for the front and rear height (Up position) of the seat adjustment that is not functioning?
Draw the flow chart to show the steps taken.
(12 marks)

POWER SEAT: DRIVER 6-WAY (AG1)

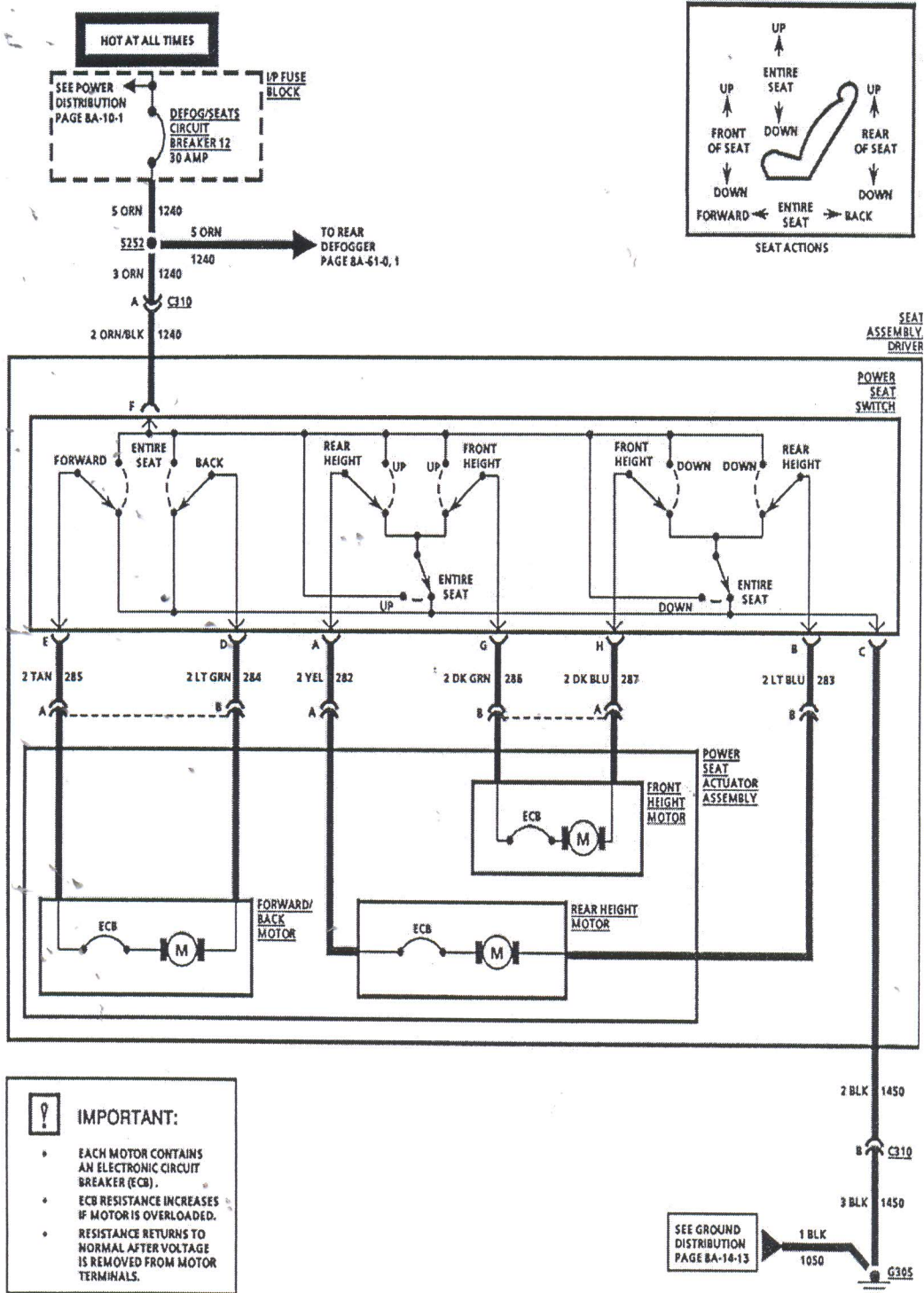


Figure 2

Question 3

These are typical cases of problems with the power window system that a technician often needs to diagnose. Knowledge of the basic power window circuit and simple test procedures will help you perform the diagnosis quickly and efficiently. Please refer to **figure 3** for the power window wiring diagram.

Customer Complaint

A customer complaint that the power window on the front-left hand side is not working but the others are working.

Known Information

- Vehicle operating voltage = 14 volts
- Power window relay is OK.
- Other devices except front-left hand side power window operate properly.
- All switches at power window main switch are OK.

Circuit Analysis

Answer the following questions by referring to **figure 3**.

- a. What is the most likely cause for the above problem?
(10 marks)
- b. How do you troubleshoot this problem? Explain by using a flow chart diagram.
(12 marks)
- c. What happen to the power window system if the "one touch down circuit" at the power window main switch is totally damaged?
(4 marks)
- d. What happen if window lock switch button is depressed?
(4 marks)

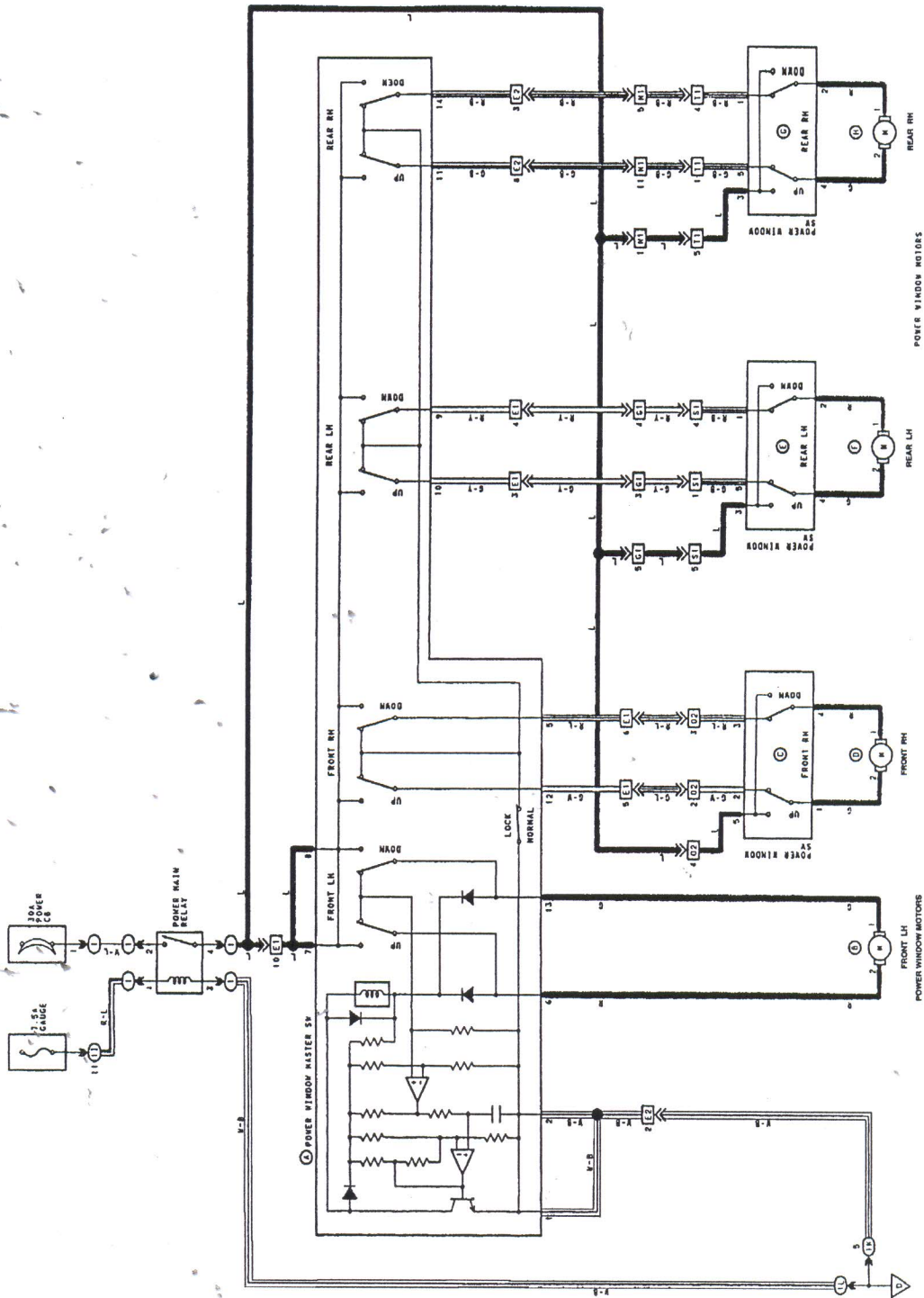


Figure 3

END OF QUESTION