SAFETY FIRST

Appropriate service methods and proper repair procedures are essential for safe, reliable operation of all motor vehicles as well as the personal safety of the individual performing the repair. There are numerous variations in procedures, techniques, tools and parts for servicing vehicles, as well as in the skill of the individual performing the service. This module cannot possibly anticipate all such variations and provide advice or caution to each. Accordingly, anyone who departs from the instruction provided in this module must first establish that they compromise neither their personal safety nor the vehicle integrity by their choice of methods, tools or parts. The following list contains general warnings that should always be followed while working on a vehicle.

- Always wear safety glasses for eye protection
- Use safety stands whenever a procedure requires underbody work
- Be sure the ignition switch is always off unless otherwise specified by a procedure
- Set the parking brake when working on the vehicle
- Operate the engine only in a well ventilated area
- Keep clear of moving parts
- To prevent serious burns, avoid contact with hot metal parts such as the radiator, exhaust manifold, tail pipe, catalytic converter and muffler
- Do not smoke while working on a vehicle

Within this module you will find *Notes*, *Cautions* and *Warnings* which provide critical information and help you do your job safely and efficiently. Below are the definitions of these terms.

NOTE
The purpose of a *Note* is to help you do your job more efficiently. A *Note* may provide additional information to help clarify a particular point or procedure.

CAUTION
A *Caution* alerts you to the possibility of damage to tools, equipment, or the vehicle. A *Caution* recommends that a procedure must be done in a certain way to avoid potential problems resulting from improper techniques or methods.

WARNING
A *Warning* alerts you to the highest level of risk. *Warnings* inform you that a procedure must be done in a particular way to minimize the chances of an accident that could result in personal injury or even loss of life.

When you see a *Note*, *Caution* or *Warning*, be certain you understand the message before you attempt to perform any part of a service procedure.

TARGET AUDIENCE

The target audience for this module consists of Kia service technicians who PDI and diagnose Kia customer concerns and/or vehicle malfunctions, and who have completed:

- Automotive Electrical Diagnosis
- Diagnosing with High Scan-Pro

MODULE GOAL

The goal of this module is to identify key service issues and operations that have a significant impact on customer satisfaction.

MODULE OBJECTIVES

After completing this module, you will be able to describe key maintenance events and identify the pages in the Owner's Manual where key service and maintenance information can be found.

MODULE INSTRUCTIONS

Carefully read through the material, take notes based on classroom discussion and study each visual. Throughout the module there will be Progress Check questions for you to answer. You may use your Student Guide and notes to answer the questions.

REQUIRED MATERIALS

To complete this theory module, you will need a 2006 Sedona Owner's Manual.

TIME TO COMPLETE

Approximately 30 minutes

SERVICE INFORMATION

Introduction

ST.02 4

Knowing service and maintenance information is critical to maintaining customer satisfaction.

MAINTENANCE SCHEDULES

Normal vs. Severe Driving Conditions

If any of the following conditions are applicable, use the “Severe” schedule.

- Short distances
- Dusty conditions
- Repeated Braking
- Salt/corrosives
- Rough and/or muddy
- Mountains
- Extended idling/low speeds
- Prolonged humidity or cold temperatures
- More than 50% city with hot weather

See Owner’s Manual pp. 6-3 through 6-8

ST.02 5

There are distinctive differences in maintenance schedules depending on the environment and how the vehicle is driven. Individual schedules for normal and severe driving conditions are in the Owner’s Manual.

Open the Owner’s Manual to pages 6-3 through 6-8 to find complete maintenance schedules for both normal and severe conditions.

KEY MAINTENANCE EVENTS

The following chart lists some of the Sedona's key scheduled maintenance events. Bold type indicates differences between normal and severe schedules.

	NORMAL	SEVERE
Drive belts*	Inspect every 7,500 miles**	**Inspect every 5,000 miles****
Engine oil/filter	Replace every 7,500 miles/12 months	**Replace every 3,000 miles/3 months**
A/T fluid	Inspect every 15,000 miles**	Inspect every 15,000 miles **Replace every 30,000 miles**
Air cleaner element	Inspect every 15,000 miles Replace every 22,500 miles	Inspect frequently/replace as necessary
Spark plugs	Replace every 100,000 miles/10 years	**Inspect frequently/replace as necessary**
Valve clearance	Inspect every 60,000 miles/48 months**	Inspect every 60,000 miles/48 months**
Engine coolant	At first: Replace at 60,000 miles/60 months Later: Replace at 30,000 miles/24 months	At first: Replace at 60,000 miles/60 months Later: Replace at 30,000 miles/24 months
Fuel filter	Replace every 37,500 miles	Replace every 37,500 miles
Fuel tank air filter	Inspect every 15,000 miles Replace every 30,000 miles	Inspect every 15,000 miles Replace every 30,000 miles
Brake lines/hoses	Inspect every 15,000 miles**	Inspect every 5,000 miles**
Brake fluid	Inspect every 15,000 miles**	**Inspect every 5,000 miles****
Power steering fluid	Inspect every 7,500 miles**	**Inspect every 5000 miles****
Driveshaft and boots	Inspect every 15,000 miles/12 months**	**Inspect every 15,000 miles/12 months****
Air conditioning air filter (cabin filter)	Replace every 10,000 miles	Replace every 10,000 miles

*The drive belt should be replaced when cracks occur or tension is reduced excessively.
**Inspect and, if necessary, adjust, correct, clean or replace.

FUEL, TIRES AND CAPACITIES

Review the following Owner's Manual pages and answer the questions in your Student Guide.

- Fuel Requirements: pp. 1-2 and 1-3
- Tires: pp. 6-39 and 8-3
- Capacities and Classifications: pp. 6-59 and 8-3

ST.02 6

1) What is the stated fuel requirement?

_____

2) What is the recommended fuel octane?

_____

3) Can Methanol be used as fuel?

_____

4) Can Gasohol with 20% ethanol be used as fuel

_____

5) How often should the tires be rotated?

_____

6) What is the full size tire inflation pressure?

_____

7) What is the engine oil capacity? _____

8) What is the fuel tank volume? _____

9) What is the engine coolant volume? _____

10) What is the recommended engine oil viscosity?

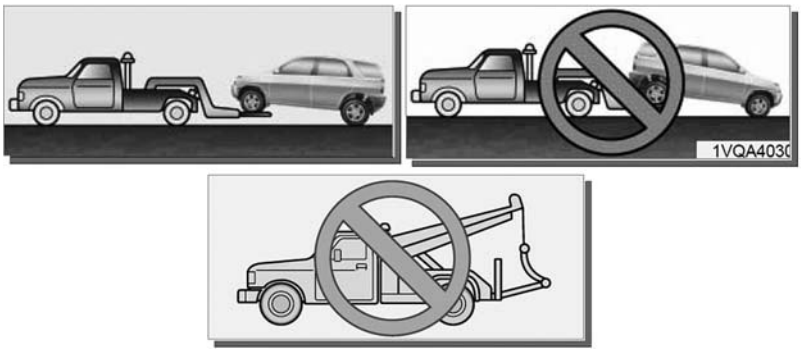
_____

11) What type of A/T fluid must be used?

_____

TOWING TIPS

Review pages 5-19 through 5-22 in the Owner's Manual and answer the questions in your Student Guide.



ST.02 7

1) When the Sedona is being towed by a commercial tow truck and wheel dollies are not used, the _____ of the vehicle should always lifted.

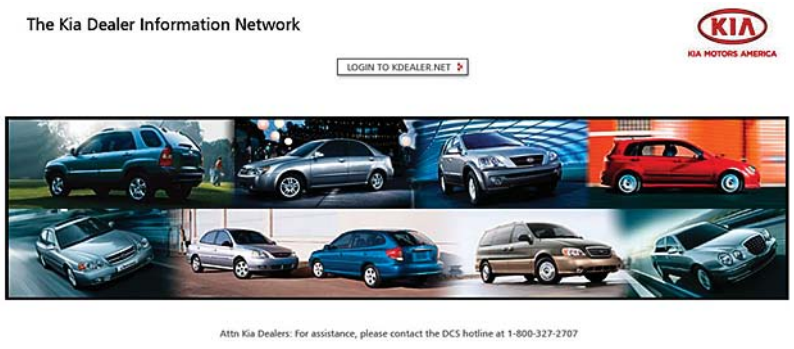
2) When towing a Sedona in an emergency without wheel dollies, set the ignition switch in the _____ position.

3) True or False: Do not use tow hooks to pull the vehicle out of mud, sand or other conditions from which the vehicle cannot be driven under its own power.

_____

SPECIAL TOOLS

http://kdealer.net



ST.02 8

PROGRESS CHECK

1) If the vehicle is operated under severe driving conditions, how often should the engine oil and filter be replaced?

   A) Every 3,000 miles

   B) Every 7,500 miles

   C) Every 15,000 miles

   D) Every 30,000 miles

2) If the vehicle is operated under severe driving conditions, how often should the air conditioning air filter be replaced?

   A) Every 7,500 miles

   B) Every 10,000 miles

   C) Every 15,000 miles

   D) Every 30,000 miles

3) Which of the following is acceptable for use the 2006 Sedona? (Circle all that apply.)

   A) 87 octane unleaded gasoline

   B) 91 octane unleaded gasoline

   C) Gasoline containing methanol

   D) Gasohol with more than 10% ethanol

NOTES:

Copyright © 2005 Kia Motors America, Inc. Kia University

No part of this publication may be reproduced, stored electronically, or transmitted in any form or by any means without prior written approval from Kia Motors America, Inc. KMA reserves the right to make changes in the descriptions, specifications, or procedures without prior notice or obligation.

SAFETY FIRST

Appropriate service methods and proper repair procedures are essential for safe, reliable operation of all motor vehicles as well as the personal safety of the individual performing the repair. There are numerous variations in procedures, techniques, tools and parts for servicing vehicles, as well as in the skill of the individual performing the service. This module cannot possibly anticipate all such variations and provide advice or caution to each. Accordingly, anyone who departs from the instruction provided in this module must first establish that they compromise neither their personal safety nor the vehicle integrity by their choice of methods, tools or parts. The following list contains general warnings that should always be followed while working on a vehicle.

- Always wear safety glasses for eye protection
- Use safety stands whenever a procedure requires underbody work
- Be sure the ignition switch is always off unless otherwise specified by a procedure
- Set the parking brake when working on the vehicle
- Operate the engine only in a well ventilated area
- Keep clear of moving parts
- To prevent serious burns, avoid contact with hot metal parts such as the radiator, exhaust manifold, tail pipe, catalytic converter and muffler
- Do not smoke while working on a vehicle

Within this module you will find *Notes*, *Cautions* and *Warnings* which provide critical information and help you do your job safely and efficiently. Below are the definitions of these terms.

NOTE
The purpose of a *Note* is to help you do your job more efficiently. A *Note* may provide additional information to help clarify a particular point or procedure.

CAUTION
A *Caution* alerts you to the possibility of damage to tools, equipment, or the vehicle. A *Caution* recommends that a procedure must be done in a certain way to avoid potential problems resulting from improper techniques or methods.

WARNING
A *Warning* alerts you to the highest level of risk. *Warnings* inform you that a procedure must be done in a particular way to minimize the chances of an accident that could result in personal injury or even loss of life.

When you see a *Note*, *Caution* or *Warning*, be certain you understand the message before you attempt to perform any part of a service procedure.

TARGET AUDIENCE

The target audience for this module consists of Kia service technicians who PDI and diagnose Kia customer concerns and/or vehicle malfunctions, and who have completed:

- Automotive Electrical Diagnosis
- Diagnosing with High Scan-Pro

MODULE GOAL

The goal of this module is to have participants demonstrate an understanding of how new body electrical systems and components operate on the 2006 Sedona.

MODULE OBJECTIVES

Given a 2006 Sedona (EX), you will be able to:

- Identify the location of the IPM, FAM, and RAM and demonstrate example functions controlled by each control module.
- Demonstrate the operation of the power door locks and security system
- Use a scan tool to identify and activate example functions controlled by the IPM, FAM, and RAM.

MODULE INSTRUCTIONS

Carefully read through the instructions for each task and answer the questions posed for each task.

REQUIRED MATERIALS

To complete this Guided Practice, you will need (in addition to this Student Guide):

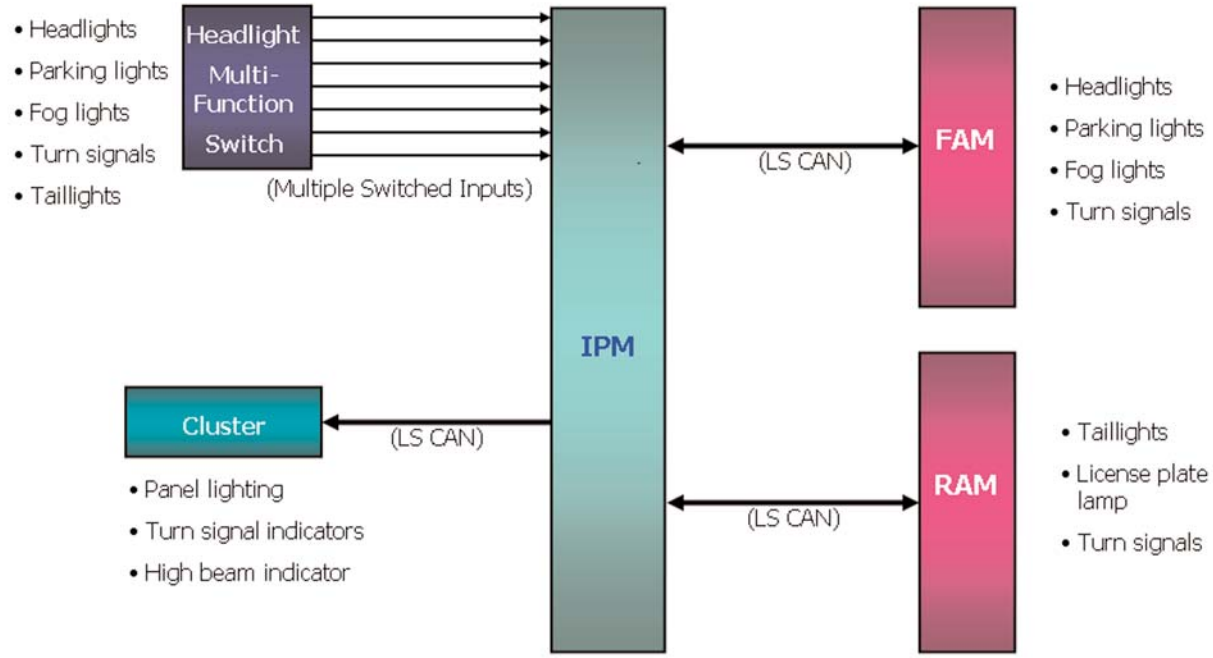
- Body Electrical Theory Module Student Guide
- Small flashlight
- Scan tool (fully charged)

TIME TO COMPLETE

Approximately 120 minutes (2 hours)

LEFT BLANK INTENTIONALLY

INSTRUCTOR-LED CLASSROOM EXERCISE



ST.04

CIRCUIT DIAGRAMS AND FUNCTION CHAINS

During the theory presentation, you learned that lighting functions controlled by the multi-function switch connect to the IPM, and that the FAM and RAM were responsible for turning on the lamps themselves.

HEADLAMPS

Examine the circuit diagram for headlamp operation (SD921-1) that's on the screen and reproduced on the next page.
Answer the following questions as your instructor traces the lighting function path for each of the following lamps.

1) What pin in what connector at the IPM is responsible for receiving Headlamp Switch Input.

   Pin_____ in connector _____

2) How does the FAM know when to turn ON or OFF the appropriate lighting functions?

   _____

3) What pin in what connector of the FAM control the RH headlamp low beam?

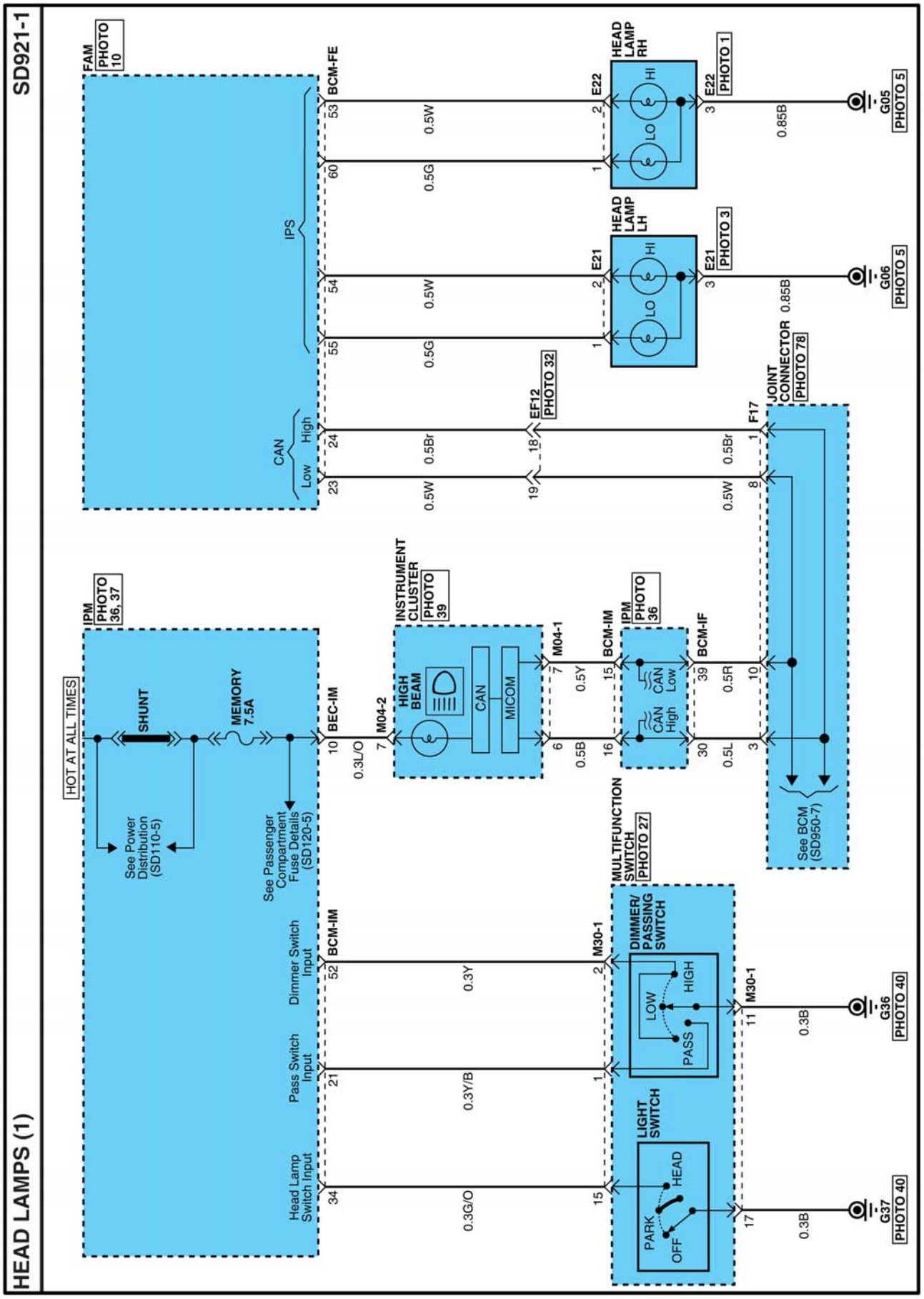
   Pin _____ in connector _____

Your instructor will help you with the following question:

4) In the FAM, what does IPS above the bracket for the headlamp connections mean?

   _____

   _____


HEAD LAMPS (1)
SD921-1
FAM
PHOTO 10
BCM-FE
IPS
CAN
Low
High
HEAD LAMP RH
HEAD LAMP LH
E22
E21
PHOTO 1
PHOTO 3
G05
G06
PHOTO 5
EF12
PHOTO 32
F17
JOINT CONNECTOR
PHOTO 78
See BCM (SD950-7)
IPM
PHOTO 36, 37
HOT AT ALL TIMES
SHUNT
MEMORY 7.5A
See Power Distribution (SD110-5)
See Passenger Compartment Fuse Details (SD120-5)
BEC-IM
M04-2
INSTRUMENT CLUSTER
PHOTO 39
HIGH BEAM
CAN
MICOM
M04-1
BCM-IM
BCM-IF
CAN Low
CAN High
Head Lamp Switch Input
Pass Switch Input
Dimmer Switch Input
MULTIFUNCTION SWITCH
PHOTO 27
LIGHT SWITCH
PARK
HEAD
OFF
DIMMER/ PASSING SWITCH
LOW
HIGH
PASS
M30-1
G36
G37
PHOTO 40
0.3G/O
0.3Y/B
0.3Y
0.3L/O
0.5Y
0.5B
0.5L
0.5R
0.5W
0.5G
0.5Br
0.85B
0.3B

OTHER LAMPS

Examine each of the four circuit diagrams that are shown on the screen and reproduced on the next four pages.

Identify what other lighting is protected by the Intelligent Power Switch.

1) From SD928-1:_____

_____

_____

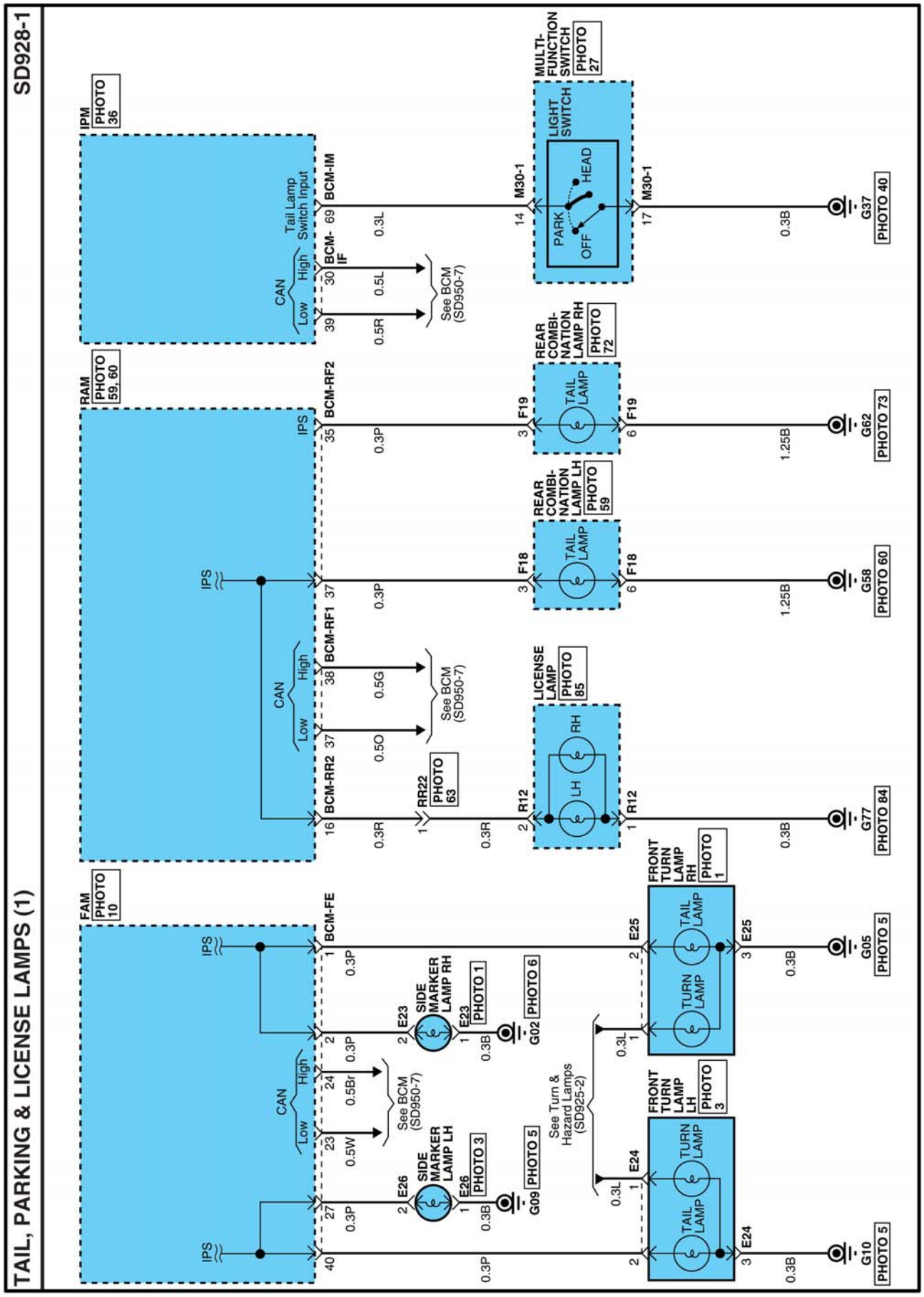
2) From SD925-2: _____

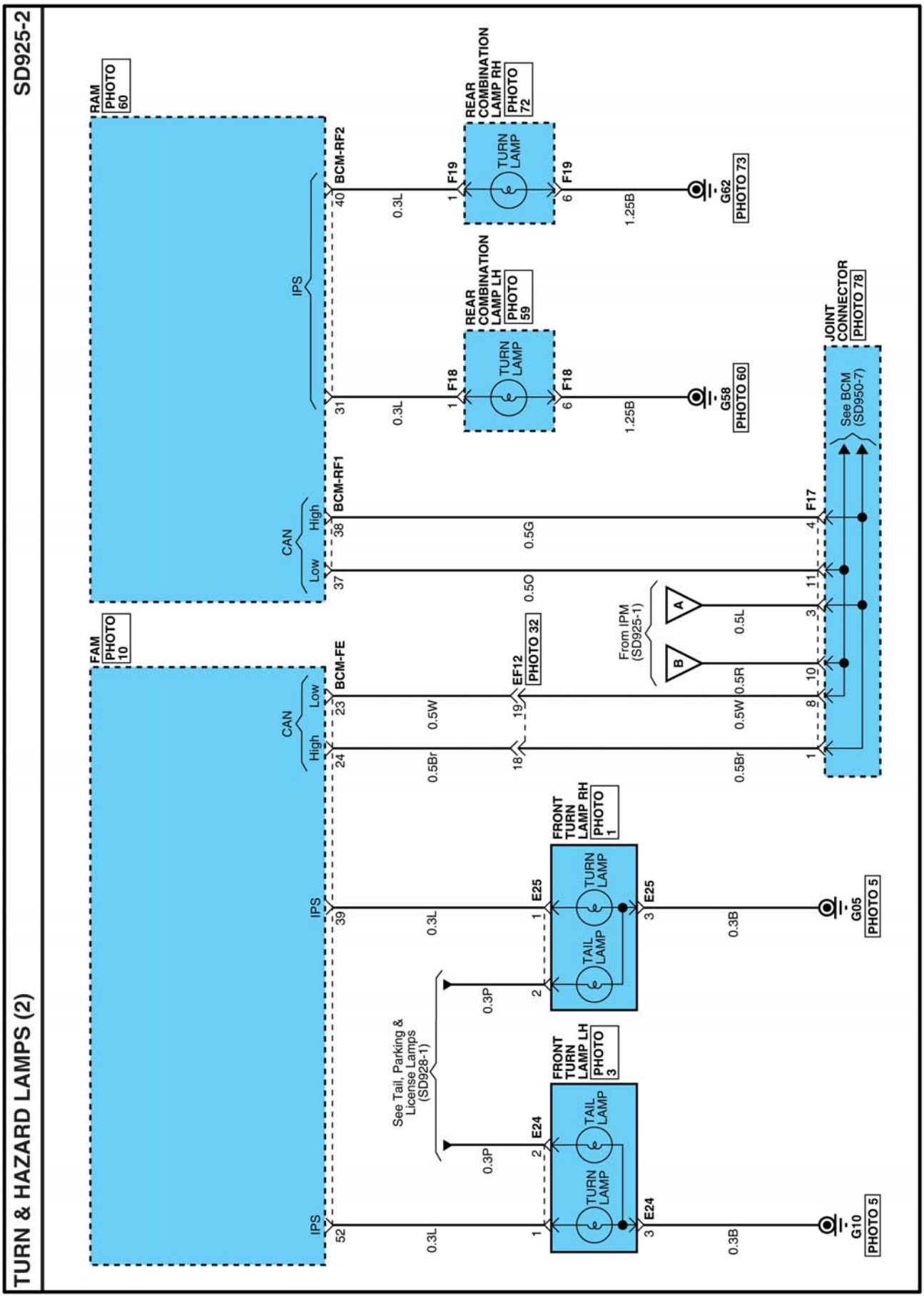
_____

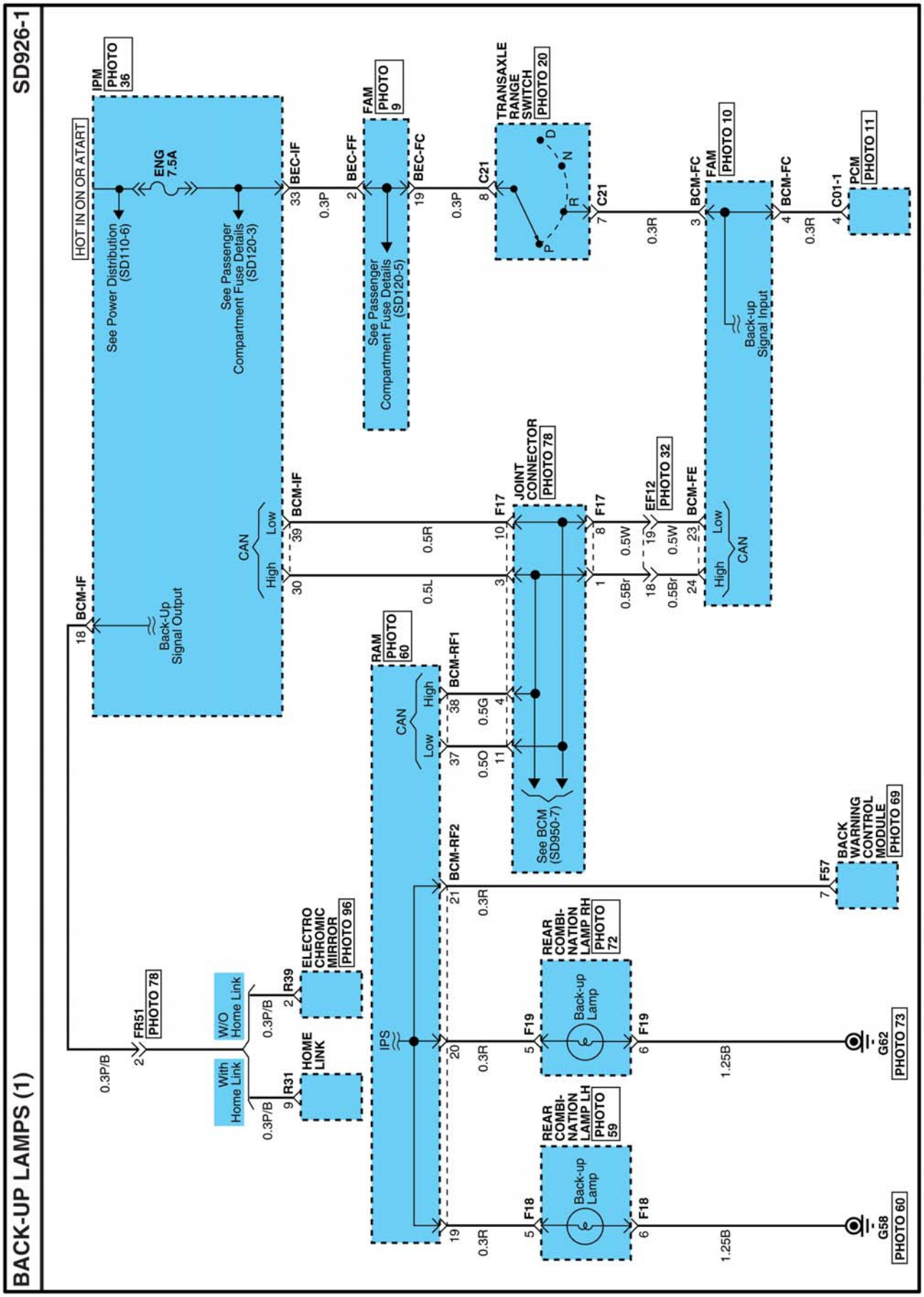
3) From SD926-1: _____

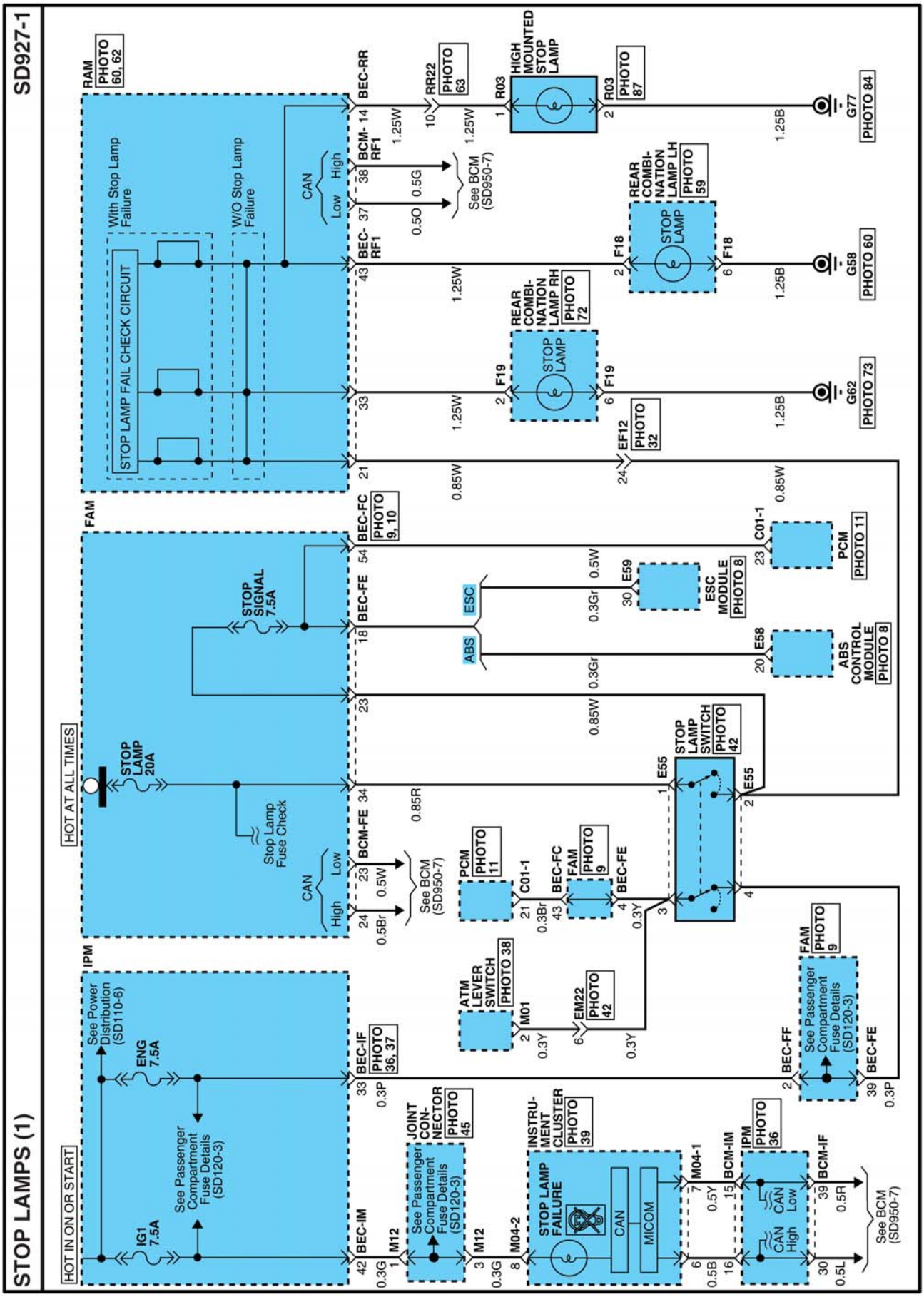
Your instructor will help you answer the following question:

4) From SD927-1, are the brake lamps (“Stop Lamps”) protected by IPS? _____


SD928-1
TAIL, PARKING & LICENSE LAMPS (1)
IPM
PHOTO 36
RAM
PHOTO 59, 60
FAM
PHOTO 10
MULTI-FUNCTION SWITCH
PHOTO 27
LIGHT SWITCH
PARK
HEAD
OFF
REAR COMBI-NATION LAMP RH
PHOTO 72
REAR COMBI-NATION LAMP LH
PHOTO 59
LICENSE LAMP
PHOTO 85
FRONT TURN LAMP RH
PHOTO 1
FRONT TURN LAMP LH
PHOTO 3
SIDE MARKER LAMP RH
SIDE MARKER LAMP LH
IPS
CAN
High
Low
Tail Lamp Switch Input
BCM-IM
BCM-IF
BCM-RF2
BCM-RF1
BCM-RR2
BCM-FE
See BCM (SD950-7)
See Turn & Hazard Lamps (SD925-2)
TAIL LAMP
TURN LAMP
RH
LH
M30-1
RR22
R12
E23
E24
E25
E26
G02
G05
G09
G10
G37
G58
G62
G77
PHOTO 5
PHOTO 6
PHOTO 40
PHOTO 60
PHOTO 73
PHOTO 84


TURN & HAZARD LAMPS (2)
SD925-2
RAM
PHOTO 60
FAM
PHOTO 10
CAN
High
Low
IPS
BCM-RF1
BCM-RF2
BCM-FE
REAR COMBINATION LAMP RH
PHOTO 72
REAR COMBINATION LAMP LH
PHOTO 59
FRONT TURN LAMP RH
PHOTO 1
FRONT TURN LAMP LH
PHOTO 3
TURN LAMP
TAIL LAMP
JOINT CONNECTOR
PHOTO 78
See BCM (SD950-7)
From IPM (SD925-1)
See Tail, Parking & License Lamps (SD928-1)
EF12
PHOTO 32
F17
F18
F19
E24
E25
G05
PHOTO 5
G10
PHOTO 5
G58
PHOTO 60
G62
PHOTO 73
0.3L
0.3P
0.3B
0.5W
0.5Br
0.5G
0.5O
0.5R
0.5L
1.25B


SD926-1
BACK-UP LAMPS (1)
IPM
PHOTO 36
HOT IN ON OR ATART
See Power Distribution (SD110-6)
ENG 7.5A
See Passenger Compartment Fuse Details (SD120-3)
BEC-IF
BEC-FF
BEC-FC
FAM
PHOTO 9
See Passenger Compartment Fuse Details (SD120-5)
TRANSAXLE RANGE SWITCH
PHOTO 20
C21
BCM-FC
FAM
PHOTO 10
PCM
PHOTO 11
C01-1
BCM-IF
Back-Up Signal Output
CAN
High
Low
Back-up Signal Input
JOINT CONNECTOR
PHOTO 78
See BCM (SD950-7)
F17
EF12
PHOTO 32
BCM-FE
RAM
PHOTO 60
BCM-RF1
BCM-RF2
IPS
FR51
PHOTO 78
W/O Home Link
With Home Link
R39
R31
HOME LINK
ELECTRO CHROMIC MIRROR
PHOTO 96
REAR COMBI-NATION LAMP RH
PHOTO 72
REAR COMBI-NATION LAMP LH
PHOTO 59
Back-up Lamp
F19
F18
G62
PHOTO 73
G58
PHOTO 60
BACK WARNING CONTROL MODULE
PHOTO 69
F57
0.3P/B
0.3P
0.3R
0.5R
0.5L
0.5W
0.5Br
0.5G
0.5O
1.25B


SD927-1
STOP LAMPS (1)
HOT IN ON OR START
HOT AT ALL TIMES
IPM
FAM
RAM
PHOTO 60, 62
STOP LAMP FAIL CHECK CIRCUIT
With Stop Lamp Failure
W/O Stop Lamp Failure
CAN
High
Low
BEC-RR
BEC-RF1
BEC-FC
PHOTO 9, 10
BEC-FE
BEC-IF
PHOTO 36, 37
BEC-IM
BEC-FF
BCM-FE
BCM-RF1
RR22
PHOTO 63
R03
HIGH MOUNTED STOP LAMP
PHOTO 87
G77
PHOTO 84
REAR COMBI-NATION LAMP LH
PHOTO 59
REAR COMBI-NATION LAMP RH
PHOTO 72
STOP LAMP
F18
F19
G58
PHOTO 60
G62
PHOTO 73
EF12
PHOTO 32
See BCM (SD950-7)
STOP SIGNAL 7.5A
STOP LAMP 20A
Stop Lamp Fuse Check
IG1 7.5A
ENG 7.5A
See Power Distribution (SD110-6)
See Passenger Compartment Fuse Details (SD120-3)
JOINT CON-NECTOR
PHOTO 45
INSTRU-MENT CLUSTER
PHOTO 39
STOP LAMP FAILURE
CAN
MICOM
BCM-IM
IPM
PHOTO 36
BCM-IF
ATM LEVER SWITCH
PHOTO 38
M01
EM22
PHOTO 42
PCM
PHOTO 11
C01-1
ESC MODULE
PHOTO 8
E59
ABS CONTROL MODULE
PHOTO 8
E58
STOP LAMP SWITCH
PHOTO 42
E55
ESC
ABS
1.25W
0.5O
0.5G
0.85W
0.3Gr
0.5W
0.3Br
0.3Y
0.5Y
0.5B
0.3G
0.3P
0.5R
0.5L
0.85R

Instructions for pages 12-29:

- Pages 12-15 are classroom activities
- Pages 16-29 are activities to be conducted on the vehicles

POWER WINDOWS

Use the three circuit diagrams reproduced on the following pages to fill in the blanks of the following statements.

1) SCENARIO #1: When a customer presses the button on the driver's door to raise or lower the LH sliding door window, a message is sent by the _____ (control module) on the _____ (network) to the _____ (control module).

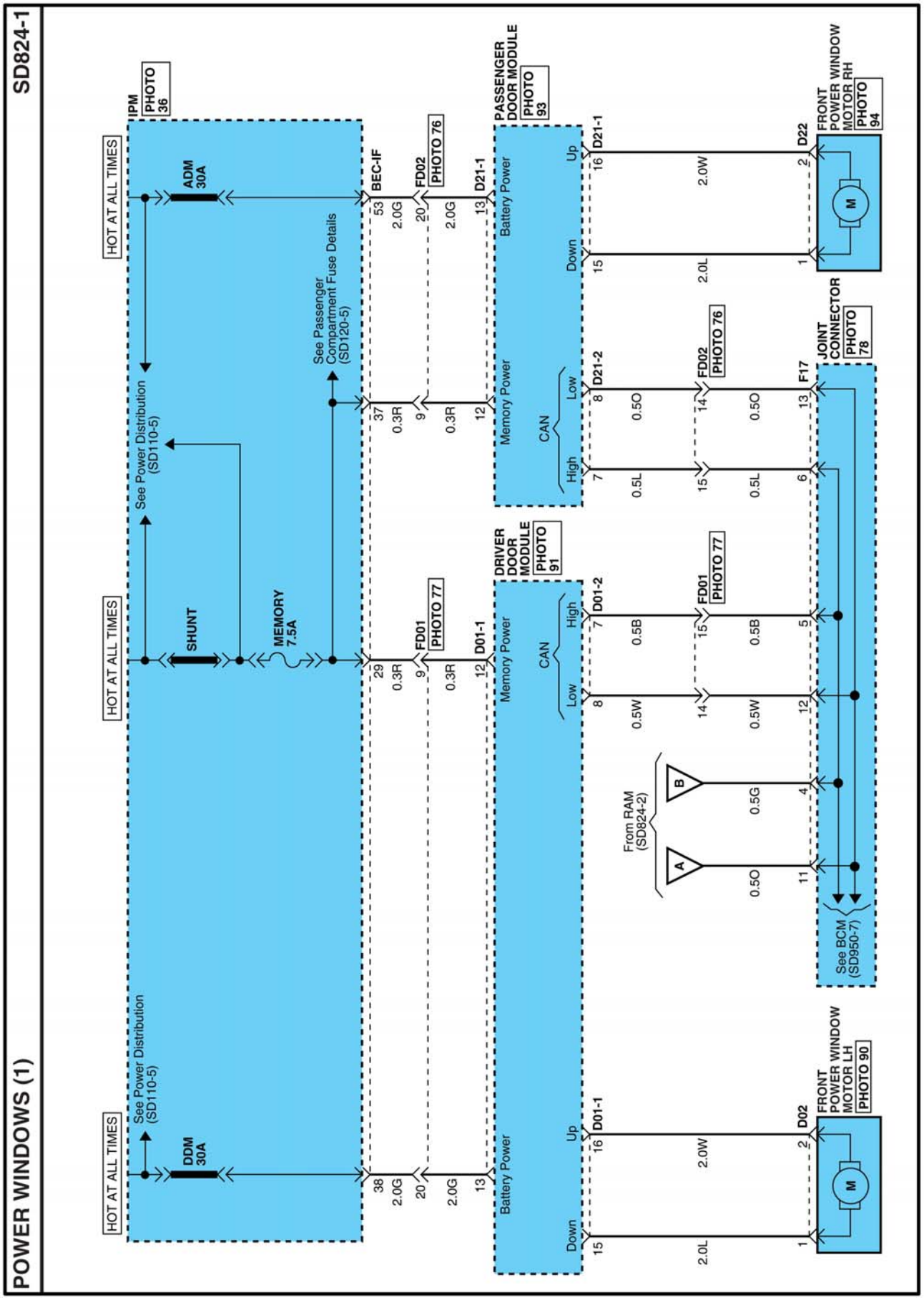
   Reference: SD824-1 and SD824-2

2) SCENARIO #2: When a customer presses the LH B-pillar switch to lower the LH sliding door window, a ground signal is received at pin _____ in connector _____ at the _____ (control module).

   Reference SD824-2

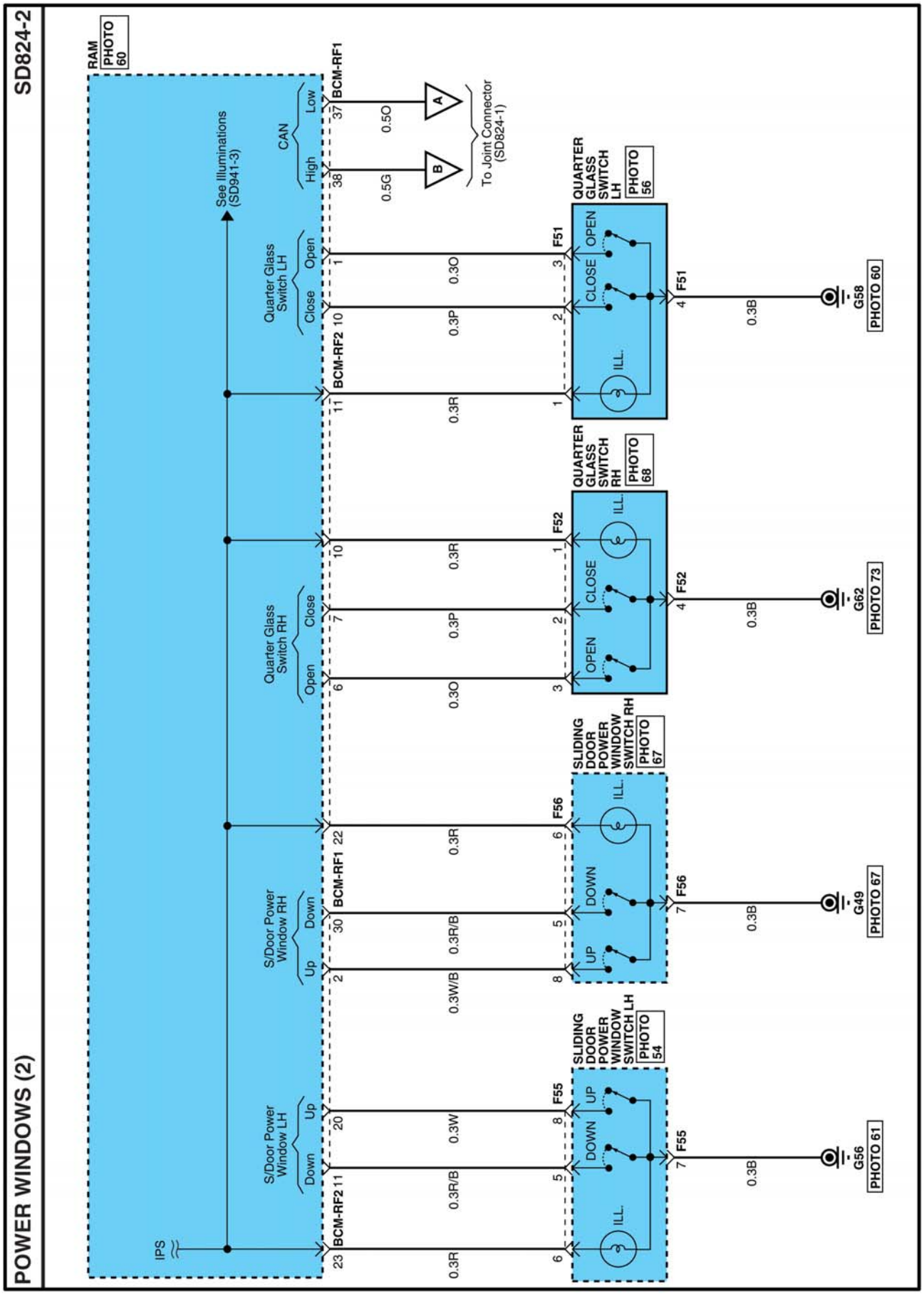
3) BOTH SCENARIOS: The _____ (control module) provides power and ground to the LH sliding door window motor at pin numbers _____ and _____ at connector _____.

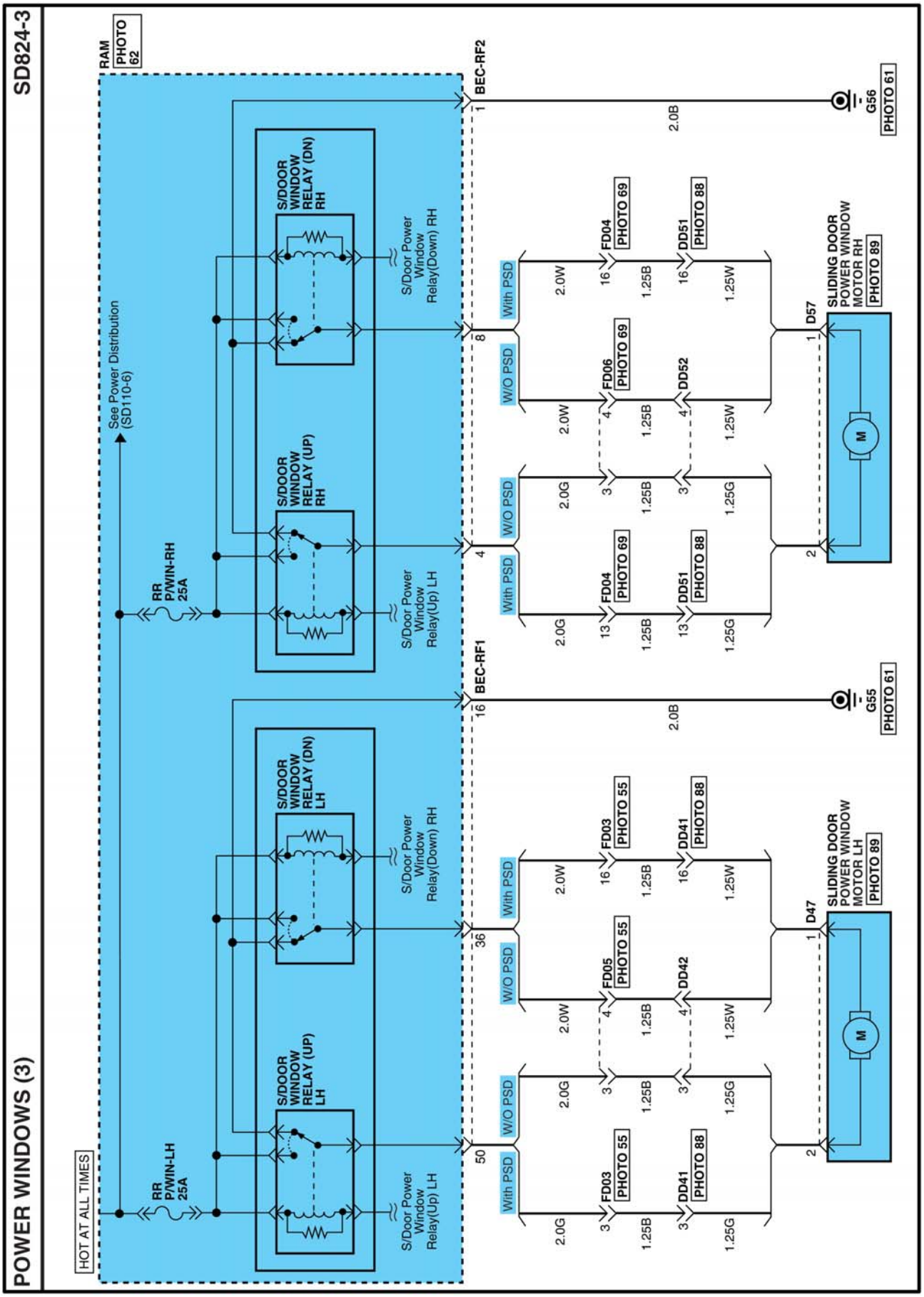
   Reference SD824-3


POWER WINDOWS (1)
SD824-1
HOT AT ALL TIMES
HOT AT ALL TIMES
HOT AT ALL TIMES
See Power Distribution (SD110-5)
See Power Distribution (SD110-5)
See Passenger Compartment Fuse Details (SD120-5)
IPM PHOTO 36
DDM 30A
SHUNT
MEMORY 7.5A
ADM 30A
BEC-IF
FD01 PHOTO 77
FD02 PHOTO 76
D01-1
D21-1
PASSENGER DOOR MODULE PHOTO 93
DRIVER DOOR MODULE PHOTO 91
Battery Power
Memory Power
CAN
Up
Down
High
Low
D01-2
D21-2
FD01 PHOTO 77
FD02 PHOTO 76
D02
D22
FRONT POWER WINDOW MOTOR LH PHOTO 90
FRONT POWER WINDOW MOTOR RH PHOTO 94
JOINT CONNECTOR PHOTO 78
F17
From RAM (SD824-2)
A
B
See BCM (SD950-7)
M
2.0G
0.3R
2.0L
2.0W
0.5O
0.5L
0.5B
0.5W
0.5G

8

ST.04


SD824-2
POWER WINDOWS (2)
RAM
PHOTO 60
IPS
See Illuminations (SD941-3)
BCM-RF1
BCM-RF2
CAN
High
Low
To Joint Connector (SD824-1)
Quarter Glass Switch LH
Open
Close
S/Door Power Window RH
Up
Down
S/Door Power Window LH
Up
Down
SLIDING DOOR POWER WINDOW SWITCH RH
PHOTO 67
SLIDING DOOR POWER WINDOW SWITCH LH
PHOTO 54
QUARTER GLASS SWITCH RH
PHOTO 68
QUARTER GLASS SWITCH LH
PHOTO 56
ILL.
UP
DOWN
OPEN
CLOSE
F51
F52
F55
F56
G49
PHOTO 67
G56
PHOTO 61
G58
PHOTO 60
G62
PHOTO 73
0.3R
0.3R/B
0.3W
0.3W/B
0.3O
0.3P
0.5G
0.5O
0.3B


SD824-3
POWER WINDOWS (3)
HOT AT ALL TIMES
RAM
PHOTO 62
See Power Distribution (SD110-6)
RR P/WIN-LH 25A
RR P/WIN-RH 25A
S/DOOR WINDOW RELAY (UP) LH
S/DOOR WINDOW RELAY (DN) LH
S/DOOR WINDOW RELAY (UP) RH
S/DOOR WINDOW RELAY (DN) RH
S/Door Power Window Relay(Up) LH
S/Door Power Window Relay(Down) RH
S/Door Power Window Relay(Up) LH
S/Door Power Window Relay(Down) RH
BEC-RF1
BEC-RF2
With PSD
W/O PSD
FD03 PHOTO 55
FD04 PHOTO 69
FD05 PHOTO 55
FD06 PHOTO 69
DD41 PHOTO 88
DD42
DD51 PHOTO 88
DD52
D47
D57
SLIDING DOOR POWER WINDOW MOTOR LH PHOTO 89
SLIDING DOOR POWER WINDOW MOTOR RH PHOTO 89
G55 PHOTO 61
G56 PHOTO 61
2.0G
2.0W
2.0B
1.25B
1.25G
1.25W

GUIDED PRACTICE: POWER DOOR LOCKS AND SECURITY ALARM

Locate (on the vehicle) the RKE antenna and then fill in the following blanks.

1) The RKE antenna connects to the _____ (front/back/top) of the _____ (control module).

Close all the doors, tailgate and hood (if open) and lower the front windows (make sure all the other windows are closed).
Using the RKE, lock the vehicle and then unlock all the doors and tailgate (BUT DO NOT OPEN THEM).
Wait 30 seconds and then try to open the driver's door using the outside handle.

2) Did all the doors and tailgate relock? _____

Within 30 seconds, reach in the LH front window, unlock and open the LH front door.

3) Did the alarm go off? _____

Close the front LH front door and lock the vehicle. This time WAIT 30 seconds, then reach in the LH front window, unlock and open the LH front door.

1) Did the alarm go off after waiting 30 seconds?

_____

2) **Will the engine start when the alarm is going off?**_____

Shut off the alarm if you haven't already done so and answer the following questions.

3) It takes _____ seconds for the alarm to arm on a 2006 Sedona.

4) When the alarm is going off, the starter (circle one) **Will / Will Not** crank.

Lock the vehicle, WAIT 30 seconds and then press and hold the RKE button for the LH power sliding side door for approximately 2 seconds.

5) Did the LH PSD open? _____

6) To open the power sliding door, you must press the _____button on the RKE twice.

Note: This is true for both the Power Sliding Doors and the Power Tailgate.

Unlock the vehicle completely; **then open and re-close any door so the vehicle will not relock automatically.**

At the tailgate using the key, turn the key counter-clockwise.

1) Did all doors and tailgate **lock**? _____

Turn the key clockwise to unlock the tailgate.

2) Did all the doors also **unlock**? _____

3) Is the alarm disarmed? _____

4) Can the alarm be armed with a key from the tailgate lock? _____ (Remember to wait 30 seconds before trying to set off the alarm!)

GUIDED PRACTICE: SCAN TOOL FUNCTIONS

Connect a battery charger to the vehicle and adjust it to about 10 – 15 amps.

GETTING STARTED

Connect a scan tool.

1) To access any control modules on the Low Speed CAN Bus, you must select _____ from the main screen.

Select BODY NETWORK SYSTEM from the main screen; then select BCM DIAGNOSTIC MODE.

2) What does this function provide a technician?

_____

_____

_____

Press ESC once.

IN PANEL MODULE (IPM)

Select IN PANEL MODULE and press ENTER; then select CURRENT DATA.

CURRENT DATA

1) How many items are on the CURRENT DATA menu?

_____

Scroll to RKE TX STATUS.

With the ignition ON, press the various RKE function buttons.

2) What happens?

_____

_____

Press the lock button, **separate the RKE transmitter from the ignition key** (which remains at the ON position in the vehicle), walk far away from the vehicle, and then try the different RKE functions.

3) Is the last button pressed display? _____

4) Would this be useful in diagnosing customer concerns with RKE performance?

_____

Press ESC once.

Reconnect the RKE transmitter to the ignition key.

ACTUATION TESTS

Select the ACTUATION TEST menu.

1) How many items can be actuated? _____

_____

Scroll down to CHIME BUZZER, and press F1, STRT to actuate, and F2, STOP, to discontinue operation.

2) Where is the sound coming from?

_____

(It's NOT the blue buzzer.)

Scroll to BURGLAR RELAY, and press F1, STRT to actuate.

3) Does the burglar alarm sound? _____

Try to start the engine.

4) Does the engine start? _____

Press F2, STOP, to discontinue the operation.

5) Does the engine start now? _____

This function controls a relay inside the IPM that interrupts the circuit for the starter.

6) Does the Adjustable Pedal ACTUATE function work?

_____

(More on this in a later guided practice)

Press ESC twice.

FRONT AREA MODULE (FAM)

CURRENT DATA

Select FRONT AREA MODULE and then CURRENT DATA.

1) How many items are on the CURRENT DATA menu?

_____

Scroll down to OIL PRESSURE SWITCH

2) What is the reading with the engine off?

_____

Start the engine.

3) What is the reading with the engine running?

_____

Obviously, the engine oil pressure switch is connected directly to the FAM.

Shut the engine off.

Press ESC once.

ACTUATION TESTS

Select ACTUATION TEST.

1) How many items can be actuated? _____

_____

Scroll down to BURGLAR HORN, and press F1, STRT to actuate, and F2, STOP, to discontinue operation. Locate the alarm horn.

2) Where is it located?

_____

_____

Press ESC twice.

REAR AREA MODULE (RAM)

CURRENT DATA Select REAR AREA MODULE and then CURRENT DATA.

1) How many items are on the menu? _____

_____

Scroll down to DRIVERS DOOR SWITCH.

2) With the driver's door open, what is the reading?

_____

3) With the driver's door closed, what is the reading?

_____

4) Are the readings the same for the front passenger door switch?

_____

In other words, both front door switches are connected (input) to the RAM.

Press ESC once.

ACTUATION TESTS

Select ACTUATION TEST.

1) How many items can be actuated? _____

Close all doors and tailgate.

Scroll down to MAP LAMP and press F1, STRT to actuate, and F2, STOP, to discontinue operation.

2) What light comes on?

_____

This means that the RAM is controlling this lamp, which makes sense if you remember that the door switches are connected (input) to the RAM.

Turn scan tool OFF.

INTELLIGENT POWER SWITCH OPERATION

SHORT CIRCUIT TO GROUND

Remove the loosened and prepared LH (driver's side) headlamp assembly.

Turn ON the low beam headlamps.

Short-circuit the blue power wire connecting the LH low beam to the FAM by installing a jumper lead between the headlamp connector and ground. Leave this jumper installed until you are asked to remove it.

1) Did the light go out? _____ (Obviously!)

There is no fuse for this circuit.

2) From what you learned in class, what is providing circuit protection for this (and most all) light(s) on the 2006 Sedona?

_____

With the short circuit still installed, and the headlamps still ON, connect a scan tool and check the FAM for DTCs.

3) Has DTC B2555, LEFT H/LAMP LOW SHORT TO GND, set?

_____ (It should have.)

Turn **OFF** the headlamp switch.

4) What happened to the DTC? _____

Turn **ON** the headlamp switch.

5) What happened to the DTC? _____

Obviously, this type DTC is NOT stored in memory.

Make sure the headlamp switch is on.

Remove the short circuit from the headlamp.

1) Is the LH low beam headlamp on_____

2) Is DTC B2225 still there? _____

Turn the headlamp switch off, and then back on.

3) Is the headlamp working now? _____

4) Is DTC B2225 still there? _____

So the IPS will reset and DTCs will erase when normal current flow is returned.

Don't touch the Scan Tool. Leave the scan tool on and at the DTC screen just used.

OPEN CIRCUIT

With the LH headlamp still loosened from the vehicle, disconnect the connector at the back of the bulb for the LH low beam.

1) Did the Scan Tool immediately show DTC B2557, LEFT H/LAMP LOW OPEN?

_____

Imagine the headlamp bulb was burned out.

2) Since the circuit is open when a bulb is burned out, do you think this same DTC would set?

_____

Using a volt meter, measure the available voltage at the blue power wire.

3) What is it? _____ volts

So, voltage is still available when an open occurs. However, the circuit shuts down completely if a short circuit to ground occurs.

Reconnect the headlamp wiring and loosely reinstall the headlamp assembly.

Disconnect the Scan Tool.

MODULE SUMMARY

In this module you had the opportunity to identify, describe and demonstrate several electrical functions controlled by the IPM, FAM, and RAM on the low-speed CAN bus.

INSTRUCTOR VERIFICATION: _____

NOTES:

NOTES:

NOTES:

Copyright © 2005 Kia Motors America, Inc. Corporate Service Training Department

No part of this publication may be reproduced, stored electronically, or transmitted in any form or by any means without prior written approval from Kia Motors America, Inc. KMA reserves the right to make changes in the descriptions, specifications, or procedures without prior notice or obligation.

SAFETY FIRST

Appropriate service methods and proper repair procedures are essential for safe, reliable operation of all motor vehicles as well as the personal safety of the individual performing the repair. There are numerous variations in procedures, techniques, tools and parts for servicing vehicles, as well as in the skill of the individual performing the service. This module cannot possibly anticipate all such variations and provide advice or caution to each. Accordingly, anyone who departs from the instruction provided in this module must first establish that they compromise neither their personal safety nor the vehicle integrity by their choice of methods, tools or parts. The following list contains general warnings that should always be followed while working on a vehicle.

- Always wear safety glasses for eye protection
- Use safety stands whenever a procedure requires underbody work
- Be sure the ignition switch is always off unless otherwise specified by a procedure
- Set the parking brake when working on the vehicle
- Operate the engine only in a well ventilated area
- Keep clear of moving parts
- To prevent serious burns, avoid contact with hot metal parts such as the radiator, exhaust manifold, tail pipe, catalytic converter and muffler
- Do not smoke while working on a vehicle

Within this module you will find *Notes*, *Cautions* and *Warnings* which provide critical information and help you do your job safely and efficiently. Below are the definitions of these terms.

NOTE
The purpose of a *Note* is to help you do your job more efficiently. A *Note* may provide additional information to help clarify a particular point or procedure.

CAUTION
A *Caution* alerts you to the possibility of damage to tools, equipment, or the vehicle. A *Caution* recommends that a procedure must be done in a certain way to avoid potential problems resulting from improper techniques or methods.

WARNING
A *Warning* alerts you to the highest level of risk. *Warnings* inform you that a procedure must be done in a particular way to minimize the chances of an accident that could result in personal injury or even loss of life.

When you see a *Note*, *Caution* or *Warning*, be certain you understand the message before you attempt to perform any part of a service procedure.

TARGET AUDIENCE

The target audience for this module consists of Kia service technicians who PDI and diagnose Kia customer concerns and/or vehicle malfunctions, and who have completed:

- Automotive Electrical Diagnosis
- Diagnosing with High Scan-Pro

MODULE GOAL

The goal of this module is to have participants demonstrate an understanding of how the adjustable pedals work on the 2006 Sedona.

MODULE OBJECTIVES

Given your PSD/PTG Theory Module Student Guide, an Owner's Manual, and 2006 Sedona (EX), you will be able to:

- Adjust the pedals
- Demonstrate an actuation test for the pedal motor

MODULE INSTRUCTIONS

Carefully read through the instructions for each task and answer the questions posed for each task.

REQUIRED MATERIALS

To complete this theory module, you will need a:

- 2006 Sedona Owner's Manual
- Scan tool
- 2006 Sedona EX

TIME TO COMPLETE

Approximately 30 minutes

GUIDED PRACTICE

Refer to Owner's Manual page 3-57.

ADJUSTING THE PEDALS

1) List the five steps to correctly adjust the pedal positions.

a) _____

b) _____

c) _____

d) _____

e) _____

2) Do both the accelerator and brake pedals adjust as one?

_____

3) Will the pedals adjust in ANY gear position?

_____

4) What gear position(s) allow(s) pedal movement?

_____

SCAN TOOL USAGE

Connect the scan tool.

From the main menu, navigate, locate and select the module that supports Power Pedals functions.

1) Power Pedals functions are supported in the

   _____ module.

2) Is there any ACTUATION TEST to support the Power Pedals?

   _____

3) What are they?

   _____

   _____

4) Is there any CURRENT DATA to support the Power Pedals?

   _____

INSTRUCTOR VERIFICATION: _____

NOTES:

Copyright © 2005 Kia Motors America, Inc. Kia University

No part of this publication may be reproduced, stored electronically, or transmitted in any form or by any means without prior written approval from Kia Motors America, Inc. KMA reserves the right to make changes in the descriptions, specifications, or procedures without prior notice or obligation.

SAFETY FIRST

Appropriate service methods and proper repair procedures are essential for safe, reliable operation of all motor vehicles as well as the personal safety of the individual performing the repair. There are numerous variations in procedures, techniques, tools and parts for servicing vehicles, as well as in the skill of the individual performing the service. This module cannot possibly anticipate all such variations and provide advice or caution to each. Accordingly, anyone who departs from the instruction provided in this module must first establish that they compromise neither their personal safety nor the vehicle integrity by their choice of methods, tools or parts. The following list contains general warnings that should always be followed while working on a vehicle.

- Always wear safety glasses for eye protection
- Use safety stands whenever a procedure requires underbody work
- Be sure the ignition switch is always off unless otherwise specified by a procedure
- Set the parking brake when working on the vehicle
- Operate the engine only in a well ventilated area
- Keep clear of moving parts
- To prevent serious burns, avoid contact with hot metal parts such as the radiator, exhaust manifold, tail pipe, catalytic converter and muffler
- Do not smoke while working on a vehicle

Within this module you will find *Notes*, *Cautions* and *Warnings* which provide critical information and help you do your job safely and efficiently. Below are the definitions of these terms.

NOTE
The purpose of a *Note* is to help you do your job more efficiently. A *Note* may provide additional information to help clarify a particular point or procedure.

CAUTION
A *Caution* alerts you to the possibility of damage to tools, equipment, or the vehicle. A *Caution* recommends that a procedure must be done in a certain way to avoid potential problems resulting from improper techniques or methods.

WARNING
A *Warning* alerts you to the highest level of risk. *Warnings* inform you that a procedure must be done in a particular way to minimize the chances of an accident that could result in personal injury or even loss of life.

When you see a *Note*, *Caution* or *Warning*, be certain you understand the message before you attempt to perform any part of a service procedure.

TARGET AUDIENCE

The target audience for this module consists of Kia service technicians who PDI and diagnose Kia customer concerns and/or vehicle malfunctions, and who have completed:

- Automotive Electrical Diagnosis
- Diagnosing with High Scan-Pro

MODULE GOAL

The goal of this module is to have participants demonstrate an understanding of how the 3-zone climate control system in the 2006 Sedona works, and provide an opportunity for participants to demonstrate their knowledge.

MODULE OBJECTIVES

Given your HVAC Theory Module Student Guide, an Owner's Manual, scan tool, and a 2006 Sedona (EX), you will be able to:

- Identify the key HVAC components and their locations
- Operate both the dual-zone front climate controls and the rear climate controls
- Read applicable CURRENT DATA on the scan tool
- Conduct selected ACTUATION TESTS

MODULE INSTRUCTIONS

Carefully read through the instructions for each task and answer the questions posed for each task.

To complete this module, you will need a 2006 Sedona Owner's Manual.

REQUIRED MATERIALS

To complete this theory module, you will need a:

- 2006 Sedona Owner's Manual
- Scan tool
- 2006 Sedona EX

TIME TO COMPLETE

Approximately 30 minutes

LEFT BLANK INTENTIONALLY

GUIDED PRACTICE

CLIMATE ZONES

The 2006 Sedona has three 'climate zones' in both Manual and the Fully Automatic Temperature Controlled Systems.

1) What are they?

_____

_____

_____

2) When a vehicle is equipped with Fully Automatic Temperature Control, are all three zones fully automatically controlled? _____

3) With Fully Automatic Temperature Control, what zones are fully automatically controlled?

_____

4) What three functions are manually controllable in the Rear Passenger's Zone?

_____

_____

_____

With Fully Automatic Temperature Control, there are two ways to turn ON the dual zone feature.

5) They are by pressing the right _____

selection button, or the button labeled Dual.

COMPONENT LOCATIONS

Write down the following component locations:

1) In Car Temperature Sensor

_____

2) In Car Humidity Sensor

_____

3) Front Evaporator Sensor

_____

4) Cabin Air Filter

_____

5) Ambient Temp Sensors

_____

6) Does the rear evaporator have a temperature sensor? _____

CABIN AIR FILTER

Refer to the maintenance schedules in the Owner's Manual.

1) How often should the cabin air filter be replaced in normal driving conditions? _____

2) Is there a different recommended replacement interval for severe driving conditions? _____

SCAN TOOL TASK

Scan Tool

Connect the scan tool, and from the main menu select FULL AUTO AIR / CON

Scroll to and select CURRENT DATA

1) How many items can be read? _____

2) What is the ROOM TEMPR SNSR reading?

_____

3) What is the HUMIDITY SENSOR reading?

_____

Press ESC once.

Scroll to and select ACTUATION TEST

4) How many items can be actuated? _____

FATC OFF

Start with the Fully Automatic Temperature Controlled System OFF

Try to actuate BLOWER FAN-HIGH.

Press F1, STRT to start, then F2, STOP to finish.

1) Does the front blower run at high speed?

_____

Turn ON the Fully Automatic Temperature Controlled System (Press AUTO).

Try to actuate BLOWER FAN-HIGH.

Press F1, STRT to start, then F2, STOP to finish.

2) Does the front blower run at high speed? _____

3) So the FATC system must be _____ in order to actuate the front blower.

FATC ON

Continue with the FATC system ON, the rear blower speed knob located on the FATC set to R, and the rear blower speed knob located on the Rear Control Panel set to 0.

Try to actuate REAR BLOWER FAN-HIGH.

Press F1, STRT to start, then F2, STOP to finish.

1) Does the rear blower run at high speed? _____

2) For this actuation function to work, you must either turn the front _____ ON, or the rear _____ ON, with the FATC set R.

3) In any case, either the front or rear fan control knob(s) must be _____ in order to actuate the rear blower.

INSTRUCTOR VERIFICATION: _____

NOTES:

NOTES:

Copyright © 2005 Kia Motors America, Inc. Kia University

No part of this publication may be reproduced, stored electronically, or transmitted in any form or by any means without prior written approval from Kia Motors America, Inc. KMA reserves the right to make changes in the descriptions, specifications, or procedures without prior notice or obligation.

SAFETY FIRST

Appropriate service methods and proper repair procedures are essential for safe, reliable operation of all motor vehicles as well as the personal safety of the individual performing the repair. There are numerous variations in procedures, techniques, tools and parts for servicing vehicles, as well as in the skill of the individual performing the service. This module cannot possibly anticipate all such variations and provide advice or caution to each. Accordingly, anyone who departs from the instruction provided in this module must first establish that they compromise neither their personal safety nor the vehicle integrity by their choice of methods, tools or parts. The following list contains general warnings that should always be followed while working on a vehicle.

- Always wear safety glasses for eye protection
- Use safety stands whenever a procedure requires underbody work
- Be sure the ignition switch is always off unless otherwise specified by a procedure
- Set the parking brake when working on the vehicle
- Operate the engine only in a well ventilated area
- Keep clear of moving parts
- To prevent serious burns, avoid contact with hot metal parts such as the radiator, exhaust manifold, tail pipe, catalytic converter and muffler
- Do not smoke while working on a vehicle

Within this module you will find *Notes*, *Cautions* and *Warnings* which provide critical information and help you do your job safely and efficiently. Below are the definitions of these terms.

NOTE
The purpose of a *Note* is to help you do your job more efficiently. A *Note* may provide additional information to help clarify a particular point or procedure.

CAUTION
A *Caution* alerts you to the possibility of damage to tools, equipment, or the vehicle. A *Caution* recommends that a procedure must be done in a certain way to avoid potential problems resulting from improper techniques or methods.

WARNING
A *Warning* alerts you to the highest level of risk. *Warnings* inform you that a procedure must be done in a particular way to minimize the chances of an accident that could result in personal injury or even loss of life.

When you see a *Note*, *Caution* or *Warning*, be certain you understand the message before you attempt to perform any part of a service procedure.

TARGET AUDIENCE

The target audience for this module consists of Kia service technicians who PDI and diagnose Kia customer concerns and/or vehicle malfunctions, and who have completed:

- Automotive Electrical Diagnosis
- Diagnosing with High Scan-Pro

MODULE GOAL

The goal of this module is to have participants demonstrate their knowledge of the Occupant Classification System and the 3-Row Curtain Airbag.

MODULE OBJECTIVES

Given your Safety Theory Module Student Guide, scan tool, and a 2006 Sedona (EX), you will be able to:

- Identify the key OCS components and their locations
- Recalibrate the weight classification sensors
- Read applicable CURRENT DATA on the scan tool
- Conduct selected ACTUATION TESTS
- Identify key curtain airbag components

MODULE INSTRUCTIONS

Carefully read through the instructions for each task and answer the questions posed for each task.

REQUIRED MATERIALS

To complete this theory module, you will need a:

- Scan tool
- 2006 Sedona EX

TIME TO COMPLETE

Approximately 30 minutes

LEFT BLANK INTENTIONALLY

GUIDED PRACTICE

OCCUPANT CLASSIFICATION SYSTEM

1) Where are the 4 Occupant (weight) Classification Sensor located?

_____

_____

2) Where is the Occupant (weight) Classification Module located?

_____

3) What is the color of the assurance locks on the connectors for the sensors and control module?

_____

Sit in the passenger seat with the ignition on.

4) Is the 'Passenger Airbag Off' light on? _____

Move out of the seat.

5) Does the light come on immediately? _____

Sit on the far outer edge of the seat as far forward as possible.

6) Did the light go out? _____

This basically shows how one 'weight' sensor is measuring all the weight in the seat.

7) Does the driver's seat use this same type system?

_____

SCAN TOOL TASKS

Connect a scan tool and from the main menu select SRS – AIRBAG.

Select WEIGHT CLASSIFICATION SYS

Scroll to and select STATUS INFO

1) With the seat empty, what is the CURRENT WCS STATUS?

_____

Place both of your fists on the seat and lean in. Do not sit in the seat.

2) What is the CURRENT WCS STATUS?

_____

Now, sit in the seat.

3) What is the CURRENT WCS STATUS?

_____

Press ESC once.

WCS RE-INITIALIZATION

Scroll to and select WCS RESET

1) Remembering the class presentation, what position must the seat be in to begin the function? (Look it up in KSIS if you forgot)

_____

Perform the WCS RESET now.

2) What is happening in this step?

_____

Press ESC once.

To see if this happened, select WCS RESET again, but stop short of the actual calibration procedure.

3) What is the current measured weight?

_____

Press ESC once.

Sit in the seat and select WCS RESET again.

4) What is the current measured weight?

_____

Press ESC once.

PLEASE – make sure the seat is zeroed without any weight, and confirm before going on.

Remembering from class, name three repairs that would require you to perform this WCS RESET function.

5) _____

6) _____

7) _____

GUIDED PRACTICE

CURTAIN AIRBAG

If you haven't already done so, locate the front and rear 'squibs' that inflate the Side Curtain Airbag.

1) Where are they located?

_____

If you haven't already done so, locate the front and rear side impact sensors that inflate the Side Curtain Airbag.

2) Where are the Side Impact Sensors located?

_____

INSTRUCTOR VERIFICATION: _____

NOTES:

NOTES:

Copyright © 2005 Kia Motors America, Inc. Kia University

No part of this publication may be reproduced, stored electronically, or transmitted in any form or by any means without prior written approval from Kia Motors America, Inc. KMA reserves the right to make changes in the descriptions, specifications, or procedures without prior notice or obligation.

SAFETY FIRST

Appropriate service methods and proper repair procedures are essential for safe, reliable operation of all motor vehicles as well as the personal safety of the individual performing the repair. There are numerous variations in procedures, techniques, tools and parts for servicing vehicles, as well as in the skill of the individual performing the service. This module cannot possibly anticipate all such variations and provide advice or caution to each. Accordingly, anyone who departs from the instruction provided in this module must first establish that they compromise neither their personal safety nor the vehicle integrity by their choice of methods, tools or parts. The following list contains general warnings that should always be followed while working on a vehicle.

- Always wear safety glasses for eye protection
- Use safety stands whenever a procedure requires underbody work
- Be sure the ignition switch is always off unless otherwise specified by a procedure
- Set the parking brake when working on the vehicle
- Operate the engine only in a well ventilated area
- Keep clear of moving parts
- To prevent serious burns, avoid contact with hot metal parts such as the radiator, exhaust manifold, tail pipe, catalytic converter and muffler
- Do not smoke while working on a vehicle

Within this module you will find *Notes*, *Cautions* and *Warnings* which provide critical information and help you do your job safely and efficiently. Below are the definitions of these terms.

NOTE
The purpose of a *Note* is to help you do your job more efficiently. A *Note* may provide additional information to help clarify a particular point or procedure.

CAUTION
A *Caution* alerts you to the possibility of damage to tools, equipment, or the vehicle. A *Caution* recommends that a procedure must be done in a certain way to avoid potential problems resulting from improper techniques or methods.

WARNING
A *Warning* alerts you to the highest level of risk. *Warnings* inform you that a procedure must be done in a particular way to minimize the chances of an accident that could result in personal injury or even loss of life.

When you see a *Note*, *Caution* or *Warning*, be certain you understand the message before you attempt to perform any part of a service procedure.

TARGET AUDIENCE

The target audience for this module consists of Kia service technicians who PDI and diagnose Kia customer concerns and/or vehicle malfunctions, and who have completed:

- Automotive Electrical Diagnosis
- Diagnosing with High Scan-Pro

MODULE GOAL

The goal of this module is to have participants demonstrate an understanding of how the new power sliding doors and power tailgate work on the 2006 Sedona.

MODULE OBJECTIVES

On a 2006 Sedona (EX), you will be able to:

- Locate key PSD components on the vehicle
- List the switches used to control the PSD and PTG
- Demonstrate all the functions of the PSD and PTG
- Explain how optical sensors and PWM current flow operate the PSD and PTG

MODULE INSTRUCTIONS

Carefully read through the instructions for each task and answer the questions posed for each task.

REQUIRED MATERIALS

To complete this theory module, you will need:

- Your Power Sliding Door/Power Tailgate Theory Module Student Guide
- 2006 Sedona Owner's Manual
- Scan tool
- 2006 Sedona EX

TIME TO COMPLETE

Approximately 105 minutes (1.75 Hours)

LEFT BLANK INTENTIONALLY

WARNING: Be careful when operating the power sliding side doors and power tailgate. While both doors have anti-pinch functions, they do not operate when each door is "cinching." Keep hands and fingers clear of the doors when closing them.

GUIDED PRACTICE

POWER SLIDING DOOR AND POWER TAILGATE COMPONENT LOCATIONS

Connect a battery charger to the vehicle (set to 10-15 amps).

Close all the windows and then lower both front windows.

Using the photographs on pages 5 and 6, locate each of the following components on the vehicle and answer the questions.

1) What are the colors of the two connectors on the PSD control module?

_____

2) What is the color of the PSD clutch connector?

_____

3) What is the color of the PSD optical sensor connector?

_____

4) What are the colors of the two wires in the PSD motor connector?

_____

SCAN TOOL TASKS

1) What are the colors of the two wires connected to the buzzer/chime?

_____

2) What are the colors of the two wires coming from the fuel filler door check switch?

_____

3) What are the colors of the wires coming from the detent switch?

_____

4) What is the number attached to the door closed latch control cable?

_____

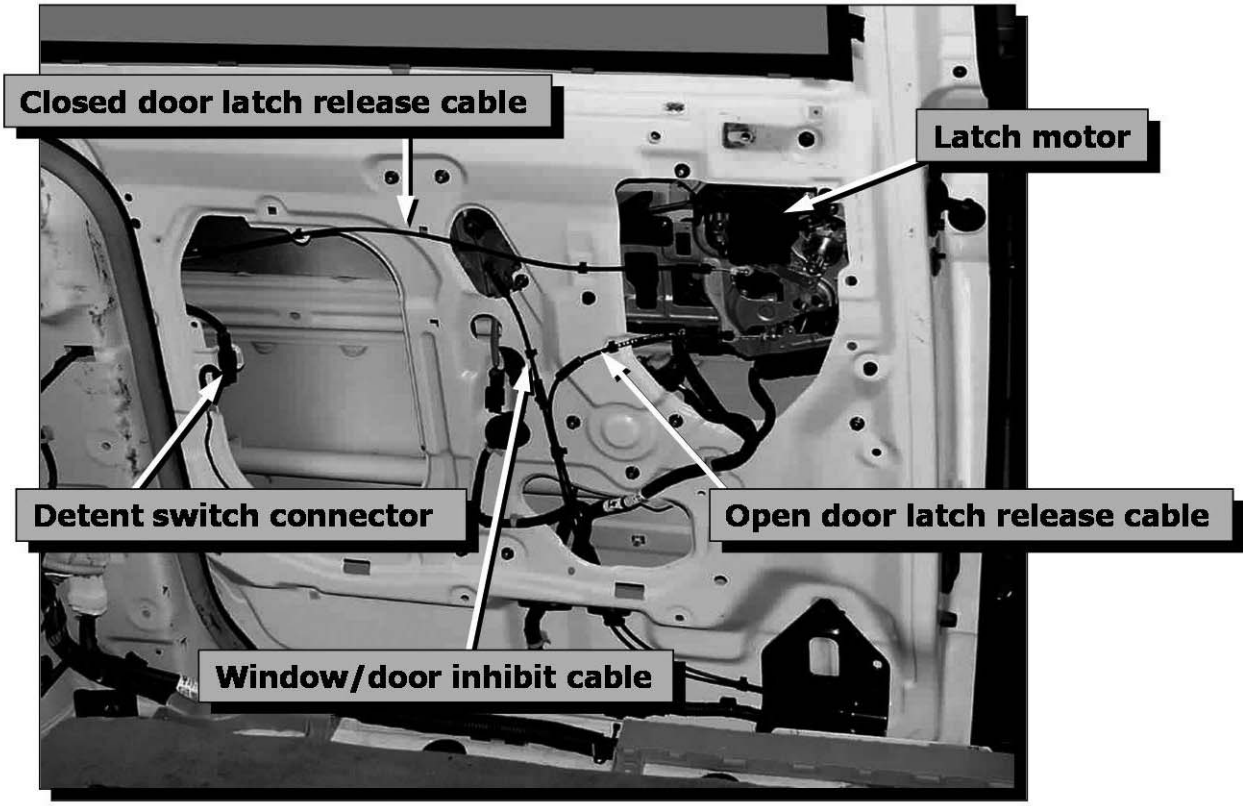
5) What is the number attached to the door open latch control cable?

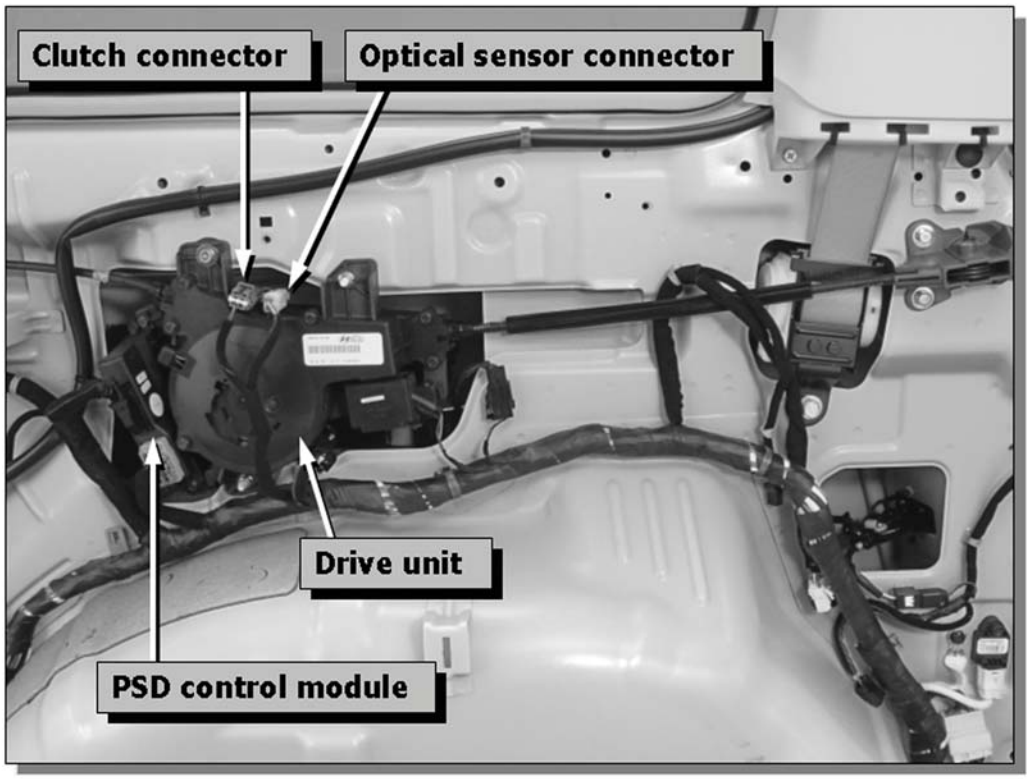
_____

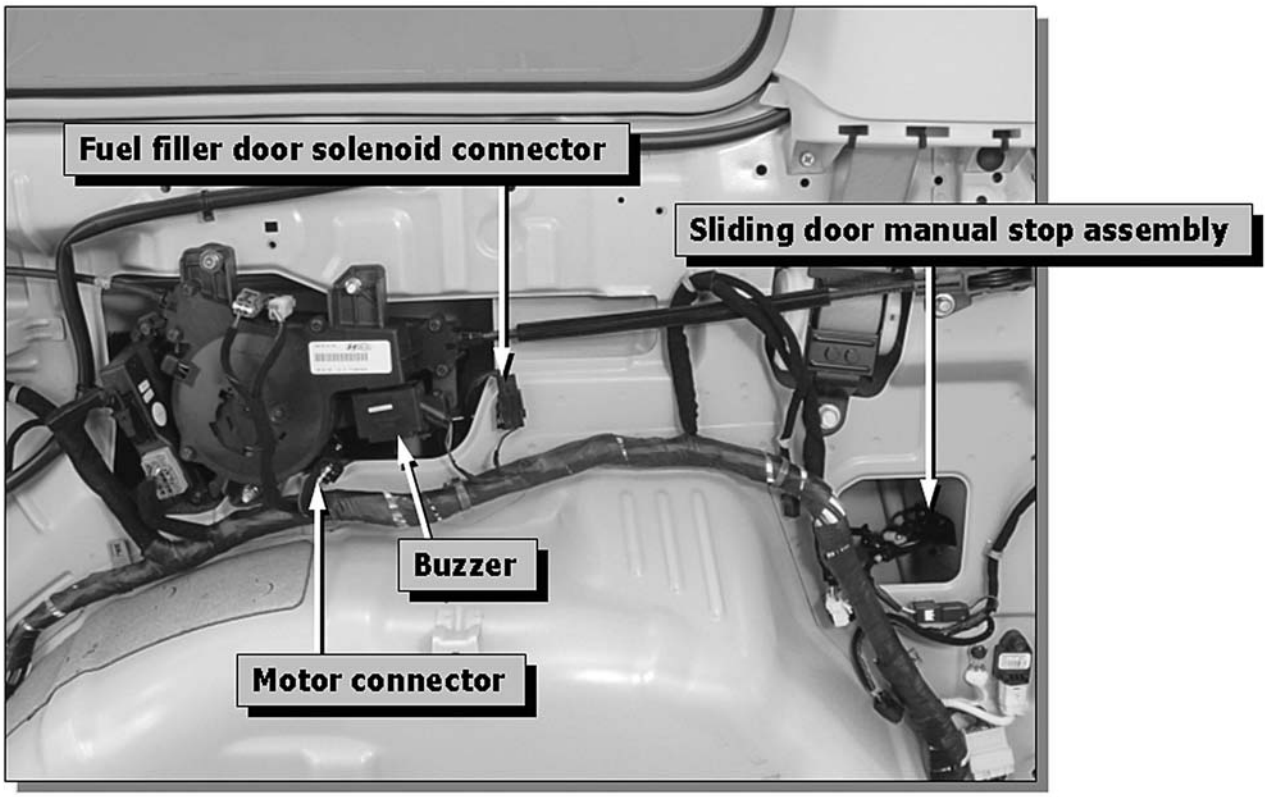
6) What is the number attached to the window open/door stop control cable?

_____

Note: The flat rectangular item that looks like a heating element is an audio speaker! There are three of these uniquely-styled speakers used on vehicles with "surround sound." One located on each PSD, and one overhead in the headliner. Yes, you have to remove the headliner to replace that speaker.


Closed door latch release cable
Latch motor
Detent switch connector
Open door latch release cable
Window/door inhibit cable


Clutch connector
Optical sensor connector
Drive unit
PSD control module


Fuel filler door solenoid connector
Sliding door manual stop assembly
Buzzer
Motor connector

PSD/PTG INPUTS

Review the Owner's Manual, pp 3-16 through 3-24. List the switches used to control the Power Sliding Doors and Power Tailgate and their locations.

1) Name: _____

   Location: _____

2) Name: _____

   Location: _____

3) Name: _____

   Location: _____

4) Name: _____

   Location: _____

5) Name: _____

   Location: _____

6) Name: _____

   Location: _____

7) Name: _____

   Location: _____

The RKE can also control the PSD and PTG, and also the inside and outside door/liftgate handles.

There are many inputs for controlling the PSD and PTG. Let's find out more about their functions.

PSD/PTG OPERATION

Turn the Power button OFF.

1) What position is the Power ON / OFF button when OFF?

_____

2) Can you operate the LH and RH PSD and PTG from the overhead console buttons?

_____

3) With the Power button OFF, will the RKE work normally?

_____

With the Power button OFF, try to open both power sliding doors and power tailgate using the outside handles.

4) Do any of the doors/tailgate open automatically?

_____

With the Power button OFF, open the LH power sliding door and try to operate it automatically from the inside door handle.

5) Does the inside door handle work the PSD automatically?

_____

With the Power button OFF, try to operate the LH power sliding door with the B-pillar button.

6) Does the B-pillar button operate the PSD automatically?

_____

PSD/PTG OPERATION CONTINUED

1) When you completed the previous task, where did the “chime” sound come from?

_____

2) In summary, with the Power button OFF, what are the only ways to control the PSD automatically?

_____

_____

3) What purpose does the Power button serve?

_____

Now turn ON (depress) the PWR button.

4) With the PWR button ON, do the B-pillar switches provide automatic PSD operation?

_____

5) With the Power button ON, do the outside and inside door handles provide automatic PSD operation?

_____

6) With the Power button ON, does the PTG outside handle provide automatic PTG operation?

_____

Close both the PSD and PTG. Make sure the Power button is ON. Place the transaxle shift lever in N (NEUTRAL).

7) Will either the PSD or PTG open automatically from **any** control point?

_____

PSD/PTG OPERATION CONTINUED

Place the transaxle lever in D (Drive) and try the same functions.

1) Will either the PSD or PTG open automatically from any control point?

_____

Temporarily place the transaxle shift lever in P (PARK); then open both the PSD and PTG.

Once again, place the transaxle shift lever in D (DRIVE).

Try closing both PSD and PTG using any control method – except the RKE.

2) Will the PSD and PTG close automatically?

_____

3) In summary, does the PSD or PTG **open** automatically in DRIVE or NEUTRAL?

_____

4) Does the PSD or PTG **close** automatically in DRIVE or NEUTRAL?

_____

Make sure the PWR button is ON. From the LH driver's door position, release the fuel filler door using the switch on the driver door. Try opening the LH PSD using the button in the overhead console and LH B-Pillar.

5) Does the PSD open automatically? _____

6) Can you open the LH PSD from the outside handle automatically, or manually?

_____

PSD/PTG OPERATION CONTINUED

Carefully look between the rear edge of the PSD and the C-Pillar to find what is stopping the PSD from opening.

1) Describe what you see:

_____

_____

_____

Close the fuel filler door, and open the LH PSD; then re-open the fuel filler door using the button on the driver's door.

2) Can you automatically close the LH PSD?

_____

Watch the operation of the Fuel Filler Door Check Switch, (located on the Manual Door Stop Mechanism) as you manually close the fuel filler door. Make sure the fuel filler door is closed and disconnect the Fuel Filler Door Check Switch.

3) Will the PSD operate? _____

4) This means that this switch must be _____ in order for the PSD to operate automatically.

DETENT SWITCH

Turn OFF the Power Button in the overhead console so you can manually operate the door from the outside handle.

Manually open the LH PSD with the outside handle.

Connect a Scan Tool.

1) From the main menu, what would you need to select to view Power Sliding Door data?

_____

Select this now, and then select POWER SLIDING DOOR LH.

Scroll to and select CURRENT DATA. Under CURRENT DATA, select, **fix and graph** DETENT SWITCH.

2) With the door completely OPEN, the DETENT SWITCH reads _____. This indicates the switch is CLOSED.

Manually close the door to the **SECONDARY** (first) latch position.

3) What does the detent switch read now? _____

4) This indicates the switch has _____.

Slowly press on the rear of the door at latch level while watching the scan tool's graph.

5) As the latch begins to enter **PRIMARY** (full) latch position, the reading initially goes to _____, meaning the detent switch is CLOSED.

DETENT SWITCH

Continue pressing in on the door until the latch fully reaches PRIMARY latch position.

1) The reading goes back to _____.

2) The detent switch is now _____ again.

NOTE: In real time, this happens so quickly that the scan tool refresh rate / CAN bus data transfer rate often misses the actual occurrence, so you won't necessarily see what's actually happening while normally closing the door.

It can be captured - though not reliably every time. Give it a try now, both by manually and power closing the door.

CHILD SAFETY SWITCH

Switch the Child Safety Switch located on the PSD jamb to ON (down). (Make sure the Power button is still ON.)

1) From what points can the PSD be operated **automatically**?

_____

_____

2) Can the PSD be opened **manually** from the **inside** door handle?

_____

3) Can the PSD be opened **manually** from the **outside** door handle?

_____

Return the Child Safety Switch to the OFF (up) position.

DOOR INHIBITOR

Close the LH PSD and lower the LH PSD window half way. Then try operating the PSD from any control position.

1) What happens?

_____

_____

To find out why, turn the Power button OFF and lower the LH PSD window half way; then manually operate the PSD.

2) Does it open all the way? _____

With the PSD opened about half way, operate the LH PSD window while watching the lower PSD track.

Locate the window open door stop lever and stopper.

3) What controls the window open door stop lever?

_____

4) According to Owner's Manual page 3-22, how low can the window be lowered before this occurs?

_____

Close (raise) the window completely, and push the PSD back all the way. Locate the PSD **open** latch.

5) What controls this latch?

_____

Turn the Power switch ON.

WARNING: Be careful when operating the power sliding side doors and power tailgate. While both doors have anti-pinch functions, they do not operate when each door is "cinching." Keep hands and fingers clear of the doors when closing them.

OBSTACLE DETECTION

Manually close the LH PSD if not already closed and then open the LH PSD with the RKE.

Again, use the RKE to close the door. As the door is closing, stop the movement of the door by **pressing against the outside handle**.

1) What happens?

_____

_____

2) What component caused the door to operate this way? _____

Again, close the LH PSD and then open it again. This time, however, **press against the edge of the door** (anti-pinch strip).

3) What happens? _____

_____

4) How does the anti-pinch strip work?

_____

5) Which of these two devices is the **primary** obstacle detection device?

_____

OPTICAL SENSOR

Close the LH PSD if not already closed.

Disconnect the LH PSD optical sensor, and try to open the door. Keep trying to open the door until it is fully opened.

1) Using what you learned in class, why is the door operating this way?

_____

_____

_____

Reconnect the optical sensor.

2) Will the door close? _____

For clues to the answer to following question, see the Owner's Manual, page 3-18.

3) What will you have to do to get the door to close?

_____

_____

4) Explain the process.

_____

_____

_____

5) This operation may also be necessary after replacing the:

_____

PSD SCAN TOOL

Connect and turn on the scan tool.

1) From the main menu what would you need to select to view Power Sliding Side Door data?

_____

Select this now, then select POWER SLIDING LH, and then select CURRENT DATA.

Under CURRENT DATA, select FIX AND GRAPH, OPTICAL SENSOR 1 and OPTICAL SENSOR 2.

2) Does this pattern look like what you viewed in class?

_____

3) Could it be used to determine that the optical sensor is working somewhat?

_____

4) Are there any actuation functions available?

_____

Turn the Scan Tool off.

(During an Instructor-led demonstration following this exercise, you'll see exactly what the optical sensor patterns look like.)

PSD/PTG FUNCTION CHAINS

Using circuit diagrams reproduced on pages 21 and 22 (SD935-5 and SD935-6), address each of the following scenarios.

SCENARIO 1

1) (Use SD935-5) When a customer presses the button on the RKE to open or close the LH Power Sliding Side Door (PSD), the signal is received by the _____.

2) (Use SD935-5) That module sends a message on the _____ to the _____ (control module).

3) (Use SD935-5) The RAM is wired directly to the _____ module.

4) (Use SD935-6) Pins _____ and _____ in connector F27-1 of the _____ module control the power and ground of the LH Power Sliding Side Door motor.

SCENARIO 2

1) (Use SD935-6) When a customer presses the LH B pillar switch to open or close the LH PSD, pin _____ in connector F27-2 will be grounded at the _____ module.

2) (Use SD935-6) Pins _____and _____ in connector F27-1 of the _____ module control the power and ground of the LH Power Sliding Side Door motor.

SCENARIO 3

1) (Use SD935-5) If a customer presses the overhead console button to open or close the LH PSD, pin _____ at connector BCM-IF of the _____ (control module) will be grounded.

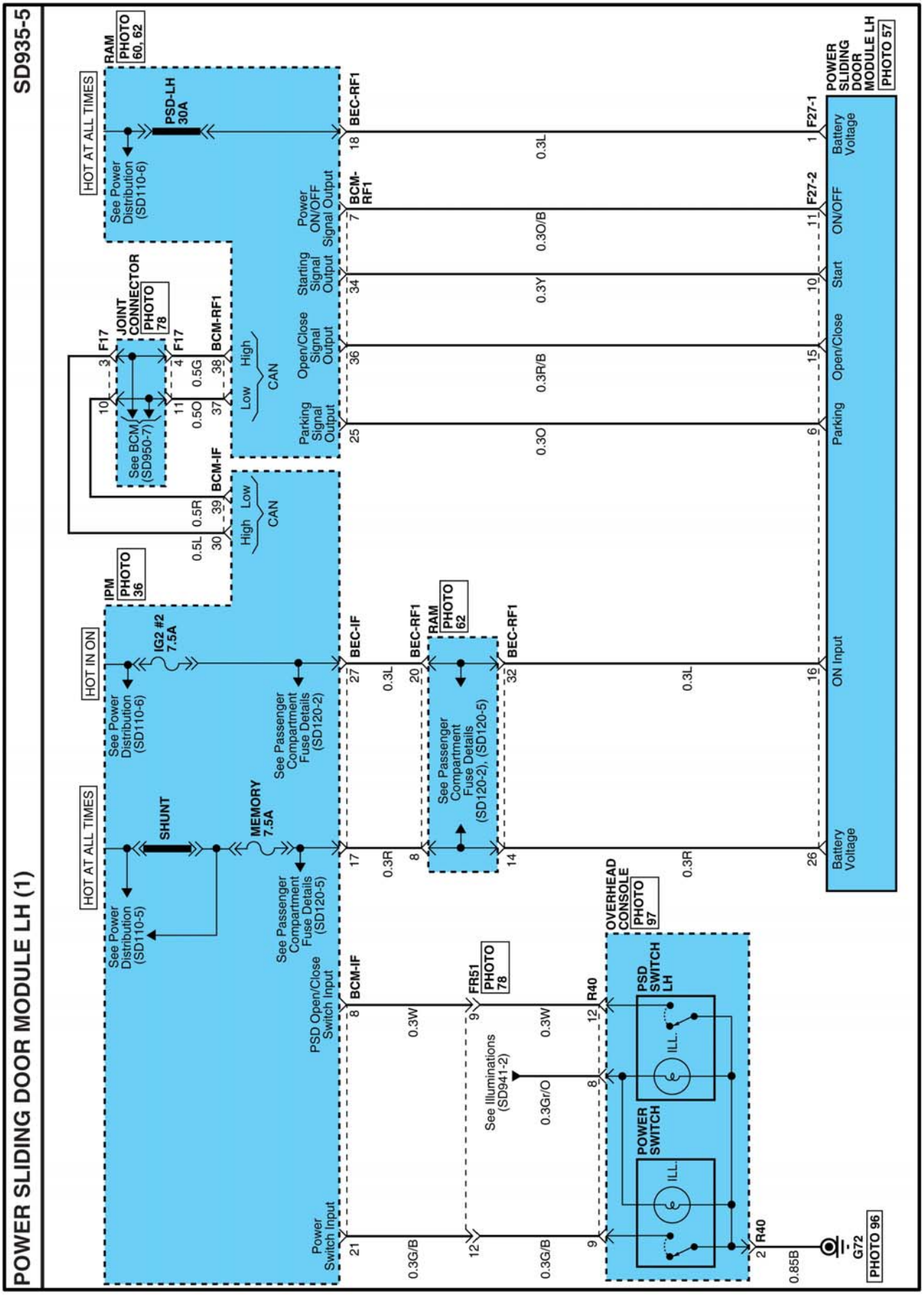
2) (Use SD935-5) The remainder of the function chain would be identical to using the _____.

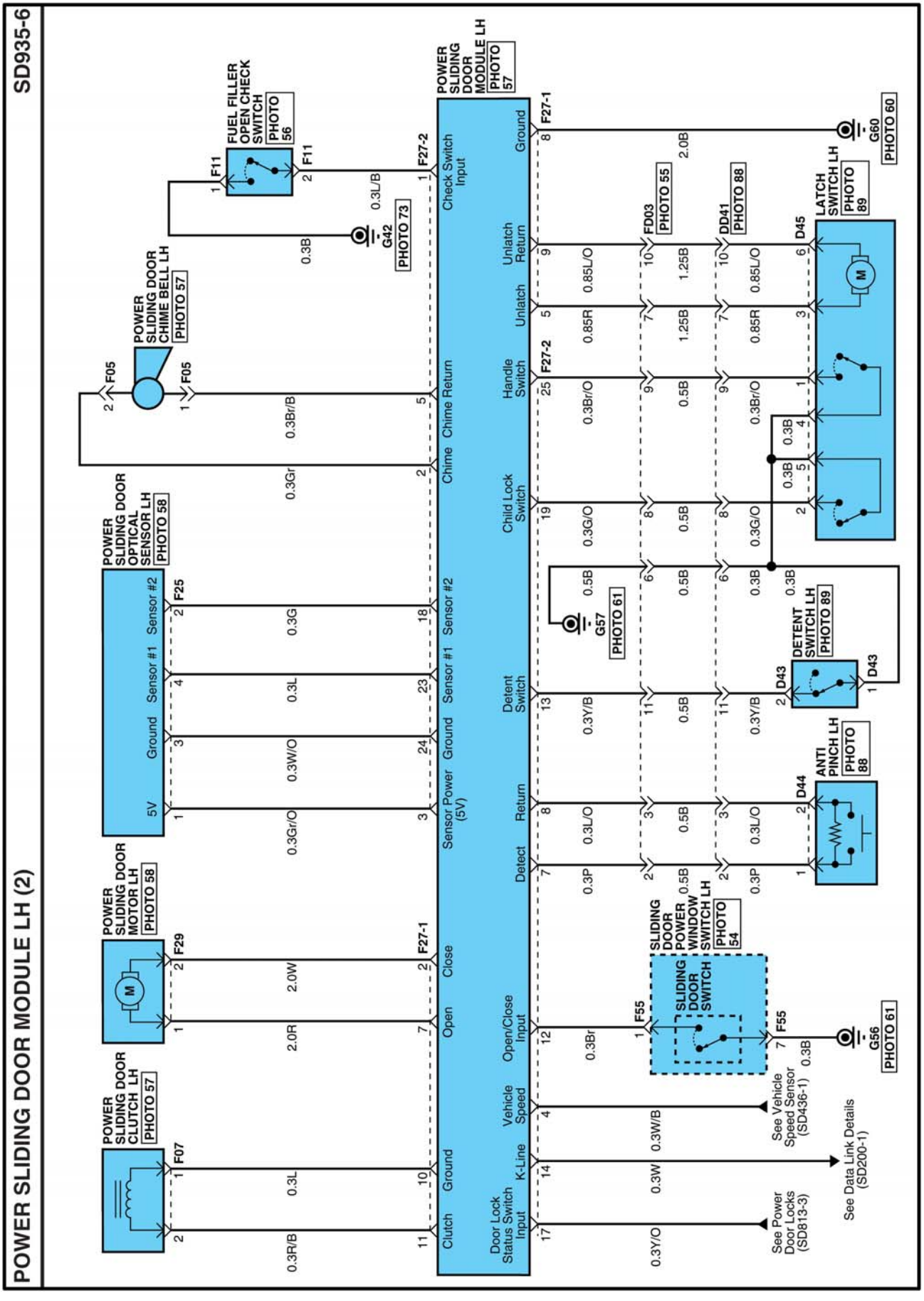
SCENARIO 4

1) (Use SD935-6) If a customer uses the PSD door handle to open or close the LH PSD, pin _____ in connector _____ will be grounded at the _____.

2) (Use SD935-6) The remainder of the function chain would be identical to using the _____ switch.

INSTRUCTOR VERIFICATION: _____


POWER SLIDING DOOR MODULE LH (1)
SD935-5
HOT AT ALL TIMES
HOT IN ON
RAM
PHOTO 60, 62
PSD-LH 30A
See Power Distribution (SD110-6)
JOINT CONNECTOR
PHOTO 78
F17
See BCM (SD950-7)
BCM-RF1
BCM-IF
High
Low
CAN
IPM
PHOTO 36
IG2 #2 7.5A
SHUNT
MEMORY 7.5A
See Power Distribution (SD110-5)
See Passenger Compartment Fuse Details (SD120-2)
See Passenger Compartment Fuse Details (SD120-5)
BEC-IF
BEC-RF1
See Passenger Compartment Fuse Details (SD120-2), (SD120-5)
PSD Open/Close Switch Input
Power Switch Input
FR51
PHOTO 78
See Illuminations (SD941-2)
OVERHEAD CONSOLE
PHOTO 97
PSD SWITCH LH
POWER SWITCH
ILL.
R40
G72
PHOTO 96
Power ON/OFF Signal Output
Starting Signal Output
Open/Close Signal Output
Parking Signal Output
POWER SLIDING DOOR MODULE LH
PHOTO 57
F27-1
F27-2
Battery Voltage
ON/OFF
Start
Open/Close
Parking
ON Input
0.3L
0.3O/B
0.3Y
0.3R/B
0.3O
0.3R
0.3W
0.3Gr/O
0.3G/B
0.85B


SD935-6
POWER SLIDING DOOR MODULE LH (2)
POWER SLIDING DOOR CLUTCH LH PHOTO 57
POWER SLIDING DOOR MOTOR LH PHOTO 58
POWER SLIDING DOOR OPTICAL SENSOR LH PHOTO 58
POWER SLIDING DOOR CHIME BELL LH PHOTO 57
FUEL FILLER OPEN CHECK SWITCH PHOTO 56
POWER SLIDING DOOR MODULE LH PHOTO 57
SLIDING DOOR POWER WINDOW SWITCH LH PHOTO 54
SLIDING DOOR SWITCH
DETENT SWITCH LH PHOTO 89
ANTI PINCH LH PHOTO 88
LATCH SWITCH LH PHOTO 89
G42 PHOTO 73
G56 PHOTO 61
G57 PHOTO 61
G60 PHOTO 60
FD03 PHOTO 55
DD41 PHOTO 88
Clutch
Ground
Door Lock Status Switch Input
K-Line
Vehicle Speed
Open/Close Input
Open
Close
Detect
Return
Sensor Power (5V)
Ground
Sensor #1
Sensor #2
Detent Switch
Child Lock Switch
Chime
Chime Return
Handle Switch
Unlatch
Unlatch Return
Check Switch Input
Ground
5V
Ground
Sensor #1
Sensor #2
See Power Door Locks (SD813-3)
See Data Link Details (SD200-1)
See Vehicle Speed Sensor (SD436-1)

INSTRUCTOR DEMONSTRATION

- *Optical Sensor demonstration*

INSTRUCTOR DEMONSTRATION

- *PWM current flow demonstration*

NOTES:

Copyright © 2005 Kia Motors America, Inc. Kia University

No part of this publication may be reproduced, stored electronically, or transmitted in any form or by any means without prior written approval from Kia Motors America, Inc. KMA reserves the right to make changes in the descriptions, specifications, or procedures without prior notice or obligation.

SAFETY FIRST

Appropriate service methods and proper repair procedures are essential for safe, reliable operation of all motor vehicles as well as the personal safety of the individual performing the repair. There are numerous variations in procedures, techniques, tools and parts for servicing vehicles, as well as in the skill of the individual performing the service. This module cannot possibly anticipate all such variations and provide advice or caution to each. Accordingly, anyone who departs from the instruction provided in this module must first establish that they compromise neither their personal safety nor the vehicle integrity by their choice of methods, tools or parts. The following list contains general warnings that should always be followed while working on a vehicle.

- Always wear safety glasses for eye protection
- Use safety stands whenever a procedure requires underbody work
- Be sure the ignition switch is always off unless otherwise specified by a procedure
- Set the parking brake when working on the vehicle
- Operate the engine only in a well ventilated area
- Keep clear of moving parts
- To prevent serious burns, avoid contact with hot metal parts such as the radiator, exhaust manifold, tail pipe, catalytic converter and muffler
- Do not smoke while working on a vehicle

Within this module you will find *Notes*, *Cautions* and *Warnings* which provide critical information and help you do your job safely and efficiently. Below are the definitions of these terms.

NOTE
The purpose of a *Note* is to help you do your job more efficiently. A *Note* may provide additional information to help clarify a particular point or procedure.

CAUTION
A *Caution* alerts you to the possibility of damage to tools, equipment, or the vehicle. A *Caution* recommends that a procedure must be done in a certain way to avoid potential problems resulting from improper techniques or methods.

WARNING
A *Warning* alerts you to the highest level of risk. *Warnings* inform you that a procedure must be done in a particular way to minimize the chances of an accident that could result in personal injury or even loss of life.

When you see a *Note*, *Caution* or *Warning*, be certain you understand the message before you attempt to perform any part of a service procedure.

TARGET AUDIENCE

The target audience for this module consists of Kia service technicians who PDI and diagnose Kia customer concerns and/or vehicle malfunctions, and who have completed:

- Automotive Electrical Diagnosis
- Diagnosing with High Scan-Pro

MODULE GOAL

The goal of this module is to allow participants to experience the functions of the Back Warning System.

MODULE OBJECTIVE

Given your BWS Theory Module Student Guide and a 2006 Sedona (EX), you will be able to demonstrate:

- How the BWS works
- How the BWS self-diagnostics work

MODULE INSTRUCTIONS

Carefully read through the instructions for each task and answer the questions posed for each task.

REQUIRED MATERIALS

To complete this theory module, you will need a 2006 Sedona EX.

TIME TO COMPLETE

Approximately 40 minutes

LEFT BLANK INTENTIONALLY

GUIDED PRACTICE
BWS FUNCTIONS

Start with the key ON and shift lever in PARK.
Make sure nothing is directly behind the vehicle.
Place the shift lever in REVERSE.

1) What do you hear with nothing behind the vehicle? _____

2) Where is this beeping noise coming from?

(HINT: It's not the IPM)

_____

_____

With the vehicle in REVERSE, stand back about 5 ft behind the vehicle.
Walk slowly towards the rear of the vehicle.

3) Explain what happens.

_____

_____

With the shift lever still in REVERSE, walk down the side of the vehicle slowly.

4) Does the 'beeping' begin before you walk behind the back of the vehicle? _____

5) Why?

_____

_____

Place the shift lever in PARK

DIAGNOSTICS

The bumper has been loosened for this exercise.

Remove the lower screws to the taillight assemblies and move the taillights into the vehicle.

Pull out on the upper front portion of the rear bumper on the RH (passenger) side, and carefully pull back on the bumper assembly.

Disconnect the far right outer sensor.

With the key ON, place the shift lever in REVERSE.

1) How many (repeating) beeps do you hear?

_____

Place the shift lever in PARK.

CAUTION: The next step, if not performed carefully, may result in damage to the control module! PLEASE BE CAREFUL!

Locate the Back Warning Module.

REMOVE the Back Warning Control Module and CAREFULLY move the switch to the Diagnostic Mode (ON). **The switch is VERY easy to break off!**

With the key ON, place the shift lever in REVERSE.

2) How many (repeating) beeps do you hear now?

_____

Place the shift lever in PARK

Reconnect the far right outer sensor, and then disconnect the far left outer sensor.

With the key ON, place the shift lever in REVERSE.

3) How many (repeating) beeps do you hear now?

_____

Place the shift lever in PARK

DIAGNOSTICS

Re-disconnect the far right outer sensor, leaving the far left outer sensor disconnected.

With the key ON, place the shift lever in REVERSE.

1) How many (repeating) beeps do you hear now?

_____

2) How can you tell which sensor is not working?

_____

_____

_____

Place the shift lever in PARK

Connect all sensors and partially reinstall the rear bumper as before.

With the Back Warning Module Diagnostic switch still ON and the key still ON, place the shift lever in REVERSE.

3) What happens? _____

4) What could possibly happen if you sent a vehicle back to the customer like this, and perhaps a failure occurred to the left outer sensor or its circuit?

_____

_____

_____

Carefully switch the Back Warning Modules diagnostic switch back to OFF, and reinstall the module.

INSTRUCTOR VERIFICATION: _____

NOTES:

NOTES:

NOTES:

Copyright © 2005 Kia Motors America, Inc. Kia University

No part of this publication may be reproduced, stored electronically, or transmitted in any form or by any means without prior written approval from Kia Motors America, Inc. KMA reserves the right to make changes in the descriptions, specifications, or procedures without prior notice or obligation.

SAFETY FIRST

Appropriate service methods and proper repair procedures are essential for safe, reliable operation of all motor vehicles as well as the personal safety of the individual performing the repair. There are numerous variations in procedures, techniques, tools and parts for servicing vehicles, as well as in the skill of the individual performing the service. This module cannot possibly anticipate all such variations and provide advice or caution to each. Accordingly, anyone who departs from the instruction provided in this module must first establish that they compromise neither their personal safety nor the vehicle integrity by their choice of methods, tools or parts. The following list contains general warnings that should always be followed while working on a vehicle.

- Always wear safety glasses for eye protection
- Use safety stands whenever a procedure requires underbody work
- Be sure the ignition switch is always off unless otherwise specified by a procedure
- Set the parking brake when working on the vehicle
- Operate the engine only in a well ventilated area
- Keep clear of moving parts
- To prevent serious burns, avoid contact with hot metal parts such as the radiator, exhaust manifold, tail pipe, catalytic converter and muffler
- Do not smoke while working on a vehicle

Within this module you will find *Notes*, *Cautions* and *Warnings* which provide critical information and help you do your job safely and efficiently. Below are the definitions of these terms.

NOTE
The purpose of a *Note* is to help you do your job more efficiently. A *Note* may provide additional information to help clarify a particular point or procedure.

CAUTION
A *Caution* alerts you to the possibility of damage to tools, equipment, or the vehicle. A *Caution* recommends that a procedure must be done in a certain way to avoid potential problems resulting from improper techniques or methods.

WARNING
A *Warning* alerts you to the highest level of risk. *Warnings* inform you that a procedure must be done in a particular way to minimize the chances of an accident that could result in personal injury or even loss of life.

When you see a *Note*, *Caution* or *Warning*, be certain you understand the message before you attempt to perform any part of a service procedure.

TARGET AUDIENCE

The target audience for this module consists of Kia service technicians who PDI and diagnose Kia customer concerns and/or vehicle malfunctions, and who have completed:

- Automotive Electrical Diagnosis
- Diagnosing with High Scan-Pro

MODULE GOAL

The goal of this module is to have participants identify TPMS components and demonstrate how they work

MODULE OBJECTIVE

Given your TPMS Theory Module Student Guide, TPMS Exciter Scan Tool, and a 2006 Sedona (EX), you will be able to:

- Identify TPMS components on the 2006 Sedona
- Demonstrate how to register a sensor

MODULE INSTRUCTIONS

Carefully read through the instructions for each task and answer the questions posed for each task.

REQUIRED MATERIALS

To complete this theory module, you will need a:

- TPMS Exciter scan tool
- 2006 Sedona EX on a hoist

TIME TO COMPLETE

Approximately 50 minutes

LEFT BLANK INTENTIONALLY

GUIDED PRACTICE

GATHER SENSOR IDS

1) Where is the TPMS Control Module (Receiver) located?

_____

_____

2) How many connectors are attached to the TPMS Module? _____

Locate a (fully charged) TMPS Exciter Scan Tool.
From the INITIAL SCREEN, select TPMS DIAGNOSIS.
Scroll to and select SEDONA (VQ).
Select 2006 MY.
Select TIRE SNSR CONFIG (EXCITER).
Select REGISTER SENSOR.

3) How close do you have to get to the wheel sensor to register the sensors?

_____

4) What tire order did you have to follow to record the IDs?

_____

_____

_____

_____

REGISTRATION

Turn the key ON, but with the engine off.

1) To register the IDs, you will need to connect the Exciter Scan Tool to the: _____-pin DLC, and then press _____ on the TPMS Exciter scan tool.

Do this now.

2) Was your 'WRITE SUCESSFUL'? _____

Press ESC once.

Disconnect the TPMS Exciter scan tool from the DLC.
Then, select SET SENSOR STATUS.
Now, place the TPMS Exciter scan tool within 3 inches of one of the vehicle tires.
Can you check/read:

3) Tire Pressure? _____

4) Tire Temp? _____

5) TPMS Sensor Battery Condition? _____

Reconnect the TPMS Exciter Scan Tool.

DATA WRITING

Press ESC until you are back at the main menu, then select TPMS DIAGNOSIS.

Scroll to and select SPECIFIC DATA WRITING.

Scroll to and select AUTO LEARN.

1) What is the TPMS warning light doing?

_____

2) What is the indication that all the TPMS sensors have been learned?

_____

You just AUTO LEARNED all four TPMS sensors!

NOTE: Do not use this function if you are parked on a metal floor, roof, or even an alignment rack or lift. The metal will transfer the RF signals. The learn procedure will fail, and DTCs will be set relating to LFI 'cross talk'.

Press ESC twice.

Scroll to and select ACTUATION TEST.

Actuate the TPM REAR RIGHT LOCATION LAMP.

Press F1, STRT and then press F2, STOP to finish operation.

3) What light illuminates?

_____

INSTRUCTOR VERIFICATION: _____

NOTES:

NOTES:

NOTES:

Copyright © 2005 Kia Motors America, Inc. Kia University

No part of this publication may be reproduced, stored electronically, or transmitted in any form or by any means without prior written approval from Kia Motors America, Inc. KMA reserves the right to make changes in the descriptions, specifications, or procedures without prior notice or obligation.

SAFETY FIRST

Appropriate service methods and proper repair procedures are essential for safe, reliable operation of all motor vehicles as well as the personal safety of the individual performing the repair. There are numerous variations in procedures, techniques, tools and parts for servicing vehicles, as well as in the skill of the individual performing the service. This module cannot possibly anticipate all such variations and provide advice or caution to each. Accordingly, anyone who departs from the instruction provided in this module must first establish that they compromise neither their personal safety nor the vehicle integrity by their choice of methods, tools or parts. The following list contains general warnings that should always be followed while working on a vehicle.

- Always wear safety glasses for eye protection
- Use safety stands whenever a procedure requires underbody work
- Be sure the ignition switch is always off unless otherwise specified by a procedure
- Set the parking brake when working on the vehicle
- Operate the engine only in a well ventilated area
- Keep clear of moving parts
- To prevent serious burns, avoid contact with hot metal parts such as the radiator, exhaust manifold, tail pipe, catalytic converter and muffler
- Do not smoke while working on a vehicle

Within this module you will find *Notes*, *Cautions* and *Warnings* which provide critical information and help you do your job safely and efficiently. Below are the definitions of these terms.

NOTE
The purpose of a *Note* is to help you do your job more efficiently. A *Note* may provide additional information to help clarify a particular point or procedure.

CAUTION
A *Caution* alerts you to the possibility of damage to tools, equipment, or the vehicle. A *Caution* recommends that a procedure must be done in a certain way to avoid potential problems resulting from improper techniques or methods.

WARNING
A *Warning* alerts you to the highest level of risk. *Warnings* inform you that a procedure must be done in a particular way to minimize the chances of an accident that could result in personal injury or even loss of life.

When you see a *Note*, *Caution* or *Warning*, be certain you understand the message before you attempt to perform any part of a service procedure.

TARGET AUDIENCE

The target audience for this module consists of Kia service technicians who PDI and diagnose Kia customer concerns and/or vehicle malfunctions, and who have completed:

- Automotive Electrical Diagnosis
- Diagnosing with High Scan-Pro

MODULE GOAL

The goal of this module is to have participants identify components of the Sedona's audio systems and demonstrate how to use the Infinity LOGIC7 surround sound diagnostic disc.

MODULE OBJECTIVES

Given your Audio Systems Theory Module Student Guide, an Infinity LOGIC7 surround sound diagnostic disc, and a 2006 Sedona (EX), you will be able to:

- Identify key Infinity audio system components and their locations
- Use the Infinity LOGIC7 surround sound diagnostic disc to identify sound system characteristics

MODULE INSTRUCTIONS

Carefully read through the instructions for each task and answer the questions posed for each task.

REQUIRED MATERIALS

To complete this theory module, you will need a:

- Infinity LOGIC7 surround sound diagnostic disc
- 2006 Sedona EX with Infinity LOGIC7 surround sound system

TIME TO COMPLETE

Approximately 30 minutes

LEFT BLANK INTENTIONALLY

COMPONENT LOCATIONS

Locate the antenna module on the right hand rear inner panel.

1) How many connectors are connected to the antenna module?

_____

Measure the voltage at the pink wire connected to the antenna module.

2) What is the voltage with the radio OFF?

_____

3) What is the voltage with the radio ON?

_____

4) So the antenna module is only ON when the

radio is _____.

Look at the exposed EDPL (Electro-Dynamic Planar Loudspeaker) speaker on the left sliding door.

5) Where are the other two EDPL-type speakers located?

_____

_____

Look at the rear coaxial speakers.

1) What is the color of the speaker cone material?

_____

(This is unique to the Infinity LOGIC7 surround sound system)

2) Are there actually two separate speakers in

each rear speaker location? _____

3) What trim level / audio system will have both EDPL type and coaxial rear speakers?

_____ model 2006 Sedonas with

_____ (manufacturer's name) LOGIC7 surround sound system.

Locate the Infinity LOGIC7 surround sound amplifier.

4) It is located _____.

5) How many connectors connect to the amplifier?

_____

SURROUND SOUND DIAGNOSTIC DISC USAGE Setup Instructions

Turn the ignition key ON, and lower the DVD viewing screen.

Insert the diagnostic disc in the DVD drive.

- Once the disc in the DVD drive is playing, turn on the radio and press the AUX button allowing the disc in the DVD player to play through all system speakers.

Set all audio settings on the radio to "0" or to the detent "flat" position.

- To do this, toggle through the settings by pressing the AUDIO button, and if necessary, turn the audio control knob to adjust the settings.
- The last setting is Surround Sound, which should be turned ON. This is very important!

Adjust the volume to level 12.

Track 1

Track 1 begins playing automatically.

1) Is there Pink Noise coming from the center speaker of the dash and the overhead EDPL speaker just behind the DVD unit?

_____ (There should be!)

2) Do any other speakers play back Pink Noise?

_____ (This is normal for a Matrix (non-discrete) surround sound system.)

Track 2 Advance to Track 2 using the DVD controls.

1) Do the two center channel speakers continue playing? _____

2) What speakers most predominantly play back Pink Noise now?

_____

_____

Track 3 Advance to Track 3.

3) Do the left side sliding door speaker and left rear speaker grow in intensity? _____

4) Do the left front speakers in the driver's door and A-pillar decrease in intensity? _____

5) Can you hear any Pink Noise from any right channel speakers? _____

Track 4 Advance to Track 4.

6) Can you hear the Pink Noise from both the left and right rear speakers and sliding door speakers equally?

_____

Track 5 Advance to Track 5.

7) Do the left side speakers decrease in intensity?

_____

Track 6 Advance to Track 6.

1) Do the right side sliding door speaker and right rear speaker decrease in intensity? _____

2) Do the right front passenger door and A pillar speaker increase in intensity? _____

Track 7 Advance to Track 7.

This perhaps is one of two most useful tracks on this disc. Sit in the center of the vehicle and listen carefully to the Pink Noise.

3) Does it move around you in a circular fashion?

_____

Turn the Surround setting OFF at the radio, and listen to Track 7 again.

4) What is the difference between Surround ON, and Surround OFF?

_____

_____

Track 8 Turn the Surround setting back to ON.

Advance to Track 8.

5) Do all the speakers play Pink Noise equally?

_____

Track 9 Advance to Track 9.

Sit in the 2nd row seats while listening to this track.

1) From what position (front, back, left, right) of the vehicle does the last voice appear to come from?

_____

These nine audio tracks demonstrate the "steering" ability of the Infinity LOGIC7 surround sound system.

Advance to Track 10.

This perhaps is the other most useful track on this diagnostic disc.

It can be used to judge overall speaker performance, and also find annoying rattling and buzzing noises from either loose fitting panels, or possible blown speakers.

Remove the disc from the DVD player, and insert it into the radio's CD player.

2) Does the disc play all the tracks? _____

3) If the DVD player did not play all tracks properly, but the disc played properly in the radio's CD player, what may be wrong?

a) _____

b) _____

INSTRUCTOR VERIFICATION: _____

NOTES:

NOTES:

NOTES:

NOTES:

Copyright © 2005 Kia Motors America, Inc. Corporate Service Training Department

No part of this publication may be reproduced, stored electronically, or transmitted in any form or by any means without prior written approval from Kia Motors America, Inc. KMA reserves the right to make changes in the descriptions, specifications, or procedures without prior notice or obligation.

SAFETY FIRST

Appropriate service methods and proper repair procedures are essential for safe, reliable operation of all motor vehicles as well as the personal safety of the individual performing the repair. There are numerous variations in procedures, techniques, tools and parts for servicing vehicles, as well as in the skill of the individual performing the service. This module cannot possibly anticipate all such variations and provide advice or caution to each. Accordingly, anyone who departs from the instruction provided in this module must first establish that they compromise neither their personal safety nor the vehicle integrity by their choice of methods, tools or parts. The following list contains general warnings that should always be followed while working on a vehicle.

- Always wear safety glasses for eye protection
- Use safety stands whenever a procedure requires underbody work
- Be sure the ignition switch is always off unless otherwise specified by a procedure
- Set the parking brake when working on the vehicle
- Operate the engine only in a well ventilated area
- Keep clear of moving parts
- To prevent serious burns, avoid contact with hot metal parts such as the radiator, exhaust manifold, tail pipe, catalytic converter and muffler
- Do not smoke while working on a vehicle

Within this module you will find *Notes*, *Cautions* and *Warnings* which provide critical information and help you do your job safely and efficiently. Below are the definitions of these terms.

NOTE
The purpose of a *Note* is to help you do your job more efficiently. A *Note* may provide additional information to help clarify a particular point or procedure.

CAUTION
A *Caution* alerts you to the possibility of damage to tools, equipment, or the vehicle. A *Caution* recommends that a procedure must be done in a certain way to avoid potential problems resulting from improper techniques or methods.

WARNING
A *Warning* alerts you to the highest level of risk. *Warnings* inform you that a procedure must be done in a particular way to minimize the chances of an accident that could result in personal injury or even loss of life.

When you see a *Note*, *Caution* or *Warning*, be certain you understand the message before you attempt to perform any part of a service procedure.

TARGET AUDIENCE

The target audience for this module consists of Kia service technicians who PDI and diagnose Kia customer concerns and/or vehicle malfunctions, and who have completed:

- Automotive Electrical Diagnosis
- Diagnosing with High Scan-Pro

MODULE GOAL

The goal of this module is to have participants demonstrate their knowledge of the 2006 Sedona's Engine Management System, including being able to locate key components and being able to demonstrate how the components operate (if applicable).

MODULE OBJECTIVE

Given your Engine Management Theory Module Student Guide, scan tool, and a 2006 Sedona (EX), you will be able to:

- Identify the key Engine Management System components and their locations
- Demonstrate how the PCM, MAF, and MAP work together
- Read applicable CURRENT DATA on the scan tool
- Conduct selected ACTUATION TESTS
- Simulate a PCM replacement and reset

MODULE INSTRUCTIONS

Carefully read through the instructions for each task and answer the questions posed for each task.

REQUIRED MATERIALS

To complete this theory module, you will need a:

- Scan tool
- 2006 Sedona EX

TIME TO COMPLETE

Approximately 80 minutes

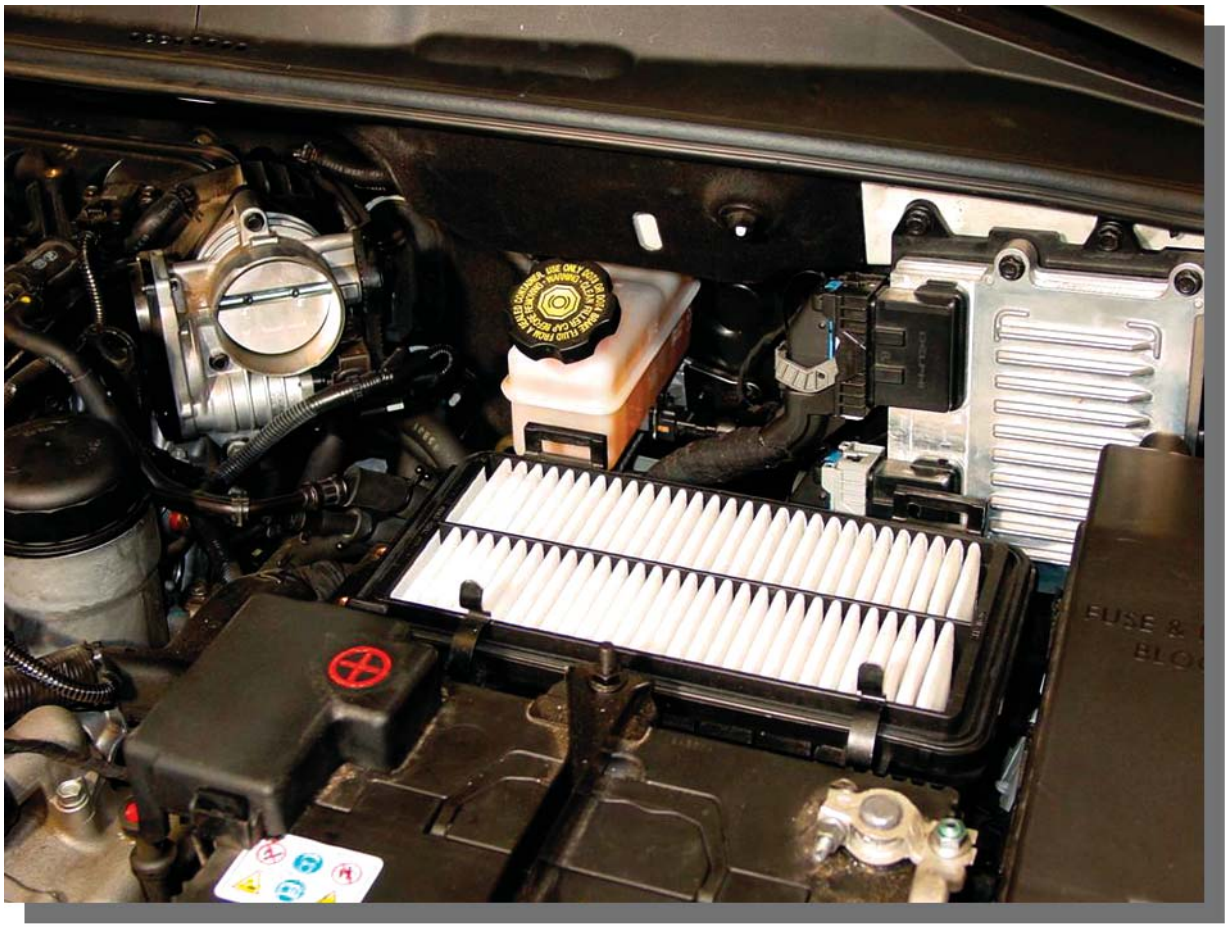
LEFT BLANK INTENTIONALLY

GUIDED PRACTICE

PREPARATION

Disconnect and remove the hose leading to the throttle, along with the MAF and top of the air filter housing.

Make sure you disconnect and remove the MAF completely.



COMPONENT LOCATIONS

1) Where is the PCM located?

_____

_____

2) Where is the MAP sensor located, and how many wires are in the connector?

_____

_____

3) Where is the OCV with the GREY connecter located? _____

4) Where is the OCV with the BLACK connecter located? _____

5) What color is the weather seal on the RH CMP sensor? _____

6) What color is the weather seal on the LH CMP sensor? _____

7) Where is the CKP sensor located?

_____

_____

COMPONENT LOCATIONS

1) The ECT sensor is located in the coolant crossover tube between the two cylinder heads, just below the _____

2) What is the sensor mounted (screwed into) the back of the RH cylinder head?

_____

_____

_____

3) Where is the APT (Automotive Pressure Transducer, or A/C Pressure Sensor) located?

_____

_____

4) Where is the Power Steering switch located?

_____

_____

FAILSAFE

Connect an exhaust hose.

With the MAF still disconnected and removed, try to start the engine.

1) Does the engine start and run? _____

Rev the engine a couple of time.

2) Does the engine run fine without the MAF?

_____

3) How/why is the engine running so well without the MAF? _____

_____

_____

Turn OFF the engine.

Watch the throttle closely as you turn the ignition back on.

4) What happens?

_____

_____

Start the engine again.

5) Does the throttle close to an idle position?

_____

LIMP-HOME

CAREFULLY release the grey security clip and disconnect the throttle while the engine is running.

1) What happened to the throttle?

_____

2) What Limp-Home Mode is being used to control engine idle speed with the throttle disconnected?

_____

Press the accelerator pedal.

3) Does the engine speed increase slightly?

_____

4) How is this accomplished?

_____

_____

_____

Turn OFF the engine. Make sure you turn the key fully to the LOCK position!

SCAN TOOL TASKS

ACTUATION TESTS

Reconnect the throttle.

Connect the scan tool and erase DTCs.

After erasing the DTCs, select ACTUATION TEST.

Scroll to and select ETC MOTOR. Press F1, STRT; and then press F2, STOP.

1) What happened? _____

_____

Scroll to and select TPS LEARNT RESET. Press F1, STRT.

2) What happened? _____

_____

Scroll to and select CANISTER VENT.

Press F1, STRT; then press F2 STOP – listening carefully underneath the vehicle by the driver's door.

3) What happens as you toggle between F1 and F2?

_____

Scroll to and select CANISTER VENT CLOCKED. Press F1, STRT.

4) What is different between CANISTER VENT and CANISTER VENT CLOCKED?

_____

_____

Press F2, STOP.

SCAN TOOL TASKS

ACTUATION TESTS

Scroll to and select FAN PWM. Press F1, STRT.

1) Do the cooling fans start immediately? _____

2) Why? _____

Press F2, STOP.

Start the engine and let it idle.

Scroll to and select CAM PHASER INTAKE BANK 1.
Press F1, STRT.

3) This function actuates the Oil Control Valve (OCV) for CVVT on Bank 1, advancing the _____ camshaft for the (circle one)
RH (REAR) / LH (Front) cylinder bank.

Press F2, STOP.
Scroll to and select CAM PHASER INTAKE BANK 2.
Press F1, STRT.

4) Obviously, this performs the same actuation function for Bank2, advancing the _____ camshaft for the (circle one)
RH (REAR) / LH (Front) cylinder bank.

Press F2, STOP.
Turn the engine OFF.
Press ESC once.

CURRENT DATA

Select CURRENT DATA.

1) How many items can be monitored? _____

Scroll to and select THROTTLE POS 1 VOLT.

2) What is the current reading? _____

Start the engine.

3) Did the reading change? _____

4) Why? _____

_____

_____

Scroll to and select FAN PWM.

Start the engine and make sure the A/C is on.

5) What happens? _____

_____

Scroll to the last item on the list – MEC Set (PCM Lock)

6) Is it currently on? _____

7) Can you change it to OFF from this parameter?

_____

(More on this later in this exercise)

Press ESC once.

PCM AUTO DETECTION

Scroll to and select PCM AUTO DETECTION RESET.

This PCM is applicable for a number of different applications. For example, this PCM will work for ESC and Non-ESC applications, etc.

To match this PCM to this vehicle, you must perform a PCM Auto Detection Reset.

1) Name three instances when a PCM Auto Detection Reset must be performed.

_____

_____

_____

Press ESC once.

VIN WRITING

Go back to ENGINE CONTROL.
Scroll down to VIN READING.

1) Is this the correct VIN? _____

Press ESC once.
Scroll to and select VIN WRITING.

2) Is the ECU STATUS LEARNT or VIRGIN?

_____

3) If the ECU STATUS is VIRGIN, what must be done? _____ (Obviously)

NOTE – IMPORTANT: VIN WRITING can only be done ONE TIME! Once the VIN is written to the PCM, it cannot be changed. Neutralizing the PCM will not erase the VIN.

The VIN cannot be changed due to emission testing standards, where as an emission test station may check to see if the correct control module is in place.

If you are only trying a new "virgin" PCM for testing purpose, do not perform VIN WRITING until you are certain that you will leave the PCM in the vehicle.

If VIN WRITING has not been performed, DTC P0630 is set, which will not affect how the PCM performs – it only sets as a reminder that VIN WRITING will need to be performed before releasing the vehicle to the customer.

Press ESC once.

PCM LOCK (MEC) SETTING

Scroll to and select PCM LOCK (MEC) SETTING.

1) What is the purpose of this function?

_____

_____

2) When is it necessary to set 'MEC'?

_____

3) How do you confirm that MEC is set? HINT: Remember the last Data Parameter looked at in CURRENT DATA.

_____

_____

_____

Press ESC three times.

IMMOBILIZATION

The IMMOBILIZATION menu will be used to replace lost keys and add additional keys.

From the main menu, scroll to and select IMMOBILIZATION

Scroll to and select CURRENT DATA

When performing "Key Learning," all currently learned keys are erased. You must have all keys present when performing Key Learning; otherwise any key not re-learned will no longer start the vehicle.

How many keys are programmed to this vehicle?_____

IMMOBILIZATION (CONTINUED)

Would this be useful when performing “key learning?” _____

Scroll to and select NEUTRAL MODE

Neutralizing allows a PCM to be TEMPORARILY moved to another vehicle for testing purpose. It only erases the 6 digit PIN used during the key learning process. You must use the 6 digit PIN assigned to the vehicle to perform the neutralization and key learning process.

WARNING: You cannot neutralize a PCM and PERMANENTLY install it into another vehicle – Neutralizing a PCM does not erase the VIN.

Turn off the scan tool.

Turn off the ignition key, and then turn it back on.

Does a light with a small key illuminate below the tachometer? _____

Start the vehicle.

Does the light go out? _____

This confirms that a proper key was used. If an improper or faulty key were used, this light would flash, indicating a problem.

PCM REPLACEMENT SUMMARY

In summary, when replacing a defective PCM with a new 'virgin' unit from parts, you must perform five separate operations.

1) PCM AUTO DETECTION RESET

2) IMMOBILIZATION / KEY LEARNING

3) VIN WRITING

4) PCM LOCK (MEC) SETTING

5) ABS/ECS Variant Coding

Make sure all items disconnected in this exercise are reconnected.

Reinstall the MAF, MAF hose and air filter top.

ERASE ALL DTCs in ENGINE CONTROL!

INSTRUCTOR VERIFICATION: _____

NOTES:

Copyright © 2005 Kia Motors America, Inc. Kia University

No part of this publication may be reproduced, stored electronically, or transmitted in any form or by any means without prior written approval from Kia Motors America, Inc. KMA reserves the right to make changes in the descriptions, specifications, or procedures without prior notice or obligation.

SAFETY FIRST

Appropriate service methods and proper repair procedures are essential for safe, reliable operation of all motor vehicles as well as the personal safety of the individual performing the repair. There are numerous variations in procedures, techniques, tools and parts for servicing vehicles, as well as in the skill of the individual performing the service. This module cannot possibly anticipate all such variations and provide advice or caution to each. Accordingly, anyone who departs from the instruction provided in this module must first establish that they compromise neither their personal safety nor the vehicle integrity by their choice of methods, tools or parts. The following list contains general warnings that should always be followed while working on a vehicle.

- Always wear safety glasses for eye protection
- Use safety stands whenever a procedure requires underbody work
- Be sure the ignition switch is always off unless otherwise specified by a procedure
- Set the parking brake when working on the vehicle
- Operate the engine only in a well ventilated area
- Keep clear of moving parts
- To prevent serious burns, avoid contact with hot metal parts such as the radiator, exhaust manifold, tail pipe, catalytic converter and muffler
- Do not smoke while working on a vehicle

Within this module you will find *Notes*, *Cautions* and *Warnings* which provide critical information and help you do your job safely and efficiently. Below are the definitions of these terms.

NOTE
The purpose of a *Note* is to help you do your job more efficiently. A *Note* may provide additional information to help clarify a particular point or procedure.

CAUTION
A *Caution* alerts you to the possibility of damage to tools, equipment, or the vehicle. A *Caution* recommends that a procedure must be done in a certain way to avoid potential problems resulting from improper techniques or methods.

WARNING
A *Warning* alerts you to the highest level of risk. *Warnings* inform you that a procedure must be done in a particular way to minimize the chances of an accident that could result in personal injury or even loss of life.

When you see a *Note*, *Caution* or *Warning*, be certain you understand the message before you attempt to perform any part of a service procedure.

TARGET AUDIENCE

The target audience for this module consists of Kia service technicians who PDI and diagnose Kia customer concerns and/or vehicle malfunctions, and who have completed:

- Automotive Electrical Diagnosis
- Diagnosing with High Scan-Pro

MODULE GOAL

The goal of this module is to have participants demonstrate procedures for oil filter replacement, camshaft timing, and MLA adjustment.

MODULE OBJECTIVES

Given your Engine Mechanical Theory Module Student Guide and a 2006 Sedona engine on a stand, you will be able to demonstrate and/or explain the procedures for:

- Oil filter replacement
- Camshaft timing
- MLA adjustment

MODULE INSTRUCTIONS

Carefully read through the instructions for each task and answer the questions posed for each task.

REQUIRED MATERIALS

To complete this theory module, you will need a 2006 Sedona engine on a stand.

TIME TO COMPLETE

Approximately 20 minutes

LEFT BLANK INTENTIONALLY

INSTRUCTOR-LED DEMONSTRATION

As your instructor makes the presentation, take notes in the spaces provided and answer the questions listed.

OIL FILTER REPLACEMENT

1) The procedure to replace the oil filter cartridge calls for waiting _____ after un-screwing the access cap.

This allows the oil in the filter cartridge to drain into the engine. You can raise the vehicle and change the oil during that time.

2) How many O-rings are required when changing the oil filter cartridge? _____

Failure to change the lower O-ring can result in low oil pressure.

3) What might a customer complain of if this O-ring was not changed?

_____

_____

4) How could this adversely affect the engine?

_____

TIMING CHAINS

Circle the correct answer for each of the following questions.

1) Both LH and RH cylinder bank timing chain components are:

   A) Completely different components

   B) Identical components

2) Intake and exhaust camshaft sprocket Number 1 TDC marks are used:

   A) Identically the same on both LH and RH cylinder banks

   B) Differently between the LH and RH cylinder banks

Examine the engine on the stand in the classroom and then answer the following questions. Circle either **RIGHT** or **LEFT** when completing each of the following statements about camshaft sprocket TDC marks.

3) The RH bank intake cam sprocket TDC mark is to the **RIGHT** or **LEFT** of the timing chain installation mark.

4) The RH bank exhaust cam sprocket TDC mark is to the **RIGHT** or **LEFT** of the timing chain installation mark.

5) The LH bank intake cam sprocket TDC mark is to the **RIGHT** or **LEFT** of the timing chain installation mark.

6) The LH bank exhaust cam sprocket TDC mark is to the **RIGHT** or **LEFT** of the timing chain installation mark.

Circle the correct answer for the following question.

7) The engine should NEVER be rotated in which direction?

   A) Counterclockwise (to the left)

   B) Clockwise (to the right)

OIL PUMP

1) The oil pump is chain driven off the _____ sprocket.

CYLINDER HEAD

2) Does the oil pump need to be timed to this sprocket in any way? _____

3) The cylinder head bolts can be used:

A) Only once

B) Twice

PRECAUTIONS

Because this engine is made of aluminum, and has plastic components, name three precautions when working on this engine.

4) _____

_____

5) _____

_____

6) _____

_____

MANUAL LASH VALVE (MLA) ADJUSTMENT

1) Because this engine uses Manual Lash Valve Adjustment (MLA), what precaution must be observed when removing/installing the MLA's?

_____

_____

_____

_____

Circle the correct answer to the following question.

2) To perform a valve adjustment, you must:

A) Remove the affected valves camshaft(s)

B) Remove the affected valves timing chain(s)

C) Remove the engine from the vehicle

D) All of the above

INSTRUCTOR VERIFICATION: _____

NOTES:

NOTES:

Copyright © 2005 Kia Motors America, Inc. Kia University

No part of this publication may be reproduced, stored electronically, or transmitted in any form or by any means without prior written approval from Kia Motors America, Inc. KMA reserves the right to make changes in the descriptions, specifications, or procedures without prior notice or obligation.

SAFETY FIRST

Appropriate service methods and proper repair procedures are essential for safe, reliable operation of all motor vehicles as well as the personal safety of the individual performing the repair. There are numerous variations in procedures, techniques, tools and parts for servicing vehicles, as well as in the skill of the individual performing the service. This module cannot possibly anticipate all such variations and provide advice or caution to each. Accordingly, anyone who departs from the instruction provided in this module must first establish that they compromise neither their personal safety nor the vehicle integrity by their choice of methods, tools or parts. The following list contains general warnings that should always be followed while working on a vehicle.

- Always wear safety glasses for eye protection
- Use safety stands whenever a procedure requires underbody work
- Be sure the ignition switch is always off unless otherwise specified by a procedure
- Set the parking brake when working on the vehicle
- Operate the engine only in a well ventilated area
- Keep clear of moving parts
- To prevent serious burns, avoid contact with hot metal parts such as the radiator, exhaust manifold, tail pipe, catalytic converter and muffler
- Do not smoke while working on a vehicle

Within this module you will find *Notes*, *Cautions* and *Warnings* which provide critical information and help you do your job safely and efficiently. Below are the definitions of these terms.

NOTE
The purpose of a *Note* is to help you do your job more efficiently. A *Note* may provide additional information to help clarify a particular point or procedure.

CAUTION
A *Caution* alerts you to the possibility of damage to tools, equipment, or the vehicle. A *Caution* recommends that a procedure must be done in a certain way to avoid potential problems resulting from improper techniques or methods.

WARNING
A *Warning* alerts you to the highest level of risk. *Warnings* inform you that a procedure must be done in a particular way to minimize the chances of an accident that could result in personal injury or even loss of life.

When you see a *Note*, *Caution* or *Warning*, be certain you understand the message before you attempt to perform any part of a service procedure.

TARGET AUDIENCE

The target audience for this module consists of Kia service technicians who PDI and diagnose Kia customer concerns and/or vehicle malfunctions, and who have completed:

- Automotive Electrical Diagnosis
- Diagnosing with High Scan-Pro

MODULE GOAL

The goal of this module is to have participants identify new chassis/suspension and Electronic Stability Control components and demonstrate how they work.

MODULE OBJECTIVES

Given your Chassis/Suspension Theory Module Student Guide, ESC Theory Module Student Guide and a 2006 Sedona (EX), you will be able to:

- Identify new chassis/suspension components on the 2006 Sedona
- Identify suspension adjustment points
- Identify and demonstrate ESC components and their functions

MODULE INSTRUCTIONS

Carefully read through the instructions for each task and answer the questions posed for each task.

REQUIRED MATERIALS

To complete this theory module, you will need a:

- 2006 Sedona EX on a hoist
- Scan tool

TIME TO COMPLETE

Approximately 5 minutes

LEFT BLANK INTENTIONALLY

CHASSIS GUIDED PRACTICE

SUSPENSION

Raise the vehicle on a lift.

Examine the **front suspension**.

1) Why are the front stabilizer links connected directly to the front strut, just below the spring seat?

_____

_____

_____

2) What front steering angle(s) can be adjusted?

_____

Examine the **rear suspension**.

3) Where are the adjustment points located?

_____

_____

4) What rear steering angle(s) can be adjusted from these points?

_____

LOW FREQUENCY INITIATORS

Examine the Low Frequency Initiators (LFIs).

1) Where are the **front LFIs** located?

_____

_____

2) Where are the **rear LFIs** located?

_____

_____

While you're in the left front wheel well, note the **air intake with silencer box**.

BRAKES

Examine the brakes.

1) What type rear brakes will 2006 Sedona's have?

_____

2) Where are the parking brakes located?

_____

CCV Locate the **Canister Closed Valve (CCV)**.

1) Where is the CCV located?

_____

_____

2) Where is the **fuel air filter** (not the fuel filter) located?

_____

_____

_____

_____

3) How does the spare tire lowering mechanism work?

_____

ELECTRONIC STABILITY CONTROL (ESC) GUIDED PRACTICE

COMPONENT LOCATIONS

1) The ESC Control module is part of the:

_____

Locate the Yaw Rate Sensor.

2) It is located on the floor of the center console area, just in front of the: _____

_____

3) The Steering Wheel Angle Sensor (SAS) is attached to the _____ for the steering wheel controls and airbag module.

Connect a scan tool.

VARIANT CODING

From the main menu select ABS/ESC.

Scroll to and select VARIANT CODING.

1) What happened when you selected VARIANT CODING? _____

_____

STEERING ANGLE SENSOR CALIBRATION

What three repairs would require you to perform a Steering Angle Sensor calibration?

1) _____

2) _____

3) _____

Scroll to and select STEERING ANGLE SENSOR.

4) When performing this calibration, the steering wheel should be positioned in a:

_____ direction.

Perform this calibration now.

Press ESC once.

SCAN TOOL TASKS

Scroll to and select CURRENT DATA.

1) How many items can be read? _____

Scroll to and select STEERING ANGLE SNSR.

2) With the steering wheel positioned straight ahead, is the reading '0' degrees? _____

Scroll to YAW RATE SENSOR.

3) When you rock/wiggle the vehicle, does the reading changed slightly? _____

Scroll to and select PRESSURE SENSOR.

Depress the brake pedal.

4) What pressure does this sensor obviously sense?

_____

Press ESC once.

Scroll to and select ACTUATION TEST.

Actuate MOTOR RELAY.

5) What motor runs? _____

Turn the scan tool OFF.

INSTRUCTOR VERIFICATION: _____

Copyright © 2005 Kia Motors America, Inc. Kia University

No part of this publication may be reproduced, stored electronically, or transmitted in any form or by any means without prior written approval from Kia Motors America, Inc. KMA reserves the right to make changes in the descriptions, specifications, or procedures without prior notice or obligation.

SAFETY FIRST

Appropriate service methods and proper repair procedures are essential for safe, reliable operation of all motor vehicles as well as the personal safety of the individual performing the repair. There are numerous variations in procedures, techniques, tools and parts for servicing vehicles, as well as in the skill of the individual performing the service. This module cannot possibly anticipate all such variations and provide advice or caution to each. Accordingly, anyone who departs from the instruction provided in this module must first establish that they compromise neither their personal safety nor the vehicle integrity by their choice of methods, tools or parts. The following list contains general warnings that should always be followed while working on a vehicle.

- Always wear safety glasses for eye protection
- Use safety stands whenever a procedure requires underbody work
- Be sure the ignition switch is always off unless otherwise specified by a procedure
- Set the parking brake when working on the vehicle
- Operate the engine only in a well ventilated area
- Keep clear of moving parts
- To prevent serious burns, avoid contact with hot metal parts such as the radiator, exhaust manifold, tail pipe, catalytic converter and muffler
- Do not smoke while working on a vehicle

Within this module you will find *Notes*, *Cautions* and *Warnings* which provide critical information and help you do your job safely and efficiently. Below are the definitions of these terms.

NOTE
The purpose of a *Note* is to help you do your job more efficiently. A *Note* may provide additional information to help clarify a particular point or procedure.

CAUTION
A *Caution* alerts you to the possibility of damage to tools, equipment, or the vehicle. A *Caution* recommends that a procedure must be done in a certain way to avoid potential problems resulting from improper techniques or methods.

WARNING
A *Warning* alerts you to the highest level of risk. *Warnings* inform you that a procedure must be done in a particular way to minimize the chances of an accident that could result in personal injury or even loss of life.

When you see a *Note*, *Caution* or *Warning*, be certain you understand the message before you attempt to perform any part of a service procedure.

TARGET AUDIENCE

The target audience for this module consists of Kia service technicians who PDI and diagnose Kia customer concerns and/or vehicle malfunctions, and who have completed:

- Automotive Electrical Diagnosis
- Diagnosing with High Scan-Pro

MODULE GOAL

The goal of this module is to have participants demonstrate the removal and installation of the 2nd-row seats and to verify wiper blade alignment. In addition, the participants will check and reset the training vehicles.

MODULE OBJECTIVES

Given your PDI Theory Module Student Guide and a PDI Worksheet, you will be able to:

- Demonstrate the removal and installation of the 2nd-row seats
- Verify that the windshield wiper blades are aligned properly
- Conduct a final check and resetting of the training vehicles

MODULE INSTRUCTIONS

Carefully read through the instructions for each task and answer the questions posed for each task.

REQUIRED MATERIALS

To complete this theory module, you will need a:

- 2006 Sedona Owner's Manual
- 2006 Sedona EX

TIME TO COMPLETE

Approximately 30 minutes

CENTER SEAT REMOVAL / INSTALLATION (RH SIDE)

What position must the center seat be in for the seat to tumble forward? (See photo for example)

1) Seatback needs to be in the

_____ (upright / folded forward) position.

2) Armrests must be in the

_____ (lowered / raised) position.

3) Headrest needs to be in the

_____ (lowered / raised) position.

4) Seat needs to be placed fully in the

_____ (forward or rear most) position.

5) To tumble the seat forward, what lever do you

release? _____(See photo)

Seatback Adjustment Lever Used to Release Seat and Tumble Seat Forward

If a center seat is in the folded table position, the seat back must be returned to the upright position before the seat will release.

Once the seat is tumbled forward, how is it held in place? (See Owner's Manual Pg 3-49)

1) It is strapped to the _____-pillar assist handle.

To remove the seat, pull up the seat release handle. (See photo)

2) How many rollers / wheels do the removable

center seats have? _____

Seat Release

3) To install the seat, properly place the front (large)

wheels in the recessed area just behind the

_____ (front / rear) seat attachment points,

with the seat flat to the floor. (See photo)

Recessed Area

Applying light pressure to the front of the seat, grasp the rear of the seat and carefully roll it forward until the front of the seat latches to the floor. (See photo)

Push the seat backward until the seat fully latches to the floor. Check to see if the seat is fully latched by inspecting the seat just above the rear latches. A GREEN DOT should be visible through a small round hole. (See photo)

Be certain that a GREEN DOT is visible indicating the seat is latched

Check both sides of the seat

NOTE: If the seat latches improperly to the floor, raise the seatback fully, and re-release the seat using the seatback adjustment lever. You also may need to lift up in the area that is improperly latched to the floor while trying to free the seat.

WIPER BLADE INSTALLATION

There are wiper blade installation markings for each wiper on the 2006 Sedona. They are round clear “markings” in the lower painted area of windshield — two for each wiper blade.

The wiper blades should be installed just below these clear round markings. This will ensure proper wiper stroke on the windshield during operation, and that the blades will be properly centered over the windshield wiper deicer grid.

2) Are the wiper blades installed correctly on the vehicle you are currently working on? _____

Place Wiper Blades Just Below Clear Round Markings

INSTRUCTOR VERIFICATION: _____

NOTES:

NOTES:

NOTES:

Copyright © 2005 Kia Motors America, Inc. Corporate Service Training Department

No part of this publication may be reproduced, stored electronically, or transmitted in any form or by any means without prior written approval from Kia Motors America, Inc. KMA reserves the right to make changes in the descriptions, specifications, or procedures without prior notice or obligation.