HYUNDAI
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TECHNET TIMES

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Volume 16 Issue 3

Inside This Issue

GDS Flight Recording

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GDS Flight Recording

Flight Recording is a useful feature especially when dealing with intermittent conditions such as shorts or misfires. The function allows you to record what is occurring with specified components and sensors over time as the vehicle operates. The new Global Diagnostic System (GDS) offers a powerful version of the process you may be familiar with from using other Hyundai diagnostic tools.

The biggest change introduced with GDS is that the recorder captures the previous period of activity when activated. The actual length of recording time period is selected from the Flight Record setup screen. Recording prior events lets you record after observing signs of intermittent conditions rather than hoping to "catch" one during several attempts at recording.

In order to use the GDS for Flight Recording the VCI module must be connected to the Data Link Connector (DLC) and the ignition must be "ON." Once the GDS PC is powered up, and the vehicle model, year and system have been selected, by using the "Vehicle Information" tab, select "Data Analysis." (At this point the GDS will check your connection from the VCI to the DLC.) Any current codes are then shown in the DTC window on the bottom half of the Current Data screen, (Figure 1.) In Current Data, all data is real time. Once you have surveyed the trouble codes, if any, you may decide that a flight recording is necessary for your diagnosis.

Figure 1

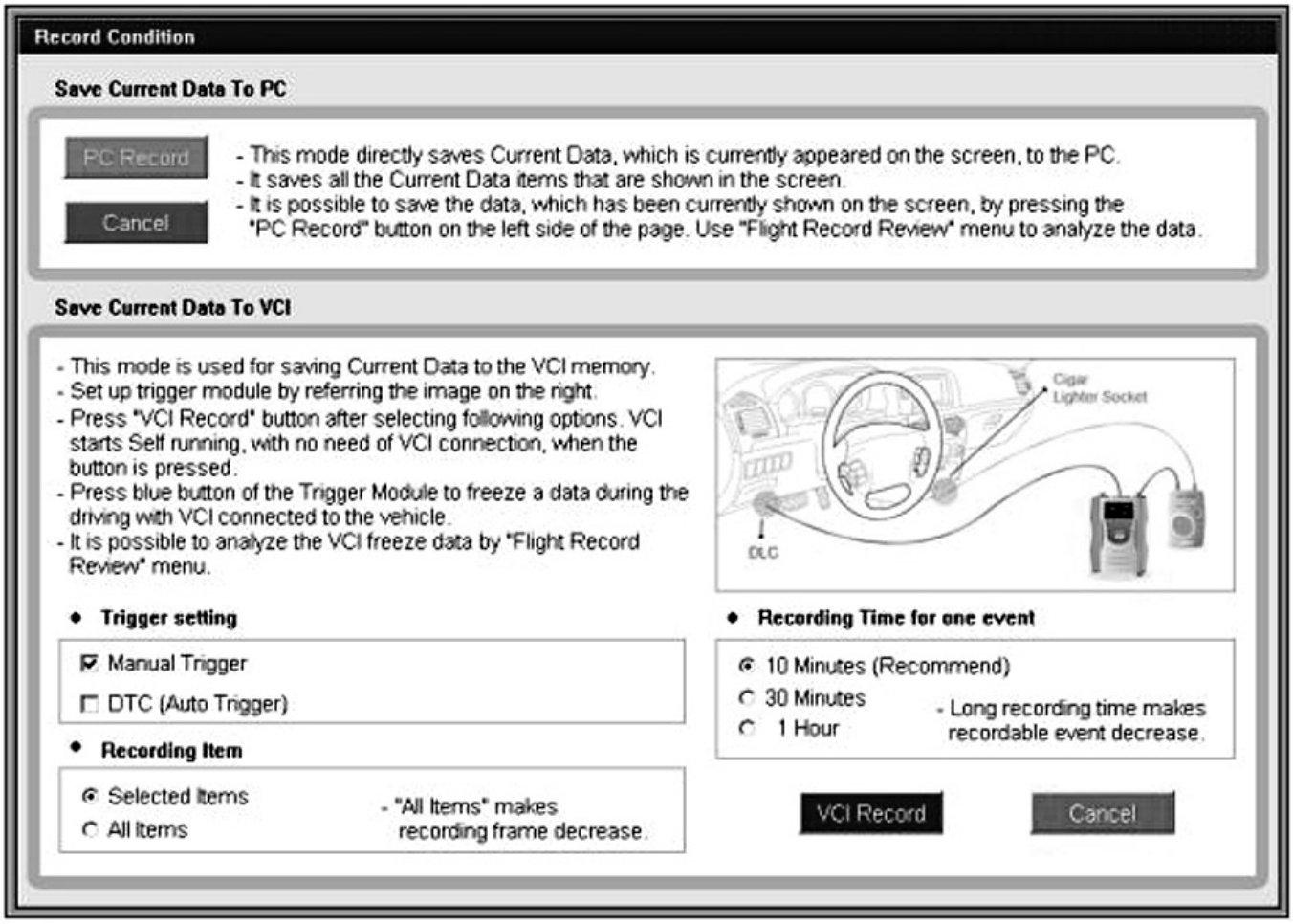


Figure 2

When you select the "Record" button on the Current Data Screen, the Record Condition window opens (Figure 2). This screen illustrates how to hook up the VCI to the DLC and power source (cigar lighter) and offers options for Flight Recording.

You have the option to record directly to the GDS PC or you can record to the VCI and download the information later. (This makes the GDS PC available to others if you need to flight record on a test drive using the VCI.) The Record Condition window also lets you select which components and sensors you want to record. Note: The PC Record mode records all items, while the VCI mode allows you to choose. You can choose all items or specific components related to the condition. You also have the choice to let a DTC condition trigger the recording or you can manually trigger it. Once the VCI has been programmed to record to your specifications, it is critical to remember that recordings capture up to ten minutes (default), 30 minutes or one hour prior to the time flight recording is triggered.

When you select "VCI Record" in the Record Condition screen, a dialog box asks you to confirm that you want to "Change to VCI Flight Record Now." If you select "Yes" the VCI will be ready to record without being attached to the PC. (Selecting "Yes" switches the VCI from Diagnostic mode to Record mode.) If there is a previous recording in the VCI memory, you will receive a warning that they will be recorded over when you start the next VCI flight record. If you click "OK," you will receive a confirming popup alerting you that the VCI is in Flight Record mode and that you can now remove any USB connection between the PC and the VCI.

In order to do that, confirm that the green "Ready" LCD on the Trigger Module is lit. Then, just press the blue "Enter" button when you want to record to the VCI.

continued on page 2

GDS Flight Recording

continued from page 2

Figure 3

After the VCI has completed its recording, you must download that file to the GDS PC. The VCI can be reconnected to the PC with the USB cable or it can communicate through wireless communications. In order to download the file, select the "Flight Record" tab. The Flight Record window will open (Figure 3.)

Select "Data Copy From VCI" in the navigation bar at the left of the window. The next window will ask you to designate where you would like to save the file for future analysis. Note: Make sure you note the location of the file you are saving so you can find the file for later analysis.

Once the date has been copied and you noted its location, select "Data Review" on the left side of the screen. The computer should take you right back to the location of the recording just saved. (If it doesn't that is the reason for know where you saved the file.) There may be multiple .REC files in the default save location. In order to choose the correct one, the date and time of recording shows on the screen as you roll the cursor over each file name. It also may be helpful to note the file name at the time that you save the recording to the PC. Double-click on the desired file and it will open the Data Review window and show the recorded data in graph mode (Figure 4.)

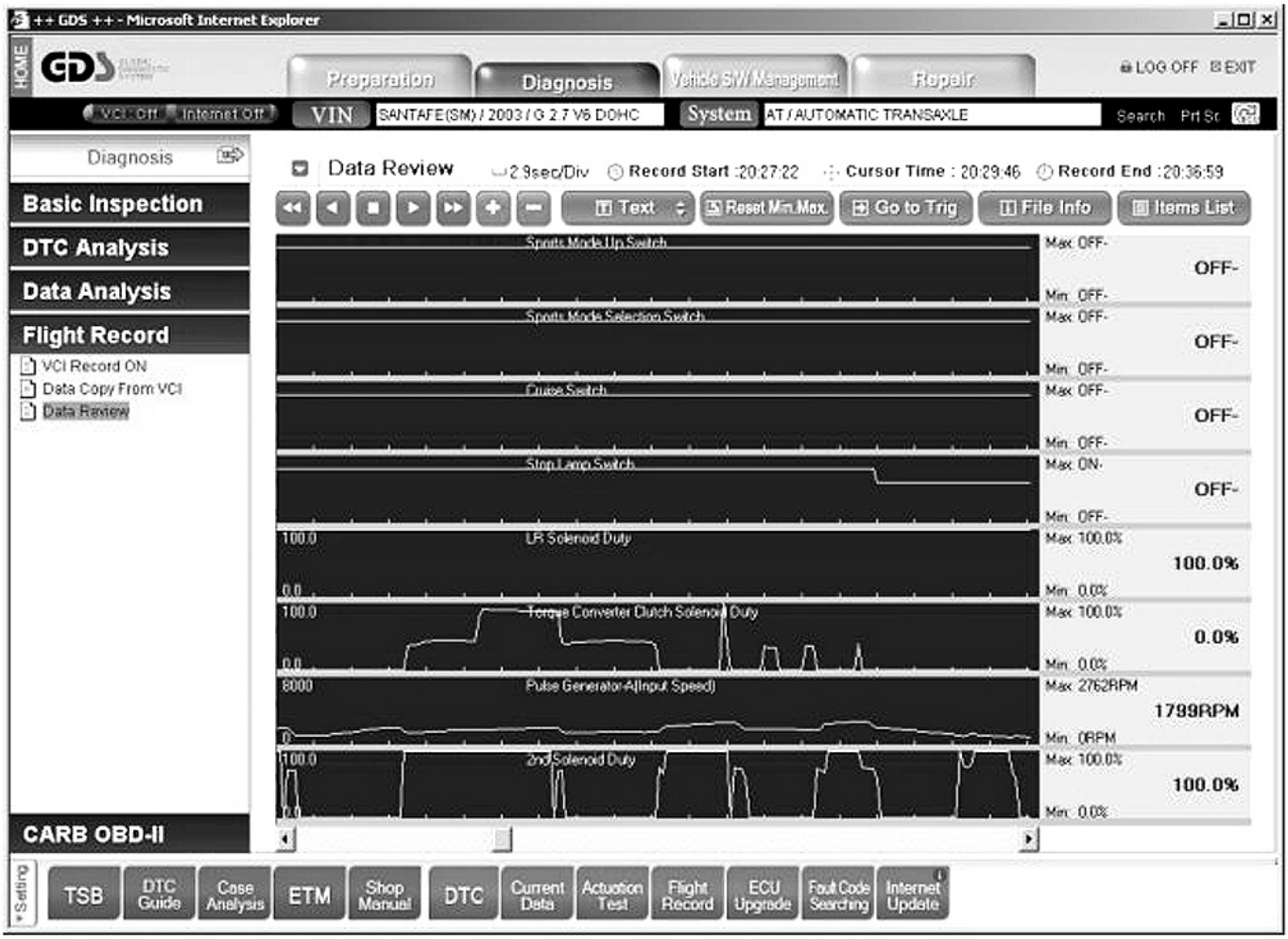


Figure 4

You can toggle between Current Data view and graph view with the button to the right of the navigation buttons above the graph. The values to the right of the graph are those which pass over the red indicator line. The default position of the indicator line is at the left edge of the graph. If you would like to see values at a specific point on the graph, place your cursor over the selected location. When you left click, the indicator line will jump to that position and the values for that location on the graph will be displayed.

Although the components and sensors displayed on the report are determined by current DTC data or by your selections, the data for all components in the selected system (i.e. Engine, Transaxle, etc.) is included in the recording. In order to change the components under graphic view or Current Data review from the recording, click on the "Items List" button to the right above the graph. A full list of components will appear. As you click on items, their information will be added and shown. Up to eight graphs can be viewed at a time. The items shown are designated in the Items List with an asterisk to their left. Clicking on an asterisked item will remove it from being shown.

There are many other powerful features of the GDS Flight Record function too numerous for this article. For more information, check out the online GDS course at hmaservice.com under Technical Training Online Courses.

Automatic Transaxle Control Module –

Reset And Relearn Adaptive Values

The PCM or TCM contains logic to adjust solenoid duty and line pressure as needed to compensate for normal clutch wear over the life of the transaxle. Here are the procedures necessary to reset (erase) and "relearn" the adaptive values in the PCM/TCM.

After the following repairs have been completed, the PCM/TCM adaptive values must be reset in order to provide optimum shift quality:

- Replace automatic transaxle
- Reprogram or swap PCM/TCM from another vehicle

Adaptive values must be reset using procedure #1 or #2 according to model and model year (MY) as shown below.

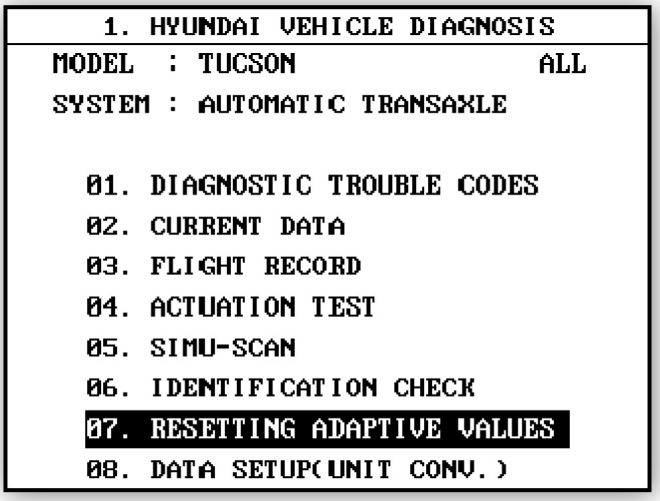
I. RESET PCM/TCM ADAPTIVE VALUES

MODEL	ENGINE	1. DISCONNECT NEGATIVE BATTERY CABLE FOR 10 SECONDS	2. USE HI-SCAN OR GDS, TURN IGNITION KEY OFF FOR 10 SECONDS
ACCENT	1.6L	1996~2005 MY	2006 MY~
ELANTRA	2.0L	~12/01/2002	12/01/2002~
TIBURON	2.0L	1997~2004 MY	2005 MY~
	2.7L	1997~2004 MY	2005 MY~
SANTA FE	2.4L	2001~04 MY	2005 MY~
	2.7L	2001~04 MY	2005 MY~
	3.5L	2003~04 MY	2005 MY~
XG300	3.0L	2001 MY	N/A
XG350	3.5L	2002~04 MY	2005 MY~
TUCSON	2.7L	N/A	2005 MY~
	2.0L	N/A	2005 MY~
1999~2005 Sonata	2.4L	1999~2004 MY	2005 MY~
	2.7L	1999~2004 MY	2005 MY~
2006~ SONATA	2.4L	N/A	2006 MY~
	3.3L	N/A	2006 MY~
AZERA	3.8L	N/A	2006 MY~
ENTOURAGE	3.8L	N/A	2006 MY~

HI-SCAN PROCEDURE:

1. Turn the Ignition key to the "ON" position (do not start engine) and move the shift lever to "P".
2. Attach the Hi-Scan Pro to the data link connector (DLC):

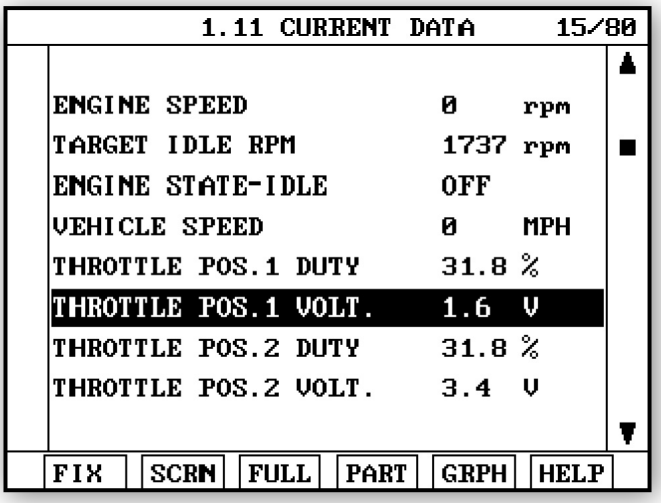
- Select vehicle
- Select "AUTOMATIC TRANSAXLE" menu.
- Select "RESETTING ADAPTIVE VALUES", press "ENTER"
- Press "ENTER", then "REST" (F1)
- Turn Ignition key "OFF" for 10 seconds.



II. RELEARN ADAPTIVE VALUES:

NOTE: After the adaptive values have been reset (erased), an "adaptive learning" procedure must be completed as shown below.

3. Attach a Hi-Scan Pro or GDS and select "Engine" menu, "Current Data" menu and throttle position sensor in volts ("THROTTLE POS. SENSOR", "ACCEL. POS. S", or "ACCEL PEDAL 1 VOLT", depending on model).
4. Drive the vehicle until the ATF temperature is within the temperature range shown on Page 3.
5. Request an assistant to monitor the Hi- Scan while accelerating the vehicle at small throttle openings (approximately 25- 30% throttle). Hold the acceler-



ator pedal steady at a throttle position sensor value of 1.45~1.75v during several 1-2-3-4 upshifts. Repeat until normal gear transitions occur.

TPS Specification:	1.45~1.75v

6. Repeat this procedure for 4-3, 3-2 and 2-1 downshifts.

NOTE: Adaptive learning does not occur below the ATF temperature range shown in next column:

ATF TEMPERTURE		122~194°F (50~90°C)	50~122°F (10~50°C)
MODEL	ENGINE	PRODUCTION DATE	
ACCENT	1.6L	1996~2005 MY	2006 MY~
ELANTRA	2.0L	~11/21/2001	11/21/2001~
TIBURON	2.0L	1997~2001 MY	2003 MY~
	2.7L	1997~2001 MY	2003 MY~
SANTA FE	2.4L	2001~02 MY	2003 MY~
	2.7L	~01/17/2002	01/17/2002~
	3.5L	N/A	2003 MY~
XG300	3.0L	2001 MY	N/A
XG350	3.5L	N/A	2002 MY~
TUCSON	2.7L	N/A	2005 MY~
	2.0L	N/A	2005 MY~
1999~2005 SONATA	2.4L	~11/30/2001	11/30/2001~
	2.7L	~11/30/2001	11/30/2001~
2006~ SONATA	2.4L	N/A	2006 MY~
	3.3L	N/A	2006 MY~
AZERA	3.8L	N/A	2006 MY~
ENTOURAGE	3.8L	N/A	2006 MY~

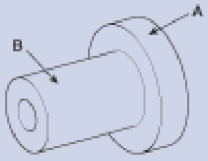
Special Service Tool Spotlights
Hyundai Motor America

The following tools are for use with the 2007 Entourage. They will be packaged together and labeled "Entourage SST Kit"

09231-3C100 (Oil Seal Installer)
Valve stem seal remover
(09222-3C100)

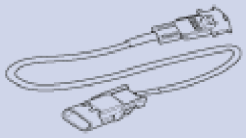
Installation of the valve stem seal

09231-3C200 (Oil Seal Installer)
Crankshaft rear oil seal installer
(09231-3C200)
(09231-H1100)



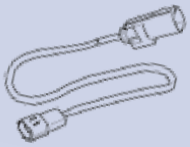
Installation of the crankshaft rear oil seal
A : 09231-3C200
B : 09231-H1100

0957A-38500 (Deployment Adapter)
Deployment adapter
0957A-38500



Use with deployment tool.
(CAB, BPT)

7. 0957A-3F000 (Dummy Adapter(SAB)
Dummy adapter
0957A-3F000



Use with dummy (SAB)

Fix-It-Right

STOP LAMP SWITCH ADJUSTMENT

MODEL: 2006 SONATA

DESCRIPTION:

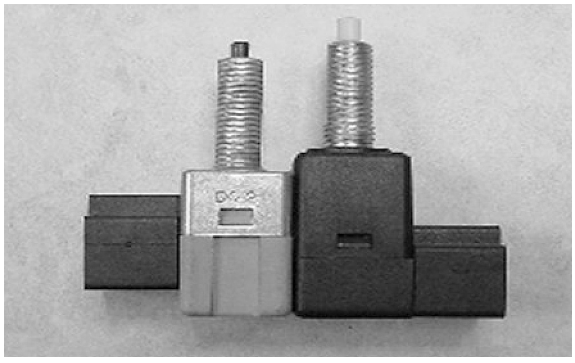
This article describes the procedure to adjust the stop lamp switch. In most cases, proper adjustment of the stop lamp switch will resolve DTC's PO504 (brake switch) and C1513 (brake light switch) without unnecessary replacement of the stop lamp switch.

If the vehicle exhibits inoperative brake lights or DTC codes P0504 or C1513, use the following procedure to ensure proper diagnosis.

NOTE: Two stop lamp switches have been installed on 2006 Sonatas. The switches are interchangeable.

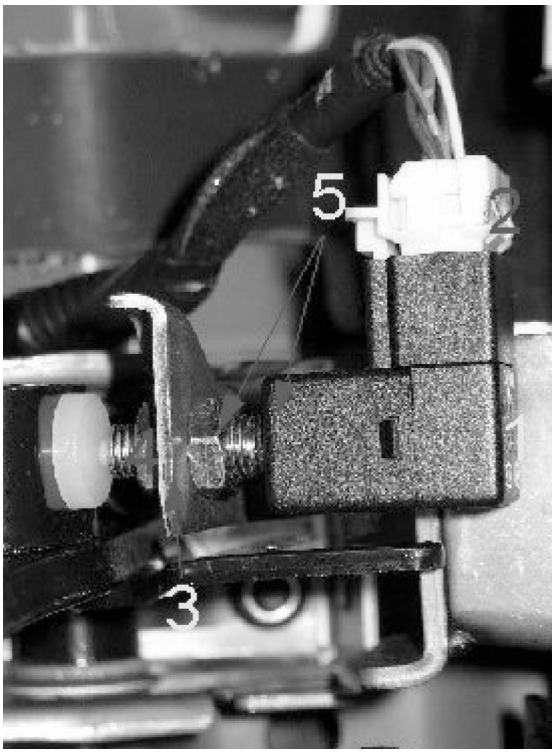
NOTE: Vehicles with a VIN starting with 5NPEU produced before 8/19/05 have a metal housing (left); vehicles produced after 8/19/05 have a plastic housing (right).

NOTE: Vehicles with a VIN starting with KMHET produced before 4/28/05 have a metal housing (left); vehicles produced after 4/28/05 have a plastic housing (right).

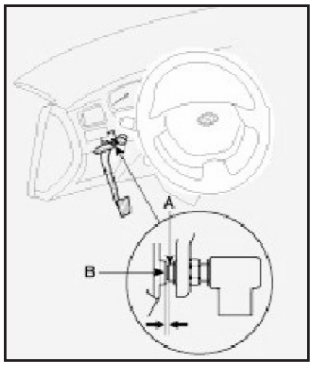


COMPONENTS:

1. Stop Lamp Switch Assembly
2. Stop Lamp Switch Connector
3. Stop Lamp Switch Plunger
4. Brake Pedal Stopper
5. Stop Lamp Switch Lock Nut (qty 2)



SERVICE PROCEDURE:



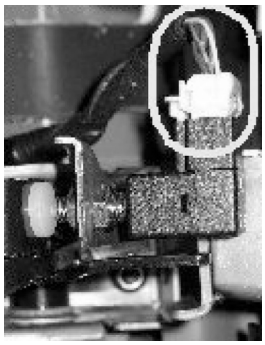
1. Check the clearance between the stop lamp switch housing and the brake pedal when the pedal is in the free position.

Specification: A-B = 0.5 - 1.0 mm (0.02~0.04 in)
A - Stop Lamp Switch Metal Housing
B - Brake Pedal Stopper

2. If the clearance is within specification and the stop lamp switch continues to not function properly, check the operation of the switch.

3. Remove the stop lamp switch by loosening the brake switch lock nuts. Depress the stop lamp switch plunger manually and see if the brake lights function properly.

4. If the stop lamp switch does not function properly, check the continuity of the stop lamp switch.

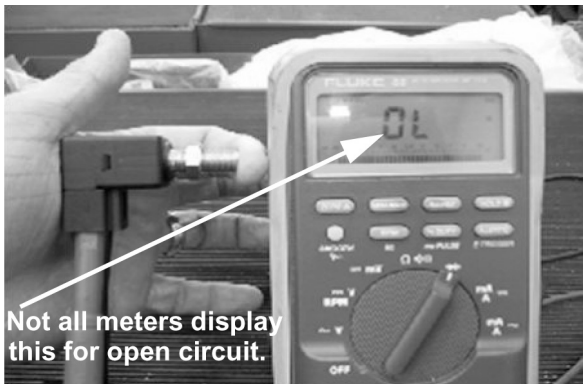


5. Disconnect the stop lamp switch connector.

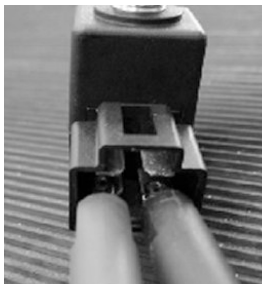
6. Check the continuity of the stop lamp switch by connecting the multimeter to the upper contacts.

7. With the plunger not depressed, the meter should read approximately 0 ohms, has continuity.

8. Depress the stop lamp switch plunger. Multi meter should read open circuit (no continuity).



9. Connect the multimeter connectors to the lower contacts on the stop lamp switch.



10. With the plunger not depressed, the meter should read open circuit (no continuity).

11. Depress the stop lamp switch plunger. Multi meter should read approximately 0 ohms, has continuity.

12. If the stop lamp switch does not pass the continuity test, replace the stop lamp switch.

13. If the stop lamp switch does pass the continuity test, recheck the brake pedal stopper to stop lamp switch clearance or follow the shop manual ETM to diagnose wiring.

WARRANTY INFORMATION

OP CODE	OPERATION	OP TIME	CAUSAL P/N	NATURE CODE	CAUSE CODE
93810R00	Switch Assy - Stop Lamp	0.3M/H	93810-3K000	*N94	**C15, ***C40

*N94: Inoperative **C15: Poor contact & short, open circuit ***C40: Improper adjustment

Fix-It-Right

2001-2005 SANTA FE EVAPORATOR DRAIN HOSE CHANGE

MODEL: 2001-2005 SANTA FE

DESCRIPTION:

On some vehicles, the moisture from the evaporator may drip onto the exhaust pipe causing a noise that is audible from outside the vehicle. A new drainage hose has been implemented to redirect the moisture.

VEHICLES AFFECTED:

Model/Affected vehicle production date range:

- Santa Fe (SM): Produced Job #1 - March 1, 2005

PARTS INFORMATION:

The new part number is listed below.

PART NAME	PART NUMBER
Hose - Drain	97173-26000

PREVIOUS	NEW
97653-02000	97173-26000
	

WARRANTY INFORMATION

OP CODE	OPERATION	OP TIME	CAUSAL P/N	NATURE CODE	CAUSE CODE
97765R00	Hose - Drain	0.2 M/H	97653-02000	N86	C06

N86: Falling Off, Sagged C06: Broken, Split, Torn

Fix-It-Right

REMOTE TRANSMITTER BATTERY REPLACEMENT

MODEL: 2003-2005 TIBURON

DESCRIPTION:

This article describes the security system remote transmitter battery replacement procedure for the 2003-2005 MY Tiburon.

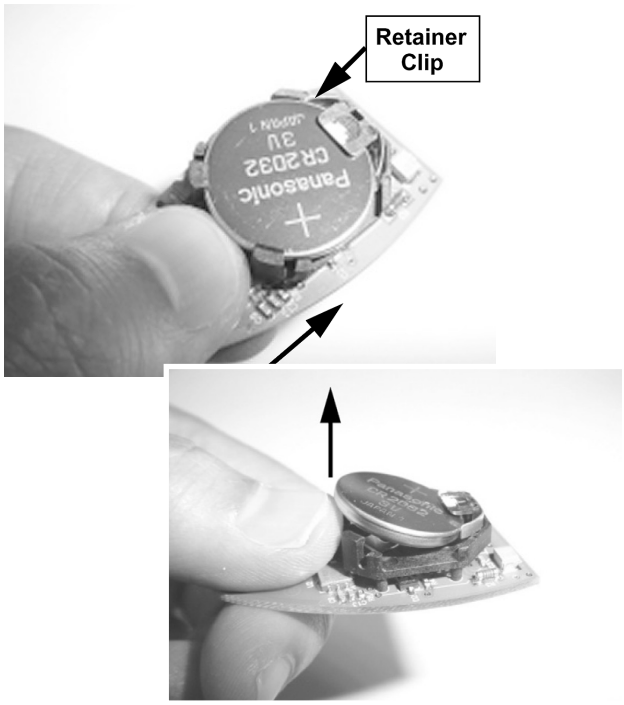
SERVICE PROCEDURE:

1. Using a flat blade screwdriver, open and separate the remote transmitter housing.

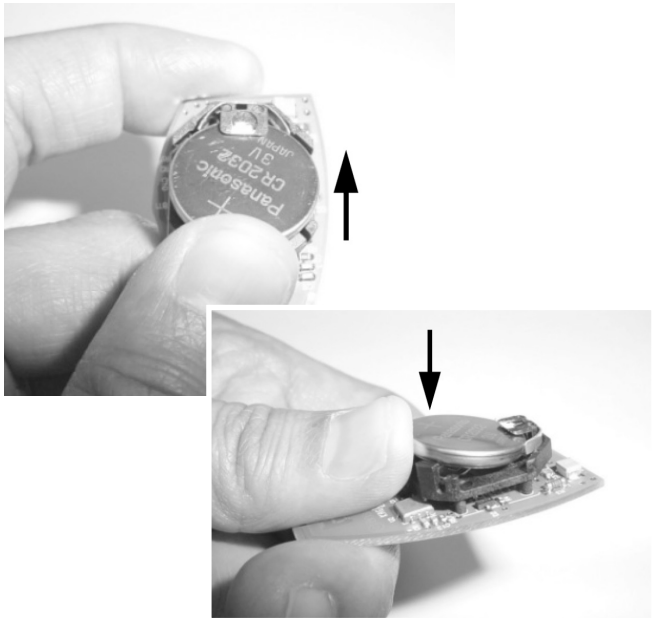
2. Carefully remove the transmitter circuit board from its housing.

3. Using your thumb, carefully push and lift the battery against the retainer clip.

CAUTION: Do not use tools to pry the battery from its holder.



4. Install the new battery by pushing it against the retainer clip and carefully positioning it down in the holder.

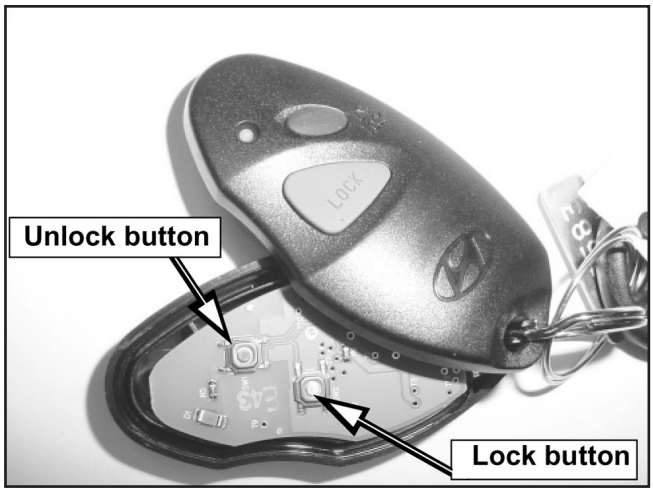


5. Install the circuit board into its housing, making sure the Lock and Unlock buttons face up.

6. Carefully snap the two halves closed.

7. Verify that the remote transmitter functions correctly.

NOTE: See the Tiburon Shop Manual's Body Electrical System section for programming (adding) transmitter code.



PART NAME	PART NUMBER
Transmitter Assembly	95440-2C000
Battery - Transmitter	95413-3A000

WARRANTY INFORMATION

MODEL	OPERATION CODE	OPERATION	OP TIME	OP QTY	CAUSAL P/N	NATURE CODE	CAUSE CODE
2003-2005 Tiburon	95760R00	Battery Replacement	0.2 M/H	1	95440-2C000	*N94	**C06

*N94: Inoperative **C06: Broken, Split, Torn

TechNet Trivia

Trivia Question: We all work on cars. The word "car" is quite familiar to us. Where did we get the word from?

Last issue's Trivia Answer: Ned (father) and Dale Jarrett; Lee (father) and Richard Petty

TechNet Times

Volume 16 Issue 3 **May 2006**

TechNet Times is published monthly by Hyundai Motor America's National Service Technology Department for Hyundai Dealership Technicians. The subjects covered in this publication are often one of a kind items, but they may help you to solve similar incidents. In all cases, the diagnostic procedures recommended in the Shop Manuals should always be performed first.

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TSB 06-50-006

HYUNDAI Technical Service Bulletin

Group	CHASSIS
Number	06-50-006
Subject	**STOP LAMP SWITCH ADJUSTMENT**
Date	APRIL, 2006
Model	2006 SONATA

CIRCULATE TO:	[ ] GENERAL MANAGER	[X] PARTS MANAGER	[X] TECHNICIAN
[X] SERVICE ADVISOR	[X] SERVICE MANAGER	[X] WARRANTY MGR	[ ] SALES MANAGER

DESCRIPTION:

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COMPONENTS:

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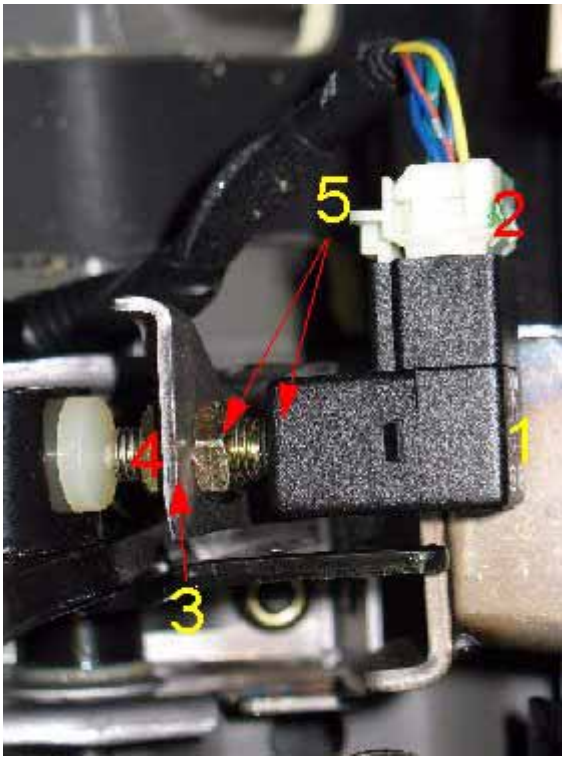
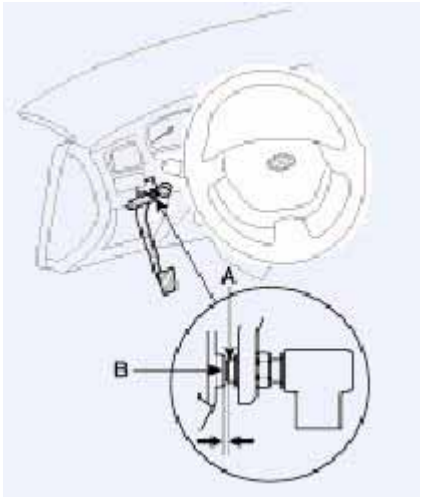
3. Stop Lamp Switch Plunger
4. Brake Pedal Stopper
5. Stop Lamp Switch Lock Nut (qty 2)



SERVICE PROCEDURE:

1. Check the clearance between the stop lamp switch housing and the brake pedal when the pedal is in the free position.



Specification: A-B = 0.5 - 1.0 mm (0.02~0.04 in)

A - Stop Lamp Switch Metal Housing

B - Brake Pedal Stopper

2. If the clearance is within specification and the stop lamp switch continues to not function properly, check the operation of the switch.
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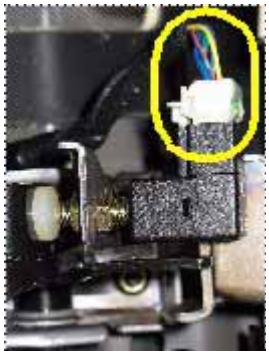
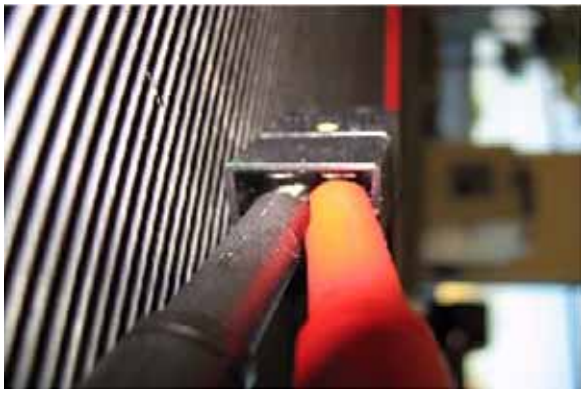


4. If the stop lamp switch does not function properly, check the continuity of the stop lamp switch.
5. Disconnect the stop lamp switch connector.

6. Check the continuity of the stop lamp switch by connecting the multimeter to the upper contacts.



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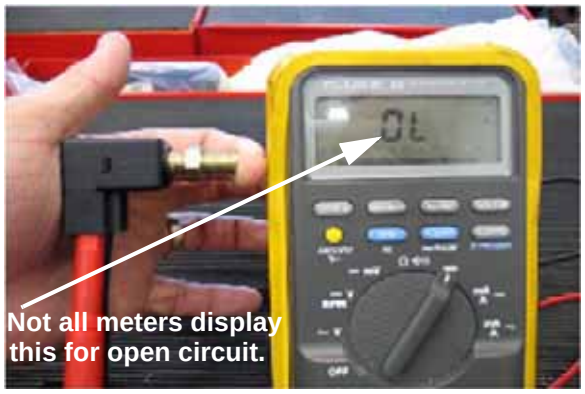
8. Depress the stop lamp switch plunger. Multi meter should read open circuit (no continuity).



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WARRANTY INFORMATION:

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*N94: Inoperative

**C15: Poor contact & short, open circuit

***C40: Improper adjustment

TSB 08-BE-005

HYUNDAI Technical Service Bulletin

Group	Number	Date	Model
BODY ELECTRICAL	08-BE-005	JULY, 2008	2006 SONATA

Subject: **STOP LAMP SWITCH ADJUSTMENT**

CIRCULATE TO:			
[ ] GENERAL MANAGER	[X] PARTS MANAGER	[X] TECHNICIAN	
[X] SERVICE ADVISOR	[X] SERVICE MANAGER	[X] WARRANTY MGR	[ ] SALES MANAGER

THIS BULLETIN SUPERSEDES TSB 06-50-006 TO INCLUDE THE CORRECT DESCRIPTION OF COMPONENTS ON PAGE 2 OF 5.

DESCRIPTION:

This TSB describes the procedure to adjust the stop lamp switch. In most cases, proper adjustment of the stop lamp switch will resolve DTC's P0504 (brake switch) and C1513 (brake light switch) without replacing the stop lamp switch.

If the vehicle exhibits inoperative brake lights or DTC codes P0504 or C1513 use the following procedure to ensure proper diagnosis.

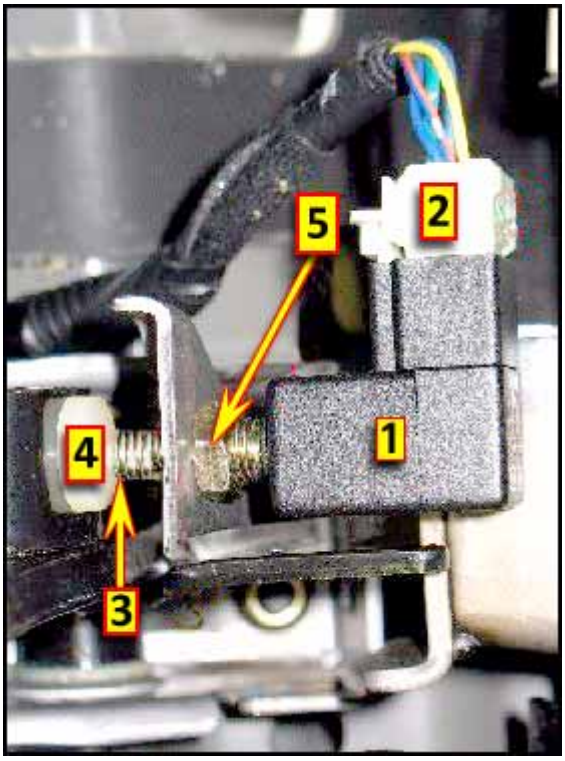
NOTE: Two stop lamp switches have been installed on 2006 Sonatas. The switches are interchangeable.

NOTE: Vehicles with a VIN starting with 5NPEU produced before 8/19/05 have a metal housing (left), vehicles produced on or after 8/19/05 have a plastic housing (right).

NOTE: Vehicles with a VIN starting with KMHET produced before 4/28/05 have a metal housing (left), vehicles produced on or after 4/28/05 have a plastic housing (right).

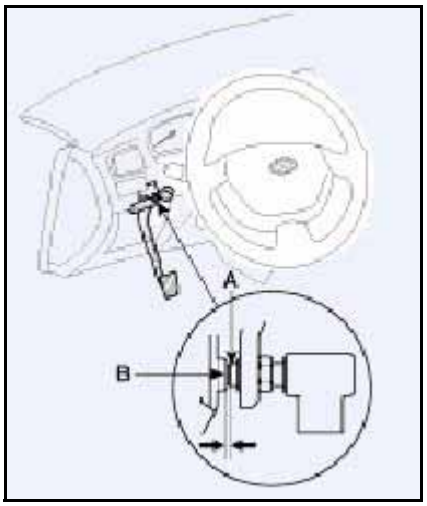
COMPONENTS:

1. Stop Lamp Switch Assembly
2. Stop Lamp Switch Connector
3. Stop Lamp Switch Plunger
4. Brake Pedal Stopper
5. Stop Lamp Switch Lock Nut (qty 1)



SERVICE PROCEDURE:

1. Check the clearance between the stop lamp switch housing and the brake pedal when the pedal is in the free position.

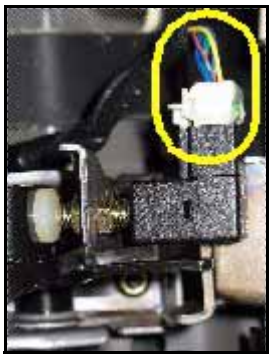


Specification: A-B = 0.5 - 1.0 mm (0.02~0.04 in)

A - Stop Lamp Switch Metal Housing

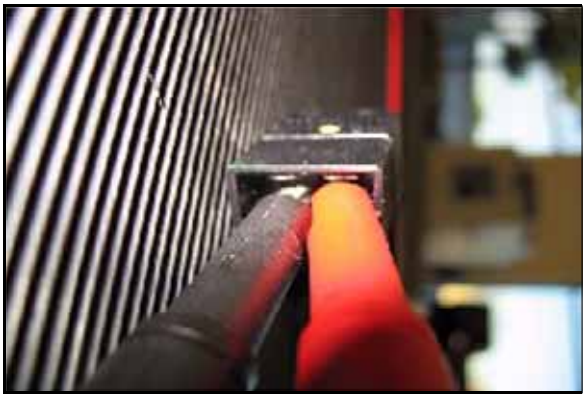
B - Brake Pedal Stopper

2. If the clearance is within specification and the stop lamp switch continues to not function properly, check the operation of the switch.
3. Remove the stop lamp switch by loosening the brake switch lock nuts. Depress the stop lamp switch plunger manually and see if the brake lights function properly.



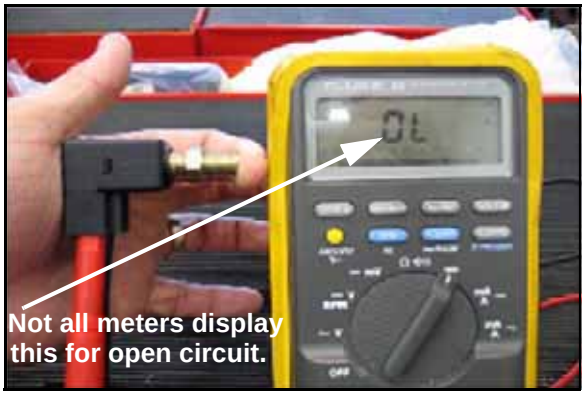
4. If the stop lamp switch does not function properly, check the continuity of the stop lamp switch.
5. Disconnect the stop lamp switch connector.

6. Check the continuity of the stop lamp switch by connecting the multimeter to the upper contacts.



7. With the plunger not depressed, the meter should read approximately 0 ohms, has continuity.

8. Depress the stop lamp switch plunger. Multi meter should read open circuit (no continuity).



9. Connect the multimeter connectors to the lower contacts on the stop lamp switch.

10. With the plunger not depressed, the meter should read open circuit (no continuity).

11. Depress the stop lamp switch plunger. Multi meter should read approximately 0 ohms, has continuity.

12. If the stop lamp switch does not pass the continuity test, replace the stop lamp switch.

13. If the stop lamp switch does pass the continuity test, recheck the brake pedal stopper to stop lamp switch clearance or follow the shop manual ETM to diagnose wiring.

WARRANTY INFORMATION:

OP CODE	OPERATION	OP TIME	CAUSAL PART NUMBER	NATURE	CAUSE
93810R00	Switch Assy - Stop Lamp	0.3M/H	93810-3K000	*N94	**C15, ***C40