



HYUNDAI Technical Service Bulletin

Group	TRANSAXLE
Number	07-40-010
Date	AUGUST, 2007
Model	1999~ SONATA, 2001~06 ELANTRA, 2001~ SANTA FE & XG, 2003~ TIBURON, 2005~ TUCSON, 2006~ AZERA, 2007~ ENTOURAGE

Subject

AUTOMATIC TRANSAXLE HARSH AND/OR DELAYED UPSHIFT OR DOWNSHIFT - GDS ANALYSIS

This TSB supersedes TSB 07-40-019 to use GDS to analyze shift performance.

DESCRIPTION:

If you are diagnosing an automatic transaxle with a harsh and/or delayed upshift or downshift, follow the Diagnostic Procedure shown below.

DIAGNOSTIC PROCEDURE:

1. Check the ATF level when the engine is idling in "N" according to TSB 06-40-016. Adjust the ATF level as needed.
2. Reset and relearn the adaptive values according to TSB 06-40-005.
3. Compare to a similar model and year vehicle. If the shift delay is longer than the comparison vehicle, continue with the diagnosis.
4. Attach the GDS and check for Diagnostic Trouble Codes in both the "Engine" and "Automatic Transaxle" menu. If DTC are found, repair according to the appropriate TSB or shop manual.

NOTE: Ask an assistant to drive the vehicle as you monitor the GDS.

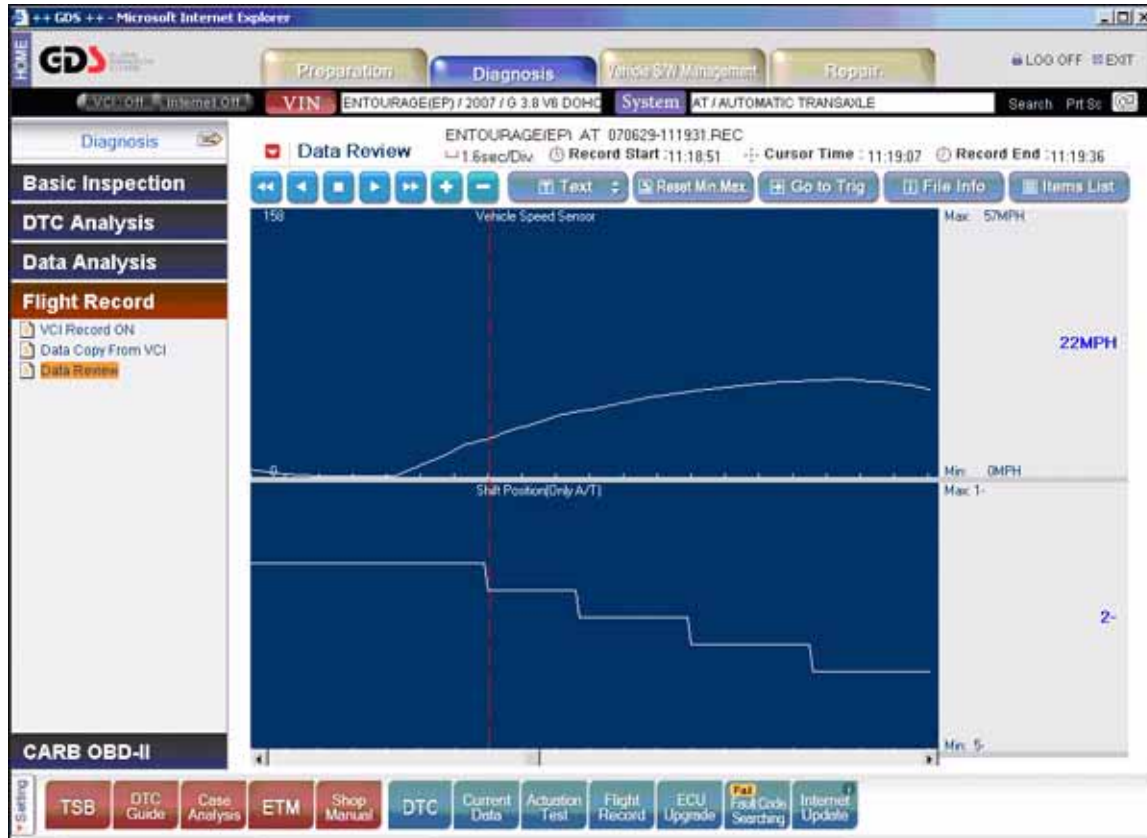
Attach the GDS and select the following:

- VIN and "A/T"
- "Current Data"
 - "Shift position"
 - "Vehicle speed"
 - "Low-Reverse solenoid duty"
 - "Underdrive solenoid duty"
 - "OD solenoid duty"
 - "2nd solenoid duty"
 - "Reduction solenoid duty" (if 5-speed transaxle)
- Accelerate the vehicle and shift from 1-2-3-4-(5 if equipped).
- Select "Record" (on top right of screen)
- Select "PC Record" (on left of screen) and save the file.

UPSHIFT COMMANDS FROM PCM OR TCM:

Open the GDS program and select:

- VIN and “A/T”
- “Flight Record” and “Data Review”
- “Items List” (top right of screen) and select: “Vehicle speed” and “Shift position”.



PCM/TCM DIAGNOSIS:

Confirm the PCM or TCM commanded each gear: 1, 2, 3, 4 and 5 (if equipped):

- If so, go to pages 3~6 and evaluate the upshift diagnosis for the related shift.
- If not, exchange a PCM or TCM from a properly operating vehicle and test again to determine if the PCM or TCM commanded each gear:
 - If the condition is improved, replace the PCM or TCM
 - If the condition is not improved, go to page 3~6 and evaluate the upshift performance.

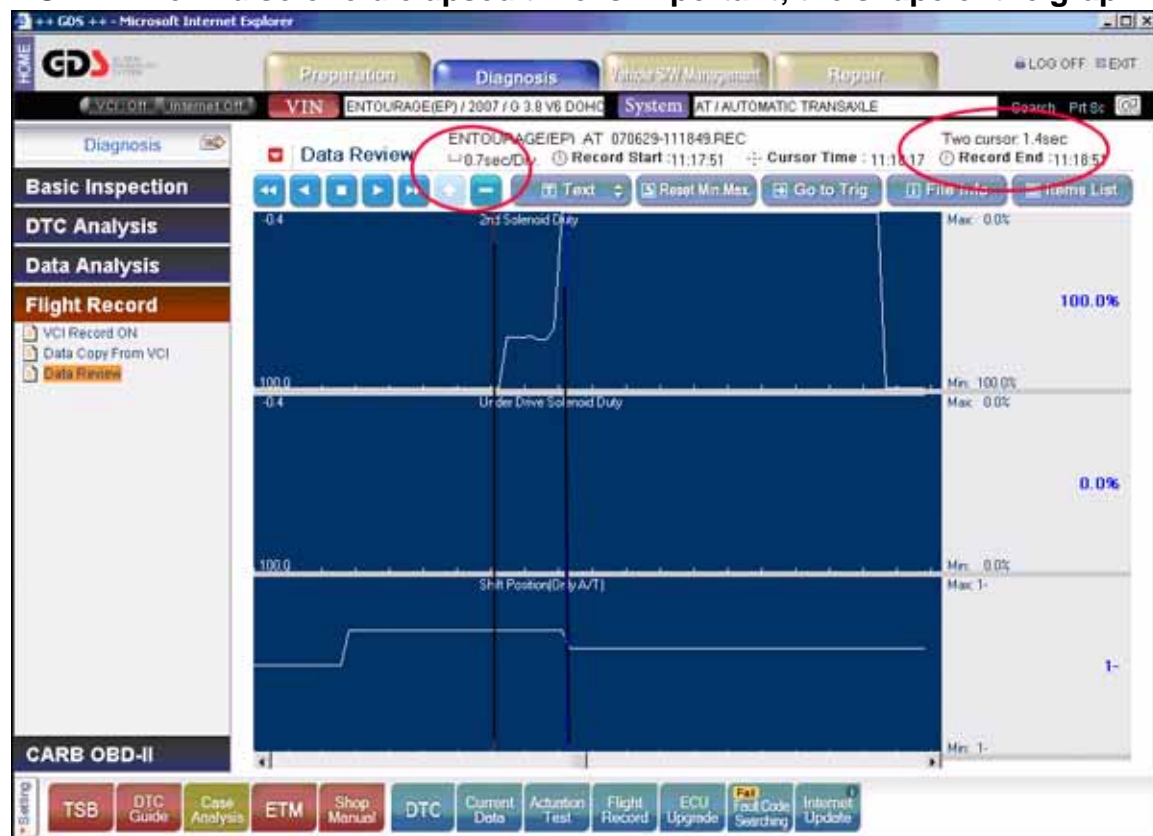


1-2 UPSHIFT DIAGNOSIS:

Open the GDS program and select: VIN and "A/T", "Flight Record" and "Data Review"

- Select "Items List" (top right of screen) and select: "2nd Solenoid Duty", "Underdrive Solenoid Duty" and "Shift Position".
- Click the "+" or "-" buttons to choose 0.7 sec./Div or less.
- Move the cursor to the start of the shift and "Left click".
- Move the cursor to the end of the shift and "Right click".
- Read the 2nd solenoid elapsed time at the top right of the screen. If the 1-2 shift requires more than 2.0 seconds, exchange a PCM or TCM from a properly operating vehicle and follow TSB 06-40-005, "Reset and Relearn Adaptive Values":
 - If the condition is improved, replace the PCM or TCM
 - If the condition is not improved, replace the transaxle.

NOTE: The 2nd solenoid elapsed time is important; the shape of the graph is not.

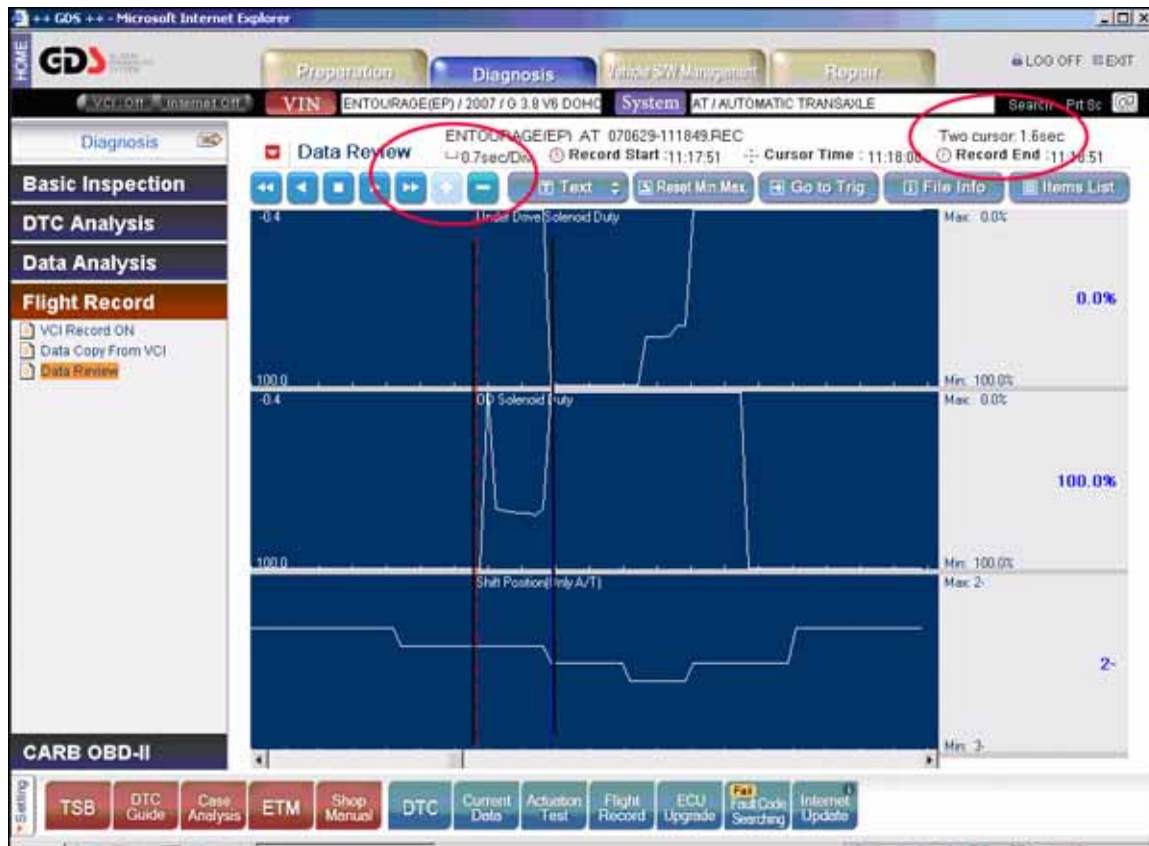


2-3 UPSHIFT DIAGNOSIS:

Open the GDS program and select: VIN and "A/T", "Flight Record" and "Data Review"

- Select "Items List" (top right of screen) and select: "Underdrive Solenoid Duty", "Overdrive Solenoid Duty" and "Shift Position".
- Select the "+" or "-" button to choose 0.7 sec./Div or less.
- Move the cursor to the start of the shift and "Left click".
- Move the cursor to the end of the shift and "Right click".
- Read the OD solenoid elapsed time at the top right of the screen. If the 2-3 shift requires more than 2.0 seconds, exchange a PCM or TCM from a properly operating vehicle and follow TSB 06-40-005, "Reset and Relearn Adaptive Values":
 - If the condition is improved, replace the PCM or TCM
 - If the condition is not improved, replace the transaxle.

NOTE: The OD solenoid elapsed time is important; the shape of the graph is not.



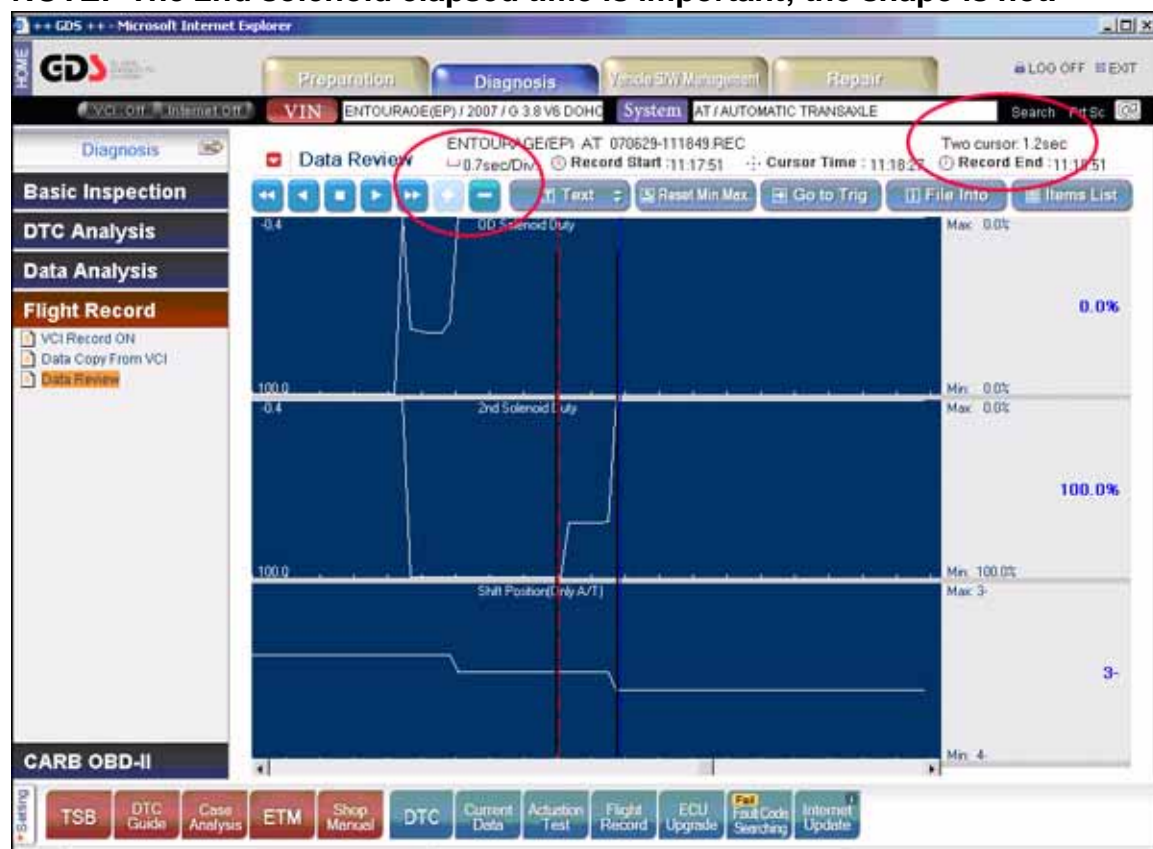


3-4 UPSHIFT DIAGNOSIS:

Open the GDS program and select: VIN and "A/T", "Flight Record" and "Data Review"

- Select "Items List" (top right of screen) and select: "2nd Solenoid Duty", "Overdrive Solenoid Duty" and "Shift Position".
- Select the "+" or "-" button to choose 0.7 sec./Div or less.
- Move the cursor to the start of the shift and "Left click".
- Move the cursor to the end of the shift and "Right click".
- Read the 2nd solenoid elapsed time at the top right of the screen. If the 3-4 shift requires more than 2.0 seconds, exchange a PCM or TCM from a properly operating vehicle and follow TSB 06-40-005, "Reset and Relearn Adaptive Values":
 - If the condition is improved, replace the PCM or TCM
 - If the condition is not improved, replace the transaxle.

NOTE: The 2nd solenoid elapsed time is important; the shape is not.

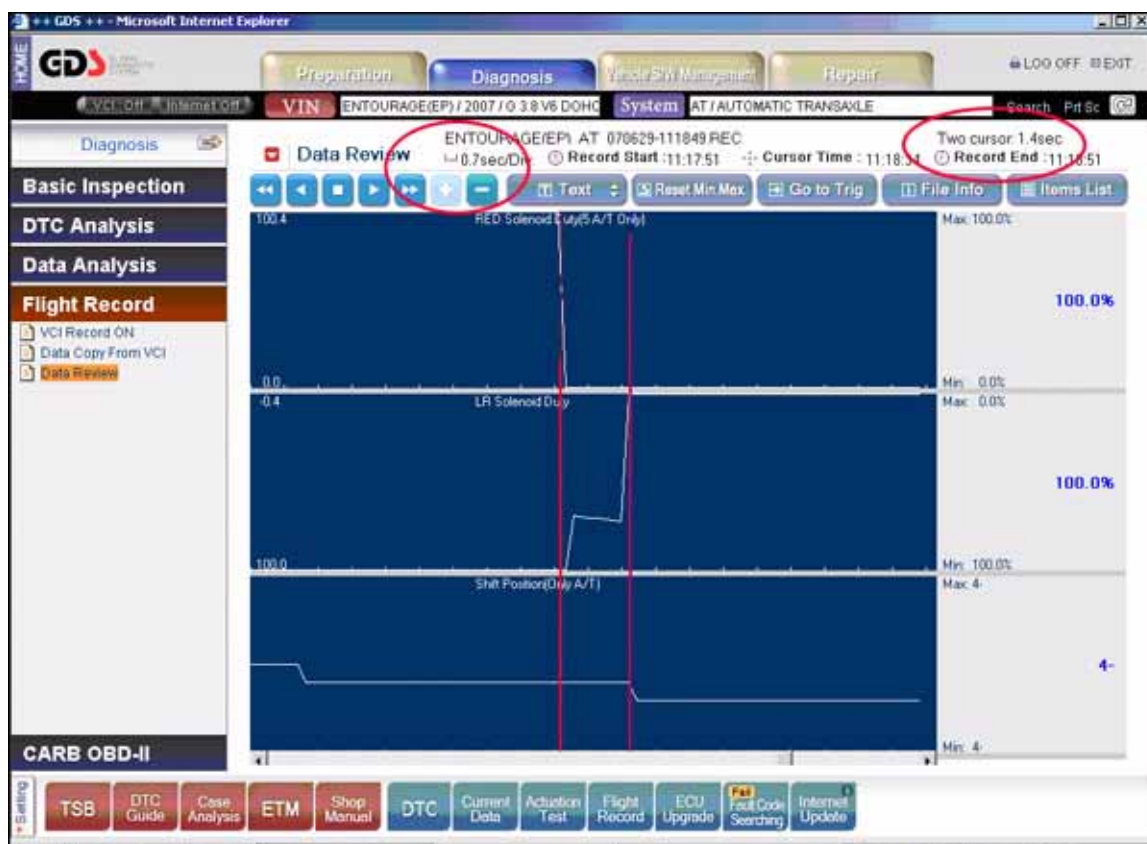


4-5 UPSHIFT DIAGNOSIS:

Open the GDS program and select: VIN and “A/T”, “Flight Record” and “Data Review”

- Select “Items List” (top right of screen) and select: “Reduction Solenoid Duty”, Low-Reverse Solenoid Duty and “Shift Position”.
- Select the “+” or “-” button to choose 0.7 sec./Div or less.
- Move the cursor to the start of the shift and “Left click”.
- Move the cursor to the end of the shift and “Right click”.
- Read the LR solenoid elapsed time at the top right of the screen. If the 4-5 shift requires more than 2.0 seconds, exchange a PCM or TCM from a properly operating vehicle and follow TSB 06-40-005, “Reset and Relearn Adaptive Values”:
 - If the condition is improved, replace the PCM or TCM
 - If the condition is not improved, replace the transaxle.

NOTE: The LR solenoid elapsed time is important; the shape of the graph is not.





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WARRANTY INFORMATION:

MODEL	PCM/TCM	OP CODE	OPERATION	OP TIME	CAUSAL P/N	OP QTY	NATURE CODE	CAUSE CODE
1999~ Sonata, 2001~06 Elantra, 2001~ Santa Fe, 2001~05 XG, 2003~ Tiburon, 2005~ Tucson, 2006~ Azera 2007 Entourage	PCM	39110RP0	Hi-Scan Operation	0.3	See parts catalog	1	N26	C15
		39110RQ0	GDS Operation	0.3				
	TCM	95440RP0	Hi-Scan Operation	0.4				
		95440RQ0	GDS Operation	0.4				

NOTE: Warranty Claim requires input of DTC codes on all claims using Hi-Scan or GDS operations. If no DTC code is identified by the Hi-scan or GDS, enter P0000 as a Scan Tool Test Code on the Warranty Claim and attach printout from the Hi-scan or GDS to the Repair Order.

NOTE: Printouts must be attached to all Repair Orders. Repair Orders without attached printouts are subject to chargeback.