		GROUP	NUMBER	
		AUTOMATIC TRANSMISSION	13-AT-009	
		DATE MODEL		
Techn	ical Service Bulletin	MAY 2013	Tucson (LM), Santa Fe (CM/AN/NC), Sonata (YF/YF HEV), Elantra (UD/MD/GD/JK), Accent (RB), Azera (TG/HG), Veloster Turbo (FS)	
SUBJECT:	AUTOMATIC HARSH AND/OR DELAYEI	TRANSAXLE D SHIFT – GDS ANALYSIS		

This TSB supersedes TSB 12-AT-012 to add 2013 vehicles.

**Description:** If you are servicing a 6-speed automatic transaxle with a harsh and/or delayed shift, follow the Service Procedure shown below.

Applicable Vehicles:	Model Years	Model
	2010~	Tucson (LM) & Santa Fe (CM)
	2011~	Sonata (YF)/HEV, Elantra (UD/MD) & Azera (TG)
	2012~	Accent (RB), Azera (HG)
	2013~	Veloster Turbo (FS), Elantra Coupe (JK), Elantra GT (GD) and Santa Fe (AN/NC)

WARRANTY INFORMATION: Normal warranty applies

# SERVICE PROCEDURE:

- 1. Attach the GDS and check for Diagnostic Trouble Codes in both the "Engine" and "Automatic Transaxle" menu. If DTCs are found, repair according to the appropriate TSB or shop manual.
- 2. Check the ATF level when the engine is idling in "P" according to TSB 13-AT-006. Adjust the ATF level as needed using SPH-IV ATF.

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

- 3. Attach the GDS and select the following:
  - VIN and "A/T" menu
  - "Current Data" (maximum of 8 parameters)
    - Current Gear
    - Shift Control Solenoid Valve A (UD/C)
    - Shift Control Solenoid Valve B (2-6/B)
    - Shift Control Solenoid Valve C (36R/C)
    - Shift Control Solenoid Valve D (OD/C)
    - Shift Control Solenoid Valve E (SS-A)
    - Shift Control Solenoid Valve F (SS-B)
- 4. Shift from P-R, N-D and drive the vehicle through gears 1-2-3-4-5-6 to simulate the complaint condition.

Select "Record" (on top right of screen) Select "PC Record" (on left of screen) Save the file.

# P-R SHIFT 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 the parameters shown on the graph.
- Click the "+" or "-" buttons to choose 0.5 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 <u>35R/C</u> solenoid elapsed time at the top right of the screen. If the P-R shift requires
  more than 2.5 seconds, refer to TSB 12-AT-017, "Reset and Relearn Adaptive Values":
  - > If the shift is less than 0.8 seconds, exchange a PCM from another vehicle and retest.
  - If the shift time is more than 2.5 seconds, compare to a similar model and year vehicle. Replace the transmission if the shift time is longer than a comparison vehicle.

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Vehicle Y SONATA(YF	F)/2012/G 2.0 T-GDI	Sy	stem 🕥 Transmission/Autor	natic Transado	0 =
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DTC Analysis		Shift Lever Switch		Max: P	R
Data Analysis				Min: R	
Flight Record		Curre <del>pt Gear</del>		Max: R	R
VCI Record ON	· · · · · ·	<del></del>		Min: P/N	
目 Data Copy From VCI 目 Data Review	1275	Shift Control Solenoid Valve A	·(UD/B)	Max: 980 mA	970 mA 🚺
	0, , , , ,	Shift Control Solanoid Value E	(2.6B)	Min: 750 mA	
	12/5	Shint Control Spienoid Valve E	(2-0/D)	Max. Troms	105 mA 🚺
	1275	Shift Control Splenoid Valve C	(35R/C)	Min: 0 m.A Max: 980 m.A	X
					60 mA 💽
	1275	Shift Control Splenoid Valve D	(OD/C)	Min: 5 mA Max: 70 mA	X
					60 mA 💽
	~ <del>~~,~~,~~,~~,~~,~~,~~,~~,~~,~~,~~,~~,~~</del>	Shift Control Solenoid Valve E	(SS-A)	Min: 0 mA Max: ON	X
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		Shift Control Solenoid Valve F	(SS-B)	Max: ON	×
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#### N-D SHIFT 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 the parameters shown on the graph.
- Click the "+" or "-" buttons to choose 0.5 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 <u>UD/B</u> solenoid elapsed time at the top right of the screen. If the P-R shift requires more than 2.5 seconds, refer to TSB 12-AT-017, "Reset and Relearn Adaptive Values":
  - > If the shift is less than 0.8 seconds, exchange a PCM from another vehicle and retest.
  - If the shift time is more than 2.5 seconds, compare to a similar model and year vehicle. Replace the transmission if the shift time is longer than a comparison vehicle.

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DTC Analysis		Shift Lever Switch		Max: N	
Data Analysis				Min: D	U
Flight Record		Current Gear		Max: 1	1
VCI Record ON				Min: P/N	
■ Data Copy From VCI ■ Data Review	1275	Shift Control Solenoid Valve	A(UD/B)	Max: 980 mA	40 mA 💽
	0, , , , ,	Skift Control Solenoid Velue		Min: 35 mA	
	1273	Shint Control Solehold Valve	0(2-00)	1100. 210 mm	230 mA 💽
	4075	Shift Control Solenoid Valve I		Min: 0 mA	
					825 mA 💽
	0, , , , ,	Shift Control Solenoid Valve		Min: 660 m.A. Max: 70 m.A	
			5(05/0)		40 mA 💽
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#### 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 the parameters shown on the graph.
- Click the "+" or "-" buttons to choose 0.5 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 <u>2-6/B</u> solenoid elapsed time at the top right of the screen. If the P-R shift requires more than 2.5 seconds, refer to TSB 12-AT-017, "Reset and Relearn Adaptive Values":
  - > If the shift is less than 0.8 seconds, exchange a PCM from another vehicle and retest.
  - If the shift time is more than 2.5 seconds, compare to a similar model and year vehicle. Replace the transmission if the shift time is longer than a comparison vehicle.



## 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 the parameters shown on the graph.
- Click the "+" or "-" buttons to choose 0.5 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 <u>35R/C</u> solenoid elapsed time at the top right of the screen. If the P-R shift requires
  more than 2.5 seconds, refer to TSB 12-AT-017, "Reset and Relearn Adaptive Values":
  - > If the shift is less than 0.8 seconds, exchange a PCM from another vehicle and retest.
  - If the shift time is more than 2.5 seconds, compare to a similar model and year vehicle. Replace the transmission if the shift time is longer than a comparison vehicle.



#### 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 the parameters shown on the graph.
- Click the "+" or "-" buttons to choose 0.5 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 <u>OD/C</u> solenoid elapsed time at the top right of the screen. If the P-R shift requires more than 2.5 seconds, refer to TSB 12-AT-017, "Reset and Relearn Adaptive Values":
  - > If the shift is less than 0.8 seconds, exchange a PCM from another vehicle and retest.
  - If the shift time is more than 2.5 seconds, compare to a similar model and year vehicle. Replace the transmission if the shift time is longer than a comparison vehicle.

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Diagnosis	Data Review	SONATA(YF)_AT_120308-101206.GSR		Two cursor: 1.6sec	
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DTC Analysis		Shift Lever Switch		Max: D	×
Data Analysis				Min: D	D
Flight Record		Current Gear		Max: 6	4
VCI Record ON				Min: 3	
🗏 Data Copy From VCI 🗏 Data Review	1275	Shift Control Solenoid Valve A(UD/B)		Max: 1040 mA	25 mA 主
	0, , , , , , 1275	Shift Control Solenoid Valve B(2-6/B)	· · · · · ·	Min: 10 mA	45 mA 主
	0, , , , , , , , , , , , , , , , , , ,	Shift Control Solenoid Valve C(35R/C)		Min: 25 mA Max: 960 mA	705 mA 💽
	0, , , , , , 1275	Shift Control Solenoid Valve D(OD/C)	• • • • • •	Min: 90 mA Max: 960 mA	30 mA 🚺
		Shift Control Solenoid Valve E(SS-A)		Max: OFF	OFF
		Shift Control Solenoid Valve F(SS-B)		Max: ON Max: ON	OFF
CARB OBD-II	•			, , mail Off	•
Setup Case	e Analysis DTC Current	Data Actuation Test Flight Record	DVOM Oscilloscope Te	lation Internet Update EC	CU Upgrade
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#### 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 the parameters shown on the graph.
- Click the "+" or "-" buttons to choose 0.5 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 <u>35R/C</u> solenoid elapsed time at the top right of the screen. If the P-R shift requires more than 2.5 seconds, refer to TSB 12-AT-017, "Reset and Relearn Adaptive Values":
  - > If the shift is less than 0.8 seconds, exchange a PCM from another vehicle and retest.
  - If the shift time is more than 2.5 seconds, compare to a similar model and year vehicle. Replace the transmission if the shift time is longer than a comparison vehicle.

		VCI : Off SVN	fl : Off 🛛 鱼 Internet	: Off		-×
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Data Analysis					Min: D	U
Flight Record		Current Ger	ar an		Max: 5	5
VCI Record ON					Min: 4	
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	4075			<u>, , , , , , , , , , , , , , , , , , , </u>	Min: 20 mA	
	12/5	Shint Control Solehold V	aive b(2-0/b)		Max. 45 mA	40 mA 💽
	1275	Shift Control Solenoid V	alve C(35R/C)	1 1 1 1	Min: 30 mA Max: 955 mA	
	~~~~~					30 mA 🚺
	1275	Shift Control Solenoid V	alve D(OD/C)	<u></u>	Min: 25 mA Max: 100 mA	X
						30 mA 💽
	<u></u>	Shift Control Solenoid V	alve E(SS-A)	1 1 1 1	Min: 25 mA Max: OFF	X
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## 5-6 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 the parameters shown on the graph.
- Click the "+" or "-" buttons to choose 0.5 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 <u>2-6/B</u> solenoid elapsed time at the top right of the screen. If the P-R shift requires more than 2.5 seconds, refer to TSB 12-AT-017, "Reset and Relearn Adaptive Values":
  - > If the shift is less than 0.8 seconds, exchange a PCM from another vehicle and retest.
  - If the shift time is more than 2.5 seconds, compare to a similar model and year vehicle. Replace the transmission if the shift time is longer than a comparison vehicle.

