

NOTE: This section does not contain Pinpoint Test procedures for 1.9L 4EAT vehicles which are controlled by an EEC-IV processor. Refer to Section 6A, EEC-IV Pinpoint Tests.

Instructions

- DO NOT perform any of the following Pinpoint Tests unless instructed by Quick Test or by the Switch Monitor Test.
- Each Pinpoint Test **assumes** that you are diagnosing causes for a specific symptom described in the Diagnostic Routines and that every cause with a higher probability has been checked and verified to be operating properly.
- **Diagnostic Trouble Codes** retrieved in Quick Test Steps 7 or 8 imply that a hard fault is present and the associated Pinpoint Test should be performed to isolate the cause. If more than one diagnostic trouble code is received, always start service with the first code received.
- **Probable** components should be diagnosed only when the Quick Test Steps have resulted in a pass code. With the knowledge of the symptom, a close observation can be made of each specified component, by performing the associated Pinpoint Test.
- Performing a complete **visual inspection** will often lead to the source of a problem without performing any test step. For example, when directed to a Pinpoint Test, look carefully at the electrical schematic and special notes. Check each component and the related wiring to the control module for any evidence of damage. Loose connections, corrosion, overheating, and physical damage are often the cause of failure.
- Do not replace any parts unless the test result indicates they should be replaced.
- Do not measure voltage or resistance at the control module or connect any test lights to it, unless otherwise specified.
- Do disconnect solenoids and switches from the harness before measuring for continuity, resistance, or energizing with a power source.
- Do start with the first Pinpoint Test step and follow the appropriate result in order, until the cause of a fault is found.
- Do erase codes and perform Quick Test after recommended action has been taken to ensure any repairs made are effective.

NOTE: Refer to Engine Supplement - Car, Section 3B, for Electrical Schematics and Connector Pin Usage Charts.

• The standard Ford color abbreviations are:

Abbreviation	Color		
ВК	Black		
BL	Blue		
BR	Brown		
DB	Dark Blue		
DG	Dark Green		
GY	Gray		
GN	Green		
LB	Light Blue		
LG	Light Green		
N	Natural		
0	Orange		
РК	Pink		
Р	Purple		
R	Red		
Т	Tan		
W	White		
Y	Yellow		

Where two colors are shown for a wire, the first color is the basic color of the wire. The second color is the stripe marking.

For example:

BR/O is a brown wire with an orange stripe.

• Use the following Breakout Box and 4EAT tester and adapters.

Engine	Number	Description	Adapter Cable
All 4EAT	007-0037B	4EAT Tester and All Adapters	_
1.6L 4EAT	007-00095	4EAT Adapter	
1.8L 4EAT	007-00100-B	4EAT Adapter (Part of 007-00100)	
2.5L 4EAT	007-00100-A	4EAT Adapter (Part of 007-00100)	
Ail 4EAT	014-00322	Breakout Box	_
1.6L 4EAT	007-00038	Breakout Box Adapter	
1.8L 4EAT, 2.5L 4EAT	T92C-6000-AH	Breakout Box Adapter	#2 Adapter Cable

NOTE: Rotunda 4EAT Tester 007-0037B includes the required adapters. Rotunda Adapter Kit 007-00100 is available for use with the previous model (Rotunda 4EAT Tester 007-0037A).

4EAT Pinpoint Tests EHICLE SPEE GEAR A EAT TESTER 2 TO VEHICLE HARNESS HROTTL PULSE BIGNAL GENERATOR -SAMPLE X.X LITER TESTER OVERLAY ROTUNDA 007-000XX (5) OVERLAY 111111 SUPER STAR II 3 8 🗖 8 ₼ 0 4

A14714-D

Figure 1.

Item	Description	
1	4EAT Adapter (Included with 4EAT Tester 007-0037B)	
2	TCM (PCM on 1.8L 4EAT)	
3	4EAT Tester 007-0037B	
4	Super STAR II Tester 007-0041B	l
5	4EAT Tester Connector	

NOTE: The switch on the 4EAT adapter must be in the proper position as indicated on the overlay, if the test signal requires it.

2.5L 4EAT



Barometric Pressure (BARO) Sensor — 2.5L 4EAT

Note

You should enter this Pinpoint Test only when diagnostic trouble code 14 is received in Quick Test 7 or 8, or when Quick Test Step 11 directs you here.

Remember

This Pinpoint Test is intended to diagnose only the following:

Circuit: BARO

Description

The Barometric Pressure (BARO) sensor detects changes in atmospheric pressure. This information is transferred to the Powertrain Control Module (PCM) by an input signal. The PCM will adjust air / fuel ratio, A/C cutoff, idle speed, and purge control to compensate for the changing pressure.

Sensor Integrated Into PCM



A16841-E

Engine	Location	
2.5L	Integrated in PCM.	



•

4EAT Pinpoint Tests

2.5L 4EAT

BARO

TEST STEP			RESULT		ACTION TO TAKE	
BAR01 CHECK BARO SIGNAL • Key OFF. • Install Breakout Box. • Key ON. • Measure the voltage between BOB Pin 45 and ground.			Yes	►	BARO circuit OK. If sent to this test from Quick Test Step QT7 or QT8 in Section 5B, REPLACE the TCM. If	
Barometric PressureVoltageLess than 89.6 kPaLess than(672 mm-Hg [26.5 in-Hg])3.5 volts(above approx. 1,500 m4.921 ft)		Voltage Less than 3.5 volts	No		Quick Test Step QT9 in Section 5B, RETURN to Section 2B, Diagnostic Routines.	
Great (672 (belo [4,92	ter than 89.6 kPa mm-Hg [26.5 in-Hg]) w approx. 1,500 m 11 ft])	Greater than 3.5 volts	NO		GO to <u>IBARO2</u> .	
BARO2	Is the voltage corr CHECK FOR OPEN	ect?				
	 Key OFF. Install Breakout Bodisconnected). Disconnect the TCI Measure the resist between BOB Pin 42R. Is the resistance Interpret the test of tes	x (leave PCM M. ance of the BARO wire 5 and TCM connector Pin ess than 5 ohms?	Yes No	• •	GO to BARO3 . SERVICE the BARO wire for open.	
BARO3	CHECK FOR SHORT					
	 Key OFF. Install Breakout Bo disconnected). Disconnect the TCI Measure the resist between BOB Pin 4 Is the resistance g ohms? 	x (leave PCM M. ance of the BARO wire 5 and ground. greater than 10,000	Yes No	* *	REPLACE the PCM. SERVICE the BARO wire for short.	

4EAT Pinpoint Tests	2.5L 4EAT	CKP1
Crankshaft Position Sensor No. 1 (CK	P1) — 2.5L 4EAT	
Note		
You should enter this Pinpoint Test only w 3, or when Quick Test Step 11 directs you Remember	vhen diagnostic trouble code 01 is rec u here.	eived in Quick Test 7 o
nemember		
This Pinpoint Test is intended to diagnose only	y the following:	
Circuit: CKP1		
Description		
Description Refer to EEC Pinpoint Test CKP1.		
Description Refer to EEC Pinpoint Test CKP1. Pinpoint Test Schema	tic	
Description Refer to EEC Pinpoint Test CKP1. Pinpoint Test Schema	tic 2.5L 4EAT	
Description Refer to EEC Pinpoint Test CKP1. Pinpoint Test Schema	2.5L 4EAT DISTRIBUTOR HARNESS	CONNECTORS
Description Refer to EEC Pinpoint Test CKP1. Pinpoint Test Schema TEST PIN O CKP1		CONNECTORS
Description Refer to EEC Pinpoint Test CKP1. Pinpoint Test Schema TEST PIN O CKP1	2.5L 4EAT DISTRIBUTOR HARNESS	
Description Refer to EEC Pinpoint Test CKP1. Pinpoint Test Schema		
Description Refer to EEC Pinpoint Test CKP1. Pinpoint Test Schema TEST PIN O CKP1	STRIBUTOR STRIBUTOR USAN STRIBUTOR STRIB	CONNECTORS

.

2.5L 4EAT

Data Sheet

CIRCUIT DATA SHEET

Engine	Circuit	PCM Pin	BOB Pin	TCM Pin	Wire Color
2.5L 4EAT	CKP1	ЗE	56	1 N	LG/O

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TEST STEP	RESULT		ACTION TO TAKE
 CKP1-1 CHECK CKP1 SIGNAL Key OFF. Install 4EAT Tester (connect TCM). Measure the voltage at 4EAT Tester CKP1 Pin while bumping starter. Does the voltage alternate between approximately 0 volts and 5 volts? 	Yes		CKP1 circuit OK. If sent to this test by Quick Test Step QT11 in Section 5B, RETURN to Section 2B, Diagnostic Routines. Otherwise, REPLACE the TCM.
	No		GO to CKP1-2.
 Key OFF. Disconnect the 6-pin distributor connector. Key ON. Measure the voltage at the VPWR wire on the 6-pin distributor harness connector. Is the voltage greater than 10 volts? 	Yes No	A A	GO to CKP 1-3. GO to EEC Pinpoint Test VPWR in this section. If VPWR is OK, SERVICE the VPWR wire to distributor.
 CKP1-3 CHECK GROUND AT DISTRIBUTOR Key OFF. Disconnect the 6-pin distributor connector. Measure the resistance of the GND wire between the 6-pin distributor harness connector and ground. Is the resistance less than 5 ohms? 	Yes No		GO to CKP 1-4 . SERVICE the distributor GND wire.
 CKP1-4 CHECK CKP1 WIRE FOR OPEN Key OFF. Install 4EAT Tester (leave TCM disconnected). Disconnect the 6-pin distributor connector. Measure the resistance of the CKP1 wire between 4EAT Tester CKP1 Pin and the CKP1 wire at the 6-pin distributor harness connector. Is the resistance less than 5 ohms? 	Yes No		GO to CKP 1-5 . SERVICE the CKP 1 wire for open.
 CKP1-5 CHECK CKP1 WIRE FOR SHORT Key OFF. Disconnect the PCM connectors. Install 4EAT Tester (leave TCM disconnected). Disconnect the 6-pin distributor connector. Measure the resistance of the CKP1 wire between 4EAT Tester CKP1 Pin and ground. Is the resistance greater than 10,000 ohms? 	Yes No		REPLACE the distributor. SERVICE the CKP 1 wire for short.

2.5L 4EAT

CKP1



TEST S	TEP	RESULT		ACTION TO TAKE
CTS1 CHECK CTS SIGNAL				
 Key OFF. Install 4EAT Tester Run engine and mo sensor using Rotun Pyrometer 055-00 Measure the voltage during the following 	Yes		CTS circuit OK. RETURN to Section 2B, Diagnostic Routines. GO to CTS2 .	
Condition	Voltage			
Coolant temperature above 60°C (140°F)	Battery voltage			
Coolant temperature below 60°C (140°F)	Less than 1 volt			
 Are the voltages ()K?			
CTS2 CHECK CTS WIRE FO	ROPEN			
 Key OFF. Install Breakout Box (leave PCM disconnected). Install 4EAT Tester (leave TCM disconnected). Measure the resistance between BOB Pin 52 and 4EAT Tester Pin 1N. Is the resistance less than 5 ohms? 		Yes No	A A	GO to CTS3 . SERVICE the CTS wire for open.
CTS3 CHECK CTS WIRE FO	R SHORT	_		
 CTS3 CHECK CTS WIRE FOR SHORT Key OFF. Install Breakout Box (leave PCM disconnected). Install 4EAT Tester (leave TCM disconnected). Measure the resistance between BOB Pin 52 and ground. 		Yes No	* *	REPLACE the PCM. SERVICE the CTS wire for short.

1.6L 4EAT

CTS

ohms?

2.5L 4EAT



Duty Cycle Solenoid (DCS) — 2.5L 4EAT

Note

You should enter this Pinpoint Test only when diagnostic trouble code 65 or 66 is received in Quick Test Steps 7 or 8, or when Quick Test Step 11 directs you here.

Remember

This Pinpoint Test is intended to diagnose only the following:

Circuits: Torque Converter Clutch (TCC) Solenoid, Line Pressure Solenoid (LPS)

Description

The TCC solenoid and LPS are controlled by the Powertrain Control Module (PCM) to ensure proper transaxle shifting.



2.5L 4EAT SOLENOID HARNESS CONNECTOR



A16751-D

4EAT Pinpoint Tests		2.	5L 4EA	Т		DCS		
Data Sł	neet			CUEET				
		PCM	BOB		тсм	w	ire	Diagnostic
Engine	Circuit	Pin	Pin		Pin	<u> </u>		Trouble Code
2.5L 4EAT	LPS	NA NA			20 2N	R/	GN_	66
	TEST ST	EP			RESULT		ACTIO	ON TO TAKE
DCS1 CHECK	SOLENOID VOL	TAGE						
 Measure the voltage between the 4EAT Tester solenoid Pin and ground using a digital voltmeter. Drive the vehicle to verify the voltage in the following chart. 			T Tester I in the				Quick 1 in Sect to Sect Diagno Otherw the TC	Test Step QT1 ion 5B, RETUR tion 2B, stic Routines. vise, REPLACE M.
Solenoid	Condition	Approx. Voltage	e (volts)	No			GO to [DCS2
тсс	Slip lockup Complete lockup	5 Greater than 1	0 volts					<u> </u>
LPS	Throttle fully closed Throttle fully open	8 1-2 volts	3					
● lsth	e voltage within	specifications	 >					
DCS2 CHECK • Key • Instr • Mea Test • Is th	SOLENOID RES OFF. all 4EAT Tester (f isure the resistant ter solenoid Pin a the resistance be	ISTANCE leave TCM discom nce between the 4 and ground. stween 9-18 ohm	inected). 4EAT s?	Yes No			GO to [GO to [DCS4. DCS3.
DCS3 CHECK Key Insta Disc tran Mea wire the	FOR OPEN WIR OFF. all 4EAT Tester (connect the soler saxle. asure the resista on the solenoid 4EAT Tester sole	ES leave TCM discom noid connector at nce between the s harness connect enoid Pin.	inected). the solenoid or and	Yes No		•	REPLA soleno SERVIO questio	CE the id. CE the wire(s) i on for open.

4EAT Pinpoint Tests

2.5L 4EAT

TEST STEP		RESULT		ACTION TO TAKE
DCS4	 CHECK FOR SHORT TO GROUND IN WIRES Key OFF. Install 4EAT Tester (leave TCM disconnected). Disconnect the solenoid connector at the transaxle. Measure the resistance between the 4EAT Tester solenoid Pin and ground 	Yes	• •	REPLACE the TCM. SERVICE the wire(s) in question for short.
	 Is the resistance greater than 10,000 obms? 			

4EAT Pinpoint Tests	1.6L 4EAT 2.5L 4EAT	ODL
Overdrive OFF Lamp (ODL) — 1.6L 4EAT, 2.5L 4EA Note You should enter this Pinpoint Test only when Quick Te	NT st Step 11, or Quick Test Append	dix, or the
Service Manual direct you here. Remember This Pinpoint Test is intended to diagnose only the following: • Circuit: ODL Description		
The ODL is an indicator in the instrument cluster used to sign a button on the transaxle selector lever. Pinpoint Test Schematic	al the driver when overdrive is off. I	t is controlled by
TO OVERDRA LIGHT IN THE CLUSTER 1.6L 4EAT INSTRUMENT CLUSTER HARNESS CONNECTOR		A16516-D

ODL

1.6L 4EAT

2.5L 4EAT

4EAT Pinpoint Tests

CIRCUIT DATA SHEET

Engine	Circuit	PCM Pin	BOB Pin	TCM Pin	Wire Color
1.6L 4EAT	ODL	NA	NA	1B	BL/W(P/O)
2.5L 4EAT	ODL	NA	NA	1B	PK/GN (BR/Y)

() Denotes wire color at instrument cluster.

TEST STEP	RESULT		ACTION TO TAKE
ODL1 CHECK ODL SIGNAL			
 Key OFF. Install 4EAT Tester (leave TCM disconnected). Key ON. Ground 4EAT Tester Pin ODL. Does the overdrive OFF lamp illuminate? 	Yes		If sent to this test by Quick Test Step QT11, RETURN to Diagnostic Routines. Otherwise, GO to 4EAT Pinpoint Test PGC. GO to ODL2.
ODL2 CHECK ODL WIRE FOR OPEN			
Key OFF.	Yes		GO to ODL3.
 Install 4EAT Tester (leave TCM disconnected). Disconnect the 16-pin (2.5L 4EAT) or 12-pin (1.6L 4EAT) instrument cluster connector. Measure the resistance between 4EAT Tester Pin ODL and the ODL wire terminal at the instrument cluster harness connector. Is the resistance less than 5 ohms? 	No		SERVICE the ODL wire for open.
ODL3 CHECK ODL WIRE FOR SHORT			
 Key OFF. Install 4EAT Tester (leave TCM disconnected). Disconnect the 16-pin (2.5L 4EAT) or 12-pin (1.6L 4EAT) instrument cluster connector. Measure the resistance between 4EAT Tester Pin ODL and ground. Is the resistance greater than 10,000 	Yes No	•	REPLACE the overdrive (O/D) OFF lamp bulb. SERVICE the ODL wire for short.





4EAT Pinpoint Tests	All 4EAT	PGC
Power and Ground Connections (PGC)		
Note		
You should enter this Pinpoint Test only when directs you here.	n Quick Test Step 11 or 4EAT Pinpo	oint Test ODL or STO
Remember		
This Pinpoint Test is intended to diagnose only the	following:	
Circuits: KAPWR, GND	U	
Ground Connection		
BOB PIN O	······································	
Power Connection		
BOB PIN O BATTERY -	<u>-</u>	
	-OR-	
	VPWR (HOT WITH KEY ON)	A14159-A

			CIRCUIT DA	TA SHEET			
Circuit	Engine	PCM Pin	BOB Pin	PCM Wire Color	TCM Pin	TCM Wire Color	Connect To
Keep Alive Power (KAPWR)	1.6L 4EAT 1.8L 4EAT 2.5L 4EAT	3J 1A 1A	1 1 1	BL/R BL/R BL/R	20 NA 20	BL/R NA BL/R	(Battery +)
Ground (GND)	1.6L 4EAT	2R 3A 3G	49 20 40	BK BK BK	2P	ВК	Ground
	1.8L 4EAT	3A 3B 3C	40, 60 20 49	BK/O BK/O BK/LG	NA	NA	
	2.5L 4EAT	3A 3B 3C 3D	40, 60 20 49 46	BK BK BK/R BK/BL	2P	BK/R	
	TEST	STEP		RE	ESULT		ON TO TAKE
• Ki • In 2. di • M Pi • Is vo	ey OFF. stall 4EAT Teste 5L 4EAT] or PC sconnected). easure the volta n. the voltage ap oltage?	er (leave TCM M [1.8L 4EAT age at 4EAT T oproximately	[1.6L 4EAT,] ester KAPWR battery	Yes No		 GO to CHECI fuse. If SERVI wire for not Oker replace the sh 	PGC2. K the ROOM f fuse is OK, CE the KAPWI or open. If fuse and fails after ement, SERVI ort.
 PGC2 CHECK GROUNDS Key OFF. Install 4EAT Tester (leave TCM [1.6L 4EAT, 2.5L 4EAT] or PCM [1.8L 4EAT] disconnected). Measure the resistance between each 4EAT Tester GND Pin as indicated in Data Sheet, and ground. Are the resistances less than 5 ohms? 			Yes		KAPW conne to this Test S Section to Section Diagno sent to	R and GND ctions OK. If se test by Quick tep QT11 in on 5B, RETURN tion 2B, ostic Routines o this test by	

	point Te	sts	2.5L 4	EAT	PNPS
Park/Neutral Po	osition Sensor	(PNPS) — 2.5L 4	EAT		
Note					
(ou should enter) Iere.	this Pinpoint Te	st only when Quick	Test Step 11, or	the Service Manu	ai directs you
Rememb	er				
۲his Pinpoint Test i:	s intended to diag	nose only the follow	ing:		
Circuit: PNPS	_	•			
Descripti					
Descripti	ion				
Descripti	ION				
The PNPS detects	whether the vehic	cle is in the PARK or	NEUTRAL position		
The PNPS detects	whether the vehic	cle is in the PARK or	NEUTRAL position		
Pinpoint	whether the vehic	cle is in the PARK or ematic	NEUTRAL position		
Pinpoint	whether the vehic Test Sch	cle is in the PARK or ematic	NEUTRAL position		
Pinpoint	whether the vehic Test Sch	cle is in the PARK or ematic	NEUTRAL position		
Pinpoint	whether the vehic Test Sch	cle is in the PARK or ematic	NEUTRAL position	2.5L 4EAT TRANSAXLE	
Descripti The PNPS detects Pinpoint	whether the vehic Test Sch	cle is in the PARK or ematic	NEUTRAL position	2.5L 4EAT TRANSAXLE CONTROL MODULE (TCM)	
Description The PNPS detects Pinpoint	Test Sch	cle is in the PARK or ematic	NEUTRAL position	2.5L 4EAT TRANSAXLE CONTROL MODULE (TCM)	
Pinpoint	whether the vehic Test Sch	cle is in the PARK or ematic	NEUTRAL position	2.5L 4EAT TRANSAXLE CONTROL MODULE (TCM)	A16616 1
Descripti The PNPS detects Pinpoint	whether the vehic Test Sch	cle is in the PARK or ematic	NEUTRAL position	2.5L 4EAT TRANSAXLE CONTROL MODULE (TCM)	A16515-E
Pinpoint	Test Sch	cle is in the PARK or ematic	NEUTRAL position	2.5L 4EAT TRANSAXLE CONTROL MODULE (TCM)	A16515-E
Description of the PNPS detects Pinpoint Description of the PNPS detects Pinpoint Data She		cle is in the PARK or ematic	NEUTRAL position	2.5L 4EAT TRANSAXLE CONTROL MODULE (TCM)	A16515-E
Description The PNPS detects Pinpoint		CIRCUIT D		2.5L 4EAT TRANSAXLE CONTROL MODULE (TCM)	A16515-E
Description The PNPS detects Pinpoint Data She		CIRCUIT DA	NEUTRAL position	2.5L 4EAT TRANSAXLE CONTROL MODULE (TCM)	A16515-E
Description The PNPS detects Pinpoint Data She Engine 2.5L 4EAT	Test Sch	CIRCUIT D	NEUTRAL position	2.5L 4EAT TRANSAXLE CONTROL MODULE (TCM)	A16515-E Wire Color
Descripti The PNPS detects Pinpoint Data She 2.5L 4EAT	whether the vehic Test Sch Test PIN O et	CIRCUIT D	NEUTRAL position	2.5L 4EAT TRANSAXLE CONTROL MODULE (TCM)	A16515-E Wire Color LG/BK
Descripti The PNPS detects Pinpoint Data She Engine 2.5L 4EAT	whether the vehic Test Sch Test PIN O et	CIRCUIT DATE	NEUTRAL position	2.5L 4EAT TRANSAXLE CONTROL MODULE (TCM)	A16515-B Wire Color LG/BK

•

6B-167

4EAT Pinpoint Tests

2.5L 4EAT



- 6		
	•	

	TEST	STEP	RESULT		ACTION TO TAKE
PNPS1	 CHECK PNPS SIGNAL Key OFF. Install Breakout Bo Key ON. Measure the voltager ground with the sepositions: 	ox (connect PCM). ge between BOB Pin 30 and lector lever in the following	Yes No	•	RETURN to Section 2B, Diagnostic Routines. GO to PNPS2 .
	Selector Lever Position P or N	Voltage (volts)			
	R, D, 2, or 1	Greater than 10 volts			
 Are the voltages OK? PNPS2 CHECK PNPS WIRE FOR OPEN Key OFF. Install Breakout Box (leave PCM disconnected). Install 4EAT Tester (leave TCM disconnected). Measure the resistance between BOB Pin 30 and 4EAT Tester Pin 1D. Is the resistance lease than 5 ohma? 			Yes No		GO to PNPS3 . SERVICE the PNPS wire for open.
PNPS3	 CHECK PNPS WIRE F Key OFF. Install Breakout Bo disconnected). Install 4EAT Tester Measure the resist and ground. Is the resistance of ohms? 	OR SHORT ox (leave PCM (leave TCM disconnected). ance between BOB Pin 30 greater than 10,000	Yes No		REPLACE the TCM. SERVICE the PNPS wire for short.

	All 4EAT	PSG
Pulse Signal Generator (PSG)		
You should enter this Pinpoint Test only when diagno Steps 7 or 8, or when Quick Test Step 11 directs you Remember	ostic trouble code 55 is receive I here.	ed in Quick Test
 This Pinpoint Test is intended to diagnose only the followir Circuits: PSG+, PSG- 	ng:	
Description The PSG is used to signal the Powertrain Control Module (transaxle speed for proper shifting.	(PC M) or Transaxle Control Modu	le (TCM) of the
Pinpoint Test Schematic		
	1.6L 4EAT PULSE SIGNAL GENER HARNESS CONNECTOR	ATOR
		+

Da	ta She	et							
				CIRCUIT DA	TA SHEET				
E	Engine	Circu	it	PCM Pin	BOB Pir	n	TCM Pir	า	Wire Color
1.6L 4EAT PSG+ PSG-		-	NA NA	NA NA		2J 2L		GN Y/BL	
1.5	8L 4EAT	PSG- PSG-	-	2M 2N	23 NA		NA NA		W/BL Y/BL
2.	5L.4EAT	PSG- PSG-	-	NA NA	NA NA		2J 2L		W R
		TEST S	TEP			RESULT		AC	ΓΙΟΝ ΤΟ ΤΑΚΕ
	Key OFF. Install 4EAT Tester. Measure the AC voltage between 4EAT Tester Pins PSG+ and PSG- in the following conditions: Voltage Condition (AC volts)			Yes			If ser Quic in Se to Se Diag Othe the T 4EAT	nt to this test by k Test Step QT11 oction 5B, RETURN ection 2B, nostic Routines. rwise, REPLACE CM (PCM on 1.8L r).	
Engir Engir in PA	ne off ne running .RK, 1/4 throttl	e		0.1 - 1.5	No			GO t	o PSG2 .
	• Are the	AC voltage	e readir	ngs correct?					
PSG2	CHECK PUL RESISTANC Key OFF Install 48 2.5L 4E/ disconne Measure Pins PSC Is the re (1.6L 4E (2.5L 4E/	SE SIGNA E EAT Tester AT] or PCM ected). the resist G+ and PS sistance to AT, 1.8L 4 EAT)?	(leave (leave [1.8L 4 ance be G between EAT) of	RATOR TCM [1.6L 4EAT, EAT] etween 4EAT Tester n 200-600 ohms r 253-604 ohms	Yes No		• •	GO ti GO ti	o PSG4). o PSG3 .



TEST STEP

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 RESI	JLT	ACTIC	N TO TAKE

PSG3	CHECK WIRES FOR OPEN		
	 Key OFF. Install 4EAT Tester (leave TCM [1.6L 4EAT, 2.5L 4EAT] or PCM [1.8L 4EAT] disconnected). Disconnect the PSG connector. Measure the resistance between 4EAT Tester Pin PSG+ and the PSG+ terminal at the PSG harness connector. Measure the resistance between 4EAT Tester Pin PSG- and the PSG- terminal at the PSG harness connector. Are the resistances less than 5 ohms? 	Yes No	REPLACE the pulse signal generator. SERVICE the wire(s) for open.
PSG4	CHECK WIRES FOR SHORT		
	 Key OFF. Install 4EAT Tester (leave TCM [1.6L 4EAT, 	Yes 🕨	REPLACE the pulse signal generator.
	 2.5L 4EAT] or PCM [1.8L 4EAT] disconnected). Disconnect the PSG connector. Measure the resistance between 4EAT Tester Pin PSG+ and ground. Is the resistance greater than 10,000 	No	SERVICE the wire for short.
	ohms?	l	

PSG

All 4EAT

.

B-172	EEC Pinpoint Tests (Includ	les 4EAT Pinpoint To
4EAT Pinpoint Tests	2.5L 4EAT	RTS1
Reduce Torque Signal No. 1 (RTS1) — 2.5L 4	EAT	
Note		
You should enter this Pinpoint Test only when diag Step 7 or 8, or when Quick Test Step 11 directs yo	gnostic trouble code 57 is receive ou here.	ed in Quick Test
Remember		
This Pinpoint Test is intended to diagnose only the follo	wing:	
Circuit: RTS1		
Description		
The RTS1 is used by the PCM for proper transaxle shift	fting.	
Pinpoint Test Schematic		
TEST PIN O RTS1	1J	M)
	L	A16518-

Data Sheet

CIRCUIT DATA SHEET

Engine	Circuit	PCM Pin	BOB Pin	TCM Pin	Wire Color
2.5L 4EAT	RTS1	1S	8	1J	GN

2.5L 4EAT

RTS1

	TEST STEP	RESULT	\blacktriangleright	ACTION TO TAKE
RTS1-1	CHECK RTS1 SIGNAL			
	 Key OFF. Install Breakout Box (connect PCM). Key ON, engine running. Drive the vehicle to verify that voltage at BOB Pin 8 drops from greater than 10 volts to less than 1 volt during 1-2, 2-3 shift with throttle opening greater than 1/2. Does the voltage drop during upshift? 	Yes	•	If sent to this test by Quick Test Step QT11 in Section 5B, RETURN to Section 2B, Diagnostic Routines. Otherwise, REPLACE the TCM. GO to RTS1-2.
RTS1-2	CHECK RTS1 WIRE FOR OPEN			
	 Key OFF. Install Breakout Box (leave PCM disconnected). Install 4EAT Tester (leave TCM disconnected). Measure the resistance between BOB Pin 8 and 4EAT Tester Pin 1J. Is the resistance less than 5 ohms? 	Yes No	• •	GO to RTS 1-3 . SERVICE the RTS 1 wire for open.
RTS1-3	CHECK RTS 1 WIRE FOR SHORT			
	 Key OFF. Install Breakout Box (leave PCM disconnected). Install 4EAT Tester (leave TCM disconnected). Measure the resistance between BOB Pin 8 and ground. Is the resistance greater than 10,000 ohms? 	Yes No		REPLACE the TCM. SERVICE the RTS 1 wire for short.

2.5L 4EAT

Reduce Torque Signal No. 2 (RTS2) — 2.5L 4EAT Note You should enter this Pinpoint Test only when diagnostic trouble code 58 is received in Quick Test Step 7 or 8, or when Quick Test Step 11 directs you here. Remember This Pinpoint Test is intended to diagnose only the following: Circuit: RTS2 **Pinpoint Test Schematic** 2.5L 4EAT TRANSAXLE CONTROL MODULE (TCM) TEST PIN - RTS2 1L A16519-B **Data Sheet CIRCUIT DATA SHEET** PCM Pin **BOB Pin** TCM Pin Wire Color Engine Circuit 2.5L 4EAT RTS2 1V 11 1L LG/W TEST STEP RESULT **ACTION TO TAKE** RTS2-1 CHECK RTS2 SIGNAL Key OFF. Yes If sent to this test by • Quick Test Step QT11 Install Breakout Box (connect PCM). • in Section 5B, RETURN Key ON, engine running. • • Drive the vehicle to verify that voltage at BOB to Section 2B, Diagnostic Routines. Pin 11 drops from greater than 10 volts to less Otherwise, REPLACE than 1 volt during downshifting (except 4-3 the PCM. shift) with throttle opening greater than 1/2. Does the voltage drop during downshift? GO to RTS2-2 No

4EAT Pinpoint Tests



RTS2



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TEST STEP	RESULT	ACTION TO TAKE
RTS2-2 CHECK RTS2 WIRE FOR OPEN		
Key OFF.	Yes	GO to RTS2-3.
 Install Breakout Box (leave PCM disconnected). Install 4EAT Tester (leave TCM disconnected). Measure the resistance between BOB Pin 11 and 4EAT Tester Pin 1L. Is the resistance less than 5 ohms? 	No	SERVICE the RTS2 wire for open.
RTS2-3 CHECK RTS2 WIRE FOR SHORT		
Key OFF.	Yes	REPLACE the TCM.
 Install Breakout Box (leave PCM disconnected). Install 4EAT Tester (leave TCM disconnected). Measure the resistance between BOB Pin 11 and ground. Is the resistance greater than 10,000 	No	SERVICE the RTS2 wire for short.

2.5L 4EAT

RTS2



4EAT P	inpoint 1	ſests		A	I 4EAT			SCP
Data Sh NOTE: The Brd switch position	eakout Box Ada is in the correct n is given then sy	pter T92C-6000 position for each witch can be in e	-AH has an h test step, a ither positio	A/B po as spec n.	sition selecto ified in the Cir	r switch rcuit Da	n. Make ta Sheet	sure that the t. If no switch
		CIR	CUIT DATA	SHEET	г			
Engine	Circuit	PCM Pin	Breakou Box Pin	t	TCM	W	/ire olor	Diagnostic Trouble Cor
1.6L 4EAT	SS1 SS2 SS3 TCCC	NA NA NA NA	NA NA NA NA		2E 2G 2I 2K	BL	-/O -/Y O BL	60 61 62 63
1.8L 4EAT	SS1 SS2 SS3 TCCC	3W 3X 3Y 3Z	12 13 14 15		NA NA NA NA	BI BI	_/O _/Y 0 BL	60 61 62 63
2.5L 4EAT	SS1 SS2 SS3 TCCC DSS	NA NA NA NA	NA NA NA NA		2E 2G 2I 2K 2M	BL GN BL R	BL /BK /BK ./W /W	60 61 62 63 64
	TEST ST	EP			RESULT		ACTIC	ON TO TAKE
SCP1 PERFOR Key C Insta 2.5L and b Apply of the Pin fo Liste Does appli	M SCP CLICK T DFF. II 4EAT Tester (le 4EAT] or PCM [1 bring tester to the y 12 volts to the solenoid in que or 12V. n for a "click" at a the solenoid " ed?	EST eave TCM [1.6L + .8L 4EAT] disco e engine compar 4EAT Tester sole stion. Use the B the transaxle. click" when 12	4EAT, nnected) tment. enoid Pin ATTERY volts are	Yes			Soleno If sent f Quick T in Sect to Sect Diagno Otherw the TCl 4EAT). GO to 9	id function OK to this test by Test Step QT ion 5B, RETUR ion 2B, stic Routines vise, REPLAC M (PCM for 1.4
SCP2 CHECK	SCP RESISTANC	;E						
 Key 0 Insta 2.5L disco Meas Teste 	DFF. II 4EAT Tester (Id 4EAT] or PCM [1 onnected). sure the resistan er solenoid Pin of	eave TCM [1.6L .8L 4EAT] ce between the f the solenoid in	4EAT, 4EAT question	Yes No			GO to GO to	SCP4. SCP3.

EEC Pinpoint Tests (Includes 4EAT Pinpoint Tests)

.

4EAT Pinpoint Tests

All	4EAT
AII	4CAI

SCP

	TEST STEP	RESULT	►	ACTION TO TAKE
SCP3	CHECK SOLENOID WIRES FOR OPEN			
	 Key OFF. Install 4EAT Tester (leave TCM [1.6L 4EAT, 2.5L 4EAT] or PCM [1.8L 4EAT] disconnected). Disconnect the 4EAT solenoid connector at the transaxle. 	Yes		INSPECT/TEST internal wiring and REPAIR if necessary. Otherwise, REPLACE the solenoid in question.
	 Inspect the wiring harness and connector for possible damage or corrosion. Measure the resistance between the terminal of the solenoid in question at the 4EAT solenoid harness connector and the 4EAT Tester solenoid Pin. Is the resistance less than 5 ohms? 	No		SERVICE the wire of solenoid in question for open.
SCP4	CHECK SOLENOID WIRES FOR SHORT			
	 Key OFF. Install 4EAT Tester (leave TCM [1.6L 4EAT, 	Yes		REPLACE the solenoid.
	 2.5L 4EAT] or PCM [1.8L 4EAT] disconnected). Disconnect the 4EAT solenoid connector at the transaxle. Measure the resistance between the 4EAT Tester solenoid Pin of the solenoid in question and all other 4EAT Tester Pins. Is the resistance between the 4EAT Tester solenoid Pin and all other 4EAT Tester Pins greater than 10,000 ohms? 	No		SERVICE the wire of solenoid in question for short.



4EAT Pinpoint Tests	All 4EAT	STG
Switch To Ground (STG)		

Note

You should enter this Pinpoint Test only when Quick Test Step 11 or the Switch Monitor Test Chart directs you here.

Remember

This Pinpoint Test is intended to diagnose only the following:

Circuits: IDL (Idle switch), ODS (Overdrive Off Switch)

Description

When the throttle plate is closed, an idle condition occurs. The Idle (IDL) switch detects this position and notifies the Powertrain Control Module (PCM) with an input signal so adjustments to the engine can be made, including air / fuel ratio and idle speed.

NOTE: The IDL is integrated into the Throttle Position (TP) sensor for the 1.6L, 1.8L, and 2.5L engines.

1.8L

1.6L





TEST S	RESULT		ACTION TO TAKE	
STG1 CHECK SWITCH SIGN	AL			
 Key OFF. Install 4EAT Tester 2.5L 4EAT] or PCM disconnected). Disconnect the PCI Measure the resists switch Pin of the sw ground. Exercise switch as 	Yes		Switch circuit OK. If sent to this test by Quick Test Step QT9 in Section 5B, RETURN to Section 2B, Diagnostic Routines. If sent to this test by Switch Monitor Test, REPLACE the TCM	
Switch	Continuity			or the PCM (1.8L
Open	No			4EAT).
Closed	Yes	No		GO to STG2
Is the continuity set	witching?			
STG2 CHECK SWITCH OPER	STG2 CHECK SWITCH OPERATION			
Key OFF.	Key OFF.			GO to STG3.
 question. Measure the resistaterminals on multiple between switch terpin switch connected Exercise switch as 	ance between switch e pin switch connectors, or minal and ground on single ors. indicated in Data Sheet.			
Switch	Continuity			
Open	No			
Closed	Yes	J		
Is the continuity set	witching?			
STG3 CHECK SWITCH WIRE	FOR SHORT			
 Key OFF. 		Yes		GO to STG4
 Install 4EAT Tester 2.5L 4EAT] or PCM disconnected). Disconnect the con question. Measure the resists owitch Bin and group 	Νο		SERVICE the switch wire for shorts.	
 Is the resistance g ohms? 	reater than 10,000			

All 4EAT

STG

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All 4EAT

4EAT Pinpoint Tests

TEST STEP	RESULT		ACTION TO TAKE	
STG4 CHECK SWITCH WIRE FOR OPEN				
 Key OFF. Install 4EAT Tester (leave TCM [1.6L 4EAT, 2.5L 4EAT] or PCM [1.8L 4EAT] disconnected). Disconnect the connector of the switch in question. Measure the resistance between 4EAT Tester switch Pin and the switch wire at the switch harness connector. Is the resistance less than 5 ohms? 	Yes	•	SERVICE the ground wire at switch connector for opens. SERVICE the switch wire for opens.	



4CAI MI	point Tes	sts	All 4E	AT	STI
Self-Test Input (STI)				
Note					
ou should enter	this Pinpoint Tea	st only when Quick	Test Step 6 dire	cts you here.	
Rememb	er				
This Pinpoint Test is	s intended to diag	nose only the followi	ng:		
Circuit: STI					
Pinpoint	Test Sch	ematic			
				1.6L 4EAT TCM STI CONNECTOR	
TEST PIN O	STI	0		TCM STI	
TEST PIN O	STI			STI CONNECTOR 1.6L 4EAT TCM STI CONNECTOR CM STI 2.5L ONLY) .8L 4EAT AND 2.5L 4 DATA LINK CONNECT	EAT FOR A17995-
TEST PIN O-	sti			STI CONNECTOR 2.5L ONLY .8L 4EAT AND 2.5L 4 DATA LINK CONNECT	EAT FOR A17995-
TEST PIN O-	sti			I.6L 4EAT TCM STI CONNECTOR CM STI 2.5L ONLY) 8L 4EAT AND 2.5L 4 DATA LINK CONNECT	EAT FOR A17995-
TEST PIN O-	et		TA SHEET BOB Pin	TCM Pin	EAT FOR A17995-
TEST PIN O- Data She Engine 1.6L 4EAT	et Circuit	CIRCUIT DA	ATA SHEET BOB Pin NA	CM STI 2.5L ONLY) .8L 4EAT AND 2.5L 4 DATA LINK CONNECT	EAT FOR A17995-
TEST PIN O Data She 1.6L 4EAT 1.8L 4EAT	et Circuit STI STI	CIRCUIT DA PCM Pin NA 11	ATA SHEET BOB Pin NA 48	TCM Pin 1.6L 4EAT TCM STI CONNECTOR CM STI 2.5L ONLY) 8L 4EAT AND 2.5L 4 DATA LINK CONNECT	EAT FOR A17995- Wire Color R/BK LG/Y

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EEC Pinpoint Tests (Includes 4EAT P	inpoint	Tests
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All 4EAT

4EAT Pinpoint Tests

	TEST STEP	RESULT		ACTION TO TAKE
STI1	CHECK STI WIRE FOR OPEN			
	• Key OFF.	Yes		GO to STI2.
	 Install 4EAT Tester (leave TCM [1.6L 4EAT, 2.5L 4EAT] or PCM [1.8L 4EAT] disconnected). Measure the resistance between 4EAT Tester Pin STI and TCM STI terminal (1.6L 4EAT, 2.5L 4EAT) or PCM STI terminal (1.8L 4EAT). Is the resistance less than 5 ohms? 	No		SERVICE the wire for open.
STI2	CHECK STI WIRE FOR SHORT			
	 Key OFF. Install 4EAT Tester (leave TCM [1.6L 4EAT, 2.5L 4EAT] or PCM [1.8L 4EAT] 	Yes		GO to 4EAT Pinpoint Test STO in this section.
	 disconnected). Measure the resistance between 4EAT Tester Pin STI and ground. 	No	•	SERVICE the wire for short.
	 Is the resistance greater than 10,000 ohms? 			





STI

4EAT Pinpoint Tests	All 4EAT	STO

Self-Test Output (STO)

Note

You should enter this Pinpoint Test only when Quick Test Step 10 or 4EAT Pinpoint Test STI direct you here.

Remember

This Pinpoint Test is intended to diagnose only the following:

• Circuit: STO



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EEC Pinpoint Tests (Includes 4EAT Pinpoint Tests)

All 4EAT

	TEST STEP	RESULT		ACTION TO TAKE
STO1	CHECK STO WIRE FOR OPEN			
	 Key OFF. Install 4EAT Tester (leave TCM [1.6L 4EAT, 2.5L 4EAT] or PCM [1.8L 4EAT] disconnected). Measure the resistance between 4EAT Tester Pin STO and data link connector TCM STO terminal (1.6L 4EAT, 2.5L 4EAT) or PCM STO terminal (1.8L 4EAT). Is the resistance less than 5 ohms? 	Yes No	* *	GO to STO2 . SERVICE the wire for open.
STO2	CHECK STO WIRE FOR SHORT			
	 Key OFF. Install 4EAT Tester (leave TCM [1.6L 4EAT, 2.5L 4EAT] or PCM [1.8L 4EAT] 	Yes		GO to 4EAT Pinpoint Test PGC in this section.
	 disconnected). Measure the resistance between 4EAT Tester Pin STO and ground. Is the resistance greater than 10,000 ohms? 	No		SERVICE the wire for short.

4EAT Pinpoint Tests



4EAT Pinpoin	t Tests	All 4EAT	STP
Switch To Power (STP)			
Note			
You should enter this Pin direct you here.	point Test only when Quick Te	st Step 11 or the Switch Monito	or Test Chart
Remember			
 This Pinpoint Test is intende Circuits: MLP (Manual Le MLPR (Reverse Range). 	ed to diagnose only the following: over Position), MLPD (Drive Rang MLP1 (First Range), MLP2 (Sec	e), MLPL (Low Range), MLPOD ((ond Range), BOO (Brake ON/OFF	Overdrive Range), ⁻ Switch)
Description			
The Brake On / Off (BOO) s Powertrain Control Module	witch detects when the brake pe (PCM). The PCM uses this inforn	dal is depressed and sends an inpu nation to control fuel injection amou	ut signal to the Int.
2.5L	1.	6L, 1.8L	
	A16840-A		
			A14042-A
	Engine 1.6L, 1.8L, Mounted at top of 2.5L	Location brake pedal.	

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6B-187

6B-188

4EAT Pinpoint Tests	All 4EAT	STP	

The Manual Lever Position (MLP) switch serves as a dual purpose switch. One purpose of the MLP switch is to notify the PCM when the vehicle is in the PARK or NEUTRAL position for vehicle starting. A voltage signal is sent to the PCM only in these two positions. The second purpose of the MLP switch is to detect when the selector lever has been placed in the R, D, 2, or 1 range on 1.6L and 2.5L vehicles or in the R, \bigcirc , D, or L range on 1.8L vehicles. If the selector lever is placed in any of these positions, a voltage signal is sent to the TCM (1.6L and 2.5L) or the PCM (1.8L) to control the transaxle.

1.6L 4EAT, 1.8L 4EAT

2.5L 4EAT





A16771-A

Engine	Location
1.6L 4EAT, 1.8L 4EAT, 2.5L 4EAT	Mounted to the top front portion of the automatic transaxle.



			CIR	CUIT DAT	SHEET (C	Cont'd)		
Switch	Abbrev.	Engine	PCM Pin	BOB Pin	TCM Pin	Wire Color	Switch Exercise	Switch To
Manual Lever Pos. ''1'' range	MLP1	1.6L 4EAT 2.5L 4EAT	NA NA	NA NA	2H 2H	Y/W BL/O	Close switch in 1 range only	Battery voltage with key ON and switch closed
Manual Lever Pos. ''2'' range	MLP2	1.6L 4EAT 2.5L 4EAT	NA NA	NA NA	2F 2F	Y/R GN/W	Close switch in 2 range only	Battery voltage with key ON and switch closed
Brake ON/OFF	BOO	1.6L 4EAT 1.8L 4EAT 2.5L 4EAT	1J 1Q 1Q	3 2 2	1F NA 1F	W/GN GN W/GN	Close switch by depressing brake pedal	Battery voltage with switch closed
Manual Lever Pos. ''OD'' range	MLPOD	1.8L 4EAT	ЗE	56	NA	Y	Close switch in OD range only	Battery voltage with switch closed
Manual Lever Pos. ''L'' range	MLPL	1.8L 4EAT	3G	6	NA	Y/W	Close switch in L range only	Battery voltage with switch closed

TEST STEP	RESULT 🕨	ACTION TO TAKE
STP1 CHECK SWITCH SIGNAL		
 Key OFF. Install 4EAT Tester. Key ON. Measure the voltage between 4EAT Tester Pin of the switch in question and ground. Exercise switch as indicated in Data Sheet. Does the voltage switch from less than 1 volt to battery voltage? 	Yes	STP circuit OK. If sent here by Quick Test Step QT11 in Section 5B, RETURN to Section 2B, Diagnostic Routines. If sent here by Switch Monitor Test, REPLACE the TCM (1.6L 4EAT, 2.5L 4EAT) or the PCM (1.8L 4EAT).
	No (MLP for 2.5L 4EAT) No (all others)	GO to STP5 . GO to STP2 .

All 4EAT

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	TEST S	TEP	RESULT	►	ACTION TO TAKE
STP2	CHECK FOR POWER A	TSWITCH	_		
	 Key OFF. Disconnect the conquestion. Key ON. Measure the voltag connector. Is the voltage apprivoltage? 	nector of the switch in le at VPWR wire at switch roximately battery	Yes No		GO to STP3 . CHECK STOP fuse (BOO) or METER fuse (all others). REPLACE the fuse if blown. If the fuse blows after replacement, SERVICE the short. If fuse is OK, SERVICE the VPWR wire for open.
STP3	CHECK SWITCH RESIS	STANCE			
	 Key OFF. Disconnect the conquestion. Measure the resistaterminal and VPWR Exercise the switch Sheet. Does the resistant than 5 ohms and gohms? 	anector of the switch in ance between switch terminal at the switch. In as indicated in Data ce switch between less treater than 10,000	Yes No		GO to STP4 . REPLACE the switch in question.
STP4	CHECK SWITCH WIRE	FOR SHORT			
	 Key OFF. Install 4EAT Tester 2.5L 4EAT] or PCM disconnected). Disconnect the con question. Measure the resist switch Pin and grout Is the resistance grouts 	(leave TCM [1.6L 4EAT, [1.8L 4EAT] Inector of the switch in ance between 4EAT Tester Ind. Ireater than 10,000	Yes No	* *	SERVICE the wire for open. SERVICE the wire for short.
STP5	CHECK MLP SWITCH	(2.5L 4EAT)			
	 Key OFF. Disconnect the ML on the top of the tra Measure the resist terminal and the VS switch. Exercise the switch correct. 	P switch connector located ansaxle. ance between the MLP T terminal at the MLP n and verify resistances are	Yes No	•	SERVICE the MLP wire between TCM and MLP switch for open. REPLACE the MLP switch.
	Position	Resistance (ohms)			
N or F	þ	Less than 5			
R, D,	2, or 1	Greater than 10,000			
	• Are the resistance	es OK?			

STP

All 4EAT



1.8L 4EAT





4EAT Pi	npoint Tes	ts	1.8L 41	EAT	ΤΟΊ
Data Sho	eet				
		CIRCUIT	DATA SHEET		
Engine	Circuit	PCM Pin	BOB Pin	TCM Pin	Wire Color
1.8L 4EAT	TOT SIGRTN	2G 3A	50 40, 60	NA NA	W/BK BK/O
	RESISTANCE (KOHMS) 325 - 52 - 23 - 11 -		GRAPH		
	5 - 2 - 1 -	-40 0 20 -40 32 68 TEI	40 60 100 130 °C 104 140 212 266 °F MPERATURE	2	
	5 - 2 - 1 -	-40 0 20 -40 32 68 TE	40 60 100 130 °C 104 140 212 266 °F MPERATURE TANCE DATA SHEET	2	
	5 - 2 - 1 -	-40 0 20 -40 32 68 TEI TOT RESIST	40 60 100 130 °C 104 140 212 266 °F MPERATURE TANCE DATA SHEET °F KOHMS	7	
	5 - 2 - 1 -	-40 0 20 -40 32 68 TE TOT RESIST °C	40 60 100 130 °C 104 140 212 266 °F MPERATURE TANCE DATA SHEET °F KOHMS 40 325.50		
	5 - 2 - 1 -	-40 0 20 -40 32 68 TEI TOT RESIST °C -40	40 60 100 130 °C 104 140 212 266 °F MPERATURE TANCE DATA SHEET °F KOHMS 40 325.50 32 52.00		
	5 - 2 - 1 -	-40 0 20 -40 32 68 TER TOT RESIST °C -40	40 60 100 130 °C 104 140 212 266 °F MPERATURE TANCE DATA SHEET °F KOHMS 40 325.50 32 52.00 58 23.00 04 1100		
	5 - 2 - 1 -	-40 0 20 -40 32 68 TE TOT RESIST °C -40 -40 0 33 20 66 40 1 60 1	40 60 100 130 °C 104 140 212 266 °F MPERATURE *ANCE DATA SHEET °F KOHMS 40 325.50 32 52.00 58 23.00 04 11.00 40 5.60		
	5 - 2 - 1 -	-40 0 20 -40 32 68 TER TOT RESIST °C -40 0 33 20 66 40 1 60 1 100 2	40 60 100 130 °C 104 140 212 266 °F MPERATURE TANCE DATA SHEET °F kOHMS 40 325.50 32 52.00 58 23.00 04 11.00 40 5.60 12 1.71		

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EEC Pinpoint Tests (Includes 4EAT Pinpoint Tests	5)
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1.8L 4EAT

	TEST STEP	RESULT		ACTION TO TAKE
TOT1	 CHECK TOT RESISTANCE Run vehicle to warm up ATF (transaxle oil). Key OFF. Install 4EAT Tester (leave PCM disconnected). Measure the resistance between 4EAT Tester Pins TOT and SIGRTN. Allow the ATF (transaxle oil) to cool. Does the resistance gradually increase as ATF (transaxle oil) cools as indicated on Data Sheet? 	Yes	•	TOT circuit OK. If sent here by Quick Test QT11 in Section 5B, RETURN to Section 2B, Diagnostic Routines. Otherwise, REPLACE the PCM. GO to TOT2.
TOT2	 CHECK TOT AND SIGRTN WIRES FOR OPEN Key OFF. Install 4EAT Tester (leave PCM disconnected). Disconnect the 4EAT solenoid connector. Measure the resistance between 4EAT Tester Pin TOT and the TOT wire at the 4EAT solenoid harness connector. Measure the resistance between 4EAT Tester Pin SIGRTN and the SIGRTN wire at the 4EAT solenoid harness connector. Are the resistances less than 5 ohms? 	Yes No		GO to TOT3 . SERVICE the wire in question for open.
тотз	 CHECK TOT WIRE FOR SHORT Key OFF. Install 4EAT Tester (leave PCM disconnected). Disconnect the 4EAT solenoid connector. Measure the resistance between 4EAT Tester Pin TOT and ground. Is the resistance greater than 10,000 ohms? 	Yes No	* *	REPLACE the PCM. SERVICE the wire in question for short.

4EAT Pinpoint Tests

TOT



4EAT Pir	npoint Tes	sts	1.6L 4	EAT	тот
Transaxle Oil Te	emperature (TO	T) Switch — 1.6I	. 4EA T	,,,,,	
rou should enter	this Pinpoint Tes	t only when Quick	Test Step 11 dire	ects you here.	
This Pinpoint Test i ● Circuit: TOT	is intended to diagn	nose only the followi	ng:		
Pinpoint	Test Sch	ematic			
Pinpoint Transaxle Oil Ter	Test Scho nperature Switch	ematic	1.	.6L 4EAT TOT CONNE	CTOR
Pinpoint Transaxle Oil Ter TEST PIN	Test Sche mperature Switch	ematic	1.		CTOR T
Pinpoint Transaxle Oil Ter TEST PIN () -	Test Scho nperature Switch	ematic	1.		стоя т А14774-Е
Pinpoint Transaxle Oil Ter TEST PIN IData She	Test Scho nperature Switch		1. NTA SHEET		стоя т А14774-Е
Pinpoint Transaxle Oil Ter TEST PIN Data She Circult	Test Scho nperature Switch	CIRCUIT DA	ATA SHEET BOB Pin	.6L 4EAT TOT CONNE	CTOR T A14774-E Wire Color

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1.6L 4EAT

TEST S	TEP	RESULT		ACTION TO TAKE
TOT1 CHECK TRANSAXLE O SWITCH SIGNAL		Yes		RETURN to Section
 Key OFF. Connect 4EAT Teste 		-	2B, Diagnostic Routines.	
 Key ON. Measure the voltage Allow the ATF (trans Compare voltage rechart: 	No		GO to TOT2 .	
Trans. Oil Temp.	Voltage			
Warm (above 150°C [302°F])	Less than 1.5 volts			
Cool (below 150°C [302°F])	Greater than 10 volts			
 Are the voltages O 	K?			
TOT2 CHECK TRANSAXLE O SWITCH				
 Drive vehicle to war 	m up ATF (transaxle oil).	Yes		GO to TOT3.
 Disconnect transax 	le oil temperature switch	No		REPLACE the
 Measure the resistance 	an ce across the transaxle			transaxle oil
oil temperature swit	ch terminals.			temperature switch.
 Allow the ATF (trans 	saxle oil) to cool.			
 Compare the resist following chart: 	ance readings to the			
Trans. Oil Temp.	Resistance			
Warm (above 150°C [302°F])	Less than 5 ohms			
Cool (below 150°C [302°F])	Greater than 10,000 ohms			
• Are the resistance	s OK?			
TOT3 CHECK TRANSAXLE O SWITCH GROUND	IL TEMPERATURE			
Key OFF.	Yes		GO to TOT4.	
 Disconnect the tran 	saxle oil temperature	No		SERVICE the "BK"
switch connector.	ance between the "BK"			wire.
wire on the transax	e oil temperature switch			
connector and vehic	cle body ground.			
 Is the resistance let 	ess than 5 ohms?			





1.6L	4EAT

TEST STEP	RESULT	ACTION TO TAKE
TOT4 CHECK TRANSAXLE OIL TEMPERATURE SWITCH WIRE TO TCM		
 Key OFF. Connect 4EAT Tester (leave TCM disconnected). Disconnect the transaxle oil temperature switch connector. 	Yes No	 REPLACE the TCM. SERVICE the TOT wire
 Measure the resistance between the TOT terminal on the transaxle oil temperature switch connector and the TOT Test Pin. 		

Is the resistance less than 5 ohms?



B-198	EEC Pinpoint Tests (Includes 4EAT Pinpoint Tests		
4EAT Pinpoint Tests	2.5L 4EAT	тот	
Transaxle Oil Temperature (TOT) Sensor —	2.5L 4EAT		
Note			
You should enter this Pinpoint Test only when dia Step 7 or 8, or when Quick Test Step 11 directs y	agnostic trouble code 56 is received /ou here.	l in Quick Test	
Remember			
This Pinpoint Test is intended to diagnose only the fol	lowing:		
Circuits: TOT (+), TOT (-)			
Pinpoint Test Schematic			
	2.5L 4EAT SOLENOID HARNESS CONNECTOR		
		'OT(-)	
		A21015-A	

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130 (266)

0.104 - 0.109

6B-199

6B-200

4EAT Pinpoint Tests

2.5L 4EAT

TOT

	TEST STEP	RESULT		ACTION TO TAKE
TOT1	 CHECK TOT RESISTANCE Run vehicle to warm up ATF (transaxle oil). Key OFF. Disconnect the solenoid harness connector. Measure the resistance between the solenoid harness connector Pins TOT (+) and TOT (-). Allow the ATF (transaxle oil) to cool. Does the resistance gradually increase as ATF (transaxle oil) cools as indicated on Data Sheet? 	Yes	•	TOT circuit OK. If sent here by Quick Test QT11 in Section 5B, RETURN to Section 2B, Diagnostic Routines. Otherwise, REPLACE the TCM. GO to TOT2.
TOT2	 CHECK TOT AND SIGRTN WIRES FOR OPEN Key OFF. Disconnect the TCM connectors. Disconnect the 4EAT solenoid connector. Measure the resistance between the TCM Pin 1G (TOT [+]) and the TOT (+) wire at the 4EAT solenoid harness connector. Measure the resistance between the TCM Pin 2P (TOT [-]) and the TOT (-) wire at the 4EAT solenoid harness connector. Are the resistances less than 5 ohms? 	Yes No		GO to TOT3 . SERVICE the wire in question for open.
тотз	 CHECK TOT WIRE FOR SHORT Key OFF. Disconnect the 4EAT solenoid connector. Measure the resistance between the 4EAT solenoid harness connector Pin TOT (+) and ground. Is the resistance greater than 10,000 ohms? 	Yes No		REPLACE the TCM. SERVICE the wire in question for short.

4EAT Pinpoint Tests	All 4EAT	ТР

Throttle Position (TP) Sensor



You should enter this Pinpoint Test only when diagnostic trouble code 12 is received in Quick Test Step 7 or 8, or when Quick Test Step 11 directs you here.



This Pinpoint Test is intended to diagnose only the following:

Circuit: TP

Pinpoint Test Schematic



6B-201

•

4EAT Pin	point Tes	ts	A11 41	E AT	TP
TEST PINS (C TEST PINS (C TEST PINS (C TEST PINS (C) VREF) TP) GND) IDL			2.5L THROTTLE POSITION SENSOR HARNESS CONNECTOR	
Data She	et				A20615-A
		CIRCUIT DAT	ASHEET		
Engine 1.6L 4EAT	Circuit TP VREF SIGRTN	PCM Pin 2G 2A 2C	BOB Pin 47 26 46, 49 28	TCM Pin 2T 2A NA	Wire Color O W/BK BL/Y GN/O
1.8L 4EAT	TP VREF SIGRTN IDL	2F 2I 3D 1T	47 26 46 18	NA NA NA NA	LG/W LG/R BK/W R/W
2.5L 4EAT ¹	TP VREF GND	2F 2I 3C	47 26 49	2T 2A 2P	Y P BK/R

4EAT Pinpoint Tests	All 4EAT	ТР
----------------------------	----------	----



THROTTLE POSITION	VOLTS
1/8	.998
2/8	1.60
3/8	2.37
4/8	2.74
5/8	3.15
6/8	3.43
7/8	3.60
8/8	4.02

GRAPH DATA VALUES

THROTTLE POSITION	kOHMS
1/8	.989
2/8	1.104
3/8	1.278
4/8	1.462
5/8	1.480
6/8	1.459
7/8	1.144
8/8	1.072

NOTE: Voltage and Resistance values may vary \pm 15%.

A14179-A



Key OFF.

Key ON.

ONLY) Key OFF.

•

CHECK VREF AND SIGRTN (GND)

harness connector.

disconnected).

26, and 49.

Disconnect the TP sensor connector.

Is the voltage between 4.5-5.5 volts? CHECK WIRES BETWEEN PCM AND TCM (2.5L

Install the Breakout Box (leave PCM

 Install 4EAT Tester (leave TCM disconnected). Measure the resistance between 4EAT Tester Pins TP, VREF, and GND and the BOB Pins 47,

Are the resistances less than 5 ohms?

Measure the voltage between the VREF wire

and the SIGRTN (GND on 2.5L) wire at the

TP1

TP2

ТРЗ

TP4

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AI rinpoint lesis			IF
TEST STEP	RESULT		ACTION TO TAKE
 CHECK THROTTLE POSITION SENSOR VOLTAGE Key OFF. Install 4EAT Tester (1.6L and 1.8L) or Breakout Box (2.5L). Key ON. Measure the voltage between 4EAT Tester Pins TP (1.6L and 1.8L) or BOB Pin 47 (2.5L) and SIGRTN (1.6L and 1.8L) (BOB Pin 49 on 2.5L). Compare the voltage readings to Graph and Data Sheet as accelerator pedal is depressed. Are the voltages OK? 	Yes (1.6L and 1.8L) Yes (2.5L) No	•	Throttle position circuit OK. If directed here from Quick Test Step QT11 in Section 5B, RETURN to Section 2B, Diagnostic Routines. Otherwise, REPLACE the TCM (PCM on 1.8L 4EAT). GO to TP4.
CHECK THROTTLE POSITION SENSOR RESISTANCE			
 Key OFF. Disconnect the TP sensor connector. Measure the resistance between the TP and SIGRTN (GND on 2.5L) terminals at the TP sensor. Compare the resistance readings to Graph and Data Sheet as accelerator pedal is depressed. Are the resistances OK? 	Yes No	• •	GO to TP3 . REPLACE the TP sensor.

Yes

No

Yes

No

Δ11 / ΓΔΤ

Throttle position circuit
OK. If directed here
from Quick Test Step
QT11 in Section 5B,
RETURN to Section
2B, Diagnostic
Routines. Otherwise,
REPLACE the TCM.
SERVICE the wire(s) in

SERVICE the TP wire.

GO to EEC Pinpoint

Test VREF in this

section.

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	T Pinpoint Tests 2.5L 4EAT				
orque Reduce	/Engine Coolant	Temperature S	ignal (TRS) — 2	2.5L 4EAT	
Note					
u should ente ep 7 or 8, or w	r this Pinpoint Test hen Quick Test Ste	only when diagn op 11 directs you	ostic trouble cod here.	e 59 is received i	n Quick Test
Rememb	ber				
Pinpoint Test	is intended to diagno	ose only the followi	ng:		
ircuit: TRS					
Pinpoint	Test Sche	ematic			
inpoint	Test Sche		ТК	2.5L 4EAT TRANSAXI CONTROL MODULE (LE TCM)
inpoint	Test Sche		ТК	2.5L 4EAT TRANSAXI CONTROL MODULE (.е тсм) А16529-В
Pinpoint	Test Sche	TRS	ТК	2.5L 4EAT TRANSAXI CONTROL MODULE (.е тсм) А16529-В
Pinpoint	Test Sche			2.5L 4EAT TRANSAXI CONTROL MODULE (.е тсм) А16529-В

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nup	Copyright (c) recet r era meter company

	TEST STEP		RESULT	►	ACTION TO TAKE	
TRS1 CHECK TRS SIGNAL • Key OFF. • Install 4EAT Tester. • Key ON. • Measure the voltage at 4EAT Tester Pin TRS during the following conditions: Voltage (volts) Coolant temperature above 60°C Battery voltage		Yes	•	TRS circuit OK. If sent to this test by Quick Test Step QT11 in Section 5B, RETURN to Section 2B, Diagnostic Routines. Otherwise, REPLACE the TCM. GO to TRS2.		
During Coola (140°	g torque control shift nt temperature below 60°C F)	Below 1 0				
	• Are the voltages OK?					
TRS2	CHECK TRS WIRE FOR OPEN	/				
 Key OFF. Install Breakout Box (leave PCM disconnected). Install 4EAT Tester (leave TCM disconnected). Measure the resistance between BOB Pin 19 and 4EAT Tester Pin 1K. Is the resistance less than 5 ohms? 		Yes No	• •	GO to TRS3 . SERVICE the TRS wire for open.		
TRS3	CHECK TRS WIRE FOR SHORT					
 Key OFF. Install Breakout Box (leave PCM disconnected). Install 4EAT Tester (leave TCM disconnected). Measure the resistance between BOB Pin 19 and ground. Is the resistance greater than 10,000 ohms? 		Yes No	* *	REPLACE the PCM. SERVICE the TRS wire for short.		

2.5L 4EAT

6B-207

All 4EAT



Vehicle Power (VPWR)
Note
You should enter this Pinpoint Test only when Quick Test Step 11, or another Pinpoint Test directs you here.
Remember
 This Pinpoint Test is intended to diagnose only the following: Circuits: VPWR, GND Pinpoint Test Schematic
MAIN RELAY 1.6.4 EAT MAIN RELAY 1.8.4 EAT MAIN RELAY TEST PIN GND GND GND TEST PIN GND GND GND TO GNITION PWR GND SUMTCH TO BATTERY BATT ATT

4EAT Pinpoint Tests			ŀ	All 4EAT			VPWR	
Data Sh	eet	CI	RCUIT DATA	SHE	ET			
		-		_	PCM Wire	·····		TCM Wire
Engine	Circuit	PCM Pin	BOB Pin		Color	тс	A Pin	Color
1.6L 4EAT 1.8L 4EAT	VPWR GND GND OND VPWR GND	3I NA 3A 3G 1B 3A	37, 57 NA 20 40 37, 57 40, 60		Y/GN NA BK BK W/R BK/O	2Q 1J N N	, 2S , 2P IA IA IA IA	BK/W BK NA NA NA
	GND GND	3B 3C	20	BK/O		NA		NA
2.5L 4EAT	VPWR GND GND GND GND GND	1B 3A 3B 3C 3D	49 37, 57 40, 60 20 49 46		R/BK BK BK BK/R BK/BL	2S 2	, 2Q 2P - -	BK/Y BK/R - -
	TEST ST	ΈP			RESULT			ΟΝ ΤΟ ΤΑΚΕ
VPWR1 CHECK VPWR • Key OFF. Install 4EAT Tester. • Key ON. Measure the voltage between 4EAT Tester Pin VPWR and ground. • Is the voltage greater than 10 volts?			Ye: No (1.0 (1.0 4E)	s BL 4EAT) 6L 4EAT, 2.5L AT)	 GO to VPWR2. GO to VPWR3. CHECK 15A ENGINE (1.6L 4EAT), 15A METER (2.5L 4EAT) fuse, REPLACE the fuse if blown. If fuse blows after replacement, SERVIT the short. If fuse is O SERVICE the VPWR wire for open. 		/PWR2 . /PWR3 . ISA ENGINE EAT), 15A (2.5L 4EAT) EPLACE the blown. If fuse offer ement, SERVICE ort. If fuse is OK, CE the VPWR open.	
VPWR2 CHECK (Key (Instal Meas Teste Is the	GROUNDS DFF. II 4EAT Tester. Sure the resista er GND Pin and a resistance le	nce between ead ground. ss than 5 ohms?	ch 4EAT	Ye	5		VPWR RETUR 2B, Dia Routine SERVIO (PCM f GND wi	circuit OK. N to Section gnostic es. CE the TCM or 1.8L 4EAT) re(s).

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4EAT Pinpoint Tests

All 4EAT



	TEST STEP	RESULT	►	ACTION TO TAKE
VPWR3	 CHECK FOR OPEN (1.8L 4EAT) Key OFF. Remove the main relay from the main fuse panel. Install 4EAT Tester (leave PCM disconnected). Measure the resistance between the main relay harness connector VPWR terminal and 4EAT Tester VPWR Pin. Is the resistance less than 5 ohms? 	Yes No		GO to VPWR4 . SERVICE the VPWR wire for open.
VPWR4	 CHECK BATTERY VOLTAGE TO MAIN RELAY (1.8L 4EAT) Key OFF. Remove the main relay. Measure the voltage between the main relay harness connector BATT terminal and ground. is the voltage greater than 10 volts? 	Yes No		GO to VPWR5 . CHECK the fuse. - 30A FUEL INJECTOR (1.8L 4EAT) REPLACE fuse if blown. If fuse blows after replacement, SERVICE the short. If fuse is OK, SERVICE the main relay BATT wire to fuse.
VPWR5	 CHECK IGNITION POWER TO MAIN RELAY (1.8L 4EAT) Key OFF. Remove the main relay. Key ON. Measure the voltage between the main relay harness connector PWR terminal and ground. Is the voltage greater than 10 volts? 	Yes No	* *	GO to VPWR6 . CHECK 15A ENGINE fuse. REPLACE fuse if blown. If fuse blows after replacement, SERVICE the short. If fuse is OK, SERVICE the main relay PWR wire to fuse.
VPWR6	 CHECK GROUND AT MAIN RELAY (1.8L 4EAT) Key OFF. Remove the main relay. Measure the resistance between the main relay harness connector GND wire and ground. Is the resistance less than 5 ohms? 	Yes	•	REPLACE the main relay. SERVICE the main relay GND wire.

4EAT Pinpoint Tests	All 4EAT	VREF

Т

Reference Voltage (VREF)

Note

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To diagnose VREF on 1.8L 4EAT, go to EEC Pinpoint Test VREF.

You should enter this Pinpoint Test only when Quick Test Step 11 or another Pinpoint Test directs you here.

Remember

This Pinpoint Test is intended to diagnose only the following:

• Circuits: VREF, SIGRTN



6B-213



1.0L	ł
2.5L	

T **4EAT 4EAT**

VREF

	TEST STEP	RESULT	►	ACTION TO TAKE	
VREF3	CHECK FOR SHORT				
	 Key OFF. Install 4EAT Tester (leave TCM disconnected). Install Breakout Box (leave PCM 	Yes	►	GO to EEC Pinpoint Test PGC in this section.	
	 disconnected). Measure the resistance between BOB Pin 26 	No	►	SERVICE the VREF wire for short.	

•	Measure the resistance between BOB Pin 20	
	and ground.	
•	Is the resistance greater than 10,000	
	ohms?	



4EAT Pinpoint Tests	1.6L 4EAT	VSS
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1

Vehicle Speed Sensor (VSS) — 1.6L 4EAT

Note

You should enter this Pinpoint Test only when diagnostic trouble code 06 is received in Quick Test Steps 7 or 8, or when Quick Test Step 11 directs you here.

Verify that the speedometer is working properly before performing this test. If not, refer to Service Manual Section 13-01.

Remember

This Pinpoint Test is intended to diagnose only the following:

Circuit: VSS

Description

The Vehicle Speed Sensor (VSS) rotates with the transaxle's final drive gear. On the 1.6L engines, the speed sensor turns a cable which is sent to the speedometer in the instrument cluster and transferred to a vehicle speed signal.



Engine	Location
1.6L 4EAT	Mounted to the transaxle, above the final drive gear.

•

4EAT Pinpoint Tests			1.6L 4	EAT	VSS
Pinpoint	Test Sch	ematic			
TEST PIN O TEST PIN O Data She		VEHICLE SPEED SENSOR	ן כנטאד [6L 4EAT INSTRUM ER HARNESS CON GND VSS	ENT INECTOR A17998-B
		CIRCUIT DAT	A SHEET		
Engine	Circuit	PCM Pin	BOB Pin	TCM Pin	Wire Color
1.6L 4EAT	VSS GND	NA NA	NA NA	1P 1J	GN/R BK
VSS1 CHECK VS • Key OF • Install 4 harness disconn • Remove transax connec: • Measur spinning • Does th volts 4 VSS2 CHECK VS • Locate cluster • Measur betwee instrum	TEST STEP S INPUT SIGNAL F. EAT Tester and ad s connectors (leave tected). The speedometer le (leave the speed ted). The the DC voltage a g the driven gear. The voltage alterna times per revoluti S SIGNAL WIRE and disconnect the connector. The the resistance of n Test Pin VSS and ent cluster connect	apter to vehicle e TCM driven gear from the dometer cable t Test Pin VSS while te between 0 and 5 on? e 10-pin instrument the ''GN/R'' wire the 10-pin for. n 5 ohms?	Yes No Yes No	T A VS din Qu in RE 2E RC RE C GC SE to	ACTION TO TAKE SS circuit OK. If rected here from uick Test Step QT11 Section 5B, then TURN to Section B, Diagnostic butines. Otherwise, EPLACE the TCM. D to VSS2. Coto VSS3. ERVICE the VSS wire the TCM.
 Is the resistance less than 5 ohms? VSS3 CHECK VSS GROUND Disconnect the 10-pin instrument cluster connector. Measure the resistance of the "BK" wire between the 10-pin instrument cluster connector and Test Pin GND. Is the resistance less than 5 ohms? 		Yes	 RE sp pr SE to 	EPLACE the eedometer head or inted circuit board. ERVICE the GND wire the TCM.	



Engine	Location
1.8L 4EAT	Mounted to the transaxle, above the final
	drive gear.

.

4EAT Pin	npoint Tes	ts	1.8L 4	EAT	VSS
Pinpoint	Test Sche	ematic			
test pin (test pin () vss) gnd	VEHICLE SPEED SENSOR	s	1.8L 4EAT VEHICLE ENSOR HARNESS CO GND VSS	SPEED DNNECTOR A20596-A
Data She	et	CIRCUIT DA	TA SHEET		
Engine	Circuit	PCM Pin	BOB Pin	TCM Pin	Wire Color
1.8L 4EAT	VSS GND	1 M 2L	NA NA	NA NA	GN BL
	TEST STEP		RESU	LT 🕨 AC	TION TO TAKE
VSS1 CHECK VS • Key OI	3S INPUT SIGNAL FF. 4FAT Tester to barn	ess connectors	Yes	Nob	
 Instail (leave Remove transa Measure VSS all Rotate Does of revolution 	PCM disconnected, we the vehicle speed xle and leave the win inter the continuity bet and BOB Test Pin GNI the speedometer c continuity exist eig tion of the speedometer	I sensor from the ring connected. ween BOB Test Pin D. able. ht times per one meter cable?	No	Circ here 5B, Sec Rou REF GO	to e speed sensor uit OK. If directed e from Quick Test p QT11 in Section then RETURN to stion 2B, Diagnostic tines. Otherwise, PLACE the PCM. to VSS2.
 Install (leave Remove transa Measure VSS all Rotate Does of revolution VSS2 CHECK VS Key Ol Discore transa Measure betwee VSS. Is the 	PCM disconnected, ve the vehicle speed xle and leave the win ore the continuity bether and BOB Test Pin GNI of the speedometer c continuity exist eig tion of the speedom SS SIGNAL WIRE FF. Inect the VSS connect xle. Ine the resistance of en the VSS connect resistance less tha	able. ht times per one meter cable? ctor at the the VSS wire or and BOB Test Pin n 5 ohms?	No Yes No	 Verificity circ here 5B, Sec Rou REF GO GO SEF to the 	to VSS3. NUCE the VSS wire he PCM.

		*
4EAT Pinpoint Tests	2.5L 4EAT	VSS

Vehicle Speed Sensor (VSS) — 2.5L 4EAT

Note

You should enter this Pinpoint Test only when diagnostic trouble code 06 is received in Quick Test Step 7 or 8, or when Quick Test Step 11 directs you here.

Verify that the speedometer is working properly before performing this test. If not, refer to Service Manual Section 13-01.

Remember

This Pinpoint Test is intended to diagnose only the following:

Circuit: VSS

Description

The Vehicle Speed Sensor (VSS) rotates with the transaxle's final drive gear. The speed sensor turns a Hall effect pickup sensor and an AC voltage is created and sent to the speedometer in the instrument cluster. The AC voltage signal is developed into a DC digital signal and sent to the Powertrain Control Module (PCM).



Engine	Location
2.5L 4EAT	Mounted to the transaxle, above the final drive gear.
٠

4EAT Pin	point Tes	ts	2.5L 4	EAT	VSS
Pinpoint 7	rest Sche	ematic			
TEST PIN O-	vss	2.5L INSTRUMENT CLUST VEHICLE SPEED SENSOR	2.5 		JSTER ORS A16533-D
		CIRCUIT DATA	SHEET		
Engine	Circuit	PCM Pin	BOB Pin	TCM Pin	Wire Color
2.5L 4EAT	VSS	1 M	3	1P	GN/R
	TEST STEP		RESUL	T 🕨 AC	TION TO TAKE
 VSS1 CHECK VSS SIGNAL Key OFF. Install 4EAT Tester (leave TCM disconnected). Key ON. Raise vehicle. Measure the DC voltage between 4EAT Tester VSS Pin using a Rotunda 73 Digital Multimeter 105-00051, or equivalent, while spinning front tire. Does the voltage alternate between 0 and 5 volts? 			Yes VSS to th Tes 5B, Sec Rou REF		c circuit OK. If sent nis test by Quick QT11 in Section RETURN to tion 2B, Diagnostic tines. Otherwise, LACE the TCM. to VSS2.
VSS2 CHECK VSS • Key OFF • Install 4E • Disconnector • Measurer VSS Pin instrume	WIRE FOR OPEN AT Tester (leave ect the 14-pin inst or. the resistance bo and the ''GN/R'' ont cluster harness	TCM disconnected). rument cluster etween 4EAT Tester wire at the 14-pin s connector.	Yes No	 ■ GO ■ SER for c 	to VSS3 . VICE the VSS wire open.

4EAT Pinpoint Tests

2.5L	4EAT

	TEST STEP	RESULT	ACTION TO TAKE
VSS3	CHECK VSS WIRE FOR SHORT		
	 Key OFF. Install 4EAT Tester (leave TCM disconnected). Disconnect the 14-pin instrument cluster connector. 	Yes	GO to Section 13-01 of the Service Manual to diagnose the speedometer.
	 Measure the resistance between 4EAT Tester VSS Pin and ground. Is the resistance greater than 10,000 ohms? 	No	SERVICE the VSS wire for short.



Specifications/Special Service Tools

SP	ECIAL SERVIC	E TOOLS	
Tool Number		Description Air Gap Spark Tester	
D81P-6666-A	Air Gap Spark		
SP	ECIAL SERVIC	E TOOLS	
Tool Num	iber/	Wustration	
T92C-6000-AH 1.8L 4EAT and 2.5L Adapter	Breakout Box	Tige coole All	
R		PMENT	
Model		Description	
014-00322	Breakout Box		
007-0037B	4EAT Tester and All Adapters		
007-00095	4EAT Adapter		
007-00100	3 Adapter Kit		
007-00100-B	4EAT Adapter (Part of 007-00100)		
007-00100-A	4EAT Adapter	4EAT Adapter (Part of 007-00100)	
007-00038	Breakout Box	Adapter	
007-00057	Breakout Box	Adapter	
105-00051	73 Digital Mul	limeter	
021-00014	Vacuum Teste	r	
055-00100	Digital Therm	Pyrometer	
107-R0300	Heat Gun		
	Vacuum Gaug	e	
059-00008			
059-00008 059-00014	Timing Analyz	er	