Computers and Control Systems: Pinpoint Tests
DN - EGR Valve Position Sensor/EGR Vacuum Regulator Solenoid

DN - Testing Notes

NOTE: You should enter this Pinpoint Test only when you have been directed here from Quick Test or from Pinpoint Test S8.

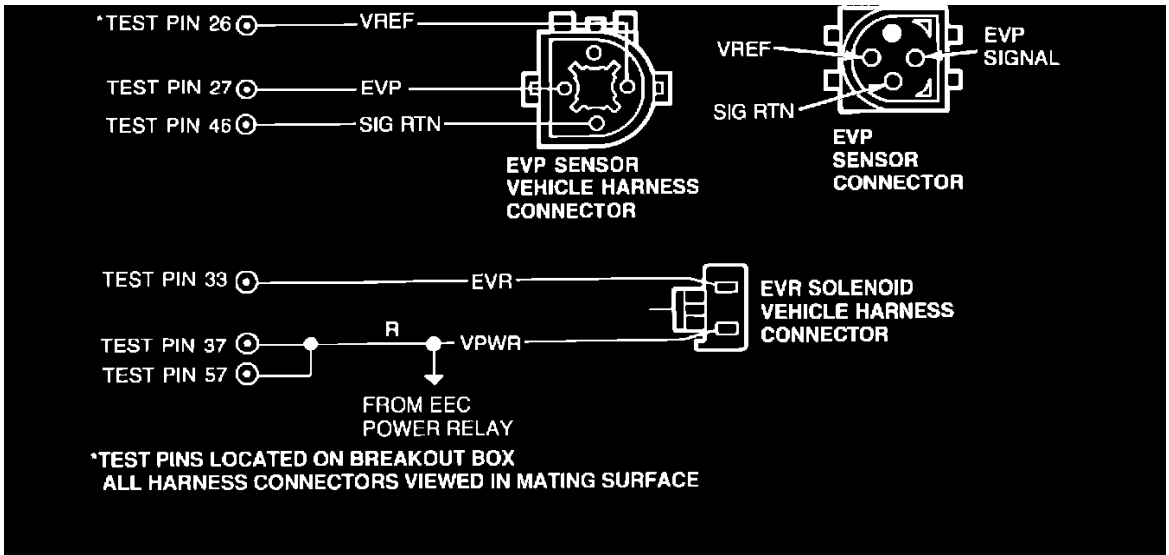
REMEMBER

This Pinpoint Test is intended to diagnose only the following:

- EVP sensor
- Harness circuits: VREF, EVP, SIG RTN, EVR, VPWR
- EVR solenoid
- EGR valve assembly
- Processor assembly
- EGR and EVR vacuum lines

DESCRIPTION

The EGR Valve Position **(EVP)** Sensor monitors the position of the EGR valve pintle. The EVP sensor converts the mechanical movement of the pintle into an electrical voltage signal which is relayed to the processor. The EVP sensor is a linear potentiometer in which resistance varies with the EGR valve pintle movement. The EVP sensor provides the processor with information on EGR flow and EGR system failures.



Test Pin 46—SIG RTN

Application	Wire Color
7.0L F-Series	BK/W
All Other Car and Truck	GY/R

Test Pin 26—VREF

Application	Wire Color
7.0L F-Series	R
All Other Car and Truck	BR/W

Schematic Diagram

Test Pin 33—EVR

Application	Wire Color
7.0L F-Series	Y/BL
All Other Car and Truck	BR/PK

Test Pin 27—EVP

Application	Wire Color
7.0L F-Series	BR/GR
All Other Car and Truck	BR/LG

Schematic Diagram

TEST STEP		RESULT ▶	ACTION TO TAKE
DN1	SERVICE CODE 31/327: ATTEMPT TO GENERATE CODE 35/337		
	Service Code 31/327 indicates that the EGR Valve Position (EVP) sensor signal is less than the Self-Test minimum value of 0.2 volts.	Yes ▶	REPLACE EVP sensor. REMOVE jumper. RERUN Quick Test.
	NOTE: **Because the EVP sensor is preloaded when attached to the EGR valve, a failure in the EGR valve causing the EVP sensor to lose preload may also set code 31/327.**	No ▶	REMOVE jumper. GO to DN2.
	Possible causes: — Damaged EVP sensor. — Damaged EGR valve. — Open harness. — Grounded harness. — Damaged processor.		
	• Key off.		
	• Disconnect EVP sensor.		
	• Jumper VREF circuit to EVP circuit at the EVP sensor vehicle harness connector.		
	• Rerun Key On Engine Off and Key On Engine Running Self-Tests.		
	NOTE: **If no codes are generated, immediately remove jumper and go directly to DN4.**		
	• **Is Code 35 or 337 present (ignore all other codes)?**		

Pinpoint Test DN1

TEST STEP		RESULT ▶	ACTION TO TAKE
DN2	CHECK VREF CIRCUIT VOLTAGE		
	• Key on, engine off.	Yes ▶	GO to DN3.
	• EVP sensor disconnected.	No ▶	GO to Pinpoint Test Step C1.
	• Measure voltage between VREF circuit and SIG RTN circuit at the EVP sensor vehicle harness connector.		
	• **Is voltage between 4.0 and 6.0 volts?**		

Pinpoint Test DN2

TEST STEP		RESULT ▶	ACTION TO TAKE
DN3	CHECK EVP CIRCUIT CONTINUITY		
	• Key off.	Yes ▶	GO to DN4.
	• EVP sensor disconnected.	No ▶	SERVICE open circuit. REMOVE breakout box. RECONNECT all components. RERUN Quick Test.
	• Disconnect processor 60 pin connector. Inspect for damaged or pushed out pins, corrosion, loose wires, etc. Service as necessary.		
	• Install breakout box, leave processor disconnected.		
	• Measure resistance between EVP circuit at the EVP sensor vehicle harness connector and Test Pin 27 at the breakout box.		
	• **Is resistance less than 5.0 ohms?**		

Pinpoint Test DN3

TEST STEP		RESULT	ACTION TO TAKE
DN4	CHECK EVP CIRCUIT FOR SHORT TO GROUND		
• Key off. • EVP sensor disconnected. • Breakout box installed, processor disconnected. • Measure resistance between Test Pin 27 and Test Pins 40, 46 and 60 at the breakout box. • **Is each resistance greater than 10,000 ohms?**		Yes ▶ No ▶	REPLACE processor. REMOVE breakout box. RECONNECT all components. RERUN Quick Test. SERVICE short circuit. REMOVE breakout box. RECONNECT all components. RERUN Quick Test.

Pinpoint Test DN4

TEST STEP		RESULT	ACTION TO TAKE
DN5	SERVICE CODE 35/337: ATTEMPT TO GENERATE CODE 31/327		
Service Code 35/337 indicates that the EGR Valve Position (EVP) sensor signal is greater than the Self-Test maximum value of 4.81 volts. Possible causes: — Damaged EVP sensor. — Short to power in harness. — Open in SIG RTN. — Damaged processor. • Key off. • Disconnect EVP sensor. • Rerun Key On Engine Off and Key On Engine Running Self-Test. • **Is Code 31 or 327 present (ignore all other codes)?**		Yes ▶ No ▶	GO to DN6. GO to DN7.

Pinpoint Test DN5

TEST STEP		RESULT	ACTION TO TAKE
DN6	CHECK VREF CIRCUIT VOLTAGE		
• Key on, engine off. • EVP sensor disconnected. • Measure voltage between VREF circuit and SIG RTN circuit at the EVP sensor vehicle harness connector. • **Is voltage between 4.0 and 6.0 volts?**		Yes ▶ No ▶	REPLACE EVP sensor. RERUN Quick Test. RECONNECT all components. GO to Pinpoint Test Step C1.

Pinpoint Test DN6

TEST STEP		RESULT	ACTION TO TAKE
DN7	CHECK EVP CIRCUIT FOR SHORT TO POWER		
• Key off. • EVP sensor disconnected. • Disconnect processor 60 pin connector. Inspect for damaged or pushed out pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box, leave processor disconnected. • Measure the resistance between Test Pin 27 and Test Pins 26 and 57 at the breakout box. • **Is each resistance greater than 10,000 ohms?**		Yes ▶ No ▶	REPLACE processor. REMOVE breakout box. RECONNECT EVP sensor. RERUN Quick Test. SERVICE short circuit. REMOVE breakout box. RECONNECT all components. RERUN Quick Test.

Pinpoint Test DN7

TEST STEP		RESULT ▶	ACTION TO TAKE
DN10	SERVICE CODE 84 / 558: CHECK RESISTANCE OF EVR SOLENOID		
	Service Code 84 / 558 indicates a failure in the EGR Vacuum Regulator (EVR) solenoid circuit. Possible causes: — Damaged EVR solenoid — Open harness — Shorted harness — Damaged processor • Key off. • Disconnect EVR solenoid. • Measure solenoid resistance. • **Is resistance within specification per the following chart?**	Yes ▶ No ▶	GO to DN11. REPLACE EVR solenoid assembly. RERUN Quick Test.

Engine	Resistance Specification
7.5L	100 to 135 ohms
All Others	20 to 70 ohms

Pinpoint Test DN10

TEST STEP		RESULT ▶	ACTION TO TAKE
DN11	CHECK VPWR CIRCUIT VOLTAGE		
	• Key on, engine off. • EVR solenoid disconnected. • Measure voltage between battery negative post and VPWR circuit at the EVR solenoid vehicle harness connector. • **Is voltage greater than 10.5 volts?**	Yes ▶ No ▶	GO to DN12. SERVICE open circuit. RECONNECT EVR solenoid. RERUN Quick Test.

Pinpoint Test DN11

TEST STEP		RESULT ▶	ACTION TO TAKE
DN12	CHECK EVR CIRCUIT CONTINUITY		
	• Key off. • EVR solenoid disconnected. • Disconnect processor 60 pin connector. Inspect for damaged or pushed out pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box, leave processor disconnected. • Measure resistance between Test Pin 33 at the breakout box and EVR circuit at the EVR solenoid vehicle harness connector. • **Is resistance less than 5.0 ohms?**	Yes ▶ No ▶	GO to DN13. SERVICE open circuit. REMOVE breakout box. RECONNECT all components. RERUN Quick Test.

Pinpoint Test DN12

TEST STEP		RESULT ▶	ACTION TO TAKE
DN13	CHECK EVR CIRCUIT FOR SHORT TO POWER OR GROUND		
	• Key off. • EVR solenoid disconnected. • Breakout box installed, processor disconnected. • Measure resistance between Test Pin 33 and Test Pins 37 and 57 at the breakout box. • Measure resistance between Test Pin 33 and Test Pin 40, 46 and 60 at the breakout box. • **Is each resistance greater than 10,000 ohms?**	Yes ▶ No ▶	REPLACE processor. REMOVE breakout box. RECONNECT EVR solenoid. RERUN Quick Test. SERVICE short circuit. REMOVE breakout box. RECONNECT all components. RERUN Quick Test. If code is repeated, REPLACE EVR solenoid.

Pinpoint Test DN13

TEST STEP		RESULT ▶	ACTION TO TAKE
DN20	SERVICE CODE 34/334: CHECK FOR SERVICE CODE 84/558		
	Service Code 34/334 in Key On Engine Off or Engine Running Self-Test indicates that the EGR valve and/or EGR Valve Position (EVP) sensor may not be fully seated in the closed position. The EVP sensor voltage is greater than the closed limit voltage of 0.67 volts. Because of the preload on the installed EVP sensor, it is very difficult to determine whether the EGR valve is seated or the EVP sensor is in contact with the EGR valve stem. **Possible causes:** **— Poor continuity in EVP sensor harness.** **— Non-seated EGR valve.** **— Damaged EGR valve.** **— Damaged EVP sensor.** **— Damaged EVR solenoid.** **— Damaged processor.** • Key off. • **Is Code 84 or 558 present in Key On Engine Off Self-Test?**	Yes ▶ No ▶	GO to DN10. GO to DN21.

Pinpoint Test DN21

TEST STEP		RESULT ▶	ACTION TO TAKE
DN21	RERUN SELF-TEST WITH EGR VACUUM DISCONNECTED		
	• Disconnect vacuum hose from EGR valve and plug hose. • Rerun Key On Engine Off and Key On Engine Running Self-Test • **Is Code 34 or 334 present ?**	Yes ▶ No ▶	GO to DN22. **Check EVR solenoid for obstructions. SERVICE as necessary. If OK, Replace EVR solenoid. RECONNECT all vacuum hoses. RERUN Quick Test.**

Pinpoint Test DN20

TEST STEP		RESULT	ACTION TO TAKE
DN22	CHECK EVP SENSOR AND EGR VALVE OPERATION		
• Key off. • Disconnect EVP sensor. • Inspect the connectors on harness and sensor for damaged pins, corrosion, loose wires, etc. Service as necessary. • Remove vacuum line from EGR valve. • Exercise EGR valve by applying and releasing vacuum with a vacuum pump. • Reconnect vacuum line to EGR valve and electrical connector to EVP sensor. • Rerun Key On Engine Off and Key On Engine Running Self-Test. • **Is Code 34 or 334 still present?**		Yes ▶ No ▶	GO to DN23. The original Code 34/334 was the result of poor continuity at the EVP sensor connector or binding of the EGR valve stem by contaminants. Testing complete.

Pinpoint Test DN22

TEST STEP		RESULT	ACTION TO TAKE
DN23	CHECK EVP SIGNAL VOLTAGE		
• Key off. • Disconnect processor 60 pin connector. Inspect for damaged or pushed out pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box and connect processor to breakout box. • Key on, engine off. • Measure voltage between Test Pin 27 and Test Pin 46 at the breakout box. • **Is voltage greater than 0.67 volts?**		Yes ▶ No ▶	GO to DN24. REPLACE processor. REMOVE breakout box. RERUN Quick Test.

Pinpoint Test DN23

TEST STEP		RESULT	ACTION TO TAKE
DN24	FAULT ISOLATION CHECK		
The fault has been isolated to either the EGR valve or EVP sensor. Due to the nature of this particular fault, the EGR valve is suspect because of its vulnerability to contamination and carbon build-up from the exhaust flow. If the engine runs rough at idle, this is a good indication that the EGR valve is not fully seated rather than a worn or damaged sensor. • Remove the EGR valve and EVP sensor. • Inpect both components for contamination, unusual wear, carbon deposits, binding and other damage. Service as necessary. (Use Rotunda EGR Valve Cleaner 021-80056 or equivalent if needed.) • Re-install EGR valve and EVP assembly and run Key On Engine Off and Key On Engine Running Self-Tests. • **Is Code 34 or 334 still present?**		Yes ▶ No ▶	REPLACE EGR valve. REMOVE breakout box. RERUN Self-Test. If code is still present, REPLACE EVP sensor. The original Code 34/334 was the result of EGR valve contamination, binding or a worn or damaged EVP sensor. Testing complete.

Pinpoint Test DN24

TEST STEP		RESULT ▶	ACTION TO TAKE
DN25	SERVICE CODE 32/328: CHECK EVP SENSOR AND EGR VALVE OPERATION		
	Service Code 32/328 in Key On Engine Off and Key On Engine Running indicates that the EGR valve and/or EVP sensor voltage is lower than normal in the closed position. The EVP voltage is less than the closed limit voltage of 0.24 volts. Because of the preload of the EVP sensor it is very difficult to determine whether the EGR valve has malfunctioned or the EVP sensor has an abnormally high resistance. Possible causes: — Poor continuity in EVP sensor harness or connectors. — Damaged EGR valve. — Damaged EVP sensor. — Damaged processor. • Key off. • Disconnect EVP sensor. • Inspect the connectors at harness and sensor for damaged pins, corrosion, loose wires, etc. Service as necessary. • Remove vacuum line from EGR valve. • Exercise EGR valve by applying and releasing vacuum with a vacuum pump. • Reconnect vacuum line to EGR valve and electrical connector to EVP sensor. • Rerun Key On Engine Off and Key On Engine Running Self-Tests. • **Is Code 32 or 328 still present?**	Yes ▶ No ▶	GO to DN26. The original Code 32/328 was the result of poor continuity at the EVP sensor connector or binding of the EGR valve stem by contaminants. Testing complete.

Pinpoint Test DN25

TEST STEP		RESULT ▶	ACTION TO TAKE
DN26	CHECK EVP SIGNAL VOLTAGE		
	• Key off. • Disconnect processor 60 pin connector. Inspect for damaged or pushed out pins, corrosion, loose wires, etc. Service as necessary • Install breakout box and connect processor to breakout box. • Disconnect hose at EGR valve. • Connect a vacuum pump to the EGR valve. • Key on, engine off. • Measure voltage between Test Pin 27 and Test Pin 46 at the breakout box while performing the following: — Slowly increase vacuum at EGR valve to 6 in-Hg (20 kPa), then slowly bleed vacuum completely off. • **Does voltage drop to less than .24 volts?**	Yes ▶ No ▶	GO to DN27. REPLACE processor. REMOVE breakout box. RERUN Quick Test.

Pinpoint Test DN26

TEST STEP	RESULT ▶	ACTION TO TAKE
DN27 SUBSTITUTE EVP SENSOR		
• Key off. • Install a known good EVP senosr on original EGR valve. • Reconnect EGR vacuum hose and EVP sensor connector. • Rerun Key On Engine Off and Engine Running Self-Test. • **Is Code 32 or 328 still present?**	Yes ▶ No ▶	REPLACE the EGR valve. REMOVE breakout box. RERUN Quick Test. The original Code 32 / 328 was the result of the original EVP sensor. Testing complete.

Pinpoint Test DN27

TEST STEP	RESULT ▶	ACTION TO TAKE
DN40 SERVICE CODE 33 / 332: VERIFY VACUUM IS PRESENT AT EGR VALVE		
Service Code 33 / 332 in Key On Engine Running indicates that the EVP sensor input did not change after the EVR solenoid was instructed by the processor to open the EGR valve. Because a Code 84 / 558 was not received in the Key On Engine Off Self-Test, it is known that the EVR solenoid functions electrically. It is also known that the EVP sensor is in the expected closed valve range because Code 32 / 328 and 34 / 334 were not received in either Key On Engine Off or Key On Engine Running Tests. Possible causes: — Vacuum hose leaks — Obstructed vacuum hose — Obstructed EVR solenoid filter — Damaged EVR solenoid. — Damaged EVP sensor. — Damaged EGR valve • Key off. • Disconnect vacuum line from EGR valve. • Connect vacuum gauge at open vacuum line. • Rerun Engine Running Self-Test while observing vacuum gauge. • **Does vacuum increase above 1.0 in-Hg (3.4 kPa)?**	Yes ▶ No ▶	REMOVE vacuum gauge. GO to **DN43**. REMOVE vacuum gauge. RECONNECT EGR valve vacuum line. GO to **DN41**.

Pinpoint Test DN40

TEST STEP	RESULT ▶	ACTION TO TAKE
DN41 VERIFY VACUUM SUPPLY TO EVR SOLENOID		
• Key off. • Disconnect the vacuum source to the EVR solenoid. • Install a vacuum gauge at source vacuum. • Start engine and check vacuum. • **Is vacuum greater than 10 in-Hg (33 kPa)?**	Yes ▶ No ▶	GO to **DN42**. CHECK source vacuum hose to EVR solenoid. SERVICE as necessary. RERUN Quick Test. For applications with a vacuum reservoir, REFER to EMISSION SECTION for vacuum reservoir diagnosis.

Pinpoint Test DN41

TEST STEP		RESULT ▶	ACTION TO TAKE
DN42	CHECK VACUUM HOSE BETWEEN EVR SOLENOID AND EGR VALVE		
	• Carefully check EGR vacuum hose from EGR valve to EVR solenoid for obstructions, cracks, loose connectors, blockage, kinks, leaks, etc. • **Is vacuum hose in good condition?**	Yes ▶	CHECK EVR solenoid filter for obstructions. REPLACE as necessary. If OK, REPLACE EVR solenoid assembly. RECONNECT vacuum hose. RERUN Quick Test.
		No ▶	SERVICE vacuum hose as necessary. RERUN Quick Test.

Pinpoint Test DN42

TEST STEP		RESULT ▶	ACTION TO TAKE
DN43	CHECK EVP SENSOR AND EGR VALVE OPERATION		
	• Key off.	Yes ▶	GO to DN44.
	• Disconnect EVP sensor.	No ▶	The original Code 33/332 was the result of poor continuity at the EVP sensor connector or binding of the EGR valve stem by contaminants. SERVICE as necessary. Testing complete.
	• Inspect the connectors at harness and sensor for damaged pins, corrosion, loose wires, etc. Service as necessary.		
	• EGR valve vacuum line disconnected.		
	• Exercise EGR valve by applying and releasing vacuum with a vacuum pump.		
	• Reconnect vacuum line to EGR valve and electrical connector to EVP sensor.		
	• Rerun Key On Engine Running Self-Test.		
	• **Is Code 33 or 332 still present?**		

Pinpoint Test DN43

TEST STEP		RESULT ▶	ACTION TO TAKE
DN44	CHECK EGR VALVE FUNCTION		
	• Key off.	Yes ▶	The EGR valve is OK. REPLACE EVP sensor. RECONNECT all components. RERUN Quick Test.
	• Install a tachometer, Rotunda 059-00010 or equivalent.		
	• Disconnect the Idle Air Bypass Valve electrical connector (EFI engine only).	No ▶	REPLACE the EGR valve if it does not hold vacuum. If the EGR valve does hold vacuum, REMOVE and inspect it for binding or other damage. SERVICE or REPLACE EGR valve as necessary. RERUN Quick Test.
	• Remove and plug the vacuum line to the EGR valve.		
	• Start engine, idle with transmission in NEUTRAL and observe idle speed. If necessary, adjust idle speed.		
	• Slowly apply 5-10 in-Hg (17-34 kPa) to the EGR valve with a hand vacuum pump.		
	• **Does the idle speed drop more than 100 rpm with vacuum applied and return to normal (± 25 rpm) after the vacuum is removed?**		

Pinpoint Test DN44

TEST STEP		RESULT ▶	ACTION TO TAKE
DN90	CONTINUOUS MEMORY CODE 32/328 CODE 31/327 OR CODE 35/337: CHECK FOR INTERMITTENT SENSOR		
	Continuous Memory Code 32/328 or 31/327 indicates that the EGR valve was closed further than normal or EVP sensor or circuit has failed with an intermittent low voltage sometime during vehicle operation. Continuous Memory Code 35/337 indicates that the EVP signal to the processor was above the maximum Self-Test limit sometime during vehicle operation. Possible causes: — Poor continuity in EVP harness or connectors. — Intermittent open or short in EVP sensor or harness. — Damaged EVP sensor. • Disconnect processor 60 pin connector. Inspect for damaged or pushed out pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box, reconnect processor. • Connect DVOM between Test Pin 27 and Test Pin 46 at the breakout box. • Key on, engine off. • Lightly tap on EVP sensor and wiggle harness connector to simulate road shock. NOTE: **EVP voltage with EGR valve closed is normally between .24 and .67 volts and steady. A sudden change in voltage indicates a fault.** • **Is a fault indicated?**	Yes ▶ No ▶	REMOVE and INSPECT EVP sensor connector. If OK, REPLACE EVP sensor. CLEAR Continuous Memory RERUN Quick Test. LEAVE DVOM connected, RECONNECT processor and GO to DN91.

Pinpoint Test DN90

TEST STEP		RESULT ▶	ACTION TO TAKE
DN91	CHECK EEC-IV VEHICLE HARNESS FOR INTERMITTENT OPENS OR SHORTS		
	• Key on, engine off. • DVOM connected between Test Pin 27 and Test Pin 46 at breakout box. — Grasp the vehicle harness closest to the EVP sensor connector. Shake and bend a small section of the EEC-IV harness while working your way to the dash panel. Also wiggle, shake and bend the EEC-IV harness from the dash panel to the processor. • **Is a fault indicated?**	Yes ▶ No ▶	ISOLATE fault and SERVICE as necessary. CLEAR Continuous Memory RERUN Quick Test. LEAVE DVOM connected and GO to DN92.

Pinpoint Test DN91

TEST STEP		RESULT	ACTION TO TAKE
DN92	CHECK VOLTAGE WHILE EXERCISING EGR VALVE		
	• Disconnect vacuum hose at EGR valve and connect a vacuum pump. • Key on, engine off. • Measure voltage between Test Pin 27 and Test Pin 46 at the breakout box while performing the following: — Slowly apply 5-10 in-Hg (17-34 kPa) of vacuum to EGR valve, then slowly bleed vacuum off. • **Does the voltage increase and decrease steadily from no more than 4.81 volts to no less than .24 volts?**	Yes ▶ No ▶	Unable to duplicate and/or identify fault at this time. For further diagnosis using the EEC-IV montor box, REFER to INTERMITTENT FAULT DIAGNOSIS. REPLACE EVP sensor. REMOVE breakout box. RECONNECT all components. RERUN Quick Test.

Pinpoint Test DN92

TEST STEP		RESULT	ACTION TO TAKE
DN110	CONTINUOUS MEMORY CODE 33/332: CHECK EGR VALVE FUNCTION		
	Continuous Memory Code 33/332 indicates that the EGR valve did not open with the engine stabilized and with EVR solenoid duty cycle present sometime during vehicle operation. Possible cause: — Obstructed or cracked hose to EGR valve. — Damaged EGR valve. — Damaged EVR solenoid harness. • Key off. • Disconnect vacuum hose at EGR valve and connect a hand vacuum pump. • Apply 10-20 in-Hg (34-67 kPa) to EGR valve. • **Does EGR valve open and maintain vacuum?**	Yes ▶ No ▶	REMOVE vacuum pump. RECONNECT vacuum hose. GO to DN111. REMOVE and INSPECT the EGR valve assembly for blockage, binding, contamination and leakage. SERVICE EGR valve as necessary. CLEAR Continuous Memory RERUN Quick Test.

Pinpoint Test DN110

TEST STEP		RESULT	ACTION TO TAKE
DN111	CHECK VACUUM HOSE TO AND FROM EVR SOLENOID		
	• Carefully check EGR vacuum hose from EGR valve to EVR solenoid and from EVR solenoid to vacuum source for obstructions, cracks, loose connection, kinks, leaks, etc. • **Are vacuum hoses in good condition?**	Yes ▶ No ▶	GO to DN112. SERVICE as necessary. CLEAR Continuous Memory. RERUN Quick Test.

Pinpoint Test DN111

TEST STEP		RESULT ▶	ACTION TO TAKE
DN112	CHECK EVR SOLENOID AND HARNESS FOR INTERMITTENT FAULT		
	• Key off. • Disconnect vacuum hose at EGR valve and connect hose to vacuum gauge. • Disconnect processor 60 pin connector. Inspect for damaged or pushed out pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box and connect processor to breakout box. • Start engine and run at idle. • Jumper EVR signal Test Pin 33 to Test Pin 40. • While reading the vacuum gauge, tap the EVR solenoid and wiggle the EVR connector and harness. • **Does the vacuum gauge indicate a sudden drop in vacuum when the EVR solenoid is tapped or when the connector or harness is being wiggled?** NOTE: **EVR leakage below 1.0 in-Hg (3.4 kPa) is normal.**	Yes ▶ No ▶	ISOLATE fault and SERVICE or REPLACE as necessary. REMOVE breakout box. RECONNECT all components. RERUN Quick Test. Unable to duplicate and / or identify fault at this time. For further diagnosis using the EEC-IV monitor box, REFER to INTERMITTENT FAULT DIAGNOSIS.

Pinpoint Test DN112

TEST STEP		RESULT ▶	ACTION TO TAKE
DN115	CONTINUOUS MEMORY CODE 34 / 334 CHECK EGR VACUUM WITH ENGINE RUNNING		
	Continuous Memory Code 34 / 334 indicates that the EGR valve was open while the engine was stabilized and at idle sometime during vehicle operaion. Possible causes: — EGR valve not seating. — EVR solenoid allowing excessive vacuum to EGR valve. — Damaged EVP sensor. • Key off. • Disconnect vacuum hose at EGR valve and connect hose to a vacuum gauge. • Run engine to operating temperature and stabilized idle. • With engine at idle, tap the EVR solenoid and wiggle the EVR connector while noting vacuum reading. • **Does the EGR vacuum remain below 1.0 in-Hg (3.4 kPa) with no sudden increase?** NOTE: **EVR leakage below 1.0 in-Hg (3.4 kPa) is normal.**	Yes ▶ No ▶	GO to DN116. INSPECT EVR solenoid connector for shorts. SERVICE as necessary. If OK, SERVICE or REPLACE EVR solenoid. RECONNECT all components. CLEAR Continuous Memory RERUN Quick Test.

Pinpoint Test DN115

TEST STEP		RESULT ▶	ACTION TO TAKE
DN116	CHECK EVR SIGNAL FOR INTERMITTENT SHORT		
	• Vacuum gauge connected. • Key on, engine running. • Look for an increase in EGR valve vacuum while performing the following: — With the engine at idle, wiggle the EVR solenoid harness between the EVR solenoid and dash panel and between dash panel and processor. • **Does the EGR vacuum increase?**	Yes ▶	ISOLATE and SERVICE short in EVR circuit. REMOVE vacuum gauge. RECONNECT all components. CLEAR Continuous Memory RERUN Quick Test.
		No ▶	RECONNECT vacuum hose to EGR valve. GO to DN117.

Pinpoint Test DN116

TEST STEP		RESULT ▶	ACTION TO TAKE
DN117	CHECK EVP SIGNAL AT PROCESSOR WITH ENGINE IDLING		
	• Key off. • Disconnect processor 60 pin connector. Inspect for damaged or pushed out pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box and connect processor to breakout box. • Key on, engine running. • Measure voltage between Test Pin 27 and Test Pin 46 at the breakout box while performing the following: — With engine at idle, tap and wiggle the EVP sensor and connector. • **Does the voltage increase above .67 volts?**	Yes ▶	REMOVE EGR assembly and inspect for contamination, carbon deposits, binding and other damage. SERVICE as necessary. If EGR valve is OK, REPLACE EVP sensor. CLEAR Continuous Memory RERUN Quick Test.
		No ▶	Unable to duplicate and/or identify fault at this time. For further diagnosis using the EEC-IV monitor box, **REFER to** INTERMITTENT FAULT DIAGNOSIS.

Pinpoint Test DN117