Dynamic Response Test	Pinpoint Test	M

Note

You should enter this Pinpoint Test only when a Service Code 77 is received in Quick Test Step 5.0.

Remember

To prevent the replacement of good components, be aware that the following non-EEC areas may be at fault:

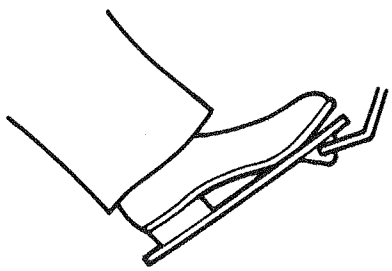
- Operator did not perform a brief WOT after dynamic response code.
- Mechanical engine problems; engine did not achieve greater than 2000 rpm.

This Pinpoint Test is intended to diagnose only the following:

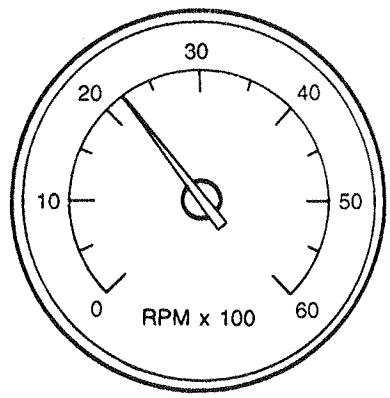
- Throttle movement (greater than 3/4 throttle).
- Vane Airflow (greater than 50% open).
- Rpm increase (greater than 2000 rpm).

Pinpoint Test Schematic

OPERATOR PERFORMS BRIEF WOT



RPM INCREASE
GREATER THAN 2000 RPM



A9689-C

Dynamic Response Test

Pinpoint Test M

TEST STEP		RESULT ▶	ACTION TO TAKE
M1	SERVICE CODE 77: SYSTEM FAILED TO RECOGNIZE BRIEF WOT		
NOTE: A brief snap of the throttle may not be sufficient to pass this test. Be sure to go to WOT and return. • Rerun Engine Running Self-Test. Be sure operator is familiar with the engine running format which proceeds as follows: — With Self-Test activated restart the engine. — ID Code 2 (0) start of test. — Dynamic response Code 1 (0) perform brief WOT. — Testing over. — Service code output begins. • Is Code 77 still present?		Yes ▶	REPLACE processor. RERUN Quick Test.
		No ▶	Dynamic Response Test passed. SERVICE any other service code(s) received as necessary.

"CHECK ENGINE" Light/Message "CHECK ENGINE"/"CHECK DCL" Message	Pinpoint Test	ML

Note

You should enter this Pinpoint Test only when directed here from Pinpoint Test QA or Diagnostic By Symptom in the Engine Supplement Section.

Remember

To prevent the replacement of good components, be aware that the following non-EEC areas may be at fault:

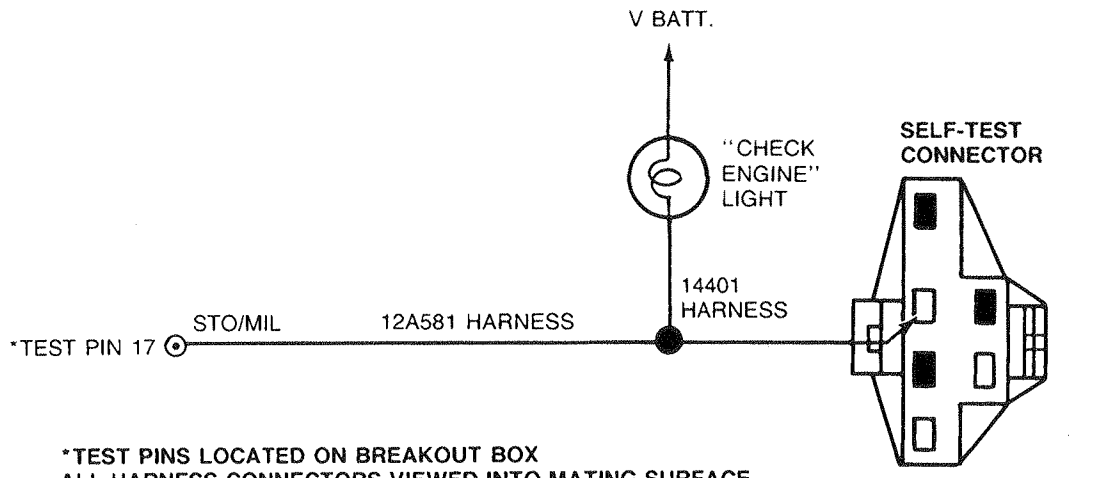
- Fuse, bulb or socket.

This Pinpoint Test is intended to diagnose only the following:

- STO/MIL circuit. (All except 1.9L EFI and 3.8L EFI Continental)
- MIL circuit (1.9L EFI only)
- Processor assembly.
- Data Communications Link (DCL) (3.8L EFI Continental only)

Pinpoint Test Schematic

ALL EXCEPT 1.9L EFI AND 3.8L EFI CONTINENTAL



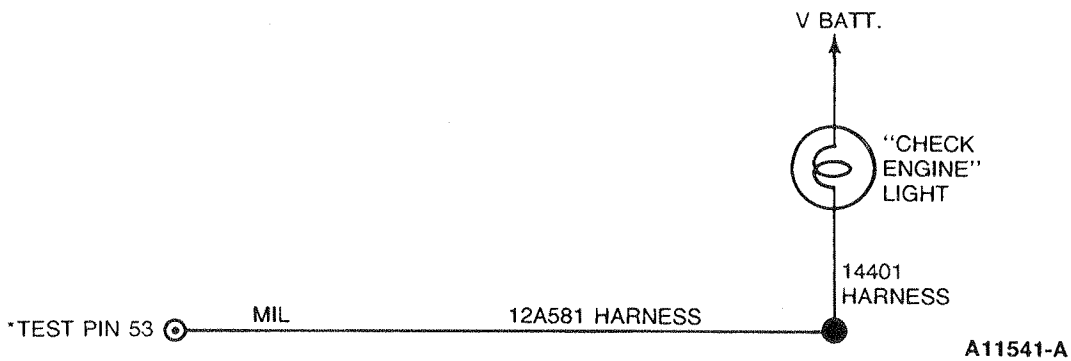
*TEST PINS LOCATED ON BREAKOUT BOX
ALL HARNESS CONNECTORS VIEWED INTO MATING SURFACE

A9920-B

"CHECK ENGINE" Light/Message "CHECK ENGINE"/"CHECK DCL" Message	Pinpoint Test	ML

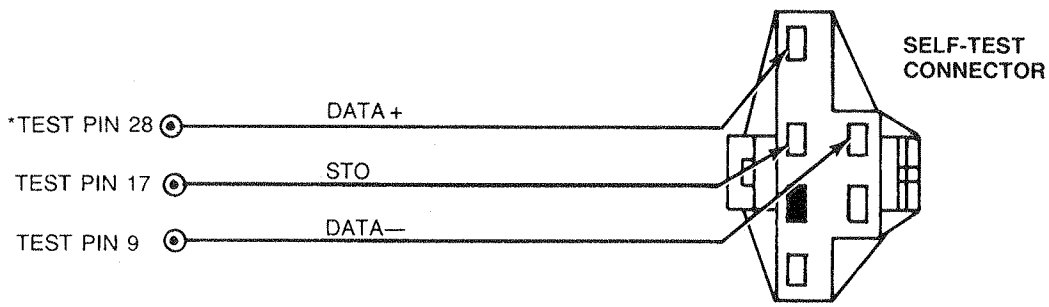
Pinpoint Test Schematic

1.9L EFI



A11541-A

3.8L EFI CONTINENTAL



*TEST PINS LOCATED ON BREAKOUT BOX
HARNESS CONNECTOR VIEWED INTO MATING SURFACE.

A11607-A

"CHECK ENGINE" Light/Message "CHECK ENGINE"/"CHECK DCL" Message

Pinpoint Test **ML**

TEST STEP	RESULT ▶	ACTION TO TAKE
ML1 "CHECK ENGINE" LIGHT ALWAYS ON: CHECK FOR SHORT TO GROUND		
NOTE: If vehicle will not start go to Pinpoint Test Step A1. • **If any Key On Engine Off service codes are present, service before proceeding. If no codes are outputted, continue with this Test Step.** • Key off. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box, leave processor disconnected. • DVOM on 200,000 ohm scale. • Measure resistance between Test Pin 17 (Test Pin 53 on 1.9L EFI) and Test Pin 40 at the breakout box. • Is resistance less than 10,000 ohms?	Yes ▶ No ▶	REMOVE breakout box. RECONNECT processor. SERVICE short circuit between Test Pin 17/53 and "Check Engine" Light, or between Test Pin 17 and the Self-Test Connector. RERUN Quick Test. REMOVE breakout box. REPLACE processor. RERUN Quick Test.
ML5 "CHECK ENGINE" LIGHT NEVER ON: CHECK CONTINUITY OF STO/MIL CIRCUIT		
NOTE: If vehicle will not start go to Pinpoint Test Step A1. • Key off. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box, leave processor disconnected. • DVOM on 200 ohm scale. • Measure resistance between Test Pin 17 (Test Pin 53 on 1.9L EFI) and the "CHECK ENGINE" light. • Is resistance less than 5 ohms?	Yes ▶ No ▶	GO to ML6. REMOVE breakout box. RECONNECT processor. SERVICE OPEN circuit. RERUN Quick Test.
ML6 CHECK FOR POWER TO BULB		
• Check for power to "CHECK ENGINE" light bulb. • Is there power at the light bulb?	Yes ▶ No ▶	REPLACE bulb or socket. GO to ML7. CHECK fuse and VBATT input circuit. GO to ML7.

"CHECK ENGINE" Light/Message "CHECK ENGINE"/"CHECK DCL" Message	Pinpoint Test	ML

TEST STEP	RESULT ▶	ACTION TO TAKE
ML7 CONFIRM CIRCUIT REPAIR • Reconnect processor. • Turn key to run. • Is "CHECK ENGINE" Light ON? **NOTE: Refer to Appendix in Section 16 for a detailed description of HOW the "CHECK ENGINE" Light (malfunction indicator light) operates.**	Yes ▶ No ▶	System OK. REPLACE processor.
ML10 "CHECK ENGINE" MESSAGE DISPLAYED **NOTE: If vehicle is a no start, go to Pinpoint Test Step A1.** • Run Key On Engine Off Self-Test. • Is result 11-10-11 (Pass Codes)? **NOTE: Refer to Appendix in Section 16 for detailed description of how the "CHECK ENGINE" message operates.**	Yes ▶ No ▶	GO to the Continental Shop Manual. GO to Quick Test Step 3.0B. PROCEED as directed.
ML15 "CHECK ENGINE"/"CHECK DCL" MESSAGE DISPLAYED **NOTE: If vehicle is a no start, go to Pinpoint Test Step A1.** • Run Key On Engine Off Self-Test with a STAR tester or volt/ohmmeter. • Is result 11-10-11 (Pass Codes)? **NOTE: Refer to Appendix in Section 16 for a detailed description of how the "CHECK ENGINE"/"CHECK DCL" message operates.**	Yes ▶ No ▶	GO to Continental Shop Manual, Group 33 for DCL diagnostics. GO to Quick Test Step 3.0B. PROCEED as directed.

Ignition Diagnostic Monitor (IDM)	Pinpoint Test	N

Note

You should enter this Pinpoint Test only when a Service Code 18 is received in Quick Test Step 6.0.

Remember

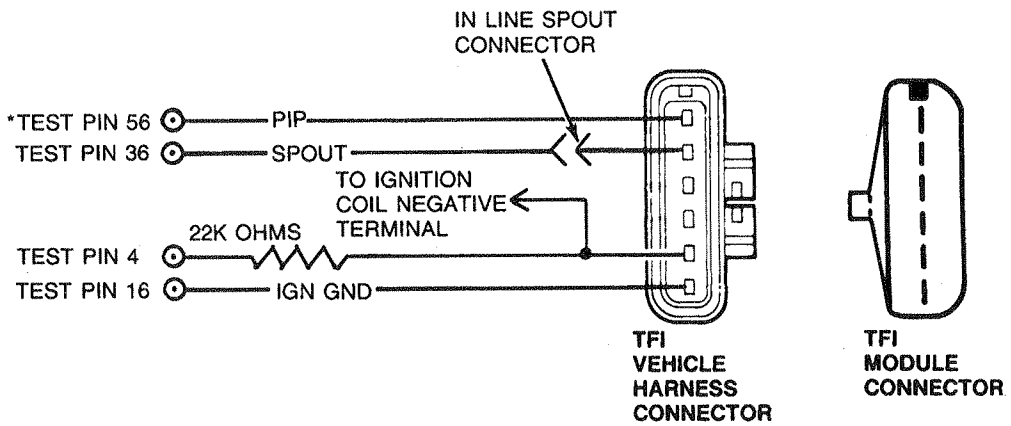
To prevent the replacement of good components, be aware that the following non-EEC areas may be at fault:

- Ignition module
- Ignition coil
- Spark plugs and high tension cables
- Distributor and PIP sensor

This Pinpoint Test is intended to diagnose only the following:

- Harness circuits: IGNITION GROUND, SPOUT, PIP, IDM.

Pinpoint Test Schematic



***TEST PINS LOCATED ON BREAKOUT BOX.**
ALL HARNESS CONNECTORS VIEWED INTO MATING SURFACE.

A9690-D

Ignition Diagnostic Monitor (IDM)

Pinpoint Test N

TEST STEP	RESULT ▶	ACTION TO TAKE
N1 CHECK CONTINUITY OF IDM CIRCUIT **NOTE: It is important to know that the IDM circuit has a 20,000 ohm resistor between Test Pin 4 and the Ignition Coil Negative Terminal.** • Key off, wait 10 seconds. • Disconnect E-core ignition coil. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box, leave processor disconnected. • DVOM on 200,000 ohm scale. • Measure resistance between Test Pin 4 at the breakout box and ignition coil harness connector negative terminal. • Is resistance between 20,000 and 24,000 ohms?	Yes ▶ No ▶	GO to N2. REMOVE breakout box. RECONNECT processor. SERVICE open circuit. RERUN Quick Test. RECONNECT E-core ignition coil.
N2 CHECK FOR SHORT TO GROUND • Key off, wait 10 seconds. • Breakout box installed, processor disconnected. • DVOM on 200,000 ohm scale. • Measure resistance between Test Pin 4 and Test Pins 40, 46 and 60 at the breakout box. • Are all resistances above 10,000 ohms?	Yes ▶ No ▶	REMOVE breakout box. RECONNECT E-core ignition coil and processor. GO to N3. REMOVE breakout box. SERVICE short to ground in IDM circuit. RECONNECT E-core ignition coil and processor. RERUN Quick Test.

Ignition Diagnostic Monitor (IDM)

Pinpoint Test **N**

TEST STEP	RESULT ▶	ACTION TO TAKE
N3 CHECK TFI MODULE • Key off, wait 10 seconds. • Deactivate Self-Test. • Connect VOM or STAR per Quick Test Step 2.0. • Enter Engine Running Continuous Monitor Test (as instructed in Quick Test Step 6.0B). • Observe VOM or STAR LED for indication of a fault while performing the following: • Lightly tap on TFI module (simulate road shock). • Wiggle TFI connector. • Is a fault indicated?	Yes ▶ No ▶	DISCONNECT and INSPECT connectors. If connector and terminals are good, GO to Section 15, TFI Ignition Diagnostics. GO to N4.
N4 CHECK EEC-IV HARNESS • While still in continuous monitor test from Step N3, observe VOM or STAR LED for a fault indication while performing the following: • While looking for faults listed in the table below, grasp the harness close to the TFI connector. Wiggle, shake or bend a small section of the EEC-IV system harness while working your way to the dash panel. Also wiggle, shake or bend the EEC-IV harness from the dash panel to the processor. Do this test on the circuits listed one at a time if needed to locate a faulty circuit. • Is a fault indicated?	Yes ▶ No ▶	ISOLATE fault and make necessary repairs. RERUN Quick Test. GO to N5.

FAULT	BREAKOUT BOX NO.
PIP shorted to ground or open	Test Pin 56
Spout shorted to ground	Test Pin 36
Ign. ground open	Test Pin 16
IDM open or shorted to ground, power	Test Pin 4

Ignition Diagnostic Monitor (IDM)	Pinpoint Test	N

TEST STEP		RESULT ▶	ACTION TO TAKE
N5	CHECK PROCESSOR AND HARNESS CONNECTORS		
• Key off, wait 10 seconds. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires, etc. • Are connectors and terminals OK?		Yes ▶	REPLACE processor. Start engine and run for about one minute. RERUN Key On Engine Off Self-Test observing continuous codes.
		No ▶	SERVICE as necessary. RECONNECT processor. RERUN Quick Test.

Spark Timing Check	Pinpoint Test	P

Note

You should enter this Pinpoint Test only when directed here from Quick Test Step 4.0 or when a Service Code 18 is received in Quick Test Step 5.0.

Remember

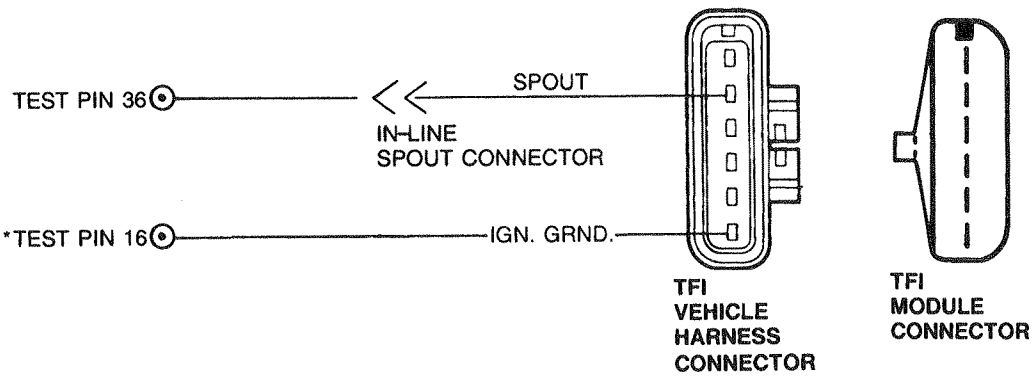
To prevent the replacement of good components, be aware that the following non-EEC areas may be at fault:

- Base Engine
- PIP Sensor
- TFI Module

This Pinpoint Test is intended to diagnose only the following:

- Harness Spout Circuit
- Base Timing
- Processor Assembly

Pinpoint Test Schematic



***TEST PINS LOCATED ON BREAKOUT BOX.**
ALL HARNESS CONNECTORS VIEWED INTO MATING SURFACE.

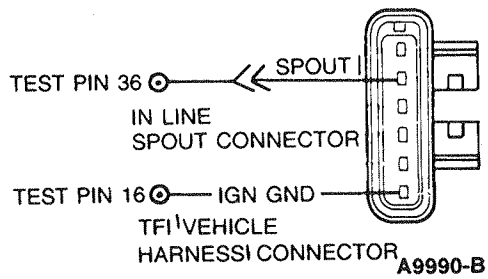
A9691-D

Spark Timing Check	Pinpoint Test	P

TEST STEP	RESULT ▶	ACTION TO TAKE
P1 CHECK SPARK TIMING		
NOTE: Self-Test locks the timing at 20 degrees plus base during code output and for two minutes after the last service code is outputted. Timing check must be made during this time period. Self-Test timing is base +20 degrees (±3 degrees) BTDC. (See VECI decal for base value.) • Check timing. Record value. • Is timing equal to base plus 20 degrees (±3 degrees)?	Yes ▶ No ▶	GO to Quick Test Step [5.0]. GO to [P2].
P2 CHECK SPARK OUTPUT (SPOUT) CIRCUIT TO THE TFI MODULE		
• Locate spout connector and open this connection. • Start engine. • Check base timing. • Is base timing within ±3 degrees of value on VECI decal?	Yes ▶ No ▶	RECONNECT spout connector. GO to [P3]. Adjust base timing if necessary. REFER to Section 15 for engine timing instructions. After timing is reset, RECONNECT spout and PERFORM Quick Test Step [4.0].
P3 CHECK FOR POWER TO PROCESSOR		
• Key off, wait 10 seconds. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires. Service as necessary. • Install breakout box. • Key on, engine off. • DVOM on 20 volt scale. • Measure voltage between Test Pin 37 and Test Pin 40 and between Test Pin 57 and Test Pin 60 at the breakout box. • Is voltage less than 10.5 volts?	Yes ▶ No ▶	GO to Pinpoint Test Step [B1] except 2.3L EFI TC, 2.5L HSC CFI, 3.0L EFI, and 3.8L FWD EFI passenger car; GO to Pinpoint Test Step [X1]. GO to [P4].

Spark Timing Check

Pinpoint Test **P**

TEST STEP	RESULT ▶	ACTION TO TAKE
P4 CHECK HARNESS FOR CONTINUITY		
• Key off, wait 10 seconds. • Breakout box installed. • Processor disconnected. • Disconnect TFI module. • DVOM on 200 ohm scale. • Measure resistance between Test Pin 36 at the breakout box and the spout pin at the TFI vehicle harness connector. • Is resistance less than 5 ohms?  	Yes ▶ No ▶	GO to P5 . SERVICE open circuit. CHECK timing per P1 .
P5 HARNESS CHECK — IGNITION GROUND		
• Key off, wait 10 seconds. • Breakout box installed. • Connect processor to breakout box. • Reconnect TFI module. • Timing switch to "computed" position on breakout box. • DVOM on 20 volt scale. • Measure voltage between Test Pin 36 at the breakout box and battery negative post during Engine Running Self-Test. • Is voltage between 4.0 and 8.0 volts?	Yes ▶ No ▶	EEC system OK. REFER to Section 15 for TFI-IV Diagnosis. REMOVE breakout box. REPLACE processor. RERUN Quick Test.

No Codes/Codes Not Listed	Pinpoint Test	QA

Note

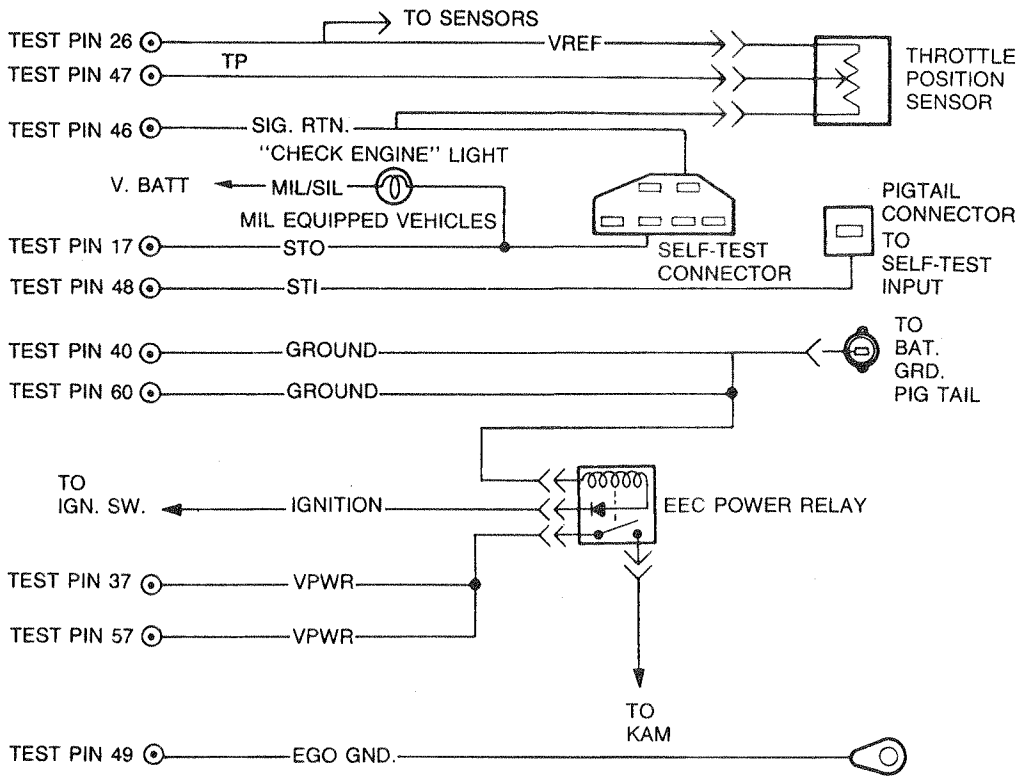
You should enter this Pinpoint Test only when directed here from Quick Test Step 3.0, 5.0 or 6.0 or when directed here from Diagnostic By Symptom in the Engine Supplement Section or from a Pinpoint Test Step.

Remember

This Pinpoint Test is intended to diagnose only the following:

- Processor.
- EEC Power Relay.
- Harness Circuits: SIGNAL RETURN, STO, STI, GROUND, VPWR, VREF, NDS.

Pinpoint Test Schematic



***TEST PINS LOCATED ON BREAKOUT BOX.**
ALL HARNESS CONNECTORS VIEWED INTO MATING SURFACE.

A9692-D

No Codes/Codes Not Listed | Pinpoint Test | QA

TEST STEP	RESULT ▶	ACTION TO TAKE
QA1 CHECK FOR VREF		
Refer to schematic in Pinpoint Test QA. • Key off, wait 10 seconds. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box, connect processor to breakout box. • DVOM on 20 volt scale. • Key on, engine off. • Measure voltage between Test Pin 26 and Test Pin 46 at the breakout box. • Is voltage between 4.0 and 6.0 volts?	Yes ▶ No ▶	RECONNECT TP Sensor. GO to **QA2**. GO to Pinpoint Test Step **C1**.
QA2 CHECK SELF-TEST INPUT CONTINUITY		
Refer to schematic in Pinpoint Test QA. • Key off, wait 10 seconds. • Breakout box installed, processor disconnected. • Set DVOM to 200 ohm scale. • Measure resistance between SELF-TEST INPUT at the Self-Test single pin connector and Test Pin 48 at the breakout box. • Is resistance less than 5 ohms?	Yes ▶ No ▶	GO to **QA3**. SERVICE open circuit. REMOVE breakout box. RECONNECT processor. RERUN Quick Test.
QA3 CHECK SELF-TEST OUTPUT CIRCUIT CONTINUITY		
Refer to schematic in Pinpoint Test QA. • Breakout box installed, processor disconnected. • DVOM to 200 ohm scale. • Measure resistance between SELF-TEST OUTPUT at the Self-Test connector and Test Pin 17 at the breakout box. • Is resistance less than 5 ohms?	Yes ▶ No ▶	GO to **QA4**. SERVICE open circuit. REMOVE breakout box. RECONNECT processor. RERUN Quick Test.

No Codes/Codes Not Listed	Pinpoint Test	QA

TEST STEP	RESULT ▶	ACTION TO TAKE
QA4 CHECK EGO SENSOR GROUND CONTINUITY		
Refer to schematic in Pinpoint Test QA. • Key off. • Breakout box installed, processor disconnected. • DVOM on 200 ohm scale. • Measure resistance between EGO GROUND on engine and Test Pin 49 at the breakout box. • Is resistance less than 5 ohms?	Yes ▶ No ▶	GO to QA5 . SERVICE open circuit. REMOVE breakout box. RECONNECT processor. RERUN Quick Test.
QA5 STO SHORT TO GROUND		
• Key off. • Breakout box installed, processor disconnected. • DVOM on 200 ohm scale. • Measure resistance between SELF-TEST OUTPUT at Self-Test connector and engine block ground. • Is resistance greater than 5 ohms?	No ▶ Yes ▶	REMOVE breakout box. RECONNECT processor. SERVICE STO or MIL/SIL circuit for short to ground. RERUN Quick Test. 3.0L EFI passenger car GO to QA7 . All others GO to QA6 .
QA6 INTERMITTENT NDS		
• Key off. • Breakout box installed. • Connect processor. • Connect DVOM between Test Pin 30 and Test Pin 40 or 60 at the breakout box. • Run Engine Running Self-Test. • Is voltage greater than 1 volt? **NOTE: Refer to proper illustration in Pinpoint-Test FA for connector orientation.**	Yes ▶ No ▶	SERVICE intermittent open in NDS harness, connector or switch. If OK, REMOVE breakout box. RECONNECT processor. GO to Quick Test Step 5.0 for appropriate service codes. GO to QA7 .

No Codes/Codes Not Listed

Pinpoint Test **QA**

TEST STEP	RESULT ▶	ACTION TO TAKE
QA7 POWER RELAY ALWAYS ON • Key off. • Breakout box installed. • Connect DVOM to Test Pin 37 or 57 and to Test Pin 40 or 60 at the breakout box. • Turn key ON and OFF. Wait 10 seconds. • Does voltage change from greater than 10.5 volts to zero volts?	Yes ▶	If vehicle is equipped with MIL (malfunction indicator light displayed as "CHECK ENGINE" light) or SIL (shift indicator light) GO to **QA9**. If not, REPLACE the processor. RERUN Quick Test.
	No ▶	GO to **QA8**.
QA8 VPWR HARNESS SHORT TO POWER • Key off. • Breakout box installed. • EEC Power Relay or Integrated Relay Controller disconnected. • Connect DVOM to Test Pin 37 or 57 and to Test Pin 40 or 60 at the breakout box. • Is voltage greater than 10.5 volts?	Yes ▶	SERVICE VPWR harness short to power. RERUN Quick Test.
	No ▶	REPLACE EEC Power Relay or Integrated Relay Controller. RERUN Quick Test.
QA9 MIL AND/OR SIL EQUIPPED VEHICLES • Are any of these conditions present? • Shift indicator light: — Always ON ▶		GO to **KL1**.
— Always OFF ▶		GO to **KL1**.
• Malfunction indicator light: — Always ON ▶		GO to **ML1**.
— Always OFF ▶		GO to **ML5**.
• Shift and malfunction indicator lights functioning normally. ▶		REPLACE the processor. RERUN Quick Test.

Key On Engine Off and/or Continuous Memory Service Code 15

Pinpoint Test **QB**

Note

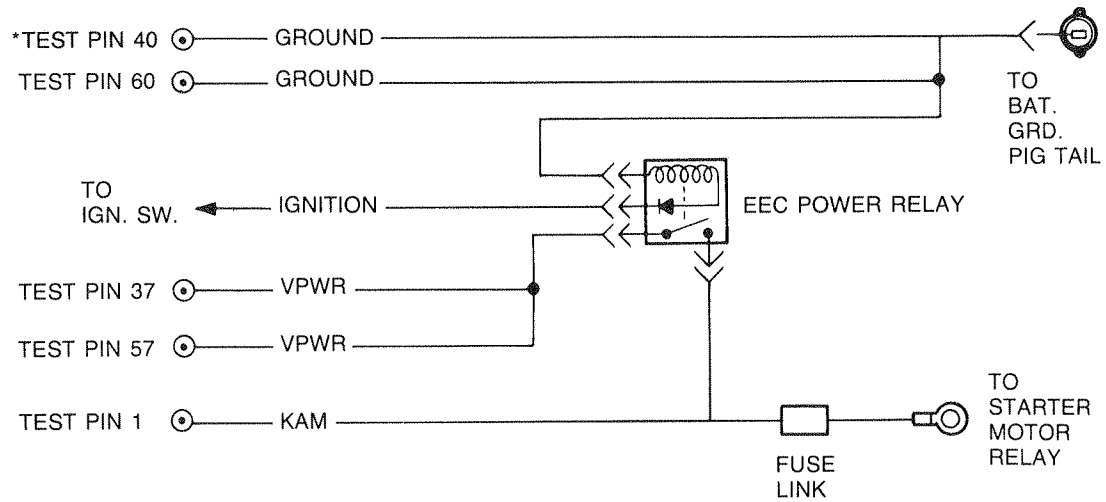
You should enter this Pinpoint Test only when directed here from Quick Test Step 3.0.

Remember

This Pinpoint Test is intended to diagnose only the following:

- Processor.
- Harness Circuits: GROUND, VPWR, KAM, IGNITION.

Pinpoint Test Schematic



***TEST PINS LOCATED ON BREAKOUT BOX**
ALL HARNESS CONNECTORS VIEWED INTO MATING SURFACE

A11503-A

Key On Engine Off and/or Continuous Memory Service Code 15

Pinpoint Test **QB**

TEST STEP	RESULT ▶	ACTION TO TAKE
QB1 CONDITIONS FOR CONTINUOUS CODE 15 • Power interruption to Keep Alive Memory (KAM) Pin 1 may result in a service code being stored in Continuous Memory.* • Clear continuous memory codes (use procedure described in Quick Test Step 6.0A). • Rerun Quick Test Step 3.0 through Continuous memory code output. • Code 15 present on retest? ***NOTE: Anytime power is interrupted to the processor, for example when installing a breakout box, a Code 15 may be outputted the first time Key On Engine Off Self-Test is run after restoration of power. Rerun Self-Test to ensure correct diagnosis.**	Yes ▶ No ▶	GO to QB2 . Test complete.
QB2 INSPECT ENGINE COMPARTMENT WIRING FOR PROPER ROUTING • Are any EEC components or EEC wiring close to ignition components or wires (High Electrical Energy Sources)? If EEC wiring close, reroute and rerun Step 3.0. • Is Code 15 still present in Continuous Memory?	Yes ▶ No ▶	GO to QB3 . Test complete.
QB3 CHECK POWER CIRCUIT TO KEEP ALIVE MEMORY • Key off, wait 10 seconds. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box, leave processor disconnected. • DVOM on 20 volt scale. • Connect positive test lead to Test Pin 1 and negative test lead to Test Pin 40 or 60 at the breakout box. • Key on. • Is voltage less than 10.5 volts? **NOTE: If on initial Key On Engine Off Self-Test, no voltage to the processor is observed, a Code 15 will be generated.**	Yes ▶ No ▶	SERVICE open circuit. REMOVE breakout box. RECONNECT processor. RERUN Quick Test. REMOVE breakout box. REPLACE processor. RERUN Quick Test.

Output State Check Not Functioning

Pinpoint Test | **QC**

Note

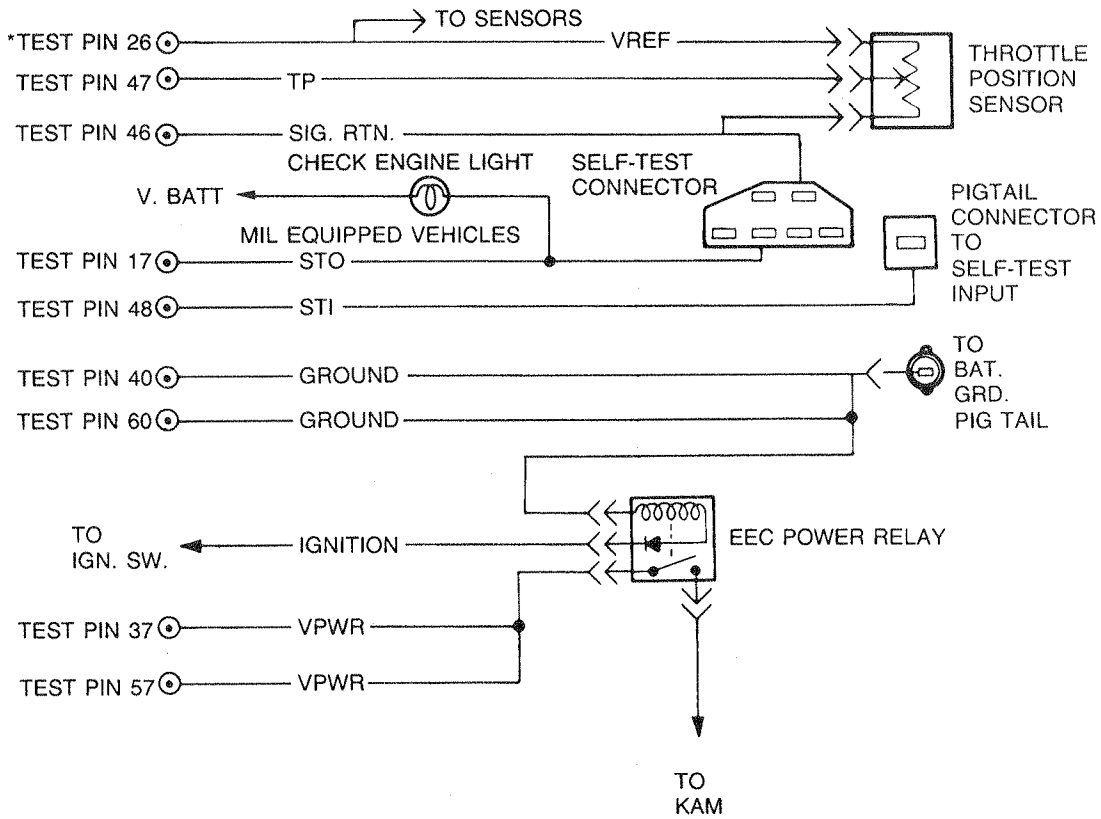
You should enter this Pinpoint Test only when directed here.

Remember

This Pinpoint Test is intended to diagnose only the following:

- Processor
- Harness Circuits: SIGNAL RETURN, STO, STI, GROUND, VPWR, VREF

Pinpoint Test Schematic



***TEST PINS LOCATED ON BREAKOUT BOX**
ALL HARNESS CONNECTORS VIEWED INTO MATING SURFACE

A11504-A

Output State Check Not Functioning

Pinpoint Test **QC**

TEST STEP	RESULT ▶	ACTION TO TAKE
QC1 CHECK FOR CODES 23, 53, 63 OR 68		
• Key off, wait 10 seconds. • Perform Key On Engine Off Self-Test. • Leave Key On to enter Output State Check. • Key on engine off. • Are any of these codes 23, 53, 63 or 68 present?	Yes ▶	GO to Quick Test Step **3.0B** and SERVICE appropriate code as instructed.
	Code 11 ▶	GO to **QC2** .
	No Codes ▶	GO to **QA1** .
QC2 CHECK THROTTLE LINKAGE		
• Check throttle and throttle linkages for sticking and binding. • Is throttle OK?	Yes ▶	REPLACE TP sensor. RERUN Quick Test.
	No ▶	SERVICE as necessary. RERUN Quick Test.

Processor Power Check

Pinpoint Test **QD**

Note

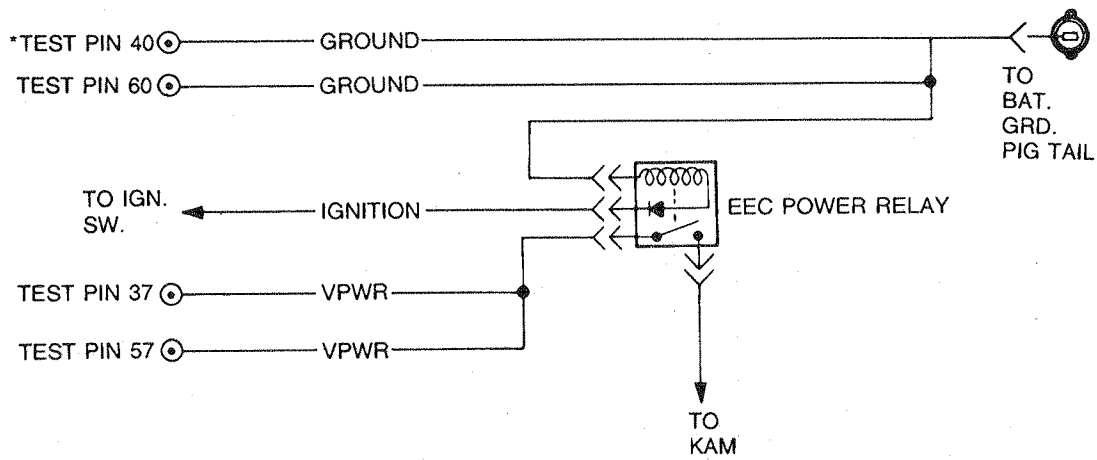
You should enter this Pinpoint Test only when directed here from Quick Test Step 3.0 or 6.0 or when directed here from Diagnostic By Symptom in the Engine Supplement Section or from a Pinpoint Test Step.

Remember

This Pinpoint Test is intended to diagnose only the following:

- Processor.
- Harness Circuits: GROUND, VPWR.

Pinpoint Test Schematic



***TEST PINS LOCATED ON BREAKOUT BOX.**
ALL HARNESS CONNECTORS VIEWED INTO MATING SURFACE.

A11505-A

Processor Power Check

Pinpoint Test **QD**

TEST STEP	RESULT ▶	ACTION TO TAKE
QD1 CHECK FOR POWER TO PROCESSOR		
• Key off, wait 10 seconds. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box. • Key on, engine off. • DVOM on 20 volt scale. • Measure voltage between Test Pin 37 and Test Pin 40 at the breakout box and between Test Pin 57 and Test Pin 60 at the breakout box. • Is either voltage less than 10.5 volts?	Yes ▶	2.3L EFI TC, 2.5L CFI and 3.0L EFI passenger car GO to Pinpoint Test **X1**. All others GO to Pinpoint Test **B1**.
	No ▶	REMOVE breakout box. REPLACE processor. RERUN Quick Test.

Re-Initialization Check	Pinpoint Test	QE

Note

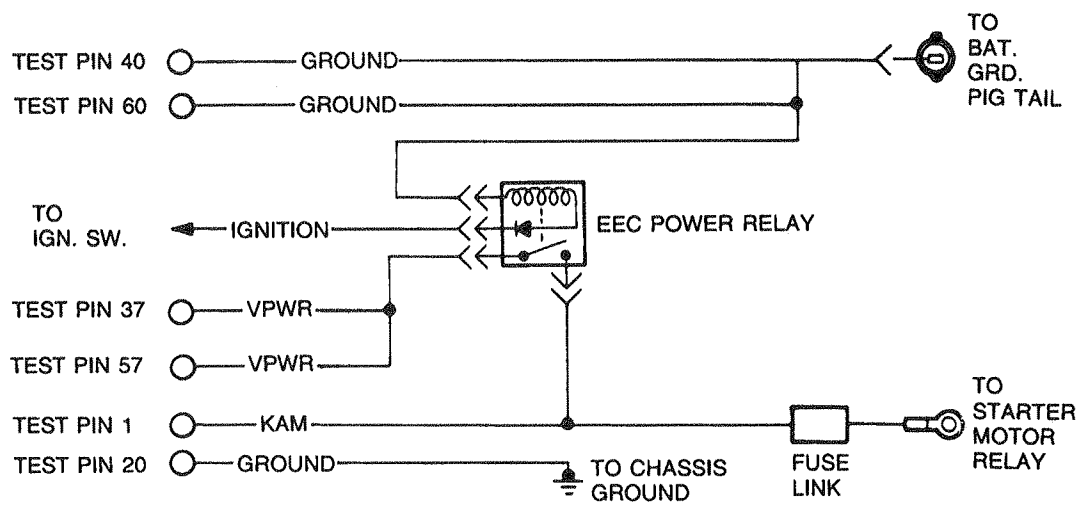
You should enter this Pinpoint Test only when directed here from Quick Test Step 3.0, 5.0 or 6.0 or when directed here from Diagnostic By Symptom in the Engine Supplement Section.

Remember

This Pinpoint Test is intended to diagnose only the following:

- Processor, EEC Power Relay.
- Harness Circuits: GROUND, VPWR, IGNITION.

Pinpoint Test Schematic



*TEST PINS LOCATED ON BREAKOUT BOX.
ALL HARNESS CONNECTORS VIEWED INTO MATING SURFACE.

A11506-A

Re-Initialization Check

Pinpoint Test **QE**

TEST STEP	RESULT ▶	ACTION TO TAKE
QE1 CHECK FOR SOURCES OF ELECTRICAL NOISE		
NOTE: Be aware that after-market installed electrical components may influence the driveability of the vehicle. • Key off. • Check that the EEC IV wiring and components are greater than 2 inches from secondary ignition wires and ignition coil. • Check that the EEC IV wiring and components are greater than 4 inches from distributor, coil tower, starter motor and its wiring. • Are all above conditions satisfied?	Yes ▶ No ▶	GO to QE2 . SERVICE as necessary, RERUN Quick Test.
QE2 HARNESS CHECK — CASE GROUND		
• Key off. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box, leave processor disconnected. • DVOM on 200 ohm scale. • Measure resistance between Test Pin 20 at the breakout box and chassis ground. • Is the resistance less than 5 ohms?	Yes ▶ No ▶	GO to QE3 . REMOVE breakout box. RECONNECT processor. SERVICE open circuit. RERUN Quick Test.
QE3 DISCONNECT HARNESS — CASE GROUND CHECK		
• Key off. • Reconnect processor to breakout box, but disconnect harness from breakout box. • DVOM on 200 ohm scale. • Measure resistance between Test Pin 20 at the breakout box and metal case of processor. • Is the resistance less than 5 ohms?	Yes ▶ No ▶	For 1.9L EFI GO to QE4 . For 2.3L EFI TC and 2.5L CFI GO to X10 . REMOVE breakout box. REPLACE processor. RERUN Quick Test.

Re-Initialization Check

Pinpoint Test QE

TEST STEP	RESULT ▶	ACTION TO TAKE
QE4 WIGGLE TEST OF VPWR CIRCUIT		
• Key on, engine off. • Connect STAR or VOM to Self-Test connector.	Yes ▶	SERVICE intermittent in the VPWR circuit. RERUN Quick Test.
• Self-Test deactivated. • Using Continuous Monitor Mode (Engine Running) per Quick Test Step 6.0B. Observe STAR/VOM for indication of a fault while doing the following: — Shake, bend, and twist the EEC-IV harness from the EEC-IV power relay to the processor. • Is a fault indicated or does Code 72 reappear in continuous memory if the Key On Engine Off Self-Test is rerun?	No ▶	INSPECT EEC-IV power relay and harness connectors for damaged pins, loose wires, corrosion, etc. SERVICE as necessary. If OK, REPLACE EEC-IV power relay. RERUN Quick Test.

Key Power Check	Pinpoint Test	QF

Note

You should enter this Pinpoint Test only when a Service Code 55 is received in Quick Test Step 5.0.

Remember

To prevent the replacement of good components, be aware that the following non-EEC areas may be at fault:

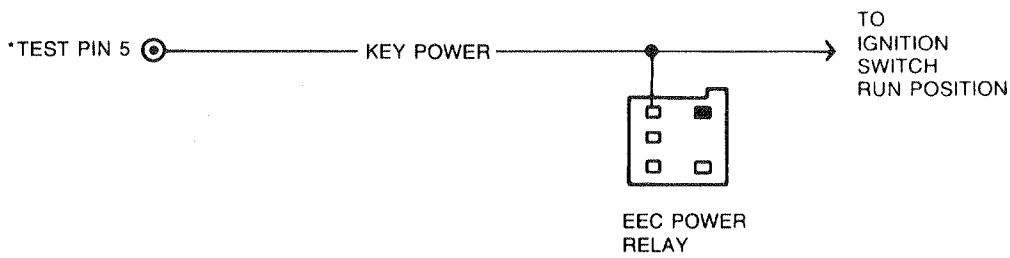
- Charging system under voltage
- Battery charger connected with engine running
- Jump starting

This Pinpoint Test is intended to diagnose only the following:

- Harness Circuit: KEY POWER
- Processor

Pinpoint Test Schematic

1.9L CFI

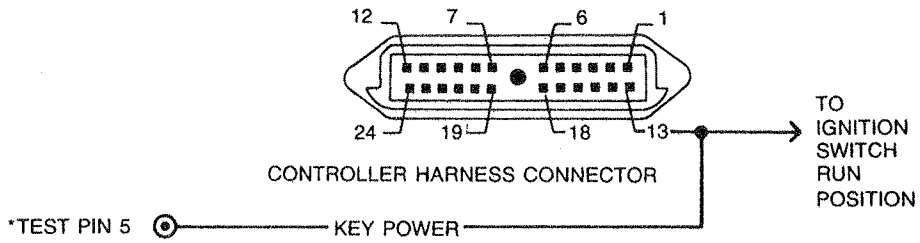


A11507-A

Key Power Check	Pinpoint Test	QF

Pinpoint Test Schematic

2.5L CFI WITH INTEGRATED CONTROLLER



*TEST PINS LOCATED ON BREAKOUT BOX.
ALL HARNESS CONNECTORS VIEWED INTO MATING SURFACE.

A11508-A

Key Power Check

Pinpoint Test **QF**

TEST STEP	RESULT ▶	ACTION TO TAKE
QF1 CHECK CONTINUITY OF KEY POWER CIRCUIT		
• Key off, wait 10 seconds. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box, leave processor disconnected. • Disconnect the EEC-IV power relay or integrated controller as appropriate. • DVOM on 200 ohm scale. • Measure resistance between Test Pin 5 at the breakout box and KEY POWER at the EEC power relay or Test Pin 13 at the Integrated Controller vehicle harness connector. • Is resistance less than 5.0 ohms?	Yes ▶ No ▶	GO to QF2 . REMOVE breakout box. RECONNECT processor and EEC power relay or integrated controller. SERVICE open circuit. RERUN Quick Test.
QF2 CHECK KEY POWER CIRCUIT FOR SHORT TO GROUND		
• Key off. • Breakout box installed, processor disconnected. • EEC power relay or integrated controller disconnected. • DVOM on 200,000 ohm scale. • Measure resistance between Test Pin 5 and Test Pins 40, 46, and 60 at the breakout box. • Is resistance greater than 10,000 ohms?	Yes ▶ No ▶	REMOVE breakout box. RECONNECT EEC power relay or integrated controller. REPLACE processor. RERUN Quick Test. REMOVE breakout box. RECONNECT processor and EEC power relay or integrated controller. SERVICE short circuit. RERUN Quick Test.

System Check	Pinpoint Test	S

Note

You should enter this Pinpoint Test only after a Code 11 is received in Quick Test Step 3.0, and you have been directed here from EEC-IV No-Start Pinpoint Test Step A21 or Diagnostic By Symptom.

Remember

This Pinpoint Test is intended only as a Quick Check for the basic functioning of the following:

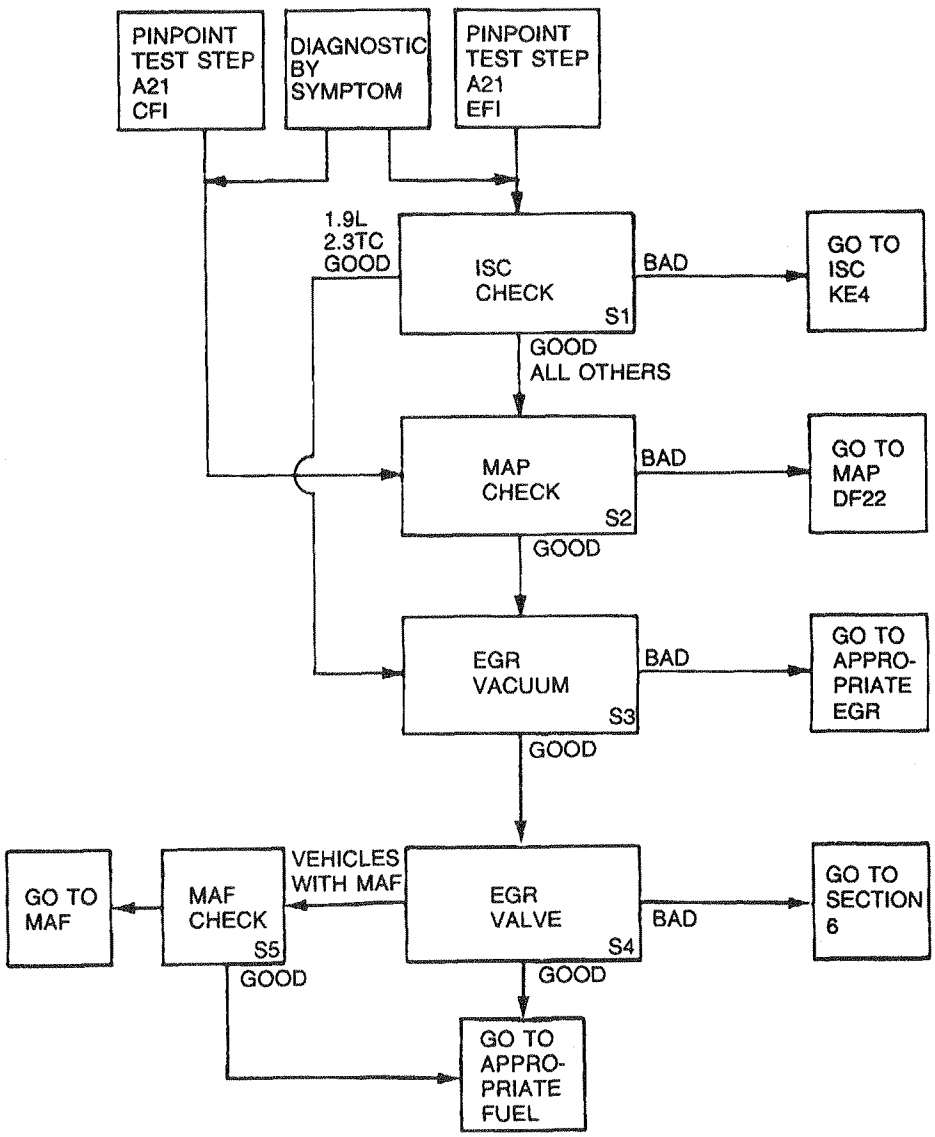
- ISC Bypass Air System
- MAP System
- EGR System
- MAF System

To prevent the replacement of good components, be aware that the following Non-EEC areas may be at fault:

- Poor power/ground connections
- Ignition system distributor cap, rotor, wires, coil, plugs
- Base engine valves, cam timing, compression, etc.

System Check	Pinpoint Test	S

Pinpoint Test Flow Chart



A9693-D

System Check	Pinpoint Test	S

TEST STEP	RESULT ▶	ACTION TO TAKE
S1 ISC-BPA CHECK		
NOTE: For 1.9L and 2.5L CFI go directly to [S2]. • If you are here for any reason other than stalls or a no start, go to [S2]. Except 1.9L EFI and 2.3L EFI TC, go to [S3]. • Attempt to start engine at part throttle. • Will engine run at part throttle?	Yes, but runs rough ▶ Yes, and runs smooth ▶ No ▶	GO to [S2]. GO to [KE4]. 1.9 EFI and 2.3L EFI TC and 5.0L MA Mustang, GO to [S3]. All others GO to [S2].
S2 MAP CHECK		
• Key off. • Disconnect the MAP sensor from the vehicle harness. • Connect the MAP tester between the vehicle harness and the MAP sensor. • Plug MAP tester banana plugs into DVOM. • Set DVOM to 20 volt scale. • Key on. • Observe DVOM. • If MAP sensor is out of limits (voltage output for altitude) GO to DF21. • Crank engine. • While cranking, does DVOM reading decrease from the appropriate reading for your altitude listed above?	Yes ▶ No ▶	2.9L EFI and 3.0L EFI Truck, GO to Pinpoint Test Step [H1], all others, GO to [S3]. GO to [DF22].

Approximate Altitude (Ft.)	Voltage Output (+/- .04V)
0	1.59
1000	1.56
2000	1.53
3000	1.50
4000	1.47
5000	1.44
6000	1.41
7000	1.39

System Check	Pinpoint Test	S

TEST STEP	RESULT ▶	ACTION TO TAKE
S3 CHECK EGR VACUUM		
NOTE: The next two Test Steps will attempt to determine if the EGR system is the cause of the current symptom and/or no start. • Disconnect vacuum line at EGR valve. Do not plug the vacuum line. • Start engine. • For Drive Symptom: Is vacuum present at vacuum line? • For No Start: Does engine start?	Yes ▶	For 1.9L EFI and 2.3L EFI TC, GO to KA1. For 2.3L OHC EFI Car and Truck GO to DD11. For 2.5L HSC CFI, 5.0L SEFI Car and 4.9L EFI, 5.0L EFI, 5.8L EFI, 7.5L EFI Truck GO to DN42. For 1.9L CFI, 2.3L HSC, EFI, 3.0L EFI and 3.8L EFI Car GO to DL23.
	No ▶	GO to S4.
S4 CHECK EGR VALVE		
• Inspect EGR valve to ensure proper seating. • Is valve fully seated (closed)?	Yes ▶	Vehicles with MAF sensor GO to S5. All others GO to H1.
	No ▶	GO to Section 6 of this Manual for EGR valve diagnosis.
S5 CHECK MAF SENSOR OUTPUT		
• Key off, wait 10 seconds. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box. • Connect processor to breakout box. • Key on, engine off. • DVOM on 20 volt scale. • Measure voltage between Test Pin 50 at the breakout box and battery negative post. • Is voltage between 0.5 and 1.5 volts?	Yes ▶	If vehicle stalls GO to Pinpoint Test Step DC6. All others GO to H1.
	No ▶	Vehicles with Continuous Memory Code 56 GO to DC10. Vehicles with Continuous Memory Code 66 GO to DC6.

Transmission — AXOD	Pinpoint Test	T

Note

You should enter this Pinpoint Test only when Service Codes 59, 62, 67, 69 and 89 are received in Quick Test Step 3.0, and/or Service Codes 29, 39, 57, 59 and 69 received in Quick Test Step 6.0 or when directed here from Diagnostic By Symptom in the Engine Supplement Section.

Remember

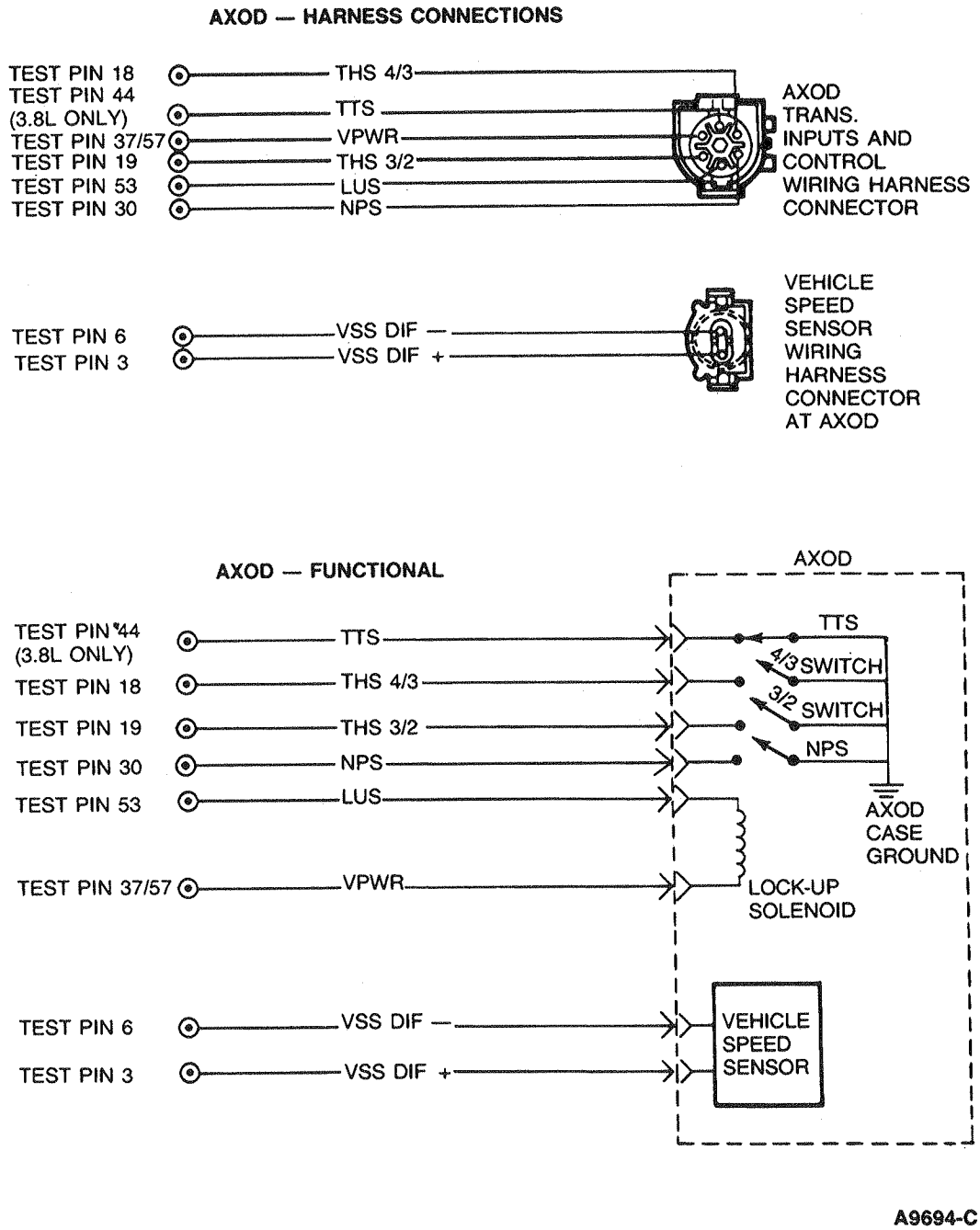
This Pinpoint Test is intended to diagnose only the following:

- Harness Circuits: THS 4/3, THS 3/2, TTS, LUS, NPS, VSS+, VSS – and VPWR
- Vehicle Speed Sensor
- Processor Assembly

Transmission — AXOD

Pinpoint Test **T**

Pinpoint Test Schematic



Transmission — AXOD

Pinpoint Test **T**

T1 DRIVE CYCLE FOR CHECKING AXOD CONTINUOUS CODES

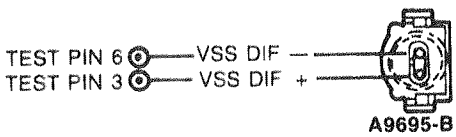
1. Record and clear Continuous Memory Self-Test codes.
2. Warm engine to operating temperature.
3. With transmission in D range, lightly accelerate from a stop to 40 mph to achieve third gear. Hold speed and throttle opening (not closed throttle) steady for 15 seconds minimum (30 seconds above 4000 feet altitude).
4. Shift gear selector to OD range and accelerate lightly from 40 to 50 mph to achieve fourth gear. Hold speed and throttle opening (not closed throttle) steady for 15 seconds minimum in fourth gear.
5. With transmission in fourth gear and steady speed and throttle opening (not closed throttle) lightly apply and release brakes (to light brake lamps) and then hold speed and throttle opening steady for an additional 15 seconds minimum.
6. Brake to a stop and remain stopped for 20 seconds minimum with transmission in OD range.
7. Turn engine off. Run Key On Engine Off Self-Test and record Continuous Memory Codes.

NOTE: All components must be connected when performing this test.

TEST STEP	RESULT ▶	ACTION TO TAKE
T2 ATTEMPT TO GENERATE CONTINUOUS MEMORY CODE 29		
• Perform Drive Cycle outlined in Test Step [T1], then return to this Step. • Did Continuous Memory Code 29 repeat?	Yes ▶	GO to [T3].
	No ▶	Unable to duplicate Continuous Memory Code 29 at this time. SERVICE other codes as necessary. If none, test is completed.

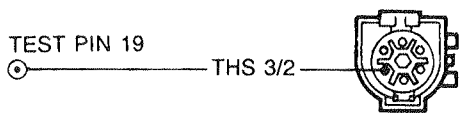
Transmission — AXOD

Pinpoint Test **T**

TEST STEP	RESULT ▶	ACTION TO TAKE
T3 CHECK CONTINUITY OF VEHICLE SPEED SENSOR (VSS) HARNESS		
• Key off, wait 10 seconds. • Disconnect VSS. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box, leave processor disconnected. • DVOM on 200 ohm scale. • Measure resistance between Test Pin 3 at the breakout box and the VSS vehicle harness connector as shown below. • Measure resistance between Test Pin 6 at the breakout box and the VSS vehicle harness connector, as shown below.  A9695-B • Are both resistances less than 5 ohms?	Yes ▶ No ▶	GO to T4 . REMOVE breakout box. RECONNECT all components. SERVICE open circuit(s). REPEAT Test Step T2 .
T4 CHECK VSS HARNESS FOR SHORTS TO POWER OR GROUND		
• Key off. • Processor disconnected. • VSS disconnected. • DVOM on 200,000 ohm scale. • Measure resistance between Test Pin 3 and Test Pins 37, 40 and 6 at the breakout box. • Measure resistance between Test Pin 6 and Test Pin 37 at the breakout box. • Are all resistances greater than 10,000 ohms?	Yes ▶ No ▶	REMOVE breakout box. RECONNECT all components. GO to T5 . REMOVE breakout box. RECONNECT all components. SERVICE short circuit(s). REPEAT Test Step T2 .
T5 REPEAT DRIVE CYCLE WITH A KNOWN GOOD VSS INSTALLED		
• Substitute VSS with known good sensor. • Processor and VSS connected. • Perform Drive Cycle outlined in Test Step T1 , then return to this Step. • Did Continuous Memory Code 29 repeat?	Yes ▶ No ▶	REPLACE processor. REPEAT Test Step T2 . REPLACE VSS. RERUN Quick Test.

Transmission — AXOD

Pinpoint Test **T**

TEST STEP	RESULT	ACTION TO TAKE
T11 ATTEMPT TO GENERATE CONTINUOUS MEMORY CODE 69		
• Perform Drive Cycle outlined in Test Step T1, then return to this Step. • Did Continuous Memory Code 69 repeat?	Yes ▶ No ▶	GO to T12. Unable to duplicate Continuous Memory Code 69 at this time. SERVICE other codes as necessary. If none, test is completed.
T12 CHECK CONTINUITY OF THS 3/2 CIRCUIT		
• Key off, wait 10 seconds. • Disconnect AXOD harness. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box, leave processor disconnected. • DVOM on 200 ohm scale. • Measure resistance between Test Pin 19 at the breakout box and the AXOD vehicle harness connector, as shown below. • Is resistance less than 5 ohms?  A9696-C	Yes ▶ No ▶	GO to T13. REMOVE breakout box. RECONNECT all components. SERVICE open in THS 3/2 circuit. REPEAT Test Step T11.
T13 CHECK THS 3/2 CIRCUIT FOR SHORT TO POWER		
• Key off. • Breakout box installed. • Processor disconnected. • AXOD harness disconnected. • DVOM on 200,000 ohm scale. • Measure resistance between Test Pin 19 and Test Pin 37 at the breakout box. • Is resistance greater than 10,000 ohms?	Yes ▶ No ▶	GO to T14. REMOVE breakout box. RECONNECT all components. SERVICE short to power in THS 3/2 circuit. REPEAT Test Step T11.

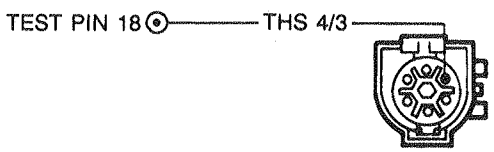
Transmission — AXOD

Pinpoint Test **T**

TEST STEP	RESULT ▶	ACTION TO TAKE
T14 PROCESSOR VERIFICATION		
• Key off. • Breakout box installed. • Reconnect processor and AXOD harness. • Jumper Test Pin 19 to Test Pin 40 at the breakout box. • Run Key On Engine Off Self-Test. • Is Code 62 or 69 present?	Yes ▶	REMOVE breakout box. REMOVE jumper wire. GO to Taurus/Sable or Continental Shop Manual, Section 17-15 for AXOD Transmission Electrical Component Diagnostics.
	No ▶	REMOVE breakout box. REMOVE jumper wire. REPLACE processor. REPEAT Test Step [T11] .
T21 ATTEMPT TO GENERATE CONTINUOUS MEMORY CODE 59		
• Perform Drive Cycle outlined in Test Step [T1] , then return to this Step. • Did Continuous Memory Code 59 repeat?	Yes ▶	GO to [T22] .
	No ▶	Unable to duplicate Continuous Memory Code 59 at this time. SERVICE other codes as necessary. If none, test is completed.

Transmission — AXOD

Pinpoint Test **T**

TEST STEP		RESULT ▶	ACTION TO TAKE
T22	CHECK CONTINUITY OF THS 4/3 CIRCUIT		
• Key off, wait 10 seconds. • Disconnect AXOD harness. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box, leave processor disconnected. • DVOM on 200 ohm scale. • Measure resistance between Test Pin 18 at the breakout box and the AXOD vehicle harness connector, as shown below.  A9697-B • Is resistance less than 5 ohms?		Yes ▶ No ▶	GO to T23 . REMOVE breakout box. RECONNECT all components. SERVICE open in THS 4/3 circuit. REPEAT Test Step T21 .

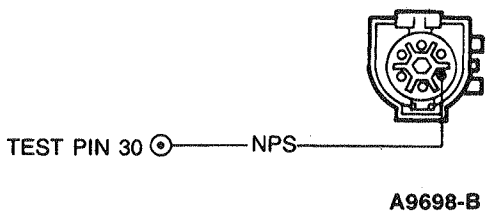
Transmission — AXOD

Pinpoint Test **T**

TEST STEP	RESULT ▶	ACTION TO TAKE
T23 CHECK THS 4/3 CIRCUIT FOR SHORT TO POWER		
• Key off. • Breakout box installed. • Processor disconnected. • AXOD harness disconnected. • DVOM on 200,000 ohm scale. • Measure resistance between Test Pin 18 and Test Pin 37 at the breakout box. • Is resistance greater than 10,000 ohms?	Yes ▶ No ▶	GO to T24. REMOVE breakout box. RECONNECT all components. SERVICE short to power in THS 4/3 circuit. REPEAT Test Step T21.
T24 PROCESSOR VERIFICATION		
• Key Off. • Breakout box installed. • Reconnect processor and AXOD harness. • Jumper Test Pin 18 to Test Pin 40 at the breakout box. • Run Key On Engine Off Self-Test. • Is Code 62 or 59 present?	Yes ▶ No ▶	REMOVE breakout box. REMOVE jumper wire. GO to Taurus/Sable or Continental Shop Manual, Section 17-15 for AXOD Transmission Electrical Component Diagnostics. REMOVE breakout box. REMOVE jumper wire. REPLACE processor. REPEAT TEST Step T21.
T31 ATTEMPT TO GENERATE CONTINUOUS MEMORY CODE 39		
NOTE: If Continuous Memory Code 59 is also present, go directly to T21. • Perform Drive Cycle outlined in Test Step T1, then return to this Step. • Did Continuous Memory Code 39 repeat?	Yes ▶ No ▶	GO to Taurus/Sable or Continental Shop Manual, Section 17-15 for AXOD Transmission Electrical Component Diagnostics. Unable to duplicate Continuous Memory Code 39 at this time. SERVICE other codes as necessary. If none, test is completed.

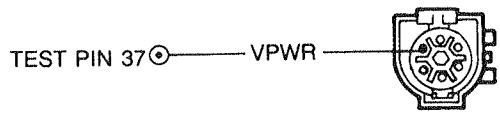
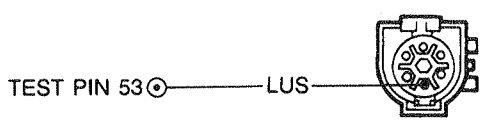
Transmission — AXOD

Pinpoint Test **T**

TEST STEP	RESULT ▶	ACTION TO TAKE
T41 ATTEMPT TO GENERATE CONTINUOUS MEMORY CODE 57		
• Perform Drive Cycle outlined in Test Step [T1] then return to this Step. • Did Continuous Memory Code 57 repeat?	Yes ▶	GO to [T42].
	No ▶	Unable to duplicate Continuous Memory Code 57 at this time. SERVICE other codes as necessary. If none, test is completed.
T42 CHECK CONTINUITY OF NPS HARNESS CIRCUIT		
• Key off, wait 10 seconds. • Disconnect AXOD harness. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box, leave processor disconnected. • DVOM on 200 ohm scale. • Measure resistance between Test Pin 30 at the breakout box and the AXOD vehicle harness connector, as shown below.  A9698-B • Is resistance less than 5 ohms?	Yes ▶	REMOVE breakout box. RECONNECT all components. GO to Taurus/Sable or Continental Shop Manual, Section 17-15 for AXOD Transmission Electrical Component Diagnostic.
	No ▶	REMOVE breakout box. RECONNECT all components. SERVICE open in NPS circuit. REPEAT Test Step [T41].

Transmission — AXOD

Pinpoint Test **T**

TEST STEP	RESULT	ACTION TO TAKE
T51 SERVICE CODE 89: CHECK CONTINUITY OF VPWR CIRCUIT		
• Key off, wait 10 seconds. • Disconnect AXOD harness. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires etc. Service as necessary. • Install breakout box, leave processor disconnected. • DVOM on 200 ohm scale. • Measure resistance between Test Pin 37 at the breakout box and the AXOD vehicle harness connector, as shown.  A9699-C • Is resistance less than 5 ohms?	Yes ▶ No ▶	GO to T52 . REMOVE breakout box. RECONNECT all components. SERVICE open in VPWR circuit to AXOD. RERUN Quick Test.
T52 CHECK CONTINUITY OF LUS CIRCUIT		
• Key off. • Breakout box installed. • Processor disconnected. • AXOD harness disconnected. • DVOM on 200 ohm scale. • Measure resistance between Test Pin 53 at the breakout box and the AXOD vehicle harness connector, as shown.  A9700-C • Is resistance less than 5 ohms?	Yes ▶ No ▶	GO to T53 . REMOVE breakout box. RECONNECT all components. SERVICE open in LUS circuit to AXOD. RERUN Quick Test.

Transmission — AXOD

Pinpoint Test **T**

TEST STEP	RESULT ▶	ACTION TO TAKE
T53 CHECK LUS CIRCUIT FOR SHORT TO POWER OR GROUND		
• Key off. • Breakout box installed. • Processor disconnected. • AXOD harness disconnected. • DVOM on 200,000 ohm scale. • Measure resistance between Test Pin 53 and Test Pins 37 and 40 at the breakout box. • Are both resistances greater than 10,000 ohms?	Yes ▶ No ▶	GO to **T54**. REMOVE breakout box. RECONNECT all components. SERVICE short(s) in LUS circuit. RERUN Quick Test. If code 89 is still present, REPLACE processor. RERUN Quick Test.
T54 CHECK TOTAL CIRCUIT RESISTANCE		
• Key off. • Breakout box installed. • Processor disconnected. • Reconnect AXOD harness. • DVOM on 200 ohm scale. • Measure the resistance between Test Pin 53 and Test Pin 57 at the breakout box. • Is resistance between 20 ohms and 40 ohms?	Yes ▶ No ▶	REMOVE breakout box. REPLACE processor. RERUN Quick Test. REMOVE breakout box. RECONNECT processor. GO to Taurus/Sable or Continental Shop Manual, Section 17-15 for AXOD Transmission Electrical Component Diagnostics.
T61 SERVICE CODE 62: AXOD HARNESS VERIFICATION		
• Key off. • Disconnect AXOD harness. • Run Key On Engine Off Self-Test. • Is Code 62 still present?	Yes ▶ No ▶	GO to **T62**. RECONNECT AXOD harness. GO to Taurus/Sable Shop Manual, Section 17-15 for AXOD Transmission Electrical Component Diagnostics.

Transmission — AXOD

Pinpoint Test T

TEST STEP	RESULT ▶	ACTION TO TAKE
T62 CHECK THS 3/2 AND 4/3 CIRCUITS FOR SHORT TO GROUND • Key off. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box, leave processor disconnected. • AXOD harness disconnected. • DVOM on 200,000 ohm scale. • Measure resistance between Test Pin 18 and Test Pins 40 and 60 at the breakout box. • Measure resistance between Test Pin 19 and Test Pins 40 and 60 at the breakout box. • Are all resistances greater than 10,000 ohms?	Yes ▶	REMOVE breakout box. RECONNECT all components. REPLACE processor. RERUN Quick Test.
	No ▶	REMOVE breakout box. RECONNECT all components. SERVICE short(s) to ground. RERUN Quick Test.
T71 SERVICE CODE 59: AXOD HARNESS VERIFICATION • Key off. • Disconnect AXOD harness. • Run Key On Engine Off Self-Test. • Is Code 59 still present?	Yes ▶	GO to T72.
	No ▶	RECONNECT AXOD harness. GO to Continental Shop Manual, Group 17 for AXOD Transmission Electrical Component Diagnostics.
T72 CHECK THS 4/3 HARNESS CIRCUIT FOR SHORT TO GROUND • Key Off. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box, leave processor disconnected. • AXOD harness disconnected. • DVOM on 200,000 ohm scale. • Measure resistance between Test Pin 18 and Test Pins 40 and 60 at the breakout box. • Are resistances greater than 10,000 ohms?	Yes ▶	REMOVE breakout box. RECONNECT AXOD harness. REPLACE processor. RERUN Quick Test.
	No ▶	REMOVE breakout box. RECONNECT AXOD harness and processor. SERVICE short to ground. RERUN Quick Test.

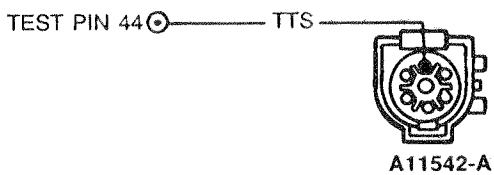
Transmission — AXOD

Pinpoint Test **T**

TEST STEP	RESULT ▶	ACTION TO TAKE
T73 SERVICE CODE 69: AXOD HARNESS VERIFICATION		
• Key off. • Disconnect AXOD harness. • Run Key On Engine Off Self-Test. • Is Code 69 still present?	Yes ▶ No ▶	GO to T74 . RECONNECT AXOD harness. GO to Continental Shop Manual, Section 17-15 for AXOD Transmission Electrical Component Diagnostics.
T74 CHECK THS 3/2 HARNESS CIRCUIT FOR SHORT TO GROUND		
• Key Off. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box, leave processor disconnected. • AXOD harness disconnected. • DVOM on 200,000 ohm scale. • Measure resistance between Test Pin 19 and Test Pins 40 and 60 at the breakout box. • Are resistances greater than 10,000 ohms?	Yes ▶ No ▶	REMOVE breakout box. RECONNECT AXOD harness. REPLACE processor. RERUN Quick Test. REMOVE breakout box. RECONNECT AXOD harness and processor. SERVICE short to ground. RERUN Quick Test.

Transmission — AXOD

Pinpoint Test **T**

TEST STEP	RESULT	ACTION TO TAKE
T75 CHECK CONTINUITY OF TTS HARNESS CIRCUIT		
• Key off, wait 10 seconds. • Disconnect AXOD harness. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box, leave processor disconnected. • DVOM on 200 ohm scale. • Measure resistance between Test Pin 44 at the breakout box and the AXOD vehicle harness connector, as shown below. • Is resistance less than 5 ohms?  A11542-A	Yes ▶ No ▶	GO to T76 . SERVICE open in TTS circuit. REMOVE breakout box. RECONNECT all components. DRIVE vehicle to verify drive complaint was eliminated.
T76 CHECK TTS HARNESS CIRCUIT FOR SHORT TO POWER OR GROUND		
• Key off. • Breakout box installed. • Processor disconnected. • AXOD harness disconnected. • DVOM on 200,000 ohm scale. • Measure resistance between Test Pin 44 and Test Pin 37 at the breakout box. • Measure resistance between Test Pin 44 and Test Pin 40 at the breakout box. • Are resistances greater than 10,000 ohms?	Yes ▶ No ▶	GO to T77 . SERVICE short(s) in TTS circuit. REMOVE breakout box. RECONNECT all components. DRIVE vehicle to verify drive complaint was eliminated.

Transmission — AXOD

Pinpoint Test **T**

TEST STEP	RESULT ▶	ACTION TO TAKE
T77 PROCESSOR VERIFICATION		
• Key off. • Breakout box installed. • Reconnect processor and AXOD harness. • Jumper Test Pin 44 to Test Pin 40 at the breakout box. • Drive vehicle to verify drive complaint. • Was drive complaint eliminated?	Yes ▶ No ▶	REMOVE breakout box. REMOVE jumper wire. GO to Taurus/Sable or Continental Shop Manual, Section 17-15 for AXOD Transmission Electrical Component Diagnostics. **NOTE: To prevent the replacement of good components, be aware that non-EEC areas may cause similar drive symptoms (e.g. driveline, engine running rich).** REMOVE breakout box. REMOVE jumper wire. REPLACE processor.
T81 SERVICE CODE 67: CHECK VOLTAGE AT NPS INPUT TO PROCESSOR		
• Key on, engine off. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires etc. Service as necessary. • Install breakout box and reconnect processor. • DVOM on 20 volt scale. • Measure voltage between Test Pin 30 and Test Pin 46 at the breakout box. • Is voltage less than 4 volts?	Yes ▶ No ▶	GO to T82. GO to Pinpoint Test FA9.

Transmission — AXOD

Pinpoint Test **T**

TEST STEP	RESULT ▶	ACTION TO TAKE
T82 CHECK NPS HARNESS CIRCUIT FOR SHORT TO GROUND		
• Key off. • Breakout box installed. • Disconnect processor. • Disconnect AXOD harness. • DVOM on 200,000 ohm scale. • Measure resistance between Test Pin 30 and Test Pins 40 and 60 at the breakout box. • Are all resistances greater than 10,000 ohms?	Yes ▶ No ▶	GO to T83 . REMOVE breakout box. RECONNECT all components. SERVICE short to ground in NPS circuit. RERUN Quick Test.
T83 PROCESSOR VERIFICATION		
• Key off. • Breakout box installed. • Reconnect processor. • AXOD harness disconnected. • Run Key On Engine Off Self-Test. • Is Code 67 present?	Yes ▶ No ▶	REMOVE breakout box. RECONNECT all components. REPLACE processor. RERUN Quick Test. REMOVE breakout box. RECONNECT all components. GO to Taurus/Sable or Continental Shop Manual, Section 17-15 for AXOD Transmission Electrical Component Diagnostics.

Transmission — VSS

Pinpoint Test **T**

TEST STEP	RESULT	ACTION TO TAKE
T90 CHECK VEHICLE SPEED SENSOR		
• Key off, wait 10 seconds. • Locate and disconnect Vehicle Speed Sensor. • DVOM on 200,000 ohm scale. • Measure resistance across Vehicle Speed Sensor. • Is resistance between 190 and 230 ohms?	Yes ▶ No ▶	GO to **T91**. REPLACE sensor. DRIVE vehicle to verify drive complaint was eliminated.
T91 CHECK CONTINUITY OF VEHICLE SPEED SENSOR (VSS) HARNESS		
• Key off, wait 10 seconds. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires etc. Service as necessary. • Install breakout box, leave processor disconnected. • VSS disconnected. • DVOM on 200 ohm scale. • Measure resistance between Test Pin 3 at the breakout box and the VSS vehicle harness connector as shown below. • Measure resistance between Test Pin 6 at the breakout box and the VSS vehicle harness connector, as shown below.  A9695-B • Are both resistances less than 5 ohms?	Yes ▶ No ▶	GO to **T92**. REMOVE breakout box. RECONNECT all components. SERVICE open circuit(s) in VSS harness. DRIVE vehicle to verify drive complaint was eliminated.

Transmission — VSS

Pinpoint Test **T**

TEST STEP	RESULT ▶	ACTION TO TAKE
T92 CHECK VSS HARNESS FOR SHORTS TO POWER OR GROUND		
• Key off. • Breakout box installed. • Processor disconnected. • VSS disconnected. • DVOM on 200,000 ohm scale. • Measure resistance between Test Pin 3 and Test Pins 37, 40 and 6 at the breakout box. • Measure resistance between Test Pin 6 and Test Pin 37 at the breakout box. • Are all resistances greater than 10,000 ohms?	Yes ▶	REMOVE breakout box. RECONNECT all components. GO to T93.
	No ▶	REMOVE breakout box. RECONNECT all components. SERVICE short circuit(s) in VSS harness. DRIVE vehicle to verify drive complaint was eliminated.
T93 SUBSTITUTE VEHICLE SPEED SENSOR (VSS)		
• Substitute VSS with known good sensor. • Processor and VSS connected. • Drive vehicle to verify drive complaint. • Was drive complaint eliminated?	Yes ▶	REPLACE VSS.
	No ▶	REPLACE processor.

Integrated Controller	Pinpoint Test	X

Note

You should enter this Pinpoint Test only when service code 72, 78, 82, 83, 87, 88, 95 and 96 are received in Quick Test Steps 3.0 or 6.0, or you are directed here from Pinpoint Test A, Pinpoint Test C, or Diagnostic By Symptom.

Remember

To prevent the replacement of good components, be aware that the following non-EEC area may be at fault:

- Fuel Lines
- Fuel Filters
- Contaminated Fuel
- Fuel Pump
- Ignition Switch
- Battery Cables
- Alternator
- Voltage Regulator
- Ground Straps
- A/C Clutch
- A/C Demand
- Cooling Fan Motor

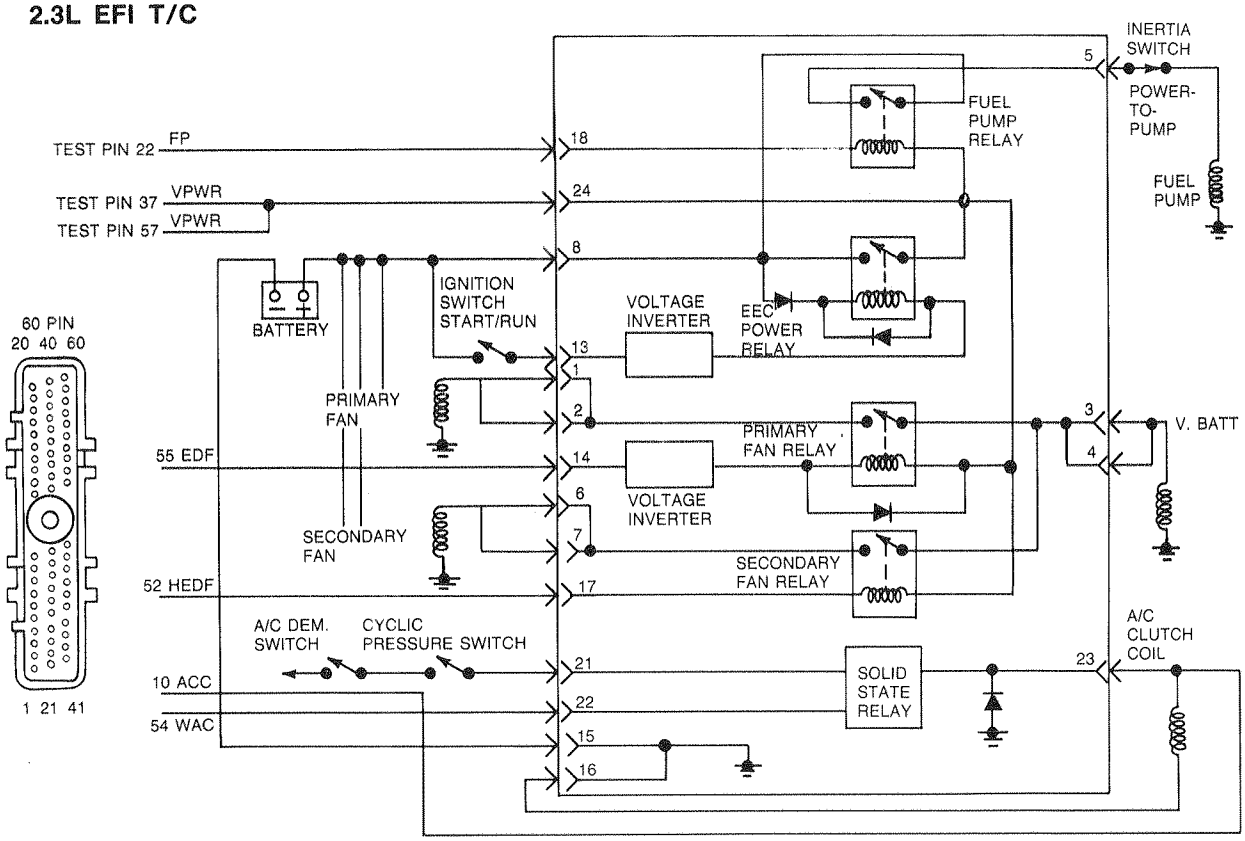
This Pinpoint Test is intended to diagnose only the following:

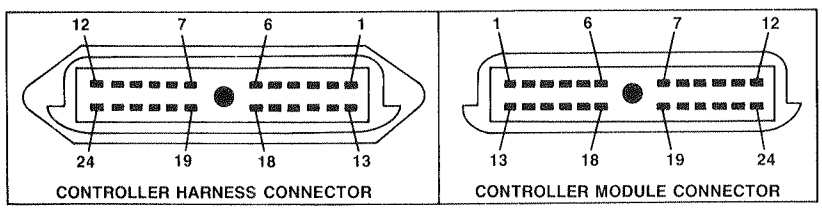
- Integrated Relay Controller Module (within this Pinpoint Named Integrated Controller)
- Battery Voltage
- Power Relay
- EDF Relay
- HEDF Relay
- WAC Relay
- Fuel Pump Relay
- Harness Circuits: V Batt., VPWR, F.P., GROUND and POWER to Fuel Pump(s), WAC, ACC, ACCS, COOLING FAN POWER, A/C CLUTCH, KEY POWER, POWERS To Integrated Controller
- Processor Assembly
- A/C Demand Switch Input

Integrated Controller	Pinpoint Test	X

Pinpoint Test Schematic

2.3L EFI T/C





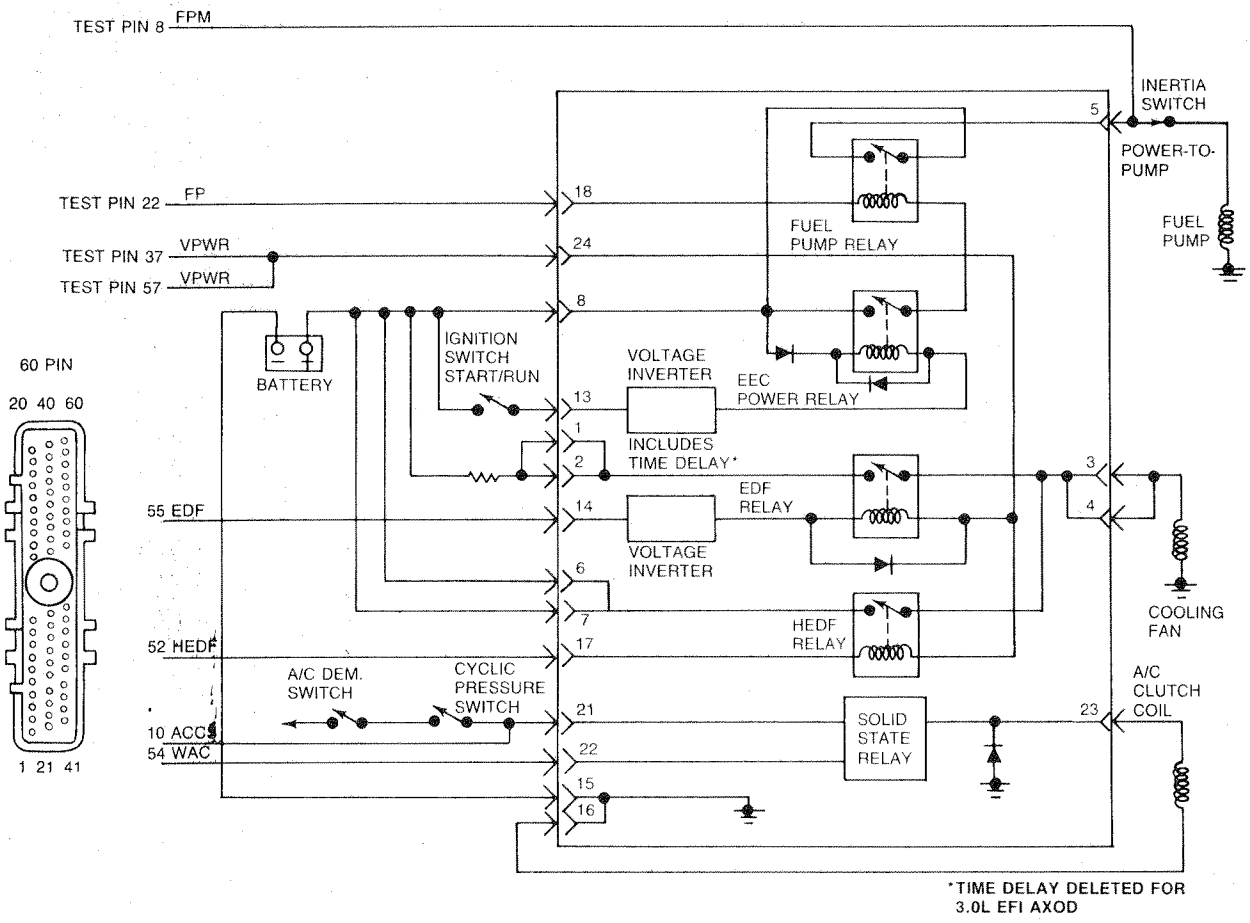
A9916-B

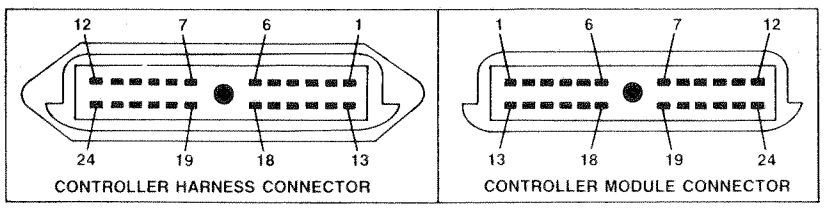
Refer to Engine Supplement for Test Pin Usage Chart.

Integrated Controller	Pinpoint Test	X

Pinpoint Test Schematic

2.5L CFI CLC; 3.0L EFI AXOD and 3.8L EFI AXOD





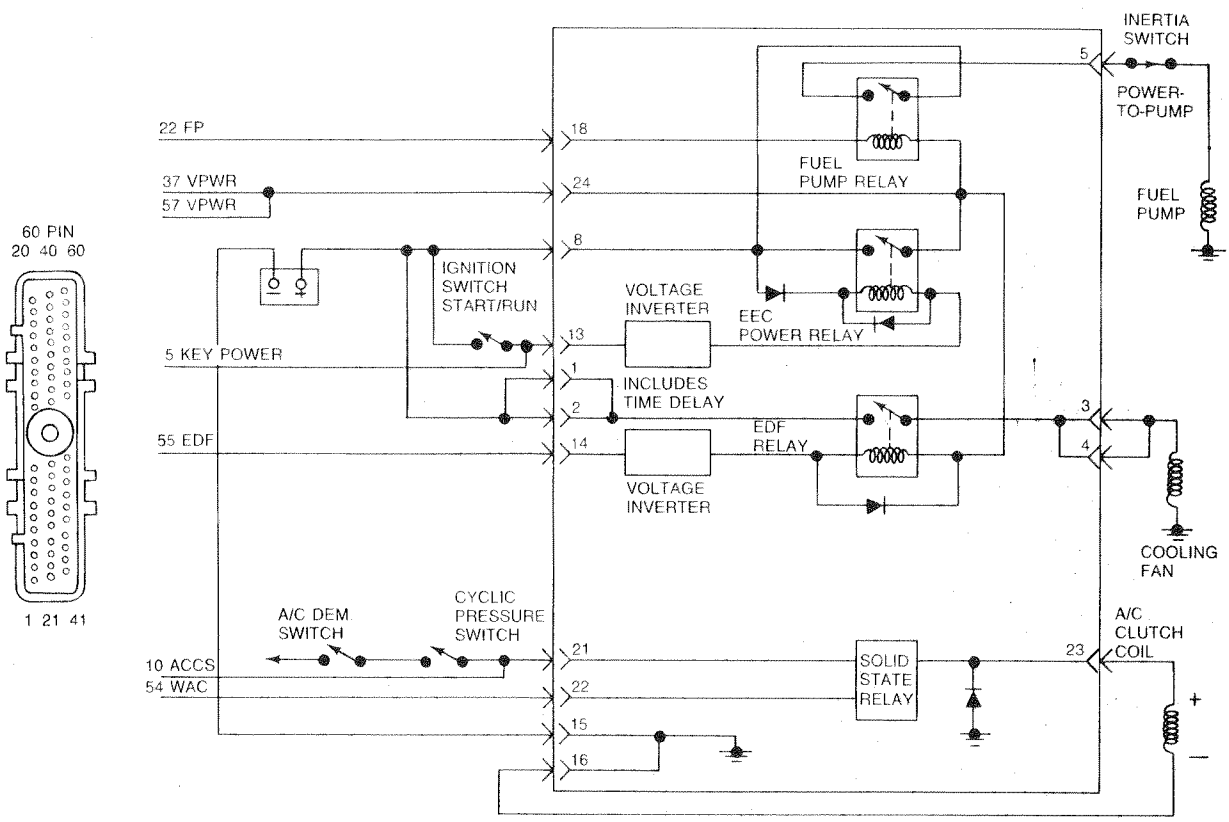
A9968-B

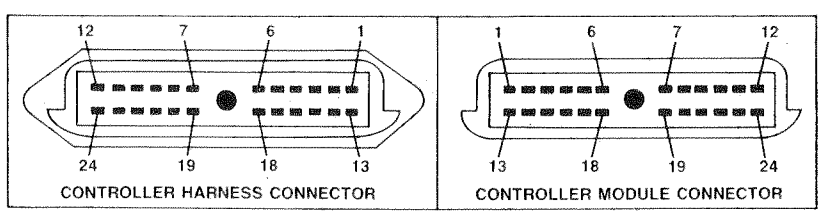
Refer to Engine Supplement for Test Pin Usage Chart.

Integrated Controller	Pinpoint Test	X

Pinpoint Test Schematic

2.5L CFI MTX ONLY





Refer to Engine Supplement for Test Pin Usage Chart.

A8374-C

Integrated Controller	Pinpoint Test	X

TEST STEP	RESULT ▶	ACTION TO TAKE
VEHICLE BATTERY **X1** CHECK BATTERY VOLTAGE • Key on, engine off. • DVOM on 20 volt scale. • Measure voltage across battery terminals. • Is voltage greater than 10.5 volts?	Yes ▶ No ▶	GO to X2. SERVICE discharged battery, REFER to Shop Manual, Group 31.
X2 CHECK BATTERY GROUND • Key on, engine off. • Processor connected. • DVOM on 20 volt range. • Measure voltage between battery negative post and SIGNAL RETURN circuit in the Self-Test connector. • Is voltage greater than 0.5 volts?	Yes ▶ No ▶	GO to X3. GO to X6.
X3 GROUND FAULT ISOLATION • Key off. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires etc. Service as necessary. • Install breakout box. • Key on, engine off. • Processor connected. • DVOM on 20 volt scale. • Measure voltage between battery negative post and Test Pins 40 and 60 at the breakout box. • Are both voltages less than 0.5 volts?	Yes ▶ No ▶	GO to X4. Circuit(s) with greater than 0.5 volts has high resistance or open. SERVICE open ground circuit. RERUN Quick Test.
X4 PROCESSOR GROUND FAULT ISOLATION • Breakout box installed. • Key off, wait 10 seconds. • Processor connected. • DVOM on 200 ohm scale. • Measure resistance between Test Pin 46 and Test Pin 40 and between Test Pin 46 and Test Pin 60 at the breakout box. • Are both resistances less than 5 ohms?	Yes ▶ No ▶	GO to X5. REMOVE breakout box. REPLACE processor. RERUN Quick Test.

Integrated Controller	Pinpoint Test	X

TEST STEP	RESULT ▶	ACTION TO TAKE
X5 CHECK CONTINUITY OF SIGNAL RETURN CIRCUIT		
• Breakout box installed. • Key off, wait 10 seconds. • Processor connected. • DVOM on 200 ohm scale. • Measure resistance between Test Pin 46 at the breakout box and SIGNAL RETURN circuit at Self-Test connector. • Is resistance less than 5.0 ohms?	Yes ▶ No ▶	System OK. RUN Quick Test. REMOVE breakout box. RECONNECT processor. SERVICE open circuit. RERUN Quick Test.
X6 MEASURE VOLTAGE AND GROUND TO INTEGRATED CONTROLLER		
• Key off. • Disconnect Integrated Controller Module. • DVOM on 20 volt scale. • Measure voltage between Test Pin 8 and Test Pin 15 at the Integrated Controller vehicle harness connector. • Is voltage greater than 10.5 volts?	Yes ▶ No ▶	GO to X7. GO to X9.
X7 KEY POWER TO INTEGRATED CONTROLLER		
• Integrated Controller disconnected. • DVOM on 20 volt scale. • Key on. • Measure voltage between Pin 13 and Pin 15 at the Integrated Controller vehicle harness connector. • Refer to schematic in Pinpoint Test X. • Is voltage greater than 10.5 volts?	Yes ▶ No ▶	GO to X8. SERVICE open between Pin 13 and ignition switch. RECONNECT Integrated Controller. RERUN Quick Test.

Integrated Controller	Pinpoint Test	X

TEST STEP	RESULT ▶	ACTION TO TAKE
X8 MEASURE CONTINUITY OF VPWR		
• Key off. • Integrated Controller disconnected. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box, leave processor disconnected. • DVOM on 200 ohm scale. • Measure resistance between Test Pin 37 and 57 at the breakout box and Test Pin 24 at the Integrated Controller harness. • Is resistance greater than 5.0 ohms?	Yes ▶ No ▶	REMOVE breakout box. RECONNECT processor. SERVICE open in VPWR circuit. RECONNECT Integrated Controller. RERUN Quick Test. REMOVE breakout box. RECONNECT processor. REPLACE Integrated Controller. RERUN Quick Test.
X9 MEASURE CONTINUITY OF POWER GROUND TO INTEGRATED CONTROLLER		
• Key off. • Integrated Controller disconnected. • DVOM on 200 ohm scale. • Measure resistance between battery negative post and at Test Pin 15 at the Integrated Controller connector. • Is resistance greater than 5.0 ohms?	Yes ▶ No ▶	RECONNECT Integrated Controller. SERVICE open in battery ground to Pin 15 (Integrated Controller harness connector). RERUN Quick Test. RECONNECT Integrated Controller. SERVICE open in battery positive to Pin 8 (Integrated Controller harness connector). RERUN Quick Test.

Integrated Controller

Pinpoint Test **X**

TEST STEP	RESULT ▶	ACTION TO TAKE
X10 CODE 72 OR 78: INTERMITTENT OPEN IN VPWR CIRCUIT		
NOTE: Code 72 or 78 indicates that while key power was present, VPWR had an interrupt, or interference from electrical noises caused the processor to reset, resulting in possible stalls, high idle rpm, lack of power on acceleration or other drive symptoms. Possible Causes: • Intermittent open in VPWR circuit from integrated controller to processor. • EEC power relay intermittent malfunction. • Intermittent open in VBATT circuit to integrated controller. • Intermittent open in KEY POWER circuit to integrated controller. • EEC harness to close to the distributor spark plug wires and other vehicle harnesses. • Using Continuous Monitor Mode (Engine Running) per Appendix in Section 16. Observe VOM or STAR LED for indication of a fault while performing the following: • Shake, bend and twist harness from integrated controller to the processor, to the ignition switch and to battery positive. • Is a fault indicated or does Code 72 or 78 reappear in continuous memory if Quick Test is rerun?	Yes ▶ No ▶	CHECK for proper routing of EEC harness. SERVICE as necessary. If OK SERVICE intermittent VPWR circuit. RERUN Quick Test. INSPECT component and harness connectors of integrated controller and processor, for loose or damaged pins, corrosion, etc. SERVICE as necessary. If OK, ROAD TEST vehicle through a variety of drive modes to verify if symptom exists. REPLACE integrated controller, otherwise testing complete. RERUN Quick Test.
X11 CHECK POWER-TO-PUMP(S) CIRCUIT		
• Key on, engine off. • Locate and disconnect fuel pump(s). • DVOM on 20 volt scale. • Measure voltage between CHASSIS GROUND and POWER-TO-PUMP(S) circuit at fuel pump during crank mode. • Is voltage greater than 8.0 volts during crank?	Yes ▶ No ▶	GO to Shop Manual, Group 24, Electric Fuel Pump Diagnosis. GO to X12.

Integrated Controller	Pinpoint Test	X

TEST STEP	RESULT ▶	ACTION TO TAKE
X12 CHECK RESISTANCE OF FUEL PUMP INERTIA SWITCH • Key off, wait 10 seconds. • Fuel pump(s) disconnected. • Locate and disconnect fuel pump inertia switch. • DVOM on 200 ohm scale. • Measure the resistance of the fuel pump inertia switch. • Is resistance less than 5.0 ohms?	Yes ▶	GO to X13.
	No ▶	REPLACE fuel pump inertia switch. RERUN Quick Test.
X13 POWER-TO-PUMP CIRCUIT CONTINUITY CHECK • Key off. • DVOM on 200 ohm scale. • Disconnect Integrated Controller. • Fuel pump(s) disconnected. • Measure resistance between Pin 5 at the integrated controller vehicle harness connector and POWER-TO-PUMP(S) circuit at the fuel pump vehicle harness connector. • Is resistance less than 5.0 ohms?	Yes ▶	REPLACE Integrated Controller. RECONNECT all components. RERUN Quick Test.
	No ▶	SERVICE open in POWER-TO-PUMP(S) circuit. RECONNECT Integrated Controller. RERUN QuicK Test.
X14 CHECK POWER-TO-PUMP(S) FOR SHORTS TO POWER • Key off. • Disconnect Integrated Controller. • Disconnect fuel pumps. • DVOM on 200,000 ohm scale. • Measure resistance between Pin 5 and Pin 24 at the Integrated Controller vehicle harness connector. • Measure resistance between Pin 5 at the Integrated Controller vehicle harness connector and battery positive post. • Is either resistance less than 10,000 ohms?	Yes ▶	SERVICE short circuit. RECONNECT all components. ATTEMPT to start vehicle. If vehicle runs, RERUN Quick Test. If vehicle will not run, REPLACE Integrated Controller. RERUN Quick Test.
	No ▶	RECONNECT fuel pump. REPLACE Integrated Controller. RERUN Quick Test.

Integrated Controller	Pinpoint Test	X

TEST STEP	RESULT ▶	ACTION TO TAKE
SERVICE CODE: 87		
X15 CHECK CONTINUITY OF FUEL PUMP CIRCUIT		
• Key off. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box, leave processor disconnected. • Disconnect Integrated Controller. • DVOM on 200 ohm scale. • Measure resistance between Test Pin 22 at the breakout box and Pin 18 at the Integrated Controller vehicle harness connector. • Is resistance less than 5.0 ohms?	Yes ▶ No ▶	GO to **X16**. SERVICE open in fuel pump circuit. REMOVE breakout box. RECONNECT processor and controller. RERUN Quick Test.

Integrated Controller	Pinpoint Test	X

TEST STEP	RESULT ▶	ACTION TO TAKE
X16 CHECK FUEL PUMP CIRCUIT FOR SHORTS TO POWER AND GROUND		
• Key off. • Breakout box installed. • Processor disconnected. • Integrated Controller disconnected. • DVOM on 200,000 ohm scale. • Measure resistance between Test Pin 22 and Test Pins 37, 57 and battery positive post and between Test Pin 22 and Test Pins 40, 60 and battery negative. • Are all resistances greater than 10,000 ohms?	Yes ▶ No ▶	GO to X17. REMOVE breakout box. SERVICE fuel pump circuit shorts to power or ground. RECONNECT all components. RERUN Quick Test. If code 87 is still present, GO to X17.
X17 CHECK RESISTANCE OF FUEL PUMP RELAY COIL		
• Key off. • Breakout box installed. • Processor disconnected. • Integrated Controller disconnected. • DVOM on 200 ohm scale. • Measure resistance of Integrated Controller from Pin 18 to 24. • Is resistance between 65 and 100 ohms?	Yes ▶ No ▶	REMOVE breakout box. REPLACE processor. RECONNECT Integrated Controller. RERUN Quick Test. REMOVE breakout box. RECONNECT processor. REPLACE Integrated Controller. RERUN Quick Test.
X20 NO FAN, HIGH OR LOW WITH NO CODE 83		
• Key off. • Disconnect Integrated Controller. • DVOM on 20 volt scale. • Measure voltage between battery negative post and Pins 1, 2, 6 and 7, respectively at the Integrated Controller vehicle harness connector. • Is voltage greater than 10.5 volts?	Yes ▶ No ▶	GO to X21. RECONNECT Integrated Controller. SERVICE open in battery power circuit. RE-EVALUATE symptom.
X21 CHECK FAN MOTOR		
• Key off. • Integrated Controller disconnected. • Jumper Pin 3 to Pin 6 at Integrated Controller harness. • Does fan run?	Yes ▶ No ▶	GO to X22. GO to X23.

Integrated Controller

Pinpoint Test **X**

TEST STEP	RESULT ▶	ACTION TO TAKE
X22 CHECK FAN RUNNING MODE (LOW) • Key off. • Disconnect processor. • Reconnect Integrated Controller. • Key on. • Does fan run at low speed?	Yes ▶ No ▶	GO to X25. CHANGE Integrated Controller. RECONNECT processor and controller. RE-EVALUATE symptom.
X23 MEASURE BATTERY VOLTAGE SUPPLY AT FAN — BYPASSING INTEGRATED CONTROLLER • Key Off. • Disconnect cooling fan. • Integrated Controller disconnected. • Jumper Pin 3 to Pin 6 at Integrated Controller vehicle harness connector. • DVOM on 20 volt scale. • Measure voltage at cooling fan vehicle harness connector. • Is voltage greater than 8.0 volts?	Yes ▶ No ▶	RECONNECT Integrated Controller. CHANGE fan motor. RE-EVALUATE symptom. GO to X24.
X24 COOLING FAN GROUND VERIFICATION • Key off. • Cooling fan disconnected. • Integrated Controller disconnected. • Jumper Pin 3 to Pin 6 at Integrated Controller vehicle harness connector. • DVOM on 20 volt scale. • Measure voltage between voltage positive at cooling fan harness connector and negative battery post. • Is voltage greater than 8.0 volts?	Yes ▶ No ▶	SERVICE Open in ground circuit to fan. RECONNECT Integrated Controller and cooling fan. RE-EVALUATE symptom. SERVICE open in power-to-fan circuit from 3 and 4 of Integrated Controller harness connector to cooling fan connector. RECONNECT cooling fan and controller, RE-EVALUATE symptom.

Integrated Controller	Pinpoint Test	X

TEST STEP	RESULT ▶	ACTION TO TAKE
X25 JUMPER HIGH ELECTRIC-DRIVE SIGNAL (HEDF) TO GROUND • Key off. • Inspect processor 60 pin connector for damaged pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box, leave processor disconnected. • Integrated Controller connected. • Key on. • Jumper Test Pin 52 to Test Pin 40 at breakout box. • Does fan speed change from low to high?	Yes ▶ No ▶	GO to X26. REMOVE breakout box. REPLACE Integrated Controller. RECONNECT processor. RE-EVALUATE symptom.
X26 CHECK ECT SENSOR • Key off, wait 10 seconds. • Connect processor to breakout box. • Check engine coolant level. • Warm engine to operating temperature before taking ECT resistance measurement. • Key off, wait 10 seconds. • Disconnect harness from ECT sensor. • DVOM on 200,000 ohm scale. • Measure resistance of the ECT sensor. • Is the resistance between 1500 ohms and 2000 ohms?	Yes ▶ No ▶	REMOVE breakout box. REPLACE processor. RECONNECT harness to ECT sensor. RECONNECT Integrated Controllers. RE-EVALUATE symptom. REMOVE breakout box. REPLACE ECT sensor. RECONNECT all components. RE-EVALUATE symptom.
X30 SERVICE CODE 83: CHECK RESISTANCE OF HEDF CONTROLLER CIRCUIT • Key off. • Disconnect Integrated Controller. • DVOM on 200 ohm scale. • Measure resistance between Pin 17 and Pin 24 at the Integrated Controller. • Is the resistance reading between 50 ohms and 100 ohms?	Yes ▶ No ▶	GO to X31. REPLACE controller. RERUN Quick Test.

Integrated Controller	Pinpoint Test	X

TEST STEP	RESULT ▶	ACTION TO TAKE
X31 CHECK HEDF PROCESSOR SIGNAL TO INTEGRATED CONTROLLER FOR OPEN		
• Key off. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box, leave processor disconnected. • Integrated Controller disconnected. • DVOM On 200 ohms scale. • Measure resistance between Test Pin 52 at breakout box and Pin 17 of Integrated Controller vehicle harness connector. • Is resistance less than 5 ohms?	Yes ▶ No ▶	GO to X32 . REMOVE breakout box. SERVICE open in HEDF circuit. RECONNECT all components. RERUN Quick Test.
X32 CHECK FOR SHORTS TO GROUND IN THE HEDF CIRCUIT		
• Key off. • Breakout box installed. • Processor and Integrated Controller disconnected. • DVOM on 200,000 ohm scale. • Measure resistance between Test Pin 52 and Test Pin 40. • Is resistance less than 10,000 ohms?	No ▶ Yes ▶	GO to X33 . REMOVE breakout box. RECONNECT processor and Integrated Controller. SERVICE short to ground in HEDF circuit. RERUN Quick Test.
X33 CHECK FOR SHORTS TO POWER IN THE HEDF CIRCUIT		
• Key off. • Breakout box installed. • Processor and Integrated Controller disconnected. • DVOM on 200,000 ohms scale. • Measure resistance between Test Pin 52 and Test Pin 37. • Is resistance less than 10,000 ohms?	No ▶ Yes ▶	REMOVE breakout box. REPLACE Processor. RECONNECT all components. RERUN Quick Test. REMOVE breakout box. SERVICE short to power. RECONNECT all components. RERUN Quick Test. If code 83 is still present, REPLACE processor. RERUN Quick Test.

Integrated Controller	Pinpoint Test	X

TEST STEP	RESULT ▶	ACTION TO TAKE
X35 LOW SPEED OR HIGH SPEED FAN ALWAYS "ON", NO SERVICE CODE 83 OR 67		
• Key off. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires. Service as necessary. • Install breakout box, leave processor disconnected. • Disconnect the Integrated Controller. • DVOM on 200 ohm scale. • Measure the resistance between Test Pin 55 and controller vehicle harness Pin 14. • Is resistance less than 5 ohms?	Yes ▶ No ▶	GO to **X36**. REMOVE breakout box. SERVICE open in EDF circuit. RECONNECT all components. RE-EVALUATE symptom.
X36 CHECK EDF CIRCUIT FOR SHORTS TO POWER		
• Key off. • Breakout box installed. • Processor and Integrated Controller disconnected. • DVOM on 200,000 ohm scale. • Measure resistance between Test Pin 55 and Test Pin 37 and between Test Pin 55 and battery positive post. • Is resistance less than 10,000 ohms?	Yes ▶ No ▶	SERVICE short to power in EDF circuit. GO to **X37**. GO to **X37**.
X37 CHECK EDF FOR SHORT TO GROUND		
• Key on. • Breakout box installed. • Processor disconnected. • Connect Integrated Controller. • Jumper Test Pin 55 to Test Pin 40 or 60. • Does fan continue to run?	Yes ▶ No ▶	REMOVE breakout box. RECONNECT processor. REPLACE controller. RE-EVALUATE symptom. REMOVE breakout box. RECONNECT controller. REPLACE processor. RE-EVALUATE symptom.

Integrated Controller

Pinpoint Test **X**

TEST STEP	RESULT	ACTION TO TAKE
X40 NO FAN • Key off. • Disconnect Integrated Controller. • DVOM on 20 volt scale. • Measure voltage between battery negative post and Pin 1 and Pin 2, respectively at the Integrated Controller vehicle harness connector. • Is voltage greater than 10.5 volts?	Yes ▶ No ▶	GO to X41. RECONNECT controller. SERVICE open in battery power circuit. RE-EVALUATE symptom.
X41 CHECK FAN MOTOR • Key off. • Integrated Controller disconnected. • Jumper Pin 1 to Pin 3 at Integrated Controller harness. • Does fan run?	Yes ▶ No ▶	GO to X42. GO to X43.
X42 CHECK FAN RUNNING MODE • Key off. • Disconnect processor. • Connect Integrated Controller. • Key on. • Does fan run?	Yes ▶ No ▶	GO to X46. GO to X44.
X43 MEASURE BATTERY VOLTAGE SUPPLY AT FAN — BYPASSING INTEGRATED CONTROLLER • Key off. • Disconnect cooling fan. • Integrated Controller disconnected. • Jumper Pin 1 to Pin 3 at Integrated Controller vehicle harness connector. • DVOM on 20 volt scale. • Measure voltage at cooling fan vehicle harness connector. • Is voltage greater than 8.0 volts?	Yes ▶ No ▶	RECONNECT all components. CHANGE fan. RE-EVALUATE symptom. GO to X45.

Integrated Controller	Pinpoint Test	X

TEST STEP	RESULT ▶	ACTION TO TAKE
X44 CHECK EDF CIRCUIT FOR SHORT TO GROUND		
• Key off. • Processor and controller disconnected. • DVOM on 200,000 ohm scale. • Measure resistance from Pin 14 to Pin 15 at Integrated Controller vehicle harness connector. • Is resistance greater than 10,000 ohms?	Yes ▶	REPLACE Integrated Controller. RECONNECT processor and controller. RE-EVALUATE symptom.
	No ▶	SERVICE short to ground in EDF circuit. RECONNECT processor and Integrated Controller. RE-EVALUATE symptom.
X45 COOLING FAN GROUND VERIFICATION		
• Key off. • Cooling fan disconnected. • Integrated Controller disconnected. • Jumper Pin 1 to Pin 3 at Integrated Controller vehicle harness connector. • DVOM on 20 volt scale. • Measure voltage between voltage positive at cooling fan harness connector and negative battery post. • Is voltage greater than 8.0 volts?	Yes ▶	SERVICE open in ground circuit to fan. RECONNECT Integrated Controller, RE-EVALUATE symptom.
	No ▶	SERVICE open in power-to-fan circuit from 3 and 4 of Integrated Controller harness connector to cooling fan connector. RECONNECT controller. RE-EVALUATE symptom.
X46 ECT SENSOR CHECK		
• Reconnect processor. • Check engine coolant level. • Warm engine to operating temperature before taking ECT resistance measurement. • Key off, wait 10 seconds. • Harness disconnected from ECT sensor. • DVOM on 200,000 ohm scale. • Measure resistance of the ECT sensor. • Is the resistance reading between 1500 ohms and 2000 ohms?	Yes ▶	REPLACE processor. RECONNECT harness to ECT sensor. RECONNECT Integrated Controller. RE-EVALUATE symptom.
	No ▶	REPLACE ECT sensor. RECONNECT all components. RE-EVALUATE symptom.

Integrated Controller | Pinpoint Test | X

TEST STEP	RESULT ▶	ACTION TO TAKE
X50 CHECK FOR VOLTAGE AT A/C CLUTCH • Key on, engine off. • A/C demand switch to A/C ON position. • DVOM on 20 volt scale. • Check voltage at A/C clutch harness connector. • Is voltage greater than 10.5 volts?	Yes ▶	GO to Shop Manual, Group 36, A/C Diagnosis.
	No ▶	GO to X51.
X51 CHECK FOR CONTINUITY FROM INTEGRATED CONTROLLER TO A/C CLUTCH • Key off. • Disconnect Integrated Controller. • DVOM on 200 ohm scale. • Measure resistance between Pin 23 of the controller harness and power side of the A/C clutch harness connector and between Pin 16 of the controller harness and ground side of the A/C clutch harness connector. • Are both resistances less than 5 ohms?	Yes ▶	GO to X61.
	No ▶	SERVICE open in power to A/C clutch or ground to A/C clutch. RE-EVALUATE symptom.
X52 ENTER OUTPUT STATE CHECK (REFER TO APPENDIX) **NOTE: Do not use STAR tester for this Step, use VOM/DVOM.** • Key off, wait 10 seconds. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box. Connect processor to breakout box. • DVOM on 20 volt scale. • Connect DVOM negative test lead to STO and positive test lead to battery positive. • Jumper STI to SIGNAL RETURN. • Perform Key On Engine Off Self-Test until the completion of the Continuous Test Codes. • DVOM will indicate zero volts. • Depress and release the throttle. • Did DVOM reading change to a high voltage reading?	Yes ▶	REMAIN in Output State Check. GO to X53.
	No ▶	DEPRESS throttle to WOT and RELEASE. If STO voltage does not go high, GO to Pinpoint Test Step QC1. LEAVE equipment hooked up.

Integrated Controller	Pinpoint Test	X

TEST STEP	RESULT ▶	ACTION TO TAKE
X53 CHECK WAC OUTPUT FOR PROPER ELECTRICAL OPERATION • Key on, engine off. • A/C demand switch to A/C on position. • Breakout box installed, processor connected. • DVOM on 20 volt scale. • Connect DVOM positive test lead to Test Pin 37 and negative test lead to Test Pin 54. • While observing DVOM, depress and release the throttle several times (to cycle output on and off). • Does voltage output cycle high and low?	Yes ▶ No ▶	2.3L EFI T/C only, GO to X61. All others, GO to X54. GO to X57.
X54 CHECK FOR VOLTAGE AT A/C CLUTCH SWITCH • Key on, engine off. • A/C demand switch to A/C on position. • DVOM on 20 volt scale. • Breakout box installed. • Processor and Integrated Controller connected. • Measure voltage between Test Pin 10 and Test Pin 40 at breakout box. • Is voltage greater than 10.5 volts?	Yes ▶ No ▶	GO to X55. GO to X56.
X55 CHECK CONTINUITY OF ACCS TO INTEGRATED CONTROLLER • Key off, wait 10 seconds. • Breakout box installed. • Processor disconnected. • Integrated Controller disconnected. • DVOM on 200 ohm scale. • Measure resistance between Test Pin 10 at breakout box and Pin 21 at controller harness connector. • Is resistance less than 5 ohms?	Yes ▶ No ▶	REMOVE breakout box. RECONNECT processor. REPLACE Integrated Controller. RE-EVALUATE symptom. REMOVE breakout box. RECONNECT all components. SERVICE open in ACCS circuit. RE-EVALUATE symptom.

Integrated Controller — Pinpoint Test X

TEST STEP	RESULT ▶	ACTION TO TAKE
X56 CHECK CONTINUITY OF ACCS CIRCUIT		
• Key off, wait 10 seconds. • Breakout box installed. • A/C demand switch to A/C ON position. • Processor and Integrated Controller connected. • DVOM on 200 ohm scale. • Measure resistance between Test Pin 10 and A/C demand switch. • Is resistance less than 5 ohms?	No ▶	SERVICE open in circuit. RERUN Quick Test. REMOVE breakout box. RECONNECT all components.
	Yes ▶	EEC-IV system OK. REFER to Shop Manual, Group 36 A/C Diagnosis. REMOVE breakout box. RECONNECT all components.
X57 CHECK CONTINUITY IN WAC TO INTEGRATED CONTROLLER CIRCUIT		
• Key off, wait 10 seconds. • Breakout box installed. • Disconnect processor and Integrated Controller. • DVOM on 200 ohm scale. • Measure resistance between Test Pin 54 and Pin 22 at Integrated Controller harness. • Is resistance less than 50 ohms?	No ▶	REMOVE breakout box. RECONNECT all components. SERVICE open in WAC circuit. RE-EVALUATE symptom.
	Yes ▶	GO to X58.
X58 CHECK WAC CIRCUIT FOR SHORTS TO GROUND		
• Key off, wait 10 seconds. • Leave breakout box installed and processor disconnected. • Integrated Controller disconnected. • DVOM on 200,000 ohm scale. • Measure resistance between Test Pin 54 and Test Pin 40 and between Test Pin 54 and Test Pin 46 and between Test Pin 54 and battery negative post. • Are all resistances greater than 10,000 ohms?	Yes ▶	GO to X59.
	No ▶	REMOVE breakout box. RECONNECT all components. SERVICE shorts to ground in WAC circuit. RE-EVALUATE symptom.

Integrated Controller	Pinpoint Test	X

TEST STEP	RESULT	ACTION TO TAKE
X59 CHECK WAC CIRCUIT FOR SHORTS TO POWER		
• Key off, wait 10 seconds. • Leave Breakout box installed and processor disconnected. • Integrated Controller disconnected. • DVOM on 200,000 ohm scale. • Measure resistance between Test Pin 54 and Test Pin 37 and between Test Pin 54 and battery positive. • Are both resistances greater than 10,000 ohms?	Yes ▶ No ▶	GO to **X60**. REMOVE breakout box. RECONNECT all components. SERVICE short to power in WAC circuit. GO to **X60**.
X60 CHECK FOR VOLTAGE AT A/C CLUTCH		
• Key off, wait 10 seconds. • Leave breakout box installed. • Processor disconnected. • Connect Integrated Controller. • A/C clutch disconnected. • A/C demand switch to A/C ON position. • Key on, engine off. • DVOM on 20 volt scale. • Measure voltage at A/C clutch harness connection. • Is voltage greater than 10.5 volts?	Yes ▶ No ▶	REMOVE breakout box. RECONNECT all components. REPLACE processor. RE-EVALUATE symptom. REMOVE breakout box. RECONNECT all components. REPLACE Integrated Controller. RE-EVALUATE symptom.
X61 CHECK FOR VOLTAGE AT A/C INPUT TO CONTROLLER		
• Key off, wait 10 seconds. • Leave breakout box installed. • Processor connected. • Integrated controller disconnected. • Key on, engine off. • A/C demand switch to A/C ON position. • DVOM on 20 volt scale. • Measure voltage between Pin 21 at controller harness connector and test Pin 40. • Is voltage greater than 10.5 volts?	Yes ▶ No ▶	REMOVE breakout box. RECONNECT all components. REPLACE Integrated Controller. RE-EVALUATE symptom. REMOVE breakout box. RECONNECT all components. SERVICE open in A/C input circuit to controller. RE-EVALUATE symptom.

Integrated Controller

Pinpoint Test **X**

TEST STEP	RESULT ▶	ACTION TO TAKE
X70 NO FAN PRIMARY OR SECONDARY WITH NO CODE 82 OR 88		
• Key off, wait 10 seconds. • Disconnect Integrated controller. • DVOM on 20 volt scale. • Measure voltage between battery negative post and Pins 3 and 4 respectively at controller harness connector. • Are all voltages greater than 10.5 volts?	Yes ▶ No ▶	GO to X71. RECONNECT Integrated Controller. SERVICE open in battery power circuit. RE-EVALUATE symptom.
X71 FAN MOTORS CHECK		
• Key off. • Integrated controller disconnected. • Jumper Pin 3 to Pin 1 (for primary fan) and Pin 3 to Pin 6 (for secondary fan) at integrated controller harness connector. • Do both fans run?	Yes ▶ No ▶	GO to X72. GO to X73.
X72 CHECK FAN RUNNING MODE (LOW)		
• Key off. • Disconnect processor. • Connect Integrated controller. • Key on, engine off. • Does primary fan run?	Yes ▶ No ▶	GO to X75. REPLACE Integrated Controller. RECONNECT all components. RE-EVALUATE symptom.
X73 MEASURE BATTERY VOLTAGE SUPPLY AT FANS — BYPASSING INTEGRATED CONTROLLER		
• Key off. • Disconnect cooling fans. • Integrated controller disconnected. • Jumper Pin 3 to Pin 1 (for primary fan) and Pin 3 to Pin 6 if equipped (for secondary fan) at integrated controller harness connector. • DVOM on 20 volt scale. • Measure voltage at one or both cooling fan harness connectors as equipped. • Is either voltage greater than 8.0 volts?	Yes ▶ No ▶	CHANGE fan(s). RE-EVALUATE symptom. GO to X74.

Integrated Controller	Pinpoint Test	X

TEST STEP	RESULT ▶	ACTION TO TAKE
X74 COOLING FAN GROUND VERIFICATION		
• Key off. • Cooling fan disconnected. • Integrated controller disconnected. • Jumper Pin 3 to Pin 1 (for primary fan) and Pin 3 to Pin 6 if equipped (for secondary fan) at integrated controller harness connector. • DVOM on 20 volt scale. • Measure voltage between voltage positive at one or both cooling fan harness connectors and negative battery post as equipped. • Is voltage greater than 8.0 volts?	Yes ▶ No ▶	SERVICE open in ground circuit to fan(s). RECONNECT all components. RE-EVALUATE symptom. SERVICE open in power circuit to fan(s). RECONNECT all components. RE-EVALUATE symptom.
X75 JUMPER SECONDARY ELECTRIC DRIVE SIGNAL (HEDF) TO GROUND		
• Key off. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box, leave processor disconnected. • Integrated controller connected. • Jumper Test Pin 52 to Test Pin 40 at breakout box. • Key on. • Does secondary fan run?	Yes ▶ No ▶	GO to **X76**. REMOVE breakout box. REPLACE Integrated Controller. RECONNECT processor. RE-EVALUATE symptom.
X76 ECT SENSOR CHECK		
• Connect processor. • Check engine coolant level. • Warm engine to operating temperature before taking ECT resistance measurement. • Key off, wait 10 seconds. • Disconnect harness from ECT sensor. • DVOM on 200,000 ohm scale. • Measure resistance of ECT sensor. • Is resistance between 1500 and 2000 ohms?	Yes ▶ No ▶	REMOVE breakout box. REPLACE processor. RECONNECT all components. RE-EVALUATE symptom. REMOVE breakout box. REPLACE ECT sensor. RECONNECT all components. RE-EVALUATE symptom.

Integrated Controller

Pinpoint Test **X**

TEST STEP		RESULT ▶	ACTION TO TAKE
X80	SERVICE CODE 82 OR 88: CHECK EDF PROCESSOR SIGNAL TO INTEGRATED CONTROLLER FOR SHORTS TO GROUND		
NOTE: If fan is always on with Code 82 or 88, GO to X82. • Key off. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, and loose wires, etc. Service as necessary. • Install breakout box, leave processor disconnected. • Disconnect Integrated controller. • DVOM on 200,000 ohm scale. • Measure resistance between Test Pin 55 and Test Pin 40. • Is resistance less than 10,000 ohms?		Yes ▶ No ▶	SERVICE short to ground in EDF circuit. RECONNECT all components. RERUN Quick Test. GO to X81.
X81	CHECK FAN RUNNING MODE		
• Key off. • Breakout box installed. • Processor disconnected. • Connect integrated controller. • Key on, engine off. For 2.5L MTX > Does fan run? For 2.5L, 3.0L and 3.8L AXOD > Does fan run at low speed? For 2.3L EFI TC > Does primary fan run?		Yes ▶ No ▶	REMOVE breakout box. REPLACE processor. RECONNECT all components. RERUN Quick Test. REMOVE breakout box. REPLACE Integrated Controller. RECONNECT all components. RERUN Quick Test.

Integrated Controller	Pinpoint Test	X

TEST STEP	RESULT ▶	ACTION TO TAKE
X82 FAN ALWAYS ON WITH CODE 82 OR 88: CHECK EDF PROCESSOR SIGNAL TO INTEGRATED CONTROLLER FOR OPEN CIRCUIT		
• Key off. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, and loose wires, etc. Service as necessary. • Install breakout box. • Processor and integrated controller disconnected. • DVOM on 200 ohm scale. • Measure resistance between Test Pin 55 and Integrated Controller harness Pin 14. • Is resistance less than 5 ohms?	Yes ▶ No ▶	GO to X83. REMOVE breakout box. SERVICE open in EDF circuit. RECONNECT all components. RERUN Quick Test.
X83 CHECK EDF CIRCUIT FOR SHORTS TO POWER		
• Key off. • Breakout box installed. • Processor and integrated controller disconnected. • DVOM on 200,000 ohm scale. • Measure resistance between Test Pin 55 and Test Pin 37, and between Test Pin 55 and battery positive. • Is resistance less than 10,000 ohms?	Yes ▶ No ▶	REMOVE breakout box. RECONNECT all components. SERVICE short to power in EDF circuit. GO to X84. GO to X84.
X84 CHECK EDF SHORT TO GROUND		
• Key off. • Breakout box installed. • Processor disconnected. • Integrated controller connected. • Key on, engine off. • Jumper test Pin 55 to Test Pin 40 or 60. • Does fan continue to run?	Yes ▶ No ▶	REMOVE breakout box. REPLACE Integrated Controller. RECONNECT all components. RERUN Quick Test. REMOVE breakout box. REPLACE processor. RECONNECT all components. RERUN Quick Test.

Integrated Controller — Pinpoint Test X

TEST STEP	RESULT ▶	ACTION TO TAKE
X90 SERVICE CODE 95: CHECK INERTIA SWITCH **NOTE: Key On Engine Off Service Code 95 indicates that one of the following has occured:** **— Open circuit in/or between the fuel pump and Test Pin 8 (see schematic)** **— Poor fuel pump ground** **— FUEL PUMP circuit short to power** **— Fuel pump relay contacts always closed** • Key off, wait 10 seconds. • Locate and disconnect fuel pump inertia switch. • DVOM on 200 ohm scale. • Measure resistance of the fuel pump inertia switch. • Is resistance less than 5.0 ohms?	Yes ▶ No ▶	RECONNECT inertia switch. GO to X91. REPLACE or RESET inertia switch. RERUN Quick Test.
X91 VERIFY THAT FUEL PUMP IS OFF • Key off. • Listen for motor noise from fuel pump. • Is fuel pump off?	Yes ▶ No ▶	GO to X93. GO to X92.
X92 CHECK FOR FUEL PUMP RELAY ALWAYS CLOSED • Key off. • Locate and disconnect integrated controller. • Does fuel pump shut off when controller is disconnected?	Yes ▶ No ▶	REPLACE Integrated Controller. RERUN Quick Test SERVICE short to power in POWER-TO-PUMP/FPM circuit. RECONNECT integrated controller. RERUN Quick Test.

Integrated Controller	Pinpoint Test	X

TEST STEP	RESULT ▶	ACTION TO TAKE
X93 CHECK CONTINUITY OF FPM CIRCUIT		
• Key off. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box, leave processor disconnected. • Disconnect integrated controller. • DVOM on 200 ohm scale. • Measure resistance between Test Pin 8 at the breakout box and integrated controller harness connector pin 5. • Is resistance less than 5.0 ohms?	Yes ▶ No ▶	GO to **X94**. REMOVE breakout box. RECONNECT processor and integrated controller. SERVICE open circuit. RERUN Quick Test.
X94 CHECK FOR CONTINUITY BETWEEN FPM CIRCUIT AND GROUND		
• Key off. • Breakout box installed, processor disconnected. • Integrated controller disconnected. • DVOM on 200 ohm scale. • Measure resistance between Test Pin 8 at the breakout box and battery negative post. • Is resistance less than 5.0 ohms?	Yes ▶ No ▶	REMOVE breakout box. RECONNECT integrated controller. REPLACE processor. RERUN Quick Test. REMOVE breakout box. RECONNECT processor and integrated controller. GO to Shop Manual Group 24, Electric Fuel Pump for open in POWER-TO-PUMP circuit, poor fuel pump ground, open in fuel pump, etc.

Integrated Controller | Pinpoint Test | X

TEST STEP	RESULT ▶	ACTION TO TAKE
X95 SERVICE CODE 96: CHECK CONTINUITY OF POWER-TO-PUMP CIRCUIT		
NOTE: Service Code 96 indicates that when the fuel pump is being activated, power is not being supplied to the fuel pump. • Key off, wait 10 seconds. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box, leave processor disconnected. • Disconnect integrated relay controller. • DVOM on 200 ohm scale. • Measure resistance between Test Pin 8 at the breakout box and integrated controller harness connector pin 5. • Is resistance less than 5.0 ohms?	Yes ▶ No ▶	GO to **X96**. REMOVE breakout box. RECONNECT processor and integrated controller. SERVICE open in POWER-TO-PUMP circuit between FPM splice and the integrated controller. RERUN Quick Test.
X96 VERIFY FUEL PUMP OPERATION		
• Key off. • Breakout box installed. • Reconnect processor and integrated controller. • DVOM on 20 volt scale. • Connect DVOM between Test Pin 8 and Test Pin 40 at the breakout box. • While observing DVOM, turn key to on. • Does voltage increase to greater than 10.5 volts for about 1 second after key is turned to on?	Yes ▶ No ▶	REMOVE breakout box. REPLACE processor. RERUN Quick Test. REMOVE breakout box. RECONNECT processor. REPLACE integrated controller. RERUN Quick Test.

Integrated Controller	Pinpoint Test	X

TEST STEP	RESULT ▶	ACTION TO TAKE
X100 CONTINUOUS MEMORY CODE 95: CHECK EEC-IV HARNESS		
A Continuous Memory Code 95 indicates that one of the following intermittent conditions has occurred: — Open circuit in or between the fuel pump and Pin 8 in the processor (see schematic [X]). — Poor fuel pump ground. • Start engine. • Check for engine stall/stumble while performing the following (also, if possible, listen for fuel pump turning off). — Shake, wiggle, bend the power-to-pump circuit between the Integrated Controller pin 5 and the fuel pump. — Shake, wiggle, bend the fuel pump ground circuit from the fuel pump to ground. — Lightly tap the inertia switch and the fuel pump to simulate road shock. • Key off. • Inspect the fuel pump electrical connector and the fuel pump ground for corrosion, damaged pins, etc. • Is fault indicated/found?	Yes ▶ No ▶	ISOLATE fault and SERVICE as necessary. CLEAR Continuous Memory Code 95. REFER to Appendix in Section 16. RERUN Quick Test. GO to [X101] .
X101 CHECK FPM CIRCUIT		
• Key off. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires, etc. Service as necessary. • Install breakout box, leave processor disconnected. • Key on, engine off. • Connect a test lamp between Test Pin 8 and Test Pin 37. • Observe test lamp for an indication of a fault while performing the following (The light will go out when a fault is found indicating an open): — Shake, wiggle, bend the fuel pump monitor circuit (Pin 8) between the processor and splice into the POWER-TO-PUMP circuit. • Is fault found/indicated?	Yes ▶ No ▶	ISOLATE fault and SERVICE as necessary. REMOVE breakout box. CLEAR Continuous Memory Code 95. REFER to Appendix in Section 16. RERUN Quick Test. Unable to duplicate fault at this time. CLEAR Continuous Memory Code 95. REFER to Appendix in Section 16.

Integrated Controller

Pinpoint Test **X**

TEST STEP		RESULT ▶	ACTION TO TAKE
X102	CONTINUOUS MEMORY CODE 96 CHECK FOR CONTINUOUS MEMORY CODE 87		
• Is Continuous Memory Code 87 also present?		Yes ▶	GO to X104.
		No ▶	GO to X103.
X103	CHECK EEC-IV HARNESS		
A Continuous Memory Code 96, without the presence of a Continuous Memory Code 87, indicates that during vehicle operation, one of the following has occurred: — Fuel pump relay contacts opened. — Open in the POWER-TO-PUMP circuit from the integrated relay controller pin 5 to the FPM splice. (See schematic X). • Start engine. • Check for engine stall/stumble while performing the following (also, if possible, listen for fuel pump turning off): — Shake, wiggle, bend the POWER-TO-PUMP circuit from the integrated relay controller to the FPM splice. — Lightly tap the integrated relay controller (to simulate road shock). • Key off. • Inspect the integrated relay controller 24 pin connectors for corrosion, damaged pins, etc. • Is fault indicated/found?		Yes ▶	ISOLATE fault and SERVICE as necessary. CLEAR Continuous Memory Code. REFER to Appendix in Section 16. RERUN Quick Test.
		No ▶	Unable to duplicate fault at this time. CLEAR Continuous Memory Code 96. REFER to Appendix in Section 16. Continuous Memory Code 96 testing complete.

Integrated Controller	Pinpoint Test	X

TEST STEP		RESULT ▶	ACTION TO TAKE
X104	CONTINUOUS MEMORY SERVICE CODE 87: CHECK EEC-IV HARNESS		
A Continuous Memory Code 87 indicates that one of the following intermittent conditions has occurred: — Open VPWP circuit in the integrated relay controller. — Open coil in fuel pump relay. — Open in fuel pump primary circuit. • Start engine. • Check for engine stall/stumble while performing the following (also, if possible, listen for fuel pump turning off): — Shake, wiggle, bend the EEC-IV Harness fuel pump circuit (pin 22) between the processor and the Integrated Controller (pin 18). — Lightly tap the Integrated Controller (to simulate road shock). • Key off. • Inspect the processor 60 pin connectors and the integrated relay controller 24 pin connectors for corrosion, damaged pins, etc. • Is fault indicated/found?		Yes ▶	ISOLATE fault and SERVICE as necessary. CLEAR Continuous Memory Service Code(s). REFER to Appendix in Section 16. RERUN Quick Test.
		No ▶	Unable to duplicate fault at this time. CLEAR Continuous Memory Code(s). REFER to Appendix in Section 16.

Erratic Ignition	Pinpoint Test	Y

Note

You should enter this Pinpoint Test only when a service code 14 is received in Quick Test Step 6.0.

Remember

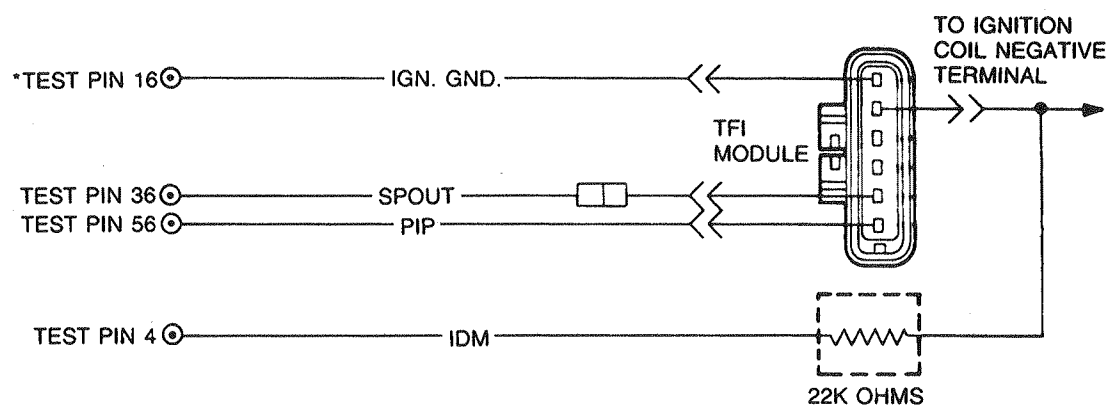
To prevent the replacement of good components, be aware that the following non-EEC areas may be at fault:

- TFI module.
- Arcing secondary ignition components.
  - — Ignition coil.
  - — Spark plugs and high tension cables.
- Distributor and PIP sensor.

This Pinpoint Test is intended to diagnose only the following:

- Harness circuits: IGNITION GROUND, SPOUT, PIP, IDM.

Pinpoint Test Schematic



***TEST PINS LOCATED ON BREAKOUT BOX**
ALL HARNESS CONNECTORS VIEWED INTO MATING SURFACE

A9913-B

Erratic Ignition	Pinpoint Test	Y

TEST STEP	RESULT ▶	ACTION TO TAKE
Y1 SERVICE CODE 14: ERRATIC IGNITION		
NOTE: Code 14 indicates two successive erratic profile ignition pickup (PIP) pulses occurred, resulting in a possible engine miss or stall. • Check EEC-IV and ignition systems harnesses for: — Loose wires/connectors. — Arcing secondary ignition components (coil, cap, rotor, wires, plugs, etc.). — On-board transmitter (2-way radio).* • Are any of the above present? *Verify all 2-way radio installations. Carefully follow manufacturer's installation instructions regarding the routing of antenna and power leads.	Yes ▶ No ▶	SERVICE as necessary. CLEAR Continuous Memory Code 14. REFER to Appendix in Section 16. RERUN Quick Test. GO to Y2.
Y2 CHECK DISTRIBUTOR		
• Key off, wait 10 seconds. • Enter Engine Running Continuous Monitor mode. Refer to Appendix in Section 16. • Observe VOM or STAR LED for indication of a fault while performing the following: • Lightly tap on TFI module and distributor. • Wiggle TFI connector. • Is a fault indicated?	Yes ▶ No ▶	DISCONNECT and INSPECT connectors. If connector and terminals are good, GO to Section 15, Ignition System Diagnostics. GO to Y3.

Erratic Ignition	Pinpoint Test	Y

TEST STEP	RESULT ▶	ACTION TO TAKE
Y3 CHECK EEC-IV HARNESS		
• While still in Continuous Monitor mode from Step Y2 observe VOM or STAR LED for a fault indication while performing the following: • While looking for faults grasp the harness close to the TFI connector. Wiggle, shake or bend a small section of the ignition and EEC-IV systems harness while working your way to the other components and dash panel. Also wiggle, shake or bend the EEC-IV harness from the dash panel to the processor. Isolate the PIP circuit if needed for this test. • Is a fault indicated?	Yes ▶ No ▶	ISOLATE fault and SERVICE as necessary. CLEAR Continuous Memory Code 14. REFER to Appendix in Section 16. RERUN Quick Test. GO to Y4.
Y4 CHECK PROCESSOR AND HARNESS CONNECTORS		
• Key off, wait 10 seconds. • Disconnect processor 60 pin connector. Inspect for damaged pins, corrosion, loose wires, etc. Service as necessary. • Are connectors and terminals OK? • Reconnect processor when this Step is completed.	Yes ▶ No ▶	Unable to duplicate an erratic ignition fault in the EEC-IV System. For further diagnosis, GO to Section 15, Ignition System Diagnostics. SERVICE as necessary. CLEAR Continuous Memory Code 14. REFER to Appendix in Section 16. RERUN Quick Test.