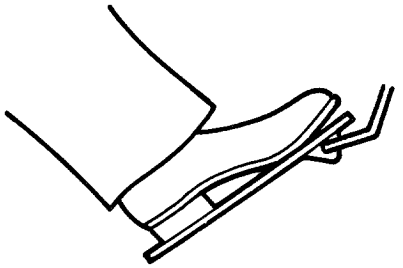
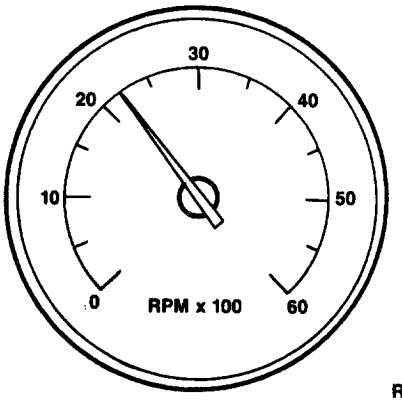
Dynamic Response Test	Pinpoint Test	M

M

OPERATOR PERFORMS BRIEF WOT





RPM INCREASE
GREATER THAN 2000 RPM

STOP-WARNING

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

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 Air Flow (greater than 50% open).
- RPM increase (greater than 2000 rpm).

Dynamic Response Test

Pinpoint Test

M

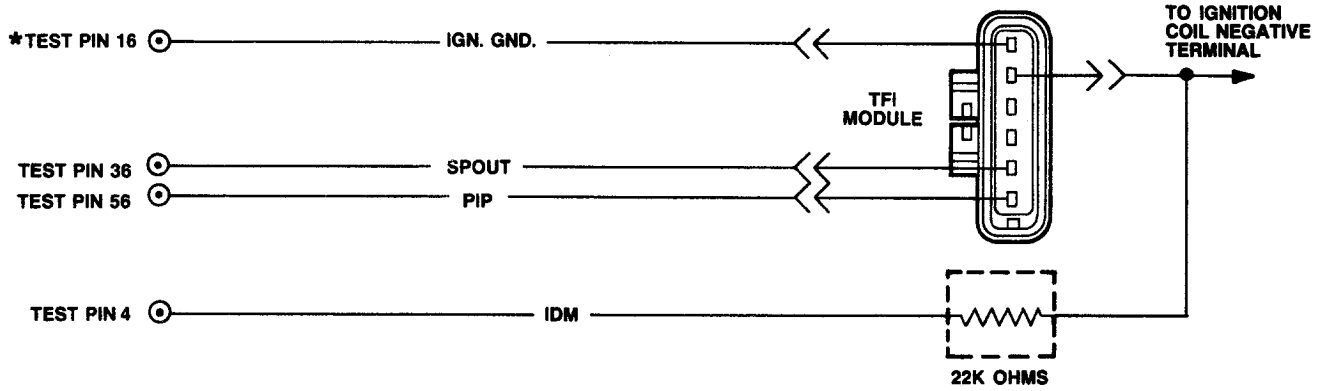
TEST STEP		RESULT ▶	ACTION TO TAKE
M1	CODE 77: SYSTEM FAILED TO RECOGNIZE BRIEF WOT		

NOTE: A brief snap of the throttle may not be sufficient to pass this test. Be sure to go to WOT and return.

• Repeat Engine Running Test of Quick 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.	Code 77 still present ▶	REPLACE processor. RERUN Quick Test.
	No Code 77 ▶	Dynamic Response Test passed. SERVICE any other service code(s) received as necessary.

Ignition Diagnostic Monitor (IDM)	Pinpoint Test	N

N



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

STOP-WARNING

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

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.

Ignition Diagnostic Monitor (IDM) | Pinpoint Test | N

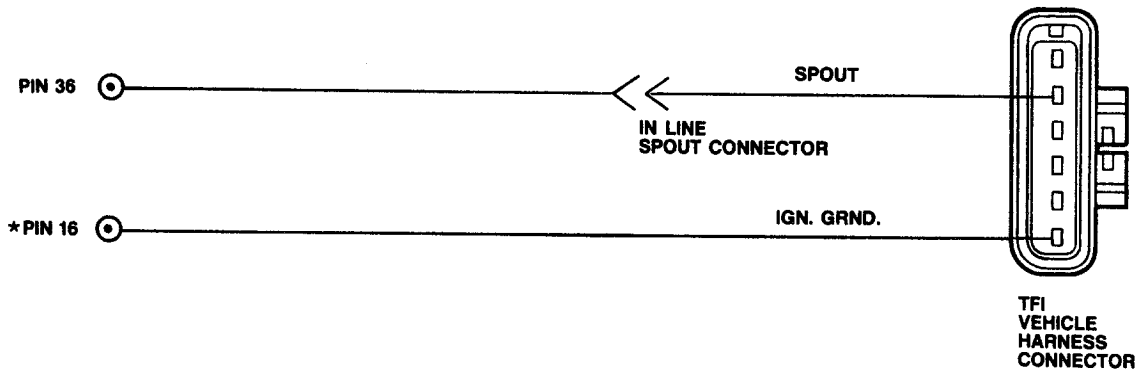
TEST STEP	RESULT ▶	ACTION TO TAKE
N1 CHECK CONTINUITY OF IDM CIRCUIT • Key Off, wait 10 seconds. • Disconnect E-core ignition connector from coil. • Disconnect processor and inspect both 60 Pin connectors for damaged pins, corrosion, loose wires. Service as necessary. • Connect Breakout box to harness. Leave processor disconnected. • DVOM on 200,000 ohm scale. • Measure resistance between test Pin 4 at the Breakout box and ignition coil negative terminal.	Resistance reading is less than 20,000 ohms or greater than 24,000 ohms ▶	SERVICE open circuit. RERUN Quick Test.
	Resistance reading is less than 24,000 ohms but greater than 20,000 ohms ▶	GO to N2.
N2 CHECK FOR SHORT TO GROUND • Key Off, wait 10 seconds. • Leave Breakout box installed and 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.	Any resistance reading is less than 10,000 ohms ▶	SERVICE short to ground. RERUN Quick Test.
	All resistance readings are 10,000 ohms or greater ▶	GO to N3.
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 6.0D). • 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 ▶	DISCONNECT and INSPECT connectors. If connector and terminals are good, GO to Section 15, TFI Ignition Diagnostics.
	No ▶	GO to N4.

Ignition Diagnostic Monitor (IDM) | Pinpoint Test | N

TEST STEP	RESULT ▶	ACTION TO TAKE
N4 CHECK EEC-IV HARNESS • While still in continuous monitor test from step N1 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. **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 • Is a fault indicated?	Yes ▶ No ▶	ISOLATE fault and make necessary repairs. RERUN Quick Test. GO to **N5**.
N5 CHECK PROCESSOR AND HARNESS CONNECTORS • Key Off, wait 10 seconds. • Disconnect processor 60 Pin connector and inspect for damaged pins, corrosion, loose wires. • Are connectors and terminals OK? • Reconnect processor when this Step is completed.	No ▶ Yes ▶	SERVICE as necessary. RERUN Quick Test. If unable to DUPLICATE an IDM fault in the EEC-IV System, testing is complete.

Spark Timing Check	Pinpoint Test	P

P



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

STOP-WARNING

You should enter this Pinpoint Test only when directed here from Quick Test Step 4.0.

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.

Spark Timing Check

Pinpoint Test **P**

TEST STEP	RESULT ▶	ACTION TO TAKE
P1 CHECK SPARK TIMING • Verify that Self-Test is activated during Engine Running Test. • Check timing while performing Engine Running Test. Record value. • Timing base plus 20 degrees ± 3 degrees? **NOTE: Self-Test locks the timing at 20 degrees plus base throughout this test 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.)**	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. • Timing base ±3 degrees BTDC. **NOTE: Base timing must be checked to decal value.**	Yes ▶ No ▶	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].
P3 CHECK FOR POWER TO PROCESSOR • Key Off, wait 10 seconds. • Disconnect processor 60 Pin connector and inspect for damaged pins, corrosion, loose wires. Service as necessary. • Install Breakout Box. • Key On, Engine Off. • DVOM on 20V scale. • Measure voltage between test Pin 37 and test Pin 40 and between test Pin 57 and test Pin 60 at the Breakout box.	Either voltage reading less than 10.5V ▶ Both voltage readings 10.5V or greater ▶	GO to Pinpoint Test Step [B1] for all engines, except 2.5L HSC CFI and 3.0L EFI passenger car. GO to Pinpoint Test Step [X1]. GO to [P4].

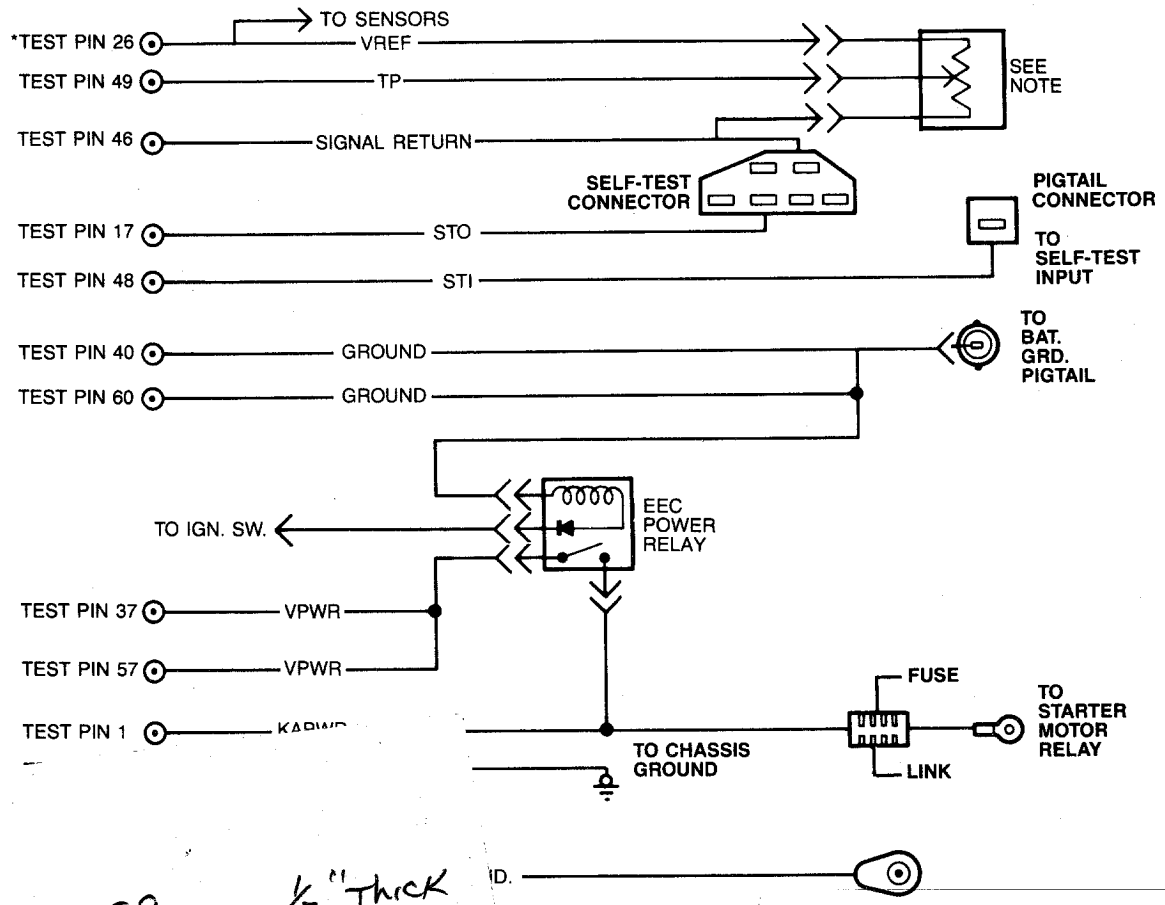
Spark Timing Check

Pinpoint Test P

TEST STEP	RESULT ▶	ACTION TO TAKE
P4 CHECK HARNESS FOR CONTINUITY		
• Key Off, wait 10 seconds. • DVOM on 200 ohm scale. • Measure resistance between test Pin 36 at the Breakout box and Pin 2 (spout pin) at the TFI vehicle harness connector.	Reading 5 ohms or less ▶	GO to **P5**.
	Reading greater than 5 ohms ▶	SERVICE open circuit. CONNECT spout test connector. CHECK timing per **P1**.
P5 HARNESS CHECK — IGNITION GROUND		
• Breakout box installed. • Key Off. • DVOM on 200 ohm scale. • Measure resistance between test Pin 16 at the Breakout box and TFI Pin 6 (ign. grnd.) at the TFI vehicle harness connector.	Less than 5 ohms ▶	GO to Pinpoint Test Step **A7**.
	5 ohms or greater ▶	SERVICE harness as necessary. RERUN Quick Test.

No Codes/Codes Not Listed	Pinpoint Test	Q

Q



G 30688 ½" Thick

(2) G 30687 Thin

...NG SURFACE.

...THE APPROPRIATE ENGINE SUPPLEMENT SECTION FOR ...ON.

WARNING

...n directed here from Quick Test Step 3.0, 5.0 or ...y Symptom in the Engine Supplement Section or

...e following:

...nd, VPWR, KAM, VREF, Ignition, NDS, EEC Power

No Codes/Codes Not Listed | Pinpoint Test | Q

TEST STEP	RESULT ▶	ACTION TO TAKE
Q1 NO CODES, CODES NOT LISTED		
Refer to illustration Q. • Key Off, wait 10 seconds. • DVOM on 20V scale. • Disconnect TP sensor. • Key On, Engine Off. • Measure voltage between VREF at the TP harness connector and signal return in Self-Test connector.	Less than 4.0V or greater than 6.0V ▶ 4.0V to 6.0V ▶	GO to Pinpoint Test Step C1. RECONNECT TP sensor. GO to Q2.
Q2 SELF-TEST INPUT CONTINUITY CHECK		
Refer to illustration Q. • Key Off, wait 10 seconds. • Disconnect processor 60 Pin connector and inspect for damaged pins, corrosion, loose wires. Service as necessary. • Install Breakout box, leave 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.	Less than 5 ohms ▶ 5 ohms or greater ▶	GO to Q3. CORRECT open in circuit.
Q3 SELF-TEST OUTPUT CIRCUIT CONTINUITY CHECK		
Refer to illustration Q. • Breakout box installed. • DVOM to 200 ohm scale. • Measure resistance between Self-Test output at the Self-Test connector and test Pin 17 at the Breakout box.	5 ohms or greater ▶ Less than 5 ohms ▶	CORRECT open in circuit. GO to Q4.
Q4 EGO SENSOR GROUND CONTINUITY CHECK		
Refer to illustration Q. • Breakout box installed. • Key Off. • Measure resistance between EGO ground on engine and test Pin 49 at the Breakout box.	Less than 5 ohms ▶ 5 ohms or greater ▶	GO to Q5. CHECK and SERVICE EGO sensor ground wire or open circuit bad connection.

No Codes/Codes Not Listed | Pinpoint Test | Q

TEST STEP	RESULT ▶	ACTION TO TAKE
Q5 STO SHORT TO GROUND • Breakout box installed. • 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?	Yes ▶	REPLACE processor. RERUN Quick Test.
	No ▶	For 1.9L EFI, GO to **Q6**. For 3.0L EFI passenger car GO to **Q9**. All others GO to **Q8**.
Q6 HEGO HARNESS SHORT TO POWER • Key Off. • Breakout box installed, leave processor disconnected. • Disconnect HEGO. • Measure resistance between test Pin 29 and test Pins 37 and 57 at the Breakout box. • Is reading less than 10,000 ohms?	No ▶	SERVICE harness short to power. RERUN Quick Test.
	Yes ▶	GO to **Q7**.
Q7 HEGO SHORT TO POWER • Key Off. • HEGO disconnected. • Measure resistance between RUN circuit and EGO circuit on the HEGO connector. • Is reading less than 10,000 ohms? **NOTE: Refer to HA for connector orientation.**	Yes ▶	REPLACE HEGO. RERUN Quick Test.
	No ▶	GO to **Q8**.
Q8 INTERMITTENT NDS • Key Off. • Breakout box installed. • Connect DVOM between test Pin 30 and test Pin 40 or 60 at the Breakout box. • Key On, engine running Self-Test. • Is voltage greater than 1V? **NOTE: Refer to FA for connector orientation.**	Yes ▶	SERVICE intermittent in NDS harness, connector or switch. If OK, GO to Quick Test Step **5.0** for appropriate service codes.
	No ▶	SERVICE intermittent in NDS harness, connector, or switch. If OK, GO to **Q9**.

No Codes/Codes Not Listed | Pinpoint Test | Q

TEST STEP	RESULT ▶	ACTION TO TAKE
Q9 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 10.5V or greater to zero volts?	Yes ▶ No ▶	GO to **Q9A**. REPLACE EEC Power Relay or integrated Relay Controller. RERUN Quick Test.
Q9A SHIFT LIGHT • Is vehicle equipped with shift indicator light?	No ▶ Yes ▶	SERVICE STO circuit for short to ground. RERUN Quick Test. GO to **KL7**.

Continuous Test Code 15 — Pinpoint Test Q

TEST STEP	RESULT ▶	ACTION TO TAKE
Q10 CONDITIONS FOR CONTINUOUS CODE 15 • Power interruption to Keep Alive Memory (KAM) Pin 1 may result in a service code being outputted.* • Clear continuous memory codes (use procedure described in Quick Test Step 6). • Repeat Quick Test Step 3.0 through Continuous memory code output. • Code 15 present on retest? ***NOTE: Anytime power is interrupted to the processor, a code 15 may be outputted the first time Self-Test is run after restoration of power. Repeat Self-Test to ensure correct diagnosis.**	Yes ▶ No ▶	GO to **Q11**. Test complete.
Q11 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 Self-Test. • Is code 15 still present?	Yes ▶ No ▶	GO to **Q12**. Test complete.
Q12 CHECK POWER CIRCUIT TO KEEP ALIVE MEMORY • Key Off, wait 10 seconds. • Disconnect processor and inspect both 60 Pin connectors. • Connect Breakout box to harness, leave processor disconnected. • DVOM on 20V 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. • Observe voltage reading.	Reading less than 10V ▶ Reading 10V or greater ▶	SERVICE open to KAM circuit. RERUN Quick Test. REPLACE processor. RERUN Quick Test.

Engine Stalls During Quick Test

Pinpoint Test **Q**

TEST STEP	RESULT ▶	ACTION TO TAKE
Q30 DIAGNOSTIC ROUTINES COMPLETE		
• Have diagnostic routines in Section 2 been completed?	Yes ▶	GO to **Q31**.
	No ▶	GO to Diagnostic Routines, Section 2.
Q31 ATTEMPT TO BRING ENGINE TO OPERATING TEMPERATURE		
• Key Off, wait 10 seconds. • Install tachometer. • Try to maintain engine at 2,000 rpm for 2 minutes. • Can rpm be maintained?	Yes ▶	GO to Pinpoint Test Step **A13**.
	No ▶	GO to **Q32**.
Q32 MAINTAIN ENGINE OPERATION DURING ENGINE RUNNING QUICK TEST		
• Engine at operating temperature. • Tachometer installed. • Key Off, wait 10 seconds. • Activate Quick Test. • Perform Engine Running Self-Test while maintaining 2,000 rpm.	Code 11 ▶	GO to Quick Test Step **5.0**.
	Any service code ▶	GO to Quick Test Step **5.0B**.
	No codes ▶	GO to Pinpoint Test Step **Q1**.

Output State Check Not Functioning — Pinpoint Test Q

TEST STEP	RESULT ▶	ACTION TO TAKE
Q40 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 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 **Q41**.
	No Codes ▶	GO to **Q1**.
Q41 CHECK THROTTLE LINKAGE • Check throttle and throttle linkages for sticking and binding. • Throttle OK?	Yes ▶	SERVICE as necessary. RERUN Quick Test.
	No ▶	REPLACE TP sensor. RERUN Quick Test.

Processor Power Check

Pinpoint Test Q

TEST STEP	RESULT ▶	ACTION TO TAKE
Q50 CHECK FOR POWER TO PROCESSOR		
• Key Off, wait 10 seconds. • Disconnect processor 60 Pin connector and inspect for damaged pins, corrosion, loose wires. Service as necessary. • Install Breakout box. • Key On, Engine Off. • DVOM on 20V 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.	Either voltage reading less than 10.5V ▶	2.5L CFI and 3.0L EFI passenger car GO to Pinpoint Test **X-1**. All others GO to Pinpoint Test **B-1**.
	Both voltage readings 10.5V or greater ▶	REPLACE processor. RERUN Quick Test.