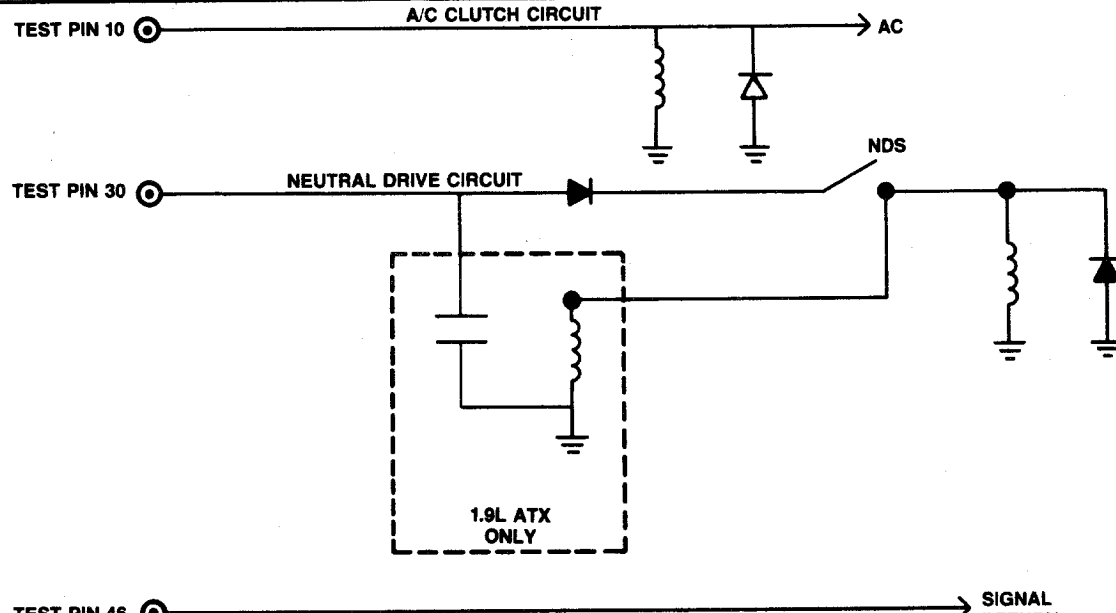


# Neutral Drive Switch A/C Input

# Pinpoint Test

FA

TEST STEP	RESULT	ACTION TO TAKE
<p><b>FA1</b> CODE 67 SYSTEM IDENTIFICATION</p> <p>2.9L TK, 3.0L TK, 5.0L M/T SEFI ..... GO to <b>FA10</b> .</p> <p>1.9L M/T, 2.3L EFI M/T Truck, 2.3L CFI M/T ..... GO to <b>FA10</b> .</p> <p>2.3L Turbo, M/T ..... GO to <b>FA15</b> .</p> <p>2.3L SVO Turbo Octane Switch ..... GO to <b>FA30</b> .</p> <p>4.9L M/T, Truck, 2.3L OHC FBC ..... GO to <b>FA25</b> .</p> <p>All other systems ..... GO to <b>FA2</b> .</p>		
<p><b>FA2</b> NEUTRAL DRIVE INPUT CHECK</p> 		
<ul style="list-style-type: none"> <li>● Key Off, wait 10 seconds.</li> <li>● Verify heater control is in OFF position, if so equipped.</li> <li>● Verify transmission is in NEUTRAL or PARK.</li> <li>● Disconnect processor 60 Pin connector and inspect for damaged pins, corrosion, loose wires. Service as necessary.</li> <li>● Install Breakout box.</li> <li>● Processor connected.</li> <li>● Key On, Engine Off.</li> <li>● DVOM on 20V scale.</li> <li>● Measure voltage between test Pin 30 (Neutral Drive circuit) at the Breakout box and chassis ground.</li> </ul>	<p>Less than 1.0V</p> <p>1.0V or greater</p>	<p>GO to <b>FA4</b> .</p> <p>GO to <b>FA3</b> .</p>

<h1>Neutral Drive Switch A/C Input</h1>	<h1>Pinpoint Test</h1>	<h1>FA</h1>
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	TEST STEP	RESULT	ACTION TO TAKE
<b>FA3</b>	<b>NEUTRAL DRIVE SWITCH CHECK</b>		
	<ul style="list-style-type: none"> <li>● Key Off, wait 10 seconds.</li> <li>● Breakout box installed.</li> <li>● DVOM on 200 ohm scale.</li> <li>● Locate the Neutral Drive switch.</li> <li>● Disconnect vehicle harness from the Neutral Drive switch and measure resistance across the switch.</li> </ul>	<p>Less than 5 ohms</p> <p>5 ohms or greater</p>	<p>SERVICE open in vehicle harness Neutral Drive circuit. RERUN Quick Test.</p> <p>REPLACE Neutral Drive switch. RERUN Quick Test.</p>
<b>FA4</b>	<b>A/C INPUT CHECK</b>		
	<ul style="list-style-type: none"> <li>● Breakout box installed.</li> <li>● Key On, Engine Off.</li> <li>● DVOM on 20V scale.</li> <li>● A/C control Off. Measure voltage between test Pin 10 (A/C clutch circuit) at the Breakout box and chassis ground.</li> </ul>	<p>1.0V or greater</p> <p>Less than 1.0V</p>	<p>SERVICE short to power in A/C clutch circuit. RERUN Quick Test.</p> <p>REPLACE processor. RERUN Quick Test.</p>
<b>FA10</b>	<b>NEUTRAL/CLUTCH INPUT CHECK 1.9L, 2.3L EFI TRUCK, 2.3L CFI M/T 2.9L, 3.0L EFI TRUCK, 5.0L M/T SEFI</b>		
	<p>The diagram shows the electrical connections for the Neutral Drive Switch and A/C Clutch Circuit. Test Pin 10 is connected to the A/C Clutch Circuit. Test Pin 30 is connected to the Neutral Drive Circuit. Test Pin 46 is connected to the Signal Return (SIG. RTN.). The Neutral Drive Circuit includes a Gear SW and a Clutch SW. The A/C Clutch Circuit is connected to AC power and ground.</p>	<p>Less than 5 ohms</p> <p>5 ohms or greater</p>	<p>GO to <b>FA4</b>.</p> <p>GO to <b>FA11</b>.</p>
	<ul style="list-style-type: none"> <li>● Key Off, wait 10 seconds.</li> <li>● Verify A/C is off, if so equipped.</li> <li>● Verify transmission is in NEUTRAL and clutch is released.</li> <li>● Disconnect processor 60 Pin connector and inspect for damaged pins, corrosion, loose wires. Service as necessary.</li> <li>● Install Breakout box.</li> <li>● Connect processor.</li> <li>● DVOM on 200 ohm scale.</li> <li>● Measure resistance between test Pin 30 (Neutral Drive circuit) and test Pin 46 (Signal Return circuit) at the Breakout box.</li> </ul>		

# Neutral Drive Switch A/C Input

# Pinpoint Test

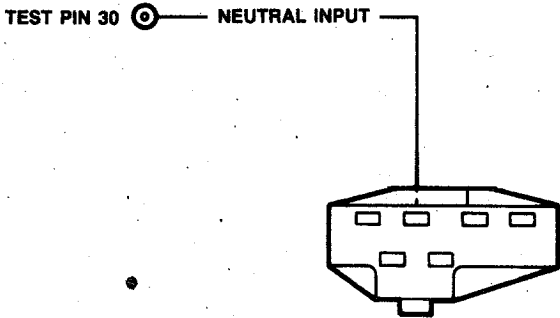
**FA**

TEST STEP	RESULT	ACTION TO TAKE
<p><b>FA11</b> NEUTRAL/CLUTCH SWITCH CHECK</p> <ul style="list-style-type: none"> <li>● Key Off.</li> <li>● DVOM on 200 ohm scale.</li> <li>● Breakout box installed.</li> <li>● Locate Neutral switch (on transmission) and Clutch switch (under dash).</li> <li>● Disconnect vehicle harness at both switches.</li> <li>● Measure resistance across each switch.</li> </ul>	<p>Less than 5 ohms at both switches</p> <p>5 ohms or greater at either or both switches</p>	<p>GO to <b>FA4</b>.</p> <p>REPLACE open switch(es). RECONNECT harness and RERUN Quick Test.</p>
<p><b>FA15</b> NEUTRAL INPUT CHECK — 2.3L TC M/T</p> <div data-bbox="81 1008 706 1165" data-label="Diagram"> <pre>             graph LR             A((TEST PIN 30)) --- B[NEUTRAL INPUT CIRCUIT]             C((TEST PIN 46)) --- D[SIGNAL RETURN]             B --- D             </pre> </div> <ul style="list-style-type: none"> <li>● Key Off, wait 10 seconds.</li> <li>● Verify A/C is off, if so equipped.</li> <li>● Disconnect processor 60 Pin connector and inspect for damaged pins, corrosion, loose wires. Service as necessary.</li> <li>● Install Breakout box.</li> <li>● Leave processor disconnected.</li> <li>● DVOM on 200 ohm scale.</li> <li>● Measure resistance between test Pin 30 (Neutral Input circuit) and test Pin 46 (Signal Return circuit) at the Breakout box.</li> </ul>	<p>Less than 5 ohms</p> <p>5 ohms or greater</p>	<p>GO to <b>FA4</b>.</p> <p>SERVICE open in Neutral Input or Signal Return circuit. RERUN Quick Test.</p>

# Neutral Drive Switch A/C Input

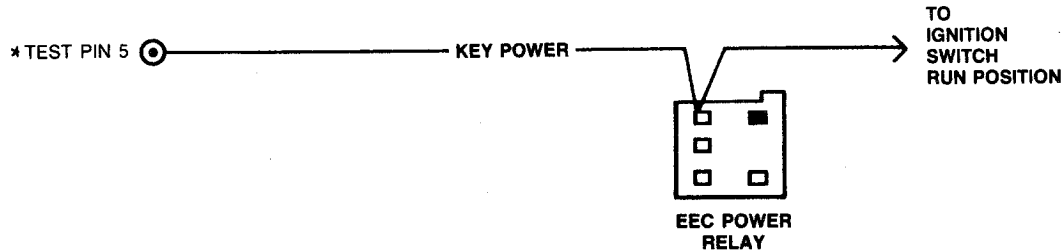
# Pinpoint Test

**FA**

TEST STEP		RESULT	ACTION TO TAKE
<b>FA25</b>	NEUTRAL INPUT CHECK — 4.9L M/T, TRUCK, 2.3L OHC FBC		
 <ul style="list-style-type: none"> <li>● Key Off, wait 10 seconds.</li> <li>● Verify A/C is off, if so equipped.</li> <li>● Disconnect processor 60 Pin connector and inspect for damaged pins, corrosion, loose wires. Service as necessary.</li> <li>● Install Breakout box.</li> <li>● Connect processor.</li> <li>● DVOM on 200 ohm scale.</li> <li>● Measure resistance between test Pin 30 at the Breakout box (Neutral Input circuit) and VIP connector.</li> </ul>		<p>Less than 5 ohms</p> <p>5 ohms or greater</p>	<p>GO to <b>FA4</b>.</p> <p>SERVICE open in Neutral Input circuit to VIP tester. RERUN Quick Test.</p>
<b>FA30</b>	CHECK OCTANE SWITCH INPUT FOR INPUT CHANGE		
<ul style="list-style-type: none"> <li>● Key Off, wait 10 seconds.</li> <li>● Disconnect processor 60 Pin connector and inspect for damaged pins, corrosion, loose wires. Service as necessary.</li> <li>● Install Breakout box. Reconnect processor.</li> <li>● DVOM to 20V scale.</li> <li>● Connect positive test lead to test Pin 30 and negative test lead to test Pin 46 at the Breakout box.</li> <li>● Key On, Engine Off.</li> <li>● Cycle octane switch several times while observing DVOM.</li> <li>● Does voltage change from zero volts to 5V?</li> </ul>		<p>Yes</p> <p>No</p>	<p>REPLACE processor. RERUN Quick Test</p> <p>EEC-IV system OK. REFER to Shop Manual for boost diagnostics.</p>

**Key Power Check****Pinpoint  
Test****FC**

FC



\*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 55 or 65 is received in Quick Test Step 3.0, 5.0 or 6.0.**

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

- Charging system overvoltage.
- Battery charger connected with engine running.
- Jump starting.

This Pinpoint Test is intended to diagnose only the following:

- Harness circuit: key power.
- Processor.

<h2>Key Power Check</h2>	<h2>Pinpoint Test</h2>	<h2>FC</h2>
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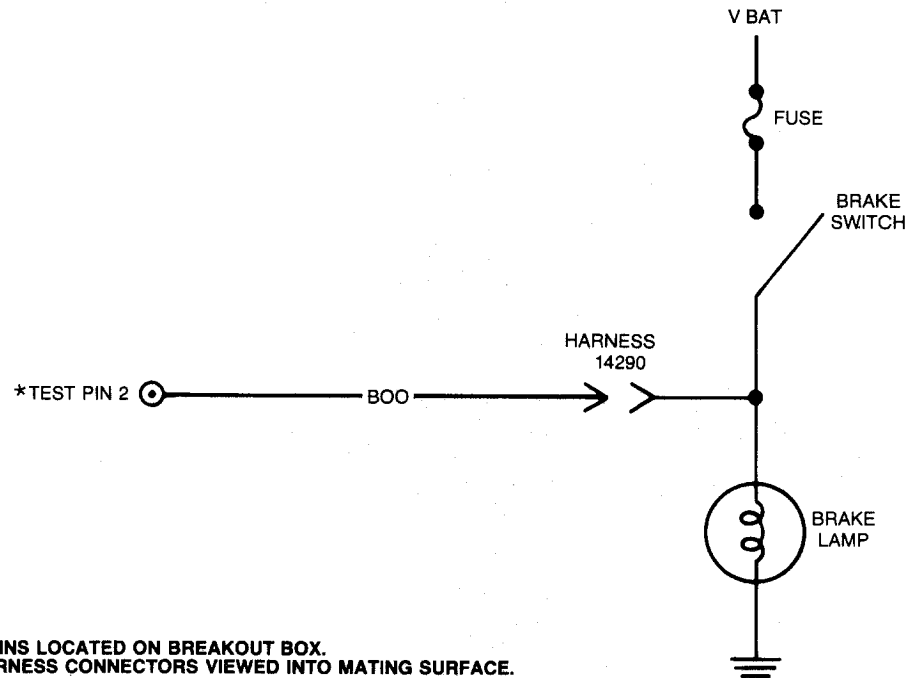
	TEST STEP	RESULT	ACTION TO TAKE
<b>FC1</b>	<b>BATTERY VOLTAGE GREATER THAN 17.5V</b>		
	<ul style="list-style-type: none"> <li>● Key Off, wait 10 seconds.</li> <li>● Install Breakout box with processor connected.</li> <li>● DVOM at 20V range and connected to test Pins 5 and 60 at the Breakout box.</li> <li>● Perform Engine Running Quick Test. Observe DVOM during test and record service codes.</li> </ul>	<p>Reading exceeds 17.5V during Quick Test</p> <p>Reading remains below 17.5V and code 65 is present</p> <p>Reading remains below 17.5V and code 65 is not present</p>	<p>CORRECT charging system for over-voltage condition.</p> <p>REPLACE processor and RERUN Quick Test.</p> <p>GO to <b>FC2</b>.</p>
<b>FC2</b>	<b>CODE 65 IN CONTINUOUS MEMORY</b>		
	<ul style="list-style-type: none"> <li>● Perform Key On, Engine Off Quick Test and record continuous codes.</li> </ul>	<p>Code 65 not present</p> <p>Code 65 present</p>	<p>TESTING complete. CHARGING system OK at this time.</p> <p>CHECK charging system, REFER to Shop Manual, Group 31 for cause of intermittent overcharging (greater than 17.5V).</p>
<b>FC3</b>	<b>BATTERY VOLTAGE LESS THAN 7.5V</b>		
	<ul style="list-style-type: none"> <li>● Key Off, wait 10 seconds.</li> <li>● Disconnect processor 60 Pin connector and inspect for damaged pins, corrosion, loose wires. Service as necessary.</li> <li>● Install Breakout box to processor harness connector.</li> <li>● Processor connected.</li> <li>● DVOM on 20V scale.</li> <li>● Measure voltage between test Pin 5 and test Pin 60 at the Breakout box.</li> <li>● Perform Engine Running Quick Test.</li> </ul>	<p>Voltage below 7.5V during Quick Test</p> <p>Voltage remains above 7.5V and code 55 is present</p> <p>Voltage remains above 7.5V and code 55 is not present</p>	<p>GO to <b>FC4</b>.</p> <p>REPLACE processor. RERUN Quick Test.</p> <p>GO to <b>FC5</b>.</p>

**Key Power Check****Pinpoint  
Test****FC**

TEST STEP		RESULT	ACTION TO TAKE
<b>FC4</b>	<b>KEY POWER CIRCUIT CHECK</b>		
<ul style="list-style-type: none"> <li>● Key Off.</li> <li>● Breakout box installed, processor connected.</li> <li>● DVOM at 200 ohm scale.</li> <li>● Measure resistance between test Pin 5 at the Breakout box and key power terminal of EEC power relay.</li> </ul>		5 ohms or less	CORRECT charging system for under-voltage condition.
		Greater than 5 ohms	SERVICE open in key power circuit. RERUN Quick Test.
<b>FC5</b>	<b>CODE 55 IN CONTINUOUS MEMORY</b>		
<ul style="list-style-type: none"> <li>● Perform Key On, Engine Off Quick Test and record continuous codes.</li> </ul>		Code 55 not present	TESTING complete. CHARGING system OK at this time.
		Code 55 present	CHECK charging system per Shop Manual, Group 31 for cause of intermittent overcharging (greater than 17.5V).

**Brake On/Off (BOO)****Pinpoint  
Test****FD**

FD



\*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 74 or 75 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:

- Brake lamp, brake switch, and fuse.

This pinpoint test is intended to diagnose only the following:

- BOO circuit.
- Processor assembly.



<b>Brake On/Off (BOO)</b>	<b>Pinpoint Test</b>	<b>FD</b>
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TEST STEP		RESULT	ACTION TO TAKE
<b>FD1</b>	SERVICE CODE 74		
<ul style="list-style-type: none"> <li>● Did you press brake during the Engine Running Quick Test?</li> </ul> <p><b>NOTE: On some vehicles it is necessary to depress and release the brake after the dynamic response code 1(0) but before the brief WOT.</b></p>		Yes	GO to <b>FD2</b> .
		No	RERUN Engine Running Quick Test, PRESS brake once during test.
<b>FD2</b>	BOO CIRCUIT CYCLING		
<ul style="list-style-type: none"> <li>● Key Off, wait 10 seconds.</li> <li>● Disconnect processor 60 Pin connector. Inspect for damaged pins, corrosion, loose wires, etc. Service as necessary.</li> <li>● Install Breakout box, leave processor disconnected.</li> <li>● DVOM on 20V scale.</li> <li>● Measure voltage between test Pin 2 and test Pin 40 at the Breakout box while depressing and releasing brake.</li> <li>● Does the voltage cycle?</li> </ul>		Yes	REPLACE processor. RERUN Quick Test.
		No	GO to <b>FD3</b> .
<b>FD3</b>	BOO CIRCUIT SHORT TO GROUND		
<ul style="list-style-type: none"> <li>● Key Off.</li> <li>● Breakout box installed.</li> <li>● Processor disconnected.</li> <li>● DVOM on 200 Ohm scale.</li> <li>● Disconnect BOO circuit from 14290 harness (12 pin connector).</li> <li>● Measure resistance between test Pin 2 at the Breakout box and ground.</li> <li>● Is resistance reading greater than 5 ohms?</li> </ul>		No	SERVICE BOO circuit short to ground.
		Yes	GO to Shop manual, Group 32.

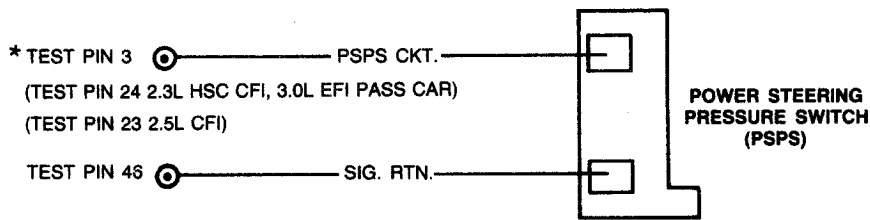
**Brake On/Off (BOO)****Pinpoint  
Test****FD**

TEST STEP		RESULT	ACTION TO TAKE
<b>FD4</b>	<b>BOO CIRCUIT CYCLING CODE 75</b>		
<ul style="list-style-type: none"> <li>● Key Off, wait 10 seconds.</li> <li>● Disconnect processor 60 Pin connector. Inspect for damaged pins, corrosion, loose wires, etc. Service as necessary.</li> <li>● Install Breakout box, leave processor disconnected.</li> <li>● DVOM on 20V scale.</li> <li>● Measure voltage between test Pin 2 and test Pin 40 at the Breakout box while depressing and releasing brake.</li> <li>● Does the voltage cycle?</li> </ul>		<p>Yes</p> <p>No</p>	<p>REPLACE processor. RERUN Quick Test.</p> <p>GO to <b>FD5</b>.</p>
<b>FD5</b>	<b>BOO CIRCUIT SHORT TO POWER</b>		
<ul style="list-style-type: none"> <li>● Key Off.</li> <li>● Breakout box installed.</li> <li>● Processor disconnected.</li> <li>● DVOM on 20V scale.</li> <li>● Disconnect BOO circuit from 14290 harness (12 Pin connector).</li> <li>● Measure voltage between test Pin 2 at the Breakout box and engine block ground.</li> <li>● Is voltage reading greater than 10.5 volts?</li> </ul>		<p>Yes</p> <p>No</p>	<p>SERVICE BOO circuit short to power.</p> <p>BOO circuit OK. GO to Shop Manual, Group 32 to SERVICE stoplamp circuit.</p>

## Power Steering Pressure Switch (PSPS)

## Pinpoint Test

# FF

**FF**


\*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 52 is received in Quick Test Step 3.0 or if you are directed here from Diagnostics by Symptom in the Engine Supplement Section.

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

- Idle speeds/throttle stop adjustment.
- Binding throttle shaft/linkage or speed control linkage.

This Pinpoint Test is intended to diagnose only the following:

- Power steering pressure switch.
- Switch harness circuits: PSPS Signal, and Signal Return.
- Processor assembly.

# Power Steering Pressure Switch (PSPS)

## Pinpoint Test



### FF

TEST STEP		RESULT	ACTION TO TAKE
<b>FF1</b>	<b>ATTEMPT TO ELIMINATE CODE 52</b>		
<ul style="list-style-type: none"> <li>● Key Off, wait 10 seconds.</li> <li>● Disconnect PSPS.</li> <li>● Jumper PSPS circuit to Signal Return at vehicle harness connector.</li> <li>● Rerun Key On, Engine Off Quick Test.</li> <li>● Is code 52 still present?</li> </ul>		Yes	GO to <b>FF2</b> .
		No	REPLACE PSPS. RERUN Quick Test.
<b>FF2</b>	<b>PSPS HARNESS CHECK</b>		
<ul style="list-style-type: none"> <li>● Key Off, wait 10 seconds.</li> <li>● Disconnect harness from processor 60 Pin connector and inspect for damaged pins, corrosion, loose wires. Service as necessary.</li> <li>● PSPS disconnected.</li> <li>● Processor disconnected.</li> <li>● Breakout box installed.</li> <li>● DVOM on 200 ohm scale.</li> <li>● Measure resistance between test Pin 46 at the Breakout box and Signal Return at the PSPS connector and between test Pin 3 (2.3L HSC), test Pin 23 (2.5L CFI), test Pin 24 (3.0L EFI) at the Breakout box and PSPS circuit at the PSPS harness connector.</li> <li>● Are both readings less than 5 ohms?</li> </ul>		Yes	REPLACE processor. RERUN Quick Test.
		No	SERVICE open in circuit. RERUN Quick Test.
<b>FF3</b>	<b>SWITCH INTEGRITY</b>		
<ul style="list-style-type: none"> <li>● Install tachometer.</li> <li>● Start engine, allow to idle in Neutral/Park.</li> <li>● Disconnect PSPS at switch.</li> <li>● Does rpm increase?</li> </ul>		Yes	REPLACE PSPS.
		No	GO to <b>FF4</b> .

# Power Steering Pressure Switch (PSPS)

## Pinpoint Test

**FF**

TEST STEP		RESULT	ACTION TO TAKE
<b>FF4</b>	<b>PSPS HARNESS CHECK</b>		
<ul style="list-style-type: none"> <li>● Key Off, wait 10 seconds.</li> <li>● Disconnect harness from processor 60 Pin connector and inspect for damaged pins, corrosion, loose wires. Service as necessary.</li> <li>● PSPS disconnected.</li> <li>● Processor disconnected.</li> <li>● Breakout box installed.</li> <li>● DVOM on 200 ohm scale.</li> <li>● Measure resistance between test Pin 3 (2.3L HSC), test Pin 23 (2.5L CFI), test Pin 24 (3.0L EFI) and test Pin 46 at the breakout box.</li> <li>● Is reading less than 5 ohms?</li> </ul>		Yes   No 	SERVICE short in harness.  REPLACE processor.