

Computers and Control Systems: Pinpoint Tests

Test JE: Integrated Ignition Coil Pack A, B or C Failure

PINPOINT TEST JE: INTEGRATED IGNITION COIL PACK A, B OR C FAILURE

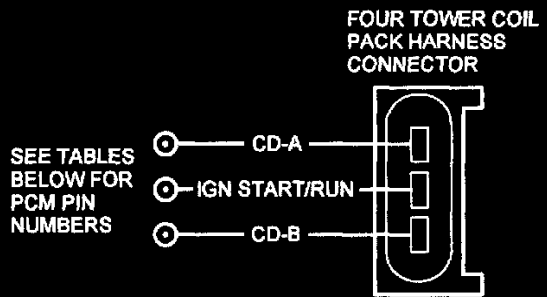
Integrated Ignition Coil Pack A, B, or C Failure	JE
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This pinpoint test is intended to diagnose the following:

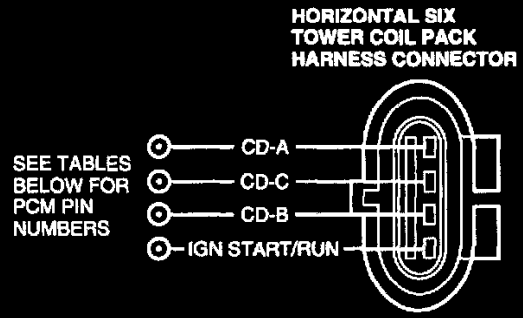
- ignition coil packs (12029)
- ignition coil harness
- IGN START/RUN circuit to coil packs
- powertrain control module (PCM) (12A650)

Pinpoint Test Schematics and Connectors

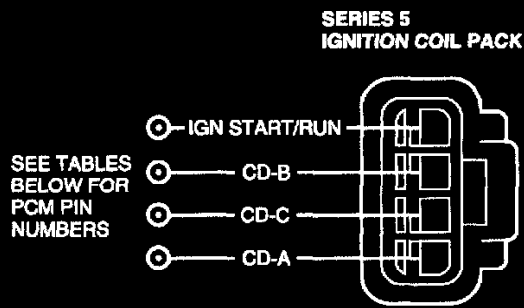
For PCM connector views or reference values, refer to Reference Values.



NOTE: ALL HARNESS CONNECTORS ARE VIEWED INTO MATING SURFACE
N0027431



NOTE: ALL HARNESS CONNECTORS ARE VIEWED INTO MATING SURFACE
A0040145



NOTE: ALL HARNESS CONNECTORS ARE VIEWED INTO MATING SURFACE
A0040146

Integrated Ignition Coil Pack A, B, or C Failure

JE

IGNITION COIL TO CYLINDER CORRELATION

Vehicle	Related DTC	Cylinder Number	Ignition Coil	Coil Driver (CD)	PCM Pin
4 cylinders	P0351	1	A	A	26
	P0352	2	B	B	52
	P0352	3	B	B	52
	P0351	4	A	A	26
6 cylinders	P0351	1	A	A	26
	P0352	4	B	B	52
	P0353	2	C	C	78
	P0351	5	A	A	26
	P0352	3	B	B	52
	P0353	6	C	C	78
Explorer, Mountaineer 4.0L	P0351	1	A	A	E1
	P0352	4	B	B	E12
	P0353	2	C	C	E24
	P0351	5	A	A	E1
	P0352	3	B	B	E12
	P0353	6	C	C	E24
F-150, Mustang	P0351	1	A	A	E17
	P0352	2	B	C	E16
	P0353	3	C	B	E12
	P0351	4	A	B	E12
	P0352	5	B	A	E17
	P0353	6	C	C	E16

Test Step		Results / Action to Take
JE1	CHECK FOR DTCS	
	<ul style="list-style-type: none"> Are DTCs P0350, P0351, P0352 or P0353 present? 	Yes GO to JE2. No For all other DTCs, GO to DTC Charts, Diagnostic Trouble Code (DTC) Charts and Descriptions.

Table And JE1

Integrated Ignition Coil Pack A, B, or C Failure

JE

Test Step		Results / Action to Take
JE2	DETERMINE WHICH COIL IS NOT FIRING PROPERLY	<p>Yes GO to JE3.</p> <p>No To obtain the required information, REPEAT step JE2.</p>
	<p>Note: Electronic Ignition engine timing is entirely controlled by the PCM. Electronic ignition timing is NOT adjustable. Do not attempt to check base timing. You will receive false readings.</p> <ul style="list-style-type: none"> Determine which coil is not firing properly using the information from Pinpoint Test JB or a DTC and the table at the beginning of this pinpoint test. Record the suspect cylinder, coil and PCM pin number from the table. Is the suspect cylinder number, coil driver and PCM pin number recorded? 	
JE3	DTC P0351, P0352, P0353: CHECK IGN START/RUN VOLTAGE TO THE COIL PACK	<p>Yes GO to JE4.</p> <p>No The IGN START/RUN has a circuit concern. CHECK the condition of the related fuses/fuse links. If OK, REPAIR the open circuit. If the fuse/fuse link is damaged, CHECK the IGN START/RUN circuit for a short to ground. REPAIR as necessary. CARRY OUT the misfire monitor drive cycle. REFER to Diagnostic Methods, On Board Diagnostic (OBD) Drive Cycle. CLEAR the DTCs. REPEAT the self-test.</p>
	<ul style="list-style-type: none"> Disconnect the suspect coil, as determined from the table. Key ON, engine OFF. Measure the voltage between the IGN START/RUN circuit at the coil pack harness connector and ground. Is the voltage greater than 10 volts? 	
JE4	CHECK THE FUNCTIONALITY OF THE SUSPECT COIL DRIVER (CD) CIRCUIT	<p>Yes GO to JE8.</p> <p>No GO to JE5.</p>
	<ul style="list-style-type: none"> Key in OFF position. Connect a test lamp between IGN START/RUN and the suspect CD circuit (determined from the table) at the coil pack harness connector. Locate and activate the fuel inertia switch to disable the fuel pump. Observe the test lamp while cranking the engine. Does the test lamp blink consistently? 	

JE2-JE4

Integrated Ignition Coil Pack A, B, or C Failure

JE

Test Step		Results / Action to Take
JE5	CHECK THE SUSPECT CD CIRCUIT FOR AN OPEN IN THE HARNESS	
	<ul style="list-style-type: none"> • Key in OFF position. • Disconnect the PCM. • Measure the resistance of the suspect CD circuit between the PCM harness connector pin (as determined from the table) and the coil pack connector. • Is the resistance less than 5 ohms? 	<p>Yes GO to JE6.</p> <p>No REPAIR the open circuit. CARRY OUT the misfire monitor drive cycle. REFER to Diagnostic Methods, On Board Diagnostic (OBD) Drive Cycle. CLEAR the DTCs. REPEAT the self-test.</p>
JE6	CHECK THE SUSPECT CD CIRCUIT FOR A SHORT TO VOLTAGE IN THE HARNESS	
	<ul style="list-style-type: none"> • Key ON, engine OFF. • Measure the voltage between the suspect CD circuit at the PCM harness connector (as determined from the table) and ground. • Is the voltage less than 1 volt? 	<p>Yes GO to JE7.</p> <p>No REPAIR the short circuit. CARRY OUT the misfire monitor drive cycle. REFER to Diagnostic Methods, On Board Diagnostic (OBD) Drive Cycle. CLEAR the DTCs. REPEAT the self-test.</p>
JE7	CHECK THE SUSPECT CD CIRCUIT FOR A SHORT TO GROUND IN THE HARNESS	
	<ul style="list-style-type: none"> • Key in OFF position. • Measure the resistance between the suspect CD circuit at the PCM harness connector (as determined from the table) and ground. • Is the resistance greater than 10K ohms? 	<p>Yes GO to JE9.</p> <p>No REPAIR the short circuit. CARRY OUT the misfire monitor drive cycle. REFER to Diagnostic Methods, On Board Diagnostic (OBD) Drive Cycle. CLEAR the DTCs. REPEAT the self-test.</p>

JE5-JE7

Integrated Ignition Coil Pack A, B, or C Failure

JE

Test Step		Results / Action to Take
JE8	CHECK THE SUSPECT COIL FOR DAMAGE	
	<ul style="list-style-type: none"> • Key in OFF position. • Remove the spark plug wire from the suspect coil tower (as determined from the table). • Connect the Air Gap spark tester 303-DO37 (D81P-6666-A) or its equivalent in series between the suspect coil tower and the spark plug wire. • Disable the inertia switch. • Observe the spark tester while cranking the engine. • Is a bluish-white spark present? 	<p>Yes GO to Pinpoint Test Z.</p> <p>No INSTALL a new coil pack as needed. CARRY out the misfire monitor drive cycle. REFER to Diagnostic Methods, On Board Diagnostic (OBD) Drive Cycle. CLEAR the DTCs. REPEAT the self-test.</p>
JE9	CHECK FOR CORRECT PCM OPERATION	
	<ul style="list-style-type: none"> • Disconnect all the PCM connectors. • Visually inspect for: <ul style="list-style-type: none"> — pushed out pins. — corrosion. • Connect all the PCM connectors and make sure they seat correctly. • Carry out the PCM self-test and verify the concern is still present. • Is the concern still present? 	<p>Yes INSTALL a new PCM. REFER to Diagnostic Methods, Flash Electrically Erasable Programmable Read Only Memory (EEPROM).</p> <p>No The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.</p>

JE8-JE9