

## Pinpoint Tests

**A : DTC P0300, P0351, P0352, P0353, P0354, P0355, P0356, P0357, P0358, P1367, P1368; RANDOM MISFIRE DETECTED, COIL PRIMARY/SECONDARY CIRCUIT MALFUNCTION, IGNITION MONITOR MALFUNCTION**

**NOTE:**

Unless multiple cylinder misfires are apparent, only one circuit will normally need to be tested. The DTC set will indicate which cylinder is misfiring.

### **A1 : CHECK COIL FUNCTION BY SUBSTITUTION**

1. Swap the suspect coil for a known good unit.
  2. CLEAR the DTC. TEST the system for normal operation.
    - **Does the same DTC reoccur? The DTC will indicate if the same cylinder is misfiring.**
- > **Yes**  
INSTALL a new coil. CLEAR the DTC. TEST the system for normal operation.
- > **No**  
Goto <<A2>>

### **A2 : CHECK THE IGNITION COIL SUPPLY VOLTAGE**

1. Disconnect the relevant ignition coil electrical connector(s).
  2. Turn the ignition switch to the **ON** position.
  3. Make sure the ignition coil relay is energised.
  4. Measure the voltage between:
    - Cyl 1 PI51, pin 4 (PW) and GROUND.
    - Cyl 2 PI55, pin 4 (PW) and GROUND.
    - Cyl 3 PI52, pin 4 (PW) and GROUND.
    - Cyl 4 PI56, pin 4 (PW) and GROUND.
    - Cyl 5 PI53, pin 4 (PW) and GROUND.
    - Cyl 6 PI57, pin 4 (PW) and GROUND.
    - Cyl 7 PI54, pin 4 (PW) and GROUND.
    - Cyl 8 PI58, pin 4 (PW) and GROUND.
- **Is the voltage less than 10.5 Volts?**
- > **Yes**  
REPAIR the relevant ignition coil supply voltage circuit. This circuit includes the ignition coil relay. For additional information, refer to the wiring diagrams. CLEAR the DTCs. TEST the system for normal operation.
- > **No**  
Goto <<A3>>

## A3 : CHECK THE IGNITION COIL GROUND CIRCUIT

1. Turn the ignition switch to the **OFF** position.
2. Disconnect the relevant ignition coil electrical connector(s).
3. Measure the resistance between:

- Cyl 1 PI51, pin 1 (B) and GROUND.
- Cyl 2 PI55, pin 1 (B) and GROUND.
- Cyl 3 PI52, pin 1 (B) and GROUND.
- Cyl 4 PI56, pin 1 (B) and GROUND.
- Cyl 5 PI53, pin 1 (B) and GROUND.
- Cyl 6 PI57, pin 1 (B) and GROUND.
- Cyl 7 PI54, pin 1 (B) and GROUND.
- Cyl 8 PI58, pin 1 (B) and GROUND.

•Is the resistance greater than 5 ohms?

-> **Yes**

REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTCs. TEST the system for normal operation.

-> **No**

Goto <<A4>>

## A4 : CHECK THE IGNITION COIL SWITCHING CIRCUITS FOR HIGH RESISTANCE

1. Disconnect the battery negative terminal.
2. Disconnect the ECM electrical connector, EM84.
3. Disconnect the relevant ignition coil electrical connector(s).
4. Measure the resistance between:

- Cyl 1 PI51, pin 1 (GU) and EM84, pin 12 (GU).
- Cyl 2 PI55, pin 3 (GB) and EM84, pin 20 (GB).
- Cyl 3 PI52, pin 3 (GR) and EM84, pin 11 (GR).
- Cyl 4 PI56, pin 3 (GS) and EM84, pin 19 (GS).
- Cyl 5 PI53, pin 3 (GO) and EM84, pin 10 (GO).
- Cyl 6 PI57, pin 3 (GK) and EM84, pin 18 (GK).
- Cyl 7 PI54, pin 3 (GW) and EM84, pin 09 (GW).
- Cyl 8 PI58, pin 3 (GP) and EM84, pin 17 (GP).

•Is the resistance greater than 5 ohms?

-> **Yes**

REPAIR the high resistance circuit. For additional information, refer to the wiring diagrams. CLEAR the DTCs. TEST the system for normal operation.

-> **No**

## 2001 XJ RANGE - Engine Ignition - 303-07

Goto <<A5>>

### **A5 : CHECK THE IGNITION COIL (CYLS 1, 4, 6, AND 7) MONITOR CIRCUITS FOR HIGH RESISTANCE**

1. Reconnect the ECM electrical connector, EM84.
2. Disconnect the ECM electrical connector, EM83.
3. Disconnect the relevant ignition coil electrical connector(s).
4. Measure the resistance between:

- Cyl 1 PI51, pin 2 (YG) and EM83, pin 10 (YG).
- Cyl 4 PI56, pin 2 (YG) and EM83, pin 10 (YG).
- Cyl 6 PI57, pin 2 (YG) and EM83, pin 10 (YG).
- Cyl 7 PI54, pin 2 (YG) and EM83, pin 10 (YG).

•Is the resistance greater than 5 ohms?

-> **Yes**

REPAIR the high resistance circuit. This circuit includes the harness splice, PIS11. For additional information, refer to the wiring diagrams. CLEAR the DTCs. TEST the system for normal operation.

-> **No**

Goto <<A6>>

### **A6 : CHECK THE IGNITION COIL (CYLS 1, 4, 6, AND 7) MONITOR CIRCUITS FOR SHORT TO B+ VOLTAGE**

1. Reconnect the battery negative terminal.
2. Disconnect the relevant ignition coil electrical connector(s).
3. Measure the voltage between:

- Cyl 1 PI51, pin 2 (YG) and GROUND.
- Cyl 4 PI56, pin 2 (YG) and GROUND.
- Cyl 6 PI57, pin 2 (YG) and GROUND.
- Cyl 7 PI54, pin 2 (YG) and GROUND.

•Is the voltage greater than 1 volt?

-> **Yes**

REPAIR the short to B+ voltage. For additional information, refer to the wiring diagrams. CLEAR the DTCs. TEST the system for normal operation.

-> **No**

Goto <<A7>>

### **A7 : CHECK THE IGNITION COIL (CYLS 1, 4, 6, AND 7) MONITOR CIRCUITS FOR SHORT TO GROUND**

1. Disconnect the relevant ignition coil electrical connector(s).

## 2001 XJ RANGE - Engine Ignition - 303-07

2. Measure the resistance between:

- Cyl 1 PI51, pin 2 (YG) and GROUND.
- Cyl 4 PI56, pin 2 (YG) and GROUND.
- Cyl 6 PI57, pin 2 (YG) and GROUND.
- Cyl 7 PI54, pin 2 (YG) and GROUND.

•Is the resistance less than 10,000 ohms?

-> **Yes**

REPAIR the short to GROUND. For additional information, refer to the wiring diagrams. CLEAR the DTCs. TEST the system for normal operation.

-> **No**

Goto <<A8>>

### **A8 : CHECK THE IGNITION COIL (CYLS 2, 3, 5, AND 8) MONITOR CIRCUITS FOR HIGH RESISTANCE**

1. Disconnect the relevant ignition coil electrical connector(s).

2. Measure the resistance between:

- Cyl 2 PI55, pin 2 (YG) and EM83, pin 11 (YG).
- Cyl 3 PI52, pin 2 (YG) and EM83, pin 11 (YG).
- Cyl 5 PI53, pin 2 (YG) and EM83, pin 11 (YG).
- Cyl 8 PI58, pin 2 (YG) and EM83, pin 11 (YG).

•Is the resistance greater than 5 ohms?

-> **Yes**

REPAIR the high resistance circuit. This circuit includes the harness splice, PIS11. For additional information, refer to the wiring diagrams. CLEAR the DTCs. TEST the system for normal operation.

-> **No**

Goto <<A9>>

### **A9 : CHECK THE IGNITION COIL (CYLS 2, 3, 5, AND 8) MONITOR CIRCUITS FOR SHORT TO B+ VOLTAGE**

1. Reconnect the battery negative terminal.

2. Disconnect the relevant ignition coil electrical connector(s).

3. Measure the voltage between:

- Cyl 2 PI55, pin 2 (YG) and GROUND.
- Cyl 3 PI52, pin 2 (YG) and GROUND.
- Cyl 5 PI53, pin 2 (YG) and GROUND.
- Cyl 8 PI58, pin 2 (YG) and GROUND.

•Is the voltage greater than 1 volt?

-> **Yes**

REPAIR the short to B+ voltage. For additional information, refer to the wiring diagrams. CLEAR the DTCs.

## 2001 XJ RANGE - Engine Ignition - 303-07

TEST the system for normal operation.

-> **No**

Goto <<A10>>

### **A10 : CHECK THE IGNITION COIL (CYLS 2, 3, 5, AND 8) MONITOR CIRCUITS FOR SHORT TO GROUND**

1. Disconnect the relevant ignition coil electrical connector(s).

2. Measure the resistance between;

- Cyl 2 PI55, pin 2 (YG) and GROUND.
- Cyl 3 PI52, pin 2 (YG) and GROUND.
- Cyl 5 PI53, pin 2 (YG) and GROUND.
- Cyl 8 PI58, pin 2 (YG) and GROUND.

• **Is the resistance less than 10,000 ohms?**

-> **Yes**

REPAIR the short to GROUND. For additional information, refer to the wiring diagrams. CLEAR the DTCs. TEST the system for normal operation.

-> **No**

INSTALL a new ECM. <<303-04>> Before replacing a ECM, contact Dealer technical support.

### **B : CHECK SPARK PLUG RESISTANCE**

#### **B1 : CHECK SPARK PLUG RESISTANCE**

1. Remove the suspect spark plug(s).

2. Measure the resistance between the spark plug center electrode tip and the spark plug HT contact.

• **Is the resistance between 8,000 and 12,000 ohms? (nominal 10,000 ohms)**

-> **Yes**

Check ignition coil and circuits. See possible sources list for misfire.

-> **No**

INSTALL a new spark plug. CLEAR the DTC. TEST the system for normal operation.