

2005 Ford Focus ZX5 S

2005 ACCESSORIES & BODY, CAB Horn - Focus

2005 ACCESSORIES & BODY, CAB

Horn - Focus

SPECIFICATIONS

TORQUE SPECIFICATIONS

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Description	Nm	lb-ft
Horn bracket retaining bolt	12	9

DESCRIPTION AND OPERATION

HORN

The horn system consists of the following components:

- Steering wheel pad horn switch (part of the driver air bag module)
- Horn relay
- Horn(s)
- Clockspring

NOTE: The steering wheel horn pad switch is part of the driver air bag module. For additional information, refer to SUPPLEMENTAL RESTRAINT SYSTEM.

DIAGNOSIS AND TESTING

HORN

Refer to SYSTEM WIRING DIAGRAMS for schematic and connector information.

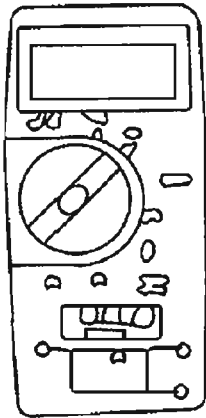
Special Tool(s)

SPECIAL TOOLS DESCRIPTION

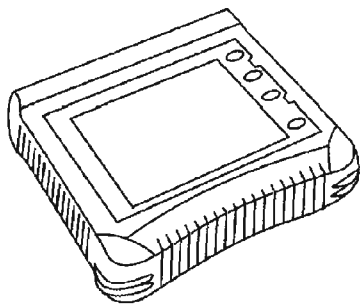
	73III Automotive Meter 105-R0057 or equivalent
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ST1137-A



ST2332-A

Worldwide Diagnostic System (WDS)
418-F224,
New Generation STAR (NGS) Tester
418-F052, or equivalent diagnostic tool
with appropriate adapter cable

Principles of Operation

The horn system consists of a relay, a steering wheel switch and either 1 or 2 horns. The horn(s) receives voltage from the switched side of the relay on circuit 29S-GJ1 (OG/BU). The relay switch is controlled on its ground side by the steering wheel switch or the generic electronic module (GEM).

The horn relay is supplied with a permanent voltage from the battery junction box (BJB) on circuit 30-DA1 (RD).

The steering wheel switch shares the steering wheel clockspring with the air bag circuit, although each of these systems work completely independent of each other.

Inspection and Verification

1. Verify the customer concern.
2. Visually inspect for obvious signs of mechanical or electrical damage.

VISUAL INSPECTION CHART

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Mechanical	Electrical
<ul style="list-style-type: none">• Damaged horn(s)	<ul style="list-style-type: none">• Battery junction box (BJB) fuse 7 (40A)• Central junction box (CJB) fuse 33 (20A)• Relay• Circuitry

3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.
4. If the concern is not visually evident, verify the symptom and GO to **SYMPTOM CHART**.

Symptom Chart

PROBLEM SYMPTOM CHART

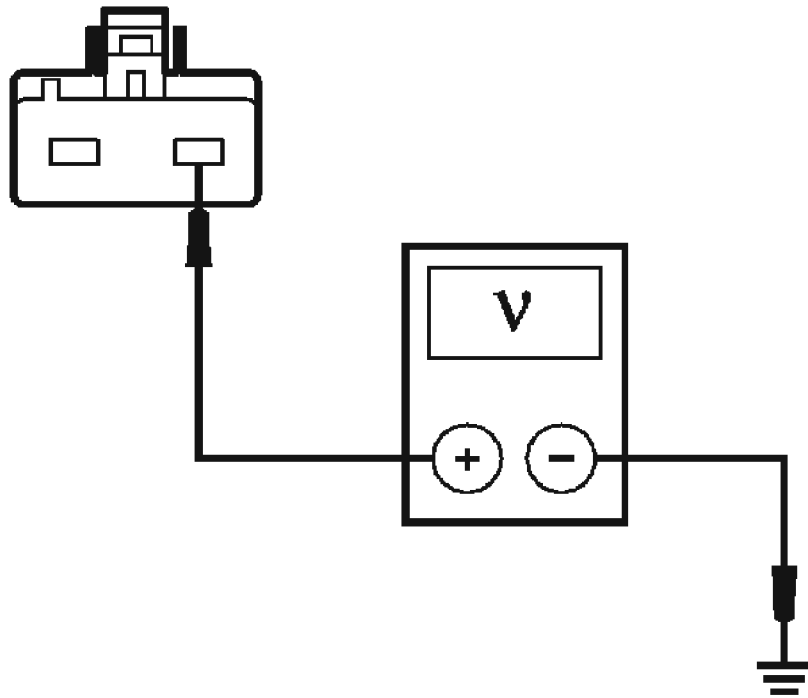
Condition	Possible Sources	Action
<ul style="list-style-type: none">• The horn is inoperative	<ul style="list-style-type: none">• Circuitry.• Horn(s).• Horn relay.• Horn switch.	<ul style="list-style-type: none">• GO to <u>PINPOINT TEST A</u>.
<ul style="list-style-type: none">• The horn is always on	<ul style="list-style-type: none">• Circuitry.• Horn relay.• Horn switch.• Generic electronic module (GEM).	<ul style="list-style-type: none">• GO to <u>PINPOINT TEST B</u>.

Pinpoint Tests

PINPOINT TEST A: THE HORN IS INOPERATIVE

A1 CHECK CIRCUIT 30-DA1 (RD) FOR POWER

- Disconnect: CJB C270g.
- Measure the voltage between the CJB pin 1, circuit 30-DA1 (RD), harness side and ground.



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Fig. 1: Measuring Voltage Between CJB Pin 1, Circuit 30-DA1 (RD), Harness Side And Ground

Courtesy of FORD MOTOR CO.

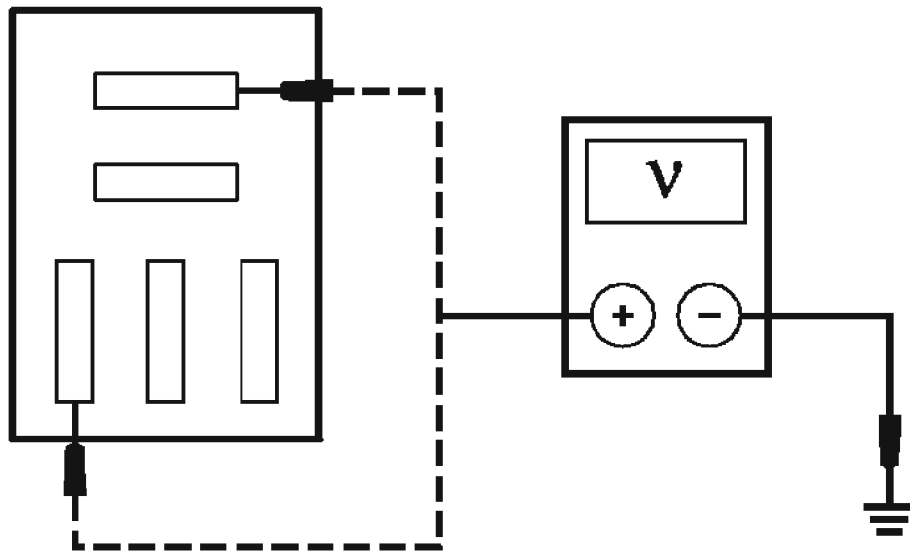
- **Is the voltage greater than 10 volts?**

Yes : GO to A2.

No : REPAIR or INSTALL a new CJB. TEST the system for normal operation.

A2 CHECK THE POWER SUPPLY TO THE HORN RELAY

- Key in OFF position.
- Connect: CJB C270g.
- Disconnect: Horn Relay C2077.
- Measure the voltage between the horn relay C2077 pin 1, circuit 30-DA1 (RD), harness side and ground; and between the horn relay C2077 pin 3, circuit 30-DA1 (RD) harness side and ground.



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Fig. 2: Checking Power Supply To Horn Relay
 Courtesy of FORD MOTOR CO.

- **Are the voltages greater than 10 volts?**

Yes : GO to A3.

No : REPAIR the circuit. TEST the system for normal operation.

A3 CHECK THE HORN RELAY

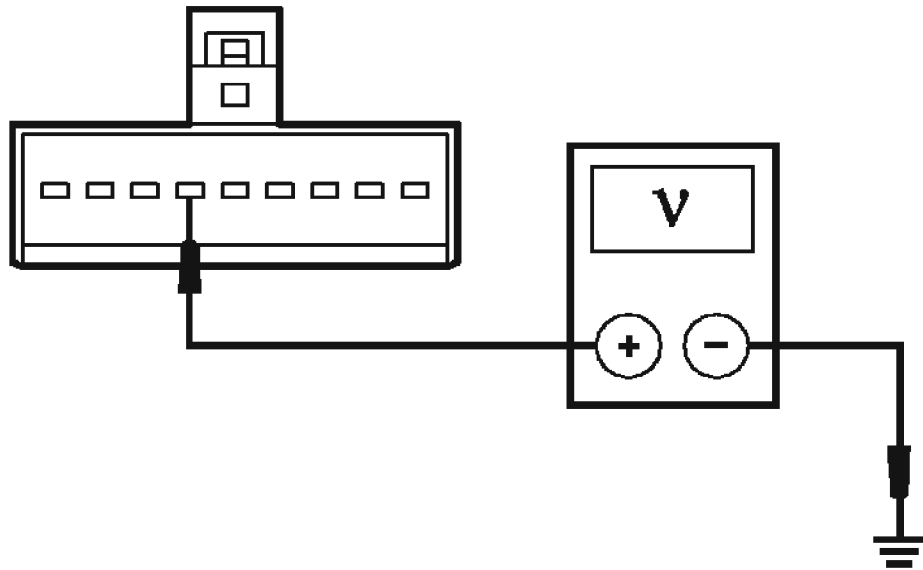
- Carry out the horn relay component test. Refer to **COMPONENT TESTING** for component testing.
- **Is the horn relay OK?**

Yes : GO to A4.

No : INSTALL a new horn relay. TEST the system for normal operation.

A4 CHECK CIRCUIT 91S-GJ7 (BK/BU) FOR AN OPEN

- Connect: Horn Relay C2077.
- Disconnect: Clockspring C2274.
- Measure the voltage between the clockspring C2274 pin 6, circuit 91S-GJ7 (BK/BU), harness side and ground.



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Fig. 3: Measuring Voltage Between Clockspring C2274 Pin 6, Circuit 91S-GJ7 (BK/BU), Harness Side And Ground
Courtesy of FORD MOTOR CO.

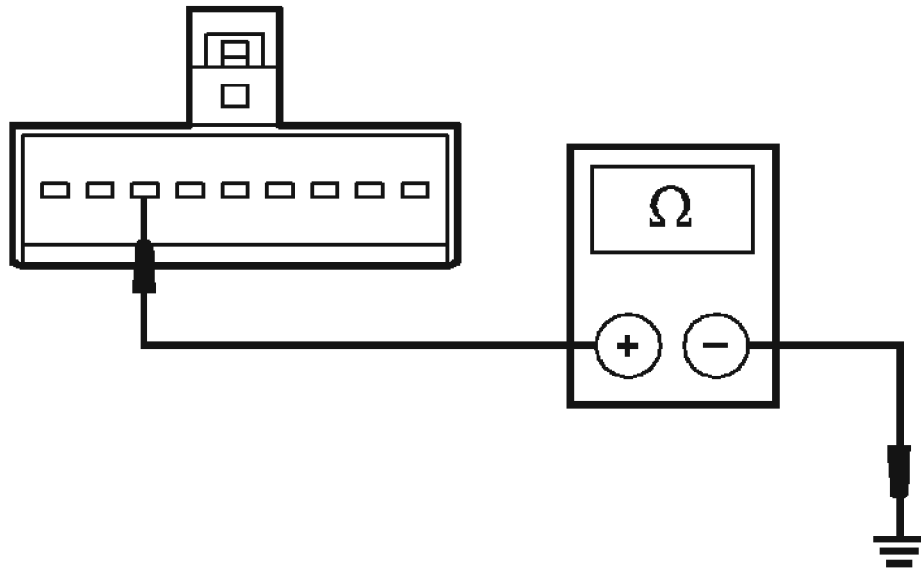
- **Is the voltage greater than 10 volts?**

Yes : GO to A5.

No : REPAIR the circuit. TEST the system for normal operation.

A5 CHECK CIRCUIT 91-PG30 (BK/WH) FOR AN OPEN

- Measure the resistance between the clockspring C2274 pin 7, circuit 91-PG30 (BK/WH), harness side and ground.



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Fig. 4: Measuring Resistance Between Clockspring C2274 Pin 7, Circuit 91-PG30 (BK/WH), Harness Side And Ground
Courtesy of FORD MOTOR CO.

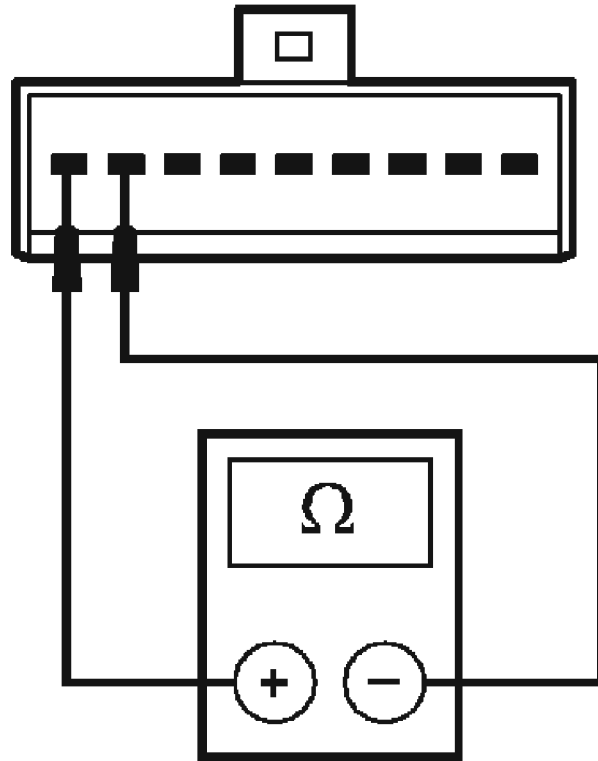
- **Is the resistance less than 5 ohms?**

Yes : GO to A6.

No : REPAIR the circuit. TEST the system for normal operation.

A6 CHECK THE CLOCKSPrING FOR CORRECT OPERATION

- Measure the resistance between the clockspring C2274 pin 1, component side, and the clockspring C2274 pin 2, component side, while pressing and releasing the horn switch.



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Fig. 5: Checking Clockspring For Correct Operation
Courtesy of FORD MOTOR CO.

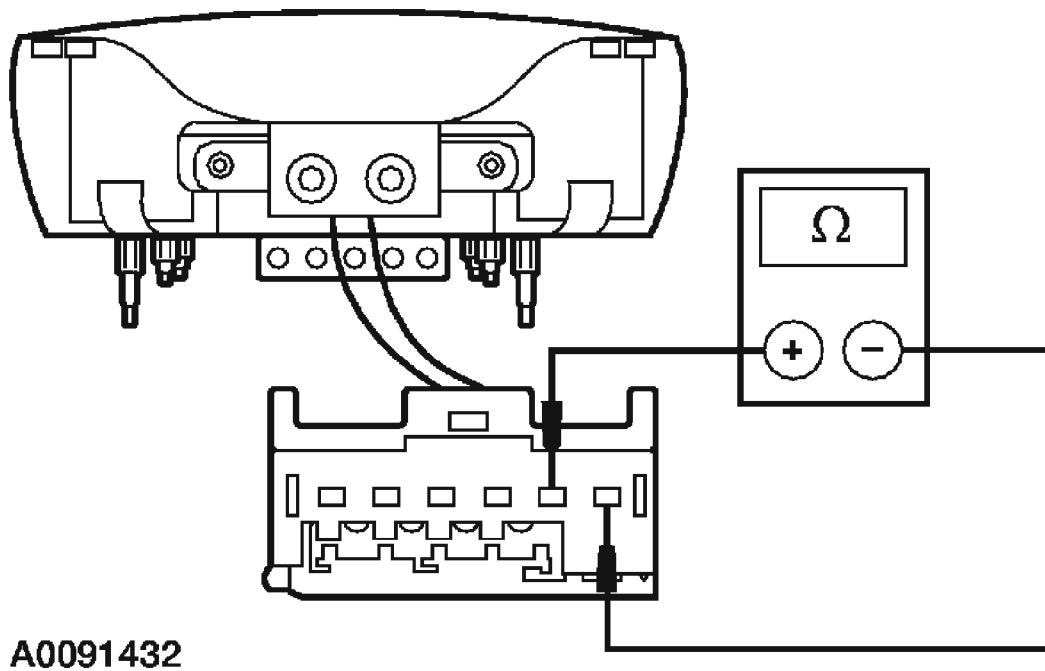
- Is the resistance less than 5 ohms with the horn switch pressed and greater than 10,000 ohms with the horn switch released?

Yes : GO to A8.

No : GO to A7.

A7 CHECK THE HORN SWITCH FOR CORRECT OPERATION

- Remove the driver air bag. Refer to SUPPLEMENTAL RESTRAINT SYSTEM .
- Measure the resistance between the horn switch pin 1, component side and the horn switch pin 2, component side, while pressing and releasing the horn switch.



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Fig. 6: Checking Horn Switch For Correct Operation
 Courtesy of FORD MOTOR CO.

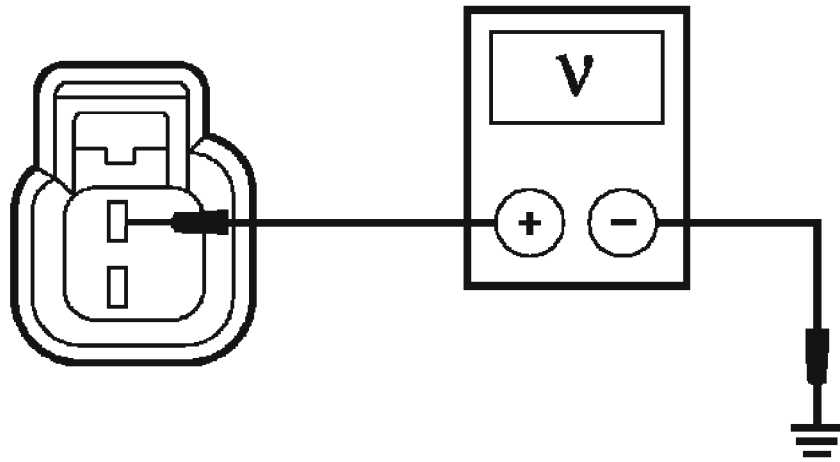
- Is the resistance less than 5 ohms with the switch pressed and greater than 10,000 ohms with the switch released?

Yes : INSTALL a new clockspring. REFER to **STEERING COLUMN** .
 INSTALL the driver air bag. REFER to **SUPPLEMENTAL RESTRAINT SYSTEM** . TEST the system for normal operation.

No : INSTALL a new driver air bag. REFER to **SUPPLEMENTAL RESTRAINT SYSTEM** . TEST the system for normal operation.

A8 CHECK FOR VOLTAGE TO THE HORN(S)

- Connect: Clockspring C2274.
- Connect: Horn Relay C2077.
- Disconnect: Inoperative Horn.
- While applying the horn switch, measure the voltage between the inoperative horn connector pin 1, circuit 29S-GJ1 (OG/BU), harness side and ground.



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Fig. 7: Measuring Voltage Between Inoperative Horn Connector Pin 1, Circuit 29S-GJ1 (OG/BU), Harness Side And Ground
Courtesy of FORD MOTOR CO.

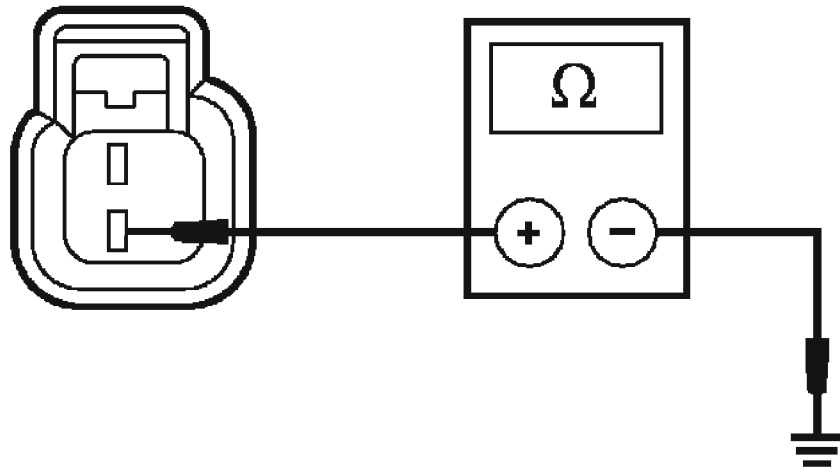
- **Is the voltage greater than 10 volts?**

Yes : GO to A9.

No : REPAIR the circuit. TEST the system for normal operation.

A9 CHECK THE GROUND CIRCUIT TO THE HORN

- Measure the resistance between the inoperative horn connector pin 2, circuit 31-GJ1 (BK), harness side and ground.



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Fig. 8: Measuring Resistance Between Inoperative Horn Connector Pin 2, Circuit 31-GJ1 (BK), Harness Side And Ground
 Courtesy of FORD MOTOR CO.

• **Is the resistance less than 5 ohms?**

Yes : INSTALL a new horn(s). REFER to **HORN**. TEST the system for normal operation.

No : REPAIR the circuit. TEST the system for normal operation.

PINPOINT TEST B: THE HORN IS ALWAYS ON

B1 CHECK THE GEM FOR CORRECT OPERATION

- Disconnect: GEM C201e.

• **Does the horn continue to sound?**

Yes : GO to B2.

No : GO to B6.

B2 CHECK CIRCUIT 29S-GJ1 (OG/BU) FOR A SHORT TO BATTERY

- Key in OFF position.
- Disconnect: Horn Relay C2077.

• **Does the horn continue to sound?**

Yes : REPAIR the circuit. TEST the system for normal operation.

No : GO to B3.

B3 CHECK CIRCUIT 91S-GJ7 (BK/BU) FOR A SHORT TO GROUND

- Measure the resistance between the horn relay C2077 pin 2, circuit 91S-GJ7 (BK/BU), harness side and ground.

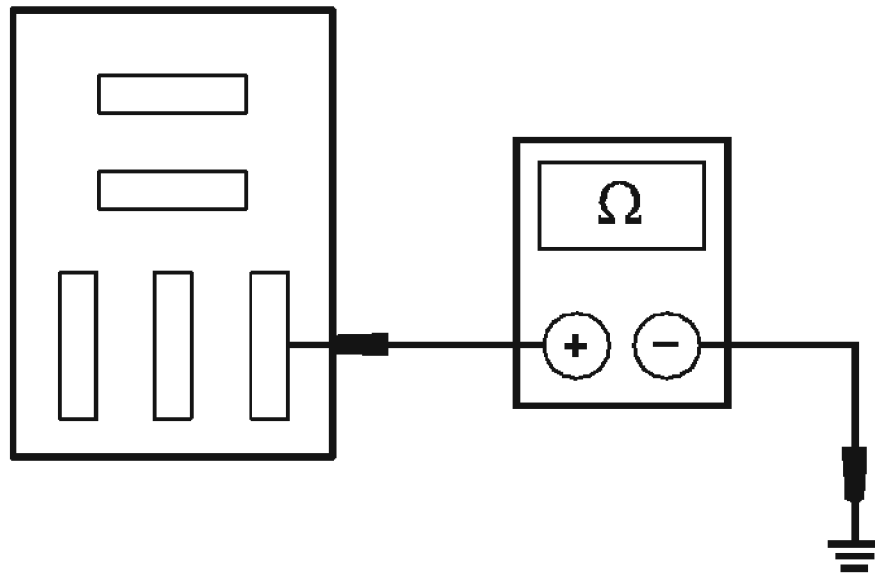
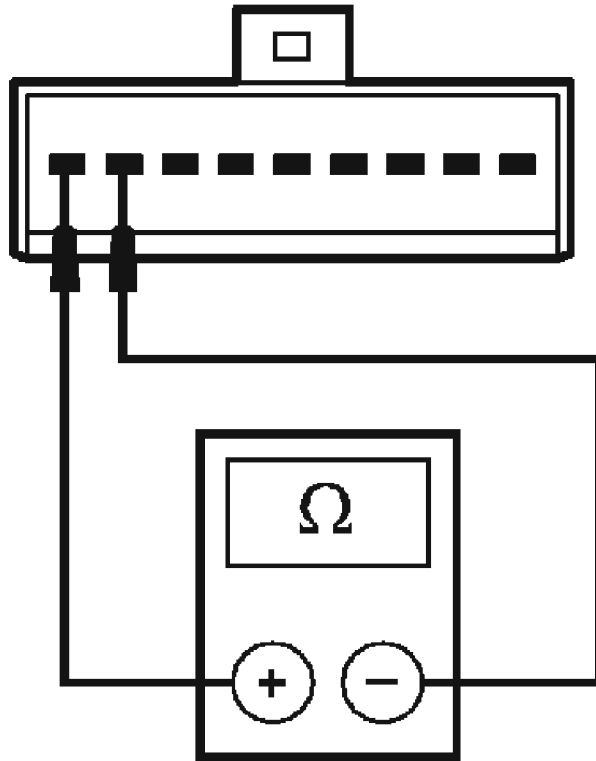
**A0091435**

Fig. 9: Measuring Resistance Between Horn Relay C2077 Pin 2, Circuit 91S-GJ7 (BK/BU), Harness Side And Ground
 Courtesy of FORD MOTOR CO.

- **Is the resistance greater than 10,000 ohms?**
 Yes : INSTALL a new horn relay. TEST the system for normal operation.
 No : GO to B4.

B4 CHECK THE CLOCKSPRING

- Disconnect: Clockspring C2274.
- Measure the resistance between the clockspring C2274 component side, pin 1 and pin 2.



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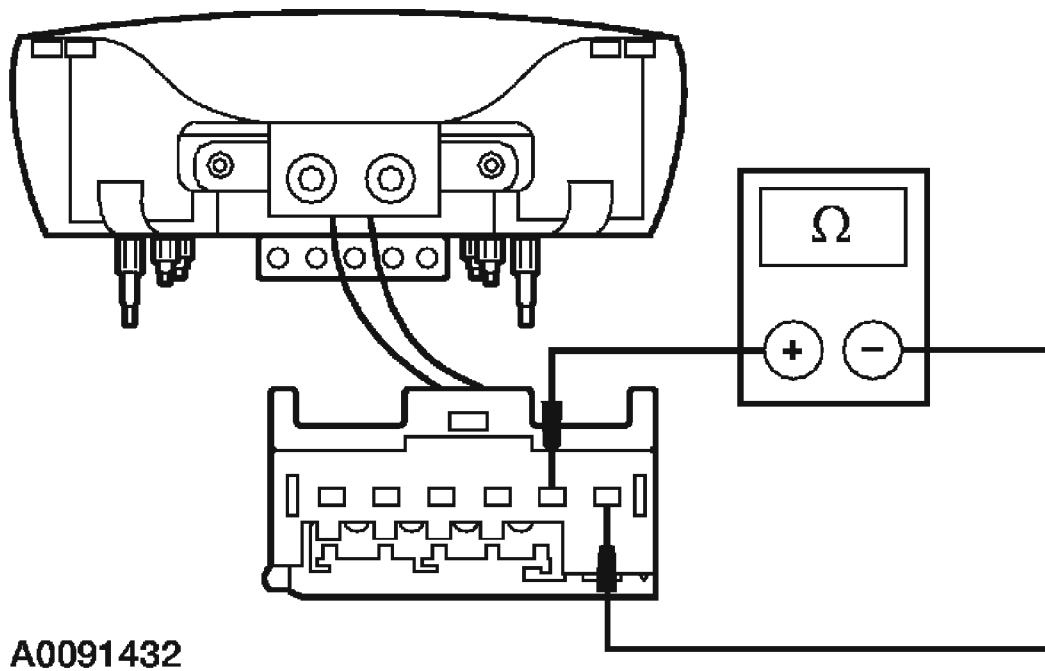
Fig. 10: Measuring Resistance Between Clockspring C2274 Component Side, Pin 1 And Pin 2

Courtesy of FORD MOTOR CO.

- **Is the resistance greater than 10,000 ohms?**
Yes : REPAIR circuit 91S-GJ7 (BK/BU). TEST the system for normal operation.
No : GO to B5.

B5 CHECK THE STEERING WHEEL HORN SWITCH

- Remove the driver air bag. Refer to SUPPLEMENTAL RESTRAINT SYSTEM .
- Measure the resistance between the horn switch pin 1 and pin 2 component side.



**Fig. 11: Measuring Resistance Between Horn Switch Pin 1 And Pin 2
Component Side**
Courtesy of FORD MOTOR CO.

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

Yes : INSTALL a new clockspring. REFER to **STEERING COLUMN** .
INSTALL the driver air bag. REFER to **SUPPLEMENTAL RESTRAINT
SYSTEM** . TEST the system for normal operation.

No : INSTALL a new driver air bag. REFER to **SUPPLEMENTAL
RESTRAINT SYSTEM** . TEST the system for normal operation.

B6 CHECK FOR CORRECT GEM OPERATION

- Disconnect the all the GEM connectors.
- Check for:
 - Corrosion
 - Pushed-out pins
- Connect the GEM connectors and make sure they seat correctly.
- Operate the system and verify the concern is still present.
- **Is the concern still present?**

Yes : INSTALL a new GEM. REFER to **MULTIFUNCTION ELECTRONIC
MODULES** . TEST the system for normal operation.

No : The system is operating correctly at this time. The concern may have been

caused by a loose or corroded connector. CLEAR the DTCs. TEST the system for normal operation.

REMOVAL AND INSTALLATION

HORN

Removal and Installation

1. Raise and support the vehicle. For additional information, refer to **JACKING AND LIFTING** .
2. Remove the horn.
 1. Disconnect the electrical connector.
 2. Remove the bolt and the horn.

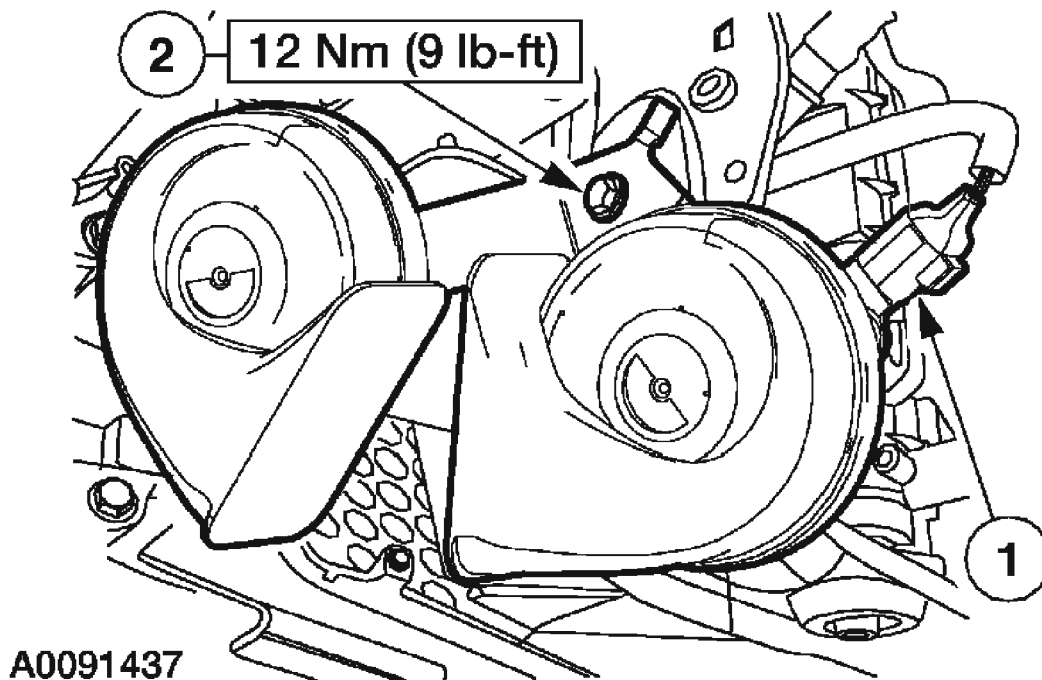


Fig. 12: Disconnecting Electrical Connector, Removing Bolt And Horn
Courtesy of FORD MOTOR CO.

NOTE: Make sure the horn bracket is installed into the location hole.

3. To install, reverse the removal procedure.