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1976 FORD Pinto OEM Service and Repair Workshop Manual

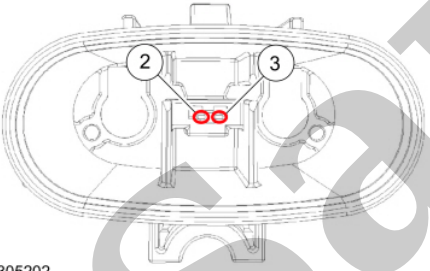
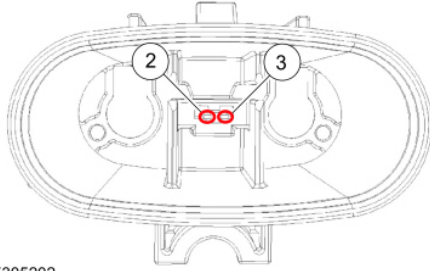
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NOTE

Use the correct probe adapter(s) from the Flex Probe Kit when taking measurements. Failure to use the correct probe adapter(s) may damage the connector.

BX1 CHECK FOR AN OPEN IN THE HIGH VOLTAGE CABLE INTERLOCK STAPLE FOR THE INVERTER SYSTEM CONTROLLER (ISC)

- Ignition OFF.
- Depower the high voltage battery system.
REFER to: [High Voltage System De-energizing - Full Hybrid Electric Vehicle \(FHEV\)](#)(414-03A High Voltage Battery, Mounting and Cables, General Procedures).
- Check that the Inverter System Controller (ISC) C1458C is fully seated.
- Disconnect Inverter System Controller (ISC) C1458C .
- Measure:

Positive Lead	Measurement / Action	Negative Lead
 E305202 C1458C-2	Ω	 E305202 C1458C-3

Is the resistance less than 3 ohms?

Yes	If the connector was NOT fully seated reseal the connector. Operate the system and determine if the concern is still present. If the connector was fully seated, GO to BX2
No	INSTALL a new (14B322) high voltage cable assembly.

(303-14F Electric Powertrain Control - 3.5L V6 PowerBoost (CN), Removal and Installation).

No

The concern is not present at this time. The concern may have been related to prior repair or service that included disconnecting the service disconnect or a high voltage cable.

PINPOINT TEST BY : U016A:00

NOTE

The Inverter System Controller (ISC) is referred to as the SOBDMC (Secondary On-Board Diagnostic Control Module C) in the scan tool.

Normal Operation and Fault Conditions

REFER to: [Electric Powertrain Control - Component Location](#)(303-14F Electric Powertrain Control - 3.5L V6 PowerBoost (CN), Description and Operation).

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
SOBDMC (secondary on-board diagnostic control module C) U016A:00	Lost Communication With Global Positioning System Module: No Sub Type Information	This DTC (diagnostic trouble code) sets when messages are missing from the GPSM (global positioning system module) .

Possible Sources

- GPSM (global positioning system module)

BY1 CARRY OUT A VEHICLE INSPECTION AND VERIFY THE SELF-TEST PROCEDURE

NOTE

If the self-test or communication concern occurred after a failed or aborted reprogram, the module may be blank. Attempt to reprogram the module again before continuing with this pinpoint test.

- Visually inspect the following for obvious signs of electrical damage:

- Check for any other GPSM (global positioning system module) related symptoms.

Is a concern present?

Yes	DIAGNOSE the GPSM (global positioning system module) concern.
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No	The system is operating correctly at this time. The concern may have been caused by module connections. Address the root cause of any connector or pin issues.
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BY4 INVERTER SYSTEM CONTROLLER (ISC) SELF-TEST

- Confirm the Inverter System Controller (ISC) was the only module to fail.


Was the Inverter System Controller (ISC) the only module to fail?

Yes	GO to BY5
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No	DIAGNOSE the network concern.
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BY5 CHECK THE INVERTER SYSTEM CONTROLLER (ISC) B+ CIRCUIT FOR VOLTAGE

- Ignition OFF.
- Disconnect Inverter System Controller (ISC) C1458A .
- Ignition ON.
- Measure and record:

Positive Lead	Measurement / Action	Negative Lead
C1458A-M1		Ground

Is the voltage greater than 10.5 volts?

Yes	GO to BY6
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Positive Lead	Measurement / Action	Negative Lead
C1458A-L4	Ω	Ground
C1458A-M4	Ω	Ground

Are the resistances less than 5 ohms?

Yes	DIAGNOSE the network concern.
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No	REPAIR the open circuit.
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PINPOINT TEST BZ : U0198

NOTE

The Inverter System Controller (ISC) is referred to as the SOBDMC (Secondary On-Board Diagnostic Control Module C) in the scan tool.

Normal Operation and Fault Conditions

REFER to: [Electric Powertrain Control - Component Location](#)(303-14F Electric Powertrain Control - 3.5L V6 PowerBoost (CN), Description and Operation).

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
SOBDMC (secondary on-board diagnostic control module C) U0198:00	Lost Communication With Telematic Control Module 'A': No Sub Type Information	This DTC (diagnostic trouble code) sets when messages are missing from the TCU (telematic control unit module) .

Possible Sources

- Communications network concern

Do all modules indicate pass?

Yes	GO to BZ3
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No	GO to BZ4
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BZ3 CHECK FOR A TCU (TELEMATIC CONTROL UNIT MODULE) CONCERN

- Using a diagnostic scan tool, carry out the TCU (telematic control unit module) self-test.
- Check for any other TCU (telematic control unit module) related symptoms.

Is a concern present?

Yes	DIAGNOSE the TCU (telematic control unit module) concern. REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information, Diagnosis and Testing).
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No	The system is operating correctly at this time. The concern may have been caused by module connections. Address the root cause of any connector or pin issues.
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BZ4 INVERTER SYSTEM CONTROLLER (ISC) SELF-TEST

- Confirm the Inverter System Controller (ISC) was the only module to fail.

Was the Inverter System Controller (ISC) the only module to fail?

Yes	GO to BZ5
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No	DIAGNOSE the network concern.
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BZ5 CHECK THE INVERTER SYSTEM CONTROLLER (ISC) B+ CIRCUIT FOR VOLTAGE

- Ignition OFF.
- Disconnect Inverter System Controller (ISC) C1458A .
- Ignition ON.

Are the voltages greater than 10.5 volts?

Yes GO to [BZ7](#)

No REPAIR the circuit.

BZ7 CHECK THE INVERTER SYSTEM CONTROLLER (ISC) GROUND CIRCUITS FOR AN OPEN

- Ignition OFF.
- Measure and record:

Positive Lead	Measurement / Action	Negative Lead
C1458A-L4	Ω	Ground
C1458A-M4	Ω	Ground

Are the resistances less than 5 ohms?

Yes DIAGNOSE the network concern.

No REPAIR the open circuit.

PINPOINT TEST CA : U019B

NOTE

The Inverter System Controller (ISC) is referred to as the SOBDMC (Secondary On-Board Diagnostic Control Module C) in the scan tool.

Normal Operation and Fault Conditions

CA2 CARRY OUT THE NETWORK TEST

- Note: When using FDRS (Ford Diagnosis and Repair System) , the scan tool attempts to communicate with the PCM (powertrain control module) first. After establishing communication with the PCM (powertrain control module) , the scan tool then attempts to communicate with all modules on the vehicle. If an FDRS (Ford Diagnosis and Repair System) session cannot be established, FDRS (Ford Diagnosis and Repair System) may state no communication can be established with the PCM (powertrain control module) :
 - Choose No when the scan tool prompts whether or not to retry communication.
 - Enter a PCM (powertrain control module) part number, tear tag or calibration number to identify the vehicle and start a session. The PCM (powertrain control module) part number and 4-character tear tag are located on the PCM (powertrain control module) .
- Ignition ON.

Do all modules indicate pass?

Yes	GO to CA3
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No	GO to CA4
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CA3 CHECK FOR A SOBDM (SECONDARY ON-BOARD DIAGNOSTIC CONTROL MODULE A) CONCERN


- Using a diagnostic scan tool, carry out the SOBDM (secondary on-board diagnostic control module A) self-test.
- Check for any other SOBDM (secondary on-board diagnostic control module A) related symptoms.

Is a concern present?

Yes	DIAGNOSE the SOBDM (secondary on-board diagnostic control module A) concern. REFER to: Information and Entertainment System (415-00 Information and Entertainment System - General Information, Diagnosis and Testing).
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No	The system is operating correctly at this time. The concern may have been caused by module connections. Address the root cause of any connector or pin issues.
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CA4 INVERTER SYSTEM CONTROLLER (ISC) SELF-TEST

C1458A-K3		Ground
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- Ignition ON.
- Measure and record:

Positive Lead	Measurement / Action	Negative Lead
C1458A-L2	\bar{V}	Ground
C1458A-M2	\bar{V}	Ground

Are the voltages greater than 10.5 volts?

Yes	GO to CA7
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No	REPAIR the circuit.
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CA7 CHECK THE INVERTER SYSTEM CONTROLLER (ISC) GROUND CIRCUITS FOR AN OPEN

- Ignition OFF.
- Measure and record:

Positive Lead	Measurement / Action	Negative Lead
C1458A-L4	Ω	Ground
C1458A-M4	Ω	Ground

Are the resistances less than 5 ohms?

- electrical connections
- Verify the correct procedure was used to activate the self-test for the scan tool.
REFER to: [Electronic Engine Controls - System Operation and Component Description\(303-14C Electronic Engine Controls - 3.5L EcoBoost \(BM\), Description and Operation\)](#).
Recreating the Fault.

Was the correct self-test procedure used?

Yes	GO to CB2
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No	REFER to: Electronic Engine Controls - System Operation and Component Description(303-14C Electronic Engine Controls - 3.5L EcoBoost (BM), Description and Operation) . Recreating the Fault.
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CB2 CARRY OUT THE NETWORK TEST

- Note: When using FDRS (Ford Diagnosis and Repair System) , the scan tool attempts to communicate with the PCM (powertrain control module) first. After establishing communication with the PCM (powertrain control module) , the scan tool then attempts to communicate with all modules on the vehicle. If an FDRS (Ford Diagnosis and Repair System) session cannot be established, FDRS (Ford Diagnosis and Repair System) may state no communication can be established with the PCM (powertrain control module) :
 - Choose No when the scan tool prompts whether or not to retry communication.
 - Enter a PCM (powertrain control module) part number, tear tag or calibration number to identify the vehicle and start a session. The PCM (powertrain control module) part number and 4-character tear tag are located on the PCM (powertrain control module) .
- Ignition ON.

Do all modules indicate pass?

Yes	GO to CB3
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No	GO to CB4
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CB3 CHECK FOR A COOLANT BYPASS VALVE ACTUATOR "A" CONCERN

- Using a diagnostic scan tool, carry out the BCMC (body control module C) self-test.