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1992 FORD Scorpio Sedan OEM Service and Repair Workshop Manual

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No	The system is operating correctly at this time. The DTC (diagnostic trouble code) may have been set due to high network traffic or an intermittent fault condition.

PINPOINT TEST R : P0A23

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) P0A23:00	Generator Torque Sensor Circuit Range/Performance: No Sub Type Information	This DTC (diagnostic trouble code) sets when the generator current sensor is out of range.

Possible Sources

- Inverter System Controller (ISC)

R1 CHECK FOR 12V BATTERY VOLTAGE AND SYSTEM VOLTAGE LOW DIAGNOSTIC TROUBLE CODES (DTCS)

- Ignition ON.
- Using a diagnostic scan tool, carry out the self-test in all modules.

Is DTC U3003:16 or P0562:00 recorded in any module?

Yes	GO to R2

	REFER to: Inverter System Controller [SOBDMC] (303-14F Electric Powertrain Control - 3.5L V6 PowerBoost (CN), Removal and Installation).

No	The system is operating correctly at this time. The DTC (diagnostic trouble code) may have been set due to high network traffic or an intermittent fault condition.

PINPOINT TEST S : P0A2F:94

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) P0A2F:94	Drive Motor 'A' Over Temperature: Unexpected Operation	This DTC (diagnostic trouble code) sets from elevated temperatures in the transmission.

Possible Sources

- Wiring, terminals or connectors
- Transmission fluid level
- Transmission fluid temperature

S1 CHECK FOR INVERTER SYSTEM CONTROLLER (ISC) DTC (DIAGNOSTIC TROUBLE CODE) P0A2F

- Ignition ON.
- Using a diagnostic scan tool, carry out the Inverter System Controller (ISC) self-test.

Is DTC (diagnostic trouble code) P0A2F:94 present in the Inverter System Controller (ISC)?

Yes	GO to S2

No	GO to S4

S4 CHECK THE TEMPERATURE SIGNAL CIRCUIT FOR A SHORT TO GROUND

- Ignition OFF.
- Disconnect Transmission Speed Sensor Resolver C1280 .
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C1280-13	Ω	Ground

Is the resistance greater than 10K ohms?

Yes	GO to S5

No	REPAIR the short circuit.

S5 CHECK THE TEMPERATURE RETURN CIRCUIT FOR A SHORT TO GROUND

- Measure:

Positive Lead	Measurement / Action	Negative Lead
C1280-12	Ω	Ground

Is the resistance greater than 10K ohms?

Yes	GO to S6

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
SOBDMC (secondary on-board diagnostic control module C) P0A37:64	Generator Temperature Sensor Circuit Range/Performance: Signal Plausibility Failure	This DTC (diagnostic trouble code) sets when a temperature difference between the generator coil temp sensor and the transmission fluid and motor coil sensors.
SOBDMC (secondary on-board diagnostic control module C) P0A38:00	Generator Temperature Sensor Circuit Low: No Sub Type Information	This DTC (diagnostic trouble code) sets when a short to ground is detected on the generator temperature sensor circuit.
SOBDMC (secondary on-board diagnostic control module C) P0A39:00	Generator Temperature Sensor Circuit High: No Sub Type Information	This DTC (diagnostic trouble code) sets when a short to power or open is detected on the generator temperature sensor circuit.
SOBDMC (secondary on-board diagnostic control module C) P0A3A:00	Generator Temperature Sensor Circuit Intermittent: No Sub Type Information	This DTC (diagnostic trouble code) sets from an intermittent condition in the generator temperature sensor harness.

Possible Sources

- Wiring, terminals or connectors
- Internal transmission wiring harness
- Inverter System Controller (ISC)

T1 CHECK THE AUTOMATIC TRANSMISSION FLUID LEVEL

NOTE

A low automatic transmission fluid level may cause a traction motor over temperature condition.

- Verify the automatic transmission fluid level is correct.
  REFER to: Transmission Fluid Level Check(307-01B Automatic Transmission - 10-Speed Automatic Transmission – 10R80 MHT, General Procedures).

Is the transmission fluid level correct?

Yes	GO to T2

 E305010 C1280 pin 12, component side	Ω	 E305010 C1280 pin 13, component side

- Record the measurement result and compare with the expected coil temperature values below:
  - -40°C (-40°F) 1724.00 K ohms
  - -35°C (-31°F) 1236.00 K ohms
  - -30°C (-22°F) 896.20 K ohms
  - -25°C (-13°F) 657.40 K ohms
  - -20°C (-4°F) 487.40 K ohms
  - -15°C (5°F) 365.00 K ohms
  - -10°C (14°F) 276.100 K ohms
  - - 5°C (23°F) 210.70 K ohms
  - 0°C (32°F) 162.20 K ohms
  - 5°C (41°F) 125.80 K ohms
  - 10°C (50°F) 98.32 K ohms
  - 15°C (59°F) 77.45 K ohms
  - 20°C (68°F) 61.47 K ohms
  - 25°C (77°F) 49.12 K ohms
  - 30°C (86°F) 39.52 K ohms
  - 35°C (95°F) 32.00 K ohms
  - 40°C (104°F) 26.06 K ohms
  - 45°C (113°F) 21.36 K ohms
  - 50°C (122°F) 17.60 K ohms
  - 55°C (131°F) 14.58 K ohms
  - 60°C (140°F) 12.14 K ohms
  - 65°C (149°F) 10.16 K ohms
  - 70°C (158°F) 8541 ohms
  - 75°C (167°F) 7214 ohms

Positive Lead	Measurement / Action	Negative Lead
C1458A-C4	Ω	C1280-13
C1458A-C3	Ω	C1280-12

Are the resistances less than 3 ohms?

Yes	GO to T5

No	REPAIR the open circuit. CLEAR the diagnostic trouble codes (DTCs) and REPEAT the self-test.

T5 CHECK THE GENERATOR TEMPERATURE SENSOR CIRCUITS FOR A SHORT TO GROUND

- Measure and record:

Positive Lead	Measurement / Action	Negative Lead
C1458A-C4	Ω	Ground
C1458A-C3	Ω	Ground

Are the resistances greater than 10K ohms?

Yes	GO to T6

No	REPAIR the short circuit.

- -25°C (-13°F)
- -20°C (-4°F)
- -15°C (5°F)
- -10°C (14°F)
- - 5°C (23°F)
- 0°C (32°F)
- 5°C (41°F)
- 10°C (50°F)
- 15°C (59°F)
- 20°C (68°F)
- 25°C (77°F)
- 30°C (86°F)
- 35°C (95°F)
- 40°C (104°F)
- 45°C (113°F)
- 50°C (122°F)
- 55°C (131°F)
- 60°C (140°F)
- 65°C (149°F)
- 70°C (158°F)
- 75°C (167°F)
- 80°C (176°F)
- 85°C (185°F
- 90°C (194°F)
- 95°C (203°F)
- 100°C (212°F)
- 105°C (221°F)
- 110°C (230°F)
- 115°C (239°F)
- 120°C (248°F)
- 125°C (257°F)
- 130°C (266°F)
- 135°C (275°F)

P0A3C:94	Operation	internal temperature

Possible Sources

- Wiring, terminals or connectors
- Electric powertrain cooling concern
- Temperature sensor
- Inverter System Controller (ISC)

U1 CHECK THE COOLING FAN OPERATION

NOTE

Verify cooling fan operation before proceeding with this test

- Verify the cooling fan operates.

Does the cooling fan operate?

Yes	GO to U2

No	REFER to: Electric Powertrain Cooling - Overview(303-03F Electric Powertrain Cooling - 3.5L V6 PowerBoost (CN), Description and Operation).

U2 CHECK THE COOLANT LEVEL

- Inspect the coolant.

Is the coolant at the correct level?

Yes	GO to U3

No	REFER to: Cooling System Filling and Bleeding(303-03F Electric Powertrain Cooling - 3.5L V6 PowerBoost (CN), General Procedures).

U3 INSPECT THE COOLANT FOR CONTAMINATION

- Inspect the coolant.

No	GO to U7

U7 CARRY OUT THE BECM (BATTERY ENERGY CONTROL MODULE) SELF-TEST

- Ignition ON.
- Access the BECM (battery energy control module) and control the COOL_PMP_B_CMD (Coolant Pump - B- Control Speed - Commanded) (%) PID (parameter identification)
- Using the scan tool, active command the coolant pump to 100% for 5 minutes. Confirm if the affected coolant pump (the Motor Electronics Coolant Pump) is running by feeling the pump for vibration.
- Using a diagnostic scan tool, carry out the BECM (battery energy control module) self-test.

Is DTC (diagnostic trouble code) P0A06:00, P0A07:00, P0C73:00, P2D00:00, P2D01:00, P2D02:00, P2D03:00, and/or P2D04:00 present OR is the affected coolant pump inoperative?

Yes	DIAGNOSE the BECM (battery energy control module) diagnostic trouble codes (DTCs). REFER to: High Voltage Battery, Mounting and Cables - Electric (414-03A High Voltage Battery, Mounting and Cables, Diagnosis and Testing).

No	GO to U8

U8 CHECK FOR INVERTER SYSTEM CONTROLLER (ISC) TEMPERATURE SENSOR CORRELATION

- Cold soak the vehicle at ambient temperature for at least 6 hours.
- Ignition ON.
- Access the SOBDMC (secondary on-board diagnostic control module C) and monitor the G_PHTMP (Generator Inverter Phase Temperature) (Deg C) PID (parameter identification)
- Road test the vehicle while monitoring the PID (parameter identification) .

Does the temperature PID (parameter identification) indicate greater than 115°C (239°F)?

Yes	REFER to: Electric Powertrain Cooling(303-03F Electric Powertrain Cooling - 3.5L V6 PowerBoost (CN), Diagnosis and Testing).

No	GO to U9