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## 2009 FORD Taurus SHO OEM Service and Repair Workshop Manual

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**PINPOINT TEST E : B1086:07, B1086:11, B1086:12, B1086:13, B11E7:11, B11E7:15**

Refer to Wiring Diagrams Cell 55 for schematic and connector information.

**Normal Operation and Fault Conditions** Air Distribution Door Actuator, REFER to: [Climate Control System - Vehicles With: Dual Automatic Temperature Control \(DATC\) - System Operation and Component Description](#)

(412-00 Climate Control System - General Information, Description and Operation).

During an actuator calibration cycle, the HVAC (heating, ventilation and air conditioning) control module drives the defrost vent door and the footwell vent/register door until the doors reach both internal stops in the HVAC (heating, ventilation and air conditioning) case. If the defrost vent door or the footwell vent/register door is temporarily obstructed or binding during a calibration cycle, the HVAC (heating, ventilation and air conditioning) control module may interpret this as the actual end of travel for the door. When this condition occurs and the HVAC (heating, ventilation and air conditioning) control module commands the actuator to its end of travel, the airflow may not be from the expected outlets. **DTC Fault**

**Trigger Conditions**

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
HVAC (heating, ventilation and air conditioning) B1086:07	Air Distribution Damper Motor: Mechanical Failures	Module senses the air distribution door actuator motor control is awake, no actuator drive, stall before achieving target position within 15 seconds.
HVAC (heating, ventilation and air conditioning) B1086:11	Air Distribution Damper Motor: Circuit Short To Ground	Module senses a short to ground on air distribution door actuator circuits when motor movement is commanded.
HVAC (heating, ventilation and air conditioning) B1086:12	Air Distribution Damper Motor: Circuit Short To Battery	Module senses a short to voltage on air distribution door actuator circuits when motor movement is commanded.
HVAC (heating, ventilation and air conditioning) B1086:13	Air Distribution Damper Motor: Circuit Open	Module senses an open on air distribution door actuator circuits when motor movement is commanded.
HVAC (heating, ventilation and air conditioning) B11E7:11	Air Distribution Damper Position Sensor: Circuit Short To Ground	Module senses a short to ground on air distribution door actuator circuits when motor movement is commanded.

C228A-21		Ground
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**Is there any voltage present?**

<b>Yes</b>	REPAIR the circuit.
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<b>No</b>	GO to <a href="#">E2</a>
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**E2 CHECK THE AIR DISTRIBUTION DOOR ACTUATOR CIRCUITS FOR A SHORT TO GROUND**

- Ignition OFF.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C228A-20	$\Omega$	Ground
C228A-2	$\Omega$	Ground
C228A-3	$\Omega$	Ground
C228A-22	$\Omega$	Ground
C228A-21	$\Omega$	Ground

**Are the resistances greater than 10,000 ohms?**

- Ignition OFF.
- Disconnect Air distribution door actuator C236 .
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C228A-20	$\Omega$	C236-1
C228A-2	$\Omega$	C236-2
C228A-3	$\Omega$	C236-3
C228A-22	$\Omega$	C236-4
C228A-21	$\Omega$	C236-6

**Are the resistances less than 3 ohms?**

<b>Yes</b>	GO to <a href="#">E4</a>
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<b>No</b>	REPAIR the circuit.
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#### **E4 CHECK FOR CORRECT ACTUATOR OPERATION**

- Ignition OFF.
- Disconnect and inspect the air distribution door actuator connector (if not previously disconnected).
- Repair:
  - corrosion (install new connector or terminals – clean module pins)
  - damaged or bent pins – install new terminals/pins

FOLLOW the service article instructions. If no service articles address this concern, INSTALL a new HVAC (heating, ventilation and air conditioning) control module.

REFER to: [Heating, Ventilation and Air Conditioning \(HVAC\) Control Module](#) (412-00 Climate Control System - General Information, Removal and Installation).

**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.

## PINPOINT TEST F : INSUFFICIENT, ERRATIC OR NO HEAT

### Normal Operation and Fault Conditions

When the engine is at operating temperature hot coolant flows from the engine through the heater core and back to the engine. Correct coolant temperatures are critical for good heater performance.

### Possible Sources

- Low engine coolant level
- Plugged or partially plugged heater core
- (If equipped) cabin heater coolant pump
- (If equipped) transmission fluid heater coolant control valve
- (If equipped) cabin heater coolant diverter valve (PHEV)
- Temperature door binding or stuck
- Temperature door actuator

### Visual Inspection and Pre-checks

- Inspect for low engine coolant level.

## F1 CHECK FOR CORRECT ENGINE COOLANT LEVEL

- Ignition OFF.
- Check the engine coolant level.

**Is the engine coolant at the correct level (hot or cold) as indicated on the engine coolant recovery reservoir?**

**Yes**

GO to [F3](#)

**No**

GO to [F2](#)

No

GO to [F5](#)

## F5 CHECK FOR A PLUGGED OR RESTRICTED HEATER CORE RETURN LOOP

- INSTALL a temporary bypass hose from the heater core outlet to the thermostat housing assembly (as applicable).
- Using a suitable temperature measuring device, measure the heater core inlet and outlet hose temperatures.

**Is the heater core outlet hose temperature similar to the inlet hose temperature [within approximately 6-17°C (10-30°F)]?**

Yes

There is a restriction in the coolant control valve and/or the hoses.

If equipped with a cabin heater coolant pump, DIAGNOSE for the cabin coolant pump causing a possible restriction of flow to the heater core. **Using a suitable temperature measuring device, check the temperature of the coolant hose to the applicable component.**

If equipped with a transmission fluid heater coolant control valve, or If equipped with a cabin heater coolant diverter valve (PHEV), DIAGNOSE for the coolant control valve causing a possible restriction of flow to the heater core. **Using a suitable temperature measuring device, check the temperature of the coolant hose to the applicable component.**

REPAIR or replace components as necessary.

No

INSTALL a new heater core.

REFER to: [Heater Core](#)

(412-00 Climate Control System - General Information, Removal and Installation).

TEST the system for normal operation.

## PINPOINT TEST G : EXTERNALLY CONTROLLED VARIABLE DISPLACEMENT COMPRESSOR (EVDC) PERFORMANCE CHECK WITH OR WITHOUT DTC (DIAGNOSTIC TROUBLE CODE) P06A0

Refer to Wiring Diagrams Cell 55 for schematic and connector information.

**Normal Operation and Fault Conditions** The externally controlled variable displacement compressor is electronically controlled by the PCM (powertrain control module) . The PCM (powertrain control module) pulse width modulates the ground to the externally controlled variable displacement compressor to change the displacement of the A/C (air conditioning) compressor. **DTC Fault Trigger Conditions**

## NOTE

Make sure the EVDC100 Tester, the EVDC101 valve harness module, (and the connector adapter EVDC102, if required) are properly connected per the instruction manual and the operation video.

- Test the EVDC compressor displacement, following the instructions in the user manual supplied with the Model EVDC@100 A/C Compressor Electronic Control Valve Tester and the EVDC 100 Tester Operation video found on the Ford PTS Home tab, Technical Support Videos.

### Did the suction low side pressure decrease or the high side pressure increase?

<b>Yes</b>	<p>The Externally Controlled Variable Displacement Compressor (EVDC) is able to change the displacement. Do not replace the compressor.</p> <p>If DTC (diagnostic trouble code) P06A0 is present, GO to <a href="#">G2</a></p> <p>If DTC (diagnostic trouble code) P06A0 is not present, TEST the system for normal operation.</p> <p>REFER to: <a href="#">Refrigerant System Tests - 2.7L EcoBoost (238kW/324PS)</a> (412-00 Climate Control System - General Information, General Procedures).</p> <p>REFER to: <a href="#">Refrigerant System Tests - 3.3L Duratec-V6</a> (412-00 Climate Control System - General Information, General Procedures).</p> <p>REFER to: <a href="#">Refrigerant System Tests - 3.5L EcoBoost (BM)</a> (412-00 Climate Control System - General Information, General Procedures).</p> <p>REFER to: <a href="#">Refrigerant System Tests - 5.0L 32V Ti-VCT</a> (412-00 Climate Control System - General Information, General Procedures).</p> <p>REFER to: <a href="#">Refrigerant System Tests - 5.2L 32V Ti-VCT – Supercharged</a> (412-00 Climate Control System - General Information) .</p>
<b>No</b>	<p>If the A/C (air conditioning) compressor clutch does not operate, <a href="#">GO to Pinpoint Test L</a> If the A/C (air conditioning) compressor clutch was on or engaged, GO to <a href="#">G2</a></p>

### G2 CHECK FOR VOLTAGE TO THE A/C (AIR CONDITIONING) COMPRESSOR DISPLACEMENT CONTROL VALVE

- Ignition OFF.
- Disconnect Externally controlled variable displacement compressor C1110 .
- Ignition ON.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
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## G4 CHECK THE A/C (AIR CONDITIONING) COMPRESSOR DISPLACEMENT CONTROL VALVE CIRCUIT FOR A SHORT TO GROUND

- Ignition OFF.
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C1110-2	$\Omega$	Ground

Is the resistance greater than 10,000 ohms?

<b>Yes</b>	GO to <a href="#">G5</a>
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<b>No</b>	REPAIR the circuit.
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## G5 CHECK THE A/C (AIR CONDITIONING) COMPRESSOR DISPLACEMENT CONTROL VALVE CIRCUIT FOR AN OPEN

- Measure:  
**2.7L**

Positive Lead	Measurement / Action	Negative Lead
C1110-2	$\Omega$	C1232B-10


**3.3L**

Positive Lead	Measurement / Action	Negative Lead
C1110-2	$\Omega$	C1551B-10



- Disconnect and inspect all PCM (powertrain control module) electrical connectors (if not previously disconnected).
- Repair:
  - corrosion (install new connector or terminal - clean module pins)
  - damaged or bent pins - install new terminals or pins
  - pushed-out pins - install new pins as necessary
- Connect all PCM (powertrain control module) electrical connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

**Is the concern still present?**

<p><b>Yes</b></p>	<p>CHECK OASIS (Online Automotive Service Information System) for any applicable service articles: TSB (Technical Service Bulletin) , GSB (General Service Bulletin) , SSM (special service message) or FSA (Field Service Action) . If a service article exists for this concern, DISCONTINUE this test and FOLLOW the service article instructions. If no service articles address this concern,</p>  <p>Guided Routine available in the on-line Workshop Manual.</p>
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<p><b>No</b></p>	<p>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.</p>
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**G7 CHECK AIR CONDITIONING COMPRESSOR CONNECTOR PINS**

- Ignition OFF.
- Disconnect and inspect all electrical connectors on the compressor
- Repair:
  - corrosion (install new connector or terminal - clean module pins)
  - damaged or bent pins - install new terminals or pins
  - pushed-out pins - install new pins as necessary
- Connect all Compressor electrical connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

**Is the concern still present?**

<p><b>Yes</b></p>	<p>CHECK OASIS (Online Automotive Service Information System) for any applicable service articles: TSB (Technical Service Bulletin) , GSB (General Service Bulletin) , SSM (special service message) or</p>
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REFER to: [Refrigerant System Tests - 3.3L Duratec-V6](#)

(412-00 Climate Control System - General Information, General Procedures).

REFER to: [Refrigerant System Tests - 3.5L EcoBoost \(BM\)](#)

(412-00 Climate Control System - General Information, General Procedures).

REFER to: [Refrigerant System Tests - 5.0L 32V Ti-VCT](#)

(412-00 Climate Control System - General Information, General Procedures).

REFER to: [Refrigerant System Tests - 5.2L 32V Ti-VCT – Supercharged](#) (412-00 Climate Control System - General Information) .

INSTALL a new A/C (air conditioning) compressor.

REFER to: [Air Conditioning \(A/C\) Compressor - 2.7L EcoBoost \(238kW/324PS\)](#)

(412-00 Climate Control System - General Information, Removal and Installation).

REFER to: [Air Conditioning \(A/C\) Compressor - 3.3L Duratec-V6](#)

(412-00 Climate Control System - General Information, Removal and Installation).

**No**

REFER to: [Air Conditioning \(A/C\) Compressor - 3.5L EcoBoost \(BM\)](#)

(412-00 Climate Control System - General Information, Removal and Installation).

REFER to: [Air Conditioning \(A/C\) Compressor - 5.0L 32V Ti-VCT](#)

(412-00 Climate Control System - General Information, Removal and Installation).

REFER to: [Air Conditioning \(A/C\) Compressor - 5.2L 32V Ti-VCT – Supercharged](#) (412-00 Climate Control System - General Information) .

## PINPOINT TEST I : INSUFFICIENT AIR CONDITIONING (A/C) COOLING

### Possible Sources

- Improper A/C (air conditioning) system refrigerant charge
- Temperature door actuator

## I1 CHECK THE AIR CONDITIONING (A/C) SYSTEM FOR PROPER CHARGE

### NOTE

Proper Air Conditioning (A/C) system diagnosis on a vehicle's compressor is dependent on correct refrigerant system charge and tested in ambient temperatures above 21.1°C (70°F).

- Carry out the refrigerant system tests.

REFER to: [Refrigerant System Tests - 2.7L EcoBoost \(238kW/324PS\)](#)(412-00 Climate Control System - General Information, General Procedures).