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1998 FORD Taurus OEM Service and Repair Workshop Manual

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J1 CHECK THE CABIN AIR FILTER

- Ignition OFF.
- Inspect the cabin air filter for possibly plugged or wet.
  REFER to: Cabin Air Filter(412-00 Climate Control System - General Information, Removal and Installation).

Is the cabin air filter plugged?

Yes	REPLACE or REPAIR as needed.

No	GO to J2

J2 CHECK THE BLOWER MOTOR OPERATION

- Ignition ON.
- Using the HVAC (heating, ventilation and air conditioning) controls, select panel mode, set temperature to mid range.
- Operate the blower motor through all speeds.
- Turn off the blower motor.

Does the blower motor operate properly?

Yes	GO to J3

No	DIAGNOSE the blower motor concern. GO to Pinpoint Test Q

J3 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).

HVAC (heating, ventilation and air conditioning) C1B14:12	Sensor Supply Voltage A: Circuit Short To Battery	This DTC (diagnostic trouble code) sets when the module senses greater than 5.5 volts on the actuator voltage supply circuit, indicating a short to voltage.

Possible Sources

- Wiring, terminals or connectors
- HVAC (heating, ventilation and air conditioning) control module

NOTICE

Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may damage the connector.

K1 CHECK THE HVAC (HEATING, VENTILATION AND AIR CONDITIONING) CONTROL MODULE DIAGNOSTIC TROUBLE CODES (DTCS)

- Ignition ON.
- Using a diagnostic scan tool, carry out HVAC (heating, ventilation and air conditioning) control module self-test.

Is DTC (diagnostic trouble code) C1B14:11 or C1B14:12 present?

Yes	GO to K2

No	VERIFY a customer concern. REFER to the symptom chart in this section.

K2 CHECK THE HVAC (HEATING, VENTILATION AND AIR CONDITIONING) CONTROL MODULE REFERENCE VOLTAGE AND SIGNAL RETURN CIRCUITS FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect HVAC (heating, ventilation and air conditioning) control module C228A and C228B .
- Ignition ON.
- Measure:

Positive Lead	Measurement / Action	Negative Lead

K4 CHECK THE REFERENCE VOLTAGE CIRCUIT AND THE SIGNAL RETURN CIRCUIT FOR A SHORT TOGETHER

- Measure:

Positive Lead	Measurement / Action	Negative Lead
C228A-3	Ω	C228A-2

Is the resistance greater than 200 ohms?

Yes	GO to K6

No	GO to K5

K5 CHECK THE A/C (AIR CONDITIONING) COMPONENTS

- Measure:

Positive Lead	Measurement / Action	Negative Lead
C228A-3	Ω	C228A-2

- While measuring the resistance, disconnect the following components one at a time, in order. Stop disconnecting components if the measured resistance rises above 200 ohms.
  - Air distribution door actuator C236
  - Air inlet door actuator C289
  - Driver temperature door actuator C2091
  - Passenger temperature door actuator C2092
  - In-vehicle temperature and humidity sensor C910

Did the resistance rise above 200 ohms?

PINPOINT TEST L : THE AIR CONDITIONING (A/C) IS INOPERATIVE WITH NO DIAGNOSTIC TROUBLE CODES (DTCS) [NON HEV (HYBRID ELECTRIC VEHICLE)]

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

Normal Operation and Fault Conditions

When an A/C (air conditioning) request is received by the PCM (powertrain control module), the A/C clutch is engaged when all of the following conditions are met:

- Excessively high or low refrigerant pressure from the A/C pressure transducer is not detected.
- Ambient air temperature is above approximately 0°C (32.0°F).
- Evaporator temperature is above approximately 1°C (33.8°F).
- Engine coolant temperature conditions are within normal parameters.
- Wide Open Throttle (WOT) condition is not present.
- Engine torque conditions are within normal parameters.
- Battery state of charge conditions are within normal parameters.

A/C (air conditioning) Request, 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).

Possible Sources

- Wiring, terminals or connectors
- A/C (air conditioning) system discharged or low refrigerant charge
- Network concerns
- A/C (air conditioning) pressure transducer
- Evaporator temperature sensor
- Engine temperature sensors
- A/C (air conditioning) compressor clutch air gap
- A/C (air conditioning) compressor clutch field coil
- A/C (air conditioning) clutch Smart FET [non-serviceable, part of the BJB (battery junction box)]
- HVAC (heating, ventilation and air conditioning) control module

Visual Inspection and Pre-checks

- BCM (body control module) fuse 12 (7.5A)
- Verify the A/C (air conditioning) compressor belt is OK.
- Verify the A/C (air conditioning) compressor clutch is engaged/operating.

NOTICE

- Wait 1 minute.
- Ignition ON.
- Using the FDRS (Ford Diagnosis and Repair System) diagnostic scan tool, follow the on screen prompts to reset the Outside Air Temperature (OAT) / Ambient Air Temperature (AAT) sensor data.
  REFER to: Reset the Outside Air Temperature Sensor Learned Values(412-00 Climate Control System - General Information, General Procedures).
- Start the engine.
- On the HVAC (heating, ventilation and air conditioning) controls, set the temperature to full cold, select PANEL and select the A/C (air conditioning) button (indicator on).

Does the A/C (air conditioning) compressor turn on?

Yes	TEST the A/C (air conditioning) system for normal operation. 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). 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 - 3.5L EcoBoost (BM), Raptor (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) .
No	GO to L3

L3 CHECK THE AIR CONDITIONING (A/C) SYSTEM PRESSURE

NOTE

Static refrigerant pressure, under perfect conditions, should approximately reflect ambient air temperature. Do not rely upon the static refrigerant pressure alone to determine if the system is properly charged. Refer to the current Ford Web Based Technical Training courses for basic HVAC system refrigerant operation.

- Ignition OFF.

- With a manifold gauge set connected, compare the pressure readings of the manifold gauge set and the following:
  Access the PCM (powertrain control module) and monitor the ACP_PRESS ((A/C) pressure sensor) (kPa) PID (parameter identification)

Are the pressure values of the manifold gauge set and the ACP_PRESS PCM (powertrain control module) PID (parameter identification) , dependent upon ambient temperatures, within ± 103 kPa (15 psi)?

Yes	GO to L6

No	DIAGNOSE the A/C (air conditioning) pressure transducer. GO to Pinpoint Test A

L6 COMPARE THE PCM (POWERTRAIN CONTROL MODULE) AMBIENT AIR TEMPERATURE (AAT) PARAMETER IDENTIFICATION (PID) TO THE MEASURED AMBIENT AIR TEMPERATURE

- Ignition OFF.
- Using a suitable temperature measuring device, measure and record the temperature in the area of the Ambient Air Temperature (AAT) sensor.
  REFER to: Ambient Air Temperature Sensor(412-00 Climate Control System - General Information, Removal and Installation).
- Ignition ON.
- Using a diagnostic scan tool, monitor and record the following:
  Access the PCM (powertrain control module) and monitor the AAT (Ambient Air Temperature) (Deg C) PID (parameter identification)

Are the temperature values similar [typically within ± 5°C or 9°F of each other?

Yes	GO to L7

No	DIAGNOSE the Ambient Air Temperature (AAT) sensor or Outside Air Temperature Display concerns, REFER to: Instrumentation, Message Center and Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes, Diagnosis and Testing).

No	TURN OFF the active command PID (parameter identification) . GO to L10

L10 CHECK FOR PCM (POWERTRAIN CONTROL MODULE) DIAGNOSTIC TROUBLE CODE (DTC) P0645:00

- Ignition ON.
- Access the PCM (powertrain control module) and control the ACC_CMD (Air Conditioning Compressor Commanded State) PID (parameter identification)
- Using a diagnostic scan tool, turn off the active command PID (parameter identification) .
- Ignition OFF.
- Wait 1 minute for all modules to enter sleep mode.
- Ignition ON.
- Wait 15 seconds.
- Using a diagnostic scan tool, carry out the PCM (powertrain control module) self-test.

Is DTC (diagnostic trouble code) P0645:00 present?

Yes	GO to Pinpoint Test B

No	GO to L11

L11 CHECK THE A/C (AIR CONDITIONING) COMPRESSOR CLUTCH FIELD COIL GROUND CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect A/C (air conditioning) clutch and A/C (air conditioning) clutch field coil C100 .
- Measure:

Positive Lead	Measurement / Action	Negative Lead
C100-2	Ω	Ground

Is the resistance less than 3 ohms?

Yes	GO to L12

No	DIAGNOSE the A/C (air conditioning) clutch Smart FET (Field Effect Transistor) control output circuit. GO to Pinpoint Test C

L13 CHECK FOR CORRECT HVAC (HEATING, VENTILATION AND AIR CONDITIONING) CONTROL MODULE OPERATION

- Ignition OFF.
- Disconnect and inspect all HVAC (heating, ventilation and air conditioning) control module electrical connectors.
- 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 HVAC (heating, ventilation and air conditioning) 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?

Yes	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, 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 a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

L14 CHECK FOR AN INPUT DISABLING THE AIR CONDITIONING (A/C) CLUTCH

NOTE

The Powertrain Control Module (PCM) strategy may disable the Air Conditioning (A/C) compressor operation. If the A/C compressor clutch can be commanded on using a diagnostic scan tool Powertrain

	running mode after starting	harshness) because of low engine RPM (revolutions per minute) .
AC_INHIBIT_04	A/C Clutch Engagement is inhibited because the A/C Discharge (Head) Pressure is Too High	This inhibit PID (parameter identification) reads true when there is a concern with A/C (air conditioning) refrigerant pressure or there is a pressure transducer concern. This is for high side pressure management and A/C (air conditioning) performance to prevent refrigerant release. Diagnose a high A/C (air conditioning) pressure concern.
AC_INHIBIT_05	A/C Clutch Engagement is inhibited because the Engine Coolant Temperature is Too High	This inhibit PID (parameter identification) reads true when there is a concern with the vehicles coolant temperature or an over heating concern. This is for load shed strategy to prevent engine over heat and possible engine damage. Diagnose a engine coolant temperature concern.
AC_INHIBIT_06	A/C Clutch Engagement is inhibited to Prevent Frost and Ice Build Up on the Evaporator	This inhibit PID (parameter identification) reads true when there is a concern with the evaporator based on the evaporator temperature sensor reading. This is to prevent evaporator icing up. Icing blocks air flow and A/C (air conditioning) performance suffers. The clutch is inhibited if the evaporator does not recover up after the compressor displacement is reduced. Diagnose an evaporator concern.
AC_INHIBIT_07	A/C Clutch Engagement is inhibited to Prevent an Engine Stall during a Low Engine Speed condition	This inhibit PID (parameter identification) reads true when there is a concern with low engine speed. When this occurs the A/C (air conditioning) clutch is disengaged for the engine load shed to allow the engine to recover and prevent an engine stall. The calibrated engine RPM (revolutions per minute) threshold is exceeded. When engine speed is restored above the minimum speed threshold the A/C (air conditioning) clutch engages.
AC_INHIBIT_08	A/C Clutch Engagement is inhibited to Protect the Compressor from a Compressor Over-speed condition	This inhibit PID (parameter identification) reads true when there is a high engine RPM (revolutions per minute) speed detected and would not be identified in a repair facility. The A/C clutch is disengaged to protect the compressor based on the maximum compressor RPM (revolutions per minute) . If this PID (parameter identification) is set to true during diagnosis, verify the compressor speed value in the PCM