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AIR CONDITIONING - EATC Service Tips	Article No. 97-8-8
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FORD:

1994-97 CROWN VICTORIA, TAURUS, THUNDERBIRD

LINCOLN-MERCURY:

1994-97 CONTINENTAL, COUGAR, GRAND MARQUIS, MARK VIII, SABLE, TOWN CAR

LIGHT TRUCK:

1994-97 EXPLORER

ISSUE:

A number of returned Electronic Automatic Temperature Control (EATC) and Semi Automatic Temperature Control (SATC) system components are found to be not defective. Replacement of these parts may be a result of false codes being stored. This TSB article contains Service Tips pertaining to proper diagnostic procedures.

ACTION:

Refer to the following five (5) Service Tips:

- 1) Pre-Self Test Procedure
- 2) Self Test Procedure
- 3) Diagnostic Trouble Codes (DTCs)
- 4) Diagnostic Procedure
- 5) Miscellaneous Diagnostic Tips

SERVICE TIPS

1) Pre-Self Test Procedure

All Automatic Temperature Control Modules

Before starting self test, the vehicle must be stabilized between 4.4 and 32.2°C (40° and 90°F). Keeping the temperature within this range will avoid false Diagnostic Trouble Codes (DTCs) associated with the in-car temperature sensor (031, 030, B1251, B1253) that may occur during extremely cold or hot temperatures.

Make sure the ignition is in the "RUN" position. This will avoid false DTCs associated with the vehicle's communication network. The Automatic Temperature Control (ATC) relies on information received from other modules, and if the ignition is not in the "RUN" position, these modules may not be powered up and communicating with the ATC, thereby causing the ATC to log false communication faults (115, 125, 135, 155, or U1073, U1341, U1234, U1235).

2) Self Test Procedure

1. 1994-97 Town Car, Continental, Mark VIII, Crown Victoria/Grand Marquis, Taurus/Sable, And Explorer:

To enter self test, simultaneously press the "OFF" and "FLOOR" buttons, then release and within 2 seconds press the "AUTO" button. All segments will light up if self test completes with no failures for all above vehicles except Taurus/Sable. For these two vehicles, "888" will be displayed to indicate no failures.

To exit the self test and save all trouble codes, press the blue "COOL" button. To exit the self test and clear all trouble codes, press the "DEF" button.

NOTE:

AFTER WORK HAS BEEN COMPLETED ON THE CLIMATE CONTROL SYSTEM, THE SELF TEST SHOULD BE RE-RUN AND EXITED BY PRESSING THE "DEF" BUTTON. THIS WILL ENSURE THAT ANY CODES ACCIDENTALLY SET DURING REPAIR ARE CLEARED.

2. 1994-97 Thunderbird/Cougar:

The control must be on "AUTO" fan and either "PANEL" or "FLOOR" mode to run on-board diagnostics. To enter the self test, simultaneously press the "COOL" and "OUTSIDE TEMP" buttons, then release and within 2 seconds press the "WARM" button. All segments will light up if the self test completes with no failures.

To exit the self test and save all trouble codes, press the "COOL" button. To exit the self test and clear all trouble codes, press the "OUTSIDE TEMP" button first, and then press the "WARM" button.

NOTE:

AFTER WORK HAS BEEN COMPLETED ON THE CLIMATE CONTROL SYSTEM, THE SELF TEST SHOULD BE RE-RUN AND EXITED BY PRESSING THE "OUTSIDE TEMP" BUTTON FIRST AND THEN THE "WARM" BUTTON. THIS WILL ENSURE THAT ANY CODES ACCIDENTALLY SET DURING REPAIR ARE CLEARED.

3) Diagnostic Trouble Codes (DTCs)

There are two types of DTCs: Hard or Intermittent.

- Hard DTCs:

Also referred to as "self test," "ON-demand," or "hard" faults. These DTCs are faults that are currently happening within the system at the time of the self test.

- Intermittent DTCs:

Also referred to as "Run Time," "Continuous," or "Intermittent" faults. These DTCs are faults that have occurred in the past, during assembly processes at the manufacturing plant, during previous vehicle repairs, or normal module operation.

NOTE:

REFER TO THE APPROPRIATE MODEL/YEAR SERVICE MANUAL FOR A LIST OF DTCs AVAILABLE.

4) Diagnostic Procedure

1. Perform self test as described above.

2. Record all DTCs.
3. Exit self test and clear DTCs.
4. Repeat self test as described above.
5. Record any DTCs.
6. Compare DTCs recorded from first and second tests and answer the questions in the table that follows:

Question	Answer	Service Tip Instructions
1. Did any faults repeat themselves between the two self tests?	<p>Yes - Follow instructions to the right.</p> <p>No - Go to Question 2.</p>	<ul style="list-style-type: none"> • These faults are present in the system and need to be corrected. • Diagnose any repeated codes using the Pinpoint Tests listed in the appropriate Service Manual. • Once completed, retest system using Procedure 4 above. • Continue on to Question 2.
2. Did any new faults appear that were not present during the first self test?	<p>Yes - Follow instructions to the right.</p> <p>No - Go to Question 3.</p>	<ul style="list-style-type: none"> • These faults are present in the system and need to be corrected. • Diagnose any new codes using the Pinpoint Tests listed in the appropriate Service Manual. • Once completed, retest system using Procedure 4 above. • Continue on to Question 3.
3. Did any 100 codes (e.g., 115, 125, 135, 155) or New Generation Star/Service Bay Diagnostic System (NGS/SBDS) U codes (e.g., U1073, U1234, U1235, U1341) appear during the first self test, but not appear during the second self test?	<p>Yes - Follow instructions to the right.</p> <p>No - Go to Question 4.</p>	<ul style="list-style-type: none"> • These most likely are faults related to the timing of other electronic modules. Under most conditions, the ATC control is fully functional. • Use SBDS/NGS or similar tool to establish communication to the ATC module. • If communication cannot be established, use the Pinpoint Tests listed in the appropriate Service Manual to diagnose a loss of communication to the ATC module. • If communication can be established using the above network tools, the system is operational and no components should be serviced. • Continue on to Question 2.

Question	Answer	Service Tip Instructions
4. Did a 031 code appear during the first self test, but not during the second?	Yes - Follow instructions to the right. No - Go to Question 5.	<ul style="list-style-type: none"> • This is typically a false code that occurs when a self test is performed below 4.4°C (40°F). • Wiggle any harnesses, connectors, and inter-connects associated with the ATC sensor (in-car sensor). • Rerun self test and check if the fault code returns. • If the fault code returns: <ul style="list-style-type: none"> —Inspect all terminals for damage and make sure all connectors are seated properly. Make repairs where necessary. —Follow Pinpoint Test in the appropriate Service Manual to diagnose fault condition. —Rerun the self test as described in Procedure 4 above. • If the fault does not return, the system is operational.
5. Did a 030 code appear during the first self test, but not during the second?	Yes - Follow instructions to the right. No - Go to Question 6.	<ul style="list-style-type: none"> • This is typically a false code that occurs when a self test is performed above 32.2°C (90°F). • Wiggle any harnesses, connectors, and inter-connects associated with the ATC sensor (in-car sensor). • Rerun self test and check if the fault code returns. • If the fault code returns: <ul style="list-style-type: none"> —Inspect all terminals for damage and make sure all connectors are seated properly. Make repairs where necessary. —Follow Pinpoint Test in the appropriate Service Manual to diagnose fault condition. —Rerun the self test as described in Procedure 4 above. • If the fault does not return, the system is operational.

Question	Answer	Service Tip Instructions
6. Were any other intermittent codes (e.g., 024, 025, 042, 043, 052, B1249, B1255, B1261) recorded during the first self test, but not during the second?	Yes - Follow instructions to the right. No - System operational.	<ul style="list-style-type: none"> • Wiggle any harnesses, connectors, and inter-connects associated with the fault code (e.g., if Fault Code 42 appeared, then wiggle all harnesses, connectors, and inter-connects between the ATC and the ambient sensor). • Rerun self test and check if the fault code returns. • If the fault code returns: <ul style="list-style-type: none"> —Inspect all terminals for damage and make sure all connectors are seated properly. Make repairs where necessary. —Follow Pinpoint Test in the appropriate Service Manual to diagnose fault condition. —Rerun the self test as described in Procedure 4 above. • If the fault does not return, the system is operational.

5) Miscellaneous Diagnostic Tips

- On new or low mileage vehicles that have intermittent DTCs stored, exit the self test and clear codes as described in the appropriate self test procedure. These codes were most likely set at the factory during assembly line tests and should be considered FALSE if they do not return during the second self test and are not accompanied by customer symptoms.
- DTCs 115, 125, 135, and 155 are most likely faults related to the timing of other electronic modules. Under most conditions the ATC control is fully functional.

- The Powertrain Control/Emissions Diagnosis (PC/ED) Service Manual and New Generation Star (NGS) Tester must be used to diagnose DTCs 115, 125, 135, and 155 that cannot be cleared. These are faults typically associated with a failure in the communication link between the ATC control and other vehicle modules. It is rare that the cause of failure is the ATC control head. Follow the Pinpoint Test in the appropriate model/year Service Manual to diagnose a loss of communication to the ATC control.
- The following components and functions will never indicate faults through a self test:

NOTE:

THE FUNCTIONS AND COMPONENTS BELOW ARE NOT TESTED DURING A SELF TEST AND MUST BE DIAGNOSED USING THE PINPOINT TESTS.

- Any blower motor circuit or component failure
- Any vacuum circuit or component failure
- Any Cold Engine Lock Out (CELO) circuit or component failure.
- Some customer concerns may be due to normal operating strategies of the ATC system. Refer to the strategy summary that follows when you think you may have a concern of this type.

ATC STRATEGY SUMMARY	
Strategy	Normal Operation
1. CELO Operation	<p>Under cold or cool weather conditions with the ATC module set into full AUTO mode (without the fan being manually overridden), the module can react in the following ways, depending on the vehicle:</p> <ol style="list-style-type: none"> 1. Blower will be off for up to the first 3.5 minutes and then begin to ramp up. 2. Blower will be on low for up to the first 3.5 minutes (air will be directed to the defrost during this period) and then begin to ramp up. <p>These are normal operating strategies of the ATC system used to prevent the blowing of cold air on the customer when the engine has not yet warmed up. This operation can be overridden by manually adjusting the fan speed to a desired setting (this will not heat the vehicle any faster). This will override the fan control until "AUTO" is once again pressed and the control is returned to AUTOMATIC operation.</p>
2. Outside Temperature Update	<p>How quickly the outside temperature display updates depends heavily on whether the vehicle is moving or not. If the vehicle is not moving, the outside temperature display will increase slowly, sometimes taking as long as 20 minutes to rise 1°F.</p> <p>To quickly verify if the sensor is functioning, run the module's on-board diagnostics (as described in Section 2 above) and follow the clear codes procedure. This will cause the control to update the outside temperature quickly, without having to wait.</p> <p>Updating the outside temperature slowly when the vehicle is not moving prevents falsely reporting high temperatures due to high engine temperatures experienced when the vehicle is not moving.</p>
3. Effect of Sunload Sensors	<p>The sunload sensor circuit plays a small part in controlling the temperature in the vehicle. In most cases, the customer will experience little discomfort associated with the loss of the sunload sensor circuit. This circuit should not be serviced unless a fault code is recorded. If a fault code is recorded, follow the diagnostic procedures in Section 4 above and the appropriate model/year Service Manual Pinpoint Tests.</p>

ATC STRATEGY SUMMARY

Strategy	Normal Operation
4. Effect of Ambient Temperature Sensors	<p>The loss of an ambient temperature sensor can cause the ATC system to have a difficult time regulating the interior temperature in the vehicle. In addition, it can cause erroneous outside temperature displays (when the ATC cannot get a good outside temperature reading due to a fault in the ambient temperature sensor circuit, the display will read -40°C (-40°F) or 52.8°C (127°F) when the known outside temperature is not in this range).</p> <p>If these conditions occur, reset the outside temperature as described in Step 2 above. If no fault codes are recorded (associated with the ambient temperature sensor circuit) and the outside temperature resets to a known outside temperature, then the circuit is operational.</p> <p>If fault codes are recorded with the ambient temperature circuit and the display does not reset to a known outside temperature, then follow the appropriate model/year Service Manual Pinpoint Test.</p>

OTHER APPLICABLE ARTICLES: NONE

WARRANTY STATUS: INFORMATION ONLY

OASIS CODES: 204000, 204100, 208000, 208100, 208200, 208300, 208999
