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1973 FORD Mustang Convertible OEM Service and Repair Workshop Manual

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Start/Run/Move > Running > Overheats > Always	GO to Pinpoint Test KN
Start/Run/Move > Running > Overheats > Intermittent	GO to Pinpoint Test KN

Pinpoint Tests

PINPOINT TEST KN : VARIABLE SPEED ELECTRIC COOLING FAN MOTOR

Refer to Wiring Diagrams Cell 021for schematic and connector information.
Normal Operation and Fault Conditions Refer to the DTC (diagnostic trouble code) Fault Trigger Conditions. **DTC Fault Trigger Conditions**

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
PCM (powertrain control module) P0480:00	Fan 1 Control Circuit: No Sub Type Information	Sets if the PCM (powertrain control module) detects the voltage on the fan control variable (FCV) circuit is not within the expected range.

Possible Sources

- Cooling fan circuitry concern
- Cooling fan relay
- Cooling fan clutch solenoid
- Cooling fan module (8B658)
- Cooling fan assembly (8C607)
- PCM (powertrain control module) (12A650)

Pinpoint Test Steps available in the on-line Workshop Manual.

 E145674	UView® Combustion Leak Tester UVU560000-R

Diagnostic Trouble Code (DTC) Chart

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices.

REFER to: Diagnostic Methods

(100-00 General Information, Description and Operation).

Diagnostic Trouble Code Chart

Module	DTC (diagnostic trouble code)	Description	Action
PCM (powertrain control module)	P0125:00	Insufficient Coolant Temp For Closed Loop Fuel Control: No Sub Type Information	GO to Pinpoint Test C
PCM (powertrain control module)	P0128:00	Coolant Thermostat (Coolant Temp Below Thermostat Regulating Temperature): No Sub Type Information	GO to Pinpoint Test C
PCM (powertrain control module)	P01E4:00	Engine Coolant Temperature Sensor 3 Circuit Range/Performance: No Sub Type Information	GO to Pinpoint Test E
PCM (powertrain control module)	P01E5:00	Engine Coolant Temperature Sensor 3 Circuit Low: No Sub Type Information	GO to Pinpoint Test E
PCM (powertrain control module)	P01E6:00	Engine Coolant Temperature Sensor 3 Circuit High: No Sub Type Information	GO to Pinpoint Test E
PCM (powertrain control module)	P0217:00	Engine Coolant Overtemperature Condition: No Sub Type Information	GO to Pinpoint Test B

(100-00 General Information, Description and Operation).

Global Customer Symptom Code Chart

Customer Symptom	Action
Driver Aides & Information > Warning Indicators/Messages/Chimes > Coolant > Stays On	GO to Pinpoint Test A
Driver Aides & Information > Warning Indicators/Messages/Chimes > Coolant > Stays On	GO to Pinpoint Test B
Start/Run/Move > Fluids > Coolant > Consumption	GO to Pinpoint Test A
Start/Run/Move > Fluids > Coolant > Consumption	GO to Pinpoint Test B
Start/Run/Move > Fluids > Coolant > Visible Leak	GO to Pinpoint Test A
Start/Run/Move > Fluids > Coolant > Visible Leak	GO to Pinpoint Test B

Symptom Chart

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices.

REFER to: Diagnostic Methods

(100-00 General Information, Description and Operation).

Condition	Possible Sources	Actions
Loss of coolant	Refer to the Pinpoint Test	GO to Pinpoint Test A
The engine overheats.	Refer to the Pinpoint Test	GO to Pinpoint Test B
The engine does not reach normal operating temperature.	Refer to the Pinpoint Test	GO to Pinpoint Test C

- Turbocharger

WARNING

Always allow the engine to cool before opening the cooling system. Do not unscrew the coolant pressure relief cap when the engine is operating or the cooling system is hot. The cooling system is under pressure; steam and hot liquid can come out forcefully when the cap is loosened slightly. Failure to follow these instructions may result in serious personal injury.

A1 CHECK COMPONENTS FOR DAMAGE OR FAILURE

- Visually inspect the possible sources for obvious signs of physical damage or failure.

Are any concerns present?

Yes	REPAIR as needed.

No	GO to A2

A2 CHECK THE ENGINE COOLANT LEVEL AND PRESSURE TEST THE ENGINE COOLING SYSTEM

NOTE

Allow the engine to cool before checking the engine coolant level.

- Ignition OFF
- Visually inspect the engine coolant level at the degas bottle and adjust as necessary. Pressure test the engine cooling system. Refer to Component Tests, Cooling System Pressure Test in this section.

Does the engine cooling system leak externally?

Yes	REPAIR or INSTALL new components.

No	GO to A3

A3 CHECK THE ENGINE COOLANT FOR AN INTERNAL LEAK

No	GO to A6

A6 CHECK THE TRANSMISSION FLUID FOR ENGINE COOLANT

NOTE

Use UView® Combustion Leak Tester part number UVU560000-R or equivalent.

- Using a cooling system combustion gas leak tester, following the instructions supplied with the tester, check the coolant for combustion gases.

Are combustion gases present?

Yes	REFER to: Engine - Flex Fuel – Ethanol/Full Hybrid Electric Vehicle (FHEV)/Gasoline(303-00 Engine System - General Information, Diagnosis and Testing).
No	The cooling system is operational.

PINPOINT TEST B : THE ENGINE OVERHEATS

Normal Operation and Fault Conditions

The engine cooling system maintains the engine temperature during operation. Correct coolant flow through the engine, radiator and remainder of cooling system passages and components is essential to maintaining a correct engine temperature.

Engine coolant flows primarily from the engine to the radiator circuit and back to the coolant pump. Coolant is sent from the coolant pump through the engine block and cylinder head. A separate circuit from the engine also feeds the heater core with coolant. The coolant pump circulates the coolant. The coolant thermostat is a control valve actuated by coolant temperature. When the thermostat is closed, coolant flow bypasses the radiator circuit and returns to the coolant pump. When the thermostat is opened, coolant flows through the radiator circuit to transfer engine-generated heat to the outside air.

Engine overheating generally occurs when there is a disruption in the ability to control either coolant flow at the correct rate, the inability to transfer heat from the engine through the coolant (including low coolant) or an inability to transfer engine-generated heat to the outside air through the radiator.

DTC Fault Trigger Conditions

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
PCM (powertrain control module) P0217:00	Engine Coolant Overtemperature Condition: No Sub Type Information	Sets in the PCM (powertrain control module) when an engine overheat condition was sensed by the CHT (cylinder head temperature) sensor.

Is DTC (diagnostic trouble code) P0217 and/or P1299 present?

Yes	GO to B3

No	Actual engine overheating has not been verified. CHECK the engine coolant temperature gauge operation. REFER to: Instrumentation, Message Center and Warning Chimes (413-01 Instrumentation, Message Center and Warning Chimes, Diagnosis and Testing). If any other PCM (powertrain control module) DTCs are retrieved,

B3 CHECK FOR ACTIVE GRILL SHUTTER DTCS

- Review the PCM (powertrain control module) DTCs.

Are any active grill shutter DTCs present?

Yes	REFER to: Active Grille Shutter(501-02 Front End Body Panels, Diagnosis and Testing).

No	GO to B4

B4 CHECK FOR AN AIRFLOW OBSTRUCTION AND MISSING AIR DEFLECTORS

NOTE

Verify no vehicle front end damage is present.

- Check the radiator or A/C (air conditioning) condenser for an external obstruction such as leaves or cardboard and verify all air deflectors are present.

Is an airflow obstruction present or air deflectors missing?

Yes	REPAIR as necessary.

No	GO to B5

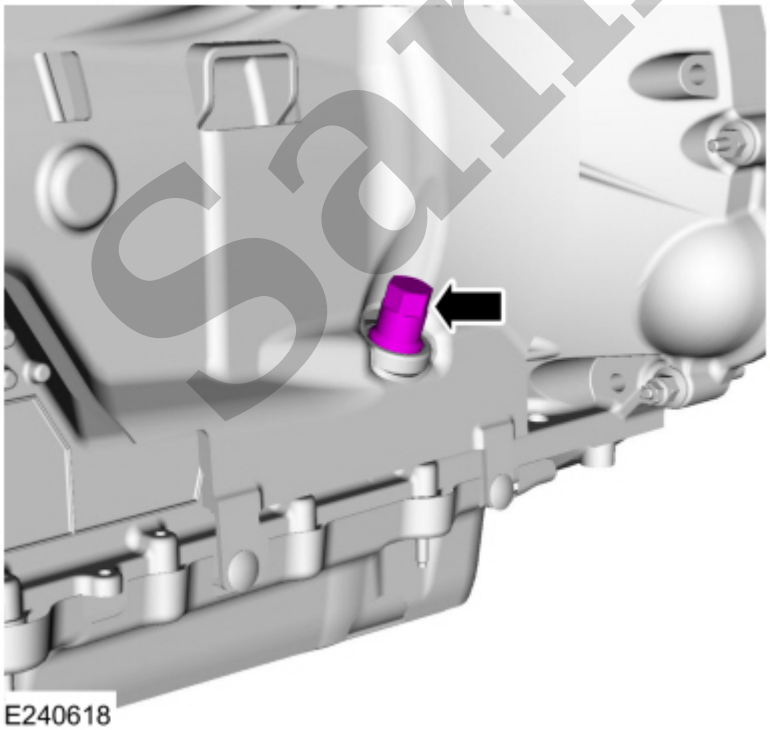
- Check the engine coolant in the degas bottle for signs of transmission fluid.

Is transmission fluid evident in the engine coolant?

Yes	INSTALL a new transmission fluid heat exchanger. REFER to: Transmission Fluid Heat Exchanger (307-02A Transmission Cooling - 10-Speed Automatic Transmission – 10R80, Removal and Installation). REPAIR the transmission as necessary.REFER to: Diagnosis By Symptom (307-01A Automatic Transmission - 10-Speed Automatic Transmission – 10R80, Diagnosis and Testing). TEST the system for normal operation.

No	GO to B9

B9 CHECK THE TRANSMISSION FLUID FOR ENGINE COOLANT

- Remove the transmission oil leveling plug.
- 

- Check the transmission fluid for engine coolant.

No	FLUSH the engine cooling system. REFER to: Engine Cooling System Flushing (303-03D Engine Cooling - 3.5L V6 PowerBoost (CN), General Procedures).

B12 CHECK THE ELECTRIC COOLING FAN OPERATION

- Start the engine.
- Place the climate control function selector in the MAX A/C position and the blower motor switch in the HI position.

Did the electric cooling fan operate?

Yes	GO to B13

No	DIAGNOSE the electric cooling fan operation. REFER to: Cooling Fan Control (303-03D Engine Cooling - 3.5L V6 PowerBoost (CN), Diagnosis and Testing).

B13 CHECK THE COOLANT PUMP OPERATION

- Start the engine.
- Allow the engine to run for 30 minutes. Place the climate control function selector in the MAX HEAT position. Feel the heater outlet hose.

Is the heater outlet hose hot?

Yes	GO to B14

No	INSTALL a new coolant pump. REFER to: Coolant Pump (303-03D Engine Cooling - 3.5L V6 PowerBoost (CN), Removal and Installation).

B14 CHECK THE THERMOSTAT OPERATION

NOTE