

# Active Grille Shutter



## DTC Chart: Powertrain Control Module (PCM)

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).

### Powertrain Control Module (PCM) DTC Chart

DTC	Description	Action
P059F	Active Grille Air Shutter "A" Performance / Stuck Off	<u>GO to Pinpoint Test A</u>
P05A1	Active Grille Air Shutter "A" Position Sensor Minimum / Maximum Stop Performance	<u>GO to Pinpoint Test A</u>
P05A2	Active Grille Air Shutter "A" Control Circuit / Open	INSTALL a new grille shutter actuator. REFER to: <u>Active Grille Shutter Actuator</u> (501-02 Front End Body Panels, Removal and Installation).
P05A7	Active Grille Air Shutter Control Module "A" Supply Voltage Circuit Low	<u>GO to Pinpoint Test A</u>

P05C0	Active Grille Air Shutter Module "A" Over Temperature	INSTALL a new grille shutter actuator. REFER to: <u>Active Grille Shutter Actuator</u> (501-02 Front End Body Panels, Removal and Installation).
U0046	Vehicle Communication Bus C	<u>GO to Pinpoint Test A</u>
U0284	Lost Communication With Active Grille Air Shutter Module "A"	<u>GO to Pinpoint Test A</u>
All other Diagnostic Trouble Codes (DTCs)	-	Refer to the appropriate section in Group 303 for the procedure.

## Symptom Chart(s)

### Symptom Chart: Active Grille Shutter

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).

### Symptom Chart

Condition	Possible Sources	Actions
The active grille shutter is inoperative or does not operate correctly	Refer to the Pinpoint Test	<u>GO to Pinpoint Test A</u>

## Pinpoint Test(s)

### The Active Grille Shutter is Inoperative or Does Not Operate Correctly

Refer to Wiring Diagrams Cell 33 for schematic and connector information.

### Normal Operation and Fault Conditions

REFER to: Active Grille Shutter - System Operation and Component Description (501-02 Front End Body Panels, Description and Operation).

## DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
P059F	Active Grille Air Shutter "A" Performance / Stuck Off	When the grille shutter actuator senses it is unable to move the grille shutter, it sends a message to the PCM via the LIN. The PCM sets this DTC when the fault is communicated for a predetermined amount of time.
P05A1	Active Grille Air Shutter "A" Position Sensor Minimum / Maximum Stop Performance	When the grille shutter actuator senses it is unable to obtain a fully open or closed position of the grille shutter, it sends a message to the PCM via the LIN. The PCM then sets the DTC when the fault is communicated for a predetermined amount of time.
P05A7	Active Grille Air Shutter Control Module "A" Supply Voltage Circuit Low	When the grille shutter actuator senses low voltage, it sends a message to the PCM via the LIN. The PCM sets this DTC when the fault is communicated for a predetermined amount of time.
U0046	Vehicle Communication Bus C	This DTC sets when the PCM detects a short to voltage, ground or open in the LIN.
U0284	Lost Communication With Active Grille Air Shutter Module "A"	When the PCM does not receive communication from the grille shutter actuator for a predetermined amount of time, the PCM sets this DTC.

### Possible Causes

- Fuse
- Wiring, terminals or connectors
- Grille shutter actuator
- Active grille shutter
- PCM

### Visual Inspection and Diagnostic Pre-checks

- Verify BJB fuse 42 (15A) is OK.

- Make sure the grille opening does not have any debris or other obstructions that inhibit operation of the grille shutter.
- Make sure the grille shutter actuator electrical connector is not disconnected.

**PINPOINT TEST A : THE ACTIVE GRILLE SHUTTER IS INOPERATIVE OR DOES NOT OPERATE CORRECTLY**

**A1 RETRIEVE THE PCM (POWERTRAIN CONTROL MODULE) DIAGNOSTIC TROUBLE CODES (DTCS)**

- Ignition ON.
- Using a diagnostic scan tool, perform PCM self-test.

**Is DTC DTC P05A7, U0046 or U0284 present?**

<b>Yes</b>	GO to <u>A2</u>
<b>No</b>	For DTC P059F or P05A1, GO to <u>A7</u> For all other PCM Diagnostic Trouble Codes (DTCs), Refer to the appropriate section in Group 303 for the procedure.

**A2 CHECK THE VOLTAGE SUPPLY TO THE GRILLE SHUTTER ACTUATOR**

- Ignition OFF.
- Disconnect: Grille Shutter Actuator C1651.
- Ignition ON.

**Is the voltage greater than 11 volts?**

<b>Yes</b>	GO to <u>A3</u>
<b>No</b>	VERIFY BJB fuse 42 (15A) is OK. If OK, REPAIR the circuit. If not OK, REFER to the Wiring Diagrams manual to identify the cause of the circuit short.

**A3 CHECK THE GRILLE SHUTTER ACTUATOR GROUND CIRCUIT FOR AN OPEN**

- Ignition OFF.

**Is the resistance less than 3 ohms?**

<b>Yes</b>	For DTC U0046 or U0284, GO to <u>A4</u> For DTC P05A7, GO to <u>A9</u>
<b>No</b>	REPAIR the circuit.

**A4 CHECK THE LIN (LOCAL INTERCONNECT NETWORK) CIRCUIT FOR AN OPEN**

- Ignition OFF.
- For vehicles with a 2.3L engine, disconnect: PCM C1551B.
- For vehicles with a 5.0L engine, disconnect: PCM C175B.
- For vehicles with a 5.0L engine, measure:

<b>Positive Lead</b>	<b>Measurement / Action</b>	<b>Negative Lead</b>
C1651-2	$\Omega$	C175B-11

**Is the resistance less than 3 ohms?**

<b>Yes</b>	GO to <u>A5</u>
<b>No</b>	REPAIR the circuit.

**A5 CHECK THE LIN (LOCAL INTERCONNECT NETWORK) CIRCUIT FOR A SHORT TO VOLTAGE**

- Ignition ON.

**Is any voltage present?**

<b>Yes</b>	REPAIR the circuit.
<b>No</b>	GO to <u>A6</u>

**A6 CHECK THE LIN (LOCAL INTERCONNECT NETWORK) CIRCUIT FOR A SHORT TO GROUND**

- Ignition OFF.

**Is the resistance greater than 10,000 ohms?**

<b>Yes</b>	For DTC U0046 or U0248, GO to <u>A10</u> For all other Diagnostic Trouble Codes (DTCs), GO to <u>A9</u>
<b>No</b>	REPAIR the circuit.

**A7 VERIFY THE GRILLE SHUTTER OPERATION USING THE GRILLE SHUTTER A POSITION - COMMANDED (GRILL\_A\_CMD) PARAMETER IDENTIFICATION (PID)**

- Start the engine and allow it to idle for at least 30 seconds to allow for the grille shutter calibration to complete.
- Using a diagnostic scan tool, view PCM Parameter Identifications (PIDs).
- Using a diagnostic scan tool, select the PCM GRILL\_A\_CMD Parameter Identification (PID) and active command the grille shutter from 100% (open) to 0% (closed) while observing the grille shutter operation from the front of the vehicle.

**Does the grille shutter fully open and close when commanded by the diagnostic scan tool?**

<b>Yes</b>	The grille shutter system is operating correctly at this time. The concern may have been caused by debris/obstruction or the grille shutter actuator electrical connector. INSPECT the electrical connector and REPAIR or REPLACE as necessary.
<b>No</b>	GO to <u>A8</u>

## A8 CHECK THE GRILLE SHUTTER FOR OBSTRUCTIONS AND/OR MECHANICAL BINDING CONCERNS

- Ignition OFF.
- Remove the grille shutter actuator.
- Manually open and close the grille shutter, removing any obstructions which can inhibit operation of the grille shutter or linkage. The grille shutter should open and close easily with no binding.

**Does the grille shutter operate freely with no binding or obstruction?**

<b>Yes</b>	GO to <u>A9</u>
<b>No</b>	REPAIR the binding/obstruction, or if necessary, INSTALL a new grille shutter assembly. REFER to: <u>Active Grille Shutter</u> (501-02 Front End Body Panels, Removal and Installation).

## A9 CHECK FOR CORRECT GRILLE SHUTTER ACTUATOR OPERATION

- Ignition OFF.
- Disconnect: Grille Shutter Actuator C1651 (if not previously disconnected).
- Inspect the grille shutter actuator electrical connector and jumper harness.
- Repair:
  - corrosion (install new connector or terminals - clean module pins)
  - damaged or bent pins - install new terminals/pins as necessary
  - pushed-out pins - install new pins as necessary
- Reconnect the grille shutter actuator connector, jumper harness and all previously disconnected system connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.


**Is the concern still present?**

<b>Yes</b>	CHECK OASIS for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new grille shutter actuator. REFER to: <u>Active Grille Shutter Actuator</u> (501-02 Front End Body Panels, Removal and Installation).
<b>No</b>	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.

## A10 CHECK FOR THE CORRECT GRILLE SHUTTER ACTUATOR OPERATION

- Inspect the grille shutter actuator and PCM electrical connectors.
- Repair:
  - corrosion (install new connector or terminals - clean module pins)
  - damaged or bent pins - install new terminals/pins as necessary
  - pushed-out pins - install new pins as necessary
- Reconnect the grille shutter actuator connector, jumper harness and all previously disconnected system connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

### Is the concern still present?

<b>Yes</b>	CHECK OASIS for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new grille shutter actuator. REFER to: <u>Active Grille Shutter Actuator</u> (501-02 Front End Body Panels, Removal and Installation). CLEAR the Diagnostic Trouble Codes (DTCs). REPEAT the self-test. If the concern is still present,   <u><a href="#">Click here to access Guided Routine (PCM)</a></u> .
<b>No</b>	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.