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2004 FORD Crown Victoria OEM Service and Repair Workshop Manual

Go to manual page

- Check condition of belt line seal

Was any concern found?

Yes	Replace the belt line seal.
No	The system is operating correctly at this time. Inspect the vehicle for other symptoms.

PINPOINT TEST E : ROAD NOISE AND LEAKS AT FLOOR PAN AND GROMMETS

Normal Operation and Fault Conditions

REFER to: Body - Overview(501-00 Body System - General Information, Description and Operation).

Possible Sources

- Plugs or grommets
- Mastic insulator or body insulators

E1 CHECK FOR MISSING, DAMAGED OR INCORRECTLY INSTALLED PLUGS OR GROMMETS

- Check for missing, damaged or incorrectly installed plugs or grommets.

Was any concern found?

Yes	Remove and reinstall the plugs/grommets correctly. Replace components as necessary.
No	GO to E2

E2 CHECK FOR MISSING MASTIC INSULATORS OR BODY INSULATORS

- Check for missing mastic or body insulators.

Are the mastic or body insulators missing?

Yes	Replace the mastic or body insulators.
No	The system is operating correctly at this time. Inspect the vehicle for other symptoms.

- Check for buzzing sound from instrument panel components.

Was any concern found?

Yes	Secure and fasten the components as necessary. Use foam or felt to eliminate the noise.
No	The system is operating correctly at this time. Inspect the vehicle for other symptoms.

PINPOINT TEST G : WATER COLLECTING IN DOORS

Normal Operation and Fault Conditions

REFER to: Body - Overview(501-00 Body System - General Information, Description and Operation).

Possible Sources

- Clogged door drains

G1 CHECK FOR CLOGGED DOOR DRAINS

- Check whether door drains are clogged with foreign material.

Are door drains blocked or clogged?

Yes	Using a punch or screwdriver, remove the blockage.
No	The system is operating correctly at this time. Inspect the vehicle for other symptoms.

PINPOINT TEST H : WIND NOISE FROM EXTERIOR REAR VIEW MIRROR

Normal Operation and Fault Conditions

REFER to: Body - Overview(501-00 Body System - General Information, Description and Operation).

Possible Sources

- Exterior rear view mirror misalignment
- Folded or misaligned mirror sail gasket
- Mirror housing trim caps for incorrect installation

H1 CHECK EXTERIOR REAR VIEW MIRROR MISALIGNMENT

- Broken exterior rear view mirror components
- Aftermarket components installed on the vehicle

I1 CHECK FOR LOOSE EXTERIOR REAR VIEW MIRROR MOUNTING BOLTS

- Check for loose exterior rear view mirror mounting bolts.

Are the exterior rear view mirror mounting bolts loose?

Yes	Tighten the exterior rear view mirror mounting bolts.
No	GO to I2

I2 CHECK FOR BROKEN EXTERIOR REAR VIEW MIRROR COMPONENTS

- Check for broken exterior rear view mirror components.

Are the exterior rear view mirror mounting components broken?

Yes	Replace the broken exterior rear view mirror mounting components as required.
No	GO to I3

I3 CHECK FOR AFTERMARKET COMPONENTS INSTALLED ON THE VEHICLE

- Check aftermarket components installed on the vehicle

Are there any aftermarket components installed?

Yes	Ford recommends using genuine Ford approved components to be installed on vehicle. Check vehicle for noise without the aftermarket components if possible.
No	The system is operating correctly at this time. Inspect the vehicle for other symptoms.

PINPOINT TEST J : WIND NOISE CREATED BY AIRFLOW OVER OR BEHIND BODY PANELS

No	The system is operating correctly at this time. Inspect the vehicle for other symptoms.

Dust and Water Leaks

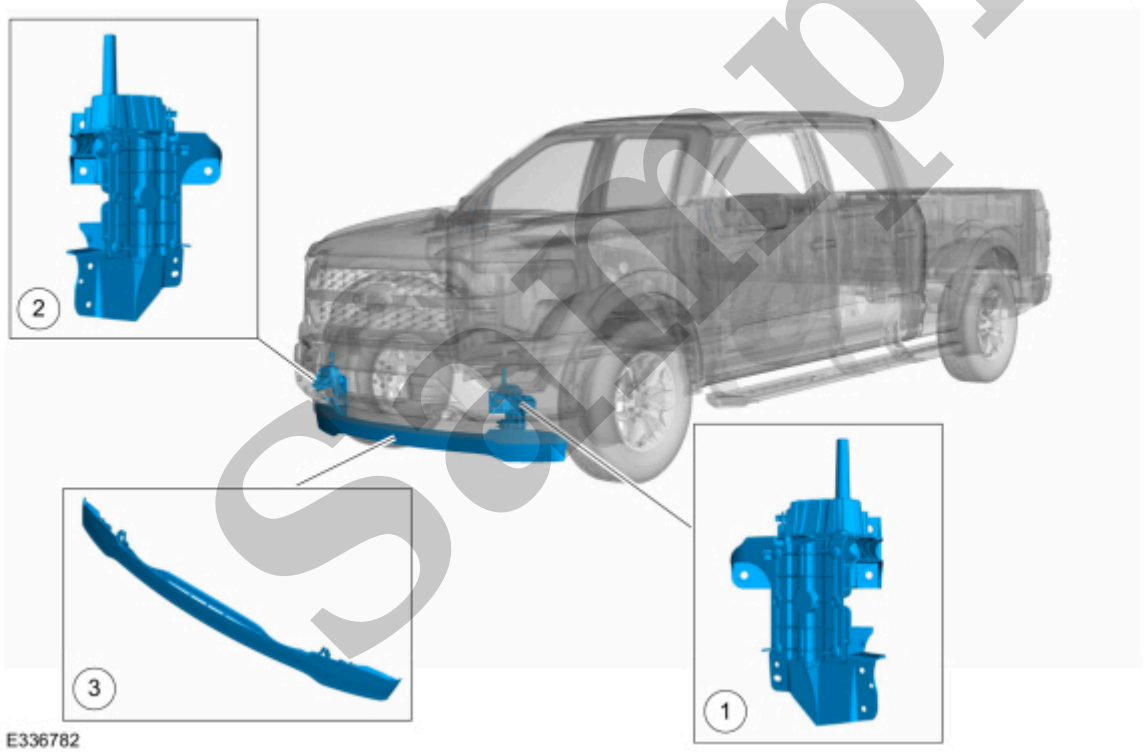
Most dust and water leaks occur due to missing or incorrectly installed body sealer or components. The source of the leak is detected by:

- pressurizing the vehicle and testing with soapy water.
  - Locate and tape off the body vents.
  - Turn the blower motor to HI.
  - Turn the air recirculation OFF.
  - Close the windows and doors.
  - Open the hood and spray soapy water along body seams and grommets. Make sure to test the areas around the A-pillar at the fender and the hood hinge area.
  - Check for bubbles.
- inspecting for a dust pattern or water path near and above the area in question.
- removing any trim or carpet in the general area of the leak.
- road testing or water-hose testing the vehicle.
- placing a bright light under the vehicle, removing any necessary trim or carpet and inspecting the interior of the body at joints and weld lines.

Active Air Dam (AAD) - Component Location

501-19 Bumpers	***2022 F-150***
Description and Operation	***Procedure revision date: 10/2/2020***

Active Air Dam (AAD) - Component Location

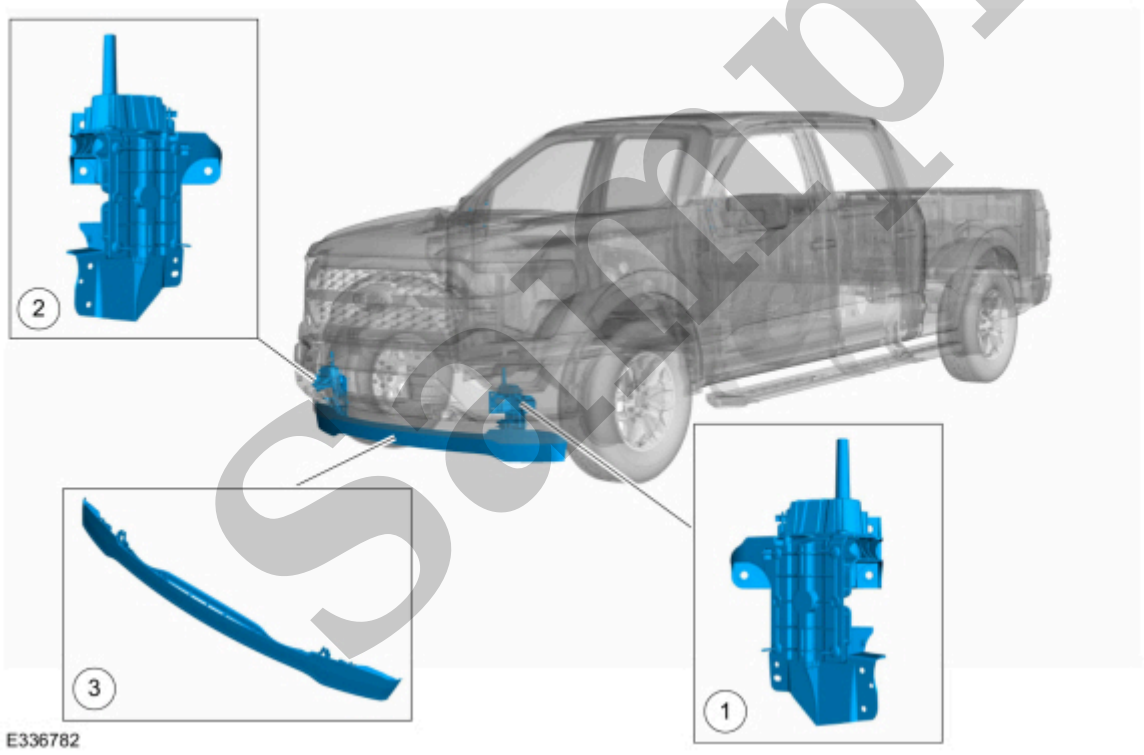


Item	Description
1	LH (left-hand) AAD (active air dam) Actuator
2	RH (right-hand) AAD (active air dam) Actuator

Active Air Dam (AAD) - Electric - Component Location

501-19 Bumpers	***2022 F-150***
Description and Operation	***Procedure revision date: 04/25/2022***

Active Air Dam (AAD) - Electric - Component Location



Item	Description
1	LH (left-hand) AAD (active air dam) Actuator
2	RH (right-hand) AAD (active air dam) Actuator

Active Air Dam (AAD) - Electric - Overview

501-19 Bumpers	***2022 F-150***
Description and Operation	***Procedure revision date: 03/28/2022***

Active Air Dam (AAD) - Electric - Overview

Overview

The AAD (active air dam) is a mechatronic system consisting of a AAD (active air dam) blade (plastic spoiler plate), dual electrical motors working in tandem, and associated driving linkage, which are all integral to the front bumper assembly. It is used to reduce aerodynamic drag on the vehicle while it is in motion.

The AAD (active air dam) blade articulates up and down, primarily based on vehicle speed. It is lowered (extended) for aerodynamic drag reduction and fuel economy savings and raised (retracted) during some driving conditions to protect the part from physical damage due to debris and/or rough terrain. It should be fully retracted when vehicle is stationary. AAD (active air dam) system receives its position commands from the PCM (powertrain control module) , via the LIN (local interconnect network) .

The AAD (active air dam) system must complete up/down end stop learning (self-calibration) every power up, in order to correctly interpret position commands and achieve the desired position. It initiates this self-calibration sequence whenever the vehicle is started, fully retracting while the vehicle is stopped. It will not complete the self-calibration sequence until the AAD (active air dam) blade is fully extended, which will only happen when the vehicle is moving at 72 kph (45 mph) or greater for 15 seconds, before being positioned to the desired opening position, as requested by the PCM (powertrain control module) .

A vehicle may or may not be fitted with an AAD (active air dam) hardware system, depending on vehicle type, target market, front end packaging and underhood/powertrain hardware components installed.

1	PCM (powertrain control module)
2	ABS (anti-lock brake system)
3	RH (right-hand) AAD (active air dam) Actuator
4	LH (left-hand) AAD (active air dam) Actuator

System Operation

Network Message Chart

PCM (powertrain control module) Network Input Messages

Broadcast Message	Originating Module	Message Purpose
Vehicle speed	ABS (anti-lock brake system) module	Vehicle speed is used to determine positioning of the active air dam.

Component Description

AAD (active air dam)

The AAD (active air dam) system consists of two AAD (active air dam) actuators, a AAD (active air dam) blade (plastic spoiler plate), and mechatronic linkage components connecting the actuators to the AAD (active air dam) blade. The position the AAD (active air dam) blade is determined by commands from the PCM (powertrain control module) . The AAD (active air dam) drive linkage mechanism connects the two AAD (active air dam) actuators and the AAD (active air dam) blade via individual screw-drives, which are fastened to the base of the bumper. The AAD (active air dam) blade moves in a vertical plane, from fully retracted (up) to fully extended (down) and, based on the position commanded by the PCM (powertrain control module) , is set in 1 of 11 positions, from 0 to 100 percent (approximately 10 percent of full movement range between positions).

After ignition is ON, a self-calibration of the AAD (active air dam) system commences with the AAD (active air dam) blade moving to the fully retracted or “home position” (0 percent) to learn its fully up position.

The AAD (active air dam) blade remains in the fully up position until the vehicle speed exceeds approximately 72 km/h (45 mph) continuously for approximately 15 seconds. When this condition is met, the AAD (active air dam) blade will extend fully down (100 percent) and if there are no system faults, the fully down position will be learned. If the end stop learning is successful, the AAD (active air dam) blade may be commanded to any one of the position steps, 0-100 percent. When the vehicle speed decreases below approximately 62 km/h (39 mph), the AAD (active air dam) blade will fully retract to the “home position”.

Active Air Dam (AAD) - Overview

501-19 Bumpers	***2022 F-150***
Description and Operation	***Procedure revision date: 10/2/2020***

Active Air Dam (AAD) - Overview

Overview

The AAD (active air dam) is a mechatronic system consisting of a AAD (active air dam) blade (plastic spoiler plate), dual electrical motors working in tandem, and associated driving linkage, which are all integral to the front bumper assembly. It is used to improve fuel economy by reducing aerodynamic drag on the vehicle while it is in motion.

The AAD (active air dam) blade articulates up and down, primarily based on vehicle speed. It is lowered (extended) for aerodynamic drag reduction and fuel economy savings and raised (retracted) during some driving conditions to protect the part from physical damage due to debris and/or rough terrain. It should be fully retracted when vehicle is stationary. AAD (active air dam) system receives its position commands from the PCM (powertrain control module) , via the LIN (local interconnect network) .

The AAD (active air dam) system must complete up/down end stop learning (self-calibration) every power up, in order to correctly interpret position commands and achieve the desired position. It initiates this self-calibration sequence whenever the engine is started, fully retracting while the vehicle is stopped. It will not complete the self-calibration sequence until the AAD (active air dam) blade is fully extended, which will only happen when the vehicle is moving at 72 kph (45 mph) or greater for 15 seconds, before being positioned to the desired opening position, as requested by the PCM (powertrain control module) .

A vehicle may or may not be fitted with an AAD (active air dam) hardware system, depending on vehicle type, target market, front end packaging and underhood/powertrain hardware components installed.