

SECTION 206-05: Parking Brake and Actuation
DIAGNOSIS AND TESTING

2014 F-150 Workshop Manual
Procedure revision date: 10/25/2013

Parking Brake

Principles of Operation

Parking Brake System

The parking brake system is an independent, cable-actuated system controlled by an foot-operated parking brake control that is self adjusting. The parking brake control applies tension to the front parking brake cable and conduit. The front parking brake cable is coupled to the LH rear parking brake cable and conduit which is coupled to the RH rear parking brake cable. The parking brake cable and conduits actuate the parking brake levers, engaging the parking brake shoes with the parking brake drum-in-hat assembly. The system is returned to the released position by pulling the parking brake control release handle. Springs in the parking brake system apply the necessary force to return the system to the unapplied position. The parking brake warning indicator is located in the instrument cluster. It illuminates to signal the driver that the parking brake is applied or to signal a low brake fluid condition. The warning indicator system is diagnosed in [Section 413-01](#).

Inspection and Verification

NOTE: Prior to carrying out any diagnosis, make sure the red brake warning indicator is functional. Refer to [Section 413-01](#).

The first indication that something may be wrong in the brake system is a change in the feeling through the parking brake control. The parking brake not holding on an incline or dragging after being released are also indicators of system concerns.

Check the operation of the parking brake system with the vehicle on a hoist and the parking brake control fully released. Check for any damaged cables and install new components as necessary. Check the rear brake adjustment or carry out the brake system diagnosis.

1. Verify the customer concern.
2. Visually inspect for obvious signs of mechanical damage.

Visual Inspection Chart

Mechanical
• Parking brake cable(s) • Parking brake control • Parking brake control release handle • Parking brake shoes and hardware

3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.
4. If the cause is not visually evident, verify the symptom and GO to [Symptom Chart](#).

Symptom Chart

Symptom Chart

Condition	Possible Sources	Action
The red brake warning indicator is always/never on	- Brake fluid level switch - Parking brake switch - Wiring, terminals or connectors - Instrument cluster - Smart Junction Box (SJB) - Vacuum sensor	REFER to Diagnosis and Testing in Section 413-01.
The parking brake does not apply	- Parking brake cable(s) - Parking brake control - Parking brake shoes and hardware	GO to Pinpoint Test A.
The parking brake does not release and/or parking brake shoes drag	- Parking brake cable(s) - Parking brake control - Parking brake shoes and hardware	GO to Pinpoint Test B.

Pinpoint Tests

Pinpoint Test A: The Parking Brake Does Not Apply

Normal Operation

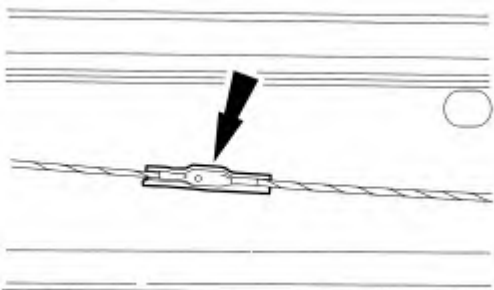
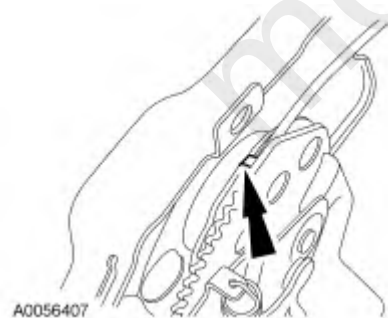
When the parking brake control is pressed, tension is applied to the front parking brake cable. This tension pulls on the RH rear parking brake cable, which is attached to the RH rear parking brake shoe actuator and applies the RH rear brake shoes. At the same time, the tension in the RH rear cable causes the RH rear conduit to attempt to straighten out. This straightening effect causes the RH rear conduit to pull on the LH rear parking brake cable, which is attached to the LH rear parking brake shoe actuator and applies the LH rear brake shoes.

This pinpoint test is intended to diagnose the following:

- Parking brake cable(s)
- Parking brake control
- Parking brake shoes and hardware

PINPOINT TEST A: THE PARKING BRAKE DOES NOT APPLY

Test Step	Result / Action to Take
A1 CHECK THE PARKING BRAKE CONTROL	
• Press the parking brake control pedal. • Does the parking brake control pedal move?	Yes GO to A2. No GO to A5.
A2 CHECK FOR BROKEN CABLES	
• Have an assistant press and release the parking brake pedal to help isolate disconnected cables or cables that do not move. • Inspect the following items for damage and correct connections. ■ Front cable and conduit ■ LH rear cable and conduit ■ RH rear cable and conduit ■ Rear cable brackets • Are the cables in good condition?	Yes GO to A3. No CONNECT the cable(s) or INSTALL new parking brake component(s) as necessary. TEST the system for normal operation.
A3 CHECK THE PARKING BRAKE SHOES, ACTUATOR LEVERS AND HARDWARE	
• Remove the rear brake disc, refer to Section 206-04. Inspect the parking brake shoes, actuator levers and hardware. • Are the parking brake shoes, actuator levers and hardware in good condition?	Yes GO to A4. No INSTALL new components as necessary. REFER to Parking Brake Shoes in this section. TEST the system for normal operation.
A4 CHECK THE PARKING BRAKE SHOE ADJUSTMENT	
• Check the parking brake shoe adjustment. Refer to Parking Brake Shoe Adjustment in this section. • Are the parking brake shoes adjusted to specification?	Yes INSTALL a new parking brake control. REFER to Parking Brake Control in this section. TEST the system for normal operation. No ADJUST the rear parking brake shoes. REFER to Parking Brake Shoe Adjustment in this section.
A5 ISOLATE THE PARKING BRAKE CONTROL AND FRONT PARKING BRAKE CABLE	
• Disconnect the front parking brake cable from the RH rear parking brake cable at the cable union.	Yes GO to A6. No

 N0002007 • Press the parking brake control pedal. • Does the parking brake control pedal move?	GO to A7.
A6 ISOLATE THE REAR PARKING BRAKE CABLES • Disconnect the LH cable from the RH conduit equalizer. • Disconnect the rear parking brake cables from the parking brake actuating levers. • While holding the cable conduit, attempt to slide the cable inside the conduit. • Does the cable slide freely inside the conduit?	Yes INSPECT the parking brake shoes, hardware and backing plate. INSTALL new components as necessary. REFER to Parking Brake Shoes in this section. TEST the system for normal operation. No INSTALL new rear brake cable(s). REFER to Parking Brake Cable — Rear, LH or Parking Brake Cable — Rear, RH in this section. TEST the system for normal operation.
A7 ISOLATE THE FRONT PARKING BRAKE CABLE • NOTE: The parking brake control take-up spool tab may need to be bent aside to allow the cable to be removed. • Disconnect the front parking brake cable and conduit from the parking brake control.  A0056407 • While holding the cable conduit, attempt to slide the cable inside the conduit. • Does the cable slide freely inside the conduit?	Yes INSTALL a new parking brake control. REFER to Parking Brake Control in this section. TEST the system for normal operation. No INSTALL a new front parking brake cable. REFER to Parking Brake Cable — Front in this section. TEST the system for normal operation.

Pinpoint Test B: The Parking Brake Does Not Release and/or Parking Brake Shoes Drag

Normal Operation

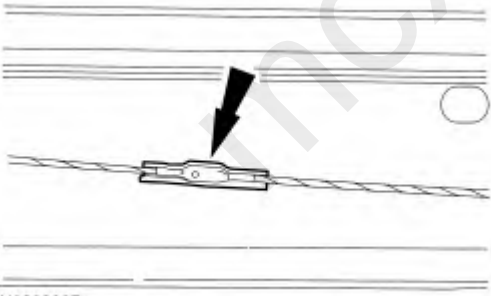
When the parking brake release handle is pulled, the ratchet mechanism and return spring in the parking

brake control release the tension on the parking brake cables and conduits. The cable conduits, cable springs and parking brake shoe springs provide the force necessary to return the parking brake system to the released position.

This pinpoint test is intended to diagnose the following:

- Parking brake cable(s)
- Parking brake control
- Parking brake control release handle
- Parking brake shoe actuators
- Parking brake shoes and hardware

PINPOINT TEST B: THE PARKING BRAKE DOES NOT RELEASE AND/OR PARKING BRAKE SHOES DRAG

Test Step	Result / Action to Take
B1 CHECK THE PARKING BRAKE CONTROL RELEASE HANDLE AND CABLE	
• Verify that the release handle and cable are connected to the parking brake control. • Are the release handle and cable connected?	Yes GO to B2. No CONNECT the handle and cable. TEST the system for normal operation.
B2 CHECK THE REAR PARKING BRAKE CABLES	
• Disconnect the LH cable from the RH conduit equalizer. • Disconnect the front parking brake cable from the RH rear parking brake cable at the cable union.  N0002007 • Disconnect the rear parking brake cables from the parking brake actuating levers. • While holding the rear cable conduit, attempt to slide the rear cable inside the conduit. • Does the cable slide freely inside the conduit?	Yes GO to B3. No INSTALL new rear brake cable(s). REFER to Parking Brake Cable — Rear, LH or Parking Brake Cable — Rear, RH in this section. TEST the system for normal operation.
B3 CHECK THE REAR PARKING BRAKE SHOES AND HARDWARE	
• Remove the rear brake disc. Refer to Section 206-04. • Inspect the parking brake shoes, hardware and backing plate. • Are the shoes, hardware and backing plate in good condition?	Yes GO to B4. No INSTALL new components as

	necessary. REFER to Parking Brake Shoes in this section. TEST the system for normal operation.
B4 ISOLATE THE FRONT PARKING BRAKE CABLE • NOTE: The parking brake control take-up spool tab may need to be bent aside to allow the cable to be removed. • Disconnect the front parking brake cable and conduit from the parking brake control.  A0056407 • While holding the cable conduit, attempt to slide the cable inside the conduit. • Does the cable slide freely inside the conduit?	Yes INSTALL a new parking brake control. REFER to Parking Brake Control in this section. TEST the system for normal operation. No INSTALL a new front cable. TEST the system for normal operation.