

|            |                                                                                                                                                                                                                                                                                       |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Yes</b> | CHECK OASIS for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, INSTALL a new EPB module. REFER to: Parking Brake Module . |
| <b>No</b>  | The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.                                                                                                             |

## DIAGNOSIS AND TESTING > PARKING BRAKE > PINPOINT TESTS > PINPOINT TEST D : C2005:77, C2006:77

Refer to Vehicle Dynamic Systems for schematic and connector information.

### Normal Operation and Fault Conditions

When the EPB module receives a parking brake apply or release request, the EPB module sends voltage to the parking brake actuator motors. The EPB module also monitors the current draw of the actuator motors to determine when the brake pads contact the brake disc, to determine when the appropriate amount of clamping force is being applied to the brake disc and to determine when the brake pads are retracted to their start position.

### DTC Fault Trigger Conditions

| DTC      | Description                                      | Fault Trigger Conditions                                                                                         |
|----------|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| C2005:77 | Right Actuator: Commanded Position Not Reachable | This DTC sets in continuous memory if during an apply command, the EPB module detects an irregular current draw. |
| C2006:77 | Left Actuator: Commanded Position Not Reachable  | This DTC sets in continuous memory if during an apply command, the EPB module detects an irregular current draw. |

### Possible Sources

- Battery or charging system
- Wiring, terminals or connectors
- Parking brake actuator motor

## DIAGNOSIS AND TESTING > PARKING BRAKE > PINPOINT TESTS > PINPOINT TEST D : C2005:77, C2006:77 > PINPOINT TEST D : C2005:77, C2006:77

D1 CHECK FOR OTHER EPB (ELECTRIC PARKING BRAKE) MODULE DIAGNOSTIC TROUBLE CODES (DTCS)

Ignition ON.

Using a diagnostic scan tool, carry out the EPB module self-test.

**Is DTC U3003:16 present?**

|            |                       |
|------------|-----------------------|
| <b>Yes</b> | GO to Pinpoint Test A |
|------------|-----------------------|

|           |                                                                                                                                                                            |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>No</b> | If DTC C2005:77 or C2006:77 is present, GO to D2<br>For all other EPB module Diagnostic Trouble Codes (DTCs), GO to the DTC Chart: Electronic Parking Brake (EPB) Module . |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**D2 CHECK THE ACTUATOR MOTOR CIRCUITS FOR A SHORT TO GROUND**

Ignition OFF.

Disconnect EPB module C3675 .

Disconnect the suspect parking brake actuator motor, C4478 (LH) or C4479 (RH).

For the LH actuator motor, measure:

| Positive Lead | Measurement / Action | Negative Lead |
|---------------|----------------------|---------------|
| C4478-1       | $\Omega$             | Ground        |
| C4478-2       | $\Omega$             | Ground        |

For the RH actuator motor, measure:

| Positive Lead | Measurement / Action | Negative Lead |
|---------------|----------------------|---------------|
| C4479-1       | $\Omega$             | Ground        |
| C4479-2       | $\Omega$             | Ground        |

**Are the resistances greater than 10, 000 ohms?**

|            |          |
|------------|----------|
| <b>Yes</b> | GO to D3 |
|------------|----------|

|           |                     |
|-----------|---------------------|
| <b>No</b> | REPAIR the circuit. |
|-----------|---------------------|

**D3 CHECK THE ACTUATOR MOTOR CIRCUITS FOR A SHORT TOGETHER**

For the LH actuator motor, measure:

| Positive Lead | Measurement / Action | Negative Lead |
|---------------|----------------------|---------------|
| C4478-1       | $\Omega$             | C4478-2       |

For the RH actuator motor, measure:

| Positive Lead | Measurement / Action | Negative Lead |
|---------------|----------------------|---------------|
| C4479-1       | $\Omega$             | C4479-2       |

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

|            |          |
|------------|----------|
| <b>Yes</b> | GO to D4 |
|------------|----------|

|           |                     |
|-----------|---------------------|
| <b>No</b> | REPAIR the circuit. |
|-----------|---------------------|

**D4 CHECK THE ACTUATOR MOTOR CIRCUITS FOR AN OPEN**

For the LH actuator motor, measure:

| Positive Lead | Measurement / Action | Negative Lead |
|---------------|----------------------|---------------|
| C4478-1       | $\Omega$             | C3675-29      |
| C4478-2       | $\Omega$             | C3675-14      |

For the RH actuator motor, measure:

| Positive Lead | Measurement / Action | Negative Lead |
|---------------|----------------------|---------------|
| C4479-1       | $\Omega$             | C3675-27      |
| C4479-2       | $\Omega$             | C3675-12      |

**Are the resistances less than 3 ohms?**

|            |          |
|------------|----------|
| <b>Yes</b> | GO to D5 |
|------------|----------|

|           |                     |
|-----------|---------------------|
| <b>No</b> | REPAIR the circuit. |
|-----------|---------------------|

**D5 CHECK THE ACTUATOR MOTOR CIRCUITS FOR A SHORT TO VOLTAGE**



*NOTE: Performing this step sets Diagnostic Trouble Codes (DTCs) in the EPB module.*

Ignition ON.

For the LH actuator motor, measure:

| Positive Lead | Measurement / Action                                                                | Negative Lead |
|---------------|-------------------------------------------------------------------------------------|---------------|
| C4478-1       |  | Ground        |

|         |                                                                                   |        |
|---------|-----------------------------------------------------------------------------------|--------|
| C4478-2 |  | Ground |
|---------|-----------------------------------------------------------------------------------|--------|

For the RH actuator motor, measure:

| Positive Lead | Measurement / Action                                                              | Negative Lead |
|---------------|-----------------------------------------------------------------------------------|---------------|
| C4479-1       |  | Ground        |
| C4479-2       |  | Ground        |

**Is any voltage present?**

|            |                     |
|------------|---------------------|
| <b>Yes</b> | REPAIR the circuit. |
| <b>No</b>  | GO to D6            |

#### D6 VERIFY ALL WIRING CONNECTIONS

Ignition OFF.

Disconnect EPB module C3675 (if not previously disconnected).

Disconnect all in-line electrical connectors between the EPB module and the suspect parking brake actuator motor.

Using a good light source, inspect EPB module C3675 , the suspect parking brake actuator motor connector and all related in-line connectors for the following:

corrosion - install new connector or terminal and clean the module pins

damaged or bent pins - install new terminals or pins

pushed-out pins - install new pins as necessary

spread terminals - install new terminals as necessary

**Are the connectors free of corrosion, damaged pins, bent pins, pushed-out pins and spread terminals?**

|            |                                                                                                                  |
|------------|------------------------------------------------------------------------------------------------------------------|
| <b>Yes</b> | GO to D7                                                                                                         |
| <b>No</b>  | REPAIR the connector or terminals. Refer to Connector Repair Procedures for schematic and connector information. |

#### D7 INSPECT THE ACTUATOR MOTOR FOR EVIDENCE OF BRAKE FLUID OR WATER LEAKS

Remove the parking brake actuator motor. REFER to: Parking Brake Actuator Motor .

Inspect the actuator motor and brake caliper for evidence of brake fluid leaks or water egress.