

2012.0 XJ RANGE (X351), 206-05

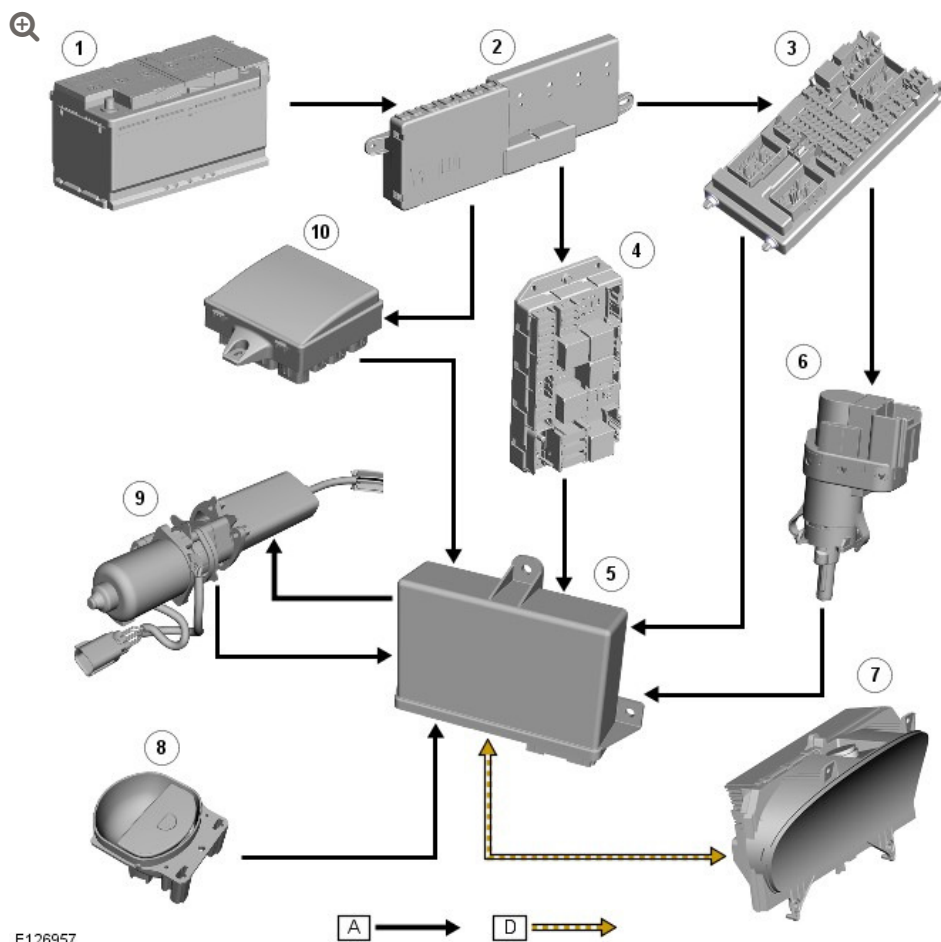
PARKING BRAKE AND ACTUATION
PARKING BRAKE - SYSTEM
OPERATION AND
COMPONENT
DESCRIPTION [G1188027]

DESCRIPTION AND OPERATION

CONTROL DIAGRAM

NOTE:

A = Hardwired; D = High speed CAN (controller area network)
bus.



E126957

ITEM	DESCRIPTION
1	Battery
2	BJB (battery junction box)
3	CJB (central junction box)
4	RJB (rear junction box)
5	EPB (electronic parking brake) module
6	Stoplamp switch
7	Instrument cluster
8	Parking brake switch
9	Parking brake actuator
10	EJB (engine junction box)

SYSTEM OPERATION

STATIC APPLY

The EPB module receives a vehicle speed signal from the ABS (anti-lock brake system) module on the high speed CAN bus. If the parking brake switch is pulled to the apply position and vehicle speed is less than 2 mph (3 km/h), the EPB module will instigate the static apply mode and drive the actuator to apply full parking brake force to the rear wheels.

The EPB module monitors the current drawn by the actuator and compares this to information held within its configuration software to determine when full braking force has been applied.

DYNAMIC APPLY

There are two dynamic apply modes; low speed dynamic and high speed dynamic. The low speed dynamic mode operates at speeds between 2 and 20 mph (3 and 32 km/h). The high speed dynamic mode operates at speeds above 20 mph (32 km/h).

If the parking brake switch is pulled up to the apply position and vehicle speed is within the low speed dynamic range, the EPB module drives the actuator to apply full parking brake force to the rear wheels.

If the parking brake switch is pulled up to the apply position and vehicle speed is within the high speed dynamic range, the EPB module will apply braking force to the rear wheels at a slower rate until full braking load is reached or the switch is released. The rate with which braking force is applied is controlled by the EPB module, which monitors both current drawn by the actuator and positional information from the actuator hall sensor and compares this to information held within its configuration software.

DRIVE AWAY RELEASE

The EPB module will initiate a drive away release function and automatically release the parking brake if the following conditions are detected:

- The engine is running.
- Drive or reverse is selected.
- Positive throttle movement is detected.

The EPB module receives messages of gear selector position and throttle angle over the high speed CAN bus from the TCM (transmission control module) and the ECM (engine control module) respectively.

RELEASE FROM PARK

The EPB module will initiate the release from park function and automatically release the parking brake if the gear selector is moved from P (park).

REPAIRS

Before carrying out any work on the parking brake system, use Jaguar approved diagnostic equipment to perform the service routine to release cable tension. The routine can be found in the vehicle configuration area, under the set-up and configuration menu. After any work has been carried out on the parking brake, the system will require resetting.

CAUTION:

Do not use the emergency release tool to allow work to be carried out on the parking brake. Work can only be carried out on the parking brake system after the service routine to release cable tension has been run.

RESETTING

If the electrical supply is disconnected from the EPB module, the position memory will be lost. On battery re-connection and ignition on, Apply Foot And Park Brake will be displayed in the instrument cluster message center indicating the parking brake requires resetting. Refer to: [Parking Brake](#) (206-05 Parking Brake and Actuation, Diagnosis and Testing).

OPERATING VOLTAGES

The EPB module will only operate the actuator if the power supply from the battery is between 9 and 16 V. At any voltage within this range, the actuator is able to fully tighten and release the brake cables. If the power supply falls outside of the range, a fault code is stored in the EPB module and can be retrieved using Jaguar approved diagnostic equipment.

COMPONENT DESCRIPTION

PARKING BRAKE SWITCH

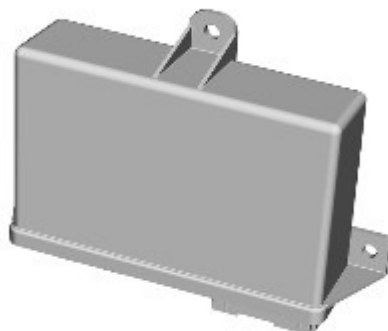


The parking brake switch is mounted in the floor console, rearward of the rotary gear selector. The switch has three states:

- Apply: When the switch is pulled up to apply the parking brake.
- Release: When the switch is pushed down to release the parking brake.
- Neutral: The central default position. The switch returns to this position regardless of parking brake status.

The parking brake switch contains a pair of micro-switches for both the apply and release actions. The EPB module provides an individual hardwired electrical feed to each of the four micro-switches plus a single ground connection, allowing it to constantly monitor switch status.

EPB MODULE

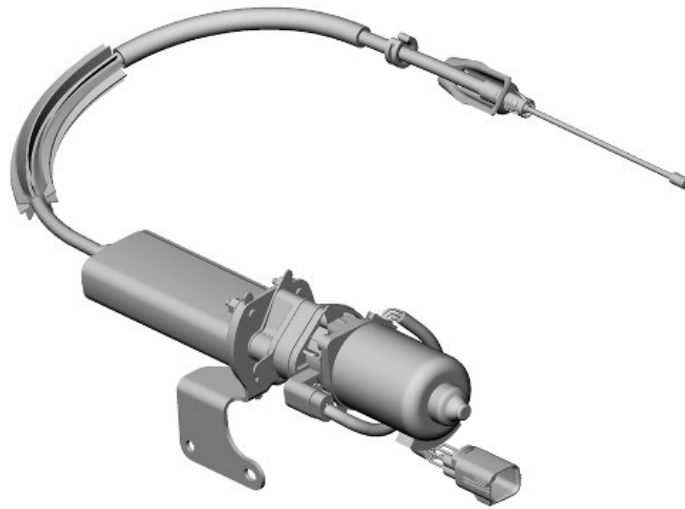


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The EPB module is mounted in the luggage compartment on the RH (right-hand) side quarter panel and is connected to the vehicles electrical wiring by two multiplugs. The EPB module is connected to the high speed CAN bus, allowing it to communicate with other vehicle systems.

The EPB module monitors the condition of the parking brake switch through a series of hardwired electrical connections and controls operation of the parking brake actuator accordingly.

PARKING BRAKE ACTUATOR



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The parking brake actuator is mounted on the back of the rear subframe. Operation of the actuator is controlled by the EPB module in response to parking brake switch requests from the driver.

A Hall sensor is located within the actuator and provides positional information back to the EPB module. The principle function of the Hall sensor is to ensure the actuator fully releases the parking brake when a static release request is made. The signal provided by the Hall sensor is compared to configuration information contained within the EPB module software to determine when a full release has been carried out.

STOPLAMP SWITCH



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The stoplamp switch is mounted on the brake pedal mounting bracket. One of the prerequisites for releasing the parking brake is that the foot brake is applied. The EPB module is able to determine the position of the foot brake by monitoring the status of the stoplamp switch via a hardwired electrical connection.

The stoplamp switch also supplies status signals to the CJB and the ECM.

INSTRUMENT CLUSTER

The instrument cluster contains a red warning indicator for the EPB. The warning indicator is permanently illuminated while the EPB is applied. If the warning indicator flashes, the EPB has an electrical fault.

If there is an EPB fault, the message Cannot Apply Park Brake or Park Brake Fault appears in the instrument cluster message center. If the vehicle is moving with the parking brake applied, the message Caution! Park Brake Applied appears in the message center accompanied by a chime from the instrument cluster.

Refer to: [Information and Message Center](#) (413-08 Information and Message Center, Description and Operation).

