DESCRIPTION AND OPERATION

Brake System — Hybrid

The brake system has the following components:

- Fixed position foot pedal
- Front-to-rear split hydraulic system
- Front disc brakes utilizing a single piston floating brake caliper
- Rear disc brakes utilizing a single piston floating brake caliper
- Mechanical parking brake system utilizing a drum-in-hat within the rear disc brakes
- Four-wheel anti-lock brake system (4WABS). For additional information, refer to Section 206-09.

Regenerative Braking System

Instead of just using the brakes to stop the vehicle, the electric motor that drives the hybrid electric vehicle can also slow the vehicle. In this mode, the electric motor acts as a generator and charges the batteries while the vehicle is slowing down. To achieve this, the anti-lock brake system (ABS) module calculates the amount of speed reduction requested by the driver through the accelerator pedal position and brake pedal travel sensor. The ABS module measures the inertia of the vehicle through the longitudinal accelerometer and determines if the required deceleration has been achieved. During deceleration/braking, the powertrain control module (PCM) partially engages the electronically controlled continuously variable transmission (eCVT) to be turned by the vehicle's wheels and slow it down. The ABS module requests the powertrain more or less dependant upon the driver request through the pedals. If the desired deceleration is not achieved through regenerative braking, the ABS module applies the friction brake pads to accommodate the driver request. The driver does not, under normal circumstances, have direct control over the amount of brake pressure that is applied to the rotors. In the event that the ABS module detects a fault which requires the deactivation of this system, the ABS module relinquishes control of braking and the driver will still have the use of manual hydraulic brakes.

Since the regenerative braking uses the electric motor to slow the vehicle's front wheels, front brake pad wear is reduced. The rear brake pads, because of the regenerative braking, wear at approximately twice the rate of the front brake pads.