DESCRIPTION AND OPERATION > ANTI-LOCK BRAKE SYSTEM (ABS) AND STABILITY CONTROL - SYSTEM OPERATION AND COMPONENT DESCRIPTION > ROLL STABILITY CONTROL (RSC)

The ABS module continuously monitors the vehicle motion relative to the intended course. This is done by using sensors to compare the steering wheel input, yaw rate sensor input, lateral accelerometer input and roll sensor input with the actual vehicle motion. The PSCM sends the steering wheel angle information to the ABS module over the HS-CAN2. The RCM sends yaw rate sensor, lateral accelerometer and roll rate sensor information to the ABS module also over the HS-CAN2. If the ABS module determines from the inputs the vehicle is becoming unstable, the ABS module modulates brake pressure to the appropriate brake calipers by opening and closing the appropriate solenoid valves inside the HCU while the hydraulic pump motor is activated. At the same time, the ABS module calculates how much engine torque reduction is required to help stabilize the vehicle and sends this torque reduction message to the GWM over the HS-CAN2 which relays the message to the PCM over the HS-CAN1. The ABS module also sends a vehicle stability event message to the GWM over the HS-CAN2 which relays this message to the IPC over the HS-CAN3. When the PCM receives the torque reduction message, it adjusts engine timing and decreases fuel injector pulses to reduce the engine torque to the requested level. When the IPC receives the vehicle stability event message, it flashes the stability-traction control indicator (sliding car icon).

Once the vehicle instability has been corrected, the ABS module returns the solenoid valves in the HCU to their normal position, deactivates the hydraulic pump motor and stops sending the traction event and torque reduction messages. The PCM returns engine timing and fuel injectors to normal operation and the IPC extinguishes the stability-traction control indicator (sliding car icon).

RSC does not operate with the transmission in REVERSE or with the transfer case in 4WD low. The ABS module disables RSC if there are any wheel speed sensor, stability sensor or steering angle sensor Diagnostic Trouble Codes (DTCs) present in the ABS module. If there is a communication error between the ABS module and the SASM or the ABS module and the RCM, RSC also is disabled. When RSC is disabled, the ABS module sends a message to the GWM over the HS-CAN2. The GWM relays this message to the IPC over the HS-CAN3 to illuminate the stability-traction control indicator (sliding car icon).

DESCRIPTION AND OPERATION > ANTI-LOCK BRAKE SYSTEM (ABS) AND STABILITY CONTROL - SYSTEM OPERATION AND COMPONENT DESCRIPTION > DISABLING ADVANCETRAC

AdvanceTrac is controlled by the stability-traction control switch in the following manner:

- Momentarily pressing the switch disables only traction control, ESC and RSC remain enabled.
- Pressing the switch and holding it pressed for more than 5 seconds with vehicle speed under 56 km/h (35 mph) disables traction control and ESC, RSC remains enabled.
- When vehicle speed exceeds 56 km/h (35 mph) after the switch was pressed and held for more than 5 seconds, traction control and ESC are enabled but with a higher intervention threshold. RSC remains enabled.
- Pressing the switch twice enables traction control and ESC both with a higher intervention