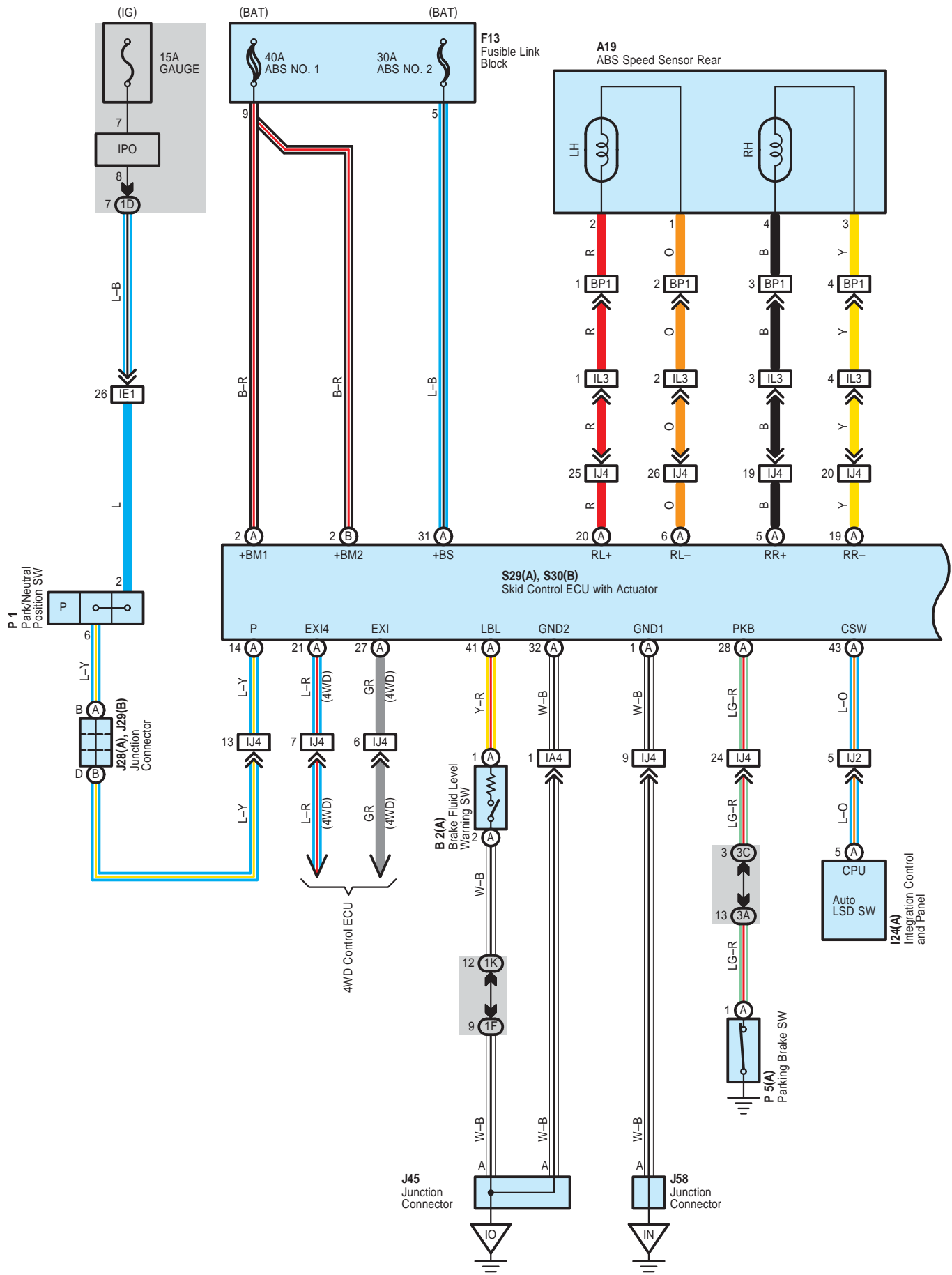
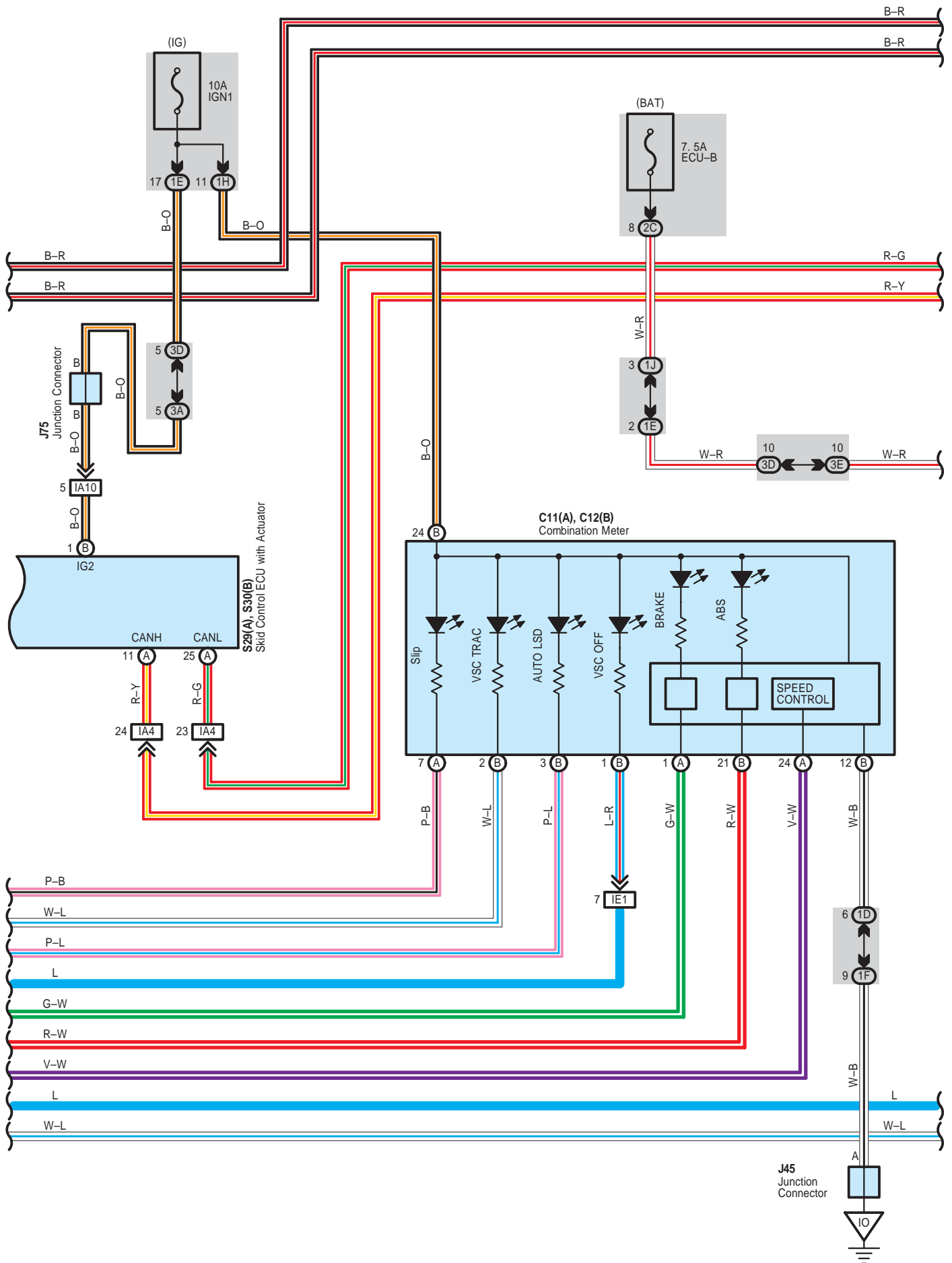
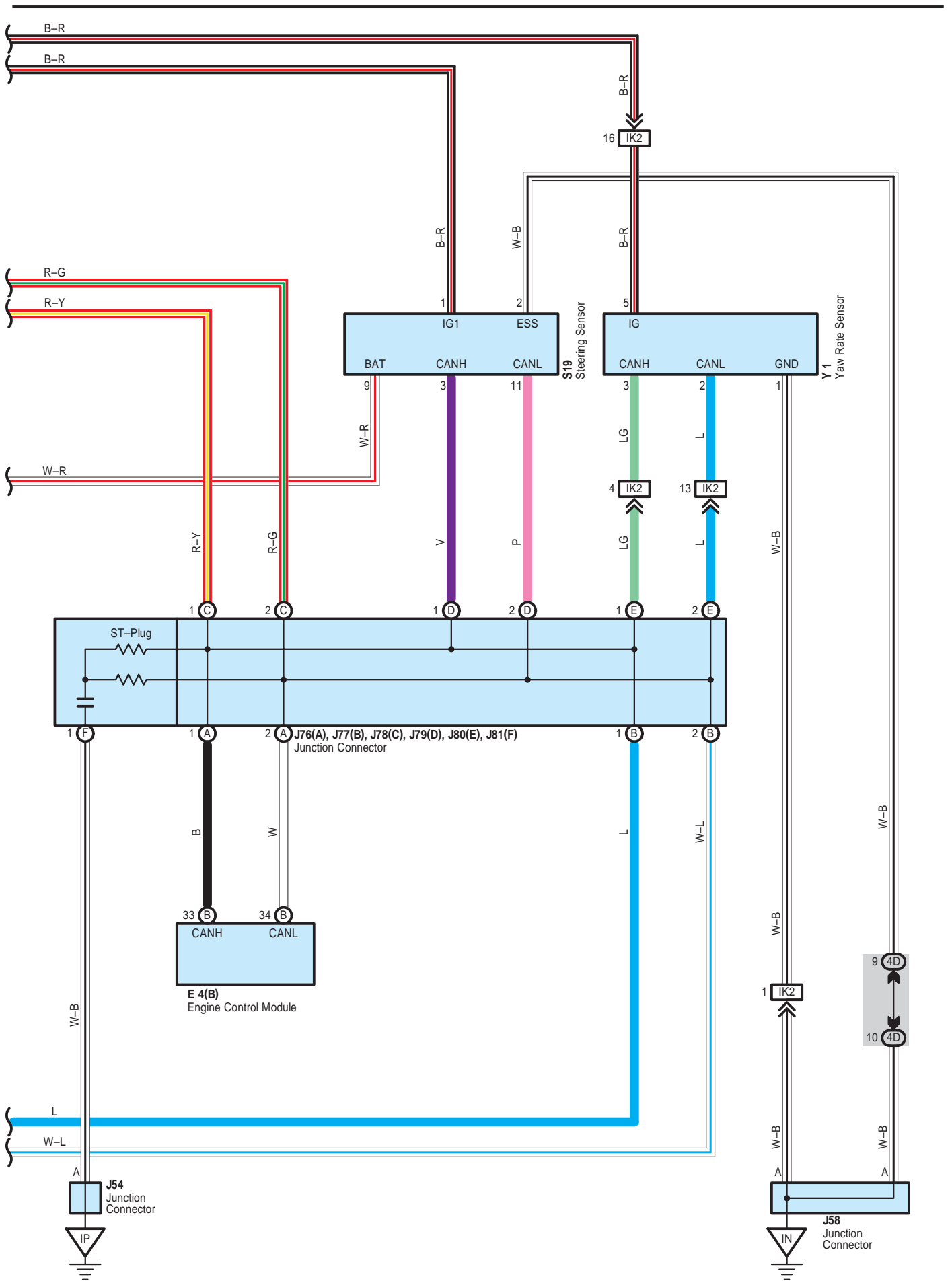


ABS with VSC, TRAC and VSC (Double Cab)



ABS with VSC, TRAC and VSC (Double Cab)





ABS with VSC, TRAC and VSC (Double Cab)

System Outline

1. ABS Operation

If the brake pedal is depressed suddenly, the ABS controls the hydraulic pressure of the wheel cylinders for all the four wheels to automatically avoid wheel locking and ensure the directional and steering stability of the vehicle. If the brake pedal is depressed suddenly, the skid control ECU controls the solenoids in the actuators using the signals from the sensors to move the brake fluid to the reservoir in order to release the braking pressure applied to the wheel cylinder. If the skid control ECU detects that the fluid pressure in the wheel cylinder is insufficient, the ECU controls the solenoids in the actuators to increase the braking pressure.

2. Traction Control Operation

The traction control system controls the engine torque, the hydraulic pressure of the driving wheel cylinders, slipping of the wheels which may occur at start or acceleration of the vehicle, to ensure an optimal driving power and vehicle stability corresponding to the road conditions.

3. VSC Operation

Unexpected road conditions, vehicle speed, emergency situation, and any other external factors may cause large under- or over-steering of the vehicle. If this occurs, the VSC system automatically controls the engine power and wheel brakes to reduce the under- or over-steering.

To reduce large over-steering :

If the VSC system determines that the over-steering is large, it activates the brakes for the outer turning wheels depending on the degree of the over-steering to produce the moment toward the outside of the vehicle and reduce the over-steering.

To reduce large under-steering :

If the VSC system determines that the under-steering is large, it controls the engine power and activates the rear wheel brakes to reduce the under-steering.

4. Mutual System Control

To efficiently operate the VSC system at its optimal level, the VSC system and other control systems are mutually controlled while the VSC system is being operated.

Engine throttle control

The engine power does not interfere with the VSC brake control by controlling the opening of the throttle and reducing the engine output.

Engine control and electronically controlled transmission control

The strong braking force does not interfere with the braking force control of the VSC system by turning off the accel. and reducing changes in the driving torque at shift-down.

VSC system operation indication

The Slip indicator light flashes and the buzzer sounds intermittently to warn the driver that the current road is slippery, while the VSC system is being operated.

5. Fail Safe Function

If an error occurs in the skid control ECU with actuator, sensor signals, and/or actuators, the skid control ECU with actuator inhibits the brake actuator control and inputs the error signal to the engine control module. According to the error signal, the brake actuator turns off the solenoid and the engine control module rejects any electronically controlled throttle open request from the VSC system. As a result, the vehicle functions regardless of the ABS, TRAC, and VSC systems.

○ : Parts Location

Code		See Page	Code		See Page	Code		See Page
A6	A	70	J31		71	J81	F	74
A7	A	70	J45		74	P1		71
A19		76	J47	A	74	P5	A	75
B2	A	70	J48	B	74	S4	B	75
C11	A	72	J54		74	S19		75
C12	B	72	J58		74	S29	A	71
D6		73	J75		74	S30	B	71
E4	B	73	J76	A	74	S31		75
F13		70	J77	B	74	V11		75
I24	A	73	J78	C	74	Y1		75
J28	A	74	J79	D	74			
J29	B	74	J80	E	74			

**: Junction Block and Wire Harness Connector**

Code	See Page	Junction Block and Wire Harness (Connector Location)
1D	49	Cowl Wire and Driver Side J/B (Lower Finish Panel)
1E		
1F		
1H		
1J	49	Engine Room Main Wire and Driver Side J/B (Lower Finish Panel)
1K		
2C	45	Engine Room Main Wire and Engine Room J/B (Engine Compartment Left)
3A	52	Cowl Wire and Sub J/B No.3 (Upper the Accelerator Pedal)
3C		
3D		
3E		
4A	54	Cowl Wire and Sub J/B No.4 (Upper the Accelerator Pedal)
4D		

**: Connector Joining Wire Harness and Wire Harness**

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)
IA4	92	Engine Room Main Wire and Cowl Wire (Left Kick Panel)
IA7		
IA10		
IE1	93	Engine Wire and Cowl Wire (Right Side of Instrument Panel)
IJ2	93	Engine Room Main Wire and Cowl Wire (Cowl Side Panel RH)
IJ4		
IK2	93	Floor Wire and Cowl Wire (Right Kick Panel)
IL3	93	Floor No.2 Wire and Cowl Wire (Instrument Panel Brace RH)
BP1	94	Frame Wire and Floor No.2 Wire (Under the Driver's Seat)

**: Ground Points**

Code	See Page	Ground Points Location
EA	90	Front Left Fender Apron
EM	90	Radiator Side Support RH
IN	92	Right Kick Panel
IO	92	Left Kick Panel
IP	92	Instrument Panel Brace LH