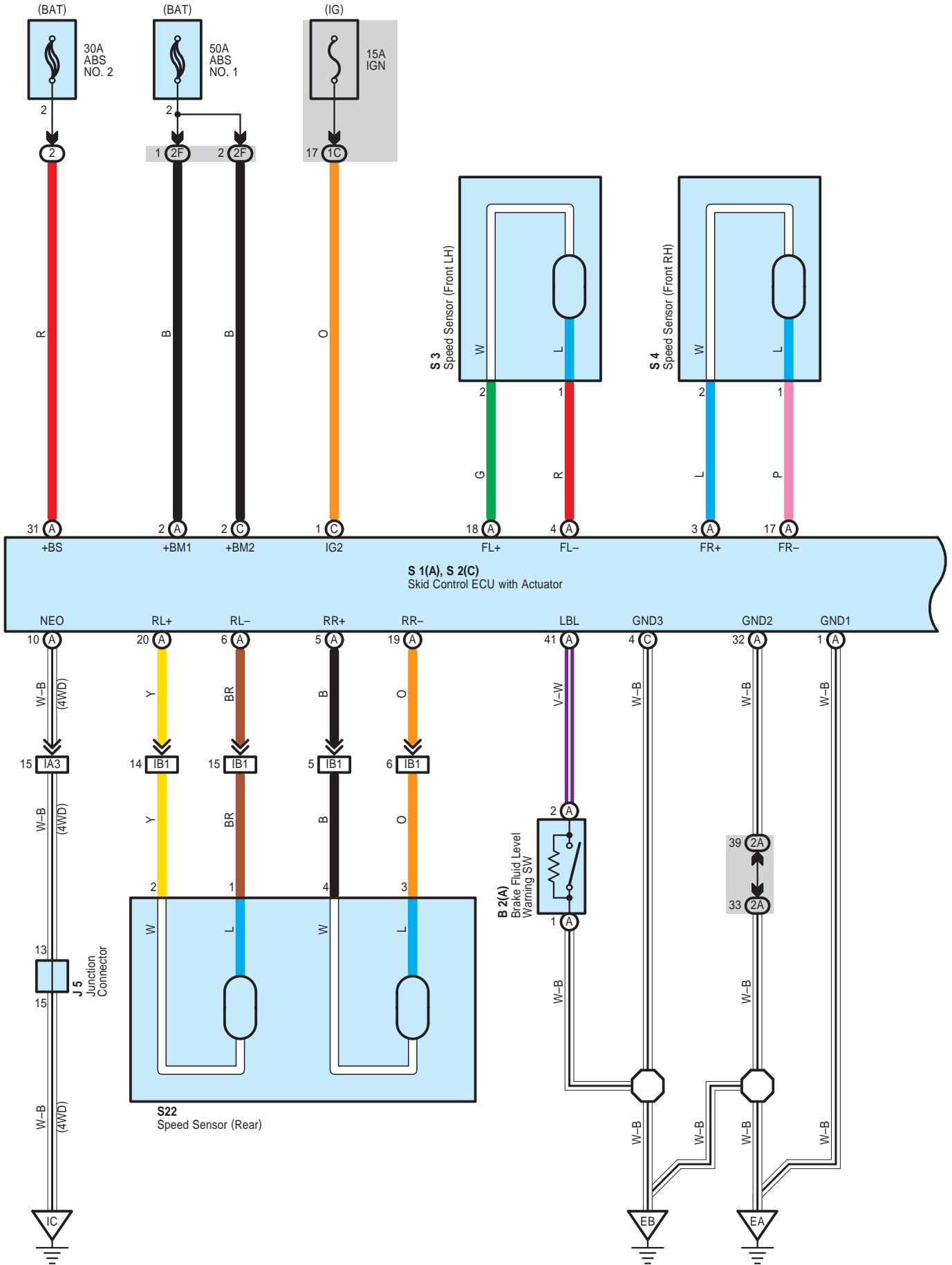
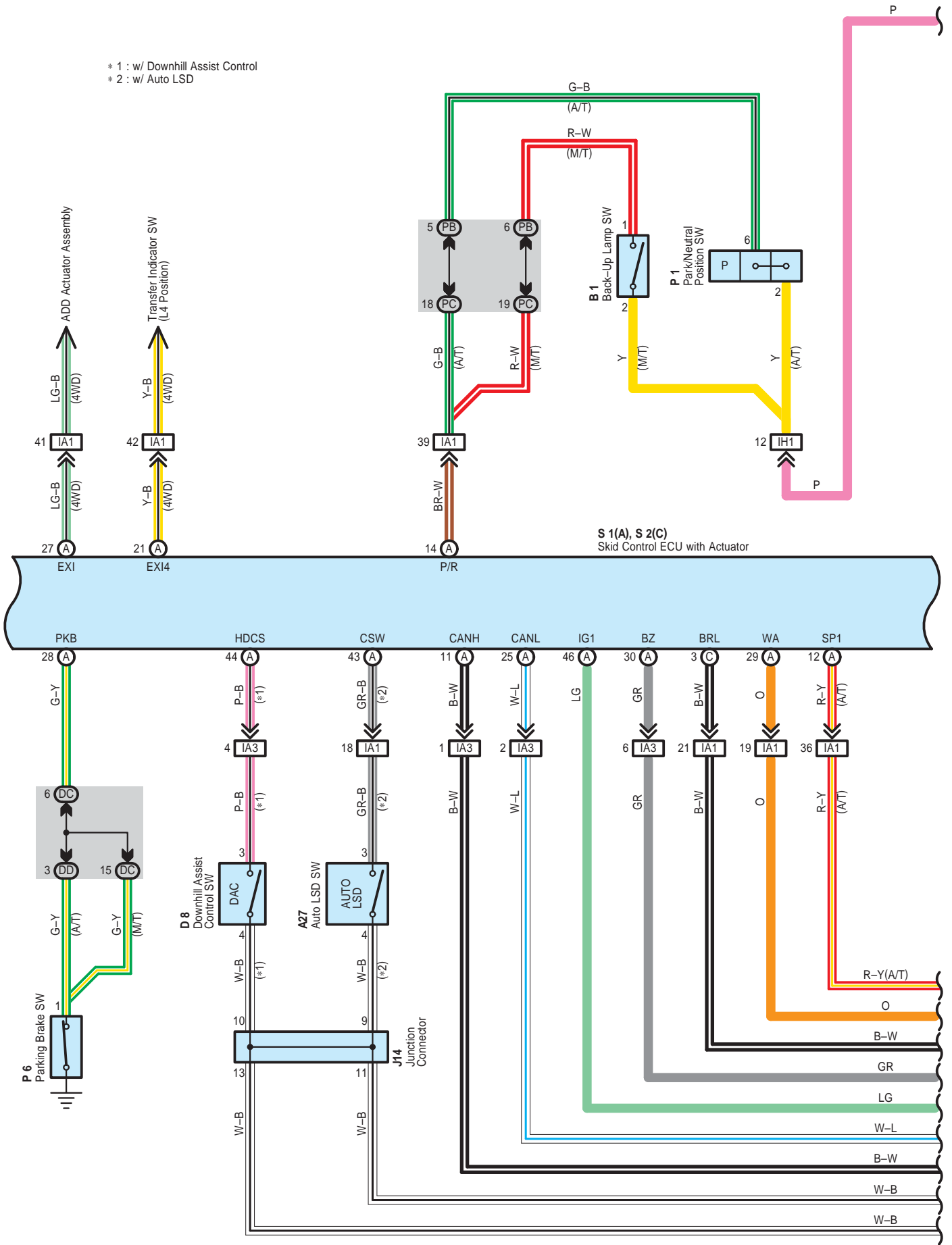


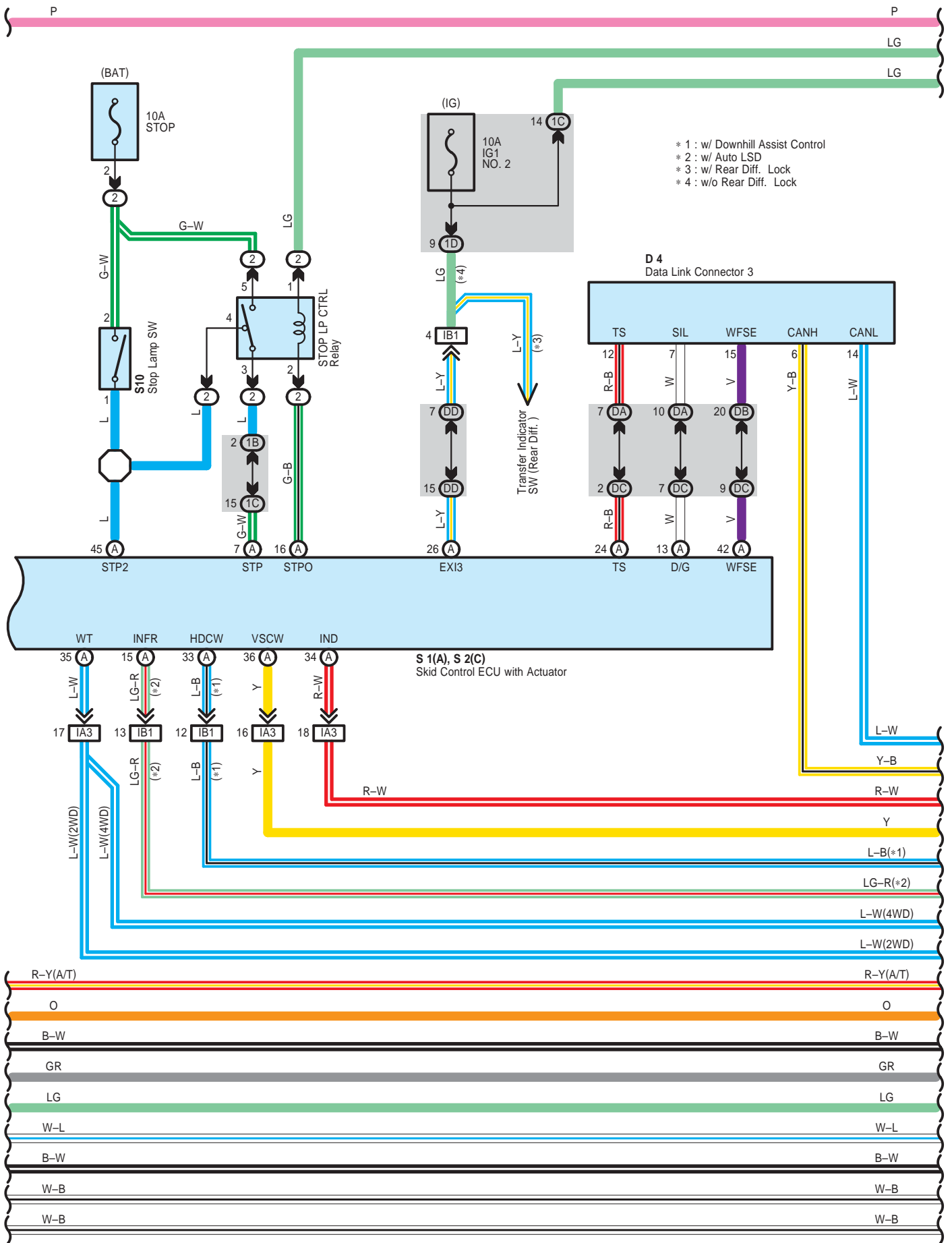
ABS, TRAC, VSC, Auto LSD, DAC and HAC

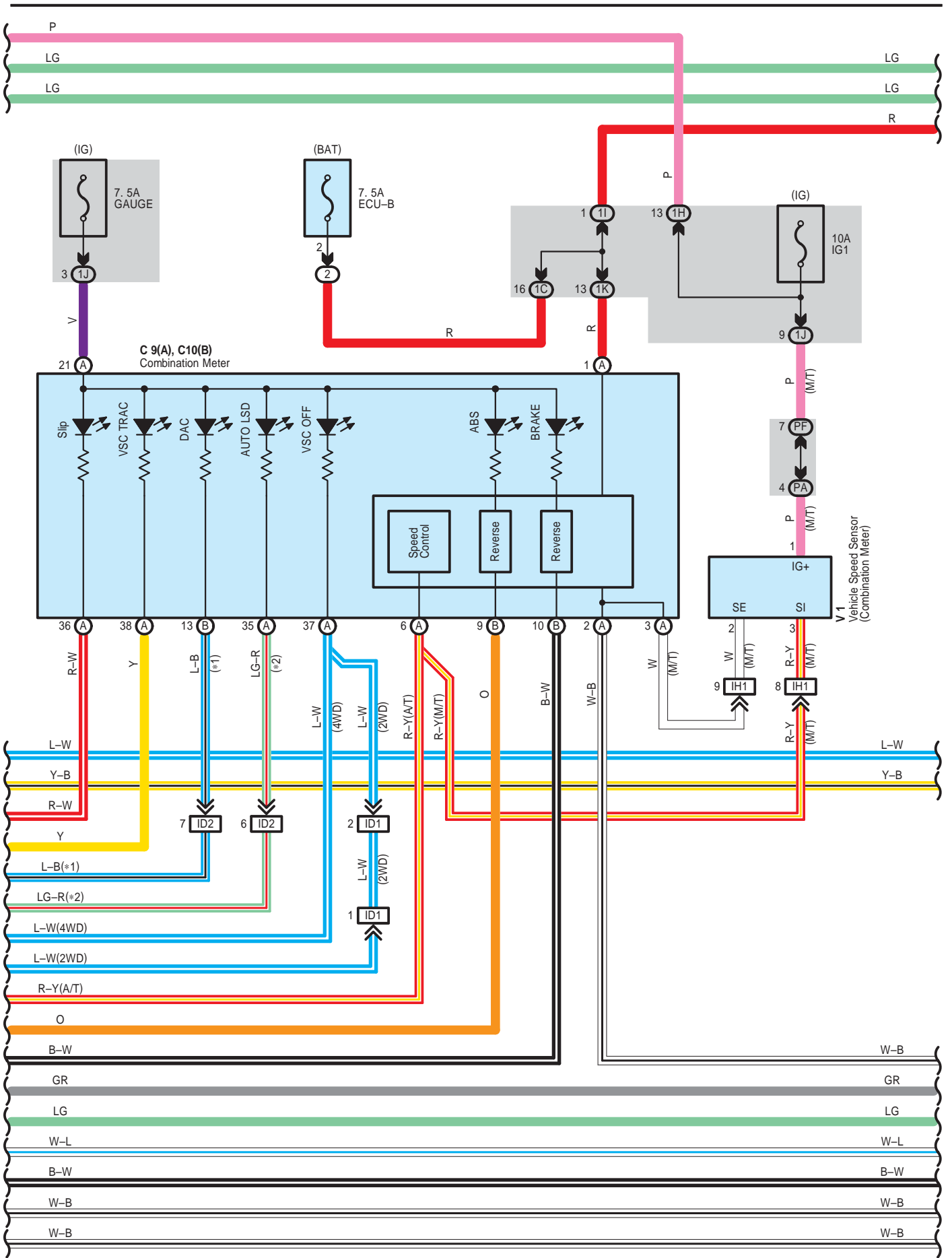


* 1 : w/ Downhill Assist Control
 * 2 : w/ Auto LSD

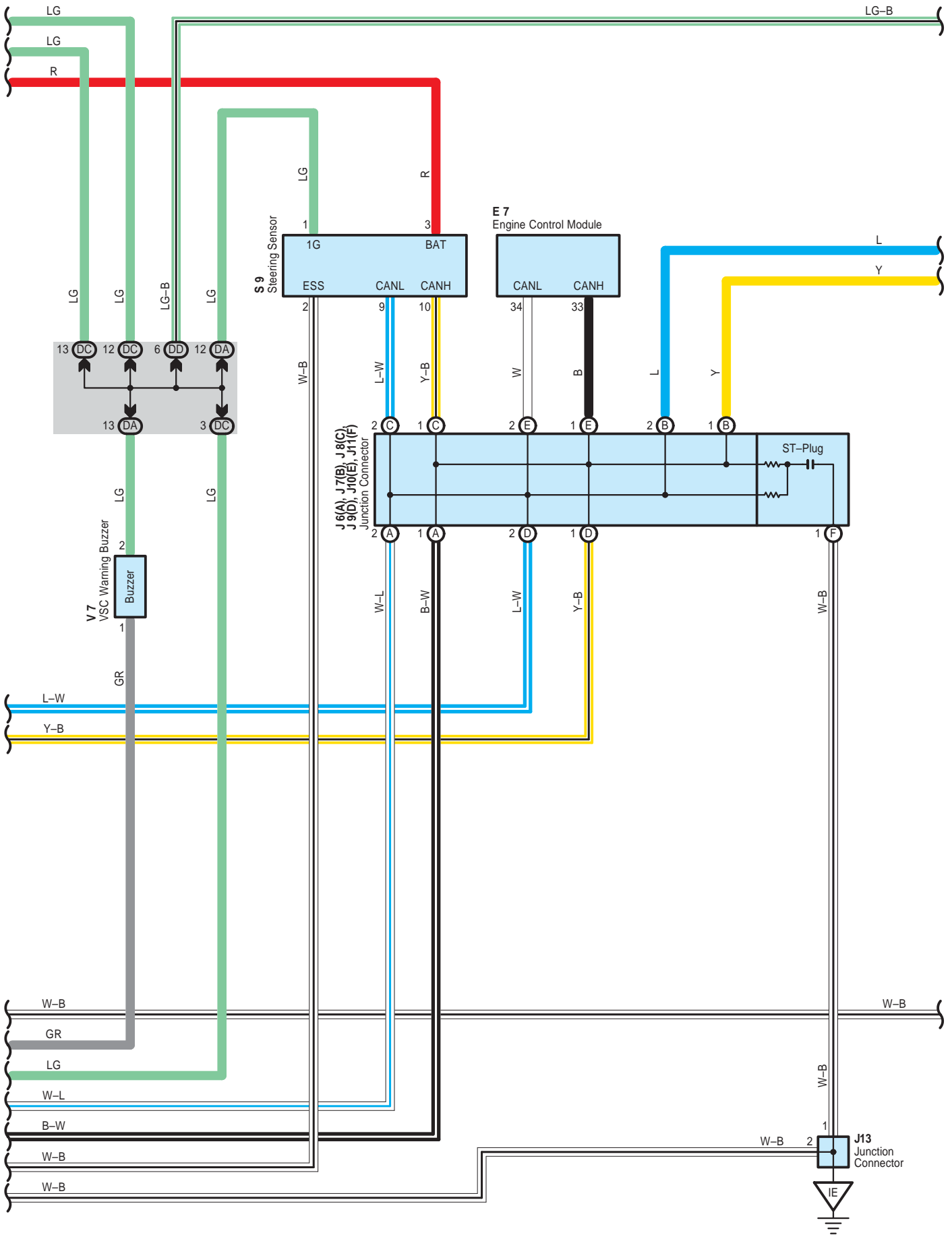


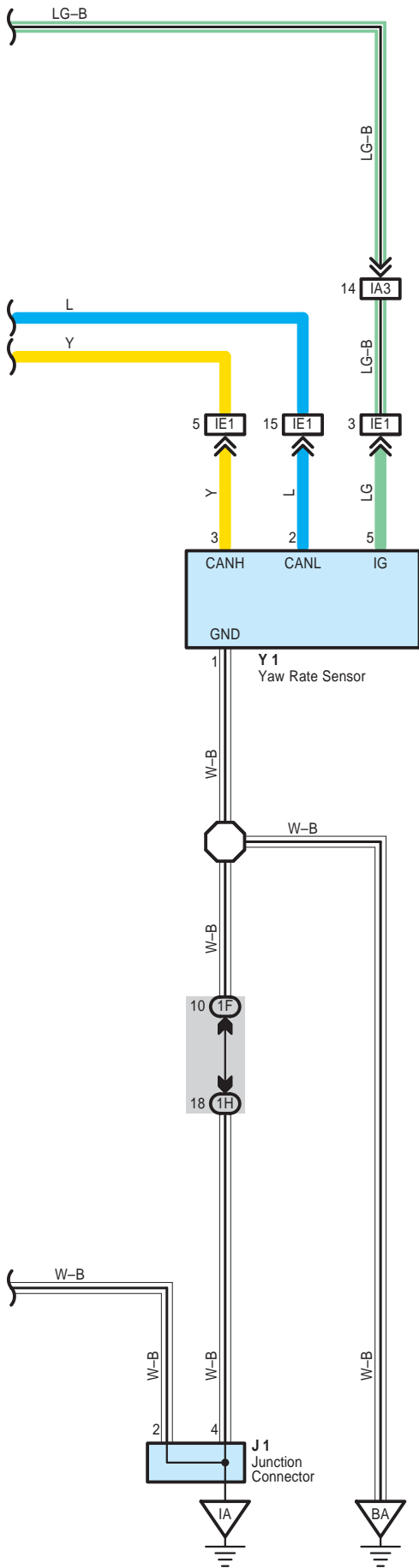
ABS, TRAC, VSC, Auto LSD, DAC and HAC





ABS, TRAC, VSC, Auto LSD, DAC and HAC





System Outline

1. Normal Operation

The VSC system helps prevent the vehicle from slipping sideways as a result of strong front wheel skid or strong rear wheel skid during cornering.

The followings are two examples that can be considered as circumstances in which the tires exceed their lateral grip limit. The VSC system is designed to help control the vehicle behavior by controlling the engine's output and the brakes at each wheel when the vehicle is under one of the conditions indicated below.

- * When the front wheels lose grip in relation to the rear wheels (Strong front wheel skid tendency).
- * When the rear wheels lose grip in relation to the front wheels (Strong rear wheel skid tendency).

2. Electronic Brake-Force Distribution

Skid control ECU with actuator distributes appropriate brake-force to front and rear wheels (Control of brake-force distribution to front and rear wheels) corresponding to the vehicle driving conditions. It also makes effective use of rear wheel brake-force to match loading condition and decelerating of the vehicle, resulting to reduce depressing of brake pedal and to ensure effective braking. In braking during making a turn, the ECU controls appropriate brake-force distribution to right and left wheels (Control of brake-force distribution to right and left wheels) to ensure stability and braking of the vehicle.

3. Downhill Assist Control Operation

The downhill assist control operation controls braking action of each wheel to help prevent out-of-balance vehicle posture when descending a steep hill or traveling at a speed exceeding the threshold of wheel gripping capability. When the downhill assist control is in operation, the brake system controls vehicle speed within the range of 5 to 7 km/h.

For the downhill assist control to be operative all of the following conditions have to be met:

- * Downhill assist control switch = ON
- * Transfer L4 selected
- * Vehicle speed is 5 km/h or more, but less than 25 km/h.
- * Accelerator pedal OFF
- * Brake pedal OFF

4. Hill-Start Support Control Operation

When starting on a steep hill for ascending, the hill-start support control automatically puts the brake on momentarily – from the moment when the driver releases his foot from the brake pedal until he steps on the accelerator pedal – to help the driver start the vehicle safely and smoothly.

Please bear in mind, however, that it activates the brake system for only 3 seconds.

For the hill-start support control to be operative all of the following conditions have to be met:

- * Shift position = D, 2, or L
- * Vehicle not moving forward with some wheel(s) slipping
- * Vehicle speed > 0 km/h

5. Active TRAC (4WD)

Active traction control system provides great effect of LSD (Limited Slip Differential) to deliver driving force lost due to the acceleration slip to each of 4 wheels by conducting the brake oil control on slipped wheels caused by acceleration during 4WD driving.

6. Auto LSD (2WD)

Auto LSD fulfills the function of LSD (Limited Slip Differential) by using the system of TRAC. It controls to focus on 'getting out', which ensures to recover from run-off condition and to take off on roads with much travel resistance such as sand.

: Parts Location

Code	See Page	Code	See Page	Code	See Page		
A27	44	J8	C	45	S3	43 (2TR-FE)	
B1	40 (1GR-FE)	J9	D	45	S4	41 (1GR-FE)	
	42 (2TR-FE)	J10	E	45		43 (2TR-FE)	
B2	A	40 (1GR-FE)	J11	F	S9	45	
		42 (2TR-FE)	J13		S10	45	
C9	A	44	J14		S22	47 (*1)	
C10	B	44	P1	41 (1GR-FE)		48 (*2)	
D4	44	P6		43 (2TR-FE)		49 (*3)	
D8	44	P6		45	V1	41 (1GR-FE)	
E7	44	S1	A	41 (1GR-FE)		43 (2TR-FE)	
J1	45			S2		C	V7
J5	45	S2	C	41 (1GR-FE)	Y1		47 (*1)
J6	A			45			43 (2TR-FE)
J7	B	45	S3			41 (1GR-FE)	49 (*3)

: Relay Blocks

Code	See Page	Relay Blocks (Relay Block Location)
2	24	Engine Room R/B (Engine Compartment Left)

: Junction Block and Wire Harness Connector

Code	See Page	Junction Block and Wire Harness (Connector Location)
1B	28	Engine Room Main Wire and Driver Side J/B (Lower Finish Panel)
1C		
1D	28	Frame Wire and Driver Side J/B (Lower Finish Panel)
1F	28	Floor No.2 Wire and Driver Side J/B (Lower Finish Panel)
1H	29	Instrument Panel Wire and Driver Side J/B (Lower Finish Panel)
1I		
1J		
1K		
2A	24	Engine Room J/B (Engine Compartment Left)
2F	25	Engine Room Main Wire and Engine Room J/B (Engine Compartment Left)
DA	34	Instrument Panel Wire and Instrument Panel J/B No.1 (Left Kick Panel)
DB		
DC	34	Engine Room Main Wire and Instrument Panel J/B No.1 (Left Kick Panel)
DD		
PA	36	Engine Wire and Instrument Panel J/B No.2 (Right Side of Glove Box)
PB		
PC	36	Instrument Panel Wire and Instrument Panel J/B No.2 (Right Side of Glove Box)
PF		

: Connector Joining Wire Harness and Wire Harness

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)
IA1	54	Instrument Panel Wire and Engine Room Main Wire (Left Kick Panel)
IA3		
IB1	54	Frame Wire and Engine Room Main Wire (Left Kick Panel)
ID1	54	Frame Wire and Instrument Panel Wire (Left Kick Panel)
ID2		
IE1	54	Instrument Panel Wire and Floor No.2 Wire (Left Kick Panel)
IH1	55	Engine Wire and Instrument Panel Wire (Right Side of Glove Box)

* 1 : Double Cab * 2 : Access Cab * 3 : Regular Cab * 4 : Separate Seat * 5 : Bench Seat

ABS, TRAC, VSC, Auto LSD, DAC and HAC

: Ground Points

Code	See Page	Ground Points Location
EA	52 (1GR-FE)	Front Right Fender
	53 (2TR-FE)	
EB	52 (1GR-FE)	Front Left Fender
	53 (2TR-FE)	
IA	54	Left Kick Panel
IC	54	Instrument Panel Brace RH
IE	54	Right Kick Panel
BA	56 (*1)	Floor Seat Cross Member LH
	57 (*2)	
	58 (*3)	

* 1 : Double Cab * 2 : Access Cab * 3 : Regular Cab * 4 : Separate Seat * 5 : Bench Seat

