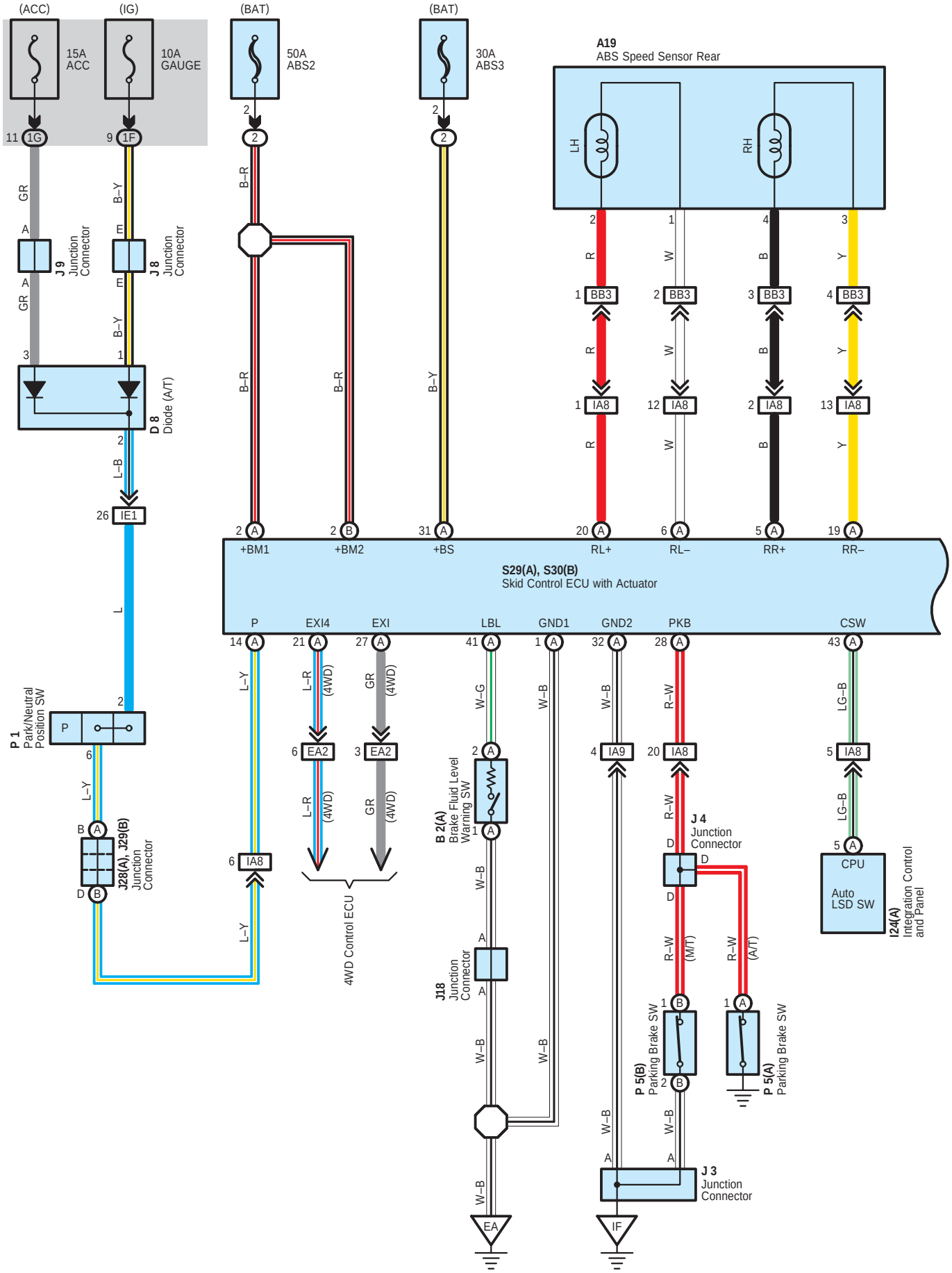
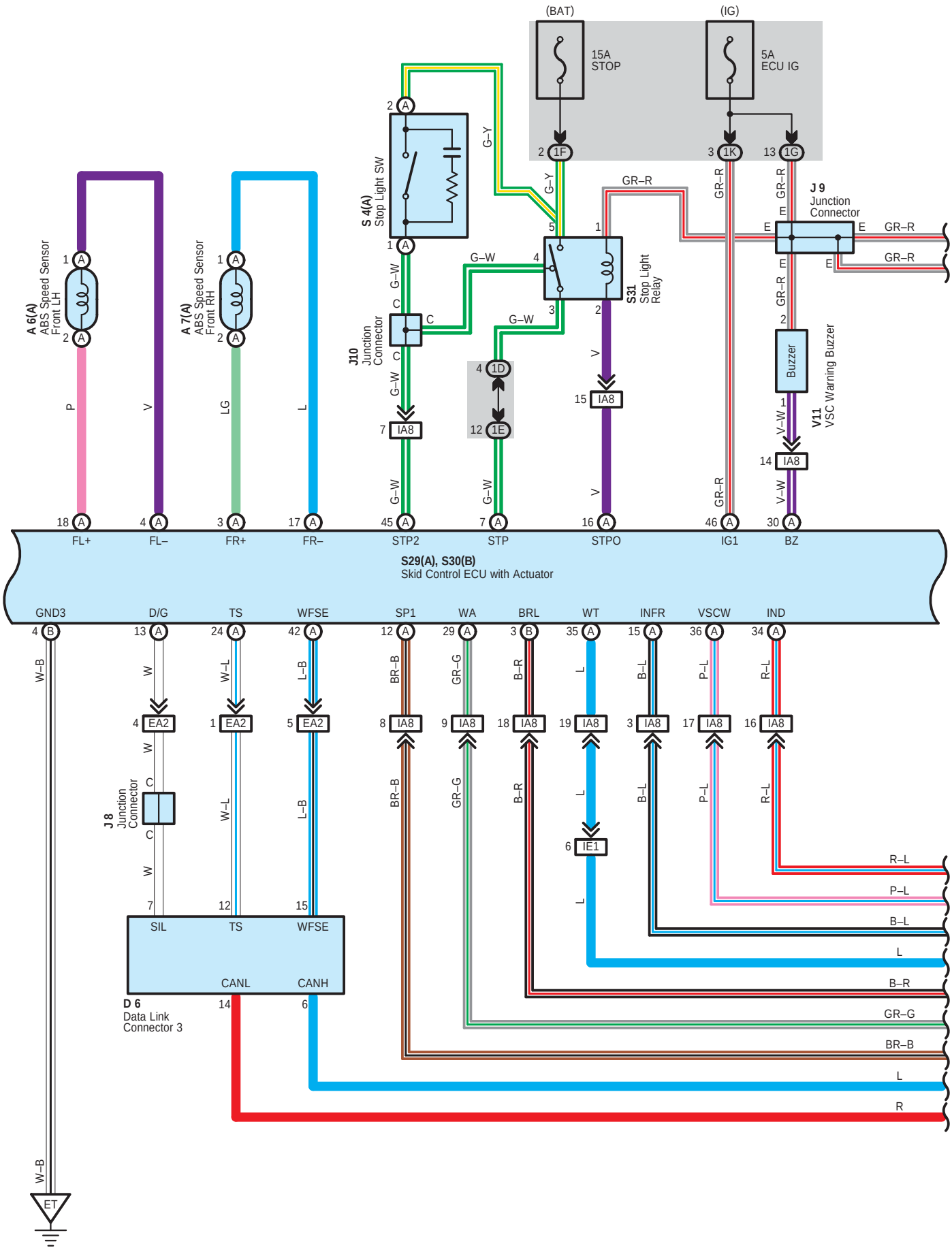
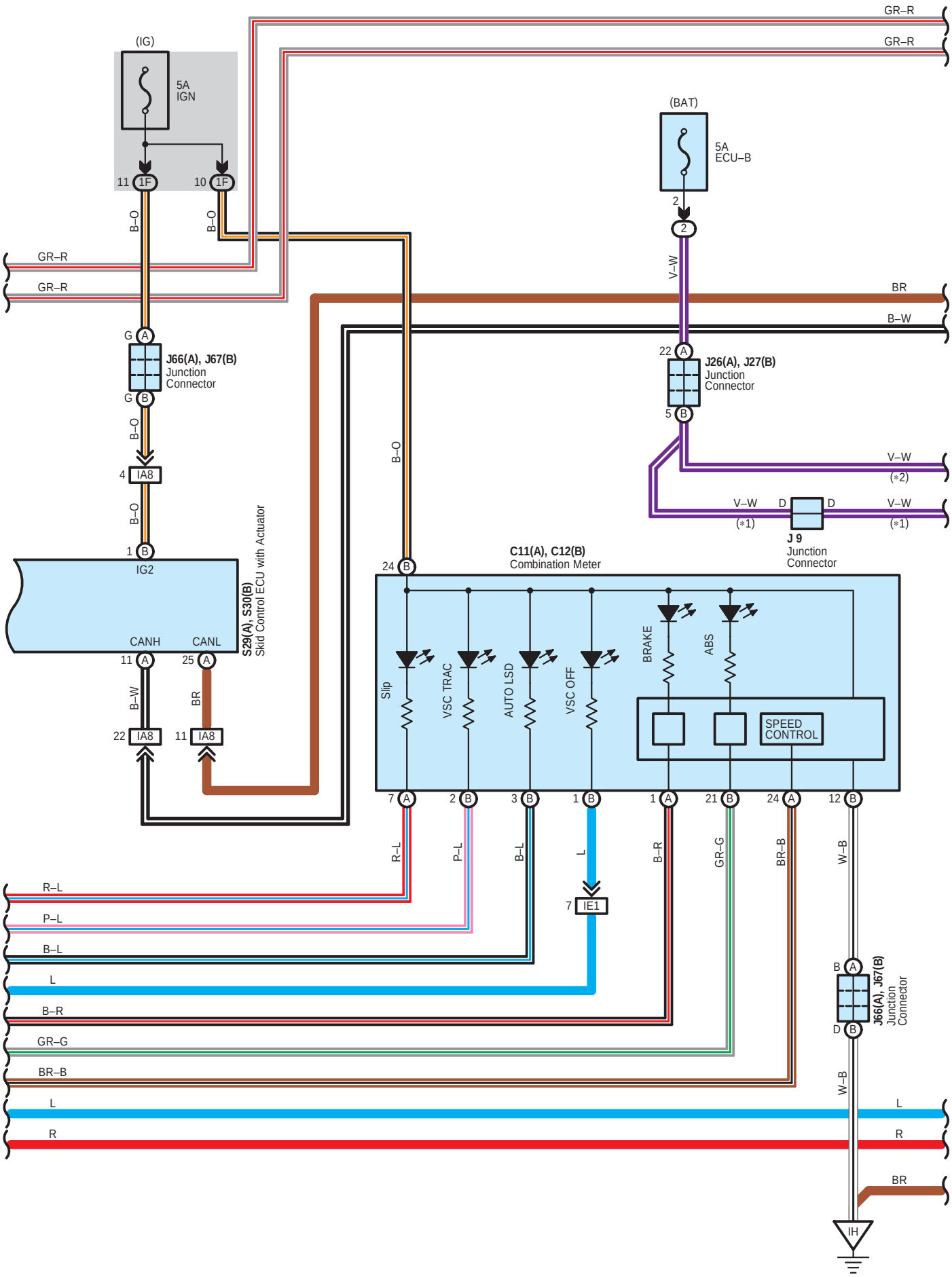
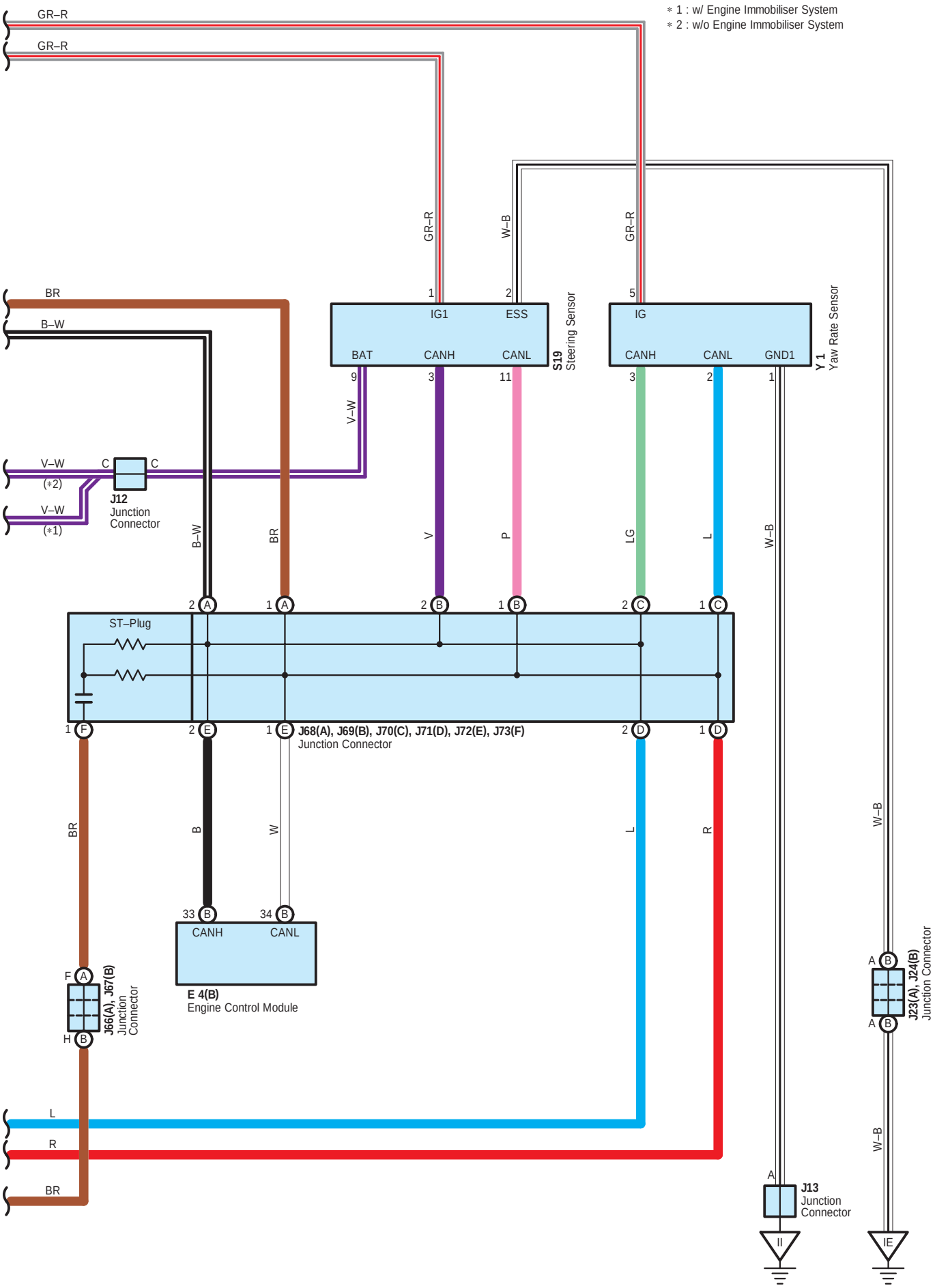

(ACC)
(IG)
(BAT)
(BAT)
15A ACC
10A GAUGE
50A ABS2
30A ABS3
A19
ABS Speed Sensor Rear
LH
RH
J 9 Junction Connector
J 8 Junction Connector
D 8 Diode (A/T)
IE1
BB3
IA8
+BM1
+BM2
+BS
RL+
RL–
RR+
RR–
S29(A), S30(B)
Skid Control ECU with Actuator
P
EXI4
EXI
LBL
GND1
GND2
PKB
CSW
P 1 Park/Neutral Position SW
J28(A), J29(B) Junction Connector
EA2
4WD Control ECU
B 2(A) Brake Fluid Level Warning SW
J18 Junction Connector
EA
IA9
IF
J 4 Junction Connector
P 5(B) Parking Brake SW
P 5(A) Parking Brake SW
J 3 Junction Connector
CPU
Auto LSD SW
I24(A) Integration Control and Panel


(BAT)
(IG)
15A
STOP
5A
ECU IG
A 6(A)
ABS Speed Sensor
Front LH
A 7(A)
ABS Speed Sensor
Front RH
S 4(A)
Stop Light SW
J10
Junction
Connector
S31
Stop Light
Relay
J 9
Junction
Connector
V11
VSC Warning Buzzer
Buzzer
S29(A), S30(B)
Skid Control ECU with Actuator
FL+
FL–
FR+
FR–
STP2
STP
STPO
IG1
BZ
GND3
D/G
TS
WFSE
SP1
WA
BRL
WT
INFR
VSCW
IND
J 8
Junction
Connector
SIL
TS
WFSE
CANL
CANH
D 6
Data Link
Connector 3
ET

ABS, TRAC and VSC (Access/Standard Cab)




∗1 : w/ Engine Immobiliser System
∗2 : w/o Engine Immobiliser System
GR–R
GR–R
GR–R
W–B
GR–R
BR
B–W
1
2
5
IG1
ESS
IG
BAT
CANH
CANL
CANH
CANL
GND1
S19
Steering Sensor
Y 1
Yaw Rate Sensor
9
3
11
3
2
1
V–W
V–W
C
C
(∗2)
V–W
(∗1)
J12
Junction
Connector
B–W
BR
V
P
LG
L
W–B
2 A
1 A
2 B
1 B
2 C
1 C
ST–Plug
1 F
2 E
1 E
J68(A), J69(B), J70(C), J71(D), J72(E), J73(F)
Junction Connector
2 D
1 D
BR
B
W
L
R
W–B
33 B
34 B
CANH
CANL
E 4(B)
Engine Control Module
F A
H B
J66(A), J67(B)
Junction
Connector
A B
A B
J23(A), J24(B)
Junction Connector
L
R
BR
W–B
A
J13
Junction
Connector
II
IE

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	56 (2UZ–FE)	J9		62	J71	D	62
		58 (1GR–FE)	J10		62	J72	E	62
A7	A	56 (2UZ–FE)	J12		62	J73	F	62
		58 (1GR–FE)	J13		62	P1		57 (2UZ–FE)
A19		64 (*3)	J18		57 (2UZ–FE)			59 (1GR–FE)
		65 (*4)			59 (1GR–FE)	P5	A	62
B2	A	56 (2UZ–FE)	J23	A	62		B	62
		58 (1GR–FE)	J24	B	62	S4	A	63
C11	A	60	J26	A	62	S19		63
C12	B	60	J27	B	62	S29	A	57 (2UZ–FE)
D6		61	J28	A	62			59 (1GR–FE)
D8		61	J29	B	62	S30	B	57 (2UZ–FE)
E4	B	61	J66	A	62			59 (1GR–FE)
I24	A	61	J67	B	62	S31		63
J3		62	J68	A	62	V11		63
J4		62	J69	B	62	Y1		64 (*3)
J8		62	J70	C	62			65 (*4)

: 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)
1D	26 (*1)	Cowl Wire and Driver Side J/B (Lower Finish Panel)
	30 (*2)	
1E	26 (*1)	Engine Room Main Wire and Driver Side J/B (Lower Finish Panel)
	30 (*2)	
1F	26 (*1)	Cowl Wire and Driver Side J/B (Lower Finish Panel)
	30 (*2)	
1G	26 (*1)	
	30 (*2)	
1K	26 (*1)	Engine Room Main Wire and Driver Side J/B (Lower Finish Panel)
	30 (*2)	

: Connector Joining Wire Harness and Wire Harness

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)
EA2	80 (2UZ–FE)	Cowl Wire and Engine Room Main Wire (Right Fender)
	81 (1GR–FE)	
IA8	82	Engine Room Main Wire and Cowl Wire (Left Kick Panel)
IA9		
IE1	83	Engine Wire and Cowl Wire (Right Side of Instrument Panel)
BB3	84 (*3)	Frame Wire and Cowl Wire (Under the Driver's Seat)
	85 (*4)	

* 1 : w/o Daytime Running Light * 2 : w/ Daytime Running Light * 3 : Access Cab * 4 : Standard Cab * 5 : Access Cab Captain Seat
* 6 : Access Cab Separate Seat * 7 : Standard Cab Bench Seat

▽ : **Ground Points**

Code	See Page	Ground Points Location
EA	80 (2UZ–FE)	Front Left Fender
	81 (1GR–FE)	
ET	80 (2UZ–FE)	Front Right Fender
	81 (1GR–FE)	
IE	82	Left Kick Panel
IF		
IH	82	Right Kick Panel
II		