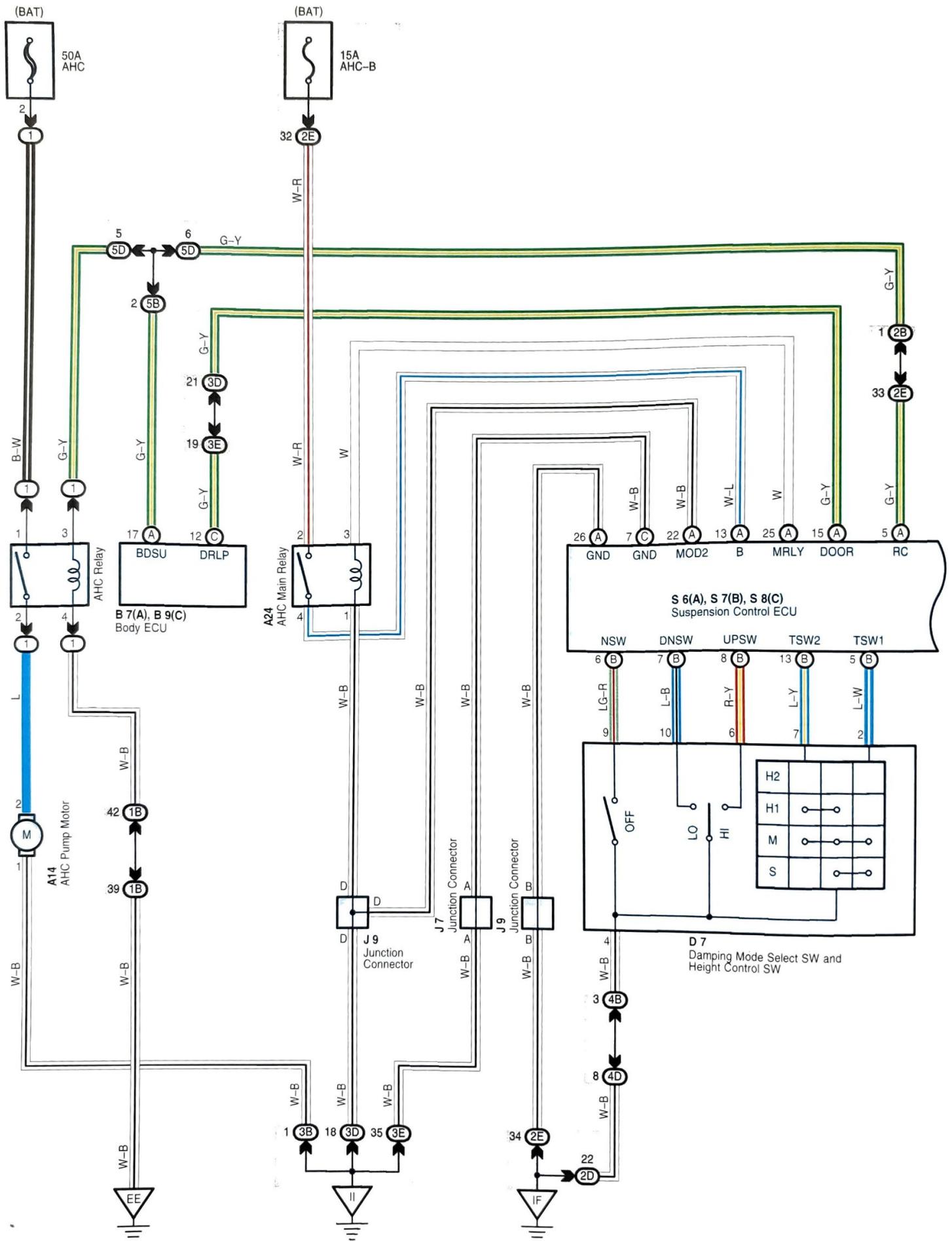
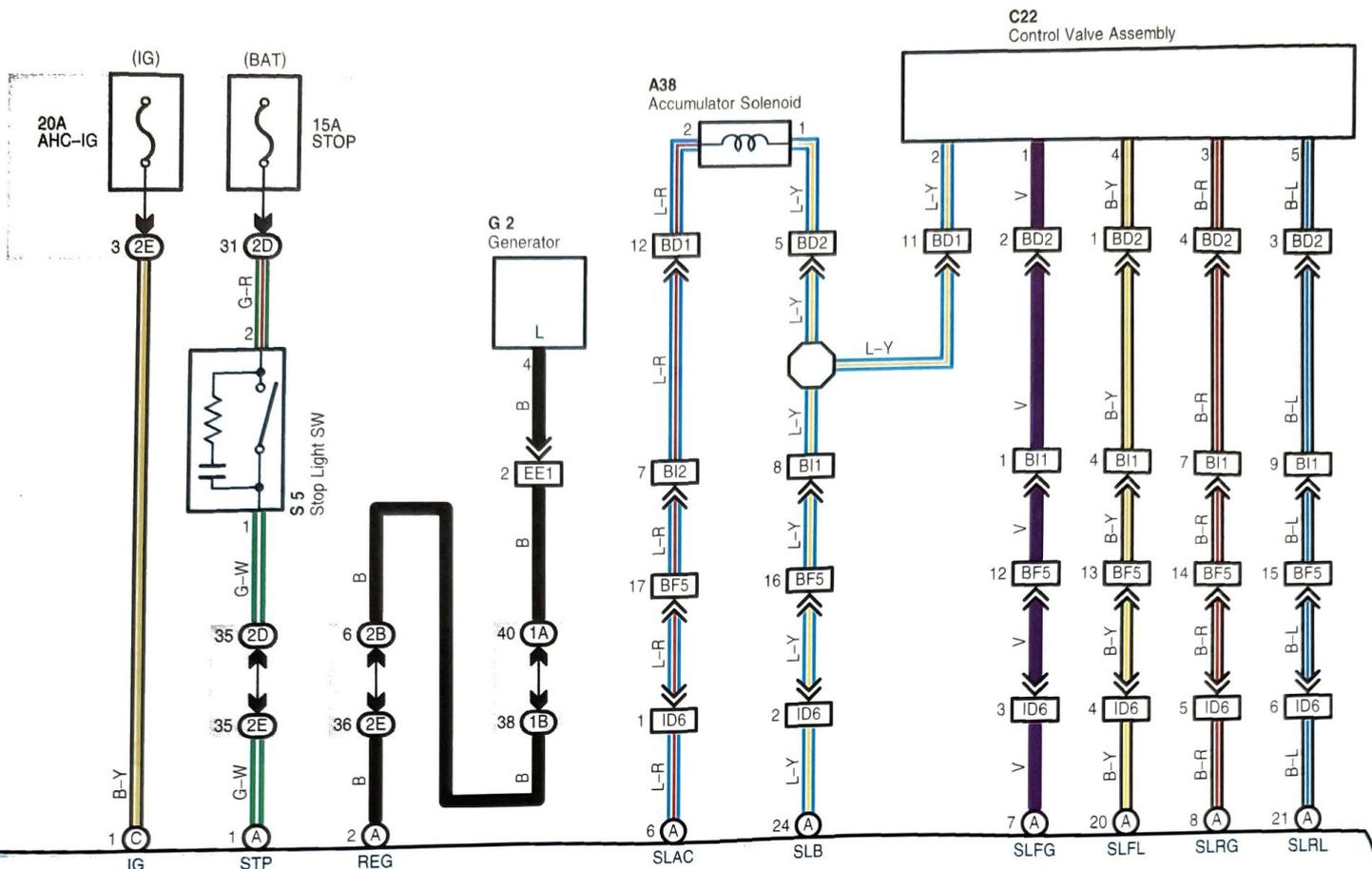
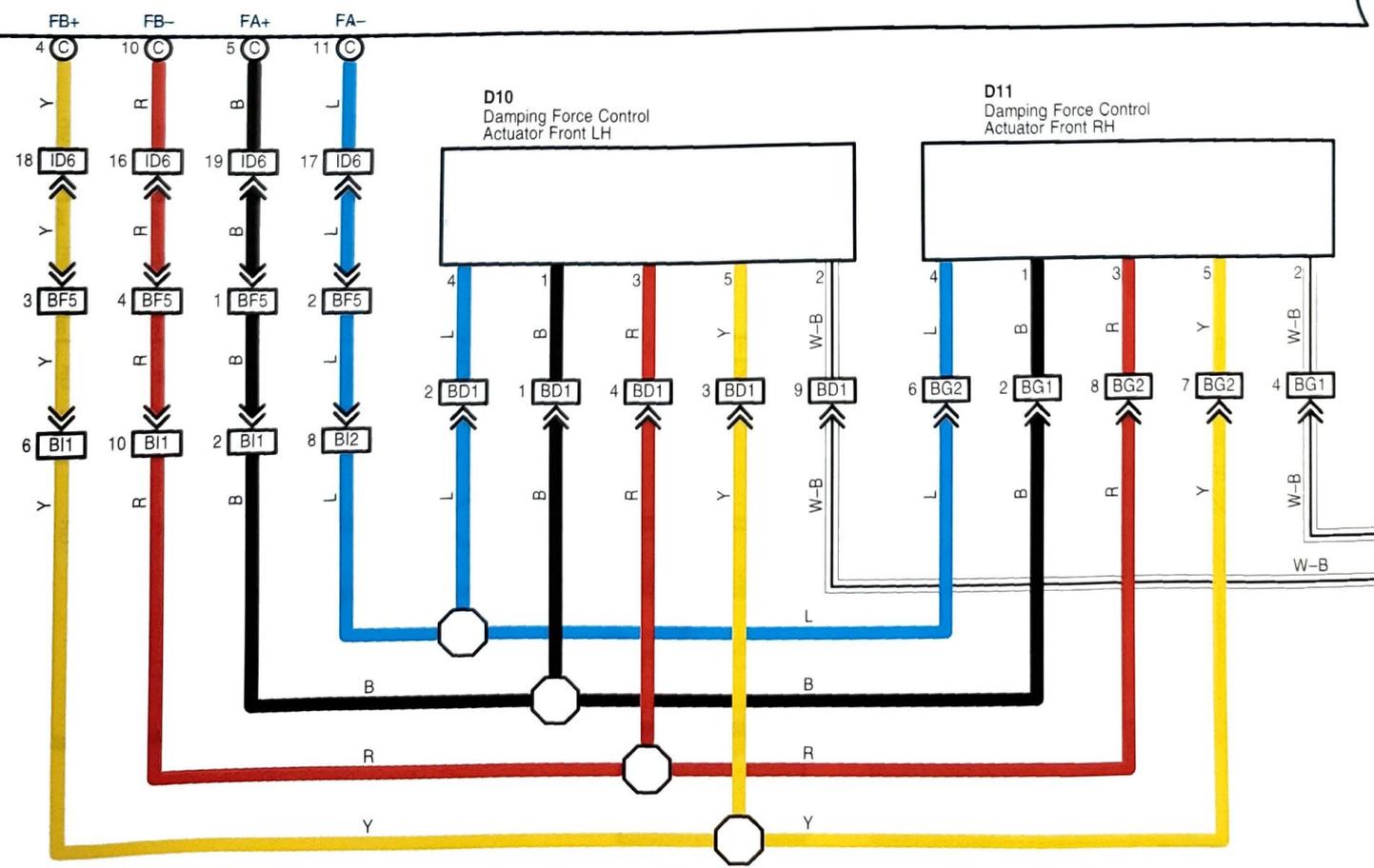


AHC and Adaptive Variable Suspension

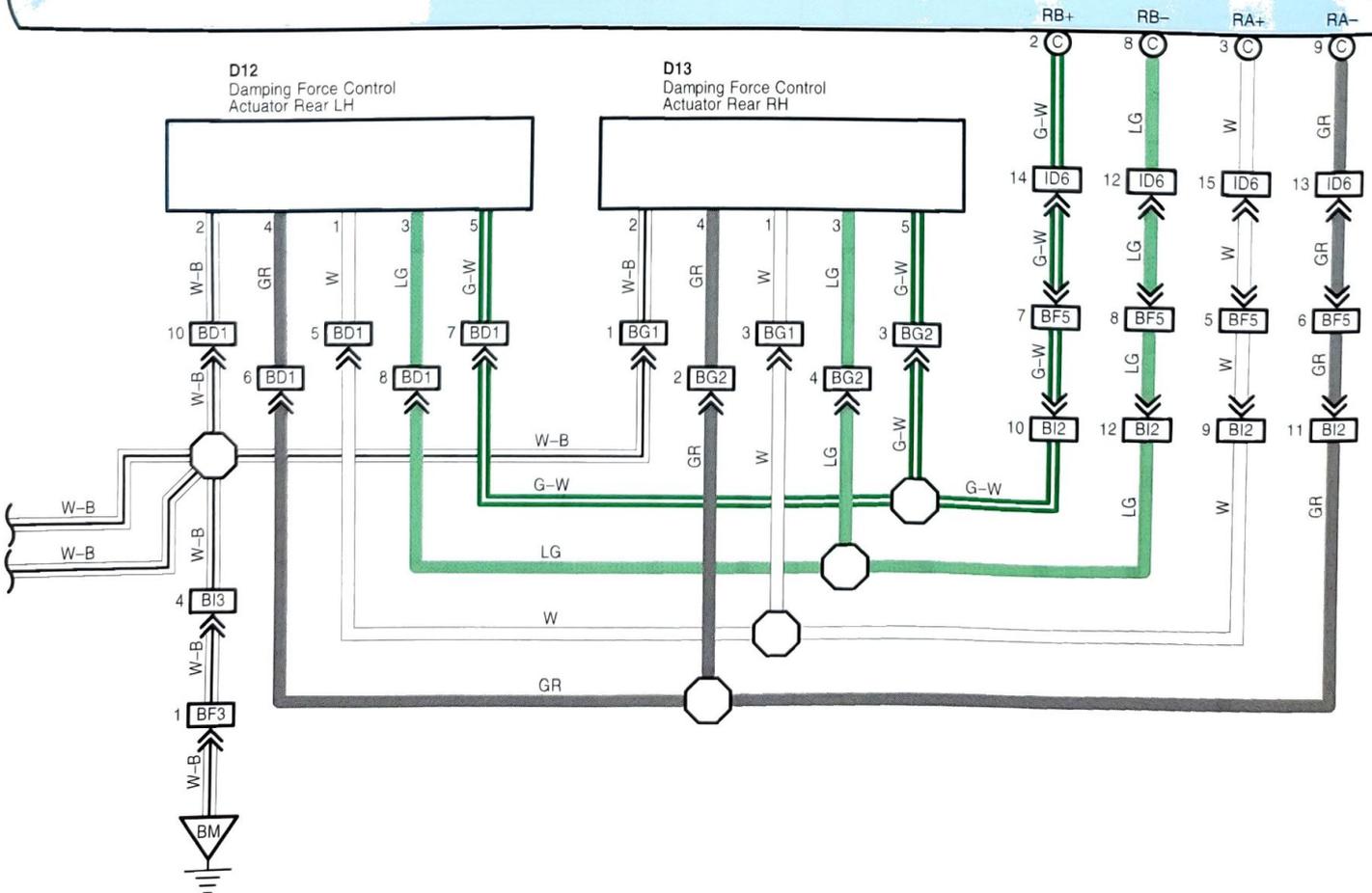
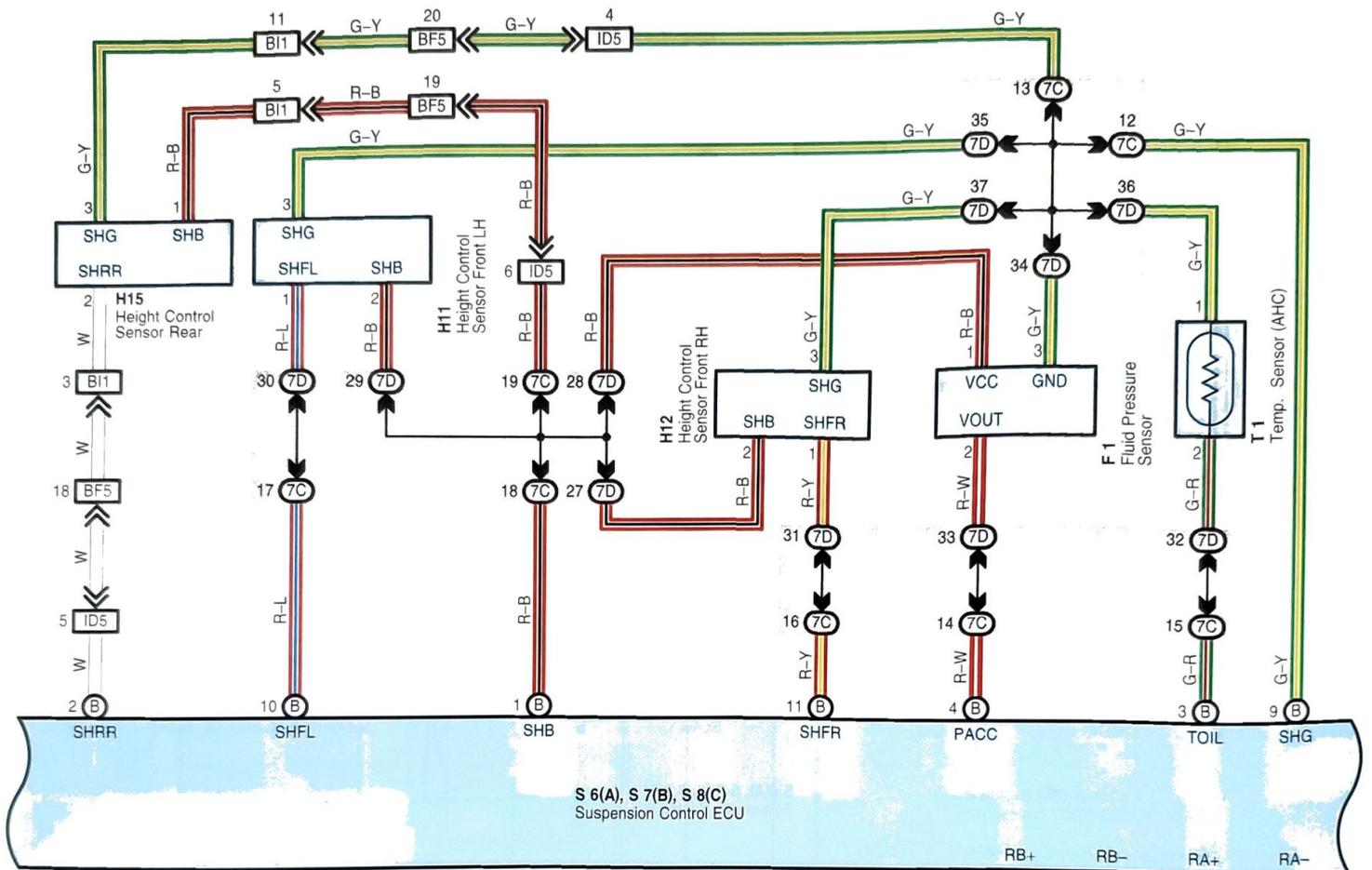


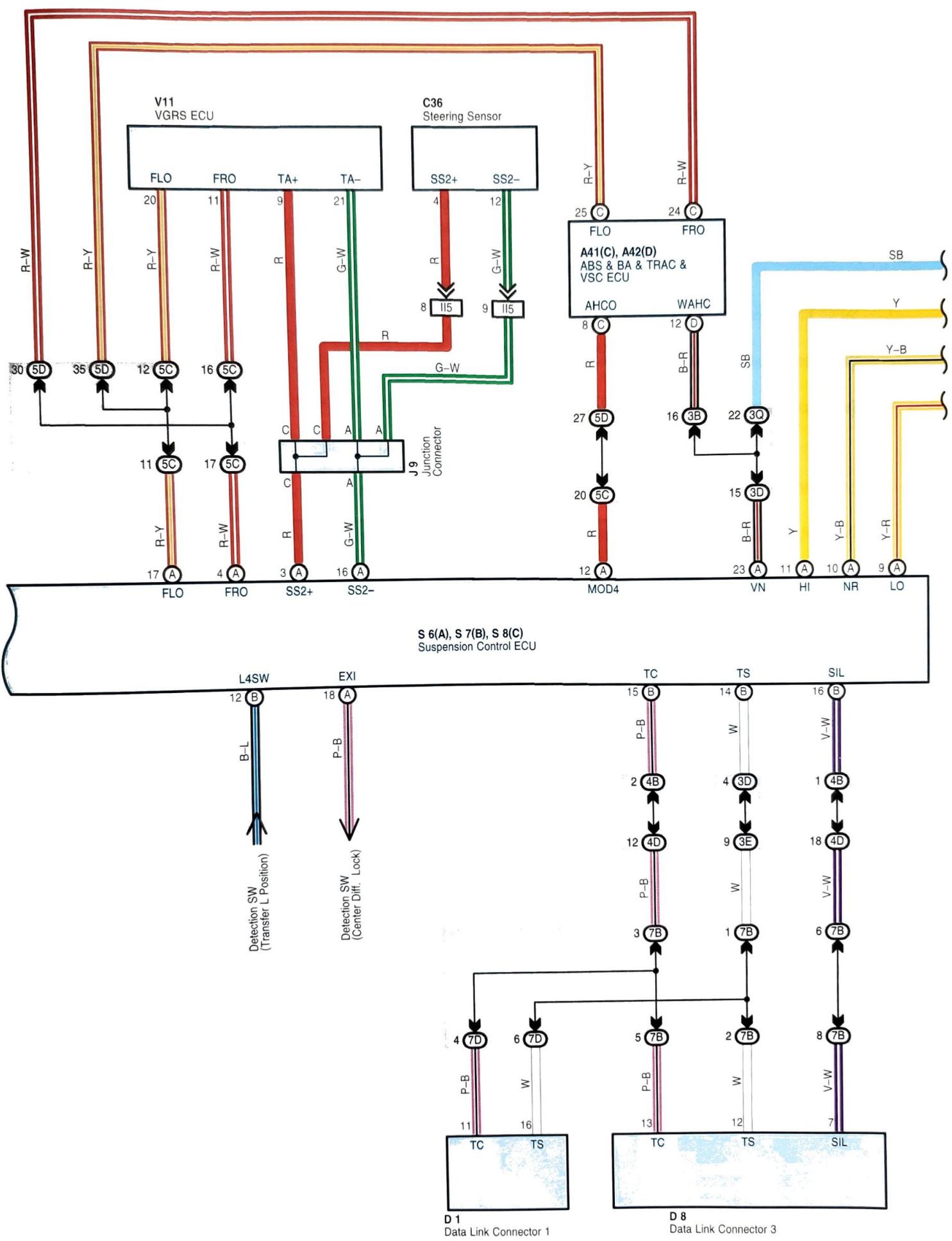


S 6(A), S 7(B), S 8(C)
Suspension Control ECU

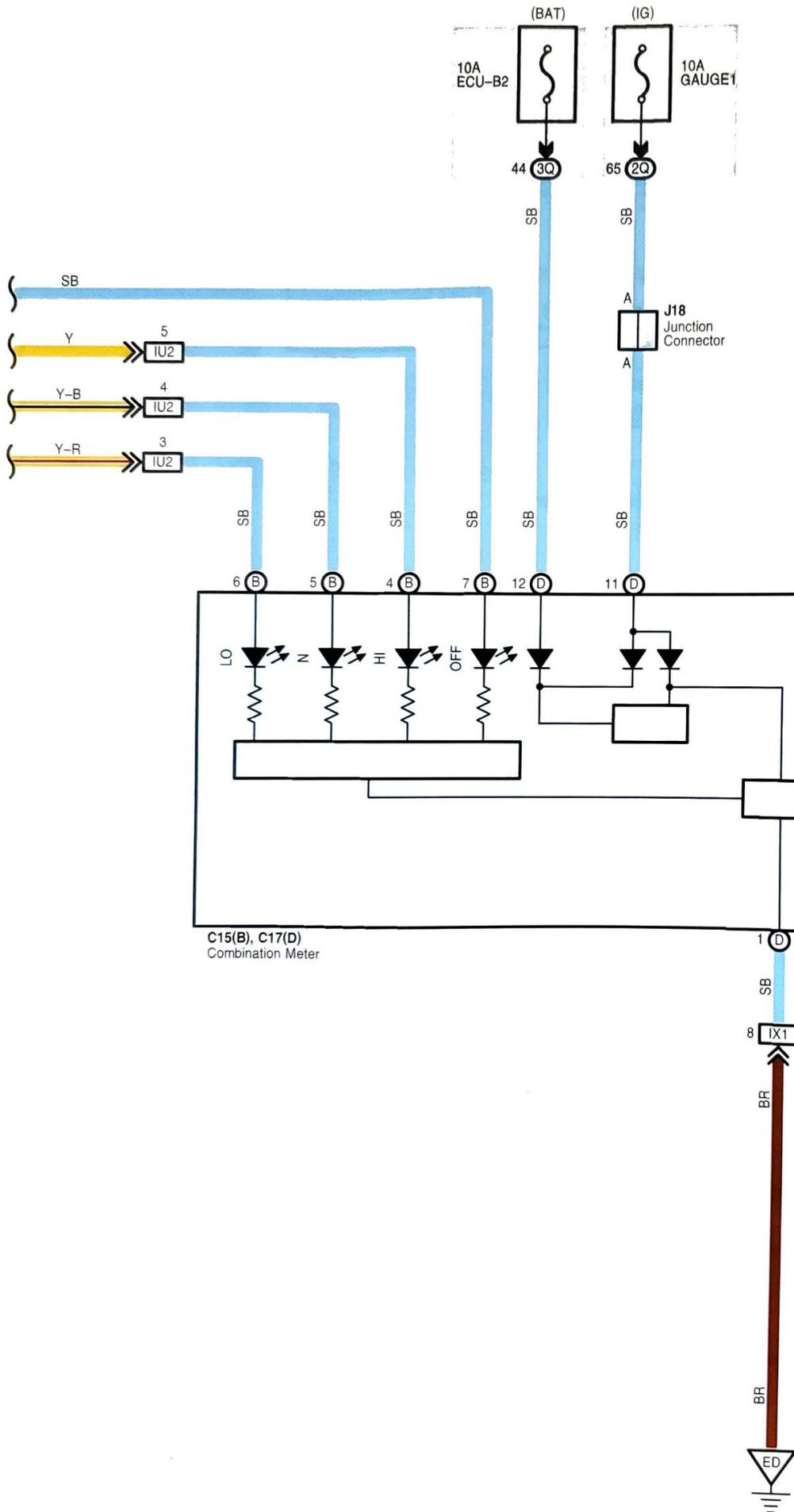


AHC and Adaptive Variable Suspension





AHC and Adaptive Variable Suspension



System Outline

This system is a combined system of the vehicle height adjustment system and the damping force control system.

1. Input Signals

- (1) Height control sensor signal
The vehicle height and the distance between the tire and body frame is detected, and is input to suspension control ECU TERMINALS SHFL, SHFR, SHRR.
- (2) Fluid pressure sensor signal
The hydraulic pressure is detected, and the signal is input to suspension control ECU TERMINAL PACC.
- (3) Temperature sensor signal
The fluid temperature is detected, and the signal is input to suspension control ECU TERMINAL TOIL.
- (4) Height control SW signal
Detects the changes in the target vehicle height, and the signal is input to suspension control ECU TERMINALS DNSW, UPSW.
Detects the changes in the vehicle height control, and the signal is input to suspension control ECU TERMINAL NSW.
- (5) Differential lock detection SW signal
Detects the differential lock, and the signal is input to suspension control ECU TERMINAL EXI.
- (6) L detection SW signal
Detects the transfer gear L, and the signal is input to suspension control ECU TERMINAL L4SW.
- (7) Stop light SW signal
Detects the brake signal, and the signal is input to suspension control ECU TERMINAL STP.
- (8) Generator signal
Detects whether the engine is running or not, and the signal is input to suspension control ECU TERMINAL REG.
- (9) Door courtesy SW signal
Detects whether the door is open or closed, and the signal is input to suspension control ECU TERMINAL DOOR.
- (10) Steering sensor signal
Detects the rotation number of the steering wheel, and the signal is input to suspension control ECU TERMINAL SS2+, SS2-.
- (11) Wheel speed sensor signal
Detects the wheel speed signal, and the signal is input to suspension control ECU TERMINAL FLO, FRO.
- (12) Damping mode select SW signal
Detects whether the damping force mode is selected or not, and the signal is input to suspension control ECU TERMINALS TSW1, TSW2.
- (13) Intelligent tester communication signal
The intelligent tester requirement signal is sent to suspension control ECU TERMINAL SIL. The suspension control ECU also sends back a signal to the intelligent tester.

2. Vehicle Height Adjustment Function

- (1) Vehicle height adjustment by the SW
By operating the SW, the vehicle height can be adjusted to three heights, low, normal, and high.
- (2) Automatic leveling function
The vehicle height is maintained at a certain level when the load is within the specified load capacity.
- (3) Vehicle speed detection function
The height is adjusted automatically in response to the vehicle speed.
- (4) Extra HI mode
In L range with the height at HI mode, the height is raised 20 mm automatically, when the wheels are idling on a bumpy road surface.
- (5) Vehicle height control SW
When the vehicle height control SW is turned off, the vehicle height control functions could be inhibited.

AHC and Adaptive Variable Suspension

3. Damping Force Control Function

(1) Bouncing control

The front and rear wheels are independently controlled electronically, to ensure adequate damping force at all times, in response to the bumpy road surface.

(2) Harshness control

The damping force is controlled not to increase when the road condition does not require damping force, to ensure smooth and comfortable riding.

(3) Unsprung vibration control

When unsprung sympathetic vibration is detected, the damping force is controlled so that it does not decrease below a certain level, to prevent such vibration and converge it, to ensure road holding.

(4) Vehicle speed sensing control

To ensure optimal balance of comfortable riding and road holding, the minimum damping force is increased as the vehicle speed increases.

(5) Anti-roll control

When the driver makes a turn, the damping force is controlled electronically according to the condition, and slows down the vehicle rolling speed.

(6) Anti-dive control

The vehicle dive condition is detected at an early stage through braking and the vehicle wheel speed signal, and the damping force is controlled according to the condition, to slow down the dive speed when decelerating.

(7) Anti-squat control

The vehicle squat condition at acceleration is detected at an early stage, and the damping force is switched to a higher level to avoid squat.

(8) Damping mode select SW

The damping mode select SW has 4 modes, and can be changed according to the driver preference.

4. Wheel Disconnection Function

Usually the right and left wheels are connected, but when the driver turns the steering wheel, the wheels are disconnected in response to the condition. This is to prevent roll angle increase when making a turn.

○ : Parts Location

Code	See Page	Code	See Page	Code	See Page
A14	72	D1	72	H15	78
A24	74	D7	75	J7	76
A38	78	D8	75	J9	76
A41	C 74	D10	78	J18	76
A42	D 74	D11	78	S5	77
B7	A 74	D12	78	S6	A 77
B9	C 74	D13	78	S7	B 77
C15	B 75	F1	72	S8	C 77
C17	D 75	G2	72	T1	73
C22	78	H11	73	V11	77
C36	75	H12	73		

○ : Relay Blocks

Code	See Page	Relay Blocks (Relay Block Location)
1	22	Engine Room R/B (Engine Compartment Left)

 : Junction Block and Wire Harness Connector

Code	See Page	Junction Block and Wire Harness (Connector Location)
1A	24	Engine Room Main Wire and Engine Room J/B (Engine Compartment Left)
1B	24	Engine Room No.2 Wire and Engine Room J/B (Engine Compartment Left)
2B	28	Engine Room No.2 Wire and Cowl Side J/B LH (Left Kick Panel)
2D	28	Dash Wire and Cowl Side J/B LH (Left Kick Panel)
2E		
2Q	30	Instrument Panel Integration Wire and Cowl Side J/B LH (Left Kick Panel)
3B	40	Engine Room No.2 Wire and Cowl Side J/B RH (Right Kick Panel)
3D	40	Dash Wire and Cowl Side J/B RH (Right Kick Panel)
3E		
3Q	42	Instrument Panel Integration Wire and Cowl Side J/B RH (Right Kick Panel)
4B	52	Dash Wire and J/B No.4 (Instrument Panel Center)
4D		
5B	56	Dash Wire and J/B No.5 (Behind the Combination Meter)
5C		
5D	56	Engine Room No.2 Wire and J/B No.5 (Behind the Combination Meter)
7B	64	Dash Wire and J/B No.7 (Behind the Glove Box)
7C		
7D	64	Engine Room No.2 Wire and J/B No.7 (Behind the Glove Box)

 : Connector Joining Wire Harness and Wire Harness

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)
EE1	82	Engine Room Main Wire and Alternator Wire (Near the Battery)
ID5	84	Dash Wire and Floor No.1 Wire (Left Kick Panel)
ID6		
I15	84	Dash Wire and Column Wire (Near the Ignition SW)
IU2	84	Instrument Panel Integration Wire and Dash Wire (Behind the Glove Box)
IX1	85	Instrument Panel Integration Wire and Engine Wire (Behind the Glove Box)
BD1	86	Frame No.2 Wire and Frame Wire (Near the Left Rear Suspension Support)
BD2		
BF3	86	Floor No.3 Wire and Floor No.1 Wire (Left Rear Side Quarter Panel)
BF5		
BG1	86	Frame No.3 Wire and Frame Wire (Near the Right Rear Suspension Support)
BG2		
BI1	86	Frame Wire and Floor No.3 Wire (Left Side of Rear Floor Crossmember)
BI2		
BI3		

 : Ground Points

Code	See Page	Ground Points Location
ED	82	Rear Side of Left Cylinder Head
EE	82	Near the Front Left Suspension Tower
IF	84	Set Bolt of Cowl Side J/B LH
II	84	Set Bolt of Cowl Side J/B RH
BM	86	Left Rear Side Quarter Panel