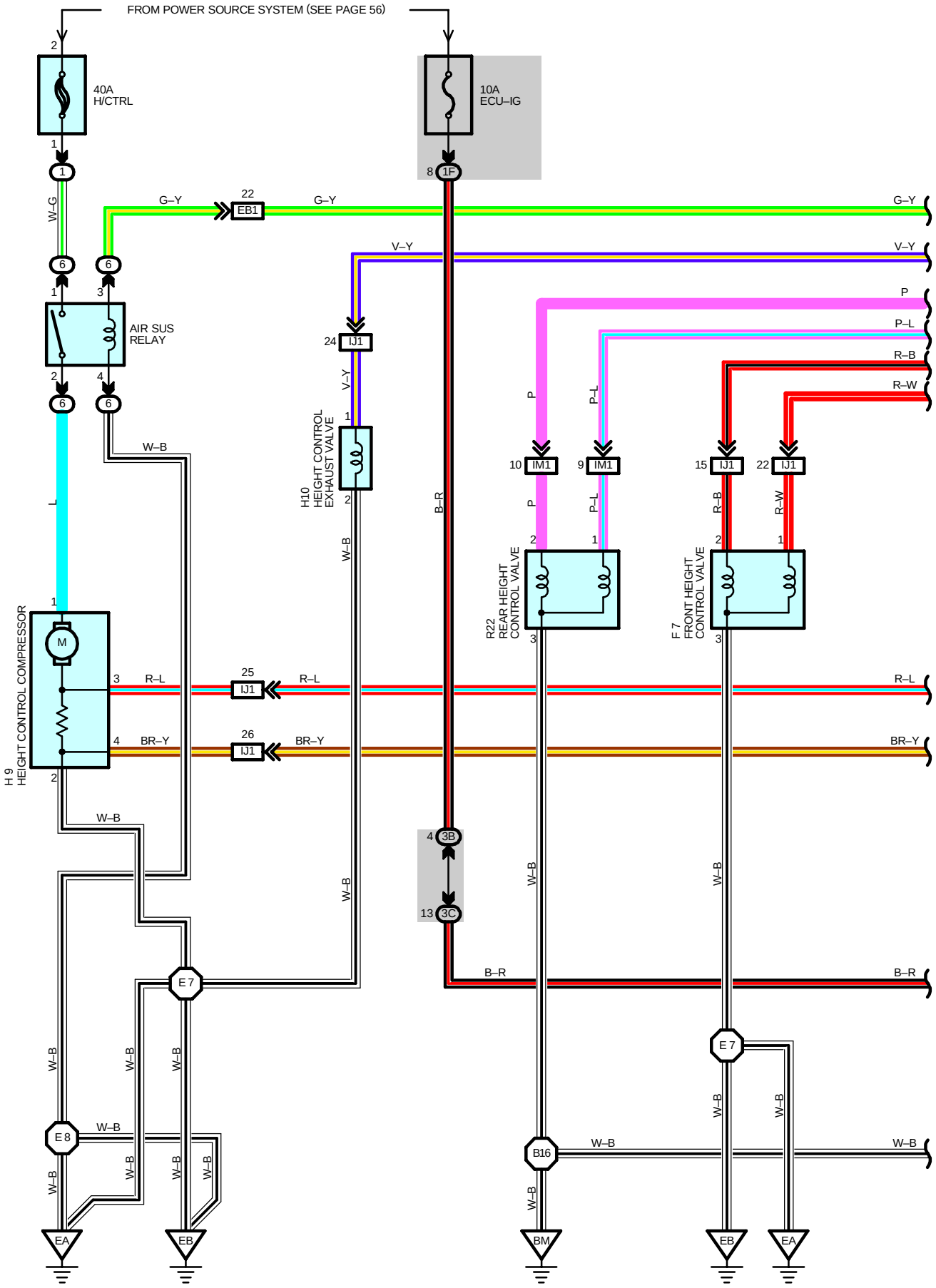
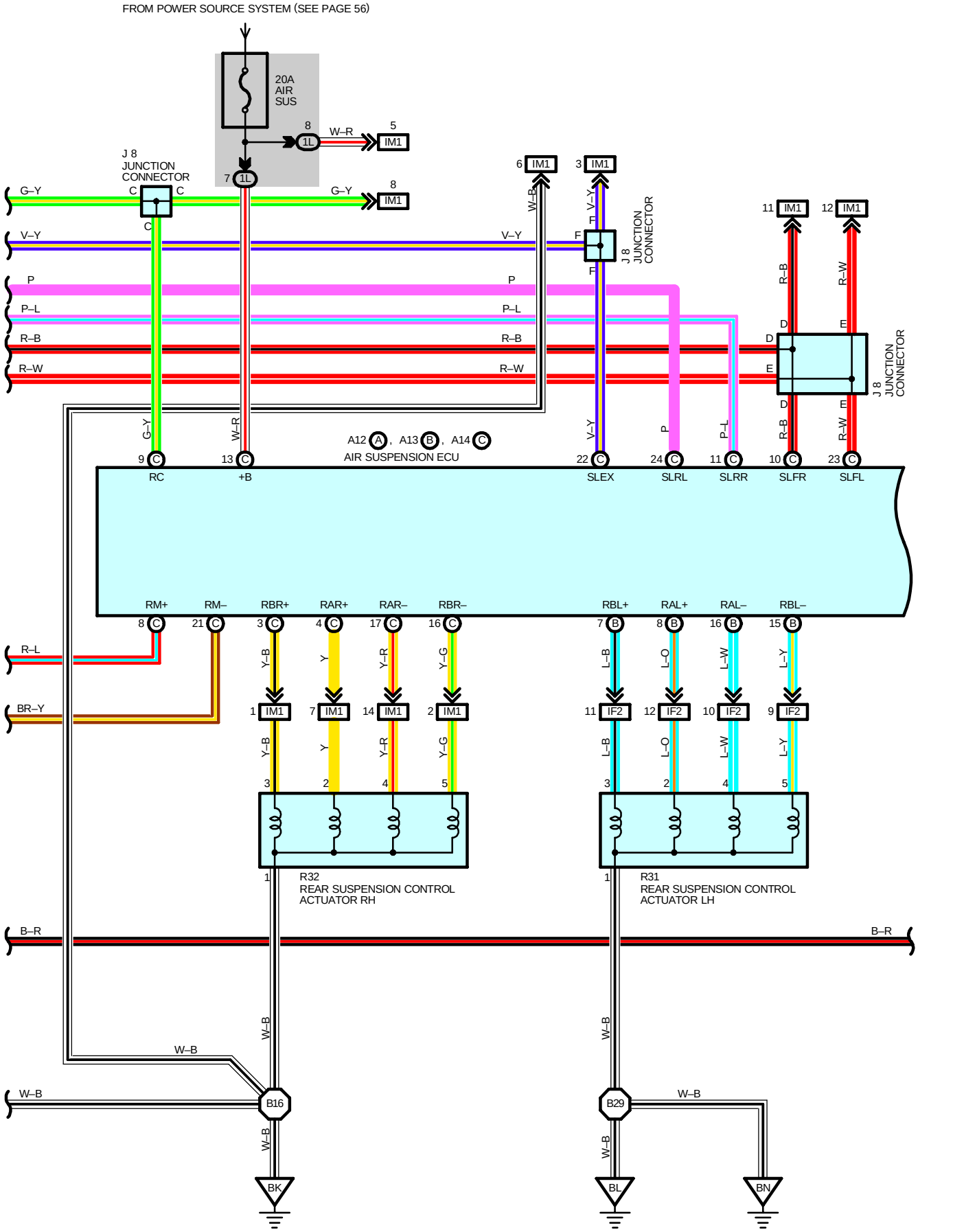
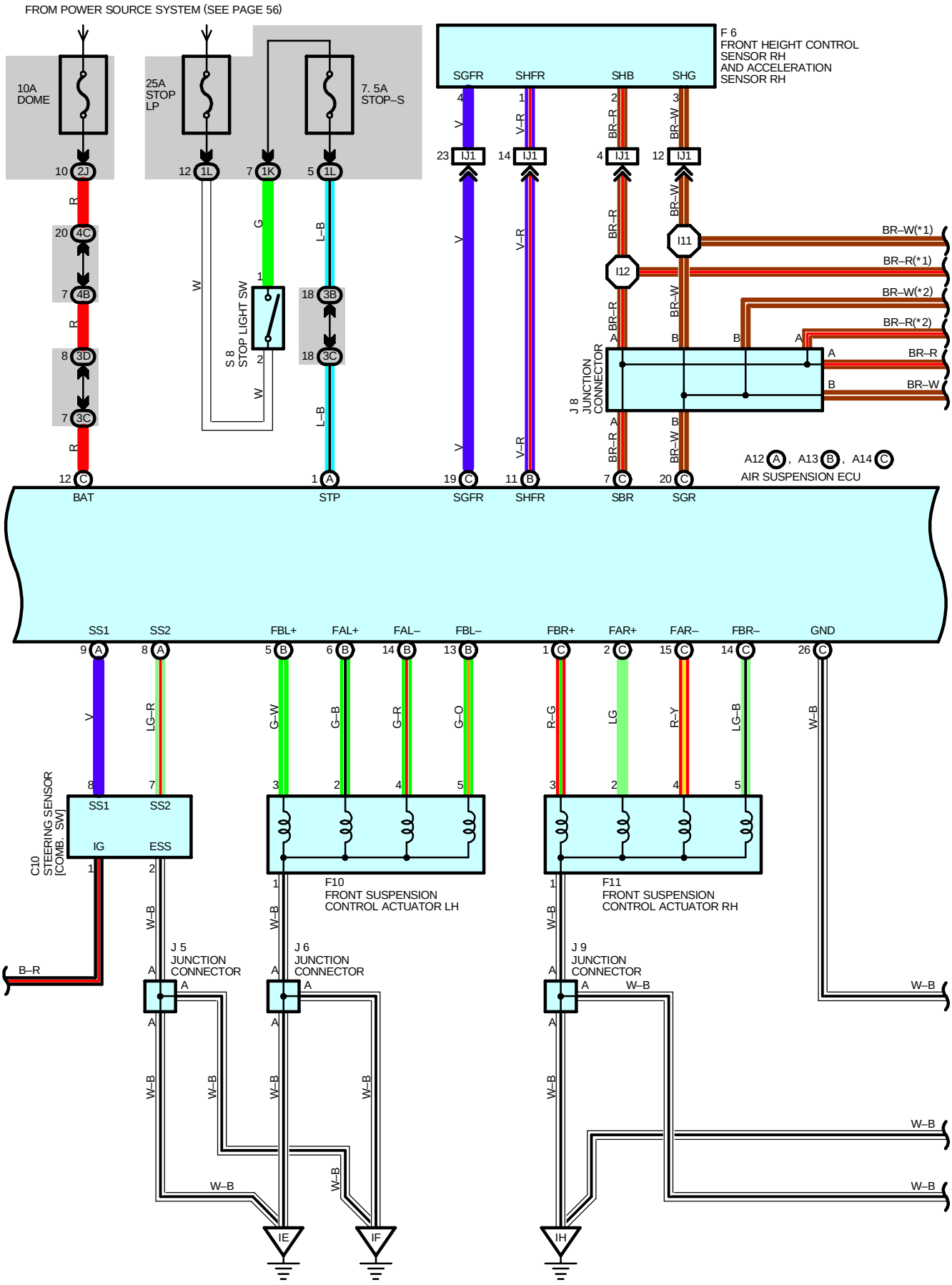
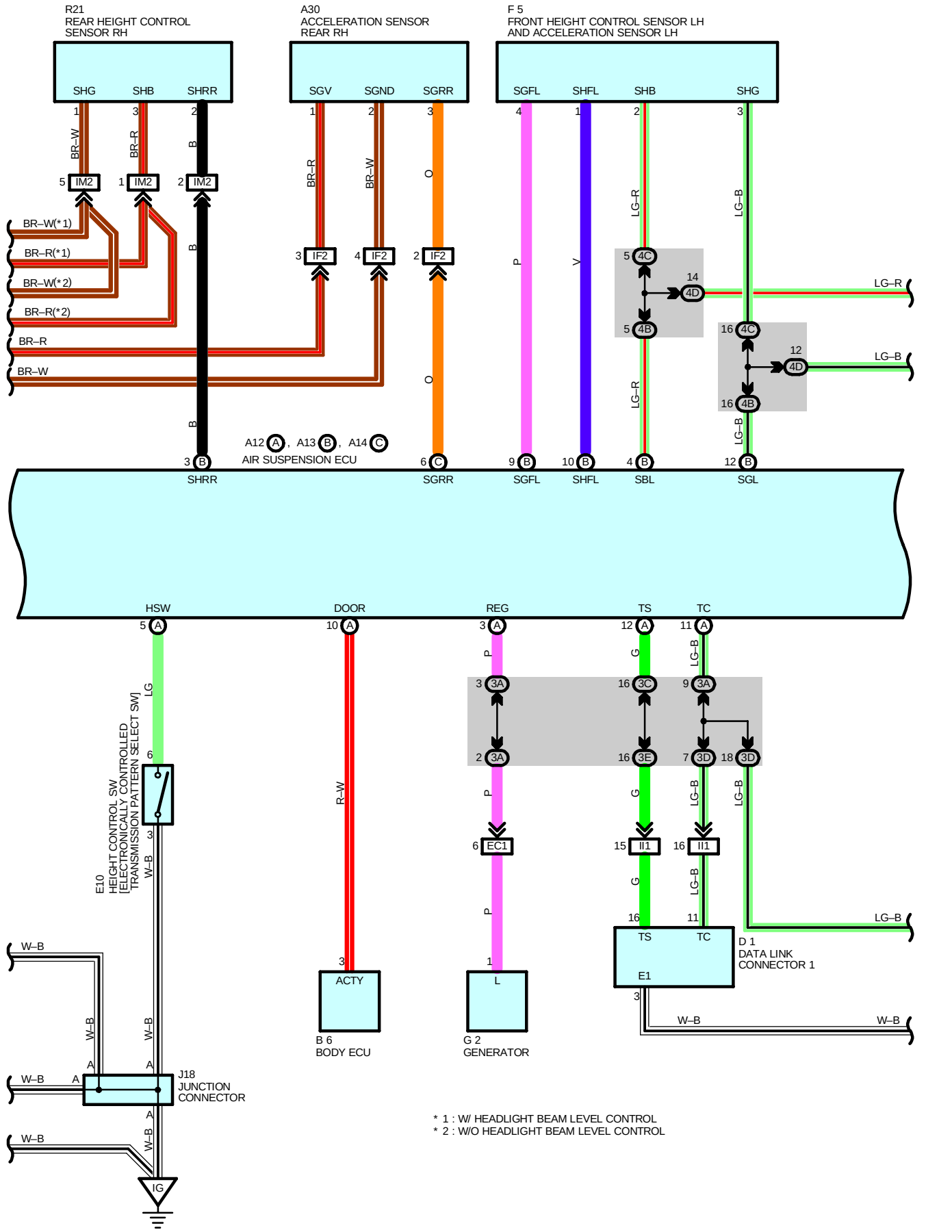
ELECTRONICALLY MODULATED AIR SUSPENSION



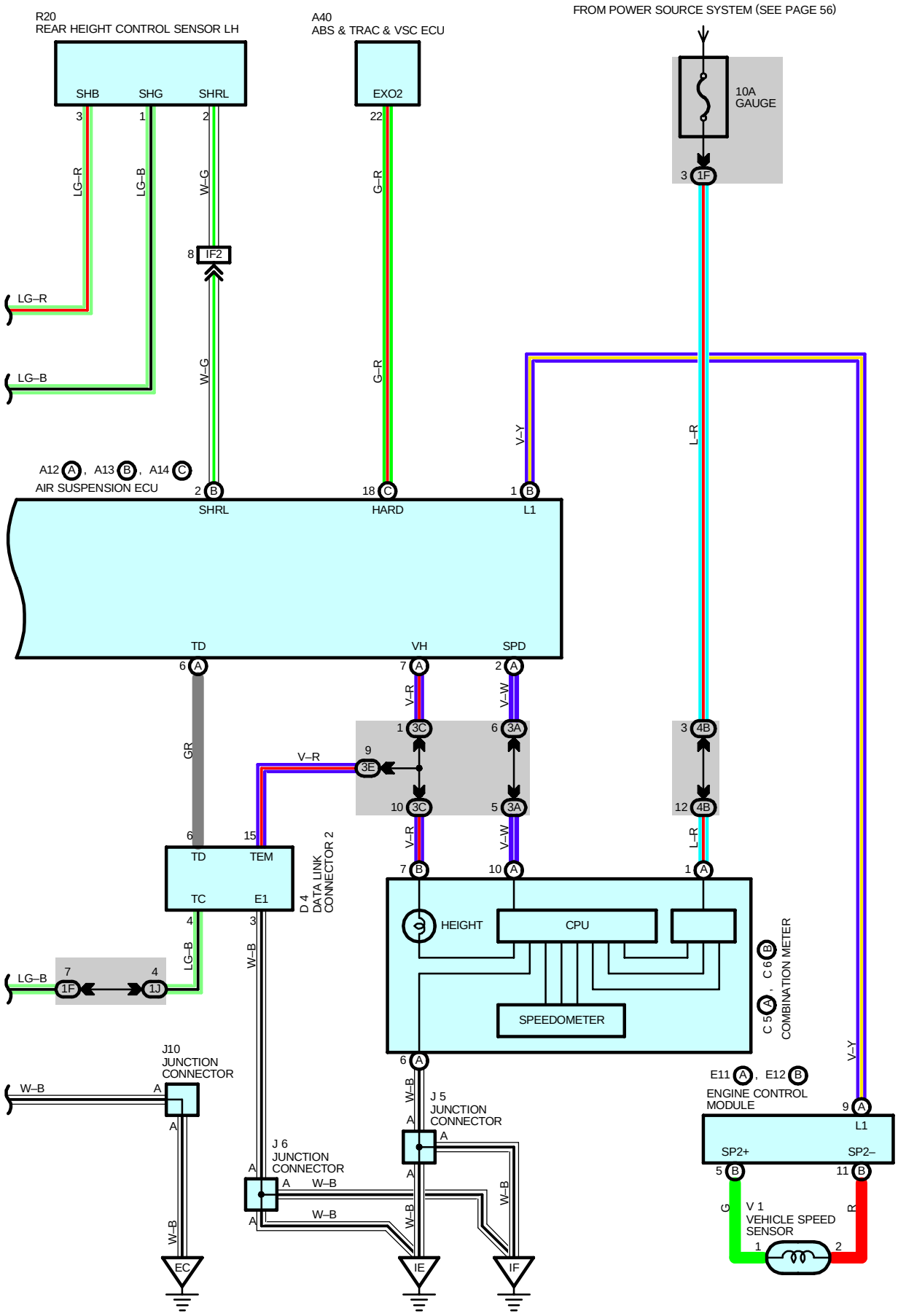

FROM POWER SOURCE SYSTEM (SEE PAGE 56)
20A
AIR
SUS
J 8
JUNCTION
CONNECTOR
G–Y
V–Y
P
P–L
R–B
R–W
W–R
W–B
V–Y
J 8
JUNCTION
CONNECTOR
A12 A , A13 B , A14 C
AIR SUSPENSION ECU
RC
+B
SLEX
SLRL
SLRR
SLFR
SLFL
RM+
RM–
RBR+
RAR+
RAR–
RBR–
RBL+
RAL+
RAL–
RBL–
R–L
BR–Y
Y–B
Y
Y–R
Y–G
L–B
L–O
L–W
L–Y
R32
REAR SUSPENSION CONTROL
ACTUATOR RH
R31
REAR SUSPENSION CONTROL
ACTUATOR LH
B–R
B16
B29
BK
BL
BN

ELECTRONICALLY MODULATED AIR SUSPENSION




R21
REAR HEIGHT CONTROL SENSOR RH
A30
ACCELERATION SENSOR REAR RH
F 5
FRONT HEIGHT CONTROL SENSOR LH AND ACCELERATION SENSOR LH
SHG
SHB
SHRR
SGV
SGND
SGRR
SGFL
SHFL
SHB
SHG
BR–W
BR–R
B
O
P
V
LG–R
LG–B
IM2
IF2
BR–W(*1)
BR–R(*1)
BR–W(*2)
BR–R(*2)
BR–R
BR–W
A12 A, A13 B, A14 C
AIR SUSPENSION ECU
SHRR
SGRR
SGFL
SHFL
SBL
SGL
HSW
DOOR
REG
TS
TC
LG
R–W
W–B
E10
HEIGHT CONTROL SW
[ELECTRONICALLY CONTROLLED TRANSMISSION PATTERN SELECT SW]
ACTY
B 6
BODY ECU
EC1
L
G 2
GENERATOR
II1
TS
TC
E1
D 1
DATA LINK CONNECTOR 1
J18
JUNCTION CONNECTOR
IG
* 1 : W/ HEADLIGHT BEAM LEVEL CONTROL
* 2 : W/O HEADLIGHT BEAM LEVEL CONTROL

ELECTRONICALLY MODULATED AIR SUSPENSION



SYSTEM OUTLINE

This system consists of a pneumatic cylinder which has pressured air in an air chamber, an ECU which automatically switches vehicle height between two ranges (Normal and high) according to the driving conditions and also two (2) modes (Normal and high) which the driver can choose from according to preference.
Also, the damping force of the shock absorber is automatically switched by the ECU among nine levels (Soft to hard).
Combined control of vehicle height and damping force suppresses changes in the vehicle's attitude such as roll, nose dive and squat to provide outstanding riding comfort and controllability.

1. INPUT SIGNALS

(1) Steering sensor signal
Rotation angle of the steering wheel is input to TERMINALS SS1 and SS2 of the air suspension ECU.

(2) Throttle position sensor signal
The throttle valve opening angle is detected and the signal is input to TERMINAL L1 of the air suspension ECU via the engine control module.

(3) Vehicle speed sensor signal
The vehicle speed is detected by the vehicle speed sensor and the signal is input to TERMINAL SPD of the air suspension ECU.

(4) Stop light SW signal
The brake operation signal is detected and the signal is input to TERMINAL STP of the air suspension ECU.

(5) Height control SW signal
Whether the height control SW is in normal or high mode is detected and the signal is input to TERMINAL HSW of the air suspension ECU.

(6) Height control sensor signal
The vehicle height and the different levels of the road surface are detected by the height control sensor and the signal is input to TERMINALS SHFL, SHFR, SHRL and SHRR of the air suspension ECU.

(7) Door courtesy SW signal
Whether the door is open or closed is detected and input to TERMINAL DOOR of the air suspension ECU.

2. AIR SUSPENSION OPERATION

* High position
Signals from the vehicle speed sensor, height control sensor and so on are input to the air suspension ECU, which operates so that the current flows from the air suspension ECU to front and rear height control valve to open the pneumatic cylinder valve.
As a result, the passage is opened as far as the height control dryer. Then, the current flowing to the AIR SUS relay flows to the height control compressor. Control of this current by the air suspension ECU causes the compressor to operate and air flows into the pneumatic cylinder to raise the vehicle height.

* Low position
Signals from the vehicle speed sensor, height control sensor and so on are input to the air suspension ECU, which operates so that current flows from the air suspension ECU to front and rear height control valve to open the pneumatic cylinder valve.
As a result, the passage is opened as far as the height control dryer. Then, the current flows to the height control exhaust valve installed in the height control dryer. Control of this current by the air suspension ECU causes the valve to open so that the air inside the pneumatic cylinder is expelled and the vehicle height is lowered.

3. BASIC OPERATION OF SUSPENSION CONTROL ACTUATOR

The suspension control actuator controls the damping force of the shock absorber inside the pneumatic cylinder in 9 steps. Based on signals from the acceleration sensors, vehicle speed sensor and stop light switch, etc., the suspension ECU controls the suspension control actuator to adjust the damping force of the shock absorber.

As the following table shows, the damping force of the shock absorber is changed by the current flowing from TERMINAL 2, 3, 4 and 5 of the suspension control actuators to TERMINAL 1 to GROUND.

B +	Ground	Position
Terminal 2 and 3	1	Soft 1 to 2
Terminal 3 and 4	1	2 to 3
Terminal 4 and 5	1	3 to 4
Terminal 5 and 2	1	4 to 5
Terminal 2 and 3	1	5 to 6
Terminal 3 and 4	1	6 to 7
Terminal 4 and 5	1	7 to 8
Terminal 5 and 2	1	8 to 9 Hard

SERVICE HINTS

A12 (A), A14 (C) AIR SUSPENSION ECU

(C)12–GROUND : Always approx. **12** volts
(C)13–GROUND : Approx. **12** volts with ignition SW at **ON** or **ST** position
(A) 1–GROUND : Approx. **12** volts with stop light SW on
(C)26–GROUND : Always continuity

H10 HEIGHT CONTROL EXHAUST VALVE

1–2 : Approx. **12** Ω

F7, R22 FRONT, REAR HEIGHT CONTROL VALVE

1, 2–3 : Approx. **12** Ω

F10, F11, R31, R32 FRONT, REAR SUSPENSION CONTROL ACTUATOR

2, 3, 4, 5–1 : Approx. **1.52** Ω

: PARTS LOCATION

Code		See Page	Code		See Page	Code	See Page
A12	A	34	E11	A	34	J8	35
A13	B	34	E12	B	34	J9	35
A14	C	34	F5		32	J10	35
A30		38	F6		32	J18	35
A40		34	F7		32	R20	39
B6		34	F10		32	R21	39
C5	A	34	F11		32	R22	39
C6	B	34	G2		32	R31	39
C10		34	H9		32	R32	39
D1		32	H10		32	S8	35
D4		34	J5		35	V1	33
E10		34	J6		35		

: RELAY BLOCKS

Code	See Page	Relay Blocks (Relay Block Location)
1	30	Engine Room R/B (Engine Compartment Left)
6	30	R/B No.6 (Under the Headlight LH)

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

Code	See Page	Junction Block and Wire Harness (Connector Location)
1F	22	Cowl Wire and Instrument Panel J/B (Rear of Parking Brake Release Lever)
1J		
1K		
1L		
2J	24	Cowl Wire and Engine Room J/B (Engine Compartment Left)
3A	26	Cowl Wire and Center J/B (Behind the Combination Meter)
3B		
3C		
3D		
3E		
4B	28	Cowl Wire and Driver Side J/B (Left Kick Panel)
4C		
4D	28	Floor No.2 Wire and Driver Side J/B (Left Kick Panel)

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)
EB1	42	Cowl Wire and Engine Room Main Wire (Under the Engine Room J/B)
EC1	42	Engine No.3 Wire and Cowl Wire (Front Side of Left Fender)
IF2	44	Floor No.2 Wire and Cowl Wire (Left Kick Panel)
II1	46	Engine Wire and Cowl Wire (Left Side of Blower Unit)
IJ1	46	Engine Room Main Wire and Cowl Wire (Right Side of Instrument Panel)
IM1	46	Floor Wire and Cowl Wire (Right Kick Panel)
IM2		

: GROUND POINTS

Code	See Page	Ground Points Location
EA	42	Front Side of Right Fender
EB	42	Front Side of Left Fender
EC	42	Rear Side of Cylinder Head RH
IE	44	Left Side of Instrument Panel J/B
IF	44	Behind the Combination Meter
IG	44	Instrument Panel Brace RH
IH	44	Right Side of Instrument Panel
BK	50	Under the Front Passenger's Seat
BL	50	Under the Driver's Seat
BM	50	Under the Right Rear Pillar
BN	50	Back Panel Right

: SPLICE POINTS

Code	See Page	Wire Harness with Splice Points	Code	See Page	Wire Harness with Splice Points
E7	42	Engine Room Main Wire	I12	46	Cowl Wire
E8			B16	50	Floor Wire
I11	46	Cowl Wire	B29	50	Floor No.2 Wire