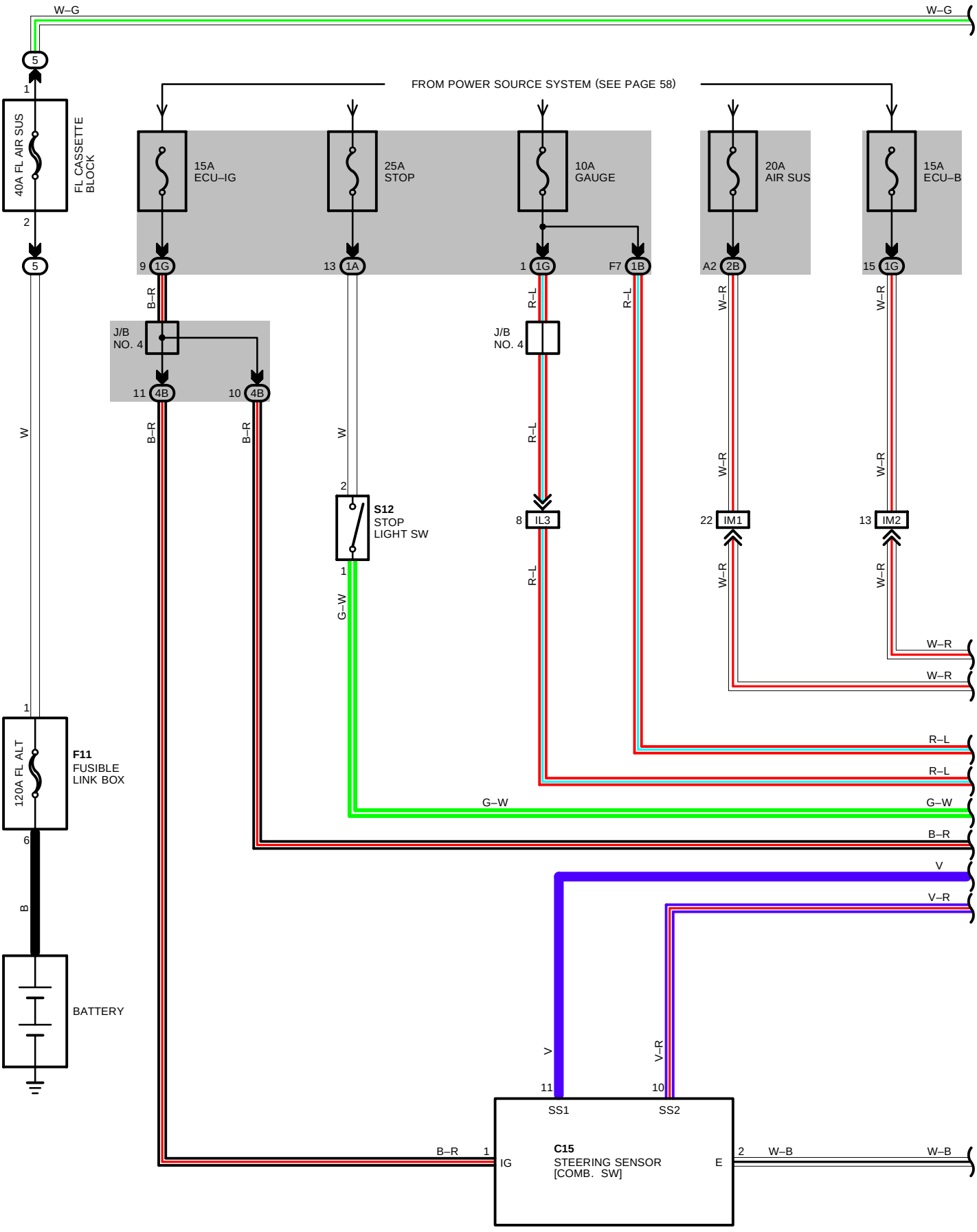
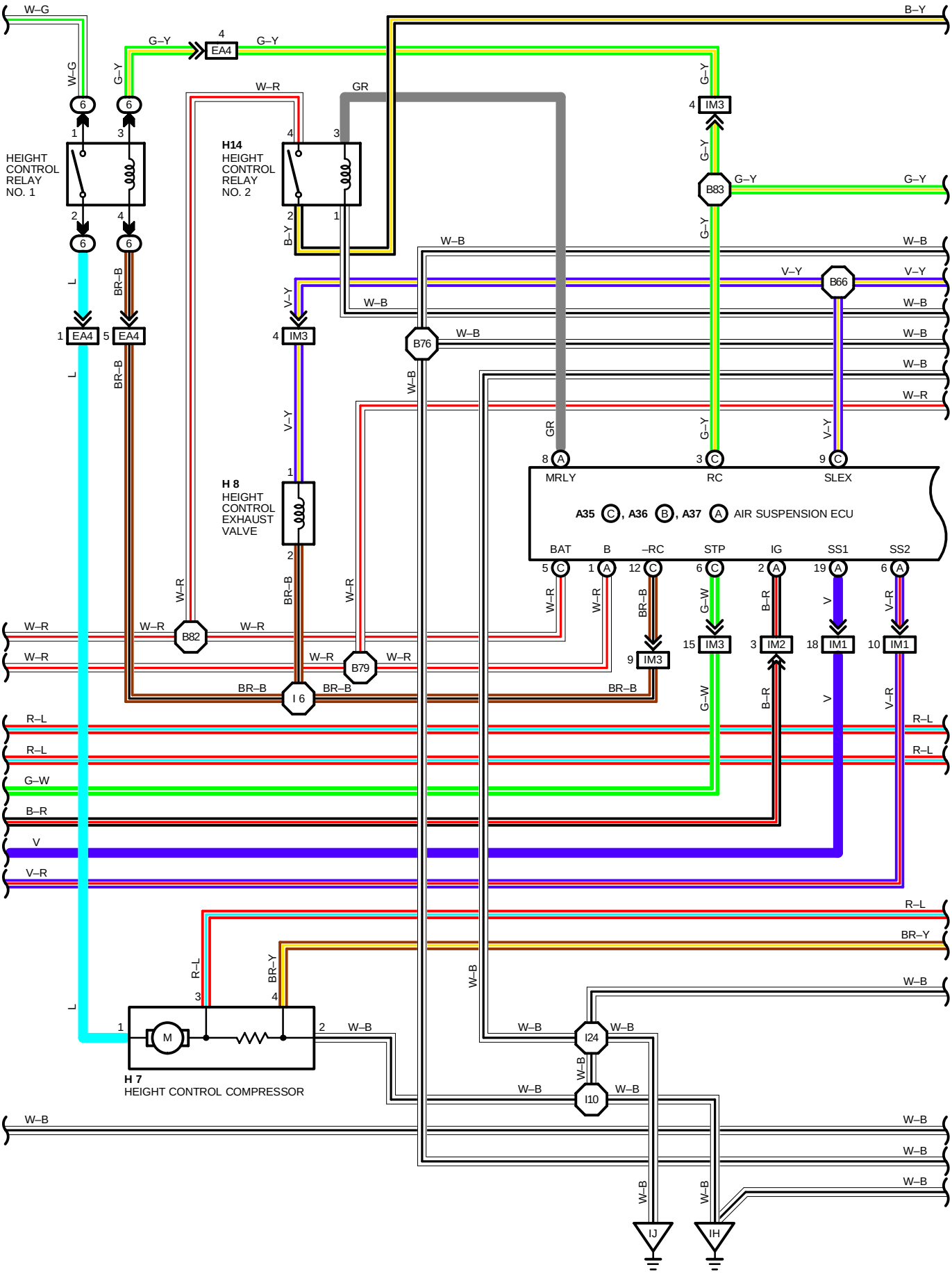
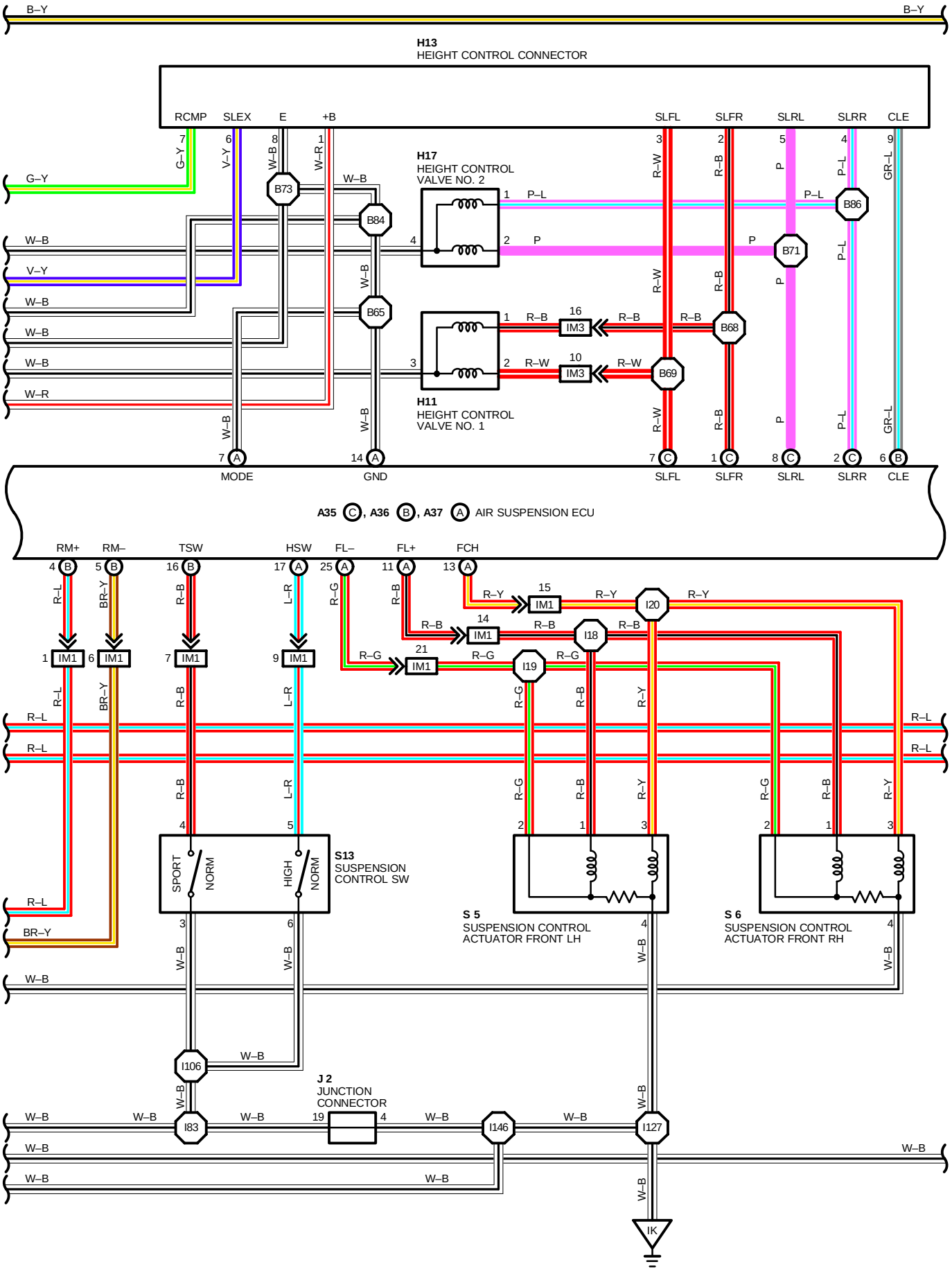
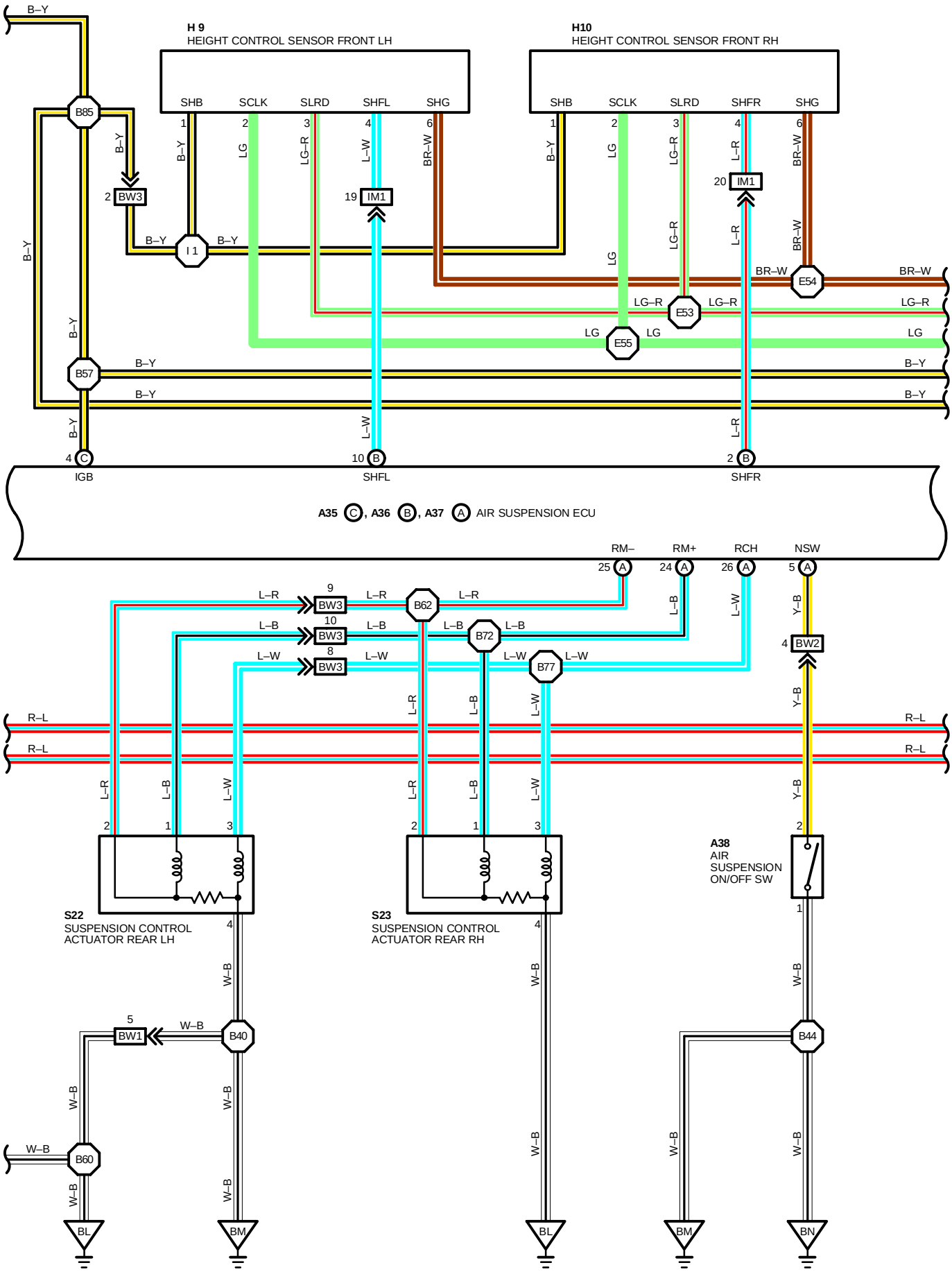

W–G
W–G
FROM POWER SOURCE SYSTEM (SEE PAGE 58)
40A FL AIR SUS
FL CASSETTE BLOCK
15A ECU–IG
25A STOP
10A GAUGE
20A AIR SUS
15A ECU–B
J/B NO. 4
J/B NO. 4
S12 STOP LIGHT SW
IL3
IM1
IM2
120A FL ALT
F11 FUSIBLE LINK BOX
BATTERY
C15 STEERING SENSOR [COMB. SW]
SS1
SS2
IG
E
W–B
W–B

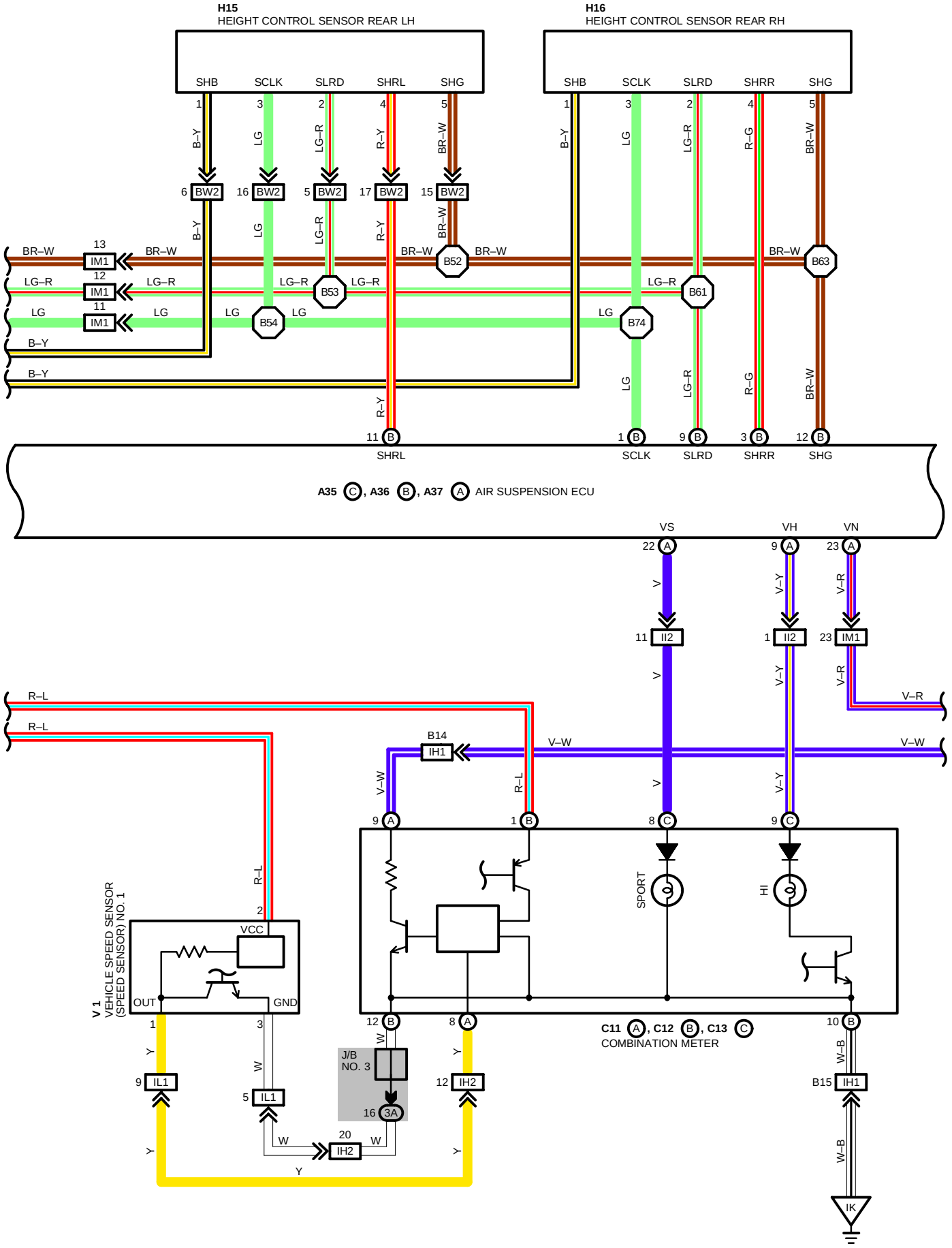

HEIGHT CONTROL RELAY NO. 1
H14 HEIGHT CONTROL RELAY NO. 2
H 8 HEIGHT CONTROL EXHAUST VALVE
H 7 HEIGHT CONTROL COMPRESSOR
A35 C, A36 B, A37 A AIR SUSPENSION ECU
MRLY
RC
SLEX
BAT
B
–RC
STP
IG
SS1
SS2
EA4
IM3
IM2
IM1
B66
B83
B76
B82
B79
I 6
I24
I10
IJ
IH
M

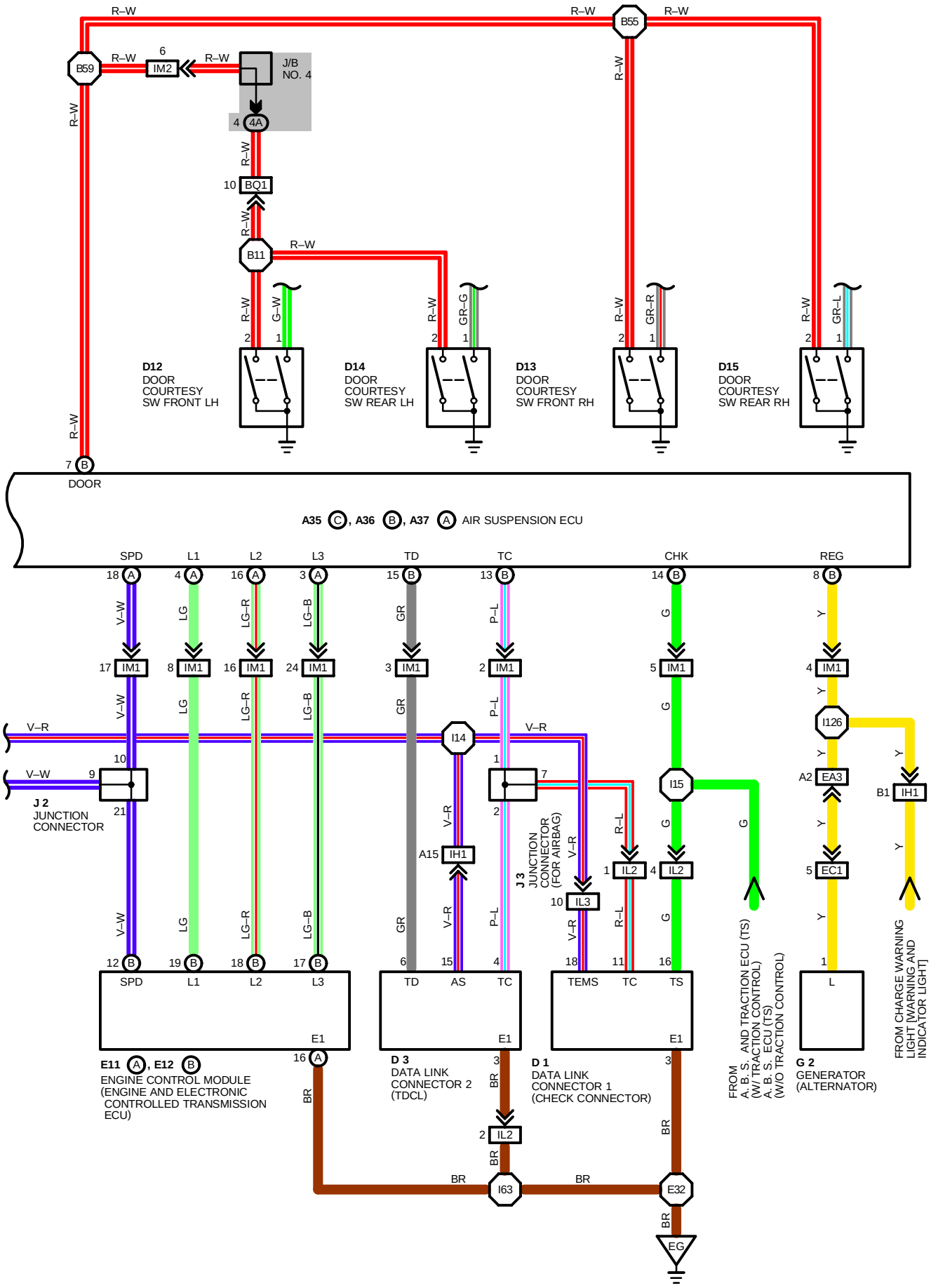
ELECTRONIC MODULATED AIR SUSPENSION




H 9
HEIGHT CONTROL SENSOR FRONT LH
H10
HEIGHT CONTROL SENSOR FRONT RH
SHB
SCLK
SLRD
SHFL
SHG
SHFR
B85
BW3
I 1
IM1
E54
E53
E55
B57
IGB
SHFL
SHFR
A35 C, A36 B, A37 A AIR SUSPENSION ECU
RM–
RM+
RCH
NSW
B62
B72
B77
BW2
S22
SUSPENSION CONTROL
ACTUATOR REAR LH
S23
SUSPENSION CONTROL
ACTUATOR REAR RH
A38
AIR
SUSPENSION
ON/OFF SW
BW1
B40
B60
B44
BL
BM
BN

ELECTRONIC MODULATED AIR SUSPENSION




B59
IM2
J/B NO. 4
4A
BQ1
B11
B55
D12 DOOR COURTESY SW FRONT LH
D14 DOOR COURTESY SW REAR LH
D13 DOOR COURTESY SW FRONT RH
D15 DOOR COURTESY SW REAR RH
DOOR
A35 C, A36 B, A37 A AIR SUSPENSION ECU
SPD
L1
L2
L3
TD
TC
CHK
REG
J 2 JUNCTION CONNECTOR
I14
A15 IH1
J 3 JUNCTION CONNECTOR (FOR AIRBAG)
IL3
IL2
I15
I126
EA3
EC1
IH1
B1
E11 A, E12 B ENGINE CONTROL MODULE (ENGINE AND ELECTRONIC CONTROLLED TRANSMISSION ECU)
D 3 DATA LINK CONNECTOR 2 (TDCL)
D 1 DATA LINK CONNECTOR 1 (CHECK CONNECTOR)
I63
E32
EG
FROM A. B. S. AND TRACTION ECU (TS) (W/ TRACTION CONTROL) A. B. S. ECU (TS) (W/O TRACTION CONTROL)
G 2 GENERATOR (ALTERNATOR)
FROM CHARGE WARNING LIGHT [WARNING AND INDICATOR LIGHT]

ELECTRONIC 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 THE SPRING RATE AND 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 BETWEEN THREE LEVELS (SOFT, MEDIUM AND FIRM) AND THE DRIVER CAN CHOOSE ONE OF TWO (2) MODES (NORMAL, SPORT) ACCORDING TO PREFERENCE.

COMBINED CONTROL OF THE SPRING RATE, VEHICLE HEIGHT AND DAMPING FORCE SUPPRESSES CHANGES IN THE VEHICLE'S ATTITUDE SUCH AS A ROLL, NOSE DIVE AND SQUAT TO PROVIDE OUTSTANDING RIDING COMFORT AND CONTROLLABILITY.

1. INPUT SIGNALS

(1) STEERING SENSOR SIGNAL

THE ROTATION ANGLE OF THE STEERING WHEEL ARE INPUT TO **TERMINAL SS1** AND **SS2** OF AIR SUSPENSION ECU.

(2) THROTTLE POSITION SENSOR SIGNAL

THE THROTTLE VALVE OPENING ANGLE IS DETECTED AND THE SIGNAL IS INPUT TO **TERMINALS L1, L2,** AND **L3** OF THE AIR SUSPENSION ECU VIA THE ENGINE CONTROL MODULE (ENGINE AND ELECTRONIC CONTROLLED TRANSMISSION ECU).

(3) VEHICLE SPEED SENSOR SIGNAL

THE VEHICLE SPEED IS DETECTED BY VEHICLE SPEED SENSOR (SPEED SENSOR) NO.1 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 A SIGNAL IS INPUT TO **TERMINAL STP** OF AIR SUSPENSION ECU.

(5) LRC SW SIGNAL

WHETHER THE LRC SWITCH IS IN NORMAL OR SPORT MODE IS DETECTED AND THE SIGNAL IS INPUT TO **TERMINAL TSW** OF THE AIR SUSPENSION ECU.

(6) HEIGHT SW SIGNAL

WHETHER THE HEIGHT SWITCH IS IN NORMAL OR HIGH MODE IS DETECTED AND THE SIGNAL IS INPUT TO **TERMINAL HSW** OF THE AIR SUSPENSION ECU.

(7) 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.

(8) DOOR COURTESY SW SIGNAL

WHETHER THE DOOR IS OPEN OR CLOSED IS DETECTED AND INPUT TO THE AIR SUSPENSION ECU.

2. AIR SUSPENSION OPERATION

*HIGH POSITION

SIGNALS FROM THE VEHICLE SPEED SENSOR (SPEED SENSOR), HEIGHT CONTROL SENSOR AND SO ON ARE INPUT TO THE AIR SUSPENSION ECU, WHICH ORERATES SO THAT THE CURRENT FLOWS FROM THE AIR SUSPENSION ECU TO HEIGHT CONTROL VALVE NO.1 AND NO.2 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 HEIGHT CONTROL 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 (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 HEIGHT CONTROL VALVE NO.1 AND NO.2 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 (LRC (LEXUS RIDE CONTROL) OPERATION)

(1) FROM SOFT OR MEDIUM TO FIRM POSITION

THE CURRENT FLOWS FROM **TERMINAL FL+** AND **RM+** OF AIR SUSPENSION ECU → **TERMINAL 1** OF EACH ACTUATOR → **TERMINAL 2** → **TERMINAL FL–** AND **RM–** OF ECU → **GROUND**, CAUSING THE MOTOR INSIDE THE ACTUATOR TO ROTATE, AND SWITCH THE ROTARY VALVE CONTROL ROD OF THE SHOCK ABSORBER TO THE **FIRM** POSITION. AT THIS TIME, THE ROTARY VALVE CONTROL ROD AND AIR VALVE CONTROL ROD INSIDE THE SUSPENSION CONTROL ACTUATOR ARE LINKED BY A GEAR SO THAT THE AIR VALVE CONTROL ROD ALSO ROTATES AND THE AIR VALVE CLOSES, CAUSING THE SPRING RATE TO CHANGE TO **FIRM** POSITION.

(2) FROM SOFT OR FIRM TO MEDIUM POSITION

CURRENT FLOWS FROM **TERMINAL FCH** AND **RCH** OF AIR SUSPENSION ECU → **TERMINAL 3** OF EACH ACTUATOR → **TERMINAL 4** → **GROUND**, SWITCHING THE ROTARY VALVE CONTROL ROD OF THE SHOCK ABSORBER TO THE **MEDIUM** POSITION.

THE AIR VALVE CONTROL ROD ROTATES AT THIS TIME BUT THE SPRING RATE REMAINS IN THE **FIRM** POSITION BECAUSE THE AIR VALVE IS ALSO CLOSED WHEN THE ROTARY VALVE CONTROL ROD IS IN **MEDIUM** POSITION.

(3) FROM FIRM OR MEDIUM TO SOFT POSITION

THE CURRENT FLOWS IN REVERSE TO (1) ABOVE AND THE CURRENT FLOWS FROM **TERMINAL FL–** AND **RM–** OF AIR SUSPENSION ECU → **TERMINAL 2** OF EACH ACTUATOR → **TERMINAL 1** → **TERMINAL FL+** AND **RM+** OF ECU → **GROUND**, CAUSING THE MOTOR IN THE ACUATOR TO ROTATE. AS A RESULT, THE ROTARY VALVE CONTROL ROD OF THE SHOCK ABSORBER IS SWITCHED TO **SOFT** POSITION. AT THIS TIME, THE AIR VALVE CONTROL ROD IS ROTATED TO OPEN THE AIR VALVE AND THE SPRING RATE IS SET TO THE **SOFT** POSITION BECAUSE THE AIR PASSAGE BETWEEN THE MAIN AIR CHAMBER AND SUB AIR CHAMBER IN THE PNEUMATIC CYLINDER IS OPENED.

EACH POSITION INSIDE THE ACTUATOR IS AS FOLLOWS:

MEDIUM : CENTER

SOFT : LEFT

FIRM : RIGHT

TO SWITCH TO EACH POSITION, THE CURRENT FLOWS AS DESCRIBED ABOVE. BASED ON THE ABOVE MOVEMENT, THE AIR SUSPENSION ECU OPERATES AND CONTROLS THE ACTUATOR ACCORDING TO THE INPUT SIGNALS.

SERVICE HINTS

A35 (C), A36 (B), A37 (A) AIR SUSPENSION ECU

(C) 5–GROUND : ALWAYS APPROX. **12** VOLTS
(A) 1–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION
(C) 6–GROUND : APPROX. **12** VOLTS WITH STOP LIGHT SW ON
(A) 2–GROUND : APPROX. **12** VOLTS WITH IGNITION SW AT **ON** POSITION

H 8 HEIGHT CONTROL EXHAUST VALVE

1–2 : APPROX. **12**Ω

H11, H17 HEIGHT CONTROL VALVE NO. 1, NO. 2

1, 2–3 : APPROX. **12** Ω (CONTROL VALVE NO. 1)
1, 2–4 : APPROX. **12** Ω (CONTROL VALVE NO. 2)

S 5, S 6, S22, S23 SUSPENSION CONTROL ACTUATOR

2–4 : APPROX. **3.3**Ω
3–4 : APPROX. **4.3**Ω
1–2 : APPROX. **4.3**Ω

ELECTRONIC MODULATED AIR SUSPENSION

: PARTS LOCATION

CODE		SEE PAGE	CODE		SEE PAGE	CODE	SEE PAGE
A35	C	30	**D15**		30	**H16**	30
A36	B	30	**E11**	A	28	**H17**	30
A37	A	30	**E12**	B	28	**J 2**	29
A38		30	**F11**		26	**J 3**	29
C11	A	28	**G 2**		26	**S 5**	27
C12	B	28	**H 7**		26	**S 6**	27
C13	C	28	**H 8**		26	**S12**	29
C15		28	**H 9**		26	**S13**	29
D 1		26	**H10**		26	**S22**	31
D 3		28	**H11**		26	**S23**	31
D12		30	**H13**		30	**V 1**	27
D13		30	**H14**		30		
D14		30	**H15**		30		

: RELAY BLOCKS

CODE	SEE PAGE	RELAY BLOCKS (RELAY BLOCK LOCATION)
5	22	R/B NO. 5 (NEAR THE J/B NO. 2)
6	19	R/B NO. 6 (UNDER THE HEADLIGHT LH)

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1A	20	COWL WIRE AND J/B NO. 1 (LEFT SIDE OF STEERING COLUMN TUBE)
1B	20	INSTRUMENT PANEL WIRE AND J/B NO. 1 (LEFT SIDE OF STEERING COLUMN TUBE)
1G	20	COWL WIRE AND J/B NO. 1 (LEFT SIDE OF STEERING COLUMN TUBE)
2B	22	COWL WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
3A	24	INSTRUMENT PANEL WIRE AND J/B NO .3 (BEHIND THE INSTRUMENT PANEL CENTER)
4A	25	COWL WIRE AND J/B NO. 4 (BEHIND THE COMBINATION METER)
4B		

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
EA3	34	COWL WIRE AND ENGINE ROOM MAIN WIRE (INSIDE OF J/B NO. 2)
EA4	34	COWL WIRE AND ENGINE ROOM MAIN WIRE (FRONT SIDE OF RIGHT FENDER)
EC1	34	ENGINE NO. 4 WIRE, FOR ALTERNATOR AND ENGINE ROOM MAIN WIRE (RIGHT SIDE OF J/B NO .2)
IH1	36	INSTRUMENT PANEL WIRE AND COWL WIRE (J/B NO. 1)
IH2	36	INSTRUMENT PANEL WIRE AND COWL WIRE (BEHIND GLOVE BOX)
II2	36	INSTRUMENT PANEL WIRE AND FLOOR NO. 1 WIRE (UNDER THE INSTRUMENT PANEL BRACE RH)
IL1	38	ENGINE WIRE AND COWL WIRE (UNDER THE GLOVE BOX)
IL2		
IL3		
IM1	38	COWL WIRE AND FLOOR NO. 1 WIRE (UNDER THE GLOVE BOX)
IM2	38	FLOOR NO. 1 WIRE AND COWL WIRE (UNDER THE GLOVE BOX)
IM3	38	COWL WIRE AND FLOOR NO. 1 WIRE (RIGHT KICK PANEL)
BQ1	40	COWL WIRE AND FLOOR NO. 2 WIRE (LEFT KICK PANEL)
BW1	40	FLOOR NO. 1 WIRE AND FLOOR NO .2 WIRE (UNDER THE LEFT SIDE OF REAR SEAT CUSHION)
BW2		
BW3		

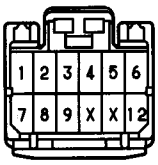
: GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
EG	34	REAR SIDE OF CYLINDER HEAD LH
IH	36	RIGHT KICK PANEL
IJ	36	INSTRUMENT PANEL BRACH LH
IK	36	LEFT KICK PANEL
BL	40	UNDER THE RIGHT REAR PILLAR
BM	40	UNDER THE LEFT REAR PILLAR
BN	40	BACK PANEL RIGHT

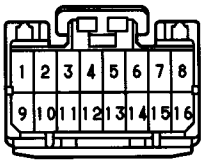
: SPLICE POINTS

CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS	CODE	SEE PAGE	WIRE HARNESS WITH SPLICE POINTS
E32	34	ENGINE WIRE	**B54**		
E53			**B55**		
E54	34		**B57**		
E55			**B59**		
I 1			**B60**		
I 6			**B61**		
I10		COWL WIRE	**B62**		
I14			**B63**		
I15	38		**B65**		
I18			**B66**		
I19			**B68**		
I20			**B69**		
I24			**B71**	40	FLOOR NO. 1 WIRE
I63	38	ENGINE WIRE	**B72**		
I83			**B73**		
I106			**B74**		
I126	38	COWL WIRE	**B76**		
I127			**B77**		
I146			**B79**		
B11			**B82**		
B40	40	FLOOR NO. 2 WIRE	**B83**		
B44			**B84**		
B52	40	FLOOR NO. 1 WIRE	**B85**		
B53			**B86**		

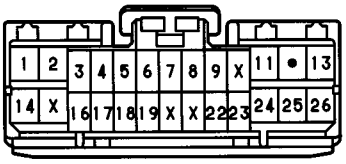
A35 (C)



A36 (B)

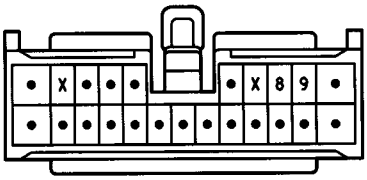


A37 (A)

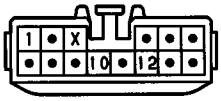


A38

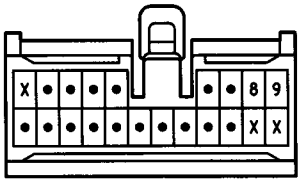
C11 (A) ORANGE



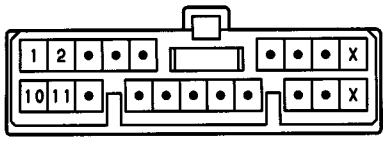
C12 (B)



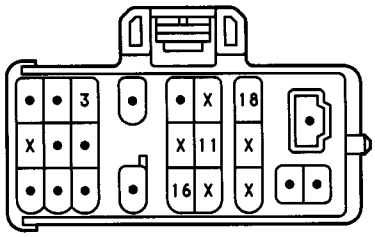
C13 (C) BLUE



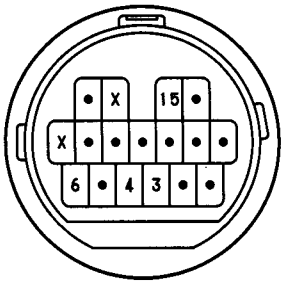
C15 BLACK



D 1 BLACK

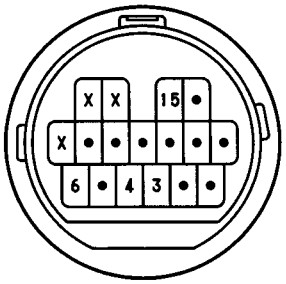


(W/ TRACTION CONTROL) D 3 DARK GRAY



ELECTRONIC MODULATED AIR SUSPENSION

(W/O TRACTION CONTROL) D 3 DARK GRAY



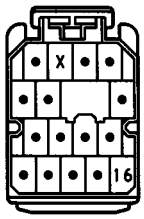
D12

D13

D14

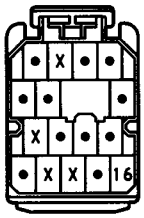
D15

E11 (A) DARK GRAY



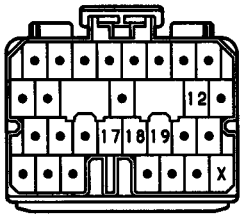
(CALIFORNIA)

E11 (A) DARK GRAY



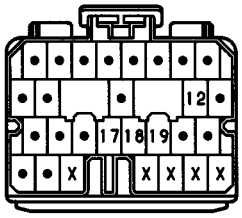
(EX. CALIFORNIA)

E12 (B) DARK GRAY



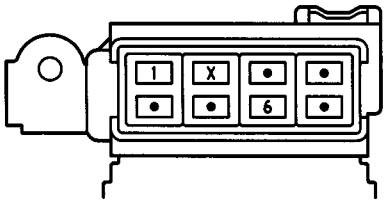
(W/ TRACTION CONTROL)

E12 (B) DARK GRAY

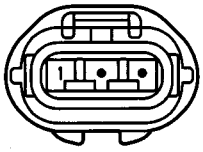


(W/O TRACTION CONTROL)

F11

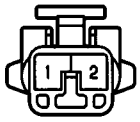


G 2 BLACK



H 7 GRAY

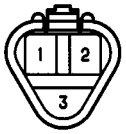
H 8 GRAY



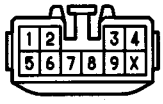
H 9 GRAY

H10 GRAY

H11 GRAY

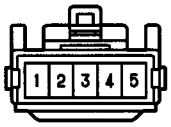


H13



H14

H15 GRAY



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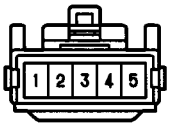
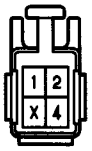
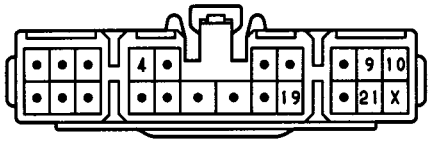


H17 GRAY



J 2



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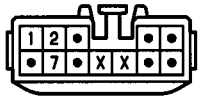
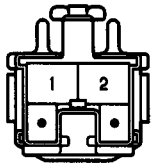


S 5

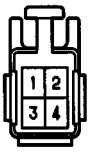
S 6

S12 BLUE



S13 ORANGE

S22 BLUE



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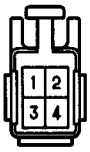

V 1 GRAY