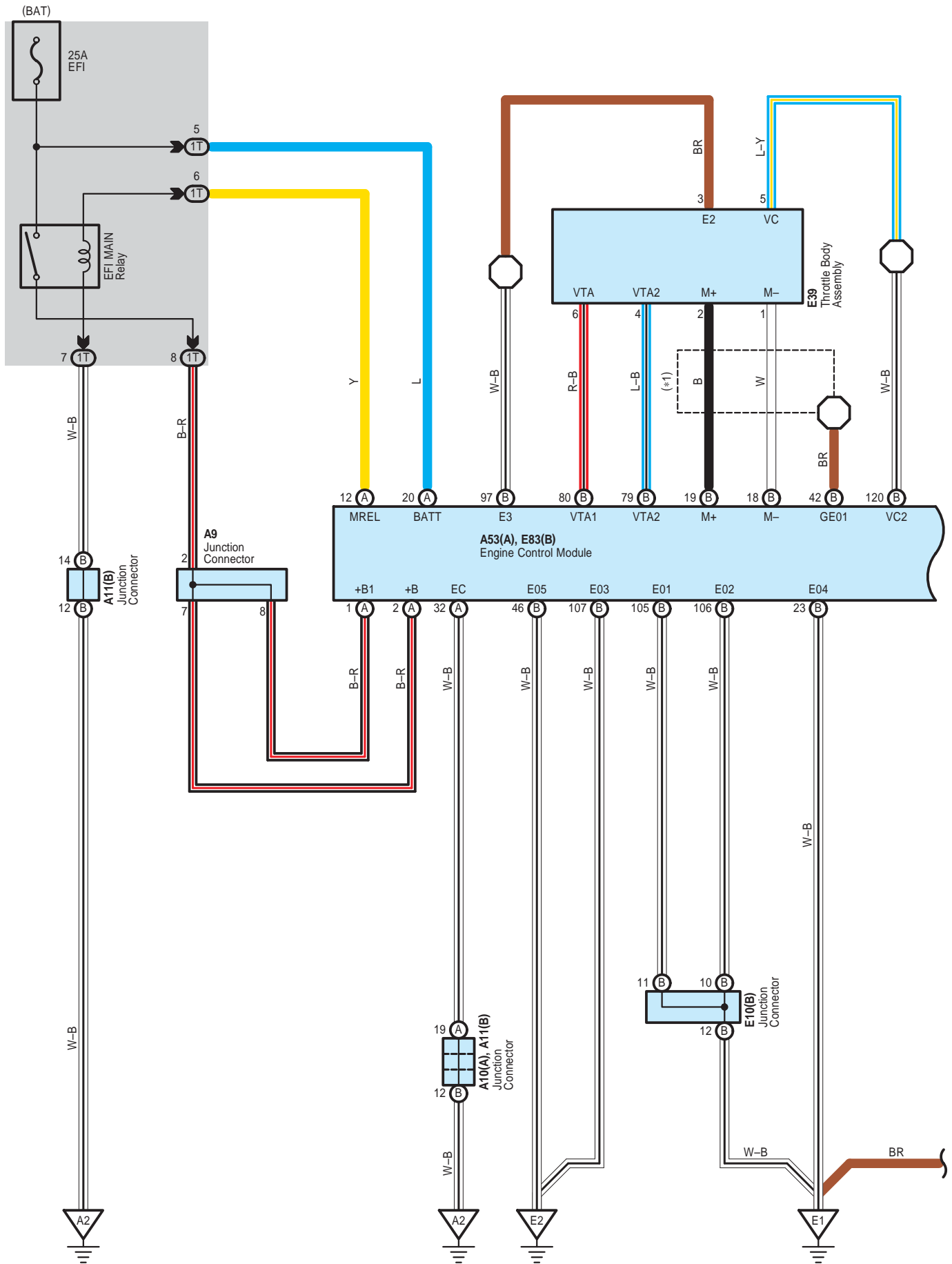
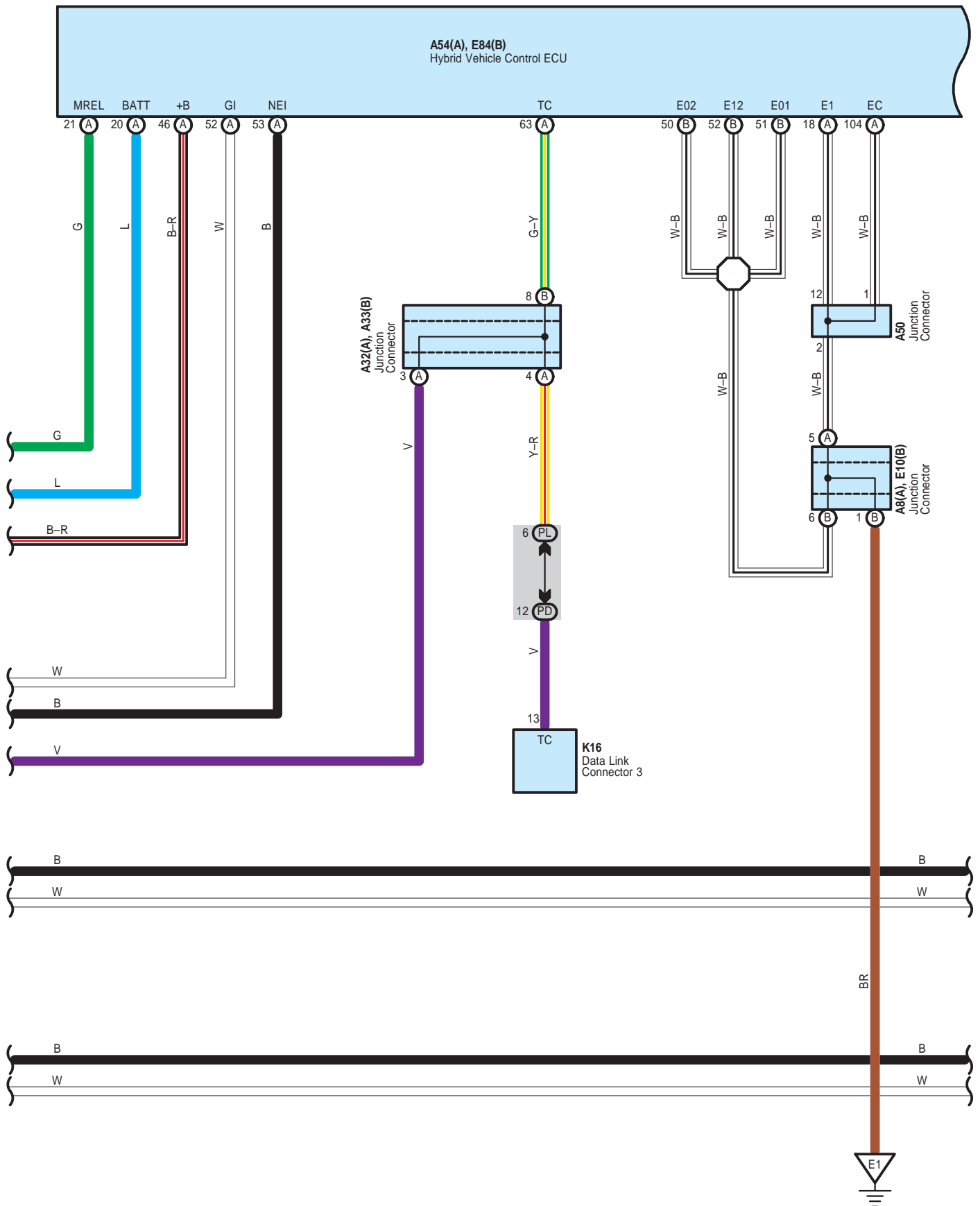
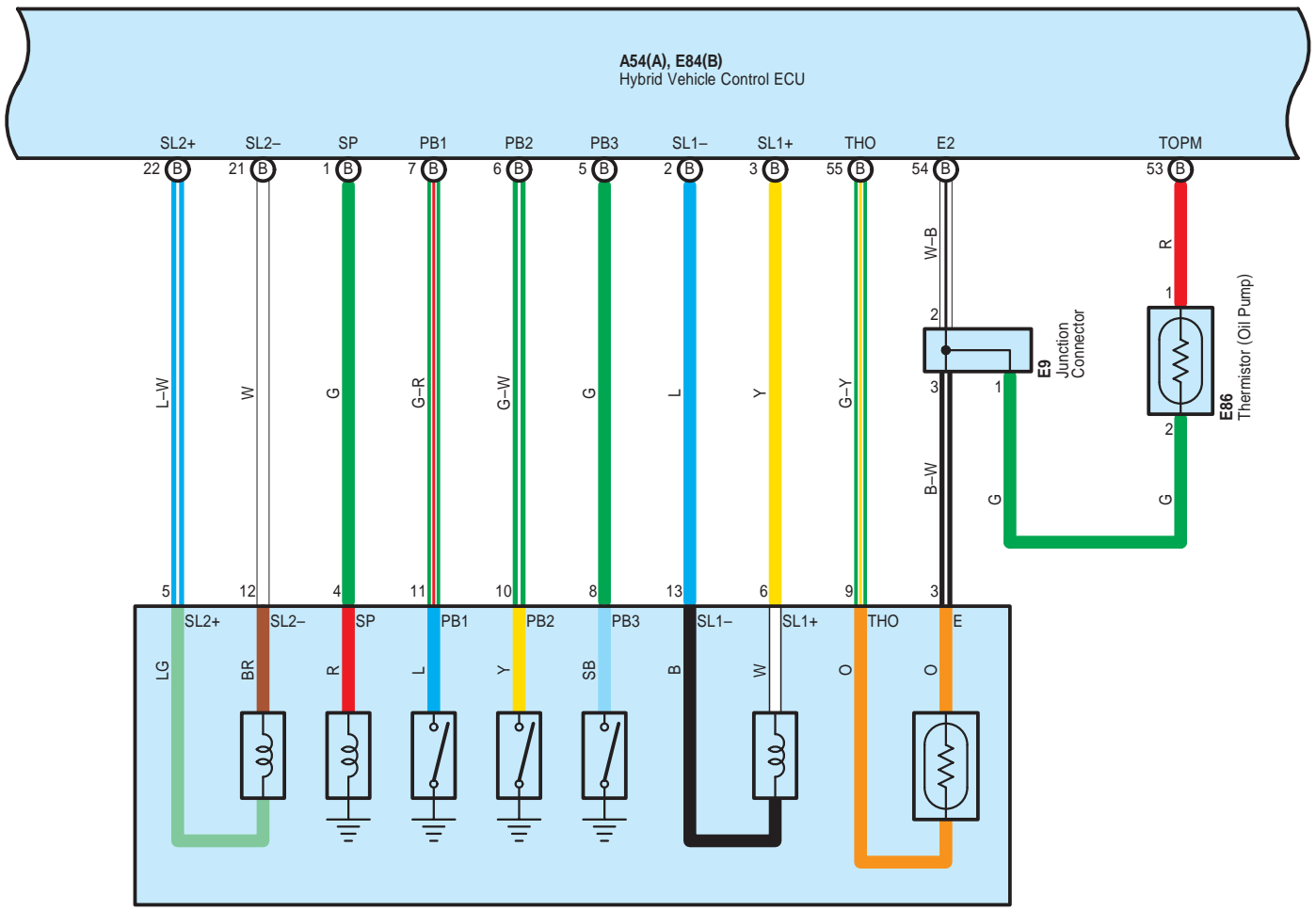


Dynamic Radar Cruise Control



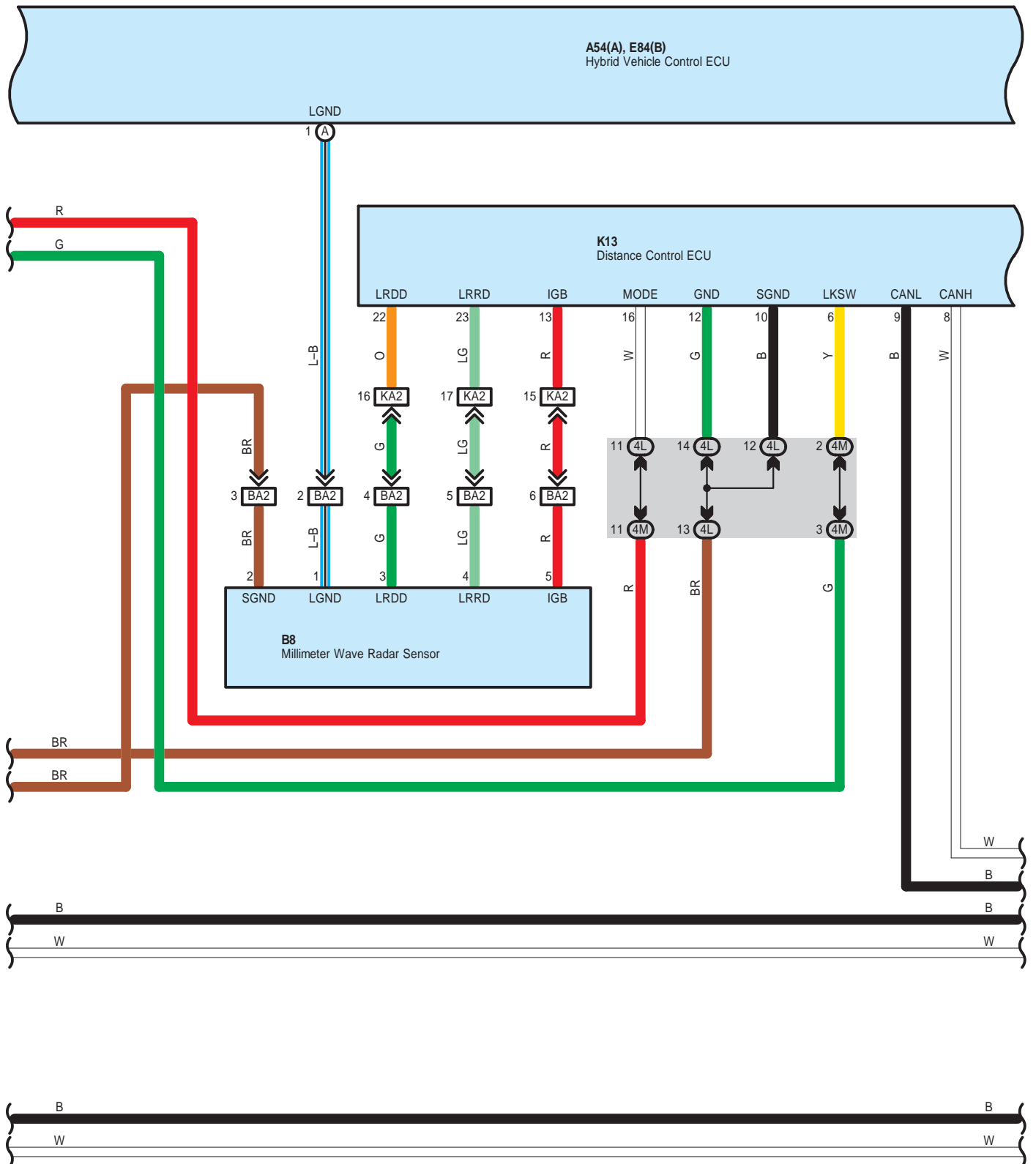
Dynamic Radar Cruise Control

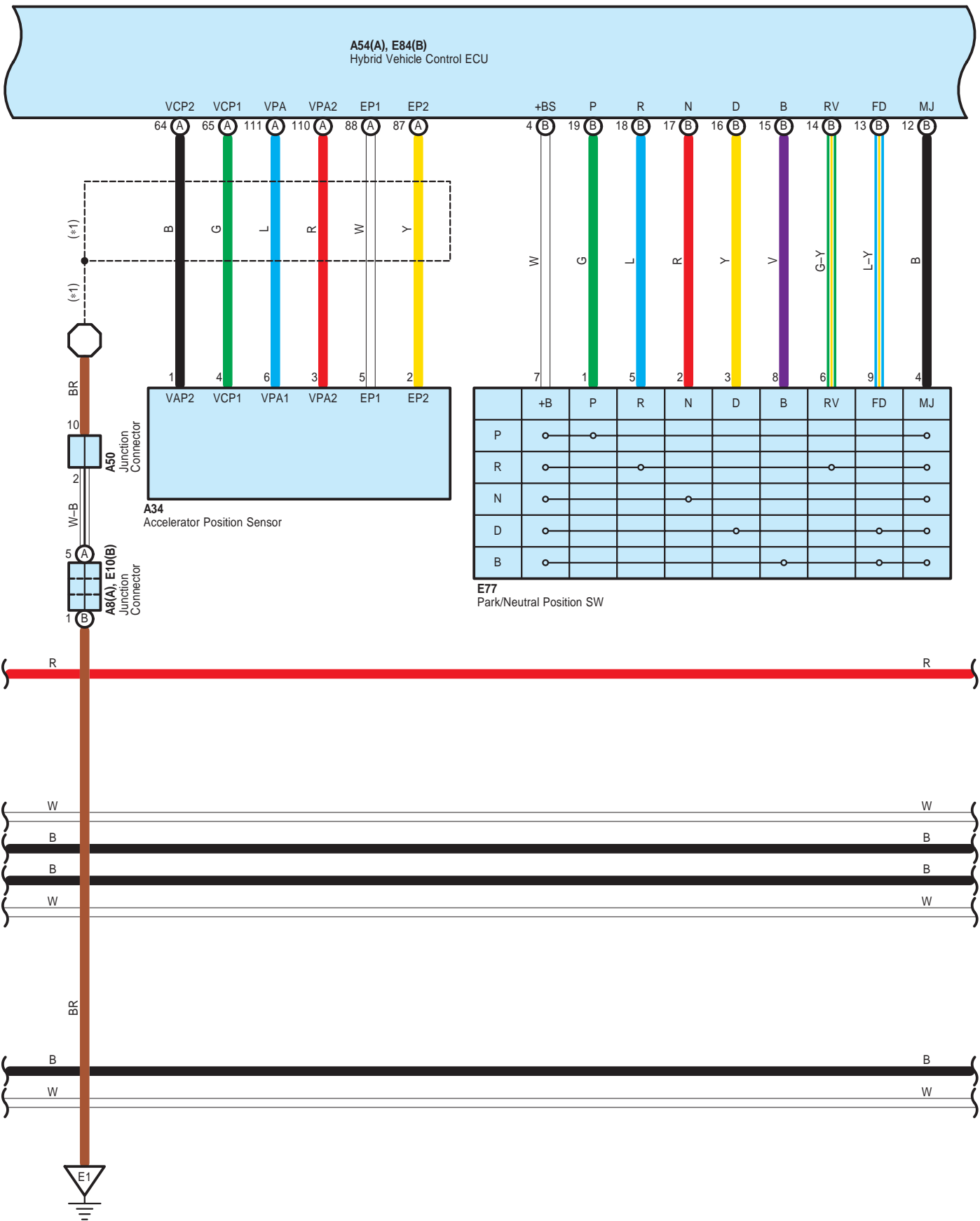




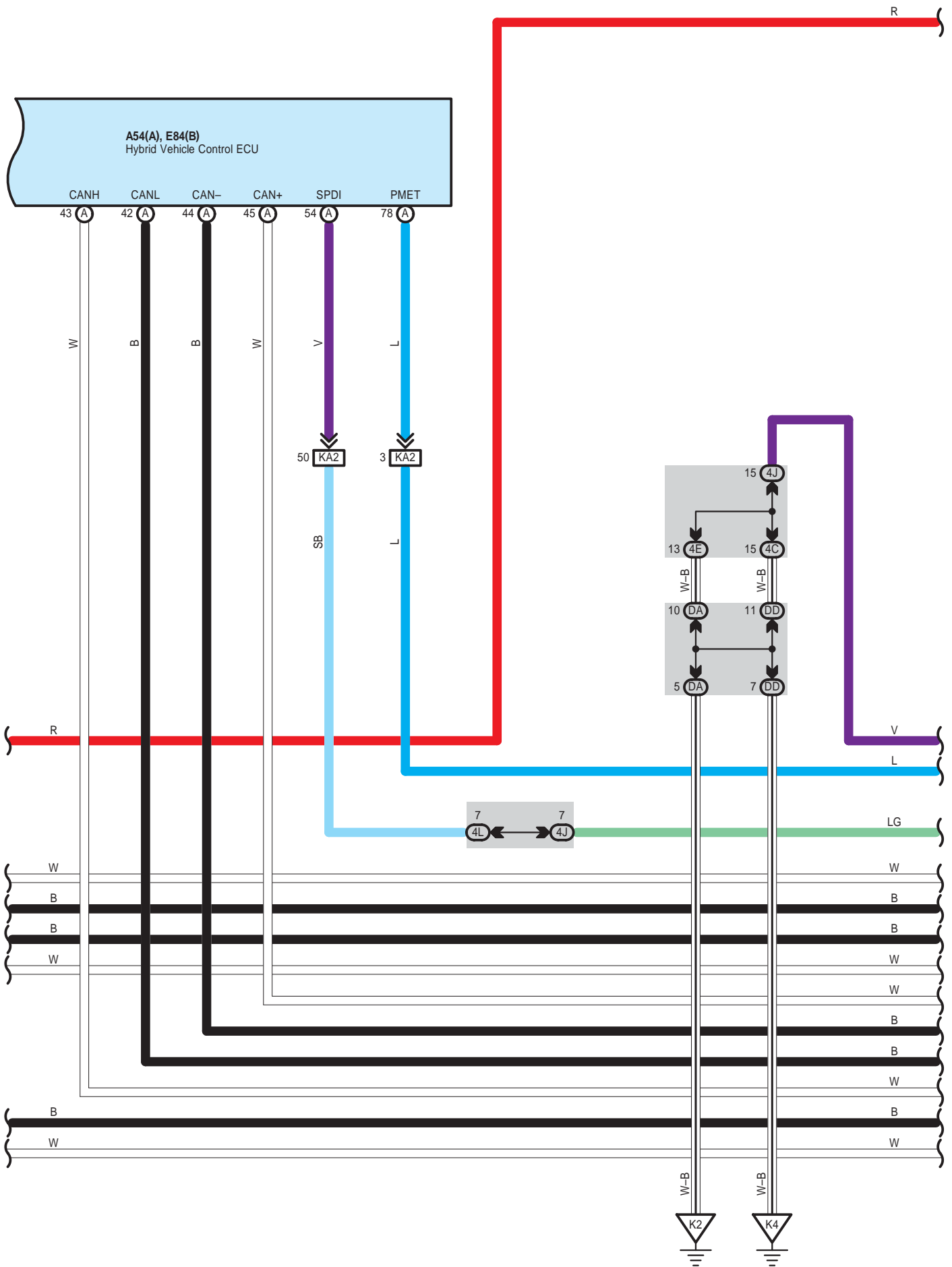
E89
Electronically Controlled Transmission Solenoid

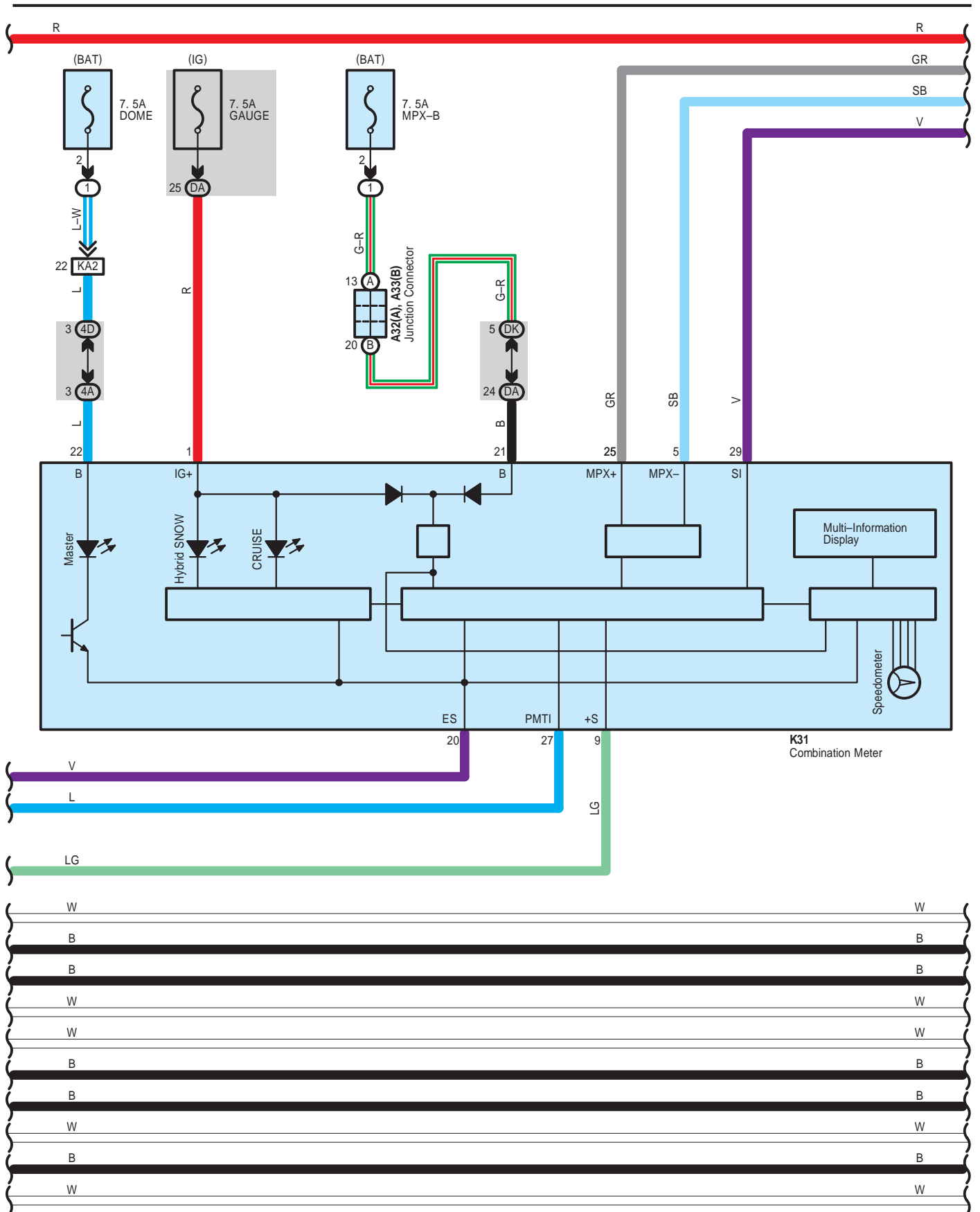




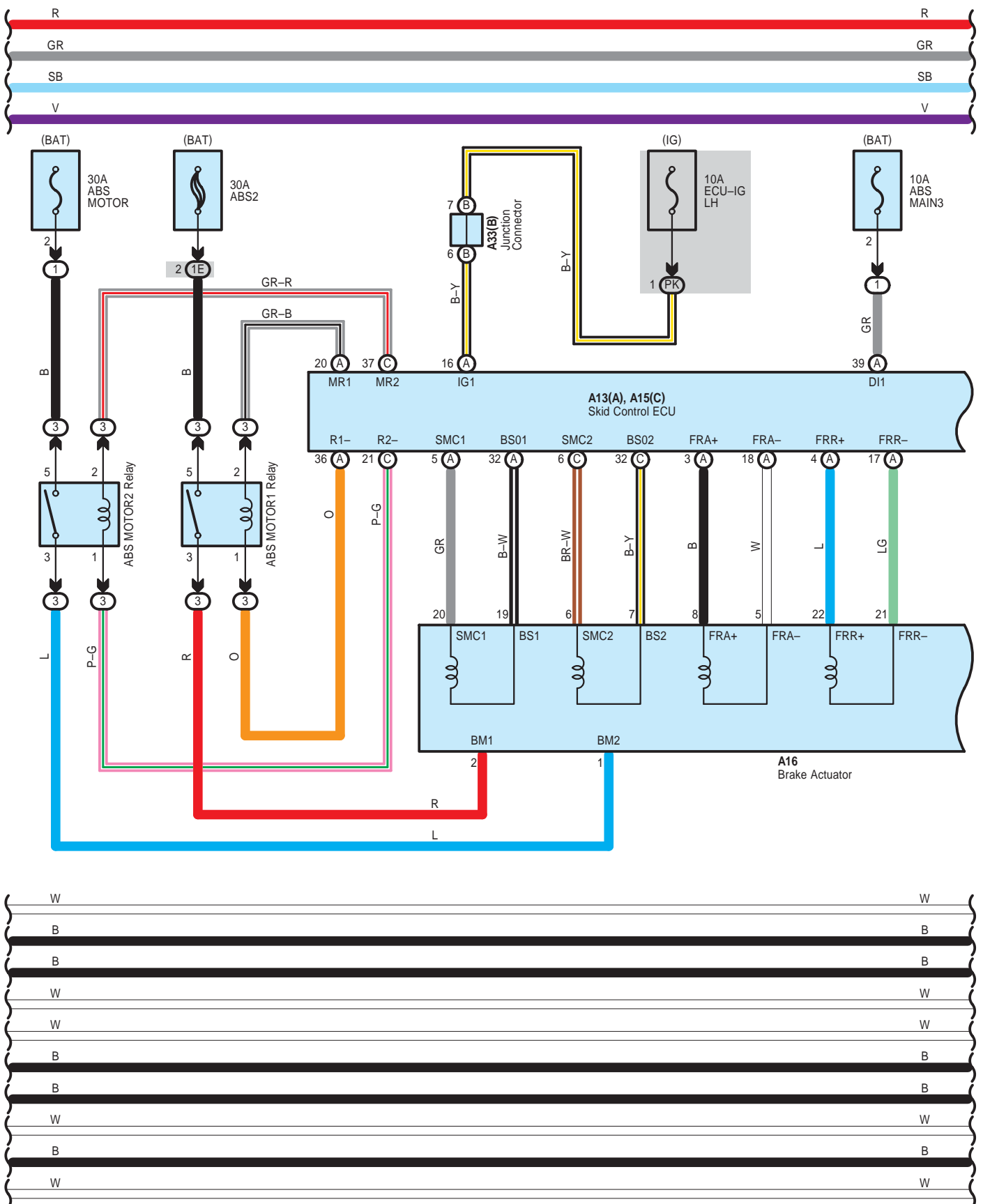


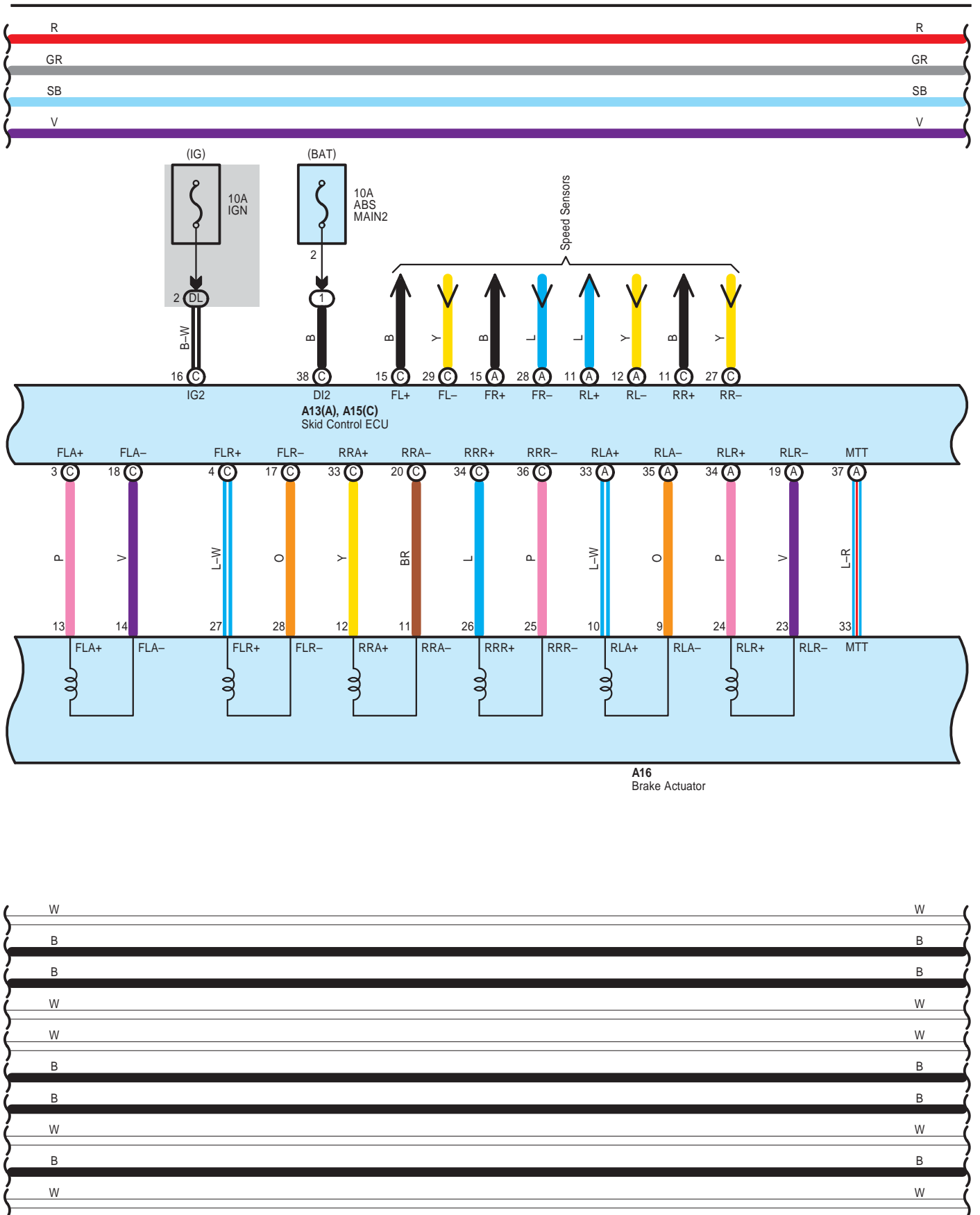
Dynamic Radar Cruise Control

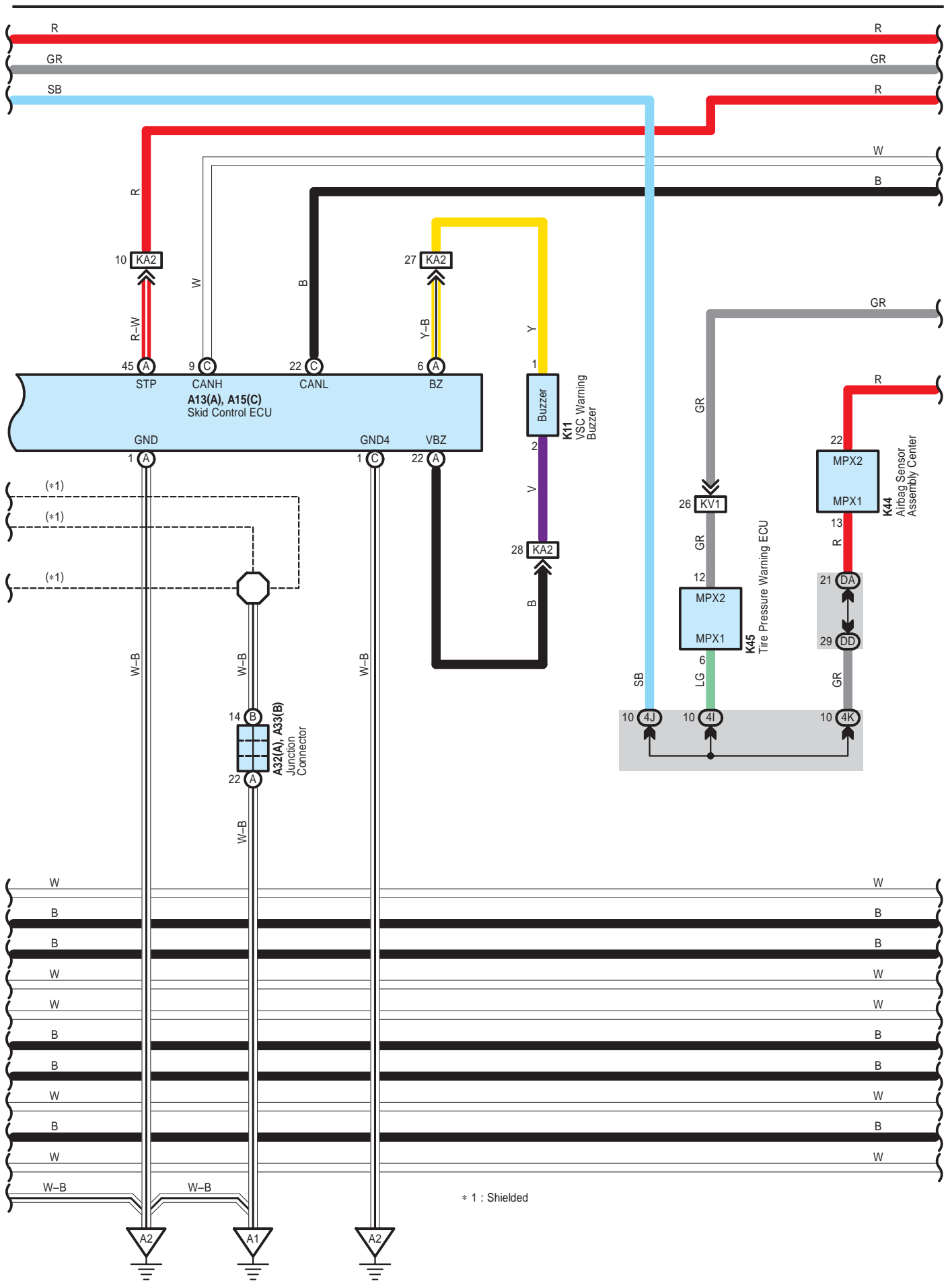




Dynamic Radar Cruise Control

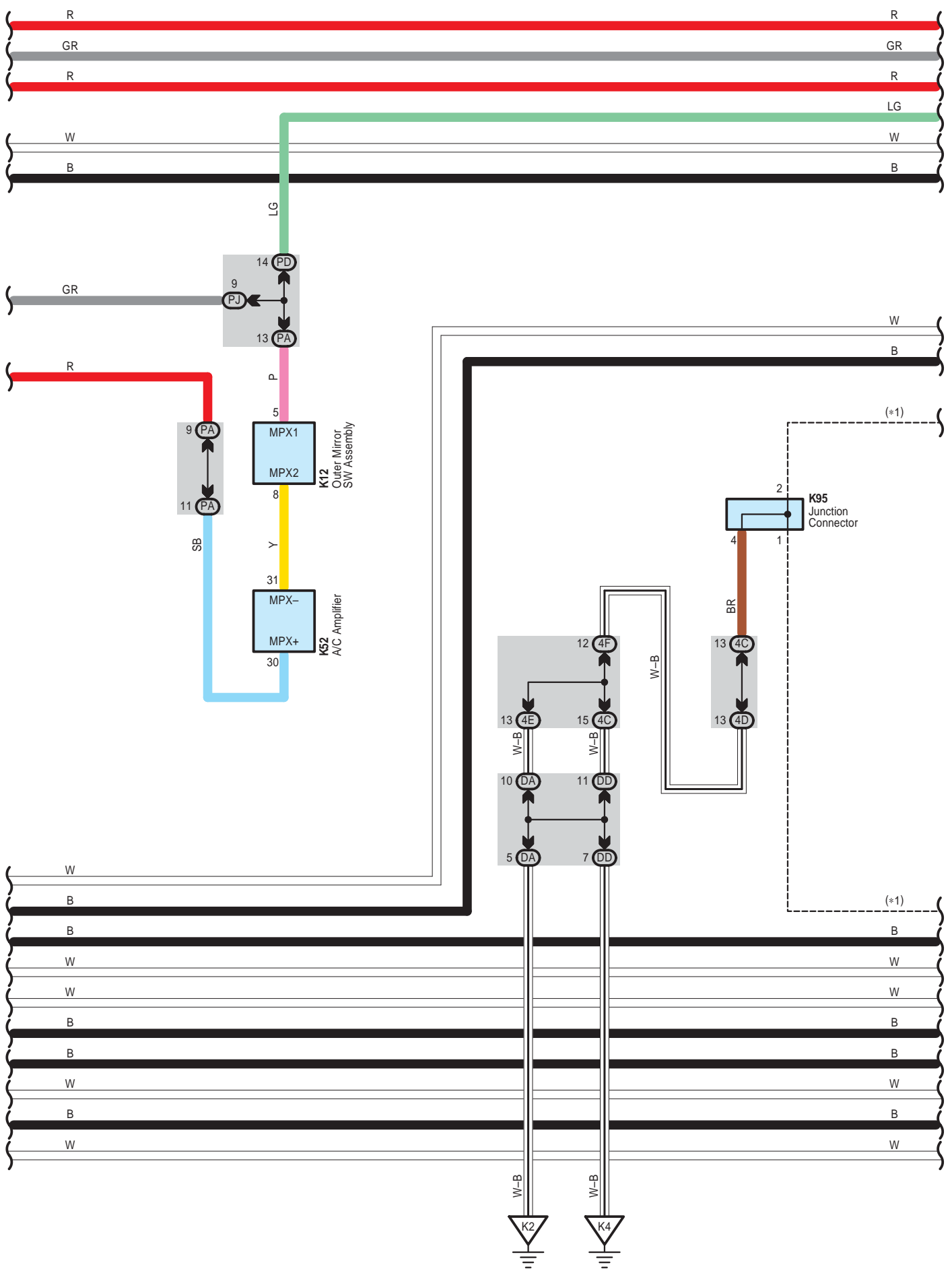


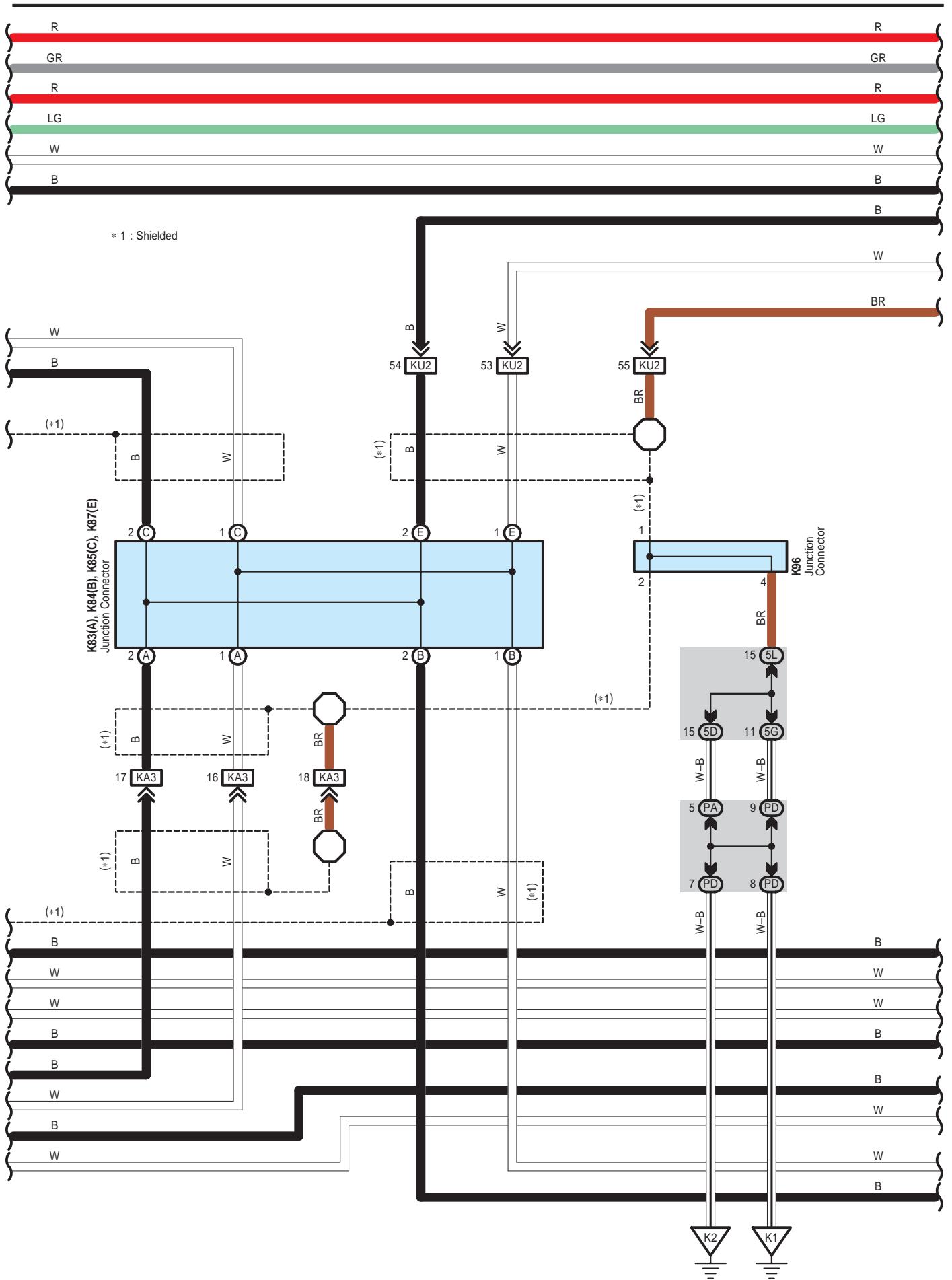




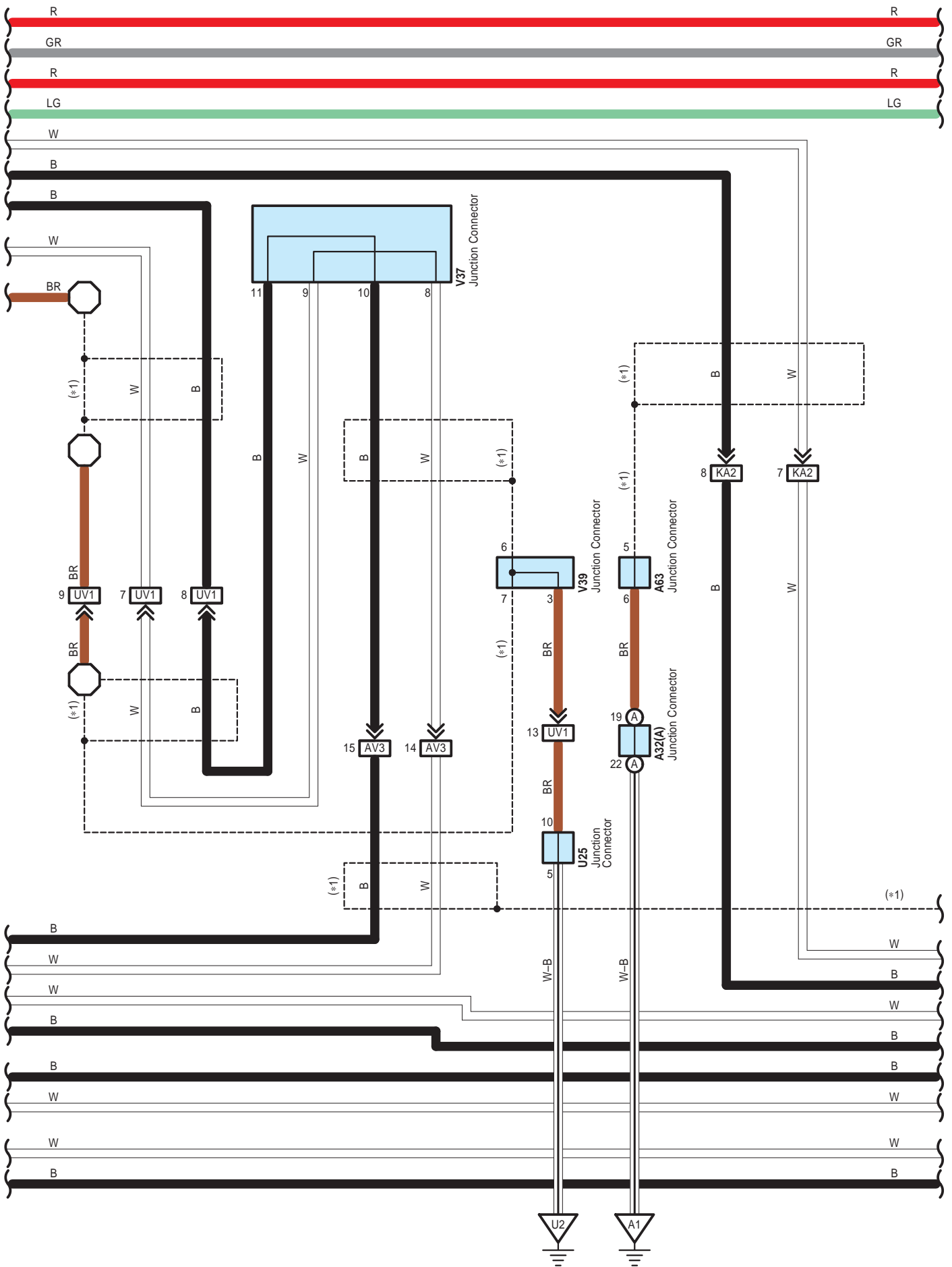
* 1 : Shielded

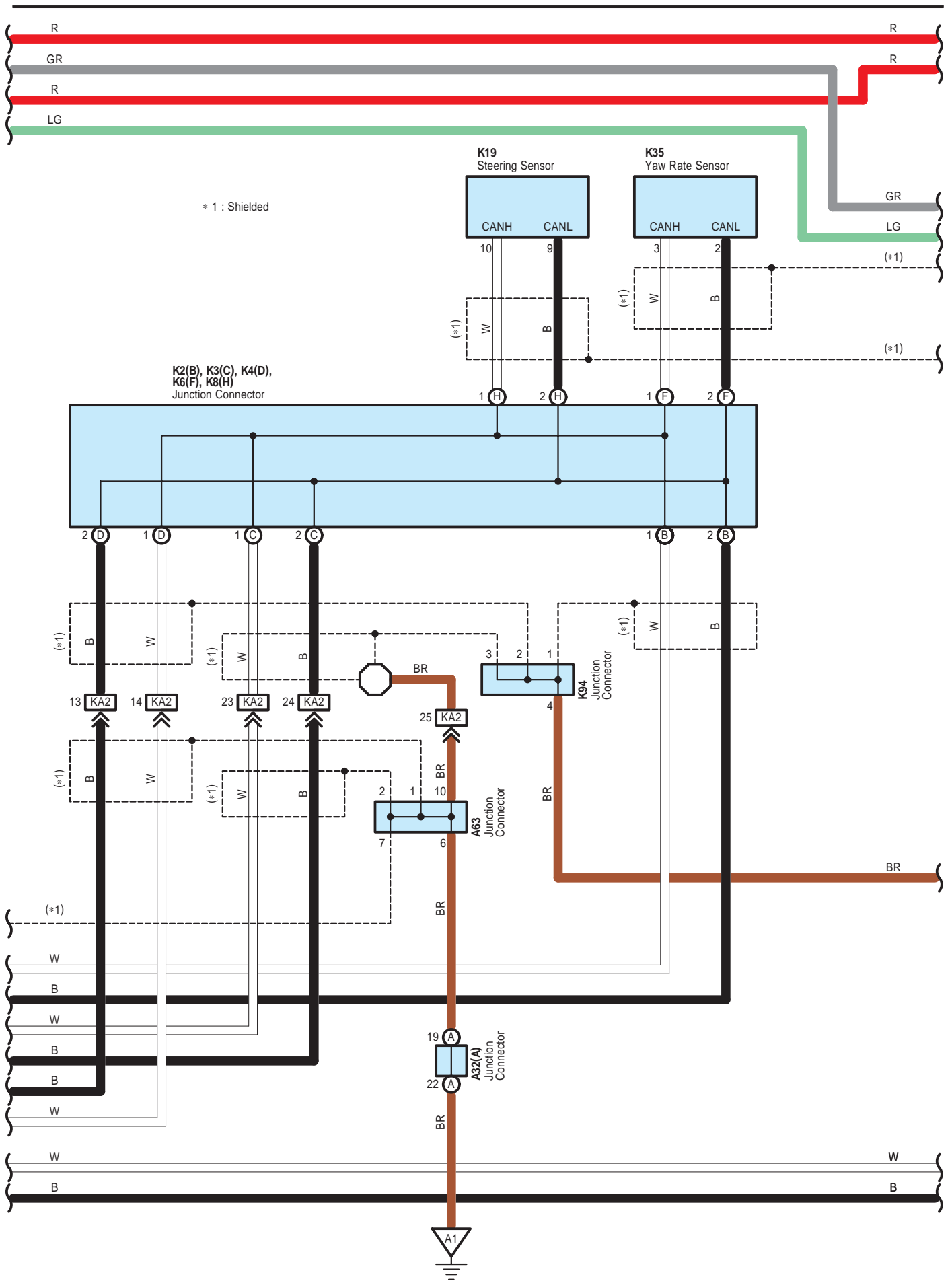
Dynamic Radar Cruise Control



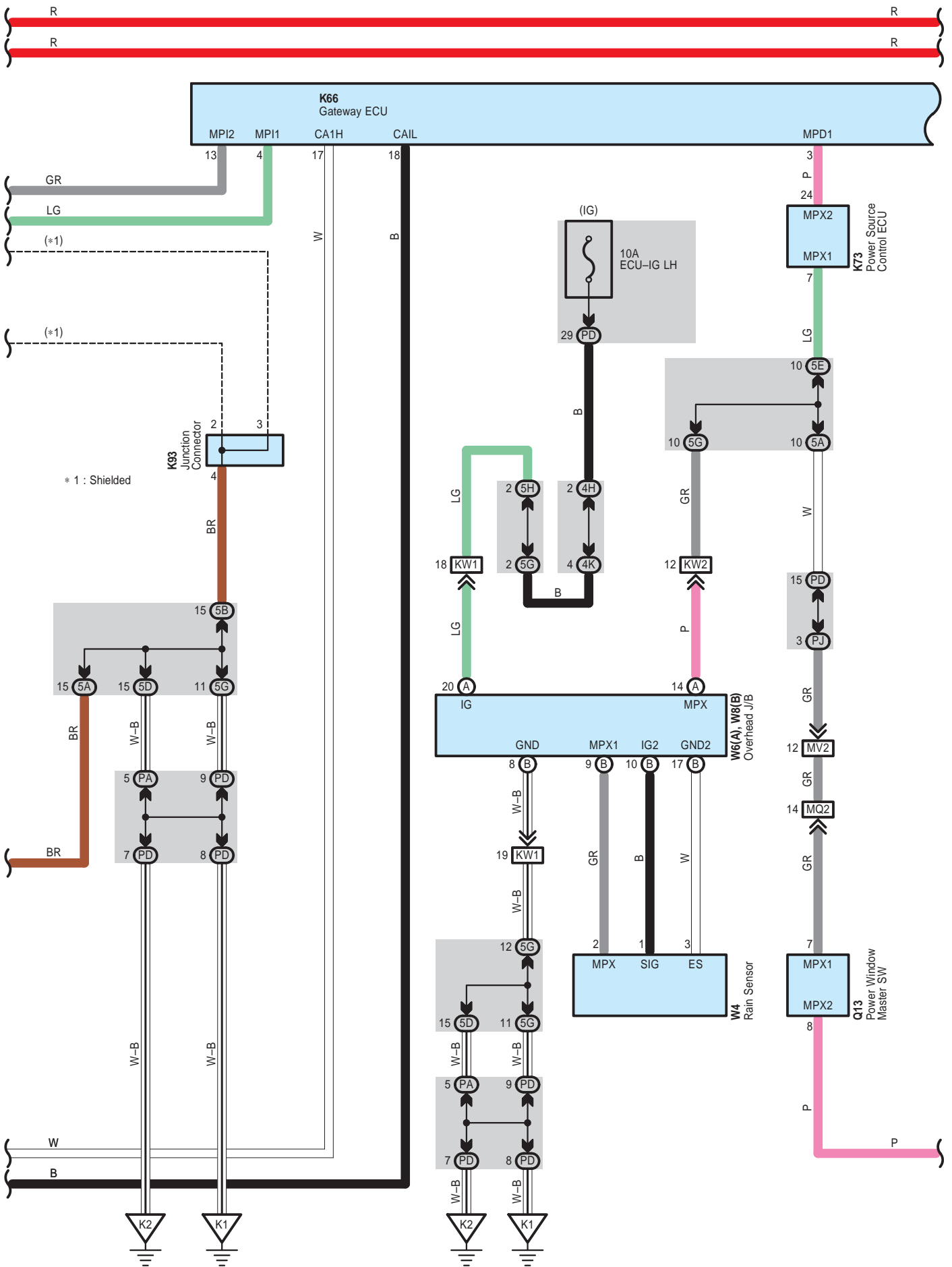


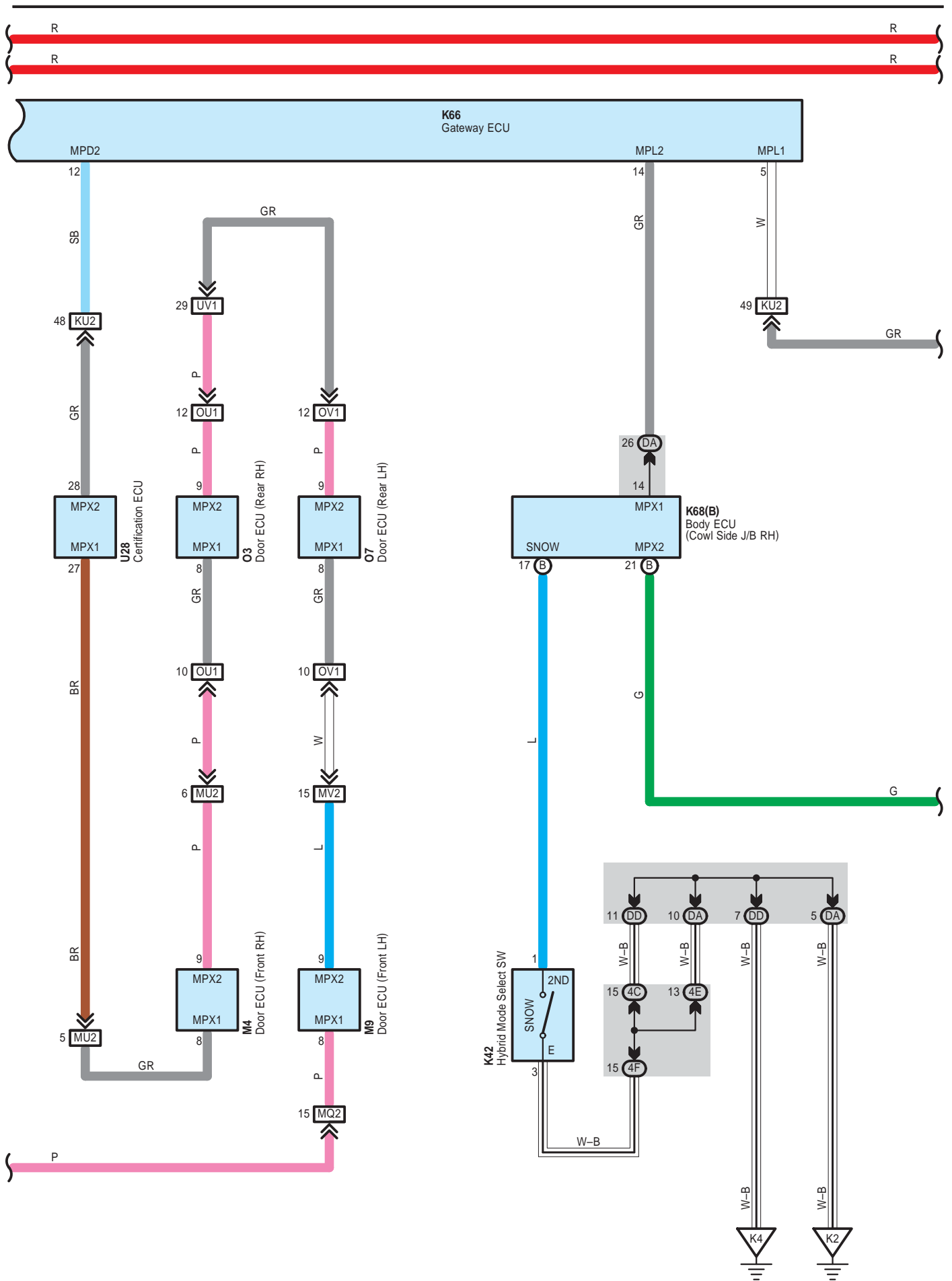
Dynamic Radar Cruise Control





Dynamic Radar Cruise Control

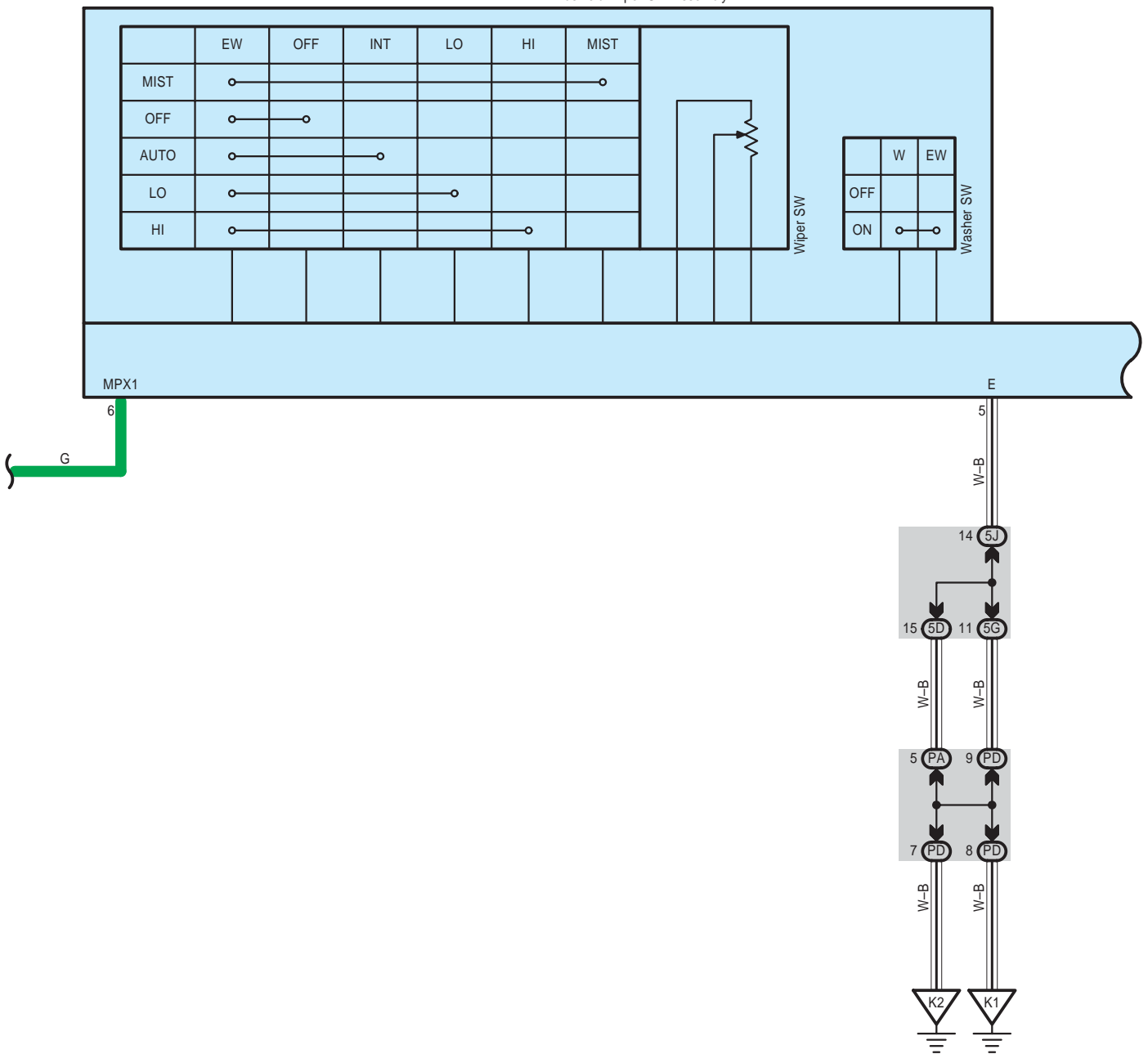


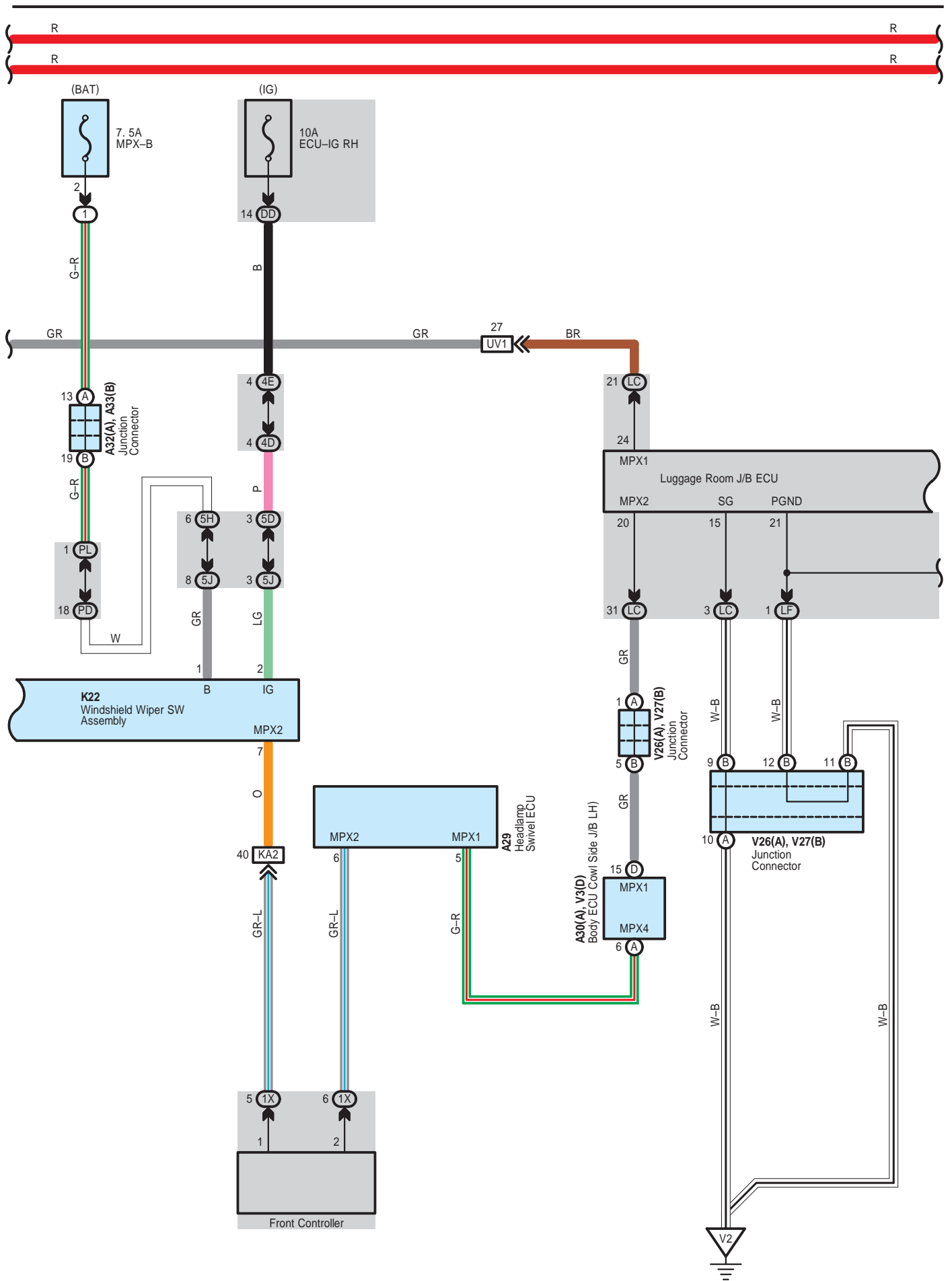


Dynamic Radar Cruise Control

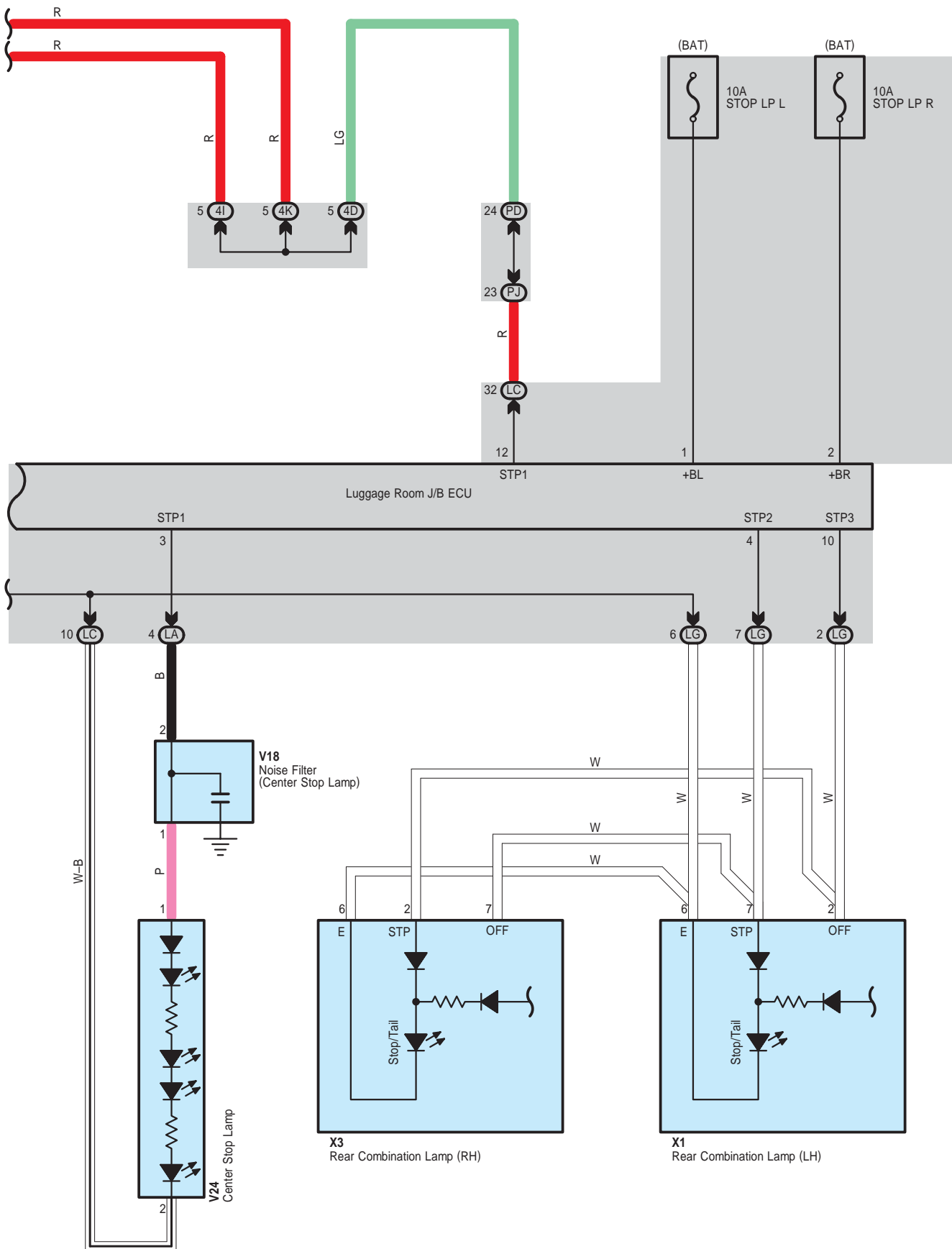


K22
Windshield Wiper SW Assembly





Dynamic Radar Cruise Control



System Outline

The dynamic radar cruise control system allows the vehicle to follow a vehicle ahead with proper distance in between by detecting the vehicle ahead and its driving lane with the millimeter wave radar, yaw rate sensor and steering sensor.

Control Function Outline

1. Setting

During driving under the ON-OFF SW ON condition (The power indicator is lit), when – SET SW is operated at the vehicle speed higher than the lower limit vehicle speed for setting, the control starts, taking the vehicle speed at the switch turning OFF as set speed. However when the switch is operated at the speed higher than the higher limit vehicle speed for setting, the control starts, taking the higher limit speed as set speed.

2. Changing Method of the Set Speed

<At vehicle-to-vehicle distance control mode>

(1) How to lower the set speed

- * During driving with the cruise control, truing ON the – SET SW decelerates the vehicle speed while the switch is kept ON. The vehicle speed at the switch turning OFF is stored in the memory as the set speed to control.
- * When the vehicle speed exceeds the higher limit speed for setting on downhill slope during operating the – SET SW, the higher limit speed is stored in the memory as the set speed to control if the switch is turned OFF.

(2) How to raise the set speed

- * During driving with the cruise control, truing ON the + RES SW accelerates the vehicle speed while the switch is kept ON. The vehicle speed at the switch turning OFF is stored in the memory as the set speed to control.
- * When the vehicle speed exceeds the higher limit speed for setting during operating the + RES SW, the vehicle is controlled with the higher limit speed during the switch operation and the higher limit speed is stored in the memory as the set speed to control.
- * When the + RES SW is kept ON during the follow-up control, the vehicle speed is not raised but the follow-up control is continued. However the set speed is raised in 1 km/h step while the switch is kept ON.
- * When the speed is accelerated by depressing the accelerator pedal and the – SET SW is operated, the set speed is reset with the speed at turning OFF the switch. However when the switch is operated above the higher limit vehicle speed for setting, the vehicle is controlled with the higher limit speed as a set speed.

<At constant speed control mode>

(1) Deceleration

- * During driving with the cruise control, truing ON the – SET SW decelerates the vehicle speed while the switch is kept ON. The vehicle is controlled with the vehicle speed at the switch turning OFF as the set speed. When the vehicle speed exceeds the high speed limit on downhill slope during operating the – SET SW, the vehicle is controlled with the high speed limit as the set speed to control if the switch is turned OFF.
- * If the – SET SW is operated momentarily (Approx. 0.5 sec.), the set speed is decelerated in 1.6 km/h (1 mph) steps with every switch operation. Please note that if the switch is operated when the set speed differs from actual speed by 5 km/h or more, the vehicle is controlled with the speed when the switch is turned OFF as the set speed.

(2) Acceleration

- * During driving with the cruise control, truing ON the + RES SW accelerates the vehicle speed while the switch is kept ON. The vehicle is controlled with the vehicle speed at the switch turning OFF as a set speed. When the vehicle speed exceeds the high speed limit during operating the + RES SW, the vehicle is controlled with the high speed limit before finishing the switch operation and is controlled with the speed at the switch turning OFF as a set speed.
- * If the – SET SW is operated momentarily (Approx. 0.5 sec.), the set speed is decelerated in 1.6 km/h (1 mph) steps with every switch operation. Please note that if the switch is operated when the set speed differs from actual speed by 5 km/h or more, the vehicle is controlled with the speed at the switch turning OFF as the set speed.
- * When the speed is accelerated by depressing the accelerator pedal and the – SET SW is operated, the set speed is reset with the speed at turning OFF the switch. However when the switch is operated at the high speed limit, the switch operation will not be effective.

3. The Lower Limit Vehicle Speed for Setting

- * It means the lower limit speed in settable range and sets the lower limit speed. It is discriminated from the low speed limit.
- * Set speed is not stored in the memory during driving at the lower limit vehicle speed for setting or slower.
- * When the vehicle speed falls down to slower than the lower limit vehicle speed for setting with – SET SW ON, the cruise control is automatically canceled. The vehicle-to-vehicle distance control mode keeps the stored the vehicle speed in the memory and the constant speed control mode erases the stored vehicle speed.

4. The Low Speed Limit

It means the lower limit speed in controllable range and is set at 40km/h. When the vehicle speed falls down to slower than 40km/h during cruise control driving, the cruise control is automatically canceled. Keeps the stored vehicle speed in the memory.

5. The Higher Limit Vehicle Speed for Setting

It means the higher limit speed in settable range and sets the higher limit speed.

6. The High Speed Limit

It means the higher limit speed in driving with cruise control in the constant speed control mode and sets the upper limit speed.

7. Resume

- * If the cruise control is cancelled at the vehicle speed higher than the low speed limit, turning ON the + RES SW accelerates the vehicle to the set speed when the cruise control is cancelled with the resume control. In the constant speed control mode, if once the vehicle speed drops down below the low speed limit, the resume control will not work even though the vehicle speed is accelerated above the low speed limit again.
- * Under the follow-up control, when a vehicle ahead is cleared due to the vehicle's lane change or the driver's own vehicle's lane change, the driver's vehicle accelerates gradually up to the set vehicle speed. Turning ON the + RES SW brings swift acceleration.

8. Cancel

The cruise control is cancelled if the following signals are input during driving with the cruise control.

- (1) Stop lamp switch ON
- (2) ON to OFF of D position circuit in the park/neutral position switch
- (3) CANCEL SW ON of the control switch
- (4) ON-OFF SW OFF
- (5) VSC operation

9. Auto Cancel

(1) The set vehicle speed is erased in the memory and the cruise control is cancelled in the following conditions. Until the ON-OFF SW is turned ON again, the cruise operation indicator blinks and FAIL is displayed on the display after the master warning lamp illuminates as well as the warning sound. The control will not be effective unless the ON-OFF SW is turned ON again.

- A) When the vehicle speed signal is abnormal
- B) When the electronic throttle parts are abnormal
- C) When the stop lamp switch is disconnected and short-circuit.

(2) The set vehicle speed is erased in the memory and the cruise control is cancelled in the following conditions. Until the ON-OFF SW is turned ON again, the cruise operation indicator blinks and FAIL is displayed on the display after the master warning lamp illuminates as well as the warning sound. The control will not be effective unless the ON-OFF SW is turned ON again.

- A) When the radar sensor is abnormal
- B) When the radar sensor beam axis is not aiming properly.
- C) When the radar cruising system is abnormal other than above A) and B) case

(3) In the following conditions, the cruise control is cancelled with the set vehicle speed is kept in the memory. FAIL is displayed on the display after the master warning lamp illuminates as well as the warning sound. The control will not be effective unless condition resumes from the followings or the ON-OFF SW is turned ON again.

- A) When radar sensor is dirty.
- B) When the wiper is in operation
- C) In SNOW mode
- D) When normal detection is extremely unstable due to bad weather.

(4) The set vehicle speed is erased in the memory and the cruise control is cancelled in the following conditions. However the set vehicle speed is kept in the vehicle-to-vehicle distance control mode.

- A) When the vehicle speed reaches the low speed limit (Approx. 40 km/h).
- B) When the vehicle speed reaches below the lower limit vehicle speed for setting (Approx. 45 km/h) with the – SET SW ON.
- C) When the vehicle speed reaches the speed slower than (The set vehicle speed minus 16 km/h).

10. Mode Change Between Constant Speed Control Mode and Vehicle-to-Vehicle Distance Control Mode

Operating the following procedures in order changes the control mode.

- A) Turn ON the ON-OFF SW (The control starts under the vehicle-to-vehicle distance control mode automatically.)
- B) Push forward the cruise control switch lever for some time (More than one second) without operating the ON-OFF SW.

Dynamic Radar Cruise Control

○ : Parts Location

Code		See Page	Code		See Page	Code		See Page
A8	A	80	E86		81	K87	E	78, 86
A9		80	E89		81	K93		86
A10	A	80	K2	B	74, 85	K94		86
A11	B	80	K3	C	74, 85	K95		86
A13	A	80	K4	D	74, 85	K96		86
A15	C	80	K6	F	74, 85	M4		88
A16		80	K8	H	74, 85	M9		88
A17		80	K11		85	O3		88
A29		84	K12		85	O7		88
A30	A	84	K13		85	Q13		89
A32	A	84	K16		85	U25		90
A33	B	84	K19		85	U28		90
A34		84	K20		85	V3	D	87
A37		84	K22		85	V18		91
A50		80	K31		85	V24		91
A53	A	80	K35		85	V26	A	91
A54	A	80	K42		86	V27	B	91
A63		84	K44		86	V37		91
B8		82	K45		86	V39		91
E9		81	K52		86	W4		92
E10	B	81	K66		86	W6	A	92
E27		81	K68	B	86	W8	B	92
E39		81	K73		86	X1		92
E77		81	K83	A	78, 86	X3		92
E83	B	81	K84	B	78, 86			
E84	B	81	K85	C	78, 86			

○ : Relay Blocks

Code	See Page	Relay Blocks (Relay Block Location)
1	24	Engine Room R/B No.1 (Engine Compartment Left)
3	42	Engine Room R/B No.3 (Engine Compartment Left)



: Junction Block and Wire Harness Connector

Code	See Page	Junction Block and Wire Harness (Connector Location)
1E	27	Engine Room Main Wire and Engine Room J/B No.1 (Engine Compartment left)
1T	25	
1V	28	
1X	29	
4A	70	Instrument Panel Wire and Center J/B RH (Right Side of the Instrument Panel Reinforcement)
4C		
4D		
4E		
4F		
4G		
4H		
4I		
4J		
4K		
4L		
4M		
5A	66	Instrument Panel Wire and Center J/B LH (Right Side of the Instrument Panel Reinforcement)
5B		
5D		
5E		
5F		
5G		
5H		
5J		
5L		
DA	55	Instrument Panel Wire and Cowl Side J/B RH (Behind the Glove Box)
DD	56	Engine Room Main Wire and Cowl Side J/B RH (Behind the Glove Box)
DK		
DL	62	Floor No.2 Wire and Luggage Room J/B (Left Side of the Quarter Panel)
LA		
LC		
LF	63	
LG	62	Luggage Room Wire and Luggage Room J/B (Left Side of the Quarter Panel)
PA	49	Instrument Panel Wire and Cowl Side J/B LH (Lower Finish Panel)
PD		
PJ	50	Floor No.2 Wire and Cowl Side J/B LH (Lower Finish Panel)
PK	50	Engine Room Main Wire and Cowl Side J/B LH (Lower Finish Panel)
PL		

Dynamic Radar Cruise Control

: Connector Joining Wire Harness and Wire Harness

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)
AE1	96	Engine Room Main Wire and Engine Wire (Inside of the ECU Box)
AV3	97	Engine Room Main Wire and Floor No.2 Wire (Cowl Side Panel LH)
BA2	96	Engine Room No.2 Wire and Engine Room Main Wire (Inside of the Engine Room R/B No.2)
KA2	97	Instrument Panel Wire and Engine Room Main Wire (Left Kick Panel)
KA3	97	Instrument Panel Wire and Engine Room Main Wire (Right Kick Panel)
KU2	97	Instrument Panel Wire and Floor No.1 Wire (Right Kick Panel)
KV1	97	Instrument Panel Wire and Floor No.2 Wire (Left Kick Panel)
KW1	97	Instrument Panel Wire and Roof Wire (Left Side of the Instrument Panel)
KW2		
MQ2	98	Front Door LH Wire and Front Door LH No.2 Wire (Front Door Inner Panel LH)
MU2	97	Front Door RH Wire and Floor No.1 Wire (Right Kick Panel)
MV2	97	Front Door LH Wire and Floor No.2 Wire (Left Kick Panel)
OU1	98	Rear Door No.1 Wire and Floor No.1 Wire (Right Center Pillar)
OV1	98	Rear Door No.2 Wire and Floor No.2 Wire (Left Center Pillar)
UV1	98	Floor No.1 Wire and Floor No.2 Wire (Center of the Rear Floor Partition Panel)

: Ground Points

Code	See Page	Ground Points Location
A1	96	Left Side of the Dash Panel
A2	96	Front Left Fender Apron
E1	96	Rear Side of the Left Cylinder Head
E2	96	Rear Side of the Right Cylinder Head
K1	97	Left Kick Panel
K2	97	Left Side of the Shift Lever
K4	97	Right Kick Panel
U2	98	Right Side of the Rear Floor Partition Panel
V2	98	Roof Side Inner Panel LH

