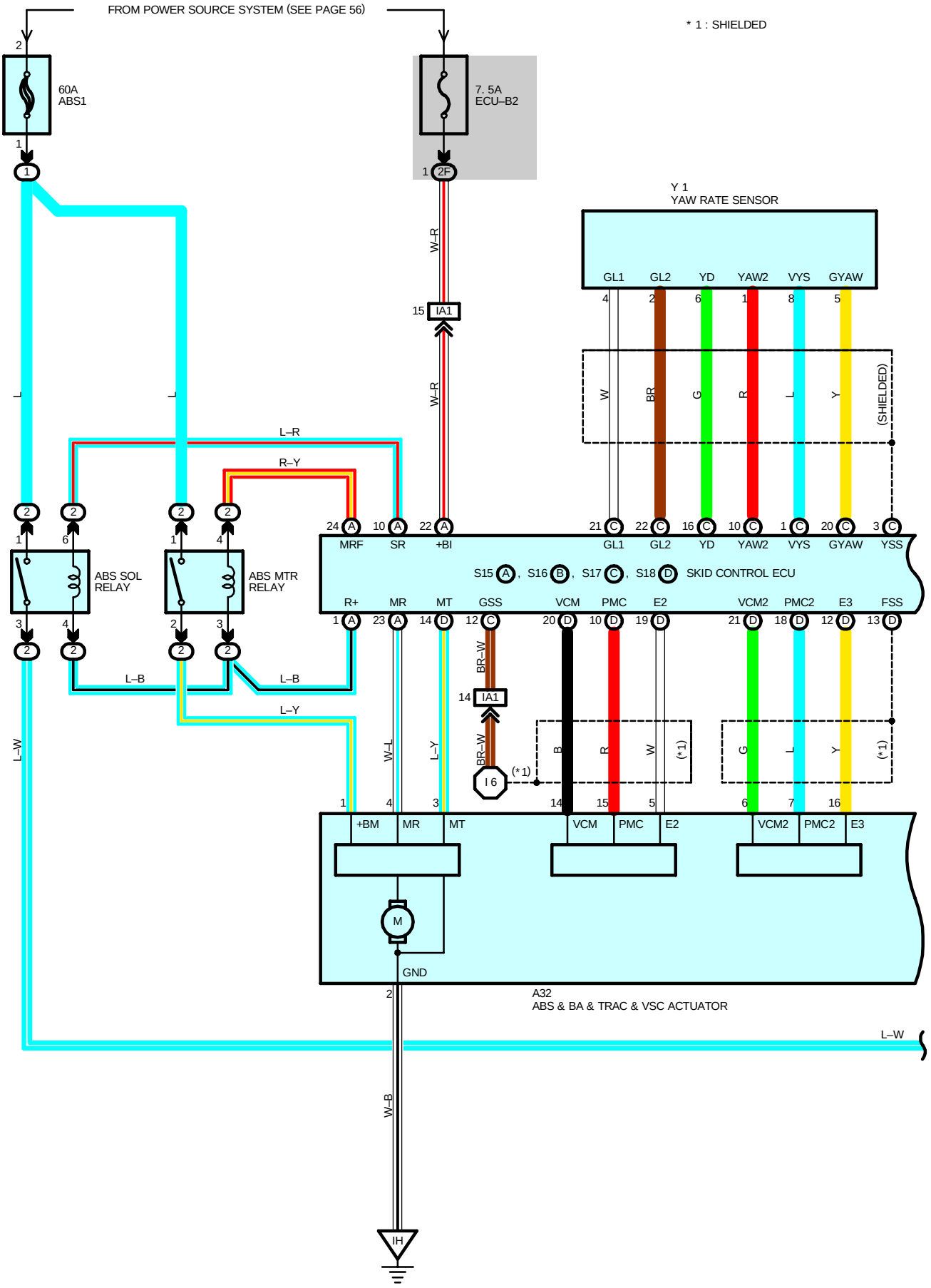
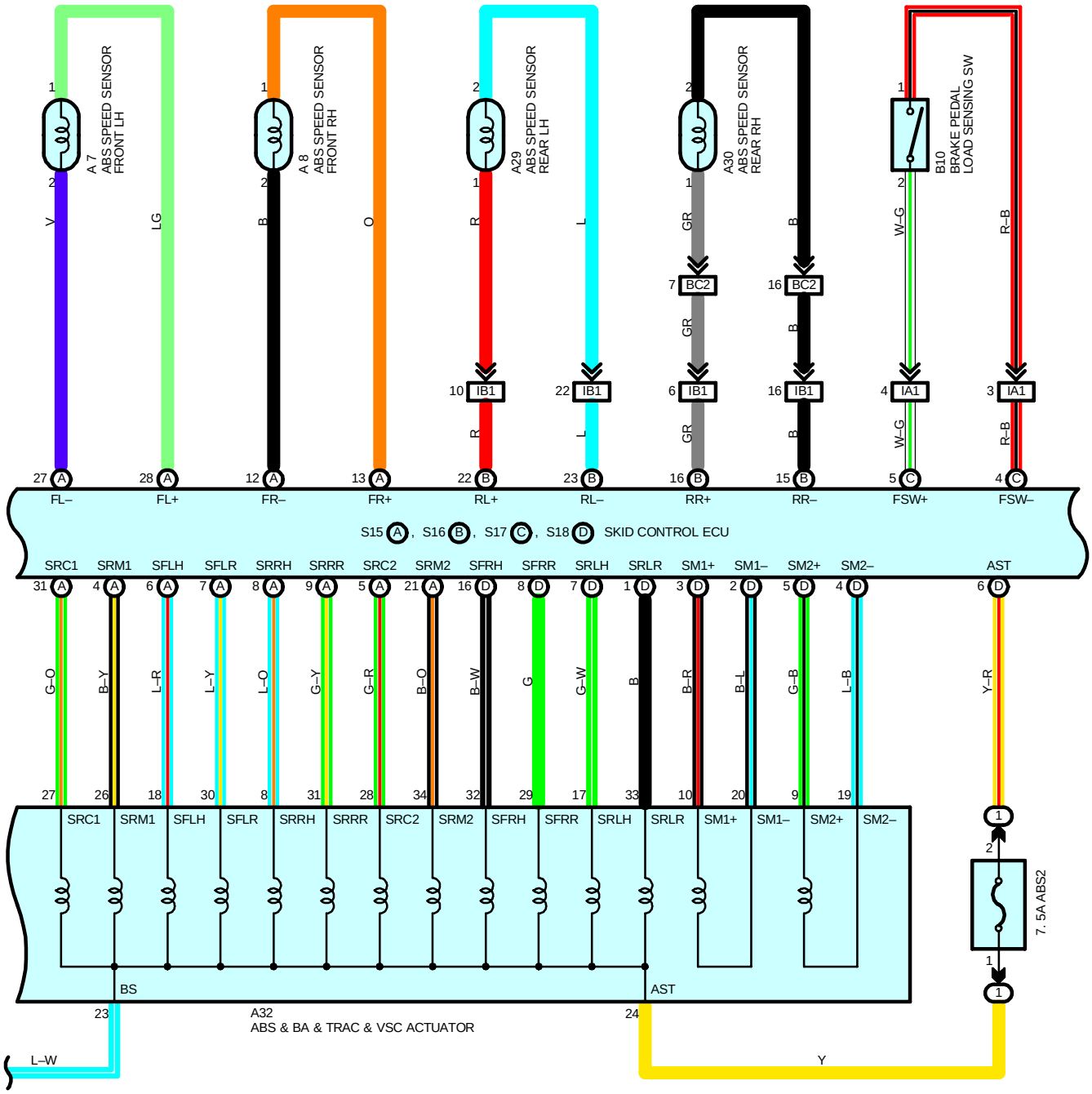
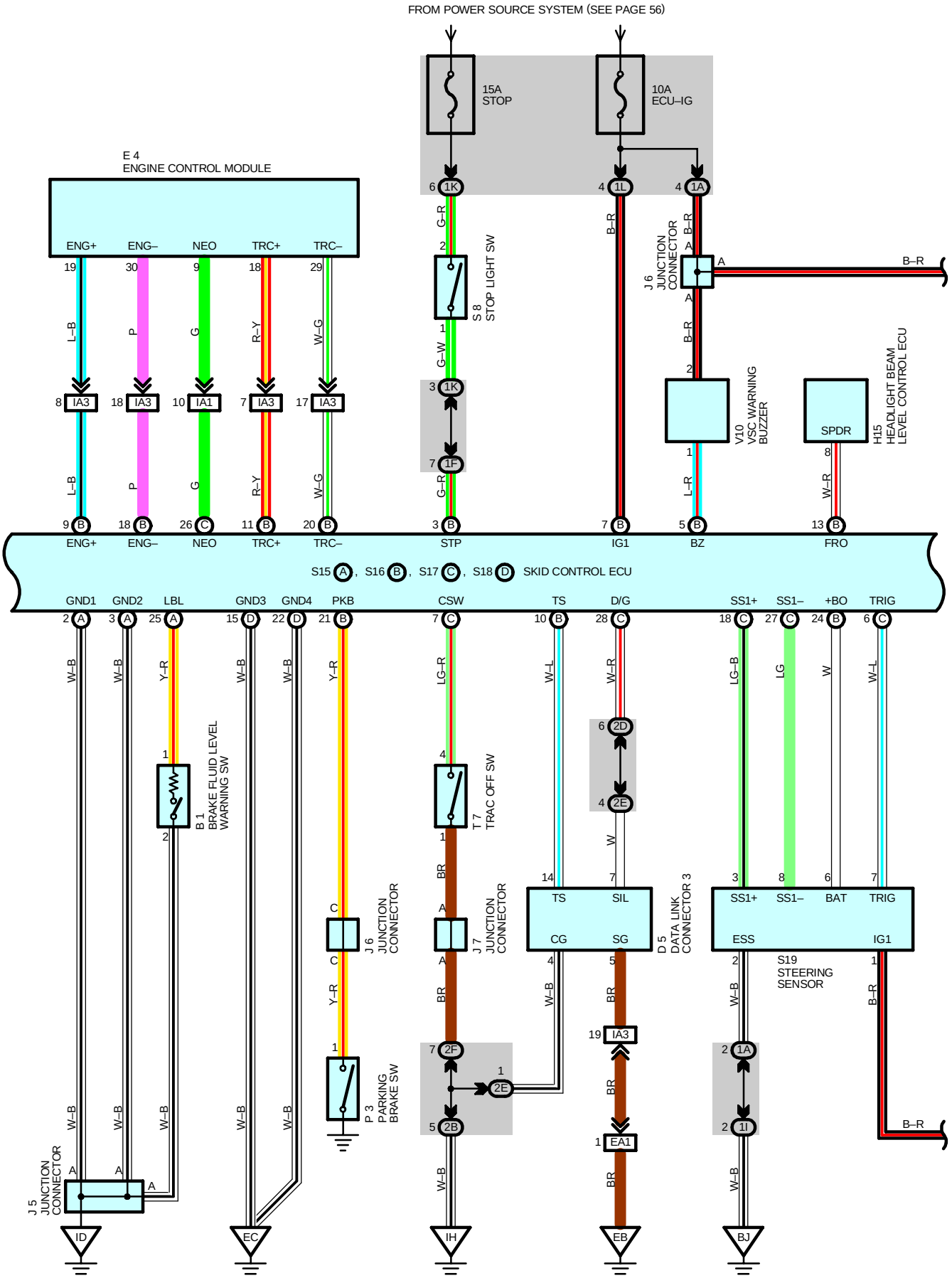
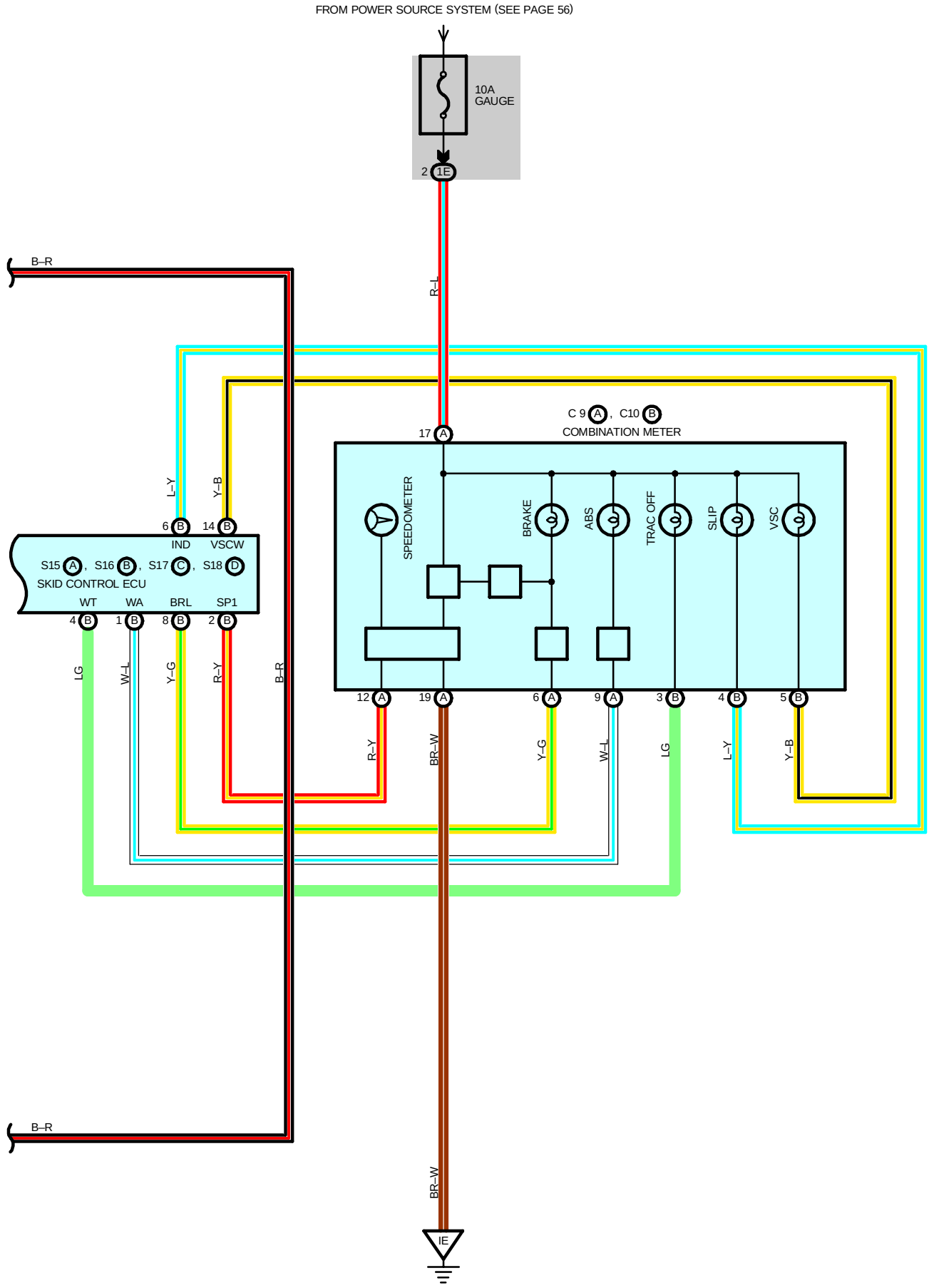
VSC


FROM POWER SOURCE SYSTEM (SEE PAGE 56)
* 1 : SHIELDED
60A
ABS1
7. 5A
ECU–B2
Y 1
YAW RATE SENSOR
GL1
GL2
YD
YAW2
VYS
GYAW
(SHIELDED)
W–R
L–R
R–Y
L–B
L–Y
L–W
W–L
BR–W
W–B
ABS SOL
RELAY
ABS MTR
RELAY
MRF
SR
+BI
S15 A , S16 B , S17 C , S18 D SKID CONTROL ECU
R+
MR
MT
GSS
VCM
PMC
E2
VCM2
PMC2
E3
FSS
IA1
I 6
(*1)
+BM
M
GND
A32
ABS & BA & TRAC & VSC ACTUATOR
IH


A 7
ABS SPEED SENSOR
FRONT LH
A 8
ABS SPEED SENSOR
FRONT RH
A29
ABS SPEED SENSOR
REAR LH
A30
ABS SPEED SENSOR
REAR RH
B10
BRAKE PEDAL
LOAD SENSING SW
BC2
IB1
IA1
FL–
FL+
FR–
FR+
RL+
RL–
RR+
RR–
FSW+
FSW–
S15 A, S16 B, S17 C, S18 D SKID CONTROL ECU
SRC1
SRM1
SFLH
SFLR
SRRH
SRRR
SRC2
SRM2
SFRH
SFRR
SRLH
SRLR
SM1+
SM1–
SM2+
SM2–
AST
BS
A32
ABS & BA & TRAC & VSC ACTUATOR
7. 5A ABS2
L–W
Y


FROM POWER SOURCE SYSTEM (SEE PAGE 56)
15A STOP
10A ECU–IG
E 4 ENGINE CONTROL MODULE
ENG+
ENG–
NEO
TRC+
TRC–
S 8 STOP LIGHT SW
J 6 JUNCTION CONNECTOR
V10 VSC WARNING BUZZER
SPDR
H15 HEADLIGHT BEAM LEVEL CONTROL ECU
STP
IG1
BZ
FRO
S15 A, S16 B, S17 C, S18 D SKID CONTROL ECU
GND1
GND2
LBL
GND3
GND4
PKB
CSW
TS
D/G
SS1+
SS1–
+BO
TRIG
B 1 BRAKE FLUID LEVEL WARNING SW
T 7 TRAC OFF SW
J 7 JUNCTION CONNECTOR
J 6 JUNCTION CONNECTOR
P 3 PARKING BRAKE SW
D 5 DATA LINK CONNECTOR 3
TS
SIL
CG
SG
ESS
BAT
S19 STEERING SENSOR
J 5 JUNCTION CONNECTOR
ID
EC
IH
EB
BJ


FROM POWER SOURCE SYSTEM (SEE PAGE 56)
10A
GAUGE
2 1E
B–R
R–L
C 9 A , C10 B
COMBINATION METER
17 A
SPEEDOMETER
BRAKE
ABS
TRAC OFF
SLIP
VSC
L–Y
Y–B
6 B
14 B
IND
VSCW
S15 A , S16 B , S17 C , S18 D
SKID CONTROL ECU
WT
WA
BRL
SP1
4 B
1 B
8 B
2 B
LG
W–L
Y–G
R–Y
B–R
12 A
19 A
6 A
9 A
3 B
4 B
5 B
R–Y
BR–W
Y–G
W–L
LG
L–Y
Y–B
B–R
BR–W
IE

VSC

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.

Traction control SW

The traction control SW is used to stop the TRAC function. After the engine is started, the TRAC system is stopped (turned off) and the TRAC OFF indicator light lights up. When the traction control SW is pressed again, the TRAC system enters the stand–by mode. If the engine is stopped and restarted, the TRAC system enters the stand–by mode regardless of the traction control SW.

3. VSC OPERATION

Unexpected road conditions, vehicle speed, emergency situation, and any other external factors may cause large front wheel skid or rear wheel skid of the vehicle. If this occurs, the VSC system automatically controls the engine power and wheel brakes to reduce the front wheel skid or rear wheel skid.

To reduce large rear wheel skid :

If the VSC system determines that the rear wheel skid is large, it activates the brakes for the outer turning wheels depending on the degree of the rear wheel skid to produce the moment toward the outside of the vehicle and reduce the rear wheel skid.

To reduce large front wheel skid :

If the VSC system determines that the front wheel skid is large, it controls the engine power and activates the front and rear wheel brakes to reduce the front wheel skid.

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, sensor signals, and/or actuators, the skid control ECU 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.

SERVICE HINTS

S15 (A), S16 (B), S18 (D) SKID CONTROL ECU

IG1–GROUND : **10**–**14** volts with the ignition SW at **ON** position
STP–GROUND : **0**–**1.5** volts with the stop light SW off
: **8**–**14** volts with the stop light SW on
GND1, GND2, GND3, GND4–GROUND : Always continuity

S8 STOP LIGHT SW

2–1 : Closed with the brake pedal depressed

A7, A8 ABS SPEED SENSOR FRONT LH, RH

1–2 : Approx. **1.6** kΩ at **20**˚C (**68**˚F)

A29, A30 ABS SPEED SENSOR REAR LH, RH

1–2 : Approx. **1.0** kΩ at **25**˚C (**77**˚F)

: PARTS LOCATION

Code	See Page	Code	See Page	Code	See Page
A7	32	C9 A	34	S8	35
A8	32	C10 B	34	S15 A	35
A29	36 (S/D)	D5	34	S16 B	35
	38 (W/G)	E4	32	S17 C	35
A30	36 (S/D)	H15	35	S18 D	35
	38 (W/G)	J5	35	S19	35
A32	32	J6	35	T7	35
B1	32	J7	35	V10	35
B10	34	P3	35	Y1	35

: RELAY BLOCKS

Code	See Page	Relay Blocks (Relay Block Location)
1	22	Engine Room No.1 R/B (Engine Compartment Right)
2	22	Engine Room No.2 R/B (Engine Compartment Right)

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

Code	See Page	Junction Block and Wire Harness (Connector Location)
1A	24	Instrument Panel Wire and Driver Side J/B (Left Kick Panel)
1E		
1F		
1I	24	Floor No.2 Wire and Driver Side J/B (Left Kick Panel)
1K	24	Engine Room Main Wire and Driver Side J/B (Left Kick Panel)
1L	24	Instrument Panel Wire and Driver Side J/B (Left Kick Panel)
2B	26	Engine Room Main Wire and Passenger Side J/B (Right Kick Panel)
2D	26	Instrument Panel Wire and Passenger Side J/B (Right Kick Panel)
2E		
2F		

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)
EA1	42	Engine Wire and Engine Room Main Wire (Inside of the ECU Box)
IA1	44	Instrument Panel Wire and Engine Room Main Wire (Near the Driver Side J/B)
IA3		
IB1	44	Instrument Panel Wire and Floor No.2 Wire (Near the Driver Side J/B)
BC2	48 (S/D)	Floor No.2 Wire and Floor Wire (Rear Floor Partition Panel RH)
	50 (W/G)	Floor No.2 Wire and Floor Wire (Rear Floor Partition Panel Center)

: GROUND POINTS

Code	See Page	Ground Points Location
EB	42	Center Side of the Intake Manifold
EC	42	Left Fender Apron
ID	44	Cowl Side Panel LH
IE	44	Front Floor Panel Center LH
IH	44	Cowl Side Panel RH
BJ	48 (S/D)	Front Floor Panel LH
	50 (W/G)	

: SPLICE POINTS

Code	See Page	Wire Harness with Splice Points	Code	See Page	Wire Harness with Splice Points
I6	46	Engine Room Main Wire			