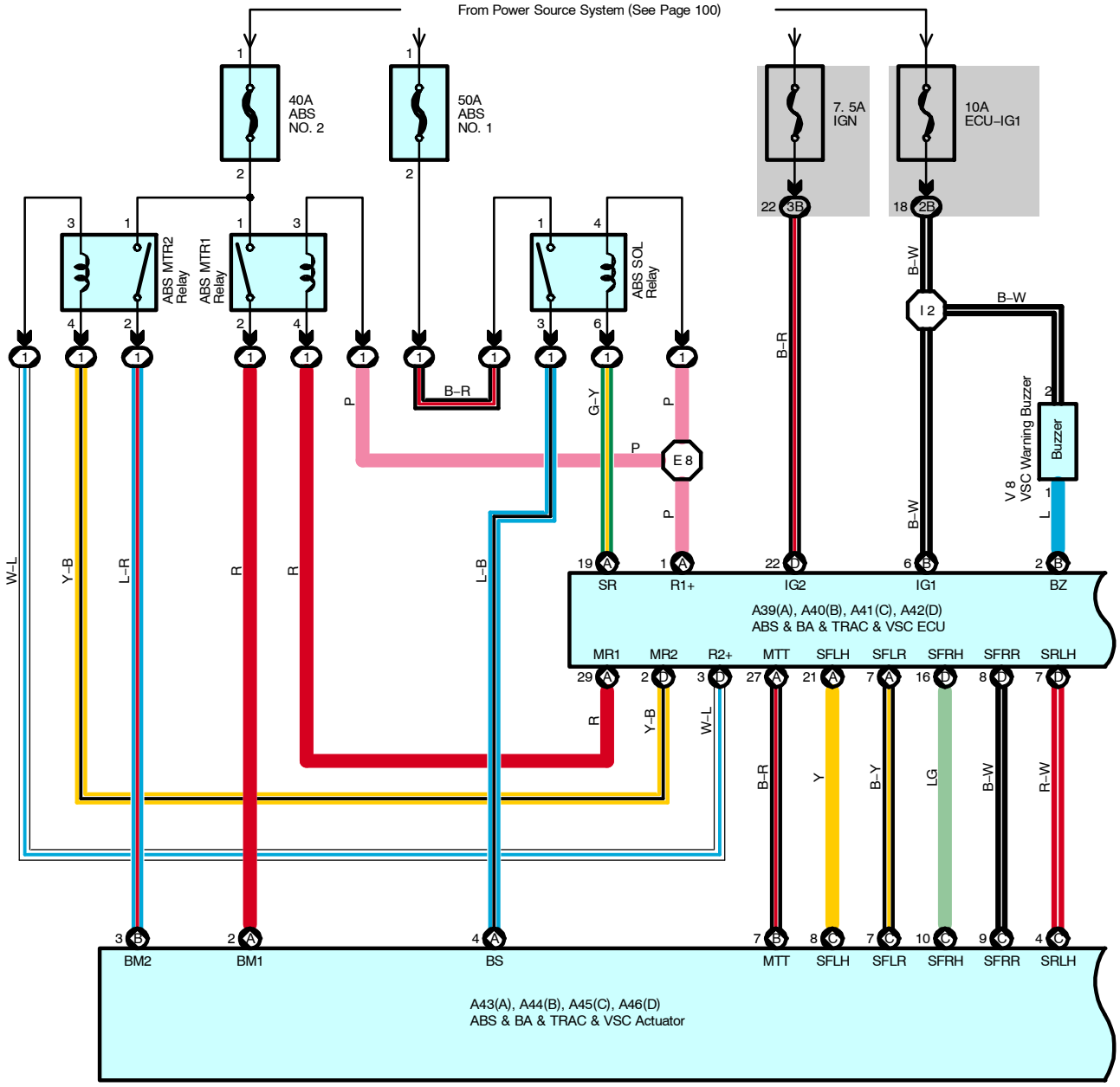
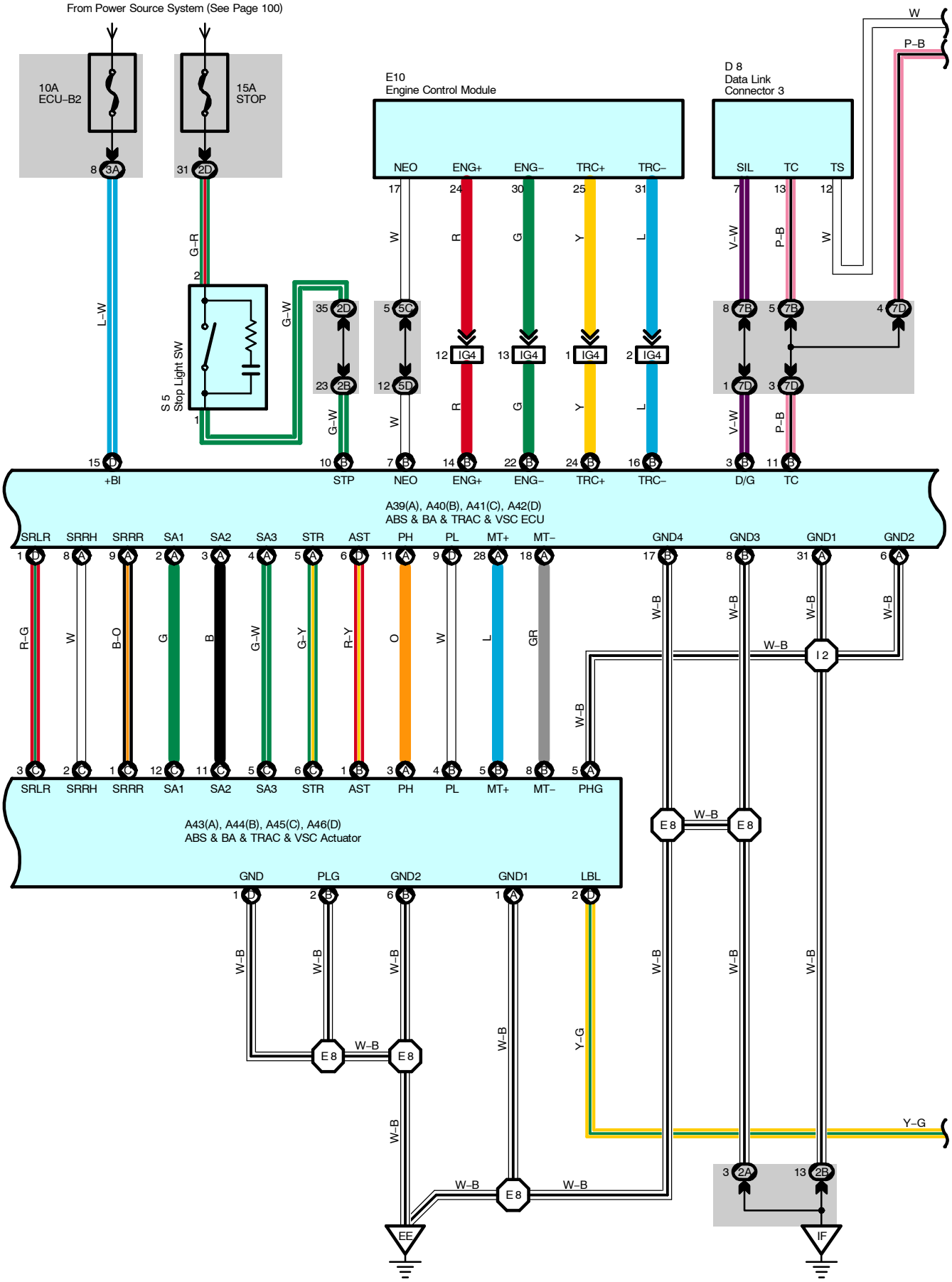
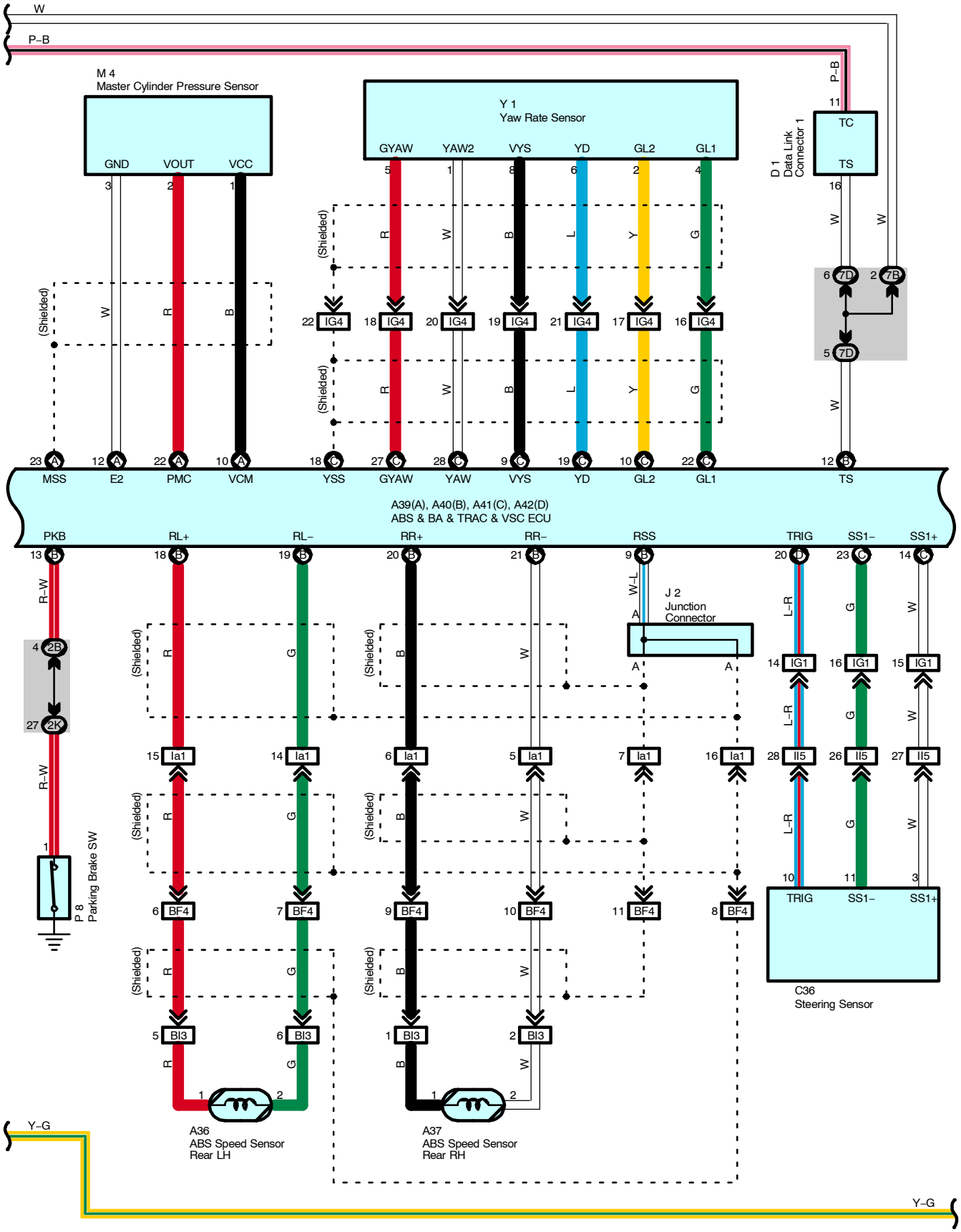
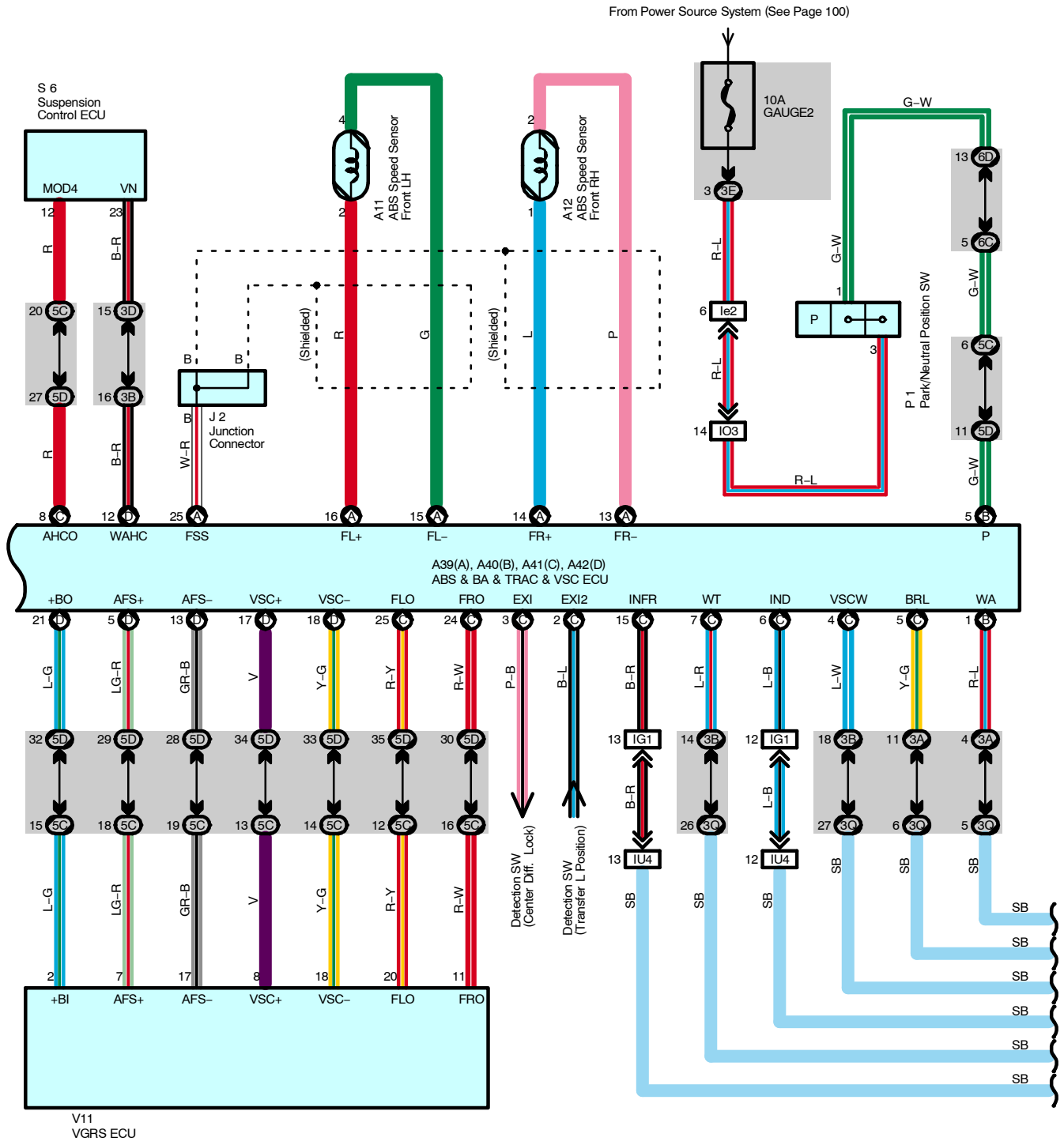
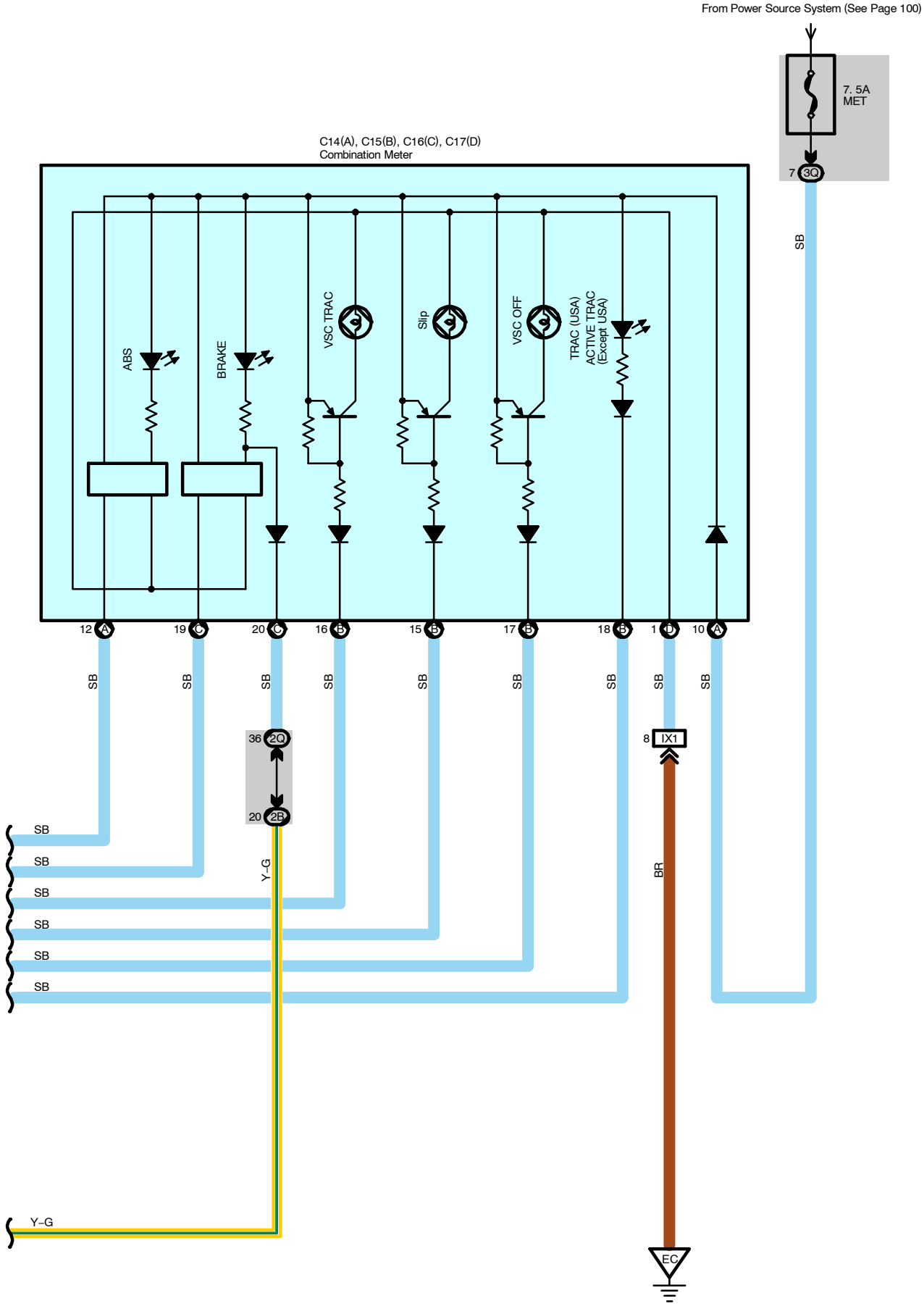

From Power Source System (See Page 100)
40A
ABS
NO. 2
50A
ABS
NO. 1
7. 5A
IGN
10A
ECU–IG1
ABS MTR2
Relay
ABS MTR1
Relay
ABS SOL
Relay
E 8
I 2
Buzzer
V 8
VSC Warning Buzzer
W–L
Y–B
L–R
R
R
L–B
B–R
P
G–Y
B–W
L
SR
R1+
IG2
IG1
BZ
A39(A), A40(B), A41(C), A42(D)
ABS & BA & TRAC & VSC ECU
MR1
MR2
R2+
MTT
SFLH
SFLR
SFRH
SFRR
SRLH
BM2
BM1
BS
A43(A), A44(B), A45(C), A46(D)
ABS & BA & TRAC & VSC Actuator


From Power Source System (See Page 100)
10A
ECU–B2
15A
STOP
E10
Engine Control Module
D 8
Data Link
Connector 3
NEO
ENG+
ENG–
TRC+
TRC–
SIL
TC
TS
W
P–B
L–W
G–R
G–W
S 5
Stop Light SW
V–W
P–B
+BI
STP
D/G
A39(A), A40(B), A41(C), A42(D)
ABS & BA & TRAC & VSC ECU
SRLR
SRRH
SRRR
SA1
SA2
SA3
STR
AST
PH
PL
MT+
MT–
GND4
GND3
GND1
GND2
R–G
B–O
G–W
G–Y
R–Y
GR
W–B
I 2
PHG
A43(A), A44(B), A45(C), A46(D)
ABS & BA & TRAC & VSC Actuator
GND
PLG
LBL
E 8
Y–G
EE
IF


W
P–B
M 4
Master Cylinder Pressure Sensor
GND
VOUT
VCC
Y 1
Yaw Rate Sensor
GYAW
YAW2
VYS
YD
GL2
GL1
D 1
Data Link
Connector 1
TC
TS
(Shielded)
IG4
7D
7B
MSS
E2
PMC
VCM
YSS
GYAW
YAW
VYS
YD
GL2
GL1
TS
A39(A), A40(B), A41(C), A42(D)
ABS & BA & TRAC & VSC ECU
PKB
RL+
RL–
RR+
RR–
RSS
TRIG
SS1–
SS1+
J 2
Junction
Connector
2B
2K
P 8
Parking Brake SW
Ia1
BF4
BI3
IG1
II5
A36
ABS Speed Sensor
Rear LH
A37
ABS Speed Sensor
Rear RH
C36
Steering Sensor
Y–G


From Power Source System (See Page 100)
S 6
Suspension
Control ECU
MOD4
VN
A11
ABS Speed Sensor
Front LH
A12
ABS Speed Sensor
Front RH
10A
GAUGE2
G-W
J 2
Junction
Connector
(Shielded)
P 1
Park/Neutral Position SW
AHCO
WAHC
FSS
FL+
FL-
FR+
FR-
P
A39(A), A40(B), A41(C), A42(D)
ABS & BA & TRAC & VSC ECU
+BO
AFS+
AFS-
VSC+
VSC-
FLO
FRO
EXI
EXI2
INFR
WT
IND
VSCW
BRL
WA
Detection SW
(Center Diff. Lock)
Detection SW
(Transfer L Position)
+BI
V11
VGRS ECU
Y-G


From Power Source System (See Page 100)
7. 5A
MET
7 3Q
SB
C14(A), C15(B), C16(C), C17(D)
Combination Meter
ABS
BRAKE
VSC TRAC
Slip
VSC OFF
TRAC (USA)
ACTIVE TRAC
(Except USA)
12 A
19 C
20 C
16 B
15 B
17 B
18 B
1 D
10 A
SB
36 2Q
20 2B
8 IX1
Y–G
BR
EC

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 ABS & BA & TRAC & VSC 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 ABS & BA & TRAC & VSC 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.

3. VSC Operation

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

To reduce large over−steering :

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

To reduce large under−steering :

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

VSC indicator light

If an error occurs in the VSC system, the VSC indicator lights up to warn the driver.

4. Traction Mode and VSC Function

When the center differential of the transfer is locked, the VSC function is turned off. At this time, the VSC OFF indicator light in the combination meter will come on, and informs the driver that the VSC function is OFF.

5. 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.

6. Fail Safe Function

If an error occurs in the ABS & BA & TRAC & VSC ECU, sensor signals, and/or actuators, the ABS & BA & TRAC & VSC 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 without the ABS, BA, TRAC, and VSC systems.

Service Hints

A39 (A), A40 (B), A42 (D) ABS & BA & TRAC & VSC ECU

(D)15−Ground : Always approx. 12 volts
(B) 6−Ground : Approx. 12 volts with ignition SW at ON or ST position
(D)22−Ground : Approx. 12 volts with ignition SW at ON or ST position
(B)10−Ground : Approx. 12 volts with brake pedal depressed
(A) 6, (A) 31, (B) 8, (B) 17−Ground : Always continuity

A11 ABS Speed Sensor Front LH

2−4 : Approx. 1.07 kΩ (20 °C, 68 °F)

A12 ABS Speed Sensor Front RH

1−2 : Approx. 1.07 kΩ (20 °C, 68 °F)

A36, A37 ABS Speed Sensor Rear LH, RH

1−2 : Approx. 1.2 kΩ (25 °C, 77 °F)

: Parts Location

Code		See Page	Code		See Page	Code	See Page
A11		68	A45	C	68	J2	72
A12		68	A46	D	68	M4	69
A36		74	C14	A	71	P1	69
A37		74	C15	B	71	P8	75
A39	A	70	C16	C	71	S5	73
A40	B	70	C17	D	71	S6	73
A41	C	70	C36		71	V8	73
A42	D	70	D1		68	V11	73
A43	A	68	D8		71	Y1	73
A44	B	68	E10		71		

: 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)
2A	28	Engine Room No.2 Wire and Cowl Side J/B LH (Left Kick Panel)
2B		
2D	28	Dash Wire and Cowl Side J/B LH (Left Kick Panel)
2K	28	Floor No.1 Wire and Cowl Side J/B LH (Left Kick Panel)
2Q	30	Instrument Panel Integration Wire and Cowl Side J/B LH (Left Kick Panel)
3A	40	Engine Room No.2 Wire and Cowl Side J/B RH (Right Kick Panel)
3B		
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)
5C	56	Dash Wire and J/B No.5 (Behind the Combination Meter)
5D	56	Engine Room No.2 Wire and J/B No.5 (Behind the Combination Meter)
6C	60	Dash Wire and J/B No.6 (Behind the Grove Box)
6D	60	Engine Wire and J/B No.6 (Behind the Grove Box)
7B	64	Dash Wire and J/B No.7 (Behind the Grove Box)
7D	64	Engine Room No.2 Wire and J/B No.7 (Behind the Grove Box)

: **Connector Joining Wire Harness and Wire Harness**

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)
IG1 IG4	82	Engine Room No.2 Wire and Dash Wire (Behind the Combination Meter)
II5	82	Dash Wire and Column Wire (Near the Ignition SW)
IO3	82	Engine Wire and Dash Wire (Behind the Glove Box)
IU4	84	Instrument Panel Integration Wire and Dash Wire (Behind the Glove Box)
IX1	86	Instrument Panel Integration Wire and Engine Wire (Behind the Glove Box)
Ia1	86	Engine Room No.2 Wire and Floor No.1 Wire (Left Kick Panel)
Ie2	86	Dash Wire and Dash Wire (Behind the Combination Meter)
BF4	90	Floor No.3 Wire and Floor No.1 Wire (Left Rear Side Quarter Panel)
BI3	92	Frame Wire and Floor No.3 Wire (Left Side of Rear Floor Crossmember)

: **Ground Points**

Code	See Page	Ground Points Location
EC	78	Rear Bank of Right Cylinder Head
EE	78	Front Left Side of Fender Apron
IF	80	Set Bolt of Cowl Side J/B LH

: **Splice Points**

Code	See Page	Wire Harness with Splice Points	Code	See Page	Wire Harness with Splice Points
E8	78	Engine Room No.2 Wire	I2	82	Engine Room No.2 Wire