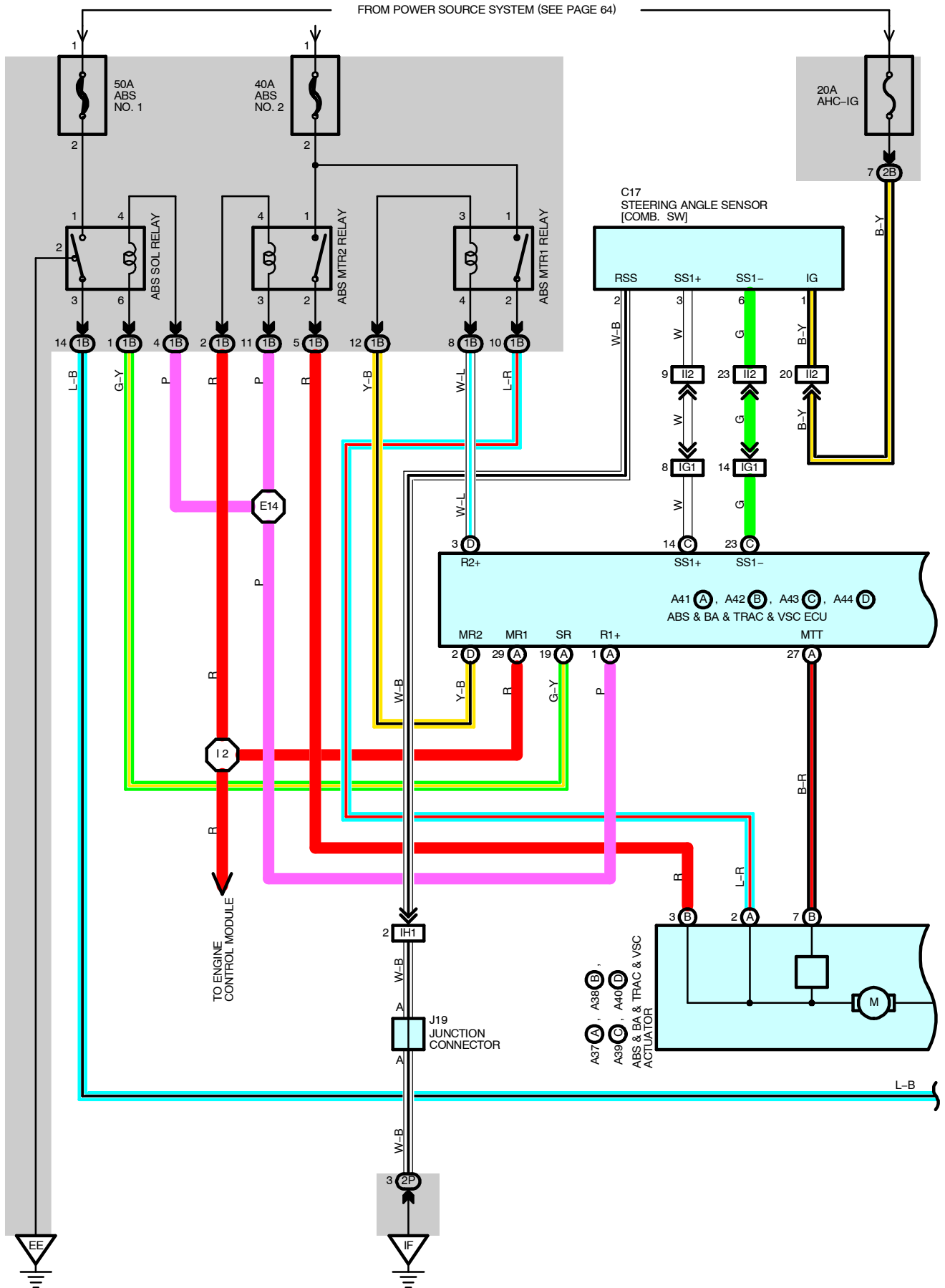
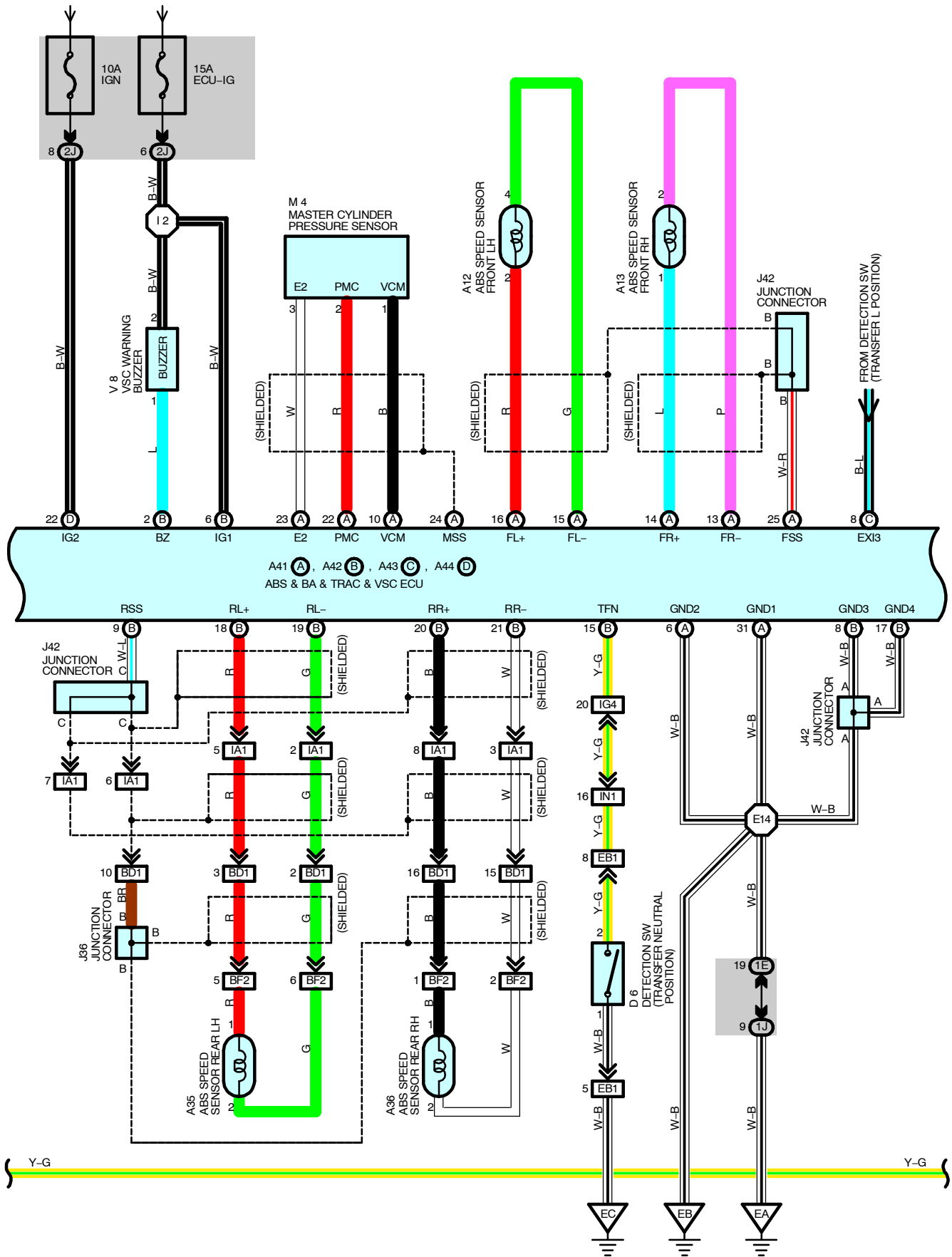
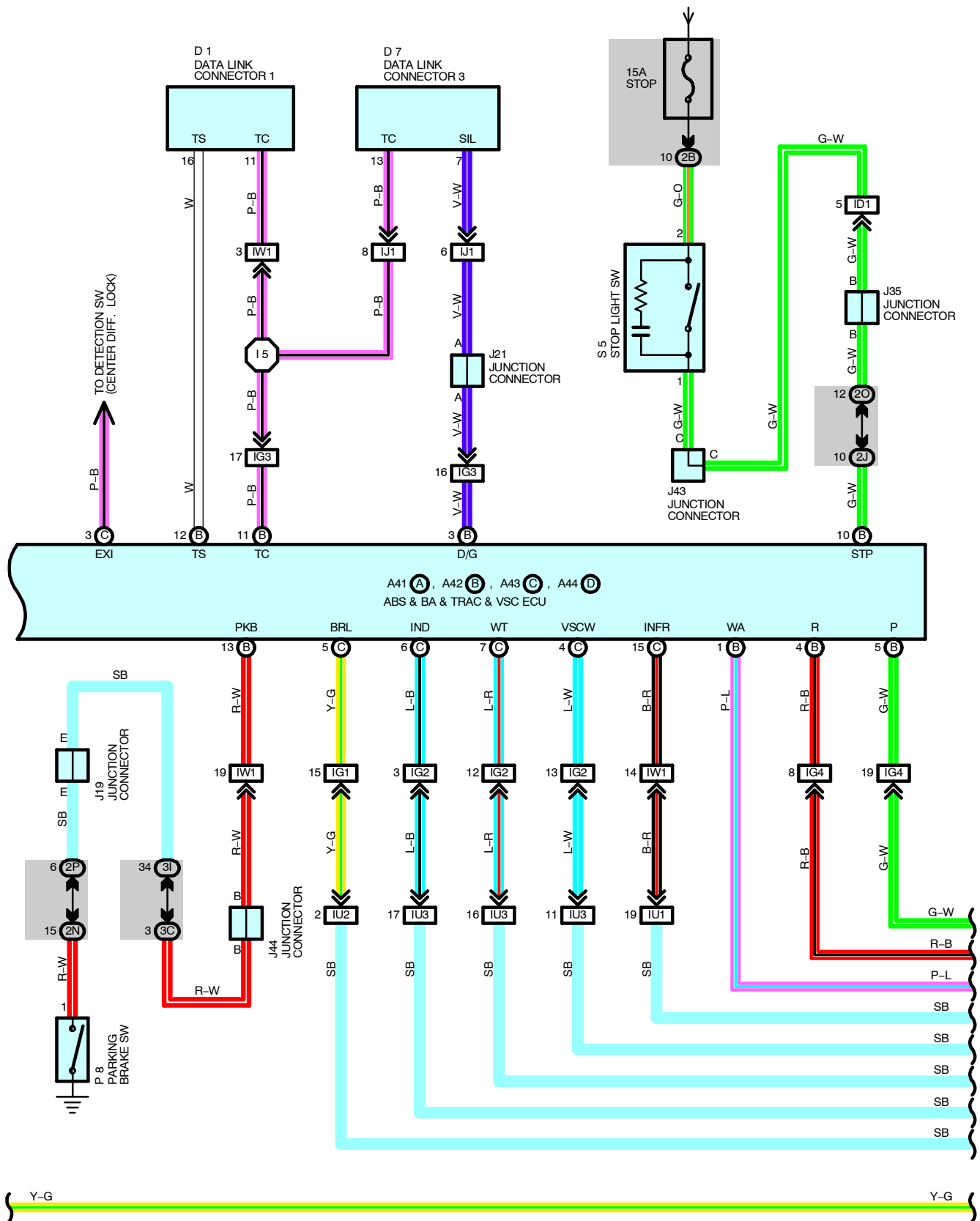




FROM POWER SOURCE SYSTEM (SEE PAGE 64)



FROM POWER SOURCE SYSTEM (SEE PAGE 64)



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

A41 (A), A42 (B), A44 (D) ABS & BA & TRAC & VSC ECU

(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

(B)12-GROUND : Approx. 12 volts with ignition SW at **ON** position and data link connector 1 **TS-E1** not connected

(B)11-GROUND : Approx. 12 volts with ignition SW at **ON** position and data link connector 1 **TC-E1** not connected

A12 ABS SPEED SENSOR FRONT LH

2-4 : Approx. 1.07 kΩ (20 °C, 68 °F)

A13 ABS SPEED SENSOR FRONT RH

1-2 : Approx. 1.07 kΩ (20 °C, 68 °F)

A35, A36 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
A12		38	C14	C	40	J35	42
A13		38	C15	D	40	J36	42
A35		42	C17		40	J42	41
A36		42	D1		38	J43	41
A37	A	38	D6		38	J44	41
A38	B	38	D7		40	M4	39
A39	C	38	D25		40	P1	39
A40	D	38	E8		40	P8	43
A41	A	40	J14		41	S5	41
A42	B	40	J19		41	V8	41
A43	C	40	J21		41	Y1	41
A44	D	40	J23		41		
C12	A	40	J28		41		

○ : JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

Code	See Page	Junction Block and Wire Harness (Connector Location)
1B	23	Engine Room No.2 Wire and Engine Room J/B (Engine Compartment Left)
1E		
1J	23	Engine Room Main Wire and Engine Room J/B (Engine Compartment Left)
2B	26	Dash Wire and Cowl Side J/B LH (Left Kick Panel)
2D		
2J	26	Engine Room No.2 Wire and Cowl Side J/B LH (Left Kick Panel)
2N	26	Floor Wire and Cowl Side J/B LH (Left Kick Panel)
2O		
2P	28	Instrument Panel Integration Wire and Cowl Side J/B LH (Left Kick Panel)
3C	32	Dash Wire and Cowl Side J/B RH (Right Kick Panel)
3I	32	Instrument Panel Integration Wire and Cowl Side J/B RH (Right Kick Panel)

 : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)
EB1	46	Engine Wire and Transmission Wire (On the Transmission)
IA1	48	Floor Wire and Engine Room No.2 Wire (Left Kick Panel)
ID1	48	Dash Wire and Floor Wire (Left Kick Panel)
IG1	50	Engine Room No.2 Wire and Dash Wire (Behind the Combination Meter)
IG2		
IG3		
IG4		
IH1	50	Instrument Panel Integration Wire and Column Wire (Near the Ignition SW)
II2	50	Column Wire and Dash Wire (Near the Ignition SW)
IJ1	50	Dash Wire and Detector Wire (Instrument Panel Center)
IK2	50	Console Box Wire and Dash Wire (Left Side of Front Console)
IN1	52	Engine Wire and Dash Wire (Behind the Glove Box)
IO1		
IU1	52	Instrument Panel Integration Wire and Dash Wire (Behind the Glove Box)
IU2		
IU3		
IW1	54	Engine Room No.2 Wire and Dash Wire (Behind the Glove Box)
BD1	56	Floor No.3 Wire and Floor Wire (Left Rear Side Quarter Panel)
BF2	56	Frame Wire and Floor No.3 Wire (Left Side of Rear Floor Crossmember)

 : GROUND POINTS

Code	See Page	Ground Points Location
EA	46	Front Right Side of Fender Apron
EB		
EC	46	Rear Bank of Right Cylinder Head
EE	46	Front Left Side of Fender Apron
IF	48	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
E13	46	Engine Room No.2 Wire	I2	50	Engine Room No.2 Wire
E14			I5	50	Dash Wire