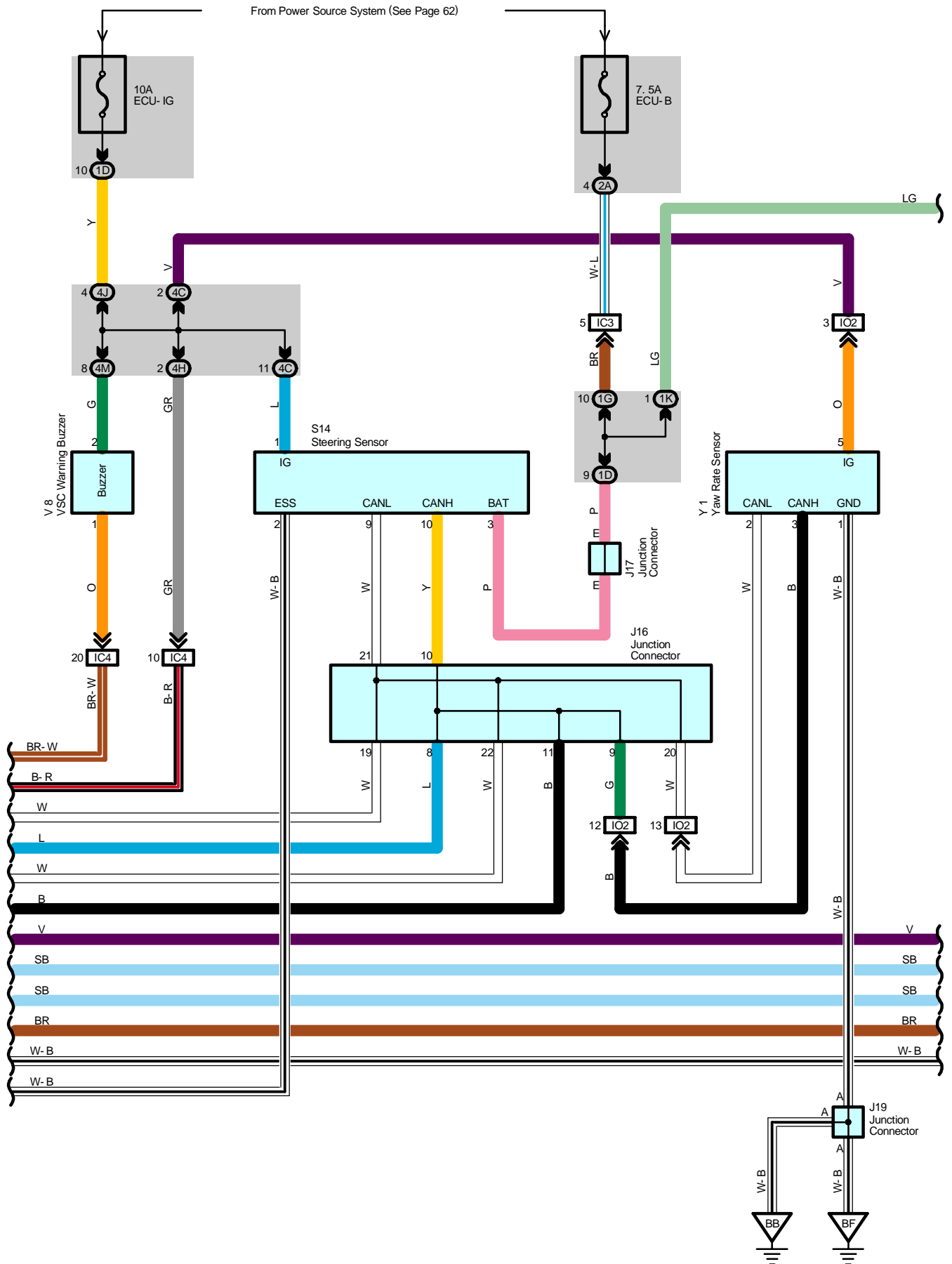
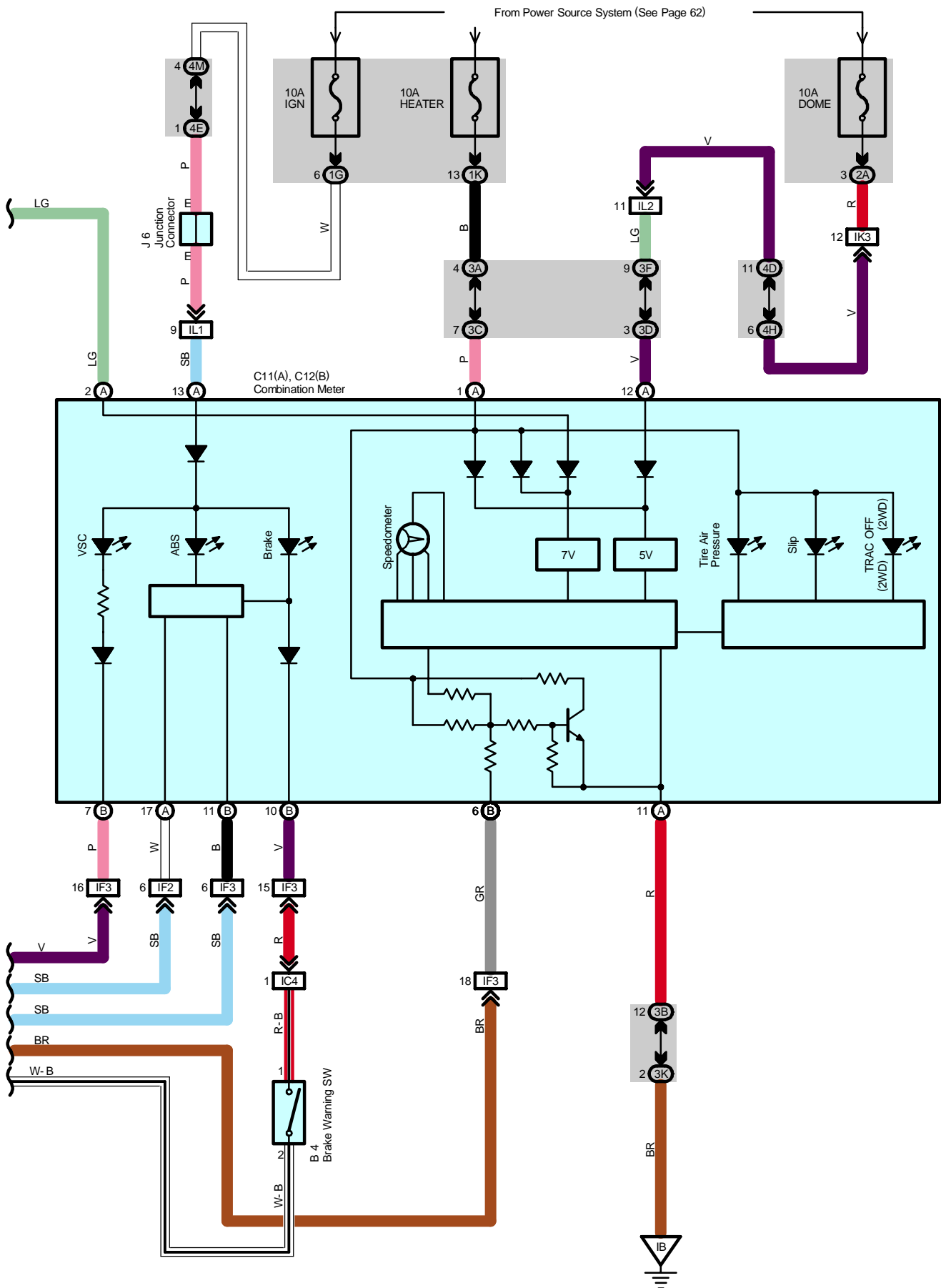


# VSC and Tire Pressure Warning System





# VSC and Tire Pressure Warning System

## 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 with actuator 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 with actuator 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 front 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 malfunction occurs in the VSC system, the VSC indicator lights up to warn the driver.

### 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 control

The engine power does not interfere with the VSC brake control by fuel cut controlling 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 alarm intermittently to warn the driver that the current road is slippery, while the VSC system is being operated.

### 5. Fail Safe Function

If an malfunction occurs in the skid control ECU with actuator, sensor signals, and/or actuators, the skid control ECU with actuator inhibits the brake actuator control and inputs the malfunction signal to the engine control module. According to the malfunction signal, the brake actuator turns off the solenoid and the engine control module rejects any electronically controlled request from the VSC system. As a result, the vehicle functions without the ABS, BA, TRAC, and VSC systems.

## Service Hints

### A4, A5 ABS Speed Sensor Front LH, RH

1-2 : 1.4-1.8 k $\Omega$  (20°C, 68°F)

### A24, A25 ABS Speed Sensor Rear LH, RH

1-2 : 0.9-1.3 k $\Omega$  (25°C, 77°F) (4WD)

1-2 : Max. 1.45 k $\Omega$  (25°C, 77°F) (2WD)

### B4 Brake Warning SW

1-2 : Closed with the float down

### S27 Skid Control ECU with Actuator

46-Ground : Approx. 12 volts with the ignition SW at ON position

27-Ground : Approx. 12 volts with the stop light SW on (Brake pedal depressed)

31-Ground : Always continuity

### S15 Stop Light SW

2-1 : Closed with brake pedal depressed

## ○ : PARTS LOCATION

Code	See Page	Code	See Page	Code	See Page
A4	38 (3MZ-FE)	C12 B	42	J19	44
	40 (2AZ-FE)	D3	42	P3	43
A5	38 (3MZ-FE)	E5	42	P22	43
	40 (2AZ-FE)	F7	38 (3MZ-FE)	S14	43
A24	44		40 (2AZ-FE)	S15	43
A25	44	J4	39 (3MZ-FE)	S27	39 (3MZ-FE)
B4	38 (3MZ-FE)		41 (2AZ-FE)		41 (2AZ-FE)
	40 (2AZ-FE)	J6	43	T6	43
B13	42	J16	43	V8	43
C11 A	42	J17	43	Y1	45

## ○ : RELAY BLOCKS

Code	See Page	Relay Blocks (Relay Block Location)
5	23	ABS R/B (Engine Compartment Rear Left)

## ○ : JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

Code	See Page	Junction Block and Wire Harness (Connector Location)	
1D	29	Cowl Wire and Instrument Panel J/B (Lower Finish Panel)	
1E			
1G			
1K	28	Instrument Panel Wire and Instrument Panel J/B (Lower Finish Panel)	
2A	27	Engine Room Main Wire and Engine Room J/B (Engine Compartment Left)	
3A	30	Instrument Panel Wire and Center J/B (Behind the Instrument Panel Center)	
3B			
3C			
3D			
3F			
3G	31		
3J			
3K			
4A	33		Cowl Wire and Passenger Side J/B (Right Side of Grove Box)
4C			
4D			
4E			
4H			
4I	32		
4J			
4L			
4M			
4N			

## VSC and Tire Pressure Warning System

### : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)
IA1	52	Cowl Wire and Floor No.2 Wire (Left Kick Panel)
IC2	52	Engine Room Main Wire and Cowl Wire (Left Cowl Side Panel)
IC3		
IC4		
IF2	52	Instrument Panel Wire and Cowl Wire (Right Side of Instrument Panel J/B)
IF3		
IK3	54	Engine Room Main Wire and Cowl Wire (Right Cowl Side Panel)
IL1	54	Instrument Panel Wire and Cowl Wire (Upper Side of Passenger Side J/B)
IL2		
IO2	54	Cowl Wire and Floor Wire (Right Kick Panel)

### : GROUND POINTS

Code	See Page	Ground Points Location
EA	48 (3MZ-FE)	Right Front Fender Apron
	50 (2AZ-FE)	
EB	48 (3MZ-FE)	
	50 (2AZ-FE)	
EH	48 (3MZ-FE)	Under the Left Headlight
	50 (2AZ-FE)	
IB	52	Right Instrument Panel Brace
IC	52	Right Cowl Side Panel
BB	56	Right Center Pillar
BF	56	Near the Rear Side Marker Light RH

