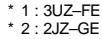


The diagram illustrates the electrical system for the ABS & TRAC & VSC ECU. The central component is the ECU, which has multiple pins connected to various components:

- Power and Grounding:**
 - Pins 7 (IG2) and 8 (STP) are connected to the ignition and stop light switch respectively.
 - Pins 6 (GND2), 31 (GND1), 8 (GND3), and 17 (GND4) are connected to ground.
- Sensors:**
 - A31 (ABS SPEED SENSOR REAR LH) and A32 (ABS SPEED SENSOR REAR RH) are connected to pins 6 (IC1) and 15 (IC1) respectively.
 - A8 (ABS SPEED SENSOR FRONT LH) and A9 (ABS SPEED SENSOR FRONT RH) are connected to pins 16 (FL+) and 15 (FL-) respectively.
 - M2 (MASTER CYLINDER PRESSURE SENSOR) is connected to pins 23 (E2), 22 (PMC), and 10 (VCM).
- Switches and Actuators:**
 - S11 (STOP LIGHT SW) is connected to pin 8 (STP).
 - V6 (VSC OFF SW) is connected to pin 26 (CSW).
 - BRL (BRAKE RELEASE LAMP) is connected to pin 5 (B).
 - SP1 (STEERING POWER ASSIST) is connected to pin 16 (C).
 - IND (INSTRUMENT CLUSTER) is connected to pin 6 (C).
 - WT (WHEEL TACHOMETER) is connected to pin 13 (C).
- Other Components:**
 - J14 (JUNCTION CONNECTOR) is connected to pins 7 (IG2) and 8 (STP).
 - J7 (JUNCTION CONNECTOR) is connected to pins 7 (IG2) and 8 (STP).
 - J17 (JUNCTION CONNECTOR) is connected to pins 6 (GND2), 31 (GND1), 8 (GND3), and 17 (GND4).

The diagram uses color-coded wires to represent different circuits: red for power, green for ground, blue for signal, and yellow for other functions. The ECU is shown as a large rectangular box with multiple pins labeled with letters and numbers.



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 & 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 & 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 OFF SW

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

VSC indicator light

If an error 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 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 ABS & TRAC & VSC ECU, sensor signals, and/or actuators, the ABS & 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, TRAC, and VSC systems.

SERVICE HINTS

A19 (A), A20 (B), A21 (C) ABS & TRAC & VSC ECU

(C) 1-GROUND : Approx. 12 volts with ignition SW at **ON** or **ST** position

(B) 6-GROUND : Approx. 12 volts with ignition SW at **ON** or **ST** position

(C) 7-GROUND : Approx. 12 volts with stop light SW on

(A) 6, (A) 31, (B) 8, (B) 17-GROUND : Always continuity

A8, A9 ABS SPEED SENSOR FRONT LH, RH

1-2 : Approx. 1.60 kΩ (20°C, 68°F)

A31, A32 ABS SPEED SENSOR REAR LH, RH

1-2 : Approx. 1.10 kΩ (20°C, 68°F)

: PARTS LOCATION

Code		See Page	Code		See Page	Code	See Page
A5	A	38 (3UZ–FE)	B1		40 (2JZ–GE)	J5	41 (2JZ–GE)
		40 (2JZ–GE)	B6	A	42	J6	43
A6	B	38 (3UZ–FE)	C12	A	42	J7	43
		40 (2JZ–GE)	C13	B	42	J9	43
A7	C	38 (3UZ–FE)	C15		42	J10	43
		40 (2JZ–GE)	D1		38 (3UZ–FE)	J14	43
A8	38 (3UZ–FE)	40 (2JZ–GE)			J15	43	
	40 (2JZ–GE)	D4	42	J17	43		
A9		38 (3UZ–FE)	E5	D	38 (3UZ–FE)	M2	39 (3UZ–FE)
		40 (2JZ–GE)	E6	E	40 (2JZ–GE)		41 (2JZ–GE)
A19	A	42	H1		38 (3UZ–FE)	P1	39 (3UZ–FE)
A20	B	42			40 (2JZ–GE)		41 (2JZ–GE)
A21	C	42	J1		41 (2JZ–GE)	S11	43
A22	D	42	J3	A	39 (3UZ–FE)	V6	43
A23		42			41 (2JZ–GE)	V7	43
A31		44	J4	B	39 (3UZ–FE)	Y1	43
A32		44			41 (2JZ–GE)		
B1		38 (3UZ–FE)	J5		39 (3UZ–FE)		

: RELAY BLOCKS

Code	See Page	Relay Blocks (Relay Block Location)
1	24	Engine Room No.1 R/B (Engine Compartment Right)
2	25	Engine Room No.2 R/B (Engine Compartment Left)

: JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

Code	See Page	Junction Block and Wire Harness (Connector Location)
1B	28	Cowl Wire and Driver Side J/B (Left Kick Panel)
1D	28	Instrument Panel Wire and Driver Side J/B (Left Kick Panel)
1F	28	Cowl Wire and Driver Side J/B (Left Kick Panel)
1G	29	
1H		

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)
EA1	50 (2JZ-GE)	Engine Wire and Cowl Wire (Inside of the ECU Box)
EA2	48 (3UZ-FE)	
	50 (2JZ-GE)	

**: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS**

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)
EA3	48 (3UZ-FE)	
	50 (2JZ-GE)	
IA1	52	Engine Room Main Wire and Cowl Wire (Near the Driver Side J/B)
IA2		
IC1	52	Floor No.2 Wire and Cowl Wire (Left Kick Panel)
IE1	52	Instrument Panel Wire and Cowl Wire (Left Side of the Steering Column)
II2	52	Engine Room Main Wire and Cowl Wire (Near the Passenger Side R/B)
IL3	54	Floor No.1 Wire and Cowl Wire (Right Kick Panel)

**: GROUND POINTS**

Code	See Page	Ground Points Location
EA	48 (3UZ-FE)	Right Fender
	50 (2JZ-GE)	
EE	48 (3UZ-FE)	Under the ABS & TRAC & VSC Actuator
	50 (2JZ-GE)	
IF	52	Left Kick Panel
IG	52	Left Side of the Cowl Panel
II	52	Right Side of the Cowl Panel

MEMO
