

#### **SYSTEM OUTLINE**

This system utilizes an engine control module and maintains overall control of the engine, transmission and so on. An outline of the engine control is explained here.

#### 1. INPUT SIGNALS

(1) Engine coolant temp. signal circuit

The engine coolant temp. sensor detects the engine coolant temp. and has a built—in thermistor with a resistance which varies according to the engine coolant temp. The engine coolant temp. is input into TERMINAL THW of the engine control module as a control signal.

(2) Intake air temp. signal circuit

The intake air temp. sensor is installed in the mass air flow meter and detects the intake air temp., which is input as a control signal to TERMINAL THA of the engine control module.

(3) Oxygen sensor signal circuit

The oxygen density in the exhaust emission is detected and is input as a control signal from the heated oxygen sensors (Bank 1 sensor 1, bank 2 sensor 1, bank 1 sensor 2 and bank 2 sensor 2) to TERMINALS OXL1, OXR1, OXL2 and OXR2 of the engine control module.

To stabilize detection performance by the heated oxygen sensors, the heated oxygen sensors are warmed. This heater is also controlled by the engine control module (HTL, HTR, HTL2 and HTR2).

(4) RPM signal circuit

Camshaft position is detected by the camshaft position sensor and its signal is input to TERMINAL G2 of the engine control module as a control signal. Also, the engine RPM is detected by the crankshaft position sensor installed in the cylinder block and the signal is input into TERMINAL NE+ of the engine control module as a control signal.

(5) Throttle position signal circuit

The throttle position sensor detects the throttle valve opening angle as a control signal, which is input into TERMINALS VTA and VTA2 of the engine control module.

(6) Vehicle speed circuit

The vehicle speed sensor (Electronically controlled transmission) detects the vehicle speed and inputs a control signal to TERMINAL SP2+ of the engine control module.

(7) Battery signal circuit

Voltage is constantly applied to TERMINAL BATT of the engine control module. With the ignition SW turned on, voltage for engine control module start—up power supply is applied to TERMINALS +B and +B1 of the engine control module via the EFI relay.

The current flowing through the IGN fuse to TERMINAL IGSW of the engine control module.

Voltage is constantly applied to TERMINAL +BM of the engine control module.

(8) Intake air volume signal circuit

Intake air volume is detected by the mass air flow meter and the signal is input to TERMINAL VG of the engine control module as a control signal.

(9) Stop light SW signal circuit

The stop light SW is used to detect whether or not the vehicle is braking and the signal is input into TERMINAL STP of the engine control module as a control signal.

(10) Starter signal circuit

To confirm whether the engine is cranking, the voltage applied to the starter motor during cranking is detected and the signal is input into TERMINAL STA of the engine control module as a control signal.

(11) Engine knock signal circuit

Engine knocking is detected by knock sensors and the signal is input into TERMINALS KNKL and KNKR as a control signal.

#### 2. CONTROL SYSTEM

\* SFI system

The SFI system monitors the engine condition through the signals input from each sensor (Input signals from (1) to (12) etc.) to the engine control module. The best fuel injection timing is decided based on this data and the program memorized by the engine control module, and the control signal is output to TERMINALS #1, #2, #3, #4, #5, #6, #7 and #8 of the engine control module to operate the injector (Inject the fuel). The sequential multiport fuel injection (Electronic fuel injection) system controls the fuel injection operation by the engine control module in response to the driving conditions.

\* ESA (Electronic Spark Advance) system

The ESA system monitors the engine condition through the signals input to the engine control module from each sensor (Input signals from (1), (2), (4) to (11) etc.). The best ignition timing is decided according to this data and the memorized data in the engine control module, and the control signal is output to TERMINALS IGT1, IGT2, IGT3, IGT4, IGT5, IGT6, IGT7 and IGT8. This signal controls the igniter to provide the best ignition timing for the driving conditions.

\* Heated oxygen sensor heater control system

The heated oxygen sensor heater control system turns the heater on when the intake air volume is low (Temp. of exhaust emissions is low), and warms up the heated oxygen sensors (Bank 1 sensor 1, bank 2 sensor 1, bank 1 sensor 2 and bank 2 sensor 2) to improve detection performance of the sensors.

The engine control module evaluates the signals from each sensor (Input signals from (1), (2), (4), (7) to (9) etc.), and outputs current to TERMINALS HTL, HTR, HTL2 and HTR2 to control the heater.

\* ACIS

ACIS includes a valve in the bulkhead separating the surge tank into two parts. This valve is opened and closed in accordance with the driving conditions to control the intake manifold length in two stages for increased engine output in all ranges from low to high speeds.

The engine control module judges the engine speed by the signals ((4), (5)) from each sensor and outputs signals to the TERMINAL ACIS to control the VSV (ACIS).

\* Fuel pump control

The engine control module outputs current to TERMINAL FPC and controls the fuel pump control ECU and fuel pump drive speed in response to driving conditions.

\* ETCS-i

The ETCS-i controls the engine output at its optimal level corresponding to the opening of the accel. pedal under all driving conditions.

\* MPX

The MPX communicates with the combination meter, A/C control assembly, as well as body ECU of the multiplex communication system

### 3. DIAGNOSIS SYSTEM

With the diagnosis system, when there is a malfunction in the engine control module signal system, the malfunctioning system is recorded in the memory. The malfunctioning system can be found by reading the code displayed by the malfunction indicator lamp.

## 4. FAIL-SAFE SYSTEM

When a malfunction has occurred in any system, if there is a possibility of engine trouble being caused by continued control based on the signals from that system, the fail—safe system either controls the system by using data (Standard values) recorded in the engine control module memory or else stops the engine.

# **SERVICE HINTS EFI RELAY** 5-3: Closed with ignition SW at **ON** or **ST** position **E8 ENGINE COOLANT TEMP. SENSOR** 1–2 : Approx. **15.0** $k\Omega$ (**–20** $^{\circ}$ C, **–4** $^{\circ}$ F) Approx. 2.45 k $\Omega$ (20°C, 68°F) Approx. **0.32** k $\Omega$ (**80**°C, **176**°F) Approx. **0.14** k $\Omega$ (**110** °C, **230** °F) E2 (A), E4 (C), E5 (D), E6 (E) ENGINE CONTROL MODULE BATT-GROUND: Always approx. 12 volts +BM-GROUND : Always approx. 12 volts IGSW-GROUND : Approx. 12 volts with ignition SW at ON or ST position +B, +B1-GROUND: Approx. 12 volts with ignition SW at ON or ST position VC-GROUND: 4.5-5.5 volts with ignition SW on VTA2-GROUND: 2.0-2.9 volts with ignition SW on and throttle valve fully closed 4.6-5.0 volts with ignition SW on and throttle valve fully opened VTA-GROUND: 0.4-1.0 volts with ignition SW on and throttle valve fully closed 3.2-4.8 volts with ignition SW on and throttle valve fully opened VPA-GROUND: 0.6-1.0 volts with ignition SW at on and accelerator fully closed 3.2-4.8 volts with ignition SW at on and accelerator fully opened VPA2-GROUND: 1.4-1.8 volts with ignition SW at on and accelerator fully closed 4.7-5.0 volts with ignition SW at on and accelerator fully opened THA-GROUND: 0.5-3.4 volts with idling, intake air temp. 20°C (68°F) THW-GROUND: 0.2-1.0 volts with idling, coolant temp. 80°C (176°F) STA-GROUND: 6.0 volts or more with cranking TC-GROUND: 9.0-14.0 volts with ignition SW on W-GROUND: 9.0-14.0 volts with idling 0-3.0 volts with ignition SW on ACMG-GROUND: 0-1.5 volts with A/C SW on (at idling) 7.5-14.0 volts with A/C SW off and throttle valve fully open #1, #2, #3, #4, #5, #6, #7, #8-GROUND: 9.0-14.0 volts with ignition SW on pulse generation with idling 113, 114, 115, 116, 117, 118, 119, 120 INJECTOR NO.1, NO.2, NO.3, NO.4, NO.5, NO.6, NO.7, NO.8

1–2 : **13.4–14.2** Ω

# : PARTS LOCATION

Co	de	See Page	Co	de	See Page	Code	See Page	
A.	10	42 (3UZ-FE)	l:	2	39 (3UZ-FE)	J14	43	
A.	13	42	13		39 (3UZ-FE)	J15	43	
A:	20	42	ŀ	4	39 (3UZ-FE)	J17	43	
В	5	42	Į:	5	39 (3UZ-FE)	J20	44	
С	:1	38 (3UZ-FE)	10	6	39 (3UZ-FE)	J25	39 (3UZ-FE)	
С	3	38 (3UZ-FE)	ľ	7	39 (3UZ-FE)	J26	39 (3UZ-FE)	
С	4	38 (3UZ-FE)	l	8	39 (3UZ-FE)	J27	43	
С	5	38 (3UZ-FE)	Į:	9	39 (3UZ-FE)	K1	39 (3UZ-FE)	
С	8	42	I1	3	39 (3UZ-FE)	K2	39 (3UZ-FE)	
C12	Α	42	I1	4	39 (3UZ-FE)	M1	39 (3UZ-FE)	
C13	В	42	I1	5	39 (3UZ-FE)	P1	39 (3UZ-FE)	
D	1	38 (3UZ-FE)	I16		39 (3UZ-FE)	S11	43	
D	4	42	l17		39 (3UZ-FE)	T2	39 (3UZ-FE)	
E2	Α	38 (3UZ-FE)	I1	8	39 (3UZ-FE)	T3	39 (3UZ-FE)	
E3	В	38 (3UZ-FE)	I1	9	39 (3UZ-FE)	T5	43	
E4	С	38 (3UZ-FE)	12	20	39 (3UZ-FE)	T6	43	
E5	D	38 (3UZ-FE)	12	22	43	V1	39 (3UZ-FE)	
E6	Е	38 (3UZ-FE)	J3	Α	39 (3UZ-FE)	V2	39 (3UZ-FE)	
Е	8	38 (3UZ-FE)	J4	В	39 (3UZ-FE)	V3	39 (3UZ-FE)	
F.	15	44	J	5	39 (3UZ-FE)	V4	39 (3UZ-FE)	
F.	16	44	J	6	43	V5	39 (3UZ-FE)	
H	12	38 (3UZ-FE)	J	7	43	V10	45	
H	14	38 (3UZ-FE)	J	9	43	V11	45	
H	20	42	J	10	43	V12	39 (3UZ-FE)	
H:	21	42	J	11	43			

# : RELAY BLOCKS

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

# : JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

Code	See Page	Junction Block and Wire Harness (Connector Location)					
1D	28	Instrument Panel Wire and Driver Side J/B (Left Kick Panel)					
1F	28						
1G		Cowl Wire and Driver Side J/B (Left Kick Panel)					
1H	29						
1J							
1K	28	Engine Room Main Wire and Driver Side J/B (Left Kick Panel)					
2F	30	0.1105					
2G	31	Cowl Wire and Passenger Side J/B (Right Kick Panel)					

# : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)			
EA2	40 (2017, FF)	Engine Wire and Cowl Wire (Inside of the ECU Box)			
EA3	48 (3UZ–FE)				
EB1	48 (3UZ-FE)	Cowl Wire and Relay Block Wire (Inside of the Engine Room No.3 R/B)			
EC1	48 (3UZ-FE)	Engine No.2 Wire and Engine Wire (Near the Starter)			
IA1	- 52	Engine Room Main Wire and Cowl Wire (Near the Driver Side J/B)			
IA2	52				
IC2	52	Floor No.2 Wire and Cowl Wire (Left Kick Panel)			
IC3	52				
IE1	- 52	Instrument Panel Wire and Cowl Wire (Left Side of the Steering Column)			
IE2	52	instrainent Pariet wire and cowi wire (Left Side of the Steering Column)			
II1	52	Engine Room Main Wire and Cowl Wire (Near the Passenger Side R/B)			
114	32				
IJ1	54	Instrument Panel Wire and Cowl Wire (Left Side of the Blower Unit)			

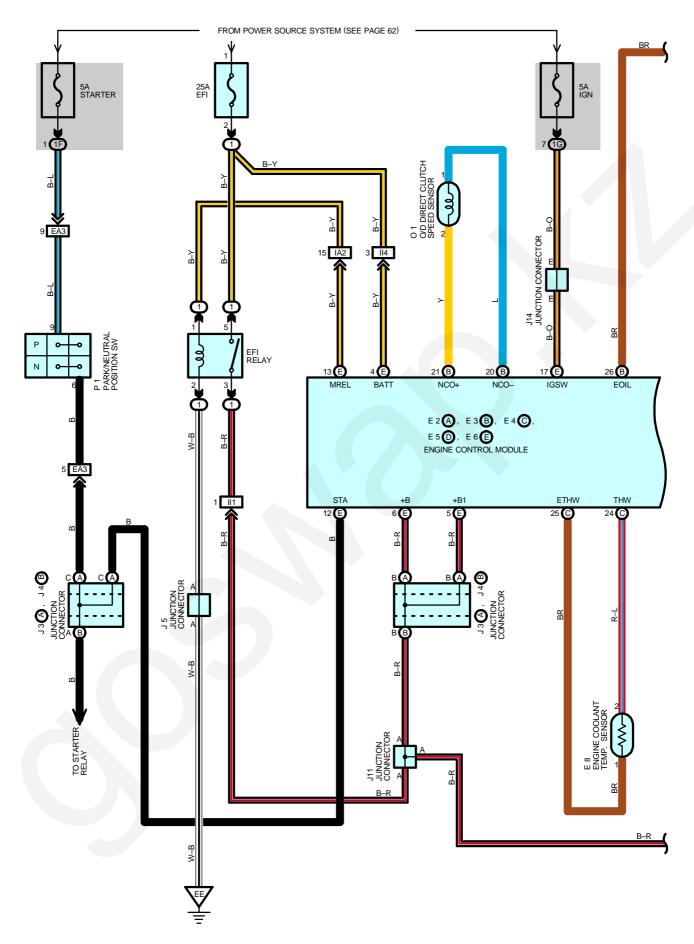
# : GROUND POINTS

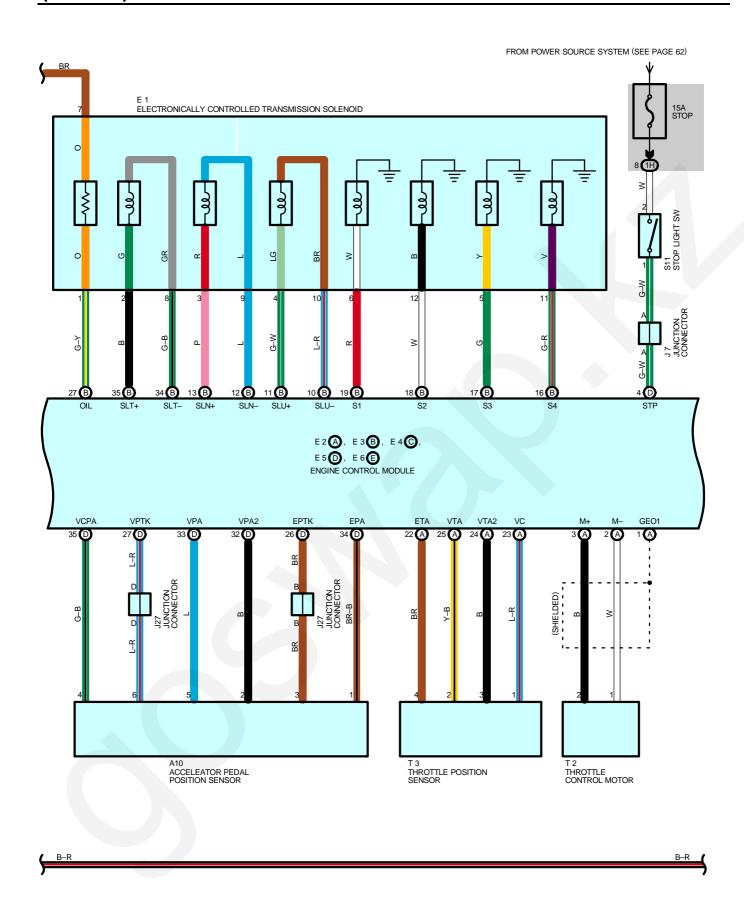
Code	See Page	Ground Points Location
EB	48 (3UZ-FE)	Left Fender
EC	48 (3UZ-FE)	RH Bank of the Cylinder Head
ED	48 (3UZ-FE)	LH Bank of the Cylinder Head
EE	48 (3UZ-FE)	Under the ABS & TRAC & VSC Actuator
IF	52	Left Kick Panel
II	52	Right Side of the Cowl Panel
BJ	56	Rear Floor Partition Panel LH
BK	56	Quarter Panel LH

# : SPLICE POINTS

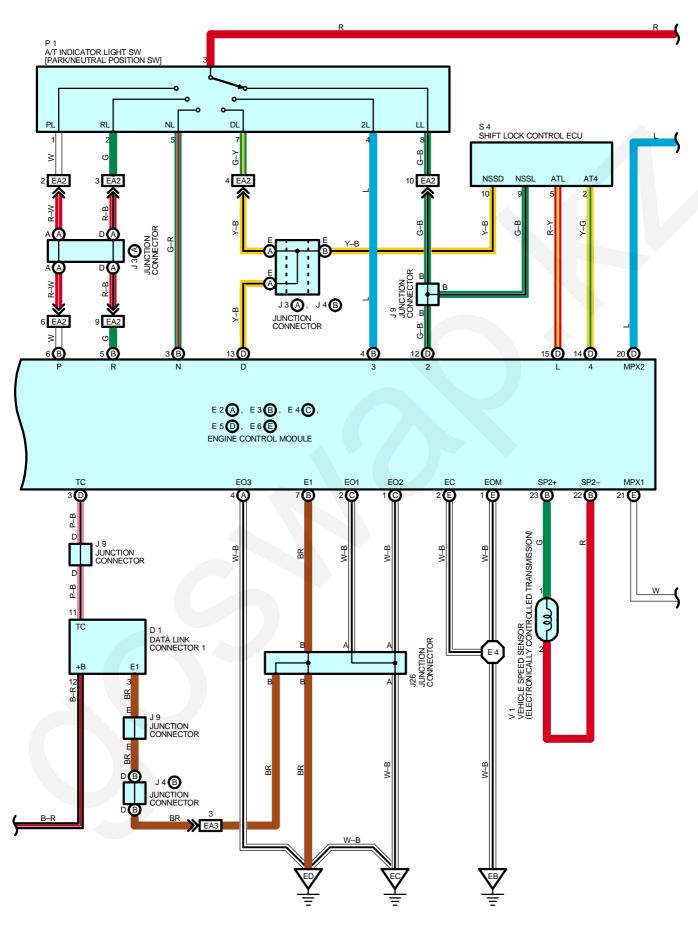
Code	See Page	Wire Harness with Splice Points	Code	See Page	Wire Harness with Splice Points
E1			E4	48 (3UZ-FE)	Cowl Wire
E2	48 (3UZ-FE)	Engine Wire	19	54	Cowi wire
E3			B3	56	Floor No.2 Wire

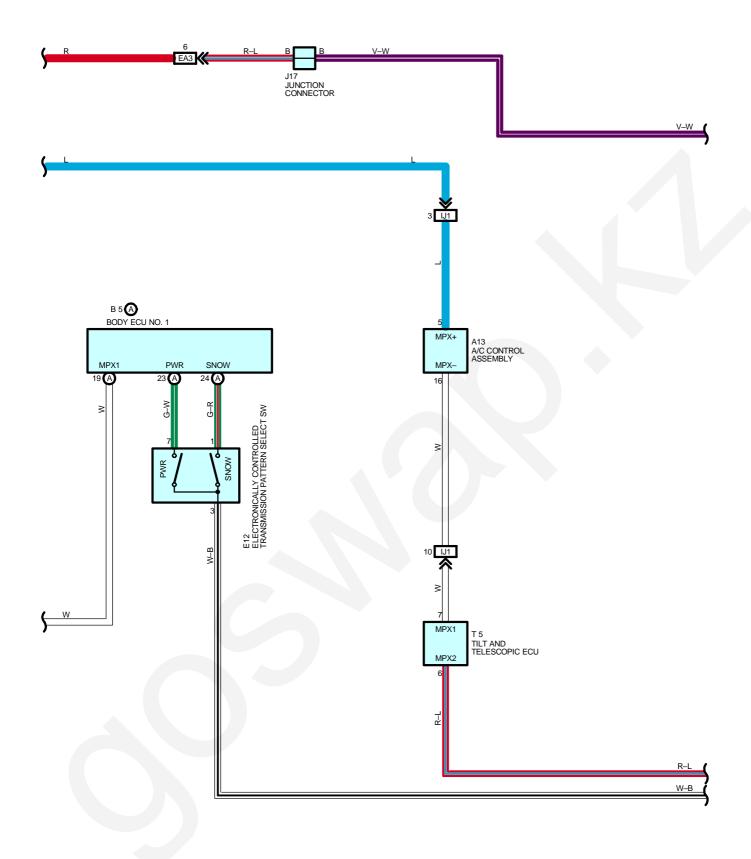
# **ELECTRONICALLY CONTROLLED TRANSMISSION AND A/T INDICATOR**



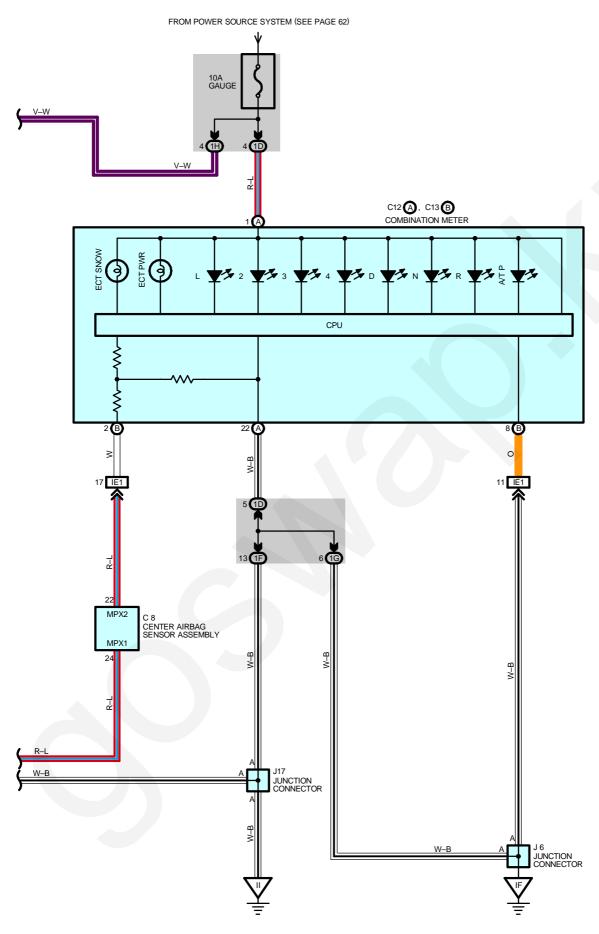


# **ELECTRONICALLY CONTROLLED TRANSMISSION AND A/T INDICATOR**





# **ELECTRONICALLY CONTROLLED TRANSMISSION AND A/T INDICATOR**



240

2003 LEXUS GS 430 / GS 300 (EWD505U)

# (3UZ-FE)

#### SYSTEM OUTLINE

Previous automatic transmissions have selected each gear shift using mechanically controlled throttle hydraulic pressure, governor hydraulic pressure and lock—up hydraulic pressure. The electronically controlled transmission, however, electrically controls the line pressure, throttle pressure, lock—up pressure and accumulator pressure etc. through the solenoid valve. The electronically controlled transmission is a system which precisely controls gear shift timing and lock—up timing in response to the vehicle's driving conditions and the engine condition detected by various sensors. It makes smooth driving possible by shift selection for each gear which is the most appropriate to the driving conditions at that time, and by preventing downing, squat and gear shift shock when starting off.

#### 1. GEAR SHIFT OPERATION

When driving, the engine warm up condition is input as a signal to TERMINAL THW of the engine control module from the engine coolant temp. sensor and the vehicle speed signal from vehicle speed sensor is input to TERMINAL SP2+ of the engine control module. At the same time, the throttle valve opening signal from the throttle control motor and sensor is input to TERMINALS VTA and VTA2 of the engine control module as throttle angle signal.

Based on these signals, the engine control module selects the best shift position for the driving conditions and sends current to the electronically controlled transmission solenoid.

#### 2. LOCK-UP OPERATION

When the engine control module decides based on each signal that the lock-up condition has been met, the current flows through TERMINAL SLU+ of the engine control module to TERMINAL 4 of the electronically controlled transmission solenoid to TERMINAL 10 to TERMINAL SLU- of the engine control module to GROUND.

#### 3. STOP LIGHT SW CIRCUIT

If the brake pedal is depressed (Stop light SW on) when driving in lock—up condition, a signal is input to TERMINAL STP of the engine control module. The engine control module operates and cuts the current to the solenoid to release lock—up.

#### 4. ELECTRONICALLY CONTROLLED TRANSMISSION PATTERN SELECT SW CIRCUIT

When the electronically controlled transmission pattern select SW is switched to PWR, a signal is input to TERMINAL PWR of the body ECU No.1, and control signals are distributed to the engine control module through communication control of the body ECU. This enables shift—up and shift—down at a higher speed range.

#### SERVICE HINTS

#### **E1 ELECTRONICALLY CONTROLLED TRANSMISSION SOLENOID**

 $2-8: 5.1-5.5 \Omega$  $3-9: 3.5-3.9 \Omega$  $4-10: 5.1-5.5 \Omega$ 

5, 6, 11, 12–GROUND : 11–15  $\Omega$ 

## **E12 ELECTRONICALLY CONTROLLED TRANSMISSION PATTERN SELECT SW**

7-3: Closed with select SW at PWR position

1-3: Only closed with select SW at **SNOW** position

#### V1 VEHICLE SPEED SENSOR (ELECTRONICALLY CONTROLLED TRANSMISSION)

1–2 : **560–680**  $\Omega$ 

# O1 O/D DIRECT CLUTCH SPEED SENSOR

1–2 : **560–680**  $\Omega$ 

#### **E6 (E) ENGINE CONTROL MODULE**

BATT-E1 : Always approx. 12 volts

+B-E1 : Approx. 12 volts with ignition SW **ON** or **ST** position +B1-E1 : Approx. 12 volts with ignition SW **ON** or **ST** position MREL-E1 : Approx. 12 volts with ignition SW **ON** or **ST** position

STA-E1: Approx. 12 volts with ignition SW ST position and shift lever other than P or N position

# P1 A/T INDICATOR LIGHT SW [PARK / NEUTRAL POSITION SW]

3-1: Closed with shift lever in **P** position

3-2: Closed with shift lever in R position

3-5: Closed with shift lever in N position

3-7: Closed with shift lever in **D** position or **4** position

3-4: Closed with shift lever in 3 position

3-8: Closed with shift lever in 2 position or L position

# ELECTRONICALLY CONTROLLED TRANSMISSION AND A/T INDICATOR (3UZ-FE)

# : PARTS LOCATION

Co	de	See Page	Co	de	See Page	Code	See Page
A <sup>2</sup>	10	42 (3UZ-FE)	E6 E		38 (3UZ-FE)	J26	39 (3UZ-FE)
A <sup>2</sup>	13	42	E8		38 (3UZ-FE)	J27	43
B5	Α	42	E12		42	O1	39 (3UZ–FE)
С	8	42	J3	Α	39 (3UZ-FE)	P1	39 (3UZ-FE)
C12	Α	42	J4	В	39 (3UZ-FE)	S4	43
C13	В	42	J	5	39 (3UZ-FE)	S11	43
D	1	38 (3UZ-FE)	J6		43	T2	39 (3UZ-FE)
E	1	38 (3UZ-FE)	J7		43	Т3	39 (3UZ-FE)
E2	Α	38 (3UZ-FE)	J	9	43	T5	43
E3	В	38 (3UZ-FE)	J1	1	43	V1	39 (3UZ-FE)
E4	С	38 (3UZ-FE)	J1	4	43		
E5	D	38 (3UZ-FE)	J1	7	43		

# : RELAY BLOCKS

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

# : JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

Code	See Page	Junction Block and Wire Harness (Connector Location)				
1D	28	Instrument Panel Wire and Driver Side J/B (Left Kick Panel)				
1F	28					
1G	20	Cowl Wire and Driver Side J/B (Left Kick Panel)				
1H	29					

# : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)				
EA2	40 (2117, EE)	Fraire Wire and Court Wire (Incide of the FOLL Pou)				
EA3	48 (3UZ–FE)	Engine Wire and Cowl Wire (Inside of the ECU Box)				
IA2	52	Engine Room Main Wire and Cowl Wire (Near the Driver Side J/B)				
IE1	52	Instrument Panel Wire and Cowl Wire (Left Side of the Steering Column)				
II1	50	Engine Deem Main Wire and Coull Wire (Near the December Cide D/D)				
114	52	Engine Room Main Wire and Cowl Wire (Near the Passenger Side R/B)				
IJ1	54	Instrument Panel Wire and Cowl Wire (Left Side of the Blower Unit)				

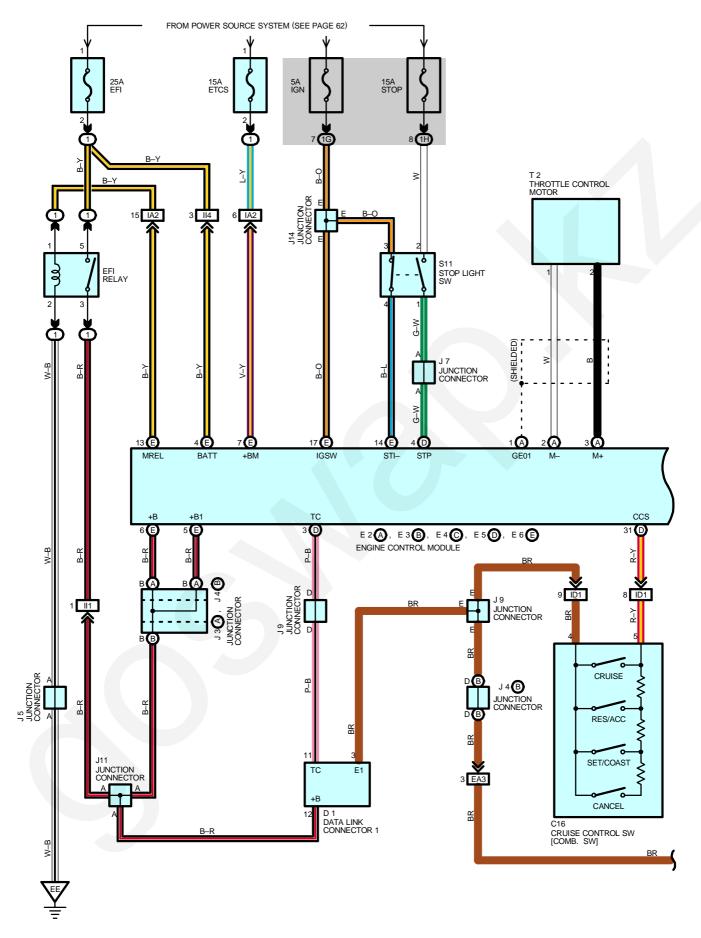
# : GROUND POINTS

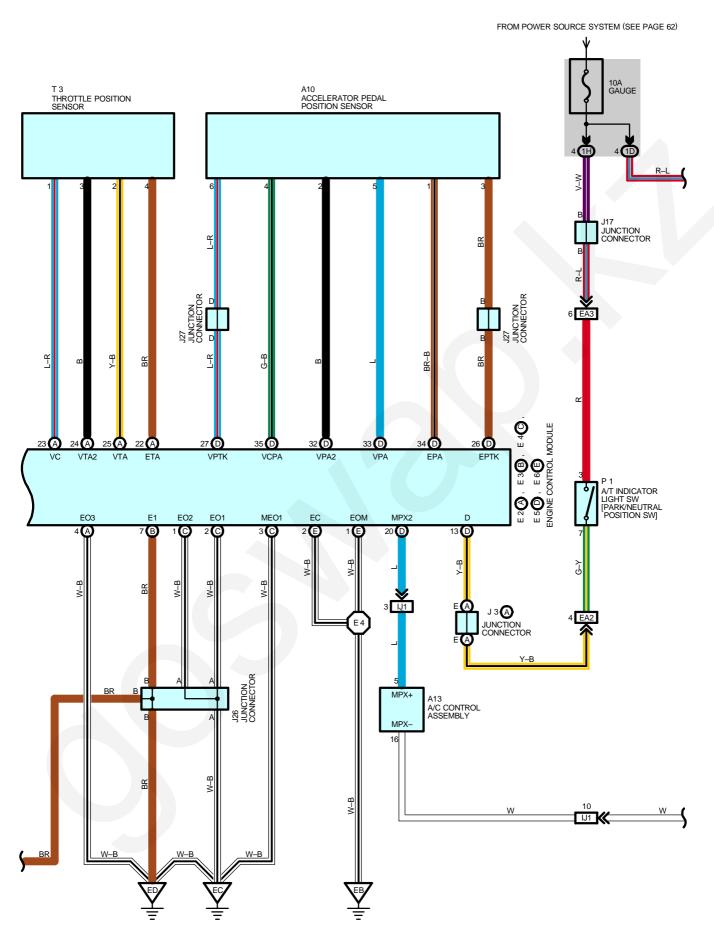
Code	See Page	Ground Points Location
EB	48 (3UZ-FE)	Left Fender
EC	48 (3UZ-FE)	RH Bank of the Cylinder Head
ED	48 (3UZ-FE)	LH Bank of the Cylinder Head
EE	48 (3UZ-FE)	Under the ABS & TRAC & VSC Actuator
IF	52	Left Kick Panel
11	52	Right Side of the Cowl Panel

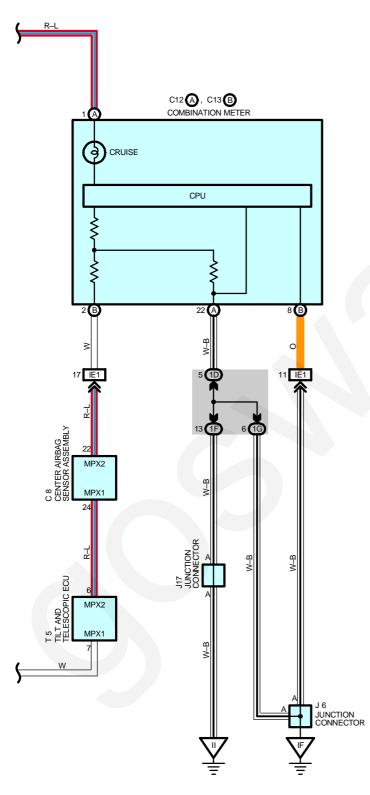
# : SPLICE POINTS

Code	Code See Page Wire Harness with Splice Points		Code	See Page	Wire Harness with Splice Points
E4	48 (3UZ-FE)	Cowl Wire			

# **CRUISE CONTROL (3UZ-FE)**







#### SYSTEM OUTLINE

The cruise control system is a constant vehicle speed controller in which control of the switch on the instrument panel makes it possible to automatically adjust the opening of the engine throttle valve without depressing of the accel. pedal.

#### 1. SET OPERATION

When the cruise control main SW is turned on, the system starts preparations necessary for the cruise control and turns on the indicator light in the combination meter.

#### 2. SET SPEED CONTROL

When the SET/COAST SW is operated with the cruise control main SW turned on during travelling, the constant vehicle speed is controlled.

#### 3. COAST CONTROL

When the SET/COAST SW is kept turned on during cruise control travelling, the engine control module controls the throttle valve to decelerate the vehicle. Every time the SET/COAST SW is turned on instantaneously, the vehicle speed is decelerated approximately 1.5 km/h.

#### 4. ACCEL CONTROL

When the RES/ACC SW is kept turned on during cruise control travelling, the engine control module controls the throttle valve to accelerate the vehicle. Every time the RES/ACC SW is turned on instantaneously, the vehicle speed is accelerated approximately 1.5 km/h.

#### 5. RESUME CONTROL

When the vehicle speed is within the low speed limit (Approximately 40 km/h, 25 mph) if the cruise control is cancelled, use of the RES/ACC SW accelerates the vehicle to the speed level used before canceling the cruise control.

#### 6. MANUAL CANCEL MECHANISM

If any of the following signals is input during cruise control travelling, the cruise control is cancelled.

- \* The stop light SW is turned on.
- \* The CANCEL SW is turned on.
- \* The cruise control main SW is turned off.
- \* The VSC is activated.

#### 7. AUTO CANCEL FUNCTION

If any of the following conditions is encountered, the cruise control is automatically cancelled.

- \* The stop light SW wiring is faulty or short-circuited.
- \* The vehicle speed signal is faulty.
- \* The electronically controlled throttle malfunctions.

# 8. OVERDRIVE CONTROL FUNCTION

The overdrive control may be cancelled if the vehicle travels on the slope during cruise control travelling. After the overdrive control has been cancelled, if the vehicle speed exceeds the overdrive return speed (The set speed is 2 km/h, 1.2 mph) and it is decided that the slope is finished, the vehicle returns to the overdrive control mode again.

## SERVICE HINTS

## E2 (A), E3 (B), E4 (C), E5 (D), E6 (E) ENGINE CONTROL MODULE

(E)17-GROUND: Approx. 12 volts with ignition SW at ON or ST position

(E) 4-GROUND : Always approx. 12 volts

(A) 4, (B) 7, (C) 1, (C) 2, (C) 3, (E) 1, (E) 2-GROUND: Always continuity

(D) 4-GROUND : Approx. 12 volts with stop light SW at on

(D)31-GROUND: Continuity with cruise control main SW at on

Approx. **1540**  $\Omega$  with CANSEL SW on in cruise control SW Approx. **240**  $\Omega$  with RES/ACC SW on in cruise control SW Approx. **630**  $\Omega$  with SET/COAST SW on in cruise control SW

#### C16 CRUISE CONTROL SW [COMB. SW]

5–4 : Approx. **1540**  $\Omega$  with CANSEL SW on Approx. **240**  $\Omega$  with RES/ACC SW on Approx. **630**  $\Omega$  with SET/COAST SW on

# **CRUISE CONTROL (3UZ-FE)**

# : PARTS LOCATION

Co	de	See Page	Co	de	See Page	Code	See Page
A10		42 (3UZ-FE)	Z–FE) E5		38 (3UZ-FE)	J17	43
A <sup>2</sup>	13	42	E6	Е	38 (3UZ-FE)	J26	39 (3UZ-FE)
C8		42	J3	Α	39 (3UZ-FE)	J27	43
C12	Α	42	J4	В	39 (3UZ-FE)	P1	39 (3UZ-FE)
C13	В	42	J	5	39 (3UZ-FE)	S11	43
C.	16	42	J6		43	T2	39 (3UZ-FE)
D	1	38 (3UZ-FE)	J7		43	Т3	39 (3UZ–FE)
E2	Α	38 (3UZ-FE)	J	9	43	T5	43
E3	В	38 (3UZ-FE)	J	1	43		
E4	С	38 (3UZ-FE)	J1	4	43		

# : RELAY BLOCKS

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

# : JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

Code	See Page	Junction Block and Wire Harness (Connector Location)						
1D	28	trument Panel Wire and Driver Side J/B (Left Kick Panel)						
1F	28							
1G	20	Cowl Wire and Driver Side J/B (Left Kick Panel)						
1H	29							

# : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)
EA2	40 (2117, FF)	Engine Wire and Could Wire (Incide of the ECH Boy)
EA3	48 (3UZ-FE)	Engine Wire and Cowl Wire (Inside of the ECU Box)
IA2	52	Engine Room Main Wire and Cowl Wire (Near the Driver Side J/B)
ID1	52	Cowl Wire and Cowl Wire (Left Side of the Instrument Panel Reinforcement)
IE1	52	Instrument Panel Wire and Cowl Wire (Left Side of the Steering Column)
II1	52	Engine Doom Main Wire and Coul Wire (Near the December Side P/P)
114	52	Engine Room Main Wire and Cowl Wire (Near the Passenger Side R/B)
IJ1	54	Instrument Panel Wire and Cowl Wire (Left Side of the Blower Unit)

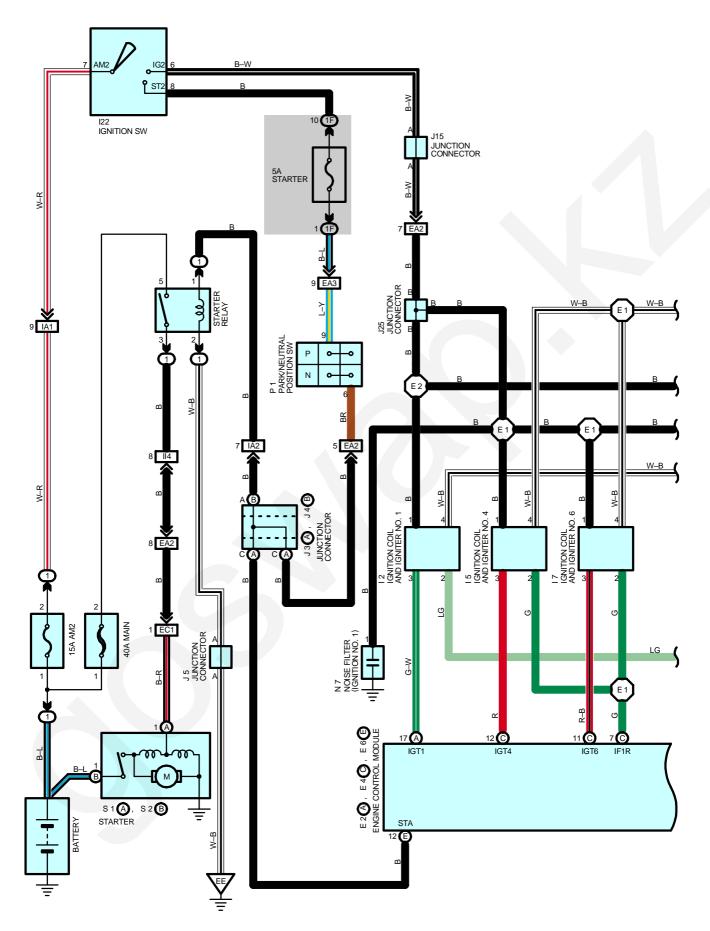
# : GROUND POINTS

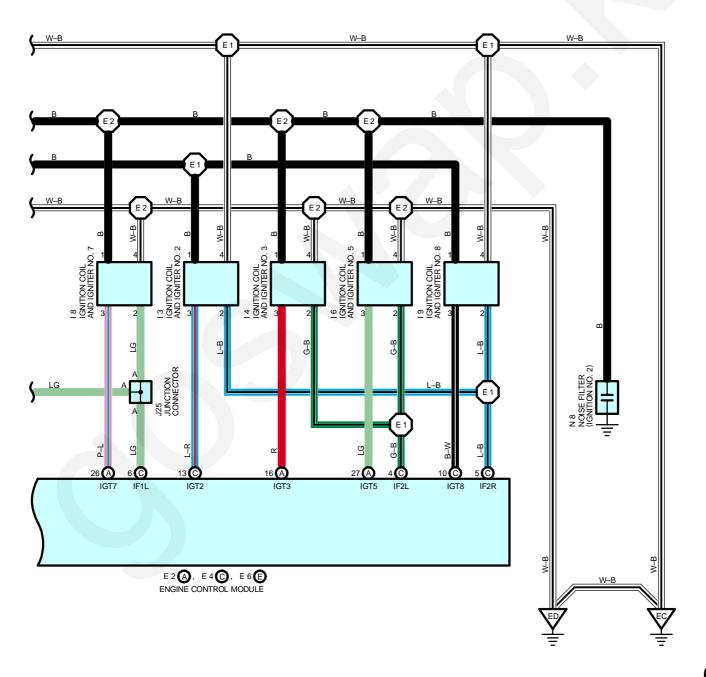
Code	See Page	Ground Points Location
EB	48 (3UZ-FE)	Left Fender
EC	48 (3UZ-FE)	RH Bank of the Cylinder Head
ED	48 (3UZ-FE)	LH Bank of the Cylinder Head
EE	48 (3UZ-FE)	Under the ABS & TRAC & VSC Actuator
IF	52	Left Kick Panel
II	52	Right Side of the Cowl Panel

# : SPLICE POINTS

Code	See Page	Wire Harness with Splice Points	Code	See Page	Wire Harness with Splice Points
E4	48 (3UZ-FE)	Cowl Wire			

# STARTING AND IGNITION (3UZ-FE)





# **STARTING AND IGNITION (3UZ-FE)**

#### SERVICE HINTS

#### **I22 IGNITION SW**

7–6 : Closed with ignition SW at  $\bf ON$  or  $\bf ST$  position 7–8 : Closed with ignition SW at  $\bf ST$  position

#### P1 PARK/NEUTRAL POSITION SW

9-6: Closed with A/T shift lever in P or N position

#### S1 (A), S2 (B) STARTER

Points closed with Park/Neutral position SW at P or N position and ignition SW at ST position

# : PARTS LOCATION

Co	ode	See Page	ge Code See Page Code		de	See Page		
E2	Α	38 (3UZ-FE)	17 39 (3UZ–FE)		J25		39 (3UZ-FE)	
E4	С	38 (3UZ-FE)	Ti-	8	39 (3UZ-FE)	N7		39 (3UZ-FE)
E6	Е	38 (3UZ-FE)	I:	9	39 (3UZ-FE)	N8		39 (3UZ-FE)
1	2	39 (3UZ-FE)	12	22	43	P1		39 (3UZ-FE)
Ţ	3	39 (3UZ-FE)	J3	Α	39 (3UZ-FE)	S1	Α	39 (3UZ-FE)
Į.	4	39 (3UZ-FE)	J4	В	39 (3UZ-FE)	S2	В	39 (3UZ-FE)
15		39 (3UZ-FE)	J5		39 (3UZ-FE)			
I	6	39 (3UZ-FE)	J	15	43			

# : RELAY BLOCKS

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

# : JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

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

## : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

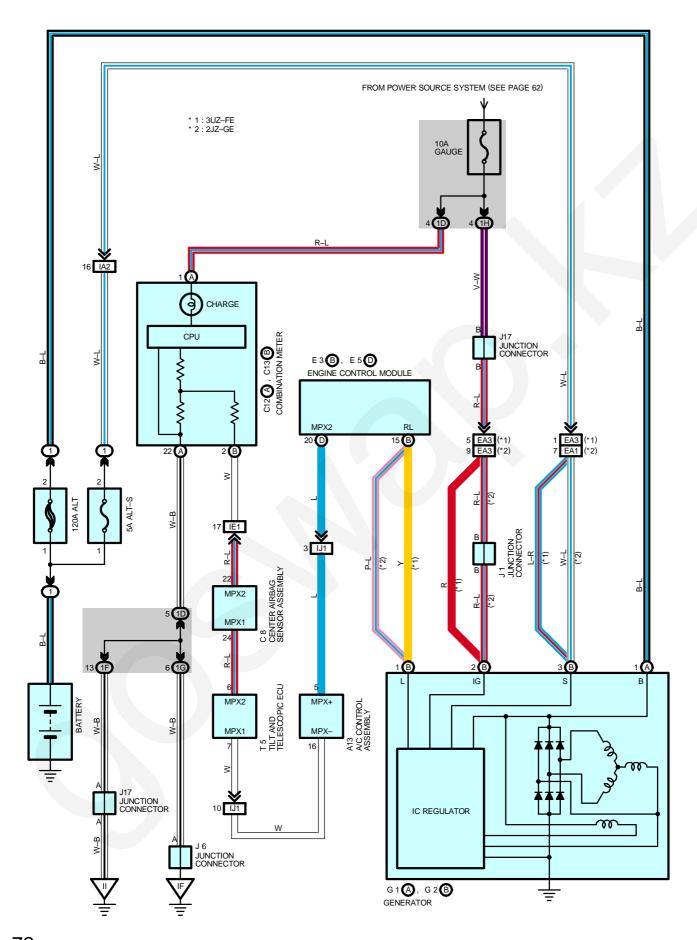
Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)
EA2	49 (2117 FF)	Facine Wire and Coul Wire (Incide of the FCLL Roy)
EA3	48 (3UZ–FE)	Engine Wire and Cowl Wire (Inside of the ECU Box)
EC1	48 (3UZ-FE)	Engine No.2 Wire and Engine Wire (Near the Starter)
IA1	50	Facine Doom Main Wise and Could Wise (Aleas the Driver Cide 1/D)
IA2	52	Engine Room Main Wire and Cowl Wire (Near the Driver Side J/B)
II4	52	Engine Room Main Wire and Cowl Wire (Near the Passenger Side R/B)

# : GROUND POINTS

Code	See Page	Ground Points Location
EC	48 (3UZ-FE)	RH Bank of the Cylinder Head
ED	48 (3UZ-FE)	LH Bank of the Cylinder Head
EE	48 (3UZ-FE)	Under the ABS & TRAC & VSC Actuator

# : SPLICE POINTS

Code	See Page	Wire Harness with Splice Points	Code	See Page	Wire Harness with Splice Points
E1	48 (3UZ-FE)	Engine Wire	E2	48 (3UZ-FE)	Engine Wire



# SERVICE HINTS

## G1 (A), G2 (B) GENERATOR

(A) 1-GROUND: 13.9-15.1 volts with engine running at 2000 rpm and 25°C (77°F)

13.5–14.3 volts with engine running at 5000 rpm and 115°C (239°F)

(B) 3-GROUND: 0-4 volts with ignition SW at ON position and engine not running

# : PARTS LOCATION

Code		See Page	Co	de	See Page	Code	See Page
A1	13	42	E5	<u> </u>	38 (3UZ-FE)	J1	41 (2JZ–GE)
С	8	42	E3	D	40 (2JZ-GE)	J6	43
C12	Α	42	04	38 (3UZ-FE)	J17	43	
C13	В	42	Gi	G1 A	40 (2JZ-GE)	T5	43
E3	В	38 (3UZ-FE)	G2		38 (3UZ-FE)		
E3	В	40 (2JZ-GE)	G2	В	40 (2JZ-GE)		

# : RELAY BLOCKS

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

## : JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

Code	See Page	Junction Block and Wire Harness (Connector Location)			
1D	28	Instrument Panel Wire and Driver Side J/B (Left Kick Panel)			
1F	28				
1G	20	Cowl Wire and Driver Side J/B (Left Kick Panel)			
1H	29				

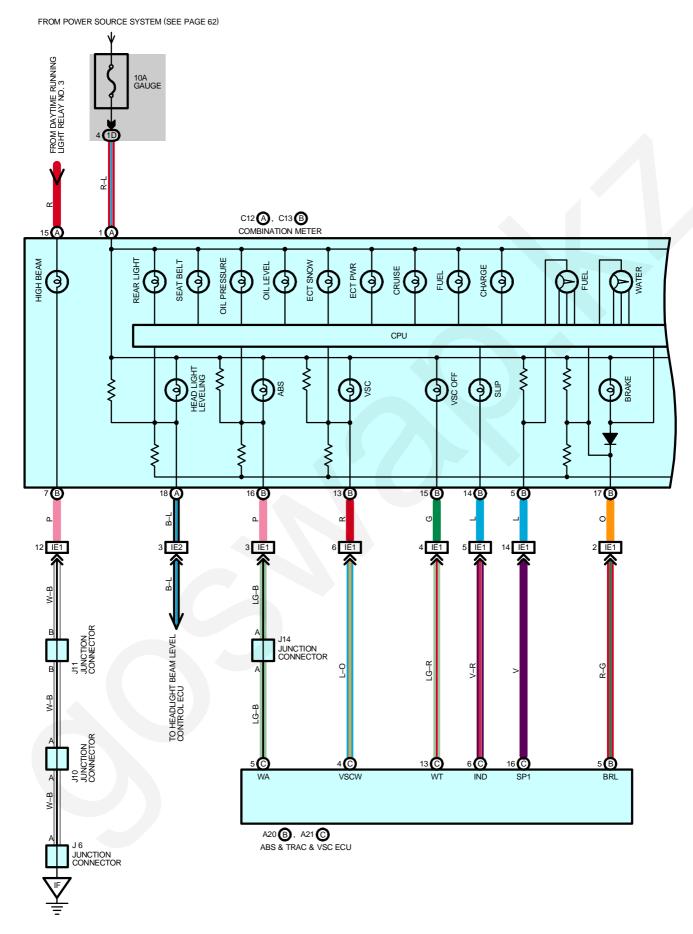
## : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)	
EA1	50 (2JZ-GE)	Engine Wire and Coul Wire (Incide of the ECLI Roy)	
EA3	48 (3UZ-FE)	Engine Wire and Cowl Wire (Inside of the ECU Box)	
IA2	52	Engine Room Main Wire and Cowl Wire (Near the Driver Side J/B)	
IE1	52	Instrument Panel Wire and Cowl Wire (Left Side of the Steering Column)	
IJ1	54	Instrument Panel Wire and Cowl Wire (Left Side of the Blower Unit)	

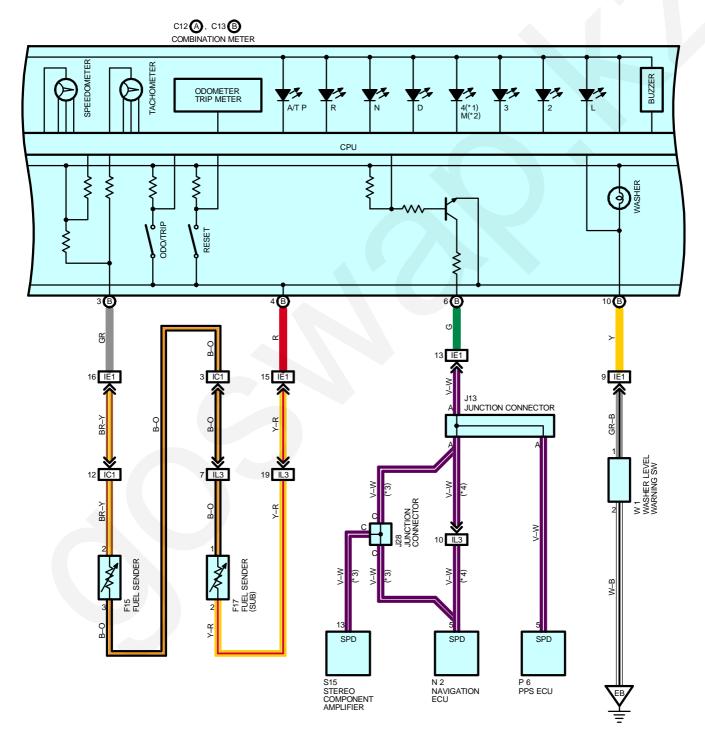
# : GROUND POINTS

Code	See Page	Ground Points Location
IF	52	Left Kick Panel
П	52	Right Side of the Cowl Panel

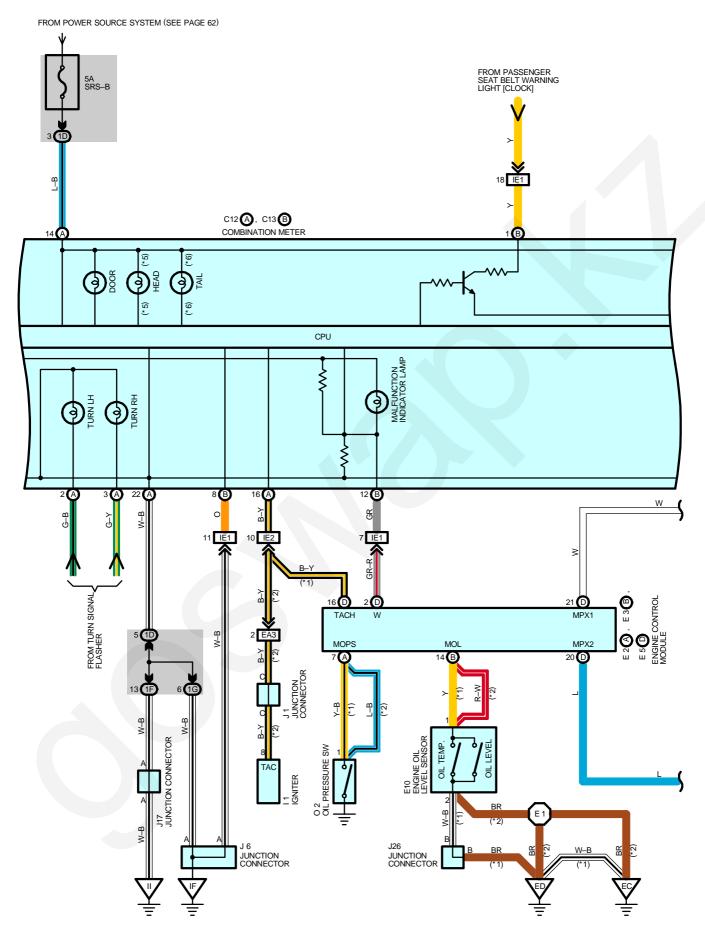
# **COMBINATION METER**

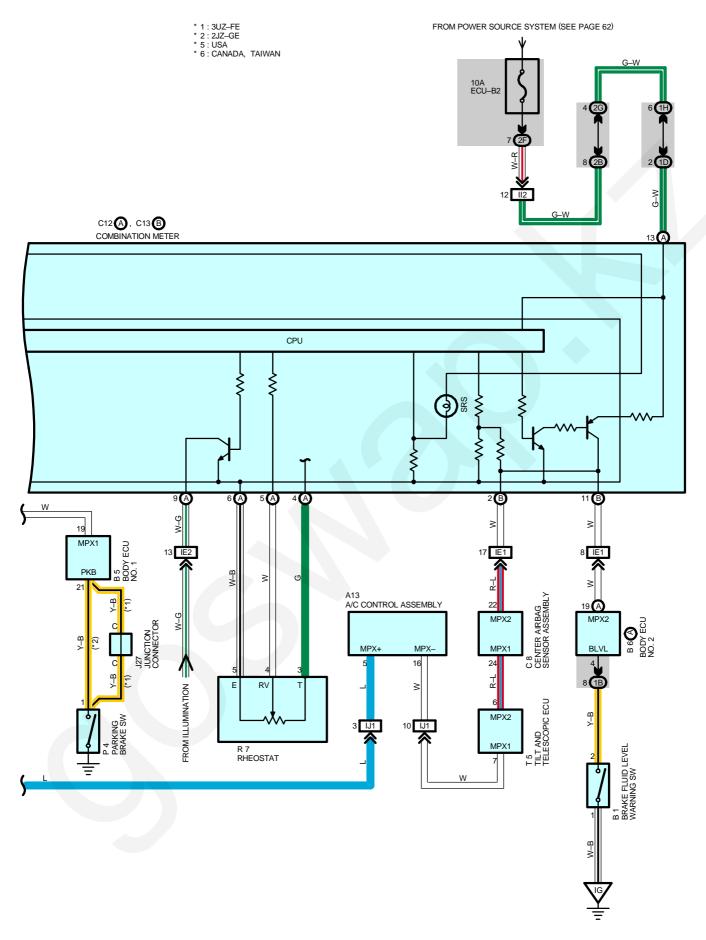


- \* 1 : 3UZ-FE \* 2 : 2JZ-GE \* 3 : MARK LEVINSON \* 4 : EXCEPT MARK LEVINSON



# **COMBINATION METER**





# **COMBINATION METER**

#### SERVICE HINTS

#### **B1 BRAKE FLUID LEVEL WARNING SW**

1-2: Closed with float down

#### **P4 PARKING BRAKE SW**

1-GROUND: Closed with parking brake pedal depressed

#### **02 OIL PRESSURE SW**

1-GROUND: Closed with oil pressure below approx. 0.2 kgf/cm<sup>2</sup> (2.8 psi, 20 kpa)

#### **E10 ENGINE OIL LEVEL SENSOR**

1–2 : Closed with float up and engine oil temp. at below approx. **50**°C (**122**°F) Open with float down and engine oil temp. at above approx. **60**°C (**140**°F)

## F15 FUEL SENDER

2–3 : Approx. **2.0**  $\Omega$  at fuel full Approx. **48.7**  $\Omega$  at fuel empty

#### C12 (A), C13 (B) COMBINATION METER

(A) 1–GROUND : Approx. 12 volts with ignition SW at ON or ST position

(A)22–GROUND : Always continuity (B) 8–GROUND : Always continuity (A)13–GROUND : Always approx. **12** volts (A)14–GROUND : Always approx. **12** volts

## : PARTS LOCATION

Code		See Page	Co	de	See Page	Code	See Page
A13		42		38 (3UZ-FE)	J26	39 (3UZ-FE)	
A20	В	42	E5	D	40 (2JZ-GE)	J27	43
A21	С	42	F.	10	38 (3UZ-FE)	J28	44
	4	38 (3UZ-FE)	-	10	40 (2JZ-GE)	N2	45
В	1	40 (2JZ-GE)	F′	15	44	00	39 (3UZ-FE)
В	5	42 F17		44	O2	41 (2JZ–GE)	
B6	Α	42	l'	1	41 (2JZ-GE)	P4	43
С	8	42	J	1	41 (2JZ-GE)	P6	43
C12	Α	42	J	6	43	R7	43
C13	В	42	J1	10	43	S15	45
F0	۸.	38 (3UZ-FE)	J <sup>1</sup>	11	43	T5	43
E2	Α	40 (2JZ-GE)	J1	13	43	14/4	39 (3UZ-FE)
F2	_	38 (3UZ-FE)	J1	14	43	W1	41 (2JZ–GE)
E3	В	40 (2JZ-GE)	J1	17	43		

# : JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

Code	See Page	e Page			
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				
1G	00	Cowl Wire and Driver Side J/B (Left Kick Panel)			
1H	29				
2B	30	Engine Room Main Wire and Passenger Side J/B (Right Kick Panel)			
2F	30	Could Wine and Decease are Cide 1/D (Dinkt Vist. Dece)			
2G	31	Cowl Wire and Passenger Side J/B (Right Kick Panel)			

# : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

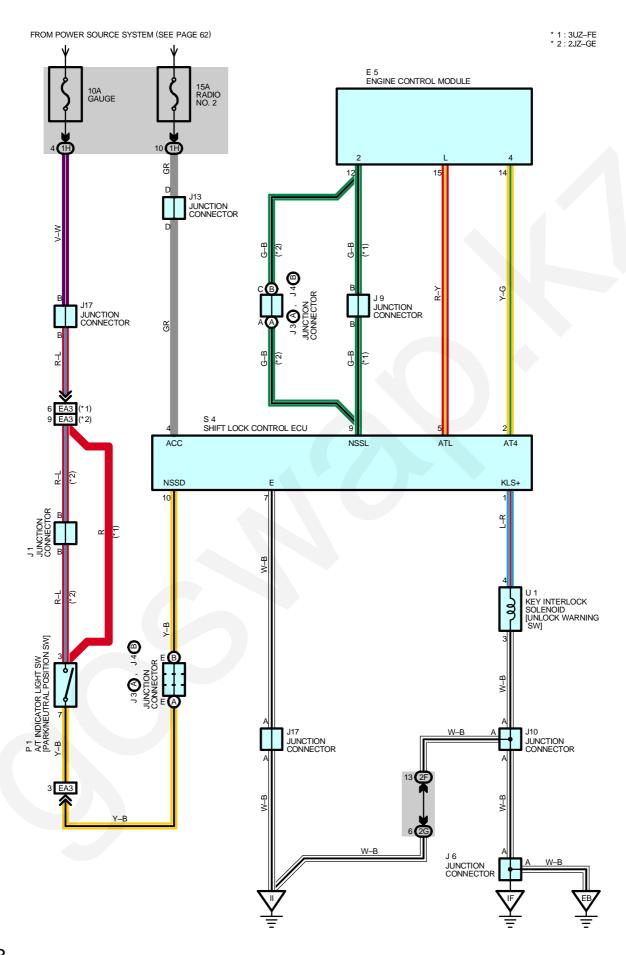
Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)			
EA3	50 (2JZ-GE)	Engine Wire and Cowl Wire (Inside of the ECU Box)			
IC1	52	Floor No.2 Wire and Cowl Wire (Left Kick Panel)			
IE1	50	Instrument Penal Wire and Could Wire (Lat Cide at the Cteorine Column)			
IE2	52	Instrument 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)			
IJ1	54	Instrument Panel Wire and Cowl Wire (Left Side of the Blower Unit)			
IL3 54 Floor No.1 Wire a		Floor No.1 Wire and Cowl Wire (Right Kick Panel)			

# : GROUND POINTS

Code	See Page	Ground Points Location			
EB	48 (3UZ-FE)	Left Fender			
EB	50 (2JZ-GE)	Lett Ferider			
EC	48 (3UZ-FE)	RH Bank of the Cylinder Head			
=C	50 (2JZ-GE)	Front Side of the Intake Manifold			
ED	48 (3UZ-FE)	LH Bank of the Cylinder Head			
ED	50 (2JZ-GE)	Rear Side of the Intake Manifold			
IF	52	Left Kick Panel			
IG	52	Left Side of the Cowl Panel			
II	52	Right Side of the Cowl Panel			

# : SPLICE POINTS

Code	See Page	See Page Wire Harness with Splice Points		See Page	Wire Harness with Splice Points
E1	50 (2JZ-GE)	Engine Wire			



#### **SYSTEM OUTLINE**

#### 1. SHIFT LOCK MECHANISM

If the brake pedal is depressed with the ignition SW set at ON (The stop light SW is on), the shift lock control ECU is activated, allowing the driver to change the shift lever to a position other than the P position.

#### 2. KEY INTERLOCK MECHANISM

When the ignition SW is turned to the ACC or ON position and the shift lever is at a position other than the P position, the shift lock control ECU is activated to flow the current into the key interlock solenoid. This inhibits to turn the ignition SW from the ACC position to the OFF position.

#### SERVICE HINTS

#### **S4 SHIFT LOCK CONTROL ECU**

4-GROUND: Approx. 12 volts with ignition SW at ACC or ON position

7-GROUND: Always continuity

## : PARTS LOCATION

Code		See Page	Code		See Page	Code	See Page
	:5	38 (3UZ-FE)	J4 E	3	41 (2JZ–GE)	P1	39 (3UZ-FE)
	:5	40 (2JZ-GE)	J6		43	PI	41 (2JZ-GE)
J	1	41 (2JZ–GE)	J9		43	S4	43
J3			43	U1	43		
JS	Α	41 (2JZ–GE)	J13		43		
J4	В	39 (3UZ-FE)	J17		43		

## : JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

	Code	See Page	Junction Block and Wire Harness (Connector Location)
ĺ	1H	29	Cowl Wire and Driver Side J/B (Left Kick Panel)
ĺ	2F	30	Cowl Wire and Passenger Side J/B (Right Kick Panel)
ĺ	2G	31	Cowi Wile and Passenger Side 3/B (Right Rick Panel)

#### : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)
EA3	48 (3UZ-FE)	Engine Wire and Cowl Wire (Inside of the ECU Box)
	50 (2JZ-GE)	

## : GROUND POINTS

Code	See Page	Ground Points Location
EB	48 (3UZ-FE)	Left Fender
	50 (2JZ-GE)	
IF	52	Left Kick Panel
II	52	Right Side of the Cowl Panel