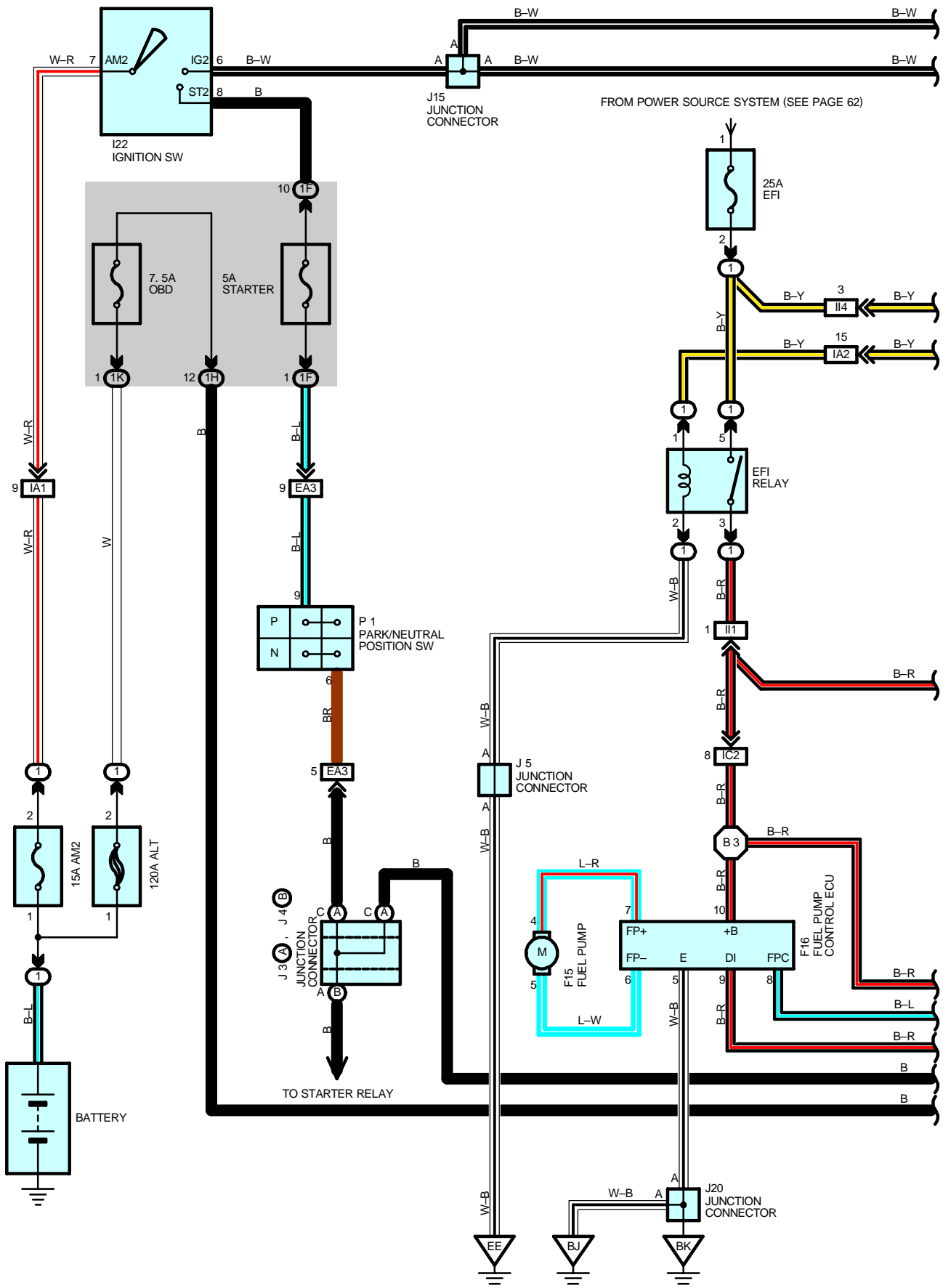
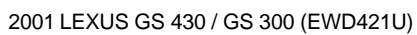
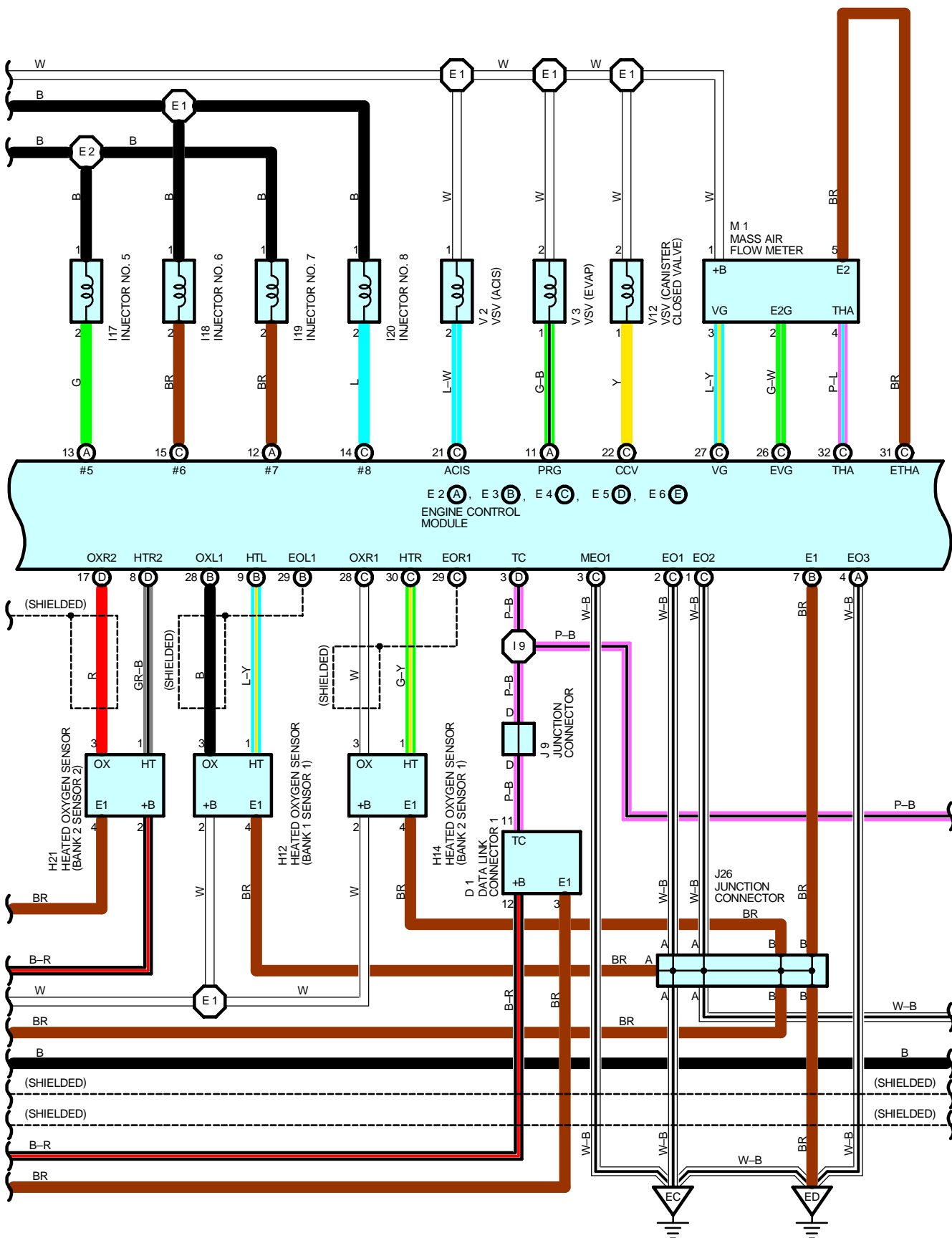


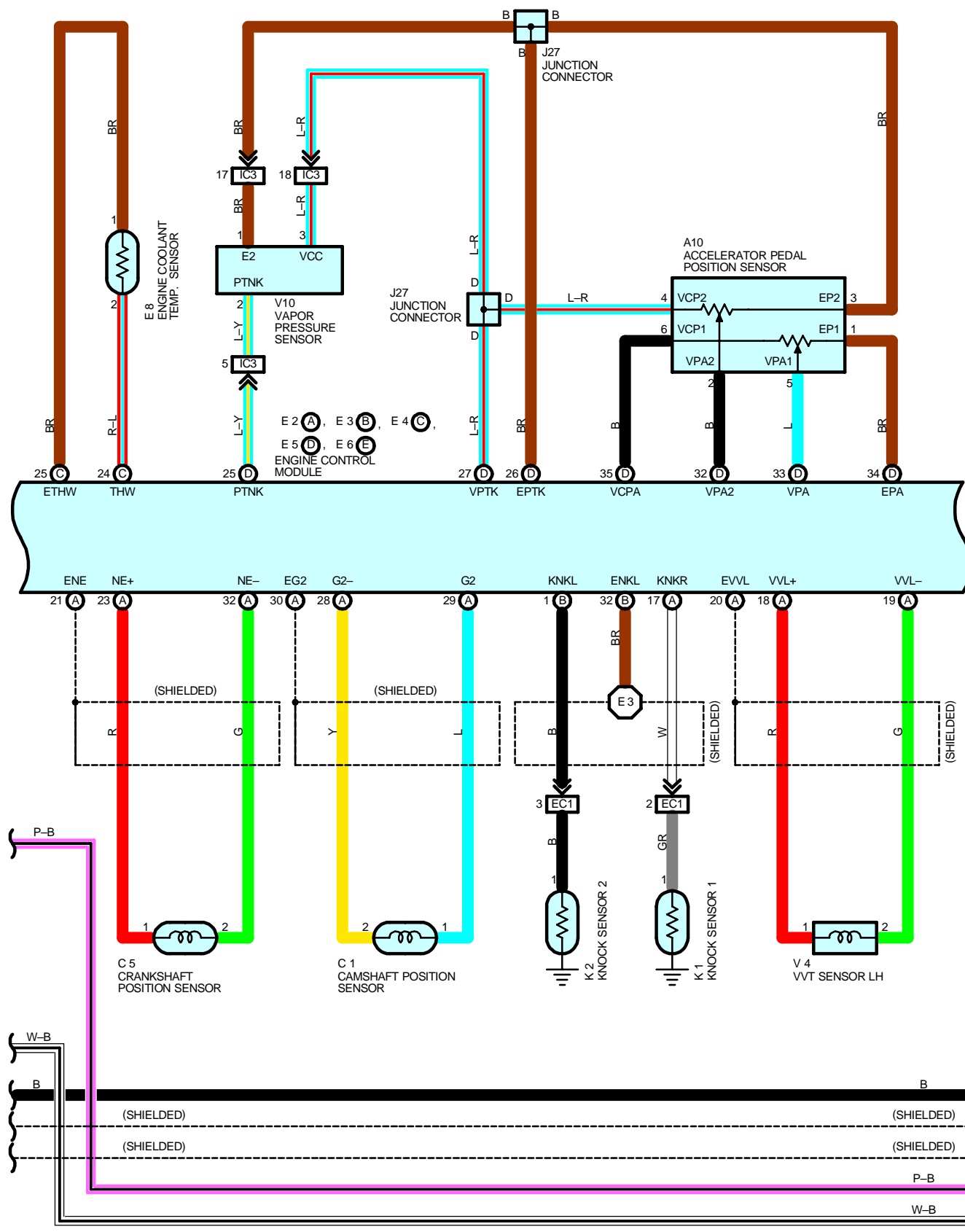
ENGINE CONTROL (3UZ-FE)





ENGINE CONTROL (3UZ-FE)





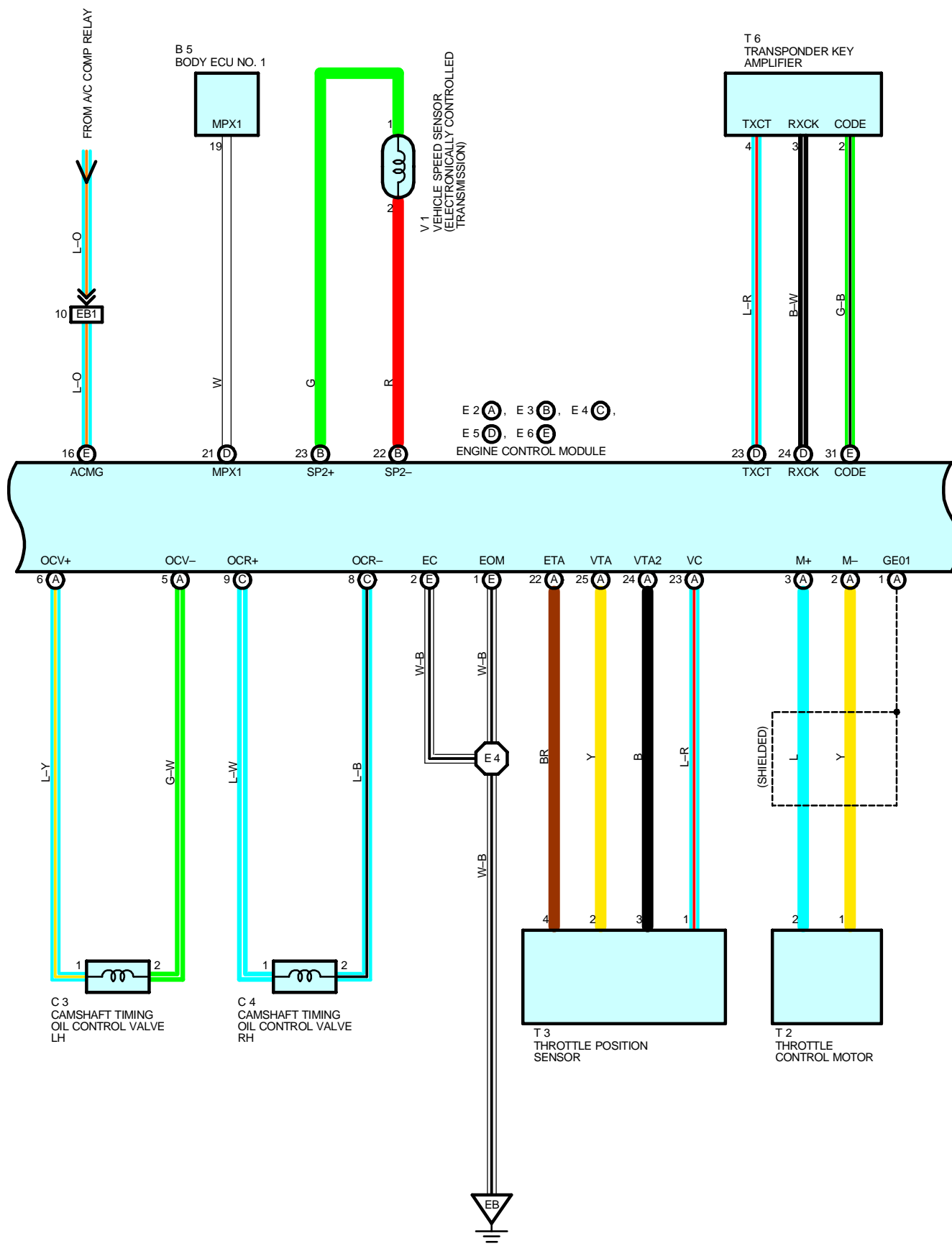
The diagram illustrates the electrical system for the 2007 Honda CBR600F4i, focusing on the engine control module (ECM) and its connections to the ignition system and sensors.

Ignition System: The ECM controls eight ignition coils, each with an igniter. The coils are labeled 1 through 8, and the igniters are labeled 1 through 8. The wiring for each coil and igniter is color-coded: 1 (Green), 2 (Red), 3 (Blue), 4 (Yellow), 5 (Black), 6 (Pink), 7 (Brown), and 8 (Black). The igniters are connected to the ECM via a junction connector (J25).

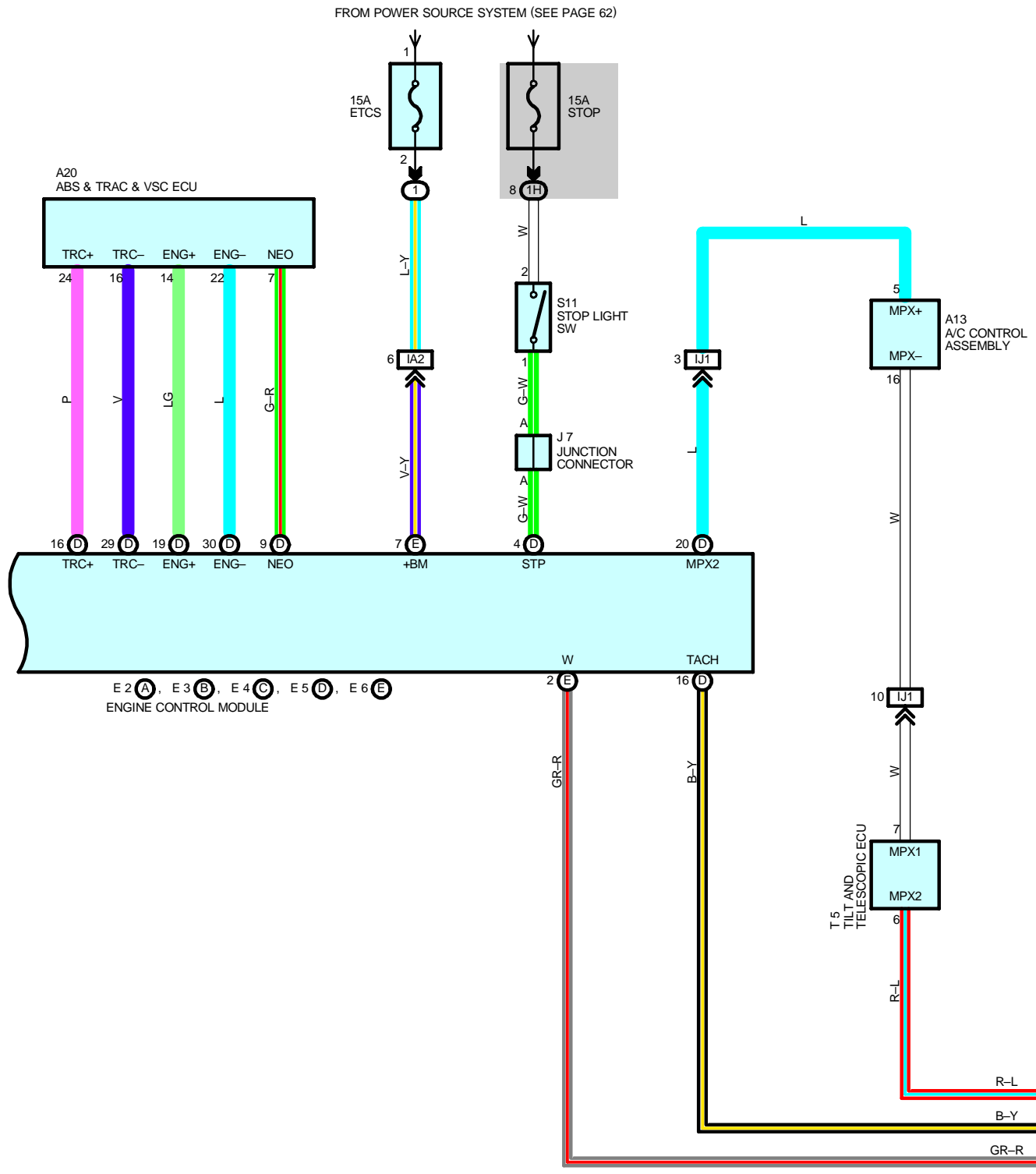
Sensors and Actuators: The ECM is connected to several sensors and actuators, including the EVR (Exhaust Valve Regulator), VVR+ (Variable Valve Regulator Positive), VVR- (Variable Valve Regulator Negative), SIL (Stator Ignition Lead), WSFE (Water Sensor Front Engine), BAT (Battery), TC (Throttle Cable), SG (Stator Ground), CG (Coil Ground), EA2 (Exhaust Air Temperature Sensor), and V5 VVT Sensor RH (Variable Valve Timing Sensor Right Hand).

Wiring Details: The diagram shows the following connections:

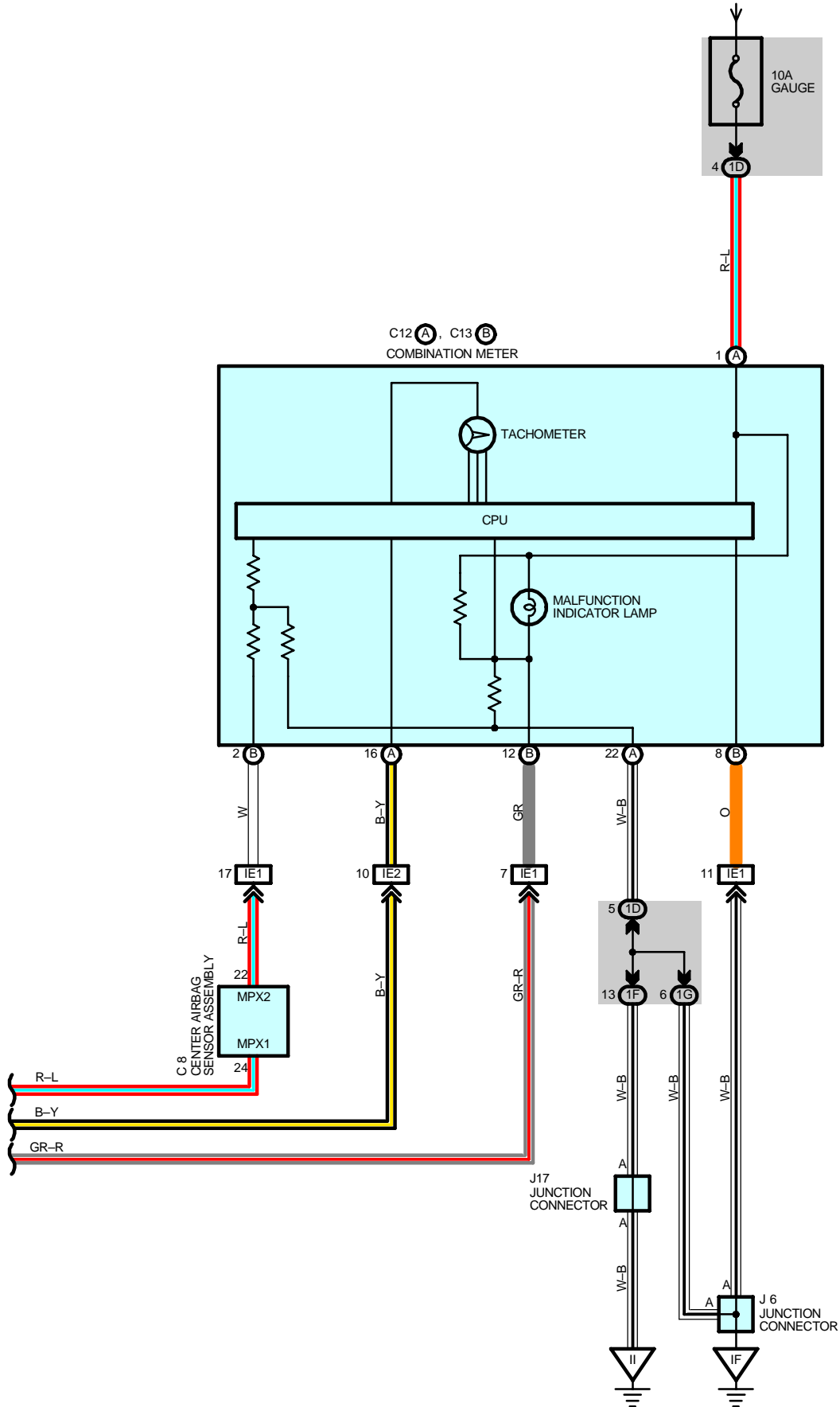
- Ignition Coils:** Each coil is connected to the ECM via a junction connector (J25). The wiring for each coil is color-coded: 1 (Green), 2 (Red), 3 (Blue), 4 (Yellow), 5 (Black), 6 (Pink), 7 (Brown), and 8 (Black).
- Sensors and Actuators:** The ECM is connected to the EVR, VVR+, VVR-, SIL, WSFE, BAT, TC, SG, CG, EA2, and V5 VVT Sensor RH via color-coded wires.
- Grounding:** The diagram shows various ground points, including the engine ground (E1) and the chassis ground (GND).
- Shielding:** Several wires are shown with shielding, including the EVR, VVR+, VVR-, and the wires connected to the EA2 sensor.



ENGINE CONTROL (3UZ-FE)



FROM POWER SOURCE SYSTEM (SEE PAGE 62)



ENGINE CONTROL (3UZ-FE)

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.

ENGINE CONTROL (3UZ-FE)

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 kΩ** (**-20°C**, **-4°F**)
Approx. **2.45 kΩ** (**20°C**, **68°F**)
Approx. **0.32 kΩ** (**80°C**, **176°F**)
Approx. **0.14 kΩ** (**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

I13, I14, I15, I16, I17, I18, I19, I20 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

Code	See Page	Code	See Page	Code	See Page
A10	42 (3UZ-FE)	I2	39 (3UZ-FE)	J14	43
A13	42	I3	39 (3UZ-FE)	J15	43
A20	42	I4	39 (3UZ-FE)	J17	43
B5	42	I5	39 (3UZ-FE)	J20	44
C1	38 (3UZ-FE)	I6	39 (3UZ-FE)	J25	39 (3UZ-FE)
C3	38 (3UZ-FE)	I7	39 (3UZ-FE)	J26	39 (3UZ-FE)
C4	38 (3UZ-FE)	I8	39 (3UZ-FE)	J27	43
C5	38 (3UZ-FE)	I9	39 (3UZ-FE)	K1	39 (3UZ-FE)
C8	42	I13	39 (3UZ-FE)	K2	39 (3UZ-FE)
C12	A 42	I14	39 (3UZ-FE)	M1	39 (3UZ-FE)
C13	B 42	I15	39 (3UZ-FE)	P1	39 (3UZ-FE)
D1	38 (3UZ-FE)	I16	39 (3UZ-FE)	S11	43
D4	42	I17	39 (3UZ-FE)	T2	39 (3UZ-FE)
E2	A 38 (3UZ-FE)	I18	39 (3UZ-FE)	T3	39 (3UZ-FE)
E3	B 38 (3UZ-FE)	I19	39 (3UZ-FE)	T5	43
E4	C 38 (3UZ-FE)	I20	39 (3UZ-FE)	T6	43
E5	D 38 (3UZ-FE)	I22	43	V1	39 (3UZ-FE)
E6	E 38 (3UZ-FE)	J3	A 39 (3UZ-FE)	V2	39 (3UZ-FE)
E8	38 (3UZ-FE)	J4	B 39 (3UZ-FE)	V3	39 (3UZ-FE)
F15	44	J5	39 (3UZ-FE)	V4	39 (3UZ-FE)
F16	44	J6	43	V5	39 (3UZ-FE)
H12	38 (3UZ-FE)	J7	43	V10	45
H14	38 (3UZ-FE)	J9	43	V11	45
H20	42	J10	43	V12	39 (3UZ-FE)
H21	42	J11	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	Cowl Wire and Driver Side J/B (Left Kick Panel)
1G	29	
1H		
1J		
1K	28	
2F	30	Cowl Wire and Passenger Side J/B (Right Kick Panel)
2G	31	

ENGINE CONTROL (3UZ-FE)

: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)
EA2	48 (3UZ-FE)	Engine Wire and Cowl Wire (Inside of the ECU Box)
EA3		
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		
IC2	52	Floor No.2 Wire and Cowl Wire (Left Kick Panel)
IC3		
IE1	52	Instrument Panel Wire and Cowl Wire (Left Side of the Steering Column)
IE2		
II1	52	Engine Room Main Wire and Cowl Wire (Near the Passenger Side R/B)
II4		
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	48 (3UZ-FE)	Engine Wire	E4	48 (3UZ-FE)	Cowl Wire
E2			I9	54	
E3			B3	56	Floor No.2 Wire

