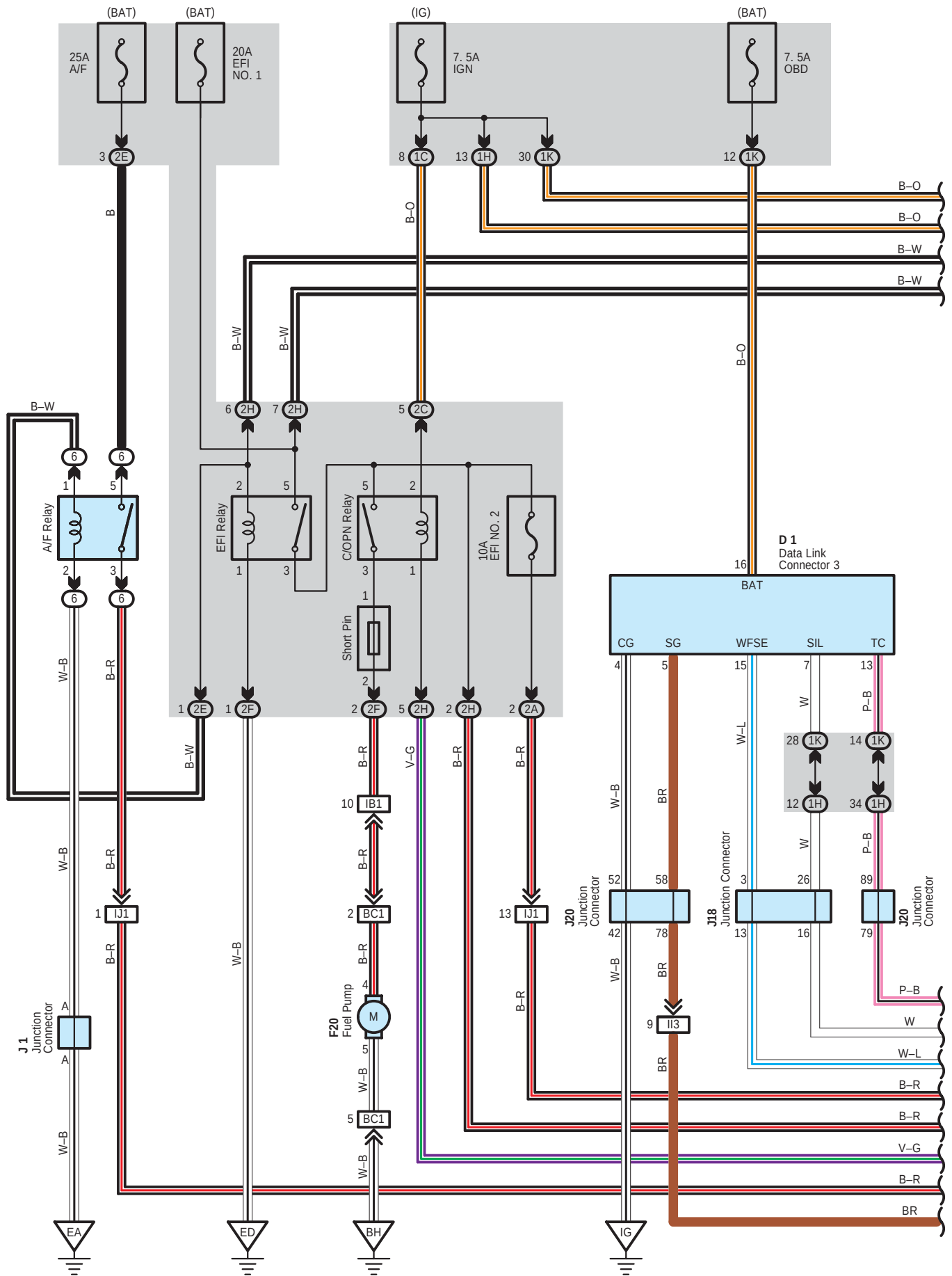
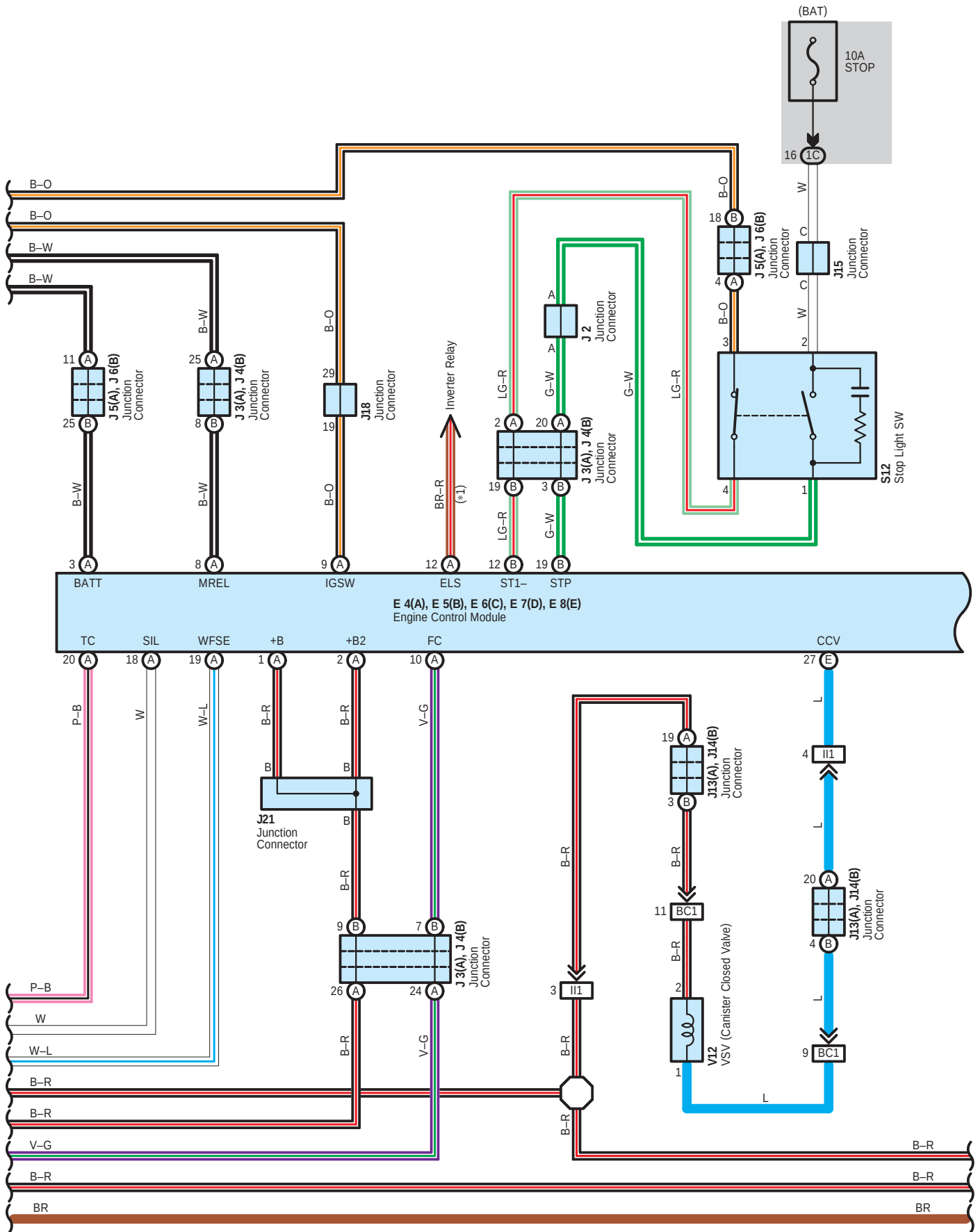
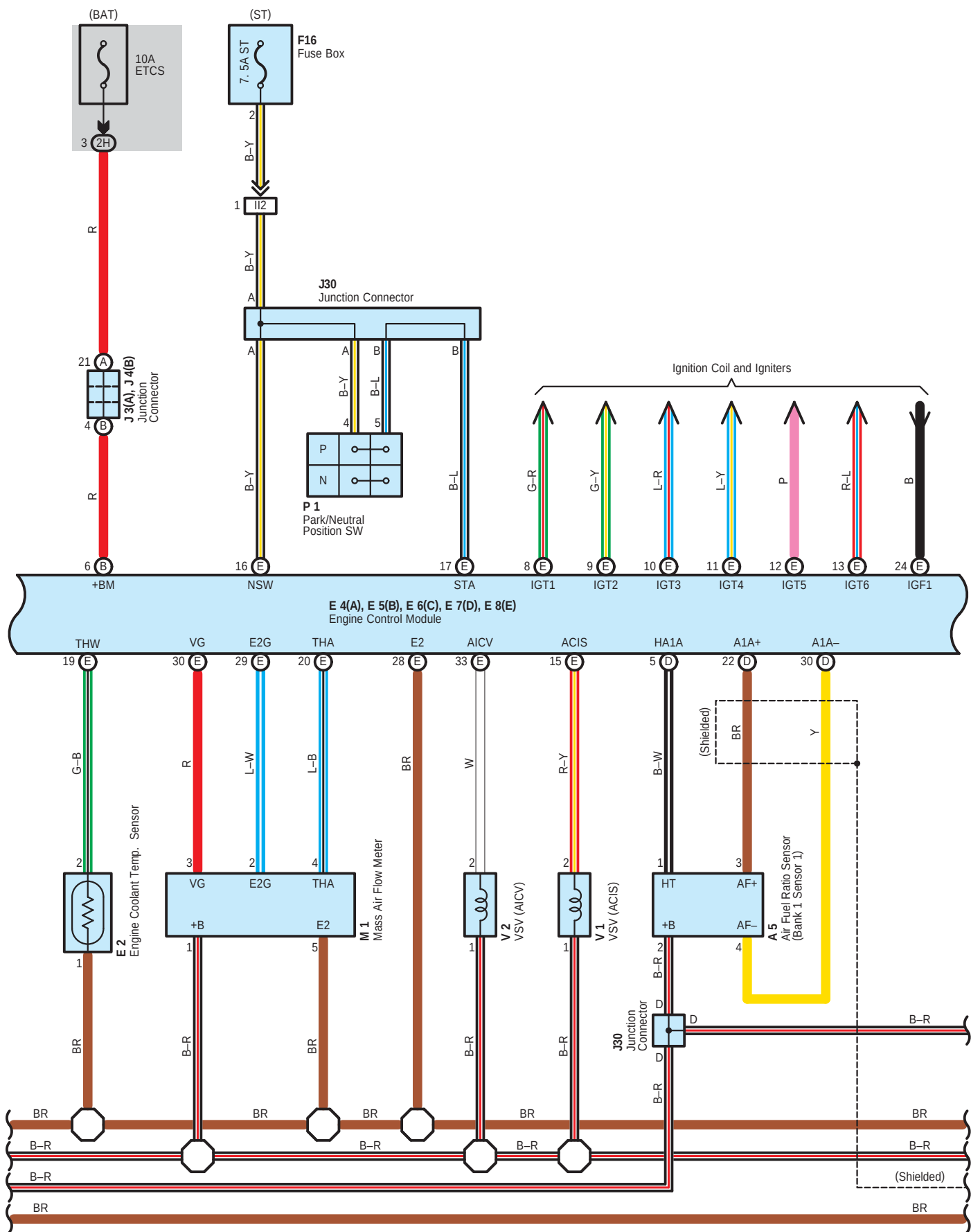
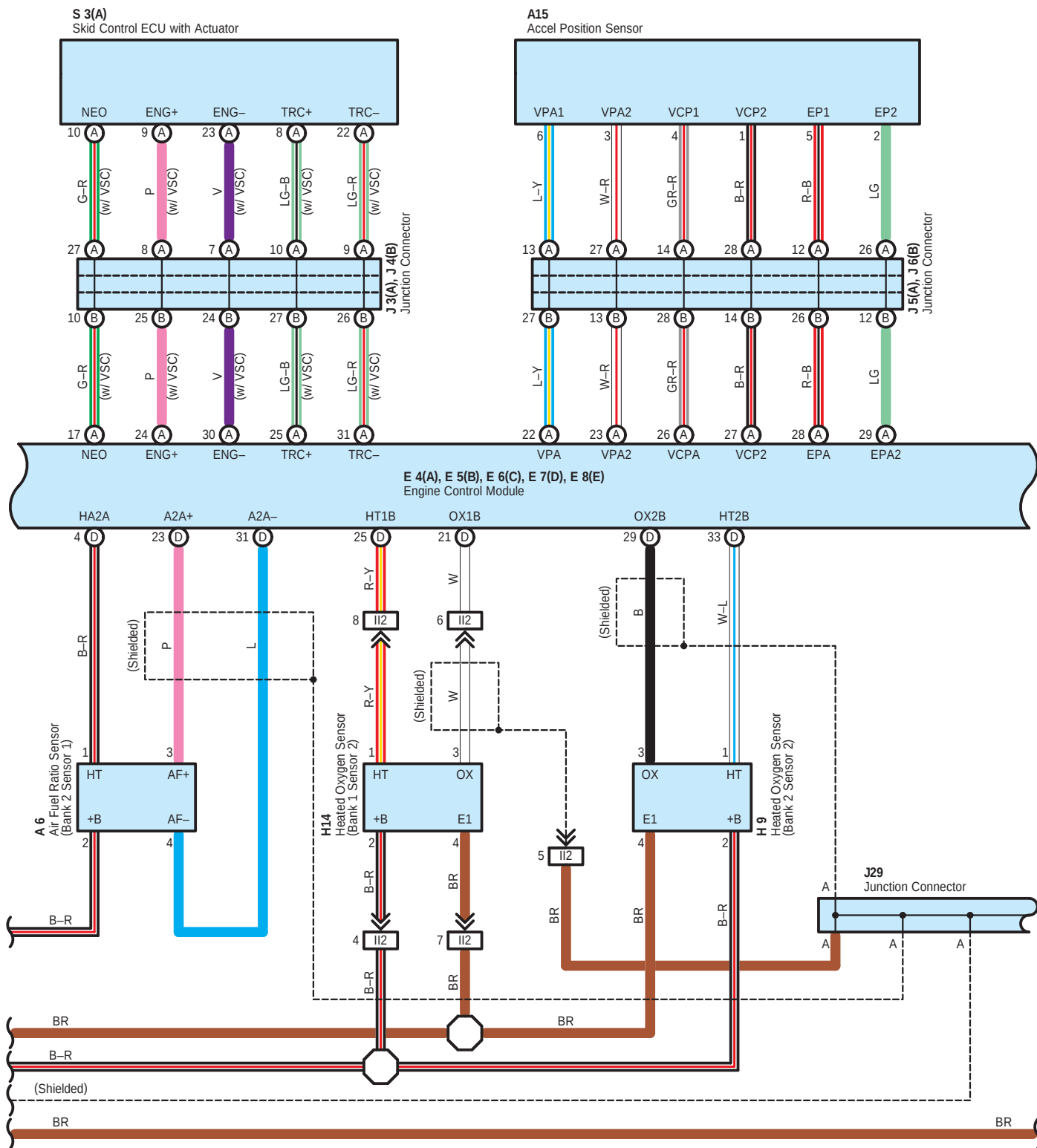
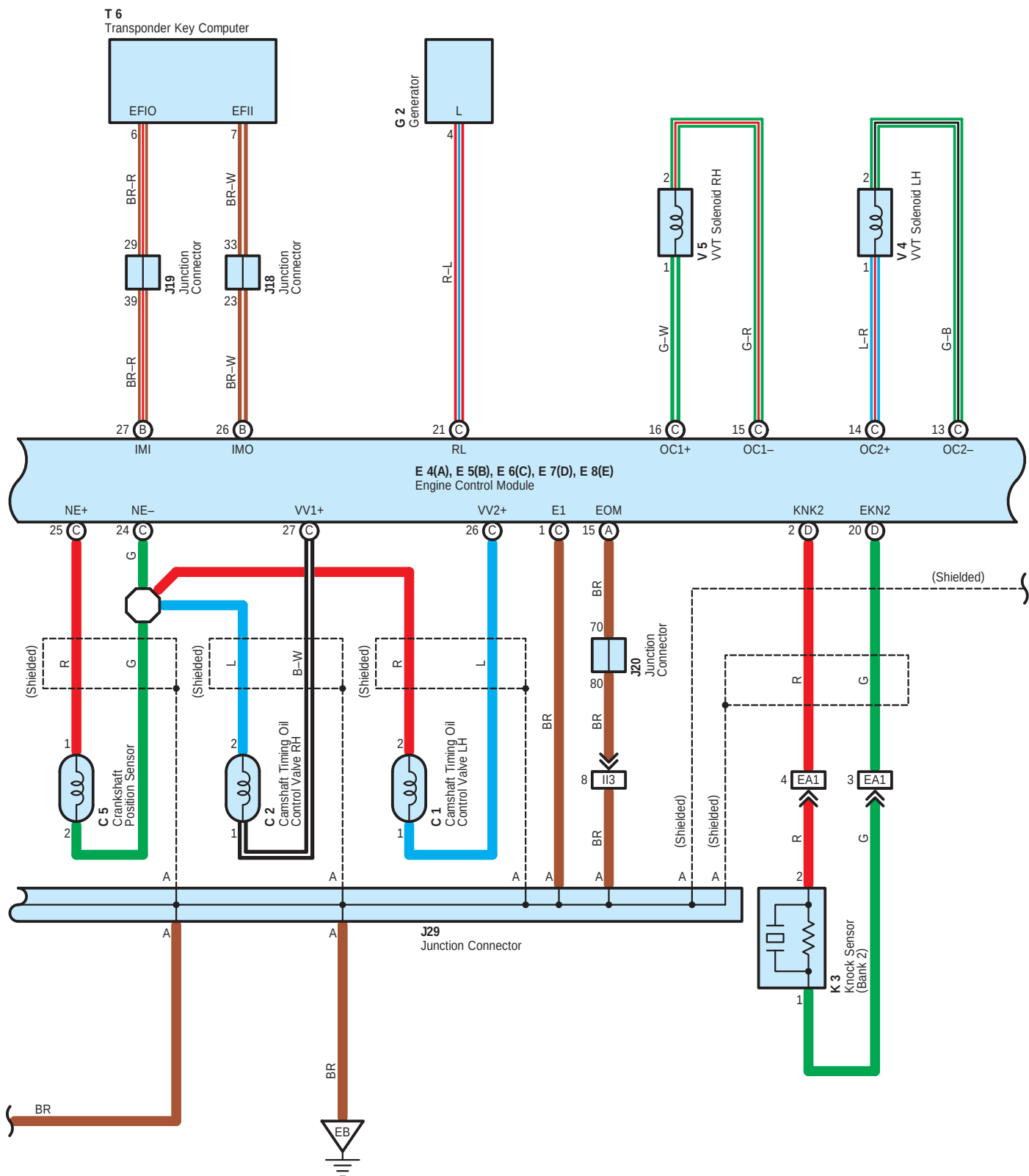


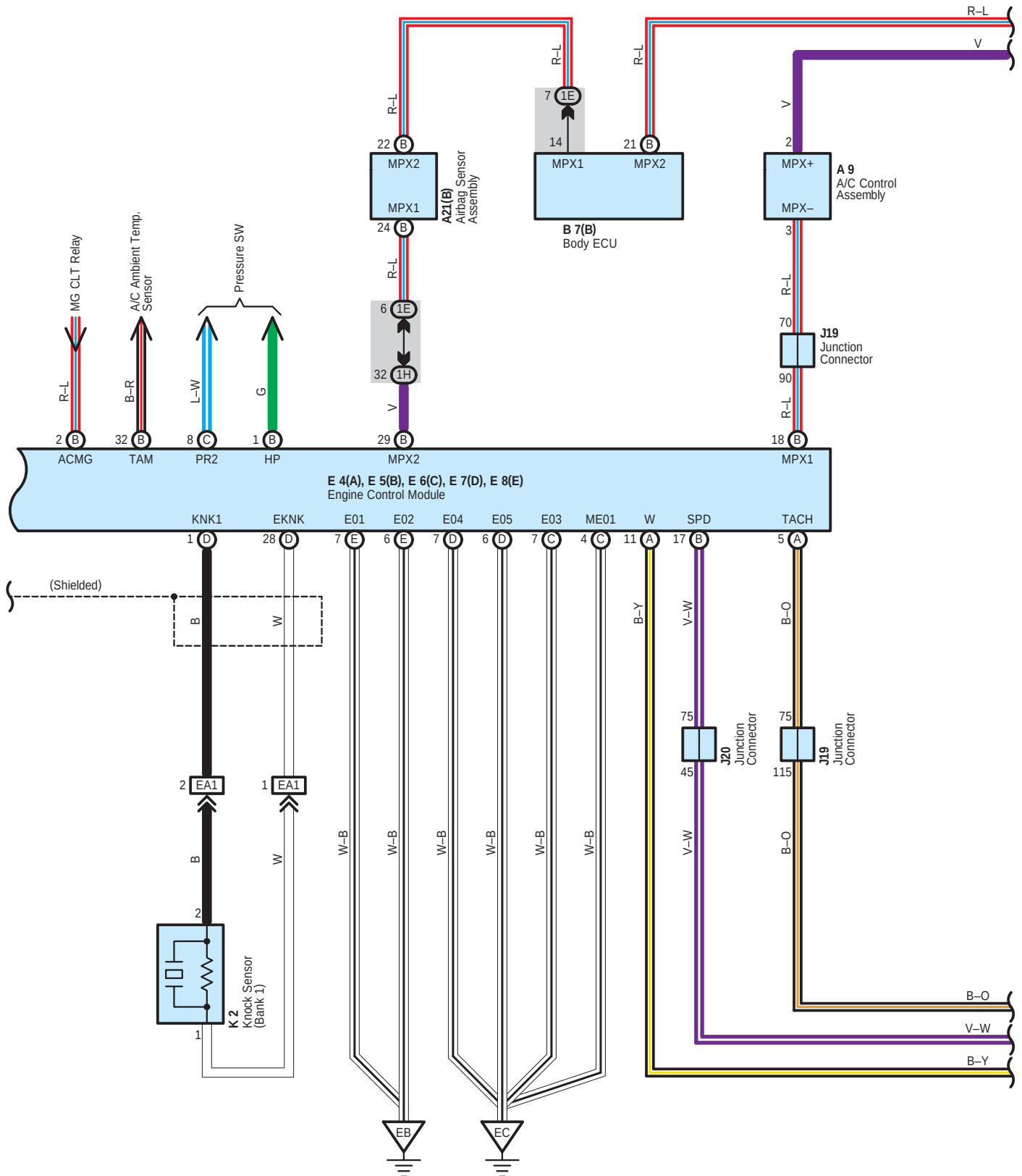


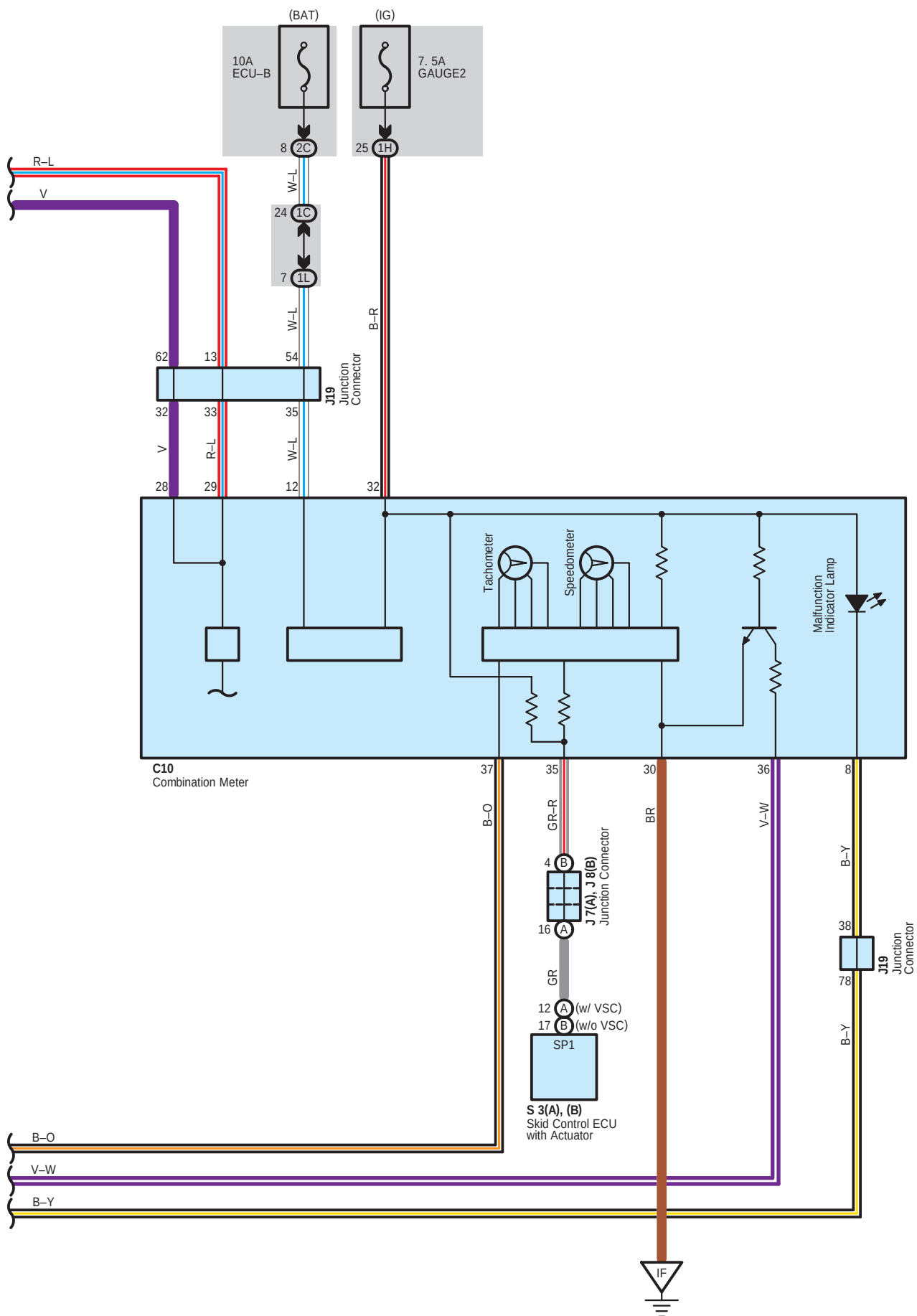












System Outline

This system utilizes an engine control module and maintains overall control of the engine, transaxle 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 water 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 into TERMINAL THA of the engine control module.

(3) Oxygen sensor signal system

The oxygen density in the exhaust gases is detected and input as a control signal into TERMINAL OX1B and OX2B of the engine control module. To maintain stable detection performance by the heated oxygen sensor, a heater is used for warming the sensor. The heater is also controlled by the engine control module (HT1B and HT2B).

(4) RPM signal system

Camshaft position and crankshaft position are detected by the camshaft timing oil control valve LH, RH and crankshaft position sensor. The camshaft position is input as a control signal to TERMINALS VV1+ and VV2+ of the engine control module, and the engine RPM is input into TERMINAL NE+.

(5) Throttle signal circuit

The throttle position sensor detects the throttle valve opening angle as a control signal, which is input into TERMINAL VTA1 of the engine control module.

(6) Vehicle speed signal circuit

The vehicle speed sensor, detects the vehicle speed and input to ABS speed sensor of the skid control ECU with actuator, from skid control ECU with actuator to TERMINAL SPD of the engine control module, Via combination meter.

(7) Park/Neutral position SW signal system

The Park/Neutral position SW detects whether the shift position is in neutral, parking or not, and inputs a control signal into TERMINAL STA of the engine control module.

(8) Battery signal circuit

Voltage is always supplies to TERMINAL BATT of the engine control module.

If you turn on the ignition SW, the current goes from TERMINAL MREL of the engine control module to the EFI relay and put on the relay, and the voltage related to the engine control module operation is supplied to TERMINALS +B and +B2 of the engine control module through the EFI relay.

(9) Intake air volume signal circuit

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

(10) NSW 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 NSW of the engine control module as a control signal.

(11) Engine knock signal circuit

Engine knocking is detected by the knock sensor (Bank 1) and (Bank 2), then the signals are input into TERMINALS KNC1 and KNC2 of the engine control module as a control signal.

(12) Air fuel ratio signal system

The air fuel ratio is detected and input as a control signal into TERMINALS A1A+ and A2A+ of the engine control module.

2. Control System

* SFI system

The SFI system monitors the engine condition through the signals, which are input from each sensor (Input signals (1) to (11)). The best fuel injection volume is decided based on this data and the program memorized by the engine control module, and the control signal is output to TERMINALS #10, #20, #30, #40, #50 and #60 of the engine control module to operate the injector (Inject the fuel). The SFI system produces control of fuel injection operation by the engine control module in response to the driving conditions.

* ESA system

The ESA system monitors the engine condition through the signals, which are input to the engine control module from each sensor (Input signals from 1, 3, 4, 11). 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 and IGT6. 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 sensor to improve detection performance of the sensor.

The engine control module evaluates the signals from each sensor (Input signals from 1, 4, 8, 9), current is output to TERMINALS HT1B and HT2B controlling 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).

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.

4. Fail-Safe System

When a malfunction occurs in any systems, 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.

○ : Parts Location

Code	See Page	Code	See Page	Code	See Page
A5	36	H14	39	J21	40
A6	36	I7	37	J29	40
A9	38	I8	37	J30	40
A15	38	I9	37	K2	37
A21	B 38	I10	37	K3	37
B7	B 38	I11	37	M1	37
C1	36	I12	37	P1	37
C2	36	J1	37	P4	37
C5	36	J2	37	S3	A 37
C10	39	J3	A 40		B 37
D1	39	J4	B 40	S12	41
E2	36	J5	A 40	T2	37
E4	A 39	J6	B 40	T6	41
E5	B 39	J7	A 40	V1	37
E6	C 39	J8	B 40	V2	37
E7	D 39	J13	A 40	V3	37
E8	E 39	J14	B 40	V4	37
F16	39	J15	40	V5	37
F20	42	J18	40	V9	45
G2	36	J19	40	V12	45
H9	36	J20	40		

Engine Control

: Relay Blocks

Code	See Page	Relay Blocks (Relay Block Location)
6	28	R/B No.6 (Engine Compartment Left)

: Junction Block and Wire Harness Connector

Code	See Page	Junction Block and Wire Harness (Connector Location)
1C	31	Engine Room Main Wire and Driver Side J/B (Lower Finish Panel)
1E	31	Instrument Panel Wire and Driver Side J/B (Lower Finish Panel)
1H	30	
1K	31	
1L		
2A		
2C	24	Engine Room Main Wire and Engine Room J/B (Engine Compartment Left)
2E		
2F		
2H		

: Connector Joining Wire Harness and Wire Harness

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)
EA1	50	Engine Wire and Sensor Wire (Near the Cylinder Head of the Left Bank)
IB1	52	Engine Room Main Wire and Floor No.1 Wire (Left Cowl Side Panel)
II1	53	Engine Wire and Instrument Panel Wire (Right Kick Panel)
II2		
II3		
IJ1	53	Engine Wire and Engine Room Main Wire (Right Kick Panel)
BC1	54	Fuel Gauge Wire and Floor No.1 Wire (Near the Fuel Tank)

: Ground Points

Code	See Page	Ground Points Location
EA	50	Front Side of the Right Fender Apron
EB	50	Rear Bank of Right Cylinder Head
EC	50	Rear Bank of Left Cylinder Head
ED	50	Front Side of the Left Fender Apron
IF	52	Instrument Panel Brace LH
IG	52	Right Kick Panel
BH	54	Under the Left Center Pillar

