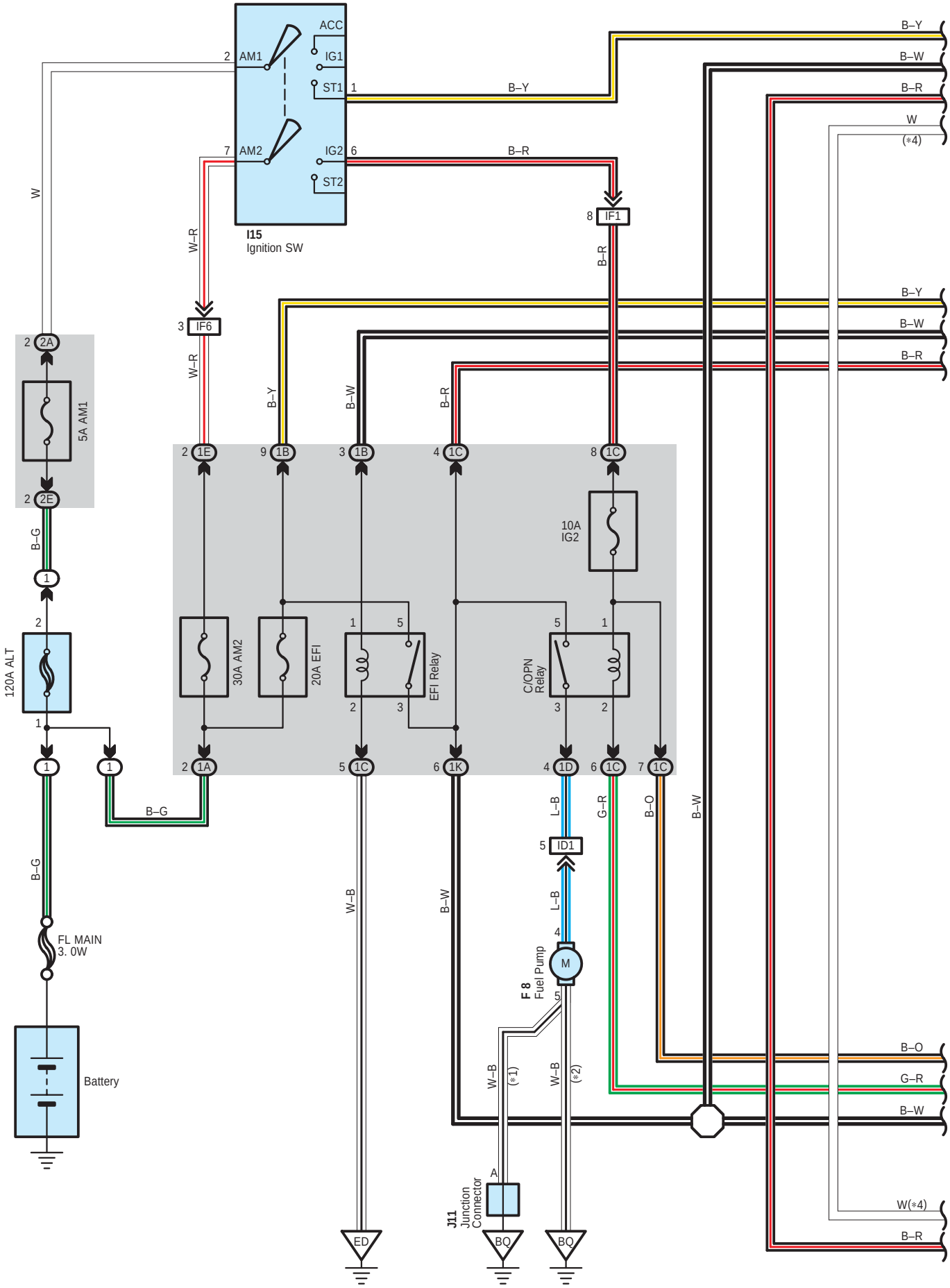
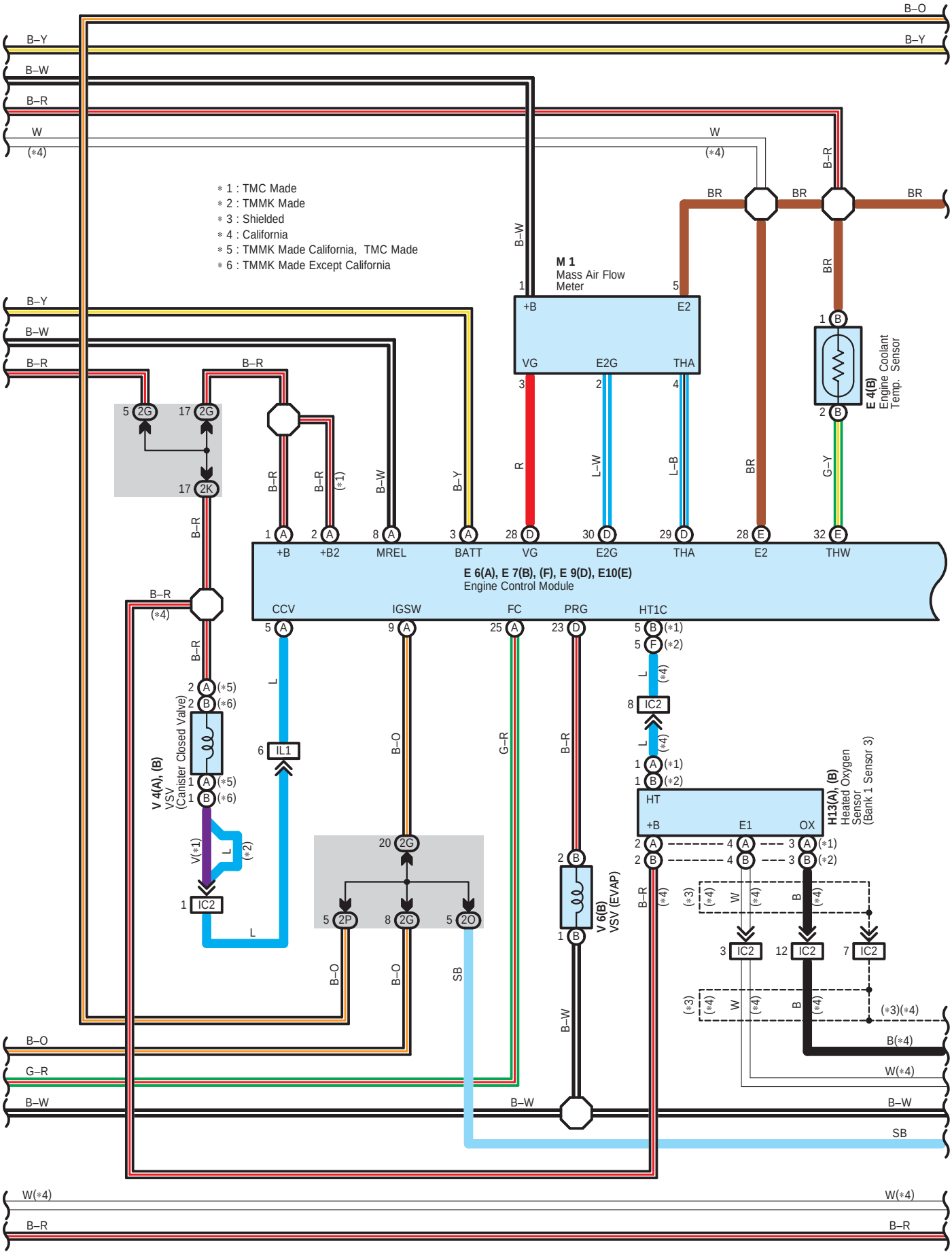
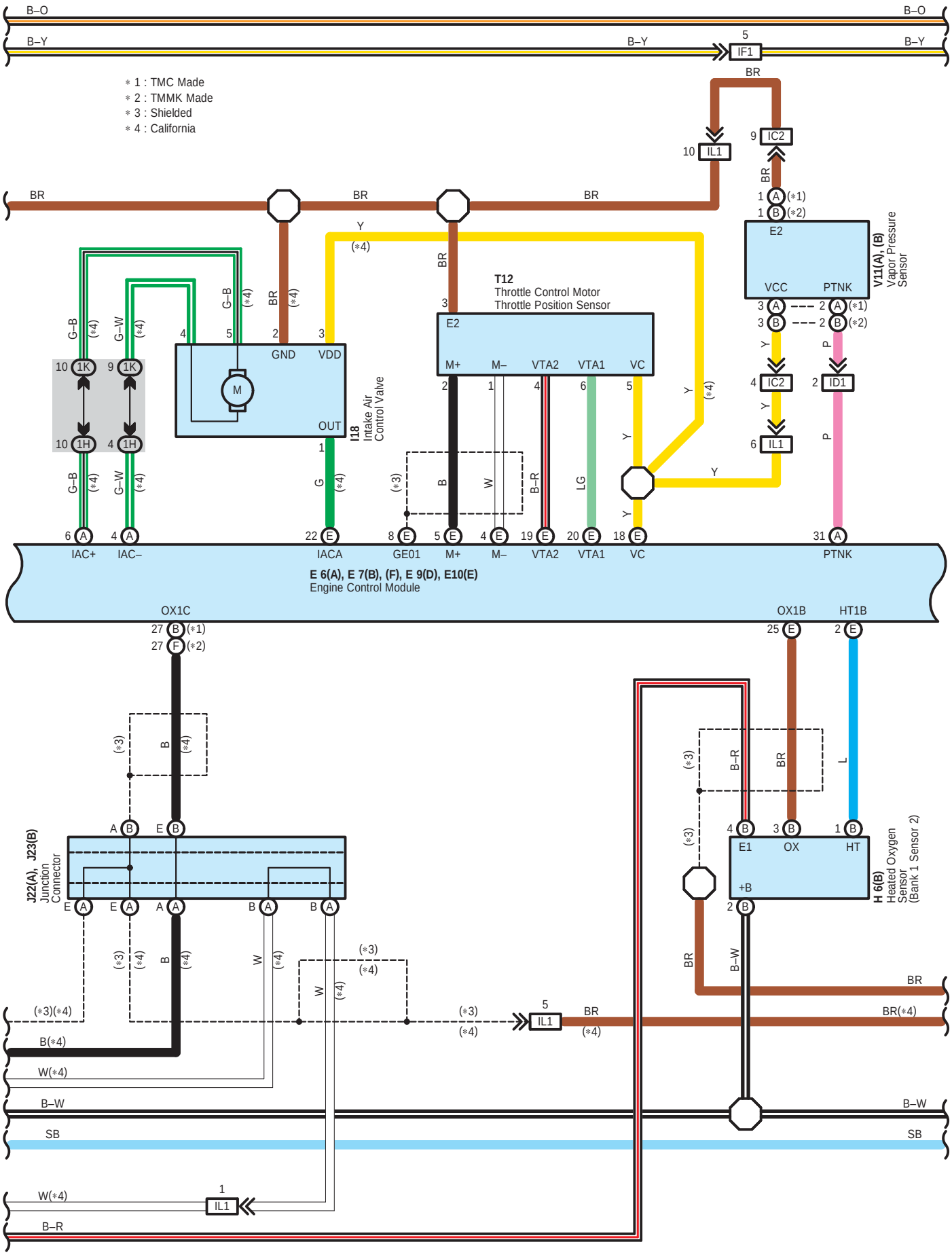
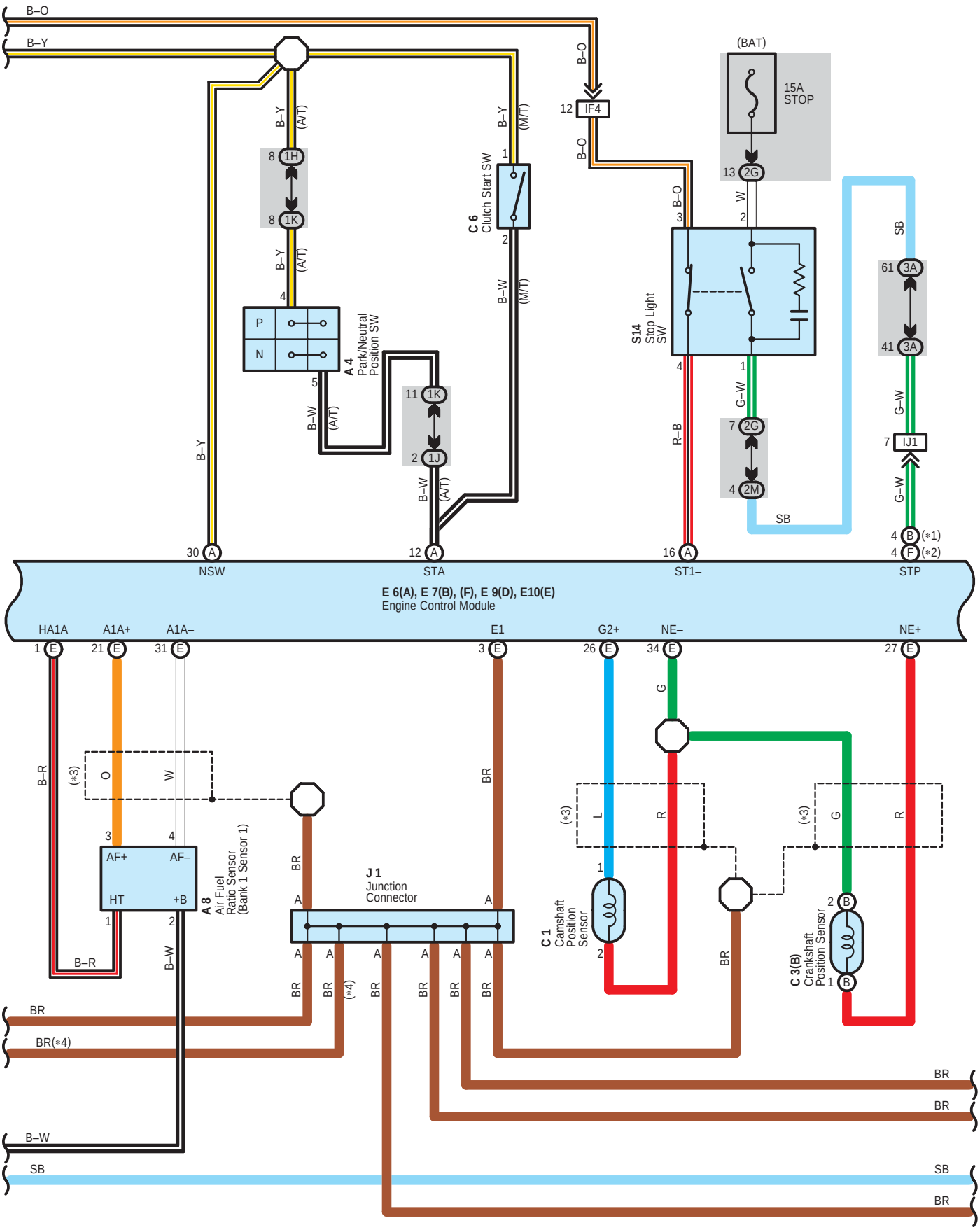
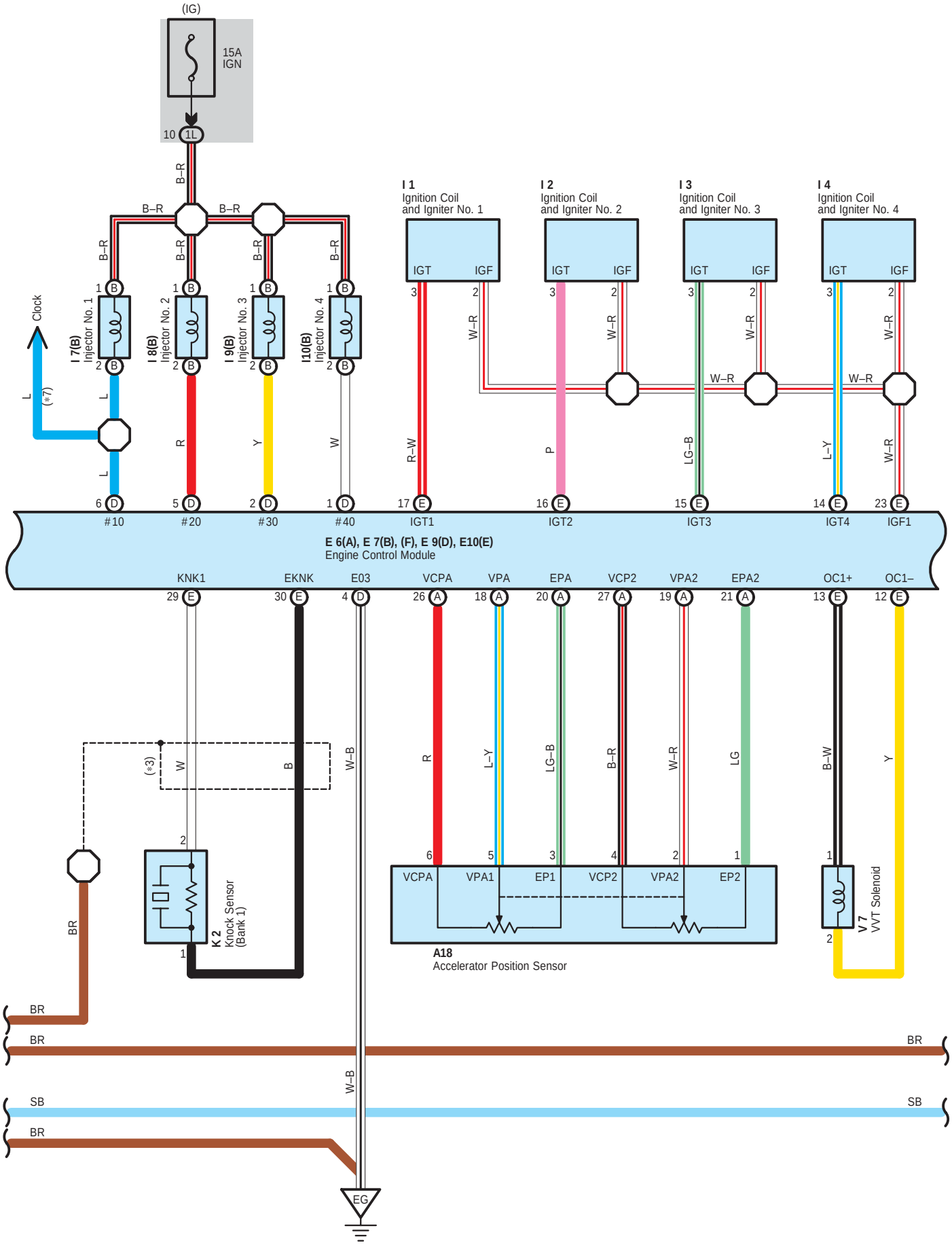
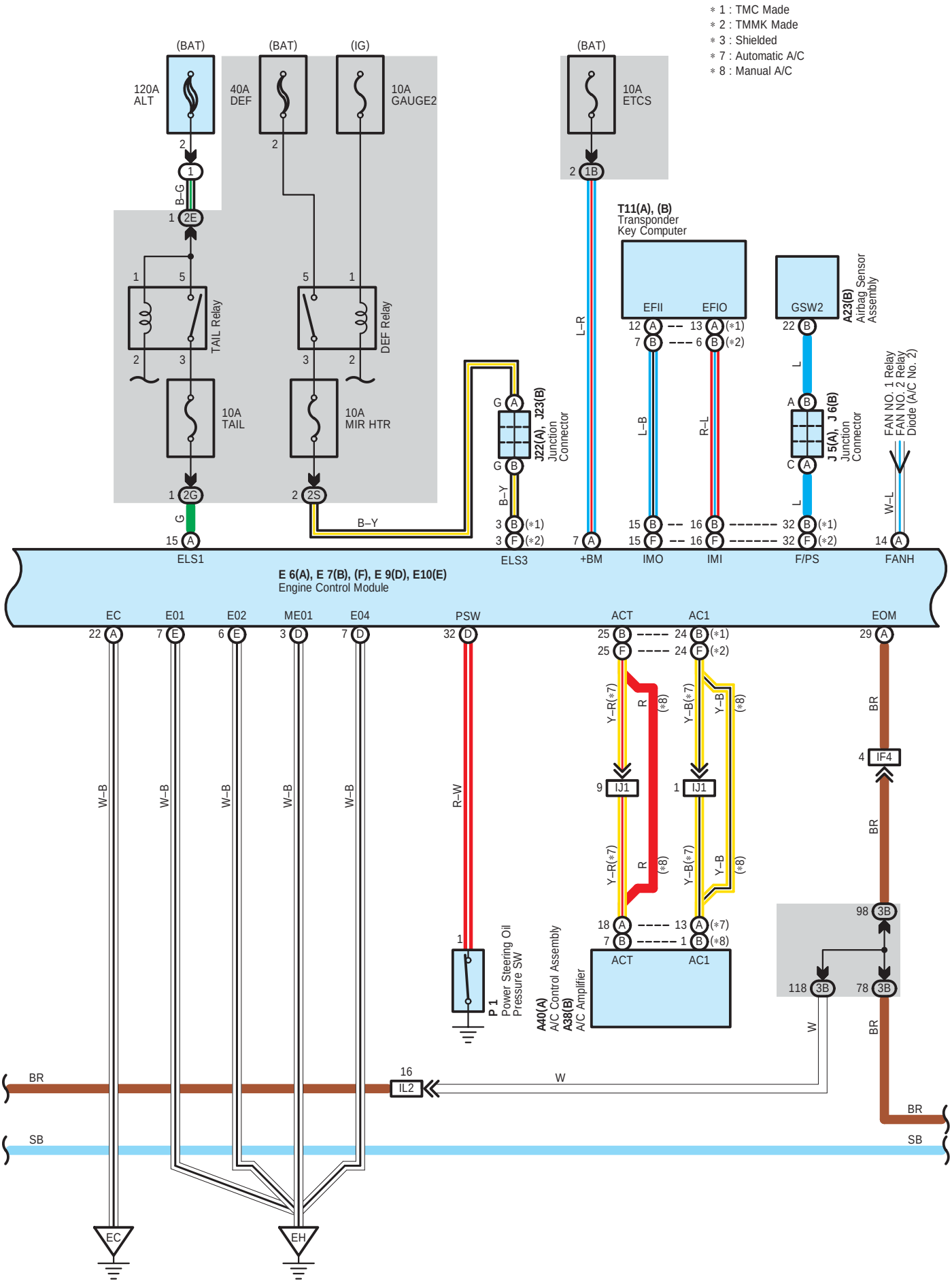

ACC
AM1
IG1
ST1
AM2
IG2
ST2
I15
Ignition SW
B–Y
B–R
W
W–R
B–W
B–G
B–O
G–R
L–B
W–B
IF1
IF6
2A
5A AM1
2E
1E
1B
1C
1A
1K
1D
10A
IG2
30A AM2
20A EFI
EFI Relay
C/OPN
Relay
120A ALT
FL MAIN
3. 0W
Battery
ID1
F 8
Fuel Pump
M
J11
Junction
Connector
A
ED
BQ
(*1)
(*2)
(*4)
W(*4)

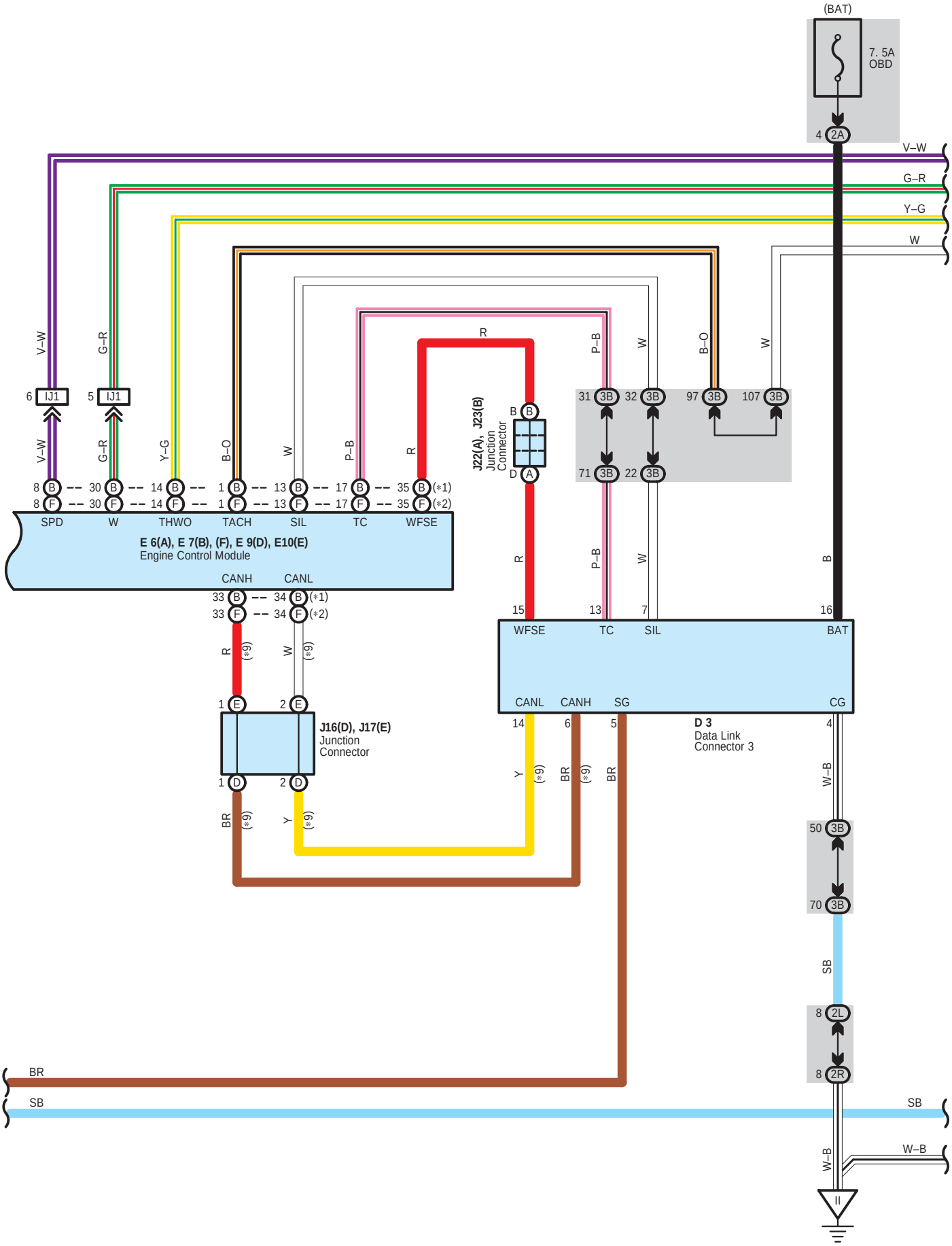

∗1 : TMC Made
∗2 : TMMK Made
∗3 : Shielded
∗4 : California
∗5 : TMMK Made California, TMC Made
∗6 : TMMK Made Except California
M 1
Mass Air Flow Meter
+B
E2
VG
E2G
THA
E 4(B)
Engine Coolant Temp. Sensor
E 6(A), E 7(B), (F), E 9(D), E10(E)
Engine Control Module
+B
+B2
MREL
BATT
VG
E2G
THA
E2
THW
CCV
IGSW
FC
PRG
HT1C
V 4(A), (B)
VSV (Canister Closed Valve)
V 6(B)
VSV (EVAP)
H13(A), (B)
Heated Oxygen Sensor (Bank 1 Sensor 3)
HT
+B
E1
OX
IC2
IL1
2G
2K
2P
2O
B–Y
B–W
B–R
W
(∗4)
B–O
G–R
SB
BR
L
R
L–W
L–B
G–Y
B(∗4)
W(∗4)
(∗3)(∗4)

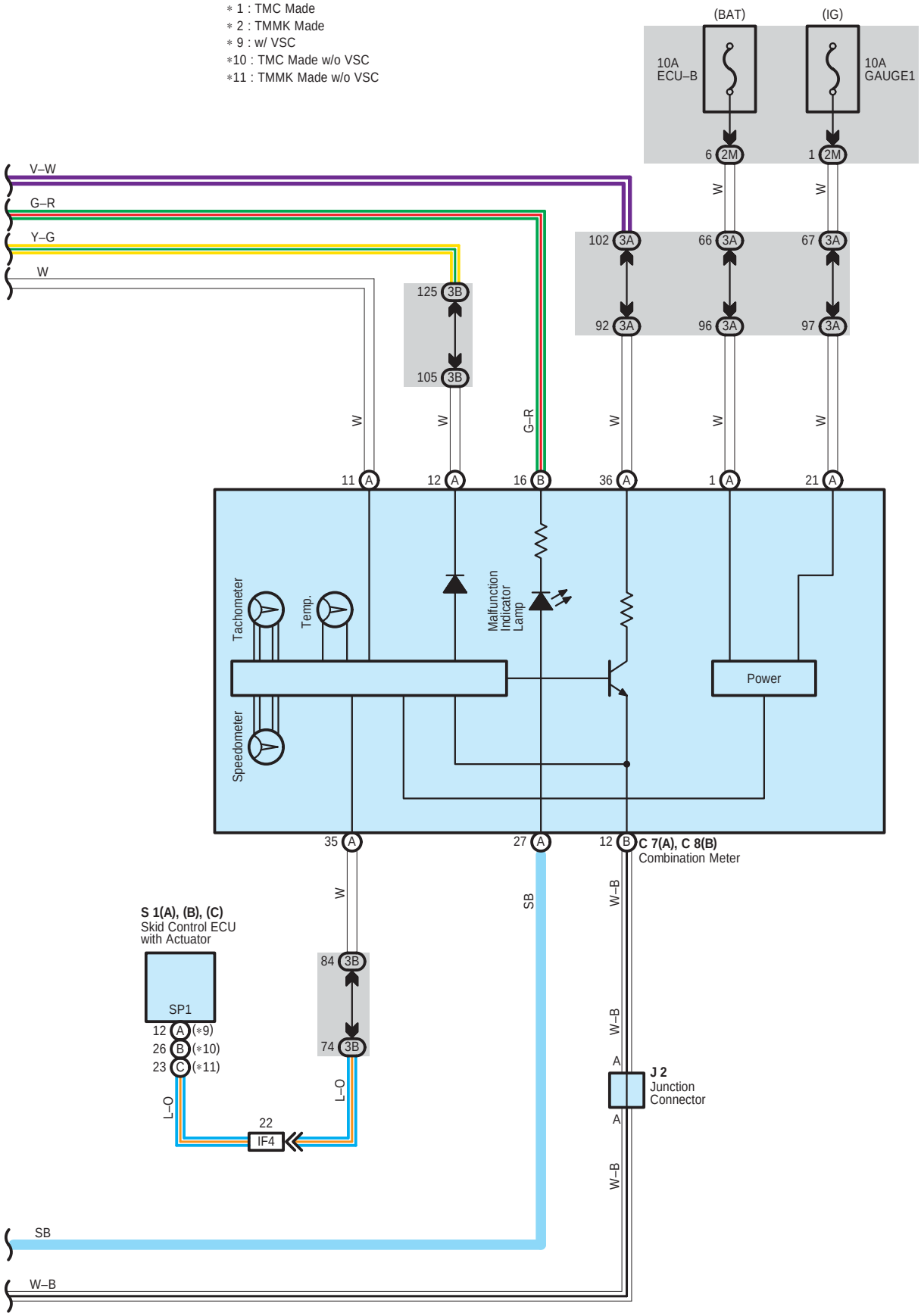

B–O
B–Y
IF1
∗ 1 : TMC Made
∗ 2 : TMMK Made
∗ 3 : Shielded
∗ 4 : California
IL1
IC2
V11(A), (B) Vapor Pressure Sensor
VCC
PTNK
T12 Throttle Control Motor Throttle Position Sensor
M+
M–
VTA2
VTA1
VC
I18 Intake Air Control Valve
GND
VDD
OUT
IAC+
IAC–
IACA
GE01
ID1
E 6(A), E 7(B), (F), E 9(D), E10(E) Engine Control Module
OX1C
OX1B
HT1B
J22(A), J23(B) Junction Connector
H 6(B) Heated Oxygen Sensor (Bank 1 Sensor 2)
E1
OX
HT
+B
B(∗4)
W(∗4)
B–W
SB
B–R


B–O
B–Y
(BAT)
15A
STOP
IF4
12
13 2G
B–O
W
2
B–Y (A/T)
8 1H
8 1K
B–Y (A/T)
4
P
N
5
A 4
Park/Neutral
Position SW
B–W (A/T)
11 1K
2 1J
B–W (A/T)
B–Y (M/T)
1
C 6
Clutch Start SW
2
B–W (M/T)
B–O
3
S14
Stop Light
SW
4
1
R–B
G–W
7 2G
4 2M
SB
SB
61 3A
41 3A
G–W
7 IJ1
G–W
4 B (*1)
4 F (*2)
B–Y
30 A
NSW
12 A
STA
16 A
ST1–
STP
E 6(A), E 7(B), (F), E 9(D), E10(E)
Engine Control Module
HA1A
A1A+
A1A–
E1
G2+
NE–
NE+
1 E
21 E
31 E
3 E
26 E
34 E
27 E
G
B–R
(*3)
O
W
3
4
AF+
AF–
HT
+B
1
2
A 8
Air Fuel
Ratio Sensor
(Bank 1 Sensor 1)
B–R
B–W
BR
J 1
Junction
Connector
A
BR
BR
(*4)
(*3)
L
R
1
2
C 1
Camshaft
Position
Sensor
BR
(*3)
G
R
2 B
1 B
C 3(B)
Crankshaft
Position Sensor
BR
BR(*4)
BR
BR
B–W
SB
SB
BR


(IG)
15A
IGN
10 1L
B–R
Clock
(*7)
I 7(B)
Injector No. 1
I 8(B)
Injector No. 2
I 9(B)
Injector No. 3
I10(B)
Injector No. 4
I 1
Ignition Coil
and Igniter No. 1
I 2
Ignition Coil
and Igniter No. 2
I 3
Ignition Coil
and Igniter No. 3
I 4
Ignition Coil
and Igniter No. 4
IGT
IGF
W–R
R–W
P
LG–B
L–Y
W–R
#10
#20
#30
#40
IGT1
IGT2
IGT3
IGT4
IGF1
E 6(A), E 7(B), (F), E 9(D), E10(E)
Engine Control Module
KNK1
EKNK
E03
VCPA
VPA
EPA
VCP2
VPA2
EPA2
OC1+
OC1–
(*3)
W
B
W–B
R
L–Y
LG–B
B–R
W–R
LG
B–W
Y
BR
K 2
Knock Sensor
(Bank 1)
VCPA
VPA1
EP1
VCP2
VPA2
EP2
A18
Accelerator Position Sensor
V 7
VVT Solenoid
SB
EG


＊1 : TMC Made
＊2 : TMMK Made
＊3 : Shielded
＊7 : Automatic A/C
＊8 : Manual A/C
(BAT)
120A ALT
40A DEF
(IG)
10A GAUGE2
10A ETCS
TAIL Relay
DEF Relay
10A TAIL
10A MIR HTR
T11(A), (B) Transponder Key Computer
EFII
EFIO
GSW2
A23(B) Airbag Sensor Assembly
J22(A), J23(B) Junction Connector
J 5(A), J 6(B) Junction Connector
FAN NO. 1 Relay
FAN NO. 2 Relay
Diode (A/C No. 2)
ELS1
ELS3
+BM
IMO
IMI
F/PS
FANH
E 6(A), E 7(B), (F), E 9(D), E10(E)
Engine Control Module
EC
E01
E02
ME01
E04
PSW
ACT
AC1
EOM
P 1
Power Steering Oil Pressure SW
A40(A)
A/C Control Assembly
A38(B)
A/C Amplifier
IJ1
IF4
IL2
3B
W-B
R-W
L-R
L-B
R-L
Y-R
Y-B
W-L
BR
SB
W
EC
EH


(BAT)
7. 5A
OBD
4 2A
V–W
G–R
Y–G
W
6 IJ1
5 IJ1
V–W
G–R
Y–G
B–O
W
P–B
R
B–O
W
J22(A), J23(B)
Junction
Connector
B B
D A
31 3B
32 3B
97 3B
107 3B
71 3B
22 3B
8 B
8 F
30 B
30 F
14 B
14 F
1 B
1 F
13 B
13 F
17 B
17 F
35 B (*1)
35 F (*2)
SPD
W
THWO
TACH
SIL
TC
WFSE
E 6(A), E 7(B), (F), E 9(D), E10(E)
Engine Control Module
CANH
CANL
33 B
33 F
34 B (*1)
34 F (*2)
R (*9)
W (*9)
1 E
2 E
J16(D), J17(E)
Junction
Connector
1 D
2 D
BR (*9)
Y (*9)
R
P–B
W
B
15
13
7
16
WFSE
TC
SIL
BAT
CANL
CANH
SG
CG
14
6
5
4
Y (*9)
BR (*9)
BR
D 3
Data Link
Connector 3
W–B
50 3B
70 3B
SB
8 2L
8 2R
BR
SB
SB
W–B
W–B


∗ 1 : TMC Made
∗ 2 : TMMK Made
∗ 9 : w/ VSC
∗10 : TMC Made w/o VSC
∗11 : TMMK Made w/o VSC
(BAT)
(IG)
10A ECU–B
10A GAUGE1
6 2M
1 2M
V–W
G–R
Y–G
W
102 3A
66 3A
67 3A
125 3B
92 3A
96 3A
97 3A
105 3B
W
G–R
11 A
12 A
16 B
36 A
1 A
21 A
Tachometer
Temp.
Malfunction Indicator Lamp
Power
Speedometer
35 A
27 A
12 B
C 7(A), C 8(B)
Combination Meter
S 1(A), (B), (C)
Skid Control ECU with Actuator
SB
W–B
84 3B
74 3B
SP1
12 A (∗9)
26 B (∗10)
23 C (∗11)
L–O
22
IF4
A
J 2
Junction Connector
SB
W–B

System Outline

The engine control system utilizes a microcomputer and maintains overall control of the engine, transaxle etc. An outline of the engine control is given 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. which 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 density signal circuit

The oxygen density in the exhaust emission is detected by the heated oxygen sensor and input as a control signal to TERMINALS OX1B and OX1C of the engine control module (HT1B and HT1C)

(4) RPM signal circuit

Camshaft position and crankshaft position are detected by the camshaft position sensor and crankshaft position sensor. Camshaft position is input as a control signal to TERMINAL G2+ of the engine control module, and engine RPM is input into TERMINAL NE+.

(5) Throttle position signal circuit

The throttle position sensor detects the throttle valve opening angle as a control signal, which is input into TERMINALS VTA1 and VTA2 of the engine control module.

(6) Vehicle speed 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) Battery signal circuit

Voltage is constantly applied to TERMINAL BATT of the engine control module. With the ignition SW turned on, the voltage for engine control module start–up power supply is applied to TERMINALS +B and +B2 of the engine control module via the EFI relay.

(8) A/C SW signal circuit

The A/C control assembly (Automatic A/C) or A/C amplifier (Manual A/C) inputs the A/C operations into TERMINAL AC1 of the engine control module.

(9) Stop light SW signal circuit

The stop light SW is used to detect whether the vehicle is braking or not 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 is 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 sensor and the signal is input into TERMINAL KNK1 as a control signal.

(12) Air fuel ratio signal system

The air fuel ratio is detected and input as a control signal into TERMINAL AF1A+ of the engine control module.

2. Control System

* SFI system
  The SFI system monitors the engine condition through the signals input from each sensor to the engine control module. And the control signal is output to TERMINALS #10, #20, #30, #40 of the engine control module to operate the injector (Inject the fuel). The SFI system controls the 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 input to the engine control module from each sensor. 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. 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, and outputs current to TERMINALS HT1B and HT1C (California) to control the heater.

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.

○ : Parts Location

Code		See Page	Code		See Page	Code		See Page
A4		40 (*2)	H6	B	40 (*2)	J17	E	36, 43
A8		40 (*2)	H13	A	43	J22	A	43
A18		42		B	43	J23	B	43
A23	B	42	I1		41 (*2)	K2		41 (*2)
A38	B	42	I2		41 (*2)	M1		41 (*2)
A40	A	42	I3		41 (*2)	P1		41 (*2)
C1		40 (*2)	I4		41 (*2)	S1	A	41 (*2)
C3	B	40 (*2)	I7	B	41 (*2)		B	41 (*2)
C6		42	I8	B	41 (*2)		C	41 (*2)
C7	A	42	I9	B	41 (*2)	S14		43
C8	B	42	I10	B	41 (*2)	T11	A	43
D3		42	I15		43		B	43
E4	B	40 (*2)	I18		41 (*2)	T12		41 (*2)
E6	A	42	J1		43	V4	A	45
E7	B	42	J2		43		B	45
	F	42	J5	A	43	V6	B	41 (*2)
E9	D	42	J6	B	43	V7		41 (*2)
E10	E	42	J11		44	V11	A	45
F8		44	J16	D	36, 43		B	45

⬭ : Relay Blocks

Code	See Page	Relay Blocks (Relay Block Location)
1	22	Engine Room R/B (Engine Compartment Left)

* 1 : 1MZ–FE, 3MZ–FE * 2 : 2AZ–FE * 3 : w/ Power Seat * 4 : w/o Power Seat

: Junction Block and Wire Harness Connector

Code	See Page	Junction Block and Wire Harness (Connector Location)
1A	25	Engine Room Main Wire and Engine Room J/B (Engine Compartment Left)
1B		
1C		
1D		
1E		
1H		
1J		
1K	25	Engine Wire and Engine Room J/B (Engine Compartment Left)
1L		
2A	28	Instrument Panel Wire and Driver Side J/B (Lower Finish Panel)
2E	28	Engine Room Main Wire and Driver Side J/B (Lower Finish Panel)
2G		
2K	28	Floor Wire and Driver Side J/B (Lower Finish Panel)
2L	29	Instrument Panel Wire and Driver Side J/B (Lower Finish Panel)
2M		
2O		
2P		
2R		
2S		
3A	34	Instrument Panel Wire and Passenger Side J/B (Instrument Panel Brace RH)
3B		

: Connector Joining Wire Harness and Wire Harness

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)
IC2	50	Instrument Panel Wire and Floor Wire (Left Kick Panel)
ID1	50	Engine Room Main Wire and Floor Wire (Left Side of Driver Side J/B)
IF1	50	Engine Room Main Wire and Instrument Panel Wire (Right Side of Steering Column Tube)
IF4		
IF6		
IJ1	51	Instrument Panel Wire and Instrument Panel Wire (Instrument Panel Reinforcement RH)
IL1	51	Engine Wire and Instrument Panel Wire (Behind the Glove Box)
IL2		

: Ground Points

Code	See Page	Ground Points Location
EC	49 (*2)	Left Fender
ED		
EG	49 (*2)	Left Side of Cylinder Head
EH	49 (*2)	Intake Side of Cylinder Block
II	50	Cowl Side Panel LH
BQ	52	Front Side of Rear Quarter Wheel House LH

* 1 : 1MZ–FE, 3MZ–FE * 2 : 2AZ–FE * 3 : w/ Power Seat * 4 : w/o Power Seat