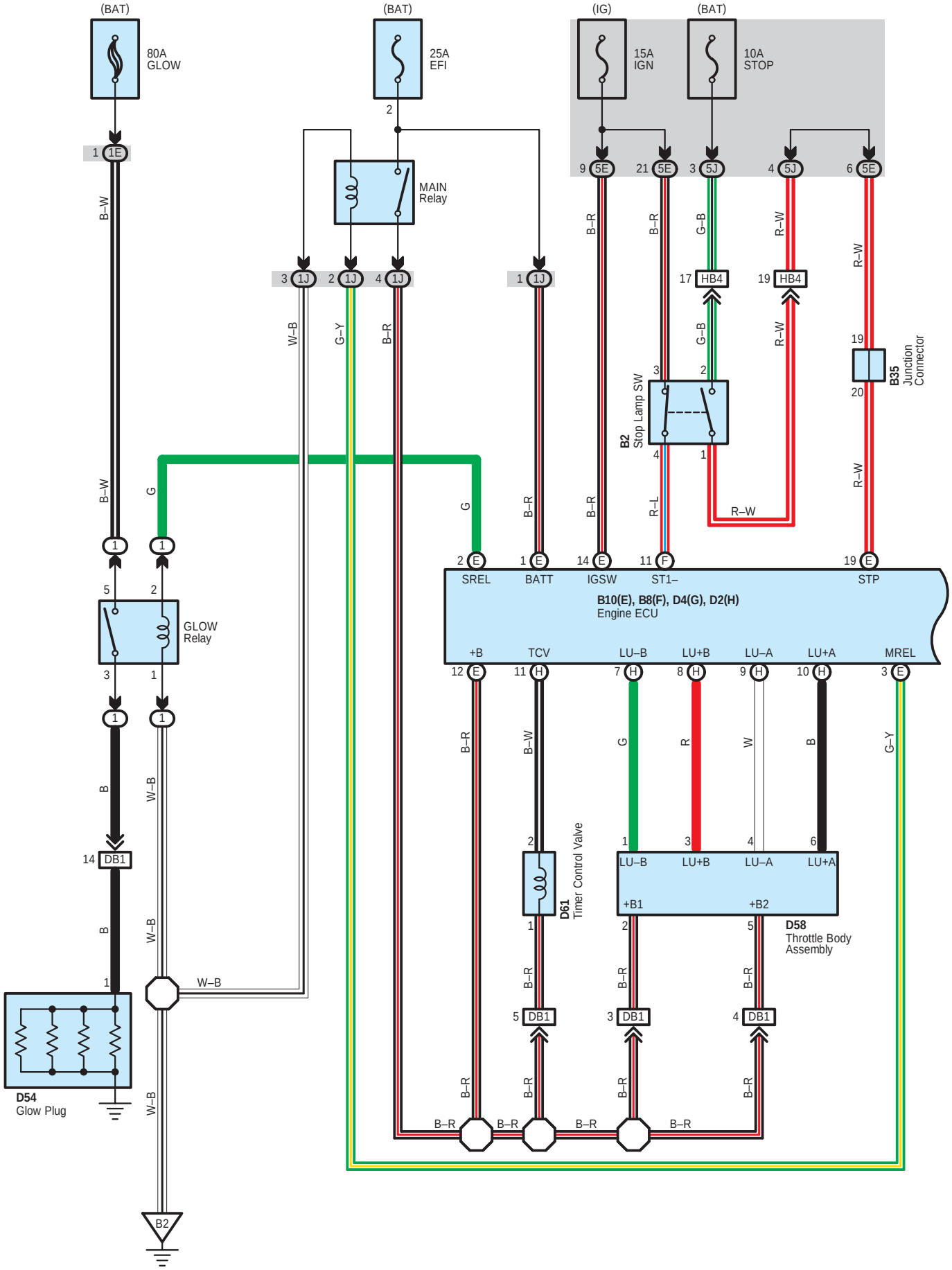
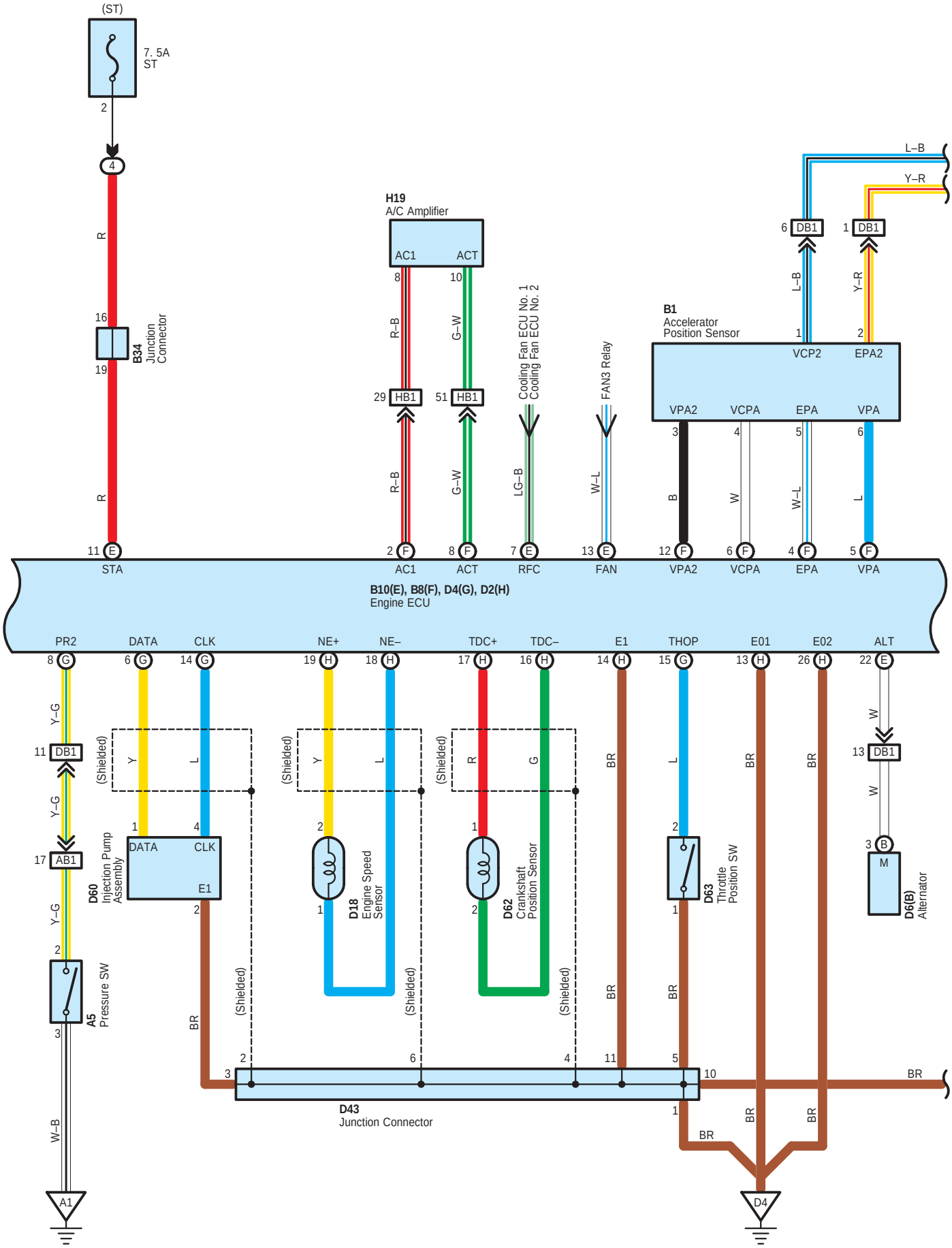
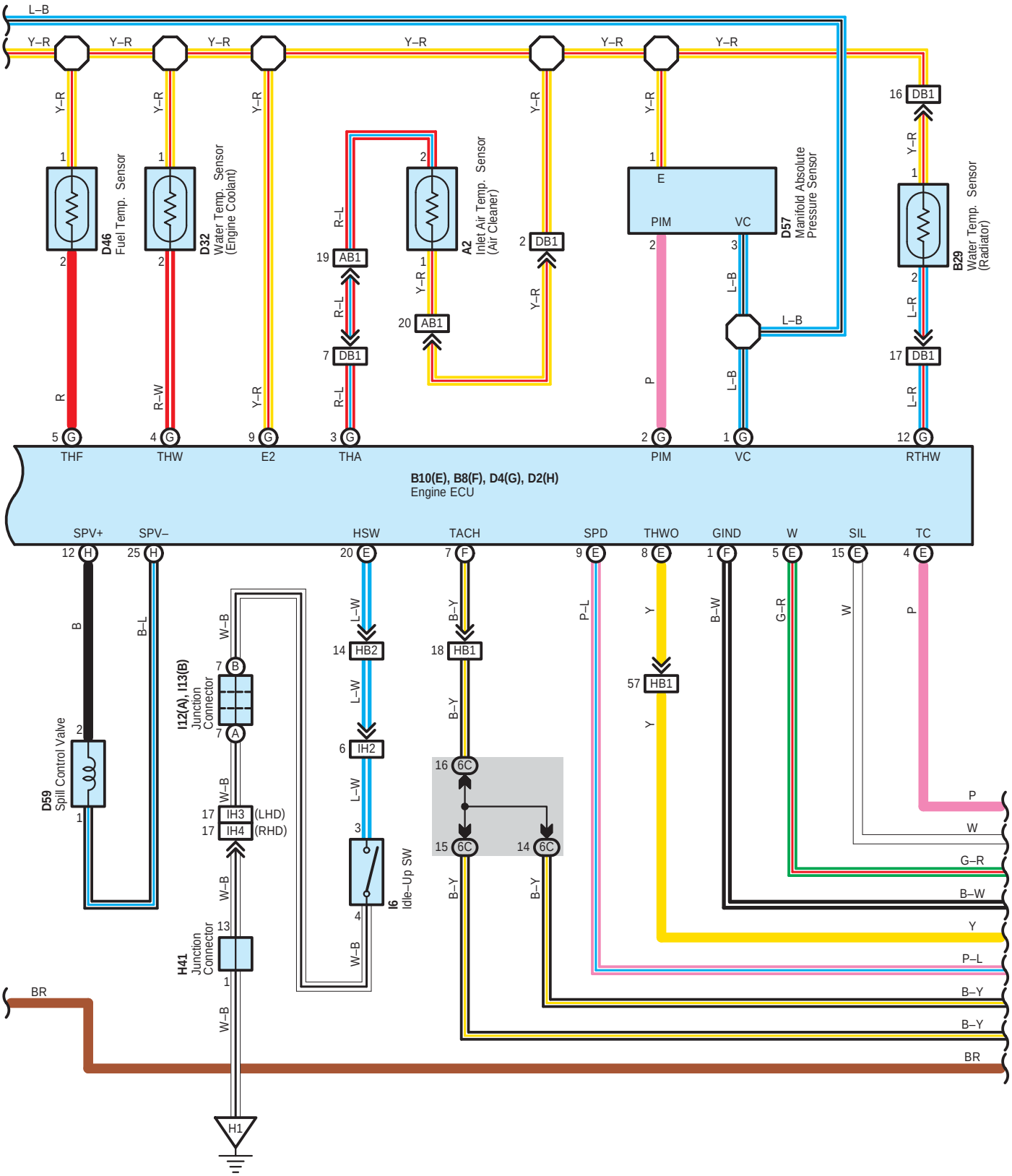
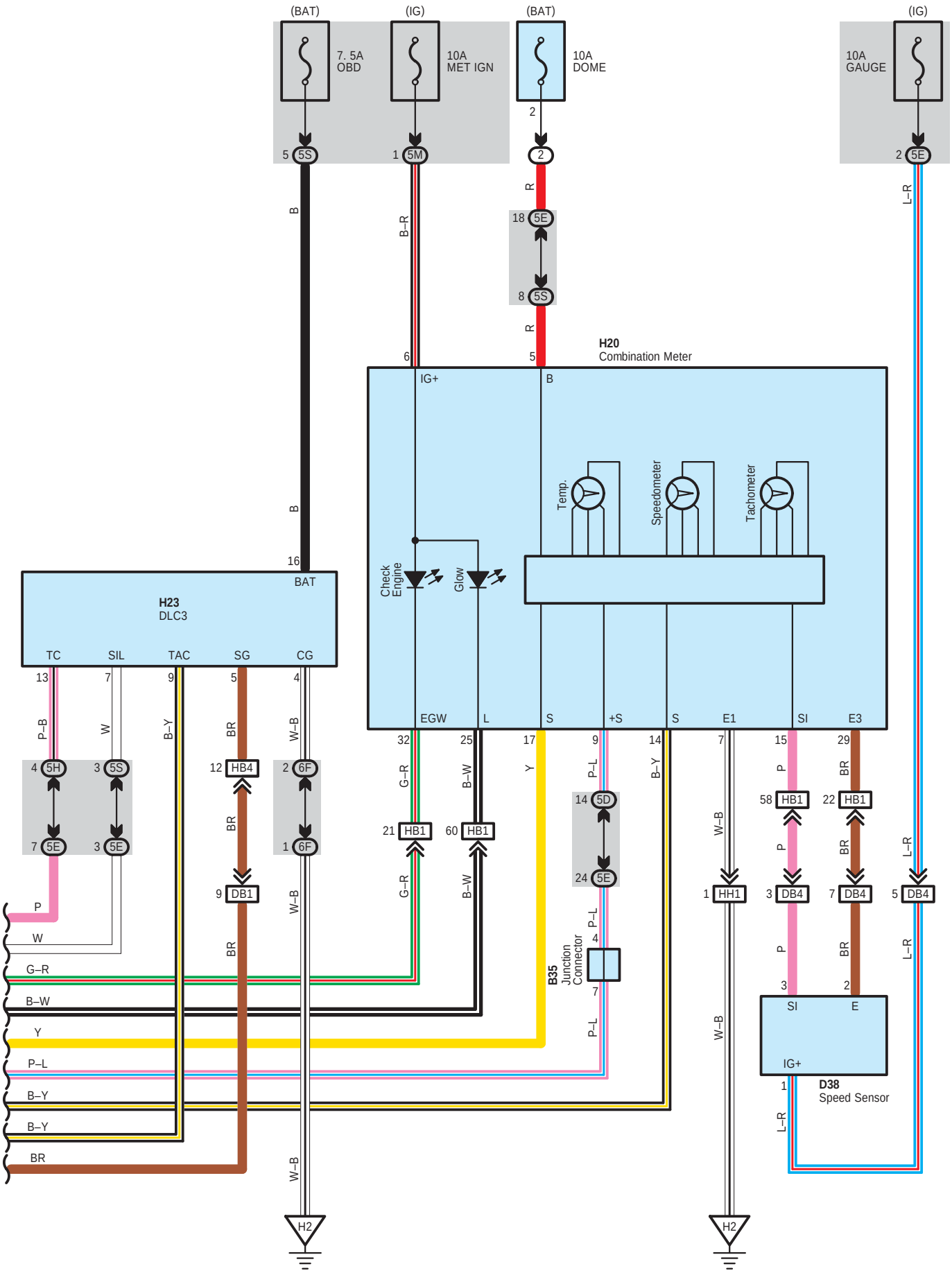

(BAT)
80A
GLOW
(BAT)
25A
EFI
(IG)
15A
IGN
(BAT)
10A
STOP
MAIN
Relay
GLOW
Relay
B2
Stop Lamp SW
B35
Junction
Connector
B10(E), B8(F), D4(G), D2(H)
Engine ECU
SREL
BATT
IGSW
ST1–
STP
+B
TCV
LU–B
LU+B
LU–A
LU+A
MREL
D61
Timer Control Valve
D58
Throttle Body
Assembly
D54
Glow Plug
B2


(ST)
7. 5A
ST
2
4
R
16
B34
Junction
Connector
19
R
11 E
STA
H19
A/C Amplifier
AC1
ACT
8
10
R–B
G–W
29 HB1
51 HB1
R–B
G–W
2 F
AC1
8 F
ACT
Cooling Fan ECU No. 1
Cooling Fan ECU No. 2
LG–B
7 E
RFC
FAN3 Relay
W–L
13 E
FAN
B1
Accelerator
Position Sensor
6 DB1
1 DB1
L–B
Y–R
1
2
VCP2
EPA2
VPA2
VCPA
EPA
VPA
3
4
5
6
B
W
W–L
L
12 F
VPA2
6 F
VCPA
4 F
EPA
5 F
VPA
B10(E), B8(F), D4(G), D2(H)
Engine ECU
PR2
DATA
CLK
NE+
NE–
TDC+
TDC–
E1
THOP
E01
E02
ALT
8 G
6 G
14 G
19 H
18 H
17 H
16 H
14 H
15 G
13 H
26 H
22 E
Y–G
11 DB1
Y–G
17 AB1
Y–G
2
3
W–B
A5
Pressure SW
A1
(Shielded)
Y
L
1
4
DATA
CLK
E1
2
D60
Injection Pump
Assembly
BR
(Shielded)
2
3
(Shielded)
Y
L
2
1
D18
Engine Speed
Sensor
(Shielded)
6
(Shielded)
R
G
1
2
D62
Crankshaft
Position Sensor
(Shielded)
4
BR
BR
BR
L
2
1
D63
Throttle
Position SW
BR
BR
BR
W
13 DB1
W
3 B
M
D6(B)
Alternator
11
5
10
BR
D43
Junction Connector
1
BR
BR
BR
D4


L–B
Y–R
D46 Fuel Temp. Sensor
D32 Water Temp. Sensor (Engine Coolant)
A2 Inlet Air Temp. Sensor (Air Cleaner)
D57 Manifold Absolute Pressure Sensor
B29 Water Temp. Sensor (Radiator)
R
R–W
R–L
L–B
L–R
P
THF
THW
E2
THA
PIM
VC
RTHW
B10(E), B8(F), D4(G), D2(H)
Engine ECU
SPV+
SPV–
HSW
TACH
SPD
THWO
GIND
W
SIL
TC
B
B–L
W–B
L–W
B–Y
P–L
Y
B–W
G–R
W
P
D59 Spill Control Valve
I12(A), I13(B) Junction Connector
I6 Idle–Up SW
H41 Junction Connector
(LHD)
(RHD)
BR
H1


(BAT)
(IG)
(BAT)
(IG)
7. 5A
OBD
10A
MET IGN
10A
DOME
10A
GAUGE
5 5S
1 5M
2
2 5E
R
18 5E
8 5S
R
B
B–R
L–R
H20
Combination Meter
6
5
IG+
B
Temp.
Speedometer
Tachometer
Check
Engine
Glow
B
16
BAT
H23
DLC3
TC
SIL
TAC
SG
CG
EGW
L
S
+S
S
E1
SI
E3
13
7
9
5
4
32
25
17
9
14
7
15
29
P–B
W
B–Y
BR
W–B
G–R
B–W
Y
P–L
B–Y
W–B
P
BR
4 5H
3 5S
7 5E
3 5E
12 HB4
2 6F
1 6F
9 DB1
21 HB1
60 HB1
14 5D
24 5E
1 HH1
58 HB1
22 HB1
3 DB4
7 DB4
5 DB4
B35
Junction
Connector
4
7
3
2
SI
E
IG+
1
D38
Speed Sensor
H2
H2

System Outline

The engine control system utilizes a microcomputer and maintains overall control of the engine, etc. An outline of the engine control is given here.

1. Input Signals

(1) Water temp. signal system

The water temp. sensor (Engine coolant) detects the engine coolant temp. and has a built–in thermistor with a resistance which varies according to the engine coolant temp. Thus the engine coolant temp. is input in the form of a control signal to TERMINAL THW of the engine ECU.

(2) Intake air temp. signal system

The inlet air temp. sensor (Air cleaner) is detects the intake air temp., which is input as a control signal to TERMINAL THA of the engine ECU.

(3) RPM signal system

Crankshaft position and camshaft position are detected by the crankshaft position sensor and engine speed sensor. Crankshaft position is input as a control signal to TERMINAL TDC+ of the engine ECU, and RPM is input to TERMINAL NE+.

(4) Throttle signal system

The accelerator position sensor detects the accelerator pedal opening angle, which is input as a control signal to TERMINALS VPA, VPA2 of the engine ECU.

(5) Vehicle speed signal system

The speed sensor detects the vehicle speed and input a control signal to TERMINAL SP1 of the engine ECU via the combination meter.

(6) A/C SW signal system

The operating voltage of the A/C amplifier is detected and input in the form of a control signal to TERMINAL AC1 of the engine ECU.

(7) Battery signal system

Voltage is constantly applied to TERMINAL BATT of the engine ECU. When the ignition SW is turned to on, voltage for engine ECU operation is applied via the MAIN relay to TERMINAL +B of the engine ECU.

(8) STA signal system

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

(9) Fuel temp. signal system

The fuel temp. sensor is detects the fuel temp., which is input as a control signal to TERMINAL THF of the engine ECU.

(10) Intake air vacuum pressure signal system

Intake air vacuum pressure is detected by the manifold absolute pressure sensor and is input as a control signal to TERMINAL PIM of the engine ECU.

2. Control System

* Fuel injection volume control system
  The fuel injection volume control system monitors the engine conditions through the signals input from each sensors to the engine ECU. Engine ECU has basic data and the program (Memorized in the engine ECU) and decides the most appropriate fuel injection volume, and outputs the current to the TERMINAL SPV+ of the engine ECU, causing the spill control valve to operate it.
* Fuel injection timing control system
  The fuel injection timing control system monitors the engine conditions through the signals input from each sensors to the engine ECU. Engine ECU has basic data and the program (Memorized in the engine ECU) and decides the most appropriate fuel injection timing, and outputs the current to the TERMINAL TCV of the engine ECU, causing the timing control valve to operate it.
* GLOW relay control system
  When the engine starts, the GLOW relay is controlled in response to engine coolant temp. At that time, the engine ECU receives the signals, and the current is output to the TERMINALS SREL and GIND.
  As a result, the engine ECU controls the GLOW relay and makes the glow indicator light come on.
* A/C cut control system
  When the vehicle suddenly accelerates from low engine speed, this system cuts off air conditioner operation for a fixed period of time in response to the vehicle speed, throttle valve opening angle and intake manifold pressure in order to maintain acceleration performance.
  The engine ECU receives input signals, and outputs signals to TERMINAL ACT.

3. Diagnosis System

With the diagnosis system, when there is a malfunctioning in the engine ECU signal system, the malfunction system is recorded in the memory. The malfunctioning system can be found by reading the display (Code) of the check engine warning light.

4. Fail–Safe System

When a malfunction occurs 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 ECU memory or else stops the engine.

○ : Parts Location

Code	See Page	Code	See Page	Code	See Page
A2	48 (LHD)	D6 B	46 (*3)	D61	46 (*3)
	56 (RHD)		54 (*6)		54 (*6)
A5	48 (LHD)	D18	46 (*3)	D62	46 (*3)
	56 (RHD)		54 (*6)		54 (*6)
B1	48 (LHD)	D32	46 (*3)	D63	46 (*3)
	56 (RHD)		54 (*6)		54 (*6)
B2	48 (LHD)	D38	46 (*3)	H19	49 (LHD)
	56 (RHD)		54 (*6)		57 (RHD)
B8 F	46 (*3)	D43	46 (*3)	H20	49 (LHD)
	54 (*6)		54 (*6)		57 (RHD)
B10 E	46 (*3)	D46	46 (*3)	H23	49 (LHD)
	54 (*6)		54 (*6)		57 (RHD)
B29	46 (*3)	D54	46 (*3)	H41	49 (LHD)
	54 (*6)		54 (*6)		57 (RHD)
B34	48 (LHD)	D57	46 (*3)	I6	48 (LHD)
	56 (RHD)		54 (*6)		56 (RHD)
B35	46 (*3)	D58	46 (*3)	I12 A	48 (LHD)
	54 (*6)		54 (*6)		56 (RHD)
D2 H	46 (*3)	D59	46 (*3)	I13 B	48 (LHD)
	54 (*6)		54 (*6)		56 (RHD)
D4 G	46 (*3)	D60	46 (*3)		
	54 (*6)		54 (*6)		

* 1 : LHD 2TR–FE * 2 : LHD 2KD–FTV * 3 : LHD 5L–E * 4 : RHD 2TR–FE * 5 : RHD 2KD–FTV * 6 : RHD 5L–E * 7 : 2TR–FE
* 8 : 2KD–FTV, 5L–E

: Relay Blocks

Code	See Page	Relay Blocks (Relay Block Location)
1	23 (*8)	Engine Room R/B No.1 (Engine Compartment Front)
2	28	Engine Room R/B No.2 (Inside of Battery Room)
4	29	Instrument Panel R/B (Under the Glove Box)

: Junction Block and Wire Harness Connector

Code	See Page	Junction Block and Wire Harness (Connector Location)
1E	24	Engine Room Main Wire and Engine Room J/B No.1 (Engine Compartment Front)
1J	25	
5D	30	Instrument Panel Wire and Instrument Panel J/B (Left Side of Instrument Panel)
5E	30	Engine Room Main Wire and Instrument Panel J/B (Left Side of Instrument Panel)
5H	30	Instrument Panel Wire and Instrument Panel J/B (Left Side of Instrument Panel)
5J		
5M	31	
5S		
6C	38 (LHD)	Instrument Panel Wire and Center J/B (Instrument Panel Reinforcement LH)
	38 (RHD)	Instrument Panel Wire and Center J/B (Instrument Panel Reinforcement RH)
6F	38 (LHD)	Instrument Panel Wire and Center J/B (Instrument Panel Reinforcement LH)
	38 (RHD)	Instrument Panel Wire and Center J/B (Instrument Panel Reinforcement RH)

: Connector Joining Wire Harness and Wire Harness

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)
AB1	64 (LHD)	Cowl to Head Lamp Wire and Engine Room Main Wire (Left Side of the Instrument Panel J/B)
	72 (RHD)	
DB1	62 (*3)	Engine Wire and Engine Room Main Wire (Front Side of Engine Room R/B No.1)
	70 (*6)	
DB4	62 (*3)	
	70 (*6)	
HB1	64 (LHD)	Instrument Panel Wire and Engine Room Main Wire (Under the Instrument Panel J/B)
	72 (RHD)	
HB2	64 (LHD)	
	72 (RHD)	
HB4	64 (LHD)	
	72 (RHD)	
HH1	64 (LHD)	Instrument Panel Wire and Instrument Panel Wire (Near the Steering Column)
	72 (RHD)	Instrument Panel Wire and Instrument Panel Wire (Instrument Panel Reinforcement RH)
IH2	64 (LHD)	Instrument Panel No.2 Wire and Instrument Panel Wire (Instrument Panel Reinforcement LH)
	72 (RHD)	
IH3	64 (LHD)	Instrument Panel No.2 Wire and Instrument Panel Wire (Instrument Panel Reinforcement RH)
IH4	72 (RHD)	

* 1 : LHD 2TR–FE * 2 : LHD 2KD–FTV * 3 : LHD 5L–E * 4 : RHD 2TR–FE * 5 : RHD 2KD–FTV * 6 : RHD 5L–E * 7 : 2TR–FE
* 8 : 2KD–FTV, 5L–E

▽ : **Ground Points**

Code	See Page	Ground Points Location
A1	64 (LHD)	Dash Panel Right
	72 (RHD)	
B2	62 (*3)	Front Floor Panel Right
	70 (*6)	
D4	62 (*3)	Engine Block
	70 (*6)	
H1	64 (LHD)	Instrument Panel Reinforcement
	72 (RHD)	
H2	64 (LHD)	
	72 (RHD)	

* 1 : LHD 2TR–FE * 2 : LHD 2KD–FTV * 3 : LHD 5L–E * 4 : RHD 2TR–FE * 5 : RHD 2KD–FTV * 6 : RHD 5L–E * 7 : 2TR–FE
* 8 : 2KD–FTV, 5L–E