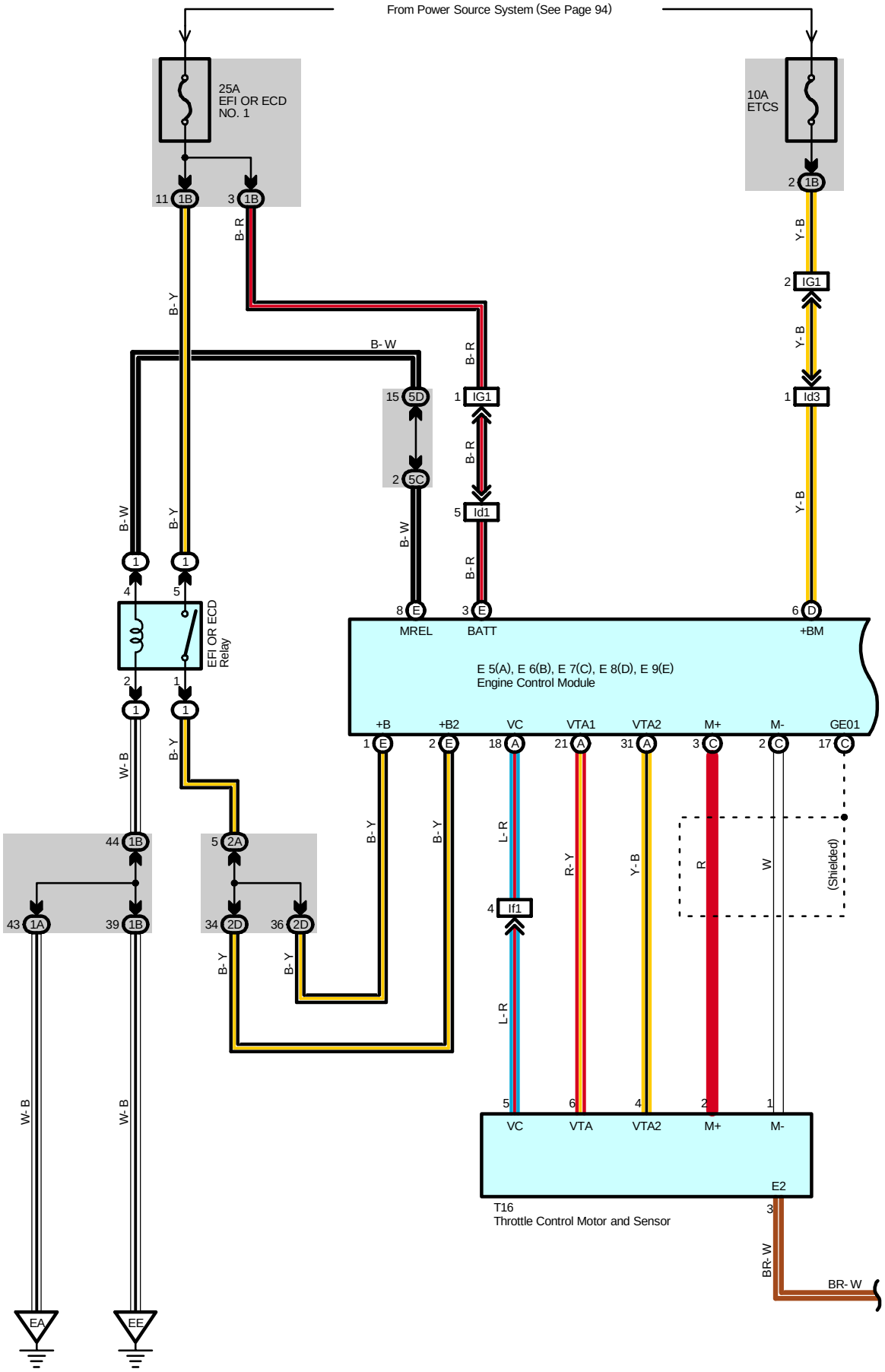
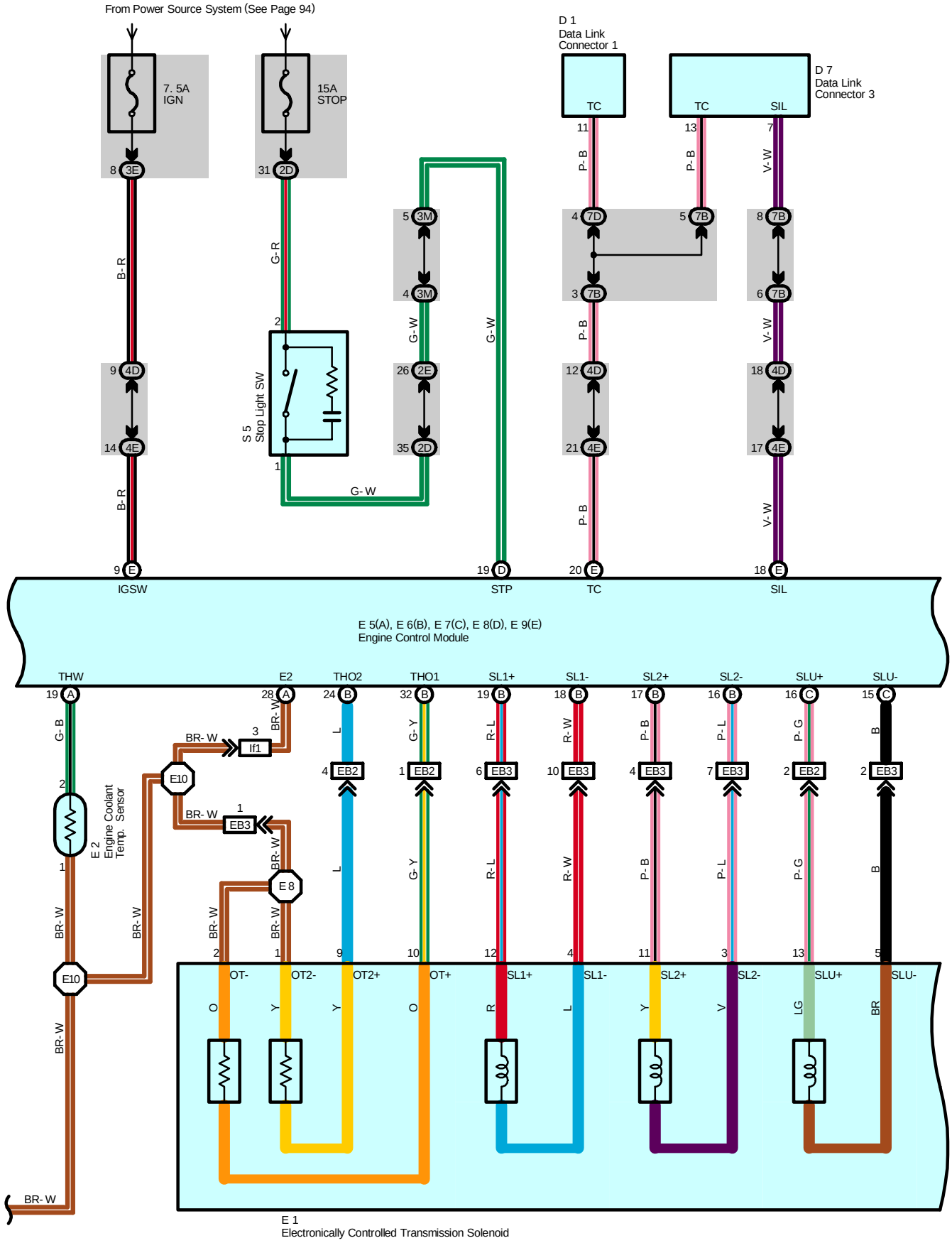
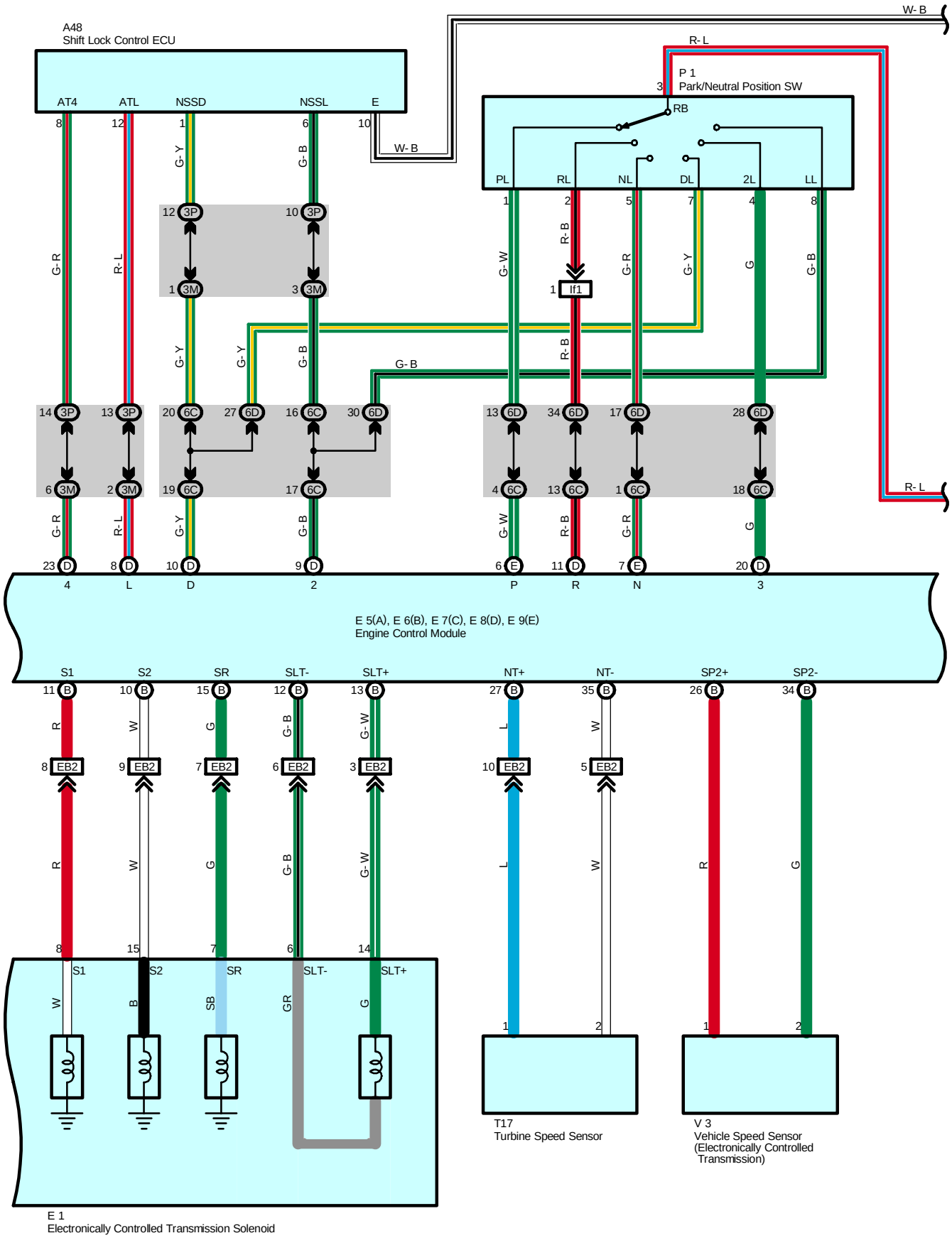
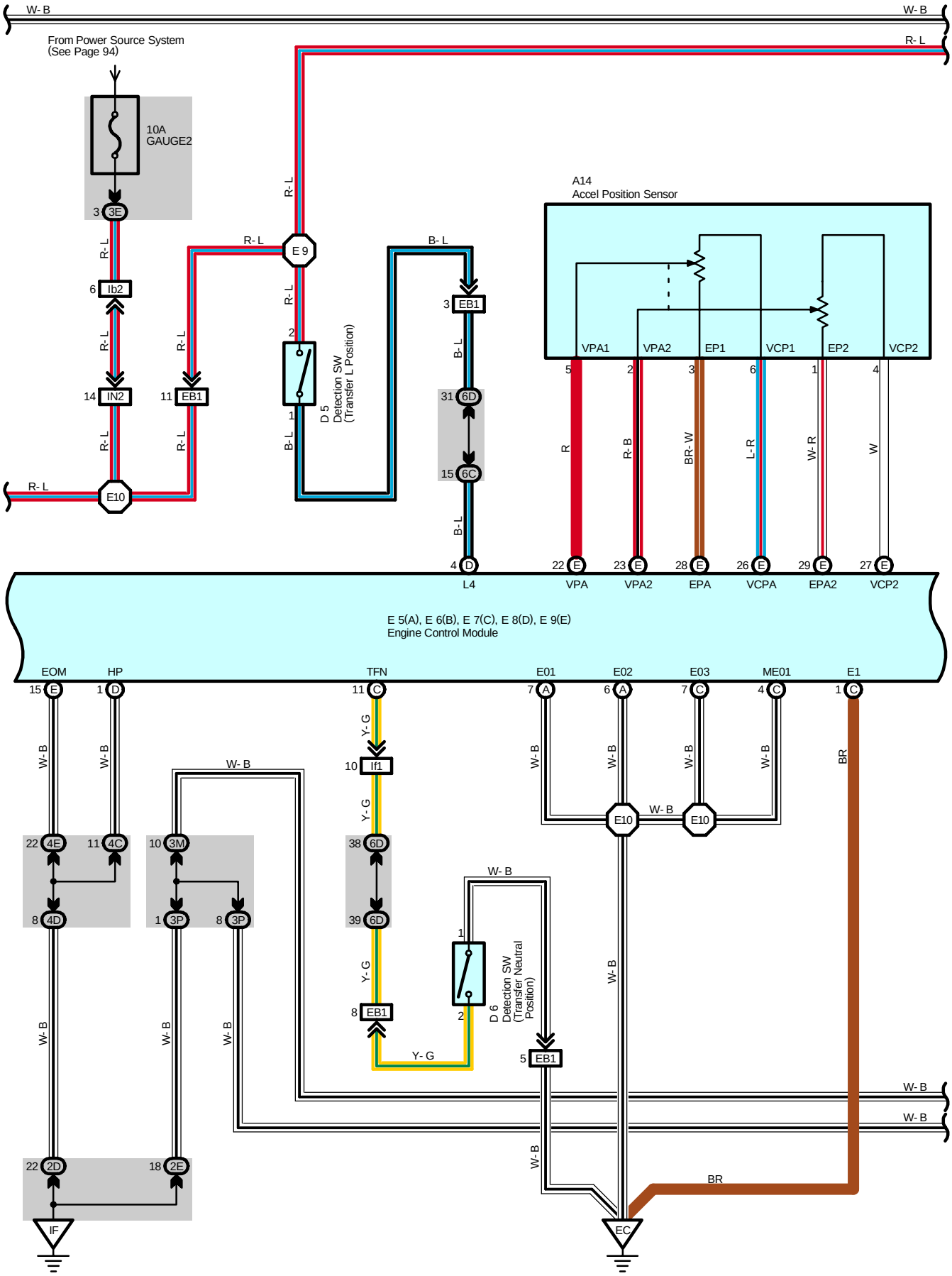
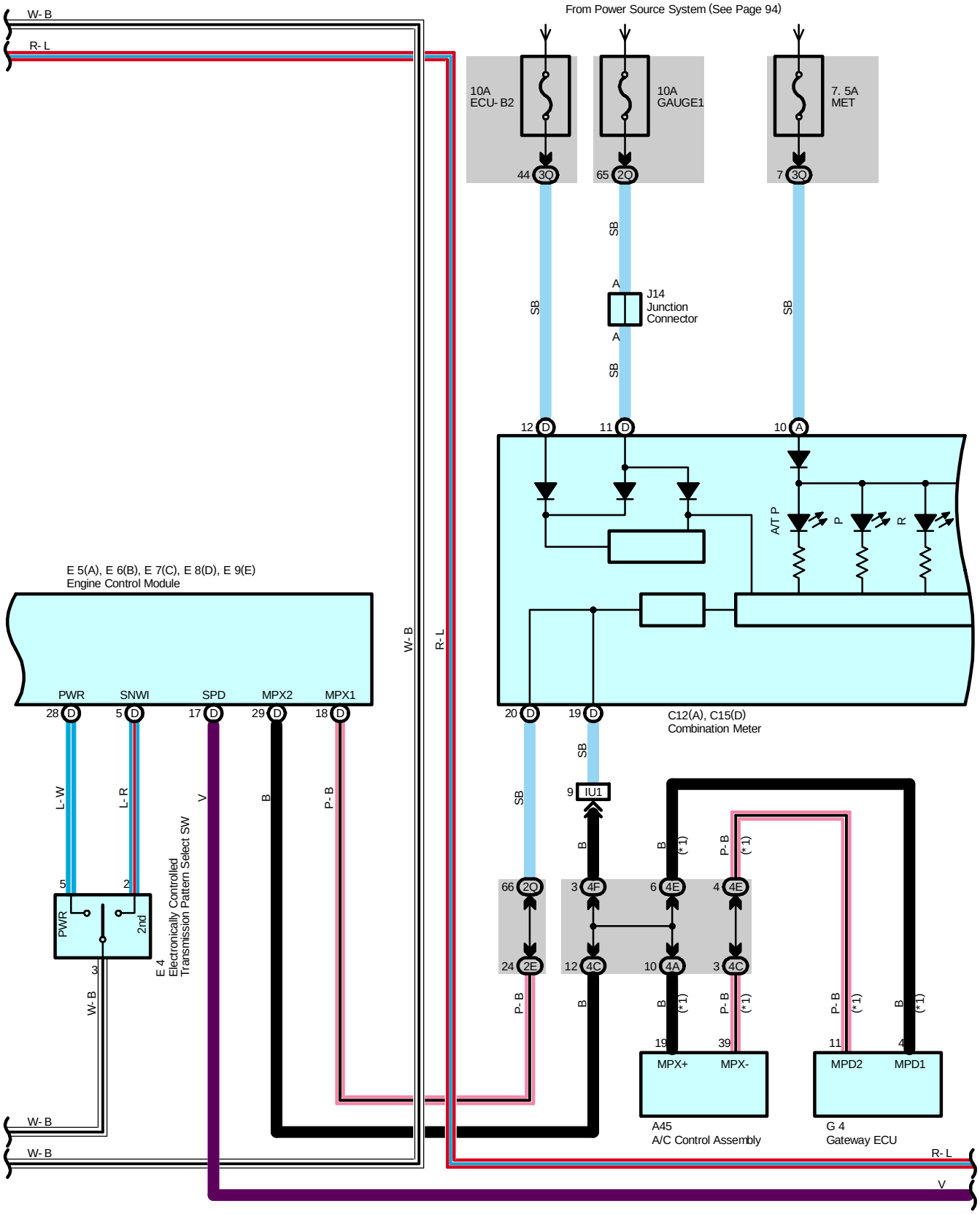

From Power Source System (See Page 94)
25A
EFI OR ECD
NO. 1
10A
ETCS
EFI OR ECD
Relay
E 5(A), E 6(B), E 7(C), E 8(D), E 9(E)
Engine Control Module
MREL
BATT
+BM
+B
+B2
VC
VTA1
VTA2
M+
M-
GE01
T16
Throttle Control Motor and Sensor
VC
VTA
VTA2
M+
M-
E2
(Shielded)
EA
EE

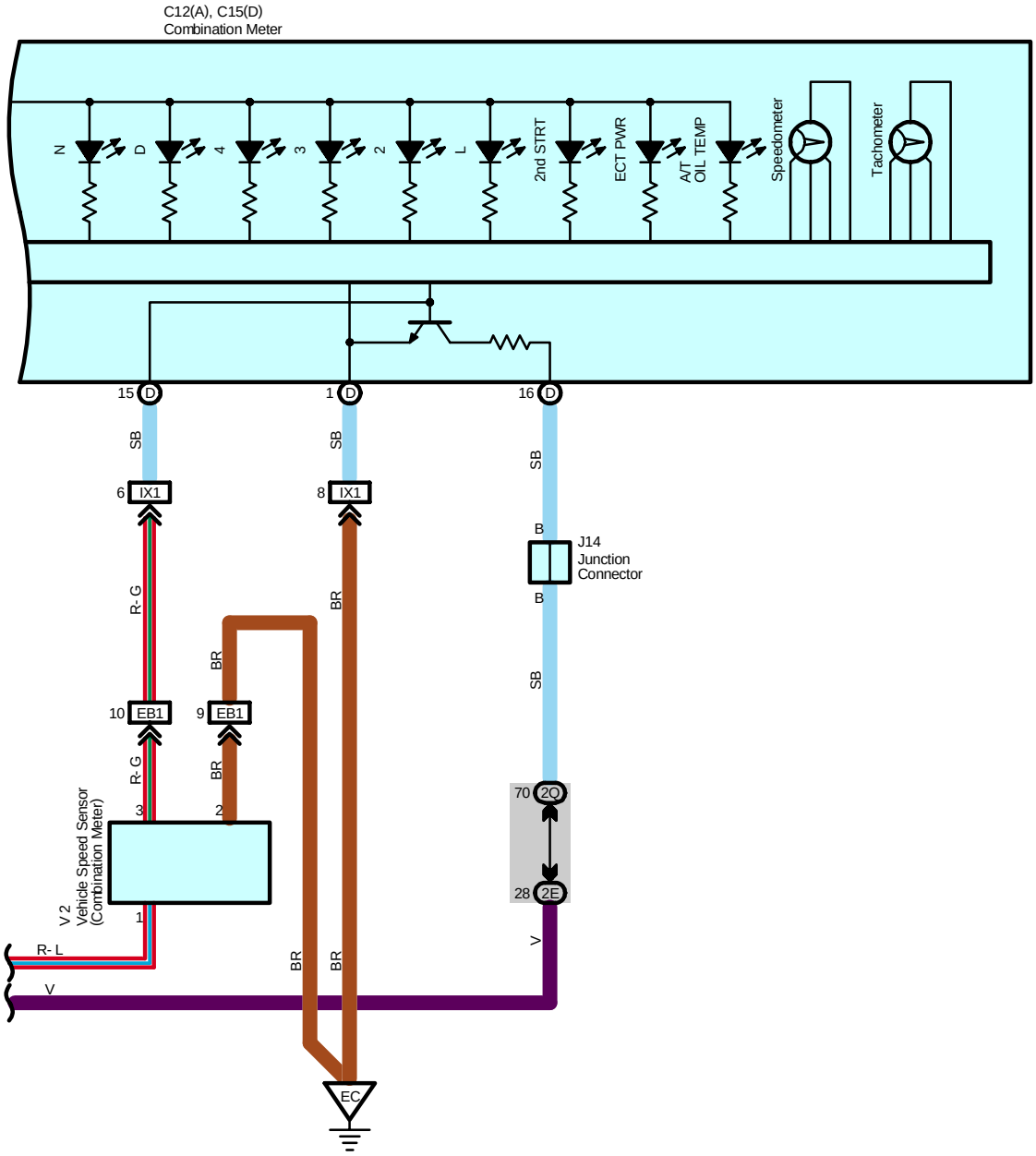

From Power Source System (See Page 94)
7. 5A
IGN
15A
STOP
D 1
Data Link
Connector 1
D 7
Data Link
Connector 3
TC
SIL
Stop Light SW
S 5
IGSW
STP
E 5(A), E 6(B), E 7(C), E 8(D), E 9(E)
Engine Control Module
THW
E2
THO2
THO1
SL1+
SL1-
SL2+
SL2-
SLU+
SLU-
Engine Coolant
Temp. Sensor
E 2
OT-
OT2-
OT2+
OT+
E 1
Electronically Controlled Transmission Solenoid


A48
Shift Lock Control ECU
AT4
ATL
NSSD
NSSL
E
W- B
R- L
P 1
Park/Neutral Position SW
RB
PL
RL
NL
DL
2L
LL
If1
E 5(A), E 6(B), E 7(C), E 8(D), E 9(E)
Engine Control Module
S1
S2
SR
SLT-
SLT+
NT+
NT-
SP2+
SP2-
E 1
Electronically Controlled Transmission Solenoid
T17
Turbine Speed Sensor
V 3
Vehicle Speed Sensor
(Electronically Controlled
Transmission)


W- B
W- B
From Power Source System
(See Page 94)
R- L
10A
GAUGE2
3E
R- L
6
Ib2
R- L
14
IN2
R- L
R- L
E10
R- L
R- L
11
EB1
R- L
R- L
E 9
2
D 5
Detection SW
(Transfer L Position)
1
B- L
B- L
3
EB1
B- L
31
6D
15
6C
B- L
4
D
L4
A14
Accel Position Sensor
VPA1
VPA2
EP1
VCP1
EP2
VCP2
5
2
3
6
1
4
R
R- B
BR- W
L- R
W- R
W
22
E
VPA
23
E
VPA2
28
E
EPA
26
E
VCPA
29
E
EPA2
27
E
VCP2
E 5(A), E 6(B), E 7(C), E 8(D), E 9(E)
Engine Control Module
EOM
HP
TFN
E01
E02
E03
ME01
E1
15
E
1
D
11
C
7
A
6
A
7
C
4
C
1
C
W- B
W- B
Y- G
BR
W- B
10
If1
Y- G
W- B
W- B
W- B
W- B
E10
W- B
E10
22
4E
11
4C
10
3M
38
6D
8
4D
1
3P
8
3P
39
6D
W- B
1
Y- G
D 6
Detection SW
(Transfer Neutral
Position)
2
8
EB1
Y- G
5
EB1
W- B
W- B
W- B
W- B
W- B
BR
22
2D
18
2E
IF
EC


From Power Source System (See Page 94)
W- B
R- L
10A
ECU- B2
10A
GAUGE1
7. 5A
MET
44 3Q
65 2Q
7 3Q
SB
A
J14
Junction
Connector
A
SB
SB
12 D
11 D
10 A
A/T P
P
R
E 5(A), E 6(B), E 7(C), E 8(D), E 9(E)
Engine Control Module
PWR
SNWI
SPD
MPX2
MPX1
28 D
5 D
17 D
29 D
18 D
L- W
L- R
V
B
P- B
W- B
R- L
20 D
19 D
C12(A), C15(D)
Combination Meter
SB
9 IU1
B
66 2Q
3 4F
6 4E
4 4E
24 2E
12 4C
10 4A
3 4C
(*1)
P- B
19
39
11
4
MPX+
MPX-
MPD2
MPD1
A45
A/C Control Assembly
G 4
Gateway ECU
E 4
Electronically Controlled
Transmission Pattern Select SW
PWR
2nd
5
2
3
W- B
W- B
W- B
R- L
V

* 1 : w/ Navigation System



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 position sensor is input to TERMINALS VTA1 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. Line Hydraulic Pressure Control

The engine control module adjusts the line hydraulic pressure to the optimal level by controlling TERMINAL SLT+ of the module according to the engine torque data. This realizes the smooth gear shifting.

3. High Response Gear Shifting Control

The engine control module performs the high response engine torque up control to control the ignition-timing lag as well as opening the electronic throttle when shifting down. By doing this, the gear shifting is performed in a short period of time. Moreover, the engine control module uses the orifice switching control, which optimizes the speed of applying and reducing the hydraulic pressure. And it realizes the fine shifting condition by applying and reducing hydraulic pressure slowly when the gear shifting shock is important and quickly when the high response is required.

4. Clutch Hydraulic Pressure Control

The engine control module controls the clutch operation in the optimal timing and with the best hydraulic pressure according to the engine torque data and the number of the clutch revolution

5. Lock-Up and Flexible Lock-Up Control

The engine control module carries out the lock-up control by controlling the TERMINAL SLU+ of the module according to the shift position, vehicle speed, throttle opening degree and running conditions. The engine control module also steadily keeps applying the lock-up clutch a delicate slippage to improve the transmission efficiency (Fuel efficiency) of the torque converter.

6. 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.

7. Ai-Shift Control

The engine control module judges whether the road is downslope or upslope by detecting the throttle opening degree or the vehicle's speed. Moreover it can expect the winding roads by detecting the turning condition of the vehicle. The engine control module keeps unnecessary shifting up from the fourth gear from operating and carries out the automatic shifting down to the third gear in order to control the vehicle running according to the road conditions. The engine control module also reads the driver's intention during driving from his (her) accelerating operation and the running conditions of the vehicle. As a result of that, ideal shifting patters for each driver are automatically selected without any switching operations.

8. 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 engine control module. This enables shift-up and shift-down at a higher speed range.

9. Transfer Shift Operation

When the transfer shift lever is moved to L position, a signal is input into TERMINAL L4 of the engine control module.
In addition when the transfer shift lever is moved to N position a signal is input to engine control module TERMINAL TFN.
The engine control module detects the transfer condition through this.

Service Hints

E4 Electronically Controlled Transmission Pattern Select SW

5-3 : Closed with select SW at PWR position
2-3 : Closed with select SW at 2nd position

E7 (C), E9 (E) Engine Control Module

BATT-E1 : Always 9.0-14.0 volts
+B-E1 : 9.0-14.0 volts with ignition SW at ON or ST position
+B2-E1 : 9.0-14.0 volts with ignition SW at ON or ST position
IGSW-E1 : 9.0-14.0 volts with ignition SW at ON or ST position

P1 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
3-4 : Closed with shift lever in 2 position
3-8 : Closed with shift lever in L position

○ : Parts Location

Code	See Page	Code	See Page	Code	See Page
A14	70	E1	68	J14	71
A45	70	E2	68	P1	69
A48	70	E4	70	S5	71
C12 A	70	E5 A	70	T16	69
C15 D	70	E6 B	70	T17	69
D1	68	E7 C	70	V2	69
D5	68	E8 D	70	V3	69
D6	68	E9 E	70		
D7	70	G4	70		

▭ : Relay Blocks

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

 : **Junction Block and Wire Harness Connector**

Code	See Page	Junction Block and Wire Harness (Connector Location)
1A	24	Engine Room Main Wire and Engine Room J/B (Engine Compartment Left)
1B	24	Engine Room No.2 Wire and Engine Room J/B (Engine Compartment Left)
2A	28	Engine Room No.2 Wire and Cowl Side J/B LH (Left Kick Panel)
2D	28	Dash Wire and Cowl Side J/B LH (Left Kick Panel)
2E		
2Q	30	Instrument Panel Integration Wire and Cowl Side J/B LH (Left Kick Panel)
3E	40	Dash Wire and Cowl Side J/B RH (Right Kick Panel)
3M	43	
3P		
3Q	42	Instrument Panel Integration Wire and Cowl Side J/B RH (Right Kick Panel)
4A	52	Dash Wire and J/B No.4 (Instrument Panel Center)
4C		
4D		
4E		
4F		
5C	56	Dash Wire and J/B No.5 (Behind the Combination Meter)
5D	56	Engine Room No.2 Wire and J/B No.5 (Behind the Combination Meter)
6C	60	Dash Wire and J/B No.6 (Behind the Grove Box)
6D	60	Engine Wire and J/B No.6 (Behind the Grove Box)
7B	64	Dash Wire and J/B No.7 (Behind the Grove Box)
7D	64	Engine Room No.2 Wire and J/B No.7 (Behind the Grove Box)

 : **Connector Joining Wire Harness and Wire Harness**

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)
EB1	76	Engine Wire and Transmission Wire (On the Transmission)
EB2		
EB3		
IG1	78	Engine Room No.2 Wire and Dash Wire (Behind the Combination Meter)
IN2	80	Engine Wire and Dash Wire (Behind the Glove Box)
IU1	82	Instrument Panel Integration Wire and Dash Wire (Behind the Glove Box)
IX1	82	Instrument Panel Integration Wire and Engine Wire (Behind the Glove Box)
Ib2	84	Dash Wire and Dash Wire (Behind the Combination Meter)
Id1	84	Dash Wire and Dash Wire (Instrument Panel Center)
Id3		
If1	84	Engine Wire and Engine Wire (Behind the Glove Box)

 : **Ground Points**

Code	See Page	Ground Points Location
EA	76	Front Right Side of Fender Apron
EC	76	Rear Bank of Right Cylinder Head
EE	76	Front Left Side of Fender Apron
IF	78	Set Bolt of Cowl Side J/B LH

 : **Splice Points**

Code	See Page	Wire Harness with Splice Points	Code	See Page	Wire Harness with Splice Points
E8	76	Transmission Wire	E10	76	Engine Wire
E9					