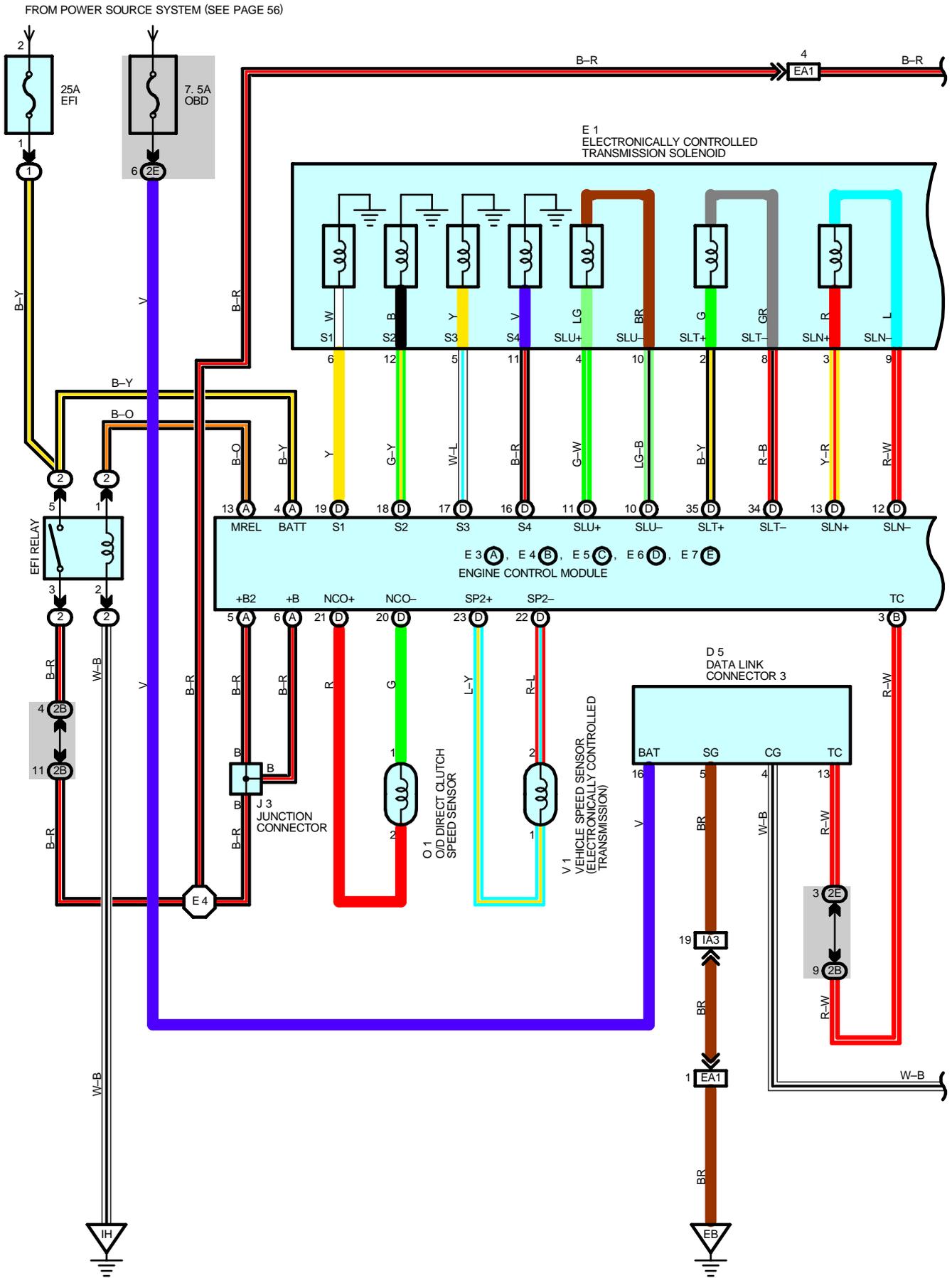
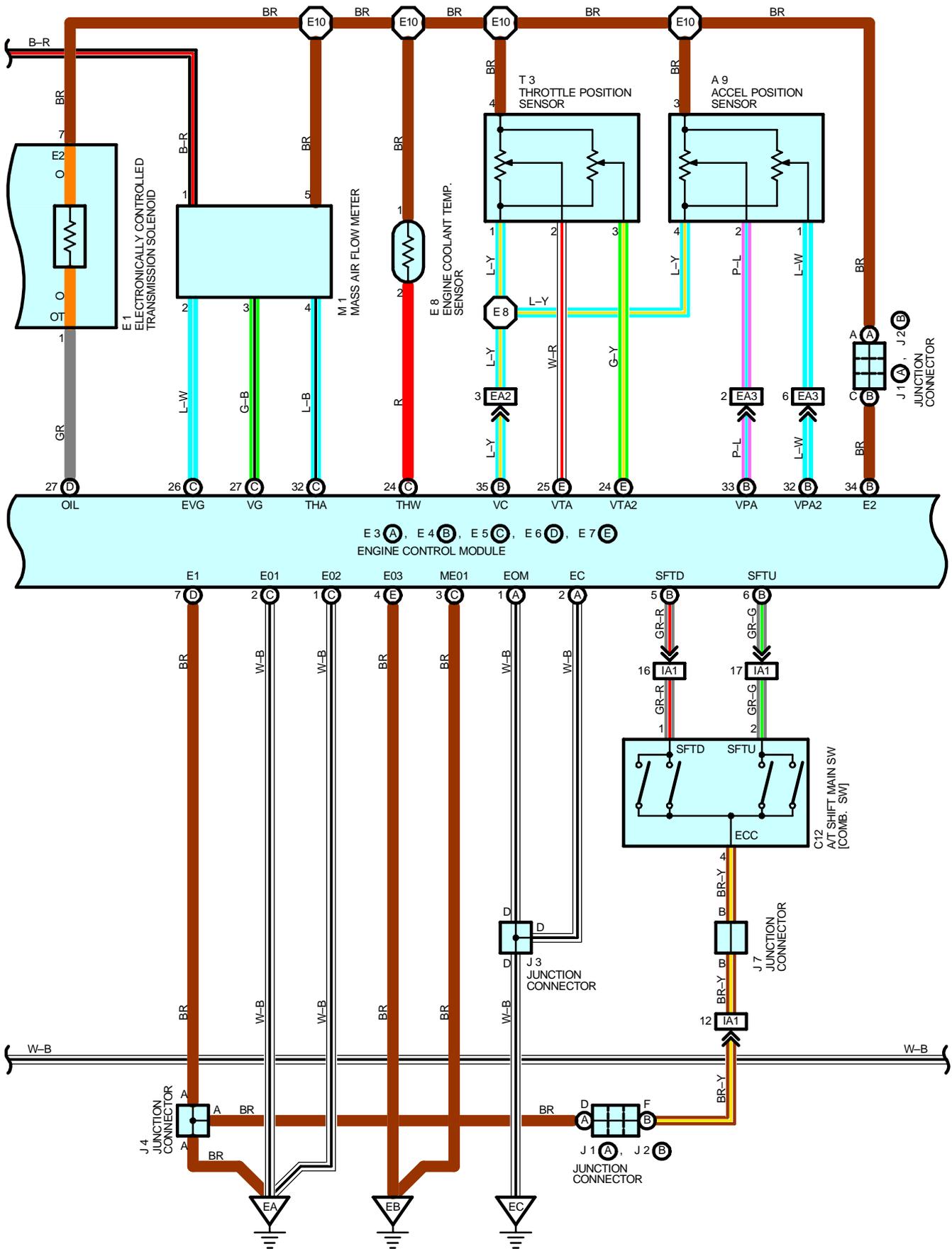
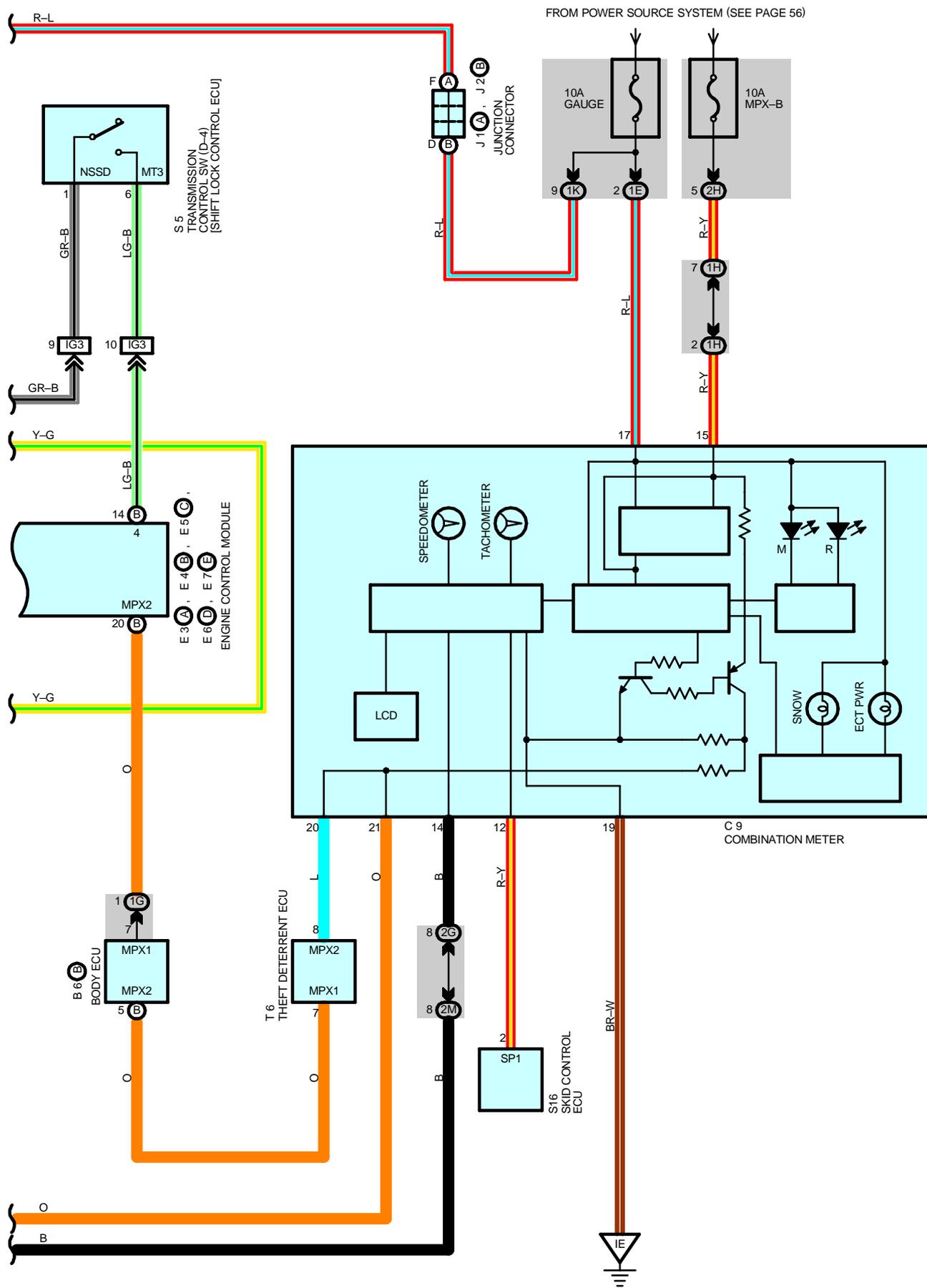


# ELECTRONICALLY CONTROLLED TRANSMISSION AND A/T INDICATOR









# ELECTRONICALLY CONTROLLED TRANSMISSION AND A/T INDICATOR

## 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 VTA 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. LOCK-UP OPERATION

When the engine control module decides based on each signal that the lock-up condition has been met, the current flows through TERMINAL SLU+ of the engine control module to TERMINAL 4 of the electronically controlled transmission solenoid to TERMINAL 10 to TERMINAL SLU- of the engine control module to GROUND.

### 3. 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.

### 4. 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 A/C control assembly, and control signals are distributed to the engine control module through communication control of the body ECU. This enables shift-up and shift-down at a higher speed range.

### 5. E-SHIFT SYSTEM

When the shift lever is set to the M position, the shift range can be switched with the UP or DOWN switch on the steering. (This limits to the maximum gear step and enables automatic shift-up and shift-down within the allowable range.)

## SERVICE HINTS

### E1 ELECTRONICALLY CONTROLLED TRANSMISSION SOLENOID

4-10 : **5.0-5.6** Ω

5, 6, 11, 12-GROUND : **11-15** Ω

### E12 ELECTRONICALLY CONTROLLED TRANSMISSION PATTERN SELECT SW

2-4 : Closed with the select SW at **PWR** position

5-4 : Only closed with the select SW at **SNOW** position

### E3 (A), E4 (B), E5 (C), E6 (D), E7 (E) ENGINE CONTROL MODULE

BATT-GROUND : Always approx. **12** volts

+B, +B2-GROUND : Approx. **12** volts with the ignition SW at **ON** position

STA-GROUND : Approx. **12** volts with the ignition SW at **ST** position and shift lever in **P** or **N** position

STP-GROUND : Approx. **12** volts with the brake pedal depressed

E01, E02, E03, ME01, E1, EC, EOM-GROUND : Always continuity

### P1 A/T INDICATOR LIGHT SW [PARK / NEUTRAL POSITION SW]

3-1 : Closed with the shift lever in **P** position

3-2 : Closed with the shift lever in **R** position

3-5 : Closed with the shift lever in **N** position

3-7 : Closed with the shift lever in **D** position or **M** position

3-4 : Closed with the shift lever in **3** position

3-8 : Closed with the shift lever in **2** position or **L** position

 : PARTS LOCATION

Code	See Page	Code	See Page	Code	See Page
A9	32	E5	C 32	M1	33
A12	A 34	E6	D 32	O1	33
A13	B 34	E7	E 32	P1	33
B6	B 34	E8	32	S5	35
C9	34	E12	35	S8	35
C12	34	J1	A 33	S16	35
D5	34	J2	B 33	T3	33
E1	32	J3	33	T6	35
E3	A 32	J4	33	T8	35
E4	B 32	J7	35	V1	33

 : RELAY BLOCKS

Code	See Page	Relay Blocks (Relay Block Location)
1	22	Engine Room No.1 R/B (Engine Compartment Right)
2	22	Engine Room No.2 R/B (Engine Compartment Right)

 : JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

Code	See Page	Junction Block and Wire Harness (Connector Location)
1E	24	Instrument Panel Wire and Driver Side J/B (Left Kick Panel)
1G	24	Engine Room Main Wire and Driver Side J/B (Left Kick Panel)
1H	24	Instrument Panel Wire and Driver Side J/B (Left Kick Panel)
1K	24	Engine Room Main Wire and Driver Side J/B (Left Kick Panel)
2A	26	Engine Room Main Wire and Passenger Side J/B (Right Kick Panel)
2B		
2E	26	Instrument Panel Wire and Passenger Side J/B (Right Kick Panel)
2F		
2G		
2H		
2M	26	Engine Room Main Wire and Passenger Side J/B (Right Kick Panel)

 : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

Code	See Page	Joining Wire Harness and Wire Harness (Connector Location)
EA1	42	Engine Wire and Engine Room Main Wire (Inside of the ECU Box)
EA2		
EA3		
IA1	44	Instrument Panel Wire and Engine Room Main Wire (Near the Driver Side J/B)
IA3		
IG3	46	Instrument Panel Wire and Engine Room Main Wire (Near the Passenger Side J/B)

 : GROUND POINTS

Code	See Page	Ground Points Location
EA	42	Front Side of the Intake Manifold
EB	42	Center Side of the Intake Manifold
EC	42	Left Fender Apron
IE	44	Front Floor Panel Center LH
IH	44	Cowl Side Panel RH

 : SPLICE POINTS

Code	See Page	Wire Harness with Splice Points	Code	See Page	Wire Harness with Splice Points
E4	42	Engine Room Main Wire	E10	42	Engine Wire
E8	42	Engine Wire			