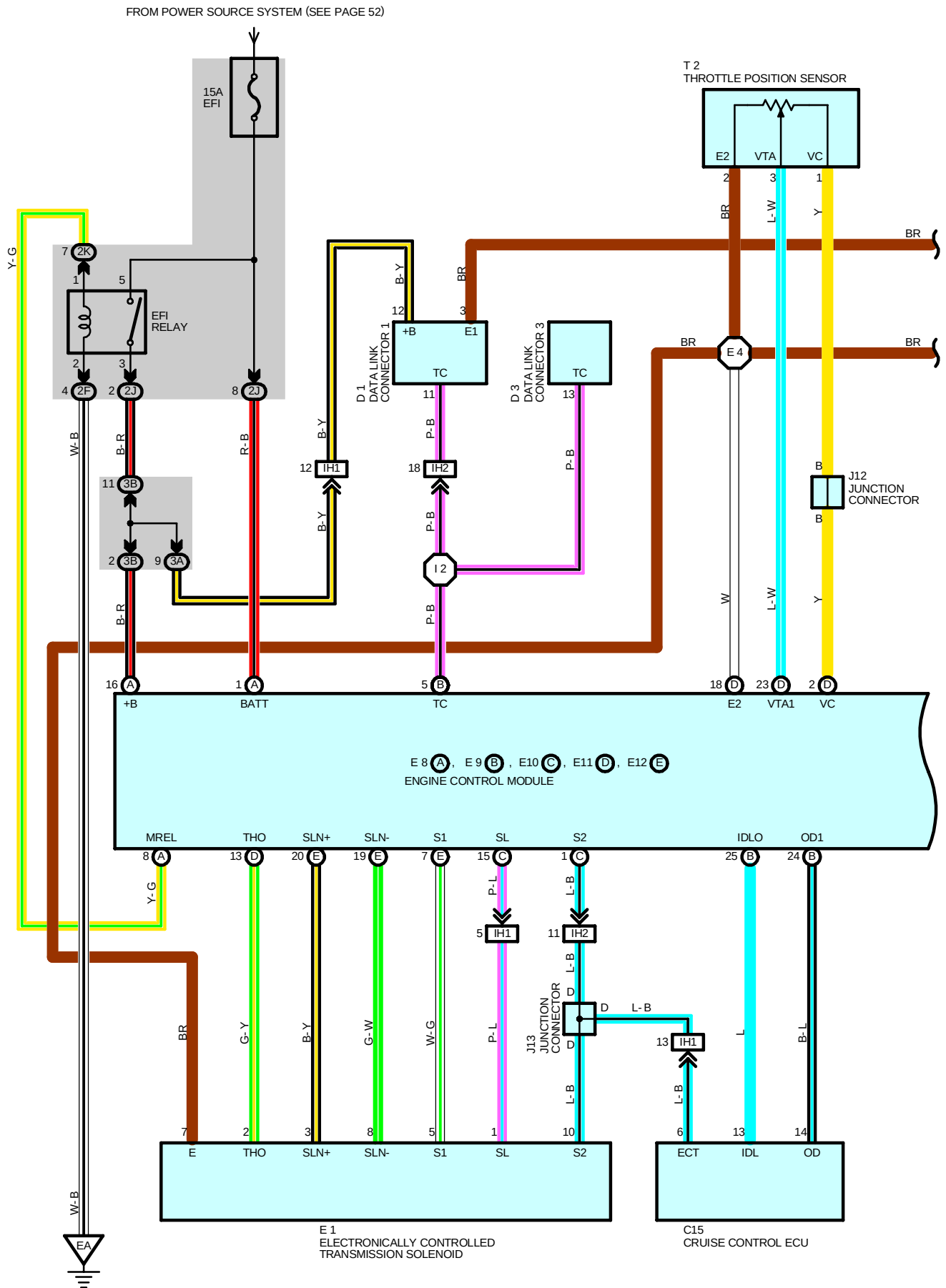
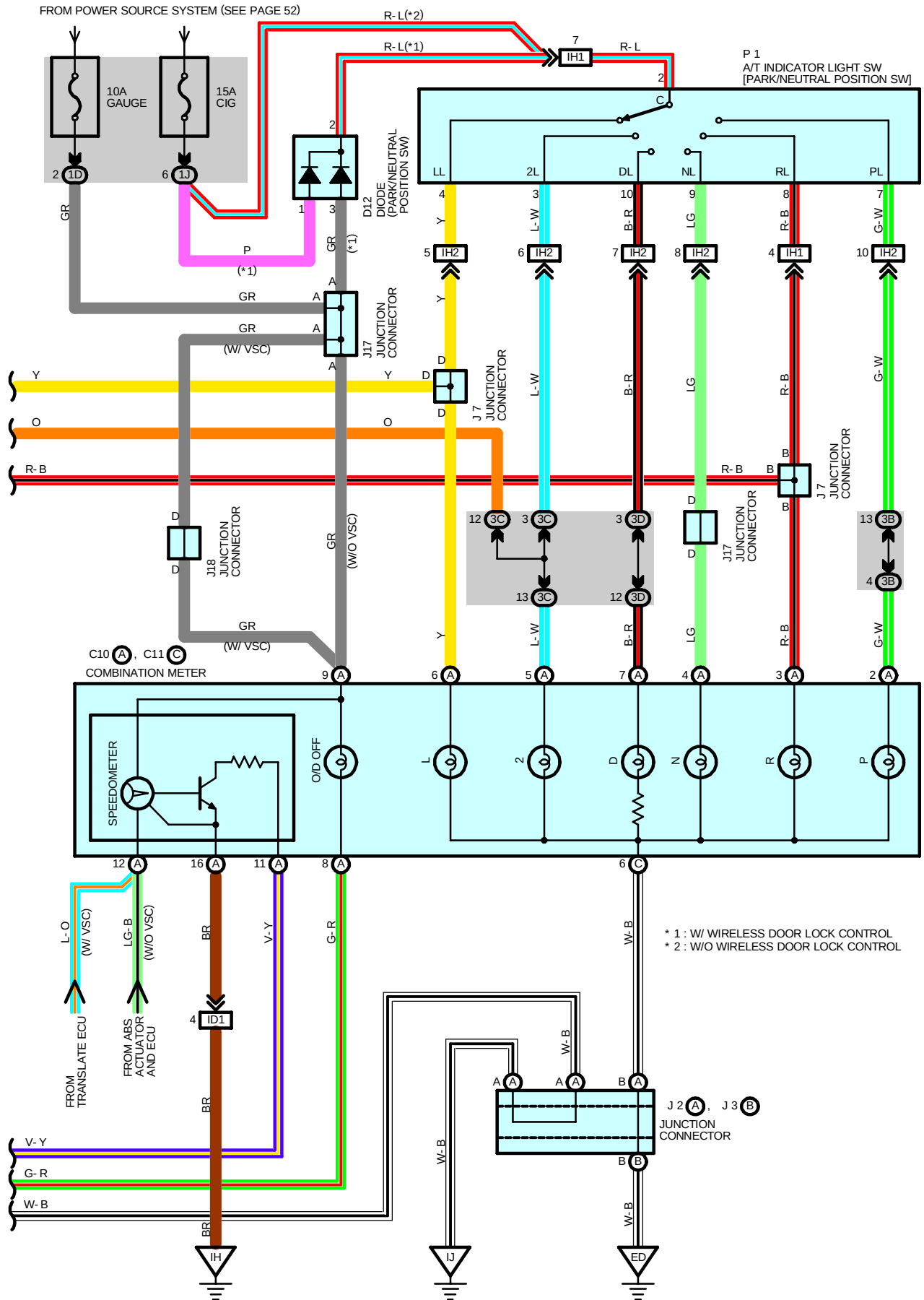


# ELECTRONICALLY CONTROLLED TRANSMISSION AND A/T INDICATOR





# ELECTRONICALLY CONTROLLED TRANSMISSION AND A/T INDICATOR



## SYSTEM OUTLINE

Previous automatic transaxle have selected each gear shift using the mechanically controlled throttle hydraulic pressure, governor hydraulic pressure and lock-up hydraulic pressure. The electronically controlled transmission, however, electrically controls the line pressure and lock-up pressure etc., through the solenoid valve. Engine control module control of the solenoid valve based on the input signals from each sensor, makes smooth driving possible by shift selection for each gear which is most appropriate to the driving conditions at that time.

### 1. GEAR SHIFT OPERATION

During driving, the engine control module selects the shift for each gear which is most appropriate to the driving conditions, based on input signals from the engine coolant temp. sensor to TERMINAL THW of the engine control module, and also the input signals to TERMINAL SPD of the engine control module from the speedometer. Current is then output to the electronically controlled transmission solenoid. When shifting to 1st speed, current flows from TERMINAL S1 of the engine control module to TERMINAL 3 of the electronically controlled transmission solenoid to GROUND, and continuity to the no. 1 solenoid causes the shift.

For the 2nd speed, current flows from TERMINAL S1 of the engine control module to TERMINAL 3 of the electronically controlled transmission solenoid to GROUND, and from TERMINAL S2 of the engine control module to TERMINAL 1 of the electronically controlled transmission solenoid to GROUND, and continuity to solenoids no. 1 and no. 2 causes the shift.

For the 3rd speed, there is no continuity to no. 1 solenoid, only to no. 2, causing the shift.

Shifting into 4th speed (Overdrive) takes place when there is no continuity to both no. 1 and no. 2 solenoid.

### 2. LOCK-UP OPERATION

When the engine control module judges from each signal that lock-up operation conditions have been met, current flows from TERMINAL SL of the engine control module to TERMINAL 2 of the electronically controlled transmission solenoid to GROUND, and continuity to the lock-up solenoid performs the lock-up operation.

### 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 continuity to the lock-up solenoid is cut.

### 4. OVERDRIVE CIRCUIT

\* O/D main SW on

When the O/D main SW is turned on, a signal is input into TERMINAL ODMS of the engine control module and engine control module operation causes gear shift when the conditions for overdrive are met.

\* O/D main SW off

When the O/D main SW is turned off, a signal is input into TERMINAL ODMS of the engine control module, and turns on the O/D off indicator light. This activates the ECU, and the transmission system is controlled not to shift to overdrive.

## SERVICE HINTS

### E8 (A), E9 (B), E11 (D), E12 (E) ENGINE CONTROL MODULE

S1,S2-E1 : 9.0- 14.0 volts with the solenoid on

0- 1.5 volts with the solenoid off

L-E1 : 7.5- 14.0 volts with the shift lever at **L** position

2-E1 : 7.5- 14.0 volts with the shift lever at **2** position

R-E1 : 7.5- 14.0 volts with the shift lever at **R** position

STP-E1 : 7.5- 14.0 volts with the brake pedal depressed

THW-E2 : 0.2- 1.0 volts with the engine coolant temp. 80°C (176°F)

VTA1-E2 : 0.3- 0.8 volts with the throttle valve fully closed

3.2- 4.9 volts with the throttle valve fully opened

VC-E2 : 4.5- 5.5 volts

ODMS-E1 : 9.0- 14.0 volts with the O/D main SW turned off

0- 3.0 volts with the O/D main SW turned on

+B-E1 : 9.0- 14.0 volts

OD1-E1 : 9.0- 14.0 volts

# ELECTRONICALLY CONTROLLED TRANSMISSION AND A/T INDICATOR

## : PARTS LOCATION

| Code | See Page | Code | See Page | Code | See Page |
|------|----------|------|----------|------|----------|
| C10  | A        | 34   | E9       | B    | 34       |
| C11  | C        | 34   | E10      | C    | 34       |
| C15  |          | 34   | E11      | D    | 34       |
| D1   |          | 32   | E12      | E    | 34       |
| D3   |          | 34   | J2       | A    | 35       |
| D12  |          | 34   | J3       | B    | 35       |
| E1   |          | 32   | J6       |      | 35       |
| E2   |          | 32   | J7       |      | 35       |
| E8   | A        | 34   | J12      |      | 35       |
|      |          |      |          | J13  | 35       |
|      |          |      |          | J14  | 35       |
|      |          |      |          | J17  | 35       |
|      |          |      |          | J18  | 35       |
|      |          |      |          | O2   | 35       |
|      |          |      |          | O3   | 33       |
|      |          |      |          | P1   | 33       |
|      |          |      |          | S6   | 35       |
|      |          |      |          | T2   | 33       |

## : JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

| Code | See Page | Junction Block and Wire Harness (Connector Location)                     |
|------|----------|--------------------------------------------------------------------------|
| 1C   | 22       | Cowl Wire and Driver Side J/B No.1 (Lower Finish Panel)                  |
| 1D   |          |                                                                          |
| 1J   |          |                                                                          |
| 1R   |          |                                                                          |
| 2F   | 24       | Engine Room Main Wire and Engine Room J/B No.2 (Engine Compartment Left) |
| 2J   | 24       | Cowl Wire and Engine Room J/B No.2 (Engine Compartment Left)             |
| 2K   |          |                                                                          |
| 3A   | 26       | Cowl Wire and J/B No.3 (Behind the Combination Meter)                    |
| 3B   |          |                                                                          |
| 3C   |          |                                                                          |
| 3D   |          |                                                                          |

## : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

| Code | See Page | Joining Wire Harness and Wire Harness (Connector Location)                    |
|------|----------|-------------------------------------------------------------------------------|
| ID1  | 42       | Instrument Panel Wire and Cowl Wire (The Back Side of the Lower Finish Panel) |
| IH1  | 44       | Engine Wire and Cowl Wire (Front Side of the Blower Motor)                    |
| IH2  |          |                                                                               |

## : GROUND POINTS

| Code | See Page | Ground Points Location                 |
|------|----------|----------------------------------------|
| EA   | 40       | Front Side of the Right Fender Apron   |
| EB   | 40       | Right Side of the Surge Tank           |
| EC   | 40       | Rear Side of the Surge Tank            |
| ED   | 40       | Near the Left Front Suspension Support |
| IH   | 42       | Right Instrument Panel Brace           |
| IJ   | 42       | Right Cowl Side Panel                  |

## : SPLICE POINTS

| Code | See Page | Wire Harness with Splice Points | Code | See Page | Wire Harness with Splice Points |
|------|----------|---------------------------------|------|----------|---------------------------------|
| E4   | 40       | Engine Wire                     | I2   | 44       | Cowl Wire                       |

