


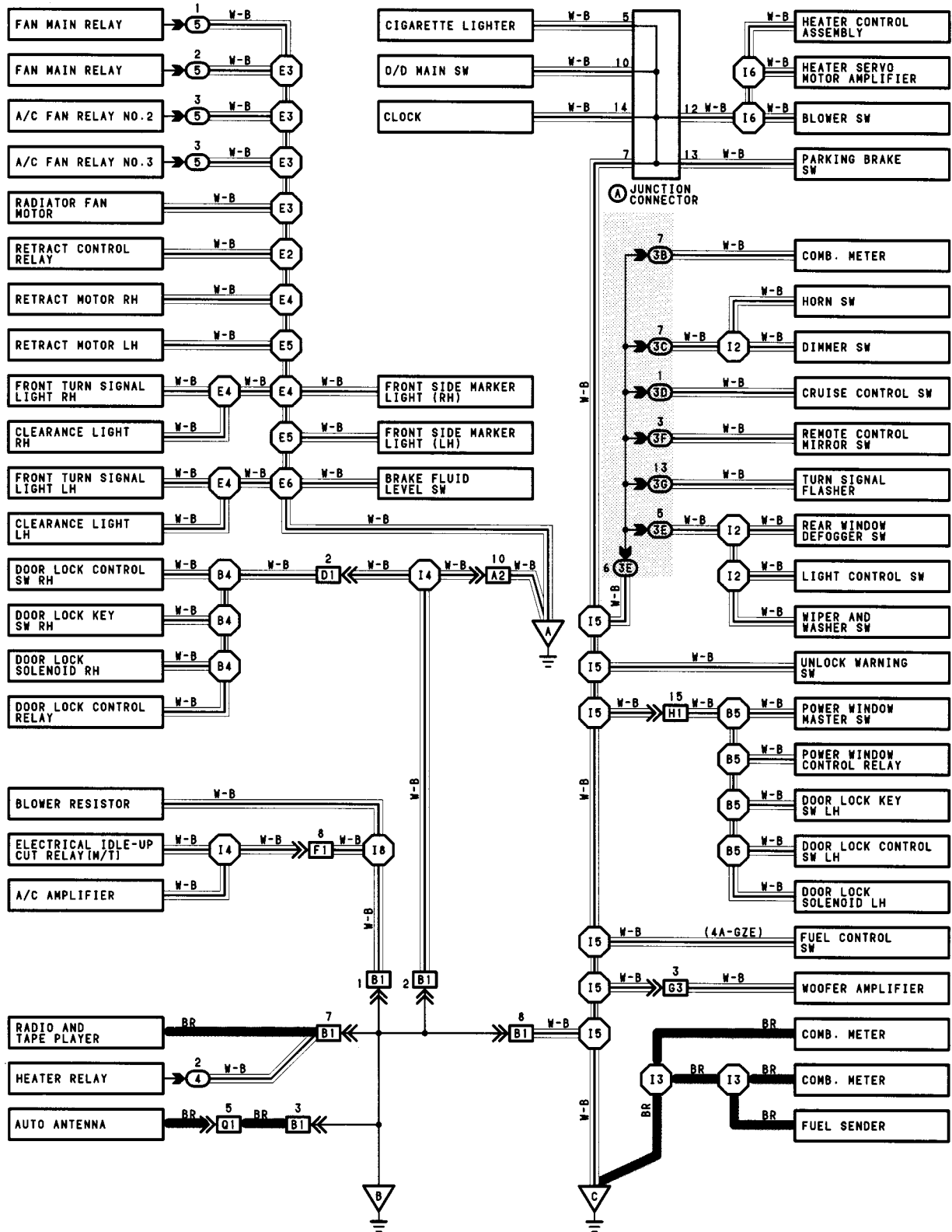


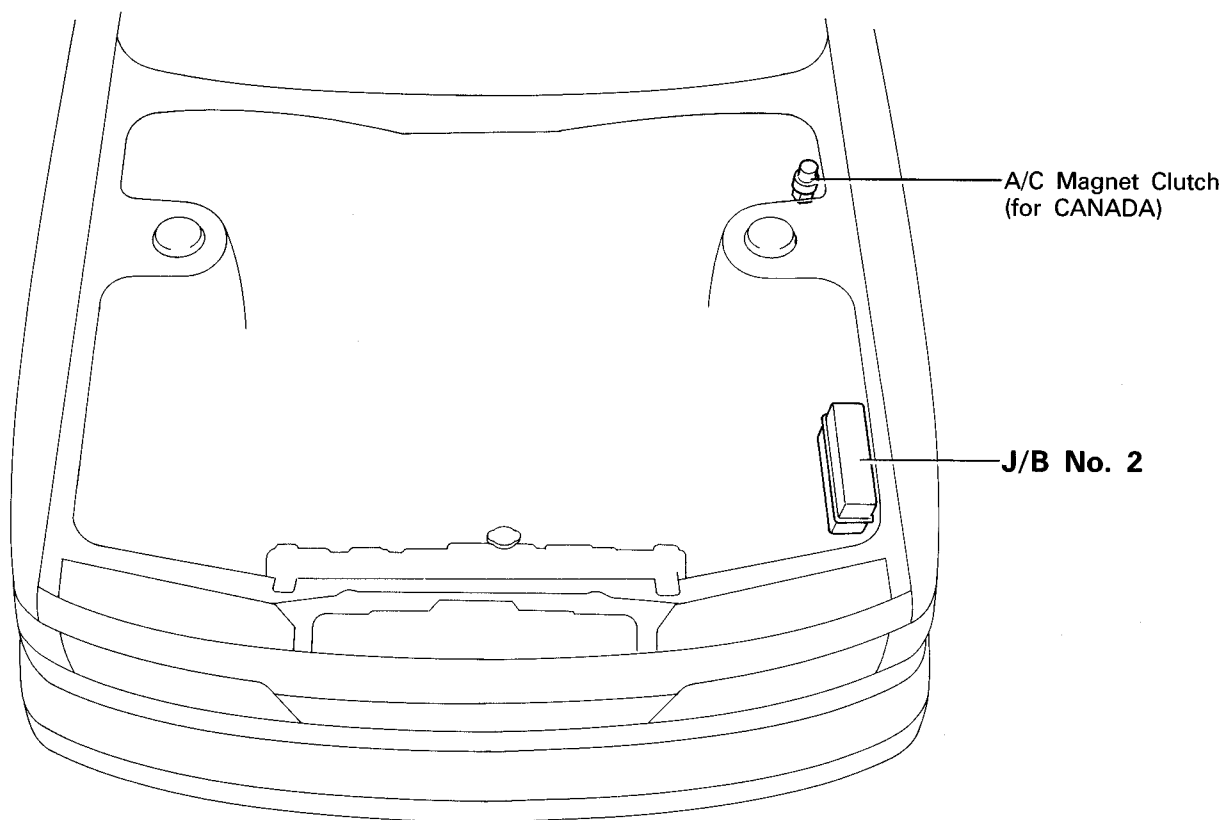
The ground points circuit diagram shows the connections from all major parts to the respective ground points. When troubleshooting a faulty ground point, checking the system circuits which use a common ground may help you identify the problem ground quickly. The relationship between ground points ( ,  , and  shown below) can also be checked this way.

GROUND POINTS



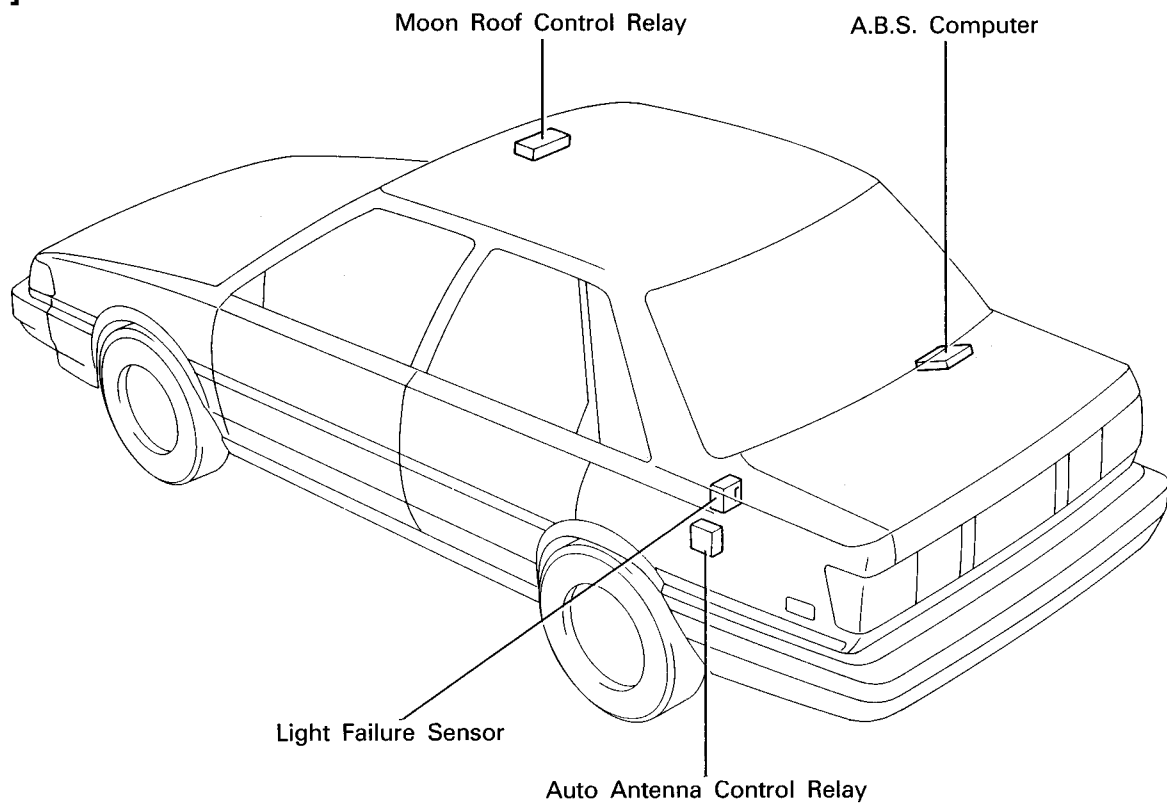
RELAY LOCATIONS

[Engine Compartment]



[Body]

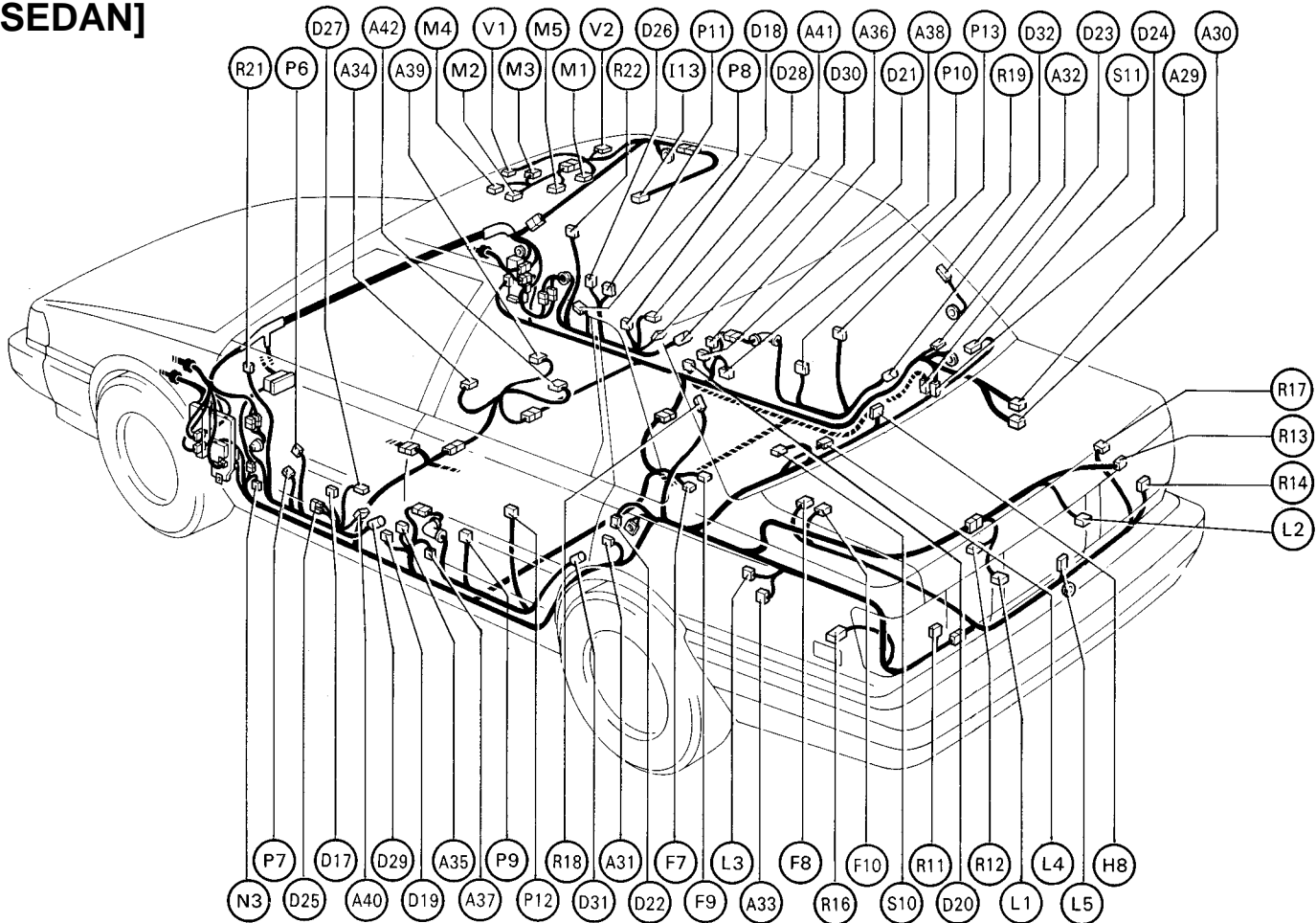
[S/D]



ELECTRICAL WIRING ROUTING

Position of Parts in Body

[SEDAN]



- | | | | |
|------|--|------|---|
| A 29 | A.B.S. Computer | D 20 | Door Courtesy SW Front RH (CANADA) |
| A 30 | A.B.S. Computer | D 21 | Door Courtesy SW Front RH (USA) |
| A 31 | A.B.S. Speed Sensor Rear LH | D 22 | Door Courtesy SW Rear LH |
| A 32 | A.B.S. Speed Sensor Rear RH | D 23 | Door Courtesy SW Rear RH (CANADA) |
| A 33 | Auto Antenna Motor and Control Relay | D 24 | Door Courtesy SW Rear RH (USA) |
| A 34 | Automatic Shoulder Belt Computer (USA) | D 25 | Door Key Cylinder Light and Outside handle SW |
| A 35 | Automatic Shoulder Belt Limit SW LH | D 26 | Door Lock Control SW RH |
| A 36 | Automatic Shoulder Belt Limit SW RH | D 27 | Door Lock Key SW LH |
| A 37 | Automatic Shoulder Belt Motor LH | D 28 | Door Lock Key SW RH |
| A 38 | Automatic Shoulder Belt Motor RH | D 29 | Door Lock Solenoid Front LH |
| A 39 | Automatic Shoulder Belt Release Lever
Warning Light (USA) | D 30 | Door Lock Solenoid Front RH |
| A 40 | Automatic Shoulder Belt SW LH | D 31 | Door Lock Solenoid Rear LH |
| A 41 | Automatic Shoulder Belt SW RH | D 32 | Door Lock Solenoid Rear RH |
| A 42 | Automatic Shoulder Belt Spool Release SW | | |
| B 8 | Back Door Courtesy SW (W/G) | F 7 | Fuel Pump |
| B 9 | Back Door Lock Solenoid (W/G) | F 8 | Fuel Pump (All-Trac/4WD) |
| | | F 9 | Fuel Sender |
| | | F 10 | Fuel Sender (All-Trac/4WD) |
| D 17 | Door Courtesy Light LH | H 8 | High Mount Stop Light |
| D 18 | Door Courtesy Light RH | | |
| D 19 | Door Courtesy SW Front LH | I 13 | Interior Light |

POWER SOURCE (Power–Load, Reference)

J/B No. 1 (Left Kick Panel)

Power		Load	Page No.
7.5A	IGN	Engine Main Relay	44
		Charge Warning Light	50
		EFI Main Relay (3S–FE), Engine ECU (2VZ–FE)	52, 124
		Radiator Fan Relay No. 1, A/C Fan Relay No. 2	158
20A	WIPER	Washer Motor, Wiper Motor, Wiper Relay	98
		Rear Washer Motor, Rear Wiper Relay, Rear Wiper Motor	100
20A	STOP	Engine ECU	52, 124
		Light Failure Sensor, Stop Lights, Hi Mount Stop Light	94
		Cruise Control Computer	120
		ECT ECU (3S–FE)	129
		Shift Lock Control Computer	140
7.5A	TURN	A.B.S. Computer	142
7.5A	GAUGE	Turn Signal Flasher	92
		Check Engine Warning Light	52
		Integration Relay	68
		Light Failure Sensor, Rear Lights Warning Light	88, 94
		Back–Up Lights	96
		Power Main Relay	102, 148
		Automatic Shoulder Belt Computer, Automatic Shoulder Belt Release Lever Warning Light, Seat Belt Warning Light	114
		Seat Belt Warning Light, Seat Belt Warning Relay	118
		A/T Indicator, O/D Off Indicator Light, ECT ECU (3S–FE), Engine ECU (2VZ–FE)	124
		O/D Solenoid, O/D Off Indicator Light	134
		Diff. Lock Solenoid, Center Diff. Lock Indicator, ECT ECU (A/T)	136
		A.B.S. Warning Light	142
		Rear Window Defogger SW, Defogger Relay	146
		Antenna Motor and Control Relay	150
Combination Meter	154		
15A	TAIL	Heater Relay, Blower Control Relay, A/C System Amplifier, Recirc/Fresh Control Servo Motor, Heater Control Assembly	158
		Engine ECU	67
		Glove Box Light, Combination Meter, Rheostat, ECT Pattern Select SW Light, Rear Wiper SW Light, Cruise Control Main SW Light, Hazard SW Light, O/D Main SW Light, Rear Window Defogger SW Light, Cigarette Lighter Light, A/T Indicator Light, Radio Light, Diff. Lock Control SW Light, Center Diff. Lock Indicator Light, A/C SW Light, Heater Control SW Light	84
		Front Clearance and Side Marker Lights, Licence Plate Lights, Rear Side Marker Lights, Light Failure Sensor, Taillights	88
		Clock	139
15A	ECU–IG	Cruise Control Main SW, Cruise Control Computer	120
		ECT ECU (3S–FE)	129
		Shift Lock Control Computer	140
		A.B.S. Computer	142
7.5A	RADIO	Mirror Motor	112
		Clock	139
		Shift Lock Control Computer	140
		Antenna Motor and Control Relay	150
		Radio and Tape Player	152
15A	CIG	Clock, Cigarette Lighter	139
		Antenna Motor and Control Relay	150
30A	DEFOG CB	Rear Window Defogger	146
10A	MIR–HTR	Engine ECU	67
10A	ENGINE	IC Regulator	50

ENGINE CONTROL (3S-FE)

SYSTEM OUTLINE

THE TCCS SYSTEM UTILIZES A MICROCOMPUTER AND MAINTAINS OVERALL CONTROL OF THE E/G, T/M, ETC. AN OUTLINE OF ENGINE CONTROL IS GIVEN HERE.

1. INPUT SIGNALS

(1) WATER TEMP. SIGNAL SYSTEM

THE WATER TEMP. SENSOR DETECTS THE E/G COOLANT TEMP. AND HAS A BUILT-IN THERMISTOR WITH A RESISTANCE WHICH VARIES ACCORDING TO THE WATER TEMP. THUS THE WATER TEMP. IS INPUT IN THE FORM OF A CONTROL SIGNAL TO TERMINAL THW OF THE TCCS ECU.

(2) INTAKE AIR TEMP. SIGNAL SYSTEM

THE INTAKE AIR TEMP. SENSOR IS INSTALLED INSIDE THE AIR FLOW METER AND DETECTS THE INTAKE AIR TEMP., WHICH IS INPUT AS A CONTROL SIGNAL TO TERMINAL THA OF THE ECU.

(3) OX SENSOR SIGNAL SYSTEM

THE OXYGEN DENSITY IN THE EXHAUST EMISSIONS IS DETECTED AND INPUT AS A CONTROL SIGNAL TO TERMINAL OX1 OF THE ECU.

(4) RPM SIGNAL SYSTEM

CRANKSHAFT POSITION IS DETECTED BY THE PICK-UP COIL INSTALLED INSIDE THE DISTRIBUTOR. CRANKSHAFT POSITION IS INPUT AS A CONTROL SIGNAL TO TERMINAL G1 OF THE ECU, AND RPM IS INPUT TO TERMINAL NE FROM THE IGNITER.

(5) THROTTLE SIGNAL SYSTEM

THE THROTTLE POSITION SENSOR DETECTS THE THROTTLE VALVE OPENING ANGLE, WHICH IS INPUT AS A CONTROL SIGNAL TO TERMINAL VTA (W/ECT), PSW (W/O ECT) OF THE ECU, OR WHEN THE VALVE IS FULLY CLOSED, TO TERMINAL IDL.

(6) VEHICLE SPEED SIGNAL SYSTEM

THE SPEED SENSOR, INSTALLED INSIDE THE COMBINATION METER, DETECTS THE VEHICLE SPEED AND INPUTS A CONTROL SIGNAL TO TERMINAL SPD OF THE ECU.

(7) A/C SW SIGNAL SYSTEM

THE OPERATING VOLTAGE OF THE A/C MAGNET CLUTCH IS DETECTED AND INPUT IN THE FORM OF A CONTROL SIGNAL TO TERMINAL A/C OF THE ECU.

(8) BATTERY SIGNAL SYSTEM

VOLTAGE IS CONSTANTLY APPLIED TO TERMINAL BATT OF THE ECU. WHEN THE IGNITION SW IS TURNED TO ON, VOLTAGE FOR ECU OPERATION IS APPLIED VIA THE EFI MAIN RELAY TO TERMINALS +B AND +B1 OF THE ECU.

(9) INTAKE AIR VOLUME SIGNAL SYSTEM

INTAKE AIR VOLUME IS DETECTED BY THE POTENTIOMETER INSTALLED INSIDE THE AIR FLOW METER AND IS INPUT AS A CONTROL SIGNAL TO TERMINAL VS OF THE ECU. INSIDE THE AIR FLOW METER THERE IS ALSO A SW FOR FUEL PUMP OPERATION, AND WHEN THE MEASURING PLATE OPENS (AIR INTAKE OCCURS), THIS SW TURNS ON AND CURRENT FLOWS TO THE FUEL PUMP TO OPERATE IT.

(10) STOP LIGHT SW SIGNAL SYSTEM

THE STOP LIGHT SW IS USED TO DETECT WHETHER OR NOT THE VEHICLE IS BRAKING AND THE INFORMATION IS INPUT AS A CONTROL SIGNAL TO TERMINAL STP OF THE ECU.

(11) STA SIGNAL SYSTEM

TO CONFIRM THAT THE E/G 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 ECU.

(12) NEUTRAL START SW SIGNAL SYSTEM

THE NEUTRAL START SW DETECTS WHETHER THE SHIFT POSITION IS IN NEUTRAL OR NOT, AND INPUTS A CONTROL SIGNAL TO TERMINAL NSW OF THE ECU.

(13) ELECTRICAL IDLE-UP SYSTEM

THE SIGNAL WHEN SYSTEMS SUCH AS THE REAR WINDOW DEFOGGER, HEADLIGHTS, ETC. WHICH CAUSE A HIGH ELECTRICAL BURDEN ARE ON IS INPUT TO TERMINAL ELS AS A CONTROL SIGNAL.

2. CONTROL SYSTEM

* EFI (ELECTRONIC FUEL INJECTION) SYSTEM

THE EFI SYSTEM MONITORS THE ENGINE CONDITIONS THROUGH THE SIGNALS EACH SENSOR (INPUT SIGNALS [1] TO [12]) INPUTS TO THE ECU. BASED ON THIS DATA AND THE PROGRAM MEMORIZED IN THE ECU, THE MOST APPROPRIATE FUEL INJECTION TIMING IS DECIDED AND CURRENT IS OUTPUT TO TERMINALS #10 AND #20 OF THE ECU, CAUSING THE INJECTORS TO OPERATE (TO INJECT FUEL). IT IS THIS SYSTEM WHICH, THROUGH THE WORK OF THE ECU, FINELY CONTROLS FUEL INJECTION IN RESPONSE TO DRIVING CONDITIONS.

* ESA (ELECTRONIC SPARK ADVANCE) SYSTEM

THE ESA SYSTEM MONITORS THE ENGINE CONDITIONS USING THE SIGNALS (INPUT SIGNALS [1, 3, 4, 6, 7, 9, 11]) INPUT TO THE ECU FROM EACH SENSOR. BASED ON THIS DATA AND THE PROGRAM MEMORIZED IN THE ECU, THE MOST APPROPRIATE IGNITION TIMING IS DECIDED AND CURRENT IS OUTPUT TO TERMINAL IGT OF THE ECU. THIS OUTPUT CONTROLS THE IGNITER TO PRODUCE THE MOST APPROPRIATE IGNITION TIMING FOR THE DRIVING CONDITIONS.

* ISC (IDLE SPEED CONTROL) SYSTEM

THE ISC SYSTEM (ROTARY SOLENOID TYPE) INCREASES THE RPM AND PROVIDES IDLING STABILITY FOR FAST IDLE-UP WHEN THE E/G IS COLD AND WHEN THE IDLE SPEED HAS DROPPED DUE TO ELECTRICAL LOAD, ETC. THE ECU EVALUATES THE SIGNALS FROM EACH SENSOR (INPUT SIGNALS [1, 4, TO 8, 11, 12, 13]), OUTPUTS CURRENT TO TERMINALS ISC1 AND ISC2, AND CONTROLS THE ISC VALVE.

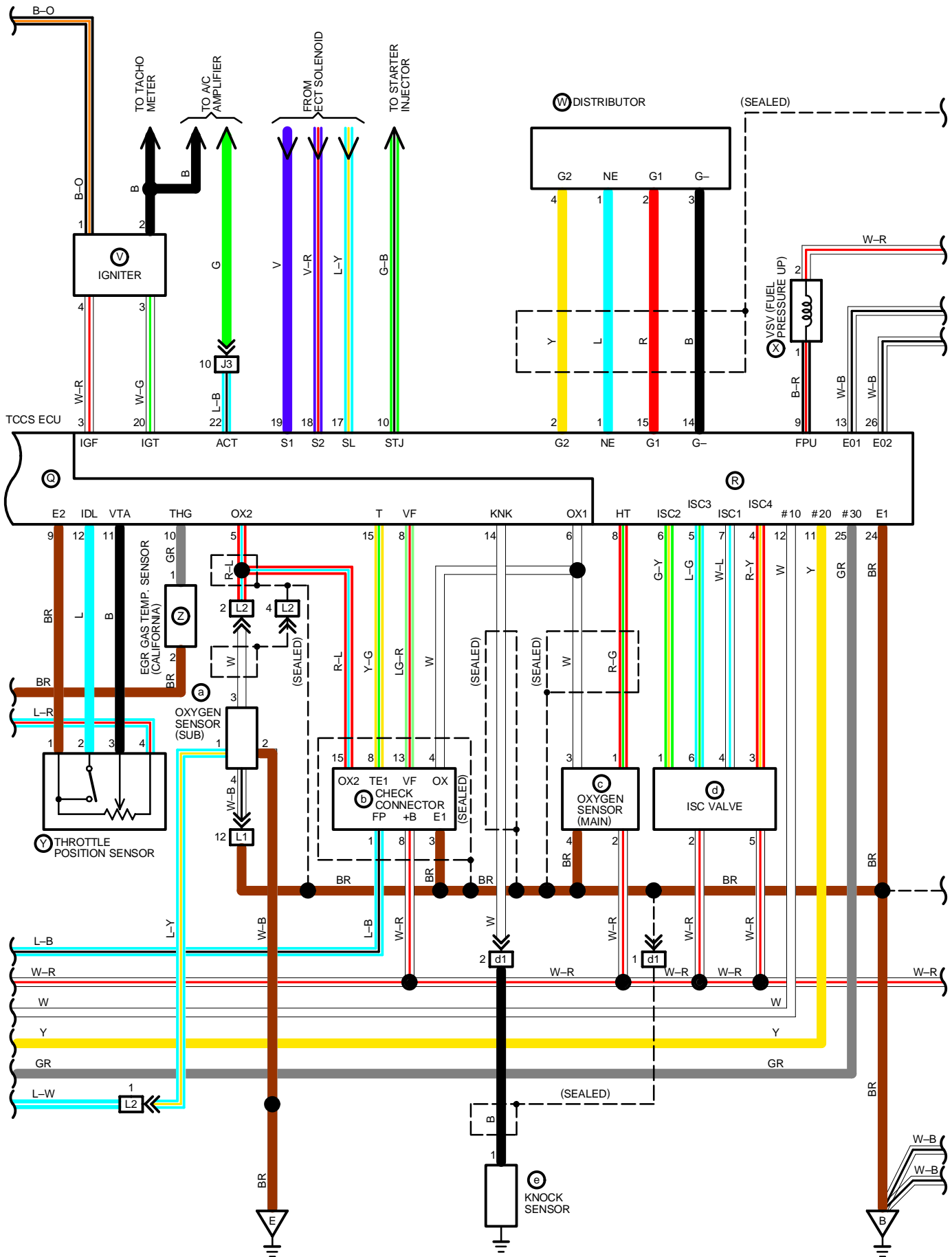
3. DIAGNOSIS SYSTEM

WITH THE DIAGNOSIS SYSTEM, WHEN THERE IS A MALFUNCTION IN THE ECU SIGNAL SYSTEM, THE MALFUNCTIONING SYSTEM IS RECORDED IN THE MEMORY. THE MALFUNCTIONING SYSTEM CAN THEN BE FOUND BY READING THE DISPLAY (CODE) OF THE CHECK ENGINE WARNING LIGHT.

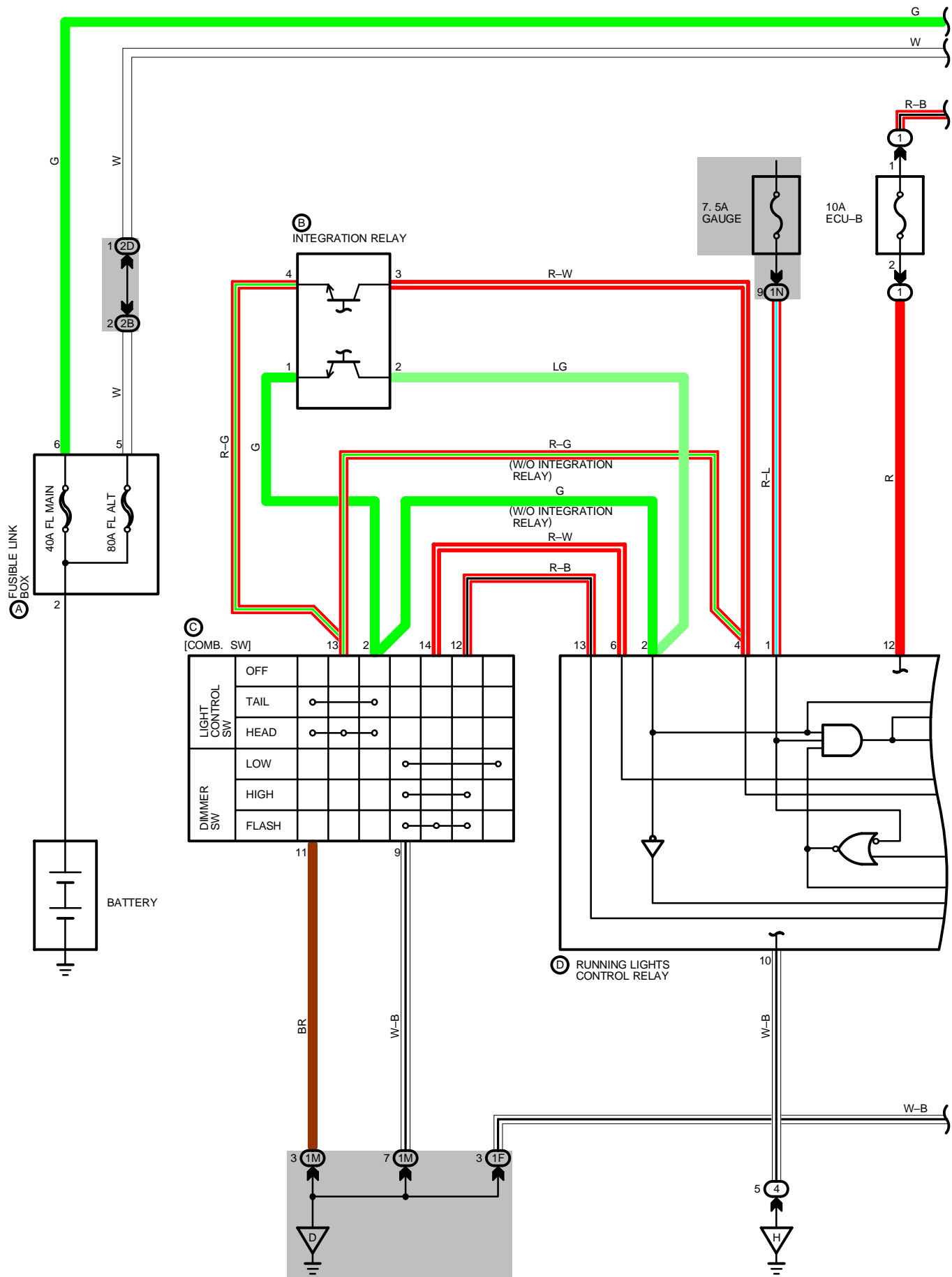
4. FAIL-SAFE SYSTEM

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 ECU MEMORY OR ELSE STOPS THE ENGINE.

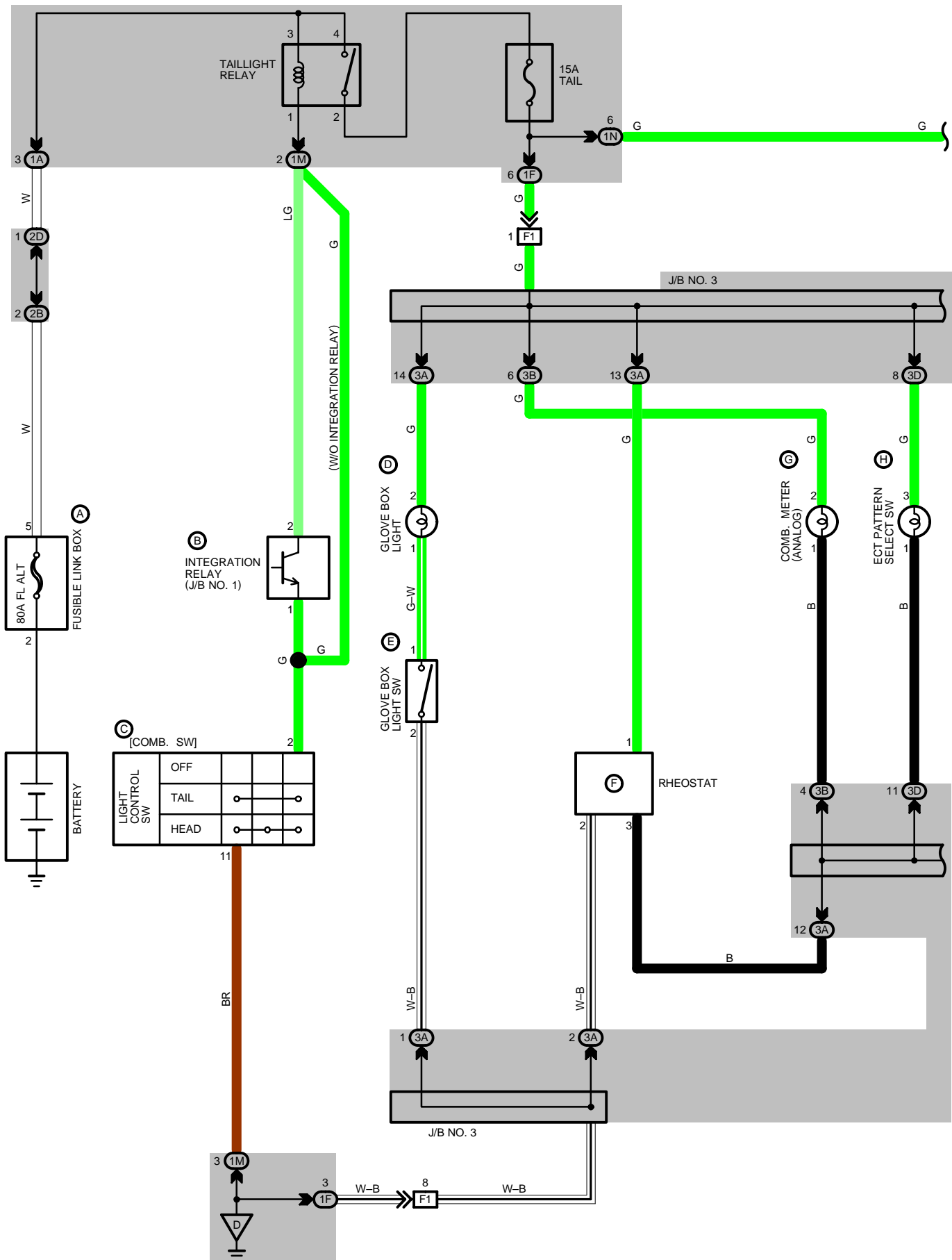
ENGINE CONTROL (2VZ-FE)



HEADLIGHTS (CANADA)



ILLUMINATION



SERVICE HINTS

TURN SIGNAL FLASHER

- 2-GROUND : APPROX. 12 VOLTS WITH IGNITION SW ON OR HAZARD SW ON
- 1-GROUND : CHANGES FROM 12 TO 0 VOLT WITH IGNITION SW ON AND TURN SIGNAL SW LEFT OR RIGHT, OR WITH HAZARD SW ON
- 3-GROUND : ALWAYS CONTINUITY

○ : PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
A	H5 28	D	R11 27	G	R14 26
B	C14 28	E	F3 24 (2VZ-FE), 25 (3S-FE)	H	R14 27
C	R11 26	F	F4 24 (2VZ-FE), 25 (3S-FE)	I	C12 28

○ : RELAY BLOCKS

CODE	SEE PAGE	RELAY BLOCKS (RELAY BLOCK LOCATION)
1	23	R/B NO. 1 (LEFT KICK PANEL)

○ : JUNCTION BLOCK AND WIRE HARNESS CONNECTOR

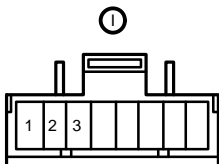
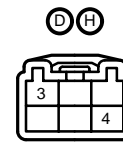
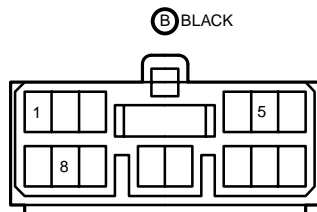
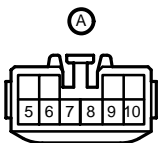
CODE	SEE PAGE	JUNCTION BLOCK AND WIRE HARNESS (CONNECTOR LOCATION)
1B	18	ENGINE ROOM MAIN WIRE AND J/B NO. 1 (LEFT KICK PANEL)
1D	18	FLOOR WIRE AND J/B NO. 1 (LEFT KICK PANEL)
1F	18	COWL SUB WIRE AND J/B NO. 1 (LEFT KICK PANEL)
1G		
1K		
1L	18	COWL WIRE AND J/B NO. 1 (LEFT KICK PANEL)
1M		
2F	20	ENGINE ROOM MAIN WIRE AND J/B NO. 2 (ENGINE COMPARTMENT LEFT)
3B	22	INSTRUMENT PANEL WIRE AND J/B NO. 3 (INSTRUMENT PANEL LEFT)

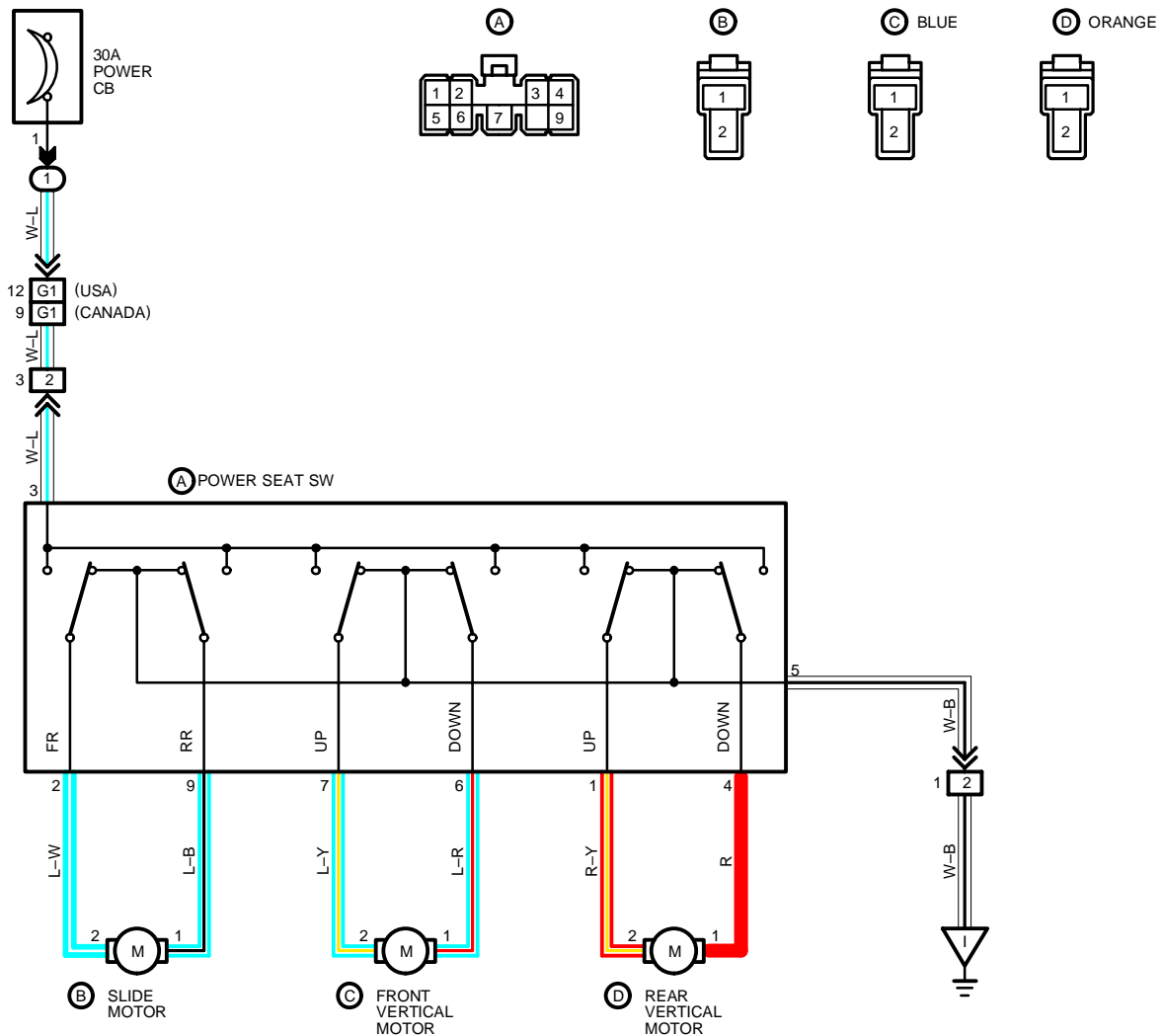
□ : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
F1	34	INSTRUMENT PANEL WIRE AND COWL SUB WIRE (LEFT KICK PANEL)
F2	34	INSTRUMENT PANEL WIRE AND COWL SUB WIRE (LEFT KICK PANEL)
I1	34	COWL WIRE AND INSTRUMENT PANEL WIRE (INSTRUMENT PANEL CENTER)
V1	38	LUGGAGE ROOM NO. 1 WIRE AND FLOOR NO. 1 WIRE (BACK PANEL LEFT)
V2	36	FLOOR NO. 1 WIRE AND LUGGAGE ROOM NO. 1 WIRE (BACK PANEL LEFT)
V3	36	

▽ : GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
A	30 (2VS-FE)	RIGHT FENDER
	32 (3S-FE)	
C	30 (2VS-FE)	RADIATOR LEFT
	32 (3S-FE)	
D	34	J/B NO. 1 SET BOLT
I	36 (S/D)	LEFT REAR FENDER
	38 (STATION W/G)	
K	36 (S/D)	BACK PANEL CENTER
	38 (STATION W/G)	DECK RIGHT





SERVICE HINTS

(A) POWER SEAT SW

3-GROUND : APPROX. 12 VOLTS WITH IGNITION SW AT **ON** OR **ACC** POSITION
 5-GROUND : ALWAYS CONTINUITY

○ : PARTS LOCATION

CODE	SEE PAGE	CODE	SEE PAGE	CODE	SEE PAGE
A	P5 28	C	P2 28		
B	P4 28	D	P3 28		

□ : RELAY BLOCKS

CODE	SEE PAGE	RELAY BLOCKS (RELAY BLOCK LOCATION)
1	23	R/B NO. 1 (LEFT KICK PANEL)

□ : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
G1	34	FLOOR NO. 1 WIRE AND COWL WIRE (LEFT KICK PANEL)
a2	34	FLOOR NO. 1 WIRE AND SEAT WIRE (UNDER DRIVER'S SEAT)

▽ : GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
I	36	LEFT REAR FENDER

CRUISE CONTROL

SYSTEM OUTLINE

VOLTAGE FROM THE BATTERY IS NORMALLY APPLIED TO TERMINAL 16 OF THE CRUISE CONTROL COMPUTER. WHEN THE IGNITION SW IS TURNED ON, THE CURRENT FLOWING THROUGH THE ECU-IG FUSE FLOWS THEN TO TERMINAL 3 OF THE CRUISE CONTROL MAIN SW. IF AT THIS TIME THE MAIN SW IS TURNED TO ON, THE CURRENT APPLIED TO TERMINAL 3 FLOWS FROM THE POWER INDICATOR → TERMINAL 3 OF THE COMPUTER, CAUSING THE INDICATOR LIGHT TO LIGHT UP. AT THE SAME TIME, CURRENT FLOWS TO TERMINAL 10 OF THE COMPUTER, MAINTAINING THE CRUISE CONTROL SYSTEM IN CONSTANT READINESS FOR OPERATION.

1. CRUISE CONTROL DRIVING

WHEN THE MAIN SW IS TURNED ON AND THE SET SW IS PUSHED IN WITH THE VEHICLE SPEED WITHIN THE SET LIMIT (APPROX. 40km/h, 25MPH TO 200km/h, 124MPH), A SIGNAL IS INPUT TO TERMINAL 5 OF THE COMPUTER AND THE VEHICLE SPEED AT THAT TIME IS RECORDED IN THE COMPUTER MEMORY AS THE SET SPEED. THE COMPUTER COMPARES THE RECORDED SET SPEED WITH THE ACTUAL VEHICLE SPEED INPUT INTO TERMINAL 7 FROM THE SPEED SENSOR, AND CONTROLS THE CRUISE CONTROL ACTUATOR IN ORDER TO MAINTAIN THE SET VEHICLE SPEED.

WHEN THE ACTUAL VEHICLE SPEED IS LOWER THAN THE SET SPEED, COMPUTER OPERATION LENGTHENS THE PERIOD OF CURRENT FLOW FROM TERMINAL 4 OF THE COMPUTER → TERMINAL 2 OF THE ACTUATOR → THE CONTROL VALVE → TERMINAL 3 → TERMINAL 14 OF THE COMPUTER, THE CABLE IS PULLED IN THE DIRECTION FOR OPENING THROTTLE VALVE AND THE VEHICLE SPEED INCREASES.

WHEN THE ACTUAL VEHICLE SPEED IS HIGHER THAN THE SET SPEED, A SHORTER PERIOD OF CURRENT FLOW TO THE CONTROL VALVE RETURNS THE CABLE IN THE DIRECTION FOR CLOSING THE THROTTLE VALVE AND THE VEHICLE SPEED DECREASES.

<ACTUATOR OPERATION>

WHEN THE CRUISE CONTROL SYSTEM OPERATES (THE SET SIGNAL IS INPUT), CURRENT FLOWS FROM THE COMPUTER TO THE RELEASE VALVE, CLOSING THE ATMOSPHERIC INTAKE PORT.

WHEN THERE IS CONTINUITY TO THE CONTROL VALVE, VACUUM IS INTRODUCED INSIDE THE ACTUATOR, AND WHEN THERE IS NO CONTINUITY, VACUUM INTAKE STOPS AND ATMOSPHERE IS INTRODUCED. IN OTHER WORDS, THE ACTUATOR (THROTTLE VALVE) IS CONTROLLED BY CHANGING THE RATIO OF CONTINUITY AND NON-CONTINUITY TO THE CONTROL VALVE WITHIN A SPECIFIED PERIOD OF TIME.

<ROLE OF THE VACUUM SW AND VACUUM PUMP>

WHEN THE VACUUM SW TURNS ON DURING CRUISE CONTROL OPERATION, ITS SIGNAL IS INPUT TO TERMINAL 9 OF THE COMPUTER SO THAT THE COMPUTER APPLIES CURRENT TO OPERATE THE VACUUM PUMP (TERMINAL 1 OF THE COMPUTER → TERMINAL 1 OF THE PUMP → TERMINAL 2 → GROUND) AND SUPPLEMENT THE ENGINE VACUUM WHICH BY ITSELF IS INADEQUATE FOR CONTROL.

2. CANCEL MECHANISM

IF ANY OF THE FOLLOWING OPERATIONS IS PERFORMED DURING CRUISE CONTROL, THEN CONTINUITY TO THE CONTROL VALVE AND THE RELEASE VALVE IS CUT OFF AND CRUISE CONTROL IS RELEASED:

- * DEPRESSING THE CLUTCH PEDAL (CLUTCH SW ON), SIGNAL INPUT TO TERMINAL 11 OF THE COMPUTER.
- * PLACING THE NEUTRAL START SW IN "N" RANGE (NEUTRAL START SW ON), SIGNAL INPUT TO TERMINAL 11 OF THE COMPUTER.
- * DEPRESSING THE BRAKES PEDAL (STOP LIGHT SW ON), SIGNAL INPUT TO TERMINAL 15 OF THE COMPUTER.
- * PULLING THE PARKING BRAKE LEVER (PARKING BRAKE SW ON), SIGNAL INPUT TO TERMINAL 12 OF THE COMPUTER.

3. COAST CONTROL

WHILE THE COAST SW IS ON DURING CRUISE CONTROL, CURRENT FLOW TO THE CONTROL VALVE AND RELEASE VALVE IS STOPPED AND THE VEHICLE DECELERATES UNTIL THE SW IS RELEASED. THE VEHICLE SPEED WHEN THE SW IS RELEASED IS THEN RECORDED IN MEMORY.

4. RESUME CONTROL

BY TURNING THE RESUME SW TO ON AFTER CANCELLATION OF THE CRUISE CONTROL SYSTEMS, THE VEHICLE SPEED WILL RETURN TO THE SPEED SET BEFORE CANCELLATION, PROVIDED THAT THE VEHICLE SPEED IS WITHIN THE SET LIMITS.

5. ACCEL CONTROL

WHEN THE ACCEL SW IS TURNED TO ON DURING CRUISE CONTROL DRIVING, CURRENT CONTINUES TO FLOW TO THE CONTROL VALVE AND THE VEHICLE ACCELERATES. THE VEHICLE SPEED WHEN THE SW IS TURNED OFF IS RECORDED IN MEMORY.

SERVICE HINTS

(A) CRUISE CONTROL COMPUTER

(DISCONNECT THE COMPUTER CONNECTOR)

- 2-14 : APPROX. **68** (ACTUATOR RELEASE VALVE)
- 4-14 : APPROX. **30** (ACTUATOR CONTROL VALVE)
- 5-GROUND : CONTINUITY WITH SET, COAST SW ON
- 7-GROUND : **1** PULSE EACH **40** CM (DRIVE VEHICLE SLOWLY)
- 11-GROUND : CONTINUITY WITH CLUTCH PEDAL DEPRESSED (M/T) OR SHIFT LEVER IN **N** OR **P** RANGE (A/T)
(ONE OF THE CANCEL SW)
- 12-GROUND : CONTINUITY WITH PKB LEVER PULL UP (ONE OF THE CANCEL SW) OR BRAKE FLUID LEVEL WARNING SW ON
- 13-GROUND : ALWAYS CONTINUITY
- 17-GROUND : CONTINUITY WITH RESUME, ACCEL SW ON
- 10-GROUND : APPROX. **12** VOLTS WITH IGNITION SW ON AND CRUISE CONTROL MAIN SW ON
- 15-GROUND : APPROX. **12** VOLTS WITH BRAKE PEDAL DEPRESSED (ONE OF THE CANCEL SW)
- 16-GROUND : ALWAYS APPROX. **12** VOLTS

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 ECT, HOWEVER, ELECTRICALLY CONTROLS THE LINE PRESSURE AND LOCK-UP PRESSURE ETC., THROUGH THE SOLENOID VALVE. ECT COMPUTER 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 COMPUTER SELECTS THE SHIFT FOR EACH GEAR WHICH IS MOST APPROPRIATE TO THE DRIVING CONDITIONS, BASED ON INPUT SIGNALS FROM THE TCCS ECU TO TERMINALS IDL, L1, L2 AND L3 OF THE ECT COMPUTER, AND ALSO THE INPUT SIGNALS TO TERMINAL SP2 (FWD), OF THE COMPUTER FROM THE SPEED SENSOR. CURRENT IS THEN OUTPUT TO THE ECT SOLENOIDS. WHEN SHIFTING TO 1ST SPEED, CURRENT FLOWS FROM TERMINAL S1 OF THE COMPUTER → TERMINAL 3 (FWD), 2 (4WD) OF THE ECT SOLENOIDS → GROUND, AND CONTINUITY TO THE NO. 1 SOLENOID CAUSES THE SHIFT.

FOR 2ND SPEED, CURRENT FLOWS FROM TERMINAL S1 OF THE COMPUTER → TERMINAL 3 (FWD), 2 (4WD) OF THE ECT SOLENOIDS → GROUND, AND FROM TERMINAL S2 OF THE COMPUTER → TERMINAL 2 (FWD), 1 (4WD) OF THE ECT SOLENOIDS → GROUND, AND CONTINUITY TO SOLENOIDS NO. 1 AND NO. 2 CAUSES THE SHIFT.

FOR 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 EITHER NO. 1 OR NO. 2 SOLENOID.

2. LOCK-UP OPERATION

WHEN THE ECT COMPUTER JUDGES FROM EACH SIGNAL THAT LOCK-UP OPERATION CONDITIONS HAVE BEEN MET, CURRENT FLOWS FROM TERMINAL SL OF THE ECT COMPUTER → TERMINAL 1 (FWD), 3 (4WD) OF THE ECT SOLENOID → GROUND, CAUSING CONTINUITY TO THE LOCK-UP SOLENOID AND CAUSING 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 BK OF THE COMPUTER, THE COMPUTER 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 (O/D OFF INDICATOR LIGHT TURNS OFF), A SIGNAL IS INPUT TO TERMINAL OD2 OF THE COMPUTER AND COMPUTER OPERATION CAUSES GEAR SHIFT WHEN THE CONDITIONS FOR OVERDRIVE ARE MET.

* O/D MAIN SW OFF

WHEN THE OVERDRIVE SW IS TURNED TO OFF, THE CURRENT FLOWING THROUGH THE O/D OFF INDICATOR LIGHT FLOWS THROUGH THE O/D MAIN SW TO GROUND, CAUSING THE INDICATOR LIGHT TO LIGHT UP. AT THE SAME TIME, A SIGNAL IS INPUT TO TERMINAL OD2 OF THE COMPUTER AND COMPUTER OPERATION PREVENTS SHIFT INTO OVERDRIVE.

5. ECT PATTERN SELECT SW CIRCUIT

IF THE ECT PATTERN SELECT SW IS CHANGED FROM NORMAL TO POWER, THE CURRENT FLOWING THROUGH THE POWER INDICATOR FLOWS TO GROUND, CURRENT FLOWS TO TERMINAL PWR OF THE ECT COMPUTER, THE COMPUTER OPERATES, AND SHIFT UP AND SHIFT DOWN OCCUR AT HIGHER VEHICLE SPEEDS THAN WHEN THE SW IS IN NORMAL POSITION.

□ : CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS

CODE	SEE PAGE	JOINING WIRE HARNESS AND WIRE HARNESS (CONNECTOR LOCATION)
A1	32	ENGINE WIRE AND ENGINE ROOM NO. 4 WIRE (NEAR J/B NO. 2)
B1	32	ENGINE ROOM MAIN WIRE AND ENGINE ROOM NO. 4 WIRE (NEAR J/B NO. 2)
C1	32	ENGINE ROOM MAIN WIRE AND ENGINE WIRE (NEAR J/B NO. 2)
C4	32	ENGINE WIRE AND ENGINE ROOM NO. 4 WIRE (NEAR J/B NO. 2)
D1	32	ENGINE ROOM WIRE AND COWL WIRE (LEFT KICK PANEL)
J1	34	ENGINE WIRE AND A/C WIRE (BEHIND GLOVE BOX)
J2	34	COWL WIRE AND A/C WIRE (BEHIND GLOVE BOX)
J3	34	ENGINE WIRE AND A/C WIRE (BEHIND GLOVE BOX)
K1	34	ENGINE WIRE AND COWL WIRE (BEHIND GLOVE BOX)
L1	34	ENGINE WIRE AND INSTRUMENT PANEL WIRE (BEHIND GLOVE BOX)
L4		

▽ : GROUND POINTS

CODE	SEE PAGE	GROUND POINTS LOCATION
A	32	RIGHT FENDER
C	32	RADIATOR LEFT
H	34	R/B NO. 4 SET BOLT

