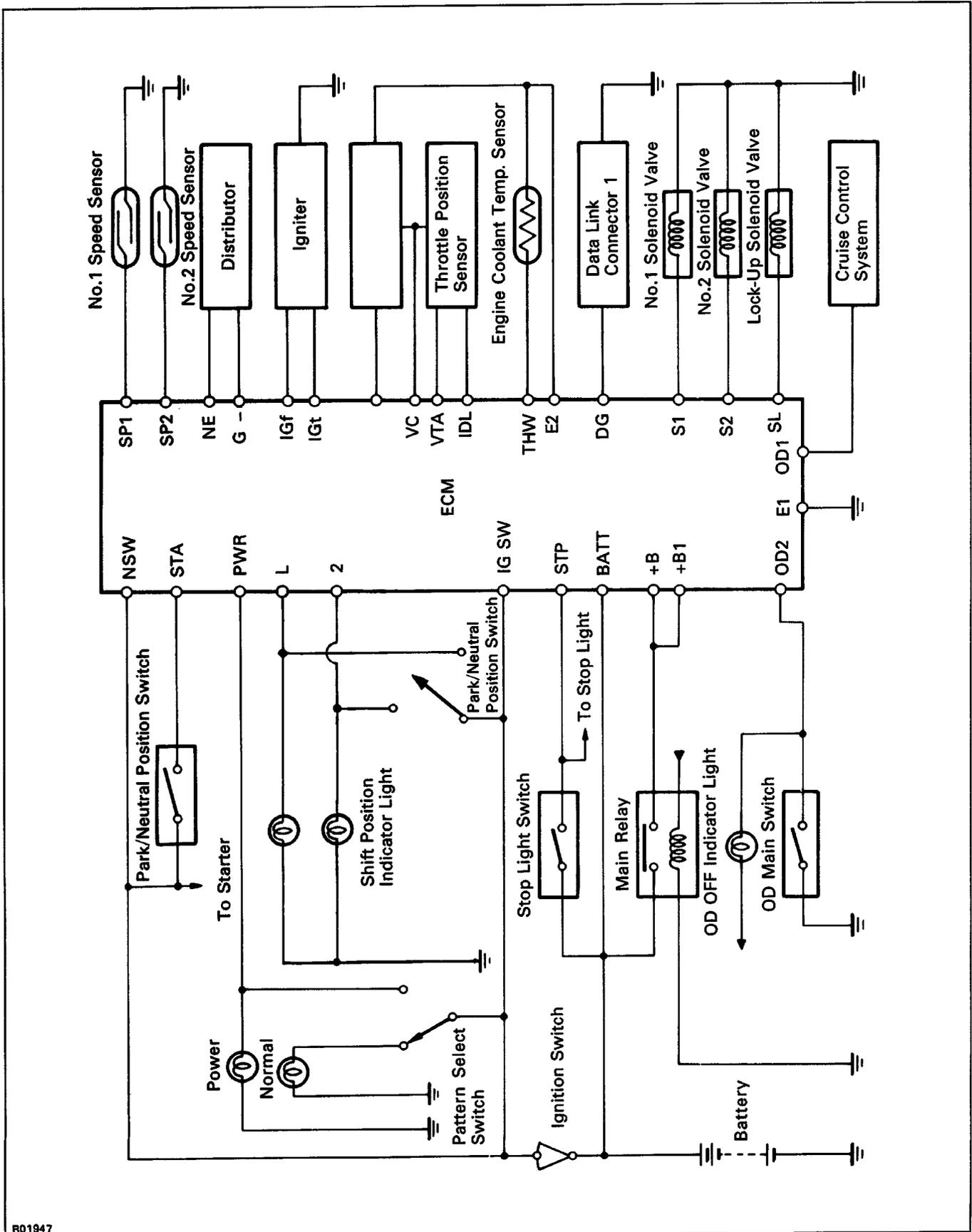
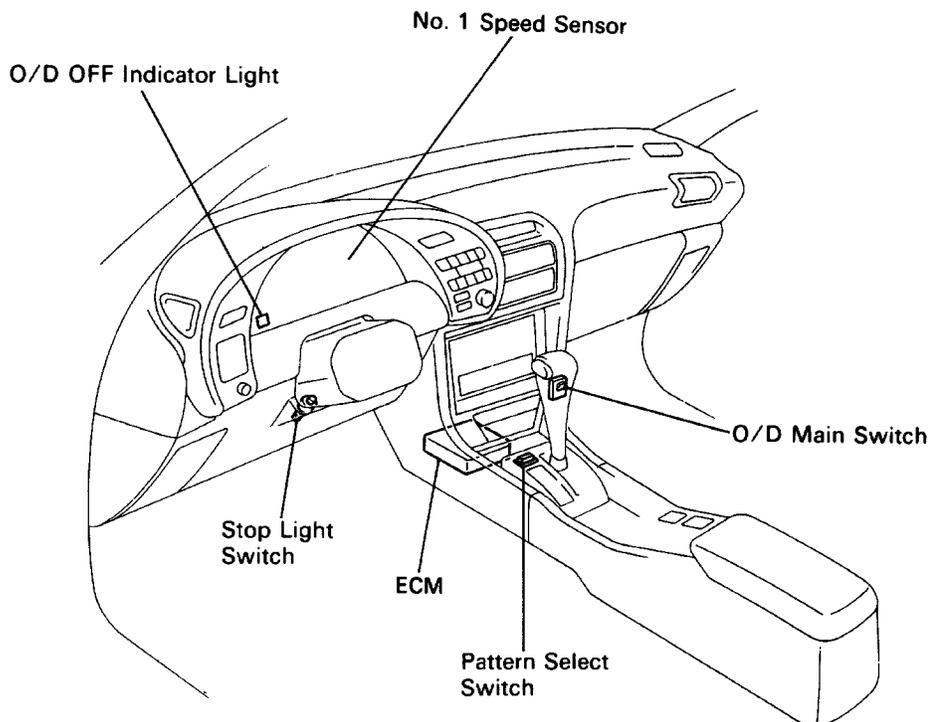
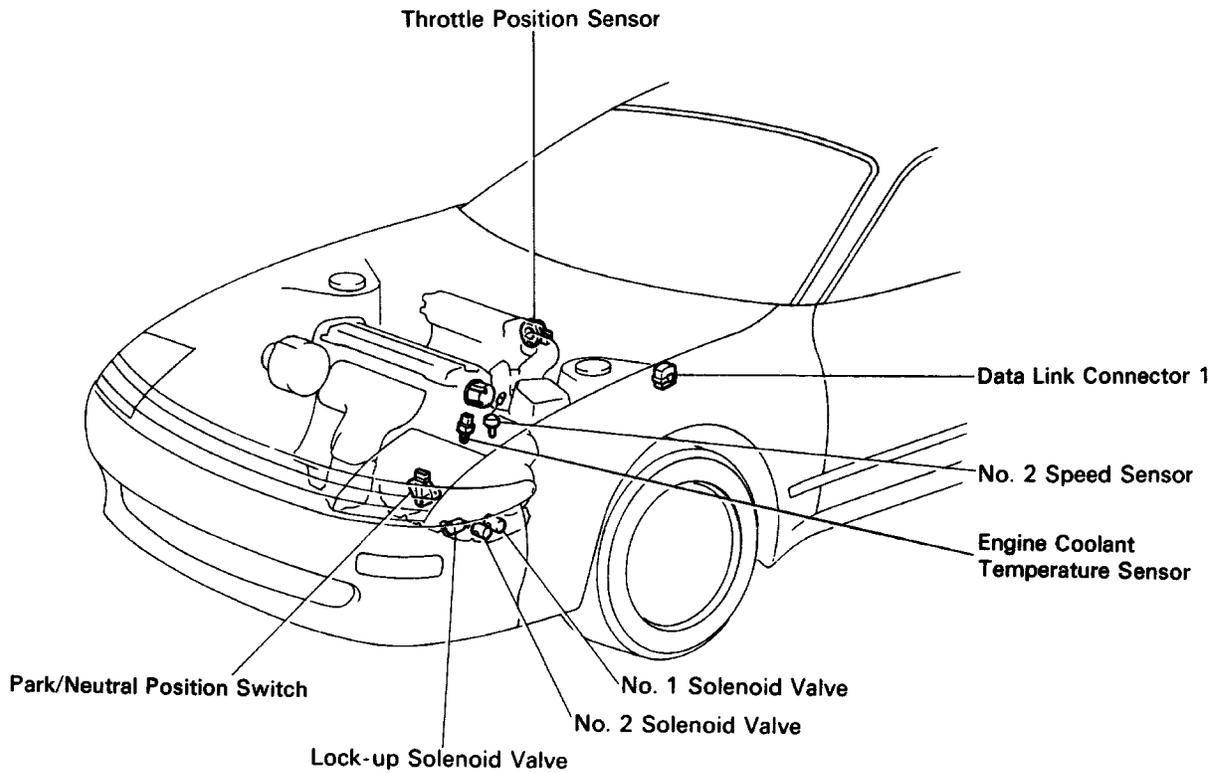


Electronic Control System (A241 E)

ELECTRONIC CONTROL CIRCUIT

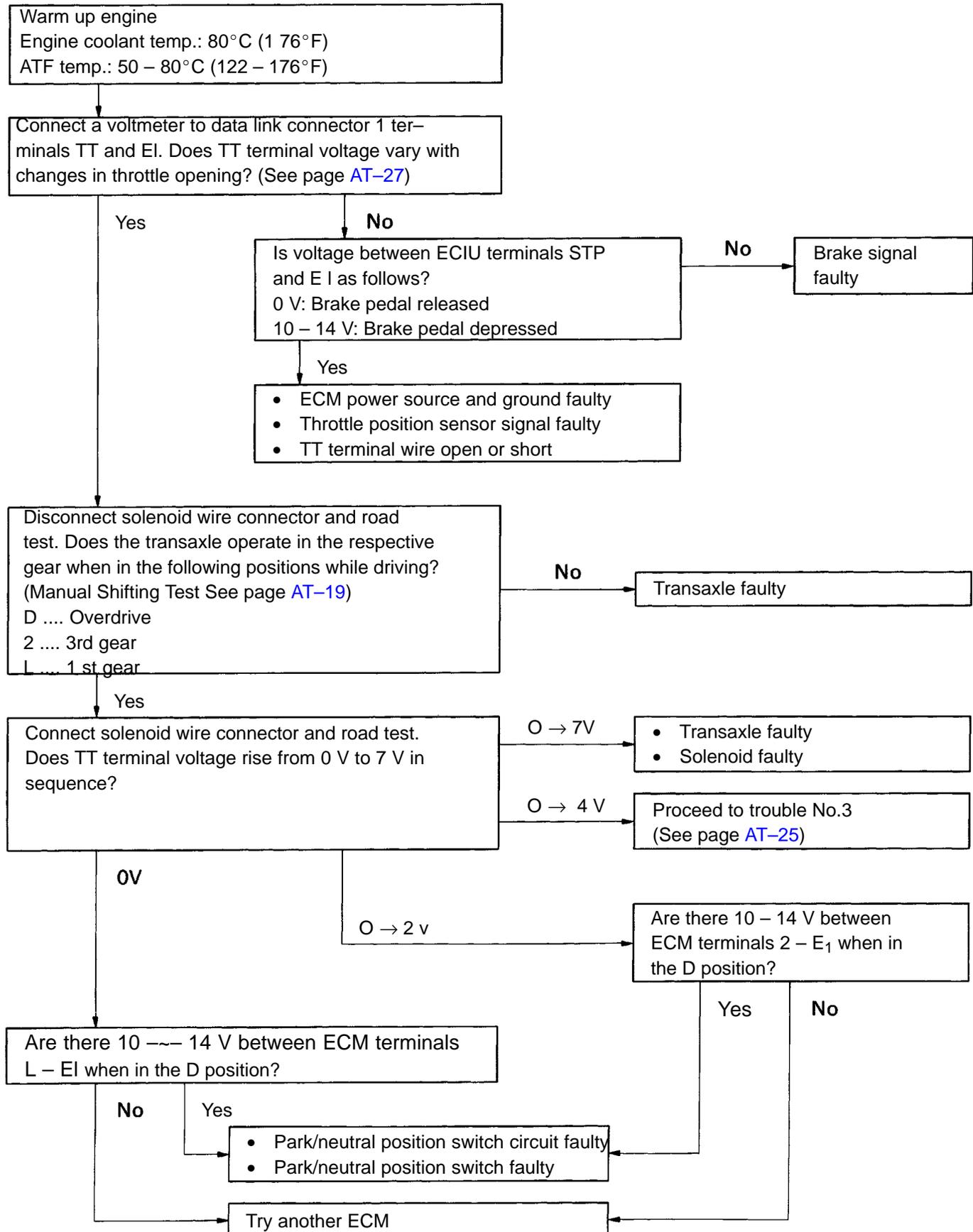


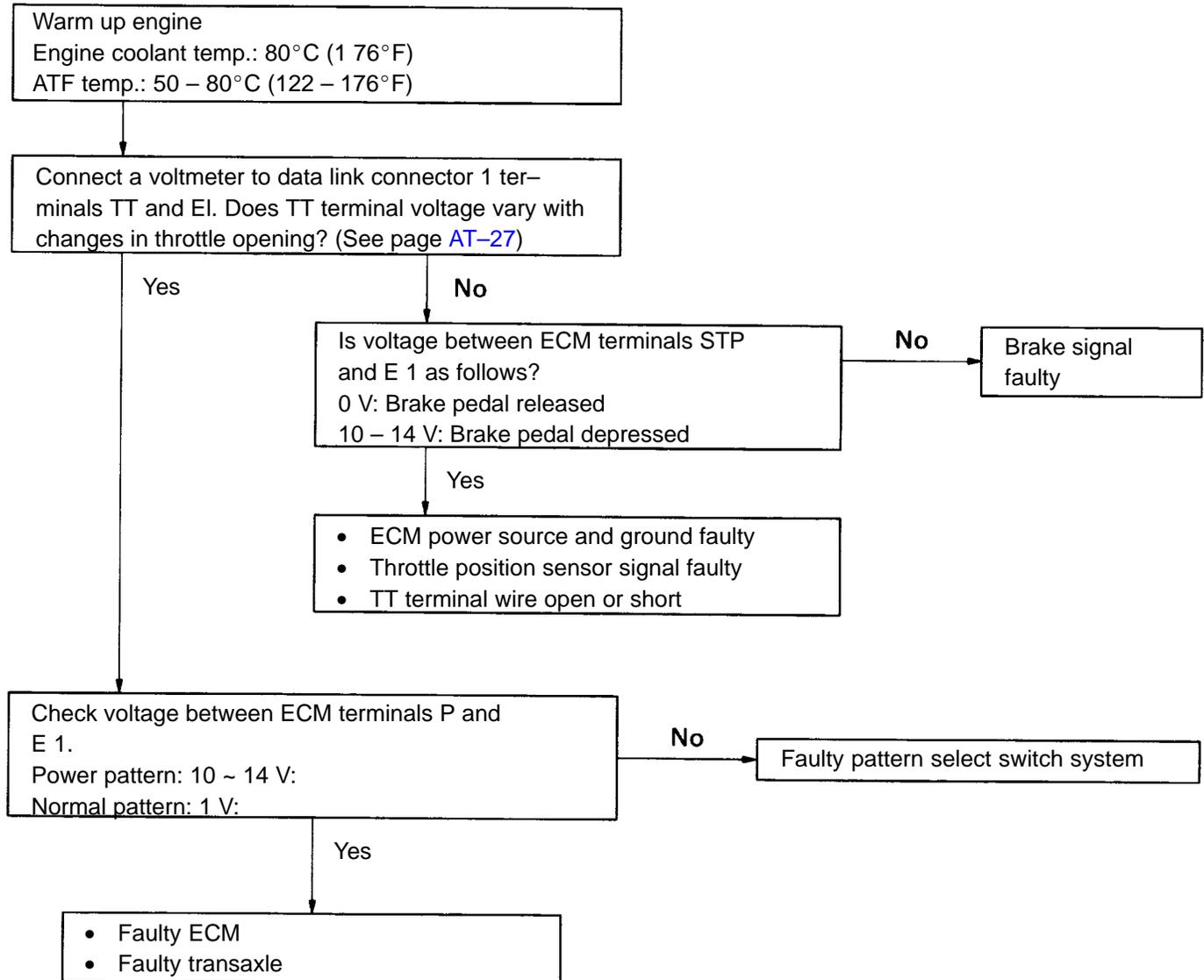
ELECTRONIC CONTROL COMPONENTS



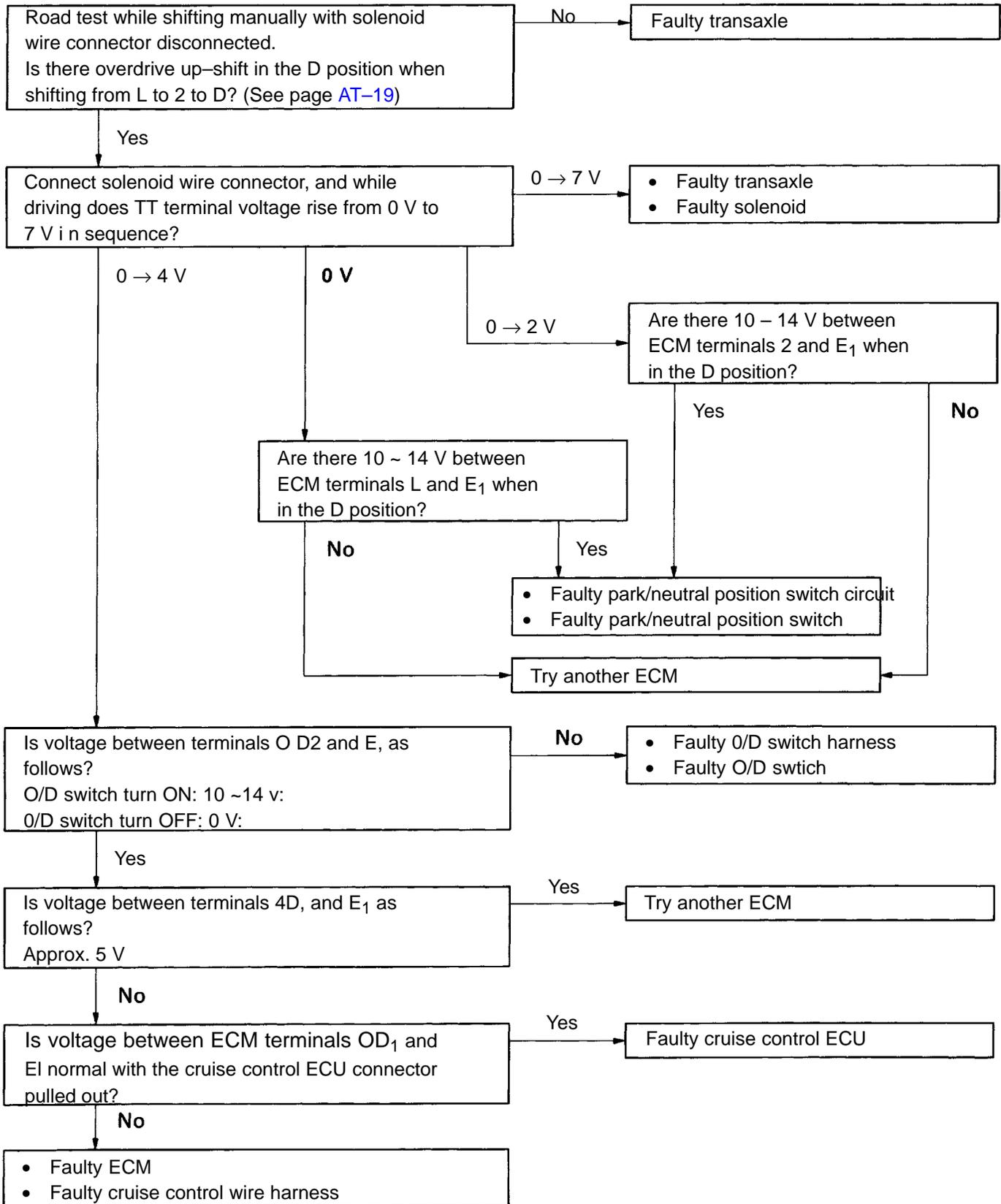
TROUBLESHOOTING FLOW-CHART

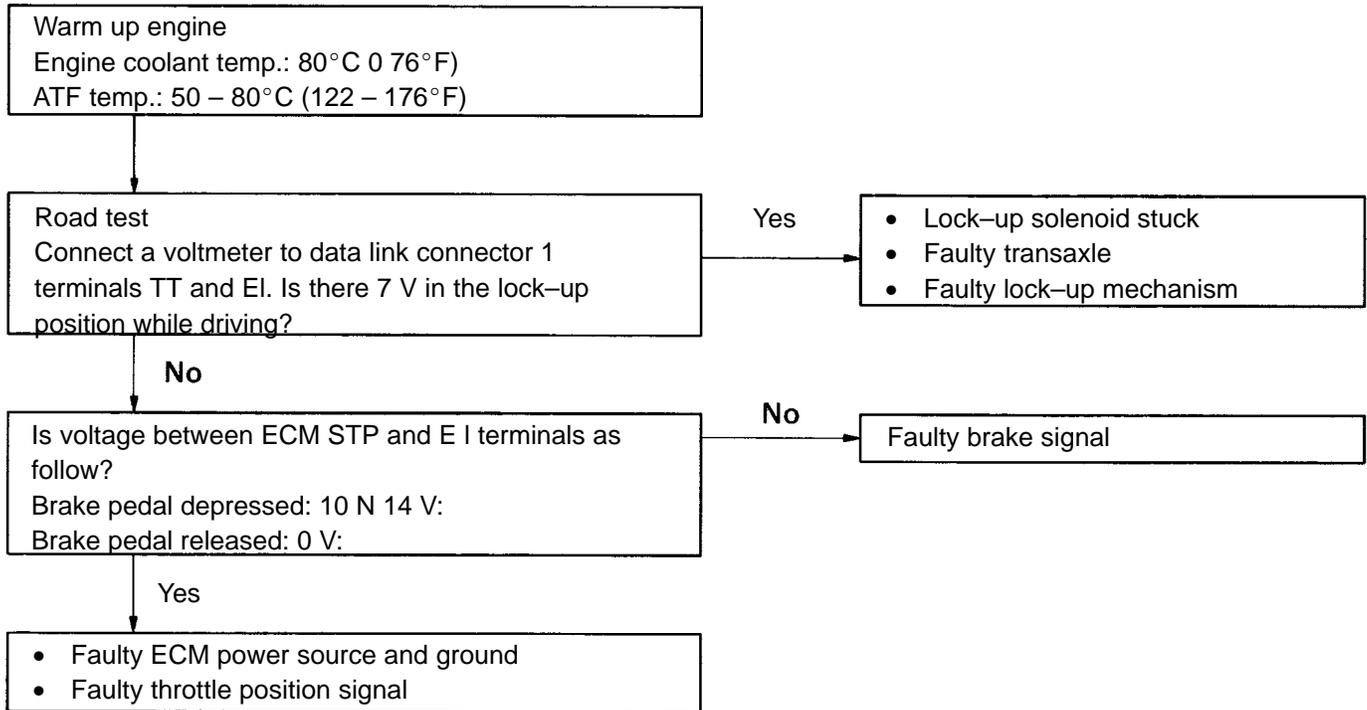
Trouble No.1 No shifting

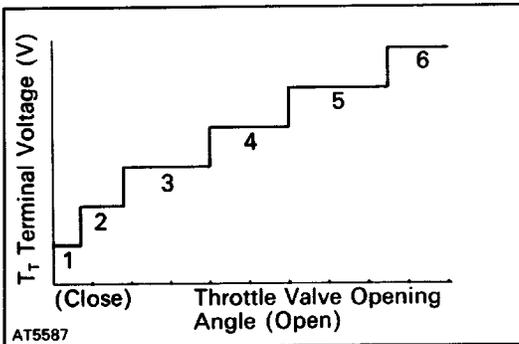
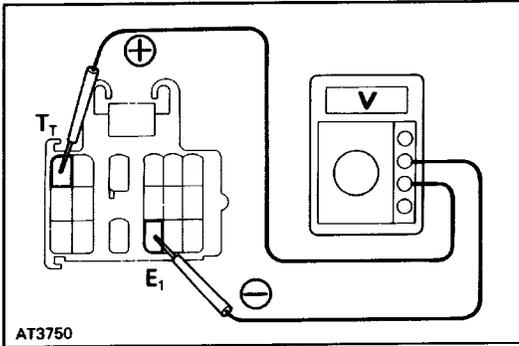


Trouble No.2 Shift point too high or too low

Trouble No. 3 No up-shift to overdrive (After warm-up)



Trouble No.4 No lock-up (After warm-up)



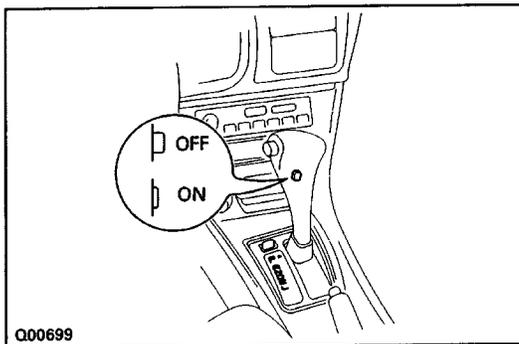
INSPECTION OF TT TERMINAL VOLTAGE

1. INSPECT THROTTLE POSITION SENSOR SIGNAL

- (a) Turn the ignition switch to ON. Do not start the engine.
- (b) Connect a voltmeter to terminals TT and E₁.
- (c) While slowly depressing the accelerator pedal, check that TT terminal voltage rises in sequence. If the voltage does not change in proportion to the throttle opening angle, there is a malfunction in the throttle position sensor or circuit.

2. INSPECT BRAKE SIGNAL

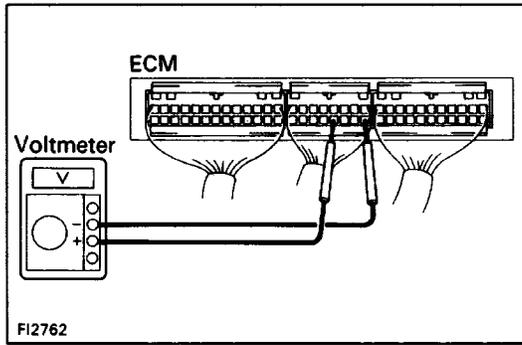
- (a) Depress the accelerator pedal until the TT terminal indicates 6V.
- (b) Depress the brake pedal and check the voltage reading from the TT terminal.
 - Brake pedal depressed 0 V
 - Brake pedal released6 V
 If not as indicated, there is a malfunction in either the stop light switch or circuit.



3. INSPECT EACH UP-SHIFT POSITION

- (a) Warm up the engine.
 - Engine coolant temperature: 80°C (176°F)**
- (b) Turn the O/D switch to "ON".
- (c) Place the pattern select switch in "Normal" and the shift lever into the D position.
- (d) During a road test (above 10 km/h or 6 mph) check that voltage at the TT terminal is as indicated below for each up-shift position.
 - If the voltage rises from 0 V to 7 V in the sequence shown, the control system is okay.
 - The chart on the left shows the voltmeter reading and corresponding gears.
 - HINT: Determine the gear position by a light shock or change in engine rpm when shifting.

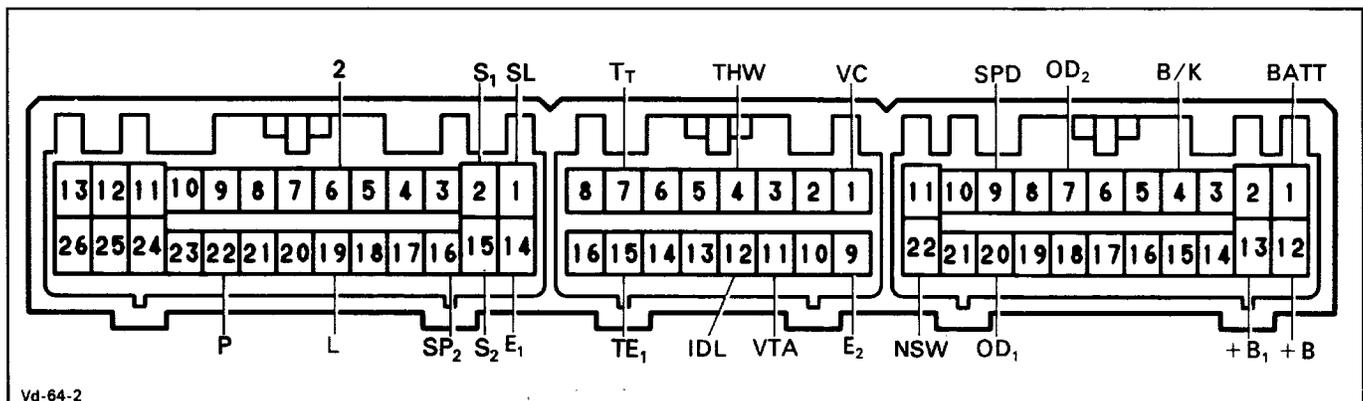
T _T terminal (V)	Gear position
0	1st
2	2nd
4	3rd
6	O/D
7	O/D Lock up



INSPECTION OF ELECTRONIC CONTROL COMPONENTS

1. INSPECT VOLTAGE OF ECM CONNECTOR

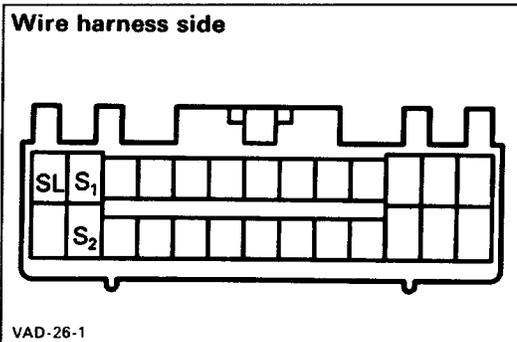
- (a) Turn on the ignition switch.
- (b) Do not disconnect ECM connector.
Measure the voltage at each terminal.



Vd-64-2

Terminal	Measuring condition	Voltage (V)	
S ₁ - E ₁	Ignition switch turned ON	10-14	
S ₂ , SL - E ₁	Ignition switch turned ON	10-14	
P - E ₁	PW R pattern	10-14	
	NORM pattern	Under 1	
ST P - E ₁	Brake pedal is depressed	10-14	
	Brake pedal is released	Under 1	
THW - E ₂	Engine coolant temp. 80°C (176°F)	0.3-0.8	
IDL - E ₂	Throttle valve fully closed	Under 0.5	
	Throttle valve open	4.5-5.5	
VTA - E ₂	Throttle valve fully closed	Under 0.5	
	Throttle valve open	4.5-5.5	
VC - E ₂	_____	4.5-5.5	
OD ₂ - E ₁	_____	10-14	
OD ₂ - E ₁	O/D main switch turned ON	10-14	
	O/D main switch turned OFF	Under 1	
SPD - E ₁	Cruise control main switch OFF	Standing still	Under 1
		Vehicle moving	Repeat : 0 ↔ 10 - 4
SP ₂ - E ₁	Standing still	Under 1	
	Vehicle moving	Repeat : 0 ↔ 4.5 - 5.5	

Terminal	Measuring condition	Voltage (V)
NSW – E ₁	P, N position	10–14
	R, D, 2, L position	Under 1
2 – E ₁	2 position	10–14
	Except 2 position	Under 1
L – E ₁	L position	10–14
	Except L position	Under 1
+B, +B – E ₁	Ignition switch turned ON	10–14
BATT – E ₁	All conditions	10–14



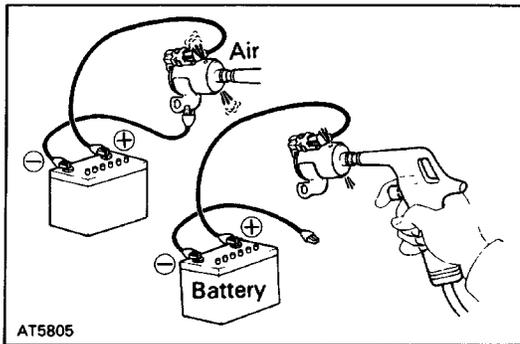
2. INSPECT SOLENOIDS

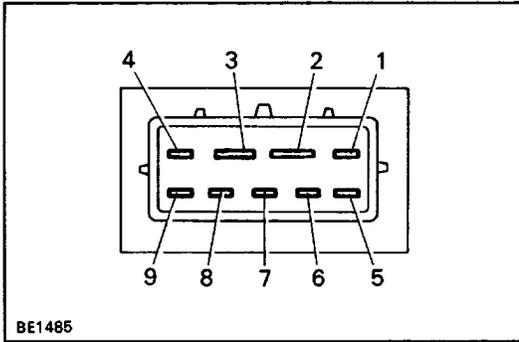
- (a) Disconnect the connector from ECM.
- (b) Measure the resistance between S₁, S₂, S_L and body ground.
Resistance: 11 –15Ω
- (c) Apply battery positive voltage to each terminal.
Check that an operation noise can be heard from the solenoid.

3. CHECK SOLENOID SEALS

If there is foreign material in the solenoid valve, there will be no fluid control even with solenoid operation.
Check No.1, No.2 and lock-up solenoid valves.

- **Applying 490 kPa (5 kgf/cm², 71 psi) of compressed air, check that the solenoid valves do not leak the air.**
- **When battery positive voltage is supplied to the solenoids, check that solenoid valves open.**

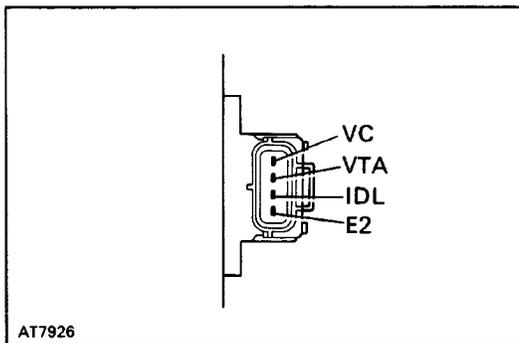




4. INSPECT PARK/NEUTRAL POSITION SWITCH

Using an ohmmeter, check the continuity of the terminals for each switch position shown in the table below.

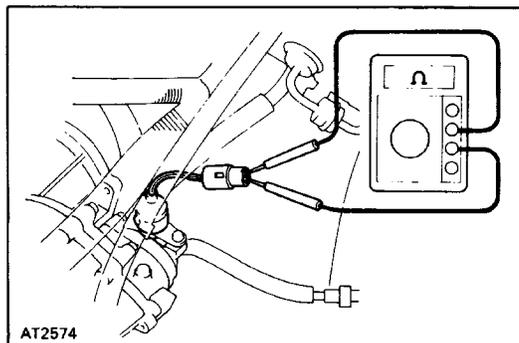
Range \ Terminal	2	3	6	1	5	7	8	9	4
P	○—○			○—○					
R				○—○	○—○				
N	○—○			○—○		○—○			
D				○—○			○—○		
2				○—○				○—○	
L				○—○					○—○



5. INSPECT THROTTLE POSITION SENSOR

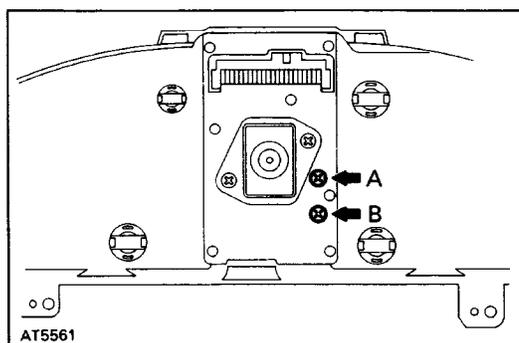
Using an ohmmeter, check the resistance between each terminal.

Terminal	Throttle valve condition	Resistance (kΩ)
IDL - E2	Fully closed	0-0.1
	Open	Infinity
vc - E2	-	3-7
Vt,a - E2	Fully closed	0.2-0.8
	Fully open	3.2-10



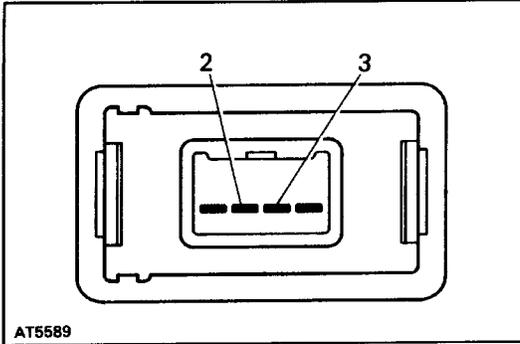
6. INSPECT NO.2 SPEED SENSOR

- Remove the air cleaner assembly.
- Jack up a front wheel on one side.
- Connect an ohmmeter between the terminals.
- Spin the wheel and check that the meter needle deflects from 0 to ∞ Ω.



7. INSPECT NO.1 SPEED SENSOR IN COMBINATION METER

- Remove the combination meter.
- Connect an ohmmeter between terminals A and B.
- Revolve the meter shaft and check that the meter needle repeatedly deflects from 0Ω to ∞ Ω.

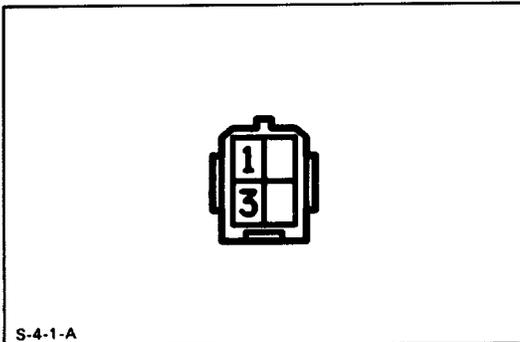


8. INSPECT PATTERN SELECT SWITCH

Inspect that there is continuity between terminals 2 and 3.

HINT: As there are diodes inside, be careful of the tester probe polarity.

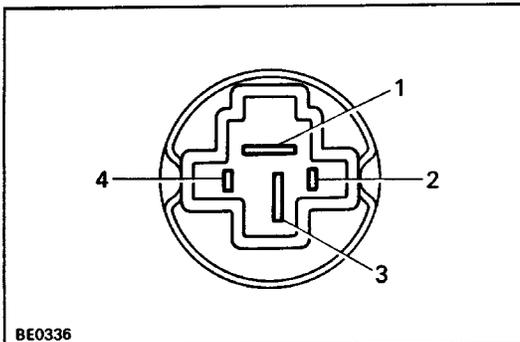
Terminal	2	3
Pattern		
POWER	○	○
NORMAL		



9. INSPECT O/D MAIN SWITCH

Inspect that there is continuity between terminals 1 and 3.

Terminal	1	3
S/W position		
ON		
OFF	○	○



10. INSPECT STOP LIGHT SWITCH

Inspect that there is continuity between terminals 1 and 3.

Terminal	1	3
S/W position		
OFF (Release brake pedal)		
ON (Depress brake pedal)	○	○