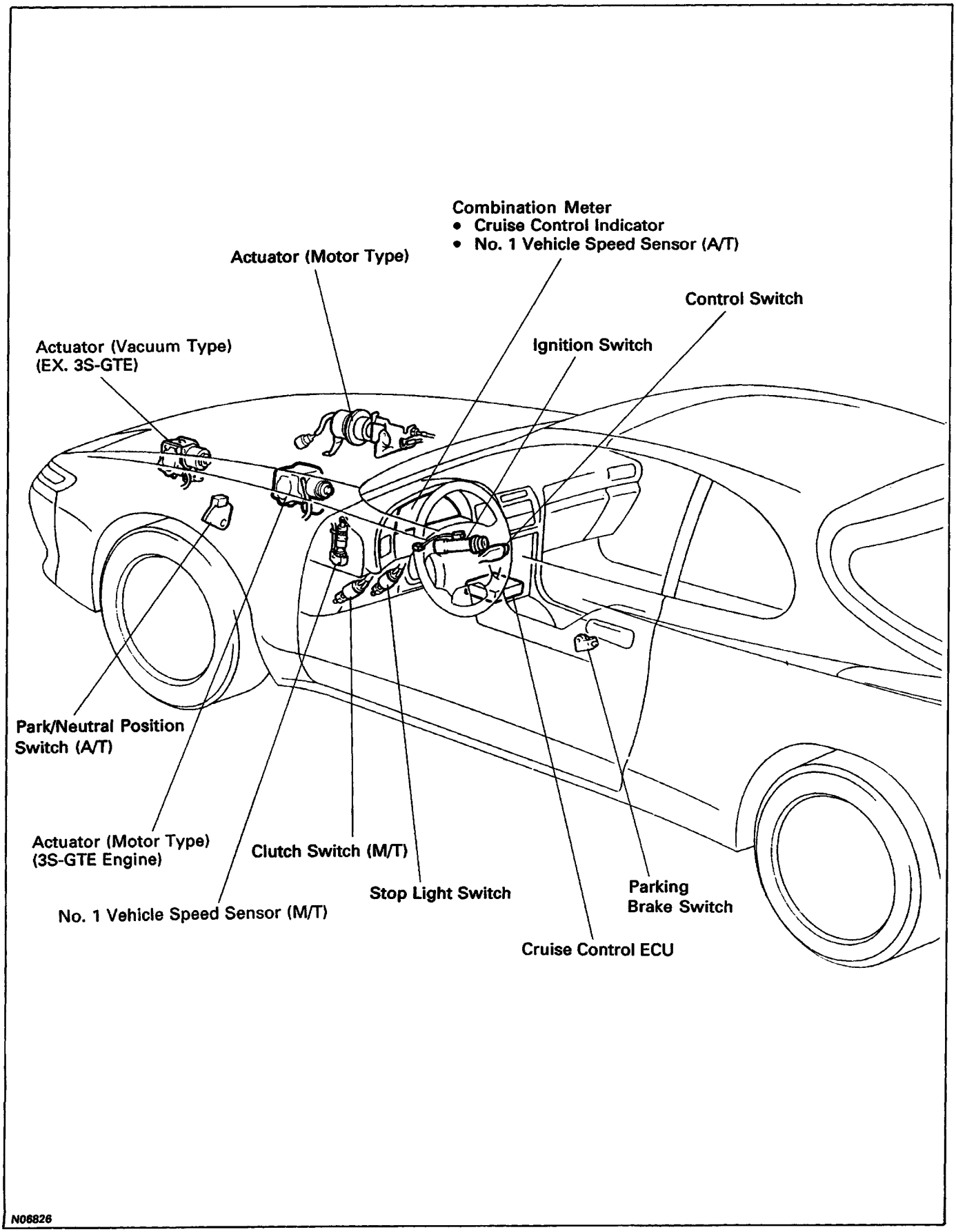
CRUISE CONTROL SYSTEM

PARTS LOCATION



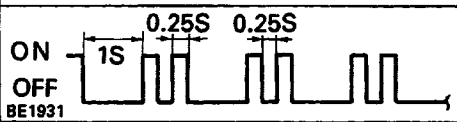
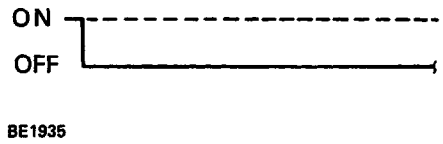
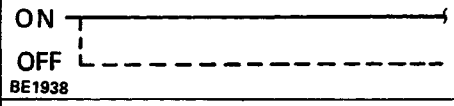
DIAGNOSIS SYSTEM

OUTPUT OF DIAGNOSTIC TROUBLE CODE

READ DIAGNOSTIC TROUBLE CODE

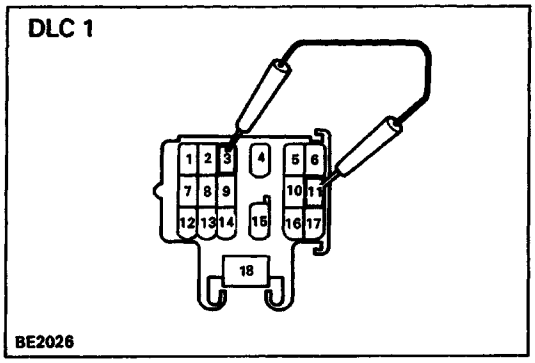
TYPE A

(a) Turn the ignition switch on.
(b) Turn the control switch to SET/COAST or RES/ACC position, and keep it there.
(c) Push the main switch ON.
(d) Check that the indicator light “CRUISE” light–up in the combination meter.
(e) Turn the SET/COAST or RES/ACC switch oft.
(f) Meet the conditions listed in the table below.
(g) Read the diagnosis trouble code on the cruise control indicator light.

No.	Conditions	Indication code	Diagnosis
1	Turn the control switch to SET/COAST position.		SET/COAST circuit is normal.
2	Turn the control switch to RES/ACC position.		RES/ACC circuit is normal.
3	Each cancel switch is turned ON. • Control switch (to CANCEL) • Stop light switch • Parking brake switch • Park/neutral position start switch (to N or P range)		Each cancel switch is normal.
4	Drive at approx. 40 km/h (25 mph) or below.		No. 1 vehicle speed sensor circuit is normal.
	Drive at approx. 40 km/h (25 mph) or over (w/o ECT)		No. 1 vehicle speed sensor circuit is normal.

HINT:

- Indication codes appear in order from No.1.
- If there is no indication code, perform troubleshooting and inspection. (See page BE–89 or BE–103)
- Indication is stopped when the MAIN switch is repushed.



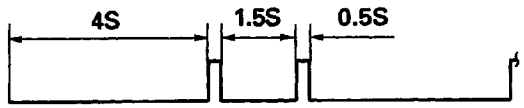
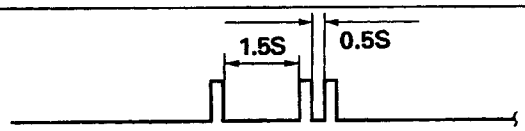
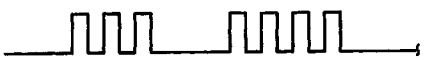
TYPE B

(a) If while driving with the cruise control on, the system is canceled by a malfunction in either the actuator, speed sensor or speed control switch circuit, the cruise control indicator light “CRUISE” will blink 5 times.

(b) While stopped, connect terminals 3 and 11 of the check connector.
HINT: If the ignition switch is turned off, the diagnostic code will be erased from the computer memory.

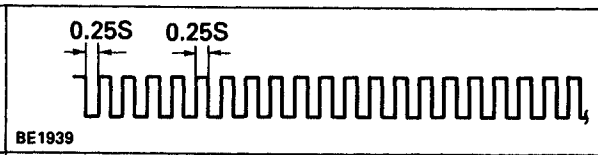
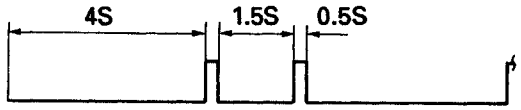
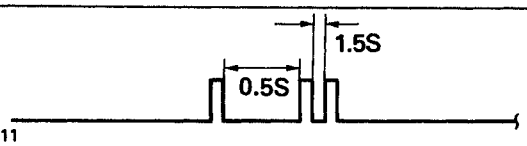
(c) Read the diagnostic trouble code on the indicator light “CRUISE”.

(w/Vacuum Type Actuator)

Indication code		Diagnosis
	 BE1939	Normal.
11	 BE1940	• Duty ratio of 100% output to acceleration side. • Overcurrent (short) in control valve circuit.
12	 BE2711	• Overcurrent (short) in reverse valve circuit. • Open in reverse valve circuit.
21	 BE1941	Vehicle speed signal not sent for 140 m sec. or longer
23	 BE1943	• Vehicle speed has decreased by 16 km/h (10 mph) or more from the set speed during cruising.
32	 BE1945	Short circuit in control switch circuit.
34	 BE4342	Control switch does not turn off before switching.
41	 BE4343	ECU malfunction.

* If the set speed can be maintained when the speed control switch is again set at SET/COAST, there is no malfunction.

(w/ Motor Type Actuator)

Indication code		Diagnosis
	 BE1939	Normal.
11	 BE1940	Excessive current flowed to motor or magnet clutch drive circuit.
12	 BE2711	Open circuit in magnet clutch circuit
13	 BE4344	• Position sensor circuit abnormal. • Open circuit in motor.
21	 BE1941	Vehicle speed signal not sent for 140 msec. or longer
23	 BE1943	• Vehicle speed has decreased by 16 km/h (10 mph) or more from the set speed during cruising.
31	 BE1944	RESUME/ACCEL switch is ON always when MAIN switch is pushed ON.
32	 BE1945	Short circuit in control switch circuit.
34	 BE4342	Control switch does not turn off before switching.
41	 BE4345	ECU malfunction.
* If the set speed can be maintained when the speed control switch is again set at SET/COAST, there is no malfunction.		

HINT:

- Indication codes appear in order from No.11.
- If there is no indication code, perform troubleshooting and inspection. (See page BE–89 or 103)

TROUBLESHOOTING

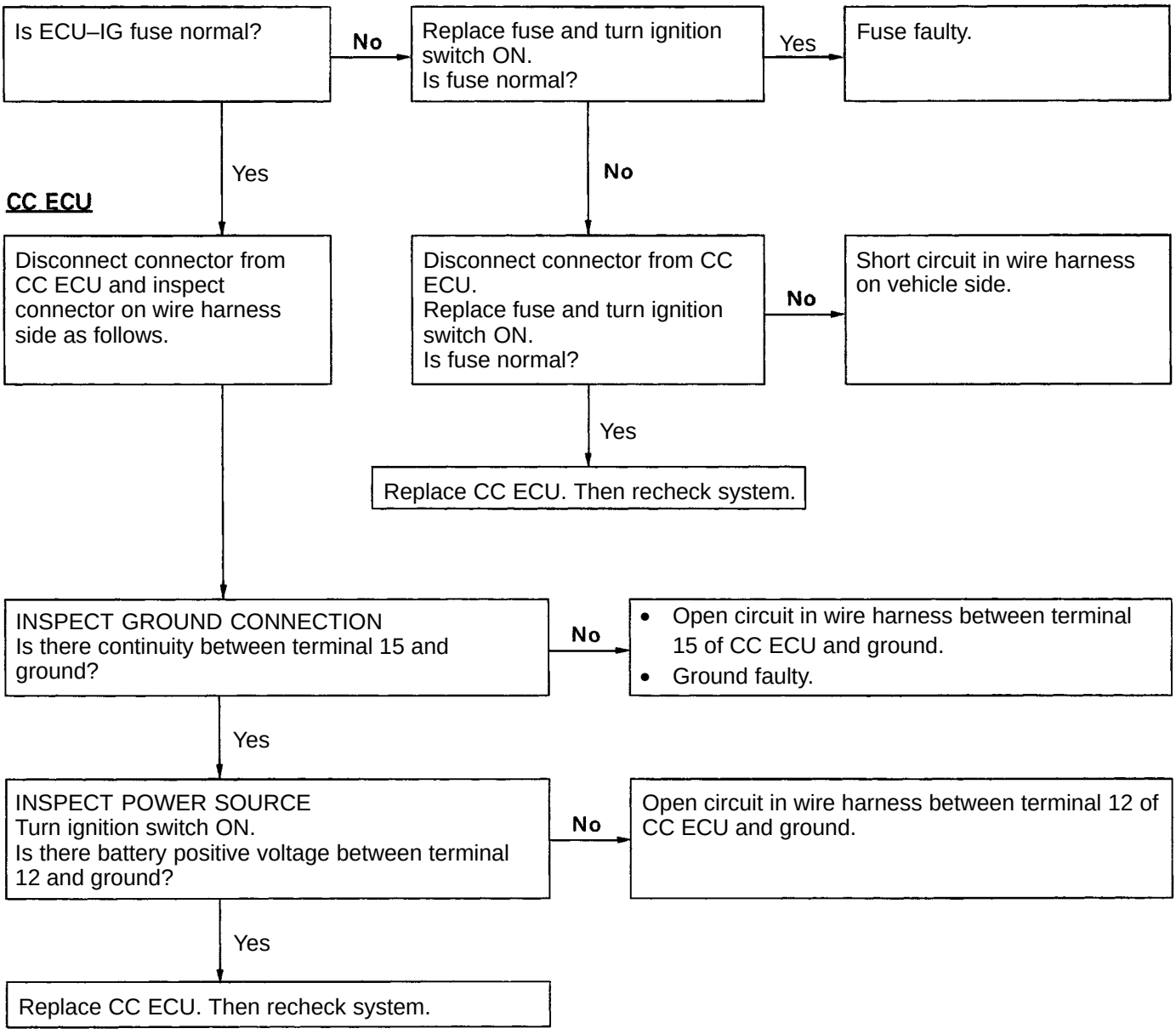
w/Vacuum Type Actuator

You will find the source of the trouble more easily by properly using the table shown below. In this table, the numbers indicate the order of priority of the causes of trouble. Check each part in the order shown.

Chart No.					D	C	C	F	H, I	G	E	K	J		
Inspection Item / Diagnosis Trouble Code / Problem	Type B	Type A		CC ECU	Actuator	Main Switch (in Control Switch)	Control Switch	Stop Light Switch	Clutch Switch or Park/–Neutral Position Switch	Parking Brake Switch	No. 1 Vehicle Speed Sensor, or Speedometer Cable	O/D OFF Circuit	Electrical Controlled Transaxle Solenoid No. 2 Circuit		
• "CRUISE" indicator light blinks 5 times. • Cruise control system does not set. • Cruise control system does not operate.	11			2	1										
	12			3	1			2							
	21			2							1				
	23			3	2						1				
	31			2			1								
	32			2			1								
	33			2			1								
	41			1											
	Normal	4	OK	7	6	1	2	3	4	5					
			NG	2							1				
Set speed deviates on high or low side.		5	OK	2	1										
			NG								1				
Vehicle speed fluctuates when speed control switch turned to SET.				3	2						1				
Set speed does not cancel when brake pedal depressed.		3	OK	3	1			2							
			NG	2				1							
Set speed does not cancel when parking brake lever pulled.		3	OK	2	1										
			NG	2						1					
Set speed does not cancel when shifted to "N" range. (A/T)		3	OK	2	1										
			NG	2					1						
Set speed does not cancel when clutch pedal depressed. (M/T)		3	OK	2	1										
			NG	2					1						
Vehicle speed does not decrease when speed control switch turned to COAST.		1	OK	3	1						2				
			NG	2			1								
Vehicle speed does not accelerate when speed control switch turned to ACCEL.		2	OK		1						2	3	4		
			NG	2			1								
Vehicle speed does not return to memorized speed when control switch turned on RESUME		2	OK	3	1						2				
			NG	2			1								
Set speed does not cancel when speed control switch turned to CANCEL.		3	OK	2	1										
			NG	2			1								
Speed can be set below about 40 km/h 425 mph.)		4	OK	2	1										
			NG	2							1				
Cruise control will not disengage even at about 40 km/h (25 mph).		4	OK	2	1										
			NG	2							1				
Acceleration response is sluggish when speed control switch turned to "ACCEL" or "RESUME".				5	2		1					3	4		

A	POWER SOURCE CIRCUIT

HINT: While carrying out the following inspection, make certain that the connectors and terminals are properly connected.



CC: Cruise Control

B CRUISE CONTROL INDICATOR CIRCUIT

HINT: while carrying out the following inspection, make certain that the connectors and terminals are properly connected.

Is GAUGE fuse normal?

No → Replace fuse and turn ignition switch ON. Is fuse normal?

Yes → Fuse faulty.

COMBINATION METER

Yes → Disconnect connector “B” from combination meter and inspect connector on wire harness side as follows.

No → Short circuit in wire harness on vehicle side.

INSPECT POWER SOURCE
Turn ignition switch ON.
Is there battery positive voltage between terminal B–7 and ground?

No → Open circuit in wire harness between terminal B–7 and GAUGE fuse.

Yes

INSPECT BULB CONDITION
Is bulb condition normal?

No → Replace bulb. Then recheck system.

Yes

CC ECU

Install bulb and connect connector to combination meter.
Disconnect connector from CC ECU and inspect connector on wire harness side as follows.

INSPECT INDICATOR CIRCUIT
Is there no continuity between terminal 4 and ground?

No →
- Short circuit in wire harness between terminals 4 of CC ECU and C–2 combination meter.
- Short circuit in circuit plate of combination meter between terminal C–2 and CC indicator bulb.

Yes

Turn ignition ON.
Is there battery positive voltage between terminal 4 and ground?

No →
- Open circuit in wire harness between terminals 4 of CC ECU and C–2 of combination meter.
- Open circuit in circuit plate of combination meter between terminal C–2 and CC indicator bulb or between terminal B–7 and CC indicator bulb.

Yes

Replace CC ECU. Then recheck system.

CC: Cruise Control

C CONTROL SWITCH CIRCUIT

HINT: While carrying out the following inspection, make certain that the connectors and terminals are properly connected.

CONTROL SWITCH

Disconnect connector from control switch and inspect connector on wire harness side as follows.

INSPECT GROUND CONNECTION
Is there continuity between terminal 3 (B–17) and ground?

No →
- Open circuit in wire harness between terminal 3(B–17) of control switch and ground.
- Ground faulty.

Yes

INSPECT CONTROL SWITCH (See page BE–120)
Is control switch operation normal?

No → Replace control switch. Then recheck system.

Yes

CC ECU

Connect connector to control switch.
Disconnect connector from CC ECU and inspect connectors on wire harness side as follows.

INSPECT MAIN SWITCH CIRCUIT
Is there no continuity between terminal 6 and ground with main switch OFF?

Yes → Short circuit in wire harness between terminals 6 of CC ECU and (B–15) of control switch.

No

Is there continuity between terminal 6 and ground with main switch ON?

No → Open circuit in wire harness between terminals 6 of CC ECU and 5 (B–15) of control switch.

Yes

INSPECT CONTROL SWITCH CIRCUIT
Is there no continuity between terminal 19 and ground with control switch OFF?

Yes → Short circuit in wire harness between terminals 19 of CC ECU and 4 (B–5) of control switch.

No

Is there resistance as shown in table below between terminal 19 and ground when control switch is turned to each position?

Position	Resistance (Ω)
RES/ACC	Approx. 68
SET/COAST	Approx. 198
CANCEL	Approx. 418

No → Open circuit in wire harness between terminals 19 of CC ECU and 4 (B–5) of control switch.

Yes

Replace CC ECU. Then recheck system.

( ): without SRS
CC: Cruise Control

D ACTUATOR CIRCUIT

HINT: while carrying out the following inspection, make certain that the connectors and terminals are properly connected.

VACUUM HOSE

Are there cranks or other damage on vacuum hose?

Yes → Replace hose. Then recheck system.

No

ACTUATOR

Disconnect connector from actuator and inspect connector on wire harness side as follows.

CC ECU

INSPECT GROUND CONNECTION
Is there continuity between terminal 3 and ground?

No → Disconnect connector from CC ECU and inspect connector on wire harness side as follows.

Yes

Is there continuity between terminal 15 and ground?

No →
- Open circuit in wire harness between terminal 15 of CC ECU and ground.
- Ground faulty.

Yes

INSPECT CC ECU
Is there continuity between terminals 15 and 16 on ECU side connector?

No → Replace CC ECU. Then recheck system.

Yes

Open circuit in wire harness between terminals 16 or CC ECU and 3 of actuator.

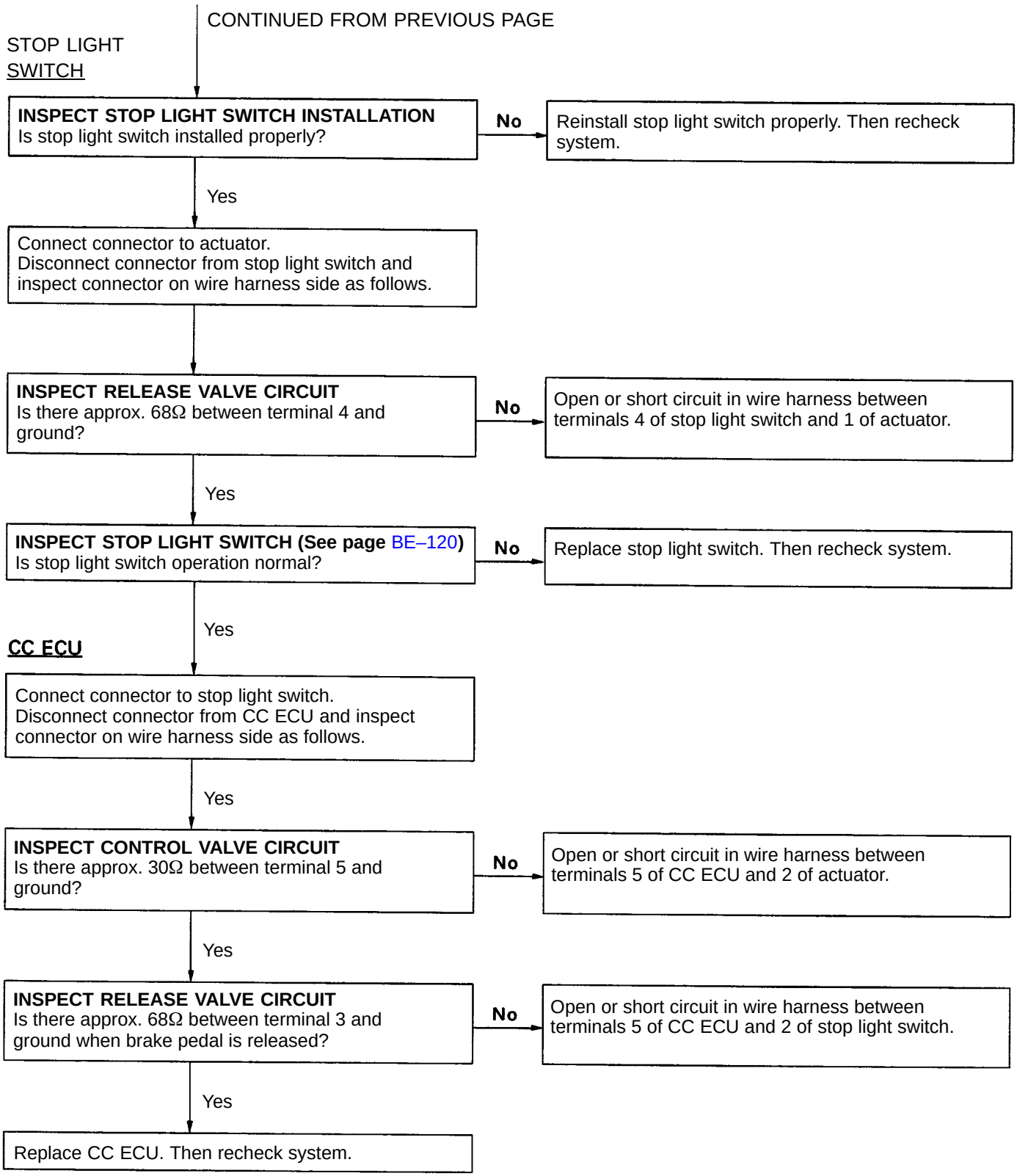
INSPECT ACTUATOR (See page BE–121)
Is actuator operation normal?

No → Replace actuator. Then recheck system.

Yes

CC: Cruise Control

CONTINUED ON NEXT PAGE



CC: Cruise Control

E–1 NO. 1 VEHICLE SPEED SENSOR CIRCUIT (with A/T)

HINT: While carrying out the following inspection, make certain that the connectors and terminals are properly connected.

SPEED METER CABLE

Does meter fluctuate when driving at steady speed?

Yes → Replace meter cable. Then recheck system.

No

COMBINATION METER

Disconnect connector “B” from combination meter and inspect connector on wire harness side as follows.

INSPECT GROUND CONNECTION
Is there continuity between terminal B–5 and ground?

No →
- Open circuit in wire harness between terminal B–5 of combination meter and ground.
- Ground faulty.

Yes

INSPECT NO. 1 VEHICLE SPEED SENSOR (See page BE–121)
Is speed sensor operation normal?

No → Replace speedometer. Then recheck system.

Yes

C EC

Connect connector “B” to combination meter. Disconnect connector from CC ECU and inspect connector on wire harness side as follows.

INSPECT NO. 1 VEHICLE SPEED SENSOR CIRCUIT
Is there continuity repeatedly between terminal 8 and ground?

No →
- Open or short circuit in wire harness between terminals 8 of CC ECU and B–6 of combination meter.
- Open or short circuit in circuit plate of combination meter between terminal B–6 and speed sensor.
- Open circuit in circuit plate of combination meter between terminal B–5 and speed sensor.

Yes

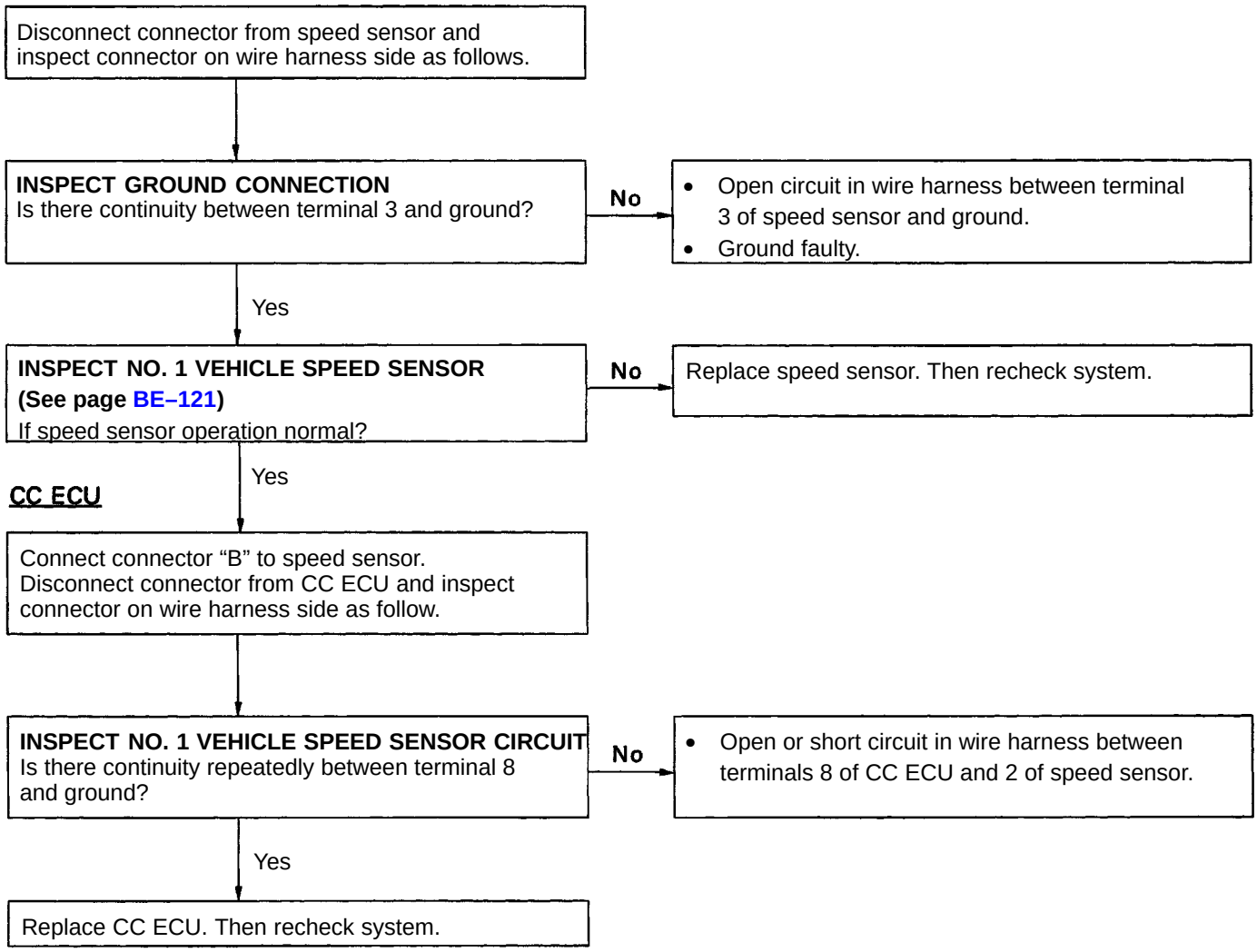
Replace CC ECU. Then recheck system.

CC: Cruise Control

E–2 NO. 1 VEHICLE SPEED SENSOR CIRCUIT (with M/T)

HINT: While carrying out the following inspection, make certain that the connectors and terminals are properly connected.

NO. 1 VEHICLE SPEED SENSOR



CC: Cruise Control

F STOP LIGHT SWITCH CIRCUIT

HINT: While carrying out the following inspection, make certain that the connectors and terminals are properly connected.

INSPECT STOP LIGHT SYSTEM
!s stop Light system operation normal?
Yes → Inspect CC ECU on next page.

No

Is STOP fuse normal?
No → Replace fuse.
Is fuse normal?
Yes → Fuse faulty.

Yes

No

Disconnect connector from CC ECU and replace fuse.
Is fuse normal?
No →
- Short circuit in wire harness between terminal1 of stop light switch and STOP fuse.
- Short circuit in wire harness between terminal 18 of CC ECU and STOP fuse.

Yes

Replace fuse and depress brake pedal.
If fuse normal?
No →
- Short circuit in wire harness between terminal 3 of stop light switch and stop light.
- Short circuit in wire harness between terminals 3 of stop light switch and 17 of CC ECU.

Yes

Replace CC ECU. Then recheck system.

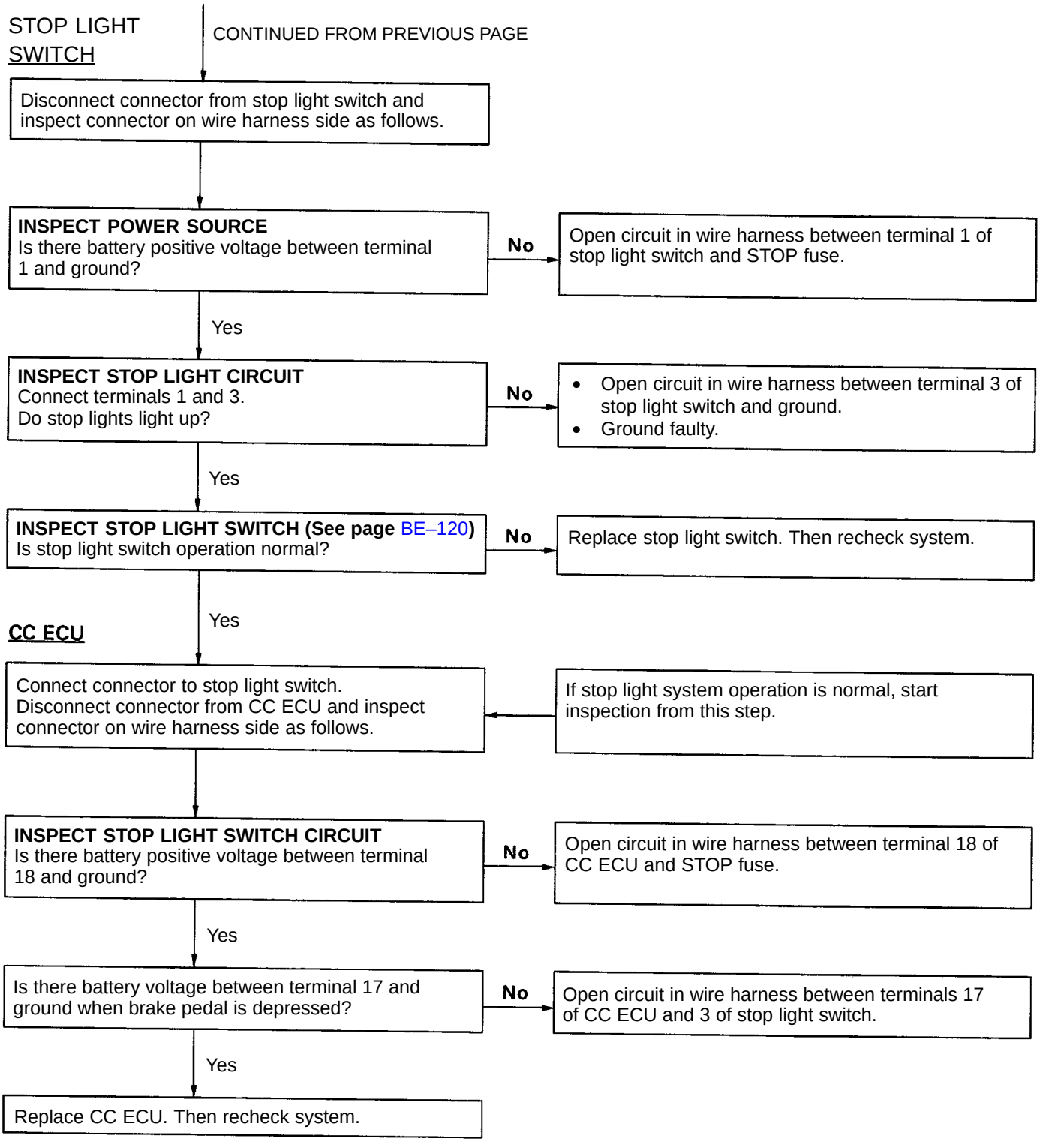
STOP LIGHT
SWITCH

INSPECT STOP LIGHT SWITCH INSTALLATION
Is stop light switch installed properly?
No → Reinstall stop light switch properly.
Then recheck system.

Yes

CC: Cruise Control

CONTINUED ON NEXT PAGE



CC: Cruise Control

G PARKING BRAKE SWITCH CIRCUIT

HINT: While carrying out the following inspection, make certain that the connectors and terminals are properly connected.

INSPECT PARKING BRAKE SWITCH
(See page BE–56**)**
Is parking brake switch operation normal?

No → Replace parking brake switch. Then recheck system.

Yes

CC ECU

Connect connector to parking brake switch.
Disconnect connector from CC ECU and inspect connector on wire harness side as follows.

INSPECT PARKING BRAKE SWITCH CIRCUIT
Is there no continuity between terminal 14 and ground when parking brake lever is pulled?

No → Short circuit in wire harness between terminal 14 of CC ECU and parking brake switch.

Yes

Is there continuity between terminal 14 and ground when parking brake lever is released?

No → Open circuit in wire harness between terminal 14 of CC ECU and parking brake switch.

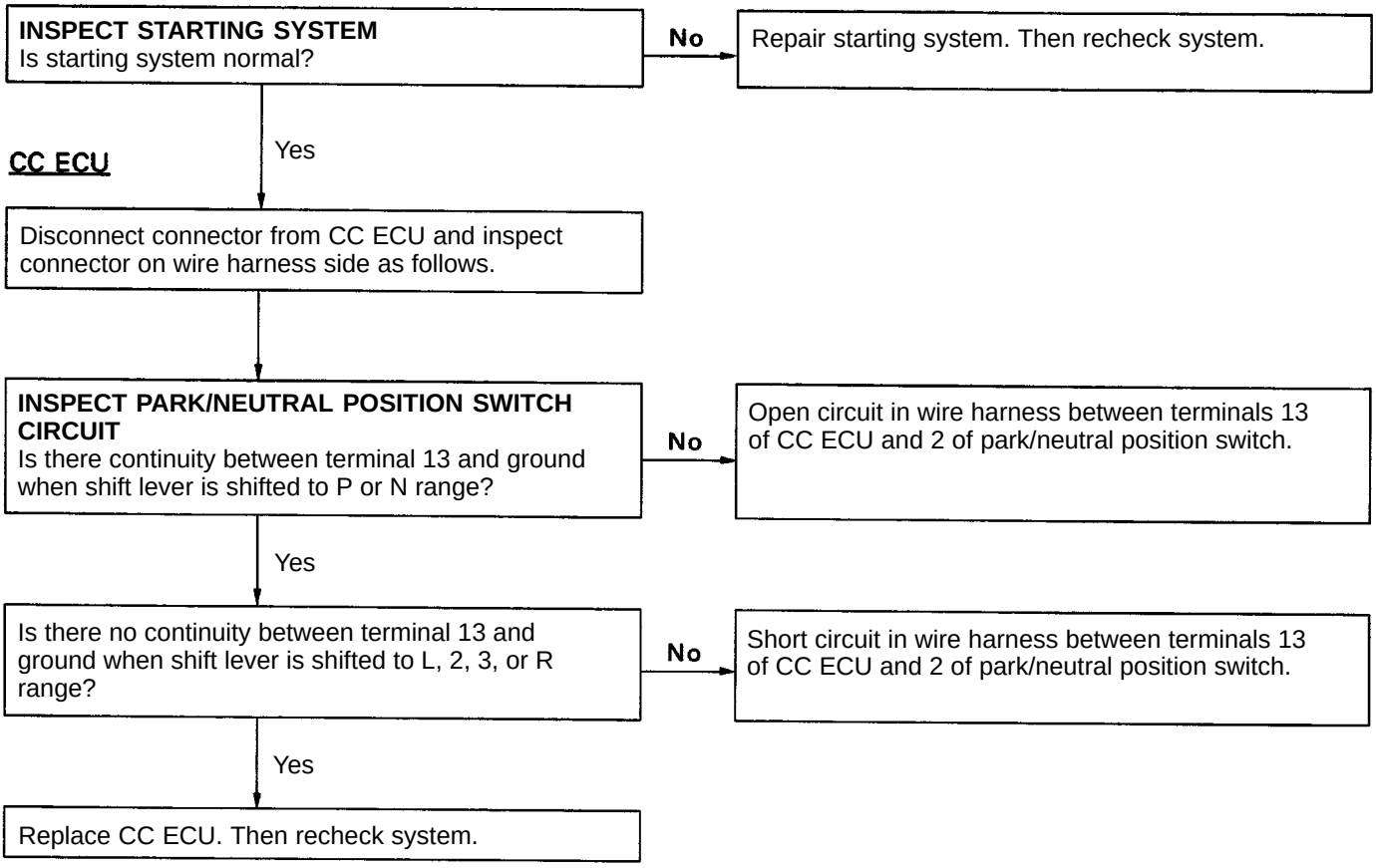
Yes

Replace CC ECU. Then recheck system.

CC: Cruise Control

H PARK/NEUTRAL POSITION SWITCH (with A/T)

HINT: While carrying out the following inspection, make certain that the connectors and terminals are properly connected.



CC: Cruise Control

CLUTCH SWITCH CIRCUIT (with M/T)

HINT: While carrying out the following inspection, make certain that the connectors and terminals are properly connected.

CLUTCH SWITCH

INSPECT CLUTCH SWITCH INSTALLATION
Is clutch switch installed properly?
- No → Reinstall clutch switch properly. Then recheck system.
- Yes →

Disconnect connector from clutch switch and inspect connector on wire harness side as follows.

INSPECT GROUND CONNECTION
is there continuity between terminal 1 and ground?
- No →
  - Open circuit in wire harness between terminal 1 of clutch switch and ground.
  - Ground faulty.
- Yes →

INSPECT CLUTCH SWITCH (See page BE–121)
Is clutch switch operation normal?
- No → Replace clutch switch. Then recheck system.
- Yes →

CC ECU

Connect connector to clutch switch.
Disconnect connector from CC ECU and inspect connector on wire harness side as follows.

INSPECT CLUTCH SWITCH CIRCUIT
Is there no continuity between terminal 13 and ground when clutch pedal released?
- No → Short circuit in wire harness between terminals 13 of CC ECU and 2 of clutch switch.
- Yes →

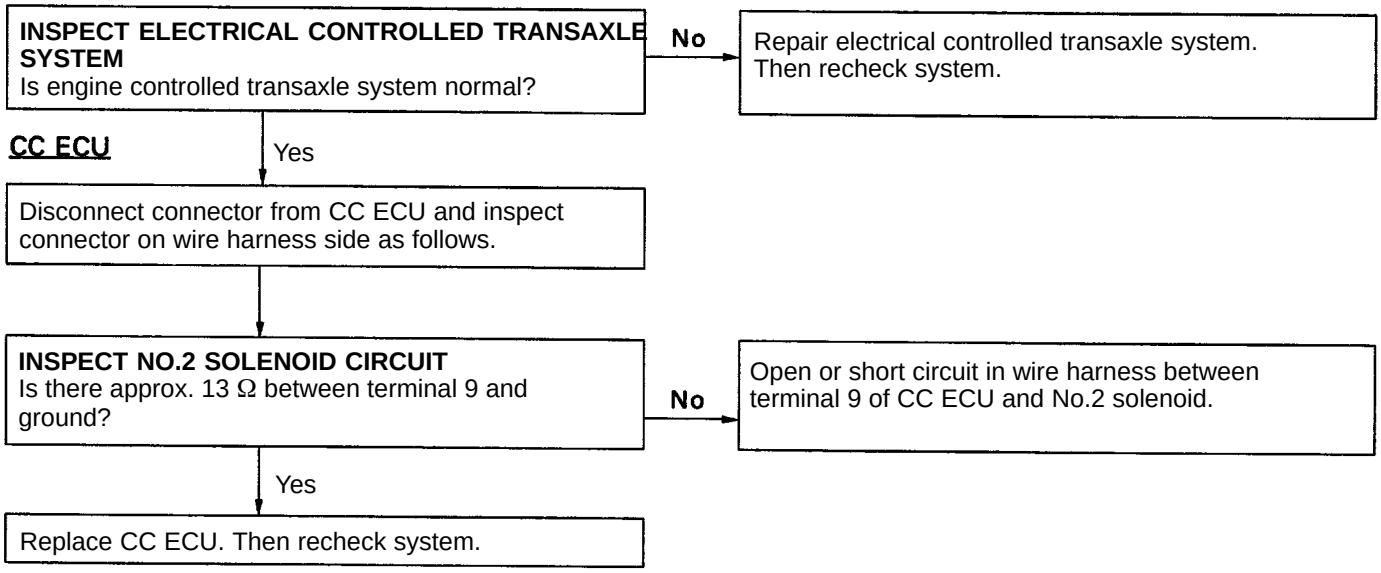
Is there continuity between terminal 13 and ground when clutch pedal depressed?
- No → Open circuit in wire harness between terminal 13 of CC ECU and 2 of clutch switch.
- Yes →

Replace CC ECU. Then recheck system.

CC: Cruise Control

J ELECTRICAL CONTROLLED TRANSAXLE SOLENOID NO.2 CIRCUIT (with ECT1

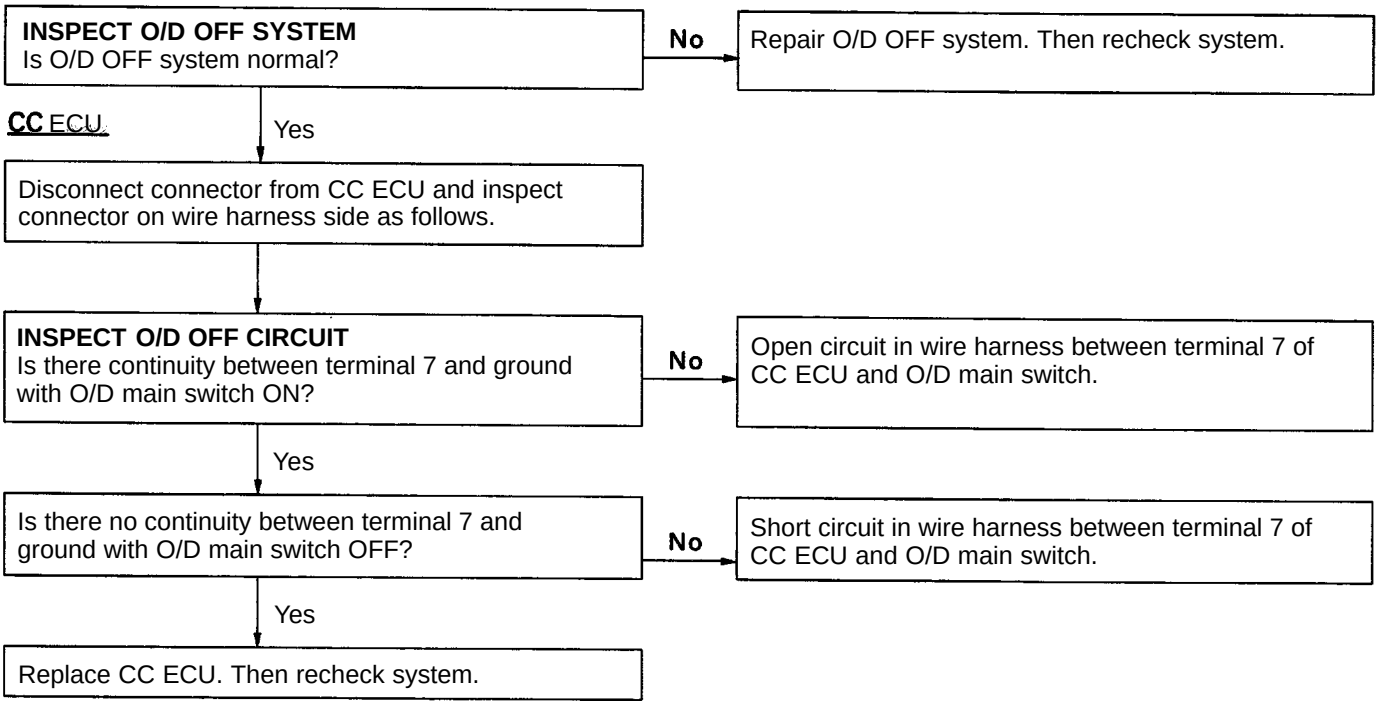
HINT: While carrying out the following inspection, make certain that the connectors and terminals are properly connected.



CC: Cruise Control

K O/D OFF CIRCUIT (with A/T)

HINT: While carrying out the following inspection, make certain that the connectors and terminals are properly connected.



CC: Cruise Control

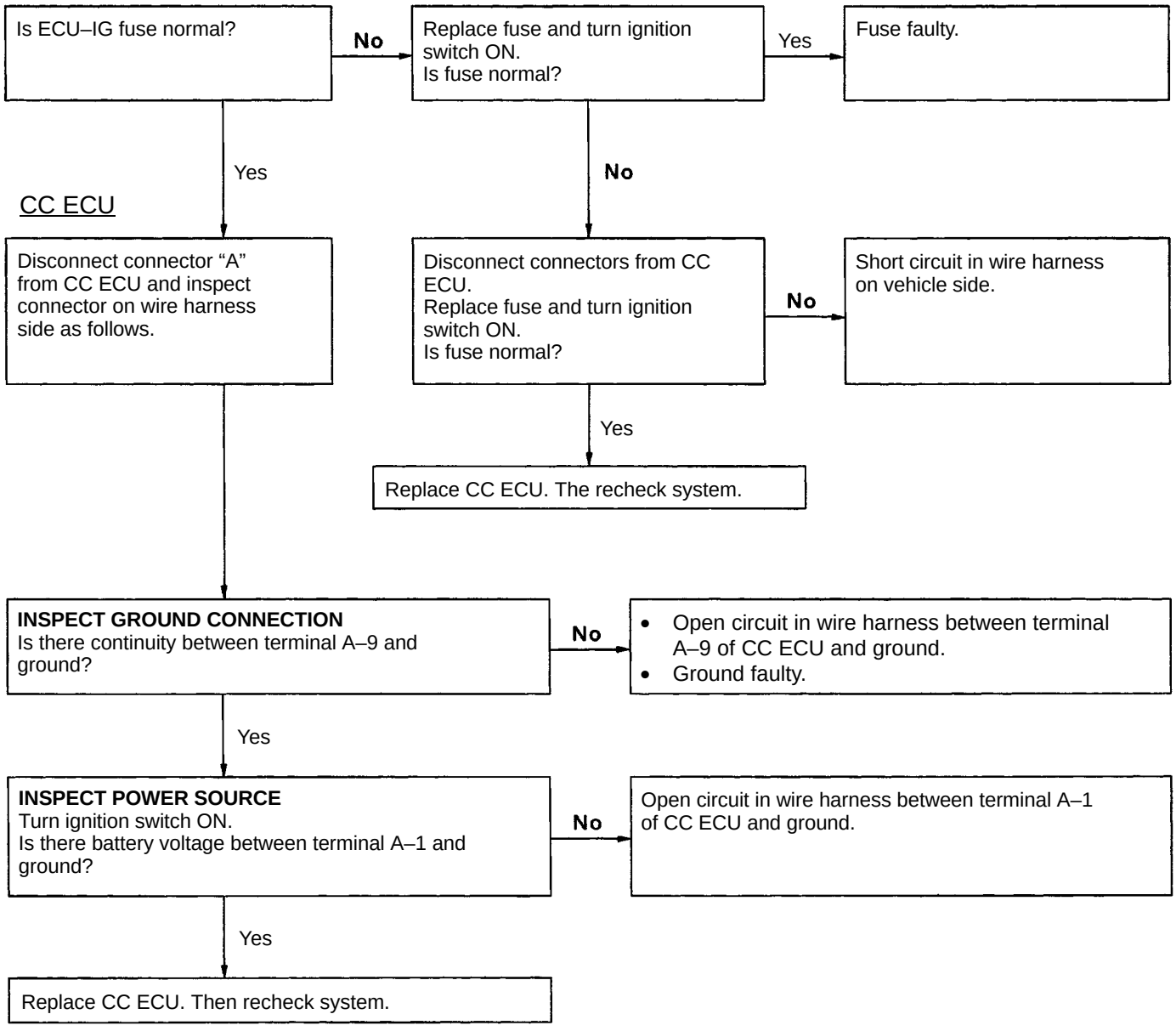
w/Motor Type Actuator

You will find the source of the trouble more easily by properly using the table shown below. In this table, the numbers indicate the order of priority of the causes of trouble. Check each part in the order shown.

Chart No.					D	C	C	F	H,I	G	E	K	J	L	
Inspection Item / Diagnosis Code / Problem	Type B	Type A		CC ECU	Actuator	Main Switch tin Control Switch)	Control Switch	Stop Light Switch	Clutch Switch or Park/ Neutral Position Switch	Parking Brake Switch	No. 1 Vehicle Speed Sensor, or Speedometer Cable	O/D OFF Circuit	Electrical Controlled Trans, axle Solenoid No.2 Circuit	Throttle Position Sensor (IDU	
• "CRUISE" Indicator light blinks 5 times. • Cruise control system does not set. • Cruise control system does not operate.	11			2	1										
	12			3	1			2							
	21			2											
	23				2						1			3	
	31			2			1								
	32			2			1								
	33			2			1								
	41			1											
	Normal	4	OK	7	6	1	2	3	4	5					
			NG	2							1				
Set speed deviates on high or low side.		5	OK	3	1									2	
			NG								1				
Vehicle speed fluctuates when speed control switch turned to SET.				3	2						1				
Set speed does not cancel when brake pedal depressed.		3	OK	3	1			2							
			NG	2				1							
Set speed does not cancel when parking brake lever pulled.		3	OK	2	1										
			NG	2						1					
Set speed does not cancel when shifted to "N" range. (A/T)		3	OK	2	1										
			NG	2					1						
Set speed does not cancel when clutch pedal depressed. (M/T)		3	OK	2	1										
			NG	2					1						
Vehicle speed does not decrease when speed control switch turned to COAST.		1	OK	3	1						2				
			NG	2			1								
Vehicle speed does not accelerate when speed control switch turned to ACCEL.		2	OK		1						2	3	4		
			NG	2			1								
Vehicle speed does not return to memorized speed when control switch turned on RESUME		2	OK	3	1						2				
			NG	2			1								
Set speed does not cancel when speed control switch turned to CANCEL.		3	OK	2	1										
			NG	2			1								
Speed can be set below about 40 km/h (25 mph.)		4	OK	2	1										
			NG	2							1				
Cruise control will not disengage even at about 40 km/h (25 mph.)		4	OK	2	1										
			NG	2							1				
Acceleration response is sluggish when speed control switch turned to "ACCEL" or "RESUME".				6	2		1					3	4	5	

A POWER SOURCE CIRCUIT

HINT: While carrying out the following inspection, make certain that the connectors and terminals are properly connected.



CC: Cruise Control

B CRUISE CONTROL INDICATOR CIRCUIT

HINT: While carrying out the following inspection, make certain that the connectors and terminals are properly connected.

Is GAUGE fuse normal?

No → Replace fuse and turn ignition switch ON. Is fuse normal?

Yes → Fuse faulty.

COMBINATION METER

Yes → Disconnect connector “B” from combination meter and inspect connector on wire harness side as follow.

No → Short circuit in wire harness on vehicle side.

INSPECT POWER SOURCE
Turn ignition switch ON.
Is there battery voltage between terminal6–7 and ground?

No → Open circuit in wire harness between terminal B–7 and GAUGE fuse.

Yes

INSPECT BULB CONDITION
Is bulb condition normal?

No → Replace bulb. Then recheck system.

Yes

CC ECU

Install bulb and connect connector to combination meter.
Disconnect connector “6” from, CC ECU and inspect connector on wire harness side as follows.

INSPECT INDICATOR CIRCUIT
Is there no continuity between terminal B–6 and ground?

No →
- Short circuit in wire harness between terminals B–6 of CC ECU and C–2 of combination meter.
- Short circuit in circuit plate of combination meter between terminal C–2 and CC indicator bulb.

Yes

Turn ignition switch ON.
Is there battery voltage between terminal B–6 and ground?

No →
- Open circuit in wire harness between terminals B–6 of CC ECU and C–2 of combination meter.
- Open circuit in circuit plate of combination meter between terminal C–2 and CC indicator bulb or between terminal B–7 and CC indicator bulb.

Yes

Replace CC ECU. Then recheck system.

CC: Cruise Control

C CONTROL SWITCH CIRCUIT

HINT: while carrying out the following inspection, make certain that the connectors and terminals are properly connected.

CONTROL SWITCH

Disconnect connector from switch and inspect connector on wire harness side as follows.

INSPECT GROUND CONNECTION
Is there continuity between terminal 3 (B–17) and ground?

No →
- Open circuit in wire harness between terminal 3 (B–17) of control switch and ground.
- Ground faulty.

Yes

INSPECT CONTROL SWITCH (See page BE–120)
Is control switch operation normal?

No → Replace control switch. Then recheck system.

Yes

CC ECU

Connect connector to control switch.
Disconnect connectors from CC ECU and inspect connectors on wire harness side as follows.

INSPECT MAIN SWITCH CIRCUIT
Is there no continuity between terminal A–8 and ground with main switch OFF?

No → Short circuit in wire harness between terminals A–8 of CC ECU and 5 (6–15) of control switch.

Yes

Is there continuity between terminal A–8 and ground with main switch ON?

No → Open circuit in wire harness between terminals A–8 of CC ECU and 5 (B–15) of control switch.

Yes

INSPECT CONTROL SWITCH CIRCUIT
Is there no continuity between terminal B–8 and ground with control switch OFF?

No → Short circuit in wire harness between terminals B–8 of CC ECU and 4 (B–5) of control switch.

Yes

Is there resistance as shown in table below between terminal B–8 and ground when control switch is turned to each position?

Position	Resistance (Ω)
RES/ACC	Approx. 68
SET/COAST	Approx. 198
CANCEL	Approx. 418

No → Open circuit in wire harness between terminals B–8 of CC ECU and 4 (B–5) of control switch.

Yes

Replace CC ECU. Then recheck system.

( ): without SRS
CC: Cruise Control

D ACTUATOR CIRCUIT

HINT: While carrying out the following inspection, make certain that the connectors and terminals are properly connected.

ACTUATOR

Disconnect connector from actuator and inspect connector on wire harness side as follows.

↓

INSPECT GROUND CONNECTION
Is there continuity between terminal 4 and ground?

No → • Open circuit in wire harness between terminal 4 of actuator and ground.
• Ground faulty.

Yes ↓

INSPECT ACTUATOR (See page BE–121)
Is actuator operation normal?

No → Replace actuator. Then recheck system.

Yes ↓

STOP LIGHT SWITCH

INSPECT STOP LIGHT SWITCH INSTALLATION
Is stop light switch installed properly?

No → Reinstall stop light switch properly. Then recheck system.

Yes ↓

Connect connector to actuator.
Disconnect connector from stop light switch and inspect connector on wire harness side as follows.

↓

INSPECT MAGNET CLUTCH CIRCUIT
Is there approx. 38.5Ω between terminal 4 and ground?

No → Open or short circuit in wire harness between terminals 4 of stop light and 5 of actuator.

Yes ↓

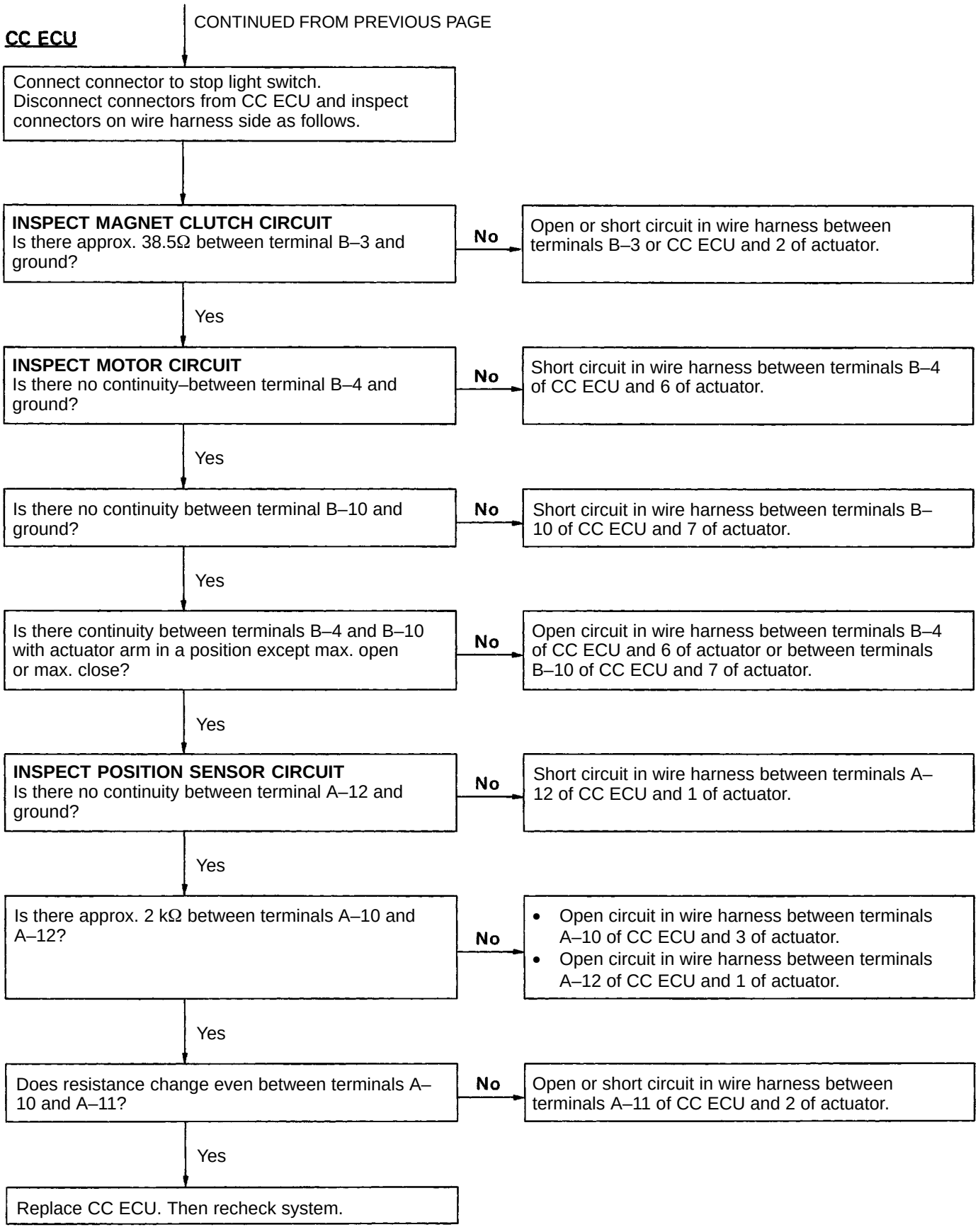
INSPECT STOP LIGHT SWITCH (See page BE–120)
Is stop light switch operation normal?

No → Replace stop light switch.
Then recheck system.

Yes ↓

CONTINUED ON NEXT PAGE

CC: Cruise Control



CC: Cruise Control

E–1 NO. 1 VEHICLE SPEED SENSOR CIRCUIT (with A/T)

HINT: While carrying out the following inspection, make certain that the connectors and terminals are properly connected.

SPEED METER CABLE

Does meter fluctuate when driving at steady speed?

Yes → Replace meter cable. Then recheck system.

No

COMBINATION METER

Disconnect connector “B” from combination meter and inspect connector on wire harness side as follows.

INSPECT GROUND CONNECTION
Is there continuity between terminal B–5 and ground?

No →
- Open circuit in wire harness between terminal B–5 of combination meter and ground.
- Ground faulty.

Yes

INSPECT NO. 1 VEHICLE SPEED SENSOR
(See page BE–121)
Is speed sensor operation normal?

No → Replace speedometer. Then recheck system.

Yes

CC ECU

Connect connector “B” to combination meter.
Disconnect connector “A” from CC ECU and inspect connector on wire harness side as follows.

INSPECT NO. 1 VEHICLE SPEED SENSOR CIRCUIT
Is there continuity repeatedly between terminal A–7 and ground?

No →
- Open or short circuit in wire harness between terminals A–7 of CC ECU and B–6 of combination meter.
- Open or short circuit in circuit plate of combination meter between terminal B–6 and speed sensor.
- Open circuit in circuit plate of combination meter between terminal B–5 and speed sensor.

Yes

Replace CC ECU. Then recheck system.

CC: Cruise Control

E–2 NO. 1 VEHICLE SPEED SENSOR CIRCUIT (with M/T)

HINT: While carrying out the following inspection, make certain that the connectors and terminal are properly connected.

NO. 1 VEHICLE SPEED SENSOR

Disconnect connector from speed sensor and inspect connector on wire harness side as follows.

INSPECT GROUND CONNECTION
Is there continuity between terminal 3 and ground?

No →
- Open circuit in wire harness between terminal 3 of speed sensor and ground.
- Ground faulty.

Yes

INSPECT NO. 1 VEHICLE SPEED SENSOR
(See page BE–121)
Is speed sensor operation normal?

No → Replace speed sensor. Then recheck system.

Yes

CC ECU

Connect connector “B” to speed sensor.
Disconnect connector “A” from CC ECU and inspect connector on wire harness side as follows.

INSPECT NO. 1 VEHICLE SPEED SENSOR CIRCUIT
Is there continuity repeatedly between terminal A–7 and ground?

No →
- Open or short circuit in wire harness between terminals A–7 of CC ECU and 2 of speed sensor.

Yes

Replace CC ECU. Then recheck system.

CC: Cruise Control

F STOP LIGHT SWITCH CIRCUIT

HINT: While carrying out the following inspection, make certain that the connectors and terminals are properly connected.

INSPECT STOP LIGHT SYSTEM
Is stop light system operation normal?

Yes → Inspect CC ECU on next page.

No

Is STOP fuse normal?

No → Replace fuse.
Is fuse normal?

Yes → Fuse faulty.

Yes

No

Disconnect connector from CC ECU and replace fuse.
Is fuse normal?

No →
- Short circuit in wire harness between terminal 1 of stop light switch and STOP fuse.
- Short circuit in wire harness between terminal A–2 of CC ECU and STOP fuse.

Yes

Replace fuse and depress brake pedal.
Is fuse normal?

No →
- ¿ Short circuit in wire harness between terminal 3 of stop light switch and stop light.
- Short circuit in wire harness between terminals A–3 of CC ECU and 3 of stop light switch.

Yes

Replace CC ECU. Then recheck system.

STOP LIGHT SWITCH

INSPECT STOP LIGHT SWITCH INSTALLATION
Is stop light switch installed properly?

No → Reinstall stop light switch properly. Then recheck system.

Yes

CC: Cruise Control

CONTINUED ON NEXT PAGE

STOP LIGHT SWITCH

CONTINUED FROM PREVIOUS PAGE

Disconnect connector from stop light switch and inspect connector on wire harness side as follows.

INSPECT POWER SOURCE
Is there battery positive voltage between terminal 1 and ground?

No → Open circuit in wire harness between terminal 1 of stop light switch and STOP fuse.

Yes

INSPECT STOP LIGHT CIRCUIT
Connect terminal 1 and 3.
Do stop lights light up?

No →
- Open circuit in wire harness between terminal 3 of stop light switch and ground.
- Ground faulty.

Yes

INSPECT STOP LIGHT SWITCH (See page BE–120)
Is stop light switch operation normal?

No → Replace stop light switch. Then recheck system.

Yes

CC ECU

Connect connector to stop light switch.
Disconnect connector “A” from CC ECU and inspect connector on wire harness side as follows.

← If stop light system operation is normal, start inspection from this step.

INSPECT STOP LIGHT SWITCH CIRCUIT
Is there battery positive voltage between terminal A–2 and ground?

No → Open circuit in wire harness between terminal A–2 of CC ECU and STOP fuse.

Yes

Is there battery positive voltage between terminal A–3 and ground when brake pedal depressed?

No → Open circuit in wire harness between terminals A–3 of CC ECU and 3 of stop light switch.

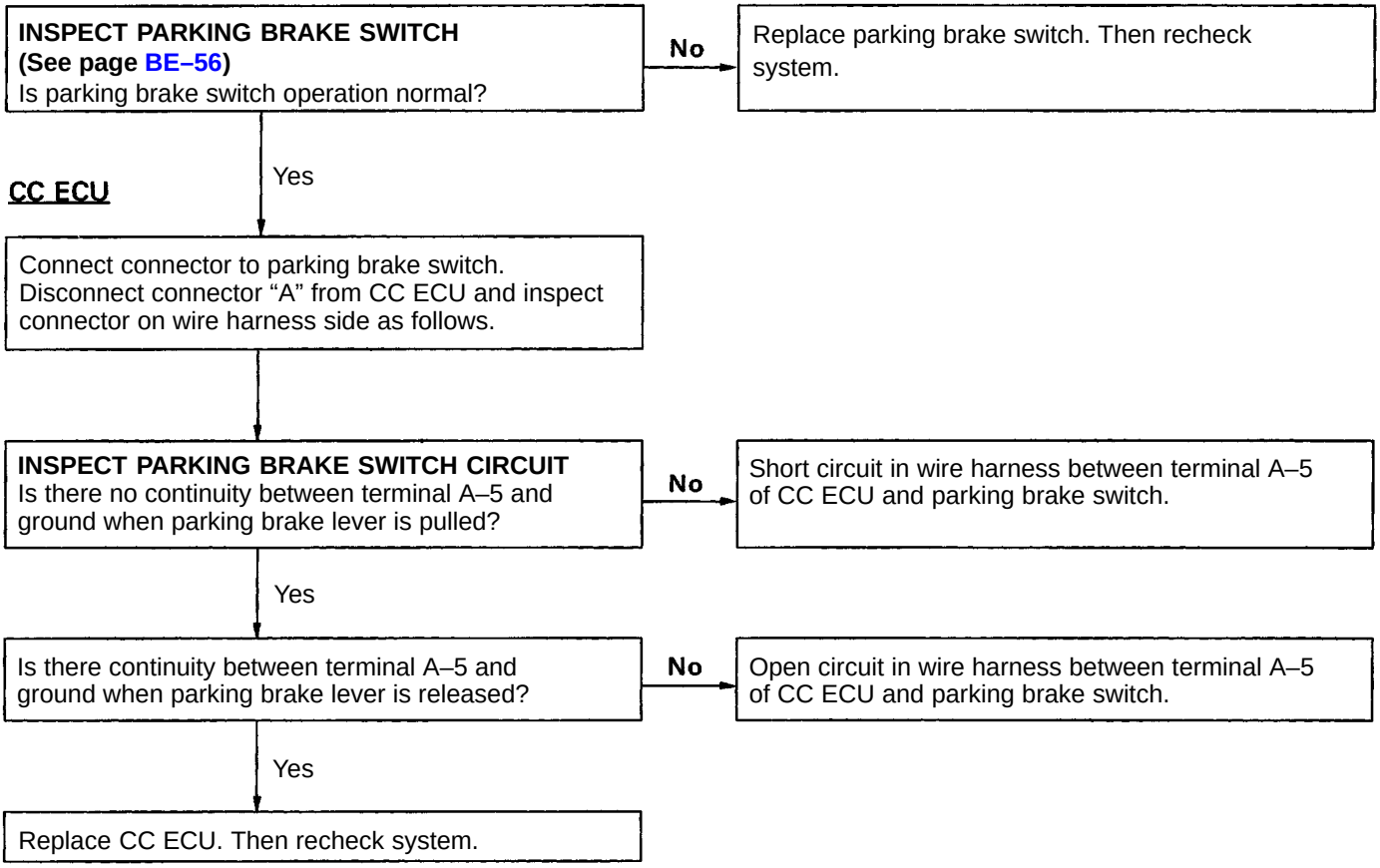
Yes

Replace CC ECU. Then recheck system.

CC: Cruise Control

G PARKING BRAKE SWITCH CIRCUIT

HINT: While carrying out the following inspection, make certain that the connectors and terminals are properly connected.



CC: Cruise Control

H PARK/NEUTRAL POSITION SWITCH CIRCUIT (with A/T)

HINT: While carrying out the following inspection, make certain that the connectors and terminals are properly connected.

INSPECT STARING SYSTEM
Is starting system normal?

No → Repair staring system. Then recheck system.

Yes

CC ECU

Disconnect connector “A” from CC ECU and inspect connector on wire harness side as follows.

INSPECT PARKINEUTRAL POSITION SWITCH CIRCUIT
Is there continuity between terminal A–4 and ground when shift lever is shifted to P or N range?

No → Open circuit in wire harness between terminals A–4 of CC ECU and 2 of park/neutral position switch.

Yes

Is there no continuity between terminal 13 and ground when shift lever is shifted to L, 2, 3, or R range?

No → Short circuit in wire harness between terminals 13 of CC ECU and 2 of park/neutral position switch.

Yes

Replace CC ECU. Then recheck system.

CC: Cruise Control

I CLUTCH SWITCH CIRCUIT (with M/T)

HINT: While carrying out the following inspection, make certain that the connectors and terminals are properly connected.

CLUTCH SWITCH

INSPECT CLUTCH SWITCH INSTALLATION
Is clutch switch installed properly?
- No → Reinstall clutch switch properly. Then recheck system.
- Yes →

Disconnect connector from clutch switch and inspect connector on wire harness side as follows.

INSPECT GROUND CONNECTION
Is there continuity between terminal 1 and ground?
- No → • Open circuit in wire harness between terminal 1 of clutch switch and ground. • Ground faulty.
- Yes →

INSPECT CLUTCH SWITCH (See page BE–121)
Is clutch switch operation normal?
- No → Replace clutch switch. Then recheck system.
- Yes →

CC ECU

Connect connector to clutch switch.
Disconnect connector “A” from CC ECU and inspect connector on wire harness side as follows.

INSPECT CLUTCH SWITCH CIRCUIT
Is there no continuity between terminal A–4 and ground when clutch pedal released?
- No → Short circuit in wire harness between terminals A–4 of CC ECU and 2 of clutch switch.
- Yes →

Is there continuity between terminal A–4 and ground when clutch pedal depressed?
- No → Open circuit in wire harness between terminal A–4 of CC ECU and 2 of clutch switch.
- Yes →

Replace CC ECU. Then recheck system.

CC: Cruise Control

J ELECTRICAL CONTROLLED TRANSAXLE SOLENOID No2 CIRCUIT (with ECT)

HINT: While carrying out the following inspection, make certain that the connectors and terminals are properly connected.

INSPECT ELECTRICAL CONTROLLED TRANSAXLE SYSTEM
Is engine controlled transaxle system normal?

No → Repair electrical controlled transaxle system. Then recheck system.

Yes

CC ECU

Disconnect connector “B” from CC ECU and inspect connector on wire harness side as follows.

INSPECT No.2 SOLENOID CIRCUIT
Is there approx. 13Ω between terminal B–1 and ground?

No → Open or short circuit in wire harness between terminal B–1 of CC ECU and No.2 solenoid.

Yes

Replace CC ECU. Then recheck system.

CC: Cruise Control

K O/D OFF CIRCUIT (with A/T)

HINT: While carrying out the following inspection, make certain that the connectors and terminals are properly connected.

INSPECT O/D OFF SYSTEM
Is O/D OFF system normal?

No → Repair O/D OFF system. Then recheck system.

Yes

CC ECU

Disconnect connector “B” from CC ECU and inspect connector on wire harness side as follows.

INSPECT O/D OFF CIRCUIT
Is there continuity between terminal B–2 and ground with O/D main switch ON?

No → Open circuit in wire harness between terminal B–2 of CC ECU and O/D main switch.

Yes

Is there no continuity between terminal B–2 and ground with O/D main switch OFF?

No → Short circuit in wire harness between terminal B–2 of CC ECU and O/D main switch.

Yes

Replace CC ECU. Then recheck system.

CC: Cruise Control

L IDL SIGNAL CIRCUIT

HINT: While carrying out the following inspection, make certain that the connectors and terminals are properly connected.

THROTTLE POSITION SENSOR

INSPECT THROTTLE POSITION SENSOR ADJUSTMENT (Seepage FI–116, 121 or 124)
Is throttle position sensor adjustment normal?

No → Adjust position sensor position. Then recheck system.

Yes

INSPECT THROTTLE POSITION SENSOR (See page FI–113,118 or 123)
Is throttle position sensor operation normal?

No → Replace throttle position sensor. Then recheck system.

Yes

CC ECU

Connect connector to throttle position sensor. Disconnect connector “B” from CC ECU and. inspect connector on wire harness side as follows.

INSPECT IDL SIGNAL CIRCUIT
Is there continuity between terminal B–9 and ground when acceleration pedal is released?

No → Open circuit in wire harness between terminals B–9 of CC ECU and 2 (1) of throttle position sensor.

Yes

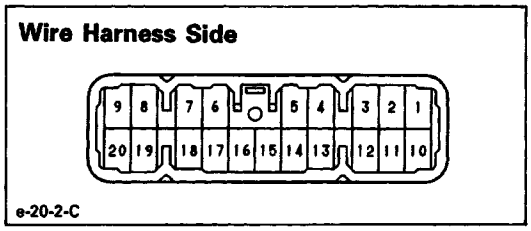
Is there no continuity between terminal 13–9 and ground when acceleration pedal is depressed?

No → Short circuit wire harness between terminals B–9 of CC ECU and 2 (1) of throttle position sensor.

Yes

Replace CC ECU. Then recheck system.

( ): 3–Pin Type Throttle Position Sensor Connector
CC: Cruise Control



CRUISE CONTROL ECU

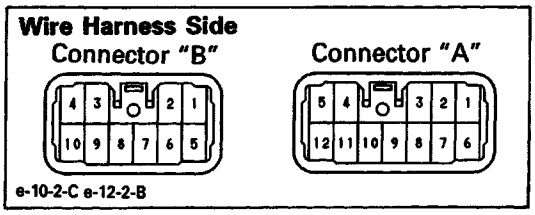
CRUISE CONTROL ECU INSPECTION

ECU CIRCUIT

Disconnect connector and inspect connector on wire harness side as shown in the chart.

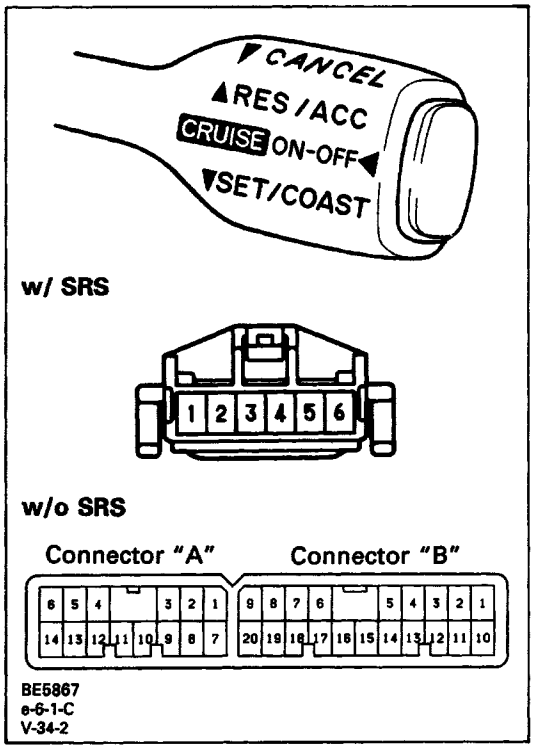
(with Vacuum Type Actuator)

Check for	Measured item	Tester connection	Condition		Specified Valve
Continuity	DLC2 circuit	1 – ground	Constant		No continuity
			Terminal Tc and E1 connected		Continuity
	Control switch (main switch)	6 – ground	Main switch position	OFF	No continuity
				ON	Continuity
	Engine Coolant temp. switch and O/D main switch	7 – ground	Engine coolant is Cold		Continuity
			Engine coolant is Hot		
			O/D main switch position	OFF	No continuity
				OF	Continuity
	Park/neutral posi–tion switch (A/T)	13 – ground	Shift lever position	N or P	Continuity
				L,2DorR	No continuity
	Clutch switch (M/T)	13 – ground	Clutch pedal position	released	No continuity
				depressed	Continuity
	Parking brake switch	14 – ground	Parking brake lever position	released	No continuity
				pulled	Continuity
	Ground connection	15 – ground	Constant		Continuity
Resistance	Actuator (release valve)	3 – 16	Brake pedal position	released	Approx. 68 Ω
				depressed	No continuity
	Actuator (control valve)	5 – 16	Constant		Approx. 30Ω
	Electrical controlled transaxle No.2 solenoid valve	9 – ground	Constant		Approx. 13Ω
	Control switch	19 – ground	Control switch position	OFF	No continuity
				RES/ACC	Approx. 68 Ω
				SET/COAST	Approx. 198 Ω
				CANCEL	Approx. 418 Ω
Voltage	CC indicator	4 – ground	Ignition switch position	LOCK or ACC	No voltage
				ON	Battery positive voltage
	No. 1 vehicle speed sensor	8 – ground	With ignition switch on, speedometer shaft or No. 1 vehicle speed sensor shaft turned.		Voltage changes repeatedly
	Power source	12 – ground	Ignition switch position	LOCK or ACC	No voltage
				ON	Battery positive voltage
	Stop light	17 – ground	Brake pedal position	released	No voltage
				depressed	Battery positive voltage
	STOP fuse	18 – ground	Constant		Battery positive voltage



(with Motor Type Actuator)

Check for	Measured item	Tester connection	Condition		Specified Valve
Continuity	Park/neutral position start switch (A/T)	A–4 – ground	Shift lever– position	Nor P	Continuity
				L, 2, D or R	No continuity
	Clutch switch (M/T)	A–4 – ground	Clutch pedal position	released	No continuity
				depressed	Continuity
	Parking brake switch	A–5 – ground	Parking brake lever position	released	No continuity
				pulled	Continuity
	Control switch	A–8 – ground	Main switch position	OFF	No continuity
				ON	Continuity
	Ground connection	A–9 – ground	Constant		Continuity
	Engine coolant temp. switch and O/D main switch	B–2 – ground	Engine coolant temp. is Cold		Continuity
			Engine coolant temp. is Hot		
			O/D main switch position	OFF	No continuity
				ON	Continuity
	Actuator (motor)	B–4 – B–10	Actuator arm position	max. OPEN	(B–4→ B–10) Continuity
				max. CLOSE	(B–10→ B–4) Continuity
				any position except above position	(B–4 → B–10) Continuity
	DLC2 circuit	B–7 – ground	Constant		Continuity
			Terminals Tc and E1 connected		Continuity
	Throttle position sensor (IDL)	B–9 – ground	Acceleration pedal position	released	Continuity
				depressed	No continuity
Resistance	Actuator (position sensor)	A–10 – A–12	Constant		Approx. 2 kΩ
		A–10–A–11	Actuator arm turned		Resistance change even
	Electrical con–trolled transaxle No.2 solenoid valve e	B–1 – ground	Constant		Approx. 13Ω
	Actuator (magnet clutch)	B–3 – ground	Brake pedal position	released	Approx. 38.5Ω
				depressed	No continuity
	Control switch	B–8 – ground	Control switch position	OFF	No continuity
				RES/ACC	Approx. 68 92
				SE¿¿COAST	Approx. 198 Ω
				CANCEL	Approx. 418 Ω
Voltage	Power source	A–1 –ground	Ignition switch position	LOCK or ACC	No voltage
				ON	Battery positive voltage
	STOP fuse	A–2 – ground	Constant		Battery positive voltage
	Stop light	A–3 – ground	Brake pedal position	released	No voltage
				depressed	Battery positive voltage
	No. 1 vehicle speed sensor	A–7 – ground	With ignition switch ON, speedometer shaft or No. 1 vehicle speed sensor shaft turned.		Voltage changes repeatedly



CRUISE CONTROL SWITCH

CRUISE CONTROL SWITCH INSPECTION

(a) Check continuity between terminals 3 (B–17) and 5 (B–15)

Main switch position	Condition
OFF	No continuity
ON	Continuity

(b) Measure resistance between terminals 3 (B–17) and 4 (B–5)

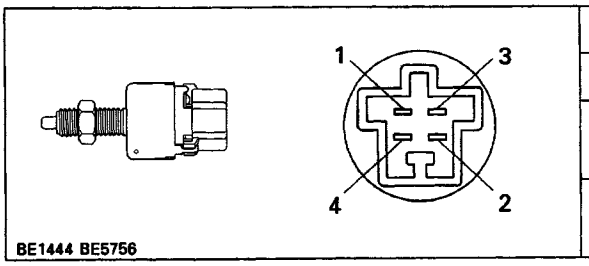
Control switch position	Resistance (Ω)
OFF	∞ (No continuity)
RES/ACC	Approx. 68
SET/COAST	Approx. 198
CANCEL	Approx. 418

If resistance value is not as specified, replace the con–trol switch.

STOP LIGHT SWITCH

STOP LIGHT SWITCH INSPECTION

CONTINUITY



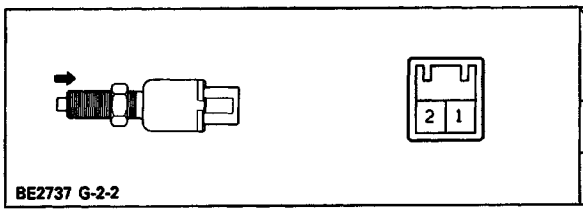
Terminal / Switch position	1	2	3	4
Switch pin free (Brake pedal depressed)	○		○	
Switch pin pushed in (Brake pedal released)		○		○

If continuity is not as specified, replace the stop light switch.

CLUTCH SWITCH

CLUTCH SWITCH INSPECTION

M/T/CONTINUITY



Terminal / Condition	1	2
Switch pin free (Clutch pedal depressed)	○	○
Switch pin pushed in (Clutch pedal released)		

If continuity is not as specified, replace the switch.

PARK/NEUTRAL POSITION SWITCH

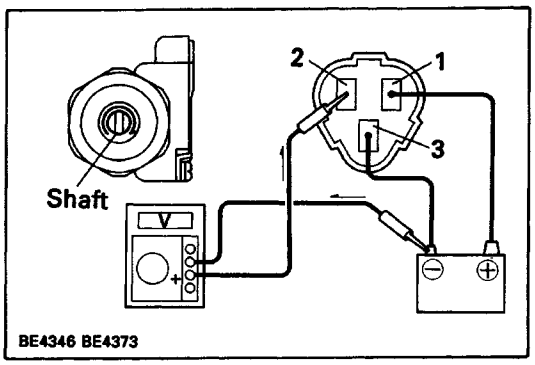
A/T

ECT: See page AT–29

w/o ECT: See page AT–33

PARKING BRAKE SWITCH

See page BE–56.



NO. 1 VEHICLE SPEED SENSOR

NO. 1 VEHICLE SPEED SENSOR INSPECTION

M/T

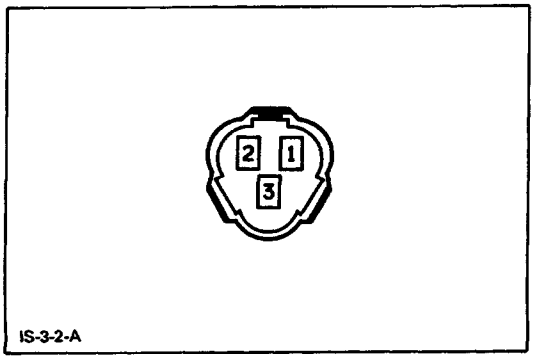
(a) Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 3.

(b) Connect the positive (+) lead from the voltmeter to terminal 2 and the negative (–) lead to the battery negative (–) terminal.

(c) Check that the voltmeter indicates approx. 5 volts four times per each revolution of the shaft.
If operation is not as specified, replace the speed sensor.

A/T

See page BE–50.



ACTUATOR

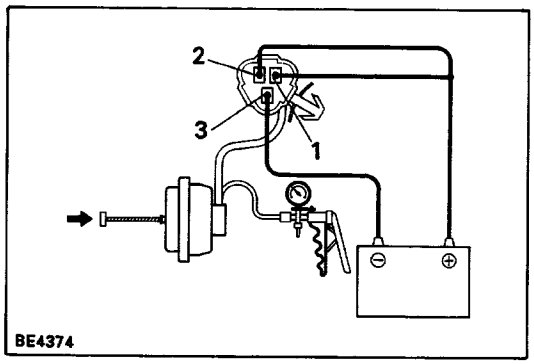
ACTUATOR INSPECTION

VACUUM TYPE

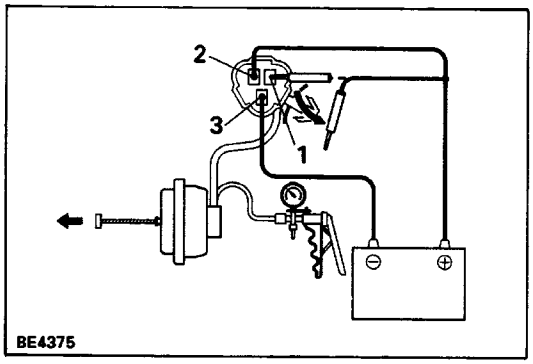
(a) Measure the resistance between terminals as follows.

Resistance: 1 – 3 Approx. 68Ω

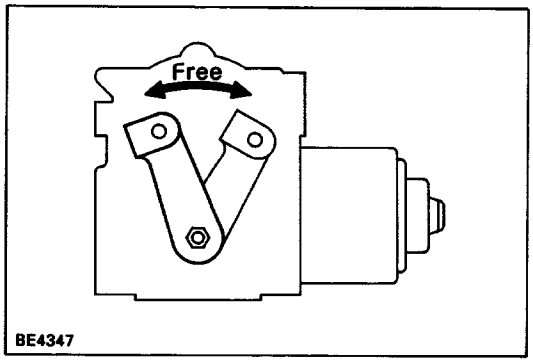
2 – 3 Approx. 30 Ω



(b) Connect the positive (+) lead from the battery to terminals 1 and 2, and the negative (–) lead to terminal 3.
(c) Slowly apply vacuum from 0 to 300 mmHg (0 to 11.81 in.Hg, 0 to 40.0 kPa), check that the control cable can be pulled smoothly.
Cable stroke: Approx. 40 mm (1.57 in.)
(d) With the vacuum stabilized, check that the control cable does not return.
HINT: As you apply and hold the vacuum with the vacuum pump, the drawn–in diaphragm will in some cases return. This does not indicate a malfunction. Actuator leakage is allowable.



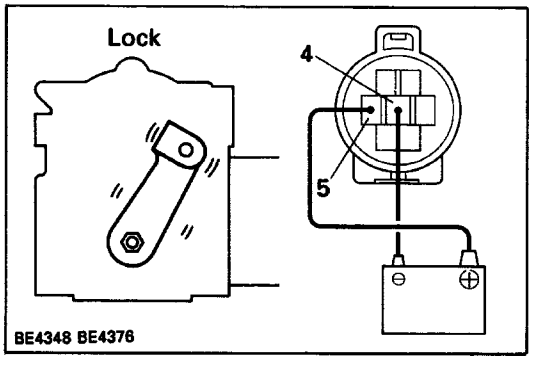
(e) Disconnect terminal 1 or 2 and check that the control cable returns to its original position and the vacuum returns to 0 mmHg (0 in.Hg, 0 kPa).
If operation is not as specified, replace the actuator.



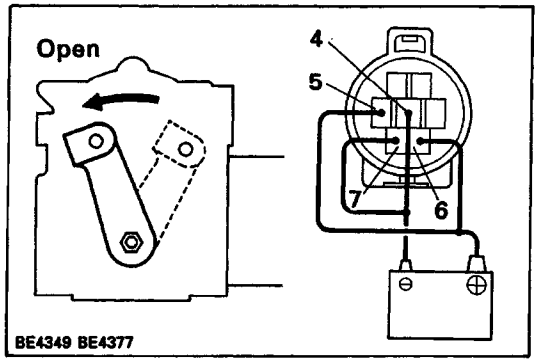
MOTOR TYPE

MAGNET CLUTCH

(a) Check that the arm moves smoothly by hand.



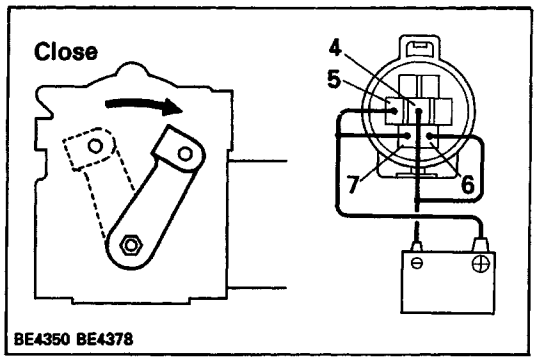
(b) Connect the positive (+) lead from the battery to terminal 5 and the negative (–) lead to terminal 4. (Magnet clutch turned ON)
(c) Check that the arm dose not move by hand.
If operation is not as specified, replace the motor.



MOTOR

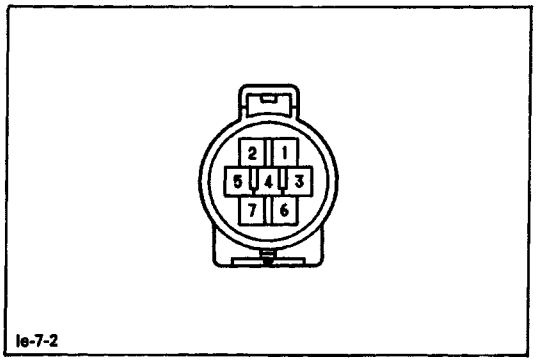
(a) With the magnet clutch ON, connect the positive W lead from the battery to terminal 6 and the negative (–) lead to terminal 7, check that the arm moves to the open side.

(b) When the arm reached to the open position, check that the motor operation stops.



(c) With the magnet clutch ON, connect the positive (+) lead from the battery to terminal 7 and the negative (–) lead to terminal 6, check that the arm moves to the close side.

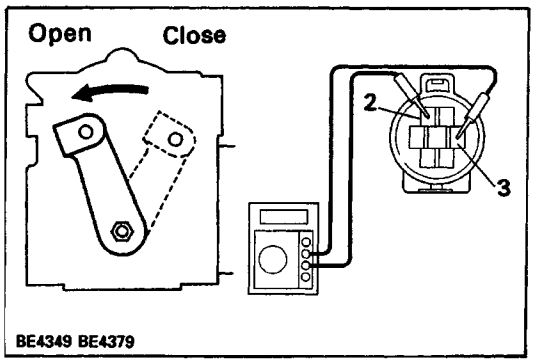
(d) When the arm reaches to the closed position, check that the motor operation stops.



POSITION SENSOR

(a) Measure the resistance between terminals 1 and 3.

Resistance: Approx. 2 kΩ



(b) When the arm is moving from the closed to open position, check that resistance between terminals 2 and 3 increases from approx. 0.5 to 1.7 kΩ.

If operation is not as specified, replace the motor.