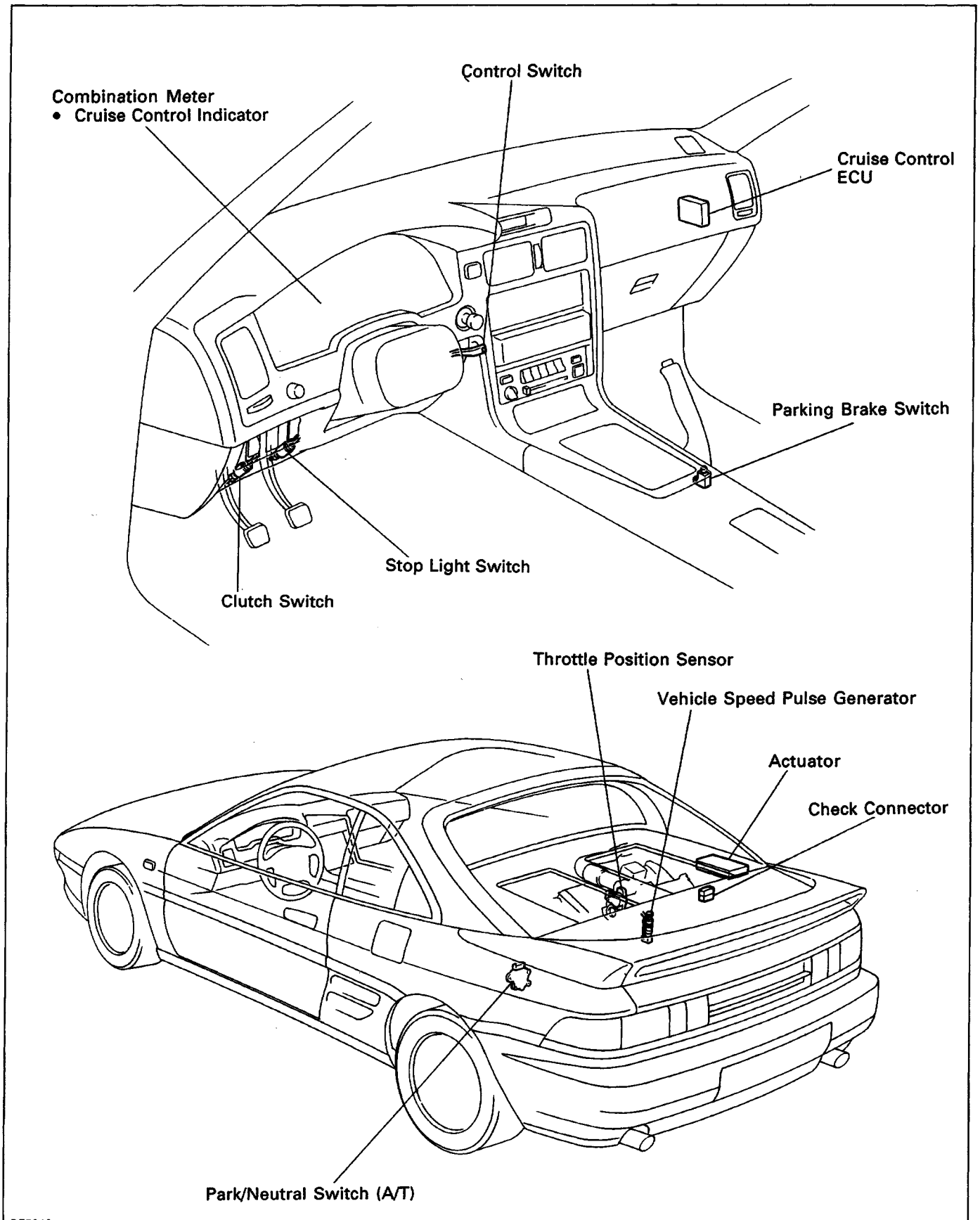
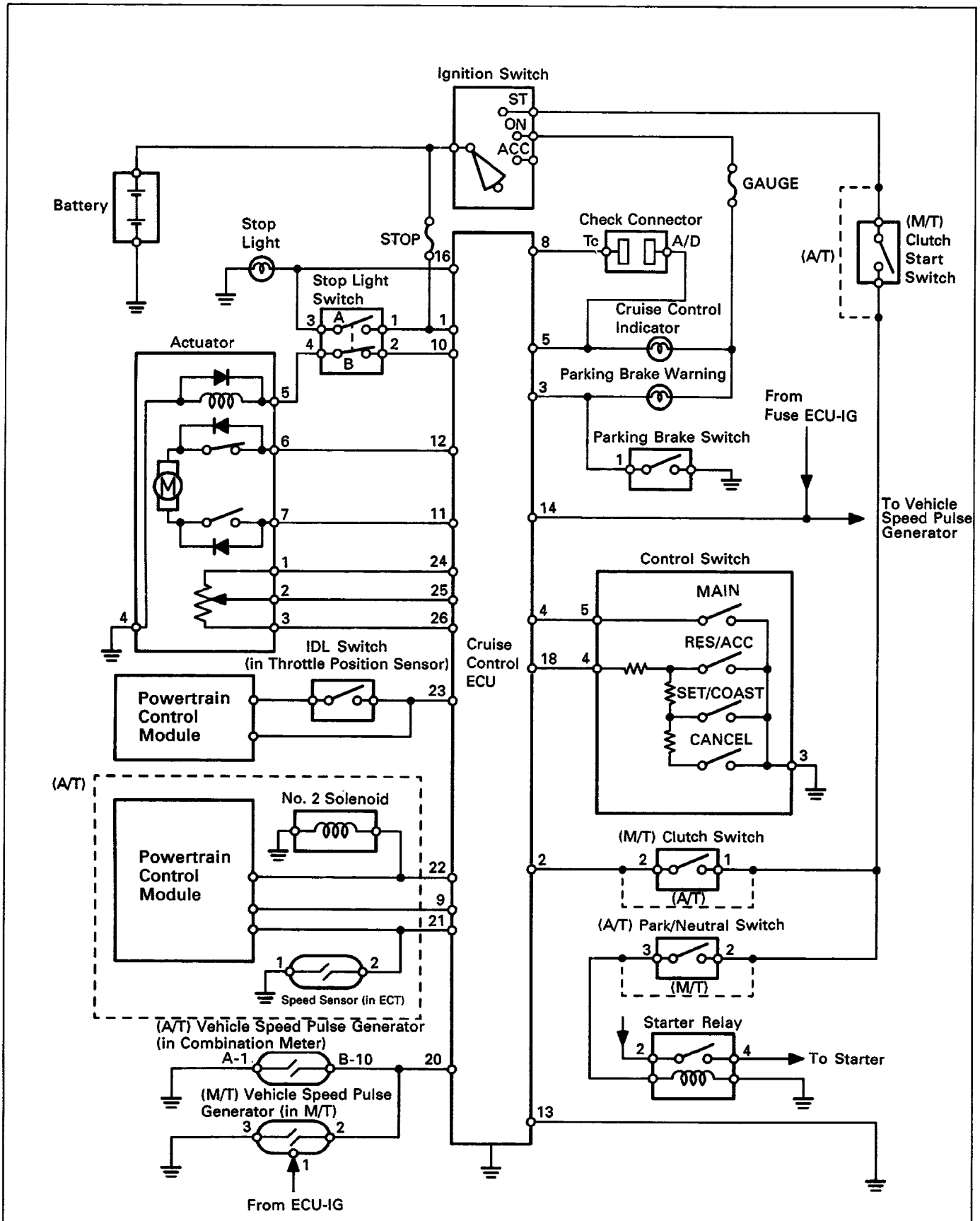
CRUISE CONTROL SYSTEM

PARTS LOCATION



BE5243
BE4947

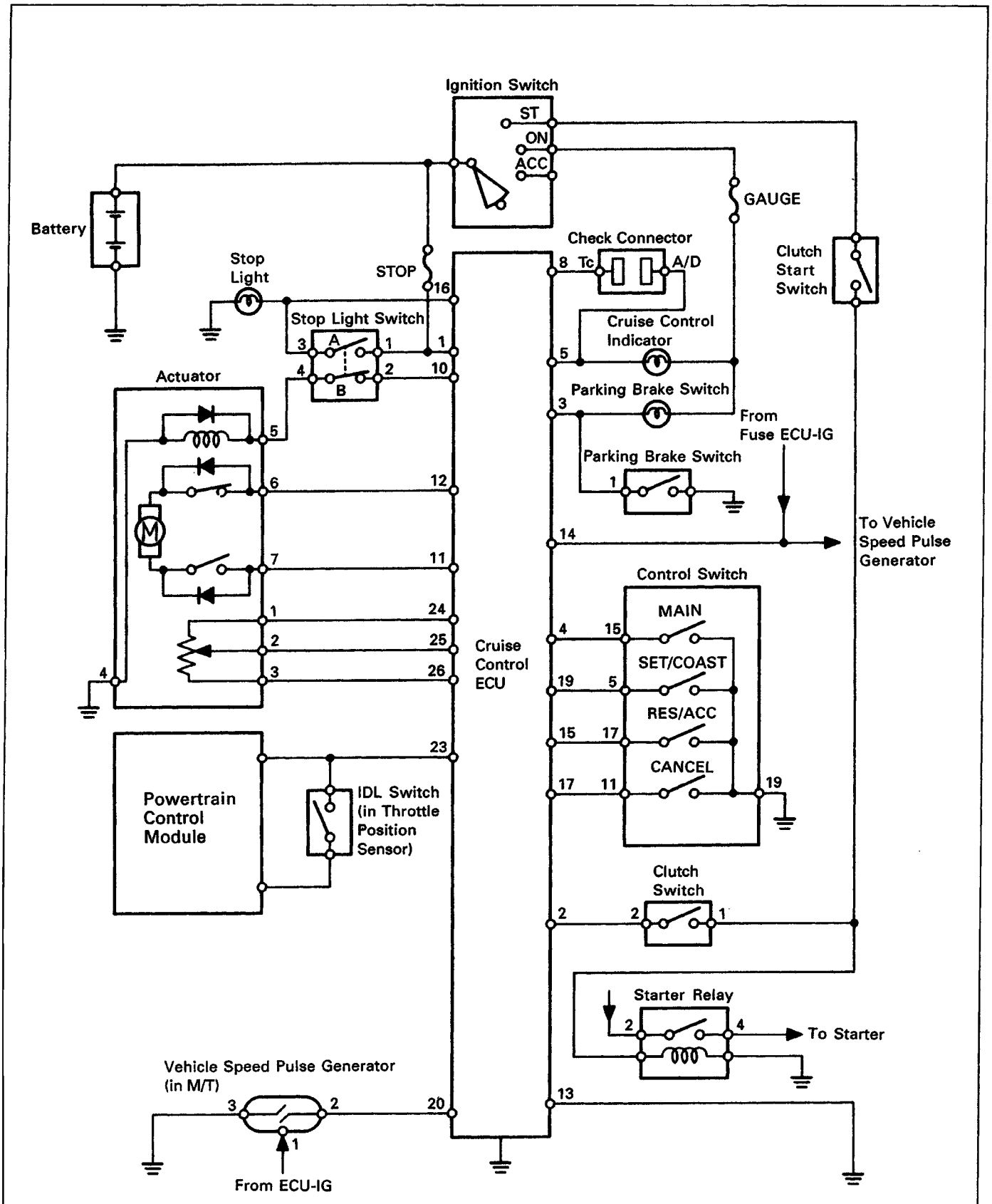
WIRING DIAGRAM
(USA)



The POWER SOURCE CIRCUIT has been simplified. For full details, see page BE-9.

BE5244

(CANADA)



The POWER SOURCE CIRCUIT has been simplified. For full details, see page BE-9.

BE5245

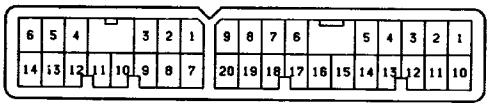
CONNECTOR DIAGRAMS

Cruise Control Switch

(USA)

e-6-1-C

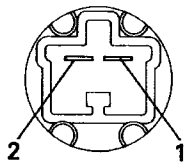
(CANADA)



Connector "A" Connector "B"

V-34-2

Stop Light Switch

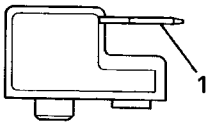


BE5656

Clutch Switch (M/T)

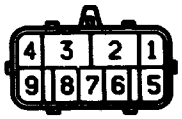
G-2-2

Parking Brake Switch



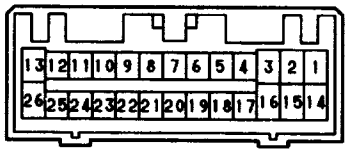
BE1412

Park/Neutral Switch (A/T)



SH-9-2-A

Cruise Control ECU

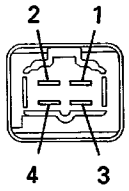


Vd-26-2-B

Actuator

Ie-7-2

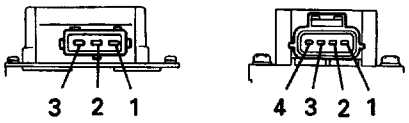
Starter Relay



ST0280

Throttle Position Sensor

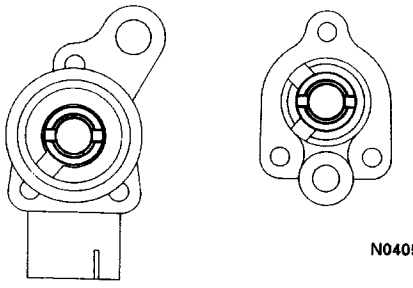
(3-Pin Type) (4-Pin Type)



AC2241

Vehicle Speed Pulse Generator

(M/T) (A/T)



N04051

N04050

SYSTEM DESCRIPTION

- When the ignition switch is turned ON, current flows from the battery to terminal 14 of the cruise control (CC) ECU.
- Terminal 13 of the CC ECU is always grounded.

BASIC OPERATION

HINT: For all explanations below, the ignition switch is in the ON position.

1. CONTROL SWITCH OPERATION

- The CC switch controls MAIN switch, SET/COAST, RESUME/ACCEL and CANCEL functions.

(USA)

(a) MAIN switch

When the main switch is pushed ON, current flows from terminal 4 of the CC ECU – terminal 5 of the control switch – terminal 3 of the switch – ground.
As a result, the CC ECU is on standby and terminal 5 of the CC ECU is grounded. Therefore the CC indicator lights up.

(b) SET/COAST, RESUME/ACCEL and CANCEL switch

The control switch controls the SET, COAST, RESUME, ACCEL and CANCEL functions. When the control switch is turned to each position, current flows from terminal 18 of the CC ECU – terminal 4 of the control switch→ (each resistance) → terminal 3 of the switch→ ground.
In the way, the CC ECU detects each position the control switch is turned to, and starts operation.

HINT: The SET function is detected by the CC ECU when the control switch released from SET/COAST.

(CANADA)

(a) MAIN switch

When the main switch is pushed ON, current flows from terminal 4 of the CC ECU→ terminal 15 of the control switch → terminal 19 of the switch → ground.
As a result, the CC ECU is on standby and terminal 5 of the CC ECU is grounded. Therefore the CC indicator lights up.

b) SET/COAST switch

When the control switch is turned to SET/COAST position, the current flows from terminal 19 of the CC ECU → terminal 5 of the CC switch→ terminal 19 of the CC switch→ ground.

c) RESUME/ACCEL switch

When the control switch is turned to RESIACC position, the current flows from terminal 18 of the CC ECU→ terminal 17 of the CC switch → terminal 19 of the CC switch→ ground.

d) CANCEL switch

When the control switch is turned to CANCEL position, the current flows from terminal 17 of the CC ECU→ terminal 11 of the CC switch → terminal 19 of the CC switch→ ground.

SPEED CONTROL OPERATION

When the vehicle speed is set by the control switch, the ECU sends signal from terminal 10→terminal 2 of the stop light switch → terminal 4 of the switch → terminal 5 of the actuator→ (safety magnetic clutch) – terminal 4 of the actuator → ground.
When the actual vehicle speed drops below the set speed, the CC ECU sends a signal (voltage) from terminal 12 → terminal 6 of actuator→ (motor) → terminal 7 of actuator→ terminal 11 of CC ECU. This causes the motor to rotate the actuator arm in the throttle opening direction, increasing the vehicle speed. Then, when the arm reaches the prescribed angle, the CC ECU detects this at terminal 25 and stops the signal from 12.
When the actual vehicle speed rises above the set speed, the CC ECU sends a signal from terminal 11, turning the motor in the opposite direction so that the vehicle speed is reduced.
The CC ECU sends approx. 5 V from terminal 24 → terminal 1 of the actuator →(position sensor) →terminal 3 of the actuator → terminal 26 of the CC ECU. When the occurs, the position sensor sends the position of the actuator arm as a signal (voltage) from terminal 2 of the actuator to terminal 25 of the CC ECU.

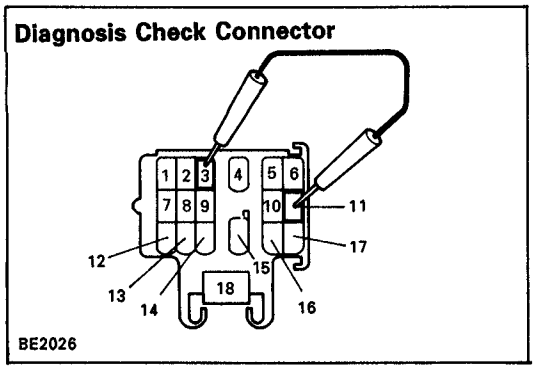
3. MANUAL CANCEL OPERATION

The CC system has the following methods of cancellation:

- **Speed Control Switch (CANCEL)**
  When the control switch is turned to CANCEL position.
- **Parking Brake Switch**
  When the parking brake lever is pulled, the parking brake switch is turned ON and sends a cancellation signal (ground voltage) to terminal 3 of the CC ECU.
- **Park/Neutral Switch (A/T)**
  When the shift lever is set to ”N” or ”P” range, the park/neutral switch is turned ON and sends a cancellation signal (ground voltage) to terminal 2 of the CC ECU.
- **Clutch Switch (M/T)**
  When the clutch pedal is depressed, the clutch switch is turned ON and sends a cancellation signal (ground voltage) to terminal 2 of the CC ECU.
- **Stop Light Switch**
  When the brake pedal is depressed, SW B of the stop light switch is turned OFF, the safety magnetic clutch (in actuator) is released, and SW A of the stop light switch is turned ON and sends a cancellation signal (battery voltage) to terminal 16 of the CC ECU.

  When the CC ECU detects any of the above signals, it stops output of signals to the actuator, and cancels cruise control.

CC: Cruise Control



DIAGNOSIS SYSTEM

OUTPUT OF DIAGNOSIS CODE

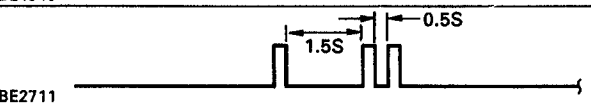
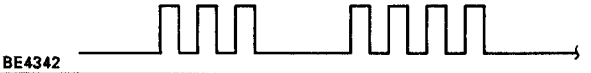
READ DIAGNOSIS CODE

(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.

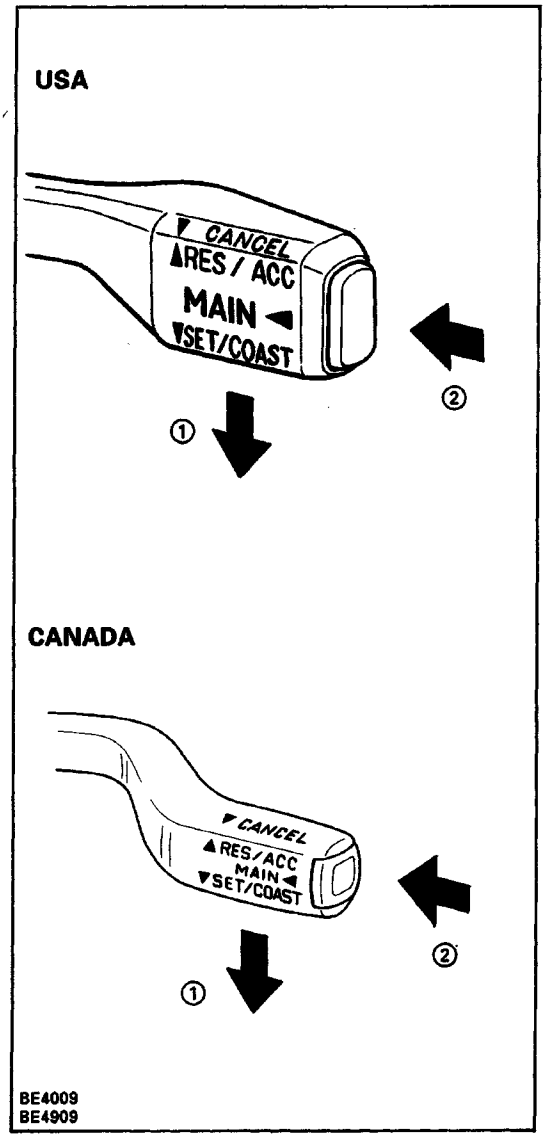
HINT: If the ignition switch is turned oft, the diag–nostic code will be erased from the computer memory.

(e) Read the diagnostic code on the indicator light "CRUISE".

	Indicator code	Diagnosis
		Normal
11		Excessive current flowed to motor or safety magnetic clutch drive circuit.
12		Open circuit in safety magnetic clutch circuit.
13		Position sensor circuit abnormal. Open circuit in motor.
21		Vehicle speed signal not sent for 140 msec. or longer.
22		Vehicle speed pulse generator (in Powertrain Control Module) circuit is abnormal.
23		(A/T) Vehicle speed has decreased by 16 km/h (10 mph) or more from the set speed during cruising.
31		(CANADA) RESUME/ACCEL switch is ON always when MAIN switch is pushed ON.
32		(USA) Short circuit in control switch circuit.
33		(CANADA) SET/COAST switch signal and RES/ACC switch signal turned on simultaneously.
34		(USA) Control switch does not turn o¿¿ before switching.
41		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–124).

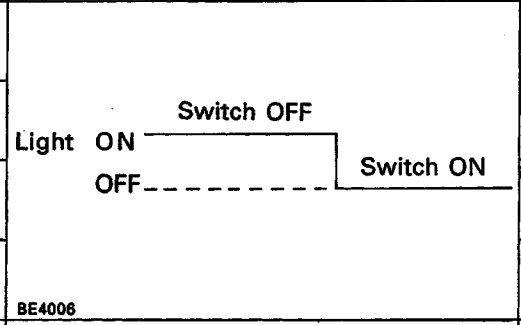


INPUT SIGNAL CHECK

Output Code

1. (a) For check No. 1 – No. 2
   Turn the ignition switch on.
   (b) For check No. 3 – No. 4
   Jack up the vehicle.
   Start the engine.
2. Turn the control switch to SET/COAST position and hold it down (1).
3. Push the main switch on (2).
4. Check that the CRUISE MAIN indicator light blinks twice repeatedly.
5. Turn the SET/COAST switch off.
6. Operate each switch as listed in the table below.
7. Read the blinking pattern of the CRUISE MAIN indicator light.
8. After performing the check, turn the main switch off.

HINT: When two or more signals are input to the ECU, only the lowest–numbered code is displayed.

No.	Operation Method	CRUISE MAIN Indicator Light Blinking Pattern	Diagnosis
1	Turn SET/COAST switch ON.		SET/COAST switch circuit is normal.
2	Turn RES/CC switch ON.		RES/ACC switch circuit is normal.
3	Turn CANCEL switch ON.		CANCEL switch circuit is normal.
	Turn stop fight switch ON. (Depress brake pedal)		Stop fight switch circuit is normal.
	Turn parking brake switch ON. (Release parking brake)		Parking brake switch circuit is normal.
	Turn park/neutral switch ON. (Shift to N or P range)		Park/neutral switch circuit is normal.
4	Drive at 40 km/h (25 mph) or higher.		Vehicle speed pulse generator is normal.
	Drive at 40 km/h (25 mph) or below.		

TROUBLESHOOTING

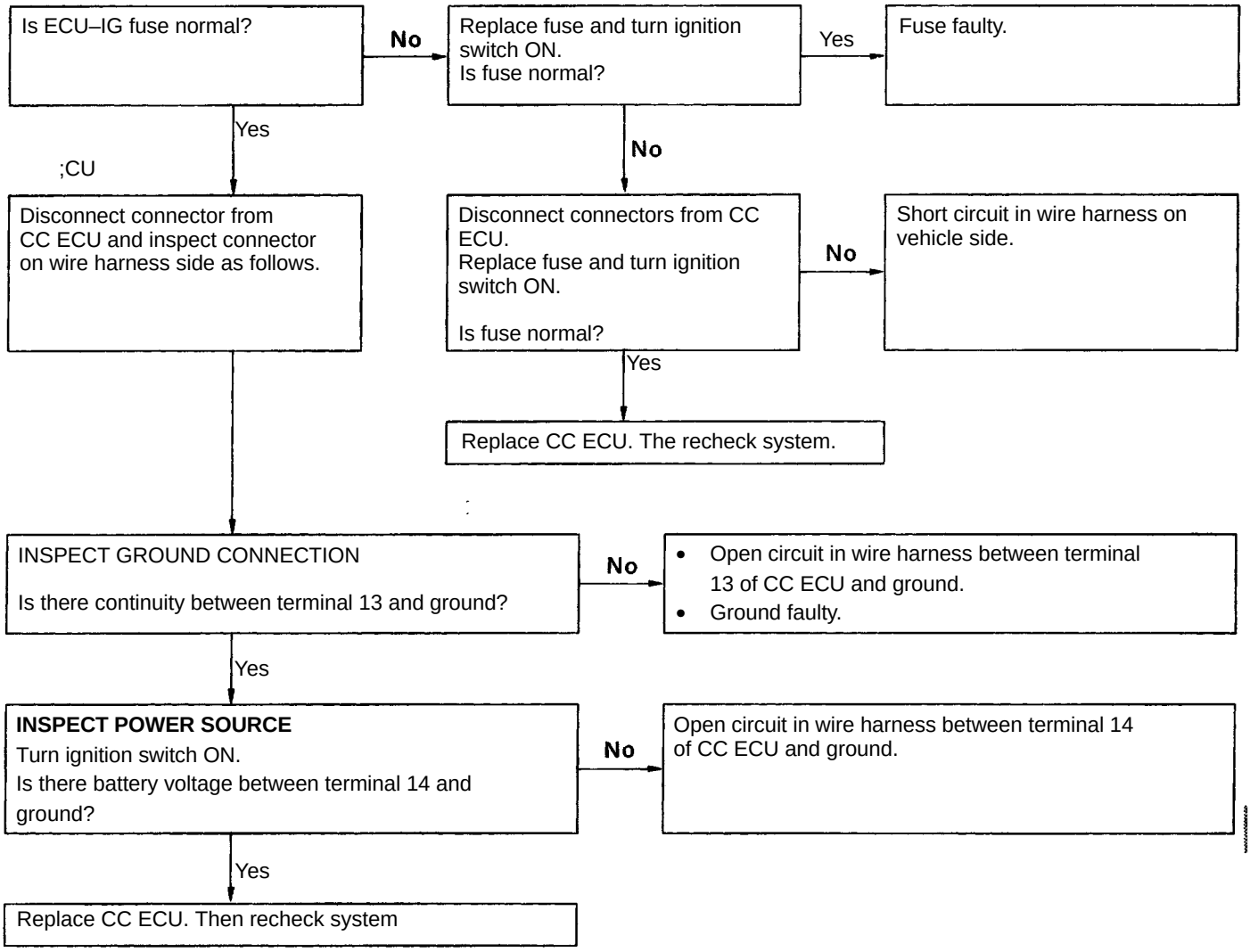
You will find the source of the trouble more easily be properly using the table shown below. In this table, the numbers indicate the order of priority of the causes of trouble. Check each part in the order shown.

Chart No.					H	*1	*2	L	N, 0	M	*3	P	Q		
Inspection Item / Diagnosis Code / Problem	Type B	Type A		CC ECU	Actuator	Main Switch (in Control Switch)	Control Switch	Stop Light Switch	Clutch Switch or Park/Neutral Switch	Parking Brake Switch	Vehicle Speed Pulse Generator or Speedometer Cable	ECT Solenoid No. 2 Circuit	Throttle Position Sensor (IDL)	Speed Control Cable Function	Wire Harness
• "CRUISE" Indicator light blinks 5 times. • Cruise control system does not set. • Cruise control system does not operate	11			3	2										1
	12			4	2			3							1
	13			3	2										1
	21			3							2				1
	22			2							1				
	23			4	3						2			1	
	31			3			2								1
	32			2			1								
	33			3			2								1
	34			2			1								
	41			1											
	Normal	4	OK	9	8	2	3	4	5	6				7	1
			NG	2							7				
Set speed deviates on high or low side				4	3						1			2	
Large speed drop when the speed control switch turned to SET.				4	3								2	1	
Vehicle speed fluctuates when speed control switch turned to SET.				4	3						1			2	
Acceleration response is sluggish when speed control switch turned to "ACCEL" or "RESUME'				4	3						2			1	
During autodrive operation, shift operation occurs frequently without control				2								1			
Set speed does not cancel when brake pedal depressed.	3	OK		1											
		NG		2				1							
Set speed does not cancel when parking brake lever pulled.	3	OK		1											
		NG		2						1					
Set speed does not cancel when clutch pedal depressed.	3	OK		1											
		NG		2					1						
Set speed does not cancel when speed control switch turned to CANCEL.	3	OK		1											
		NG		2			1								
Vehicle speed does not decrease when speed control switch turned to COAST.	1	OK		4	1						3			2	
		NG		2			1								
Vehicle speed does not accelerate when speed control switch turned to ACCEL.	2	OK		4	1						3			2	
		NG		2			1								
Vehicle speed does not return to memorized speed when control switch turned on RESUME	2	OK		4	1						3			2	
		NG		2			1								
Speed can be set below about 40 km/h (25 mph.)	4	OK		1											
		NG		2							1				
Cruise control will not disengage even at about 40 km/h (25 mph).	4	OK		1											
		NG		3							1			2	

*1 USA : C
CANADA : D
*2 USA : C
CANADA : E, F, G
*3 M/T : I
A/T : J, K

A POWER SOURCE CIRCUIT

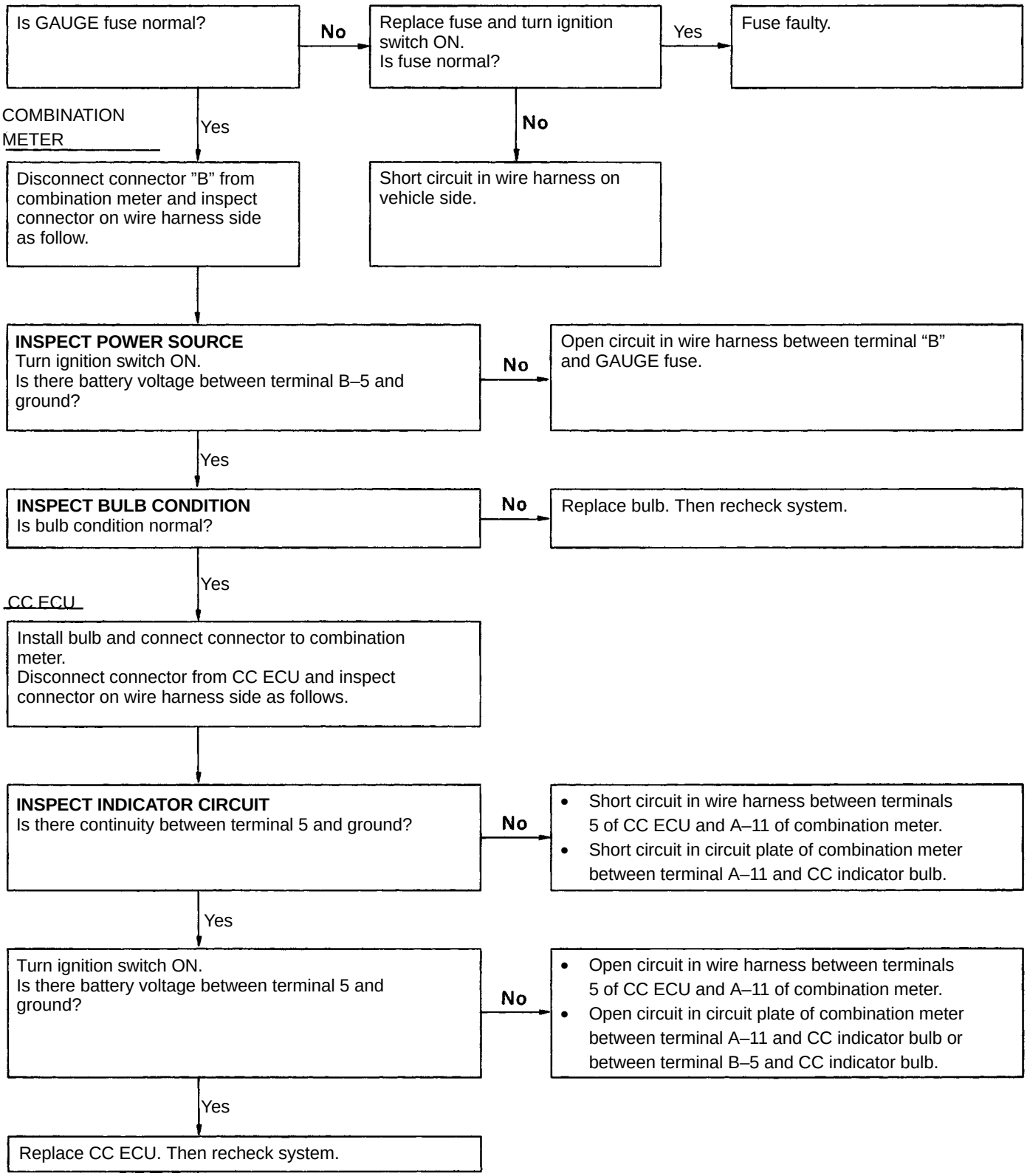
HINT: While carrying out the following inspection, make certain that the connectors and terminals are properly connected.



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.



CC: Cruise Control

C CONTROL SWITCH CIRCUIT (USA)

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 and ground?

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

Yes

INSPECT CONTROL SWITCH (See page BE–137)
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 continuity between terminal 4 and ground with main switch OFF?

Yes → Short circuit in wire harness between terminals 4 of CC ECU and 5 of control switch.

No

!s there continuity between terminal 4 and ground with main switch ON?

No → Open circuit in wire harness between terminals 4 of CC ECU and 5 of control switch.

Yes

INSPECT CONTROL SWITCH CIRCUIT
Is there continuity between terminal 18 and ground with control switch OFF?

Yes → Short circuit in wire harness between terminals 18 of CC ECU and 4 of control switch.

No

Is there resistance as shown in table below between terminal 18 and ground when control switch is turned to each position?

No → Open circuit in wire harness between terminals 18 of CC ECU and 4 of control switch.

Position	Resistance (S
RESIACC SET/COAST CANCEL	Approx. fib Approx. 198 Approx. 418

Yes

Replace CC ECU. Then recheck system.

CC: Cruise Control

D MAIN SWITCH CIRCUIT (CANADA)

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 19 and ground?

No →
- Open circuit in wire harness between terminal 19 of control switch and ground.
- Ground faulty.

Yes

INSPECT CONTROL SWITCH (See page BE–137)
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 connector on wire harness side as follows.

INSPECT MAIN SWITCH CIRCUIT

Is there continuity between terminal 4 and ground with MAIN switch ON?

No → Open circuit in wire harness between terminal 4 of CC ECU and terminal 15 of control switch.

Yes

Is there continuity between terminal 4 and ground with MAIN switch OFF?

Yes → Short circuit in wire harness between terminal 4 of CC ECU and terminal 15 of control switch.

No

Replace CC ECU.
Then recheck system.

CC: Cruise Control

E SET/COAST SWITCH CIRCUIT (CANADA)

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 19 and ground?

No → • Open circuit in wire harness between terminal 19 of control switch and ground.
• Ground faulty.

Yes

INSPECT CONTROL SWITCH
(See page BE–137**)**
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 connector on wire harness side as follows.

INSPECT SET/COAST SWITCH CIRCUIT .
Is there continuity between terminal 19 and ground with control switch turned to SET/COAST position?

No → Open circuit in wire harness between terminal 19 of CC ECU and terminal 5 of control switch.

Yes

Is there continuity between terminal 19 and ground when control switch released?

Yes → Short circuit in wire harness–between terminal 19 of CC ECU and terminal 5 of control switch.

No

Replace CC ECU.
Then recheck system.

CC: Cruise Control

F RES/ACC SWITCH CIRCUIT (CANADA)

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 19 and ground?

No → • Open circuit in wire harness between terminal 19 of control switch and ground.
• Ground faulty.

Yes

INSPECT CONTROL SWITCH
(See page BE–137**)**
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 connector on wire harness side as follows.

INSPECT RESUME/ACCEL CIRCUIT
Is there continuity between terminal 18 and ground with control switch turned to RES/ACC position?

No → Open circuit in wire harness between terminal 18 of CC ECU and terminal 17 of control switch.

Yes

Is there continuity between terminal 18 and ground with control switch released?

Yes → Short circuit in wire harness between terminal 18 of CC ECU and terminal 17 of control switch.

No

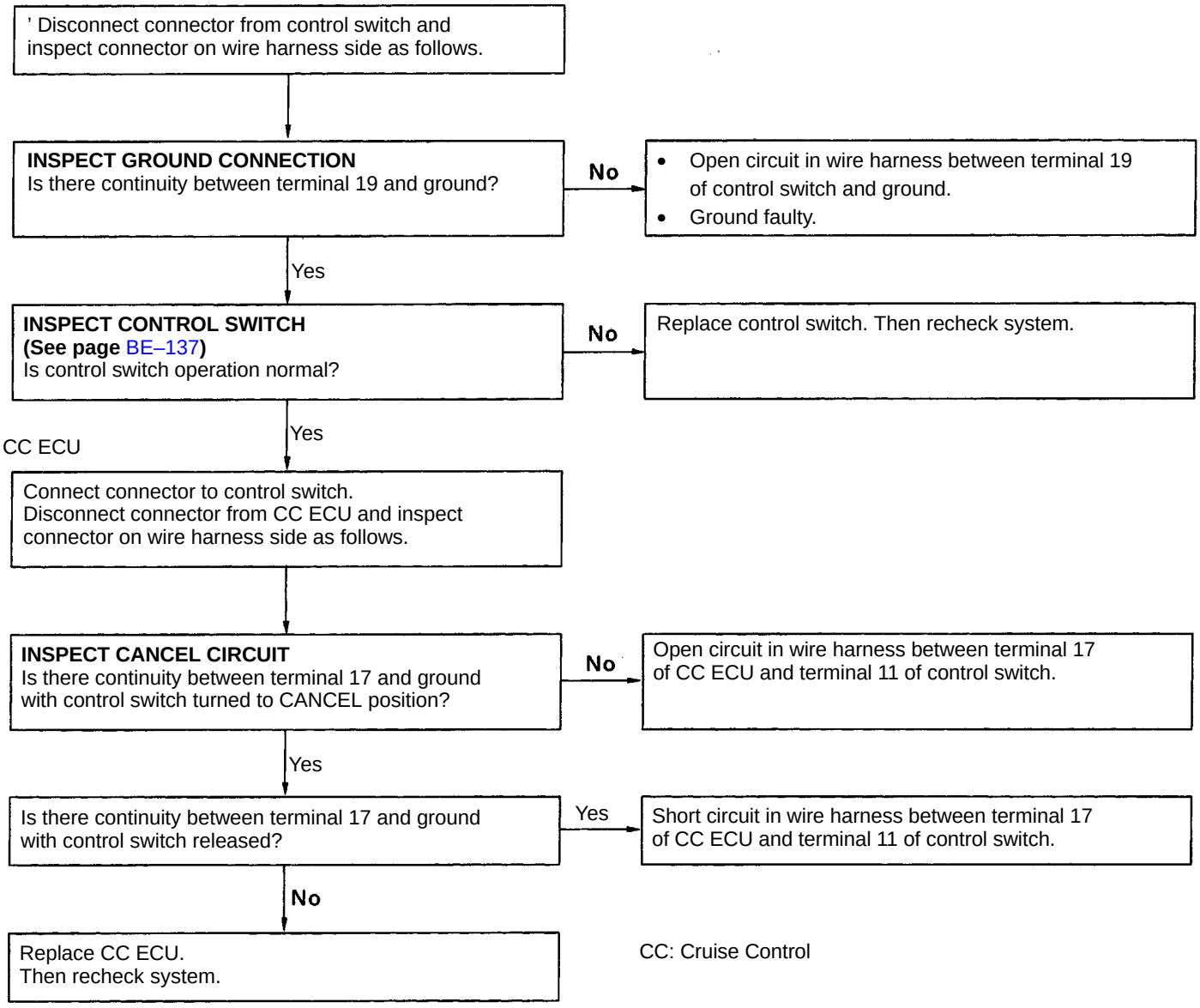
Replace CC ECU.
Then recheck system.

CC: Cruise Control

G CANCEL SWITCH CIRCUIT (CANADA)

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

CONTROL SWITCH



H 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–139)
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 SAFETY MAGNETIC CLUTCH CIRCUIT
Is there approx. 38.5 Ω between terminal 4 and ground?

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

Yes

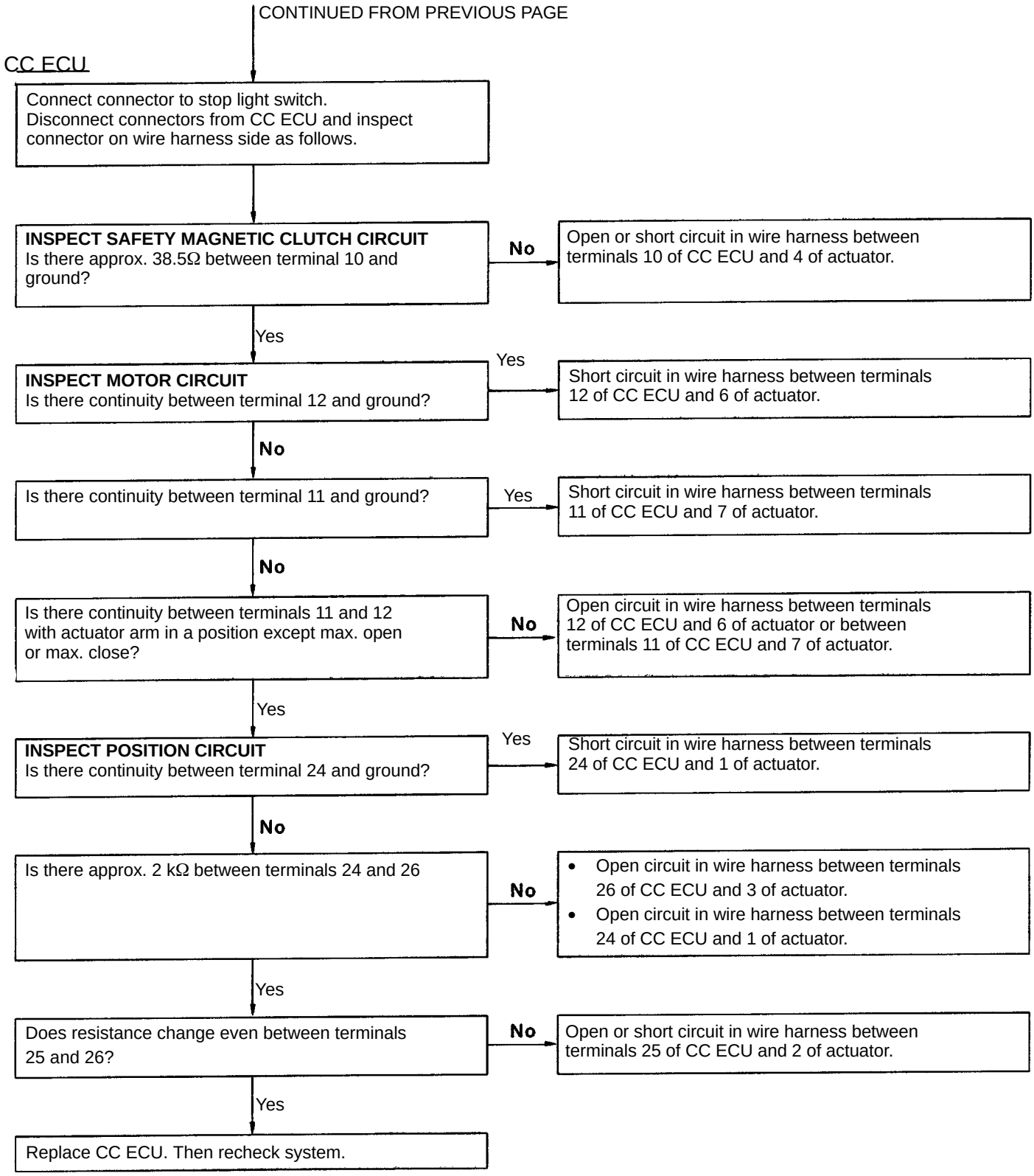
INSPECT STOP LIGHT SWITCH (See page BE–137)
Is stop light switch operation normal?

No → Replace stop light switch. Then recheck system.

Yes

CONTINUED ON NEXT PAGE

CC: Cruise Control



CC: Cruise Control

VEHICLE SPEED PULSE GENERATOR CIRCUIT (with M/T)

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

VEHICLE SPEED PULSE GENERATOR

Disconnect connector from vehicle speed pulse generator 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 vehicle speed pulse generator and ground.
- Ground faulty.

Yes ↓

INSPECT VEHICLE SPEED PULSE GENERATOR
(See page BE–138)
Is vehicle speed pulse generator operation normal?

No → Replace vehicle speed pulse generator. Then recheck system.

Yes ↓

CC ECU

Connect connector to vehicle speed pulse generator
Disconnect connector from CC ECU and inspect connector on wire harness side as follows.

INSPECT VEHICLE SPEED PULSE GENERATOR CIRCUIT
Is there continuity repeatedly between terminal 20 and ground?

No →
- Open or short circuit in wire harness between terminals 20 of CC ECU and 2 of vehicle speed pulse generator

Yes ↓

Replace CC ECU. Then recheck system.

CC: Cruise Control

J VEHICLE SPEED PULSE GENERATOR CIRCUIT (with A/T: COMBINATION METER)

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

COMBINATION METER

Disconnect connector "A" from combination meter and inspect connector on wire harness side as follows.

INSPECT GROUND CONNECTION
Is there continuity between terminal A–1 and ground?

No →
- Open circuit in wire harness between terminal A–1 of combination meter and ground.
- Ground faulty.

Yes ↓

INSPECT CONTROL SWITCH (See page BE–137)
Is speed sensor operation normal?

No → Replace speedometer. Then recheck system.

Yes ↓

CC ECU

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

INSPECT VEHICLE SPEED PULSE GENERATOR CIRCUIT
Is there continuity repeatedly between terminal 20 and ground?

No →
- Open or short circuit in wire harness between terminals 20 of CC ECU and B–10 of combination meter.
- Open or short circuit in circuit plate of combination meter between terminal B–10 and vehicle speed pulse generator.
- Open circuit in circuit plate of combination meter between terminal A–1 and vehicle speed pulse generator.

Yes ↓

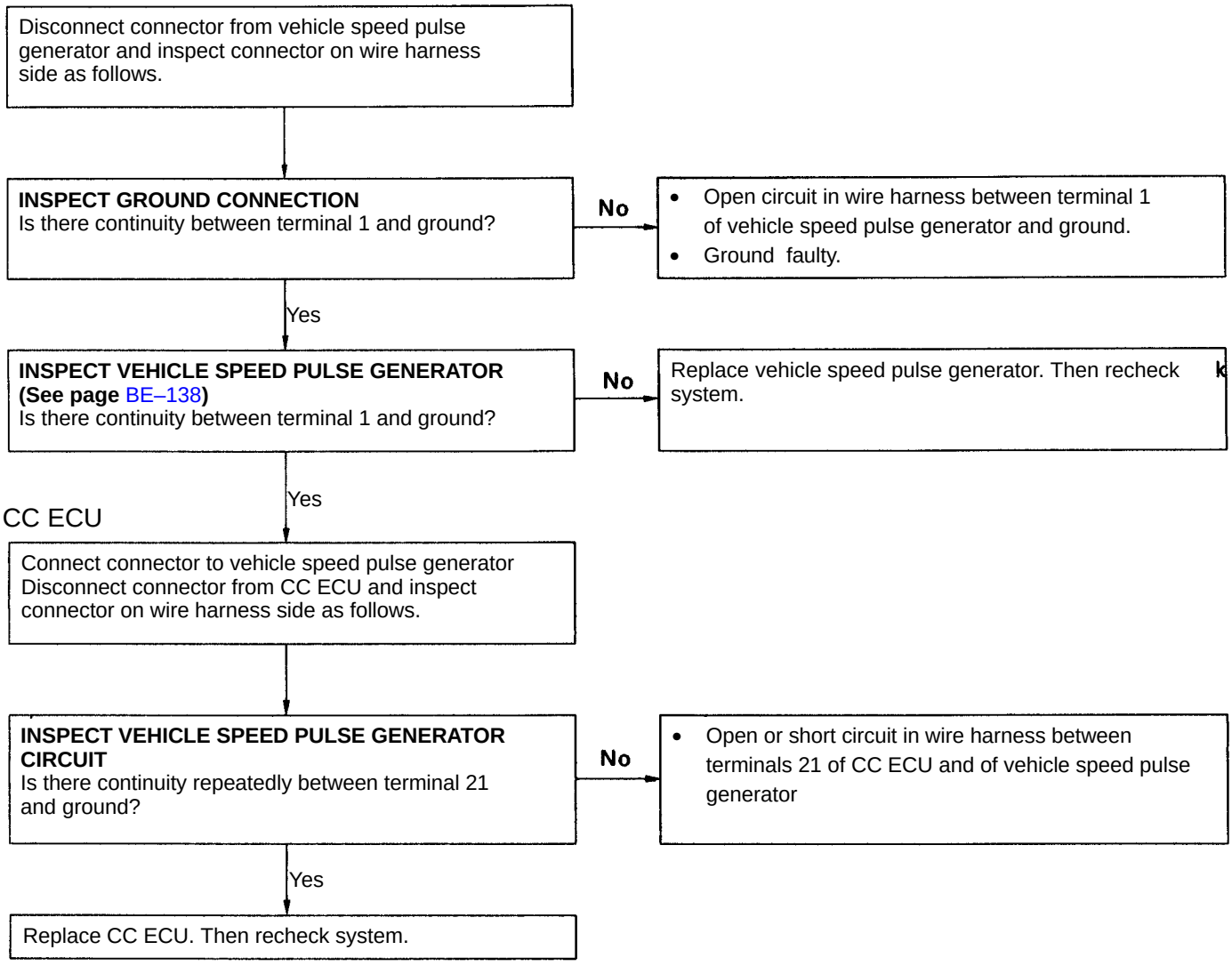
Replace CC ECU. Then recheck system.

CC: Cruise Control

K VEHICLE SPEED PULSE GENERATOR CIRCUIT (with AM ECT)

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

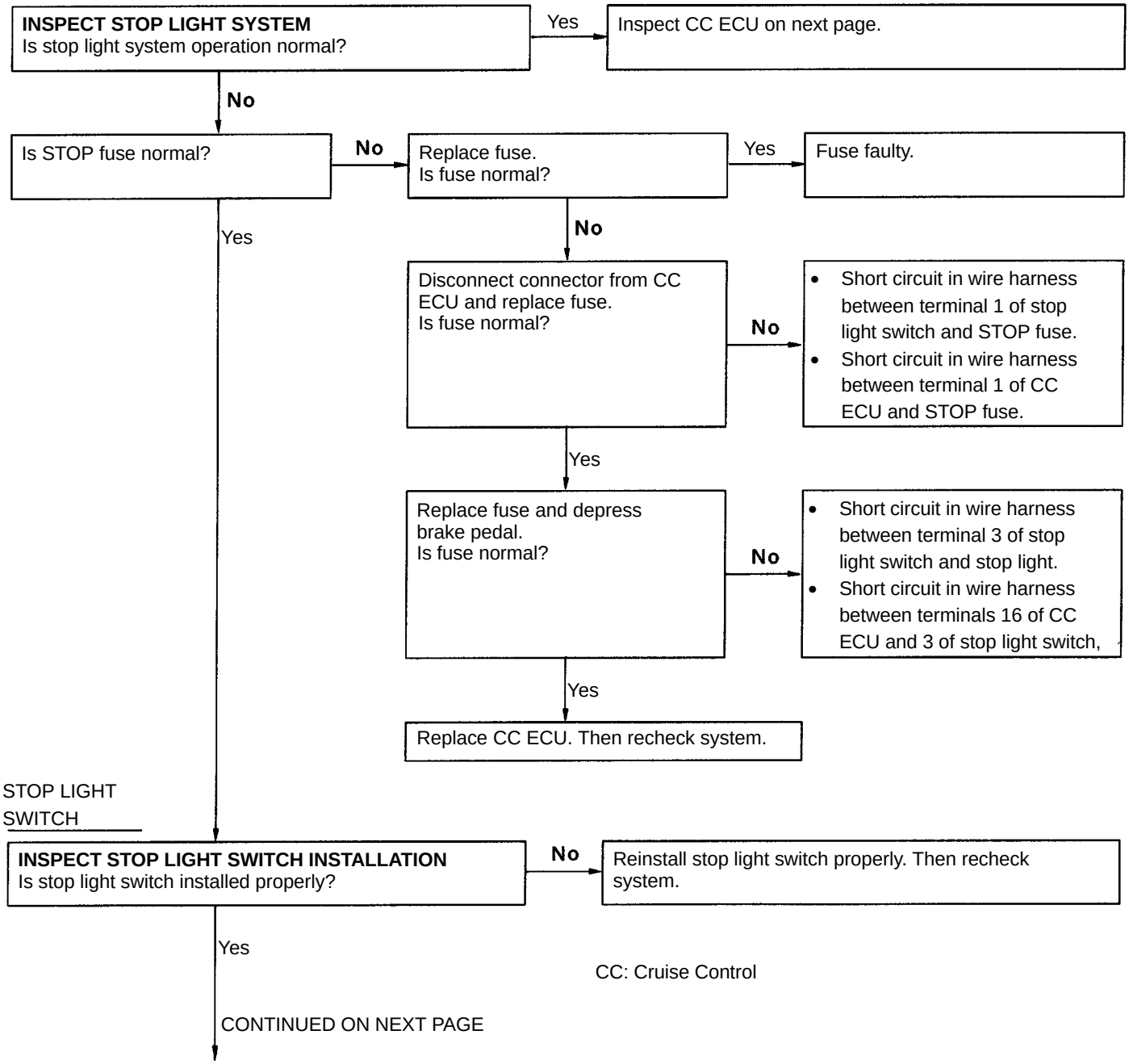
VEHICLE SPEED PULSE GENERATOR



CC: Cruise Control

L STOP LIGHT SWITCH CIRCUIT

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



CONTINUED FROM PREVIOUS PAGE

STOP LIGHT SWITCH

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

INSPECT POWER SOURCE
Is there battery 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 terminals 1 and 3.
Do stop light lights 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–137**)**
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 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 voltage between terminal 1 and ground?

No → Open circuit in wire harness between terminal 1 of CC ECU and STOP fuse.

Yes

Is there battery voltage between terminal 16 and ground when brake pedal depressed?

No → Open circuit in wire harness between terminals 16 of CC ECU and 3 of stop fight switch.

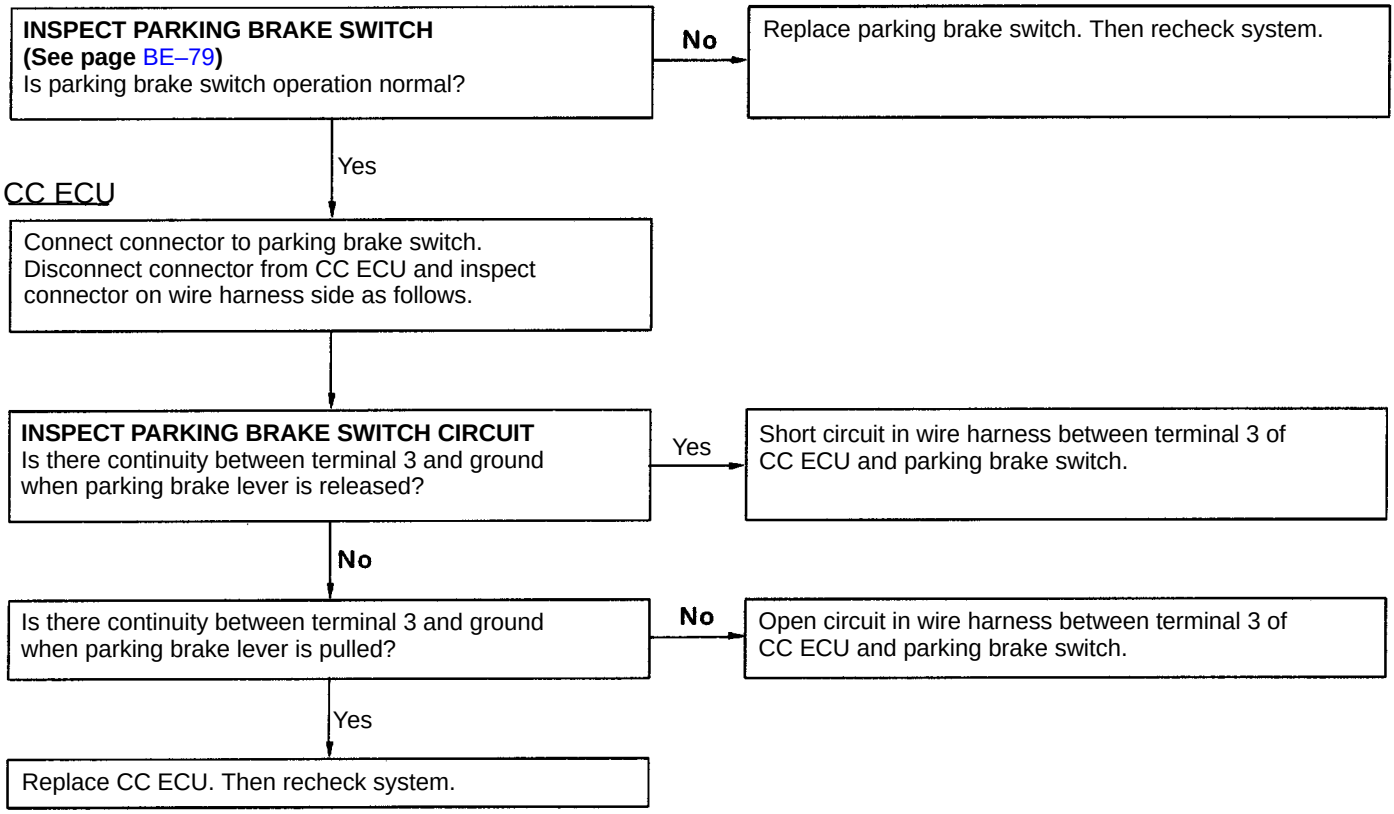
Yes

Replace CC ECU. Then recheck system.

CC: Cruise Control

M PARKING BRAKE SWITCH CIRCUIT

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

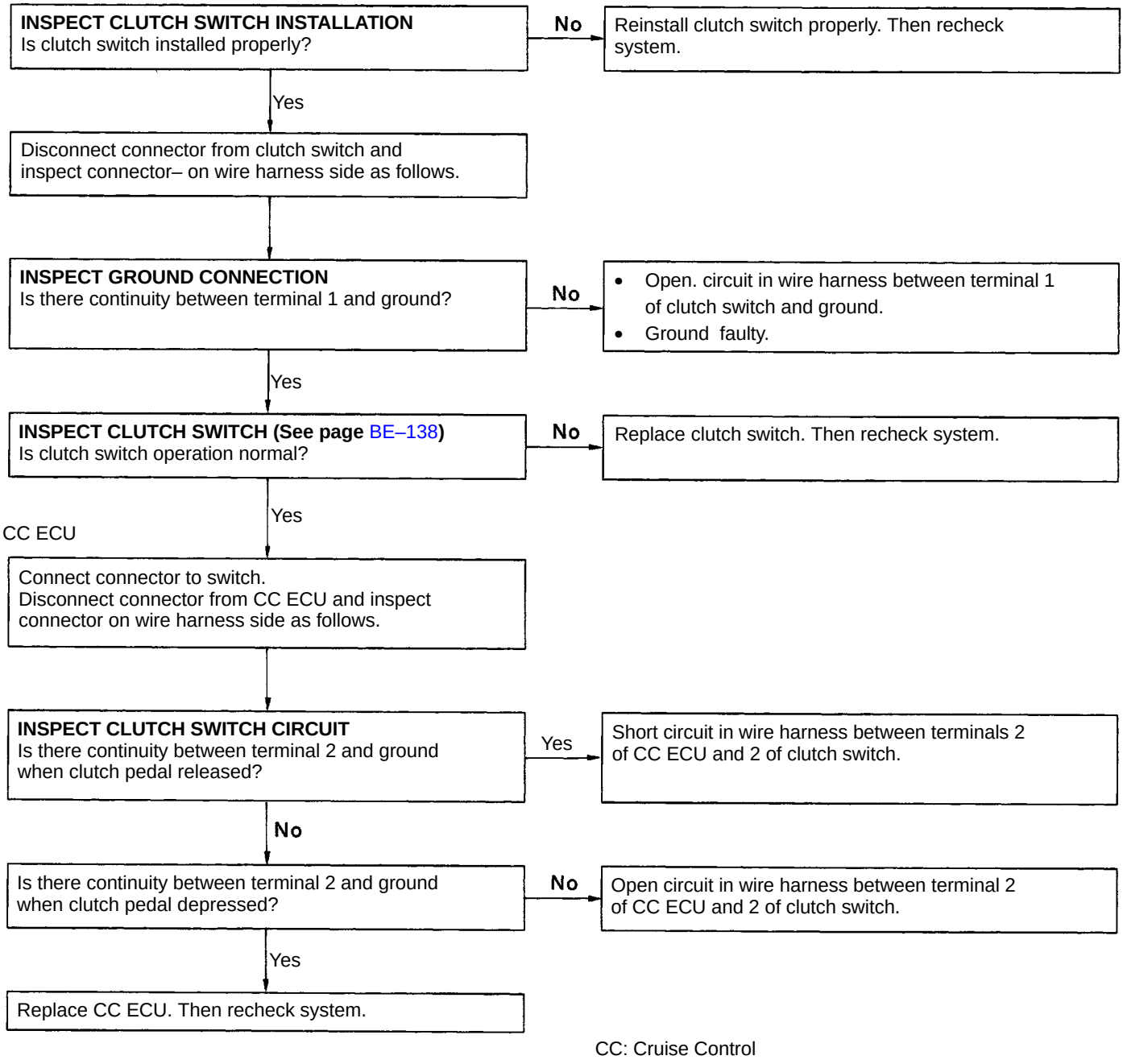


CC: Cruise Control

N CLUTCH SWITCH CIRCUIT (with M/T)

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

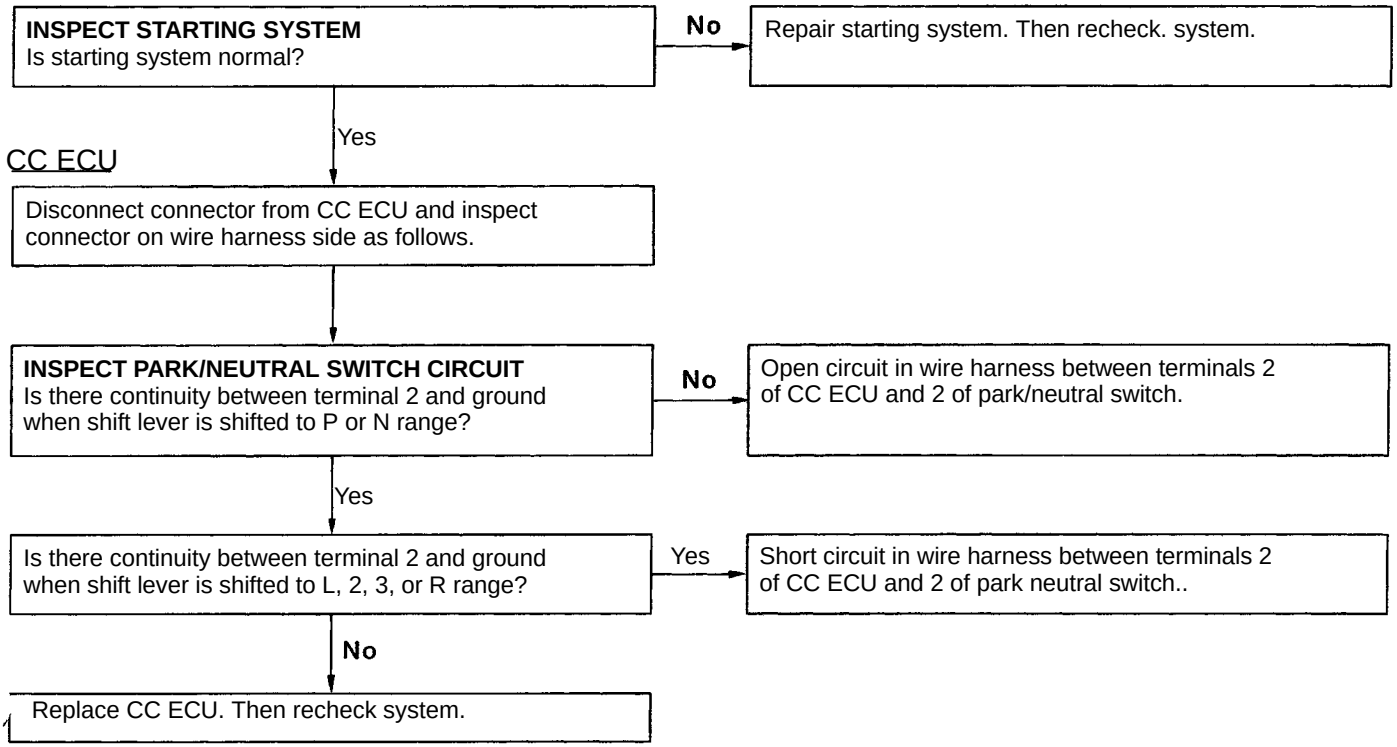
CLUTCH SWITCH



CC: Cruise Control

O PARK/NEUTRAL SWITCH CIRCUIT (with A/T)

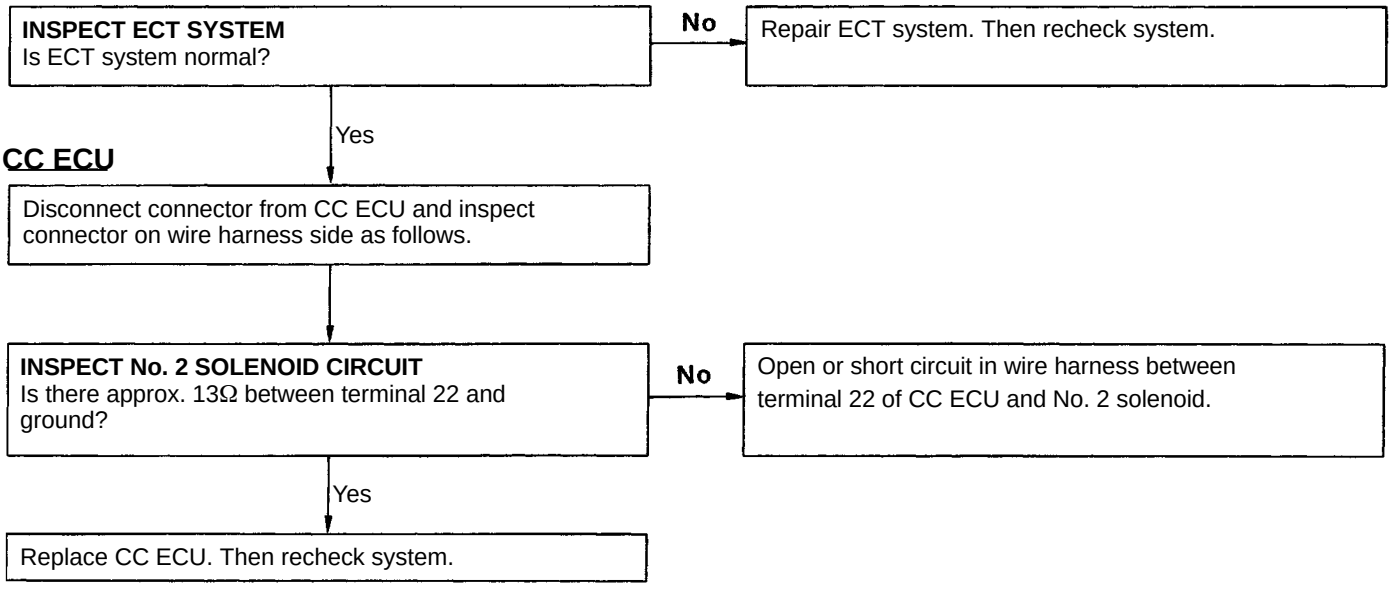
HINT: While carrying out the following inspection, make certain that the connectors and terminals are properly connected.



CC: Cruise Control

P ECT SOLENOID No. 2 CIRCUIT (with A/T)

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



CC: Cruise Control

Q 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
Is throttle position sensor adjustment normal?

No → Adjust position sensor position. Then recheck system.

Yes ↓

INSPECT THROTTLE POSITION SENSOR
Is throttle position sensor operation normal?

No → Replace throttle position. Then recheck system.

Yes ↓

CC ECU

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

INSPECT IDL SIGNAL CIRCUIT
Is there continuity between terminal 23 and ground when acceleration pedal is released?

No → Open circuit in wire harness between terminals 23 of CC ECU and 2 of throttle position sensor.

Yes ↓

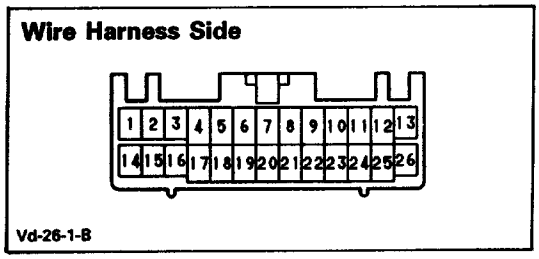
Is there continuity between terminal 23 and ground when acceleration pedal is depressed?

Yes → Short circuit in wire harness between terminals 23 of CC ECU and 2 of throttle position sensor.

No ↓

Replace CC ECU. Then recheck system.

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.

(USA)

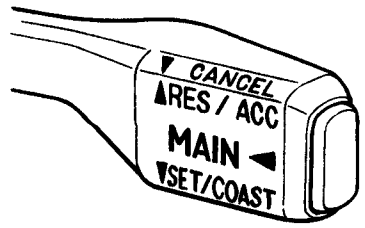
Check for	Measured item	Tester connection	Condition		Specified Value
Continuity	Clutch Switch (M/T)	2 – ground	Clutch pedal position	released	No continuity
				depressed	Continuity
	Park/Neutral switch (Alt)	2 – ground	Shift lever position	Nor P	Continuity
				L,2,D or R	N o continuity
	Parking brake switch	3 – ground	Parking brake lever position	released	No continuity
				pulled	Continuity
	Control switch	4 – ground	Main switch position	pushed	Continuity
				released	No continuity
	Actuator (motor)	11–12	Actuator arm position: max. OPEN		**(12 → 11) Continuity**
					(11 → 12) No continuity
			Actuator arm position: max. CLOSE		**(11 → 12) Continuity**
					(12 → 11) No continuity
			Actuator arm position: any position except above position		**(11 → 12) Continuity**
	Ground connection	13 – ground	Constant		Continuity
Resistance	Actuator (Safety magnetic clutch)	10 – ground	Brake pedal position	released	Approx. 38.5 92
				depressed	No continuity
	Control switch	18 – ground	Control switch position	OFF	No continuity
				RES/ACC	Approx. 68Ω
				SET/COAST	Approx. 198Ω
				CANCEL	Approx. 418 92
	ECT No. 2 solenoid valve (A/T)	22 – ground	Constant		Approx. 13Ω
	Actuator (position sensor)	24–26	Constant		Approx. 2 kΩ
		25–26	Actuator arm turned		Resistance change even
Voltage	STOP fuse	1 – ground	Constant		Battery voltage
	Power source	14 – ground	Ignition switch position	LOCK or ACC	No voltage
				ON	Battery voltage
	Stop light	16 – ground	Brake pedal position	released	No voltage
				depressed	Battery voltage
	Vehicle speed pulse generator	20 – ground	With ignition switch ON, speedometer shaft or speed sensor shaft turned.		Voltage changes repeatedly

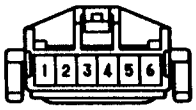
(CANADA)

Check for	Measured item	Tester connection	Condition			Specified Value
Continuity	Clutch switch	2 – ground	Clutch pedal position		released	No continuity
					depressed	Continuity
	Parking brake switch	3 – ground	Parking brake lever position		released	No continuity
					pulled	Continuity
	MAIN switch”	4 – ground	Main switch position		pushed	Continuity
					released	No continuity
	Actuator (motor)	11–12	Actuator arm position	max. OPEN		(12 → 11) Continuity
						(11 → 12) No continuity
				max. CLOSE		(11 → 12) Continuity
						(12 → 11) No continuity
				any position except above position		(11 ↔ 12) Continuity
	Ground connection	13 – ground	Constant			Continuity
	CANCEL switch*1	17 – ground	Cruise control switch position		turned to ”CANCEL”	Continuity
					released	No continuity
	RES/ACC switch*1	18 – ground			turned to ”RES/ACC”	Continuity
					released	No continuity
	SET/COAST switch *1	19 – ground			turned to ”SET/COAST”	Continuity
					released	No continuity
Resistance	Actuator (Safety magnetic clutch)	10 – ground	Brake pedal position		released	Approx. 38.5Ω
					depressed	No continuity
	Actuator (position sensor)	24–26	Constant			Approx. 2 Ω
		25–26	Actuator arm turned		Resistance change even	
Voltage	STOP fuse	1 – ground	Constant			Battery voltage
	Power– source	14 – ground	Ignition switch position		LOCK or ACC	No voltage
					ON	Battery voltage
	Stop light	16 – ground	Brake pedal position		released	No voltage
					depressed	Battery voltage
	Vehicle speed pulse generator	20 – ground	With ignition switch ON, speedometer shaft or vehicle speed pulse generator shaft turned.			Voltage changes repeatedly

*’ There is on cruise control switch.

USA





BE4009
e-6-1-C

CRUISE CONTROL SWITCH

CRUISE CONTROL SWITCH INSPECTION

CONTINUITY: USA Models

(a) Check continuity between terminals 3 and 5.

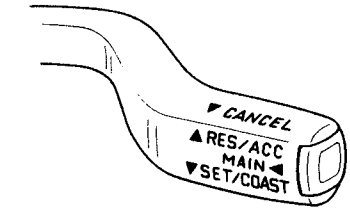
Main switch position	Condition
OFF	No continuity
ON	Continuity

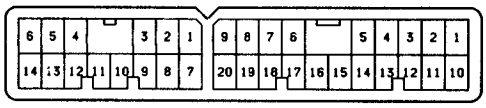
(b) Measure resistance between terminals 3 and 4.

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

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

CANADA





Connector "A" Connector "B"

BE4909
V-34-2

CONTINUITY: CANADA Models

Terminal / Switch Position	B–5	B–11	B–15	B–17	6–19
OFF					
RES/ACC				○	○
MAIN			○	○	○
SET/COAST	○				○
CANCEL		○			○

If continuity is not as specified, replace the switch.

PARKING BRAKE SWITCH

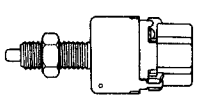
PARKING BRAKE SWITCH INSPECTION

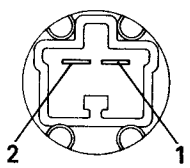
See Brake Warning System on page BE–79.

STOP LIGHT SWITCH

STOP LIGHT SWITCH INSPECTION

CONTINUITY





BE1444 BE5656

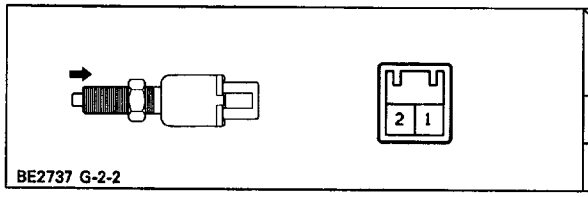
Terminal / Switch position	1	2
Switch pin free (Brake pedal depressed)	○	○
Switch pin pushed i n (Brake pedal released)		

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

CLUTCH SWITCH

CLUTCH SWITCH INSPECTION

CONTINUITY: M/T Models



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 SWITCH

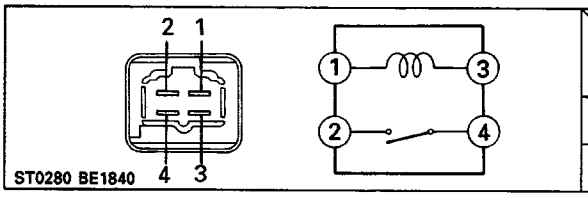
PARK/NEUTRAL SWITCH INSPECTION

See page AX–35.

STARTER RELAY

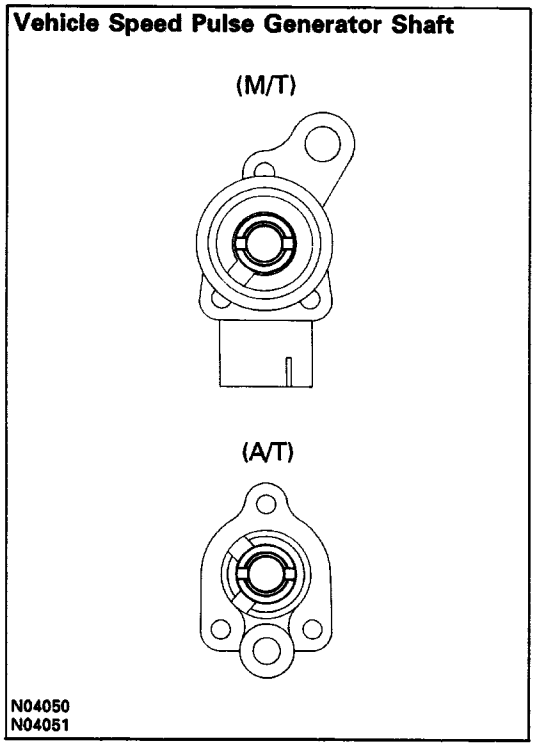
STARTER RELAY INSPECTION

CONTINUITY



Terminal / Condition	1	2	3	4
Constant	○	⏦	○	
Apply battery voltage to terminals 1 and 3.		○		○

If continuity is not as specified, replace the relay.



VEHICLE SPEED PULSE GENERATOR

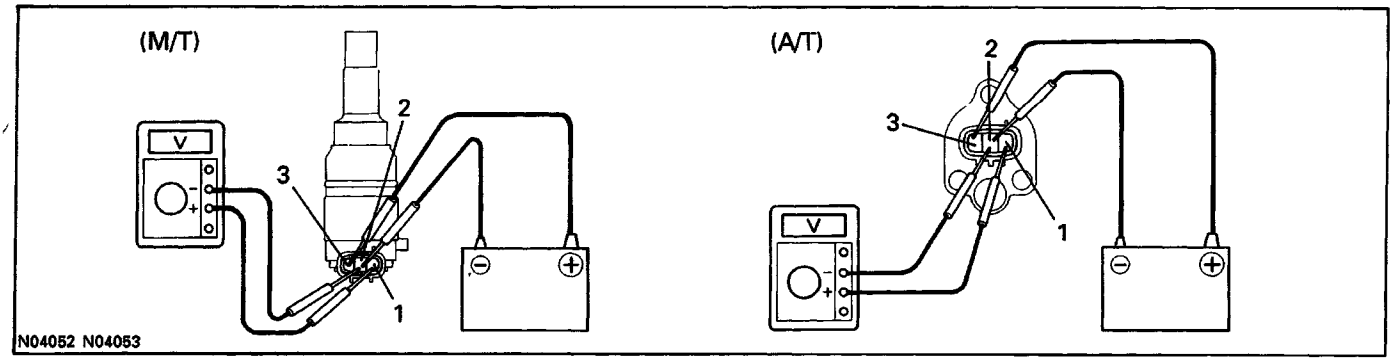
VEHICLE SPEED PULSE GENERATOR INSPECTION

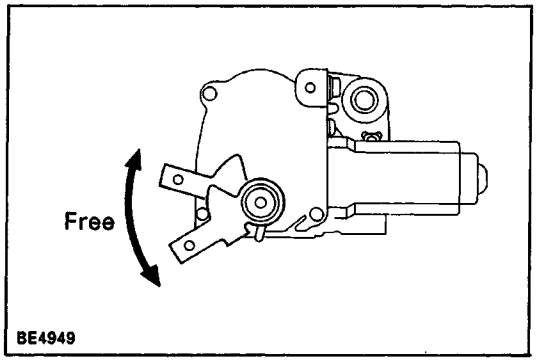
INSPECT VEHICLE SPEED PULSE GENERATOR

(a) Connect the positive (+) lead from battery to terminal 1 and negative (–) lead to terminal 2.
(b) Connect the positive (+) lead from tester to terminal 3 and negative (–) lead to terminal 2.
(c) Revolve shaft.
(d) Check that there is voltage change from approx. 0V to 11V or more between terminal 3 and 2.

HINT: The voltage change should be 4 times per each revolution of the vehicle speed pulse generator shaft.

If operation is not as specified, replace the generator.



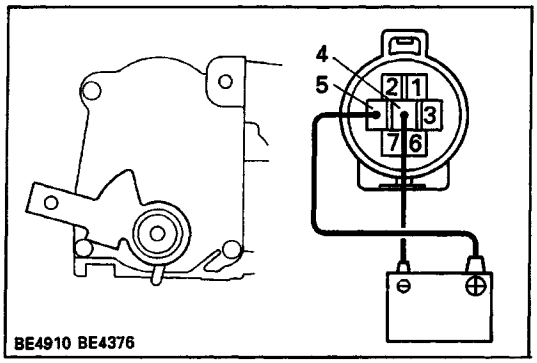


ACTUATOR

ACTUATOR INSPECTION

SAFETY MAGNET CLUTCH

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

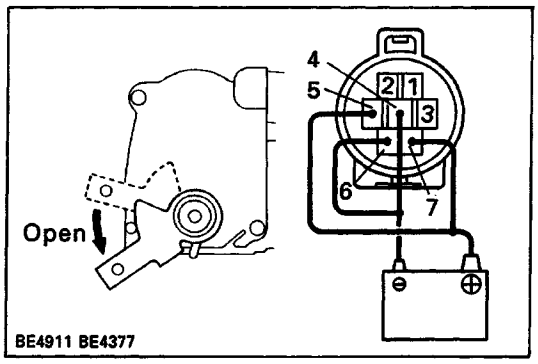


(b) Connect the positive (+) lead from the battery to terminal 5 and the negative H lead to terminal

4. (Safety Magnetic Clutch turned ON)

(c) Check that the arm does not move by hand.

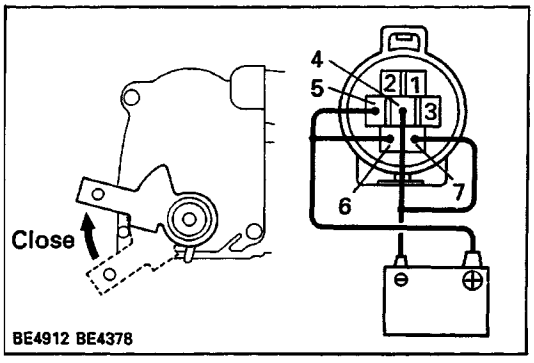
If operation is not as specified, replace the motor.



MOTOR

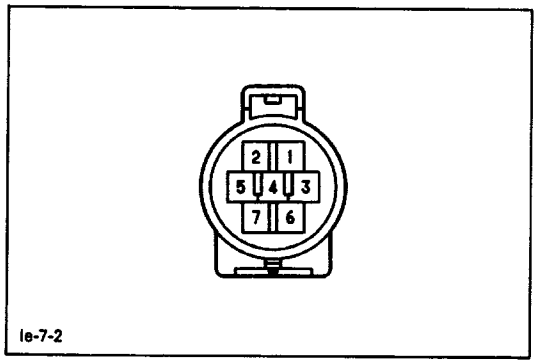
(a) With the safety magnetic clutch ON, connect the positive (+) lead from the battery to terminal 6 and the negative (–) lead to terminal 7, check that the arm moves to the open side.

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



(c) With the safety magnetic 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.

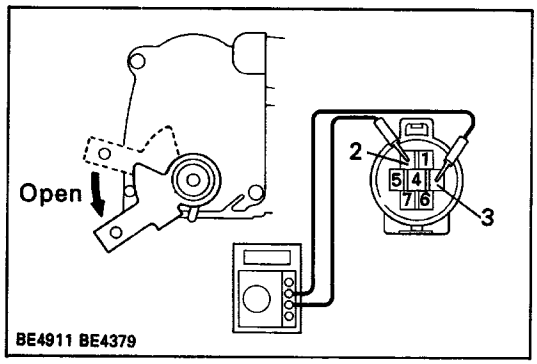
(d)When the arm reaches to the closed position, check that the motor operation stops.



POSITION SENSOR

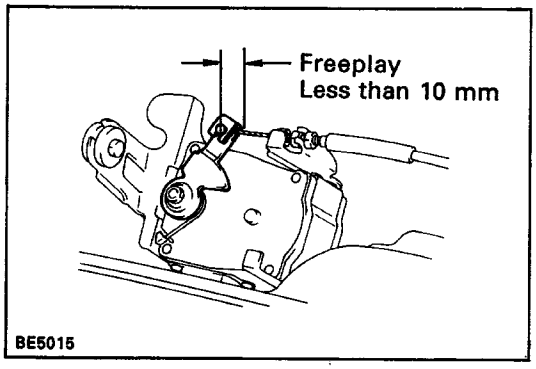
(a) Measure the resistance between terminals 1 and 3.

Resistance: Approx. 2 Ω



(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.



CRUISE CONTROL CABLE

(a) Check that the cruise control cable freeplay is less than 10 mm (0.39 in.).

(b) If necessary adjust the cruise control cable freeplay.

THROTTLE POSITION SENSOR

THROTTLE POSITION SENSOR INSPECTION

See page FI–134 and FI–141.