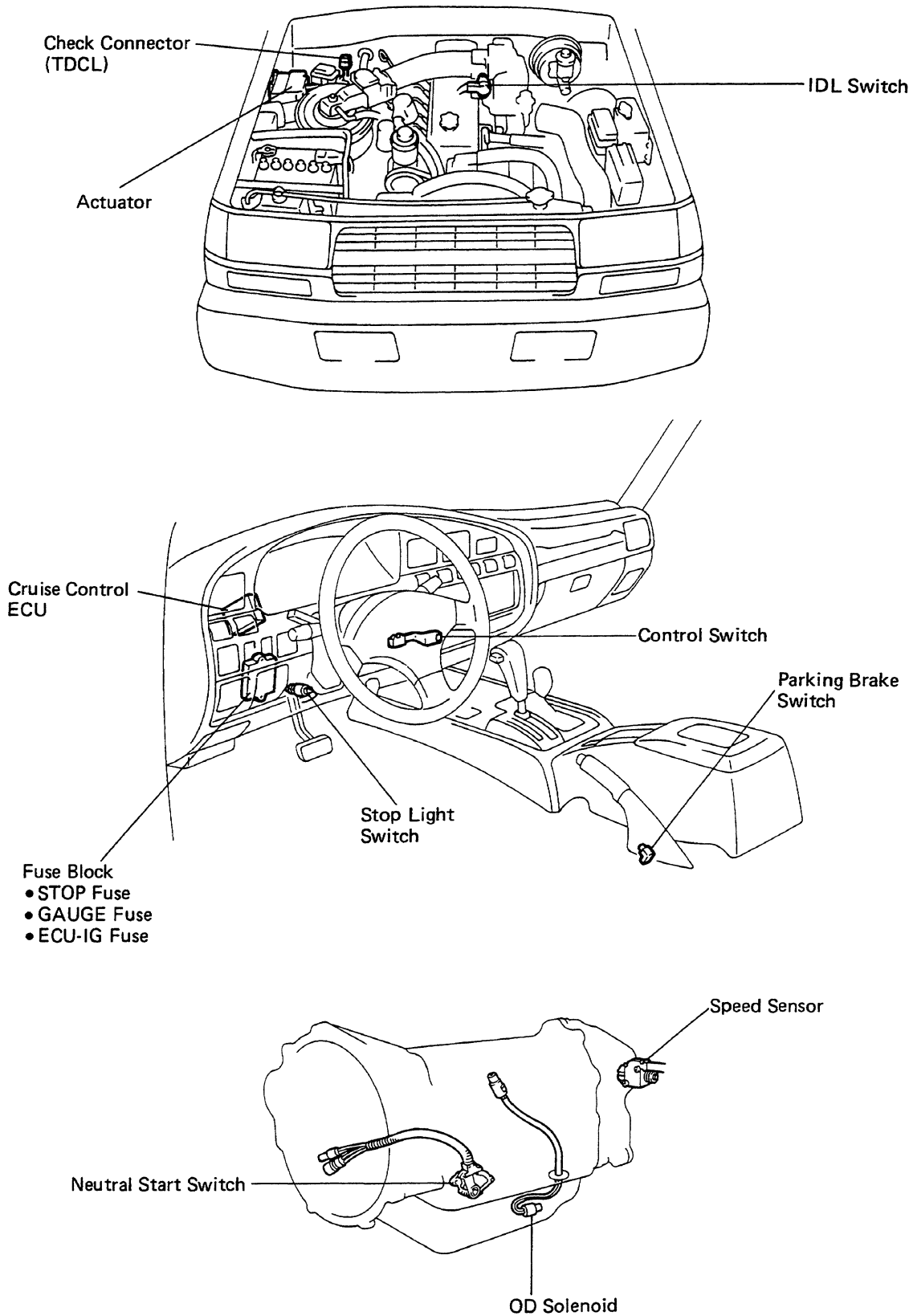
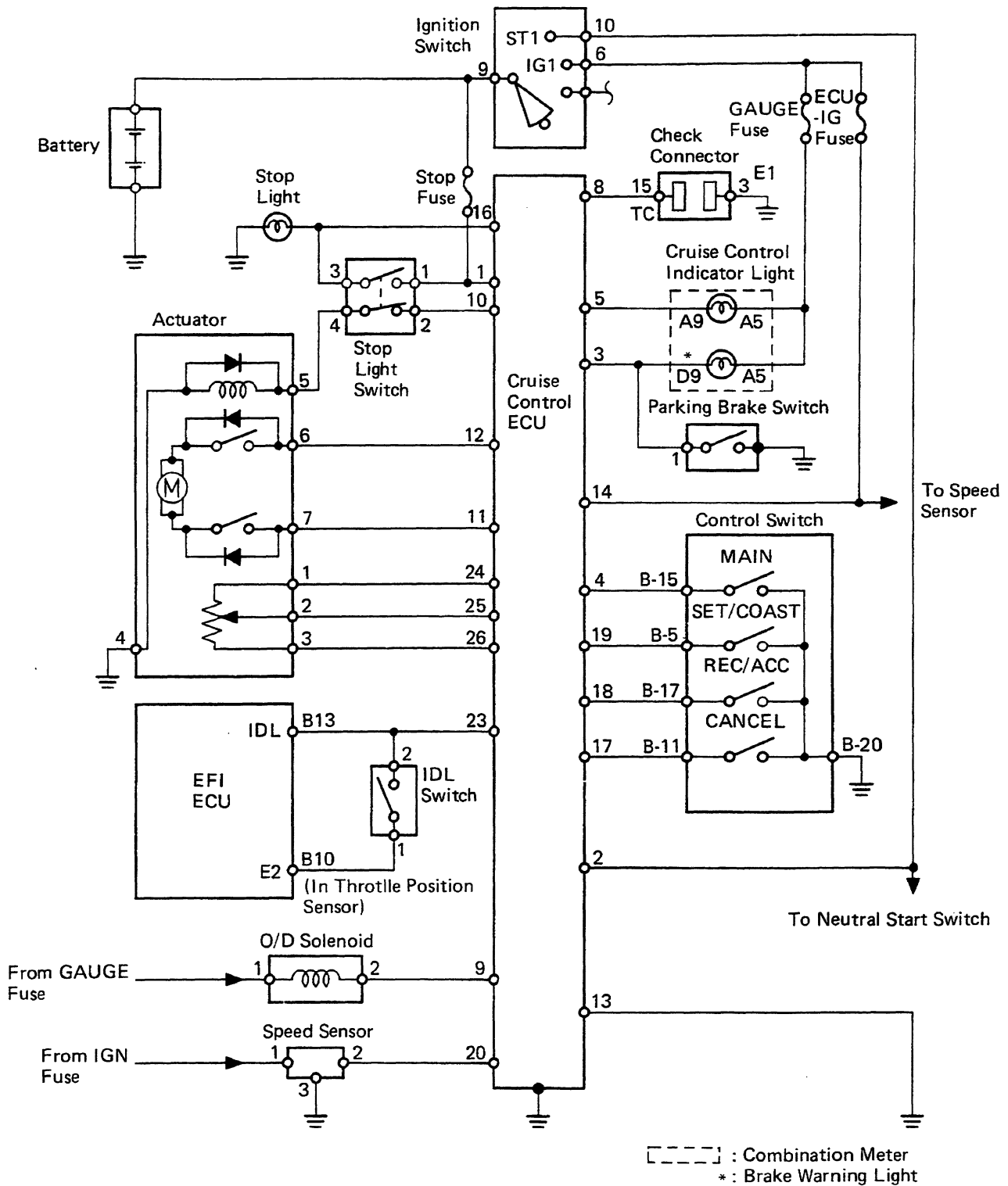


# CRUISE CONTROL SYSTEM

## Parts Location



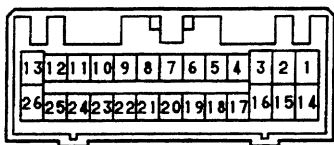
# Wiring Diagram



The POWER SOURCE CIRCUIT has been simplified. For full details, see page BE-10.

# Connector Diagrams

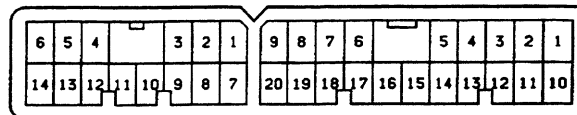
Cruise Control ECU



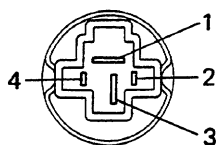
Control Switch

Connector "A"

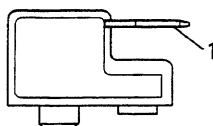
Connector "B"



Stop Light Switch



Parking Brake Switch



Speed Sensor



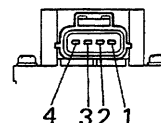
Actuator



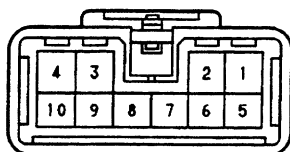
O/D Solenoid



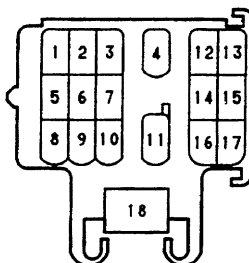
Throttle Position Sensor



Ignition Switch

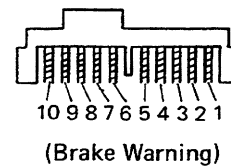


Check Connector (TDCL)

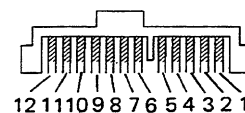


Combination Meter (Cruise Control Indicator)

Connector "A"



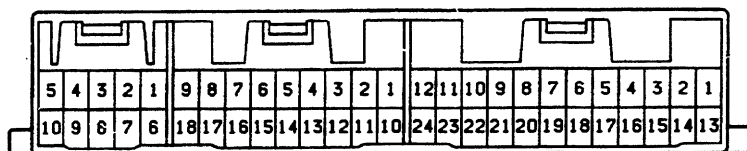
Connector "D"



EFI ECU

Connector "C" Connector "B"

Connector "A"



## 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. MAIN SWITCH OPERATION

When the main switch is pushed ON, current flows from terminal 4 of the CC ECU → terminal B-15 of the control switch → terminal B-20 of 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.

#### 2. CONTROL SWITCH OPERATION

The control switch controls the SET, COAST, RESUME, ACCEL and CANCEL functions. When the control switch is turned to each position, current flows from terminals 19, 18 or 17 of the CC ECU → terminals B-5, B-11 or B-17 of the control switch → terminal B-20 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.

#### 3. 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.

At the same time, the CC ECU sends the signal 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.

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 terminal 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.

#### 4. 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 cancellation signal (ground voltage) to terminal 3 of the CC ECU.

- **Neutral Start Switch**

When the shift lever is set to “N” or “P” range, the neutral start 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, 5w 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.

# Diagnosis System

## Output of Diagnostic Code

### READ DIAGNOSTIC CODE

#### (Type A )

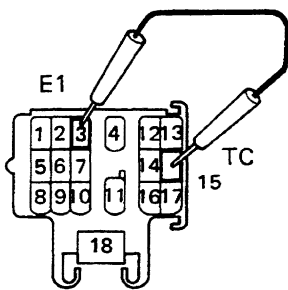
- Turn the ignition switch on.
- Turn the control switch to SET/COAST position, and keep it there.
- Push the main switch ON.
- Check that the indicator light “CRUISE” lights-up in the combination meter.
- Turn the SET/COAST switch off.
- Meet the conditions listed in the table below.
- Read the diagnosis 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 RESIACC position.                                                                                                                                                                           |                 | RESIACC circuit is normal.      |
| 3   | Each cancel switch is turned ON. <ul style="list-style-type: none"> <li>Control switch (to CANCEL)</li> <li>Stop light switch</li> <li>Parking brake switch</li> <li>Neutral start switch (to N or P range)</li> </ul> |                 | Each cancel switch is normal.   |
| 4   | Drive at approx. 40 km/h (25 mph) or below.                                                                                                                                                                            |                 | Speed sensor circuit is normal. |
|     | Drive at approx. 40 km/h (25 mph) or over.                                                                                                                                                                             |                 | 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-74](#))
- Indication is stopped when the MAIN switch is re-pushed.

Diagnosis Check Connector

**(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 15 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 code on the indicator light "CRUISE".

| Indication code |  | Diagnosis                                                                                                           |
|-----------------|--|---------------------------------------------------------------------------------------------------------------------|
|                 |  | Normal.                                                                                                             |
| 11              |  | Excessive current flowed to motor or safety magnetic clutch drive circuit.                                          |
| 12              |  | Open circuit in safety magnetic clutch circuit.                                                                     |
| 13              |  | <ul style="list-style-type: none"> <li>Position sensor circuit abnormal.</li> <li>Open circuit in motor.</li> </ul> |
| 21              |  | Vehicle speed signal not sent for 140 msec. or longer.                                                              |
| 23              |  | *Vehicle speed has decreased by 16 km/h (10 mph) or more from the set speed during cruising.                        |
| 31              |  | RESUME/ACCEL switch is ON always when MAIN switch is pushed ON.                                                     |
| 33              |  | SET/COAST switch signal and RESIACC switch signal turned on simultaneously.                                         |

CONTINUED ON NEXT PAGE

## CONTINUED FROM PREVIOUS PAGE

| Indication code                                                                                                        |                                                                                   | Diagnosis        |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------|
| 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:

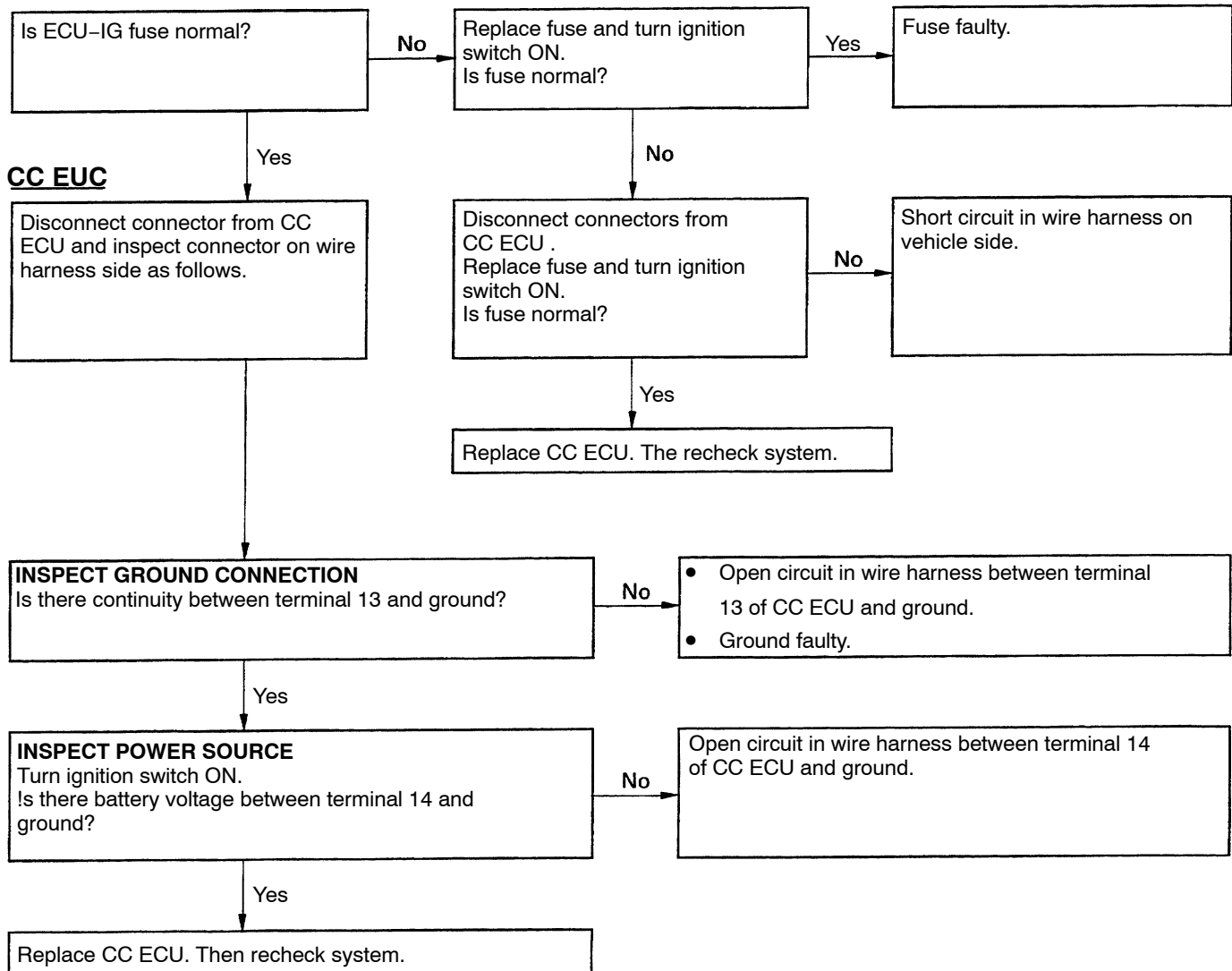
- Indication codes appear in order from No. 11.
- If there is no indication code, perform troubleshooting and inspection. (See page [BE-74](#))

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.                                                                                                                                                                                  |        |        |        |        | C        | D                                  | D              | F                 | H, I                 | G                    | E                                     | I            | J                                 |                                      |             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|----------|------------------------------------|----------------|-------------------|----------------------|----------------------|---------------------------------------|--------------|-----------------------------------|--------------------------------------|-------------|
| Inspection Item                                                                                                                                                                            |        |        |        |        |          |                                    |                |                   |                      |                      |                                       |              |                                   |                                      |             |
| Diagnosis Code                                                                                                                                                                             |        | Type B | Type A | CC ECU | Actuator | Main Switch<br>(in Control Switch) | Control Switch | Stop Light Switch | Neutral Start Switch | Parking Brake Switch | Speed Sensor, or<br>Speedometer Cable | O/D Solenoid | Throttle Position<br>Sensor (IDL) | Speed Control<br>Cable, Control Link | Other Parts |
| Problem                                                                                                                                                                                    |        |        |        |        |          |                                    |                |                   |                      |                      |                                       |              |                                   |                                      |             |
| <ul style="list-style-type: none"><li>• "CRUISE" indicator light blinks 5 times.</li><li>• Cruise control system does not set.</li><li>• Cruise control system does not operate.</li></ul> | 11     |        |        | 2      | 1        |                                    |                |                   |                      |                      |                                       |              |                                   |                                      |             |
|                                                                                                                                                                                            | 12     |        |        | 3      | 1        |                                    |                | 2                 |                      |                      |                                       |              |                                   |                                      |             |
|                                                                                                                                                                                            | 13     |        |        | 2      | 1        |                                    |                |                   |                      |                      |                                       |              |                                   |                                      |             |
|                                                                                                                                                                                            | 21     |        |        | 2      |          |                                    |                |                   |                      |                      | 1                                     |              |                                   |                                      |             |
|                                                                                                                                                                                            | 23     |        |        |        | 3        |                                    |                |                   |                      |                      | 2                                     |              |                                   | 1                                    |             |
|                                                                                                                                                                                            | 31     |        |        | 2      |          |                                    | 1              |                   |                      |                      |                                       |              |                                   |                                      |             |
|                                                                                                                                                                                            | 33     |        |        | 2      |          |                                    | 1              |                   |                      |                      |                                       |              |                                   |                                      |             |
|                                                                                                                                                                                            | 41     |        |        | 1      |          |                                    |                |                   |                      |                      |                                       |              |                                   |                                      |             |
|                                                                                                                                                                                            | Normal | 4      | OK     | 8      | 7        | 1                                  | 2              | 3                 | 4                    | 5                    |                                       |              |                                   | 6                                    | 9*          |
|                                                                                                                                                                                            |        | NG     | 2      |        |          |                                    |                |                   |                      | 1                    |                                       |              |                                   |                                      |             |
| Set speed deviates on high or low side.                                                                                                                                                    |        |        |        | 4      | 3        |                                    |                |                   |                      |                      | 1                                     |              |                                   | 2                                    |             |
| Large speed increase or speed drop when control switch turned to SET.                                                                                                                      |        |        |        | 3      | 2        |                                    |                |                   |                      |                      |                                       |              | 1                                 |                                      |             |
| Vehicle speed fluctuates when speed control switch turned to SET.                                                                                                                          |        |        |        | 4      | 3        |                                    |                |                   |                      |                      | 1                                     |              |                                   | 2                                    |             |
| 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.                                                                                                                                       |        | 3      | OK     | 2      | 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     |        | 1        |                                    |                |                   |                      |                      | 3                                     | 4            | 5                                 | 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              |                   |                      |                      |                                       |              |                                   |                                      |             |
| 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 "ACC FL" or "RESUME".<br>Inspect wire harness.                                                                       |        |        |        | 6      | 3        |                                    | 1              |                   |                      |                      |                                       | 4            | 5                                 | 2                                    |             |

## A POWER SOURCE CIRCUIT

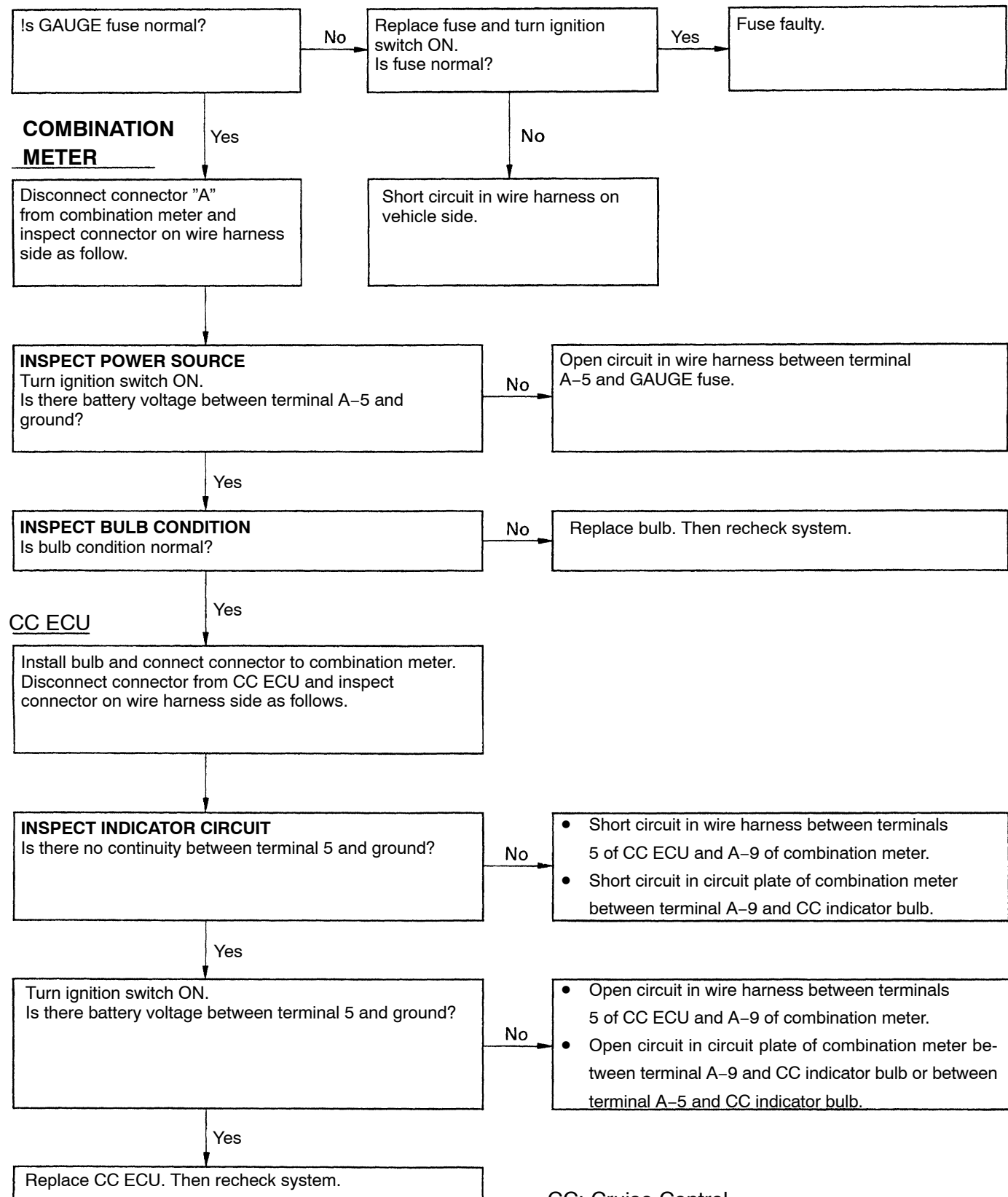
HINT: while carrying out the following inspection, make certain that the connectors and terminals are properly connected.



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 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-88)

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.  $38.5\Omega$  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-88)

Is stop light switch operation normal?

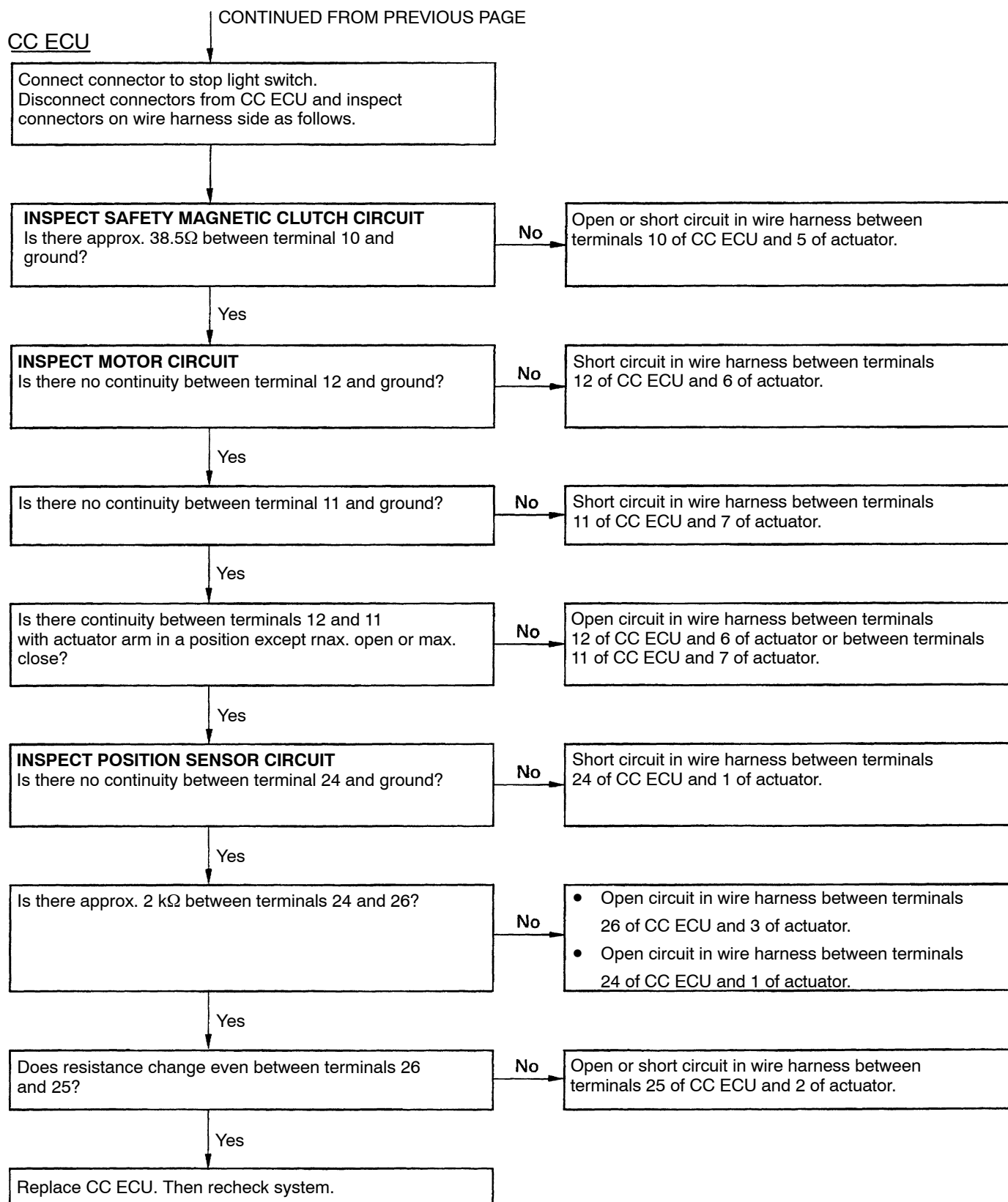
No

Replace stop light switch. Then recheck system.

Yes

CONTINUED ON NEXT PAGE

CC: Cruise Control



CC: Cruise Control

## D 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 B-20 and ground?

No

- Open circuit in wire harness between terminal B-20 of control switch and ground.
- Ground faulty.

Yes

**INSPECT CONTROL SWITCH (See page BE-87)**  
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 4 and ground with main switch OFF?

No

Short circuit in wire harness between terminals 4 of CC ECU and B-15 of control switch.

Yes

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

No

Open circuit in wire harness between terminals 4 of CC ECU and B-15 of control switch.

Yes

#### INSPECT CONTROL SWITCH CIRCUIT

is there no continuity between terminal 19 or 18 or 17 and ground with control switch OFF?

No

Short circuit in wire harness between terminals 19, 18, 17 of CC ECU and B-5, B-17, B-11 of control switch.

Yes

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

| Position  | Terminal XX |
|-----------|-------------|
| RES/ACC   | 18          |
| SET/COAST | 19          |
| CANCEL    | 17          |

No

Open circuit in wire harness between terminals XX of CC ECU and YY of control switch.

| Terminal XX | Terminal YY |
|-------------|-------------|
| 19          | B-5         |
| 18          | B-17        |
| 17          | B-11        |

Yes

Replace CC ECU. Then recheck system.

CC: Cruise Control

**E SPEED SENSOR CIRCUIT**

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

**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 SPEED SENSOR (See page BE-87)**

Is speed sensor operation normal?

No

Replace speed sensor. Then recheck system.

Yes

**CC ECU**

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

**INSPECT SPEED SENSOR 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 speed sensor.

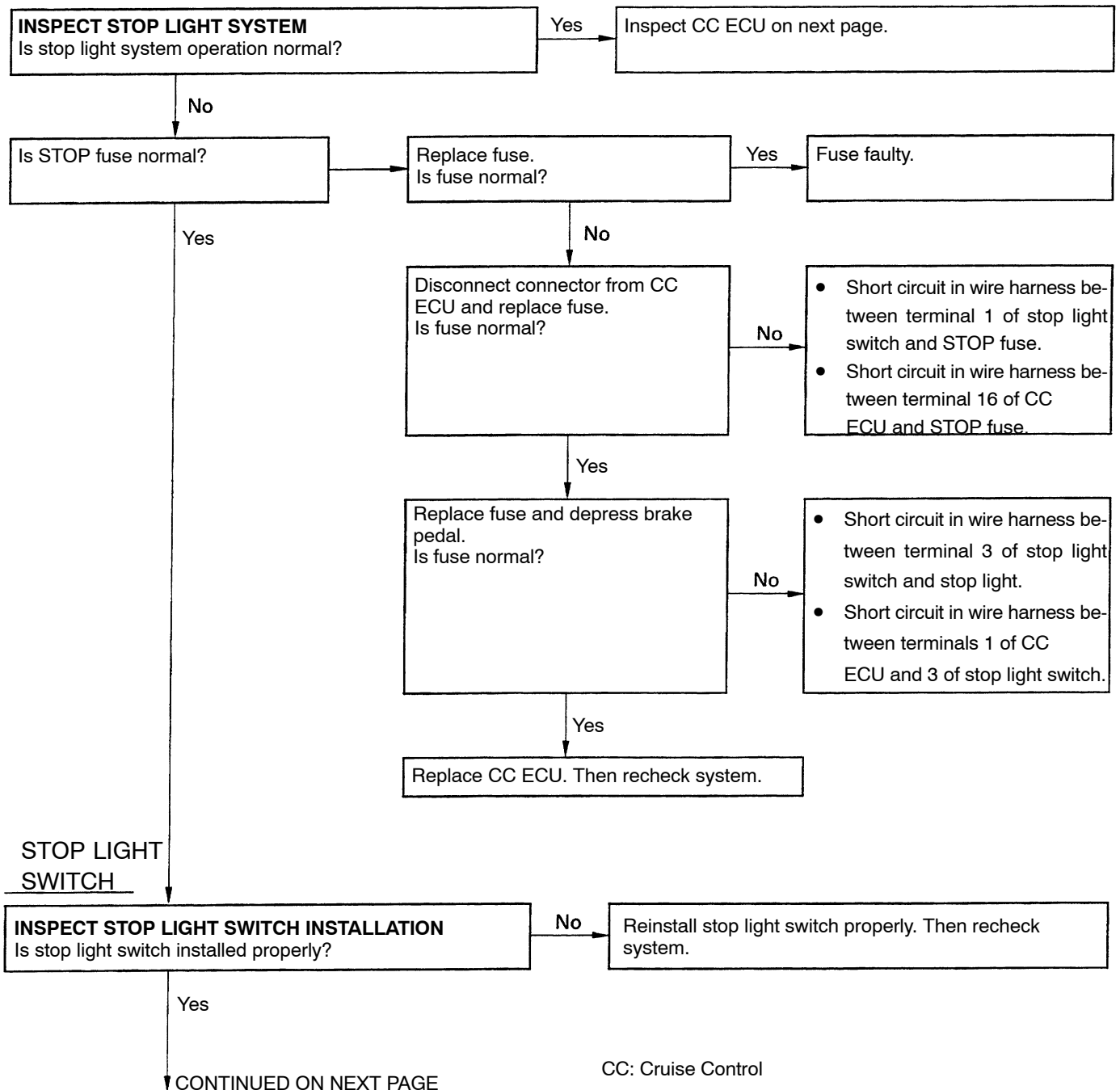
Yes

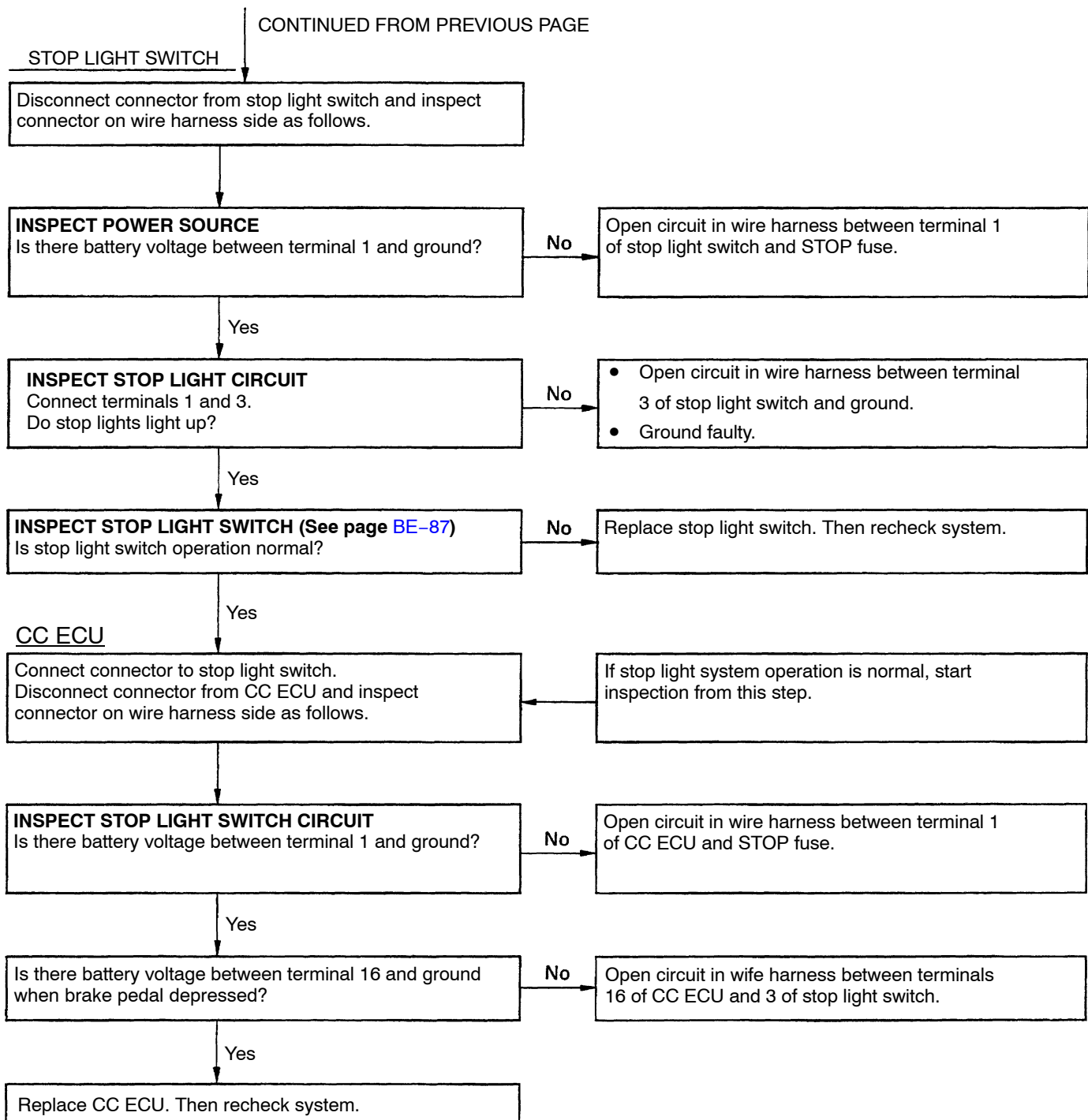
Replace CC ECU. Then recheck system.

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.

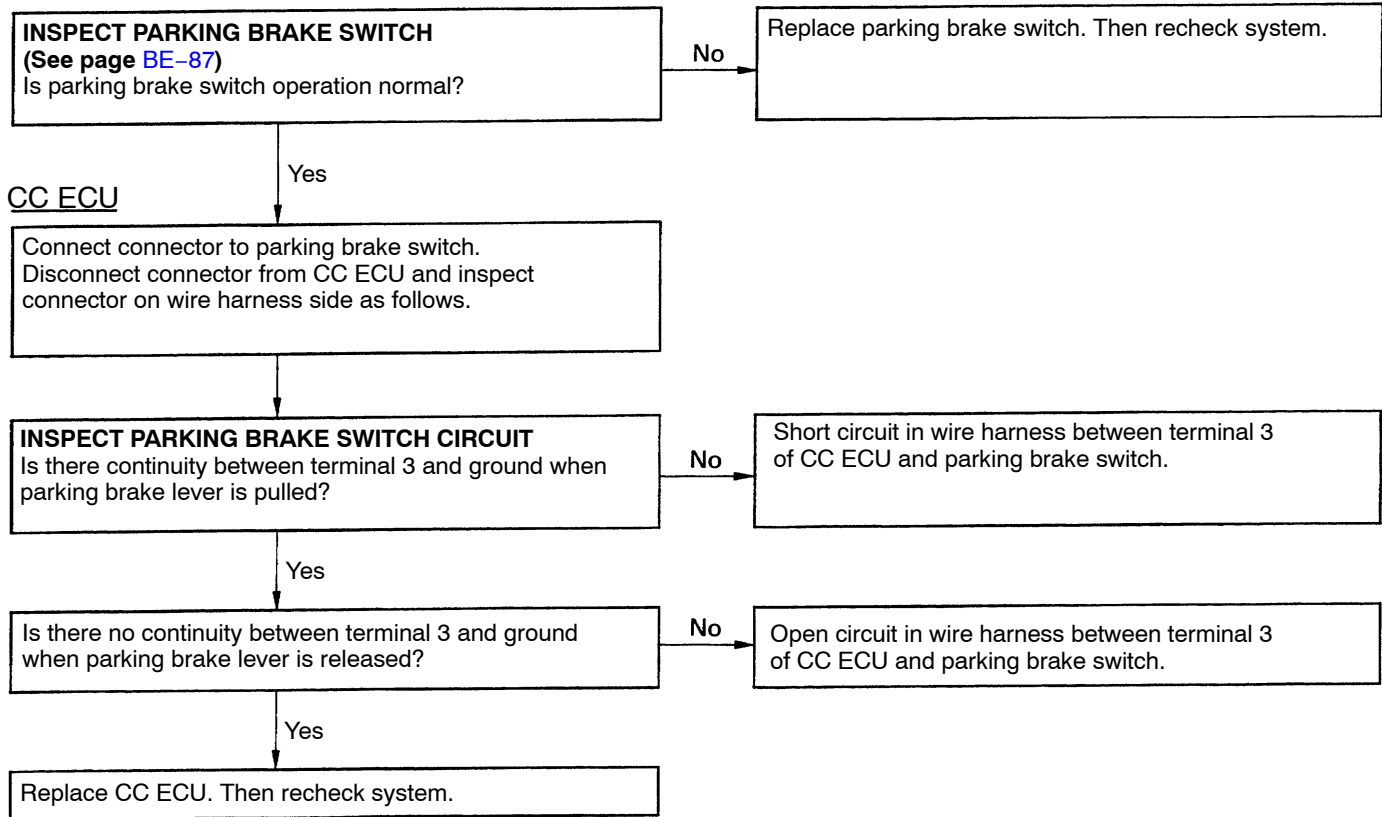




CC: Cruise Control

**G PARKING BRAKE SWITCH CIRCUIT**

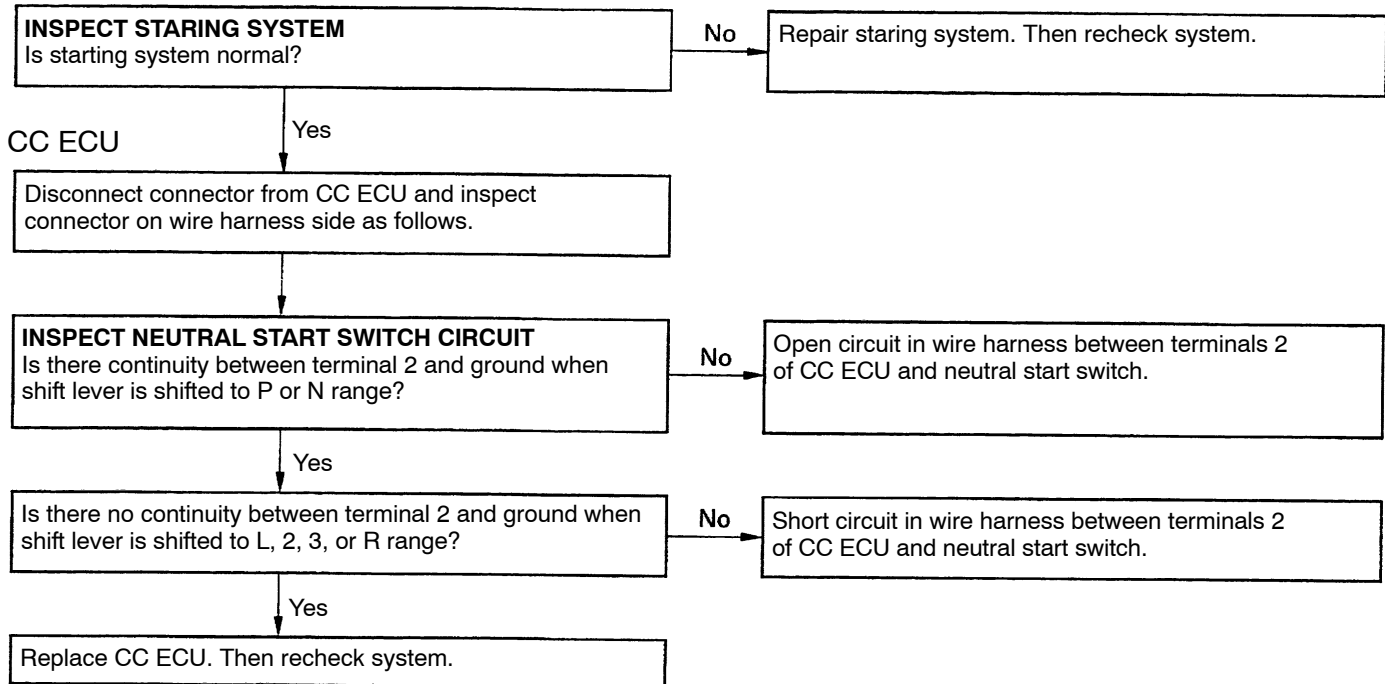
HINT: While carrying out the following inspection, make certain that the connectors and terminals are properly connected.



CC: Cruise Control

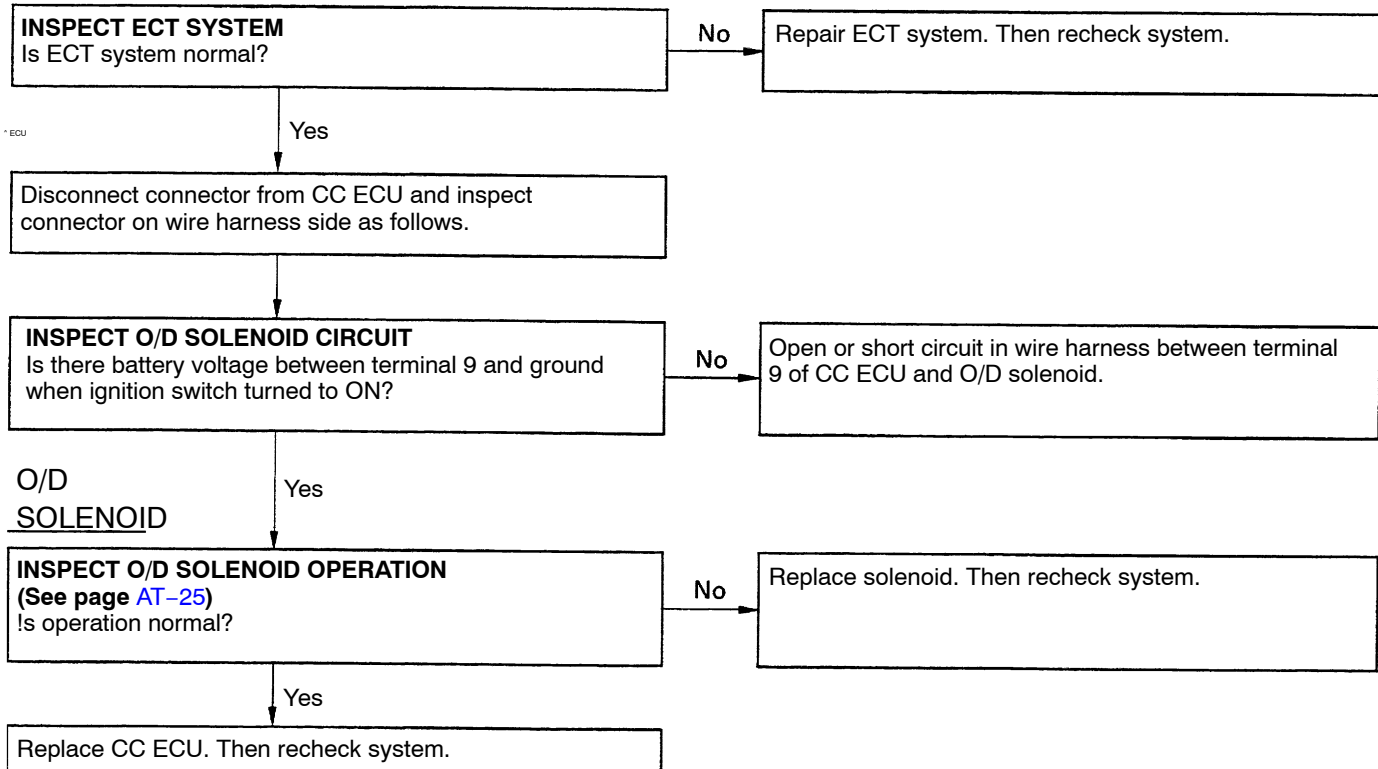
## H NEUTRAL START SWITCH CIRCUIT

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



## I O/D SOLENOID CIRCUIT

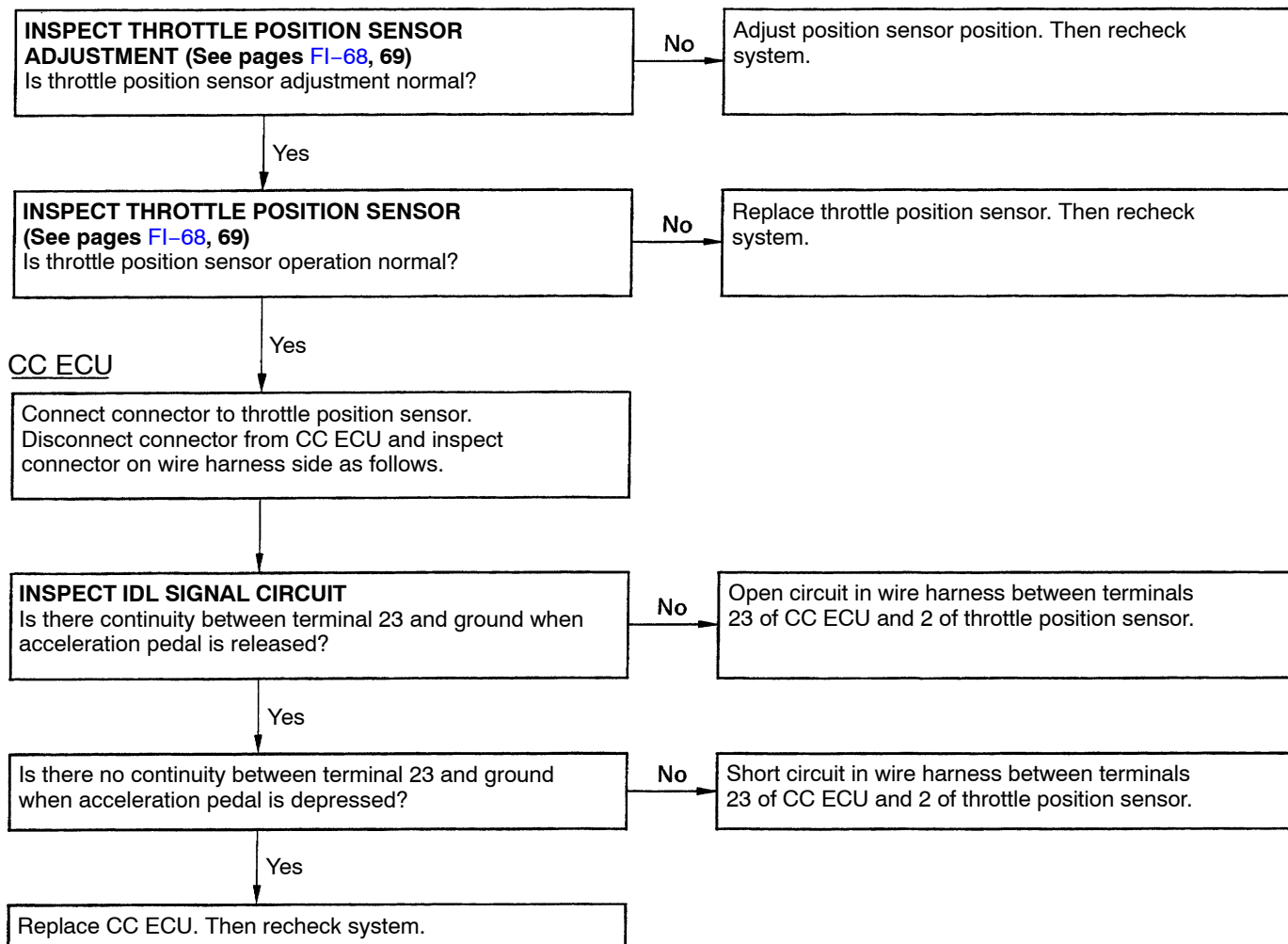
HINT: While carrying out the following inspection, make certain that the connectors and terminals are properly connected.



## J IDL SIGNAL CIRCUIT

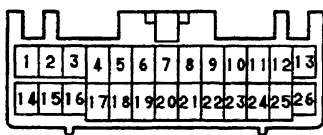
HINT: While carrying out the following inspection, make certain that the connectors and terminals are properly connected.

### THROTTLE POSITION SENSOR



CC: Cruise Control

## Wire Harness Side



Vd-26-1-8

# Cruise Control ECU Circuit

## INSPECT ECU CIRCUIT

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

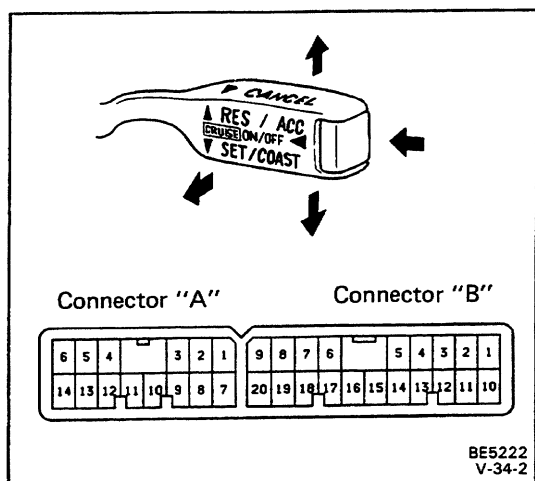
| Check for                      | Measured item                     | Tester connection                                                        | Condition                    |                                    | Specified value             |                 |
|--------------------------------|-----------------------------------|--------------------------------------------------------------------------|------------------------------|------------------------------------|-----------------------------|-----------------|
| Continuity                     | Neutral start switch              | 2 – ground                                                               | Shift lever position         | Nor P                              | Continuity                  |                 |
|                                |                                   |                                                                          |                              | L,2,D or R                         | No continuity               |                 |
|                                | Parking brake switch              | 3 – ground                                                               | Parking brake lever position | released                           | No continuity               |                 |
|                                |                                   |                                                                          |                              | pulled                             | Continuity                  |                 |
|                                | Control switch                    | 4 – ground                                                               | Main switch position         | OFF                                | No continuity               |                 |
|                                |                                   |                                                                          |                              | ON                                 | Continuity                  |                 |
|                                | Ground connection                 | 13 – ground                                                              | Constant                     |                                    |                             | Continuity      |
|                                | Control switch                    | 18 – ground                                                              | Control switch position      | R ES IAC C                         | Continuity                  |                 |
|                                |                                   | 19 – ground                                                              | Control switch position      | SET/COAST                          | Continuity                  |                 |
|                                |                                   | 17 – ground                                                              | Control switch position      | CANCEL                             | Continuity                  |                 |
|                                | Actuator (motor)                  | *11 – 12                                                                 | Actuator arm position        | max. OPEN                          | (12 → 11) Continuity        |                 |
|                                |                                   |                                                                          |                              | max. CLOSE                         | (11 → 12) Continuity        |                 |
|                                |                                   |                                                                          |                              | any position except above position | 112 → 11) Continuity        |                 |
| TDCL circuit                   | 8 – ground                        | Constant                                                                 |                              |                                    | No continuity               |                 |
|                                |                                   | Terminals Te and E1 connected                                            |                              |                                    | Continuity                  |                 |
| Throttle position sensor (IDL) | 23 – ground                       | Acceleration pedal position                                              | released                     | Continuity                         |                             |                 |
|                                |                                   |                                                                          | depressed                    | No continuity                      |                             |                 |
| Speed sensor                   | 20 – ground                       | With ignition switch ON, speedometer shaft or speed sensor shaft turned. |                              |                                    | Continuity<br>No continuity |                 |
| Resistance                     | Actuator (position sensor)        | 24– 26                                                                   | Constant                     |                                    |                             | Approx. 2 kΩ    |
|                                |                                   | 24– 25                                                                   | Actuator arm turned          |                                    | Resistance change even      |                 |
|                                | Actuator (Safety magnetic clutch) | 10 – ground                                                              | Brake pedal position         | released                           | Approx. 38.5Ω               |                 |
| depressed                      |                                   |                                                                          |                              | No continuity                      |                             |                 |
| Voltage                        | Power source                      | 14 – ground                                                              | Ignition switch position     | LOCK of ACC                        | No voltage                  |                 |
|                                |                                   |                                                                          |                              | ON                                 | Battery voltage             |                 |
|                                | STOP fuse                         | 1 – ground                                                               | Constant                     |                                    |                             | Battery voltage |
|                                | Stop light                        | 16 – ground                                                              | Brake pedal position         | released                           | No voltage                  |                 |
|                                |                                   |                                                                          |                              | depressed                          | Battery voltage             |                 |
|                                | O/D solenoid                      | 9 – ground                                                               | Ignition switch position     | LOCK or ACC                        | No voltage                  |                 |
| ON                             |                                   |                                                                          |                              | Battery voltage                    |                             |                 |

\* : This circuit include the diode.

\* : This circuit include the diode.

If circuit is as specified, try another ECU.

If circuit is not as specified, refer to [BE-68](#) wiring diagram and inspect the circuits connected to other parts.



## Parts Inspection

### 1. INSPECT SWITCHES (Control Switch/Continuity)

| Terminal        |             | B20 | B11 | B5 | B17 | B15 |
|-----------------|-------------|-----|-----|----|-----|-----|
| Switch position |             |     |     |    |     |     |
| Main            | ON          | ○   | —   | —  | —   | ○   |
|                 | OFF         |     |     |    |     |     |
| Control         | R ES IACC   | ○   | —   | —  | ○   |     |
|                 | S ET/C OAST | ○   | —   | ○  |     |     |
|                 | CANCEL      | ○   | ○   |    |     |     |

If continuity is not as specified, replace the control switch.  
(Stop Light Switch/Continuity)

| Terminal                                       |  | 1 | 2 | 3 | 4 |
|------------------------------------------------|--|---|---|---|---|
| Switch position                                |  |   |   |   |   |
| Switch pin free<br>(Brake pedal depressed)     |  | ○ | — | ○ |   |
| Switch pin pushed in<br>(Brake pedal released) |  |   | ○ | — | ○ |

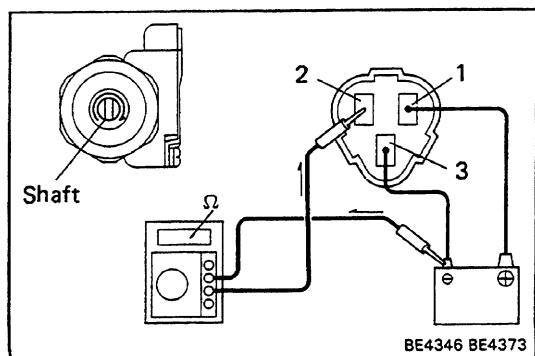
If continuity is not as specified, replace the stop light switch.

(Neutral Start Switch)

See page [AT-25](#).

(Parking Brake Switch)

See page [BE-39](#).



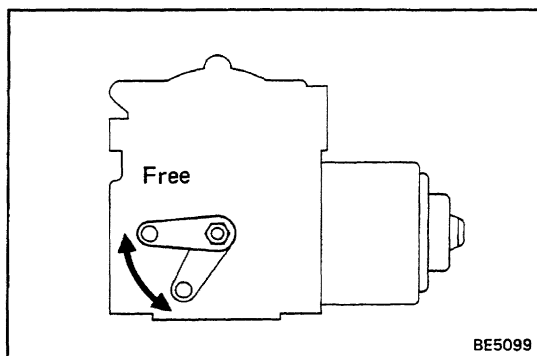
### 2. INSPECT SPEED SENSOR

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

(b) Check that there is continuity between terminal 2 and the battery negative (-) terminal four times per each revolution of the shaft.

HINT: Connect the test leads so that the current from the ohmmeter can flow from terminal 2 to battery negative (-) terminal.

If operation is not as specified, replace the speed sensor.

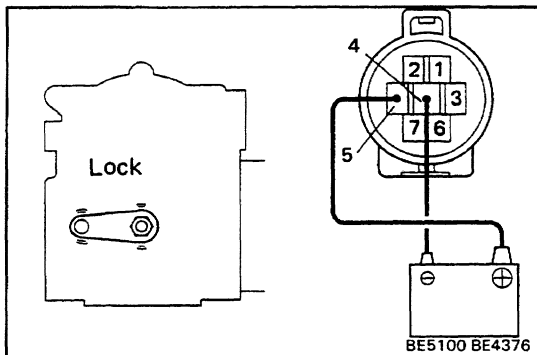


### 3. INSPECT ACTUATOR

#### (Motor Type)

#### Safety Magnet Clutch

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

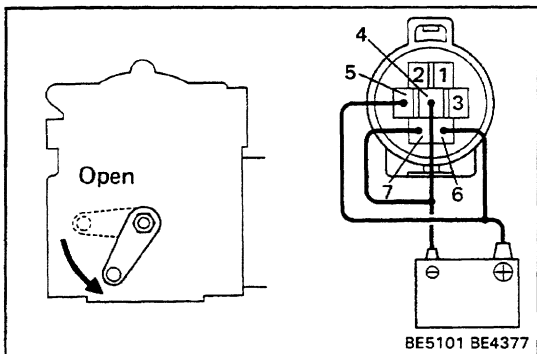


(b) Connect the positive (+) lead from the battery to terminal 5 and the negative (-) lead to terminal 4.

(Safety magnet clutch turned ON)

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

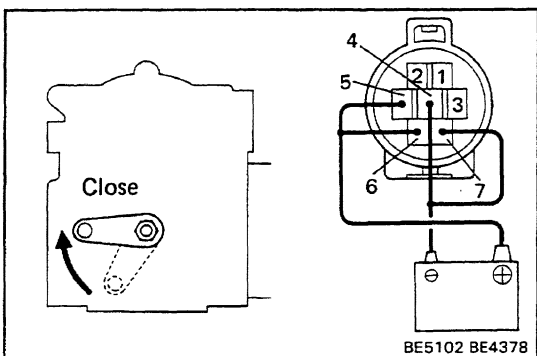
If operation is not as specified, replace the motor.



#### Motor

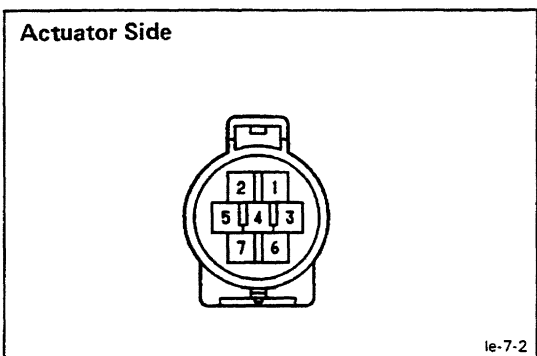
(a) With the safety magnetic clutch ON, connect the positive (+) lead from the battery to terminal 6 and the negative (-) lead to terminal 7, check that the arm moves to the open side.

(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.

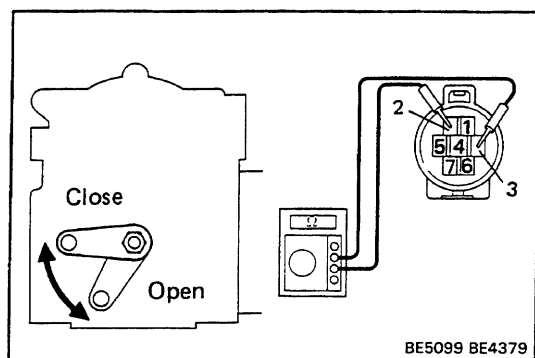
(d) When the arm reaches to the closed position, check that the motor operation stops.



#### Position Sensor

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

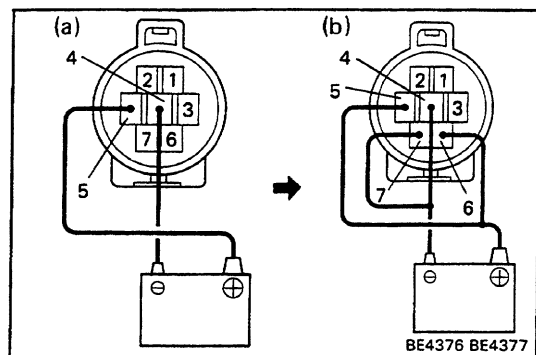
**Resistance: Approx. 2 kΩ**



- (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 k $\Omega$ .  
If operation is not as specified, replace the motor.

#### 4. INSPECT THROTTLE POSITION SWITCH

(See pages FI-68, 69)



### Adjustment of Control Link Assembly

#### ADJUST CONTROL LINK ASSEMBLY

- (a) Connect the positive (+) lead from the battery to terminal 5 and the negative (-) lead to terminal 4 of the actuator.  
(Safety magnet clutch turned ON)

**NOTICE: Keep the safety magnet clutch ON until adjustment of control link assembly is completed.**

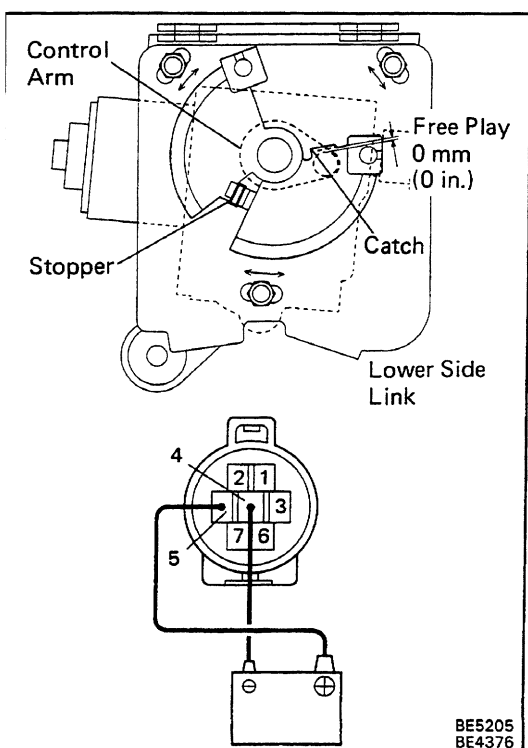
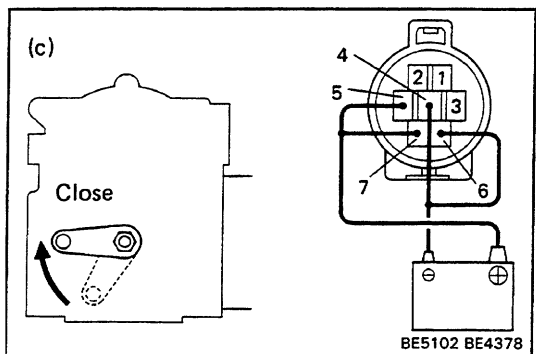
- (b) With the safety magnetic clutch ON, connect the positive (+) lead from the battery to terminal 6 and the negative (-) lead to terminal 7.

(Arm moves to the open side.)

- (c) With the safety magnetic clutch ON, connect the positive (+) lead from the battery to terminal 7 and the negative (-) lead to terminal 6.

(Arm moves to the close side.)

- (d) Install the control link assembly to the actuator.



- (e) Rotate the control link assembly so that the catch of the control link assembly's lower side link comes in contact with the actuator control arm (Free play 0)

**Free play: 0 mm (0 in.)**

**NOTICE: Rotate the lower side link to the right until it touches the stopper.**

- (f) In condition (d), install and torque the three nuts.  
(g) Disconnect lead wire from the actuator.