

## DIAGNOSTICS CHART WITH TROUBLE CODE

CRUISE CONTROL SYSTEM (DIAGNOSTICS)

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### 8. Diagnostics Chart with Trouble Code

#### A: DTC 21, 24, 25 AND 2A CRUISE CONTROL MODULE BUILT-IN RELAY, CPU RAM

##### DIAGNOSIS:

- Poor welding of built-in relay of cruise control module.
- Failure of built-in CPU RAM of cruise control module.

##### TROUBLE SYMPTOM:

- Cruise control is canceled and memorized cruise speed is also canceled.
- Once cruise control is canceled, cruise control cannot be set until the ignition switch and cruise control main switch turns OFF, and then turns ON again.

##### NOTE:

Check input/output signal and vehicle speed signal with select monitor. When signals are in good condition, failure is in cruise control module. (Check power supply and ground conditions of cruise control module.)

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#### B: DTC 22 VEHICLE SPEED SENSOR

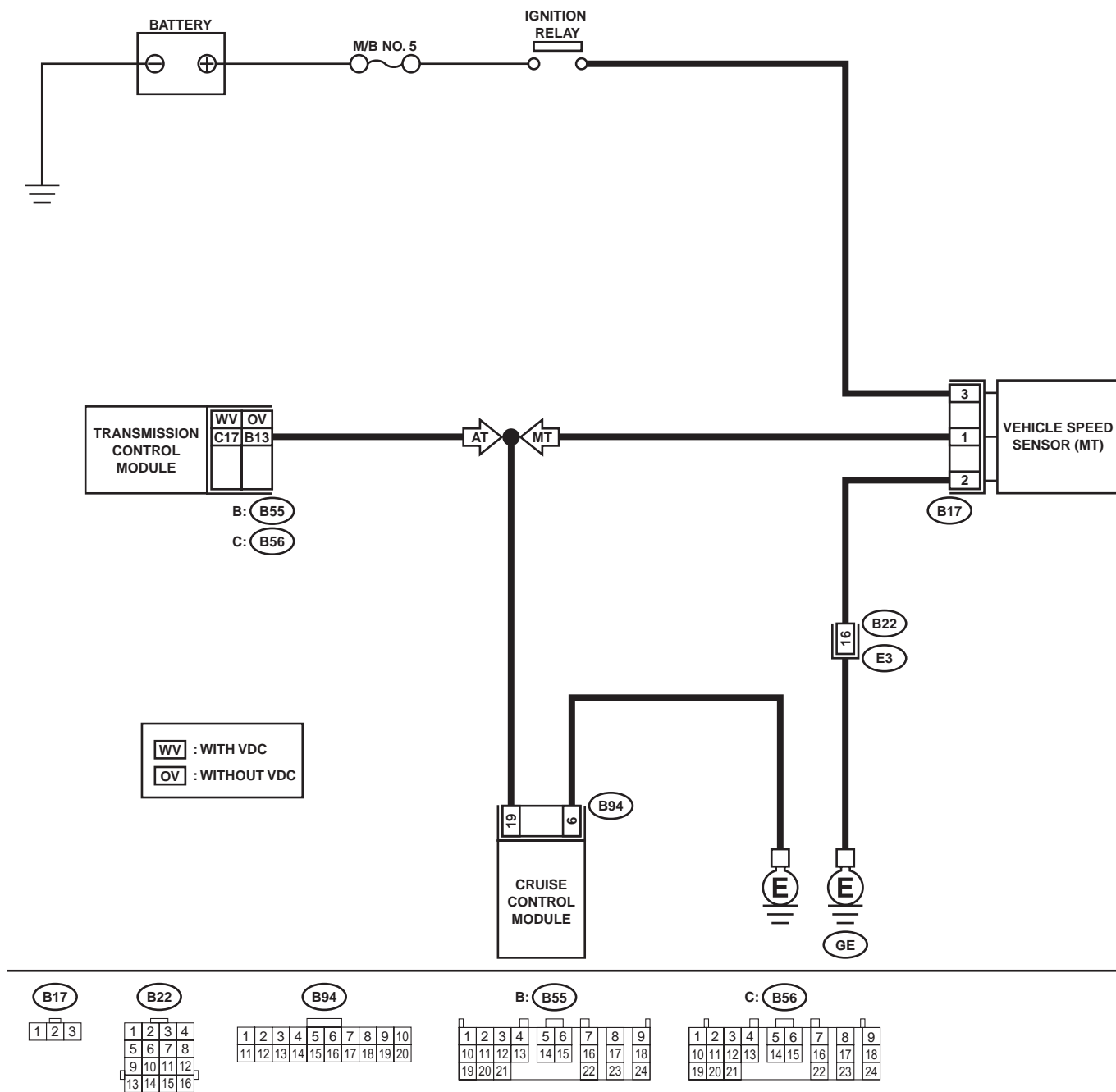
**DIAGNOSIS:**

Disconnection or short circuit of vehicle speed sensor system.

**TROUBLE SYMPTOM:**

Cruise control cannot be set. (Cancelled immediately.)

**WIRING DIAGRAM:**



CC-00082

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Step	Value	Yes	No
<b>1 CHECK TRANSMISSION TYPE.</b> Is the transmission type MT?	Transmission type is MT.	Go to step 2.	Go to step 6.
<b>2 CHECK HARNESS BETWEEN BATTERY AND VEHICLE SPEED SENSOR.</b> 1) Turn ignition switch to OFF. 2) Disconnect harness connector from vehicle speed sensor. 3) Turn ignition switch to ON. 4) Measure voltage between vehicle speed sensor harness connector terminal and chassis ground. <b>Connector &amp; terminal</b> <b>(B17) No. 3 (+) — Chassis ground (-):</b> Does the measured value exceed the specified value?	10 V	Go to step 3.	Check harness for open or short between ignition relay and vehicle speed sensor.
<b>3 CHECK HARNESS BETWEEN CRUISE CONTROL MODULE AND VEHICLE SPEED SENSOR.</b> 1) Turn ignition switch to OFF. 2) Disconnect harness connector from cruise control module. 3) Measure resistance between vehicle speed sensor harness connector terminal and cruise control module harness connector terminal. <b>Connector &amp; terminal</b> <b>(B17) No. 1 — (B94) No. 19:</b> Is the measured value less than the specified value?	10 Ω	Go to step 4.	Repair harness.
<b>4 CHECK HARNESS BETWEEN VEHICLE SPEED SENSOR AND ENGINE GROUND.</b> Measure resistance between vehicle speed sensor harness connector terminal and engine ground. <b>Connector &amp; terminal</b> <b>(B17) No. 2 (+) — Engine ground (-):</b> Is the measured value less than the specified value?	10 Ω	Go to step 5.	Repair harness.
<b>5 CHECK VEHICLE SPEED SENSOR.</b> 1) Connect harness connector to vehicle speed sensor. 2) Lift-up the vehicle and support with safety stands. 3) Drive the vehicle at speed greater than 20 km/h (12 MPH). <b>Warning:</b> <b>Be careful not to be caught up by the running wheels.</b> 4) Measure voltage between cruise control module harness connector terminal and chassis ground. <b>Connector &amp; terminal</b> <b>(B94) No. 19 (+) — Chassis ground (-):</b> Is the measured value same as the specified value?	0 ↔ 5 V	Replace cruise control module. <Ref. to CC-5, Cruise Control Module.>	Replace vehicle speed sensor.

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### CRUISE CONTROL SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
<p><b>6</b></p> <p><b>CHECK HARNESS BETWEEN CRUISE CONTROL MODULE AND TRANSMISSION CONTROL MODULE.</b></p> <ol style="list-style-type: none"> <li>1) Turn ignition switch to OFF.</li> <li>2) Disconnect harness connector from transmission control module and cruise control module.</li> <li>3) Measure resistance between cruise control module harness connector terminal and transmission control module harness connector terminal.</li> </ol> <p><b>Connector &amp; terminal</b>  <b>Without VDC:</b>  <b>(B94) No. 19 — (B55) No. 13:</b>  <b>With VDC:</b>  <b>(B94) No. 19 — (B56) No. 17:</b></p> <p>Is the measured value less than the specified value?</p>	10 Ω?	Go to step 7.	Repair harness.
<p><b>7</b></p> <p><b>CHECK TRANSMISSION CONTROL MODULE.</b></p> <ol style="list-style-type: none"> <li>1) Connect harness connector to transmission control module.</li> <li>2) Lift-up the vehicle and support with safety stands.</li> <li>3) Drive the vehicle faster than 10 km/h (6 MPH).</li> </ol> <p><b>Warning:</b>  <b>Be careful not to be caught by the running wheels.</b></p> <ol style="list-style-type: none"> <li>4) Measure voltage between transmission control module harness connector terminal and chassis ground.</li> </ol> <p><b>Connector &amp; terminal</b>  <b>Without VDC:</b>  <b>(B55) No. 13 (+) — Chassis ground (-):</b>  <b>With VDC:</b>  <b>(B56) No. 17 (+) — Chassis ground (-):</b></p> <p>Is the measured value same as the specified value?</p>	0 ↔ 5 V	Replace cruise control module. <Ref. to CC-5, Cruise Control Module.>	Replace transmission control module. <Ref. to AT-75, Transmission Control Module (TCM).>

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### C: DTC 28 WIRING HARNESS OPENED.

	Step	Value	Yes	No
1	<b>CHECK BATTERY.</b> Measure battery specific gravity of electrolyte. Does the measured value exceed the specified value?	1.250	Go to step 2.	Charge or replace battery. Go to step 2.
2	<b>CHECK FUSES, CONNECTORS AND HAR- NESSES.</b> Check the condition of the main and other fuses, and harnesses and connectors. Also check for proper grounding. Is there anything unusual about the appearance of main fuse, fuse, harness, connector and grounding?	Fuse, harness, connector and grounding are OK.	End of inspection.	Repair or replace faulty parts.

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### D: DTC 35 AND 36 ACTUATOR MOTOR

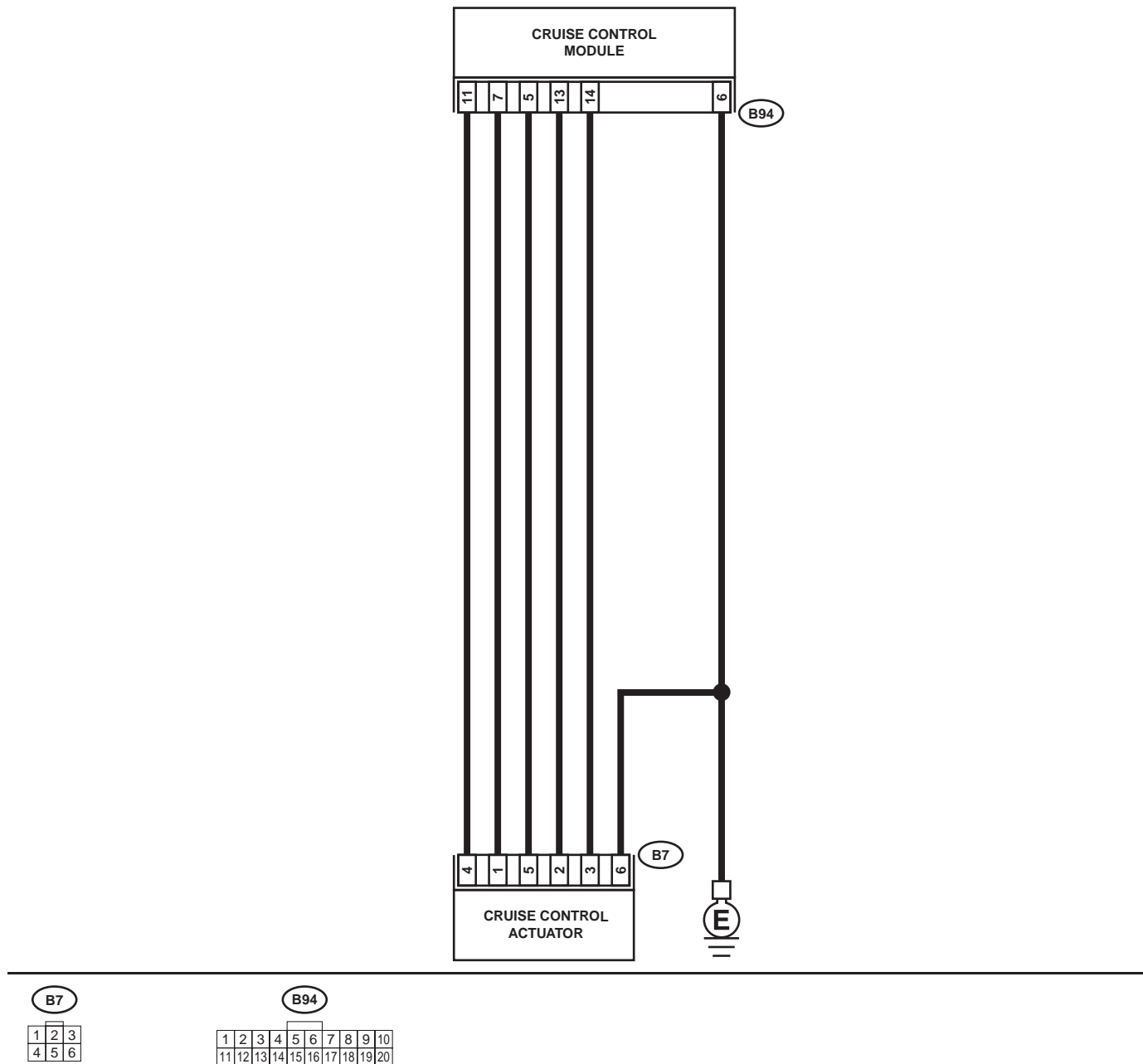
#### DIAGNOSIS:

Open or poor contact of cruise control actuator motor.

#### TROUBLE SYMPTOM:

Cruise control cannot be set. (Cancelled immediately.)

#### WIRING DIAGRAM:



CC-00083

## DIAGNOSTICS CHART WITH TROUBLE CODE

### CRUISE CONTROL SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
<b>1</b> <b>CHECK POWER SUPPLY.</b> 1) Turn ignition switch OFF. 2) Disconnect harness connector from cruise control actuator. 3) Turn ignition switch ON. 4) Turn cruise control main switch ON. 5) Measure voltage between cruise control actuator harness connector terminal and chassis ground. <b>Terminals</b> <b>(B7) No. 4 (+) — Chassis ground (-):</b> Does the measured value exceed the specified value?	10 V	Go to step 2.	Check harness for open or short between cruise control module and cruise control actuator.
<b>2</b> <b>CHECK GROUND CIRCUIT OF ACTUATOR.</b> 1) Turn ignition switch and cruise control main switch OFF. 2) Measure resistance between cruise control actuator harness connector terminal and chassis ground. <b>Terminals</b> <b>(B7) No. 6 — Chassis ground:</b> Is the measured value less than the specified value?	10 Ω	Go to step 3.	Repair harness.
<b>3</b> <b>MEASURE RESISTANCE OF ACTUATOR.</b> Measure resistance of cruise control actuator motor. <b>Terminals</b> <b>No. 4 — No. 1:</b> <b>No. 4 — No. 2:</b> <b>No. 4 — No. 5:</b> Is the measured value same as the specified value?	Approximately 5 Ω	Go to step 4.	Replace cruise control actuator. <Ref. to CC-4, Actuator.>
<b>4</b> <b>CHECK HARNESS BETWEEN ACTUATOR AND CRUISE CONTROL MODULE.</b> 1) Disconnect harness connector from cruise control module. 2) Measure resistance between cruise control module harness connector terminal and cruise control actuator harness connector terminal. <b>Connector &amp; terminal</b> <b>(B7) No. 1 — (B94) No. 7:</b> Is the measured value less than the specified value?	10 Ω	Go to step 5.	Repair harness.
<b>5</b> <b>CHECK HARNESS BETWEEN ACTUATOR AND CRUISE CONTROL MODULE.</b> Measure resistance between cruise control module harness connector terminal and cruise control actuator harness connector terminal. <b>Connector &amp; terminal</b> <b>(B7) No. 5 — (B94) No. 5:</b> Is the measured value less than the specified value?	10 Ω	Replace cruise control module. <Ref. to CC-5, Cruise Control Module.>	Repair harness.

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### E: DTC 37 ACTUATOR MOTOR CLUTCH

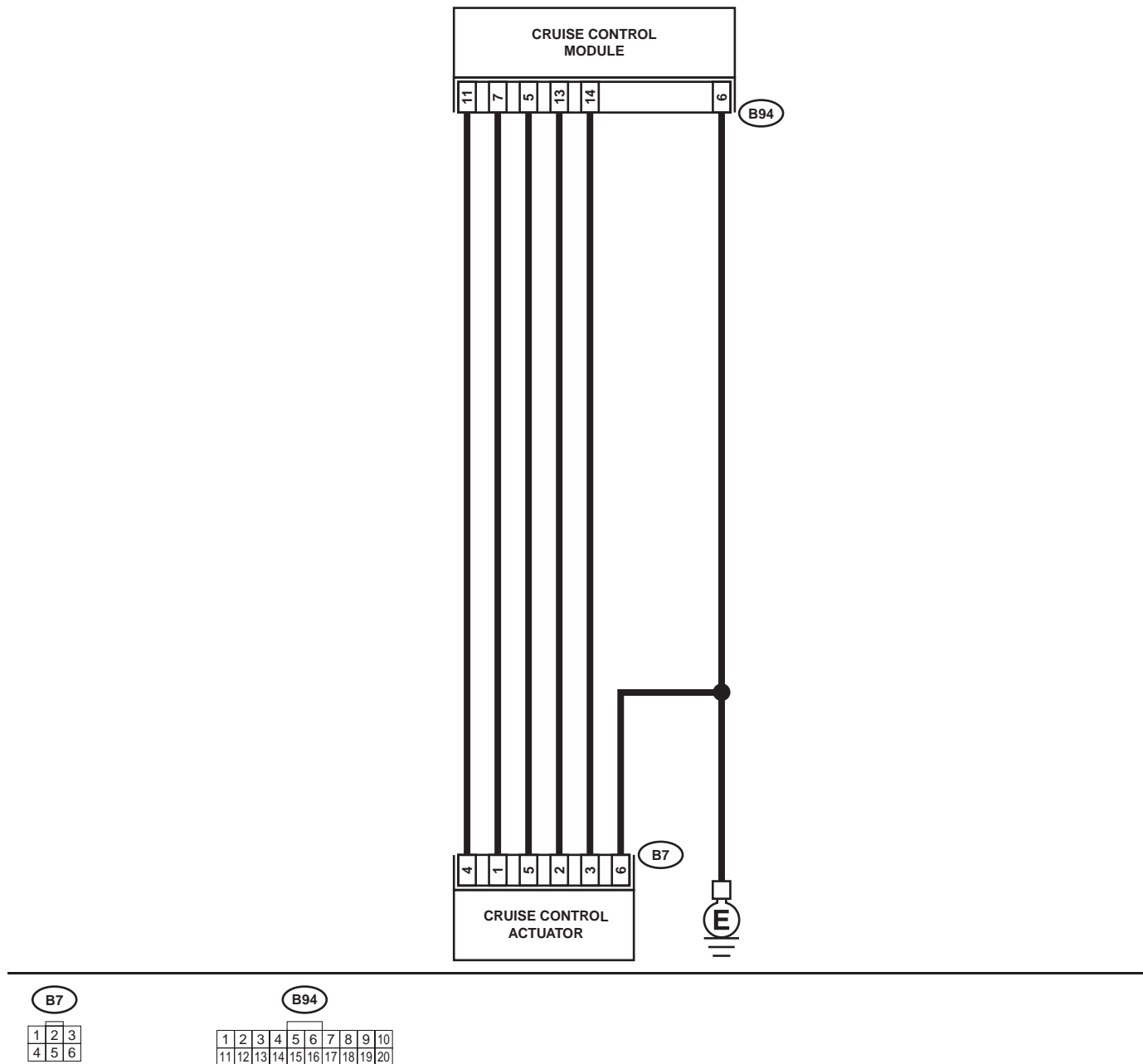
#### DIAGNOSIS:

Open or poor contact of cruise control actuator motor clutch.

#### TROUBLE SYMPTOM:

Cruise control cannot be set. (Cancelled immediately.)

#### WIRING DIAGRAM:



CC-00083



## DIAGNOSTICS CHART WITH TROUBLE CODE

### CRUISE CONTROL SYSTEM (DIAGNOSTICS)

Step	Value	Yes	No
<b>1 CHECK POWER SUPPLY.</b> 1) Turn ignition switch OFF. 2) Disconnect harness connector from cruise control actuator. 3) Turn ignition switch ON. 4) Turn cruise control main switch ON. 5) Measure voltage between cruise control actuator harness connector terminal and chassis ground. <b>Terminals</b> <b>(B7) No. 4 (+) — Chassis ground (-):</b> Does the measured value exceed the specified value?	10 V	Go to step 2.	Check harness for open or short between cruise control module and cruise control actuator.
<b>2 CHECK GROUND CIRCUIT OF ACTUATOR.</b> 1) Turn ignition switch and cruise control main switch OFF. 2) Measure resistance between cruise control actuator harness connector terminal and chassis ground. <b>Terminals</b> <b>(B7) No. 6 — Chassis ground:</b> Is the measured value less than the specified value?	10 Ω	Go to step 3.	Repair harness.
<b>3 MEASURE RESISTANCE OF ACTUATOR CLUTCH.</b> Measure resistance of cruise control actuator clutch. <b>Terminals</b> <b>No. 3 — No. 6:</b> Is the measured value same as the specified value?	Approximately 39 Ω	Go to step 4.	Replace cruise control actuator. <Ref. to CC-4, Actuator.>
<b>4 CHECK HARNESS BETWEEN ACTUATOR AND CRUISE CONTROL MODULE.</b> 1) Disconnect harness connector from cruise control module. 2) Measure resistance between cruise control module harness connector terminal and cruise control actuator harness connector terminal. <b>Connector &amp; terminal</b> <b>(B7) No. 2 — (B94) No. 13:</b> Is the measured value less than the specified value?	10 Ω	Go to step 5.	Repair harness.
<b>5 CHECK HARNESS BETWEEN ACTUATOR AND CRUISE CONTROL MODULE.</b> Measure resistance between cruise control module harness connector terminal and cruise control actuator harness connector terminal. <b>Connector &amp; terminal</b> <b>(B7) No. 3 — (B94) No. 14:</b> Is the measured value less than the specified value?	10 Ω	Replace cruise control module. <Ref. to CC-5, Cruise Control Module.>	Repair harness.

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### CRUISE CONTROL SYSTEM (DIAGNOSTICS)

#### F: DTC 38 MOTOR DRIVE SHAFT DOES NOT ENGAGE PROPERLY.

Step	Value	Yes	No
<b>1 CHECK ACTUATOR MOTOR.</b> 1) Turn ignition switch to OFF. 2) Disconnect harness connector from cruise control actuator. 3) Remove cruise control actuator from mounting bracket. 4) Pull cable by hand to check for looseness or status of inner gear engagement. Are foreign particles caught in inner gear or does inner gear engage and disengage improperly?	Cable and inner gear are OK.	Replace cruise control actuator. <Ref. to CC-4, Actuator.>	Check the cruise control cable adjustment. <Ref. to CC-5, CABLE FREE PLAY, INSPECTION, General Description.>

#### G: DTC 39 MOTOR IS OVERLOADED.

Step	Value	Yes	No
<b>1 CHECK THE OPERATING CURRENT TO ACTUATOR MOTOR.</b> 1) Connect Subaru Select Monitor to data link connector. 2) Try to drive the vehicle while operating the cruise control system. 3) Measure the operation current to the cruise control actuator motor. Is the measured value less than the specified value?	10 A	Replace cruise control module. <Ref. to CC-5, Cruise Control Module.>	Check the power supply circuit. <Ref. to CC-14, CHECK POWER SUPPLY, Diagnostics Chart with Symptom.>