

## DIAGNOSTICS CHART WITH TROUBLE CODE

OnStar (R) (Diagnostics)

### 10. Diagnostics Chart with Trouble Code

#### A: DTC 0 — EEPROM CHECKSUM ERROR —

DIAGNOSIS:

Trouble of EEPROM Checksum

SYMPTOM:

- Red LED illuminates
- OnStar (R) does not operate.

	Step	Value	Yes	No
1	<b>DTC 5 Check button assembly for malfunction.</b> <Ref. to OS-30, DTC 5 — BUTTON ASSEMBLY MALFUNCTION —, Diagnostics Chart with Trouble Code.> Run the system and confirm the result of repair. Was the trouble cleared?	System is normal.	System is OK.	REFERENCE: Perform OnStar (R) setup procedure. Replace VIU. <Ref. to OS-4, Vehicle Interface Unit VIU.>

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**MEMO:**

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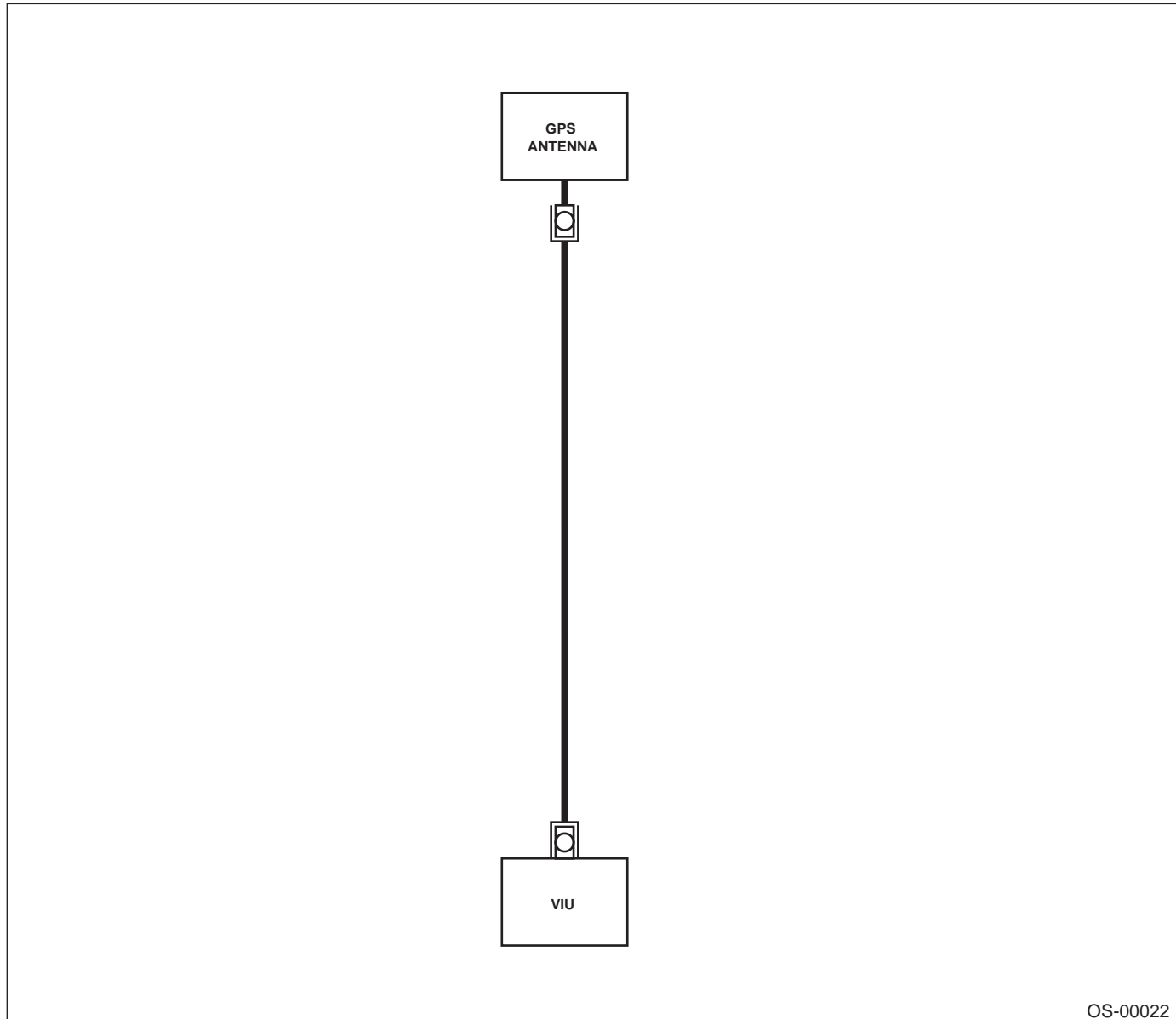
### **B: DTC 1 — GPS SIGNAL ERROR —**

DIAGNOSIS:

Trouble of GPS Signal

SYMPTOM:

- Red LED illuminates
- OnStar (R) does not operate.



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Step	Value	Yes	No
<b>1</b> <b>CHECK HARNESS.</b> 1) Turn ignition switch to OFF. 2) Disconnect GPS antenna connector from VIU. 3) Disconnect connector from GPS antenna. 4) Measure resistance between GPS antenna cables. Is the measured value less than the specified value?	0.5 Ω	Go to step 2.	Repair open harness.
<b>2</b> <b>CHECK HARNESS.</b> Measure resistance of GPS antenna cable. Does the measured value exceed the specified value?	1 MΩ	Go to step 3.	Repair ground short of GPS antenna cable.
<b>3</b> <b>CHECK HARNESS.</b> Turn the ignition switch to ON. Measure voltage between GPS antenna cable and chassis ground. Does the measured value exceed the specified value?	1 V	Go to step 4.	Repair battery short of GPS antenna cable.
<b>4</b> <b>CHECK GPS ANTENNA.</b> 1) Replace GPS antenna. <Ref. to OS-8, Antenna.> 2) Run the system and confirm the result of repair. Was the trouble cleared?	—	System is OK.	REFERENCE: Perform OnStar (R) setup procedure. Replace VIU. <Ref. to OS-4, Vehicle Interface Unit VIU.>

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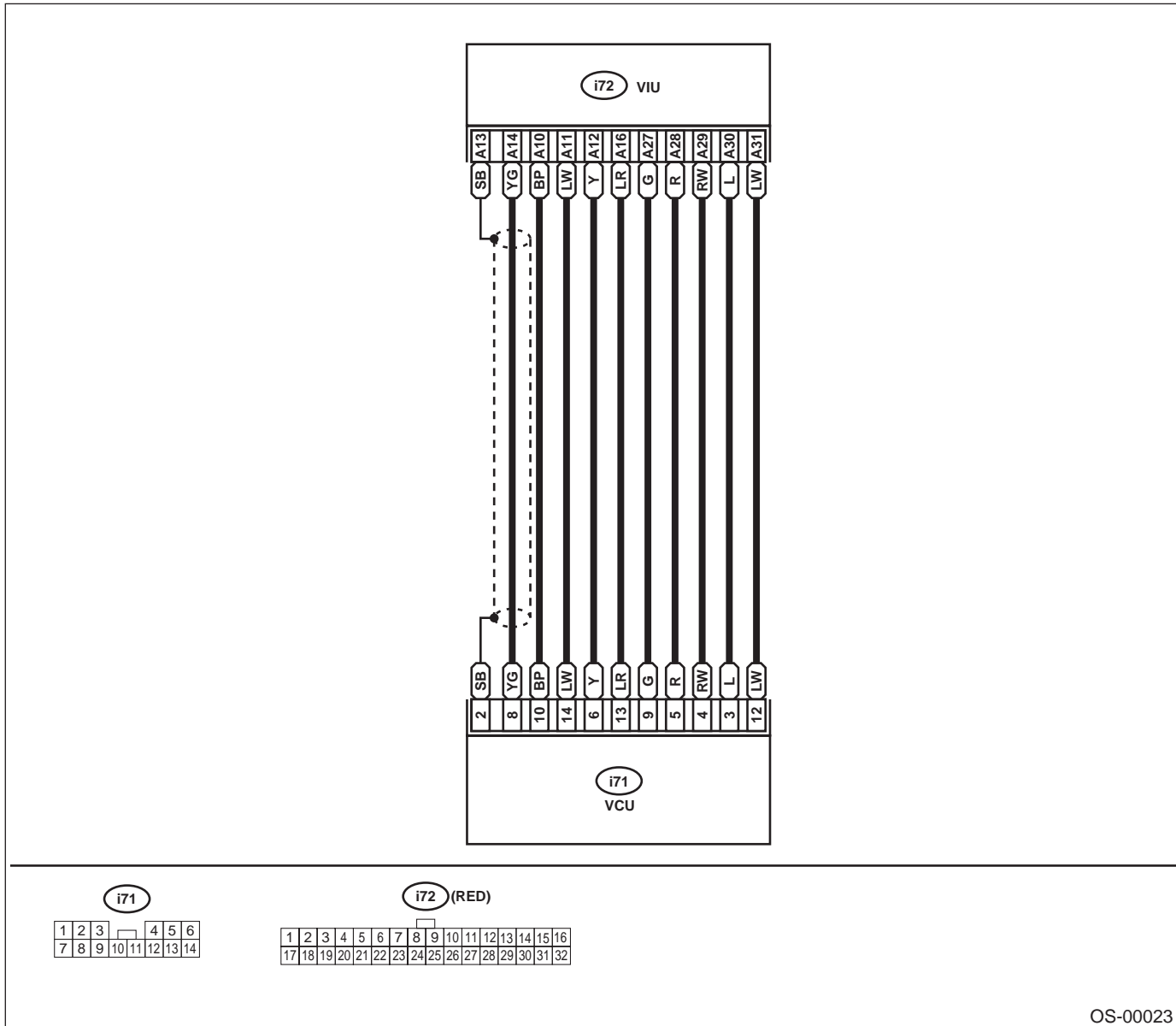
### C: DTC 2 — LOSS OF VCU COMMUNICATION WITH VIU —

DIAGNOSIS:

Communication error between VIU and VCU

SYMPTOM:

- Red LED illuminates
- OnStar (R) does not operate.



OS-00023

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Step	Value	Yes	No
<p><b>1</b></p> <p><b>CHECK HARNESS.</b>                      1) Turn ignition switch to OFF.                      2) Disconnect VIU connector.                      3) Disconnect VCU connector.                      4) Measure resistance between VIU connector and VCU connector.</p> <p><b>Connector &amp; Terminal</b>  <i>(i72) No. 10 — (i71) No. 10:</i>  <i>(i72) No. 11 — (i71) No. 14:</i>  <i>(i72) No. 12 — (i71) No. 6:</i>  <i>(i72) No. 13 — (i71) No. 2:</i>  <i>(i72) No. 14 — (i71) No. 8:</i>  <i>(i72) No. 16 — (i71) No. 13:</i>  <i>(i72) No. 27 — (i71) No. 9:</i>  <i>(i72) No. 28 — (i71) No. 5:</i>  <i>(i72) No. 29 — (i71) No. 4:</i>  <i>(i72) No. 30 — (i71) No. 3:</i>  <i>(i72) No. 31 — (i71) No. 12:</i></p> <p>Is the measured value less than the specified value?</p>	0.5 Ω	Go to step 2.	Repair open harness.
<p><b>2</b></p> <p><b>CHECK HARNESS.</b>                      Measure resistance between VIU connector and chassis ground.</p> <p><b>Connector &amp; Terminal</b>  <i>(i72) No. 10 — Chassis ground:</i>  <i>(i72) No. 11 — Chassis ground:</i>  <i>(i72) No. 12 — Chassis ground:</i>  <i>(i72) No. 13 — Chassis ground:</i>  <i>(i72) No. 14 — Chassis ground:</i>  <i>(i72) No. 16 — Chassis ground:</i>  <i>(i72) No. 27 — Chassis ground:</i>  <i>(i72) No. 28 — Chassis ground:</i>  <i>(i72) No. 29 — Chassis ground:</i>  <i>(i72) No. 30 — Chassis ground:</i>  <i>(i72) No. 31 — Chassis ground:</i></p> <p>Does the measured value exceed the specified value?</p>	1 MΩ	Go to step 3.	Repair ground short of harness.
<p><b>3</b></p> <p><b>CHECK HARNESS.</b>                      1) Turn the ignition switch to ON.                      2) Measure voltage between VIU connector and chassis ground.</p> <p><b>Connector &amp; Terminal</b>  <i>(i72) No. 10 (+) — Chassis ground (-):</i>  <i>(i72) No. 11 (+) — Chassis ground (-):</i>  <i>(i72) No. 12 (+) — Chassis ground (-):</i>  <i>(i72) No. 13 (+) — Chassis ground (-):</i>  <i>(i72) No. 14 (+) — Chassis ground (-):</i>  <i>(i72) No. 16 (+) — Chassis ground (-):</i>  <i>(i72) No. 27 (+) — Chassis ground (-):</i>  <i>(i72) No. 28 (+) — Chassis ground (-):</i>  <i>(i72) No. 29 (+) — Chassis ground (-):</i>  <i>(i72) No. 30 (+) — Chassis ground (-):</i>  <i>(i72) No. 31 (+) — Chassis ground (-):</i></p> <p>Does the measured value exceed the specified value?</p>	1 V	Go to step 4.	Repair battery short of harness.

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Step	Value	Yes	No
<b>4 CHECK VOLTAGE OF POWER SUPPLY.</b> 1) Turn ignition switch to OFF. 2) Connect connector of VIU and VCU. 3) Turn the ignition switch to ON. 4) Measure voltage between VIU connector and chassis ground. <b>Connector &amp; Terminal</b> <b>(i72) No. 10 (+) — Chassis ground (-):</b> Is the measured value within the specified range?	0 V	Go to step 5.	Go to step 11.
<b>5 CHECK VOLTAGE OF POWER SUPPLY.</b> Measure voltage between VIU connector and chassis ground. <b>Connector &amp; Terminal</b> <b>(i72) No. 11 (+) — Chassis ground (-):</b> Is the measured value within the specified range?	3.0 — 5.0 V	Go to step 6.	Go to step 11.
<b>6 CHECK VOLTAGE OF POWER SUPPLY.</b> Measure voltage between VIU connector and chassis ground. <b>Connector &amp; Terminal</b> <b>(i72) No. 12 (+) — Chassis ground (-):</b> Is the measured value within the specified range?	9 — 16 V	Go to step 7.	Go to step 11.
<b>7 CHECK VOLTAGE OF POWER SUPPLY.</b> Measure voltage between VIU connector and chassis ground. <b>Connector &amp; Terminal</b> <b>(i72) No. 16 (+) — Chassis ground (-):</b> Is the measured value within the specified range?	9 — 16 V	Go to step 8.	Go to step 11.
<b>8 CHECK VOLTAGE OF POWER SUPPLY.</b> Measure voltage between VIU connector and chassis ground. <b>Connector &amp; Terminal</b> <b>(i72) No. 31 (+) — Chassis ground (-):</b> Is the measured value within the specified range?	9 — 16 V	Go to step 9.	Go to step 11.
<b>9 CHECK VCU HARNESS CONNECTOR.</b> Check if there is any poor contact in VCU harness connector.	—	Go to step 10.	Repair poor contact in connector.
<b>10 CHECK VCU.</b> IMPORTANT Perform OnStar (R) setup procedure.  Replace VCU. <Ref. to OS-5, Vehicle Communication Unit VCU.> Was the trouble repaired?	—	System is OK.	Go to step 11.
<b>11 CHECK VIU HARNESS CONNECTOR.</b> Check if there is any poor contact in VIU harness connector. Was the condition confirmed or repaired?	—	Go to step 12.	Repair poor contact in connector.

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<b>12</b> <b>CHECK VIU.</b> IMPORTANT Perform OnStar (R) setup procedure.  Replace VIU. <Ref. to OS-4, Vehicle Interface Unit VIU.> Was the trouble repaired?	—	System is OK.	Go to step 1.



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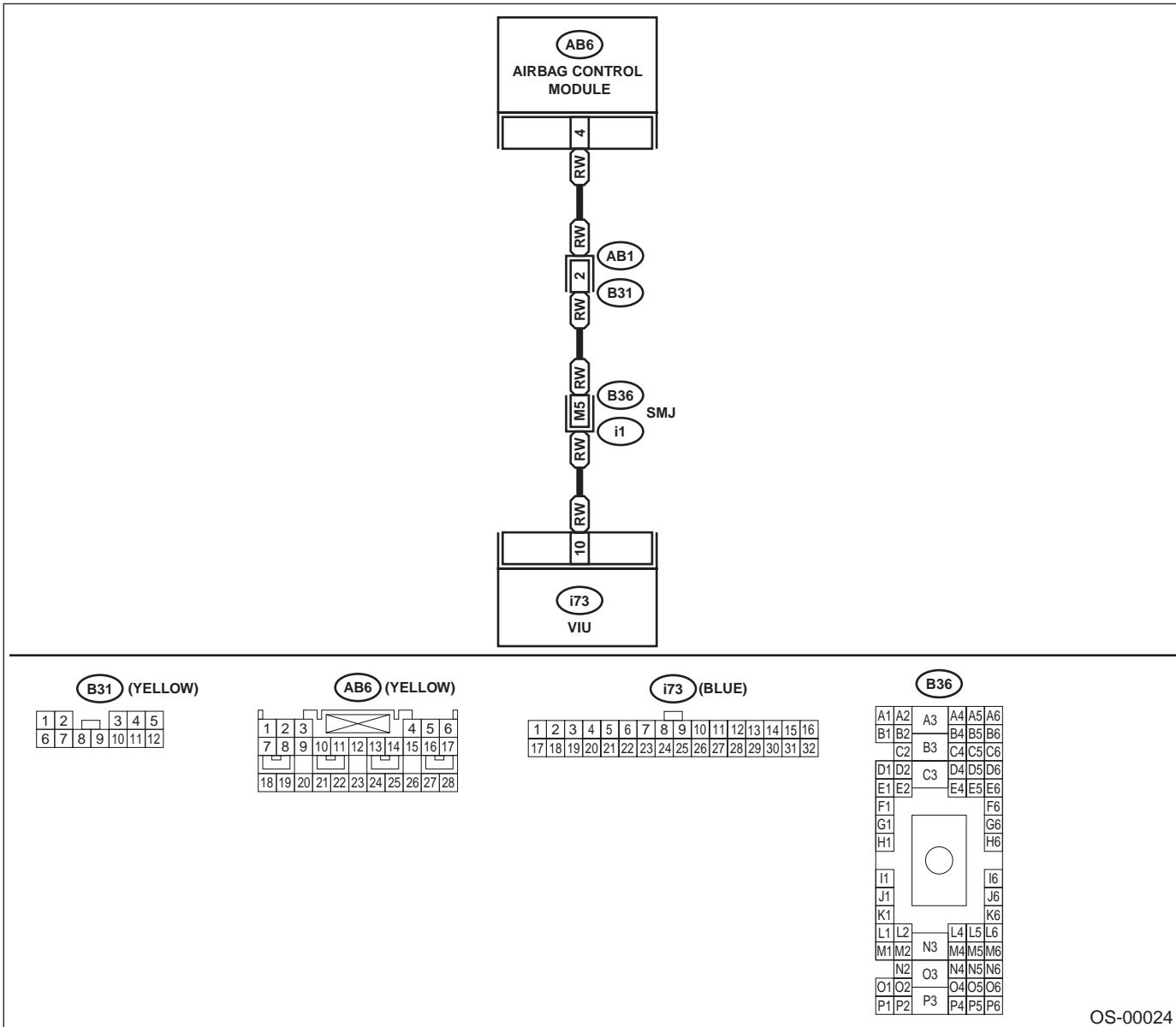
### D: DTC 3 — SRS SIGNAL FAULT —

DIAGNOSIS:

Communication error between VIU and SRS.

SYMPTOM:

- Red LED illuminates
- OnStar (R) does not operate.



OS-00024

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Step	Value	Yes	No
<b>1 CHECK HARNESS.</b> 1) Turn ignition switch to OFF. 2) Disconnect VIU connector. 3) Disconnect SRS connector. 4) Measure resistance between VIU connector and SRS connector. <b>Connector &amp; Terminal</b> <b>(i73) No. 10 — (AB6) No. 4:</b> Is the measured value less than the specified value?	0.5 Ω	Go to step 2.	Repair open harness.
<b>2 CHECK HARNESS.</b> Measure resistance between VIU connector and chassis ground. <b>Connector &amp; Terminal</b> <b>(i73) No. 10 — Chassis ground:</b> Does the measured value exceed the specified value?	1 MΩ	Go to step 3.	Repair ground short of harness.
<b>3 CHECK HARNESS.</b> 1) Turn the ignition switch to ON. 2) Measure voltage between VIU connector and chassis ground. <b>Connector &amp; Terminal</b> <b>(i73) No. 10 (+) — Chassis ground (-):</b> Does the measured value exceed the specified value?	1 V	Go to step 4.	Repair battery short of harness.
<b>4 CHECK VOLTAGE OF POWER SUPPLY.</b> 1) Turn ignition switch to OFF. 2) Connect VIU connector. 3) Turn the ignition switch to ON. 4) Measure resistance between SRS connector and chassis ground. <b>Connector &amp; Terminal</b> <b>(AB6) No. 4 (+) — Chassis ground (-):</b> Is the measured value within the specified range?	9 — 16 V	Go to step 5.	Go to step 6.
<b>5 CHECK AIRBAG CONTROL MODULE.</b> 1) Replace airbag control module. <Ref. to AB-18, Airbag Control Module.> 2) Run the system and confirm the result of repair. Was the trouble repaired?	—	System is OK.	Go to step 6.
<b>6 CHECK VIU.</b> REFERENCE: Perform OnStar (R) setup procedure. 1) Replace VIU. <Ref. to OS-4, Vehicle Interface Unit VIU.> 2) Run the system and confirm the result of repair. Was the trouble repaired?		System is OK.	Go to step 1.

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### E: DTC 4 — GPS MICRO-PROCESSOR COMMUNICATION FAULT —

DIAGNOSIS:

Trouble of GPS micro-processor in VIU

SYMPTOM:

- Red LED illuminates
- OnStar (R) does not operate.

Step	Value	Yes	No
1 <b>CHECK VIU.</b> REFERENCE: Perform OnStar (R) setup procedure. 1) Replace VIU. <Ref. to OS-4, Vehicle Interface Unit VIU.> 2) Run the system and confirm the result of repair. Was the trouble repaired?	—	System is OK.	Repair trouble.

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MEMO:

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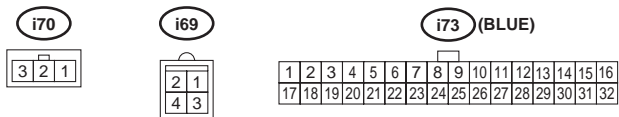
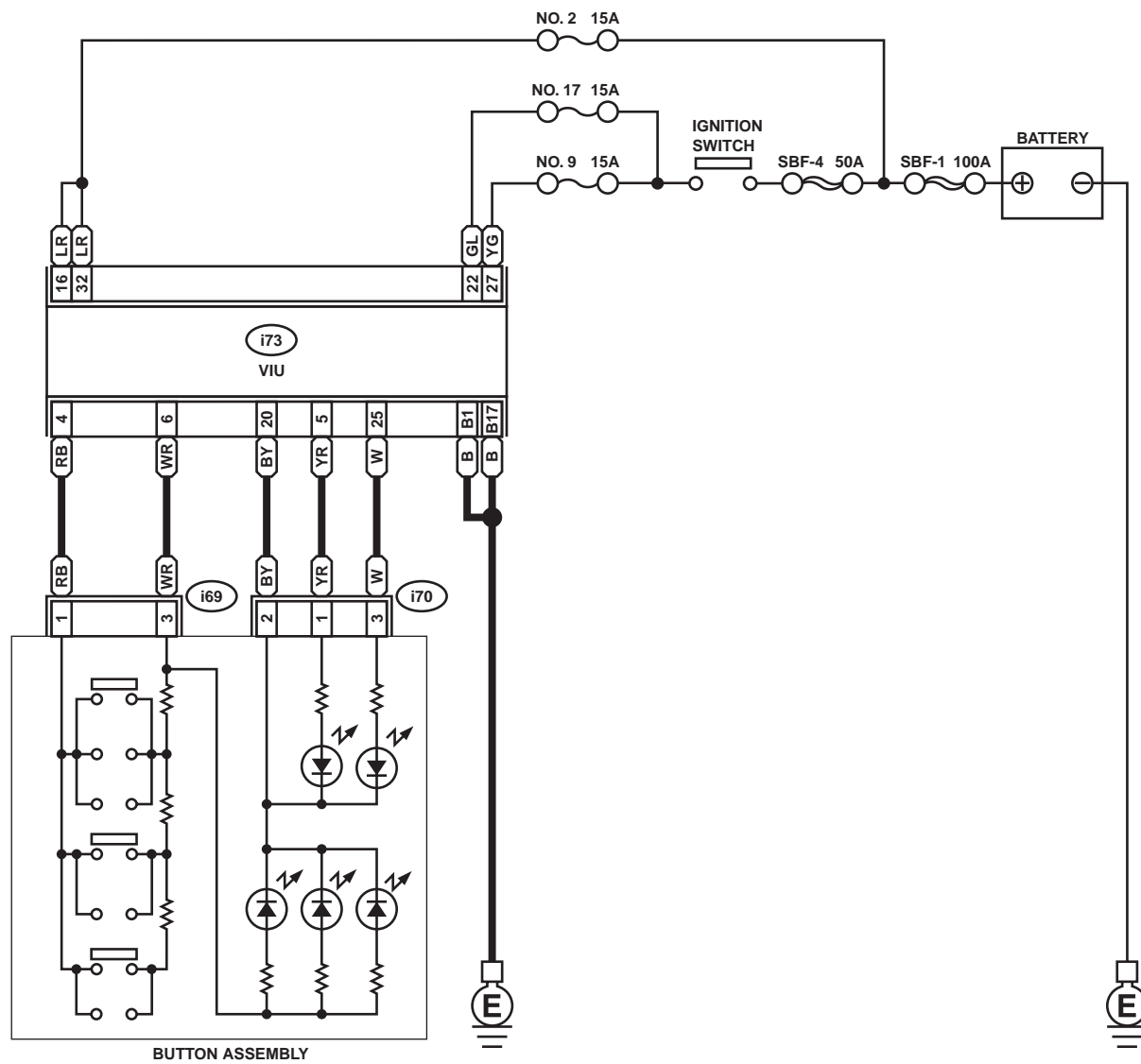
### F: DTC 5 — BUTTON ASSEMBLY MALFUNCTION —

DIAGNOSIS:

Communication error of button assembly

SYMPTOM:

- Red LED illuminates
- OnStar (R) does not operate.



OS-00025

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Step	Value	Yes	No
<p><b>1</b></p> <p><b>CHECK HARNESS.</b>                      1) Turn ignition switch to OFF.                      2) Disconnect VIU connector.                      3) Disconnect button assembly connector.                      4) Measure resistance between VIU connector and button assembly connector.</p> <p><b>Connector &amp; Terminal</b>  <i>(i73) No. 4 — (i69) No. 1:</i>  <i>(i73) No. 6 — (i69) No. 3:</i>  <i>(i73) No. 20 — (i70) No. 2:</i>  <i>(i73) No. 5 — (i70) No. 1:</i>  <i>(i73) No. 25 — (i70) No. 3:</i></p> <p>Is the measured value less than the specified value?</p>	0.5 Ω	Go to step 2.	Repair open harness.
<p><b>2</b></p> <p><b>CHECK HARNESS.</b>                      Measure resistance between VIU connector and chassis ground.</p> <p><b>Connector &amp; Terminal</b>  <i>(i73) No. 4 — Chassis ground:</i>  <i>(i73) No. 6 — Chassis ground:</i>  <i>(i73) No. 20 — Chassis ground:</i>  <i>(i73) No. 5 — Chassis ground:</i>  <i>(i73) No. 25 — Chassis ground:</i></p> <p>Does the measured value exceed the specified value?</p>	1 MΩ	Go to step 2.	Repair ground short of harness.
<p><b>3</b></p> <p><b>CHECK HARNESS.</b>                      1) Turn the ignition switch to ON.                      2) Measure voltage between VIU connector and chassis ground.</p> <p><b>Connector &amp; Terminal</b>  <i>(i73) No. 4 (+) — Chassis ground (-):</i>  <i>(i73) No. 6 (+) — Chassis ground (-):</i>  <i>(i73) No. 20 (+) — Chassis ground (-):</i>  <i>(i73) No. 5 (+) — Chassis ground (-):</i>  <i>(i73) No. 25 (+) — Chassis ground (-):</i></p> <p>Does the measured value exceed the specified value?</p>	1 V	Go to step 4.	Repair battery short of harness.
<p><b>4</b></p> <p><b>CHECK VOLTAGE OF POWER SUPPLY.</b>                      1) Turn ignition switch to OFF.                      2) Connect VIU connector.                      3) Turn the ignition switch to ON.                      4) Measure voltage between button assembly connector and chassis ground.</p> <p><b>Connector &amp; Terminal</b>  <i>(i69) No. 3 (+) — Chassis ground (-):</i></p> <p>Is the measured value within the specified range?</p>	10 — 13 V	Go to step 5.	REFERENCE: Perform OnStar (R) setup procedure. Replace VIU. <Ref. to OS-4, Vehicle Interface Unit VIU.>
<p><b>5</b></p> <p><b>CHECK EMERGENCY BUTTON.</b>                      Measure resistance between terminals of button assembly.</p> <p><b>Terminal</b>  <i>No. 1 — No. 3:</i></p> <p>Is the measured value within the specified range by pressing emergency button?</p>	1.5 KΩ	Go to step 6.	Replace button assembly. <Ref. to OS-6, Button Assembly.>

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Step	Value	Yes	No
<b>6 OnStar (R) CHECK BUTTON.</b> Measure resistance between terminals of button assembly. <b>Terminal</b> <b>No. 1 — No. 3:</b> Is the measured value within the specified range by pressing OnStar (R) button?	3.0 K $\Omega$	Go to step 7.	Replace button assembly. <Ref. to OS-6, Button Assembly.>
<b>7 CHECK CALL ANSWER/END BUTTON.</b> Measure resistance between terminals of button assembly. <b>Terminal</b> <b>No. 1 — No. 3:</b> Is the measured value within the specified range by pressing call answer/end button?	13.0 K $\Omega$	Go to step 8.	Replace button assembly. <Ref. to OS-6, Button Assembly.>
<b>8 System check</b> Run the system and confirm the result of repair. Was the trouble repaired?	—	System is OK.	Go to step 9.
<b>9 CHECK BUTTON ASSEMBLY.</b> 1) Replace button assembly. <Ref. to OS-6, Button Assembly.> 2) Run the system and confirm the result of repair. Was the trouble repaired?	—	System is OK.	Go to step 10.
<b>10 CHECK VIU.</b> REFERENCE: Perform OnStar (R) setup procedure. 1) Replace VIU. <Ref. to OS-4, Vehicle Interface Unit VIU.> 2) Run the system and confirm the result of repair. Was the trouble repaired?	—	System is OK.	Go to step 1.