4. Multi-function Display (MFD) System

A: WIRING DIAGRAM

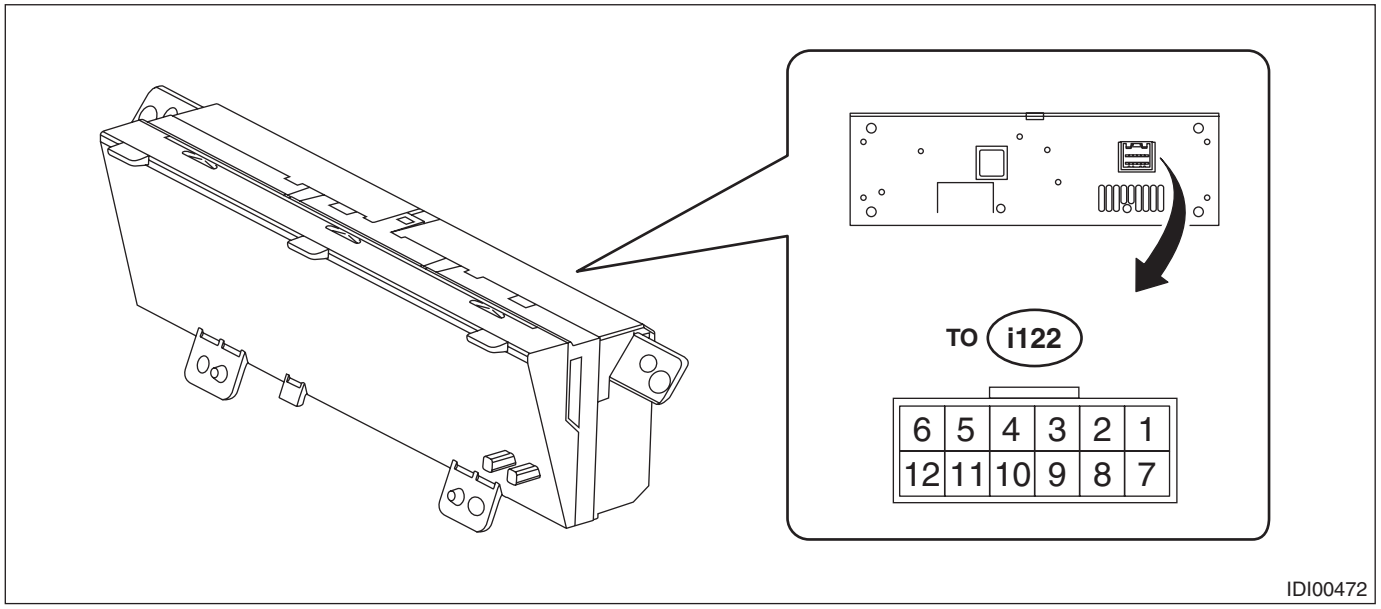
Refer to “Multi-function Display (MFD) System” in WI section.

- Gasoline engine model: <Ref. to WI(w/o HEV)-164, WIRING DIAGRAM, Multi-function Display (MFD) System.>
- HEV model: <Ref. to WI(HEV)-169, WIRING DIAGRAM, Multi-function Display (MFD) System.>

B: ELECTRICAL SPECIFICATION

1. MULTI FUNCTION DISPLAY

- Standard type



Terminal No.	Item	Measuring condition	Standard
1 (+B) ←→ Chassis ground	Voltage	Always	10 — 14 V
2 (GND) ←→ Chassis ground	Resistance	Always	Less than 1 Ω
3 (IG) ←→ Chassis ground	Voltage	IG OFF → ON	0 V → 10 — 14 V
9 (U-ART com.)	—	Cannot be measured	—
10 ←→ Chassis ground	Voltage	Passenger’s airbag ON indicator light OFF → ON	0 V → 1.5 V
11 ←→ Chassis ground	Voltage	Passenger’s airbag OFF indicator light OFF → ON	0 V → 1.5 V

- High grade type

Refer to “Control Module I/O Signal” of “INSTRUMENTATION/DRIVER INFO (DIAGNOSTICS)” section. <Ref. to IDI(diag)-7, ELECTRICAL SPECIFICATION, Control Module I/O Signal.>

C: OPERATION

1. DIAGNOSTIC MODE (HIGH GRADE TYPE ONLY)

The settings of the multi-function display can be changed by performing the following procedures to display the diagnostic mode.

CAUTION:
- **Perform the work with IG-ON while charging the battery.**
- **While performing the work, close the front hood and all doors, and do not operate any electrical parts.**
- **Display can not be switched to diagnostic mode if the illumination control dial is set to the position for the dimming cancel function (maximum brightness).**

1) Procedure

CAUTION:
Perform the steps described in (2) through (4) within 10 seconds.

(1) Within 3 seconds after turning the IG-ON, turn the lighting switch to Switch 1 (TAIL) or Switch 2 (HEAD).
(2) While keeping the lighting switch to Switch 1 (TAIL) or Switch 2 (HEAD) position, press the i/SET switch three times.
(3) Turn the lighting switch to OFF, and press the i/SET switch three times.
(4) Turn the lighting switch to Switch 1 (TAIL) or Switch 2 (HEAD) position again, press the i/SET switch three times.

NOTE:
- Except for the demonstration display setting of the diagnostic mode, the display will terminate with IG-OFF or by selecting “Back” from the menu screen.
- The demonstration display setting of the diagnostic mode will terminate by starting the engine or removing the battery. Even if it becomes IG-OFF then IG-ON again, the diagnostic mode will not terminate.
- To select other menus from the demonstration display setting, terminate the diagnostic mode by starting the engine or removing the battery, then access to the diagnostic mode again.

2) Display menu

Change the display and settings from each menu.

Menu	Item	Content
Demonstration display setting	—	Shows demonstration display.
Vehicle status confirmation	• CAN communication	Displays the connection status of input signals.
	• U-ART communication	
	• Camera connection	
Rear camera settings	• Guide line adjustment	The image of the rearview camera is displayed in the audio system or the navigation system. Refer to “Rearview Camera System” for adjustment.
	• Guide line display	
	• Guide line reset	
Customize	• Key operation sound	Select “ON” or “OFF”, then select “Set” to determine.
	• Correction of lifetime fuel economy value*	Adjust the fuel economy value within the range of -10 — +10 km/l, then determine the value with i/SET switch.
Back	—	Finish the diagnostic mode.

*: Correction of lifetime fuel economy value is used only when the multi-function display has been replaced. This function is provided as a compensation feature to bring the current lifetime fuel economy value to the one before the replacement of multi-function display.

2. DEMONSTRATION SCREEN DISPLAY (HIGH GRADE TYPE ONLY)

The demonstration screen can be displayed according to the following procedure.

CAUTION:
- **Perform the procedure while the ignition switch is OFF (ACC OFF).**
- **To avoid battery discharge, perform the operation under the following condition.**
  - **– Perform the operation while the battery is being charged.**
  - **– While performing the operation and displaying the demonstration mode, do not operate any electrical parts.**

1) Procedure

CAUTION:
Perform the steps described in (2) through (5) within 10 seconds.

(1) Sit in the driver's seat and close the door.
(2) Open the driver's door, and within 5 seconds, press the ENTER switch three times.
(3) Close the driver's door, and press the ENTER switch three times.
(4) Open the driver's door, and press the ENTER switch three times.
(5) Close the driver's door, and press the ENTER switch three times.

2) Go to "Demonstration screen display".

NOTE:
The demonstration display will be cancelled in any of the following conditions.
- When 60 minutes elapsed since the demonstration mode started
- When the ignition is turned to ON
- When the ENTER switch is turned to ON for two seconds
- When the battery voltage is low

3. ODO FUEL ECONOMY VALUE RESET (HIGH GRADE TYPE ONLY)

Follow the procedure below to initialize the ODO setting value.
1) Turn the ignition to ON, and press the ENTER switch for two seconds.
2) Select "Factory delivery setting" from "Setting screen".
3) Select "ODO setting reset" and determine with "Yes".
4) The screen that indicates the completion of the setting is displayed for three seconds. This is the end of operation.

NOTE:
- The resetting operation is confirmed twice. Select confirmation according to the screen.
- The display will terminate by turning the ignition to OFF (ACC OFF) or by selecting "Back" from the menu screen.

D: INSPECTION

- Standard type

Refer to the following inspection steps. <Ref. to IDI-16, SYMPTOM CHART, INSPECTION, Multi-function Display (MFD) System.>

- High grade type

Refer to “Basic Diagnostic Procedure” of “INSTRUMENTATION/DRIVER INFO (DIAGNOSTICS)” section. <Ref. to IDI(diag)-2, Basic Diagnostic Procedure.>

1. SYMPTOM CHART

Symptoms	Repair order	Note
No display is shown.	1. Power supply 2. Ground circuit 3. Communication circuit harness 4. MFD	<Ref. to IDI-16, CHECK POWER SUPPLY AND GROUND CIRCUIT AND COMMUNICATION CIRCUIT, INSPECTION, Multi-function Display (MFD) System.>
Ambient air temperature/fuel economy displays do not appear.	1. Power supply 2. Ground circuit 3. MFD	<Ref. to IDI-17, CHECK CLOCK SYSTEM COMMUNICATION CIRCUIT, INSPECTION, Multi-function Display (MFD) System.>
Only ambient air temperature display is not displayed.	1. Power supply 2. Harness 3. Ambient sensor 4. Communication circuit 5. MFD	<Ref. to IDI-18, CHECK AMBIENT TEMPERATURE METER SYSTEM COMMUNICATION CIRCUIT, INSPECTION, Multi-function Display (MFD) System.>
Only fuel economy display is not displayed.	1. Setting 2. MFD	<Ref. to IDI-19, CHECK COMMUNICATION CIRCUIT OF FUEL ECONOMY SYSTEM, INSPECTION, Multi-function Display (MFD) System.>

2. CHECK POWER SUPPLY AND GROUND CIRCUIT AND COMMUNICATION CIRCUIT

	Step	Check	Yes	No
1	**CHECK POWER SUPPLY.** 1) Disconnect the MFD connector. 2) Measure the voltage between MFD connector and chassis ground. ***Connector & terminal*** ***(i122) No. 1 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Go to step **2**.	Check the harness for open or short between the fuse and MFD.
2	**CHECK GROUND CIRCUIT.** Measure the resistance between MFD connector and chassis ground. ***Connector & terminal*** ***(i122) No. 2 — Chassis ground:***	Is the resistance less than 10 Ω?	Go to step **3**.	Repair or replace the harness.
3	**CHECK HARNESS BETWEEN MFD AND COMBINATION METER ASSEMBLY.** 1) Disconnect the connector of combination meter assembly. 2) Check the harness between MFD and combination meter assembly. ***Connector & terminal*** ***(i122) No. 9 — (i10) No. 28:***	Is harness normal?	Go to step **4**.	Repair or replace the harness.
4	**CHECK MFD.** 1) Remove the MFD. 2) Attach the clock to another vehicle on which the clock display operates normally, and check its operation.	Is MFD normal?	Replace the meter - main assembly. <Ref. to IDI-20, Combination Meter.>	Replace the MFD.

3. CHECK CLOCK SYSTEM COMMUNICATION CIRCUIT

	Step	Check	Yes	No
1	**CHECK POWER SUPPLY.** 1) Disconnect the MFD connector. 2) Turn the ignition switch to ON. 3) Measure the voltage between MFD connector and chassis ground. ***Connector & terminal*** ***(i122) No. 3 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Go to step **2**.	Repair or replace the harness.
2	**CHECK GROUND CIRCUIT.** Measure the resistance between MFD connector and chassis ground. ***Connector & terminal*** ***(i122) No. 2 — Chassis ground:***	Is the resistance less than 10 Ω?	Go to step **3**.	Repair or replace the harness.
3	**CHECK MFD.** 1) Remove the MFD. 2) Attach the clock to another vehicle on which the clock display operates normally, and check its operation.	Is the MFD normal?	Repair the poor contact of connector.	Replace the MFD.

4. CHECK AMBIENT TEMPERATURE METER SYSTEM COMMUNICATION CIRCUIT

	Step	Check	Yes	No
1	**CHECK AMBIENT SENSOR POWER SUPPLY.** 1) Disconnect the ambient sensor connector. 2) Turn the ignition switch to ON. 3) Measure the voltage between the ambient sensor connector and chassis ground. ***Connector & terminal*** ***(F78) No. 1 (+) — Chassis ground (–):***	Is the voltage 4 V or more?	Go to step **2**.	Check the harness for open or short between the fuse and MFD.
2	**CHECK HARNESS BETWEEN AMBIENT SENSOR AND COMBINATION METER ASSEMBLY.** 1) Disconnect the connector of combination meter assembly. 2) Check harness between ambient sensor and combination meter assembly. ***Connector & terminal*** ***(F78) No. 1 — (i10) No. 27:*** ***(F78) No. 2 — (i10) No. 36:***	Is harness normal?	Go to step **3**.	Repair or replace the harness.
3	**CHECK AMBIENT SENSOR.** Check the ambient sensor. <Ref. to AC-80, INSPECTION, Ambient Sensor.>	Is the ambient sensor operating properly?	Go to step **4**.	Replace the ambient sensor.
4	**CHECK AMBIENT TEMPERATURE DISPLAY.** 1) Connect the combination meter assembly connector. 2) Install the 3 kΩ resistance between connector terminals of the ambient sensor. 3) Turn the ignition switch to ON. ***Connector & terminal*** ***(F78) No. 1 — No. 2:***	Does the ambient temperature display 25°C (77°F)?	Repair the poor contact between the ambient sensor and harness connector.	Go to step **5**.
5	**CHECK CURRENT DATA.** Using the Subaru Select Monitor, display the data of «Ambient Air Temperature». NOTE: For detailed procedures, refer to “PC application help for Subaru Select Monitor”.	Is the ambient temperature of 25°C (77°F) output?	Go to step **6**.	Replace the meter - main assembly. <Ref. to IDI-20, Combination Meter.>
6	**CHECK MFD.** 1) Remove the MFD. 2) Attach the ambient temperature display to another vehicle on which the ambient temperature display operates normally to check its operation.	Does the ambient temperature display 25°C (77°F)?	Replace the MFD.	Replace the meter - main assembly. <Ref. to IDI-20, Combination Meter.>

5. CHECK COMMUNICATION CIRCUIT OF FUEL ECONOMY SYSTEM

	Step	Check	Yes	No
1	**CHECK FUEL ECONOMY DISPLAY OFF MODE.** Check that the mode display changes when the MFD changeover knob is operated. (Display changes in the following order: cruising distance → average fuel economy → instantaneous fuel economy → continuous driving time → average vehicle speed → blank display)	Is fuel economy displayed?	MFD is normal.	Go to step **2**.
2	**CHECK MFD.** 1) Remove the MFD. 2) Attach the fuel economy display to another vehicle on which the fuel economy display operates normally to check its operation.	Is the fuel economy display correct?	Replace the meter - main assembly. <Ref. to IDI-20, Combination Meter.>	Replace the MFD.

E: NOTE

For procedure of each component in the Multi-Function Display (MFD) system, refer to the respective section.

- Multi-function display: <Ref. to IDI-27, Multi-function Display (MFD).>