

ATTENTION:

- GENERAL MANAGER
- PARTS MANAGER
- CLAIMS PERSONNEL
- SERVICE MANAGER

IMPORTANT - All Service Personnel Should Read and Initial in the boxes provided, right.

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QUALITY DRIVEN® SERVICE

SERVICE BULLETIN

APPLICABILITY: 2023MY Outback & Legacy
2023MY Ascent

NUMBER: 15-311-23R

DATE: 06/23/23

SUBJECT: FOTA (Firmware Over-The-Air) Reprogramming for DENSO Gen 4.5 Audio Navigation Infotainment Systems via DCM

REVISED: 12/20/23

INTRODUCTION:

This bulletin provides instruction for use of a new reprogramming procedure to optimize the Denso Gen 4.5 Audio and Navigation system utilized in the models listed above. Firmware-over-the-air (FOTA) is a process where remote devices can receive updates to their operating firmware. This process has become second nature with smartphones, tablets and many other connected devices. FOTA for automotive infotainment systems was designed with an emphasis on customer convenience. FOTA updates provide regular enhancements along with software patches as needed to enhance the customer experience. The convenience factor comes not only with the supply of regular updates and the enhancements they provide, but through customer control of when these updates are downloaded and installed. The only requirement is a valid subscription to SUBARU STARLINK Safety Plus, since the download of the software is performed via DCM. FOTA operation is conducted in two steps: download (from the server to the vehicle via DCM) and installation (internal to CP1.5 system in the vehicle). This bulletin will focus on FOTA for Denso Gen 4.5 audio systems (MID) and audio-navigation systems (HIGH) which utilize the 11.6-inch touch-screen display. Models with 7-inch dual screen display (Base) are not FOTA update capable.

This bulletin outlines the procedure for performing FOTA updates successfully. These procedures involve:

- Assisting customers with FOTA -related concerns if they have been unsuccessful in performing the FOTA by themselves. (Possible vehicle or system concern.) *
- Performing the FOTA update for customers who are not comfortable or need assistance with performing it themselves but have requested the Retailer to install it*
- Updating the firmware using a USB flash drive by following the steps outlined in TSB 15-30522R “Reprogramming File Availability for Optimization of Gen 4.5 Denso CP1.5 Infotainment Systems” when FOTA cannot be performed due to the setup or eligibility constraints*.

CAUTION: VEHICLE SERVICING PERFORMED BY UNTRAINED PERSONS COULD RESULT IN SERIOUS INJURY TO THOSE PERSONS OR TO OTHERS.

Subaru Service Bulletins are intended for use by professional technicians ONLY. They are written to inform those technicians of conditions that may occur in some vehicles, or to provide information that could assist in the proper servicing of the vehicle. Properly trained technicians have the equipment, tools, safety instructions, and know-how to do the job correctly and safely. If a condition is described, DO NOT assume that this Service Bulletin applies to your vehicle, or that your vehicle will have that condition.

Subaru of America, Inc. is ISO 14001 Compliant

ISO 14001 is the international standard for excellence in Environmental Management Systems. Please recycle or dispose of automotive products in a manner that is friendly to our environment and in accordance with all local, state and federal laws and regulations.

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* **NOTE:** If a customer is simply requesting help with how to perform FOTA, provide a copy of the appropriate customer instructions for FOTA available on Subarunet: Service Operations & Technical > Forms/Downloads page.

See **Appendix A** later in this bulletin for more information.

It is **VERY IMPORTANT** to read and understand this information completely **before** proceeding.

NOTES:

- **REMINDER:** FOTA is available for MID and HIGH (Navi) systems with 11.6-inch display only.
- The currently available FOTA firmware version is not the same version available to Retailers for USB updating use. However, a system updated using FOTA can be further updated by using the USB update procedure if additional updates are needed. For additional details clarifying the scope of FOTA updates, review the applicable Owner's Manual Supplement's additional information for the Center Information Display. The information is downloadable from: <https://www.subaru.com/owners/index.html>. See **Appendix C** below for more information.
- FOTA updates are for the system firmware **ONLY**. Map updates are a separate function which the customer may update on their own by using either USB download or Map Over the Air Update (MOTA). Go to: subaru-maps.com for more information.

Reference photos of each system faceplate are supplied below:



SERVICE PROCEDURE / INFORMATION:

REMINDER: Customer satisfaction and retention starts with performing quality repairs.

The FOTA update process involves a remote downloading and installation of the update firmware; therefore, time duration depends on signal strength and transfer rate performance. During installation, the infotainment system's functionality will be restricted.

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SET-UP INSTRUCTIONS AND CAUTIONS:

- Move the vehicle to an outside location where the engine can be safely started and kept idling during the update process.
- Never idle the vehicle in a closed space such as a garage, even if the garage door is kept open.
- Once the vehicle is in a safe location, be sure the vehicle is in Park (CVT) or Neutral (MT) and the parking brake is fully engaged.
- Open one or more windows to ensure fresh air is available.
- **Stay with the vehicle** until the update is completed.
- We suggest adjusting the climate controls to your desired settings in case they become unavailable during the update process.
- Unplug any devices, chargers, cables or other USB drives from the vehicle's USB and power ports.

VERY IMPORTANT: Before proceeding with the updating procedure, the currently installed version ID **MUST** be confirmed (Firmware Version Check) by following the steps below:

- 1) After starting the engine and system boot-up completes, from the HOME screen, touch the Settings button.



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2) Press the **General** button. Use the down arrow to scroll to **System Information** then press to display the System Information / Version information.



The examples below identify the head unit model and the last 6 digits (9xxx-xxx) signify the software version number. Examples:

- F61WHMxxx-xxx (**H**igh model software)
- F61WMMxxx-xxx (**M**id model software)

MY	Carline	Trim/Grade	Older Software Versions	Latest Software Version
23MY	Outback/ Legacy	MID	013-282	033-270
			023-580	033-570
			033-681	not eligible for FOTA
		HIGH	013-282	033-270
			023-580	033-570
			033-681	not eligible for FOTA
23MY	Ascent	MID	013-282	033-570
			033-681	not eligible for FOTA
		HIGH	023-580	033-570
			033-681	not eligible for FOTA

ATTENTION: The following Software versions provided below were strictly limited to production vehicles and exchange CCU's via exchange process. Please review the following list of software versions for the applicable models. If the software present in the vehicle does not match the above table, or following table, **please review the information outlined below.**

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MY	Carline	Trim/Grade	Software Version
23MY	Outback/Legacy (Including wilderness models)	BASE	F91WBM043-781
		MID	F91WMM043-781
		HIGH	F91WHM043-781
23MY	Ascent	MID	F91WHM043-781
		HIGH	F91WHM043-781

If the software version number matches “Older Software Versions” review the information outlined below. If the software version is “**Latest Software Version**” as the unit already has the latest software version installed. Proceed to the WARRANTY / CLAIM INFORMATION section of the TSB and process a claim for Version Check Only.

FOTA REPROGRAMMING OVERVIEW:

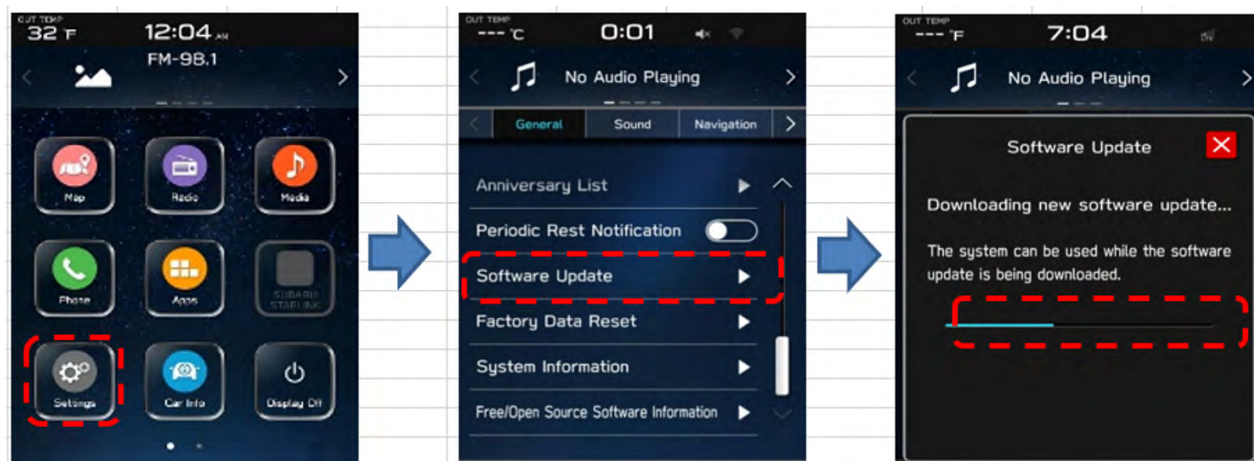
- **SUBSCRIPTION STATUS** - Confirm SUBARU STARLINK Safety Plus subscription

NOTE: FOTA update is possible only with valid SUBARU STARLINK Safety Plus subscription and active DCM. If the status of subscription is unclear, contact STARLINK Customer Care at (855) 753-2495 and find details of STARLINK agreement.


- **SOFTWARE DOWNLOAD** - When software update becomes available, the software is automatically downloaded following IGN-ON operation without customer’s operation.

CAUTION: The process could be obstructed due to incorrect clock setting or poor DCM reception. If the clock has wrong time, see Appendix B for how to set the correct time on the clock. If the DCM has lost reception, move the vehicle to a better (4G phone signal) reception area.

Downloading automatically starts and finishes. While the DCM is downloading the new software, all functions of Cockpit Control Unit remain available. The status of the downloading process can be checked using *Settings/General/Software update feature* as shown below.




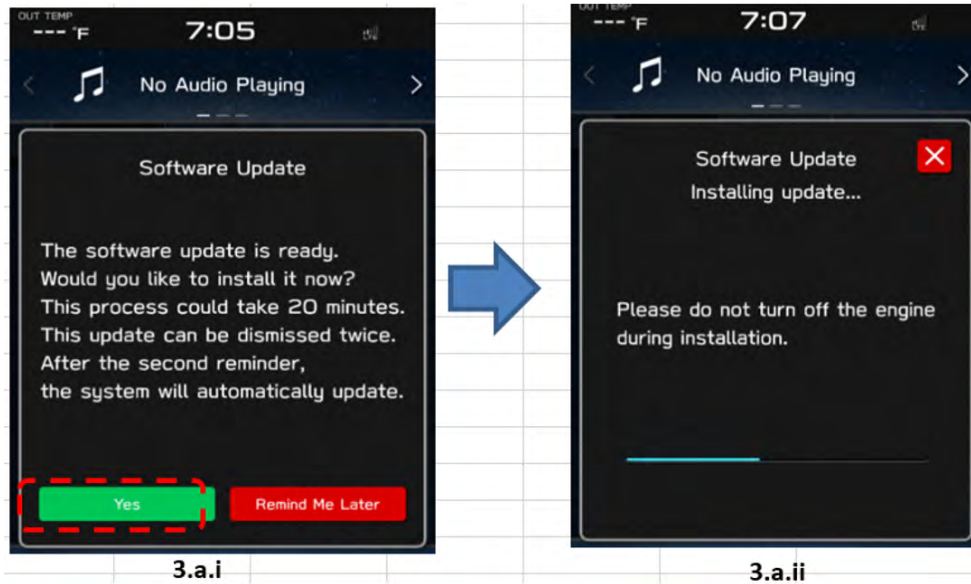
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Normally downloading takes 10-20 minutes depending on reception condition. Even if  is pressed in the 3rd screen to return, downloading process continues.

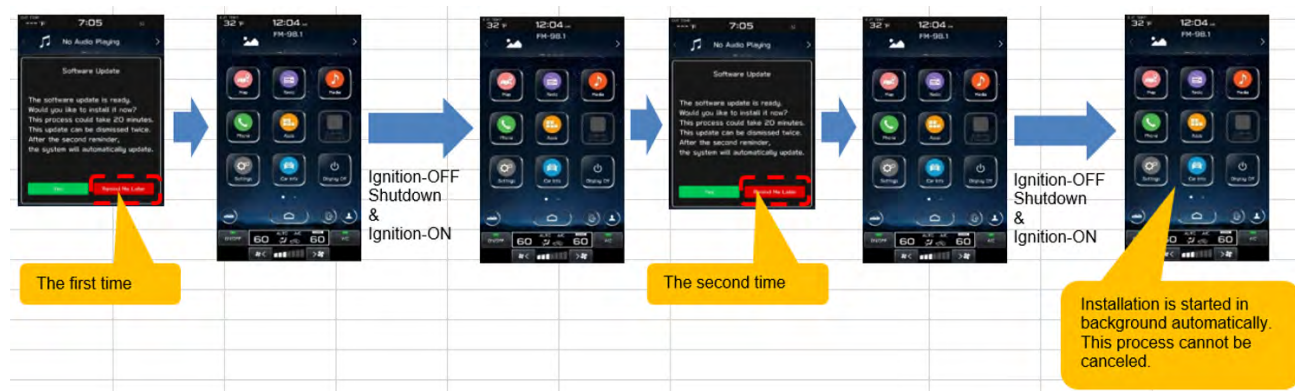
In case of intermittent loss of reception by DCM (vehicle moving out of signal range), or Ignition Switch being turned OFF, downloading is paused but the operation resumes as soon as the reception is re-established or system is turned back on.

- **INSTALLATION** - The installation consists of two stages: installation and activation.

Notification screen is automatically displayed, after the background downloading has been successfully completed. This screen is displayed only while the vehicle is not in motion. Select “Yes” => Start installation. Once “Yes” is pressed, installation continues even if the  button is pressed.



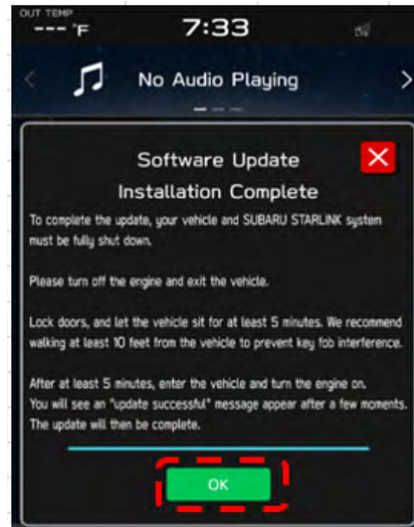
Customers can skip installation by selecting <Remind Me Later> up to two times. However, after skipping two times the installation starts automatically as soon as the Ignition Switch is turned ON without any notification. In that case the installation notification (3.a.i) is not displayed anymore. See below for more information.



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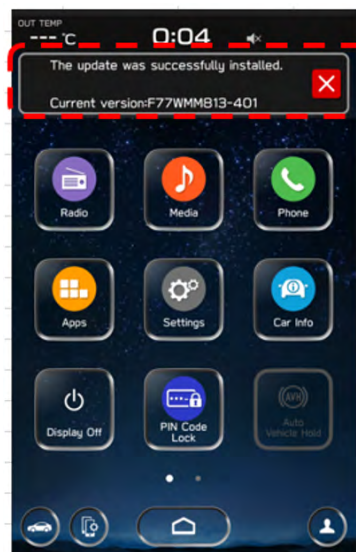
NOTES:

- If ignition Switch is turned OFF while 3.a.i screen is being displayed, the installation process is terminated. In that case the screen 3.a.ii pops up automatically the next time the Ignition Switch is turned on.
- If ignition Switch is turned OFF during 3.a.ii screen is being displayed, the installation process is terminated. In that case installation process automatically resumes without showing 3.a.ii next time the Ignition Switch is turned on.
- Activation: Wait until the installation is completed (Time required for installation: 15 minutes or less). After the first installation process is coming to an end and the pop-up screen shown below comes up, then press “OK.”



Switch the vehicle OFF, exit the vehicle, lock all doors including the rear gate (if equipped) and **move the key fob away from the vehicle at least 10 feet (3m) to enable affected systems to go to sleep. WAIT AT LEAST 5 MINUTES** prior to switching the vehicle ON to assure proper software activation.

Pop-up screen shows up soon after the system completes to boot up. It confirms the software has been installed.



NOTE: See **Appendix D** for troubleshooting tips if any errors are encountered.

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WARRANTY / CLAIM INFORMATION:

For vehicles within the Basic New Car Limited Warranty period or covered by an active Subaru Added Security Gold plan, this repair may be submitted using the following claim information:

Labor Description	Labor Operation #	Labor Time	Fail Code
DENSO CP1 CHECK ONLY	A031-178	0.2	ZTZ -48

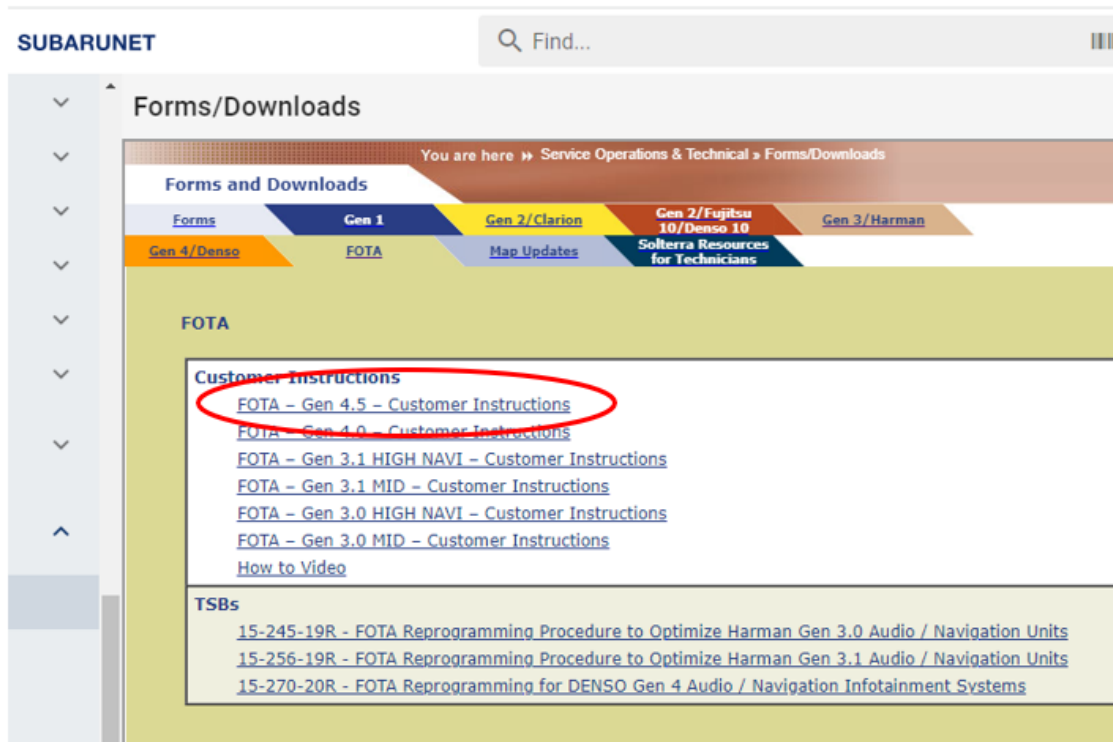
IMPORTANT REMINDERS:

- SOA strongly discourages the printing and/or local storage of service information as previously released information and electronic publications may be updated at any time.
- Always check for any open recalls or campaigns anytime a vehicle is in for servicing.
- Always refer to STIS for the latest service information before performing any repairs.

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Appendix A

Links to Customer self-install instructions for FOTA Customer Instructions will be added to the Subarunet Service Operations & Technical > Forms/Downloads page when they become available. Once the links are available and to enhance customer satisfaction, consider providing customers with a copy of the appropriate instructions for their specific system along with access to the retailer's secure customer Wi-Fi network. Doing so will enable customers to try performing the FOTA update on their own while at the retailer.



REMINDER: Retailers performing these updates are to follow the Service Procedures outlined in this bulletin ONLY. Always follow the applicable service procedures as outlined in this and other Service Bulletins. The additional steps and requirements supplied in Service Bulletins support a Subaru Technician's proper diagnosis and repair of any customer concern.

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Appendix B

How to set the correct time on the clock

Software Update availability notification only works, if the clock has been set accurately. Check if the time shown on the status bar is correct or not.



If the time is not correct, set the clock using procedure below.

<Models with navigation system>

- Confirm GPS signal is received. Vehicle position on the map should match its location. If necessary, drive the vehicle to assure good reception.
- Check if Clock set to “Auto”: Setting→”Clock”→”Time Setting”.
- Once the Navi receives the GPS signal the clock is adjusted automatically.
- If the GPS signal is not available, set the clock to “Manual Setting”.



<Models without navigation system>

- Select “Setting”→”Clock”→”Time Setting” and check if the setting is “AUTO”. In case the clock is not adjusted correctly, set the clock in “Manual” setting.



For more details, refer to the Owner`s Manual.

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Appendix C

The currently available FOTA software version is not the same version available to Retailers for USB updating use. However, the system which has been updated via the FOTA can be further updated using USB update. To clarify the differences, both the USB contents and FOTA contents are described together in the list below. USB update is including all items and those items included only in the USB (but not in the FOTA) updates are described as “USB ONLY”.

List of Conditions, Symptoms and improvements Addressed By this update

USB ONLY update method:



Please note any symptoms listed below would require USB update due to the limitations of FOTA update process.

Symptoms Addressed By Update		
No	Conditions/Symptoms to be improved	Update Method
1	CID goes black and does not accept any control.	USB ONLY

USB or FOTA update method:

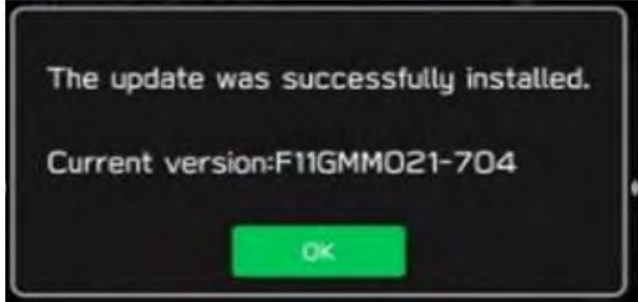






Symptoms Addressed By Update	
No	Conditions/Symptoms to be improved
1	CID reboots.
2	“Manage Devices” is grayed out and cannot establish Bluetooth connection.
3	When the Bluetooth connection is cancelled manually on the mobile phone side during hands-free calling, the Bluetooth connection is disabled for that particular mobile phone. Even when it occurs, the connection can be reestablished by deleting the device in “Manage Devices” and register the device again by adding operation.
4	Bluetooth connection fails against the device that was paired before and “Manage Devices” is grayed out.

Continued...



Symptoms Addressed By Update	
No	Conditions/Symptoms to be improved
5	<p>Bluetooth connection is disabled with a discrepancy in the display of status bar (showing Bluetooth devices being connected) and the “Manage Devices” screen (showing no Bluetooth devices being connected.)</p> 
6	Android Auto Wireless (AAW) cannot be connected.
7	Android Auto Wireless (AAW) cannot be started from “Manage Devices” Screen.
8	Sound volume control does not work while using Android Auto. It is caused by data communication error between Android device and CCU.
9	Cyclic short noise like a drilling or vibration is heard from speakers.
10	<p>Sound is lost when changed to Subchannel 2 right after a preset HD radio channel has been selected.</p> 
11	After the destination is set on Navi screen, voice recognition command of “Find <POI category> along route” is made, search results are not given in order of distance.
12	When “Call” button is pressed in “Confirm Destination” screen of Navigation system (to call the destination site,) the call can be made but the screen does not transit to phone call screen.

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Symptoms Addressed By Update


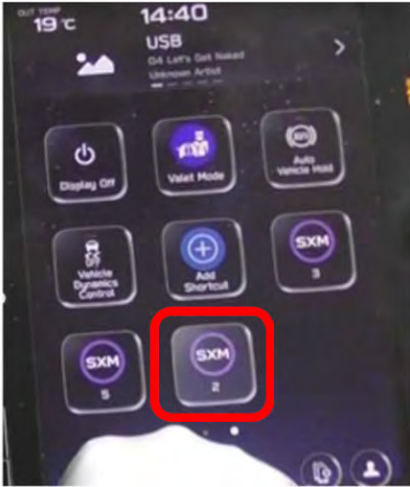
No	Conditions/Symptoms to be improved
13	<p>Popup of “The update was successfully installed” is not displayed after reboot (IG-OFF and ON) operation of FOTA (Firmware Over The Air) update.</p> <div style="text-align: center;">  </div>
14	<p>When tapping preset “Team Channel” on SMX, a popup of different game is displayed.</p>
15	<p>A wrong search location is used on TravelLink function. Example of the symptom.</p> <div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="text-align: center;">  <p>1. Tap “Current Location” on TravelLink-Fuel screen.</p> </div> <div style="text-align: center;">  <p>2. Select “Destination” as search location.</p> </div> <div style="text-align: center;">  <p>3. Gas stations near the destination are displayed.</p> </div> </div> <div style="margin: 10px 0;"> <p style="text-align: center;">Arrive destination or delete destination on Navi screen.</p> </div> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="text-align: center;">  <p>4. Tap “Current Location” on TravelLink-Fuel screen.</p> </div> <div style="text-align: center;">  <p>5. Select “Current Location” as search location</p> </div> <div style="text-align: center;">  <p>6. Gas stations near the previous destination (instead of current location) are still displayed.</p> </div> </div> </div>

Continued...

Symptoms Addressed By Update											
No	Conditions/Symptoms to be improved										
16	Music cannot be played sequentially when they are stored in different folders in a USB memory. The specifications are improved to enable music in different folders to be played sequentially.										
17	<p>“Repeat All” is added as one of the play modes.</p> <table border="1"> <thead> <tr> <th>New repeat mode</th> <th>Old repeat mode</th> </tr> </thead> <tbody> <tr> <td>“Repeat All”</td> <td>--</td> </tr> <tr> <td>“Repeat current album/folder”</td> <td>“Repeat current album/folder”</td> </tr> <tr> <td>“Repeat current track”</td> <td>“Repeat current track”</td> </tr> <tr> <td>“Cancel repeat”</td> <td>“Cancel repeat”</td> </tr> </tbody> </table>	New repeat mode	Old repeat mode	“Repeat All”	--	“Repeat current album/folder”	“Repeat current album/folder”	“Repeat current track”	“Repeat current track”	“Cancel repeat”	“Cancel repeat”
New repeat mode	Old repeat mode										
“Repeat All”	--										
“Repeat current album/folder”	“Repeat current album/folder”										
“Repeat current track”	“Repeat current track”										
“Cancel repeat”	“Cancel repeat”										
18	“Track-up/down” can be used across folders in “Repeat All” mode.										
19	<p>iPod/iPhone tab in Media screen cannot be selected, when connected by USB.</p> <p>The symptom occurs when the iPhone is connected to CP1.5 via Bluetooth in parallel to USB connection by error. (It is supposed to be connected either via Bluetooth or by USB.)</p> 										
20	<p>On the “Manage Devices” screen Bluetooth cannot be selected as connection preference.</p> 										

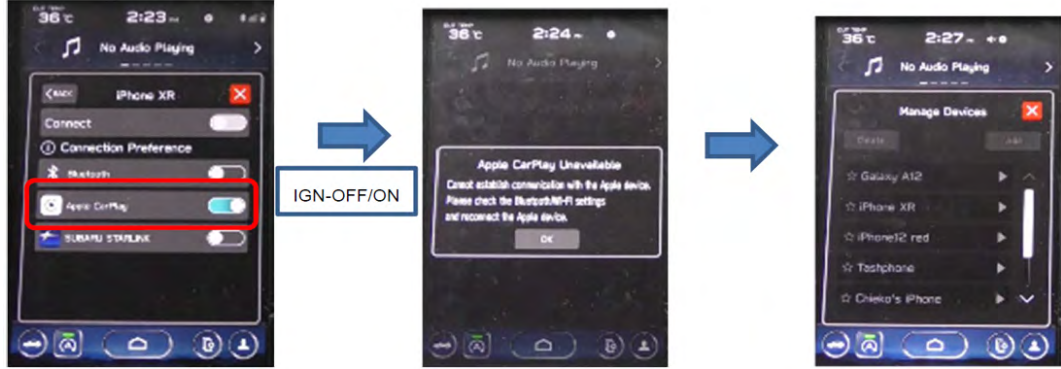
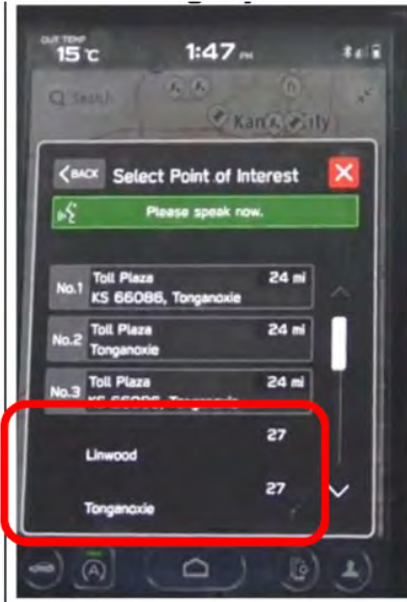
Continued...

Symptoms Addressed By Update

No	Conditions/Symptoms to be improved
21	<p>Status of Bluetooth on Manage Device screen is displayed as disconnect even though the Bluetooth Icon on top right of the screen is showing active.</p> 
22	<p>Cannot pair new Bluetooth device or cannot connect paired Bluetooth device. This symptom possibly occurs after repeating IG OFF/ON operation while still pairing operation.</p>
23	<p>Cannot pair Bluetooth device, when Bluetooth device has long name including symbols.</p>
24	<p>SXM station shortcut created by the customer does not work when the SXM has not been used as audio source after the Ignition Switch was turned on in the ignition cycle.</p> 

Continued...

Symptoms Addressed By Update

No	Conditions/Symptoms to be improved
25	<p>Manage Device Screen becomes dark and inoperative when Ignition Switch is turned Off and On while starting CarPlay by CID operation.</p> 
26	<p>Cannot connect to CarPlay via wireless connection. This symptom possibly occurs after the Ignition Switch was turned Off and On abruptly.</p>
27	<p>POI Search Result shows only city names and distances (without unit) when voice recognition POI search with Category name like “Find toll gate” is used.</p> 
28	<p>Navigation restarts itself, when the letters are rushly inputed or deleted using keyboard function to search destination.</p>

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Symptoms Addressed By Update

No	Conditions/Symptoms to be improved
29	<p>“Manage Route” button is not displayed when touching the route line on Navigation system, when the route search criteria got changed in the Route Preference Screen after a route had been searched.</p> <p>Tap the Navigation tab</p> <p>Change route search criteria in “Route Preference.”</p> <p>Manage Route button is not displayed</p>
30	<p>“Manage Route” button is not displayed and buttons on the Current Route Screen become unselectable (turns to grayish fill) when the Navigation system is operated in the sequence of “Manage Route” > “Avoid Blocked Road” (in the Current Route Screen) > “Back.”</p> <p>“Manage Route”</p> <p>“Avoid Blocked Road”</p> <p>“Back”</p> <p>Selection buttons turns to gray</p> <p>Manage Route button is not displayed</p>


Continued...

Symptoms Addressed By Update	
No	Conditions/Symptoms to be improved
31	After the FOTA is completed, the CCM does not send the confirmation data to the server even though it displays pop-up message of completion. The status is updated when the FOTA operation is made next time.
32	A pop-up message of “Connection Error” is displayed when the pop-up message of Service Appointment Scheduler Popup is displayed after the engine was turned on and the “Read Now” button is pressed immediately after that.

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Appendix D

TROUBLESHOOTING:

No.	Applicability	Case Scenario (Trouble)	Causes	Check Points
2-1	Step 2 (Downloading)	"In order to use the software update feature, a SUBARU STARLINK subscription is needed. Please visit MySubaru online for more information." is shown.	SUBARU STARLINK subscription is not confirmed	Please verify SUBARU STARLINK subscription status
2-2		"The software download failed." popup is shown while downloading.	An exception error due to hardware malfunction	Downloading will resume automatically 24hours later. If same error message again, please perform diagnostic of CCU or update CCU software via USB.
3-1	Step 3 (Installation)	"The software installation failed. An error occurred during installation. Please contact your retailer." popup is shown while installing.	An exception error due to hardware malfunction	Installation will resume automatically 24hours later. If same error message again, please perform diagnostic of CCU or update CCU software via USB.
3-2		"The software installation failed. An error occurred during installation. Please contact your retailer." popup is shown while installing.	An exception error due to hardware malfunction	Installation will resume automatically 24hours later. If same error message again, please perform diagnostic of CCU or update CCU software via USB.
3-3		Selected <Remind Me Later>, but next time IG ON 3.a.i screen is not displayed. 	DCM has lost connection to SUBARU server. After downloading was completed, DCM needs to connect with SUBARU server, before installing	Assure DCM has strong reception and reliable connection with the server, then turn ignition OFF and ON to repeat the test.