SUBARU.

QUALITY DRIVEN® SERVICE

SERVICE BULLETIN

APPLICABILITY:	2017-18MY Impreza 2018MY Crosstrek	NUMBER:	15-245-19R
		DATE:	07/31/19
SUBJECT:	FOTA (Firmware Over-The-Air) Reprogramming Procedure to Optimize Harman Gen 3 Audio / Navigation Units	REVISED:	09/03/19

INTRODUCTION:

This bulletin provides a new reprogramming procedure (FOTA) to optimize the Harman Gen 3 Audio and Navigation head units (H/U) utilized in the models as listed above. Firmware-over-the-air (FOTA) is a process by which remote devices can receive updates to their operating software. This process has become second nature with smartphones, tablets and many other connected devices. FOTA for automotive infotainments systems has been designed with a similar type of customer convenience in mind. FOTA updates are designed to provide regular enhancements along with some software patches to our infotainment systems improving the user experience for our customers. The convenience factor comes not only with the supply of regular updates and the enhancements they provide but also through customer control of when these updates are applied by allowing them the freedom to choose when these updates are downloaded and installed. All that is required is a secure WiFi connection such as through a home network or the use of a secure WiFi hotspot to create a connection to the update server and any customer can obtain and install an available FOTA update to their infotainment head unit. In this bulletin we are focusing on FOTA for Harman Gen 3.0 MID-level audio systems and Gen 3.0 HIGH audio-navigation systems. BASE models are not FOTA capable. This bulletin will describe in greater detail the process for how FOTA is accomplished as well as provide insights and some procedures for how to resolve conditions that may arise as a result of audio or audio/ navigation head unit swaps or replacements performed outside of the Harman/ United Radio exchange unit program. The procedure will involve:

- Assisting customers with FOTA related concerns if they have been unsuccessful in performing the FOTA by themselves. Possible vehicle or H/U concern.

- Performing the FOTA update for customers not comfortable or needing assistance with performing it themselves but have requested the Retailer install it.

- Updating the software using a USB flash drive following the steps outlined in TSB **15-211-17R**, "Reprogramming File Availability for Additional Optimization of Harman Gen 3 Audio and Navigation Head Units" when FOTA cannot be performed due to VIN/ head unit serial number mismatch.

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

NOTES:
- On the models listed, FOTA is available for MID and HIGH (Navi) H/Us only.
- The currently available FOTA software version is the same version available to Retailers for USB updating use.
- FOTA software updates are for the H/U software 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
- Currently this information applies to Impreza and Crosstrek only but, Legacy, Outback and BRZ applicability will be added very soon.
- On BRZ models, this update procedure is applicable to HIGH / Navigation (Navi) -equipped head units only.

SERVICE PROCEDURE / INFORMATION:

IMPORTANT:

When FOTA reprogramming cannot be performed and the head H/U is updated using a USB flash drive, capture and record the head unit's serial number. In these cases, the serial number is required to be entered in the Miscellaneous Detail field during claim submission. In addition, capture a photo of the serial number tag for reference in case there is any question about the serial number submitted.

NOTE: H/U R&R is necessary to access the Serial Number label.

The head unit software may be updated:

The update process involves downloading and installing the software update therefore, time duration depends on signal strength and transfer rate performance. During installation, H/U functionality will be restricted.

NOTE: Although the following Flow Chart provides an overview of the Service Procedure, it is VERY IMPORTANT to read and understand ALL the information contained in this bulletin completely before proceeding.

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Flow Chart:

```
Customer presents with a concern of FOTA
update cannot be completed or, requests a
head unit software update.
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Has the customer attempted a FOTA update?

NO →

Check the current software version ID. Access the System information setting from the General Settings menu. Is the software up to date?

YES →

YES ↓

Did the customer receive "Your device's software is up to date" message when they attempted to perform the FOTA update?

YES →

NO ↓ (from "Check the current software...")

Attempt FOTA update to confirm condition. If FOTA fails, update the head unit via USB. Confirm system function then R&R the head unit and record the head unit serial number. Take a photo of the serial number as back-up in case questions arise with the claim. Submit claim for FOTA attempt, USB update and R&R for serial number documentation.

NO ↓

Access the system information Setting from the General Setting menu. Is the software up to date?

NO →

YES ↓

Software was updated successfully at some point either through FOTA, MOTA, or prior USB update at retailer. Confirm the vehicle history to determine how this was accomplished. If via MOTA or USB, R&R the head unit and record the serial number to ensure customer receives future updates via FOTA. Take a photo of the serial number as additional documentation. Submit claim for R&R and serial number documentation only. If update was completed by FOTA, no additional action is necessary

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AFFECTED VEHICLES / AUDIO UNITS:

Vehicle Model	Audio Unit Type (High, Mid, Base)	Audio Unit Part Number
2017-18MY Impreza & 2018MY Crosstrek	NAVIGATION (HIGH)	86271FL60A
	8-Inch Display Audio (MID)	86201FL62A
		86201FL63A
2018MY Legacy / Outback	NAVIGATION (HIGH)	86471AL65A
		86471AL66A
	8-Inch Display Audio (MID)	86431AL65A
		86431AL66A
2018MY BRZ	NAVIGATION (HIGH ONLY)	86271CA670

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.

- Unplug any devices, chargers, cables or other USB drives from the vehicle's USB and power ports.

Step 1: Check the Current Software Version Number

1-1) Turn the engine ON. When the H/U powers on, press "I Agree".
Once audio start-up completes, press the HOME button and select "Settings".

1-2) From the General screen, select "System Information" to check current software version. (The pictures below are for illustration only and do not show the latest software version information.)
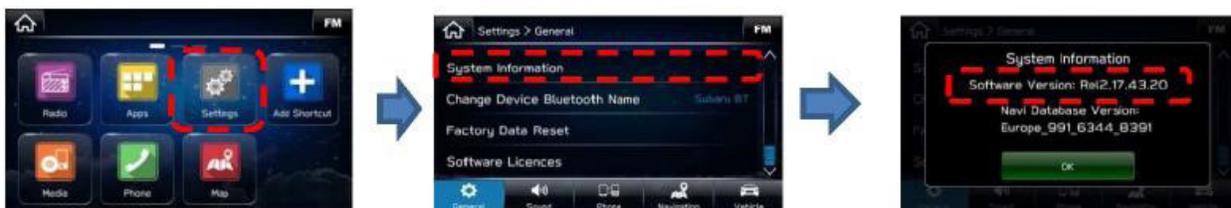
- If the current software version is **Rel_A1.19.12.20** or **Rel_A1.19.17.20 STOP** as the head unit has the latest version installed and no further action is needed.

IMPORTANT NOTE:
The Head Unit software version must be **Rel_U0.18.22.20** or higher to be compatible with FOTA.
See **Appendix A** at end of this bulletin for a list of prior software release versions for reference.

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- Versions other than those listed above do not support FOTA. Update the software using the USB flash drive method outlined in TSB **15-211-17R**, recall/ campaigns **WTN-74R, WTZ-85R, or WUA-86R**.
- Confirm the vehicle history to see if any H/U replacement has occurred in the past. If a new H/U was installed (part number listed in claim information) or if the H/U was swapped from another vehicle at any time, the H/U serial number must be captured and entered in a claim submission to ensure compatibility for future FOTA updates. **REMINDER:** H/U R&R is necessary to access the Serial Number label. See the H/U serial number sample photos presented on page 11 for reference.

Step 2: Required Preparation before Initiating the FOTA Update

NOTE: As part of this software update, the H/U will delete all the customer's radio station presets and change the volume settings to a default volume level. **NOTE:** If the radio volume is turned down during the update process, the volume may seem suddenly very loud once the update completes. This is normal operation. Always note the customer's radio station presets and volume settings and be sure to reset them after updating is completed.

TIP: Taking photos of the screens may be easier than writing down the contents of each.

2-1)   Record all the preset stations saved by the customer.

 2-1-1) Confirm the driver profile (example shows "Default" as driver profile).
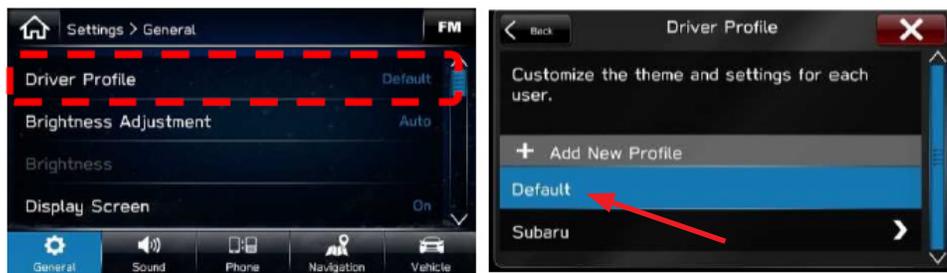
 2-1-2) Go to the Radio screen.

 2-1-3) Record the saved preset stations (SXM, AM, and FM) (example shows #1: FM87.7 #2: FM92.7...).
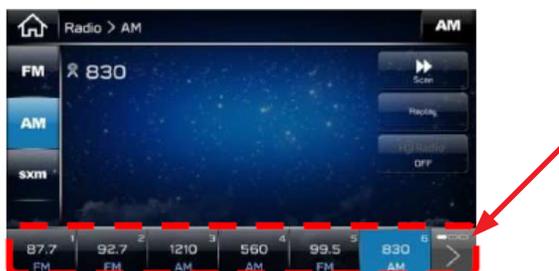
NOTE: Make sure to check the next screen by scrolling (pressing the right arrow > button).

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2-1-4) Change to next driver profile and repeat the actions above as necessary. (Example photo below shows other driver profiles. Be sure to note all the preset stations for each driver profile.)

2-1-5) Select the first driver profile again.

2-2) Record the volume settings for each driver using the following steps:

2-2-1) From the Settings > Sound screen, press the "Sound" button.

2-1-2) Record each volume setting for: Entertainment Volume, AUX Volume Gain, Microphone Volume, and Navigation Volume.
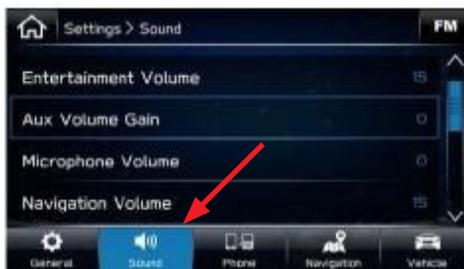
Step 3: FOTA Reprogramming Procedure

1: Procedure for performing FOTA using Smartphone as WiFi hotspot and cellular network (3G, 4G):

IMPORTANT: The H/U clock **must** be set correctly in order to check for any available FOTA updates.

Navi/Radio internal clock settings:
Set the clock via GPS signal (Navi -equipped models only) or by smartphone using one of the following procedures, **1.1** or **1.2**:

NOTE: Once the clock is set, it never resets unless the vehicle battery power supply is interrupted as a result of a discharged or disconnected battery. For Navi -equipped models (only), proceed to **Step 1.1.** For all others proceed to **Step 1.2**. If the head unit displays the time correctly, proceed ahead to **Step 1.4**.

1.1) Setting the clock via GPS signal (Navi -equipped models only):

<mark>**NOTE:** The H/U clock **must** be set correctly in order to check for any available FOTA updates. Always confirm the Clock Adjustment mode is set to Auto.</mark>

1.1.1) Check current vehicle position on the map screen. If position is correct, the Navi will receive clock information correctly. Proceed to Step 1.3.5. If position is not correct, please go to Step 1.3.1.b.

1.1.2) Move the vehicle to a location where the Navi can receive a strong GPS signal. (e.g. outside with a clear view of the sky). If the vehicle position shown is correct, Navi should be receiving and displaying clock information correctly. Proceed to Step 1.3.5.

1.2) Setting the clock using any smartphone (Phone MUST be paired to the H/U.):

Bluetooth Pairing Procedure (Follow this procedure if the phone is not already paired to H/U.):

<mark>**REMINDER:** The H/U clock must be set correctly in order to check for any available FOTA updates. Always confirm the Clock Adjustment mode is set to Auto.</mark>

1.2.1) Select Phone on Home screen.

1.2.2) Select Yes on "No Device Connected" pop-up.

NOTE: If H/U display does not show the pop-up, please select "Add device" from the Phone Overview.

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1.2.3) While the H/U displays the "waiting" screen shown below, operate the smartphone screens and select "Subaru BT" from the discoverable device list.

*If the device name is changed on setting screen (Settings > General > Change Device Bluetooth Name), please select the proper device name.

1.2.4) Confirm the same PIN code is shown on the smartphone then select "Confirm".

1.2.5) Select "Pair" on the smartphone screen.

1.3) Transfer phonebook Procedure:
1.3.1) On the "Change Device" screen, identify the most recently paired device (iPhone is shown here).
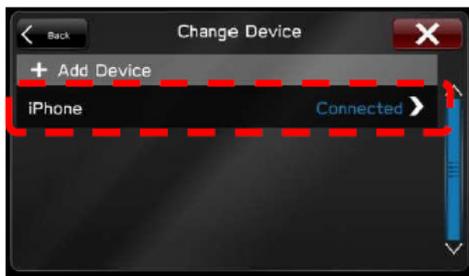
1.3.2) Select the desired smartphone device.

1.3.3) Turn "Phonebook Download" on.
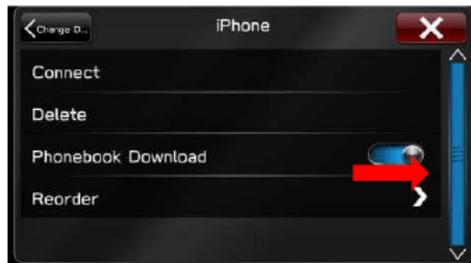
1.3.4) Operate the smartphone screen buttons to allow phonebook transferring.

1.3.5) Check Bluetooth setting of "Subaru BT" on the smartphone. Confirm "Sync Contacts" and "Show Notifications" are both set to ON.

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NOTE: Depending on the model (e.g. iOS or Android), these settings may need to be changed. Refer to the specific smartphone's User Manual for more detailed information / instructions.

1.3.6) Restart the H/U:
Press and hold the Power button for 10 seconds or, turn the ignition OFF, open and close the driver's door then restart the engine.

iOS setting display

Android setting display
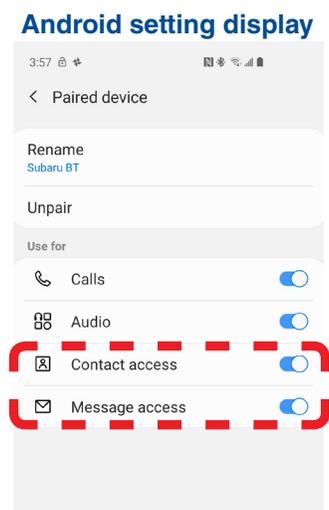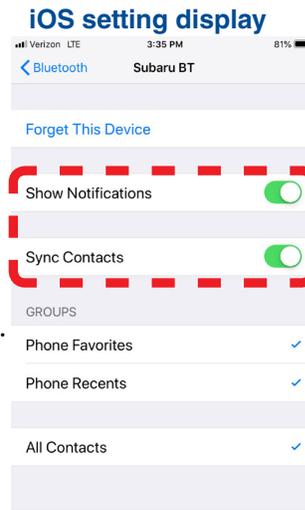
1.3.7) Confirm both the Phonebook and Messages buttons on the display are highlighted (activated) as shown below.

1.4 Connect to Network:

The following procedure outlines how to connect to a smartphone hot spot as a secure Wi-Fi network. If the H/U is already connected to a secure Wi-Fi network, proceed to **Step 1.5**.

1.4.1) Prepare a Wi-Fi router device:

NOTE: Depending on the model (e.g. iOS or Android), these settings may need to be changed. Refer to the specific smartphone's User Manual for more detailed information / instructions.

iOS setting display

Android setting display

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1.4.2) Select "Settings" from the H/U Home screen.

1.4.3) Make sure "Wi-Fi" is displayed on the General menu.

1.4.4) Select the desired Wi-Fi device from the "Wi-Fi Settings" list.

1.4.5) Confirm a secure WiFi connection has been established. The H/U display will show a Wi-Fi icon on top bar.

1.5) Check for Available Update:

1.5.1) Press the Home button on the H/U and select "Settings" from the Home screen.

1.5.2) Select "Check for Updates" from the General menu.
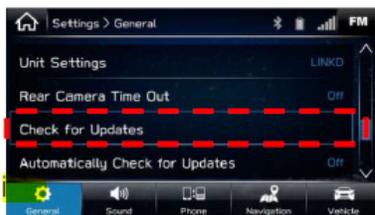
NOTE: This button is grayed-out during H/U initialization. It usually takes about 1 minute for it to become active. If "Check for Updates" remains grayed out, try re-booting the H/U by pushing and holding the volume knob for 10 seconds or, turning OFF the ignition, opening the driver's door, and waiting for 2 minutes.

1.5.3) If the screen displays a "Software Update Ready to Download" pop-up, select "Download Now" to update the H/U software. (Picture below is for illustration only and does not show the latest software version.)
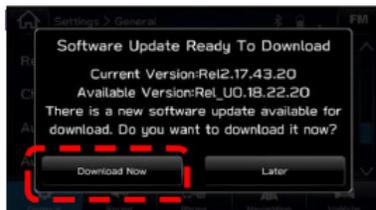
Proceed to **Step 1.6**.

1.5.4) If the H/U screen shows the "Connect to Wi-Fi" pop-up, try re-connecting to the network again as outlined in **Step 1.4** above.

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1.5.5) If the H/U screen shows "Your device's software is up to date." and confirmed as outlined in Step 1: "Check current software version", no further action is required. The head unit software is current.

IMPORTANT: If the H/U software cannot be updated using FOTA, update the H/U following the USB flash drive procedure outlined in TSB **15-211-17R**. In such a case, a VIN/ H/U Serial Number mismatch may exist. If this occurs, the H/U must be removed and the serial number recorded as shown below. In these cases, the COMPLETE 28-digit serial number is required to be entered in the Miscellaneous Detail field during claim submission (no spaces or special characters). Also, capture a photo of the serial number label for reference in case any question arises about the serial number submitted. Examples of the serial number label are shown below.

VERY IMPORTANT: Always record **all 4** "segments" of the 28-digit H/U Serial Number. Take and retain a photo of this small label in case it is needed in the future for confirmation.

H/U Serial Number Identification
① ② ③ ④
N0030A0000 2909332 DJ2036 70080

START

EXAMPLE

1.5.6) If the H/U display shows "Software download failed. Do you want to retry?", there is possibility the H/U is not receiving the clock information correctly.

1.5.7) Move the vehicle to a location where the Navi can receive GPS signal or connect to a smartphone via Bluetooth. Ensure that transferring of phonebook data has been approved on the phone. (To review clock setting procedures, refer to Step 1 above.)

1.6) Software Update:

NOTE: Initially, it may appear that no action is occurring.

THIS IS NORMAL. Wait **at least 2 minutes** for progress percentage to appear in the upper right of the H/U screen before attempting to restart the process.
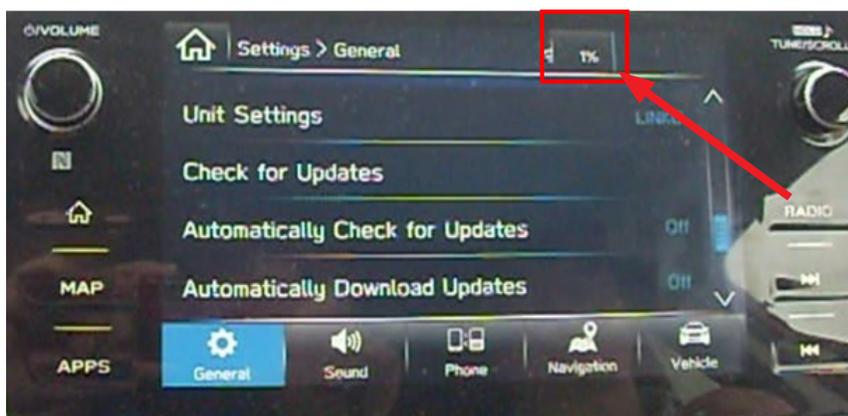
1.6.1) Wait until the download progress reaches 100%. During the software download, the H/U is fully functional. **NOTE:** It is normal for the progress to hang at some points for 1-2 minutes. This does not indicate a concern. **BE PATIENT**.

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NOTE: When downloading via Wi-Fi, it may take anywhere from 5 to 20 minutes for the update to complete depending on the provider transfer rate signal strength.

1.6.2) The image below shows the pop-up window which will appear once the download completes and the update is ready to install.

1.6.3) Select "Install Now" to start the update installation.

NOTE: If "Cancel" is selected, it will be necessary to download the update file again before installation can be attempted.

1.6.4) **Stay with the vehicle** until the install has completed.
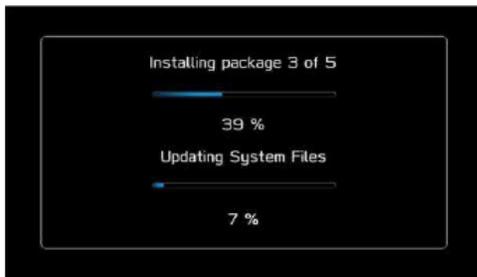
NOTE: It will take approximately 10 minutes to complete the update installation.

1.6.5) The H/U will automatically shut down and restart after the installation completes.

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NOTES:

- The next step of update will be different depending on the software version installed prior to FOTA.

- Depending upon the installation required, the H/U may repeatedly shut down and restart up to 3 times. The screen shown below does not indicate an unsuccessful or failed installation.

1.6.6) Wait until all the H/U restarts complete and the Home screen is displayed again.

NOTE: The volume will go to default level suddenly even if the volume was previously turned down during or prior to the update. This is normal operation.

NOTE: Station presets will display as "Initializing" until the data is fully loaded for SXM stations. In case of FM and AM presets, the text will change from "Initializing" to "Hold". To reset each preset, tune to the desired station then press and hold the corresponding preset button until the "beep" is heard to signal the reset was successful.

1.6.7) If the Home screen does not appear automatically, press the Home button to display the Home screen.

1.6.8) Perform **Step 1** again to check the currently installed software version and confirm a successful update / installation. The new version ID should be: **Rel_A1.19.12.20**.

1.6.9) Using the notes or photos collected at the start of this process in **Step** 2, reset all the customer's preset stations and volume settings.

1.6.10) Go to the Home screen.

1.6.11) Turn the engine off and open the driver's door to turn the H/U off and complete the procedure.

If the software version does not match the one shown in Step 1.6.8, attempt the update process a second time. If after a second attempt the update still has not completed successfully, update the head unit software with USB flash drive following the steps outlined in TSB **15-211-17R**.

IMPORTANT REMINDER: If the H/U software cannot be updated using FOTA, update the H/U following the USB flash drive procedure outlined in TSB **15-211-17R**. In such a case, a VIN / H/U serial number mismatch may exist. The H/U must be removed, and the serial number recorded. In these cases, the serial number is required to be entered in the Miscellaneous Detail field during claim submission. In addition, capture a photo of the serial number tag for reference in case there is any question about the serial number submitted. See the H/U serial number sample photos presented on page 11 as reference.

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2: FOTA Procedure Using Head Unit Connected to Secure Wi-Fi (Home Network or Hotspot Device):

NOTE: The H/U clock **must** be set correctly in order to check for available FOTA updates.

2.1) If necessary, set the clock via GPS signal (Navi -equipped models only) or by smartphone following steps from **1.1** or **1.2** above: **"Navi/Radio internal clock settings"**.

2.2) Connect to the network.

2.3) Select "Settings" from H/U Home screen.

2.4) Make sure the "Wi-Fi" is displayed on the Settings > General screen.

2.5) Select the desired Wi-Fi device from the "Wi-Fi Settings" list.

2.6) Select "Connect" and input the password of the Wi-Fi device to be used. When a connection is established, the screen will display a Wi-Fi icon on top bar.

2.7) Perform **Check for Available Update**: (same as **1.5** above).

2.8) Perform **Software Update**: (same as **1.6** above).

2.9) Re-check Software version (same as **Step 1** above) after update installation is complete.

2.10) Using the notes or photos collected at the start of this process in **Step 2**, reset the customer's preset stations and volume settings.

2.11) Go to Home screen.

2.12) Turn the engine off and open the driver's door to turn the H/U off and complete the procedure.

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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
S/WARE VERSION CHECK, LATEST VERSION ALREADY INSTALLED, UPDATE SUCCESSFUL BY FOTA	A031-271	0.3	ZTA-48
S/WARE VERSION CHECK, LATEST VERSION ALREADY INSTALLED, UPDATE DONE BY MOTA* OR USB, R&R H/U, RECORD SERIAL #	A031-272	0.7	
S/WARE VERSION CHECK, S/WARE UPDATE REQUIRED, UPDATE SUCCESSFUL BY FOTA	A031-278	0.4	
S/WARE VERSION CHECK, S/WARE UPDATE REQUIRED, FOTA UPDATE FAILS, UPDATE VIA USB, R&R H/U, RECORD SERIAL #	A031-288	1.3	

MOTA: Map Over The Air Update (H/U software updates are bundled with MOTA map updates.)

REMINDER: The COMPLETE 28-digit serial number is required to be entered in the Miscellaneous Detail field during claim submission (no spaces or special characters).

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

Harman 3.0 Software / Map Update Chronology

Release Date:	NEW H/U Version ID #:	Map Update Software ID #
2/24/2017	Rel1.17.08.20	n/a
6/13/2017	Rel.2.17.22.20	n/a
12/19/2017	Rel.2.17.43.20 (or .30)	n/a
7/25/2018	Rel_U0.18.22.20	Rel_U0.18.30.20**
1/3/2019	Rel_U0.18.43.20	n/a
6/25/2019	Rel_A1.19.12.20	Rel_A1.19.17.20**

** **NOTE:** These Map Update Software I.D. numbers contain the same functional updates as the corresponding New H/U Version I.D. numbers.