

# Technical Service Bulletin



## 91 MMI3G+ Navigation GPS location is inaccurate (MY13 only)

91 14 59 2036607/2 September 5, 2014. Supersedes Technical Service Bulletin Group 91 number 14-42 dated April 30, 2014 for reasons listed below.

Model(s)	Year	VIN Range	Vehicle-Specific Equipment
Audi A4	2013	All	MMI3G+ with Navigation
Audi A5	2013	All	MMI3G+ with Navigation
Audi A5 CAB	2013	All	MMI3G+ with Navigation
Audi Q5	2013	All	MMI3G+ with Navigation
Audi Q7	2013	All	MMI3G+ with Navigation
Audi A6/A7	2013	All	MMI3G+ with Navigation

## Condition

REVISION HISTORY		
Revision	Date	Purpose
2	-	Revised header data (Removed A8) Revised <i>Service</i> (Added instructions to perform TSB 2037756)
1	4/30/2014	Initial publication

- The GPS location or vehicle direction indicated on the navigation map does not match the actual vehicle's location or actual direction of travel.
- The condition can happen sporadically or consistently.
- The condition does not happen during or immediately following the initial PDI inspection (once the vehicle has been taken out of transport mode). It is normal for the satellite reception to be 0 immediately after taking the vehicle out of transport mode. With the ignition off, the vehicle must sit in open sky view for 10-15 minutes before a GPS fix can be obtained.
- The vehicle is a Model Year 2013.

## Technical Background

The MMI navigation unit uses internal sensors in the main unit and vehicle sensor data to determine the direction and movement of the vehicle. The GPS system provides supplementary position data upon vehicle start-up, when the vehicle has been off for less than four hours. If the vehicle has been off for more than four hours, a more accurate GPS 3D fix is required, as the previous GPS data is not used and has been thrown out. The GPS 3D fix is obtained when the system acquires four or more satellites. In areas with limited sky view or with tall obstructions, the system can take an extended amount of time to acquire four satellites, or may not be able to acquire the satellites at all until the vehicle is driven into an open sky view area.

### Normal challenging conditions

- If the condition is consistent, and the MMI navigation system is only able to acquire a maximum of three satellites, it is because the MMI navigation system is unable to obtain a 3D fix due to large buildings or other obstructions reflecting or blocking the GPS signals. This condition is normal and this TSB does not apply.
- If the condition only occurs when the vehicle is being driven out of a parking structure or parking garage, or when the vehicle is driven in a metro area with a number of tall buildings, it is because these areas have bad satellite reception. In these cases, it may take up to ten minutes or longer for the MMI navigation system to obtain a GPS 3D fix. This condition is normal and this TSB does not apply.

### Consistent or sporadic no satellite reception condition without obstructions

- If the MMI navigation system cannot acquire any satellites (system shows 0 satellites) at the time of service, and the vehicle has been in unobstructed sky view for at least five minutes, a software or hardware solution may be available as explained in the *Service* section of this bulletin.
- If the MMI navigation system is able to acquire four or more satellites at the time of service (condition cannot be recreated), and the customer explains that the issue only happens sporadically when there are no obstructions (open sky, no tall buildings), a software or hardware solution may be available as explained in the *Service* section of this bulletin.

## Production Solution

Implemented production solutions:

- Software change to ZUG K0715 improves GPS receiver firmware.
- Hardware change in MY14 improves GPS receiver clock hardware.

Pending production solution:

- Hardware change in MY15 to remove the HVAC blower effect on the GPS satellite reception. This change has not been implemented in production nor has it been implemented in any service parts.

## Service

Before proceeding, ensure that one of the following conditions applies with the car outside in clear view of the sky:

- The MMI navigation system consistently shows 0 satellites.

- Sporadically, the vehicle's GPS location is lost when the vehicle is driven where there are no obstructions (open sky, no tall buildings) that would interfere with satellite reception.

1. Turn the HVAC system blower off.
2. Verify that the MMI navigation system consistently shows 0 satellites (Figure 1) with the car outside in clear view of the sky.

To check:

- First, open the Navigation map screen and select **Route** (top-left soft-key).
- Next, scroll up to the top of the screen and select the current location.
- Finally, scroll up to the top of the screen to see the satellite reception.

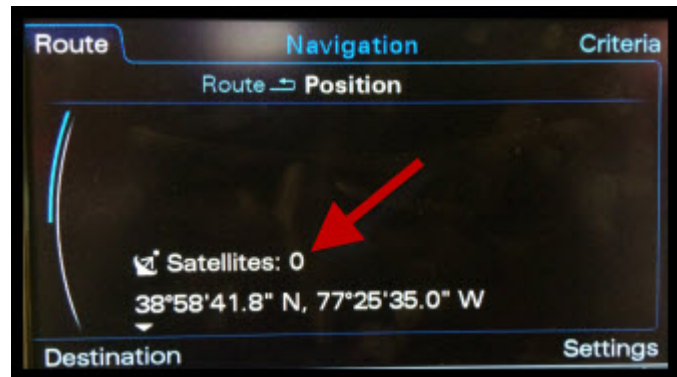


Figure 1. Zero satellite reception in MMI.

3. MMI main unit GPS hardware reset:
  - **If the system shows 0 satellites:** Reset the GPS hardware in the MMI main unit before proceeding to step 4. To reset the hardware, turn the ignition off and disconnect the quad lock connector from the back of the main unit for one minute.
  - **If the system shows one or more satellites and the Navigation map shows the correct location:** proceed to step 4.
4. Perform the ZUG K0715 software update as outlined in TSB 2030465, *91 MMI 3G+ Sound system "popping" and various other technical Issues (K0715 Update)*.
5. After the update is complete, verify that all systems show "OK". If "NOK" is displayed, the update was not completed successfully and it should be performed again (starting with step 3) until it is successful.

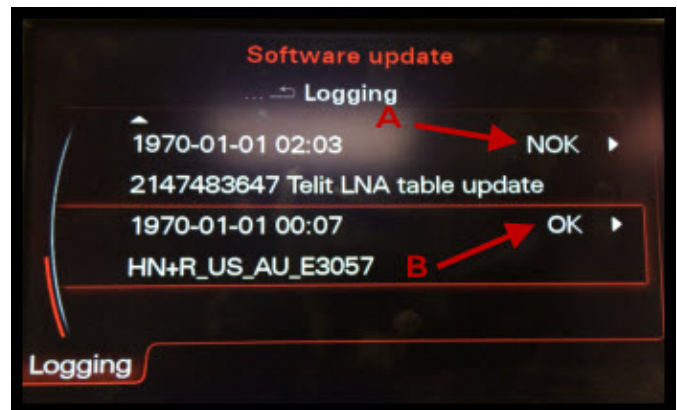


Figure 2. Update not completed successfully (A); Update completed successfully (B).

6. After the update is completed successfully, leave the vehicle in the shop for at least five minutes with 0 satellite reception and the HVAC system or blower off. (It may be necessary to cover the antenna with a stainless steel object -- first cover the antenna with a blanket or other non-scratching material, then place the stainless steel object over it.) Keep the satellite reception screen (Figure 1) displayed in the MMI.

Disconnect the GPS antenna from the back of the MMI main unit (Blue FAKRA connection). Leave the main unit loose so that the antenna can be reconnected during the next step. Cover the MMI control panel, climate control, and shifter areas to protect them from scratching during this process.

7. After five minutes, remove the cover from the antenna. With the HVAC system or blower off, drive the vehicle in multiple circles in the parking lot in order to confuse the MMI system's internal sensors.

Then, after a few minutes, keeping the HVAC blower off, reconnect the GPS antenna to the back of the MMI main unit, drive a short route on the main roads and confirm that the system is able to correctly track the vehicle's location on the map. Additionally, make note of how many satellites come online and how quickly they are received (for example, four satellites in three minutes). If the driving route is located in a large metro area with a number of tall buildings, verify that the system shows at least one satellite:

- If the system does not show any satellites, proceed to the *System does not show any satellites* section, below.
- If the system shows four or more satellites when there are no obstructions (open sky, no tall buildings), or if it shows at least one satellite in an area where there are obstructions, proceed to the *System shows satellites* section, below.

## System does not show any satellites

1. Perform TSB 2037756, *91 GPS reception complaints: Troubleshooting connector issues*. Verify that there are no coax or antenna issues before replacing any hardware.
2. If the system does not show any satellites after step 1, and there are no cable, connector, or antenna issues, replace the MMI main unit with a MY14 main unit as indicated in ETKA. Do not use the recommended MY13 hardware part number because the hardware improvement is only available in the MY14 hardware.  
If the vehicle already has the MY14 main unit hardware, and the system shows 0 satellites with the HVAC system blower off, contact TAC.
3. Use the ODIS GFF replacement test plan for the 5F-MMI Main Unit to code and parameterize the new control unit. If the SVM server responds with the message "Check Hardware" for the 5F-MMI Main unit, contact TAC.

## System shows satellites

1. Turn the HVAC Blower on and direct the airflow to the panel vents. Verify if the satellite reception drops to 0 satellite reception. If the customer has MY13 or MY14 software and the issue only happens when the HVAC blower is on with the airflow directed out of the panel vents:
  - Submit the VIN to the PSS system under 2035919 *'PSS 91 MMI 3G+ GPS inaccurate*. Explain to the customer that having the HVAC blower on medium or high while directed out of the panel vents can affect the system's ability to obtain a solid GPS 3D fix at initial vehicle startup. It is a known hardware issue for which a solution has been identified, but the service parts have not received the solution. Explain to the customer the known issue with the HVAC blower (see Customer Information section below).

If the HVAC blower does not affect the GPS satellite reception:

- The system is operating to specification and all necessary repairs are complete.

## Customer Information for known HVAC blower condition

- The known HVAC blower issue can affect any MY13, MY14, or early MY15 MMI main unit.
- This condition occurs when the vehicle is first started up and the HVAC blower ramps to medium or high with the airflow directed out of the panel vents. The blower ramp causes a disruptive airflow causing the MMI Main unit to lose all GPS reception.
- A condition of incorrect GPS location in the MMI navigation map screen can happen sporadically for the customer based on the HVAC blower requirements at initial vehicle startup. Once the vehicle has a correct GPS location in the Navigation map, the medium or high blower will rarely affect the MMI's ability to track the vehicle, but it is still possible that a slight difference in the actual vehicle location versus the location shown in the MMI navigation map can occur.
- Manually lowering the blower until the MMI shows a valid GPS location can help limit the condition for the customer. This is typically only needed for the first five to ten minutes after starting up the vehicle. This allows the MMI to obtain a GPS 3D-fix.
- A solution has been identified and is being implemented in production and service hardware.
- Please explain the Pending Service Solution system to the customer. The servicing dealer will be notified immediately once a service solution has been made available for the customer.

# Technical Service Bulletin



## Warranty

<b>Claim Type:</b>	Use applicable claim type. If vehicle is outside any warranty, this Technical Service Bulletin is informational only.		
<b>Service Number:</b>	9196		
<b>Damage Code:</b>	0040		
<b>Labor Operations:</b>	<b>Use when MMI software update fixes the condition</b>		
	Verify condition	9196 9999	20 TU
	ECM information display control head remove+reinstall	9196 19XX	See ElsaPro
	Code HD radio (If necessary)	9130 2599	20 TU
	Update MMI software and perform SVM	9196 2599	120 TU
	Repeat update (If necessary due to failure)	9196 2599	60 TU for each repeat
	Extended road test before and after repair	9196 9999	40 TU Max
	<b>Use when MY14 MMI main unit hardware fixes the condition</b>		
	Verify condition	9196 9999	20 TU
	ECM information display control head remove+reinstall	9196 19XX	See ElsaPro
	Code HD radio (If necessary)	9130 2599	20 TU
	Update MMI software and perform SVM	9196 2599	120 TU
	Repeat update (If necessary due to failure)	9196 2599	60 TU for each repeat
	Extended road test before and after repair	9196 9999	40 TU Max
	ECM information display control head replace	9196 55XX	See ElsaPro
	<b>Use when MY14 MMI main unit is already installed with latest software, and only the HVAC blower is found to be the cause of no satellite reception</b>		
	Verify condition	9196 9999	10 TU

# Technical Service Bulletin



	Extended road test	9196 9999	20 TU Max
<b>Diagnostic Time:</b>	GFF	0150 0000	Time stated on diagnostic protocol (Max 60 TU)
	Road test prior to service procedure	0121 0002	10 TU
	Road test after service procedure	0121 0004	10 TU
	Technical diagnosis at dealer's discretion (Refer to Section 2.2.1.2 and Audi Warranty Online for DADP allowance details)		
<b>Claim Comment:</b>	As per TSB #2036607/2		

All warranty claims submitted for payment must be in accordance with the *Audi Warranty Policies and Procedures Manual*. Claims are subject to review or audit by Audi Warranty.

## Required Parts and Tools

Part Number	Part Description	Quantity
See ETKA	Control unit for information electronics 'MMI 3G+'	1

## Additional Information

The following Technical Service Bulletin(s) will be necessary to complete this procedure:

- TSB 2030465: *91 MMI 3G+ Sound system "popping" and various other technical Issues (K0715 Update)*
- TSB 2037756: *91 GPS reception complaints: Troubleshooting connector issues.*
- TSB 2035919: *PSS 91 MMI 3G+ GPS inaccurate*

All parts and service references provided in this TSB (2036607) are subject to change and/or removal. Always check with your Parts Department and service manuals for the latest information.