



HYUNDAI Technical Service Bulletin

GROUP Body Electrical	NUMBER 17-BE-012
DATE NOVEMBER, 2017	MODEL(S) SANTA FE (NC)

SUBJECT: SANTA FE AROUND VIEW MODULE (AVM) CALIBRATION

★ IMPORTANT

Use this information bulletin to calibrate the Around View Module (AVM) after repairs.

Description: This bulletin describes the procedure to calibrate the Around View Module (AVM) on 2017 and newer Santa Fe (NC) vehicles.



Applicable Vehicles: All 2017MY and newer Santa Fe (NC) vehicles

Parts Information:

PART NAME	PART NUMBER	IMAGE	REMARK
AVM Kit with A-Type Adapter	• G0GHDN0001		Kit Containing: <ul style="list-style-type: none"> • Reference Lines • Reference Scale • Reference Targets • AVM Image Capture Module
<ul style="list-style-type: none"> • GDS-Mobile Complete Kit • GDS-Mobile Lite Kit (includes VCI II Module) 	<ul style="list-style-type: none"> • GDSM-CPKITH • GDSM-LTKITH 		Kit Containing: <ul style="list-style-type: none"> • Tablet with GDS-M • Scan tool (VCI II) • Micro to USB-F: "OTG Cable"
PART NAME	PART NUMBER	IMAGE	REMARK

Circulate To: General Manager, Service Manager, Parts Manager, Warranty Manager, Service Advisors, Technicians, Body Shop Manager, Fleet Repair

<ul style="list-style-type: none"> • MCS-AVM Compatibility Kit 	<ul style="list-style-type: none"> • GDSM-MCCKT 		<p>Kit Containing:</p> <ul style="list-style-type: none"> • Belkin 4-port USB 3.0 HUB • 12-volt adapter
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NOTE 1: AVM and GDS Mobile Kits have been sent to each dealership. Additional kits can be purchased through Bosch (1-866-539-4248).

NOTE 2: MCS-AVM Compatibility Kit can be purchased directly through GIT (1-800-437-0308).

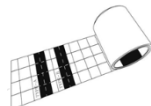
WARRANTY INFORMATION: Normal warranty applies where applicable.

Service Procedure:

1. AVM Calibration Preparation:

In an open area with a level floor, lay out the:

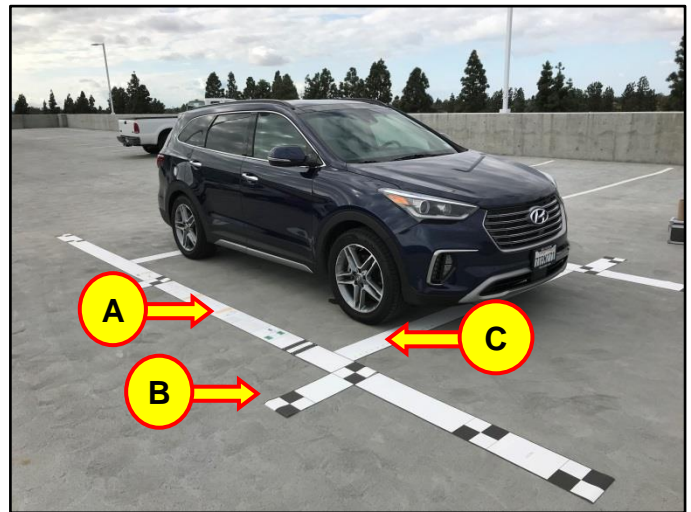
1. Reference Lines (A)



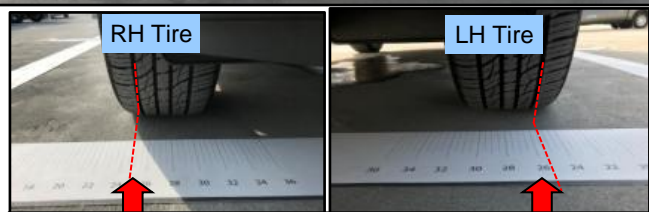
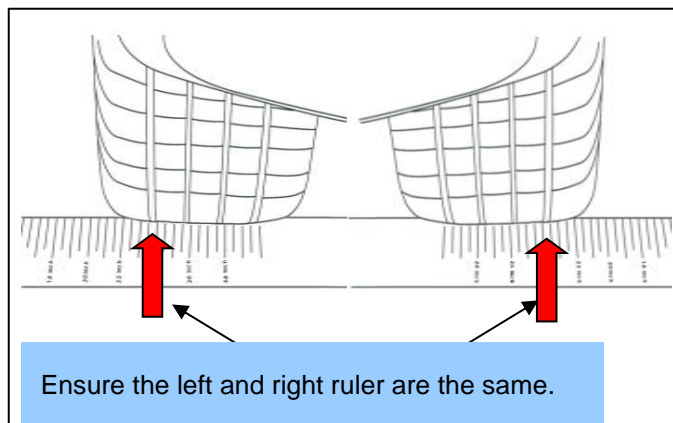
2. Reference Targets (B)



3. Reference Scale (C)

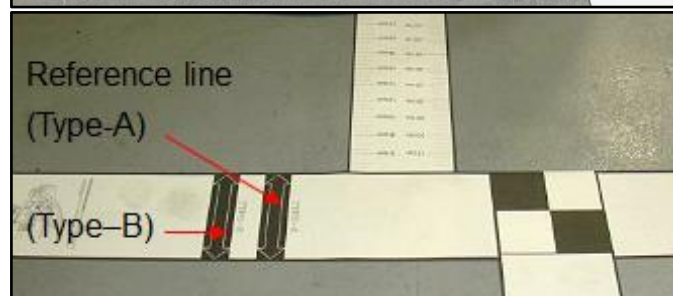


- 2. Set the central point of the vehicle by adjusting the compensation ruler to the left or right, so that the ruler values under both tires are identical.

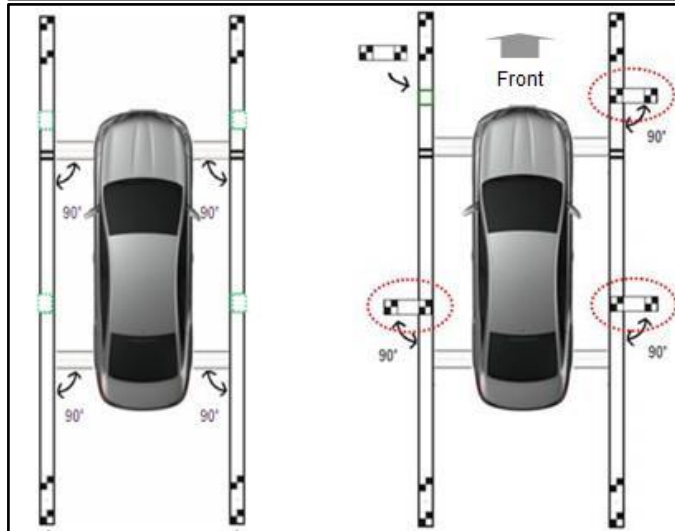
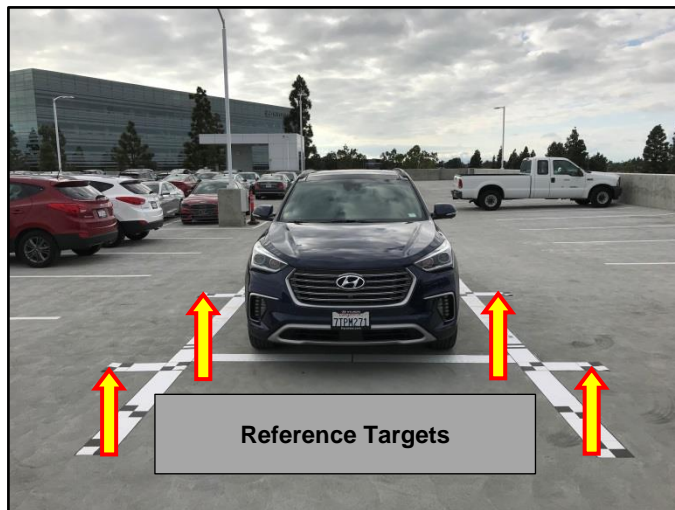


For Example: The 1st tread on the RH and LH tire lines up with ~25 on the Reference Scale.

- 3. Set up the reference lines by lining up the “Type B” line directly with the center of the front wheel (repeat for both the left and right side of the vehicle).



4. Lay the (4) reference targets on the marked locations.

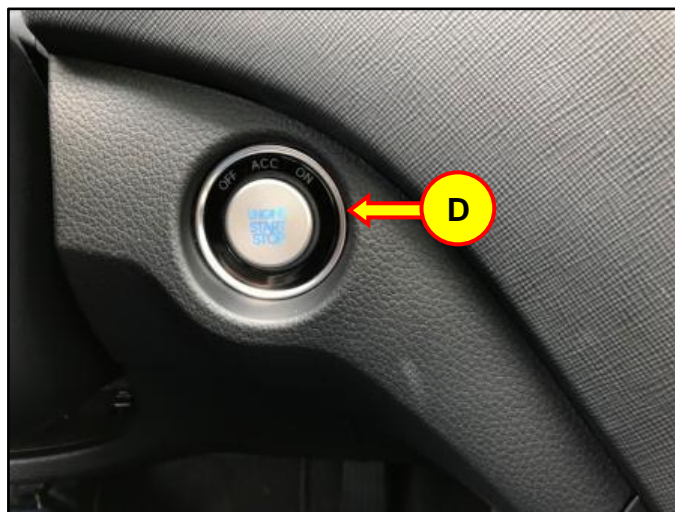


5. **AVM Calibration Procedure:**

Depress the brake pedal and press the **START STOP BUTTON (D)** to start the vehicle.

NOTICE

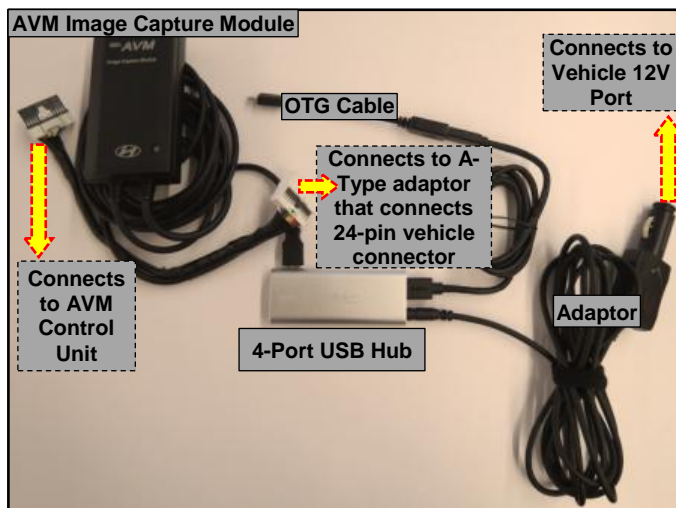
Park vehicle in a well ventilated area during the update process.



6. Plug the VCI II Module into the vehicle's DLC port (E) located to the lower left kick panel area.

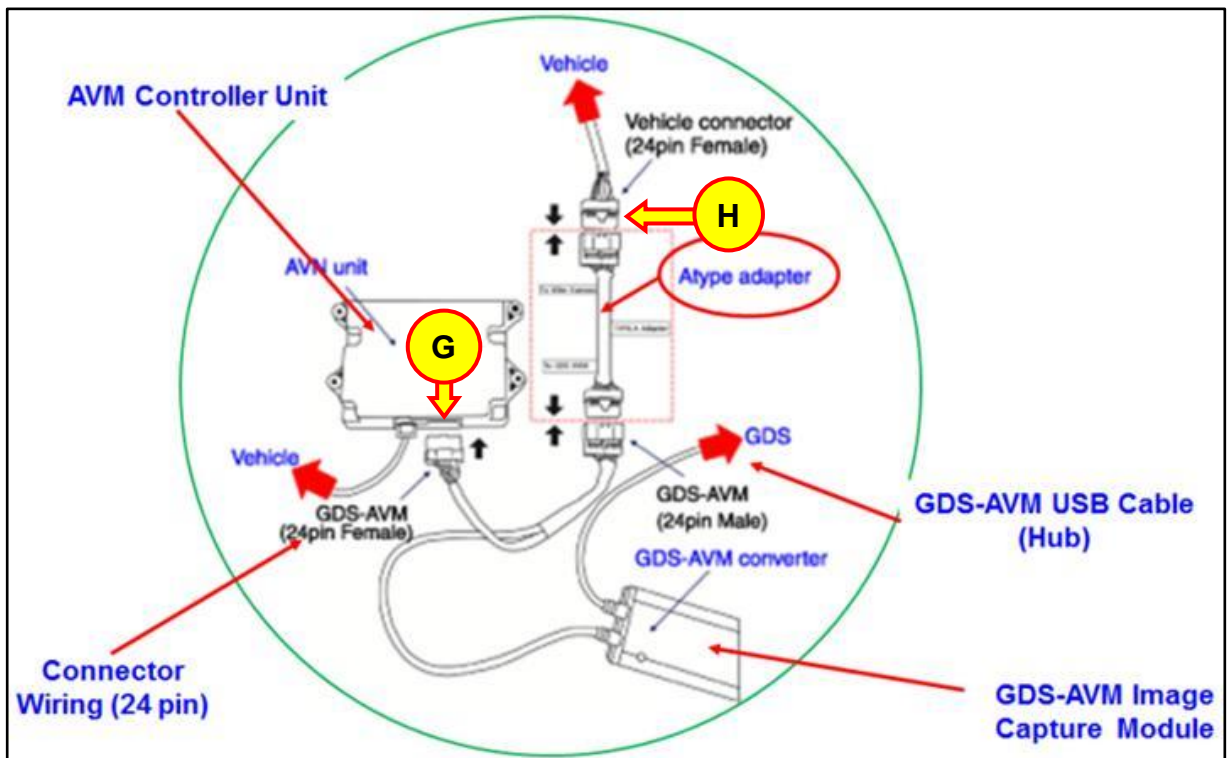
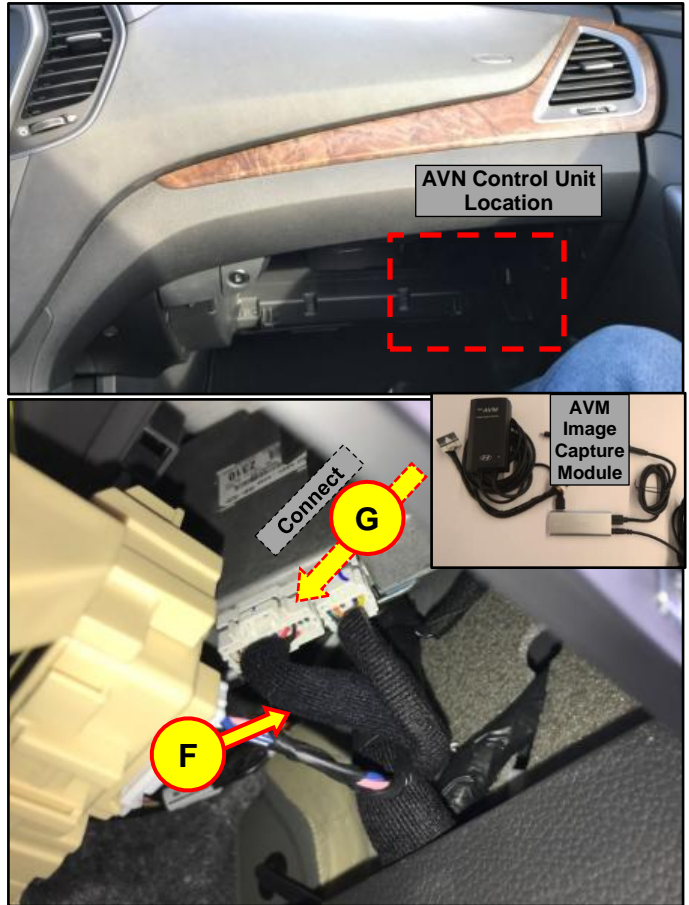


7. Provide power to the AVM Image Capture Module:
- Use the adaptor to connect the 4-port USB hub to the in-vehicle 12V power port located at the bottom of the center stack.
 - Connect the AVM Image Capture Module to the 4-port USB hub.
 - Connect the OTG cable to the 4-port USB hub.



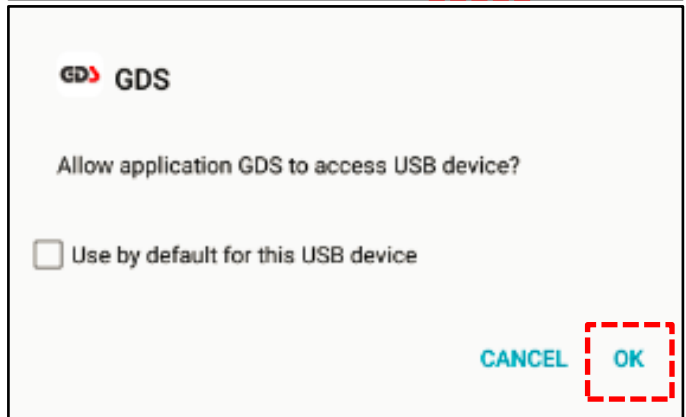
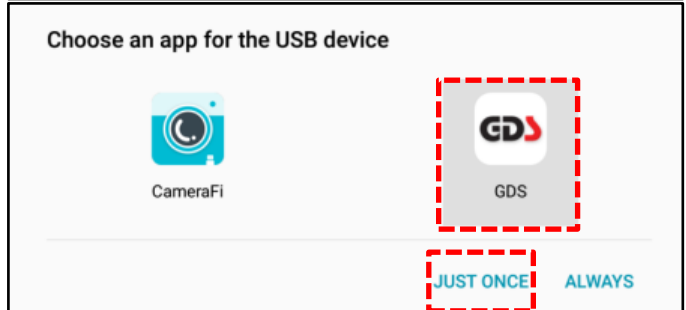
8. Connect the AVM Image Capture Module to the Vehicle's AVM control unit located in the Passenger side lower dash area behind the glovebox:

- Remove the glovebox door and Passenger's side lower dash cover to access the AVM control unit.
- Locate the AVM control unit at the right side of the glovebox opening. Then disconnect the 24 pin connector (F) from the AVM Control Unit.
- Plug in the AVM Image Capture Module into the AVM Control Unit (G).
- Use the A-Type adaptor to connect the AVM Image Capture Module to the vehicle's 24 pin connector (H).

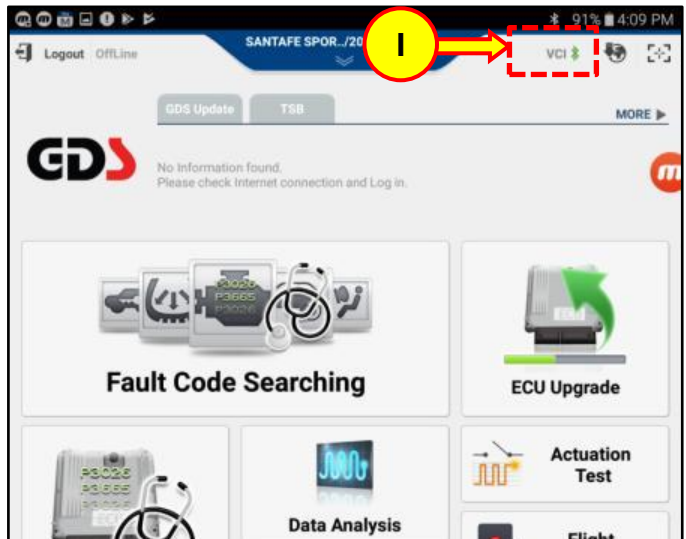


- 9. Connect the AVM Image Capture Module to the GDS Mobile Tablet.

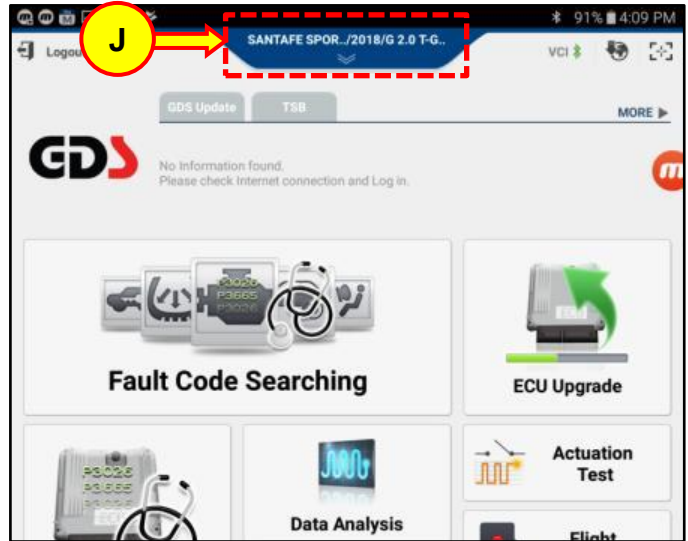
Upon connection, select GDS as the app for the USB device and allow GDS to access the USB device.



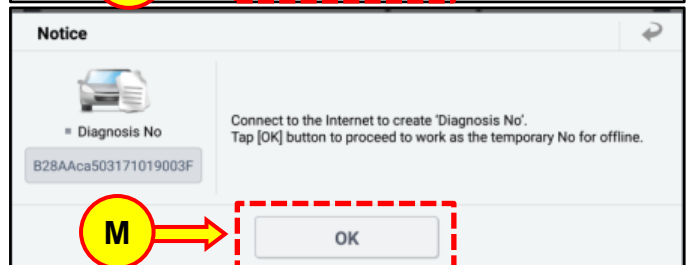
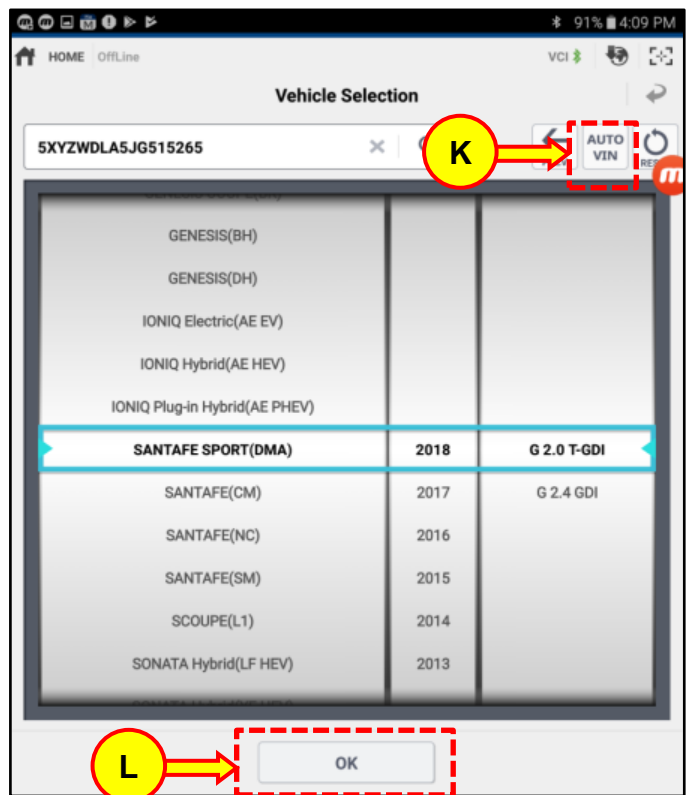
- 10. Open the GDS software and tap the VCI button (I) at the top right corner to initiate a connection between the tablet and module.



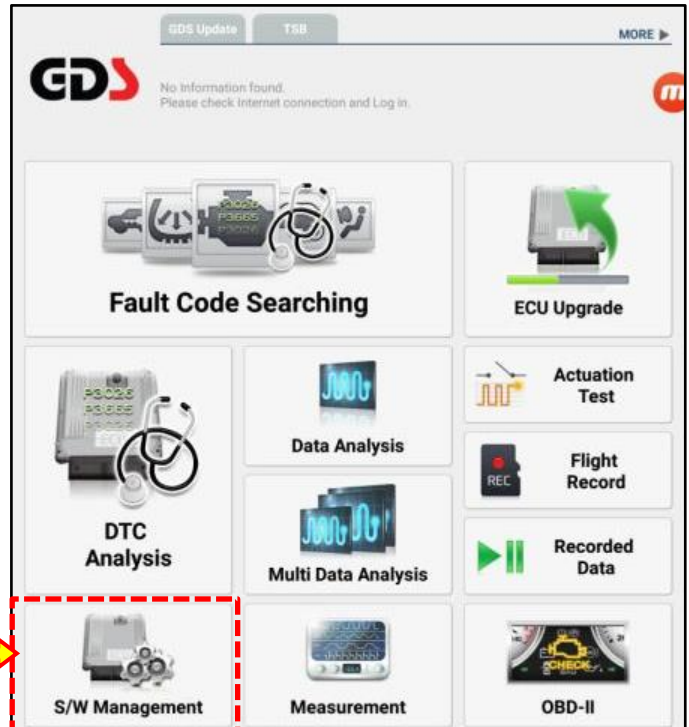
- 11. Once a connection has been established, tap the top of the screen (J) to enter the vehicle selection page.



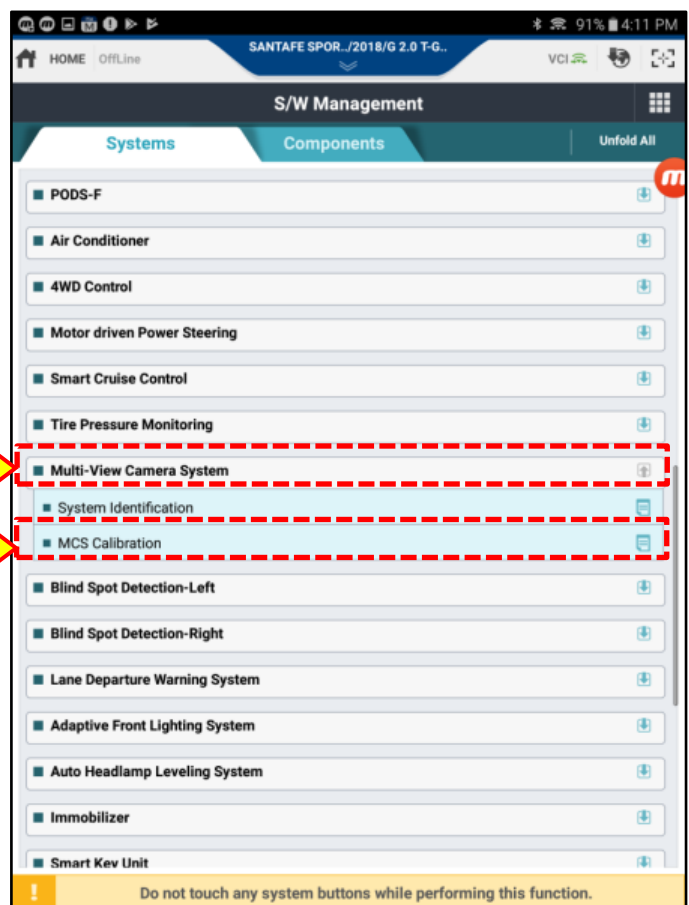
- 12. Tap the AUTO VIN button (K). The vehicle VIN, model, model year, and engine size will automatically populate. Tap the OK button (L) to confirm the populated information. Upon completion you will be prompted with a notice, Tap OK (M) to continue.



13. Upon Vehicle Selection confirmation, the screen will load to the GDS Home page. Select the S/W Management button (N).



14. In the S/W management page, select Multi-View Camera System (O). Then select MCS Calibration (P).



15. Confirm the following pre-conditions:
- ACC ON (Step 5)
 - Gear position N, Parking brake On
 - Bonnet Close/Trunk Closed/Door Closed/Side View Mirror Open
 - MCS Button ON

Then tap OK (Q) to proceed. Tap OK on the following prompts (R) (S) as these conditions have been met in steps 6-8.

The screenshot shows the 'S/W Management' application interface. At the top, it displays 'SANTAFE(NC)/2017/G 3.3 GDI' and 'VCI'. The main section is titled 'MCS Calibration' and contains a table with the following information:

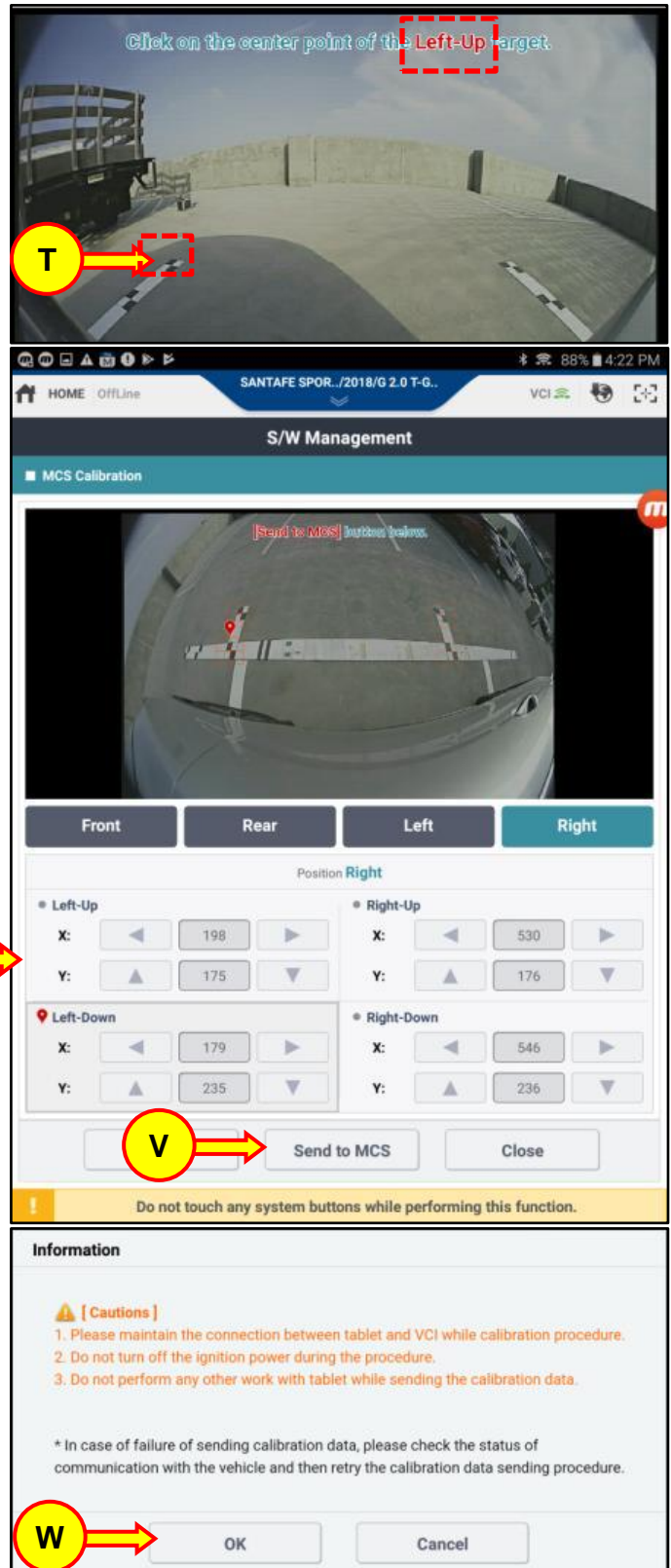
Purpose	To calibrate image tolerance when module or cameras are replaced.
Enable Condition	<ol style="list-style-type: none"> 1. Engine Off 2. Ignition Switch On 3. Gear Position N, Parking Brake On 4. Bonnet Closed / Trunk Closed / Door Closed / Side View Mirror Open 5. MCS switch Lamp On
Concerned Component	Multi-View Camera Unit, Ultra-optical cameras
Concerned DTC	B103000, B1030XX
Fail Safe	MCS LED Indicator blinking, set DTC
Etc	<ul style="list-style-type: none"> - Do not change the status of the power / gear / MCS switch until this function is completed. - Tolerance correction target is required.

Below the table, a yellow bar contains a warning: "Do not touch any system buttons while performing this function." Below this, three prompts are shown, each with a yellow circle containing a letter and an arrow pointing to an 'OK' button:

- Q**: A yellow circle with 'Q' and an arrow pointing to an 'OK' button.
- R**: A yellow circle with 'R' and an arrow pointing to an 'OK' button.
- S**: A yellow circle with 'S' and an arrow pointing to an 'OK' button. To the right of this 'OK' button is a 'Cancel' button.

The 'Information' section below the prompts shows a diagram of a cable with 'TYPE-A' and 'TYPE-B' connectors. Below the diagram, it says: "Connect the TYPE-A connector, then press [OK] button." The second 'Information' section shows a diagram of a tablet connected to a USB hub, which is connected to an MCS image capture module and a car. Below the diagram, it says: "Please connect the Tablet and the MCS image capture module to USB hub(Android OS compatible) as shown on figure above." There is a 'Tips' icon in the bottom right corner of the third prompt area.

16. Proceed with the calibration procedure:
- Follow the on screen instructions and tap the location where you want to place the desired target(T).
 - After placing all targets (4), use the controls(U) to adjust the cross boxes on to the center of the reference targets.
 - After all cameras have been properly adjusted, Tap “ Send to MCS” (V)
 - Upon tapping “ Send to MCS” you will be prompted to:
 1. Maintain a connection between the tablet and VCI module.
 2. Do not turn off the ignition power during thte procedure
 3. Do not perform any other work with tablet while sending the calibration data.
 Tap OK (W) to proceed.



17. After the calibration data is successfully sent:
- Unplug the AVM Image Capture Module from the vehicle
 - Reconnect the AVM Control Unit directly to the vehicle
 - Verify that the calibration was performed successfully:
 1. The reference lines should appear as straight lines.
 2. The bumper should not be visible on the screen.

NOTICE

If either of these conditions (1 or 2) is not met, reconnect the AVM Image Capture Module (Step 7) and repeat Steps 14-16.

