Component Procedures: Collision Avoidance Sensor

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Parts and Labor (itype_189)

Parts

Qualifier	Part #	Name	Price	Note
Lane Departure Warning > Sen?	99140F3001	Left	1642.81	
Lane Departure Warning > Sen?	99150F3001	Right	1642.81	

Labor

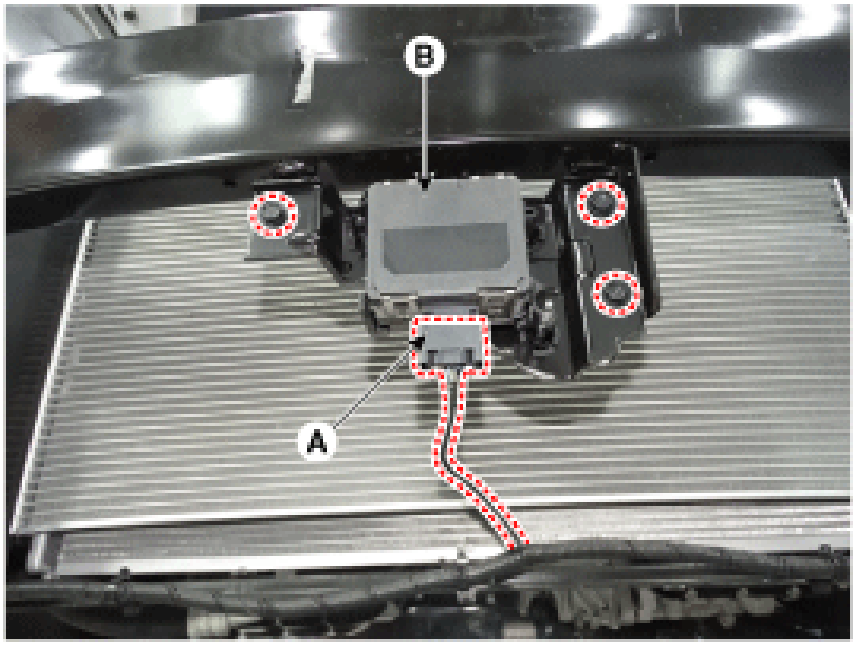
Operation	Qualifier Path	Skill	Std Hrs	Wty Hrs
Remove & Replace	Lane Departure Warning > Sensor, R&R	B	0.3	0.0
Calibrate	Lane Departure Warning > Sensor, Calibrate	B	1.4	0.0

Autonomous Emergency Braking (AEB) System - Repair Procedures (Article 45223)

- Removal

[AEB Radar]

- Turn the ignition switch off and disconnect the battery (-) cable.
- Remove the front bumper cover (Refer to Body - "Front Bumper")
- Disconnect the AEB radar connector (A).
- Remove the AEB unit (B).



[LDWS Camera]

- Disconnect the battery (-) cable.
- Remove the camera. (Refer to Body Electrical System - "Lane Departure Warning System (LDWS)")

- Installation

- Installation is the reverse of removal. The vertical installation angle of the unit must be within 2■± 0.4■. (not 0 degree) ■ Before installing the bumper onto the vehicle, measure the vertical angle of the unit with a protractor as shown.

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NOTICE

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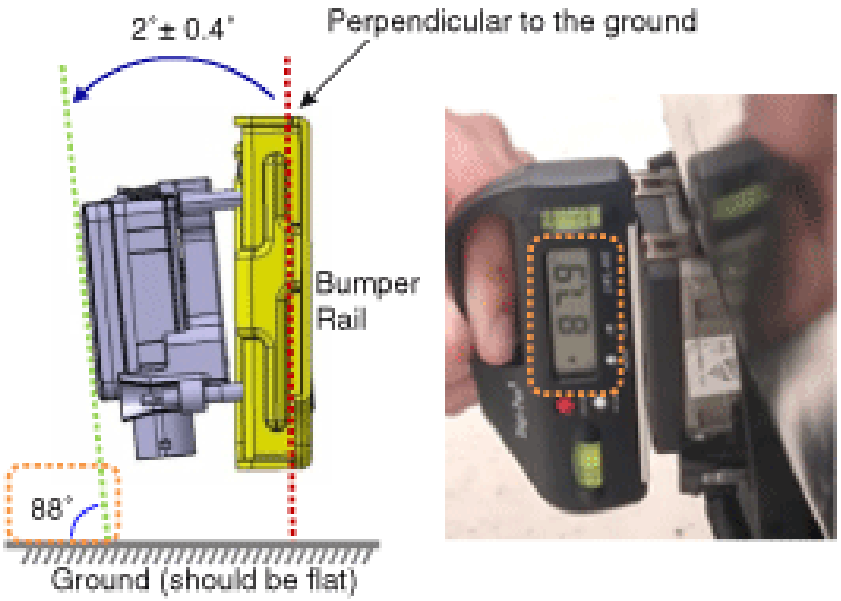
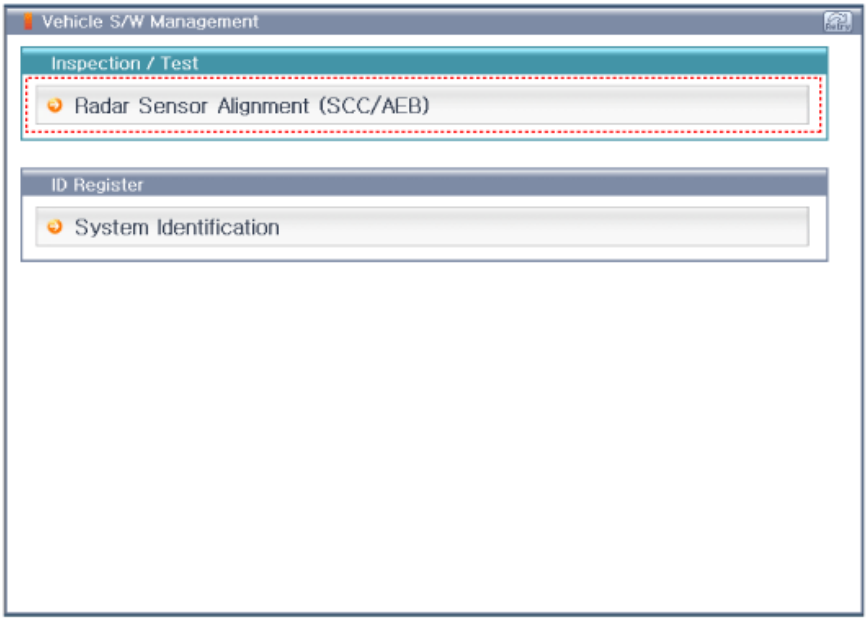


- Perform the AEB(SCC) radar alignment. (Refer to Engine Electrical System - "Smart Cruise Control Unit")



[LDWS Camera]

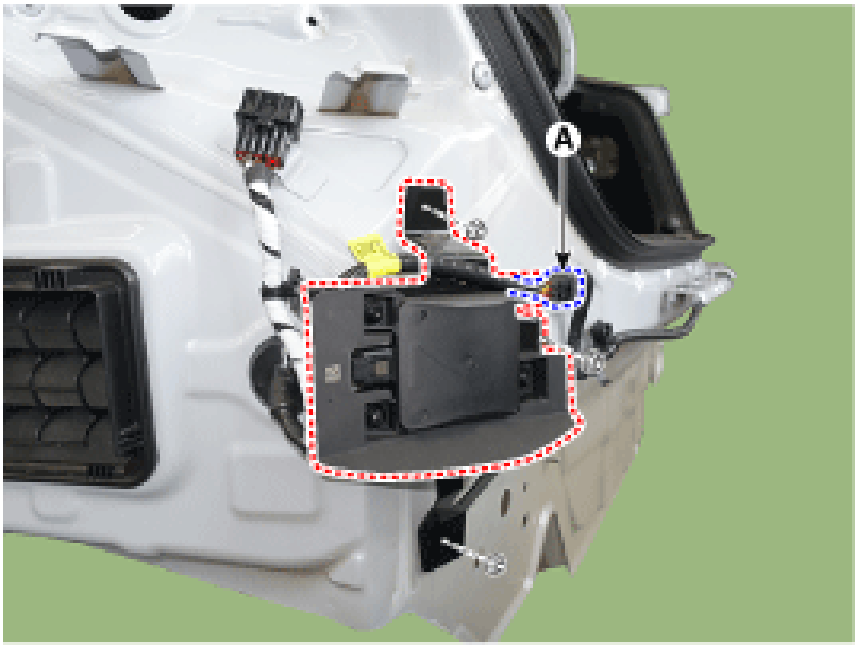
- Installation is the reverse of removal.
- Perform Service Point Target Auto Calibration (SPTAC). (Refer to Body Electrical System - "Lane Departure Warning System (LDWS)")

Blind-Spot Radar Unit - Repair Procedures (Article 44699)

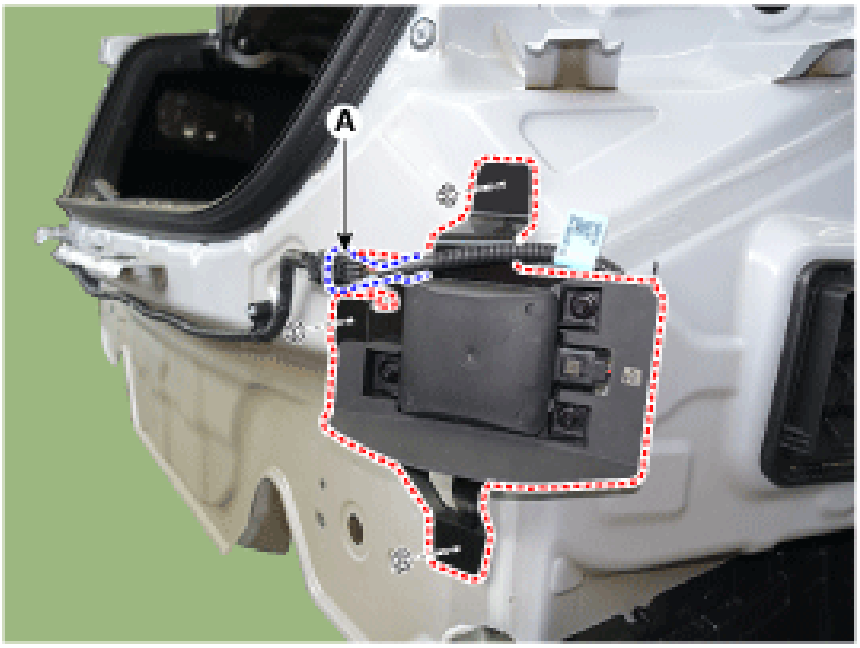
- Removal

- Disconnect the negative (-) battery terminal.
- Remove the rear bumper. (Refer to Body - "Rear Bumper")
- Disconnect the radar connector (A) and then remove the blind-spot radar unit after loosening the mounting nuts. [LH] [RH] Take care not to damage the bracket when removing the radar unit.

[LH]



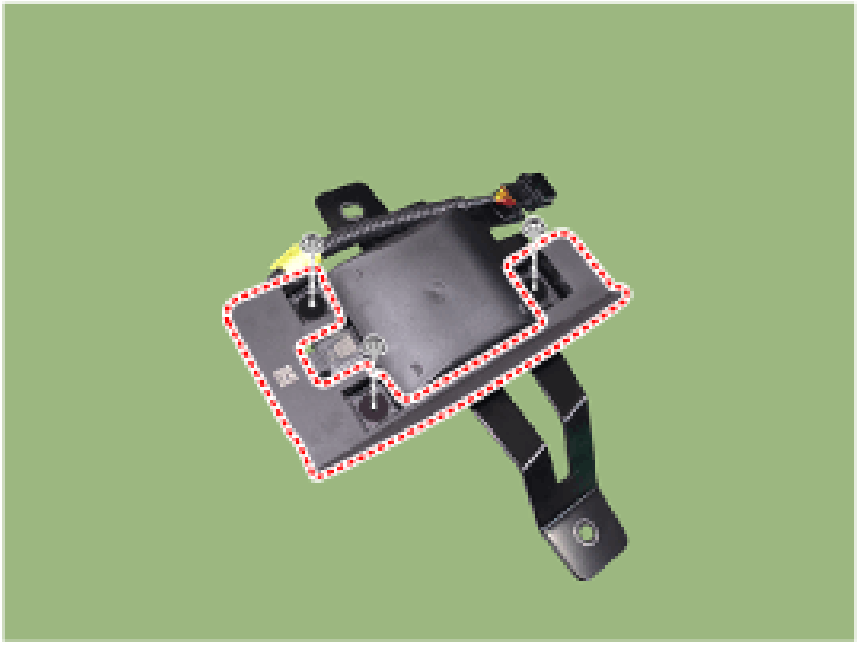
[RH]



Take care not to damage the bracket when removing the radar unit.

NOTICE

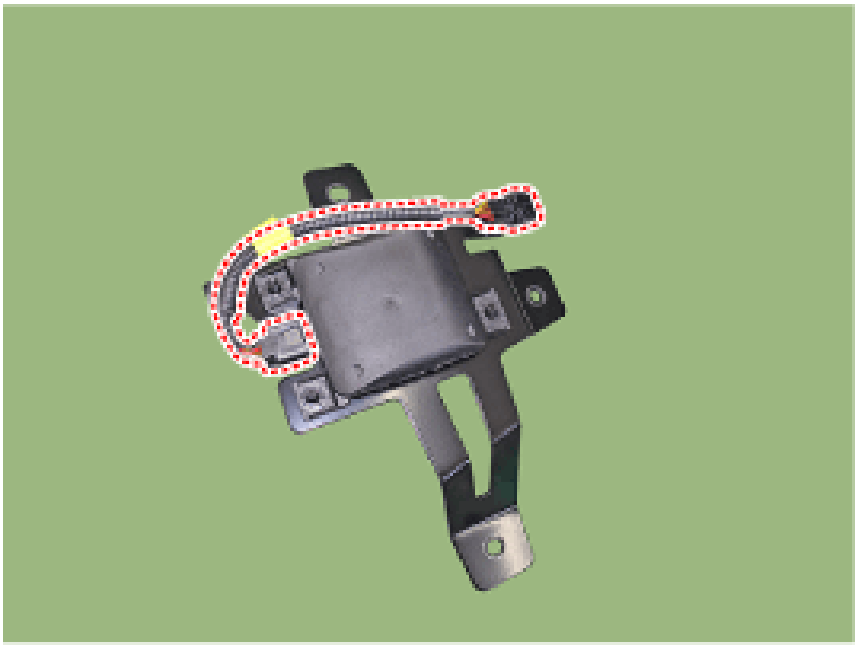
- Take care not to damage the bracket when removing the radar unit.
- Replace the bracket after loosening the nuts when the bracket is physically changed or damaged. Radar does not work normally if the bracket is physically changed or damaged.



Radar does not work normally if the bracket is physically changed or damaged.

CAUTION

- Radar does not work normally if the bracket is physically changed or damaged.
- Replace the extension wiring when it damaged.



- Installation

- Install the radar unit and bracket. Tightening torque Radar bracket : 3.9 - 5.9 N.m (0.4 - 0.6 kg cm, 2.9 - 4.4 lb-ft) Radar unit : 3.92 ± 0.98 N.m
- Install the rear bumper.
- Connect the negative (-) battery terminal. Take care not to confuse left side (master) and right side (slave) unit when installing.

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- Inspection

Correcting the Blind-Spot Radar Angle

- After replacing the Blind-Spot radar unit or bracket, with the bumper removed, use the Blind-Spot radar unit correction tool set (special tool : 09958-3T500) to perform angle correction. Perform the task on a level place. Perform the task after checking the tire pressure. For the dealer who purchased the existing Blind-Spot radar correction tool set (09958-3T000), refer to the instructions of the 17MY shop manual and repair it.

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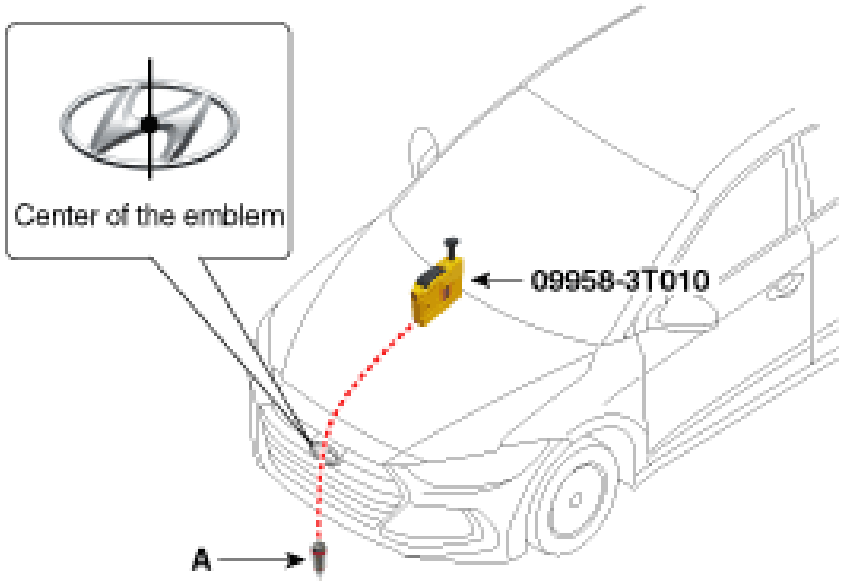
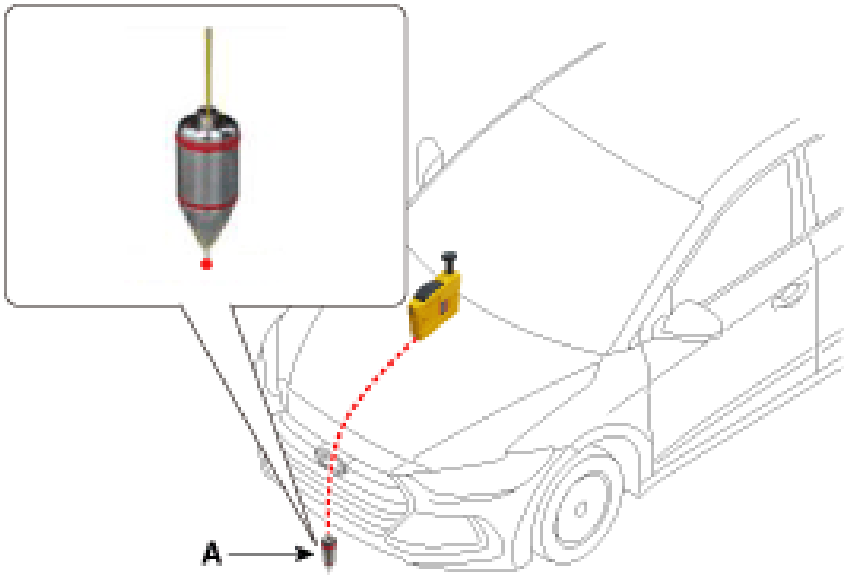
Information

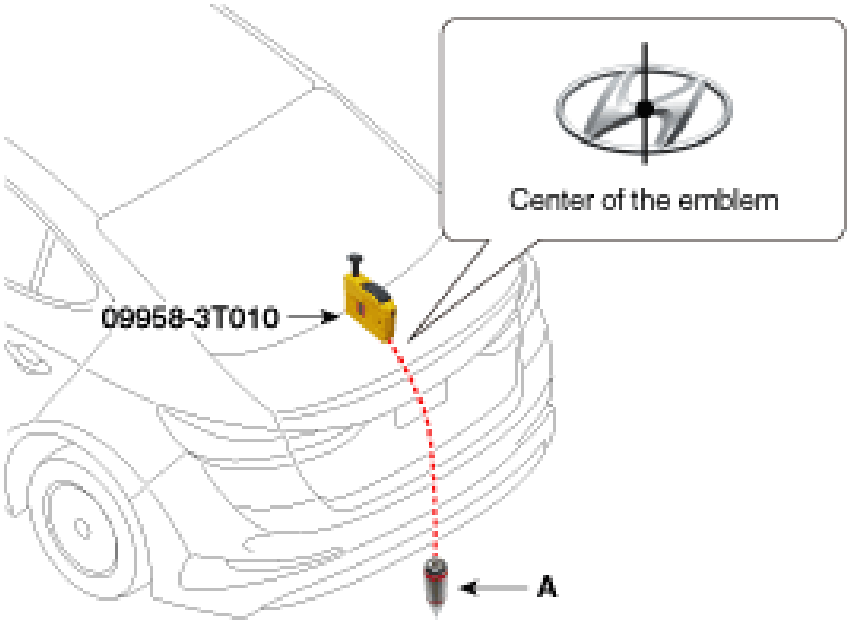
- Attach a vertical plumb (special tool : 09958-3T010) on the hood, and lower the plumb (A) to the ground so that it passes through the center of the emblem.



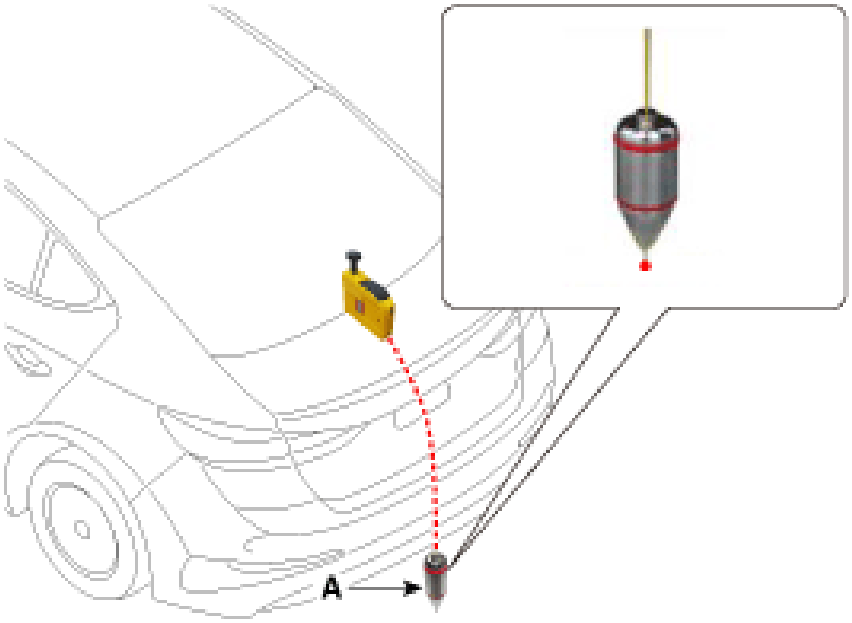
- Marking the center point below the plumb (A).



- Attach a vertical plumb (special tool : 09958-3T010) on the trunk (or tailgate), and lower the plumb (A) to the ground so that it passes through the center of the emblem.



- arking the center point below the plumb (A).



- Marking the center of vehicle by a string. Pass the string through the bottom of the vehicle from the rear of the vehicle to the front and fix the string to the center point (A) of the front of the vehicle. Fix the string to the point (C) about 1.5 - 2m from the back of the vehicle so that it passes the rear center point (B).
- Pass the string through the bottom of the vehicle from the rear of the vehicle to the front and fix the string to the center point (A) of the front of the vehicle.
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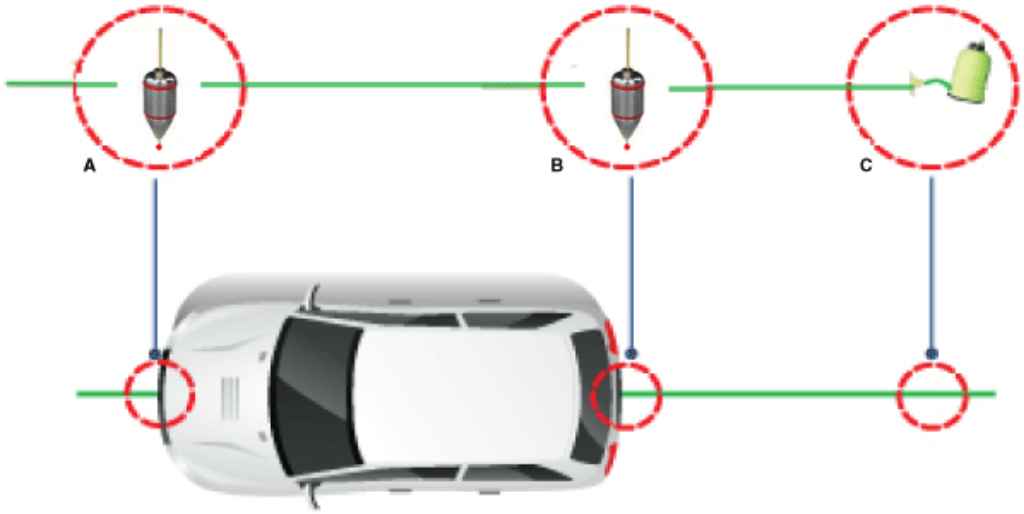
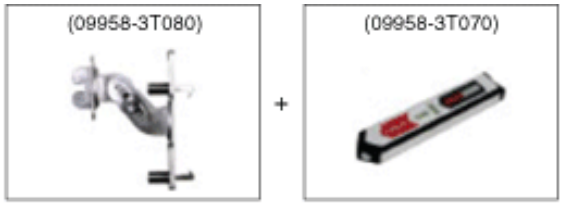
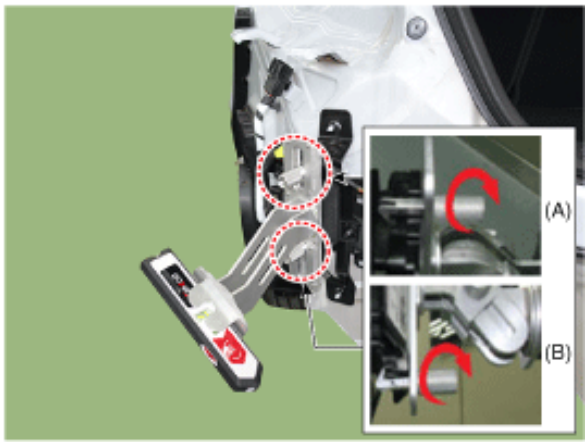


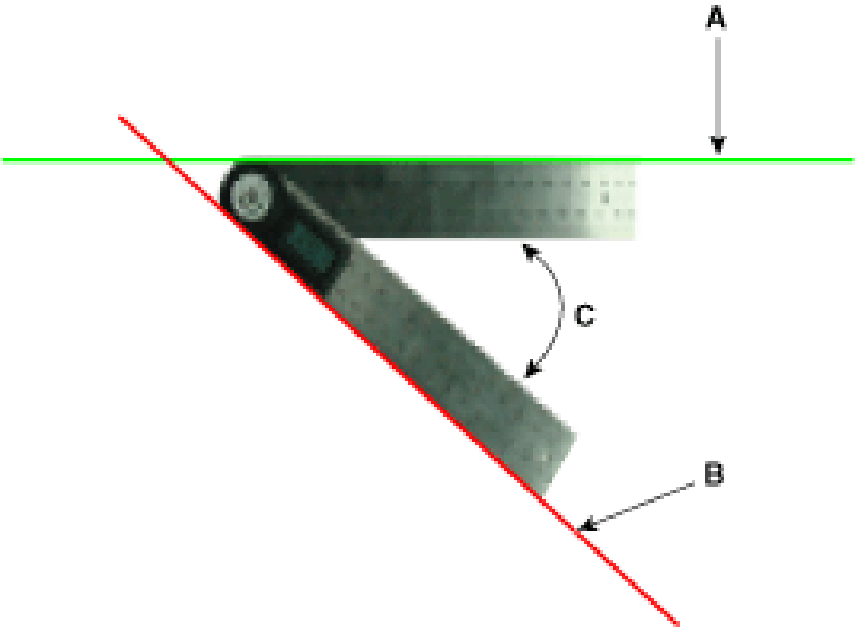
- Mount the Blind-Spot radar unit fixing adaptor (special tool : 09958-3T080) on the Blind-Spot radar unit and fix the level laser (special tool : 09958-3T070). When with the Blind-Spot radar unit cover, remove the cover and then mount the fixing adapter (special tool: 09958-3T080).



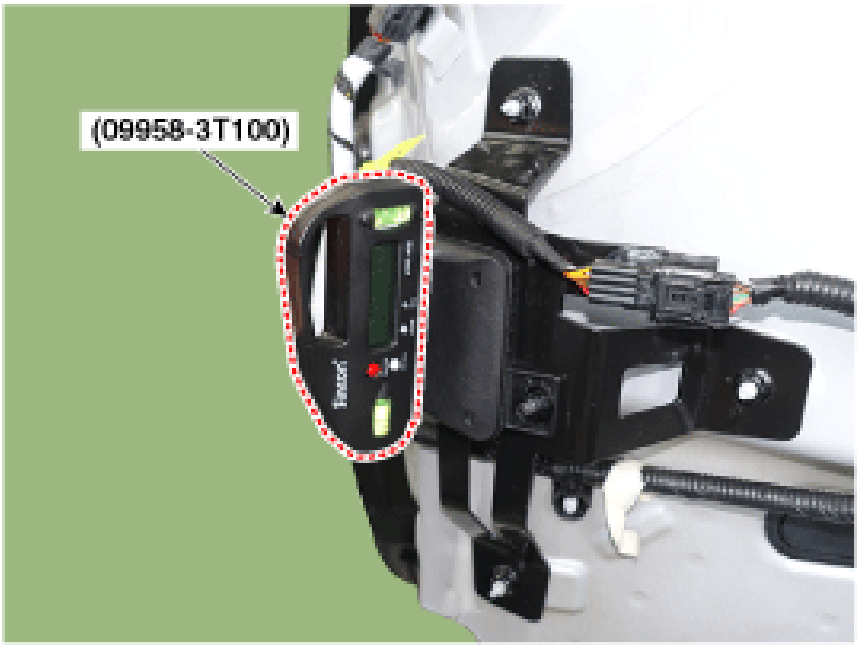


When with the Blind-Spot radar unit cover, remove the cover and then mount the fixing adapter (special tool: 09958-3T080).

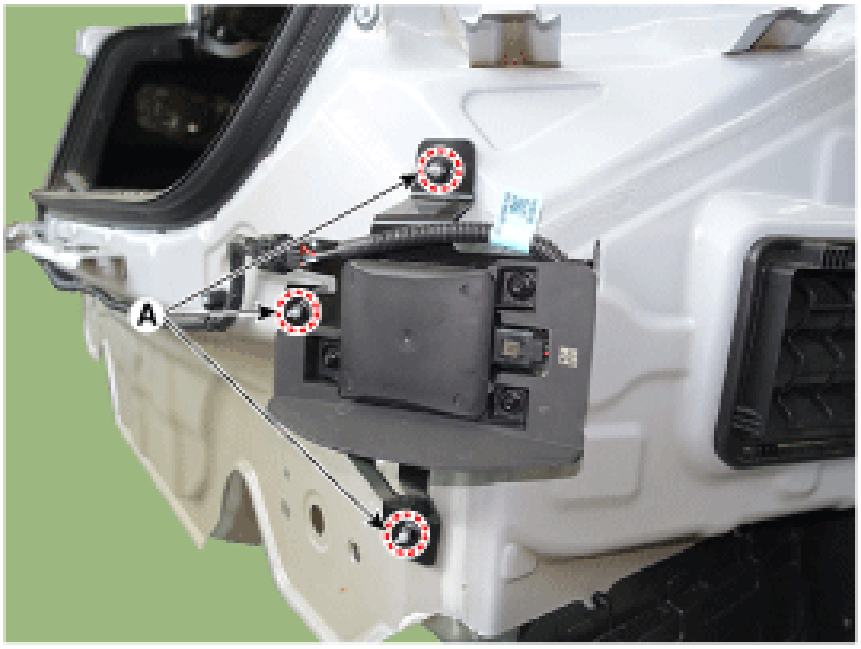
- Measure the angle (C) between the center line (A) of the angle measuring plate and the horizontal laser beam (B) using a digital protractor (special tool : 09958-3T090). Horizontal Angle (C) : 55° ± 3°



- Use a digital inclinometer (special tool : 09958-3T100) to measure the vertical angle of the Blind-Spot radar unit. Vertical Angle : 90° ± 1.5°



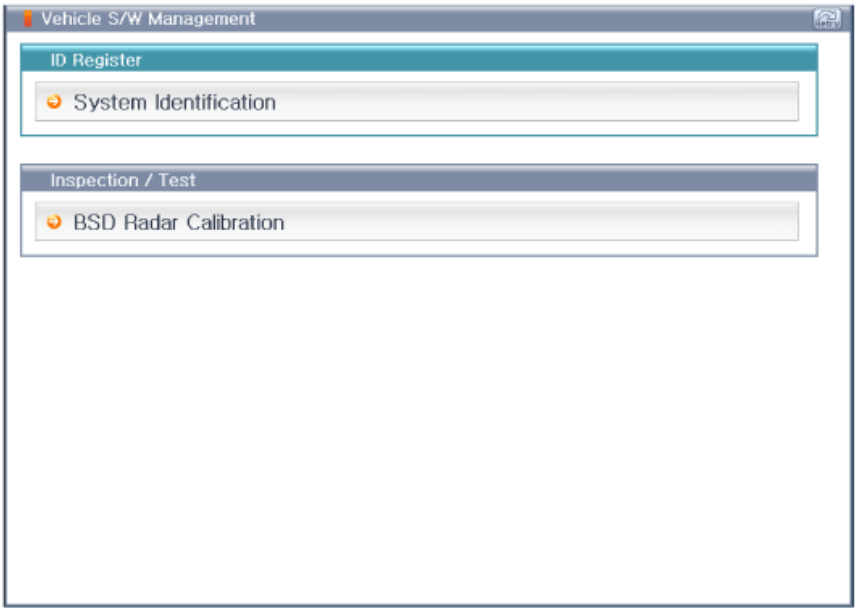
- Measure the horizontal and vertical angles of left and right Blind-Spot radar units. If the measured values deviate from the specified values, insert a washer between the bracket of the Blind-Spot radar unit. Specified Values Horizontal Angle : 55° ± 3° Vertical Angle : 90° ± 1.5°



- After checking and correcting the Blind-Spot radar unit angle, perform the Blind-Spot radar radar correction procedure.

Blind-Spot radar Unit Alignment

- Rear bumper accident vehicles and vehicles that replaced Blind-Spot radar units must perform Blind-Spot radar unit alignment using GDS.
- Select "Blind-Spot radar Calibration" procedure in BSD system.

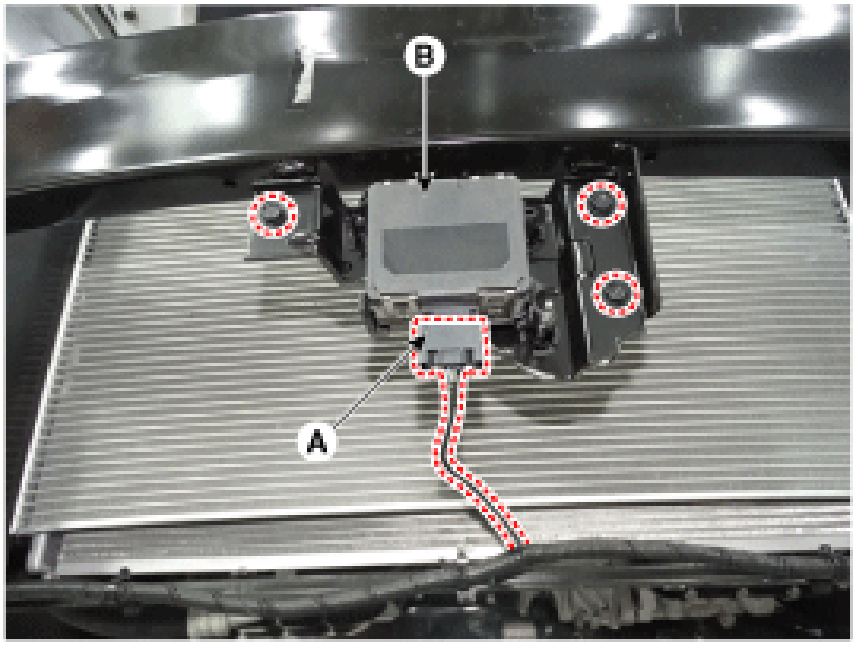


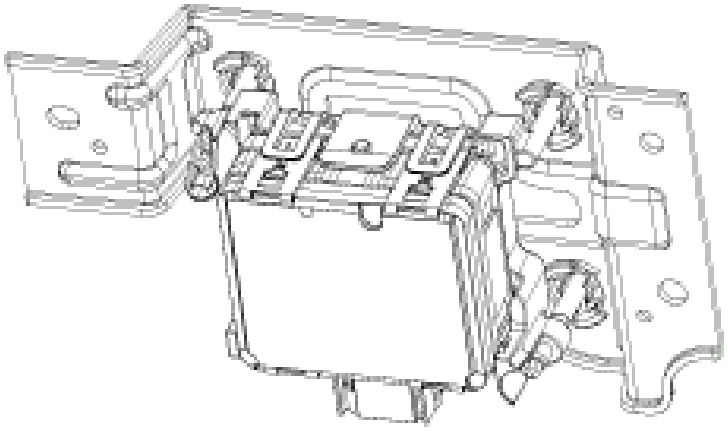
- Perform the "Blind-Spot radar Radar Calibration" procedure according to the GDS screen message.

Smart Cruise Control Unit - Repair Procedures (Article 44074)

- Removal

- Remove the bumper. (Refer to Body - "Front Bumper")
- Disconnect the smart cruise control unit connector (A).
- Remove the smart cruise control unit assembly (B) from vehicle after loosening mounting bolts.





- Installation

- Install in the reverse order of removal. The vertical installation angle of the unit must be within 2° ± 0.4°. (not 0 degree) ■ Before installing the bumper onto the vehicle, measure the vertical angle of the unit with a protractor as shown.

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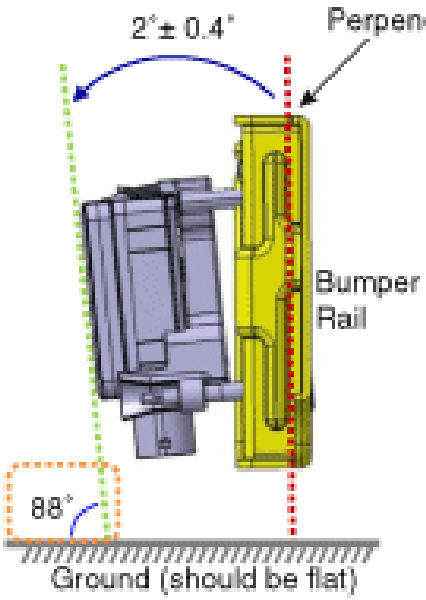

- Align the smart cruise control sensor. (Refer to Engine Electrical System - "Smart Cruise Control(SCC) Alignment")
- Install the bumper cover. (Refer to Body - "Front Bumper Cover")

- Smart Cruise Control (SCC) Sensor Alignment

The sensor must be aligned when; The sensor is reinstalled after removing. A new sensor is installed on a vehicle. The sensor or nearby parts are impacted in a collision. The sensor can not recognize a vehicle ahead.

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- The sensor is reinstalled after removing.
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- The sensor or nearby parts are impacted in a collision.
- The sensor can not recognize a vehicle ahead.

The sensor can not recognize a vehicle ahead. Remove heavy objects, such as luggage in the trunk, from the vehicle. Remove heavy objects, such as luggage in the trunk,from the vehicle. Check wheel alignment. Check the pollution condition of sensor cover

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- Check wheel alignment.
- Check the pollution condition of sensor cover

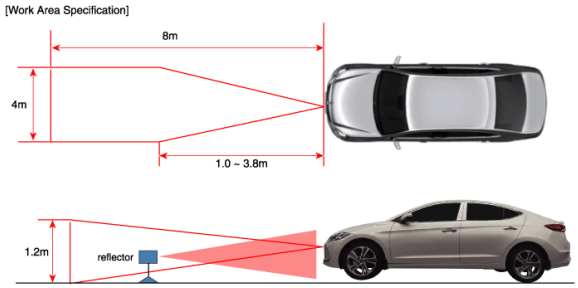
Smart Cruise Control (SCC) Radar Alignment

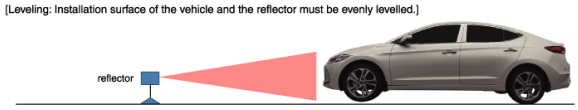
- Stop the vehicle horizontally at a flat place. Adjustment may not be accurate if the installation surface height and angle of the vehicle and reflector are different. Perform in an area with minimum clearance of 8m front, 4m sides, and 1.2m above the vehicle. Remove heavy objects from inside of the vehicle (seating area and trunk). Ensure that all tires are filled with spec air pressure. Remove objects (metal plates, resins, etc.) that may cause electric signal interference from the area where sensor alignment is performed. Be sure that the vehicle is not moved and free from vibration when performing sensor alignment (getting in/out or opening/closing doors). Check that radiator grill and sensor cover is not dirty. Check that the wheel alignment is normal. Do not turn OFF the power when performing sensor alignment. Power supplied to the radar sensor must be between 9V-16V. Temperature in the area where sensor alignment is performed must be between -30-60°C.

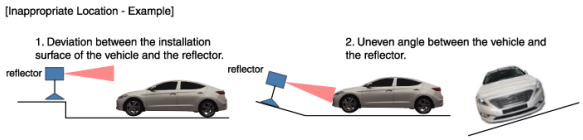
Adjustment may not be accurate if the installation surface height and angle of the vehicle and reflector are different. Perform in an area with minimum clearance of 8m front, 4m sides, and 1.2m above the vehicle. Remove heavy objects from inside of the vehicle (seating area and trunk). Ensure that all tires are filled with spec air pressure. Remove objects (metal plates, resins, etc.) that may cause electric signal interference from the area where sensor alignment is performed. Be sure that the vehicle is not moved and free from vibration when performing sensor alignment (getting in/out or opening/closing doors). Check that radiator grill and sensor cover is not dirty. Check that the wheel alignment is normal. Do not turn OFF the power when performing sensor alignment. Power supplied to the radar sensor must be between 9V-16V. Temperature in the area where sensor alignment is performed must be between -30-60°C.

- Adjustment may not be accurate if the installation surface height and angle of the vehicle and reflector are different.
- Perform in an area with minimum clearance of 8m front, 4m sides, and 1.2m above the vehicle.
- Remove heavy objects from inside of the vehicle (seating area and trunk).
- Ensure that all tires are filled with spec air pressure.
- Remove objects (metal plates, resins, etc.) that may cause electric signal interference from the area where sensor alignment is performed.
- Be sure that the vehicle is not moved and free from vibration when performing sensor alignment (getting in/out or opening/closing doors).
- Check that radiator grill and sensor cover is not dirty.
- Check that the wheel alignment is normal.

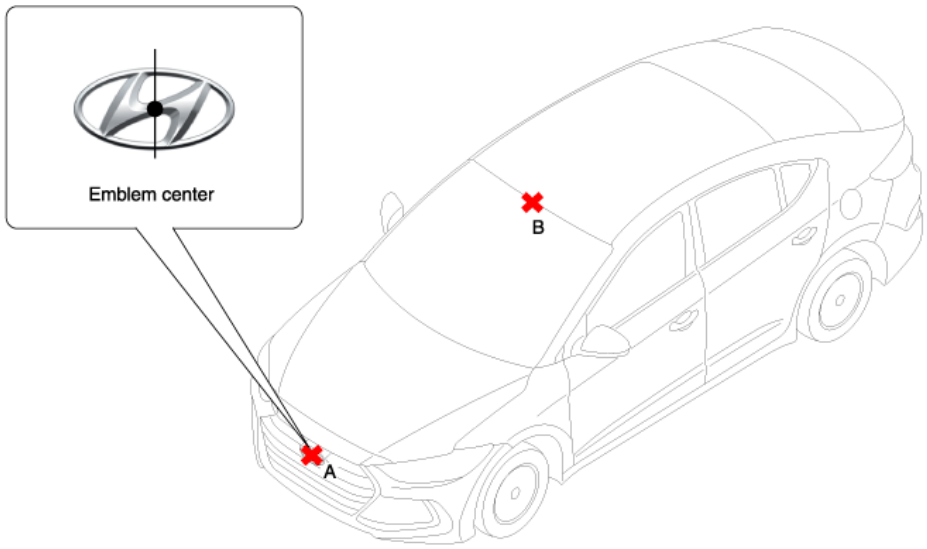
- Do not turn OFF the power when performing sensor alignment.
- Power supplied to the radar sensor must be between 9V-16V.
- Temperature in the area where sensor alignment is performed must be between -30-60°C.





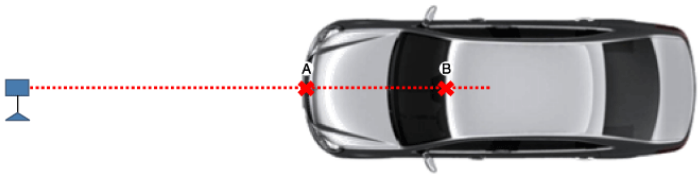


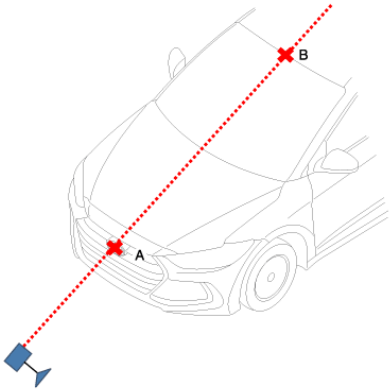
- Mark the center point of emblem (A) and the center point on top of wind glass (B).



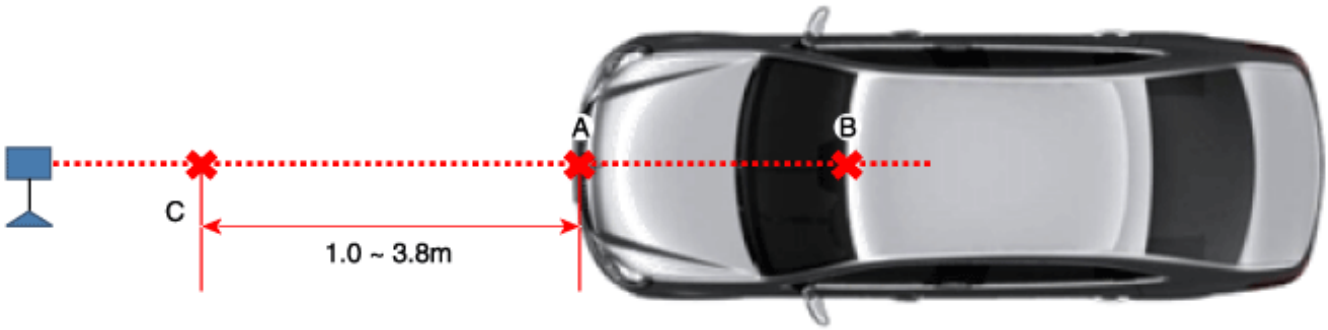
- Connect the SCC Calibration Laser (SST No. : 09964-C1200) to the Tri-Pod (SST No. : 09964-C1300).

- Match the vertical line of laser to (A) and (B) using the SCC calibration laser pointer.



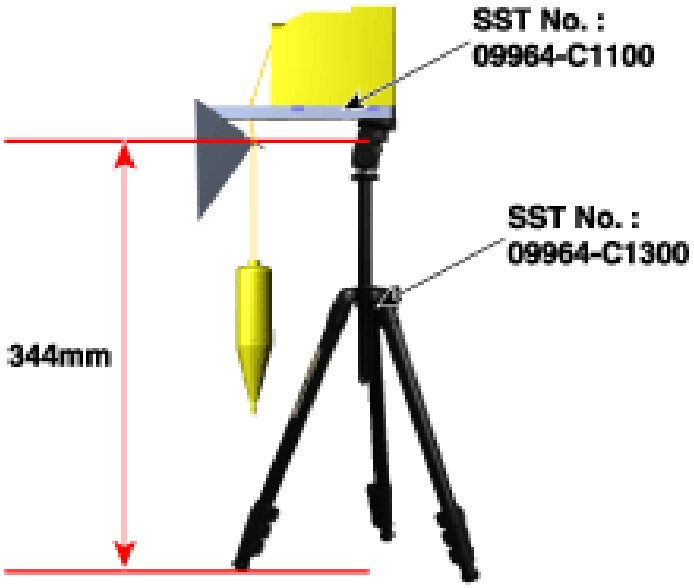


- Mark (C) located in 1.0-3.8m from (A) in front of the vehicle.



- Disconnect the SCC Calibration Laser (SST No. : 09964-C1200) from the Tri-Pod (SST No. : 09964-C1300).

- Align the vertical weight of the with the point (C).
- Connect the reflector (SST No. : 09964-C1100) to the tripod (SST No. : 09964-C1300) and set the reflector center height to 344mm.



- Set the reflector horizontal using the leveler which is built in the tripod (SST No. : 09964-C1300). Balance the level so that the bubble in the level is set between the spec lines.

Balance the level so that the bubble in the level is set between the spec lines.
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- Remove the vertical weight. Visually check that the reflecting side of the reflector is levelled with the front of the vehicle.
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- Check again the radar sensor and the surface of front bumper for the following items with the eyes. Make sure that there is no debris, or reflecting object on the surface of the radar. Make sure that there is no debris, or reflecting object on the radiator grill.
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- Make sure that there is no debris, or reflecting object on the radiator grill.

- Connect the GDS to the DLC of the vehicle and start sensor alignment. If the engine is running, the vibration may cause inaccurate sensor alignment, so perform sensor alignment in IG ON mode.
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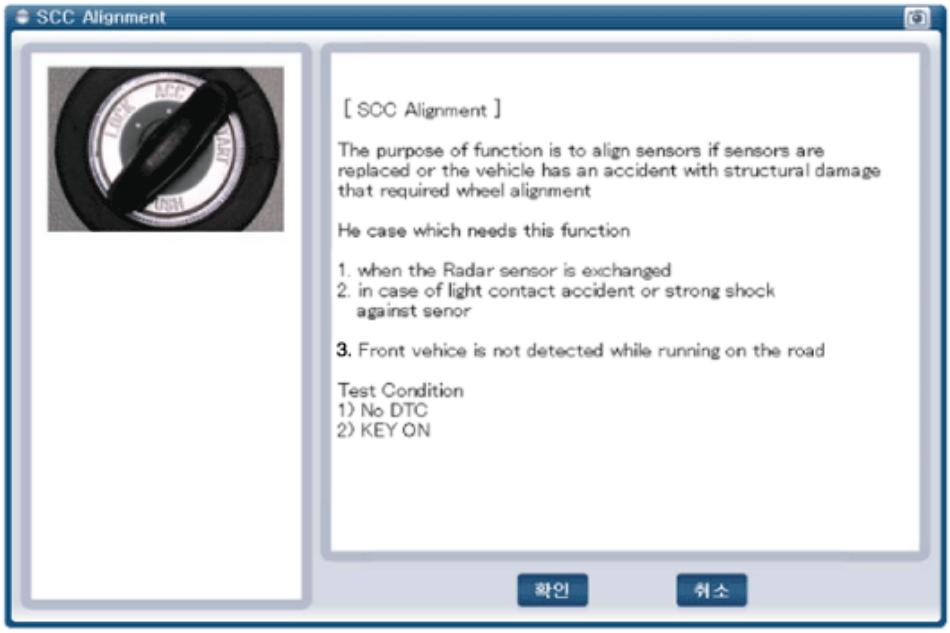
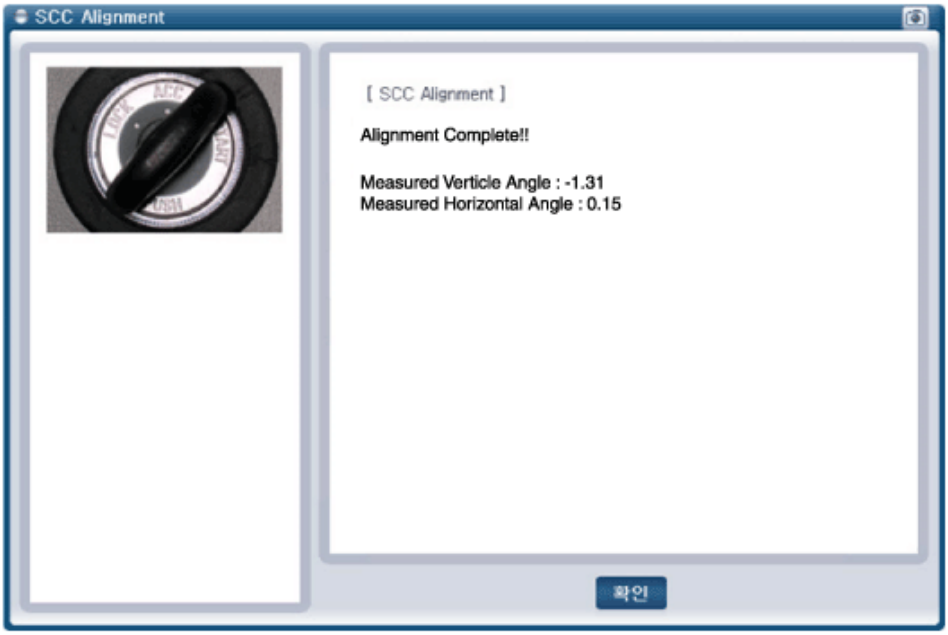
- After correctly selecting the vehicle model, select "SCC Alignment" from the auxiliary functions in GDS Menu.



- Perform sensor alignment by following the directions shown in the GDS monitor.



- In case of sensor alignment failure, check the alignment conditions. Turn the ignition key OFF, then reperform the sensor alignment procedure.
- Inspection
- Check the bumper appearance and accidents. (Visual appearance of the vehicle, Maintenance and bumper replacement history) ☞ If the vehicle has been crashed, SCC mounting part is highly likely to be twisted.
- Check whether the radar sensor cover of the bumper is dirty. ☞ If the cover is dirty, SCC is highly likely to be released by the foreign substance during operation.
- After engine starting, check SCC warning massage in the cluster and DTC code. (Refer to DTC guide)