

**TECHNICAL INSTRUCTIONS**

**FOR**

**SAFETY RECALL H0C**

**RESIN REAR BUMPER REINFORCEMENT BRACKETS**

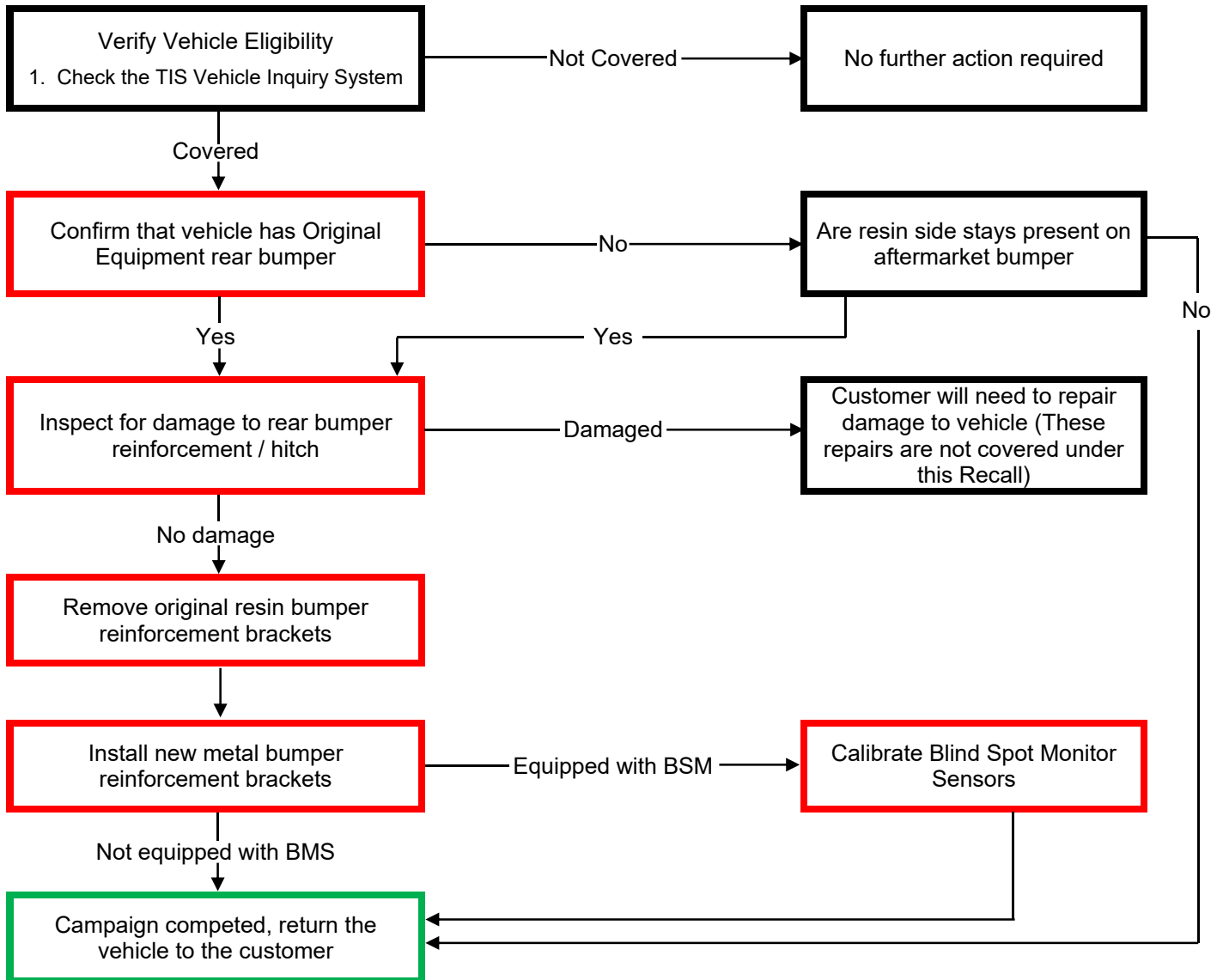
**CERTAIN 2016-2017 TUNDRA**

The repair quality of covered vehicles is extremely important to Toyota. All dealership technicians performing this recall are required to successfully complete the most current version of the E-Learning course “Safety Recall and Service Campaign Essentials”. To ensure that all vehicles have the repair performed correctly; technicians performing this recall repair are required to currently hold at least one of the following certification levels:

- Certified Technician (any specialty)
- Expert Technician (any specialty)
- Master Technician
- Master Diagnostic Technician

It is the dealership’s responsibility to select technicians with the above certification level or greater to perform this recall repair. Carefully review your resources, the technician skill level, and ability before assigning technicians to this repair. It is important to consider technician days off and vacation schedules to ensure there are properly trained technicians available to perform this repair at all times.

## I. OPERATION FLOW CHART



## II. IDENTIFICATION OF AFFECTED VEHICLES

- Check the TIS Vehicle Inquiry System to confirm the VIN is involved in this Safety Recall, and that the Campaign has not already been completed prior to dealer shipment or by another dealer.
- TMS warranty will not reimburse dealers for repairs completed on vehicles that are not affected or were completed by another dealer.

### III. PREPARATION

#### A. PARTS

Part Number	Part Description	Quantity
04007-0910C	REAR BUMPER REINFORCEMENT KIT w/o SONAR*	1
*The kit above includes the following parts:		
Part Number	Part Description	Quantity
52153-0C040	Rear bumper side stay RH (RH Support)	1
52154-0C030	Rear bumper side stay LH (LH Support)	1
52178-0C050	Rear bumper bar corner reinforcement RH	1
52179-0C040	Rear bumper bar corner reinforcement LH	1
52163-0C070	Rear bumper plate RH (tread)	1
52164-0C060	Rear bumper plate LH (tread)	1
90178-A0104	Nut	2
90119-A0048	Bolt	8
52057-0C061	Rear bumper pad assembly w/o Sonar Parking	1

Part Number	Part Description	Quantity
04007-0920C	REAR BUMPER REINFORCEMENT KIT with SONAR*	1
*The kit above includes the following parts:		
Part Number	Part Description	Quantity
52153-0C040	Rear bumper side stay RH (RH Support)	1
52154-0C030	Rear bumper side stay LH (LH Support)	1
52178-0C050	Rear bumper bar corner reinforcement RH	1
52179-0C040	Rear bumper bar corner reinforcement LH	1
52163-0C070	Rear bumper plate RH (tread)	1
52164-0C060	Rear bumper plate LH (tread)	1
90178-A0104	Nut	2
90119-A0048	Bolt	8
52057-0C081	Rear bumper pad assembly with Sonar Parking	1

Note: Warranty will only allow campaign part kits on the claim. Do not order parts individually.

#### B. TOOLS & EQUIPMENT

- Techstream
- Standard Hand Tools
- Torque Wrench

SST – These Special Service Tools required for this repair:

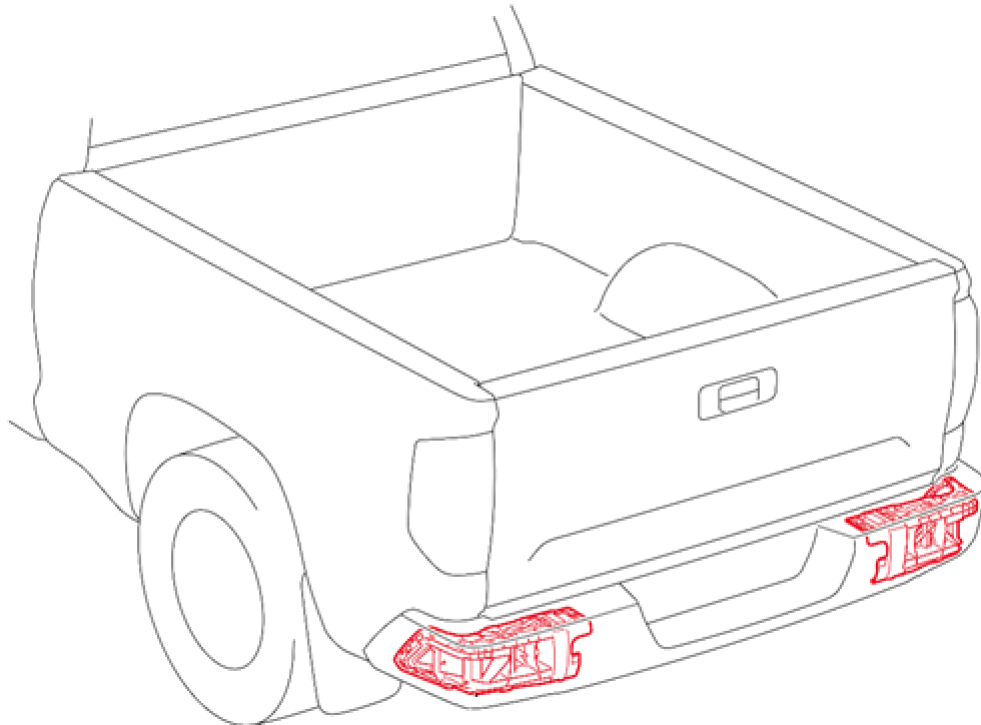
Part Number	Tool Name	Quantity
09870-50011	Laser Radar Adjusting Reflector	1
09870-60040-02	Reflector C	1
11816-00010-01	Radar Sensor Alignment Kit*	1
*The set above includes these necessary tools:		
01816-00103	3 Plane Laser Level	1
01816-00103	Laser Target	1
01816-00103	Laser Level Tripod	1
01816-00109	Laser Enhancing Glasses	1

#### C. MATERIALS

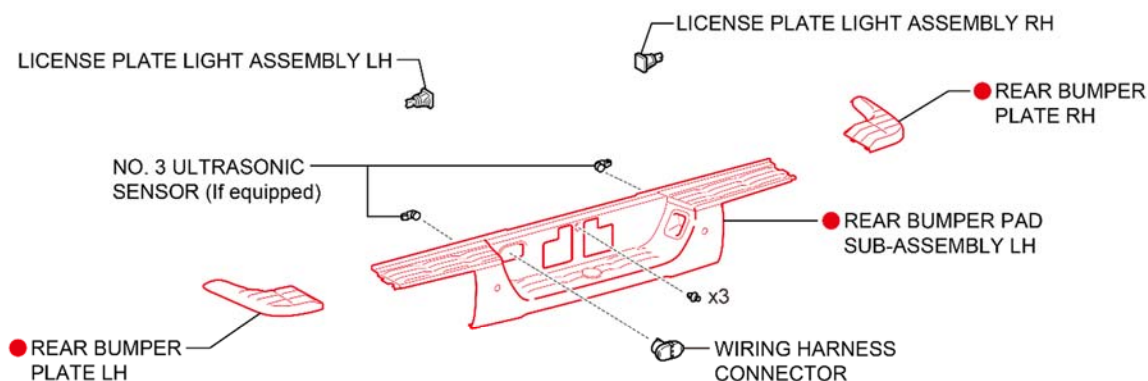
- 2" wide Painters Tape
- Black Marker
- Tape measure

#### IV. BACKGROUND

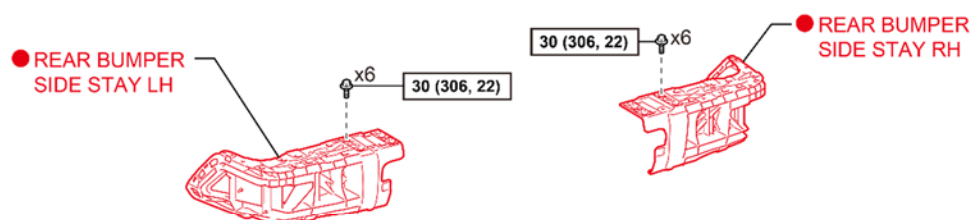
The involved vehicles are equipped with resin rear step bumpers and reinforcement brackets at each corner. In the event of an impact to the corner of the bumper, the resin bracket may become damaged but not be noticed. If a person steps on the corner of the bumper that is damaged, a portion of it may break away, increasing the risk of injury.



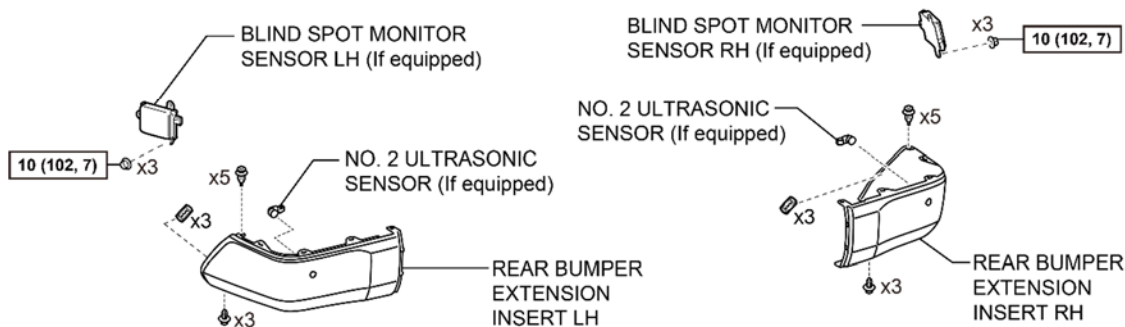
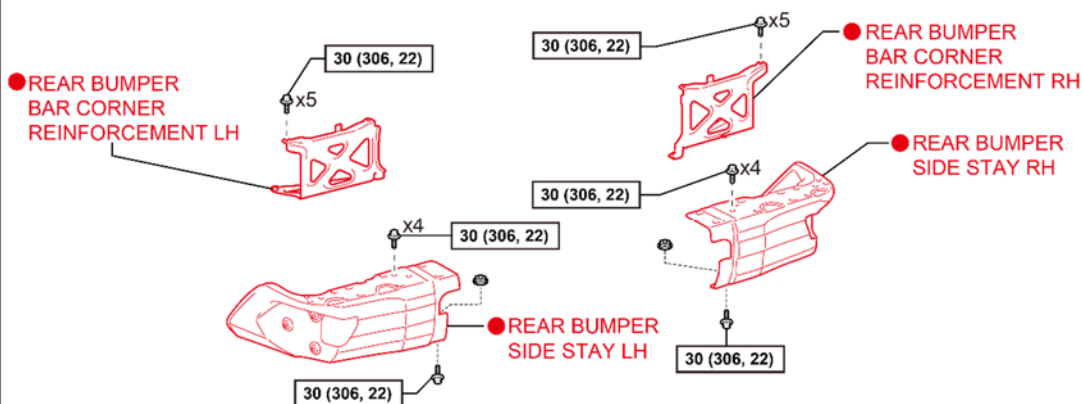
## V. COMPONENTS



**OLD:** The bolts will be reused for installation



**NEW:** In addition to the existing 12 bolts, supplied new bolts and nuts will be used to install the components shown below



● : Component to be replaced

N\*m (kgf\*cm, ft.\*lbf) : Specified torque

S65003cS

## VI. INSPECTION

### 1. VERIFY FACTORY INSTALLED EQUIPMENT

- a) This Safety Recall will only be completed on vehicles that have an original equipment rear bumper with the resin side stays. If the customer has modified the vehicle and removed the resin side stays, this Safety Recall can't be completed.

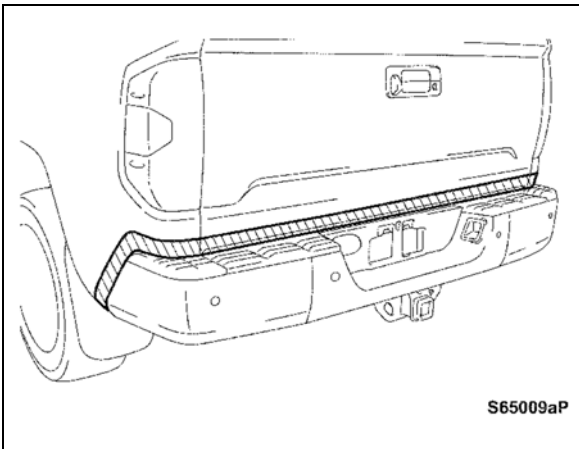
### 2. INSPECT FOR DAMAGE

- b) Proper assembly and adjustment of the new side stays depends on the bumper reinforcement or hitch to be free from structural damage. Inspect these components for any damage, and if found, advise your Service Manager and the Customer. Cosmetic damage to plastic covers is acceptable, but structural damage to the bumper reinforcement or hitch is not. Repairs are not covered under this Recall, and may be necessary before proceeding.

### 3. CHECK COMPONENT FUNCTIONS

- a) Check that the ultrasonic parking sensors are operational (for models with Intuitive Parking Assist), as they will be removed and reinstalled.
- b) Check for DTC's related to the Blind Spot Monitor system (for models with Blind Spot Monitor).
- c) Check that the license plate lights function correctly

## VII. REMOVE BUMPER SIDE STAYS LH & RH

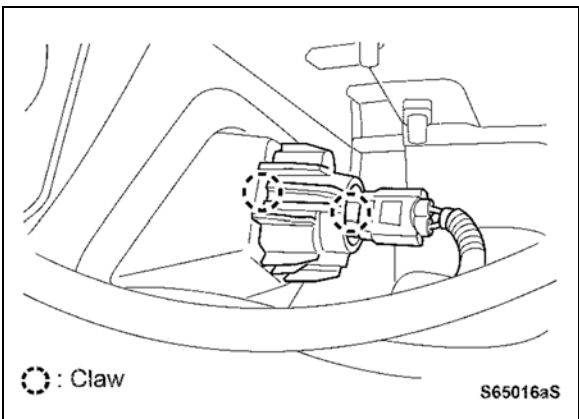


### 1. PROTECT PAINTED SURFACES

- a) Apply painters tape to the painted surfaces as shown.

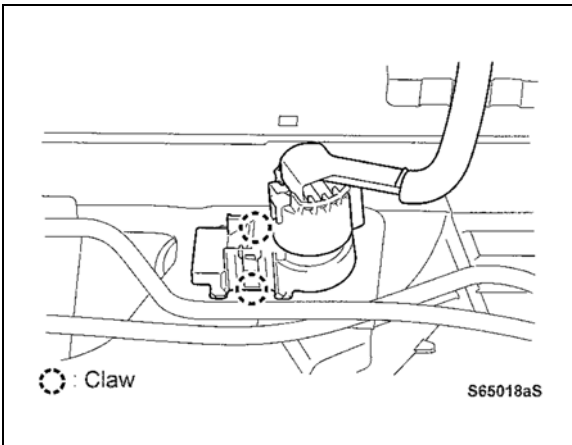
### 2. REMOVE REAR LICENSE PLATE

**Note: Steps 3-7 are performed from the backside of the rear bumper.**



### 3. REMOVE LICENSE PLATE LIGHT LH & RH

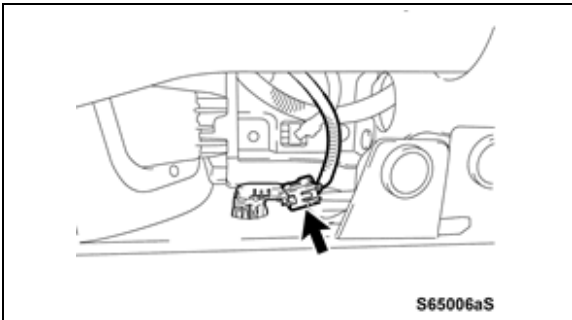
- a) Depress the two claws on the license plate light assembly and push it out of the bumper pad.
- b) Disconnect the electrical connector once the light assembly has been pushed through the bumper pad.



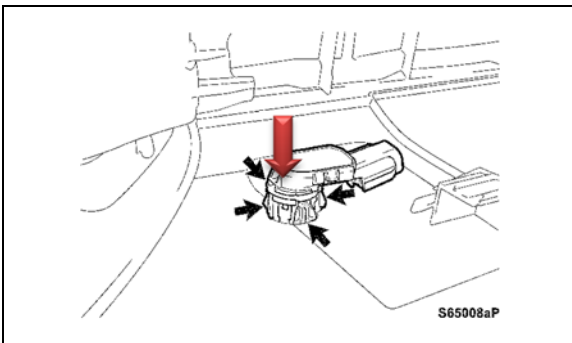
4. **REMOVE WIRING HARNESS CONNECTOR** (w/ Towing Package)
  - a) Depress the 2 metal claws and push the trailer light connector through the bumper pad.
5. **REMOVE CONNECTOR COVER** (w/o Towing Package)



**Failing to remove the Wiring Harness Connector in this step could result in damage to this part when removing the rear bumper pad.**



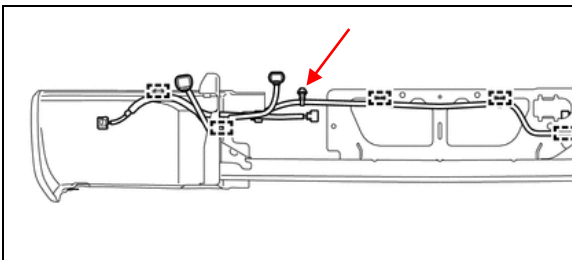
6. **REMOVE ULTRASONIC PARKING SENSORS** (w/ Intuitive Parking Assist)
  - a) Disconnect the electrical connectors for the two **inboard** ultrasonic parking sensors.



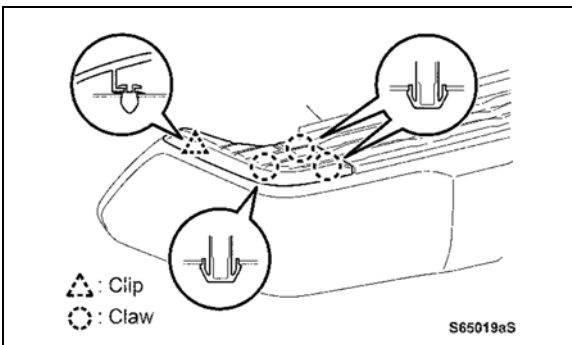
- b) While depressing the 4 retaining claws, push the end of the sensor and gently roll the sensor through the bumper pad.



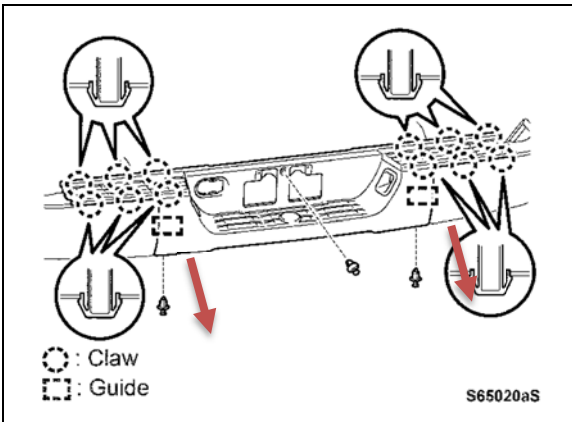
**DO NOT discard these parking sensors, as they will be reused.**



7. **DETATCH WIRE HARNESS RETAINING CLIP**
  - a) Using a small screwdriver, compress the two tabs on the retaining clip and gently pull the clip through the bumper pad.

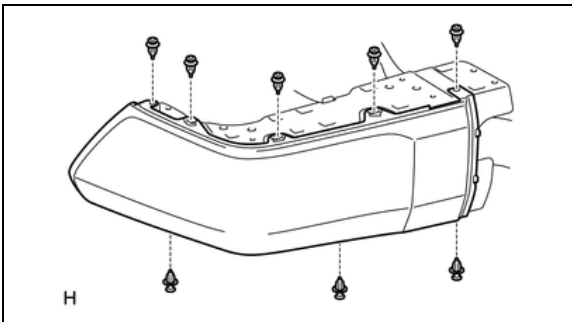


8. **REMOVE BUMPER PLATE LH & RH**
  - a) Pull straight up on the bumper plate to disengage the retaining claws and clip. Discard the bumper plates as they will not be reused.



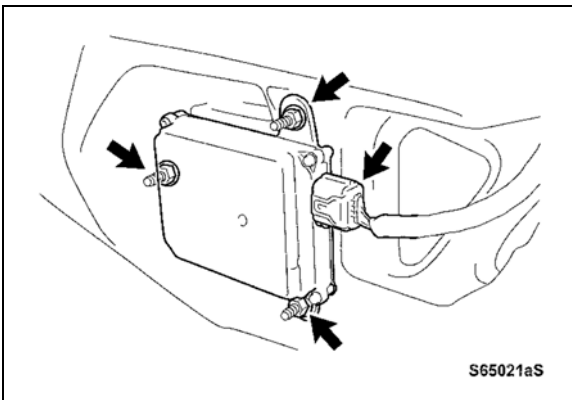
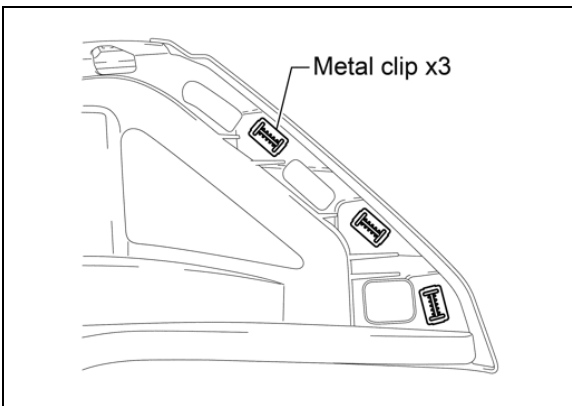
## 9. REMOVE REAR BUMPER PAD

- Remove the 3 retaining clips.
- Pull out on the bottom of the bumper pad and then start to roll it upward to disengage the plastic retaining claws. Some of these claws may break off from off the bumper pad.
- Discard the rear bumper pad as it will not be reused.
- Remove any of the claws from the vehicle that may have broken off from the bumper pad.



## 10. REMOVE REAR BUMPER EXTENSION LH & RH

- Remove the 7 push clips and one screw clip.
- Remove the 3 metal clips from the leading edge of the bumper extension by grabbing the forward edge of the bumper extension and pulling outward. The metal clips should pop off as the bumper extension comes free. Save the clips as they will be reused.
- Unplug Sonar Parking Sensor (w/ Intuitive Park Assist)



## 11. REMOVE BLIND SPOT MONITOR LH & RH

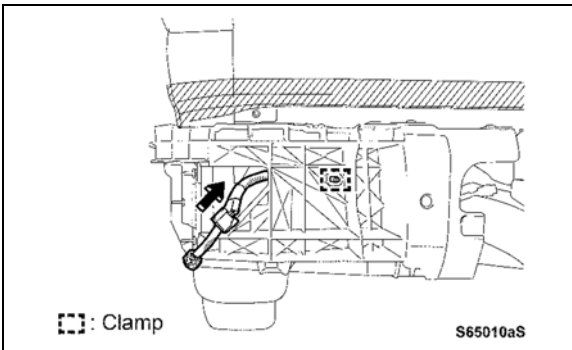
(w/ Blind Spot Monitoring System)

- Place a piece of tape on each sensor, and label which side it belongs (LH or RH).
- Disconnect the electrical connector
- Remove the 3 bolts and remove the sensor.



**DO NOT drop a blind spot monitor sensor. If it is dropped, replace with a NEW sensor.**

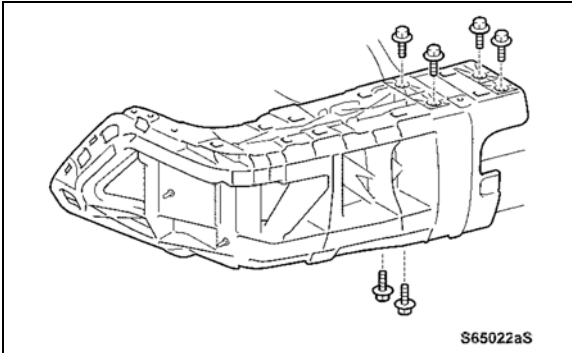




## 12. SEPARATE WIRE HARNESS LH & RH

(w/ Blind Spot Monitoring System)

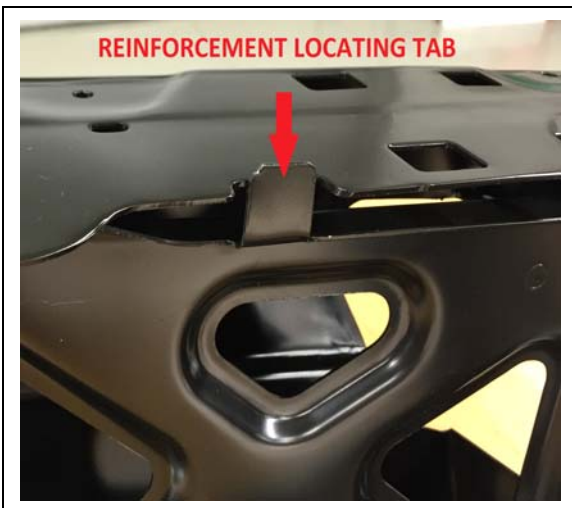
- Using a screwdriver or pliers, release the clamp to detach the wire harness from the bumper stay.
- Feed the harness through the back of the resin side stay.



## 13. REMOVE REAR SIDE STAY LH & RH

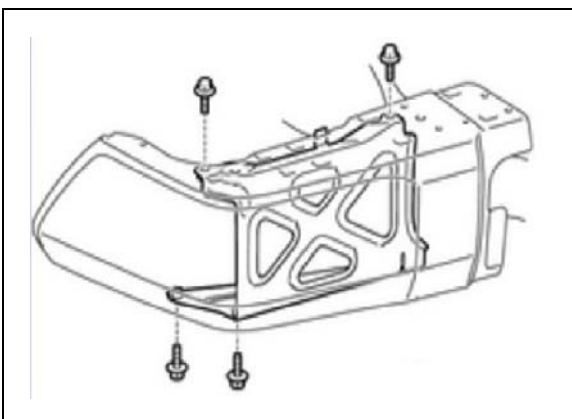
- Remove the 6 bolts
- Separate the rear side stay from the vehicle.
- Discard this resin side stay as it will not be reused.

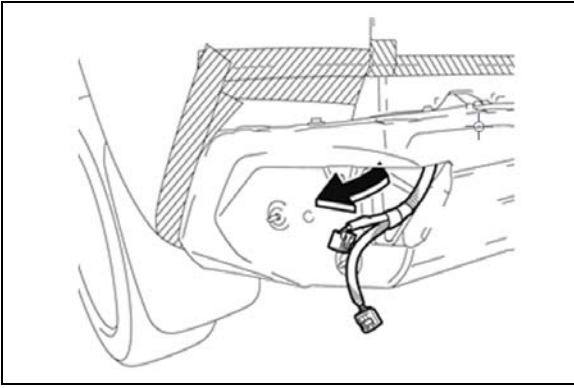
## VIII. INSTALL SIDE STAYS LH & RH



### 1. ASSEMBLE **NEW** SIDE STAY LH & RH

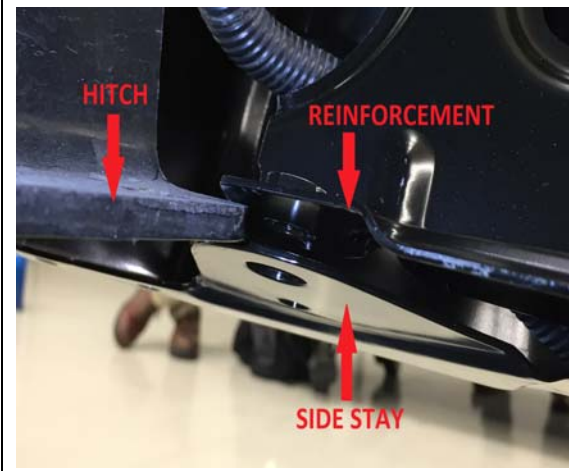
- Slide the **NEW** Corner Reinforcement into the back of the **NEW** Side Stay. Align the locating tab of the Corner Reinforcement with the notch in the top of the Side Stay.
- Start the 4 **NEW** bolts as indicated, but **do not tighten**. Do not install a bolt in the 5<sup>th</sup> bolt hole at this time.





## 2. FEED WIRE HARNESS THROUGH **NEW** SIDE STAY LH & RH (w/ Blind Spot Monitor)

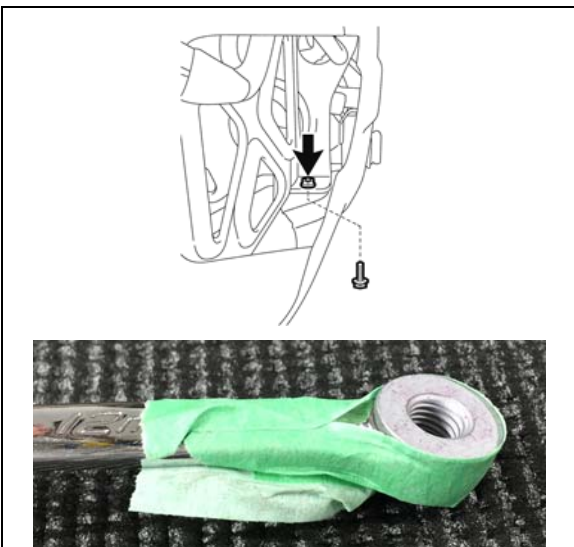
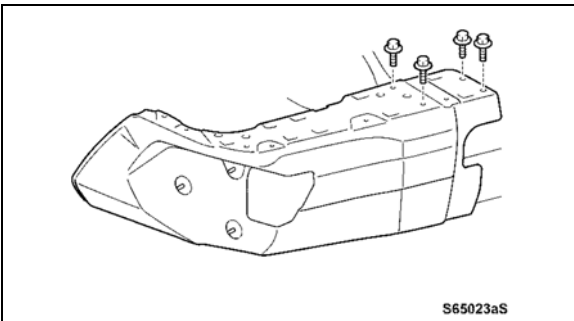
- Feed the wire harness through the opening between the reinforcement and the side stay as you guide the assembly into place.



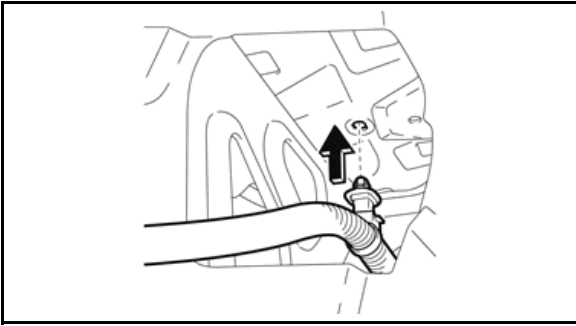
## 3. INSTALL SIDE STAY LH & RH

Note: The hitch/reinforcement bar will fit between the **NEW** corner reinforcement and the **NEW** bumper side stay.

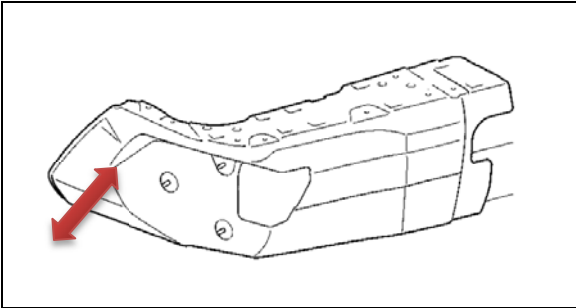
- Position the **NEW** assembled side stay into place.
- Reinstall the 4 bolts on the top of the **NEW** side stay, but **do not tighten**.
- Reinstall the 2 bolts on the bottom of the side stay. The rearmost bolt will require a **NEW** nut as shown. Do not tighten the bolts.



Hint: Use tape to secure the nut to a 12mm box end wrench. You will be able to reach into the end of the side stay with the wrench to hold the nut in place while rotating the bolt.



- d) Clip the wire harness retaining clip into the top of the **NEW** side stay.

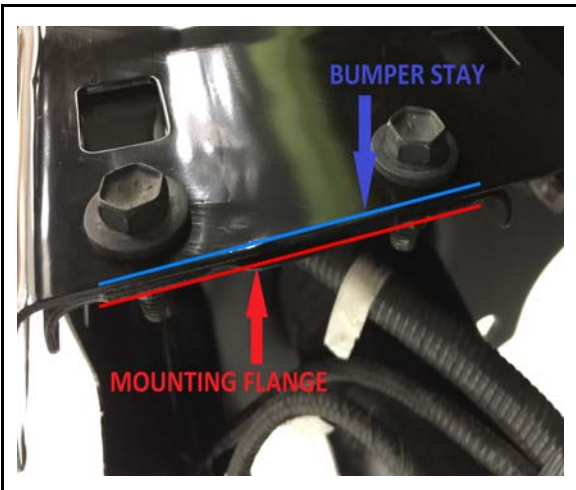


#### 4. ALIGN SIDE STAY LH & RH

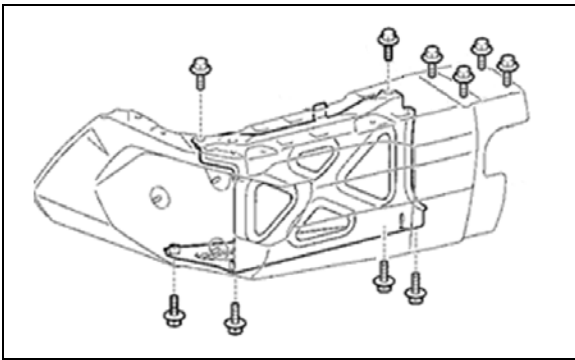
- a) With ALL 10 of the bolts still loose, the alignment of the side stay can be adjusted by moving the forward end inward and outward.



- b) Use the edge of the mounting flange on the hitch / reinforcement bar as a reference for proper alignment of side stay.

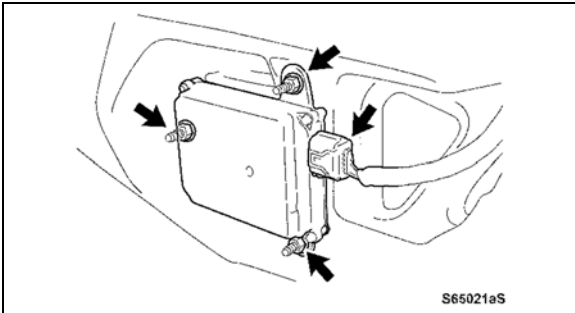


- c) Align the **NEW** side stay so that the edge is parallel with the mounting flange from the hitch/draw bar.



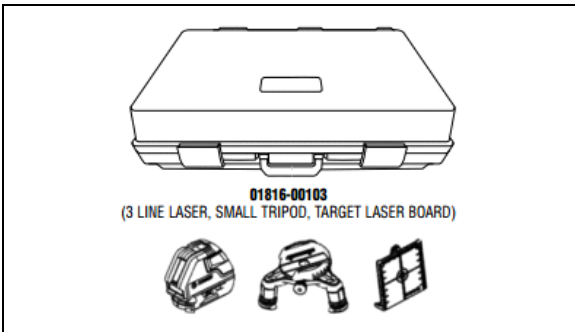
- d) Once the side stay is properly aligned, torque the 10 bolts:

**TORQUE 22 ft.lbs {30Nm, 306kgf\*cm}**



## 5. REINSTALL THE BLIND SPOT MONITOR SENSOR LH & RH (if equipped)

- a) Slide the sensor onto the studs and install nuts.  
**TORQUE 7 ft.lbs {10Nm, 102kgf\*cm}**  
b) Connect the electrical connector



- If vehicle is equipped with Blind Spot Monitor, proceed to section **IX. CALIBRATE BLIND SPOT MONITOR** on page #12.

or

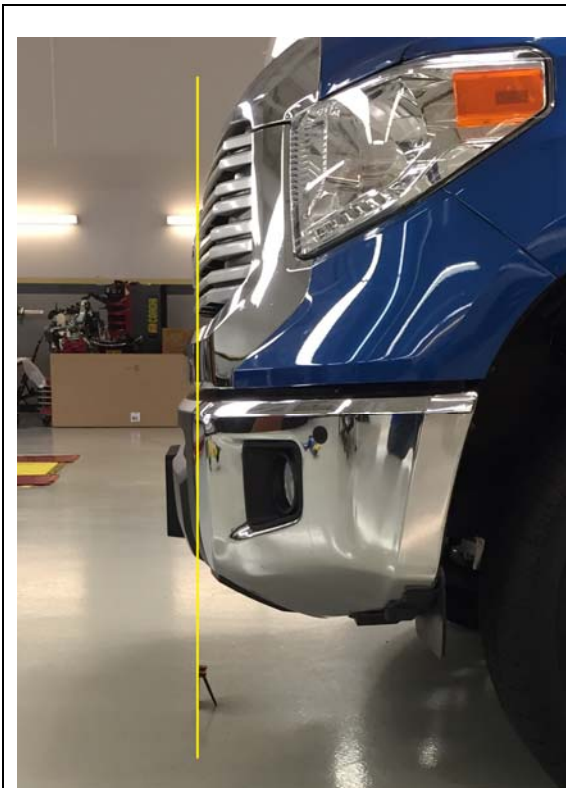
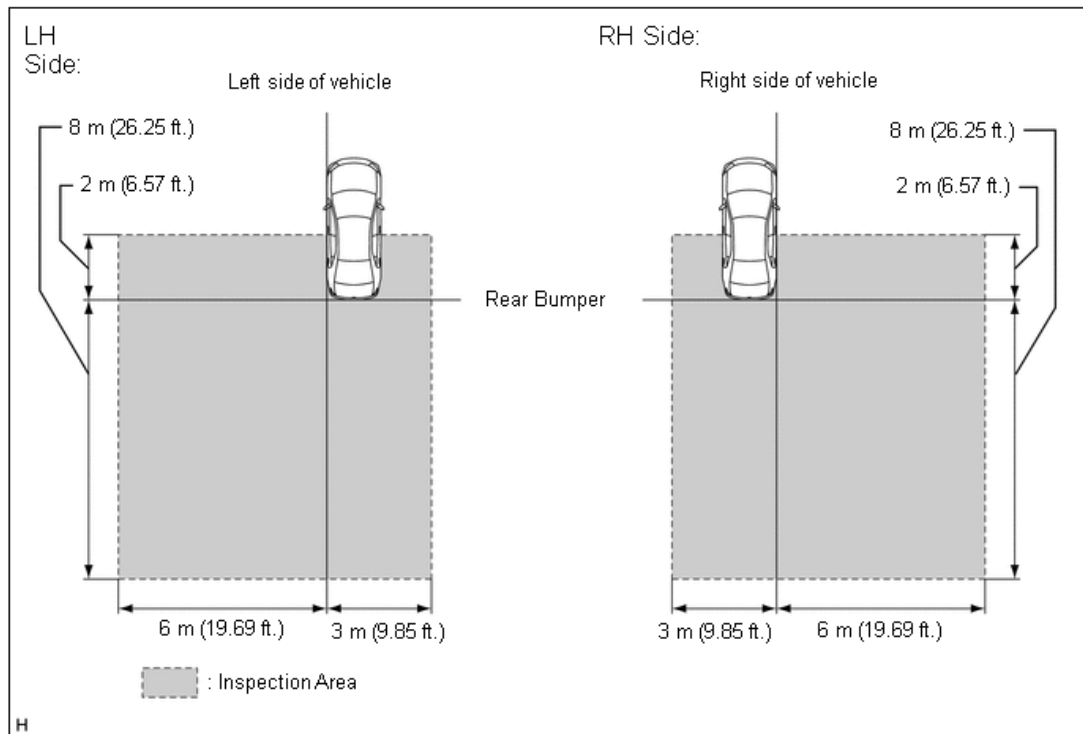
- If vehicle is NOT equipped with Blind Spot Monitor, skip to section: **X. INSTALL BUMPER EXTENSIONS AND PAD** on page #22.

## IX. CALIBRATE BLIND SPOT MONITOR

Notice:

- Perform this procedure on a level shop floor
- Make sure there are no metal objects around the vehicle or on the ground
- Unload the vehicle before beginning the calibration
- Confirm that the tire pressure is correct
- Do not place an object other than the calibration reflector in the Inspection Area shown in the illustration below.
- Check that DTC C1ABB and DTC C1ABC are not present

To complete the Blind Spot Monitor Calibration procedure, it is necessary to have the vehicle in a space that is not obstructed and no metal objects. The required dimensions of the open space are as follows:



## 1. LOCATE CENTER POINT – FRONT

- Place the Laser Target from the Laser Level Kit under the vehicle, in the same plane as the Toyota emblem in the grill.

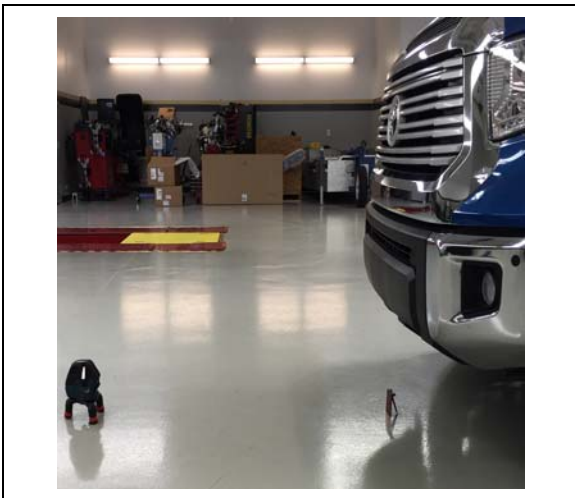
**Laser Target: 01816-00103**



- Assemble the 3 Plane Laser Level onto the Laser Level Small Tripod



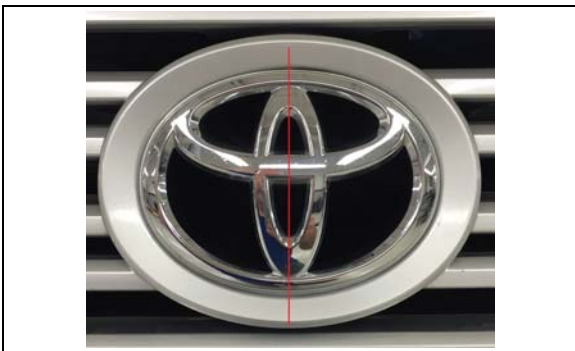




- c) Set the laser level about 4 feet in front of the vehicle. Do your best to center it with the Toyota emblem in the radiator grill.
- d) Turn on the laser level. Make sure to slide the switch to the 2<sup>nd</sup> position, which is marked as "Unlocked".

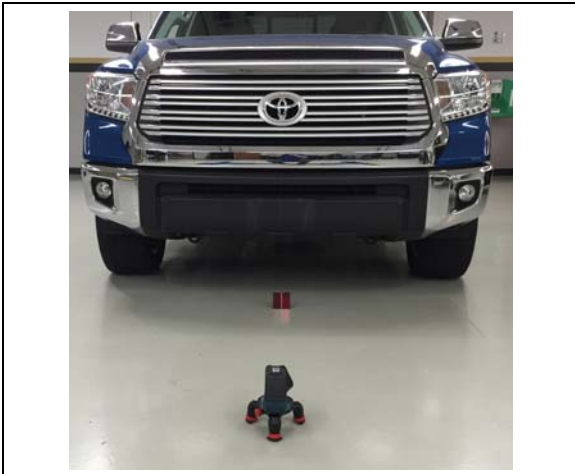


The laser light should be on, but **NOT** flashing. If it's flashing, the switch is incorrectly set to the "Locked" position, and will not auto level.



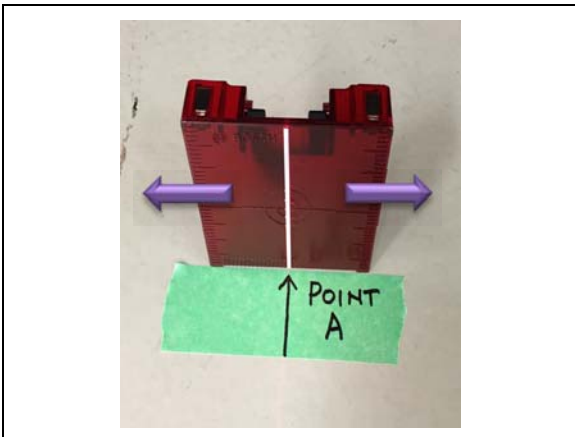
- e) The centerline of the Toyota emblem in the grill will be the reference for vehicle front center point.

**Hint: Wearing the Laser Enhancing Glasses will help you see the laser line with bright ambient lighting.**

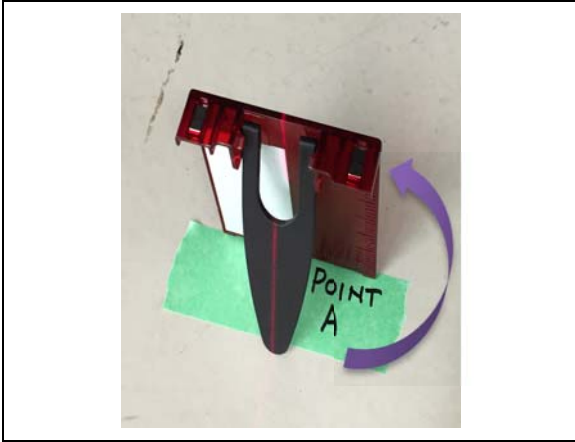


- f) Rotate the laser level clockwise and counter clockwise until the vertical beam is centered on the Toyota logo as shown in Step 1e above.

Note: **Do not** attempt to align the laser with the Laser Target on the floor in this step.



- g) Slide the laser target left or right until the vertical laser beam is centered on the target. Be sure to keep the target on the same plane as the grill emblem (step 1a).
- h) Place a piece of tape on the floor along the leading edge of the laser target.
- i) Using a marker, draw an arrow to indicate the centerline.
- j) Label this as "Point A"

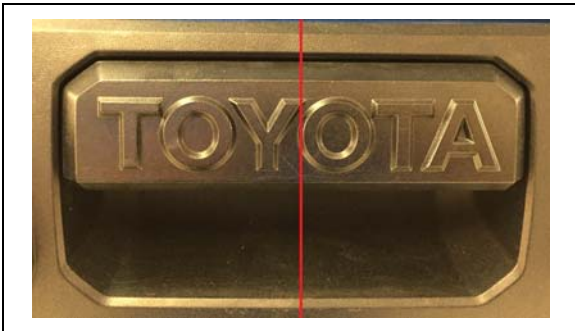


- k) Rotate the laser target 180 degrees, so that it faces the rear of the vehicle. Be sure to line up the centerline of the target with Point A.

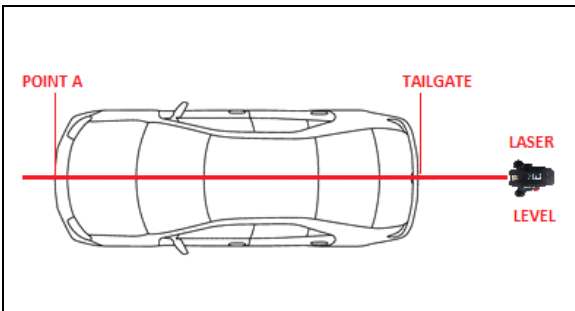


## 2. LOCATE THE CENTER – REAR

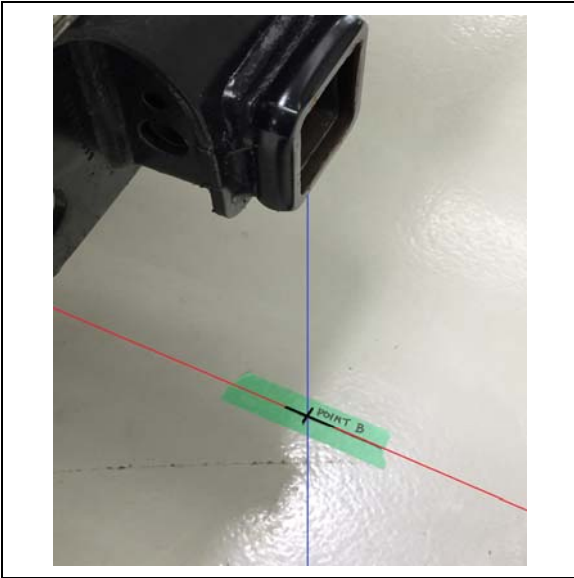
- a) Place the laser level about 4 feet from the rear of the vehicle.



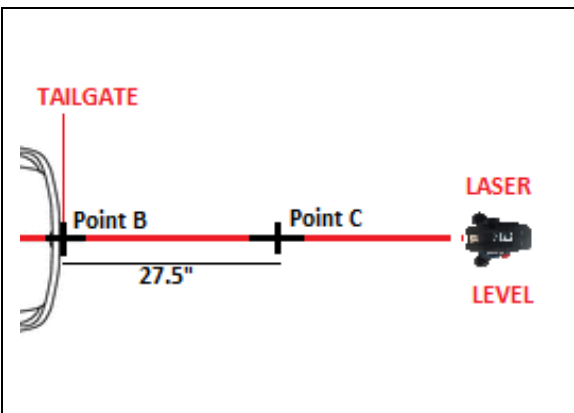
- b) The “TOYOTA” label on tailgate release handle will be the reference point for the rear centerline, midway between the “Y” and the “O”.



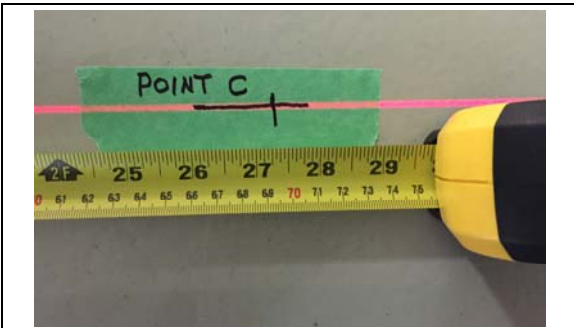
- c) Turn on the laser level to the Unlocked position.  
d) Line up the vertical laser beam so that it intersects BOTH the target at Point A, and the tailgate release handle.



- e) Place a piece of tape on the floor, in line with the laser and the rear of the vehicle.
- f) Trace the laser line onto the tape
- g) Draw a line sideways on the tape to indicate the rear of the vehicle.
- h) Label this intersection Point B



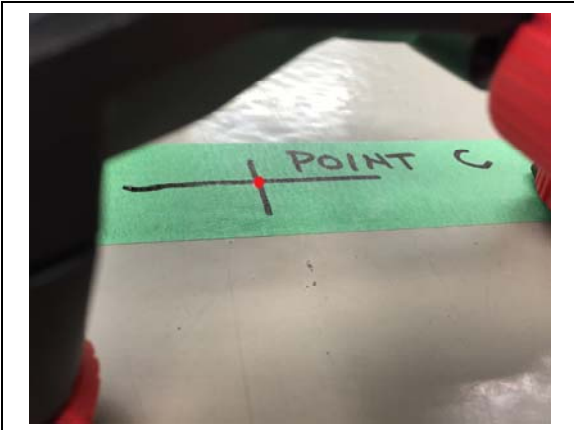
- i) Measure 27.5" (698mm) from Point B along the laser line.



- j) Place a piece of tape on the floor.
- k) Draw the intersection point between the laser line and 27.5" (698mm)
- l) Label this Point C

### 3. LOCATE TARGET SPOT RH

- a) Place the laser level over point C, and line up the laser dot with the intersection point



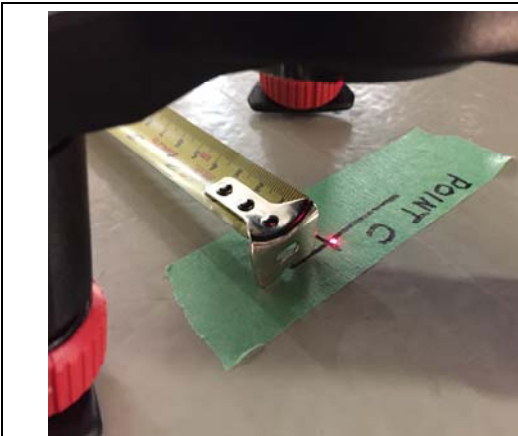




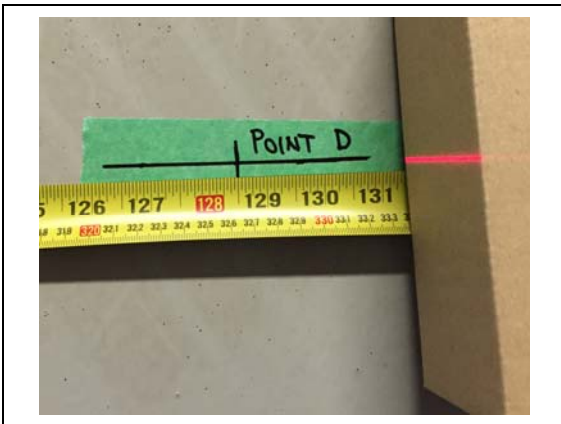
- b) Realign the laser to the centerline of the vehicle by rotating the laser level clockwise and counterclockwise until the vertical laser is centered on the target at Point A. Make sure that the target is still aligned at Point C.



- c) Lay a tape measure along the laser line that is a 90 degree right angle to the vehicle centerline. Extend the tape more than 135" (3,430 mm)

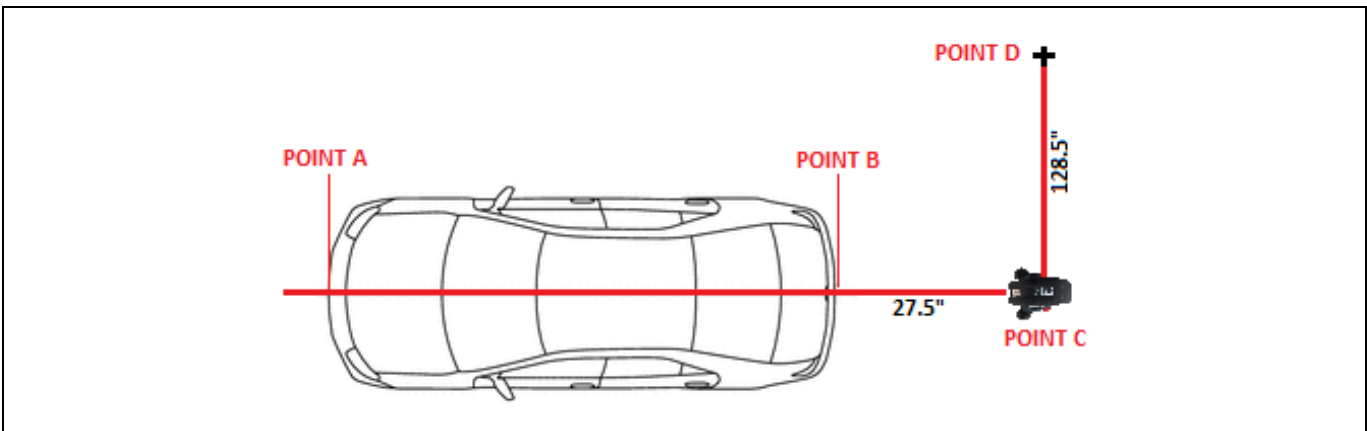


- d) Set the tape measure on the vehicle centerline at Point C.



- e) Mark a point 128 ½" (3264mm) from the vehicle centerline (Point C). Label this Point D.

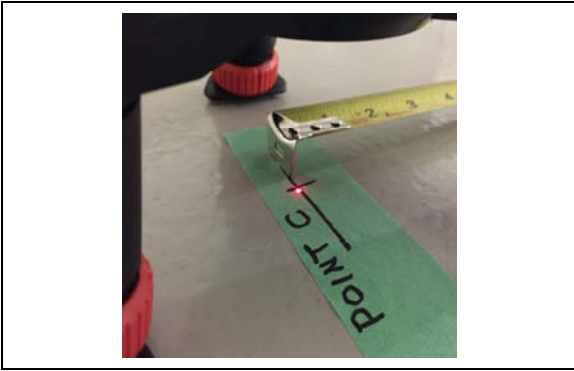
Hint: Because the laser line may be hard to see at Point D, use an object (like the cardboard box shown) that will reflect the laser line better than the floor.



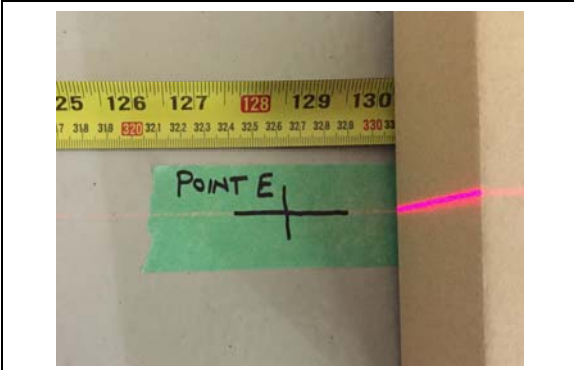
- f) Rotate the laser level 90 degrees counter-clockwise.  
g) Realign the laser with Target A to reestablish the vehicle centerline.



- h) Lay a tape measure along the laser line. Extend the tape more than 135" (3,430 mm).

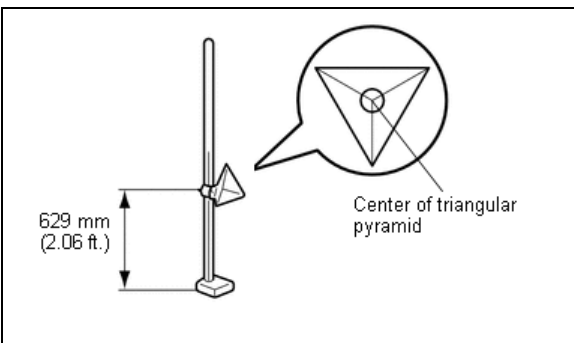
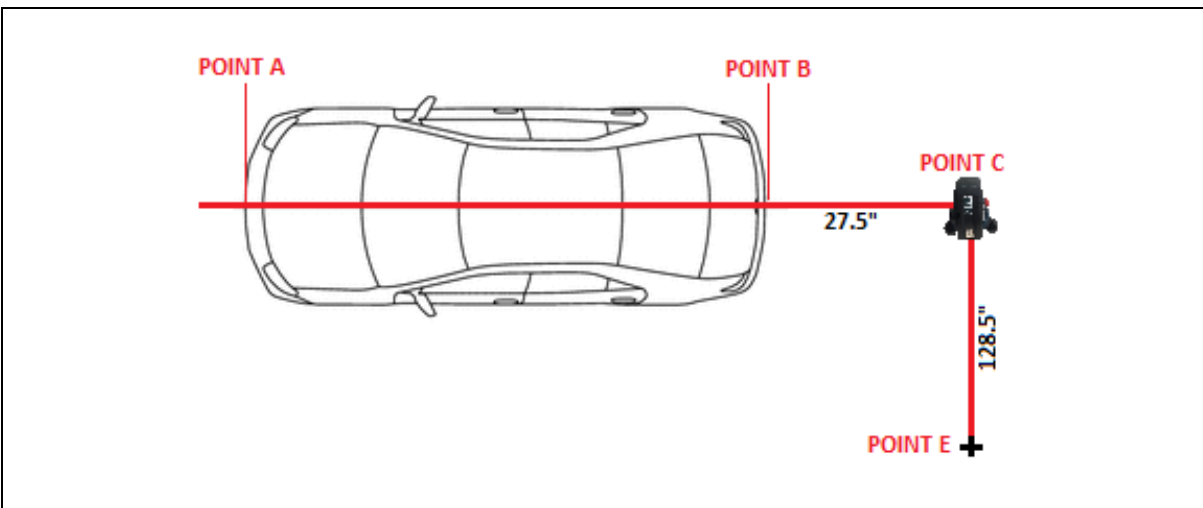


- i) Set the end of the tape measure on the vehicle centerline at Point C.



- j) Mark a point 128 ½" (3264mm) from the vehicle centerline (Point C). Label this Point E.

Hint: Because the laser line may be hard to see at Point D, use an object (like the cardboard box shown) that will reflect the laser line better than the floor.



#### 4. PREPARE REFLECTOR

- a) Set the height of the reflector to 24 ¾" (629mm) the floor. The center of the triangular pyramid is the reference point for this measurement.

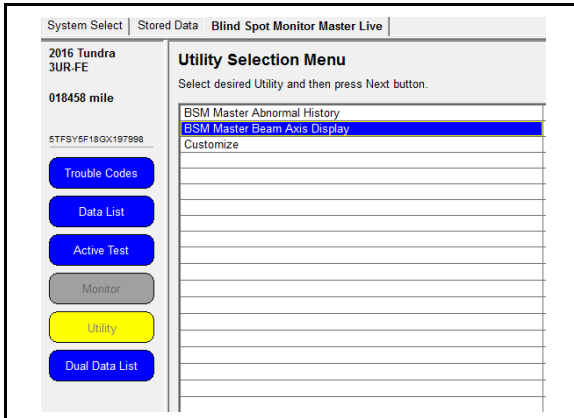


## 5. CALIBRATE RH BSM SENSOR

- a) Set the reflector at Point D. With the reflector pointed toward the vehicle, align the mark on the FRONT of the reflector base with Point D.

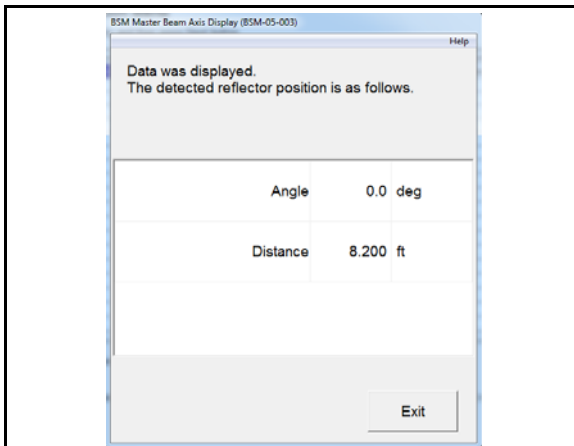


- b) Aim the reflector toward the RH Blind Spot Monitor Sensor.



## 6. PERFORM RH CALIBRATION

- a) Connect the Techstream
- b) Select BLIND SPOT MONITOR MASTER from the System Select Menu.
- c) Select BSM MASTER BEAM AXIS **DISPLAY**

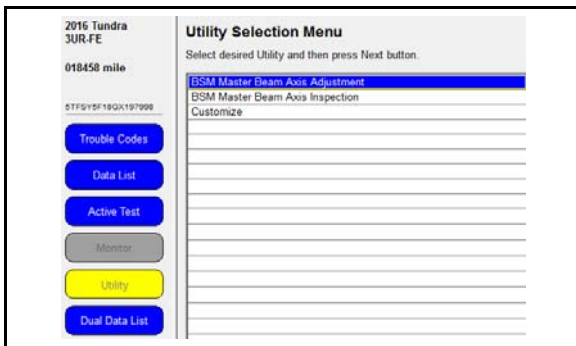


- d) Verify the displayed values are within tolerance:

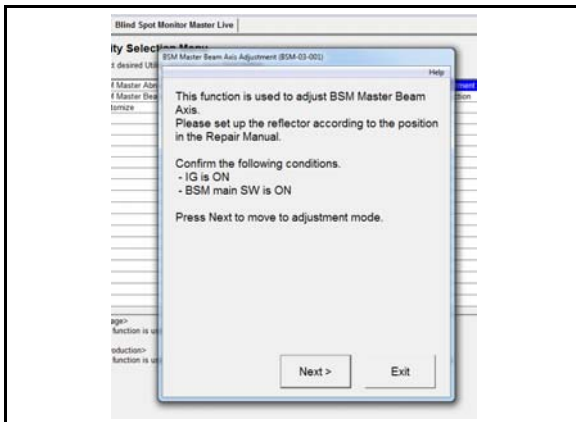
Angle:  $-3.6^{\circ}$  to  $+3.6^{\circ}$

Distance: 6.57 to 9.85 ft.

- e) If the displayed values are not within tolerance, recheck the centerline measurements and/or the BSM sensor mounting before proceeding.
- f) Exit from Axis beam Display



- g) Select BSM MASTER BEAM AXIS ADJUSTMENT from the Utility Selection Menu

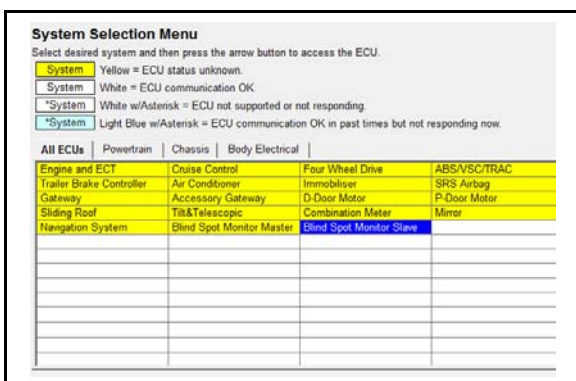


- h) Confirm the indicated conditions are met.  
i) Select NEXT  
j) Once the BSM Adjustment is completed, EXIT from this operation.

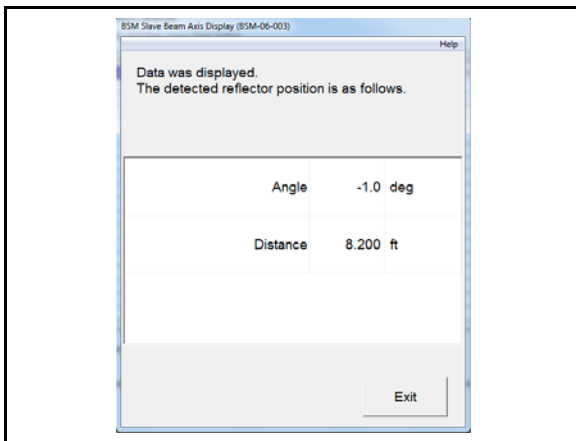


## 7. CALIBRATE LH BSM SENSOR

- a) Set the reflector at Point E. With the reflector pointed toward the vehicle, align the mark on the FRONT of the reflector base with Point E.  
b) Aim the reflector toward the LH Blind Spot Monitor Sensor.



- c) Select BLIND SPOT MONITOR SLAVE from the System Select menu.  
d) Select BSM SLAVE BEAM AXIS DISPLAY

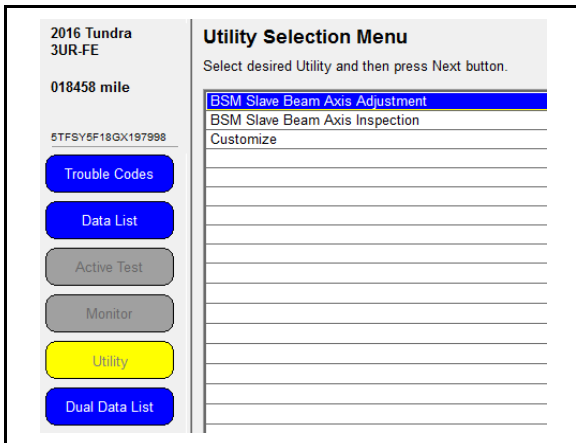


e) Verify the displayed values are within tolerance:

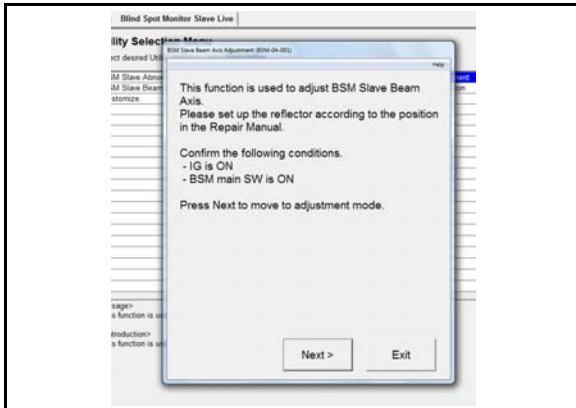
Angle:  $-3.6^{\circ}$  to  $+3.6^{\circ}$

Distance: 6.57 to 9.85 ft.

- f) If the displayed values are not within tolerance, recheck the centerline measurements and/or the BSM sensor mounting before proceeding.
- g) Exit from Axis beam Display

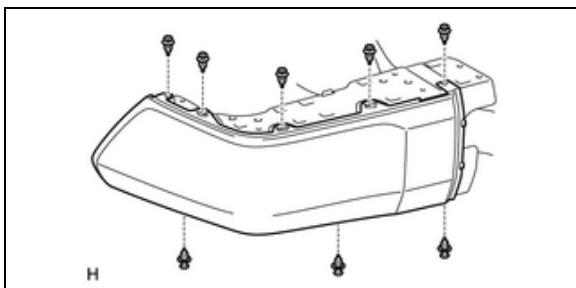


h) Select BSM SLAVE BEAM AXIS **ADJUSTMENT** from the Utility Selection Menu.



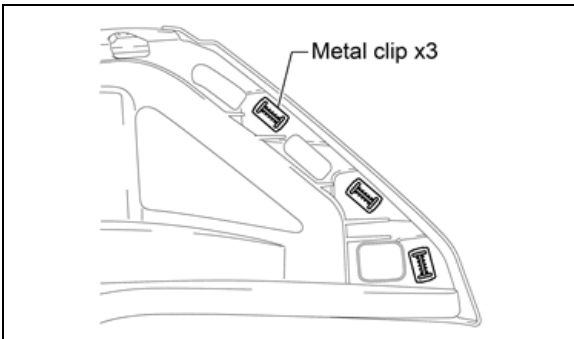
- i) Confirm the indicated conditions are met.
- j) Select NEXT
- k) Once the BSM adjustment is completed, EXIT from this operation.

## X. INSTALL BUMPER EXTENSIONS AND PAD



### 8. REINSTALL BUMPER EXT. INSERT LH & RH

- a) Connect the Parking Sensor (if equipped)
- b) Reinstall the 7 push clips and 1 screw clip

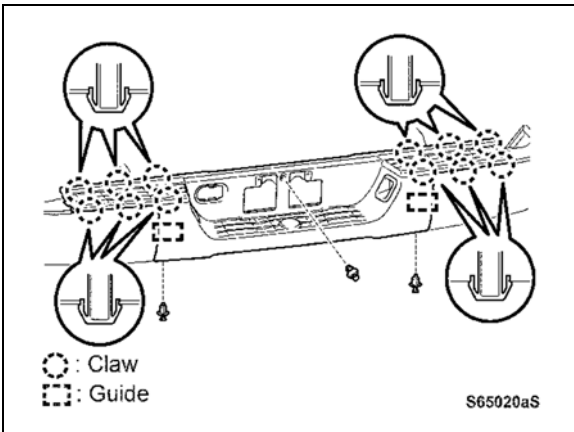


c) Reinstall the 3 metal clips.



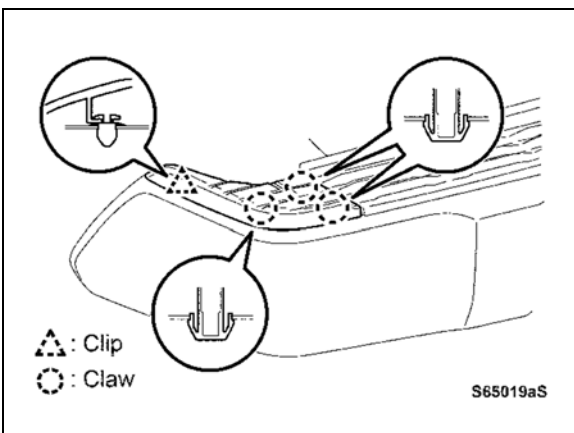
## 9. INSTALL **NEW** REAR BUMPER PAD

a) There are 2 locating guides on the back of the rear bumper pad that must be properly aligned to slide the cover into place. Ensure that these guides are aligned properly when installing.



b) Line up the 14 claws of the **NEW** rear bumper pad with their corresponding holes. Once they are all lined up, push down firmly on the bumper pad to fully engage the claws.

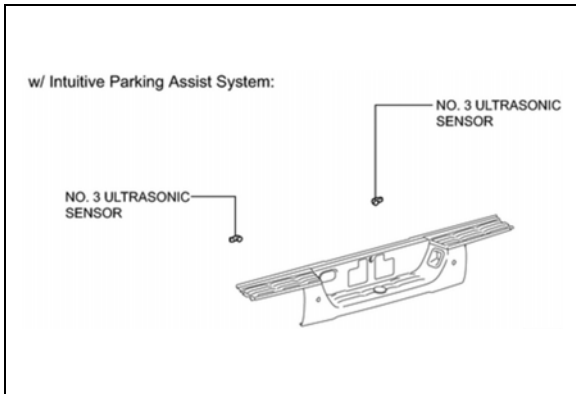
c) Reinstall the 3 push clips.



## 10. INSTALL **NEW** REAR BUMPER PLATE LH & RH

a) Line up the claws on the back of the bumper plate and push down firmly to fully engage the claws.





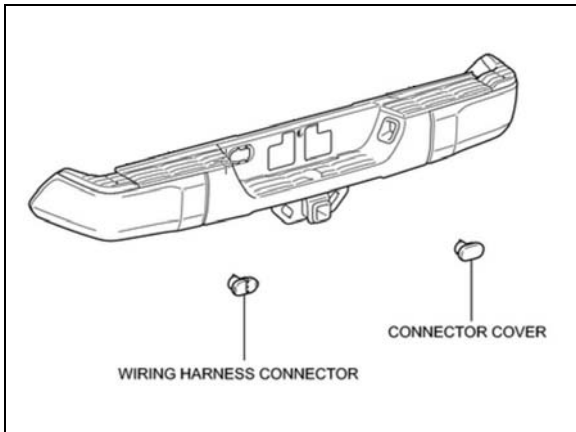
## 11. INSTALL ULTRASONIC PARKING SENSORS

(with Intuitive Park Assist)

- Reinstall the two inboard parking sensors into the **NEW** Bumper Pad assembly. Be sure that all 4 of the tabs on the sensor are properly engaged into the bumper pad.



To prevent damage when installing the sensors, **DO NOT** push on the center of the sensor. Only push on the outer ring of the sensor.

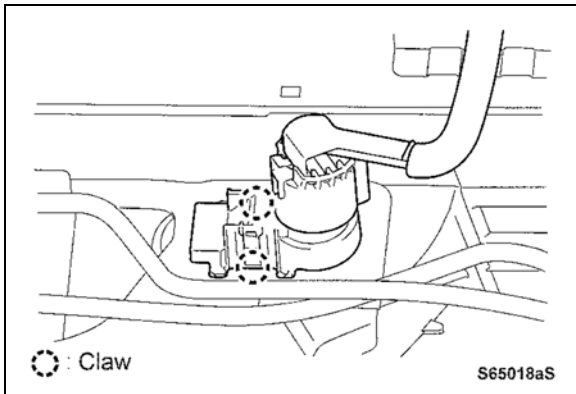


## 12. REINSTALL WIRING HARNESS CONNECTOR

(with Tow Package)

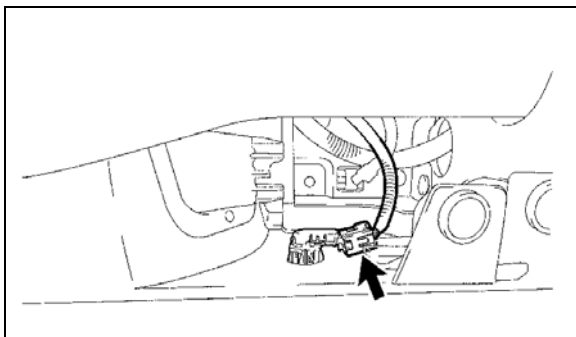
- Push the adapter through the **NEW** bumper pad and lock it into place.

## 13. REINSTALL CONNECTOR COVER (w/o Tow Package)



## 14. CONNECT TRAILER HARNESS (with Tow Package)

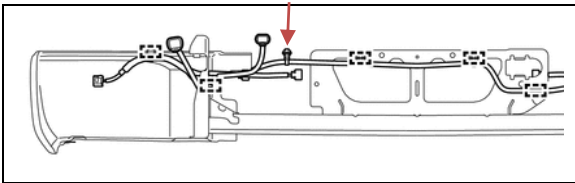
- From behind the bumper, reconnect the electrical connector to the trailer harness adapter.



## 15. CONNECT PARKING SENSORS LH & RH

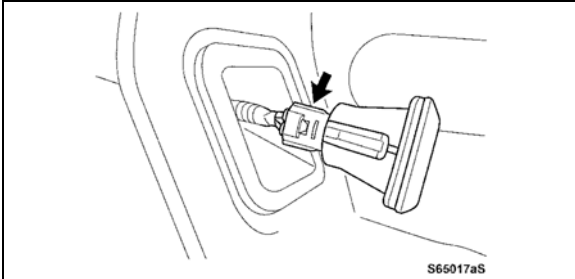
- From behind the bumper pad, reconnect the two parking sensors.





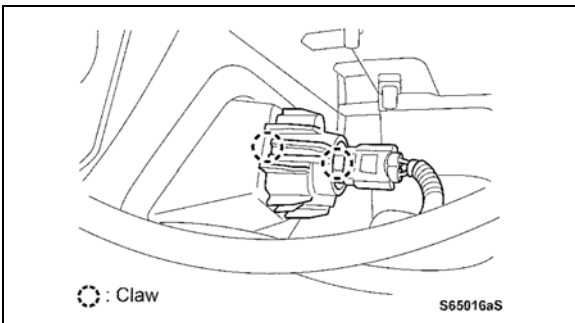
#### 16. INSTALL WIRE HARNESS CLIP

- a) Clip the wire harness retainer into the bottom of the **NEW** rear bumper pad.



#### 17. REINSTALL LICENSE PLATE LIGHT LH & RH

- a) Push the electrical connector through the rear of the bumper pad.
- b) Plug the connector into the light housing



- c) Push the light housing into the bumper pad, checking to make sure that it is securely latched into position

#### 18. REINSTALL LICENSE PLATE

#### 19. REMOVE PROTECTIVE TAPE

### XI. VERIFY REPAIR QUALITY

#### ◀ VERIFY REPAIR QUALITY ▶

- Check that the ultrasonic parking sensors, if equipped, function properly.
- Perform Blind Spot Monitor Beam Axis Inspection and Confirmation (if equipped):  
Refer to TIS for instructions on PARK ASSIST / MONITORING / BLIND SPOT MONITOR SYSTEM
  - OPERATION CHECK
  - BLIND SPOT MONITOR BEAM AXIS INSPECTION
  - BLIND SPOT MONITOR BEAM AXIS CONFIRMATION
- Check for DTC's related to the blind spot monitor sensors:  
Refer to TIS for instructions on PARK ASSIST / MONITORING / BLIND SPOT MONITOR SYSTEM / DTC CHECK / CLEAR
- Check that the license plate lights function properly.

**If you have any questions regarding this update, please contact your regional representative.**

## XII. APPENDIX

### A. PARTS DISPOSAL

As required by Federal Regulations, please make sure all recalled parts (original parts) removed from the vehicle are disposed of in a manner in which they will not be reused, ***unless requested for parts recovery return.***

### B. CAMPAIGN DESIGNATION DECORDER

