

Part Numbers:

PT228-48211(all grades including XSE),

PT228-48200 (all grades except XSE)

Kit Contents

Item #	Quantity Req'd.	Description
PT2228-48200/11 – Tow Hitch Kit		
1	1	Trailer Hitch
2	1	LH mounting bracket
3	1	RH mounting bracket
4	1	Hardware Kit
5	1	Trailer Hitch plug
6	1	Trailer Wire Harness

Hardware Bag Contents

Item #	Quantity Req'd.	Description
1	16	M12 x 1.25 x 45mm bolt
2	2	M12 flange nut
3	2	M5 Flange nut

Additional Items Required For Installation

Item #	Qty	Description
1	1	Converter (PT725-48200)
2	1	Lwr Bumper Cvr (PT228-48204) std
3	1	Lwr Bumper Cvr (PT228-48206-01) Plat
4	1	Lwr Bumper Cvr (PT228-48207-01) Lim
5	1	Lwr Bumper Cvr (PT938-48210) XSE- CAN NOT Install Hitch + Kick Sensor
6	1	Kick Sensor Brkt (PT413-48201-02)
7	1	Kick Sensor (PT83P-48200/01)
8	1	LH Rear Undercover (PT228-48212) or (PT228-48202, except XSE)
9	1	RH Rear Undercover (PT228-48213) or (PT228-48203, except XSE)

Conflicts

Lwr Bumper Cvr (PT938-48210) XSE **(CAN NOT Install Kick Sensor + Tow Hitch)-can install Tow Hitch ONLY**

Vehicle Service Parts (may be required for reassembly)

Item #	Quantity Req'd.	Description
1		
2		
3		

Recommended Tools

Personal & Vehicle Protection	Notes
Safety glasses	
Cloth / shop towel	
Special Tools	Notes
Installation Tools	Notes
Torque wrench	0-100 lbf-ft
½" socket wrench	
½" x 6" socket extension	
½" socket	17mm
⅜" socket wrench	
⅜" x 6" socket extension	
⅜" sockets	8mm, 10mm, 14mm
Small flat head screwdriver	
Phillips head screwdriver	
Rotary cutting tool	
Special Chemicals	Notes

General Applicability

MY20 and newer Highlander, Highlander HV models

Recommended Sequence of Application

Item #	Accessory
1	Converter (see separate installation instructions)
2	Towing Hitch (w/ attached Trailer Wire Harness)
3	Kick Sensor and Bracket (if equipped)
4	Lower Bumper Cover
5	LH & RH Rear Undercovers

*Mandatory

Legend**STOP:** Damage to the vehicle may occur. Do not proceed until process has been complied with.**OPERATOR SAFETY:** Use caution to avoid risk of injury.**CAUTION:** A process that must be carefully observed in order to reduce the risk of damage to the accessory/vehicle and to ensure a quality installation.**TOOLS & EQUIPMENT:** Used in Figures calls out the specific tools and equipment recommended for this process.**REVISION MARK:** This mark highlights a change in installation with respect to previous issue.**SAFETY TORQUE:** This mark indicates that torque is related to safety.**REGULATORY MARK:** This mark indicates the component is related to regulatory compliance

Care must be taken when installing this accessory to ensure damage does not occur to the vehicle. The installation of this accessory should follow approved guidelines to ensure a quality installation.

These guidelines can be found in the "Accessory Installation Practices" document.

This document covers such items as:-

- Vehicle Protection (use of covers and blankets, cleaning chemicals, etc.).
- Safety (eye protection, rechecking torque procedure, etc.).
- Vehicle Disassembly/Reassembly (panel removal, part storage, etc.).
- Electrical Component Disassembly/Reassembly (battery disconnection, connector removal, etc.).

Please see your Toyota dealer for a copy of this document.

1. Preparation for Kick Sensor Installation (if equipped w/ kick sensor)

- (a) The engine components and coolant may be hot.
- (b) Check the kit for contents and any damage.
- (c) Protect the fender.



XSE Grade cannot have both Tow Hitch and Kick sensor installed onto the same vehicle as they conflict in packaging.

2. Precaution (if equipped w/ kick Sensor)



- (a) After turning the ignition switch off, waiting time may be required before disconnecting the cable from the negative (-) auxiliary battery terminal. Therefore, make sure to read the disconnecting the cable from the negative (-) auxiliary battery terminal notices before proceeding with disconnecting battery.



- (b) Operator Safety Warning (if applicable.)

3. HV Battery (if equipped w/ Kick Sensor)

- (a) Turn back the deck board (Fig. 3-1).

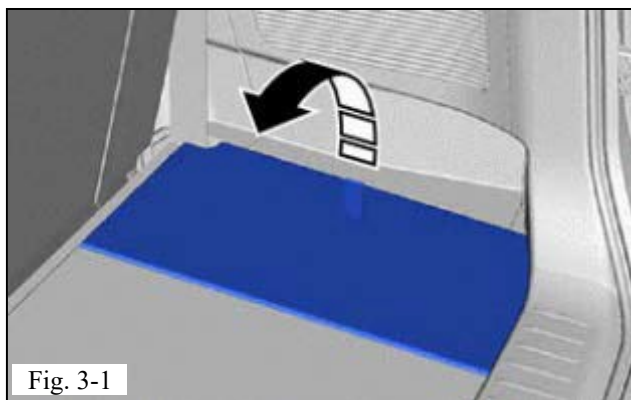
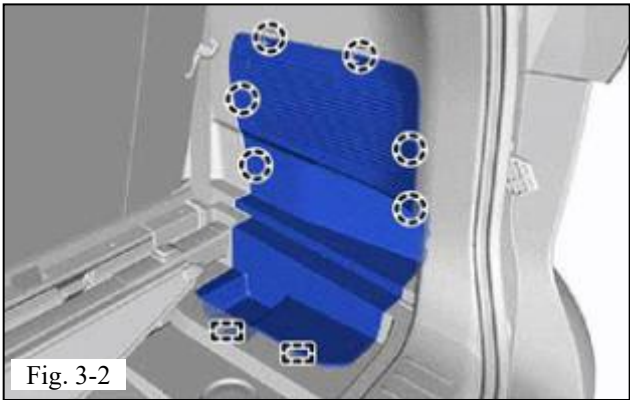


Fig. 3-1



- (b) Disengage the 6 claws and 2 guides to remove the battery service hole cover (Fig. 3-2).



4. Disconnect the Battery Cable (if equipped w/ Kick Sensor)

- (a) Disconnect cable from negative auxiliary battery terminal (Fig. 4-1).

5. Prepare the Vehicle for Hitch Installation.

- (a) Verify the kit contents.

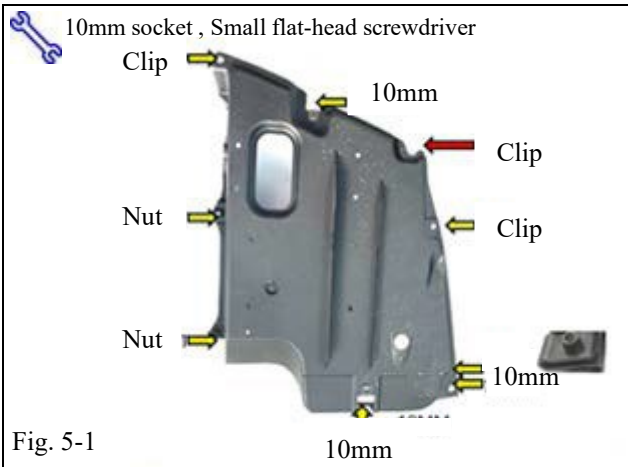
- +** (b) Cover the exhaust pipe with a clean shop towel.

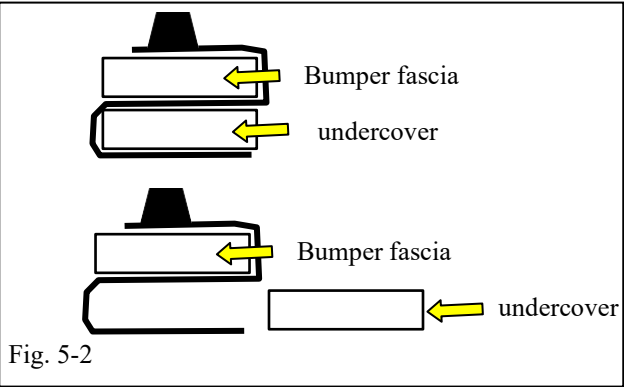
⚠ NOTE: The muffler may be hot and/or sharp.

- +** (c) Wear safety glasses

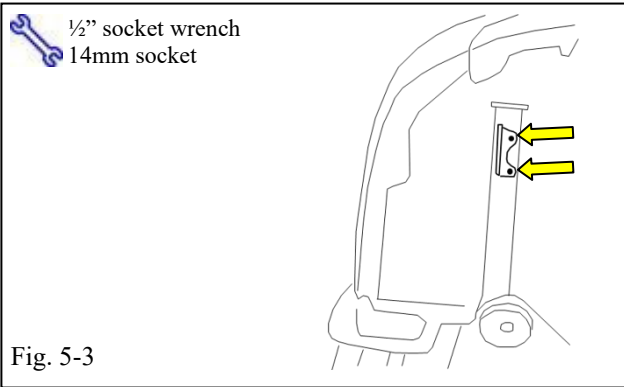
- (d) Remove the lower LH side underbody cover by removing four 10mm bolts, 2 plastic nuts and 2 push pins. Set aside the fastening hardware for later use. Discard the cover (Fig. 5-1).

⚠ NOTE: Save the S-clip.





NOTE: There is an S-shaped fastener connected to both the undercover and inner bumper fascia piece. When removing the undercover, make sure this piece remains installed to the bumper (Fig. 5-1 & 5-2).

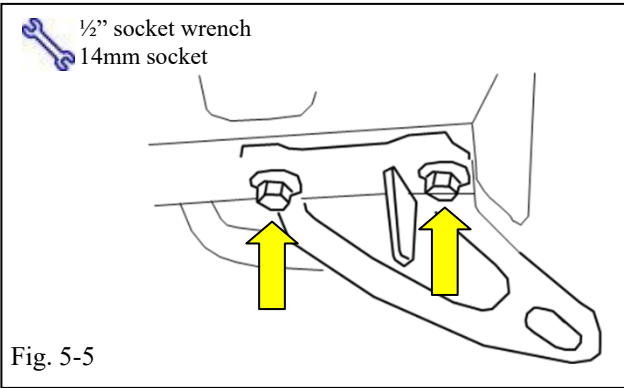


(e) If present, remove the LH side tie down hook by removing 2 bolts. Discard the tie down hook (Fig. 5-3).

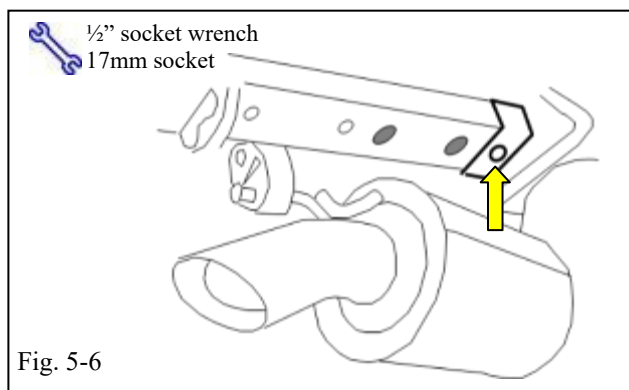


(f) Remove the lower LH side underbody cover by removing four 10mm bolts, and 1 plastic clip. Set aside the fastening hardware for later use. Discard the cover (Fig. 5-4).

NOTE: Save the S-clip.



(g) If present, remove the RH side tie down hook by removing 2 bolts. Discard the tie down hook and bolts (Fig. 5-5).



(h) Remove the strap bracket attached to the frame located above the front of the muffler by removing one bolt. Discard the bolt and bracket (Fig. 5-6 & Fig. 5-7).



6. Remove Rear Mud Guard (If equipped, LH Shown)

- From inside the wheel well, remove the (2) screws (Fig. 6-1).
- From under the bumper, remove the (2) screws (Fig. 6-2).
- Remove the mud guard.
- Repeat Step 6 on opposite side.



7. Remove Quarter Panel Molding

- (a) Apply protective tape around the quarter panel wheel opening as shown in the illustration (Fig. 7-1).

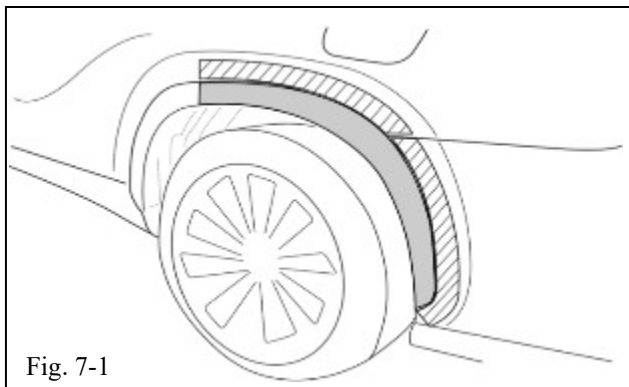


Fig. 7-1

- (b) Using clip removal tool, remove three (3) clips (Fig. 7-2).

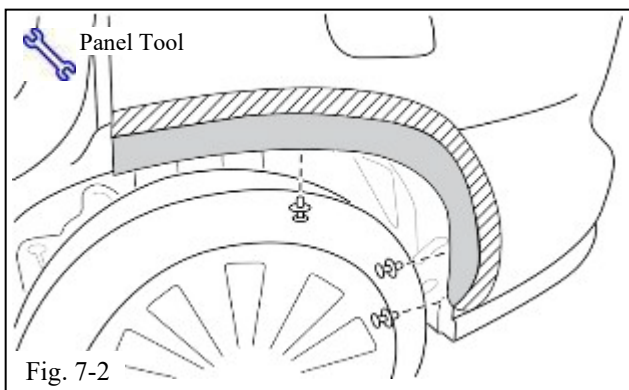


Fig. 7-2

- (c) Remove one (1) screw (Fig. 7-3).

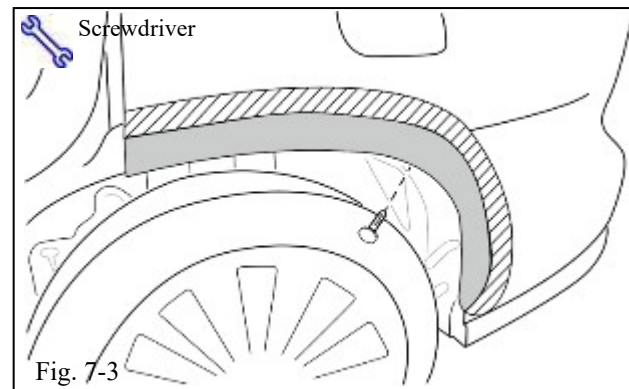


Fig. 7-3

- (d) While pulling the rear bumper assembly, carefully insert a finger between the rear bumper side seal and rear bumper assembly and disengage the three (3) claws shown (Fig. 7-4).

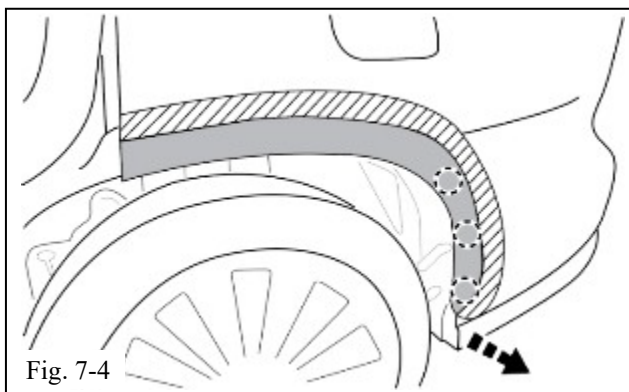
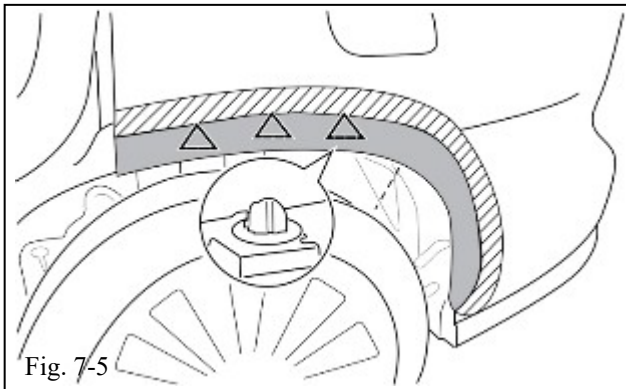


Fig. 7-4



- (e) Disengage the three (3) clips to disconnect the quarter panel wheel opening molding (Fig. 7-5).

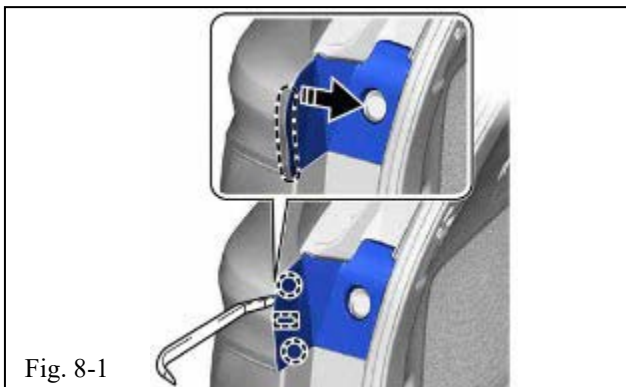


CAUTION: Do NOT apply excessive force when pulling back the rear bumper side seal.

- (1) To avoid damaging the claws, do not forcibly pull the quarter opening molding.

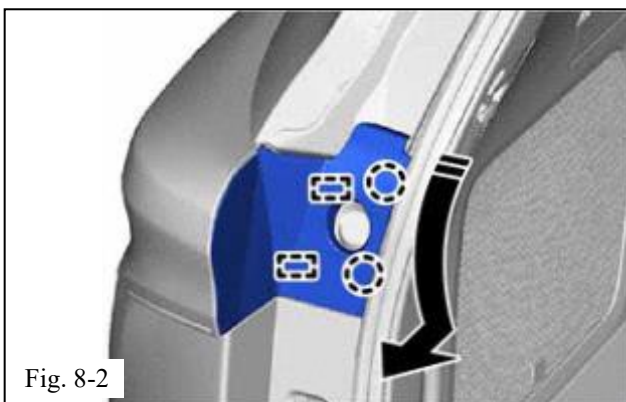
- (f) Remove the three (3) clips from the quarter panel wheel opening molding.

Repeat Step 6 on opposite side of vehicle.



8. Remove Combination Light Cover (LH Shown)

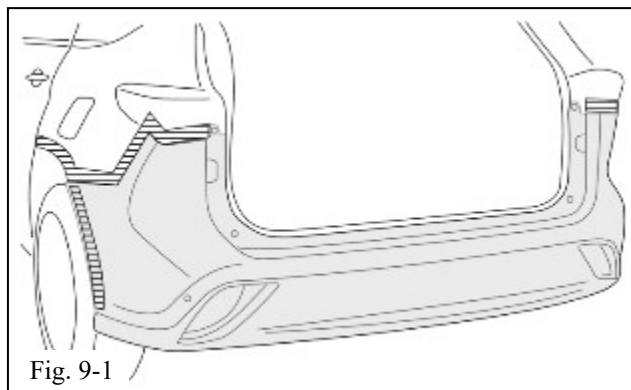
- (a) Lift the lower rear corner of the cover (1) and pull slightly inward to clear the lamp (Fig. 8-1).



- (b) Pull straight back on the cover (2) to remove (Fig. 8-2).

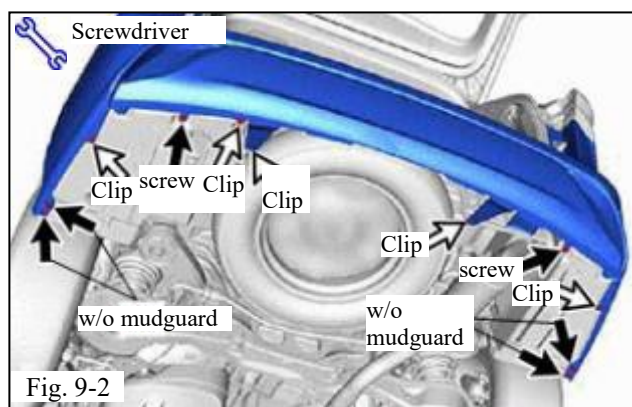


NOTE: Repeat this step for the opposite side of the vehicle.

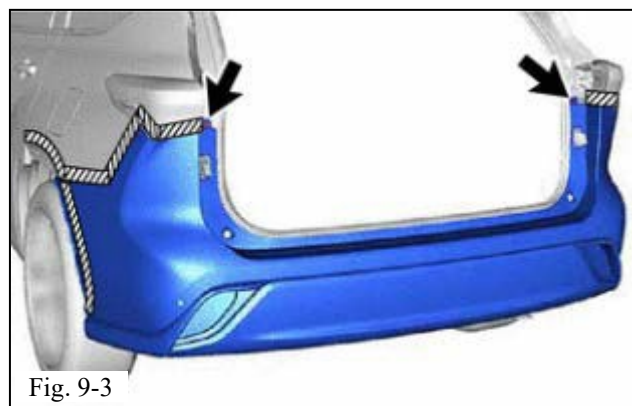


9. Remove Rear Bumper Assembly

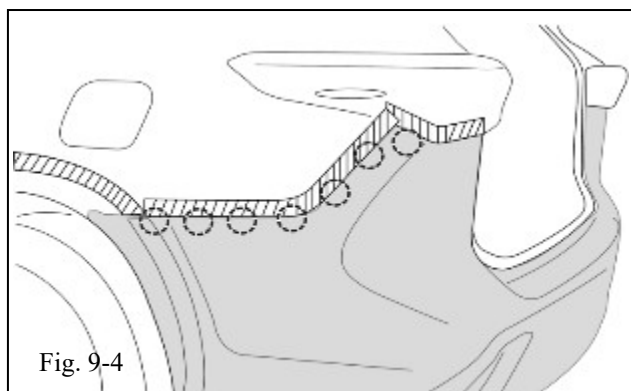
- (a) Prepare a safe surface area to place rear bumper by using a protective blanket and placing out of the way of any foot traffic.
- (b) Apply protective tape around both sides of the rear bumper assembly as shown in the illustration (Fig. 9-1).



- (c) From under the rear the vehicle, on the RH side, remove the five (5) clips with white arrows and two (2) screws (6 if there are no mudguards) circled with black arrow (Fig. 9-2).



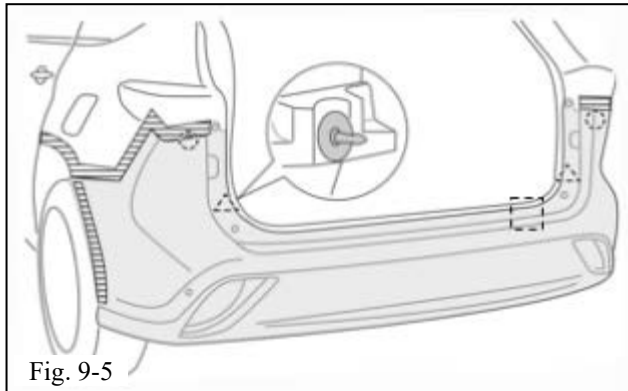
- (d) Remove the two (2) screws at the top of the rear bumper assembly (Fig. 9-3).



- (e) Disengage the eight (8) claws (Fig. 9-4).

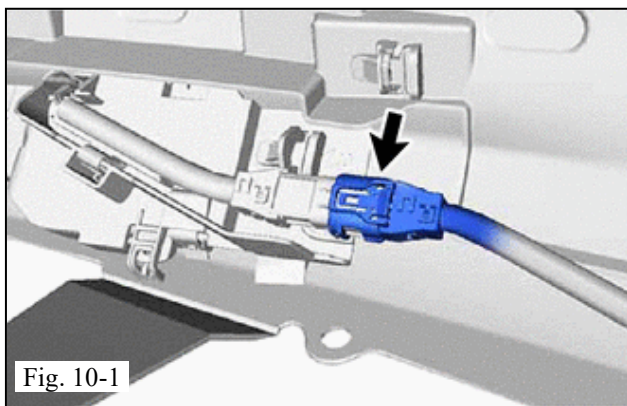


NOTE: Repeat on opposite side.

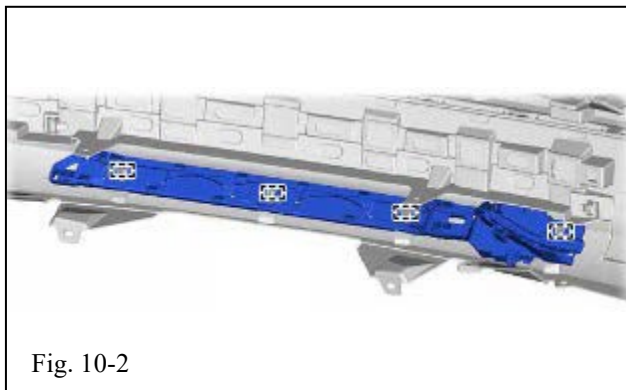


- (f) Disengage the two (2) claws and two (2) clips to remove the rear bumper assembly indicated by circles and triangles (Fig. 9-5).
- (g) Pull the bumper back to expose the rear bumper wire harness connector indicated by the square and disconnect it.
- (h) Remove rear bumper assembly and place on blanket.

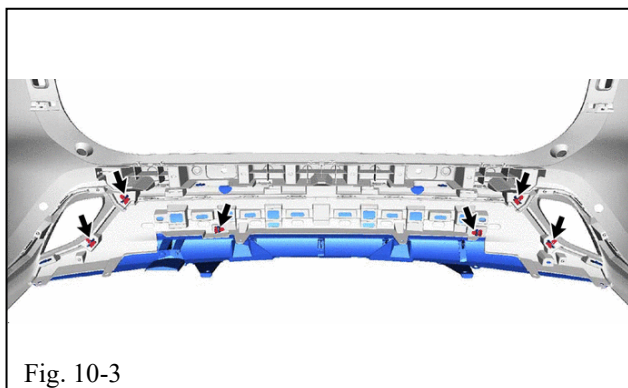
10. Remove Existing Rear Bumper Extension



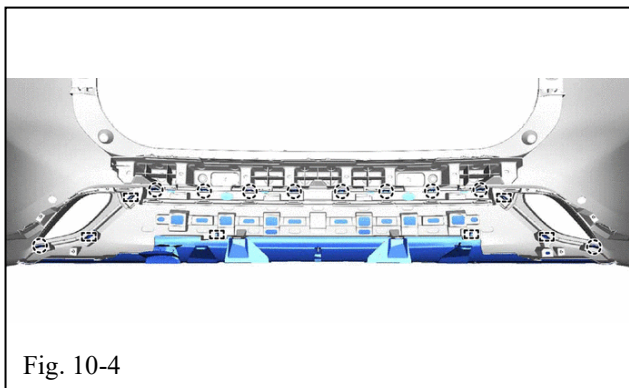
- (a) **Kick Sensor Option:** Disconnect the existing kick sensor connector (Fig. 10-1).



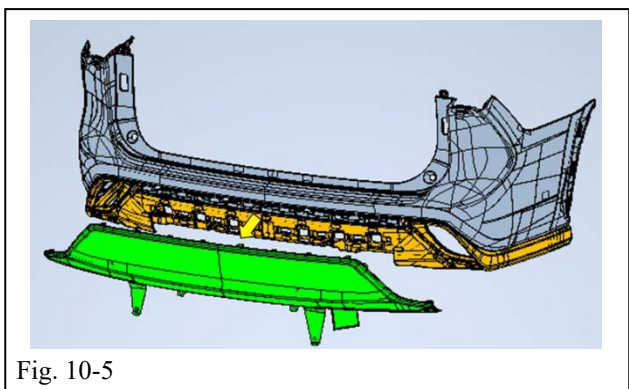
- (b) **Kick Sensor Option:** Remove any TWO (2) of the existing clips shown as squares securing the kick sensor to the extension and set aside. These clips will be re-used (Fig. 10-2).



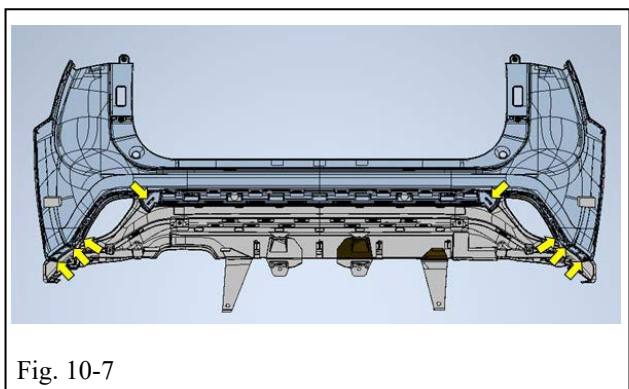
- (c) **All Grades except XSE:** Remove the six (6) clips securing the rear bumper extension to the bumper assembly (Fig. 10-3).



- (d) **All Grades except XSE:** Disengage the ten (10) claws, six (6) guides, and remove rear bumper extension. This rear bumper extension + existing kick sensor can be discarded (Figs. 10-4 and 10-5).



- (e) **Kick Sensor Option:** While the rear bumper extension is off and the existing kick sensor is disconnected, unclip the wire harness clamp from the rear bumper assembly (Fig. 10-6).



- (f) **XSE Grade:** Remove the two (2) clips and six (6) push-pins securing the rear bumper extension to the bumper assembly (Fig. 10-7).

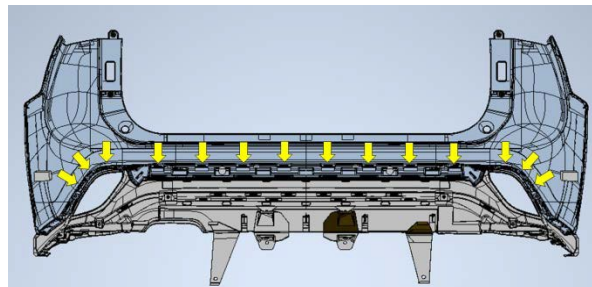


Fig. 10-8

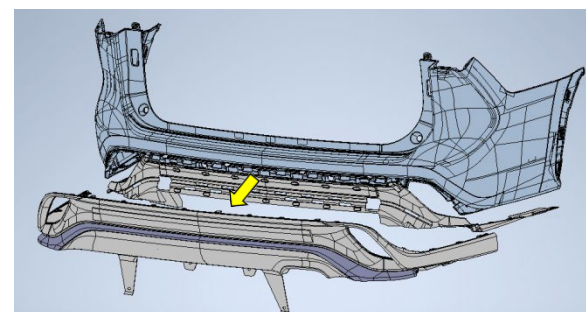


Fig. 10-9

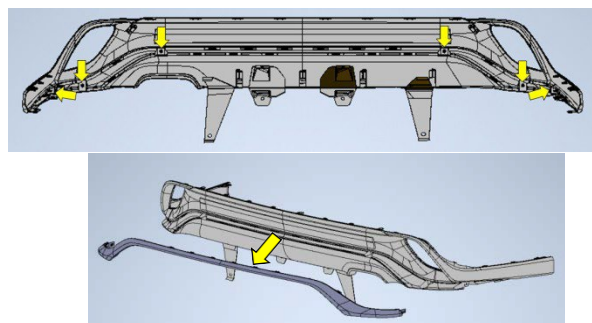


Fig. 10-10

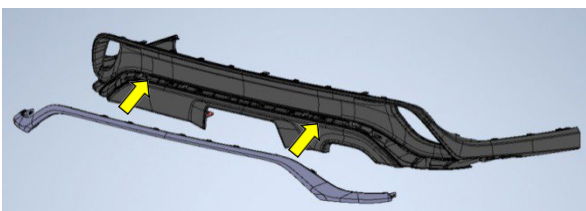


Fig. 10-11

(g) **XSE Grade:** Disengage the fourteen (14) claws, and remove rear bumper extension. (Figs. 10-8 and 10-9).

(h) **XSE Grade:** Remove the accent trim piece from the rear bumper extension by removing four (4) screws and sixteen (16) claws. (Fig. 10-10)

(i) **XSE Grade:** Reinstall the trim piece onto the tow hitch rear bumper extension (PT938-48210) using the screws removed in Step 10-h. (Fig. 10-11)

(j) **XSE Grade:** The original rear bumper extension can be discarded (Figs. 10-9).

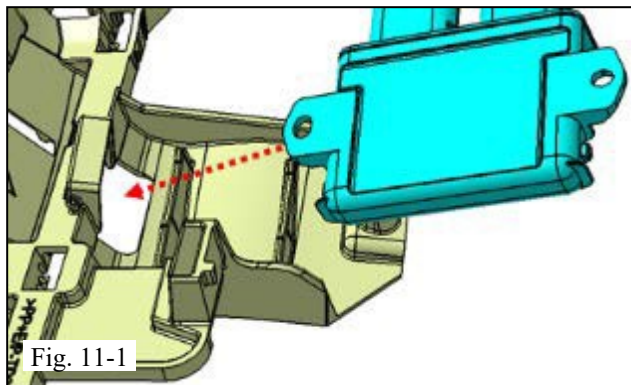


NOTE: At this point, the tow hitch installation instructions can be followed for installation of that part. Continue with remaining instructions after tow hitch has been installed. Step 16.

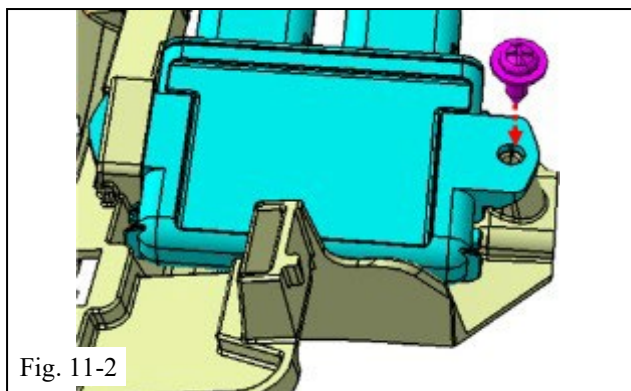
11. Assemble the New Kick Sensor Assembly

- (a) Install new kick sensor ECU onto new bracket (Fig. 11-1).

(1) Slide ECU tab into slot on bracket.

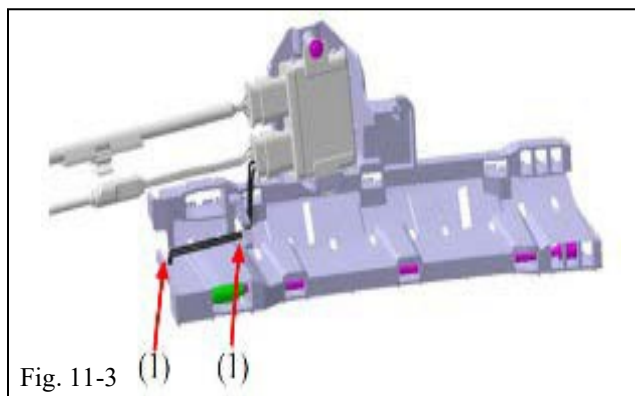


- (2) Install screw securing ECU. This screw is included with the bracket box (Fig. 11-2).

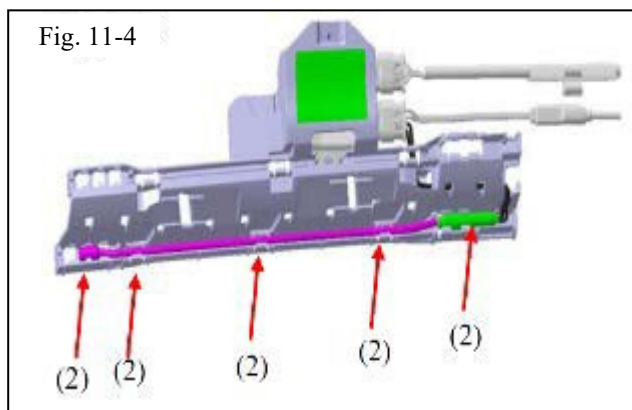


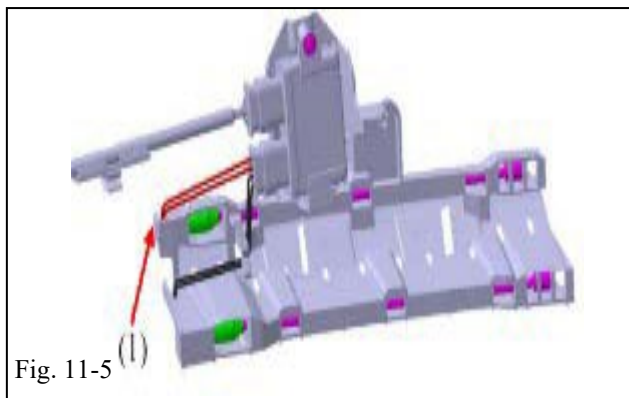
- (b) Route and install the lower antenna (marked with black taping) into the bracket.

(1) Route the antenna harness into the clip and channel as shown (Fig. 11-3).



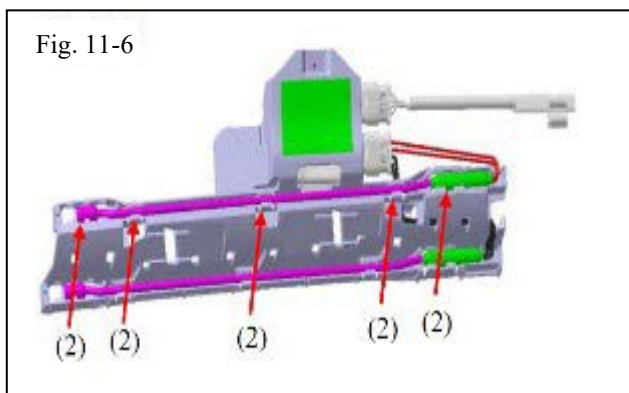
- (2) Turn the bracket over and wrap the remaining antenna wire into the bracket channel (Fig. 11-4).



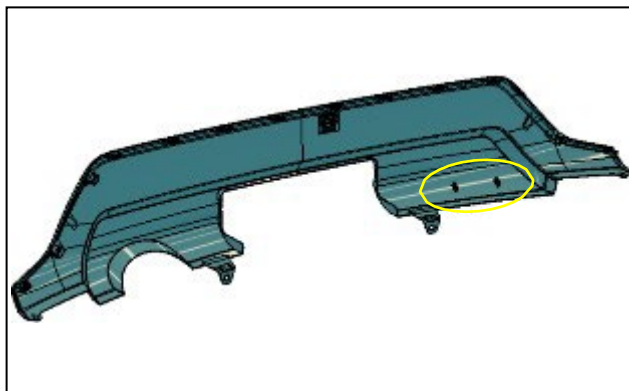


(c) Route and install the upper antenna (marked with red taping) into the bracket.

(1) Route the antenna harness into the channel as shown (Fig. 11-5).



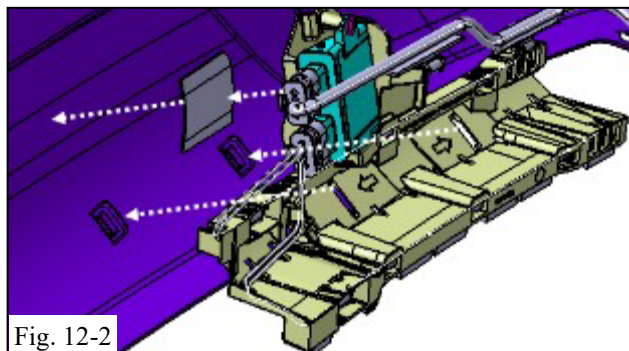
(2) Turn the bracket over and wrap the remaining antenna wire into the bracket channel (Fig. 11-6).



12. Install the New Kick Sensor Assembly onto the New Rear Bumper Extension.

(a) Using approved cleaner, clean the area indicated by dashed box where adhesive tape will adhere (Fig. 12-1).

(b) Installation temperature should be between 60-90°F.



(c) Remove liner from bracket tape, use caution to not touch adhesive (Fig. 12-2).

(d) Position bracket over the (2) tabs.

(e) Press bracket firmly into place on bumper, using the tabs as guides (Fig. 12-2)

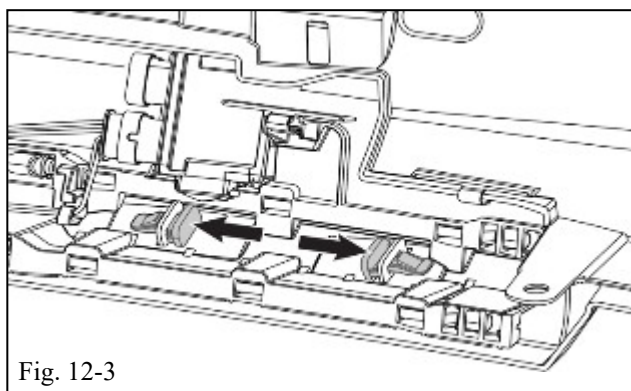


Fig. 12-3

- (f) Reinstall clips saved from Step 9-c into bracket tabs (Fig. 12-3).

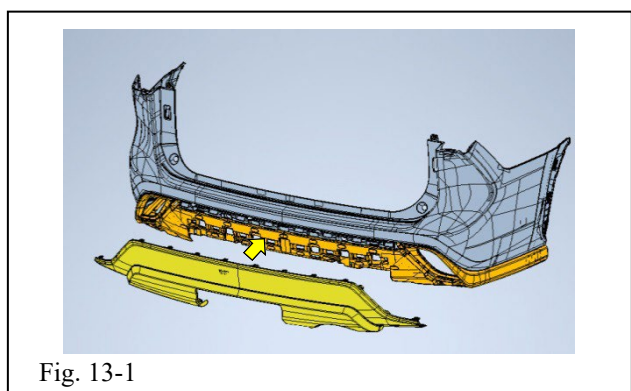


Fig. 13-1

13. Reinstall the Assembled Rear Bumper Extension to the Rear Bumper Assembly.



NOTE: there will be extra fasteners

- (a) **All grades except XSE:** Reverse order of Step 9-e and 9-d to reassemble a complete rear bumper. (Fig. 13-1)

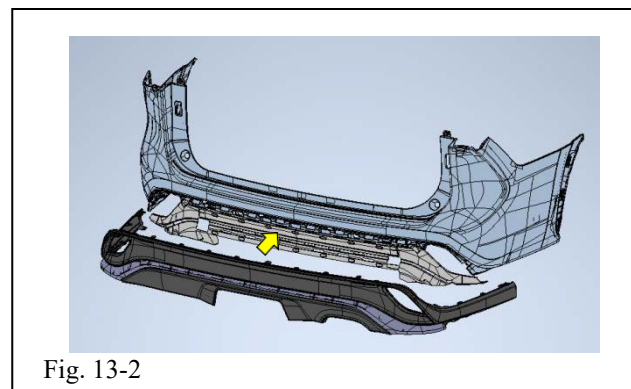
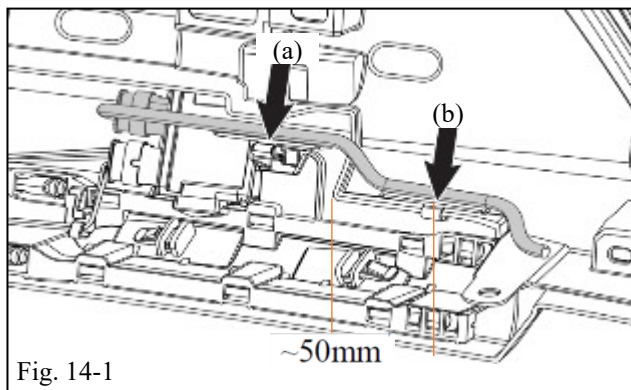


Fig. 13-2

- (b) **XSE grade:** Reverse order of Step 9-g and 9-f to reassemble a complete rear bumper. (Fig. 13-2).



14. Secure the Kick Sensor Wire Harness

- (a) Attach the first wire harness clamp to the clip tower on the kick sensor bracket (Fig. 14-1).
- (b) Attach the second wire harness clamp to the lower rear bumper cover approximately 50mm from the inner edge (Fig. 14-1).

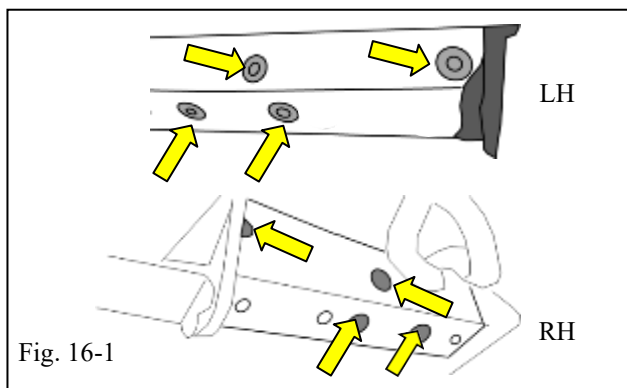


15. Attach the Kick Sensor Harness to the Vehicle Harness

- (a) Attach the new kick sensor connector to the existing vehicle wiring harness and clip connector pair into the empty hole created in Step 10-e. There will be extra wire length on the vehicle harness. This extra length should be bundled as shown (Fig. 15-1).

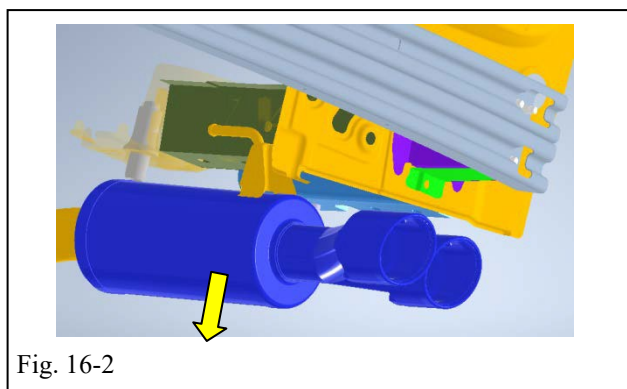


- (b) Secure the extra vehicle harness length with a wire tie (Fig. 15-2).

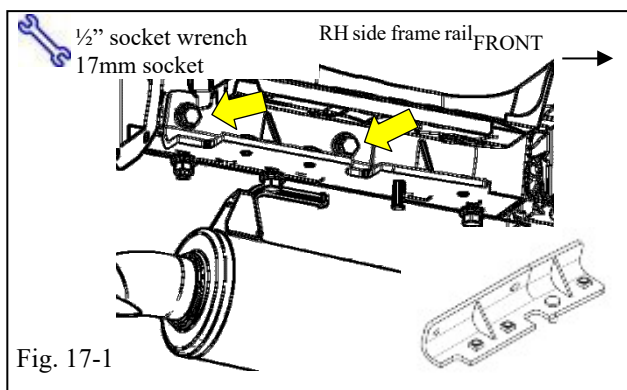


16. Prepare the vehicle.

(a) Remove the rubber drain plugs from the bottom of and plastic caps from the outside of both the LH and RH frame rails (Fig. 16-1).



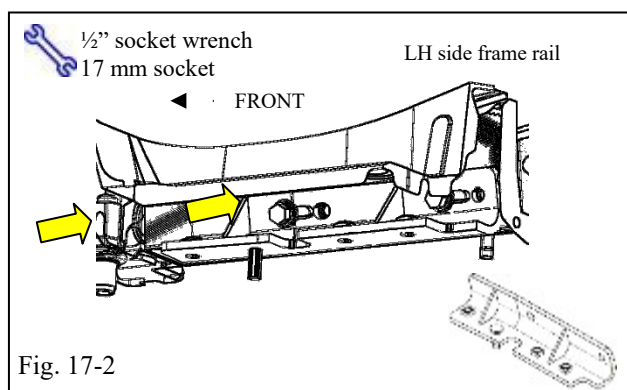
(b) **XSE Grade:** remove the exhaust from the way for the hitch installation. Support the muffler as needed. (Fig. 16-2).

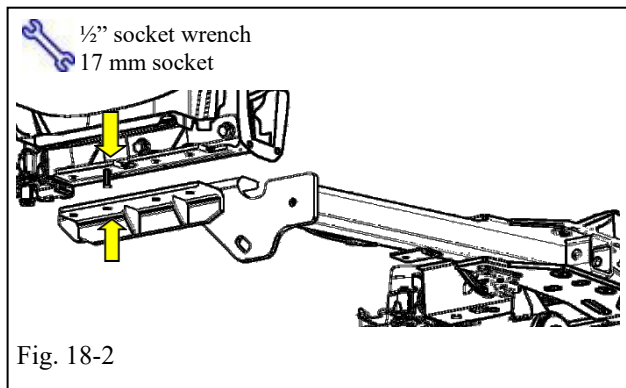
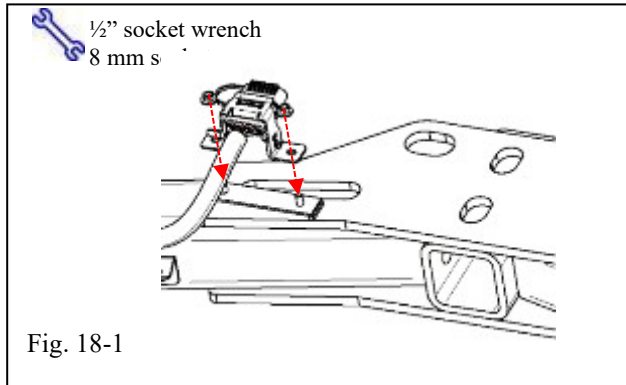


17. Install the Frame Brackets.

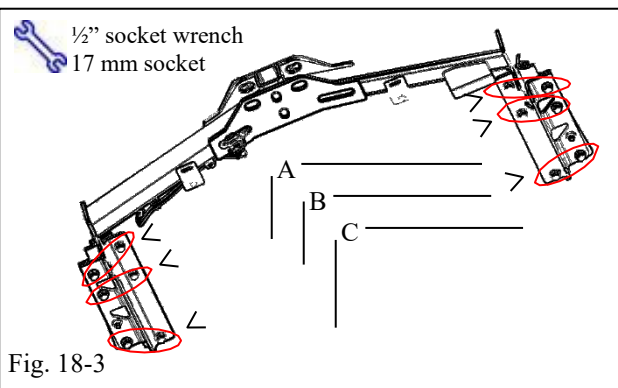
(a) Install the LH and RH brackets into the side of the frame using (2) M12 bolts per side.

(b) Tighten the bolts so the brackets are flush to the frame rail (Fig. 17-1 & 17-2).





+ NOTE: This step requires two people.



18. Install the Hitch.

(a) Install the 4-pin wiring harness connector to the bolts on the tow hitch bracket. Secure with M5 nuts and torque to 3.9 Nm (35 lbf-in) (Fig. 18-1).

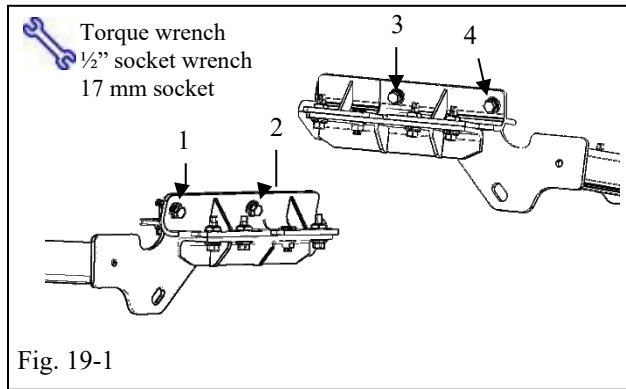
(b) Lift the towing hitch into position under the vehicle frame. Visually align the holes with the holes in the frame (Fig. 18-2).

(a) Install (1) M12 nut per side into the weld stud of the frames bracket to secure hitch.

(b) Install (12) M12 bolts into the bottom of the frame on both the LH and RH sides but do not tighten (Fig. 7-3). Install in the following order: (A), (B), (C). Tighten all bolts to pull the hitch up to the frame in the same order (Fig. 18-3).

NOTE: in Figs. 18-3, 19-1, and 19-2, the non-XSE hitch (PT228-48200) is shown.

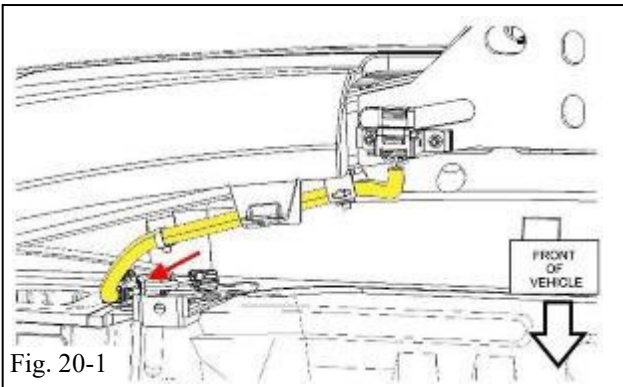
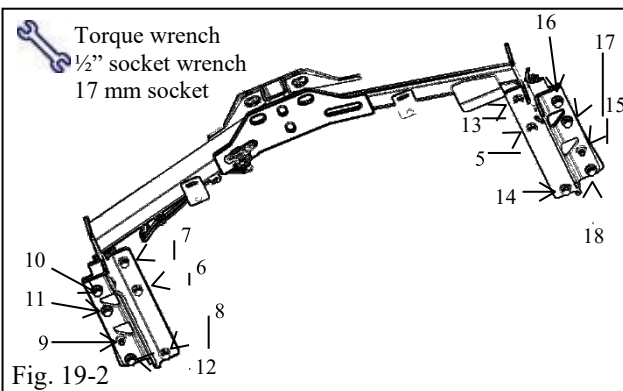
The XSE hitch (PT228-48211) installation steps and locations are identical. Follow the same steps for XSE hitch installation.



19. Torque the Bolts.

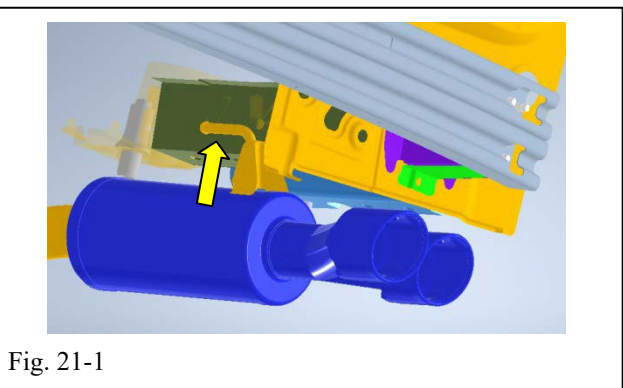
- (a) Tighten all M12 fasteners to 80 Nm (60 ft-lbf) in the order shown (Fig. 19-1 & 19-2).

Torque: 80 Nm (60 ft-lbf)



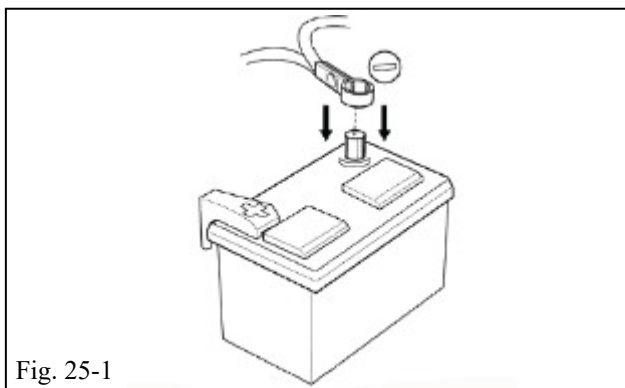
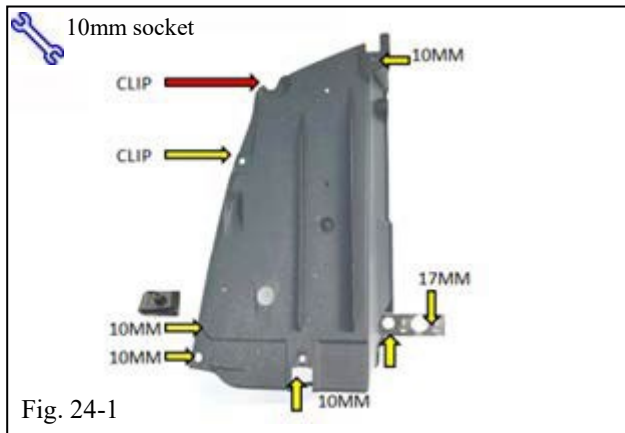
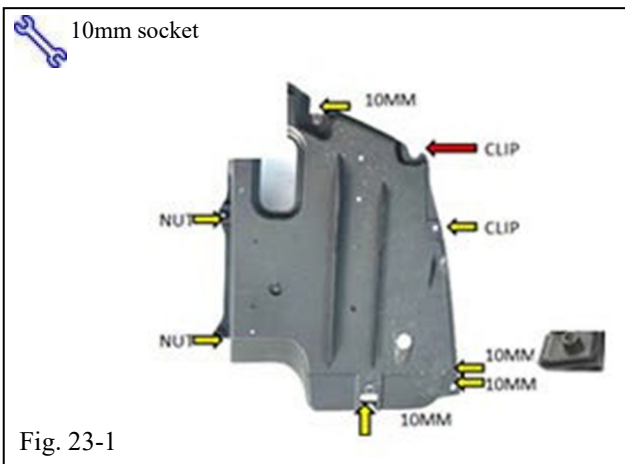
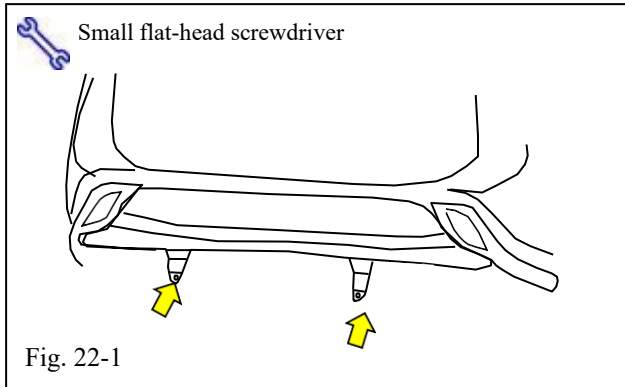
20. Install the Wiring Harness.

- (a) At the LH rear corner, connect the external wire harness to vehicle wire harness connector (Fig. 20-1).



21. XSE Grade: Reattach muffler

- (a) Reattach the muffler removed in Fig 16-2 back onto the exhaust hanger. (Fig. 21-1).



22. All grades: Reinstall the Rear Bumper Fascia.

- Carefully move the rear bumper assembly from Step 13 into position. Reengage the molded clips from step 9(e).
- Bend the lower cover tabs at the hinged portion and attach to the hitch mounting plates using the 2 push pins that were moved earlier. (Fig. 22-1).
- Reinstall the rear tail light cover removed in Steps 8(a) and 8(b).
- Reinstall the fender trim removed in Step 7.

23. Install the LH Undercover.

- Install the lower LH side underbody cover by installing (4) 10mm bolts, 2 plastic nuts and (2) push pins (Fig. 23-1).

24. Install the RH Undercover.

- Install the RH hitch undercover onto the vehicle and secure using the fasteners removed in Step 1(g) (Fig. 24-1).

25. Reconnect the Battery

- If the power for the multiplex network door ECU is disconnected and reconnected, the back door will need to be unlocked before it can be operated.



Torque: Tighten the 10mm nut to 48 in.lbf (5.4 Nm) (Fig. 25-1).

26. Initialize the Back Door System

- (a) If the back door is open when the cable is disconnected and reconnected to the negative (-) battery terminal, fully close the back door by hand to initialize the multiplex network door ECU.
- (b) If the power back door system does not operate and/or the back door does not open, disconnect the cable from the negative (-) battery terminal.





NOTE: Wait 10 seconds, reconnect the cable and perform initialization of the power back door system again.

TOYOTA HIGHLANDER / HV 2020 -

TOW HITCH


Checklist - these points **MUST** be checked to ensure a quality installation.

Check:	Look For:
<p><u>Accessory Function Checks</u></p> <p><input type="checkbox"/> Perform visual check of trailer hitch</p> <p><input type="checkbox"/> Installation Torque (M12 bolts)</p> <p><input type="checkbox"/> Receiver neck clearance.</p> <p><input type="checkbox"/> Hitch plug.</p> <p><input type="checkbox"/> Removed parts.</p>	<p>No visible gaps between mating parts of loose bolts.</p> <p>80 Nm (60 lbf-ft)</p> <p>Must not be touching lower bumper cover opening.</p> <p>Placed in glove box.</p> <p>Scratches or other damage</p>
<p><u>Vehicle Function Checks</u></p> <p>With the Special Service Tool (SST) (Part Number 00002-62195) attached to the trailer sub wire harness plug and with the engine running, perform the following steps:</p> <p> CAUTION: Be sure the exhaust gas is completely ventilated.</p> <p> CAUTION: Be sure the vehicle is in “Park” and that the parking brake is applied.</p> <p><input type="checkbox"/> Turn on headlamps.</p> <p><input type="checkbox"/> Turn on left turn signal</p> <p><input type="checkbox"/> Turn on right turn signal</p> <p><input type="checkbox"/> Apply foot brake</p> <p><input type="checkbox"/> Turn on left turn signal and apply foot brake.</p> <p><input type="checkbox"/> Turn on right turn signal and apply foot brake</p> <p><input type="checkbox"/> Turn on hazard lights switch</p>	<p><u>Look For:</u></p> <p>Marker and tail lights on both SST and vehicle are lit.</p> <p>Left turn lights on both SST and vehicle are flashing.</p> <p>Right turn lights on both SST and vehicle are flashing.</p> <p>Stop lights on both SST and vehicle are lit.</p> <p>Left turn lights are flashing and right stop lights are lit on both SST and vehicle.</p> <p>Right turn lights are flashing and left stop lights are lit on both SST and vehicle.</p> <p>All turn signal lights are flashing on both SST and vehicle.</p>

TOYOTA HIGHLANDER / HV 2020 -

TOW HITCH

Checklist - these points **MUST** be checked to ensure a quality installation.

<u>Check:</u>	<u>Look For:</u>
<div data-bbox="154 273 763 342"> <input type="checkbox"/> With hazard lights switch on, apply the foot brake </div> <div data-bbox="154 399 805 466"> <input type="checkbox"/> Turn off the hazard lights switch, apply the foot brake. </div> <p data-bbox="144 485 742 552">The following checks are to be performed with the ignition switch off and the engine stopped.</p> <div data-bbox="154 585 472 632"> <input type="checkbox"/> Turn on headlamps </div> <div data-bbox="154 680 446 726"> <input type="checkbox"/> Apply foot brake </div> <div data-bbox="154 774 518 821"> <input type="checkbox"/> Turn on left turn signal </div> <div data-bbox="154 869 534 915"> <input type="checkbox"/> Turn on right turn signal </div> <div data-bbox="154 963 764 1010"> <input type="checkbox"/> Turn on left turn signal and apply foot brake </div> <div data-bbox="154 1058 784 1104"> <input type="checkbox"/> Turn on right turn signal and apply foot brake </div> <div data-bbox="154 1152 790 1199"> <input type="checkbox"/> With hazard lights switch on, apply foot brake </div> <div data-bbox="154 1247 751 1314"> <input type="checkbox"/> Turn off the hazard light switch, apply foot brake </div> <p data-bbox="144 1337 805 1404">The following check is to be performed with the engine running, the car in “Reverse” and the foot brake applied.</p> <div data-bbox="185 1421 787 1472">  CAUTION: Be sure the foot brake is applied. </div> <div data-bbox="154 1520 631 1566"> <input type="checkbox"/> Rear Back-up sensor connection. </div>	<div data-bbox="898 260 1442 361">Both stop lights on the vehicle are lit, both turn/stop lights on the SST and the turn lights on the vehicle are flashing.</div> <div data-bbox="898 396 1433 464">Both turn/stop lights on the SST and the stop lights on the vehicle are lit.</div> <div data-bbox="898 569 1362 634">Marker and tail lights on both SST and vehicle are lit</div> <div data-bbox="898 680 1401 714">Stop lights on both SST and vehicle are lit</div> <div data-bbox="898 766 1406 831">Left turn lights are not lit on both SST and vehicle.</div> <div data-bbox="898 854 1422 919">Right turn lights are not lit on both SST and vehicle.</div> <div data-bbox="898 951 1401 1016">Both stop lights are lit and not flashing on both SST and vehicle.</div> <div data-bbox="898 1045 1401 1110">Both stop lights are lit and not flashing on both SST and vehicle.</div> <div data-bbox="898 1140 1446 1205">All turn signal lights are flashing on both SST and vehicle.</div> <div data-bbox="898 1222 1393 1323">Both stop lights on the vehicle and the turn/stop lights on the SST are lit, but not flashing</div> <div data-bbox="898 1505 1417 1568">Listen for sound when object is placed near sensor.</div>
<u>Vehicle Appearance Check</u>	<u>Look For:</u>
<div data-bbox="154 1696 805 1766"> <input type="checkbox"/> After accessory installation and removal of protective cover(s), perform a visual inspection. </div>	<div data-bbox="898 1682 1429 1848">Ensure no damage (including scuffs and scratches) was caused during the installation process. (For PPO installations, refer to TMNA Accessory Quality Shipping Standard.)</div>