

FITTING INSTRUCTIONS

Part Number:	3440660
Product Description:	SUMMIT COMBINATION BULL BAR
Suited to vehicle/s:	FORD RANGER RAPTOR MY22
Optional Fitting Kits:	3540240 – Winch Installation Kit SJBHARNFRD – Solis Driving Light Loom SJBRELAY – Driving Light Relay Patch Harness (ARVX17 Only)

WARNING

REGARDING VEHICLES EQUIPPED WITH SRS AIRBAG:

When installed in accordance with these instructions, the front protection bar does not affect operation of the SRS airbag.

ALSO, NOTE THE FOLLOWING:

- ◆ This product must be installed exactly as per these instructions using only the hardware supplied.
- ◆ In the event of damage to any bull bar component, contact your nearest authorised ARB stockist. Repairs or modifications to the impact absorption system must not be attempted.
- ◆ Do not use this product for any vehicle make or model, other than those specified by ARB.
- ◆ Do not remove labels from this bull bar.
- ◆ This product or its fixing must not be modified in any way.
- ◆ The installation of this product may require the use of specialized tools and/or techniques.
- ◆ It is recommended that this product is only installed by trained personnel.
- ◆ These instructions are correct as at the publication date. ARB Corporation Ltd. cannot be held responsible for the impact of any changes subsequently made by the vehicle manufacturer.
- ◆ During installation, it is the duty of the installer to check correct operation/clearances of all components.
- ◆ Work safely at all times.
- ◆ Unless otherwise instructed, tighten fasteners to specified torque.
- ◆ Vehicle ignition must remain **OFF** until all sensors are relocated and reconnected in their final position.

ARB 4x4 ACCESSORIES

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GENERAL CARE AND MAINTENANCE

By choosing an ARB Bar, you have bought a product that is one of the most sought after 4WD products in the world. Your bar is a properly engineered, reliable, quality accessory that represents excellent value. To keep your bar in original condition it is important to care and maintain it following these recommendations:



- Prior to exposure to the weather your bar should be treated to a Carnauba based polish on all exposed surfaces. It is recommended that this is performed on a six monthly basis or following exposure to salt, mud, sand or other contaminants.
- As part of any Pre Trip Preparation, or on an annual basis, it is recommended that a thorough visual inspection of the bar is carried out, making sure that all bolts and other components are torqued to the correct specification. Also check that all wiring sheaths, connectors, and fittings are free of damage. Replace any components as necessary. This service can be performed by your local authorized ARB Stockist.

FITTING REQUIREMENTS

REQUIRED TOOLS FOR FITMENT OF PRODUCT:

BASIC TOOL KIT	ELECTRIC RIGHT ANGLE DRILL
OSCILLATING MULTI-TOOL WITH BLADE SUITABLE FOR PLASTIC	Ø6, Ø8 & Ø10MM DRILL BITS
FILE OR SAND PAPER	MASKING TAPE
BASIC MEASURING TOOLS	LARGE G-CLAMP
CORRIGATED SPLIT TUBE (7MM & 12MM)	TORQUE WRENCH 9-100 Nm CAPACITY
1m STEEL RULE	TORX KEYS
ELECTRICAL TAPE	LOCTITE 222
HEAT GUN	CRIMPING TOOL
DIGITAL SPIRIT LEVEL	SCISSORS

HAVE AVAILABLE THESE SAFETY ITEMS WHEN FITTING PRODUCT:

Protective eyewear		Hearing protection	
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NOTE: When installing ground terminals, please ensure the ground point is clean and secure with good contact. Do not stack more than one additional ground terminal onto any ground point. If adding a ground terminal to an existing ground point, please ensure the fastener is correctly tightened after installation.

NOTE: 'WARNING' notes in the fitting procedure relate to OHS situations, where to avoid a potentially hazardous situation it is suggested that protective safety gear be worn or a safe work procedure be employed. If these notes and warnings are not heeded, injury may result.

FASTENER



TORQUE SETTINGS:

SIZE	PROPERTY CLASS	Torque Nm	Torque lbft
M6	8.8	9Nm	7lbft
M8	8.8	22Nm	16lbft
M10	8.8	44Nm	32lbft
M12	8.8	77Nm	57lbft
M12	10.9	92Nm	68lbft

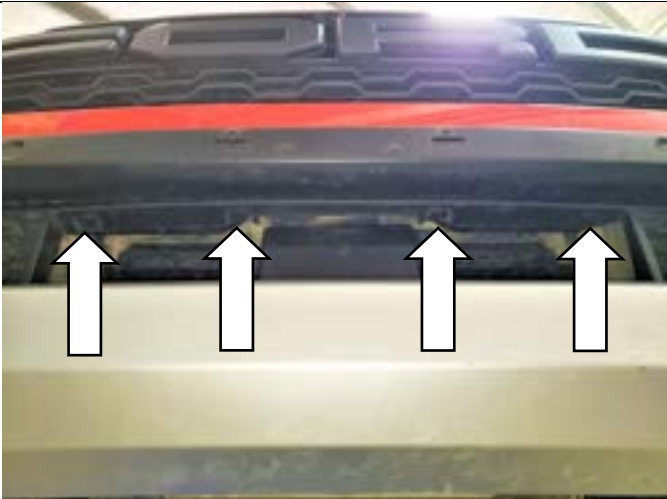
PARTS LISTING			
FITTING STAGE	PART NO.	QTY	DESCRIPTION
FIT MOUNTS TO VEHICLE	3755167	1	BRKT MOUNT RHS CHASSIS OUTSIDE
	3755168	1	BRKT MOUNT LHS CHASSIS OUTSIDE
	3755169	1	BRKT MOUNT RHS CHASSIS INSIDE
	3755170	1	BRKT MOUNT LHS CHASSIS INSIDE
	4655321R	1	MOUNT WELD ASSY RH SUIT RAPTOR
	4655321L	1	MOUNT WELD ASSY LH SUIT RAPTOR
	4722009	2	TUBE CHASSIS CRUSH SUIT RANGER M12 X 68.5mm
	6152066	4	BOLT HXHD FL M12x1.75x50 FT PC10.9 ZAS1000
	6151965	12/18	BOLT HXHD FL M10x1.5x30 PC8.8 ZNB480
	6151752	12/16	NUT FLANGE M10x1.5 PC8.8 BTZP480
	6151528	2	NUT HEX NYLOC M12x1.75 PC10.9 ZP
	4584363	4	WASHER FLAT M12x26x4 HV300 TZP480
	4584399	8	WASHER FLAT M10x25x3 ZNB480
	6365081	2	INTERCOOLER ISOLATING BUSH SUITS RANGER
	6151688	2	BOLT HXHD M12x1.75x100 PC10.9 ZAS1000
	6151213	2/11	BOLT HXHD M6x1.0x20 PC8.8 ZNB480
	6151223	2/9	NUT HEX NYLOC M6x1.0 ZNB480
	4584329	2/21	WASHER FLAT M6x12.2x1.2 BTZP480
FIT BAR TO MOUNTS	3195489	6	PLATE ADJUSTMENT SHIM SUITS RANGER
	6151700	6	BOLT HXHD FL M12x1.25x35 PC8.8 TZP480
	6151480	6	NUT FLANGE M12x1.25 PC8.8 TZP480 SERRATED
	6151965	4/18	BOLT HXHD FL M10x1.5x30 PC8.8 ZNB480
	6151752	4/16	NUT FLANGE M10x1.5 PC8.8 BTZP480
	6152008	4/20	BOLT HXHD FL M6x1.0x25 PC8.8 ZNB480
	6151173	4/14	NUT FLANGE M6 ZNB480 SERRATED
FIT LIGHTS AND MOULDINGS	3163294	1	KIT, CVR STRAP SUIT SUMMIT
	3163295	1	KIT, GRILLE OUTER SUIT SUMMIT
	3163316	1	RDR CVR LRG, SUIT SUMMIT
	3500991	1	LAMP CLUSTER, ARB SUMMIT RH&LS LAMP SET
	3501060	1	SENSOR SURROUND KIT (6) NO GROMMET
	3753258L	1	FOG CLUSTER MNTING BRKT LHS
	3753258R	1	FOG CLUSTER MNTING BRKT RHS
	3753259	2	GRILLE RETAINING BRKT
	6152094	2	SCREW PHD M6x1.0x30 PC8.8 TX ZNB 480
	6152008	4/20	BOLT HXHD FL M6x1.0x25 PC8.8 ZNB480
	6151173	6/14	NUT FLANGE M6 ZNB480 SERRATED
	6151300	2/8	NUT CAGED M6 2.6-3.5 956-C
	6151213	2/11	BOLT HXHD M6x1.0x20 PC8.8 ZNB480
	4584329	2/21	WASHER FLAT M6x12.2x1.2 BTZP480
FIT UNDER PANELS	6523595	1	CENTRE PANEL SUITS RAPTOR
	6523596R	1	WING PANEL RH SUITS RAPTOR
	6523596L	1	WING PANEL LH SUITS RAPTOR
	6523597R	1	ACCESS PANEL RH SUIT RAPTOR
	6523597L	1	ACCESS PANEL LH SUITS RAPTOR
	6151730	2/9	BOLT HXHD FL M8x1.25x20 FT PC8.8 BZP480
	6151655	2/10	NUT FLANGE M8x1.25 PC8 TZP480 ENS 14/002
	6151459	8	SCREW BHD M6x16 BTZP480
	6151526	14	NUT CAGED M6 1.8-2.7 BZP480
	6151300	6/8	NUT CAGED M6 2.6-3.5 956-C
	6152008	12/20	BOLT HXHD FL M6x1.0x25 PC8.8 ZNB480
	6151965	2/18	BOLT HXHD FL M10x1.5x30 PC8.8 ZNB480
	4584329	8/21	WASHER FLAT M6x12.2x1.2 BTZP480
FIT WINCH COVER PANEL	6523321	1	PANL WINCH COVER MB SUIT PXIII
	4584329	4/21	WASHER FLAT M6x12.2x1.2 BTZP480
	6151213	4/11	BOLT HXHD M6x1.0x20 PC8.8 ZNB480
	6151223	4/9	NUT HEX NYLOC M6x1.0 ZNB480
FIT BRACES	4681822R	1	BRACE STRAP RHS SUIT RAPTOR
	4681822L	1	BRACE STRAP LHS SUIT RAPTOR

	4655055	4	NUT STICK M8x1.25
	6151573	4	BOLT HXHD M8x1.25x35 PC8.8 BTZP480
	4584324	4	WASHER FLAT M8x16.6x1.2 BTZP480
	4584364	2	WASHER FLAT M8x26x4 HV300 BTZP480
	6151655	2/10	NUT FLANGE M8x1.25 PC8 TZP480 ENS 14/002
	6151730	2/9	BOLT HXHD FL M8x1.25x20 FT PC8.8 BZP480
FIT ELECTRONIC COMPONENTS	6821426	1	HARNESS BULLBAR LIGHT FORD ENG
	6821427	1	HARNESS BULLBAR LIGHT FORD BCM
	6821439	1	CAMERA COAX CABLE EXTENSION SUITS RANGER
	6821476	1	SENSOR EXTEND OUTER SUITS FORD
	6821477	2	SENSOR EXTEND INNER SUITS FORD
	3750987	1	BRACKET CAMERA RELOCATION
	3195389	1	BRACKET CAMERA RELOCATION
	3753232	1	RADAR MOUNTING BRACKET SUITS RANGER
	3195508	1	BUSBAR WINCH POSITIVE
	3195561	1	BUSBAR EARTH SUITS RANGER
	3753231	1	RELAY FUSE MOUNTING BRACKET
	4721820	1	HOSE 4.5 ID 500MM LONG
	6151921	1	BOLT COHD M8x20 ZNB480 LWHD
	6151730	5/9	BOLT HXHD FL M8x1.25x20 FT PC8.8 BZP480
	6151655	6/10	NUT FLANGE M8x1.25 PC8 TZP480 ENS 14/002
	6151496	2	BOLT HXHD M6x10 ZINC SILVER
	6151213	3/11	BOLT HXHD M6x1.0x20 PC8.8 ZNB480
	6151173	2/14	NUT FLANGE M6 ZNB480 SERRATED
	4584329	3/21	WASHER FLAT M6x12.2x1.2 BTZP480
	6151223	3/9	NUT HEX NYLOC M6x1.0 ZNB480
FIT LICENCE PLATE	5848302	2	PACKER RB NYLON
	6151443	2	SCREW BHD M6x20 BZP
	4584329	2/21	WASHER FLAT M6x12.2x1.2 BTZP480
	6151173	2/14	NUT FLANGE M6 ZNB480 SERRATED
OTHER	6191033	1	EXTRUSION PINCH WELD 412mm

FITTING PROCEDURE



1. Remove number plate from the bumper.



2. Remove four screws shown.



3. Unclip the lower bumper trim as shown and discard.



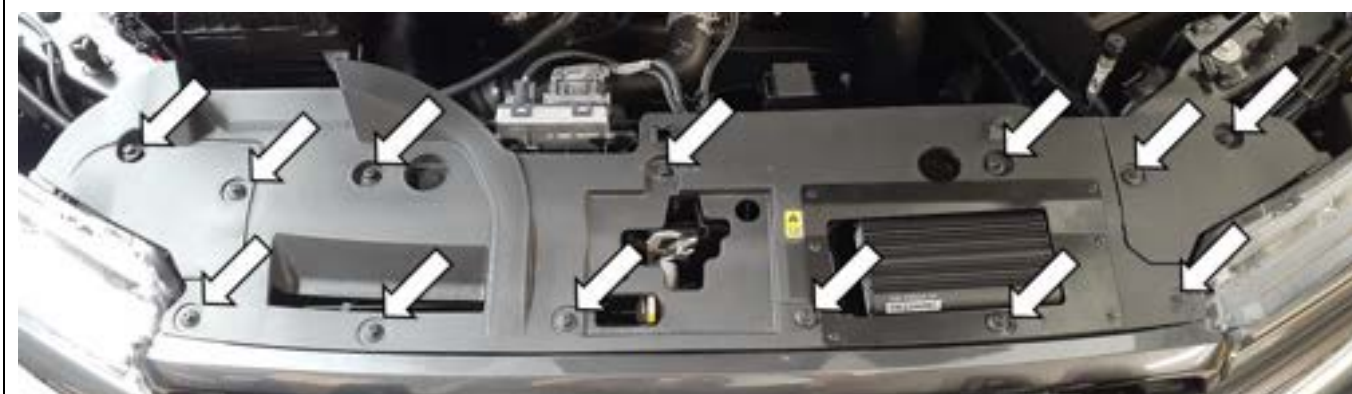
4. Using a flat head screwdriver, unclip the plastic strip at the bottom edge of the grille, starting at an outer point and working across. Set aside for re-fitment later.

Take care not to scratch the vehicle.



5. Remove three screws along the lower grille and set aside.

6. Open the bonnet and remove the thirteen screws shown. Unclip the shroud and set aside.



7. Remove the top two bolts which secure the grille and set aside.



8. Disconnect the negative battery terminal.



WARNING: Vehicle ignition must remain OFF until all sensors are relocated and reconnected in their final position.



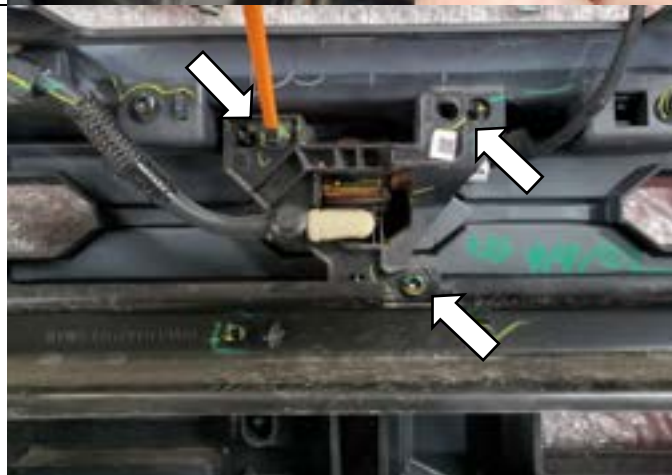
9. Above the grille, complete the following:
- a) Disconnect the 20 way connector on front sensor harness by pressing the release and pulling.
 - b) Disconnect coax camera cable.
 - c) Disconnect camera washer line.

CAUTION: Water may leak from the camera washer line.



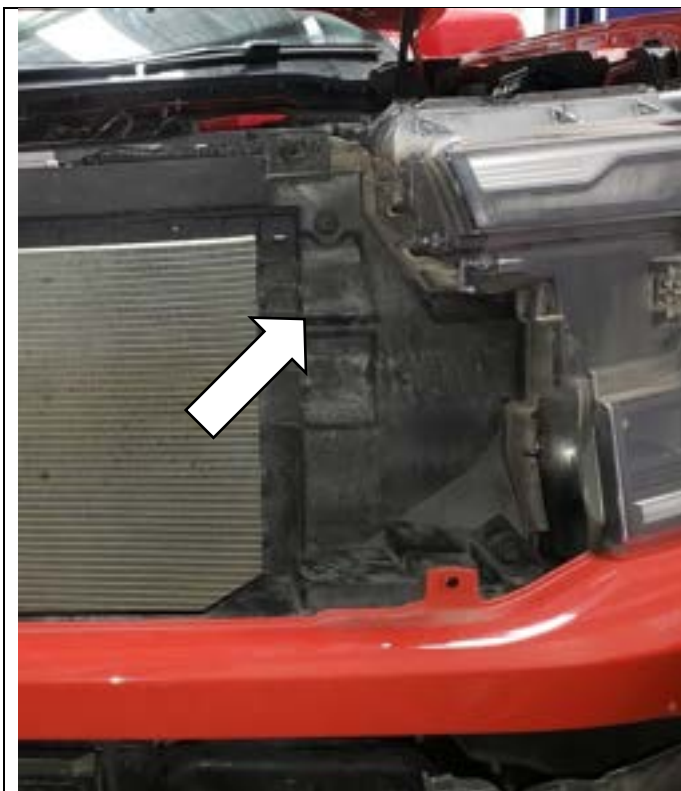
10. Gently unclip and remove grille starting from the light fixtures and top of grille.

Place the grille face down on a soft surface to avoid damage.



11. Loosen the three Torx screws in order to open the camera housing and remove camera.

Once the camera is removed re-fasten the empty housings back into the grille.



12. Remove the upper scrivet shown.

Feed the harness 20-pin connector between the shroud and the headlight cluster downwards under the lower bumper until it is free of the vehicle.



13. Remove the two scrivets and black plastic cover from radar module.



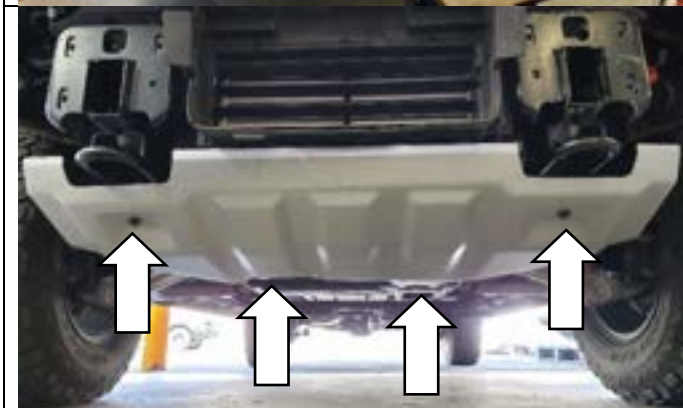
14. Disconnect the vehicle harness from radar module.



15. Position a lifting trolley or table under the lower bumper. Loosen the three chassis mount bolts on each side of the lower bumper and discard.



16. Carefully lift the lower bumper section away from the vehicle.



17. Remove the OEM stone shield by loosening the two rear bolts and removing the two front bolts. Discard the two front bolts.

Set the stone shield aside safely.




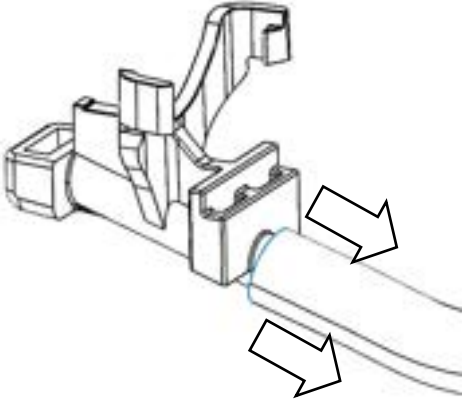
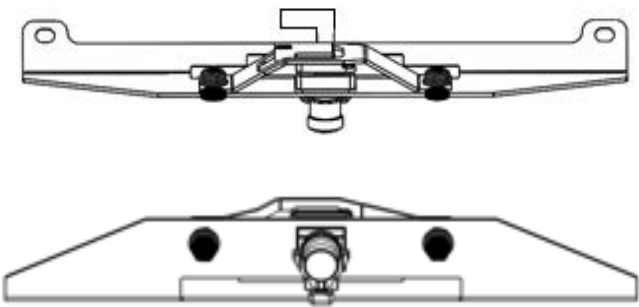



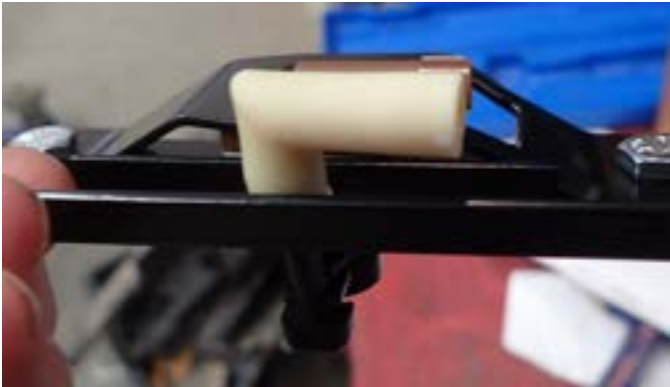
18. The original front sensor harness and front parking sensors must be removed from the lower bumper section.


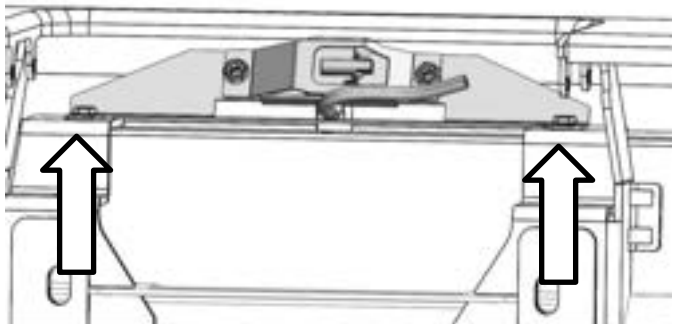

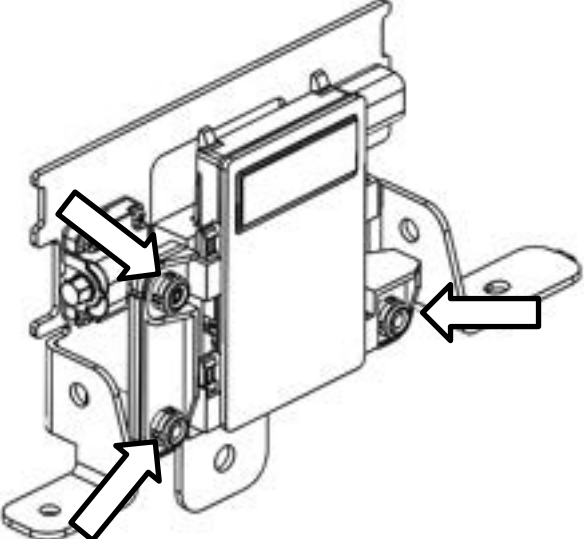
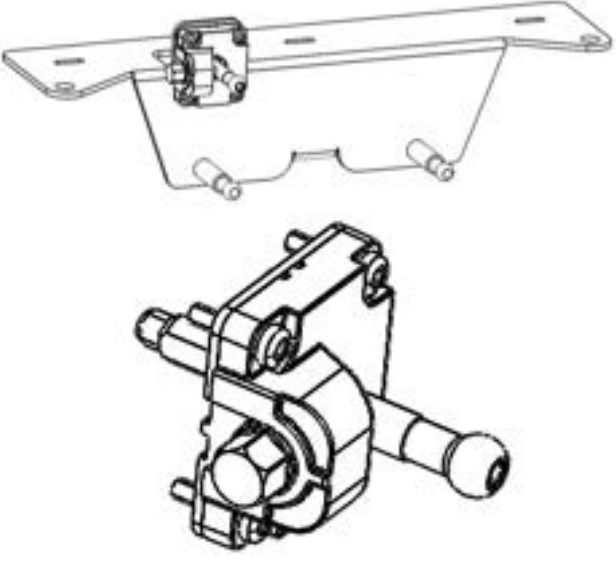
Remove fasteners from the front, top and rear of the bumper section to release the plastic bumper from the metal crash beam, allowing access to the harness.

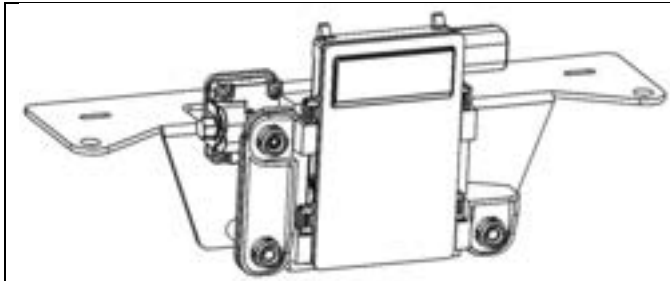


LO	Left Outer	RO	Right Outer
LM	Left Middle	RM	Right Middle
LI	Left Inner	RI	Right Inner

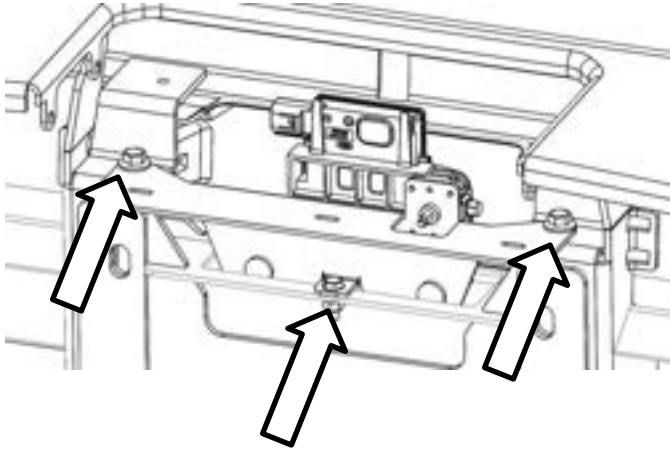
19. The sensors should be labelled in their positions as they are removed for reinstallation in the bull bar.

	<p>20. Disconnect the camera cable and the washer nozzle from the camera.</p> <p>Set the camera aside safely.</p>
	<p>21. Remove the camera washer nozzle from the grille by removing the washer line from the back of the nozzle.</p>
 <p> M6 - 9 Nm.</p>	<p>22. Assemble the camera module and washer nozzle into ARB brackets 3750987 and 3195389. Clamp the camera and nozzle together by fastening the brackets with two M6x10 bolts and flange nuts.</p> 
	<p>23. From the washer line previously removed, fit the white 90° elbow to the washer nozzle barb.</p> 

	<p>24. Connect camera coax extension loom to camera.</p> <p>Connect the original Ford washer line components and 500mm length of rubber hose (supplied in ARB kit) to 90° elbow fitted in previous step.</p>
	<p>25. Fit camera bracket assembly to bar using two M6x20 bolts, M6x12 flat washer and M6 flange nuts.</p> <p> M6 - 9 Nm.</p>
	<p>26. Gently unclip radar from ball point mounts and set aside in a safe place</p>
	<p>27. Remove adjustment mechanism from Ford radar bracket and assemble onto ARB bracket 3753232 as shown.</p> <p>Reuse original hardware for reassembly 4x Torx drive screws (T10) 1x Torx drive stud (T20)</p>




28. Reassemble radar onto ARB bracket 3753232 by clipping onto ball point mounts.




29. Using a pair of M8x20 black flange head bolts and M8 flange nuts, assemble radar and bracket onto bull bar winch cradle.

Fasten the lower return to the lower pan of the bull bar using an M6x20 hex bolt, washer and flange nut.

Torque to specification:

 M8 - 22 Nm.

 M6 - 9 Nm.

There are two harnesses supplied with this product;

Engine Bay Harness 6821426 (IMAGE 1) & Cabin Harness 6821427 (IMAGE 2). Please study the layout of these harnesses and the connectors as these will be referenced throughout the harness install procedure.

IMAGE 1

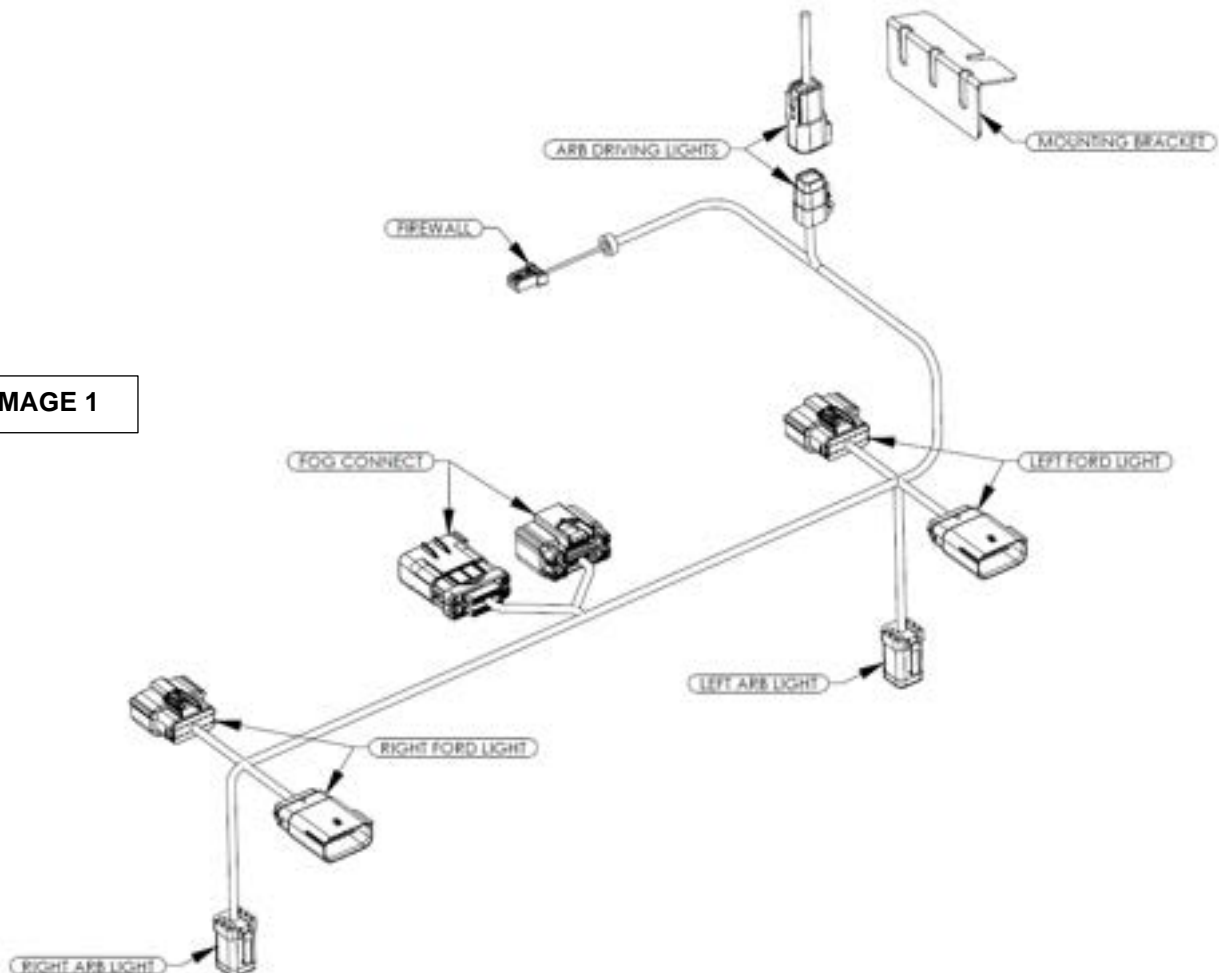
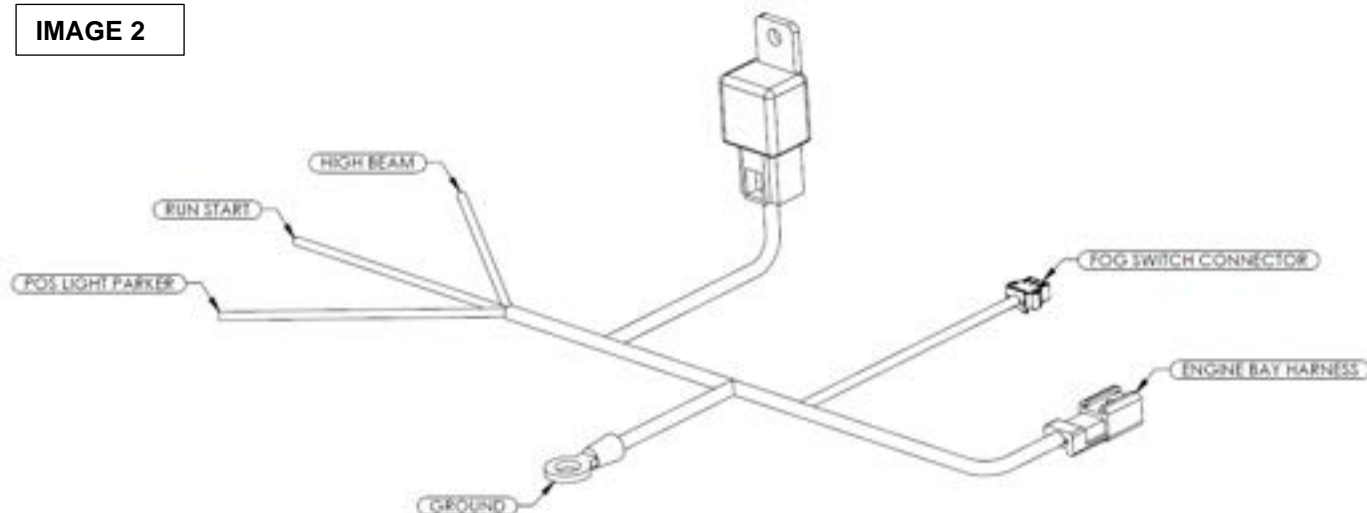


IMAGE 2



30. On the Engine Bay Harness, locate the connectors labelled "FOG CONNECTOR".

Connect the male "FOG CONNECTOR" into the mating vehicle 20-way connector.

Leave the female "FOG CONNECTOR" disconnected until bull bar is fitted to vehicle.



31. The provided harness is routed above the radiator cover panel.



32. Locate the connectors labelled "RIGHT FORD LIGHT" and "RIGHT ARB LIGHT" ON THE Engine Bay Harness.



33. Route connectors and harness through the gap behind the right hand headlight and pull out above the headlight.



34. Disconnect the right hand vehicle headlight connector.

Pull out vehicle headlight connector to above the headlight



35. Connect the female connector labelled "RIGHT FORD LIGHT" with the vehicle headlight harness connector.







36. Connect the male connector labelled "RIGHT FORD LIGHT" into the vehicle headlight connector.





Route connector "RIGHT ARB LIGHT" down below vehicle headlight.

Secure loose cables behind headlight with cable ties. Ensure cables are not contacting any sharp or metal edges.



37. Pull connectors labelled "LEFT FORD LIGHT" to above the left hand headlight.

	<p>38. Under the left hand front wheel arch, find the access window.</p> <p>Using a screw driver, remove the three retaining scrivenets.</p> <p>Remove the access window panel to gain access to the left hand vehicle headlight connector.</p>
	<p>39. Reaching from above the headlight, press the vehicle connector release. While pressing, insert hand into access window and pull connector out from headlight.</p> <p>Pull connector with vehicle harness to above the headlight.</p>
	<p>40. Connect the female connector labelled "LEFT FORD LIGHT" with the vehicle headlight harness connector.</p>
	<p>41. Connect the male connector labelled "LEFT FORD LIGHT" into the vehicle headlight connector. Again, use the wheel arch access window to assist.</p> <p>Route connector "LEFT ARB LIGHT" down below vehicle headlight.</p> <p>Secure loose cables behind headlight with cable ties. Ensure cables are not contacting any sharp or metal edges.</p>

	<p>42. Replace wheel arch window panel.</p>
	<p>43. Route remaining harness above headlight into the quarter panel cavity. Follow the left hand bonnet release cable and secure with cable ties.</p>
	<p>44. Inside the left hand side foot well, find and remove the christmas tree plug as shown.</p> <p>A screw driver may assist to lever the plug out.</p>
	<p>45. Lift the rubber seal surrounding the left hand side sill panel.</p>



46. Remove door sill panel as shown. This can be removed by lifting the sill panel and then rotating up.



47. On the Engine Bay Harness, find connector labelled "FIREWALL".

Find a short length of plastic pipe or similar.

On the end of the pipe, cut a sharp point.

Join the "FIREWALL" connector to the pipe with electrical tape. Ensure the tape removes all sharp edges to ensure the taped connector can pass through the firewall grommet with ease.



48. On the engine bay side of the firewall, locate the firewall grommet behind the left hand side fuse box.



49. With a sharp blade, cut and remove the nipple from the firewall grommet.

Spray the pipe and taped connector with lubricant.

Feed pipe through firewall grommet nipple.



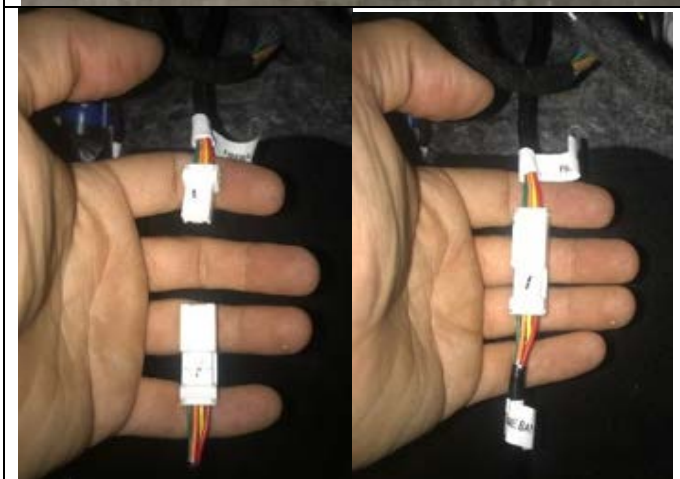
50. From inside the vehicle, pull the pipe and “FIREWALL” connector through the firewall grommet.

Remove tape and pipe leaving the “FIREWALL” connector inside the vehicle.

Secure the harness in the engine bay with cable ties.



51. On the Cabin Harness identify the connector labelled “ENGINE BAY HARNESS”.



52. On the cabin harness, join connector labelled “ENGINE BAY HARNESS” with Engine Bay Harness connector labelled “FIREWALL”.



53. In the left hand side footwell, find existing ground point.

Remove ground bolt with 8mm socket.



54. Identify ring terminal labelled "GROUND" on the cabin harness.

Install ring terminal onto existing ground point and fasten with original bolt.



FOOTWELL GROUND - 12 Nm.



55. Inside the left hand side footwell, on the vehicle harness, find the wire labelled "RUN START".

Cut and strip this wire in preparation for joining with the ARB harness.

On some vehicle variants, the wire does not include a label. In this case locate the green with white stripe wire. Confirm this wire is 12VDC with ignition ON, and 0VDC with ignition OFF.



56. Using a crimp joiner supplied in the ARB harness kit join the vehicle wire labelled "RUN START" with the Cabin Harness wire labelled "RUN START".

Using a heat gun, apply heat to secure and seal the join.



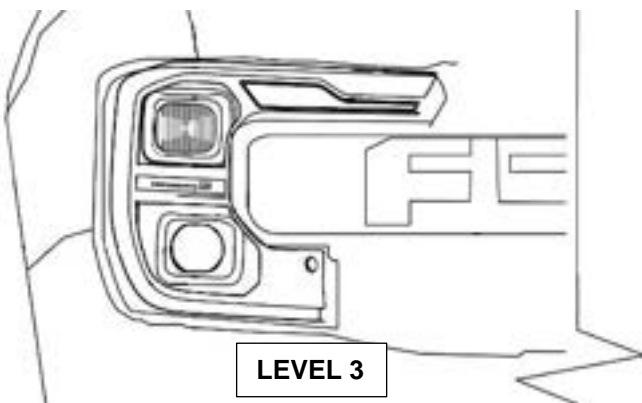
57. Inside the left hand side footwell, on the vehicle harness, find the wire labelled "POS LIGHT".
Cut and strip this wire in preparation for joining with the ARB harness.
58. Using a crimp joiner supplied in the ARB harness kit join the vehicle wire labelled "POS LIGHT" with the Cabin Harness wire labelled "POS LIGHT PARKER LEVEL 1, 2 AND 3".
Using a heat gun, apply heat to secure and seal the join.







59. In the left hand side footwell, bundle all cables and relay to existing vehicle harness.
Secure with cable ties.



60. Refit the passenger side footwell panel.
Press at various locations to ensure all clips are engaged.
Refit the footwell christmas tree plug.
Reinstall the rubber seal. Press at various locations to ensure all is secure.
Refit glove box into vehicle.



The MY22 Ford Ranger Raptor is equipped with LEVEL 3 headlights.

	<p>INSTRUCTION FOR DRIVING LIGHTS INSTALLATION ONLY.</p> <p><i>This harness includes a 6-way connector for driving light installation. The 6-way connector labelled ARB DRIVING LIGHTS has two fitment options:</i></p> <p>Fitment with ARB SOLIS driving lights.</p> <p>This requires harness SJBHARNFRD (sold separately). Continue to next step.</p> <p>Fitment with all other driving lights (sold separately). <u>See STEP 64.</u></p>
	<p>61. The SJBHARNFRD harness is supplied with three patch looms as shown. Each patch loom is labelled accordingly. Select the patch loom required for the vehicle headlight LEVEL as per below.</p> <ol style="list-style-type: none"> I. “UPFITTER” For vehicle fitted with Upfitted switch panel. II. “LEVEL2, LEVEL3” For vehicles with LEVEL 2 or LEVEL 3 headlights.
	<p>62. Remove the flylead connector labelled “DRIVING LIGHT CONNECTOR” from the Engine Bay Harness. Discard flylead connector.</p> <p>This should be located above the passenger side wheel arch, adjacent to the fuse box.</p> <p>Install the correct patch loom between the SJBHARNFRD harness connector and the Engine Bay Harness connector labelled “DRIVING LIGHT CONNECTOR”.</p>
	<p>63. Complete the instructions provided with the SJBHARNFRD harness.</p>



ALL OTHER DRIVING LIGHTS INSTALLATION

64. Locate the flylead connector labelled "DRIVING LIGHT CONNECTOR" from the Engine Bay Harness.

The "DRIVING LIGHT CONNECTOR" flylead has various wires with labels attached. Select the wire required for the vehicle headlight LEVEL and driving light harness requirements as per below.

- I. HIGH BEAM LEVEL 3. High beam signal for vehicles with LEVEL 3 headlights.
- II. RUN START IGNITION. For driving lights which require an ignition signal +12VDC.



65. Strip the required wires on the "DRIVING LIGHT CONNECTOR" flylead and connect with the driving light harness (supplied separately). Use the supplied crimp joiners to ensure a secure join.

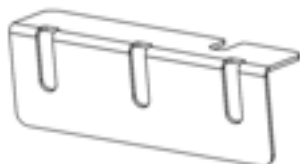
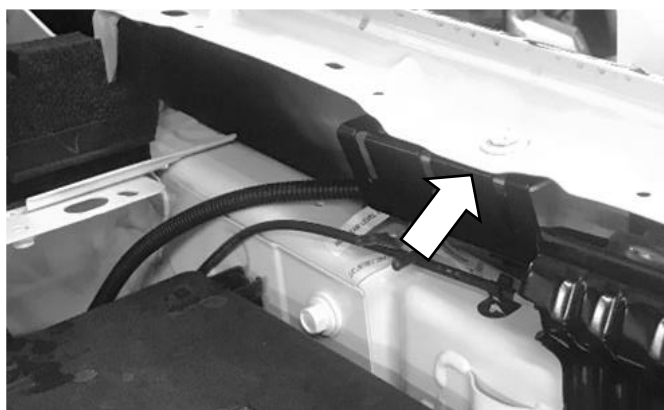


66. Reconnect the negative battery terminal to the battery.

67. Test and validate all light features as per below. (temporarily connect ARB fog cluster)

Check both vehicle headlights and ARB light clusters for correct operation.

- I. DRL. Note, the ARB DRL is triggered with vehicle ignition and may perform differently to the vehicle DRL.
- II. PARKER.
- III. LOW BEAM. Vehicle headlight only.
- IV. HIGH BEAM. Vehicle headlight and driving lights (if fitted) only.
- V. LEFT INDICATOR & RIGHT INDICATOR.



For future installation of accessories, supplied with this kit is a RELAY & FUSE MOUNTING BRACKET.

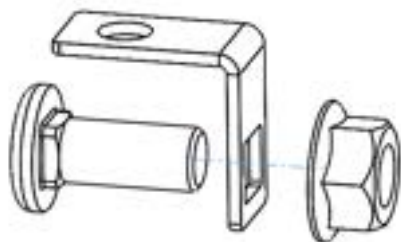
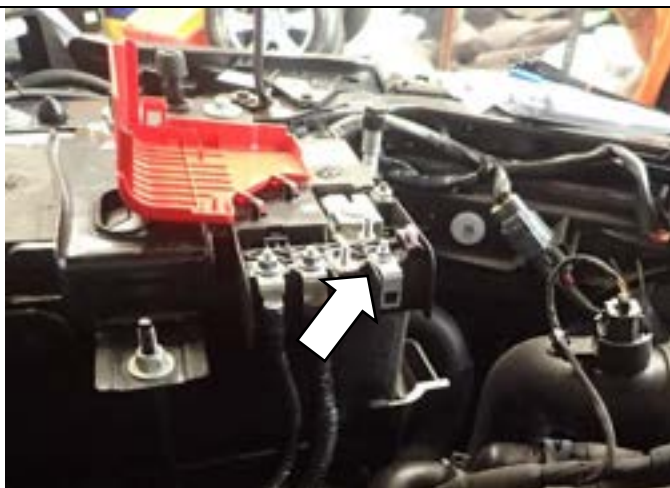
68. On the passenger quarter panel, locate the panel bolt securing the quarter panel together. Loosen this bolt.

Find the MOUNTING BRACKET, slide mounting bracket between metal panels on the quarter panel.

Tighten the bolt, securing the MOUNTING BRACKET between the metal panels.



QTR PANEL HARDWARE - 9 Nm.



For winch and dual battery installation, supplied with this kit is a BUSBAR POSITIVE.

69. On the battery positive terminal, remove one of the terminal nuts. If no terminal nuts are fitted, source M5 flange nut to suit terminal stud.

Install the BUSBAR POSITIVE onto the vacant terminal stud.

Refit flange nut securing the BUSBAR POSITIVE.

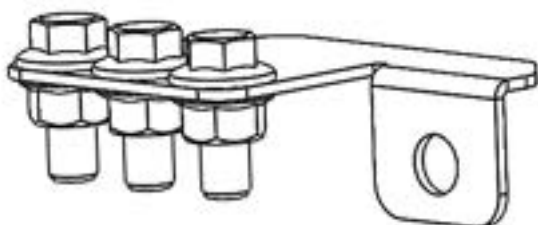
Note, this kit includes a coach bolt and nut. These are used for the BUSBAR POSITIVE for ring terminal installation.



+VE BATTERY STUD – 5.4 Nm.



M8 - 22 Nm.



For future installation of accessories, supplied with this kit is a BUSBAR EARTH and M8 hardware.

70. On the body earth point, remove the bolt securing the earth cable to the body.

Remove the ring terminal from the earth point and install the BUSBAR EARTH beneath the earth ring terminal. Refit the ring terminal and secure with original bolt.



BATTERY/BODY GROUND - **20 Nm.**



M8 - **22 Nm.**



FOR WINCH INSTALLATION ONLY

71. For a winch installation, remove the rubber lining around the edges of the intercooler shroud using a stanley knife.



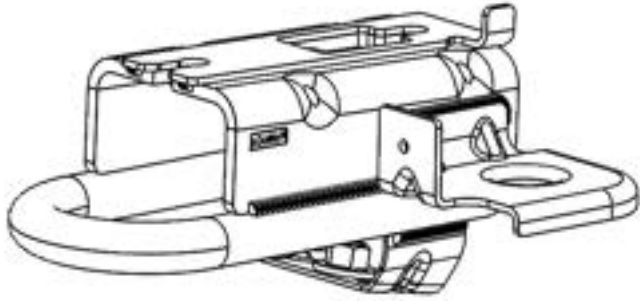
72. Remove wheel arch liner support brackets from both sides and discard. On the RHS the horn will also be removed and discarded at this step.



73. Using a silver OEM fastener removed in STEP 72, re-fasten the horns directly onto the vehicle body in the orientation shown.



M6 - **9 Nm.**



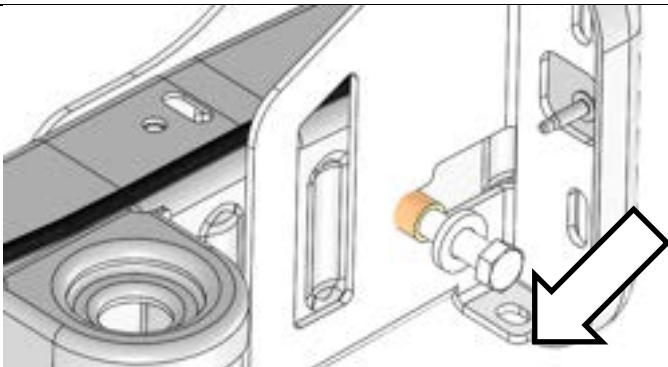
74. Using a transmission jack or similar, support the intercooler before removing both Ford tow points



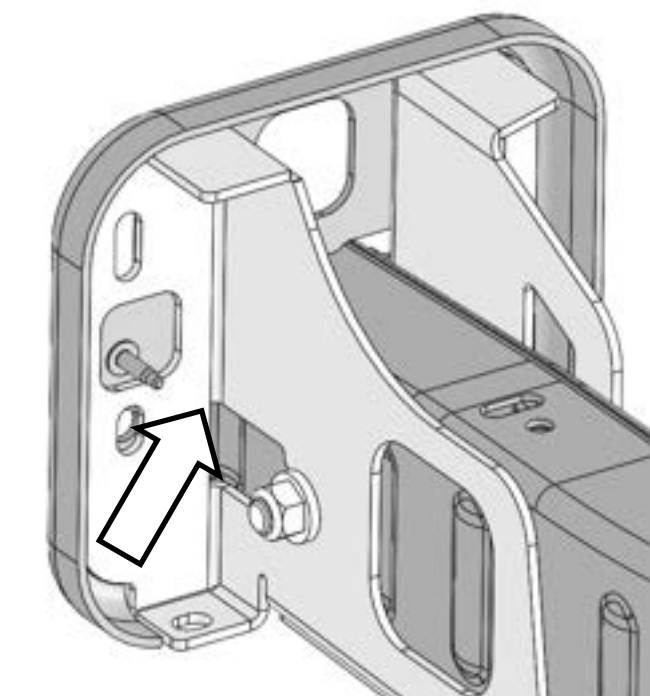
75. If you are **not** fitting an ARB recovery point, replace the two rubber isolators on the bottom of the intercooler with the 8mm longer ARB variants supplied.



IF FITTING RECOVERY POINTS 2840160 / 2840170 REFER TO FITTING INSTRUCTION 37801231. WITH RECOVERY POINTS FITTED CONTINUE FROM STEP 89.



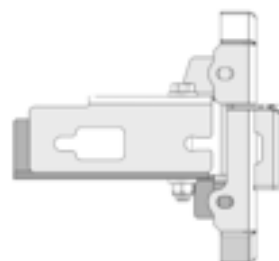
76. Place the RHS mounting bracket shown on the **OUTSIDE** of the RHS chassis rail.
- Assemble the supplied crush tube into the chassis through the mounting bracket from the **OUTSIDE** of the chassis.
- Place the M12x100mm bolt with a M12x26x4 washer and insert into the crush tube.

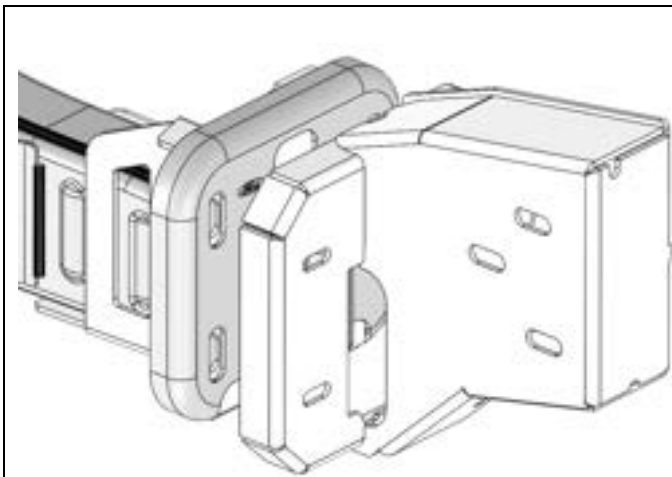


77. Fit the RHS secondary mounting bracket shown on the **INSIDE** of the RHS chassis rail and push the bolt through the chassis rail and bracket.
- Fit an M12x26x4 washer and M12 Nyloc to the bolt.

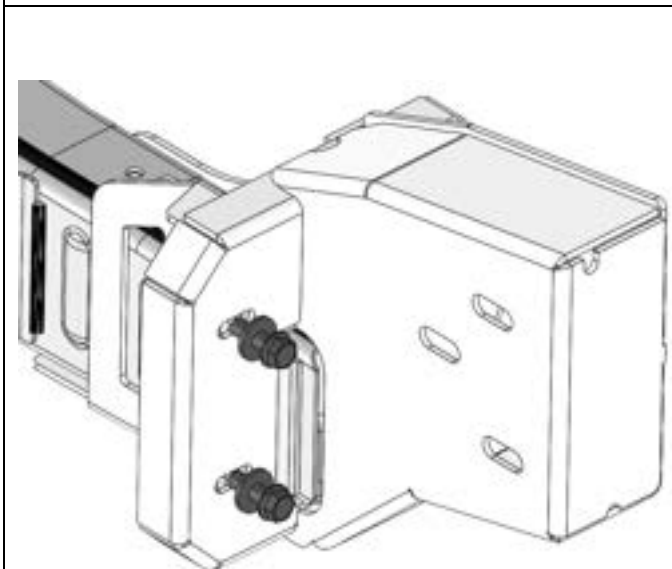
DO NOT TIGHTEN YET.

Check the outside bracket is seated over the inside bracket as shown.





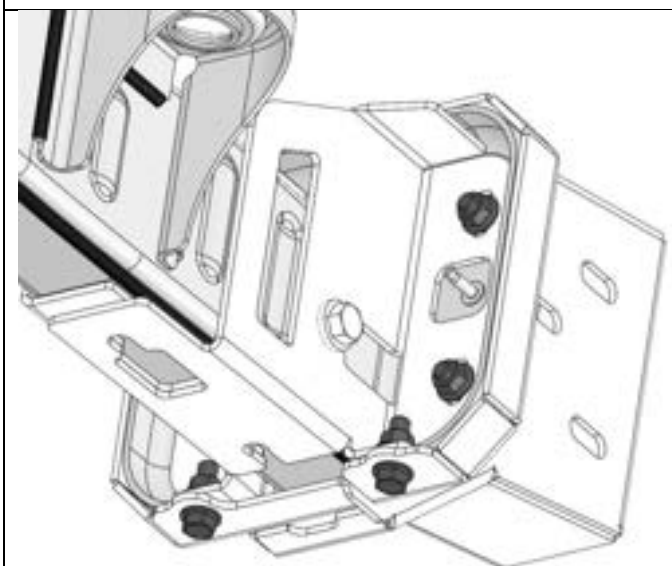
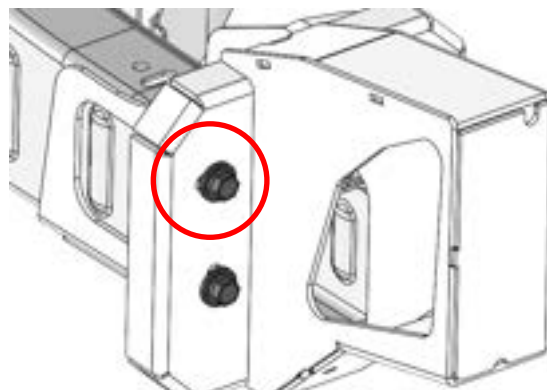
78. Fit the chassis mount assembly over the chassis plate.



79. Loosely assemble four M10x30 flange bolts, M10x25x3 washers and flange nuts through the chassis mounts and chassis plate.

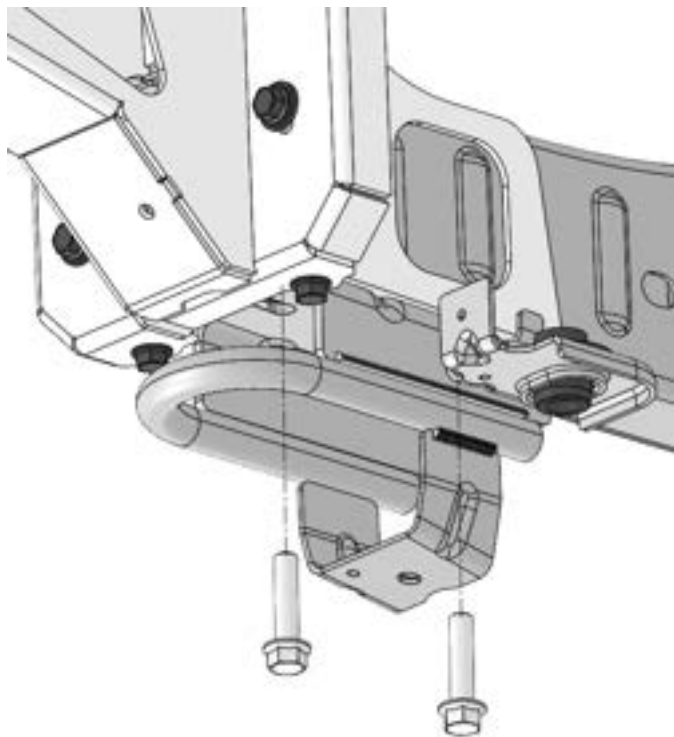
DO NOT TIGHTEN YET.

NOTE: Use a ring spanner to reach up and fit the upper INSIDE nut on the LHS of the vehicle.

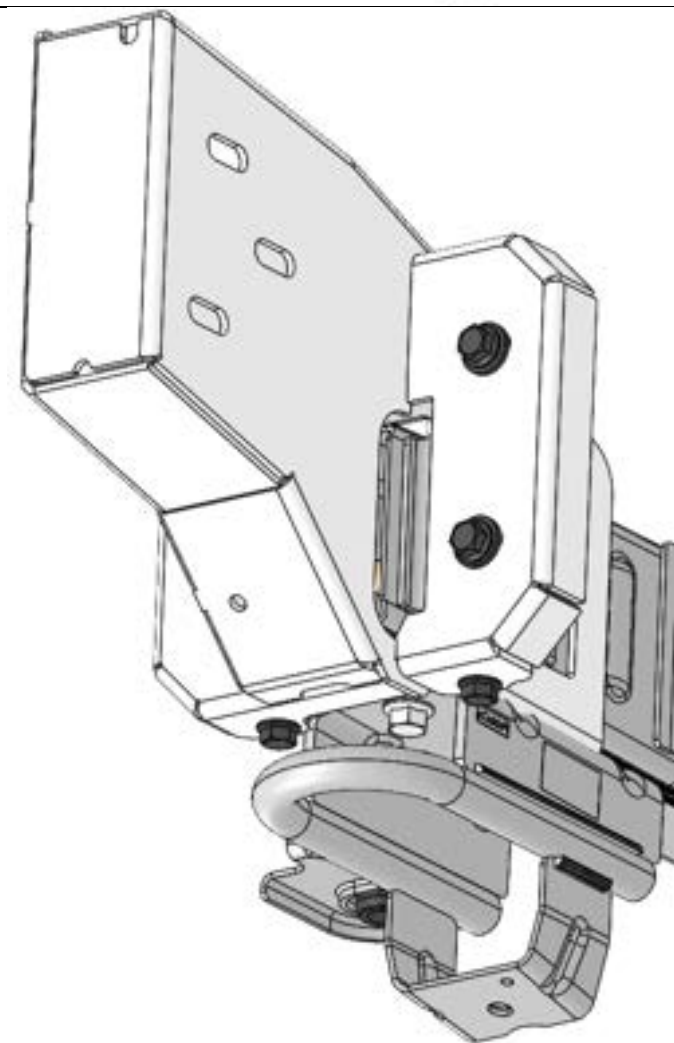


80. Loosely assemble two M10x30 flange bolts and flange nuts through the slots on the rear brackets and the mount assembly on both sides of the chassis rail.

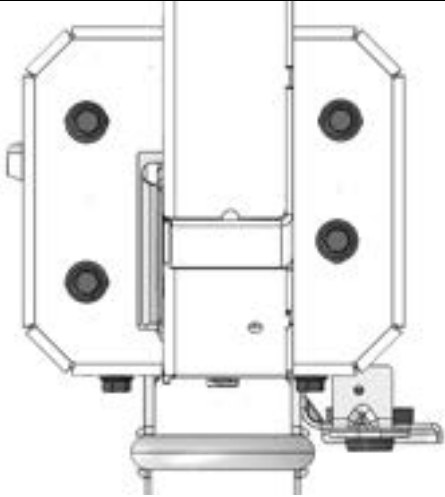

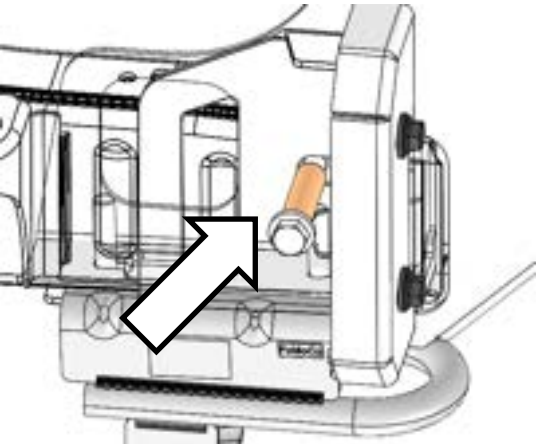

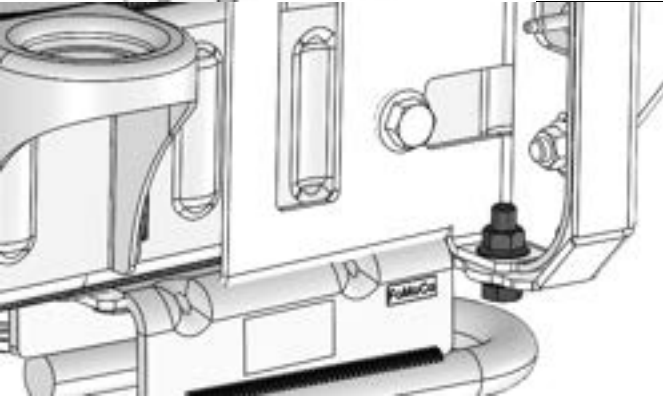

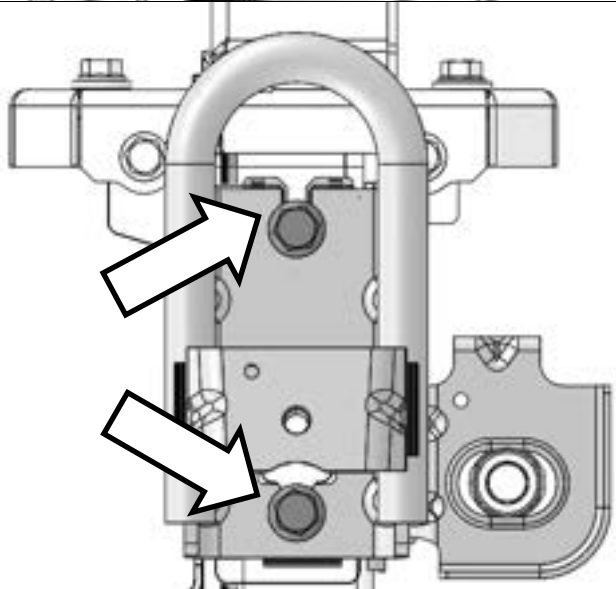

DO NOT TIGHTEN YET.

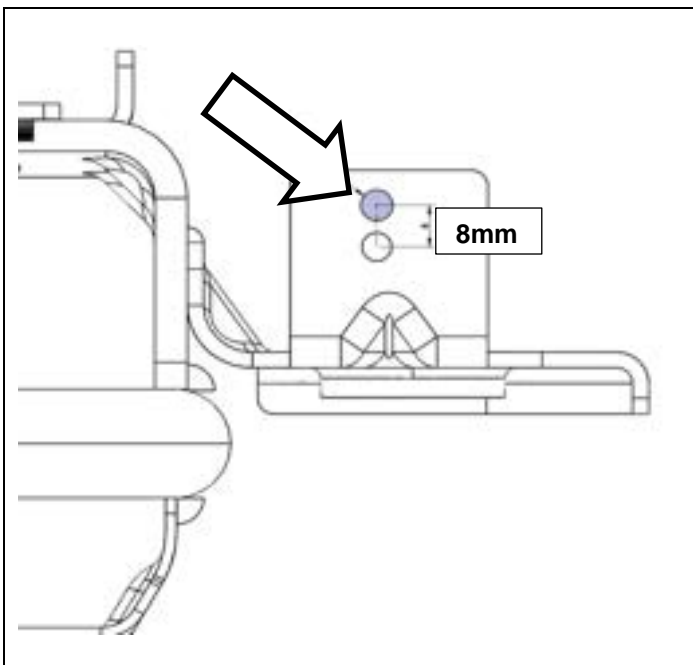


81. Loosely assemble tow point removed in STEP 74 with two M12x50mm flange bolts. Ensure that the rubber intercooler isolator seats into aperture.



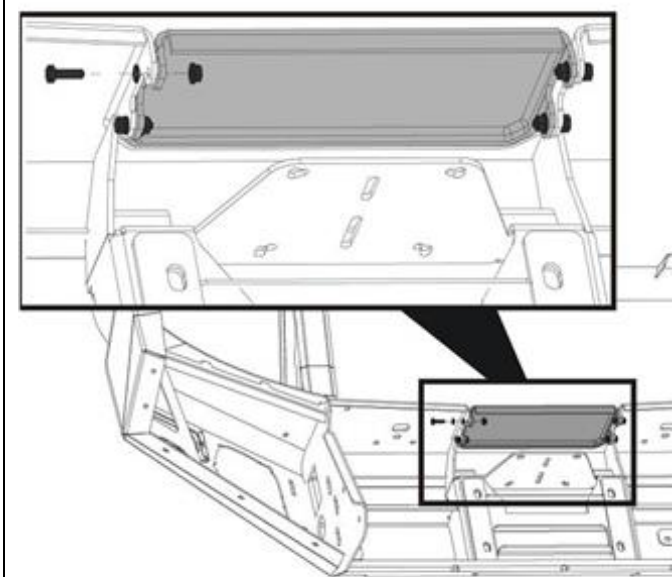
82. REPEAT STEPS 76 - 81 FOR LHS.

	<p>83. Tension M10 Flange bolts on the front of the mount to torque specified.</p> <p> M10 - 44 Nm.</p>
	<p>84. Tension M12x100 PC10.9 bolts running through the chassis.</p> <p> M12 PC10.9 - 92 Nm.</p>
	<p>85. Tension the lower M10x30 flange bolts.</p> <p> M10 - 44 Nm.</p>
	<p>86. Tension M12x50 PC10.9 flange bolts.</p> <p> M12 PC10.9 - 92 Nm.</p>



87. Measure, mark and drill a Ø6mm hole in the lower intercooler brackets, 8mm above the original hole.
88. Fasten intercooler shroud to lower bracket using hole drilled in previous step and M6x20 bolt, M6x12 washer and nyloc nut.

REPEAT STEPS 83-88 FOR LHS



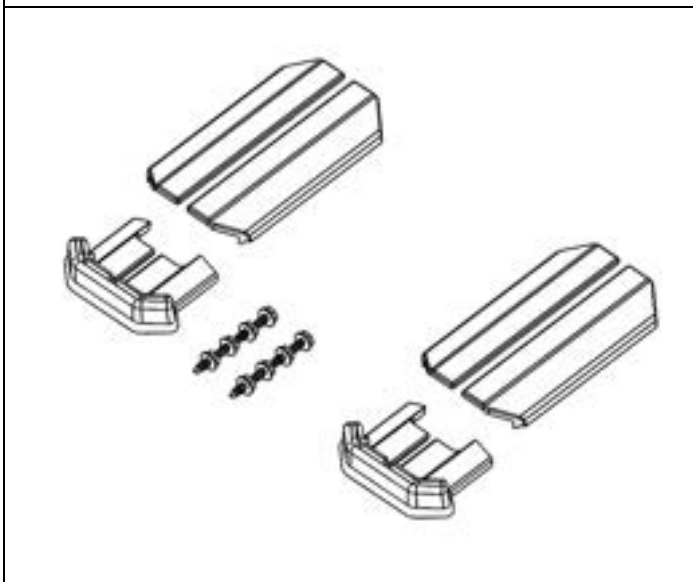
89. If fitting a winch refer to instruction 3789883 supplied with winch fitting kit 3540240.

If not fitting a winch, assemble the winch cover panel to the bar using four M6 x 20 hex bolts, 12mm flat washers and nyloc nuts.

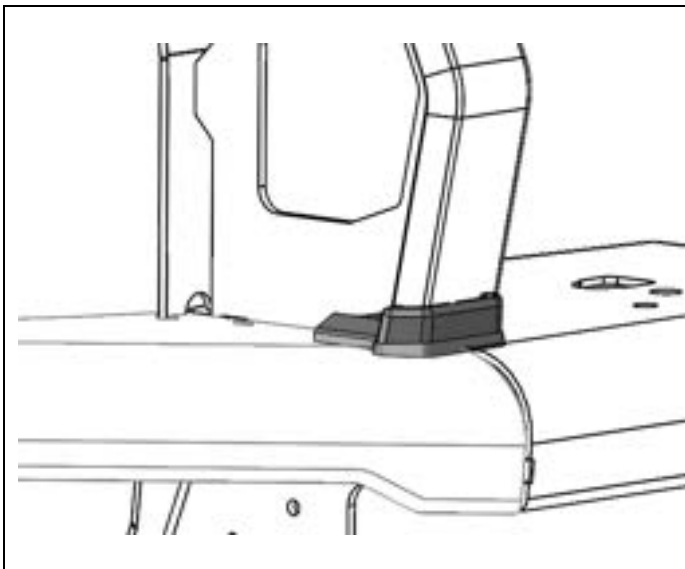


M6 - 9 Nm.

NOTE: If required use an oscillating multi-tool to trim the bumper for winch control box clearance. Fit bumper trim with pinch weld.

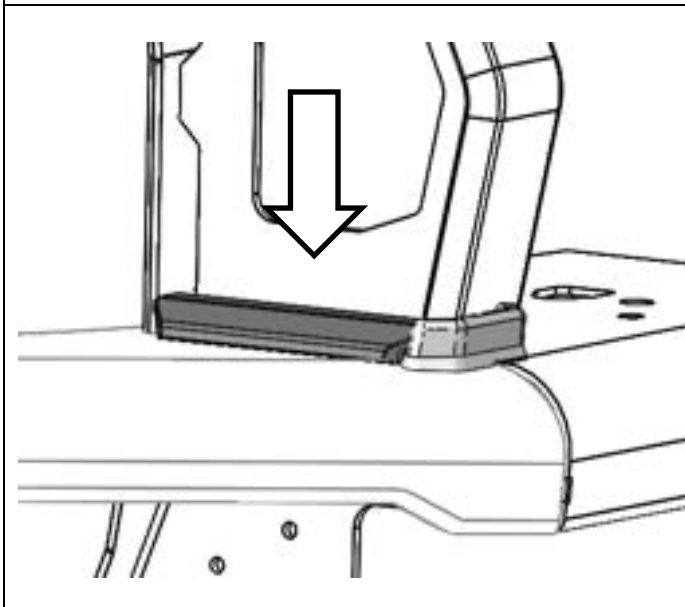


90. Identify the cover strap plastics kit, 3163294.

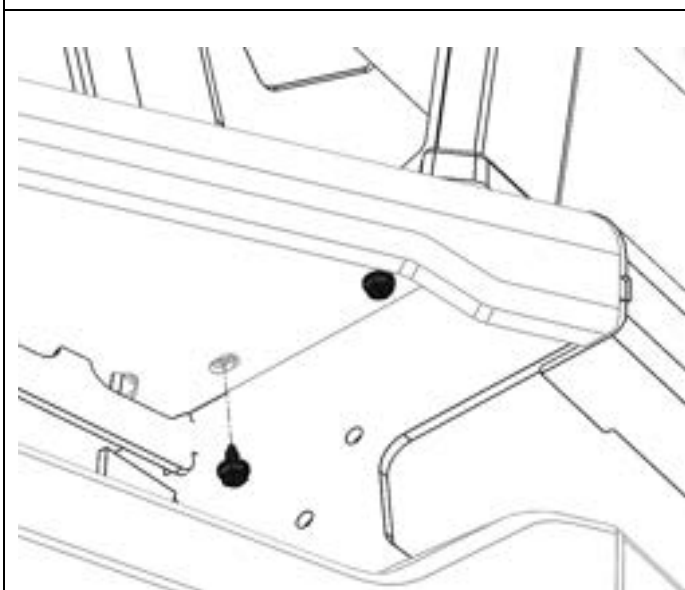


91. Fit the rubber intersection mouldings to the base of each upright cover strap.

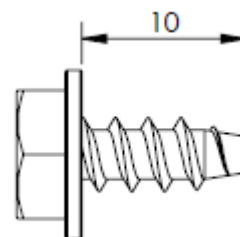
NOTE: *Ensure that the skirt of the rubber moulding is not folded back on itself and is sitting flat against the bull bar.*

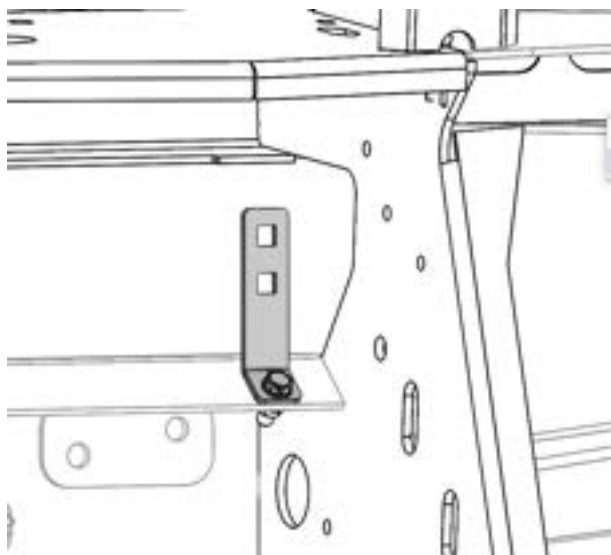


92. Place the plastic cover down onto the rubber moulding, repeat on both sides of the cover straps.



93. From underneath, fit two screws into each plastic cover. Tighten until the covers are secure and have firmly clamped the rubber moulding.

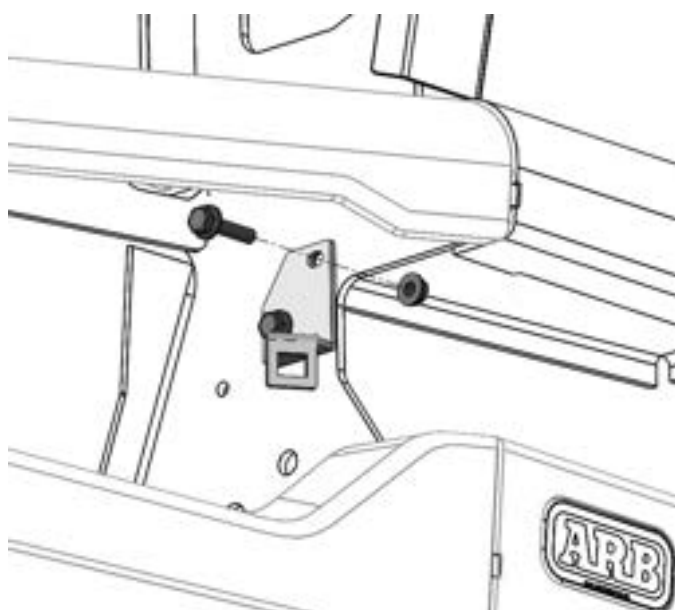




94. Assemble both grille retaining brackets onto the inside of the lower pan with M6x20 bolt, 12mm washer and flange nut. Torque to specification.



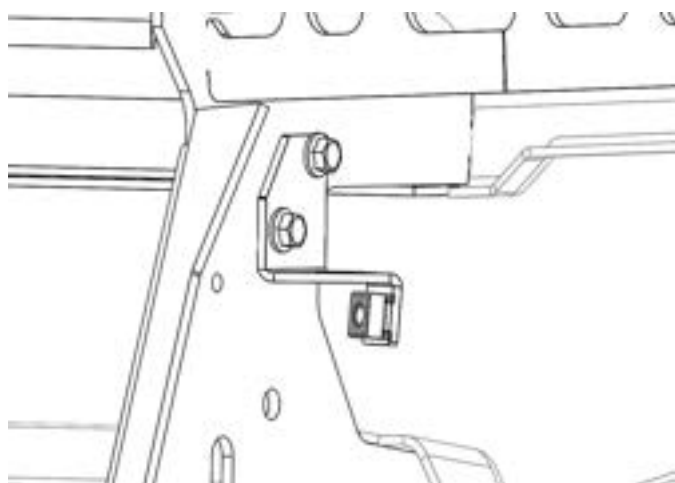
M6 - 9 Nm.



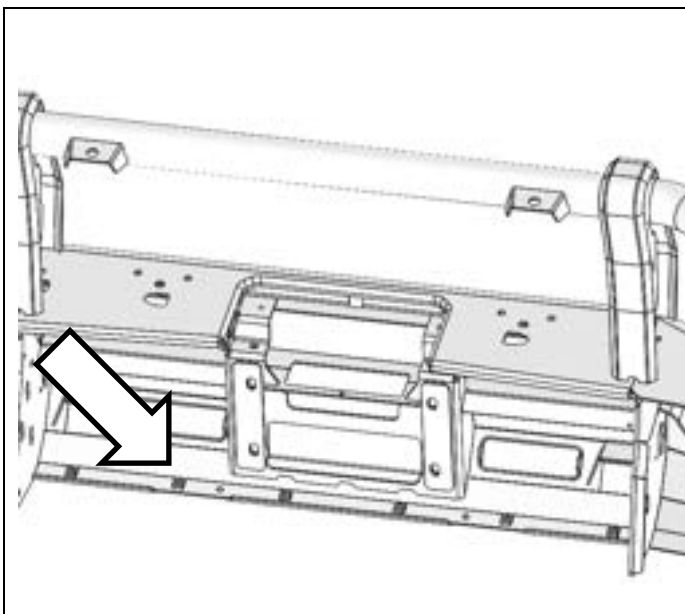
95. Assemble both fog cluster mounting brackets onto the outside of the uprights with M6 flange bolts and flange nuts. Torque to specification.



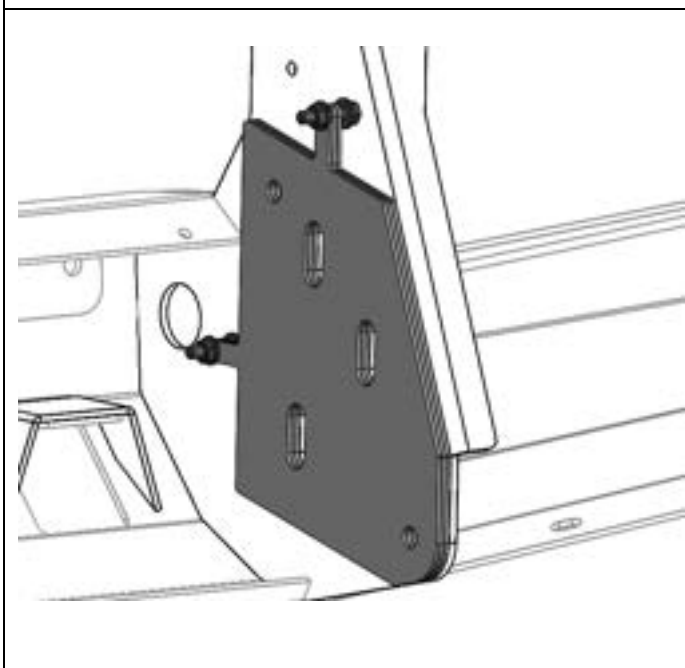
M6 - 9 Nm.



96. Assemble a silver M6 cage nut each into both fog cluster mounting brackets.



97. Assemble six silver M6 cage nuts into lower return of bull bar pan.

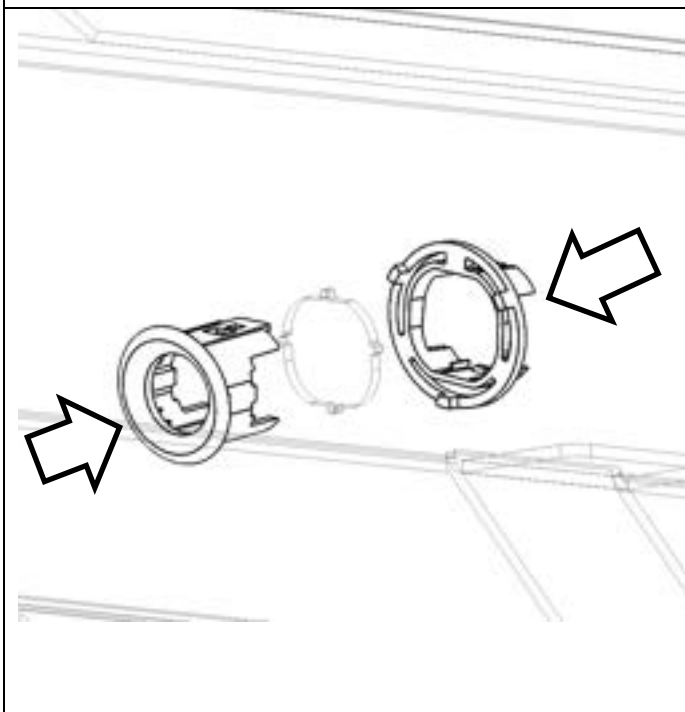


98. Use a tape measure to check the distance across the two internal mounting faces of the bull bar.

Similarly measure the distance between the mounting faces on the chassis mounts.

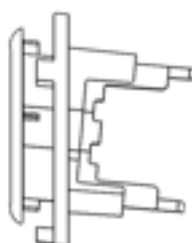
Select an appropriate number of 2.5mm shims to take up the difference in the two dimensions taken and pre assemble onto bull bar uprights using M6x25 flange bolts and flange nuts.

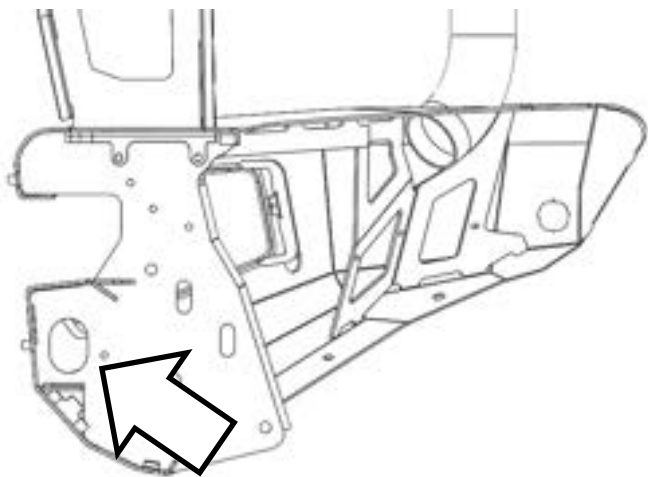
(2-3 shims per side should achieve a smooth sliding fit between bull bar and mounts)



99. Fit the six front sensor housings to the bull bar. Placing the housing through the bar from the front of the vehicle.

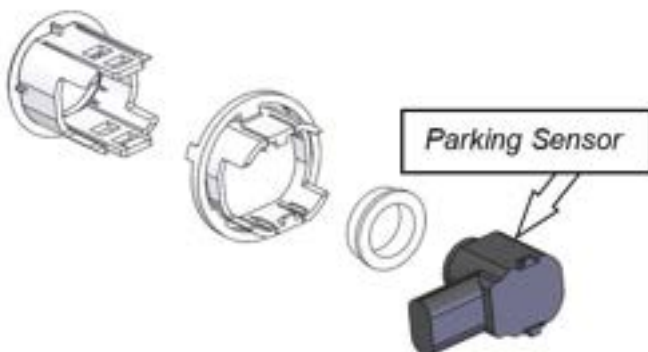
From the rear of the bar, clip the rear sensor housings onto the front housings. Check that both clips are engaged properly. If clips don't engage apply pressure on the outer ring of the rear housing.





100. Route vehicle front harness (removed in STEP 18) from left to right through the apertures in bull bar uprights and across top face of radar bracket.

20-pin connector should remain on outside of LH upright.



101. Assemble parking sensors into housings installed in STEP 99.

Check that both clips are engaged properly and silicone decoupling ring is seated properly.

Tail of sensor should point towards the uprights of the bull bar.

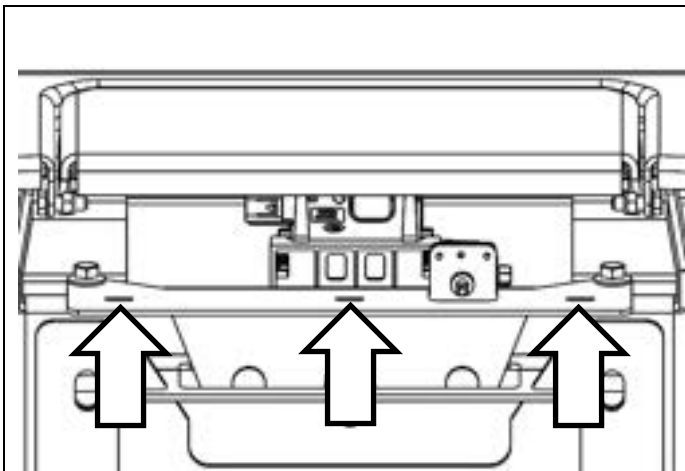


102. Fit the sensor harness extensions to the the OEM front sensor harness and front parking sensors.

Four "INNER" (6821477) extensions for the two inner and two middle sensors marked in STEP 19.

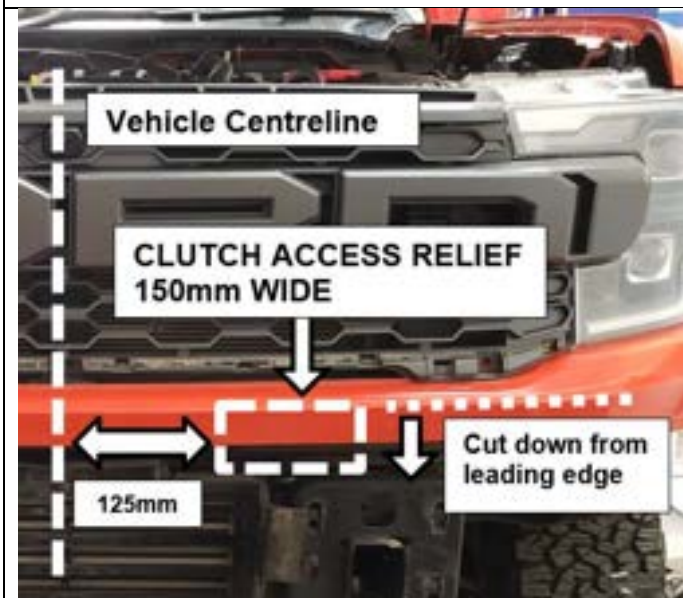
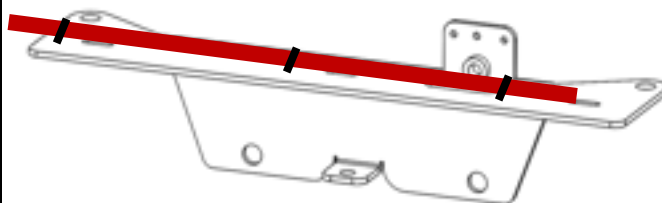
Two "OUTER" (6821476) extensions for the outer sensors.

Ensure the sensors and harnesses are firmly clipped together and that the clip locks are secured.



103. Secure harness with cable ties supplied and original edge clips attached to harness. Slots in radar bracket are for cable ties.

If fitted, winch positive should also be routed across top face of radar bracket.



NOTE: LHS of vehicle shown for clutch position, cut side of vehicle where winch clutch will be positioned.

IF FITTING A WINCH

104. Mark and cut a relief area in the bumper using an oscillating multi tool as shown.

CAUTION: Ensure cut is on the side of vehicle where winch clutch is positioned



Fit pinch weld to the cut edges.

Relief in the bumper for the winch clutch handle should look as shown below.



105. Using a mechanical lifting aid, position the bull bar close enough to the vehicle to connect camera cable and washer line to vehicle.

The camera cable and washer line should be routed up the centre of the grille.

Secure with cable ties.



106. Re-route the front parking sensor harness into the vehicle from the bull bar under the LHS headlight cluster. Re-route through the way it was removed in STEP 12. The 20-pin connector will connect into the engine bay harness installed in STEP 30.

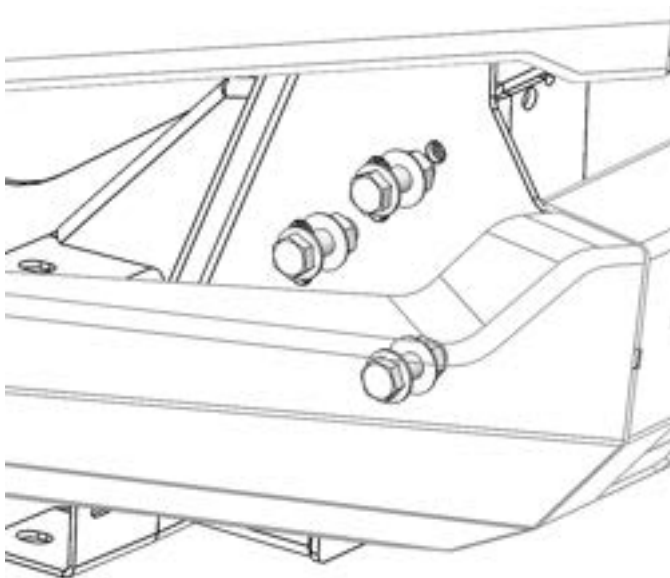
Re-fasten scrivet as shown once re-routed.



107. Prior to fitting bull bar into place for mounting, re-fit grille to vehicle.

Refit the three OE fasteners removed in STEP 5.

Snap the lower grille trim piece removed in STEP 4 back into place on the lower part of the grille.



108. Loosely assemble bull bar onto chassis mounts using three sets of M12x1.25x35 flange bolts and flange nuts per side.

If bull bar is not central to quarter panels, remove and adjust shims from one side to the other in order to adjust bull bar across the vehicle.

DO NOT TIGHTEN YET.



109. Once shim position has been confirmed, adjust bull bar on mounting slots to achieve a parallel 25-28mm gap between the wings and flare.

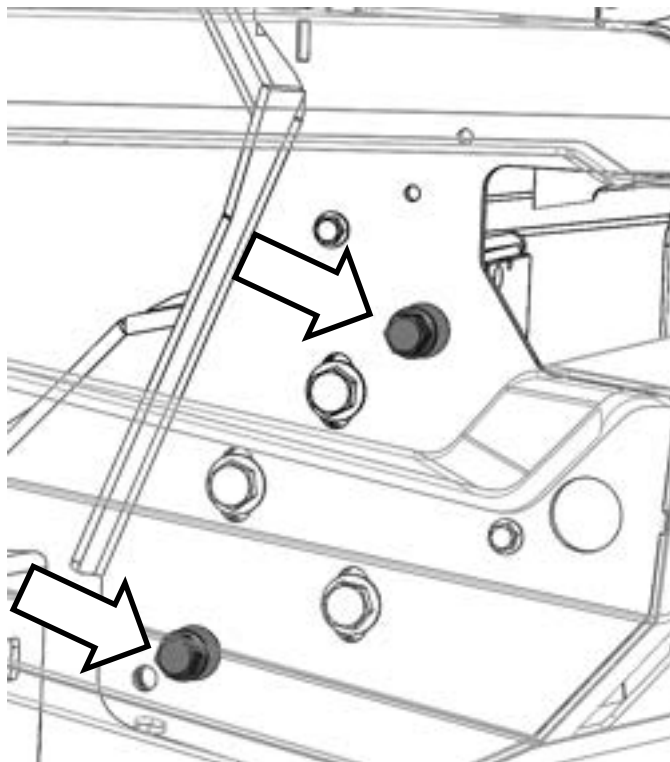
The lower flare edge should run tangent to the rear corner of the wingtip.



Torque M12 mounting bolts to specification.



M12 - 77 Nm.



110. Drill four Ø10mm holes (2 per side) through mount assembly using existing holes in bull bar as guide. This may require a right-angled drill.



111. Add anti-corrosion touch up paint to areas drilled, then assemble and tension four M10x30 flange bolts and flange nuts to specification.

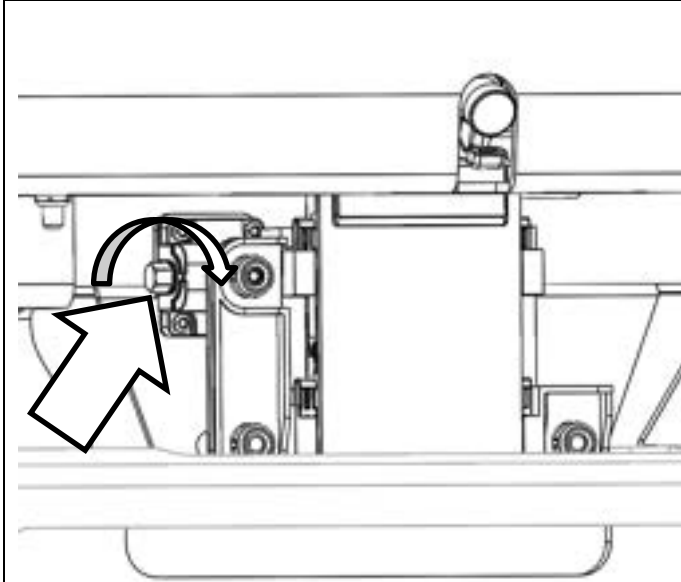


M10 - 44 Nm.

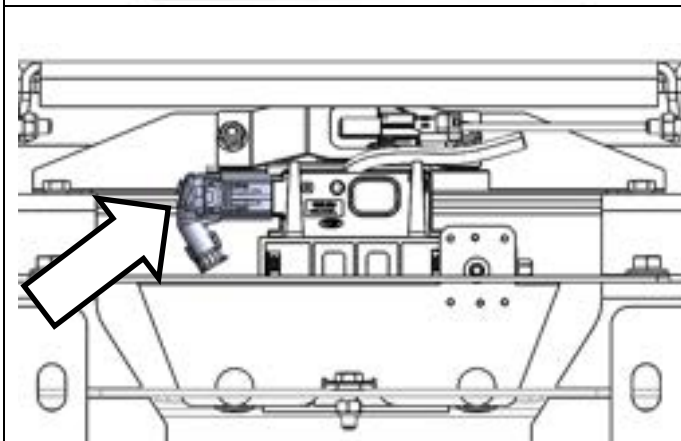


IMPORTANT: Front face of radar should be perpendicular to ground. If not, adjust accordingly.

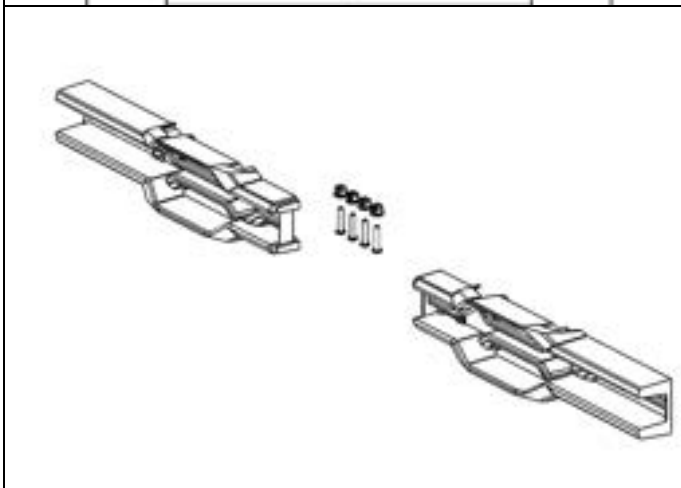
112. Place a level on the front face of the sensor. The front face should be 90° degrees to level ground with a tolerance of $\pm 1^\circ$. If it is not within this tolerance, proceed to the next step. If it is within tolerance, no further action is required skip to STEP 114.



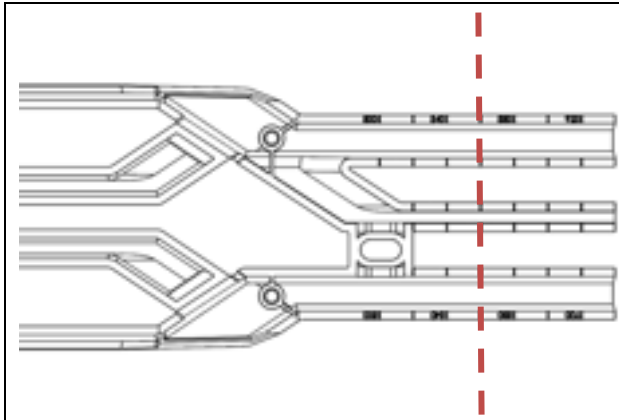
113. Using an 8mm socket, wind the adjustment screw to achieve correct angle.



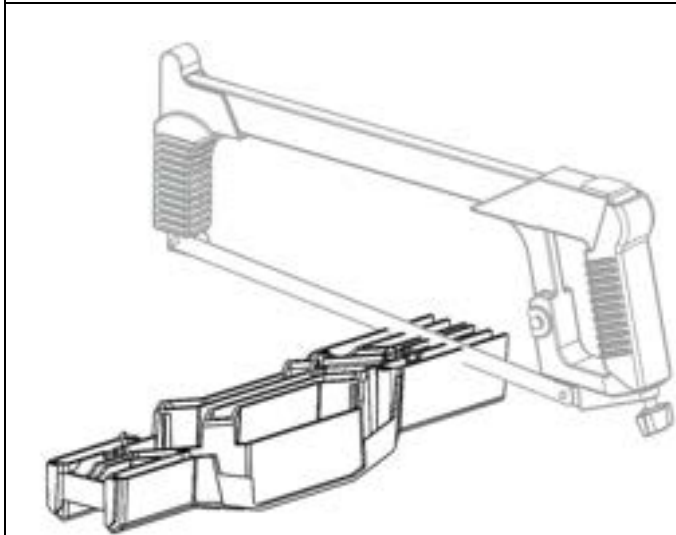
114. Connect radar to vehicle harness.



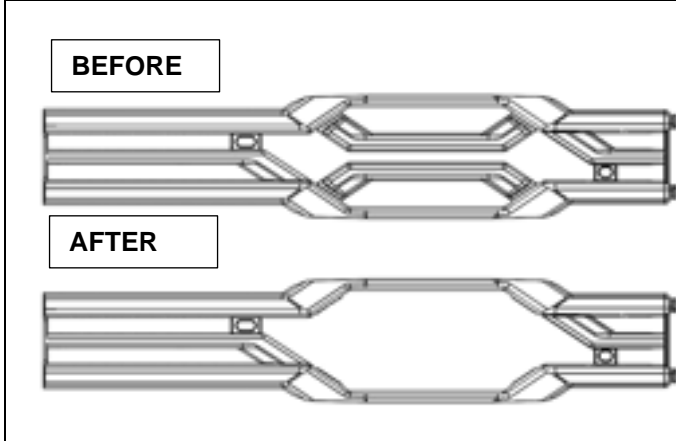
115. Identify the outer grille section kit, 3163295.



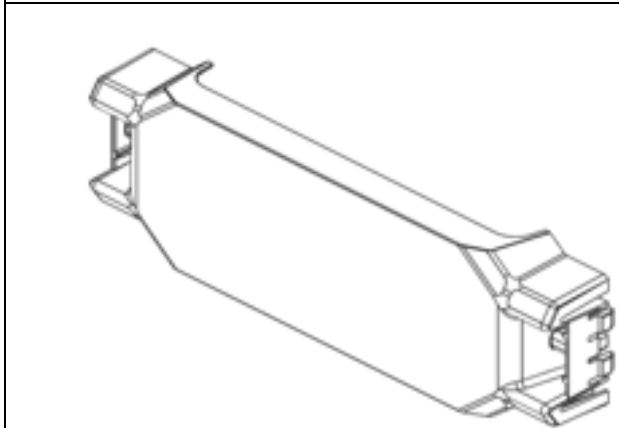
116. Mark both grille panels to be cut at the 860mm markings on the back face.



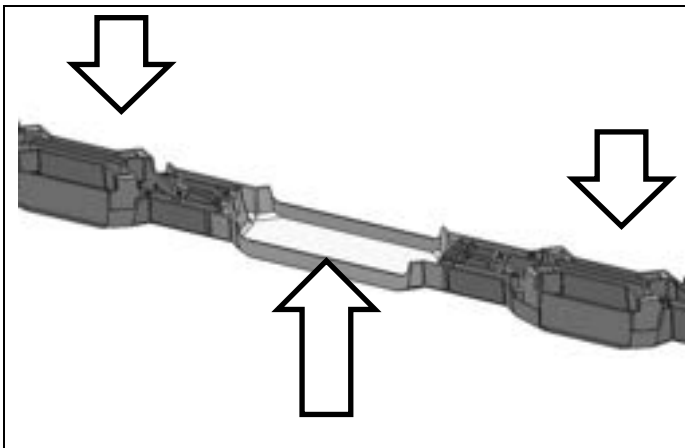
117. Use a hacksaw or similar cutting tool to carefully cut the grille panel at the positions marked in the step above.
Discard the off cuts and clean up the cut edges using a file or sandpaper.



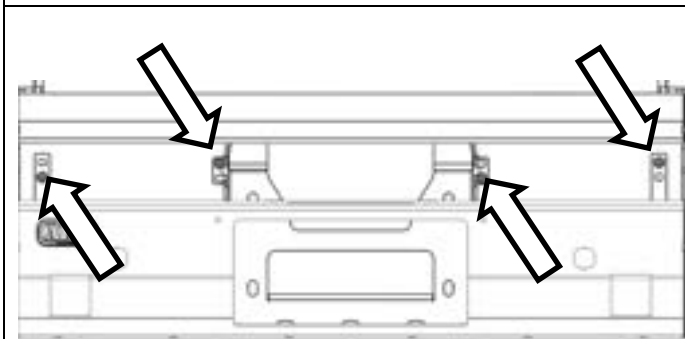
118. If fitting a winch, remove grille sections shown for access to clutch lever.
Cut from rear with an oscillating multi-tool.



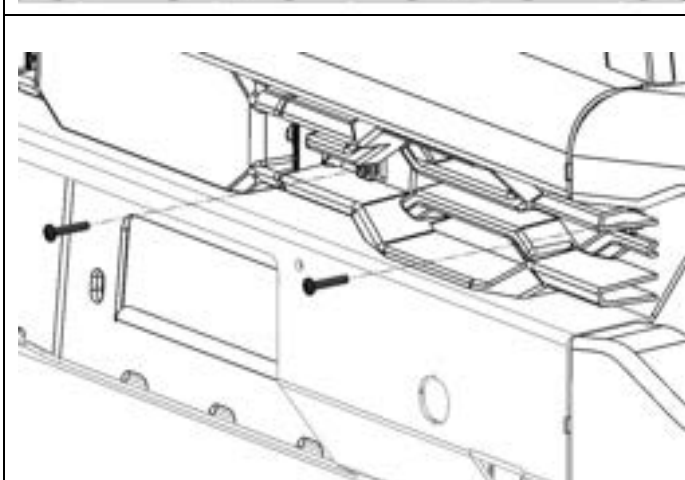
119. Identify the inner grille section kit, 3163316.



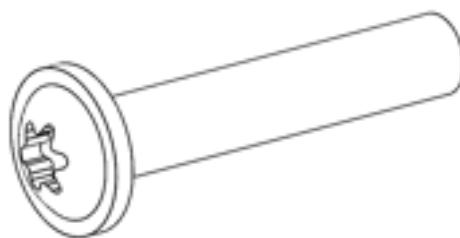
120. Assemble centre section into both outer sections, make sure clips are fully engaged.



121. Press four round plastic grommets from grille kit into the square cut-outs seen from the front of the bull bar.



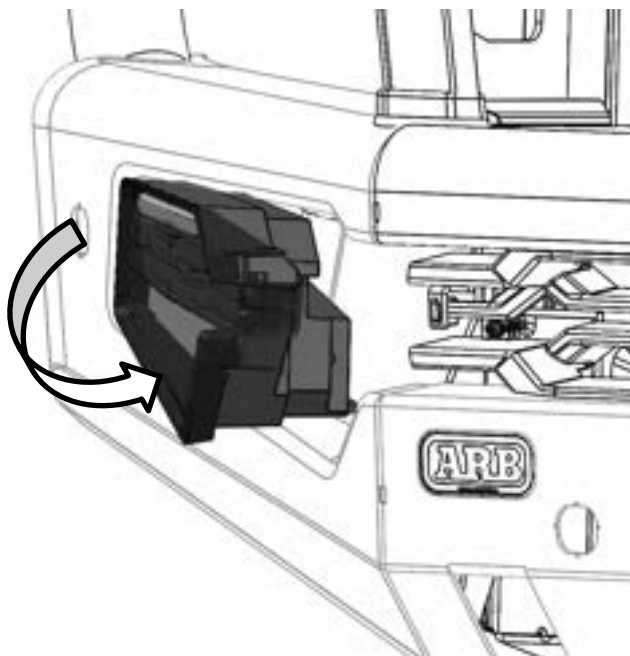
122. Attach grille assembly to bull bar using four Torx head screws supplied in grille kit.



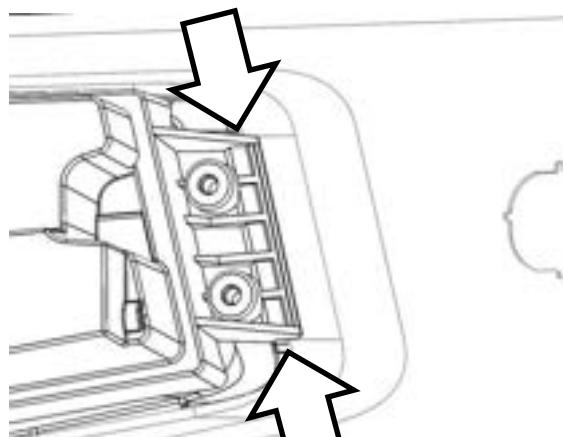
123. Connect lighting harness into the back of each fog light cluster.

If further clearance is required between the connector and the vehicle bumper, mark and trim an appropriately sized clearance aperture in the bumper using an oscillating multi-tool. Fit pinch weld around the trimmed sections of the bumper.

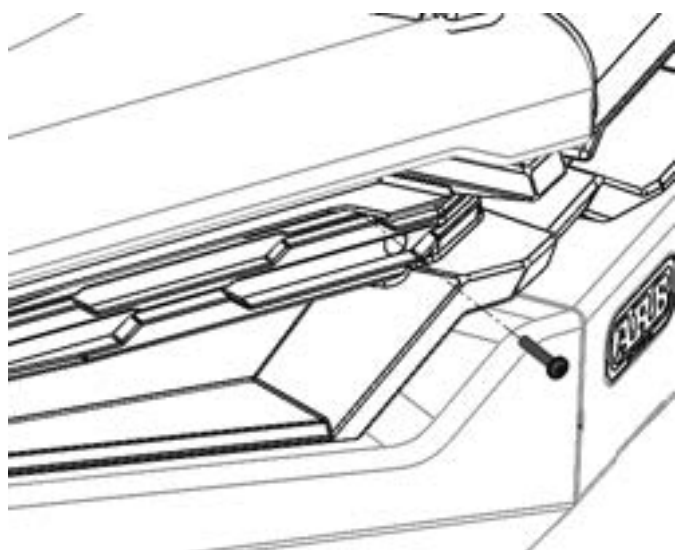




124. Index the outside groove of the lamp cluster over the edge of the aperture in the bull bar wing. Then rotate the lamp cluster into place.



View From Behind



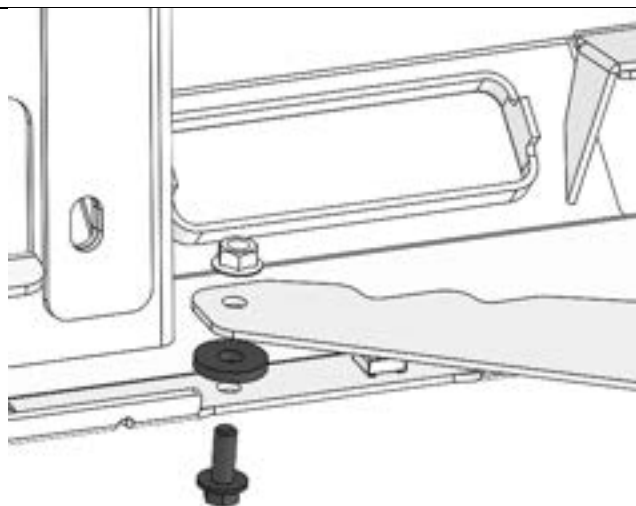
125. Secure lamp cluster with M6 Torx head screw.



M6 - 9 Nm.

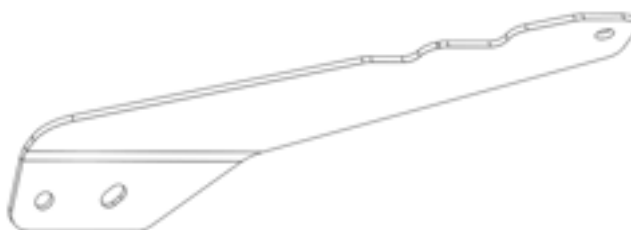
WINCH FITMENT ONLY – CONTINUE WITH STEPS 126-127.

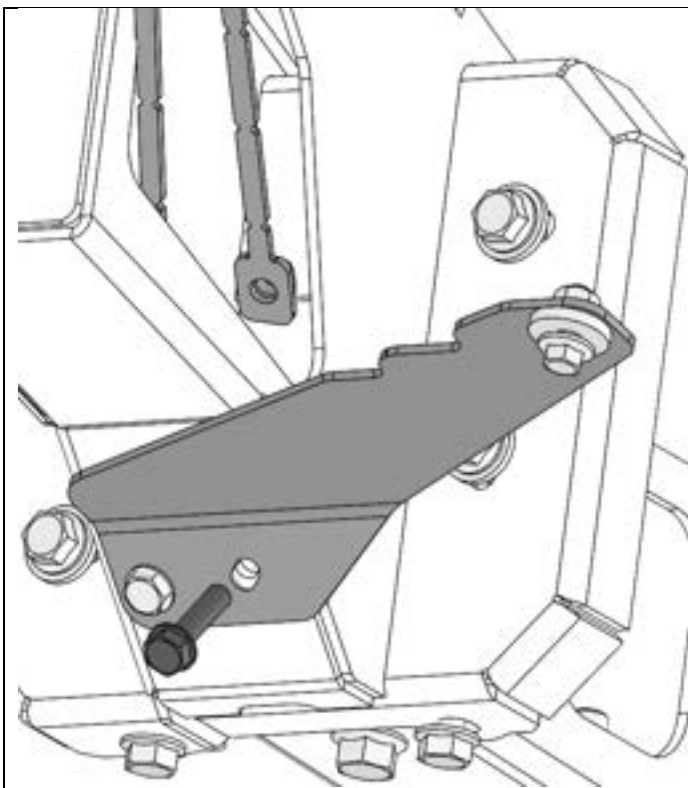
IF NO WINCH FITTED SKIP TO STEP 128.



126. Fit the RHS brace strut shown to the bull bar using an M8x20 bolt, M8x26x4 washer and M8 flange nut.

DO NOT TIGHTEN YET.





127. Fasten bracket through the hole in the chassis mount using an M8x35 bolt, M8x16 washer and M8 nut stick.

Once fastened, mark and drill the second hole using an Ø8mm drill bit, and fit fasteners as above.

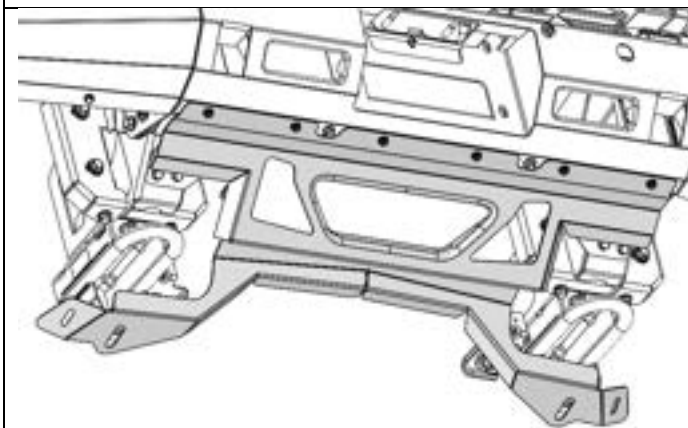


Add anti-corrosion touch up paint to areas drilled, then assemble and tension all three M8 bolts and flange nuts to specification.



M8 - 22 Nm.

REPEAT STEPS 126-127 ON LHS.

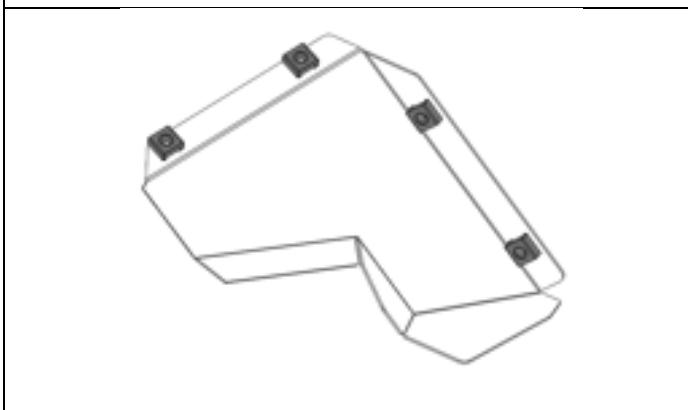


128. Begin to fit the centre panel to the lower edge of the bull bar using six M6x25 flange bolts.

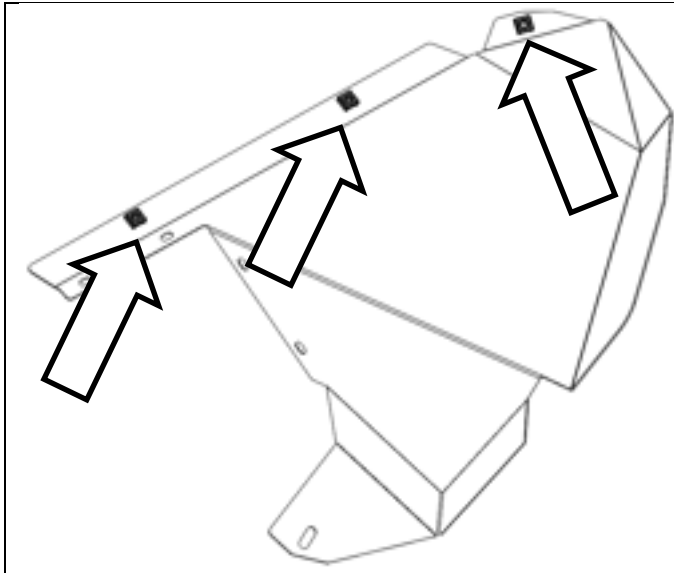
DO NOT TIGHTEN YET.



M6 - 9 Nm.

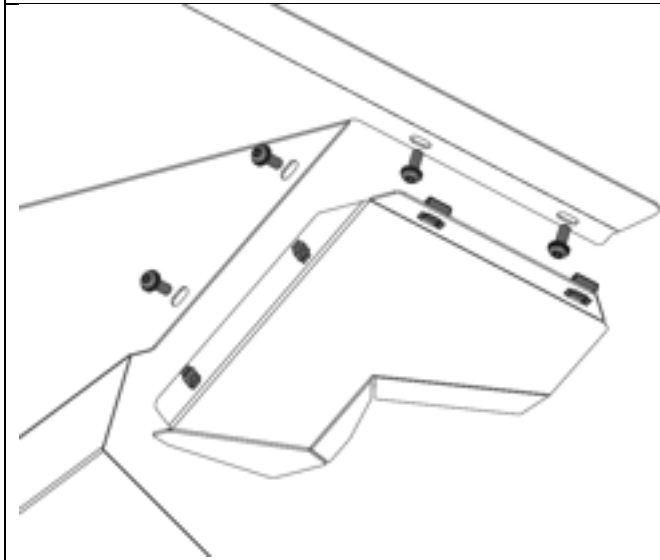


129. Assemble four black M6 cage nuts onto each access panel (LHS & RHS).



130. Assemble three black M6 cage nuts onto each wing under panel. The nuts should be on the same side as the rear return fold.

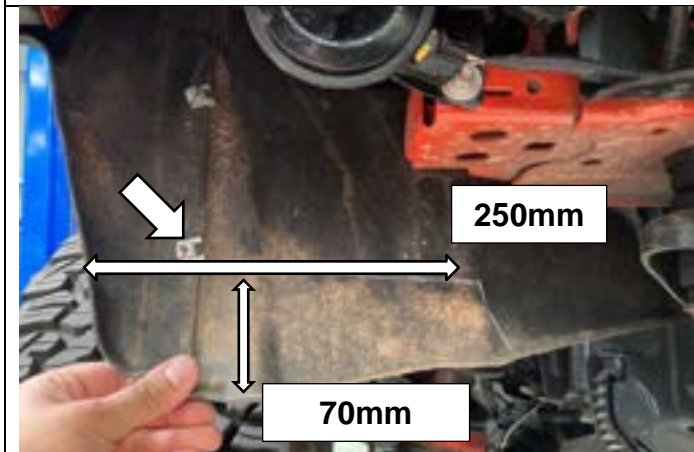
Ensure these are the correct cage nuts with shorter legs for 2mm material.



131. Fit the access panels to the RHS and LHS wing panels as shown and tension using four M6x16 button head screws and M6x12 washers.

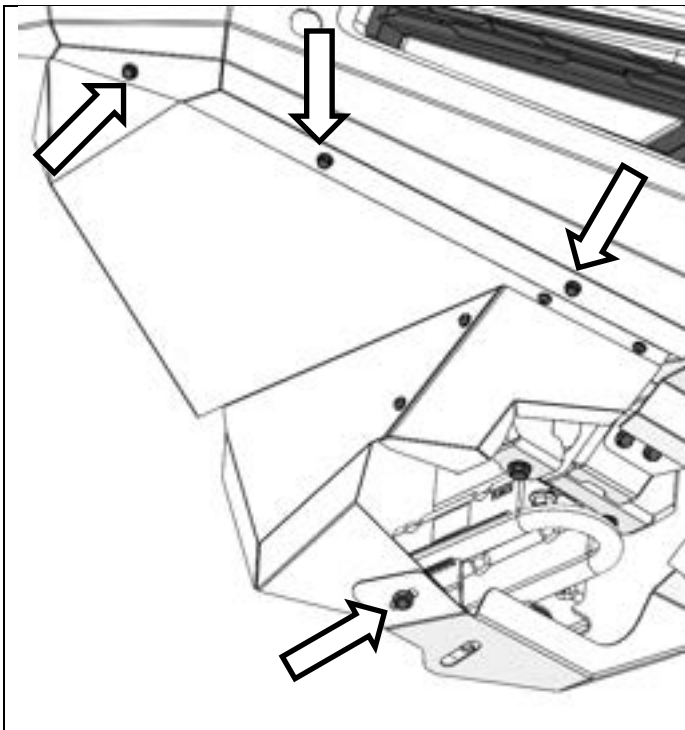


M6 - 9 Nm.



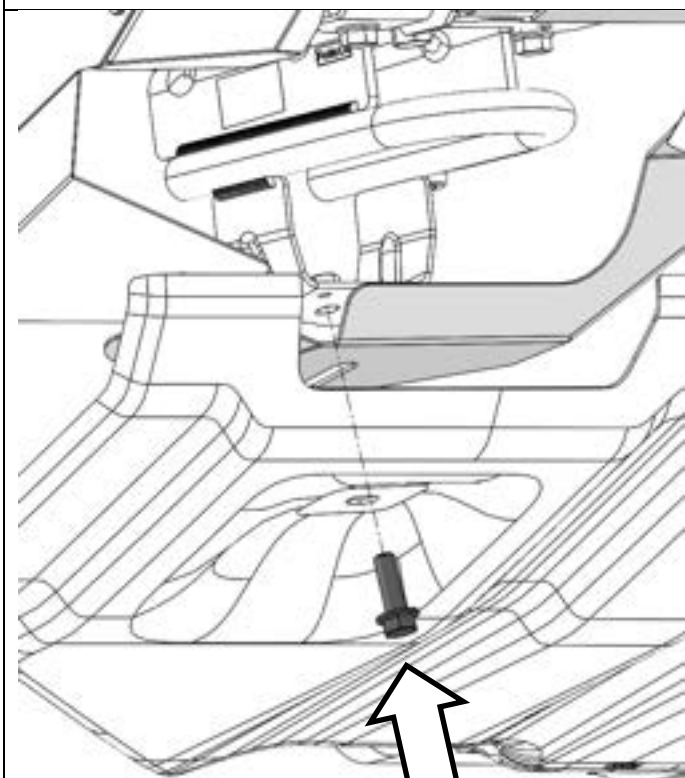
132. Mark and cut the wheel arch liner as shown.

Ensure the horizontal trim line runs UNDER the fastener shown.



133. Fit wing under panels into wings with three M6x25 flange bolts.
Fit to the centre panel with one M8x20 flange bolt and flange nut.

DO NOT TIGHTEN YET.



134. Fit the OEM stone shield over the ARB centre panel and wing underpanels.

Fit two M10x30 bolts through the OEM stone shield and the ARB centre panel.

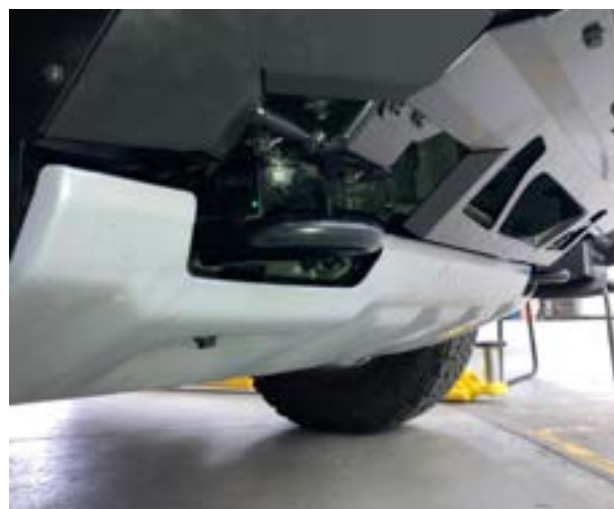
Fasten the two bolts into the weld nuts on the OEM tow points to secure both panels.

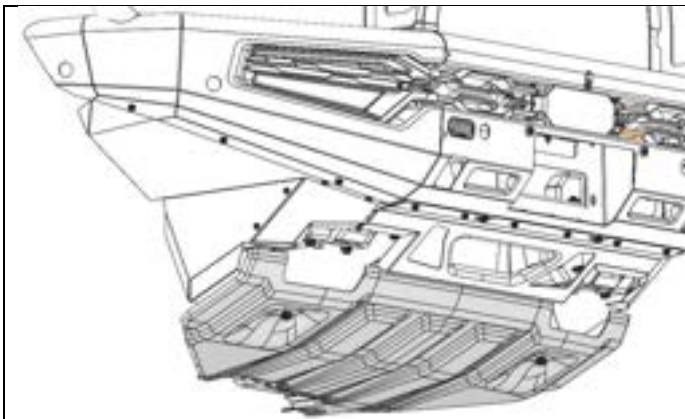
Fasten the two OEM M10 bolts at the rear of the OE stone shield which were loosened at STEP 17.

Fully torque the four M10 bolts.



M10 - 44 Nm.





135. Tension all M6 fasteners for the centre and wing under panels (12 total).

Tension the M8 fasteners fixing the wing underpanels to the centre panel (2 total) that were fitted in STEP 133.

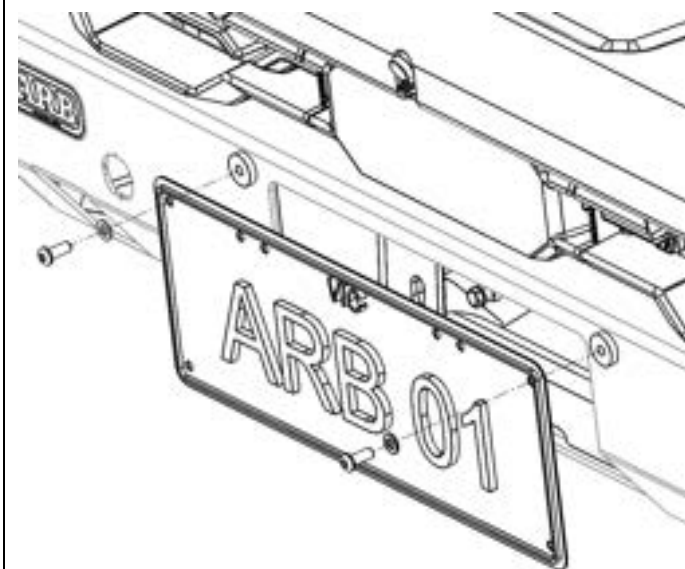
Use spanners for access between panels.



M6 - 9 Nm.



M8 - 22 Nm.



136. Fit the number plate to the front face of the lower pan on the bar and tension using two M6 button head screws, two flat washers, two Nylon packers and two M6 flange nuts as shown.

Note: Non-winch application shown.

Hint: A 10mm open ended spanner can be used to hold the flange nuts in place from the fairlead aperture.



M6 - 9 Nm.

ONCE SUMMIT BAR IS FITTED:

- Ensure all bolts are tensioned correctly.
- All wiring is clear of sharp edges or moving surfaces and secured properly.
- Piping is secured well away from sharp or moving components.
- Check operation of winch, if fitted.
- Check all wiring and connections to turn signal lamps, parking sensors, camera, washers etc. are functioning correctly.



SERVICE PARTS LISTING			
SERVICE PART #	CONTENTS	QTY	DESCRIPTION
3540390 CAMERA RELOCATION KIT	3750987	1	CAMERA RELOCATION BRACKET
	3195389	1	CAMERA RELOCATION BRACKET
	6151496	2	BOLT HXHD M6x10 ZINC SILVER
	6151173	2	NUT FLANGE M6 ZNB480 SERRATED
	6821439	2	CAMERA CABLE EXTENSION
	4721820	1	HOSE 4.5MM ID 500mm
S3753232 RADAR RELOCATION KIT	3753232	1	RADAR MOUNTING BRACKET
	6151730	2	BOLT HXHD FL M8x1.25x20 FT PC8.8 BZP480
	6151655	2	NUT FLANGE M8x1.25 PC8 TZP480
	6151213	1	BOLT HXHD M6x1.0x20 PC8.8 ZNB480
	6151223	1	NUT HEX NYLOC M6x1.0 ZNB480
	4584329	1	WASHER FLAT M6x12.2x1.2 BTZP480
S3195508 ELECTRICAL BRACKET KIT	3195508	1	BUSBAR WINCH POSITIVE
	3195561	1	BUSBAR WINCH EARTH
	3753231	1	RELAY FUSE MOUNTING BRACKET
	6151730	3	BOLT HXHD FL M8x1.25x20 FT PC8.8 BZP480
	6151655	4	NUT FLANGE M8x1.25 PC8 TZP480
	6151921	1	BOLT COHD M8x20 ZNB480 LWHD
S6365081 OEM TOW POINT KIT	6365081	2	INTERCOOLER ISOLATING BUSH
	6152066	4	BOLT HXHD FL M12x1.75x50 FT PC10.9 ZAS1000
S3753258 LAMP/GRILLE MNT BRKT KIT	3753258R/L	1 PAIR	CLUSTER MOUNTING BRACKET
	3753259	2	GRILLE RETAINING BRACKET
	6151300	2	NUT CAGED M6 2.6-3.5 956-C
	6152094	2	SCREW PHD M6x1.0x30 PC8.8 TX ZNB 480
	6152008	6	BOLT HXHD FL M6x1.0x25 PC8.8 ZNB480
	6151173	6	NUT FLANGE M6 ZNB480 SERRATED
S6523596L LEFT WING UNDERPANEL KIT	6523596L	1	WING PANEL LH SUITS RAPTOR
	6523597L	1	ACCESS PANEL LH SUITS RAPTOR
	6151526	7	NUT CAGED M6 1.8-2.7 BZP480
	6152008	3	BOLT HXHD FL M6x1.0x25 PC8.8 ZNB480
	6151730	1	BOLT HXHD FL M8x1.25x20 FT PC8.8 BZP480
	6151459	4	SCREW BHD M6x16 BTZP480
	6151655	1	NUT FLANGE M8x1.25 PC8 TZP480
	4584329	4	WASHER FLAT M6x12.2x1.2 BTZP480
S6523596R RIGHT WING UNDERPANEL KIT	6523596R	1	WING PANEL RH SUITS RAPTOR
	6523597R	1	ACCESS PANEL RH SUIT RAPTOR
	6151526	7	NUT CAGED M6 1.8-2.7 BZP480
	6152008	3	BOLT HXHD FL M6x1.0x25 PC8.8 ZNB480
	6151730	1	BOLT HXHD FL M8x1.25x20 FT PC8.8 BZP480
	6151459	4	SCREW BHD M6x16 BTZP480
	6151655	1	NUT FLANGE M8x1.25 PC8 TZP480
	4584329	4	WASHER FLAT M6x12.2x1.2 BTZP480
S6523595 CNTR STONE SHIELD KIT	6523595	1	CENTRE PANEL
	6151300	6	NUT CAGED M6 2.6-3.5 956-C
	6152008	6	BOLT HXHD FL M8x1.25x20 FT PC8.8 BZP480
	6151965	2	BOLT HXHD FL M10x1.5x30 PC8.8 ZNB480
S4681822L BRACE STRAP KIT	4681822R	1	BRACE STRAP RHS SUIT RAPTOR
	4655055	2	NUT STICK M8x1.25
	6151573	2	BOLT HXHD M8x1.25x35 PC8.8 BTZP480
	4584324	2	WASHER FLAT M8x16.6x1.2 BTZP480
	4584364	1	WASHER FLAT M8x26x4 HV300 BTZP480
	6151655	1	NUT FLANGE M8x1.25 PC8 TZP480 ENS 14/002
	6151730	1	BOLT HXHD FL M8x1.25x20 FT PC8.8 BZP480

S4681822L BRACE STRAP KIT	4681822L	1	BRACE STRAP LHS SUIT RAPTOR
	4655055	2	NUT STICK M8x1.25
	6151573	2	BOLT HXHD M8x1.25x35 PC8.8 BTZP480
	4584324	2	WASHER FLAT M8x16.6x1.2 BTZP480
	4584364	1	WASHER FLAT M8x26x4 HV300 BTZP480
	6151655	1	NUT FLANGE M8x1.25 PC8 TZP480 ENS 14/002
	6151730	1	BOLT HXHD FL M8x1.25x20 FT PC8.8 BZP480
3501060		1	SENSOR SURROUND KIT (6)
6821426		1	HARNESS BULLBAR FORD ENG
6821427		1	HARNESS BULLBAR FORD BCM
6821430		1	UNIVERSAL SWITCH HARNESS
3163294		1	COVER STRAP KIT SUMMIT
3163295		1	OUTER GRILLE KIT SUMMIT
3163316		1	RADAR COVER LARGE SUMMIT
3500991		1	ARB LAMP CLUSTER KIT SUMMIT