



# FITTING INSTRUCTIONS

Part Number: **3415260 | 6178433 | 6178256**

Product **ZENITH WINCH BAR | TUNDRA MY22 ON**  
Description: **KIT BASH PLATE SUIT 3415260**  
**FITTING KIT BOX 3415260**

Suited to **TOYOTA TUNDRA MY22 ON**  
vehicle/s:

## 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:

METRIC SOCKET SET	METRIC COMBINATION SPANNER SET
SCREWDRIVER SET	ALLEN KEY SET
OSCILLATING MULTI-TOOL	10MM DRILL BIT
FILE OR SANDPAPER	MASKING TAPE
BASIC MEASURING TOOLS	TORQUE WRENCH 9-100Nm CAPACITY
STEEL RULE	DIGITAL ANGLE GAUGE
CORROSION INHIBITING TOUCH UP PAINT	ADJUSTABLE WRENCH

### 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			
APPLICATION.	PART NO.	QTY	DESCRIPTION
WELDMENT	4655501	1	ZENITH WINCH BAR   TUNDRA MY22 ON
WELDMENT PRE-FITMENT	3163390R/L 3163395R/L 6151223 4584329 4681846R/L 6151730 6151548	1R/1L 1R/1L 20 20 1R/1L 8 8	DUCT MOULDING OUTER RH\LH DUCT MOULDING INNER RH\LH NUT M6x1 NYLOC ZNB480 WASHER FLAT M6X12.2X1.2 WING BRACE RH/LH SUIT TUNDRA BOLT HXHDFL M8X1.25X20 NUT FLANGE M8 x 1.25
CHASSIS MOUNTS	4655506R/L 37500027R/L 37500028R/L 3195844 6151817 6151717 6152092 6151525 6151480 6152066 6151528 6151969 4617103 4584363 3195274	1R/1L 1R/1L 1R/1L 6 12 4 2 4 10 2 2 2 4 2 12 2	CHASSIS MNT SUB ASSY RH\LH CHASSIS MOUNT BRKT RH/LH OUTER CHASSIS MOUNT BRKT RH/LH INNER CHASSIS MOUNT PACKER BOLT HXHD FL M12x1.25x40 SCREW HXHD FL M10x1.25x40 BOLT HXHD M12X1.75X110 SCREW BHD M6x1.0x25 NUT FLANGE M12X1.25 BOLT HXHD FL M12X1.75X50 NUT HEX NYLOC M12X1.75 NUT FLANGE M10X1.25 CHASSIS CRUSH TUBE WASHER FLAT M12X26X4 PLATE NUT WELD BRKT M12 31X225
BASH PLATE AND UNDER PANELS	4655507 6523647 6523646R/L 6152153 6151730 6151301 6151548 6151729 6151475 6151715	1 1 1R/1L 6 6 4 4 10 8 2	BASH PLATE SUIT TUNDRA ZENITH UNDER PANEL WELDED ASSY UNDER PANEL RH/LH BOLT HXHD FL M8X1.25X30 BOLT HXHD FL M8x1.25x20 NUT CAGED M8 3.3-4.7 NUT FLANGE M8X1.25 BOLT HXFL M6X1.0X20 FT NUT U M6X1.0 NUT CAGED M6X1.0
BRACING	37500019 6151729 37500032 37500031R/L 6151965 4584399 6151321	1 4 1 1R/1L 4 4 4	WINCH CRADLE BRACE BOLT HXFL M6X1.0X20 FT WINCH CRADLE BRACE RECOVERY POINT BRKT RH/LH BOLT HXHD FL M10X1.5X30 WASHER FLAT M10X25X3 NUT FLANGE M10x1.5 GR8.8

RECOVERY POINTS AND WINCH CRADLE	4655581R/L	1R/1L	REC POINT RHS/LHS TUNDRA FORGED
	4655505	1	SUB ASSY WINCH CRADLE
	6151817	4	SCRW HXHDFL M12X1.25X40
	4584363	4	WASHER FLAT M12X26X4
	6151480	6	NUT FLANGE M12X1.25
	6151967	4	BOLT HXHDFL M12X1.25X60
	3195894	8	RECOVERY POINT SHIM
	6151321	4	NUT FLANGE M10x1.5 GR8.8
	6151965	4	BOLT HXHD FL M10X1.5X30
	6152265	2	SCREW BHD M12x1.75x50
	4584377	2	WASHER FLAT M12X30X5
	6151657	2	NUT FLANGE M12X1.75
	2125484	2	STICKER RECOVERY POINT
GRILLE FITMENT	37500260	2	INNER LOWER GRILLE BRKT TUNDRA
	37500261	2	INNER UPPER GRILLE BRKT TUNDRA
	37500262R/L	1R/1L	OUTER GRILLE BRKT RHS\LHS TUNDRA
	6151459	12	SCREW BHD M6x16
	6151173	12	FLANGE NUT M6 ZNB480
	4584329	12	WASHER FLAT M6X12.2X1.2
	6151269	4	SCREW M4X10X0.7 S/STEEL P/HEAD
	6152091	8	SCREW PHD 4.8X1.59X26
	6821189	8	GROMMET RND FL 1500 080 090
RADAR MOUNTING	3163400	3	ZENITH BAR CENTER GRILLE
	37500036	1	RADAR LOWER BRKT
	37500037	1	RADAR UPPER BRKT
	5848302	2	PACKER RBAR NYLON
	VH20010003	2	SPRING ROD RELEASE JACK
	6151992	2	SCREW PHD M5X40
	4584347	6	WASHER FLAT M5
	6151912	2	NUT HEX NYLOC M5X0.8
	6151729	4	BOLT HXHD FL M6X1.0X20
	6151173	2	FLANGE NUT M6 ZNB480
	6151223	4	NUT M6x1 NYLOC ZNB480
	4584378	2	WASHER FLAT M6x16x1.2
	4584329	4	WASHER FLAT M6X12.2X1.2
FOGLIGHT MOUNTING	6151459	2	SCREW BHD M6x16
	37500038	4	FOG LIGHT BRKT
	6151300	8	NUT M6 CAGED 2.6-3.5MM 956-C
	6151525	8	SCREW BHD M6x1.0x25
	6151729	8	BOLT HXHD FL M6X1.0X20
	6151173	8	FLANGE NUT M6 ZNB480

MISC	3525010	1	SENSOR SURROUND KIT (X4)
	37500356	1	BRKT GRILLE RETAINER
	37500112	1	BRKT CAMERA TUNDRA ZENITH
	3195902	1	MOUNT PLATE AGS TUNDRA
	6151269	2	SCREW M4X10X0.7 S/STEEL P/HEAD.
	6151729	1	BOLT HXHD FL M6X1.0X20
	6151223	6	NUT M6x1 NYLOC ZNB480
	4584378	1	WASHER FLAT M6x16x1.2
	6151459	5	SCREW BHD M6x16
	4584329	10	WASHER FLAT M6X12.2X1.2
	6151650	2	SCREW BUTTON HEAD M5 X 20
	6151912	2	NUT HEX NYLOC M5X0.8
	4584347	2	WASHER FLAT M5
	6821451	2	HARNESS EXTENSION SUITS TOYOTA
NUMBER PLATE	3755085	1	LICENCE PLATE BRACKET
	37500035	1	LICENCE PLATE MNT
	6151729	4	BOLT HXHD FL M6X1.0X20
	6151459	4	SCREW BHD M6x16
	4584329	4	WASHER FLAT M6X12.2X1.2
	4584378	2	WASHER FLAT M6x16x1.2
	5848302	2	PACKER RBAR NYLON
	6151223	2	NUT M6x1 NYLOC ZNB480
	6151300	2	NUT M6 CAGED 2.6-3.5MM 956-C
	6151173	4	FLANGE NUT M6 ZNB480

## FITTING PROCEDURE

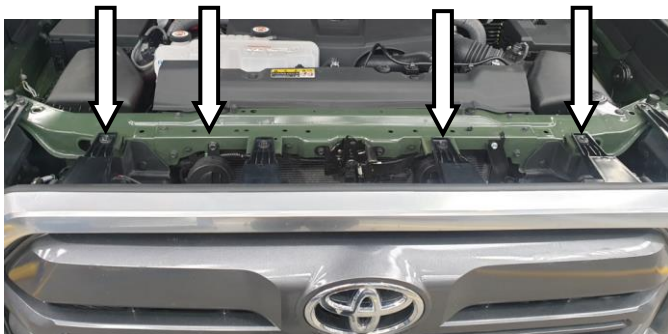


1. Remove the four bolts underneath the bumper and discard.



2. Remove the clips & screws holding the front half of the wheel arch trims.

Carefully unclip the front of the wheel arch trims as shown.



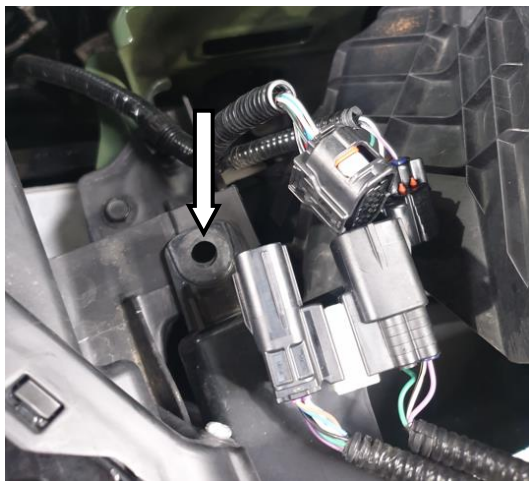
3. Remove the four bolts across the top of the radiator support panel that support the grille.



4. Disconnect the two plugs on either side of the grille.







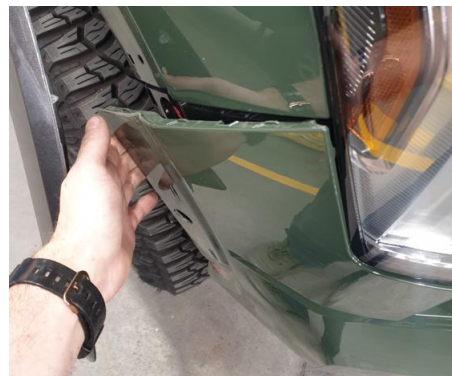
5. Remove the plastic clip on each side of the grille top corners and set aside for refitment later.



6. Reaching down between the grille and radiator, remove the four M6 bolts securing the grille mount brackets to the radiator support panel.  
Set the bolts aside for refitment later.



7. Grab the corner of the bumper and gently unclip it.  
Repeat for the other side.



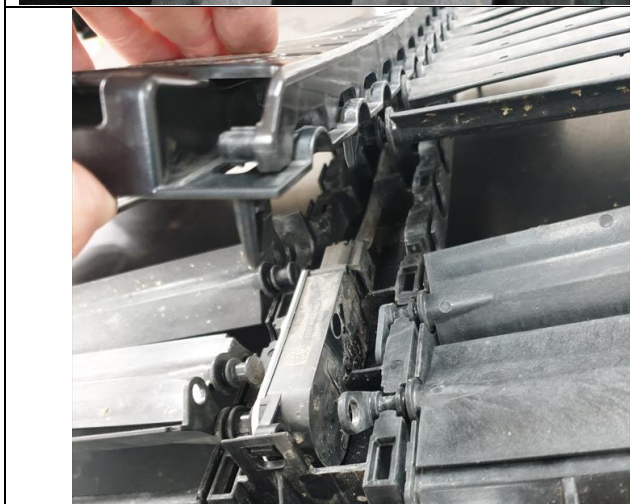
8. Remove the bumper and set aside on a soft surface to avoid scratching it.



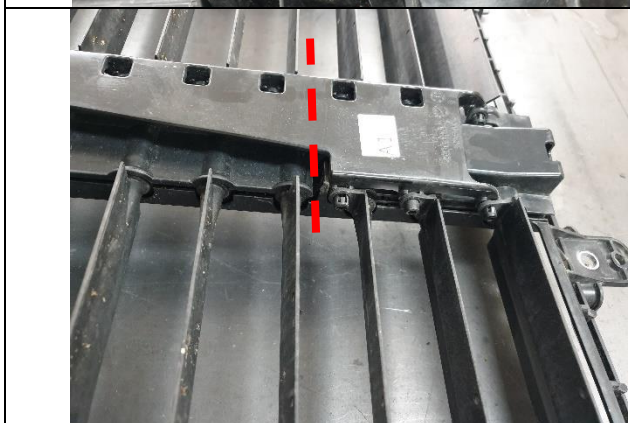
9. Remove Active Grille Shutters (AGS) from vehicle bumper by removing three mounting screws. Set aside fasteners.



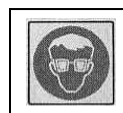
10. Identify location of AGS motor and mark plastic two blades down for cutting.



11. Remove all but the top row of fins by popping them out of their locating tabs. Discard.



12. Using a multitool, cut through AGS and discard part without the motor housing.
13. Refit to grille.

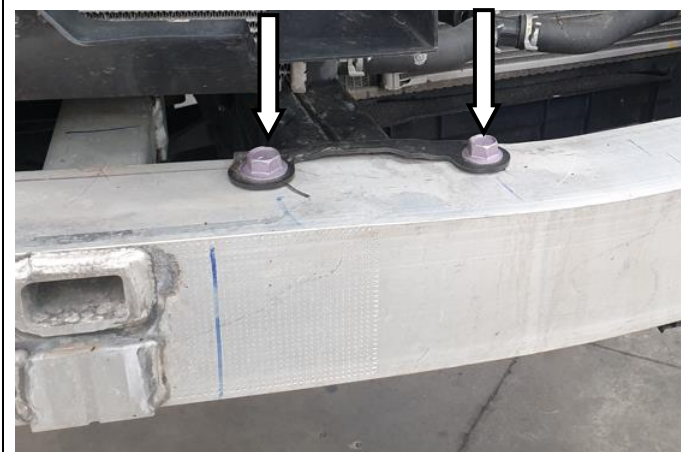


**Warning:** Drilling operations can result in flying metal debris, safety glasses should be worn.

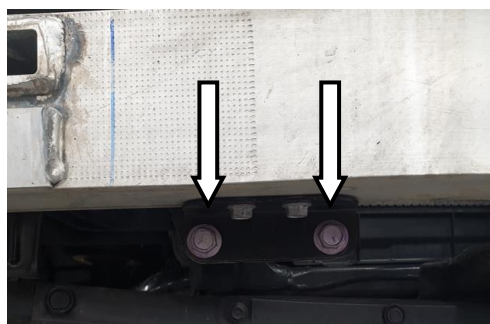




14. Disconnect the plug from the electric motor mounted to the crash beam if fitted.



15. Remove the four bolts each side of the crash beam and discard.

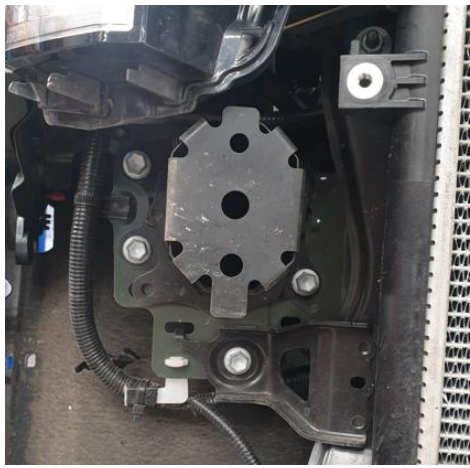


16. Remove the alloy crash beam and air dam if fitted and discard.

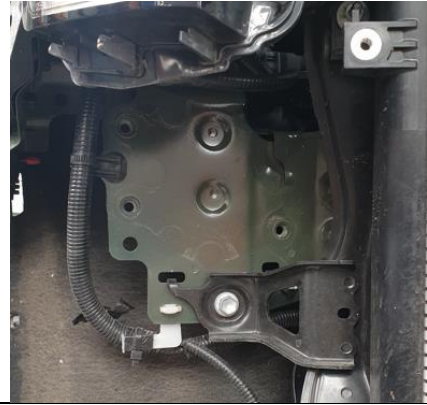


17. Remove the two plastic radiator ducts and discard.





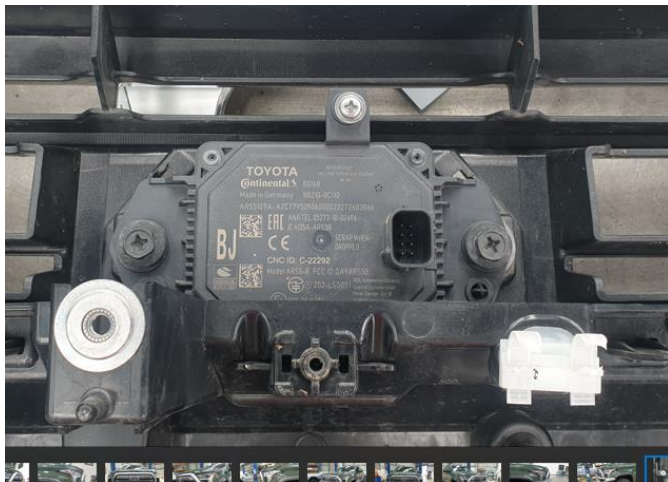
18. Remove the crash cans beneath the headlights and discard.



19. Disconnect the four parking sensors, radar and fog lights. Trim all wiring retaining cable tie clamps in the highlighted area shown.

Remove front camera and set aside with screws for refitment.

Note: This is done to eliminate the risk of trimming through the harness as well as allowing the trimmed section of bumper to be removed.

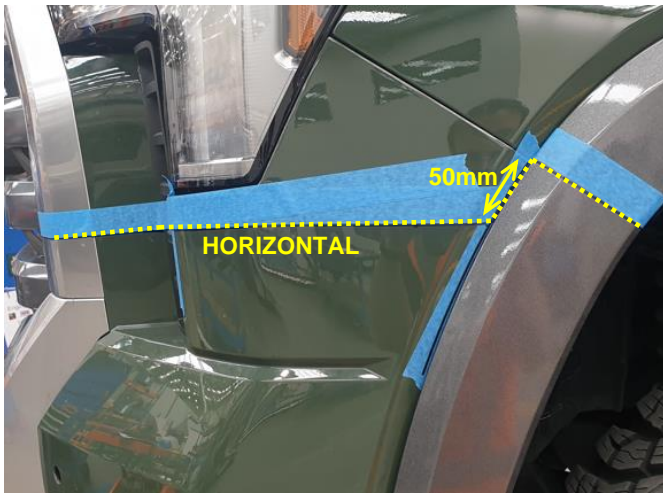


20. Remove the radar from the back of the grille and carefully set aside.



21. Re-fit the bumper as it is much easier to trim on the vehicle.





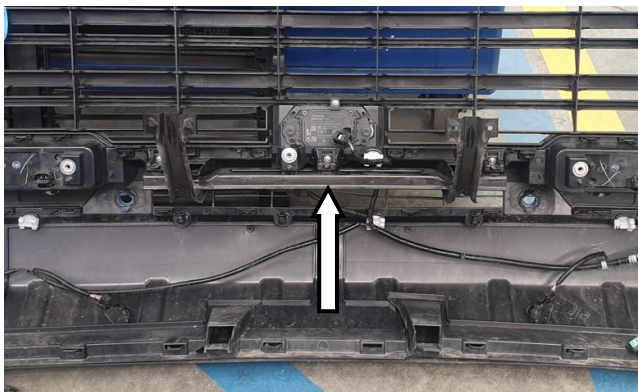
22. Mark out the bumper as shown.

**Note:** The wheel arch trim is marked on the same line as the bumper line. **The trims are much easier to trim once removed.**

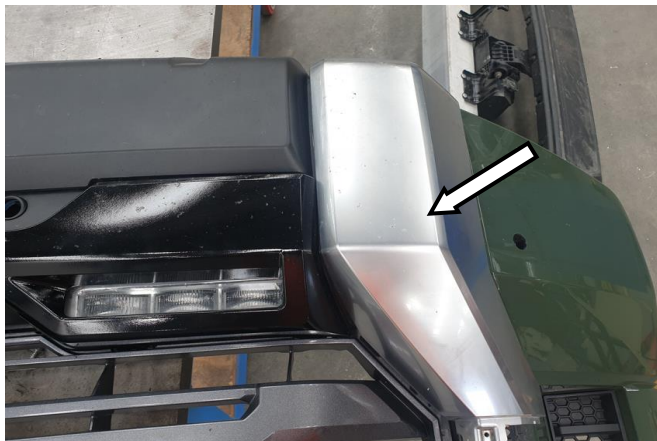


**Warning:** Drilling operations can result in flying metal debris, safety glasses should be worn.

23. Mark across the grille as shown. **Trim along the dotted line using an oscillating multitool.**



24. Remove the bracket from the inside of the bumper shown. Set aside for refitment.



25. Unscrew, unclip and remove the silver outer bumperettes. Discard.



26. Unclip the front fascia to gain access to the fog lights.



27. Remove and discard the front fascia. Remove the fog lights and radar cover and set aside for refitment to the bar.



28. Discard remaining bumper.

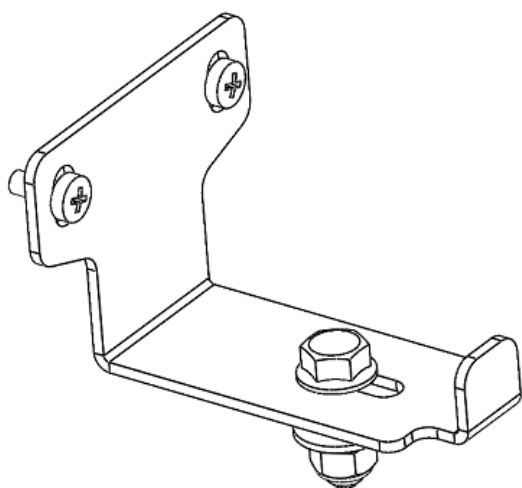


29. Invert the bumper support bracket removed in Step 24 and mount it to the radiator support panel as shown.

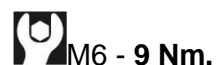




30. Remove intercooler hose from clip, remove clip and refit to rear of bracket as shown.



31. Using an M6x20 screw, washer and nyloc nut, secure grille retaining bracket to the centre of the bumper support bracket fitted in Step 29.
32. Using screws from front camera removed in Step 19, attach radiator support bracket to grille via the front camera mount screw holes.



33. Trim the bumper retaining blocks to suit the bumper trim.
- Refit the wheel arch trims and fit pinch weld to the trimmed wheel arch trims

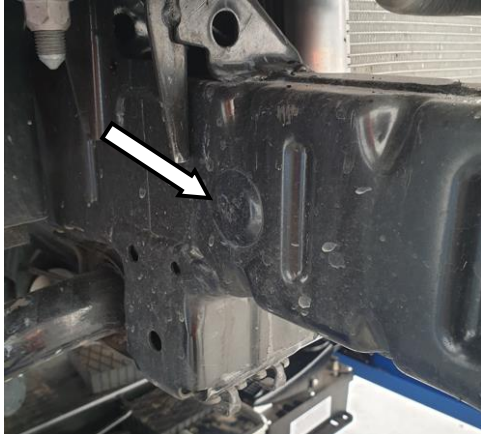


**Warning:** Drilling operations can result in flying metal debris, safety glasses should be worn.

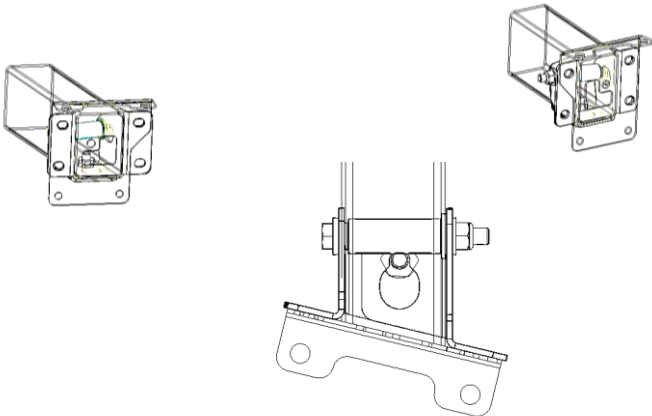




34. Vehicle should now look like this.

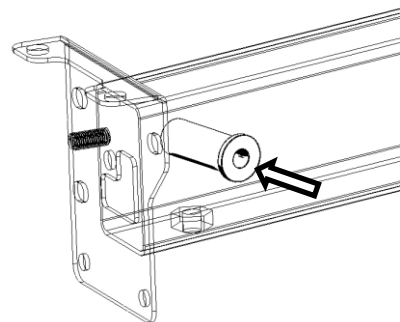


35. Remove the four plastic gromets on the chassis rails as shown.

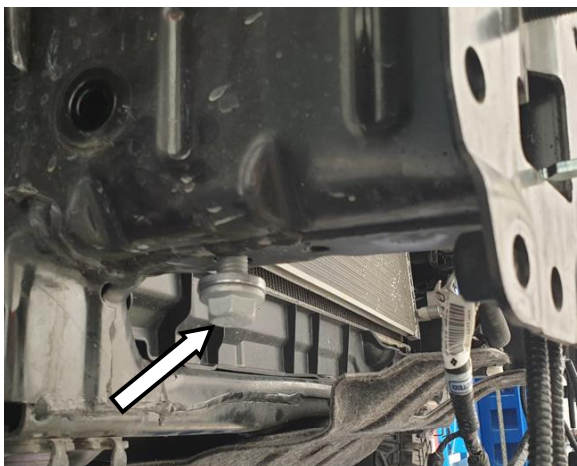


**RHS SHOWN**

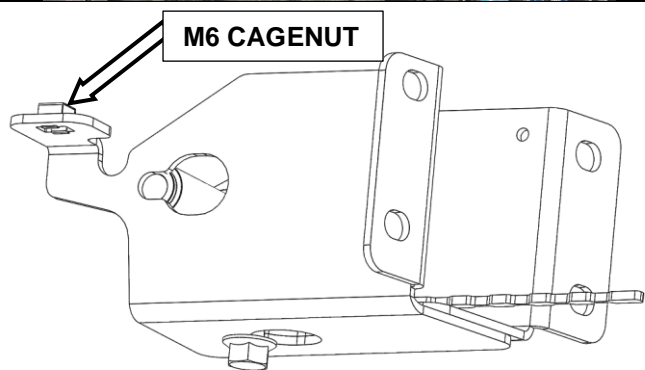
36. Fit the crush tubes to the chassis with the crush tube shoulder sitting on the inside of the chassis.



37. Fit a nut stick inside each chassis rail as shown.



38. Loosely fit one M12x1.75x50 flange bolt and hardened washer through the under-side of each chassis rail into the nut stick.



**RHS SHOWN**

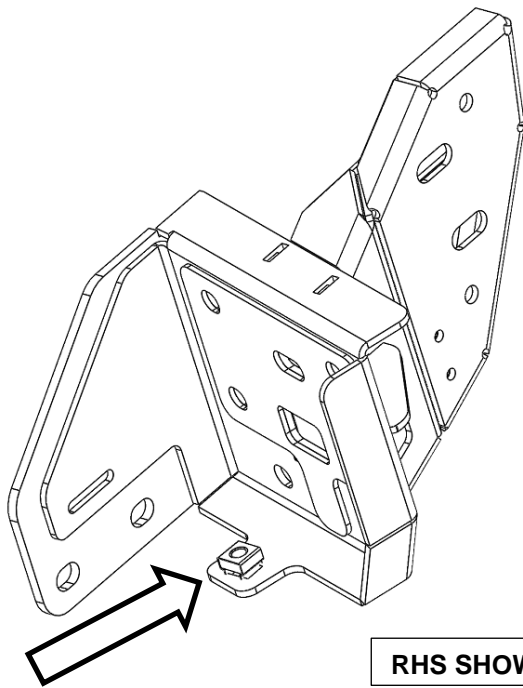
39. Fit the chassis support brackets to the chassis rails and hold in place with the M12 bolt installed to the nut stick. Leave finger tight.

40. Install M6 cage nut as shown.

Note – Chassis not shown for clarity.

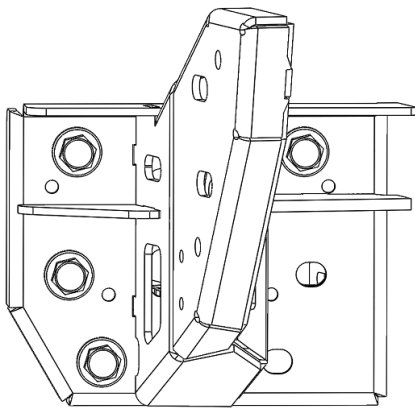


41. Install one M12x1.75x110 bolt, two hardened washers and a M12 nyloc nut to each crush tube. Leave finger tight.



**RHS SHOWN**

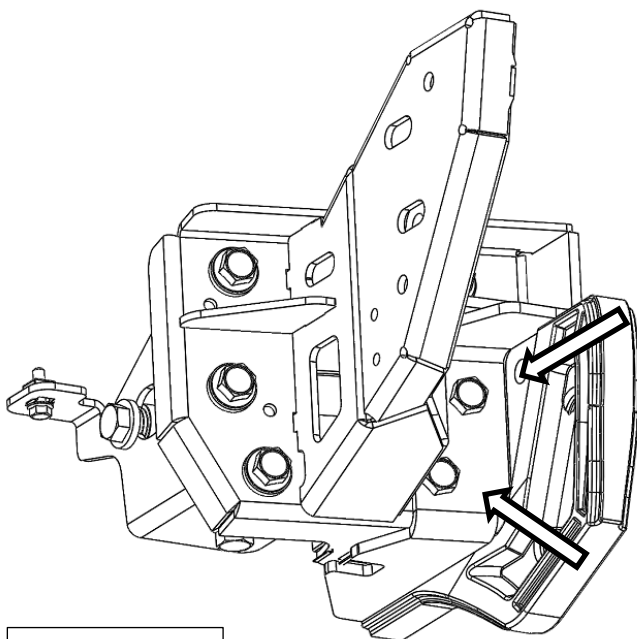
42. Install M6 cage nuts into the top face of the bottom flange of the chassis mounts as shown.



**RHS SHOWN**

43. Install four M12x1.25x40 flange bolts, four hardened washers and three flange nuts as shown to each side of the chassis mount. Do not fully thread the bolts into the nuts, leave mount loose.

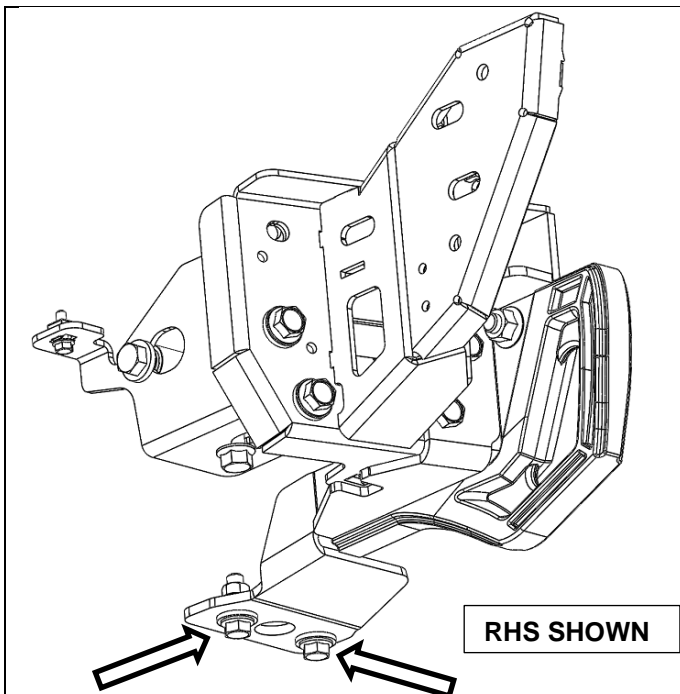
Note – Chassis not shown for clarity.



**RHS SHOWN**

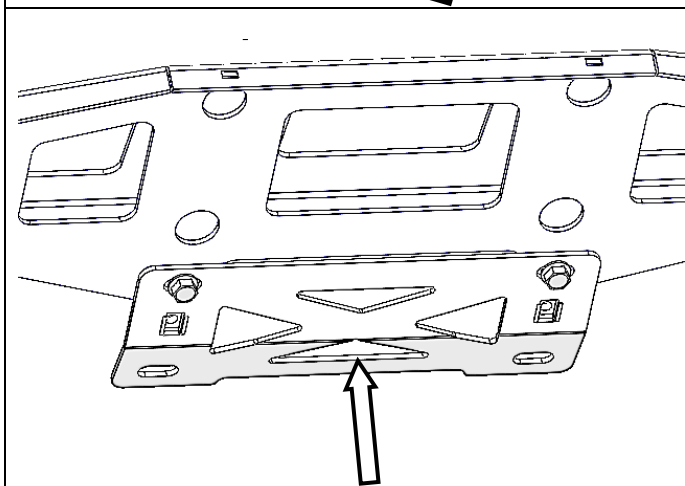
44. Install recovery points onto front face of chassis mounts as shown using two M12 bolts, hardened washers and flange nuts. Fully thread all bolts but leave finger tight.

Note – Chassis not shown for clarity.

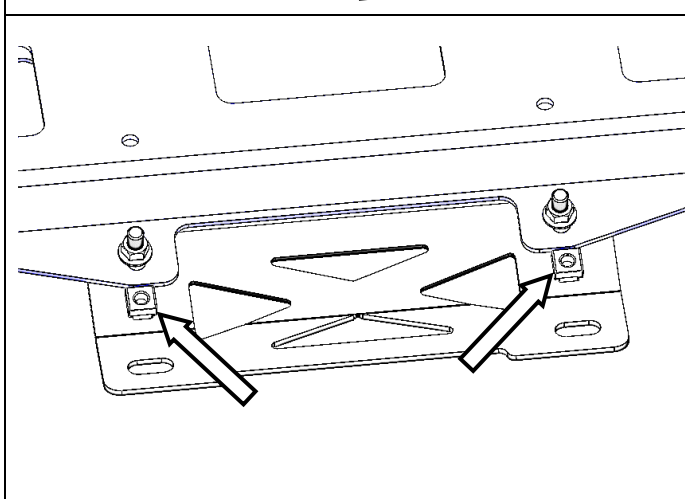


45. Install recovery bracing brackets to either side of the vehicle as shown. Use two M10x30 bolts, two flange head nuts and two hardened washers. Leave finger tight.

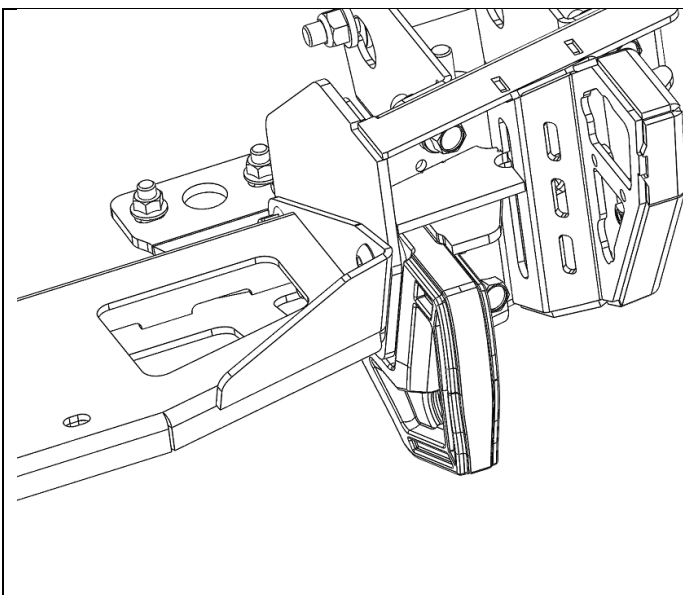
Note – Chassis not shown for clarity.



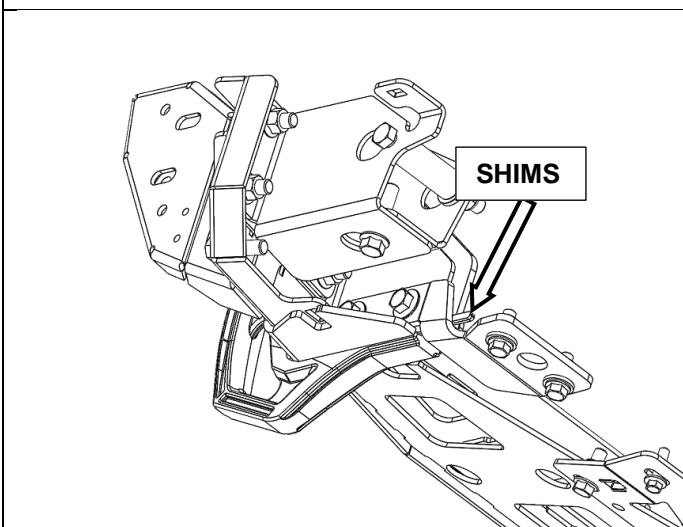
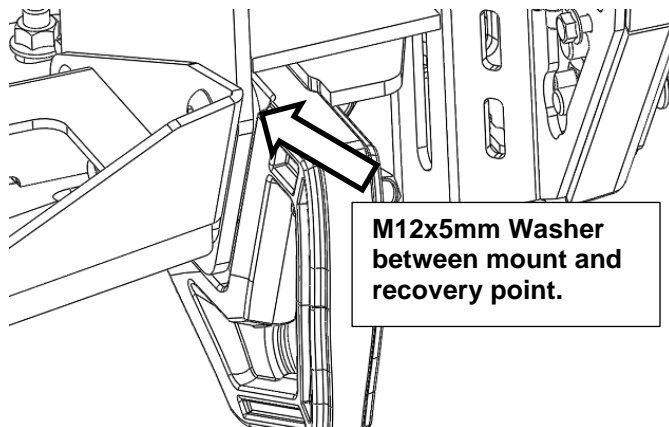
46. Mount the brace to the rear of the winch cradle using two M10x30 flange bolts and flange nuts. Ensure brace is mounted in the correct orientation.



47. Fit two M8 caged nuts to the brace.

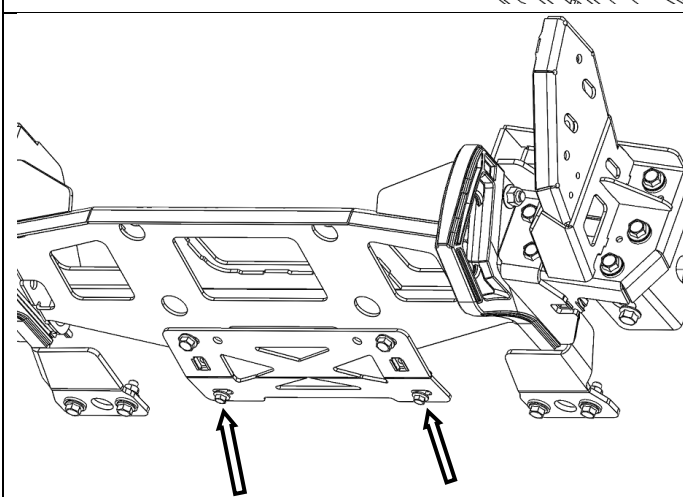


48. Using a lifting aid, position the winch cradle between mounts and install M12x50 button head bolt, flange nut and 5mm M12 washer either side as shown.



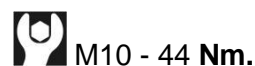
49. Install two M12x60 flange head bolts and nuts through the bracing brackets, recovery points and winch cradle either side as shown. Use two shims provided per recovery point between the mount and recovery point as shown.

Note – Chassis not shown for clarity.



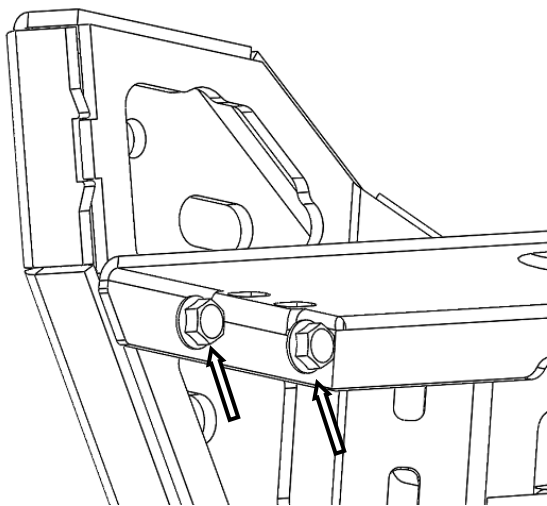
50. Secure winch brace to vehicle crossmember using two M10x 40 screws as shown.

Note – Chassis not shown for clarity.



**If fitting winch, carefully lift winch onto cradle before proceeding to next step. Do not bolt winch to cradle.**

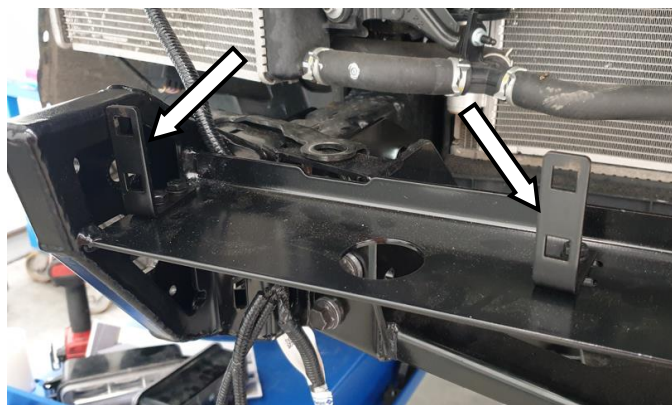
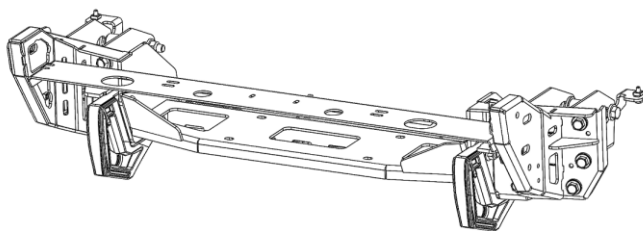




51. Install mounting crossmember using four M6 flange head screws into the captive nuts in the mounts. Tighten to specification.



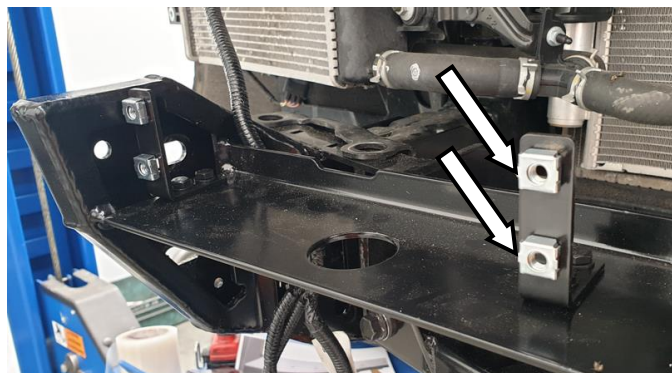
**M6 - 9 Nm.**



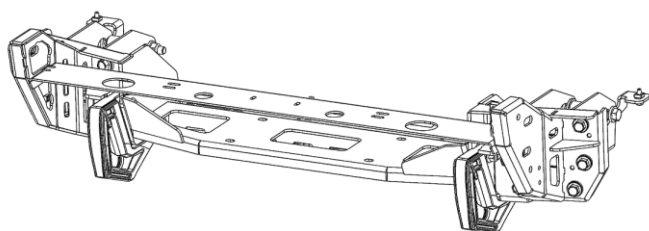
52. Install two fog light brackets to each side of the winch cradle using two M6x20 bolts, washers and flange nuts per bracket. Tighten to specification.



**M6 - 9 Nm.**



53. Install two caged nuts to each fog light bracket as shown.



54. Torque all mounting bolts fitting during Step 43-50 using the below torque specifications.



**M10 - 44 Nm.**



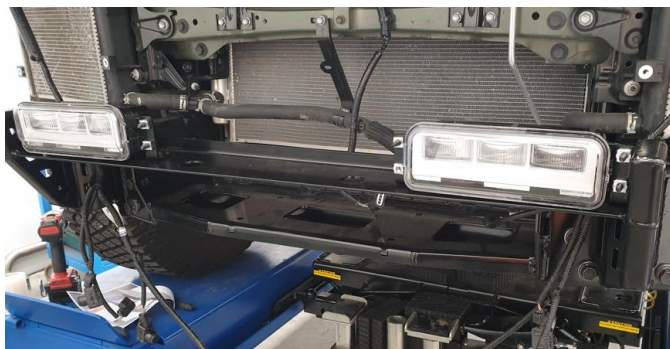
**M12 - 77 Nm.**



55. Install the fog lights using three M6x25 button head screws per light. Ensure the two lights sit evenly on the crossmember.



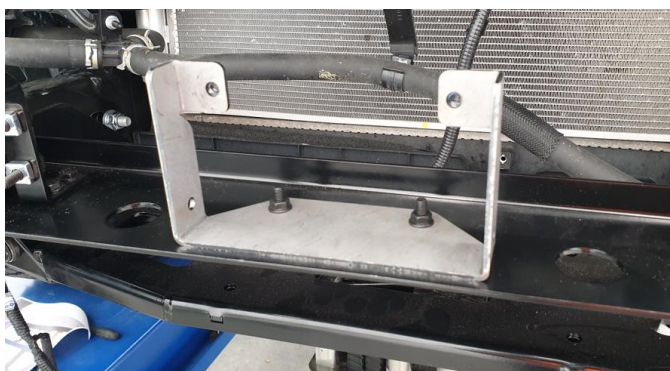
M6 - 9 Nm.



56. Installed fog lights shown.



M6 - 9 Nm.



57. Fit the lower radar bracket using two M6x20 bolts, washers and flange nuts.



M6 - 9 Nm.

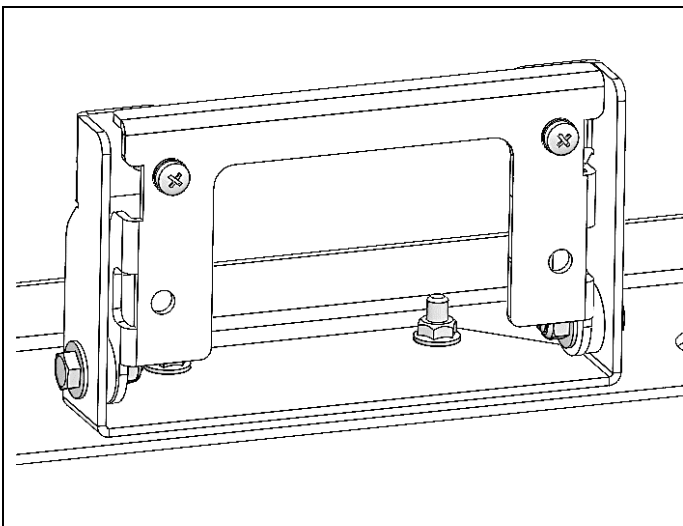


58. Fit the inner radar bracket using two M6x20 bolts, large diameter washers, two nylon packers and nyloc nuts.

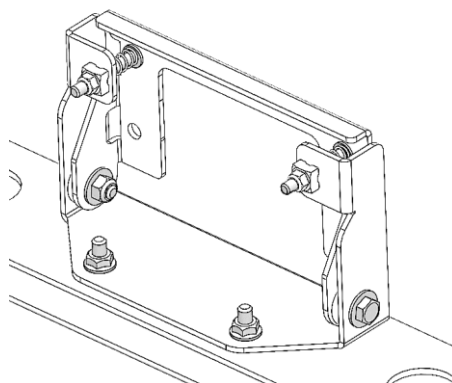


M6 - 9 Nm.





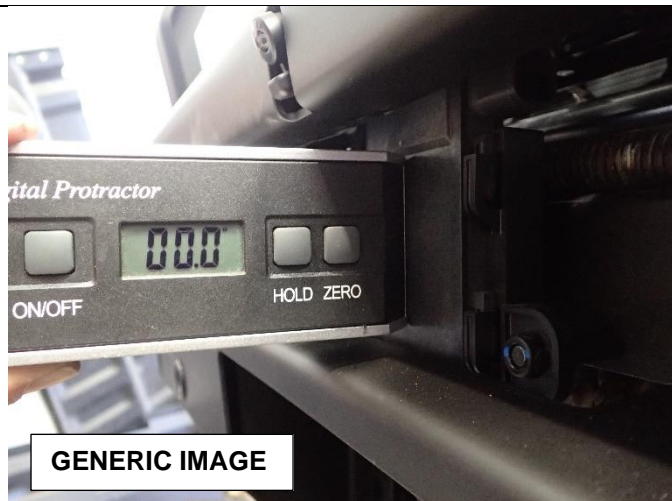
59. Install two M5x40 screws, two springs, six washers and two nyloc nuts to the bracket as shown.



60. Fit the radar using two M6x16 button head screws, four washers and two nyloc nuts.



M6 - 9 Nm.



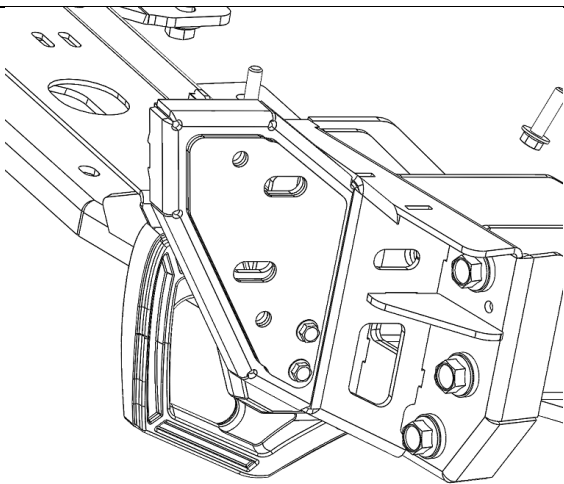
GENERIC IMAGE

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

61. Place a level on the front face of the sensor. The front face should be 90° degrees to level ground with a tolerance of  $\pm 1^\circ$ .



62. Installed radar shown.



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

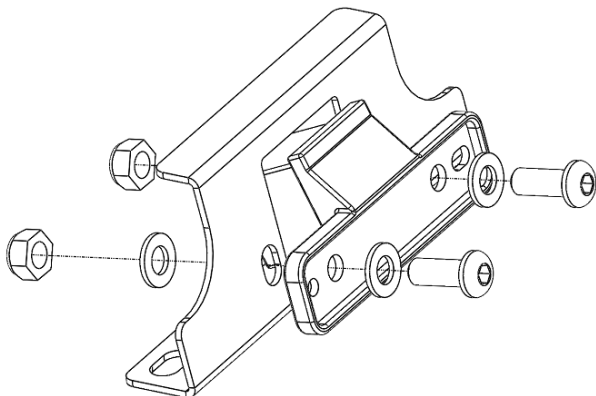
Similarly measure the distance between the mounting faces on the chassis mounts.

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).



**M6 - 9 Nm.**

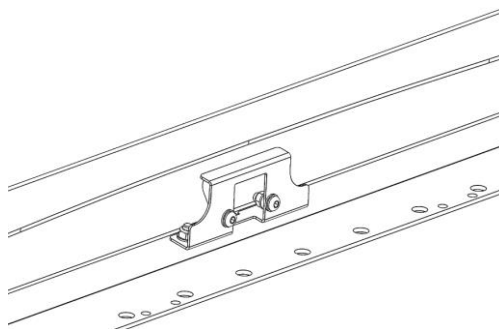


64. Install front camera into bracket using M6x16 button head screws, washers and nyloc nuts as shown.

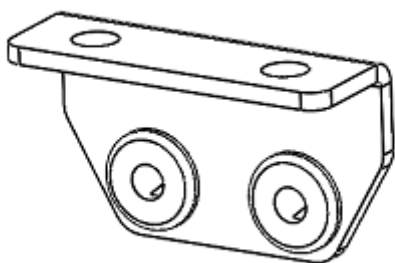
65. Secure bracket to bar using M6x16 screws washers and nyloc nuts as shown.



**M6 - 9 Nm.**

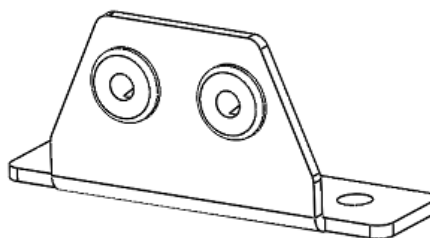


If fitting lights to bar skip to Step 75.

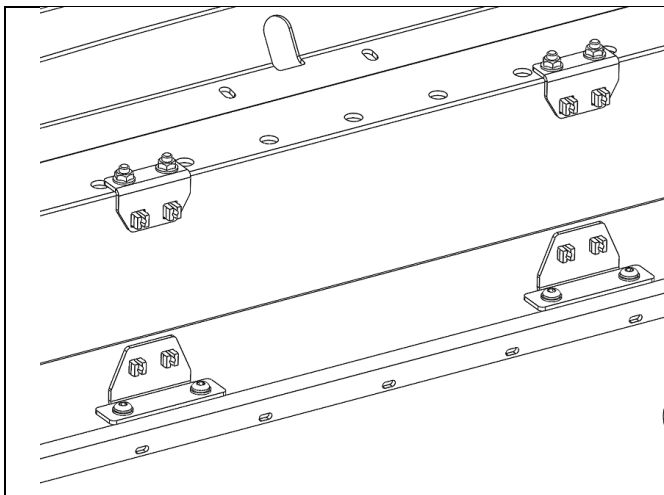


**TOP**

66. Insert plastic grommets into grille brackets as shown.



**BOTTOM**

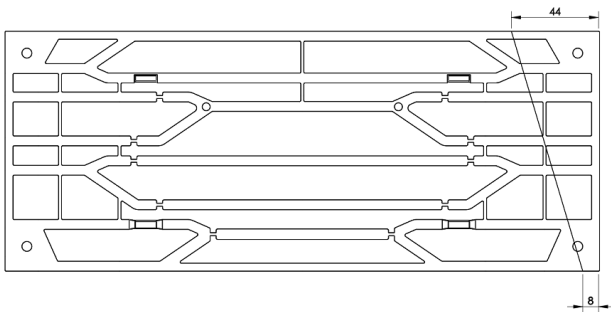


67. Install the top and bottom brackets using M6x16 button heads, washers and nyloc nuts.

Note – Camera bracket not shown for clarity.



M6 - 9 Nm.

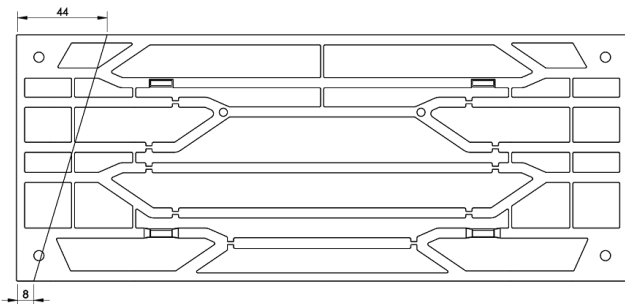


68. Lying a grill face down on a soft surface, measure a cutline 44mm from the top and 8mm from the bottom. Ensure the grille is in the correct orientation. This will be the RHS grille.

69. Cut with a multi tool and deburr edges.



**Warning:** Drilling operations can result in flying metal debris, safety glasses should be worn.

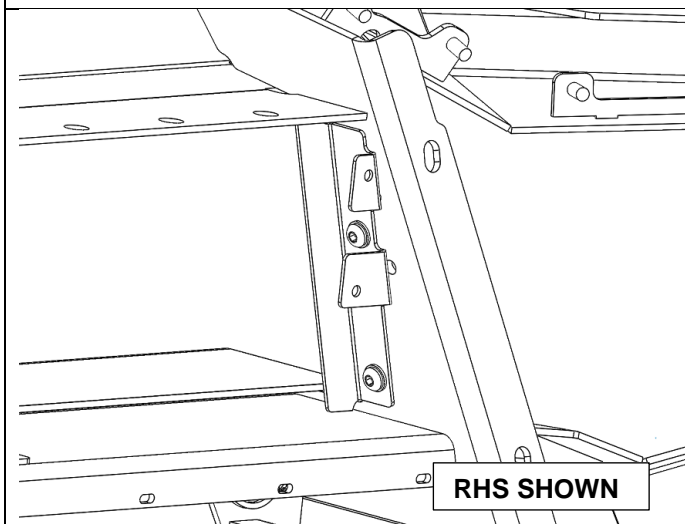


70. Lying a grill face down on a soft surface, measure a cutline 44mm from the top and 8mm from the bottom. Ensure the grille is in the correct orientation. This will be the LHS grille.

71. Cut with a multi tool and deburr edges.



**Warning:** Drilling operations can result in flying metal debris, safety glasses should be worn.

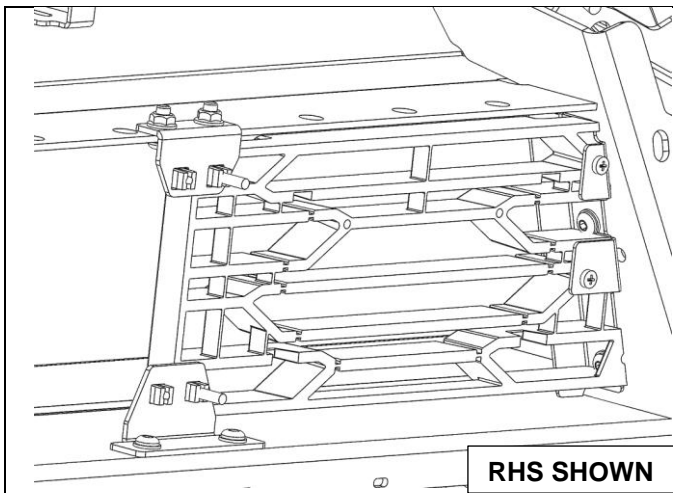


72. Install the outer grille covers as shown using two M6x16 screws, washers and nyloc nuts as shown.

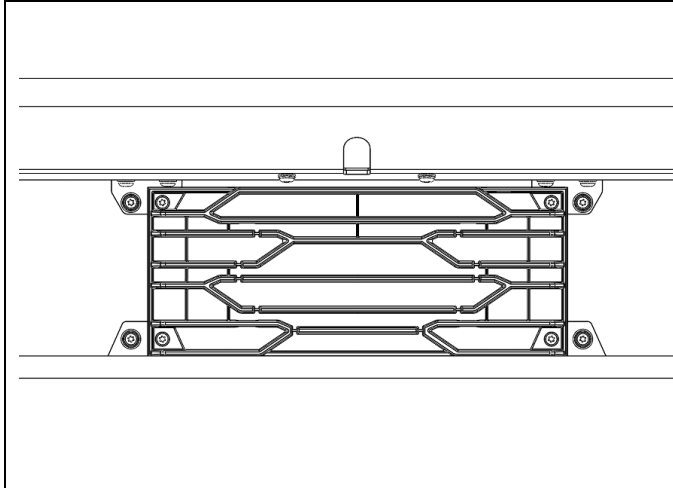


M6 - 9 Nm.





73. Install outer grille segments using Torx head screws to attached to the front of the top and bottom brackets and Phillips head screws to attach to the outer grille covers at the rear.

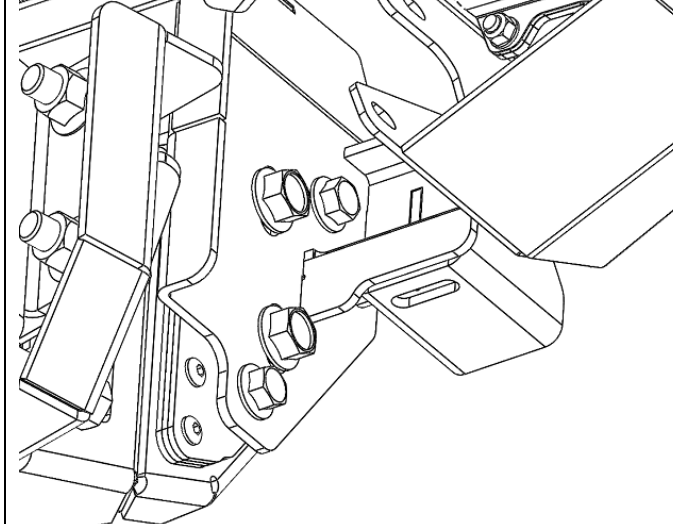


74. Install centre grille section using four Torx head screws as shown.

Note – Outer grille sections not shown for clarity.



75. Using a lifting trolley, lift the bar into place.

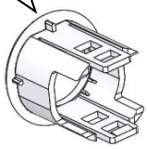


76. Install three M12x1.25x40 flange bolts, hardened washers & M12 flange nuts per side.

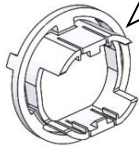


77. Adjust the bar to get an even gap along the bumper and to have a 20mm gap to the wheel arch trim.

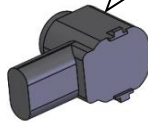
Sensor Housing Front



Sensor Housing Rear



Parking Sensor



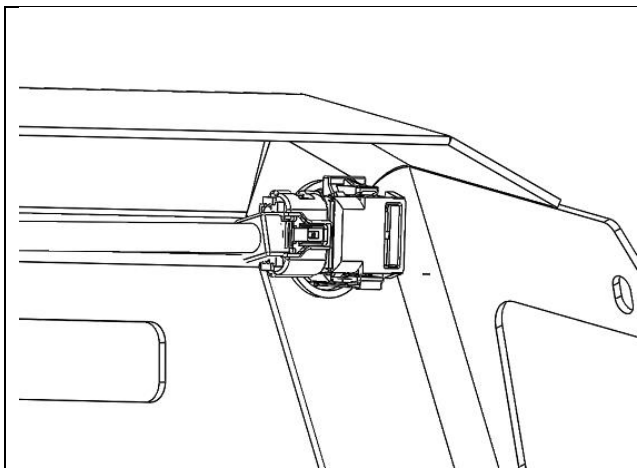
Generic image only

78. Fit two Sensor Housing Fronts to the bull bar. Placing the housing through the bar from the front of the vehicle.
79. Fit two Sensor Housing Fronts to the Bash Plate. Placing the housing through the bar from the front of the vehicle.
80. From the rear clip the Sensor Housing Rear to the Front Housing. Check that both clips are engaged properly. If clips don't engage apply pressure on the outer ring of the Rear Housing.



81. Clip the sensors removed in Step 19 into the housing fitted in the previous step. Check that both clips are engaged properly.

**Note: Tails for sensors should face the bull bar uprights.**



82. Install parking sensor extension harness into the two sensors in the bashplate.



83. Remove the OE stone shield by removing the 4x M8 bolts and discard.



84. Test fit the bash plate and check for alignment of fog lights and recovery points. If required, remove bash plate and adjust recovery points by adding/removing shims in Step 49 and adjust fog lights by repeating Step 55.

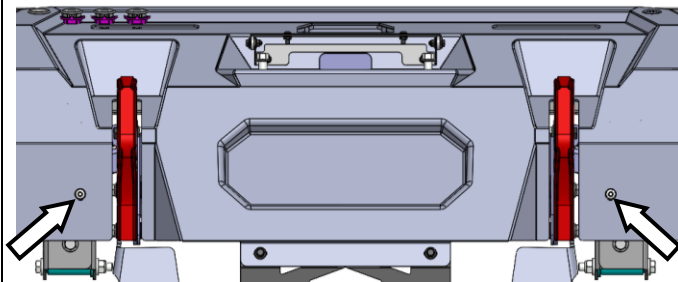
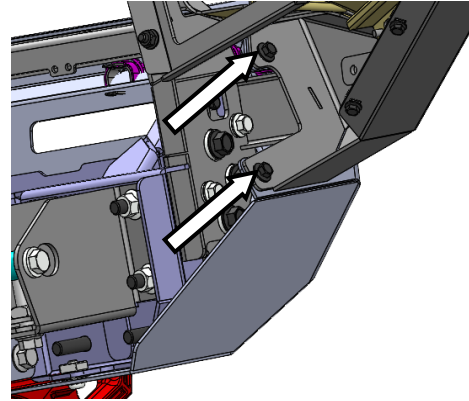
**Note: be careful not to scratch the recovery points when fitting.**



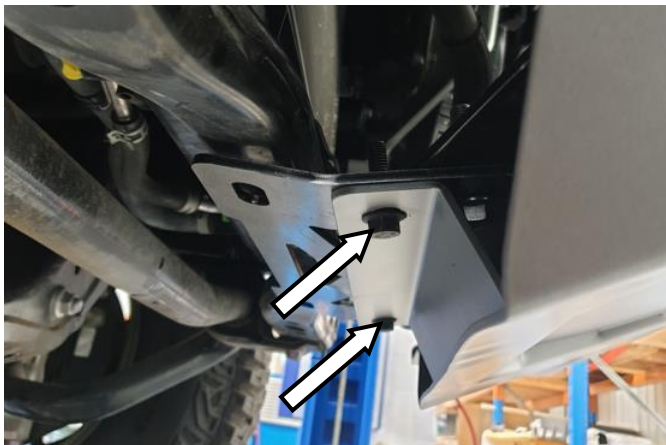


85. Fit the bash plate using four M8x20 flange bolts and flange nuts to affix it to the bar wings. Leave finger tight.
86. Ensure sensor extension cables have passed through the bar and plug into harness. Ensure plugs are clipped in correctly.

**Note: be careful not to scratch the recovery points when fitting.**



87. Fit two M8 SS button head screws and washers to the outer chassis mounts.

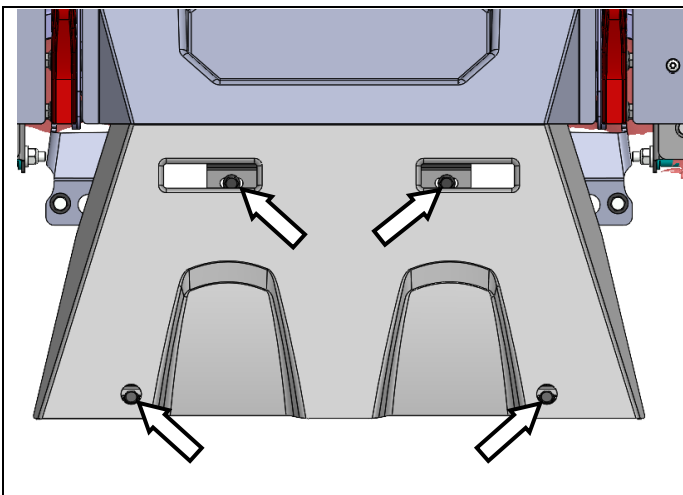


88. Fit two M8x30 flange bolts to the caged nuts in the winch cradle brace.

Tighten all eight bash plate bolts to specification.



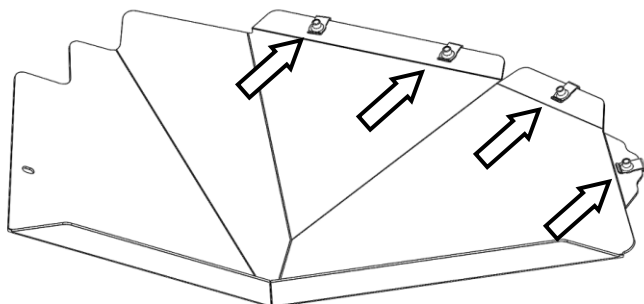




89. Fit the UVP using four M8x30 flange head bolts.  
Tighten to specification.



90. UVP should now look like this.



91. Install four M6 J-Nuts into each under wing panel as shown. Ensure nuts are orientated on the correct side of the panels.



92. Bend The RH radiator support panel corner up out of the way as shown.

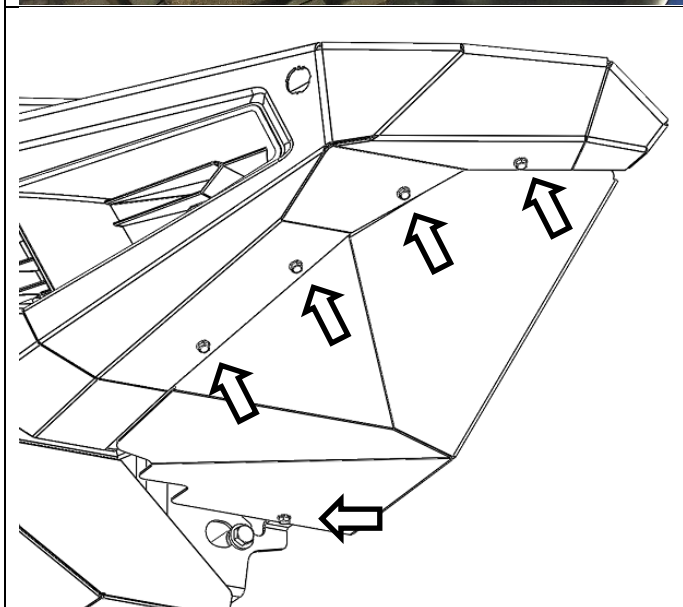
**Note: This is required to give clearance to the under panel**



93. Loosely mount the under panels and mark the wheel liner. Remove the panel and trim the wheel liner.



**Warning:** Drilling operations can result in flying metal debris, safety glasses should be worn.



94. Mount the wing under panels using 5x M6 flange bolts. Tighten to specification.



95. Install recovery point warning labels in location visible to user.



## FITTED PRODUCT



### **NOTICE: ONCE ZENITH 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, sensors, headlamp washers etc. are functioning correctly.
- ◆ Misalignment of parking sensor to hole in bull bar may cause malfunction, if fitted.
- ◆ If fitted, test operation of parking sensors after fitment.

### **NOTE:**

If parking sensors are fitted, do not add any accessories to the Bull Bar on or around the sensors, this may affect the function of the sensors.

Sensors may not function well under the following conditions:

- ◆ After the vehicle has been sitting out in hot or cold weather.
- ◆ When the system is affected by electrical equipment or devices generating an ultrasonic wave.
- ◆ When operating in bad weather.