Ford Ranger Raptor
Next Gen 2022-on
Snorkel

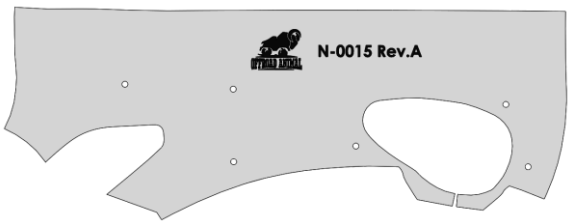
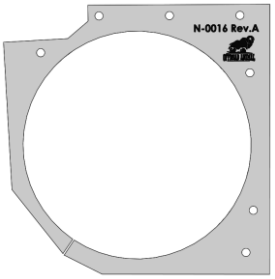
IMPORTANT! – READ BEFORE INSTALLATION

- This product must be installed exactly as per these instructions using only hardware supplied.
- Take a few moments to read instructions thoroughly before beginning work.
- In the event of damage to any bar component please contact OFFROAD ANIMAL to arrange repair/replacement of components.
- Do not use this product for any vehicle make or model other than that specified on these instructions.
- Do not remove labels from this product.
- This product and its fixings must not be modified in any way unless stated in these fitting instructions.
- The installation of this product is recommended for trained personnel.
- These instructions are correct at time of publication. OFFROAD ANIMAL cannot be held responsible for the impact of any changes subsequently made by the vehicle manufacturer. If you find something has changed, please contact us to let us know!
- During installation it is the duty of the installer to check correct operation/clearances of all components.
- If Instructions are to be printed for reference in the workshop, it is recommended that they are printed in colour, for best legibility.

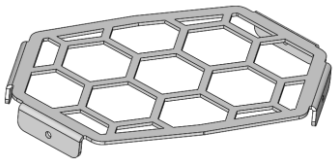
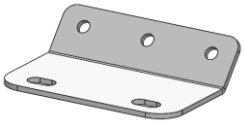
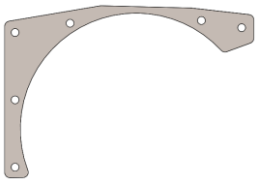
PARTS LISTING

IMPORTANT: Check all parts are present before beginning work! Contact OFFROAD ANIMAL if something is missing.

Main Parts – In the Box

Qty	Part Number	Description	Image
1	F-0025	P703 Raptor Snorkel Main Body	
1	F-0029	4.5inch Air Ram Body	
1	OFA-LOGO	OFFROAD ANIMAL METAL LOGO	
1	N-0015	P703 Raptor Snorkel Body Cut Template	
1	N-0016	P703 Raptor Snorkel Airbox Cut Template	

Fitting Kit – SN-FRR-P703-22-ASM1

Qty	Part Number	Description	Image
1	B-1260	4.5inch Air Ram Mesh	
1	B-1261	P703 Raptor Snorkel A-Pillar Mount	
1	P-0383	P703 Raptor Snorkel Airbox Support Plate, Front	
1	P-0385	P703 Raptor Snorkel Airbox Support Plate, Bottom	
1	P-0387	P703 Raptor Snorkel Airbox Support Plate, Side	
1	P-0388	P703 Raptor Snorkel Airbox Support Plate, Rear	
1	T-0110	4.5inch Stainless Pipe Joiner, 70mm length	
3	Tridon HAS080	Tridon HAS Series Hose Clamp, Perforated Band, All Stainless Steel, HAS080 117mm-140mm	

Air Hose Kit– SN-FRR-P703-22-ASM2

Qty	Part Number	Description	Image
1	F-0026	P703 Raptor Snorkel Air Entry Hose	
1	F-0027	P703 Raptor Snorkel Outlet Hose	
1	F-0028	P703 Raptor Snorkel Airbox Blanking Cap	

Small Parts – Contained in SN-FRR-P703-22-ASM1

Qty	Part Number	Description
4	14Gx16, Pan Screw BZP	SCREW, PAN HEAD PHILLIPS PH3, 14G x 5/8", ZINC BLACK PLATED, ANSI B18.6.4
4	4-4 Dome Rivet BLACK	4-4 DOME ALUM STEEL RIVET, (3.2MM DIA, 4.8-6.4MM GRIP), BLACK
15	5-6 Sealed Dome Rivet	5-6 SEALED DOME ALUM STEEL RIVET, (4.0MM DIA, 7.9-9.5MM GRIP)
3	6-3 Sealed Dome Rivet	6-3 SEALED DOME ALUM STEEL RIVET, (4.8MM DIA, 3.2-4.8MM GRIP)
3	M5 Mud Guard Washer	3/16" x 3/4" x 18g (M5 x 19mm x 1.2mm) Zinc Mudguard Washer
2	M6x8 BHCS BLACK ZINC	SCREW, BUTTON HEAD CAP, M6X8X1 GR12.9, ISO4042 ZnNi BLACK PASSIVATED FINISH
2	M6 FLAT WASHER BLACK ZINC	M6 Flat Washer, 12x6.1x1, ISO4042 ZnNi BLACK PASSIVATED FINISH
6	M8 x 25 GRUB SCREW	Socket Set (Grub Screw), M8x25x1.25, Metric Coarse DIN 916, Stainless
6	M8 Mud Guard Washer	M8 x 22mm x 1.8mm Zinc Mudguard Washer
6	M8 NYLOC	NYLOC SELF LOCKING NUT, ST STL A2 ISO

TOOLS REQUIRED

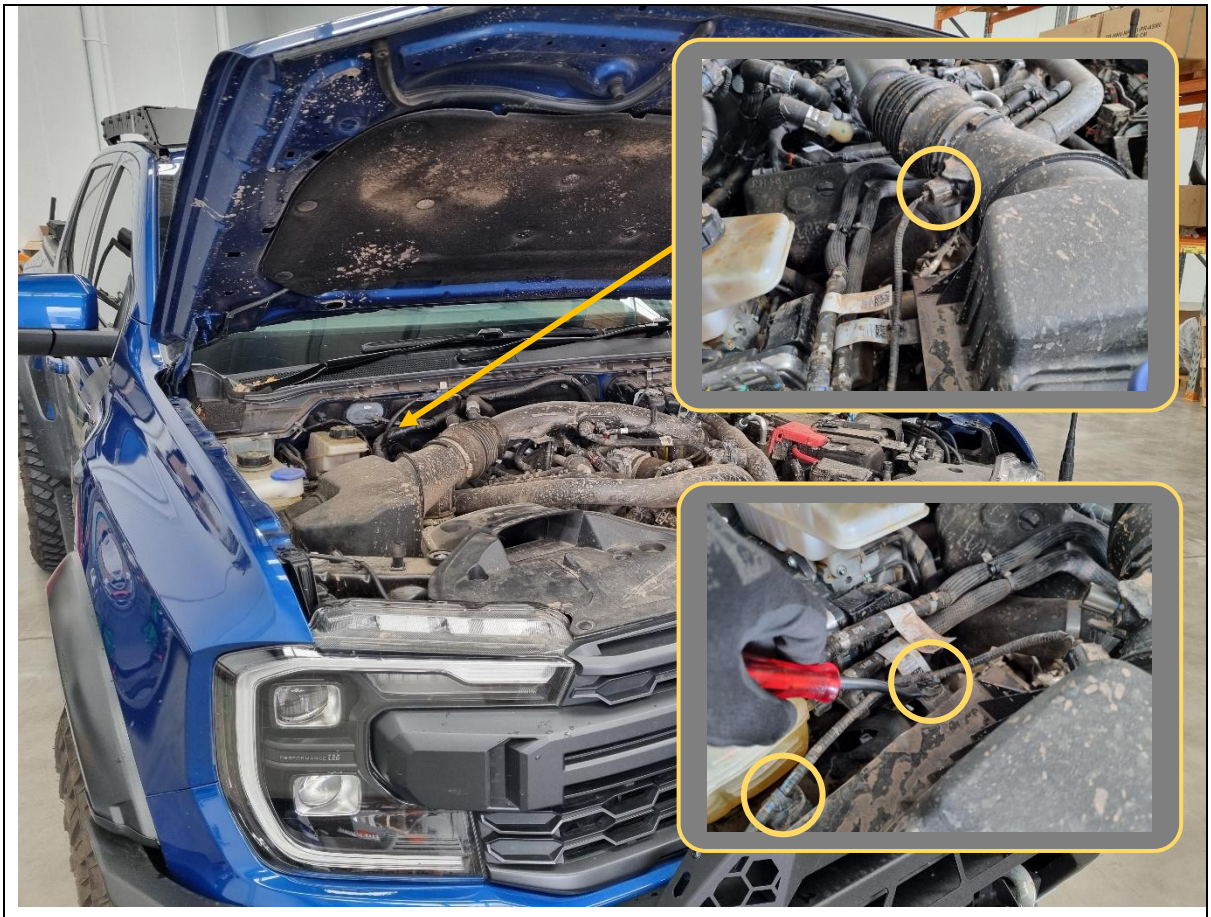
The following tools will be required to install the product.

Hand Tools	Power Tools	Workshop Equipment
Metric socket set 7-13mm	Electric drill	Isopropyl alcohol
Metric spanner set 7-13mm	Air hacksaw	Rag
Hex (Allen) key 4mm	Die grinder	Masking tape
Torx bit set T20-T30		Marker pen
Flat blade screwdriver		Paint pen
Phillips head screwdriver		Touch up paint
Trim tool		Thread locker (Loctite 243)
Plastic trim removal tool		Adhesive sealant (Sikaflex)
Centre punch		Cable ties
Assorted drill bits (2.5/3.2/4/4.9/5/6/10mm)		
Drill stop collar		
Step drill 4-20mm		
Metal file		
Deburring tool		
Pop rivet gun		
Utility knife		
Side cutters		

WORKSHOP SAFETY

It is the responsibility of the installer to always complete works in a safe manner. Make sure the following safety equipment is available and precautions are observed whilst fitting this product.

Hearing Protection 	Always wear ear protection when using power tools.
Eye Protection 	Ensure eye protection is always worn when cutting or drilling.
Manual Handling 	Do not attempt to lift bar assemblies or rock sliders on your own. Always use two people to lift or use mechanical Lifting aid such as hydraulic lifting trolley.
Vehicle Support 	Always ensure vehicle is properly supported when working on it. Do not attempt to fit products whilst suspension work is being carried out. Do not work under a vehicle supported only by a jack.



1. Open the bonnet.

2. Disconnect the MAF sensor connector on the airbox (see top inset photo), located on the RH driver side of the engine bay.

3. Unclip the 2x clips holding the MAF sensor harness to the rear of the airbox (see bottom inset photo). Use a trim tool or flat blade screwdriver to assist.

TOOLS REQUIRED

Trim tool
or
Flat blade screwdriver

FASTENERS

4. Loosen off the 2x hose clamps holding the airbox to the turbo inlet pipes using either a 7mm socket or flat blade screwdriver.

5. Rotate the hose clamps to disengage from the locking tabs on the airbox.

TOOLS REQUIRED

7mm socket
or
Flat blade screwdriver

FASTENERS

6. Remove 1x T30 Torx screw holding the front of the factory intake scoop to the vehicle body. Retain the T30 bolt for later.

TOOLS REQUIRED

T30 Torx bit

FASTENERS

1x factory T30 Torx screw

Retain for re-assembly

7. Pull up and lift the airbox off the 2x mounting ball studs, then remove from engine bay and set aside.

8. Stuff some clean rags down the 2x turbo inlet pipes to prevent objects falling into the engine.

TOOLS REQUIRED

Workshop rag/s

FASTENERS

9. Apply masking tape to the RH quarter panel where holes will be drilled for mounting the main snorkel body.

10. Align the provided N-0015 paper card template to the vehicle and hold in place with masking tape.

    The bottom edge lines up with the edge of the wheel flare.

    The cutout (on left) lines up with the black plastic vent.

    The top edge lines up with the sharp fold in the quarter panel.

11. Use a marker pen to mark the exact location of the 6x holes to be drilled, and the main snorkel intake hole to the engine bay.

12. Remove template and set aside.

TOOLS REQUIRED

Masking tape

Marker pen

FASTENERS

13. Remove the plastic push clips securing the mudflap to the wheel flare. Use a trim tool or flat blade screwdriver. Set the mud flap and clips aside for later.

TOOLS REQUIRED

Trim tool
or
Flat blade screwdriver

FASTENERS

Plastic push clips

Retain for reassembly

14. Remove the plastic scrivets holding the flare to the quarter panel/wheel arch liner. Use a Phillips head screwdriver and trim tool or flat blade screwdriver.

15. Also remove 1x T20 Torx screw holding the back bottom of the flare on the underside of the vehicle.

16. Retain all fasteners for re-assembly.

TOOLS REQUIRED

Phillips head screwdriver

Trim tool
or
Flat blade screwdriver

T20 Torx bit

FASTENERS

Plastic scrivets

T20 Torx screw

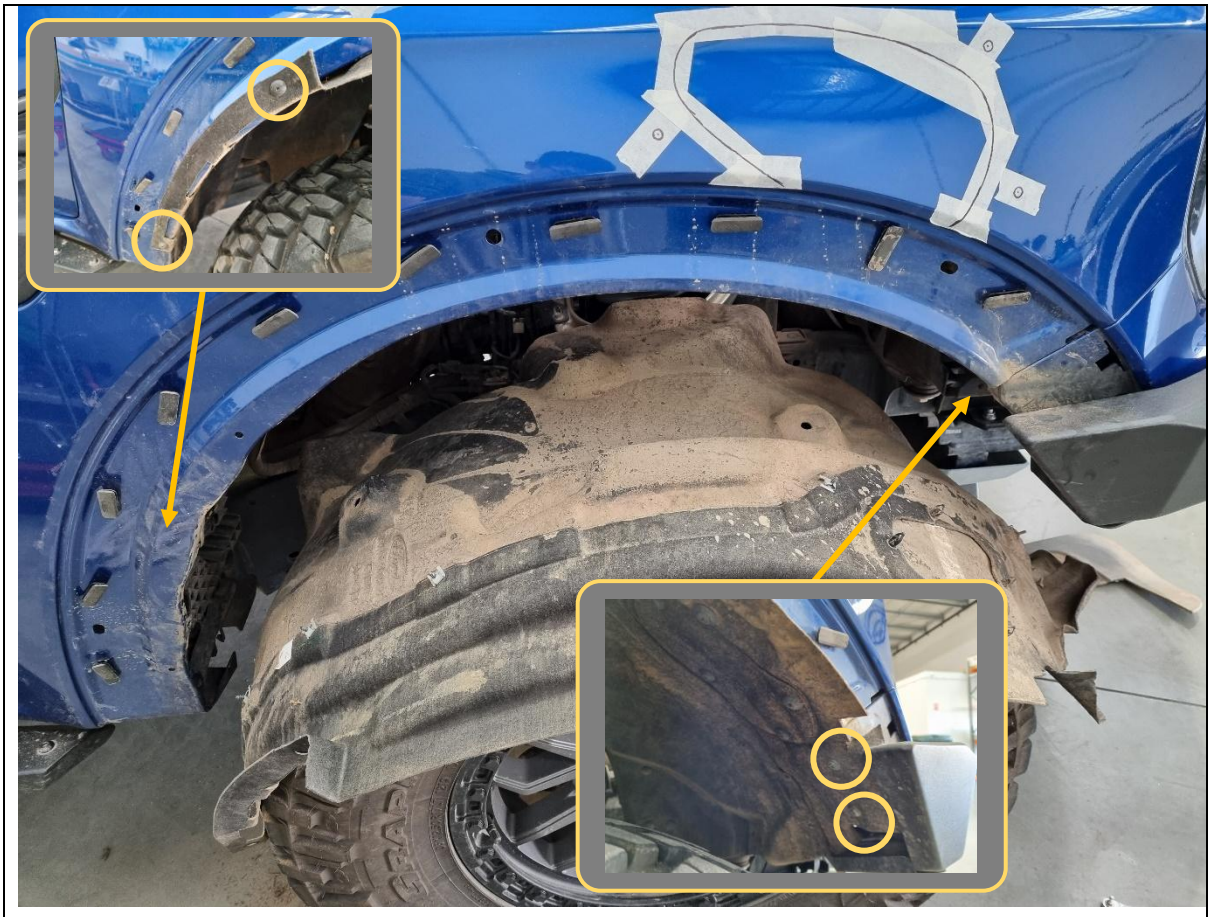
17. Starting from the back, pull the flare upwards and outwards to release from the clips in the quarter panel.

18. Work all the way up the front and pull outwards to release the remaining bumper clips. Set the flare aside.

    The clips should remain on the quarter panel (see inset photo), but it is ok if they come off with the flare.

TOOLS REQUIRED

FASTENERS



19. Remove/drop the wheel arch liner, by removing any scrivets, T20 Torx screws (towards front bumper), 10mm hex nuts (at back of wheel arch near the driver footwell) and Christmas tree clips holding to the body.

    The wheel arch liner does not have to be fully removed, just enough to gain tool access inside the quarter panel.

TOOLS REQUIRED

Phillips head screwdriver

Trim tool
or
Flat blade screwdriver

T20 Torx bit

10mm socket

FASTENERS

Retain for re-assembly

20. Remove any remaining flare clips from the quarter panel. Use a flat blade screwdriver or 8mm socket on the inside to help push the clip tabs through the hole in the quarter panel.

21. Refit 1x flare clip to the first forward-most slot on the back of wheel flare.

22. Skip the next 4x clip positions in the flare, then fit clips to remaining slots all the way up the last rear-most slot.

TOOLS REQUIRED

Flat blade screwdriver
or
8mm socket

FASTENERS

23. Re-fit and align the N-0015 paper card template back in the same position on the quarter panel, then mark out the cut line for the main snorkel intake hole that was previously covered up by the wheel flare (see arrow).

TOOLS REQUIRED

Masking tape

Marker pen

FASTENERS

24. Use a centre punch on the centre of the 6x mounting hole locations on the quarter panel.

TOOLS REQUIRED

Centre punch

FASTENERS

25. Use a 5mm drill bit and drill out a pilot hole on all 6x mounting holes.

    Take care not to drill through anything behind the quarter panel (eg. windscreen washer bottle). It is recommended to use a drill stop collar or make a makeshift one out of tape.

    Check behind before drilling.

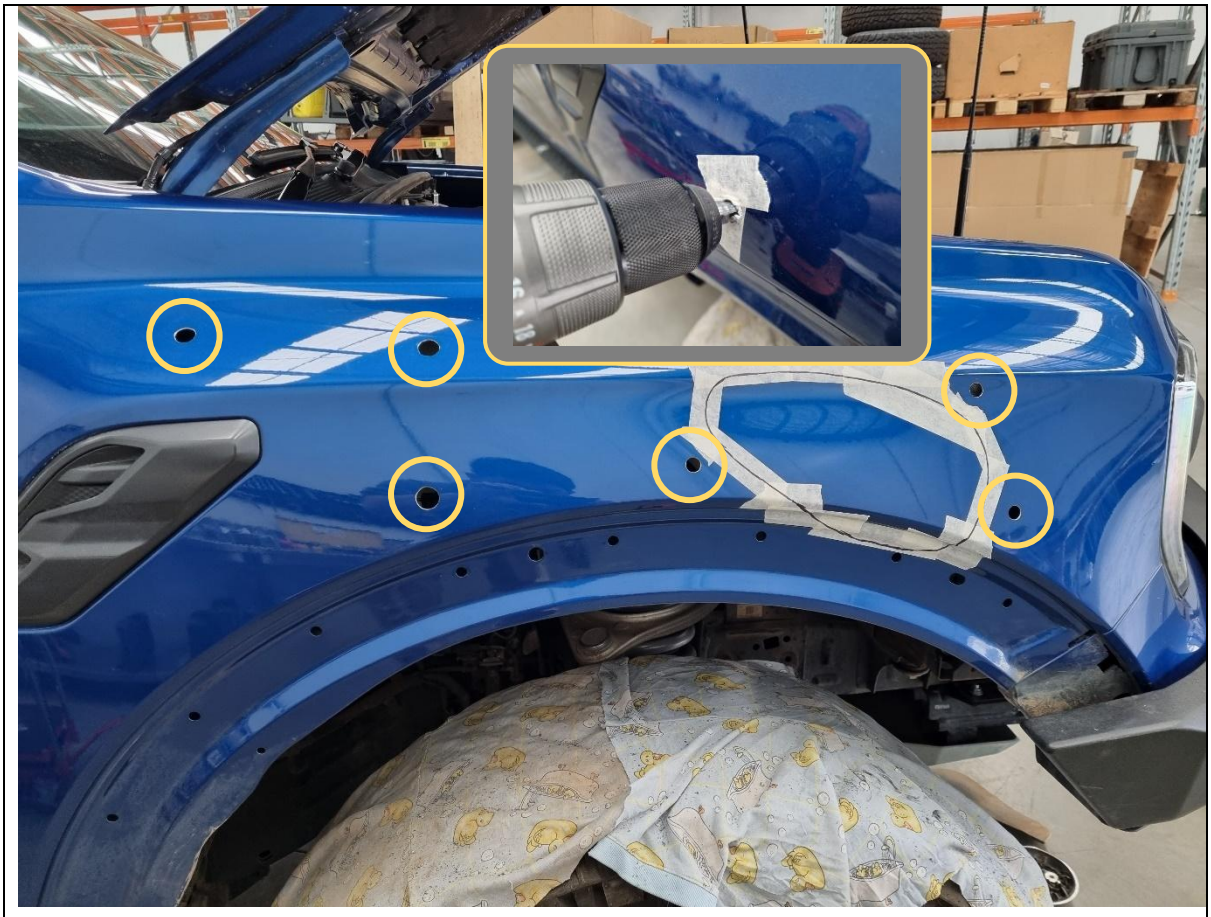
TOOLS REQUIRED

Electric drill
5mm drill bit

Drill stop collar
(recommended)

Safety glasses
Ear protection

FASTENERS



26. Use a step drill and drill out all 6x pilot holes out to 16mm diameter.

    Take care with the washer bottle on the inside. If your step drill is too big you may need to remove the washer bottle out of the way whilst drilling. Check whilst drilling by looking in from underneath to see if you will hit the washer bottle.

TOOLS REQUIRED

Electric drill
4-20mm step drill

Safety glasses
Ear protection

FASTENERS

27. Drill 1-2x 10mm diameter pilot holes into the main snorkel intake hole cut-out section.

28. Use an air hacksaw/body saw and cut the main intake hole, along the marked line.

TOOLS REQUIRED

Electric drill
10mm drill bit

Air hacksaw

Safety glasses
Ear protection

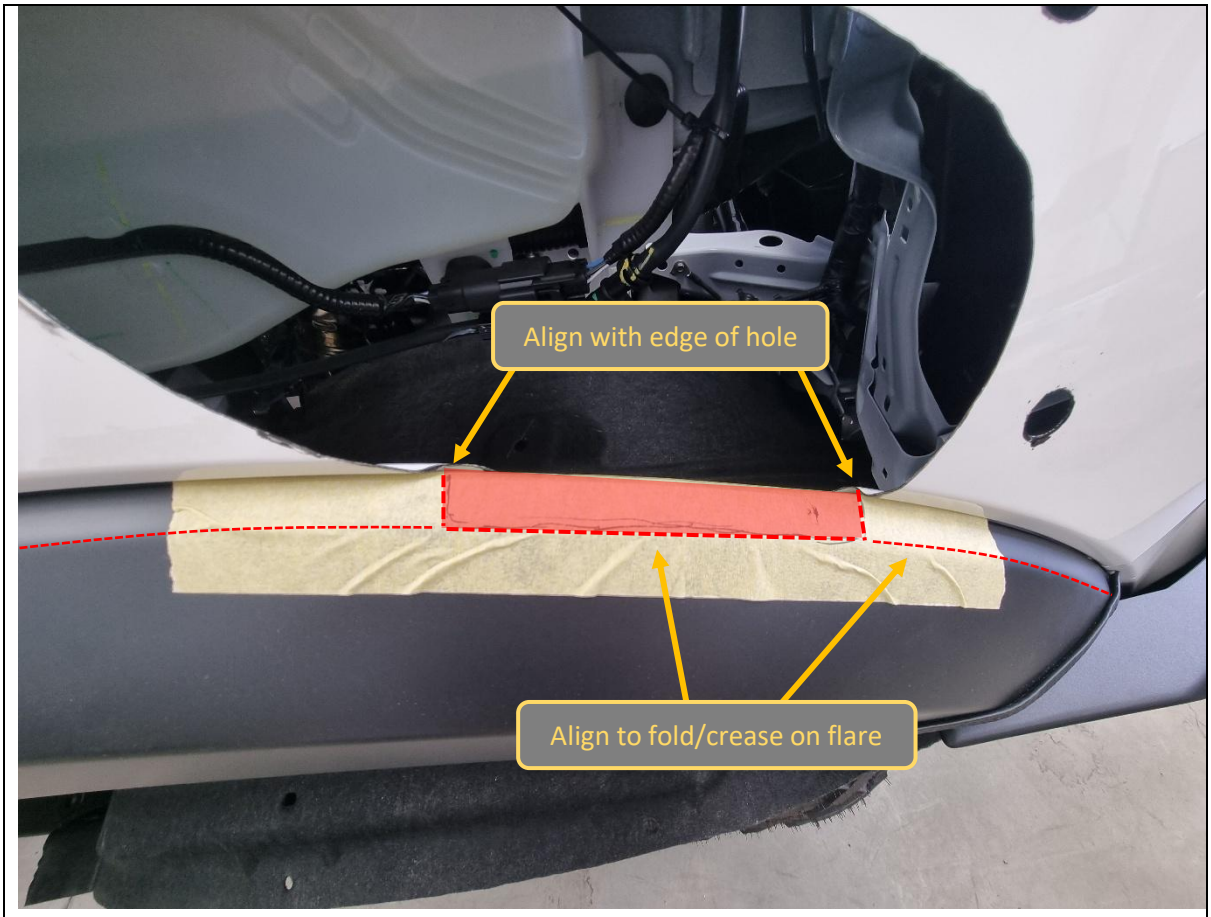
FASTENERS

29. Remove left over masking tape on the quarter panel.
30. File and deburr all the drilled holes and main intake cut-out.
31. Clean/vacuum up any metal swarf inside the body to prevent rust build-up.
32. Paint all the exposed metal edges to prevent corrosion.

TOOLS REQUIRED

Metal file
Deburring tool
Touch up paint

FASTENERS



33. Temporarily clip the flare back on the vehicle.

34. Apply masking tape to the flare, near the cutout in the quarter panel.

35. Mark out a cut line on the flare as shown above. Double check and make sure it also still aligns with the N-0015 paper card template.

TOOLS REQUIRED

Masking tape
Marker pen

FASTENERS

36. Remove the flare from the vehicle.

37. Using an air hacksaw or similar cutting tool, trim off the marked section on the flare.

38. Also trim off the middle locating pin from the inside of the flare (see inset photo).

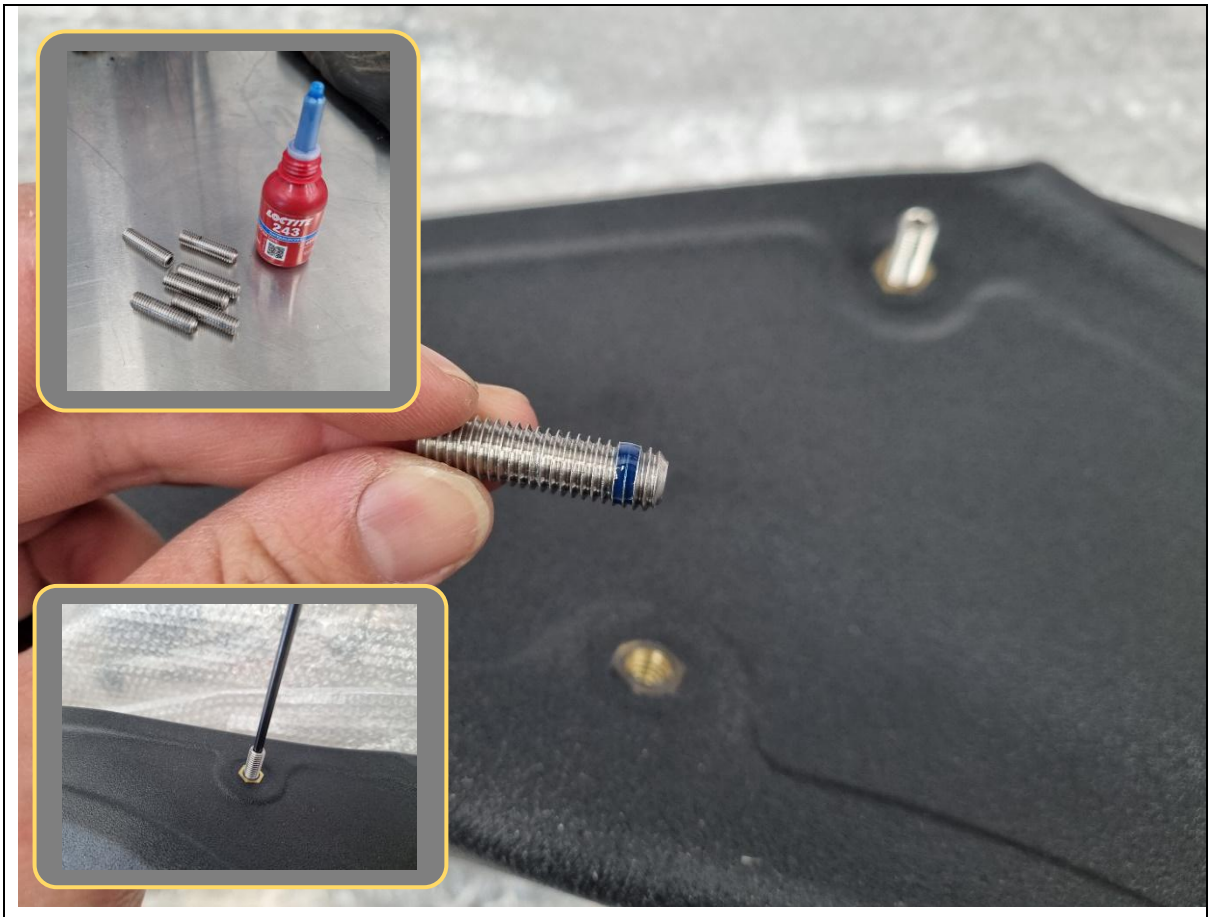
39. Clean up the trimmed edges and remove the masking tape. Set the flare aside for re-fit at the end of installation.

TOOLS REQUIRED

Air hacksaw

Safety glasses
Ear protection

FASTENERS



40. Apply thread locker (Offroad Animal recommends Loctite 243) to each of the 6x M8x25 grub screws.

41. Insert the grub screws into the 6x threaded inserts on the inside face of the F-0025 snorkel main body. Tighten with 4mm Allen key.

TOOLS REQUIRED

Thread locker
(Loctite 243 recommended)

4mm hex/Allen key

FASTENERS

6x M8x25 grub screw

42. Bolt the B-1261 metal A-pillar mount bracket to the top of the snorkel using 2x M6x8 black button head bolts and black washers.

43. Apply masking tape over the A-pillar panel on the car.

44. Fit the main snorkel body onto the vehicle. Ensure it fits snugly up against the quarter panel.

TOOLS REQUIRED

Masking tape

4mm hex/Allen key

FASTENERS

2x M6x8 black button head
2x M6 black flat washer

45. With the front right door open, and holding the snorkel in the correct position, trace the outline of the mount bracket onto the masking tape.

46. Remove the snorkel and unbolt the mount bracket. Set the main snorkel body aside.

TOOLS REQUIRED

Marker pen

4mm hex/Allen key

FASTENERS

47. Re-align the A-pillar mount bracket on the vehicle using the outline tracing.

48. Mark centre of the 3x holes and centre punch them on the A-pillar.

TOOLS REQUIRED

Marker pen
Centre punch

FASTENERS

49. Carefully drill 3x pilot holes with a 2.5mm drill bit. Use a drill stop or take extra care to not drill too far through the A-pillar.

50. Open the holes up with a 4.9mm drill bit (to suit 4.8mm rivet). Use the A-pillar bracket and supplied size 6-3 rivets (4.8mm diameter x 10mm length) as a guide.

51. Remove masking tape, then clean and deburr the drilled holes.

TOOLS REQUIRED

Electric drill
2.5mm drill bit
4.9mm drill bit

Drill stop collar (recommended)

Deburring tool

Safety glasses
Ear protection

FASTENERS

6-3 rivets

52. Clean the A-pillar with isopropyl alcohol, then apply masking tape around the area where the bracket contacts the A-pillar.

53. Apply adhesive sealant (Offroad Animal recommends Sikaflex 227 car body sealant) to the A-pillar.

54. Fit the A-pillar mount bracket and insert 3x size 6-3 pop rivets.

TOOLS REQUIRED

Isopropyl alcohol
Rag

Adhesive sealant
(Sikaflex 227 recommended)

FASTENERS

3x 6-3 rivets

55. Install pop rivets with a rivet gun.

56. Remove masking tape and clean up any excess sealant.

TOOLS REQUIRED

Pop rivet gun

FASTENERS

57. Use a flat head screwdriver to pry off the inlet duct off the airbox. Discard the inlet duct.

TOOLS REQUIRED

Flat blade screwdriver

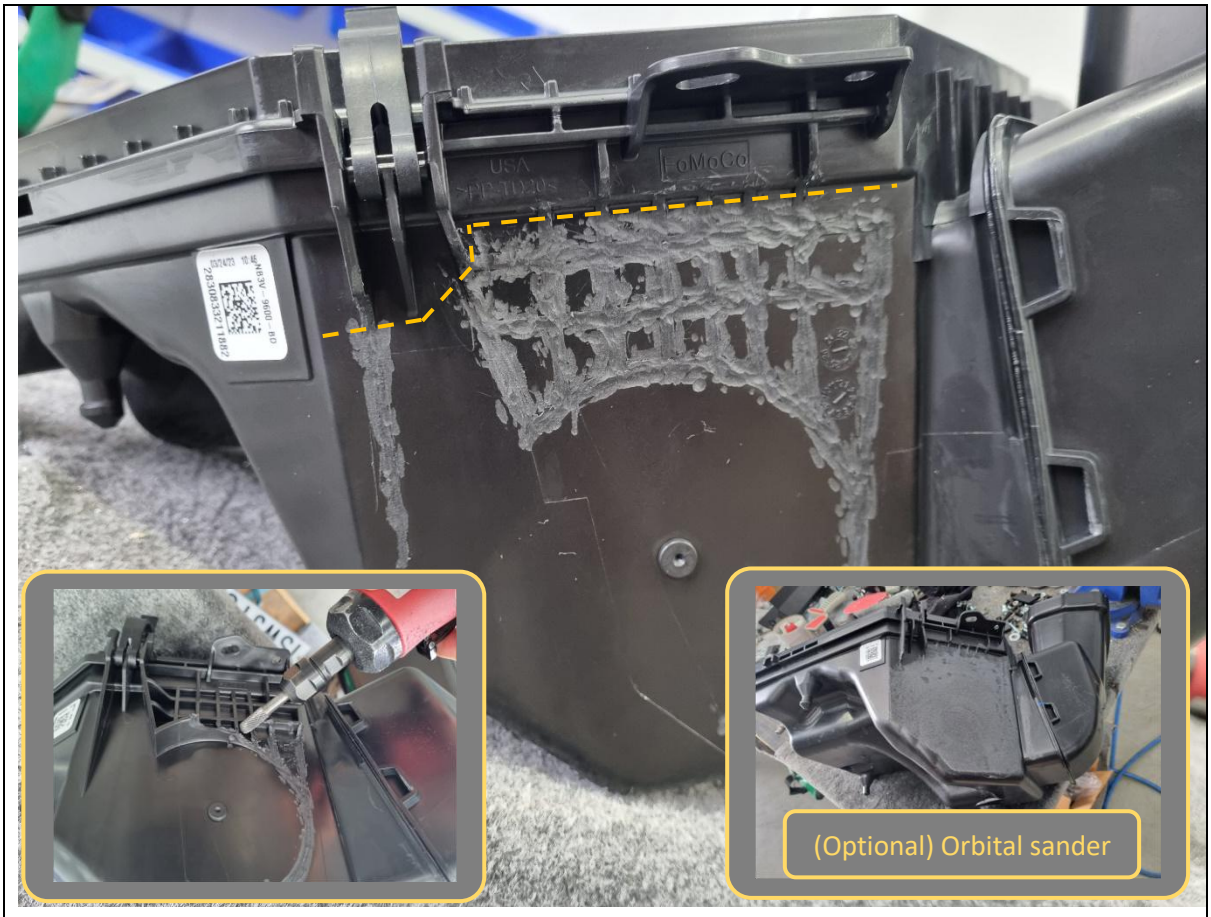
FASTENERS

58. Unclip the 2x clips holding the upper airbox to the lower airbox.

59. Remove and set aside the upper airbox and air filter.

TOOLS REQUIRED

FASTENERS



60. Use a die grinder and/or utility knife to remove the ribbing on the outside of the lower airbox, as shown. Remove enough ribbing such that the F-0026 air entry hose can fit onto the airbox.

    Note: Take care not to damage the plastic clips that hold the upper airbox to the lower airbox. You can temporarily remove them to avoid damaging them.

61. **Optional.** Use an orbital sander to clean up and smoothen the face of the air box.

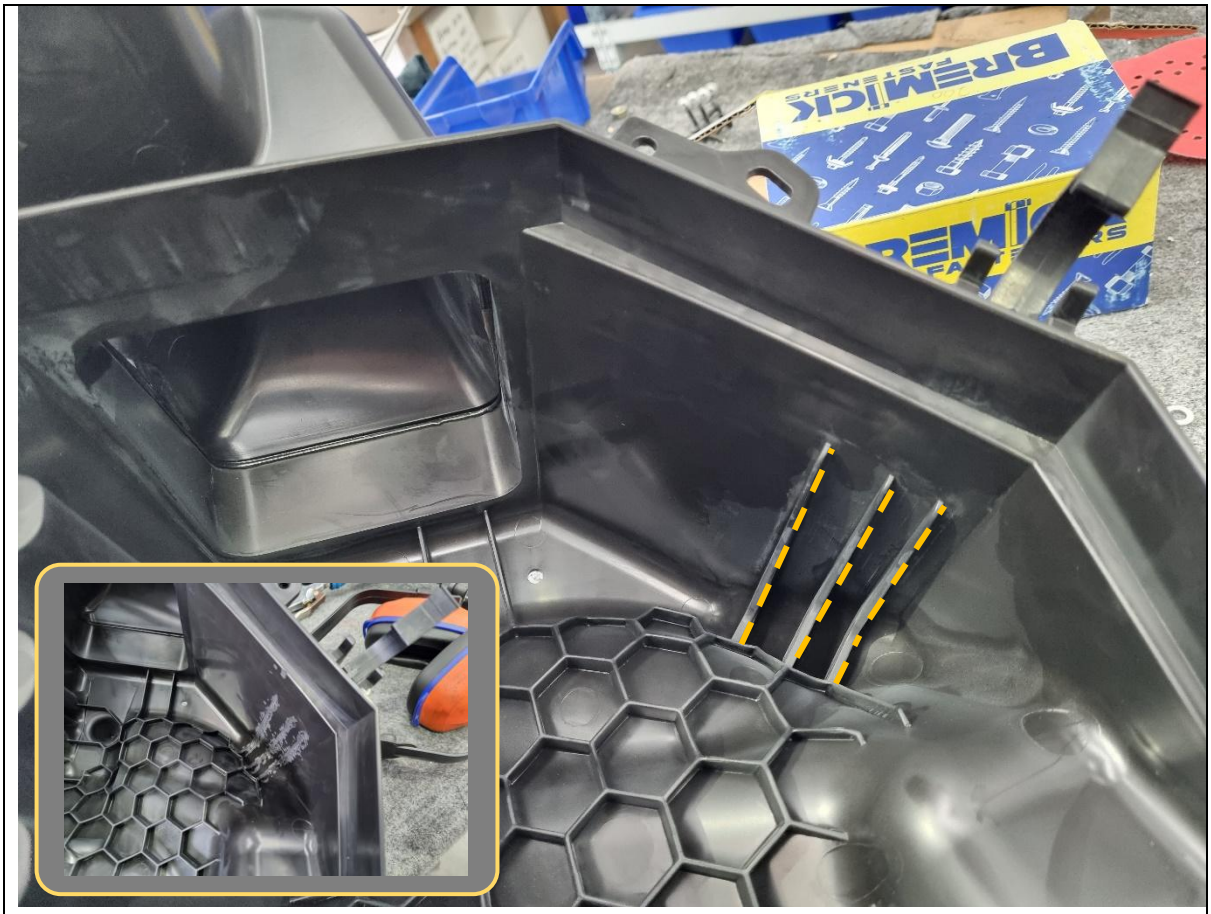
TOOLS REQUIRED

Die grinder
Utility knife

Orbital sander (optional)

Safety glasses
Ear protection

FASTENERS



62. Use a die grinder and/or utility knife to remove the 3x internal ribs as shown.

TOOLS REQUIRED

Die grinder
Utility knife

Safety glasses
Ear protection

FASTENERS

63. Position the F-0026 air entry hose over the airbox as shown. Ensure all faces are pressed firmly up against the airbox surfaces.

64. Use a 4mm drill bit and drill through one of the holes on the air entry hose and into the airbox (see inset photo).

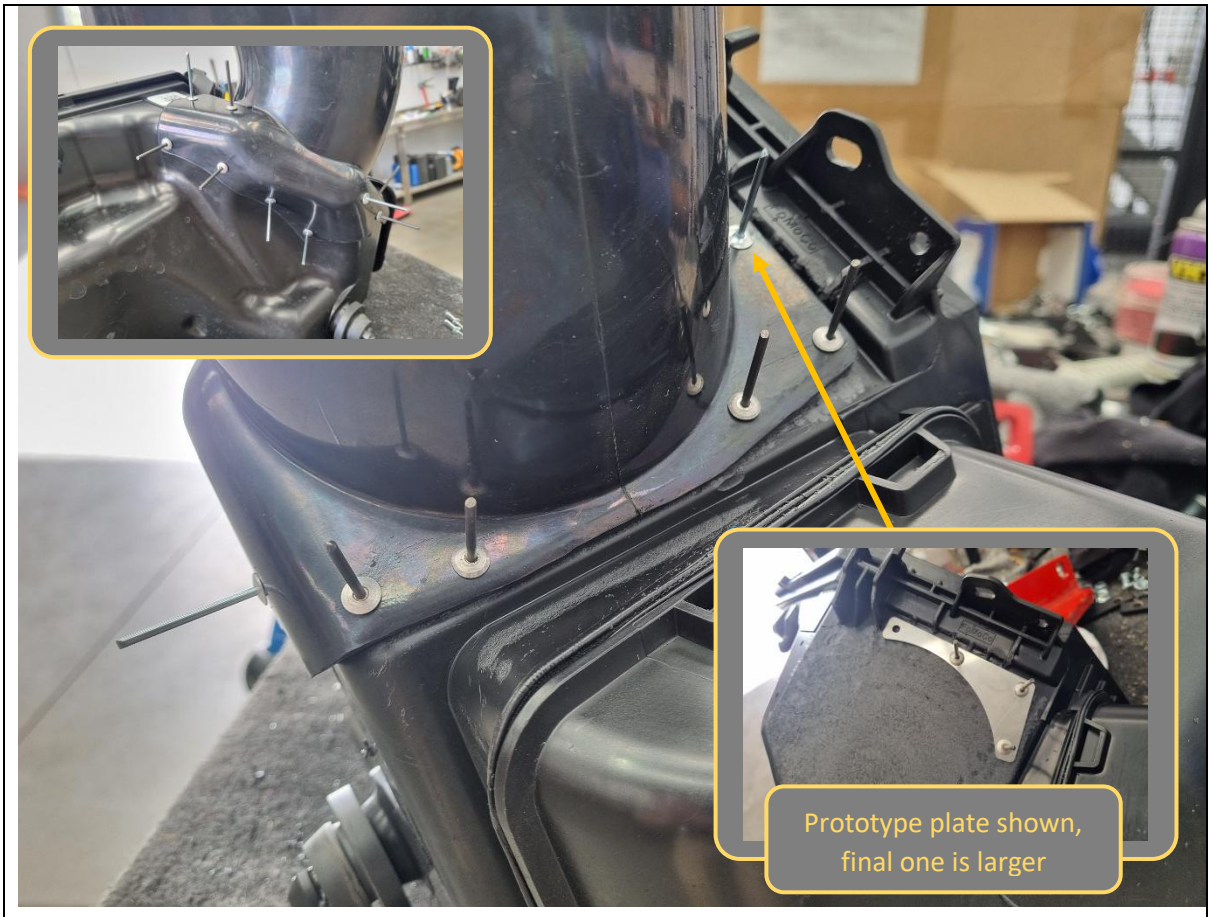
65. Place 1x size 5-6 rivet (4.0mm diameter x 16mm length).

TOOLS REQUIRED

Electric drill
4mm drill bit

FASTENERS

1x 5-6 rivets



66. Work your way around and drill as many holes as you can get access to with your drill bit.

67. Insert a size 5-6 rivet after drilling each hole to ensure that the F-0026 air entry hose remains locked in position.

68. The holes that can't be reached should be the top ones. After drilling all the other holes, remove the rivets and air entry hose.

69. Then place the P-0383 support plate and use it along with more rivets as a drill jig to drill the last remaining holes (see bottom right inset photo).

70. There should be a total of 15x holes drilled. Deburr all the drilled holes.

TOOLS REQUIRED

Electric drill
4mm drill bit

Deburring tool

FASTENERS

14x 5-6 rivets

71. Place the supplied N-0016 paper card template onto the airbox, and use masking tape along with size 5-6 rivets to hold it in place.

72. Use a paint pen and mark out the circular hole to be cut out, as shown.

73. Remove the paper card template.

TOOLS REQUIRED

Masking tape
Paint pen

FASTENERS

5-6 rivets

74. Drill 1x 10mm diameter pilot hole into the section to be cut out.

75. Use an air hacksaw/body saw and cut the main air entry hole, along the marked line.

76. Deburr the hole after cutting.

TOOLS REQUIRED

Electric drill
10mm drill bit

Air hacksaw

Safety glasses
Ear protection

FASTENERS

77. Clean the airbox and air entry hose with isopropyl alcohol and allow it to dry.

78. Apply Sikaflex 227 adhesive sealant to <u>all</u> joining faces on the airbox and air entry hose.

TOOLS REQUIRED

Isopropyl alcohol
Rag

Adhesive sealant
(Sikaflex 227 recommended)

FASTENERS

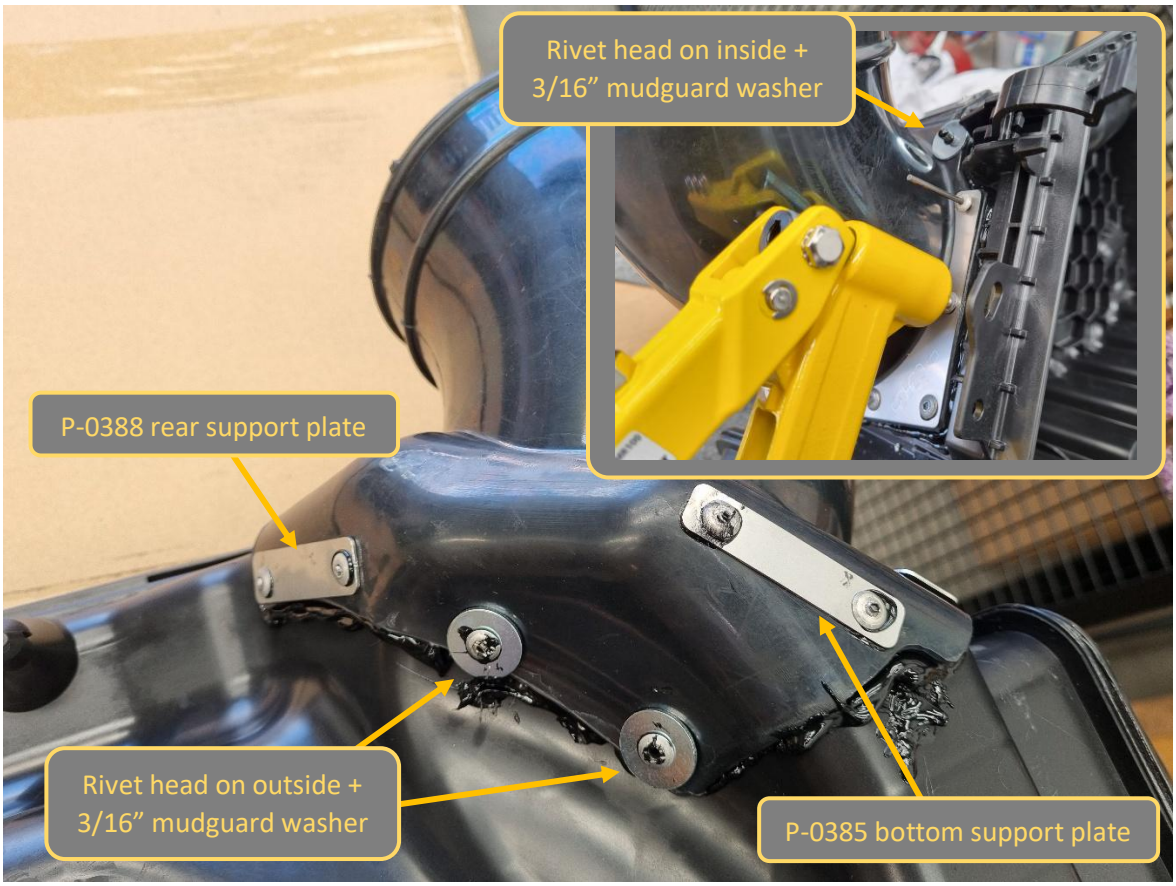
79. Install size 5-6 pop rivets and 4x support plates, as shown above. Total 12x rivets for these plates.

TOOLS REQUIRED

Pop rivet gun

FASTENERS

12x 5-6 rivets



80. Install 2x size 5-6 pop rivets with 3/16” mudguard washers on the bottom.

81. Install 1x size 5-6 pop rivet (head on inside of airbox) and 3/1”" mudguard washer (on outside) next to the P-0383 front support plate.

TOOLS REQUIRED

Pop rivet gun

FASTENERS

3x 5-6 rivets

82. **Optional.** There is a drainage hole on the bottom of the airbox. Seal this with Sikaflex 227 to ensure the airbox is fully watertight.

83. Clean up any excess sealant around the airbox and air entry hose.

TOOLS REQUIRED

Rag

Adhesive sealant
(Sikaflex 227 recommended)

FASTENERS

84. The top factory intake needs to be capped off with the supplied F-0028 airbox blanking cap.

85. Dry test fit the blanking cap and apply masking tape around the airbox, just below it.

86. Remove the blanking cap, then apply Sikaflex 227 to both the lip of the airbox and inside groove on the blanking cap (see inset photos).

TOOLS REQUIRED

Masking tape

Adhesive sealant
(Sikaflex 227 recommended)

FASTENERS

87. Fit the blanking top to the top of the airbox.

88. Wipe off any excess sealant and remove the masking tape.

TOOLS REQUIRED

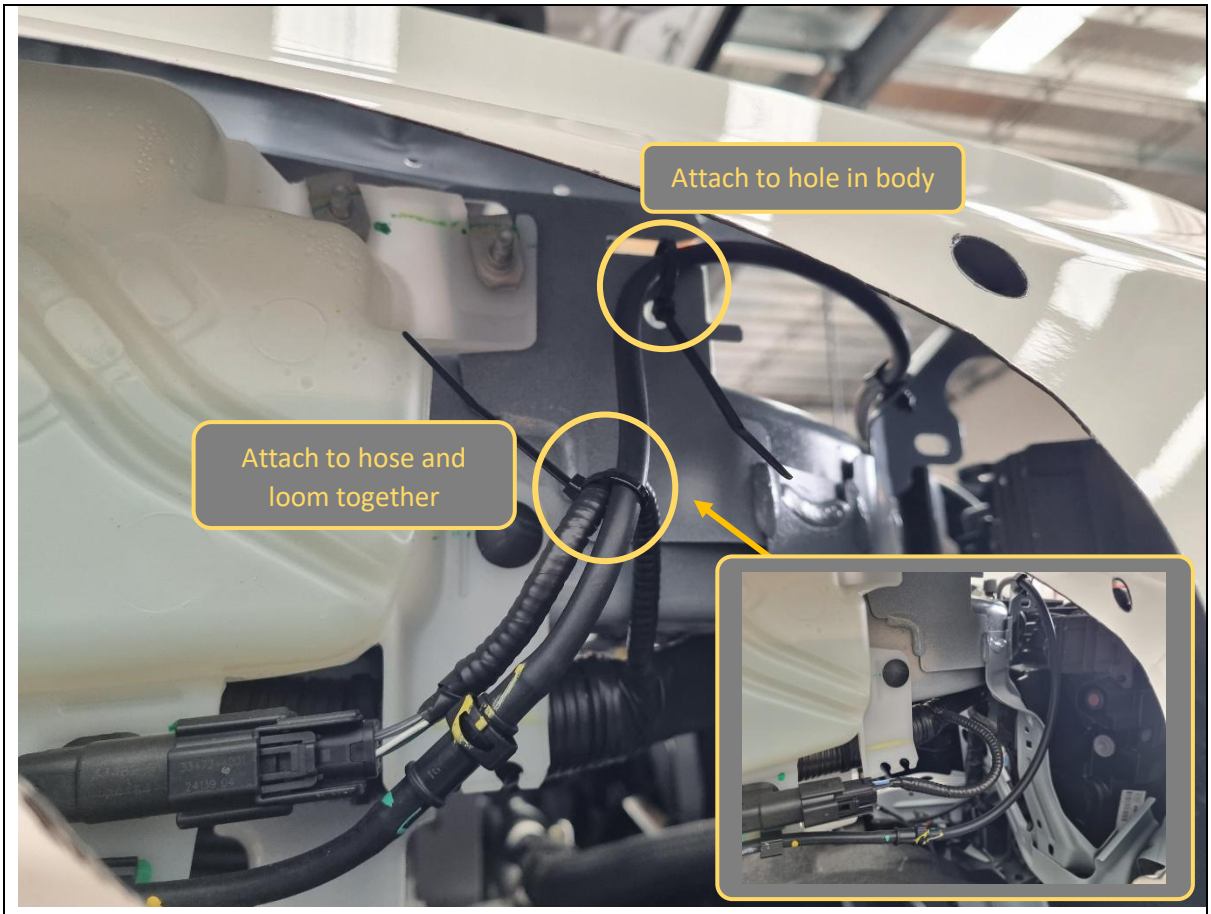
Rag

FASTENERS

89. Loosely fit 1x hose clamp onto the end of the air entry hose, between the raised edges.

TOOLS REQUIRED

FASTENERS



90. Look through the cutout made earlier in the quarter panel and locate the washer hose and loom cable next to the washer bottle.

91. Cable tie the washer hose off to the side, to the hole in the body, as shown.

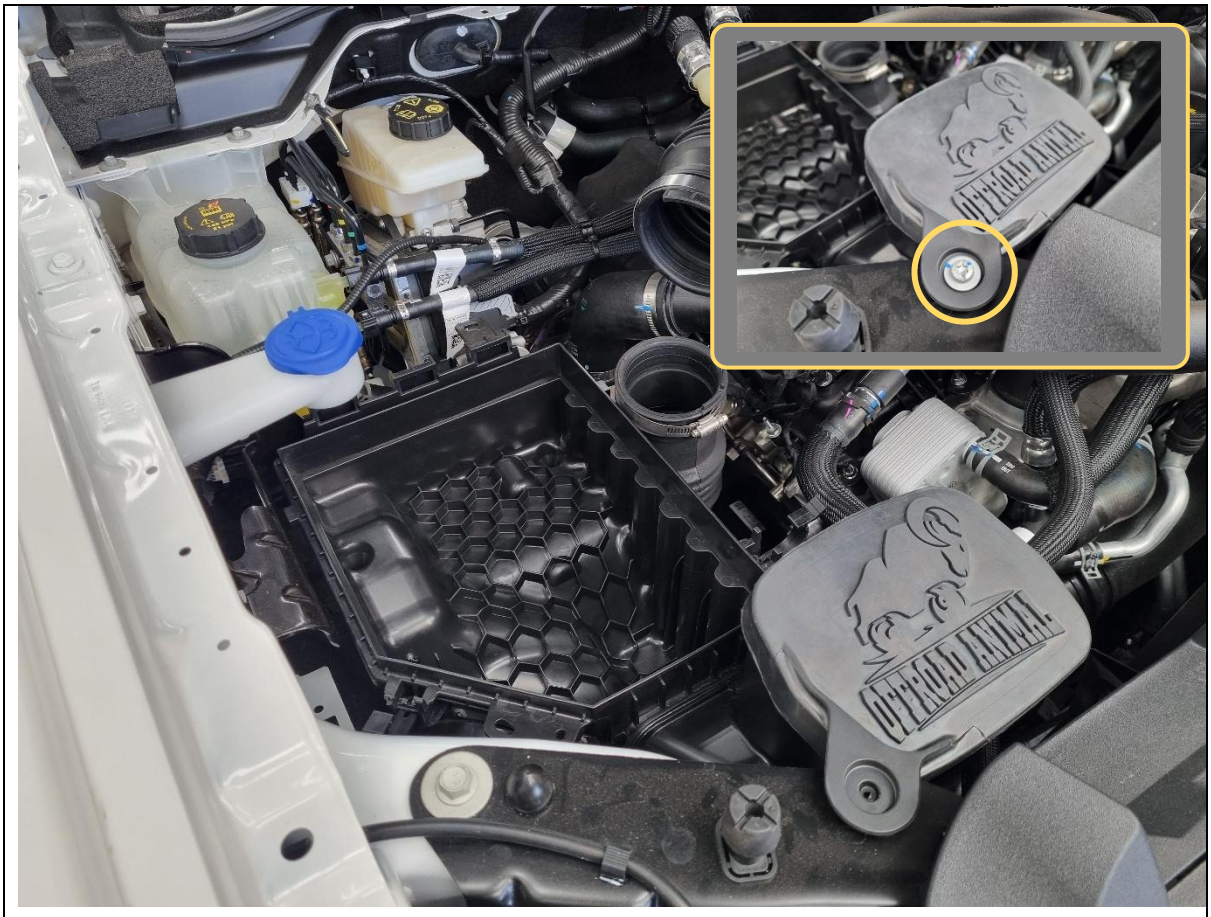
92. Also cable the loom cable to the washer hose, as shown.

93. Ensure the cable ties are secure, but do not squish the washer hose. Otherwise, it will block washer fluid coming out of the washer bottle.

TOOLS REQUIRED

Cable ties (not supplied)
Side cutters

FASTENERS



94. Re-install the airbox back into the engine bay. Ensure the 2x mounting ball studs are properly seated.

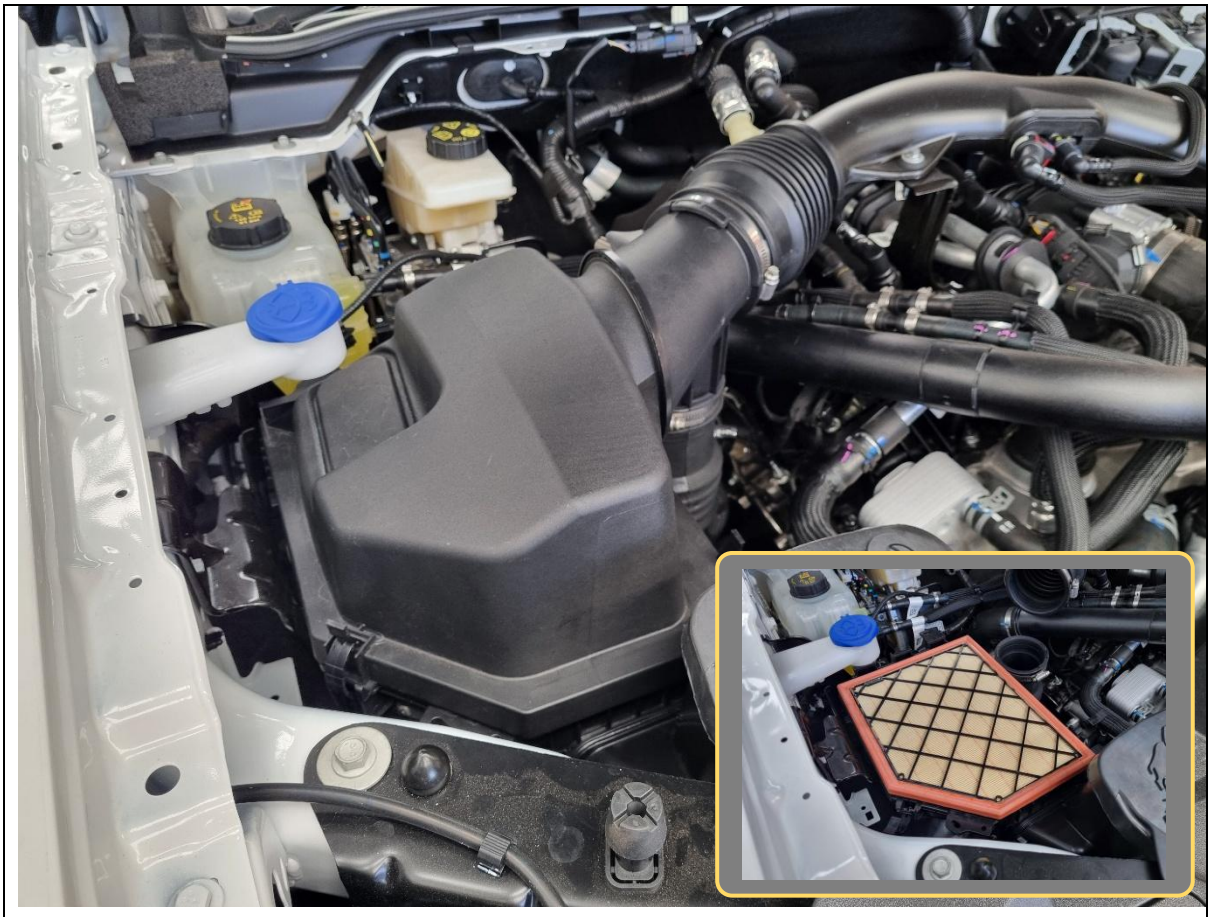
95. Secure the front blanking cap to the vehicle, re-using the factory T30 Torx screw removed from Step 6.

TOOLS REQUIRED

T30 Torx bit

FASTENERS

1x factory T30 Torx screw



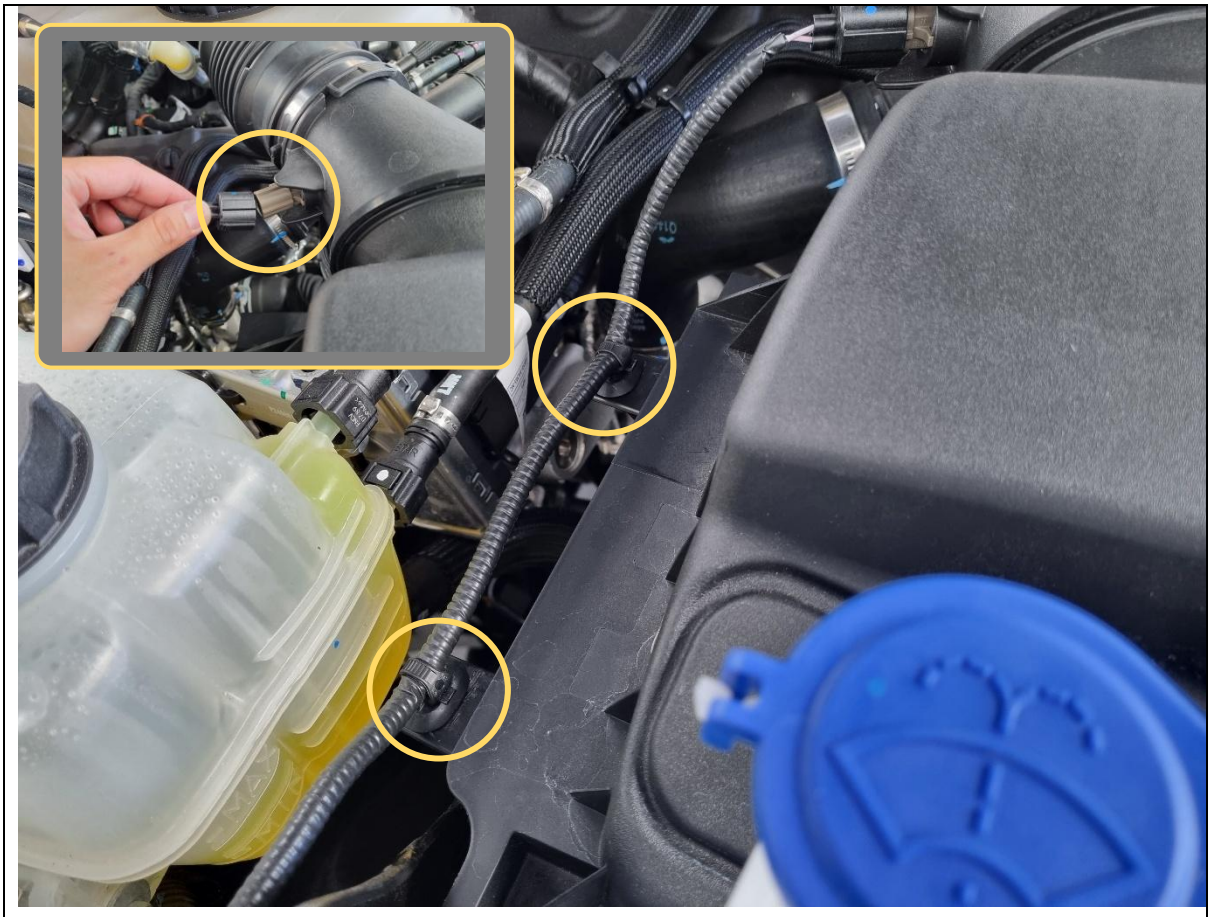
96. Re-fit the air filter to the airbox.

97. Re-fit the upper airbox back onto the vehicle and connect the 2x turbo inlet pipes.

TOOLS REQUIRED

7mm socket
or
Flat blade screwdriver

FASTENERS



98. Re-connect the MAF sensor and clip the loom back into the airbox.

TOOLS REQUIRED

FASTENERS

99. Fit the T-0110 pipe joiner to the F-0027 outlet hose. Ensure the pipe joiner is on the same side as the keying notch on the outlet hose as shown.

TOOLS REQUIRED

FASTENERS

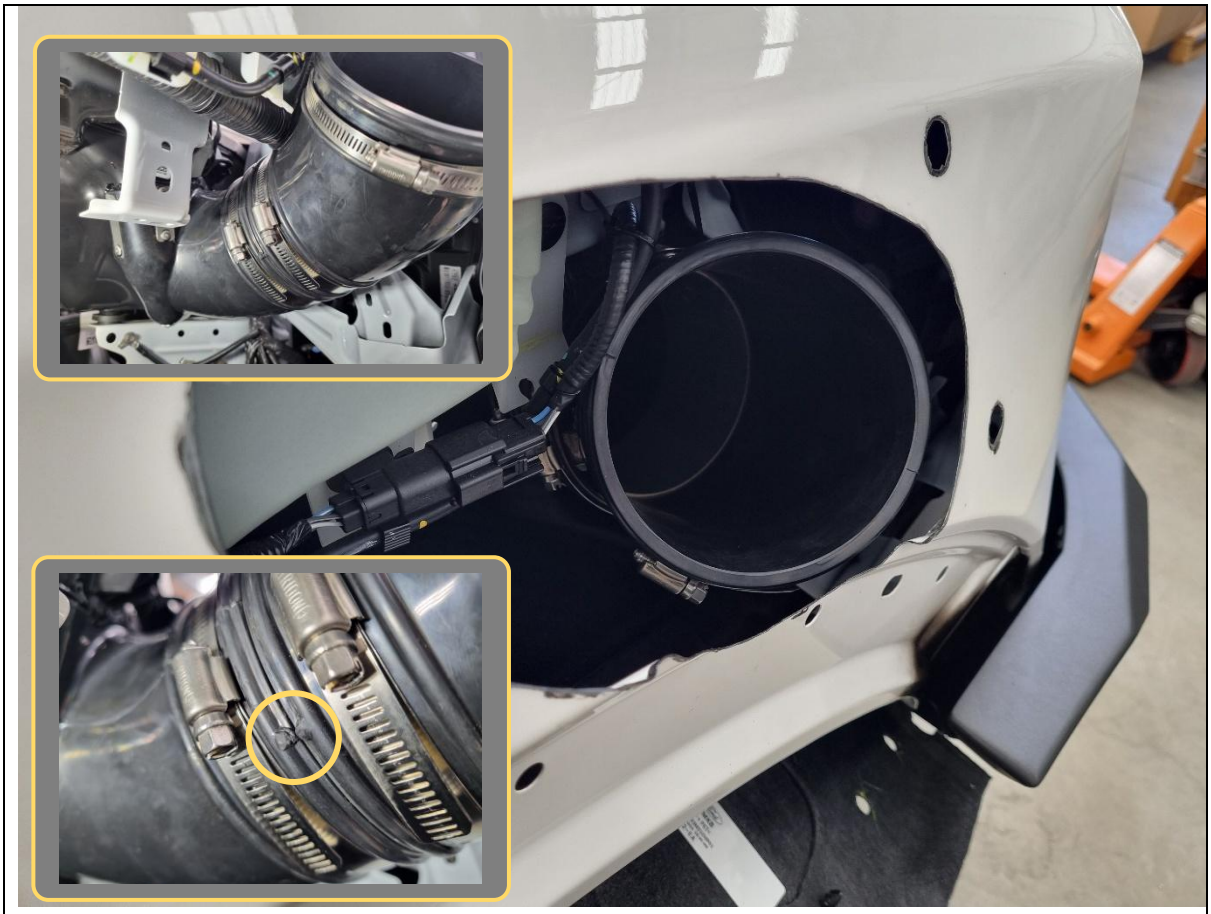
100. Secure the pipe joiner to the outlet hose with a hose clamp (see inset photo). Tighten clamp with an 8mm socket/spanner.

101. Loosely fit the last remaining hose clamp onto the other end of the outlet hose.

TOOLS REQUIRED

8mm socket/spanner
or
Flat blade screwdriver

FASTENERS



102. Reach through the cutout in the quarter panel and fit the pipe joiner end of the outlet hose to the air entry hose attached to the airbox.

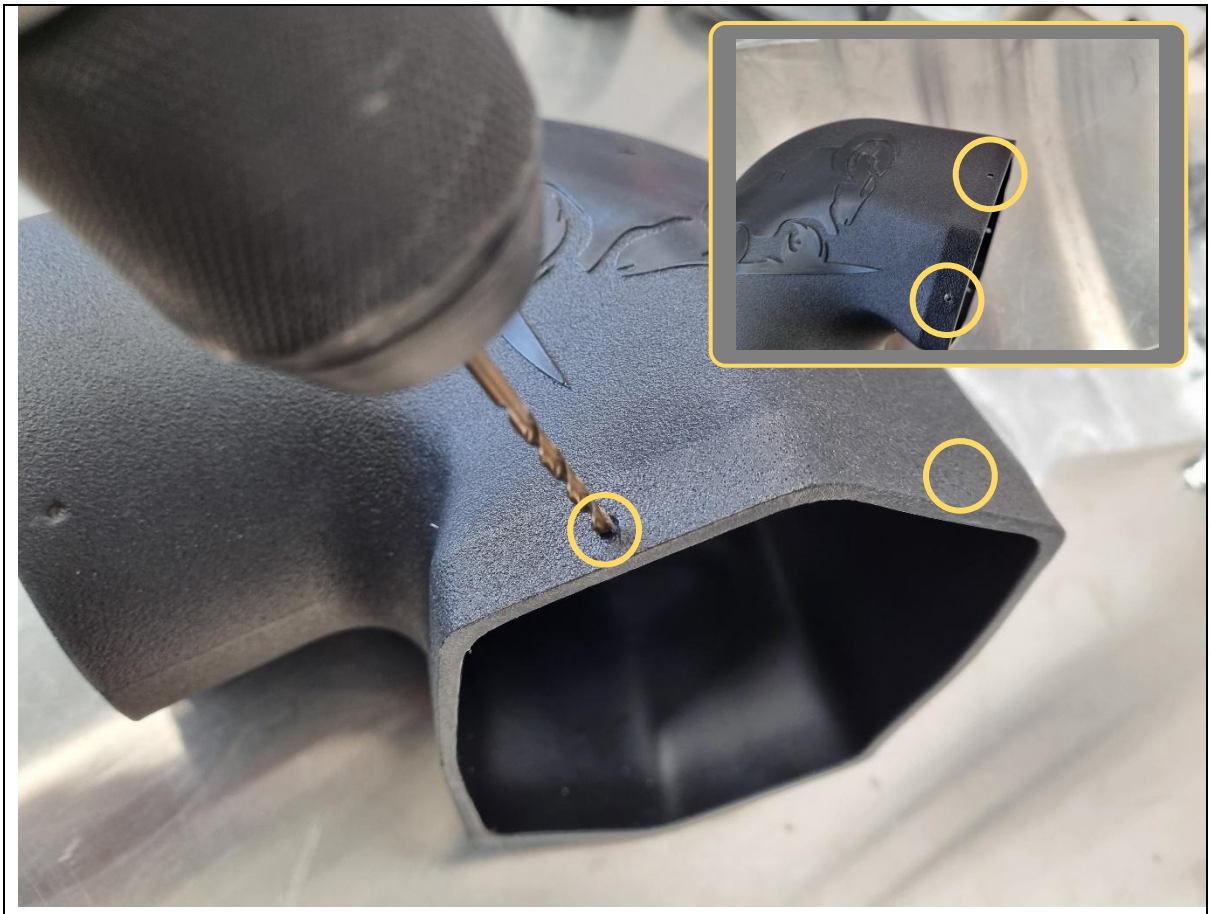
103. Rotate the outlet hose until the keying notches on both the outlet hose and air entry hose are aligned (see bottom inset photo).

104. Once aligned, rotate/align the hose clamps as shown in the photos above, and tighten to secure the outlet hose to the air entry hose.

TOOLS REQUIRED

8mm socket/spanner
or
Flat blade screwdriver

FASTENERS

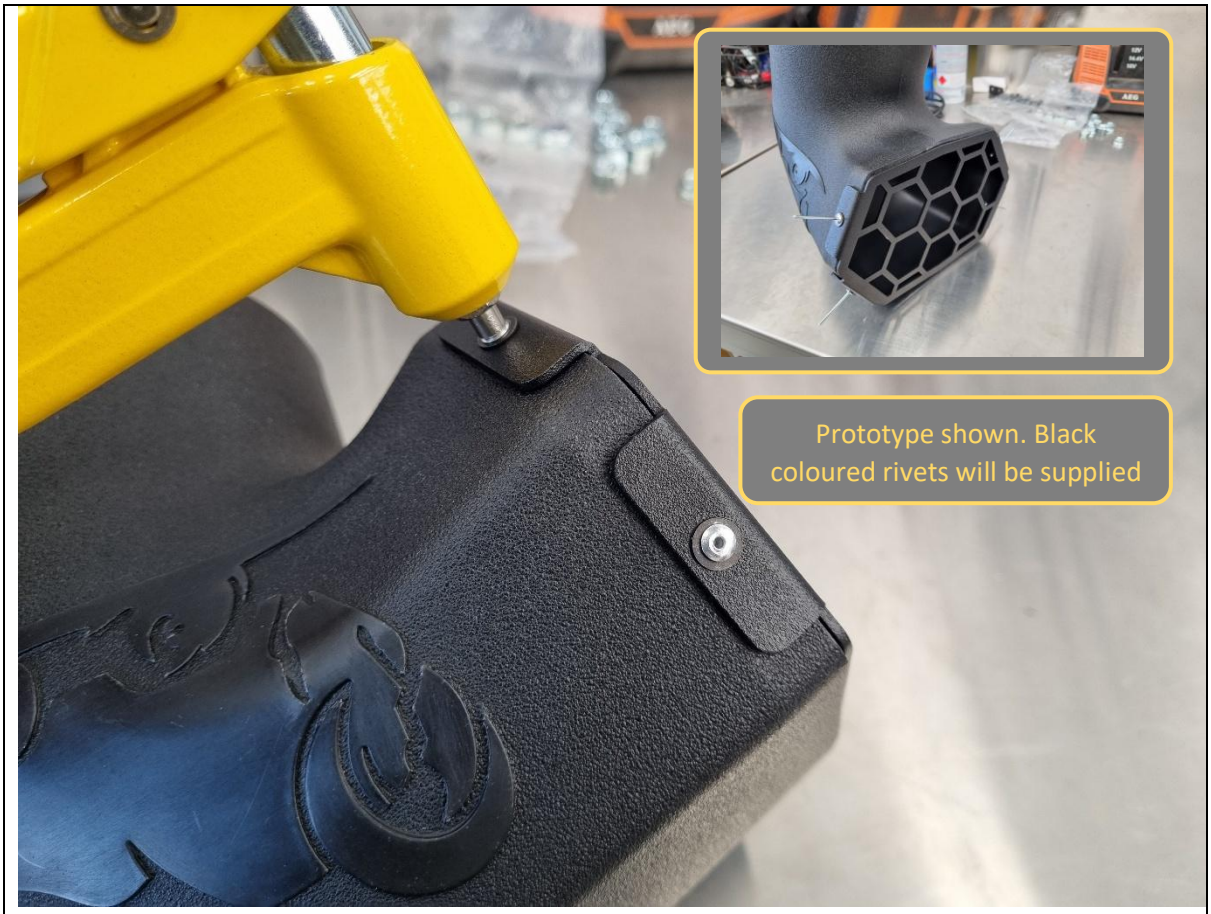


105. Locate the 4x dimples on the front of the F-0029 air ram body and use them as a guide to drill 4x 3.2mm diameter holes, to suit size 4-4 rivets (3.2mm diameter x 10mm length).

TOOLS REQUIRED

Electric drill
3.2mm drill bit

FASTENERS



106. Fit the B-1260 air ram mesh piece to the air ram body and insert 4x black size 4-4 pop rivets.

107. Install pop rivets with a rivet gun.

TOOLS REQUIRED

Pop rivet gun

FASTENERS

4x black 4-4 rivets

108. Locate the 4x dimples on both the bottom of the F-0029 air ram body and the top of the F-0025 snorkel main body.

109. Drill out the dimples on the air ram body to hole diameter 6mm.

110. Drill out the dimples on the snorkel main body to diameter 5.5mm.

111. Clean up plastic swarf inside the snorkel parts and ensure there is no other debris inside.

TOOLS REQUIRED

Electric drill
5.5mm drill bit
6mm drill bit

FASTENERS

112. Fit the air ram body onto the snorkel main body, and secure with 4x black 14G pan head Phillips screws.

TOOLS REQUIRED

Phillps head screwdriver

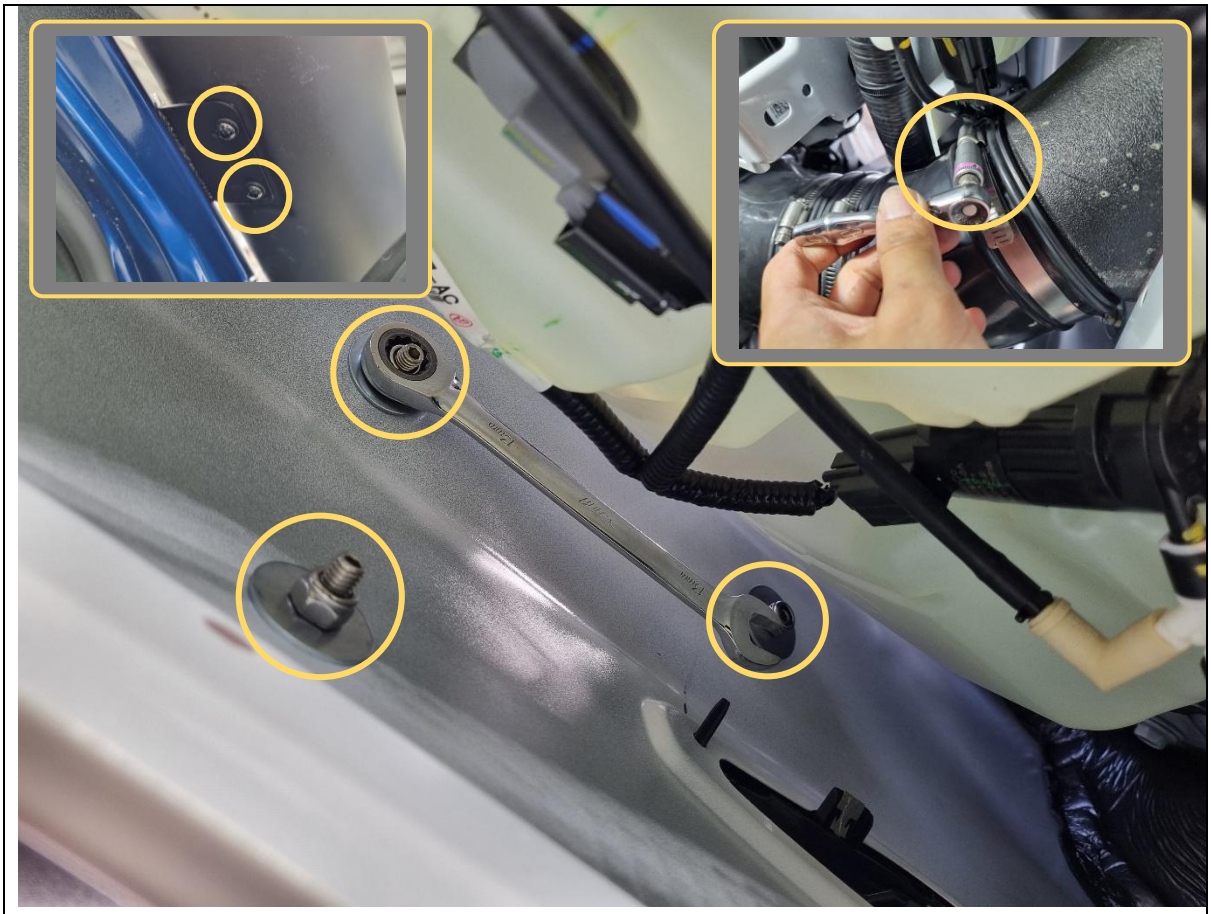
FASTENERS

4x 14Gx16 black pan head

113. Carefully fit the snorkel to the vehicle. Guide the snorkel entry into the F-0027 outlet hose installed on the vehicle. If it is too tight, try adding a tiny bit of lubricant.

TOOLS REQUIRED

FASTENERS



114. Position the snorkel so that it fits snugly up against the quarter panel and the A-pillar holes line up.

115. Once happy with alignment, reach in to the wheel well from underneath and secure the snorkel to the body with 6x M8 Nyloc nuts and mudguard washers. Tighten these nuts with a 13mm socket/spanner.

116. Fit 2x M6x8 black button head bolts and black washers to the A-pillar bracket and secure it to the snorkel (see left inset photo). Tighten these bolts with a 4mm hex/Allen key.

117. Lastly, tighten all hose clamps connecting the snorkel to the airbox (see right inset photo).

TOOLS REQUIRED

4mm hex/Allen key
13mm socket/spanner

8mm socket/spanner
or
Flat blade screwdriver

FASTENERS

2x M6x8 black button head
2x M6 black flat washer

6x M8 Nyloc nut
6x M8 mudguard washer

118. Re-fit the wheel arch liner in reverse order.

TOOLS REQUIRED

Phillips head screwdriver

T20 Torx bit

10mm socket

FASTENERS

Various

119. Re-fit the flare to the vehicle. Start by fitting the locating pin and clip at the front (see inset photo), then rotate and manuevre the flare under the snorkel and clip in the rear.

120. Re-fit the front mudflap, and any other final bits that may have been removed during installation.

TOOLS REQUIRED

Phillips head screwdriver

T20 Torx bit

FASTENERS

Plastic scrivets

T20 Torx screw

Congratulations! You're done! Head for those daunting river crossings and enjoy knowing your mighty Raptor twin turbo V6 is all safely sealed up!