



**4X4 ENGINEERING**

# SS1120HF SAFARI V-SPEC SNORKEL

JEEP ZJ Grand Cherokee Laredo  
4.0L Gasoline Engine



09/11/2007

ITEM	PART NO	DESCRIPTION	QTY
1	970-133-000	BODY - SNORKEL (SS1120HF)	1
2	000-135-800	3 ½" AIR RAM ASSEMBLY	1
3	970-124-000	DUCT - INNER (SS1120HF)	1
4	970-032-000	BRACKET - UPPER MOUNTING	1
5	000-002-100	BOLT - HEX - 6mm x 1.0 x 14mm (SEMS)	3
6	000-958-300	POP RIVET - 4.8mm x 12mm	13
7	000-110	STUD - S/S 8mm x 1.25 x 25mm O/L	5
8	000-311-300	WASHER - BODY - 8mm x 30mm	5
9	000-205-300	NUT - NYLOC - 8mm x 1.25mm	5
10	000-951-300	SCREW - S/T - 4.2mm x 16mm	1
11	970-992-000	SPACER - 8mm ID x 25mm OD x 5mm	3
12	970-023-000	ADAPTOR - AIR CLEANER	1
13	000-831-335	HOSE - JOINER - 100mm ID x 85mm	1
14	000-910	CLAMP - HOSE - 90/110mm	2
15	970-025-000	BLANK-OFF - AIR CLEANER	1
16	000-914/B	CLAMP - HOSE - SIZE 56 (BLACK)	1
17	970-017-200	TEMPLATE - AIR CLEANER BLANK-OFF	1
18	970-017-100	TEMPLATE - AIR CLEANER ADAPTOR	1
19	970-017-000	TEMPLATE - SNORKEL BODY	1

**Installation Guide**

**1**

Fitment to:

- Left Hand Side

Fitting Time:

- 180 min

Special Tools:

- 121 mm (4 3/4") diameter hole saw
- step drill
- hack saw/air body saw
- loctite (thread lock)
- Sikaflex 227 (adhesive sealant)
- Pop-Rivet Gun
- Touch-up Paint

**Prior to commencing the installation, it is the installer's responsibility to verify that all components and particularly the template (Item 19) are correct.**

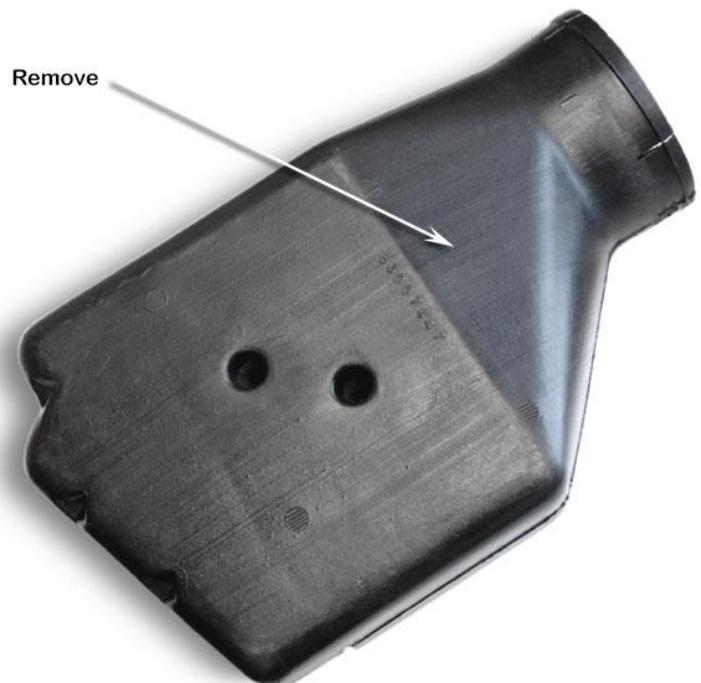
**2**

Remove:

- LHS inner fender liner
- LHS fender indicator
- Air cleaner assembly
- A-Pillar external weather seal and trim

**3**

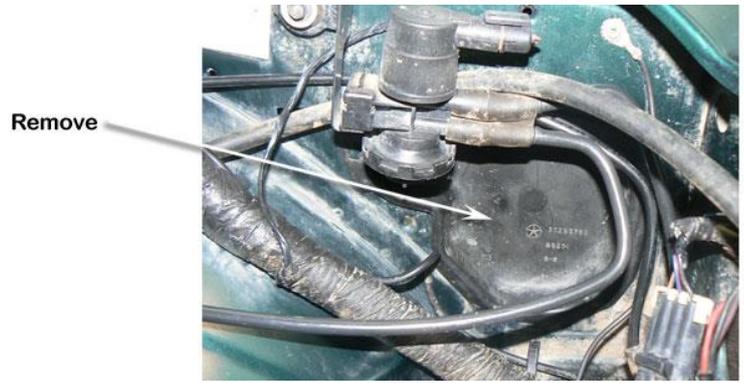
Remove and discard the Air Intake Duct



4

Remove and discard the inner panel plastic cover shown.

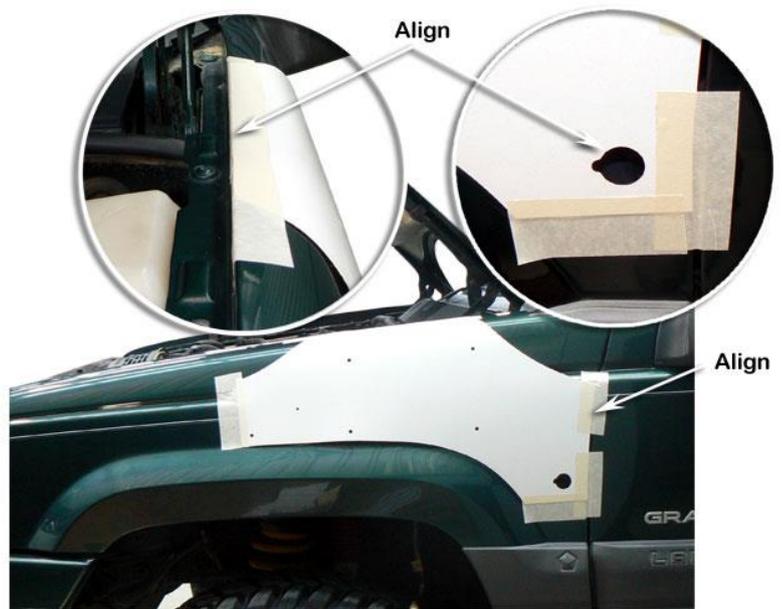
Note: 1993-1995 models do not have this hole and cover. These models require a hole to be cut in the inner fenderwell for the inlet hose to pass through.



Note: 1993-1995 models must have the PCM moved from the inner fenderwell to in front of the air cleaner assembly (there is plenty of room once the original air intake duct is removed).

5

Tape the template (Item 19) to the rear and upper edges of the left hand fender. With the template correctly positioned on the fender, use a felt tip pen to mark all hole positions, then remove the template.



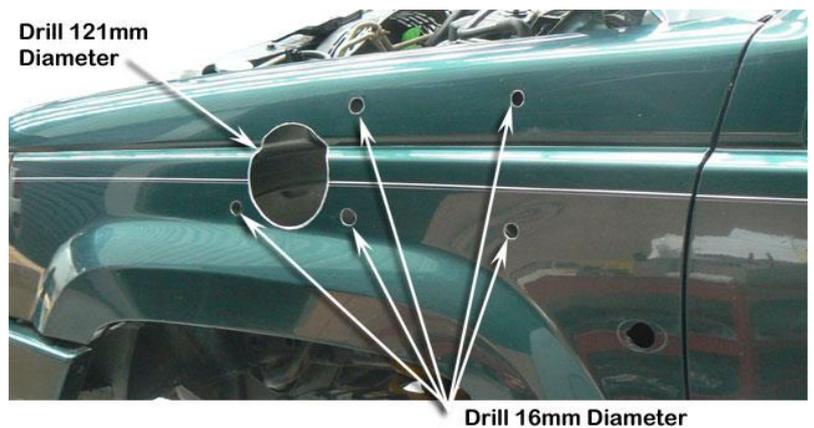
6

Drill a pilot hole for each marked hole position.

Using a 121mm (4 3/4") hole saw, drill the snorkel body outlet hole.

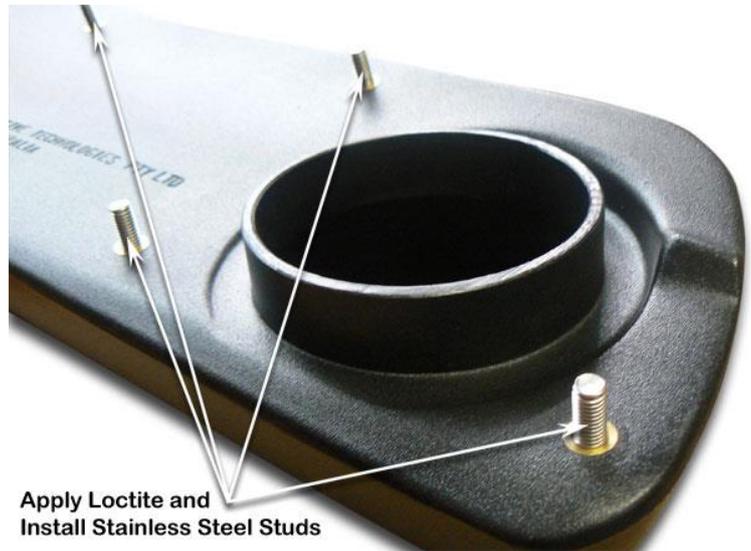
Using a step drill, drill the five mounting hole positions to 16mm.

Deburr and paint holes to prevent rust.



7

Apply loctite to all five studs (Item 7) and install the studs into the snorkel body mounting inserts as shown.



8

Place the inner duct (Item 3) into position as shown.



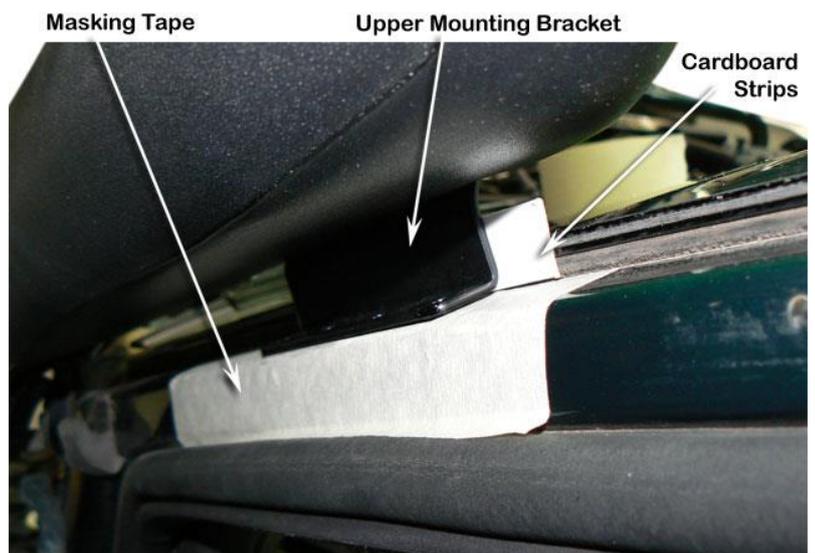
9 Fasten the upper mounting bracket (Item 4) to the snorkel body (Item 1) with three bolts (Item 5).

Place a piece of masking tape along the A-Pillar panel.

With the left hand door of the vehicle open, carefully install the snorkel body onto the fender.

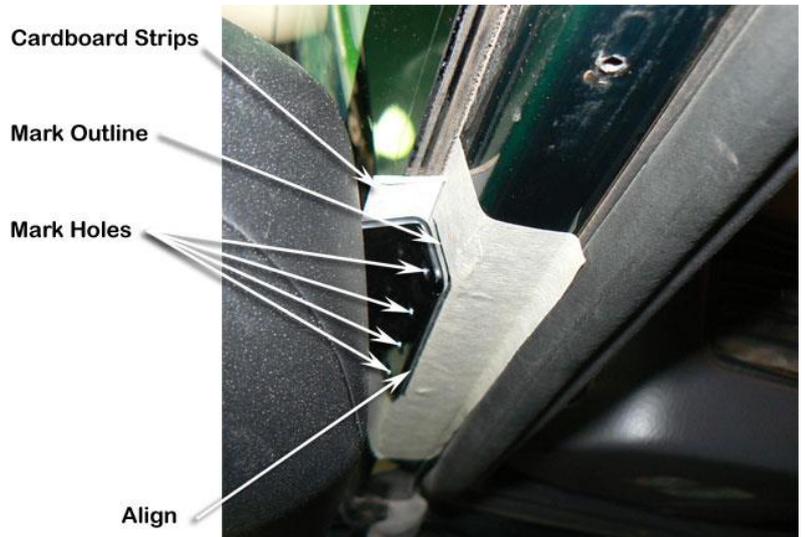
10

Cut two 125mm x 15mm (5" x 9/16") strips of cardboard from the snorkel body template (Item 19) and place them back to back (double thickness) between the windscreen and the upper mounting bracket (Item 4) as shown. This will ensure that there is adequate clearance between the upper mounting bracket and windscreen.



11

With the snorkel body correctly positioned, ensure the inner duct has adequate clearance between the inner duct inlet and fender panel hole. Mark the upper mounting bracket outline and the four mounting hole positions on the A-Pillar. N.B: The upper mounting bracket edge should be inline with the A-pillar panel.

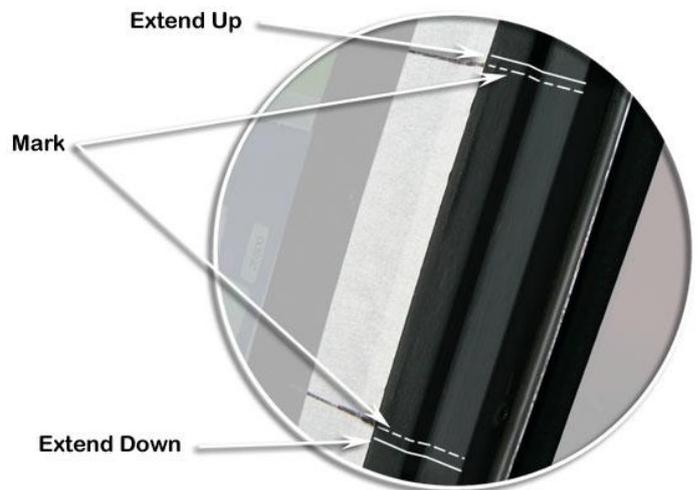


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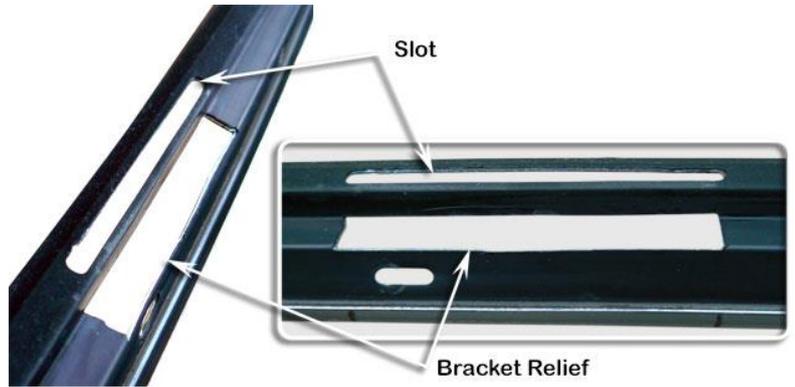
Remove the snorkel body from the fender. Remove the upper mounting bracket from the snorkel body. Stick a piece of masking tape along the windscreen and mark the position of the upper mounting bracket on the tape.



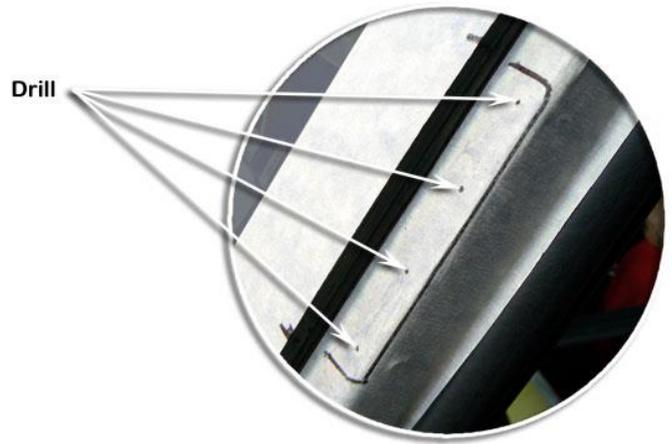
13 Place the A-Pillar trim back onto the A-Pillar and transfer the upper mounting bracket position to the A-Pillar trim. Extend the length of the markings on the A-pillar trim by approximately 3 mm (1/8") at each end. Remove the A-Pillar trim.



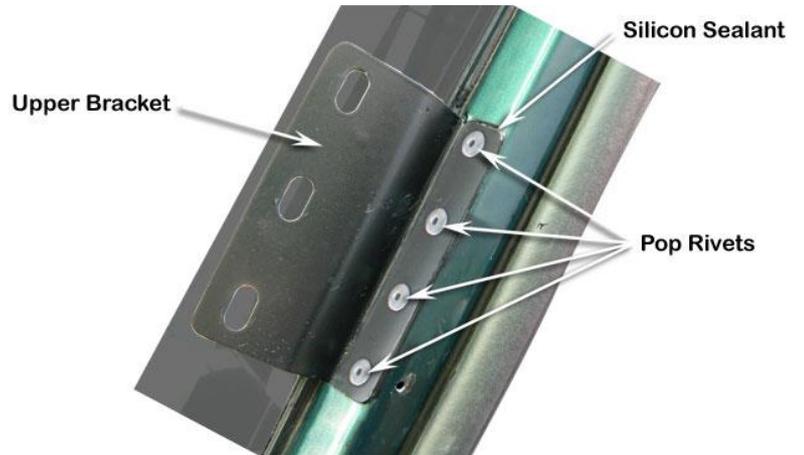
**14** Carefully mark the required slot position and drill a 5mm (3/16") hole at each end. Using an hacksaw/air body saw cut a slot in the A-Pillar trim as shown. Drill starting holes at each corner of the required A-Pillar trim bracket relief and cut with a hack saw/air body saw as shown. Neaten the slot and bracket relief cut edges with a fine file.



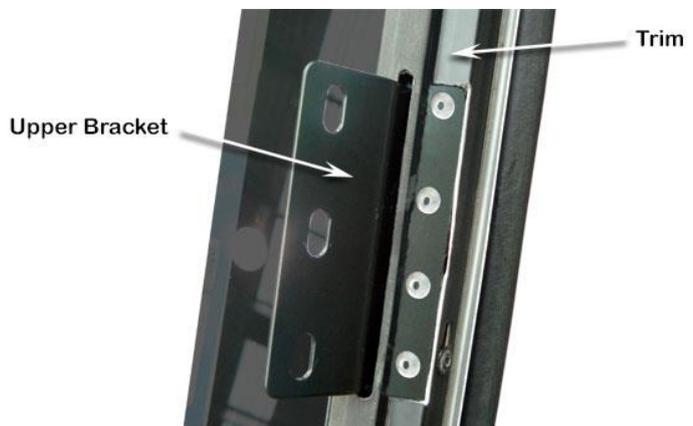
**15** Drill through the A-pillar skin at the four marked hole positions with a 5mm (3/16") drill. Deburr and paint holes to prevent rust.



**16** Apply sikaflex adhesive sealant to the under side of the upper mounting bracket to prevent moisture from entering under the bracket. Secure the bracket to the A-Pillar using four pop-rivets (Item 6).



**17** Reinstall the modified A-pillar trim. Some adjustment to the size of the slot and/or bracket relief may be required to ensure that the A-pillar trim fits correctly. Reinstall the weather seal over the A-pillar trim.



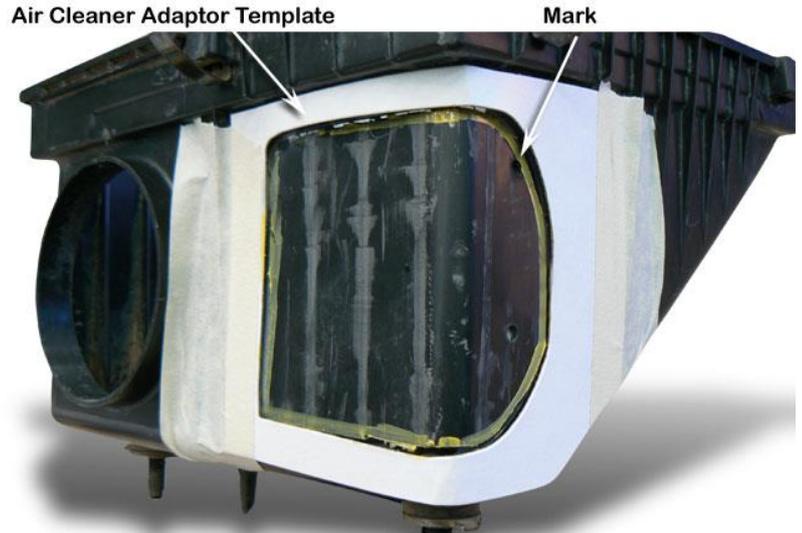
18

Grind off four of the five ribs from the front face of the air cleaner housing leaving the rib closest to the centre as shown.  
Grind off three ribs from the LHS face of the air cleaner housing as shown.



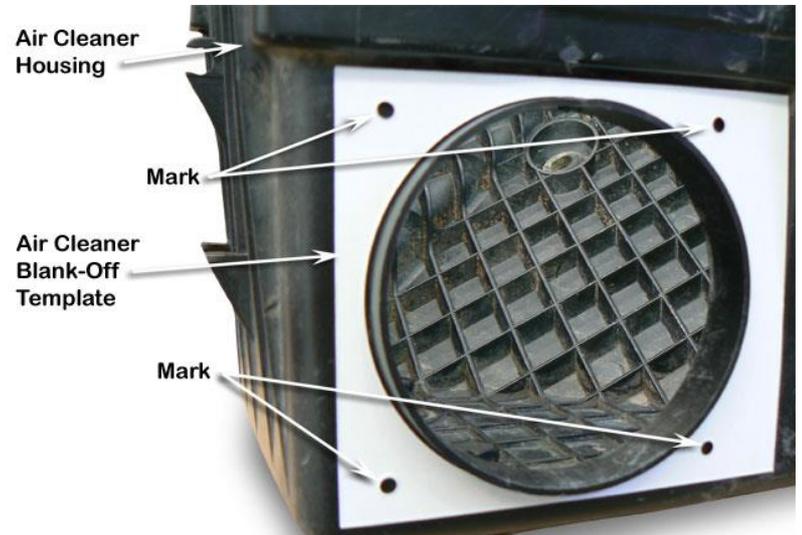
19

Place the air cleaner adaptor template (Item 18) onto the stock air cleaner housing.  
Ensure that the template is positioned in line with remaining front rib.  
Mark the perimeter of the air cleaner adaptor hole as shown.



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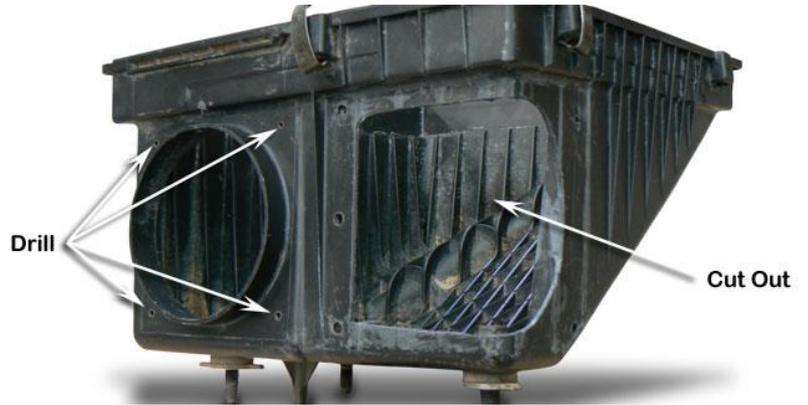
Place the air cleaner blank-off template (Item 17) on to the air cleaner housing as shown.  
Mark the position of the four holes to be drilled.



21

Drill four 5mm (3/16") diameter holes on the positions marked for the blank-off plate.

Use a hacksaw/air body saw to carefully cut a new air intake hole that was previously marked on the air cleaner housing.



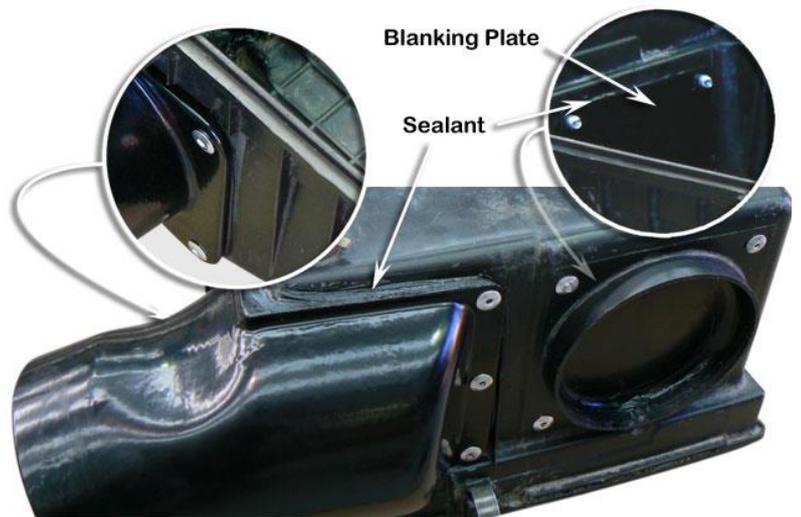
22

Position the air cleaner adaptor (Item 12) onto the air cleaner housing and mark the 5 hole positions and then drill to 5mm (3/16").

Apply sikaflex sealant to the inside sealing faces of the adaptor and around the new air intake hole. Fit the adaptor onto the air cleaner housing and secure using pop rivets (Item 6).

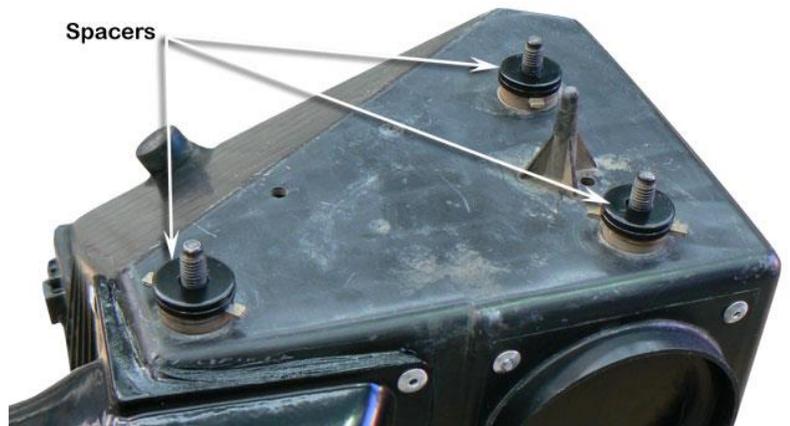
Apply sikaflex sealant to the blanking plate (Item 15) and position inside the air cleaner housing, covering the original air intake hole. Secure the blanking plate (Item 15) with four pop-rivets (Item 6).

Clean up any excessive sealant.



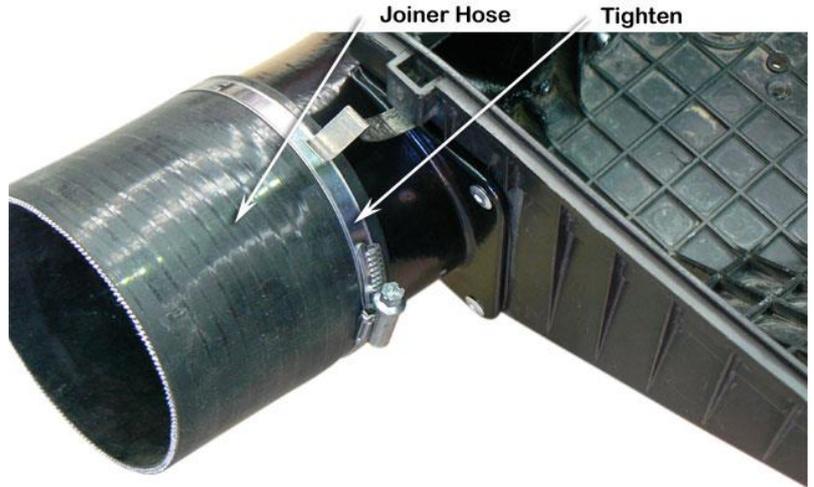
23

Ensure that the three air cleaner housing mounting bolts are correctly fastened in the air cleaner housing. Apply Sikaflex sealant or super glue to each of the spacers (Item 11) and install the spacers onto the mounting bolts.



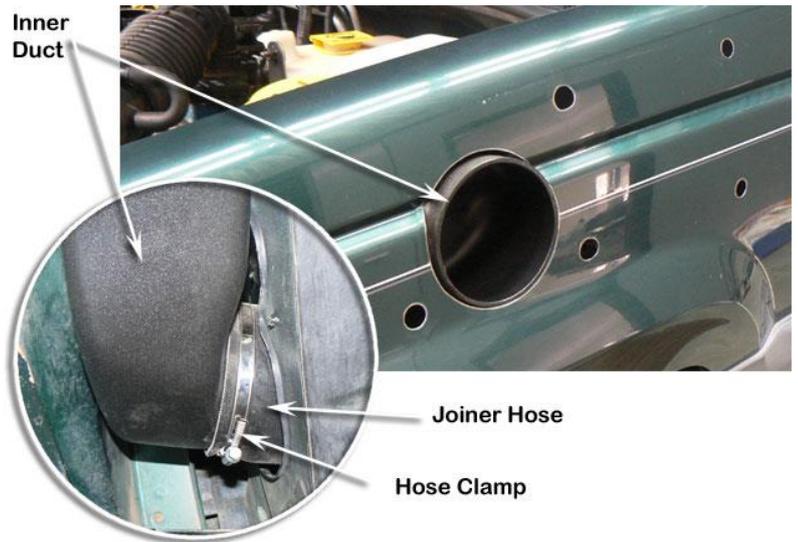
24

Install the joiner hose (Item 13) onto the air entry adaptor (Item 12) and ensure that the hose extends 25 - 30 mm (1 - 1 3/16") over the adaptor. Secure the hose to the adaptor with a 90/110mm hose clamp (Item 14).



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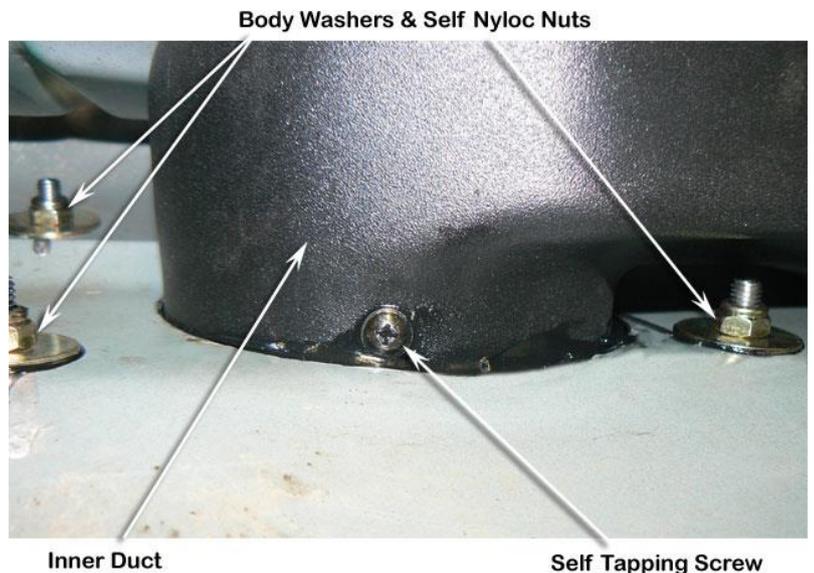
Install the inner duct (Item 3) and then place a 90/110mm hose clamp (Item 14) over the end of the inner duct. With the inner duct and hose clamp correctly positioned, install the modified Air Cleaner Housing and fasten using original nuts.



26 Apply a generous amount of Sikaflex sealant to the outer surface of the snorkel body outlet snout as well as the internal surface of the inner duct to ensure a watertight seal. Carefully guide the snorkel body outlet snout into the inner duct and install the snorkel body to the fender panel. Align the snorkel body to the upper mounting bracket and the fender. When correctly aligned, fasten the snorkel body to the fender with body washers (Item 8) and Nyloc nuts (Item 9). Fasten the snorkel body to the upper mounting bracket with three hex bolts (Item 5).

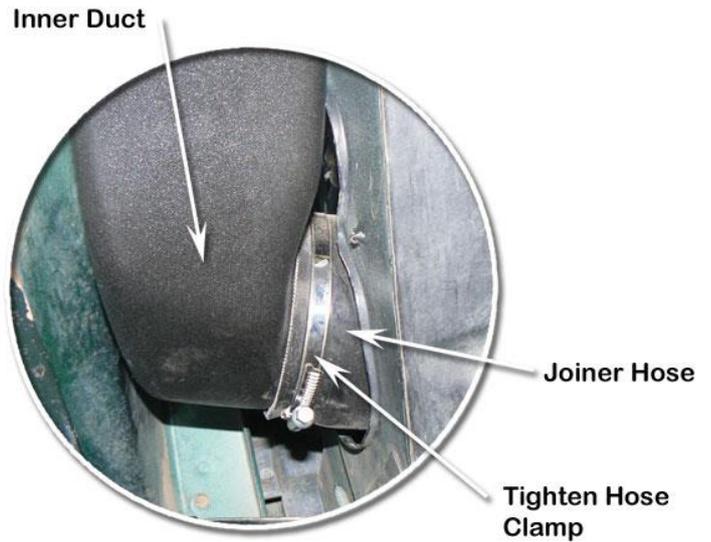
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Ensure that the inner duct is hard up against the snorkel body. With the inner duct correctly positioned, secure to the snorkel body using a 4.2mm x 16mm self tapping screw (Item 10).



28

Ensure that the inner duct (Item 3) is correctly positioned into the joiner hose (Item 13) and tighten the 90/110mm hose clamp (Item 14) as shown.



29

Loosely install the black hose clamp (Item 16) to the base of the air ram (Item 2) and install the air ram onto the snorkel body. Align the air ram and tighten the black hose clamp (Item 16).



30 Install the LHS fender mounted indicator lamp, LHS inner fender liner and any other items that may have been removed during the snorkel installation process.

31 **It is the installer's responsibility to ensure that all connections are watertight.**