



**4X4 ENGINEERING**

# SS14R SAFARI R-SPEC SNORKEL

Nissan GQ Patrol  
2.8L 6 Cylinder Diesel (RD28T Engine)



01/04/2015

## Parts List

ITEM	PART NO	DESCRIPTION	QTY
1	470-133-300R	BODY - SNORKEL	1
2	000-135-800	3 1/2" AIR RAM ASSEMBLY	1
3	470-032-200	BRACKET - UPPER MOUNTING	1
4	000-002-100	BOLT - HEX - S/S - 6mm x 1.0 x 14mm (SEMS)	3
5	000-951-300	SCREW - S/T - 4.2mm x 16mm - S/S	3
6	000-960	INSERT - PLASTIC	3
7	000-110	STUD - S/S - 8mm x 1.25 x 25mm	7
8	000-311-300	WASHER - BODY - S/S - 8mm x 32mm	7
9	000-205-300	NUT - NYLOC - S/S - 8mm x 1.25mm	7
10	475-123-000	DUCT - AIR CLEANER	1
11	000-958-500	POP RIVET - 4.8mm x 15.75mm	6
12	000-910	CLAMP - HOSE - 90/110mm	1
13	470-017-500	FIXTURE - HOLES AW CENTRE	1
14	000-914/B	CLAMP - HOSE - No. 56 (BLACK)	1
15	470-017-200	TEMPLATE - GUARD PANEL	1
16	475-017-200	TEMPLATE - AIR CLEANER HOUSING	1

## Installation Guide

**Fitment to:**

- Left Hand Side

**Fitting Time:**

- 180min

**Special Tools:**

- 105mm hole saw
- 150mm long hole saw arbour
- 5.0mm & 6.5mm drill bits
- Body Saw (reciprocating)
- Step drill
- Heat gun
- Masking tape
- Prep-wash
- Sikaflex 227 (Adhesive Sealant)
- Loctite 243 Threadlocker
- touch-up paint
- Black Spray Paint (Satin Black)
- Pop rivet gun

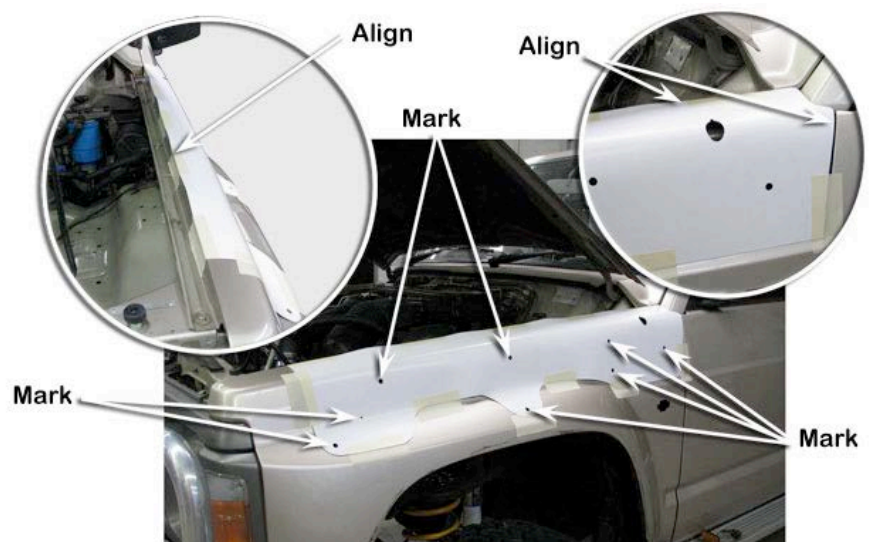
**Prior to commencing the installation, it is the installer's responsibility to verify that all components and particularly the template (Item 15) are correct.**

- 1 Remove the following in accordance with the factory service manual.
  - LHS Flare (if fitted to vehicle)
  - LHS mud flap
  - Inner guard liner
  - Radiator overflow bottle
  - LHS guard mounted indicator
  - Air cleaner Housing
  - Radio antenna
  - Air cleaner housing rear mounting bracket

2

Align the template (Item 15) with the upper and rear edges of the left hand guard panel. Tape the template to the guard panel with masking tape.

Mark all of the hole positions with a felt tip pen and remove the template.

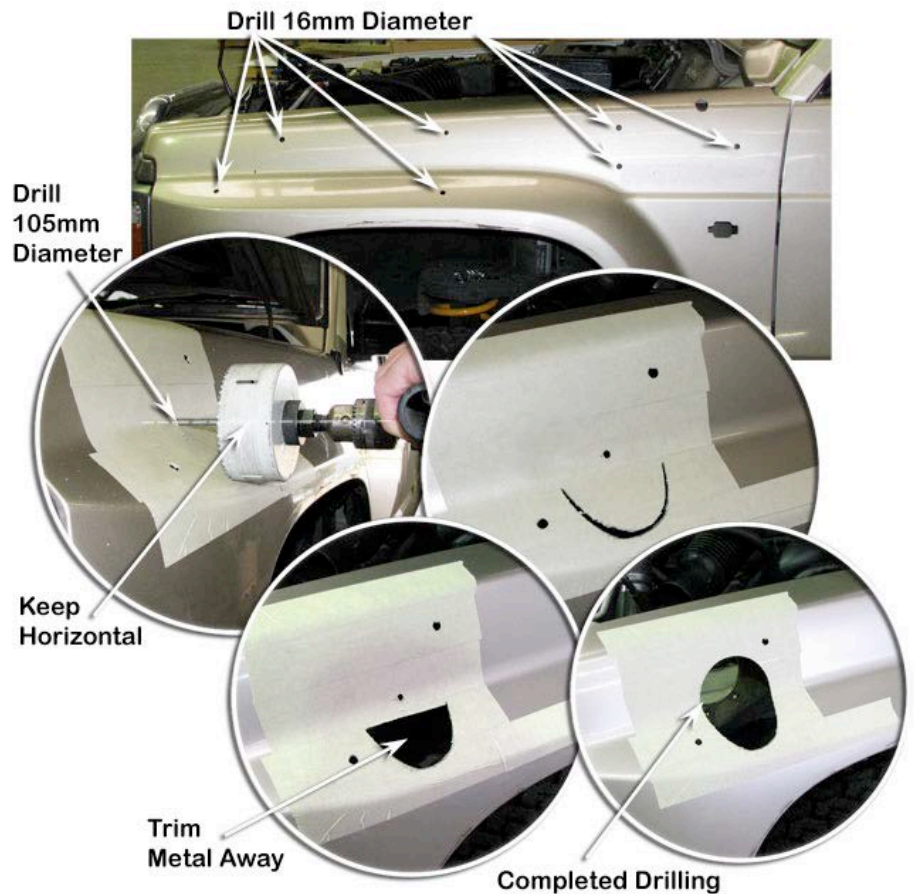


- 3** Drill a pilot hole for each of the marked positions.

Use the step drill to drill the 7 mounting holes to 16mm diameter.

Drill the snorkel body outlet hole with the 105mm hole saw with the long arbour installed and keep the drill horizontal at all times whilst drilling the snorkel body outlet hole in the guard panel.

The hole saw will bottom out while cutting this hole, so you will need to stop and trim some of the metal out of the lower part of the hole with the body saw as shown. Take care to not trim away any part of the hole saw centre hole section.

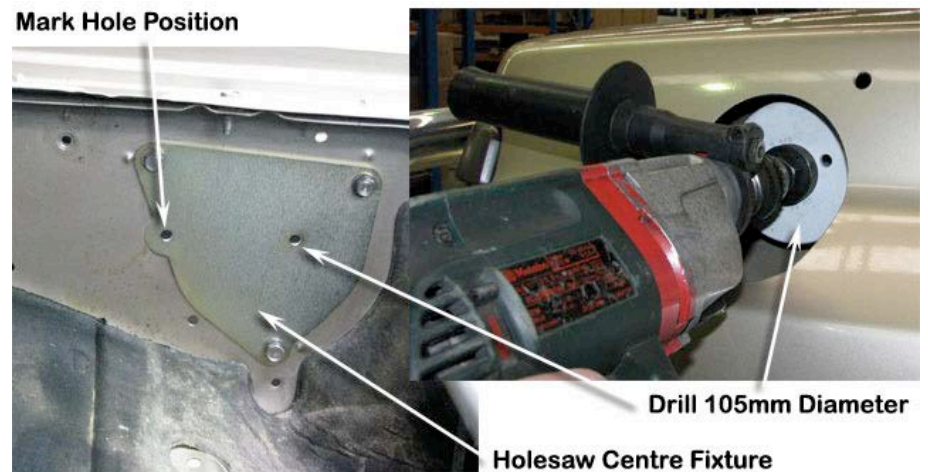


- 4** Install the hole saw centre fixture (Item 13) over the hole in the inner guard panel and fasten to the panel with hex bolts (Item 4).

Mark the hole position onto the inner guard panel.

Drill through the inner guard panel as shown with a 105mm diameter hole saw using the fixture's central hole as a locating guide.

Remove and discard the hole saw centre fixture and retain 2 of the 3 hex bolts (Item 4) for later use.





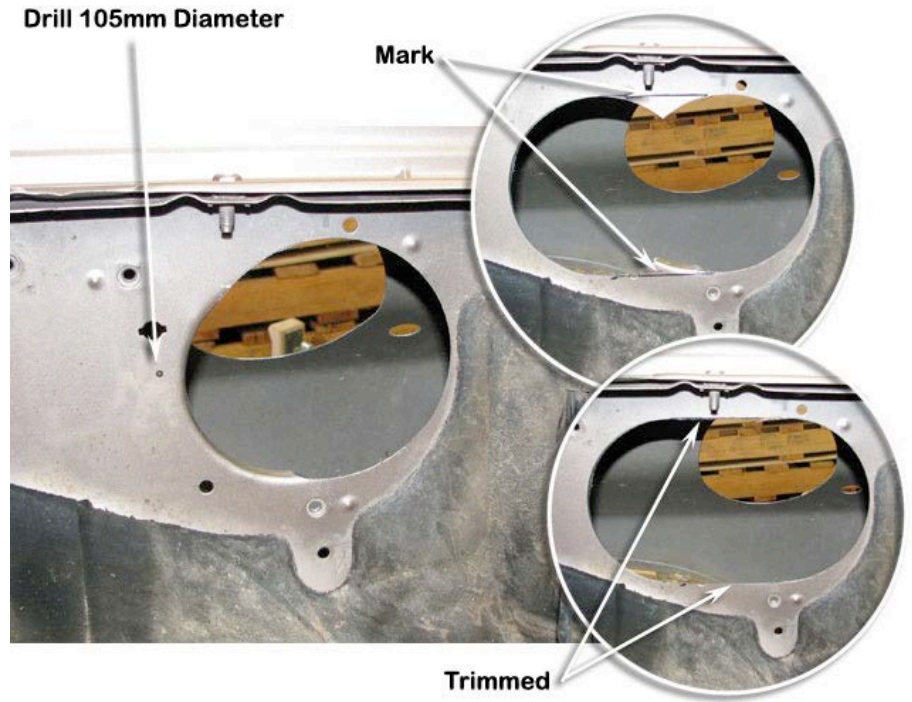
**5**

Drill a pilot hole at the previously marked hole position.

Use a 105mm diameter hole saw to drill the hole in the inner guard panel and mark a straight line top and bottom between the two 105mm diameter holes.

Use a body saw to trim the section of panel shown between the two 105mm diameter holes.

Deburr and paint all holes hole to prevent rust.



**6**

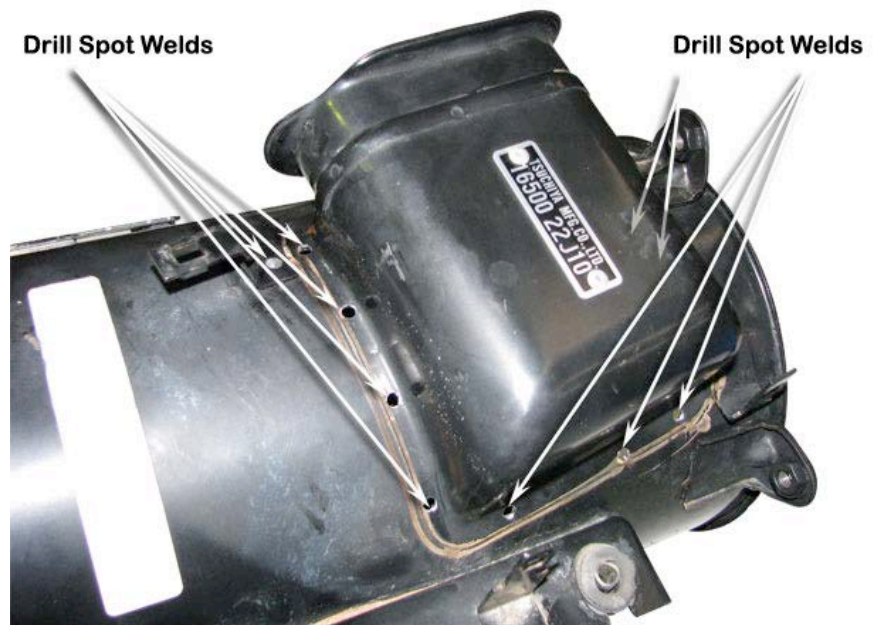
Remove the air cleaner housing lid, air cleaner element, vacuum solenoids (if fitted) and vacuum hoses from the air cleaner housing body.

Carefully drill a pilot hole in the centre of each of the spot welds that secure the air inlet and vacuum hose mounting bracket to the air cleaner housing body as shown.

Use a 5mm drill bit to drill out all the pre-drilled spot welds.

**HINT:** Try not to drill all the way through the air cleaner housing body.

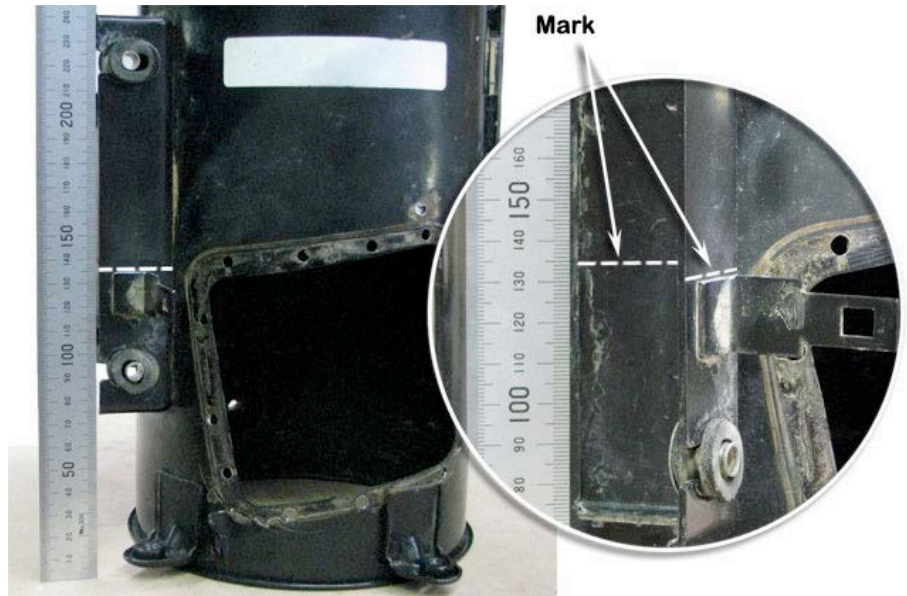
Use a flat blade screwdriver or small pry bar to carefully remove the air inlet duct and the bracket from the air cleaner housing body.



7

Stand the air cleaner housing body up vertically on a flat surface.

Measure up 135mm and mark the side mounting bracket as shown.

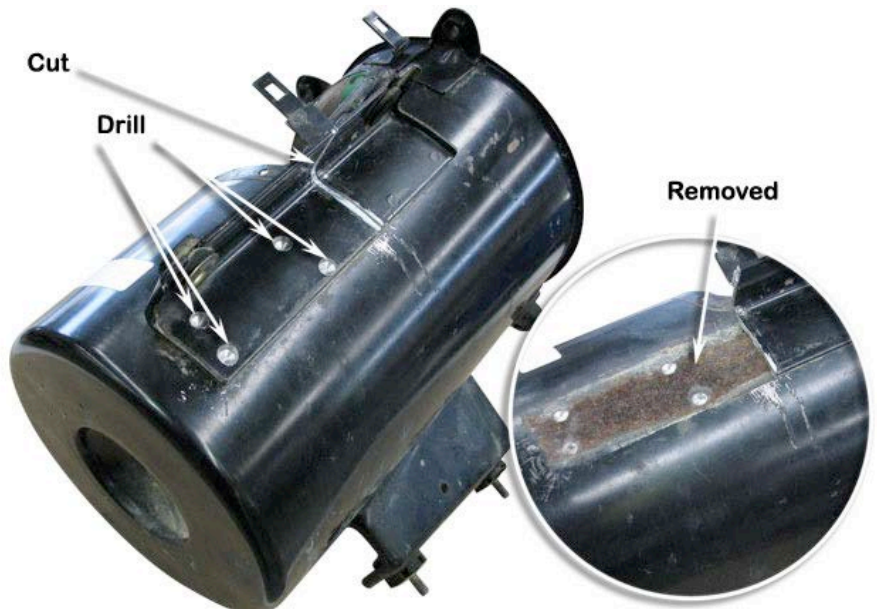


8 Use the body saw to cut through the bracket at the marked position (extreme care must be taken to ensure that the air cleaner housing body is not damaged during the cutting process).

Carefully drill a pilot hole in the centre of each of the spot welds in the section of bracket that is to be removed and use a 6.5mm drill bit to drill out the spot welds.

HINT: Try not to drill all the way through the air cleaner housing body.

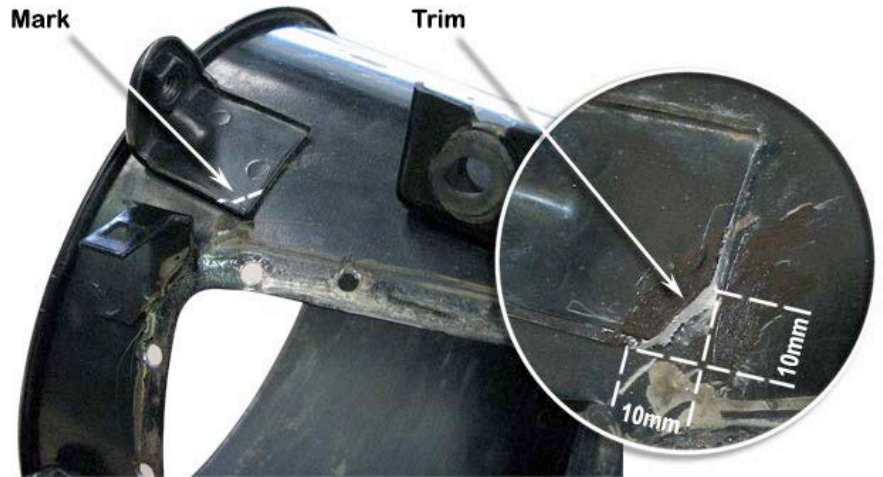
Use a flat blade screwdriver or small pry bar to carefully remove the bracket from the air cleaner housing body.





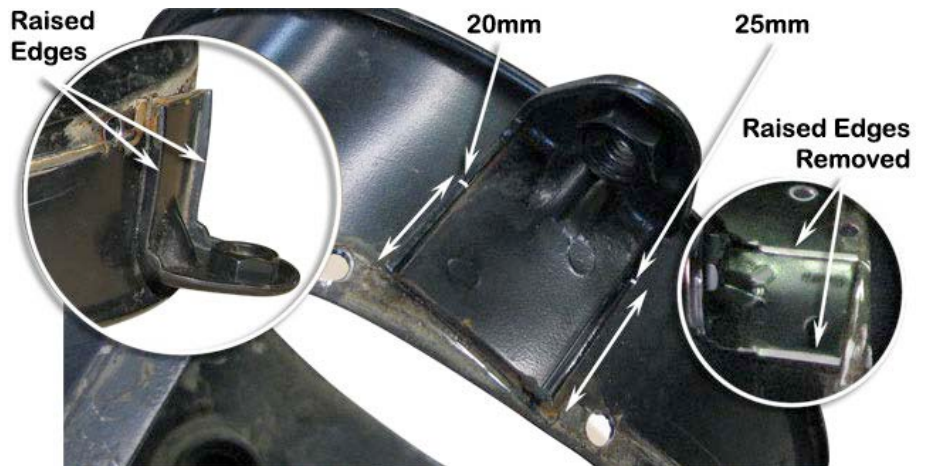
9

Mark a diagonal line across the corner of the air cleaner lid retaining bracket 10mm from the corner and trim as shown.



10

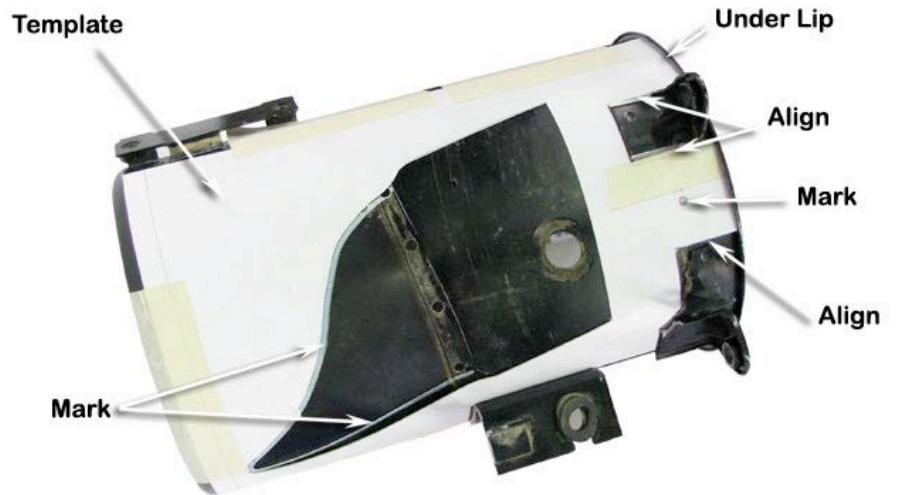
Mark the raised edge of the top air cleaner lid retaining bracket 20mm on the front edge and 25mm on the rear edge. Use a file or grinder to remove both raised edges from the bracket as shown.



11

Align the air cleaner housing template (Item 16) onto the air cleaner housing body and ensure that the template is positioned under the roll lip of the housing.

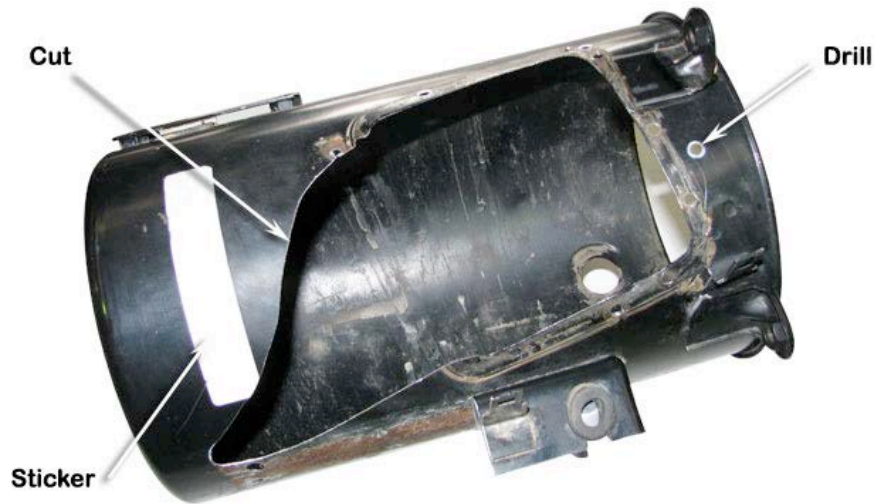
With the template correctly positioned, secure the template in place with masking tape and mark the required cut out section and hole position.



**12** Remove the template and drill a 5.0mm diameter hole at the marked position.

Use a body saw to trim away the marked section of the air cleaner housing body.

Remove the service sticker and clean off any sticky residue with prep wash or similar solvent.



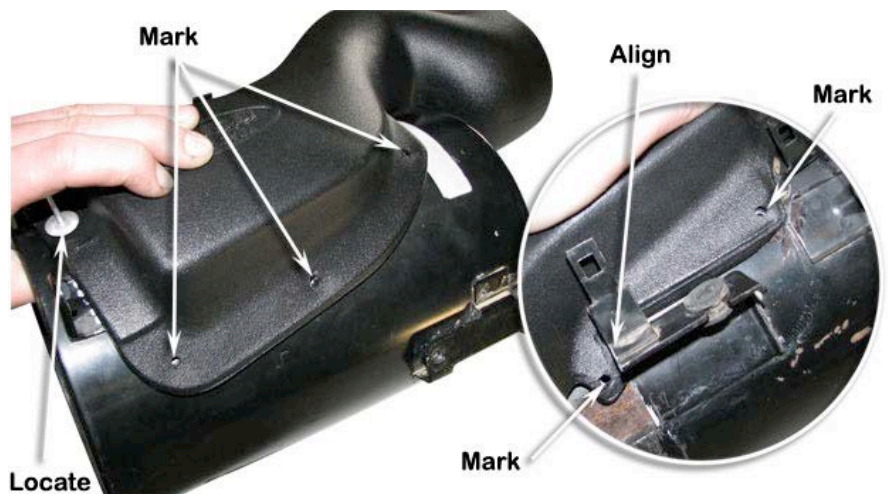
**13** Position the air cleaner duct (Item 10) onto the air cleaner housing body and locate the duct by inserting a pop rivet (Item 11) to the previously drilled 5.0mm hole.

Push down firmly onto the duct to locate it onto the air cleaner housing body. With the duct correctly positioned, mark the remaining five mounting hole positions onto the air cleaner housing body.

Remove the duct and drill the marked hole positions with a 5.0mm drill bit.

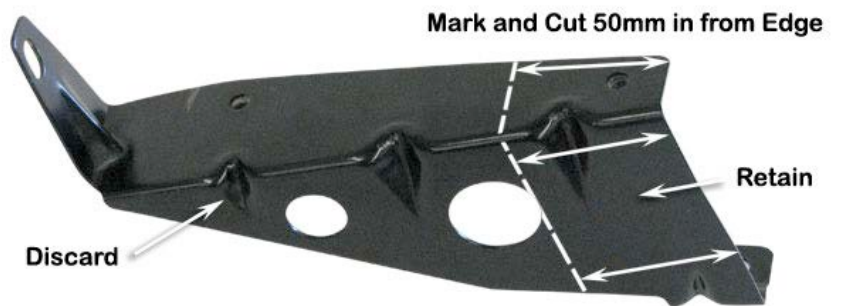
Deburr all areas of the air cleaner housing that have been cut or drilled and prepare for painting.

Use the satin black spray paint to paint the air cleaner housing body.



- 14** Mark 50mm from the edge shown on the air cleaner housing rear mounting bracket. Cut the bracket along the marked line and retain the 50mm section.

Deburr and paint the modified bracket.



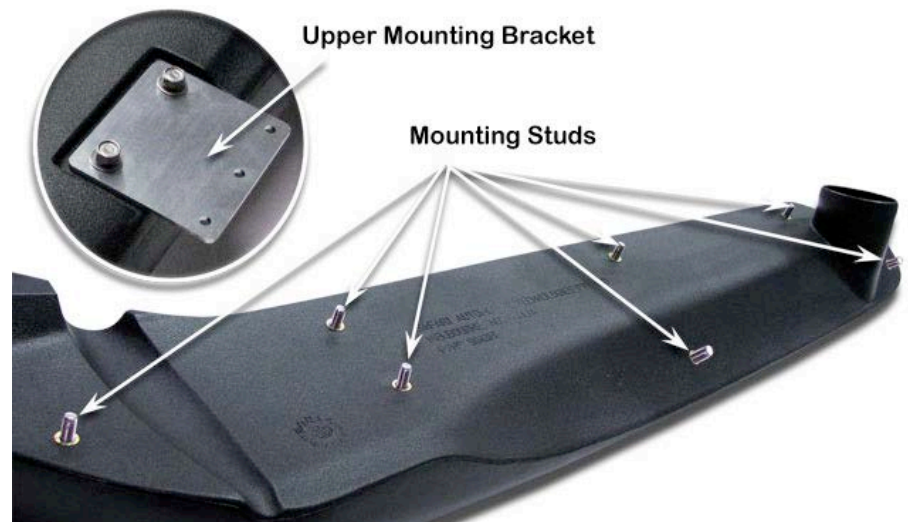
- 15** Trial fit the air cleaner duct entry (Item 10) over the snorkel body outlet (Item 1) and ensure that the two parts are a slip fit.

If the connection is too tight, use emery cloth or abrasive flap wheel to remove the high spots from the inner mating surface of the air cleaner duct (Item 10).



**16**

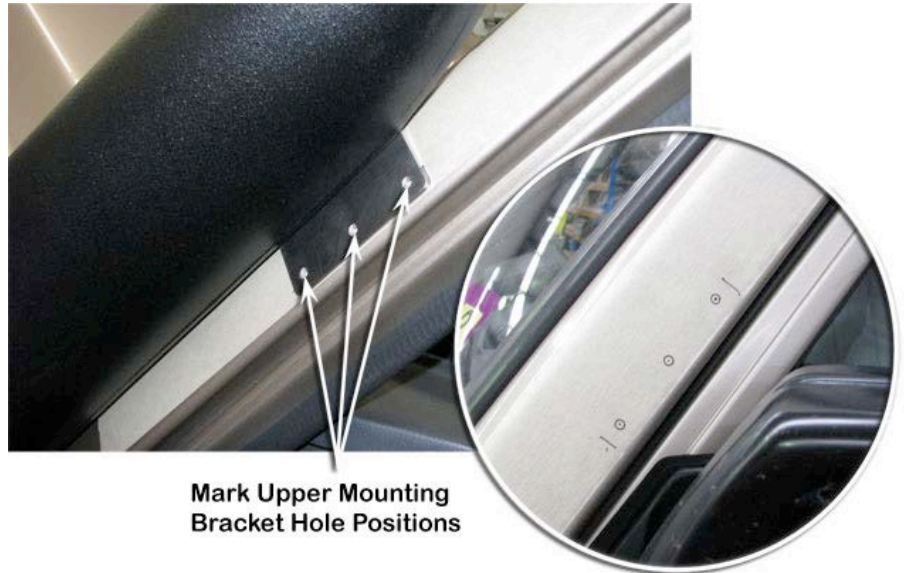
Install the upper mounting bracket (Item 3) to the snorkel body (Item 1) with hex bolts (Item 4). Apply Loctite 243 to each of the mounting studs (Item 7) and install the studs finger tight into the snorkel body (Item 1) mounting inserts.





17

Place a strip of masking tape along the A-Pillar and install the snorkel body (Item 1) to the guard panel. When the snorkel body is correctly positioned, mark the 3 upper mounting bracket hole positions (Item 3) onto the masking tape as shown.



Mark Upper Mounting Bracket Hole Positions

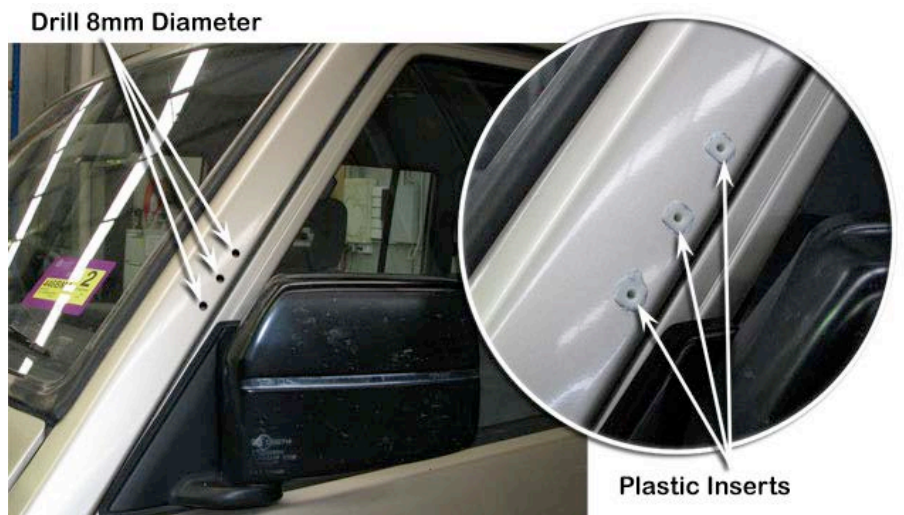
18 Remove the snorkel body (Item 1) from the vehicle.

Drill a pilot hole for each of the 3 marked hole positions on the A-Pillar.

Drill each hole to 8mm diameter.

Deburr and paint holes to prevent rust.

Install the 3 plastic inserts (Item 6) into the upper mounting bracket holes in the A-Pillar.



Drill 8mm Diameter

Plastic Inserts

19 Apply adhesive sealant to the air cleaner duct mounting flange.

Install the air cleaner duct (Item 10) to the air cleaner housing body and insert all six pop rivets through the duct and air cleaner housing.

Secure the pop rivets with the pop rivet gun and clean up any excess adhesive sealant.

Pop Rivets



Air Cleaner Duct

Adhesive Sealant

20

Install the air cleaner back into the engine bay with the standard fasteners and place a 90/110mm hose clamp (Item 12) loosely over the end of the air cleaner duct as shown.

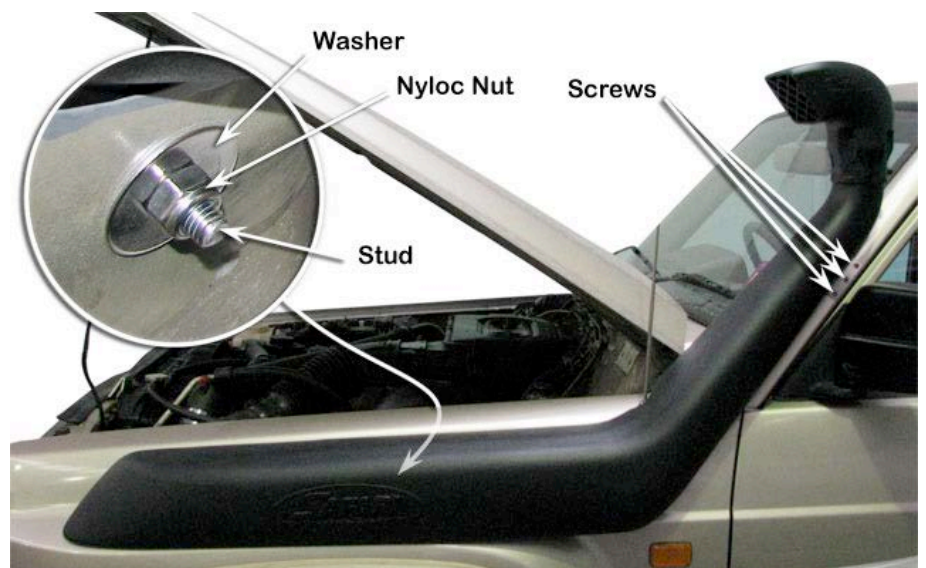


21 Apply adhesive sealant to the outer mating surface of the snorkel body outlet and to the inner mating surface of the air cleaner duct inlet.

Install the snorkel body to the guard panel whilst guiding the snorkel body outlet into the air cleaner duct.

With the snorkel body correctly positioned, fasten to the guard panel using a body washer (Item 8) and Nyloc nut (Item 9) on each of the stainless steel mounting studs (Item 7).

Fasten the upper mounting bracket to the A-Pillar with 3 stainless steel screws (Item 5).

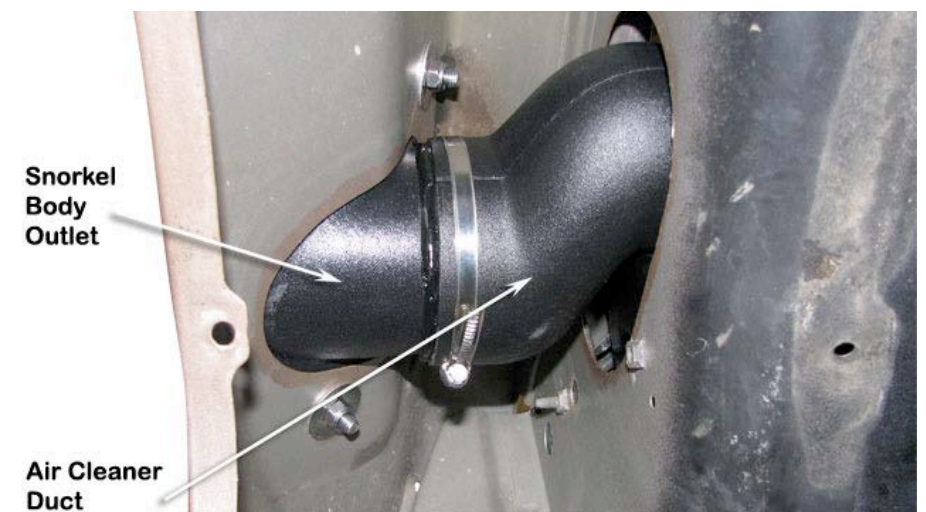


22

Ensure that the snorkel body outlet is well placed inside the air cleaner duct.

Tighten the 90/110mm hose clamp (Item 12)

Clean up any excess adhesive sealant.





23

Reinstall the vacuum solenoids, hoses, brackets etc. that were removed during the installation process.

Reinstall the air filter element and air cleaner lid.

Reconnect the air cleaner outlet hose.

Install the radiator coolant overflow bottle.



24

Loosely install the black hose clamp (Item 14) to the base of the air ram (Item 2) and install the air ram to the snorkel body (Item 1). Align the air ram and tighten the hose clamp (Item 14).



25

Install the guard panel mounted indicator, radio antenna, inner guard liner, flare, mud flap (and any other items that may have been removed) in accordance with the factory service manual.

26

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