



## NISSAN R35 GTR FRONT MOUNTED INTERCOOLER INSTALLATION



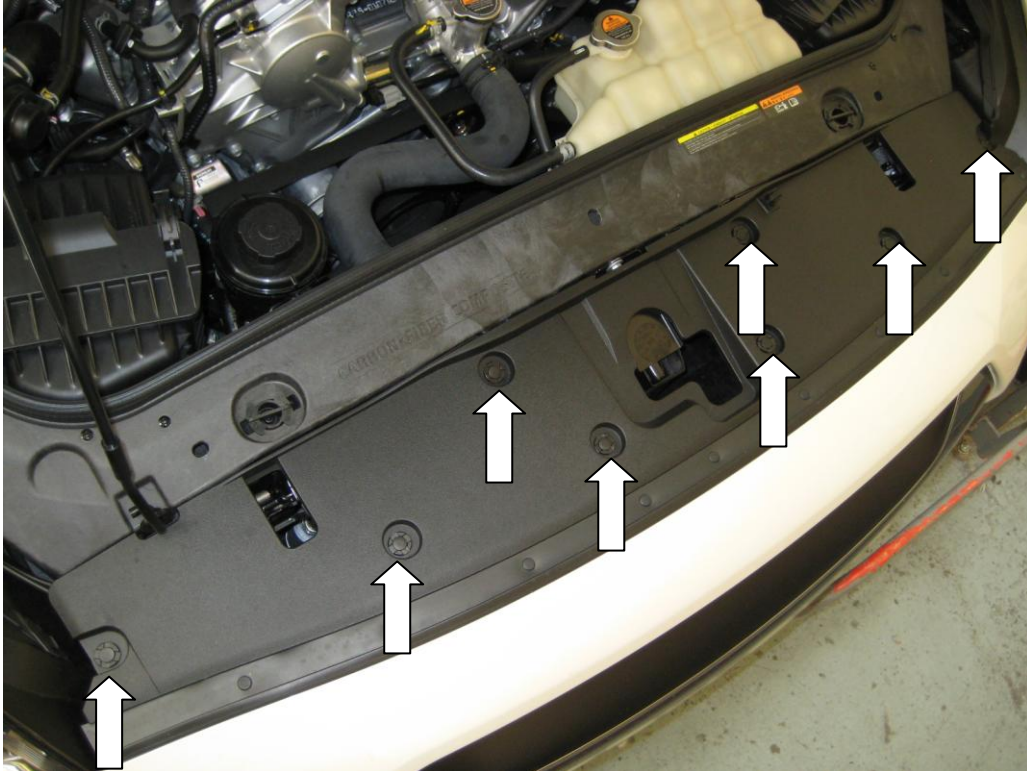
### **TOOLS NEEDED**

7mm hose clamp driver

10mm/12mm/13mm socket and 3/8" or 1/4" ratchet with extensions

Small and large flat blade screwdriver

1. Position the car ideally on a 2 post lift, or jack it up using the middle jacking point under the engine and support on axle stands at the jacking points on the sills. Removing both front road wheels and arch liners may make installation easier but it's not necessary.
2. Remove the 8 push in clips between the slam panel and the bumper and remove the trim from the car.



3. Pop the side repeaters out of the ends of the bumper by inserting a screwdriver behind them and levering out until the metal tab is released, then twist the bulb holder to remove the repeater.





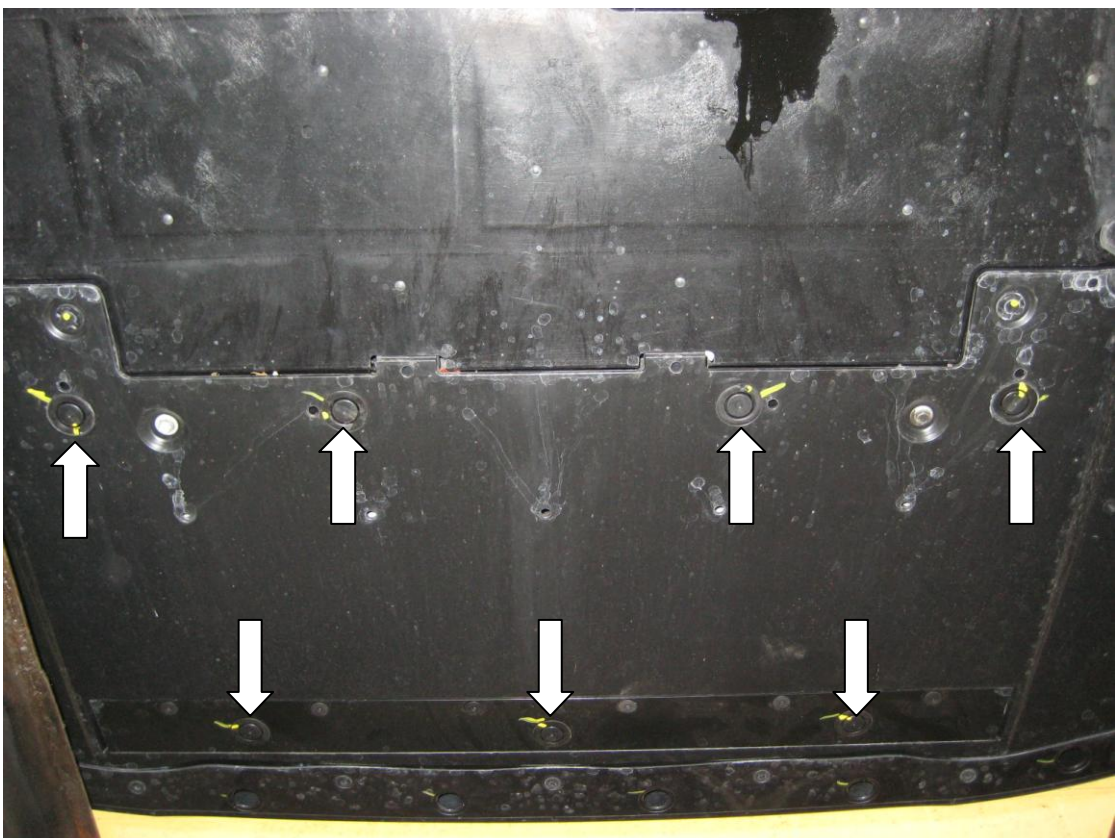
4. Remove the 4 push in clips holding the bottom edge of the arch liner to the bumper, then pull back the edge of the liner from the bumper and undo the single 10mm bolt



5. With the arch liner pulled out of the way, you will be able to easier access the other bolts holding the bumper to the wing. We found it easiest to use a long extension on a 3/8" drive to get onto the bolt.

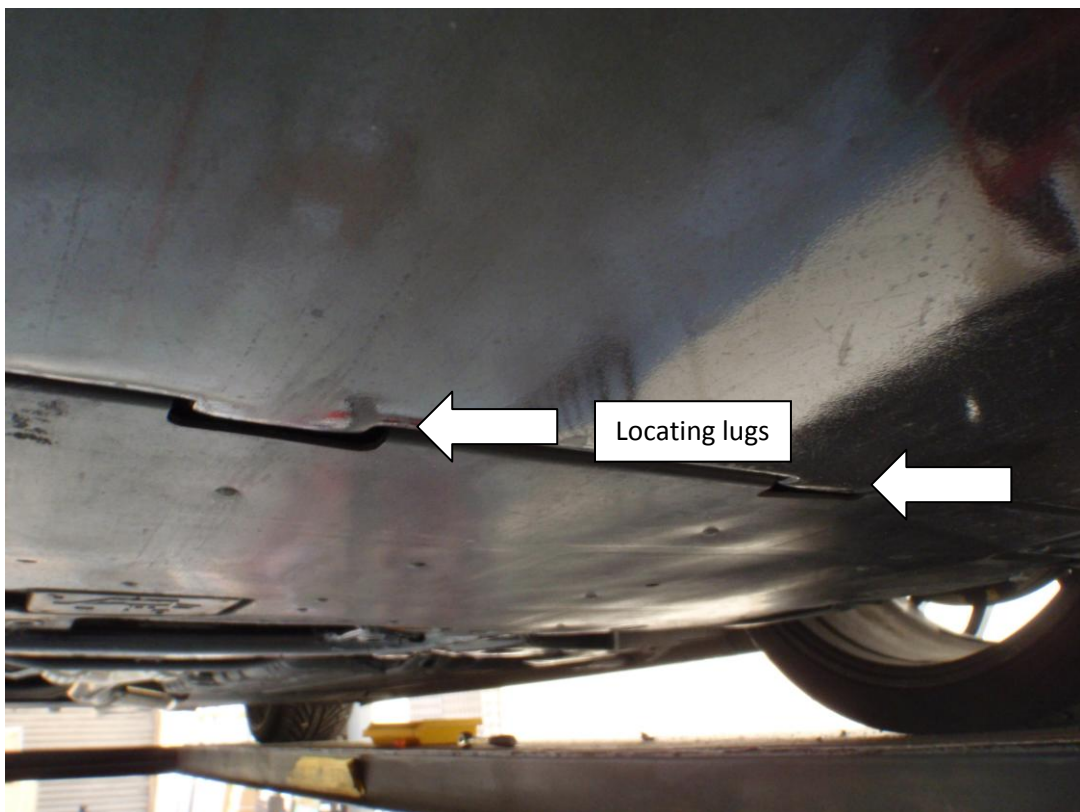


6. Remove the rubber bungs along the front edge of the bumper (10), and the attached undertray (4 at the front, 3 at the rear). You'll notice under the rubber that there is a small slot to enable you to use a small screwdriver to prise them out.

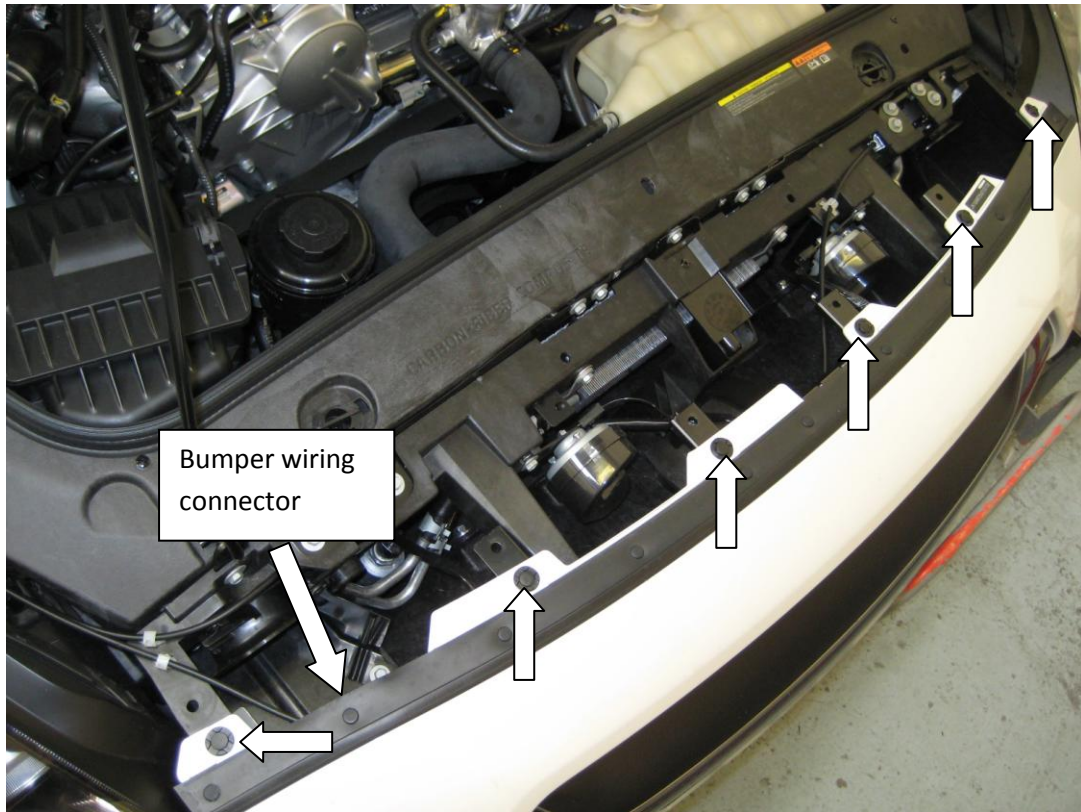




7. Remove the 10mm bolt under each bung. You'll notice that the three bolts at the front of the attached undertray are 12mm, leave these until last. Support the weight of the undertray and remove the 12mm bolts then pull the undertray forwards to release it from the locating lugs at the back and remove it from the car.



8. Back in the engine bay, remove the 6 clips holding the front edge of the bumper to the slam panel, by prising out the centre of the clip with a small screwdriver. Don't touch the wiring yet.



9. Release the edges of the bumper from the clips under the headlights, this can be hard, the most important thing is if you think you're using too much force then the clips themselves can be removed if necessary. See next step.

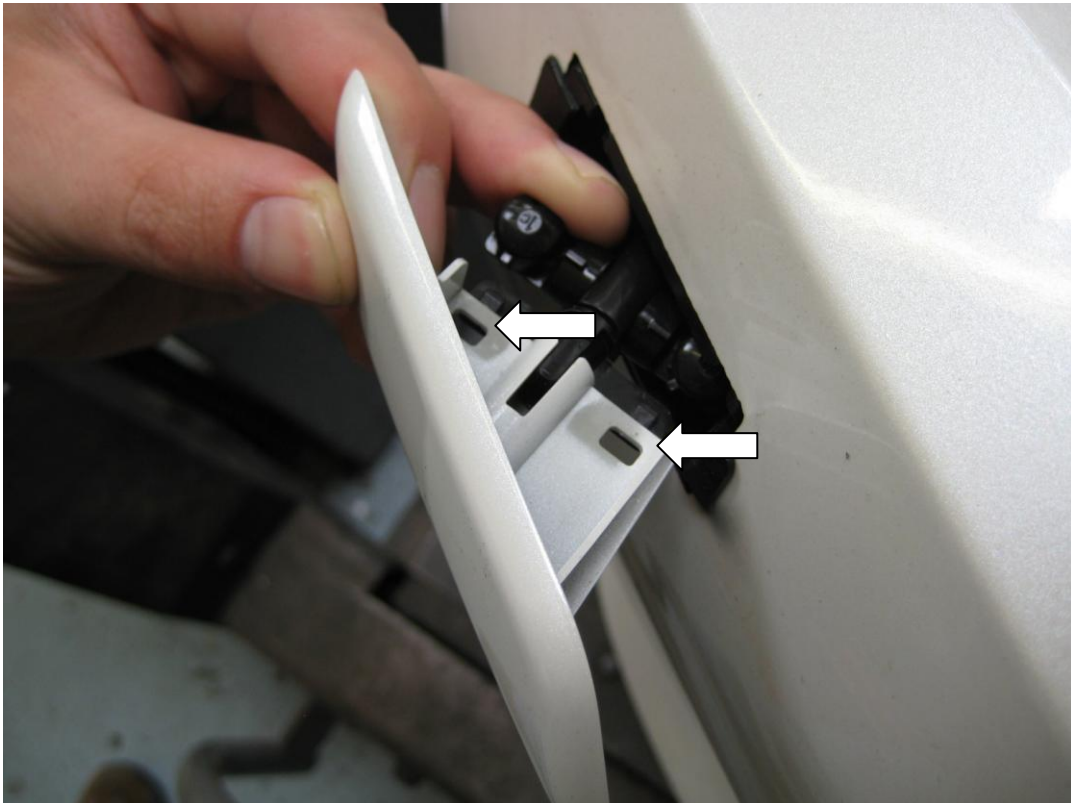




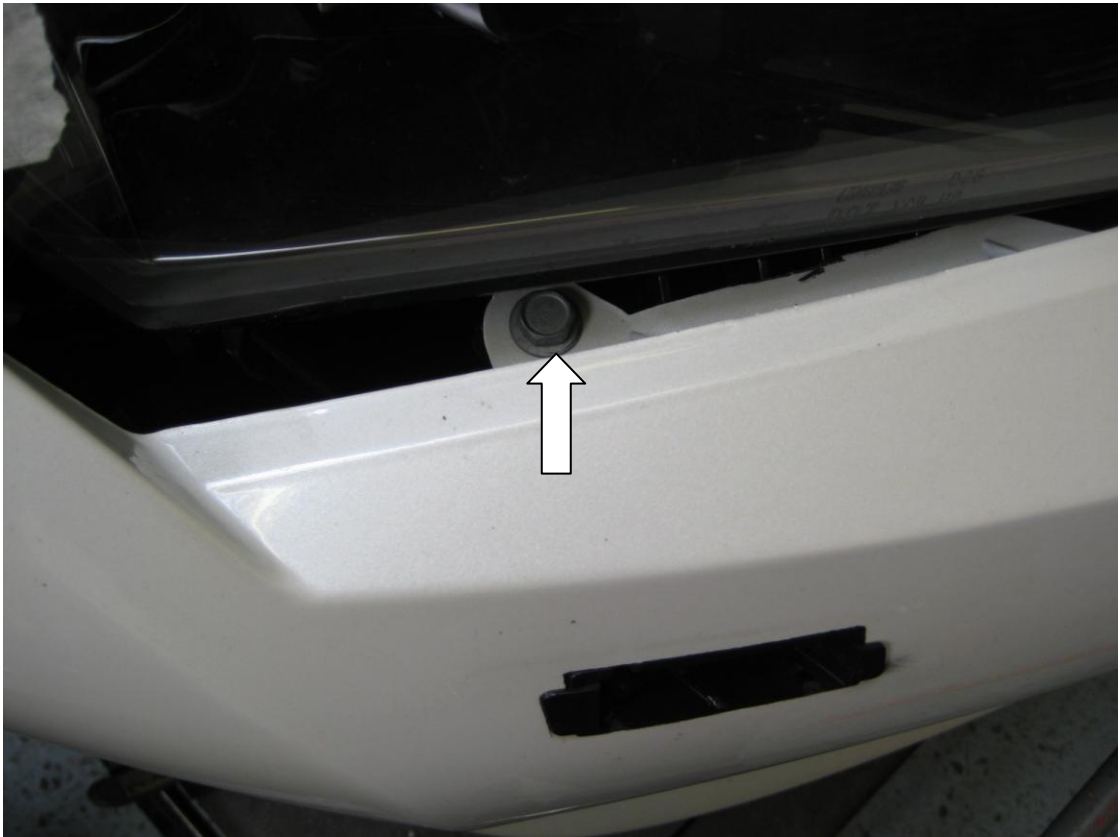
Clips holding the bumper on can be removed if the bumper won't pull off the clips, by removing the two 10mm bolts as shown below.



10. If your car is NOT fitted with headlight washers then please skip this step. Pull the washer out of the bumper using your fingers, then unclip the cover.



Pull the bumper forward and undo the 10mm bolt holding the back of the washer in place



Push the sprung edge of the washer over to release it from the front face of the bumper, then push the washer through the hole.





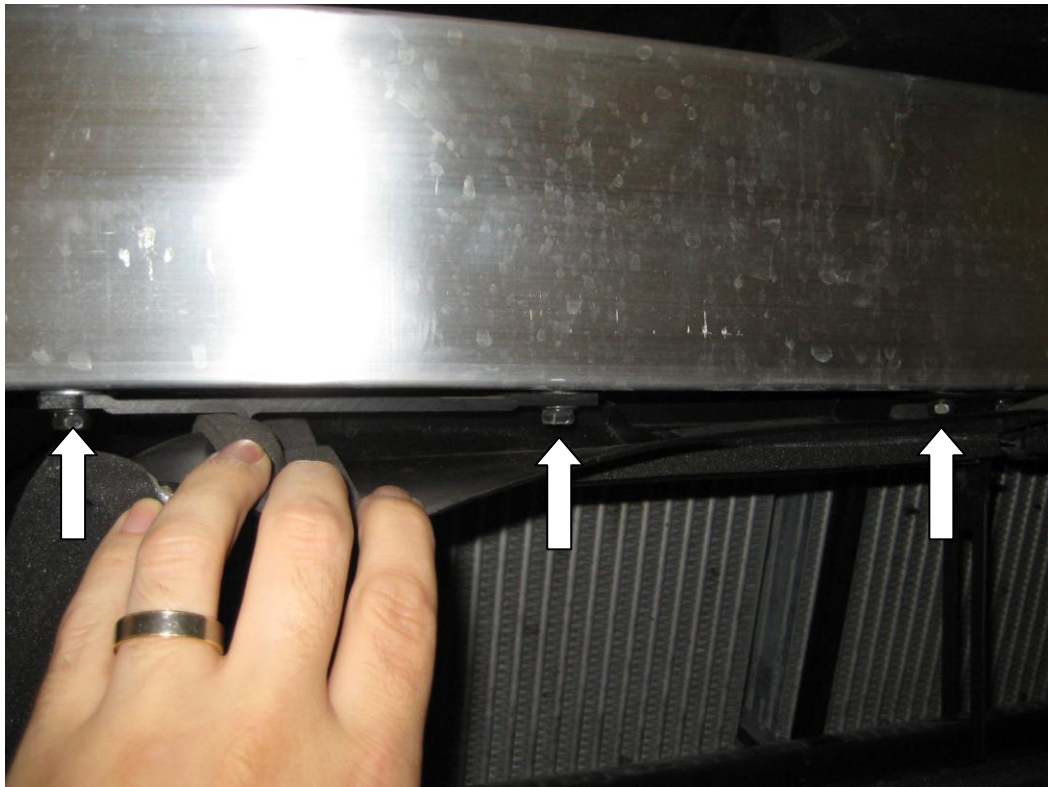
11. Ensure that the ignition is OFF, then separate the plug on the wiring harness to the crash sensors in the front bumper, which can be found on the left side of the slam panel (also see picture in step 4)



12. The bumper can now be withdrawn from the vehicle. TAKE CARE to store the bumper horizontally and not subject it to any impacts i.e. dropping it, as this may break the crash sensors.



13. Remove the ducting over the oil cooler by popping out the four fixings. Remove the polystyrene bumper support by pulling it from the crash bar, then undo the six 10mm bolts on the bottom of the crash bar holding the top of the ducting for the intercooler.



14. Disconnect the headlamp washer hose (if fitted) at the washer reservoir and drain off the fluid. Unbolt the eight long bolts (four each side) that hold the crash bar to the car and remove it.





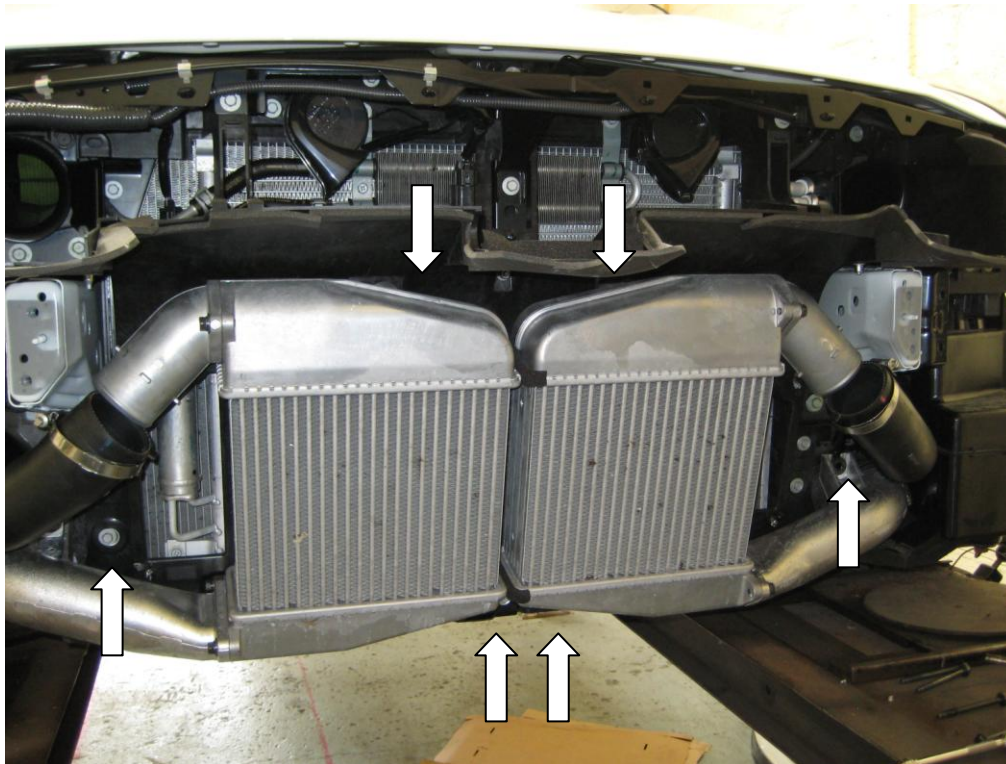
15. Remove the three supports that pass through the intercooler ducting noting their orientation on the brackets.



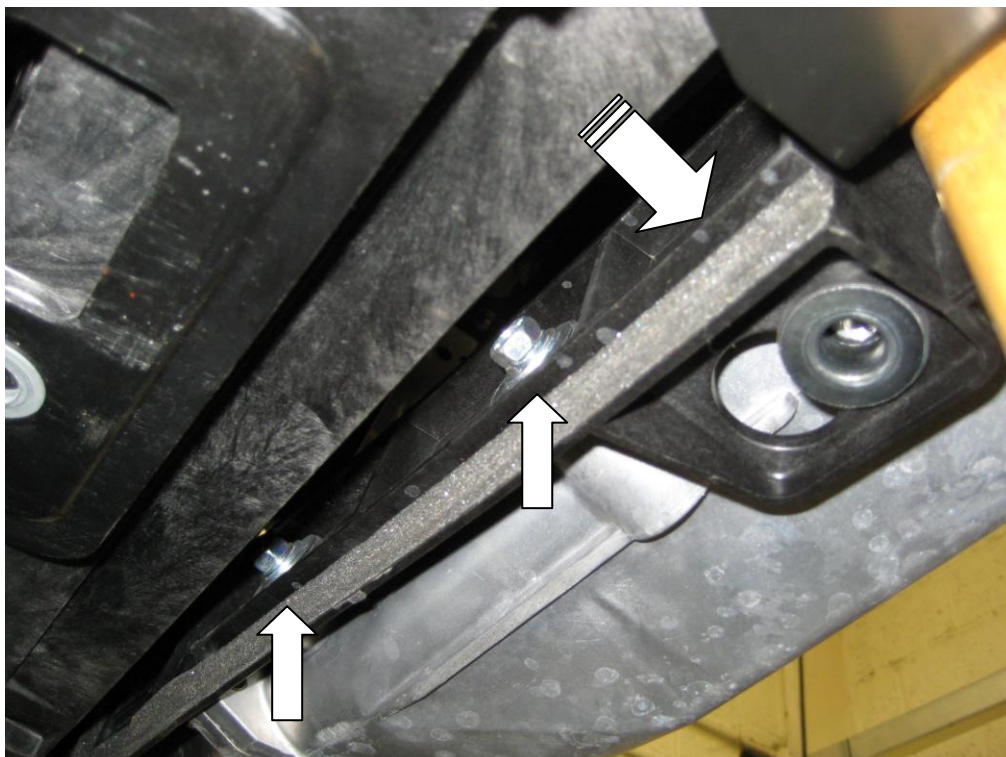
16. Disconnect both bottom intercooler hoses. Remove both top intercooler hoses from the intercoolers to enable access to the rivets holding the intercooler ducting. Remove the heads of the rivets with a chisel or similar, then remove the ducting from the intercooler.



17. Remove the two bolts holding the intercooler inlet pipes to the chassis, the two bolts on the edges of the intercoolers (in the middle of the car) and one of the two top bolts of each intercooler (use a ratchet spanner), leaving one upper bolt to hold the intercoolers in.

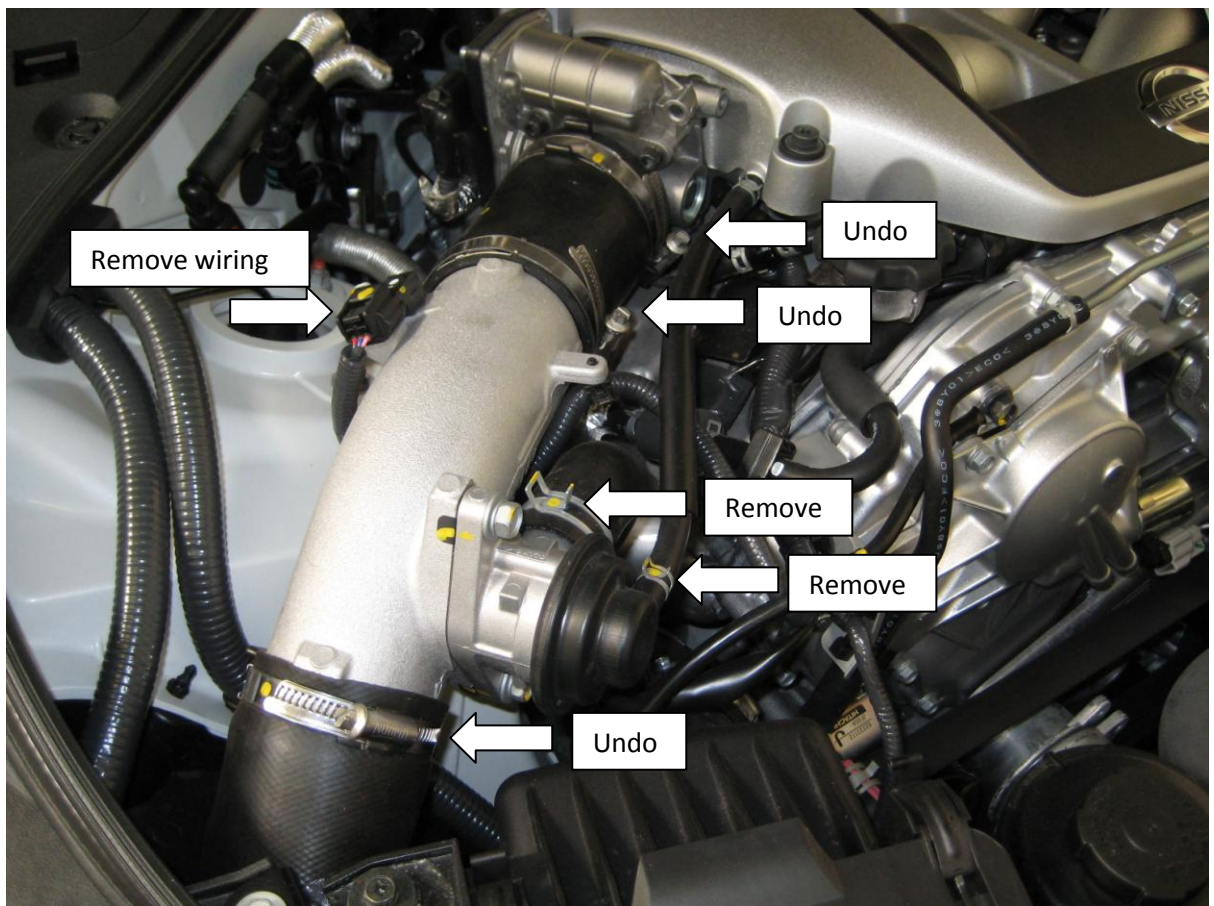


The lower intercooler bolts are behind the radiator plastic cowl – to save removing the whole cowl, undo the lowest six 10mm bolts on the cowl (four across the bottom, and the lowest of the bolts on each side). You can now hold the plastic cowl out of the way whilst you undo the lower four intercooler bolts with a ratchet spanner. Remove the intercoolers and replace the bolts on the cowl. **RETAIN** the intercooler bolts for later use.

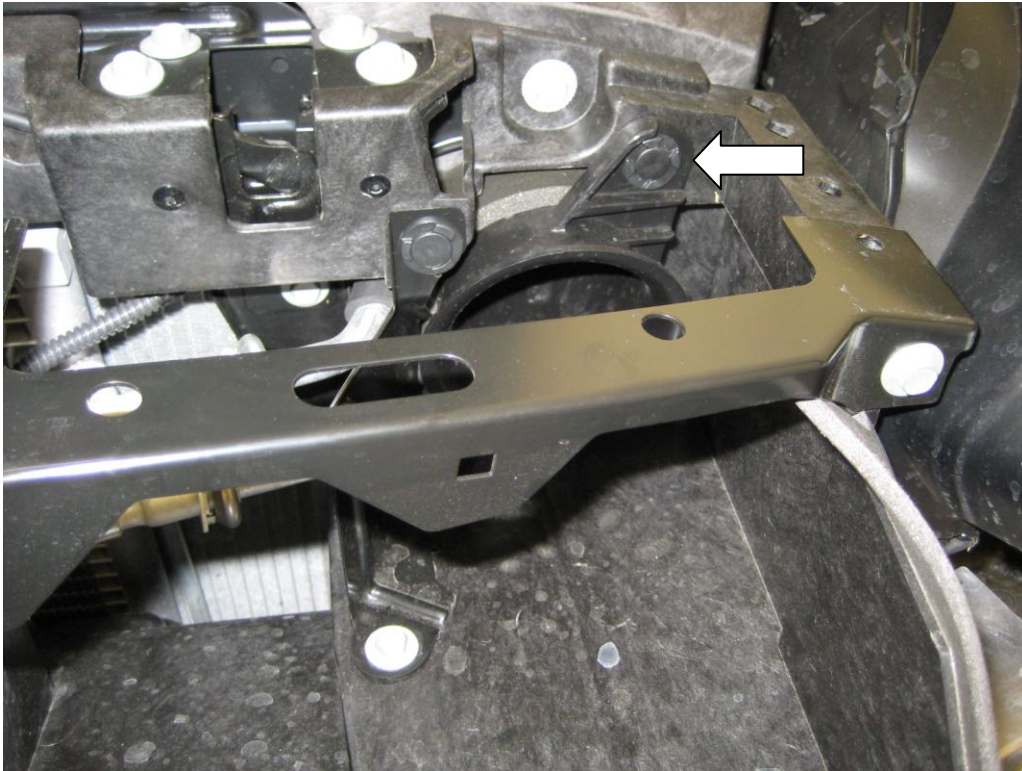




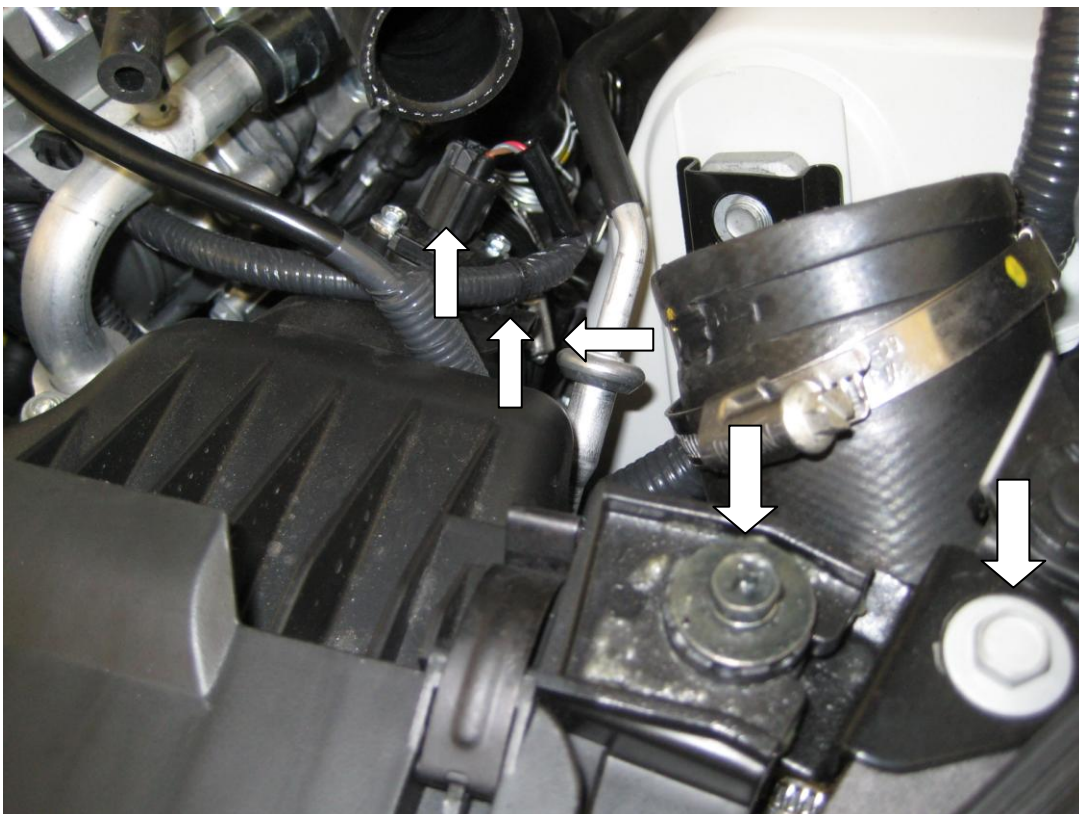
18. From within the engine bay, remove the clips holding the rubber hoses to the turbo outlets on the left and right, then remove the hoses.
19. Remove the stock washer bottle, by first draining the fluid from the bottle into a suitable container, then undoing the wiring to the level sensor (bottom of bottle), windscreen washer pump (back of bottle) and headlamp washer pump (if fitted – right side of bottle). Remove the pipework to the windscreen washer pump and undo (AND KEEP) the bolts holding the bottle to the car. The filler on the top is a push fit and is a tight fit, so you may need to support the tube in the car to prevent it breaking.
20. Working in the engine bay, remove the upper portions of the boost pipework, by undoing the two jubilee clips on the throttle body, and the jubilee clip nearest the air filter. Unclip and remove the dump valve outlet pipe and the dump valve vacuum feed. Remove the wiring to the pressure sensor, and the wiring harness that is attached to the pipe. Remove the upper pipe complete from the car leaving just the rubber hose behind the air filter, then separate the dump valve and pressure sensor for later use. Repeat for both sides of the car.



21. Remove both airfilters, by first removing the inlet inside the front cowl – undo the single clip and withdraw the inlet from the filter.

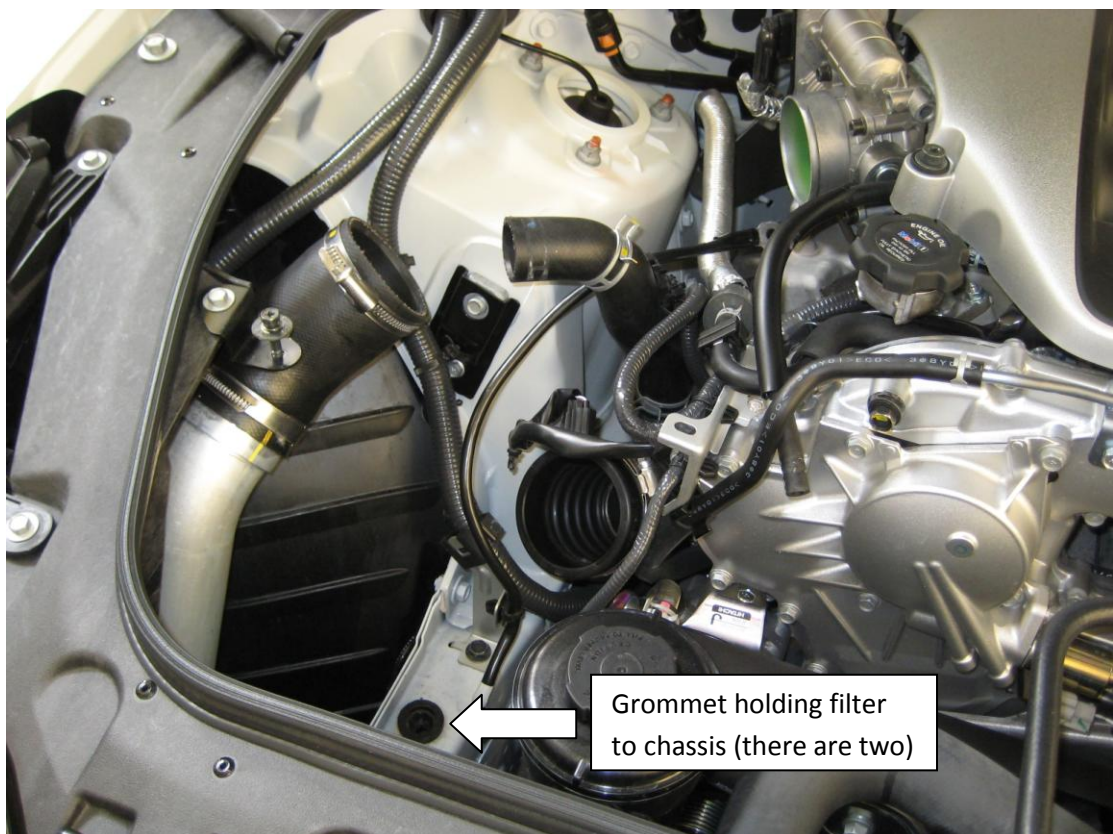
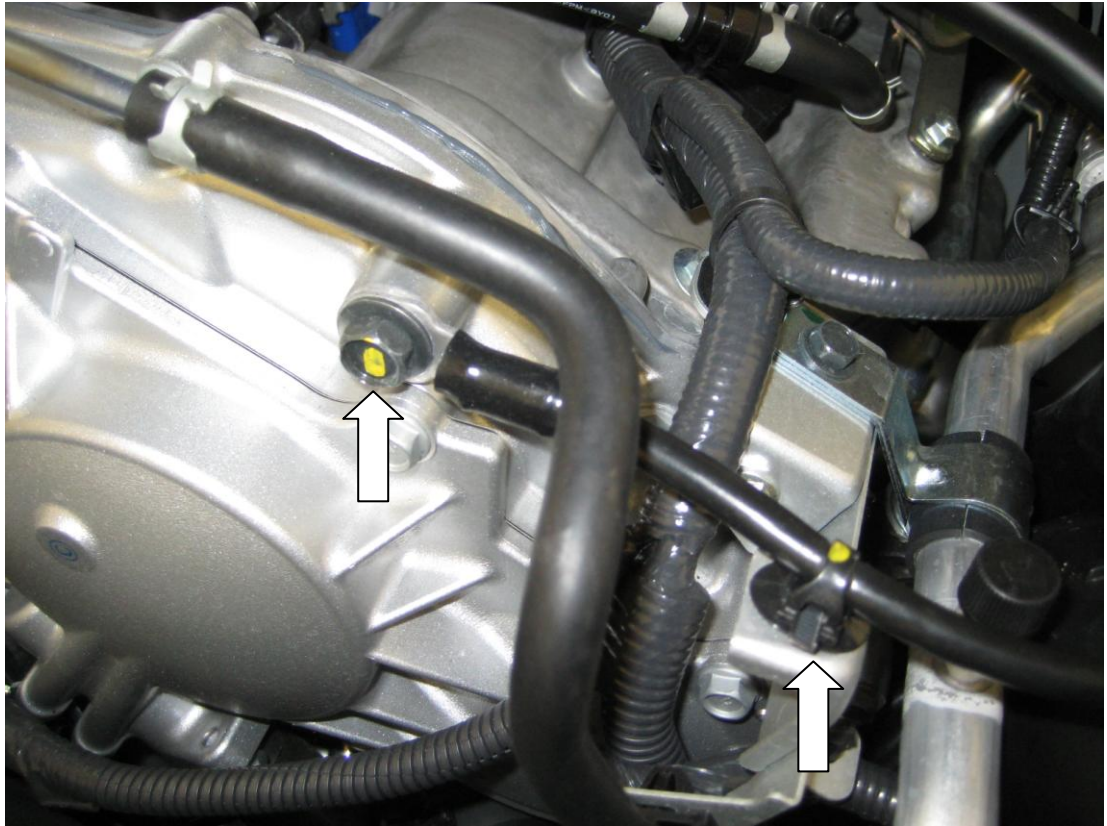


In the engine bay, undo the two 10mm bolts and withdraw the retaining bracket, disconnect the MAF wiring plug and unclip the wiring harness from the filter housing. Loosen the top accessible jubilee clip to the turbo inlet.

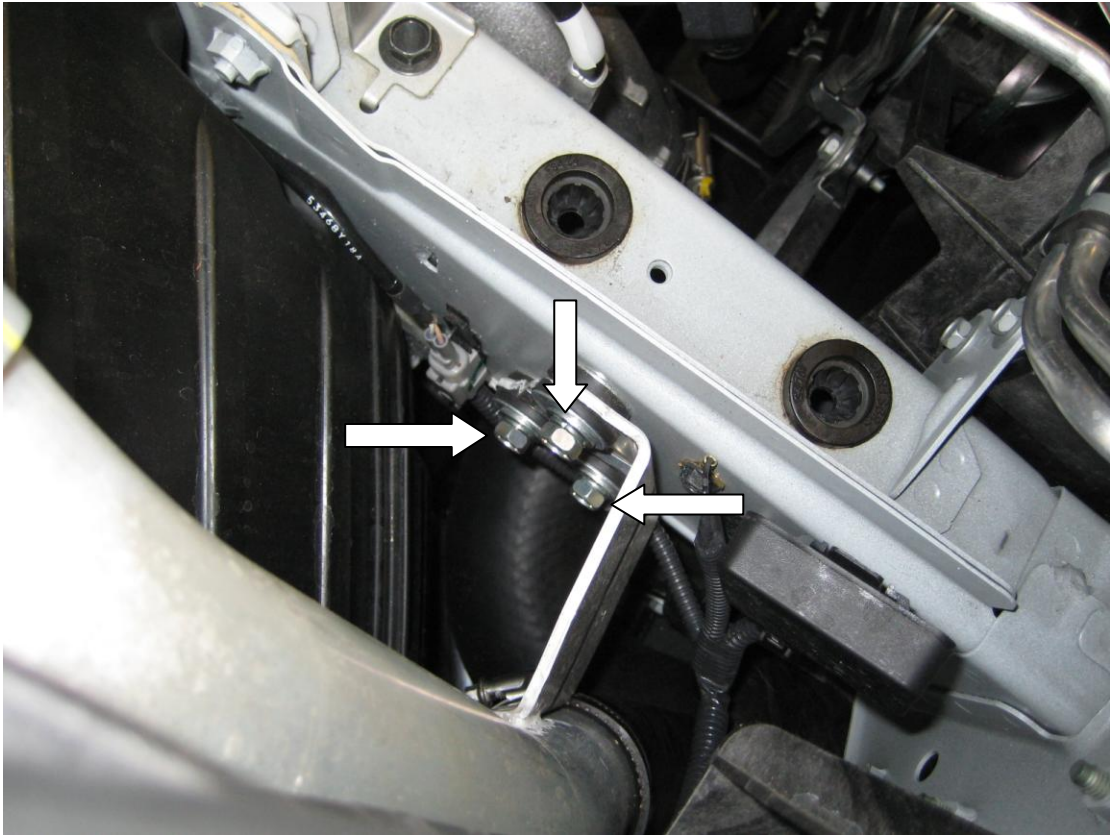




Remove the bolt that secures the earthing cable to the engine block, and the clip holding the wiring to the block which will allow you to pull up the filter housing sharply to release it from the rubber grommets securing it to the chassis. Repeat for both filters.



22. Remove the remainder of the pipework inside the engine bay by undoing the three bolts on each side that secure the pipework to the chassis legs. Withdraw the pipework upwards through the engine bay.



This is the end of disassembly – at this point you should have:

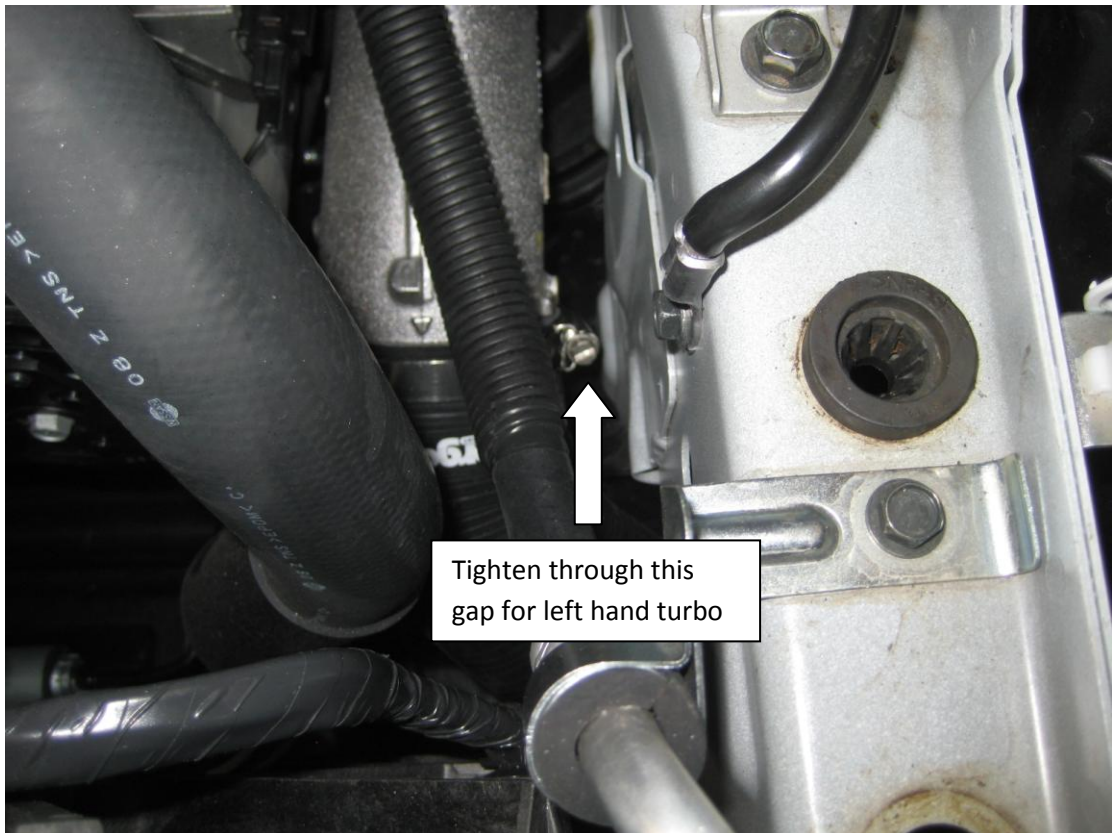
- Removed the front bumper and lower front undertray
- Removed both intercoolers with ducting
- Removed all pipework from the turbo outlets to the throttle body, and removed the dump valves and pressure sensors from them
- Removed both airfilters complete with air flow meters

If not, please read back through the instructions so far and complete the list above.

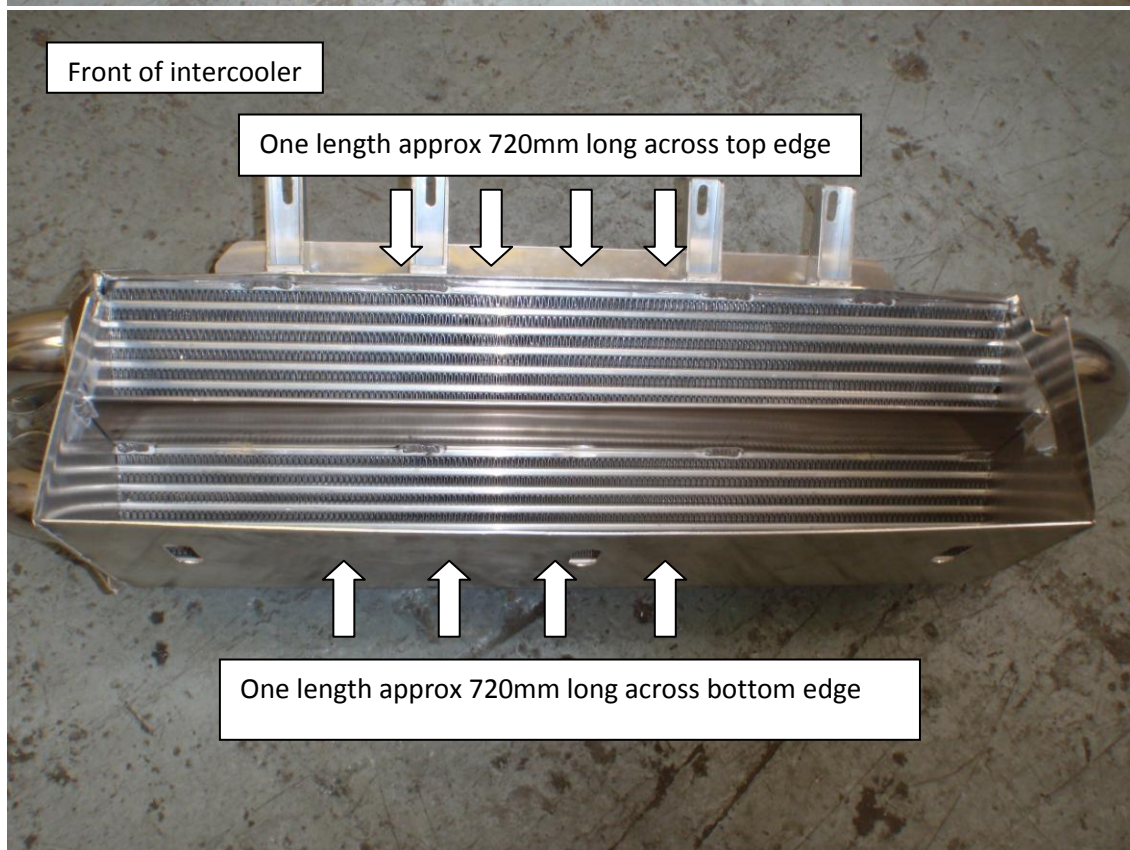
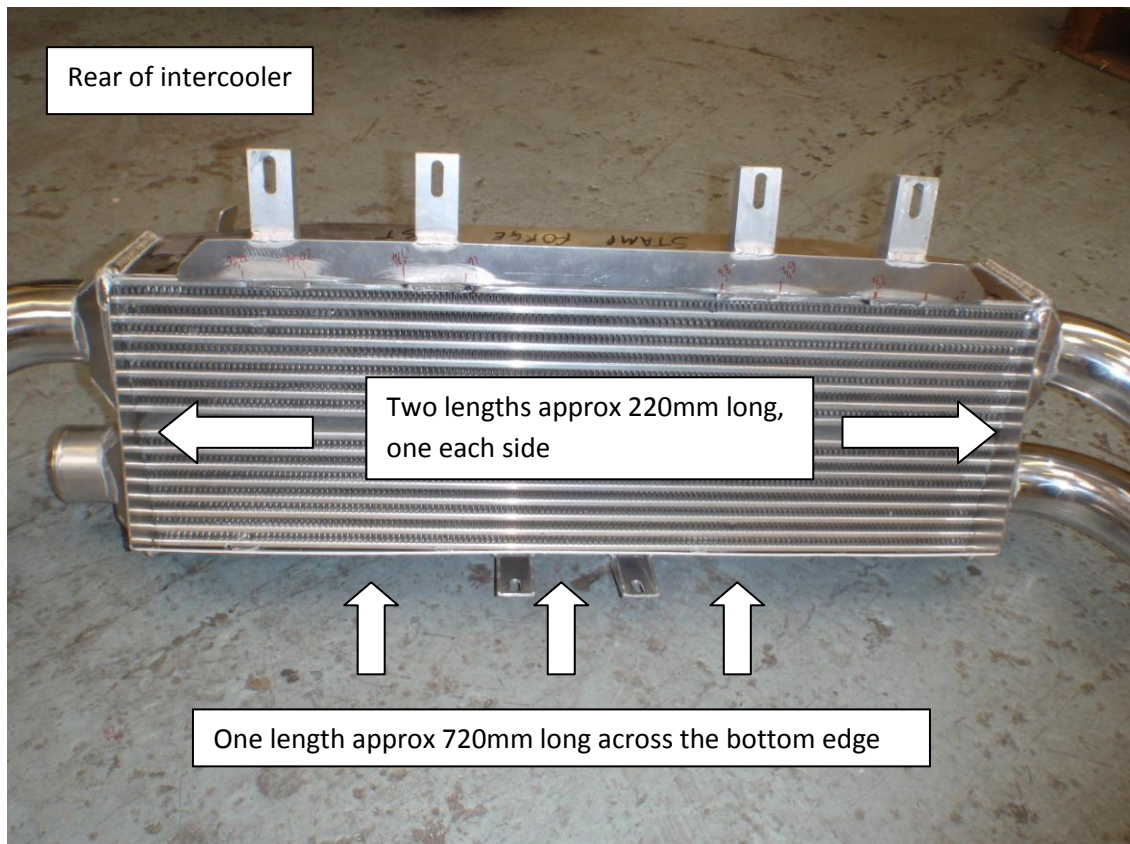


### Installation

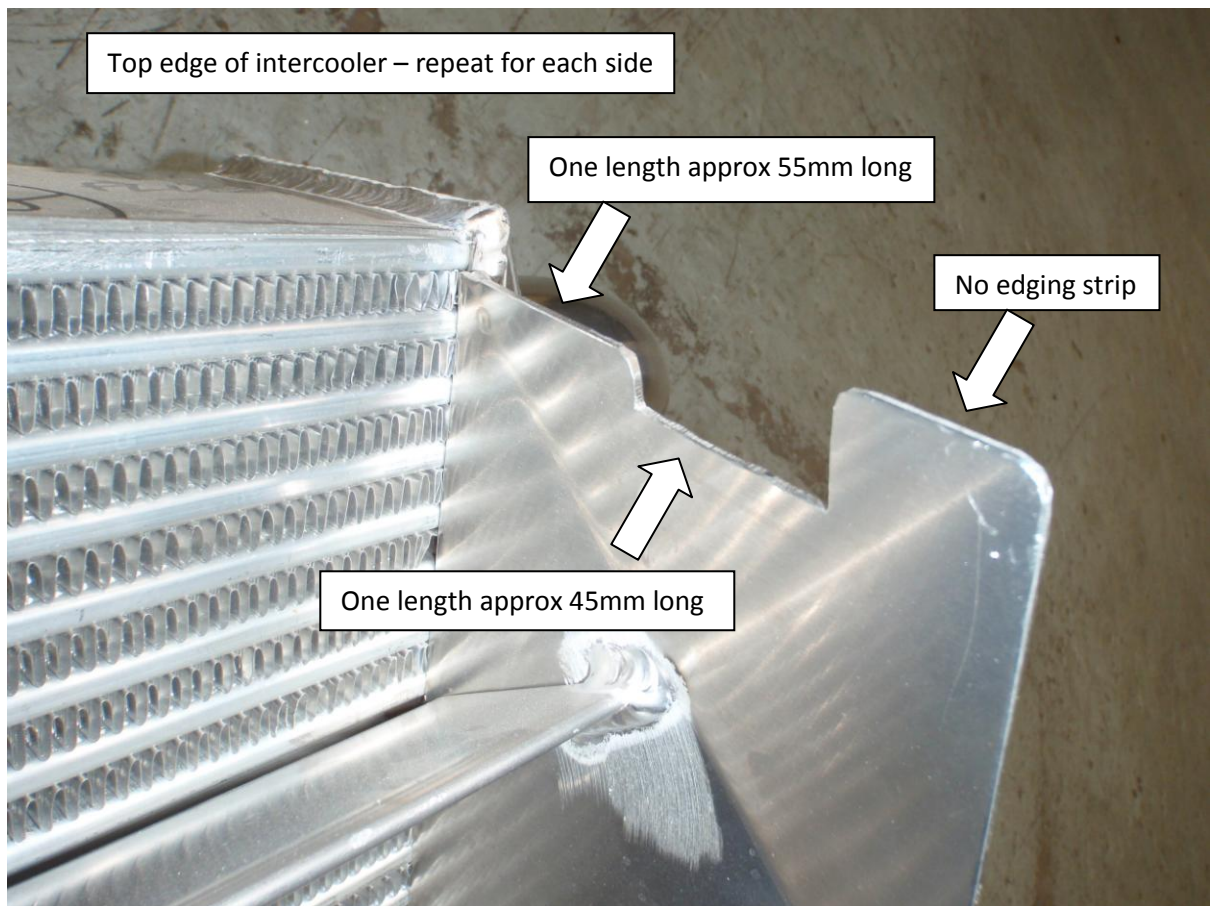
23. Install both turbo outlet hoses (#317 passenger side, #319 drivers side based on a RHD car), on both sides the sharper bend on the hose fits to the turbo. Add jubilee clips as seen below so that they may be tightened by a 7mm hose clamp driver.



24. To seal the intercooler to the radiator cowl and to the bumper when refitted, you will need to install the foam rubber edging strip (supplied) cut into lengths and attached to the intercooler as shown below. Approx lengths are given, but please measure your core for accuracy.







As fitted :

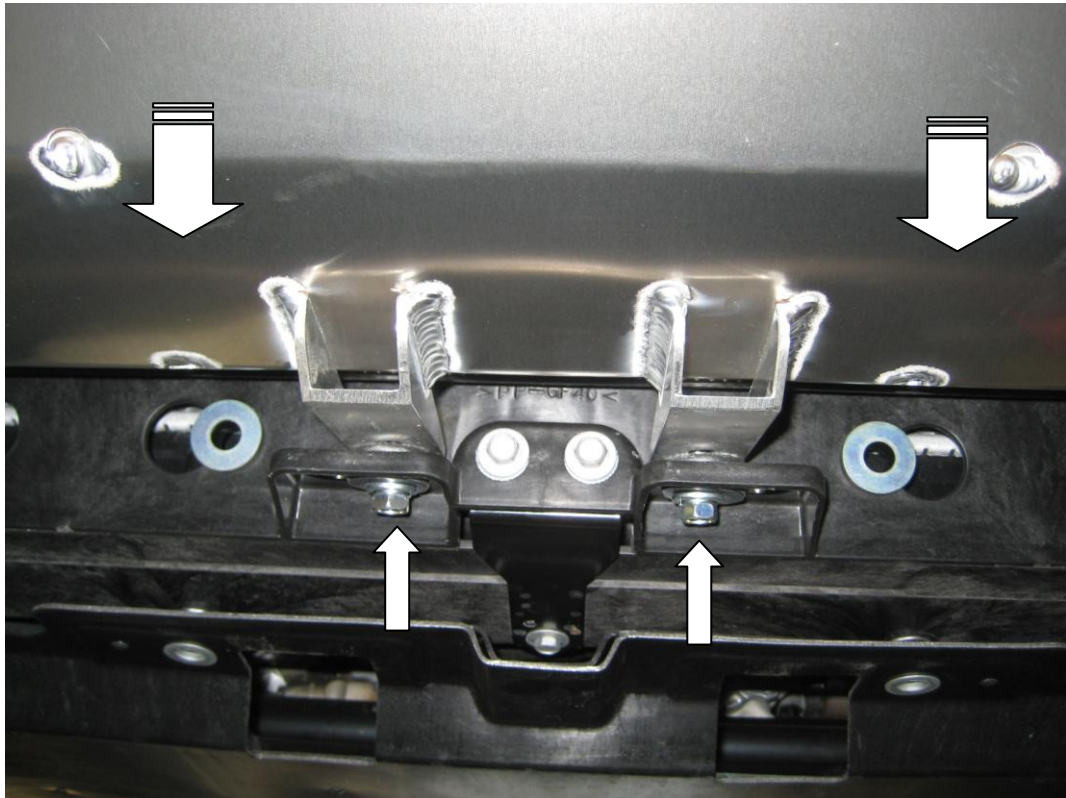


25. Lubricate the silicon hoses with silicon spray (dashboard cleaner works well) With the help of an assistant, offer up the intercooler to the car, sliding the lower left and upper right hard pipes on the intercooler into the silicon hoses, and tighten the jubilee clips. Secure the intercooler with four of the bolts you saved from step 13, and four M8 nyloc nuts supplied.

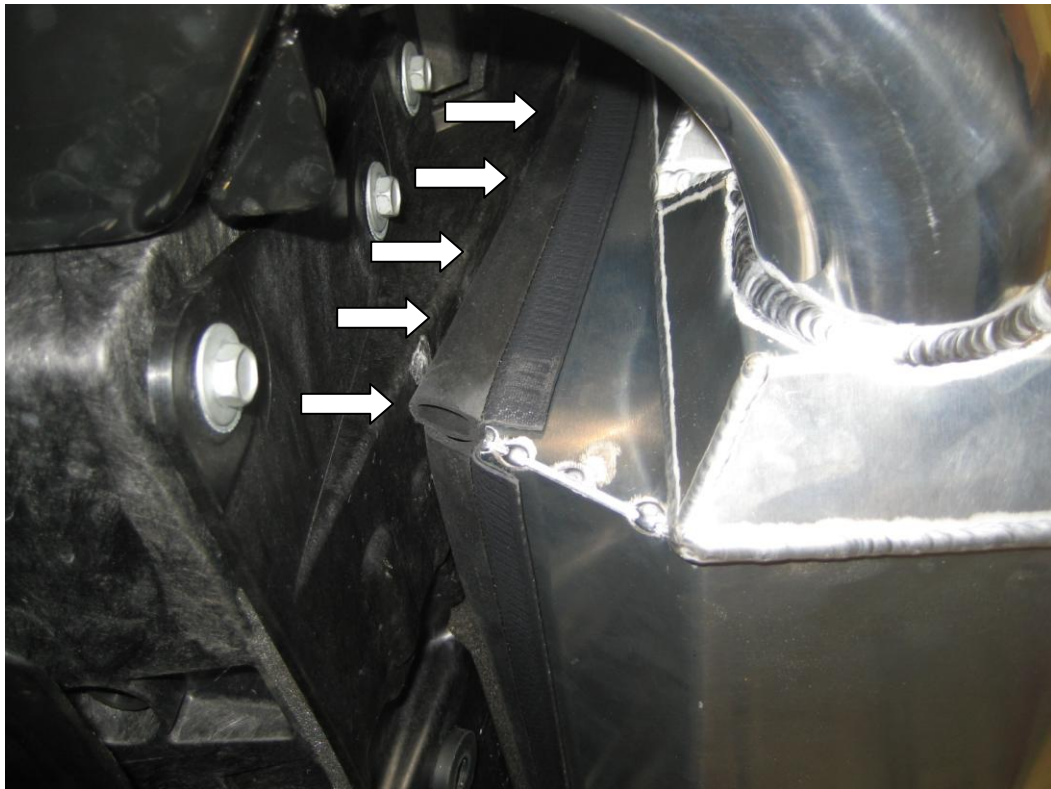




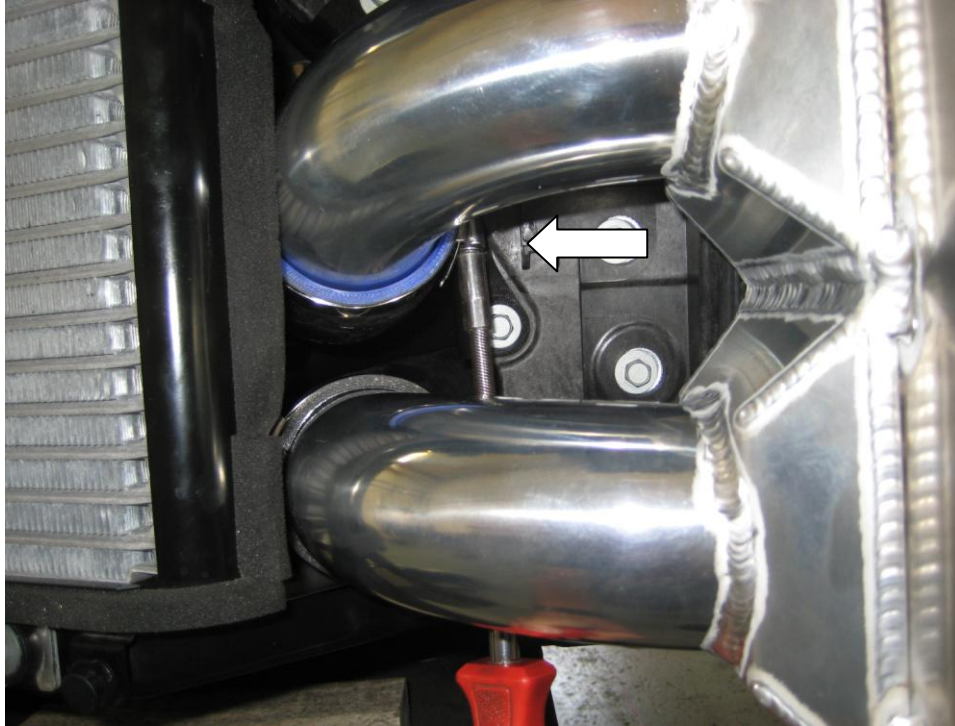
With the help of an assistant, push the bottom of the intercooler into the car to crush the rubber seal, and keeping the pressure on tighten with the last two bolts and M8 nyloc nuts.



This rubber seal needs to be compressed and sealed against the cowl all the way down (shown here before tightening)



26. Install the longer leg of the supplied 90 degree silicon hose on to the upper left intercooler outlet (the longer leg is only 20mm longer so can be hard to see) by getting your hands behind the oil cooler or down through the engine bay, lubricating it to help fitting and adding a jubilee clip as orientated below



27. Take the shorter of the supplied hard pipes and fit the dump valve and pressure sensor removed in step 16. (Depending on the valve being used, you may have to fit the valve after the airbox has been refitted). Fit one of the supplied straight couplers and two jubilee clips to the end of the pipe nearest the pressure sensor, and fit the hardpipe in place between the throttle body and 90 degree elbow fitted in the last step. Make sure there is at least 25mm of hardpipe in each silicon hose, then tighten all the clips. Reconnect the dump valve return and vacuum feed, and the electrical connector to the pressure sensor.

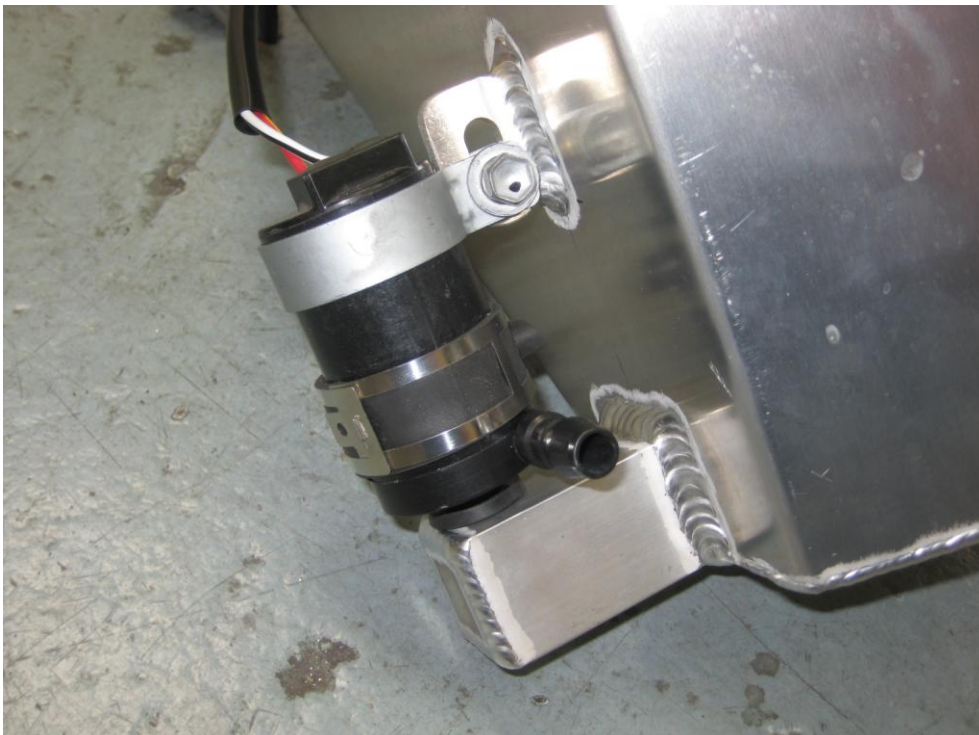




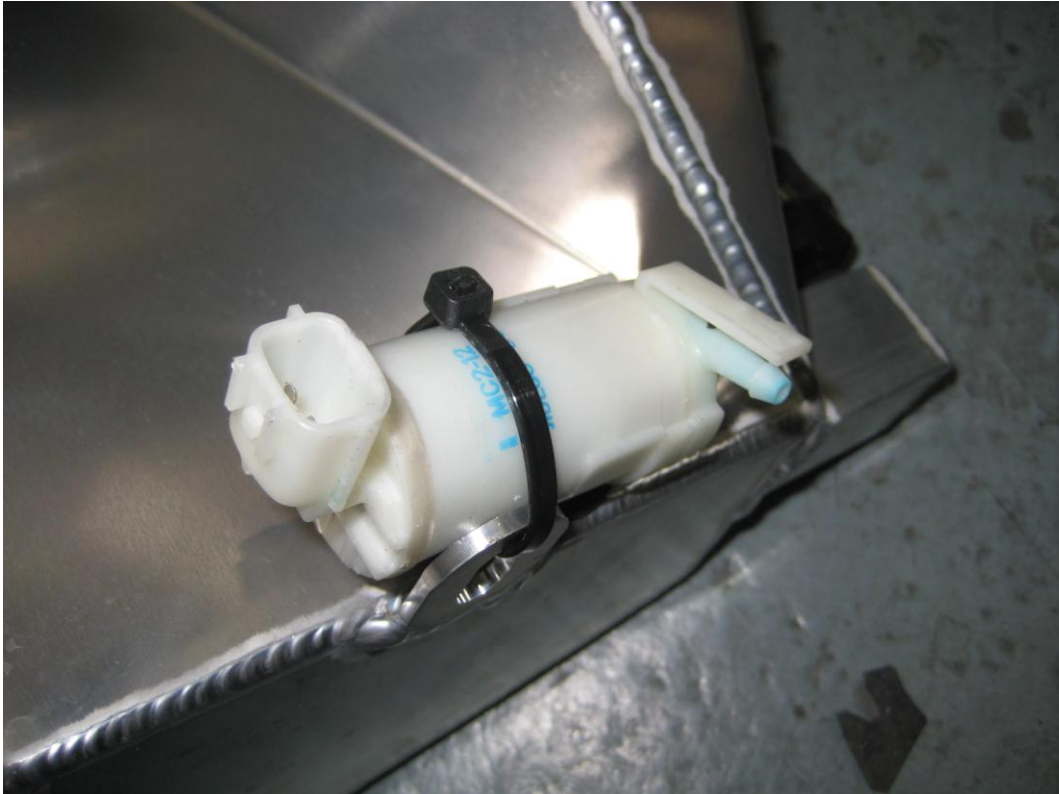
28. Take the remaining long hardpipe, and thread it up into the engine bay from the gap next to the intercooler. Add a straight coupler and two jubilee clips to each end of the pipe, then connect to the intercooler first. Ensure at least 25mm of hardpipe is left in each silicon joiner before tightening the clips. Refit the pressure sender and dump valve (again you may need to wait until you have refitted the airfilter).



29. Remove the washer pump (push fit) and headlight pump if fitted (one 10mm bolt and push fit) from the stock washer bottle. Remove the rubber grommets that both pumps push into as well, then push the grommets into the new Forge washer bottle. The headlight pump fits onto the square projection on the side of the tank.



The washer pump is secured with the supplied cable tie.

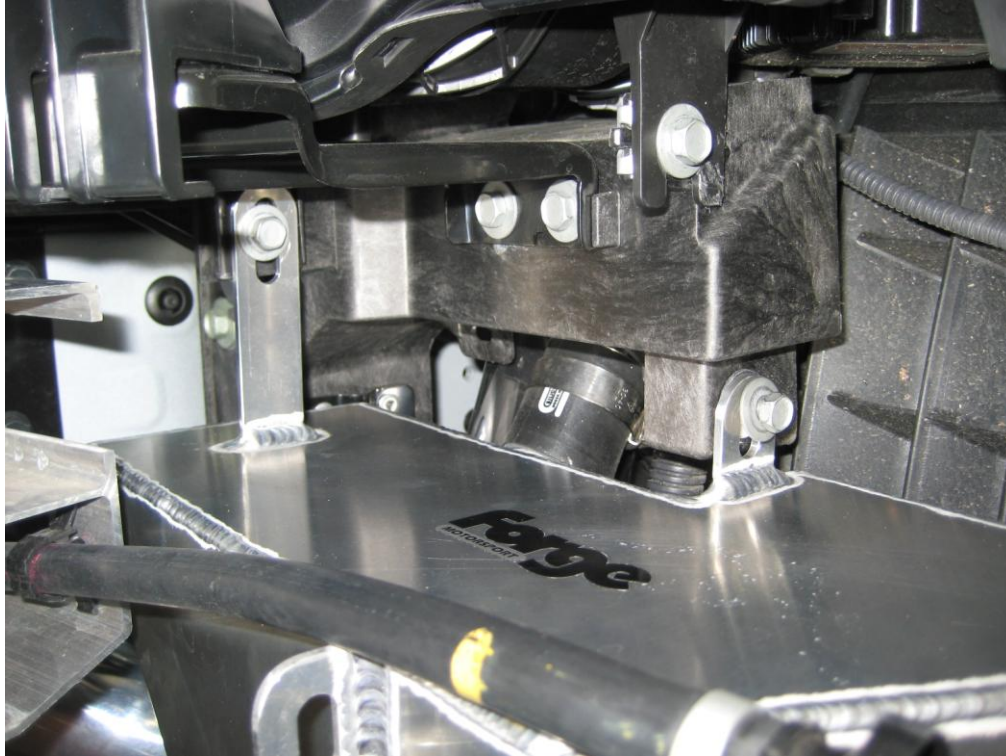


Use the short length of 28mm silicon hose supplied to attach to the washer filler neck on the car, together with two 35mm jubilee clips.





30. Fit the washer bottle pushing the filler neck on the tank into the silicon fitted in the last step. Fit using the three mounting brackets and bolts removed in step 15. Tighten the jubilee clip on the filler, reconnect the windscreen washer tube, and reconnect all of the wiring. Unfortunately the Forge washer bottle does not have provision for the level sensor which must be left disconnected – this won't bring on any warning lights.



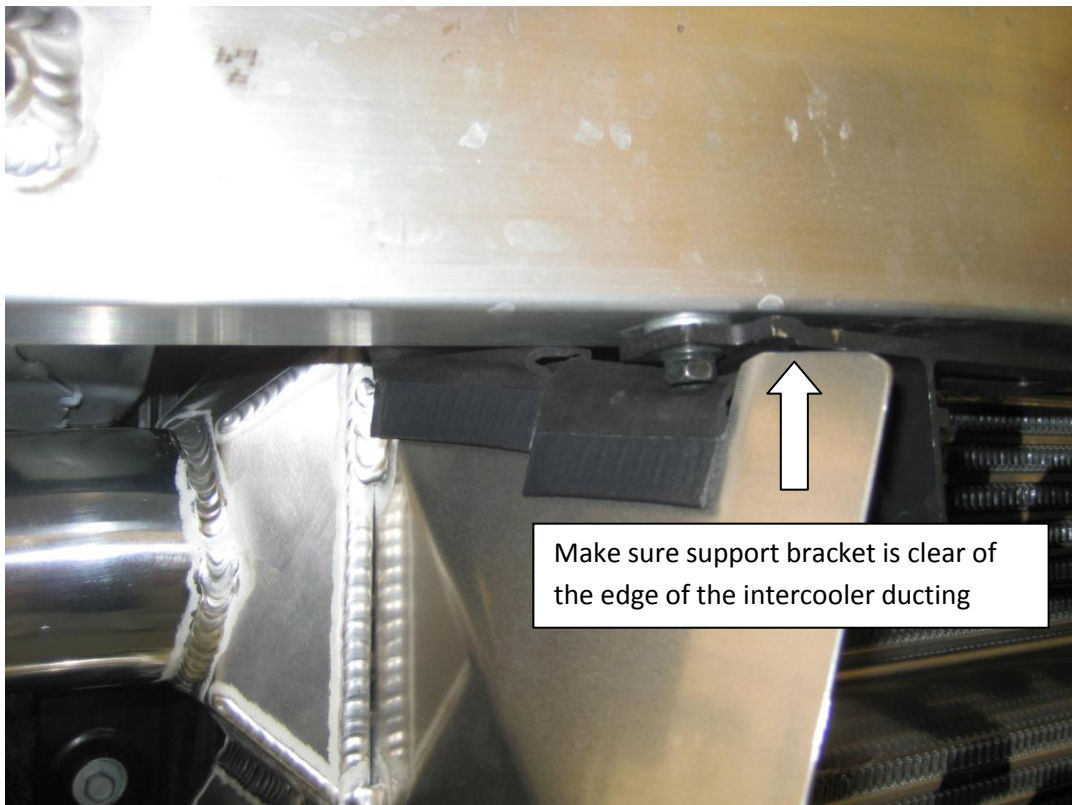
31. If you have headlight washers fitted, release the clip under the tee piece as shown below and cut approx 25mm of length from the hose but ideally measure on the car, then reconnect to the tee piece using the supplied 12mm jubilee clip (shown below with the pump missing).



32. Refit the undertray support brackets removed in step 9 to the crash bar, separating the support legs from them, noting which leg fits on which bracket.



33. Refit the crash bar to the car, making sure the support brackets clear the edges of the cowl on the intercooler, and that the bolt heads on the brackets sink in to the rubber edging on the intercooler – this does also make the crash bar harder to refit however.





34. Refit the support legs to the brackets by passing them up through the holes in the intercooler ducting. Refit the ducting over the oil cooler removed in step 13. Refill the washer bottle making sure there are no leaks from the grommets holding the motor(s) to the bottle.
35. Do a final check of all hoses, then start the car and make sure it idles and runs normally. When you're happy, then remount the bumper to the car with the help of an assistant following steps 12-2 in reverse order. You may need to flex the bottom of the grille on the bumper to help refitting, so that it sits inside the intercooler ducting when the bumper is in the correct position.



The installation is complete – enjoy your new purchase !

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