ucsbwsr
Junior Member

Posts: 97
Join Date: Sep 2013
Car: 535xi Wagon

How To: Fit a 7" VRSF Intercooler to your E6X N54 chassis - 05-03-2014, 10:52 AM

Gentlemen,

As we all know, the E6X chassis does not get much love in the N54 tuning world. I hope my contributions can help expand the options for those who are in the market for an aftermarket intercooler (IC). After much researching I pulled the trigger on a 7" VRSF IC; it's not a direct bolt-on for the 5 series but I was confident it could be fitted with some creativity.

There were some additional parts I needed to complete the install. I ordered the optional 9" 90 degree pipe with my IC but did not utilize it.

ADDITIONAL PIPING

- 15" 90 degree aluminum elbow 2.5"
- 5" aluminum joiner 2.5"
- 45 degree silicone elbow 2.5"
- 30 degree silicone elbow 2.5"
- 4 T-Bolt Clamps 2.5"

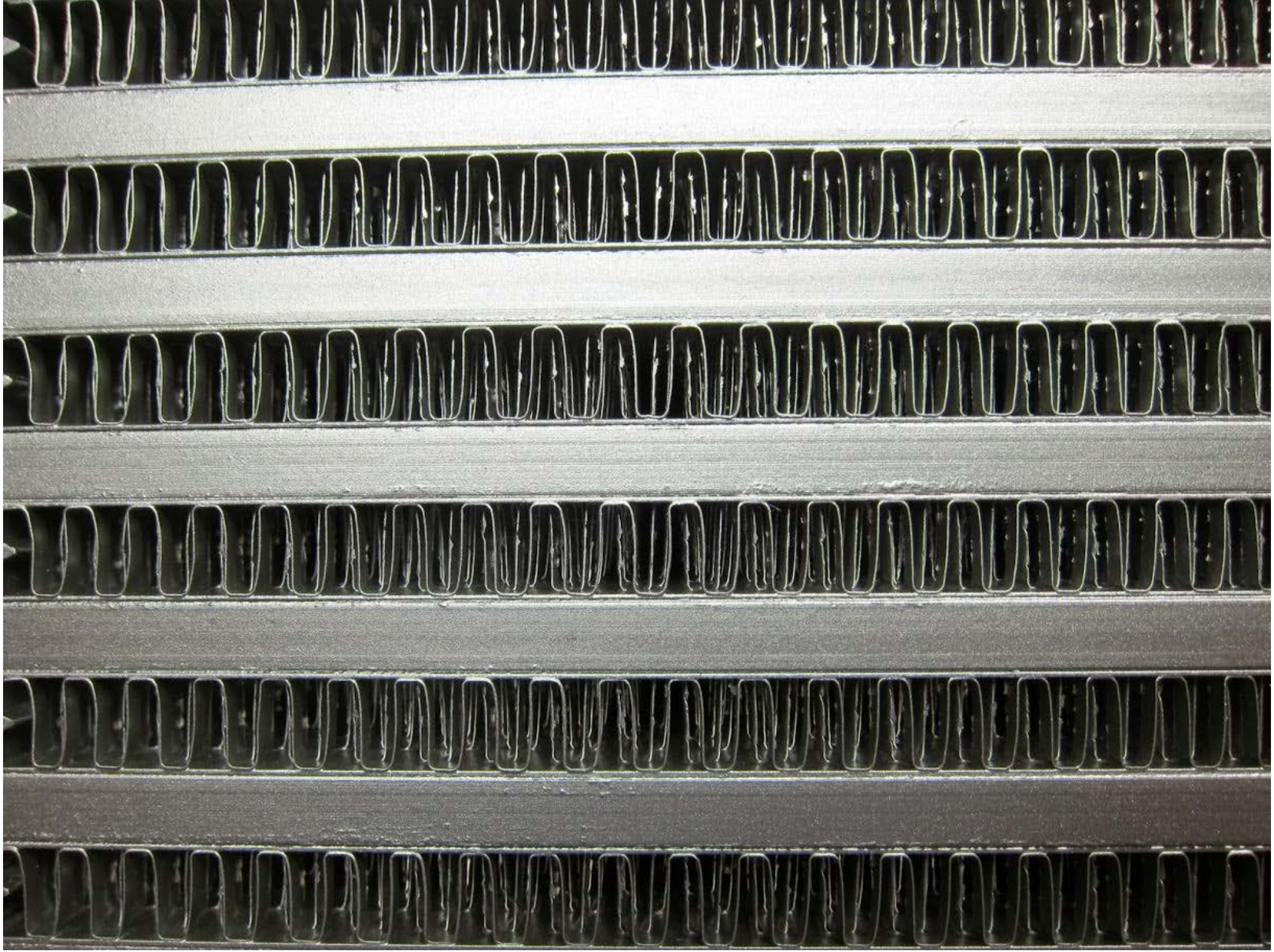
I sourced the parts from Max-Redline and Silicone Intakes.

Here is what I did to make it fit on my car. Just like riding downhill mountain bikes, "follow me at your own risk."

-Evan

1. Unboxed the IC and all looked good, it was well packed and the IC passed my initial quality inspection. If I had to get picky: my IC was painted silver and the paint was still damp in some places, I would prefer to have a raw/polished piece but that is my personal preference.

2. Close up: it looks as the rows of fins are offset for better exposure.



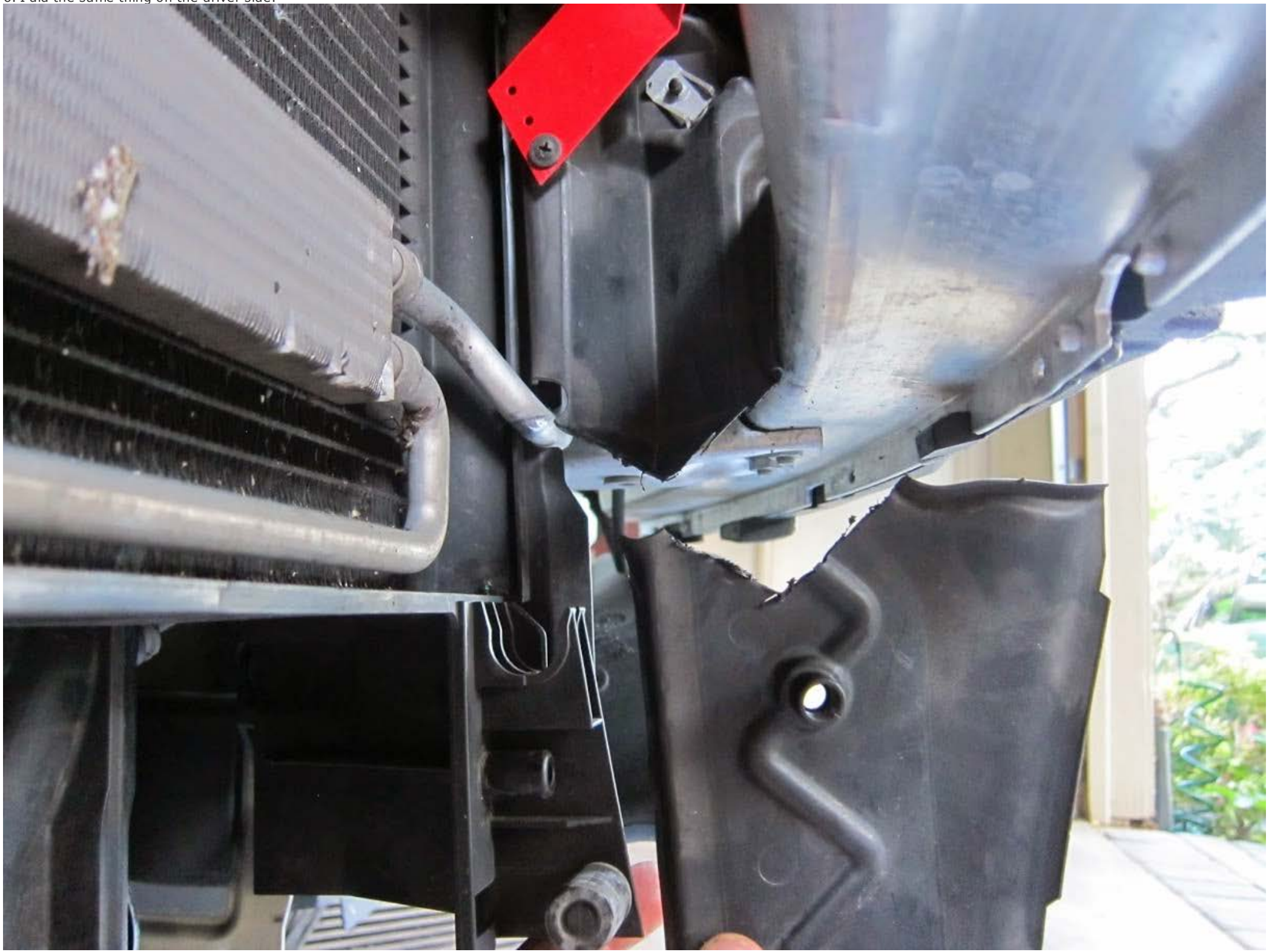
3. Inside the end tank.

4. I optioned to get the 9" Lower Charge Pipe (LCP) from VRSF in case I had a use for it (ended up not). In addition to the included VRSF hardware this picture shows the 5" joiner and 15" 90

degree pipe I used.

5. This piece must be removed, I originally cut it here.

6. I did the same thing on the driver side.



7. On second thought I needed to make additional room on the passenger for my Transmission Oil Cooler (TOC). This entire trim piece can be removed with one screw and this rubber/plastic piece is soft enough to be cut with a sharp utility knife. You can see the different in the cleanliness of the cuts below (dremel vs razor).

8. Relocating the TOC is one of the hurdles with the E6X platform. When initially inspecting my car to see if the IC install would even be possible; I was happy find that the TOC had some soft lines in addition to the hard. There was also enough length on soft lines to allow some movement of the core.

This is how I relocated the TOC, simple and effective in my opinion. It does cover the lower 1/3 of the power steering cooler but I am not terribly worried about that. It also sits in front of the radiator but it is such a small % of the radiator's core, I am again not worried; especially when people are running huge V-mount ICs with no notable decrease in radiator performance.

Also, I bet the TOC is able to perform much better in this location with the direct air flow compared to the oem air scoop design which not only collected tons of road debris but also blocked airflow to the oem IC. I mounted it with a couple zip ties as "less is more" when working with things that require maximum air flow.

9. Another view.

10. Showing the stress-free hose routing for the TOC, this could not have worked out much better.

11. This was taken after I trimmed the L shaped piece of hard plastic trim that usually covers the oem end tanks.

12. There is a piece plastic which separated the radiator and oem IC. I would say removing this piece is optional but I chose to do it as it is advantageous to mount the IC as high as possible

to maximize direct air flow.

13. The radiator-fan shroud must be trimmed at the lower corners to fit the VRSF end tanks. I took about 1" off. Do this to both sides.

Please note that depending on your IC piping, you may want to trim the bottom edge of the radiator-fan shroud, I did this thinking my IC would be mounted completely level. As it turns out my IC sits with the front tilted upward slightly; it helps maximize the surface area exposed to direct airflow but I now have a small gap between the back of my IC and the lower radiator-fan shroud, it is not a big deal but if that lower shroud was still in place it would help pull more air through the IC. It all depends on your setup so I recommend finalizing your mounting position and trim or not trim the shroud accordingly.

14. Comparison Shot 1

15. Comparison Shot 2

16. Comparison Shot 3

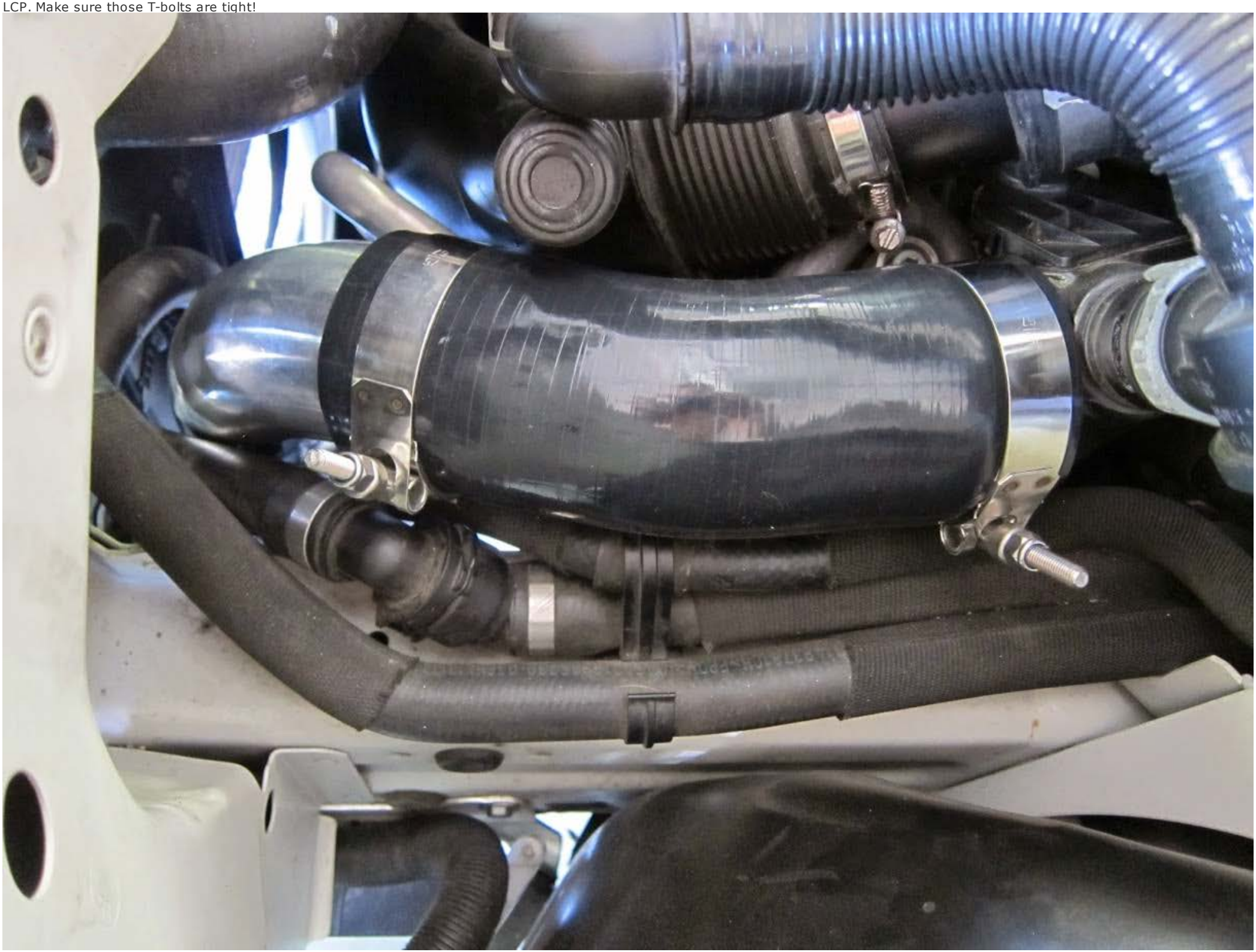
17. Comparison Shot 4

18. This is how the VRSF IC fits. The original E9X tabs and just below the bracket that holds the oem IC bottom tray.

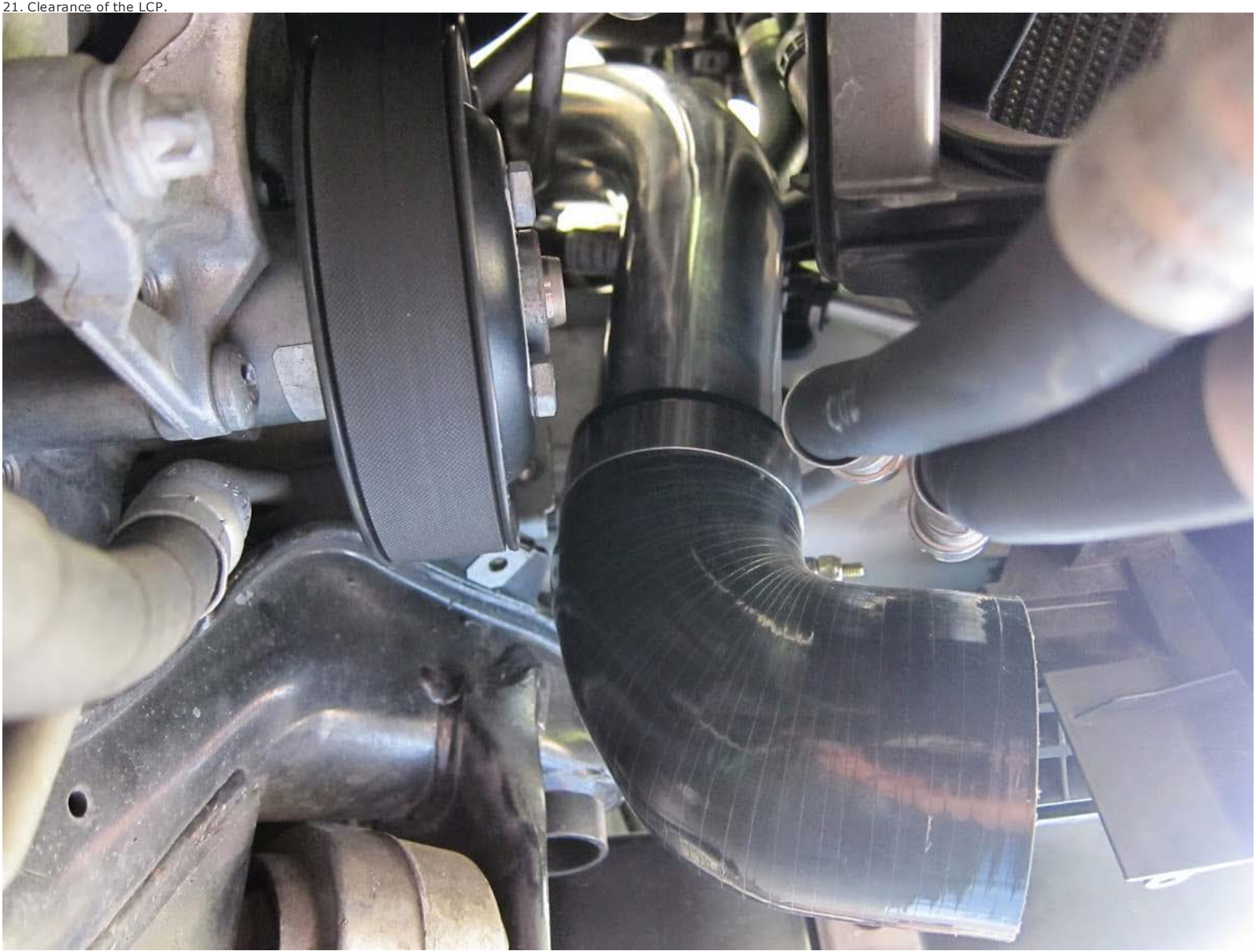
19. I decided to replace the elbow that connects the LCP and oem Charge Pipe (CP). The clamp connecting the elbow and CP does not have a screw or bolt and much be cut off, it took me a

while with a dremel. If you are careful not to cut through the elbow itself it can be remounted with a basic T-bolt clamp.

20. Here is the replaced 30 degree silicone elbow. This may change depending on fitment with my VRSF CP but it works for now with the oem CP. You can also see the upper clearance on the LCP. Make sure those T-bolts are tight!



21. Clearance of the LCP.



22. The supplied silicone reducer was nowhere near making it to the metal piping from the turbos (remember this kit if made for a E9X). An additional 45 degree elbow and 5" aluminum joiner make ends meet. I trimmed both ends of the 45 a bit and the end tank side of the reducer to fine tune the fitment.

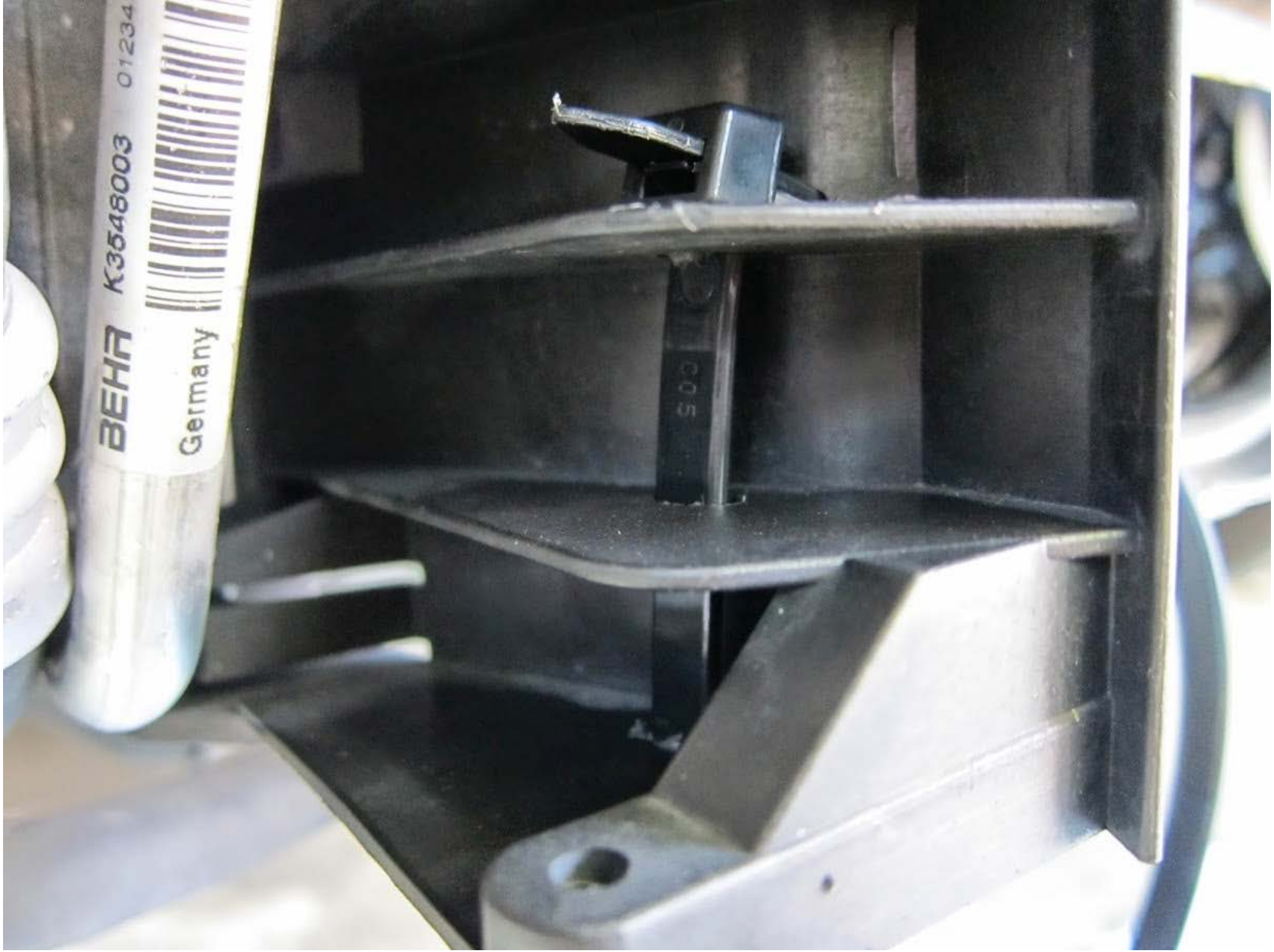
23. The IC mounting ears are just slightly narrower than the stock IC brackets. If they were about 1" wider then mounting the IC with nuts and bolts would have been an easy and reliable

mounting solution. It is possible to use some screws but the angle would be awkward and it would look hideous ...keep it clean!

I originally wanted to make some bracket templates that could be taken to a machine shop, machined, and later welded. Although I still might go this route, it turned out to be more work and money than expected, especially considering the effectiveness of my temporary-yet-long term mounting solution.

I decided to run some big-manly zipties and drilled some holes through the bottom 3 layers and the inner wall of the bracket to alleviate unnecessary stress on the ties and also help clean up the aesthetics. This was intended to be a temporary solution and I even bought some plumbers tape and washers to support the bottom of the IC but did not need it. I even drove the car around without the bumper on to check for boost leaks (none) and I wasn't concerned about the security of the IC; it is extremely solid, just make sure you have jumbo legit zip-ties ...legit ties!

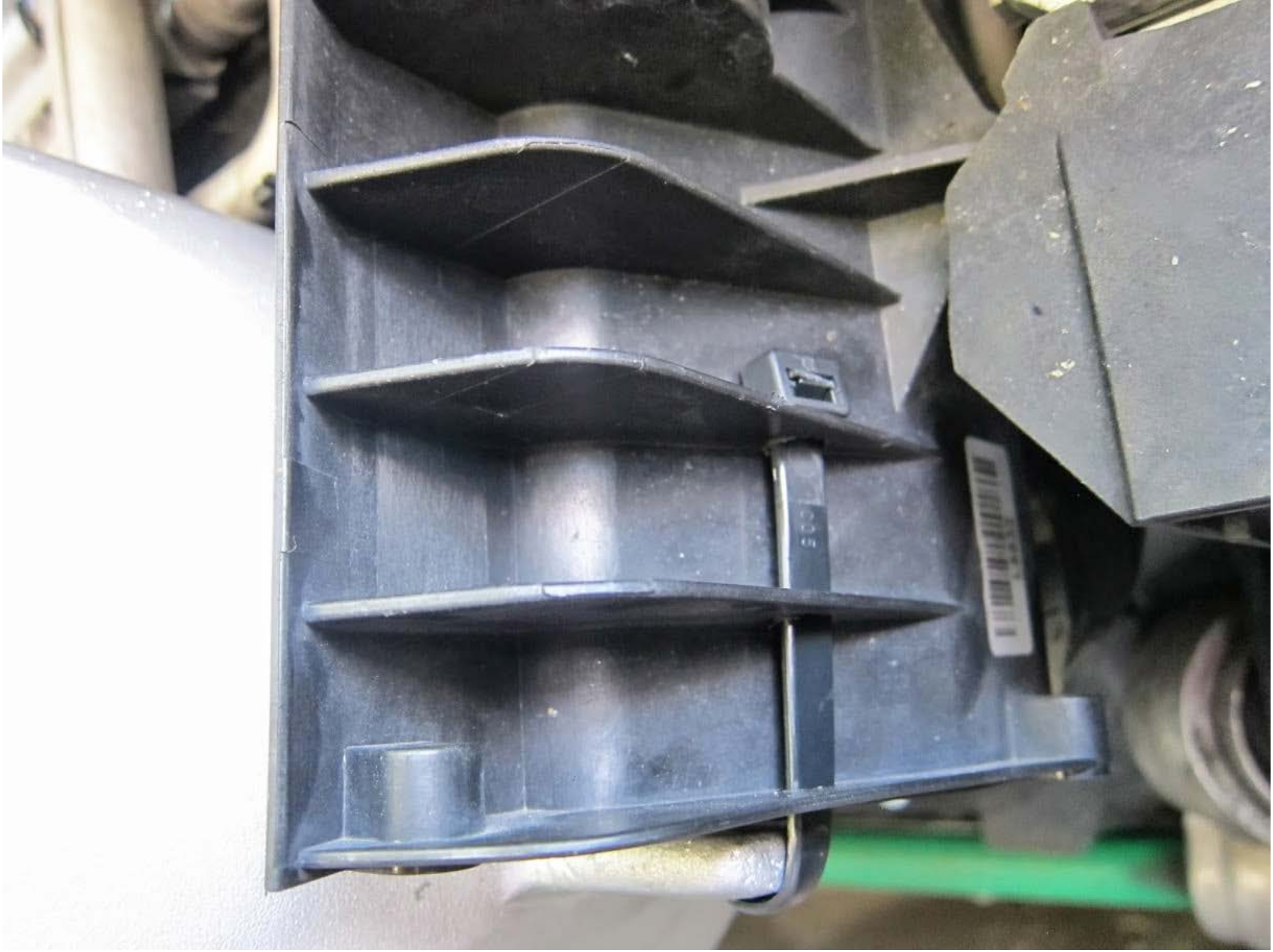
24. Zip tie routing. I feel having the male and female intersection of the tie angled at 90 degrees not only helps aesthetics but maximizes strength.



25. Ready for final installation

26. IC mounted. Please notice the bumper/TOC/IC relation, it is about as good as it can get and I am pleased with the way it turned out.

27. Zip ties under load and they seem content.



28. The parts that didn't make it.

29. Fitted #1

30. Fitted #2

31. Fitted #3

32. Fitted #4

33. Fits in there well considering it's size.

34. Don't mind the tape, I got my front bumper and mirrors resprayed at LTMW and wanted it protected for my drive up to the Bay Area. Besides IC install > painters tape.

35. Fitted #5

35. Fitted #6

QUOTE

Close this window