



Nissan GTR Alpha Cooling Package

1	Radiator	16	Small Bypass Caps (x2)	32	M8x1.25 40mm Bolt (x4)	48	GT-R Race Transmission Cooler Shroud*
2	Engine Oil Cooler	17	Large Bypass Caps (x2)	33	M6x1.00 30mm Bolt	49	Zip Ties
3	Transmission Cooler	18	Alpha Oil Line Cooling Bracket	34	M8x1.25 25mm Bolt	50	Plastic Push Clip*
4	Transmission Coolant Inlet Hose	19	Nissan GT-R Coolant Hose Clamp	35	Extended Oil Fitting Nut	51	Race Transmission Cooler Fittings*
5	Transmission Coolant Outlet Hose	20	Large Constant Tension Band Clamp (x2)	36	M8x1.25 to M6x1.0 Stud Bolt	52	44" -8 AN Race Transmission Line*
6	Washer Fluid Fill Neck Hose	21	Small Constant Tension Band Clamp (x2)	37	Aluminum Spacer	53	53.5" -8 AN Race Transmission Line*
7	Transmission Cooler Hard Line (Rear)	22	C43 Partial Water Restrictor	38	Barbed Vacuum Straight Connector	54	Radiator Inlet Hose
8	Transmission Cooler Adaptor Plate	23	Gap-Free Tube Clamp 7/8"-1 1/64" Clamp (x2)	39	3mm Vacuum Line	55	Bleeder Screw
9	Engine Block -12 AN Adapter	24	Transmission Line Clamp Bracket	40	62" -12 AN Oil Line	56	Radiator Inlet Coolant Hose Bracket A
10	Factory Oil Cooler -12 AN Adapter	25	Single Hole Oil Line Bracket	41	53" -12 AN Oil Line	57	Radiator Inlet Coolant Hose Bracket B
11	22mm -12 AN Adapter (x2)	26	M6 Zinc-Plated Nylon Locknut (x2)	42	Silicone Reducers with Clamps (x2)		
12	Plastic Double Line Hose Clamp (x2)	27	M6x1.0 Nut (x4)	43	14" 45° -10 AN Female/Open End Line		
13	Hose Clamp # 20 (x8)	28	M8x1.25 Nut	44	10.5" 90° -10 AN Female/Open End Line		* Race Kit Only
14	Hose Clamp #6 (x8) (x10 w/race)	29	M6x1.0 12mm Bolt (x10)	45	-08 Socketless Black Hose w/ Wrap (x2)		
15	M6 Isolator Bushing	30	M6x1.0 20mm Bolt (x6)	46	GT-R Oil Cooler Shroud (09-11 shown)		
		31	M6x1.0 45mm Bolt (x2)	47	GT-R Race Transmission Cooler*		



Items not labeled are included in counts elsewhere in the image

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A vehicle modified by the use of performance parts may not meet the legal requirements for use on public roads. Federal and state laws prohibit the removal, modification, or rendering inoperative of any part or element of design affecting emissions or safety on motor vehicles used for transporting persons or property on public streets or highways. Use or installation of performance parts may adversely affect the drivability and reliability of your vehicle, and may also affect or eliminate your insurance coverage, factory warranty, and/or new OEM part warranty. Performance parts are sold as-is without any warranty of any type. There is no warranty stated or implied due to the stresses placed on your vehicle by performance parts and our inability to monitor their use, tuning, or modification.

These instructions are provided as a guide only as there are many variables that cannot be accounted for concerning your particular vehicle, including but not limited to model year differences, model differences, the presence of non-OEM parts, and modifications that may already be or were previously installed. A basic knowledge of automotive parts and systems is helpful but a better understanding of the parts and systems on your particular vehicle may be required.

If you have any questions or issues at any time during the installation of your AMS product(s) please call us for technical assistance. The AMS tech line can be reached during business hours at 847-709-0530 for AMS products only.

***The install of this kit must be done by a professional in a shop with professional tools including an A/C machine.**

Radiator Installation

1. Begin by removing the front bumper cover, all front under trays, front wheels, fender liners and the passenger side center under tray.
2. Drain engine oil, coolant, and transmission fluid.
3. There are three major installs in this package; the radiator, engine oil cooler, and the transmission fluid cooler. We will begin with the radiator.
4. Begin by removing the Styrofoam bumper, oil cooler duct, and finally the aluminum crash bar.



5. Disconnect the intercooler piping from the intercooler top and bottom on both sides.
6. Unclip the whole front wiring harness from the intercooler support structure and swing off to the side.
7. Disconnect the engine bay hood latch cables from the cable that goes into the cabin; they can be disconnected at the junction in the driver's side fender well.
8. Remove the windshield washer fluid reservoir.
9. Remove the entire front intercooler support structure.





10. Recover the A/C refrigerant using and A/C machine.

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11. Remove the A/C condenser, the top bolts are hidden behind the metal support plates at each top corner of the condenser, these must come off, you will have to use an external hood prop while these plates are off. Disconnect the A/C lines going to the condenser with fuel line disconnect tools and pull it out. Plastic disconnect tools work best, size 1/2" and 5/8".



12. You can now remove the radiator. Remove the lower hose entirely and disconnect the upper hose from the radiator. Twist and remove the top plastic mounts and tilt the radiator forward to remove it. You will have to carefully bend the power steering cooler lines out of the way to gain clearance.

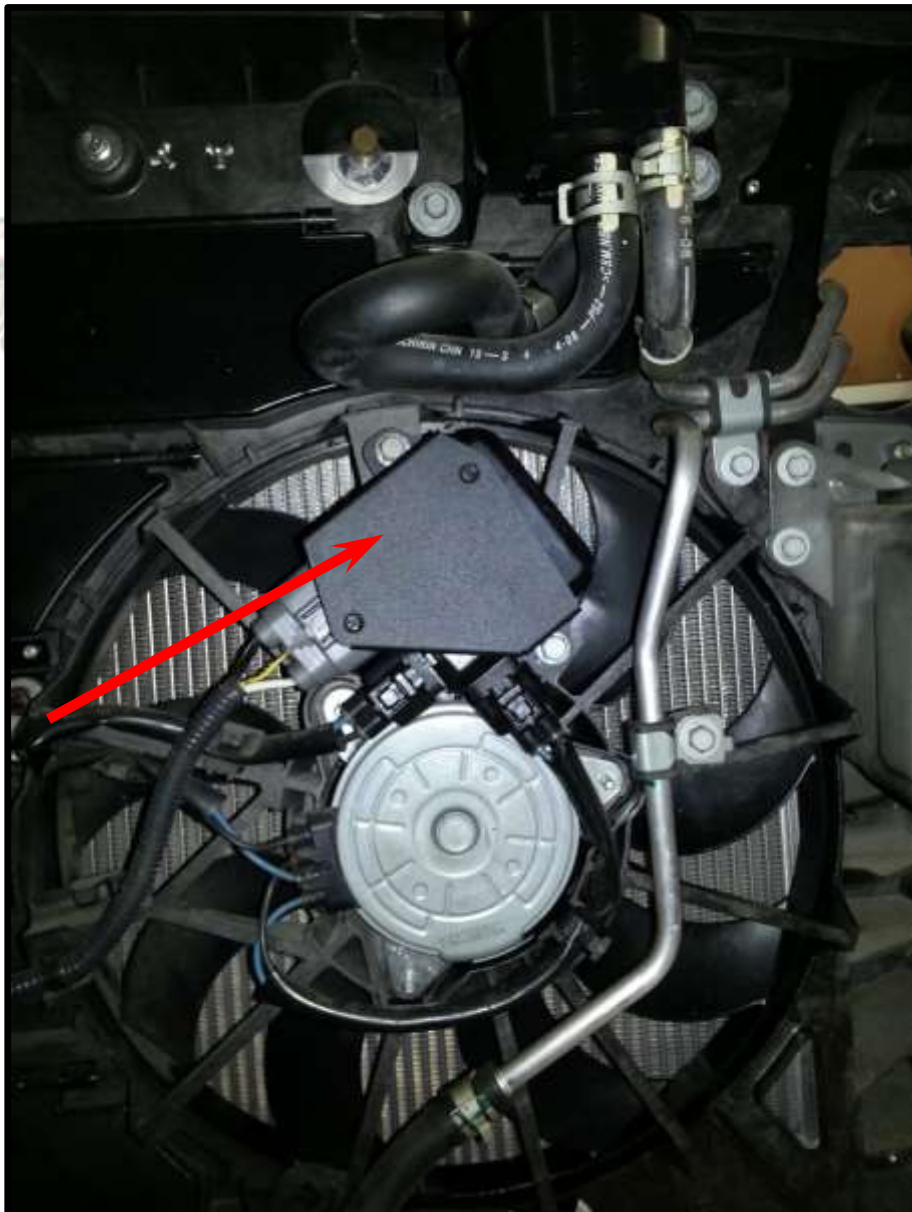
13. Swap the rubber bushings onto the new radiator and confirm the drain plug is tight.

14. With the radiator removed, use the cutting template (at the end of these instructions) to cut a hole in the radiator support from the front of the car as shown. This hole will allow the inlet on the Alpha dual pass radiator to enter the engine bay.

15. After the hole is drilled, install the Alpha dual pass radiator.

16. Install the supplied bleeder screw into the NPT fitting that is visible through the factory side radiator hole.

16. Next, bolt black bracket to the passenger side fan controller.



17. Install the large silicone tube with the “kinked” end going to the passenger side radiator opening. Attach the other side of the tube to the radiator opening on the top of the motor.



18. Install the grey bracket on the black bracket that was installed in step 16. Confirm that the silicone hose is not touching anything.



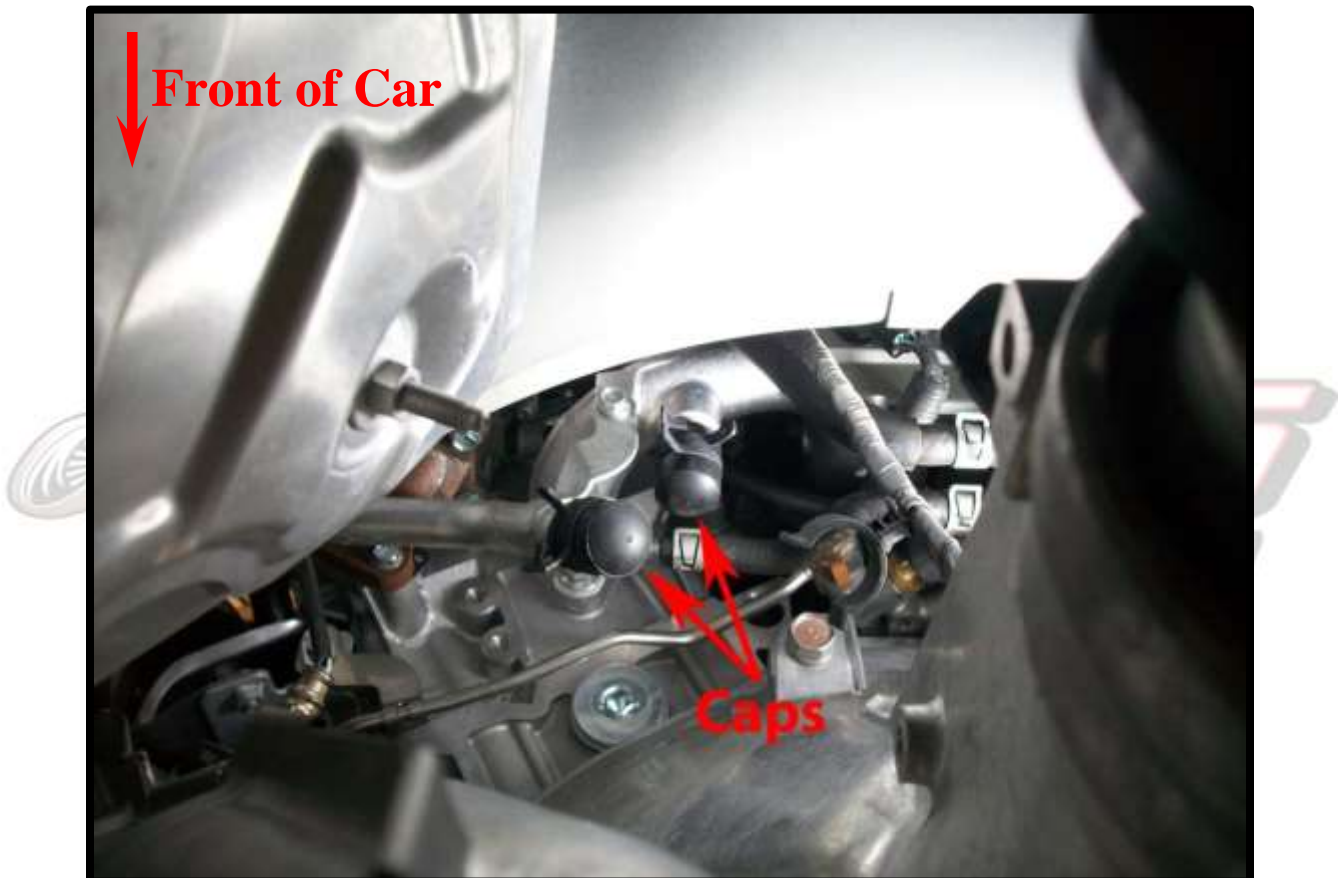
Transmission Cooler Installation

(If installing the race kit see additional instructions at the end of this document. Read before proceeding)

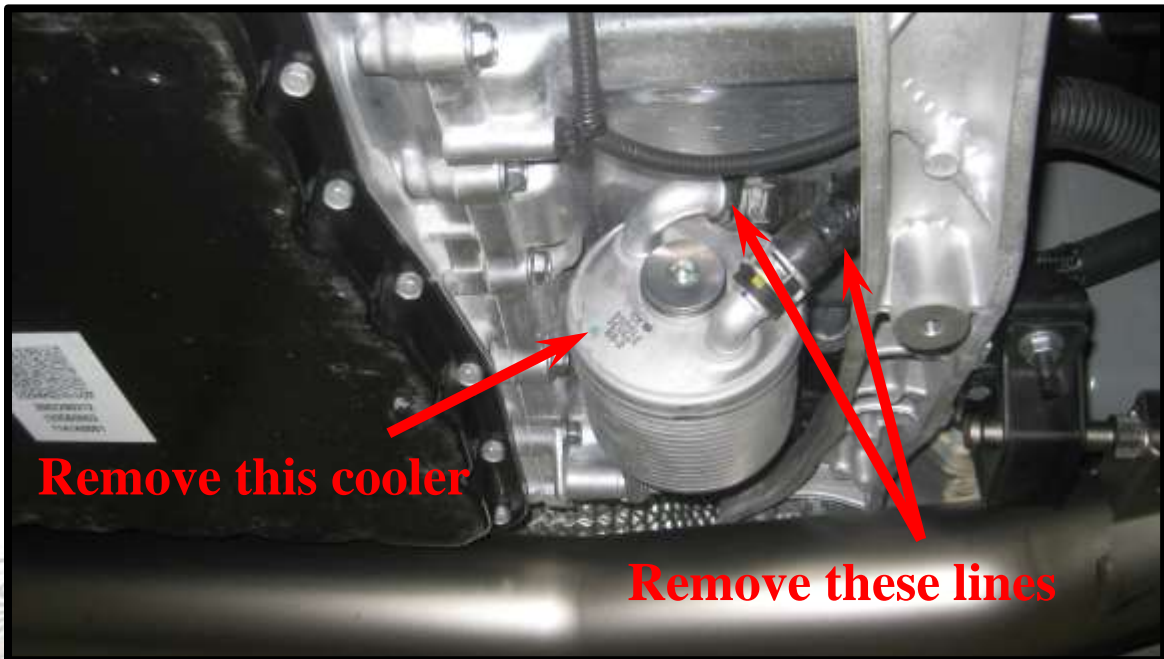
1. Begin by removing the transmission tunnel brace that runs below the mid-pipe.
2. Remove the rubber coolant lines that go from the engine to the aluminum transmission cooler lines. Set the bracket that holds them to the body aside.



3. Then using the supplied caps and clamps cap off the hardlines on the engine that the rubber lines, removed in the previous step, were connected to. The kit includes caps and clamps for 2009-2011 cars (smaller) and 2012 cars (larger). These ports can be very tough to get to, remove the driver's side rear o2 sensor along with the bracket that holds its connector to the bell housing. Then using a long set of needle nose pliers you can get to them. After getting the caps on re-install the O2 sensor and bracket.



4. On the front of the transmission remove the transmission cooler and rubber lines. Also remove the metal tubes that transfer coolant to the cooler and clean them out. After they have been cleaned re-install them. This procedure is easier if the transmission brace is removed.



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5. Ensure that the supplied o-rings are installed into the Alpha transmission cooler adapter plate (O-rings may come loose during shipping) and install the adapter plate using the bolts from the stock cooler.



6. Then install the shorter hose (10.5") with the 90° fitting to the black fitting in the Alpha transmission cooler adapter that is closer to the front of the car and connect open end to the upper factory aluminum tube as pictured.



7. Next install the longer hose (14") that has the 45° fitting and connect that to the lower factory aluminum tube. Clamp both lines to the aluminum tubes using supplied pinch clamps and a correct CV boot band clamp tool (McMaster part number 6541K67 or KD-Tools part number KD3955).



8. Next take the pre-assembled transmission cooler and install the supplied 37" soft lines as pictured (All trans cooler assemblies are pressure tested by AMS prior to shipping). Lines should be heated with a heat gun to make them easier to slide over the hardlines on the Alpha transmission cooler. Secure lines with one #6 worm gear clamps on each line. Note the orientation of the lines. Leave ~3" of the end of the line uncovered. There should be ~10" of uncovered line where the lines attach to the transmission cooler. Do not disassemble the core. Doing so could damage the seals and cause engine coolant and transmission oil to mix causing severe damage to the engine and transmission.



9. Install the supplied coolant restrictor into the passenger side of the Alpha transmission cooler as shown.

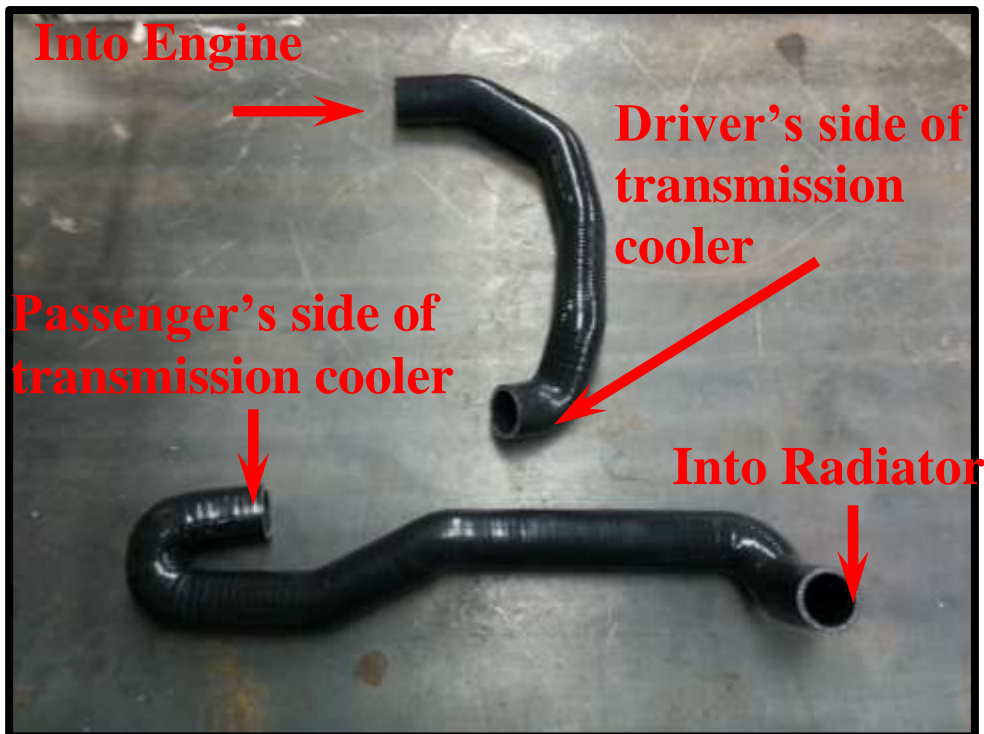


10. Now we will continue with the transmission cooler install at the front of the car. Start of by dropping the swaybar down by removing both swaybar bushing mounts. Remove the two lowest bolts on each side of the engine front cover (as pictured). Using the 4 longer supplied bolts and install the preassembled Alpha transmission cooler (M8x1.25x40mm). Start by running the soft lines on the transmission cooler between the engine and the subframe on the driver's side of the car. Once the cooler is in place on the front of the engine, bolt the cooler to the tab on the driver's side of the motor using the supplied M8x1.25x30mm bolt and M8 nut. Use thread locking compound when installing all bolts.





11. Install the radiator hoses. The driver's side outlet of the cooler is connected to the thermostat housing. The passenger's side of the cooler is connected to the bottom of the radiator. Use the supplied #20 worm gear clamps to secure the hoses. Use a zip tie to secure the lower hose to the Alpha transmission cooler.





12. Now we will be modifying that bracket that was removed earlier to hold the transmission fluid lines. Disassemble the bracket, everything will be re-used except the metal tab.



13. Snap the supplied metal tab into the plastic double clamp. An extra plastic clip is included in case your original one is damaged.



14. Transfer over the 2 bushings that were removed from the factory bracket to the supplied bent metal tubes. The 3rd bushing we supply with the kit. Use with 3 of the supplied metal hex sleeves



15. Now re-install the lower brace but as pictured replace one bolt with supplied bolt that has the stud on the head.

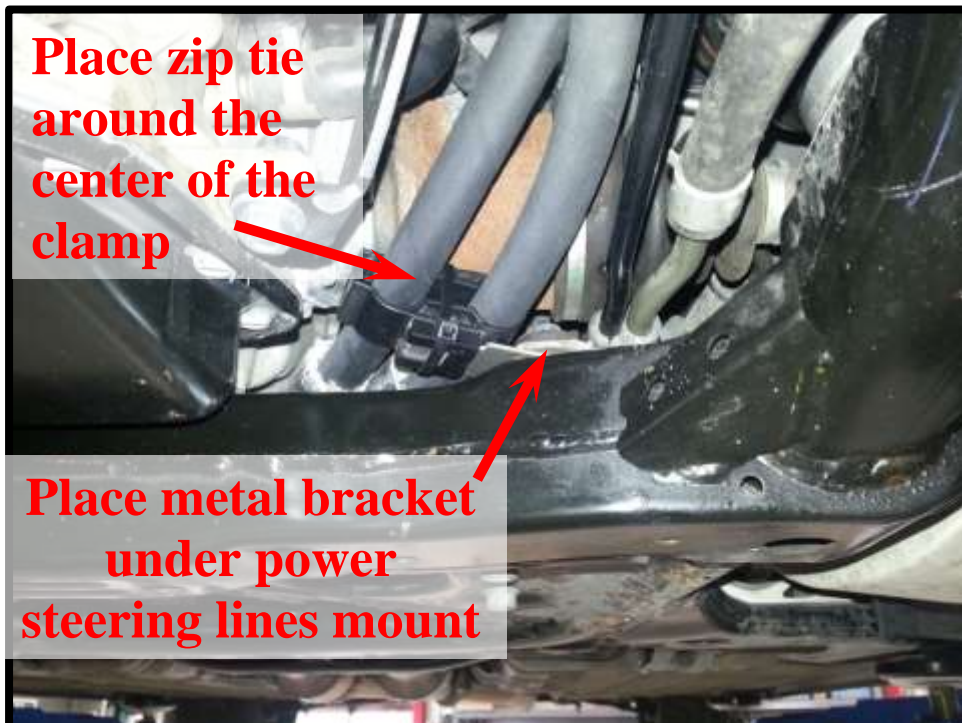


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16. You can now install the bent hard lines and connect them to the factory aluminum lines that go to the transmission in the transmission tunnel. If the factory hardlines on your car have the 5/8" OD ends, use the supplied factory hardlines with the .5" OD ends. If your car has the .5" OD end lines already, discard the supplied factory hardlines. Use the 2.75" -8 softlines to connect the Alpha hardlines to the factory hardlines. Use the supplied #6 worm gear clamps to secure the couplers to the hardlines. At this time replace the two metal sleeves on the factory coolant lines going down the transmission tunnel with the supplied metal sleeves (red arrow)



17. Next use the clip and bracket that you assembled in step 12 to mount the soft lines coming off the Alpha transmission cooler to the subframe as pictured. The supplied metal bracket should be placed underneath the power steering lines mount. Place a zip tie around the bracket as shown to ensure it does not come unclipped.



18. Then run the soft lines back towards the Alpha hardlines that you installed in the transmission tunnel. The lines should curve towards the center of the car to avoid the sensor and wiring harness on the bottom of the bell housing. Use the supplied #6 worm gear clamps to secure the soft lines to the Alpha hardlines in the transmission tunnel

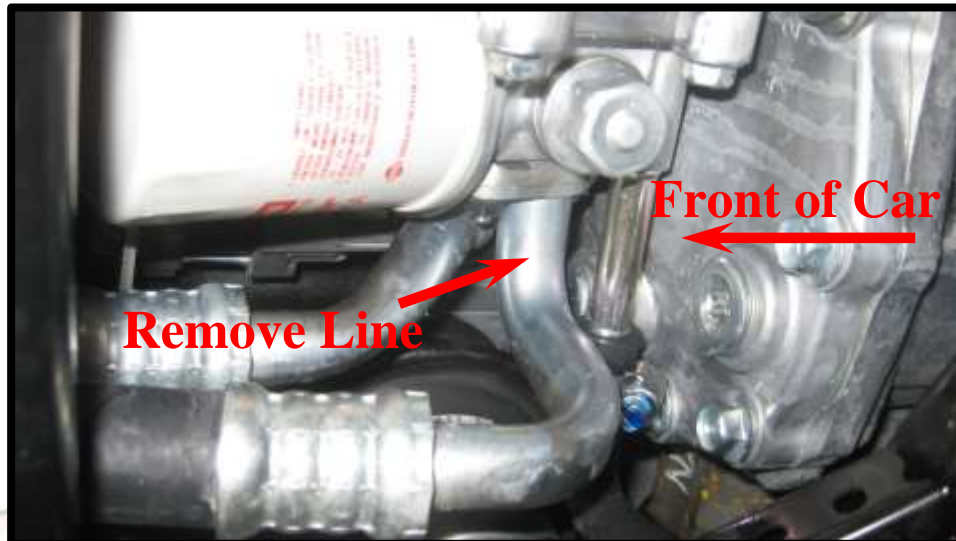


19. Once done with the installation of the Alpha transmission cooler, use the factory filling procedure to refill the transmission. AMS recommends using Dodson GR6 transmission fluid when refilling the system. The system will take more fluid than a stock car.



Engine Oil Cooler Installation

1. We will begin by removing the bottom line from the oil filter housing. Then remove the other side from the oil cooler and put the line aside.



2. Install the supplied fitting in the picture below onto the oil filter housing that points straight down. Replace the top nut with the supplied long hex nut for an easier installation. Note the orientation of the flange on the pictured fitting.





3. Install the other supplied fitting onto the bottom of the factory oil cooler.



4. Install the two 90° Setrab -12 AN fitting onto the pre-assembled Alpha engine oil cooler.



5. Now install the -12 oil cooler lines onto the oil cooler. Install the shorter line (53") on the outer fitting with the 90° fitting going to the cooler. Then install the longer line (62") with the 150° fitting going to the cooler as pictured.



6. Next install oil cooler assembly in the factory washer fluid reservoir location in order to position the oil lines properly. The best way to do this is leave the oil lines hand tight and put the oil cooler in place to find out where they need to be final tightened, then remove cooler and final tighten off the car. Be sure that the lines avoid the crash bar, body and bumper before deciding on a final position.



7. Once the lines are tightened off the car. Install the bumper feed duct. This is attached with the supplied 4 M6x12mm bolts. Then connect the washer reservoir fill silicone as shown. Secure the silicone with the supplied #20 worm gear clamps.



8. Then mount the oil cooler to the car using the original washer fluid reservoir mounting location.

7. Remove the washer fluid pump and grommet from OEM washer fluid tank and install in aluminum tank that is bolted to the oil cooler. Extend the harness for the washer pump and the supplied tubing to connect to original fluid line.



8. The oil lines should both run to the outside of the factory lower intercooler piping. This routing will allow the lines to clear the fender liner.



9. Now mount the oil lines using the pictured hardware. Make sure to use the supplied nylon lock nuts with these clamps.



10. On the driver's side use the two holed Alpha bracket and one two line clamp. Be sure that the slim side of the clamp (red arrow in the above picture) is against the alpha bracket. Bolt underneath the undertray support bracket as shown. Use the supplied lock nut to secure the bolt through the clamp.



11. On the passenger side use the single holed bracket with the other supplied two line clamp. Once again ensure that the slim part of the clamp is against the Alpha bracket as shown. The middle undertray uses the same bolt hole as this bracket to attach to the body, so leave this bolt out until putting on the undertray.



12. The oil cooler lines also get routed through the OEM line mount. Use the supplied spacer to open the mount up to accept the larger oil cooler line.



13. Once the Alpha oil cooler and lines are installed, the bumper must be trimmed to allow air to get to the oil cooler. If the car is 2011 or older mirror the hole in the bumper on the passenger side that feeds the stock oil cooler. If the car is 2012 or newer, place the bumper back on the car, and make a mark on the inside of the bumper where the cooler shroud contacts the bumper. Remove the bumper and trim accordingly.

14. Once done with the installation of the Alpha engine oil cooler, fill system with oil until it shows on the dip stick. The system will now take more oil than the car would stock.

Race Transmission Cooler Installation

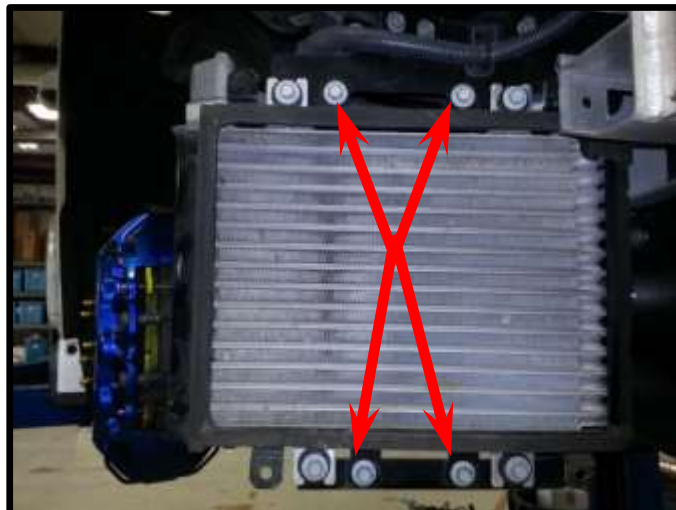
1. Run to the two supplied -8 AN Aeroquip lines to the top two hardlines on the Alpha liquid to liquid transmission cooler as shown.



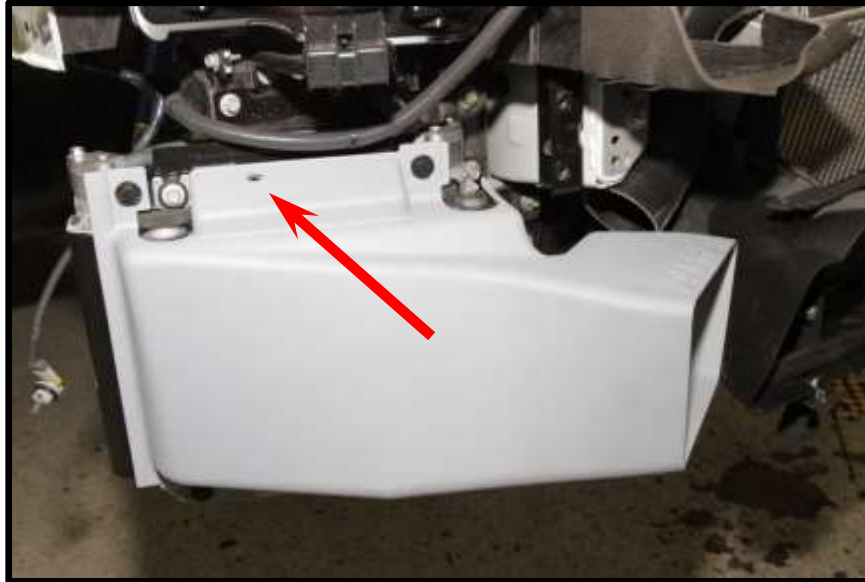
2. Install the Alpha liquid to liquid transmission cooler starting with step 10 from the Transmission Cooler Installation section. Run the -8 AN Aeroquip lines across the front of the motor and through the wheel well area as shown before mounting the cooler to the front of the engine.



3. Confirm the -8 AN lines are not contacting anything in the engine bay. Use the supplied zip ties to position the lines so they do not touch anything.
4. Remove the factory crash bar, oil cooler shroud and metal bracket. Attach the Alpha air to liquid transmission cooler using the bolts indicated in the following picture.



5. Attach the factory metal bracket and Alpha Shroud (shroud may be black). Use the supplied plastic clip in the additional hole (red arrow).



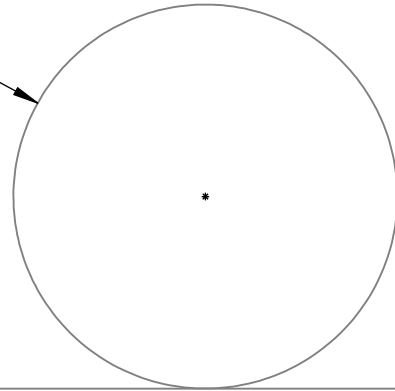
6. Screw in the 22mm x 1.5 to -8AN fittings into the cooler. Use a little bit of oil on the O-ring before installing. Attach the oil cooler line with the 45 degree hose end to the cooler closest to the bumper. Attach the 90 degree hose end to the fitting closest to the radiator.

7. Make the following modifications to the passenger side of the crash bar to clear the new cooler.

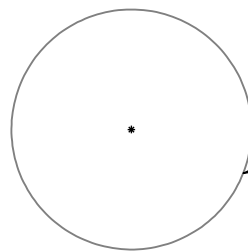


8. Reinstall the factory crash bar.

2" Hole Saw



Bend Line



Drain Hole