



**ALPHA** 

INFINITI Q50/Q60 RED ALPHA

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**RACE HEAT EXCHANGER**

# Introduction

The goal of AMS Performance is to provide the highest quality, best performing products available. By utilizing research and development, and rigorous testing programs AMS Performance will never compromise the quality or performance of our products. In addition, AMS Performance will only provide the finest customer service offering only parts and advice that are in the best interests of the customer. AMS Performance was built on a foundation of integrity. This is who we are; this is what you can count on.

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 Performance product(s) please call us for technical assistance. The AMS Performance tech line can be reached during business hours at 847-709-0530 for AMS Performance products only.

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**Note:** The installation instructions performed here were done using a Q50 Red Sport. Depending on your model and trim level, some steps will vary. There will be component differences between the model and trim levels, but the same basic installation procedure still applies.

**Note:** Bleeding the intercooler system requires the use of the OEM CONSULT tool, EcuTek software, or bleeding system called an Air Lift or Vacuum Venturi Cooling System Refilling System that is available at any major automotive tool retailer. Please see the Bleeding Section at the end of the instruction before continuing.

1) Remove battery and brake master access cover panels. After removing the panels, completely disconnect the battery.

**Caution!** On certain models, it may be necessary to disconnect and/or remove an air bag sensor. Make sure to disconnect the battery!



2) Remove the engine bay trim panels that run along the front fenders. These can be difficult to remove. Start at either end, pull straight upwards releasing the clips underneath. While pulling upwards, wiggle the panel around to try and release the clips. Plastic panel trim tools can also be used to get under the panel to pry upwards as well.



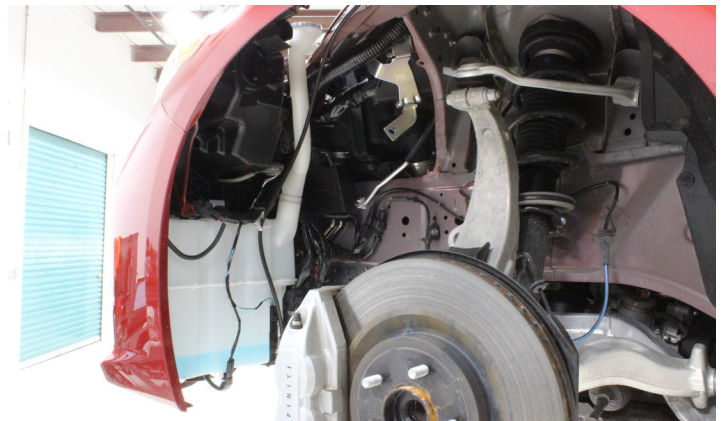
3) Remove the front core support cover / air box inlet duct panel.



4) Raise the vehicle up and remove the center under tray.



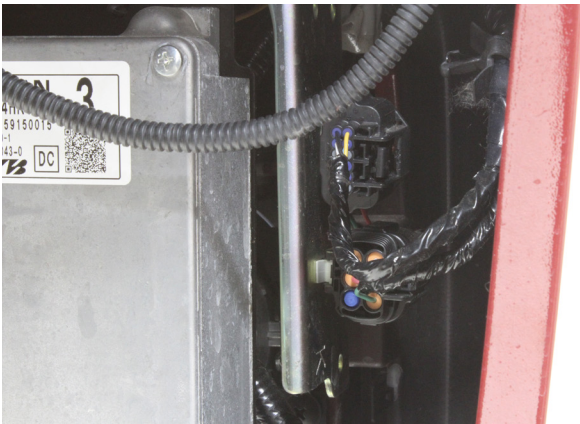
5) Remove both front wheels and both front wheel well liners. You only have to remove the front half of the wheel well liner.



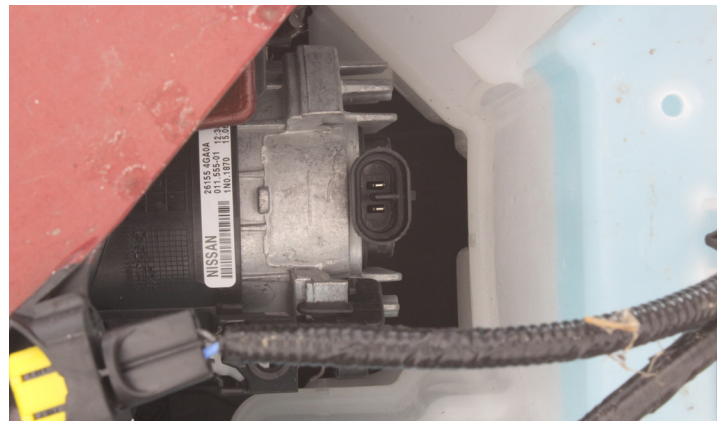
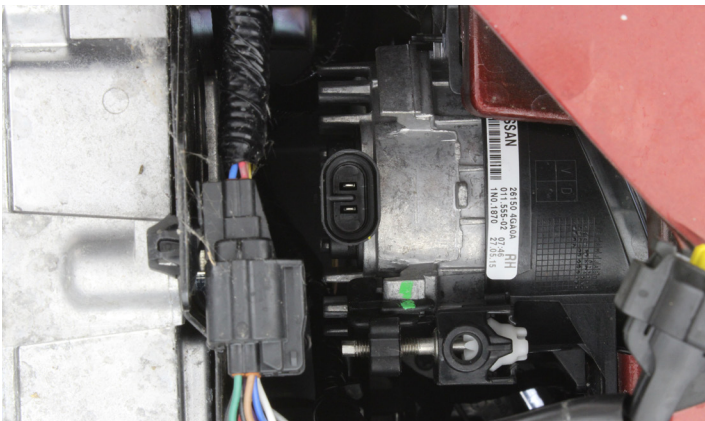
6) Disconnect the front LED running light harnesses on both sides. The connectors are located just below the headlights.



7) Inside the right-side wheel well just behind the bumper, locate and disconnect the two connectors for the parking sensors and front camera.



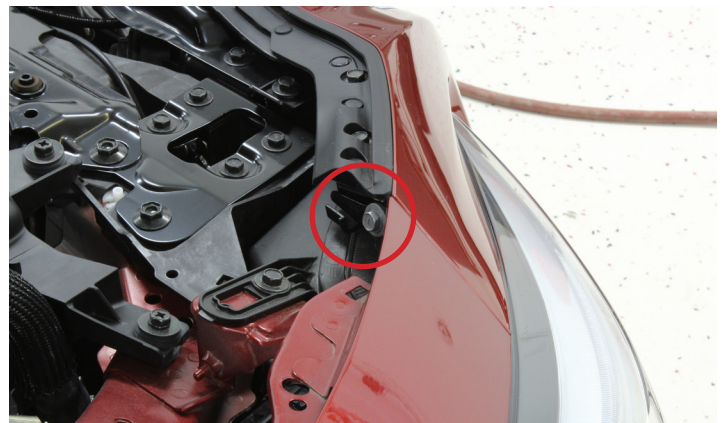
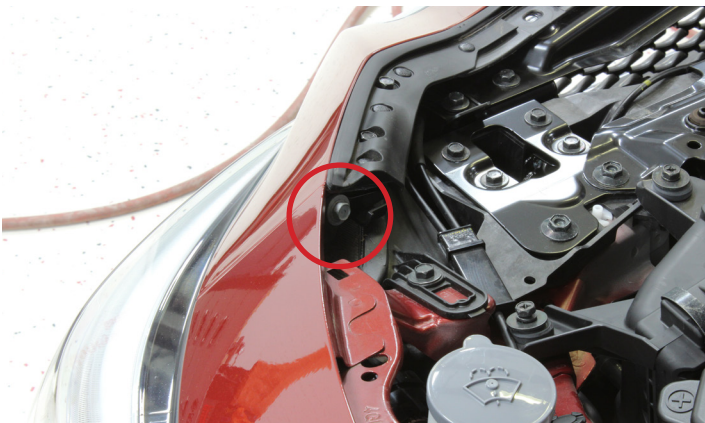
8) From the bottom of the car, disconnect both front fog lights.



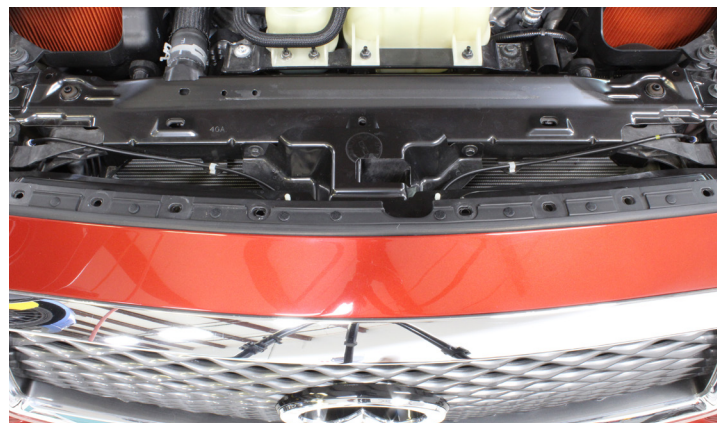
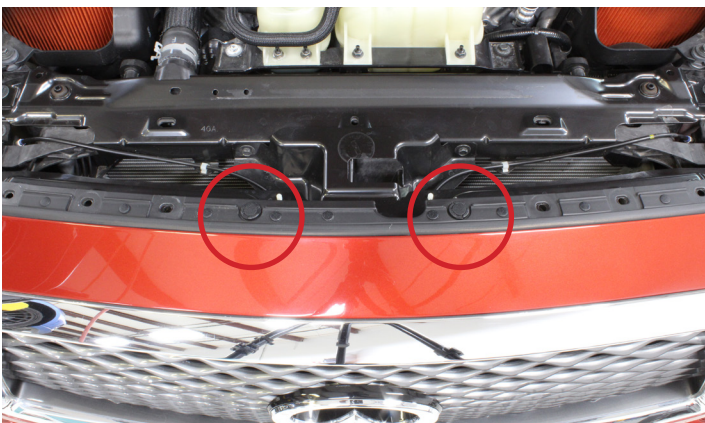
9) Remove the 10mm screw from the inside corner of the bumper where it meets the fender on each side.



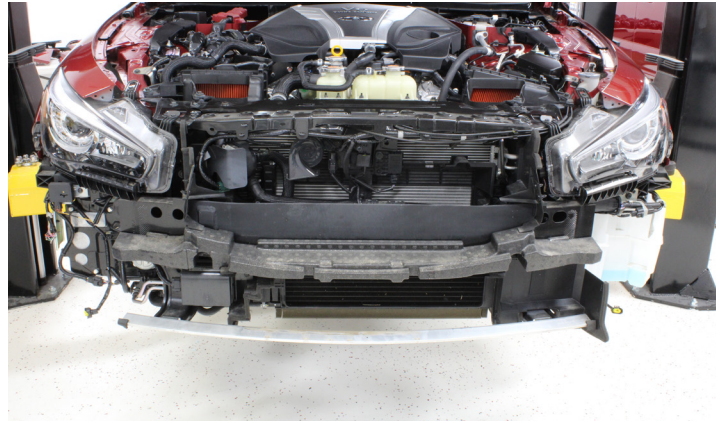
10) Just above the headlights where the top of the bumper and the fender meet, there is a bolt and retainer plate holding the two together. Remove the hardware shown.



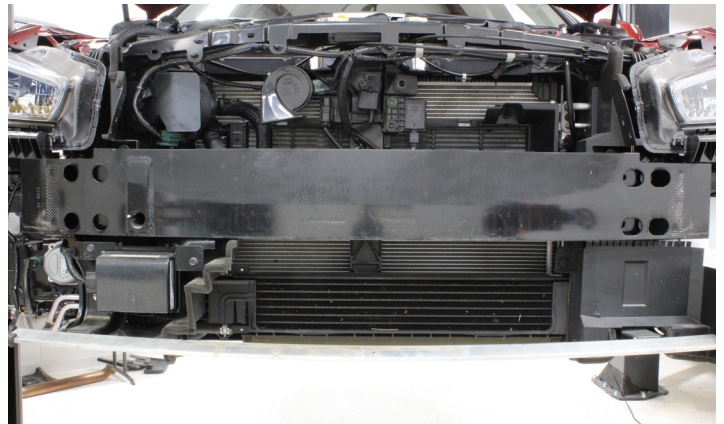
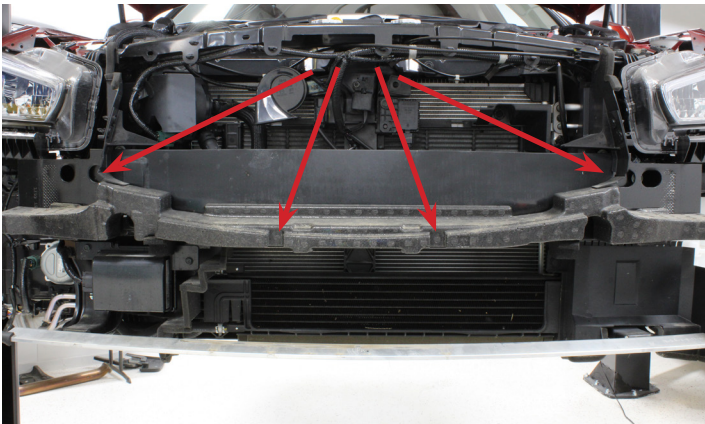
11) On the top of the bumper, remove the last two push pin clips.



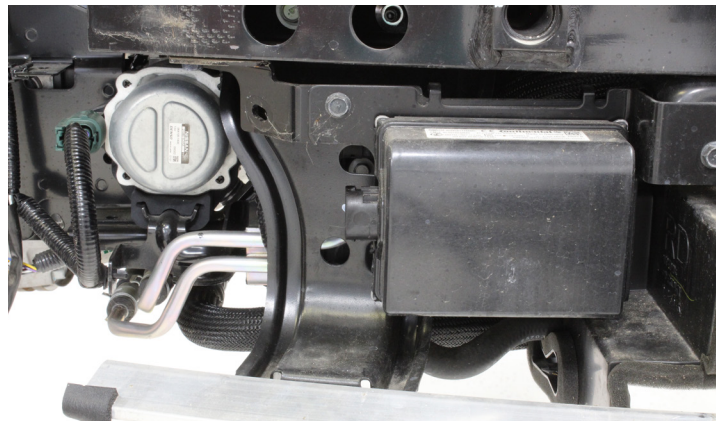
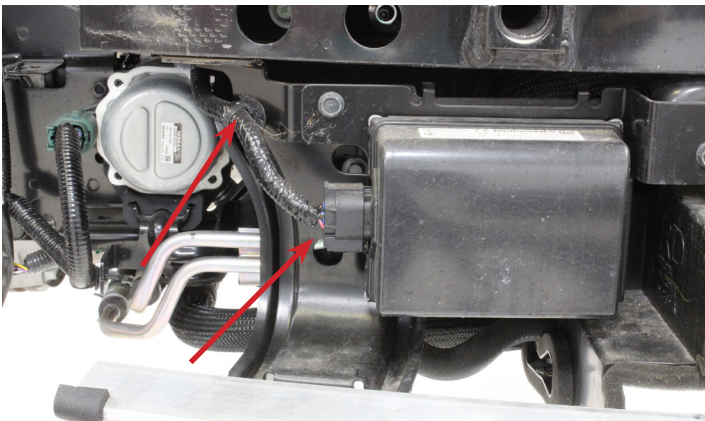
**12)** Carefully remove the front bumper. A second person is recommended for help. Make sure to pull the areas of the front bumper that meet the fender away from the headlights when removing. Masking tape is also highly recommended to protect any edges, panels, and headlights from being scratched during removal.



**13)** Remove the foam crash beam insert along with any plastic trim panels that overhang the crash beam.

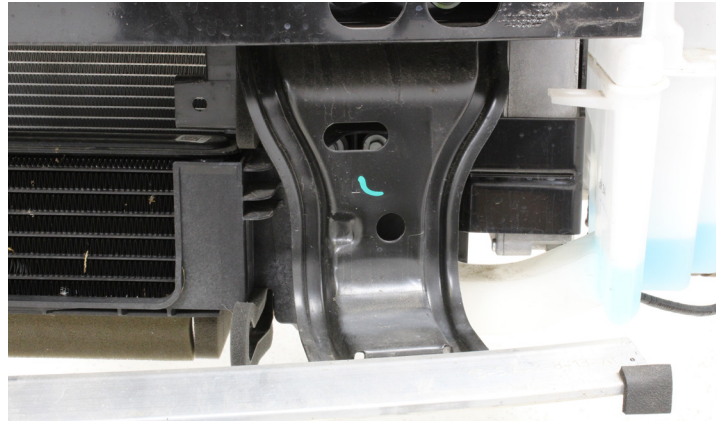
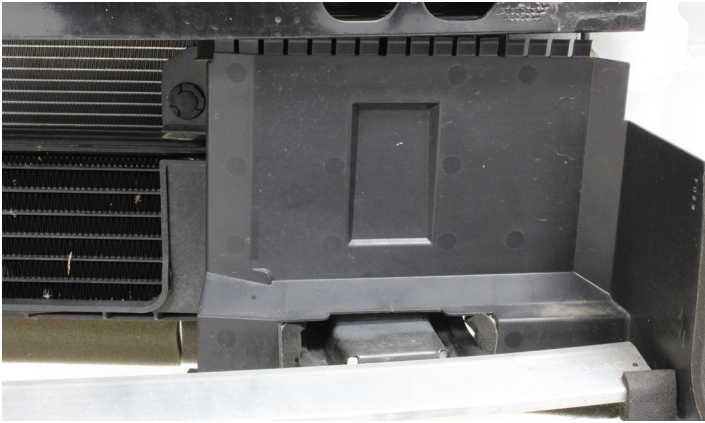


**14)** For the Q50 and Q60 if equipped, disconnect, and remove the ICC (Radar Sensor) harness. The Q50 sensor is in the lower right corner of the crash beam (shown). The Q60 is located on the top center of the crash beam.

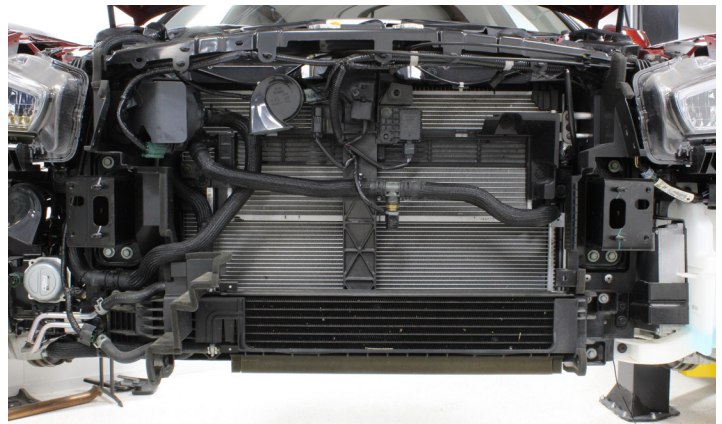
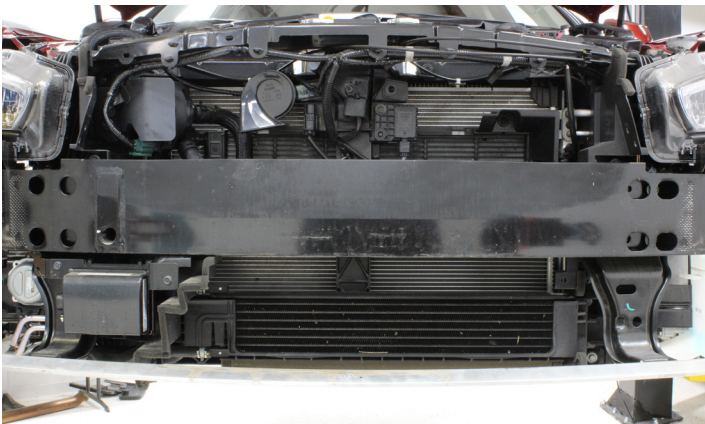




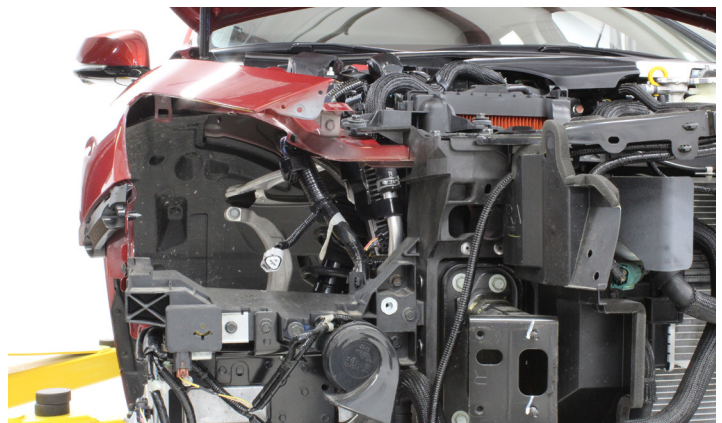
15) Remove the plastic panel that overlaps the crash beam bracket.



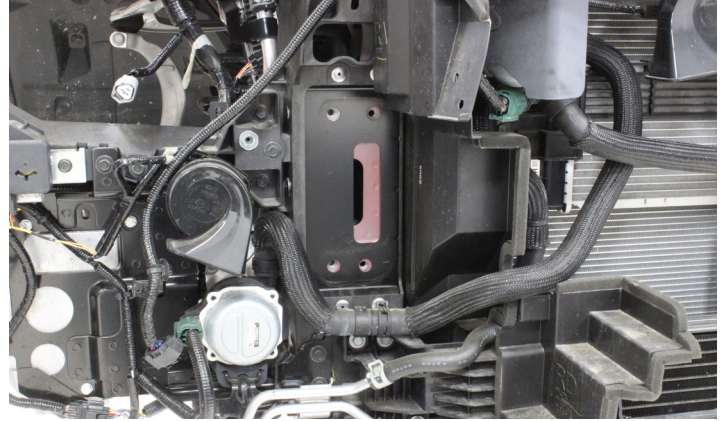
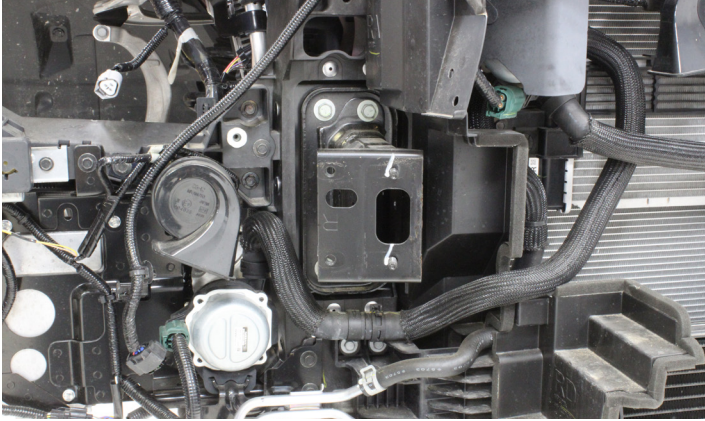
16) Remove the crash beam. The Q60 has a louvered lower section controlling air to the engine oil cooler. Make sure to disconnect the harness on the lower left side of the crash beam and remove as an assembly. Also make sure the outside temperature sensor on the Q60 is disconnected since it is attached to the crash beam.



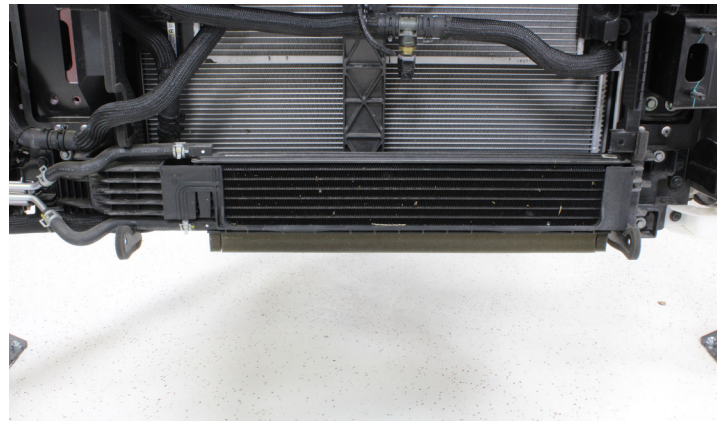
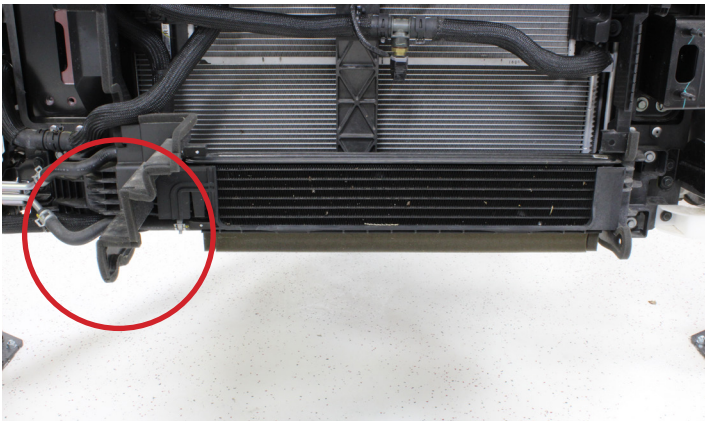
17) Remove the right-side headlight. It is held in place with four M6 bolts and has three electrical connectors on the back side.



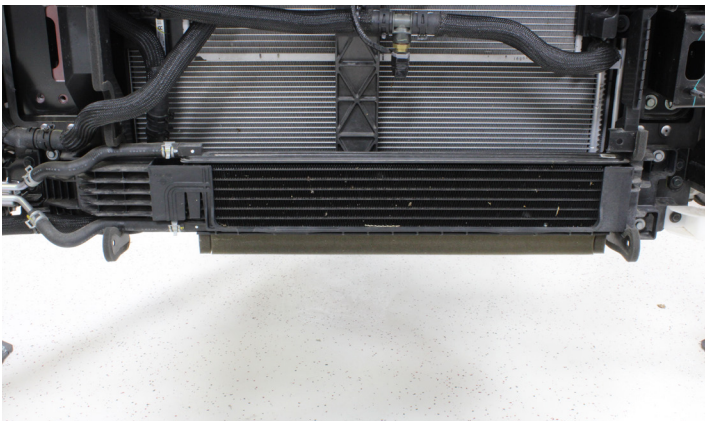
**18)** Remove the right-side crash beam mount. These are specific bolts holding the mount in place. They are 13mm hex head bolts that look similar to the 12mm hex head crash beam bolts. Make sure not to mix them up during reinstallation.



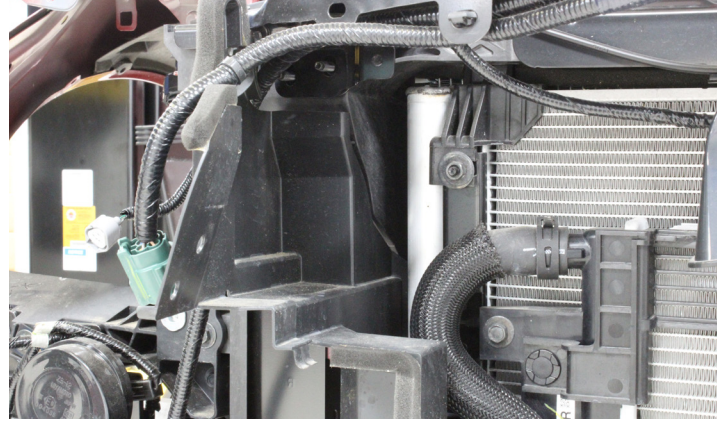
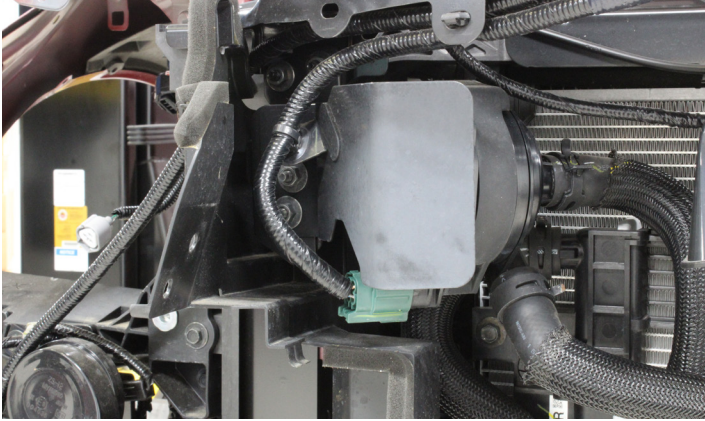
**19)** If equipped with an engine oil cooler, remove any plastic panels covering it.



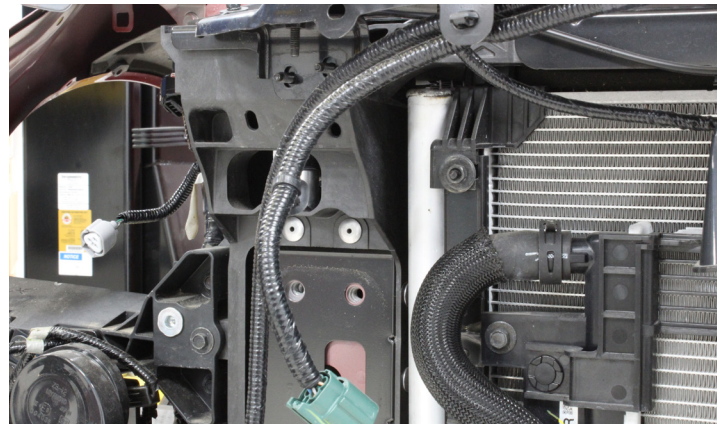
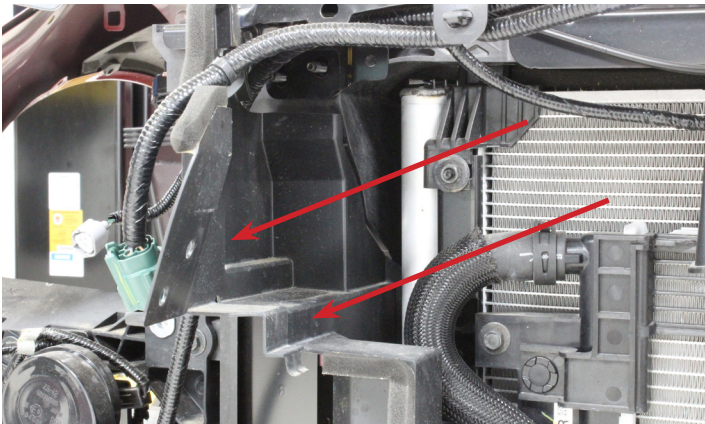
**20)** Remove the oil cooler. Remove the one bolt holding the metal lines in place on the right side and then remove the six bolts, three on each side. Disconnect the feed and return hoses. It is recommended to cap off these ports once the oil cooler is off, so debris does not get inside. Make sure to have a drain pan underneath.



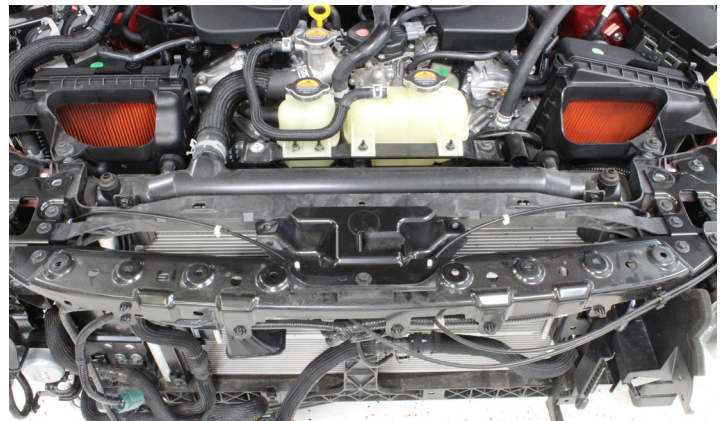
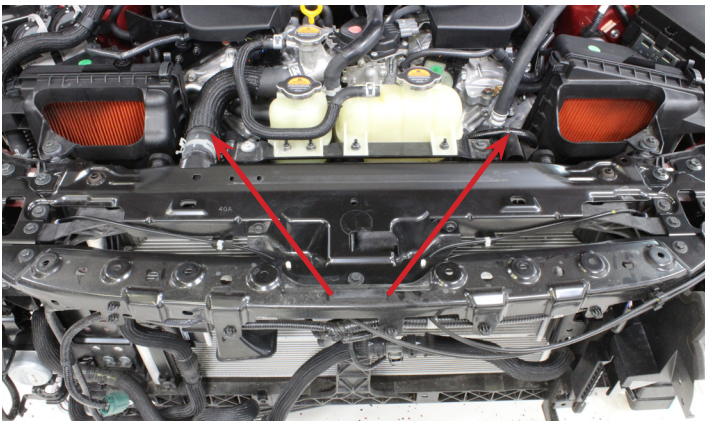
**21)** If your Q60 or Q50 trim level is a Red Sport, you will need to unbolt the secondary water pump. Disconnect the electrical connector and unbolt the pump and bracket from the core support. You will not need to disconnect the hoses from the water pump. Allow the pump to hang.



**22)** Remove the plastic air duct.



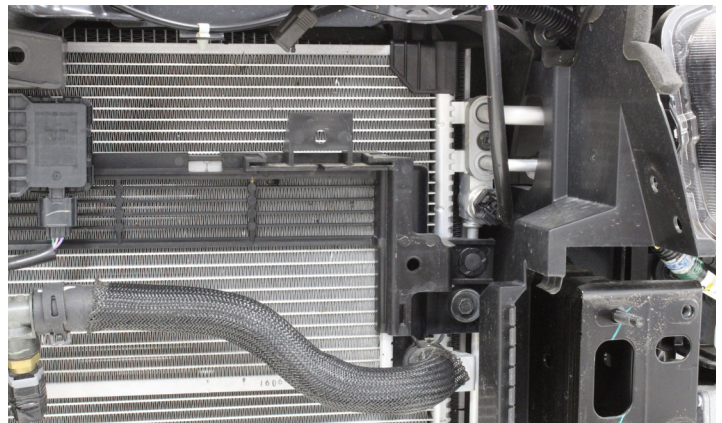
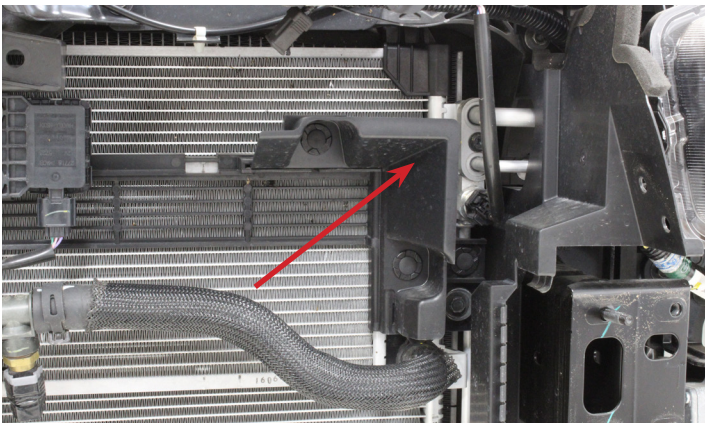
**23)** Remove the top radiator support plate. The Q60 and Q50 models vary slightly.



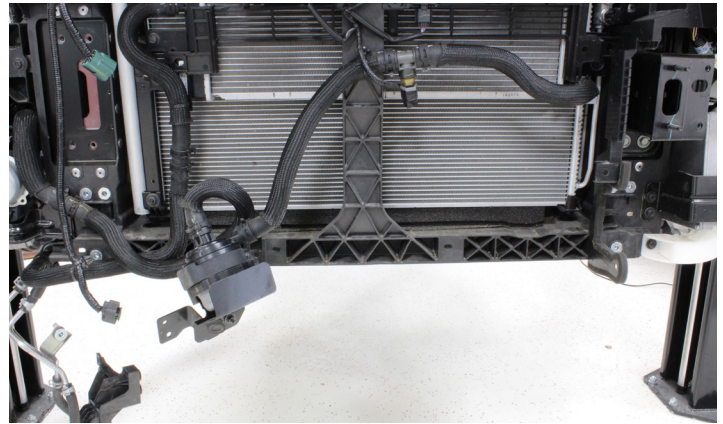
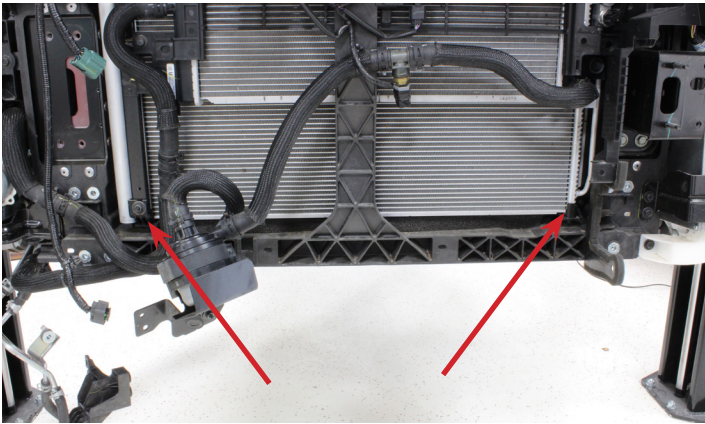
**24)** Drain the coolant out of the intercooler system only. The intercooler and engine coolant systems are separated. Remove the radiator cap from the small reservoir on the right side of the car. The system drain is on the bottom right side under the core support just under the main intercooler coolant pump.

**Note:** Make sure to drain as much coolant out of the intercooler system as possible. Bleeding the system will be difficult otherwise even using an air lift system.

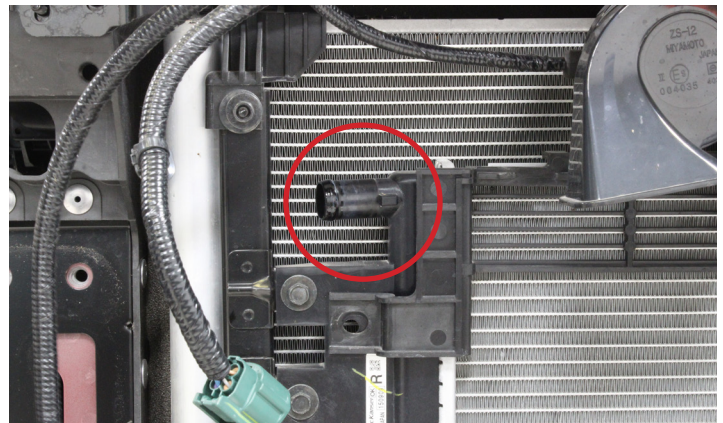
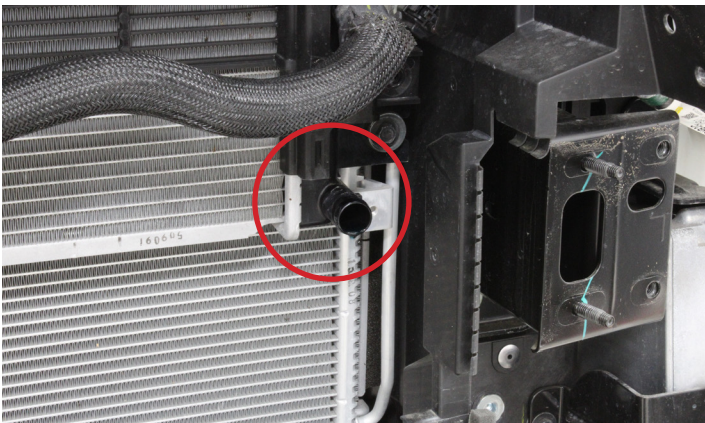
**25)** Remove the small corner air duct from the factory heat exchanger.



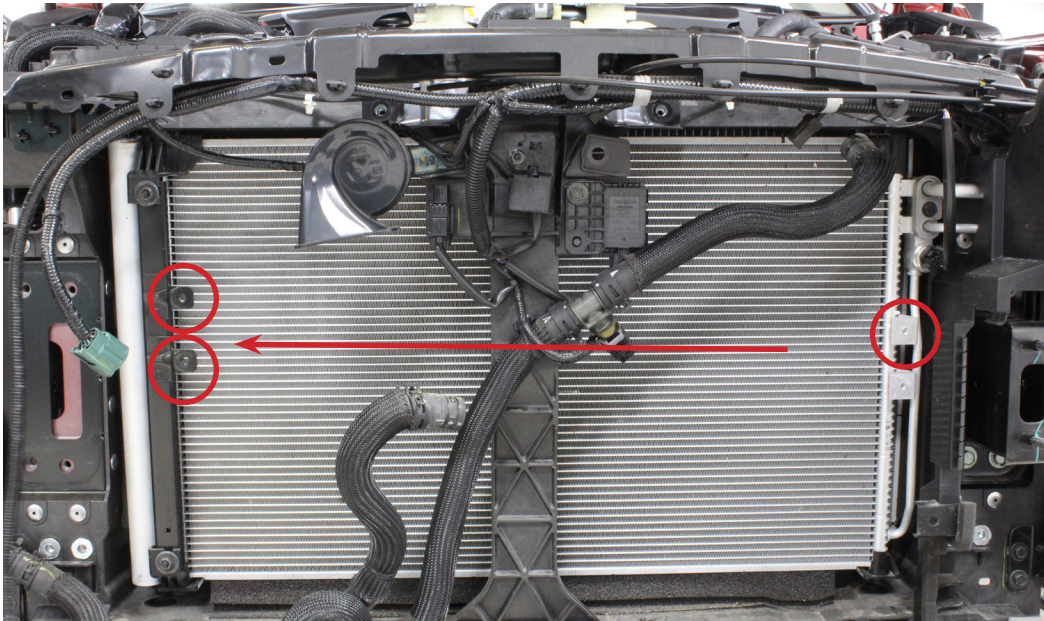
26) The radiator and A/C condenser needs to be moved towards the rear of the car. To do so, carefully use a pry bar and lift at the base of the rubber radiator mounts. **DO NOT LIFT ON THE PLASTIC END TANK OF THE RADIATOR!** You may also need to push the top of the radiator towards the rear of the car while lifting it upwards to clear the upper core support bracket. Once the rubber mounts are lifted out of the core support, push the assembly towards the rear.



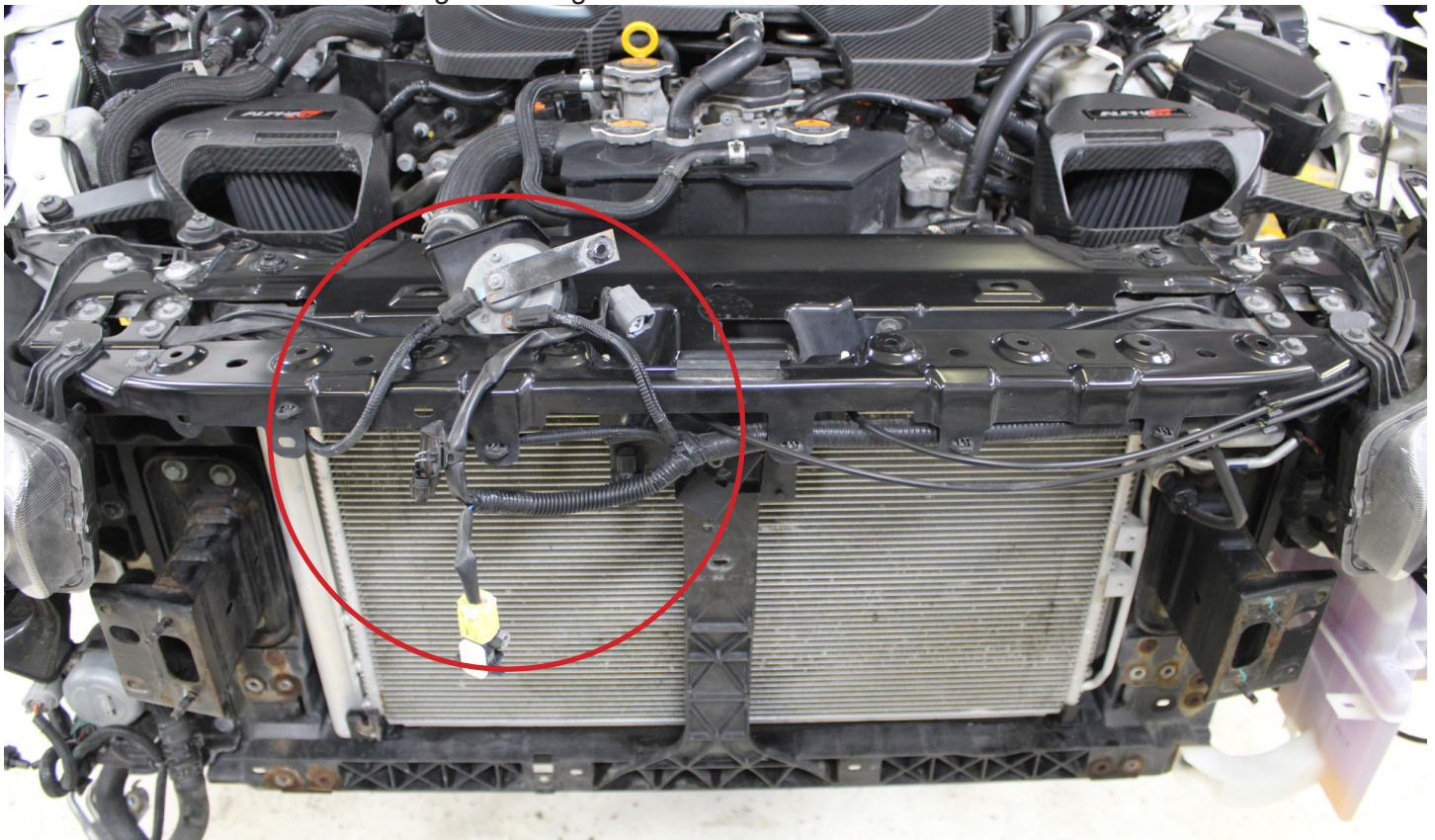
27) Disconnect the inlet and outlet hose on the factory heat exchanger. Make sure to have a drain pan under the disconnection point to collect coolant that still remains in the system.



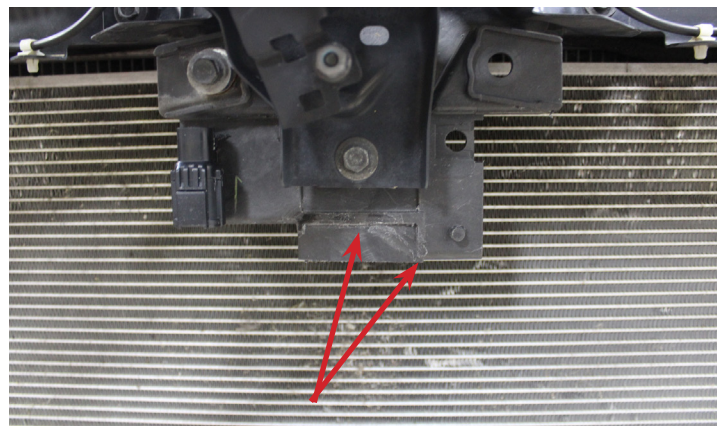
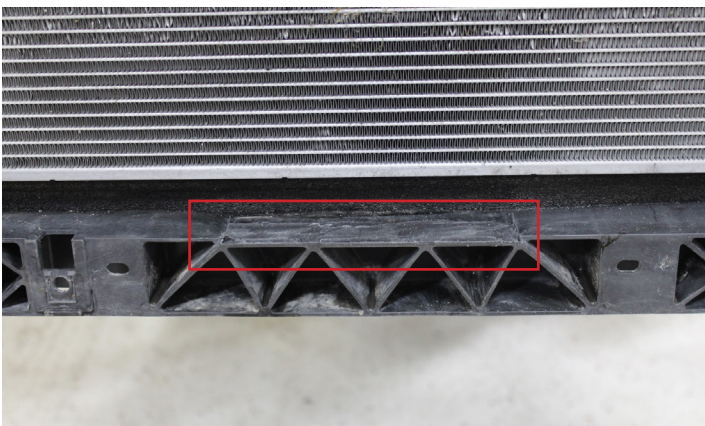
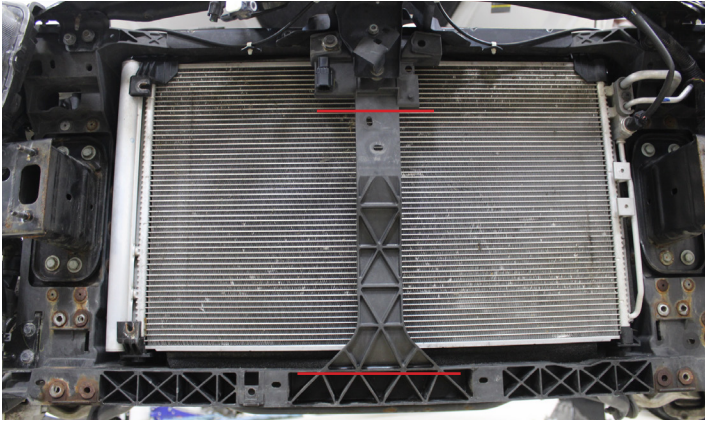
**28)** Carefully remove the three bolts holding the factory heat exchanger in place. Carefully remove the heat exchanger by sliding it out the right side of the car. There is a plastic guard still attached to the heat exchanger, remove if necessary.



**29)** Unbolt the horn and disconnect all sensors on the upper portion of the plastic upright core support brace. Flip these over the core support so they are out of the way for the remainder of the steps. Ensure the battery is disconnected before disconnecting the airbag sensor.



**30)** Cut out the plastic upright support on the lines instructed below. For a clean surface finish, clean it up with a sander and deburring tool. Grind down the lip on the upper section after your cut for the Alpha core support bracket to fit flush. This is specified by the arrows.



**31)** Remove the top radiator support plate. The Q60 and Q50 models vary slightly.

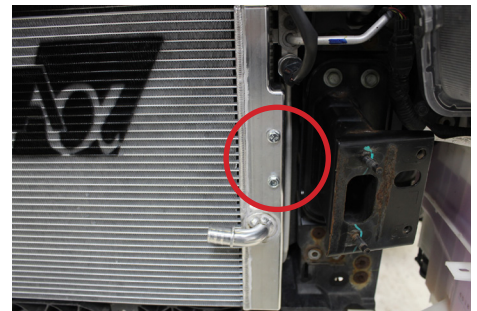
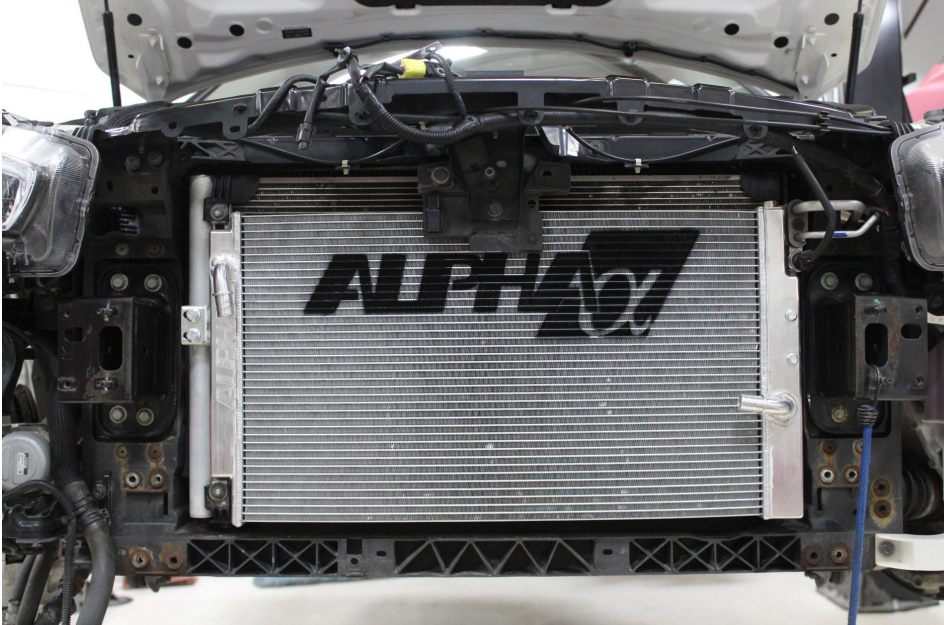


32) Install the right-rear exchanger tank bracket in the stock mounting location utilizing the OEM M6 nuts.

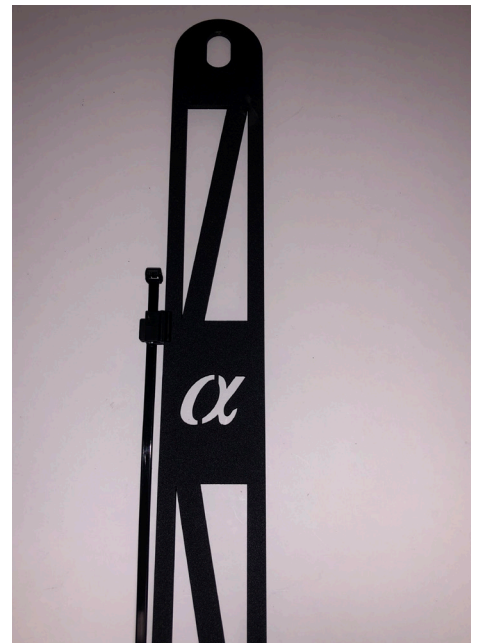




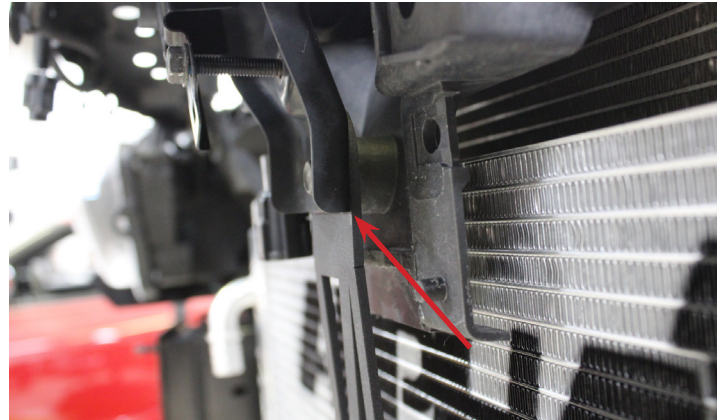
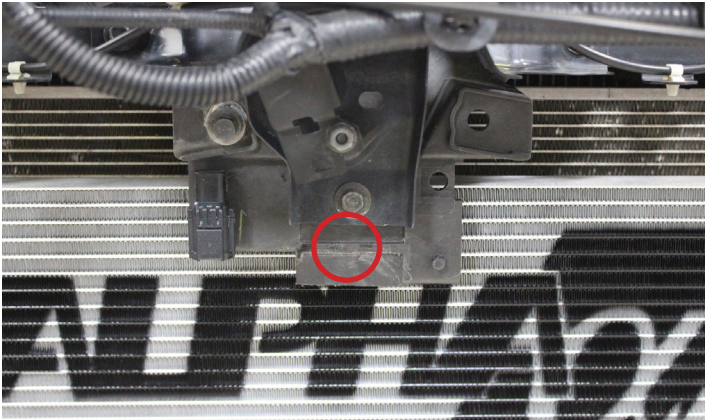
**33)** Install the heat exchanger by angling it and sliding it under the hood latch mount, line up the holes on each end tank. Use the M6 35mm long bolts for the left side and the M6 12mm long bolts for the right side.



**34)** Remove the edge clip portion of the edge clip zip tie, flip it 180 degrees and put it back on as pictured. This will clip onto the Alpha core support bracket and the zip tie will secure the coolant feed hose.

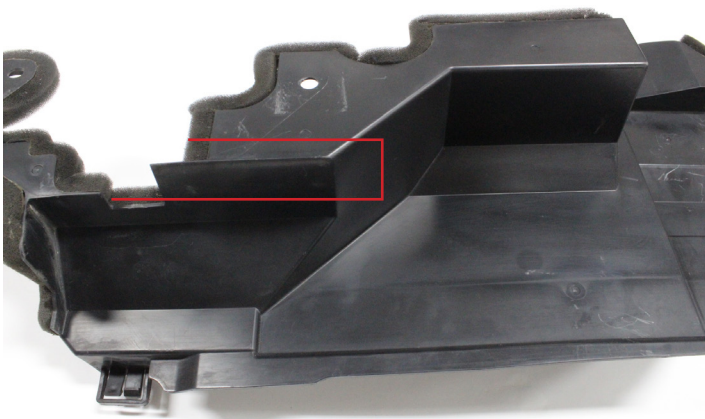


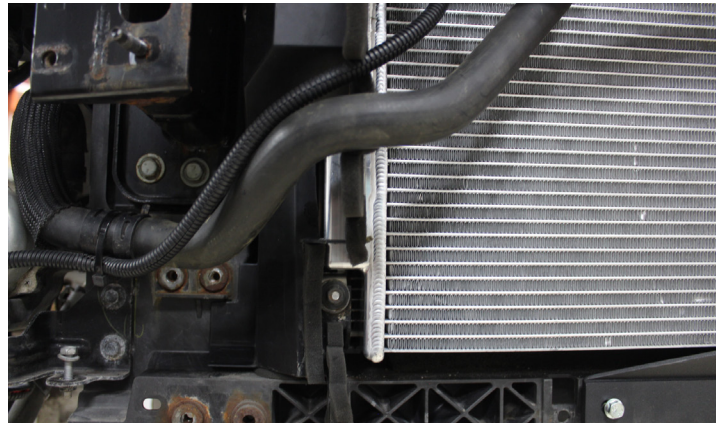
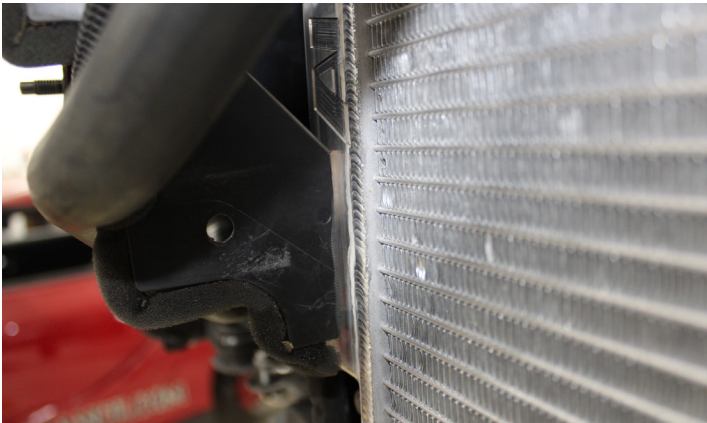
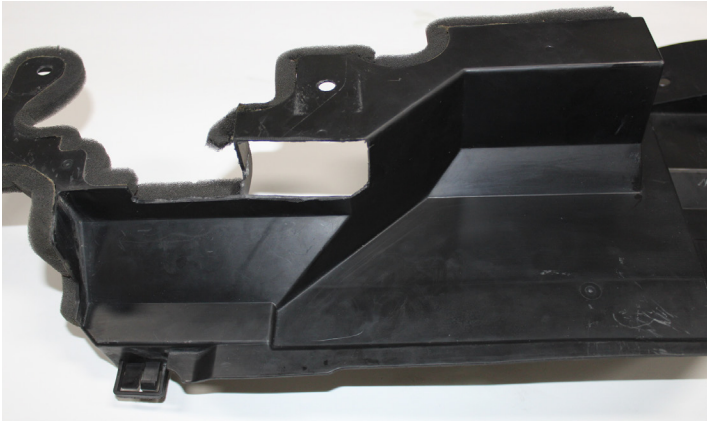
**35)** Install the Alpha core support bracket. The top portion will be sandwiched between both sides of the hood latch mounting section. To accomplish this, remove the center bolt and pull up and away on the core support, while sliding the bracket in. The bottom section will use two factory holes in the plastic bottom support. The proper item orientation for bottom mounting is to have the spacer between the bracket and plastic cross support, followed by the washer and nut on the back of the cross support, all tightened down with the M6 25mm bolt. There is a square cutout on the bottom to access where the washer and bolt go.



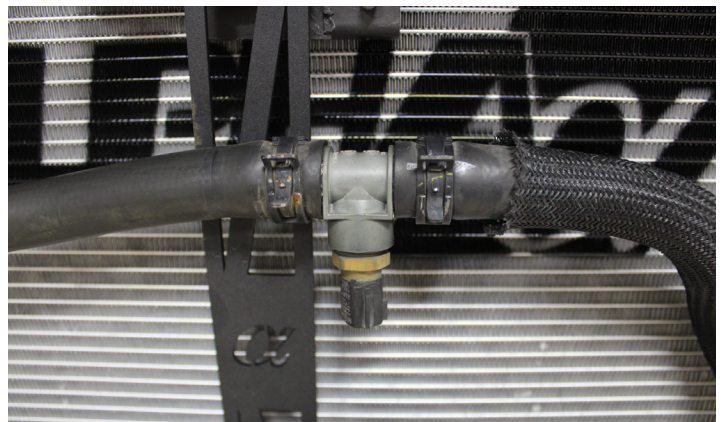
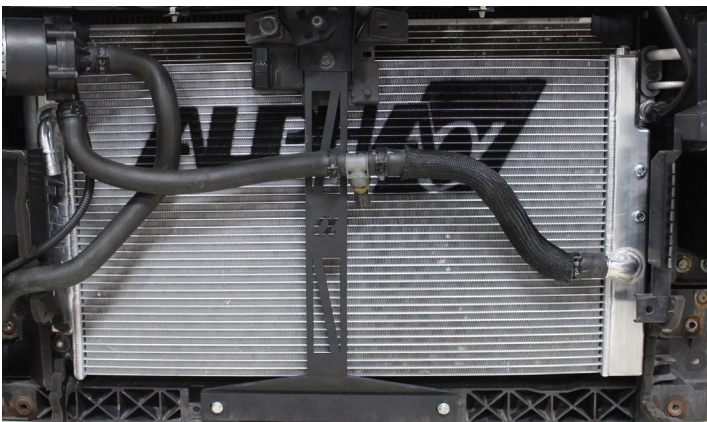
**36)** Install the right-side oil cooler side shroud.

**37)** OPTIONAL STEP: Since the heat exchanger was designed to be the largest for the given space, the shroud may rest on the end tank, which is acceptable and has no adverse effect. However, if you are looking for a cleaner install, you may trim this piece such that there is clearance between the end tank and the shroud.





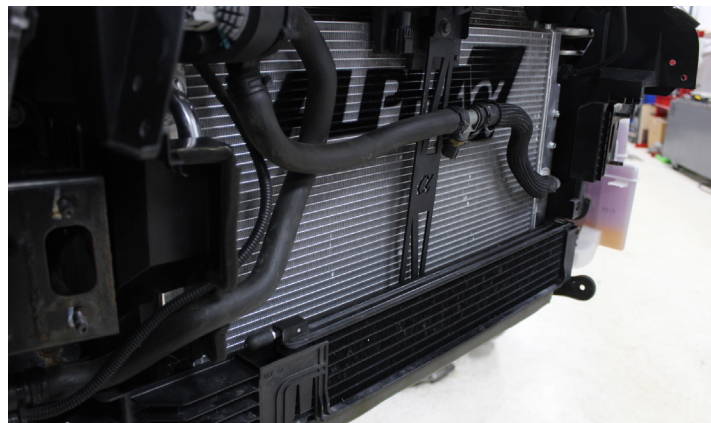
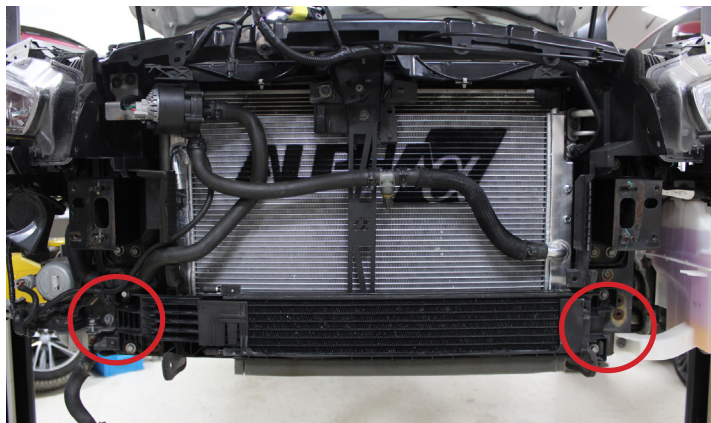
**38)** Use the stock coolant feed hose and clamp it to the left end tank fitting, using the OEM clamp. This may require loosening the clamps at each end of the hose and rotating the hose, so it fits as pictured. Do the same for the coolant temperature sensor, ensuring it is pointing straight down.



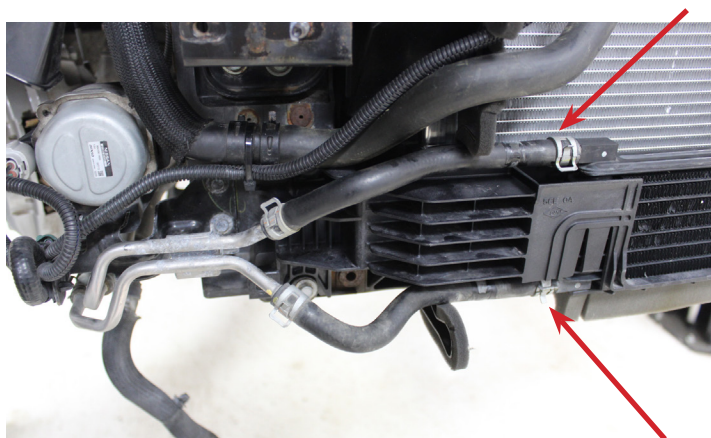
**39)** Trimming of the oil cooler shroud is required for sport and red sport models. If your Infiniti does not have a factory oil cooler, proceed to the step 42. If this does apply, use the pictures below as a trimming guide.



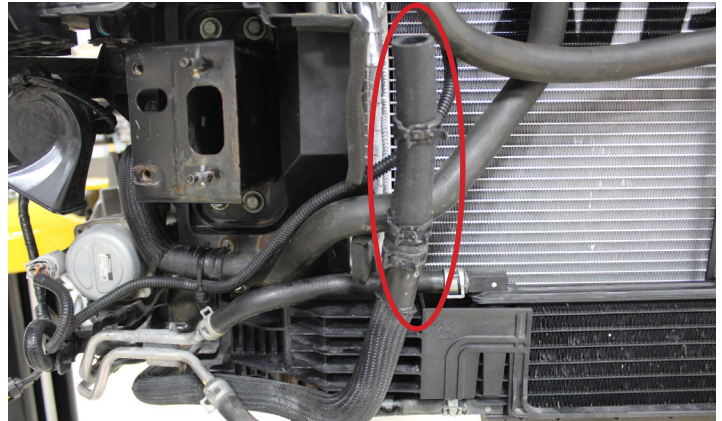
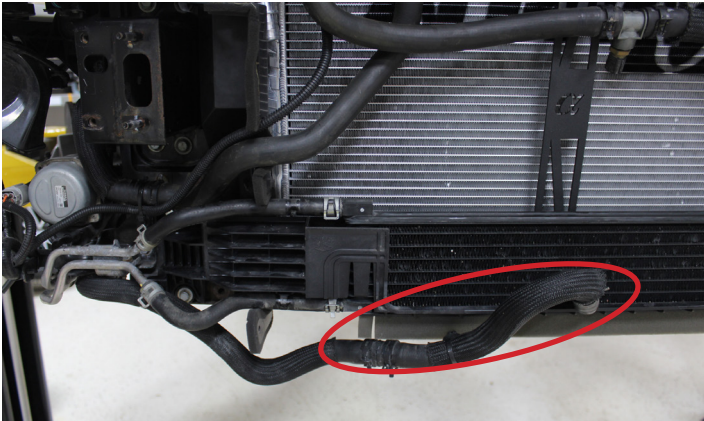
40) Install the oil cooler using the factory hardware (3 bolts per side).



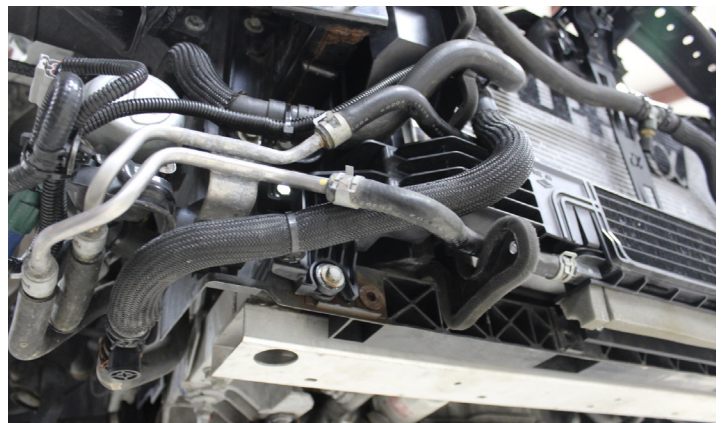
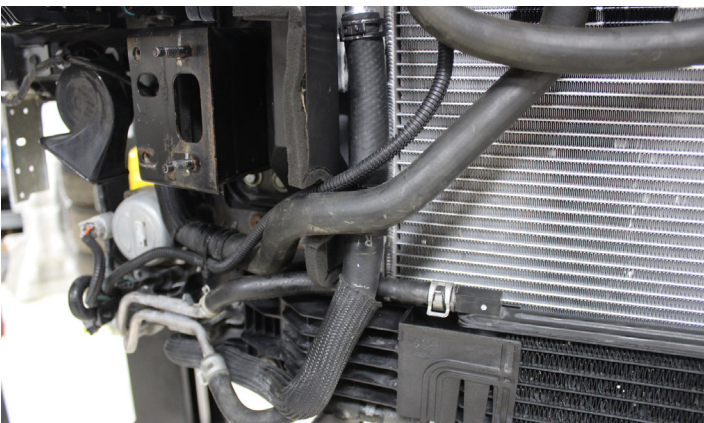
41) Connect the factory oil cooler hoses and bolt the hard line back into place.



**42)** Replace the portion of the coolant return hose after the union with the supplied 3/4" heater hose. Extra hose is supplied, trim to fit. Five inches should suffice, but measure and cut as needed. .

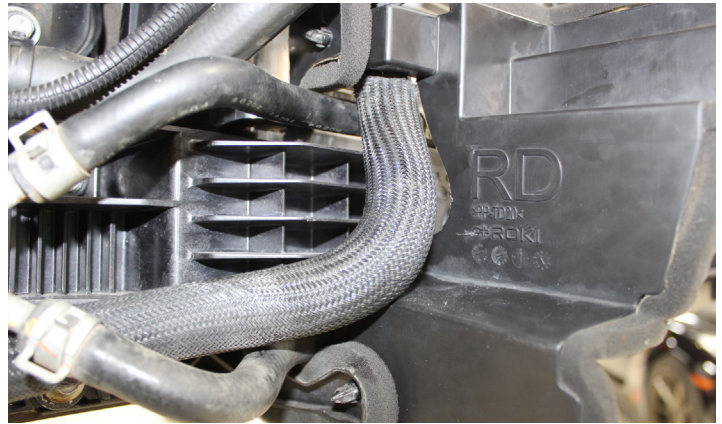
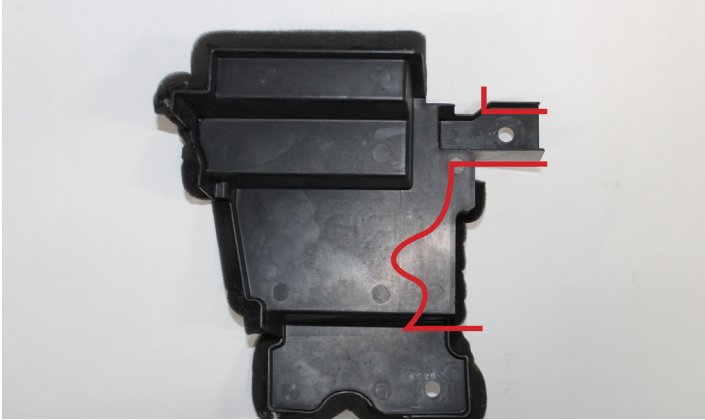


**43)** Clamp the return hose to the right end tank fitting using the OEM hose clamp, routed as shown. Turn the hose clamps on the union connection so they are not rubbing against the pump feed hose in front of it.



**44)** Bolt the horn back into place and reconnect all front sensors as shown. From the factory, there is blue thread locker on the airbag sensor. It is recommended to re-apply this before bolting it in.

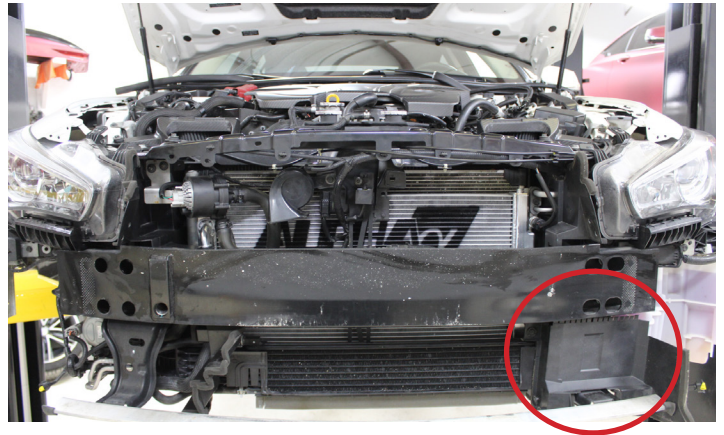
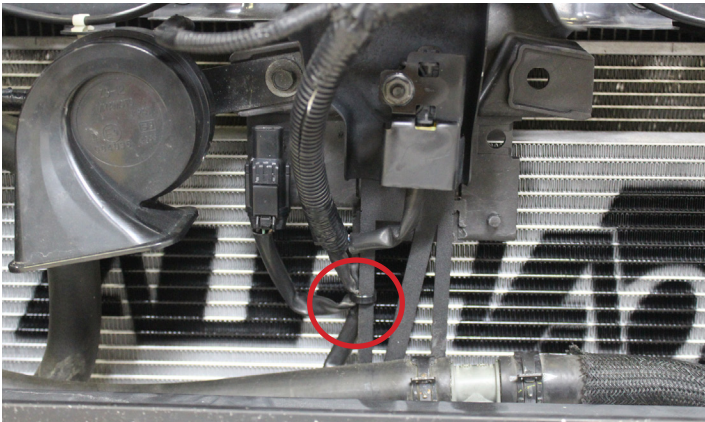
**45)** Install the right-side shroud that goes over the front of the oil cooler. It is required to trim this part for it to fit and clear the return hose. You may choose to not reuse this part. Below is a trimming guide.



**46)** Re-install the front crash bar.

**47)** Install the left side lower oil cooler shroud.

**48)** Zip-tie the wiring harness to the Alpha core support bracket as shown.



**49)** Reassemble the vehicle in the reverse order of removal.

**50)** Be sure to re-fill the oil that was lost during the oil cooler removal, as well as the coolant. Coolant bleeding instructions are below.



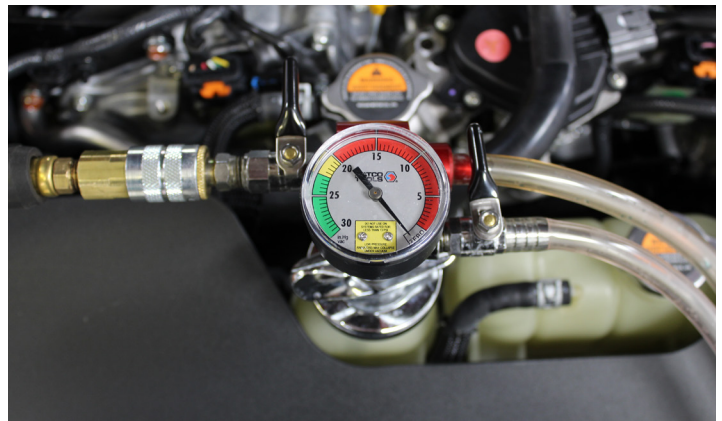
## 51) Intercooler Coolant Bleeding

The intercooler system on these vehicles is difficult to bleed to avoid an “air lock” condition due to the intercoolers being the highest point. Since the intercooler pumps are not self-priming, they cannot move air. If one part of the system has an air pocket close to the pump, no coolant flow will occur. It is also important to know that damage may occur to the intercooler pumps if they run dry with no coolant present in the system. Avoid this at all cost! Standard bleeding procedures will not work. Here are two options listed below.

1. The factory bleeding procedure requires the use of the OEM CONSULT tool to put the car into “Full Drive Mode” that will run the pumps at idle for bleeding. Coolant is added to an open system while the pumps run the start circulating coolant. This procedure can be performed by your local INFINITI Dealer.

2. The method we use for intercooler system bleeding uses a widely available system called an Air Lift or Vacuum Venturi Cooling System Refilling. These systems use compressed air to draw the coolant system under a vacuum removing all the air. The vacuum then draws in coolant into the entire system. Almost no bleeding is required after.

<https://www.matcotools.com/catalog/product/MCR103A/COOLING-SYSTEM-FILLER/>



After completion, test drive the vehicle and check the fluid level in the reservoir. Once the coolant level has maintained a constant level, crack open the bleeder at the top of the Alpha heat exchanger with the engine off and reservoir cap removed. If properly bled, there should not be much, if any air in this area. The bleeder was added in the system due to the increased size of the core and the outlet being slightly lower than the top of the core. It is possible for some air to be trapped here. If this is the case, continue to drive the vehicle and check the bleeder screw for air until no more coolant comes out and the fluid level in the reservoir is stable and consistent.

### 3. The third method is for those who have the EcuTek tuning software.

There is a system bleed procedure built into the tuning app on your phone. This feature turns the auxiliary pumps on to cycle coolant through the system, Utilizing the bleed port feature on the left tank of the heat exchanger, you can allow all the air in the system to escape. Have a funnel filled with coolant ready in the filler neck. Press the icon on the app to drive the pumps and crack the bleeder on the heat exchanger to let the air out. Fill it up with coolant as needed until you are done. You may have to repeat this process several times until all air is out of the system. Fully tighten the bleed port once finished. It is helpful to keep a hand on the pump or listen for when air is passing through. When air passes through, the pump has a sudden pulse or 'hiccup'. A good way to tell when there is no air left in the system is when the pump is continuously running smooth.

**Once the system is properly bled, Enjoy!**