

# Z1 DIFFERENTIAL COOLER KIT INSTALLATION MANUAL



This Installation Manual is intended for the following models:	
2003-2008	Nissan 350Z
2003-2007	Infiniti G35
2008-2015	Infiniti G37
2009-2020	Nissan 370Z
2023+	Nissan Z

## PROLOGUE:

Study these instructions completely before proceeding to assembly. The installer must have a thorough knowledge of automotive systems operation. If unfamiliar with any of the concepts outlined in this instruction, we recommend the installation be completed by a qualified professional.

## WARNING!

Extreme caution should be taken when performing maintenance or performance upgrades to your vehicle. Please observe and abide by any Warning or Caution labels placed on the various components and tools used when servicing your vehicle. If you have any questions regarding installation or the various components included with the Z1 Motorsports Differential Cooler Kit, consult with a Professional Mechanic or contact Z1 Motorsports for more information.

## **PARTS INCLUDED:**

Item	Quantity	Description
1	1	Oil Pump
2	1	Spal 5.2" Fan
3	1	Z1 Procooler 25 Row
4	1	Oil Pump Bracket
5	2	Long Cooler Bracket – Chassis Side
6	1	Cooler Bracket Left – Cooler Side
7	1	Cooler Bracket Right – Cooler Side
8	1	Fan Shroud
9	1	Pump Feed Line – 60° 8AN to 90° 8AN Swivel
10	1	Pump Return Line – 130° Banjo to 90° 8AN Swivel
11	1	Cooler Feed Line – 90° 8AN to 170° Banjo
12	4	Crush Washer
13	2	M18 Banjo Bolt
14	2	M10 x 16mm Flange Hex Head Bolt
15	8	M6 x 12mm Flange Hex Head Bolt
16	7	M6 Nylon Lock Nut
17	2	M6 x 14mm Socket Head Bolt
18	1	M6 x 22mm Socket Head Bolt
19	4	M6 Flange Nylon Lock Nut
20	4	M5 Flange Nylon Lock Nut
21	2	8AN Oil Cooler Adaptor
22	1	Optional: Z1 High Capacity Differential Cover Kit

## **TOOLS REQUIRED:**

- Hydraulic Jack
- (2) 2-Ton (or greater) Jack Stands
- Ratchet
- Ratchet Extension(s)
- Assorted Metric Sockets/Wrenches
- Torque Wrench
- 8AN Wrench
- Wire Strippers
- Wire Crimp Tool
- Thread Sealant
- Drill
- Drill Bits
- 1/8" NPT Tap

## **SAFETY REQUIREMENTS:**

- Always wear safety glasses and any necessary protective garments. If using any fluids, chemicals, or solvents, a respirator is recommended.
- Always turn the ignition to the OFF position and disconnect the NEGATIVE battery terminal.
- Always use properly rated jack stands when working under your vehicle.
- Always keep limbs and parts away from moving drivetrain parts.
- Only operate drivetrain in safe space and well-ventilated areas.

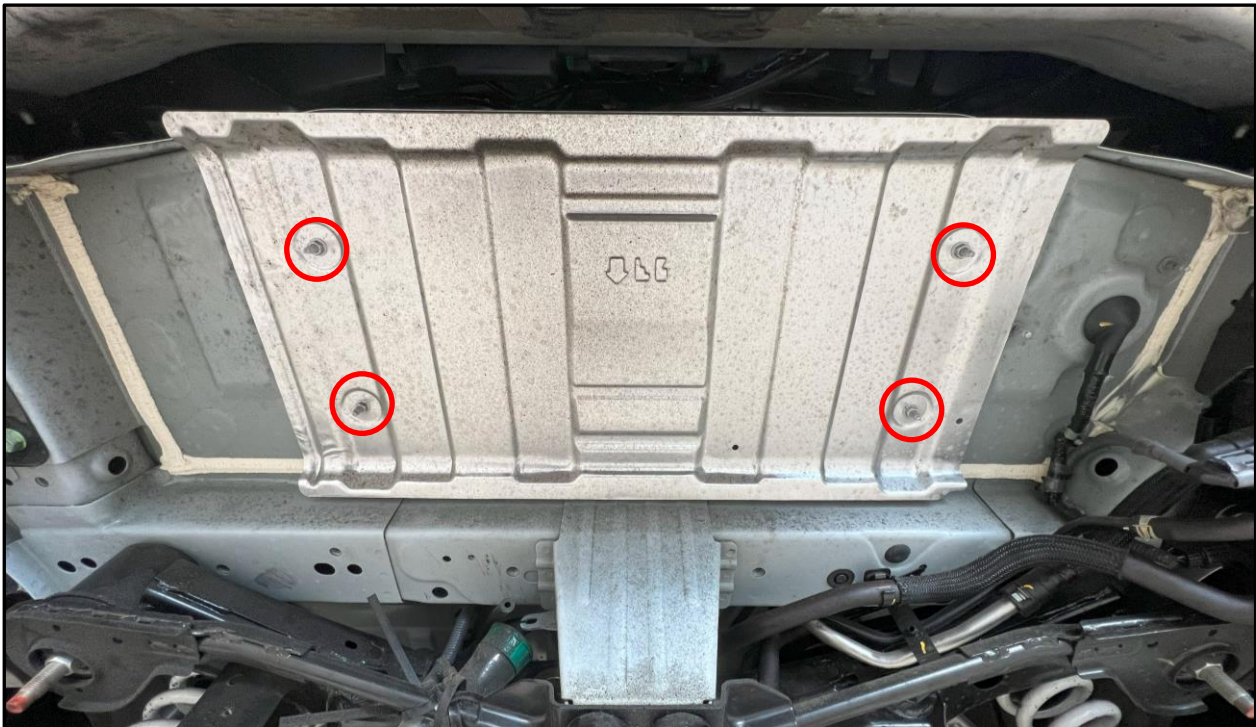
## **BEFORE YOU BEGIN:**

Remove contents from the Z1 Motorsports Differential Cooler Kit and verify that ALL necessary hardware is present.

The Z1 Differential Cooler Kit is designed to work with the Z1 High Capacity Differential Cover. It may work with other aftermarket differential covers, but we cannot guarantee line fitment or length. The instructions below will only cover vehicles with the Z1 High Capacity Differential Cover.

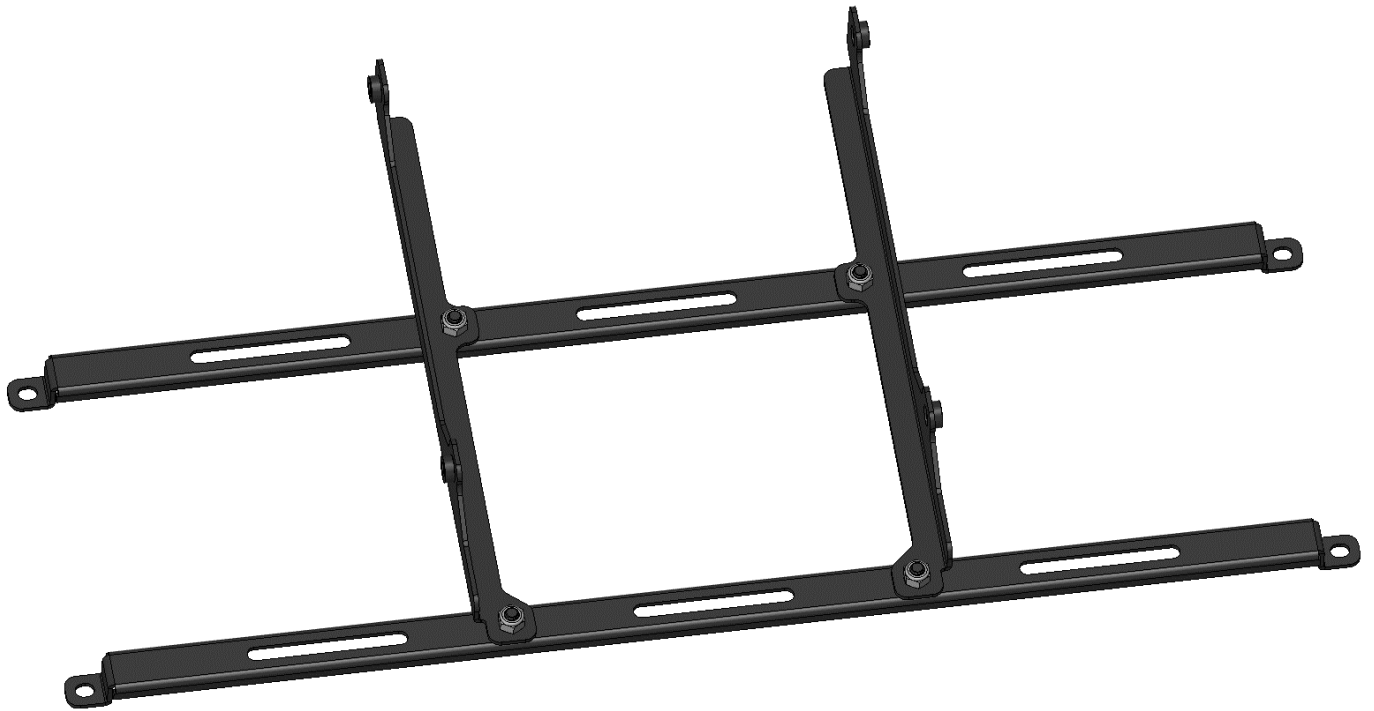
## **PROCEDURE:**

1. Place the transmission in Park position (or in Reverse gear if equipped with a manual transmission). Apply the parking brake.
2. Locate proper jacking points on vehicle's chassis (refer to vehicle's Owner Manual). Raise and support vehicle using jack & jack stands.
3. Remove the axleback section of the exhaust. The differential cooler will be installed on the underside of the trunk.
4. Remove the (4) nuts securing the OE heat shield to the bottom of the vehicle.

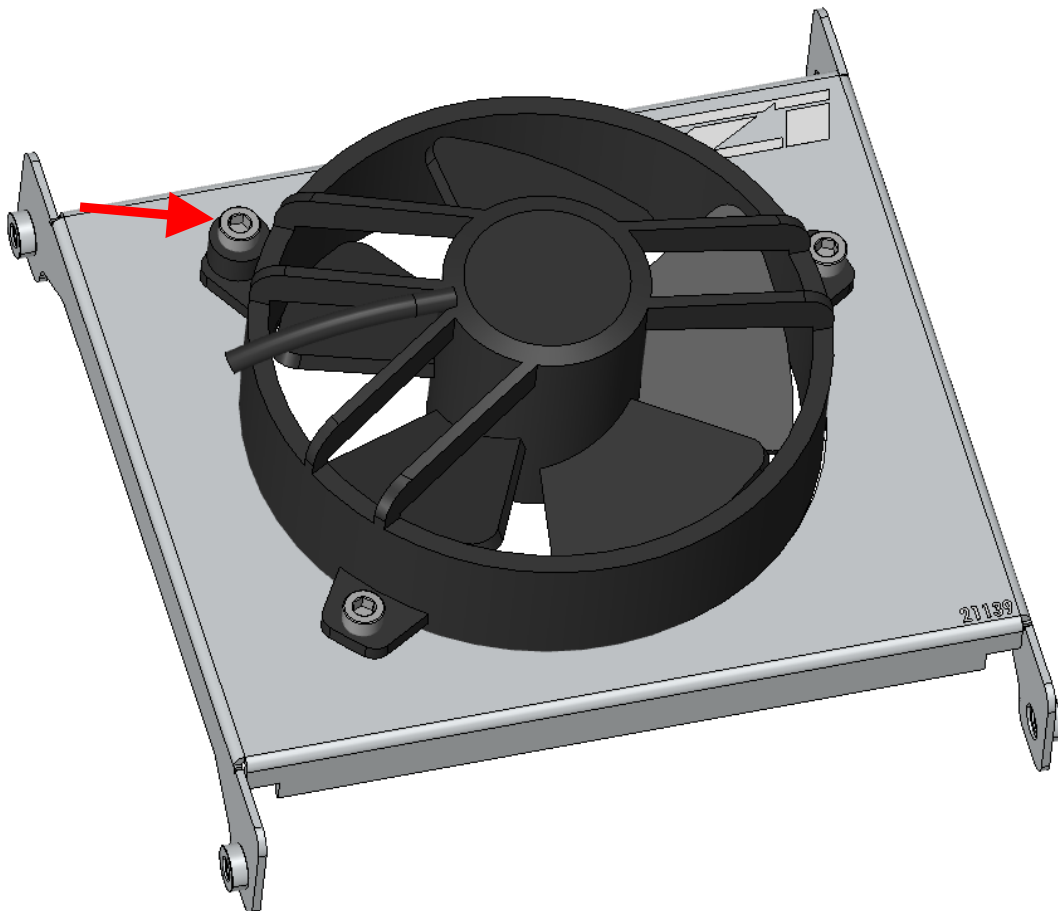


5. The differential cooler pump and fan will need some form of a switch to trigger it on and a relay for power. We recommend using the [200°F Setrab Temperature Switch Probe](#) and the [DeatschWerks Fuel Pump Hardware Upgrade Kit](#). If you are using a temperature switch, follow [the factory service manual](#) to remove the rear differential.
  - a. Remove the Z1 High Capacity Differential Cover. Remove the oil drain plug on the bottom. Remove the top Oil Return plug on the right side.
  - b. There is a pilot hole partially drilled on the left side of the cover. Drill and tap the hole to match your temperature switch (likely 1/8 NPT). Clean out the metal shavings on the inside. Install the temperature switch. Reattach the diff cover and reinstall the differential into the vehicle following the factory service manual.

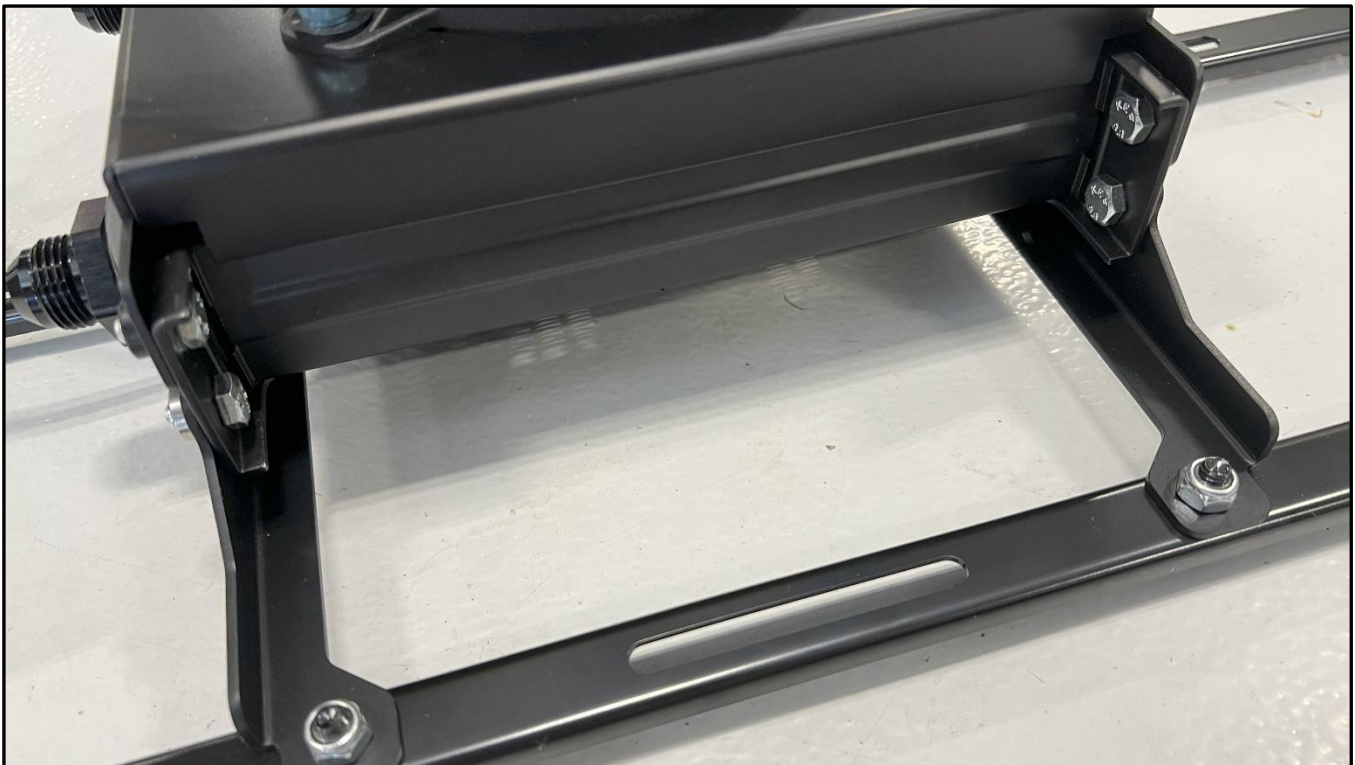
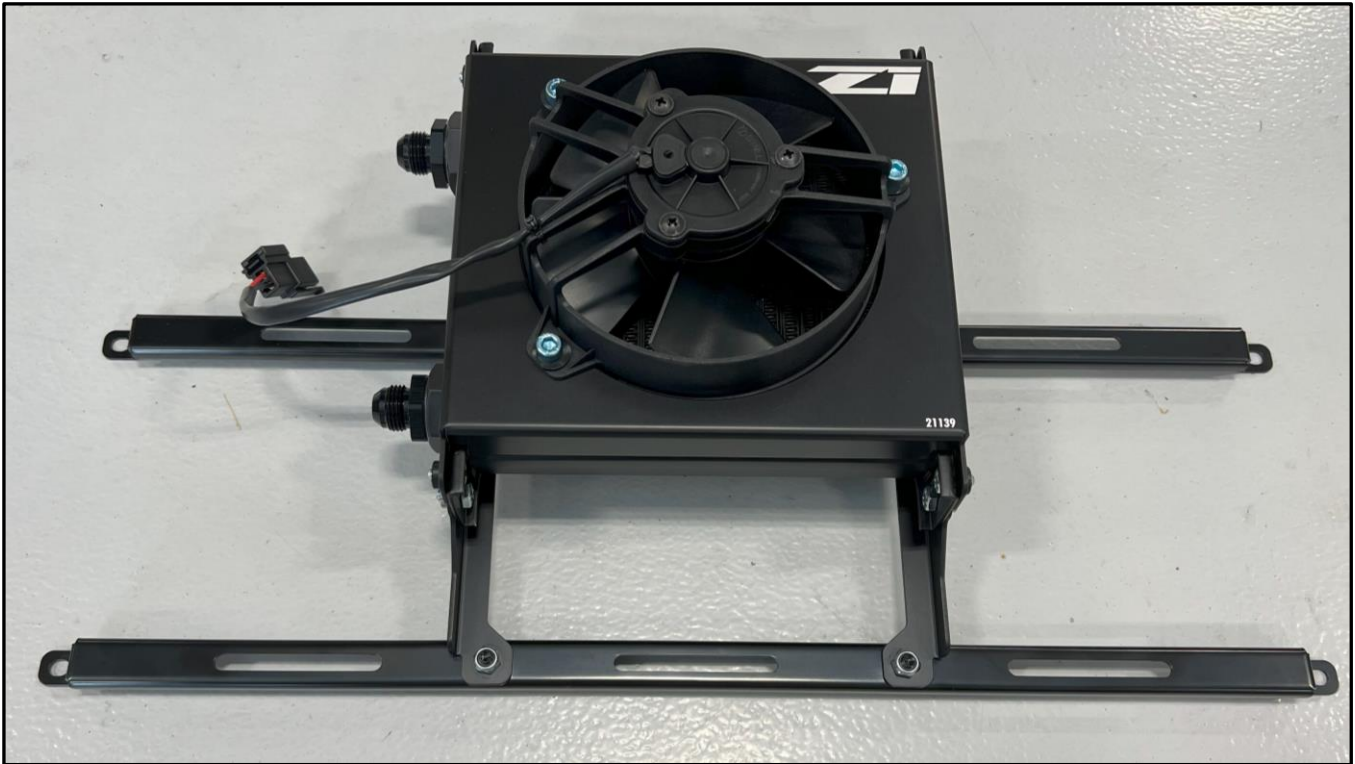
6. Assemble the brackets as shown below, with the left and right cooler brackets set on the studs in the long brackets and secured with a M6 nut.



7. Install the 5.2" Spal fan onto the fan shroud/bracket using the (2) M6 x 14mm socket head bolts and (1) M6 x 22mm socket head bolt and a M6 nylon lock nut on the back of each. The 22mm bolt needs to be used on the mounting point on the fan with the thicker flange, shown below with an arrow.

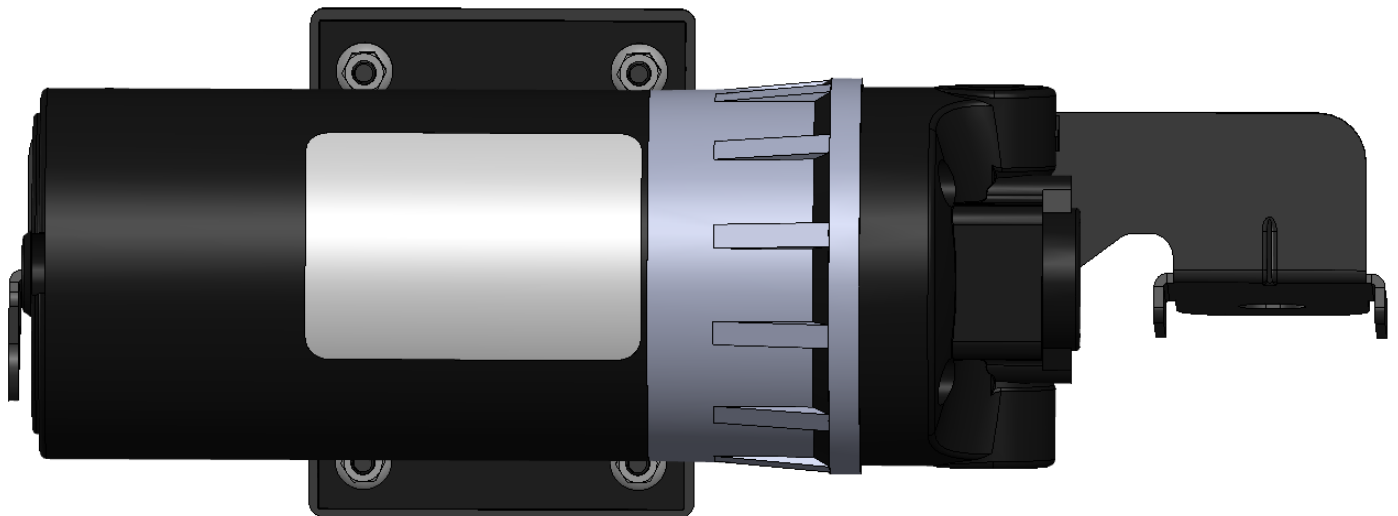
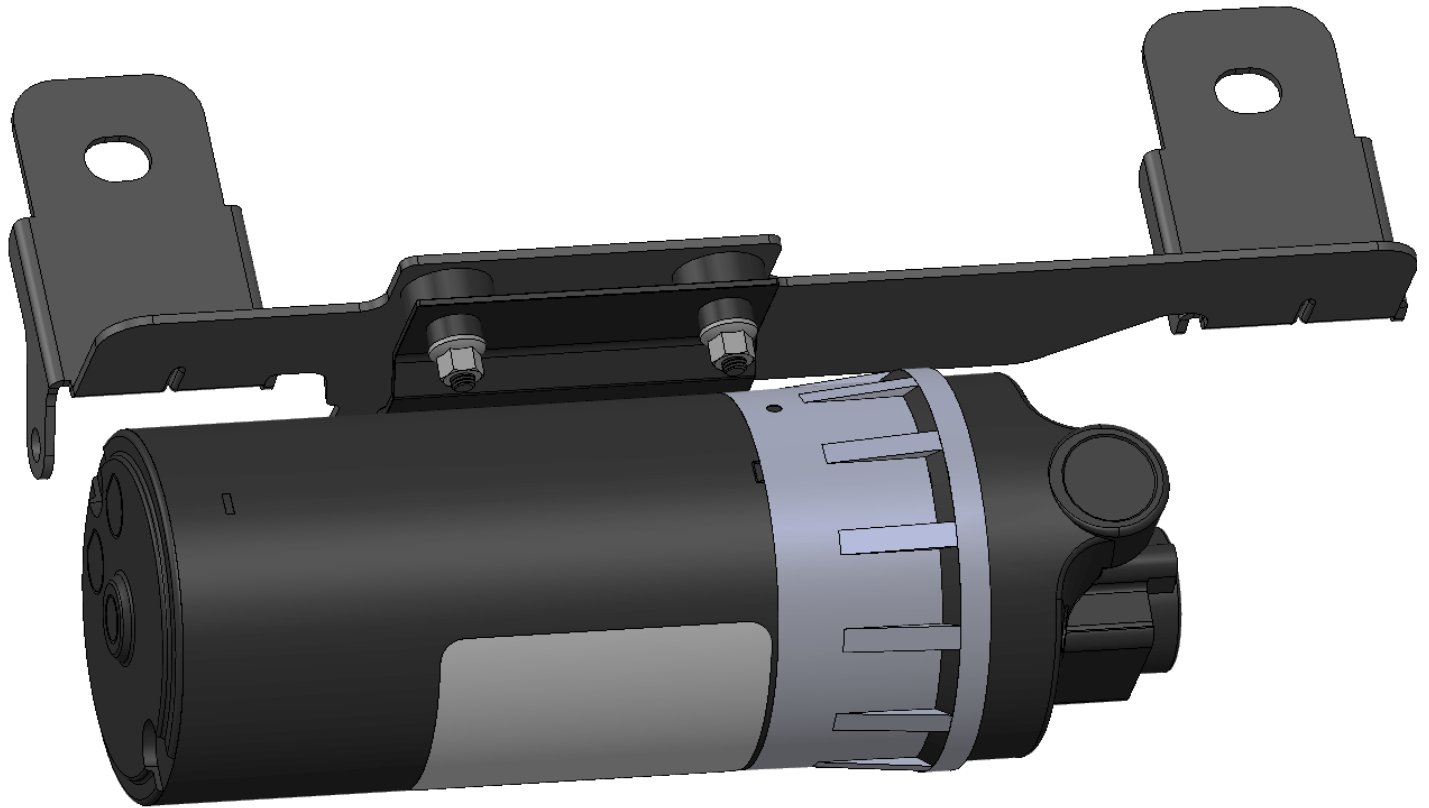


8. Install the fan shroud onto the Z1 Procooler using (4) hex head M6 bolts (shown below).
9. Install the cooler and fan assembly onto the brackets assembled in step # 6 using (4) hex head M6 bolts (shown below).
10. Install the (2) -8AN adapters into the Z1 Procooler (as shown below). Torque them down with a -8AN wrench.

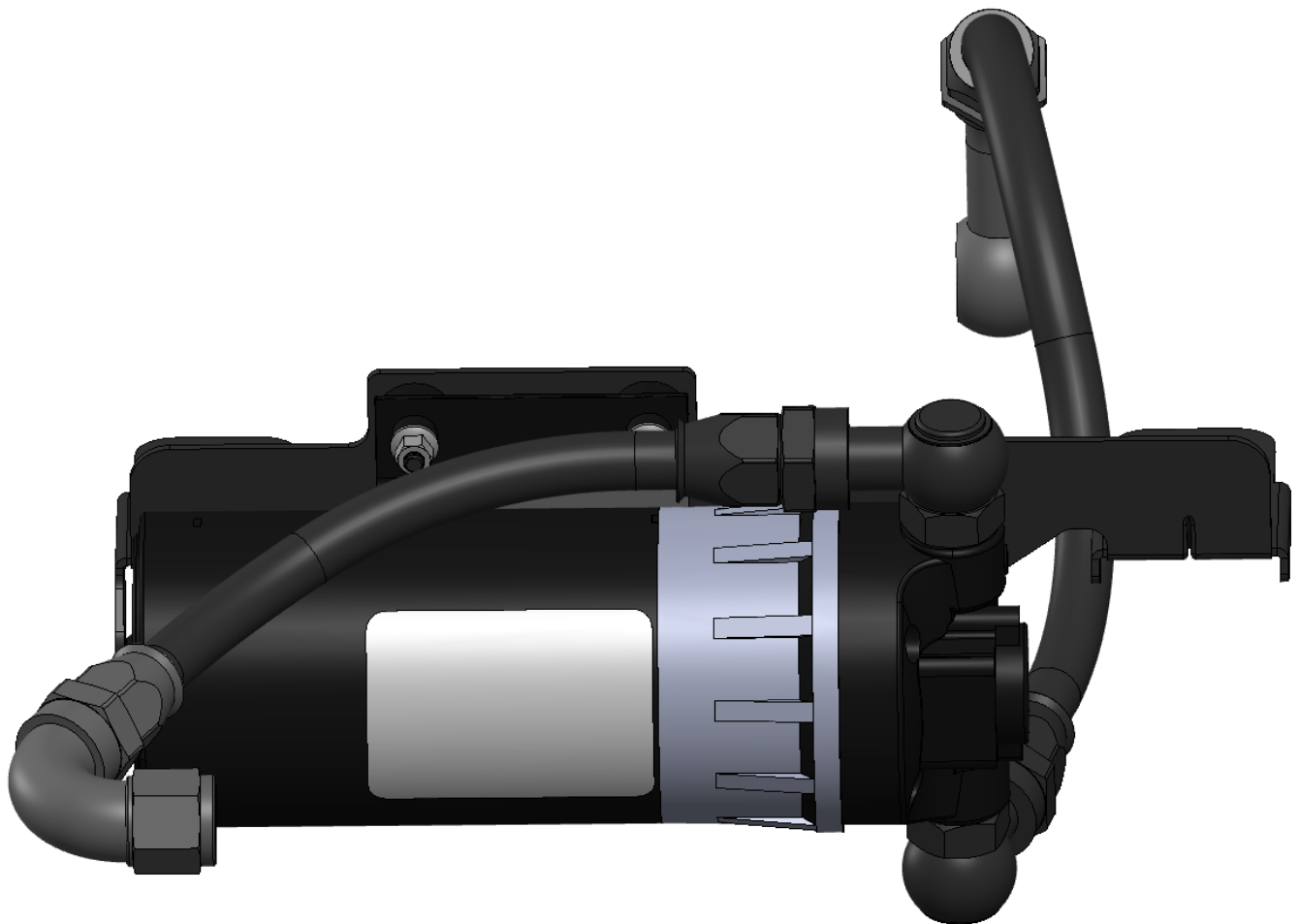
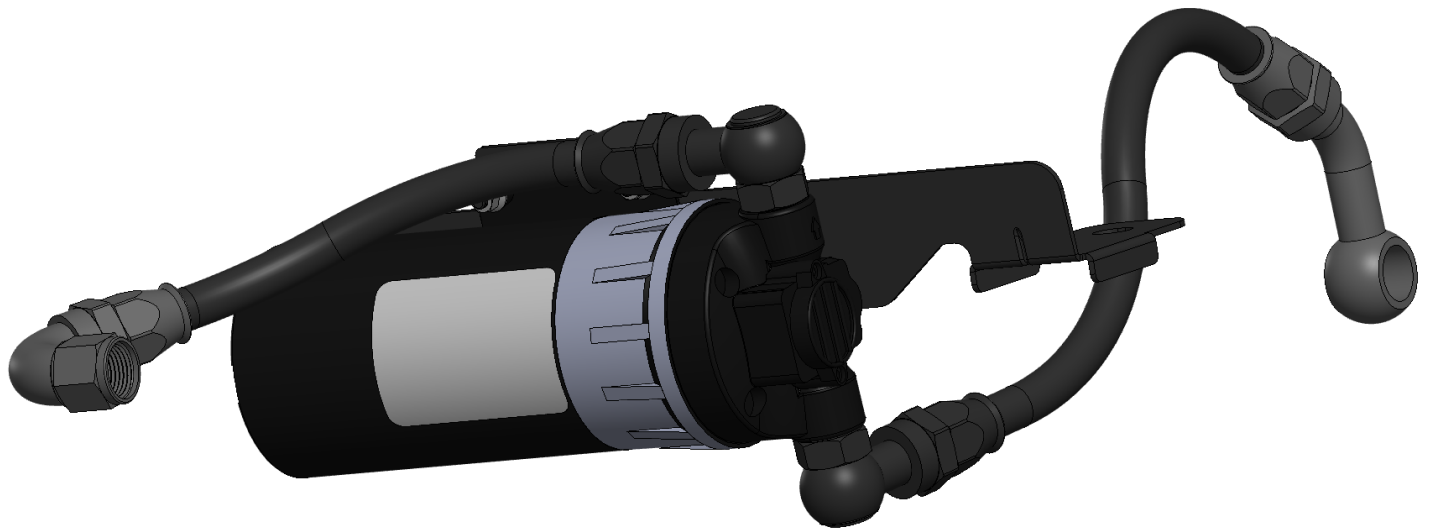


11. Once the cooler, fan, and brackets have been assembled, fully tighten all bolts and AN adapter fittings.

12. Install the Tilton pump onto the pump brackets (4) studs using (4) M5 nylon lock nuts (as shown below).



13. With thread sealant, install the pump feed and return lines to the pump, as shown below.

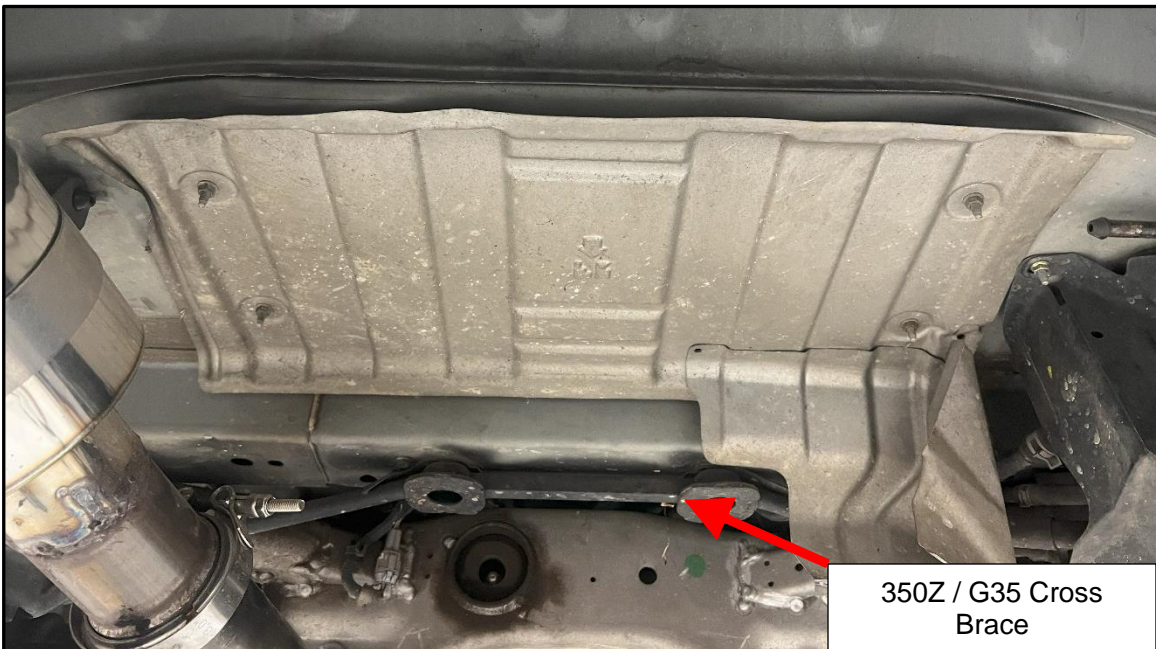
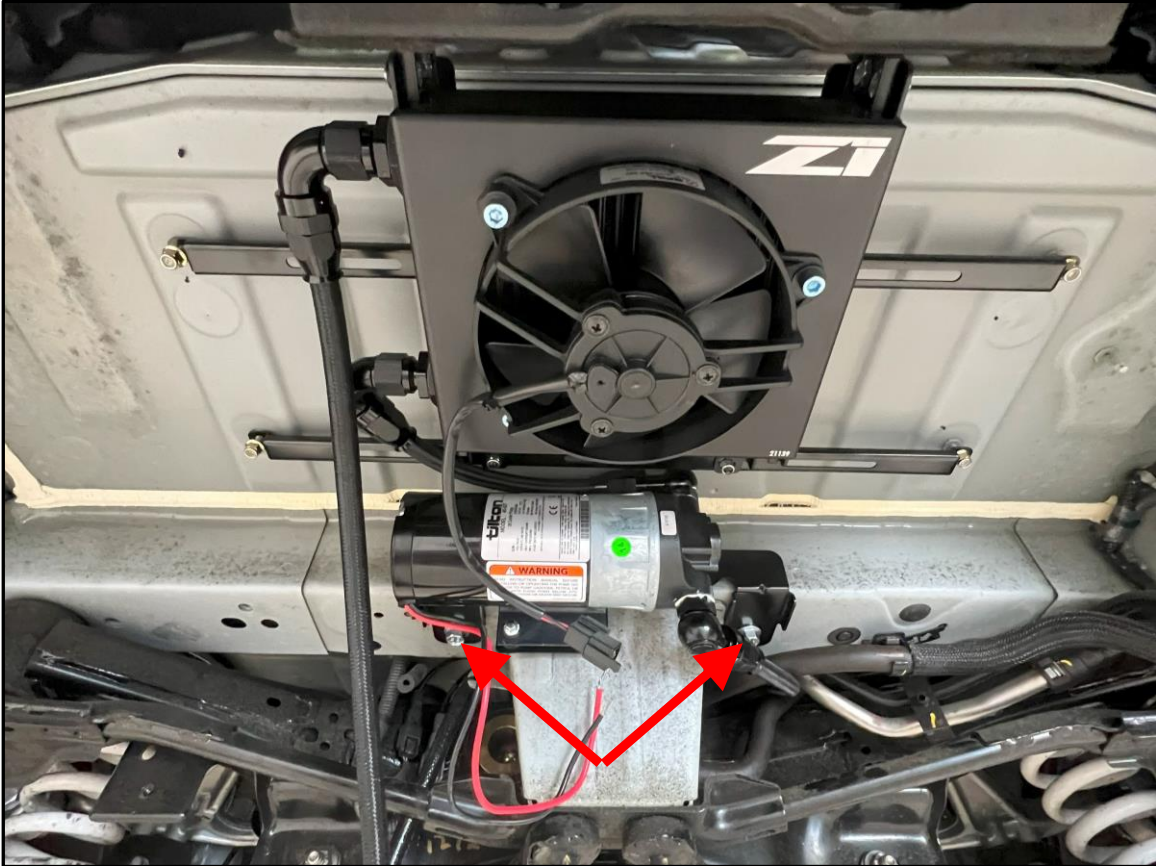


- a. The feed line will be the shortest line and the 3/8"-18 NPT swivel fitting will attach to the top of the pump.
- b. The return line will be the medium length line and the 3/8"-18 NPT swivel fitting will attach to the bottom of the pump.

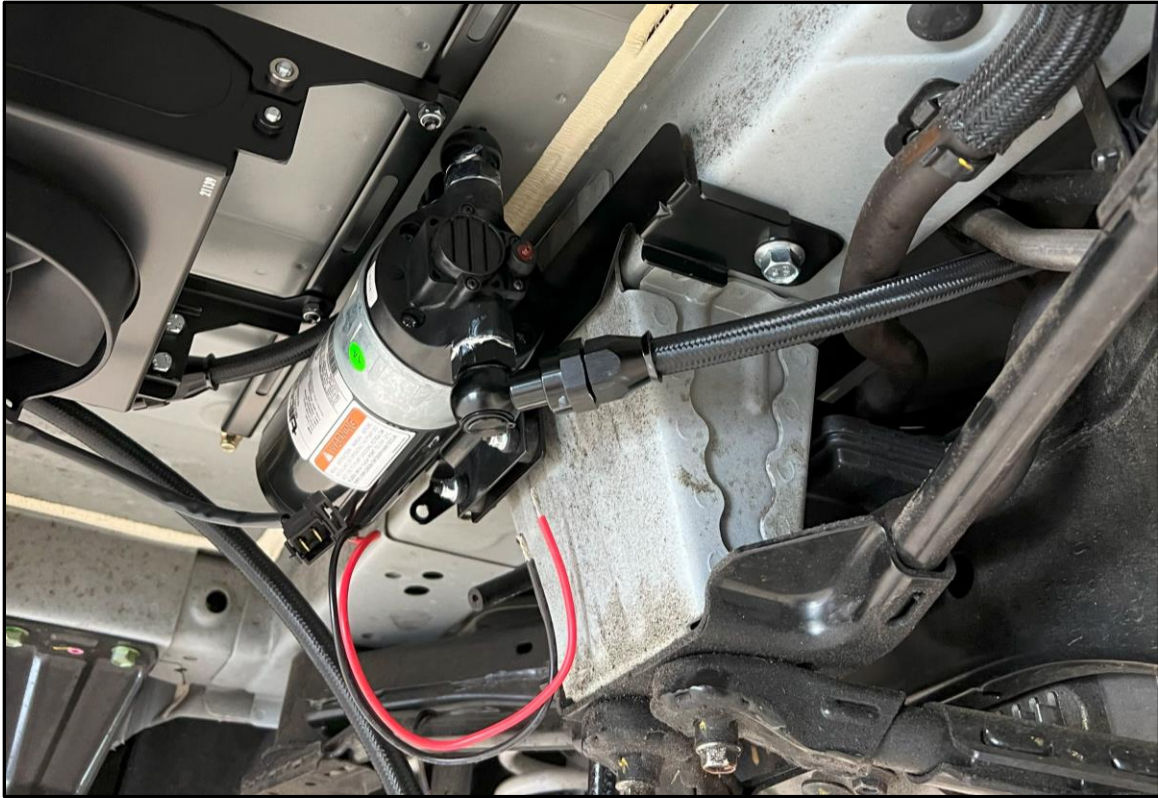
14. Install the cooler and bracket assembly onto the (4) studs that the heat shield was removed from in step # 4 with (4) provided M6 nylon lock nuts. Reference the images below and on the next page.
15. Install the pump and bracket assembly onto the underside of the rear chassis cross brace with (2) provided M10 flange bolts. Reference the images below, the (2) M10 bolts are shown with arrows.

Installation Note for 350Z/G35 Owners:

The bracket will need to be sandwiched between the rear cross brace shown in the image below.







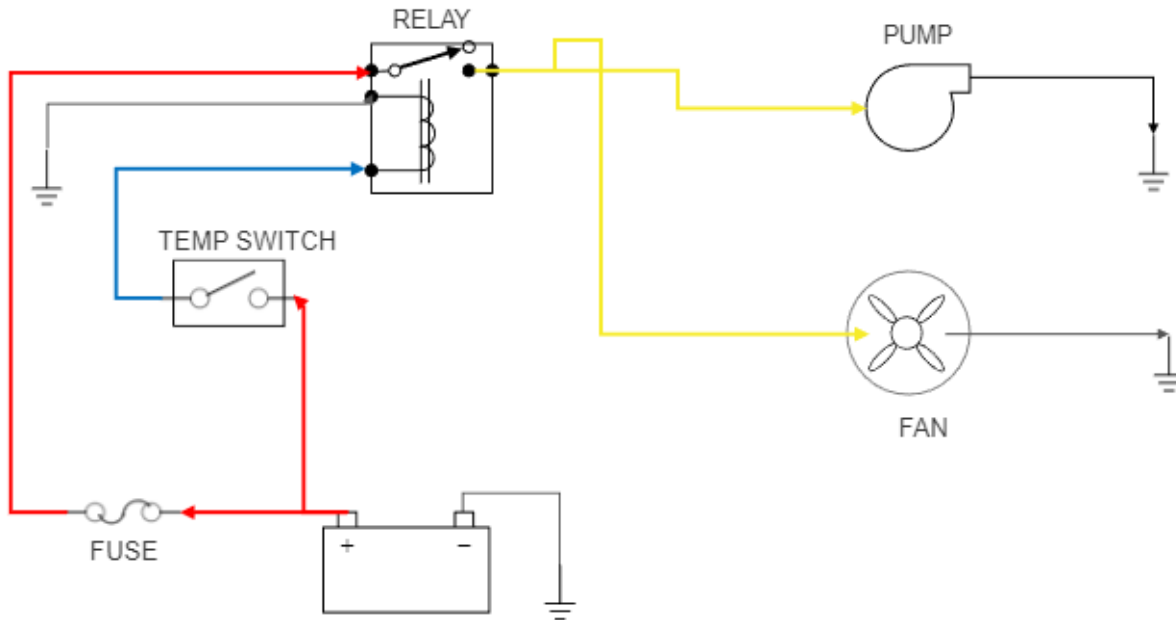
16. Connect the pump feed line coming from the top of the pump to the front AN adapter fitting on the cooler.

17. Connect the 90° AN fitting on the longest line to the rear AN adapter fitting on the cooler.

18. Connect the banjo fitting on the longest line to the bottom of the Z1 High Capacity Differential Cover with the provided banjo bolt and (2) crush washers. Reference the image below.
19. Route the pump outlet line (the one coming off the bottom of the pump) over the subframe and connect it to the top side port on the Z1 High Capacity Differential Cover with the provided banjo bolt and (2) crush washers. Reference the image below.



20. Once all components of the cooler are installed, it is time to wire up the pump and fan. Using a switch like the [200°F Setrab Temperature Switch Probe](#) and relay like the [DeutschWerks Fuel Pump Hardwire Upgrade Kit](#), this relay kit includes instructions describing the function of each wire. The relay can be wired directly to the battery or an ignition power source nearby, depending on the modifications done to your car, a suggested wiring diagram is shown below.



**Installation Tip:** There is a grommet with some wires running up just above the driver's side of the rear subframe through the floor and into the trunk. For a clean installation, you can run the wires for your relay through that grommet, into the trunk, and then to a power source.

21. Fill up the differential with fluid.
22. Reinstall the axleback exhaust components removed earlier.
23. Check the vehicle for loose tools/items.
24. Properly lower vehicle from jack and jackstands.
25. Perform a test drive of vehicle.

**END**

**Additional Technical Support:**  
Contact Z1 Motorsports at [info@z1motorsports.com](mailto:info@z1motorsports.com)  
Or call 770-838-7777 between 9am and 6pm ET