Full Compound Kit Instructions
2007.5-18 Dodge Cummins 6.7L

Very important:

Prior to installation, blow out all oil lines and air tubes to make sure debris is not inside any of the lines or tubes.

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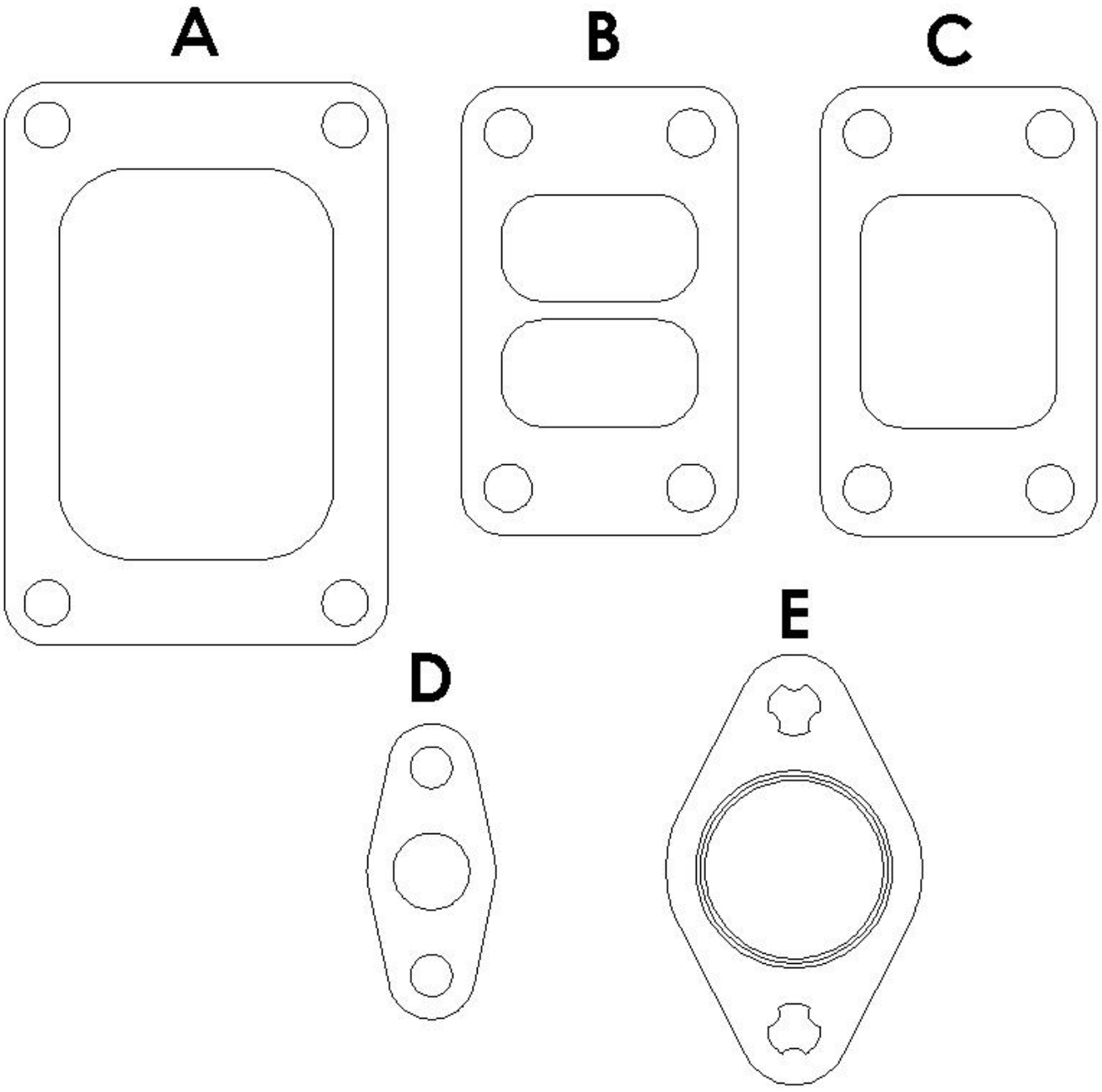
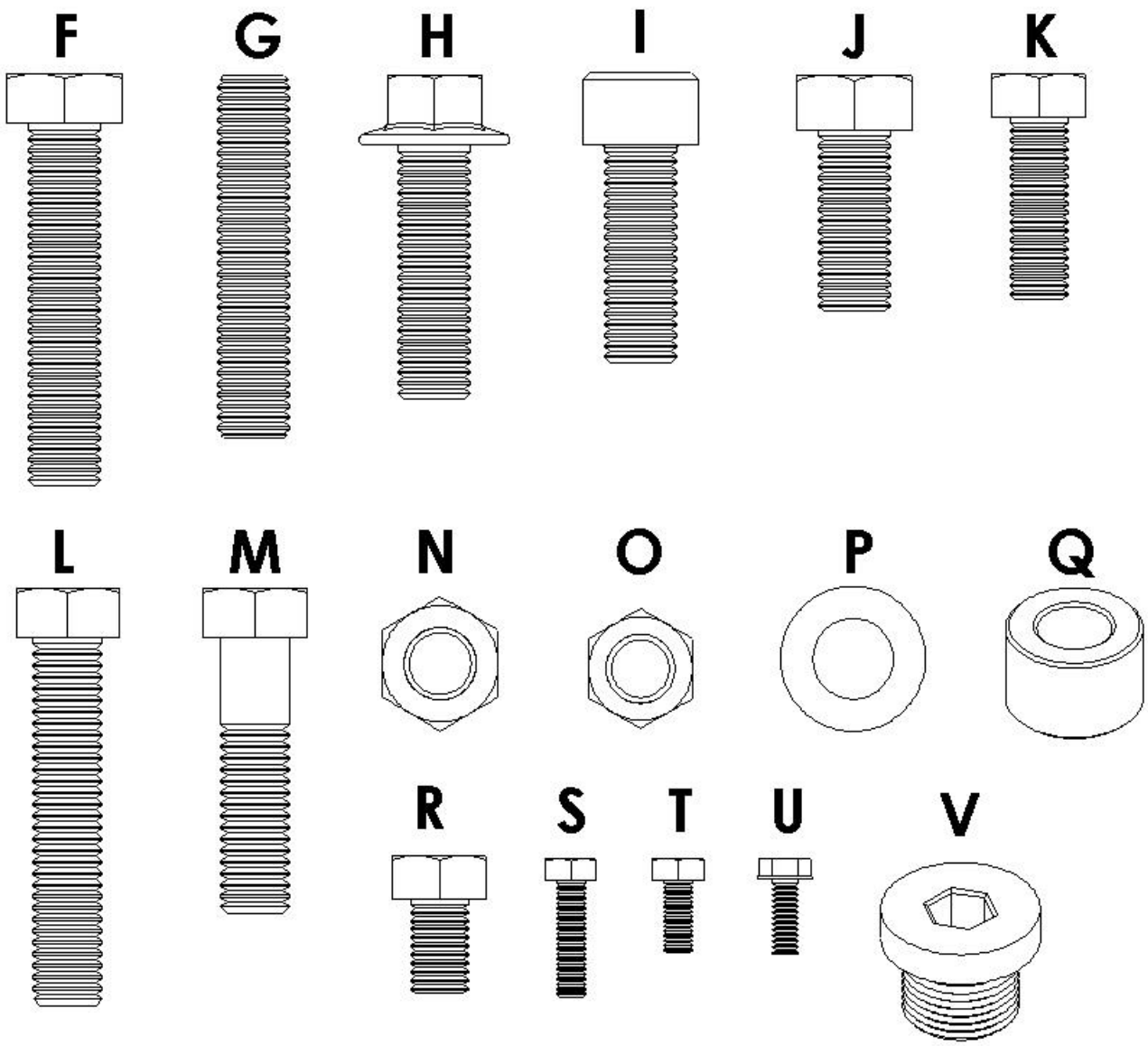
Because, this is a private membership association. We Declare that we are exercising our right of "freedom of association" as guaranteed by the US Constitution and its amendments. This means our association activities are restricted to the private domain only and is protected under the 1st, 4th, 5th, 9th, 10th, and 14th Amendments. Additionally, this means this association is outside the jurisdiction and authority of all Federal, State, and Local agencies and law enforcement authorities.

DPS does NOT provide any emissions delete components or electronics. This kit can only be installed on vehicles that have already had these items previously removed. Because we do not provide any delete components, some trucks may still have some remnants left. If these items are present it is the customer's responsibility to reroute or remove these items. DPS does not and will not provide advice regarding these items. Pics of this area is provided at the end of these instructions.

6.7L Cummins Twin Gaskets and Hardware



Images Are Not to Scale



Images Are Not to Scale

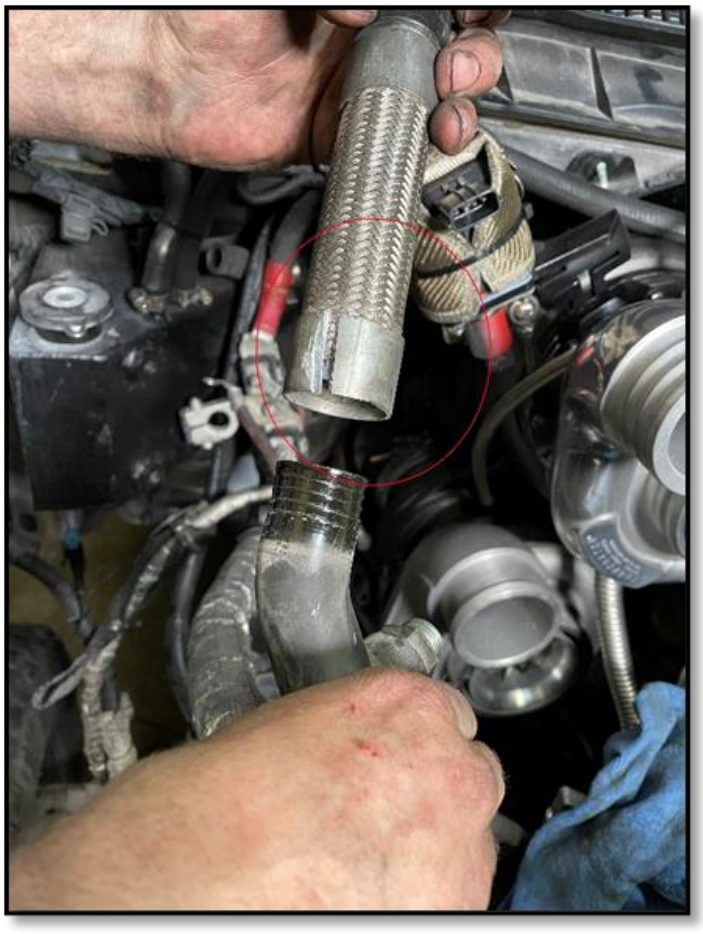
Hardware Letter	Hardware Specification	Quantities	
		S300 <u>Non-VGT</u> Twin Kit	**S300 <u>VGT</u> Twin Kit**
A	T6 Non-Divided Gasket	1	1
B	T3 Divided Gasket	1	0
C	T3 Non-Divided Gasket	0	1
D	Oil Drain Gasket	2	2
E	24V Gasket	6	6
F	M10-1.5x50mm Hex Bolt	2	2
G	M10-1.5x50mm Stud	2	3
H	M10-1.5x35mm Flange Head Bolt	6	6
I	M10-1.5x30mm Socket Head Cap Screw	4	4
J	M10-1.5x25mm Hex Bolt	2	2
K	M8-1.25x25mm Hex Bolt	4	4
L	3/8”-16 x 2” Hex Bolt	5	4
M	3/8”-16 x 1.5” Hex Bolt	2	2
N	M10 Nut	2	4
O	3/8” Nut	3	2
P	M10 Narrow Washer	12	12
Q	½” Spacer	0	1
R	M8-1.25x12mm Hex Bolt	2	2
S	M4-0.7x16mm Hex Bolt	1	1
T	M4-0.7x10mm Hex Bolt	2	2
U	#6 x ½” Self-Tapping Screw	3	3
V	Coolant Block off Plug	2	2

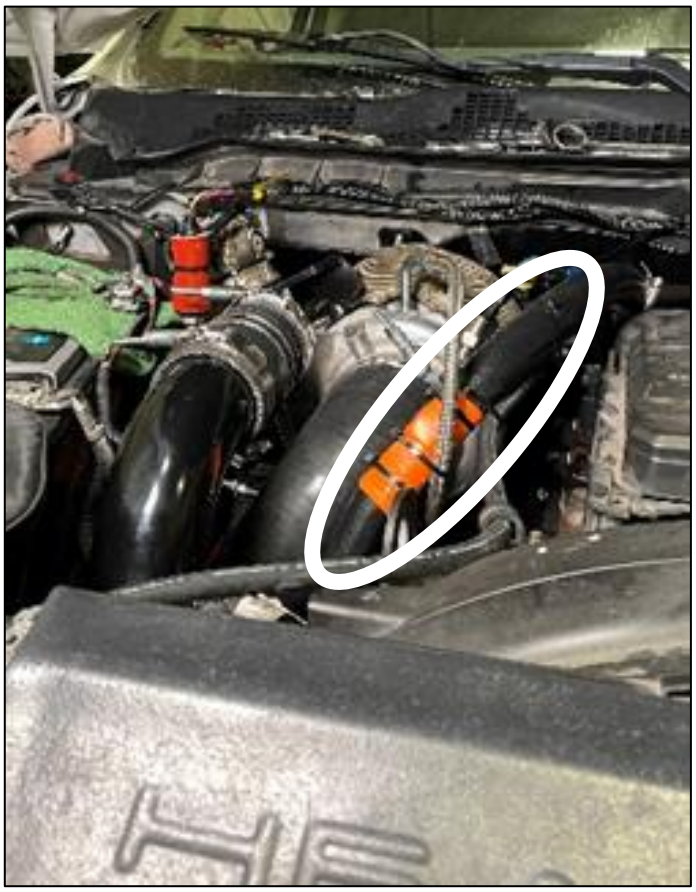
Installation Instructions for Twin Turbo Kit

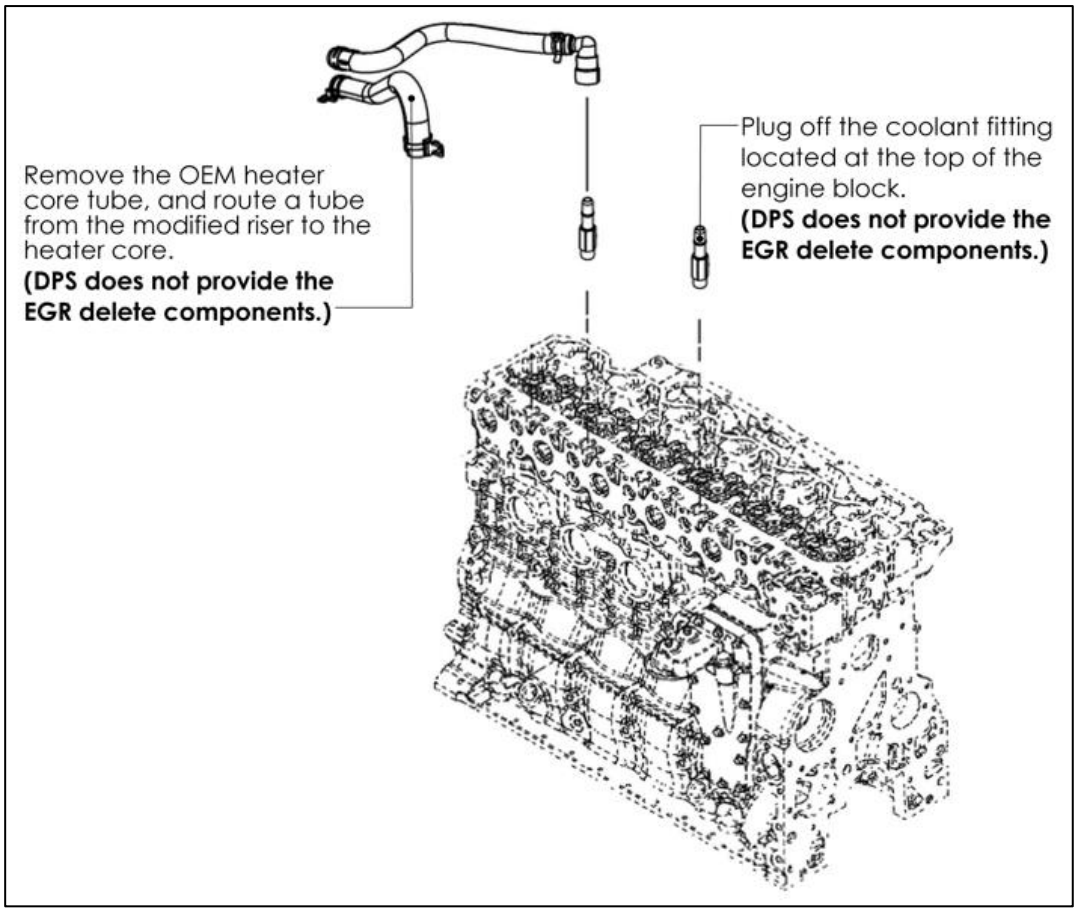
Please read all instructions before installation.

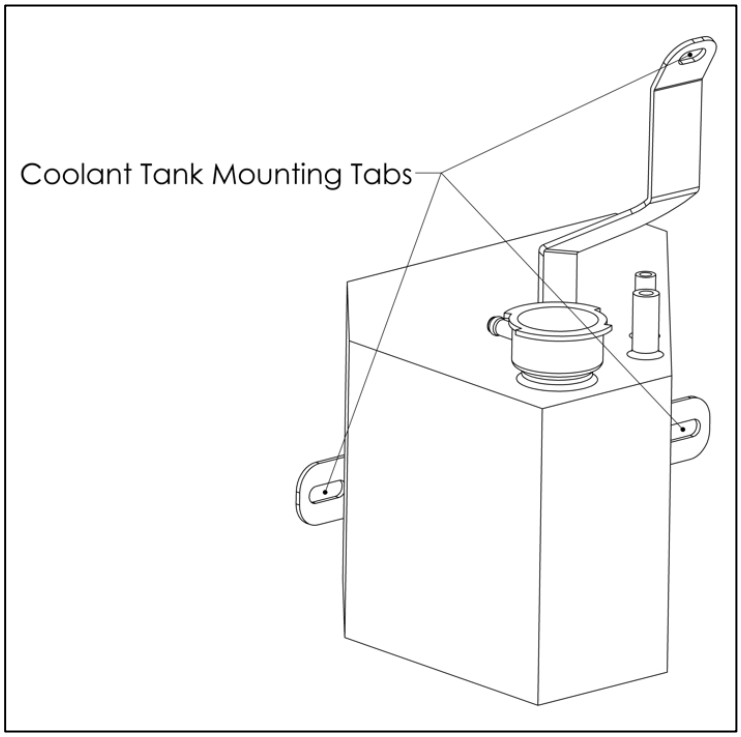
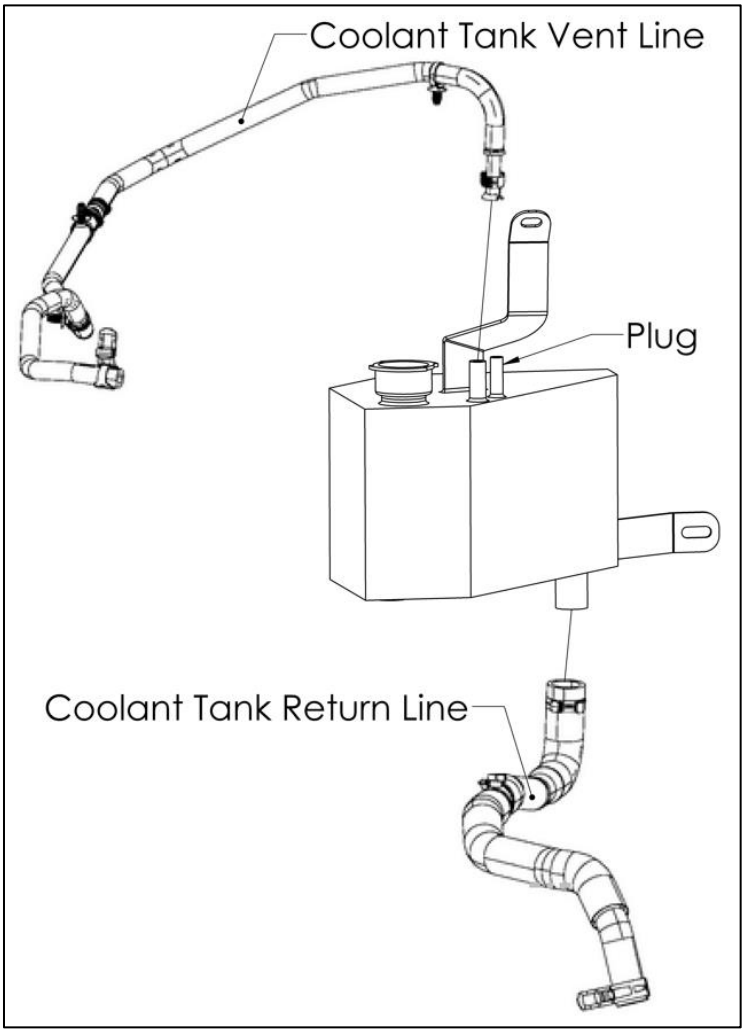
Note: We strongly recommend head studs and/or fire rings.

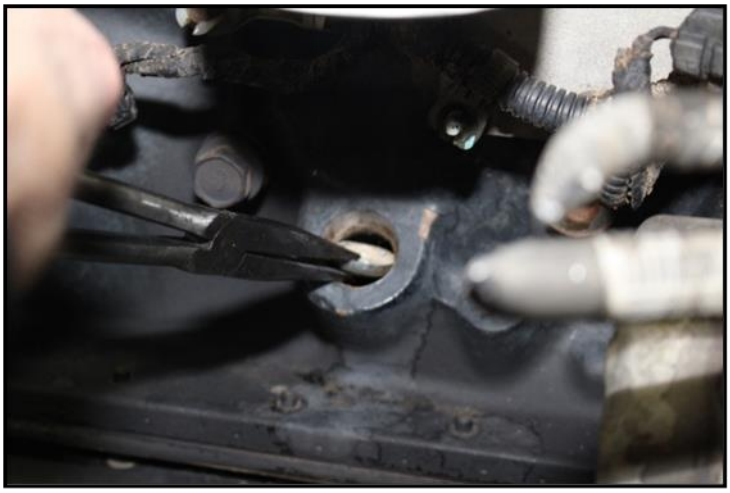
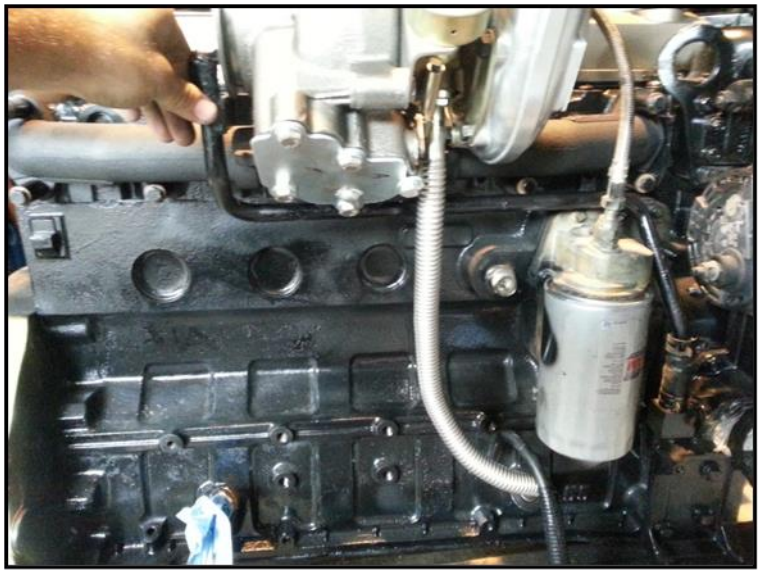
1. Prior to installation, change the engine oil and oil filter.
2. Make sure your vehicle is parked on level ground and parking brake is applied.
3. Remove air intake box and air intake tubing.
4. Drain engine coolant.
5. Remove passenger battery and battery box. This allows more space for installation. The battery will be reinstalled later. Disconnect both negative (black) battery cables.
6. Remove the plastic inner wheel well cover (splash guard) on the passenger side. Be careful when removing plastic wheel well cover, there are wires mounted on engine side. Inner wheel well cover will be reinstalled later.
7. Remove factory turbo, disconnect all oil and coolant lines. **Keep the fitting that was attached to the factory turbo.** It will be used with the new oil supply line provided in the kit. Leave the other oil supply fitting attached to the truck, on the oil filter housing.
8. Disconnect oil drain line from the factory turbo and remove it from the block. Discard factory oil drain line.
9. Remove the factory turbo coolant lines, at the banjo fittings on the engine block.

10.	Use the two provided **V** plugs to plug the factory turbo coolant ports on the engine block.	
11.	Remove the factory turbo and exhaust manifold. Keep the v-band clamp for the down pipe.	
12.	The coolant riser formerly connected to the EGR cooler will need rerouted. See Pics at end.	
13.	Unbolt the riser at the bottom, then cut the clamp off the riser and separate.	

14.	Reroute the Riser to the firewall heater core. Plug the line going into the top on the engine block. **(Note: DPS does not provide the EGR delete componentss)**	



15.	**If you have a 2013-2018 truck and you ordered the DPS Turbonator VGT follow this step otherwise move on to the next step**. Remove the OEM coolant tank and replace it with the coolant tank provided in your kit. The provided coolant tank was designed to mount in the same location as the OEM tank. Use the OEM fasteners to install the provided tank. Once the coolant tank has been mounted connect the coolant level sensor, coolant vent and return lines, lastly plug off the open port located on the top of the tank.	 

16.	Locate the freeze plug underneath the oil filter (same height as the back drain port). Oil filter could be removed to improve accessibility to the freeze plug if needed. Gently tap on the outer rim of the freeze plug using a flat blade screwdriver and a hammer to rotate it in the block. Once rotated, use needle nose pliers to retrieve the freeze plug.	
	***NOTE*: Be sure to clean around the freeze plug and remove all debris from the cup of the freeze plug to make sure nothing drops into the oil pan. <u>Be very careful not to push the plug into the oil pan, or you will have to drop the oil pan to retrieve it.</u>**	
17.	Remove the rear factory oil drain from the block. Insert the provided long oil drain line into the front drain port and short oil drain line in the rear hole (where factory drain line was connected). **Keep drain lines as straight as possible while pushing them into the holes, so you do not damage them.** Make sure they are pushed completely into the hole. Both O-rings should be inside the hole. The long oil drain line will be connected to the top turbo later as shown.	

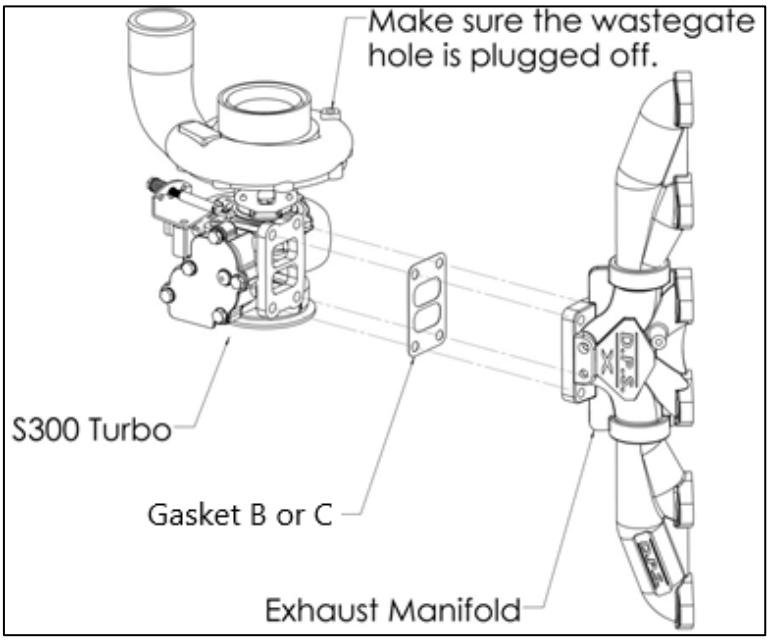
18.

Install the small turbo on exhaust manifold as shown using the following hardware depending on your kit.

Non-VGT	VGT
1 x **B** gasket	1 x **C** gasket
2 x **L** bolts	1 x **L** bolt
2 x **J** bolts	1 x **G** stud
2 x **O** nuts	2 x **J** bolts
	2 x **N** nuts
	1 x **O** nut

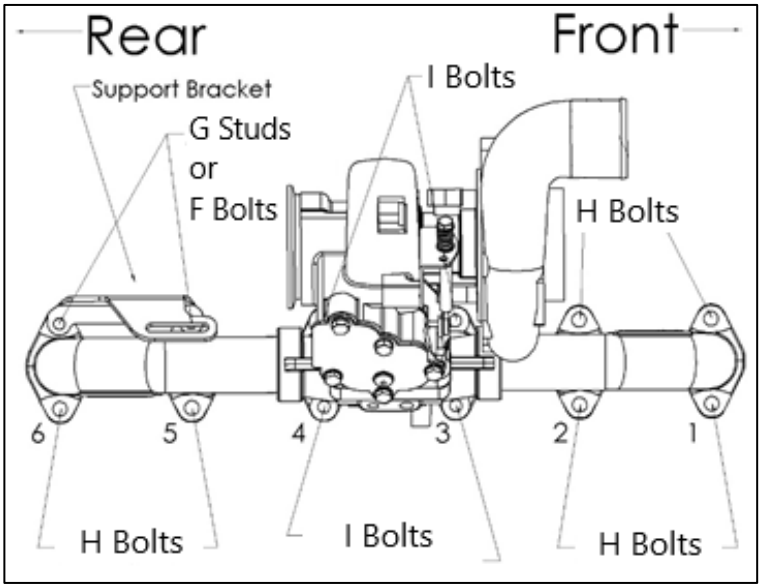
Remember to place gasket **B** or **C** in between the turbo and exhaust manifold.

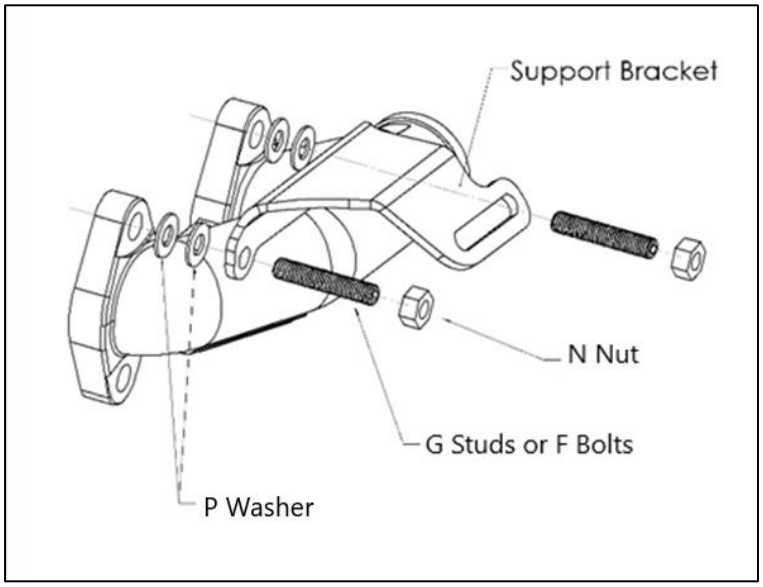
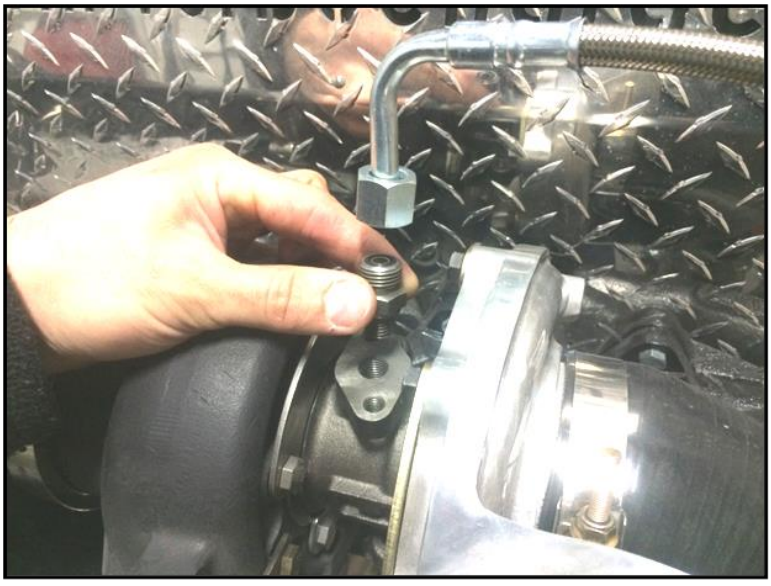
Tighten in an 'X' pattern, first to 5 ft-lbs, then to 15 ft-lbs, then finally to 35 ft-lbs.



19.

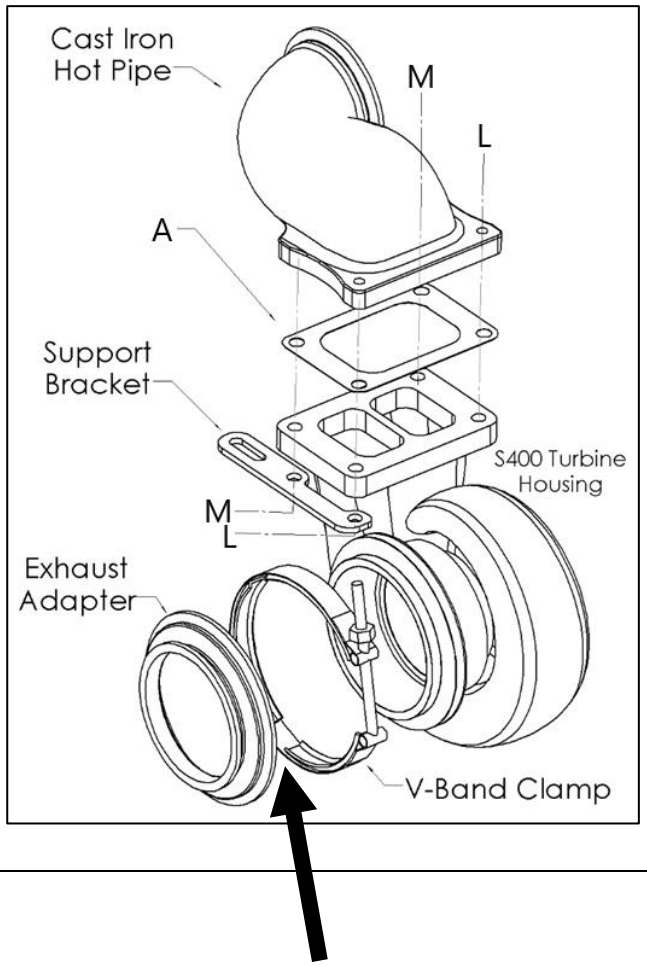
Install the small turbo and manifold assembly by holding it in place while putting the bolts into the head. Don't forget to install the six **E** gaskets in between the block and the manifold. **Attach the <u>center</u> manifold gaskets and bolts first (cylinders 3 & 4) using the four I bolts included in your kit.** Once the center manifold bolts are in place, install the six **H** bolts on cylinders 1, 2, and the bottom holes of cylinders 5 and 6.

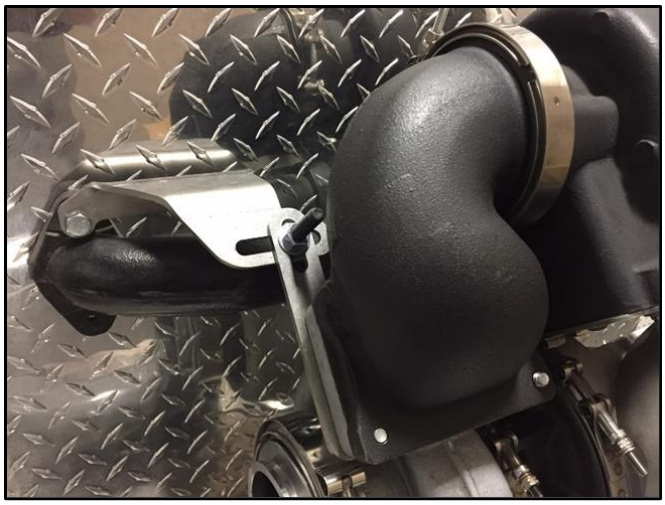
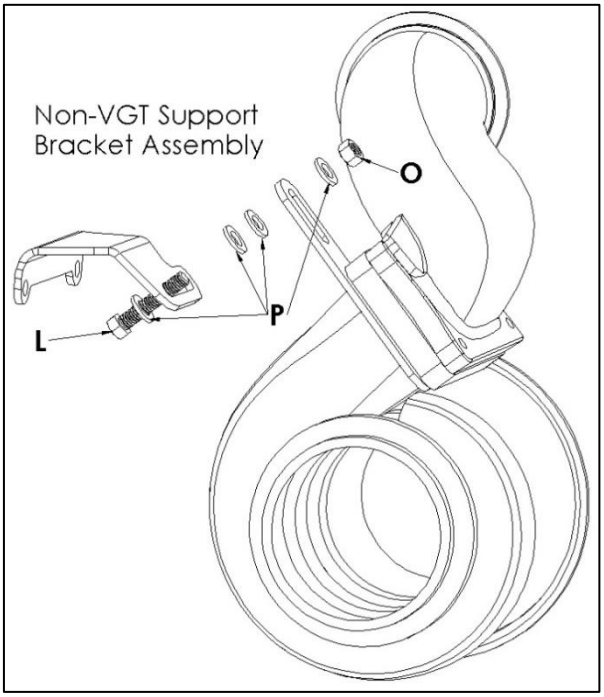
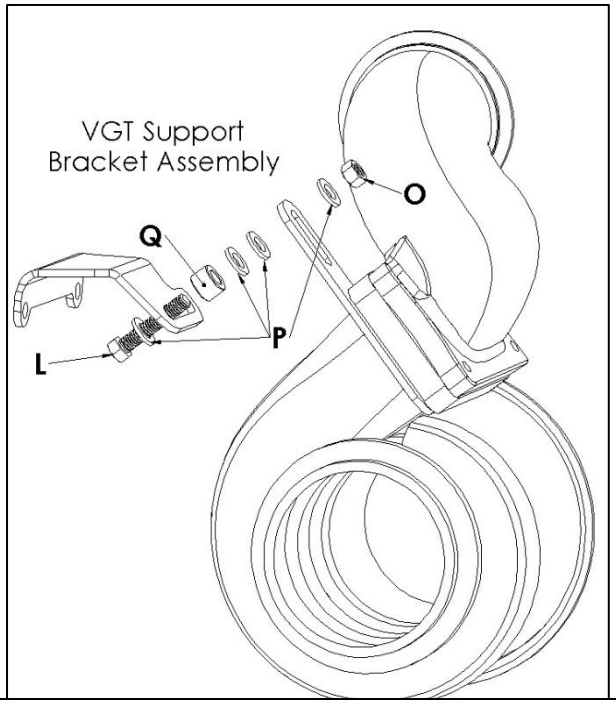


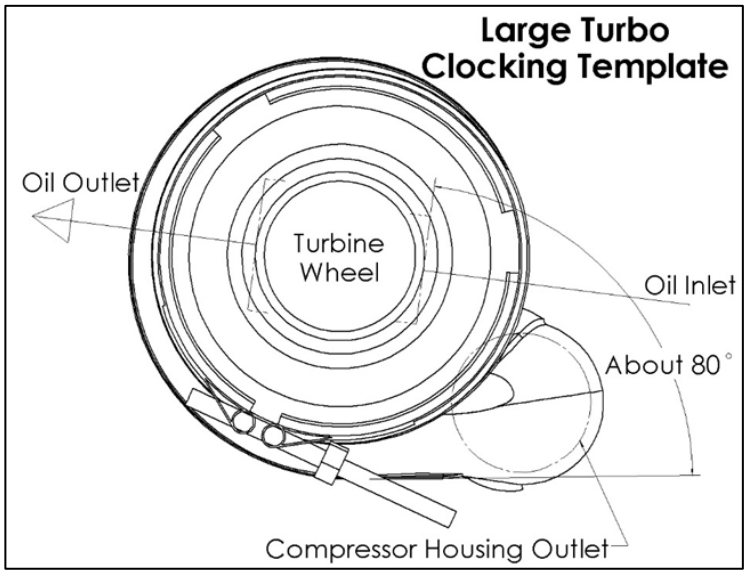
	Install the support bracket on the top two rear bolts (cylinders 5 & 6) using either two **G** studs and two **N** nuts or the two **F** bolts provided depending on your installation. Position four of the **P** washers between the manifold and the bracket as shown in the picture.	
20.	Connect the longer oil drain line to the small turbo using two **K** bolts and one **D** gaskets provided in the kit. The spring over the oil drain line allows it to be bent without kinking.	
21.	Install the new oil supply line for the small turbo (steel braided hose with elbow ends) provided in the kit. Start by attaching the oil fitting from your factory turbo to the oil inlet port of the small turbo. Then couple it with the longer elbow end of the steel braided hose. DO NOT OVERTIGHTEN HOSE, 1/4 TURN PAST SNUG IS SUFFICIENT.	

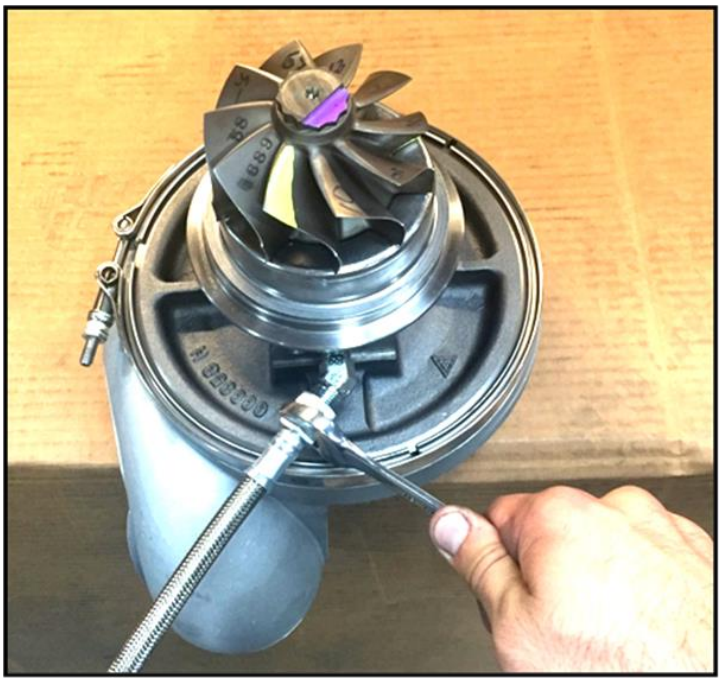
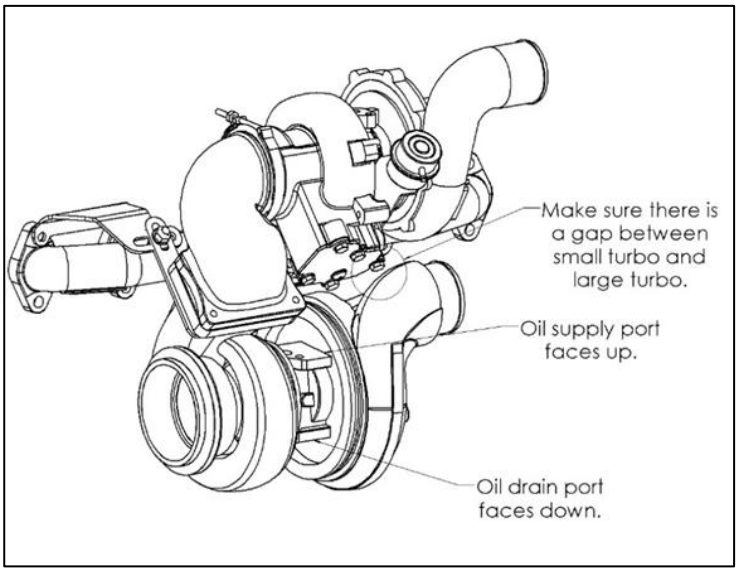
22.	Lastly, attach the other end of the steel braided hose to the factory oil feed from the truck.	
23.	Separate the turbine housing from the large turbo assembly by removing the v-band clamp that secures the bearing housing to the turbine housing. **Slide the bearing housing straight out. Be careful not to damage the turbine fins when separating them.**	
24.	Wrap the cast iron hot pipe with the heat wrap provided in the kit. Use the provided hose clamp to keep the wrap in place.	

Note: Make sure the wires, firewall, or other items are properly shielded from the heat. The exhaust housing and cast hot pipe will be very hot.

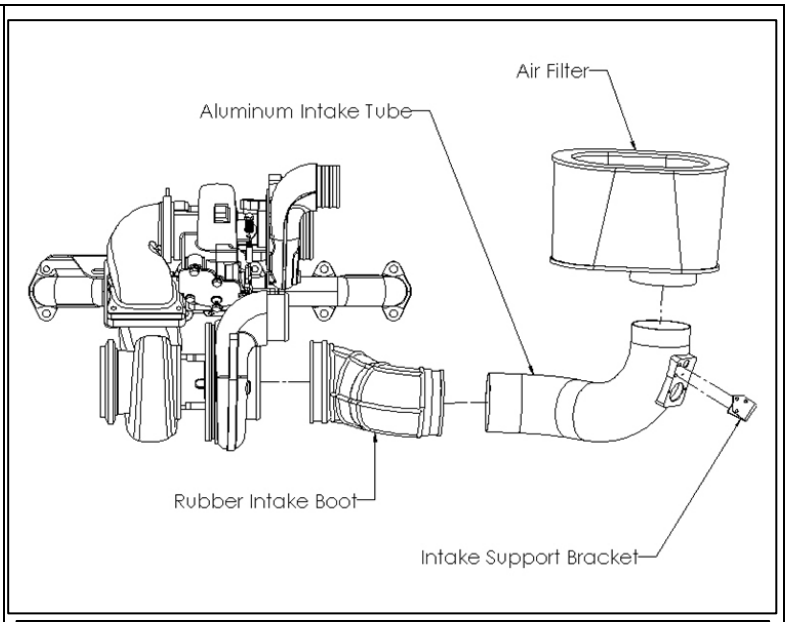
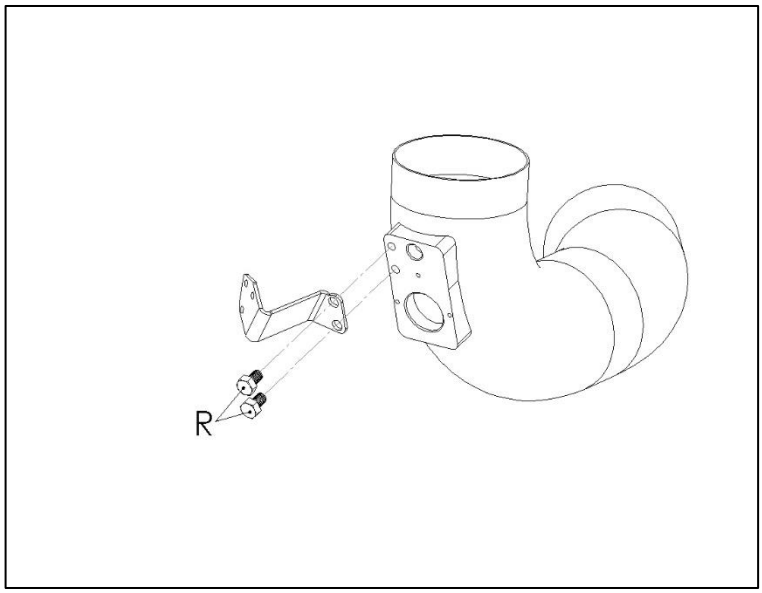
25.	Assemble the hot pipe, gasket **A**, support bracket, and large turbine housing as shown using the two **L** bolts and two **M** bolts provided in the kit. Do not forget to place the **A** gasket in between the turbine flange and the hot pipe flange. Two **P** washers should be used on the support bracket bolts going into the turbo. **<u>Only finger tighten the bolts to allow for movement when aligning the turbine housing assembly in the next steps.</u>**	
26.	Using the provided v-band clamp, attach the exhaust reducer on the back of the large turbine housing.	

27.	Install the large turbine housing assembly to small turbo by attaching the hot pipe flange to the turbo flange using v-band clamp as shown below. Make sure the hot pipe flange and turbo flange are concentric. Pass one of the provided **L** bolts with one **P** washer through the backside of the support bracket. For non-VGT twin kits stack 2-6 **P** washers between the two support bracket pieces. For VGT twin kits place the included **Q** spacer between the two support bracket pieces. If more space is needed between these two brackets place a few **P** washers to increase the distance. See pictures for more details. **These spacers control how far the twin kit swings out away from the engine block and my need to be adjusted later if the air intake tube is too close to the oil filter.** Once the necessary distance is obtained use one **P** washer and **O** nut to secure the bracket together. Finish by gradually tightening the bolts simultaneously **<u>starting with the v-band clamp first</u>**, then the support bracket bolt and four bolts holding the hot pipe to the T6 turbine housing. Once snug go through a few times tightening the previous bolts simultaneously in the same order until the bolts are secured properly.	  

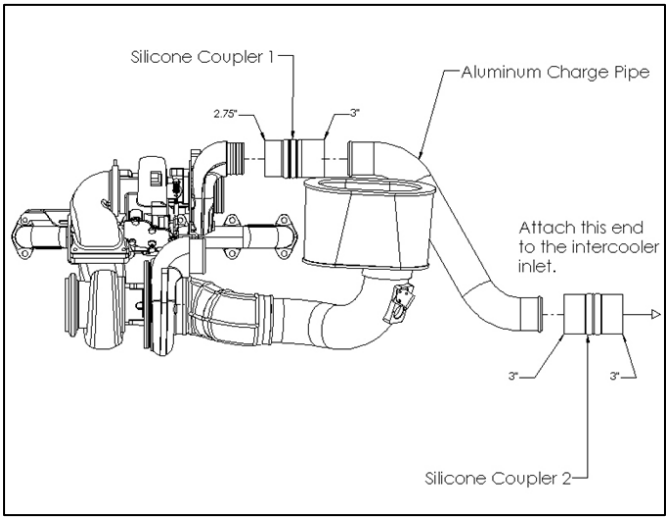
<u>DO NOT</u> attach the exhaust reducer to the exhaust because this prevents necessary movement to align the air intake tubing. The exhaust will be attached later in the installation.		
28.	Clock the large turbo compressor housing and cartridge by loosening the v-band clamp, rotating them according to the template shown, and tightening the v-band clamp. The V-band clamp should be placed where it is shown in the template. It will allow you to access the clamp easier if you need to adjust the clocking later.	
29.	Install the oil inlet elbow fitting provided in the kit. Tighten it so the fitting points toward the compressor outlet side as shown.	

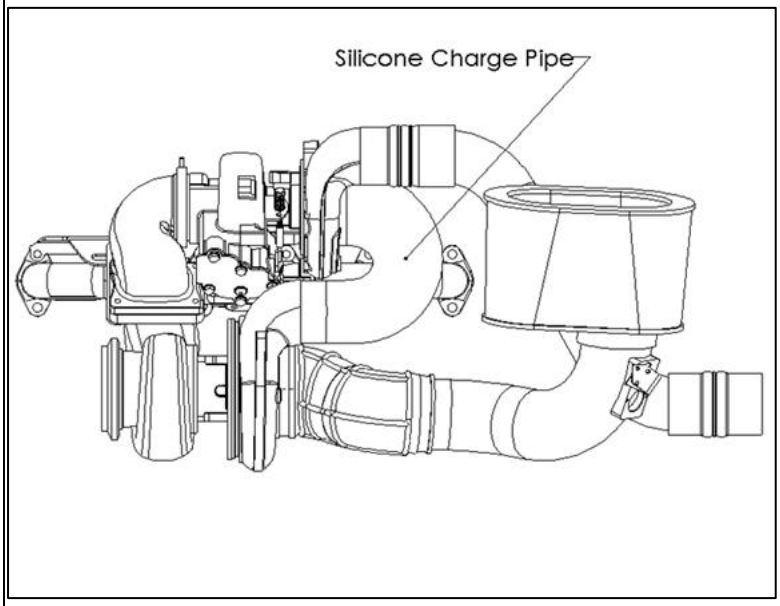
30.	Install oil supply line (steel braided hose without elbows) to the oil inlet elbow fitting on large turbo as shown. Tighten the fitting snug, but do not over tighten.	
31.	Carefully lower the large turbo section to the front of the turbine housing installed in the truck and insert the turbine wheel into the turbine housing. **Do not allow the exposed turbine fins to touch anything. They can easily be damaged.** Use v-band clamp to secure the center section in place but keep it slightly lose to allow adjustment. Orient the bearing housing so the oil supply port faces up and oil drain port points down (vertical of each other). Once aligned, tighten the v-band clamp to secure the turbo in place (Torque to 80 inch lbs.).	

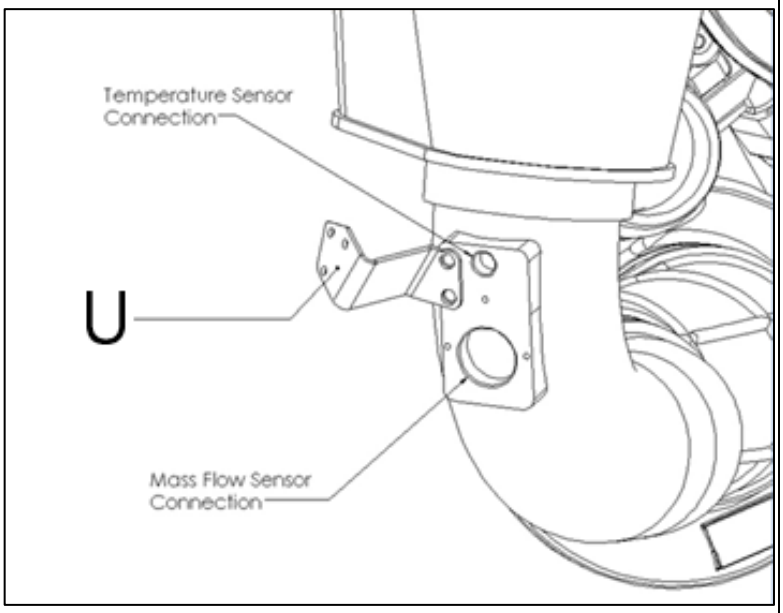
32.	Every set of air conditioning, and transmission dipstick tubes are slightly different. Make sure that all tubes, cords, and lines (air conditioning tubes, heater lines, electrical cords, etc.) are not in contact with any portion of the Twin Turbo Kit, especially the hot side of the turbo. They could be damaged or melted due to high heat. If they are in contact by chance, carefully bend them to fit properly. If the old coolant line is in the way you will need to cut it off and re-route it with rubber coolant lines.	
33.	Remove one of the oil plugs from the top of the oil filter mount, and screw in the provided fitting (should be at the end of the steel braided oil line from the large turbo), then couple the oil line to that fitting.	
34.	Connect the shorter oil drain line to the large turbo using two **K** bolts and the last **D** gasket provided in the kit.	

35.	Install the rubber intake, aluminum intake, air filter, and intake support bracket on the large turbo inlet using the appropriate worm-gear clamps provided in the kit. To install the intake support bracket onto the aluminum air intake, use two **R** bolts provided in your kit. Keep all clamps loose to allow for adjustments. The support bracket will be attached to the truck later and the clamps will be tightened later in the instructions.	 

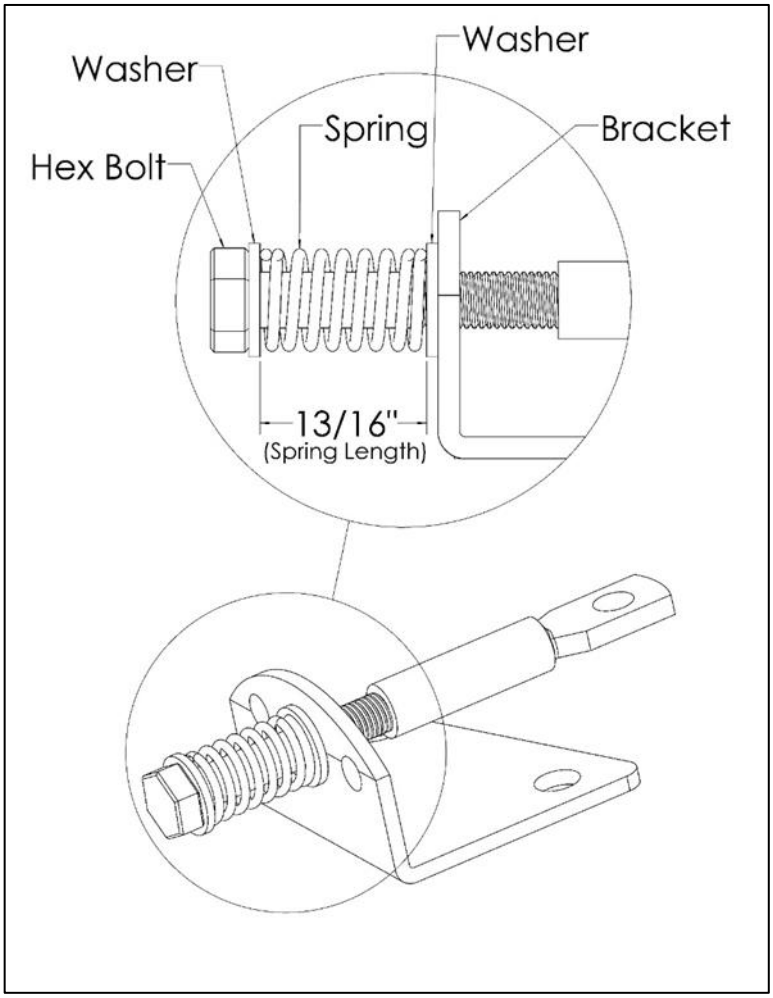
Note: Oiling the filter with K&N filter oil is highly recommended, especially if being used in dusty environments. Also, the K&N filter cleaning and oiling kit can be used to wash the air filter when it gets dirty.

36.	Install the polished aluminum charge pipe (goes from the small turbo outlet to intercooler) and silicone couplers as shown. Use appropriate T-bolt clamps to secure in place. Tighten to 60 inch/lbs (5 ft/lbs).	
Note: If the charge pipe does not line up with the intercooler inlet, you may need to rotate the small compressor housing slightly. To do so, loosen the 8 bolts that hold the housing just loose enough that the housing can rotate but not rattle. Rotate the housing to where it needs to be, then re-tighten all 8 bolts. Aluminum thread can be striped easily. Only tighten to appx. 10 ft.lbs.		
	Note: **On 2013-2018 trucks**, make sure the lower silicone charge coupler has at least a ½" gap between the pulley and the coupler. If it touches it will cut a hole into the coupler.	
Note: If it is difficult to slide couplers on, you can use a small amount of soapy water to help the charge pipe slide into the couplers. DO NOT USE OIL TO DO THIS as oil will not dry and the charge pipe may slip out under pressure.		

37.	Install the ‘U’ Shaped silicone charge pipe connecting the two turbos. When tightening the T-Bolt clamps make sure that there is silicone on both sides of the clamp and the tube is flush against the compressor inlet all the way around. (This will prevent blowing off or damage to the silicone charge pipe). Next, attach the other side of the pipe to the large turbo using T-bolt clamps.	
38.	Reinstall battery box.	

39.	Adjust the air intake assembly until the intake support bracket sits flush against the aluminum truck body (see picture on the right). Also, make sure the filter clears the hood of the truck when shut. It is normal for the air filter to stick up slightly over the side of the truck, but make sure the air filter clears the hood of the truck. This will ensure the air filter is properly positioned and supported. Once positioned mark the intake bracket location on the truck body. Remove the air filter, aluminum intake, and separate the support bracket from the aluminum intake. Position the support bracket on the previously made marks and screw the provided **U** screws through the bracket and into the truck body. Once the bracket is secured properly to the truck re-install the aluminum air intake and air filter. Connect the support bracket to the aluminum air intake and go through tightening the worm gear clamps throughout the air intake assembly.	 

40.	Install the factory temperature sensors into the ports using the provided **S** and **T** bolts. On some trucks the wires may be very tight. It is very rare but, if wires are too tight it may be necessary to lengthen the wires by splicing in small segments of wire. It is best to solder the wires together and cover with wire shrink tubing. These ports are placed in the only location on the tube which yields the proper flow speed of the air, for the mass air flow sensor to read properly.	
41.	Once again check to make sure that all tubes, cords, and lines are not in contact with any portion of the Compound Turbo Kit.	
42.	Using the factory v-band clamp, attach the exhaust reducer on the back of the large turbo to the exhaust system. It will attach to the factory cast exhaust elbow, the one that was attached to the factory turbo. If exhaust is too far forward or back, simply loosen the bolt in the bell housing, and going from back to front of the truck, grab the rubber exhaust hangers holding the exhaust pipe in place, and twist them in the direction they need to be twisted to move the exhaust into the correct position.	

43.	**Wastegate/Spring Gate: (If your kit has the spring gate only, skip to next item):** Connect the wastegate actuator on the top turbo to the elbow fitting on the bottom turbo using the hose and tension spring hose clamps provided in the kit**. If equipped with spring gate, disregard this instruction, spring gate tension will already be pre-set.** **VERY IMPORTANT:** If you are using your own small turbo in this compound turbo kit, it is extremely important that you **DO NOT run the wastegate actuator off small turbo pressure, it will open too wide and damage the inside valves.** You should run our spring gate setup as shown if you are running one of our small turbos (S300 style turbos). The spring length will provide the correct wastegate opening/closing pressure. If you have a competitor's turbo, you should re-route the wastegate hose to reference the large turbo and block off the small turbo port.	

44.	Reroute coolant tank lines.	 

		
45.	Reinstall battery and reconnect the battery cables.	
46.	Replace and fill engine coolant.	
47.	Start the truck and check for any oil leaks, air leaks, or vibrations. If leaks are found, make sure all the clamps, bolts, or fittings are tight. **Be sure that the oil pressure rises to the correct pressure.** Allow it to idle for about 2-3 minutes without revving the engine. This allows the oil to reach the bearings of the new turbos. Do not allow truck to idle for long periods of time, especially on new turbos because it can cause turbo leaks.	
48.	If no leaks are found, reinstall the plastic inner wheel well cover (splash guard) on the passenger side.	
49.	The engine ECM will look for the factory turbo, so use whatever programmer you have to change turbo settings to aftermarket.	
50.	Drive conservatively for about 100 miles to allow some break-in time on the turbocharger. After driving about 100 miles, while engine is hot from running, put on gloves and re-torque all exhaust bolts and all clamps. This will ensure they do not loosen in the future.	

51.	Finished Picture