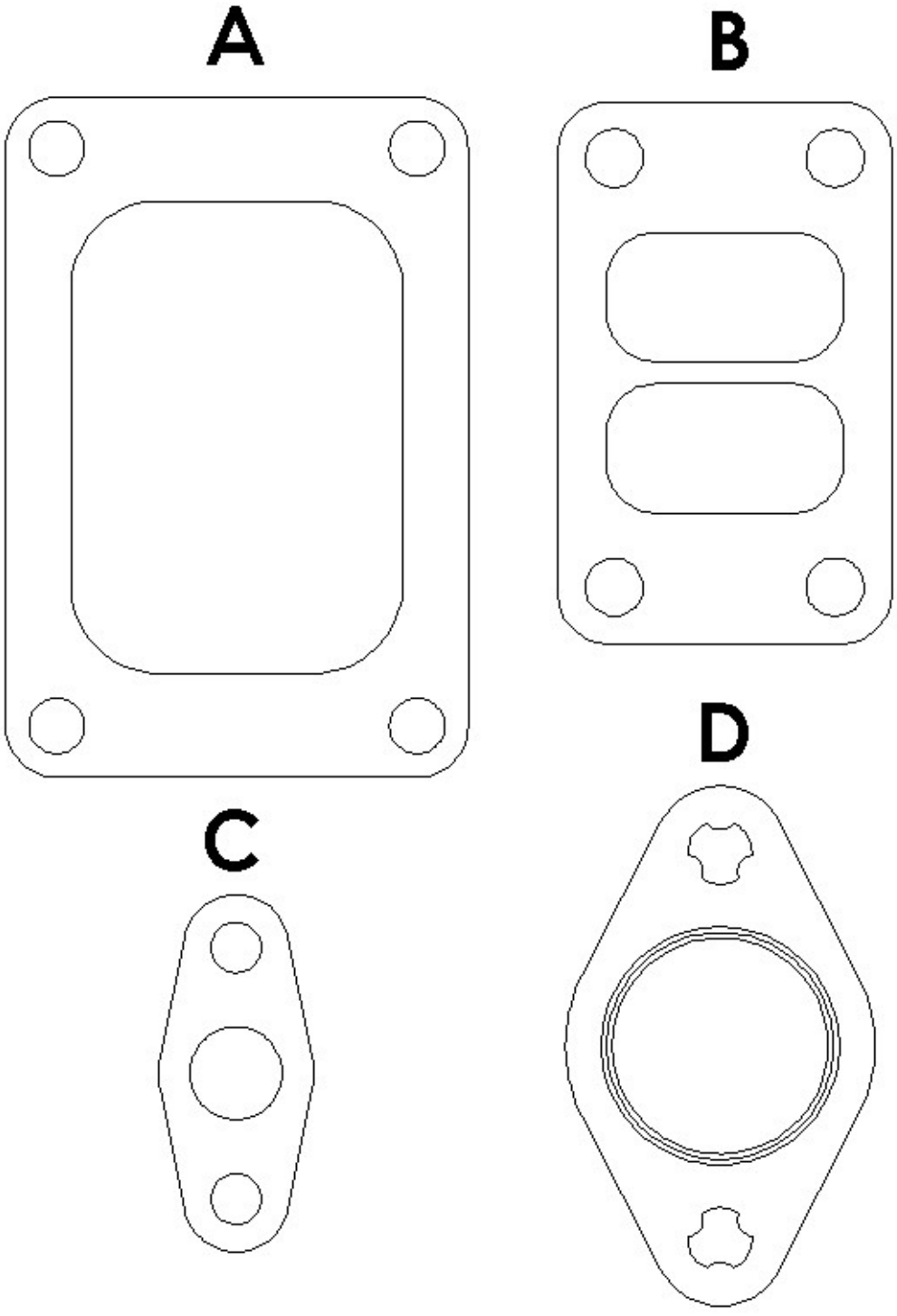
3rd Gen Stocker Twin Turbo Kit

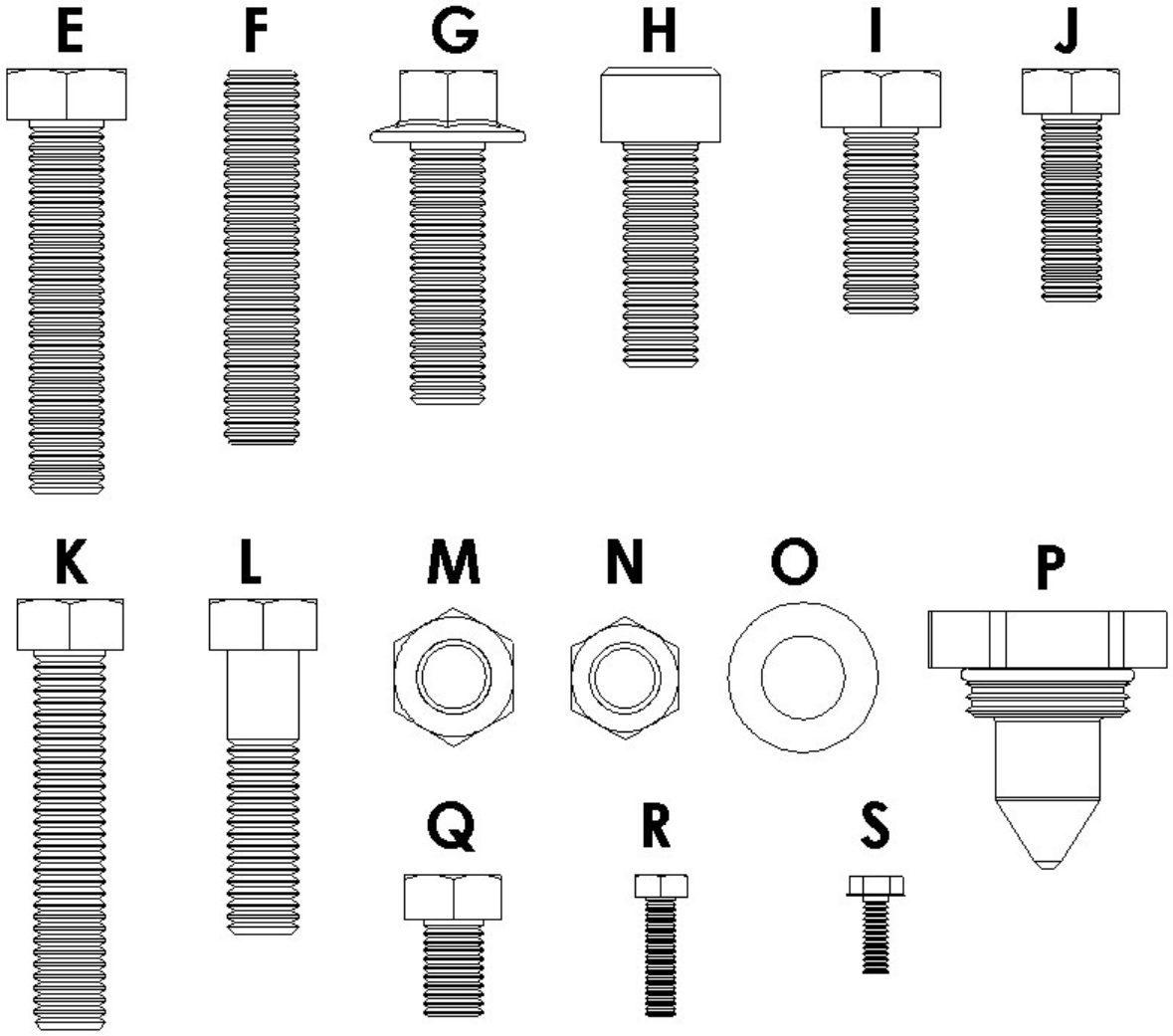
Very important:

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

3rd Gen Stocker Twin Gaskets and Hardware



Images Are Not to Scale



Images Are Not to Scale

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

Installation Instructions for 3rd Gen Stocker Twin Turbo Kit

Please read all instructions before installation.

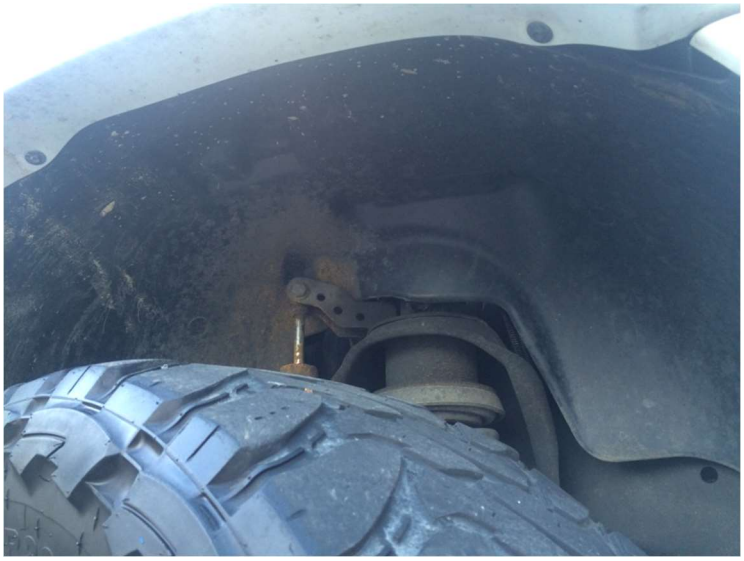
Note: We strongly recommend head studs and/or fire rings.

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. Remove battery box. This allows more space for installation. The battery will be reinstalled later.



5. 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.

6. Remove oil supply line for the factory turbo. 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 fitting attached to the truck.

7. Disconnect oil drain line from the factory turbo and remove it from the block. Keep the bolts and discard the factory oil drain line.

8. **For 2004.5-2007 Trucks Only:** The wastegate is electronically controlled. Simply unscrew the entire sensor from the factory turbo and zip tie it onto the shock mount. Leave it plugged into the wiring harness. Screw the provided wastegate plug into the hole.

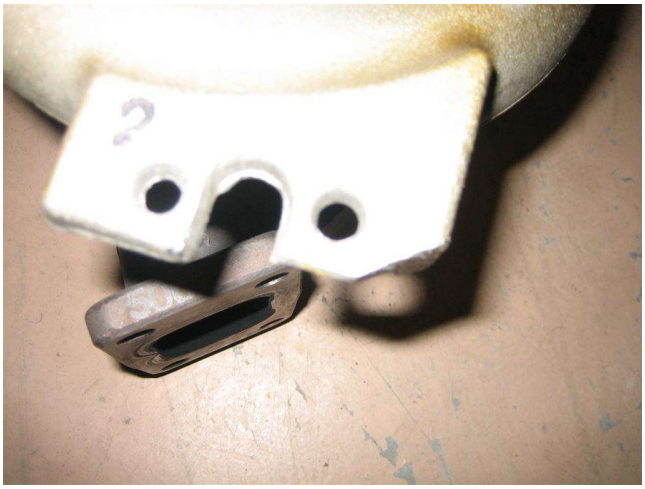
9. Remove the factory turbo and exhaust manifold. Keep the v-band clamp for the down pipe.

10. Remove the wastegate rod and wastegate actuator from the factory turbo and disconnect wastegate hose from compressor housing. It may be necessary to force compressed air into the rubber tube to release the wastegate pressure. Do not lose the small external snap ring. It will be reused with the new wastegate.

11. The three sections of the factory turbo need to be disassembled (turbine housing-exhaust end, cartridge-middle section, and compressor housing-cold air end). Start by removing the v-band clamp. Once the clamp is off, pull the turbine wheel STRAIGHT OUT from the turbine housing. Be very careful not to damage the fins. Next, remove the internal snap ring from the compressor housing as shown. Then pull the compressor wheel STRAIGHT OUT from the compressor housing.

Note: Be very careful removing and replacing the compressor and turbine housings. Pull the housings straight on and off, and do not damage the turbine or compressor fins.

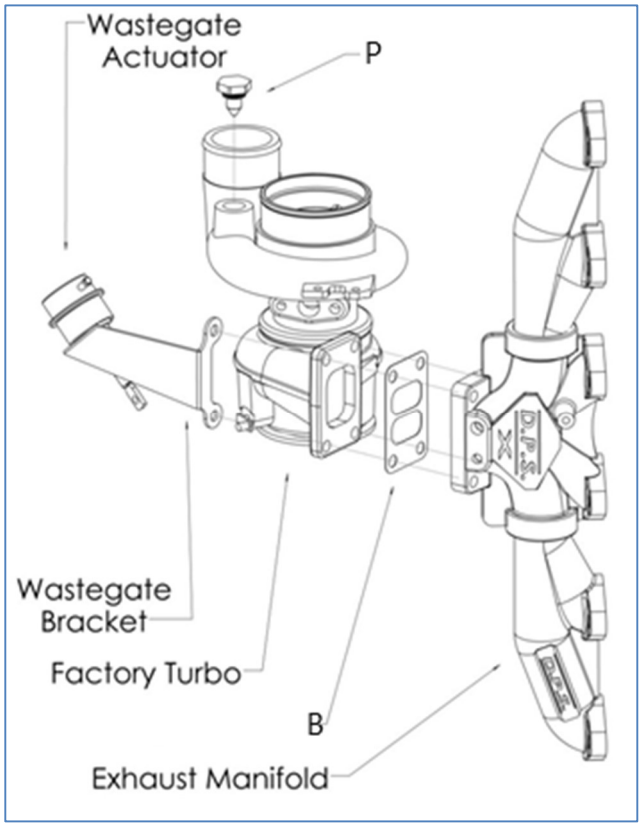
12. There is a roll pin in the bearing housing that prevents turbo from clocking (rotating). Remove the pin out with pliers.



13. Trim the corner off the actuator mount on compressor housing. It will not clear the manifold if not trimmed off. Be sure to clean after so the metal pieces from trimming do not get inside the turbo.

14. Remove the mounting studs from the turbine housing and drill out the threads from the two threaded holes in the T3 flange of the turbine housing. Drill the threads out by using one of the following drill bit size 'X' , 'Y' or 13/32. Be sure to clean after so the metal pieces do not get inside the turbo.

15. Reassemble the factory turbo using the v-band clamp and internal snap ring. Clock the three sections of the turbo to match the template attached with these instructions (last page). The picture shows factory turbos. The turbo on the right is the factory clocking. The turbo on the left has been clocked according to the template.

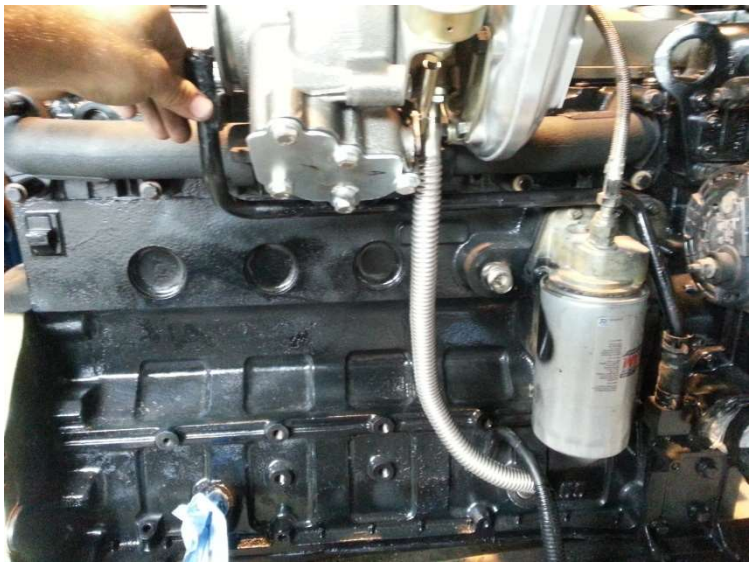


16. Install the factory turbo and the new wastegate on the exhaust manifold as shown using two **K** bolts, two **N** nuts, one **F** stud, one **M** nut, and one **I** bolt. Remember to place the **B** gasket in between the turbo and exhaust manifold flanges. **<u>For 2004.5-2007 trucks:</u>** plug the compressor housing with the provided **P** plug. **Tighten in an 'X' pattern, first to 5 ft-lbs, then to 15 ft-lbs, then finally to 35 ft-lbs.** The wastegate linkage will be connected in the next step.

17. Connect the wastegate actuator linkage to the wastegate pin on the turbine housing. The actuator pulls the wastegate shut. The correct starting adjustment should be as shown. The actuator shaft should be approximately at this position when the wastegate is completely shut. You will need to blow air into the actuator to release the pressure enough to get the hole on the linkage over the pin. (DO NOT USE OVER 50 psi when pressurizing the actuator. It can damage the inner diaphragm). The two jam nuts should be midway up the threaded shaft, and tightened together. This will allow the wastegate to be adjusted later if needed without disconnecting the actuator linkage. After the linkage hole is on the pin, re-use the factory c-clip (retaining ring) to put back on the slot on the pin to hold the linkage on. Connect the wastegate actuator and compressor housing using the provided hose.

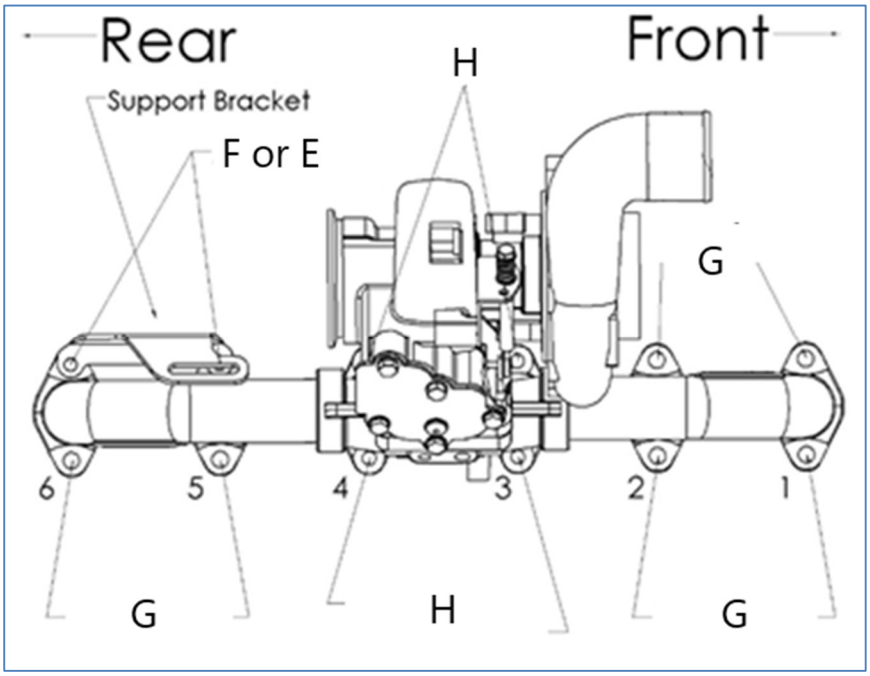
18. Locate the freeze plug underneath the oil filter (same height as the back drain port). Oil filter could be removed to improve accessibility to the freeze plug if needed. Gently tap on the outer rim of the freeze plug using a flat blade screwdriver and a hammer to rotate it in the block. Once rotated, 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>**

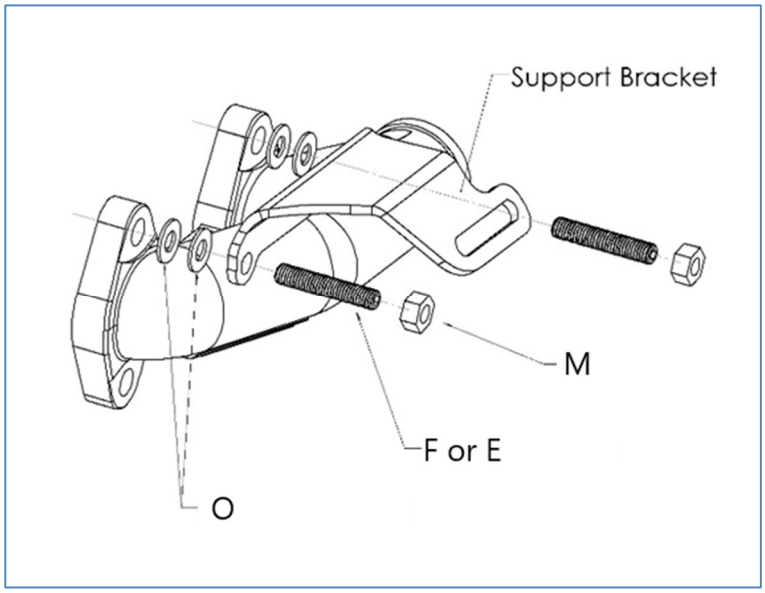


19. Insert the provided long oil drain line into the front drain port. Make sure it is pushed completely into the hole. Both o-rings should be inside the hole. The long oil drain line will be connected to the factory turbo later as shown. Insert the provided short oil drain line into the rear drain port (where factory drain line was connected). Again, it should be pushed in completely and both o-rings should be in the hole.

20. Install the factory turbo and manifold assembly by holding it in place while putting the bolts into the head. Don't forget to install the six **D** gaskets in between the block and the manifold. **Attach the <u>center</u> manifold gaskets and bolts first (cylinders 3 & 4) using the four H bolts included in your kit.**

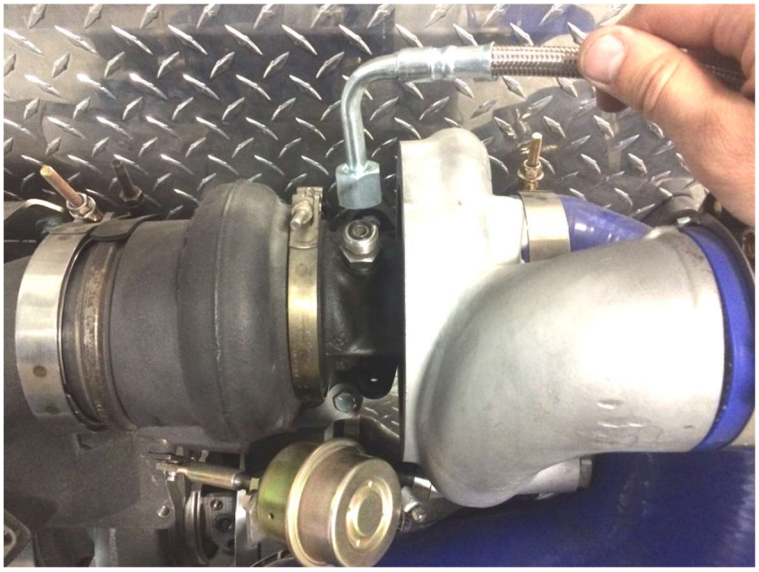


Once the center manifold bolts are in place, install the six **G** bolts on cylinders 1, 2, and the bottom holes of cylinders 5 and 6. Install the support bracket on the top two rear bolts (cylinders 5 & 6) using either two **F** studs and two **M** nuts or the two **E** bolts provided depending on your installation. Position four of the **O** washers between the manifold and the bracket as shown in the picture.



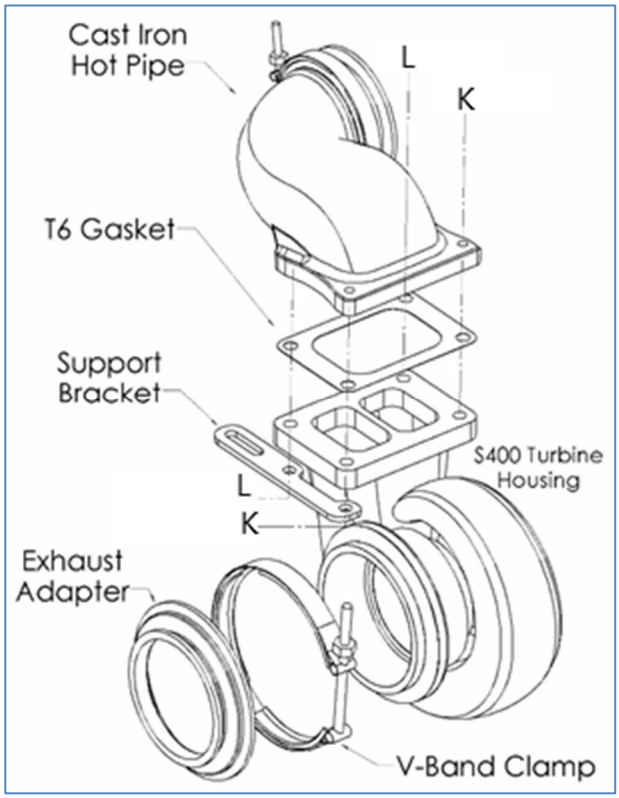
21. Connect the longer oil drain line to the small turbo using two **J** bolts and one **C** gaskets provided in the kit. The spring over the oil drain line allows it to be bent without kinking.

22. Install the new oil supply line provided in the kit for the factory turbo (steel braided hose with elbow ends). Couple the factory fitting on the oil inlet port with the longer elbow end of the steel braided hose. DO NOT OVERTIGHTEN HOSE, 1/4 TURN PAST SNUG IS SUFFICIENT. 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.



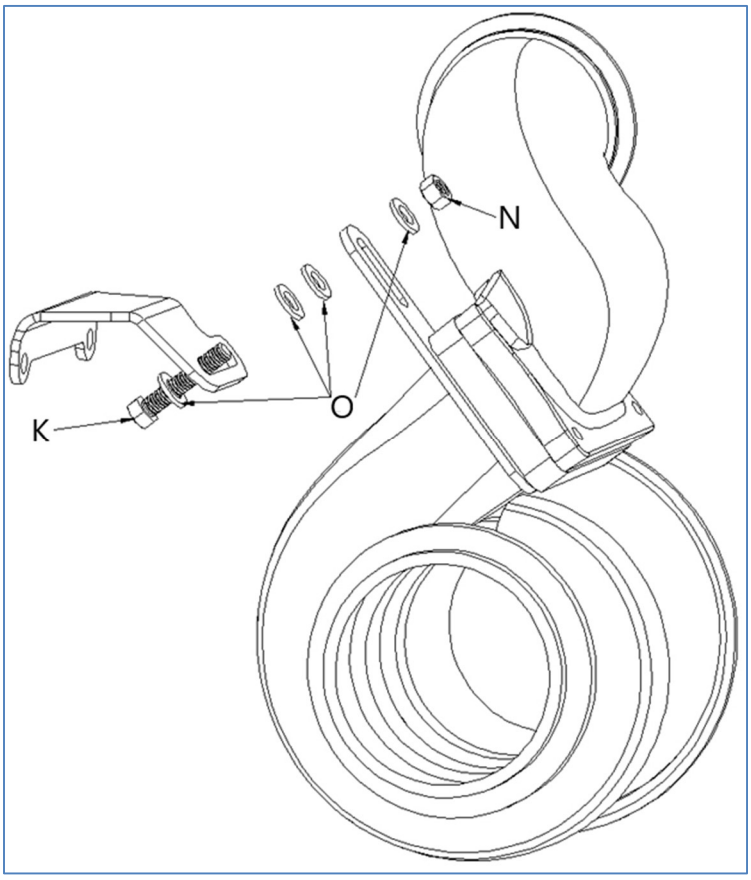
25. Assemble the hot pipe, gasket **A**, support bracket, and large turbine housing as shown using the two **K** bolts and two **L** bolts provided in the kit. Do not forget to place gasket **A** in between the turbine flange and the hot pipe flange. Two **O** washers should be used on the support bracket bolts going into the turbo. **Only finger tighten the bolts to allow for movement when aligning the turbine housing assembly in the next steps.**

26. Using the provided v-band clamp, attach the exhaust reducer on the back of the large turbine housing.

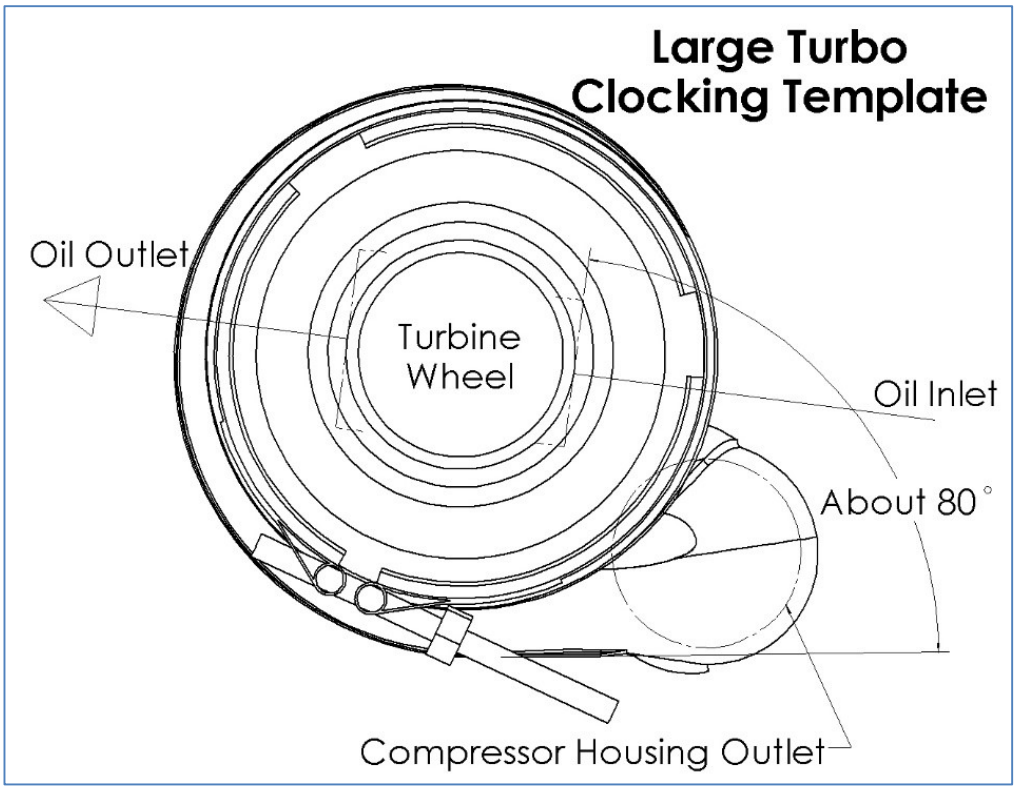
27. Remove the roll pin out with a plier from factory cast elbow in the exhaust system. The exhaust reducer on the back of the large turbine housing will be connected to this cast elbow later.

28.Install the large turbine housing assembly to the stock 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 **K** bolts with one **O** washer through the backside of the support bracket. Stack 2-6 **O** washers between the two support bracket pieces. See pictures on the follow page for more details.

These washers 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 **O** washer and **N** nut to secure the bracket together. Finish by gradually tightening the bolts simultaneously **starting with the v-band clamp first**, 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.

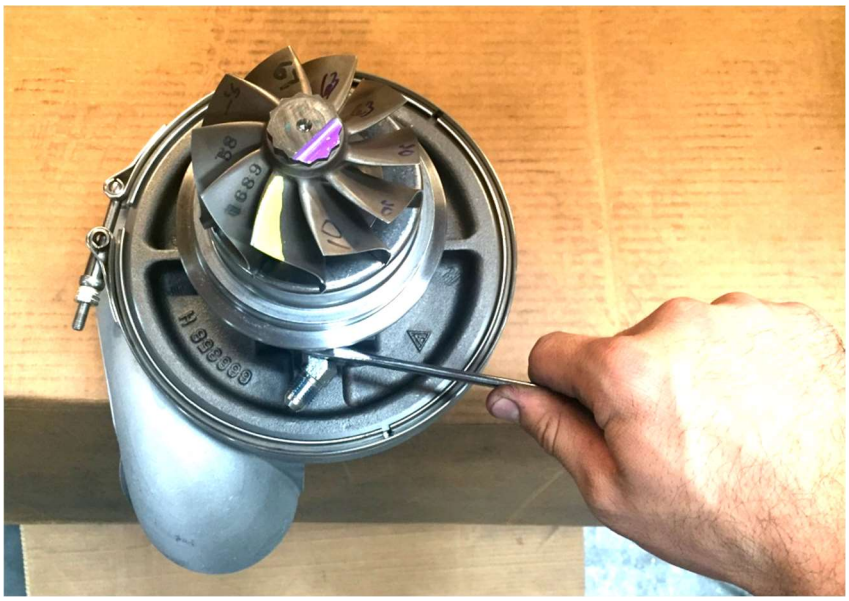


DO NOT attach the exhaust reducer to the exhaust because this prevents necessary movement to align the air intake tubing. The exhaust will be attached later in the installation.

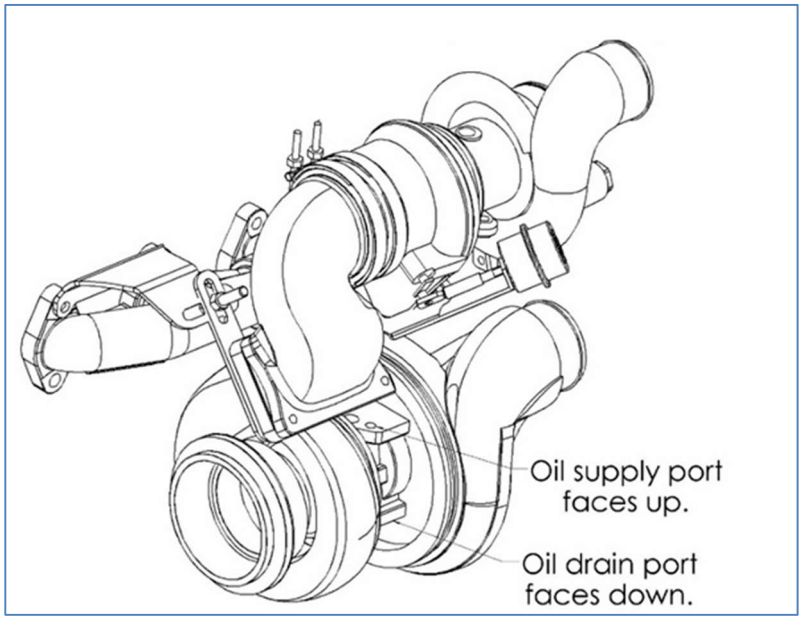


29.Clock the large turbo compressor housing and cartridge by loosening the v-band clamp, rotating them according to the template shown, and tightening the v-band clamp. The V-band clamp should be placed where it is shown in the template. It will allow you to access the clamp easier if you need to adjust the clocking later.

30. Install the oil inlet elbow fitting provided in the kit. Tighten it so the fitting points toward the compressor outlet side as shown.



31. 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.



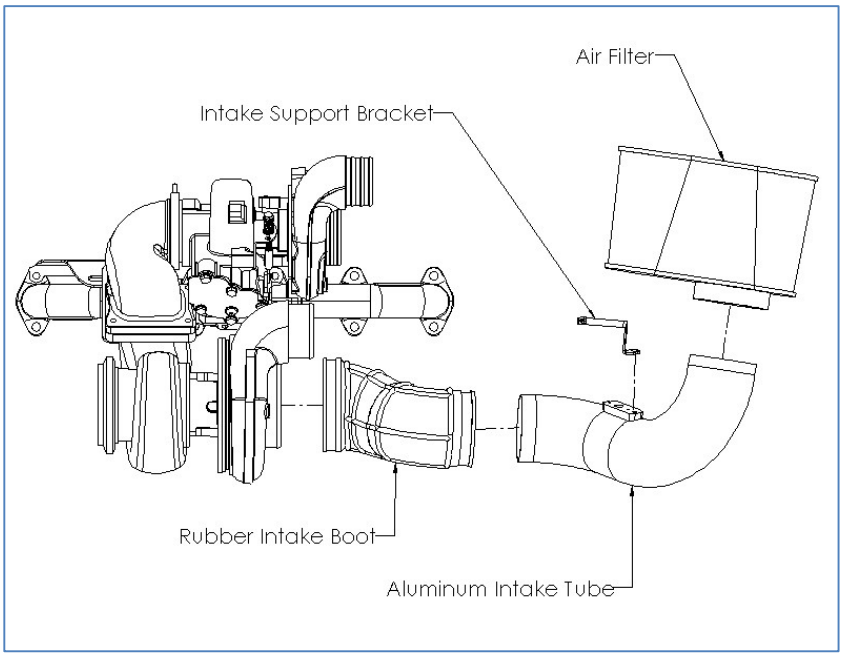
32. Carefully lower the large turbo section to the front of the turbine housing installed in the truck and insert the turbine wheel into the turbine housing. **Do not allow the exposed turbine fins to touch anything. They can easily be damaged.** Use the v-band clamp to secure in place but keep it slightly 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 100 inch lbs).

33. 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 Stocker Twin 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.

34. 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.

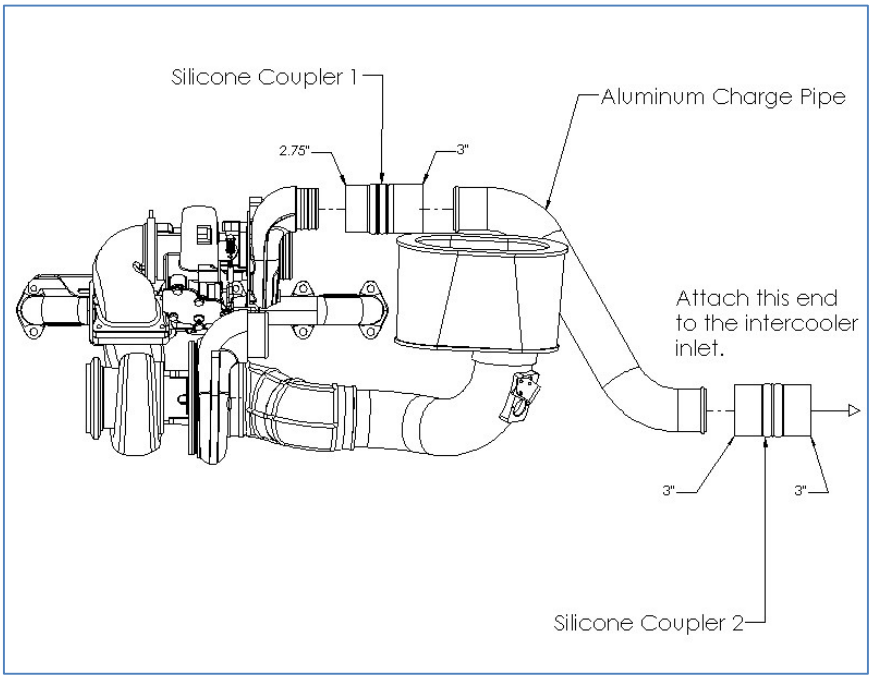
35. Connect the shorter oil drain line to the large turbo using the last two **J** bolts and **C** gaskets provided in the kit.

36. Install rubber air intake and aluminum intake tube, and small bracket using the provided **Q** bolt. Tighten all clamps tight enough so they will stay in place but keep loose so they can be adjusted later.



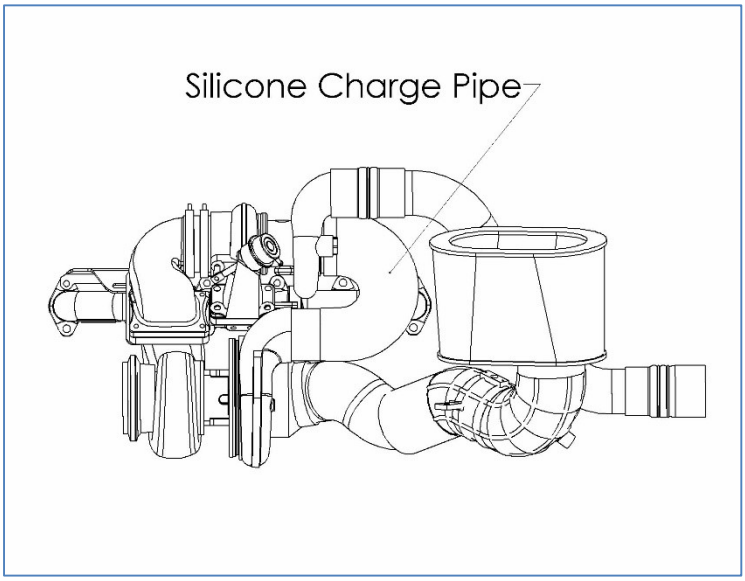
Note: Oiling the filter with K&N filter oil is highly recommended, especially if being used in dusty environments. Also the K&N filter cleaning and oiling kit can be used to wash the air filter when it gets dirty.

37. Install the polished aluminum charge pipe (goes from the factory turbo outlet to intercooler) and silicone couplers as shown. Use appropriate T-bolt clamps to secure in place. Tighten snug, but do not over tighten (appx. 7-8 ft. lbs.).



Note: If the charge pipe does not line up with the intercooler inlet, you may need to rotate the factory compressor housing slightly.

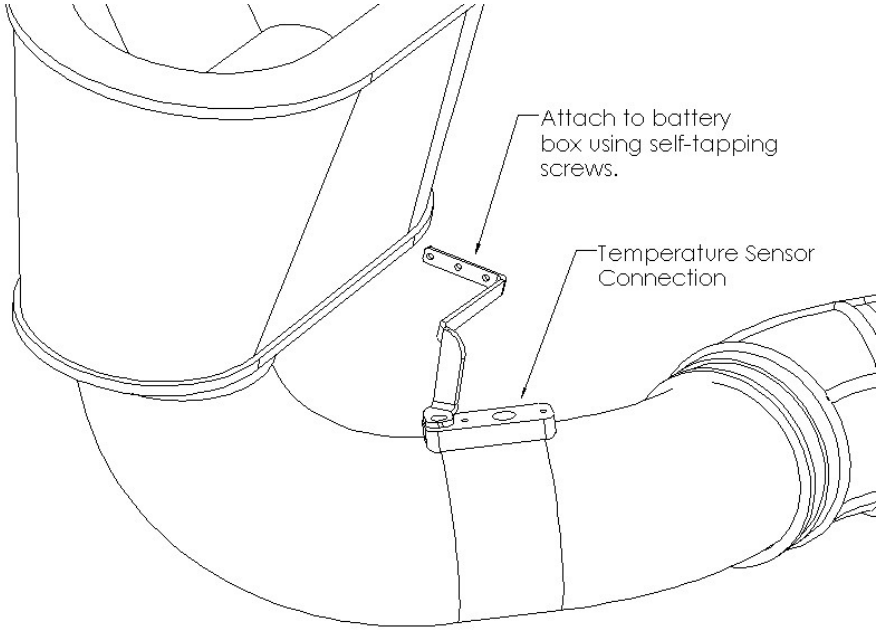
Note: If it is difficult to slide couplers on, you can use a small amount of soapy water to help the charge pipe slide into the couplers. DO NOT USE OIL TO DO THIS as oil will not dry and the charge pipe may slip out under pressure.



38. 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.

39. Reinstall battery box.

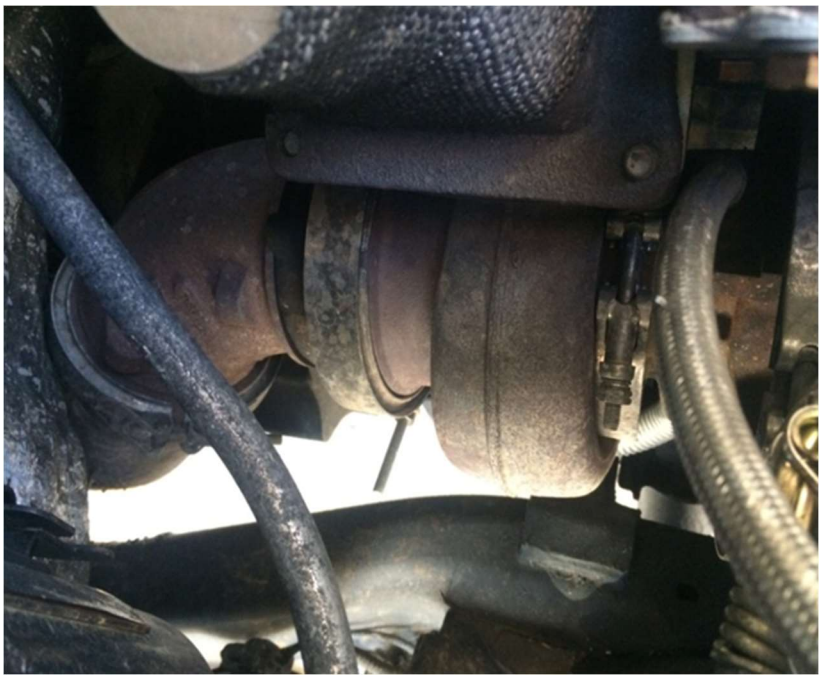
40. Mount the small bracket to the side of the battery box using the three provided **S** screws, but first make sure the filter clears the hood of the truck when shut. It is normal for the air filter to stick up slightly over the side of the truck, but make sure the air filter clears the hood of the truck. This will ensure the air filter is properly positioned and supported. Tighten the worm-gear clamps AFTER attaching the support bracket.



41. Install the factory temperature sensors into the port using the two **R** bolts provided.

42. Once again check to make sure that all tubes, cords, and lines are not in contact with any portion of the Twin Turbo Kit.

43. Using your stock 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.

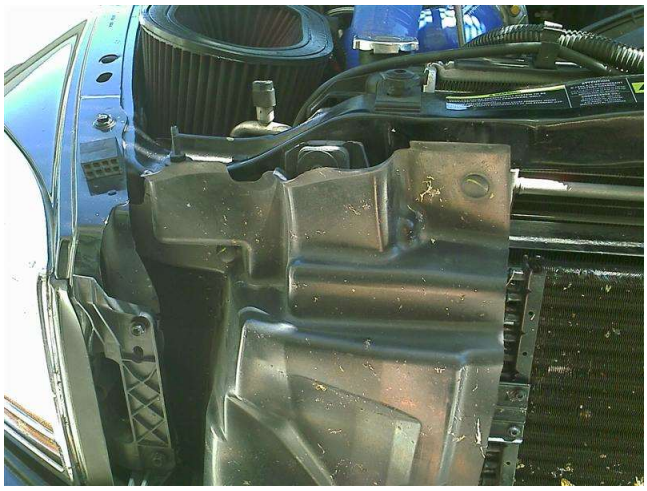


44. Reinstall battery and reconnect the battery cables.

45. Start the truck and check for any oil leaks, air leaks, or vibration. 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.

46. If no leaks are found, reinstall the plastic inner wheel well cover (splash guard) on the passenger side.

47. **For 2004.5-2007 Trucks Only:** Remove the rubber cover on the front passenger side of the radiator. This needs to be left off, because if it restricts cool air from entering the filter, and makes a substantial difference in EGT's and overall performance.



48. 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.

Twins-Stock Turbo Clocking Template