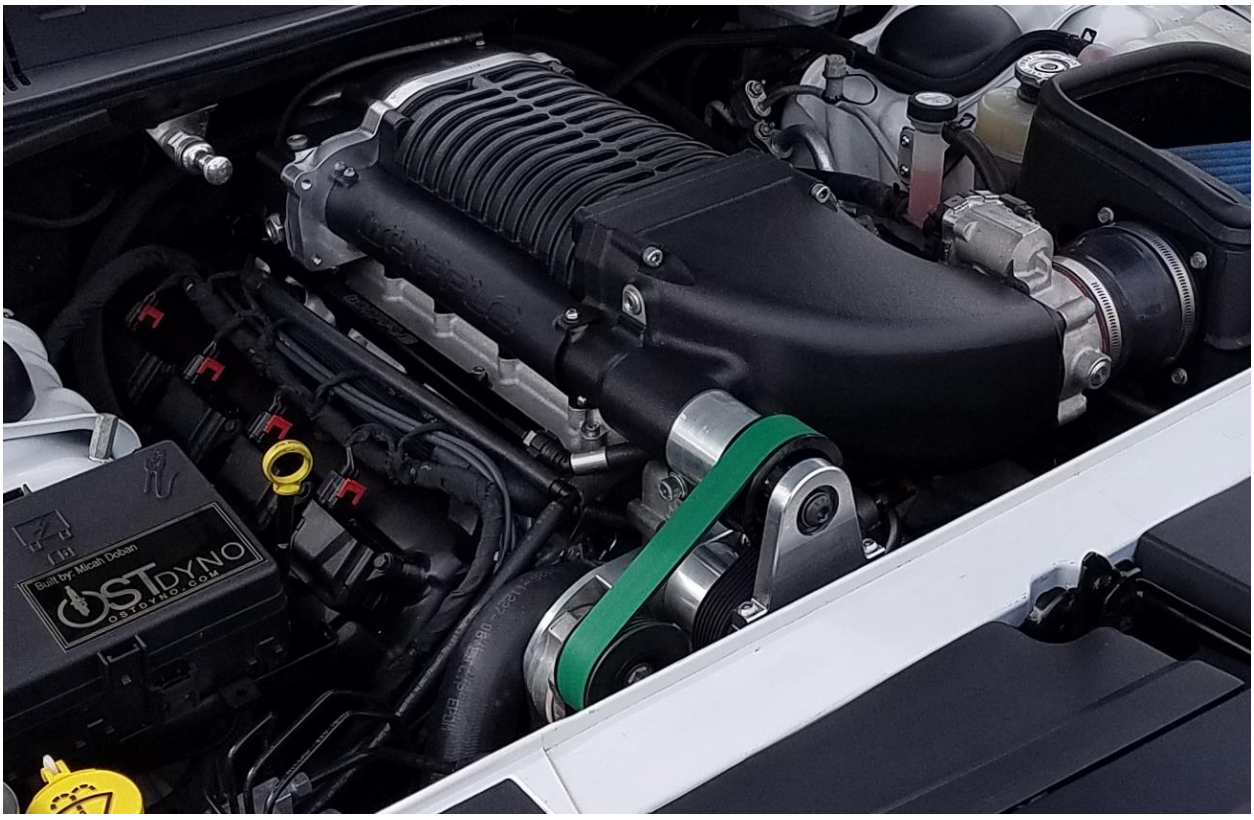
OSTDYNO.COM

8-Rib Dedicated Drive System Installation



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Notice: This system can produce extreme amounts of boost! You *will* need an ungraded fuel system. Check over all work before racing, tuning, or driving. These instructions assume you are mechanically inclined and have a competent knowledge of your car. As such there are no steps showing how to disconnect the battery, jack the car up, etc. Refer to your original Whipple instructions if needed.

Troubleshooting Appendix at End of Instructions

Included Parts

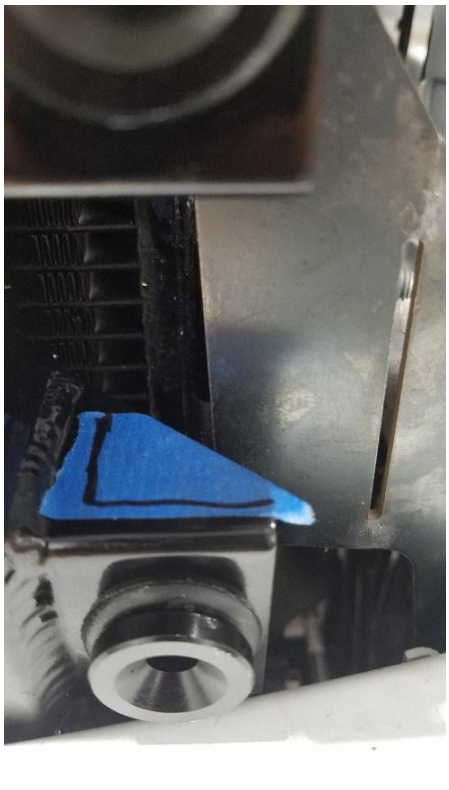
Note: "Hot Rod" kits do not include any of the radiator or heat exchanger parts and skip those installation steps

- Custom 8-rib tensioner
- ATI 8-rib lower SC pulley
- 8-rib steel idler pulleys (2x)
- 8-rib Whipple supercharger pulley
- 8-rib belt
- Front Brace - Lower bracket
- Front Brace - Upper bracket
- Front Brace – Bushing
- Supercharger spacer
- Idler spacers (2x)
- Main bracket
- Hardware bag
- Radiator lower brackets
- Radiator upper spacers
- Fan spacers
- Heat exchanger brackets
- Shims

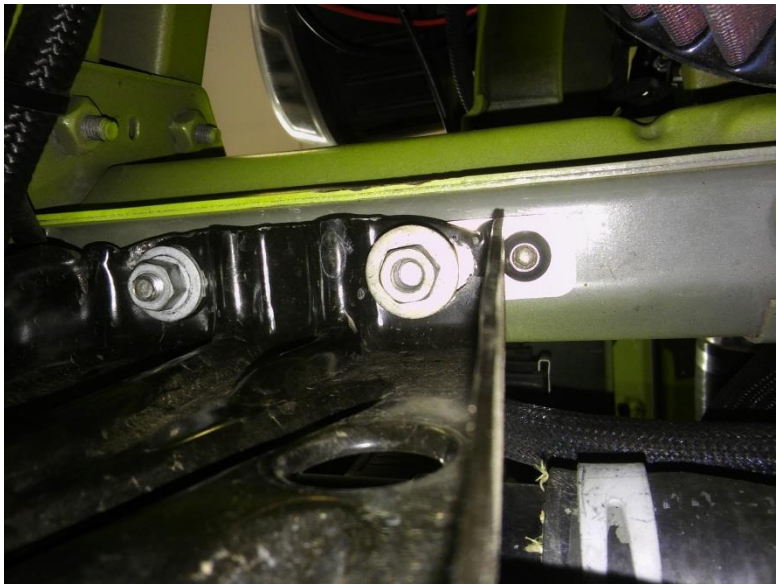
Installation

1. Jack car up or place on lift. Car must be high enough to remove fans from underside.
2. Remove Whipple brackets, pulleys, hardware, etc. Keep these items organized.
3. Remove front bumper cover.
4. Remove radiator fans by unbolting top 10mm bolts and disconnecting fan connector. The fans come out the bottom of the car.

5. Remove the Whipple heat exchanger brackets and replace with the included OST heat exchanger brackets shown below. The slotted holes go in the bumper and have multiple positions to raise or lower your heat exchanger as desired. For the High Capacity heat exchanger you will need to notch the mounting brackets as shown to allow the OST brackets to sit against the black collars supplied by Whipple. You will not use the Whipple supplied black spacers.

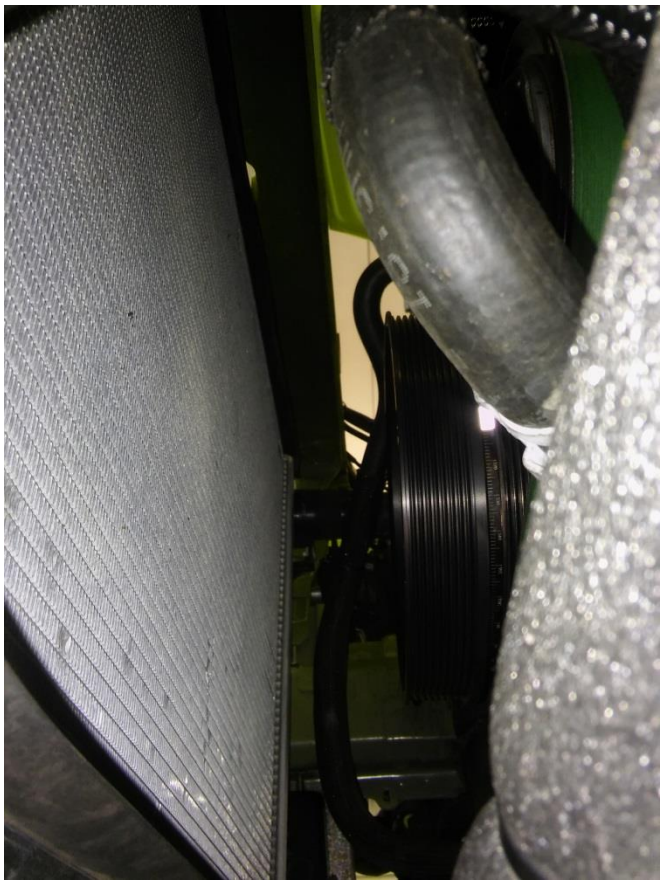


6. Support radiator support bracket (to keep radiator from falling) and remove all four bolts that hold it in. Lower the radiator support about 3 inches or as far as safely possible.
7. Install the included Lower Radiator Support Brackets as shown so that the radiator will be moved towards the front of the car 1”. Use the supplied button head M8 bolts and M8 nuts. Leave the nuts loose for now.



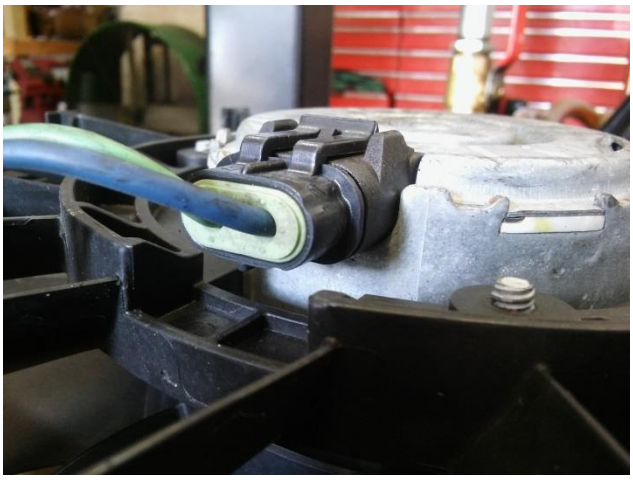
8. Locate the 1” aluminum spacers and M6x45mm allen head bolts. Install these spacers behind the upper radiator mounting tabs using the supplied M6 bolts.

9. Install the ATI 8-rib pulley to the front of your ATI damper using the three 12-point bolts already installed into your damper. Refer to ATI for torque values. **Non-VVT** Install the supplied spacer and then the crank drive pulley using the longer bolts included. The spacer is meant to fit snug to keep the drive centered so tighten the bolts evenly.



10. Place your fans on a workbench. You will see that each of the fans is held in by three 10mm bolts. Orient your fans so that you are looking at the right side fan (the car's right).

11. Also notice the fan connecter and how far it is from the shroud assembly. The goal is to move this closer to the assembly to clear the 8-rib crank pulley.



12. Remove the three 10mm bolts holding the right side fan in. Locate the supplied 3/8” aluminum spacers.

13. Install these spacers between the fan and the shroud assembly. Reuse the OEM bolts.

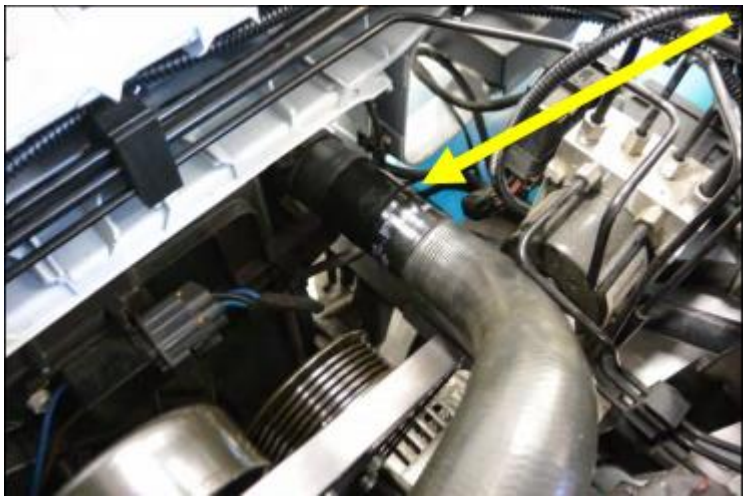
14. The fan connector should now look like this. Set the fans aside for installation later.

15. Lay out all the previously removed Whipple parts as seen here. There are extra pulleys on this customer's car. You will only have three.

16. Remove the pictured harness connector from the passenger cylinder head threads.

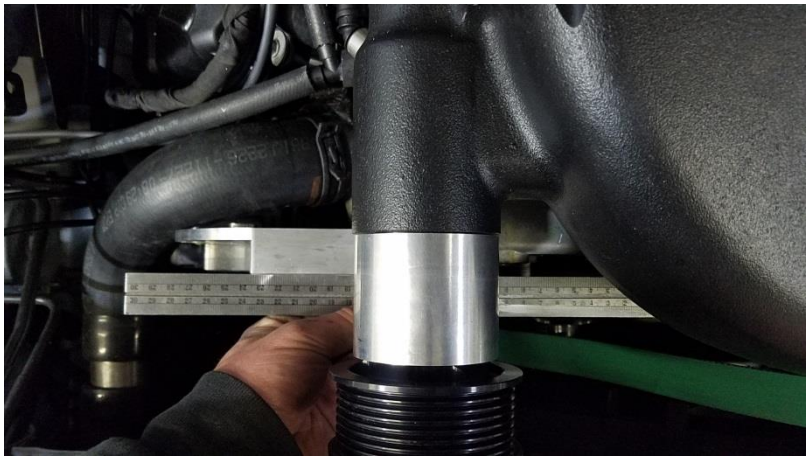
17. Using the Whipple mounting hardware and two black spacers, install the OST Main Bracket onto the engine in the same manner the removed Whipple bracket. Leave the bolts loose. **Non-VVT** Rotate the thermostat housing as seen here. Modifications to the housing may be needed to slip a hose on. We recommend extending this housing 1" towards the cylinder head. Replace your current radiator hose with the supplied OEM VVT hose. On some older vehicles the lower bolt hole in the main bracket will need a washer on the backside to make it flush with the rest of the bracket. This will depend what water pump you have. The upper lug for mounting an alternator on the WK1 Jeeps will need to be cut off. If you have a WK1 you will need to modify the Main Bracket.

18. **Non-VVT Only** Install the supplied stainless tee only the supplied upper radiator hose and the supplied hose extension. Use the supplied heat shrink tubes on the ends of the tee. Test fit the hose assembly in the car and trim if needed. Clock the tee as needed. Tee should face down to connect to the oil cooler if equipped. If no cooler is equipped block off the tee. Once trimmed and clocked correctly heat the shrink couplers outside the car to access all angles. Install the finished hose.



19. Install the included steel rod spacer and M8x130mm (120mm Non-VVT) bolt through the Main bracket and into the threads of the cylinder head that were uncovered by the harness connector. Tighten this bolt first, then tighten all bolts.

20. Using a straight edge, check that the main bracket is parallel to the front of the supercharger snout. If it is not you will need to slightly change the length of the rod spacer (shimming or cutting). **This is the most important alignment procedure.**



21. **Reinstall the water pump idler and the 6-rib serpentine belt in the factory orientation. Use the Dayco tensioner supplied with your Whipple kit, not the factory tensioner. Since Whipple kits for RTs do not include the Dayco tensioner you can either purchase one (PN 89377) or cut off the tab in front of the pulley on your factory tensioner. If you do not, this tab will hit the crank SC drive.**

22. Break down the pulley assemblies as seen below. You will have (from left to right) a pulley, top pulley centering ring, spacer, and lower pulley centering ring. Newer Whipple kits do not have the spacer and the spacing is built into the lower centering ring. **Save the third top centering ring for the upper snout bearing brace.**

23. Place the lower pulley centering rings into the grooves of both OST Idler Spacers as shown. Some light sanding on the sides of the pulley centering rings may be needed as each ring has a different taper to the edge. The indented area of the idler standoff is where you will place the included shims if needed.

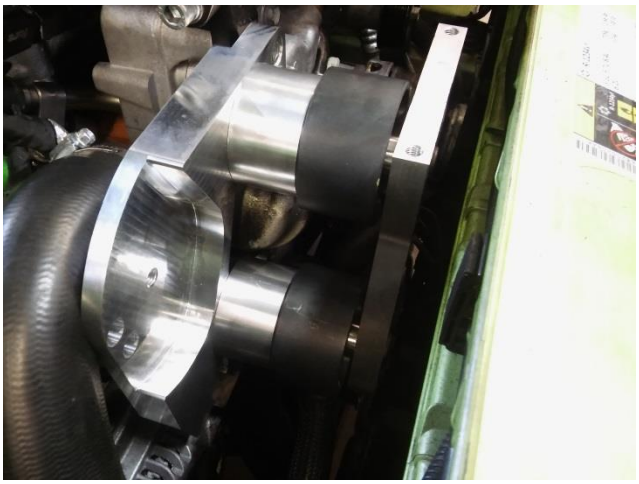


24. Drop the spacer (if included in your Whipple kit) onto the lower centering ring. Set the included steel 8-rib idlers into the lower centering rings. Orientation does not matter.


25. Set the top pulley centering rings on top of the 8-rib idlers.

26. Locate the Lower Brace and ½”x13 4” bolts. Orient and assemble as shown.

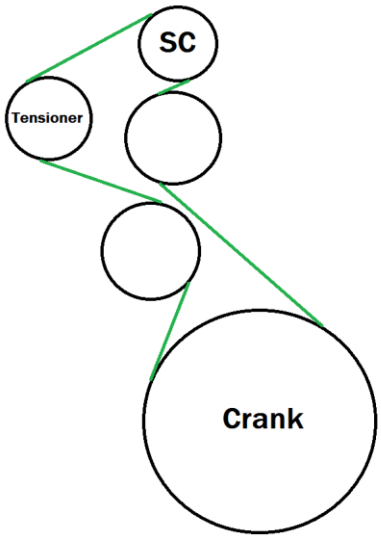
27. Install the assembled lower brace and idlers onto the Main Bracket. You will need a modified allen wrench to tighten these bolts. Alternatively you can punch the bit out of an allen socket and use a wrench on the bit. **Non-VVT** cars will install the supplied 7/16” spacers between the Main Bracket and Idler Spacers.



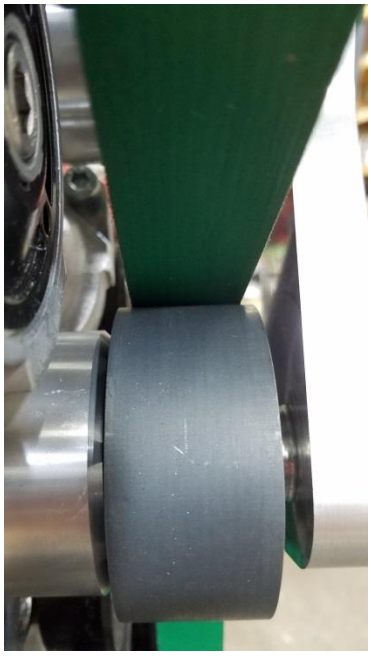
28. Install the 8-rib Whipple pulley and Supercharger Pulley Spacer onto the supercharger shaft. Use the supplied M6x55mm allen head bolts. **Non-VVT** some older blowers may need 2mm thick washers behind the SC pulley bolt heads. Verify the pulley is seated when the bolts are tight.

29. Install the tensioner body first then the pulley. The snap ring on the pulley faces outward. Be sure to use the included black safety washer. Use the supplied M10x50mm bolt for the tensioner body. **Non-VVT** cars will install the supplied 7/16” spacer between the tensioner body and the Main Bracket and use the longer M10x70mm bolt for the tensioner body.

30. Install the HD supercharger belt in the orientation shown below. You will need to push the belt between both idlers first. Then loop around the crankshaft, then tensioner, and finally the supercharger pulley. The belt for the 2.75” upper pulley and 8.65” lower will be tight. This is intentional. The belt will stretch after the first few WOT hits.

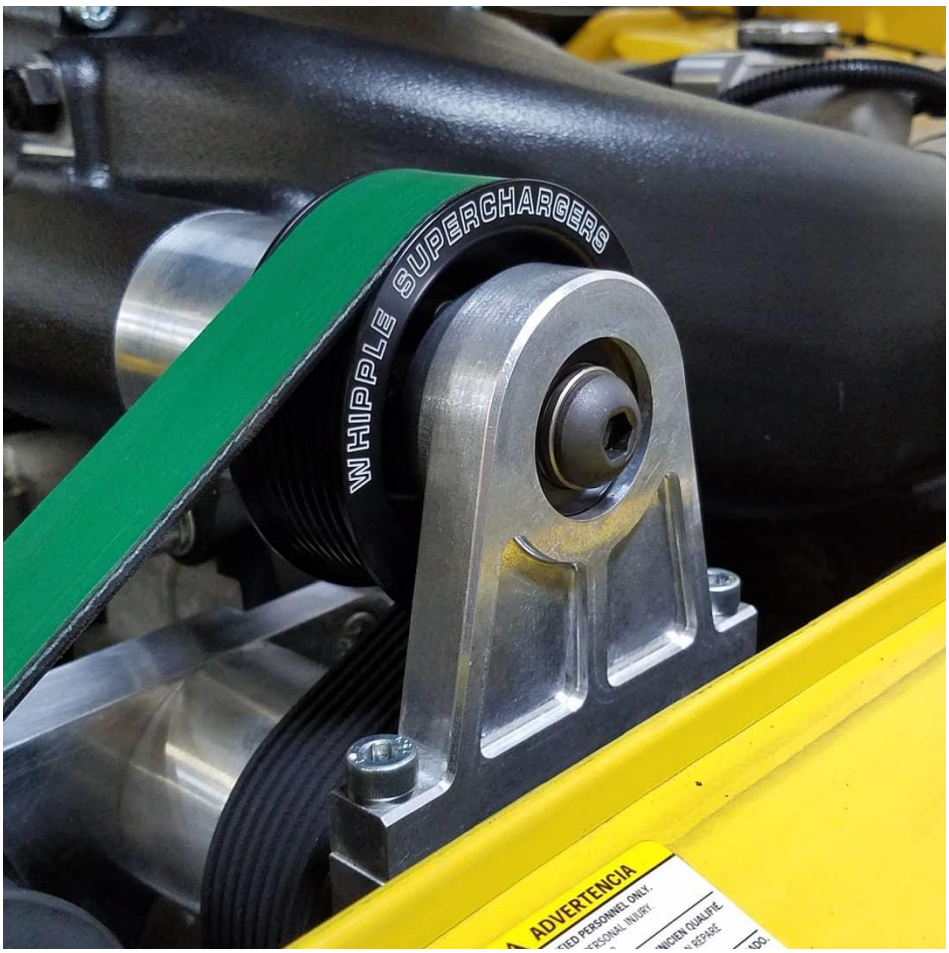


31. Once the belt is on, spin the motor a few times by hand to see where the belt will sit on the idlers. If it is not entirely on both idlers you will need to shim behind the idlers as mentioned in Step 23. After installing any shims spin the engine by a hand again before checking belt alignment. Every front cover and water pump is cast differently so each engine will be different. Below is a picture of the belt centered on the idler. This particular engine also needed a washer on each of the lower main bracket bolts to move the bottom of the main bracket towards to front of the car.



32. Install the Front Brace Bushing as shown. Some cars may need the remaining pulley spacer installed on the brace side of this bushing. This will be dependent on the amount of shims used behind the idler standoffs.

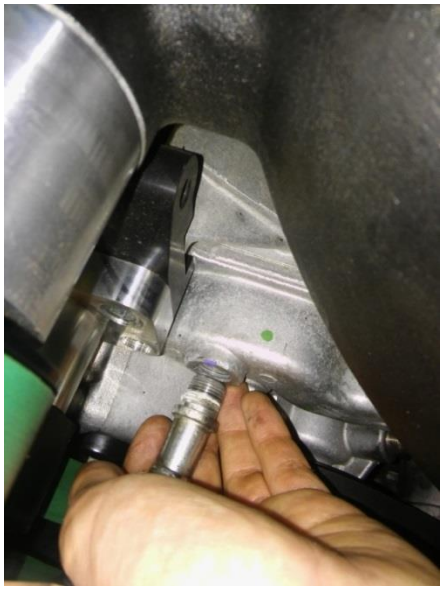
33. Install the Top Front Brace with the ½"x13 12-point ARP bolt through the bearing as shown and hand tighten (old style button head shown). Do not use Loc-tite on this bolt. *Be sure to slide the remaining top centering ring onto the bolt before installing into the bearing.* Without this remaining centering ring installed the upper brace will offer no support. Orient the Top Front Brace so the inner bearing sits inside the supercharger pulley. Install the M8 allen bolts to connect the Top Brace to the Bottom Brace. Do not tighten the bolts yet.



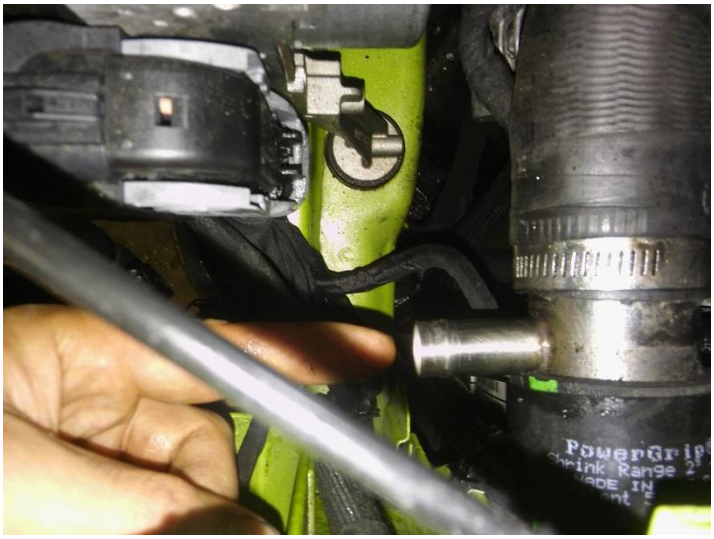
34. Have a helper (or do so with one hand) relieve the belt tensioner (leaving the belt on) and tighten the ½"x13 bearing bolt in the Top Brace. Then tighten the lower M8 bolts. Reapply the belt tension. This keeps any side load or strain off the jackshaft and locks the supercharger pulley in place. ***Note: Before tightening the M8 bolts, ensure the top brace is sitting on the bottom brace when the ½"x13 bolt is tight.*** *If there is a gap between the upper brace and the lower brace you will need to create a spacer to sit between the upper and lower brace. This gap is caused by casting differences and different head gasket thicknesses. You do not want unnecessary downward force on the supercharger bearing or ½"x13 bolt. Not following this step will cause one of these two items to fail.*

35. (Steps 34-38 for '15+ SRT only) If your front cover coolant hose has already been relocated as per the Whipple instructions you can skip these steps. If you still have a ¾" hose going to the top of your front cover, begin by draining and collecting the engine coolant. You do not need to drain all the way, just enough to be below the upper radiator hose.

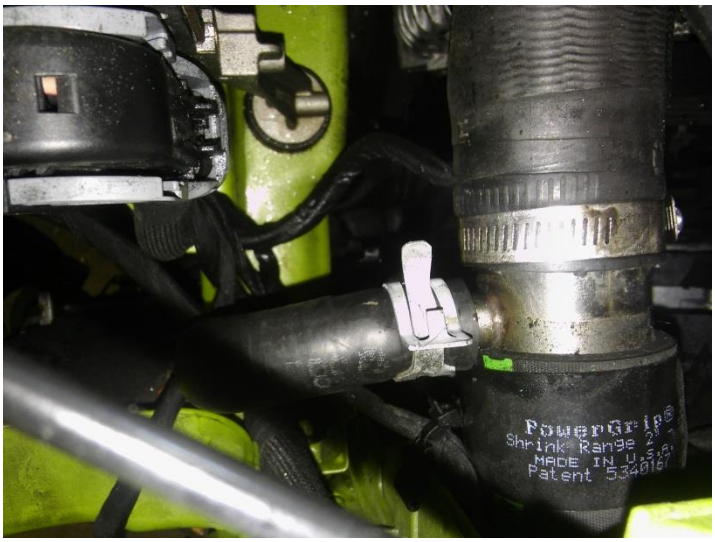
36. Remove the NPT fitting from the front cover. It has an 11mm allen head inside the nipple. Install the supplied allen NPT plug into the front cover (square head pictured).



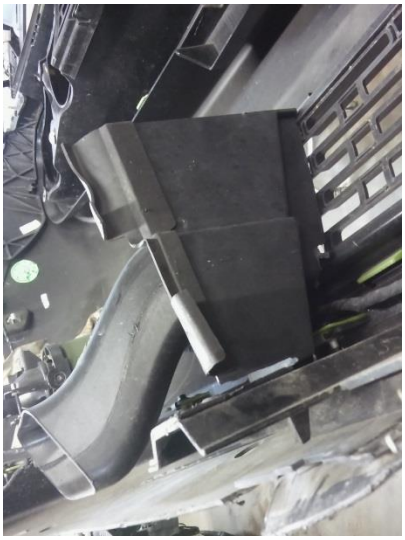
37. Locate the barb on the upper radiator hose “T” piece. You will need to remove whatever is plugging off this “T”



38. Route the hose that went to the front cover to this “T”. Cut if needed. Take care not to allow this hose to touch the alternator pulley.

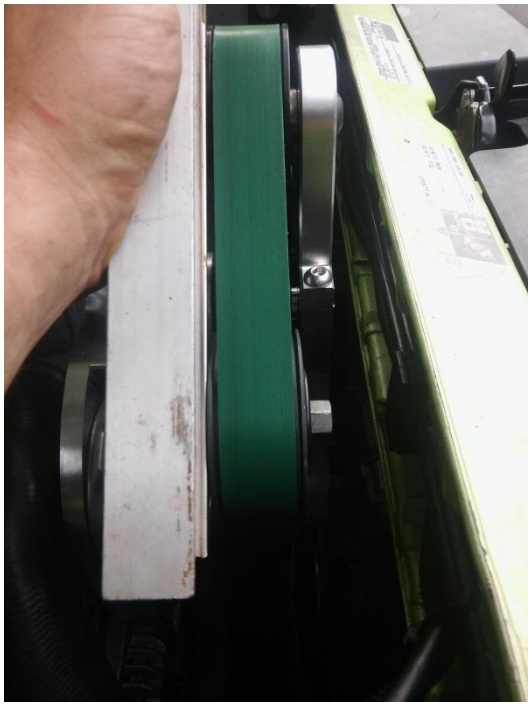


39. Cut the air directing plastics on the inside of the front bumper as shown. Cut both sides as flush as possible. Reinstall the front bumper.



40. Reinstall the fans and tighten the nuts on the radiator support. Check the clearance between the ATI 8-rib crank pulley and the right side fan connector. Clearance should not be less than 1/8”. If it is you will need to move your engine cradle rearward.

41. The pulleys and belt must now be aligned. Take your time with this process and be thorough. These parts are going to be under extreme stress and belt alignment is crucial.
Using a straight edge, confirm the supercharger pulley is in line with the crank pulley. Next, confirm the tensioner pulley is in line with the supercharger pulley. Measure from both the front and the back as the tensioner pulley is wider than the supercharger pulley.

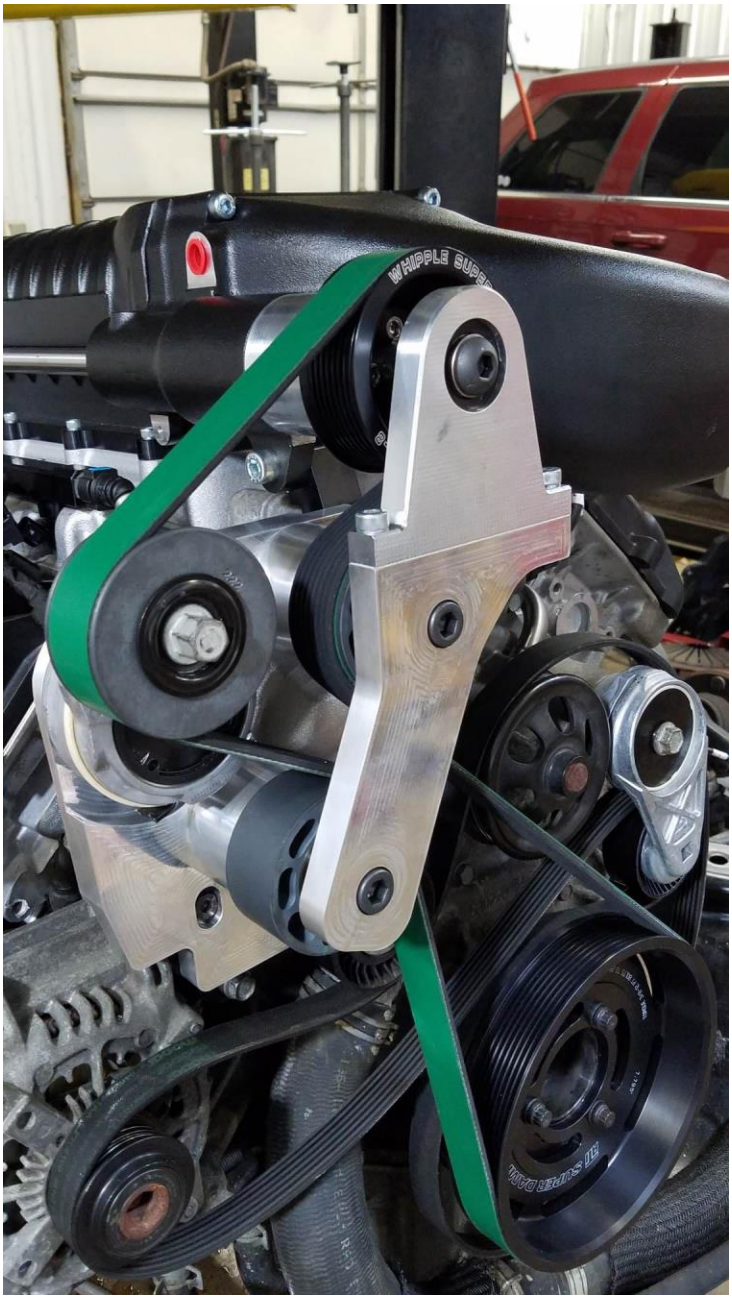


42. You may notice that the supercharger pulley does not sit parallel to your straight edge when measuring from the crank. If so, you must go to step 43. If the tensioner pulley, crank pulley, and supercharger pulley are parallel to each other skip step 43.

43. The reason the crank and supercharger pulleys are not parallel is because the Whipple supercharger is not aligned on the manifold or head with any sort of dowels. To fix this, you must “square up” the supercharger. Remove the Upper Brace. Remove SC belt from SC pulley. *Loosen* the bolts holding the supercharger to the upper manifold. Loosen or remove the large allen bolt at the front just under the jackshaft (seen in above left picture). You must now slide the rear of the supercharger left or right, forward or back, to make the supercharger pulley parallel and in-line with the crank pulley. Next, confirm the tensioner pulley is aligned as well. Tighten supercharger bolts and recheck. Repeat step 33 for the bolts on the front brace and recheck.

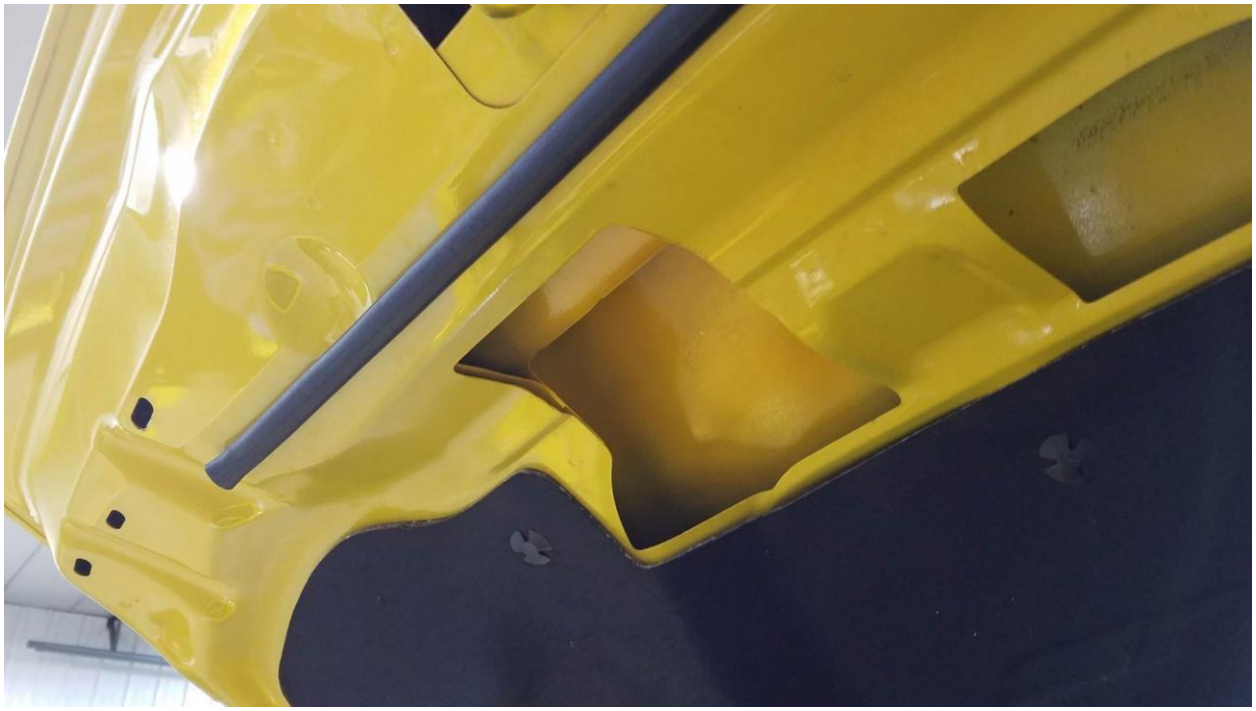
44. Refill and bleed the cooling system.

45. Check over all your work. Make sure nothing is rubbing or touching. Make sure there are no leaks. Test fire and make sure everything is working as it should.



46. You will need to clearance the hood for the supercharger pulley and front brace. Slowly lower the hood until it touches the top of the front brace. Press gently on the hood. This will leave a mark on the underside of the hood showing where the front brace is located. Hole sizes will vary depending on your pulley size. You will need to cut a hole that is the width of the pulley and length of the pulley and brace. You will also need to add 1" to each side of the hole to allow for side to side movement of the engine. You will also need to add ½" to the front and back of the hole to allow for forward and back movement of the engine. Err on the side of cutting more rather than cutting less. The engine moves a surprising amount under full throttle, acceleration, and braking.

    Note: the hole pictured below seems larger than needed because it is a Hellcat hood and the hole for the upper pulley extends into the existing hole for the scoop.



47. To change the supercharger belt in the future, simply remove the center bearing bolt, remove the two M8 bolts holding the top brace on, and remove the top brace. The belt can now be easily removed. When reinstalling the front brace, tighten the bolts with the belt loose and then relieve the tensioner.

Appendix A: Troubleshooting

This system has been tested in-house extremely thoroughly and on many different cars. We have beaten it on the dyno, at the track, and have driven it on the street for many miles. All the time we were trying to break the belt or any other part of the kit and we could not. If you are having issues with throwing belts or some other issue, it is due to improper alignment or assembly.

White line on belt about 1/8" to ¼" from front facing side: This indicates the tensioner is too far forward and the belt is walking off the front. See step 20.

White line on belt about 1/8" to ¼" from rear facing side: This indicates the tensioner is too far rearward and the belt is walking off the back. See step 20.

Damaged upper brace bearing or broken upper brace to supercharger bolt: This indicates the upper brace was pulled down onto the lower brace by the two M8 bolts. There should be no gap between the upper brace and lower brace with the M8 bolts removed. See step 34. Thicker than .040" head gaskets will raise the supercharger and you may need to create a shim between these two braces. Casting differences in front covers and superchargers will also affect this.