

SOHO MOTORSPORTS V2 COG CONVERSION UPGRADE INSTALLATION GUIDE



INTRODUCTION

Congratulations on the purchase of your SOHO Motorsports COG Upgrade kit! This Kit is designed to replace all rear belt drive components to convert your serpentine style belt drive to a tried and true cog system! The main benefits of this kit include:

1. Boost plot stability
2. Mechanical connection from the jackshaft to the supercharger pulley versus a friction style connection
3. Serviceability: The serpentine pulleys and component kits are listed as NLA from the manufacturer. The belts are available from specific suppliers, but scarce.



*****IMPORTANT*****

Installing this kit will require specialized tools and a gentle touch including a pulley to remove the jackshaft and supercharger shaft drive pulleys. There is a good possibility the pulleys have corroded to the jackshaft and the supercharger snout. A proper puller and technique will be paramount in removing the serpentine drive system without damaging the threads. The tool recommended for this process is a Posi-Lock 104 or equivalent. While it is a bit costly (roughly \$200 shipped) it will make removal an absolute breeze.

For technical questions and support, send an email to:

support@sohomotorsports.com

Please include the page number, photos, and any other relevant information so we can get you the help you need as efficiently as possible.

This manual is designed to assist weekend warriors and professional technicians alike with installation. However, this kit is complex and requires in depth disassembly. Severe engine damage can occur from improper installation, which is why we highly recommend having the kit installed by a professional. SOHO WILL NOT BE HELD LIABLE FOR IMPROPERLY INSTALLED KITS AND/OR RESULTING DAMAGE.

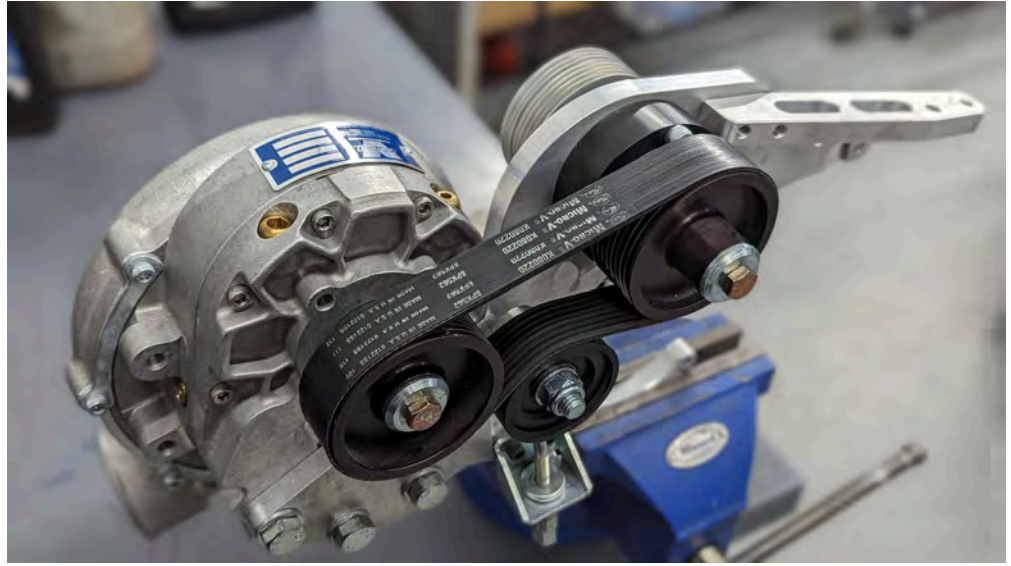
*****IMPORTANT*****

DO NOT INSTALL THIS KIT AND DRIVE YOUR VEHICLE AT WIDE OPEN THROTTLE BEFORE CONSULTING YOUR TUNER. THE BELT DRIVE IS MECHANICAL AND WILL PRODUCE MORE BOOST THAN THE SERPENTINE SYSTEM AND CAN CAUSE CATASTROPHIC FAILURE IF THE CALIBRATION IS NOT ADJUSTED.

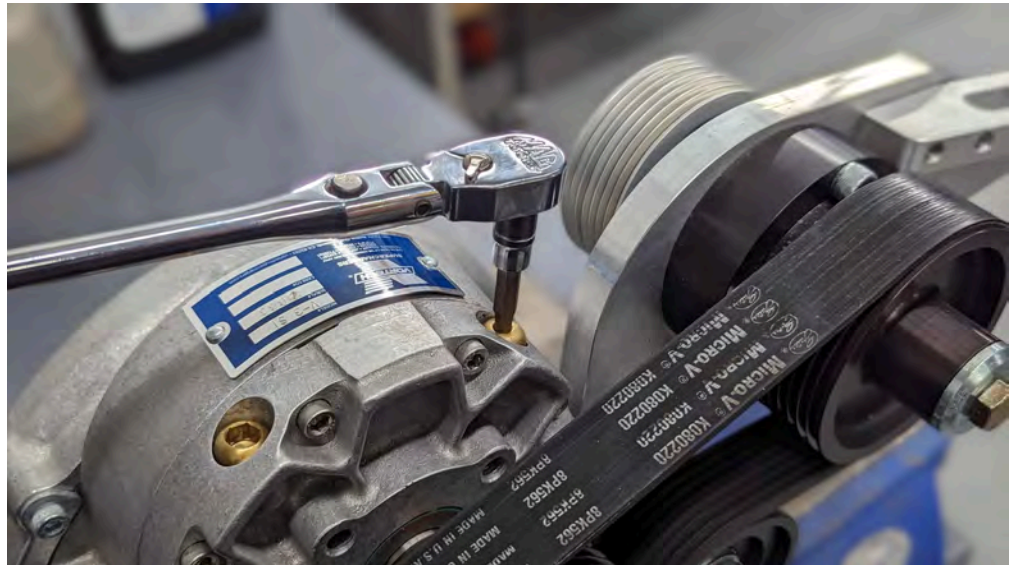
1. Remove the following:

- Front accessory drive belt
- Supercharger to intercooler pipe
- LH charge pipe (if applicable)
- Inlet filter pipe (if applicable)
- Catch can lines (if applicable)

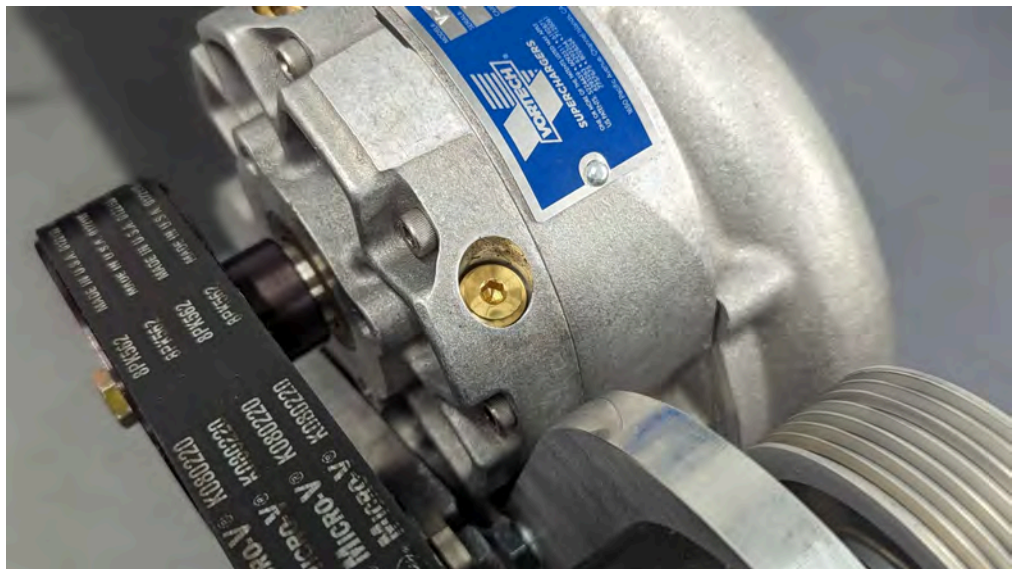
Remove the supercharger, bracket, and rear tensioner as an assembly. Gently clamp it into a vice or set on a workbench for service.



2. If you still have the plug and cap the supercharger shipped with, install them now to prevent fluid from draining. The plug on the right is the vent that will need to be swapped out.



Below is the plug/washer and a photo of it installed.



3. With the shipping plug installed, flip the bracket assembly over in the vice to access the drain line. This does not need to be removed to do the service, but it will make moving the supercharger around easier. The allen bolt near the drain may need to be removed for clearance.

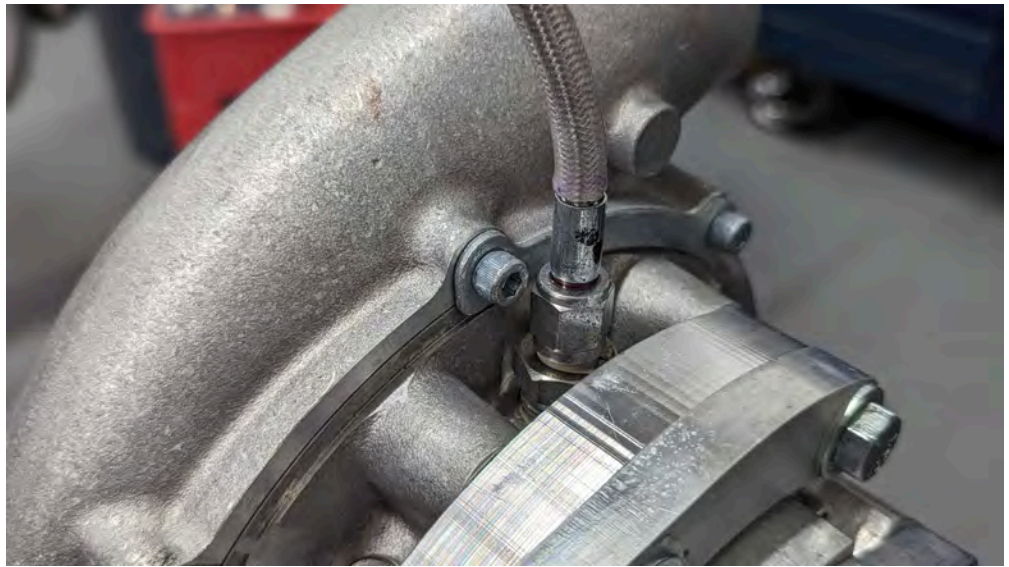
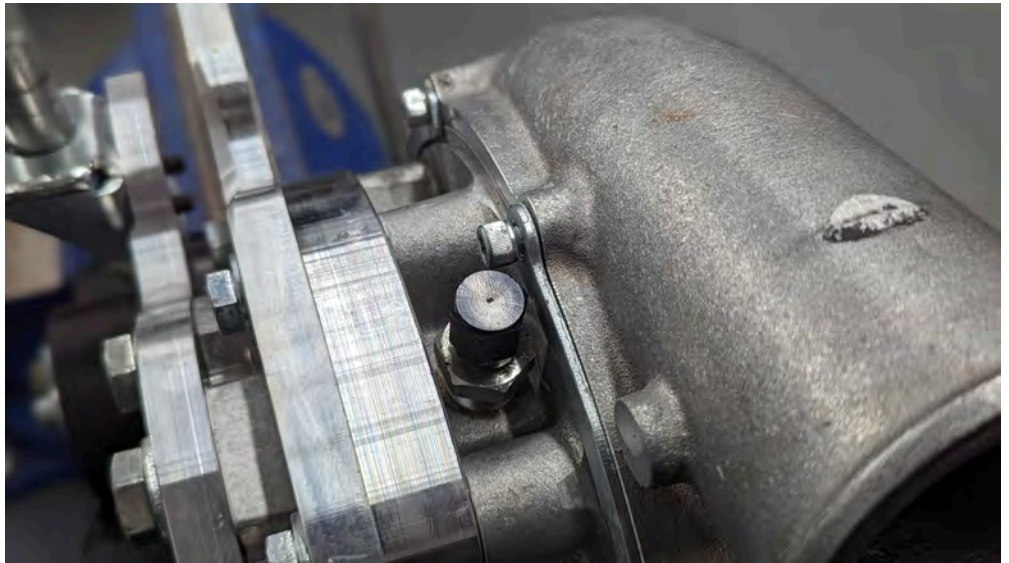


Photo with the cap installed and allen bolt loosely reinstated so it does not get misplaced.



*****IMPORTANT*****

DO NOT USE AN IMPACT TO LOOSEN OR TIGHTEN THIS BOLT OR IRREPERABLE DAMAGE MAY OCCUR TO THE TENSIONER ASSEMBLY.

4. Flip the assembly back over and reclamp in your vice. Loosen the rear belt tensioner. Using an open box end wrench like the one pictured, hold the tensioner through bolt still and loosen the nylock nut.



5. Once the tensioner pulley bolt/nut are loosened, fully back the tension off of the assembly. Loosen and remove the three(3) 3/4" bolts and set the hardware and tensioner assembly aside.



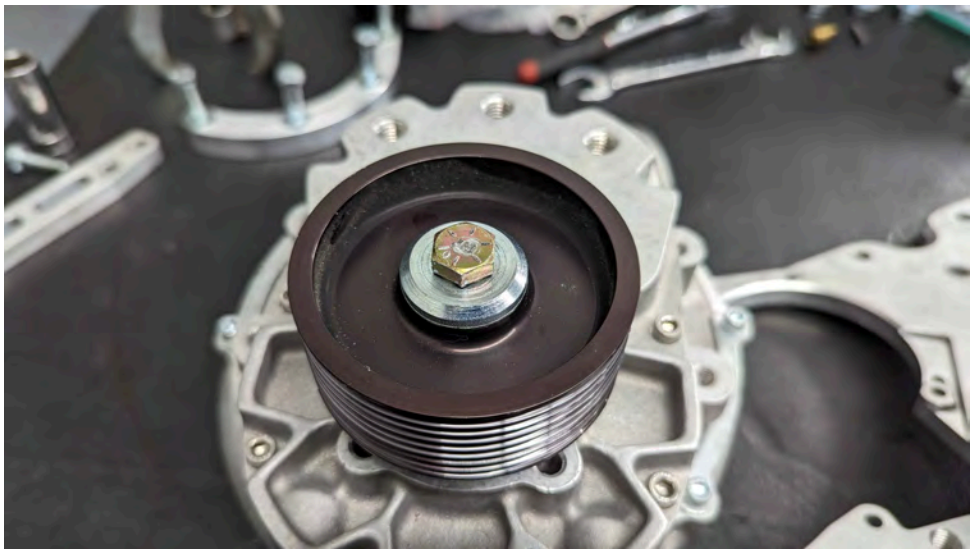
6. Set the bracket/supercharger assembly down onto your workbench. Loosen and remove the four(4) 9/16" bolts that hold the blower to the bracket. Set the bolts, washers, and the banana spacer aside. The belt can be discarded as it will no longer be used.



*****IMPORTANT*****

The following steps require the use of a puller to remove the serpentine pulleys from the supercharger crankshaft and the jack shaft. SOHO Motorsports HIGHLY recommends the use of a Posi-Lock 104 (and is the tool shown in the instructions) or equivalent to prevent irreparable damage to shafts or threads. Pry bars and heat ARE NOT recommended for this process as either can damage seals, bearings, or other critical and expensive components. Any signs of external force such as gouges from pry bars or hot spots on the shafts/seals will void any and all warranties (if still applicable).

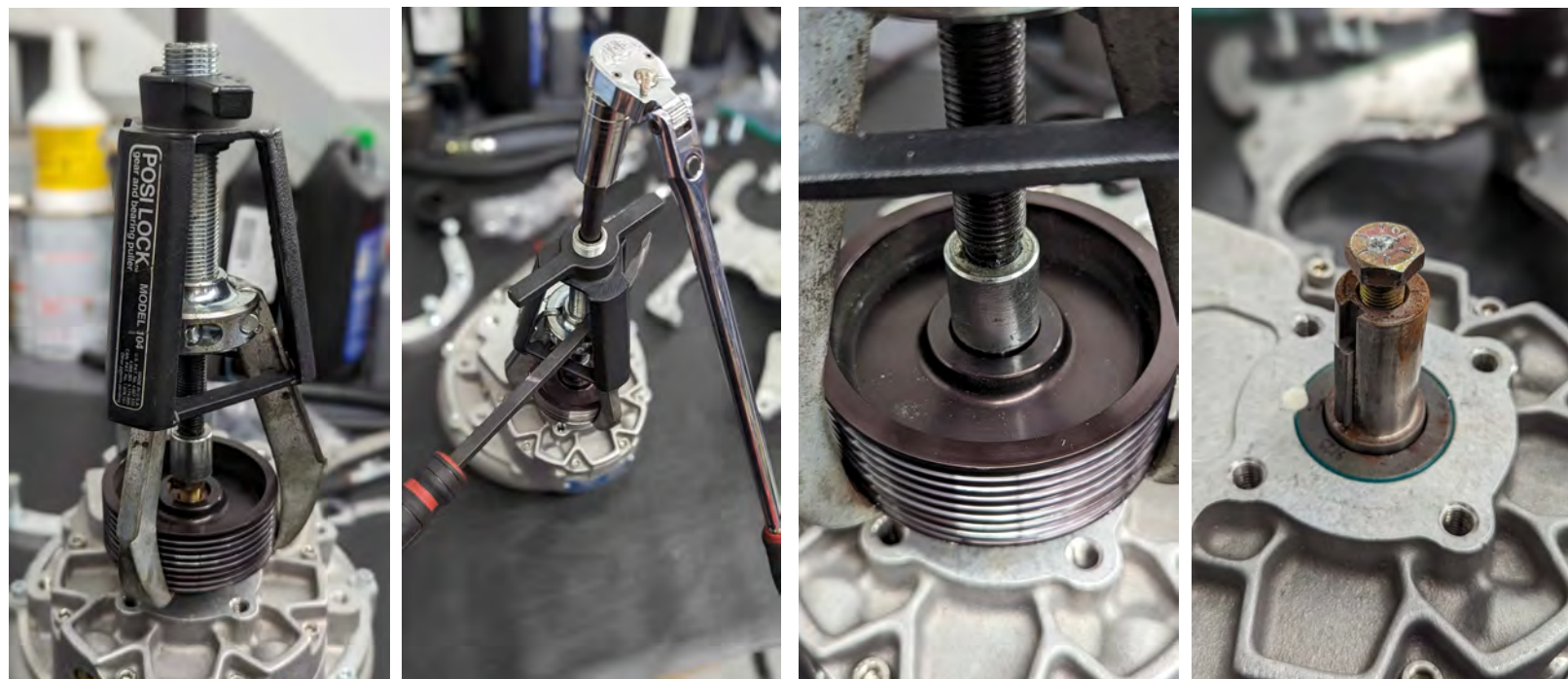
7. Set the supercharger flat on the table with the pulley up. Hold the pulley still with a rag or shop towel and use a 3/8" or larger impact to loosen the 9/16" bolt that secures the pulley as these are generally installed with loctite.



8. Set the thick silver washer aside (this will be reused) and thread the bolt back into the supercharger snout BY HAND. Do not use an impact to do this or damage to the threads can occur. Spin it in until the bolt bottoms out and back it off half of a turn.



9. Follow the instructions supplied with your puller to properly secure the puller to the pulley. CAREFULLY walk the pulley off ensuring that the puller head is centered in the pulley bore to avoid damage to the pulley or threads. Use a long screwdriver or pry bar to keep the puller from spinning.



10. Set the following aside:

-Supercharger serpentine pulley

-1 1/4" Bolt

-3/4" Keyway

These items will no longer be used for this application.



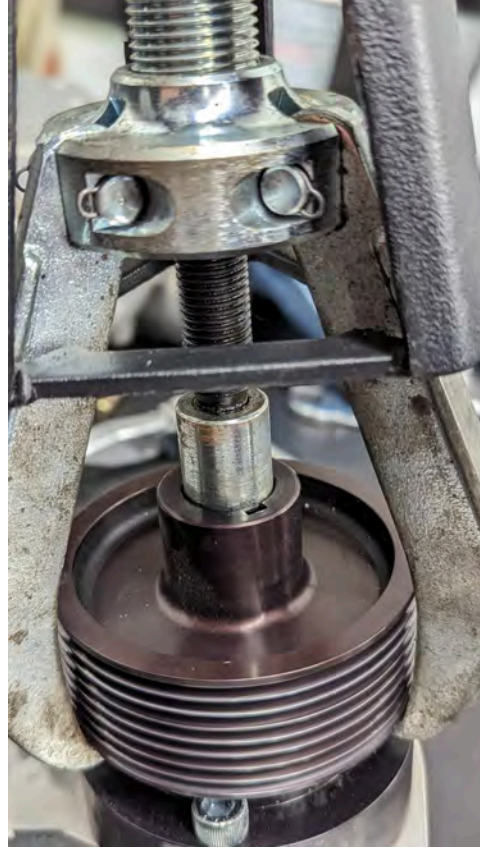
11. Repeat the process with the jack shaft pulley. Use the belt or a shop rag to hold the pulley still and use a 3/8" or larger impact to loosen the 9/16" bolt as these are generally installed with loctite.



12. Set the thick silver washer aside (this will be reused) and thread the bolt back into the jack shaft BY HAND. Do not use an impact to do this or damage to the threads can occur. Spin it in until the bolt bottoms out and back it off half of a turn.



13. Follow the instructions supplied with your puller to properly secure the puller to the pulley. CAREFULLY walk the pulley off ensuring that the puller head is centered in the pulley bore to avoid damage to the pulley or threads. Use a long screwdriver or pry bar to keep the puller from spinning.



14. Fully remove the tensioner pulley, washer, and spacer from the tensioner assembly.



15. You will have the following items left over from disassembly:

- Smooth Pulleys
- One 1/4" bolt
- One 1/2" bolt
- Two 3/4" keyways
- Smooth tensioner
- Tensioner bolt
- Used Ny-Lock Nut



16. Congratulations, the most difficult part of the process is over with. Along with your COG conversion kit, you will need to retain the following items for reassembly:

- Supercharger
- Bracket
- Tensioner Assembly with gold and silver washers
- Thick silver pulley washers

17. Begin reassembly by installing the long keyway and using it to align the supercharger cog pulley with the supercharger crankshaft. The long portion of the pulley goes towards the supercharger.



18. Install the thick silver washer with the flat side towards the pulley. Put a few drops of blue loctite on the threads of the matching bolt and tighten the bolt.

Tightening torque: 30ft/lbs



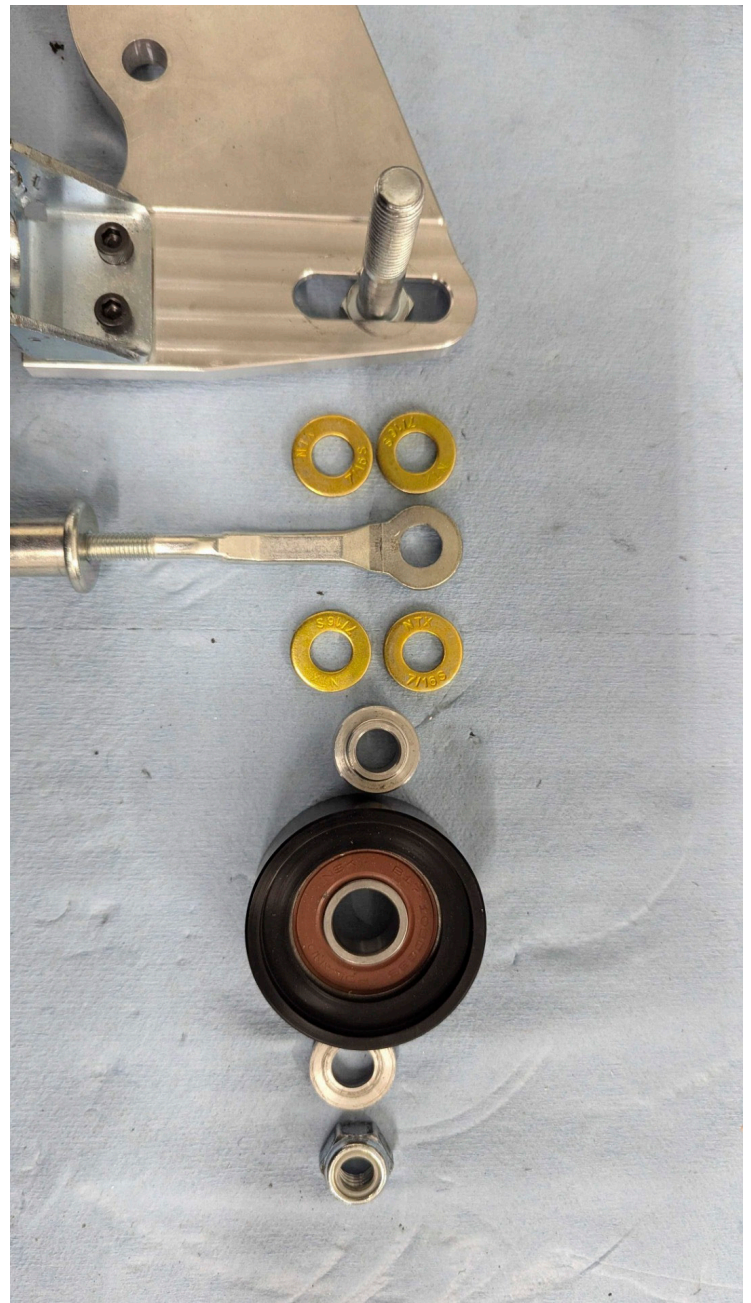
19: Using the remaining bolt, keyway, and pulley from the upgrade kit as well as the last thick silver washer, repeat the process from steps 17 and 18 to install the COG jack shaft pulley. Please note this pulley is directional and also requires the longer portion to face the jack shaft.



Tightening torque: 30ft/lbs



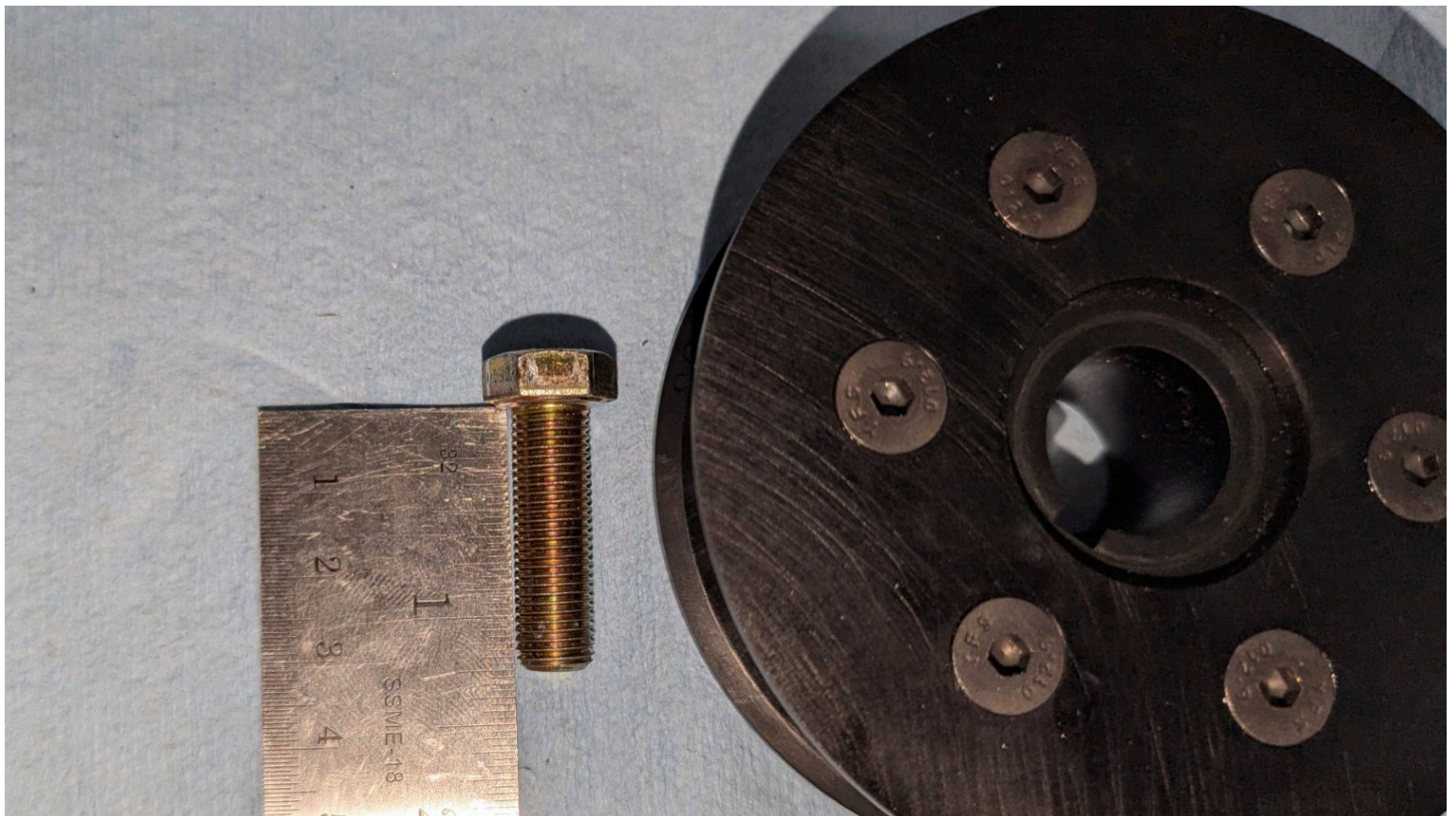
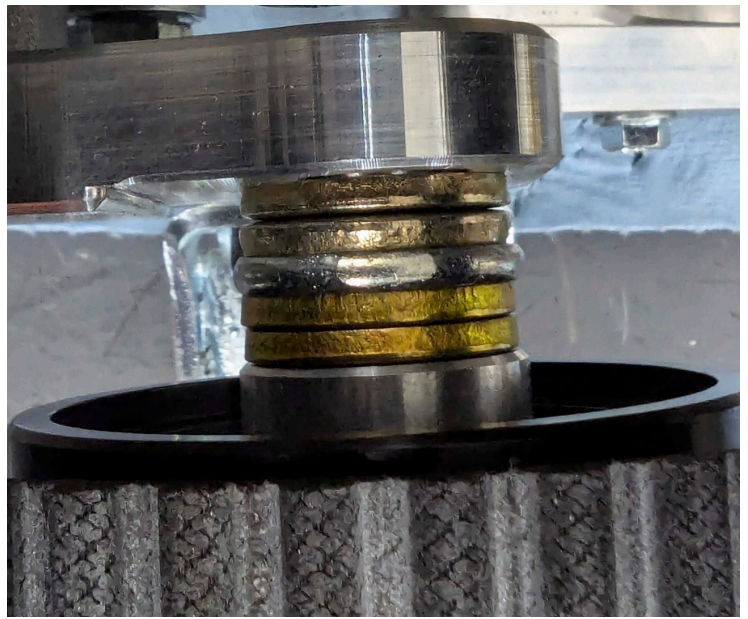
Tensioner Rear Spacer Length



Tensioner Assembly

THE V2 KIT WILL BE INSTALLED AS FOLLOWS:

20: Remove the spacers, shouldered pulley, and washers from the tensioner assembly. Make sure to use the provided smooth pulley for installation and check the spacer depth as shown in the "Tensioner Rear Spacer Length". They will go back on in the order that is shown in the "Tensioner Assembly" photo. The belt will need to ride completely on the smooth tensioner pulley once installed. If adjustment is needed to make this happen, please email to confirm the correct spacer pack.



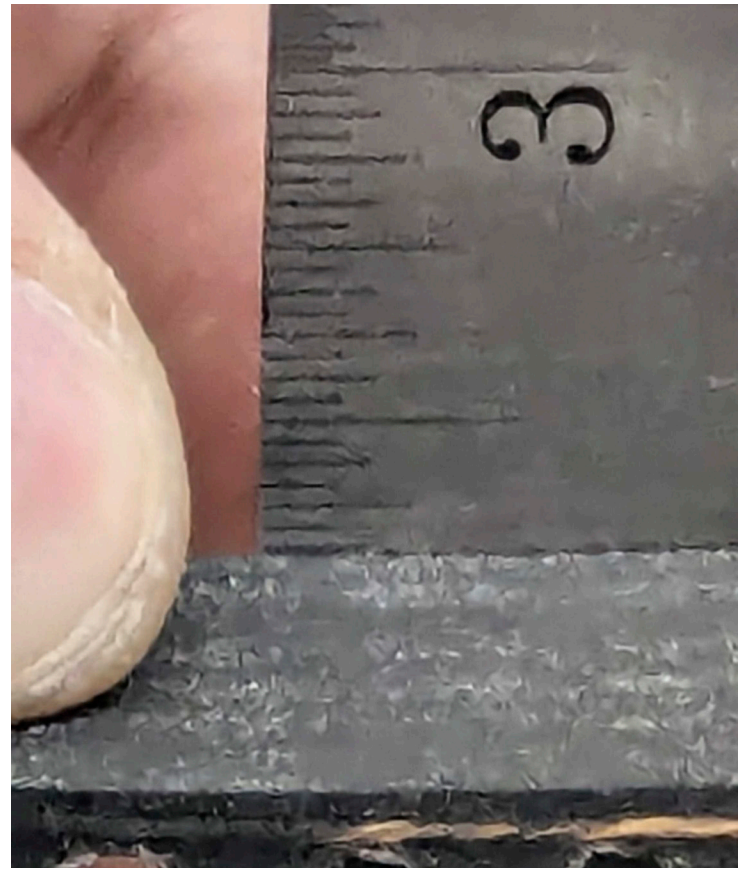
Jackshaft Pulley Bolt Spec

21: The jackshaft pulley will be removed, and the shouldered version will need to be installed. Make sure the bolt used matches the one in the "Jackshaft Pulley Bolt Spec" Photo. Use red loctite and torque to 30ft/lbs.

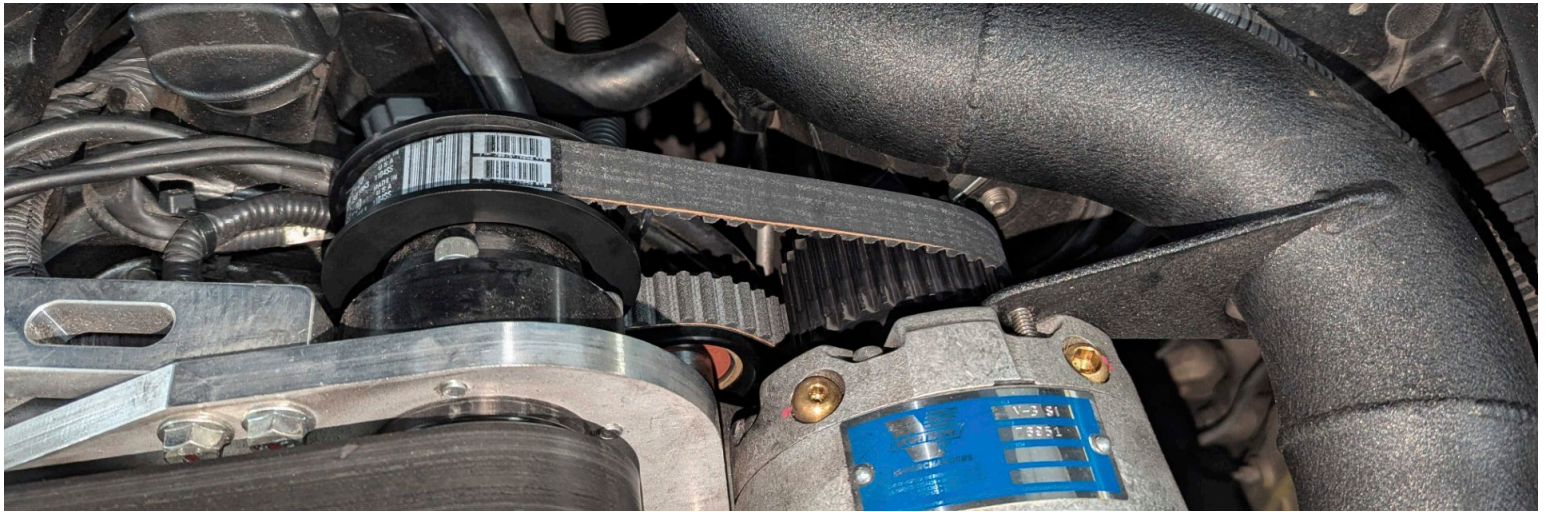
22: - Once the jackshaft pulley and the new tensioner setup are installed you will need to verify the tension is set properly on the belt. Get a bit of tension on it, start the car, and shut it off a few seconds later to center the belt on the drive system.



Belt Upper Limit



Belt Lower Limit



23: The measurements taken in the “Belt Upper Limit” photo and the “Belt Lower Limit” Photo shows the proper tension, and the base of the ruler is sitting on the tensioner pulley surface. Use one finger and push gently until the belt becomes taut. You should have 1/2” of movement from the lower limit to the upper limit. Run the car again and confirm this spec is correct. Too loose and it can rip the teeth off of the belt depending on your front boost pulley set.

24. Reinstall the supercharger drain line and tighten the allen bolt from step 3 if they were removed prior to service. Bolt the supercharger back to the bracket using the four (4) 9/16" long bolts, matching washers, and the banana spacer.

Supercharger to bracket bolt tightening torque: 30ft/lbs

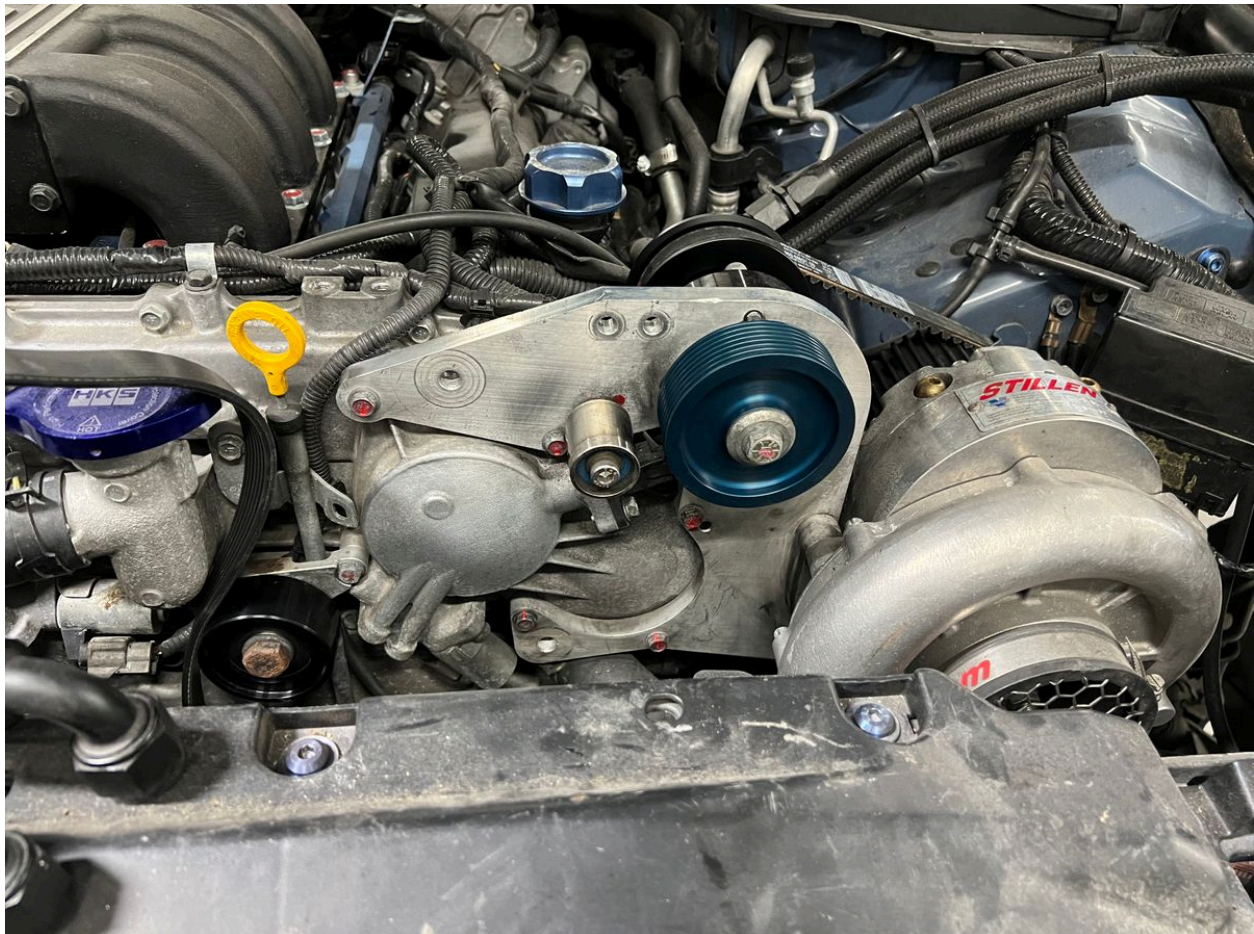
25. Slide the COG belt onto the pulleys and roughly center the belt.

26. Install the tensioner assembly on the supercharger using the three (3) 3/4" short bolts and washers.

Tensioner assembly to supercharger hardware tightening torque: 40ft/lbs

27. Remove the shipping plug and reinstall the supercharger vent plug from step 2 if applicable.

28. Install the supercharger, bracket, and tensioner assembly on the engine. With the accessory drive belt still removed, spin the jack shaft pulley by hand to ensure there is no binding, rubbing, or interference with the new belt drive system and/or associated pulleys.



29. Reinstall all items from step one including piping, couplers, clamps, and the front accessory drive belt.

30. Ensure the fluid level in your supercharger is correct if any fluid spilled out during service. We recommend servicing the blower at this time if it has not been done recently.

*****IMPORTANT*****

DO NOT INSTALL THIS KIT AND DRIVE YOUR VEHICLE AT WIDE OPEN THROTTLE BEFORE CONSULTING YOUR TUNER. THE BELT DRIVE IS MECHANICAL AND WILL PRODUCE MORE BOOST THAN THE SERPENTINE SYSTEM AND CAN CAUSE CATASTROPHIC FAILURE IF THE CALIBRATION IS NOT ADJUSTED.

31. Start the vehicle and let it idle. The supercharger noise will change, but there should be no grinding/squealing/squeaking from the belt drive or surrounding accessories. If there is an issue, shut the vehicle off immediately and contact SOHO via email.

For technical questions and support, send an email to:
support@sohomotorsports.com

Please include the page number, photos, and any other relevant information so we can get you the help you need as efficiently as possible.