



Rebuild Instructions - Sea-Doo 300 Supercharger

Tools needed:

- Supercharger tool set SBT part # 80-116
 - SBT supercharger wrench
 - SBT supercharger mounting plate
 - Supercharger gear holder
- E8 Torx socket and T27 Torx driver
- Propane torch
- 17mm and 18mm deep sockets
- 4mm hex wrench / Allen key
- Torque wrench in foot-pounds and inch-pounds
- Hydraulic press or arbor press
- Bench vise
- All-purpose synthetic grease
- Loctite 5900 gasket maker or a similar high-temp RTV sealant
- Blue Loctite or a similar thread locker

What's included in the kit:

- (1) One 20 tooth gear #34-300-01
- (2) One center shaft #34-300-02
- (3) One acorn nut #34-300-05
- (4) One splined spacer #34-300-07
- (5) One oil seal #34-300-08
- (6) One bearing retainer #34-300-09
- (7) One o-ring #34-300-09A
- (8) Two ball bearings #34-300-10
- (9) One bearing spacer #34-300-12
- (10) Four 4mm hex screws #34-300-13
- (11) Two friction washers #34-300-14
- (12) Eight cupped spring washers #34-300-18
- (13) One thin nut #34-300-20
- (14) One thick nut #34-300-19
- (15) Thirty-two bearing rollers #34-300-15

Step 1) Mount the supercharger on the mounting plate and place in a vice. You will need to use the original bolts that attached the supercharger to the engine.



Step 2) Use an E8 Torx socket to remove the 9 bolts holding the supercharger housing together.

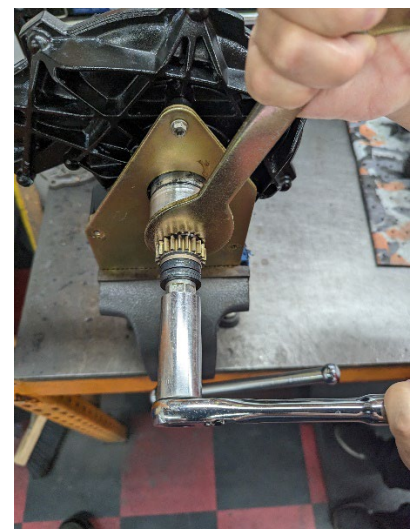


Step 3) Disassemble the clutch on the back of the supercharger.

Hold the flats on the rear of the shaft with the special wrench (SBT part #80-300-01) to keep the shaft from turning.



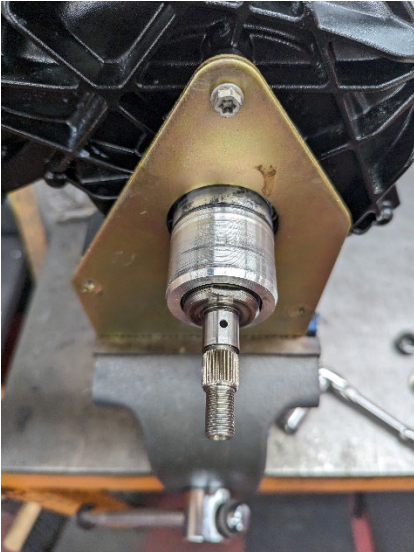
Use an 18mm socket to remove the two nuts on the rear of the shaft.





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Remove the washers and bearing rollers from the shaft.



Step 4) Remove the supercharger fan wheel:

While still using the special wrench to prevent the shaft from turning, use a 17mm socket or wrench to remove the acorn nut that is holding the supercharger fan wheel on.

NOTE: ACORN NUT HAS REVERSE THREADS



Support the supercharger securely in a press and push the shaft towards the back of the supercharger to release it from the impeller fan wheel. Push until the end of the shaft is flush with the fan wheel to release it; there is no need to push it through the fan wheel.

Take care not to press on the fan wheel.

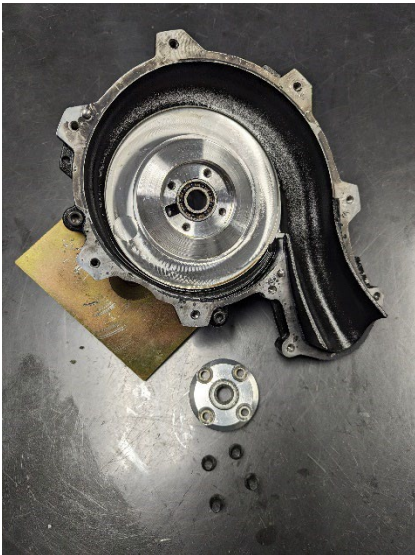
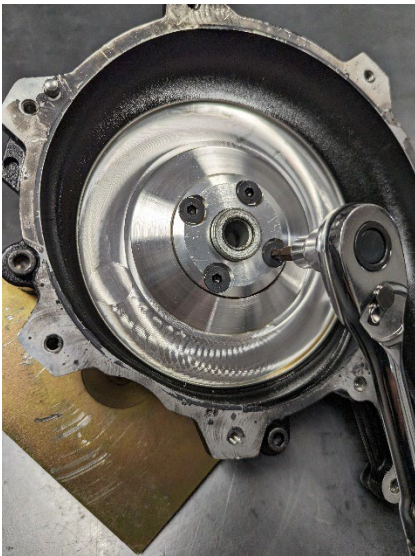


Step 5) Remove the bearing retainer by using a T27 Torx driver to remove the four screws in the center of the housing. Carefully pry up the retainer with a thin flat head screwdriver. It is only retained by an o-ring once the screws are removed. **Heating the screws with a torch is recommended to release the thread locker and prevent stripping.**





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When you are done, thoroughly wash both halves of the housing and remove all traces of sealant from the bolt flanges around the outside diameter.

Step 6) Press the ball bearing out of the center of the supercharger housing from back to front. When supporting the supercharger in the press make sure that the housing is flat against the supports and not resting on the dowel pins.

Step 7) Press the new ball bearing (part #08) in from the front of the supercharger until it bottoms out. Be careful not to use too much pressure; this bearing should be easy to install.

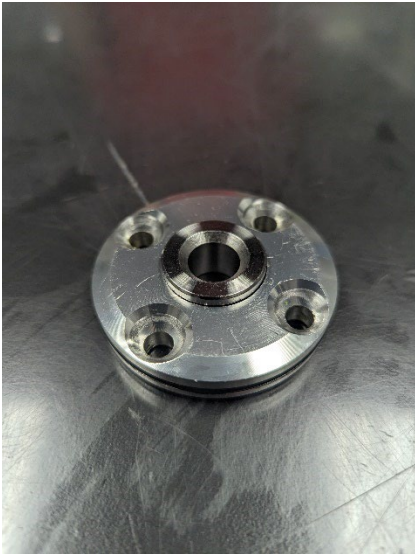
Step 8) Assemble the new bearing retainer (part #06) that is included in the kit by pushing the center seal (part #05) in with your fingers. Install the new o-ring (part # 07) around





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the outside diameter.



Step 9) Install the bearing retainer, making sure to align the circular relief on the back of the bearing retainer with the oil

cavity in the supercharger housing. Using a 4mm hex, **torque the bolts (part #10) to 89 inch-pounds.**



Step 10) Assemble the center shaft. Apply regular grease to the center shaft to ease bearing

installation. Support the center shaft by the flange; do not stand it on end.

Use the spacer (part #9) to press the bearing down onto the shaft part of the way.

Use a socket that fits over the shaft to press the spacer and bearing together until the bearing bottoms out on the flange.



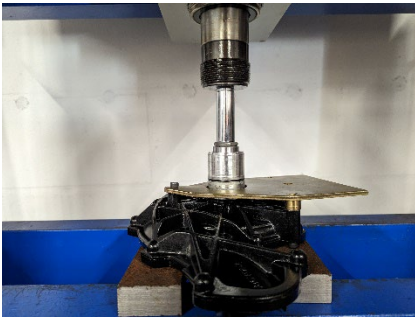
Step 11) Install the shaft into the housing. Using a socket that fits over the end of the





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shaft, carefully press on the flange to push the assembled shaft into the supercharger housing from behind. Stop when the spacer bottoms out against the bearing that was installed in step 7.



When finished, the bottom plane of the flange on the rear of the supercharger should be approximately flush with the back of the housing, or very slightly below flush.



Step 12) Install the supercharger impeller wheel.

Using a socket that fits inside the counterbore on the front of the impeller wheel, carefully press the wheel onto the shaft from the front of the supercharger. Make sure to get the wheel as level as possible before pressing to prevent broaching of the center bore. This should take minimal force.



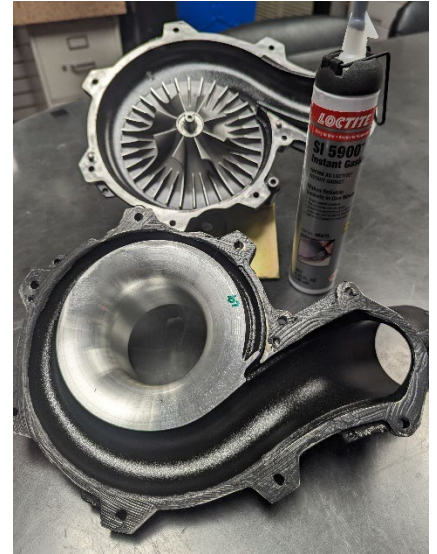
Stop when the bottom surface of the impeller wheel is flush with the inside of the housing.



Check that the impeller wheel spins freely and does not rub the housing. If the impeller wheel rubs, repeat step 4 to disassemble and repeat steps 11 and 12 to reinstall.

Step 13) Assemble the supercharger housing. Apply a

thin layer of sealant like Loctite 5900 (or another high quality, high temp RTV sealant) around one half of the supercharger housing bolt flange.



Using an E8 Torx socket, **tighten these bolts to 80 inch-pounds, in a crisscross pattern.**



Step 14) Install the acorn nut on the front of the





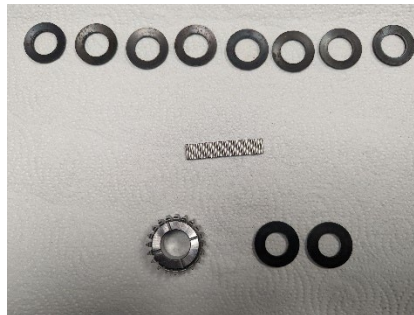
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supercharger. Hold the flange on the shaft with the special wrench (SBT part #80-300-01) to prevent it from turning. Using a 17mm socket, **tighten the acorn nut (part #03) to 20 foot-pounds.**

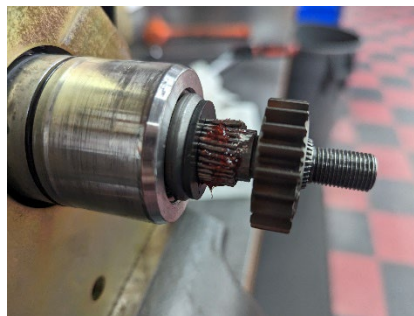
NOTE: ACORN NUT HAS REVERSE THREADS



washers, rollers, and gear. There are 8 cupped spring washers (part #12), 2 flat friction washers (part #11), 1 gear (part #01), and a set of 32 bearing rollers (part #15) included in this kit.



Slide one of the flat friction washers over the end of the shaft until it touches the flange. Apply a liberal amount of grease to the shaft to help stick the rollers to shaft. Peel the rollers off the tape they are stuck to, making sure that no adhesive remains on the rollers, and stick them to the grease on the shaft. Add more grease as needed to keep the rollers on the shaft. Stop when you have at least 6 rollers left.



rollers on the shaft, making sure none fall out.



Now take the remaining rollers and slide them into the remaining gaps between the gear and the shaft. You may need to use a pick to move the rollers around under the gear to make room. All 32 rollers should fit under the gear.

Slide the second flat friction washer over the shaft until it touches the gear, capturing the rollers.



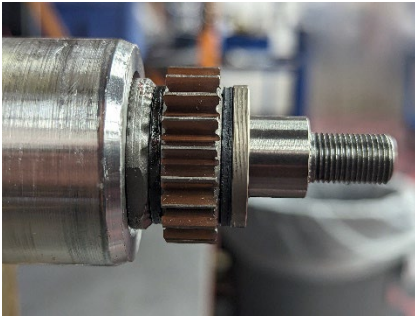
Step 15) Install the friction

Carefully slide the gear over the



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Step 16) Slide the splined spacer (part #04) over the shaft until it touches the flat friction washer.

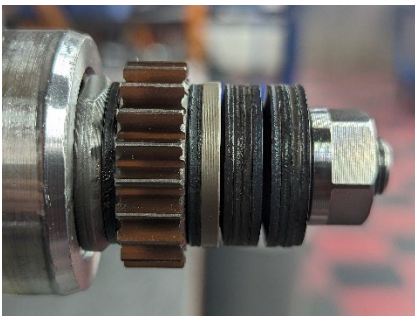


Lubricate with motor oil and slide the 8 cupped spring washers (part #12) over the spacer in this order:

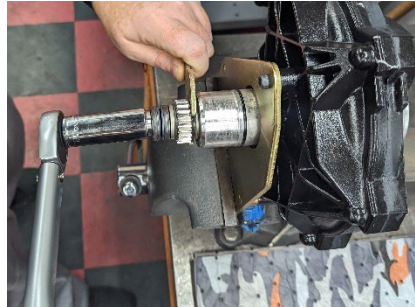
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The last two washers will not go over the spacer. Center them on the washers that did go over the spacer and thread the larger of the two nuts on finger tight to hold them in place.

When correctly installed, the spring washers will look like this:



Step 17) Hold the flange of the supercharger shaft with the special wrench (SBT part #80-300-01) and tighten the nut on the back of the supercharger shaft to approximately 20 foot-pounds using a torque wrench and an 18mm socket. The exact torque of this is not critical because we will adjust it based on the slip of the clutch in the next step.



Step 18) Set the slip torque of the supercharger. A new 300 supercharger should slip at 125 to 150 inch-pounds.

Hold the gear with the supercharger gear holder (Sea-doo part # 529036364) and use a torque wrench with a 17mm socket to measure the slip by turning the acorn nut on the front of the supercharger in a clockwise direction.



Start by setting the wrench at 130 inch-pounds and try to turn the acorn nut. The wrench should click before the shaft turns. If the shaft turns without the wrench clicking first, tighten the rear nut a little more (as in step 17) and check the slip again. Continue this process until the wrench clicks at 130 inch-pounds without turning the shaft. Then change the torque setting to 145 inch-pounds and attempt to turn the acorn nut.



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The shaft should turn without making the wrench click. If the wrench clicks, very slightly loosen the nut on the back of the shaft and try again. The goal is to get the wrench to click at 130 inch-pounds but the shaft to turn at 145 inch-pounds with no click from the wrench. You may have to loosen and tighten the nut several times to achieve this.

Step 19) Apply blue Loctite to the threads of the supercharger shaft. Thread the thinner of the two nuts included in the kit (part #13) onto the back of the supercharger shaft. Hold the flange with the special wrench (SBT part #80-300-01) and tighten the nut on the back of the supercharger shaft to approximately 20 ft lbs using a torque wrench and an 18mm socket.



The supercharger is now rebuilt. You can follow this process to check the slip again after the supercharger has been used to determine if it needs to be rebuilt; a good used supercharger should slip at 100 inch-pounds or more. Less than 100 inch-pounds indicates that the supercharger should be rebuilt. SBT recommends that you check the slip on the supercharger after 100 hours of use.



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