

Turbogenerator Construction

Assemblies—Stator Plate

Ken Rieli, Instructor

For this lesson, click on *3D Photos, Assemblies, Alternator Assembly*. This is a photo of the complete stator assembly.

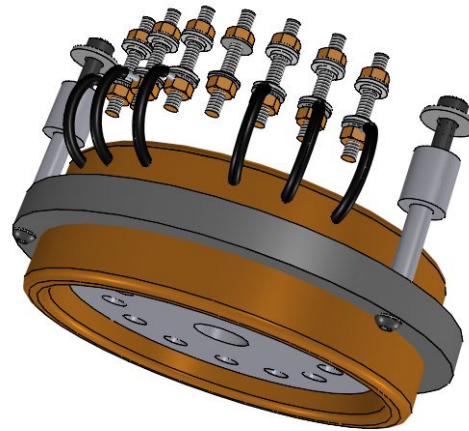
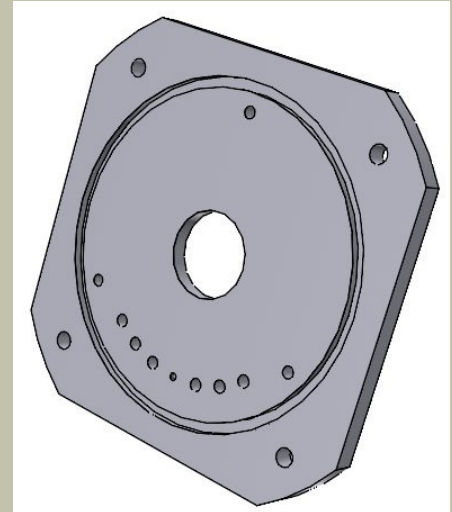


Figure 1 Alternator assembly



Stator plate

Next click on *3D Photos, Exploded Views, Alternator Assembly*. Here we see a picture with all of the individual parts, along with an interactive parts list.

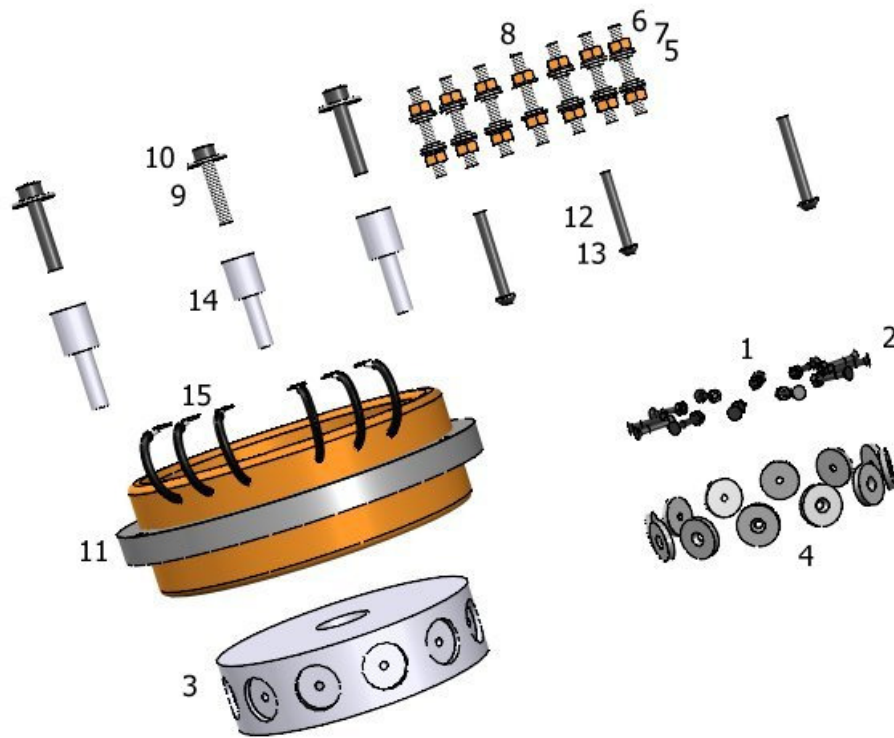
(Continued on page 2)

Materials you will need:

Stator	Chrysler type, 4.75" ID clearance
6061 aluminum rod	(3) 0.75" diameter x 1.75" long
Wire eyes	(7) ring tongue
Stainless/alloy cap screws	(12) #5-40 x 0.75" taper head
Alloy steel nuts	(12) 0.219" x 0.109"
Neodymium super magnets	6 pairs
Cap screws	(3) 1/4-20
Threaded brass rod	(10) 10-32 x " long
Washers	(20)
Nuts	(40)
Power stud insulators	(20)

Step-by-step:

- ◆ Preparing stator wires
- ◆ Stator standoffs
- ◆ Power studs
- ◆ Magnet rotor assembly
- ◆ Stator plate assembly
- ◆ Gas-tight seals



Parts List	
1. magnet retaining nut	9. standoff mount screw
2. magnet retaining screw	10. standoff mount washer
3. magnet rotor	o standoff mount set
o magnet rotor assembly	11. stator core
4. super magnet	12. stator mount screw
5. power stud insulator	13. stator mount washer
6. power stud nut	o stator mount set
7. power stud washer	14. stator standoff
o power stud set	15. wire eye (ring tongue)
8. power stud	

Figure 2 Alternator assembly—exploded

(Continued from page 1)

Stator

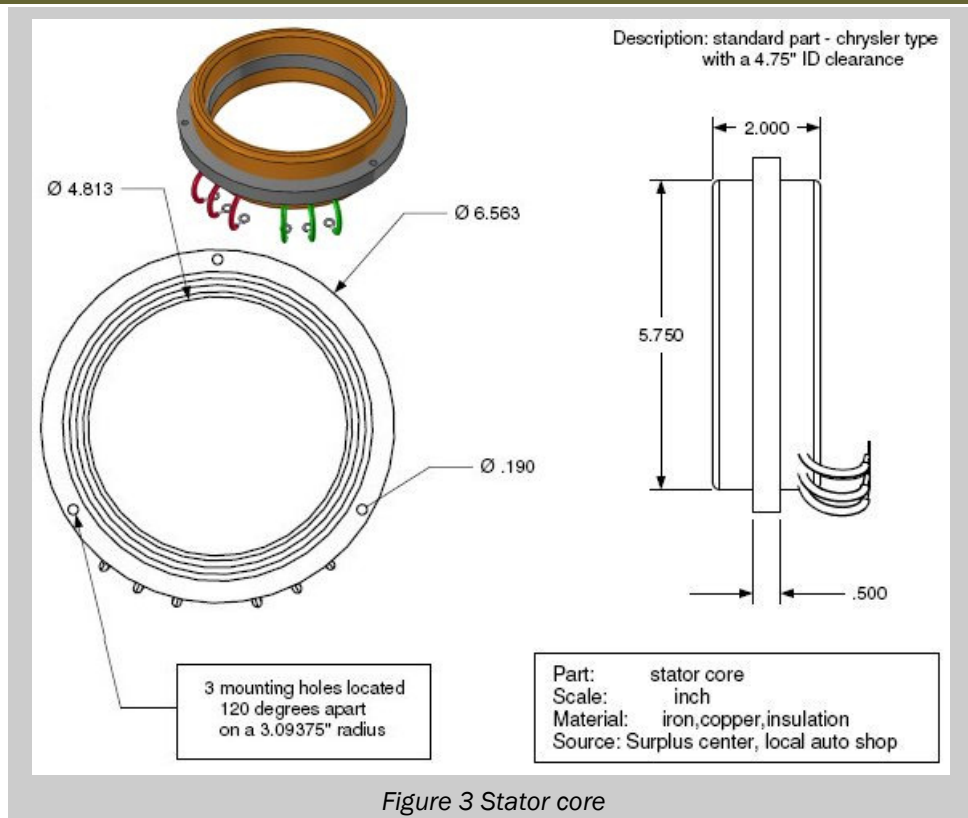
We'll begin with preparing the stator. All of these stators have (3) individual output wires and one bundle of (3) connected wires.

Unsolder the (3) bundled wires and unwrap them from the stator coils just enough to give us leads of 2.5"-3" in length.

Cut all the wires to the same length and solder crimp eyelets to each of the wires.

Set this part aside for now. (See the #11 Stator Core drawing.)

(Continued on page 3)



(Continued from

page 2)

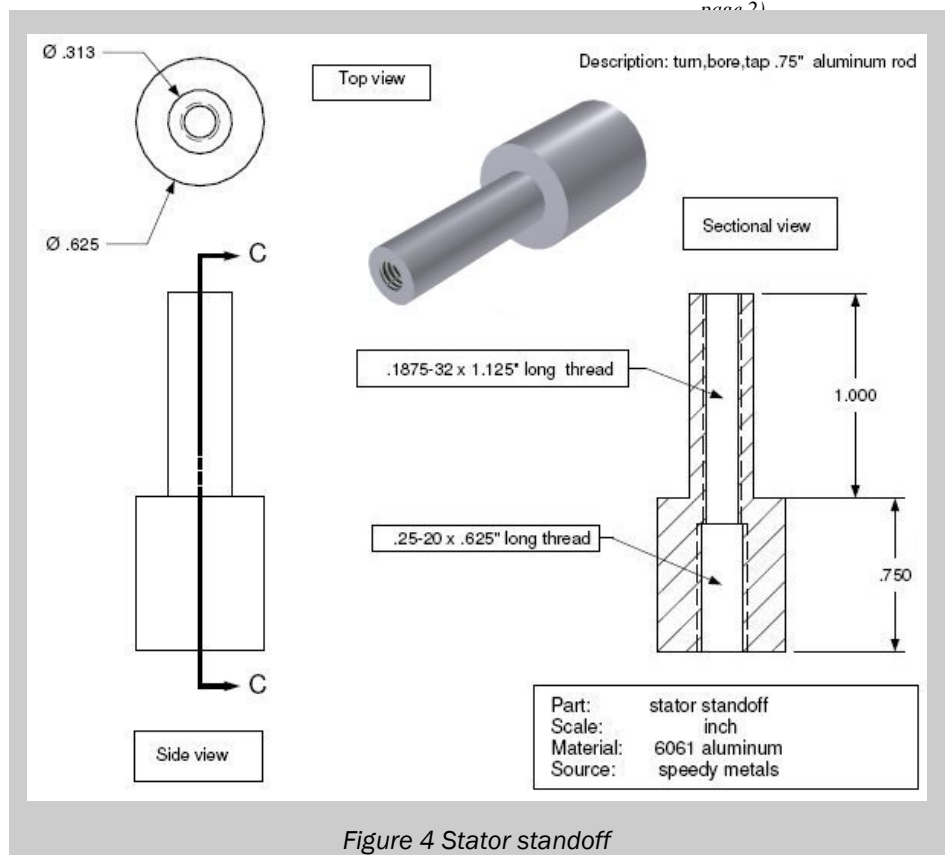
Next, pull up the #14 Stator Standoff drawing.

This is a simple part turned on the lathe. Begin with (3) lengths of 0.75" aluminum rod, 1.75" in length.

Turn the outer dimensions as indicated in the drawing. Next, bore a hole through the piece with a #25 drill bit. Counterbore a hole on the large end of the piece with a #7 drill bit, 0.625" deep.

Finish the part by threading the #7 hole with a 1/4-20 tap, and thread the #25 hole with a #10-32 tap.

Set these parts aside for now.



(Continued on page 4)

(Continued from page 3)

Power Studs

Next, the (7) *power studs* are prepared in the same manner as those described in *Lesson 5 Assembly - Bottom Plate*.

Magnet Rotor Assembly

The last part to finish prior to assembling the stator plate is the magnet rotor assembly. Drawing #3 *magnet rotor* shows the rotor, which we have already machined.

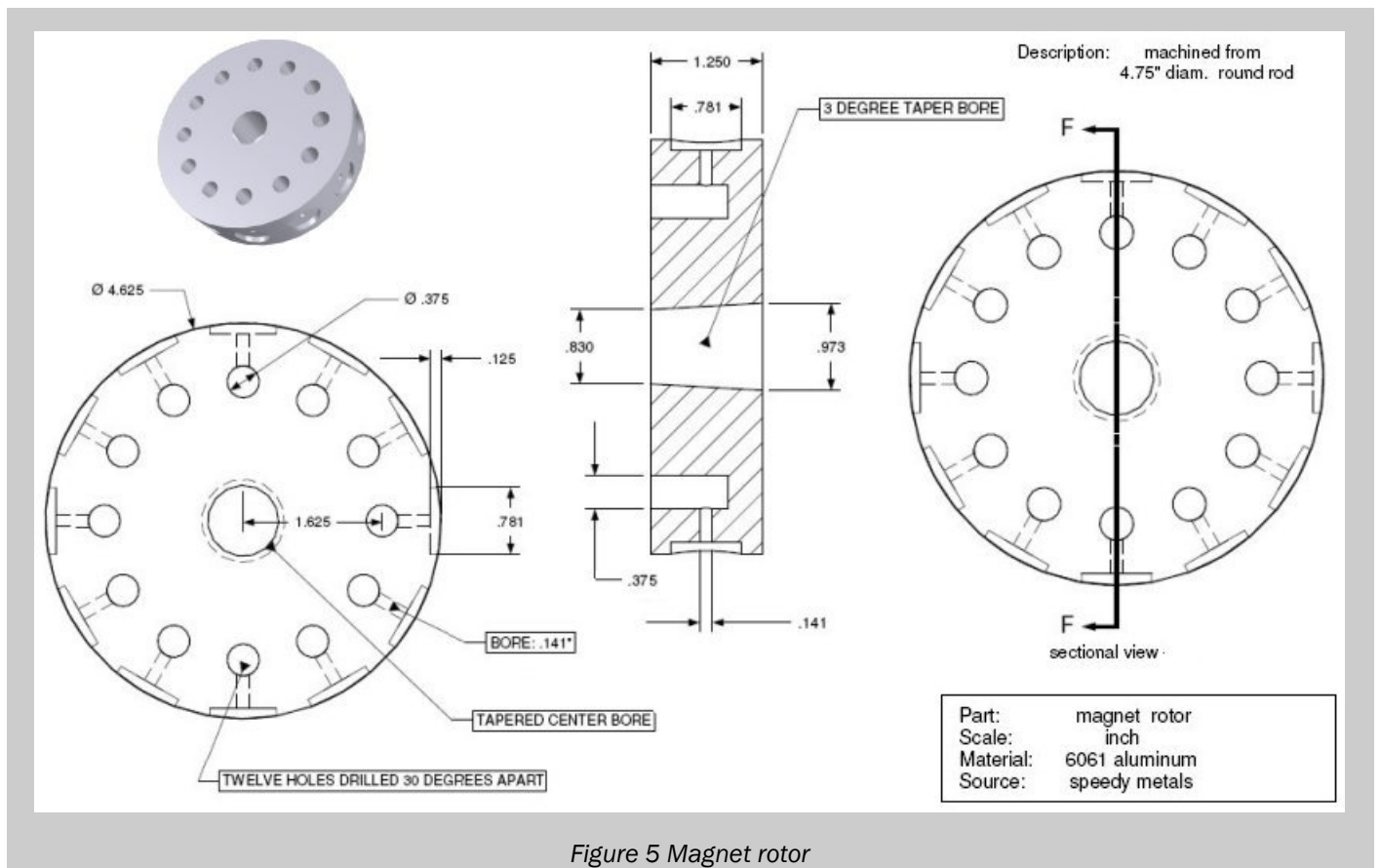


Figure 5 Magnet rotor

Drawings #1 *magnet retaining nut* and #2 *magnet retaining screw* show the magnet retaining screw sets, one for each magnet. These are standard #5-40 x 0.75" long taper head cap screws.

The (12) magnets in drawing #4 *super magnets* are sourced from a rare earth magnet supplier. The part number on the drawing is for a North-South pair of magnets.

Since the magnets have tapered mounting holes, they must be ordered in pairs.

TIP:

It is possible to use magnets with straight holes and round head cap screws as long as the maximum diameter from opposite cap screws is no more than 4.625".

(Continued on page 5)

(Continued from page 4)

The magnets must be mounted in N/S pairs, alternating every other magnet slot. In other words, every other slot has a North with a South mounted between.

I usually separate the North's and South's into two groups.

Using a small dab of either contact cement or epoxy, I glue all (6) North magnets to their corresponding slots with an empty slot between them.

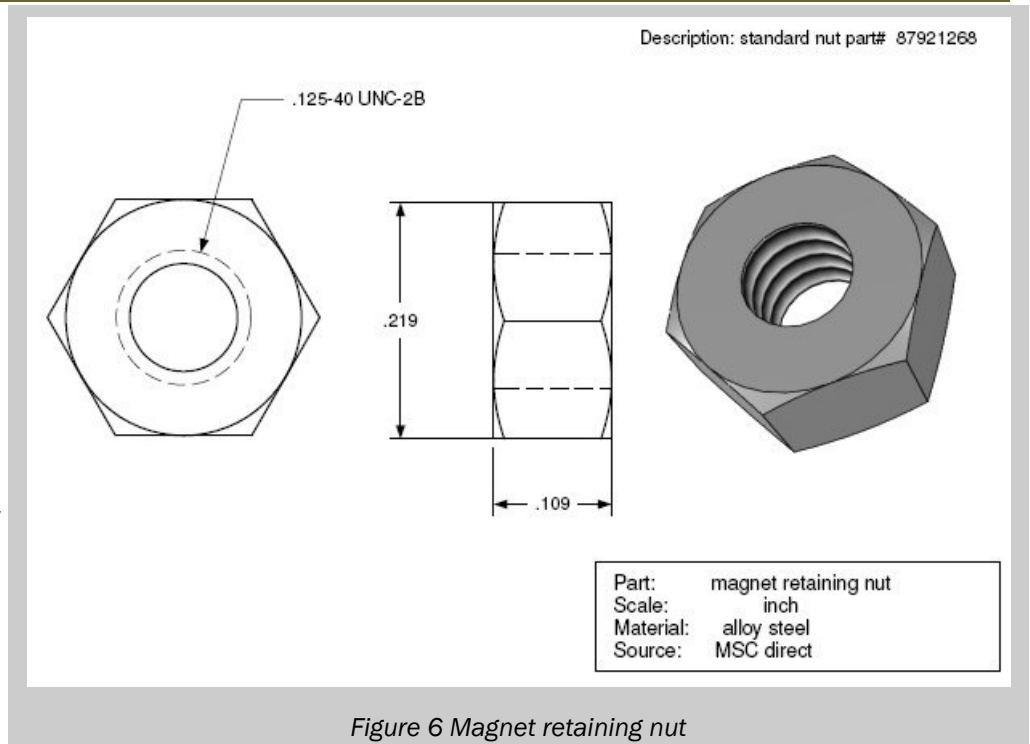


Figure 6 Magnet retaining nut

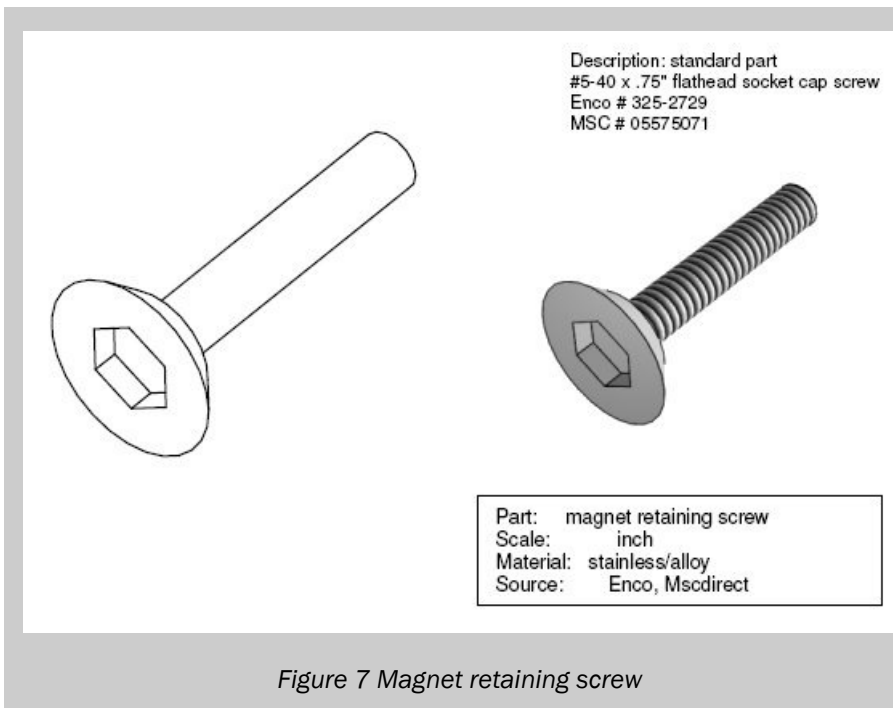


Figure 7 Magnet retaining screw

I then go around to each magnet and slip a mounting screw through it and secure it with a backing nut.

The (12) mounting nuts drop into the (12) 0.375" holes cross-bored to the (12) mounting screw bores. (See drawing #3 magnet rotor.)

NOTE:

When tightening the screws, do not apply too much torque as these magnets are very brittle and could shatter. The glue will do the bonding.

Mount the remaining (6) South pole magnets in a similar manner.

Finish this piece by injecting a drop of green Loc-tite onto each nut-screw junction or fill the nut access hole with silicone or epoxy glue.

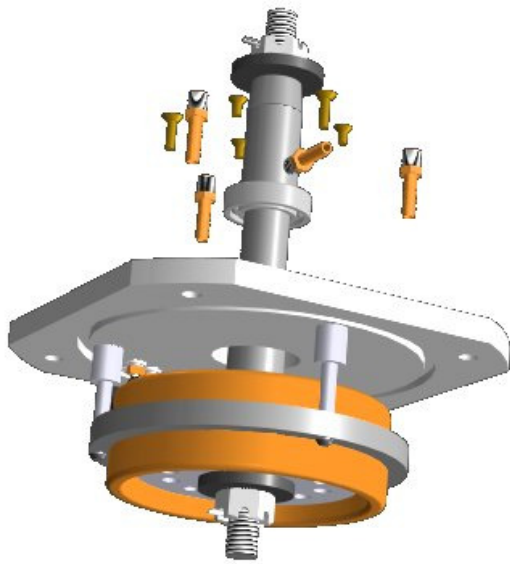
Set this assembly aside for now.

(Continued on page 6)

(Continued from page 5)

Stator Plate Assembly

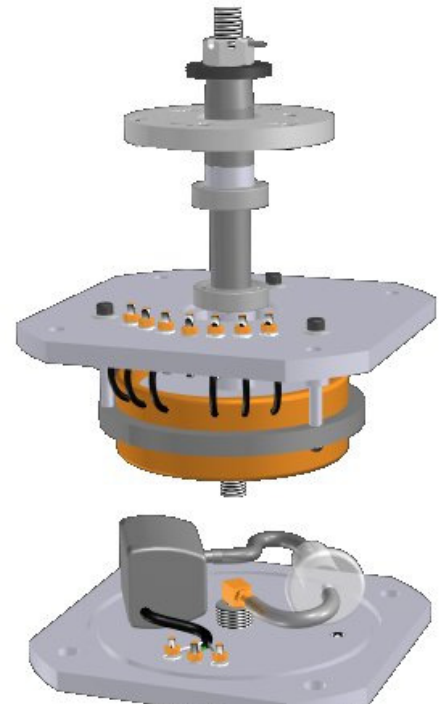
Now it is time to build the stator plate assembly. In photos Stator plate assembly 1 & 2 we see how the power studs and stator are attached to the stator plate.



Stator plate assembly 1

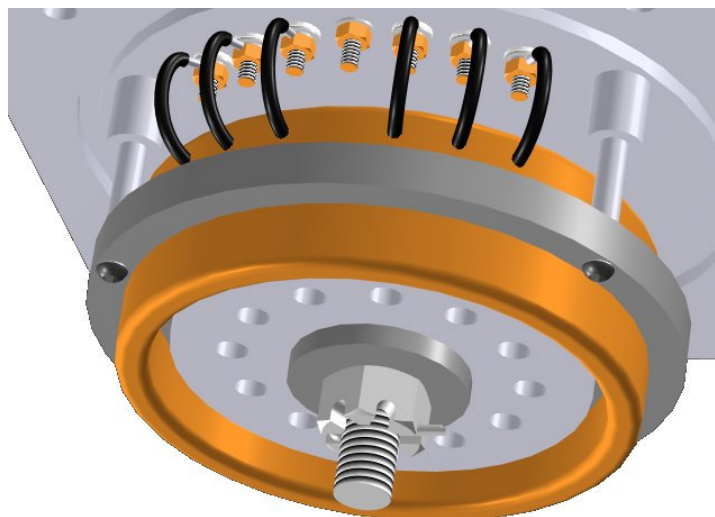
NOTE:

The important thing to keep in mind as we assemble these plates is that every through-bolt or screw must be gas-tight.



Stator plate assembly 2

The power studs must be secured with Loc-tite and epoxy - just like the power studs in the bottom plate. After securing the stator leads with lock washers & nuts, completely cover the studs with silicone sealer.



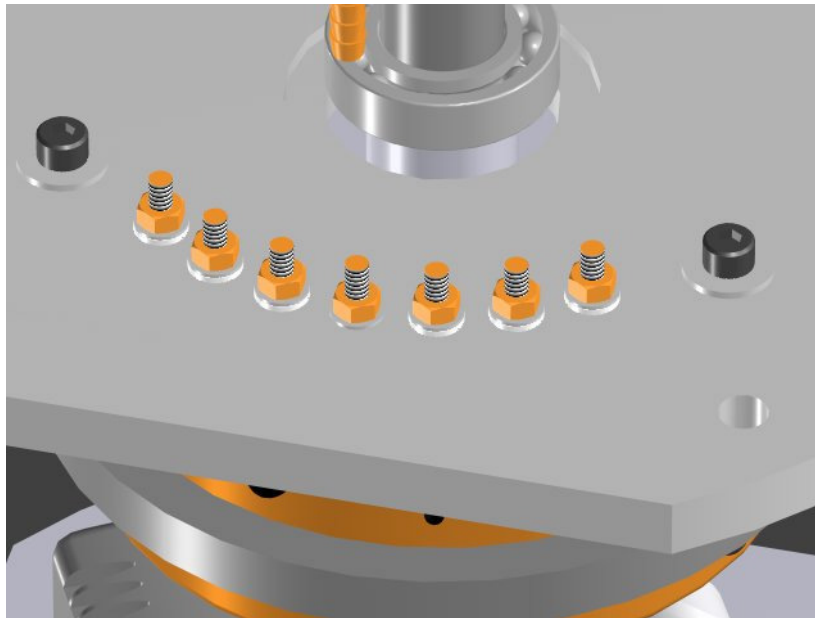
(Continued on page 7)

(Continued from page 6)

The (3) 1/4-20 cap screws that secure the stator stand-offs must be sealed with a generous amount of silicone or rubber cement at the base of the screw - after the washer has been placed onto the screw.

After assembling the stator plate, set it aside.

###



NEW TURBINE WORKSHOP

<http://newturbine.phoenixnavigation.com>

Email: krieli@phoenixnavigation.com

Questions?

Discuss this class on the NTW Forum!

Ken Rieli, expert disc turbine designer/builder & multi-physicist, has developed a hands-on approach to learning about 21st century turbomachinery & how to harness eternal energy sources—Sun, Wind & Biofuels.

Building your own closed-loop solar turbogenerator system is more than a valuable independent study course. Students at the New Turbine Workshop learn about the scientific process as they develop the power of self-determination through Liberation technologies.