

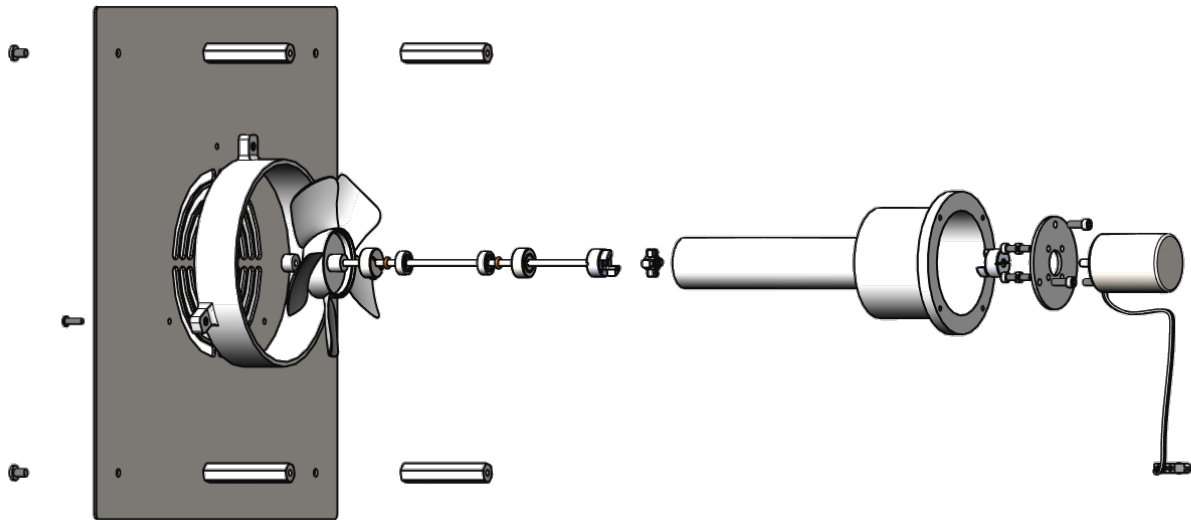
Humidity Generation and Calibration Equipment

THUNDER SCIENTIFIC®

CORPORATION THE HUMIDITY SOURCE

Model 2900

Chamber Fan Component Replacement Procedure



Tech Support Document TSD-0317

Revision Date: September 13, 2024

Revision - C



Chamber Fan Components Replacement Procedure

1. First turn off the main power switch and unplug the power cord.



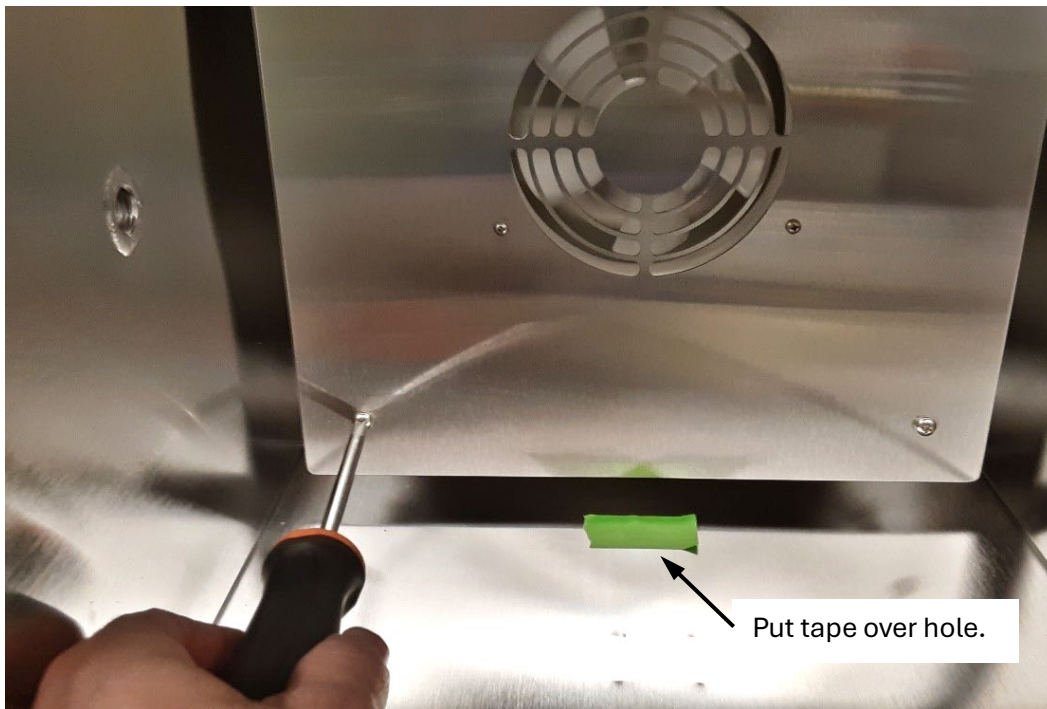
2. Next remove the rear panel using a #10 Torx driver.



3. Open the chamber door and remove the chamber temperature probe from the probe clip.



4. Place tape over the chamber vent hole. Remove the Fan Shroud Panel using a #2 Phillips head screwdriver and save the four #8-32 x 1/4" screws for later installation.



5. Remove the fan collar using 1.5mm Allen wrench and loosen the set screw and remove the collar. Take note of which way the fan is facing. Then pull the fan off from behind the center of the fan.



6. Loosen the set screw on the Collar using a 3/32" Allen wrench and remove it.



7. Remove the O-ring from the shaft. The bearing will remain seated in the bearing housing.



8. Move to the rear of the generator and unplug the fan motor harness connector. Then, use a 7/64" T Handle Allen wrench to remove the three #6-32 x 3/8" Socket Head Cap Screws and save for later installation.



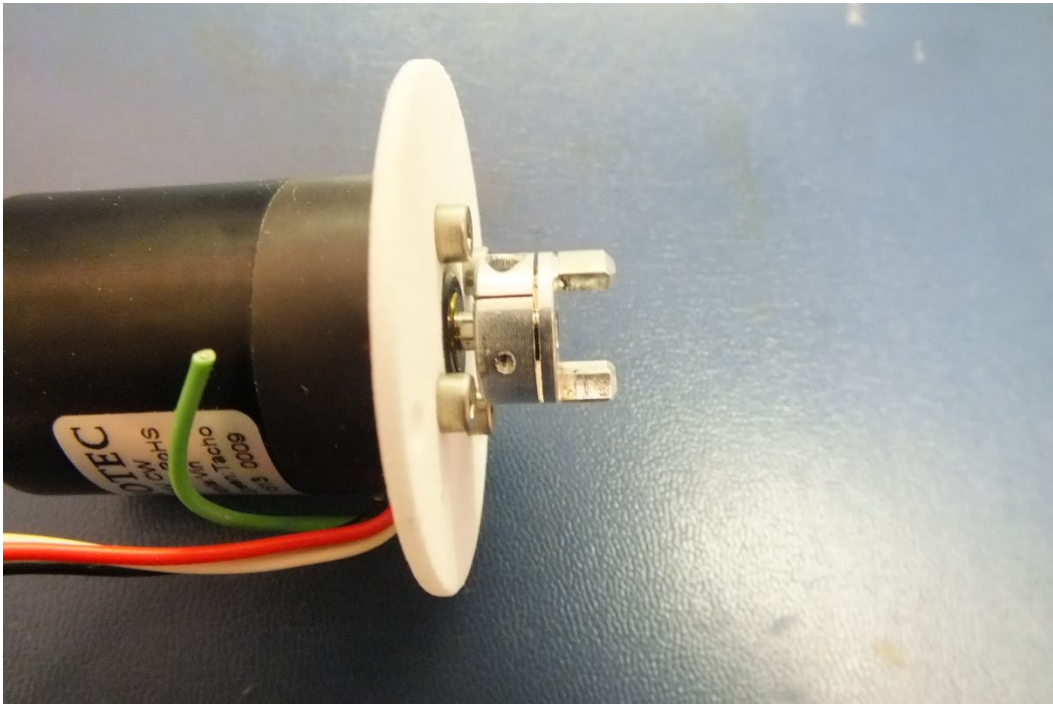
9. Pull out the fan motor assembly along with the shaft.



10. If the shaft does not come out with the motor (Jaw Coupling Spider Failed), then you will have to push the shaft from inside the chamber. CAUTION: If the shaft will not pull through the bearing, it is possible that there is a small burr on the shaft gentle filing may be required to remove the burr.



11. Remove the remaining bearing from the chamber side of the fan bearing housing and discard.
12. Remove the motor from the shaft at the Jaw Coupling Spider and save for later installation.

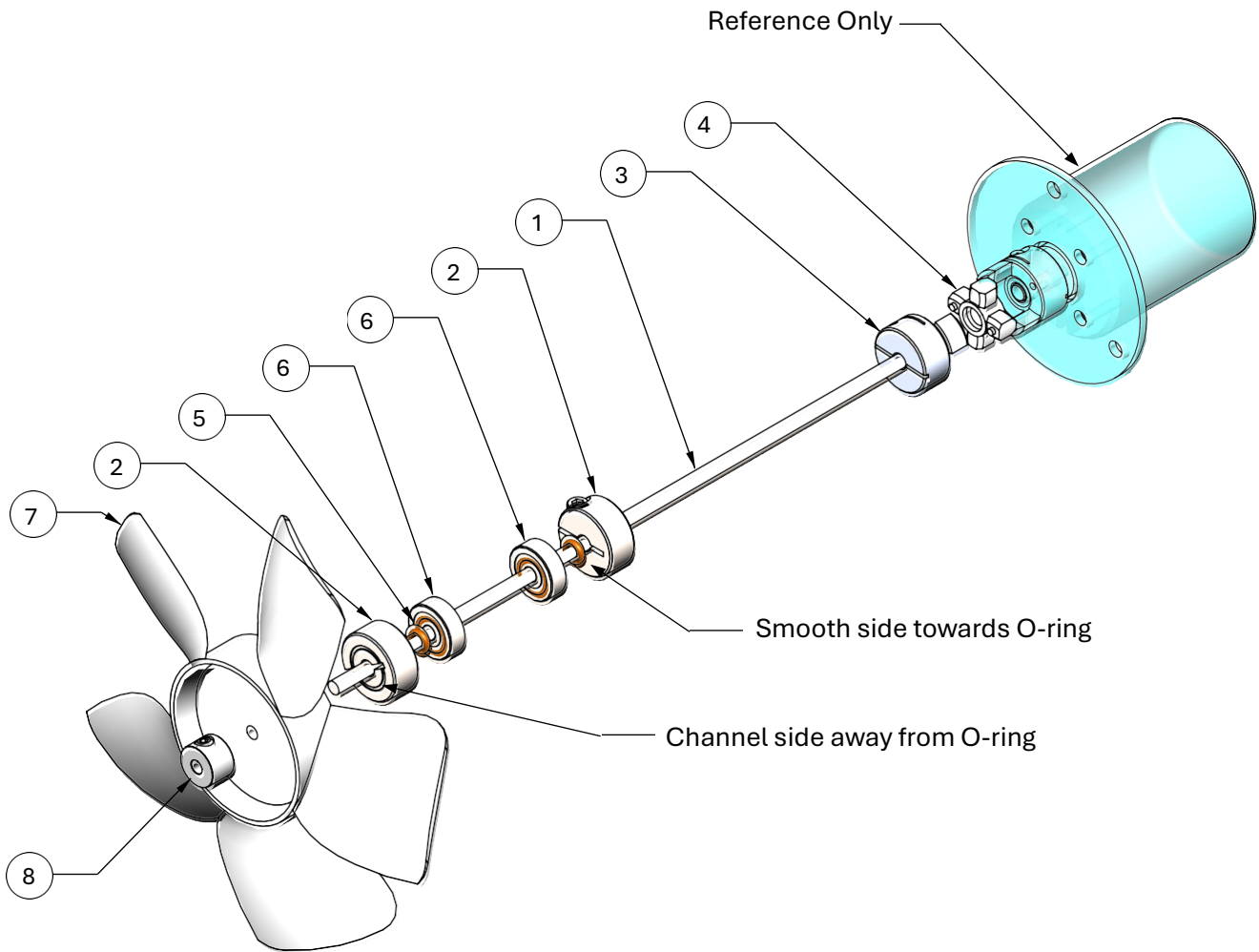


13. Chamber Fan Installation Kit parts list. Drawing 23A29322.

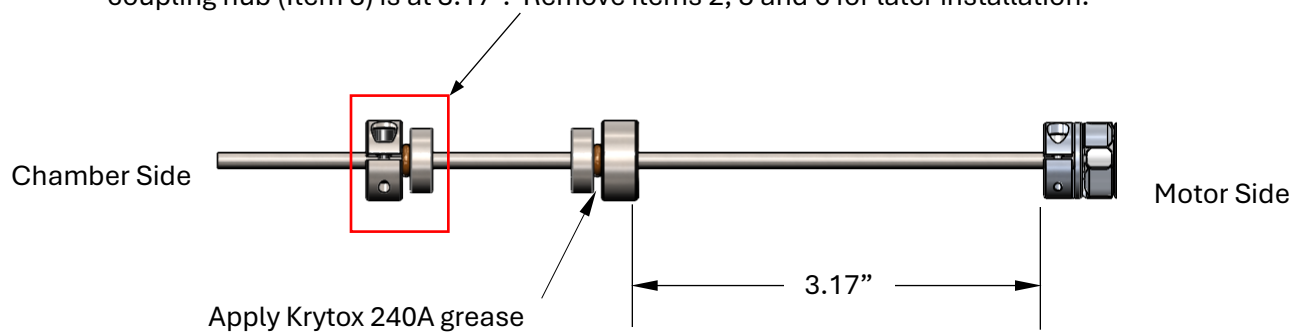
ITEM NO.	STOCKCODE	DESCRIPTION	QTY
8	9946K41	SET SCREW SHAFT COLLAR - 1/8" I.D.	1
7	5JLL2	4" FAN BLADE	1
6	SR2AC-20S	.125 X .500 CERAMIC BALL BEARING	2
5	OR006V	1/4" O.D. X .006 O RING	2
4	JD10/15-85B	JAW COUPLING SPIDER	1
3	JC10-2-A	1/8" JAW COUPLING HUB	1
2	CL-2-SS	1/8" SHAFT COLLAR	2
1	A1-67	.125 X 6.75 PRECISION SHAFT	1
0	D11A25090	Krytox 240AB grease syringe	1

Reference drawing on next page. Drawing 23A29322.

Drawing 23A29322.



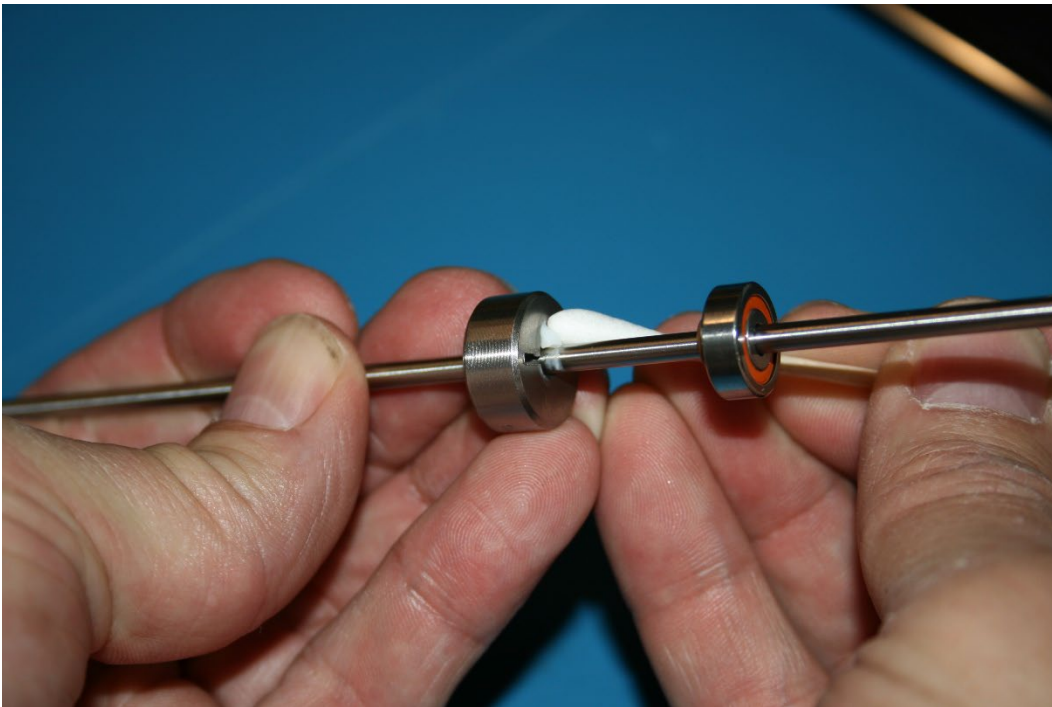
14. Make sure the shaft is flush with the inside face of the Jaw coupling hub and secure using a 3/32" Allen wrench. Verify the dimension between the shaft collar (Item 2) and the jaw coupling hub (Item 3) is at 3.17". Remove items 2, 5 and 6 for later installation.



15. Apply a minimal amount of Krytox 240A grease to the flat smooth side of fixed shaft collar, not the channel side.



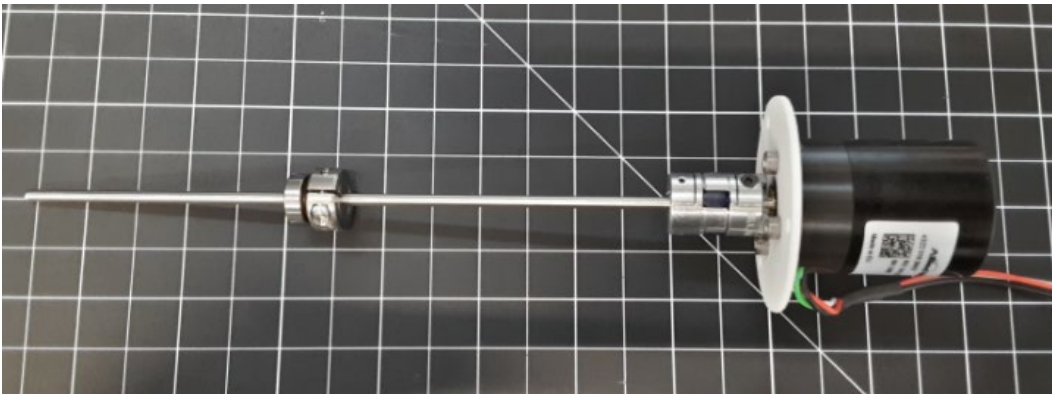
16. Spread the grease evenly around the collar with a cotton swab.



17. Slide the O-ring on until it touches the greased face of the collar and apply a minimal amount of Krytox 240A to the O-ring, which will touch the bearing.



18. Reconnect the fan motor assembly to the new shaft assembly with the jaw coupling spider.



19. Verify the Jaw Coupling Spider is firmly seated in both couplings. Push and pull to see if the joint expands and contracts $\sim .05$ " without coming apart.



20. Slide the new assembly into the motor housing tube with the wires at the 6 O'clock position and ensure the bearing is seated within the bearing housing.



21. Replace the three #6-32 x 3/8" Socket Head Cap Screws. CAUTION: Do not over tighten the screws.



22. Use Soft Jaw Pliers to push and pull the shaft, from inside the chamber, to verify the rear bearing is fully seated within the bearing well. You should feel a very small play (.03") in movement. Leave it in the pushed position.



23. Use calipers to measure the distance from the bearing housing to the end of the shaft. Record this measurement. Take three measurements and average them to get an accurate measurement.



24. Pull the shaft towards the front of chamber opening so the Jaw Coupling Spider is fully expanded. Use the calipers to measure the distance from the bearing housing to the end of the shaft. Record this measurement. Take three measurements and average them to get an accurate measurement.



25. Subtract the first measurement in step 23 from the second measurement in step 24 to get the Push Pull Test results.

Push-Pull Test

This test is to confirm that the Jaw Coupling Subassembly is spaced correctly. See the table below for target measurements.

(Pull Measurement) - (Push Measurement)	Response
< 0.020"	If the shaft feels rigid or moves less than 20 thousandths of an inch, remove the fan assembly from the chamber and decrease the 3.17" distance so that the end measurement is between 0.020 – 0.040
0.020" ≤ Difference ≤ 0.040"	If the difference in measurements is between 20 and 40 thousandths of an inch, the shaft and motor have been assembled correctly. Move on to the next step.
> 0.040"	If the shaft moves by more than 40 thousandths of an inch, remove the fan assembly from the chamber and increase the 3.17" distance so that the end measurement is between 0.020 – 0.040

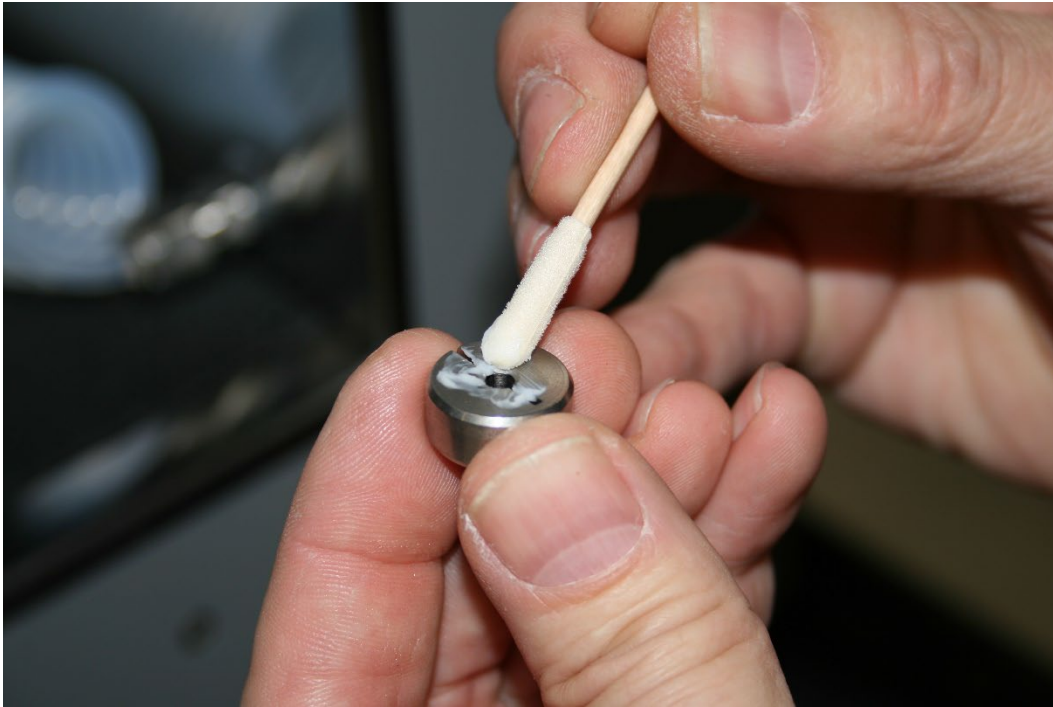
26. Slide the bearing onto the shaft and ensure it is fully seated in the bearing housing. Apply a small amount of Krytox 240A grease to the bearing face.



27. Slide on the O-ring until it is against the bearing face, then add a small amount of grease.



28. Apply a minimal amount of Krytox 240A grease to the flat smooth surface of fixed shaft collar, not the channel side. Spread the grease evenly around the collar with a cotton swab.



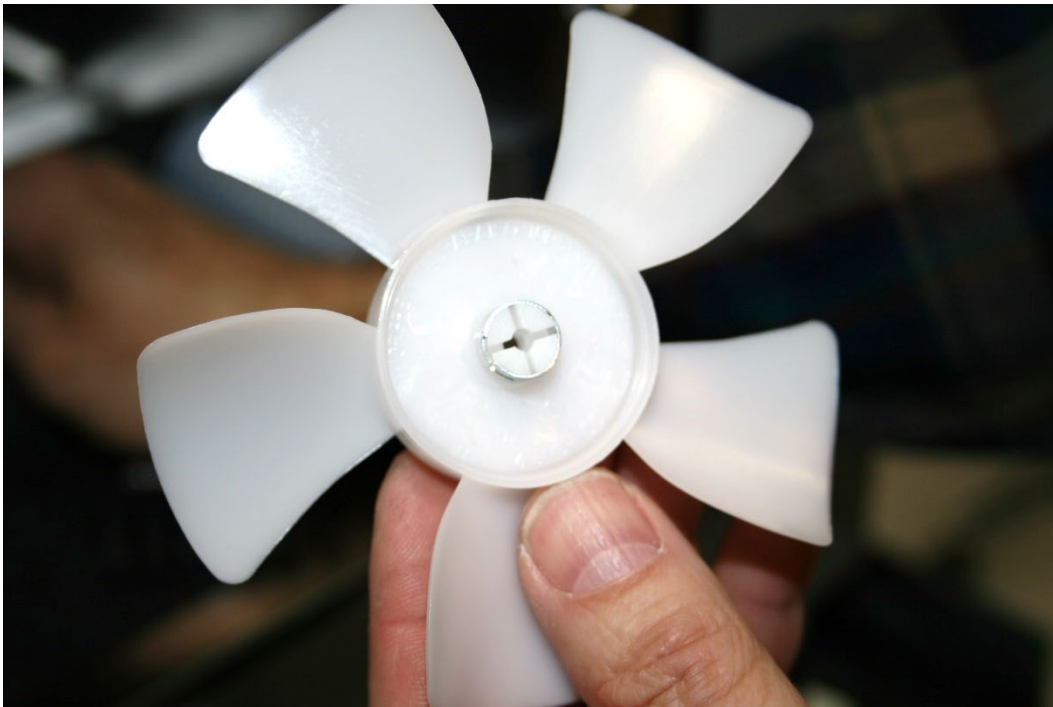
29. Slide the fixed shaft collar onto the shaft until it touches the O-ring.



30. Tighten the Collar using a 3/32" Allen wrench, do not over tighten.



31. This photo is for reference only and shows the rear of the fan, it should face towards the rear of the chamber.



32. Install the fan onto the shaft by pressing evenly on the hub of the fan until it touches the collar so that the shaft sticks out by at least the depth of the collar.



33. Push on the Set Screw Shaft Collar until it is flush with the end of the shaft.



34. Tighten the set screw using a 1.5mm Allen wrench, do not over tighten.



35. Next pull gently on the fan hub until it touches the set screw collar.



36. Reinstall the Fan Shroud Panel, but first make sure the four standoffs are tight.



37. Using a #2 Phillips head screwdriver, use the same four #8-32 x 1/4" screws to mount the panel.



38. Reinstall the chamber temperature probe into the probe clip. Remove the tape placed over the chamber vent hole and you are done.



Please Call 1-800-872-7728, Fax 1-505-266-6203, or E-mail support@thunderscientific.com should you have any questions.