GruntBull Screamer Microhybrid Motor

OPERATION

1. Oxygen safe lube is not necessary but will work. Most important thing is for O-ring to properly seal. A small leak quickly turns into a big one.

2. Remove Cartridge Advancing Screw (13) and Aft Nozzle Retainer (1) from Motor Casing (5).

3. Remove contents. If necessary use a pencil to push out contents, being careful not to damage the Graphite Nozzle(2).

4. Clean all parts with soap and water then lube and replace O-rings (3),(6),and (10) as needed.

5. Nest Graphite Nozzle (2) in Aft Nozzle Retainer(1).

6. Secure Aft Nozzle Retainer(1) in Motor Casing(5)

7. Attach foil disk to nozzle end of Fuel Grain(4) ,and cut center out with a hobby knife. Now load Fuel Grain(4) making sure that the preheater grain will be facing Injector Body(7). The foil disk will keep the Fuel Grain(4) from sticking to Graphite Nozzle(1) after the motor is fired.

8. Make Injector Body (7) ready. 1. Load Green PET Burst Disk(8). 2. Load Burst Disk O-ring(9). 3. Load Brass Piercing Unit(10).

9. Load Injector Body(7).

10. Load 16 gram N20 Cartridge(11).

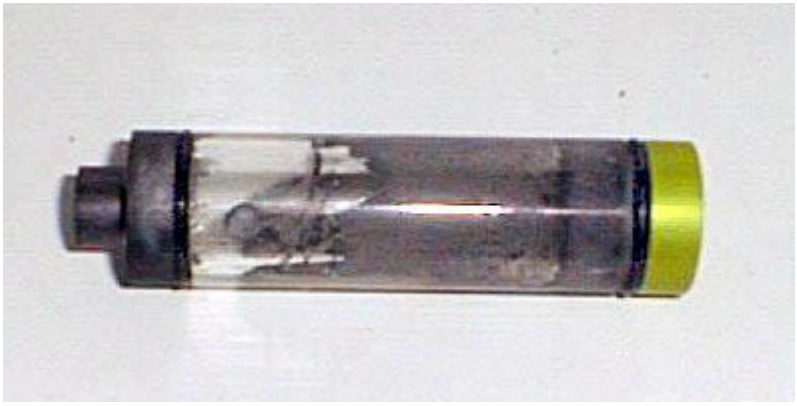
11.Secure Cartridge Advancing Screw(13). The Motor is now ready to charge.

12.Tighten Cartridge Advancing Screw(13). A slight audible “pop” is heard when 16 gram N2O Cartridge(11) is pierced. The Motor is now Charged and ready to fire.

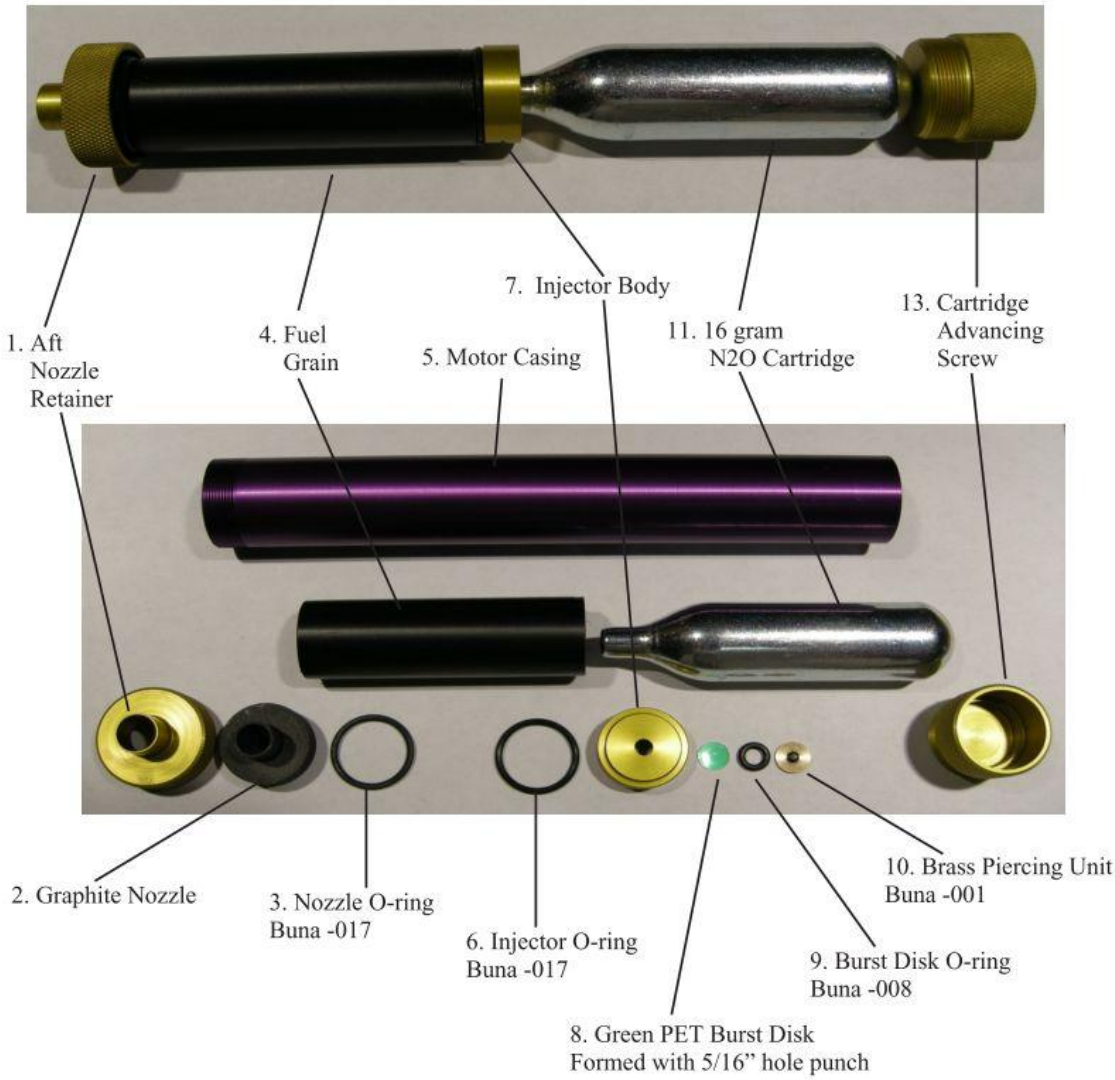
13. The motor can safely be dis-charged by slowly un-threading Cartridge Advancing Screw(13) until no more N2O can heard escaping.

The nozzle is on the left and the cap screw which cranks down on and punctures the charger is on the right. The gold anodized bulkhead between the charger and motor grain contains the piercing piston and burst disk.

Here's a complete motor showing the pyrodex starter grain already in place:



The film on the inside of the grain is the pyrodex/NC lacquer slurry, the slug itself can be seen directly to the left of the gold bulkhead o-ring.



MAINTENANCE

1. Always lubricate O-rings for best results as this helps them seal. Oxygen safe lube is not necessary for this motor. I used Dow 55 during the initial testing and development of this motor.

2. Remove all combustion deposits from motor. I use an old tooth-brush with soap and water.

3. Inspect all components for wear.

4. Inspect and replace O-rings as needed. The nozzle O-ring will probably need to be replaced after every run. I usually rotate the injector body Oring to the nozzle, and install a new O-ring in its place. The burst disk O-ring should be replaced at the end of the day, and the piercing unit O-ring might not ever need to be replaced.

5. Visually inspect nozzle. Nozzles last 30 runs or more, depending on how they are handled. Be sure to use the foil disk on the fuel grain as it keeps the melted plastic fuel grain from sticking to the nozzle thereby greatly extending nozzle life.