

## **Thermionics' RCRF0325 and RCRF0338 e-Gun™**

### **To Remove and Replace Old Filament**

1. Always wear powder free latex gloves prior to replacing filament.
2. Remove the two (2) #6-32 Phillips screws (item 13) and two (2) Phillips screws (item 16) from cover tube (item 15).
3. Remove cover tube completely from source head.
4. Loosen two (2) #6-32 set screws (item 10) from side of source poles. Pull out emitter.
5. Loosen the two (2) #6-32 pan head screws (item 11).
6. Remove Cathode Shield (item 19).
7. Loosen two (2) #4-40 set screws (item 8).
8. Remove old filament (item 18). Make sure the entire old filament is removed. One may want to clean or replace the Cathode Shield at this time. Cleaning can be accomplished by abrasive cleaning such as (Emery Cloth and Scotch-Brite™) or by a light glass bead honing (use maximum of 35 psi to avoid warping). In addition, wiping components with isopropyl alcohol is recommended.
9. Install new filament (item 18) leaving the two (2) #4-40 set screws (item 8) loose.
10. Reassemble emitter in reverse order leaving two (2) #6-32 pan head screws (item 11) loose.
11. Replace emitter assembly and tighten (seat and set to reduce warp) two (2) #6-32 set screws (item 10) from side of poles.

### **Filament Adjustment**

1. Place 0.040" aluminum shim (provided in spare parts kit) between the Cathode Shield and the crucible anode (copper opening just above Cathode Shield). Push the Cathode Shield firmly against the shim, tightening two (2) #6-32 pan head screws (item 11).
2. Loosen two (2) #6-32 set screws (item 10) side of poles, and remove emitter assembly.
3. Now adjust the filament height by placing the 0.010" aluminum shim (provided in the spare parts kit) between the bottom of the Cathode Shield and the filament, and tightening the two (2) #4-40 set screws (item 8). Note the filament may bow slightly when the set screws are tightened. This clearance (between the filament and Cathode Shield should be set between a minimum of 0.006" and a maximum of 0.012" for proper electron beam formation).
4. Remove aluminum shim.
5. Tighten the two (2) #6-32 set screws (item 10) side of poles.

Note: You can use a feeler gauge to set and/or check clearances. Although the source will operate with a wide range of emitter clearances; improper adjustments will effect beam location, shape, and quality. Filament spacing to Cathode Shield should be 0.010+/-0.003" and Cathode Shield to anode should be 0.040+/-0.003" for best results.