

## Tube of the Month

### **4CX1000A**

In 1950, EIMAC started a development project to make a relatively small high power tube using ceramic insulation. The Germans had managed to produce some ceramic insulated tubes. They were trying to meet a vague specification from the U.S. military. The first step was to learn how to make the ceramic seal to the metal. A series of experimental tubes were made to test sealing techniques. The X-504 (1951) was a re-packaged 450T triode with stacked ceramic spacers. The X-521A was similar but had overlapping or coaxial construction that gave a better seal. The drive requirements of the triode were too high for the proposed application, so a new series of tetrode X tubes was started. The X-593 (1957) had a breechblock socket system that was more rugged and compact. The socket was designated the X-667 and its development paralleled that of the tube's.

External anodes had been in use since 1945, but a more efficient forced air anode using many thin radiating plates proved adequate. The intended use of this new tube was for SSB that was beginning to be popular with the military and a few (rich) hams. The control grid could only handle 1-watt maximum in AB1. The tube produced full output with zero drive.

The 4CX1000A would produce 1630-watt output up to 110 MHz. I believe that the Collins 30S1 was the first amplifier designed to use the tube. The SK-800 was the socket and the eventually was made several versions. In time, they made more efficient anodes and sold the 4CX1500B that used the same socket. During the testing of the new tube, the anode worked as predicted, but they accidentally also invented a new siren. The tube could be heard all over the factory.

The use of ceramics has changed the modern manufacture of transmitting tubes. EIMAC no longer makes any tube with glass insulation.

Norm N6JV

