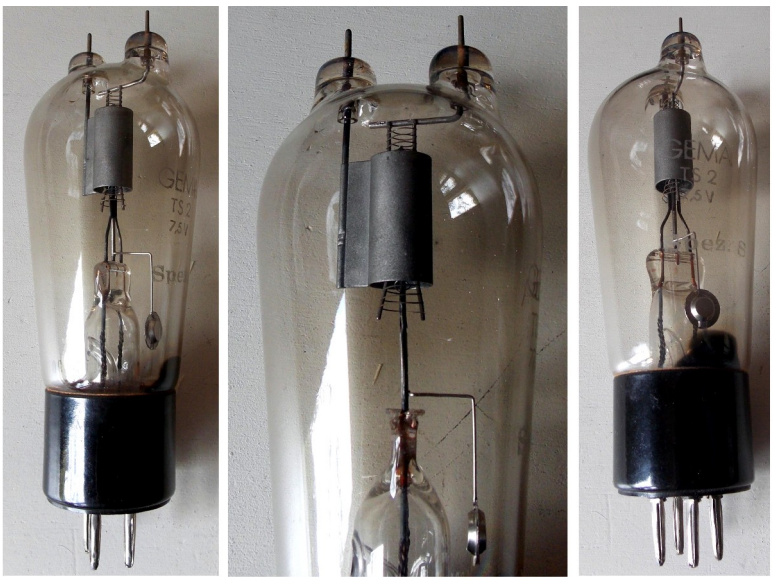
TS2Sp GEMA - VHF Power Triode



The GEMA TS2Sp was derived from the American 834/304A.

It's hard to date this triode based on the currently available documentation, mainly focused on radar systems rather than on the power tubes used to achieve some results, but we can make some observations.

The code TS2 tells us that this was the second transmitting tube developed by GEMA, after the TS1. The origins of both can be found in the Bell System Technical Journal, published in January 1935, in an article by Kelly and Samuel. Both the 304A and several UHF doorknob prototypes were described, which anticipated the 316A officially released in August 1936. In his book on GEMA, Harry von Kroge mentions the initial unsuccessful attempts to design an ultra-high-frequency radar based on push-pull of Philips TAM magnetrons and the decision to subsequently switch to the latest-generation UHF triodes. He dates the first transmitter using the TS1 to the summer of 1936. The prototype he refers to probably used American-made triodes to generate 700 W pulses at 60 cm (500 MHz), but we can assume that the design of the TS1 had already started at the time, based upon the still experimental geometries described by Kelly and Samuel. If we look at the parallel development in England of the AI radar described by Bowen and based on the WE 316A, we know that the early experimental set was ready around the first months of 1937. This dating agrees with the release of the commercial WE 316A about six months before.

The design of the TS2 presumably started soon after, to have a tube capable of operating around 200 MHz. Unfortunately, according to von Kruger, tests of a metric set based on the TS4 had begun in March 1936: if the numbering of the GEMA tubes

was progressive, how could the TS4 have been available in March 1936 when the TS1 was the replica of a tube released from the following August?

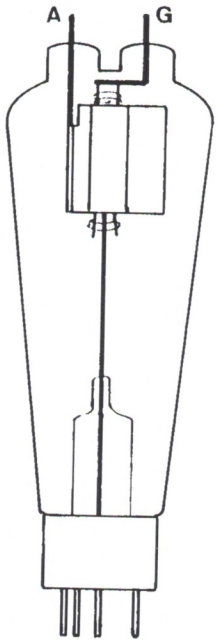
It is possible that the valve codes were assigned in advance, based on preliminary specifications that defined their maximum power and operating frequency, but without yet having a precise idea of how to implement them. In this case, we can assume that there were intermediate prototyping phases in which suitable electrode geometries were tested, and that the samples that have survived today in the apparently definitive versions were produced around 1937.

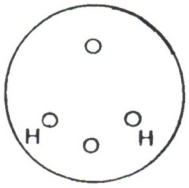
We must also assume that the TS2 never left the prototype stage, having been later replaced by the ruggedized TS5 variant. The Sp (Spezial) suffix could refer to the four-pin European base which replaced the 4-pin UX American one of the 304A.

Below the only data given for this tube. Other data are almost certainly identical to that available for the standard 304A/834.

TS 2 Sp.

GEMA





Heizspannung

7,5 Volt