

5550 / GL-415 - Ignitron



Click on the image to enlarge.

Here is one of the few samples of ignitrons in the collection. These devices were high-current switches based upon the conduction by mercury plasma started under the control of a firing electrode. Ignitrons were introduced by Westinghouse in the 1930s, mainly intended to control the heavy currents of arc welding machines and other industrial applications.

Usually the body of ignitrons is made of stainless steel with integral water jacket for cooling. The body works as cathode, in direct contact with a mercury pool inside. A large graphite anode is in the upper half, supported by a glass insulating stand-off. A smaller electrode, the igniter, is made of refractory semiconductor material and is placed in the bottom, into the mercury pool. Short firing current pulses, usually generated by thyatron tubes, are applied to ignitors, causing the instantaneous evaporation of mercury. The generated plasma quickly propagates to the anodic region giving rise to a heavy current between the main electrodes.

5550 is a small ignitron just cooled by conduction in the clamp area. It was registered to Westinghouse in 1946 together with larger types. Here a GE ad from [Electronics 1949](#).

30 V arc drop at 1697 amps peak, 12 V at 70 amps peak. Data available in the GE technical bullettin [ETI-1148](#). Applications available in the GE publication [ETI-108](#).