Tektronix 585 - High-Performance Oscilloscope

Fast risetime oscilloscope mainframe, introduced in 1959.

This oscilloscope was specified for a risetime of 3.5 ns. The mainframe was capable of operating with the type 80 single channel plug-in from DC up to 100 MHz and a risetime better than 3.5 ns. Sweep rate as fast as 10 ns/cm was possible with 5x magnifier. Two balanced distributed amplifiers were used in the vertical amplifying chain. The first one, using seven 6DJ8/ECC88, before the delay line and the second one, with five more 6DJ8/ECC88, between the line and the deflection plates driver. The CRT itself, type T581, used a vertical distributed deflection, with six deflection plate pairs driven by self-contained transmission lines, the signal propagating toward the front of the tube at the same velocity of the electron beam. Special plug-in units were required, capable of driving and terminating vertical amplifier of the mainframe. The very early plug-in preamplifier was the single channel type 80, followed by the dual-channel type 82. Also the type 81 adapter was available, to accept other standard letter series plug-ins, of course with reduced bandwidth.

Trigger used a tunnel diode regenerator to operate with input signals as low as 2 mm of vertical deflection. Two time-base generators, the main one ranging from 50 ns/cm to 5 s/cm. A 5-x magnifier increased calibrated range to 10 ns/cm. The time-base B also functioned as delay generator.

The maiframe used some 73 vacuum tubes, 3 transistors, 1 tunnel diode and several silicon rectifiers and neon bulbs.

In the picture below the CRT and details of its distributed deflection vertical plates.