

The First Storage Oscilloscope

Tektronix 564

Giovanni Becattini



References

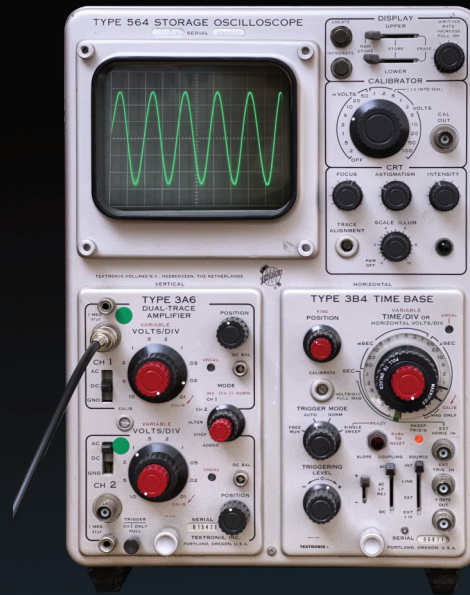
The following references are used in this book:

- [TEO] Tektronix Epic Oscilloscopes – Elektor Books
- [7KS] Tektronix 7000 Series – Elektor Books
- [TREG] Tektronix Oscilloscopes Restoration Guide – Elektor Books
- [TGHP] The Great Hewlett-Packard – free download from www.quacktech.it
- [VRE] Vintage Radio Equipment – Elektor Book
- [MAC] Apple Macintosh, , History, Engineering, and Restoration – Elektor Books
- [QT602] The Good Giant – Tektronix DSA 602A Oscilloscope – Quacktech
- [QT11KP] The Last Plug-ins – Tektronix 11000-Series Plug-ins – Quacktech
- [SCLI] Some Classical Instrument – coming soon
- [QTCOL] Collins Classics – KWM-2, 30L-1 and 51S-1: History, Engineering, and Restoration – Quacktech Editions
- [QT324] Two Giants and a Shorty – Tektronix 323/324 - Quacktech

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Letters from a Forgetful Era

*Today we live immersed in a world of computers, smartphones, and devices with virtually limitless storage. But in the early 1960s, almost **nothing had memory**—not instruments, not appliances, and certainly not oscilloscopes. Apart from a few mechanical contraptions and photographic cameras, the concept of “capturing” a transient event simply did not exist.*

Analog oscilloscopes relied on long-persistence phosphors, special still-camera attachments to record single-shot signals, or even mechanical pens tracing waveforms onto moving paper. Every measurement was fleeting, every observation a race against time.

*In 1961 Tektronix introduced the **Type 560**, inaugurating a new generation of modular oscilloscopes that quickly earned widespread appreciation among engineers, laboratories, and industry. Yet the real revolution arrived with the remarkable **Type 564 Storage Oscilloscope**. It was not just a new instrument—it introduced the radical idea that a transient signal could be captured, preserved, and studied without film, without tricks, and without haste. This breakthrough opened the door to entirely new applications and transformed the way signals were analyzed, influencing fields as diverse as industrial automation, scientific research, and—just to name one among thousands—medical ultrasound imaging.*

*In this book, after a concise introduction to the 560 Series, we explore the original Type **564** and its successor, the **564B**, along with some compatible plug-ins (3A1, 3A6, 3B3 and 3B4.)*

*Giovanni “Gianni” Becattini
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*To my wife
and my family*