# Ampex Video Tape Recorder Milestone Dedication Ceremony

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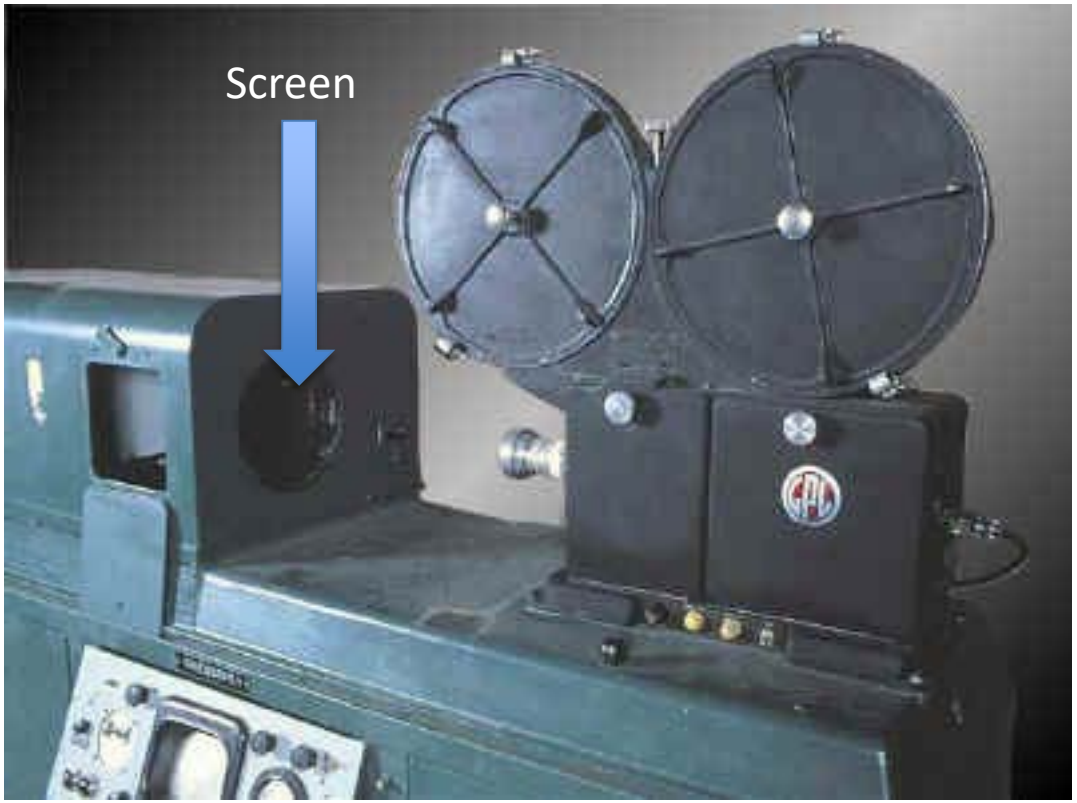
10 June 2015

**Citation**: In 1956, Ampex Corporation of Redwood City, California, introduced the first practical videotape recorder for television stations and networks to produce and time-shift broadcasts, replacing impractical “kinescope” movie film previously used to record TV. The Emmy-award-winning Ampex “VTR” analog-video standard ruled broadcasting and video production worldwide for twenty years

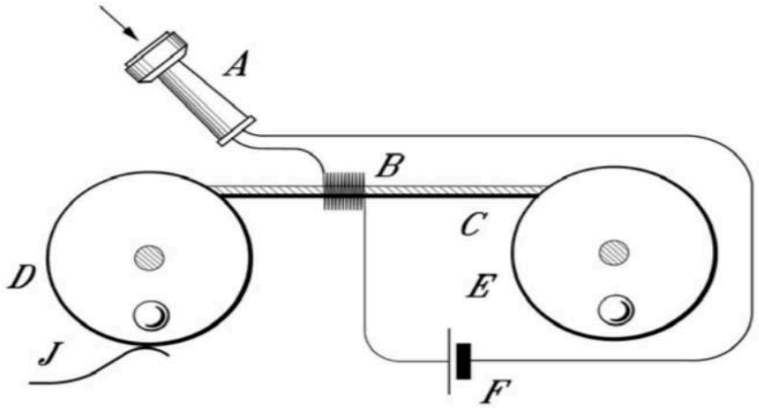
# Before the VTR

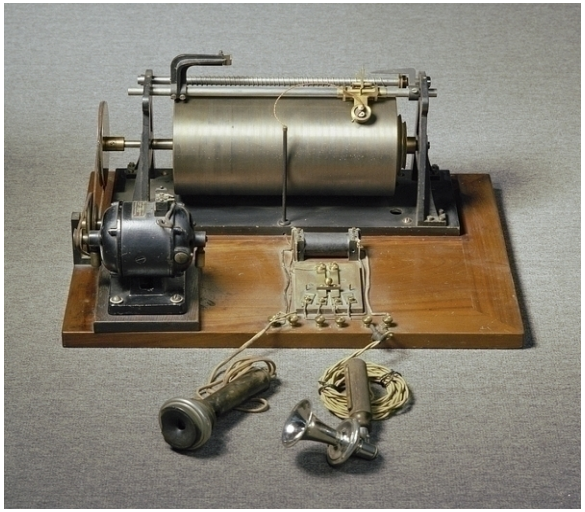
- **Kinescope** is a recording of a television program on motion picture film, taken directly through a lens focused on the screen of a video monitor.




A PA-302 General Precision Laboratories (GPL) kinescope (c. 1950–1955)

# Magnetic Recording History



- Oberlin Smith's magnetic sound recording apparatus (1888)
- Valdemar Poulsen's magnetic wire recorder (1898)

# Magnetic Recording History (cont.)

- Fritz Pfluemer develops paper magnetic tape, licensed to AEG (1928)
- AEG Magnetophon with plastic tape (1935)


Bild 52: Das erste Tonbandgerät der Welt: K 1 von AEG. (nach Zierl, S.52)

# Magnetic Recording History (cont.)

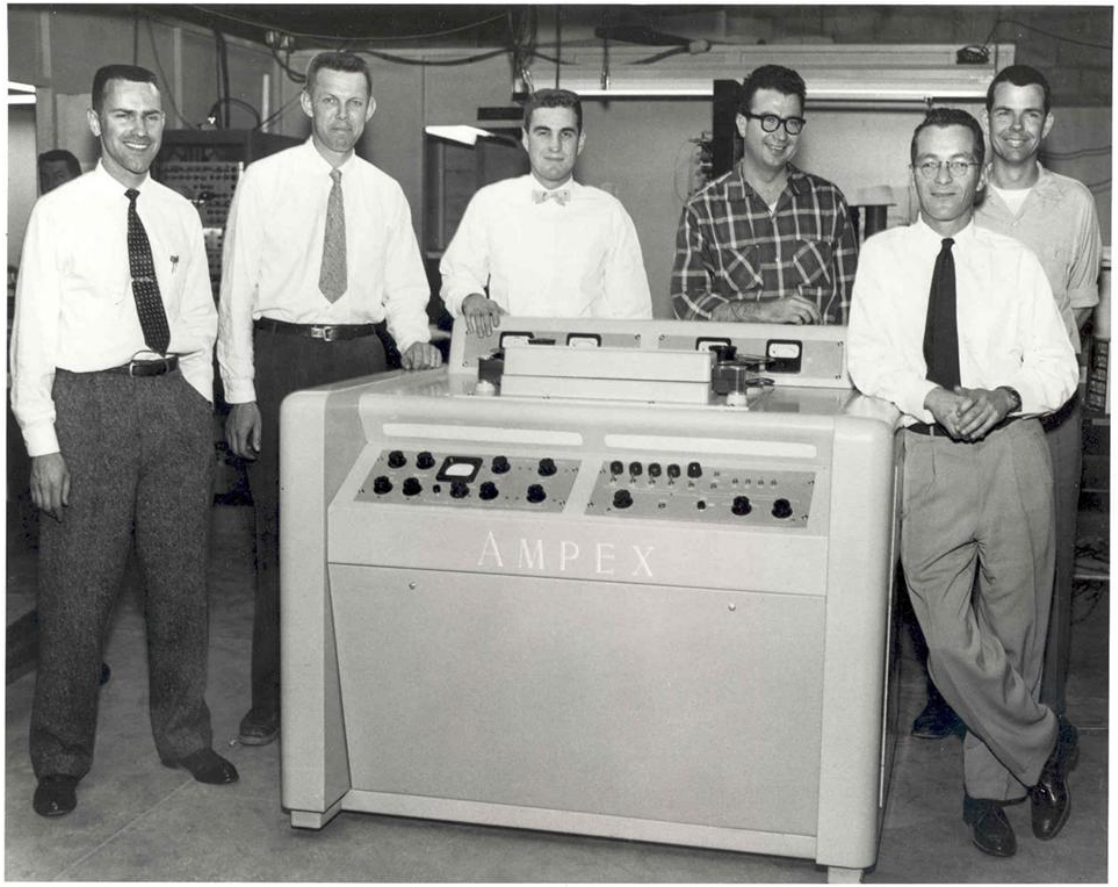
- Ampex Model 200 magnetic tape recorder (1947)


- Ampex VRX-1000 (1956)

# Magnetic Recording History (cont.)

**The Ampex Quadruplex Video Tape Recorder with its developers:**

- **Fred Pfost**
- **Shelby Henderson**
- **Ray Dolby**
- **Alex Maxey**
- **Charles Ginsburg**
- **Charles Anderson**



# Ampex VRX-1000

- It was demonstrated at the 1956 NAB Conference and delivered to customers the following year
- This machine used the quadruplex format with 2-inch wide tape moving linearly at 15 in/s past, and in contact with a thin wheel that contained four recording heads spaced evenly around its circumference that rotated at right angles to the tape motion
- This wheel rotated at 240 rps, and the effective writing speed was about 1,500 in/s. This allowed sufficiently short wavelengths that enabled the capture and reproduction of a specially modulated carrier signal which accurately contained a monochrome video signal.
- Later extended to color video recording, this technology served the media and entertainment industry for many years.

# Changes in Media Workflow

- With the advent of video recording, early television programming moved form being mostly live performances to a predominance of recorded content.
- Recording and editing with videotape became common practice. It eventually was done electronically, and then using computers rather than by cutting and splicing.
- Video tape could be viewed immediately after shooting. By avoiding the delay to “develop” photographic film, the speed of video production increased dramatically.
- Magnetic tape became the medium on which all content was collected and played at television stations.

# Further Video Tape Developments

- The quandruplex recording system was invented by Ampex in the late 1950s, and internationally standardized in the early 1960s. Its format was in general use in television production studios and broadcast stations for nearly 20 years, with only minor changes.
- Ampex introduced an open-reel 1-inch wide helical scan videotape format in 1965, which SMPTE standardized as Type A, and which became the first open format videotape standard.
- Ampex and Sony each proposed a 1-inch open reel helical scan tape format for standardization in the mid-1970s. However, as the SMPTE user community of broadcasters insisted that the two companies agree on a single format, this collaboration resulted in the SMPTE type C format in 1976.
- Bosch introduced a 1-inch tape standard through SMPTE that was labeled type B.

# The Move to Digital Video Tape Recording

- In 1986, Sony introduced its D1 digital tape format for recording an uncompressed standard definition component video signal.
- In 1988, Sony and Ampex developed and released the D2 digital video-cassette format at the 1988 NAB show, and this achieved success through the 1990s.


# Thanks to those who contributed to this Milestone event

- David Norlander—who helped arrange this Milestone Dedication event
- Dick Ahrons—who is the SCV Section Milestone Chair, and who championed this Milestone
- John Vardalas—IEEE History Center Staff, who suggested this Milestone to Dick
- Keith Graham—speaking for SMPTE
- Pete Hammar—speaking for Ampex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