



# Lone Star Audiofest

## Magnetic Tape Recording



- \* History / Theory
- \* Tape Machines
- \* Tapes (Stereo)

# History of Recording Methods

- Original transcriptions were made by **MECHANICAL (ACOUSTICAL)** means on **wax cylinders** (Thomas Edison - 1880). Emile Berliner developed the flat disc or “record” in the early 1900’s. **ELECTRIC** disc recording was not perfected till the mid-1920’s.
- At the end of the 19th century, Valdemar Poulsen developed an **ELECTRO-MAGNETIC** method to record speech on a length of moving **WIRE**.
- In the 1930’s, the Germans developed a method to record information on moving paper **TAPE** coated with **MAGNETIC** particles.

# Historical Magnetic Recorders

- Telegraphone (1898) - Valdemar Poulsen:  
sound recorded on **wire**
- Blattnerphone/Marconi-Stille (1920's):  
sound recorded on **steel tape on reels**
- Telefunken Magnetophon (late 1930's):  
sound recorded on **paper tape (on reels)**
- Ampex (mid 1950's) - **plastic tapes**
- Philips Cassette in 70's - **tape in cassettes**

# The “American” Tape Story

- Summer 1945; Jack Mullin “discovers” magnetophone in captured German radio station. Ships parts and tape back to US. Demonstrates machine in San Francisco and to:
- Bing Crosby recognized potential of magnetic tape for use in **EDITING** and **TRANSCRIBING** material for radio shows (previously had to record on discs). Ordered first machines from:
- **Alexander M. Poniatoff (AMP EX)** produced first widely accepted professional recorder.

## Reel Tape Machine Brands

- **US Consumer - Brush, Webster, Revere, Magnecord, Viking**
- **Foreign Consumer - Grundig, Pioneer, Teac, Sony, Akai, Tandberg**
- **Professional - Ampex, Crown, Studer/Revox, Nagra, Otari, Stellavox, MCI/Sony**

# Tape Formats

- **Reel to Reel :**
  - Diameter - Commercial = 7" (or smaller)  
Professional - 10 1/2"
  - Widths - 1/4", 1/2", 1", 2"
  - Thickness - 1/2 mil, 1 mil (mil = 1/1000")  
thinner = more tape on reel
  - Tracks - Full / Multi - 2 track; 1/4 track
- **Cartridge** - 8 track (used in cars in 60s)
- **Cassette** - Philips format dominated in 70's

# Commercial, Pre-recorded, Reel Tapes

- **Monaural:**  
Early 50's - various manufacturers (RCA) released mono, full or half-track 7-1/2 ips tapes.
- **1/2 track (or 2 track) Stereo (7-1/2 ips):**  
~ 90 "labels" released ~ 2300 titles between 1955 and 1960 (80% Classical; 15% Pop; 5% Jazz)
- **Quarter - track Stereo (7-1/2, 3-3/4, 1-7/8 ips) :**  
Hundreds of labels; 10's of thousands of titles from 1960 till maybe 1990 [also 4-track quad]

## “Master” Tapes and “Dubs”

- The term “Master tape” suggests the original transcription; a “Master dub” is a low generation copy. HOWEVER the actual pedigree of a master/dub may be IMPOSSIBLE to determine as it’s easy to “forge”. CAVEAT EMPTOR.
- Dubbing process: original **master** > edited copy > “safety” **master** > production **master** > recording **masters** > etc. Final “dub” sent to record pressing plants could already be 3rd or higher generation.
- Earlier generations have test tones or word intros.