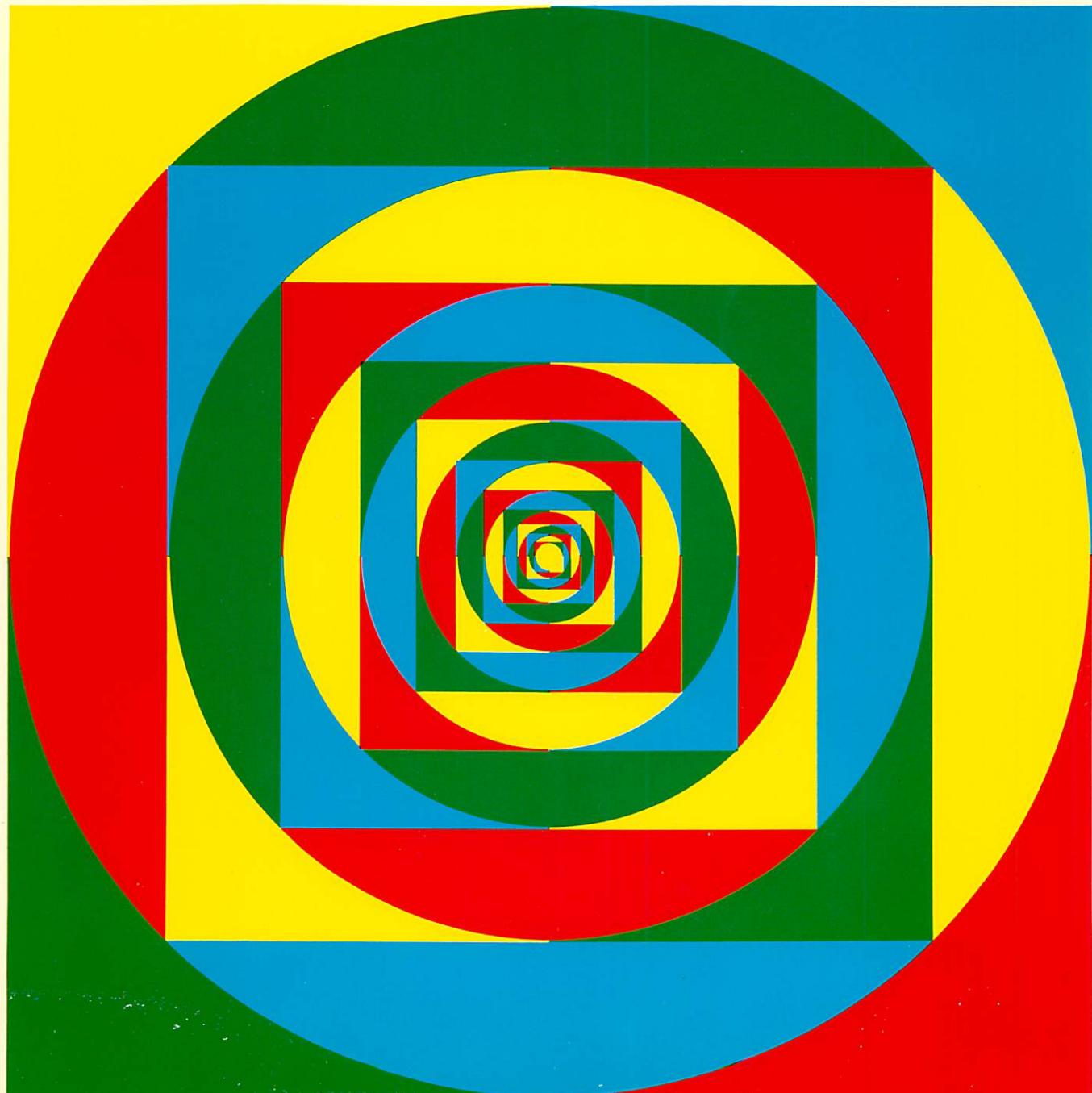


MEMOREX

78V HIGH-CHROMA VIDEO TAPE FOR THE NEW GENERATION OF HIGH-BAND RECORDERS



New excellence in color video tape.

The 78V by Memorex: the tape for superb masters, great copies.

Now there's a tape as extraordinary as the new generation of high-band recorders it was designed for.

The new Memorex 78V high-chroma video tape.

It reproduces colors as no other tape can. (It reproduces black and white as no other tape can.)

And it will perform with fewer drop-outs, reel after reel, long after other video tapes have failed.

The new 78V has higher signal-to-noise ratio and greater frequency response: better video, better sound.

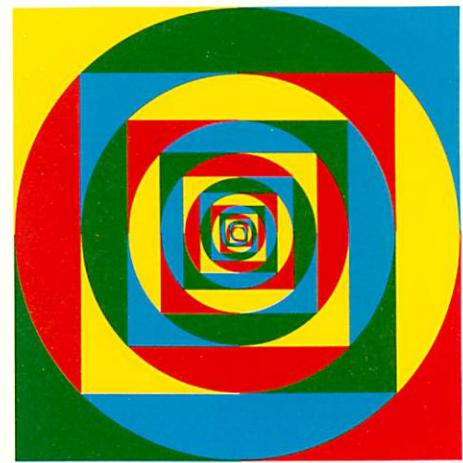
The control and audio signals are so stable, you won't have to worry about troublesome variations in output level.

And its improved formulation is consistently low in abrasion from reel to reel. You'll get considerably improved head life when you use 78V.

All this adds up to a video tape that promises you a program of unrivaled quality.

But enough can't be said about what 78V will do for you. The proof is in the performance. Call your Memorex sales engineer for a demonstration of this new, high-chroma video tape on your recorder.

And see for yourself.



PERFORMANCE

Video Signal / Noise ¹	Capable of greater than 50 db
Chroma Level ²	—0.5 db
Dropouts ³	15 per minute (maximum)
Head Wear ⁴	Less than 5 μ in. per hour average based on a total of 2 mils head wear
Tape Life ⁵	Capable of 3000 passes
Audio Sensitivity ⁶	—1.5 db
Audio Uniformity ⁷	± 1.0 db
Curvature ⁸	0.0625 in. per 48 in. length maximum

DIMENSIONS

Width	2.000 in.
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Width Tolerance	+0, —4 mils
Average Total Thickness	1.40 mils

MAGNETIC PROPERTIES⁹

Coercive Force, Transverse	270 oersted
Residual Flux Density, Transverse	1100 gauss
Coating Resistance	Less than 50 megohms per square

CONFIGURATIONS

Nominal Length	Catalog Number	Playing Time in Minutes (At 15 IPS)	Type Reel
2" x 1200'	78V-SG-7620B-L3	18	10½" Precision
2" x 2400'	78V-SK-7630B-L3	34	12½" Precision
2" x 2600'	78V-SM-7630B-L3	36	12½" Precision
2" x 3600'	78V-SP-7630B-L3	50	12½" Precision
2" x 4800'	78V-SR-7630B-L3	66	12½" Precision
2" x 5400'	78V-SS-7630B-L3	74	12½" Precision
2" x 7200'	78V-ST-7640B-L3	98	14" Precision

STABILITY AND STRENGTH OF POLYESTER BASE¹⁰**Coefficients of Expansion**

thermal	1.5×10^{-5} per °F
hygroscopic	1.1×10^{-5} per %RH
Ultimate Tensile Strength	23,000 psi
	12 lb per ½ in.
Yield Strength (stress for 5% elongation)	13,000 psi
	7 lb per ½ in.

Permanent Elongation	0.25%
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TEST CONDITIONS

All performance testing is accomplished with the equipment calibrated and referenced to the manufacturer's and SMPTE standards. Record currents are set for optimum signal-to-noise ratio. All testing is done using a constant tip engagement of 2 mils.

¹Video Signal-to-Noise Ratio

The signal-to-noise ratio is the ratio of peak-to-peak noncomposite video to RMS noise. The measurement is made with the recorder demodulator gain adjusted for 1 volt composite or 0.714 volt noncomposite video output and the equalizers set for uniform video response. A gray-level frequency corresponding to approximately 8.25 MHz in high band (6 MHz in low band) out of the video modulator is recorded at a level corresponding to the minimum noise output. On playback the demodulator output signal is passed through a color weighting network as proposed by EIA SP-908 and measured by a RMS responding meter that has uniform response for all video frequencies.

$$\text{Signal-to-Noise in db} = 20 \log \frac{0.714}{\text{RMS noise (volts)}}$$

Measurements will be affected by individual equipment variations, such as head conditions, record and reproduce alignment, and tip engagement.

²Chroma Level

This figure is the chroma playback levels of Memorex 78V relative to a reference tape (type 379), when recorded with a standard NTSC color signal. Record currents are set for optimum signal-to-noise ratio.

³Dropouts

Dropouts are measured electronically using a 5 MHz signal and the following proposed SMPTE definition as a criterion, and at the optimum record current and equalization as detailed in the note on video signal-to-noise ratio:

"A video tape dropout is a loss of RF signal caused by a momentary loss in contact be-

tween the head and the magnetic coating on the tape, and is of a random rather than a repetitive nature. For practical purposes, a dropout count should be made based on defects causing a 12 db or greater reduction in unlimited playback RF for a duration of 10 microseconds or longer. The standard conditions for measurement should be as follows:

- (1) A tip engagement of 2 mils during recording and playback.
- (2) A recorded frequency of 5 MHz for low band and 7.9 MHz for high band.
- (3) The machine must be operated at an effective head-to-tape speed of 1560 inches per second, and with a head which produces a 10 mil wide track."

⁴Head Wear

This figure is based on Memorex data derived from actual use of broadcast video recorders over an extended period of time. All head wear testing is done using a constant tip engagement of 2 mils. See discussion on reverse side of this data sheet.

⁵Tape Life

Tape life is measured under laboratory conditions using an automatically programmed shuttle test. See reverse side of this data sheet for detailed discussion of the significance of this figure. Failure is defined either as a significant increase in dropout activity (in excess of 30 per minute) or binder degradation resulting in a minimum of 6 db loss in RF output.

⁶Audio Sensitivity

Memorex 78V video tape is recorded at the pri-

mary reference level at 15 mil wavelength in accordance with proposed USAS VTR-16.13. The audio sensitivity compares the relative playback levels of Memorex 78V and a reference tape (type 379).

⁷Audio Output Uniformity

The output of all Memorex 78V video tape will fall within a tolerance of ± 1 db throughout the length of the roll and from roll to roll. This characteristic is affected by uniformity of coating thickness, orientation, and dispersion. However, the most common cause of audio instability within a roll is poor slitting which results in rippled edges. Memorex precision slitting techniques, originally developed to satisfy the exacting requirements of high-density computer tape, have been successfully applied to the slitting of video tape.

⁸Curvature

Curvature is measured in accordance with USAS C98.1-1963.

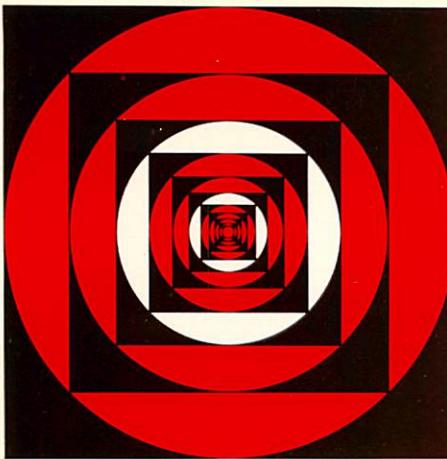
⁹Magnetic Properties

Coercive force and residual flux density are intrinsic values measured in the transverse direction using a 60 Hz magnetizing force of 1000 oersted amplitude.

¹⁰Stability and Strength

Coefficients of expansion are measured over ranges of 70° to 120°F and 20 to 90 percent RH. Ultimate and yield strengths are measured in accordance with ASTM D882-61T. Permanent elongation is measured in accordance with BuShips Specification WT-0070.

Facts and Figures on Head Wear and Tape Life



Many misleading claims have been made about the controversial subjects of head wear and tape life. And, to date, very little factual information has been published on these subjects. In this discussion we used data derived from the actual experience of Memorex. We will show how the head wear and tape life figures stated in this data sheet can be substantiated.

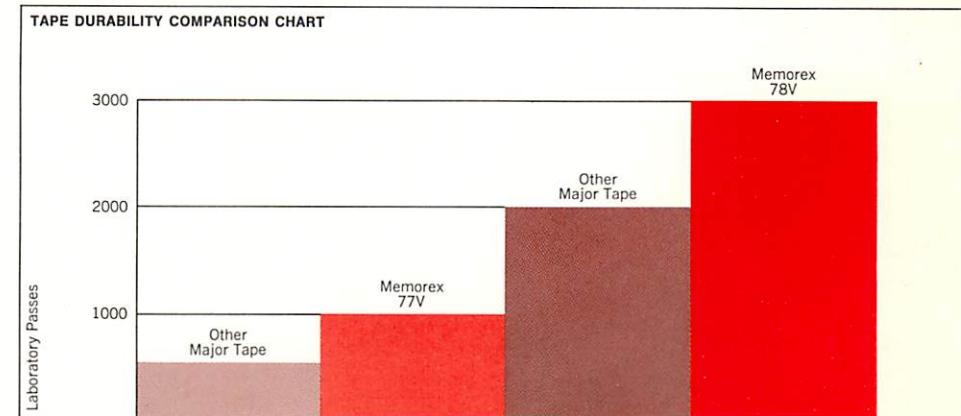
HEAD WEAR

In the manufacturing and quality control area at Memorex, our standard operating procedure requires the measurement of head-tip projection at the beginning of every work shift. And we maintain detailed records of all such measurements.

For example, we made a statistical analysis of measurements covering 556 work shifts. During this period, we accumulated about 3619 hours of machine-running time. A total of 2224 measurements were made and used in the analysis. The average of all these measurements indicated an average head-wear rate of 3.4 micro-inches per hour.

We performed the measurements with a constant head-tip engagement of 2 mils. The actual tip engagement for broadcast use is a function of tip projection. For example, a new video head would have a tip engagement of about 3 mils; a worn head, ready for refurbishing, would have an engagement of about 1 mil. Therefore, we believe that the Memorex 2 mil tip engagement represents an average condition.

On this basis, the figure of 5 micro-inches per hour as stated in this data sheet (see reverse side) is reasonable. However, at Memorex our equipment is located in an ideal environment, whereas the head-wear rates experienced in a broadcast station will vary



widely as the environment becomes less ideal. The presence of airborne contaminants, foreign matter on the tape, extreme humidity, adverse temperatures, splices, and machine condition will increase the rate of head wear. Therefore, to realize maximum head life, the broadcaster should keep his studio as clean, dust-free, and environmentally controlled as possible.

TAPE LIFE

We test the durability of the binder and oxide system of Memorex video tape by means of a shuttle test. This test is made with a normal broadcast quality recorder automatically programmed to shuttle a given length of tape. As the test progresses, each shuttle pass is counted. We consider the end of tape life to occur when the breakdown of the binder causes a 6 db loss of RF signal or when the dropout rate exceeds 30 per minute.

Our extensive laboratory testing indicates Memorex 77V tape is capable of 1000 passes. Under the same conditions, Memorex 78V has demonstrated a capability of 3000 passes before failure. A laboratory shuttle test performed by the tape manufacturer is significant. It provides a figure of merit that may be used in judging the relative durability of one tape to another from the standpoint of binder and surface wear. However, for a particular tape this is not a safe guide for estimating the actual tape life

expected in a broadcast studio environment.

The reasons for the large difference in tape life between program service and the shuttle test are mainly environment and handling. Most video tape eventually becomes unusable because of the damage caused by physical handling and contamination by the operator and transport.

For example, in our laboratory Memorex 77V is capable of 1000 passes. Over the past year, users have reported a wide variation in tape life. Some users have had repeated tape life in excess of 500 passes, while others have had many tape failures in less than 50 passes. This wide variation of more than 10 to 1 is attributable to differences in equipment, environment, and care given the tape.

The chart on this page compares the relative durability of Memorex 78V with the three video tapes in most common use today. Field testing indicates an increase in useful operational tape life can be achieved by the user as a result of the improved tape durability of 78V.

However, it is too early to say what the magnitude of the increase will be in regular use. Most likely it will be a 30 to 50 per cent increase. At Memorex, we will maintain close follow up on the actual experience of users, and will collect data which will be used to answer this question.

Why the new 78V offers superior performance on high-band recorders.

EXTREMELY LOW DROP-OUT INCIDENCE

When you buy 78V, you buy the cleanest tape available.

We exercise extreme care to make a low drop-out product. We employ exclusive techniques during manufacturing, testing, and shipping. All operations, from mix to packaging, are conducted under absolutely controlled, clean, and dust-free conditions.

To keep your tape low in drop-outs, we use a conductive coating that drains away static electricity that would otherwise build up and attract dust and debris.

DURABILITY FOR LONGER USE

78V continues to give you high per-

formance long after other tapes have failed. Because of its unique oxide binder, it will make pass after pass, without shedding—and with fewer drop-outs.

TOTAL SURFACE CONTROL FOR HIGH SIGNAL-TO-NOISE RATIO

A controlled surface makes possible intimate and uniform head-to-tape contact. We optimized the processing to eliminate the problem of head clogging—and thereby, reduce head wear. And we burnished 78V for you. You won't have to polish it before putting it on your recorder.

UNIFORM PERFORMANCE REEL AFTER REEL

Each reel of 78V has uniform electri-

cal and physical characteristics. To maintain this uniformity, we conduct 37 quality control tests on the tape through each step of the manufacturing process. We test the backing, oxide, binder, surface, uniformity, and dimensions. We check abrasivity, magnetic properties, and response. Tapes not meeting Memorex's exacting standards are destroyed.

When you pick up a new reel of 78V—any new reel—you know exactly how it will perform. Picture perfect.

AND IT'S COMPATIBLE WITH YOUR EQUIPMENT

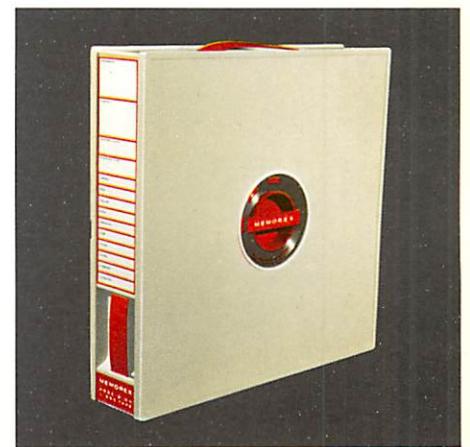
Its recording and reproduction characteristics for the video, audio, and control tracks are fully compatible with all existing equipment.

Memorex Precision Reels

Memorex 78V is wound on metal reels made to the highest industry standards for flatness, concentricity and dimensional stability. They are provided with a friction ring liner to facilitate threading and minimize pressure build-up caused by thermal effects.

A new case for a better tape

This new high-chroma video tape is available in a tough, sturdy new case designed for years of use in and out of the studio. It fits existing shelf space and is completely portable. Unbreakable vinyl straps on all four end panels make it easy to handle. It won't jam shut, or fall open. It locks securely so you can ship it, without further wrapping, anywhere in the world.



For a firsthand look at the new
78V high-chroma video tape,
contact your man from

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