

American National Standard for video recording— 1/2-in type H cassette— records

Approved August 15, 1983

Secretariat: Society of Motion Picture and Television Engineers

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1. Scope

This standard specifies the location of the edges of the video, audio, and tracking-control records and the mechanical separation of the simultaneously recorded information of the video and audio records, as recorded on 1/2-in Type H helical-scan video tape recording cassette systems.

2. Definitions

- 2.1** Transverse. Pertaining to dimensions perpendicular to the tape travel.
- 2.2** Longitudinal. Pertaining to dimensions parallel to the tape travel.
- 2.3** Downstream. Pertaining to locations on the tape longitudinally displaced from a given reference point in the direction of tape travel.
- 2.4** Upstream. Pertaining to locations on the tape longitudinally displaced from a given reference point in the direction opposite tape travel.
- 2.5** Trailing Edge of Video Track. The upstream end of the video track.
- 2.6** Reference Edge. The edge of the magnetic tape nearest the reference plane of the cassette.

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3. General Specifications

- 3.1** Measurement Conditions. The dimensions shall be measured with no transverse or longitudinal tension applied to the tape.
- 3.2** Measurement Environment. The temperature shall be $20 \pm 1^\circ\text{C}$ with a relative humidity of 50 ± 2 percent.
- 3.3** Magnetic Coating. With the direction of tape travel as shown in Fig. 1, the magnetic coating is on the surface facing the observer.
- 3.4** Tape Speed. The tape speed shall be $33.35 \text{ mm/s} \pm 0.5$ percent.
- 3.5** Video Writing Speed. The video writing speed shall be 5.80 m/s .
- 3.6** Video Head Drum Diameter. The video head drum diameter shall be $62.00 \pm 0.01 \text{ mm}$.

4. Dimensions

The transverse and longitudinal dimensions shall be as specified in Fig. 1 and Table 1.

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5. Audio and Control Head Position

The distance (X) on the tape pattern from the end of the 180° scan of a video head to the audio and control head position is 79.244 mm , as shown in Fig. 1.

8. Tape Back-Tension

The tape back-tension for the record and playback mode, measured with a spring scale for a full supply reel, shall be normally from 0.30 to 0.45 N at the entrance of the drum when the tape is pulled at the specified speed.

9. Relationship of Video Track and Video Signal Field

The track that should be used for the first field of the recorded video signal is not specified, but recorders that distinguish each field shall record the first field on video 1 track (as defined by Fig. 1).

7. Video Head Switching

The switching position between the two heads during playback shall lie between 5 and 8 hori-

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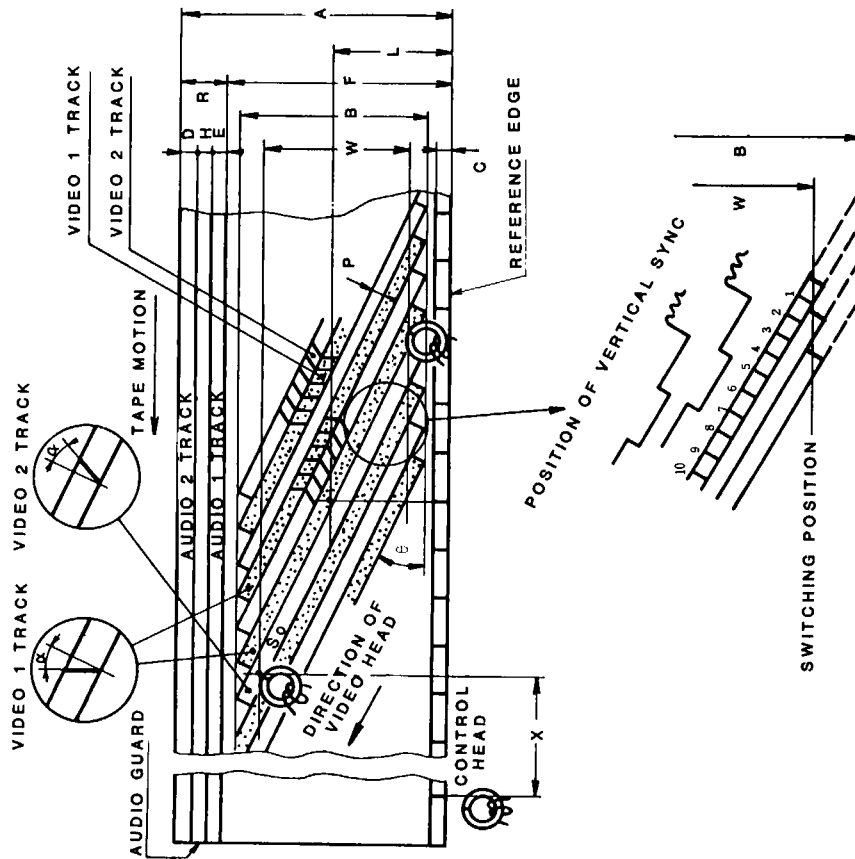


Fig. 1
Track Configuration from Magneto-Sensitive Side

Table 1
Recorded Magnetic Tape Records

Dimensions	Millimeters
A Tape width	12.65 ± 0.01
B Video recording area width	10.60 nom
C Control track width	0.75 nom
D Audio 2 track width (stereophonic)	0.35 nom
E Audio 1 track width (stereophonic)	0.35 nom
F Audio track reference	11.65 nom
G Audio-to-audio track guard band	0.3 nom
H Video track center from reference edge	6.2 nom
I Video track pitch	0.058 nom
J Audio track width (monophonic)	1.0 nom
K Video recording effective area	10.07 nom
L Audio and control head position	79.244 nom
M Video head azimuth angle	+6°, -6°
N Video track angle	5° 58' 9"
θ ₀ Video track angle (tape stopped)	5° 56' 7.4"

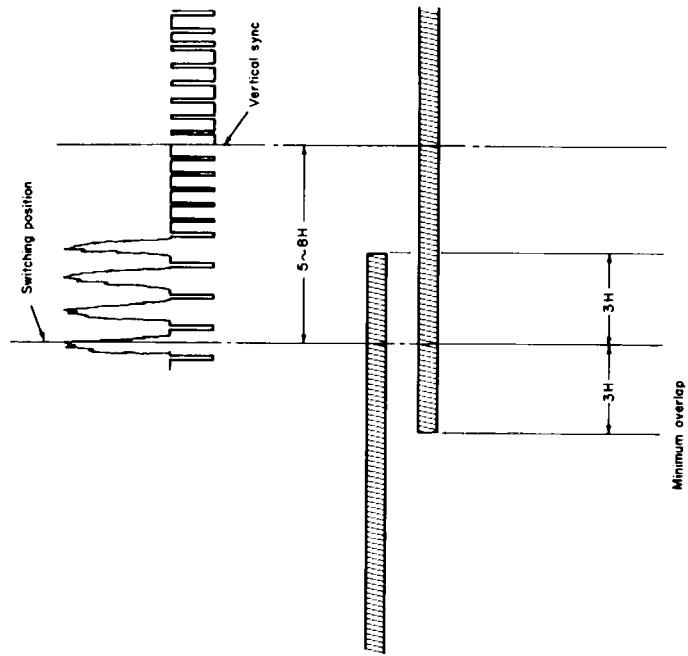


Fig. 2
Switching Position and Overlap of Two Video Heads

American National Standard for video recording— 1/2-in type H cassette— tape and cassette

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1. Scope

This standard specifies the dimensions of the video tape and video cassette for use with a 1/2-in Type H helical-scan video tape recording cassette system. It also includes specifications for the leader and trailer tapes.

2. Video Tape

2.1 Longitudinal dimensions of the video tape shall be as follows:

Name	Longitude	Playing Time	Reel Hub Diameter
T-120	More than 247 m	120 min	26 mm
T-90	More than 187 m	90 min	26 mm
T-60	More than 127 m	60 min	62 mm
T-30	More than 64 m	30 min	62 (or 70) mm

2.2 The average tape width shall be 12.65 ± 0.01 mm. Width fluctuation shall not exceed 6 μ m.

2.3 The tape thickness shall be $20 \pm 1 - 2$ μ m.

3. Leader and Trailer Tape

3.1 The length of the leader and trailer tape shall be as follows:

T-120 and T-90	170 ± 20 mm
T-60 and T-30	150 ± 20 mm

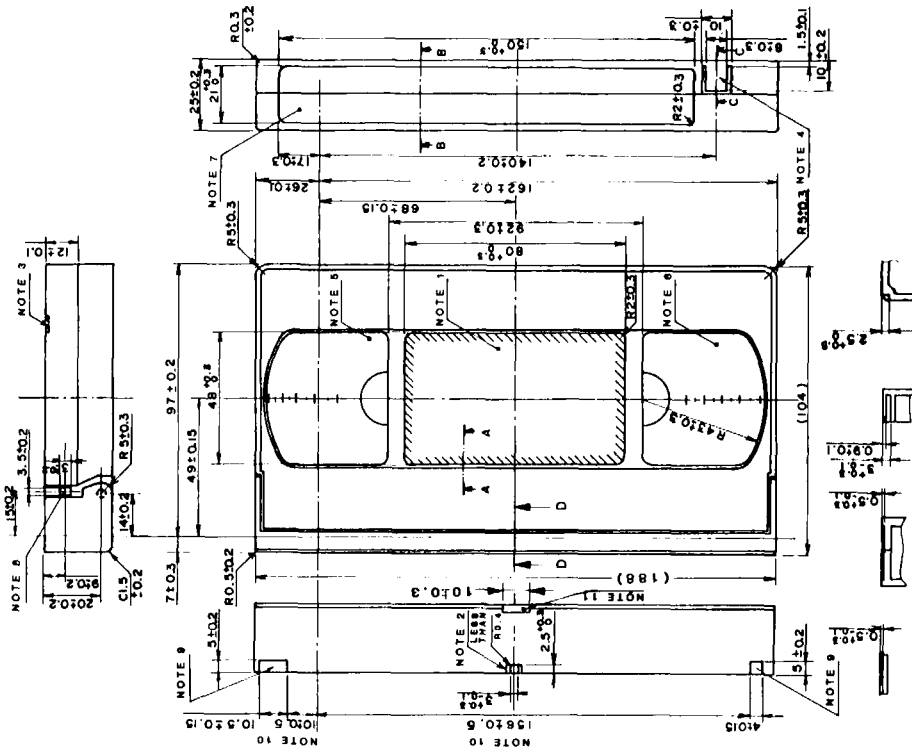
3.2 The thickness shall be $40 \pm 5 - 25$ μ m.

3.3 The material shall be polyester film or its equivalent with a light transparency greater than 50 percent.

3.4 The splicing gap shall be less than 70 μ m. The joint between the leader and the tape and that between the leader and the reel shall be able to withstand a pulling force of at least 30 N.

4. Video Cassette

Dimensions for the video cassette and tape winding shall be as specified in the figures.



SECTION A-A SECTION B-B SECTION C-C SECTION D-D

Fig. 1
Top and Side View of Video Cassette

Notes:

1. Top label area.
2. Guide groove A to prevent improper insertion.
3. Guide groove B to prevent improper insertion.
4. Break-out lug to prevent accidental erasure.
5. Window for take-up reel.
6. Window for supply reel.
7. Side label area.
8. Unlocking pin for the front cover. The unlocking force is less than 0.10 N.
9. Groove for positioning of cassette.
10. Allowances include slight play of the front cover.
11. Optional recess to prevent improper insertion.

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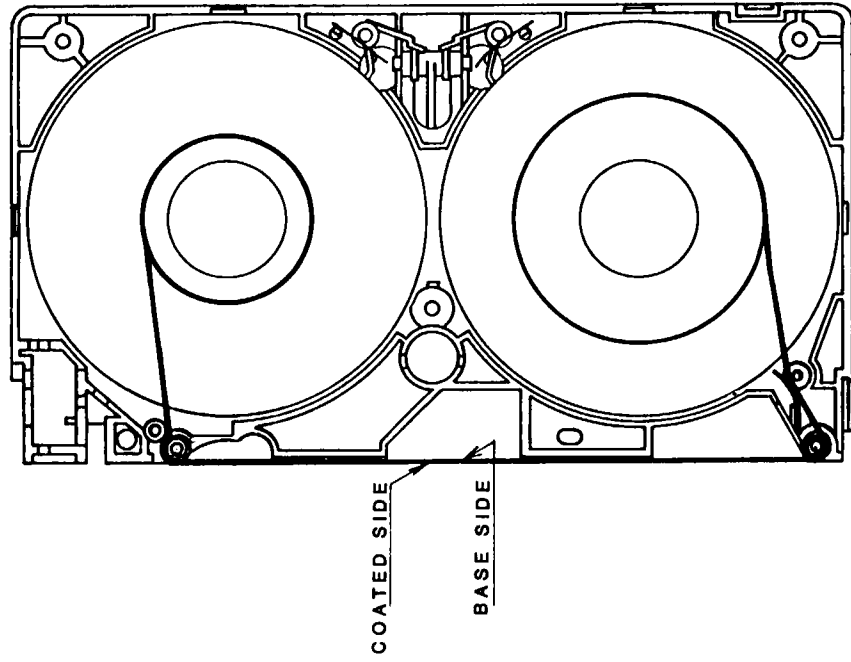


Fig. 6
Tape Winding

Note: The leader and trailer tapes shall not become unfixed from the reel hubs under tension less than 30 N.

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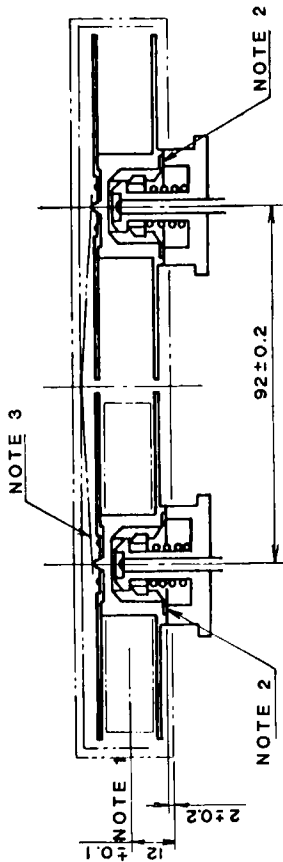


Fig. 4
Relationship between Reels and Spindles

The cassette shall operate smoothly at a height of $2.0 \pm 0.8 - 0.5$ mm.
Notes:
1. Center of tape.
2. Height of the reel base from the cassette datum plane.
3. Reel spring.

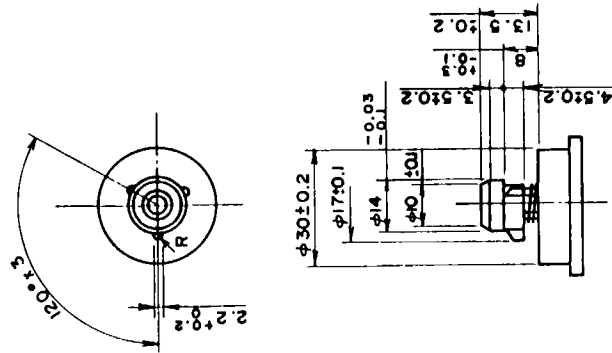


Fig. 5
Reel Spindle

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