ANSI/SMPTE 35M-1997
Revision of
ANSI/SMPTE 35M-1991

SMPTE STANDARD

for Television Analog Recording — 1/2-in Type G — Cassette and Tape

1 Scope

This standard specifies the dimensions of a video cassette and a video magnetic tape intended for use with 1/2-in type G video systems operating at tape speeds of 40, 20, and/or 13.3 mm/s (1.57, 0.79, and/or 0.52 in/s).

2 Video tape

2.1 The width of the video tape shall be 12.65 mm ± 0.02 mm (0.498 in ± 0.001 in).

2.2 The maximum allowable thickness of the magnetic tape, including the coating, shall be 25 µm. The distance between the edge of the reel flange and the outer edge of a full reel pack shall be more than 0.5 mm (0.02 in).

3 Leader and trailer tape

3.1 The leader and trailer tape of the width and thickness specified in 3.2 and 3.3 shall contain a metal foil that provides conductivity per centimeter of more than 200 S to ensure that automatic stopping devices function properly at both ends of the magnetic tape.

3.2 The width of the leader and trailer tape shall be 12.65 mm ± 0.03 mm (0.498 in ± 0.001 in).

3.3 The maximum allowable thickness of the leader and trailer tape shall be 45 µm.

3.4 The length of the leader and trailer tape shall be 250 mm ± 60 mm (9.84 in ± 2.36 in) and 70 mm +10 mm –20 mm (2.76 in + 0.39 in -- 0.79 in), respectively (see figure 1).

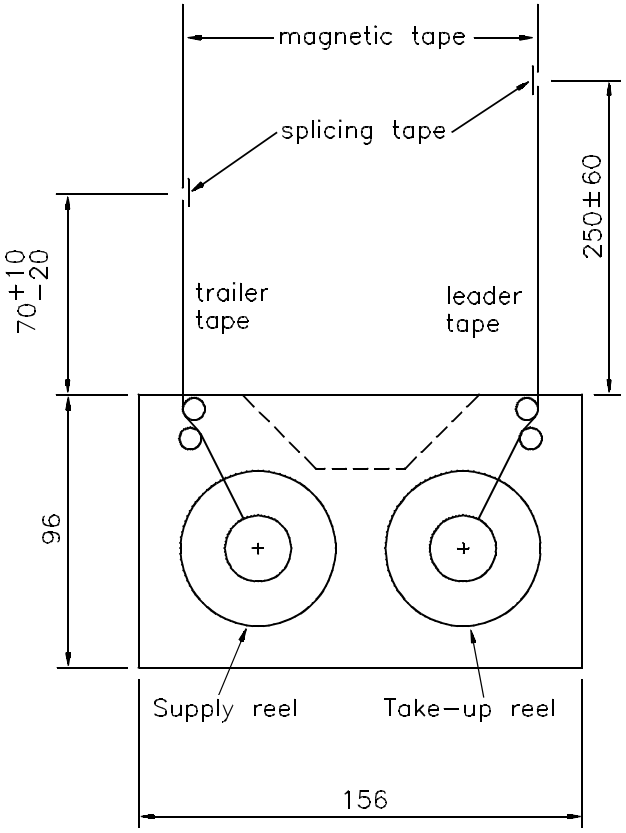

Figure 1 – Leader and trailer

3.5 The spliced section shall withstand a tension of 15 N.

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American National Standard

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4 Datum planes

4.1 Datum plane Z shall be defined by three datum spots, A, B, and C, as shown in figure 4.

4.2 Datum plane X shall be orthogonal to datum plane Z and shall include the centers of datum hole (a) and datum hole (b), as shown in figure 3.

4.3 Datum plane Y shall be orthogonal to both datum plane X and datum plane Z and shall include the center of datum hole (a), as shown in figure 3.

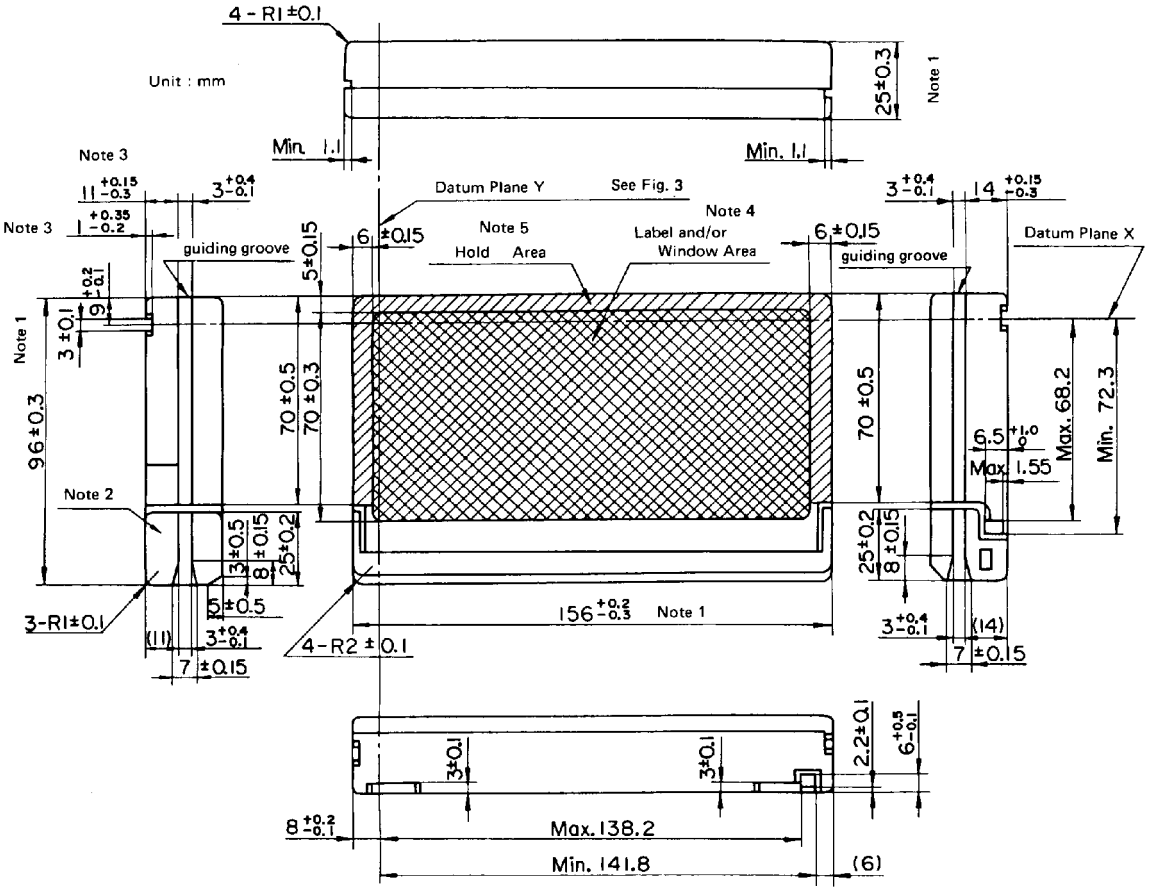
5 Dimensions

5.1 The dimensions necessary for the interface of equipment shall be as specified in the figures.

5.2 Metric dimensions are primary.

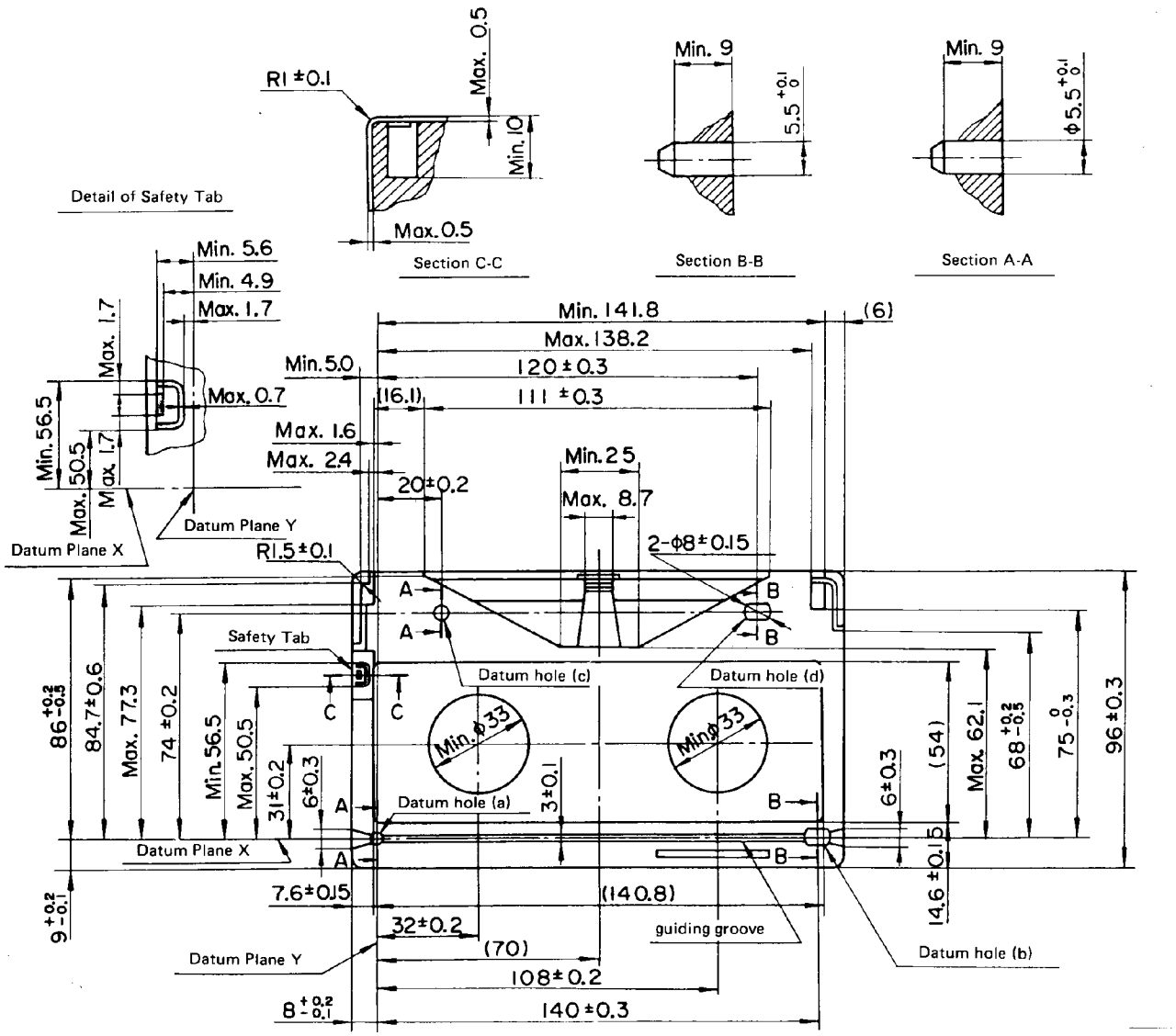
6 Measurement environment

The temperature shall be 20°C ± 2°C (68°F ± 4°F) with a relative humidity of (50 ± 2)%.



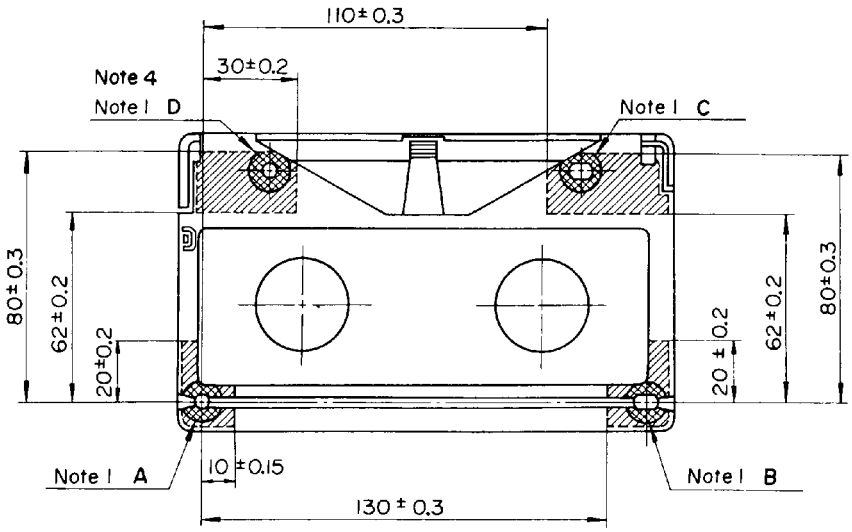
NOTES
1 The dimensions are verified by using limit gauges.
2 No part of the lid shall protrude beyond the bottom plane of the cassette during opening and closing of the lid.
3 This dimension shall be measured from datum plane Z.
4 Label and/or window area is available for label and/or window.
5 The cassette may be held in position by the recorder and/or player unit on this holding area.

Figure 2 -- Top and side view of video cassette



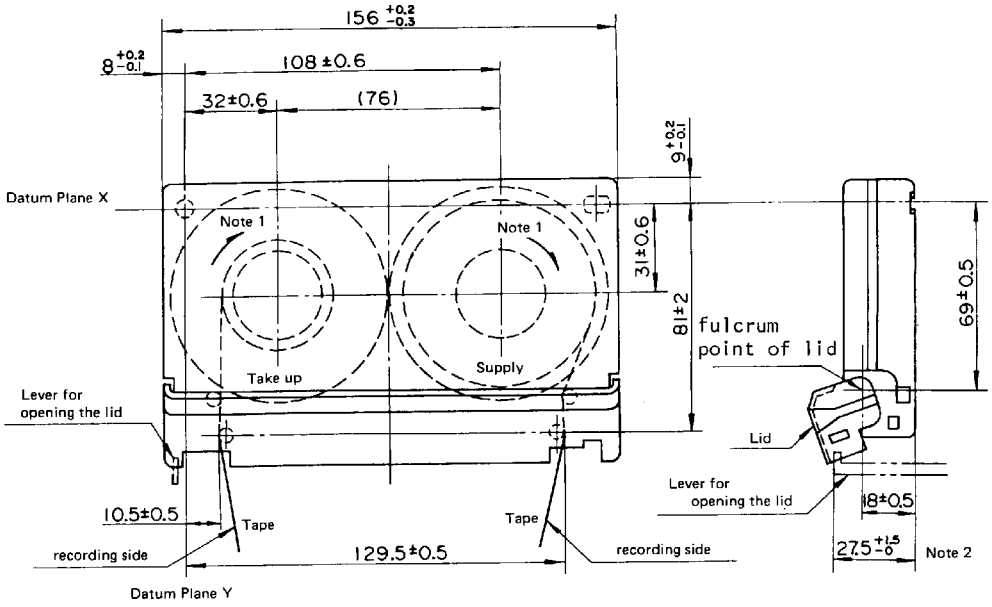
NOTE – Datum hole (a) is primary.

Figure 3 -- Bottom view of video cassette



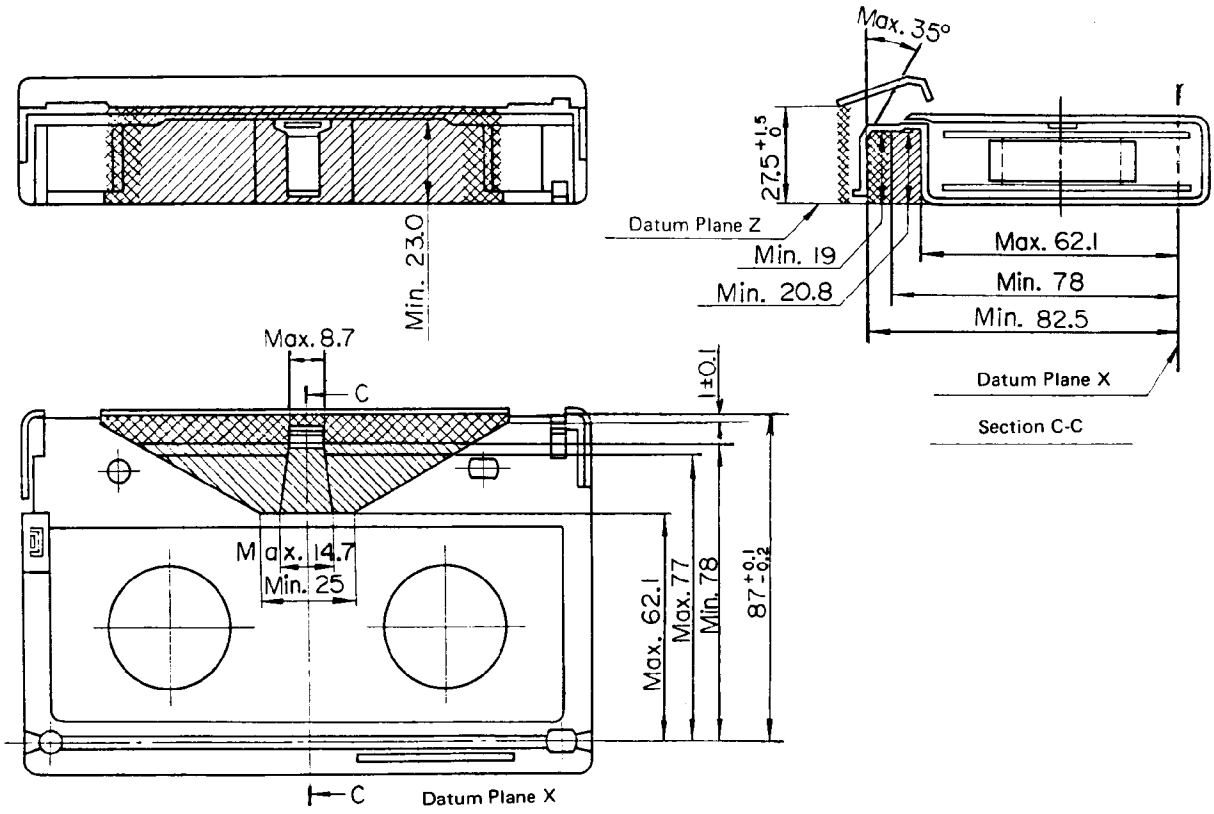
NOTES
1 The crosshatched areas 10 mm (0.39 in) in diameter are datum spots.
2 The four hatched areas, which are supporting areas, shall be coplanar within 0.05 mm (0.002 in) of each datum spot.
3 Datum plane Z shall be determined by datum spots A, B, and C.
4 Datum spot D shall be coplanar within 0.30 mm (0.012 in) of datum plane Z.
5 The areas within 1 mm (0.04 in) from the edge of the cassette shall be removed from the supporting areas.

Figure 4 -- Datum spots and supporting areas



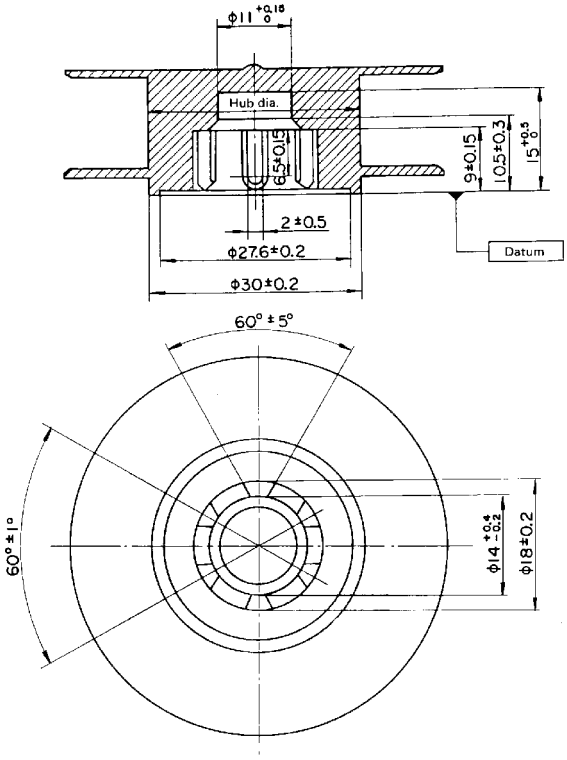
NOTES
1 Rotating direction during forward operation.
2 The opening range of the lid in the recorder/player is 27.5 mm + 1.5 mm – 0 mm (1.08 in + 0.06 in – 0 in).
3 The reels shall be locked to avoid loosening of the tape during storage or transportation.

Figure 5 -- Location of reels in recorder/player



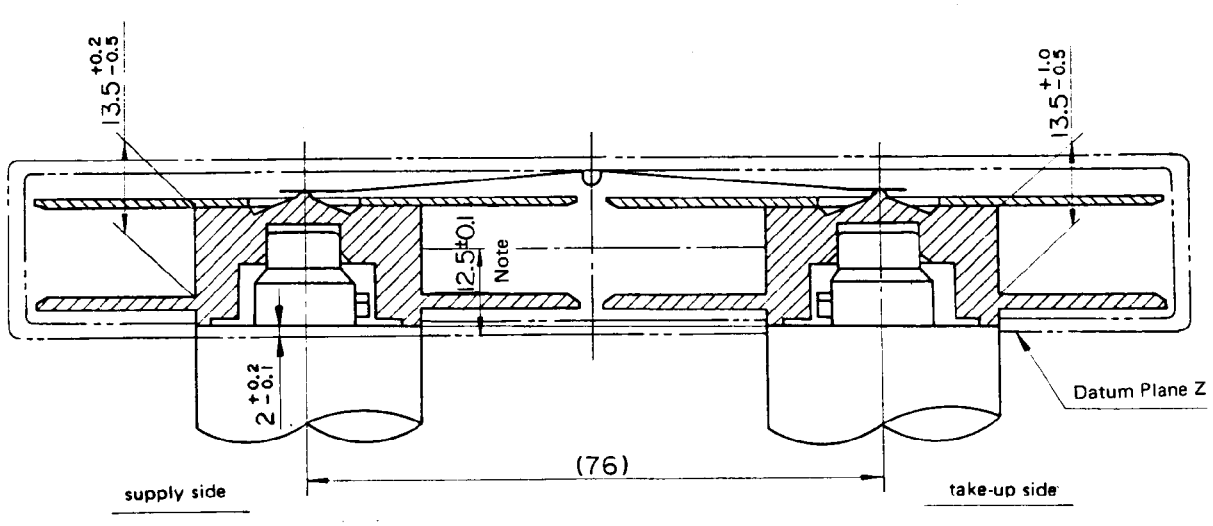
NOTES
1 The hatched area is for the loading mechanism of the unit before opening the lid.
2 The hatched and crosshatched areas are for the loading mechanism of the unit after opening the lid.

Figure 6 -- Casette protecting lid



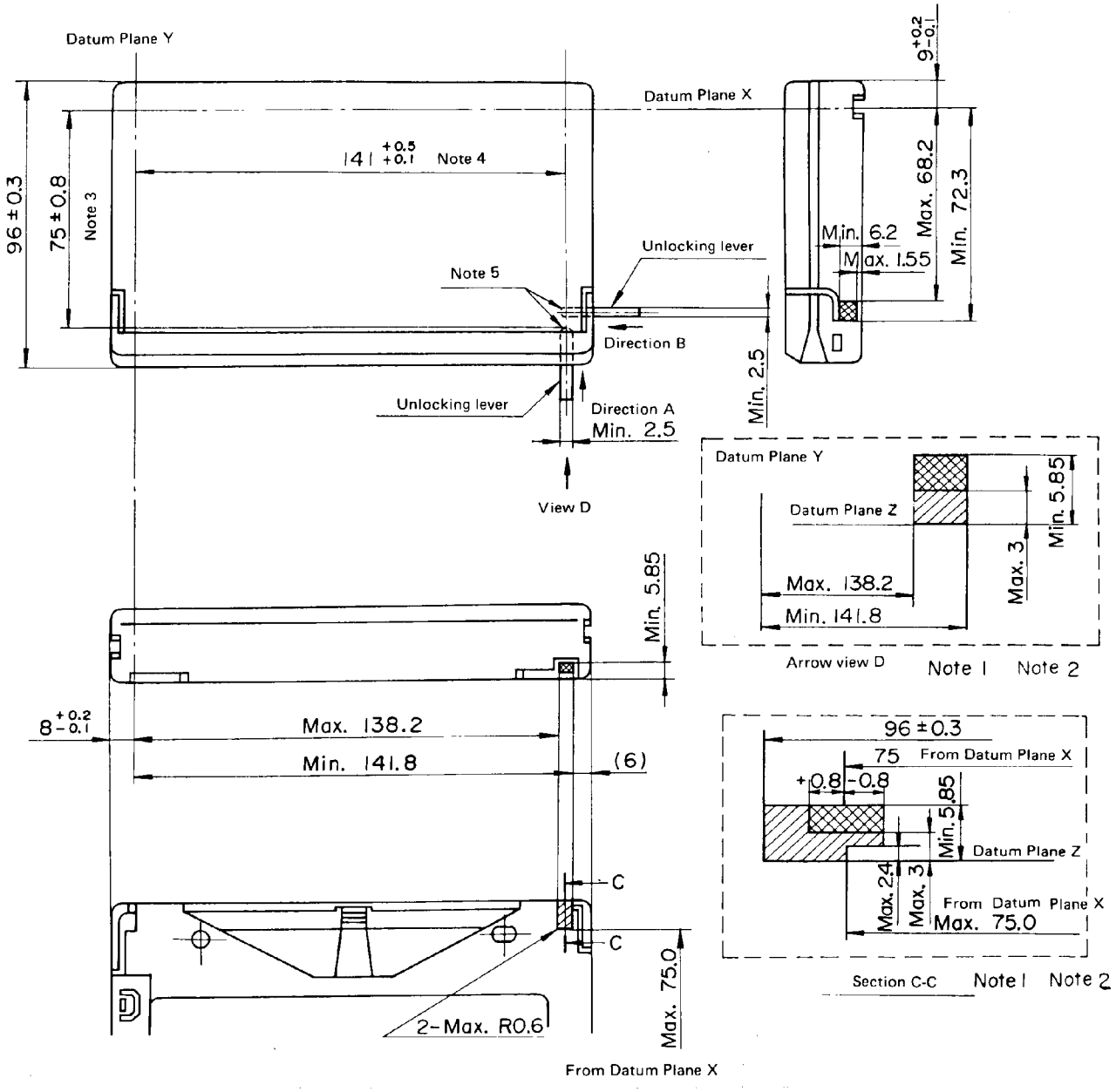
Recording Time*	Hub diameter of reels
≤ 60 minutes	Φ 52 ± 0.5
> 60 minutes	Φ 30 ± 0.5
*Recording time is specified for a tape speed of 20 mm/s.	

Figure 7 -- Cassette reel



NOTE -- Center of tape on reels when cassette is inserted in recorder/player.

Figure 8 -- Relationship between reels and reel spindles



NOTES

1 The operating ranges, which are the crosshatched areas, show the limits within which the lid must be unlocked when an unlocking lever of 2.5 mm (0.10 in) minimim width is inserted.
2 The allowable ranges, which are the hatched and crosshatched areas, show the limits within which an unlocking lever can be inserted.
3 Allowable range in direction A.
4 Allowable range in direction B.
5 The tip of the unlocking lever shall be shaped into a semicircle or hemisphere, the radius of which is one-half the unlocking lever width.

Figure 9 -- Allowable and operating ranges for unlocking cassette lid lever

CASSETTE TEST CONDITIONS

MAXIMUM FORCE TO OPEN LID SHALL BE 1.5 N

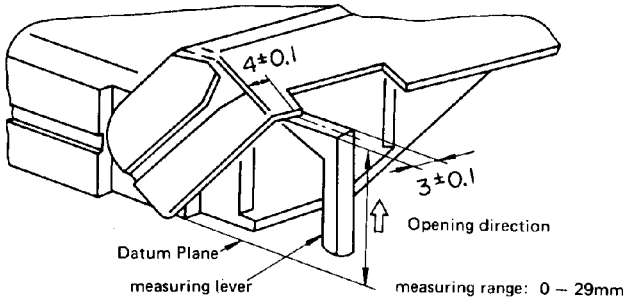
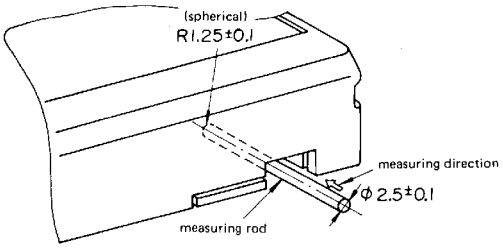
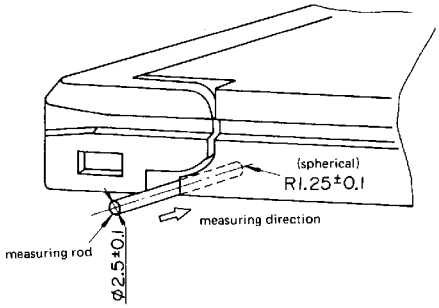


Figure 10 – Force to open lid

DIRECTION A

FORCE TO UNLOCK LID SHALL NOT BE GREATER THAN 1.0 N IN DIRECTION A





DIRECTION B

FORCE TO UNLOCK LID SHALL NOT BE GREATER THAN 1.5 N IN DIRECTION B

Figure 11 – Force to unlock lid

SPRING FORCE FOR PUSHING DOWN REEL SHALL BE 1.5 N ± 0.5 N

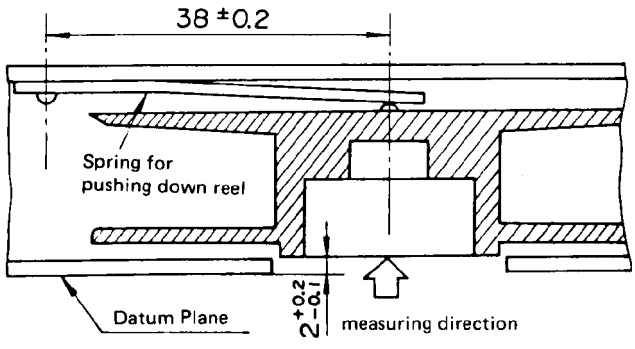


Figure 12 – Spring to hold reel