

SMPTE RECOMMENDED PRACTICE

RP 36-1999

Revision of RP 36-1994

Positioning the Headwheel and Adjacent Tape Guides for 2-in Quadruplex Video Magnetic Tape Recorders



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1 Scope

This practice establishes the relative locations of critical elements in the path of the tape between the input and output guides for 2-in (51-mm) quadruplex video magnetic tape recorders operating at 15 in/s and 7.5 in/s (381 mm/s and 190.5 mm/s).

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this practice. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this practice are encouraged to investigate the possibility of applying the most recent edition of the standards indicated below.

SMPTE RP 11-1994 (R1999), Tape Vacuum Guide Configuration and Position for Quadruplex Video Magnetic Tape Recording

SMPTE RP 16-1993 (R1997), Specifications of Tracking-Control Record for 2-in Quadruplex Video Magnetic Tape Recordings

3 Definitions

3.1 pole tip plane: The plane of rotation of the pole tip which records vertical sync. This plane is perpendicular to the tape neutral plane and the reference plane.

3.2 reference line: A line which is tangent to both the input guide and the output guide and is perpendicular to the tape neutral plane defined in 3.5.

3.3 reference plane: A plane which passes through the reference line and is perpendicular to the tape neutral plane.

3.4 tape input guide: The last guiding element encountered by the tape as it approaches the vacuum guide.

3.5 tape neutral plane: A plane which is defined to be tangent to both the input guide and the output guide and also contains the reference guide.

3.6 tape output guide: The first guiding element encountered by the tape after it leaves the vacuum guide.

4 Dimensions

4.1 Primary references

The tape neutral plane, the reference plane, and the pole tip plane shall be the primary references for positioning the elements described in this practice (see figure 1).

4.2 Position of tape output guide

The tape output guide shall be at a distance of 7.50 in ± 0.25 in (190.5 mm ± 6.4 mm) from the pole tip plane (see dimension B in figure 2). The guide may be on either side of the neutral plane.

4.3 Position of tape input guide

The tape input guide shall be at a distance of 7.50 in ± 0.35 in (190.5 mm ± 8.9 mm) from the pole tip plane and shall be located symmetrically with respect to the

pole tip plane and tape output guide with a tolerance of 0.3 in (8 mm). (See dimension A in figure 2.) The guide may be on either side of the neutral plane.

4.4 Position of tape

When undeflected by the vacuum guide, the tape shall lie in the tape neutral plane with its reference edge coincident with the reference line, and the magnetic surface facing the axis of rotation of the pole tips.

4.5 Position of axis of rotation of pole tips

The axis of rotation of the pole tips shall be parallel to the tape neutral plane and 0.905 in \pm 0.020 in (22.99 mm \pm 0.51 mm) from it (see dimension C in figure 2). It shall also be parallel to the reference plane and 1.004 in \pm 0.003 in (25.50 mm \pm 0.08 mm) from it.

4.6 Position of vacuum guide

The vacuum guide shall be positioned so that the centerline of the tape when deflected by the vacuum

guide is parallel to the reference plane and 1.004 in \pm 0.003 in (25.50 mm \pm 0.08 mm) from it.

4.7 Relationship among pole tip plane, axis of rotation and vacuum guide

The relationship shall be as specified in SMPTE RP 11 and SMPTE RP 16.

4.8 Tape deformation by control track head

Deformation of the tape by a control track head shall be limited to 0.020 in (0.51 mm) maximum, in a direction radial from the axis of rotation of the pole tips, at a location between the pole tip plane and the tape output guide, and at a distance 0.700 in \pm 0.100 in (17.78 mm \pm 2.54 mm) from the pole tip plane and no more than 0.060 in (1.52 mm) from the reference edge of the tape.

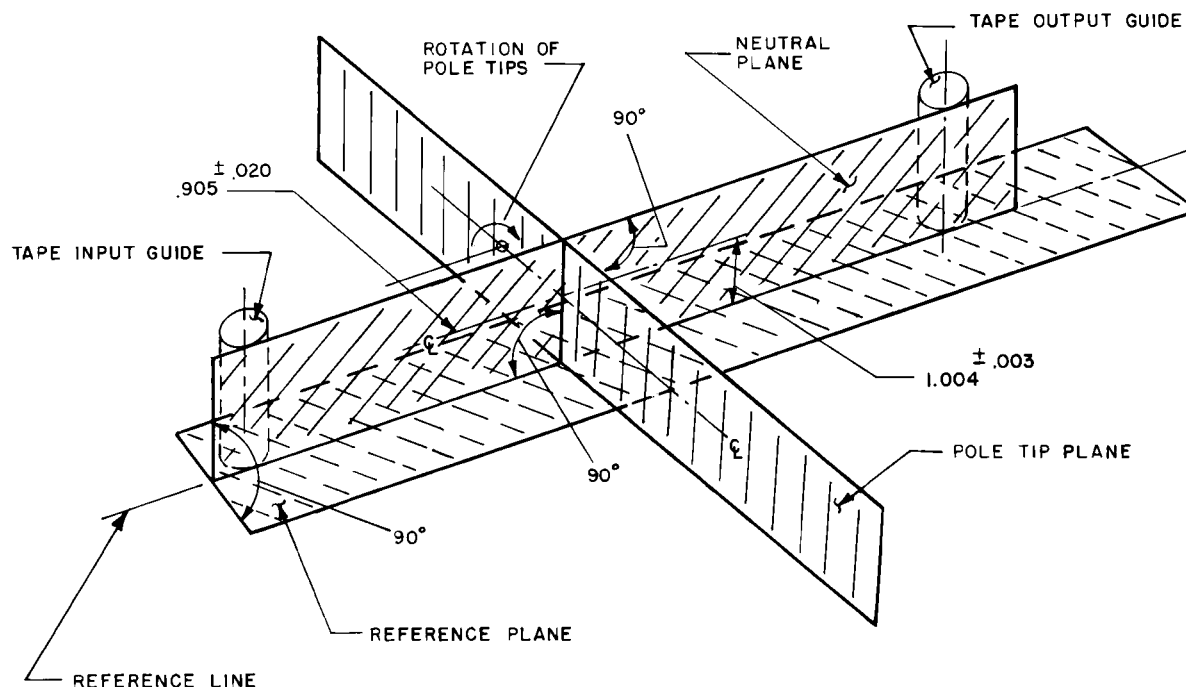


Figure 1 – Relationship among tape neutral plane, reference plane, and pole tip plane

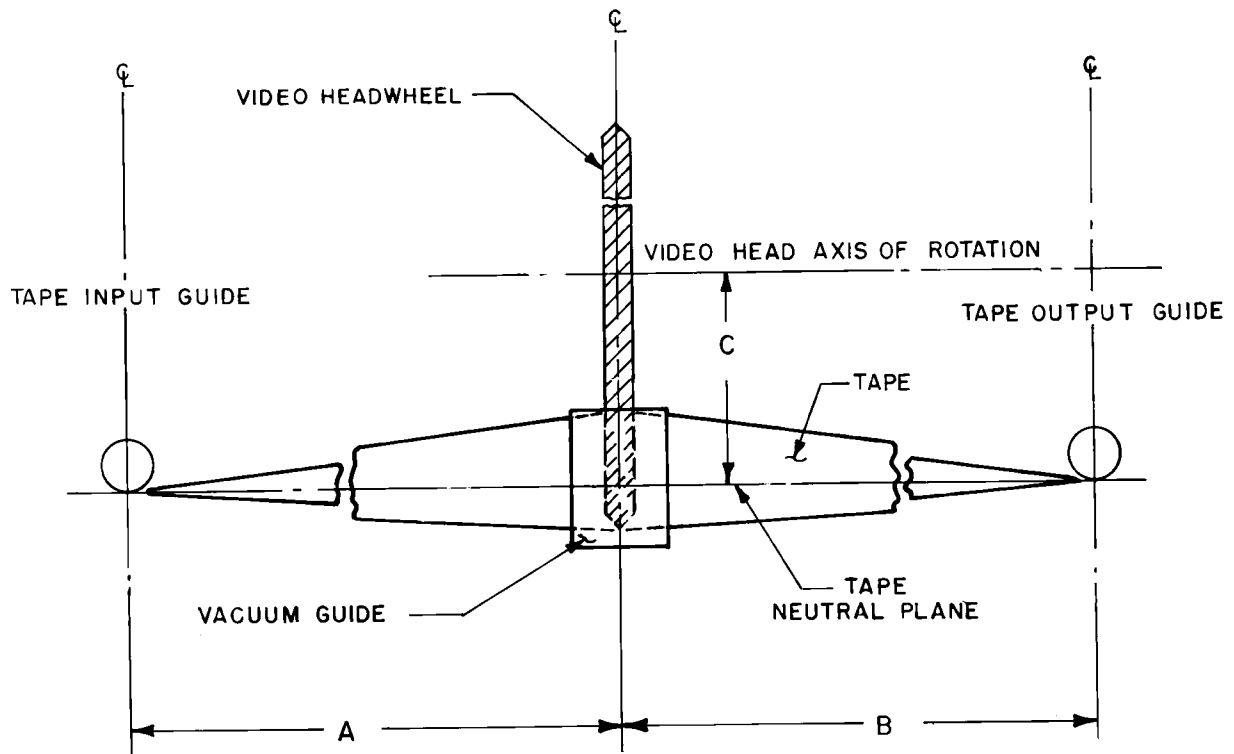


Figure 2 – Position of tape guides and headwheel assembly