the turnaround idler adjacent to the VPR-1 supply reel.

Because of the high wrap angle (153° average), a rotating idler was dictated. However, we have discussed the effects of rotating idlers, which can induce speed perturbations due to eccentricity or bearing vibration. In this application, ultra-precision ball bearings (AFBMA—Anti-Friction Bearing Manufacturers Assn.—Class 7) were tried in a ¾-in-diameter idler without success.

The final design, shown in Fig. 10, resulted in a very small diameter shaft running in precision bronze bushings sized to ±0.0001-in (2.54-μm) bore tolerance. The diameter of the idler was made as large as possible to reduce the once-around frequency, and the final turning is done "on the shaft" to minimize eccentricity; maximum total-indicated runout (TIR) equals 0.0004 in (10.2 μm). With this design, flutter was reduced by a 3:1 factor over the ball-bearing idler.

Conclusion

The underlying aim of this paper is to acquaint the reader with the degree of precision and sophistication required in tape handling on helical-scan VTRs, above and beyond the obvious problems of tape-to-drum interface and helical alignment. Careful attention to the details illustrated here have helped to improve the reliability of these formats, increasing their popularity among today's demanding videotape users.

Standards & Recommended Practices

Approved American National Standards

On 17 July 1978, the American National Standards Institute approved two standards that are revisions of existing documents: PH22.56-1978, Nomenclature for Motion-Picture Film Used in Studios and Processing Laboratories (revision of PH22.56-1971); and PH22.182-1978, Dimensions for Photographic Sound Record on 8-mm Type S (Super 8) Motion-Picture Prints (revision of PH22.182-1972).

Inasmuch as compliance with American National Standards is purely voluntary, the standards will become truly effective when broad publicity is given to their existence. ANSI and SMPTE would appreciate any personal influence to promote the use of these standards where such action is appropriate.

Copies of the standards may be obtained for a nominal fee from the American National Standards Institute, 1430 Broadway, New York, NY 10018. — *Alex E. Alden, Manager of Engineering Services.*

Ad Hoc Group to Study Lighting Equipment Accessories

The Society, working with the cooperation of the Professional Motion Picture Equipment Association (PMPEA), is forming an ad hoc study group under the SMPTE Standards Committee to review the potential need for standardization of motion-picture and television lighting equipment accessories.

The scope of the committee will be to examine the compatibility of lighting fixtures with respect to mounting hardware as lighting diffusion densities and diameters.

Interested parties are invited to attend the organizational meeting which will be held during the 120th SMPTE Conference on Thursday, 2 November 1978, 4:00 p.m., at the Americana Hotel, New York City, in the Loire Meeting Rooms Four and Five.

Inquiries should be directed to the Committee for Studio Lighting Accessory Standardization, c/o Ed Phillips, Matthews Studio Equipment, 2405 Empire Avenue, Burbank, California 91504.

E.B.U. Definition of Field One in the Eight-Field Sequence of the PAL Signal

This statement was drawn up by E.B.U. Sub-group G2 (Television Tape-Recording) and approved by the E.B.U. Technical Committee in April 1978.

A complete repetition period of the synchronising signals of the PAL video signal consists of a sequence of eight fields. At the moment only a four-field sequence is defined.

E.B.U. Sub-group G2 is studying the problems of this eight-field repetition structure for video tape-recording and editing with an objective of formulating a complete set of proposals covering all the related aspects of this problem. A tutorial article will appear shortly in the *E.B.U. Review.*

In the meantime, for the sake of clear communication, the successive fields of one repetition period of a PAL video signal shall be numbered by adopting the following definition of field one of the eight successive fields:

At the half-amplitude point of the leading edge of the line synchronising pulse of line 1 of field 1, the phase of the extrapolated E'_u component* of the video burst may accept the following values:

$$-90° < \phi_{E'_u} \leq 90°$$

* *Note:* The E'_u component of the video burst is defined in C.C.I.R. Report No. 624 (XIIIth Plenary Assembly, Geneva, 1974, Vol. XI, p. 41, Fig. 4).