Errata

There is given below information to correct or supply data regrettably not properly given in the original *Journal* publication.

DECEMBER, 1966

On p. 1226, in the 100th Conference story, in the figure title,

For: "King Vidor, with Robert Webb, who accepts Milestone Award for his father, the late Colonel Henry Levinson."

Read: "King Vidor, with Robert Wells, who accepts Milestone Award for his father, the late Colonel Nathan Levinson."

MARCH, 1967

On p. 286, in the Education, Industry News,

For: ". . . the University of California's Division of Cinema."

Read: ". . . the University of Southern California's Division of Cinema."

MAY, 1967

On p. 467, paper by Alex E. Alden,

For: ". . . from two articles translated by Rodger J. Ross. . ."

Read: ". . . from two articles translated by Helmut Berger. . ."

JULY, 1967

On p. 629, paper by J. H. Altman, Fig. 2 title,

For: ". . . Kodak Royal-X Pan Recording Film (B) and Recordak Micro-File AHU Film (A)."

Read: ". . . Kodak Royal-X Pan Recording Film (A) and Recordak Micro-File AHU Film (B)."

Monochrome Test Patterns for Television

By K. BLAIR BENSON

THE ALIGNMENT OF television cameras requires, in addition to electrical test signals, optical test patterns to permit evaluation of the overall system performance and to facilitate adjustment of the optical and electron-optical components. Test patterns have been available from a variety of sources in a variety of forms. The most widely used have been those supplied by the Electronics Industries Association; however, they are available from EIA only as 18 by 24-in. opaques and thus have not fulfilled the need for transparencies for rear-illuminated light boxes used with live cameras, or for telecine projection equipment. In addition, recent refinements in equipment design and measurement techniques have created a need for new and different types of test patterns manufactured to more stringent tolerances.

Therefore, SMPTE Subcommittee No. TV14.12 of the Television Committee was formed to develop transparencies for use with live and film cameras dictated by present-day industry requirements, and to set standards for their manufacture. The initial work of the Subcommittee prompted two decisions as to the number and type of test transparencies: (a) In order to minimize problems in manufacturing the transparencies and to simplify interpretation of the monitor display, it would be advisable in some cases not to combine several patterns on a simple transparency. (b) It would be desirable to separate the patterns into two categories, viz., one for day-to-day operational setup, and the other for maintenance or laboratory measurements.

Accordingly, the first of the new transparencies is now released. The specifications for the various additional patterns will be published as SMPTE Recommended Practices as they are completed by the Subcommittee.

Operational Alignment Test Pattern

The pattern is shown in Fig. 1 and a waveform monitor display at horizontal scanning rate is displayed in Fig. 2. Note that a gray scale has not been included because omitting it eases manufacture of the transparency as well as minimizes clutter in the waveform display. A separate gray-scale test pattern will be available. The spatial positions of various test patches have been determined in a manner which facilitates obtaining resolution response and white level uniformity by observing a standard waveform monitor. A waveform monitor with a line selector facility is not required. The background density has been set at a level which minimizes interference with checks or adjustments to be made.

The transparency can be used for evaluation and/or adjustment of the following eight parameters:

(1) Focus

Spatial frequency bursts are located in the center of the pattern, as well as in the four corners, to allow optimization of optical and electrical focus. In addition, horizontal and vertical wedge patterns can also be used to assist in maximizing optical and electrical focus.

(2) Scanning Size

Eight boundary arrows are located within the test pattern with their tips defining the perimeter of the pattern. To further ease scanning size adjustment, a 45° barber pole pattern occupies the area outside of the test pattern. In the slide format this pattern is mounted in a precision holder with the pattern accurately located with respect to the edges of this holder. Therefore, when this slide is mounted in a projector gate that is accurately made, it can be used to check orientation and size of the scanning system.

(3) Scanning Linearity

For this evaluation to be valid one must be assured that the linearity of the picture monitoring device is known. Diagonal lines and five circles are provided to allow a coarse evaluation of the system linearity.

(4) Field Uniformity

Eight white bars are strategically placed within the test pattern to provide a means of evaluating the white level uniformity. It will be noted that the upper and lower corner bars have been displaced horizontally to allow interpretation on a waveform monitor which does not incorporate a line selector. White level uniformity of the system can be ascertained by observing the relative amplitude of the corner white reference bars relative to the centrally located bars. Nonuniformity indicates that "shading" or alignment (optical or electrical) adjustments may be required to minimize the problem. Black level uniformity can be determined directly from a horizontal and vertical display of the background.

A report of the Subcommittee of the SMPTE Television Engineering Committee, submitted on October 17, 1967, by K. Blair Benson, Chairman of the SMPTE Subcommittee, Columbia Broadcasting System, 51 West 52 St., New York, N.Y. 10019.