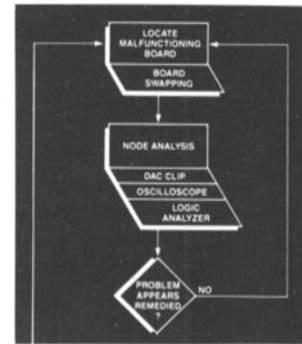
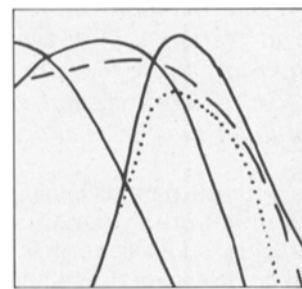


Highlights

806 **Diagnostics for High-Speed Video Circuitry: Application to a Digital Videotape Recorder** • *W. S. Herz* • It is generally accepted that complex digital equipment should include some form of diagnostics to assist in the location of fault conditions. Signature analysis techniques, when integrated into the hardware and software of a digital videotape recorder (DVTR) can efficiently test and greatly facilitate troubleshooting digital circuitry with minimal circuit overhead. In addition, other techniques may be incorporated to improve the testability and reliability of the system, such as the inclusion of special test signals in the video and audio paths. The most effective systems are those that are completely self-contained and do not require the use of any external equipment. The above-mentioned diagnostic techniques have been successfully integrated in a composite DVTR.



817 **The CCD Camera for Field Production Applications** • *P. J. Wonfor and J. P. Lacoste* • Now that the broadcast-quality charge-coupled device (CCD) television camera is here, it is time to reevaluate the potential applications for cameras incorporating this new technology. This article considers the viability of the CCD camera for field production applications as well as ENG, in which it has already established itself as the favorite. The arguments are basically the same for full-size field production cameras and high-quality lightweight units; however, this article concentrates on the extent to which the CCD camera, compared with traditional tube models, meets the requirements for a lightweight field production camera.



824 **Optimizing the Encoding Process to Overcome the Major Defects of NTSC Color Pictures** • *J. P. Rossi* • Significant picture-quality improvements to the present NTSC color system can be achieved by optimizing the color-encoding process. This article describes a new technique of enhancing high-frequency color details to compensate for the bandwidth limitations of the color-difference signals and the violation of the constant-luminance principle. Means to reduce interline flicker and cross-luminance, cross-chrominance defects are also explained. An all-digital color-modulation scheme is presented, along with picture-defect compensation methods.



830 **The Film Facit™ 3000H Color Film Analyzer** • *H. W. Hoadley* • An electronic upgrade retrofit kit for all Hazeltine 200 series analyzers is described. This precision instrument provides computer-controlled digital video, alphanumeric readout, and user-selected precision half-point *RGB* and density control increments (0.025 or 0.0125 \log_e). It stores up to 99 different digital combinations of *RGB*, density, and gamma calibrations in memory. An operational FCC/*RGB* data collection system interfaces via an RS-232 computer port to the 3000H analyzer and outputs frame count cuing (FCC) and *RGB* information to a film printer, central data base, paper tape punch, and hard-copy printer.



833 **HDTV Electron Beam Recording** • *L. J. Thorpe and Y. Ozaki* • In the early days of HDTV's exposure to the production community, it became evident that a close synergetic relationship with 35mm film would bring a major new flexibility to program production and distribution. The combination of high performance and a new cost-effectiveness holds high promise for the use of HDTV in the production of lower-budget motion pictures. In addition, the use of HDTV for electronic blue-screen process and special effects, with subsequent transfer to film, offers an important new production tool to the traditional motion-picture industry. This article describes the first electron beam recording system put into full-time service to implement transfers of 1125/60 HDTV videotape recordings to 35mm film.

