



Fig. 1. Microphones for both quadraphonic and stereo pickup hang from the ceiling of Boston's Symphony Hall. Note the rehearsal curtain visible across the lower edge of the photo; this device helps reduce reverberation in the empty hall. The slightly diagonal cable at the left holds a microphone for a violin soloist.

¼-inch tape—for WCRB-FM; KXTR, Independence, Missouri; KBIA, Columbia, Missouri; CKFM, Toronto.

5. Two-channel NAB Dolby A noise-reduction encoding—for WFMT, Chicago.

6. Two-channel NAB Dolby B noise-reduction—we can produce this one also. Programs of this type have been broadcast by WCRB-FM.

7. Two-channel CCIR—the BBC is interested in some of our material, but they cannot use NAB equalization.

8. Two-channel live broadcasts—for WFCR, Amherst, and WPJB, Providence. (WAMC, Albany broadcasts mono by rebroadcasting WFCR.) A few stations broadcast mono derived from our stereo pickups.

9. Two-channel NAB—for everybody else.

Not surprisingly, the equipment in Symphony Hall is a pooling of gear by WGBH and WCRB. Our main microphones are illustrated in Fig. 1, where you will notice that the rear pair is further apart and higher up than the front pair. The front microphones are larger (actually each contains two separate microphone units in one case—for backup purposes). Only one microphone in each case is



Fig. 2. Radio booth, backstage at first balcony level of Symphony Hall, houses five tape recorders, monitor loudspeakers, and other gear including oscilloscope for checking phase and stereo/mono content.

regularly used, and they are used in the four-channel microphone pattern and also as the main microphones of the two-channel stereo. All of these are Neumann condenser types, and all the main microphones are nondirectional. From time to time additional, directional microphones are used to accent soloists or choruses. These are usually mixed into the front channels only to give aural presence to a particular musical voice—they are never mixed in such a way as to contribute any substantial audio level to their channels.

Fig. 2 illustrates the recorder end of the radio booth in Symphony Hall. Seen in the picture are two of the four monitor loudspeakers, and the five tape recorders: Ampex AG-440-4 for ½-inch four-track; Ampex AG-440-2, ¼-inch two-track NAB; Revox for CBS SQ; Revox for Sansui QS, and Ampex AG-440-2, ¼-inch two-track Dolby A (NAB). Also seen are a Dolby A Model 301 used for playback and two Dolby A Model 360s used for recording, as well as both four-channel matrix encoders: the Sansui QSE-1 and a Sony CBS SQ encoder.

The action of the matrix encoders is sometimes rather wondrous to behold. Figs. 3 and 4 show the meters on the Sansui and SQ Revox recorders