ABC Uses MAGNETIC TAPE For Delayed Broadcasts

By

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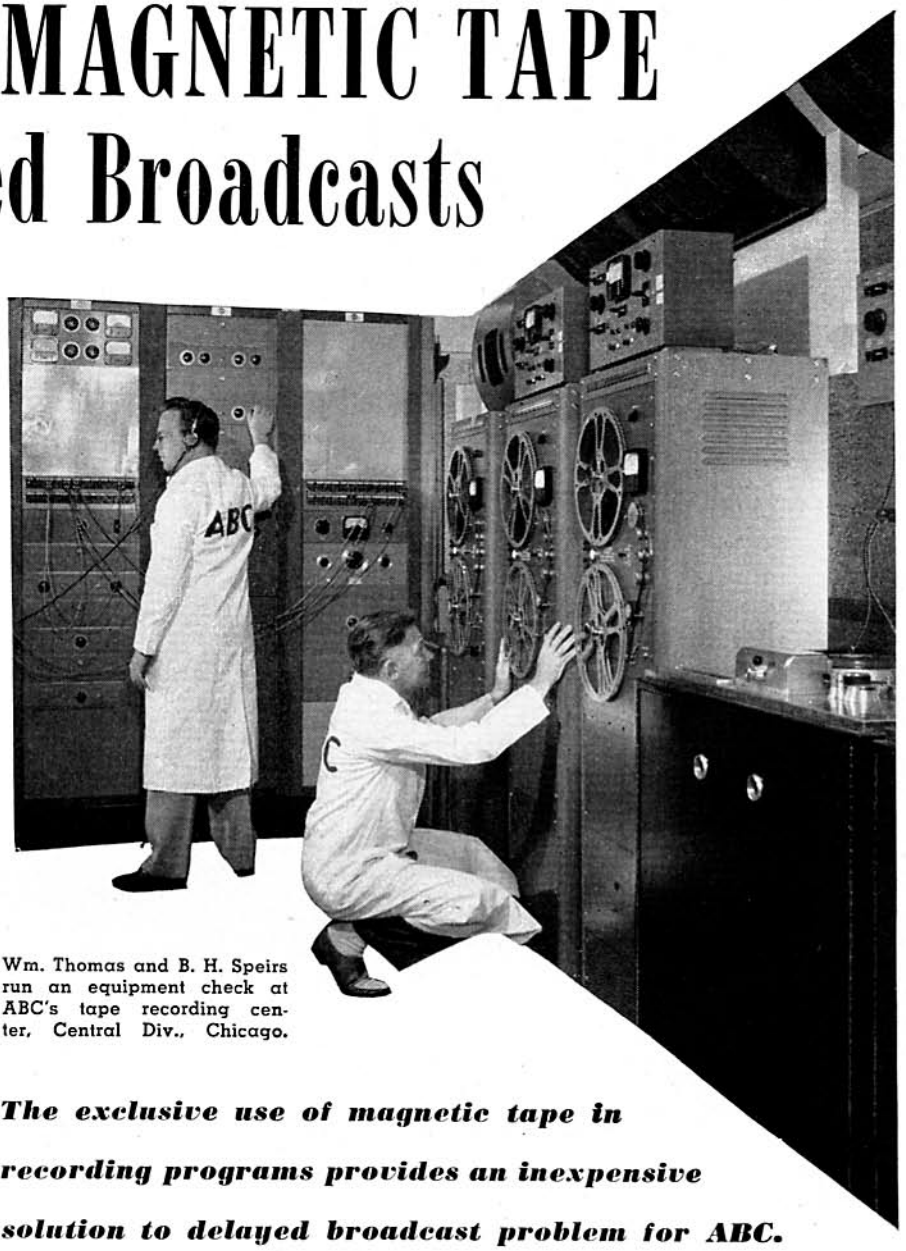

Wm. Thomas and B. H. Speirs run an equipment check at ABC's tape recording center, Central Div., Chicago.

The exclusive use of magnetic tape in recording programs provides an inexpensive solution to delayed broadcast problem for ABC.

THE seasonal adoption of Daylight Saving Time by the major cities during the summer months creates a problem for the broadcast networks. The portions of the country which do not adopt Daylight Time must be supplied with network programs at their accustomed times to avoid confusion and its attendant loss of listeners.

In the past it was the practice of the major networks to record the programs for the areas remaining on Standard Time on acetate discs. The programs were then fed back to the network at the proper time, and the stations in Standard Time areas took these programs off the line and in turn fed them to their transmitters. The same technique was also used for the stations which operated in the different time zones of the nation.

Obviously, this type of operation required the use of large quantities of discs with their attendant storage problem and high cost. In addition, the recording and playback machines needed frequent service to maintain them in proper operating condition. A bank of recording machines of the disc type also requires a considerable amount of space.

Prior to 1948, the *American Broadcasting Company* did none of their own recording, preferring to have this work done by independent companies equipped to handle this operation. With the advent of high quality tape recorders, several of the problems were automatically solved.

Tape machines have the advantage of requiring little service except routine maintenance, and the tape may be used over and over, with a very low cost per recording, and no storage problem. The fidelity of tape greatly exceeds that obtained with the best disc equipment, and recordings of almost any length may be made with no interruption. A standard sixteen inch disc can only record slightly over 15 minutes of program before it is necessary to change machines. Quite often it is difficult to time the disc to place the end of a recording at a point where the continuity is not disturbed.

Occasionally it is desirable to be able to edit portions of a program to eliminate errors and allow breaks for local spot announcements. Editing is difficult if not impossible with discs, but is a very simple matter when tape is used. The undesired portion is simply cut out and the ends of the tape spliced.

With the use of tape it is also possible to pick out any desired portion of the program, as the tape itself may be readily marked with the content of that portion.

The Chicago studios of *ABC* use a total of ten tape machines. Four units *(Stancil-Hoffman)* are mounted in relay racks. The units mounted in the consoles (as shown on front cover) are *Ampex* machines and are used for the bulk of the recording.

A block diagram showing the basic control and switching system is shown in Fig. 1. By means of this switching system any machine may be selected for either record or playback. All recording and playback is made in duplicate to insure against equipment failure although experience has shown that this feature is seldom needed.

In feeding a program to the network, two machines with duplicate tapes are run in synchronization. The master machine feeds one line while the safety or emergency machine is feeding the second line and is preset to feed the first line in the event of failure, simply by means of pressing an "Operate" button on any control panel. Each machine is equipped with its own control panel and monitor speaker.

The tape equipment was installed in the spring of 1948 and at this time has been in use for approximately 7100 hours. During 1948 the total time lost due to tape breakage was only three minutes. This represents the extremely low figure of .002%. No time whatsoever was lost during 1949.

It has been the experience of the engineers that the tape is constantly being improved in both mechanical and electrical quality. Although accurate records are not kept on the life of the tape, one tape which was checked,

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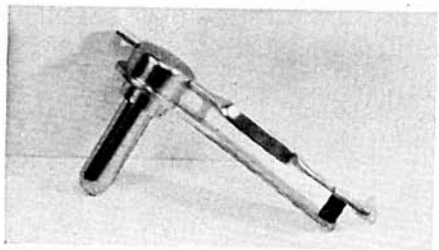
able stylus assembly for use with its variable reluctance phonograph cartridge.

The new design, in which the horizontal stylus arm has been given a



double twist and is double damped, has been named the "Baton" stylus. As a result of this modification, the *GE* cartridge performs with much higher compliance and improved tracking ability, according to the company. The double damping greatly reduces needle talk, preventing it from being induced in the tone arm.

The modified stylus assembly, which fits any *GE* cartridge with the replaceable stylus feature, is currently being sold in new cartridges and as a replacement stylus.

NEW CONDENSERS

A new line of tubular paper condensers, the "Humidi-Seal" type, has been developed by *Pyramid Electric Company* of 155 Oxford Street, Paterson, New Jersey, for applications where high humidity and high temperatures are present.

The Type 85TOC condensers will operate at up to 85 degrees C and perform satisfactorily in television receivers, auto radios, etc., where high humidity might be a factor.

The outer tube is plastic impregnated to prevent moisture-absorption, and the ends are plastic sealed against moisture. The new line is available in seven different capacities ranging from .001 to .1 μfd. at 600 volts.

A data sheet is available on request.

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ABC's Tape Recording

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showed a life of 287 complete record-playback cycles.

When using the *Ampex* machine, tape is purchased in 5400 foot reels to allow about 34 minutes of recording. Tape speed is 30 inches per second, both for better fidelity, and to allow for ease in editing. The same size reels on *Stancil-Hoffman* machines will permit 67 minutes at a tape speed of 15 inches per second.

The recording day begins at 7 a.m. during Daylight Saving Time and runs for an average of 16½ hours per day. More network stations are fed from the delayed net than the regular net due to the limited use of Daylight Saving Time.

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Fig. 1. Block diagram showing basic control and audio switching system. The PB line relays have "Preset" and "Operate" controls. In feeding a program, duplicate copies are run in synchronism. The "Master" feeds Line 1 while the "Safety" feeds Line 2 and is preset to feed Line 1. If the master unit fails, pushing an "Operate" button on any control panel will switch Line 1 to operate the "Safety" machine.