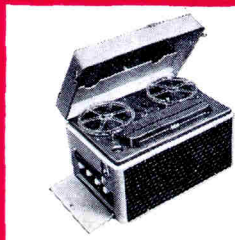


Affairs
of

TAPE

Simon

SOUND SERVICE LTD.



Info from Ferrographworld.com

Affairs of Tape

How it began

If someone asked you to put a date to the beginning of sound recording, you would probably think of the early gramophones and say: "Oh, round about 1900." Which, as far as it goes, is more or less correct.

Yet the recording of sound had been a subject of attention long before this. In 1806, for example, the British physicist, Thomas Young, described a device which was able to record sound waves pictorially.

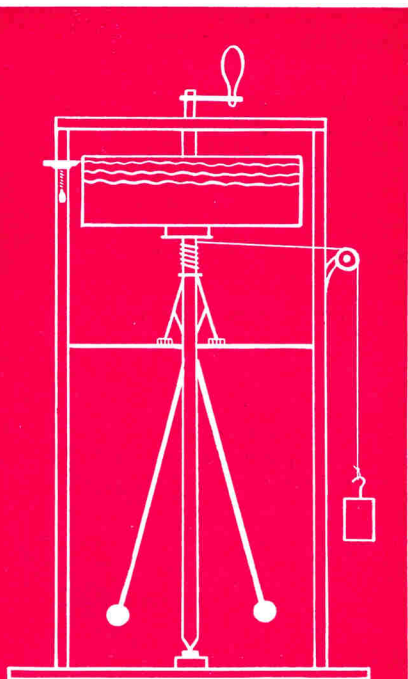
Sound recorders were described and constructed by other experimenters during the first half of the nineteenth century. But recording sound is one thing. Recalling it is quite another . . .

It was, in fact, in 1877 that for the first time in history sound was "frozen" and replayed, and the phonograph was born.

The development of sound recording, however, didn't come to an end with the phonograph's impression of vibrations upon wax cylinders and discs. Magnetic recording on tape and wire was the next field to be explored. The original patents in this type of magnetic recording were taken out as early as 1900, but it was not until the second World War that plastic tape, impregnated with magnetic material, was used for the first time.

Since 1945 Tape Recording has made immense technical and commercial strides, and the expression at least is familiar to most people. Many would like to know more about it. That is why this booklet has been written. We shall also tell you something about the Simon Tape Recorder. You can hardly blame us. It is very good,

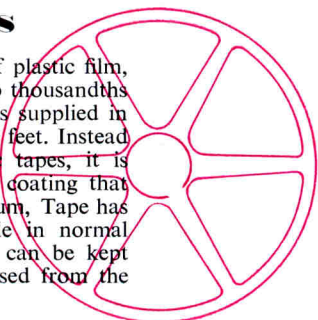
The sketch shows Thomas Young's sound recorder of 1806. The vibratory nature of sound was known and the use of graphs to represent vibrations was familiar to workers in acoustics. A graphic record of sound was made automatically by this device.



Affairs of Tape

Tape and Tape Recorders

Let's look at a piece of recording tape. It is made of plastic film, and has a high breaking strain. It is about one or two thousandths of an inch thick, and a quarter of an inch wide. It is supplied in reels of varying lengths, the most common being 1200 feet. Instead of being impregnated, as were the earlier magnetic tapes, it is coated on one side with iron oxide. It is upon this coating that sound is magnetically recorded. As a recording medium, Tape has impressive advantages. It is practically indestructible in normal use. Recordings can be replayed immediately. They can be kept indefinitely without loss of quality. They can be erased from the tape, then the tape can be used again and again.



But how does sound get on the tape and how does it get off?

When a recording is made, the magnetic tape is drawn past the "Recording Head." A simplified diagram of such a "Head" is shown in the sketch on the left.

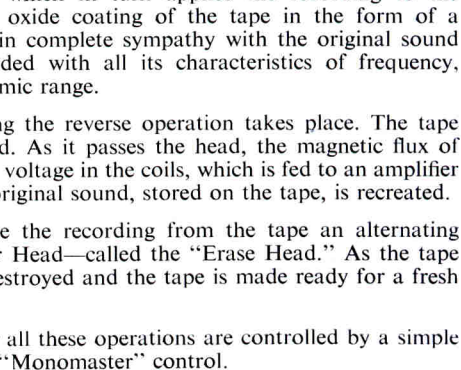
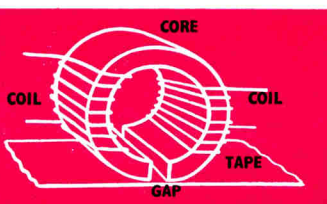
Sound in the form of electrical impulses from an amplifier is fed to the coils wound round the head. These electrical impulses cause a magnetic field to be developed by the head, which in turn applies the recording to the oxide coating of the tape in the form of a

magnetic flux, which varies in complete sympathy with the original sound waves. Sound is thus recorded with all its characteristics of frequency, overtone structure, and dynamic range.

When replaying the recording the reverse operation takes place. The tape is again drawn past the head. As it passes the head, the magnetic flux of the coating induces a varying voltage in the coils, which is fed to an amplifier and loudspeaker. Thus, the original sound, stored on the tape, is recreated.

When it is required to erase the recording from the tape an alternating current is applied to another Head—called the "Erase Head." As the tape passes, its magnetic flux is destroyed and the tape is made ready for a fresh recording.

In the Simon Tape Recorder all these operations are controlled by a simple "joystick" on the deck—the "Monomaster" control.



TAPE DECK
of the Simon Portable
Tape Recorder (Model
SP/2)

Supply Reel

Take-up Spool

Tape

Monomaster
Control

Tape Speed
Control

Dress Cover,
Capstan beneath

Record Level
Indicator

Affairs of Tape

The Scope of Tape Recording

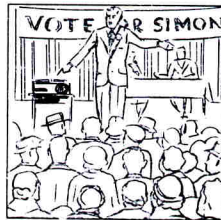


For the man in the street a good tape recorder is as simple to use as a camera, and even more rewarding. Remember, too, that tape recordings need no processing. Family voices and great occasions, parties, weddings, the children year by year as they grow up, radio broadcasts. All these make fascinating recording material.

The business and professional man records notes, conferences, meetings, letters for transcription by his secretary, telephone calls: he can also rehearse his speeches. The list is endless, the possibilities unlimited.



New fields of employment for Tape Recording are being found and exploited every day. Comparatively recent developments are its uses in Education and Local Government. In Primary and Adult Education interest is readily captured and held by sound recordings, and many applications will instantly fly to the mind of those concerned with this field. Churches, hospitals, cinemas, amateur dramatic societies—in any group or organisation where there is speech or music—recorded sound has a valuable part to play. It is a part which can only be played economically, simply and easily by a Tape Recorder.



Tape is readily "edited" in the same manner as film. That is to say it can be cut and spliced, joining and combining separate records into a complete unit. Recordings can be made and other material added later. Thus, for instance, music could be recorded and a spoken commentary prepared at leisure. Tape recording places great resources at the disposal of those with imagination and ingenuity.



Affairs of Tape

Choosing and using a Tape Recorder

Sound vibrations are expressed in terms of cycles per second (c.p.s.). The sound vibrations associated with music cover a much wider frequency range than those of speech. To record both speech and music satisfactorily and with good fidelity of reproduction, it is important that your tape recorder should not only have a frequency response up to about 10,000 or 12,000 c.p.s., but also that this response should be substantially level and even.

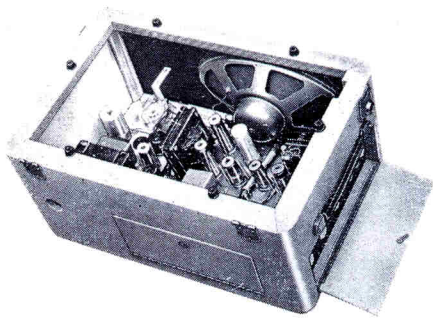
Length of recording and playing time with a standard 1200 foot spool depends, of course, upon the speed at which the tape is run. Frequency response also varies with tape speed, being wider at higher speeds. A two-speed recorder therefore has advantages since you will be able to record both speech and music at the most economical speeds compatible with good reproduction.

The tape spools are driven by an electric motor or motors. It will be readily appreciated that with one motor only additional mechanical devices are necessary to bring about reversal for rewind and speed changes. Many recorders possess three motors to provide for these. To increase the recording and replay time available from standard spools "twin track" recording is employed on better machines. This means that two tracks of recording are made side by side on a $\frac{1}{4}$ -inch tape, thus effectively doubling the length of tape and halving the cost of use.

A Recorder should have its own loudspeaker so that recordings can be monitored as they are made. A good quality amplifier is essential, preferably one which can be used quite independently for such applications as Public Address, Record Reproduction, etc., and it should have sufficiently high output for this purpose, of the order of 10 watts.

The diagram on the right shows pictorially the approximate positions in the frequency spectrum of common sounds.





Inside Information

Simon Portable Tape Recorder MODEL SP/2

The Simon Portable Tape Recorder Model SP/2 is designed by specialists in sound recording. Every mechanical part is precision engineered. Every electronic component is of the best quality, chosen for its reliability and long service. The unit provides superb recording and reproduction facilities, in a compact and portable form. A combined record/replay amplifier is incorporated which can be used as an independent P.A. Amplifier, or for record reproduction. The output power available for replay and public address purposes is 10 watts, with independent bass and treble control. A high quality Speaker is incorporated with its own gain control for monitoring of Recordings. A jack is provided for headphones monitoring or, alternatively, during replay, for external loudspeaker. Tape loading is very simple. Control of the unit is straightforward. Switching is mechanically controlled.

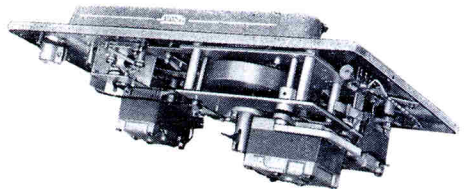
A wide range of microphones can be supplied and Remote Control and telephone attachments are available.

A good recorder deserves a good recording tape, and for the best results Simon "Simphonic" Grade A Tape should be used.

BRIEF TECHNICAL DATA

- ★ **NUMBER OF TRACKS**
Two side by side. Records Left to Right, top track, oxide in.
- ★ **SPEEDS AND RUNNING TIMES**
30 mins. per track at $7\frac{1}{2}$ i.p.s.
60 mins. per track at $3\frac{3}{4}$ i.p.s.
45 mins. and 90 mins. with $8\frac{1}{4}$ in. reels.
- ★ **CAPACITY**
7 in. reels carrying 1,200 ft. of $\frac{1}{4}$ in. tape.
 $8\frac{1}{2}$ in. reels may be used if extra playing time is required.
- ★ **FREQUENCY RESPONSE**
At $7\frac{1}{2}$ i.p.s. 50-12,000 c.p.s. \pm 3db.
At $3\frac{3}{4}$ i.p.s. 50-7,000 c.p.s. \pm 3db.
With Simphonic Grade "A" Tape.
- ★ **MAINS SUPPLY**
110-120: 200-250 volts A.C. 50 c.s.
- ★ **DIMENSIONS AND WEIGHT**
18 in. \times 12 in. \times 12 in. 48 lbs.

Illustration at top of page is inside view of Model SP/2 showing power pack and amplifier unit. At foot, underside of Tape Deck, showing drive motors.



A word about Tape . . .

A great deal of time and care has been devoted to the design of the Simon Portable Tape Recorder. We are proud of its performance. It will record and replay well on *any* standard $\frac{1}{4}$ -in. tape. As with a good camera, however, results will depend very much on the quality of the recording medium used. As much care is given to the manufacture of "Symphonic" Tape as there is to the Simon Recorder. We wouldn't use any other tape ourselves and we recommend you to do the same.

and a word about Microphones

To make a direct recording, you will need a microphone. It need not be expensive, but it should be suited to the job in hand. Broadly, for the recording of speech a Crystal Microphone is adequate, and this need cost no more than a few pounds. For covering the wider range of both speech and music a moving coil (dynamic) microphone is excellent. To utilise to the full the wide frequency response of the Simon Recorder, use the best microphone you can afford. We recommend a good ribbon type.

We regard all enquiries as a compliment.



SIMON
Portable
TAPE RECORDER
MODEL SP/2



PORTABLE TAPE RECORDER

MODEL SP/2

- ★ *MONOMASTER "FINGER TIP" CONTROL*—normal running, rewind, wind-on and braking with one simple control lever.
- ★ *TWO STAGE CAPSTAN*—with automatic selection and frequency compensation for each tape speed.
- ★ *DROP-IN LOADING*—no tape threading.
- ★ *AUTO-STOP*—when tape reaches end of run, motors are automatically switched off.
- ★ *THREE MOTOR DRIVE* — simple — reliable—efficient.
- ★ *FAST REWIND and WIND-ON* approx. one minute for 1,200 ft. reel.
- ★ *TWIN TRACK RECORDING — TWO SPEEDS*—giving two hours recording on standard 1,200 ft. spool of tape.
- ★ *WIDE FREQUENCY RESPONSE*—bass and treble independently variable.
- ★ *10-WATTS PUSH-PULL OUTPUT*—for external 15 ohm loudspeaker or disc cutter head.
- ★ *INTERNAL LOUDSPEAKER*—and phone jack available for monitoring all recordings.
- ★ *PROVISION IS MADE* for the Amplifier to be used independently for record reproduction, public address, etc.
- ★ *PRE-RECORDED TAPES*—all those now available can be played at their brilliant best.

The design and manufacture of sound recording and associated equipment is the sole activity of Simon Sound Service Ltd. The Company is a member of the Simon Group whose products cover a wide field of electronic equipment, including air/ground communications monitoring equipment used by civil and military authorities all over the world.

A Development Division and Research Laboratories are maintained, fully equipped and staffed by skilled engineers and technicians.

Every product is subjected electrically and mechanically to rigorous testing, and the highest standard of workmanship and inspection are maintained at all times.

S I M O N S O U N D S E R V I C E L T D .

A Member of the Simon Group of Companies comprising

SIMON EQUIPMENT LTD., SIMON SOUND SERVICE LTD., SIMON DEVELOPMENT LTD.

RECORDER HOUSE, 48-50, GEORGE STREET, LONDON, W.1.

Telephone: Welbeck 2371 (5 lines)

Telegrams: SIMSALE WESDO LONDON