

A Morse Practice Oscillator

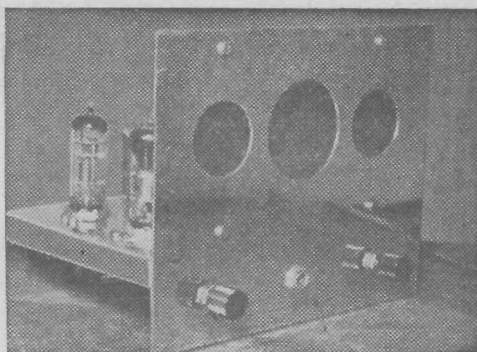
A SIMPLE CIRCUIT WITH
LOUDSPEAKER OUTPUT

By D. Noble and D. M. Pratt

IT is the ambition of many interested radio experimenters at some time to become radio amateurs and to be able to transmit to other people with the same interest. Before a transmitting licence can be obtained one must pass the radio amateurs' examination, and also satisfy the Postmaster-General that one can send and receive Morse at not less than 12 words per minute. The technical knowledge required for the radio amateurs' examination may be readily obtained by reading text books and various articles in radio periodicals, or by attending a course of instruction at the local Technical College. The Morse test, however, is a little more awkward as it is required to practice sending and receiving Morse-code in order to attain the required standard.

Much listening can be done over the air, but it is recommended that a friend be approached and practice actually done "across the table". Many of the radio clubs up and down the country hold special Morse classes and it is suggested that interested readers make enquiries.

One of the first essentials is to make something on which to practice the code. While an ordinary



The completed unit.

Morse buzzer and key is quite satisfactory, at most Morse test centres a valve oscillator is used as it produces a much more pleasant tone, and hence the Morse is easier to copy. It is proposed, therefore, to describe a Morse test oscillator which will fulfil the requirements of those wishing to learn Morse.

While a simple phase-shift oscillator (p. 135 June 1960 P.W.) may be used coupled into a suitable amplifier installation, a neater method is to build the complete practice set together with power supply, speaker and controls into a self-contained unit. This arrangement is particularly useful in the case of radio clubs which do not have their own permanent premises and in other applications where size is of major importance.

The oscillator unit described uses an EF80 as phase-shift oscillator, with a suitable output valve

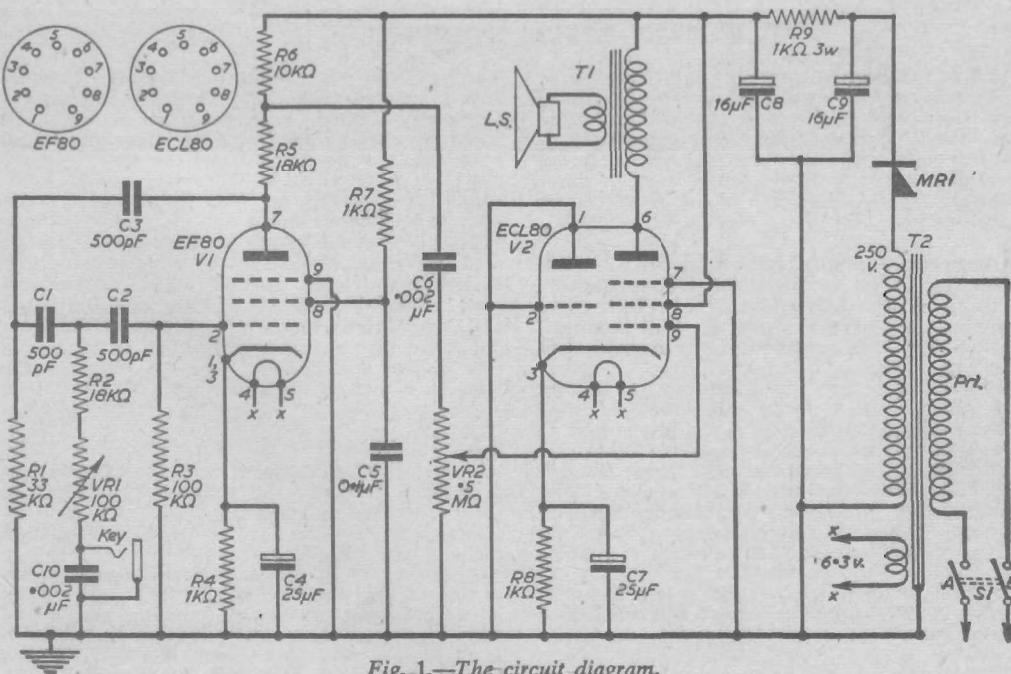
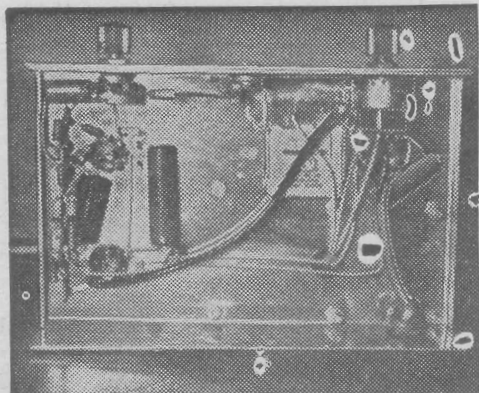


Fig. 1.—The circuit diagram.



Underchassis view.

—in this case an ECL80—chosen for its low heater consumption, its availability and its small physical dimensions. Unfortunately, the triode section of the valve would not operate as the oscillator, as it had no more than a fraction of the gain required to overcome the losses in the phase-shift network.

Power is provided from a small transformer and half-wave contact-cooled rectifier. The volume control VR2 is fitted with a two-pole switch connected in the mains supply to the unit. In series with the key jack is fitted a potentiometer VR1 which provides a useful variation of the oscillator tone.

The accompanying photographs show a typical layout of construction. In the prototype, a 7in. x 4in. elliptical speaker was used, and the chassis is 7in. x 5in. x 2in. with a front panel 7in. x 6in.

LIST OF COMPONENTS.

- R1—33k $\frac{1}{2}$ W.
- R2, R5—18k $\frac{1}{2}$ W.
- R3—100k $\frac{1}{2}$ W.
- R4, R7—1,000 Ω $\frac{1}{2}$ W.
- R6—10k, $\frac{1}{2}$ W.
- R8—1k, $\frac{1}{2}$ W.
- R9—1,000 Ω 3W, wire-wound.
- VR1—100k linear pot.
- VR2—500k log. pot. (with two-pole switch S1).
- C1, C2, C3—500pF.
- C4, C7—25 μ F, 25VW (electrolytic).
- C5—0.1 μ F, 400VW (paper).
- C6, C10—0.002 μ F 350VW (ceramic).
- C8, C9—16 μ F plus 16 μ F, 350VW (electrolytic).
- T1—Speaker transformer.
- T2—Mains transformer—250V, 50mA and 6.3V, 1A.
- V1—EF80.
- V2—ECL80.
- MR1—Contact-cooled rectifier—(18RA1-1-16-1).

BRITISH POSTAL EQUIPMENT

THE Management Council of the Consultative Committee for Postal Studies of the Universal Postal Union held a conference at Eastbourne from June 27th to July 9th. In connection with the conference, eight firms co-operated in staging an exhibition of British postal mechanisation equipment from July 5th-7th in the Grand Hotel at Eastbourne.

A new British export industry has been created by the Post Office. In their drive for mechanising all forms of mail handling, the G.P.O. have themselves developed a whole range of new mail handling devices in conjunction with a number of engineering firms.

Between them, the firms concerned are able to offer an integrated range of automatic mail handling equipment which will enable mail to be segregated into its proper categories, sorted and distributed with a minimum of human intervention. These firms combined, under the name "The Manufacturers of British Postal Equipment," to put on an Exhibition for the delegates to a Conference of the Universal Postal Union studying mail handling which was held at Eastbourne.

Britain is unique in having built up a complete industry in this field. The firms concerned, which include such well known companies as Elliott Brothers (London) Limited and Associated Automation Limited of the Elliot-Automation Group,

Vickers-Armstrong (South Marston) Limited, Sovex Limited and The Thrissell Engineering Company Limited, have produced a combined brochure showing the complete range of British postal equipment which has been sent to every postal administration in the world. Other companies co-operating in the Exhibition include Setright Registers Limited and Harrison and Sons of High Wycombe, who produce the special stamps used in the automatic mail handling process, and Waterlow and Sons. Already export orders have been received from Russia, Switzerland and Egypt and the Manufacturers say that they are very optimistic that a new export trade in automatic Post Offices will be built up as a result of the research work and initiative shown by the G.P.O. The occasion is also interesting in that the firms co-operated in the Exhibition and in the production of the Brochure are in many cases normally fiercely competitive one with another, but that in presenting themselves to overseas Postal Administrations they are doing so as an Industry although there is no formal association between them of any sort.

According to Brigadier K. S. Holmes, Director of Postal Services in the G.P.O., the recent advances in automatic mail handling constitute a very substantial advance in tackling a most difficult problem and, in his view, it was safe to say that in this field, Britain leads the world today.