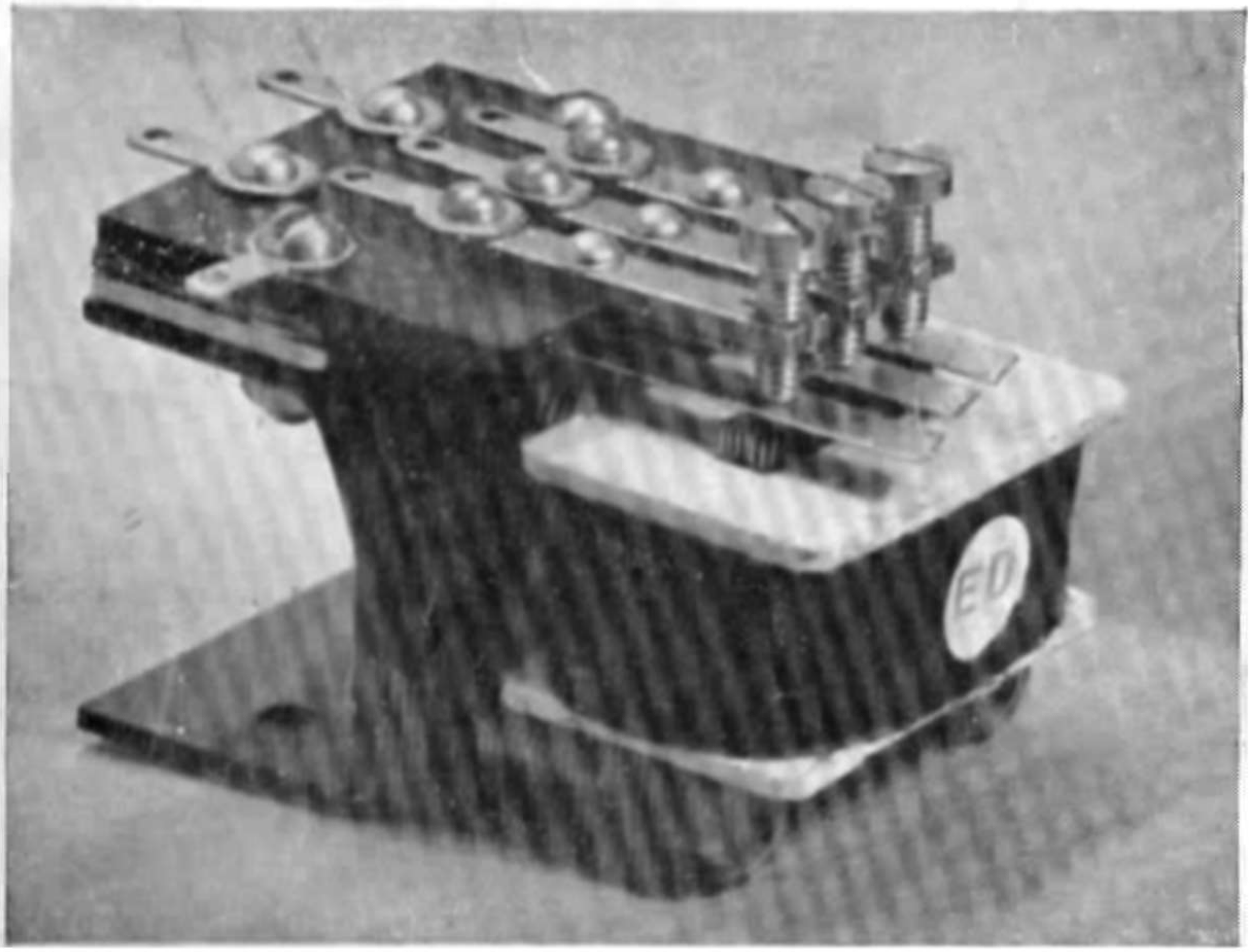
ED

Three & Six Reed Relay



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Foreword

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In view of popular demand for Radio Control equipment which will enable the user to operate independently, more than one control, Electronic Developments Ltd. have pioneered this system of tuned reeds.

Long and exhaustive practical tests, culminating in the first crossings of the English Channel in September, 1951, with a model boat, and September, 1954, with a model plane, have proved in advance the reliability and ease of control of this system. There is a growing conviction amongst all of those concerned with models, that the tuned reed system is the final answer for accurate multiple control. One cannot say it compares with the radio control systems, in fact there exists no other system, which can be compared with it.

Successes in competitions have amply proved to modellers that for realistic and fingertip control, E.D. Reed Systems lead the way and the world.

Our electronic engineers have spent years of development work up to its present day standards, not only because of its versatility, but also because it is a foundation for things to come in industrial, as well as model applications.

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The only firm in the world to manufacture Models, Model Power Units and Remote Control Units

E.D. Three & Six Reed Relay

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The Reed Units are supplied in two versions, a three and a six. Suggested circuits are given for both Transmitter and Receiver. Reed frequencies 240, Cps, 270, 300, 330, 360, 390 Cps, and the 3 Reed uses the lower range. Minimum starting voltage 2.5 volts R.M.S. Minimum signal input 40 milliwatts. Weight: 3 Reed, 2 ozs.; 6 Reed, 2 ozs.

Transmitter

A simple layout is given in Fig. 1. A circuit diagram in Fig. 2. It is important that all leads in the DCC90 valve circuit should be kept as short as possible, and that the coil is mechanically rigid and well clear of other components. All components should be rigidly mounted on a 16 swg aluminium chassis. All external battery and other leads should be cabled and make their exit well away from the H.F. coil and valve circuit. On no account should the R.F. chokes be positioned in the field (same axial direction) of the H.F. coil.

No difficulty will be experienced with components which may vary up to 20% of the values given. However the type of modulation transformer T used, even if of the ratio given, will determine the current drawn by DL92 valve. This should be limited to 10 M/A with frequency adjusting potentiometers R8, 9, 10, 11 in the midway position. R8 is included so that the required range of frequencies may be chosen. The Transformer T should be such that the iron core is kept down to a minimum size, so that the DL92 valve will be kept well within its ratings.

With all values as given, the RC. band frequency of 26.96 to 27.28 Mc/s will be found with the tuning condenser C5 about three-quarters turned in. After the transmitter is finally boxed in working condition and with the normal 8 foot length of vertical aerial fitted, it should be finally adjusted to the centre of the RC. band. In the absence of an accurately adjusted frequency meter, this should be done by a competent radio engineer possessing the necessary equipment.

For a final test after completely wiring up and checking that all connections are correct, plug in the DCC90 valve only, and with a milliampere meter in the H.T. + lead, switch on. With C5 in a three-quarters turned in position (adjustment should be made with a non-metallic tool, a sharpened piece of hardwood dowel, etc.), and without aerial, the meter should read between 15 and 25 Ma. An absorption tester consisting of an ordinary 3.5 volt torch bulb soldered onto a two turn loop of wire should now be brought to about ¼ inch of one end of the H.F. coil, with the bulb loop in the same axis. The bulb should glow with a reasonable brightness, indicating that a strong H.F. current is flowing in the coil circuit. At the same time it will be noticed that the H.T. current will rise by 5 to 10 Ma. It should be noted that when completed, and the Transmitter loaded with full aerials of 8ft. 6in. that an approximate increase of 5 Ma should be observed.

Now remove the DCC90 and insert the DL92 in the appropriate socket. With any one of the switches of the control box operated a current of 10 Ma. should be obtained and a modulation note should be clearly heard with the ear close to the transformer itself. Note, however, that the circuit will only oscillate if the transformer leads are connected in the correct sense, that is, primary innner lead to the anode, and secondary outer lead to the grid condenser C1.

Transformer connections are usually marked or the leads are visible as beginnings and ends of windings. If in doubt, connect the H.T. + lead to a lower battery voltage about 40 to 60 volts, and reverse the primary connections to find the connection which gives the lowest current and an audible note. On no account use full voltage with the wrong connection, or the current will rise to over 40 Ma and the valve will break down within a short time.

With a note now audible, a variation of the controlled potentiometer will vary the note from a low value (potentiometer full resistance) to a high note (potentiometer turned to zero resistance).

The control box should be wired up as indicated. The switches S2, 3, 4, should be chosen according to control requirements. For example, a double lever switch for two channel steering and a push-button for auxiliary controls, or three pushbuttons, etc. It will be seen that as well as making the appropriate frequency control potentiometer, the H.T. to the screen of the DL92 is made. Therefore a well insulated double pole switch of positive making contacts is required here.

Receiver

The circuit Fig. 3 is the type generally used for the lightest type of receiver requiring only small capacity batteries and mainly used for model planes.