



and extra crystals in most sets. Now that the majority of sets use very broad-tuned oscillators in the receiver, it is possible to plug in alternative crystals without stopping the oscillator. Transmitters seldom give any bother and crystals up and down the band can be substituted at will, without loss of RF power. But what does cause trouble is the change in difference between the Tx and Rx crystals, which may occur owing to manufacturing tolerance.

Probably the best overall solution would be to ask the manufacturer of your equipment to supply another "equal difference" pair on the frequency you need, and let him have your equipment to check that the change gives no decrease in efficiency. Then, if you wish you can experiment with miniature, high-frequency wafer switches carrying the crystals in question.

Sirs.—I have just started G.G. flying using Fleet radio with Rand LR3. I wonder if you would be good enough to give your opinion on one or two queries in my mind, in the broadest terms?

Do you think aileron control instead of rudder is feasible with G.G. on small (40in.) models? If so, roughly what percentage of the wing area do you suggest for the ailerons?

For appearance sake, on scale models, do you think that using scale size control surfaces with the movement proportionally geared down by intermediate linkage is a possibility?

Congratulations to Mr. Platt on his excellent talk during the Symposium. He cleared up a lot of queries in my mind.

Yours faithfully,
G. J. Dibdin.

E. Molesey,
Surrey.

It is entirely practical to use ailerons on a Galloping Ghost model. We remember seeing this demonstrated way back in 1958-59. The important thing is to keep them relatively small, say 5-7 per cent of the wing chord. Another useful dodge is to have a second servo, double-gear or triple-gear so as to reduce the flapping angle, working in parallel with the elevator servo. Obviously one must take care to

case is well executed, although the points mentioned above do leave some room for improvement. The robust relay, whilst unnecessary for aircraft use, and for which it is a slight weight penalty, may well fill a gap in the boat market, where ingenious switching systems are often operated via a simple radio link. And, of course, in other applications, involving the switching of quite high currents, the heavy duty relay can be a big asset.

Manufacturer
Ariel Electronics, 100 Colne Road, Twickenham.

Price
"Contact Major" £14 1s. 0d.
"Contact Minor" £12. 6s. 5d.

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see that the total currents involved do not weld the relay or cause large-scale sparking which could interfere with the radio.

If you use a Rand for both aileron and elevator controls, you will have to see that the wing is very positively locked in relation to the fuselage, because if it can move, you will soon be sweeping up the bits!

If you use large-area surfaces with intermediate linkages to reduce the throw you will almost certainly encounter troubles like other experimenters have. For example, the inertia of the surfaces and the extra linkages make the system cumbersome and overloaded, so that the unit ceases to be able to act as a rate and mark-space discriminator. If the linkages can be made extralight, but strong, and the surfaces kept light also, you might succeed, but the best approach is to make a full-size mock-up of the arrangement you intend to use, and see if it operates correctly.—Eds.

GALLOPING GHOST PLEASE

Sirs.—Since I only discovered your excellent magazine last February, I, like Mr. Rose, have read much about the galloping-ghost control system, with little or no idea of how it worked.

At the moment I am flying a Veron "Robot" with R.C.S. Guidance System Mk. III, and Elmic Commander (incidentally, I certainly prefer my "messy" escapement to the manual-pulse method advocated by Mr. Bolton in the April issue. Admittedly, when I experienced this system it was installed in a boat, but on my aching thumbs!). Like Mr. Rose, I wish to graduate to higher things. I like the idea of ten channel reeds/filters (constructed from a kit), but as the servos are so expensive, I would like to consider G.G. This is rather difficult, as I know nothing about it, so, in short, please Mr. Editors, may we have an article on it?

Incidentally, I made it to the Nationals, and witnessed at first hand (about four yards) the crash of Dave Platt's "Dauntless". This made me think. During the whole of the meeting I only saw one sign (?) warning the crowds to keep an eye open. This was on the bottom of the tenth page of the programme. The poor S.M.A.E. officials had continually to tell the crowds to move away from the flying area. Why is the potential danger of model flying not told to the public as in motor racing? Another mishap occurred that after-

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battery holder. These each hold 4 pen cells, and care must be taken since, although the polarities are marked, it is possible for the cells to be inserted the wrong way round. Substantial coil springs ensure good electrical contact, but always use the rubber band supplied to "fix" the cells in place; otherwise they can slip out sideways. Care must also be taken, in removing the cells, lest these coil springs are distorted.

Summary

Soldering and general workmanship throughout are both clean and tidy. The unique transmitter