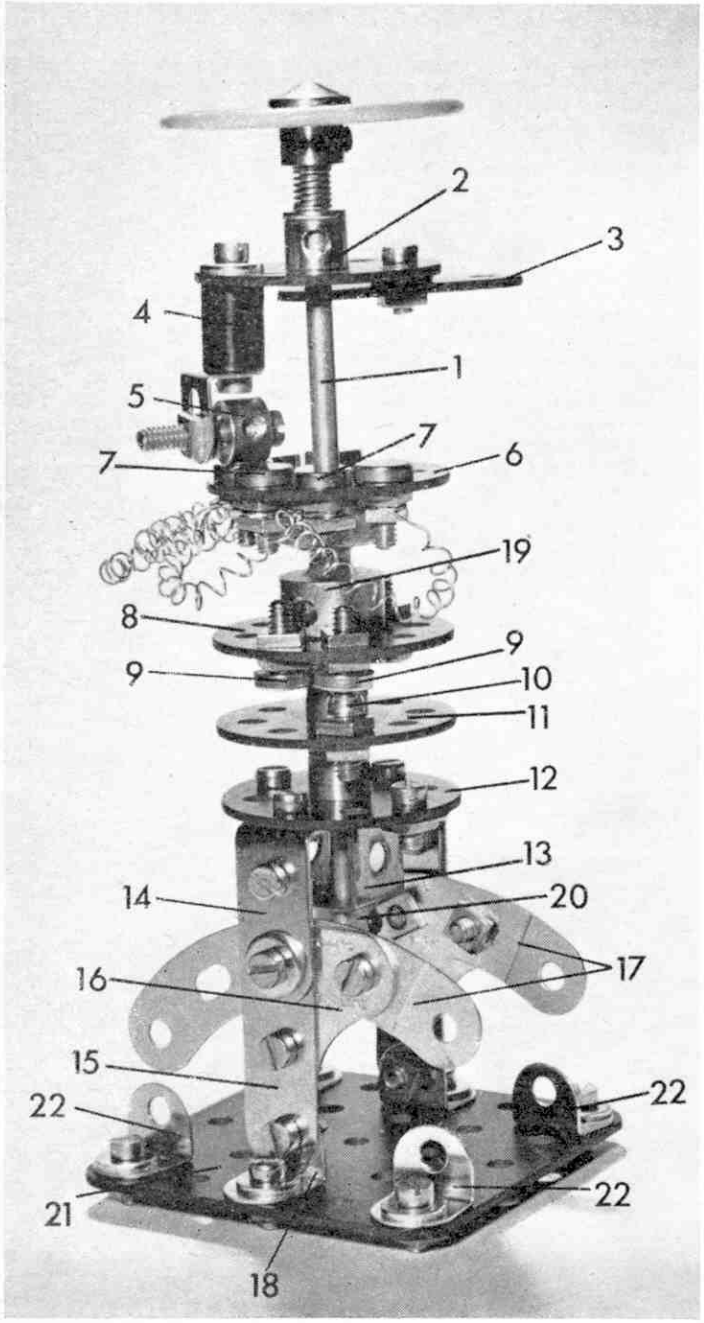
among the model builders

An advanced Remote Control Switch designed by Mr. R. C. Stutter, of Hampton Wick, Kingston-on-Thames, Surrey. When connected to a suitable vehicle it gives forward/reverse/steering/speed control!



REMOTE controlled models seem to be all the rage these days—outside of radio-control, that is—and for a very good reason. There's something fascinating about making a model perform all sorts of intricate manoeuvres simply by twiddling a few knobs on a little control box. It's great fun operating remote-control models, I must admit, but it's worth remembering that it is the control box that makes the whole thing possible, and control boxes can be pretty complex pieces of apparatus.

You may remember the two control boxes I described for use with that rather magnificent tank we modelled a few months ago. These were not exactly simple, and yet were nowhere near as comprehensive as the unit, illustrated on this page, which was designed by Mr. R. C. Stutter of Kingston-on-Thames, Surrey. Our boxes simply gave independent forward/reverse control for two motors, thus limiting their use to tracked vehicles only, where two motor are used one to each track. Mr. Stutter's unit can be fitted to any 'ordinary' vehicle to give not only forward/reverse/turning control, but speed as well!

To obtain all the movements, the operated model must be powered by two motors, one providing traction and the other controlling steering. The speed regulator, of course, acts on the traction motor which must therefore be a D.C. example, as are all Electric Motors produced by Meccano. Assuming that the Motor is being operated from a 12 volt, 1 amp source, a 30 in. length of 14·22 ohms per yard resistance wire with a carrying capacity of 1 amp is required. This should be cut into five equal lengths and each length coiled round a thin knitting needle. I will explain the positioning of the coils in the Control Unit in due course. You should be able to obtain the resistance wire from any electrical suppliers, but, if they do not have the wire suggested above, any reasonable length of wire with a resistance of 12 ohms will suffice. Note, however, that the above length does not take into account the amount of wire used to make the connections. In other words, you should add a sufficient amount to wrap around the terminals.

Generally speaking the Remote Control Switch, as a whole, is composed of a series of smaller switches built up on eight-hole Insulating Bush Wheels. It is best to complete the Bush Wheel arrangements separately and to fit them on the central shaft when finished. A 5 in. Rod 1, incidentally, serves as the central shaft.

Taking the first Insulating Bush Wheel 2, a 1½ in. Insulating Strip 3 is fixed to it through one hole, but is spaced from it by a Washer on the shank of the securing bolt. The inside end hole in the Strip must lie immediately over the central hole in the Bush Wheel. Bolted diametrically opposite the Strip is an Insulating Spacer 4, to the other end of which a ½ in. by ½ in. Angle Bracket is fixed with the lug carrying the elongated hole pointing downwards. A ¾ in. Bolt, carrying a loose Collar 5, is held by two Nuts in this Angle Bracket.

Insulating Bush Wheel 6 will provide speed control for the drive motor and is, perhaps, the trickiest part of the unit. Six Contact Studs 7 are fixed in adjacent holes in the Bush Wheel, then the previously mentioned coils of resistance wire are connected between them. One coil connects the first and second studs, another the second and third Studs, another the third and fourth Studs, and so on until all the Studs have been wired.

Less complicated is Insulating Bush Wheel 8. This carries only four Contact Studs 9, the first two fixed in adjacent holes and the second two mounted in opposite adjacent holes. Note that two Nuts, one on each side of the Bush Wheel, are used to hold the Studs in position. Using two Nuts in this way allows the height of the Contact Studs to be adjusted. For the same reason, two Contact Screws 10 are each fixed by two Nuts in diametrically opposite holes of a fourth Bush Wheel 11. I should mention, incidentally, that the heads of these Contact Screws must lie on the same side of the Bush Wheel as its boss, while the heads of the Contact Studs in Bush Wheels 6 and 8 must lie on the opposite side of the boss.

Turning to the fifth—and last—Insulating Bush Wheel 12 a Double Bent Strip 13 is bolted to its non-boss side, as also are two 1 in. by ½ in. Angle Brackets 14, being secured through diametrically opposite holes. Each Angle Bracket is extended by a 2 in. Perforated Strip 15 (Elektrikit part No. 529), at the same time fixing a 1 in. Corner Bracket 16 and a 2½ in. Stepped Curved Strip 17 in position. An Angle Bracket 18 is lock-nutted to the lower end of Strip 15.

Assembly can now begin. A 1¾ in. Steering Wheel is fixed on one end of 5 in. Rod 1 to be followed by a Compression Spring and a Collar. Next, Bush Wheels 2 and 6 are added, the former being loose on the Rod, but the latter being tightly fixed in position. Collar 5 should connect with Contact Studs 7, the action of the Compression Spring ensuring continuous contact. Fixed by a Grub Screw to the boss of Bush Wheel 6 is a Socket Coupling 19, in the other end of which the boss of Bush Wheel 8 is mounted. This Bush Wheel should be free to turn both on the Rod and in the Socket Coupling.

Bush Wheel 8 is followed on the Rod by three Washers, then Bush Wheel 11 is fixed in place. Contact Screws 10 should make contact with Contact Studs 9, but should not be so tight that they prevent Bush Wheel 8 from being turned. Two Washers are now slipped on to the Rod, followed by Bush Wheel 12 which must be free to turn, being held on the Rod by a Collar 20 beneath Double Bent Strip 13. Finally, Angle Brackets 18 are bolted to a 2½ in. by 2½ in. Insulating Flat Plate 21 to each corner of which an Angle Bracket 22 is secured.

The whole remote control unit should swivel in Angle Brackets 18 to bring the respective ends of Curved Strips 17 in contact with corresponding Angle Brackets 22. When the unit is wired-up and in use, current will pass from the