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SEPTEMBER 1960

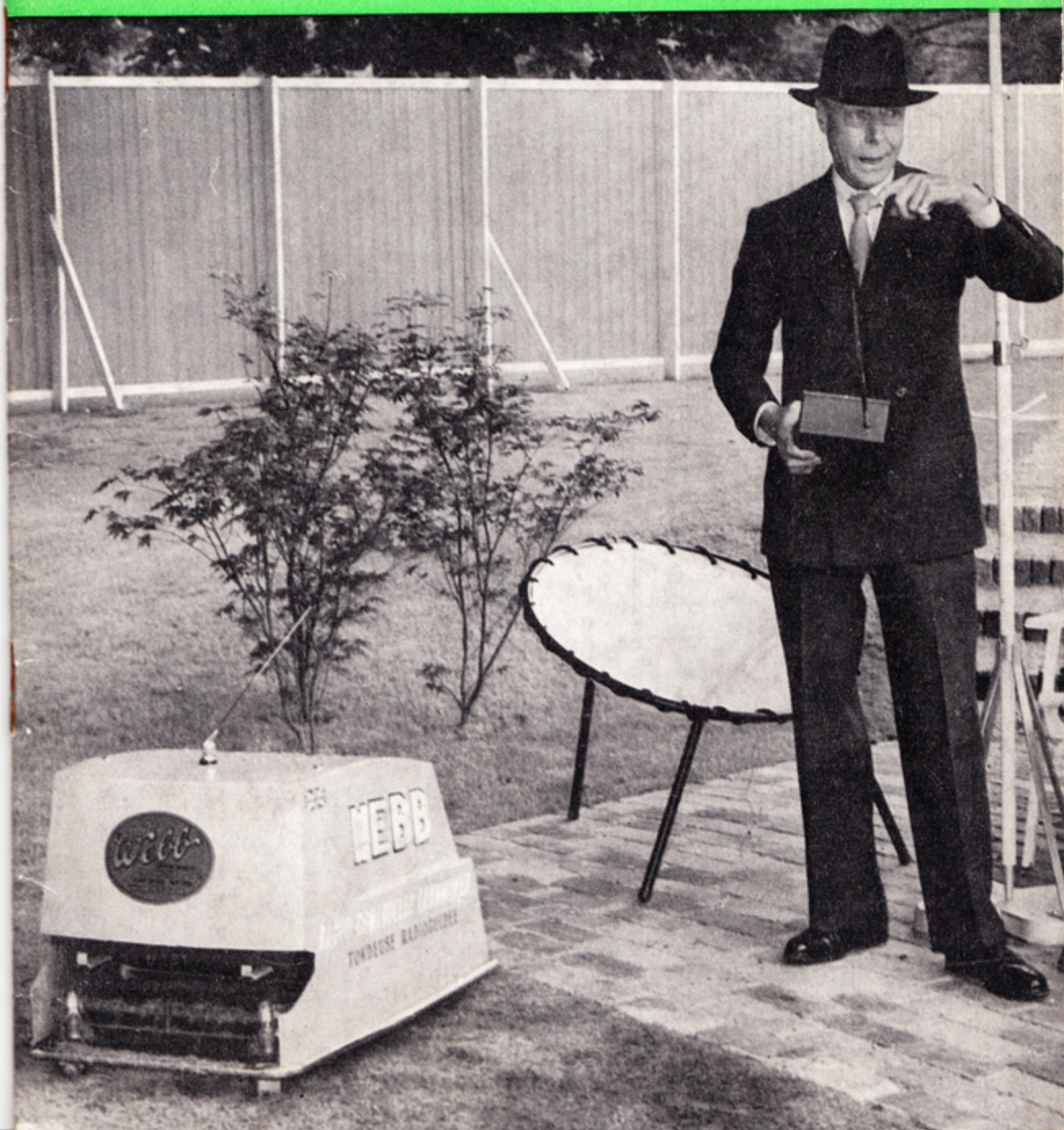
Radio Control Models & ELECTRONICS

Free Inside

PULL-OUT FAULT
FINDING CHART

★ ★ ★
THE NEW "IVY"
BEGINNER'S RECEIVER

★ ★ ★
PRICE - - TWO SHILLINGS





VOLUME 1 NUMBER 5

SEPTEMBER 1960

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Here, There & Everywhere

Unlucky for Some !

OUR first need this month is to apologise to those of our readers who failed to collect their copies of last month's RADIO CONTROL MODELS AND ELECTRONICS on the proper publishing date. There is nothing quite so frustrating and annoying as to rely upon a copy of one's regular magazine on a due date and then find that for some reason it is not there. First impulse is of course to take it out of the unfortunate retailer by the implication that he has failed to order it; to suggest that every other shop in the district has had it for days and that he alone is at fault . . . and so on. Well this time, it was us, we are sorry and hope that this number is right up to time.

A Jolly Good Job

This leads quite naturally, into our next need. The magazine is expanding nicely and we should like to engage a suitable young man to expand with it. What we want is a reasonably skilled radio control enthusiast, preferably in-

terested in both boat and aircraft aspects, free of service ties, aged in the lower twenties, who would like to make a career of technical publishing. We do not expect knowledge of the technical side of editorial work; the right sort of man will naturally have a fairly agile pen and a good eye for pleasant arrangement, but we are happy to teach him the editorial side if he has the necessary technical background.

The job will first of all be as an editorial assistant (which means being the office dogsbody for the time being). As soon as he is competent enough to work with a minimum of supervision, then he can expect promotion to Assistant Editor, which is quite an important role. Finally, in the not-too-distant future he will rank for elevation to the ultimate status of Editor. It is a nice chance to grow up with us, we are a friendly team, and the right sort of man will enjoy a real welcome, and have a chance of getting paid for what thousands do for fun. If you think you fill the bill drop us a line in confidence and we will interview the likely pros-

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Subscription Rates : 12 months (home), 28/6; (overseas) 27/6, including enlarged Christmas Number.

pects. Letters addressed to the Editorial Director and marked "Editorial Assistant" should contain details of modelling and educational background and employment to date. We hope to make an appointment to start in the early autumn.

Two Princes

Cover picture this month shows the lazy gardener's dream of heaven—a radio controlled lawn mower. This is a British Webb machine on show at the Miracle Garden Exhibition in Paris, hence the French titling. Wielding the Tx.—yes, it is indeed our old friend the Black Prince, and E.D.'s have done a vast amount of development work on the project—is H.R.H. The Duke of Windsor, interested as ever in all that is new in the world of labour saving inventions. We have asked Vic Rigby, E.D.'s development electronics man to tell us something about R/C lawnmowers, and their own work in particular (*Photo Associated Press*).

Kingston-upon-Hull Boat Meeting

With full-hearted support from the local corporation the Kingston-upon-Hull Group of the I.R.C.M.S. staged a most successful meeting on the model boat pond in East Park on June 5th/6th. Home club took the timed speed event with an Aerokits Fireboat piloted by J. D. McLean. Tyneside Group brought along some good R/C yachts, with N. Armstrong and D. White of Newcastle the winners of both timed and handicap events. Steering events went to W. Darragh & Son of Wetherby (good old father and son combinations!) and B. Burrows (Manchester) and local man J. D. McLean again. What pleases us is that Parks Superintendent H. Roscoe

came along to show his council's support by presenting the prizes. As Vice-Chairman of the group Jim Spandler writes: "... We are really fortunate in having a Parks Dept. who are interested and give us every assistance". For those thinking of going next time—and there should be a lot of next times—the pond is 420 ft. by 60 ft. and 4 ft. deep, concreted all round. I.R.C.M.S. Boat Internationals were held here in both 1958 and 1959. You lucky people!

The "Ivy" Circuit

In its day the "Ivy" circuit evolved by Tommy Ives enjoyed almost worldwide fame. Production difficulties prevented the designer ever marketing it as a ready made job, except in very limited numbers, but this did not prevent a number of sets coming out that either acknowledged their debt to the "Ivy" or copied it more or less successfully. In spite of this, it has never been published officially in any model magazine that we have read until now, when we offer it in new ultra-simple form as a first ever for the complete novice. Novices' so-called receivers are legion, but most demand at least some knowledge somewhere. Our version requires only that the builder can read! Thanks to the co-operation of MacGregor Industries readers can obtain a suitable tagged panel, with tags numbered, ready-wound quench coils, and all the parts required for its construction down to a length of cored solder. All that the would-be builder requires to get is the relay and valve. As a beginner, he will probably not have a suitable soldering iron for electrical work. But it does not matter! Even a fairly hefty bit can get at these carefully arranged components. Later, he can invest in a good

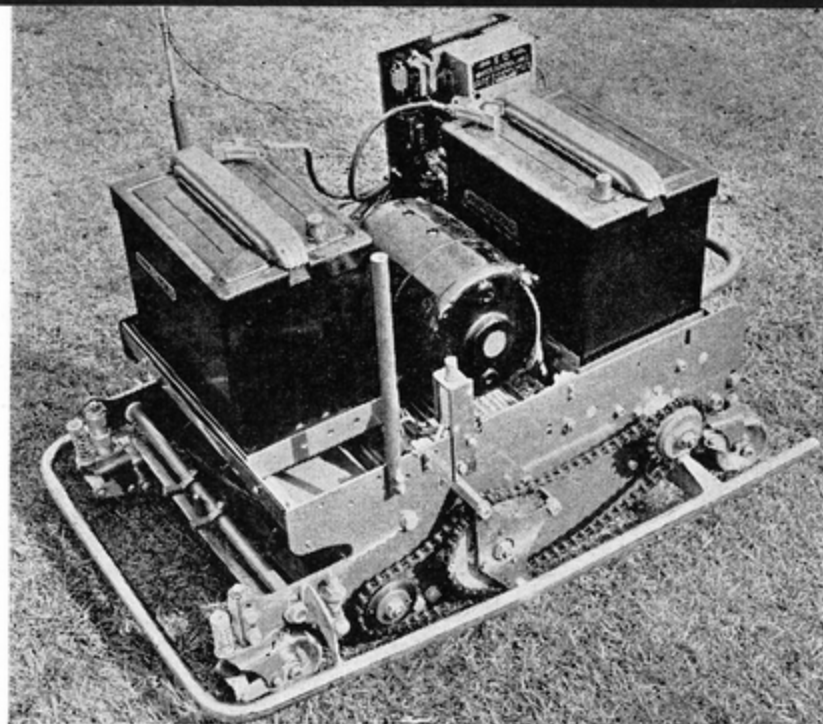
Community spirit! Parks Superintendent H. Roscoe at the Kingston-upon-Hull Boat Meeting presents local start J. D. McLean with his prize. Other councils please copy!



Robust Webb lawnmower with top removed. 24 volt car accumulators provide the power, whilst the faithful E.D. R/C equipment can be seen top right. Apart from small steering castors mower layout is fairly conventional.

Vic Rigby

Electronician to
E.D. Ltd. describes
his work on



Commercial R/C Lawn Mower

THIS project was a most interesting one. The lawn mower was developed by Messrs. H. G. Webbs Ltd., of Birmingham. Early experiments with the machine operated by trailing cables and fitted with switches, proved that the machine would really work. Our job was to install the radio link. At this time we were almost ready to place on the market our new "Black Prince" and "Black Arrow" series. We felt that this presented a golden opportunity to give this equipment a thorough testing, by installing standard equipment into the mower.

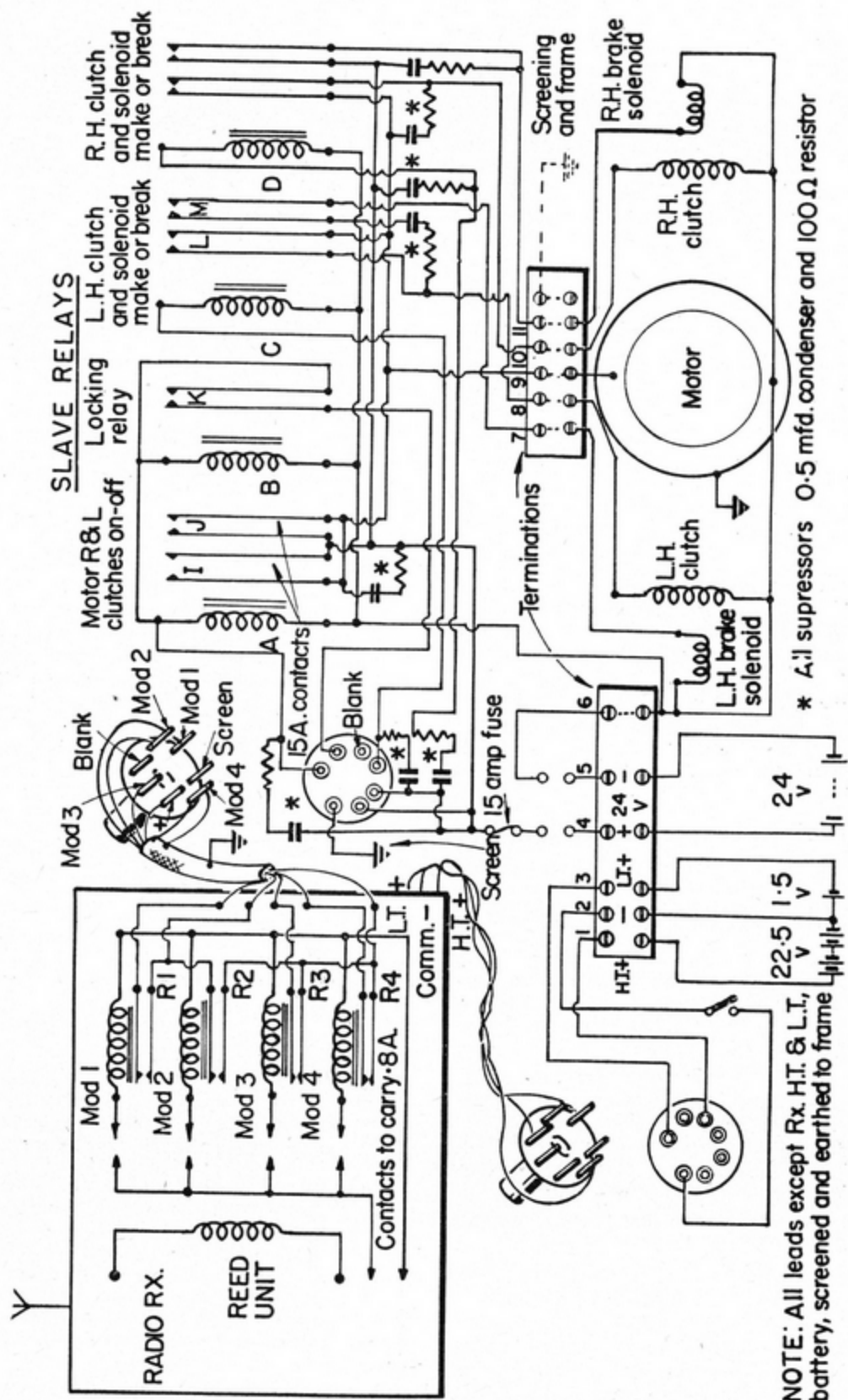
The main power for the machine was derived from a $\frac{1}{2}$ h.p. electric motor supplied with 24 volts from two 12 volt car accumulators wired in series, this produced approx. 2 $\frac{1}{2}$ hours continual running. This type of propulsion was used for two reasons, firstly for the quiet running, secondly the low running costs (many people who run cars have battery chargers).

Having fitted the radio link together with the auxiliary relays we were ready to test. After starting and stopping the motor a few times, the motor continued to run on its own, inspection showed that the contacts of the motor relay, which were rated at 10 amps, required 15 amps to cope with the surge. These were replaced, and further tests were made, more trouble arose, this time with turning radius, declutching from the split rollers was not sufficient, and

brakes, operated from the solenoids were installed. This worked well and the mower could be turned in a radius of three feet; this was thought to be adequate. All was now ready for testing on a lawn, after a few preliminary runs I soon became quite proficient and was soon doing the most intricate manoeuvres around the flower beds, and in and out of the trees, through narrow gaps, stopping inches from obstacles, eventually, however, the mower came to an abrupt stop, wrapped around a small tree. In my excitement I had forgotten just for a second that the direction was reversed when coming towards me.

More tests were carried out, and the machine was then given back to Messrs. Webb Ltd., to take over. The first major exhibition was the "Chelsea Flower Show"—no trouble was experienced during the whole period of the show. The mower continued to operate for approximately five hours per day. This mower has now been shown at every main gardening event throughout Britain, and has since been to the Parish garden show, where great interest was shown.

The radio operated perfectly during the whole year, in fact, I was told by Messrs. Webb Ltd., who for a matter of interest moved a field of grass $\frac{1}{4}$ of a mile away, and perfect control was still possible.



Operational

Sequence of mechanical operations of the mower when Mod. M1, M2, M3 and M4 are received in consecutive order from the R.C. Transmitter.

Action due to Mod. 1.

D.C. current is passed via contacts R.1 and R.2 of the small Radio Control relays, through winding of slave relay A to 24 V.; due to this relay A will become energised. The winding of locking relay B same being connected in parallel with that of relay A will also become energised.

Contacts I, J, K will close (I and J are connected in parallel to allow a greater current carrying capacity), and same being in closed position will cause main drive motor to start. Contact K also being closed will bridge contacts R.1 and Mod. 1 will no longer be required to keep motor running. Its circuit now being maintained by relay B.

Contact R.2 being in series with R.1 is normally closed and it will be observed that it is in the 24 V. + side of the supply to relay A and B.

Action due to Mod. 2.

H.T. + supply to relays A and B is broken by the opening of contact R.2 and motor will stop.

When contact I and J are closed at the time when motor is switched on, 24 volts + will also be passed to contact L of relay C and to contact N of relay D which are normally closed. The remaining sides of these two con-

tacts are connected to one side of the two land rollers clutches, namely Nos. 8 and 10, on tagboard respectively. No. 8 being the left hand clutch and No. 10 the right hand. The other side of the two clutch windings return to 24 volt —. It will be seen therefore that when motor is in operation both clutches are energised and are held in the 'OFF' position. Referring to relays C and D again, there are two remaining contacts namely M and O which are wired in positions 7 and 11 on tag board respectively. These are normally open, but when closed complete the circuit for the land roller brake solenoids. No. 7 being left and No. 11 right.

Action due to Mod. 3.

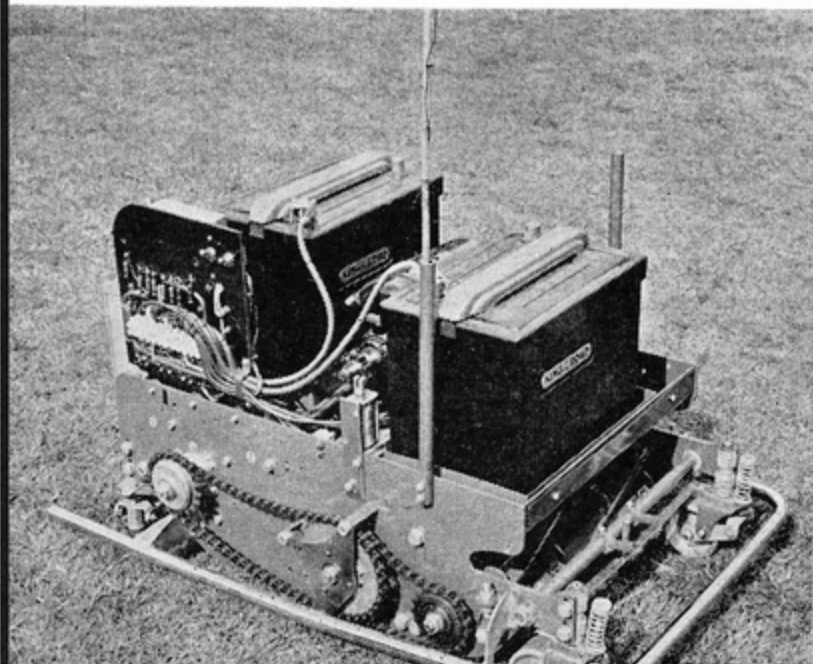
Relay C is energised by the closing of Contact R.3. Contact L on relay C will therefore open and the L hand clutch will become de-energised. At the same time contact M will close causing L hand brake to operate. Mower will now steer left due to the pivot action on the L hand side.

Action due to Mod. 4.

Relay D is energised by the closing of Contact R.4. Contact N on relay D will therefore open and the R hand clutch will become de-energised. At the same time Contact O will close causing R hand brake to operate.

Mower will now steer right due to the pivot action on the right hand side.

The .5 M.F.D. and 100 ohms networks represent suppressors across contacts.



Offside of the Webb lawnmower, which gives more detail of the E.D. installation. With metal hood in position as shown on cover the R/C and electrical equipment would be adequately protected from grass clippings. Grass box would clip on to front by castors.