Terra firma won the arguments. Reports are Leonard McCoy is as avid as ever. Spare shines through carnage in great shape. Damage will be complete when trunk mashes protruding aileron.

by Ted Strader

R. C. Channel Chatter

▸ About this time of year the icy blasts of winter are beginning to be felt in many parts of the land. The flying sites are fast being deserted as modelers retire to their workshops to repair, rebuild, redesign and rework their schemes, for the time when they will return in the spring. This is the time to dream and scheme. Now that we all have a little more time to digest the more intricate facets of the R/C hobby, let's take a look at a few commercial ideas which have come to us recently.

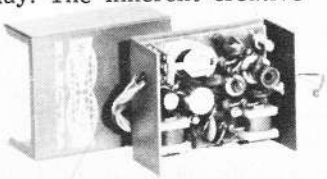
A number of interesting things are on the agenda for this session, including three control schemes, some new receivers, and gadgeteering on the part of some clever modelers.

● R/C has had its lumps through the years. As the hobby grows in scope and popularity, its growing pains become more acute. But problems have been with us from the very beginning. Those of us who have been in R/C for several years can remember when the big problem was getting a ship large enough to haul our single channel console size receiver, and keeping it working for at least the greater part of the engine run! (This problem still crops up occasionally!)

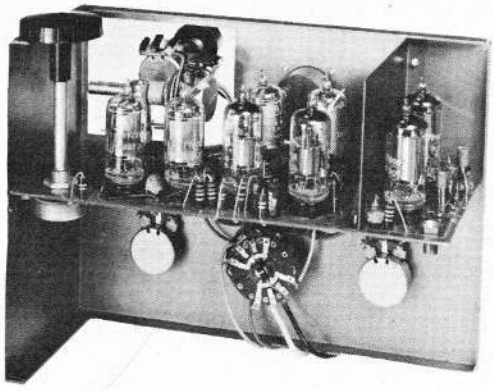
A bit later the FCC offered a little relief, in opening up two examination free frequencies. With this respite came better and more complex equipment. Some of this equipment was in the form of traffic light controllers, and subscribers to Class D radio communications, which rubbed some of the gloss off the hobby.

Relief came again to the sport, this time in the form of extra frequencies. The singing and dancing lasted only long enough for us to realize that a new concept was needed in receiver design. To make these frequencies mean anything, the superhet receivers were developed. Also on the was was a tightening of technical requirements on equipment by the FCC. And so it has been and will continue to be, we feel, for the life of the hobby.

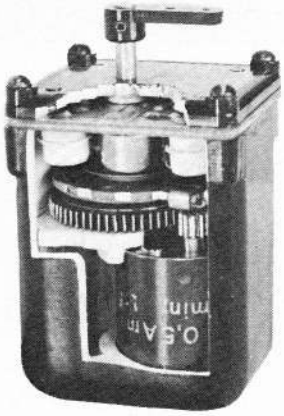
The bright side of this brief biography of R/C can be found in the enthusiasm of the R/C modeler, himself. Though the hobby has had more ups and downs than a roller-coaster at Coney Island, it has continued to grow into one of the largest technical hobbies today. The inherent creative



Below: The new World Wide "Electra" transmitter and the receiver with chassis removed.



Solidtronics transmitter sends four commands simultaneously. Stick control, knobs for trim.



Solidtronics 2½ oz. servos have a Micro-motor, five transistor amplifiers, 90° arc.

Eddie Morgan's 9' Piper J-3 Cub. Modified twin McCoy .60, an Orbit 8, 266 flights.

ability of modelers and gadgeteers attracted to R/C is whetted by this fascinating field. It takes real dedication to a hobby and an idea to spend the time and money necessary to enter R/C, and then (as sometimes happens) walk over and pick up the pieces. Some of these lessons are learned the hard way, and the goal is to find out what went wrong so next time it will land on its wheels!!

Not all of the problems of R/C have been or are technical. Some appear in the form of rules, or experiments with rules on the local level. Some have even come in the form of the regulations passed by the AMA. In many cases these new rules problems are not as disasterous as they appear on the surface, though there can be far reaching effects if not appraised in the proper light.

Prime concern is for the hobby in general and the Intermediate category in particular.

Though the average Pea Patch Pilot may never venture to the Nat's, he still looks to this event for trends. The natural progression in R/C is Rudder-Only to get started. From here the average builders extend their ingenuity to Intermediate and then many go on to Multi. Not all who get to Intermediate move on to Multi. Some because the cost of Multi is a bit beyond their pocketbooks, but most stay in this category because of the latitude it offers to the fertile mind. No other class in R/C offers as much room for mechanical experimentation. So why the crying towel?

For the past few years Intermediate has made a rather poor showing at the Nat's. Those who do look to this great event as a guide to their future activities, might have the feeling they were aboard a sinking ship, not being able to afford Multi, not wishing to retreat back to Rudder-Only.

One possible reason for a declining interest in this class might be attributed to pride. Rudder-Only is mostly for beginners and sport, but when it comes to contests, we surmise many feel they are traveling second class with Intermediate as compared to

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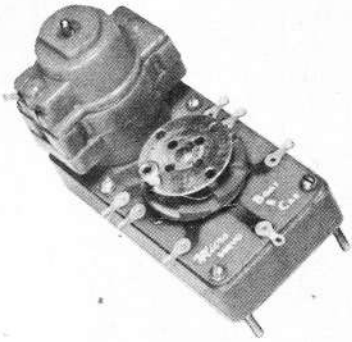
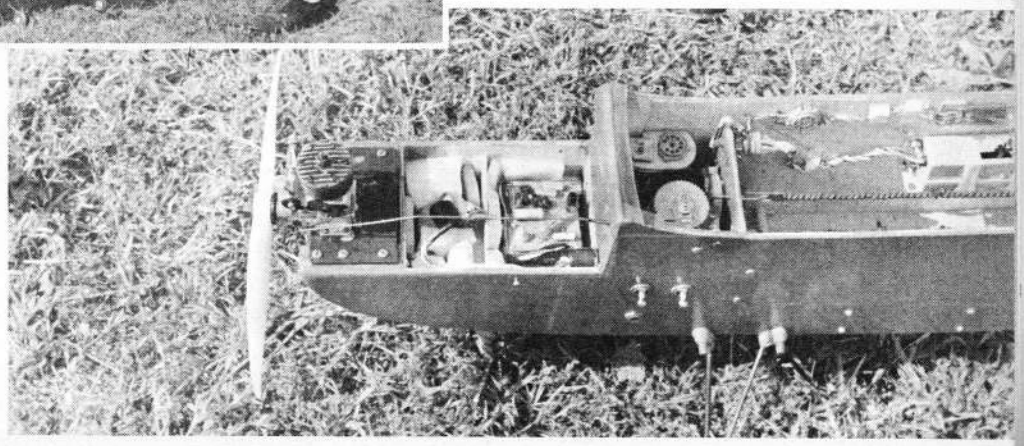


Above: Cobb Hobby's new Micro B-C servo has been designed for use in R.C. boats and cars.



Above: Max (at left) and Bud Atkinson prepare Max's Intermediate, described in the accompanying column, for wild sortie upstairs. To witness this fine ship fly is an experience. On single channel, Max signals two Bonner Varicomps which work PC Switches. These then in turn operate a servo, which drives rudder, ailerons, elevator and engine speed controls. Craft executes fine rolls, even outside loops.

At right: Same ship with inside exposed. A neat precise servicable installation.

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Multi. If this would happen to be the case it couldn't be further from the truth. One would only have to witness one flight, as we did recently, of Max Boal with his single channel "full house" ship to be convinced that this is the class that requires everything a modeler can muster. To win in this event you not only have to be an excellent pilot and builder, but an engineer, technician, machinist, schemer and a few more things rolled into one!

The flight we mention involved Max's latest arrangement. The ship has one of his original single channel receiver, tied to a Mickey Mouse arrangement of two Bonner Varicomps working PC switchers, which Max manufacturers. The Varicomp's the decoder, which in turn commands a switcher .The switcher in turn commands a regular servo connected to the control surfaces. From this he controls rudder-elevator-engine-ailerons ! ! True, he doesn't have simultaneous control of these eight functions, but you're hardly aware of this shortcoming as you watch the ship do rolls and outside loops! It's after watching such a performance that we make the observation a flyer is truely in his element and on his own experimenting in this class. Give it a little consideration.

A long time ago we climbed up on our shaky soap box to crusade for only two classes on the National level; Single Channel and Multi. R/C has grown up to the point where we feel Rudder-only has no place at the Nat's any more. Let this be a Novice category. We feel that there would be a greater contest of ingenuity in Single Channel as those competing would be after every control they could muster by any means they could devise within the single channel limitation.

Before some of you Rudder-Only contestants take out a hunting license with my hide as your next trophy, keep this in mind. We mean these changes on the national level, not local. Our desire is to see R/C grow by any means and nothing derogatory is intended or implied. The majority will have its say in the final analysis and we'll accept the decision. In the meantime give it some thought and drop a line.

● Three new control schemes have come to the fore of late which should do much to stimulate R/C. Two are in the Intermediate class and one is in the Multi. Each could be considered

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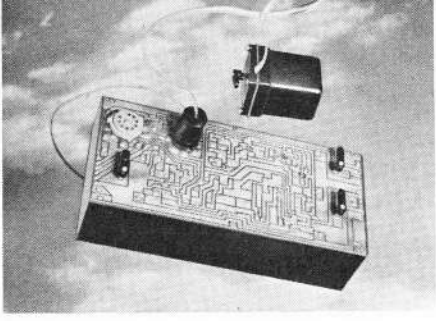
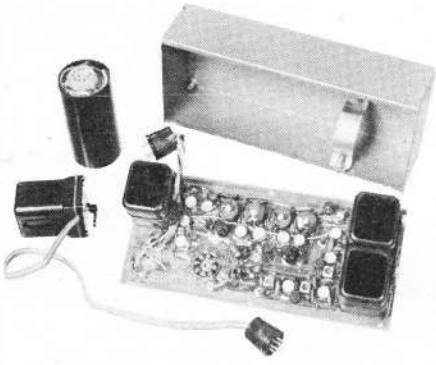
tops in its category, and interesting.

First let's move to the newest entry in the Multi class called Space Control. Considering what it will do, one might be tempted to refer to it as Ultra-Multi!

Space Control is a new Quadruple-Simultaneous Proportional control recently introduced by Solidtronics Division of Electrosolids Corp. of Van Nuys, Calif. As you may well imagine this is about the closest thing to being in the cockpit yet devised.

Without going into a complete technical shakedown we will outline the rig in lay language. Basically the circuit, designed by Hershel Toomin, is a form of multi-plax which, in effect, allows the transmission of four commands simultaneously without interaction or interference to one another.

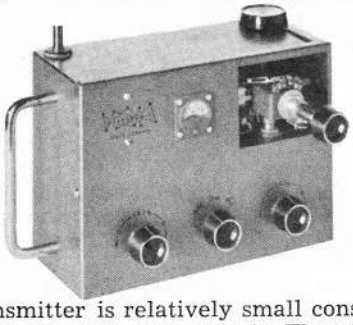




The receiver (superhet with 35 transistors) decodes the information and passes it on to closed circuit servos (feedback type system).

Through the system used in transmitting command information to the servos, a true proportional control is achieved, as the controls move in direct proportion to the movement of the stick!

The Space Control receiver is enclosed in a protective can which also contains three of the servos (R-M-E) and a power converter developed by Zel Richie. The fourth servo is separate, to be built into the wing. The



transmitter is relatively small considering its eight tube circuit. The stick is so constructed as to operate elevator and ailerons (as sticks do on full size light planes) with a knob on the stick for rudder. This will require a bit of educating, for those of us who have gotten used to the stick operating rudder when moved from side to side.

According to Hershel, with whom we had a long conversation recently, this is the end result of 15 years of dreaming and almost three years of final testing. The system has been wrung out, survived crackups and given the final count down. Now it's ready for the public. As you might imagine, this complete system will put quite a load on the budget and will probably hit the market at about 5 bills! Let's hope mass production can bring it into reach of many flyers.

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The two other control systems we wish to talk about, fall in the Intermediate category and are within the price range of most of us. Both of these, the Cobb Hobby system and the Tomoser Manual Multi, have been mentioned here at the time they were introduced. So many inquiries have been received that we decided to pass along our observations of each from actual operation.

Both systems are basically similar in the controls they operate, however, each has a few points peculiar to its own design.

The Tomoser Manual Multi is a variation on Herb's original 5SC & 5EC which worked as a unit. In the early design it was necessary to have the 5EC control box to accurately trigger the 5SC servo. The new scheme also works as a unit with these refinements. The control box uses a stick instead of push buttons and is not necessary for the successful operation of the 5 C servo.

The servo is a four step mechanism with a circuit included to blip for escapement engine control. These steps can be very easily mastered by the push button method for very smooth control. Use of the motor driven stick box makes counting obsolete and flying much simpler. The servo has an adjustment to control the speed in relation to the battery compliment used. The box has three adjustments to "tune" it to the servo's actions. Only two adjustments are usually ever used after the third, a point adjustment for contact time constant, is set.

In actual operation it is possible to go back and forth, from up to down, without having to wait for the servo to cycle to its normal neutral. This feature is necessary if the flier has plans to do any figure eights.

We have used both Tomoser arrangements and like them both, however, the stick version is easier to handle. At present we are using the old system in our Ryan ST and the new system in a Whirlwind. The only weak area we have found is the base of the Uniperm motor which tore loose during the unsuccessful conclusion of a shoulder high loop with a WW. So now we remove the cover and wrap a length of black plastic tape around the motor, binding it to the base.

The Cobb Hobby Micro "4" is a similar setup and accomplishes the same end. This arrangement, also, works through a stick controller, but can be triggered by hand with smooth results.

The servo is very light and strong and small enough for the tiniest (within reason) R/C ship. Though the Micro "4" has arms to mechanically move both rudder and elevator, it also has a switching plate to operate a servo if it is desired for elevator. We found the little unit to have more than

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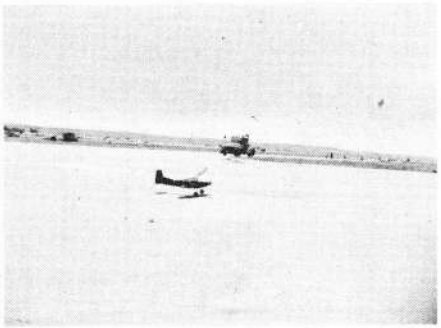
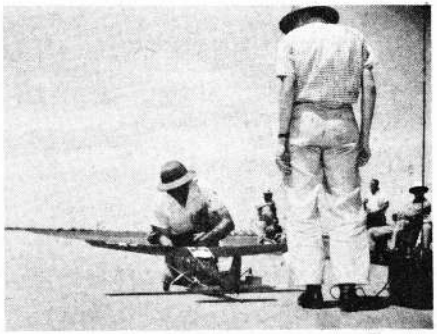


Typical of all action shots of R.C. at Nat's. Photog's kept too far off, C.D's take note.



Marine version of Bird Dog, multi scale R.C. by Robert Wischer. A take-off photo at left.

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ample power for most any size ship the user would plan to build. This unit, also, will give up-down-up-down in rapid succession, without allowing the servo to seek its neutral.

Both the servo and stick controller employ an electric brake, to precisely stop each unit. This adds a pencell to each but is well worth the tiny increase in weight.

Engine control is obtained by the blip method with this system also.

The only improvement we could suggest on the Cobb Hobby control would be to install the stick controller in a metal box for ease of handling and as protection of the unit. The company suggests a 10 ohm variable resistor in the battery lead to allow speed adjustment of the controller when "tuning" it to the servo.

We have also spent a great deal of time operating this unit and find it does all it was designed to do and at a very rapid clip.

● As usually happens about here, we begin to run out of space. Next time we want to tell you about a new event staged by the Kansas City R/C Club, plus a few other tid-bits. In the meantime drop a line and tell all about your latest activities. Pics and sketches are always welcome.