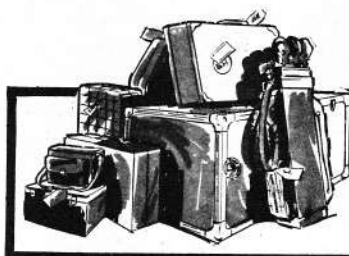




# from the GROU



Brother Ted's arrived at RC  
the wild blue . . . . .

. . . . . so, where were we?

For the past two weeks I've tried in vain to assemble the right choice of words which would bridge the gap between yesterday and tomorrow, insofar as t. strader (boy R/C bungler) and his haunted typewriter are concerned.

. . . . . and it "ain't" happened yet, But, time and magazine deadlines wait for no man! The circumstances surrounding my popping out of one place and popping in here are of little actual value. Suffice to say that I'm very proud to have become a member of the RCM team!

Essentially my function here will still be to get as many prospective pilots off the ground — R/C wise — as before. However, I hope to make this monthly RCM get-to-gether a composite of everything RC from the simplest Rudder Only to the most vexing Multi, with a healthy helping of things experimental in-between.

With this in mind, I hope to hear from you by letter, card, or carrier pigeon. Pictures, information, sketches and ideas of what you're doing or planning will be most appreciated. To save time, feel free to write me c/o P. O. Box 2555, Schenectady, New York 12309. This will save much time

and remailing. Club secretaries, please take note: I want every scrap of info regarding the activities your mob is participating in, too.

With you in mind, we'll spend the next couple of issues setting a format, tossing out some idea, (running a few of them up the flag pole to see if anyone salutes!) and generally discussing R/C from one end to the other. Some of the projects I'm working on at the present time will be brought up in the near future—those which involve designs will be featured in forthcoming issues of Radio Control Modeler (at the discretion of the Editor!). Design-wise, the next bomb will be the Scorpion, for those who like their ships on the larger side. I

*Cliff Piper, MC of Hampshire Country RC'ers Rally, reading off lucky ticket in raffle which netted over \$200 for AMA/FCC Fund.*

know this 56" shoulder-wing scamp is tough 'cuzz I've already tried to screw it into the ground! Straight down, full bore, hard clay, all stops pulled! Damage: two, soft internal bulkheads gave way to the irresistible force of receiver, batteries, and servos which displayed a strong desire to "get ahead." Aside from this, no marks or serious damage to the entire structure. And, though the Scorpion was not designed with beginners in mind, its resistance to such "shocks" should put it in good stead with newcomers to the "art" of multi and/or dual proportional!

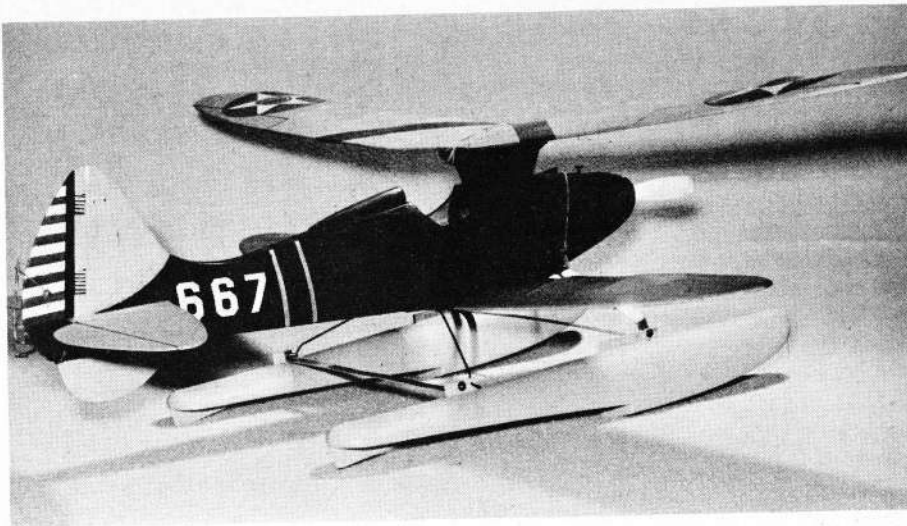
On the 15th of June, Dale Springsted and I drove over to Northampton, Mass. to attend the Hampshire



by TED STRADER

# ND UP

Join him in his monthly venture in



Don Foster's Gee Bee Float equipped Chicken Hawk dolled up in P6 colors and ready for water.

County Radio Controllers HCRC AMA Rally-Conference. The theme for this meeting, essentially, was to raise money for the AMA-FCC Fund. The underlying hope of the HCRC'ers is to initiate a yearly affair much in the same vein as the Toledo get together or the DCRC Symposiums . . . and with their enthusiasm, they should build up to this status!

In the money department, the group was able to turn \$215.50 over to the AMA-FCC Fund! Not bad work for a club of 17 members!

The highlight of the evening was a most convincing talk by John Worth, AMA Executive Director, on all phases of the present day AMA. Of prime interest to the 150 RC'ers present, of *Walt Schroder, MAN's Man-At-Work, and HCRC guest speaker, watches as son John prepares projector to show "home" movies of John's piloting skill.*



course, was the work AMA is doing with regard to relief in the congested frequency department. It looks very encouraging — however, this is no time to let up. The work may take three years and the AMA-FCC Fund will continue to need your financial as well as moral support!

As an interested spectator, I could not help feeling a sense of relief, knowing a modeler of John's caliber with drive, determination, and ability is setting in the AMA driver's seat!

It was also very encouraging to note that there were several young modelers attending the HCRC AMA Rally-Conference. Cliff Piper, anchor man for the evening, and his entire club are to be roundly applauded for

not only getting some youngsters interested, making them welcome, but also devoting a part of the evening to them.

. . . . and the many manufacturers who donated merchandise to the club, but who were unable to attend, can be assured that their donations were greatly appreciated and prominently displayed for all to ogle!

All in all, the evening was most enjoyable. Adding to the atmosphere was the presence of such well known modelers, as Lew Andrews, Dick Jansson, Harv Tomasian, Dale, John Ross, Harrison Morgan, Lee Renaud, and Walt Schroder (Ed's Note: Who?) and his son, John. The air was heady with model talk!

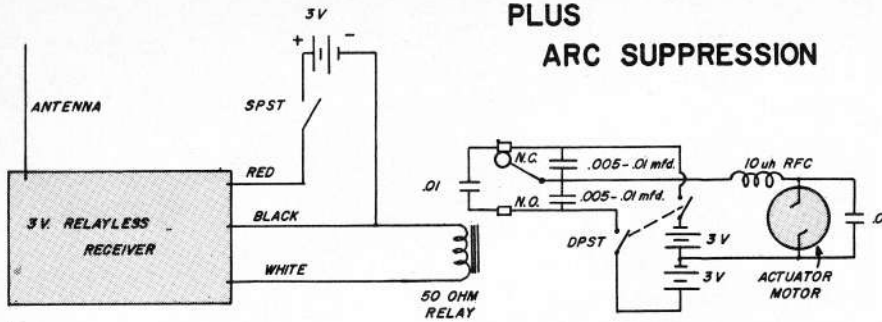
Received a letter from Bill Bartley, Jamesburg, N. J., about pulse in general and battery drain and uneven pulsing of motor-type actuators in particular. This is a common, though oft-times easily solved problem, if a series of checks are performed on the entire pulse system.

Just for the moment, let's switch the scene to mention that an arc suppressor circuit we're including in this month's column may also solve the problem of erratic actuator action while enabling you to place some of today's most inexpensive receivers into pulse service. When we get around to describing the arc suppressor, we'll point up why some systems are off-center.

Now, back to Bill's problem:

Though the problems were encountered while using a Du-Ac, they are common to all types of actuators,

## RELAYLESS TO RELAY CONVERSION



- CONNECT RELAY COIL AS IF IT WERE AN ESCAPEMENT
- MOST CAPACITORS CAN BE INSTALLED TO RELAY CONTACT PLATE
- AN ADDITIONAL 10 UH RFC (CHOKER) CAN BE INSERTED IN OTHER MOTOR LEAD

even magnetic, if all parts of the system are not in harmony.

Let's take it step by step, shall we? Just what causes off-center pulsing? Actually, it can be caused by the pulse box, the receiver relay, either set of batteries in a two-set power supply to the actuator, the receiver, or even the linkages to the control surfaces. In other words, just about anything can cause it, so the entire system must be systematically checked to determine just which part is the culprit. (In Bill's case — and lucky for me — he discovered that this problem was the relay, not the Du-Ac! I was getting prepared for a hanging!)

More often than not, the relay causes off-center movement of a motor-type actuator — not because the relay is not operating as it's designed to — but rather, because it hasn't been properly adjusted to accommodate pulse service. As built, R/C relays are designed and set for use with either escapements or servos. They pull-in upon receipt of a predetermined amount of current and drop-out when this current is either diminished or removed.

In pulse operation, this same relay has to be "balanced" to give satisfactory service. The balance, in this case, is to get an equal pull-in and drop-out movement and contact pressure. The better the balance, the better the actuator will work — all other components being up-to-par. (We didn't realize how lucky we were, years ago, when the only relay available was the big Sigma 4F. It had a hair spring type adjustment to balance the pull-in and drop-out of the armature which made balancing an actu-

ator as easy as possible.)

A word of caution — if you find that your relay is needing some fine adjustments! Use extreme care when bending the spring retainer tab on today's tiny relays for more or less tension. They are delicate items which are not designed to withstand much "horsing around."

One other case of uneven actuator movement is an electric motor which, because of uneven magnetism in the field magnet, has a tendency to pull more in one direction than in the other, even with equal battery supplies on either side and all the rest of the system checking out A-OK. In checking and using a few thousand tiny electric motors, we've rarely found one where this condition was so pronounced that it couldn't be corrected by relay armature adjustment.

Thorough system checking will usually isolate your "culprit" either in the relay tension or one or the other of the actuator's battery supplies. However, don't rule out linkage friction.

We've all gotten quite a bit of help lately by the appearance on the RC scene of high quality electronic pulsers which have built-in centering adjustments. This fact was graphically demonstrated to me just a few evenings prior to this gab session when I decided to see if it was possible to use at least one of my three idle relayless receivers. One is a three year old Citizen Ship LT3 and the other two are kit models and very inexpensive — the Ace 3VK and Controlaire 5. On separate occasions I've hooked each to a 50 ohm relay (relay replacing an escapement with black and red leads from receiver hooked to coil of relay) to see if any one would pulse,

as is.

With the relay attached, but no actuator wired into the points, each receiver was noted to accept pulses as fast as my pulse box could send them out. But, when a motor type actuator was attached to the relay, each receiver began to run wild, indicating that the electrical "spikes" generated by the motor of the actuator (in this case, a Go-Ac) triggered the receiver. Tests with other types of motors in different makes of actuators and/or servos resulted in the same erratic type behavior.

On the evening in question, I'd decided that some experimenting was to be done to see if at least one of these receivers could be quieted down and pressed into service. (Now, it should be reaffirmed that each receiver works perfectly with escapements — the primary function each was designed to perform!)

A simple test harness was made which included a 50 ohm relay, three two-pencell battery boxes, and a female plug which corresponded with the three pronged male plug being used on the receivers. I don't recall which receiver started the test, and it doesn't matter, as the final results were unanimous.

With the transmitter nearby, antenna collapsed, batteries in the pulse test harness, and all systems ready, the entire bit of business was turned on. One by one, the components (see sketch) were added until the first receiver quieted down and began following the stick of the Ace Phelps pulser faithfully. But this was only one-third of the test. We were certain that this arc suppressor network would need alterations for each of the other two remaining receivers to operate — if they'd operate at all.

As luck (?) would have it, the other two accepted this network compatibly with no alterations. The added luxury was supplied by the Rudder Trim feature of the pulser. Under normal circumstances, using one relay for three different receivers would have meant an armature adjustment to the relay each time the receiver was changed. (The reason is that each receiver would deliver a different amount of current to the relay, resulting in more or less amount of armature pull-in as compared to a

(Continued on page 50)

## GROUND UP

(Continued from page 26)

constant amount of relay drop-out — in turn, resulting in an off-sided operation of the actuator). But with the Rudder Trim feature of the pulse box, centering for each receiver became a one-second job!

In this little on-the-scene description of a night-at-the-bench, I've attempted to clarify several different phases of system checking, which as this description does, ties together to give you a successfully operating rig. And, though this little arc suppressor worked successfully on three different makes of receivers, I don't want you to assume that it will work on a great many. I checked one receiver which has been working in my escapement system on the Profile P-51 and it would not allow pulse operation. However, I do feel that by increasing the values of the capacitors, even this receiver will snap into line. You may have to substitute larger capacitor values on your receiver relay to get the desired results. For safety's sake, be sure to install a DPST switch in the system as shown to eliminate the possibility of a capacitor leaking and killing your batteries.

About batteries: On pulse, one of the biggest offenders is system friction. Don't let it fool you, it's there whether in the torque rod to the tail surfaces or the rod to the engine throttle. The linkage to the throttle should be as easy to activate as it would if you were using an escapement for throttle movement. Such friction is something we all have to fight — whether you have several years, pulse experience or on your first ship. When I finished the Go-Wind a while back, I spent almost as much time fiddling with the control linkages as I did applying the finish coats of dope! Once the job was done, my reward was in the form of battery savings. I flew last year and a few flights this year on the same four pencils! And this in addition to many hours

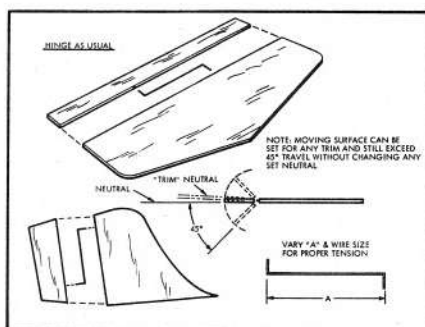
of "playing" at club meets and friendly late night get-togethers! (P.S.—I use alkaline energizers in this application, or mercury cells).

Thought maybe you'd like to see a pretty combo designed to help get you into the swim of things! Don Foster (the GEE BEE Line man) installed a set of his  $\frac{1}{2}$ A sized, ready-to-use tough plastic pontoons on his Chicken Hawk (should call this a Chicken Hawk P6-E marine conversion!). Don tells me — and everyone he meets — that, though his Baby Bee doesn't have enough steam to get this combo off the water, he has a ball hand launching it in the field and landing on the grass. Sez it hasn't tipped over on landing yet!

I'm not sure, but I have a feeling that I'm running out of magazine! Just enough space to invite you to drop a line and tell us what you're doing RC wise. In the meantime, I'm going to try and work up a tester idea for pulse fans which will make component balance easier.

Keep those frequency flags waving!

### Positive Spring-Loaded Centering for Control Surfaces



Harland Hansen of Muskegon, Michigan, suggests this method for a simple, accurate, and concealed method of spring centering for escapement operated rudder and elevator surfaces. This method is exceptionally suited for use with Babcock escapements, or with the Digitran system, where a method of light, but positive centering is required. Eliminates the need for unsightly surface mounted springs.