

"LIVE WIRE" R/C TRAINER

For the first time, — A MODEL SPECIALLY DESIGNED FOR R/C TRAINING!

The Facts...

The "Live Wire Trainer" has been especially developed for R/C training. It's STABLE, RUGGED and MANEUVERABLE, yet simple to fly. Its design allows the use of ANY RADIO including the "Citizen Ship", yet it is as simple to assemble as any "stunt" model! You will marvel at its realistic flight as it performs ALL of the maneuvers without climbing tendencies and returns to the launching point for a spot landing in spite of the wind!

Can be flown as a sport model without R/C!

The Specifications...

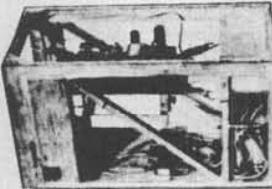
Wing Span . . . 48" Wing Area . . . 432 sq. in. Wing Loading . . . 12 oz./sq. ft. Weight with R/C . . . 35 oz. Power . . . Any .09 engine, diesel or glow Dural Landing Gear Closely matched power on and off flight speeds

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R/C with a "Live Wire"!

Exclusive Features!

REMOVABLE R/C UNIT

- ★ Remove entire radio gear in less than one minute!
- ★ Allows easy bench checks of actual equipment used in flight!
- ★ Same radio gear can be used in several models!
- ★ Change equipment at any time!
- ★ R/C can be quickly removed for sport flying!



FAMOUS R/C AIRCRAFT

NO. 2

• The Live Wire Trainer was the first R/C model design offered in kit form. The kit came out just before the Citizens Band, as we know it, was put into effect. At the time, there was a non-licensed band at 465 mhz, and a system that was quite successful was offered by Citizen-Ship Radio Corporation. This equipment, and the "Trainer", probably started many of today's "old timers" into R/C. During its lifetime, which spanned a decade, between 40 and 50 thousand of these kits were produced. Originally announced at an industry trade show at a price of \$6.95, the hobby distributors were reluctant to order it, feeling that the price was MUCH TOO HIGH, and what future could there possibly be in R/C models!

What is probably more interesting is how something as original as this gets into production, and turns out to be most successful and an answer

to a new need. If you lived as a control line flier in those days, and were serious about flying model aircraft, your dreams were about what you could do with your models, if they just did not have those darn wires attached to them. You could even have attempted, as I had, to fly them on 300 to 400-foot lines, just to get some simulation of untethered flight. Free flight had proven OK, but the real dream was to have control of that free flight model so that it would respond to your every whim!

In the fall of 1950, the Buffalo Club was one of the strongest control line groups in the country. The club held many records and was a contender at the Nats. One of our best members had gone away to school, and had got caught up in the R/C interest of that time. Our club held its annual big control line meet in the fall, and as a sidelight, Tom (his last name

skips my mind) came home for the meet and demonstrated his new-fangled R/C model. While I was busy racing and setting a couple of new speed records, I kept Tom's performance in the corner of my eye . . . waiting for the normal crash, I suppose. The usual R/C'er just did not fly ALL AFTERNOON in those days without a failure of some sort! Much to my surprise, Tom flew at will, and when the day ended, he still had his original prop on the model!

I had been carefully watching R/C for some years, feeling that sooner or later it would be the answer to my control line dreams. At the end of the contest I had a long talk with Tom, and he indicated that the time had arrived when you no longer needed to be an electronic wizard to make R/C work. He also stated that a new system that required no

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BUG (MB's first historic R/C subject, May '78) and "Aerotrol" equipment, like Tom's. This outfit was bummed off of a flying buddy, George Swank, who had put it together without much success. With a little help from Tom, and a lot of tribulations which would be a story by themselves, we finally flew successfully. The first successful flight was like giving a youngster his first ice cream cone . . . I just had to have more! The result was nightly trips to the flying field, and fly until dark.

We did have the outfit working and we did fly, but we soon discovered the shortcomings of R/C models of that day. Buffalo weather is not all as bad as you read in the papers, but there is one part of it which no one can deny; the wind blows consistently, and if you fly models in Buffalo, they must be capable of windy weather flying. To make a long story short, the "Rudder Bug" did not take too kindly to the wind, and a search of available data did not turn up another R/C design that was any better.

If there is one attribute I have concerning my modeling, it is ambition and the will to go to great lengths to find answers. At this time, a good friend of mine, Bill Winter, was at the top of the list of R/C fliers of that day. My obvious approach to the wind problem, among others, was to ask Bill's help. During many discussions with Bill, we came to a mutual conclusion; the design and construction of an R/C model could stand a vast improvement in many areas. After the initial determination of the problems involved, we got a little bit scientific about it all and compiled a list of features that a good R/C design should have. The original list was considered, modified between us, and added to, until we felt that we had an ideal combination.

The future would prove that we did more than a fair job of it. When you considered the requirements listed, you wondered how they could possibly be accomplished with the knowledge of the day. It would take a complete break-away from what was the "norm" for R/C models in those days. Remember, the first R/C models were "stick and tissue" variations of free flight models. In fact, the "Rudder Bug" was the first of what could be called all-out R/C designs. In difference to other designs of the day, the new one needed to be quick to build and not have a zillion pieces to stick together. It had to be rugged; you should be able to fly it into the ground, strap the wing back on and fly again, as you could not with

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feet, the gradient was severe, and if a pilot neglected to watch his engine temperature, trouble developed. Trouble developed with the Hornets and the radial shutters were removed. The situation worsened; engine life was greatly reduced. The exasperated Persians ordered Bristol Mercury VI engines on the second batch of Furies, and nearly all of the first batch were retrofitted with the engine. The Mercury had an advantage over the Hornet; it exhausted forward into a collector ring encircling the crankcase and thence aft. With so much heat already in front of the crankcase, the additional hot air of the desert had little effect. The last Fury in existence was a Persian Fury. Minus the engine, it was set on fire in 1948 in a training exercise for airport firefighters.

The original color scheme of the Persian Fury was all aluminum, with polished metal panels. The anti-drag ring was black enameled and the

Arabic script was black. The national insignia was red, white and Kelly green. In 1942, one Fury stationed at Meherabad had a red anti-drag ring with black markings, a red rudder with black markings, red wheel discs, and a red band around the fuselage just ahead of the stabilizer. In the middle of the band was a gold Persian crown, ahead of the band the same Arabic script in black. The upper fuselage, and apparently the upper surfaces of the wings, was desrt sand from the anti-drag ring to the red band.

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electronic knowledge was about to be offered on the market, for use in the new C.B. 465 mhz band. Everything fell into place for me. It was the end of the competition season, here seemed to be the answer to my C/L dreams, and I had accomplished about all one could in C/L.

My R/C started off with a "Rudder



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anything that existed. It needed to be functional; plenty of room for what is now outsized R/C gear, and something a guy could get his mitts into for the needed adjustments, etc.

Performancewise, it needed to be responsive to the control (rudder-only); punch the button and something should happen NOW, not later. It should fly level, like a real plane, not always reaching for more sky. Most important, of course, it should be capable of flying in reasonable winds, so that you could to flying WHEN YOU WANTED, not when the weather dictated. We take all these things for granted nowadays, and it is wonderful that our abilities have developed to that point; however, you must realize that in 1950, this was like reaching for Utopia!

There were 14 strong points on the final list, and Bill concluded that, if they could all be incorporated into one model design, we would have it made. With my ambition, I set out to

do just that, and within a period of 2 months, with help from Bill's wisdom and the modeling of George Swank, we found that we had accomplished the objectives just about to the last letter.

The first design was not the Live Wire "Trainer", as many think. Instead, it was a much larger design, which was simply labeled the "Live Wire". Later on, as the "Trainer" kit proved successful, a small run of several hundred "Live Wires" was produced and labeled the Live Wire "Senior". This design eventually was developed into another very popular R/C kit that many will remember as the Live Wire "Cruiser". The reason for the small initial run of "Seniors" was the kit cost; being a big plane, and R/C being so new, the \$14.95 price tag looked astronomical; we needed to find out if anyone would pay that much for a model kit!

When I finished the "Senior" design layout, George Swank and I proceeded to build one each simul-

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taneously. The R/C gear would be the new 465 mhz McNabb (Citizenship) system; the power a K&B and Fox .19. Both models were completed and test flown within a month. Initial test flights were hand glides from a high railroad bed into a flat field . . . we wanted to be sure the radio actually worked in the air before taking a chance with power! Also, there was more than a little concern about the flying ability of such a radical model design. I guess the record shows how successful this approach to R/C was. Within the next two months, George and I placed first and second at both the Canadian Nationals and the King Orange meet in Florida, flying against the finest R/C'ers of the time. Obviously, such success was not our ability; we simply had a far superior machine than did the more experienced flyers.

Would you believe that we were so elated with R/C that, even though we were at the top in C/L flying in the country, both George and I hung up the C/L equipment and neither of us picked up a handle again? So it was that we were off to more and more new things to do, new ideas to try and new goals to accomplish. None of this has ever ended for George and me, and hopefully it never will!

This is supposed to be a story of the "Trainer"; however, it never could be fully appreciated unless you knew how it all came about. In 1950, a good R/C system cost about the same as today, yet we had far fewer dollars in our pockets. R/C systems were precious . . . they also required constant maintenance and tinkering, which was just as difficult to do in a model fuselage as it is

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today. It would be good if the R/C gear was easily removable as a unit, so that it could be passed from model to model and easily worked on. The heart of the Live Wire R/C designs became a removable R/C unit. A box, which held all the equipment, slipped into and out of a fuselage with ease. This box was 3-1/2 x 4 x 8 inches in size, so that all Live Wire fuselages had to be that big at the wing location, no matter what the overall fuselage size was. For that reason, the "Trainer", being rather small, took on a rather pregnant look, and was more than once nicknamed the "Guppy".

Actually, this deep-bellied design proved to have a hidden asset. The engine was only an .09, thus the small prop did not need a great deal of prop clearance, so a short, flat, sheet aluminum landing gear could be used. The asset was that most "prangs" were the result of a spiral dive (caused by the rudder being locked hard-over), and the earthly contact was more flat than nose-in. With the "Trainer", such a prang simply bent the short dual gear, or popped it off, so that the fuselage would go skipping along the ground with little damage. Remember, one of the things near the top of the 14-point list was that you had to be able to prang and still fly again!

Speaking of engines, later on, we got the ability to have an "on-off" type engine control. This resulted in the use of a Mills .08 diesel in the "Trainers". This engine had the first "rotor-barrel" carburetor, and was the start of what we have today. It was a giant step when we could actually have the low engine speed and under power! Another asset of the Mills was that it would turn a 9-4 prop at the same speed that it turned

a 9-8: Thus, you test flew with the 9-9-4, and when that proved that proved that the model flew at minimum speed and the radio worked, you switched to a higher pitch to get performance. Some proof of the ability of the "Trainer", the Mills .08, and the removable R/C unit... later on, when full-house reeds came about, a full-house Schmidt reed system "R/C Unit", weighing 48 oz., was slipped into the original "Trainer" and flown very successfully! This little 48-inch model and .08 engine carried a payload of 4 lbs.

The structural design of the "Trainer", of course, initiated what is in general use today. The designer, being C/L oriented, knew more about the ability and usage of sheet balsa for construction than did other R/C designers of that period. Thus, these Live Wire designs took full advantage of sheeting, gaining

much simplicity and ruggedness. As far as aerodynamics is concerned, the Live Wire design took a marked departure from the practice of that day.

Free-flying models had never been developed to fly flatly and penetrate the wind; instead, they were expected to climb and ride with the wind. The control for flat flight and penetration was gained by developing a force arrangement that provided proportional lift between the wing and stabilizer. Thus, as speed increased or decreased, the change in lift would be proportional between the two surfaces, keeping the craft on an even keel. Problems with penetration occur because the wing develops proportionally more lift than does the tail. Wind is actually an increase in flying speed, or airflow, over the craft. Without the proper proportion, the wing lifts the

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nose, drag increases and penetration is lost. Although this could not be applied to its ultimate in a rudder-only design, such as the "Trainer", the model was capable of windy-weather flight.

Another of today's taken-for-granted things was also developed in the Live Wire design. The first "Trainer" had a free flight-type airfoil, as it was thought that such a small model, by comparison, would need much more lift from the wing. With this airfoil, the penetration was not acceptable, and it took a change to a lower drag airfoil to obtain the desired objective.

This "Trainer" design evolved into many things new to R/C. It originated as the "Senior", which was a model nearly double in size and .19-powered. It was carried over into the bigger "Cruiser", and given a scalish look in the "Champion", which is still seen today. With some further mods it became the "Equalizer", and in a larger version the "Over and Under", which were the first designs to fly inverted and perform outside loops. Later on, it gained a second wing and became the first successful R/C bipes in various sizes. Condensed even more, it became the first 1/2A type and was known as the "Kitten". Quite an accomplishment for a little old R/C design that had more "belly" than any self-respecting model really should have! If you would like to see what the good old days really were all about, give the "Trainer" a try; it will show you well, and in a hurry . . .

C/L *Continued from page 81*

to put a TR model together a real challenge in long-distance buying for the average C/L modeler. Shadow Racing can help a lot here, as they are offering molded fuselage shells, magnesium crutches (engine mounts to you), shut-off/refueler kits, a bunch of glass props, decals, etc. The killer item here is a retracting gear mechanism. Made of magnesium and titanium (maybe with a bit of unobtanium thrown in), it only weighs 40 grams and includes wheel, bellcrank, plans, and assembly instructions. The retract unit is centrifugally activated for retraction, and down-elevator kicks the gear leg back out in the breeze, a spring-return system insuring positive action here. All this for only \$200.00 . . . that is not a typo, two hundred thin ones . . . thought I was kidding about the unobtanium, didn't you? FAST—FILL PLUGS

Still with the C/L Racing side of things, one of the big problems in the last couple of years has been in getting fast-fill plugs that work right. No more problems, now that Joe Klause has released his own version of this very necessary piece. Joe sent me one awhile back, and I promptly destroyed it (another story for another time). Joe didn't catch on to my act and sent a season's supply (I can play the freebie game as well as anybody around). Since then I have been using the Kustom Kraftsmanship fast-fill plugs a lot, though mostly on R/C cars. They work very well, accept being repeatedly and violently violated with a long, thin tube, only to seal right back up, containing the fuel and pressure within the tank. Joe's KK line of products is widely distributed

through select distributors, so Local Hobby should have them in stock. Or contact Joe direct, he is a regular MB advertiser. Look up his ad for the address.

FROM LARRY HOFFMAN

Gary James ran into this Slow Rat duo down in Texas, and asked if I wanted to hear from them. Naturally I'm always looking for material, and told Gary to get them to send text and pictures. The text came, and we'll look at that in a minute. But Larry had color film in his Brownie, a no no for magazine reproducible pictures. Sorry, you should see the Foxy Lady holding the models. Talk about things being BIG in Texas . . . "Dirty Dan,

Via Gary James, I found out that you might be interested in some pictures and descriptions of some of our Slow Rats and related details. Larry Miller and I have been flying together for about four years in Slow Rat. Our Slow Rat efforts have been successful from the start. We have won 14 out of the 20 contests we have entered.

"We started off running Super Tigres and standard outboard tanks, just like everybody else. Speeds were like 80 mph. We went to inboard tanks in '76 to get a more consistent engine run. The inboard tanks made the runs very consistent, but the setting would richen in the air. To overcome this, Miller, being the brains of the outfit, engineered a carb arrangement. Our fuel system has remained virtually unchanged since. The settings will not change from the first lap to the last.

"Two weeks before the '76 Nats, Miller got two HP 35's from Aldrich. The motors have always run perfectly; they were bullet-proof. It just took us a while to learn how to use

