

**THE FEARLESS MODELERS
FROM WISCONSIN HAVE AN
EXCITING NEW R/C EVENT. GET
A BUDDY AND TRY IT.**

Mention the word "combat" to the old pro and you're likely to get a stern lecture on the perils of flying radio control combat. "Poppycock."

Follow a few simple rules and your radio will last forever. The secret is to stick to the smaller engines. Vibration -- that's what kills radios. Sure, you can follow your manufacturer's instructions and wrap 2" of foam around the receiver in your .60 powered bomb. Now will someone please tell me how many models are designed with that much room for foam? (My Pitt's Special, maybe.)

The Kettle Moraine Flyers of Hartford, Wisconsin, have been flying R/C combat for more than four years, and I want to tell you -- we are having a ball.

Imagine. King Kombat can be built for less than \$10.00 worth of materials. Not only that -- after the parts are cut out, King Kombat can be assembled in four or five hours. I doubt if you could do much better with a control line combat plane. Use one of the new 3.5 cc engines and you will fly circles around most higher powered models. (Ask Dan Sheridan from the Appleton Club.)

Now, let's talk about all those radio problems. Two servos with dead spots, four antenna wires clipped off in combat, and one battery pack lost in high grass after a mid-air. That is the extent of radio damage on my S & O radio equipment.

KING KOMBAT

COMBAT -- THE NEXT RC CHALLENGE

BY Chuck Salkowski

Ask Brother Bill of S & O Products who does the repair work on my equipment. Imagine, not one broken crystal, not one broken wire and I can't even begin to count the number of mid-air and crashes this includes. We don't even need a fancy flying field. High grass is an ideal landing strip. Even without mufflers, we have not heard from our favorite "noise complainer" for over three years.

Now I didn't mean to say that you should throw all caution to the winds even with small engines. My radio is protected by plywood on top and bottom. My connectors are always taped, not only to prevent pulling apart, but also to keep the wires from bending at the plug. My radio equipment is also sent into the manufacturer periodically for routine tuning and inspection.

And now I would like to tell you about Black Beauty.

Black Beauty was my favorite. I have a name for all my combat ships -- the better to intimidate my opponents with. Black Beauty was one of those that seemed to blend in with my personality. You might say it had character. It seemed that all I ever had to do was think of a maneuver, or point of strategy, during a combat sequence and Black Beauty would respond without my even being aware that my hands were moving the transmitter sticks. Most of my "kills" during the 1976 season were with this plane.

My next combat ship (The White Knight) turned out to be a dog. It never seemed to do anything I wanted it to. It had a mind of its own. It has a wing sheared off right now, but I don't think I'll repair it. So far my latest creation (The Silver Fox) looks like it's going to be a good bird. At least it gained a 30 point kill against Dirty Dick on its first flight.

But this is supposed to be an article about R/C combat. By now you should be fully aware of how totally involved we are in this fascinating area of radio control modeling.

R/C combat is exciting, challenging, an excellent tension reliever, and promotes a keen sense of competitive spirit. I admit that I still have a soft spot for pattern flying. I still have my "Dirty





Birdy." A tremendous amount of skill is required in order to get those maneuvers down pat enough to impress those judges. Practice each maneuver over and over. (It also helps to be a "nice guy.") Those who are patient and don't get bored and have a lot of money to buy fuel generally go on to be top competitors.

R/C pylon is nice — you don't have to be a nice guy, or use an anti-perspirant, and you can still win if you have a faster plane.

I don't really mean to knock pattern or pylon. I may still take my Dirty Birdy out of mothballs if I can ever get enough money together to buy a souped up Schnuerle with tuned pipe and whatever else it takes to compete these days. I must admit that I have made some good friends while traveling the pattern circuit. I especially treasure the many trips with Bud Weber, of Waukesha, Wisconsin, who has enjoyed some success in the Master's Class and has been a source of inspiration for me.

But as of now I'm hooked on R/C combat. I need a good plane for combat, but I don't have to necessarily be the fastest or most maneuverable. Good ol' Yankee ingenuity. One on one. Isn't this the American way to compete?

My best asset is to find a weakness in my opponent and then go in for the kill. And please don't call it "luck." We are all aware of the distance perception problem in radio control. But believe me, after four years of steady competition, we have developed a keen sense of distance. Each pass we make is most always a near miss or a kill. In 1976, we kept records of our local competition.

KING KOMBAT

Designed By : Chuck Salkowski

TYPE AIRCRAFT

R/C Combat

WINGSPAN

40½ Inches

WING CHORD

12 Inches

TOTAL WING AREA

480 Square Inches

AIRFOIL

Symmetrical

WING PLANFORM

Constant Chord

DIHEDRAL, EACH TIP

None

RADIO COMPARTMENT AREA

(L) 3" x (W) 7¾" x (H) 1½"

VERTICAL FIN HEIGHT

4 Inches

VERTICAL FIN WIDTH (incl. rud.)

7½"

REC. ENGINE SIZE

.19 or 3.5cc

FUEL TANK SIZE

4 Ounce

LANDING GEAR

None

REC. NO. OF CHANNELS

3

CONTROL FUNCTIONS

Eng. & Elevons

BASIC MATERIALS USED IN CONSTRUCTION

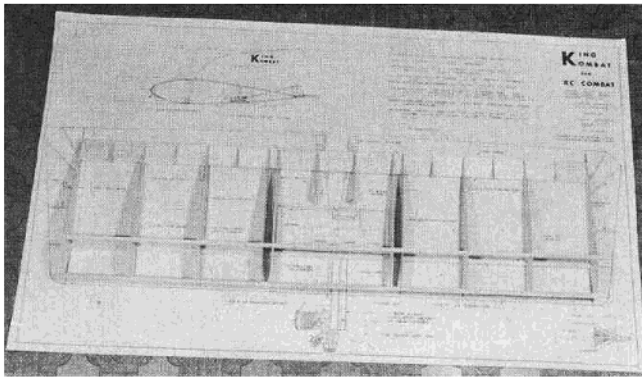
Wing	Balsa
Wt. Ready-To-Fly	32-40 Ounces
Wing Loading	12 Oz./Sq. Ft.

Only one out of five matches were flown without a kill or drag-off points. A total of 608 matches were flown between the three of us, totalling 7,353 points by our scoring system. Many times the kill occurred within seconds after the match initiated.

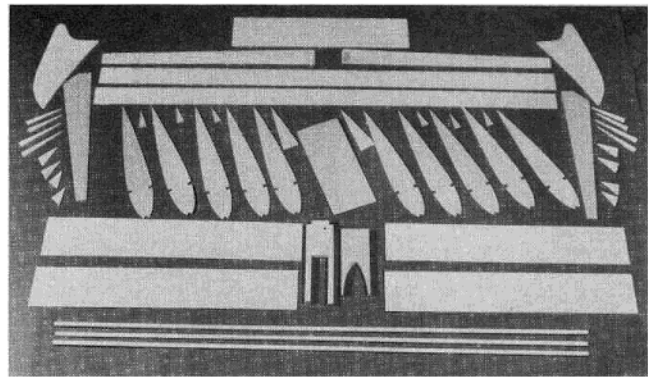
Let me introduce the members of our Kettle Moraine Flyers Combat Team. You may have come across my name (Salkowski) before, but most probably it was my brother Bill, of S & O Products, who has also been successful on the R/C pattern circuit.

If you have ever done any hunting or trapshooting, you no doubt have come in contact with, or at least heard about, the Lee Reloading equipment. This and other fine products were conceived and are now manufactured by Dick Lee, who probably has done more than anyone with our current combat design. Dick has an obsession for keeping things simple. It was he who modified the R/C guillotine by removing the tail booms and elevator and replacing them with elevons. We laughed at Dick when he first came out with his "flying board," but he soon made believers out of us.

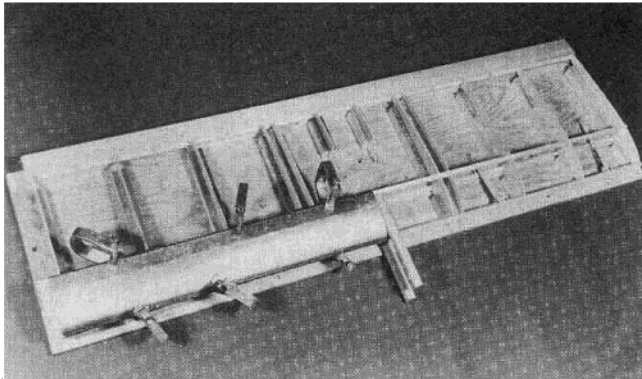
Don Weber eventually sensed the enjoyment that Dick and I were having and it wasn't long before he too was hooked. I helped Don get started in R/C a number of years ago. He was one of those that was all thumbs and you would never have believed he would become coordinated enough to fly radio control. But he stuck with it, and he now can compete with the best as one of our fiercest competitors. His chatter and antics add to our enjoyment of the sport. Don is an electrical troubleshooter for



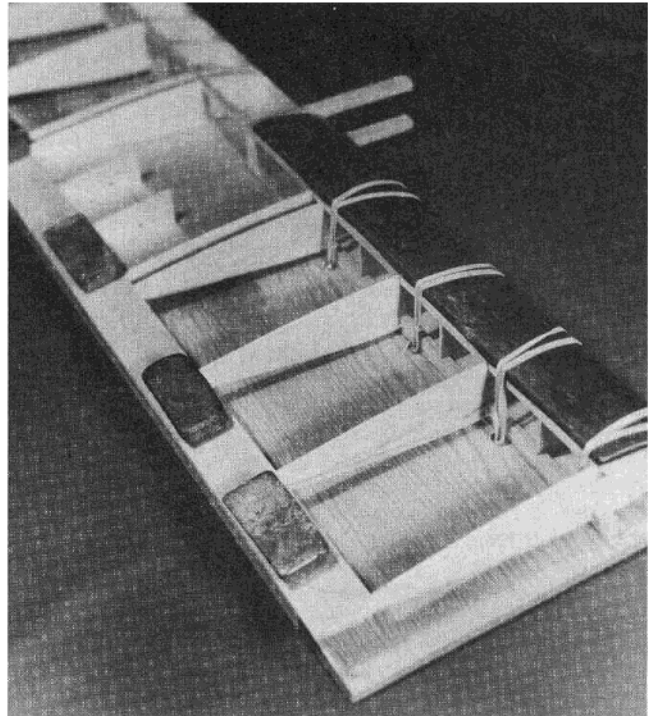
Initial construction – very simple – conventional.



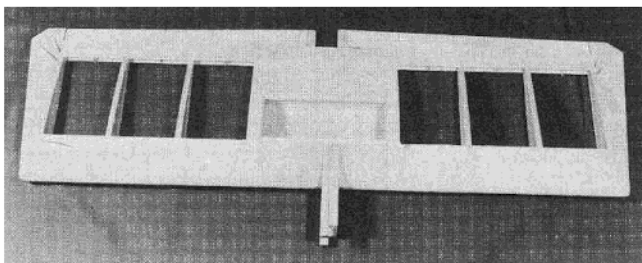
Note that the only area of moderate complexity is cutting out ribs in pre-assembly preparation.



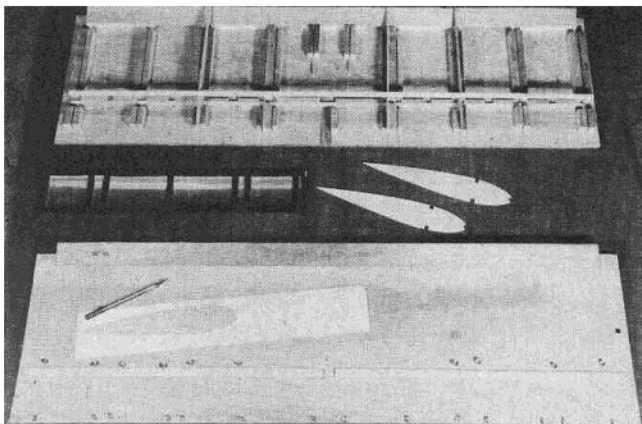
Using jig to construct bottom side of wing.



Using 2nd jig to build top side of wing. Aluminum form eliminates need for many pins when planking leading edge.

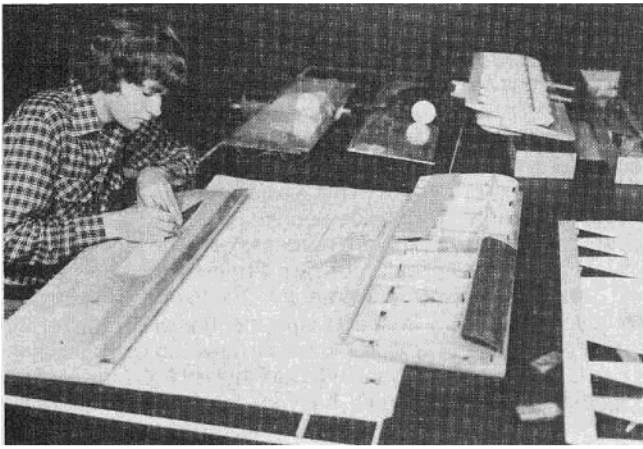


Ready for covering. Ailerons temporarily installed here but will be painted separate along with fins, motor mount and hatch cover.

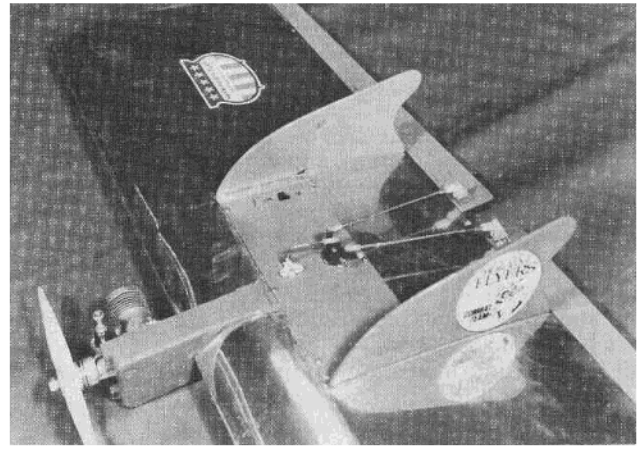


Building fixtures. Aluminum rib template has protruding punch marks to hold template in place while cutting out ribs. Note sponge weather stripping on aluminum leading edge form template. Holds planking tightly in place against ribs and spars until glue dries.





John Lee (Dick's son) helps with rib cutting. Ping pong table provides room for mass production.



Completed "Silver Fox" with Du-Bro mixer. Works well but has some drawbacks. Fuel tank mounted in leading edge of wing.

the A.O. Smith Corp. in Milwaukee.

Several other members of the Kettle Moraine Flyers are building combat ships and intend to join the team.

Several combat contests have been held in the Wisconsin area in the past few years but so far have been low key and of a fun fly nature. A few flyers from other clubs have expressed genuine interest and feel that they are very competitive. These include Dan Sheridan from the Appleton club, John Lusk from the Madison area, and George Bal and Clarence Neuthal from the Green Bay club.

We got started about 5 years ago when Ken Kreschek, one of our club members, bought an R/C Guillotine as a matter of interest. Ken was always impressed with any model with low wing loading. We only tried flying it once and frankly, it scared the heck out of us. Then Dick put one together. Was that first flight ever wild! After a few crashes, he finally got it going. Then he wanted to find somebody to pick a fight with. So he bought me a kit in hopes of some competition.

I'll never forget our first attempt at combat. Both Dick and I are by nature aggressive flyers and we went after each other with a passion. We became so completely drained after those first few matches that we had to pause between each match in order to collect ourselves. It wasn't long before we were completely hooked on R/C combat and from that point on, we started many modifications to try and get that extra edge.

Dick tried a smaller wing and also thinner wing tips to get more speed, but found that he lost too much in maneuverability. Our wings at this time are able to climb straight up and make close to a 12 foot diameter loop without slowing or stalling. Dick has modified the airfoil slightly by moving the high point to the rear. In this way, he feels that the CG can be moved toward the rear and he

claims to get a little better maneuverability.

I won't go through much construction detail. After all, you only have a wing to build and only one set of control surfaces. You don't have to worry about setting your plane on the pool table to carefully align tail and wing surfaces. As a matter of fact, all you really need is a template for the wing ribs and some indication as to how far to spread them apart. From that point on, you can use any building technique that you like.

Start by pinning the lower main spar and bottom trailing edge sheet in place on the plans. Glue the ribs in place. Add the top and leading edge spars. The motor mounts are pre-assembled with the 1/2" balsa spacer between the hardwood mounts. Glue the partial ribs to each side. Notch the balsa filler to match the partial ribs. Fit entire assembly in place on the plans and glue. Add planking, capstrips and wingtips. Shape the motor mount stiffener to fit over the leading edge of the wing and glue it in place. Complete the hatch compartment. Don't forget the holes for the antenna leadout. (I forgot this once or twice and believe me, it's rather difficult to poke holes through wing ribs after the plane is covered.) We use MonoKote, although we have used Solarfilm, Coverite, and even silk and dope very successfully. Don covers the open area only and uses a resin or epoxy filler on other surfaces to save costs.

Cut 3/16" wide slots in the covering and epoxy the vertical fins in place. Dick uses one fin in the center, but somehow working linkage around a center fin doesn't appeal to me. Don uses wing tip plates in place of vertical fins. He claims much more stability during launching with very little loss of high end performance. I use an aluminum template for cutting out wing ribs and then I have a building fixture, which is merely a sheet of 3/8" plywood with

wooden blocks glued in place to position the wing ribs. The trailing edge is also blocked up. I build the entire bottom side of the wing in this jig.

I have a separate jig to build the top side of the wing. I use an aluminum form with sponge weather stripping to hold the leading edge planking in place for gluing. This is held to the wing jig with rubber bands. This reduces building time considerably and I end up with an absolute straight wing, which we find is important if you want the plane to do perfect loops instead of corkscrews. This also comes in handy when a portion of the wing must be rebuilt after a mid-air or other damage. Only the required portion of the wing is built in the jig and is conveniently attached to the original place with perfect alignment.

By no means do we consider the EK mixer to be the ultimate flaperon control. Dick and Don both swear by the sliding servo method. My latest bird uses the new Du-Bro mixer. So far it works quite well, although the output wheel protrudes through the hatch cover and I pray that I don't get fuel in the servos or radio compartment.

The CG is of extreme importance for best performance. The engine is mounted last to obtain a desired CG. For all around performance, I would recommend that the CG be located at the forward edge of the main spar. A .15 size engine works very well and might be better for those with a little slower reflexes. Of course, if you want a real bomb, use the new 3.5 cc K & B engine, but you'd better be ready for some pretty wild flying. If you really want a challenge try to fly without a vertical fin or wing tip plates. Dick tried this once and actually kept the plane in the air for a short period of time, although it was like trying to drive on a sheet of ice.

For safety sake, please use some sort of fuel shut-off. Aside from the safety factor, you might prevent extreme damage after a mid-air. Don uses a fuel

pinch-off arrangement which is tied to his elevator horn, which actuates on full down and right elevon. I suffer the extra weight of a third servo. I have fabricated a special needle valve with a flat that wipes past the spray bar hold, giving a combined mixture control and fuel shut-off arrangement. Of course the standard R/C carburetor can be used and as a matter of fact, I prefer it with the 3.5 cc K & B engine. We use an 8/6 tornado prop for best all around performance. A wood prop gives slightly better performance, however, it's very difficult to keep them from breaking when landing. I may trim as much as 1/4" off of each blade tip if my plane ends up a little heavier, or if my engine isn't pulling as well as it should.

With minimum control surface movement, King Kombar is very docile and has a very gentle glide with its low wing loading and dead stick landings are a cinch. Try to keep the plane as light as possible since good climb-out is necessary for effective combat. I believe one of Dick's planes ended up at about 23 ounces total flying weight. I tend to be a little glue crazy. Most of my birds end up close to 2 pounds.

Use someone else to hand launch your bird the first time you try to fly. Get the model as high as possible to practice. Don't worry about being upside down. Keep turning and moving the transmitter sticks and soon you won't even think about which end is up. Become thoroughly familiar with your ship before attempting combat.

Okay, so you've mastered your first flight jitters and you are now ready to take on all challengers. So you strut up and down the flight line trying to pick a fight. And at the same time trying to instill the fear of the Red Baron to intimidate a likely opponent. I like to use chrome MonoKote in hopes that its flashing in the sunlight will instill fear in a likely opponent. Although it doesn't appear to scare Don and Dick very much.

When you finally find a challenger, you are on your own. You will have to develop your own attack and evasive maneuvers. I could write an entire book on the tactics that the three of us have developed over the past years. Your strategy will depend largely on the skill tactics of your opponent. If I have any edge in speed, I like to stay on an opponent's tail and stay there relentlessly. I also like to stay close to the ground. If my opponent goes too high, I may do Figure Eights close to the ground to try and draw him down. If I am slower, I may fly high hoping to get a few good diving shots. Sometimes if I am slower, I will fly very close to the ground and pull up suddenly when my opponent passes over me. You must learn your opponent's style of flying. Soon you will learn to anticipate where he will be at any given time, so you can be there ahead of him. It is very desirable, of

course, to be able to make sharper turns than your opponent without loss of air speed. You then have a decided advantage when the two of you are locked in those steady looping maneuvers. Here again climb-out is very important to be able to jockey for an ideal position. It is very desirable to look for common moves that your opponent makes. If this thing ever gets going nationally, look for top flyers to have a book on opponents just like a major league pitcher might study opposing batters — or for that matter — professional football league quarterbacks — noting weaknesses in an opposing defense.

Everyone has a certain style of flying. Watch any sport or pattern flyer and you might find up to five moves that he makes constantly. Remember, you are trying to concentrate on two planes at the same time. You end up "sensing" where your opponent is. Of course good peripheral vision is a definite asset. I hope former basketball star, Oscar Robertson, doesn't get interested. They say he has eyes sticking out of the sides of his head.

Flying out of the sun is a favorite move of Dick's. Flying behind your opponent's back is another move we use to keep an opponent from concentrating on both planes. Dick will wander over the entire flying field in order to get a better field of vision.

Dick, Don, and myself know all the moves that each other makes and we have evolved much in trying to guess what move the other will make. If we guess right we end up with a good shot and a possible kill. You must change your moves constantly to throw your opponent off. Pattern flyers make ideal opponents. Their majestic precision turns make excellent targets. As a matter of fact, we invited brother Bill to try his hand about two years ago, and he made a very formidable target. We had fun, but I don't think he enjoyed it very much — this year he refused to participate.

From my own pattern flying days, Dick and Don both noted that I inherently made smooth left turns. This gave them many extra passes since they would anticipate ahead of time as to where my plane would be and react accordingly. I lost a few points until I figured out what was going on. The three of us now try to confuse the other by periodically feinting in one direction and then going in the other.

I should make a few comments about our rules, which are displayed elsewhere. This, along with radio manufacturers' discontent, has probably been the largest deterrent to the promotion of R/C combat. We don't claim to have all the answers, but after four years of intensive R/C combat we feel qualified to make a darn good beginning.

We do insist that 3.5 cc maximum engine displacement is as high as we care to go. Safety and cost are primary factors, but consider this: high powered planes tend to be flown farther away where distance perception is next to impossible. Leader and streamer lengths are very important considerations. Too short, and cuts or kills are harder to get. Too long, and you cut your own streamer or you get too many dragoffs. Our 40 feet of leader and 20 feet of streamer has proved to be the most successful between Dick, Don and myself. We feel that an R/C type contest should be very fast moving with little sympathy for those who can't get their engines started. This is why we suggest an "air raid," whereby someone else is allowed to take the place of a contestant who can't get airborne. This allows more total rounds to be flown, since the pilot who did get airborne does not have to be rescheduled. By all means, this is an optional rule and may not be necessary with less than 10 contestants.

The match is over after a kill or dragoff. If I cut someone's streamer I would be reluctant to hang around with a big fat streamer behind me while my opponent only has a small chunk of streamer for me to shoot at.

Our scoring has been revised many times but we are now confident of our present schedule. The hardest and most satisfying kill is only realized on the end 10 foot length of an opponent's streamer. In most cases, this only happens with a direct prop cut. This then should be worth the highest amount of points (30). In our local competition, only about 10 percent of the total cuts are direct prop cuts. If a wing panel catches a streamer, it usually breaks at the leader knot. This is certainly worth somewhat less than a direct prop cut (20). A high percentage of kills were wing panel cuts during our 1976 season. We only allow 10 points when a leader string is cut. This is to discourage flying close to an opponent's plane.

Dragoff points (4) are scaled way down since no particular combat skill can be attributed to either pilot. It's like pulling on a wishbone to see who will end up with the better part of the two streamers. Why do we award points to a contestant who has been killed? Simple. There will always be those who will fly a mile high to avoid being cut. Those who mix it up and are aggressive at times will get their own tails cut. Why shouldn't there be some compensation for the guy who mixes it up? Some contests have tried to award points for aggressiveness. But here again, you get involved with that old judgment factor.

Some contests award points to those who can land closest to a spot. This then makes it possible for a contestant to fly a mile high to avoid being cut, but still win a contest by being an expert at spot

landings. No thanks.

I suppose we could award points for "bumps" but I really feel that this puts extra pressure on the judge. His eyes must be firmly fixed on the action. Also, if you would ever hear Dick or Don yell "bump!" when they aren't even close you would know what I mean.

I'm afraid I have no magic formula for avoiding "mid-air's." Slower flying planes obviously help, but some competitive spirit is lost. This then is another reason for keeping planes and engines small and simple. Mid-air's are a part of the game and this philosophy must also hold true for control line combat. I don't like to see any kind of R/C damage, but I would much rather have a mid-air while flying R/C combat than stand sadly over a beautifully constructed scale job that took six months to build and now lays there in a thousand pieces due to some malfunction or pilot error (vibration, you know).

Most of our combat sessions end with a pizza and a pitcher of beer at our favorite pub, where the day's battles are re-fought (usually with some added spice) and relished a second time. Nor does it end here. All three of us have admitted that we have gone through the entire sequence a third time while trying to sleep at night.

Even if one of us loses a plane, we thoroughly enjoy watching the other two fight. This is where we really study each others' tactics and moves. During the '77 season we discontinued keeping score in our local competition. We found we can relish our individual achievements and we all come out winners.

We are considering a few rule changes, although not finalized as yet. We may go to 10 foot streamers instead of 20. We find this caused less litter and is less cumbersome to control in the pit

area. We are also considering reducing or even eliminating points for leader string cuts to discourage flying too close to an opponent's plane.

Many memories linger over the past years of combat. Like the day Dick's hatch cover fell off. This normally wouldn't be so bad, except his receiver wasn't fastened securely and it, too, fell out. To make matters worse, the receiver fell in the roadway leading off of our flying field and was almost run over by Dick's car as he went to retrieve the plane. The story does have a happy ending, however. The plane was found in a cornfield, unharmed. The receiver was re-installed, a new hatchcover fabricated out of a piece of plastic, and von Richtoffen Lee was back on the combat trails again.

And then there was the time Don got his planes mixed and began trying to fly my plane thinking it was his. You never saw so many confused bystanders as he uttered the often muttered phrase, "I ain't got it," although his own plane had already crashed. I have the distinguished honor of launching Dick's plane upside down (now why would anyone install a switch on the bottom of a plane?).

There is no doubt that we are in R/C combat to stay. I asked brother Bill this question once: "Who do you think is enjoying radio control flying more, you or I?" All I got was a turned up eyebrow, but there was no doubt in my mind he knows that we have found our niche, or corner, in R/C. Certainly R/C combat far exceeds most of the other activities that I have enjoyed throughout most of my life. Well maybe with one exception — that would be being with my lovely wife, Grace, who has to put up with this thing week after week without complaint. (Well not much anyway.)

We would like the opportunity to share our new found experience with anyone interested. I suppose it will take a specific type of individual. If it means anything, the three of us are the type who lit the tails of our 10 cent rubber band models (as youngsters) and then flung them out of the attic window. There will always be those who consider that this activity (R/C combat) is just as reckless and not at all proper for "nice guys." I suppose this again is another reason for keeping plane and engine as small as possible. At least this might keep the club goof-off from going through his antics with some high powered 8 pound .60 model.

You certainly don't have to be an expert to fly R/C combat. Of course the beginner must start with a conventional type plane. But when you can take-off and land any plane without crashing,

and you have a definite feel for left and right, baby, you are ready for R/C combat. My number two son, Paul, 14, started on a Sweet Stick and picked it up quite fast. I started helping him through the beginner pattern and he did very well here too. Then we put together a Dirty Birdy .40. Then with my Dirty Birdy we were going to burn up the contest trail. But, alas, an unfortunate incident (crash) put an end to that. I let him try my combat plane and he picked it up right away, and even took Third Place at the Calumet Combat Contest last year (1977).

So, if you're the type who likes a good one on one fight and doesn't particularly care for the idea of trying to impress some judge, then R/C combat is for you. If you ever get up to Hartford, Wisconsin, stop in and join us for an afternoon of combat, followed by a pizza and a pitcher of beer and some armchair combat. Let us know if you would like some competition at your own club. Heck, we'll go anywhere for a good fight under the right conditions. Hey, how about team competition? I can see it all now ... "Top East Coast R/C Combat Team Meets Top West Coast Team To Determine National Supremacy."

I suppose it sounds like we're boasting a little and I suppose someday some young snip with fine tuned piano string reflexes will challenge us old guys and clip our tails good. Maybe this same kid will become the Wyatt Earp of R/C combat. Well okay, I'll manage him and set up some challenge matches and do a little hustling.

But before these hands of mine become too old and shaky, I still have a score to settle with Dirty Dick and I hope he's ready, because Black Beauty II is almost ready to go.

But then I'm gonna sit back and watch, because believe me, watching R/C combat is almost as much fun as actually flying. And when that world championship match takes place, believe me, I'm gonna be there. And if I can't be part of it I'll be right there in the front row watching.

And it's gonna be beautiful. □

**From
RCModeler
July 1979**