



October

Minneapolis, Minnesota U.S.A.

2003

## TCRC Fall Float Fly A Crowd Pleaser

by Jim Cook

TCRC hosted its annual Fall Float Fly at Bush Lake Park in Bloomington on Saturday, September 13<sup>th</sup>, and it was a very well-attended event.

CD Jim Cook arrived at the park at 10:30 in preparation for the 11:00 AM start. There were already 10 or so pilots patiently waiting to put their planes into the air. The wind was out of the northwest gusting to around 25 mph and the day was overcast, but the weatherman had promised sunshine and lessening winds for the afternoon.



**The Fall Float Fly at Bush Lake always attracts a crowd.  
(Photo by Jim Cook)**

David Erickson arrived right at 11:00 with the retrieval boat and the frequency board, and after Jim held a brief pilots' meeting to discuss frequency control, flyover areas and safety requirements, he then announced that the pool was opened.

First into the air was Rick Smith with his twin-engine Bobcat, but within minutes three more planes had joined him.

This event had been listed in AMA's *Model Aviation* and the number of pilots and spectators indicated that lots of R/C'ers had seen the listing. The pilot list included: John Bittle, MRCSS, flying a J-3 Cub; Don Olson, TCRC, a Big Stik; Rae Richardson, MVRC, J-3 Cub; Rick Traxler, Skydancer and 4-Star 40; Stan Erickson, TCRC, J-3 Cub; Geoff Barber, TCRC, Citabria; Rick Smith, TCRC, Twin Bobcat and J-3 Cub; Don Fox, SPRC, Kavalier; Dwain Stahlke, Minnetonka RC, Stinger 120; Morgan Larson, TCRC, Sea Cruiser; Jim Cook, TCRC, Big Stik; Dick Jecha, MVRC, J-3 Cub; Dave Erickson, TCRC, Seamaster; Dan Stensby, TCRC, 3 planes; Dave Kreiner, SPRC, Tiger Trainer; Bob Nastaval, TCRC, Superstar; Jim Miller, TCRC, Widgeon and Kougat; Al Amundson, Minnetonka RC, Big Stik; Ed Ryan, SPRC, 4-Star 40; Steve Meyer, MVRC, J-3 Cub; Mike Ferretti, NWRC, 4-Star 40; and Joe Casey, MVRC, J-3 Cub. In addition there must have been another 15 or so TCRC members who came down to lend a hand, man the retrieval boat, watch some great flying, and, in general, enjoy a beautiful fall day.

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# From The Cockpit Of The President

by Scott Anderson

Trick or Treat!

Now isn't that frightening! Our summer has run out and now the blustery fall and winter are upon us. Be sure to get out and enjoy the nice weather this weekend while it's still here. Forget raking and closing up the cabin, get the sport plane out and practice touch-and-goes on one of our runways before they're covered in snow!

Our Season Finale is coming up shortly and we'll have one last party at the site before we turn it over to the care of our hearty All Season Flyers. These pilots earn their AMA All Season Flyers patches if they fly a RC airplanes (outdoors) at least once every month of the calendar year. Some of our pilots have over 10 years worth of continuous monthly flights in Minnesota. If you are interested in joining this elite group of pilots, contact Jim Cook and start making your monthly flights in January.

Growing pains? TCRC accepts new members continuously. Our membership has hovered around 80 members for several years. In 2003 we've broken 100+ members again and it looks like the growth will continue. Be sure to introduce yourself to everyone you meet at the field or in a meeting.

We've been getting some great feedback from several longtime members to remind us of the importance of safety in our daily modeling and flying activities. Several of their articles are appearing in the *Flare-Out*.

The board continues to look out for opportunities for field improvement. We have recently received permission to lose the willows east of the runway. This will make that approach to landing much more attractive. We have no information to date on future runway extension. We'll discuss this further at the October and November meetings.

Meeting Programs: We'll be putting the calendar together soon for the 2004 meeting schedule. Please send me an e-mail letting me know what you'd like to see for programs in 2004. Here are some examples of past programs:

- Cutting foam wings
- Designing your own plane
- Scratch building techniques
- Fiberglass techniques for covering & molding
- Vacuum forming techniques
- Electric RC Models 101
- ARF Models
- Building and mounting floats to your RC plane
- Combat: Building your 1<sup>st</sup> Dogfighter
- Gas Turbines 101

I look forward to hearing from you!

We have the TCRC elections coming up on November 11<sup>th</sup>. We have lots of new members in the

club and those new members have lots of great ideas. Let's see some of your new guys step up and run for office. We have all four officer spots up and two board seats. This is an exciting time for TCRC and it would be great if you were a part in directing the future of the club. If you are interested in running for office, please let a current board member know.

Also, the TCRC Annual Banquet is Sunday, November 16<sup>th</sup> at Dangerfield's Restaurant in Shakopee. This is always well attended, and I would encourage all of the new members to think about going. It is always good food, and lots of fun, so plan on attending the banquet this year.

We'll see you at the next meeting or at the field. [

## Calendar

<b>Oct. 14</b>	<b>TCRC Membership Meeting, 7:00 PM Room H195 Hennepin Technical College Eden Prairie</b>
<b>Oct. 25</b>	<b>Season Finale Jordan Field Conrad Naegele &amp; Morgan Larson</b>
<b>Nov. 11</b>	<b>TCRC Elections 7:00 PM, Room H195 Hennepin Technical College</b>
<b>Nov. 16</b>	<b>TCRC Annual Banquet, 5:00 PM Dangerfield's Restaurant Shakopee</b>

## Fall Float Fly

Continued From Page 1

As promised, the sun came out and the winds did abate to about 15 mph, steadily out of the northwest. Bush Lake Park is a great place to fly because there is always a good direction for take-off and landing. The lake was almost devoid of any boats except the TCRC retrieval boat, which was kept going all day.

Dan Stensby showed up with two new creations which drew a lot of interest. He had a delta-wing on floats powered by a ducted fan, and a canard, also powered by a ducted fan. Neither had flown before. The canard proved to have an ineffectual elevator at takeoff speed and failed to get airborne. Next up was the delta-wing. Off the water, the plane could taxi at high speed but again couldn't get airborne. With Rick Smith's help, Dan tried hand launching the plane but it would dive to the water and then continue to taxi at high speed. Dan promised that both will be modified and attend another float fly.

Early on the retrieval boat was busy just retrieving planes that had engine failure during take-off or landing, but as the day wore-on, it rescued planes that had more significant problems. One plane lost radio control during a low pass over the water and banked around over the spectator area. The pilot fought hard to get it back over the water but it crashed into the beach very near the piloting stations. Nobody was hurt.

Continued On Page 4, Col. 1

## Even Ducted Fans Appeared At The Fall Float Fly



Dan Stensby's ducted fan-powered delta wing taxis across the water at TCRC's Fall Float Fly. (Photo by Jim Cook)

## This Is Sure A Great Way To Spend A Fall Afternoon!



Joe Casey of MVRC puts his 1/4-scale J-3 Cub through its paces at the Float Fly while another pilot lends his support. (Photo by Jim Cook)

## Fall Float Fly

Continued From Page 3

The most spectacular occurrence happened late in the day when Jim Cook had just taken off with his tried and true Big Stik 60 on floats and had turned downwind as he climbed into the air. Dan Stensby was flying one of his smaller planes and there was a midair with Dan's plane coming from underneath and destroying the Stik's right wing. The Big Stik came down in pieces over the water and the smaller plane splashed in a little farther to the west. It took the retrieval crew about 20 minutes to clear the water of the debris.

Jim Miller also had a mishap. He had his giant-scale twin-engine Widgeon present. This is quite an old plane of Jim's that he had done considerable alterations on, and the crowd watched in anticipation as he and Sherwood Heggen fired-up and tweaked the engines. Jim taxied out and had a beautiful lift off and the Widgeon climbed into the sky. The plane flew very well and put on a good show until it lost an engine. Jim tried valiantly but in the end the plane nosed into the lake, doing extensive damage to the wing.

By 2:30 or 3:00 everyone started packing up their planes and heading home, ending yet another great Fall Float Fly.

Thanks to all the TCRC members who came out to fly and support the event, and to all of the pilots from the other clubs that came to fly. [

## Safety First and Your Field Rules

by Jim Ronhovde

This is the third and possibly the concluding article pertaining to our field rules.

**Rule 3** is our frequency control system that requires an AMA or TCRC membership card to be in the proper slot while using your transmitter. As all of us may forget to remove our card when headed home, it also sets the guide line to clear that frequency that is improperly left 'reserved' and the owner cannot remove the card. Two members must agree on the removal of such card to clear the frequency.

**Rule 4** gives each member 15 minutes of time per use so crowded frequency are available to any choosing to use them.

**Rule 5** is to keep our field, because obnoxious noise escaping to neighbors can lead to a parade of complaints and problems from the neighbors. They are good folks and we need them to be agreeable. Even our own ears will be protected and enjoyment may be enhanced with the lower dB's from adequate mufflers.

**Rule 8** keeps spectators behind the fenced pit areas. We know what to expect from our models, but spectators may not be aware of some risks that can arise and we also don't want our models stepped on or damaged by an errant guest. Club members may escort a guest through the pits and piloting areas. [

**Rules 9, 10 and 11** concern physical restraint of a running aircraft in, by or near to the pits. Radio signal swamping or a pilot miscue could send a spinning propeller into unsuspecting flesh and that is not a good thing. The physical control of a model should reduce this risk considerably.

**Rule 14** is concerning use of a grass runway pattern at the west edge of our tar runways. It allows for declaring this the designated runway and changes the fly zones drastically. Study the details of this rule so that when in use, pilots and non-pilots know the flight patterns and can be comfortable with the change of fly zones.

**Rule 15** says: Pilots shall announce their intentions LOUDLY for takeoffs and landings. Dead stick landings have precedence over powered landings. ALL landings take precedence over takeoffs.

**Rules 17, 18 and 19** tell you to leash your pets, take your trash home with you (saves the Club dumpster fees and clean up efforts) and not to park in the road.

This has been a three-part presentation of our field rules. If you want or need to discuss them please see officers or board members or better yet come to a meeting and join your fellow hobbyists in an evening of camaraderie. If improvements can be made to the rules, that would benefit all members, the membership would like to consider them. Remember the AMA Safety Code is the primary field rule, so acquaint yourself with it. Safe flying to all. [

# Pictures From TCRC's Fall Float Fly



**Dan Stensby had the two most interesting aircraft at the Fall Float Fly – ducted fans on floats -- and they were ready for maiden flights.**



**President Scott Anderson and TCRC'er Jerry Dunne lend a hand in retrieving a 1-4-scale Cub that stopped short of the shoreline.**



**TCRC's Float Fly can't happen without a good boat and crew for the retrieval boat.**



**Little was left of Jim Cook's Big Stik and Dan Stensby's plane after a spectacular mid-air.**



**Jim Miller gets ready to fire up his twin-engined Widgeon while getting lots of advice from his fellow pilots.**



**There were lots of planes in the pits and the spectators enjoyed taking a close look and asking the pilots lots of questions.**

## Show & Tell



Rick Smith had his newest electric — a Sokol. This ARF was a fiberglass T-tail and was white with light green trim with bright red under the wings and horizontal stab. Rick had put a burshless engine in the plane and he had his first flight the previous Saturday. He said it flew in excess of 120 mph and, because of its size and color, was quite hard to see at times but still lots of fun to fly.



TCRC's newest member, Bernie Gaub, had his new (and first) R/C plane at the meeting. It was a Sig LT-40 ARF. The plane was done in white Monokote with red trim. Bernie had powered it with an OS 46 FX engine and he was eager to see the plane get into the air. He had the members at the meeting check it over to make sure it was ready for its maiden flight, and he was hoping that it would be in the air in the next week or so. [

## Season Finale Set For October 25<sup>th</sup>

The last big outdoor flying event that TCRC puts on is the Season Finale.

The Season Finale is always well attended by members and spouses alike and there is always a lot of food to be eaten. The club will be supplying hamburgers and hotdogs with the usual trimmings, and each member usually brings a dessert or other course to be shared.

This year promises to be very interesting. Conrad Naegele and Morgan Larson are sharing the CD duties and they will do a great job. Start time is 10:00 AM. The flying will be very informal with camaraderie taking front seat.

A highlight of the Season Finale is the appearance of the Grim Reaper to take possession of those hapless planes that met their demise during the flying season.

All members should remind their spouses of the upcoming gala Season Finale and plan on being at the Jordan Field at 10:00 AM on Saturday, October 25<sup>th</sup>. [



by Klotz the Kat

There's an urban legend going around that says the ratio of cooling outlet area to cooling inlet area for cowled model engines should be 3:1. Is it true? Maybe.

I ask you to look at the cowls of the Nieuport 28, AT-6, B-29, P-47, Pitts Special, FW 190, GeeBee, Cessna 152, Zero, Extra 3000, Sukoi 31, or any full-sized air-cooled airplane of your choice. You won't find this ratio or anything even close to it. In many cases, the exit is less than the inlet.

Haven't the designers of these airplanes read the chat rooms?

To be fair, under certain very specific conditions, the 3:1 rule sorta works. But those who spread this legend don't tell you all you need to know. Here's the rest of the story.

The 3:1 rule applies only to cowls ...

1. without baffles or any other internal air direction,
2. whose internal volume is much larger than the volume of the cylinder(s) and
3. in which the incoming air travels straight to the cylinder without any change of direction.

Under these conditions, the 3:1 rule approximates the airflow of an uncowled engine. It is an attempt to get the air to flow around the engine as if the cowl weren't there!

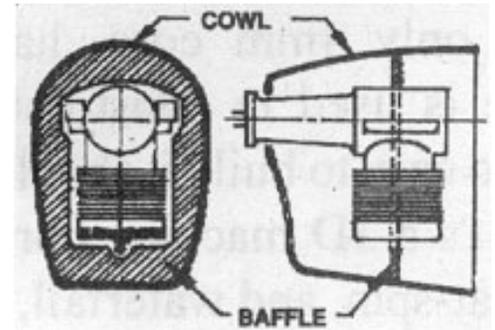
The location and shape of the inlet and outlet must be carefully adjusted to accomplish this. For example, if the inlet hole is too big or improperly positioned, air will flow *around* the cooling fins instead of *thru* them. For this type of cowl to work, the inlet hole must squirt air directly on the engine, especially the cylinder head.

It is an inefficient and unreliable method, requiring a lot of tinkering to get it working right. It may not work at some airspeeds and some attitudes. It is uncalculatable. It's a kludge. That's why it is never found in full-sized aircraft. And the holes make it useless for scale models and draggy for racers.

A much better method is to follow full-size methods — use a baffle, duct or other airflow direction methods.

A baffle directs all incoming airflow thru the cooling fins of the engine. It has nowhere else to go. The volume of air flowing thru the cooling fins (the only air that is useful for cooling) is proportional to the pressure difference between the front and back of the engine times the area of the space between the cooling fins. As long as the intakes and outlets are at least as big as the area between the cooling fins, airflow will be at least as great as an uncowled engine. If either is made larger, the airflow will be even greater. A cowl of

this type is known as a "pressure cowl" because of the large amount of compressed air inside.



So why aren't baffle patterns included in engine user manuals? Because we modelers don't ask.

And what about the fact that heated air expands? How much bigger should the outlet be to accommodate the increase in volume due to heat?

By actual measurement of the exiting air of a cowled and baffled OS 108 2-cycle engine in flight at full throttle in ambient air of 90 degrees F, we have observed an increase in temperature of 30 degrees F. Using Charles Law ( $V/T = k$ ), we calculate the increase in volume to be only 6 %.

See ya at the field. Bring hot sandwiches. |

## TCRC Shirts On Sale

Jim Ronhovde has several of the new TCRC shirts on hand and available for sale.

There are three styles: T-shirt, polo shirt and sweatshirt. They are royal blue and have the TCRC logo on their backs.

If you are interested in purchasing a shirt, give Jim a call at 612-922-5319. |

## Veep's Corner

by Jim Miller

Well, here it is October and the days are shorter and definitely a lot cooler. But don't let that stop you from flying. We have lots of great days of flying left before the snow flies.

The Fall Float Fly at Bush Lake was a great success. We had 25 or 30 pilots there and probably about 40 float planes. The weather was windy but the sun came out and we saw some nice flying. I had two planes there – my Kougar and my twin Widgeon. I put the Widgeon up late in the day and it flew very well. As I was coming in, I lost some altitude control and she went it. On inspection, I found that my elevator had an elongated hole which rendered one-half of the elevator somewhat ineffective. The plane was not badly damaged but I will be building a new wing. Jim Cook and Dan Stensby had a huge mid-air over the water, and both planes came down in pieces. We also had a large plane crash on the beach near the piloting stations.

Nobody was hurt, but it was a tense situation.

The next flying event is the Season Finale scheduled for Saturday, October 25<sup>th</sup>. Conrad Naegele and Morgan Larson are co-chairing the fun event. Members and spouses show up in large numbers at the Season Finale. The club usually has hamburgers and hotdogs on the grill and I think we have members bring trimmings or dessert. I know there is always plenty of good food. Mark your calendar for the Season Finale on October 25<sup>th</sup>.

We have our elections coming up on November 11<sup>th</sup>. The club has grown in membership quite a bit this last two years and we have lots of new blood with new ideas. Let's see some of the new members run for office this year. We have six of the seven board seats up, and it would be great to see some new faces on that board.

The Annual Banquet is coming up in November. This will be held at Dangerfield's Restaurant in Shakopee on Sunday, November 16<sup>th</sup>. President Scott has been put-

ting together a very neat electronic picture program and the food is always very good.

I haven't made a decision on what I will be doing with the remains of my 1/3-scale Extra that went in this year. If I rebuild it, everything from the leading edge of the wing forward will be new construction. I have to give this more thought before I make a decision.

Don't forget that with the coming of a new year, the opportunity to start earning your AMA All Season Flyer patch arrives. This patch is given to any AMA pilot that makes at least one flight in each month of a calendar year. We have 15 or so pilots that do this every year and have a good time doing it. I have new skis for my Kougar and plan on going after my patch in 2004. Why don't you join us this time?

Well, that's it for now. We have a busy month or two ahead of us. Hopefully I will see you at some or all of these events we have scheduled. Until then, keep them in the air. [

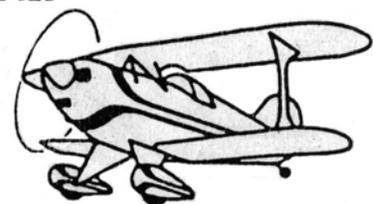
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## Heinkel HE 177 (Grief)

by Conrad Naegele

The September Mystery Plane was the German Heinkel HE 177.



The project for the first and only strategic bomber by the Luftwaffe, the Heinkel HE 177, was a complete failure. This plane appeared in prototype form in 1939, and was a large twin-engine plane (not really!), that was continually plagued by developmental, political and just plain meddling by Hitler and company (remember the ME 262 development). GRIEF is German for Griffon, but in this instance, GRIEF should stand for 'grief'.

If it had been allowed a natural and uninterrupted development program it may have been a strong contender as a strategic bomber. Specs were good. Of conventional monoplane configuration, the amazing feature was the engine installation. Each nacelle used two pairs of the terrific DB606 engine, paired, driving one propeller, producing 2,700 hp! This, to reduce drag and present less frontal area. Another novel feature was the use of two large wheels under each nacelle but each wheel retracted independently, one on each side of the nacelle.

First flight was on November 19, 1939, and required speed was never attained, engines overheated and propellers vibrated. Many variants were produced, and one even had 4 separate engines in separate nacelles (the V2 model). Arado built many variants and in all 1,170 planes were built but only about 200 were used operationally. It could have been really good!

The HE 177 had a wingspan of 103 feet and a gross weight of 66,139 pounds. For armament it had 5 machine guns, 1 20mm cannon and 5,290 pounds of bombs. It had a speed of 317 mph and a range of 745 miles. (The original specs called for a range of 4,160 miles!) [

**Be Both a Voter And A Candidate At The  
TCRC Elections On November 11th**

## TCRC Elections November 11<sup>th</sup>

With the advent of cool weather and shorter days comes the TCRC elections.

TCRC has a great club and one of the things that makes the club great is the participation of so many of its members in the programs and events that are held. With all of the participation and the successes that ensue, it would seem that we would have plenty of candidates for the officer and board positions. However, that does not happen. We need to have more members run for office.

This year, we have the four officer positions – president, vice president, secretary and treasurer – and two board seats up for election.

With all of the new members TCRC has gained over the last two or three years, it would be great to see some of those new members step forward and run for office. With 6 seats up, the club would prosper if we could have a total of 12 candidates – at least 2 for each position.

Please give a lot of thought about running for TCRC office. Being on the board is a fulfilling experience and does not take a large amount of time. Let an officer know that you are interested in running for office in the club this year.

Come to the meeting on November 11<sup>th</sup> and be both a voter and a candidate. [

## TCRC Banquet November 16<sup>th</sup>

TCRC annual banquet is just around the corner. Sunday, November 16<sup>th</sup> is the date, Dangerfield's Restaurant in Shakopee is the place, and the start time is 5:00 PM.

President Scott Anderson is planning an even bigger and better continuous electronic slide show with 100's of pictures of members taken from this year and from previous years.

The banquet starts with a cash bar at 5:00 PM and the buffet dinner is served at 6:00. Following the meal, several recognitions and awards are made and then there is always very enjoyable entertainment.

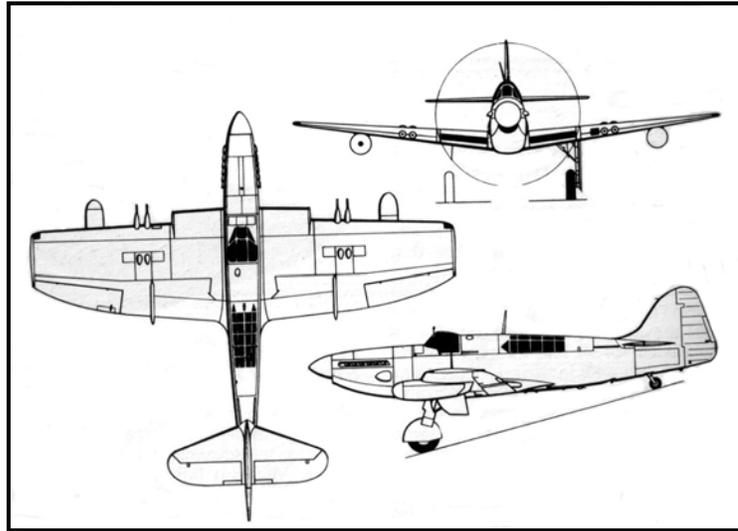
New members and spouses are encouraged to attend the banquet. Besides being a lot of fun, it's a perfect time to get to know a lot of members you haven't had a chance to meet.

There is a 'banquet registration form' included in this newsletter. Please take the time to complete the form and return it to president Scott Anderson at the address listed on the form.

Deadline for registration is the membership meeting of November 11<sup>th</sup>. Please mark your calendars and plan on being part of the TCRC Annual Banquet. ┌

**Register For The TCRC  
Banquet Today!**

## October Mystery Plane



### New Member

Bernie Gaub became TCRC's newest member in September.

Bernie lives with his wife Carrol at 11037 Stanley Curve in Bloomington, 55437. His phone number is 952-888-3072 and his e-mail address is [wb0nga@arrl.net](mailto:wb0nga@arrl.net). (That is a zero after the 'wb' in the address.) Bernie has a SIG LT-40 ARF ready to fly and is looking for some training this fall as he gets into our hobby.

When you see Bernie at a meeting or the field, be sure and introduce yourself and welcome him to TCRC. ┌

### JR 955 Receivers

NOTAM: There have been three recent known cases of the crystals vibrating out of JR 955 receivers in flight. If you have a JR 955 receiver, secure the crystal with a piece of tape. ┌

### Use Plastic Window Covering

Waxed paper is the standard covering for plans. When building an airplane on top of them, I find that waxed paper does not come in large enough sheets and tends to stick to the airplane.

Last time I built, I used some left over plastic that is used to cover windows. This stuff is made by 3M Scotch and comes in large 3' x 5' sheets. This was the exact size of the plans I was using. The covering will shrink if heated, but this is not necessary as it lays very flat. CyA and other glues will not stick to the plastic at all, and it is crystal clean, unlike waxed paper.

There was even a roll of double stick tape in the box. The price on the box was \$5. This price is much cheaper than the Great Planes plan protector stuff also.

(Reprinted from *Thrustline*, newsletter of the Sky Streakers R/C Club, New Gloucester, Maine, David Marin, Editor.) ┌



by Klotz the Kat

## Safety First — Never Reach Over A Prop

You've all seen it. Perhaps you've all done it. You grab the fuselage just behind the engine and jam the starter into the spinner. And there are variants: hold the top wing of a biplane and flip the prop by hand; grab the landing gear strut and flip the prop with a chicken stick; remove the glow battery by reaching around the prop; adjust the needle valve from the front, etc, etc. I've even seen a modeler hold his airplane by the glow plug battery while spinning the prop with a Sullivan starter.

This bad habit is older than RC. It didn't seem so dangerous when starting a puny Arden .09 engine swinging an 8-inch basswood prop. Ask some of the old timers in the club to show you their prop slash scars — they proudly wear them like saber-scarred Heidelberg officers. Unfortunately, the tradition did not die with old engines.

Newcomers to the hobby watch the old pros starting their engines by this obsolete and dangerous method and they assume it is proper.

Today, our engines are much more powerful. Propellers are much stronger, thinner and

sharper. This practice can leave much more than a scar. It can sever arteries and tendons; it can cause permanent disabilities. It can even injure bystanders if the airplane lurches forward. I estimate that half of all modeling injuries are due to unsafe engine starting procedures.

Reaching around a spinning prop is completely unnecessary. Therefore . . .

### I hereby issue a fatwah against this practice!

Let the word go forward that Klotz himself has forever forbidden reaching around a turning prop. Never, never under any circumstances. If you see a fellow modeler doing it, stop him! Drag him into the bushes and pummel him with a chicken stick if necessary. Don't let your friends get injured by reaching around a turning prop.

I especially beseech the senior members of this club to stop the reach-around-the-prop practice. You are the role models. Others learn by watching you. They think you know best and, generally, you do. You are lucky to have avoided injury; others may not.

Fortunately there are much easier and better ways to run up an engine. Here are some:

--Ask someone to hold your airplane for you while you start the engine. Ask him to grab the leading edge of the wing with one hand and the opposite trailing edge with the other hand. Hold the plane so that it cannot move either forward or backward. For taildragger airplanes, ask the

holder to lift the tail slightly. This eliminates stress on the rudder servo and tailwheel.

--Offer your services to hold someone else's airplane for him.

--Use a tail hold-down device — a Midwest Aero-Mate or an old pair of jeans tied to the fence, for example. Test the security before starting the engine by pulling hard on the prop. The restraint must not be too stretchy. Set the throttle to a fast idle, but don't trust it. Be prepared for the engine to roar to life at full power.

--Use a Midwest Aero-Mate (or one of several other commercially available holding devices) behind the trailing edge of the wing plus a tail hold down. This allows you to hold an electric starter in both hands. There will be less wear and tear on the airframe too.

--Place something (fuel jug, field box, etc) in front of one wing, just in case the holding device fails or the tail breaks.



Two Aero-Mates hold airplane for hands-free starting. [

**TCRC meets every month on the 2<sup>nd</sup> Tuesday at 7:00 PM in room H195 at the South Hennepin Technical College located at 9200 Flying Cloud Drive (Highway 212) in Eden Prairie. Guests are welcome to attend these meetings.**

Editor, Jim Cook  
1075 Miller Street  
Shakopee, Minnesota 55379

## Showing Their Colors



Interest must be growing in the new TCRC shirts, as was obvious at the Fall Float Fly. If you haven't purchased your shirt yet, give Jim Ronhovde a call. The club has purchased several extra shirts and Jim has them available in different styles and sizes.

### THE TCRC FLARE-OUT Monthly Newsletter



### \*\* TWIN CITY RADIO CONTROLLERS INC. \*\*

**Purpose:** To preserve, encourage, and further develop the hobby of building and flying radio controlled model airplanes.

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