The Flypaper

SUMMER 2004

NEWSLETTER OF THE RADIO CONTROL FLYING CLUB OF TORONTO

SPECIAL POINTS OF INTEREST:

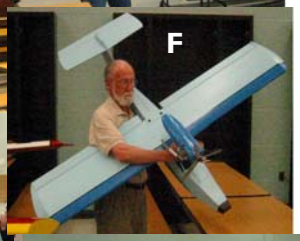
- **Meetings are held in the Cafetorium of the Alexander Mackenzie Senior Public School, 33 Heather Road, Agincourt, *usually* on the first Friday of each month, Oct to May (subject to change – check the Flypaper) Meetings start at 8:00 PM**

For the latest club news, photos and other points of interest please check out our web site at: www.rcfctoronto.ca

INSIDE THIS ISSUE:

Beauty Show Results:

The 2004 Beauty Show was held at the May club meeting, with some remarkable aircraft on display, ranging in size from small to enormous. Prizes consisted of handsome wood plaques, and equally handsome cheques. Check the web page for more (and larger) photos



0.51 to 1.00 Cu. In.

1st place: **Ron Keenan (D)**
2nd place: **Bill Petrovich (E)**
3rd place: **Ted Snook (F)**

0.50 Cu. In, & Under

1st place **Stan Mark (A)**
2nd place: **John Riley (B)**
3rd place: **Joseph Caparas (C)**

Over 1.00 Cu. In.

1st place: **Leon Arnold (G)**
2nd place: **Frank Mustari (H)**
3rd place: **Ken Dwight (I)**

Best Unfinished: Don McDougall (J)

Best of Show: Arthur Krikorian (K)

President's Message - Richard Staron

Hey guys…..how is it going?

The summer as we all know has been a bit cooler than previous years but all that means is that the engines don't overheat as much! I guess that's a blessing in disguise for all of us.

As we all know the field is in excellent shape with the ground crew doing a great job keeping the field and landing areas in perfect condition. I would also like to thank all of the members who have stepped up to the challenge of keeping the field clean of garbage and debris by taking their own little bit of litter home with them after each flying session.

We have had a lot of spectators streaming in watching us fly and have taken up interest in our hobby. I wouldn't be surprised if we have even more new members signing up for next year because of the exposure of our hobby to people that drive by and stop in a for a visit.

As for noise, we have had only 1 complaint from a person that lives north of Steeles, NE of the field. This was addressed, but please do what you can to keep the noise down by modifying mufflers, props etc and keeping away from the NE area of the field as much as possible. If anyone is interested in measuring your engine/muffler/prop noise levels, there are a few noise meter floating around that you can you're your plane checked out if you like….no questions asked.

Hey don't forget our next FUN FLY which will be held on Saturday Aug 28, starting at 9:00 AM till about 3:00 PM. Rain date will be on the following day. There will be great prizes of some very nice kits as well as some quite expensive ....did someone say battery operated power tool….or…..complete….and I mean complete…..imperial/metric socket set? How about a draw for a SIG 3D MAHEM ARF?…..3 tickets for $5.00. Also don't forget that each fun fly is also a FLY AND SELL where you get to bring in your stuff that you want to unload / sell / give away / barter etc. It's a great way to clear up you work area / basement and get it ready for the up and coming building season.

RADIO CONTROL FLYING CLUB OF TORONTO

2003 - 2004 EXECUTIVE POSITIONS

President	Richard Staron	416-288-0569	*rstaron@eol.ca*
Secretary	Arthur Krikorian		*arthur@tangestudios.com*
Treasurer	Guy O'Reilly	416-443-1299	*joulavert1@aol.com*
Field Officer	Bob Miller	905-839-7868	*robert.miller2@rogers.com*
Membership Officer	Paul Battenberg	416-694-4414	*paulbat@sympatico.ca*
Wings Officer	Scott Baily		*sbaily195@hotmail.com*

Non-Executive elected positions

Editor/Publisher	John Riley	416-469-3990	*jcmriley@sympatico.ca*
Fun Fly Director	Hans Paule	905-837-2664	*hpaule@rogers.com*
Refreshments	Steve Horwat	416-439-7084	*s.u.horwat@sympatico.ca*
Program Director	*Vacant*		

A few little changes to the FUN FLY this year. In previous years the club, food was provided free of charge to all club members and their families. This year we are going to try something a bit different in which we will be bringing in a commercial vendor that will be selling hot dogs / sausages and pop at a reasonable price. Although this may be a contentious issue where some feel that the club should be giving back to the members through free food at fun flies, we would like to try this approach for this fun fly and see how it works out. This is a one time shot and if the members like it…..great….if not….then it won't happen again…..but give us the opportunity to give it a try.

From the Membership Officer - Paul Battenberg

Well guys, I've had a busy summer just taking new memberships. We presently have 163 members and have decided to stop taking any more new members without wings for this year. If a new member has his wings already, he might be accepted. We have 39 new members this year, but as in other years we also had quite a few who did not re-join from last year. Last year we ended up the season with 144.

If any of the new members who paid their MAAC through the club have still not contacted me with their MAAC membership number, I would appreciate a call or email message. We need your MAAC number for our records. Thanks in advance.

Editor's Note - John Riley

Anybody else notice how tall the beans are getting north of the field? Perhaps it's all the rain we've been getting. I noticed how well the beans were doing while searching for the remains of my combat plane, after a blood curdling contest….(see story page 4). The happy fact is that all the parts were found,, ready to be re-built. Many thanks to all the guys who helped me find the stuff, since without them the pieces would still be there.

Combat notwithstanding, I haven't been doing as much RC flying as usual this summer, although I've managed a fair amount of full-scale flight training in Cessna 150's. As for the question, which is more difficult, RC or full scale flying? Beats me - they're different animals. Obviously, we tolerate a lot more "mishaps" in model flying. One thing for sure, the full scale version sure is a lot more expensive. While there are certainly expenses associated with RC flying, we get a lot of bang and fun for our bucks, and it's still cheaper than golf. Less boring too (apologies to you golf fans out there).

You might have noticed there's a new format in this edition of the *Flypaper* - I'm trying out some different software, *Microsoft Publisher* - previously, I used *Word.* The type size is smaller, allowing more text, so you might have to use the zoom control to make the text and pictures easier to read. For those who get the paper version, I guess a magnifying glass will work…. tell me what you think….J.

Club events - RCFCT Fun Flys

June 5 Fun Fly

The June 5 Fun Fly was well attended and featured perfect weather. New this year was the prize situation - instead of everyone receiving a modest prize, there was just a handful of high end items - and high end they were, with kits the included a Great Planes Ultra Sport, a Unionville Beaver, and a Sig Hog Bipe.

These were supplied by Pinnacle Hobbies. It so happens that Your's Truly won the Hog Bipe, and I'm really looking forward to building it. Also featured at this Fun Fly was a combat demonstration by the Humber Valley RC Fliers with their WW2 and WW2 warbirds. These looked great and flew just as well.

Humber Valley combateers ready their Focker D VII for combat. Note the protective military headgear.

In honour of their long standing contributions to the Wings program, Paul Maillet (left) and Curt Jones (right) were presented with special gold Wings pins (arrows) by Prez Richard Staron. Congratulations to Curt and Paul, thanks from us all.

Coming ….August 28 Fun Fly

At press time, details of the events for the upcoming Fun Fly were being worked out, but check out this list of fabulous prizes up for grabs:

- Yet another fabulous Sig Hog Bipe kit,

- A 6' Unionville Otter kit,

- A 64" wingspan (60 size) Great Planes Extra 300 kit,

- For raffle, a Sig Mayhem (60 to 90 size aerobatic monoplane)

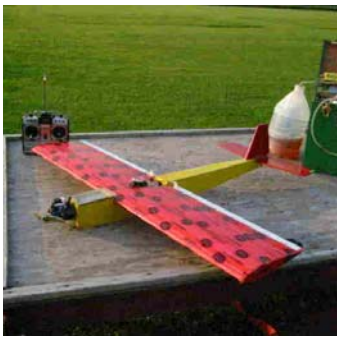
An additional prize, a Hanger 9 Twist ARF, is possible too...it's in the works folks….

COMBAT!

blood sport of brave and noble warrior-men....

" Ladies and gentlemen, I've never seen anything like it....Oh the humanity!" - radio announcer at the time of the Hindenburg disaster

Recently, on Monday evenings at the field there's been an informal gathering of combat participants, and it's almost as much fun to watch as it is to fly. These pictures, taken on Monday August 16, show the variety of planes. They're easy and inexpensive to build, repair and replace. Which is fortunate. Also in attendance were members from the Ajax RC club.



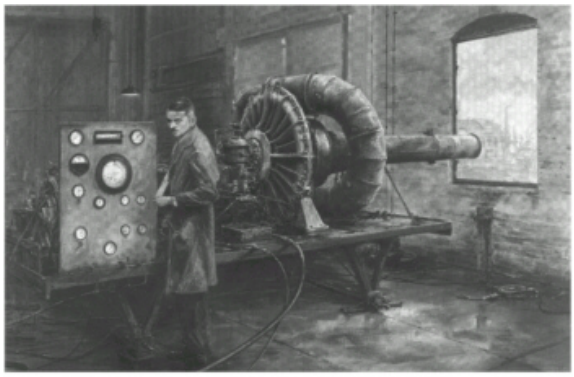
Left: casualties of war. Shown are the results of a mid-air between Bob Miller ("The Dawg") and John Riley (yellow and red "Death Piglet" on the right). Riley's plane incurred a wing separation event at altitude, causing the fuselage to return to earth at a truly fabulous speed.

Gas Turbine Engines - what a blast

by John Riley

Jet enthusiasts like this guy tend to think of themselves as extremely cool dudes

Perhaps it was inevitable, but a recent issue of *Air & Space Smithsonian* magazine presented a nice overview of the current state of RC airplanes powered by gas turbine engines. Unsurprisingly, they made a big deal about the top speeds that can be obtained – 300 mph (although in the States, AMA regulations limit speeds to a mellow 200 mph). RCFCT members who attended the club Fun Flys last summer will recall the impressive jet flown by Jack and Arden of A&J Hobbies, which was not only fast, but had a most rewarding jet sound too.



Frank Whittle demonstrating the first jet engine (1937), by Rod Lovesey

Jet aircraft (large or small) tend to be fast because of a fundamental difference in their thrust characteristics compared to their prop driven cousins. Propeller driven aircraft push a large volume of air back at a relatively modest speed; once the aircraft has attained a certain cruise speed, the limitation on the maximum rpm of the prop limits the differential speed of the backwards driven air, compared to the aircraft's airspeed. With a jet, a relatively small mass of air and combustion gas is accelerated backwards to a very high velocity, so the thrust the aircraft experiences is less dependent on the aircraft's airspeed.

The first patent for a gas turbine jet engine was awarded to Sir Frank Whittle (1907-1996) of England in 1930, after his proposals for jet engines had been rejected by the Air Ministry. Whoops. While he eventually was recognized as a pioneer in British jet aircraft development, it was thought by some that had Sir Frank been taken seriously at the outset, Britain could have had jet fighters by the beginning of World War 2.

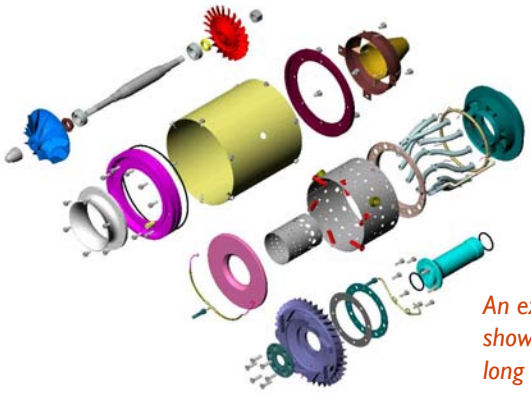
This B-52 is powered by eight Wren MV54s

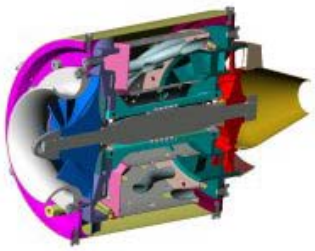
The situation is a little more recent for gas turbine jet models – while there is some discussion about it, an RCM magazine article places the first gas turbine flight of an RC airplane in 1987 (note that model pulse jet engines, which are more primitive, unthrottlable, and intensely loud, had been around decades earlier). Perhaps the first homebuilt gas turbine for models was built by Kurt Schreckling, who has published a book about it; an organization called the Gas Turbines Builder's Association (GTBA; www.gtba.co.uk) has extended his ideas, and their website shows a number of designs and contains a lot of interesting information.

Turbojet engines basically consist of three components: the compressor, the combustion chamber, and the turbine. Simply put, the compressor provides a stream of compressed air to the combustion chamber, where it is mixed with fuel and ignited. From there, the hot gases, which are much increased in volume, rush out the back of the engine, in the process turning the turbine wheel, which via a central shaft runs the compressor. The pressure is highest just aft of the compressor, which is why the gases flow away, out the back of the engine. In essence, some of the energy of combustion is converted into kinetic (high velocity) energy of the exhaust, which provides the thrust of the engine. The operating conditions are pretty impressive – in one popular homebuilt design, the compressor/turbine spins up to 160,000 rpm, and the 1 ½ lb engine can generate a maximum of 16.8 lbs

A compressor - turbine assembly.

The combustion chamber is typically constructed of stainless steel

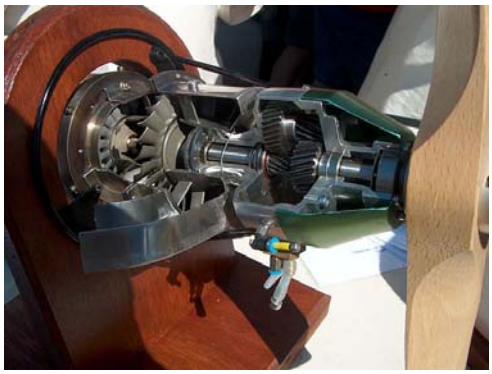




An exploded view and cross sectional view shows how the components fit together. As long as you're fairly patient.

This rear view of a running gas turbine on a test stand suggests that yes, the exhaust is rather warm….

of thrust, consuming 1 liter of fuel in 10 minutes (at an average of 6 lbs thrust). The compressors in miniature gas turbines are of the radial variety, similar to early full scale turbojets, where the air is centrifugally compressed in an outwards direction. In some designs, compressors from automotive turbochargers have been used. While high precision is necessary throughout, the most difficult component to design is the combustion chamber, where the flame burns at 2000 ºC., progressing through the chamber typically as a rolling donut, which mixes with cool air so that the temperature can be reduced to about 600 ºC before reaching the turbine. Relatively straightforward is throttling; this is accomplished by varying the fuel flow to the combustion chamber with an electric pump.



Turboprops have been successfully developed too, as this cutaway shows.

Owing to the fancy metallurgy, precision machining, and low production volume, the opinion seems to be that miniature gas turbines will remain pricey, typically in the several thousands of dollars range for completed commercial units. According to the GTBA however, the expense can be substantially reduced for homebuilders with machining skills, to a few hundred dollars. Another alternative is to build a kit, which requires no special tools beyond a drill press – the quite attractive Wren MW54 kit costs £780.00 (www.wren-turbines.com). An American outfit, Jet Joe, offers a basic kit for $ 599 U.S. (www.jetjoe.com).

A BVM Bobcat, constructed primarily of composite materials

There's no shortage of model aircraft to install gas turbines in, and many planes intended for ducted fan units can be adapted for turbine power. The largest jet manufacturer is Bob Violett Models (BVM), accounting for about perhaps 40% of the market for jet model kits. Violett flew jet fighters in Vietnam, and Boeing 727s for Eastern Airlines for 18 years before forming his company, which now has 20 employees, in the early 80s.

Who says only RC airplanes can be powered by miniature gas turbine engines? The aircraft above is powered by two AMT Olympus engines mounted near the nose, developing 79 lbs of thrust. The plane flies at 150 mph, and is the world's smallest piloted jet aircraft. Flown by the world's bravest pilot, no doubt.