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Skywords

May
2008



The Newsletter of the Burlington Radio Control Modelers Club

Box 85174 Brant Plaza, Burlington, Ontario, L7R 4K4

C-17

'The Shocks':

The four builders are shown in the image below. Colin Straus, the owner, is at the nose of the aircraft.



This $\frac{1}{9}$ th scale radio-controlled C-17 model was built in the United Kingdom. It was built as the centerpiece of a 15 program television series produced in the U.K. for the Home and Leisure satellite TV channel.

Built with the aid of three friends, it took one year to build and is powered with 4 Jetcat P-120 turbines with a total thrust of 108 lbs. The Model weighs over 250 lbs fueled, and carries 12.5 liters (3.3 US Gallons) of 95% Kerosene and 5% turbine oil fuel. Other details include 5 Futaba PCM Receivers, 16 battery packs (93 Cells), 20 Futaba servos, on board air compressor, electric/pneumatic retracts, and pneumatically operated flaps. The wingspan is 20 feet, 8 inches and the top of the tail fin is 74 inches (6 feet 2 inches) above the ground. Takeoff weight is 264 lbs.

The rear cargo doors open and they drop an R/C jeep on a pallet, as well as 2 free fall R/C

Thursday, May 22th
is the next general meeting.
We have a speaker from the
Warplane Heritage Museum
coming in to talk about the
Lysander.



parachutists. The model has a smoke system on both of the inboard turbines and uses a 2.4 GHz data-link to provide real time data to a laptop computer on the ground while in flight. The data includes airspeed, turbine RPM, EGT, Fuel Consumption, etc.

Built mainly from balsa and plywood, with many glass and carbon fiber moldings to reduce weight, it is covered in fiberglass and epoxy resin.

This C-17 Globe Master III is one of the largest jet models in the world today!

Ed. Sorry I didn't get a proper name in time.

Red Bull Air Race

Chris Doré:

This year the Red Bull Air Race will be making a stop in Detroit on May 31st and June 1st. I know its short notice but I still wanted to let everyone know. I've never been to one of these before so it should be interesting. You can get admission on the Windsor side of the river...where I'll be come race day ☺ <http://www.redbullairrace.com/>

Chris

Combat!! (Want to start a FIGHT?)

Eric Palmer:

Hi all, a quick article to pique your interest in a bit of club fun. As presented at the last meeting we are going to attempt to get a few club events going with the first try a bit of open combat. I am proposing going with the open class B rules from the AMA with the exception of the displacement limit. The idea is to go with a, fly what you have format, and if enough interest is generated we can tighten things up.

For the first try I will even out the possible engine displacement range by issuing longer or wider streamers to the .40 engine guys (myself included). As for airframes I have a couple of 40 size Coreplast ARF's sitting in a corner plus enough square plastic downspout to produce 10+ fuselages. If you have a .25 engine sitting around Hammertown Hobbies <http://www.hammertownhobbies.ca/> has ARF's at \$35.00 made from 2MM Coreplast and downspout. I have 4MM Coreplast wings and tails sized for .40 engines, same price.

For those interested in building with Coreplast go here:

<http://spadworld.net/forum/index.php?sid=51b59ded480e58988826dd25fc3b8254>

For a local source, P&A plastics out of Hamilton: <http://www.paplastics.com/>

Combat rules and scoring:

http://www.maac.ca/committees/maac_committee.php?cm=30

Or the AMA:

<http://www.modelaircraft.org/events/rulebooks/RCCombat.pdf>

Have a look, the planes are simple to build, really tough, and fly OK. You will not require rudder to fly combat and I do not recommend it, having tried only to find

it caused lots of adverse roll pretty much canceling out any effectiveness. However, it did add some excitement!

For those interested I can help with building/setup and perhaps we can get together for a couple of informal attempts. Email me at eric.palmer@sympatico.ca or call 905-335-9860.

Leave voicemail! I rarely actually answer the phone as it never is for me, plus my family refuses to pay for clerical service (me), so into voicemail they go.

For a first formal contest I am aiming for June 22nd. We will need at least 6 combatants plus a few volunteers to score and act as safety officers to make it go.

So come on, let's have a go at each other! You can go out the door and tell your wife that you are going to start a fight. Should be fun!

Eric

LiPo Reference

Bill Montgomery:

Here's a little reference chart that I find very handy when I'm working with LiPo battery packs.

LIPO Voltages			
	1Cell	2 Cells	3 Cells
Overcharge	4.3 volts	8.6 volts	12.9 volts
100%	4.2 volts	8.4 volts	12.6 volts
80-85%	4.1 volts	8.2 volts	12.3 volts
10% or less	3.7 volts	7.4 volts	11.1 volts
Discharged	3.0 volts	6.0 volts	9.0 volts

Bill

Big Deflections

Carl Finch:

I find the Robart Surface Deflection Indicator handy, but with larger moving surfaces and greater deflections, the plus/minus 1" indicator is not adequate. I have made a new guide for up to 2" by sticking a paper copy to 1/8" ply.

If anyone wants a copy of the gauge I would be happy to send it to them.



Carl

Handley Page H.P.44 – Hannibal Part II

Ashley Armstrong:

...continued from Skywords April 2008.

The undercarriage once again is a best guess as to how it absorbs landing shocks, as there are no pictures available. At each U/C location, I have 5 model racing car universal joint assemblies together with a 7" long spring loaded main leg. I think the concept is good but there is a bit of slack which needs to be addressed. This undercarriage is the result of numerous failed tries with $\frac{3}{16}$ " piano wire, and aluminum tubing, and also it was impossible to assemble. Each u-joint has one arm about 4" long and the other end will accept $\frac{3}{16}$ " piano wire. At the location where the undercarriage support stay meets the fuselage I put a 10-24 thread on the 4" long arm and bolted it through the fuselage having added $\frac{1}{4}$ " ply in this area for additional strength. In order to connect the back support arm at the trailing edge of the wing I bought a bracket from Home Depot (used for putting furniture together) and modified it to suit my needs. Where this support arm connects to the main undercarriage leg I had to drill a hole in the leg suitable for a 10-24 bolt. This really scared me so I made up a jig for the leg, put in a piece of $\frac{3}{16}$ " rod in the hole where the wheel axle would go with $\frac{1}{2}$ " square aluminum blocks under the axle as support. The main leg is now in a horizontal position, I put this assembly onto my drill press and clamped into position having first lined up the drill bit in the centre of the leg. Using progressively larger drill bits I managed to get the hole diameter that I required and in the right place much to my relief. In order to land the smaller, flat end of the u-joint on the main undercarriage leg I found it necessary to take 2 pieces of $\frac{1}{2}$ " square by $\frac{3}{4}$ " long aluminum bar stock and file a $\frac{1}{2}$ " diameter groove in each of them so that they would fit around the main leg. Now came the fun part in that I now had to drill a hole, in each, suitable for a 10-24 bolt. So once again I made up a jig out of pieces of oak parquet flooring just to hold the piece I had just made. Once again on my drill press I did the same as the u/c leg. I was off a little but with judicious use of a suitable file everything worked out fine. I found that the diameter of the 4" long arm of the u-joint was a touch bigger than the $\frac{3}{16}$ " diameter brass tubing that I wanted to put it into, so back to the garage and my grinder. I managed to grind off enough so that I was able to insert it into the tubing (I had to do this on all of the u-joints). Fortunately the hole diameter in the top of the main u/c leg was correct for the u-joint arm. For the oil/hydraulic fluid/mud guards these I cut out of thin aluminum and beat into shape on the basement floor. For the stays I once again made up a jig and bent $\frac{1}{8}$ " diameter brass tubing to shape with a $\frac{3}{16}$ " diameter collar soldered to the stays so that they could be assembled onto the main wheel shaft. The aluminum guard is held onto the stays with 4 small sermo screws driven into the small plastic pushon buttons that are used for the motor servo actuating system.

The wing struts are once again my design. I wanted strength and the appearance as shown in the photographs

i.e. tapering at the tips, so this is how I made them. Each wing or body strut consists of:

- 2-threaded rod end connectors
- 1 piece of 4-40 threaded rod
- 1 length of $\frac{3}{16}$ " brass tubing
- 1 length of $\frac{7}{32}$ " brass tubing
- 1 $\frac{3}{4}$ " aerofoil section

The aerofoil section is cut about 1" longer than required. The $\frac{7}{32}$ " tubing is cut about 1" longer than the length of the strut and it is then inserted into the aerofoil section positioned so that $\frac{3}{4}$ " protrudes at 1 end. Both ends of the tubing are sealed with some masking tape. The longer end of exposed tubing is used as a kind of wick. You sort of pour the resin onto the "wick" and it flows down into the aerofoil section, cutting down on the wastage. With a shaky hand, trying to pour resin into the aerofoil section directly is very bad for wastage. At the other end ($\frac{1}{4}$ " protruding) I put in some J&B Weld just enough to keep in position in the centre of the aerofoil section. I wrapped the aerofoil section in aluminum foil to protect it from the clear polyester resin that I poured into it. The first time I tried this (without the foil) I had resin all over the section and it took ages to get it off. When the resin has set (I left it for a couple of days) peel off the aluminum foil and clean up the strut. I then cut away just enough of the J&B weld end aluminium (with my razor saw and dremel drill) to land up with clear resin showing. The other end gets cut off to obtain the right strut length. To taper the ends I made up a jig so that the angles were consistent from strut to strut, then I used my razor saw to cut away the unwanted aluminum and then used it again to cut the resin to shape. You now have a strut full of resin holding in place a $\frac{7}{32}$ " tube. Into this $\frac{7}{32}$ " tube is inserted the $\frac{3}{16}$ " tube, then the 4-40 rod (the threaded rod joins the connectors). The $\frac{3}{16}$ " tubing goes over the rod and will go over the circular part of the connectors, now you screw in the threaded rod connectors and you have a completed strut. It seems a bit elaborate but it gives me some flexibility if I have to lengthen or shorten a strut and also in positioning the aerofoil section at final assembly. I tried cutting the aerofoil section (Plan B) to obtain the desired tapering but it looked awful. These struts are the result of Plan C. Plan A was with no tapering, it was just as bad.

The upper fuel tanks as they are now are the result of their own Plan D.

Plan A) Brass sidewalls with heating duct sheet metal (courtesy of Home Depot) as a wrap around. This idea did not work due to the different rates of expansion of the two metals, plus I used tons of solder.

Plan B) Brass sidewalls with thin brass wrap around. I could not shape the wrap around close enough to follow the contours of the walls and so the results of Plan A came back to haunt me.

Plan C) After crashing and burning with the two above plans I tottered off to Canadian Tire and purchased 1 fiberglass repair kit. I made a female mold of the tank,

lined it with aluminum foil, mixed up the resin, and went to work. Trying to put 2-dimensional fraying fibreglass cloth into a 3-dimensional corner with hardening resin is an exercise in futility, when everything had dried I had a tank with 25% less capacity and multiple pinholes.

Plan D) I had an old clear plastic clipboard in my workshop. I cut the plastic (front, rear, and sidewalls only) to shape on my bandsaw, using the mold that I still had, I cut some clear acetate sheet to the exact size of the base of the mold, I then placed the sides and ends in position, I cut some small acetate angles and CA'd them in the corners. I then mixed up the remains of the fibreglass resin and coated the interior of the pseudo tank. I put on 3 coats of resin and let it dry. This came out very well. For the top of the tank I cut some thin brass plate to shape soldered on a small piece of brass tubing to accept the pressure line on the inside, and I will glue the top to the sides with some special glue that Karl sells.

I guess that's all for now. If anybody is interested in any other aspects of this project, I will be pleased to give more details.

Ashley

What comes after a Nanosecond?

Tom Gwinnett:

The old saying is that a Nanosecond is the time lapsed between the light going green and the taxi behind blowing his horn. That may be true but I always wondered what came after a Nanosecond. The answer came to me courtesy of The Economist which I was looking through (trying to find something I understood) when "F16" jumped out at me so of course I read the article, which was about the speed or brevity of laser flashes. They compared the flash speed to the time taken by a F16 at full throttle to traverse a single atom. Which I guess is pretty quick.

The article also speaks of the increasing power of lasers citing The University of Michigan where a titanium-

sapphire laser produced a beam of 300 terawatts which is several hundred times the capacity of the entire US electrical grid. Of course it only did this (and here at last comes my point) for a femtosecond.

So there it is, a nanosecond is one billionth of a second and a femtosecond is a million billionth of a second. For those of you whose are still not satisfied, an attosecond is a billion billionth of a second.

To find out why anyone would need to make a laser flash lasting only an attosecond; you need a different publication than this.

They didn't mention whether the F16 had its afterburner lit.

Tom Gwinnett

Classifieds

Have more planes than space? Would you love to buy that glistening new motor but you can't convince the shop to give you 50% off? Well perhaps now's the time to swallow your feelings and let go of some of your prized possessions.

If you've got anything you'd like to part with, please consider placing an ad in your local Skywords. It's free and guaranteed to hit the target audience you're after.

Ed.

Eric Palmer:

I have an OPM Fusion 40 size profile for sale \$125.00 airframe only. Du Bro control rods installed in tail and heavy duty on wings plus sealed control surface gaps. It's a nice plane with a few scuffs on the wing tips but never crashed and rebuilt. If you are looking for something better than a Twist or the rest of that ARF crap then this is the plane for you! Real MonoCote all CA build, just install your servos, engine, receiver and go fly!

eric.palmer@sympatico.ca

905-335-9860

Upcoming Events			
DATE	CLUB	EVENT	TIME
May 22	Burlington	General Meeting	7:30 PM
June 9, 10	Burlington	Christie Float Fly	9:00 AM - 5:00 PM
June 14 (rain date June 15)	Burlington	Scale Fun Fly	9:00 AM - 5:00 PM
June 26 - 29	Arnprior	2008 IMAA Rally of Giants	9:00 AM - ???
June 28, 29	Otterville	Fun Fly - Fly thru the barn	9:00 AM - DUSK
July 1	Burlington	Canada Day Fun Fly	9:00 AM - 1:00 PM
July 5, 6	Otterville	Scale Aerobatic Challenge	9:00 AM ???
July 6	Tillsonburg	Mac Rowe Memorial Fun Fly	10:00 AM - 3:00 PM
July 12, 13	Olean N.Y.	STARS Scale Rally	9:00 AM - 5:00 PM
July 18, 19	Chatham	Chatham Scale Rally	9:00 AM - 5:00 PM
August 2, 3	Hamburg N.Y.	Flying Knights Scale Rally	9:00 AM - 5:00 PM
August 8 - 10	Kawartha Lakes	MAAC RC Nationals	9:00 AM - ???
August 9	Bramalea?	Quad Club Fun Fly	9:30 AM - 2:30 PM
August 16, 17	Middle Zone (SOMA)	Southern Ontario Model Airshow	9:00 AM - 5:00 PM
August 23	Burlington	Corn Roast and Fun Fly	9:00 AM - DARK
September 6, 7	K-W Flying Dutchmen	K-W Scale Rally	9:00 AM - 5:00 PM
September 25	Burlington	General Meeting	7:30 PM

BURLINGTON RADIO CONTROL MODELERS FATHERS DAY SCALE RALLY

JUNE 14, 2008
(Rain Date Sunday June 15, 2008)



**Please plan to join us Saturday June 14th at
1548 King Road Flying Field
Burlington**

**(exit QEW onto Brant St North – take North Service Road West to King Rd
North)**

from 9:00 AM to 4:00 PM

PILOTS MEETING 0900

Free Parking / No entry fee / Lunch available

Pilot draws.

Contact: Paul Chitty 905-639-1757

THIS IS NOT A CONTEST