Skywords

The Newsletter of the Burlington Radio Control Modelers Club

www.brcm.org

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EDITORIAL:

I'm Lawrence Cragg and this is my first attempt at impersonating an Editor. As I understand it, an Editor's job is to extract material from others through a combination of coercion, blackmail, and just plain trickery.. If all else fails, I'll have to resort to plagiarism and any other expedient that will serve the purpose.

Hopefully, I will be able to produce a readable and informative newsletter and, in the process, make some contribution to the club that has given me so much in the one short year of my membership.

I don't have a scanner so I cannot include pictorial material. As soon as I can find some desktop real estate, I'll fix that problem. Other problems such as a total lack of artistic talent will doubtless remain intractable.

ABOUT SOME OF OUR MEMBERS:

Under this heading, I would like to include material about what some of our members are doing – particularly in the way of winter building projects. So, let me know if you're doing anything ordinary, extraordinary, or simply out of sheer cussedness!

Wayne Bransfield won the Cliff Moore trophy for his work in promoting our club and the hobby in general.

George Payne won the Herb Stoneham trophy - awarded to the senior club member most appreciated for his dedicated and enthusiastic contributions to the club.

Barry Cohen won the horses arse trophy for five crashes in seven days!

Barry Armstrong won the Corsair F4U kit at the December meeting.

Art Titmarsh scratch built and flew a Cruiser 40 built from September 1998 plans from Flying Modelers Magazine.

Exec. Elections Next Meeting - Thursday, January 28,1999

Lawrence Cragg demolished ** models during his first year of RC flying and finished the season with one bent, battered, but still flyable Four Star 40. In the workshop nearing completion is an Extra 300S built from a Great Planes kit. This is a creature of great beauty and the thought of flying it is distinctly scary. An ugly stick awaits assembly with a Saito 91 four stroke engine providing power. The ugly thing will serve as guinea pig for exercises like "damn the consequences, what happens when I do this?"

Mike Block is building a Goldberg Ultimate Bipe and plans to fit a Webra 120 engine. That ought to be fun to watch.

Norm Harris has finished a Corsair. All painted with the "registration" being that of the original flown by John Glen.

Randy Holmes is converting his HobbyCo trainer to a float plane and is building an Astro Hog with a Saito 91 four stroke engine.

Neil Allatt is still having one helluva time with his Staudacher and is contemplating fitting flaps as a last hope to make the thing landable. (I know how he feels! Ed.)

QUOTATION

When a tip stall occurs I've found that the plane always finds enough altitude to let the down going wing miss the ground, despite where the tip stall starts. This makes for a much better tail-over-teacup finale to the event.

DID YOU KNOW THAT...

A model aircraft has crossed the Atlantic. The plane in question is a UAV or Unmanned Autonomous Vehicle called the Aerosonde. It was developed by the Australian Bureau of Meteorology and the Insitu group from the US. It was designed to measure atmospheric weather conditions like a weather balloon, only it can stay up for over 30 hours and navigate itself over pre programmed path via GPS. It weighs around 13kg and

has a wing span of around 3m. The engine is very, very loosely based around an Enya 120 four stroke.

TRAILING EDGES: BLUNT, SHARP, OR ROUND?

In response to a question about this, Harry Curzon wrote: Have a sharp edge or a square edge, but a rounded edge is inviting aerodynamically induced flutter.

For low drag and therefore high speed a sharp t.e. is the only solution at subsonic and supersonic speeds. Hypersonic is a different kettle of fish. You can almost shave with the t.e. of an F104, the t.e of the A-10 is squared off. With a sharp t.e the airflow from top and bottom of the wing are brought together as smoothly as possible, creating the minimum of vortex drag. With a squared off t.e. a vortex cone is formed which acts as a virtual sharp t.e to the rest of the air flow. However the vortex cone of course takes energy out of the system, in the form of reducing speed. It also might flap up and down like an aileron which affects the forces on the t.e. of the control surface causing it to flutter. That flapping up and down sheds alternating direction vortices called Von Karmann vortices, which are shed off a flag pole and cause a flag to curve and flap. It can be made negligible by using the correct ratio of size of squared off edge to chord for the speed regime and suddenly life gets a bit complicated. Solid control linkages with no slop can mitigate it, but the drag will always be present.

A rounded t.e presents the air with a real problem. It flows from top and bottom to meet roughly half-way round the t.e. but the meeting point then vibrates up and down the rounded edge which effectively vibrates the angle of attack of the whole wing, it has a strong local effect on the t.e. of the control surface which then starts to flutter. The drag is higher than a sharp t.e. At least with a squared off t.e. the force of the flutter and drag can be minimized within a speed range by careful design in order to form a vortex cone but this is impossible with a rounded t.e.

COMING EVENTS

January 1 1999 Frost fly. If this is the first you've heard of this, you missed it! About 33 members enjoyed the Chili Concarne and five got off the ground (well, their models did anyway.)

January 28 meeting and election of new board members.

Toledo, April 9, 10 & 11. Trying to set up a day trip by bus with members of other clubs.

Float fly June 6 & 7 at Christie Park. Also in September sometime.

Canada day festivities - fun fly, July 1st at the Bronte field.

Balloon fest in July (?)

Tri Club meeting hosted by BRCM August 7th at Bronte

Corn roast 4th weekend in August

EVENING MEETING PLANS

Tentative plans are afoot to entertain, amuse and inform you about some of the good stuff:

Kit bashing by Rob

Lysander, moulds & plugs by Carl

Electric flying by Mark Thompson

Swap meet and video

Show and tell in which you bring your model(s) in pristine condition before you've had a chance to crash it (them.)

Building with foam - this is a definite maybe; depends upon interest and commitment.

INDOOR FLYING

We may have some demonstrations of this fascinating aspect of the hobby. We'll see what we can organize.

OTHER BUSINESS

The Bayfield lease expires this year

The Bronte Grass is growing but the field remains closed until further notice.

OOOPS #1

I thought I had outlived the memory of this one, but wives somehow remember all those meaningless little details, like right after I started flying, I stuck together a SureFlite foamie Cub.19....

Painted the wing with Aerogloss.... By the time I got to the right wing, the left one had all but disappeared....

Bill Fulmer TeamRCO #0002

OOOOPS #2

I have a friend who had a F-4 Jet. Beautiful...perfect....those are just a few words people use to described the paint job... You see he is a professional automotive painter. In fact he uses automotive paint for all his planes. Well he had just finished putting in all the radio and put it together for viewing... right in the middle of the garage...Spent about 2 hrs waxing it and went in the house to get his camera to take a photo of it. Well.... as he went in the house the phone rang and being it was a plane person he started talking about stuff..... He totally lost track that his brand new jet was in the garage.... The day went on he completely forgot about the photos.....next thing... His wife comes home and clicks the garage door remote and drives right in.....When my friend sees that his wife is home he shoots right off the couch and in the garage.... all he saw was... about 4 inches of wing under the right front tire.....

FACTS ABOUT FUEL

Before leaving for a winter in Florida, Ernie gave me five articles about fuel. Here is the first:

No. 1 - What's the Oil Content?

(The following is the first in a series of articles exploring all facets of model engine fuel. The writer is Don Nix, President of GBG Industries, Inc., manufacturers of POWERMASTER model fuel. Readers are invited to contact Don directly via e-mail - FLYERDON@aol.com.)

Fact (A) - It's quite likely that no other single facet of modeling generates as many myths, misconceptions, misunderstandings, errors (and more than a few lies), or as much outlandish goofiness as model fuel....one of our absolutely necessary, non-optional items for powered flight.

Fact (B) - Of all the above, the one fact that rouses the most questions - and without doubt the most wrong answers - is the ongoing nonsense about the amount of oil required in model fuel.

Myth: Model Glow Fuel must contain XX% oil to operate properly, perform well and protect the engine.

Fact: There is no such fixed number....at least not a valid one.

Why not? Think about it: In order for this to be true, all oils used in model fuel - all of them - would have to be identical in every characteristic. Does anyone honestly believe they are? I doubt it.

While lubricants compounded for full-size engines - automotive, recreational vehicle or aircraft - are rarely, if ever, suitable for use in model engines (for many reasons), nevertheless, there are a number of base lubricants that are available for our highly specialized use. However, most of these must be modified slightly or extensively by the use of a variety of additives and modifiers.

While Klotz model oils are perhaps the most well-known to the average user, and are quite good, they are by no means the only lubricants available to model fuel blenders, and there are currently a number in use. Each has its own "personality" - its own set of technical specifications and characteristics.

At this point, we should point out that we're speaking of the so-called "synthetic oils" popularly used in modern model fuels. Castor oil...the oil of choice, and, indeed, the only suitable model engine oil for many years, is more of a common and known factor. Assuming a good grade, if a fuel uses only castor as its lubricant, then we could give you a fixed percentage, at least for the various engine groups and types.

However, few model fuels intended for R/C use today contain only castor oil as the lubricant. For the purposes of this discussion, we will only deal with fuels containing either straight synthetics, or a blend of castor and synthetics.

So what does all that mean?

Let's draw a little picture here: Suppose at some point in your life, you become concerned about living a long and healthy life, so you decide to consult a doctor for advice as to how to accomplish this. When you come to the subject of food, you say, "Well, tell me, Doctor....if I wanna still be healthy and virile at 90, how do I eat?" The good doctor replies, "M'boy, if you will eat two pounds of food a day, you'll be fine!"

My guess is your response would be something like, "well, what kind of food, Doc? After all, no two are exactly alike....is that two pounds of lettuce or two pounds of pork chops?" If he replied, "It doesn't matter. Just as long as you eat that two pounds every day, you'll probably outlive your kids." My bet is that you'd run, not walk, out of that quack's office!

Why, then do we blindly follow someone's Word From On High when they say (in words engraved on stone tablets), Thou shalt use no fuel that does not contain XX% oil." It makes absolutely no sense to me, nor do I think it will to you, if you just stop to think about it. All foods are different; so are oils.

If that's true, why do the instructions with my engine specify a fixed percentage of oil? Simple - to protect themselves. All engine manufacturers have been burned (figuratively and literally) in recent years by "bargain priced" fuels containing either inferior oils, or insufficient amounts of oils. Every one that I've talked to will admit off the record that fuels containing good oils won't need as much as their instructions say. But they also say they know they have no control over that, so they are going to print a high number, in hopes that amount of even a cheap oil will be sufficient. Frequently, it isn't.

So why not just put a lot of oil - at least 20% or more - in fuel and not worry about it? A lot of reasons...all good ones. For example:

Too much oil - any more than is necessary - makes the engine run really crappy. Think about it: methanol burns; oil doesn't - or at least it shouldn't. (Some do, but that will be dealt with in another installment.) Common sense would tell us that the less oil (nonburnable) we can safely use (to an irreducible minimum point, of course), the more methanol (burnable) we will have in our combustion chamber. More burnable ingredients = more power. One well-known magazine writer, with more than 50 years engine experience, tells me that in his experience, for every 1% oil removed from model fuel, the effect is about the same as adding 1% nitromethane. And it costs a lot less!

By the same logic, the less oil we use (to the predetermined minimum, of course), the less the oil is going to be dousing the glow plug element, and we should be able to achieve a lower, smoother idle.

Next to nitromethane, oil is the most expensive ingredient in model fuel. By not using an unnecessary amount of oil....especially if it's just to satisfy some Great Guru's edict....the manufacturer

can keep the cost of the fuel down, which puts a smile on all modelers' faces. Remember that even an additional 25 cents in manufacturing cost translates to an additional dollar....or more....at the retail level.

So, what is the right amount?

It all depends...on what kind of oils, in what combinations, with what additives, etc. And for what use? Sport ... airplanes ... Racing - Helicopters ... Boats ... Cars - Ducted Fan? What size engines? (As engine size increases, they need progressively less oil. Why? Simple mathematics. Surface area of the combustion chamber increases at about half the rate as the displacement increases.) Most people know that the big T.O.C. and Unlimited racing engines use oil in the 4% to 5% range.

Ducted fan and helicopter engines typically need more oil, 4-strokers less. It might be surprising to most airplane flyers to know that top competition model car engines use fuel with oil contents in the single digits, even though they are turning in the 40,000 - 50,000 rpm range, and have no fan in front to cool them! As matter of fact, they will hardly run on regular airplane fuel.

Next installment: Synthetic or castor oil....which is best?

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