The R/C Flyer

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Next Meeting – January 13, 2005, Clear Lake Park Building – 7:00 PM

A NEW YEAR

By Herman Burton, President JSCRCC

Happy New Year, club members! 2005 looks to be another great year for the Johnson Space Center Radio Control Club. The club is in good financial shape, the site has been significantly improved for summer time flying with a wonderful shade canopy, and existing safety rules with appropriate signs have been placed at the flying site. Any additional improvements you can think of should be forwarded to any of the club officers. Or, bring the ideas to our next meeting for discussion.

Like any volunteer club, this club will only be as successful as you, the membership, want it to be. Your club officers are happy and willing to sit at the front table and conduct the meetings. But the ultimate success of the club depends on the membership, and their participation in the activities proposed and ultimately implemented.

The last Fun Fly had a better than average attendance. It appeared those who came out had a great time, the events were simple, and the comraderie was contagious. More Fun Fly's will be planned for this year, and your suggestions for events, as well as food items, are solicited. We want you to have a good time, and your input will be helpful.

I have enjoyed being a member of the club for about 8 years, and as your new president, I will work to continue the legacy of those who preceded me. The other club officers and I wish you and yours a Happy New Year, good health, and safe landings!

December 2004 Meeting Minutes

The December meeting was the club's annual Christmas party. A good time was had by all, good food and excellent company. Herman Burton introduced our featured guest, Lt. Colonel Richard Schiebel. Richard is a fascinating individual with many stories and interesting historical tid bits of information.

The club members voted for model of the year and the winners are:

1st : Charlie Teixeira's B-25

2nd : Mike Laible's Bearcat

3d : Herman Burton's P-38

Editorial

The club has come a long way the past couple of years in regard to field and safety improvements. But we should not stop now; we can and should strive to make our field even better and safer. A lot of things come to mind and I'm sure everyone has an item or two that they would like to see get implemented (e.g. a porta-can). But at the top of my list are the following:

- Get paved areas resurfaced and holes filled
- Extend the crosswind runway (I know we have discussed this many times before but bear with me).

Last year a strip on the south end of the current pavement was mowed in an attempt to see if some regular mowing and seeding would give us an acceptable surface. But unfortunately this was not the case. The field would need to be scraped, leveled and crowned before any kind of surface (grass or paved) could be applied. Obviously this was beyond what the club itself could do.

If we go with a grass strip we must have a plan on how/who will mow every week since I doubt JSC would be willing to provide that regular service. A paved runway would be maintenance free but cost considerably more, $10000 has been mentioned.

Why not put together a proposal to JSC on specifically what we would like (e.g. 150 ft grass or paved extension, North and South, to the current crosswind runway). The proposal should include a cost estimate and an offer to share the cost with JSC. Other clubs at JSC do get help and we will not get anything if we do not ask... Getting the canopy took several years, BUT WE DID GET IT!

If a shared approach is agreeable to both parties, our share could wipe out our budget so a dues increase might be required and I think totally justified based on the added value to the club. The dues increase could also be applied for only as long as it takes to pay for our share of the cost.

If we go the paved route, we should also emphasize to JSC that this additional paved area could be used by JSC during the Ballooner Fest and other events so it would be an asset to the club as well as JSC. Secondly, this paving could be done when some other paving work is scheduled by JSC, we can be flexible on when it gets done. This request should also ask for filling in the many existing holes and ask for resurfacing which in the past JSC was apparently willing to consider.

What do you folks think?

Federal Holidays

Just a second reminder to mark your calendars for the following Federal Holidays in 2005 when flying is permitted all day at the JSC field.

January 17
February 21
May 30
July 4

September 5
October 10
November 11
November 24
December 26

Winter got you down?

By: Charlie Teixeira

Don't let the short, windy and cold (?) winter days get you down. There is plenty to do to get ready for spring and one of the many good weather days that pop up from time to time over the next few months. There are some important maintenance items, when performed during the winter season, that can save many hours for good flying weather if you don't procrastinate. For example:

- Re-cycle all your batteries, not just once but 2-3 times and make a note of when they were recycled, peak voltage, discharge times etc
- Check all covering seams (monokote etc) to preclude fuel seepage. Hit the seams with your heat iron and/or a few drops of CA. This is especially important for ARFs where the covering overlaps can be next to nothing and not well sealed.
- Check all wheel collars for tightness.
- Check all prop nuts for tightness. All props that are nicked or have a serious scratch should be trashed.
- Replace any servos that are acting erratically or have excessive "chatter".
- Check all servo connectors, move/jiggle each one to check for bad connections
- Check all hinges for strength. If loose, pin them with a round toothpick and CA (this should have been done during construction!).
- Check engine compartment for excess fuel accumulation and potential soaking into the firewall.
- Ream (if necessary) and balance a spare prop for each of your flyable airplanes.
- Clean out your flight box for accumulated trash and add items misplaced or lost over the past year.
- Replace all accessory batteries (tachs, voltmeters etc).

In addition to the above maintenance items, how about some goals for the coming year?

- Plan on learning a new aerobatic maneuver
- Make a commitment to set aside time to practice crosswind takeoffs and landings
- Take on a new and challenging building project where some new building skill can be acquired (sooner or later you will want to build that special airplane that does not come in an ARF version)
- Make an effort to volunteer to help with some club activities (e.g. fun-fly's)
- Help the club officers with ideas for meeting programs and events
- Plan on submitting at least one instructional or product review article to the club's newsletter during the coming year.

How about it folks, it is your club and it will remain a vibrant club only so long as the members actively participate.

(Editor: The following article is presented courtesy of the AMA National Newsletter)

Propellers: Deciding on the Correct Construction, Size, and Style

By JOE FINKELSTINE

The first thing I need to argue is that our propellers could be thought of as similar to the wing on our airplanes. Our wing produces lift by moving through the air, and our propeller creates lift by revolving. If you take a close look at a propeller, you should notice that they have an airfoil shape, just like a wing. At the risk of sounding elementary here, the lift produced by our propeller is more commonly referred to as thrust, and it is what provides the force to move the airplane forward.

Our hobby provides us with an enormous selection of propellers in terms of construction, size, and even style. In particular, over the past few years, I have noticed a much larger selection of propellers specifically engineered for electric flight.

I get the most questions as to what the numbers on a propeller mean. Two numbers classify all of the propellers I am aware of, one being the propeller diameter (length from tip to tip) and the second being the pitch of the propeller. The two numbers usually are listed on the propeller by diameter, then pitch. For example, a 13 x 9 propeller has a diameter of 13 inches and a pitch of nine inches. The propeller's pitch is a theoretical number in practice. In an ideal world, where the propeller would not slip or have any drag, the pitch represents how far forward a propeller would travel in one revolution. Given our 13 x 9 propeller, the nine means that if I put in some kind of fluid or special air and turned it exactly one rotation, it would move forward nine inches.

Both the diameter and pitch are important as we decide which propeller to use on our model. It often is confusing, particularly to beginners, as to what to choose for a new model. The "right" propeller depends on a number of factors:

1) What load the propeller places on the engine
2) The model's desired forward speed
3) The model's desired acceleration
4) Noise considerations of the propeller
5) The material the propeller is made of

Every propeller will take effort for an engine to turn, and the amount of effort to turn the propeller is called load. One way to quantify the load is to multiply the two numbers (diameter and pitch) to get a "load factor." This number by itself is meaningless, but it is useful for comparisons of propellers of nearly the same size and diameter. Engine manufacturers often will list more than one propeller for an engine, and if you compute the load factors for the entire family of recommended propellers, the load factors will be clustered together. You can then see if a propeller that is not listed has a load factor in the range defined by the recommended propellers.

The real test for load factor is what rpm the engine will want to turn the propeller at full throttle. If the propeller load factor is too small, the rpm limit of the motor may be exceeded and you'll be back at the hobby shop complaining that the engine made a big clanking sound and then quit running (the clank was your connecting rod breaking in half). On the other hand, if the load factor is too high, the engine will be overloaded, will almost certainly overheat, and will not have much pulling power. The chosen propeller must allow the engine to stay within its recommended rpm range.

Most of my experience is in four-stroke engines and for me, that means whatever propeller I choose, I must ensure my small-to-medium four-stroke engines never tach over 10,000 rpm on the ground. The wide open rpm value also is important in how much sound the propeller makes. Of all the things you think about when trying out different propellers, correct loading is the most important.
The second major issue is the trade off between top end speed and acceleration. Let me start with a generalization. Pitch affects top end speed and diameter affects acceleration. There is a direct trade off for each propeller and which one is right depends on your style of flying and the type of airplane you're flying.

Let's use my Dave Patrick Ultimate biplane as an example. This biplane is highly aerobatic and I spend a lot of time tumbling it through the air in and out of stall. The ability for me to accelerate from near zero to climbing speed is far more important than how fast the airplane goes at full throttle. For this reason, I chose the largest diameter propeller that the engine (a Saito 180) could handle. The fliers who like very fast models choose the other end of the spectrum and go for as much pitch as possible.

Sport models are a compromise between the two. Many of the aerobatic Almost-Ready-to-Fly (ARF) airplanes are quite specific on the maximum pitch to use because the designer made the model to be highly maneuverable and flying this type of model usually induces flutter. At the moment, I am drooling over a Dave Patrick Edge 540, and he mandates no more than an 8-inch pitch on the propeller. I will use a Moki 1.8 on this ARF, allowing me to fly an 18 x 8 propeller. I may try a 20 x 6, but I'm concerned this will overload the Moki.

If you stay with a propeller that does not overload or underload the motor, the only way I know to select the propeller for acceleration versus top end speed is experimentation. Try out different propellers. For smaller propellers that only cost a few dollars each, this is relatively painless. When you get into propellers with diameters exceeding 18 inches, it gets expensive, so I use the time-honored tradition of borrowing different propellers to test flight characteristics.

The last factor I use in propeller selection is noise. Unbelievably, propeller tip noise often can be the largest contributor to the noise our models make. In particular, when the tip speed of the propeller is at or over mach .75 (yes, that is ¾ the speed of sound), the tip noise generated will be quite large and over our limit almost every time. There is a simple formula for finding the rpm for a given propeller diameter at which the tip speed is mach .75 and it is rpmmax=190,000/D, where rpmmax=rpm at which the tip speed will be mach .75 and D=diameter. Consider a sport two-cycle, .46-size engine. A common propeller for this type of engine might be an 11-7. A sport .46 with a recommended propeller would almost certainly never tach out above 17,273 but I have seen the Pylon racers, and the original MVVS engines tach this high. For most of us who fly sport, we will not bump up against these numbers. I will comment, though, that many engines I use and swing propellers in the 20- to 24-inch range can easily reach the maximum rpm.

The final selection criteria discussed above also is concerned with the material the propeller is made of. At our field, the two most common propellers are either wood or a composite (APC). The wood propeller is a little safer. The two primary disadvantages to wood propellers are their fragility (one nose over and they're finished) and their noisiness. Composite propellers also have advantages and disadvantages. Primarily, they are more accurate in terms of pitch, pre-balance, and efficiency. I have experimented with this on several occasions and can say that if I take wood and

APC propellers of the same diameter and pitch, the APC will turn more rpm on the same engine and appear to be quieter. One of the biggest dangers of APC propellers, however, is they are razor sharp and can cause a lot more damage to your fingers. If your standard landing technique includes nosing over, the APC propellers are the way to go. In the end, one of the best methods when you start looking for a propeller is to watch and ask. Look for a similar model at the field and observe how it flies. Ask the owner which propeller he or she is using. If it is an aerobatic model, watch how it accelerates and how it behaves full throttle. I also have found the Radio Control bulletin boards on the Internet to be helpful.

Hope you are already making balsa dust for next flying season!

From Skywriter
Skymasters Radio Control Club
Mark Smith, editor
Lake Orion MI

Upcoming Events

4/16-17/05 : Prop Nuts Annual Flea Market and Fly-In, Crosby, TX. Contact Taswell Crowson CD at 281-474-9581 for more information

Happy New Year!

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