

CARTWHEELS

BY: LARRY LOUCKS, PRESIDENT

Renewal Season is now Open!!

Renew your IRCC membership now and avoid the last minute end of year rush. If you don't have your 2011 AMA Card you can still renew, and when you receive your new AMA Card forward a copy, and we will send you your 2011 IRCC Membership Card. The Membership / Renewal form is available on the IRCC website under membership – follow the link and print the form.

No time like the present to take care of business!!

Have fun, be safe, see ya at the meeting.

New Members

Proposed at the October Meeting
Nick Cain, Don Roth, Bob Ruff

IRCC CANDIDATES for 2011 Four Officers and one Director

PRESIDENT – Larry Loucks

VICE PRESIDENT – David Raff

SECRETARY – George Nauck

TREASURER – Roger Pilkenton

DIRECTOR – Mike Zellars

Voting will take place during the next regular IRCC meeting on November 4th, 2010 at 8:00pm.

Improving Your Flying Skills at Home

By: John Burdin

For years most of our friends who have learned to fly R/C aircraft did all their training at the local flying site. Each day was a new adventure, and if something happened to preclude them from flying on their selected day (weather, mechanical or otherwise), it was wait until next time. Not only is this frustrating, in today's world it's wasting time. Occasionally a new student won't connect with an instructor, and numerous other things can cause delays.

Regardless of each person's skill level we are always learning, and to use an old adage; "the day you stop

learning you are finished". One great thing in today's R/C world is the availability of very high quality computer generated video simulator flying.

R/C flight training has evolved over the years. From someone telling you what to buy, how to put it together, and some basic flight instruction then wishing you luck. Today one can literally go from the hobby shop (or UPS delivery) to the flight line with a brand new model in a matter of days, and in some cases hours. So why not speed up the learning process as well?

I remember discussing the Real Flight product was Bruce Holleck (Founder of Tower Hobbies) about fifteen years ago as they were about to go to market. Their goal was to produce a product that could dramatically shorten the learning curve for new R/C Pilots, get more people interested in R/C, and save time and money with the process of learning to fly R/C. His focus group consisted of all ages, and as he made clear at the time, it was working well. Think about the capacity and functionality of computers then vs now!! I remember the early versions of Real Flight, and as well as it performed, the latest version is spectacular. In the early days of Real Flight many hobby shops kept one running so patrons of a particular shop could stop by and try it out. Not too many different planes to choose from in the menu back then, but it was fairly realistic.

I am now on my third or fourth version of Real Flight combined with the upgrade / service packs there is an almost unlimited number of different airframe types to choose from. Just about everything that is flying R/C is in the menu; trainers, electrics, giant scale, multi engine, sailplanes, jets, helicopters – you name it, and it's available. There are also many different flying sites to choose from. The operator/pilot can also change the weather at each flying site. If you don't like the wind, you can change the direction or eliminate it all together. If the sun is in the wrong place you can change that. You can even fly at night if you wish. There are also many variables on each aircraft that can be changed if you prefer a different setup. As technology has improved so has the realism of each flight. From engine noise related to power settings, flaps and landing gear, retractable canopies and smoke are all part of the program.

Real Flight normally comes with its own controller (transmitter) referred to as the "interlink". If you purchase Real Flight, I strongly suggest that the "interlink" be purchased if there is an option. You will be glad you did.

For beginner, novice and more experienced pilots there are added benefits. If you are trying to learn or perfect a maneuver such as a slow or four point roll, Real Flight is the place to do it. And, a Real Flight crash won't cost you a dime!! If you are having trouble with your confidence during a specific maneuver, Real Flight is the place to practice. Sometimes we never learn some of the basic

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*Courtesy and
common sense keep
R/C modeling fun
for everyone.*

maneuvers needed to do such things as land properly. These may include doing a flat figure eight in both directions in front of you. A left and right hand circle in front of you. Possibly something as common as a right or left had traffic pattern approach is giving you a problem. Real Flight is the place to improve your skills regardless of your level.

A couple of additional things one can work on using Real Flight are learning to fly with your fingers instead of your thumbs, and using slightly longer stick setting. Both of these will greatly improve feel with each and every flight as you get comfortable with them, and your confidence increases.

The use of Real Flight certainly won't guarantee anything, but my guess is that your confidence and skill level will increase. It's certainly great training, and a lot of fun anytime.

Next Month we will go into more detail about flight training – actual and virtual.

Mechanics-Control Linkage and Hinges

From: *Buzzard Droppings*
Barnyard Buzzards RC Club
Duvall, Washington

The purpose of control linkage is to take the motion generated by the radio control servos and transfer it to the airplane's control surfaces and other control devices. Since this motion is mechanical, there are considerations for choosing one technique over another.

In its simplest terms, a control linkage will include a servo control arm, push rod, control horn, and a way to attach the push rod to the servo control arm and control horn, some way to adjust the position, distance of movement, and the controlled device itself. This is obvious to those of us who have been around the RC circuit for a while, but for the newcomer, this is a challenging topic.

Always plan ahead and avoid mechanical interferences between the moving parts. Engine vibration, inertia, and G-forces will cause our control linkages to behave erratically. These forces introduce stress and must be considered, even in a docile trainer.

Cost

The real cost of the control linkage is the price of the entire model if it were to fail doing its job! If we take into consideration the initial cost of the hardware, the time it takes to install, adjust, and lock, special tools, as well as any maintenance during the life of a model, we might want to consider using the higher initial price of carbon fiber push rods

(titanium ends give you special bragging rights!), nylon brushed control horns, ball/stud clevises, etc.

The old adage, "you get what you pay for," comes into play here, especially for the Giant Scale and Speed models. Often, we use parts because they are part of a kit. We forget that the kit manufacturer makes choices based on cost—many times providing parts that "will do" as opposed to those best for the application. Some don't even provide these parts, leaving the choice to the preference of the model builder.

Precision and Strength

The important measurement for the control surface is whether it will provide the proper movement, with no slop, exact mechanical repeatability, no wear, and no maintenance. It must tolerate the stress placed on it during normal, reasonable flight. It should tolerate changes in temperature, and wear slowly. Parts that have been problematic over time are:

- Threaded metal clevises that can split apart and/or become stripped by vibration (Sullivan provides an interlocking design that is good).
- Nylon parts that are too soft or too brittle.
- Wooden dowels that twist and warp from moisture.
- Incorrect application or numbers of supports.
- Incorrect application (i.e. braided wire for elevators ... yikes)!

Size and Space

These seem obvious until you consider that each model has many moving parts that may interfere with each other as they move. Some planning for the elevator and rudder push rods is required, even on ARF aircraft, or problems will occur.

Some problems occur with the aileron movement, noticed only when the wing is mounted to the fuselage (parts hit items mounted in the fuselage). Sometimes the needed supports cannot be installed because the construction has already progressed past the point of making this easy (think of an ARF fuselage).

Mechanical gain and differential

Many times the control horn and servo arm have different locations for installing the push rod. If the push rods (or pull-pull cables) are installed at the same distance from the pivot center, the travel

The IRCC monthly club meeting will be held at FTE near the Lakeland Airport. The next meeting will be on Thursday November 4th and starts promptly at 7:30pm. Remember to bring a chair if you want to have a seat.

is linear.

Some modelers will install the push rods so they are in a mounting hole farther from the pivot center in the servo and closer to the pivot center at the control surface. This will increase the travel. For precision, moving the push rod to the innermost hole on the servo arm and farthest from the pivot point in the controlled surface provides the greatest precision but the lowest possible movement.

Some vendors provide longer servo arms to help get the amount of travel a control surface needs.

Wear

Providing free movement for our control linkages is one of the goals. Checking that wear has not created slop is one of the routine inspections we should make. Those nylon parts will wear oval holes where they were once round. This introduces a great amount of slop. Check and replace these as needed. Make sure the parts aren't too tight. This speeds up the wear and causes repeatability problems.

Weight

Although not usually a primary factor, weight in some of the lighter models is a big thing. Building with components that add unnecessary weight is poor practice. Using composite materials such as carbon fiber rather than wooden dowels or threaded steel rods makes a difference in both weight and precision.

Usually the choice of materials is dependent on several of the factors already mentioned. A good scale (digital or otherwise) is a wise investment for the builder. Choosing parts that perform identically based on their weight is the right way to build. If a model needs additional weight for balance, why not choose the parts that will help balance the model rather than installing dead weight (i.e. lead) later.

Coolness

Advertisers being good at what they do, the neatest products might not be what you want in your model. Sometimes the simplest, tried-and-true parts are the ones to stay with.

Ask your fellow modelers if they've used the new products. You might save yourself some headaches.

You may want to avoid:

- Clevises that have multiple parts that could get lost.
- Plastic stuff that can wear (due to vibration).
- 2-56 linkages.
- Parts that require a special tool to adjust might not be field-friendly.

You do want to avoid metal-to-metal connections.

Ease of use

Using parts in control linkage that make adjustments easy to do and will hold those adjustments from outside the model is a huge plus. Also, make sure the adjustable bits can be locked in place and unlocked for later adjustments. Some modelers CA their threaded parts; others use lock nuts. Some use thread locker; some use safety wire. Many use a combination of these.

Ideally we want our adjustments to stay forever; however, if we've selected less-than-ideal components, parts with a different coefficient of expansion (the ratio of change in length or volume of a body to the original length or volume for a unit change in temperature), or incorrectly installed our components, the model may have very different flying characteristics from one day to the next.

A few tips:

- Keep the control linkage as short as possible.
- Use mechanical adjustment to set end points and center rather than relying on a computer radio.
- Use silver solder on these types of joints. 60/40 rosin core solder (electrical) should not be used! Make sure to use flux when soldering. Clean the flux off; it is usually an acid.
- Coreless digital servos are expensive for a reason: They are fast, precise, repeatable, and strong.
- Control systems always fail at the weakest point. If you use balsa servo mounts or thin light plywood, guess where the weak link is ...
- Providing bearings for push rods and attachment points for the plastic sleeve is a good thing. Depending on the load and power requirements, you may need to put one every six inches or less.
- Bending the control wires to reach the attachments points weakens the system.
- Slop causes flutter. Slop occurs in the servo output spline, control horn holes, hinges, and push rod itself. Installing the control rods so they run straight between the servo and the control horn is best but not always possible.
- Counter balancing control surfaces (equal weight on both sides of the hinge), usually prevents flutter.
- Some ARF vendors supply 2-56 or 2 mm metric parts. Sometimes the threads are rolled; sometimes they are cut. Metric and standard (SAE) are not exactly compatible or interchangeable. Close is not good enough. Check your parts and make sure they fit correctly.

Hinges

Another area that brings modelers' opinions to the forefront is hinges. Many use the hinging techniques that become familiar. This is all right if you are building models in the same class (size, weight, power, capability, etc.).

When you migrate from Peanut or .40-size Sport Scale to other types of models, different choices must be made.

Many kit manufacturers include or at least recommend the type and number of hinges to use. Lately, the larger 3-D type ARC/ARF kits do not include any reference to hinging (or control linkages). They leave it up to the modeler to use the components he or she likes.

There are several new tools available to make hinging easier. The idea is to provide a strong connection between parts that have no slop, small or no air gap, no friction or binding, and are simple and repeatable in use.

CA: Many vendors make these glues, but they are not all equal. I have seen many hinges installed with CA fail. When they do, it is tough to fix, often involving cutting the control surface off and re-hinging. Still, some modelers swear by them and not at them.

Non-CA: Most hinges are installed with epoxy or white glue. If you use the hinges with a metal hinge pin, before gluing these in, it is a good idea to put oil or Vaseline on the hinge-pin area to prevent glue from migrating to these areas. Pinning the hinge is a very good idea and may save your model someday.

**Our next club meeting is:
Thursday November 4th at FTE.
Plan to attend and see what's new.**

IRCC Meeting Minutes

October 14, 2010

Minutes recorded by:

George Nauck, Secretary

Meeting called to order by Pres. Larry Loucks at 7:30 PM. 22 members (1 new).

Treasurer Report – New account set up at Regions bank, with a \$xxK line of credit, secured by our CD (\$xxK). New tractor is financed on the line of credit. Motion made and passed to set up an automatic monthly payment of \$xxx on the \$xxx tractor.

Membership Report – Now at 99 or 100 members

New Members – Bob Ruff, Don Roth, Nick Cain

Field Maintenance – All is in good shape.

Instructor's Report – Have a lot of members soloed and having fun. No big waiting line at present.

Past Events – FIA qualifying Pylon USA and other country's hopefuls for World Championship qualification event went very well, and club netted about \$1200. Monster Planes was very tight on volunteers, and made club about \$900.

Future Events – Our field will host the IMAA District 5 event on October 22-24. Need volunteers as always. The Plant City Chamber of Commerce selected our club to participate in their Planes, Trains, and Automobiles event at the Plant City Airport next April on a Saturday. They were very impressed with their visit to our club recently

Website and Newsletter Report: John Burdin announced that the club website has been reloaded and is up and running without the security warnings that some had experienced.

New Business – The club Officers and Directors election for next year will be coming up soon. Any volunteers or nominations should be made known to our President ASAP.

Sportsmanship Award – Awarded to David DeWitt for ongoing excellence in organizing the events such as recent Monster Planes.

50/50 was not held due to absence of the 50/50 agent and no raffle tickets.

Meeting adjourned at 8:34 PM.

Coming Area Events

10th Annual IRCC "Heli Spectacular"

November 12 – 14

IRCC Flying Site

CD: Mike Zellars

mszellars@tampabay.rr.com

Details: www.imperialrclub.com

Corvin Miller Memorial

U.S. Scale Masters Qualifier

November 20 – 21

Sarasota RC Squadron Field

www.sarasotarc.com

War Birds Over Sarasota

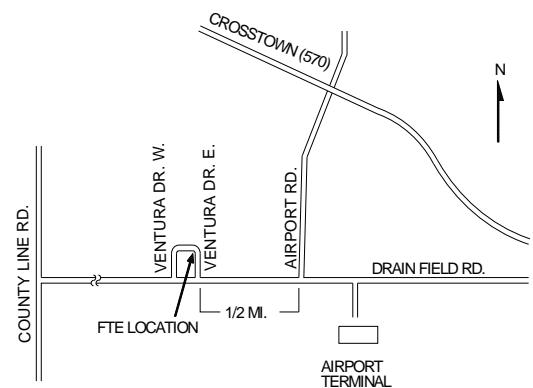
December 4th

Sarasota RC Squadron Field

www.sarasotarc.com

Here is where we meet each month.

Please **DO NOT PARK ON THE GRASS** at FTE or his neighbors.



OUR NEXT MEETING IS: November 4th