



Soaring News



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"Newsletter of the Orlando Buzzards R/C Soaring Society"

November 1997

CLUB OFFICERS

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NEXT MEETING

Dec. 7th, Noon at Club Field
Jan. 4th, Noon at Club Field

TANGERING SOARING CHAMPIONSHIP ISSUE

Corner

Rick Eckel

President's

announce the new slate of officers for 1998:

President - Jerre Ferguson
Vice President - Bill Townsend
Secretary - Rob Rierson
Treasurer - Lewis Gray

Congratulations to all of them. They were elected in the midst of a downpour as we all hastily beat a retreat for cover during the October meeting. I hope that their tenure is much more organized than their election! (But they are all legal officers - I got valid nomination, seconds and votes!)

Of course the one remaining item on my agenda as President is the upcoming Tangerine Soaring Championship. I think that we're going to have our best year yet. The equipment is in tip top shape. The advertising and brochure are of highest quality ever and we're getting some great support from the industry! The only thing left is to put on a class contest and follow up with all the publicity we can muster.

I hope that every Buzzard will want to have a part in making this Tangerine a truly outstanding event. Come and help set up on Thursday, lend a hand during the contest by scoring, manning a retriever, being landing judge, sel-

Fellow Buzzards!
For anyone who hasn't heard yet I am pleased to an-

ling raffle tickets, taking photographs of pilots and airplanes or anything else that you can think of that furthers the cause. We need your help. (Editor's note: Setup is Thanksgiving Day at 10 am.)

Once again I note that this is my last President's Corner column. I want to thank all you guys who made my picking up the remainder of Don's term so easy. It really isn't much of a chore to be president when you get the kind of support I've had. But.... Jerre, if you move out of state I'm gonna break all your airplanes and get the IRS after you! :)

"I'll make one n all,"

Rick



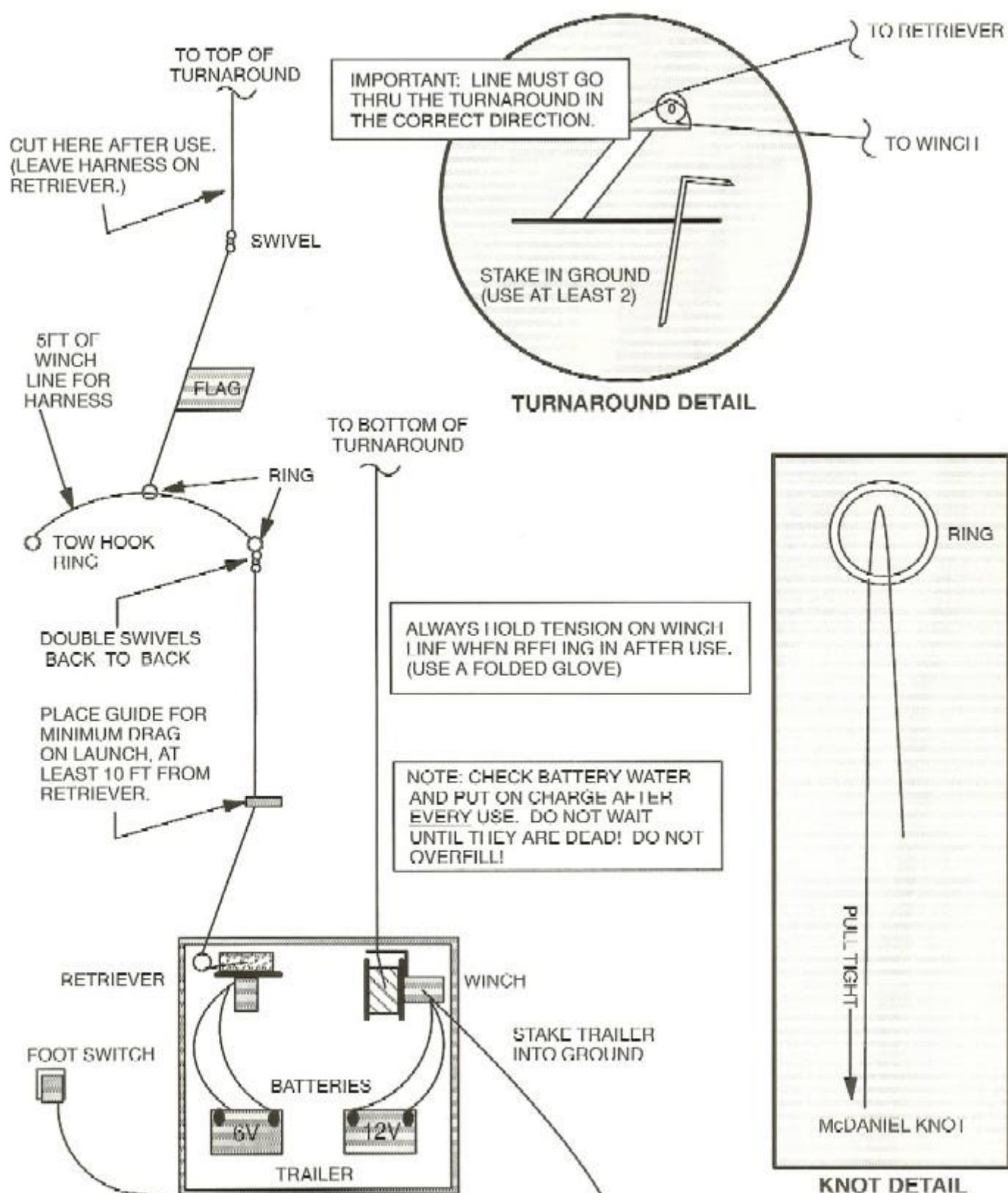
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WINCH AND RETRIEVER SETUP DIAGRAM

Safety First



Featuring Terry Ousack

We have a big event coming up (Tangerine) and everybody has been asked to pitch-in. So I thought it would be a good time to review some training for winch setup and battery handling. Most of this information was published last year in Soaring News, but we have many new members who have never performed these duties and would like to know how so they can participate. On the opposite page is a diagram for routing the winch/retriever line and for tying knots. It is important to remember several safety issues when assisting with the winches.

1. ALWAYS turn the solenoid switch to OFF before working on the line or vacating the retriever.
2. ALWAYS use the leather gloves when retrieving. You may be a super operator and not need the gloves, but if an emergency arises, the only way for you to stop the reels or grab a line is to do so with your hand. I cut thru a screw driver handle with the retriever line in less than one retrieve! It not only burns, it cuts; fast and deep!
3. Never allow people to loiter directly behind the winch. If the line breaks or whips, this is the likely direction it will

go.

4. Keep tools and equipment neat in/on the trailers. Remember that the two battery terminals are only 10 inches away from creating total short circuit and a hydrogen fume explosion!
 5. Retriever operators should concentrate on two things; starting the retrieval as soon as possible after aircraft release (to avoid excessive drift downwind into people) and look up and down the retrieval path to ensure that people are not in danger of contacting the line.
 6. Retriever operators should verify that the line is routed correctly; that the pilot has the correct ring on his aircraft; and the launch area (above and below) is clear prior to giving the "all clear to launch".
 7. Battery acid eats thru clothes really fast, and can cause nasty skin irritation. Wash or wipe hands after handling batteries and avoid letting the battery touch your clothing. (But please do not dump baking soda on the battery and be sure to check the water level BEFORE charging, not after.)
 8. Just like a Boy Scout, BE PREPARED. Have a personal knife handy for cutting the line and know how to make a strong knot.
 9. Don't forget to secure the turnaround and the trailer with large metal stakes. Insert stakes at an angle.
 10. Talk, talk, talk...Communicate your intentions and desires to all people in the vicinity.
- As we end another contest season, pay attention to the "Human Factor" and always put Safety First! May all your Loved ones be safe during this Holiday Season!

ODDS-N-ENDS

- ☐ **RADIO FOR SALE.** JR XP783 Transmitter (channel 44) with four 507 servos, and charger. This is a fully programmable transmitter for sailplanes. New Equipment but no receiver, battery, or switch harness. \$220. Call Victor Yeung (407) 504-3879.
- ☐ **LSF REPORT CARD.** Congratulation to Bill Townsend for completing LSF Level II. Where is everybody else?
- ☐ **1998 MEMBERSHIP DUES.** 1997 Membership reached an all-time high of 52! But for 1998, don't forget to write your membership dues check and forward to Lewis Gray before the Christmas Holidays. 1998 may

be our largest membership ever, and it will be a Silver Anniversary for the Tangerine Soaring Championship!

- ☐ **FSS OPINION SOLICITED.** FSS is considering a one-time Class correction for all three Classes. This would be done by normalizing the year-end scores, pulling in high-point order, and slicing the Master Class at the top 20%, Expert the next 40%, and Sportsman the lower 40%. Everyone is reminded that they can always request to upgrade, but not down grade their assigned Class. Contact your FSS Officers with any opinions or alternate ideas.



FSS Contest #8 and #9 are in the books and another FSS contest season has come to an end (Remember, FSS#10 was actually flown earlier in the year). The Autumn weather did not treat the contest participants well. High winds and heavy rains seem to be standard at this time of year, but we are hoping that Tangerine will be severe clear and sunny. Keep those fingers crossed.

FSS#8 WEST PALM CONTEST RESULTS

PLACE/CLASS	EVENT	NAME
1-Sportsman	2meter	MIKE CONTE
2-Sportsman	2meter	A. ROSAS
3-Sportsman	2meter	N/A
1-Expert	2meter	J. DIENER
2-Expert	2meter	RICH KIBURIS
3-Expert	2meter	JOHN VARGO
1-Master	2meter	MIKE AGNEW
2-Master	2meter	MARK ATZEL
3-Master	2meter	DAVE ELIAS
1-Sportsman	Unlmt	FRANK MANGAS
2-Sportsman	Unlmt	A. ROSAS
3-Sportsman	Unlmt	J. MADSEN
1-Expert	Unlmt	KURT CARLSON
2-Expert	Unlmt	B. CARROLL
3-Expert	Unlmt	LARRY SQUIRE
1-Master	Unlmt	BRIAN AGNEW
2-Master	Unlmt	MARK ATZEL
3-Master	Unlmt	JOHN AGNEW

FSS#8 WEST PALM REPORT: What a bad weather weekend this contest turned out to be. September 21/22

was a long wet weekend for any Buzzard who traveled the distance to West Palm. Rich Kiburis maintained the Buzzard's win record but had enough by the end of Saturday! He and John came home to dry out. (Short lived though; see next contest write up!)

FSS#9 KENNY WORLD CONTEST RESULTS

PLACE/CLASS	EVENT	NAME
1-Sportsman	2meter	JIM STANDAFER
2-Sportsman	2meter	MARC ELIAS
3-Sportsman	2meter	N/A
1-Expert	2meter	RICH KIBURIS
2-Expert	2meter	SCOTT HUNT
3-Expert	2meter	JERRE FERGUSON
1-Master	2meter	DAVE ELIAS
2-Master	2meter	ED WHITE
3-Master	2meter	KALE HARDEN
1-Sportsman	Unlmt	JIM STANDAFER
2-Sportsman	Unlmt	CHUCK LEISENFELT
3-Sportsman	Unlmt	MARC ELIAS
1-Expert	Unlmt	RICH KIBURIS
2-Expert	Unlmt	SCOTT HUNT
3-Expert	Unlmt	ART MILLER
1-Master	Unlmt	ED WHITE
2-Master	Unlmt	KALE HARDEN
3-Master	Unlmt	DAVE ELIAS

FSS#9 KENNY WORLD REPORT: October 18th and 19th found the Buzzards at Kenny's Soaring Mecca of Morriston again. Unfortunately, it found them very wet on Saturday, causing 2-meter to be delayed until Sunday. On Sunday the Sun was more generous and three rounds of 2 meter were flown simultaneously with Unlimited. At the end of the third round, 2-meter was considered final and everyone proceeded to concentrate on three more rounds of Unlimited. Rich Kiburis and Scott Hunt dominated the Expert Class, while Ed White held his won in Master Class. It was nice to see Ben Cleveland return from the North. And other Buzzards making an appearance included Lewis Gray, Jerre Ferguson, and Garnett White. It appears Rich Kiburis will be this year's addition to the Master's Class. Congratulations to all the Buzzards that competed.

TANGERINE VOLUNTEERS NEEDED!!

This is it! The 24th Annual Tangerine Soaring Championship!!! Working party for tent and winch setup will be Thanksgiving day (Thursday) at 10 am. REMEMBER, the contest site is through the second gate, right behind the old contest site at SnowHill Road. Use care to avoid the construction hazards in the entrance area and pay close attention to wet spots. This is a great time to get involved with your fellow club members. NOTE: winch lines will be secured at night to keep lines dry.

TECH-TIPS

BEGINNER SERIES: BUILDING GUIDELINES and INSIGHTS

These guidelines assume you are building a thermal duration/general purpose built-up plane such as a Spirit or Gentle Lady. If your plans do not have outlines of the ribs, make your own. Either trace around the ribs or make a Xerox copy of them. You will need these when you repair your plane. Make sure your building surface is flat. If there is a warp in the table top, you will build a warp into the wings which will make the plane fly badly. Try building on a standard interior luann door. They are very flat. Don't disassemble your house, go to the hardware store and buy one with a hole punched in one side. On top of this place a piece of 2'x4' acoustic ceiling tile. When you build the plane you will use T-pins to hold the wood in place. You can push the pins through the balsa into the ceiling tile. Roll your plans out on the ceiling tile. Carefully cover the plans with plastic kitchen wrap and pin down the corners. Build directly on top of the plans.

If your plane has a spoiler option, build it. Spoilers are too useful to leave out. They greatly improve the accuracy of your landings. They help you avoid the doofus who walked into your landing circle while you were on final approach. They help your plane fly out of the brick-lifter thermal that is trying to put your plane into orbit (yes, that is a real problem).

As you build your plane, concentrate on making it strong. Many people try to minimize the amount of glue they use to save weight. For a beginner, WEIGHT IS NOT IMPORTANT, DURABILITY IS. You will crash your first plane many times. It needs to be strong enough to withstand this punishment and fly again with minimal repairs. Use lots of fillets. Make sure there are no gaps when you assemble the plane. Test fit before gluing. All joints should be tight. To fill gaps get some baking soda (not powder) from the kitchen. Work the grains into the gap. Put a drop

TANGERINE UPDATE (PRIZES!!!). The raffle prize list is growing and includes: Airtronics Stylus Transmitter, servos, and gift certificate; Futaba and RCD Servos; Dremel Tool; Bird of Time Glider Kit; Kummerow HLG; and on and on...! And Don't bother to pack a lunch. Kay's Kitchen will be grilling hot dogs and selling them at cost! BUT Don't forget to register early to get your name tag. Your Registration form is enclosed with this issue of Soaring News. If you need more Contest information, contact Rick Eckel, Garnett or Ed White (CD's).

of instant (thin) CA on the joint. The CA will wick into the baking soda and it will turn into concrete. The bond will be much stronger than the wood. Use the same procedure to make small fillets, but build the soda up a little more before dripping on the CA. Make larger fillets with balsa.

Use continuous pieces of wood for your spars, leading edges, etc. A joint will dramatically weaken the wing. If you absolutely have to have a joint, place it as far out towards the tip as possible. Make an angled joint, do not butt join the pieces. Wrap the joint tightly with a strong (not necessarily heavy) thread. Use lots of CA. If you must have multiple joints (such as the top cap and bottom cap of the main spar) NEVER align them. Put several inches between the joints. Again, no joints if at all possible.

All your trailing edges (wing, rudder, elevator) should be as sharp as is practical. The sharper they are, the more efficiently your plane will fly. You have to compromise between razor sharp and being so weak that bumping the trailing edge causes damage. Some light fiberglass epoxied to the bottom of the trailing edge will allow you to get the edge a little sharper. Don't make the edge so sharp it cuts you (I'm serious).

Build an antenna tube into your fuselage. This is a 1/8" diameter plastic tube that runs from the "cockpit" to the end of the tail. It allows you to run the receiver antenna out the back of the plane. If the antenna is not in a tube you will accidentally glue the antenna into the fuselage.

When you get ready to mount the radio gear (discussed later) place the equipment to minimize the amount of lead you must add to balance the plane. The nose of the plane will carry a couple ounces of lead. Directly behind that will be the battery. Next back will be the servos. Last will be the receiver. When you install the battery and receiver

wrap them in a stiff but compressible foam (softer than Styrofoam). This will help protect them when you crash.

Beginners always ask about aileron control versus rudders. They have studied how to fly full size aircraft and know that you control elevator and aileron with the stick and rudder with your feet. It therefore follows that the right stick used for elevator control must also control ailerons and the left stick controls the rudder. Wrong. The right stick controls elevator and your primary turning control. For a beginner polyhedral ship like you have, this means the rudder. The left stick controls your secondary turning control surface (no such thing on your plane) and spoilers or flaps. If you were building an aileron ship (your not, right?) you would put ailerons on the right stick and rudder on the left because the ailerons are the primary turning control for aileron ships. Trust me, this is the way almost everyone flies model gliders. It is easier to fly this way.

You may want to put in a little washout after your plane is built. Washout prevents tip stalls which can be deadly for beginners. I assume you covered your wings with a heat activated covering such as Monokote. Assemble the plane. Have a helper hold the fuselage flat on a table. Grab a wing tip and twist the leading edge down about one-half inch. Do not bend the wing, only twist it. Use your hot air gun to heat the covering (top and bottom). Remove the heat, wait a bit for it to cool and release the wing tip. Do the same to the other wing. As the plane sits in the sunlight the washout will slowly undo itself. As you become a better flyer you will need less washout (eventually none).

Servo mounting

Your servos will sit in a 1/8" thick piece of plywood (airply) called a servo tray. This tray will be exposed to lots of punishment when you crash and must be securely mounted. Some advise using epoxy to mount the tray, others use Shoe Goo. The procedure is the same either way (except don't use fiberglass with Shoe Goo).

Try this method for installing ply servo trays. After cutting and fitting the tray to the fuse (and cutting the holes for the servos) roughen up the contact area inside the fuselage (if installing into a fiberglass fuse). Tack the tray into the fuse with CA (foam safe if you need to), recheck that the battery will fit past the tray. Mix up some slow curing epoxy and take some out of the batch and mix with Cabosil, Aerosil, or what ever you have, and make a fillet between the ply and the fuse (popsicle sticks work well for this). Next cut a pc. of .3 oz. glass cloth to fit across the ply and up the fuse sides and using the straight epoxy resin cover the ply tray working the cloth right up the sides. Go easy when working around the fillets, since

they are quite "soft" at this point. After the epoxy has cured cut the cloth away at the servo cutouts with an Exacto knife. I have never had a servo tray show any signs of "coming loose" with this method.

John Sez: He is absolutely right about "GOO" as the way to install a servo tray. Unfortunately, I was the subject of a "GOO" test not too long ago. My Super V 2M did a wicked golden arch during a launch. It went in at mach 9 totally destroying the plane — except for the servo tray and the fuse around the servo tray — both were totally intact. Another facet of that "research" project is that my receiver, which was attached to the servo tray (on top) with velcro, remained in place and suffered no damage (verified by Airtronics). This is the way I will install servo trays and receivers from now on.

One thing I would like to point out. If you are going to epoxy your plywood tray into the nose of your fiberglass fuselage then you should be sure that the tray extends forward and back into the fuselage past the hatch opening. The last time I epoxied a plywood tray into the nose of my plane (I believe it was my Falcon), I created stress risers at the ends of the tray and the fuse started showing stress marks and cracks at those locations from landing and dorks. Since then I started using Shoe Goo which allows the fuselage to flex and absorb the shock of landing.

Tow hook mounting

The location of your tow hook greatly influences how high your launches are. The farther back the tow hook, the higher the launch and the poorer the plane tracks on launch. If you move the tow hook too far back, the plane WILL crash on launch. As a beginner you will want the tow hook fairly far forward. As you get better you will want to move it back. You can put multiple tow hook locations in your fuse or put in a movable tow hook. I recommend a movable tow hook. To install one, locate where the plans recommend placing the tow hook in the plane. Epoxy a layer of heavy fiberglass at this location. The fiberglass should be the full width of the fuselage and four inches long centered on the plan tow hook location. Get (or make) a bolt two inches long and 3/32" to 1/8" in diameter. One inch of the bolt should be threaded, the upper inch should be smooth. Get two nuts, two one-half inch washers, and a lock washer. Cut off the head and put a 95 degree bend in the bolt where the threads meet the smooth portion of the shank (angle should be slightly acute). This is your new tow hook. Cut a slot in the bottom of the fuse extending one inch in front of and behind the plan tow hook location. The slot should be as wide as your tow hook. Make sure the slot runs exactly along the centerline of the fuselage. Round the ends of the slot. Create a wood block out of spruce or other dense wood. The block should be one-quarter to one-half inch thick and about two inches square. Trim as necessary so it fits

neatly in your fuselage. Drill a hole through the center the wood block. Put a nut and washer on the tow hook. They should be twisted on all the way down to the bend. Place the block in the fuse and push the threaded portion of the tow hook through the fuse slot and the block hole. Put the washer, lockwasher, and nut on the portion of the tow hook sticking out the top of the block. Adjust the nut on the outside of the plane so there is about 1/4" between the tow hook and the bottom of the fuse. Move the tow hook to the plan location and tighten the internal nut. The tow hook should point backward toward the tail.

As your flying skills improve you will want to move the tow hook for better launches. When moving the hook back, mark its current location before moving it so you can know how far you moved it. Never move it back more than 1/4" between test launches and 1/8" is recommended. When the plane starts to become hard to control, slide the hook forward a little.[1]

Wiring

Using a microphone jack in place of the on off switch:

Radio Shack has what your looking for. Submini 3/32 2.5mm phone jack closed circuit type cat. no. 274-292 and the cat. no. 274-290 phone plug to go with. Just wire so that power flows through the charge plug to the battery and interrupts flow from battery to receiver when the plug is inserted. And so that it completes the circuit between battery to receiver when the plug is removed. This can save about 10 grams over the normal battery switch. And it is an example of the kind of technical soaring gems you can get out of a Waco tech news letter.[8]

Editors note: If you use this method attach a big red "remove before flight" ribbon to the plug. Also consider that the phone jack was designed to carry low current levels and may not be reliable with the (relatively) high currents drawn by the servos. Having said that, I've never heard of a problem that was traced to poor contacts on the phone jack.

Visibility

When you cover your model you should consider how to make it more visible. You will be flying your plane up to one mile away (yes, really). At those distances you will need all the help you can get to see it.

The problem here is sometimes called contrast gradient in photography. The upshot of this is that if you have a high contrast between the object and the background you can distinguish it from the background. The eye works initially by scanning for edges, it first picks up the edges of an object (the detail comes later) and then the brain takes over to make sense of the data. You can blind

test this in a very dimly lit room with a strange object, if the shape makes sense you can recognize it. Equally if the object has soft edges it may not be seen or recognized.

With models we know the shape from almost every angle so recognition is not a problem. What we need to be able to track it is a good contrast with the background. Unfortunately the changing conditions require different color schemes to achieve this. A white model is very easy to pick out in a blue sky, or against the ground. This is particularly true of sailplanes in flight, if you are above them you can easily see the aircraft.

So for long range visibility we need to design for the conditions. The contrast gradient is what we are looking for because color of itself fades out quickly at distance. Even dayglow colors are not much use at 500 meters. So what colors give good contrast? Black should be good against grey skies but it seems to make the model look smaller for some reason. Red is a favorite in the U.K. (particularly transparent red Solarfilm on open structures), it seems to suit our conditions best, plenty of cloudy and grey days, but it is not quite as good on blue days. White and yellow are good on blue days. Orange is good but a bit close in tone to a grey sky at distance. I had a yellow model with fluorescent orange undersides, it looked like a Buttercup and was great on sunny days, but easy to lose on grey days.

The shade is perhaps the key element, pastels are not too good being essentially a light tone. Solid red comes out in black and white photography as being around a 60% shade of black and this seems to be what is required. It does not really matter if the color is green, blue or purple for U.K. conditions, at distance it is only the shade that you see.

My solution is to paint the extremities of the model in darker colors. The whole tailplane is in a dark color, usually bright red as is the underside of the wing, the top surface having red tips. On small models I would tend to paint the nose too.

The reflective tapes are o.k. but I find that their flash in sunlight sometimes blinds you to the outline of the model with a possible loss of orientation. At extreme distances they only act as a marker, which may be what is required. The hologram tapes I really hate for snobbish reasons, they look cheap and tacky, that's what comes of being trained as a designer.

John's note: I have found yellow on the top of the wing and blue or green on the bottom works very well. Always put the light color on top and the dark color on the bottom.