MASA Planet

Volume 6, Issue 5 **September 2003**

Safety First!

Launch Fever

Eager *to launch is not necessarily* ready *to launch!*

Ted Cochran, NAR 69921

As you might have surmised after reading the columns in this series, I believe that safety in model rocketry has the same requirements as safety in everything else: Follow the rules. Read the directions. Use checklists.

http://www.kloudbusters.org/group10.htm

Fortunately, this rocket, which suffered a forward closure failure, missed the car by 15 feet. Was Launch Fever a factor?

Ask questions if you're uncertain about something. Inspect your tools and materials before using them. Understand what you are trying to do. Design for the lifecycle. Use redundant systems. The list goes on.

As in most other endeavors, safety in rocketry is as much about human factors as it is about equipment and

Safety, concluded on page 2

ALSO IN THIS ISSUE

Outreach

NARAM-45

Mike reports on the NAR Annual Meet.

Mike Erpelding, NAR 79922

I had a late start on Friday; since I got home really late from work on Thursday night, I had to pack everything in the morning. As I was packing, I remembered that I didn't build my launch tower yet for my super roc. Two sticks of 1/2-inch EMT, a couple scrap 2 X 6's,3/8 - 16 X 4 inch bolt, and an hour later it was ready! Next I headed to the bank for some spending money followed by a quick stop at Hub on my way down for some F motors and supplies.

The trip went okay. I got stuck in a traffic jam about 10 miles north of Beloit, WI in the middle of nowhere for 1-1/2 hours. There must have been a huge federal grant for bridge repairs this year; road construction/ bridge replacement everywhere. I arrived at the Ramada Inn in Henderson KY, NARAM 45 HQ hotel, in the rain, at 12:15 A.M.

The next morning it rained on and off. I stayed in my hotel room for most of the day working on the rockets that I didn't finish before I left (most of them ☺). I went out to the field in the afternoon to register. As I was leaving the hotel, I met a couple friends from NARAM 44 last year: Glen Scherer, Jr. from Moline IL and Eugene Kromray from Ottumwa IA. Since I had a lot of empty space in my truck, we teamed together for hauling gear out to the field every day. I helped Glen recover several of his rockets throughout NARAM.

Sunday I flew my Ballistic Bovine to try to get her qualified for the Odd Roc contest. Unfortunately after a slow, very bouncy copperhead ignition she left the rod at a 60-degree angle, into the wind, heading toward my truck. She took a little dirt nap about 30 feet directly behind my truck. At least I didn't have to walk far to pack her away. A glue joint on of her ears

NARAM, continued on page 2

Safety, continued from page 1

regulations. Impulsive behavior is usually not safe behavior. In rocketry, however, there is a source of impulsive behavior that is an inherent risk of the sport: Launch fever. Private aircraft pilots can suffer from a variant known as get-home-itis

These maladies have as their primary symptom an unjustified relaxation of normal standards of caution in the face of a problem, especially when under time pressure. We may park closer to the range head than is prudent, or launch in winds that are a bit too high, or with equipment that is not quite right, or a delay that is "good enough." Much of the time--perhaps most of the time--we get away with it, and that makes it more likely that the next time we're in a similar situation we will cut those corners again.

Sooner or later, however, nature tells us we've gone too far. The safety code is pretty robust, and provides a margin of error for us. However, Launch Fever can goad us into using up that margin of error, making a real accident more likely.

What's the solution? Develop your own launch constraints ahead of time. Some of them can be general--for example, even though the Safety Code permits launching in 19+ mph winds, you may decide to stop flying when the winds reach 15.

Other constraints can be specific to a site, or vehicle, or motor. Perhaps you elect not to fly a particular rocket on motors above E in Elk River, even though you've flown it on G motors in North Branch.

You can also develop a Minimum Equipment List (MEL), especially for your more complex rockets. For example, you may elect to never fly an altimeter used for deployment without a brand new battery with a measured voltage above 9 volts.

Your MEL might also include launch and recovery equipment -- you may not wish to fly a cluster without a pad-side battery and relay box, for example.

The point is to do this analysis ahead of time, the better to avoid what could turn out to be a rash decision at the range. Lots of pilots have gotten killed trying to fly in circumstances they couldn't handle, given the equipment and training available to them and the flying conditions at the time. Don't put yourself or your rocket into an analogous situation!

NARAM, continued from page 1

broke loose, but she's good as new after a little CA! I didn't try to fly her again. I don't mind getting a reputation for flying weird rockets; but I don't want a reputation for flying dangerous rockets. Next I flew my Lone Shark. This rocket started a trend that haunted me the rest of the week: Separation! My Kevlar shock cord broke; but the body tube with those huge, honkin' fins gently floated back down as if it was under a parachute. Upon the purchase of some Kevlar shock cord and a quick repair, lone shark had a picture perfect flight!

Chris Taylor

Mad cow! Mad cow!

Next I did some shopping, get the good stuff before it's all gone. :-)

I got to meet Jim Flis and his wife Kathy, of FlisKits. They are really nice and friendly people. I had to buy a Deuce's Wild and the new first at NARAM Acme Spitfire rocket (Far Side cartoon).

I also purchased a Richter Recker, which is a 3-D12 engine cluster rocket that's over 7 feet tall. I knew of Jim from the *Rocketry Forum*. Sunday night all of the TRFers met at Shoney's for supper. It was nice to put a face to some of these handles from the Forum.

It rained again, shutting down the sport range early. Eight P.M. was the contestant's briefing with peanut sport scale/ plastic model conversion check in at 9:30. I finished both that morning. ☺

Monday wasn't a good day for my contest entries. I was assigned to the "Blue Team" and had the first range duty shift. After range duty my first flight was E streamer duration with my new Apogee Aspire kit, that I modified by attaching the Kevlar shock cord externally at the CG, using mylar tape to keep it from sliding. I launched this rocket on an E9-8. Great boost! Separation of the nosecone and streamer!!! DQ.

Next I launched my stock red painted Aspire kit, also on an E9-8. Great boost! Great deploy! Qualified! Now

NARAM, continued on page 9

MEETING SCHEDULE

THURSDAY, SEPTEMBER 4 (NOTE CHANGE)
Location: Science Museum of Minnesota, St. Paul
Time: 7 PM to 8:45 PM
Topic: Junkyard Rocket Building!

THURSDAY, OCTOBER 2 (NOTE CHANGE)
Location: Science Museum of Minnesota, St. Paul
Time: 7 PM to 8:45 PM
Topic: Rocket Repair (Mike Erpelding)

THURSDAY, NOVEMBER 6 (NOTE CHANGE)
2004 MASA OFFICER NOMINATIONS!
Location: Science Museum of Minnesota, St. Paul
Time: 7 PM to 8:45 PM
Topic: Cloning old rocket kits (David Whitaker)

LAUNCH SCHEDULE

NOTE: TIMES AND LOCATIONS SUBJECT TO CHANGE! CHECK THE WEB SITE FOR UPDATES

SATURDAY, SEPTEMBER 27
Location: Elk River / Otsego VFW
Time: 9 AM - 4 PM
Junk Yard Rocket Launches!

SATURDAY, OCTOBER 25
Location: tbd
Time: 9 AM - 4 PM

Ted Cochran

Second Annual Great Comanche Drag Race, August 23, 2003. A fifth entry jumped the gun and launched early.

President's Corner

A New Place to Fly

Glen Overby

This August's launch at our new launch site in Rockford gave me the feeling that our launch site turmoil is settling down. While the new site isn't nearly as large as the sod farm was, I feel it will support our flying needs in the winter, spring and fall. I appreciate the suggestions for other sites.

I am keeping a list!

We placed 6th in this year's NAR Section Of The Year award, with about half of the points of the winning section *[but only 14 points out of third place! --Ed.]* This was with 18 out of 100+ sections turning in results. The winners were the Dallas section. They did a lot of Team America launches as well as hosting NARCON and NARAM.

The Team America Rocket Challenge is being held again this year. Last year's challenge gave NAR and rocketry so much good exposure that everyone involved wanted to repeat it again this year. The challenge is the same; however, the target altitude may be different than last year's. Registration opens September 2nd, and the registration deadline is November 15. The first 1250 teams will be accepted. I hope we get the opportunity to mentor more teams this year. *[see www.rocketcontest.org for more information --Ed.]* As we hear about teams, I'll be inviting them to attend our launches, and hopefully we can schedule additional launches at the Rockford site so the teams can get more flying experience.

I hope everyone has had a chance to go out and look at Mars during its close approach. I reassembled my 6" telescope for the event, but sadly I didn't see any surface detail.

Glen Overby, MASA President

[Here you go, Glen! --Ed.]

http://www.hubblesite.org

[Mars, as seen by the Hubble Space Telescope, August 26, 2003].

Plans

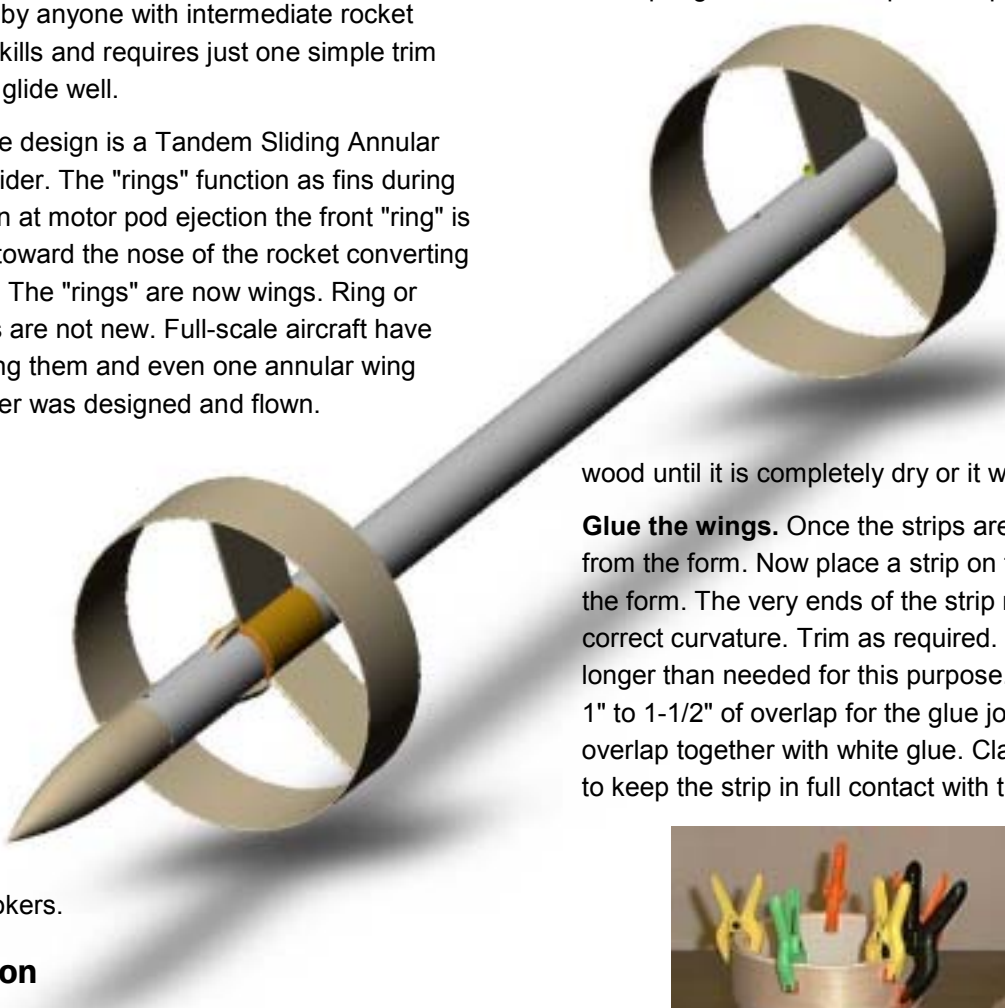
RingHawk©

A sport boost glider of unconventional design

Tim Bush

RingHawk© is a sport boost glider with rings for wings. It can be built by anyone with intermediate rocket construction skills and requires just one simple trim adjustment to glide well.

Technically the design is a Tandem Sliding Annular Wing Boost glider. The "rings" function as fins during boost and then at motor pod ejection the front "ring" is freed to slide toward the nose of the rocket converting it into a glider. The "rings" are now wings. Ring or Annular wings are not new. Full-scale aircraft have been built using them and even one annular wing VTOL jet fighter was designed and flown.



RingHawk© is quick to prep for flight and fun to watch glide in lazy circles. Just be prepared for the "what the heck is that thing?" comments from the onlookers.

Construction

Begin construction by reading over the plans a few times. Next make a "kit" of parts. Pre-sand and cut out the balsa parts and gather together all of the other pieces on the materials list.

Bend the balsa that makes up the wings. Don't worry, it really is not very difficult. Soak the 1-1/2" x 17" strips of 1/16" balsa in very hot water for at least an hour. Use a form with a 5" outside diameter. I used a 4" PVC pipe coupling. Be sure to get the type that has straight sides, not tapered. Alternatively, a section of pipe of the correct size will work. Put on gloves--the balsa is hot! Remove one strip of wood from the water and carefully pre-bend it by hand into a hoop. Avoid kinking it. Place the hoop into the INSIDE of your form. The springiness of the strip will help to hold it against the form. Use clothes pins or clamps around the strip to hold it in place without bulges. Do the same thing with the second strip. Set the strips and form aside to dry. Do not remove the wood until it is completely dry or it will unbend.

Glue the wings. Once the strips are dry, remove them from the form. Now place a strip on the OUTSIDE of the form. The very ends of the strip may not have the correct curvature. Trim as required. They are made longer than needed for this purpose. Be sure to leave 1" to 1-1/2" of overlap for the glue joint. Bond the overlap together with white glue. Clamp as necessary to keep the strip in full contact with the form. It is important not to have bulges or gaps. When the glue is dry remove the clamps. Sand the outside lap joint to a taper while the wood is on the form. Be careful not to go overboard and sand the joint away.

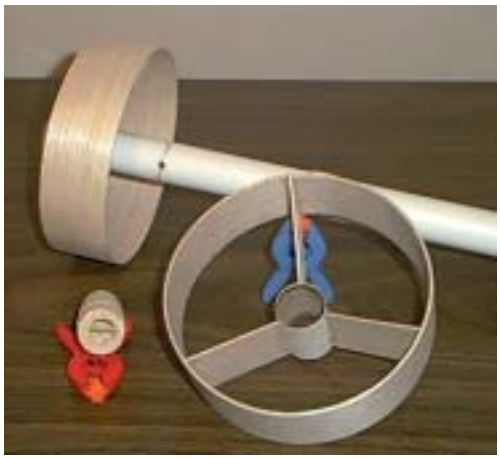
You should have 1" of joint minimum when you are done. Do not sand the joint on the inside of the ring. Leave this edge square.

Body tube. Place a mark at the center of the body tube coupler. Insert and glue the coupler into the 18" length of body tube up to the mark. Let the glue set and then glue on the 3" length of tube. You should now

have one body tube 21" long. When the glue joints have set, drill a 1/8" diameter hole clear through the body tube and coupler as indicated on the plan. The hole will be used for the anchor dowel, and should be centered on the junction of the tubes. Cut a slotted hole 1/8" wide and 5/8" long into the nose end of the body tube. The slot should start 5/8" from the end of the tube and should be located 90 degrees from the dowel holes. This slot is the actuator cord's exit.

Rear wing assembly. Mark the coupler end of the body tube assembly for the three fins. Glue them in place. When the glue has set slide one of the rings over the fins: It should be flush with the leading and trailing edges of all three fins. The square inside edge of the lap joint should be placed against the edge of one fin. When everything fits, glue the ring into place.

Front wing assembly. Use scissors to make a lengthwise cut in each of the two 1-1/2" sections of BT-50 body tube.



These tubes will become the slide mount for the front wing. Wrap two layers of cellophane tape around a scrap piece of BT-50 tube. Spread one mount tube apart and slide it over the taped tube. Spread glue on the outside of the mount tube and then spread and slide the second tube over the first. Place the slits 180 degrees apart from each other. Let this assembly dry.

Remove the slide mount from the taped tube. Harden the ends of the slide mount with CA adhesive. When fully cured lightly sand the inside diameter. Test fit the slide mount over the body tube assembly. It should slide the length of the tube without binding. Sand the inside as required. It is very important the slide mount does not bind up.

When you're satisfied with the fit mark the outside of the slide mount for the three fins and glue them in place. Glue the front wing to the mount and fins just like you did with the rear wing.

Actuator cord. Tie a small loop into one end of the elastic cord. Secure the knot with a small dab of white glue. Do not use CA. While holding the rocket with the tail fins up, lower the loop in the body tube. Place one of the 1/8" dowels through the hole you drilled and capture the loop. Push this anchor dowel until it is flush with each side of the tube. Secure the dowel in place with a small drop of glue on each end. When this is dry, sand the ends of the dowel to ensure it does not interfere with the slide mount.

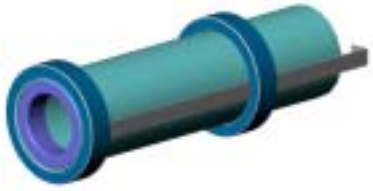
Motor bulkhead. Drop the free end of the elastic cord down the body tube so that the cord exits the front of the model. Place a ring of white glue around the outside edge of one flat face of the bulkhead. Put the bulkhead, glue up, on a spent 24mm motor casing and push it into the rear end of the rocket until it seats against the end of the tube coupler. Remove the casing.

Nose cone. If you are using a balsa nose cone for reduced weight, you'll need to hollow out a 1/2" diameter by 1/2" long section of the base. If you are using a plastic nose cone you will need to cut off the end of the base. Place the nose cone into the front of the body tube. Drill a 1/8" diameter hole through the tube and nose cone shoulder as indicated in the plans. This hole is for the front dowel which functions as a pulley for the elastic actuator cord to turn around.

Slide the front wing and slide mount assembly onto the body tube. Now place the small rubber band over the body tube and below the slotted hole. With the elastic cord exiting the front of the body tube, form it into a loop and place the loop into the hollow of the nosecone. Push the free end of the cord through the slotted hole. Carefully place the nosecone into the body tube and line up the holes you drilled. Insert the 1/8" dowel. Make certain the elastic cord ends up over the dowel and is free to move without binding.

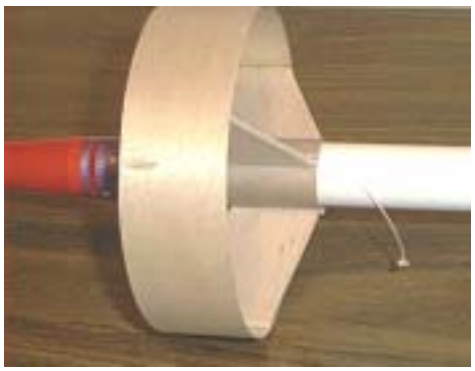
There is no need to glue the nosecone into place. It will be held by the dowel and can be removed for repairs should they be necessary.

Motor pod. Assemble the motor pod by gluing the thrust ring and one of the centering rings flush with one end of the BT-20 tube. Make a small slit immediately below the centering ring.



Place the end of the motor clip into the slit. Slide on and glue the second centering ring until it is 1æ"away from the front end of the tube as shown on the plan. It may be necessary to make a small notch in the inside diameter of the centering ring to clear the motor clip.

Tie several knots in one end of the Dacron cord to form a lump. Secure the knot with a dab of glue. Partially insert the motor pod into the rear of the rocket. Setting the knot of thread against the aft centering ring, push the pod into the body tube until it is against the bulkhead. Some of the thread should have been pulled inside. Slide the front wing assembly until it is against the rear wing and the fins are aligned. Set the free end of the Dacron thread into the root of one of the front wing fins and glue into place. Take care not to glue the slide mount to the body tube or to the rear fins. Let the glue dry.



Leave the motor pod in place. Stretch the elastic actuator cord. Take up all slack. Set it against the root of the same fin the Dacron thread is on. Mark the elastic for length at the rear of the fin. Trim the cord at the mark. Now remove the motor pod freeing the front wing assembly to slide forward. Glue the end of the elastic cord into the fin root.

Final assembly. Glue the launch lug into the root of one of the front fins. Tape the streamer onto the BT-20 tube of the motor pod. If you plan to decorate your model, do so now. Keep painting to a minimum. The original models were flown without paint or finish, just a single strip of self adhesive colored vinyl behind the nose cone.

Test flying

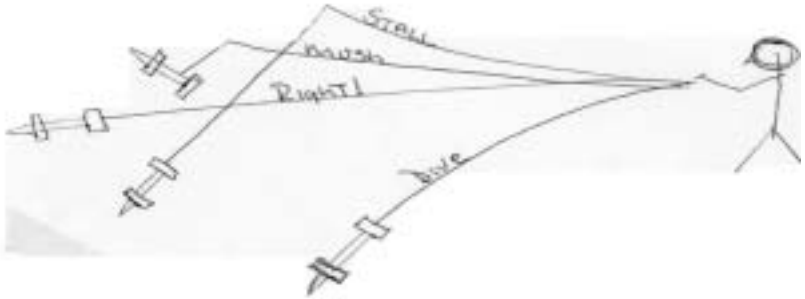
It is now time to test-fly the model. Use a small piece of tape to hold the front wing in the position shown on the plan. The motor pod should be removed from the model. Find an open area with long grass for a soft landing. Wait until there is no or very little wind. Grasp the model lightly in the center of the body tube. Aim and toss the rocket exactly like you were throwing a dart at a dartboard. Observe the glide . If the model dives, move the wing further forward, if it stalls or 'mushes', move the wing further back. Once you are satisfied with the glide, mark the forward location of the slide mount onto the body tube.

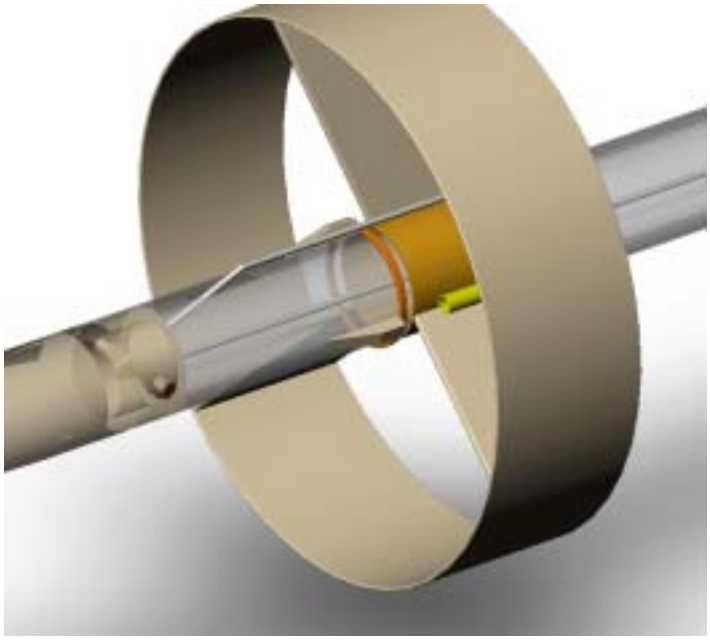
Slide the wing and rubber band out of the way and glue the three balsa wing stops onto the body tube. The angled end goes toward the nosecone, the square end should be placed even with the mark you made on the body tube after test flying. Harden the ends of each stop with a drop of CA. When the glue joints are dry, slide the rubber band up against the stops. The rubber band functions like a shock absorber when the wing hits the stops and prevents damage.

Test how the front wing actuates into the glide position. Slide the wing backward while stretching out the elastic cord. The wing should be free to contact the rear wing and fins. Release the wing and observe that it slides freely and the elastic has enough tension to hold it against the wing stops.

Prepare the rocket for flight

Insert an 18mm engine into the motor pod. Install the igniter. Wrap the streamer around the motor pod tube.





Partially insert the pod into the rocket body tube. Slide the wing backward while stretching out the elastic cord. With the front wing in contact with the rear wing and the fins lined up, place the knot on the string against the front of the aft centering ring of the pod. Slide the pod fully into the body tube until it rests against the bulkhead. The front wing and slide mount should now be locked into the boost configuration. Place the rocket in the launch rod, connect and launch!

Flying the RingHawk

The model should boost like any other rocket. At apogee the ejection charge will kick the motor pod out of the rear of the rocket, releasing the trigger string. The pod will descend under streamer. The front wing will be pulled forward by the elastic cord until it is up against the wing stops. The model will now transition to aerodynamic gliding flight.

Like most boost gliders, the RingHawk© flies best in for light winds. By substituting 1/32" aircraft plywood for the 1/16" balsa wings (rings), you can make a somewhat heavier, faster flying model that will penetrate the wind better on windier days. In this case, the lower drag and higher mass of the rocket will allow longer motor delays. This version of RingHawk will have shorter flights than the all-balsa version. If after the first flight you need to trim the glide of the model, you can either shim or trim the ends of the wing stops.

Tips:

To preserve the elastic cord, always store your RingHawk© with the front wing in the glide position. Clean ejection charge debris from the rear of the body tube after each flight. You can use a little talcum powder when preparing for flight to facilitate clean up and to help ensure the motor pod can eject easily.

When built as described, the balsa wing version will fly well on a C6-3 motor. The plywood wing version flies well on a C6-5. Some experimentation may be needed to determine the best motor and time delay combination for your particular model.

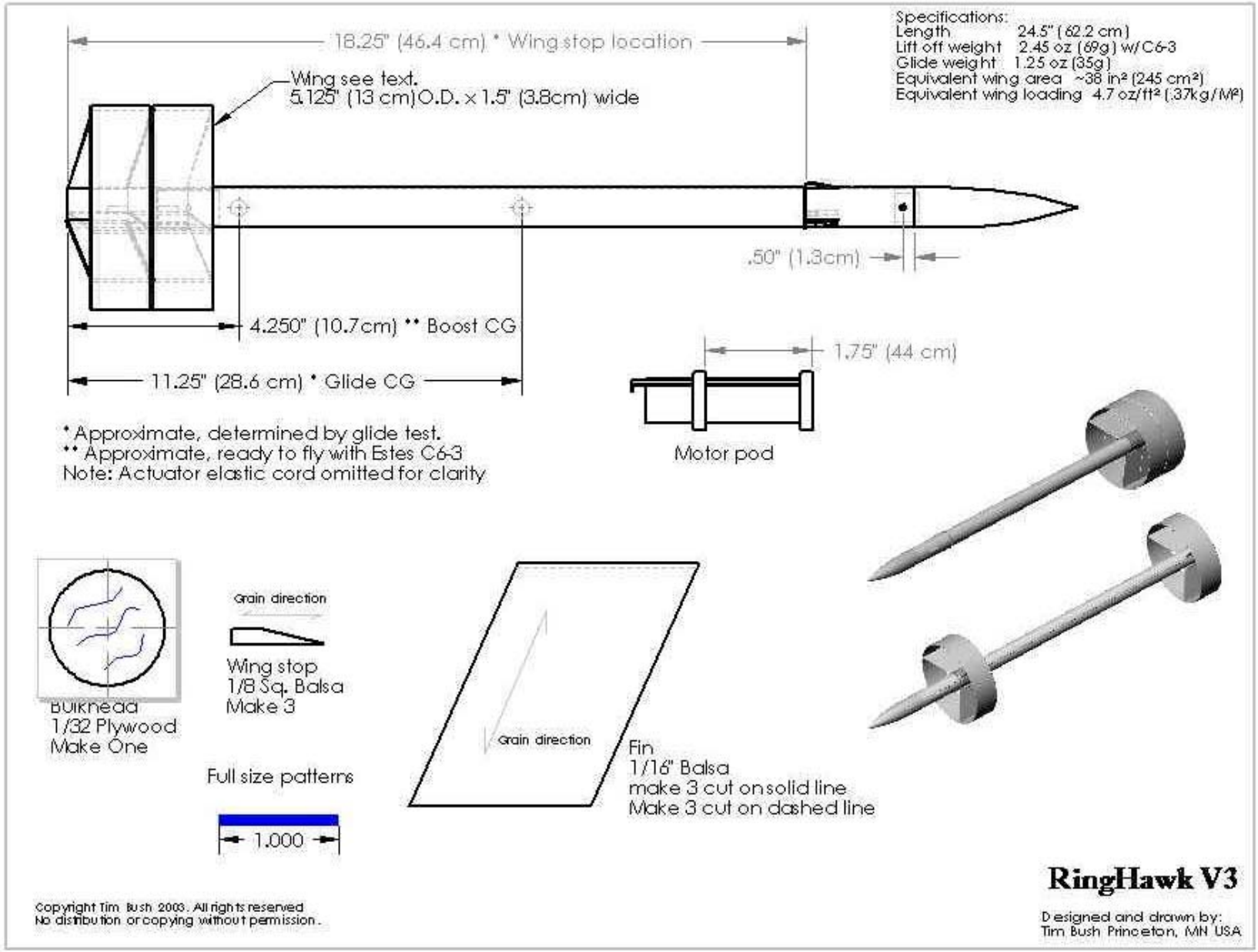
Cheers, and happy flights.

Materials List

QTY	ITEM	
(1)	18" BT-50 Main Body tube	
(1)	3" BT-50 Rear Body Tube.	
(2)	1-1/2" BT-50 for Slider	
(1)	3 1/4" BT-20 for Motor mount	
(2)	BT-20 to BT-50 Centering Rings for motor mount	
(1)	18mm Motor Clip	
(1)	BT-20 Thrust Ring	
(1)	1/32" Ply Bulkhead	
(1)	BT-50 Tube Coupler	
(2)	1 -1/2" x 17"x 1/16" Medium Balsa for Wings	
(6)	1/16" Balsa Fins	See Plan
(1)	Small Rubber Band	Wing bumper (see text)
(2)	1" x 1/8" dowel	Actuator cord mount
(1)	1/16" diameter x 30" long round Elastic Cord for Slider Actuator	
(1)	Approx. 8" Dacron thread for Slider Trigger	
(1)	BT-50 Nose Cone	
(1)	1" x 30" Streamer for Motor pod recovery	
(1)	1/8" Launch Lug	
(1)	1/8" square x 3" Hard Balsa stringer for wing Stops	

Misc. supplies: glue, Cellophane Tape, Self- adhesive Vinyl

Body tube size references are intended to be generic. The model can be build from components of any manufacturer The original models were constructed with Apogee Rockets parts.



NARAM, continued from page 2

a new problem appeared: Rocket Eating Brush! They were thin juniper like plants, about waist high, that would easily part away and then swallow up anything: I dropped a Gatorade bottle 2 feet in front of me; it disappeared without a trace. I spent the next 3 -1/2 hours looking for a red rocket in greenery, hoping to get a return. No luck. This was the only rocket of mine that didn't come back home. These plants were also intermixed with wild THORNED blackberries, and thistles. People who wore shorts went home from NARAM looking like a cat attacked their legs.

Next I launched my 1/4 A boost glider. I used the glider that I built for 1/2 A boost glide at Bong last fall. Boy these motors are weak! I got a nice straight boost about 15 feet up. Then the rocket started to slide back down, ejection, pod separation, glider falling...., glider pulls up, establishes glide, lands on ground! Qualified! Talk about cutting it close! I decided not to fly this underpowered rocket again either.

Glen Scherer, Jr. and I headed back to the hotel about 2P.M. Gene had to work the last shift. When Gene got back to the hotel a little early, we found out that they got rained out. Glen Scherer, Jr. Talked me into competing as a Team next year. I thought why not, I could give it a try. Having a little help building and flying entries might be nice for a change.

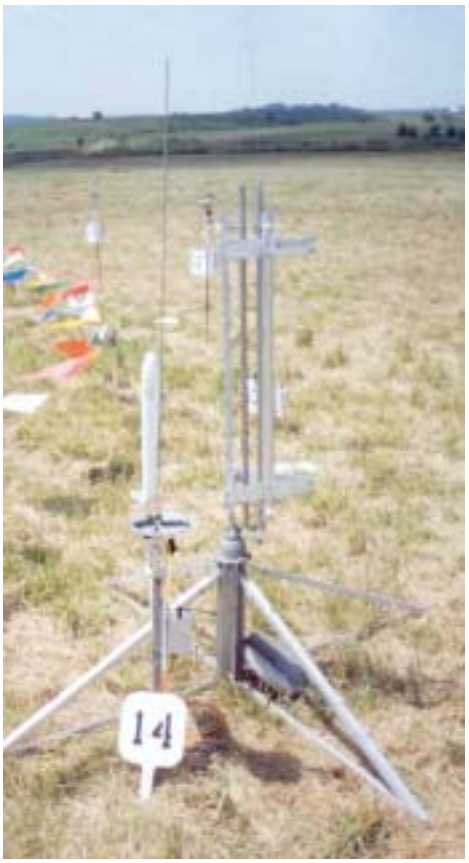
Monday night was the NAR Town Hall and Association Meeting. NAR president Mark "Bunny" Bundick gave two presentations. The first was on the stats of the NAR: membership and what age groups they are, budget, etc. Next the legal !@$^*^%!! was discussed.

Tuesday was a good rocket flying day for me! I had the last range duty shift that day. The morning started out extremely foggy. This delayed the both ranges from opening until 9:30 A.M.

Each range shift was shortened by 15 minutes to make up for lost time. I flew my little fluorescent orange A altitude rocket on a A8-5, and reached 136 meters.

While prepping my second flight, I accidentally added too much red tracking powder. I dumped it out and I thought I added a little more. My second flight was successful but neither I nor the trackers saw a red puff at ejection. Track Not Closed.

Next, I tried the egglofter that I built the night before. I modified a 24 mm eggstravaganza dual egglofter to a 29 mm mount. I got my shroud lines in a knot for the mylar chute and finally one of them broke so I used an Estes 24 inch one instead. This rocket screamed off the pad on a F 20-7W. The wind carried my egglofter to the east towards one of the swamps and the lake across the road. Fortunately I put a Pratt Hobbies Microbeacon audible locator in my egglofter before I launched it. After searching for about a half hour, I heard the beacon in the short, 5 foot tall cat tails about 50 feet from the waters edge. Upon recovery I noticed something that I've never seen before. The lower Kevlar shock cord was intact but it was un-braided into individual strands. I didn't trust it for a second flight. I took my rocket back to returns. Both of my eggs were okay! I tied for sixth place with only one launch!



Tuesday afternoon was the BBQ picnic at Audubon State Park. The food was delicious! It was a bring your own beverage event however. I had a couple extra Gatorades for a few people that forgot.

Tuesday night was the Manufacturer's Forum. A new presenter was Jim Flis of FlisKits. Jim gave a nice talk about FlisKits and his goals. We got to see the Overdue, a model rocket kit that you can only get for free if you order is overdue. Other manufacturers there were: Balsa Machining Service, Aerospace Specialty Products, Recovery Technologies, Saturn Press, ARA Press (Jack Hagerty), and Edmonds.

Wednesday was A Helicopter Duration and C Super Roc Altitude. I flew my super roc first; before the wind

picked up. I got a few looks when I brought up my MASA pad with my homemade wood/ conduit tower launcher. As I set up my super roc for launch, I noticed a design flaw with my tower launcher. The 2x6's kept the three 5 foot long 1/2" EMT conduits perfectly aligned on the bottom. The problem was on the opposite end. The three conduits kept trying to tip a lit out of alignment; since they had no support on this end. I adjusted my pad tilt to try to get the conduits as balanced as close as possible. Next I balanced the top end of my super roc as parallel as possible. Wave the paddle, let her buck! My rocket left the pad in a near perfect straight boost with only a slight wiggle at about 20 feet up!! The RSOs were being extremely lenient for Super rocs. If the rocket didn't do a full 360* loop it was qualified. If it separated; but returned to the ground in a safe manner it was still qualified. Well I shouldn't have used a C6-3. At ejection the eyelet screw pulled out of the balsa transition. Fortunately it fell behind the RSOs back and kinked the tube. He didn't see it fall and declared it qualified. I only built one super roc and forgot my helicopter rocket at home; so this ended my competition flying for the day. I did a little sport flying and more shopping. I flew Rockets Red Glare on three D12-5's. Perfect flight! I also flew my Sumo on a G40-4W. Great flight! Since this was FlisKits last day; I decided to buy a couple more kits. I bought both of Jim's two stage rockets: the Nomad and the Cheetah. I also bought a little 24 mm V-2 rocket from ASP. I also bought one of Andy's new rocket: That Tube Rocket. A tube fin rocket naming contest will be in the near future. It has a 29mm motor mount with 24 mm adapter. I also bought some assorted supplies from Recovery technologies.

Wednesday was the Auction. THIS EVENT WAS A LOT OF FUN! Jim Flis donated one certificate for one of his Overdue kits. I didn't even get into the bidding on this one! We had a great auctioneer and assistants! I did win the following items: A plastic piggy bank (I accepted a dare to make it into an odd roc for next year), a 2 pack of new and improved "born on July 15, 2003" AT F20-4W's, a box of sticky buns, a calculator, and 2 clear plastic storage tubes for my RMS29 case.

After the auction was the Competitors Forum. This mainly turned into a heated discussion on the legality of George Gassaway's F powered rocket glider egglofter for egglofting duration events.

Thursday was Open Spot Landing and B Parachute Duration (multiround). Once again I used my Mini Mars Lander on an A3-4T. I got 23.59 meters for a score of 24 m putting me in a 3-way tie for 10th place.

I used a Yankee and added some mylar tape (to aid the timers) and an 18" Estes parachute. I launched it on a B6-6. I think I caught part of a thermal and chased this rocket for about 3/4 of a mile. I made it back in time for second range shift with 5 minutes to spare. I was one of the first max times (4 minutes) of the day. After range duty I tried my Yankee again with great expectations! Great boost..... Separation!!! DQ! My Kevlar shock cord snapped after only its second launch ever? I dug around in my rocket box and found my Apogee Blue Streak. I added mylar tape to this rocket also and transferred the 18 inch chute. Another great launch on a B6-6! I didn't catch a thermal with this one and only got a time of 137 seconds; but half the walk!

Thursday night was the highlight of NARAM 45 for me! First they let me check in my Lone Shark Odd Roc a couple minutes early because I had to give my R&D presentation at the same time. Next I went to the meeting room with my poster and my nosecone prop. Who was sitting in the front row; but Vern and Gleda Estes! Gleda asked me if I was making a presentation. I said yes and that I was a little nervous since this was my first R&D.

Gleda said the coolest thing! " It's okay to have butterflies in your stomach. The trick is to get them to fly in formation." Was that neat or what?! We had a very poor turn out. About 12 to 18 people showed up to watch. Lila Schumaker, the CD, was the only other entry. Lila redesigned the Plastic Model Conversion judging sheet and flight card to make them one form.

I went first with my presentation, *Developing a Curriculum for Elementary School Model Rocket Education*. I started out by telling my story and how I

got talked into teaching the 2 week summer session at St. Croix Academy. I talked about the size of the class and age group. I mainly focused on my NAR Model Rocket Safety Code Coloring Book. I also went over some of my activities; mainly focusing on my " Pass the nosecone" game. After my presentation I answered several questions. After we finished the event for the night, Vern and Gleda Estes met me in the hall. They both told me how much they enjoyed my presentation. I think I was walking on air the rest of the week!

Next I went next door for the Odd Roc voting and Peanut Sport Scale/ Plastic Model Conversion Viewing. My Peanut Saturn 1B was in last place and my PMC space shuttle was 3rd from the last in static points. Who cares, I got to meet the Estes and they liked my presentation!

It was hard falling asleep that night! :-)

Friday I reported for first shift range duty even though I was a timer; just in case they needed a fill in person. They didn't need me, so I flew my micromaxx Saturn 1B. Forgot to add some nose weight ☺. Unsafe-Unstable! I took some video of some cool flights/ chaos for a while. On the second shift I decided to fly my PMC space shuttle on a C6-3. At safety check in they weight my rocket: 5.5 ounces. I was a little over an ounce heavy for a C. I knew it would be nip and tuck ; so I planned to use my 6' long, 1/4" diameter launch rod and my MASA pad. This time the camera was rolling while my rocket was launched. I had a slow boost to about 3 to 4 feet above the rod. Then the shuttle went into a pinwheel. From my perspective, it looked like it just hovered there until it ran out of thrust. Once it was out of thrust, it went

after the RSO (Oops!, Sorry!) Bob Kaplow happened to be working in the contest tent at the time, so I got a nomination for " Best Midwest Qualified Flight". I didn't win though. "Battlestar Impactica" , Larry Rice's Battlestar Galactica, won that prize.

I did some more filming for awhile. Then I did a little more sport flying. I bought some more stuff from Recovery Technologies; which was 10 % off. I replaced the lower half of the shock cord in Sumo and flew it on a G35-4W. Great flight until Separation! I spent the next 2 hours looking for the body tube and the piston. Eventually I found them both. The old shock cord (which looked fine before) broke where it passed through the piston.

The Banquet had good food; but the tables were packed together kind of tight. I won 1st place on my R&D. I got an engraved plaque with my name on it, a PerfectFlite Alt15K/WD altimeter with DT2x Data Transfer Kit, and an Estes Mercury Redstone kit.

I also found out that our club newsletter placed 3rd! Too bad there is only a first place traveling trophy. We also placed sixth in Section of the Year award. I think the fact that we haven't had any sanctioned contests hurt our score. DARS was this year's winner.

It was announced that NARAM 46 will be at The Plains, near Manassass, VA. NSL will be in Austin, TX. No one has put in a bid for NARCON yet.

I talked to Mark "Bunny" Bundick, NAR national president, at the banquet about my curriculum. Mark wants a copy for the NAR's education committee to review. If they like it and maybe a little tweaking, it might make it onto the next NAR's educators CD-Rom!

I met Gene and Glen for breakfast Saturday morning; before heading home. The trip went better this time. Did you know that there are oil fields in Illinois? Funny what you notice in the daylight. I got home about 9:20 PM. I can't wait until next year!!!

The *MASA Planet* is the official newsletter of the Minnesota Amateur Spacemodeler Association, Section 576 of the National Association of Rocketry. It is published bimonthly as a service to its members. MASA authors and photographers retain rights to their submissions, which are used by permission. The *Planet* is available in color on MASA's web site:

http://www.mn-rocketry.net/masa/

Submissions may be made to the editor at: masa.planet@mn-rocketry.net. (Volunteer quickly, lest you be asked to alleviate the impact of urban development on rocket flying!)

If your email address, U.S. Mail address, or phone number changes: Please send notice of your change to masa@mn-rocketry.net. Include your name, old email address, and new address. We depend on email for communicating important information. When an email address starts "bouncing", we lose contact with you.

Welcome New MASA Members!

The Myers Family:

Jim Myers — Heather Myers
Justine Myers — Eric Myers

The Nielsen Family:

Bob Nielsen — Matthew Nielsen
Patrick Lathrop

Wheee!

Ted Cochran

Fifth Annual Great UFO Drag Race, August 23, 2003. At least six entries are shown here at various altitudes.

MASA Planet
4235 Dupont Avenue South
Minneapolis, MN 55409

PLACE
STAMP
HERE

ADDRESS CORRECTION REQUESTED