

# THE LEADING EDGE

JAN-FEB 84 VOLUME 7 NUMBER 1  
WINNER OF THE 1982 LAC NEWSLETTER AWARD



# T MINUS 1

MONTHLY NIRA MEETING Jan. 6  
Glen Ellyn Civic Center 7:30 PM

ELECTION '84!!! Be there for the first returns. Also remember the finish of the hobby shop sale items. 13MM/18MM motors left!

MONTHLY NIRA MEETING Feb. 3  
Glen Ellyn Civic Center 7:30 PM

Bunny will be ready to comment on the Glen Ellyn Park District situation. Also, planning for the 1984 competition season.

## CONTEST CALENDAR

NOMID-84 REGIONAL CONTEST  
May 5-6, 1984  
Fenton, MI; Sponsored by GLAR

EVENTS:  
D HD, D ELD, B SRD, A RG,  
1/2A BG, A ISD, Pred. Dur.,  
Sport Scale

CONTACT: Carl Luce  
4495 English Oak Ct.  
Flint, MI 48504

## FROM THE EDITOR.

Happy New Year to you all! I hope Santa was good to you. You've probably noticed that this issue of the "Leading Edge" is a little thinner than usual. No, this is not permanent! I just got tired of getting the newsletter out late every issue and decided that a short issue would make it possible to get back on schedule. Our next issue will be back to 12 pages and (hopefully) back on schedule. So I hope you all have a good year, on and off the field.

Ric Gaff

## WINTER FLYING..

*IT CAN BE DONE!*

The first club I was a member of was SCAM in Ft. Wayne. It was a good club with good, if some what crazy, people. One thing we did the first few years (the early 1970's) was fly in the Winter. It took us several years to realize what a mistake that is!

For those of you who want to fly in Winter, here is my best advise. FORGET IT!! Take my word for it. It's miserable! But if you're as gung-ho as we were, here is some second best advice.

(1) Dress warmly. This sounds obvious (at least it should) but you would be amazed at how many people don't.

(2) Have a warm place to prep models or at least a place out of the wind (a car is a good spot). A warm place to retreat to when you get too cold is also good. We had a Mac's nearby.

(3) Pick a reasonably warm day. If the temperature drops below freezing, forget it.

(4) Your rockets will need extra care. Balsa and plastic tend to get brittle when they get cold (As a matter of fact, so do I). Fins tend to break real easy. Hot Stuff and epoxy won't work worth a darn.

(5) Parachutes have to be kept warm or they'll take a "set", and freeze into position. Leaving a model on the pad too long is a good way to test those brittle fins!

(6) Batteries have to be kept warm, too. Otherwise, they're not going to have the power to launch your model. A car battery is usually the only exception to this rule.

(7) Finally, stay home! Watch the A-Team, read a book, build a rocket, read your Leading Edge, do your homework (horrors!), do anything but forget flying rockets till it gets warmer.



January 1971. These guys came from Ohio to fly rockets and a "concrete block". It flew like one too!

# MODEL OF THE MONTH WINNERS



The model of the Month winner for November is Donny Linder and his Estes Solar Sailer. Congratulations, Donny!!



The Model of the Month winner for December is Larry Mika and his X-15. Congratulations, Larry!!



## THE LEADING EDGE

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COVER PHOTO: Jim "STP" Hogue with his impressive pseudo-scale model.

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RIC GAFF

# GETTING STARTED IN BOOST GLIDE.

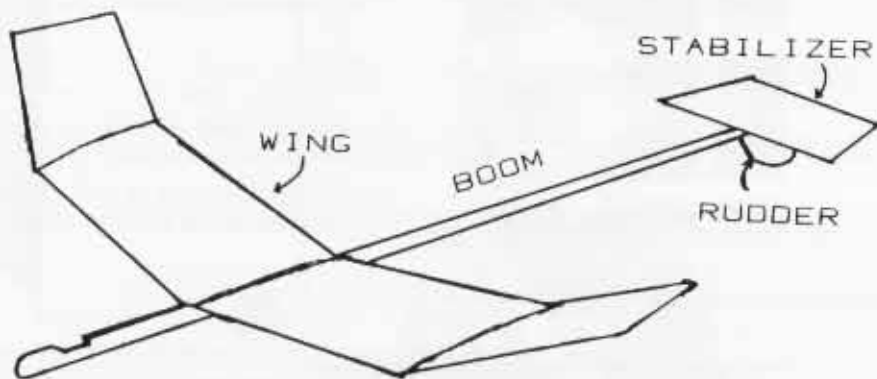
*IT AIN'T AS HARD AS IT LOOKS!*

## Part 1: Defining Your Terms

A large number of you NIRA members out there (and a fair number of our subscribers, too! - RG) are afraid to try one of the most fun things in model rocketry: model rocket gliders. I'll admit they aren't like the rockets you're used to building, but remember this. There was a time when you didn't know beans about regular rockets, either. If you learned about regular rockets, you can learn to build and fly boost gliders, or BG's. And you don't need the "right stuff" to do it!

Let's begin by talking about the parts of a glider and its flight. The biggest part on most BG's is the wing. The wing produces the lift that keep a glider in the air. It must be properly shaped to work best. The shape the wings takes is called an **airfoil**. Looking at the wing from the root end, we would see the shape shown in the accompanying diagram.

The thickest point of the wing is called the **highpoint** of the airfoil.



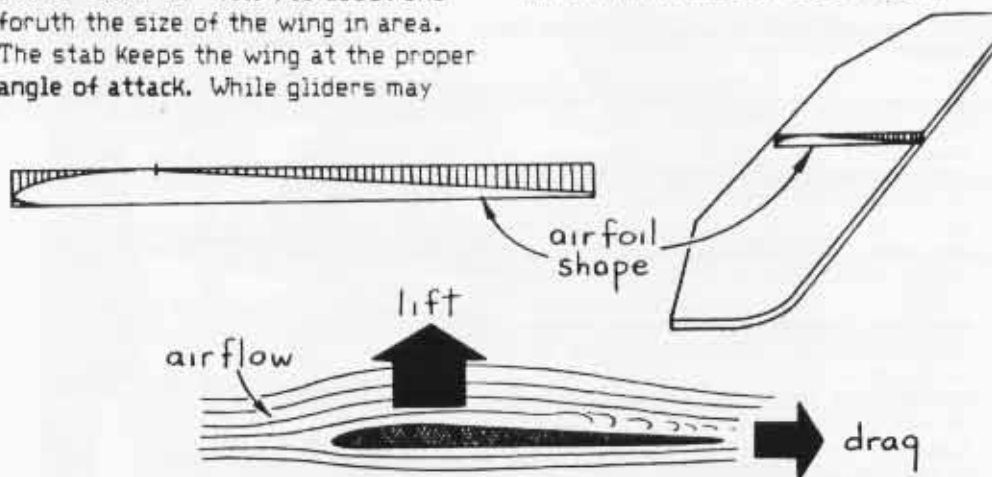
PARTS OF A BOOST GLIDER.

Most BG plans mark this on their wing patterns. If no highpoint is noted on the patterns, the directions usually tell you where to place it; the location is stated in terms of percentage of chord. If the plans say "Put the highpoint at 30%", what that tells you to do is measure 30% of the wing root chord distance back from the leading edge and mark the wing for a highpoint there. The thickest balsa in glider plans is usually for the wing.

A wing won't make a glider all by itself. Something must be used to keep the wing pointed in the right direction. The **stabilizer**, also called "stab" or "tail", is about one fourth the size of the wing in area. The stab keeps the wing at the proper angle of attack. While gliders may

look like they're flying along parallel to the ground, they are actually pointed nose up about six degrees. It's the stab making sure the glider doesn't pitch nose up or nose down from the correct angle of attack.

We also want the wing to stay pointed into the relative wind, without the nose pointed to the right or left of the flight path. The **rudder** takes care of this. Rudders are one fifth or one tenth the size of the wing, and are glued at a right angle to the stab. Stabs and rudders are made from balsa about half the thickness of the wings and usually have symmetrical airfoils on them.



## GETTING STARTED IN BOOST GLIDE.

All these flying surfaces must have something to hold on to. That something is the **boom or fuselage**. Most BG plans use hard balsa or spruce for this critical part.

The rest of the parts of a BG involve the engine and recovery system for the pod. Most gliders today are of the **front engine, pop-pod** variety. The model rocket motor is put in an ejectable pod which (usually) comes off at ejection. The glider doesn't have to carry all that weight around while it's gliding, and the glider's drag is also reduced.

The engine mount and recovery system work like normal model rockets. However, the body tube holding the engine is mounted from 3/8" to 3/4" above the wing. This placement balances out the flight forces so the glider goes straight up during boost. To do this a **pylon** is glued to the body tube; it looks much like a single, long, thin fin. It is the same thickness as the boom.

Attached to the pylon is the **Piece X or xerclod**, pronounced "zer-clod". The xerclod is cut out of the boom, and glued to the pylon. It forms a "hook" for the glider to latch onto the pod. When properly shaped and fitted, the force of the ejection will strip the glider off the pod. With improper fitting, the pod doesn't strip off. The condition is called a **Red Baron** since your glider gets "shot down".

BG flights have three main phases. The first is the same as regular model rocket flights, the part of the flight up to the time of ejection. For BG's, we call this portion the **boost**. Immediately after ejection, the glider isn't gliding yet; it must first **transition**. Good BG designs do this right away, and almost immediately begin a smooth gliding flight. Most technical analysis of BG flight ignores this phase. The last phase of flight occurs after transition, and is (you guessed it!) the **glide**.

Beginners often get confused about these terms, and don't even know how to ask questions about gliders from experienced BG fliers. Refer to the attached diagrams and re-read the preceding paragraphs. Hopefully, you can now see how the parts of a glider fit together to form the entire vehicle. If not, at least you'll know what terms to use to ask someone else your questions. If you have any further questions, just write (1925 N. Hudson, Chicago, IL 60614) or call (312-642-9028).

In the next issue, we'll print any questions you might have (someone else is probably confused, too!). We'll also discuss how to build a successful glider the first time you try. The building techniques aren't hard, just a little different from ones you use on regular rockets. We'll even have a plan for you to follow. Remember, it ain't as hard as it looks!



## NIRA HOBBY SHOP SALE REPORT

Members who attended the December meeting got a big plus for their workshops and range boxes. The club sold off the stock we purchased from the Squadron Shop Model Rocket liquidation. Everyone who participated made out like bandits. Everything was sold at 40% of retail. The entire stock was laid out and examined by all potential purchasers. Then Bunny swung into his "Monte Hall" imitation, and starting wheeling and dealing. If more people wanted an item than there were items, Bunny dispatched his able assistant, Larry London, to "draw pennies". The participants picked pennies from a jar, the winner being the fellow who picked the highest date. Needless to say, 1983 pennies were instant winners! The only problem was the meeting ran too long! Some 18mm. and 13 mm. motors were left to be issued at the January meeting.

The club's initial \$200 investment was recouped with funds to spare, and the NIRA treasury is now quite ample. All members are encouraged to think of long term projects where those funds can be put to good use. Not only did NIRA end up with a bigger treasury, but we also were a club full of rocketeers with fatter pocketbooks. Both items were good results from this project.

The club owes a big thanks to Vice-President Tony Lentini who found out about the Squadron Shop liquidation and suggested the club buy the goods. Thanks are also due for Jim Hogue, Larry London and Henry Veldenz who did the purchasing, inventory and storage of the kits, supplies and engines until the meeting. Another unique and successful NIRA project done, we want even more members to come up with these ideas. When you see Tony, Jim, Larry and Henry, don't forget to say "Thanks!" for a well done job.

BUNNY

## NOVEMBER 6 1983 CLUB LAUNCH

The weather was cool and the skies overcast but there was little wind for NIRA's last launch of the year.

New members David and Justin Gabrius and their parents Al and Carol were on hand to brave the marginal weather. David and Justin each had an Alpha-3, which they preceded to fly like champs using a variety of motors. Tommy P. had his usual large assortment of models the force was not with him as a D20-7 catoed in one of his models. Henry Veldenz was testing more competition models (for next summer right, Henry?). His HD's continue to dog him with seperations but his Mini-Dactel turned in a good flight. Larry Mika probably had the worse luck. His E45 "model" shreaded shortly (very shortly) after ignition. The crash improved the model's appearance! His Wasp turned in good flight. His bad luck returned when he catoed his Mars Snooper with a bad C. Fortunately, the model survived.

Jim "Screwed The Pooch" Hogue once again had his impressive 3 D12 powered pseudo-scale model. This is one of the most impressive models anyone has had at a NIRA launch in some time! While Jim's big model flew great, his double size Estes Surveillance Missile was a bit less so, with it's marginal stability. It flew straight but "coned" rather a lot. Jim's luck hit the bottom with the prang of his D20 powered F106 Plastic Model conversion.

NIRA's newest Jedi was on hand to practice the Force on his D12 RC B/G. While his boosts still tend to be a bit erratic, he is getting better and his control of the glide is quite good. Of course, one flight was not enough! Mark flew his model four or five times including one E5 flight. A CHAD cluster of a single E5 and 2 C6's was canceled with the approach of darkness. Frankly, it was just as well. I mean, the proposed method of launching was REALLY CHAD!

All in all, it was a good time, especially with winter just around the corner. See you in the spring!

# NOVEMBER CLUB LAUNCH



Lift-off of Jim "STP" Hogue's pseudo scale model. Impressive!!



Larry Mika with his yah, "model".



Mark "Jedi" Schmitt prepares his D12 RC B/G.



Al Gabrius and sons Justin and David.



Lift-off of "Jedi"-Schmitt's RC B/G.



Lift-off of Jim's Surveillance Missile.



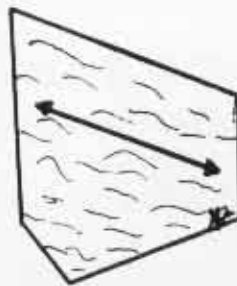
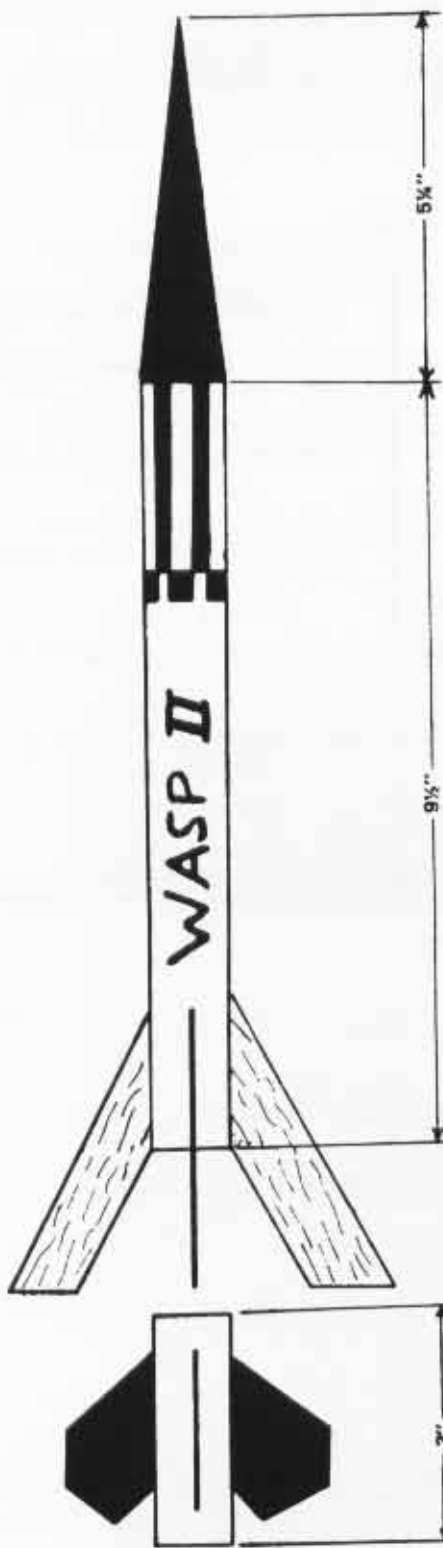
Jim "STP" Hogue with his double-s Estes Surveillance Missile.

# WASP 2

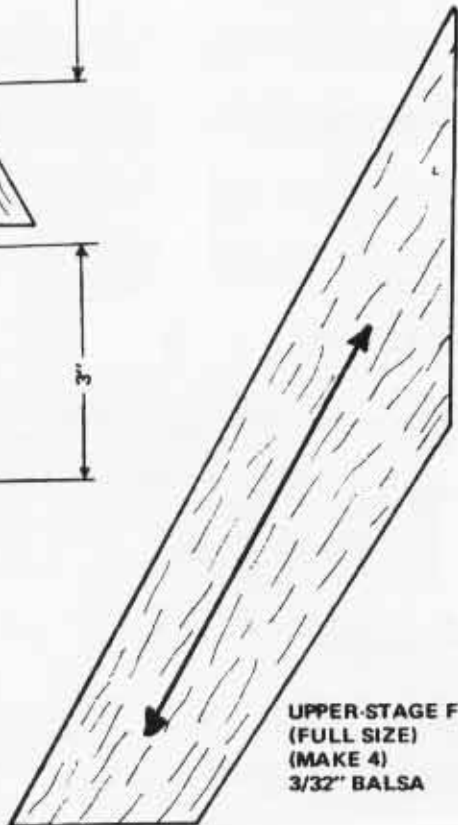
This issue's plan is a reprint from the August 1970 issue of the **Model Rocketry Magazine**. The "Wasp 2" was originally submitted by Tony Barrett of Mansfield, Ohio and is used with permission of MRM's editor.

## PARTS LIST

BT-55  
BNC-55AC  
EH-2055  
3/32" and 1/8" balsa  
1/8" launch lug  
12" parachute



**BOOSTER FIN  
(FULL SIZE)  
(MAKE 4)  
1/8" BALSA**



**UPPER-STAGE FIN  
(FULL SIZE)  
(MAKE 4)  
3/32" BALSA**

## NIRA'S ANNUAL ELECTION OF OFFICERS OFFICIAL BALLOT

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MARK BUNDICK

-----  
VICE PRESIDENT:

TOM PASTRICK

TONY LENTINI

LARRY MIKA

-----  
SECRETARY-TREASURER:

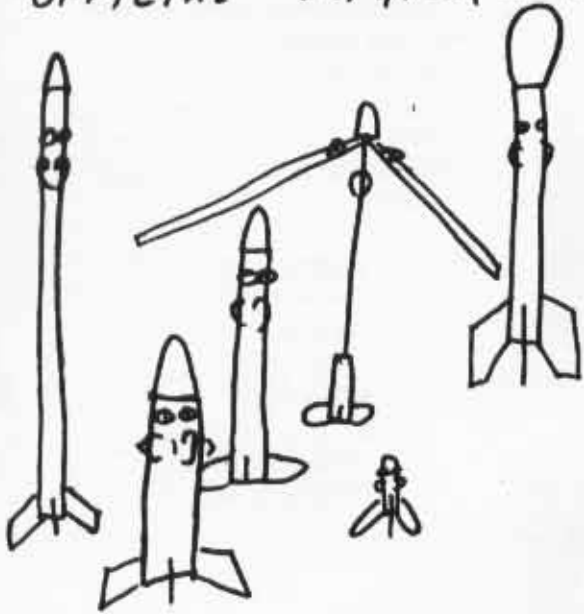
BOB KAPLOW

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Ballots may be turned in at the January meeting or mailed to: Mark Bundick, 1925 North Hudson, Chicago, IL 60614. VOTE!!!

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## COMING IN FUTURE ISSUES!!!

Larry MIKA's large sport scale X-15.

Mark Schmitt's trip to  
a recent Space Shuttle launch.

Larry London's trip to  
Wright-Pat's Air Force Museum.

Bunny's trip to  
the National Air and Space Museum.

More of Bunny's  
"Beginning Boost Glider" series.

Dumb Jokes.

12 page issues and much more!!!

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