STARDUST

January-February 1999

The Warbler B R/G

by Etienne LaVallee

reprinted from *Star-Date 12.87*

This model is simply a conversion of the Seattle Special (published in the January '83 *Model Rocketeer* and one of the several NARTS NIRA glider publications). As you may recall, the original model consisted of a 1/8" thick elliptical wing which slid along a 1/4" x 1/4" x 14.5" square spruce spar on a plywood box. The idea was good, but if someone wished to remove the wing, they could not because the stab/rudder assembly blocked the box from coming off the spar. The T-rail wing slide allows you to remove the wing for easier storage and transport.

With the exception of the main spar, rudder, and hook arrangement, the Warbler is actually the same as the Seattle Special. The fuselage is a T-rail formed from a 1/32" x 9/16" x 11.25" plywood strip and 1/8" hard balsa. Two 3/16" x 3" and two 3/8" x 3" pieces of 1/32" plywood form the wing mount which the rail slides through (see section A-A in the drawing on page 8). Careful alignment and construction is important here. The two-piece rudder makes it easier to warp the trailing edge to trim the model to turn. For prepping, a nylon line is tied to hook D, looped around hook C and hook B, passed through the ejection port, and tied to hook A (whew!). The rubber band is then stretched between hooks B and D. The nylon line will burn at ejection, allowing the rubber band to pull the wing forward to the glide position. The engine pylon is a sandwich of 1/32" plywood, 1/8" hard balsa, and 1/32" plywood for extra strength. Also note the stabilizer. The fuselage construction provides a slight overall angle of attack and the airfoil is inverted, providing some decalage.

The model can be flown with A8-3, B4-2, and B6-2 engines. For anything over a B, use 3/16" balsa for the wing. It is also a good idea to place 1/4 mil adhesive mylar over the leading edge of the wing to keep it from getting dinged on things like trees, cars, dead animals on the range, et cetera.

The Maxi-Dactyl, a D Boost/Glider

by Jeff Vincent

reprinted from *Star-Date 2.88*



At NARAM-30 this summer [eleven years ago - Ed.], rocketeers will once again send shards of balsa, swatches of polyethylene, and pricey little servos fluttering through the air amidst the wild dance of the power pods bouncing about on the ground. Is this some sort of arcane ritual, some sort of virgin rocket sacrifice? No, kids, don't be scared, it's only D IB/G. It's amazing how normally competent (at least as the term applies to rocketry) rocketeers can fly B R/Gs all day with no trouble, but suddenly begin to froth at the mouth and DQ every flight in D Boost/Glide.

D B/G isn't really that difficult. It's just that many fliers expect to simply size up their models and fly successfully, failing to take into account the great stresses generated by D12s (not to mention some of the rippin' new composites out now). In this article I hope to shed some light on what it takes to fly this event and how you can compete successfully.

There are five basic methods of flying D

(Continued on page 4)

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STARDUST

January-February 1999

Volume 13, Number 1

Stardust is published bimonthly by the Albany, Schenectady, Troy Rocket Enthusiasts (ASTRE), Section #471 of the National Association of Rocketry (NAR). You may contact us via:

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Captain Copy & Dictator of the Digital Domain: Wolf von Kiparski.

Contributions by: Etienne LaVallee, Jeff Vincent, and Chuck Weiss.

Editor's Thermal

One More Time...



Here we are again with another fun-packed issue of... um... reprints. Due to a lack of submissions from our members and a lack of creative juices on my part, this issue is filled with reprints. (By the way, the Nocturne plans in the last issue were also reprinted from *Star-Date 5.88* and the July-Aug '93 *Stardust*.) Reprints are not necessarily a bad thing (particularly if you haven't seen them before), but we only have so much in the well to draw from — so let's not over-do it. If you've bought a new kit, or tried a new technique, or just want to spout off, send it to me for inclusion in these pages, we all want to see it.

A big event for ASTRE will be our Open House, planned for February 21 at my home. There will be informative talks on just what model rocketry, rocket clubs, and contest rocketry are all about. It will be an excellent opportunity to see who we are and what we do, before the flying season gets busy. There will also be a big raffle with tons of prizes — you just can't lose! See the club minutes on page 7 for more details. I hope all of you can come and take part, it will be a great time.

Jeff Vincent



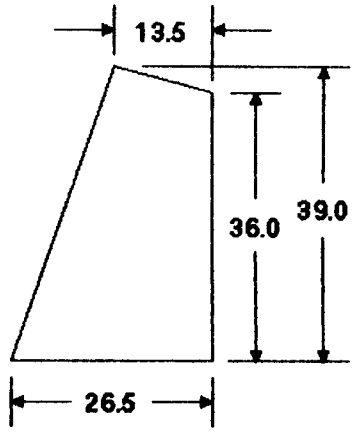
1989 C Payload Record Setter

plans reprinted from
Star-Date 1.90

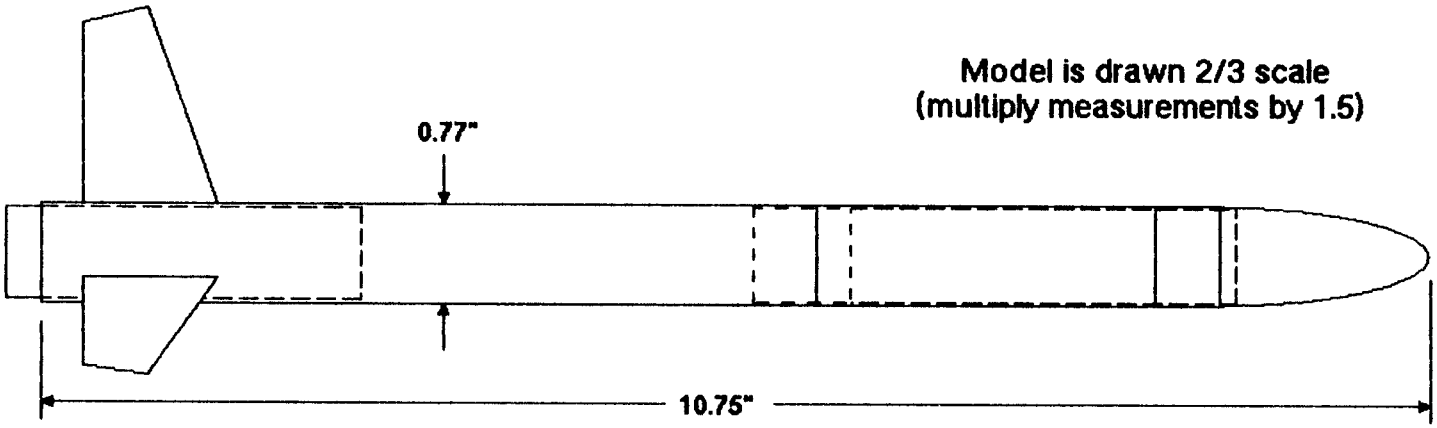
While almost ten years old, this model is a good starting point for C Payload at NARAM this year (the record still stands in Team Division!). Use Apogee's 19mm tubing and balsa nose (if you can't find a hollow vacuform cone). Engine choice is an Apogee C4-7 (for calm days) or a C10-7. Launch from a tower (no piston).

C Payload - NAR Record Setter

Event ..... C Payload Altitude (C Division)
Competitor ..... Spaceman Spiff Team
(Jeff Vincent and Chuck Weiss)
Meet ..... NARAM-31, August 9, 1989
Performance ..... 553 meters (1815 feet)
Engine ..... Estes C6-7
Gross Launch Mass ..... approx. 70 grams
Mass (w/o engine) ..... approx. 45 grams
Drawing prepared by ..... Jeff Vincent, 11/89



Drawing is full scale
All dimensions in cm.



Construction Notes

The model was constructed almost exclusively of CMR parts. The main body tube is a 6.0" piece of RB-77 and the main payload section is a 2.625" piece of RB-77. The payload coupler is a 3/4" piece of RB-74: 1/4" is glued into the payload tube, leaving 1/2" for joining the tubes. The exposed end of the coupler is capped with a piece of light cardboard. The nose cone is a CMR NC-77S (with no shoulder insert). Due to the longer length of the NARAM-31 payloads (3.0"), a 0.5" spacer ring of Apogee T-19 tubing was used at the top of the payload section. The shock cord is approx. 12 inches of 1/8" elastic. The fins are made from 1/32" basswood, well-airfoiled. The fins were finished with several coats of thin Hot-Stuff and buffed to a glossy finish (no paint was applied). The RB-77 tubes were sanded and finished with several coats of Pactra spray dope and polished with super-fine (#0000) steel wool. The nose cone was left unfinished. After finishing, the fins were attached to the tube with Hot-Stuff and smooth epoxy fillets were added.

Prepping Notes

The model was prepped with an Estes C6-7, a small (10") parachute, and approx. 8 grams of tracking powder. The payload was inserted in the RB-77, the spacer ring and nose cone are fitted over it, and the assembly was sealed with a 3/4" wide wrap of adhesive mylar tape. The model was launched from a five foot long tower launcher. The launch was augmented by a piston launcher. The piston launcher, based upon the old CMR product, uses an 18" Estes BT-5 tube with a BT-20 adapter at the top. The engine and the piston adapter are shimmed with tape for a good tight fit.

(Continued from page 1)

B/G: conventional rigid wings, variable-geometry, flex-wings, radio-control, and parasite gliders.

The conventional models are your basic balsa B/Gs scaled up for D-power. When flying this type of model, you must build the model strong (a brick may come down fast, but at least it comes down in one piece). These models have a fair success rate, although they take a lot of work, they are hard to transport, and it's difficult for a beginner to get the right balance of strength and light-weight construction.

Variable-geometry is generally the category for the RGs (Rube Goldbergs) amongst us. The concept is streamlining the model for boost (sometimes even enclosing it within a fat booster), and changing its configuration for glide. In practice, these models are often unreliable and often compromise their glide performance for boost performance. Recovery and visibility can also be problems with these small models.

Flex-wings are perhaps the ideal solution to flying high-power B/G events. They require little time to build, they boost and glide well, they are very visible, and they can be dethermalized (DT'ed) easily. The principles of building large flexies are similar to their smaller cousins. [Note: When this article was written, flexies were allowed in B/G, which is no longer true - Ed.]

Radio control gliders are the province of the elite rocketeers. No other single event (with the exception of the scale events) requires such a great investment of time and money to fly well. As you might surmise, RC is not the way for beginners to fly B/G. The prime advantage of RC is the capability of thermal-picking while flying. It should also be noted that in D B/G the RC gliders do not get much altitude and they would require good lift to be competitive.

Parasite gliders are small gliders which are attached to a large booster (similar to the Estes Hitchhiker or Manta). They are often derided as a wimpy way to fly big B/Gs (real men fly real gliders), enhanced by their higher success rate over the disgruntled fliers of rigid-wing B/Gs. Parasites offer an easy to build system which has a good reputation for reliability and performance. While they have some visibility and recovery problems, they are a good choice. This article is a look at the Maxi-Dactyl, a model the Odd Couple flew to an uncontested first place in D B/G at MARS-17. (Speaking of disgruntled rigid-wing fliers: this model got three-plus minutes; of the six other conventional flights, only one qualified [at 19 seconds].)

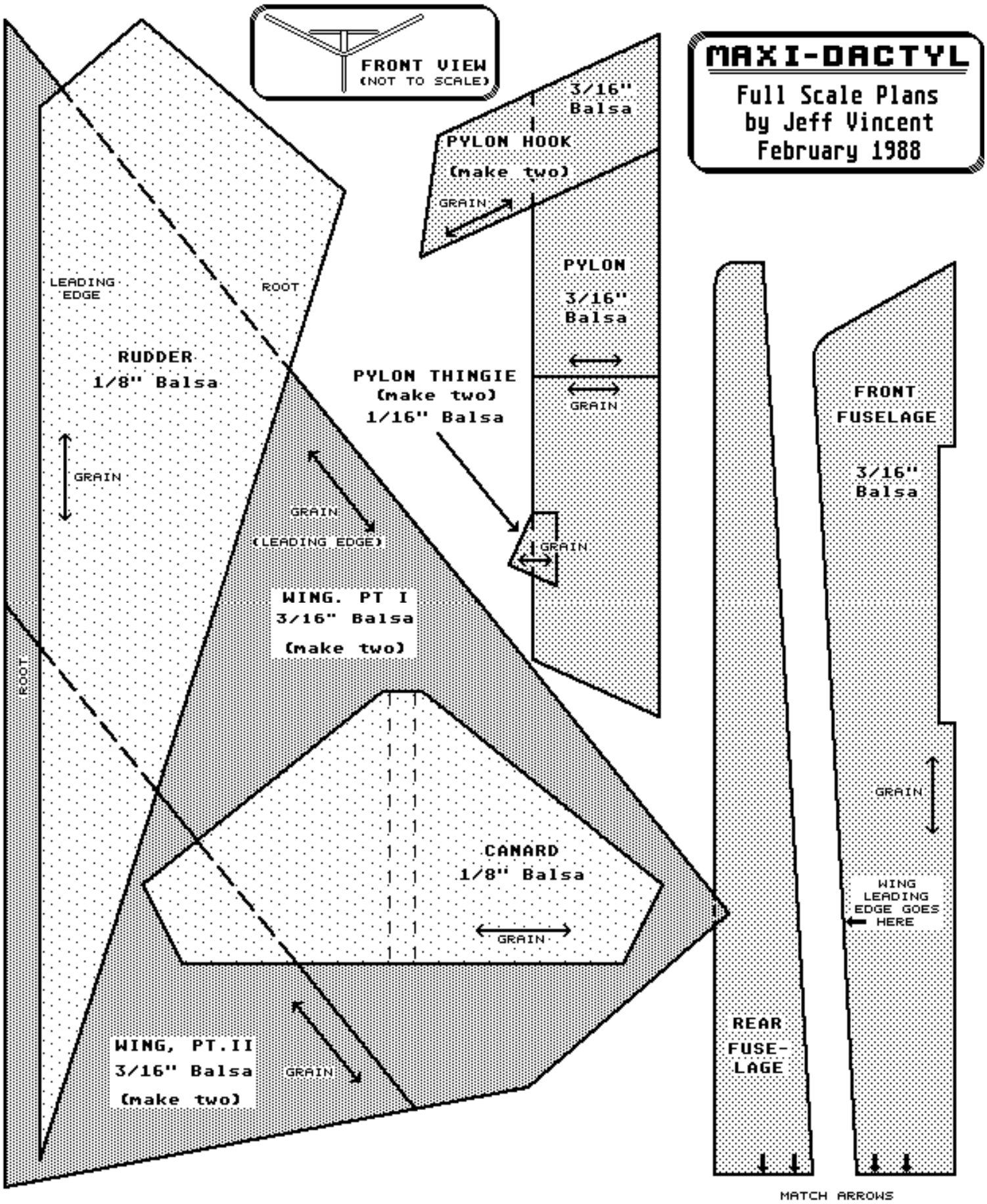
The Maxi-Dactyl is not an original idea, Enerjet had a Pterodactyl (as in "Terror-Dactyl") in the late '60s. The Maxi-Dactyl is actually a scaled-up Centuri Mini-Dactyl (shown in the artwork at the start of this article). The Maxi is approximately 2.5 times the original Mini size. The main restriction on the size is the width of the balsa used for the wings. The basic construction is the same as the Centuri kit. I recommend getting a copy of the kit instructions for more complete building information if you haven't dealt with the model before. [The Mini-Dactyl plans are available on the web for downloading at http://www.dars.org/jimz/km-6.htm - Ed.]

First, some tips on deciphering the drawing. In an attempt to provide full size plans, the drawing is somewhat convoluted. The best way to make use of these plans is to take the drawing to the copy shop and make two copies of it. On one copy, cut out the wing and pylon planforms. On the other copy, cut out the rudder, canard, pylon hook and thingie, and fuselage halves. Tape together the two fuselage pieces so the arrows match and the long sides are straight. Voilà!, a complete set of plans.

Select your wood carefully. For the flying surfaces, use light, rigid (C-grain) wood. For the fuselage and pylon, I recommend a good hard piece of wood. While it's not documented in the plans, a small strip of very hard balsa or basswood glued to the leading edges of the wings and rudder greatly improves durability. You might also consider a small piece of basswood inset into the canard where it rests in the pylon hooks. While Centuri does not recommend it, I suggest airfoiling the flying surfaces: it will reduce both drag and weight. The details of pod construction are up to you, I used an 18" length of BT-55 with an Estes nose cone and a long streamer for recovery. Just remember that the pod must be long enough to provide a stable booster. A long 3/16" (or larger) launch rod is recommended for reliable launches.

The basic construction is as follows (refer to the Centuri plans for more details): Cut out the parts, assembly each wing (gluing Part I to Part II), and airfoil the wings, canard, and rudder. Bevel the roots of the wing so the wings will have 3.75" total dihedral and glue them together. Glue the canard to the notch in the top of the fuselage. Glue the bottom of the fuselage on top of the wing root, matching their trailing edges. Glue the rudder to the bottom of the wing, matching the trailing edges. Your glider should now match the front view in the

(Continued on page 6)


FRONT VIEW
(NOT TO SCALE)
MAXI-DACTYL
Full Scale Plans
by Jeff Vincent
February 1988
3/16" Balsa
PYLON HOOK
(make two)
GRAIN
PYLON
3/16" Balsa
GRAIN
LEADING EDGE
ROOT
RUDDER
1/8" Balsa
GRAIN
PYLON THINGIE
(make two)
1/16" Balsa
GRAIN
GRAIN
(LEADING EDGE)
GRAIN
WING. PT I
3/16" Balsa
(make two)
ROOT
CANARD
1/8" Balsa
GRAIN
WING, PT.II
3/16" Balsa
(make two)
GRAIN
FRONT FUSELAGE
3/16" Balsa
GRAIN
WING LEADING EDGE GOES HERE
REAR FUSE-LAGE
MATCH ARROWS

(Continued from page 4)

drawing. Build your pod. Glue the pylon and pylon hooks together and attach them to the bottom of the pod. Test the fit of the glider in the pylon assembly. Ideally, the glider should be loose enough to easily slide straight forward, but it should not wiggle when in place. Gently sanding the sides of the fuselage or a few coats of dope usually can fine-tune the fit. Glue the pylon thingies to the pylon. These are to aid the separation of the glider when it slides forward at ejection; they should be glued just ahead of the canard leading edge. Fillet everything liberally, and you've got yourself a glider.

For finishing, I recommend sanding with 400 grit sandpaper and several coats of spray dope (Pactra or SiG), sanding lightly between coats. (One note on spray dope: dope is translucent, so the light colors don't cover well and aren't as visible. Select a medium or dark red or black.) This results in a nice smooth finish with a minimum of fuss. Check the pylon fit again and adjust as necessary. Add clay or lead to the nose and wingtip to get a stable glide with a gentle left or right turn, as per the Centuri instructions. The best way to check the trim is a low power test flight with something like a B6-2. This should give you a good idea of your glide trim and turn radius without too much risk of losing the model. Engine selection depends to some degree upon the pod, but the D12-5 is a good generic choice.

A few tips on flying the Maxi: Never fly alone. It's hard enough recovering a glider and its pod, let alone one that reaches 1000'. Binoculars are a good idea. Use something (such as a masking tape flag) to support the pod on the rod so the glider does not touch the ground and use something to support the launcher leads so their weight does not pull out the ignitor. (And remember to remove them for the next guy who uses the pad!) When you are flying the model in the wind, point the rudder into the wind, as this is the most stable configuration to reduce movement on the pad. If the wind keeps the glider from resting properly on the pylon, use a masking tape flag to push the bottom of the wing away from the rod. While I have not tried it, it wouldn't be too difficult to implement a drop-weight DT (or some other type of DT) on the model. This should help get that return to fly the third round at NARAM.

You'll find that the Maxi-Dactyl makes a good competition model, or even a neat demo model (maybe you could try the dual glider version in the Centuri plans!).

Minutes of ASTRE Meeting January 10, 1999

compiled by Chuck Weiss

The meeting was held at Jeff Vincent's house and presided over by ASTRE President Wolf von Kiparski. The meeting was also attended by Chuck Weiss and Jeff Vincent.

Items of Business

1. Treasury Report:

Petty Cash - $55.00
Checking - $40.00

Chuck Weiss reported that he had spent $30 from petty cash to purchase a dinner gift certificate for Bruce and Susan Whitcavitch who own ASTRE's flying field. Chuck sent the certificate to Bruce and Susan along with a Christmas card in December.

Later during the meeting while searching for gift certificates won by ASTRE at previous NARAMs, 10 dollars of unaccounted for cash and a check for $12.00 made out to ASTRE by Wolf von Kiparski which had not been deposited was found. Because the check was over a year old and no one knew what it was for, it was agreed that Wolf should void the check and forget about the expense. The $10 was added to the petty cash raising the balance to $65.00.

2. Club Charter Renewal:

Because the original charter information was misplaced, the renewal was postponed until the next meeting. The NAR has been notified to replace the charter renewal forms.

3. Election of officers:

The following officers were nominated and elected for 1999:
President - Wolf von Kiparski
Vice President - Vince Giovannone (conditional-official upon acceptance by Vince)
Secretary/Treasurer - Chuck Weiss
Senior Advisor - Jeff Vincent
Member at Large - John Sicker (conditional - official upon acceptance by John)

4. It was reported by Chuck Weiss that Pat Perrella,

after receiving new 2 way radios for Christmas, has generously donated her 2 old radios to ASTRE. Thank you Pat.

5. Jeff Vincent handed out a listing of ASTRE's active members and their dues renewal dates. ASTRE currently has 12 members on the books. Three of these members have dues overdue by 2 months or less. The remaining members are paid up.

6. Members agreed to use Estes gift certificates totaling $75 which were won by ASTRE at the National Championships to purchase door prizes for the upcoming Rocketry Open House in February. Jeff Vincent will send an order to Estes for the following kits and motors: 1 Black Brant , 1 Big Bertha, 1 Fat Boy, 1 Sidewinder, 1 Nova Payloader, and 3 packages of B6-4 engines. The items will be raffled off at the open house. Raffle tickets will cost $3 each with a guarantee to win at least one of the above prizes or *you get your money back*. Wolf also has some additional Wizard kits if we get a good turn out. The cost of all of the prizes is well in excess of the cost of the raffle ticket. You can't lose.

7. Rocketry Open House

The Rocketry Open House will be held at Jeff's house on February 21, 1999 beginning at 1:00 PM. The following presentations will be given:

a) **Rocketry Basics** (30 minutes, Chuck Weiss) - how a model rocket works, types of model rocket activities, clubs and the National Association of Rocketry.

b) **Basic Rocketry Building Techniques** (30 minutes, Wolf von Kiparski) - building materials, fins, types of glue, glue joints, shock cords, finishing techniques, and basic recovery devices (parachutes and streamers).

c) **Competition** (30 minutes, Jeff Vincent) - basic event categories, specific types of events, basic rules, individual and section strategies, model displays.

The raffle will be held at the end of the presentations. Models will be on display. People may bring models for advice or display. The event will be promoted publicly but on a call first basis so that the number attending can be monitored. Jeff Vincent should be contacted via e-mail only. Chuck Weiss and Wolf von Kiparski can be contacted via e-mail or phone.

8. Wolf von Kiparski will be giving a presentation on model rocketry to a Niskayuna Cub Scout Pack on January 20.

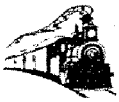
9. Jeff Vincent announced that the next newsletter should be out in early February and that he will be trying to keep a bi-monthly schedule. As usual, articles for the newsletter are very welcome.

Other Activities

Refreshments for the meeting were provided by Jeff Vincent. Thanks Jeff.

Attendees braved the cold weather and launched some Estes tiny pre-fab rockets in Jeff's back yard. It was also a test of the new Estes 1/4A3-3T motors. The launch was conducted by Wolf von Kiparski. The new engines look pretty good and withstood about 70 degree temperature cycling :) .

The meeting ended with Jeff providing a slot car racing set up for some fun. Wolf and Chuck gradually moved up through slot cars of greater and greater performance until Chuck literally blew Wolf completely off the track with one of Jeff's secret high performance, fire breathing, spark flying, track hugging, slot slayers. We laughed so hard our eyes were tearing. If you weren't there, you missed a lot of good rocketry discussion and fun. Hope to see everyone at future meetings.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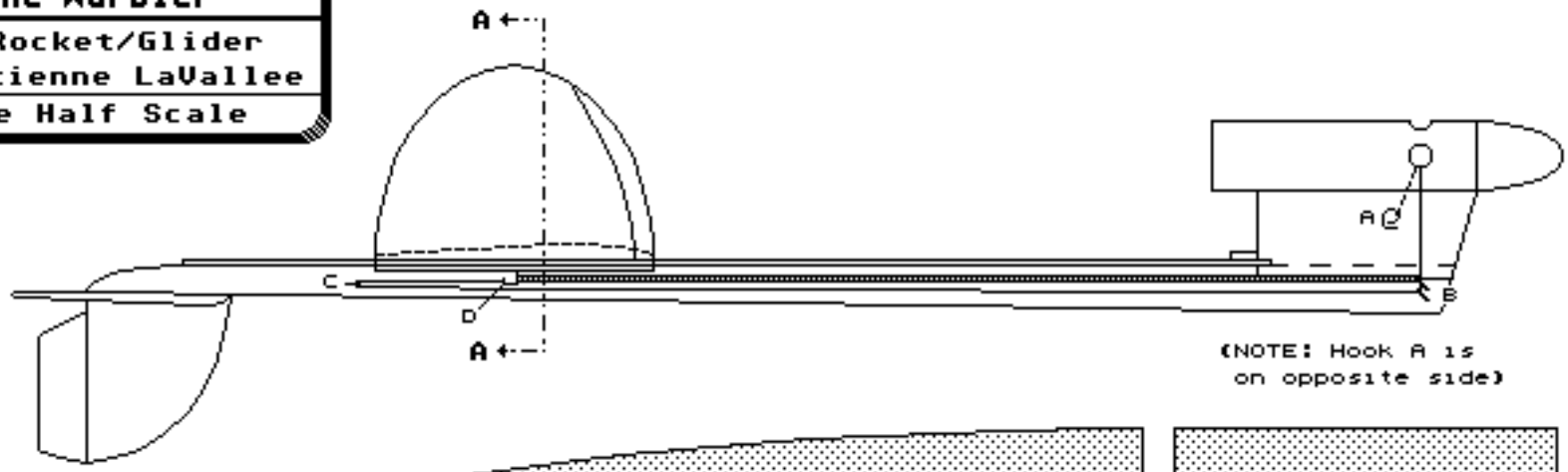
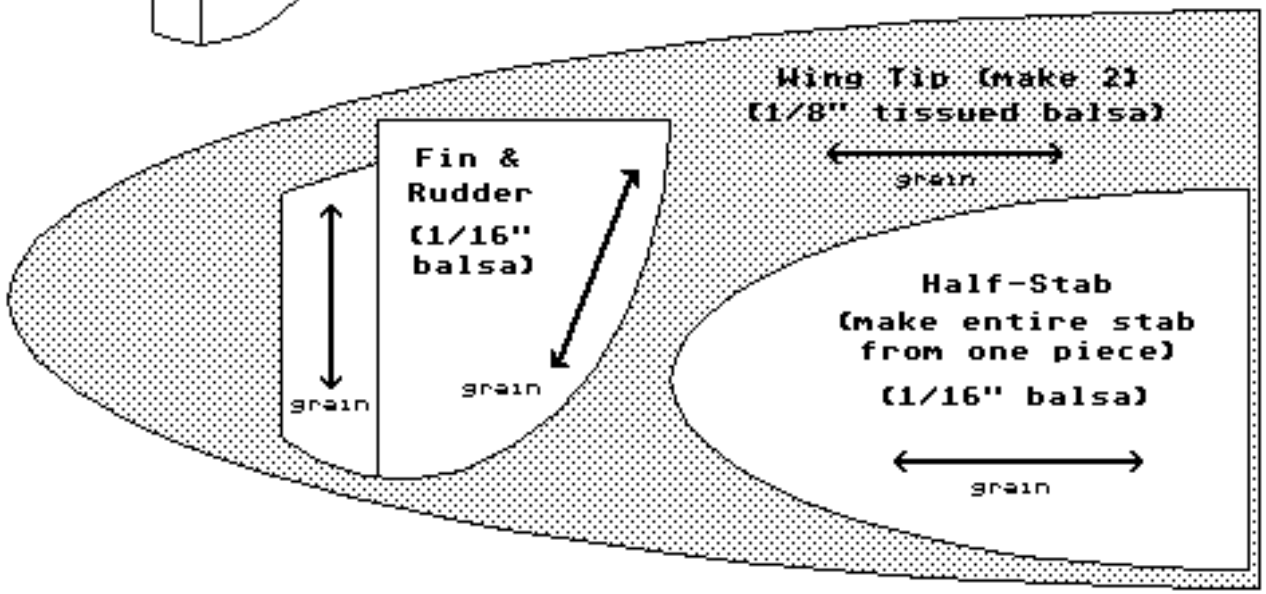
"You Need It, We'll Get It"

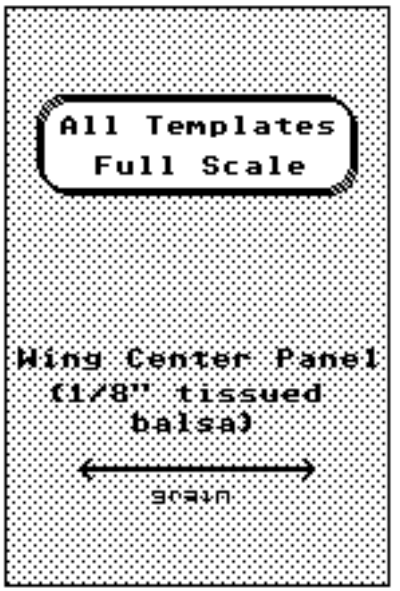
The Warbler

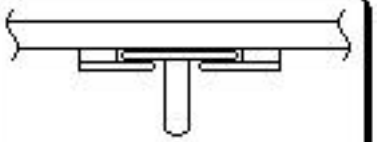
B Rocket/Glider
by Etienne LaVallee
One Half Scale



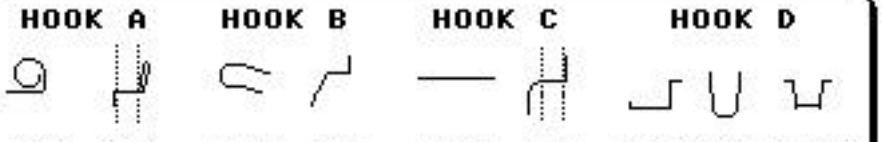


All Templates Full Scale





Section A-A
(full size)



HOOK ENLARGEMENTS (NOT TO SCALE)



ASTRE Calendar



ASTRE Contacts :

Wolf von Kiparski	437-9747	wolf@netheaven.com
Jeff Vincent	439-2055	jvincent@wizvax.net
Chuck Weiss	883-8312	cbweiss@telenet.net

How to get to Jeff's house...

Your destination is 39 Cherry Avenue in Delmar. Take Rt. 85 south/west (accessible from I-90, State Offices, Rt. 20, or Krumkill Rd.). After Rt. 85 changes from divided highway to two-way, you'll see the following landmarks (note, this is a complete list of the traffic lights you'll see):

- traffic light at Blessing Road, continue straight
- traffic light at New Scotland Road, take right to stay on Rt. 85
- traffic light at Rt. 140, take a left, follow to the end (1 mile)
- traffic light at Kenwood Avenue, go straight on to Cherry Ave.
- my house is 0.2 miles in from Kenwood Ave. It is the third house in a set of three similar houses on the right side of the street. There should be parking for 2-3 cars in the driveway, or, directly opposite my house (left side of Cherry Ave.) is Oak Street, and I believe there should be no trouble parking along the road there.

Note: ASTRE events appear in **bold type**.

For the past couple years, we have held meetings in member's homes. The meetings are usually informal bull sessions where club business is discussed first, followed by either general "what's new," or a predetermined topic or activity. This schedule can change, and it is advisable to contact Jeff Vincent, or Wolf von Kiparski to find out about any last-minute changes.

February 21 - **ASTRE Meeting** - at Jeff Vincent's house, 39 Cherry Ave., Delmar, 1:00 pm. ASTRE Open House, see details in the Minutes on page 7.

March 14 - **ASTRE Meeting** - at Jeff Vincent's house, 39 Cherry Ave., Delmar, 1:30 pm. Details TBA.

April 3 - **ASTRE Sport Launch - Winter is Over!**- Johnstown, NY. Contact: Wolf von Kiparski.

April 14 - **ASTRE Meeting** - at Jeff Vincent's house, 39 Cherry Ave., Delmar, 1:30 pm. Details TBA.

May 1-2 - **NYSPACE 99 Regional Meet** - Johnstown, NY. Events: B R/G, B ELDur, A SD, 1/2A SRAlt, Sport Scale. Contact: Wolf von Kiparski.

June 19-20 - RAMTEC-7 Regional meet - Center Valley, PA.

July 17 - **Apollo 11 Commemorative Launch** - Johnstown, NY. Bring your Apollo-era scale models and celebrate the 30th anniversary of the Apollo 11 moon mission. Details TBA. Contact: Wolf von Kiparski.

August 7-13 - NARAM-41 NAR Annual Meet - Northmoreland Park, Pittsburgh, PA.

For more NAR Northeast Region meet info, see:
http://www.wizvax.net/jvincent/nercb.html

ASTRE Membership Application

Name _____

Address _____

City _____

State _____ Zip Code _____

Phone _____ Date of birth _____

NAR number _____ Tripoli number _____

Send to: ASTRE
c/o: Charles Weiss
49 North St.
Broadalbin, NY 12025

Membership Dues (check one):

[ ] Junior member - $5.00 (under 18)

[ ] Senior member - $10.00 (over 18)

[ ] Family membership - $15.00
Number of newsletters: _____

Please make checks payable to "ASTRE".

How To Get To The Flying Field

- From the east, take the Amsterdam exit (#27) off the Thruway
- Take a right and follow Route 30 North for one mile.
- Take a left at the second light after the bridge onto Route 5 West.
- Follow Route 5 for three miles. Take a right onto Route 67.
- Follow Route 67 for 5.5 miles. Shortly after passing FMCC, take a right onto the small road by Ed's RC shop. After one half mile you will see **JBJ Equine** on your right. Follow the driveway and park in the parking lot and walk to the range.

ASTRE's Next Meeting - February 21 - ASTRE Open House at Jeff Vincent's house
ASTRE's Next Launch - April 3 - Winter is Over! sport launch at Bruce's
In This Issue - B R/G, D B/G, and C PL contest plan reprints

Jeff Vincent
Box 523
Slingerlands, NY 12159