

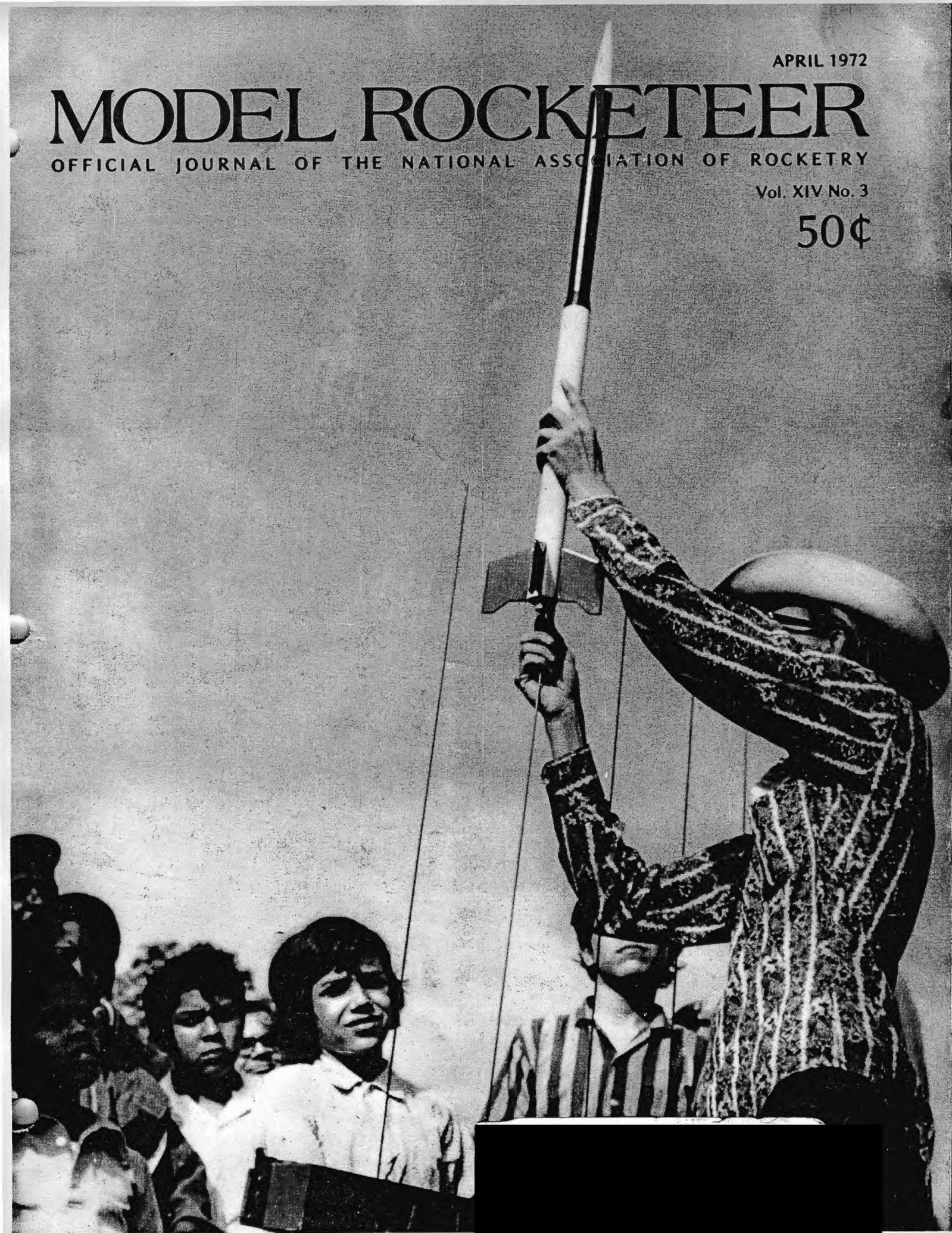
APRIL 1972

# MODEL ROCKEETEER

OFFICIAL JOURNAL OF THE NATIONAL ASSOCIATION OF ROCKETRY

Vol. XIV No. 3

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# MODEL ROCKETEER

OFFICIAL JOURNAL OF THE NATIONAL ASSOCIATION OF ROCKETRY

Vol. XIV No. 3

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## Cover Photo:

Gary Bossong prepares to launch a special 4H rocket for the Union County, N.J. 4H Club.  
At the left of the photograph are some members of the club. (Photo by Bob Mullane)

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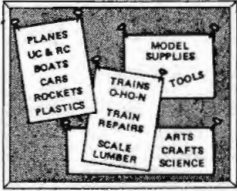
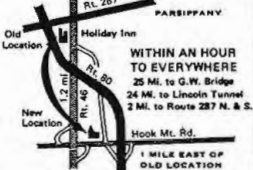
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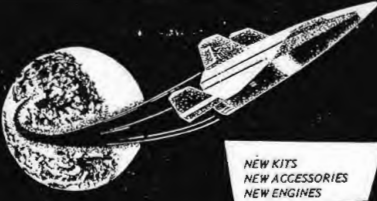
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## EDITOR'S NOOK

Since the announcement of this year's NARAM site, East Coast NAR members have been looking for ways to get out to Seattle. Among the ideas is that of chartering a plane. We think that this is an excellent idea, but we also think that since all the East Coast rocketeers will be arriving together if this is done, we should do something that will really say "Hello!" to our Western friends. The *Model Rocketeer* is proud to announce the following plan, which we drew up at our February 30 staff meeting in Acapulco.

In addition to chartering a plane, the NAR will rent several LSTs. All East Coast NARAM attendees will synchronize their watches before departing for Seattle. The group going by LST will, of course, leave earlier than the air detachment so that both groups can arrive in Seattle at the same time. At a predetermined moment, the plane will land, and the LSTs will come in from Puget Sound. Everyone will march out whistling the theme from "The Longest Day" in unison (each group will carry a metronome with it, and the metronomes will be synchronized along with the watches). The LST group will be led by NAR President Jim Barrowman, who will be wearing full armor, riding a white horse, and carrying a NAR flag. The other Trustees (all whistling the theme from "The Longest Day") will parachute into the area. Section members will be wearing some sort of section identification (North Shore Shirts, Pascack Valley sleeping sacks, etc.) and carrying their section flags. Individual (non-section) members will wear striking costumes that they have designed themselves.

Picture the delighted citizenry of Seattle as they watch this colorful spectacle! Picture them lining the streets, waving little American flags, cheering, and shouting "April fool!"

*Elaine*

Send questions, ideas and gripes about NAR (don't forget about the "Loudly from a Broken Soapbox" and "If I Wrote the Pink Book" columns!) to:

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Send technical articles and plans to:

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Any other articles, photographs, cartoons, ideas, etc. go to:

Elaine Sadowski  
*Model Rocketeer* Editor  
1824 Wharton Street  
Pittsburgh, Pennsylvania 15203

# NAR news

*Published below is a condensed version of the Minutes of the January 15, 1971, Board Meeting. It was regrettably necessary to shorten the Minutes to 30% of their original length in order to include all the other material you see in this issue. We apologize to the Secretary and to those Trustees whose remarks have been abbreviated. The full minutes may be obtained by sending \$1 to Jay Apt, 15 Line Street Cambridge MA 02138. If many people ask Jay for the full minutes, we will print them in full in the future.*

## MINUTES BOARD OF TRUSTEES JANUARY 15, 1972

The meeting of the Board of Trustees of the National Association of Rocketry was called to order by President James S. Barrowman at 10:45 AM, January 15, 1972, in the Brashear Center, Pittsburgh, Pennsylvania.

The Secretary was directed to call the roll. The following NAR Trustees were present: Jay Apt, Secretary; Robert Atwood; Lindsay Audin; James S. Barrowman, President; Manning Butterworth; Howard Galloway; Gerald Gregorek; Alfred Lindgren, Treasurer; Bryant Thompson, Vice-President; and John Worth. The Chair announced that a quorum was present.

The President entered into the record the results of the mail ratification of the appointees for Treasurer. Audin was appointed, but not ratified by the vote of 6-7 with Atwood, Butterworth, Galloway, Lindgren, McDowell, Stine, and Thompson voting against ratification, all others for. Lindgren was then appointed and ratified 10-2, Apt and Audin voting against, Lindgren abstaining, all others for.

The President called on Lindgren for the Treasurer's report. Lindgren said that he had no financial report or budgetary progress report at this time, explaining that it had been only six weeks since he had assumed the Treasurer's duties, on November 29, 1971. He stated that 3500 members would yield a balanced budget, if we are careful about expenses. He stated that he is overwhelmed by the time that the Treasurer's job takes, and has not done as much as he would like to. Apt asked whether we had stayed within the 1971 budget. Lindgren replied that he does not yet have that information. Apt requested that a 1971 budget performance report be issued as soon as possible. Worth said that the biggest 1970 problem continued into 1971: the loose accounting of Contest Board expenses.

As no written report was received from the Headquarters Committee, Barrowman asked Mrs. Ward for a verbal report. As of 1/14/72 the NAR has 1697 renewed members, 270 (13%) fewer than this date last year. Only 26 Sections have renewed, but the rate of Section renewal is increasing.

Gregorek submitted the report of the Standards and Testing Committee. Test MESS form distribution has established that the form's format is workable and that the most common reported malfunction is that of the delay train/ejection charge variety. An information packet for state fire marshals will be ready soon.

Barrowman announced the appointment of Mrs. Dottie Galloway as the new chairman of the Contest and Records Committee. As she was not present, and had not submitted a written report, Howard Galloway reported verbally. A large backlog of unprocessed records has been eliminated. The FAI record fee has been cut from \$25 to \$5 for those under 21. Mrs. Galloway recommends that the fee for US records be cut from \$5 to \$3. Barrowman commented that he approved of this. NARAM-13 showed a profit to the NAR of \$1700. Barrowman said that the new CB system should be able to reduce the sanctioning delay time. Audin suggested the creation of a real-time, guaranteed answer appeals board/question board that a local contest director could call.

Stine had previously submitted Liaison Committee memoranda, dealing with the 1972 Space Model World Championships, CIAM rule changes, and FAI rule changes. He had asked for NAR member suggestions for FAI rule changes.

Atwood submitted the report of the Section Activities Committee. At the end of 1971, there were 128 Sections, versus 104 at the end of 1970. He believes that the 26 Sections who have renewed so far are not an accurate indication of the number who will renew. Apt asked that he give an account to the Board of what activities the Division Managers undertake. Manning Butterworth gave the Board the following duties he performs as a Section Division Manager: 1) Primary communications to find out the type of Section, and to inform the Section that he is an NAR representative close at hand to whom they can turn; 2) Detection of possible centers of Section formation, and subsequent encouragement; 3) Answering mail queries on forming and maintaining Sections; 4) Investigation of possible governmental problems; and 5) Encouraging NAR members to participate in contests. Atwood added that non-NAR clubs are approached and asked to join the NAR.

No written report was received from the Education Committee. Barrowman has asked Ed Pearson to become the new Chairman, replacing Bob Golobic. Pearson was ratified. Barrowman asked Pearson to summarize his plans for the committee. He will try to work through High School science clubs, the AIAA, and similar organizations. He will develop specific teacher/science club projects. He will set up liaison with NAEC state councils, and work through the trade journals of teachers. He will work with the Educational Programs Department at Goddard. He will develop a descriptive bibliography for schools, detailing MR study at several educational levels.

The written report of the Public Affairs committee dealt with six areas: contest promotion, Section PR assistance, coordination with the model media, ads in local school papers, the state fire marshal packet, and contact with government and non-government agencies. Barrowman said that he wanted to recognize the tremendous efforts that committee chairman Norm Ward has made for the NAR in recent months.

Audin gave an oral report for the Publications Committee. A technique has been developed for easy production of technical slide sets; anyone interested in doing a slide show on some topic should contact Bob Mullane. The first slide show (an intro to MR and the NAR) is under slide revision, and will be available shortly. All that is needed to produce a technical slide set is a written manuscript of subject matter; the Publications Committee can do the production. Barrowman named Bob Mullane to head the Publications Committee, as Audin is resigning to head the new NAR Events Commission (see New Business).

No written NARTS report was received. Thompson said that he would appreciate it if NAR can find a new NARTS chairman as of NARAM-15. Barrowman agreed.

In lieu of a LAC report, the minutes of the LAC Thanksgiving meeting were submitted. A new election for LAC Chairman has been set up, as Chas. Russell has left for the U.S. Air Force.

Manning Butterworth submitted written reports of the special By-Laws Revision Committee, dated December 10, 1971 and January 15, 1972. By-Laws revision seminars are planned for both the Pittsburgh Spring Convention and the MIT Technical Convention.

Barrowman reported orally on the progress of the special committee on the revision of the pink book. The revision is complete, and Norm Ward is contacting the manufacturers for advertising. He said that in general the contest structure will remain as it is presently. Apt asked if there had been any further member inputs since the seminar at NARAM-13. Barrowman replied in the negative, saying that the final version had been worked out between Committee Chairman Sven Englund and Barrowman, using the NARAM-13 comments.

Barrowman reported that the NARLETT special committee has been disbanded. NARLETT will become a one-page insert in THE MODEL ROCKETEER, going to the people on the communications directory and to Sections; it will contain late-breaking news. Atwood asked who will edit NARLETT, and Barrowman replied that he would.

Lindgren submitted the report of the special Fire Protection Committee. He has determined that the primary causes of fires are insufficient or no blast deflectors, engine malfunctions, underpowered models, and unstable models. He recommends that many fires can be prevented by: clearing the launch area of dry material during high risk periods, STRICTLY following the safety code, and providing a water extinguisher and a designated fire warden.

The meeting then moved from committee reports to old business.

Barrowman submitted the first draft of a proposed NAR policy concerning manufacturer employees holding NAR Trusteeships and offices. Atwood asked if the policy should cover retailers; the general consensus was that it should not. Col. Howard Kuhn suggested that the employees of commercial model rocket publications should be included. Audin suggested the inclusion of more para-

(continued from page 11)

# NAR in ACTION!

## The New Pink Book: A Preview

by Dr. Sven W. Englund

*(Editor's note: In January, 1971, the NAR Board of Trustees created a new Pink Book Revision Committee and appointed Dr. Sven W. Englund as chairman. The Committee solicited comments on the 1967 Pink Book and the 1970 Supplement from many individual NAR members and all NAR sections. With the aid of the Leader Administrative Council, the Committee conducted Pink Book Revision Seminars at the 1971 Pittsburgh and MIT conventions. Dr. Englund brought a preliminary version of the new Pink Book to NARAM-13 and held a well attended seminar at NARAM to obtain more comments from NAR members. The revisions are now complete, and the new rules are scheduled to be out in April. They will go into effect for the 1972-73 contest year. Dr. Englund has summarized the changes you will find in the new Pink Book.)*

Indeed, we have made significant changes in the Pink Book since NARAM. Discussions at Aberdeen indicated that most members, regardless of club size or geographical location, did not want to see major changes in the rules covering sanctioned competition or competition points and championships. In addition, the Junior members time and time again stressed safety in their comments regarding the various events. Therefore, after NARAM 13 the Pink Book was redrafted to reflect the comments of the members and then was reviewed with Jim and Judy Barrowman in a weekend work session at their home in Maryland. The Pink Book that will be published is similar in most respects to the existing edition.

We have included a table of contents at the beginning and a summary table of weighting factors at the end. Hopefully we have either simplified or clarified terminology. The contest year will still run from July 1 to June 30 and include the national meet following the close of the normal contest year. There will be section meets with a contest factor of one, open meets for two or more sections or covering a given geographical area with a contest factor of two, and regional meets held between NAR members from no less than two states with a contest factor of three. The sum of contest factors for a given year shall not exceed twelve, and a section may not sponsor more than five section meets in a contest year. At open meets no more than two-thirds of the contestants can be from the same section and at regional meets no more than one-half can be from the same section. The weighting factor of competition events can not exceed twenty at a section meet, thirty at an open

meet and forty at a regional meet. All contests other than the national meet must be scheduled for no more than two consecutive days, with provision for postponement.

The rules on officials have been amplified. The Contest Director is given more authority but the Range Safety Officer and Contest Jury have sufficient authority to insure that no one person can arbitrarily make a capricious ruling. The ruling of the Contest Jury on a dispute at a contest is final.

The number of age divisions for contestants has been reduced from four to three, Division A (14 years and younger), Division B (15 through 17 years of age), and Division C (18 years and older). Age divisions will be determined by the contestant's age as of July 1, the start of the contest year. No NAR member may enter a meet as both an individual and as a team member.

The rules covering official flights and disqualifications are easier to follow and give the Contest Director more discretion. In this regard, simply stated, all models must be returned with the exception of altitude events.

The rules covering competition points and championships are similar to the existing rules. Competition points are multiplied by weighting factors and the contest factor. The highest number of points at the end of the year including the national meet is the basis for choosing the winner in each age division and the team award. The section championship is based on the highest number of points accumulated by the members for the year, but at least one section member must enter the national meet.

The events themselves are not greatly different from those in the existing rules. Generally we have included smaller engines in all events except altitude events so that one-fourth A and one-half A engines can be used. This will permit sections having access only to small fields to hold contests. The "class" of event is numbered to correspond to the largest engine size permitted for that class of event so, for example class 1 for all events is always an "A" engine and class 2 is always a "B" engine. Included in the write-up on each event is the weighting factor and whether the model must be returned or not as set forth in the appropriate related rule numbers. In the payload event, we have changed open payload from four payload weights to two payload weights.

There is still the Single Egg Lofting event, but we have added Dual Egg Lofting for E and F engines.

Under Scale competition, the rules have been amplified in the section on scale judging. Much of this was taken from

judging standards set up by Herb Honecker for NARAM-13, taking into account the problems encountered in Scale judging at NARAM-13. A large number of models were disqualified at NARAM-13 in Scale and Super Scale. The new rules are explicit enough so that a contestant will know what he must do to enter the event. Scale models will be disqualified if scale dimensions and scale factor are not presented as part of the data.

Research and Development competition will be sanctioned for conventions as a section meet. Here too, we have elaborated on the requirements which in the past were taken for granted. And, finally, we have included a section on how new events can be introduced to the NAR as provisional competition so that they can be tested before they are included in the next edition of the Pink Book.

Weighting factors still range from one to ten. Rocket Glider has a factor of five, Scale and R&D six, Scale Altitude seven, Quad-rathon eight, Super Scale nine and Space Systems ten.

No drastic changes have been made in the new Pink Book. For the most part it is an evolution of the existing rules to meet the needs of a growing organization with provision for change. We think we have a workable set of rules that will broadly satisfy the membership. We realize that every sentence in every rule will not satisfy everyone but we believe that the rules as a whole are entirely workable and anyone who understood the old rules will have no problem with the new ones.

*Dr. Englund has a D.Ch.E. degree from the Polytechnic Institute of Brooklyn and is currently employed by the Olin Corporation in Stamford, Connecticut. He is a member of the YMCA Space Pioneers and has served the section as a scale judge for three years. He also judged scale and R&D at NARAM-13. Dr. Englund is a Boy Scout Committeeman, a member of the Appalachian Mountain Club and a member of several honorary engineering societies.*

### Correction

Last month's R&D Summary, William Clugston's "Canard Boost/Gliders", was listed as the second place winner at MARS-VI. This project won third place at MARS.



# express your opinion on by-laws

By Manning Butterworth

## NAR-By-Laws

### ARTICLE IV, Dues

*Section 1: The Association will levy dues as determined by a vote of the Board of Trustees.*

*Section 2: Members defaulting in payment of dues will be dropped from the membership rolls after a one month period of grace and after a written notice of such delinquency has been sent to him at his last mailing address on record with the Association.*

### ARTICLE V, Meetings

*Section 1: Business meetings of the Association shall be held at least once every three (3) years at a time and place to be determined by the Board of Trustees.*

*Section 2: Special meetings may be called by the President or any three members of the Board of Trustees.*

*Section 3: Notice of all business meetings of the Association shall be sent by the Secretary to each voting member at least fourteen (14) days in advance, and at least seven (7) days in advance in the case of special meetings.*

*Section 4: Votes may be cast by mail as determined by the Board of Trustees, and shall be mailed to the Secretary at his official address as stated on the ballots. Only such votes as are delivered to him prior to the stated time of the meeting shall be received and counted. However, those members who have not cast their vote by mail may vote in person at the meeting.*

*Section 5: The Secretary shall cause ballots for voting upon such propositions as shall be submitted to any meeting of the Association for its decision as determined by the Board of Trustees to be prepared for balloting at business meetings.*

*Section 6: At any meeting of the Association, twenty-five (25) or more voting members*

*shall constitute a quorum for all purposes except as otherwise provided by law. The act of the majority of voting members present shall be the act of the full membership except as may otherwise be specifically provided by Statute or by these By-Laws.*

*Section 7: Robert's "Rules of Order, Revised," shall govern the procedure at all meetings. Unless otherwise provided by statute, or these By-Laws, all elections and all questions shall be decided by a majority of the votes cast.*

### ARTICLE VI, Board of Trustees

*Section 1: The governing body of the Association shall be a Board consisting of a maximum of thirteen (13) Trustees who shall be Senior or Honorary members of the Association and who shall be elected every three (3) years for a term of three (3) years or until the successors are elected by the voting members of the Association.*

*Section 2: Three (3) or more members of the Board of Trustees shall constitute a quorum.*

*Section 3: Meetings of the Board of Trustees shall be held at least once a year.*

*Section 4: In case of vacancy in the Board of Trustees by death, resignation, removal or failure of election, the President may appoint any Senior or Honorary member of the Association to fill the unexpired term subject to the ratification vote of a majority of the Board of Trustees present and voting at the next regular meeting of the Board following such appointment.*

*Section 5: Any number of non-voting Honorary Trustees may be appointed by the President of the Association subject to the ratification vote of a majority of the Board of Trustees present and voting at the next regular meeting of the Board following such appointment.*

*Section 6: The Board of Trustees shall cause minutes to be kept of their meetings and of all actions taken by them which the Association may be bound or which involve the expenditure of the funds of the Association. Such minutes shall be kept by the Secretary.*

*Section 7: The fiscal years of the Association shall begin on January 1 of each year. The*

*Board of Trustees shall cause to be made and certified a report of all the receipts and disbursements of the Association for the past fiscal year, a true copy of which shall be placed with the minutes of the annual meeting of the Board of Trustees.*

*Section 8: For conduct prejudicial to the objectives, activities, property or reputation of the Association, a Trustee, either elected, appointed or Honorary, may be removed from office by a two-thirds vote of those Trustees present and voting at any meeting of the Board after notice of the charge against him and an opportunity to be heard in his own defense.*

*Section 9: At all meetings of the Board of Trustees, the conduct of the meeting shall be governed by Robert's "Rules of Order, Revised."*

*Section 10: The Board of Trustees shall present annually a report, verified by the President and Treasurer, or by a majority of the Board of Trustees, showing the whole amount of real and personal property owned by the Association, where and how invested, the amount and nature of the property acquired during the year immediately preceding the date of the report, and the manner of acquisition; the amount applied, appropriated or expended during the year immediately preceding such date, and the purposes, objects or persons to or for which such applications, appropriations or expenditures have been made, which report will be filed with the records of the Association.*

*Section 11: The Board of Trustees may from time to time authorize the bestowal of any appropriate honors or recognition in the name of the Association to any persons whom the Board may deem deserving.*

Amendments to Article IV presently being considered by the By-Laws Revision Committee are sections which detail the recent changes in membership policy such as twelve month memberships and the family membership plan.

Concerning Article V, do you feel that the action of those voting members present at a meeting of the Association should be sufficient to establish the will of the whole association on some, all, or none, of the issues which might be brought before it? Examples of such issues are Trustee elections, amendments to the By-Laws, and the motion which was introduced at NARAM-12 to establish the By-Laws Revision Committee. One alternative is to use mail ballots as provided for by Section 4; another is to require ratification by mail ballot of actions taken at a meeting of the Association.

At NARAM-12 there was much discussion of changes in the structure of the Board of Trustees (number of Trustees, term of office, manner of election, and so on). If you have any suggestions or opinions on these questions, please express them now. Also, do you feel that three Trustees should be enough to constitute a quorum? The number for a quorum should be large enough to transact business effectively, but not so large that it becomes infeasible to assemble a quorum.

Your comments on any part of these articles, whether discussed above or not, are welcome.

### If I Wrote the "Pink Book"...

In the October, 1971, issue of *Model Rocketry Magazine*, an article was printed regarding proposed revisions to be added to the 1972 Pink Book. In this article, mention was made of 3 new Eggloft classes, Mercury, Gemini, and Apollo, carrying 1, 2, and 3 eggs, respectively. Since no mention was made of power limits, I assume that 80.0 nt-sec is the maximum for all three classes.

However, I do not believe that such a multiple eggloft competition is feasible, due to the high weights involved. For one thing, the loaded payload sections for Gemini and Apollo classes would necessarily weigh at least 6 and 8 ounces each, including the eggs and a reasonable amount of padding. Remember, about 1 1/2 years ago that Open Payload was changed from 4 ounces to 2 because of the safety objections? Besides that problem, the booster vehicle and engine combinations for Apollo class would be very difficult to build light enough to stay under the FAA/NAR 16 ounce limit and still be strong enough to stand flight stresses.

In addition to these objections, this type of an event would very nearly exclude the younger (A Division) competitors, due to the exorbitant cost of class F engines, which would be a near necessity to get high altitudes.

Also, the single-egg Mercury class apparently is wide-open in regard to total impulse. This would lead to more of the same problems which prompted the "White Book" changeover to total impulse and weight classes.

In view of all these considerations, it would appear as though the best system to retain under present weight limits and material cost is the present system of four classes, not the proposed multiple-egg system. I would, however, be interested in the opinions of others.

Mark Johnson, NAR 14025, Jr.

# TECHNICAL FEATURE

## The Kennedy Closed Breech Launcher

by Greg and Debbie Kennedy  
3401 Toledo Terrace Apt. H-3  
Hyattsville, MD 20782

(Editors note: This project took third place in D Division R&D at MARS VI.)

Greg and Debbie Kennedy (the former Debbie Gibbs) were married on November 20, 1971. Greg (NAR 12874) has been involved with rocketry for about 6 years and in the NAR for 3. He attended the University of Maryland. Greg is a member of the British Interplanetary Society, and he also enjoys collecting coins and commemorative medals. He is currently preparing to enter the Army.

Debbie (NAR 18390) has been in the NAR for 2 years. Before meeting Greg, she had never even heard of model rocketry. Debbie attended Prince George's Community College, and she now works for Citizen's Bank and Trust Company of Maryland. In her spare, she enjoys cooking and sewing.

Both Greg and Debbie are members of NARHAMS. Greg has served as Vice President of the section, and Debbie has served as Secretary.

The purpose of this report is to describe a workable, easy to use closed breech launcher that anyone can build. The launcher can be built from readily available materials; model rocket body tubes are used for the launch tube, making it possible to make the piston and breech block from stage couplers.

The launcher has been tested and appears to function as planned. No tracking data was obtained, however, due to a lack of tracking equipment. On the basis of observed performance, it was theorized that the best launcher was obtained when an Estes JT-60C stage coupler was used for the piston and a Centuri No. 16 body tube was used for the launch tube. The piston moves more easily in the Centuri tube.

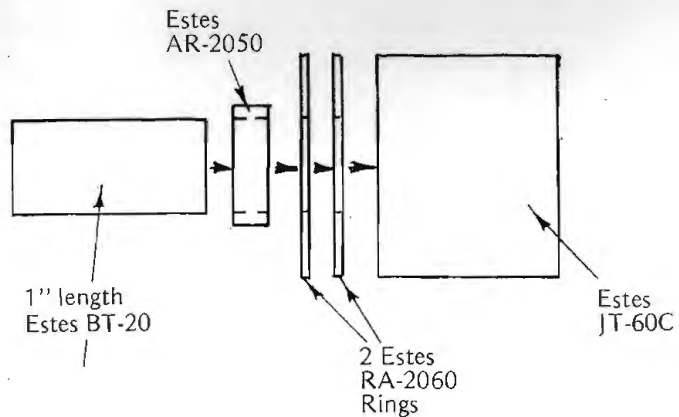
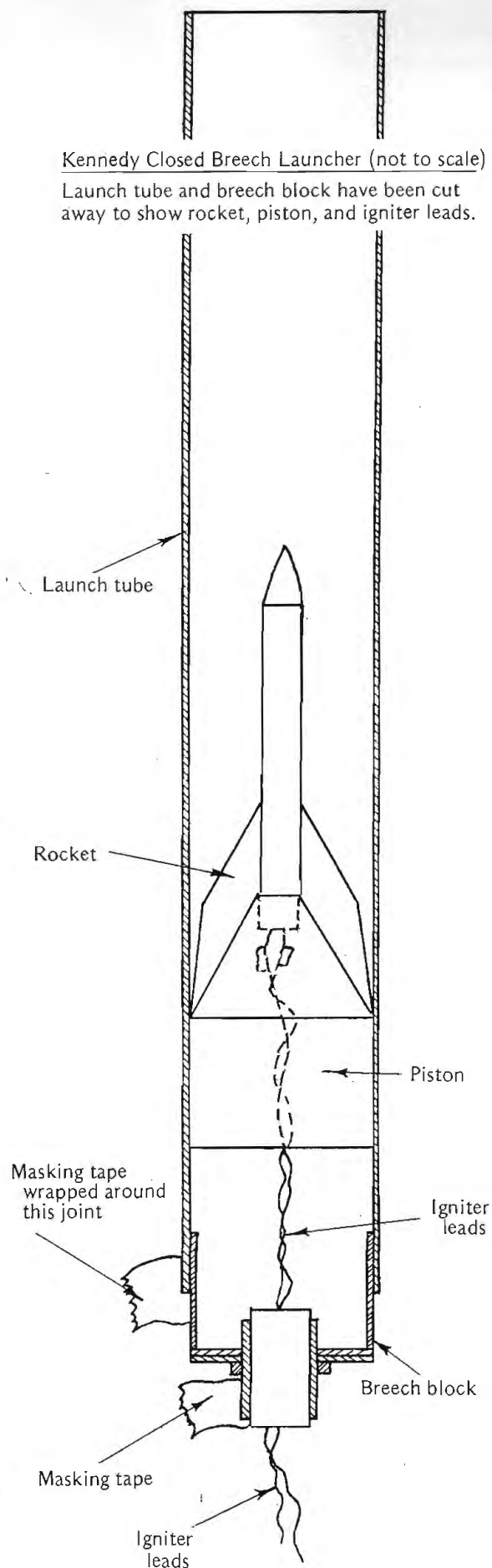
Plans and instructions for the construction and use of the launcher follow.

1. Assemble the piston and breech block as shown in the drawing. *Be sure to glue all parts together strongly!*
2. Obtain the desired length of body tube (Centuri No. 16 or Estes BT-60) for the launcher tube.
3. Take a *burned-out* (used) Series III (short) engine casing and increase the diameter of the nozzle throat slightly. Clean out all ashes and residue from the inside of the casing.
4. Pass about 6" of a 12" piece of bell wire through the nozzle, and epoxy it into place.
5. Put together the piston as shown in the diagram. Put a strong fillet of glue on the *inside* of the piston at the JT-60C/TA-1 shroud joint. When the fillet has dried completely, carefully sand the *outside* surface of this joint until there is no increase in the piston's diameter in this area.
6. If the piston doesn't slide easily in the launcher tube, sand the joint and the JT-60C portion until it does slide easily.
7. Assemble the breech block as shown in the diagram, making sure that all joints are firmly glued.
8. The rocket may now be built. Use any of the body tubes made for the mini engines, but be sure that the fins fall within the "maximum fin envelope" given. *NOTE:* Be sure to do a Barrowman CP check on this rocket. Because of its small fins, some nose cone weight may be needed.
9. The following are optional steps which may be taken to improve the launcher:
  - A) add a launch lug to the side of the launcher tube. The launcher can now be placed on a standard launch rack. This increases the versatility of the launcher.
  - B) coat the exterior walls of the piston with a thin layer of paste wax. This lubricates the piston and helps it to move more easily in the launcher tube.
  - C) shorten the JT-60C portion of the piston so that only about  $\frac{1}{2}$  inch remains. This reduces the amount of friction between the piston and the launcher tube.
10. The closed breech launcher is now ready for use. First prep the rocket, making sure that  $\frac{1}{4}$ " of the nozzle end of the engine protrudes from the back of the rocket. Now install the igniter, making sure that it is in securely. (The best method here is to tamp some tissue paper in the nozzle to hold the igniter in place.) Then, pass one end of the igniter leads up through the piston so that the igniter can be connected to the leads.
11. Now connect the igniter leads to the igniter. This is done by first stripping about 1" of insulation from both ends of the bell wire leads. Next, intertwine the igniter leads with the igniter. Twist the wires together so that you have a hook-up exactly as you would if you used micro-clips. Then, to keep the wires from touching, each other and shorting out, wrap them with masking tape.
12. Place the engine casing portion of the igniter leads in the breech block as shown in the drawing and tape them together.
13. Carefully slide the complete rocket/piston/breech block assembly into the back end of the launch tube, and place the breech block into place.
14. Now place the closed breech launcher in a vertical position and connect the igniter leads to the micro-clips of any standard launching system and fire your rocket.

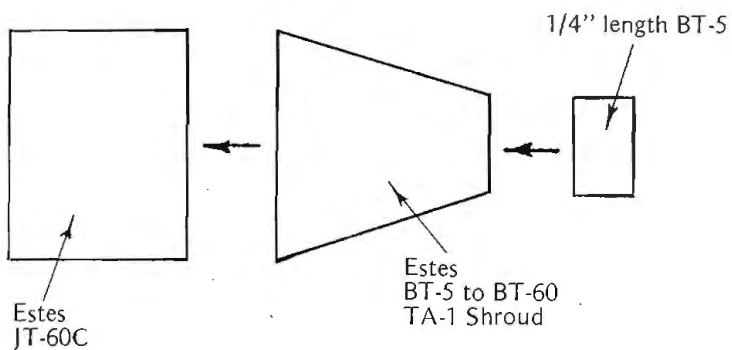


# Kennedy Closed Breech Launcher (not to scale)

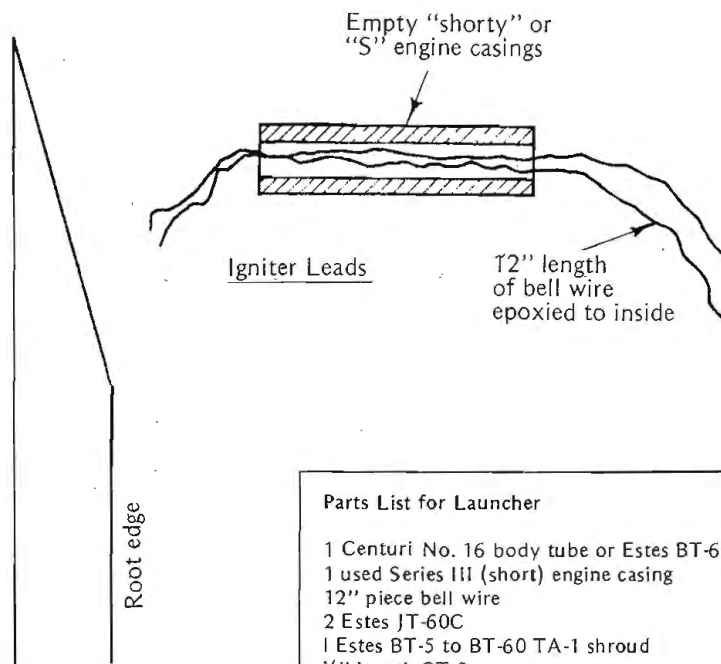
Launch tube and breech block have been cut away to show rocket, piston, and igniter leads.



## Breech Block



## Piston



## Parts List for Launcher

- 1 Centuri No. 16 body tube or Estes BT-60
- 1 used Series III (short) engine casing
- 12" piece bell wire
- 2 Estes JT-60C
- 1 Estes BT-5 to BT-60 TA-1 shroud
- 1/2" length BT-5
- 1" length BT-20
- 1 Estes AR-2050
- 2 Estes RA-2060 rings
- Masking tape, glue, epoxy

# CONTEST alendar

## A Complete List Of Where The Action Is

March 18, 1972—Atlanta, Georgia. Name: Georgia Atlanta Regional Meet 2 (GARM-2). Host: M.A.S.E.R. 125. Events: Sparrow Boost Glide, Hawk Boost Glide, Hornet Boost, Swift Boost Glide, Swift Rocket Glider, Robin Egg Lofting, Pee Wee Payload, Class O Parachute Duration, Class I Parachute Duration, Class 2 Streamer Duration, Open Spot Landing. Contact: John Langford, 2765 Northside Drive, Atlanta, Georgia 30305.

March 26, 1972—Houston, Texas. Name: AP-4. Host: Apollo-NASA 103. Events: Quadration, Plastic Model, Open Spot Land, Scale, Pigeon Eggloft, Class O P.D., Class I S.D. Contact: B. S. Russell, 14155 Labrador Ave., Apt. 96, Houston, Texas 77047.

April 8, 1972—Shawnee, Kansas. Name: Eastern Kansas Area Meet 2 (EKAM-2). Host: Midwest Rocket Research Association 168. Events: Ostrich Eggloft, Swift Boost Glide, Class 1 Streamer Duration, Sparrow Boost Glide and Pee Wee Payload. Entry fee of \$.25 per event; open to all. Contact: Mark Pemberton, 10911 West 70th Terrace, Shawnee, Kansas 66203.

April 8, 1972—Taylor Ridge, Illinois. Name: HAWK-72-1. Host: Black Hawk 110. Events: Hornet Boost/Glider, Class O Streamer Duration, Drag Race, Class O Parachute Duration, Streamer Spot Landing, Scale. Contact: Glenn A. Scherer, Jr., 1427 7th Avenue, Rock Island, Illinois 61201.

April 8-9, 1972—Bowling Green, Virginia. Name: East Coast Regional Meet 6 (ECRM-6). Host: NARHAMS 139. Events: R & D, Scale, Hawk Rocket Glider, Swift Boost Glide, Pigeon Egg Lofting, Pee Wee Payload, Class O Streamer Duration, Class 2 Streamer Duration. Contact: Mrs. Judith Barrowman, 6809 97th Place, Seabrook, Maryland 20801.

April 16, 1972—Concord, Massachusetts. Name: NERF Sec III. Host: NERF 236. Events: Scale, Swift Rocket Glider, Eagle Boost Glide, Plastic Model, Gnat (Hornet) Boost Glide. Contact: Patrick M. Griffith, Legion Street, Milford, Massachusetts 01757.

April 23, 1972—Manassas, Virginia. Name: NOVAAR-4. Host: Northern Virginia Association of Rocketry 205. Events: Hornet Boost/Glide, Hornet Rocket/Glider, Sparrow Rocket/Glider, Swift Boost/Glider, Class O Parachute Duration, and Design Efficiency. Contact: Randy Thompson, 10814 First Street, Fairfax, Virginia 22030.

May 6-7, 1972—Otis Air Force Base, Massachusetts. Name: NERM I. Hosts: MITMRS 134 and NERF 236. Events: Scale, Sparrow Boost Glide, Pigeon Egg Lofting, Hawk Boost Glide, Class O Drag Efficiency, Eagle Rocket Glider, Class 2 Streamer Duration, Swift Rocket Glider. Contact: Trip Barber, Box 121 MIT Branch P.O., Cambridge, Massachusetts 02139.

May 7, 1972—Houston, Texas. Name: 72-AP-5. Host: Apollo/NASA 103. Events: Robin Eggloft, Predicted Altitude, Class 1 Streamer Duration, Hawk Boost Glide, Dual Payload, Parachute Spot, Scale. Contact: Ben Russell, 14155 Labrador Ave., Apt. 96, Houston, Texas 77047 or David Scott, 12111 Broken Arrow, Houston, Texas 77024.

May 14, 1972—Fairfax, Virginia. Name: Washington Area Record Trials (WART-1). Host: Northern Virginia Association of Rocketry 205. Events: Records in any timing class may be attempted. Competition events: Condor B/G, Swift R/G, Class O P.D., Class 2 S.D. Trophies and ribbons will be awarded to winners. Meet fee (to cover cost of trophies and ribbons) is \$2.50. Contact: Randy Thompson, 10814 First Street, Fairfax, Virginia 22030.

May 27-28, 1972—Pittsburgh, Pennsylvania. Name: PghRANG III Regional Meet. Hosts: Three Rivers and Steel City Sections. Events: Class III Scale Altitude, Plastic Model, Hawk Boost Glide, Roc Eggloft, Spot Landing, Eagle Rocket Glider, Hornet Boost/Glide, Class III Streamer Duration. Contact: David Crafton, 5307 Westminster Place, Pittsburgh, Pennsylvania 15232.

May 28, 1972—Houston, Texas. Section Meet. Name: 72-AP-6. Host: Apollo-NASA 103. Events: Plastic Model, Hawk B/G, Scale, Robin Eggloft, Pee Wee Payload, Open S.L., Predicted Altitude. Contact: B.S. Russell, 14155 Labrador Ave., Apt. 96, Houston, Texas 77047.

June 23, 24, 25, 1972—Houston, Texas. Name: Second Annual Southwest Regional Model Rocket Meet. Host: Apollo/NASA Section 103. Events: June 23—Discussion day, Super Scale, Scale, Robin Eggloft, Hornet Boost/Glide, Swift Rocket/Glide, Plastic Model, Class 3 Streamer Duration, Predicted Altitude, and Parachute Spot Landing. Contact: John Dressel, 8608 Robindell, Houston, Texas 77036.

June 17-18, 1972—Davenport, Iowa. Name: MAR '72 (Mid-America Regional '72). Hosts: Hawkeye Section 178. Events: Predicted Altitude, Pee Wee Payload, Robin Eggloft, Scale, R&D, Hornet Boost/Glide, Swift Boost/Glider, Class O Parachute Duration, and Open Spot Landing. Contact: Dan Leckington, 2018 Marquette Street, Davenport, Iowa 52804.

June 24, 1972—Pottstown, Pennsylvania. Name: Last Chance I. Host: S.P.E.A.R. Events: Sparrow Boost Glide, Swift Boost Glide, Sparrow Rocket Glider, Class 00 Altitude, Design Efficiency, Class 4 Altitude, Class 3 Parachute Duration, Class 3 Streamer Duration, Single Payload, Class 0 Streamer Duration. Contact: Carl J. Warner, 665 Woodland Avenue, Pottstown, Pennsylvania 19464.

July 8-9, 1972—Shawnee, Kansas. Name: Heart of America Regional Meet II. Host: Midwest Rocket Research Association 168. Events: Roc Eggloft, Robin Eggloft, Pee Wee Payload, Class 0 Parachute Duration, Hawk Boost/Glide, Sparrow Boost/Glide, Sparrow Rocket Glider, and Scale. Contact: Mark Pemberton, 10911 West 70th Terrace, Shawnee, Kansas 66203.

### Conventions, Exhibitions, Seminars

March 17, 18, 19, 1972—Pittsburgh, Pennsylvania. Name: Pittsburgh Spring Model Rocketry Convention. Hosts: Steel City 157 and Three Rivers Section 172. Lectures, movies, discussions: R & D, Model Rocketry Programs in the School and Community, Model Rocket Photography, Construction Techniques, Model Rocket Instrumentation, CINEROC, Plastic Models, Variable Geometry Boost/Gliders, Scale Modeling, Basic Boost/Gliders, Parasite Boost/Gliders, Model Rocket Clubs, Rocket Gliders, Club Newsletters. Contact: Elaine Sadowski, 1824 Wharton Street, Pittsburgh, Pennsylvania 15203.

April 1, 1972—Youngstown, Alberta, Canada. Name: CARM 2. Events: Class 2 Parachute Duration, Class A Swift Rocket Glider, Streamer Precision Landing, Class B/S-A Bio-Sim (Egg Loft). Entries close March 25. Rocketeers and spectators camp area will be available. Bring your own engines, if possible. Range store and food concession will be open. Contact: CARM-2, Rocketry Association of Youngstown, Youngstown, Alberta, Canada.

May 27-June 4, 1972—Dulles Airport, Washington, D.C. Name: Transpo '72. Transportation exhibition including the latest technological advancements in equipment and systems in the entire transportation field.

June 1972—Toronto Canada. Toronto Regional. Open meet and seminars sponsored by the Canadian Rocket Society. Competitions and presentation of the Diamond Award in Rocketry. Science teachers and their students especially invited. Contact: CRS, Adelaide St., P.O. Box 396, Toronto 1, Ontario, Canada.

June 30-July 2—Easton, Pennsylvania. Name: Second Annual Phillipsburg Convention and Trial (PACT-2). Host: PARC Section 258. Events: Class 00 Parachute Duration and Streamer Duration, Class 1 Parachute Duration and Streamer Duration, Gnat Boost/Glide and Rocket Glider, Sparrow Boost/Glide and Rocket Glider, Swift Boost/Glide and Rocket Glider, Hawk and Eagle Boost/Glide, A Engine Heli. Duration, D Engine RC Boost/Glide, Night A Engine Boost/Glide and Rocket Glider. Also: Discussion groups, demonstrations, manufacturer's displays, and banquet. Contact: David Klouser, 383 Warren Street, Stewartsville, New Jersey 08886. Telephone: (201) 859-3092.

July 7-9, 1972—Montreal Canada. Third National Canadian Model Rocket Conference. Convention and competition open to all model rocketeers from Canada and the United States. Events: Discussion Groups, contests in Scale, Condor B/G, Sparrow B/G, Hawk R/G, Open Spot Landing, and Class O PD. Contact: Canadian Conference 1972, c/o Steven J. Kushneryk, 7800 des Erables Ave., Montreal 329, Quebec, Canada.

# Section Directory

MID-AMERICA DIVISION—Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin

Regional Manager  
Manning Butterworth  
Broadview Dorm., Room 315  
5540 Hyde Park Boulevard  
Chicago, Illinois 60637

Contest Board Chairman  
Jon H. Randolph  
10301 Lake Avenue  
Apartment 520  
Cleveland, Ohio 44102



## Illinois

- 117 Glen Ellyn Rocket Society  
F. Scott Godron  
696 Crescent Court  
Glen Ellyn, Illinois 60137
- 291 Manhattan Association of Rocketry  
David Henrichs  
2nd Street  
Manhattan, Illinois 60442
- 285 Shawnee Rocket Association  
Joe Hamon  
P.O. Box 548  
Rosiclare, Illinois 62982
- 169 Technological Institute for Rocket  
Observation and Study (T.I.R.O.S.)  
William A. Miller, Jr.  
378 Meridian Street  
Crystal Lake, Illinois 60014

## Indiana

- 282 Summit City Aerospace Modelers  
John Bottoms  
525 Hendricks  
Fort Wayne, Indiana 46802

## Iowa

- 178 Hawkeye Section of NAR  
Dan A. Leckington  
2018 Marquette Street  
Davenport, Iowa 52804

## Kansas

- 168 Midwest Rocket Research Association  
Gary Cole  
8133 Hardy  
Overland Park, Kansas 66204

## Michigan

- 269 Cherry Hill Sq. CAP Rocketry Club  
Ron Heilman  
11346 Russell  
Plymouth, Michigan 48170
- 233 Wolverine Rocketeers of Detroit  
Robert J. Retelle  
146 East Hazelhurst  
Ferndale, Michigan 48220

## Minnesota

- 179 Outa-Sight  
Ed LaCroix  
Route 7, Box 60  
Wayzata, Minnesota 55391
- 167 Zenith  
Leslie H. Butterworth  
Route 1, Box 101  
Eagle Lake, Minnesota 56024

## Missouri

- 238 NAR Gateway Arch Section  
Gary Raley  
2895 Lesmer Court  
St. Louis, Missouri 63114

## Nebraska

None

## North Dakota

None

## Ohio

- 228 Dayton Rocket Research  
Scott Layne  
2213 Belloak Drive  
Dayton, Ohio 45440
- 180 North Royalton Rocket Society  
Jon Randolph  
10301 Lake Avenue  
Cleveland, Ohio 44102
- 278 Point Place Model Rocket Club  
of Toledo, Ohio  
Edward V. Nidy  
961 Lober Drive  
Perrysburg, Ohio 43551

## South Dakota

None

## Wisconsin

None

## NAR NEWS (continued from page 5)

graphs dealing with the intent of the proposal; he feels it is a good document to send to various organizations. Barrowman commented that the policy is to protect the credibility of the NAR; the policy requires certain actions by the President, so that he may not let a situation continue by deciding on a course of inaction. Apt suggested exempting those whose only remuneration from a manufacturer is for technical manuscripts. Kuhn suggested that if a man is employed after his election he should have to be reconfirmed by a unanimous election by the Board, rather than automatically be ejected. Worth said that neutrality is not jeopardized if the membership elects the man with full knowledge of his status. Consensus was reached on a modification of Kuhn's proposal such that reconfirmation must be voted by 3/4 of the full Board that the man in question may not vote, and that a person who changes his status while a Trustee must be reconfirmed, even if he held a MR manufacturing position when elected. *Apt moved that the President re-write the motion per the discussion at this meeting, send it to manufacturers for their comments, then send a final version to the Board for a mail vote.* Butterworth seconded. PASSED UNANIMOUSLY.

Barrowman turned discussion to the consideration of a centralized NAR/Manufacturer contact for financial matters. *Apt moved that all financial solicitations to model rocket manufacturers must be made through the chairman of the Public Affairs Committee with the express consent of the President; the chairman of the Public Affairs Committee*

*may delegate follow-up solicitations if he has made the initial contact, with the approval of the President.* Worth seconded. Barrowman commented that Thompson should follow up on the contacts he has already made for the funding of the international team. MOTION PASSED UNANIMOUSLY.

President Barrowman turned the discussion to a consideration of general NAR goals and programs for the next two years. Atwood mentioned that NAR programs should be aimed at the 11-15 year olds. Bill Werre said that a good plan for family memberships is needed. Apt made the following observations from the membership surveys of the LAC and Manning Butterworth: There should be less contest orientation; we should provide more B/G and R&D services on a beginner's plane, and more for the really advanced; we should provide more career information to our members on non-scientific careers in technical fields; a better self-image should be formed through PR; and we should keep communication at the highest level possible. Worth said that our bedrock activity must be to prevent restrictive legislation and to help open up areas presently closed to the hobby. Audin recommended that the NAR pay more attention to other MR organizations. The NAR should maintain its position as the leader and trend setter in the hobby, as well as providing the legal basis for certification and standards. He recommended classes of special restrictive membership — one non-competition type for organizations like the AIAA, and a restrictive contest membership for others. Butterworth reminded the Board that 80% of the members last year did not compete in NAR contests. Worth recommended a renewed commitment to and development of sport flying. Lindgren

said that the NAR should set up contests in areas where Sections do not exist, but non-NAR clubs do. Atwood said that the Association should sponsor more public demonstrations.

Barrowman announced the creation of an NAR EVENTS COMMISSION for the purpose of coordinating and stimulating workshops, symposia, and conventions, as well as related events. He appointed Lindsay Audin to the chairmanship; ratification was unanimous.

Barrowman presented a proposal from Bill Werre to create a new Junior membership category, "Junior Team"... dues \$6 per team, plus \$1 per member. Members would be allowed to compete only as a team, and would receive only 1 copy of all NAR publications per team. Barrowman said that he feels the proposal as it stands would decrease significantly both the number of regular members and the number of Sections, thus increasing the amount each member would pay for the fixed NAR costs like HQ and increasing the dues. However, he agreed with the concept of a restricted membership; he would like to see an educational group membership for schools, involving insurance and one copy of all publications per group. Worth added that competition privileges would be excluded. Butterworth cautioned that a restriction to no competition saves the NAR nothing. Barrowman said that he favored a trial of the reduced-cost membership on a narrow base. *Apt moved that a committee of one to be appointed by the President be created to study the concept of an educational group membership and report by mail to the Board at the earliest possible date.* Audin seconded. PASSED UNANIMOUSLY.

(continued on page 13)





by  
Charles Gordon

The Riverside Rocket Center Section (No. 277) in Riverside, California reports in the January issue of the "R.R.C. NEWSLETTER" what may be a first in model rocketry, a silo launch with a ten foot rocket.

It was noted that there were several holes (3½' dia X 14' deep) at the Lucern Dry Lake Park launch site, apparently for planting trees throughout the park.

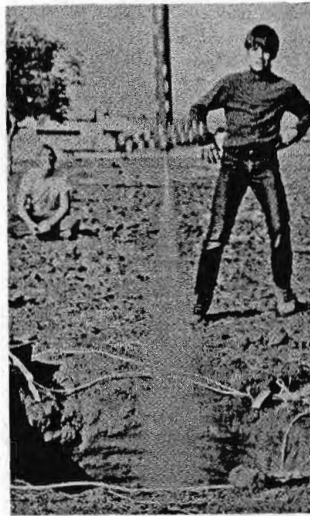
Mark Younglove and Ron Wright were surveying the holes when they came up with the idea of a silo launch. Mr. Danner was approached as to whether he would be willing to launch his eight-foot model from one of the holes. He said he was game. The rocket was positioned on the Youngloves' C-rail pad and was carefully lowered by ropes into the hole. After several minutes the button was pushed, and a column of white smoke rushed from the hole, followed by the rocket. Unfortunately, only one engine of the cluster ignited, and the rocket slid back down the rail. Mark Younglove had prepared his ten-footer by then, and it was lowered into the hole until only the very tip was visible. Words cannot express the sight as the rocket left the silo. (All photos courtesy Riverside Rocket Center.)



Mark Younglove's ten-foot rocket is lowered into the silo.



Only tip of the rocket was visible.



The ten-foot rocket takes off.

Roland Gabeler, Virginia State Director of NAR Section Activities, has announced the appointment of Mr. George Litrel as editor of N.A.R.V.A., the new Virginia state N.A.R. newsletter. The newsletter will contain NAR news, section reports, contest calendar, etc. NARVA began publication in February and will be published six times a year. It will be sent to Virginia NAR Sections and independent members on the mailing list. Sections outside of Virginia desiring copies please write to: NARVA Editor, George Litrel, 5216 Wythe Avenue, No. 4, Richmond, Virginia 23226.

Sections planning events of interest to Virginia NAR members are requested to send an announcement to George as early as possible.

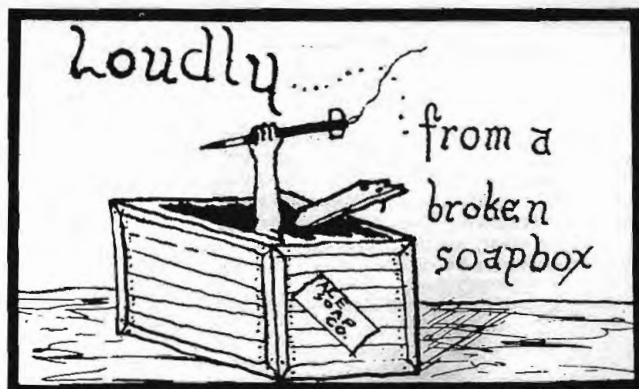
#### HOW MANY?

How many members are there in your section? N.A.R.S.N. would like to do a quick survey of the total number of members in EACH NAR Section as of March 1, 1972.

Please just put down the number of members in your section as of 3/1/72 on a post card or the next correspondence you send out to me. Please try to get all answers in by the 31st of March so they can appear in the June 1972 issue of *MODEL ROCKETEER*.

The National Association of Rocketry would like to welcome the following new sections and wish them the best in model rocketry activities:

SIMI VALLEY SECTION (No. 271), Santa Susana, California;  
TRANSPORTATION CITY SECTION (No. 272), Pueblo, Colorado;  
OKLAHOMA MODEL ROCKET SOCIETY (No. 274), Oklahoma City, Oklahoma;  
BRYAN AEROSPACE MODELERS SECTION (No. 276), Bryan, Ohio  
RIVERSIDE ROCKET CENTER SECTION (No. 277), Riverside, California;  
POINT PLACE MODEL ROCKET CLUB (No. 278), Perryberg, Ohio;  
STAR FIGHTER SECTION (No. 279), Garden Grove, California;  
SOCIETY OF LODI AREA ROCKETEERS (No. 280), Lodi, California;  
SUMMIT CITY AEROSPACE MODELERS (No. 282), Ft. Wayne, Indiana.



by Pat Griffith, NAR 17610  
President, New England Rocketry Federation

*The opinions expressed in this column are those of the author alone, and they do not necessarily reflect those of the MODEL ROCKETEER or the NAR.*

I am speaking out against the unfair choice of the NARAM-14 site not only for myself and my section, but also for what I feel to be a majority of the rocketeers who don't live on the West Coast. I feel that since most NAR members live on the East Coast, and since dues are so high, the members should have a hand in deciding where the NARAM sites are to be! I am not saying that we should keep it on the East Coast, but let's at least put it in the middle of the United States.

So, Mr. Barrowman, let us have a vote on where we want NARAM for a change, instead of having the site picked by the chosen few! I suggest that a questionnaire be put into the *Model Rocketeer* as soon as possible.

If the site stays as it is, I would rather spend my money going to some other event. It would be a better investment!

(Editor's note: A reply to this article will appear in the May *MODEL ROCKETEER*.)

## NAR NEWS

(continued from page 77)

Barrowman asked for the Treasurer's thoughts on the financial structure of the Association. Lindgren replied that he intended to institute a more formal reporting structure. Audin said that the NAR lends itself to planning in 4 month segments, and that reporting and accounting should be done in January, May, and August. Worth added that the Trustees should receive the financial report before, not at meetings. All agreed. Barrowman suggested that all committees should report quarterly. Lindgren will personally review all expenditures. Worth said that the treasurer should countersign checks only if they exceed a given amount. Barrowman and Audin expressed the need for pre-expenditure planning, planning from perceived needs rather than from last year's expenses projected. **Apt moved that the Treasurer be directed to establish guidelines for expenditure procedures to be sent through the Secretary to all NAR Trustees and committees by the first of February.** Butterworth seconded. **PASSED UNANIMOUSLY.** Consensus was reached that all committees will send written reports to the Secretary at the end of each quarter.

**Butterworth moved that inquiries be made to manufacturers as to their willingness to mass distribute NAR flyers to their customers and that conditionally upon favorable reception of this idea by the manufacturers that a program be implemented to supply them with NAR flyers for such use that contain the NAR Safety Code.** Audin seconded. Barrowman said that presently GMR, Estes, SAI, Centuri, and Cox are engaged in some type of distribution program. **MOTION PASSED.**

**Butterworth moved that all NAR flyers have the NAR Safety Code printed on them.** Audin seconded. **PASSED UNANIMOUSLY.**

**Butterworth moved that a committee of one be created to study a plan whereby a renewing NAR member may receive a reduction in his dues by recruiting a new member into the NAR, such recruitment being certified by signed statements by both parties on the renewing member's application for renewal; and that this committee report to the full Board before its next meeting.** Apt seconded. **PASSED UNANIMOUSLY.**

At 9:00 PM Worth moved for adjournment. Audin seconded. **PASSED.**

Respectfully Submitted,

Jay Apt, Secretary

### MORE ON NARAM - 14

The following events are scheduled: Scale, Class 2 Parachute Duration, Design Efficiency, Open Spot Landing, Sparrow Rocket Glider, Pigeon Eggloft, Swift Boost/Glide, and Research and Development. R&D will have a weighting factor of 5 for this meet.

NAR members interested in attending NARAM-14 must send a postcard not later than April 10, 1972, to:

NARAM-14 Contest Director  
Jess S. Medina  
15824 43rd Avenue South  
Seattle, Washington 98188

Cards should contain your name, address (with Zip Code), NAR number, and NAR section (if any).

(continued on page 14)

## US AND FAI RECORDS

### USA RECORDS - A DIVISION:

#### ACCEPTED:

|                            |             |               |         |
|----------------------------|-------------|---------------|---------|
| Hornet Boost Glide         | 100 seconds | J. Tam Joines | 16May71 |
| Class I Parachute Duration | 909 seconds | J. Tam Joines | 17Apr71 |

#### PENDING SUBCOMMITTEE CHECK:

|                         |            |              |         |
|-------------------------|------------|--------------|---------|
| Class I Altitude        | 224 meters | Roy Jacobsen | 14Nov71 |
| Class O Drag Efficiency | 122 meters | Roy Jacobsen | 14Nov71 |

#### PENDING ASPIRANT'S FILING:

|                            |            |            |         |
|----------------------------|------------|------------|---------|
| Class II Streamer Duration | 30 seconds | G.W. Stine | 14Nov71 |
|----------------------------|------------|------------|---------|

### USA RECORDS - B DIVISION:

#### ACCEPTED

|                             |            |                |         |
|-----------------------------|------------|----------------|---------|
| Class I Streamer Duration   | 57 seconds | Mickey Buehrer | 10Oct71 |
| Class III Streamer Duration | 63 seconds | Robert Cather  | 14Jun71 |

#### PENDING FURTHER INFORMATION:

|                   |             |             |         |
|-------------------|-------------|-------------|---------|
| Eagle Boost Glide | 173 seconds | Alan Dayton | 29Nov70 |
| Roc Egg Lofting   | 895 meters  | Gary Cole   | 11Jun71 |

#### PENDING ASPIRANT'S FILING:

|                         |             |                 |         |
|-------------------------|-------------|-----------------|---------|
| Swift Boost Glide       | 315 seconds | John Langford   | 14Nov71 |
| Class O Drag Efficiency | 125 meters  | James Gustafson | 14Nov71 |

#### PENDING SUBCOMMITTEE CHECK:

|                            |              |                |         |
|----------------------------|--------------|----------------|---------|
| Class II Streamer Duration | 61 seconds   | Mickey Buehrer | 10Oct71 |
| Robin Egg Lofting          | 123 meters   | Chris Wurster  | 14Nov71 |
| Class I Altitude           | 262 meters   | Chris Wurster  | 14Nov71 |
| Hawk Rocket Glider         | 72.2 seconds | Steve Bryson   | 31Oct71 |

### USA RECORDS - C DIVISION:

#### ACCEPTED

|                            |              |                |         |
|----------------------------|--------------|----------------|---------|
| Class O Parachute Duration | 328 seconds  | Steven Lehnard | 5Dec70  |
| Sparrow Boost Glide        | 198 seconds  | Jim Pommert    | 18Apr71 |
| Sparrow Rocket Glider      | 788 seconds  | Mike McMasters | 29Aug71 |
| Class IV Altitude          | 695 meters   | Paul Giguere   | 25Sep71 |
| Pee Wee Payload            | 272 seconds  | Roy Rosenfeld  | 19Jun71 |
| Class I Parachute Duration | 1242 seconds | Paul Shelton   | 2May71  |
| Eagle Rocket Glider        | 132 seconds  | Mike Micci     | 10Oct71 |

#### PENDING FURTHER INFORMATION:

|                    |             |                     |         |
|--------------------|-------------|---------------------|---------|
| Eagle Boost Glide  | 193 seconds | Cody Hinman         | 15Nov70 |
|                    | 279 seconds | Russell Rasmussen   | 12Aug71 |
| Hornet Boost Glide | 243 seconds | Randy Picolet       | 29Aug71 |
| Hawk Rocket Glider | 60 seconds  | Thompson/Meyer Team | 12Sep71 |

#### PENDING ASPIRANT'S FILING

|                         |            |           |         |
|-------------------------|------------|-----------|---------|
| Class I Altitude        | 354 meters | Hank Ober | 14Nov71 |
| Class O Drag Efficiency | 176 meters | Hank Ober | 14Nov71 |

#### PENDING SUBCOMMITTEE CHECK:

|                            |            |                     |         |
|----------------------------|------------|---------------------|---------|
| Class II Streamer Duration | 83 seconds | Michael Scarborough | 14Nov71 |
| Robin Egg Lofting          | 203 meters | Bryan Anderson      | 14Nov71 |

### USA RECORDS - D DIVISION:

#### ACCEPTED

|                             |             |                   |         |
|-----------------------------|-------------|-------------------|---------|
| Robin Egg Lofting           | 186 meters  | Al Lindgren       | 20Sep70 |
| Hawk Boost Glide            | 248 seconds | David Ailes       | 4Oct70  |
| Hornet Boost Glide          | 196 seconds | Thomas Milkie     | 6Feb71  |
| Eagle Boost Glide           | 249 seconds | Bernard Biales    | 6Feb71  |
| Condor Boost Glide          | 238 seconds | John Norcross     | 25Apr71 |
| Condor Rocket Glider        | 170 seconds | Jon Robbins       | 16May71 |
| Pee Wee Payload             | 202 meters  | George Meese, Sr. | 19Jun71 |
| Class III Streamer Duration | 111 seconds | George Meese, Sr. | 9Aug71  |
| Class I Altitude            | 363 meters  | Arnold Jacobsen   | 14Nov71 |
| Class O Streamer Duration   | 48 seconds  | George Meese, Sr. | 30Oct71 |

#### PENDING FURTHER INFORMATION:

|                            |             |                    |         |
|----------------------------|-------------|--------------------|---------|
| Open Payload               | 641 meters  | Kennedy/Gibbs Team | 12Sep70 |
| Hornet Rocket Glider       | 48 seconds  | Bob Parks          | 29May71 |
| Class II Streamer Duration | 112 seconds | Gil Lutz           | 27Jun71 |

#### PENDING SUBCOMMITTEE CHECK:

|                            |             |                  |         |
|----------------------------|-------------|------------------|---------|
| Pigeon Egg Lofting         | 371 meters  | Jim Pommert      | 3Oct71  |
| Class I Streamer Duration  | 74 seconds  | Llewellyn Partee | 10Oct71 |
| Class II Streamer Duration | 143 seconds | Llewellyn Partee | 10Oct71 |
| Class O Drag Efficiency    | 145 meters  | Arnold Jacobsen  | 14Nov71 |

(continued on page 14)

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**US AND FAI RECORDS**

(continued from page 13)

**RETIRED RECORDS:****JUNIOR DIVISION:**

Dual Payload  
Hornet Boost Glide  
Sparrow Boost Glide  
Class I Parachute Duration

**SENIOR DIVISION:**

Hornet Boost Glide

|             |                  |         |
|-------------|------------------|---------|
| 372 meters  | Charles Krallman | 12Apr70 |
| 58 seconds  | Brian Dolezal    | 19Jul70 |
| 157 seconds | Richard Hyman    | 23May70 |
| 466 seconds | Craig Streett    | 3May70  |

|              |                |         |
|--------------|----------------|---------|
| 64.1 seconds | Robert Clemens | 27May70 |
|--------------|----------------|---------|

**FAI RECORDS ACCEPTED:**

|                     |              |                                   |         |
|---------------------|--------------|-----------------------------------|---------|
| Sparrow Boost Glide | 211 seconds  | Otakar Saffek<br>(Czechoslovakia) | 27Jun70 |
| Swift Boost Glide   | 393 seconds  | Mike Horia<br>(Roumania)          | 22May71 |
| Hawk Boost Glide    | 270 seconds  | Premysl Kyncl<br>(Czechoslovakia) | 27Jun70 |
| Eagle Boost Glide   | 301 seconds  | Eleno Ballo<br>(Roumania)         | 23May71 |
| Condor Boost Glide  | 238 seconds  | John B. Norcross<br>(U.S.A.)      | 25Apr70 |
| Parachute Duration  | 1967 seconds | Eleno Ballo<br>(Roumania)         | 22May71 |
| Open Payload        | 611 meters   | Otakar Saffek<br>(Czechoslovakia) | 27Jun70 |
| Class I Altitude    | 363 meters   | Arnold Jacobsen<br>(U.S.A.)       | 14Nov71 |

**PENDING FAI RECORDS:**

|                          |             |                                    |         |
|--------------------------|-------------|------------------------------------|---------|
| Eagle Boost Glide        | 399 seconds | Otakar Saffek<br>(Czechoslovakia)  | 10Oct71 |
| Class II Scale Altitude  | 348 meters  | Otakar Saffek                      | 10Oct71 |
| Class III Scale Altitude | 372 meters  | Total Points 1093<br>Otakar Saffek | 10Oct71 |
|                          |             | Total Points 1163                  |         |

**NAR NEWS**

(continued from page 13)

**Wernher Von Braun Is Honorary Member**

Wernher Von Braun, Deputy Associate Administrator of NASA, and well-known rocketry expert, accepted an honorary NAR membership in a letter to Jim Barrowman, NAR President. Dr. Von Braun commended the NAR for the work it has done in getting young people interested in the aerospace field.

**International Record Filing  
Procedure Changed**

Records Subcommittee Chairman Howard Galloway informs us that the fee for filing for an international record has been reduced from \$25.00 to \$5.00 for those under 21, effective January 1. The difference will be made up by the National Aeronautics Association as an encouragement to young people.

A procedural change in international record filing has also been announced. The following are the changes:

1). The Record Subcommittee must be notified within 24 hours (or by early Monday for a weekend launch) after the record attempt rocket is launched.

2). The fee is charged as soon as the call reporting the record attempt is received. It must be paid even if the attempt is not followed through, and it should be mailed to the Records Subcommittee within three weeks. These rules must be followed in order to comply with FAI standards.

**Eligibility List for International Team Announced**

The International Team Selection Committee has released the names of those eligible for selection to the 1972 U.S.A. Model Rocket Team. Twelve of the following people will be named to the team (nine as competitors and three as alternates): Tim Bray, Russell Rasmussen, Bruce Shay, Dennis Okesson (Okesson Team), Jon Randolph, Ellie Stine (Stine Team), Arnold Jacobsen, John Drake, Jim Worthen, Al Lindgren, Shirley Lindgren, Laura Englund (Englund Team), Alan Stolzenberg (Fox Team), Howard Kuhn (Kuhn Team), Graig Streett, John Fleischer (Fleischer-Pearson Team), Bernard Biales (Fehskens-Biales Team), Gary Lindgren, Brian Dolezal, Andrew Bennett, Gregory Kennedy (Kennedy Team), Norm Wood, Doug Smith, Scott Layne.

The committee is investigating and evaluating each person's contest record, a statement of his accomplishments in model rocketry, and also his reasons for being a good choice for the US team. The members of the team should be announced no later than March 14.

**Change in MESS Address**

The MESS form return address has been changed. Please return all completed MESS forms to:

Mike Wolfe  
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Mike is the assistant MESS Chairman.





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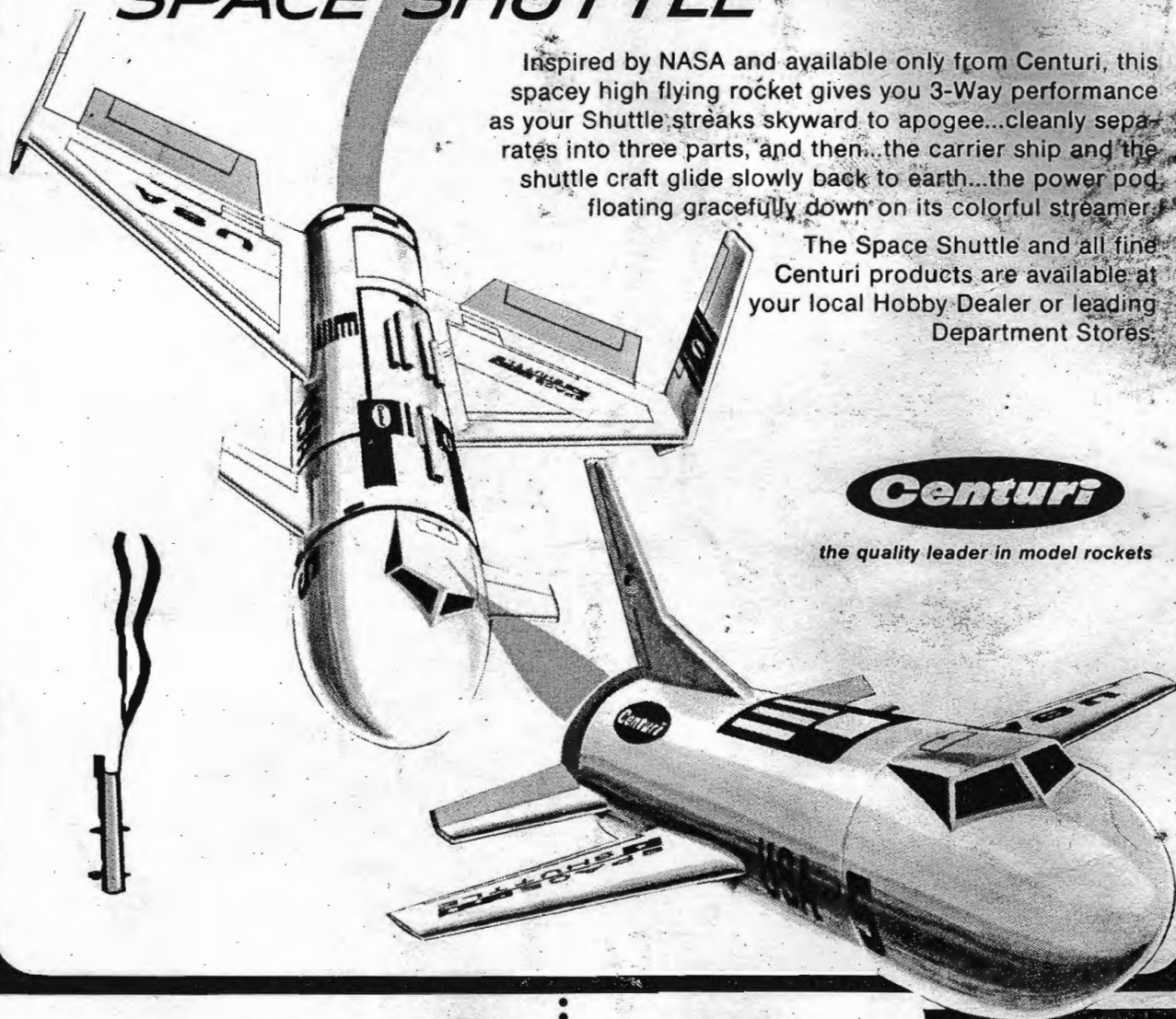
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