

# National Association of Rocketry

1239 VERMONT AVE. NW  
WASHINGTON, D.C. 20005



## Model Rocketry

The Answer To The Youth  
Rocketry Problem...

KNOWLEDGE -- SAFETY -- ENJOYMENT

On October 4, 1957 the world was catapulted into the Space Age when the Soviet Union placed the first manmade earth satellite into orbit. The Russians had beaten the Free World in opening up the race for supremacy in man's greatest adventure, the Conquest of Space.

Since then, new feats of space engineering and human bravery have astounded the world. Man will be on the moon in a few short years; plans to visit the planets of our solar system are already beyond the drawing board, and man is probing the mysteries of the universe with new radio telescopes that can reach farther into space than the mind can conceive.

This desire to learn and explore naturally interested the youth of our nation. In an effort to emulate the professional space scientists, thousands of young people began to design their own space vehicles and rockets. The results were catastrophic. Thousands of persons were injured, scores killed, in nonprofessional rocketry experiments. Pipes, tin cans, kitchen chemicals and the lack of qualified supervision led to the loss of precious lives. The amateur rocketeer proved to be dangerous; not only to himself, but to others as well.

Something had to be done. Utilizing the principles learned while building and flying model airplanes, a Nebraska shoe store owner, Orville Carlisle conceived the first model rocket. It was built of paper tubing, balsa wood fins and nose cone and was powered by a small, efficient solid propellant engine. His interest in rocketry had been stimulated by an article in *Mechanix Illustrated* magazine. A White Sands missile safety officer, G. Harry Stine, had written an article about the extremely rigid safety requirements used in professional rocketry.

From this inauspicious beginning, model rocketry has matured into a fast growing aeromodeling activity encompassing nearly every facet of the space sciences. Millions of model rockets have been launched since 1958. Thousands of young people and adults have had their first taste of rocketry through the use of the model rocket.

It was only natural that model rocketry required professional direction. The National Association of Rocketry was formed to cope with the many problems involved in non-professional rocketry. Codes and standards were devised by the charter members of the association. Professional and non-professional rocketeers banded together to draw up additional guidelines for model rocketry. Clubs were formed and the NAR saw the need for competitive model rocket flying. A NAR sporting code fulfilled this need.

The first National Model Rocket Championships were held by the association at Denver, Colorado in July, 1959. National records were established and model rocketry was on its way. From 1960 to the present, the history of the NAR and model rocketry has been one of growth and continued safety.

In June of 1961, the United States Air Force officially endorsed model rocketry as an activity for Air Force personnel and their dependents.

In April, 1961, the NAR became an affiliate of the National Aeronautic Association, joining the Academy of Model Aeronautics as the recognized aeromodeling organizations in the United States.

In 1964, the NAR began providing personal liability and property damage insurance to its members. Not because it was dangerous; on the contrary, it proved so safe that a major insurance company would insure model rocketeers, sight unseen, for any eventuality that might arise from the flight of a model rocket.

In 1965 more progress was made. The Educational Program offices of the National Aeronautics and Space Administration began directing inquiries from non-professional rocketeers to the NAR. The reason was simple; model rocketry was safe and educational.



The growth of the National Association of Rocketry and its model rocket program has been as spectacular as the space race itself. From the desire of a missile engineer at White Sands and the ingenuity of a shoe store owner, a new and exciting science-oriented activity has developed into one of the world's finest training tools for the scientifically minded youth of today. Model rocketry is model aeronautics projected into the Space Age.

There is perhaps something that can be learned from the history of model rocketry and the NAR, and it is this; the pace of technology is increasing, and for the good of model aeronautics we must not turn our backs on the next advance, whatever it may be.

# NAR FACTS

The NAR is an affiliate of the National Aeronautic Association which is the official U.S. representative of the 51-Nation Federation Aeronautique Internationale.

The NAR certifies model rocket flights for national and international record performances.

The NAR is the official United States Air Force approved organization for model rocket enthusiasts in the Air Force.

The NAR certifies model rocket engines and assists manufacturers and suppliers in establishing standards of construction and performance.

The NAR provides assistance and guidance to schools, civic and fraternal organizations interested in forming model rocket clubs.

The NAR provides a Safety Code, compiled by rocket experts, which provides a guideline to the operation of model rockets.



BENDIX CORP. PHOTO

ADVENTURE



BENDIX CORP. PHOTO

SCALE MODELS

## MODEL ROCKETRY FACTS

Model rocketry is recognized as an international aeromodeling sport by the 51-nation Federation Aeronautique Internationale in Paris.

NAR model rocketry is recognized and encouraged by the National Aeronautics and Space Administration and the United States Air Force.

Model Rocketry is exempt from regulation and control by the Federal Aviation Agency.

Model Rocketry has an excellent safety record. Millions of model rockets have been flown without injury to participants or spectators.

Model rockets are used as educational tools by hundreds of elementary and secondary schools throughout the United States.

Model rockets may be flown and recovered in areas no larger than an ordinary football field.



RADIO TELEMETRY



AERIAL PHOTOGRAPHY

### RESEARCH & DEVELOPMENT



### AERODYNAMICS

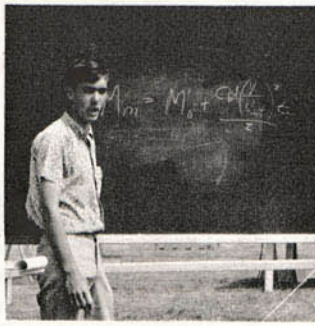


MODEL ROCKETRY PROVIDES THE BUILDING BLOCKS TO THE FUTURE FOR THE AEROSPACE-MINDED STUDENT

"...(we have) a responsibility, moral if not legal, to follow through in areas where we have pioneered and raised questions in searching young minds. The technological and ideological struggle of the current decade may well be settled by the model rocketeers of this generation. As individuals, we may find ourselves eager to get involved. And - it sounds like fun."

NASA (National Aeronautics and Space Administration)

Hundreds of schools are using model rocketry as an educational tool in the classroom. Because of the unique characteristics of the model rocket, studies can be made in physics, mathematics, optics, aerial photography, telemetry, propulsion, aerodynamics and astronomy. Many science fair projects evolve around studies made with the model rocket.



**SAFETY**

The most unique feature of model rocketry is its safety. Model rocketeers do not build their own rocket engines. They use commercially manufactured engines of proven reliability and performance. The rockets are constructed of lightweight materials—paper tubing, balsa wood and breakable plastics—and contain no substantial metal parts. This high strength and low weight enables modelers to make exacting scale models, high performance sounding rockets, and rocket gliders which perform exactly like their prototypes. Model rockets do not require concrete bunkers for safety purposes. No extensive safety precautions are needed. The rockets are launched electrically, from a distance of 10 to 15 feet.

Each model rocket contains a recovery device such as a parachute, streamer or other high drag mechanism. The models are returned safely to the ground so that they can be flown many, many times. Some model rockets have been flown as many as 100 times.

**COMPETITION**

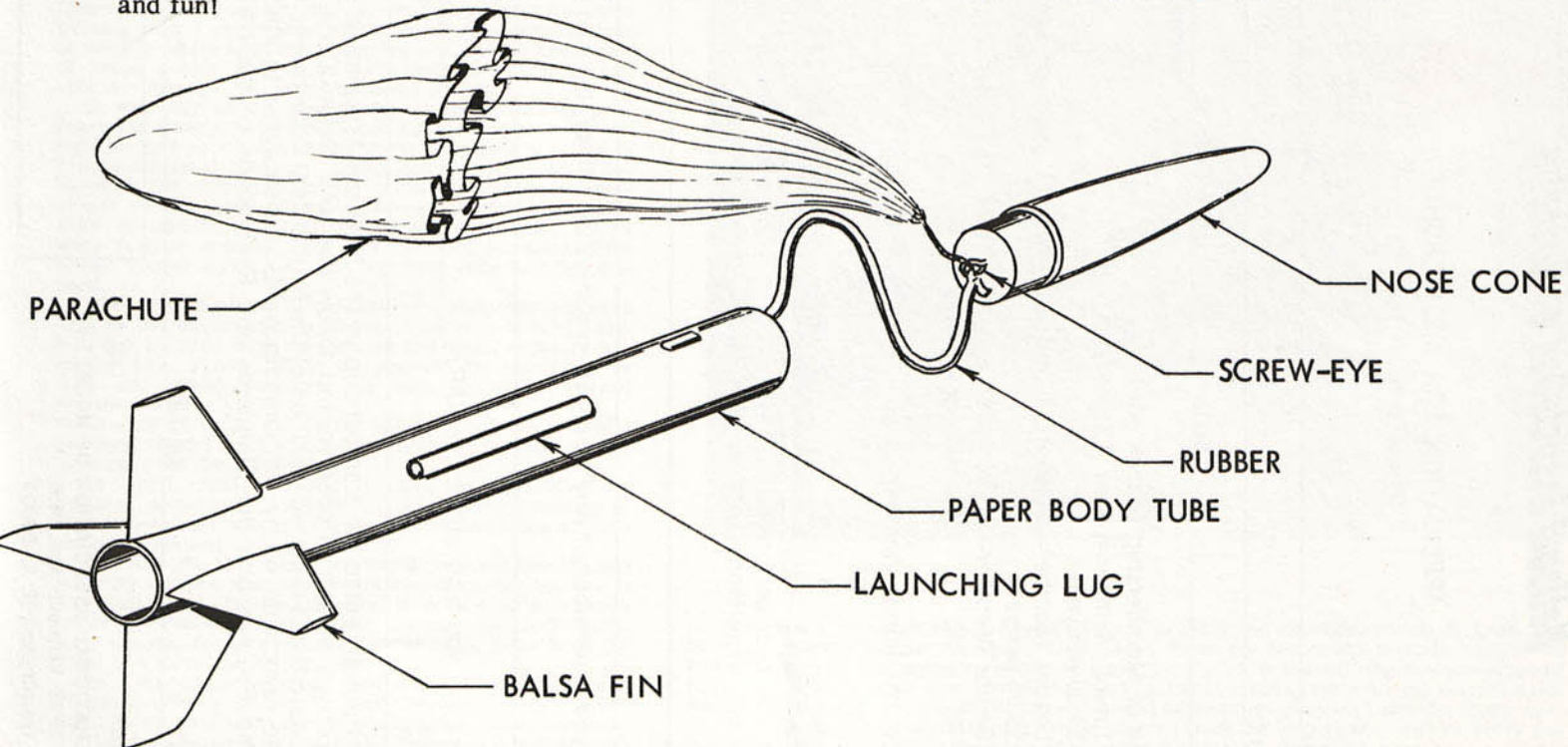


Each year the NAR sanctions model rocket contests throughout the United States. These contests are held in preparation for the National Model Rocket Championships sanctioned each year by the NAR. Modelers from throughout the United States fly their models in a variety of events to determine the national champions. In the past, the championships have been held under the auspices of the National Aeronautics and Space Administration, the United States Air Force and the United States Army. Handsome trophies and awards are presented to the outstanding modelers.



Model rockets are constructed of paper, balsa wood, and breakable plastics and contain no substantial metal parts. The rockets are powered by commercially manufactured propellants of proven reliability and performance. Each rocket is required to contain a recovery device which will return the model rocket safely to the ground so that it may be fired time and time again.

Model rocketry can be enjoyed by persons from eight to 88. Yes, model rocketry is safe, educational and fun!



## NAR Membership Gives You

AMERICAN MODELER magazine containing THE MODEL ROCKETEER, official NAR publication plus articles and features about model rocketry.

Model rocket sport license with your individual NAR number.

NAR "Pink Book" which details model rocket contest rules.

Personal liability and property damage insurance while flying model rockets under the rules and regulations of the NAR.

Assistance in forming an approved model rocket club, chartered by the NAR.

## NAR Sections

Models rocket clubs or Sections are chartered by the National Association of Rocketry. These clubs are eligible for special club insurance and other benefits provided by the NAR. A small charter fee provides club and third party insurance.

As members compete under NAR contest rules they are continually advancing their knowledge in aerodynamics and rocketry. Many clubs go on to form demonstration teams and are asked to show their knowledge of rocketry by civic and professional organizations.

## How To Join

NAR membership is open to young and old alike. Membership is divided into three categories; Seniors, over 21, Leaders, 17-21; and Juniors, under 17. Fillout the NAR membership application and sent it with dues enclosed to the NAR today.

## Why Insurance ?

The National Association of Rocketry is the only organization of its kind to provide insurance coverage for the non-professional rocketeer. It is an indication of the efforts by the NAR and model rocket manufacturers to provide you with a safe and reliable method of rocketry experimentation. No insurance company will insure a poor risk. If an accident should occur, you are assured of being protected against damage claims.

The NAR is proud to be able to offer this assurance and protection that model rocketry is a safe educational tool for young and old. Fly safely..... follow the NAR Safety Code.

## SAFETY CODE

I am a model rocketeer and do not engage in any other form of non-professional rocketry. As a member of the NATIONAL ASSOCIATION OF ROCKETRY, it is my responsibility to keep model rocketry safe. Because safety is my watchword, I will obey this NAR Model Rocket Safety Code:

1. I will use only pre-loaded, factory-made commercial model rocket engines that do not require my mixing of chemicals.
2. I will make model rockets of paper, wood, plastic, and other non-metallic materials.
3. I will always use a recovery device in my model rockets that will return them safely to the ground so that they may be flown again.
4. My model rockets will weigh less than 16 ounces and will contain less than 4 ounces of propellant in their engines.
5. My model rockets will contain no explosive warheads.
6. I will fly model rockets in open areas away from buildings and power lines.
7. I will check the stability of my model rockets before flying them so that their flight paths will be predictable.
8. I will use a remotely-operated electrical firing system to ignite and launch my model rockets.
9. I will use a launching device that is pointed within 30 degrees of the vertical.
10. My model rockets will not be flown as weapons against targets.
11. I will fly model rockets in good weather conditions only.
12. I know that model rockets share the air with other objects and must present no hazard to such objects.



**National Association of Rocketry**

APPLICATION FOR MEMBERSHIP  
(Please print or type)

Name: \_\_\_\_\_ Age: \_\_\_\_\_  
Street: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_ (Required)

Grade of Membership (check one):  
 Junior Member—under 17 years of age—\$4.00 per year.  
 Leader Member—at least 17 and less than 21 years of age—\$5.00 per year.  
 Senior Member—21 years of age and older—\$6.00 per year. (Please enclose dues)

Schooling: (circle number of years completed)  
Grade: 7 8 9 10 11 12  
College: 1 2 3 4 Graduate work: 1 2 3 4

Have you ever performed any experiments with rockets; or do you have any experience with rockets? If so, please explain.

Are you a member of any scientific organization? If so, list same:

Where did you hear about the NAR?

If I am accepted for membership in the National Association of Rocketry, I pledge to observe and follow the NAR Safety Code. I am aware that a reported violation of the NAR Safety Code may lead to the revocation of my membership rights. I also agree to abide by the By-Laws and the Standards and Regulations of the NAR.

Date: \_\_\_\_\_ Signed: \_\_\_\_\_

Mail to:  
NATIONAL ASSOCIATION OF ROCKETRY  
1239 Vermont Ave., N.W.  
Washington, D. C. 20005