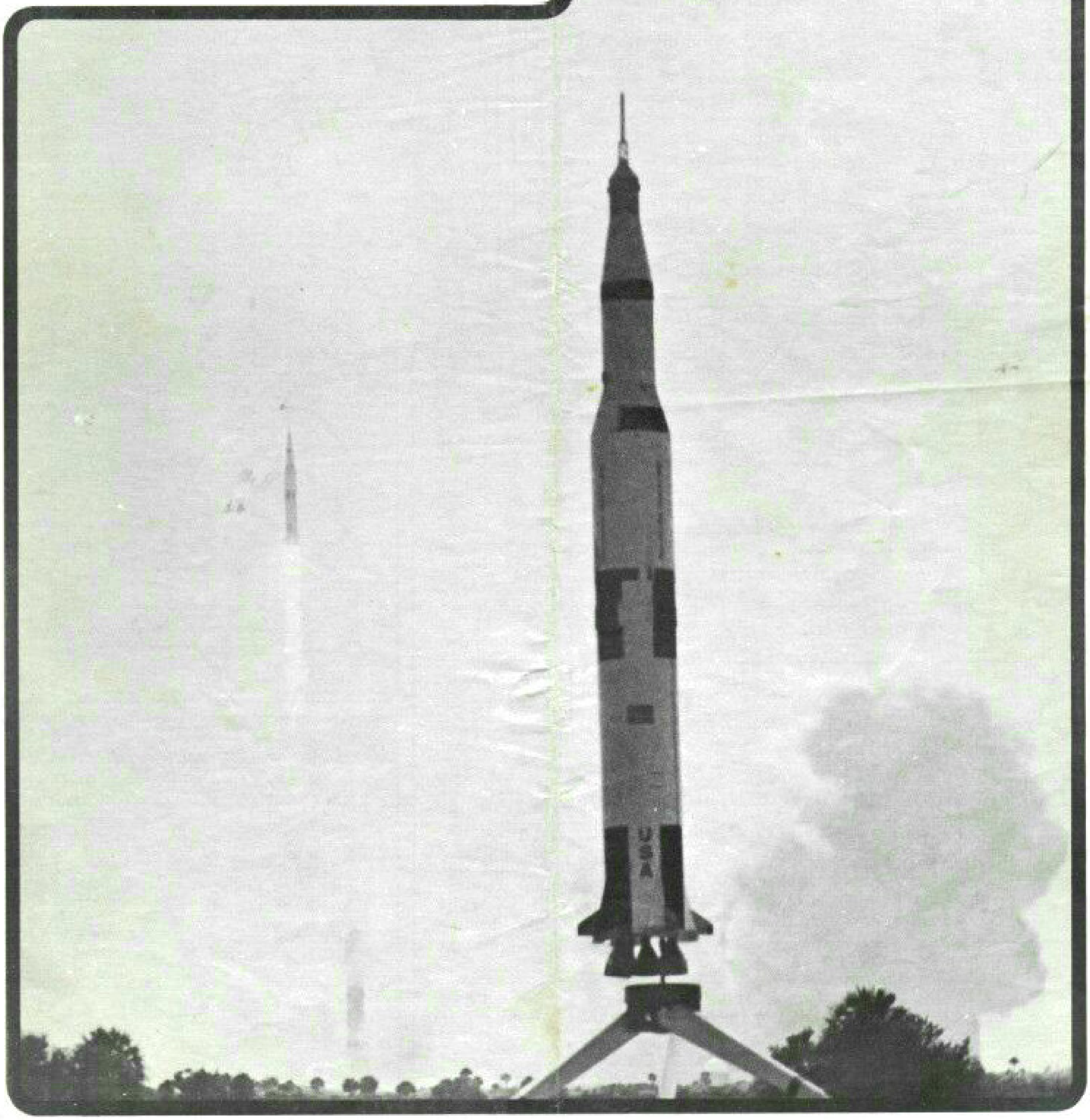
MODEL ROCKET NEWS

VOLUME 9, NO. 2
SEPTEMBER 1969

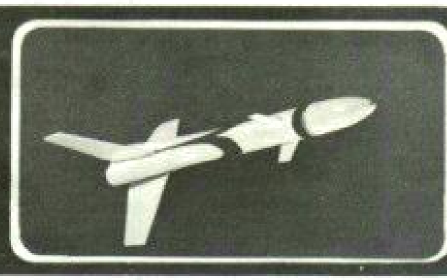


Estes Industries Rocket Plan No. 63

OMEGA

DESIGN OF THE MONTH WINNER
FEBRUARY 1969

STEPHEN H. SMITH YORK, PA. 17402



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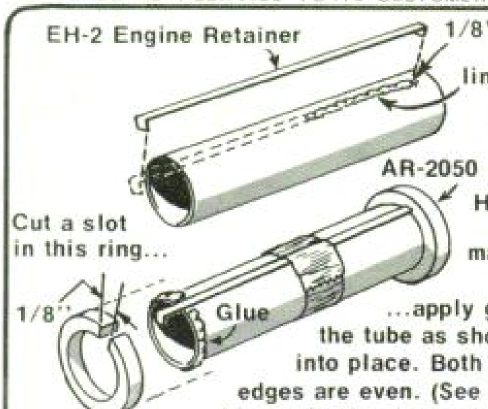


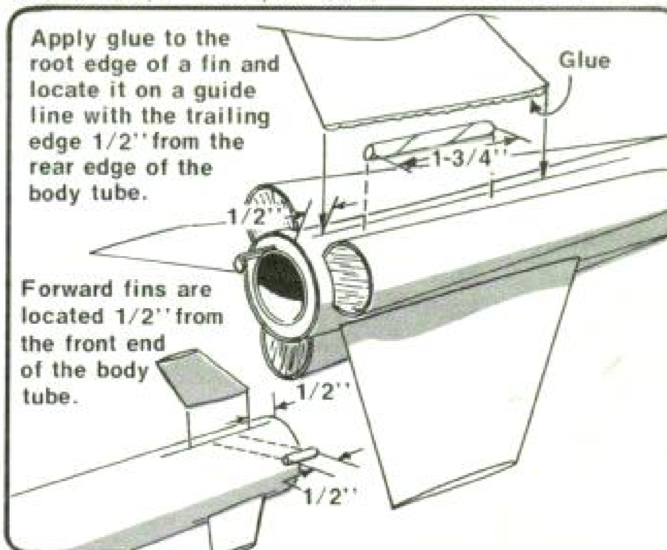
Apply glue and insert one end of engine retainer in slot.

Hold the piece in place with a full wrap of masking tape as shown.

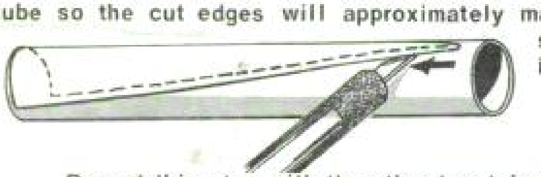
...apply glue around the end of the tube as shown and slide the ring into place. Both the tube and ring rear edges are even. (See the general assembly view.) Apply glue and slide the front ring on the tube until its edge is against the front end of the engine retainer.

Apply glue to the root edge of a fin and locate it on a guide line with the trailing edge 1/2'' from the rear edge of the body tube.

Forward fins are located 1/2'' from the front end of the body tube.



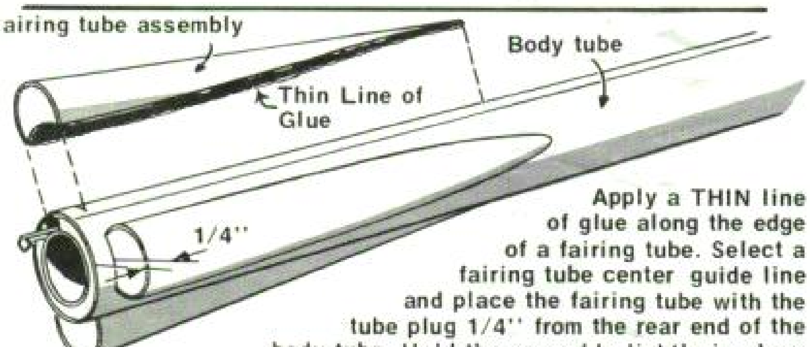
Trace and cut out the fairing tube pattern. Place it on a BT-20B as shown and mark the tube. You may save a lot of fillet work if you can cut the tube so the cut edges will approximately match the curved surface to which it will mate.



Repeat this step with the other two tubes.

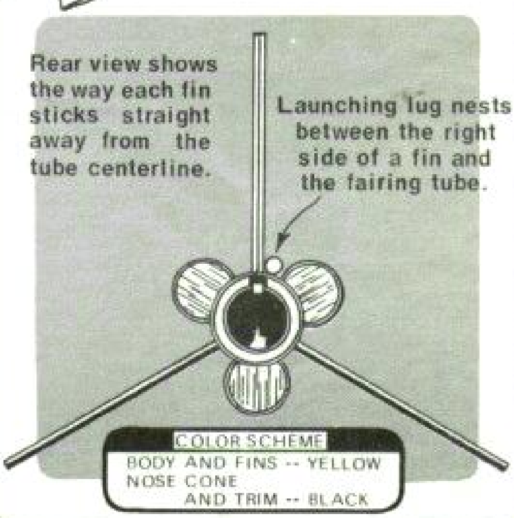
Trace, and cut out the tube plug pattern. Lay out three such plugs on the balsa fin stock and cut them out.

Place in the fairing tube ends as shown.



Apply a THIN line of glue along the edge of a fairing tube. Select a fairing tube center guide line and place the fairing tube with the tube plug 1/4'' from the rear end of the body tube. Hold the assembly lightly in place until the glue sets. Repeat this step with the other two tube assemblies.

Trace and cut out both sizes of fin patterns. Lay out and cut out 3 of each size fin and sand them all to an airfoil cross-section. Root and tip edges are sanded flat. Drawing is typical of all 6 fins.

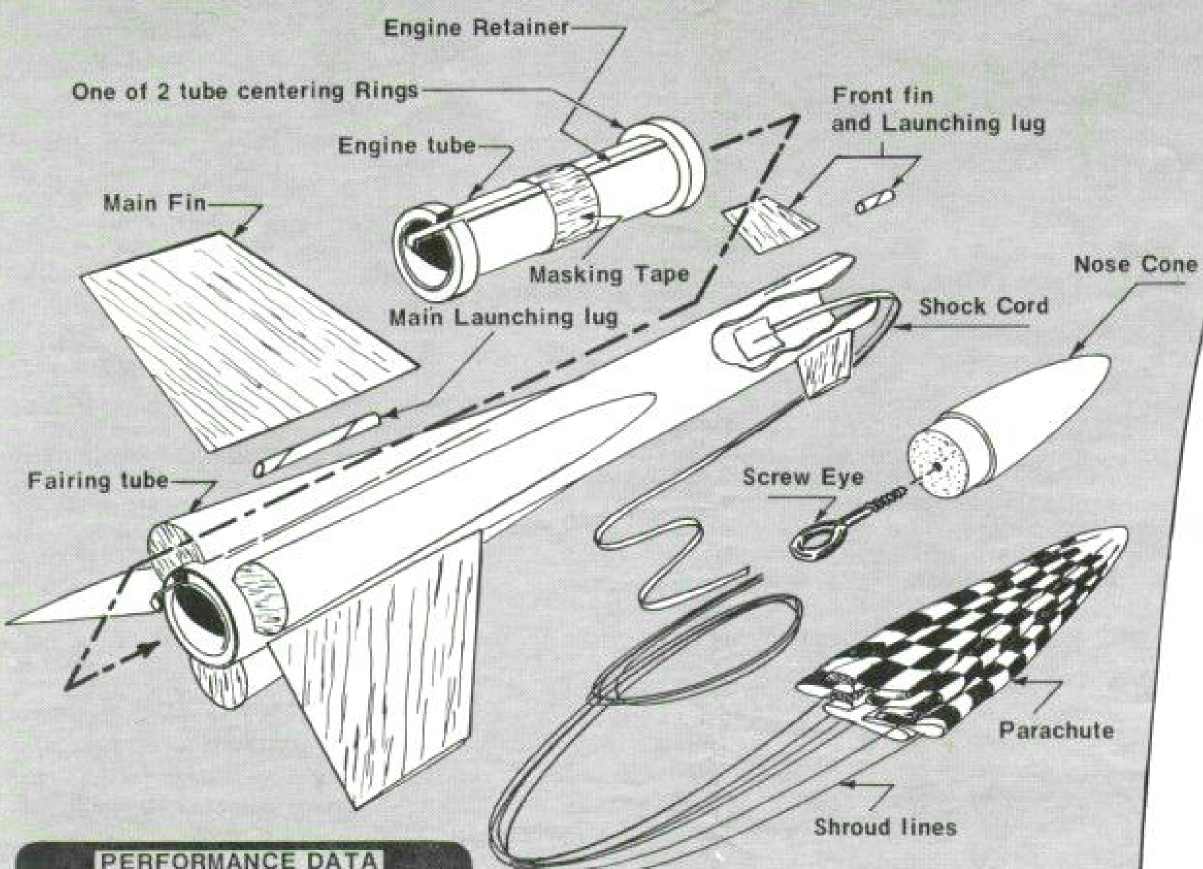


PARTS LIST

2	Sheet balsa fin stock	BFS-30
1	Nose cone	BNC-50X
1	Screw eye	SE-2
3	Body tube	BT-20B
1	Body tube	BT-50L
1	Engine holder tube	BT-20J
2	Centering rings	AR-2050
1	Engine Retainer	EH-2
1	Shock cord	SC-1
1	Launching lug	LL-2B
1	18'' Parachute kit	PK-18

In addition to the parts above, you will need scissors, white glue, masking tape, a sharp model knife (or razorblade) and paint or dope.

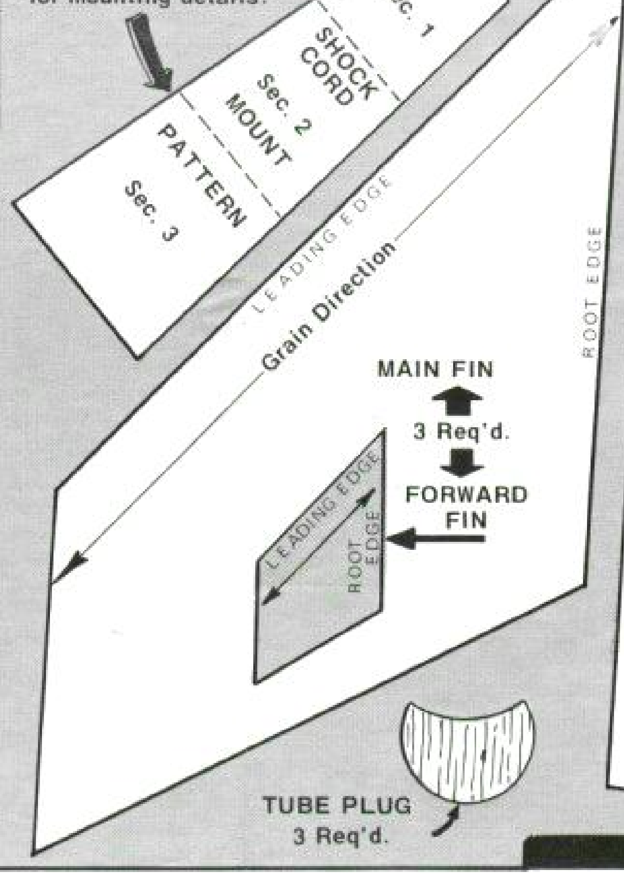
GENERAL ASSEMBLY VIEW AND PATTERNS

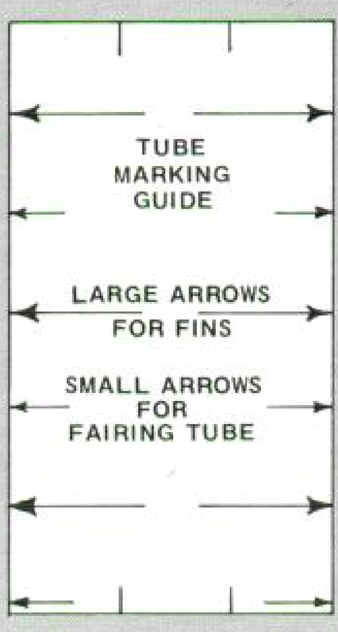


PERFORMANCE DATA

ENGINE	TRACKED ALTITUDE
A5-2	170'
A8-3	220'
B4-2	375'
B4-4	425'
B6-4	480'

See the technical section of your current catalogue for mounting details.





THE WINNER

"Sven Englund is the first place winner, second places go to . . . ." ". . . . wait a minute, Orville! Did you say SVEN ENGLUND? Where is he from?"

"New Canaan, Connecticut."

"Good grief, Orville - I already know HIM! You mean SVEN won first place, and HE's the rocketeer I'll be going with to the Kennedy Space Center? Great!"

That phone conversation with the Contest Control Agency took place December 24, 1968 That Christmas Eve all the first and second place winners received telegrams telling them they had won in the Estes Sweepstakes Contest. Sitting back and pondering the situation, I found it hard to believe . . . out of 500,000 active model rocketeers in the U. S.. the winner was a young fellow I had recently

Sven Englund and his father, Dr. Englund, stand in front of one of the five engines used in the Mighty V'. This engine on display at the visitors center makes the one hundred-to-one scale Estes Model look extremely small. (Photo by Vern)

met. Where? At a model rocket contest, of course! - - - the annual national championship meet held in August, 1968, at Wallops Station, Virginia (NARAM-10 sponsored by the National Association of Rocketry).

Knowing Sven, I was glad he had won. He's an excellent rocketeer, a young man who enjoys his hobby but also sees model rocketry as his way to a future science career – the ideal young man for such an adventure.

Then it was Sven's move. The contest rules said that he and his family would be given an all expense paid trip to Florida to watch one of the big SaturnV lift-offs. Which flight would he choose?

A few weeks later the word came back - - - "I want to watch the flight which takes our first astronauts to land on the Moon." WOW!!!! I couldn't have been happier. This meant I'D be there too! At this point I think I was more excited than Sven. To really be there when man starts his journey to set foot on another 'world' was exciting even for an old man of 39.

HELLO, FLORIDA

Four members of the Estes family - Vern, Gleda (Mrs. Estes), and daughters Betty (17) and Sharon (13) arrived at the Orlando airport in the late afternoon of July 14, 1969. Original plans were to meet the Winter Park Aeronautics and Space Society rocket club first, get acquainted, exchange greetings, discuss the weather (hot!) etc. However, the plane we were scheduled to take had an engine 'konk out' and this changed our flight, causing us to miss seeing each other. Thanks for trying, anyway, fellows.

"Sven Englund, go to the Delta Air Lines ticket counter, please" echo'd through the airport. No answer. But by the time a car was rented and baggage located, Sven arrived along with his parents and sister, Dr. and Mrs. Englund and Laurie.

First stop was at the NASA Apollo 11 guest center. "Good afternoon, sir. I want to pick up eight passes which are being held in the name of . . . ." "Press or Dependent viewing area?" interrupted the man behind the counter. "Huh? Welll . . . . I think it would be the . . . . well . . er . . I'm not sure . . . the passes were arranged for by Senator Peter Dominick of Colorado . . . ?" "Your passes would be over in the building on the other side. Next, please."

FINALLY! . . . "Here are your passes, sir - for eight people and one car." We left after several more minutes of conversation, with the NASA attendant assuring us our passes were for an area as close to pad 39A as we could stand and not get our hair singed or the lenses on our cameras blackened from the blast-off.

Next stop, an outdoor barbeque at the home of Dick Coup, Science Lecturer at the Kennedy Space Center. It was an excellent meal and a most enjoyable evening. Highlight was when Dick showed us some of his own model rockets, including the Saturn 1B which he built when the Estes kit first came on the market. Dick also gave Sven an Apollo 11 press packet for his own personal use.

FINAL PREPARATIONS

The next day we spent most of our time touring the Space Center. We got to see the Air Force Space Museum on Cape Kennedy, and the launch complexes from which all the previous manned flights have lifted off. As we toured the VAB (Vehicle Assembly Building) we were amazed at its 'immensity' . . . a building so huge that it actually clouds up and rains inside [so they say!] But I suppose if you're going to build a big rocket you've got to have a big building to construct it in.

The car radio kept telling us there were over 1,000,000 people in the area to watch the flight. So we

continued on page 10

Design of the Month Winners

The design of the Month Contest winners for January, February and March, '69 were announced recently by the Estes Industries Judging Staff.

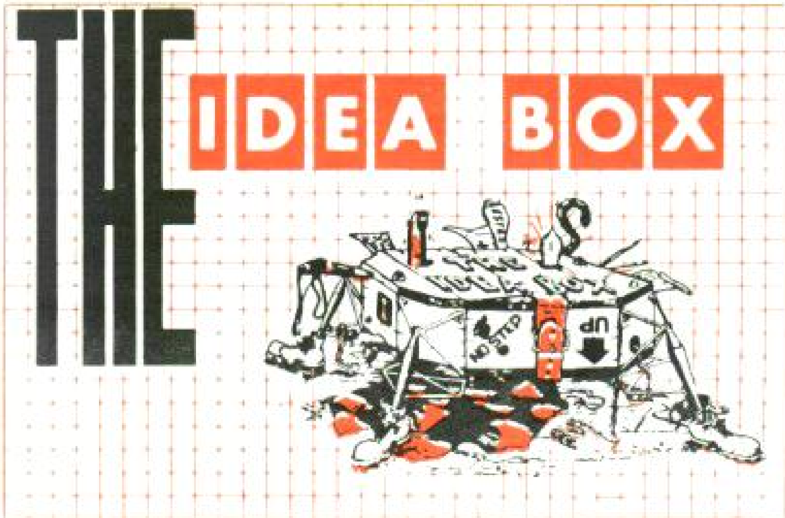
The $50 first place award for January went to Pete Erl of Ridgewood, N.Y. for his MARK-IV design. February's contest was taken by Stephen H. Smith of York, Pa. with the OMEGA. The winning design for March was the PATNA MARK-I by John Calvert, Springfield, Ill.

More winners will be announced in the next issue of this publication. For complete details on the Design of the Month Contest, see your current Estes catalog.

Model Rocket News

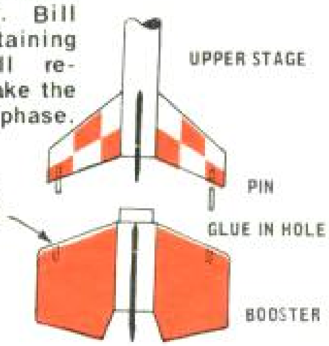
The MODEL ROCKET NEWS is published by Estes Industries, Inc., Penrose, Colorado. This publication is written for America's model rocketeers to promote safe youth rocketry, distribute current technical information and make model rocketry more enjoyable and educational. Current issues of the MRN are distributed free of charge to all active Estes customers.

Vernon Estes---------------Publisher
William Simon-----------------Editor
Gene Street--------Chief Illustrator



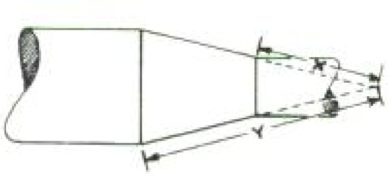
FIN ALIGNMENT PINS

Bill Edmunds, Long Grove, Ill., suggests short dowel pins to align first and second stage fins of rockets such as the Avenger (K-38) or Deacon (plan #27) during the boost portion of the flight. Bill reasons that maintaining fin alignment will reduce drag and so make the most of the boost phase.

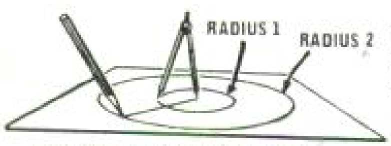


SHROUDS MADE EASY

Here is one of the easiest ways we've seen to make that special shroud. Bob Kippes of Greeley, Colo. is responsible for the 3-step procedure shown.



Draw a cross-section of the shroud you want to make. Extend the lines that form the shroud until they meet the centerline of the smaller tube. "X" represents Radius 1 and "Y" is Radius 2.

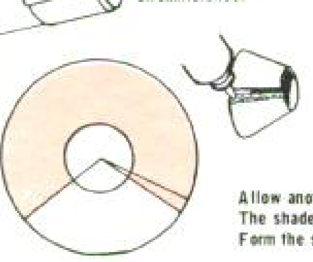


Set a compass to the measurement of "Y" first, and draw a circle. Reset the compass to the measurement of "X" and draw a second - smaller circle.

After radius 1 and 2 are drawn, draw a line from the centerpoint to radius 2.

Wrap a strip of paper around the large body tube and mark its circumference.

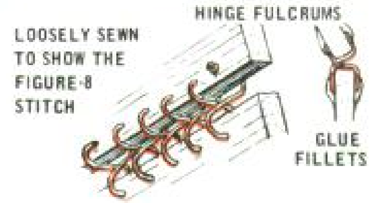
Lay the strip around radius 2 with one end on the line drawn in step 2. Mark radius 2 at the point where the strip mark touches . . . draw a line from this point to the centerpoint.



Allow another 1/4" as a glue tab and cut out. The shaded area is the piece you will use. Form the shroud and glue.

A DURABLE HINGE

Calling upon his experience with control-line models, Mr. Douglas Van Antwerp of Menden, Conn. suggests this method of hinging the control surfaces of boost-gliders and models like the Gyroc. Although this hinge is much more difficult to install, it is more flexible and should last longer than a paper hinge.



STREAMER REINFORCEMENT

Michael Jafran of N.Y.C. suggests gluing a loose-leaf paper reinforcer to each side of a streamer, surrounding the hole through which a static line or shock cord will pass.

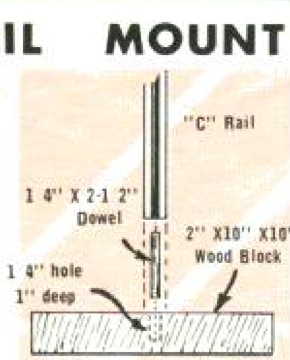
CLEAR DOPE ON SHROUDS

Whether you cut your own or use a shroud cut from a printed sheet you'll find this suggestion from Eric Noguchi of Honolulu, Hawaii worth trying.

Allow the 1st coat to soak in and dry before proceeding with the second coat. Lightly sand between coats...treating the shroud as you would balsa when applying the final finish.

"QUICKIE" C-RAIL MOUNT

Suggested by Joe Pettit of Philadelphia, Pa., this "C"-Rail mount should be serviceable as is, or can serve as a basic rail support as you proceed to build that special launch pad.



Cut board to size and drill the hole. Squirt glue into the hole. Cut the 1/4" dowel to length and gently drive it into the hole. Wipe away any extra glue. Slide one end of the "C" rail over the dowel and down to meet the wood surface.

PAINT CORNER

Most enamels and some lacquers may be used just as they come from the can...especially when freshly opened. However, no one is to say how much one must do to reclaim old paint which has stood in a partially filled container for some time, but here is a 4-step procedure which works well.

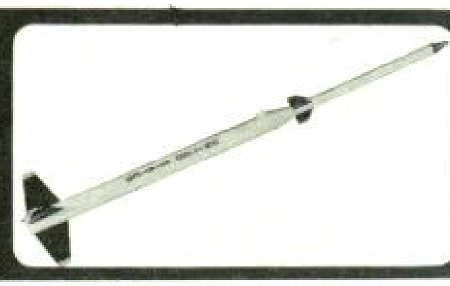
1. Open the container and remove any "skin" of hard paint, Mix the remainder of the paint thoroughly, getting as much of the pigment into suspension as possible.
2. Strain the paint through some fine mesh cloth to remove lumps and foreign matter.
3. Mix a test batch of from 10 to 20 drops of paint in a small cup. Add thinner, a drop at a time and test a brushful on a sample of the surface you intend to paint. Keep adding thinner (keeping a count of the drops) until your test batch has the brushing quality you want.
4. Now that you have the ratio of paint to thinner, mix enough to do the entire job.

Estes Industries Rocket Plan No. 62

MARK - IV

DESIGN OF THE MONTH WINNER JANUARY '69

Pete Erl Ridgewood, N.J.



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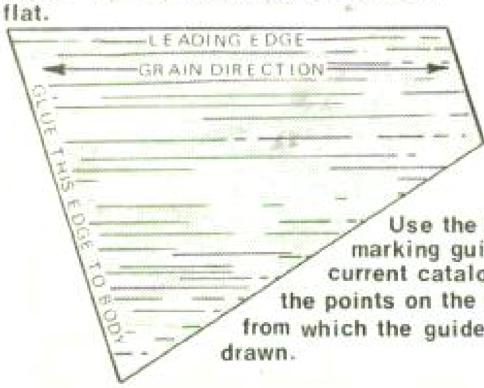
PARTS LIST

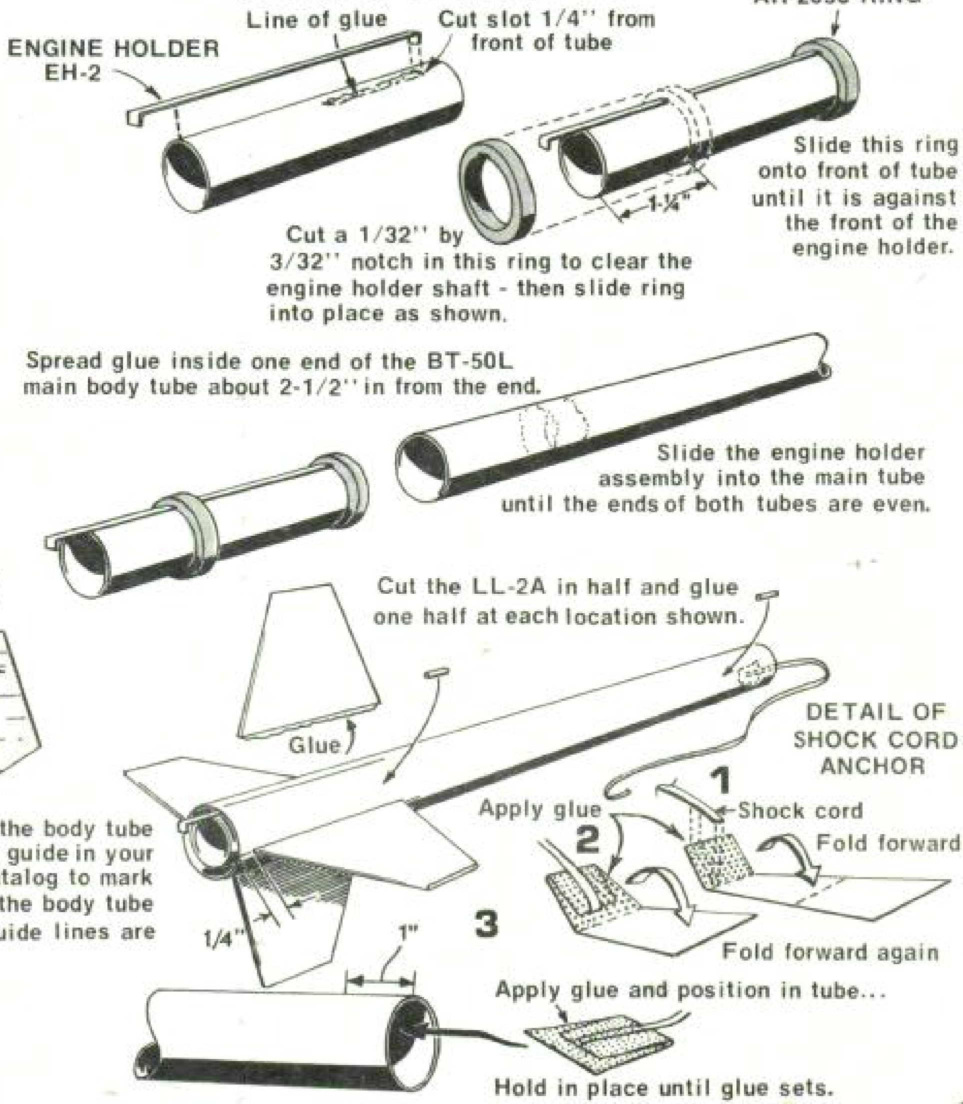
1	Balsa nose cone	BNC-5S
1	Body tube	BT-50L
1	Body tube (8'')	BT-5
1	Body tube	BT-20J
1	Sheet balsa fin stock	BFS-20L
2	Centering rings	AR-2050
1	Engine holder	EH-2
1	Launching lug	LL-2A
1	Screw eye	SE-2
1	Shock cord	SC-1
1	12'' Parachute kit	PK-12

Trace this pattern onto heavy paper and cut out the tracing. Lay out four fins on the balsa fin stock and cut them out.

Sand fin leading and trailing edges round. Tip and root edges are sanded flat.

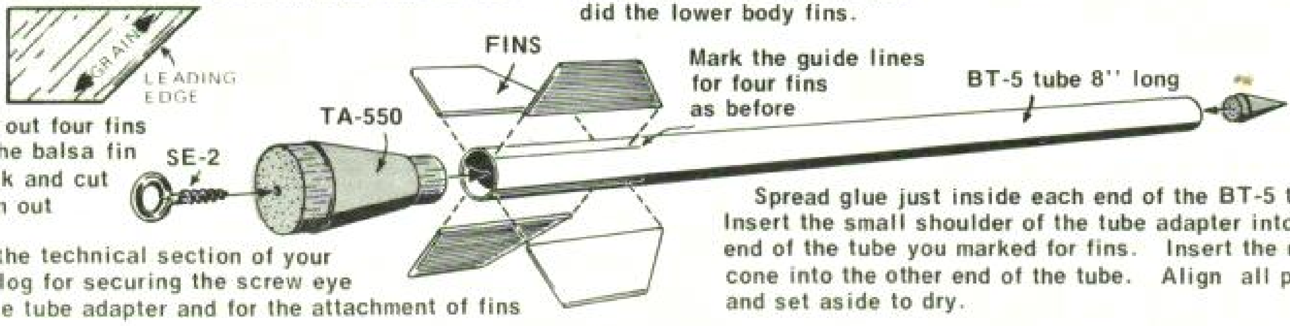


ASSEMBLY OF LOWER BODY UNIT



Trace this pattern onto heavy paper and cut out

Sand these fins same as you did the lower body fins.



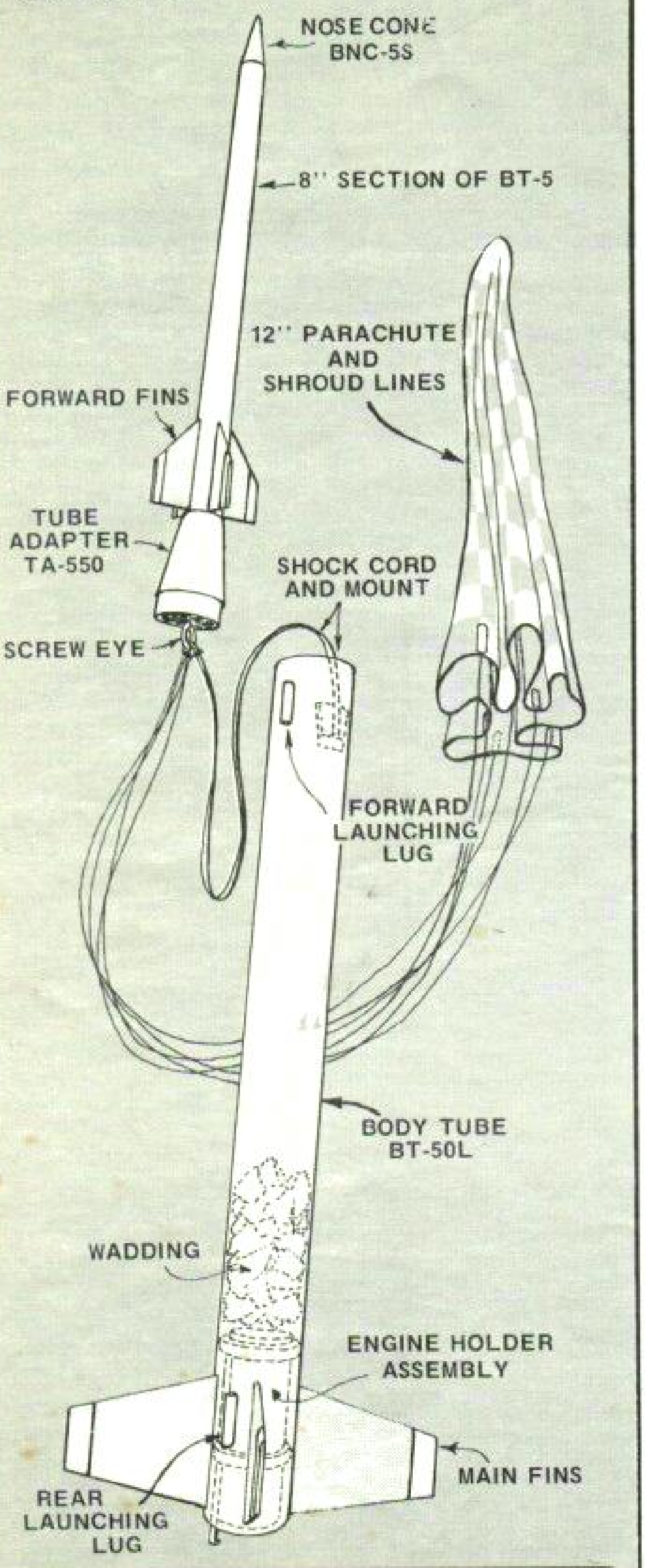
Lay out four fins on the balsa fin stock and cut them out

See the technical section of your catalog for securing the screw eye in the tube adapter and for the attachment of fins

Spread glue just inside each end of the BT-5 tube. Insert the small shoulder of the tube adapter into the end of the tube you marked for fins. Insert the nose cone into the other end of the tube. Align all parts and set aside to dry.

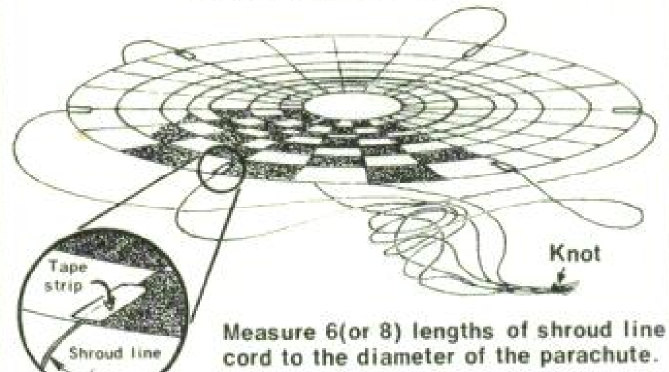
ASSEMBLY OF UPPER BODY UNIT

GENERAL VIEW



PERFORMANCE CROSS-SECTION OF THE MARK IV	
RECOMMENDED ENGINE	AVERAGE ALTITUDE
1/2A6-2	100 feet
A8-3	250 feet
B6-4	538 feet
C6-5	940 feet

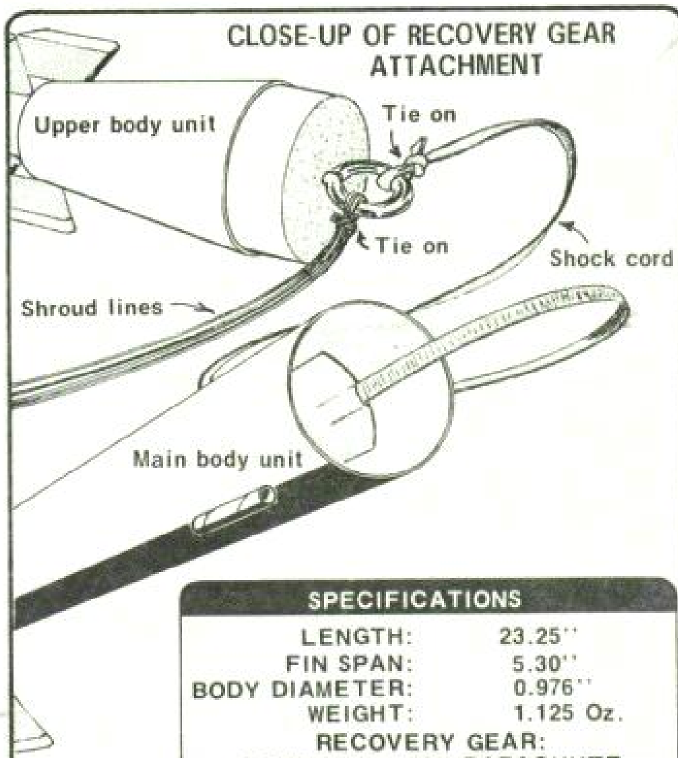
PARACHUTE ASSEMBLY



Measure 6(or 8) lengths of shroud line cord to the diameter of the parachute.

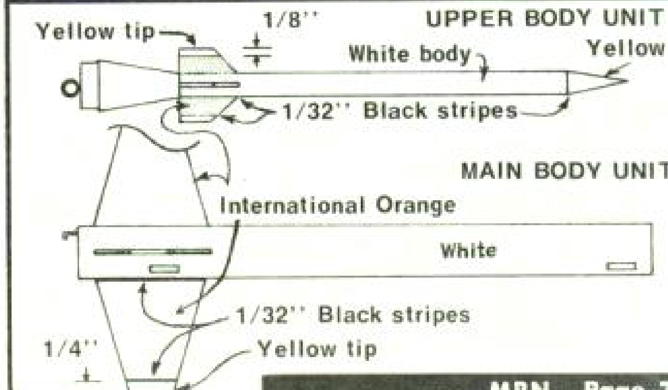
Space the shroud line pieces equally around the edge of the parachute holding each line in place with a tape strip. Gather the free ends of the lines and tie together.

CLOSE-UP OF RECOVERY GEAR ATTACHMENT

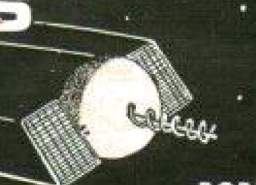


SPECIFICATIONS	
LENGTH:	23.25''
FIN SPAN:	5.30''
BODY DIAMETER:	0.976''
WEIGHT:	1.125 Oz.
RECOVERY GEAR:	
STANDARD;	12'' PARACHUTE
OPTION;	3-FOOT STREAMER

PAINTING DETAIL



WHY SATELLITES STAY IN ORBIT



Another *ACTION* Article

by
ROBERT L. CANNON

> "Twinkle, twinkle, little star.
> How I wonder what you are;
> Up above the world so high,
> Like a diamond in the sky."

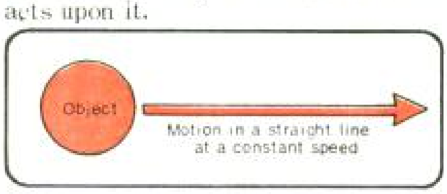
This bit of verse was probably one of the first things you learned about space. You now know that stars are huge bodies of extremely hot gases. Stars other than Sol, our sun, are extremely far away. Atomic reactions consume tremendous quantities of their matter every second, yet stars' masses are so great that many millions of years go by before their sizes are significantly reduced.

The early astronomers named many of the stars they saw. Eventually, someone noticed that certain "stars" did not stay where they belonged in the sky. These migrants were named "planets" (wanderers).

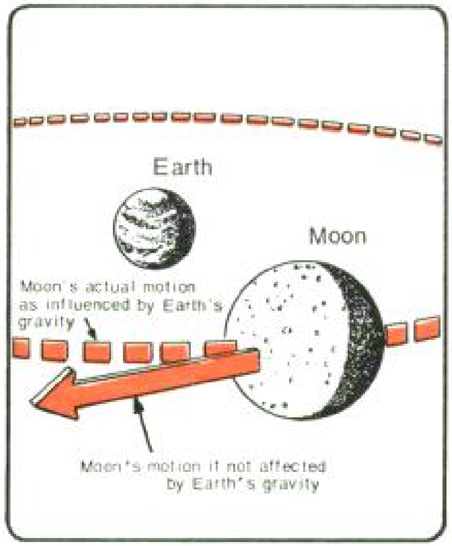
So far, nine of the "wanderers" or planets have been discovered. At least one of these is invisible to the naked eye. Telescopes and mathematics have enabled modern astronomers to also identify thirty-one moons accompanying the nine planets. In addition to these nine planets and their thirty-one moons, thousands of asteroids and a number of comets revolve in orbits around the sun.

Orbit-producing Forces

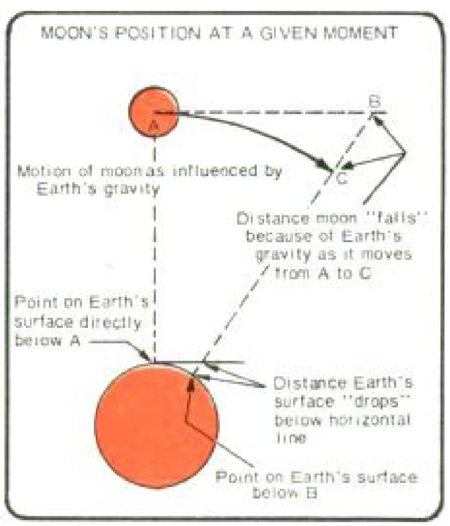
An object which is in motion continues in motion in a straight line at a constant speed unless a force acts upon it.



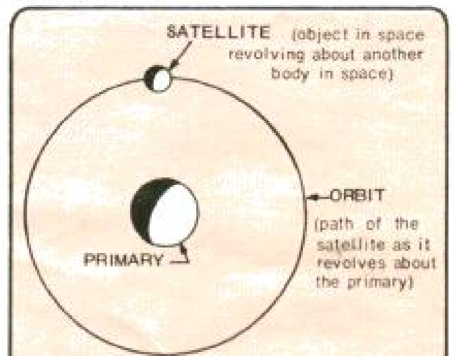
However, an object in space near another object is influenced by the gravitational field of the other object. For example, the moon is attracted toward Earth by the Earth's gravity.



The force of the Earth's gravity pulls the moon toward Earth as the moon revolves about Earth. Thus the moon is in effect falling toward Earth. However, the moon's motion causes the moon to move laterally (sideways) at the same time. The moon's velocity is just enough to keep it falling toward Earth at the same rate that the Earth's curvature causes the Earth's surface to become farther from the moon.



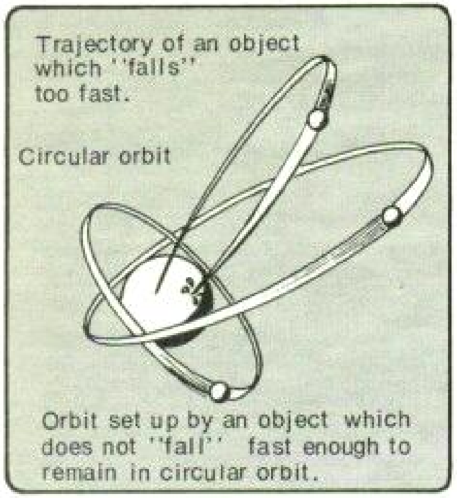
Experiments have shown that an object which is allowed to fall near the Earth's surface falls about 16 feet in one second. The Earth's surface curves "down" 16 feet in about 5 miles. Hence an object moving "horizontally" at 5 miles per second will fall at a rate which keeps it at a constant distance above the Earth's surface. This situation produces an object which is a satellite of Earth and which has a circular orbit.



The moon (Luna) is a satellite of Earth (Terra).

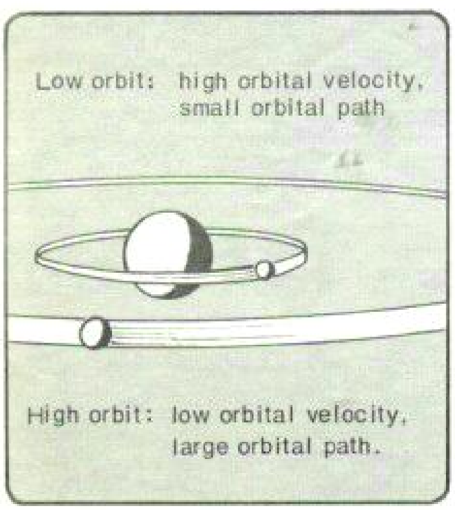
The velocity which a satellite must have to go into a circular orbit near the Earth's surface is about 5 miles per second. This is about 18,000 miles per hour (5 miles/second x 60 seconds/minute x 60 minutes/hour). To reach this high speed, artificial (man-made) satellites have to be launched by very powerful rockets.

Should an object receive a greater velocity than this, even if it is launched in the proper direction, it will not stay in a circular orbit, but will instead go into an elliptical orbit or escape entirely.



If the object does not reach a high enough velocity to go into circular orbit, it will fall back to Earth.

The farther an object is from Earth, the weaker is the force with which the Earth's gravity pulls on the object. Since this is true, the higher an object is above the Earth's surface, the slower is its rate of fall due to the Earth's gravity. Since the object tends to fall at a slower rate the higher it is, it follows that the farther an object is from Earth, the slower it will have to move to stay in orbit.



A satellite which is in orbit far from Earth has a very long orbital path and is moving relatively slowly so the satellite has a very long period (time required to make one revolution).

A satellite in a lower orbit has a shorter orbital path. Also, the satellite must be moving faster since the force of gravity is stronger closer to the primary and the satellite must have a high velocity or it will fall out of orbit. These factors cause the satellite to have a fairly short period.

VELOCITIES AND PERIODS
EARTH SATELLITES
IN CIRCULAR ORBITS
AT VARIOUS ALTITUDES

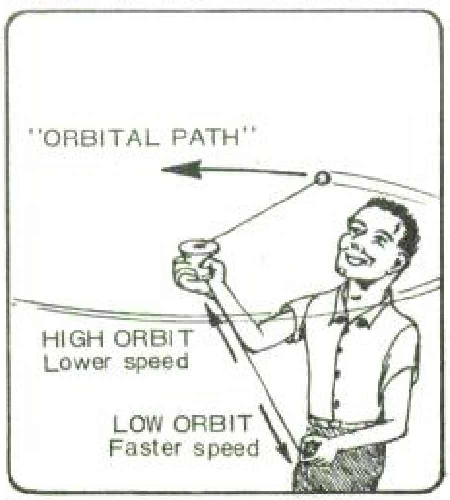
Altitude Miles	Velocity Miles per sec.	Period
0	4.92	1 hr 24 min.
100	4.85	1 hr 28 min.
400	4.68	1 hr 38 min.
5,000	3.27	4 hr 47 min.
22,300	1.91	24 hr. ——

Simulation of Orbital Motion

An interesting way to experiment with objects revolving about a point in space is to perform this experiment. Obtain a thread spool (preferably empty), a long piece of string (about four feet), and a fairly light-weight object (nose cone weight, key or the like) which you can tie securely to the string.

Tie the object securely to one end of the string. Pass the other end of the string through the hole in the spool and pull the string through the spool as far as possible without breaking the string.

Now stand in an open area and hold the spool above your head with one hand. Hold the string with the other hand. Allow the object to pull about one foot of string through the spool before stopping the string's movement with the other hand. Start whirling the object about the spool.



Feel the force with which the object pulls on the string. Whirl the object faster. Notice how the pull becomes greater.

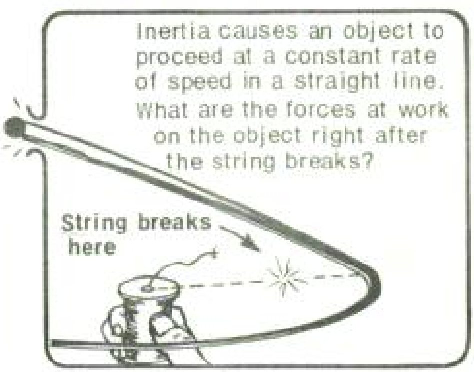
Moving objects possess momentum. The amount of momentum an object has is determined by multiplying its mass times its velocity. For example a 100 pound satellite moving at 4.85 miles per second (orbital velocity for a satellite in circular orbit at a height of 100 miles above Earth's surface) will have a momentum of 2,560,800 foot-pounds/second (100 lbs x 4.85 miles/second x 5280 feet/mile = 2,560,800 ft-lbs/second).

The inertia a moving body possesses tries to keep it moving in a straight line at a constant velocity. The object you are whirling is attempting to go in a straight line, but the string exerts a continual force on the object causing the object to move in a circular path.

The whirling object and the spool may be compared to an artificial satellite and Earth. The string represents gravity. The moving object is the artificial satellite, and the spool is Earth.

This is a model of the real situation, although not an accurate one.

What would happen to the object revolving about the spool above your head were you to suddenly release the string? This compares to what inertia would do to an artificial satellite were Earth's gravity to cease to exist.



By whirling the object faster or slower and by changing the length of string between the spool and the object a number of interesting experiments are possible. These experiments can help you get a "feel" for understanding the forces at work on a satellite in orbit about Earth.

One example of the many experiments which can be performed is to try to keep the pull on the string reasonably uniform while measuring the period of revolution of the object for a short length of string (low orbital height) as compared to the period of revolution of the object for a much longer length of string.

checked different routes carefully, and planned and figured out what time we would need to get up the next morning to be sure we were at the launch site by the lift-off at 9:30 a.m. Would you believe we came up with 2:30 A.M.? UGH!!! Well, it really wasn't that bad, because with all the excitement who could sleep anyway? Especially Sven and myself! All during the night we kept hearing cars and buses driving by and wondered if the roads would be jammed up so we couldn't make it. Finally, at 2:00 a.m. we started getting ready. All eight of us got into one car and started out. It was soon discovered we had nothing to worry about . . . the road was practically empty with only a few cars in sight.

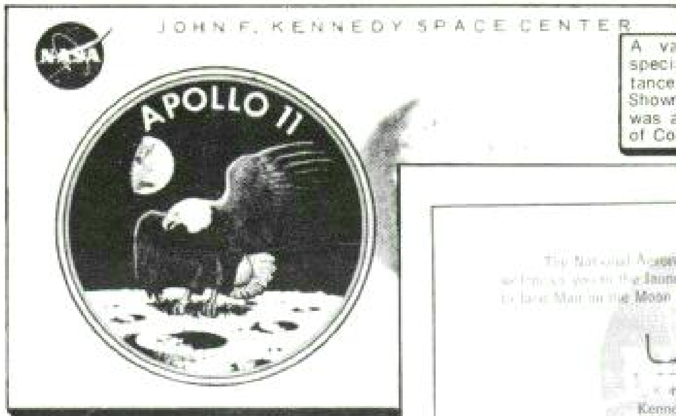
Two hours later as we arrived at the viewing site we were greeted by a most spectacular sight. The mighty Saturn V stood majestically in the distance with huge floodlights brilliantly illuminating its white and black surface. Spotlights projecting 'rays' of light up into the hazy pre-dawn sky gave the feeling that this venture must somehow represent a new beginning. If there had been nothing else, this one moment would have been worth all the efforts put into our trip.

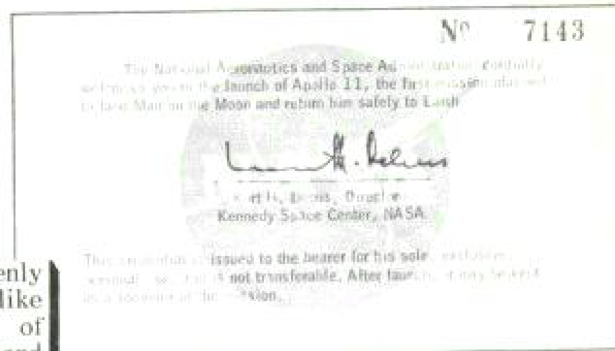
About three hours before scheduled lift-off, astronauts Collins, Aldrin, and Armstrong came close to our position as they went out to pad 39A. Soon it was only a matter of minutes . . . . tense minutes as the final preparations were made. When you're there watching and waiting as history develops before your eyes, you marvel, but at the same time you are a little uneasy . . . perhaps afraid . . . . that by some strange circumstance or quirk of fate, man's most hoped for adventure will not go as planned. You wonder how it would feel to be elevated to the top and climb into the capsule yourself. Would you want to take this trip with all its unknowns and dangers? Or would you rather stay behind where everything is known and your safety is assured? What must those brave men up there be thinking as the launch time comes closer and closer?

- 5 - 4 - 3 - 2 - 1 - LAUNCH

Almost as in model rocketry, the countdown proceeds through its final seconds. Ten . . . Nine . . . Eight . . . . ignition starts . . . producing a bright orange flame and clouds of smoke billowing out thousands of feet on each side as the rocket's power builds up . . . Four . . . Three . . . Two . . . One . . . Lift-off occurs exactly on time. The crowd is breathlessly quiet, then suddenly a blast is heard which sounds like thunder from a hundred bolts of distant lightning. Roaring and 'popping', the bird appears to just sit there, then gradually and slowly it begins to move. Up . . . Up . . . gaining speed as its five-hundred-foot-long trail of fire pushes it forward. The crowd cheers! They look to the sky . . . some pointing, . . . some praying, . . . others yelling "go - - go - - go, man, go!" Then, later, another cheer as the tiny speck almost out of sight flares brilliantly when the huge first stage separates and drops off.

The public address system soon reports 'everything is go.' THE ASTRONAUTS ARE ON THEIR WAY TO THE MOON, and we must return from this historic moment to continue our ordinary way of life.





A valuable memento of the trip is the special pass each of us received for admittance into the Space Center viewing area. Shown are both sides of the pass, which was arranged for by Senator Peter Dominick of Colorado.

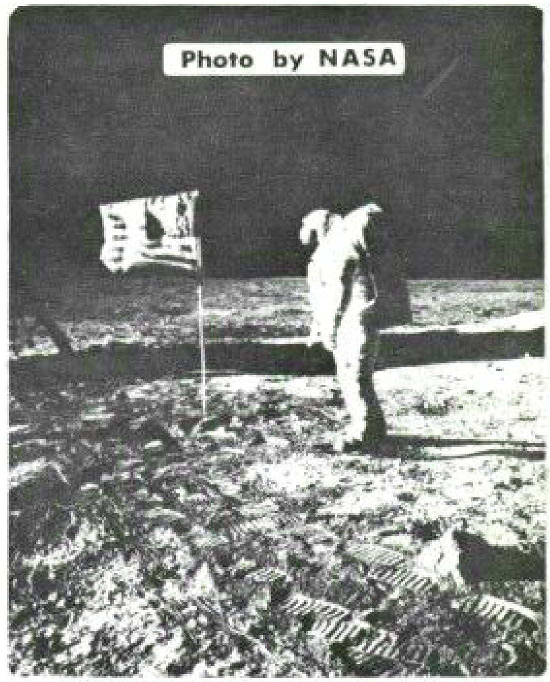


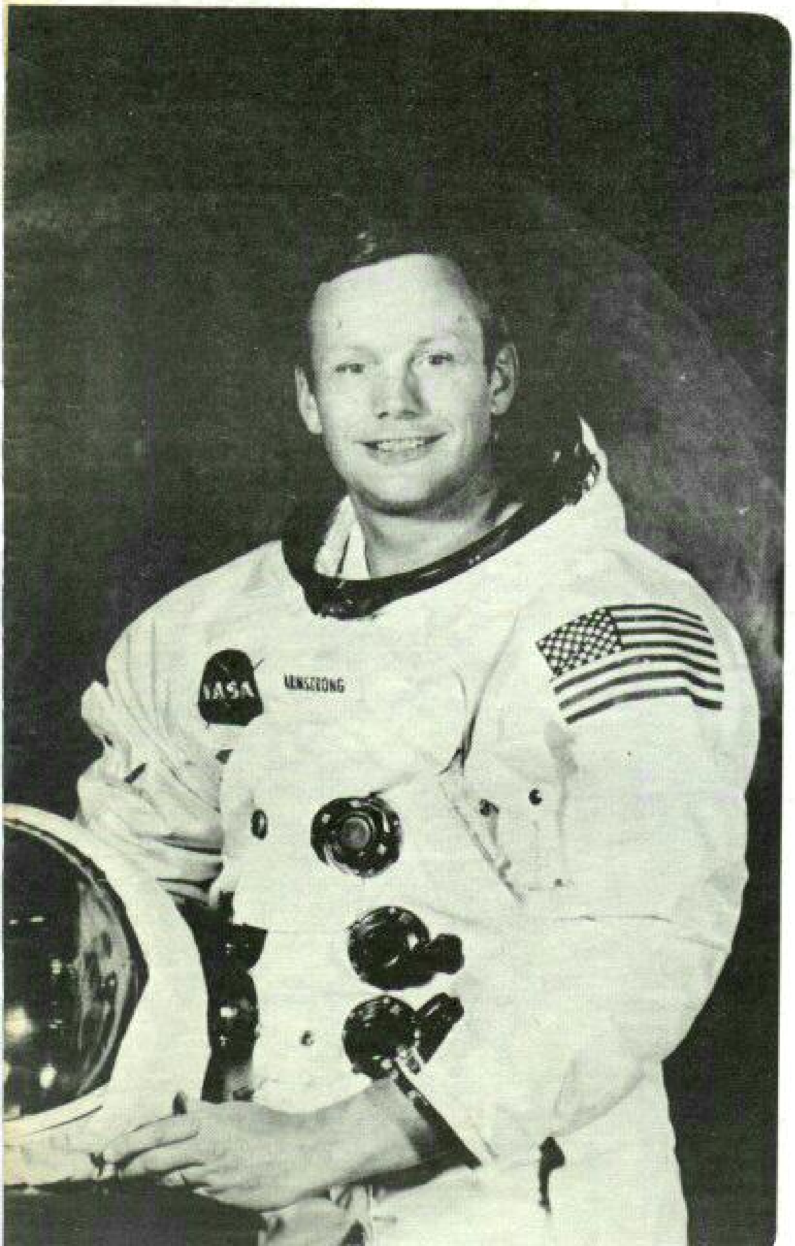
Photo by NASA

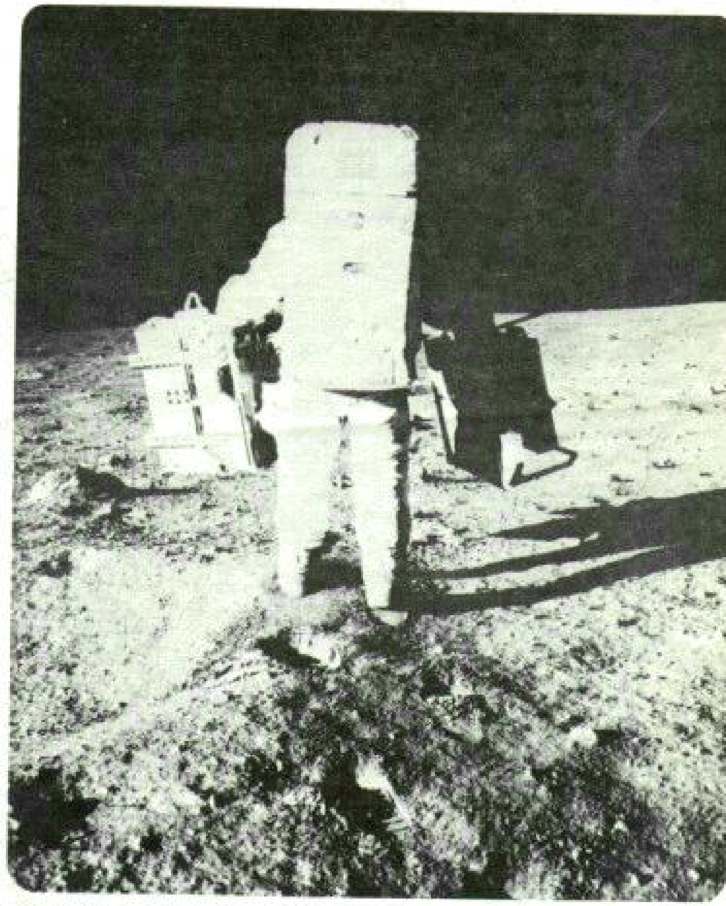
Vern Estes and Sven Englund enjoy a tour through the Space Museum at Cape Kennedy. Many of the historic vehicles on display are excellent designs for scale modeling. [Photo by Gleda Estes]

COVER PHOTO: the Estes Saturn V stands in salute as the historic Apollo 11 flight begins. (Photo by Vern.)

Sven and his father enjoy the sights as the NASA tour takes us to look at historic rockets, launch complexes, space memorials, launching towers, safety bunkers, tracking installations, rocket assembly buildings, and past the Apollo 11 vehicle waiting for 'tomorrow's' launch. Highlight of the tour was when we looked over the huge crawler which carries the assembled Saturn V to the launch pad, and then we went inside the vehicle assembly building, claimed to be the world's largest building. (Photo by Vern)

"Houston . . . Tranquility Base here - the Eagle has landed . . ."





" That's one small step for a man, one giant leap for mankind."

Photos by NASA

FOCUS on

the PRINT SHOP

"Hold everything! Let's get the MODEL ROCKET NEWS out to our rocketeers." These urgent words mark the halt of regular printing in the large Estes print shop. All assignments of printing for design booklets, kit instruction sheets, technical reports and other Estes literature must be temporarily set aside to devote full time and all five presses to the new MRN everyone is waiting for. After the brief pause for changing assignments, every press now hums a new tune – MRN, MRN, MRN.

...changing assignments

Many steps are involved in the publication of each Model Rocket News. Most assignments are made well in advance. For instance: Vern Estes works on "Notes from the Boss"; Bob Cannon prepares an educational article; plans from modelers are tested for possible publication; new ideas and products are studied by the Research and Development team; photographs are taken. Bill Simon assigns jobs and edits the material, then Gene Street draws the illustrations needed and pastes up the material as it will appear in final form.

The final copy is taken to the Photo Lab where it is photographed on a large camera. The resulting negative is delivered to the Print Shop. Placed in an exposure cabinet, the negative is burned onto a printing plate, and the image this produces is developed with a special fluid.

After the plate is placed on the upper cylinder of the press, the press is put into operation. The image is transferred to a "blanket" on a second cylinder, then to the paper. This process is called offset printing. When the desired number of copies have been printed, the plate may be removed, stored and used again. If several colors are involved on a page of material, the press operator must change plates, re-ink the press and run the printed page through again for each additional color required.

MRN's being assembled

In addition to printing, collating and folding are also important tasks in the Print Shop. Several folding machines are kept in operation to fold items involving only one or two sheets. However, with multi-page publications such as the MRN, the sheets must be assembled in order to form the desired booklet, By hand, one page at a time, the task would be enormous. The collating machine accomplishes this automatically. It staples and folds the booklet at the same time.

Paper cutter in action

Filling the padding press

Other tasks performed by the crew in this department include paper cutting and pad making. Sets of technical reports, copies of the MRN and other literature are prepared for schools. Also, packets are assembled for educators, libraries, dealers and rocket clubs.

A few of the instructions

Probably the most important function of the Print Shop is the production of kit instructions. This makes the Print Shop one of the most vital departments at Estes Industries. Without the printed word, model rocketry would be impossible: It would not only be impractical to spread the message of safety and education in model rocketry, but also—*how do you build your first rocket without plans and instructions?*

To keep up with America's model rocketeers, the presses run continuously from 7:A.M. to Midnight, producing several hundred thousand printed pages each day.

Hats off to the Print Shop! They keep us in touch with you!