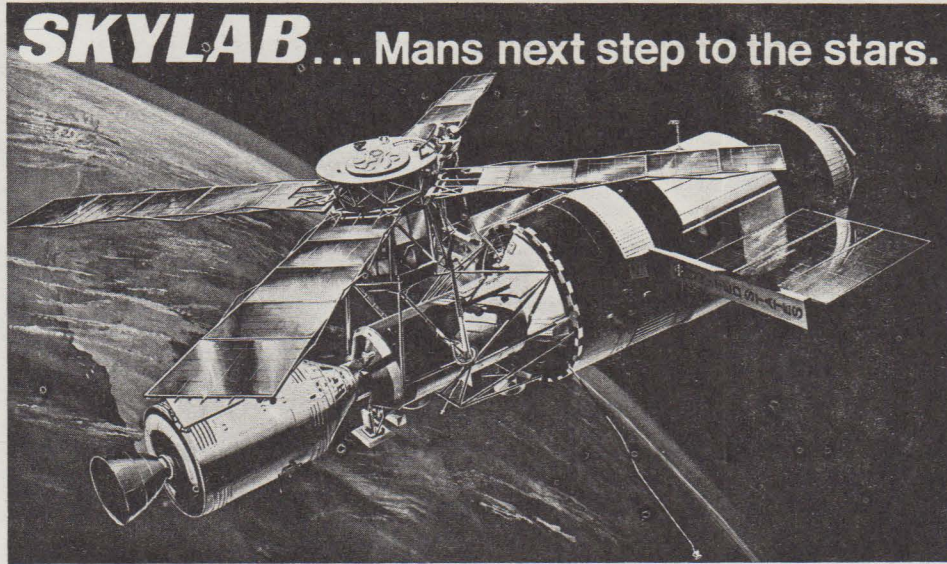


MODEL ROCKET NEWS

Vol. 13, No. 1
May 1973



SKYLAB... Mans next step to the stars.

-Courtesy Martin Marietta

As this magazine goes to press NASA plans to launch the Skylab on May 14. The first three man crew will be launched the following day for rendezvous with the Skylab.

Astronauts Charles "Pete" Conrad, Jr., Dr. Joseph P. Kerwin, and Paul J. Weitz will be the first crew. Their mission is scheduled to last 28 days before they leave Skylab for their return to Earth.

A series of astronaut teams are scheduled to man Skylab for missions of up to 56 days. This manned orbital research facility will enable the United States to conduct a series of scientific studies. Several unique features found on this space platform include a zero gravity environment, operations above Earth's atmosphere, and a broad view of Earth's surface.

The Skylab cluster will contain five main modules. The Orbital Workshop is made from a remodeled third stage of a Saturn V and is the prime living and working quarters for Skylab crews. Arrays of solar cells for electrical power generators are mounted on this module and on the Apollo Telescope Mount.

The Airlock Module is attached to the Orbital Workshop. It provides facilities for the crew to emerge in space suits to conduct activities in space.

The Multiple Docking Adapter provides docking ports for arriving and departing Command/Service Modules.

The Apollo Telescope Mount is attached outside the Multiple Docking Adapter and carries a sophisticated solar observatory using eight telescopes. These telescopes will utilize wavelengths from visible through near- and far-ultraviolet to x-ray.

Skylab's orbit is a 95 minute circular orbit at 386 kilometers (about 270 miles) above Earth. The orbit is inclined 50° to the equator to permit a pass-over of any given point on the surface from 50°N to 50°S every five days. Skylab weighs over 180,000 pounds and contains nearly 13,000 cubic feet of work and living space.

A Saturn V will launch Skylab. A modified Saturn 1B will be used to launch the crew.

Nineteen high school students have developed experiments for inclusion in the Skylab schedule of activities.

Featured In This Issue;

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"DOM Winners"

Another group of Estes Rocketeers have received merchandise certificates for their outstanding designs. First place winners receive a \$50 merchandise certificate and a \$5 certificate is awarded to all honorable mentions. Congratulations to these winners for their fine work. Keep those entries coming, and maybe you will win next time!

MAY 1972 First Place: Edward N. Lazo, Lake Forest, Illinois ("Power-Glide").

JUNE 1972 - First Place. Dale Windsor, Washington, D.C. ("Harpy", boost-glider). Honorable Mention: Peter Obst, Philadelphia, Pennsylvania (Multi-pad simplification). Richard Olson, Bowie, Maryland ("Stargail").

JULY 1972 - First Place. Tim Barber, Deer Park, Washington ("Stratos").

AUGUST 1972 - First Place: Rocky G. Peters, Fort Wayne, Indiana ("Mercury Atlas"). Honorable Mention: Ronald Ferguson, Fullerton, California (Launch System).

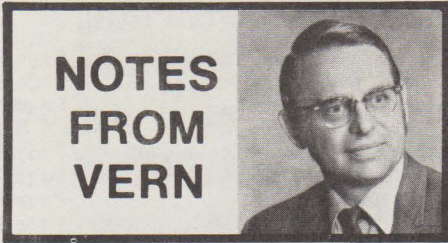
SEPTEMBER 1972 - First Place. Trip Barber, Cambridge, Maryland, (R & D report on closed breech launchers). Honorable Mention: Carl Kehret, Bellevue, Washington ("Carrot Special"). Carey Cundiff, Oakwood, Illinois ("Star Cruiser").

OCTOBER 1972 - First Place: Donald Guenther, Ballwin, Missouri ("Thunderbolt").

NOVEMBER 1972 - First Place: Clint H. O'Connor, Houston, Texas (R & D report on drag coefficient and peak altitude).

DECEMBER 1972 - First Place: Keith Svendsen, Brentwood, New York (Semi-scale "Sparrow" missile). Honorable Mention: J. L. Baxter, Biloxi, Mississippi ("Swinger I").

JANUARY 1973 - First Place: Jean-Pierre Boucher, Hillsburgh, Ontario, Canada ("Thunderbird"). Honorable Mention: Dennis R. Smerz, Laurel, Mississippi ("Ignition Transfer System").



Your new Estes model rocketry catalog should have arrived by now. I hope that you are as thrilled about it as we are.

In addition to the exciting appearance of the catalog, I am sure you have also noticed that we have several new lines of rockets we are offering for 1973. The Goonybirds, the zaniest flying freaks of the universe are featured on pages 16 and 17. This new line features a number of freaky designs including the Star Snoop (aerial eyeball), the Galaxy Guppy (flying fish), the Missile Toe (way-out sore toe), the Sky Shriek (space mouth), Zoom Broom (really a mod-roc Brunhilde), and the Cloud Hopper (you guessed it a flying bunny). Each of the Goonybirds is approximately 8" in length and features a big BT-60 body tube with new plastic nose cone, die cut fins, stick-on decals, and mini-engine power. Each kit is perfect for small field launchings and great for crazy demonstrations. Each Goonybird kit features its own display stand which makes the entire line perfect for collecting.

Five new Mini-Brute kits including a variety of exciting designs are now available. The Little John has the authentic appearance of a semi-scale surface-to-surface vehicle with US Army decor. The Aero-Hi and the Rogue are both scale-like models of sounding rocket vehicles with realistic decor. The Wolverine has the appearance of a Russian hypersonic interceptor with futuristic, near-space design and two color Russian decals. Its scram-jet appearance with ram-jet nose cone and cockpit canopy really sets it apart from other models. The new Mini-Brute Combo features the Javelin and Super Flea, two rockets for the price of one. They are easy to build and perfect for competition or sport flying.

We are proud to introduce two new mini-engines. The A10-0T and A10-3T core-burning mini-engines give you a high peak thrust at lift-off for those

slightly heavier payloads and for staged Mini-Brutes. These are truly exciting engines, and I certainly hope you will try them.

Another Estes innovation for 1973 is the new Estes pocket-size Altitude Computer (page 61). This enables any Estes model rocketeer to predict his model's performance in a matter of seconds.

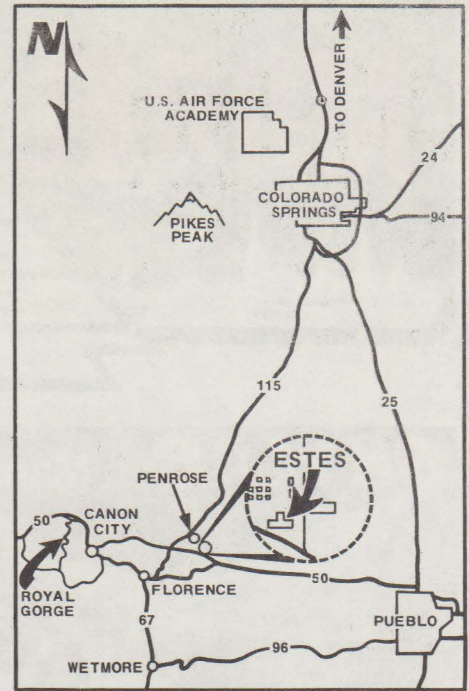
A very simple procedure gives fast and accurate results. This new computer is a real breakthrough in altitude prediction and nicely complements our existing Technical Report TR-10 on altitude prediction.

You may have noticed another new innovation appears on page 47 of our new catalog, the ColdPower Convertible rockets. These new kits are designed to be flown by either RP-100 cold propellant or to be used with a special adapter for standard Estes solid propellant model rocket engines. The convertible aspect thus gives us not only six new ColdPower kits but also six new Estes solid propellant kits. If you haven't tried a ColdPower model yet, I am sure you will be very pleased with your first one. These models are especially valuable to the individual who faces some legal limitation concerning the launching of regular solid propellant engines.

The new Estes Aerospace Club (pages 76 and 77) offers everything for the active rocketeer. It can be especially valuable to you this summer in helping to guide you through your model rocket activities. In addition to the items included in your initial membership kit, you can become involved in the EAC Skill Level Achievement Program which will allow you to progress to the status of Expert EAC Rocketeer. It is a truly exciting program, and I am sure you will find it very enjoyable.

Speaking of summertime model rocketry, remember to make the proper arrangements for club advisor, launch site, and meeting place so your school's model rocket club can continue this summer. Summertime is for model rocketry, so plan ahead and be prepared.

If you or any of your friends are traveling near Penrose, Colorado this summer, be sure to visit the Model Rocket Capital of the World. We are located 37 miles south of Colorado Springs, one mile east of the junction of Highways 50 and 115 (see map). Stop in any day Monday through



Friday from 8:30 a.m. to 4:30 p.m. and take a tour. We will treat you to a 20 minute slide show presentation showing you all the various areas of Estes Industries and then take you for an actual tour through our Mail Room, Shipping, and Production areas. Your tour guide will point out and explain a number of interesting areas and will attempt to answer your questions. If you wish, she will launch a model rocket for you at the end of your tour. Then you can visit our Range Store to browse and to relax. Remember, if you are in Colorado this summer and near Penrose, it will be our pleasure to have you for our guest.

Vern

MODEL ROCKET NEWS

• ESTES INDUSTRIES 1972

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.

Vern Estes Publisher
 Dane Boles Editor
 Bob Cannon Dir. of Publications
 Charles Webb Photographer



Club Countdown

Get Organized For Summer

By Dane Boles

The countdown to summer is getting well into the low numbers, and it is time once again for all members of school clubs to be sure they have the necessary organization for an active summer program. If your club advisor is a teacher, be sure he will be available to assist your group during the summer or have secure acceptance from the parent of a member to stand in for the teacher to act as temporary club advisor during the summer months. If you normally launch from a school playground or park, be sure this area will be open for launching during the summer and that your launching does not conflict with some other summer program or activity.

In addition to making sure that you have a club advisor for summer and an appropriate launch site, be sure that you will continue to have a place to meet in order to hold club meetings or workshops. If you have been holding your club meetings in a school room which will be closed during the summer, perhaps you could move to a local recreation center or take turns holding club meetings at the homes of members. When you have secured a summertime advisor, launch site, and a place to meet, be sure your club membership has a firm schedule of all summer club activities. If other rocket clubs exist in the area, you may contact them and plan several events in which members of several clubs can take part. Summer is great for competition, building new designs, and carrying out those special projects you did not have time to complete during the school year.

Remember to organize early (Like now!) and take advantage of all that great free time during the summer for your model rocket activities. If you need additional advice or materials concerning your club's organization, contact the Rocketeer Communications Department, Estes Industries, Penrose, Colorado 81240. Good luck this summer, and keep 'em flying!



Wayne Kellner
Estes R & D

Ever wonder how a model rocket is designed at Estes? Well, not quite as the photo shows.

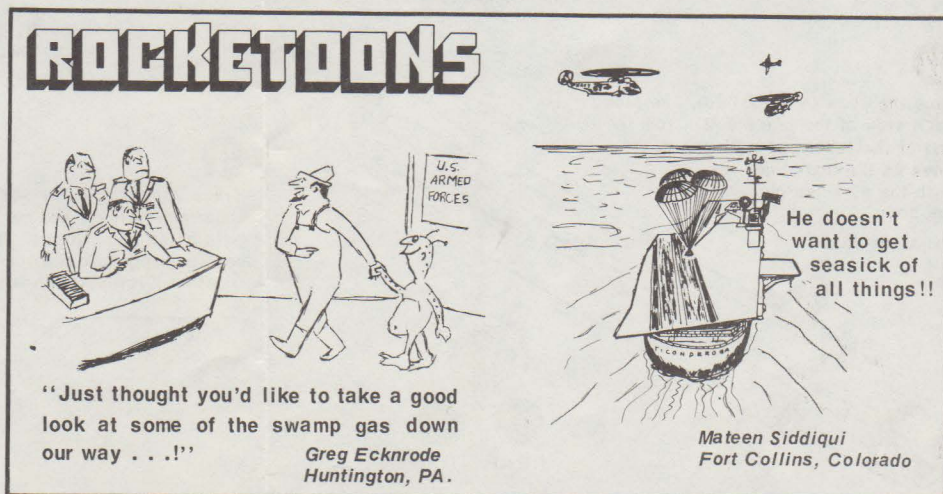
Seriously, it may require from 6 months to over a year before a new model is ready to be advertised. First, our R & D department begins initial research, design, prototype testing, final design and testing, plus instruction writing for each new Estes product. Then our Marketing and Visual Graphics departments prepare final printed instructions, marking patterns and advertising. Meanwhile, our Purchasing personnel have been ordering the many wood, paper, plastic and metal parts from suppliers across the country. Next, the kit parts are checked, packed and warehoused in our Production facilities. Finally, your order is processed, packed and shipped by our Mail and Shipping departments. So every new product actually represents the efforts of many people here at Estes Industries.

Take the new Goonybirds for instance. With the many scale, futuristic, sport and competition models

available, we wondered about offering something very different for a change, a really "fun rocket". A rocket that would be small, easy to build, fun to decorate and a "gas" to fly. "Great Electric Cosmo-Nucleonic Orbital Thrust Beamer!" (official R & D exclamation when extremely happy)-the Goonybirds were created! And what better engines to use than the Estes T-series mini-engines.

We're really quite excited about these six new birds! Each kit features a new plastic nose cone, precision die-cut balsa fins, quick-change mini-engine mount, goofy design and parachute recovery. Another Estes first is the adhesive stick-on decals for a really quick finish job. Also included is a free collector's display perch, ah, base. We spent considerable time making the instructions simple and easy to follow. Let us know how you like them.

These models really move on our new A10-3T mini-engines. Build one and have a "gas"! Better yet, why not be the first to collect all six for your tree, er, pad?



"Just thought you'd like to take a good look at some of the swamp gas down our way . . .!"

Greg Ecknrode
Huntington, PA.

He doesn't want to get seasick of all things!!

Mateen Siddiqui
Fort Collins, Colorado

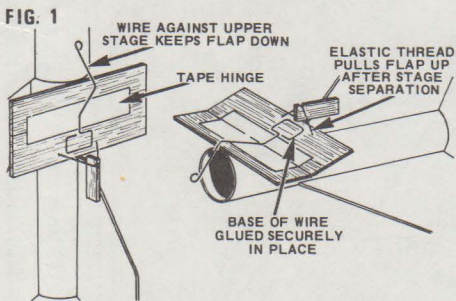
Booster Recovery Techniques

by Bill Simon

Recovery systems have always been one of the most rewarding areas for research and experimentation by model rocketeers. Some systems which have been developed are significant because of their simplicity and efficiency, others for sheer novelty. For some reason, however, almost all work by modelers has been on recovery of single stage models and upper stages of two-stage birds, little work has been done on recovering boosters of multi-stage vehicles.

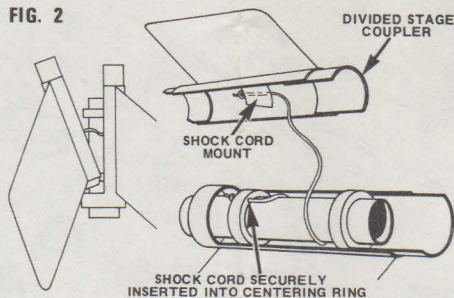
One of the reasons for this is the simplicity and effectiveness of the standard tumble-recovery normally used. By designing the booster to be aerodynamically unstable after it separates from the upper stage, it can be built for an absolute minimum weight and drag and it can be 100% reliable.

This is fine where practical, but scale models do not always allow an unstable booster design. With extremely high performance models there is also the problem of having the fins of the booster strip off when it starts tumbling at high speed.



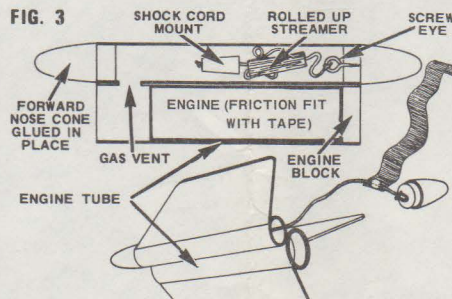
Several other booster recovery systems have been demonstrated; all have advantages for certain applications. For example, glide recovery is almost as easy to apply as tumble recovery. Fixed surface systems which depend on careful balancing are most popular (see the Tiger Shark plan in Model Rocket News, Vol. 4, No. 2). Control surfaces can also be actuated at stage separation. Figure 1 shows a simple system. Glide recovery has two main disadvantages. Boosters sometimes fly away and are lost, and the lower fin is often damaged on landing.

The next step in booster recovery is the break-apart booster. In this system the booster is held together as long as it is in place on the rear of the upper stage (see fig. 2). At separation, the booster proceeds to disassemble itself and returns as a long string of aerodynamic "garbage". Such a booster is, of course, more difficult to build, but allows safe recovery of an otherwise self-stable design. The system has not, to our knowledge, been demonstrated on extremely large or very high performance models.



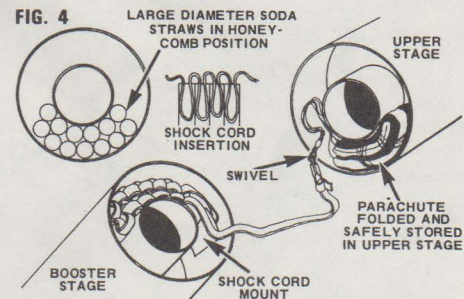
The most appealing systems, in terms of sheer gadgetry, are those using parachutes and streamers. It's here, unfortunately, where the problems start occurring. Parachutes, when deployed at high speeds, have a tendency to disintegrate, with disagreeable results to the model. Streamers don't retard near as well, and sometimes stabilize the falling stage so it comes back faster than it would had it been left alone. The result is damage which would not have occurred had the stage just been allowed to tumble back. The need, then, is for effective, reliable systems.

Early experiments at Estes Industries involved using the extra gases produced at staging to pressurize a side tube, forcing a streamer out its rear (see fig. 3). This system showed



considerable promise, but never reached 100% reliability. As a result, the project was shelved almost a decade ago. Perhaps some rocketeer has the answer which will really make it practical.

Design of the Month entries come in every so often showing another approach a parachute is packed in a compartment in the rear of the upper stage, but actually connected only to the booster. At separation the 'chute is jerked out and deploys. This technique is fairly reliable, but requires a larger, less efficient upper stage and tends to occasionally knock the upper stage off course. The other problem with the system is the speed and force encountered by the 'chute at deployment. A shock cord helps a lot, but some additional means of absorbing the shock of parachute opening is valuable. The honey-comb shock cord holder illustrated in fig. 4



does a good job of providing low-recoil shock absorption.

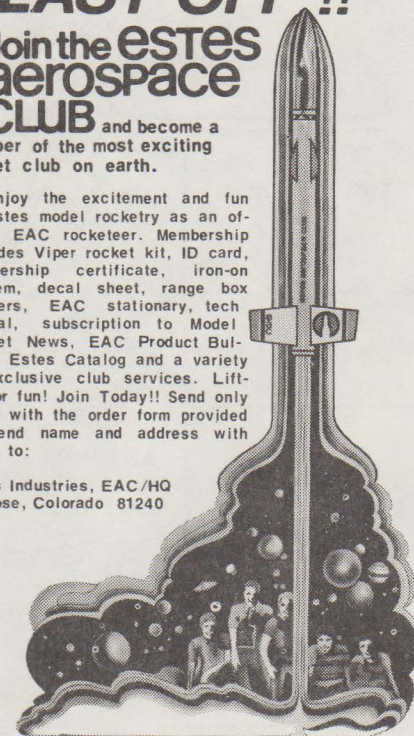
While other systems have been tried, these represent the major directions most experiments take. Next time you're looking for a project in model rocketry, why not see what you can develop?

BLAST-OFF !!

Join the **ESTES aerospace CLUB** and become a member of the most exciting rocket club on earth.

Enjoy the excitement and fun of Estes model rocketry as an official EAC rocketeer. Membership includes Viper rocket kit, ID card, membership certificate, iron-on emblem, decal sheet, range box stickers, EAC stationary, tech manual, subscription to Model Rocket News, EAC Product Bulletin, Estes Catalog and a variety of exclusive club services. Lift-off for fun! Join Today!! Send only \$2.00 with the order form provided or send name and address with \$2.00 to:

Estes Industries, EAC/HQ
Penrose, Colorado 81240



STRATOS

Passenger Shuttle Rocket

DESIGN OF THE MONTH WINNER
 BY TIM BARBER
 Deer Park, Washington
 ESTES INDUSTRIES ROCKET PLAN NO. 77

★ BUILD THE STRATOS WITH ESTES HIGH PERFORMANCE PARTS AND ACCESSORIES

PARTS LIST

- 1 BODY TUBE – BT-20J
- 1 BODY TUBE – BT-50
- 1 BODY TUBE – BT-5
- 2 NOSE CONES – BNC-5W
- 1 NOSE CONE – BNC-50Y
- 3 FIN STOCK – BFS-30
- 3 CENTERING RINGS – AR-2050
- 1 ENGINE BLOCK – EB-20A
- 1 LAUNCH LUG – LL-2B
- 1 18" PARACHUTE KIT – PK-18
- 1 SHOCK CORD – SC-1
- 1 ENGINE HOLDER – EH-2
- 1 SCREW EYE – SE-3
- 1 20" LONG SHROUD LINE
- 1 3-1/2" PIECE 1/2" WIDE MASKING TAPE

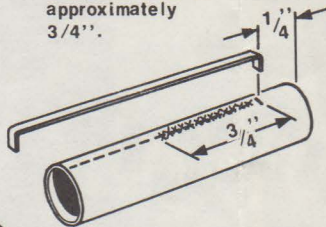
ADDITIONAL MATERIALS

- Hobby Knife
- White Glue
- Ruler
- Sanding Material
- Sanding Sealer
- Enamel Paint (Spray)
- Sharp Pencil

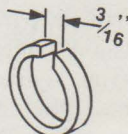
RECOMMENDED ENGINES

- A8-3 B6-4 C6-5

1 Cut a 1/8" slit in the BT-20J, 1/4" from one end. Apply a drop of white glue to the slit and also straight along the tube for approximately 3/4".

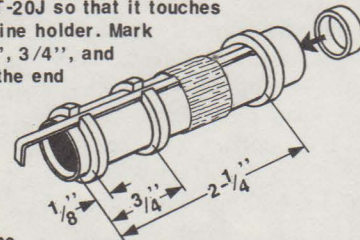


2 Push one end of the metal engine holder into the slit. Press the holder into the glue and align straight along the tube. Wipe away any excess glue.



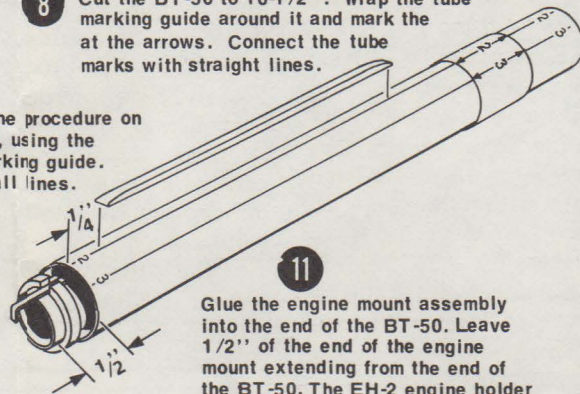
4 Using a sharp hobby knife cut a 3/16" section from 2 of the AR-2050's.

5 Glue the EB-20A engine block into end of the BT-20J so that it touches the EH-2 engine holder. Mark the tube 1/8", 3/4", and 2-1/4" from the end as shown.



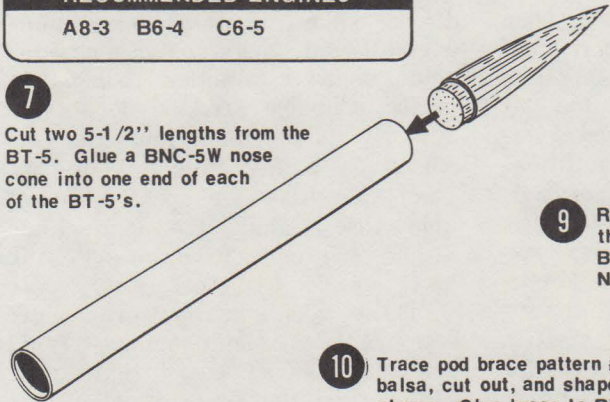
6 Glue the two cut AR-2050's on the forward edges of the 1/8" and 3/4" marks. Glue the final AR-2050 on the forward edge of the 2-1/4" mark.

8 Cut the BT-50 to 10-1/2". Wrap the tube marking guide around it and mark the at the arrows. Connect the tube marks with straight lines.



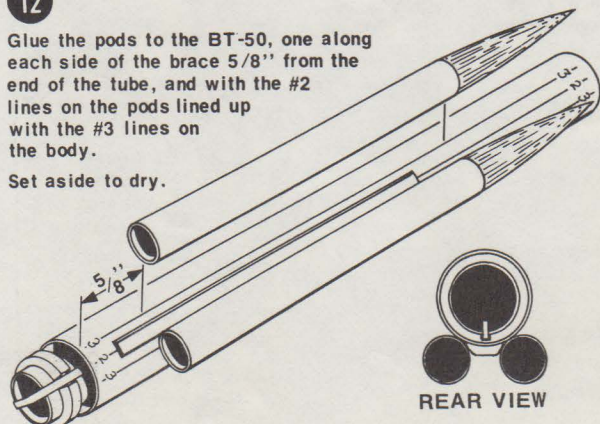
9 Repeat the procedure on the pods, using the BT-5 marking guide. Number all lines.

10 Trace pod brace pattern #2 onto balsa, cut out, and shape as shown. Glue brace to BT-50 straight along line #2, 1/4" from end of the tube.



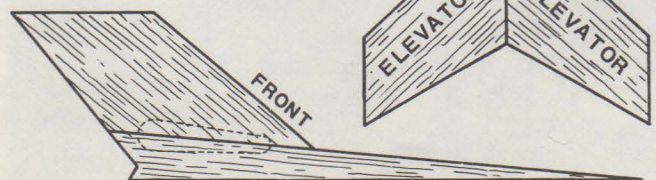
7 Cut two 5-1/2" lengths from the BT-5. Glue a BNC-5W nose cone into one end of each of the BT-5's.

12 Glue the pods to the BT-50, one along each side of the brace 5/8" from the end of the tube, and with the #2 lines on the pods lined up with the #3 lines on the body. Set aside to dry.



REAR VIEW

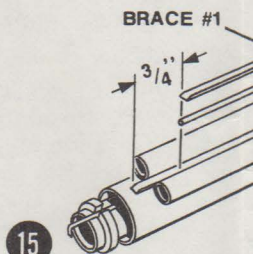
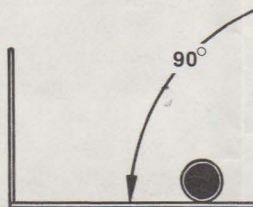
13 Trace wings, tail fins, elevators, antennas, radar pod halves, and rudder sections 1 & 2 onto balsa and cut out. Glue the two rudder sections together and the two elevator sections together. Keep parts in line while drying.



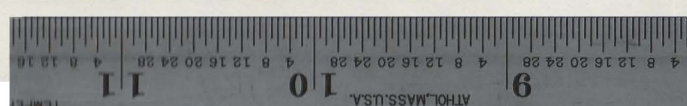
14 When dry, sand all fins and radar pods to shapes shown.

16 Glue radar pod halves, the in the indicated positions antennas flat and glue in

17 Cut two 2-3/4" one to the top of position indicate



15 Glue the launching lug a center line of pod brace 3/4" from the rear of the Cut out brace #1 and sand shape. Glue brace #1 bet the pods over the launch with the rear of the brace with the rear of the launch



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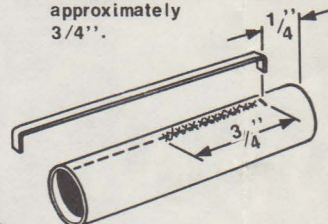
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- Ruler
- Sanding Material
- Sanding Sealer
- Enamel Paint (Spray)
- Sharp Pencil

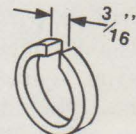
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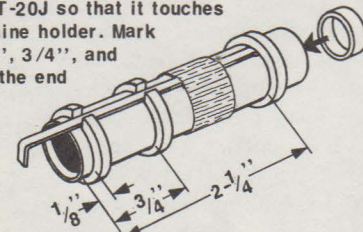


2 Push one end of the metal engine holder into the slit. Press the holder into the glue and align straight along the tube. Wipe away any excess glue.



4 Using a sharp hobby knife cut a 3/16" section from 2 of the AR-2050's.

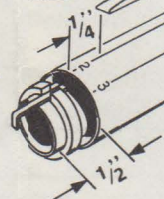
5 Glue the EB-20A engine block into end of the BT-20J so that it touches the EH-2 engine holder. Mark the tube 1/8", 3/4", and 2-1/4" from the end as shown.



6 Glue the two cut AR-2050's on the forward edges of the 1/8" and 3/4" marks. Glue the final AR-2050 on the forward edge of the 2-1/4" mark.

8 Cut the BT-50 to 10-1/2". Wrap the tube marking guide around it and mark the at the arrows. Connect the tube marks with straight lines.

9 Repeat the procedure on the pods, using the BT-5 marking guide. Number all lines.



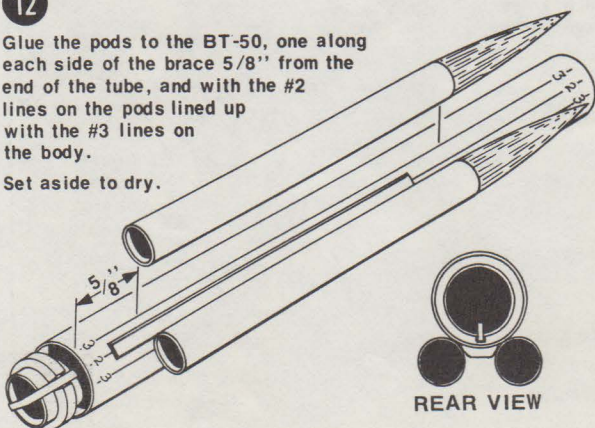
10 Trace pod brace pattern #2 onto balsa, cut out, and shape as shown. Glue brace to BT-50 straight along line #2, 1/4" from end of the tube.

11 Glue the engine mount assembly into the end of the BT-50. Leave 1/2" of the end of the engine mount extending from the end of the BT-50. The EH-2 engine holder must be in line with the brace and line #2.

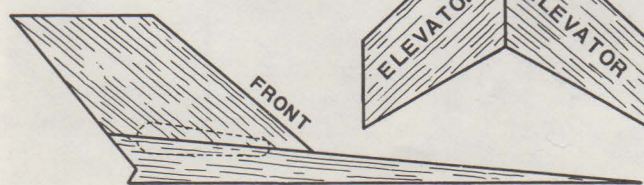
15 Glue the launching lug along the center line of pod brace #2 and 3/4" from the rear of the brace. Cut out brace #1 and sand to shape. Glue brace #1 between the pods over the launch lug with the rear of the brace even with the rear of the launch lug.

7 Cut two 5-1/2" lengths from the BT-5. Glue a BNC-5W nose cone into one end of each of the BT-5's.

12 Glue the pods to the BT-50, one along each side of the brace 5/8" from the end of the tube, and with the #2 lines on the pods lined up with the #3 lines on the body. Set aside to dry.

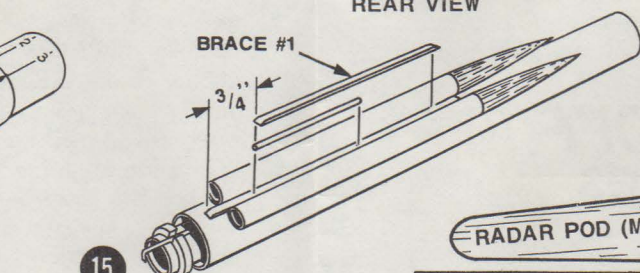


13 Trace wings, tail fins, elevators, antennas, radar pod halves, and rudder sections 1 & 2 onto balsa and cut out. Glue the two rudder sections together and the two elevator sections together. Keep parts in line while drying.

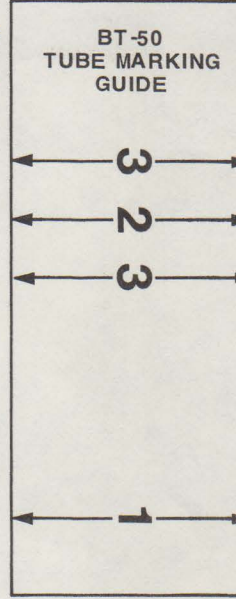


14 When dry, sand all fins and radar pods to shapes shown.

FRONT

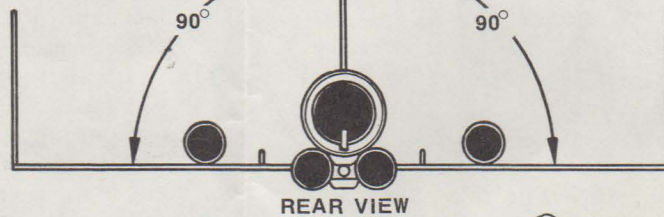


15 Glue the launching lug along the center line of pod brace #2 and 3/4" from the rear of the brace. Cut out brace #1 and sand to shape. Glue brace #1 between the pods over the launch lug with the rear of the brace even with the rear of the launch lug.



16 Glue radar pod halves, the tail fins, and the elevators in the indicated positions. Sand all edges of the antennas flat and glue in place. Let dry completely.

17 Cut two 2-3/4" lengths of BT-5, glue one to the top of each wing in the position indicated on pattern sheet.



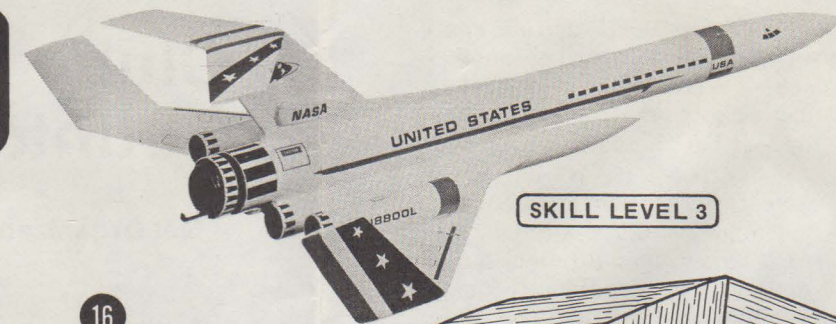
IMPORTANT: The rudder is glued at a 90° angle from the wings. Let dry.

18 Apply glue to the root edge of the rudder assembly. Glue it straight along line #1 with the rear edge 5/8" forward from the rear of the body tube. Make sure it sticks straight away from the tube. Glue the wings along the #1 lines on the pods with the rear edge 5/16" ahead of the rear of the pods.

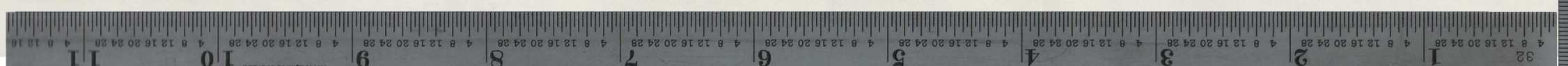
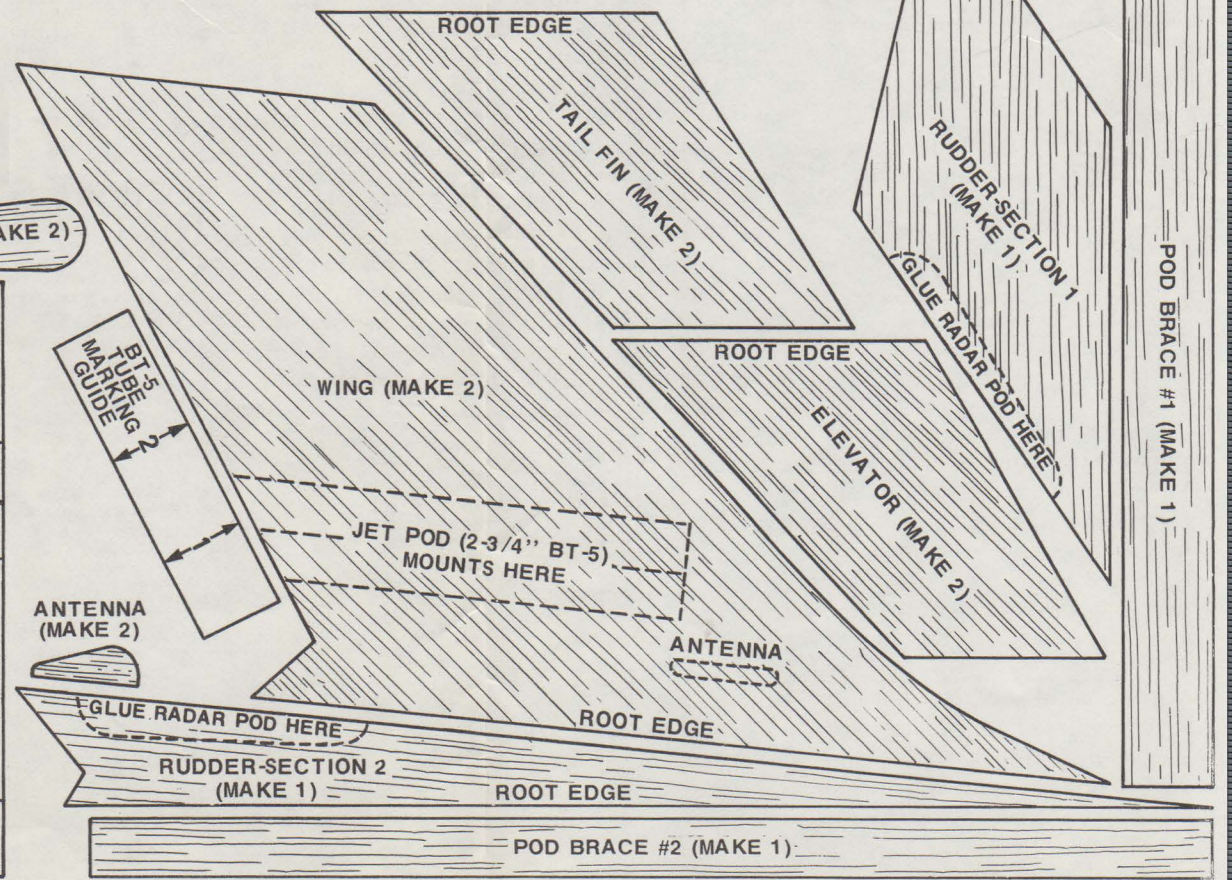
19 Install the screw eye in the base of the nose cone. Assemble the parachute, gather the shroud lines, and tie them to the screw eye. Tie one end of the shock cord to the screw eye. Apply a fillet of glue to all joints and allow to dry until hard and clear.

20 The recovery system on this rocket is intended to minimize fin damage on landing. Find the C/G of the model without the nose cone and with an empty engine casing in place. Using a sharp needle make a small hole through the base rudder section at this point and pass the 20" shroud line through to the center of the line. Squirt a little glue into the hole. Tie the ends of the line together and tie them securely to the free end of the shock cord.

21 Sand, seal, and paint the model.



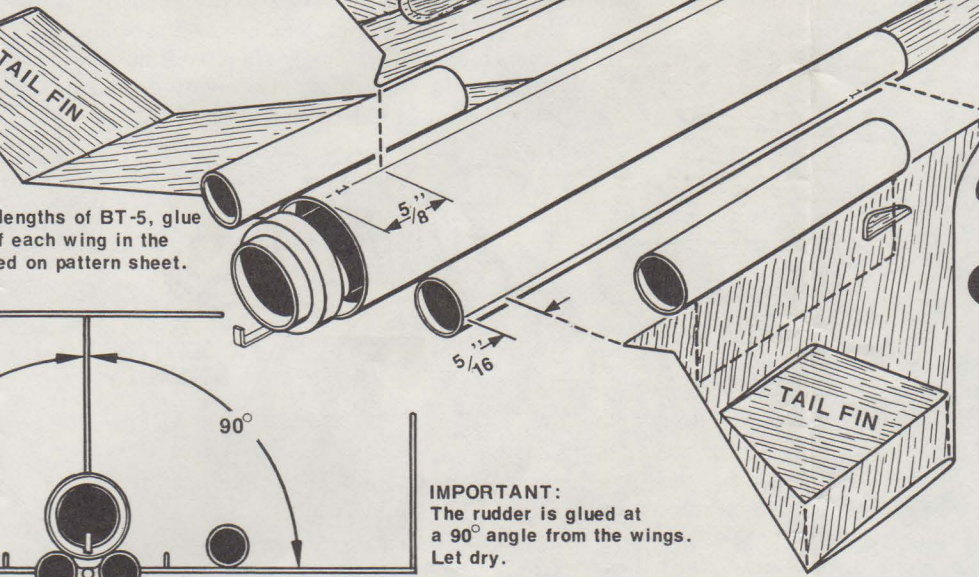
SKILL LEVEL 3



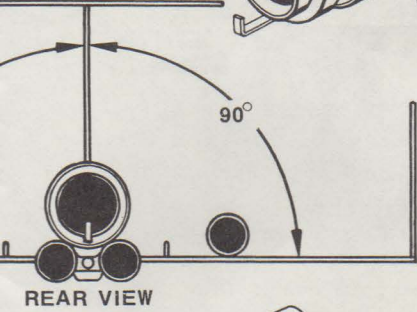


SKILL LEVEL 3

the tail fins, and the elevators. Sand all edges of the parts. Let dry completely.



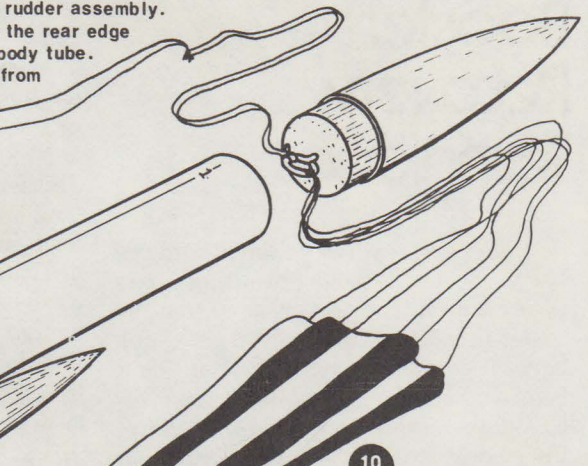
lengths of BT-5, glue each wing in the center on pattern sheet.



REAR VIEW

18 Apply glue to the root edge of the rudder assembly. Glue it straight along line #1 with the rear edge 5/8" forward from the rear of the body tube. Make sure it sticks straight away from the tube. Glue the wings along the #1 lines on the pods with the rear edge 5/16" ahead of the rear of the pods.

IMPORTANT:
The rudder is glued at a 90° angle from the wings. Let dry.

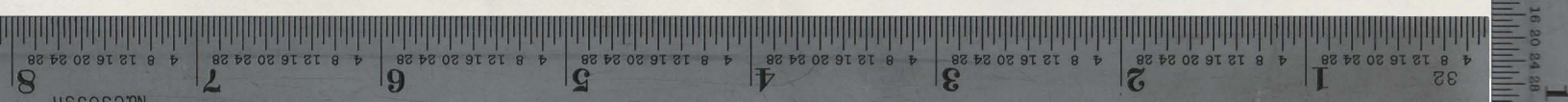
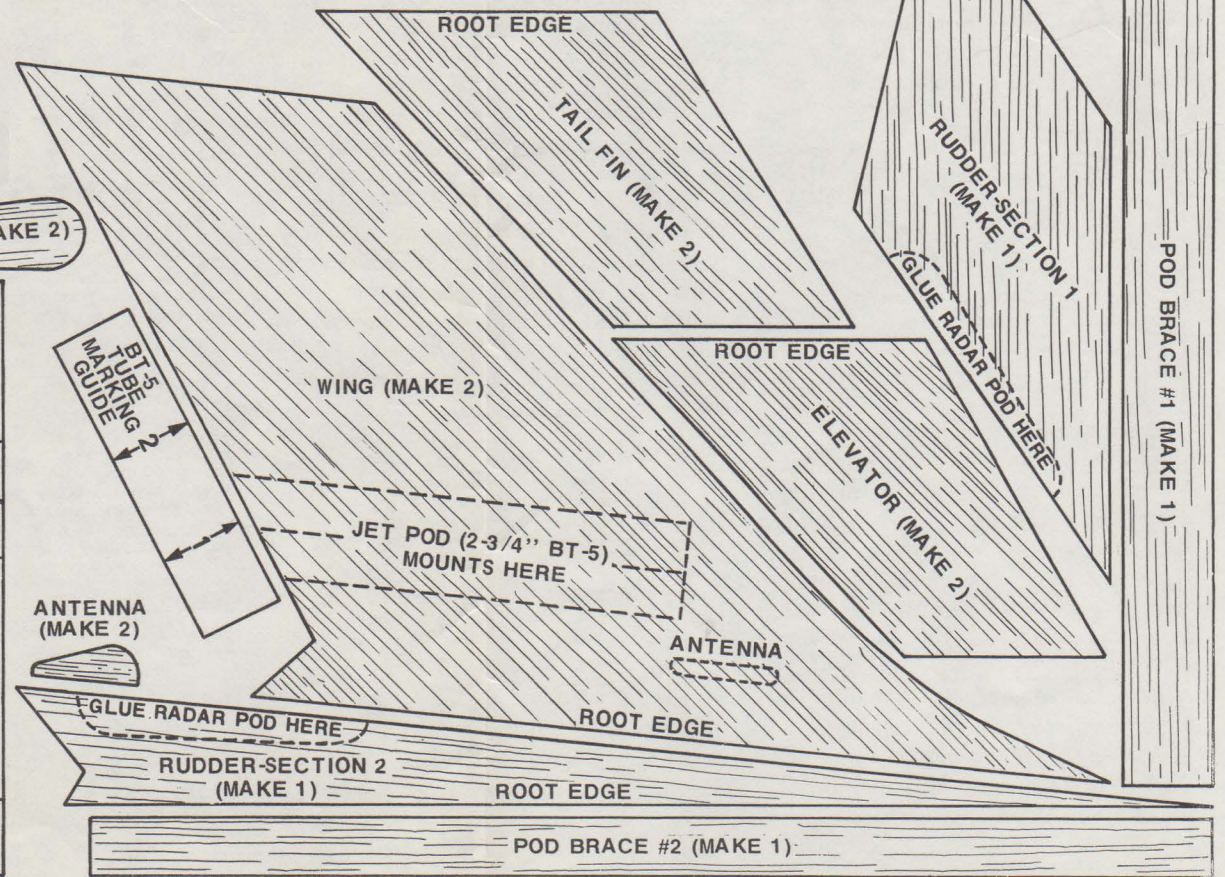
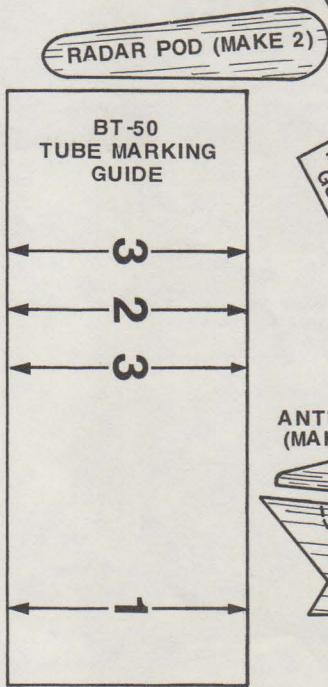


19 Install the screw eye in the base of the nose cone. Assemble the parachute, gather the shroud lines, and tie them to the screw eye. Tie one end of the shock cord to the screw eye. Apply a fillet of glue to all joints and allow to dry until hard and clear.

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21 Sand, seal, and paint the model.

along the #2 and the brace. and to between lug the even ch lug.



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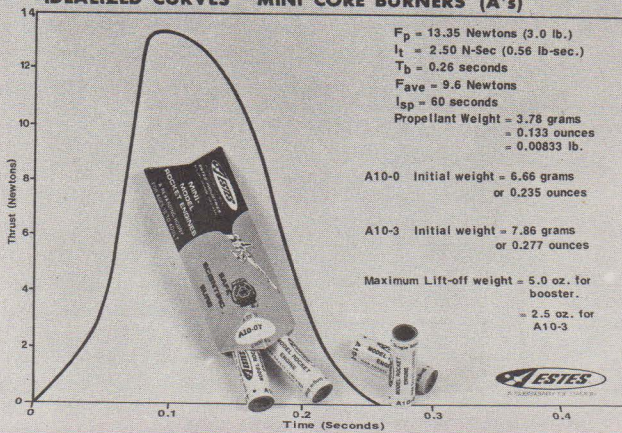
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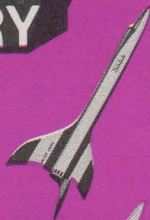
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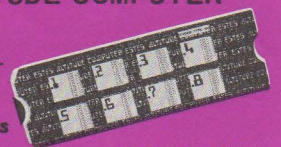
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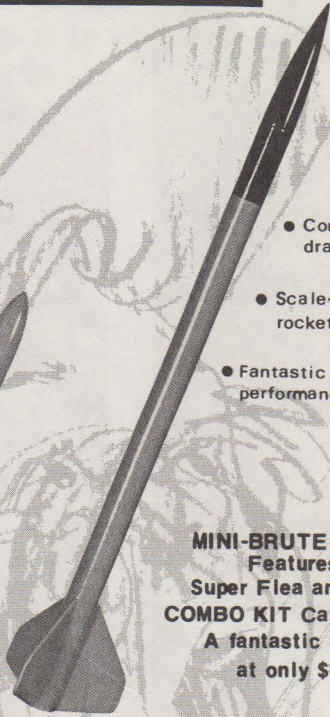
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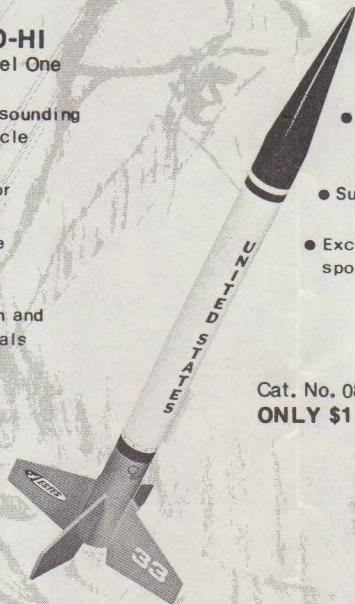
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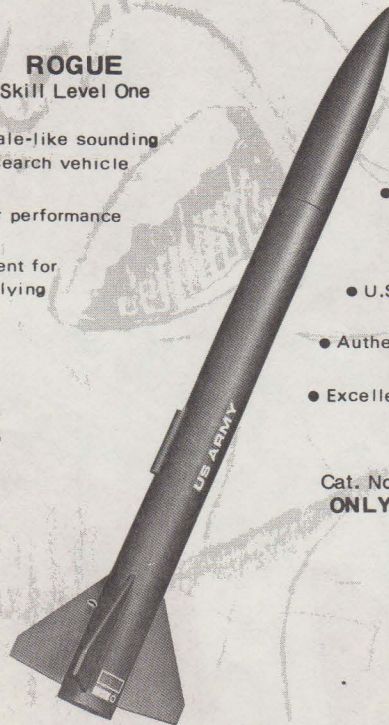
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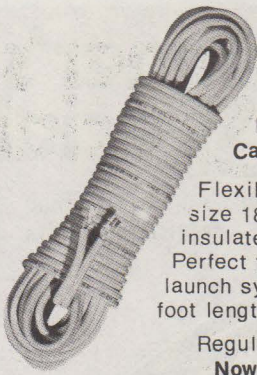
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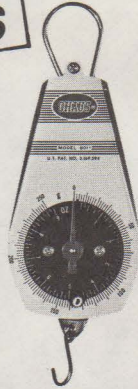
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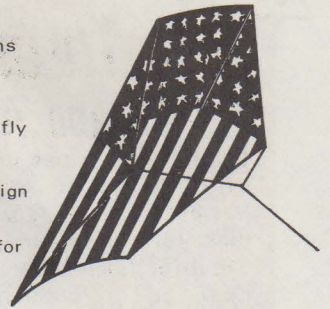
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Quite a few camps are now offering model rocketry as an activity. We have just published a new guide for model rocketry as a camp program. If you will send us your camp director's name and address, and your own name and address, we will send him a free copy of this new guide, and a new Estes iron-on insignia to you. Maybe he'll want to start a model rocketry program!

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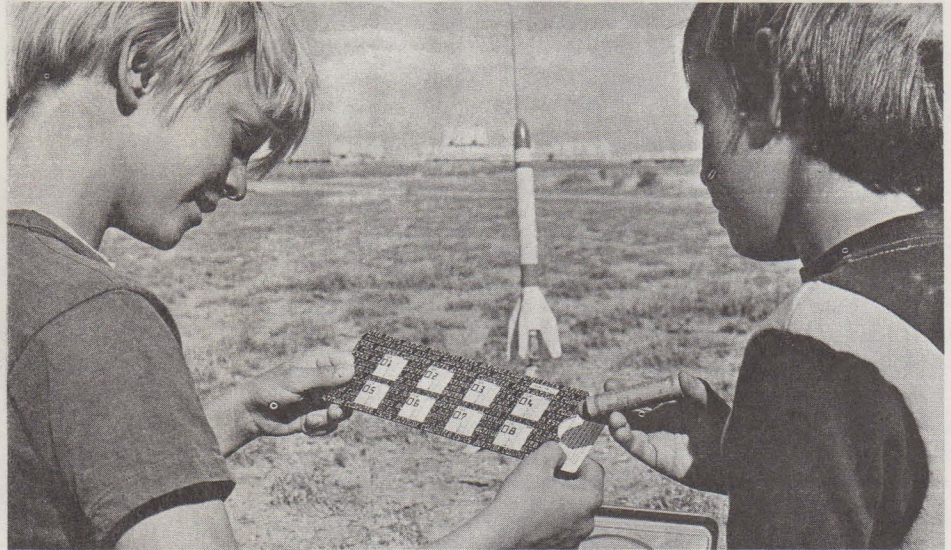
Since the introduction of the Estes Aerospace Club in our November, 1972 MRN, membership has continued to soar. The EAC now boasts a membership of more than 12,000 active Estes rocketeers and over 200 official EAC club chapters. Initial response to EAC membership kits and the club's skill level achievement program has been excellent. EAC rocketeers are looking forward to a variety of summertime model rocket activities and EAC special events with the first official club newsletter scheduled for late May.

If you have recently sent in for an EAC membership and not received it yet, please be patient. We did not anticipate the size of our initial rush for memberships and were caught without enough membership materials to fill all the requests. We presently are almost caught up on mailing membership packets so if you have not received yours yet it should be reaching you shortly.

If you are not yet a member of the EAC, join today and become a member of the most exciting rocket club on Earth as more than 12,000 active Estes rocketeers have already discovered.

PAINLESS ALTITUDE PREDICTION

By Bob Cannon



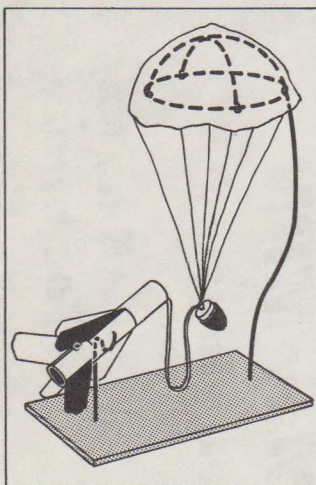
Ever have an argument about how high your rocket will go with a certain engine? There is now an easy way to find out without having to launch your bird and track it or get out a pencil and paper and do the eight steps involved in using TR-10. Your new easy-to-use, handy-dandy, pocket-sized Altitude Computer provides the answers fast.

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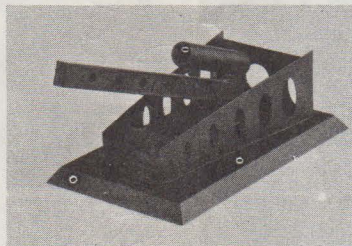
Size of your rocket (either from a kit or one of your own designs), the Drag Factor (based on how well your rocket is finished), the Engine Type you plan to use, and the Weight of your rocket (without engine). A few movements of the slide and you have the Predicted Altitude!

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 Coat hanger wire
JIM JENSON
 San Pablo, Cal. 94806



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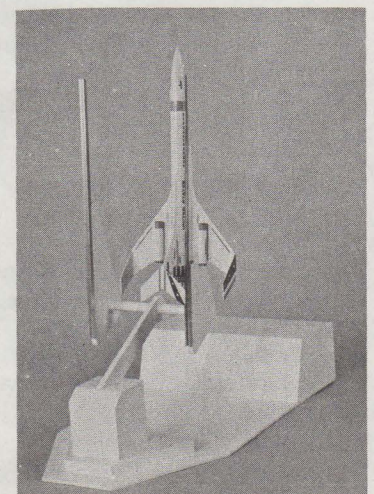
- 2 C-Rails
- 2 C-Rail joiners
- 10" of 5/8" Dowel
- 6" of 1/4" Dowel
- 3/8" of Plywood
- 1/16" Sheet aluminum
- 3/4" Cedar
- 1/4" Masonite
- 3/4"x1/2" Pine strip
- 3/8" Nails
- 1/8"x3-1/2" Wood block
- 1 Wood screw

TODD PALMER
 Gaithersburg, Md. 20760

DISPLAY STAND

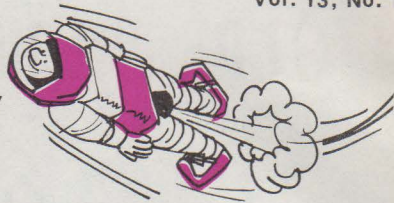
- Heavy cardboard
- 1/4"x1-1/2"x1-1/2" balsa
- 1/2"x7"x4" Pine
- Used engine casing
- White glue, hole punch, scissors, sharp knife, sanding sealer, paint.

JIM COFFEY
 Aberdeen, Md. 21001



★ These entries are winners in the Estes Display Stand Contest.

Model Rocketry Events



The following is a brief listing of major national and international model rocketry activities which will be taking place in the coming months.

TRRM-3 – Toronto Regional Rocket Meet – Toronto, Ontario, Canada – June 16 & 17, 1973 – Contact: Mr. Hillel Diamond, 137 Yonge St., Toronto, Ontario, Canada.

BIRC 73 – Buckeye International Rocketry Conference – Columbus, Ohio – July 6-9, 1973 – Contact: Mr. George Pantalos, 1191 Shanley Drive, Columbus, Ohio 43224.

SWMRC 73 – South Western Model Rocketry Conference – Albuquerque, New Mexico – July 15-18, 1973 – Contact: Mr. Pat Miller, Chairman, Southwest Research Association, Math Department, University of New Mexico, Albuquerque, New Mexico 87106.

NARAM 15 – National Model Rocketry Championships – Columbus, Ohio – August 4-10, 1973 – Contact: Dr. Gerald Gregorek, 1095 Beechview Drive, South, Worthington, Ohio 43085.

CARNAT-1 – Canadian National Model Rocketry Championships – Edmonton, Alberta, Canada – August 17-19, 1973 – Contact: Mr. Len Bosco, 13520 118th Avenue, Edmonton, Alberta, Canada.

WANT TO WIN A



How would you like to be the proud possessor of a fine new Goonybird? It is easy, and fun, to win one of these wild new "birds." Just send to us your favorite rocketry cartoon, joke, or poem.

The winners will be selected in July of this year, so all entries must be received before midnight on June 30, 1973. One winner (cartoon, joke, or poem) will be selected from each state. Originality counts, so entries which are merely copies of existing cartoons, jokes, or poems may be disqualified. Preference will be given to entries involving model rockets, but entries relating to rocketry in general are acceptable.

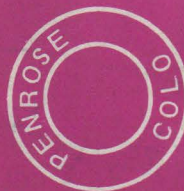
In the event of ties, the entry with the earliest post-mark wins. The decisions of the judges are final.

Your name and full address (including zip code) must be on each entry. You may enter as often as you wish, but only one entry per envelope.

Write or print legibly. A typewritten entry is fine. All drawings must be clean and clearly done. We reserve the right to make minor changes for clarity or brevity in any entries published. All entries become the property of Estes Industries and cannot be returned.

Good luck on a winner! Get those entries in now!

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