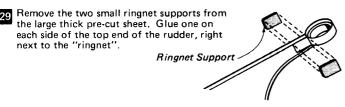


1 Decal

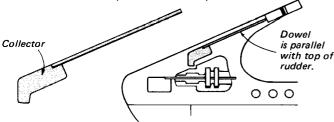
```
O Desc
                            Stk Num Size
                                                         Other
1 Plastic Nose Cone
                            72013 6.4" Long tip to shoulder
                                    with .6" Long insert
   (Found in Estes NC-56 Assortment)
   NOTE* Connector not included in Estes pack. Item can be
   fabricated or omitted by using a coupler and adding .9"
   to one of the forward tubes.
1 Plastic Connector
                          Part of 72013 fits ST-13 / BT-56
   Length end to end - 2.5"
    Length of exposed part - .9"
    Length of front insert - .6"
    Length of rear insert - 1"
    Surface Detail - Raised ridges at front & rear with 2
    access hatch detail on opposite sides. (see scan)
2 Plastic Nose Cone 72054 (In Estes NC-5 Assortment)
                           72051 (In Estes NC-5 Assortment)
2 Plastic Nose Cone
                         ST-5 / BT-5 2.5" Long
ST-7 / BT-20 3" Long
ST-13 / BT-56 6.25" Long
ST-13 / BT-56 7" Long
ST-13 / BT-56 8" Long
ST-20 5" Long
2 Body Tube
1 Body Tube
1 Body Tube
1 Body Tube
1 Body Tube
                          ST-20 5" Long
1 Body Tube
1 Display stand tube
                          N/C 6"L 1/16"T wall
                                                       1/2" Dowel works
1 Engine Casing
                                                         Used Engine
1 Launch Lug
                                     .25" Long 5/16" Dia.
1 Launch Lug
                                    7/32"Dia x 8"L
2 Wood Dowel
                                    .088"Dia x 12"L 1/12" Very Close
1 Coupler
                          HTC-13 1.5"L
1 Thrust Ring
                           TR-7 .4"L
3 Thrust Ring
                           TR-7 3/16"L (Estes engine block)
1 Engine Lock
                          _{\mathrm{EL-1}}
                                   1/2"
  Tape Disk(8)
1 Fiber Diecut Display Base
                                    .055"T
                                                         Sheet Styrene works
1 Die-Cut Fiber Sheet
                                    6.7"W 15"L .055"T 1/16 balsa works
1 Die-Cut Fiber Sheet
1 Die-Cut Fiber Sheet
                                    4.3"W 12.4"L .055"T 1/16 balsa works
                                    7.5"W 11.5"L 110 lb. Gloss card stock
1 Shock Cord
                                    1/8"W x 38"L
2 Chute Pack
                          CP-20
                                    20" Yel/Blk
   Parachute
   Shroud Line
                                    128"
  Tape Disk(8)
                                    1/2"
```

6" x 12.5"

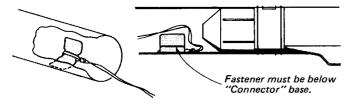
Red/Blu/Blk/Grn



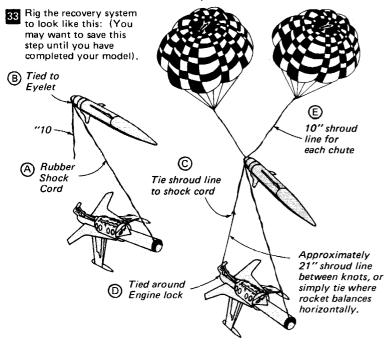
Carefully remove the "collectors" from the large thick pre-cut sheet. Cut two 2%'' dowel pieces. Glue each one into the notch on each "collector". Glue these assemblies on to the rudder so that the free end of the dowel touches the ringnet support of the previous step. The rest of the dowel is parallel with the top of the rudder.



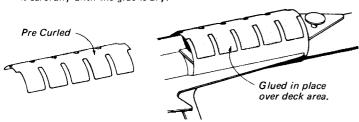
Tie one end of the shock cord around its fastener as shown, with a double knot. Glue fastener far enough down into body tube to allow full insertion of the nose cone later. Hold fastener until glue sets.



Assemble parachutes (directions are printed on the parachutes). Assemble paracritics conserved Save left-over shroud line for next step.



Carefully remove the satellite storage wrap and pre-curl it by rolling it around an engine casing until it has a curve. DO NOT WRINKLE IT! Glue it carefully to the top of the large tube covering the main "deck" unit. Be sure that the storage wrap is centered evenly. Hold it carefully until the glue is dry.





S.S.V. SCORPION

Up until 1988 most satellite repair and service was conducted with NASA Space Shuttles. This encouraged peaceful applications of space travel so that today Earth is surrounded by thousands of solar-energy collecting The Satellite Service Vesatellites. hicle (S.S.V.) Scorpion maintains this complex network which conserves our dwindling natural fuels. Its name comes from the stinger-shaped rudder that magnetically launches and re-trieves satellites from Earth orbit. These slide down the rudder into storage slots on the hull, and are later brought into the open hanger. Maintenance crews work in the vacuum of space to prevent atmospheric damage to these satellites so vital in the 21st century.



Centuri

MODEL ROCKETEER'S SAFETY CODE

CONSTRUCTION

My model rockets will be made of only lightweight materials such as paper, wood, plastic, and thin metallic foils, with the exception of payloads and engine holders made of wirelike material.

I will use only pre-loaded factory made model rocket engines in the manner recommended by the manufacturer. I will not change in any way nor attempt to reload these engines.

I will always use a recovery system in my model rockets that will return them safely to the ground so that they may be flown again.

WEIGHT LIMITS

My model rocket will weigh no more than 453 grams (16 oz.) at liftoff, and the engines will contain no more than 113 (4 oz.) of propellant, as prescribed by Federal Regulations.

STABILITY

 \bar{l} will check the stability of my model rockets before their first flight except when launching models of already proven stability.

LAUNCHING SYSTEM

The system I use to launch my rockets will be remotely controlled and electrically operated, and will contain a switch that will return to "off" when released. I will remain at least 10 feet away from any rocket that is being launched.

LAUNCH SAFETY

I will not let anyone approach a model rocket on a launcher until I have made sure that either the safety interlock key has been removed or the battery has been disconnected from my launcher.

My model rockets will always be launched from a cleared area, free of any easy-to-burn materials, and I will only use non-flammable recovery wadding in

BLAST DEFLECTOR

My launcher will have a blast deflector device to prevent the engine exhaust from hitting the ground directly.

LAUNCH ROD

To prevent accidental eye injury I will always place the launcher so the end of the rod is above eye level or cap the end of the rod with my hand when approaching it. I will never place my head or body over the launching rod. When my launcher is not in use I will always store it so that the launch rod is not in an upright position.

POWER LINES

I will never attempt to recover my rocket from a power line or other dangerous places.

LAUNCH TARGETS AND ANGLE

I will not launch rockets so their flight path will carry them against targets on the ground, and will never use an explosive warhead nor a payload that is intended to be flammable. My launching device will always be pointed within 30 degrees of vertical.

PRE-LAUNCH TEST

When conducting research activities with unproven designs or methods, I will, when possible, determine their reliability through pre-launch tests. I will conduct launchings of unproven designs in complete isolation from persons not participating in the actual launching.

FLYING CONDITIONS

I will not launch my model rocket in high winds, near buildings, power lines, tall trees, low flying aircraft or under any conditions which might be dangerous to people or property.

CENTURI Engineering Co., Inc., Phoenix, AZ 85001

Printed in U.S.A. #081,572 Side 1

HOW IT WORKS

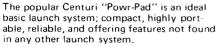
Your S.S.V. Scorpion model rocket is designed to fly in the same manner as most model rocket kits. The electrically ignited engine blasts the Scorpion off the launch pad, guiding it into proper flight by the launch rod. The rocket continues coasting to peak altitude while the motor's delay-charge burns. Then the ejection charge ignites, pushing out the nose cone and parachute system. Your Scorpion drifts to earth ready to be prepared for another flight.

WHAT IT TAKES TO FLY

You will need engines, igniters, an electrical launch system and parachute wadding to fly your rocket. These supplies are NOT included in individual rocket kits, but are available separately and ARE included in every Centuri Starter Set or Rocket Outfit.



We recommend using Centuri engines; each package includes the famous "Sure-Shot" igniters, acclaimed as the world's most reliable model rocket igniter.





Always use standard remote-control electrical ignition and follow the engine recommendations. Be sure to comply with any laws that may

apply in your area, for the good of Model Rocketry and your own enjoyment.

RIGHT MATERIALS FOR THE JOB

Different model rocket kits are made out of a wide variety of materials, depending on the needs of each kit. The chart below explains why this particular kit is designed using certain materials.

PART	REQUIREMENTS	MATERIAL
Fins	No tools required Precision edges	Pre-cut Fibreboard
Nose Cone	No tools required Durability	Molded Styrene

TOOLS YOU WILL NEED

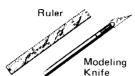
In addition to the parts supplied you will need the following tools to assemble and finish this kit (DO NOT use model airplane glue for building model rockets).



White glue, or "Wilhold" type glue









BEFORE YOU START

In case you are new to model rocketry, here are some general tips to get you off to a good start.

- Choose a practical assembly area: well lighted, big enough to work in, and out of the way of relatives or pets who might accidentally mess up your work.
- Cover your worktable with plywood or heavy cardboard to protect the table from glue, paint, cuts, etc.
- Remove the entire contents of your kit package carefully to avoid losing or damaging small parts. Lay them out neatly and identify each by referring to the "exploded view" drawing on this instruction.
- NOTE: Sometimes certain parts are packed INSIDE of other parts, such as tape discs inside parachutes, decals or couplers inside body tubes, etc.

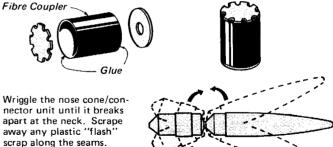
ASSEMBLY INSTRUCTIONS

REFORE YOU START:

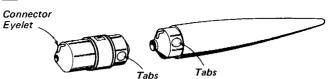
Remove the large "Exploded-View" plan sheet, and place it where you can refer to it while following these assembly instructions.

NOTE: All aluing steps require white glue, unless otherwise stated.

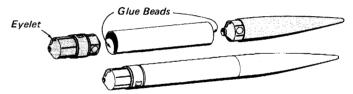
Carefully remove the two circular baffle parts from the smaller thick pre-cut sheet and assemble the ejection baffle unit. Set aside to dry.



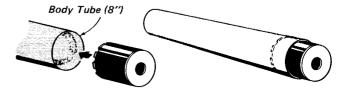
Place \underline{two} pressure sensitive tabs on the neck of the nose cone, and two tabs on the neck of the plastic connector.



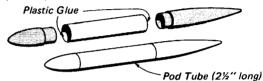
Run a generous bead of glue around the inside of one end of the 64" long body tube. Socket the nose cone into position in this end. Repeat this process by gluing the connector into the other end, eyelet out.



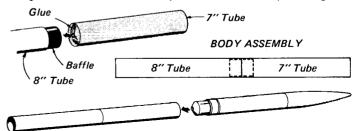
Test fit the baffle unit into the 8" body tube . . . shave or sand to fit, if necessary. Glue baffle unit approximately halfway into tube, with the "donut" end of baffle exposed. Set aside to dry.



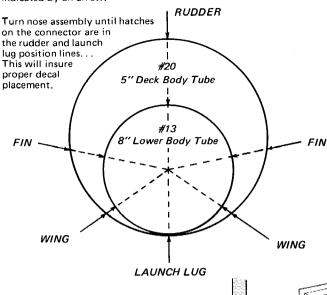
5 Assemble each fuel pod by putting a tiny amount of plastic glue into each end of the two fuel pod body tubes and socketing the plastic parts in place.



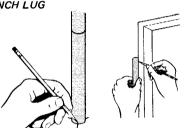
Glue the body tube with the baffle into the unused 7" tube. Roll the completed assembly on a perfectly flat surface to be sure tubes are straight. Now socket this assembly and the nose assembly. Don't glue.



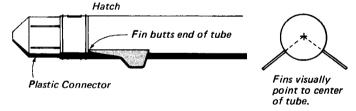
Stand the body assembly on end over the #13 body tube guide below. Mark the bottom tube lightly with a pencil at each point indicated by an arrow.



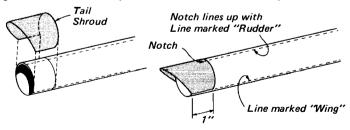
Find a convenient groove or channel, such as a door jamb or partially open drawer. Use it as a guide to draw light pencii lines down the entire length of the assembled tubes. Label each line lightly with the proper word or letter (ie. "w" or "wing").



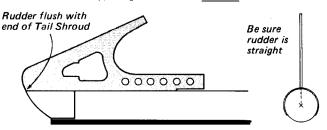
- Carefully remove the small pre-cut forward fins from the large sheet of pre-cut parts. Apply them as shown below, being sure that each one is glued to the lines marked "wing". Use the following gluing procedure for all the wings, fins, and the rudder in this kit.
 - A. Apply a SMALL line of glue to edge of part.
 - B. Join the part to the tube.
 - C. Separate the parts and allow several seconds for glue to become tacky.
 - D. Apply another SMALL line of glue.
 - E. Re-join the parts neatly and allow to dry.



Remove the tail shroud from the thin pre-cut sheet. Roll it carefully (shiny side out) so that it can be easily glued into position. Carefully glue the tail shroud into position as indicated. Hold till dry.

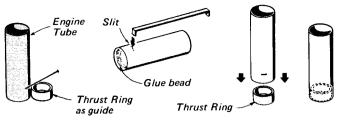


Remove the rudder from the large thick pre-cut sheet and punch out the small pre-cut areas. Glue the rudder into position on the line marked "rudder" and directly over both notches in the tail shroud. Allow to dry, being sure that it is vertical.



Make an engine-lock slit in the engine tube by poking holes with a pin or needle (or cutting with a modeling knife if you have one). Push engine lock into tube to finish the slit.

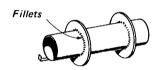
Run glue bead around inside of the slit end of tube. Insert thrust ring by pushing tube down over it.



Re-insert the engine lock into the engine tube and position the centering discs (taken from the small thick pre-cut sheet) as shown. Glue



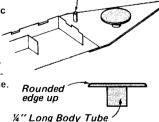
Through the rest of this instruction you will be asked to "fillet" certain glue joints. "Fillet" means to squirt a fine line of glue along a joint, then smooth it out with your finger. This gives greater strength and durability to a model rocket. Keep a rag handy to clean your fingers. Start by applying fillets to the centering discs of the engine mount. Set aside to dry.



Carefully remove the "deck" and "partitions" from the thin pre-cut sheet. Assemble them as shown below – along with the deck ends from the large thick pre-cut sheet.

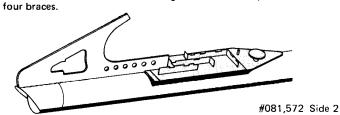
Line up notches

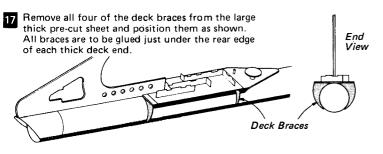
Remove the "open satellite" (the disc without a hole in the middle) from the large thick pre-cut sheet. Glue this over the center of one end of the small white. "I long body tube. Be sure that the rounded edge of the "satellite" faces up. Glue this assembly onto the deck over the larger hole. Next, cut a "long piece of dowel from the 6" long dowel and glue it into the small hole in the deck.



¼" Long Dowel

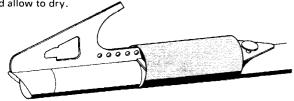
Glue the deck assembly in position. Be sure that it is centered properly and is as level as you can get it. Be sure also that the square end of the deck slides under the notch in the rudder and all the way back to the end of the notch. Go right to the next step and add the



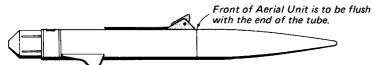


The aerial unit is intended to be a moving part. Be careful gluing. Remove the three pre-cut aerial parts from the large die-cut sheet. Cut a dowel axel "I long and aerial 3½" from the remainder of the 6" dowel. Glue the 3½" dowel to the notched por-1/4" Dowel tion of the central pre-cut part. Allow to dry for a minute or two then push the 14" dowel axle thru the holes in all 3 pre-cut parts. Add a bead of glue at each end of the axle to hold the unit together. 3%" Dowel

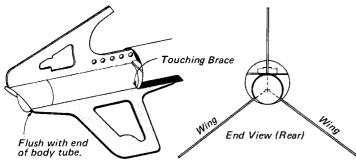
Place the largest diameter body tube (5" deck body tube) on the marking guide in step seven. Draw lines on the tube and label them correctly. Slide the tube into position over the main body tube and the deck assembly, to the back edge of the "main deck". It should fit snuggly around the deck braces, and part of the way over the rudder. When the tube seems to fit properly, slide it back off enough to apply glue to all the surfaces the tube will come in contact with. Slide the tube back on being sure that the lines you marked "rudder" and "launch lug" line up with those parts. Fillet all exposed joints and allow to dry.



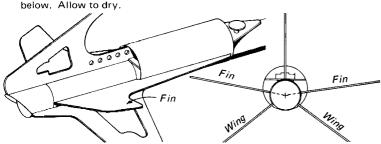
Glue the aerial assembly into position as shown below. Apply glue only to the bottom of the two outside pre-cut parts and then set the aerial unit on the line marked "rudder". Allow to dry.

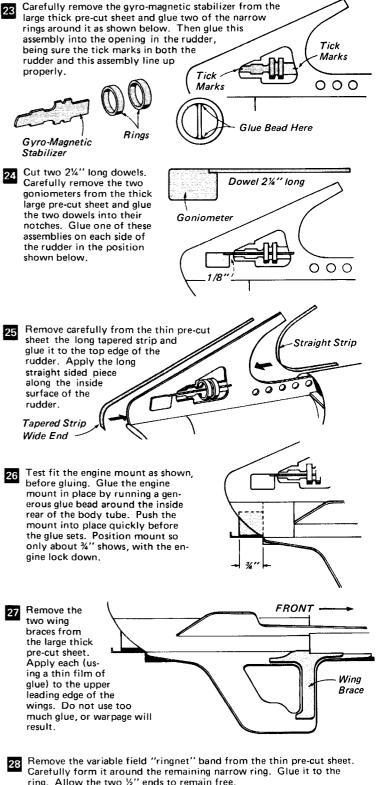


Remove the main wings from the large thick pre-cut sheet and glue each onto the body tube on the lines marked "wing". The rear of each wing should be flush with the end of the body tube, just touching the rear deck braces. Each wing as seen from the rear of the ship should visually aim for the center of the body tube for proper alignment.

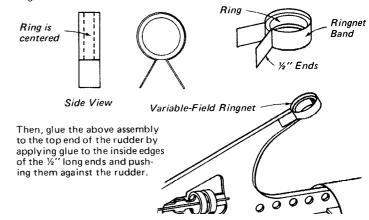


Carefully remove the two large fins from the small thick pre-cut sheet and glue each one into position on the lines marked "fin". The rear of the fins should just touch the front edge of the tail shroud. Be sure that the fins visually line up with the center of the tube as shown





Carefully form it around the remaining narrow ring. Glue it to the ring. Allow the two ½" ends to remain free.



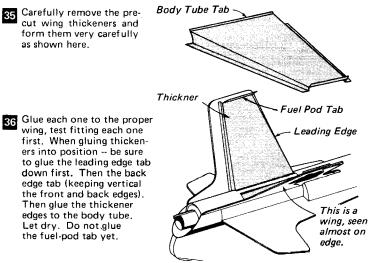
Carefully remove the precut wing thickeners and form them very carefully as shown here.

Then glue the thickener

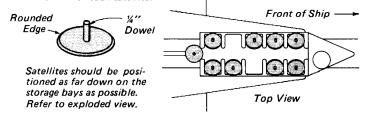
edges to the body tube.

Let dry. Do not glue

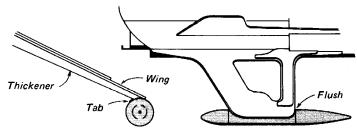
the fuel-pod tab yet.

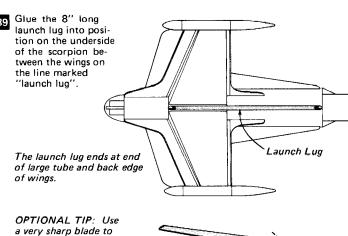


Carefully remove the satellites and cut a little 1/4" long dowel for each. Glue satellites in place, rounded edge up. Glue dowels into holes in the center of each satellite.



Glue the fuel pods into position on the wing tips. Be absolutely sure that the pods line up with the main body tube visually from all angles. Note how the remaining tab on the wing thickener gets glued to the fuel pod. Be sure the back end of the nose cone on the pod is flush with the front edge of the wing.





VERY IMPORTANT: Apply glue fillets to every exposed joint. Set rocket aside to dry, but check it to be sure glue does not run and parts do not sag!

PAINT YOUR MODEL

taper the ends of the lug.

When painting plastic parts, never use dope or lacquer! Use enamel only! Dope or lacquer will melt the plastic.

For best paint results, spray first with enamel primer to seal the fibreboard edges. Or rub a thin film of glue on or use filler coat and a brush. You may then want to smooth the edges with very fine sandpaper.

RECOMMENDED COLOR: MAY SUBSTITUTE:

Bright yellow White or silver

Spray painting your finished model with a fast-drying enamel will produce the best results . . . IF IT IS DONE PROPERLY!! Most important is the number of coats of paint. DO NOT try to paint your model with one heavy coat! Instead, give it a couple of quick, light coats first and then a finish coat. Let each dry before applying the next

Optional Step: You may wish to paint the two rings on the gyromagnetic stabilizer contrasting colors. Wait until the other paint is dry, and use a brush.

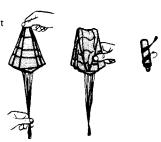
FLYING INSTRUCTIONS

Igniters and complete engine installation instructions are included in "Engine Operating Instructions" which accompany all Centuri engines.

RECOMMENDED ENGINES: C6-3, C5-3S

FLIGHT PREPPING

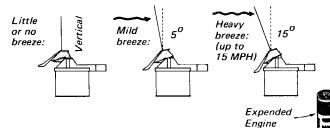
- 1. Inspect entire recovery system for good condition before each flight. If the recovery system is tangled from the last flight, cut it apart to untangle it.
- 2. Your Super Kit has an Ejection Baffle which virtually eliminates the need for chute wadding. BUT, we strongly recommend that you still use 2 or 3 sheets of our crepe-type wadding (#5846/SPW-19) in case your engine has an extra strength ejection charge.
- 3. Fold parachutes as shown and tuck neatly into rocket . , trying to avoid tangles. Chutes should be packed just before flight to avoid them possibly sticking together.



- 4. Tuck in shock cord and insert nose section. The cone should fit snugly, yet be loose enough to eject.
- 5. Install igniter into engine, following instructions enclosed with engines.
- 6. Insert engine into its mount, securing with engine lock.
- 7. Mount the rocket on launcher and prepare for ignition. The rocket must be raised slightly off the launcher's deflector to avoid a shortcircuit which might prevent ignition. If your launcher has a "positioning spring" use it as TYPICAL ROCKET shown. Otherwise just

wrap a little tape around the launch rod to support the rocket and the launch lug.

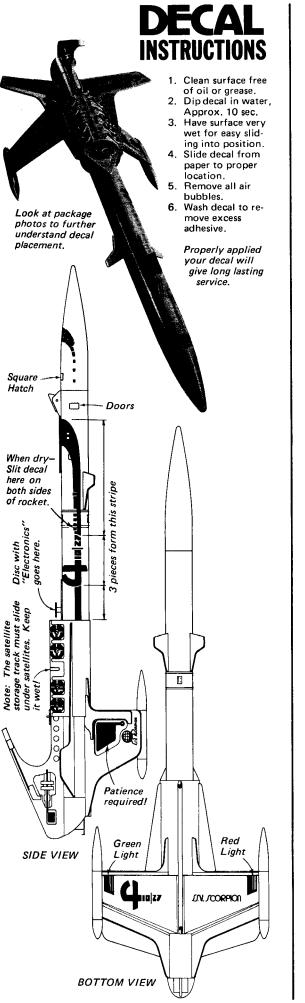
8. If your launcher has a rod-tilting feature, use it only for launching in breezes . . . normally model rockets are launches straight up. For reliable, impressive flights, never tilt the rod more that 15 degrees when flying your Super Kit . . . do not tilt the rod to its maximum angle.



Avoid eye injury by capping the exposed tip of the launch rod when not actually launching. Follow the instructions and the Safety Code, and have many happy hours with model Rocketry.



Spring



ROCKET RACK MODEL ROCKET DISPLAY STAND CONTURNS

A. Use white glue.

B. Apply a SMALL line of glue to edge of piece. C. Join the appropriate pieces.

D. Separate the parts and allow several seconds for glue to become tacky.

E. Apply another SMALL line of glue.

F. Re-join the parts neatly and allow to dry.

Remove parts very carefully to avoid bending pieces.

Glue the longest leg onto the hub . . . fit notches together, line up onto mark, and make sure assembly is squared-up.

Glue the two shorter legs in place again using the notches. Legs but together as shown.

Place each pad onto each leg tip with holes close to the rack's center and glue to hold in place.

Pad holes

Glue each end cap in place, centering neatly on the leg. Now glue each strip on, again centering neatly.

Glue the two small braces together like a sandwich, lining up the notches and centering marks. Slide this assembly into the big brace and apply glue along the joints.

Centering Mark

P

End

Glue the suport tube an inch or so into the mount tube. Glue the T-plate into the end of the mount tube. NOTE: For mini-motor kits, leave off the mount tube.

Decide whether you want vertical or angled display . . . insert the support tube just barely thru the hole in the hub and position it.' Test fit the brace assembly to check its fit, then glue it in place. MAKE SURE YOU HAVE A RIGHT ANGLE WHEN VIEWED FROM THE FRONT OR YOUR ROCKET MAY TIP OVER.

SIDEVIEW MOOD ---



Long leg

lse the center mark

Line-up pads

Notches

Leas butt

Big brace

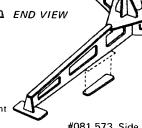
T-plate

IMPORTANT: Apply a glue fillet to EVERY exposed joint, and smooth excess glue away with your finger tip.

Here are some optional assembly tips . . . 10

A: Glue the scrap (marked with a star in Step 1) under the long leg for extra strength.

B: Smooth any rough edges with fine sandpaper, and spray paint the Rocket-Rack a color such as white, red or silver.



#081,573 Side 2



EXPOCED

