JAVELIN

ASSEMBLY INSTRUCTIONS with Detail Sketches

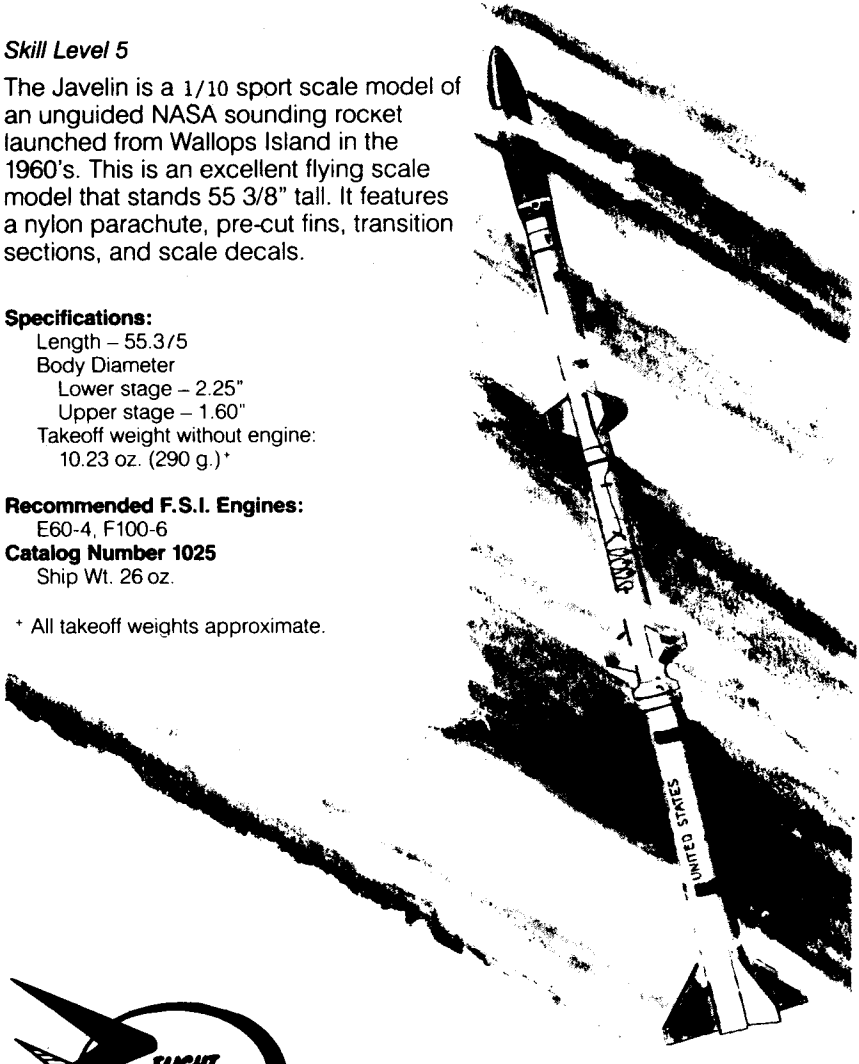
Skill Level 5

The Javelin is a 1/10 sport scale model of an unguided NASA sounding rocket launched from Wallops Island in the 1960's. This is an excellent flying scale model that stands 55 3/8" tall. It features a nylon parachute, pre-cut fins, transition sections, and scale decals.

Specifications:
Length – 55.3/5
Body Diameter
Lower stage – 2.25"
Upper stage – 1.60"
Takeoff weight without engine:
10.23 oz. (290 g.)+

Recommended F.S.I. Engines:
E60-4, F100-6
Catalog Number 1025
Ship Wt. 26 oz.

+ All takeoff weights approximate.



FLIGHT SYSTEMS Inc.

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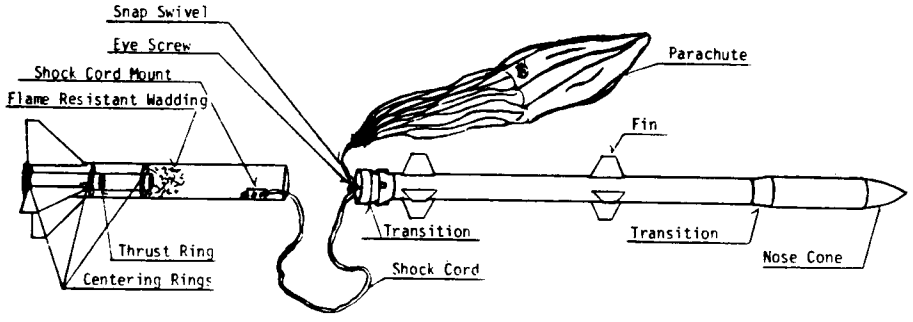
RAYTOWN, MISSOURI 64133
816-566-2011

JAVELIN

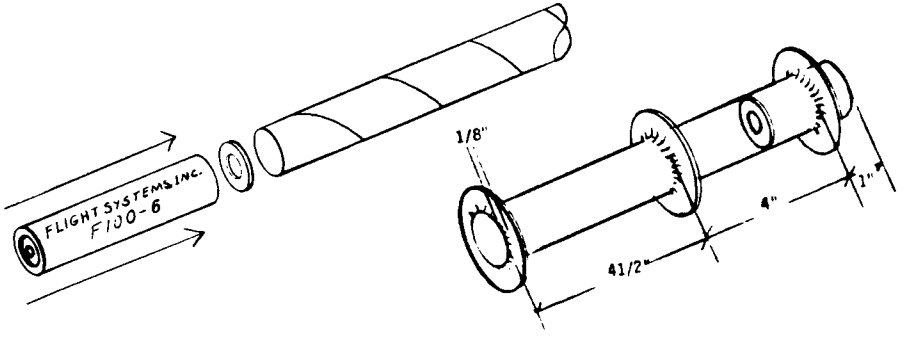


PARTS LIST:

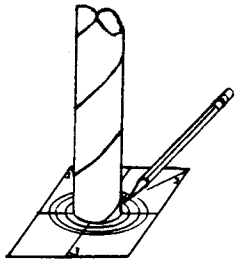
1 2.25" x 18.6" Lower Body Tube
2 1.6" x 12.8" Mid section Body Tube
1 2.0" x 5.9" Upper Body Tube
1 NC-192 Nose Cone
4 Large Lower (booster) Section Fins
4 Mid-section Fins
4 Upper Section Fins
1 1.13" x 7" Engine Holding Tube
3 CR-1022 Centering Rings
1 TS-1519 Upper Transition Section
1 TS-1522 Lower Transition Section
1 NP-24 Nylon Parachute 24"
1 SC-15 Stage Coupler
1 Shock Cord Mount
1 32" Shock Cord
1 TR- Thrust Ring
1 Eye Screw
1 1 1/2" x 1/2" x 1/4" Balsa Strip
1 Length Simulated Umbilical Cord
1 Decal Sheet
1 Printed Cardboard Sheet
2 Lug Standoffs
2 1/4" Launch Lugs
1 Flame Resistant Wadding
1 Snap Swivel

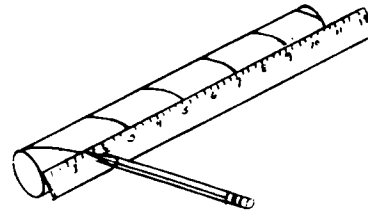
ASSEMBLY INSTRUCTIONS

Important:
Read through entire instructions before starting assembly. Check to be sure all parts are included. Test fit the parts together before applying any glue. If a part doesn't fit properly, sand or build up for precision fit. Please read each step before starting that step. Check off each completed step.

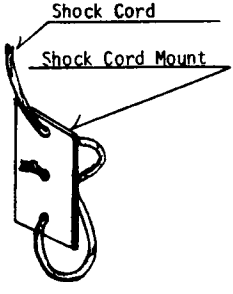


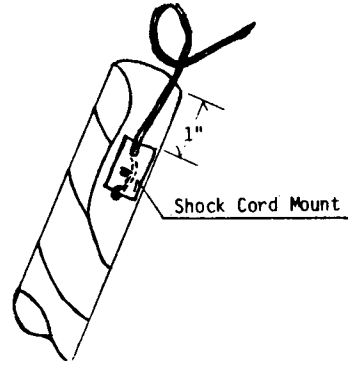
___ 1. First determine which size F.S.I. you intend to use in your Javelin rocket. An E60-6 or F100-6 is recommended. Locate the TR-2 thrust ring (1.13" O.D. cardboard ring) and the 9" X 1.13 I.D. engine holding tube. Put a ring of glue inside one end of the engine holding tube. Now using a F.S.I. 27mm engine push the thrust ring into the holding tube until the engine projects out of the tube 1/2". Remove the engine. Install the CR-1022 (2.25 O.D.) centering rings as shown and glue in place. Apply a fillet of glue on each side of the rings as shown. Set the assembly aside to dry.



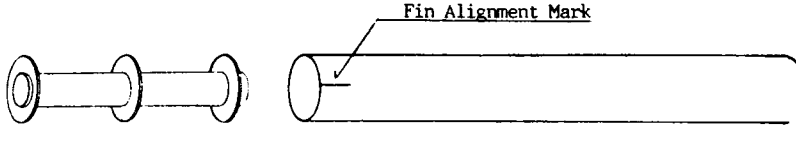


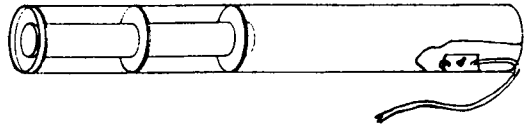
___ 2. Using the fin alignment guide mark lines on the large diameter body tube (2.25" O.D.) for 4 fin alignment as shown. Using a straight edge extend lines parallel to the body tube about 6"



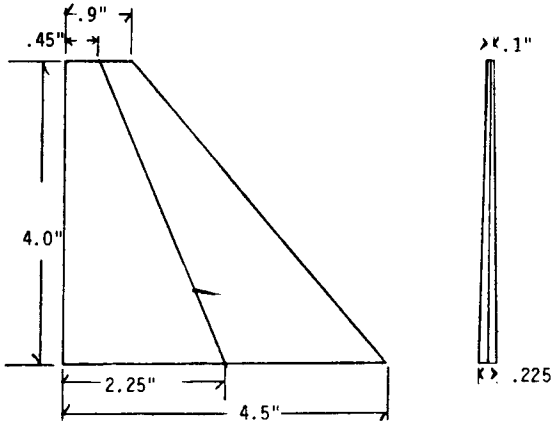


___ 3. Install the shock cord mount in the large diameter body tube as shown. Spread a heavy layer of glue over the side opposite the shock cord knot. Curve the shock cord mount and insert into the end opposite fin alignment marks. The drawing shows the proper position in the body tube.

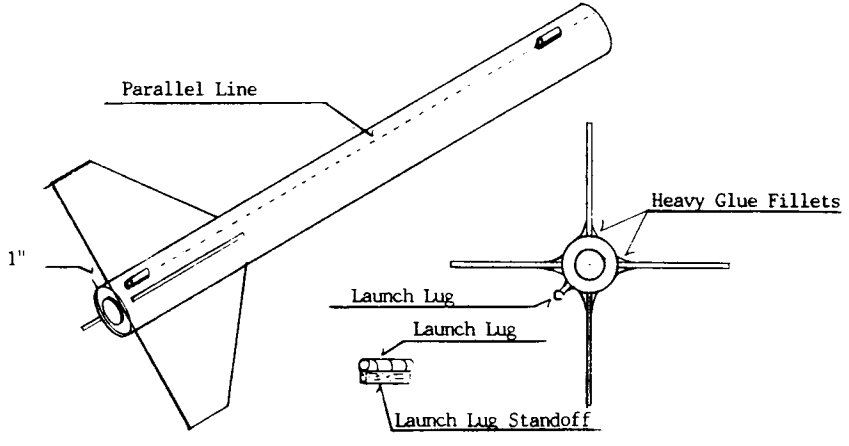




___ 4. Install the engine mount unit. Be sure the engine mount will slide easily into the large body tube (2.25" O.D.) If it is too tight sand the rings until a precision fit is obtained. Apply a ring of glue inside the body tube. Insert the engine mount unit using one smooth motion until it is flush with the back of the body tube. DO NOT STOP pushing the engine mount until it is in position or it will stick in the position in which you stopped.

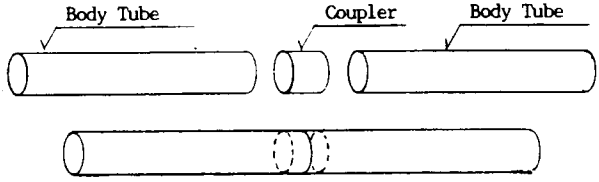


___ 5. Sanding the fins for the booster section: If you are building your model to scale sand and shape fins as shown in the detailed drawing. For sport flying you may want to simply round the edges of the fins. If so round all edges except the red one. The red edge attaches to body tube.

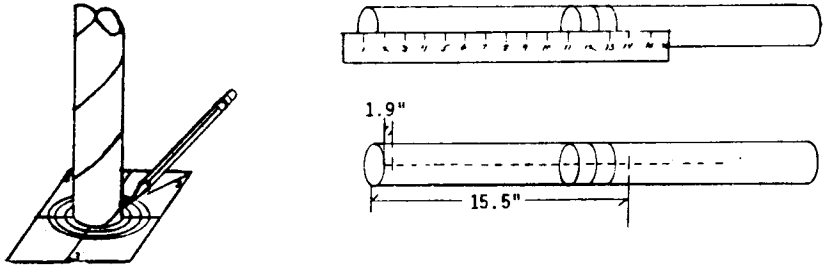


___ 6. Attaching fins to booster section: Attach the red edge of the fins to the body tube. The fins should be placed so that their trailing edge is .1" above the back of the body tube. Be sure that the fins stick straight out from the body tube and are carefully aligned with the lines previously marked. Stand unit on its forward end and allow to dry. When dry run 2 or 3 heavy glue fillets on both sides of fins for added strength.

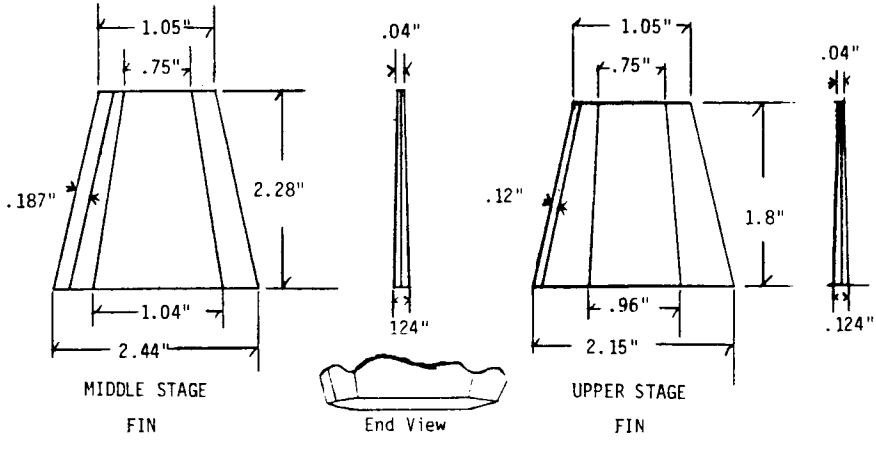
___ 7. Installing launch lugs on booster section: Extend a line up the body tube halfway between 2 fins and parallel with the body tube as shown. Glue launch lugs to the launch lug standoffs. Now glue launch lug assemblies on the parallel line. Refer to drawing for proper placement.



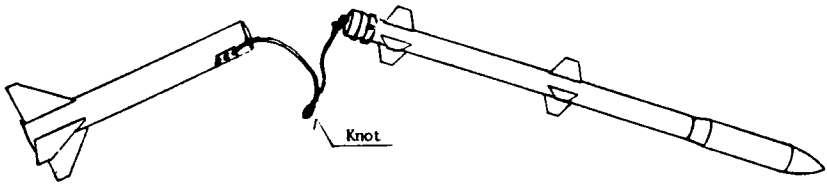
___ 8. Joining mid-section body tubes: Locate the SC-15 stage coupler (1.6" O.D.) and the 2 1.60" I.D. X 12 7/8" mid-section body tubes. Place a ring of glue inside one end of one of the body tubes. Slide the coupler into the body tube until it protrudes 7/8" out of the tube. Put a ring of glue inside the other body tube and slide it over the coupler until the two tubes butt together. Roll the assembly on a table or other flat surface to assure proper alignment. Lay on a flat surface and allow to dry.



___ 9. After tubes have completely dried mark one end with fin alignment mark as in step 2. Use the marks for 4 fins. Then use a straight edge to make parallel lines extending the length of the bottom tube and half the length of the top tube. On each line make perpendicular lines at 5/8" and 13 13/16" as shown. It is very important that these measurements are correct as these marks will be used for placement of the trailing edge of the fins.



___ 10. Sanding fins for mid and upper section. For scale sand and shape fins as shown in the detailed drawing. For sport flying just round all edges of fins except red one. The red edge is attached to the body tube.



___ 14. Tie a loop in the center of the shock cord. Then tie the free end to the eyescrew. Roll the shock cord up and push into lower body tube. Slide (DO NOT GLUE) lower transition section into lower body tube.

___ 15. The rocket is now ready to paint and add decals. It is recommended that a light coat of paint be sprayed on and let dry. Add a couple more mist coats lightly sanding between them. Then apply a wet coat (gloss just appears) and set aside to dry. After model is completely dry, apply decals. Cut one decal at a time from the sheet and submerge in lukewarm water until decal will slide off of the paper (usually about 20 seconds). Gently slide decal onto rocket and carefully align and smooth out any wrinkles. Refer to back cover for scale detailing information.

FLIGHT PREPARATION

___ 1. Separate lower body tube from lower transition section. Tamp a piece of wadding down into the inside of the lower body tube until it comes in contact with the top of the engine holder tube.

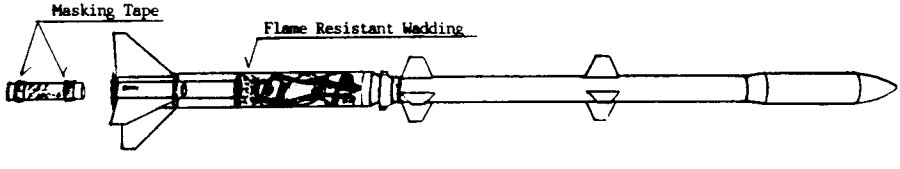
___ 2. Bring shroud lines of 24" nylon parachute together and tie into knot about 1" from shroud line ends. Leave 1 shroud line intact and cut the others off 1/4" below the knot. Now put a couple of drops of glue on the knot to insure it does not come loose during ejection. Tie snap swivel to shroud line that you left 1" long. Attach swivel to loop in shock cord from assembly step 14 as shown in cutaway view. Fold parachute. Insert shock cord first then parachute into upper end of lower body tube. Rejoin mid and lower sections.

___ 3. Install engine using friction fit several wraps of masking tape are placed around the engine as shown to hold the engine in place. Insert F.S.I. engine until contact is made with the thrust ring. Be sure that engine fits tight enough that it will not come out of engine holder tube during ejection phase of flight.

___ 4. Place rocket on the launcher insert the F.S.I. ignitor and attach the firing clips as shown in engine instructions.

___ 5. Go back to launch control and clear the area. Arm the launch control by inserting the phone jack attached to the firing line.

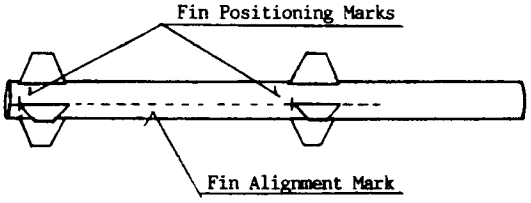
___ 6. Give count down 5-4-3-2-1, ignition.



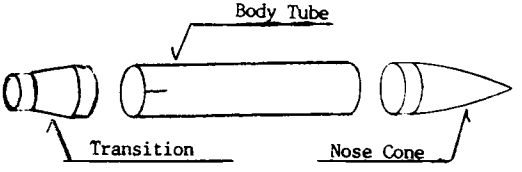
Be sure to follow the *HIA-NAR Model Rocket Safety Code when carrying out your model rocket activities.

*HIA- Hobby Industry of America

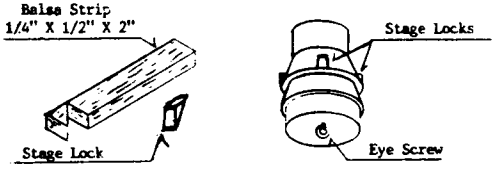
NAR- National Association of Rocketry

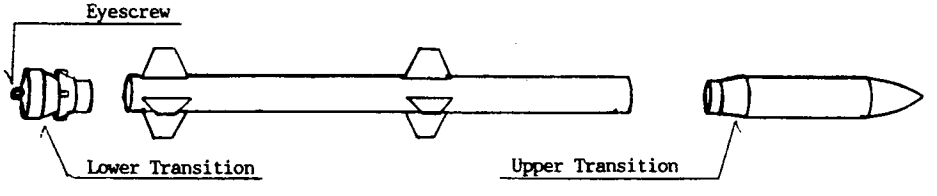


___ 11. Attach fins with trailing edge correspondent to perpendicular lines from step 9. Red edge should be attached to the body tube. Now sight down fins from the front end, fins of the same fin alignment marks should be parallel to each other (see front view) and stick straight out from tube. They should also be carefully aligned on the fin alignment marks. Stand on front end and allow to dry. After dry, run 2 or 3 heavy glue fillets on each side of each fin.

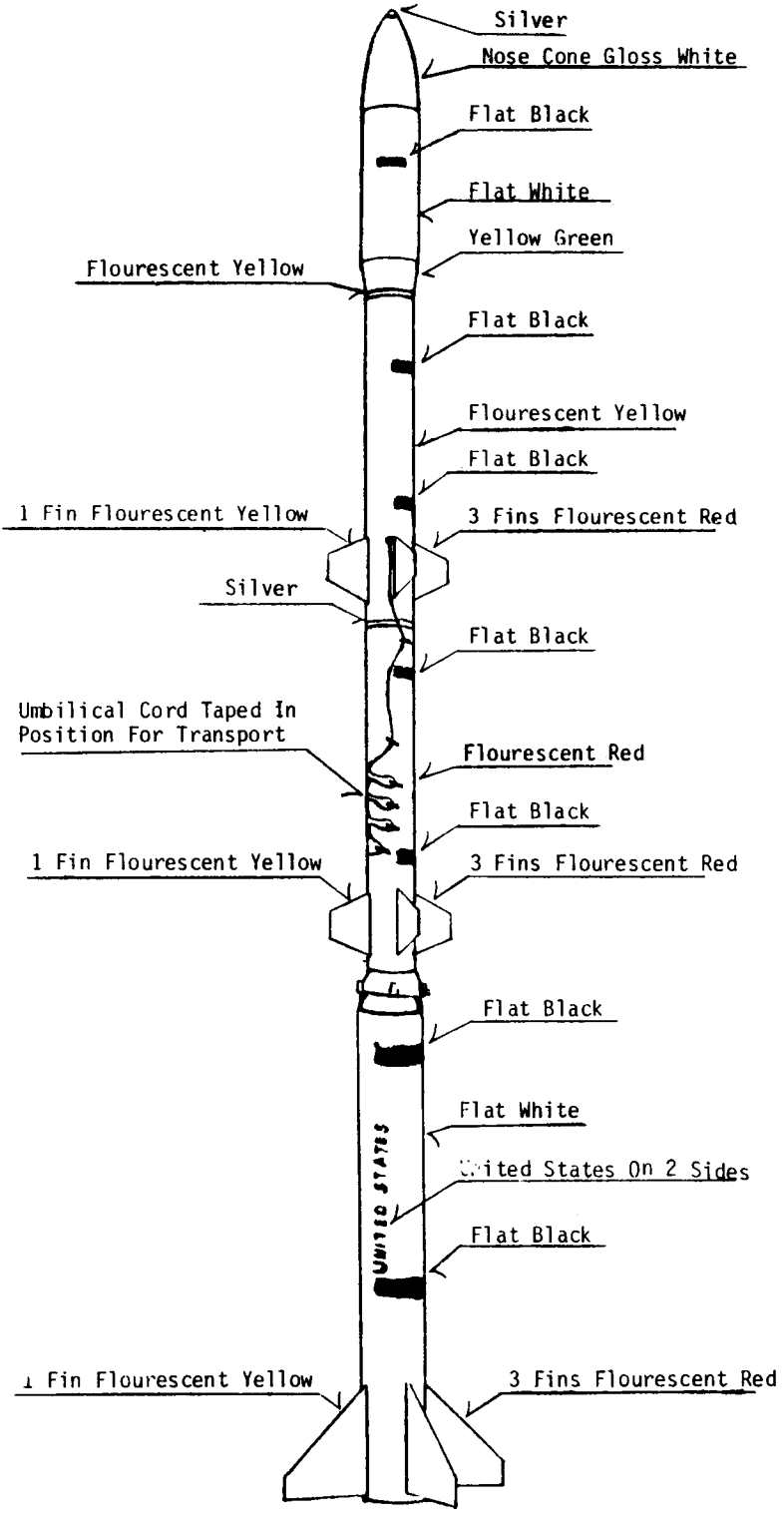


___ 12. Using fin placement guide make 4 marks on lower end of upper body tube for detail placement (step 15). Glue upper transition (TS-1519) in place in 5 3/8" X 2" upper body tube. Slide nose cone in opposite end.





___ 13. Locate 1/4" X 1/2" X 2" balsa strip. Refer to cardboard sheet for pattern. Cut, sand and shape stage locks as shown. Glue stage locks to lower transition. Glue lower transition in the rear of the mid-section. Put a small amount of glue on the eyescrew and twist it into the center of the lower transition. Glue payload section into the front end of the mid-section.


Silver
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Yellow Green
Flourescent Yellow
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Flourescent Yellow
Flat Black
1 Fin Flourescent Yellow
3 Fins Flourescent Red
Silver
Flat Black
Umbilical Cord Taped In Position For Transport
Flourescent Red
Flat Black
1 Fin Flourescent Yellow
3 Fins Flourescent Red
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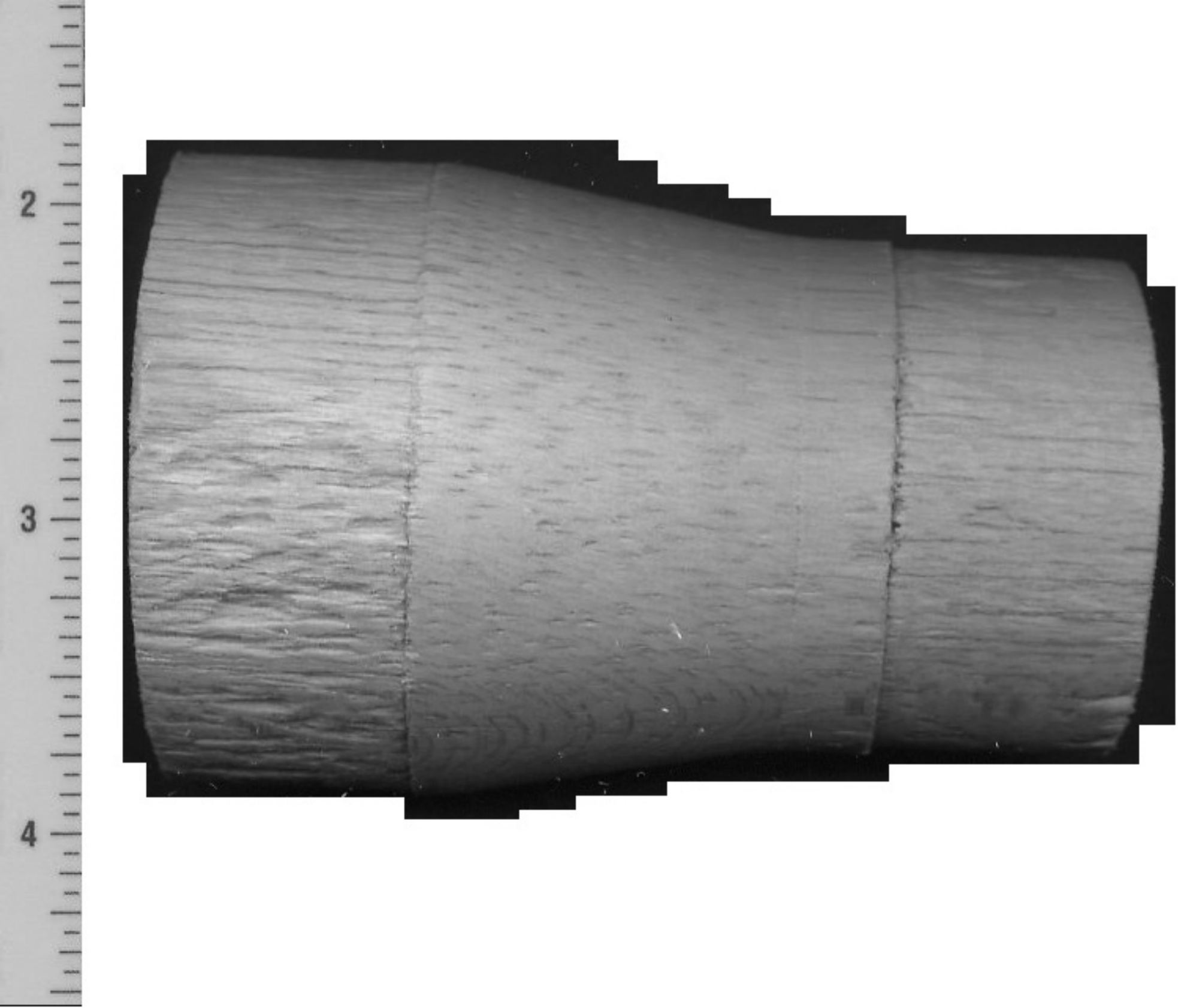
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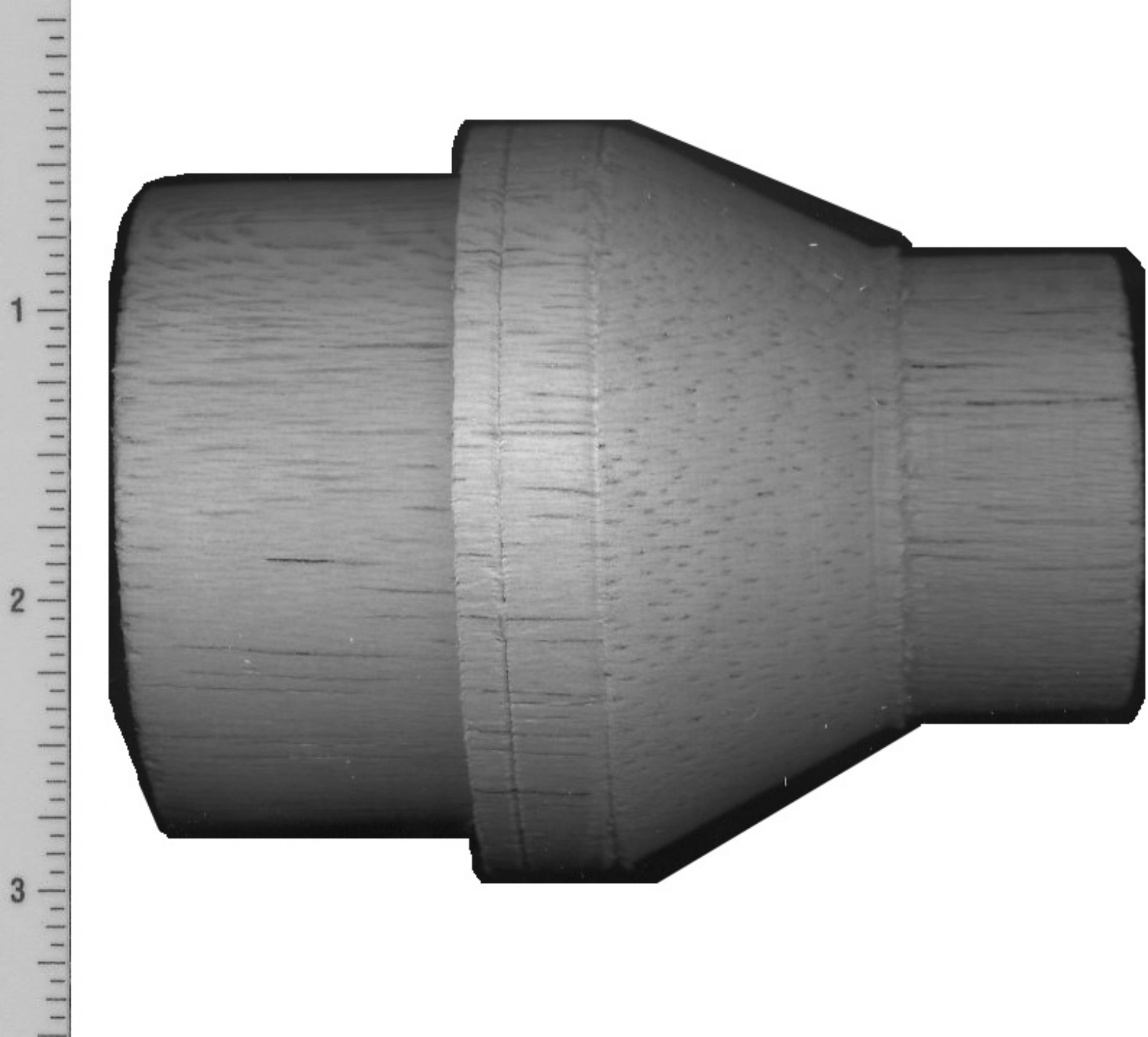
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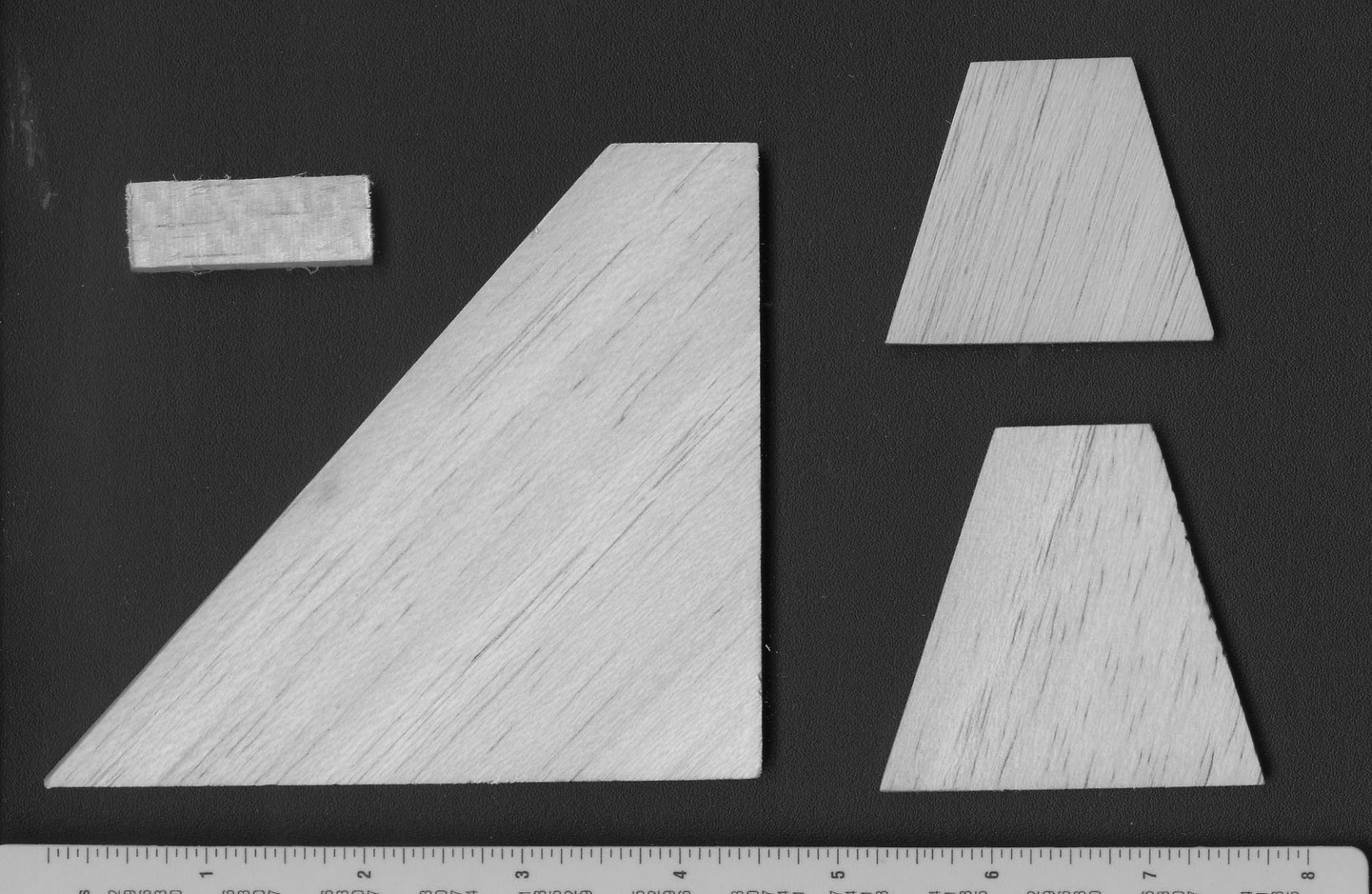

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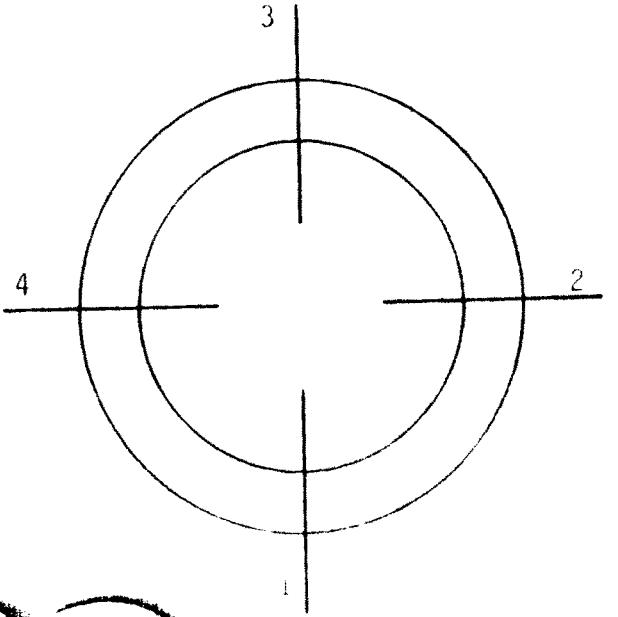
FIN PLACEMENT GUIDE



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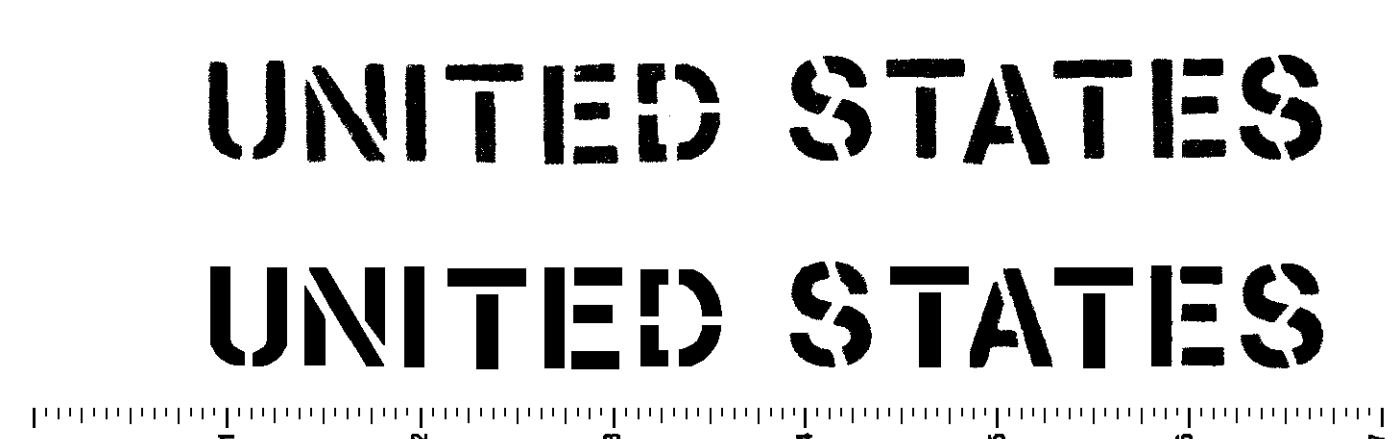
Replaces card-board Sheet


UNITED STATES
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