

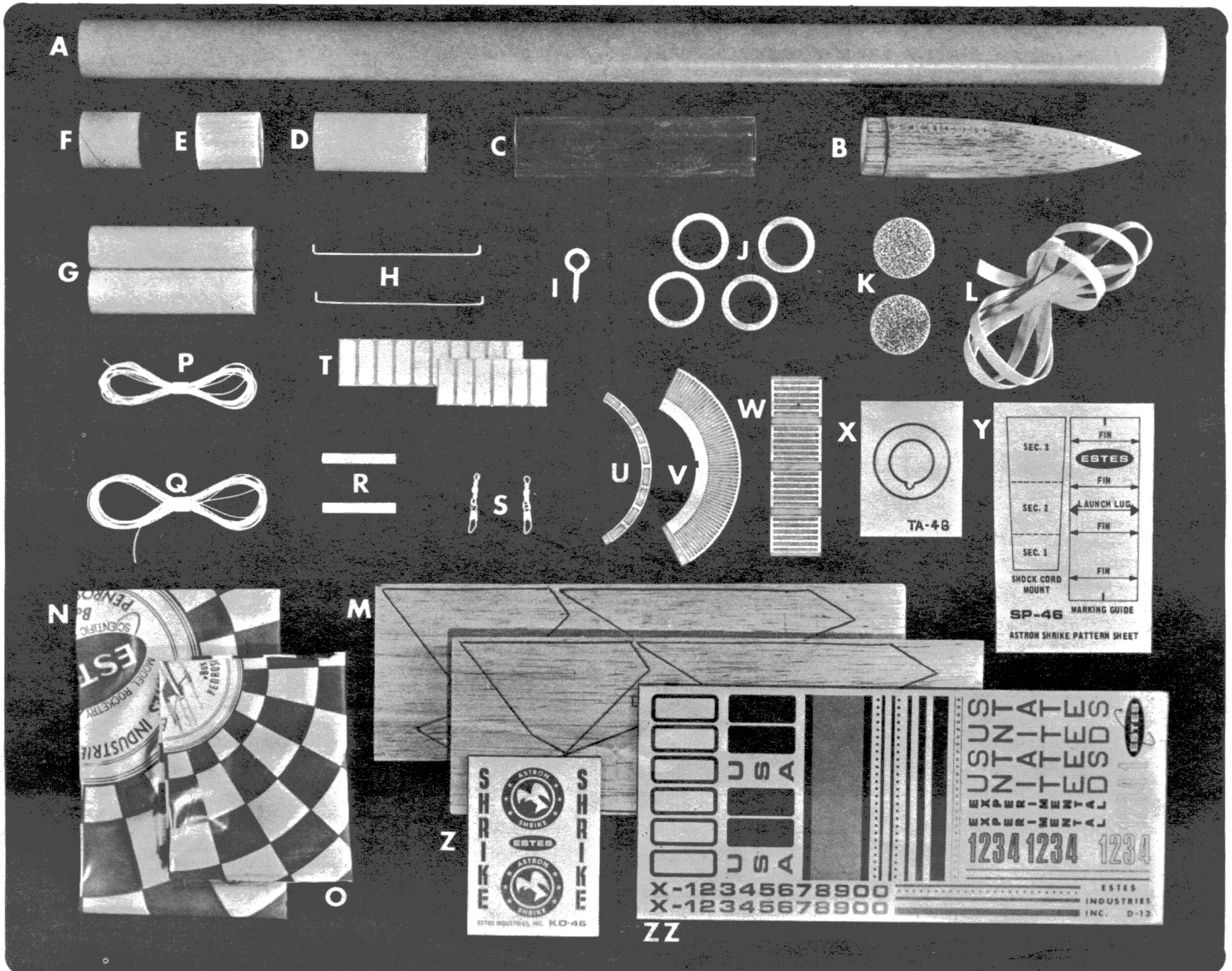


Astron

SHRIKE

K-46

ASSEMBLY INSTRUCTIONS



PARTS LIST

(A)	1	Upper Stage Body Tube.	#BT-50.	(O)	1	12" Parachute.	#PK-12A.
(B)	1	Nose Cone.	#BNC-50Y.	(P)	1	72" Shroud Line Cord.	#SLT-72.
(C)	1	Clear Payload Section.	#PST-50S.	(Q)	1	108" Shroud Line Cord.	#SLT-18.
(D)	1	Booster Body Tube	#BT-50AH.	(R)	2	Launch Lugs.	#LL-2A.
(E)	1	Payload Nose Block	#NB-50.	(S)	2	Snap Swivels.	#SV-12.
(F)	1	Booster Stage Coupler.	#JT-50C.	(T)	19	Tape Strips.	#TD-2R.
(G)	2	Engine Mount Tubes.	#BT-20J.	(U)	1	Small Nozzle Shroud.	#EW-46B.
(H)	2	Engine Holders.	#EH-2.	(V)	1	Large Nozzle Shroud.	#EW-46A.
(I)	1	Screw Eye.	SE-1.	(W)	1	Upper Stage Wrap-on.	#EW-46C.
(J)	4	Centering Rings.	#AR-2050.	(X)	1	Nozzle Shroud Ring.	#TA-46.
(K)	2	Payload Sponge Discs.	PSP-50.	(Y)	1	Pattern Sheet.	#SP-46.
(L)	1	1/4" x 30" Shock Cord.	#SC-2MJ.	(Z)	1	Decal Sheet.	#KD-46.
(M)	2	Die Cut Balsa Sheets. (3/32" x 3" x 9')	#BF-46.	(ZZ)	1	Decal Sheet.	#D-13.
(N)	1	18" Parachute.	#PK-18A.		1	Set Instructions.	

In addition to the parts above, you will need scissors, a sharp modeling knife or single edge razor blade, a rule and ball point pen or a pencil, fine and extra fine grit sandpaper, white glue, masking tape and paint or dope.

ASSEMBLY INSTRUCTIONS

1. Cut a 1/8" slit in one of the engine mount body tubes (Part #BT-20J) 1/4" from one end as shown. Slip one end of an engine holder (Part #EH-2) into the slit. Align the engine holder straight along the tube and hold it temporarily in place with masking tape. Following the same procedure, install the second engine holder on the second engine mount body tube.

2. Cut a notch 1/32" deep and 3/32" wide on the inside of two of the centering rings (Part #AR-2050). Check the fit of both rings on the engine mount tube. If necessary, sand the inside of the centering rings until they slide smoothly over the engine mount tube and engine holder.

Mark the engine mount tube 1/2" from the FRONT end as shown. Run a line of glue around the tube just ABOVE this mark. Slip one of the centering rings onto the FRONT end of the tube so that the notch is located over the engine holder. Slide the ring up to the 1/2" mark, over the glued part, in a single movement. (See completed assembly.)

Mark the engine mount tube 1-3/16" from the REAR as shown. Run a line of glue around the tube just BELOW this mark. Slip the second centering ring onto the REAR of the tube, again locating the notch over the engine holder. Slide the ring up to the 1-3/16" mark, over the glued part, in a single movement. (See completed assembly.)

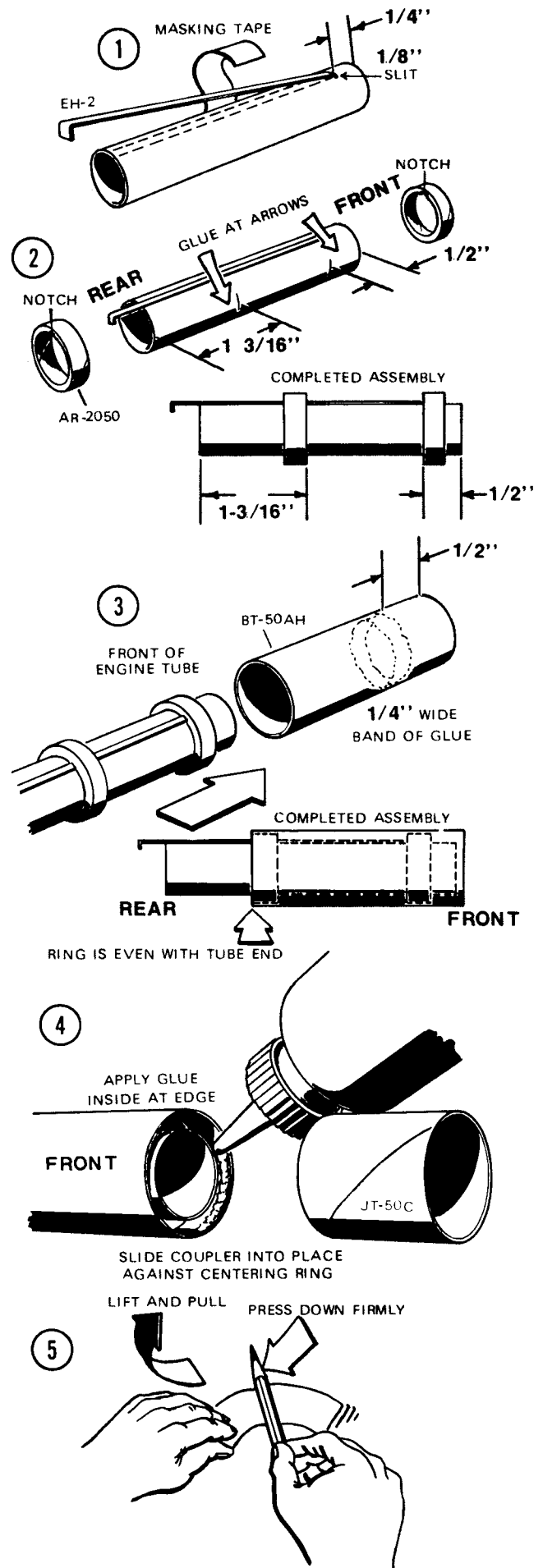
Repeat this whole procedure with the other engine mount tube; put both assemblies aside to dry.

READ STEPS (3) AND (4) CAREFULLY

3. Smear a 1/4" wide band of glue around the inside of the 1-7/8" long booster body tube (Part #BT-50 AH), 1/2" inward from one end. Slide one of the engine mount units (FRONT END FIRST) into the end of the booster tube opposite the glue as shown. Continue pushing the engine mount unit into the tube with one single smooth movement until the REAR centering ring is even with the end of the booster body tube. (See completed assembly.) GO IMMEDIATELY TO STEP (4)

4. Run a line of glue around the inside of the booster body tube at the FRONT end (do not get any glue on the engine mount tube). Slide the booster stage coupler (Part #JT-50C) into the same tube end until it stops firmly against the centering ring. Wipe away any glue from the outside of the coupler.

5. Preform the large nozzle shroud (Part #EW-46A) by pulling it under a knife handle or a pencil as shown. Pull the shroud under the handle or pencil and up at the same time. Do this several times until the nozzle can be formed easily into its cone shape. Following the same procedure, preform the small nozzle shroud (Part #EW-46B).



□ 6. Apply glue to the tab of the large nozzle shroud and press it into position EXACTLY as shown in figure 6. Hold it in place until the glue sets.

□ 7. Apply glue to the tab of the small nozzle shroud and press it into position EXACTLY as shown. Hold it in place until the glue sets, then set it aside to dry completely.

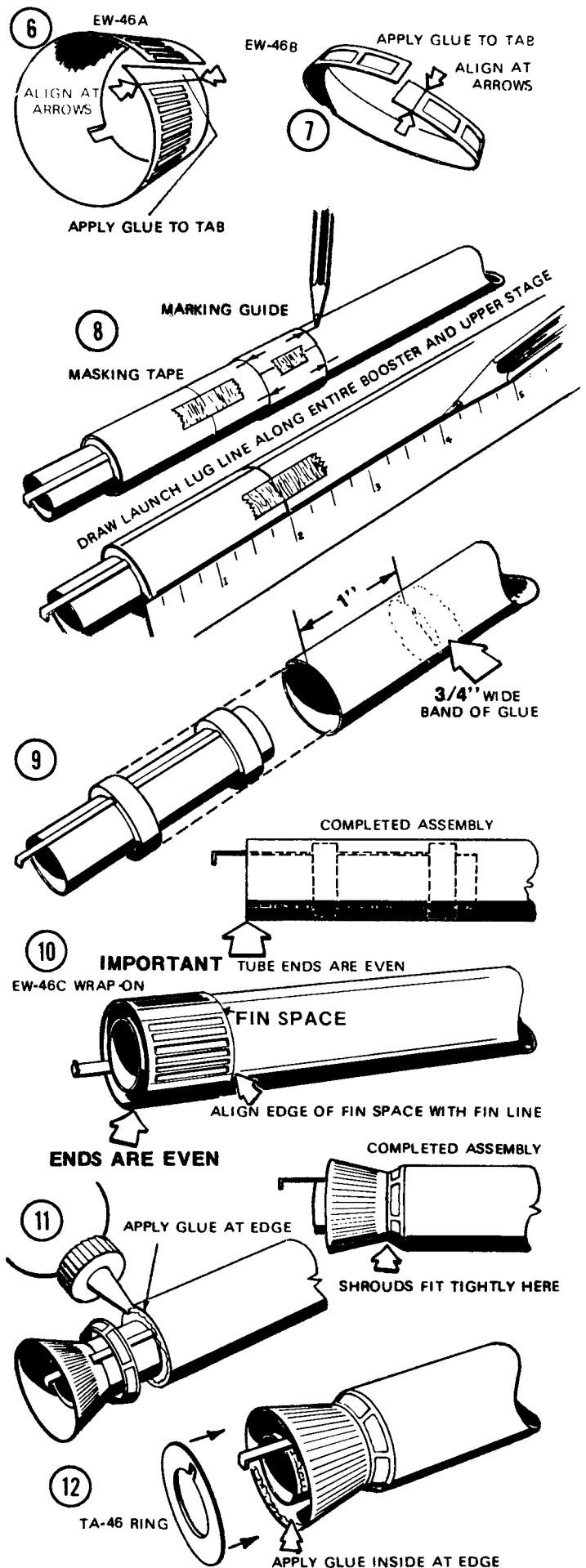
□ 8. Slide the booster stage coupler into one end of the upper stage body tube (Part #BT-50). Hold the two body tubes firmly together with a strip of masking tape as shown. Cut out the marking guide from the pattern sheet (Part #SP-46). Wrap it around the upper stage body tube just ahead of the booster-upper stage joint. Hold the guide in place with masking tape. Mark the body tube at each of the arrow points and remove the guide. Draw a straight line passing over each matching front and rear mark. Extend the fin marking lines along the entire booster tube and for a distance of at least 3" along the upper stage tube from the booster-upper stage joint. Draw the launch lug line along the entire length of both booster and upper stage body tubes. Remove the booster stage from the upper stage body tube.

□ 9. Smear a $\frac{3}{4}$ " wide band of glue around the inside of the upper stage tube, 1" inward from the end marked in Step (8). Slide the second engine mount unit (FRONT END FIRST) into the glued end of the upper stage tube. Push it in with one single smooth movement until the rear of the engine mount tube is even with the rear (glued) end of the upper stage body tube (see completed assembly).

□ 10. Preform the upper stage wrap-on (Part #EW-46C) as described in Step (5) for the nozzle shrouds. Spread a thin coat of glue over the entire back side of the wrap-on. Glue it to the rear of the upper stage body tube so that it is even with the end of the tube. Position the wrap-on fin spaces exactly as shown in Figure 10.

□ 11. Slide the small nozzle shroud (large end first) onto the rear of the booster engine mount tube. Slide the large nozzle shroud part way onto the engine mount tube as shown. Run a thin line of glue around the rear edge of the booster body tube. Slide the small shroud into place against the booster body tube. Push the large shroud forward until it fits tightly against the small shroud. Wipe away any excess glue.

□ 12. Run a thin line of glue around the inside of the large nozzle shroud end. Slide the nozzle shroud ring (Part #TA-46) onto the engine mount tube so that the ring notch is located over the engine holder. Push the ring into place inside the large shroud end. Apply a glue fillet to the ring-engine tube joint.



13. Remove the four booster stage fins carefully from the die-cut balsa sheets. Hold the four booster fins firmly together as shown and sand the edges carefully until they are quite smooth and all four fins are exactly the same size.

14. Apply glue to the root edge of one booster stage fin. Attach the fin to the booster body tube with the edge of the fin along one of the fin marking lines as shown. Align the fin so that it projects straight out from the body tube and allow the glue to set. Attach the other three booster fins in the same manner and set it aside to allow the glue to dry thoroughly.

15. Remove the four upper stage fins carefully and sand the fin edges as described in Step (13). Sand a notch $1/32''$ deep and $7/8''$ long into the rear of each fin root edge as shown. Slide the booster into the upper stage, using the launch lug line to align both parts correctly. Hold the two stages together with masking tape. The upper stage fins should fit snugly against the body tube and wrap-on and against the booster fins. Apply glue to the root edge of one fin. Attach it to the body tube along one of the fin alignment lines. Wrap a small piece of masking tape around the tips of the adjoining upper stage and booster fins to keep them exactly in line while the glue dries. **DO NOT GET ANY GLUE ON THE BOOSTER STAGE.** Following the same procedure, glue the other three fins into place.

16. Remove the two launch lug standoffs from the balsa die-cut sheets. Apply a line of glue to one edge of a standoff as shown. Press one of the launch lugs (Part #LL-2A) into place on the glue. Make sure that the two pieces are perfectly parallel. Assemble the other standoff unit in the same manner.

After the glue has set a few minutes, apply glue to the other edge of the standoff, and attach the unit to the rear of the upper stage along the launch lug alignment line (see Figure 16). Apply glue to the other launch lug unit. Attach it to the body tube along the same alignment line so that the end of the standoff is 2'' from the front end of the body tube.

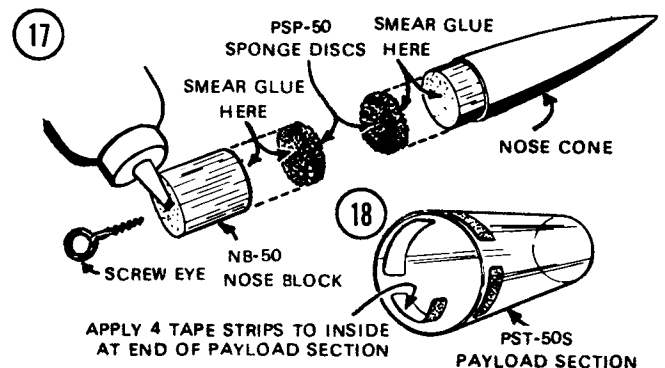
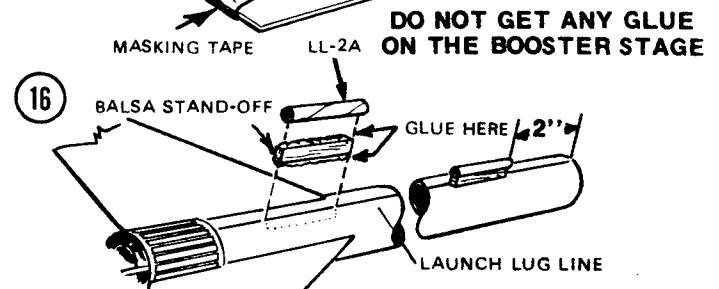
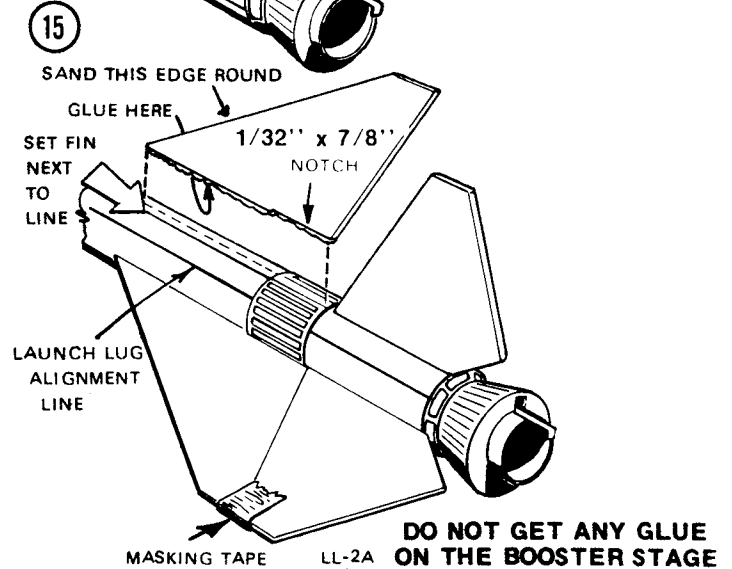
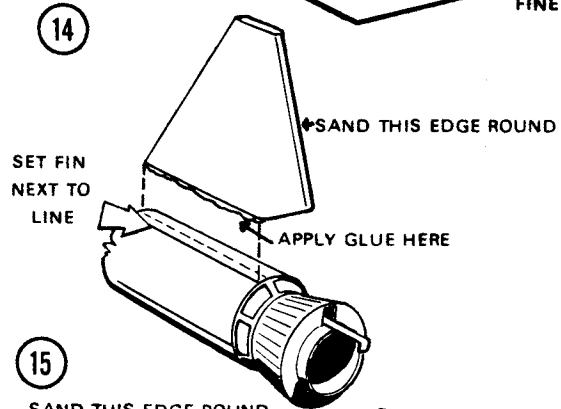
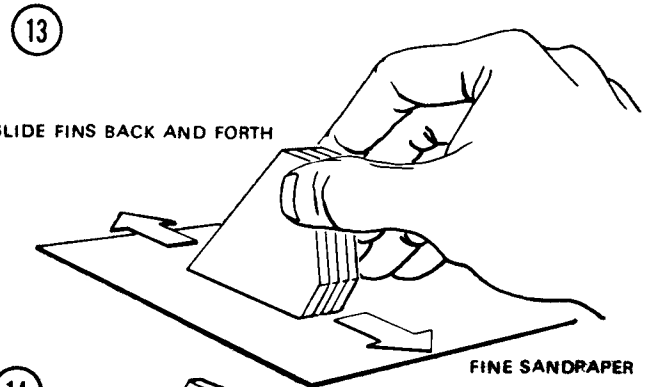
17. Insert the screw eye (Part #SE-1) into one end of the payload nose block (Part #NB-50). Remove the screw eye and squirt glue into the hole, replacing the screw eye.

Smear a coat of glue over one side of both payload sponge discs (Part #PSP-50) and allow the glue to set. Smear a coat of glue over the base of the nose cone (Part #BNC-50Y) and press the glued side of one sponge disc into it. Center the disc exactly on the base of the nose cone. Allow the glue to dry.

Smear a coat of glue over the end of the payload nose block opposite the screw eye. Press the glued side of the second sponge disc into place against the nose block. Align as before and allow to dry.

18. Press four tape strips (Part #TD-2R) firmly into position against the inside of one end of the plastic payload section (Part #PST-50S) as shown in Figure 18.

19. Mark the payload nose block $5/8''$ from the end with the screw eye. Run a line of glue around the end of the nose block just behind the sponge disc. Slide



the nose block (sponge disc first) into the tape strip end of the plastic payload section. Push it into the payload section until the end of the payload tube is even with the 5/8" mark. Wipe away any excess glue. Slide the nose cone — DO NOT GLUE — into the opposite end of the payload section.

□ 20. Apply a glue fillet to both sides of each fin-body tube joint on the booster stage. Smooth the glue fillet with a finger, and carefully wipe away any excess glue.

Apply a glue fillet to each upper stage fin and launch lug standoff in the same manner. Support the stages horizontally while the fillets dry.

□ 21. Cut out the shock cord mount from the pattern sheet and prefold it on the dotted lines. Lay the mount out flat, apply glue to section (1) and lay the shock cord in the glue. Fold this section over. Spread glue over the back of the first section and the exposed part of section (2). Lay the shock cord as shown and fold over again. Clamp the unit together with the fingers while the glue sets. Apply glue to the inside of the upper body tube over an area approximately 1" to 1½" from the front end. The glue should cover a shape approximately the same as the shock cord mount. Press the mount onto the glue and hold it until the glue sets.

□ 22. Tie the free end of the shock cord to the screw eye. Wrap a tape strip tightly around the shock cord end as shown. Apply a drop of glue to the tape strip end to hold it permanently in place.

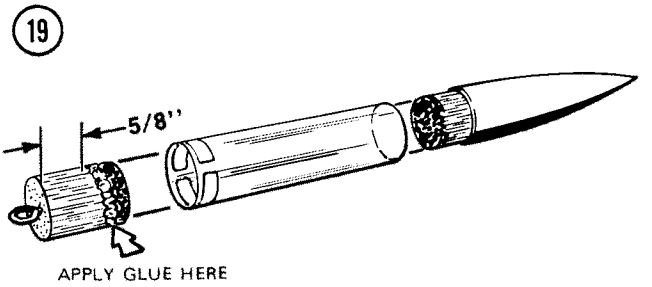
□ 23. Cut out the parachutes along their edge lines as indicated on the plastic. Cut six 12" lengths from the small shroud line hank (Part #SLT-72). Attach one shroud line to each point of the small 12" parachute with a tape strip. Pass the free ends of the shroud lines through a snap swivel eye (Part #SV-12) and knot. Secure the swivel by wrapping a tape strip around the shroud lines on the opposite side of the knot.

Cut six 18" lengths of shroud line from the large shroud line hank (Part #SLT-18). Following the same procedure as for the 12" parachute, attach the lines and snap swivel to the large 18" parachute.

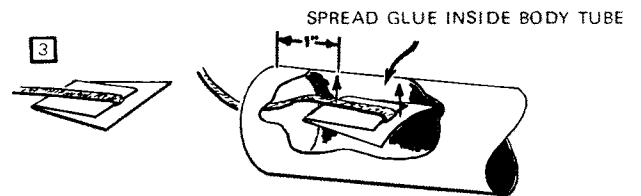
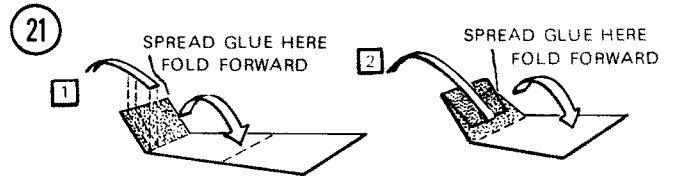
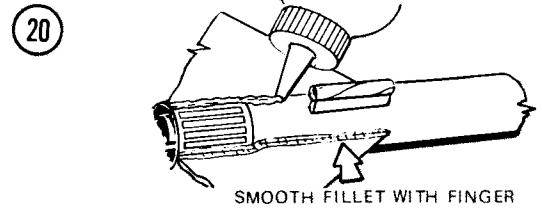
□ 24. Before finishing, be sure that all the glue on the outside of the rocket is completely dry. Cover all balsa surfaces with a coat of sanding sealer. Let it dry completely and sand lightly with extra fine sandpaper. Apply a second coat, let dry, sand again, apply a third coat and repeat the process until all the pores in the balsa are filled and the surface looks and feels quite smooth.

Use paper and masking tape to cover the clear payload section while painting the rocket. Give the rocket a clean base coat of glossy white paint or dope. Let it dry and follow with areas or all over coats of high visibility colors of your choice such as red, fluorescent orange, cerise, etc., to aid in tracking and retrieving. For easy alignment of both stages, paint one matching booster and upper stage fin black (see Figure 25).

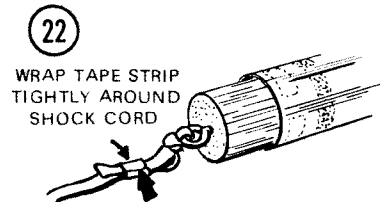
□ 25. Cut out each decal carefully around its edges. To transfer, dip the decal in water for about 30 seconds, or until the decal slides easily on the backing paper. Slide the decal off the paper onto the desired surface, and blot dry. Allow the decals to dry for 24 hours.



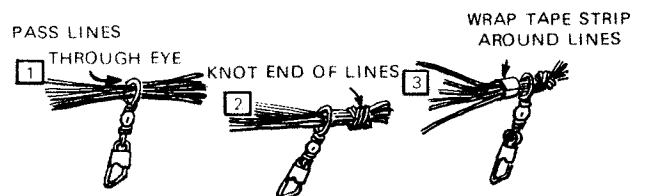
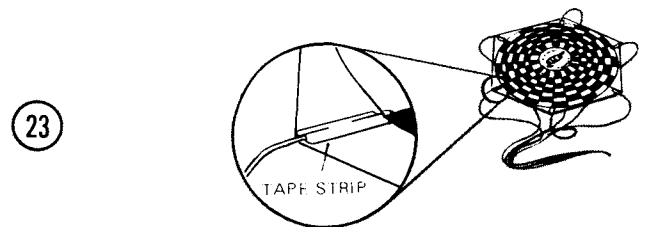
APPLY GLUE FILLET TO FIN-BODY JOINTS



SET BACK AT LEAST 1" TO ALLOW FOR NOSE CONE



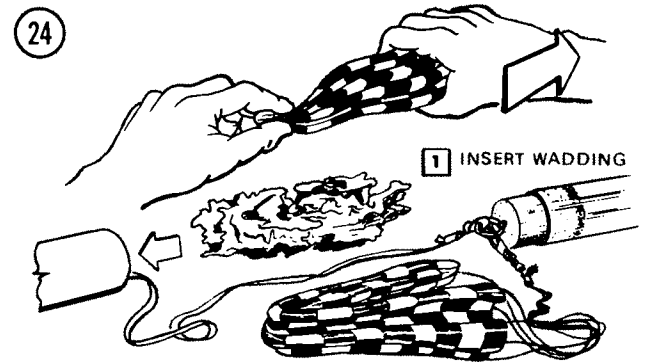
APPLY GLUE TO HOLD IT IN PLACE



COUNTDOWN CHECKLIST

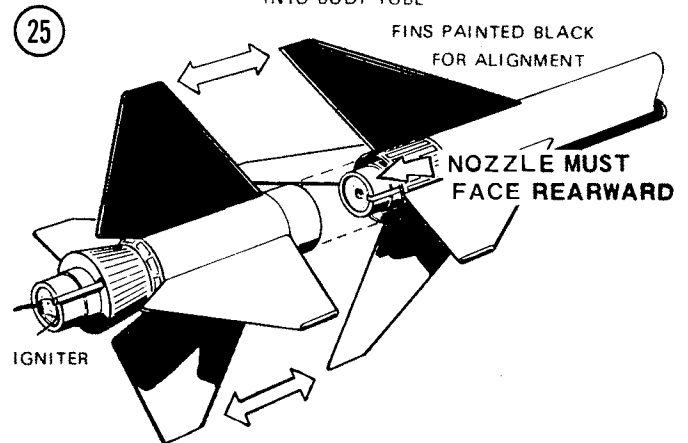
- (15) Insert the payload (if any) into the plastic payload section. Pack foam padding or recovery wadding around the payload to prevent it from bouncing around inside the payload compartment during flight. The nose cone must fit snugly into place.
 - (14) Pack 5 or 6 squares of flameproof recovery wadding into the upper stage body tube from the top. Select a parachute and connect the snap swivel to the screw eye. Hold the parachute between two fingers at its center and pass the other hand down it to form a "spike" shape. Fold the spike in half as shown. Push the folded parachute down into the tube on top of the wadding. Pack the shock cord and shroud lines neatly into the tube and slide the payload section into place.
 - (13) Select your engines. Wrap enough masking tape around the forward and rear ends of each engine to make a snug fit in the engine mount tube. This will provide more positive ignition of the second stage engine and also ensure positive parachute deployment in the upper stage.
 - (12) Insert the upper stage engine (NOZZLE FACING REARWARD) into the upper stage engine mount tube.
 - (11) Form an igniter and insert it in the booster engine nozzle as directed in the instructions which came with the engine. Insert the booster engine (NOZZLE FACING REARWARD) into the booster engine mount tube.
 - (10) Slide the booster stage into the upper stage. **IMPORTANT!** Be sure that the matching booster and upper stage fins are directly in line with each other.
 - (9) Place the rocket on the launcher. Check to be sure that the panel is disarmed. Clean the micro-clips and attach them to the igniter.
 - (8) Clear the launch area, alert the recovery crew and trackers.
 - (7) Check for low flying aircraft and unauthorized persons in the recovery area.
 - (6) Arm the launch panel.

 - (5)
 - (4)
 - (3)
 - (2)
 - (1)
- LAUNCH!



2 FOLD 'CHUTE IN HALF

3 PACK 'CHUTE, LINES AND SHOCK CORD INTO BODY TUBE



IMPORTANT: FINS MUST BE DIRECTLY IN LINE

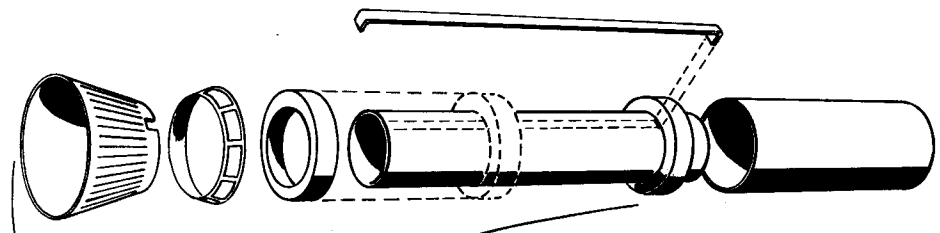
GENERAL INFORMATION

Your Astron "Shrike" is a very high performance rocket, and accepts a wide range of engines. We recommend that first flights be made with a B6-0 in the booster and a 1/2A6-4 in the upper stage.

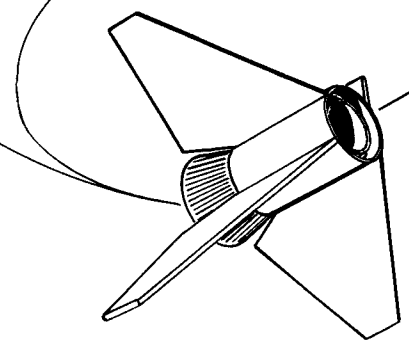
Restrict flights with the more powerful engine combinations to days with no wind, and use the small 12" parachute to avoid loss. The small parachute can be adapted for an even quicker return by taping the shroud lines together halfway up towards the canopy. The 18" parachute should only be used for maximum duration on calm days or with heavy payloads.

An important feature of the Astron "Shrike" is the new "plug-in" staging system. You only have to insert an igniter in the booster engine, and then plug the stages together. **Be sure that the stages are a good snug fit together: they should not be so tight that they are difficult to fit together or to separate, but any looseness must be corrected before flying by doping or painting the stage coupler on the booster until a nice snug fit results. Let this paint dry THOROUGHLY before reassembling the stages.**

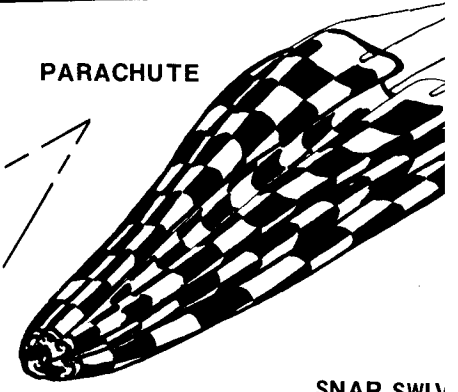
NOZZLE DETAIL



BOOSTER ASSEMBLY



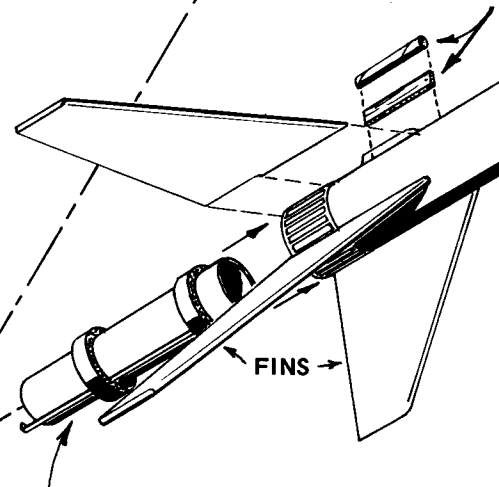
PARACHUTE



SNAP SWIV

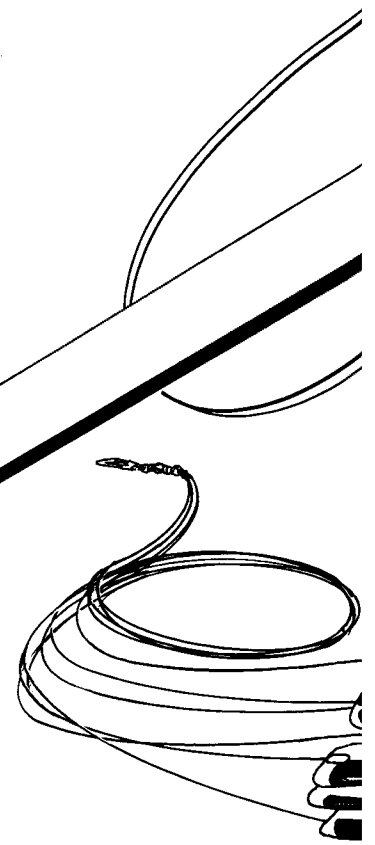
UPPER STAGE ASSEMBLY

LAUNCH LUG AND STAND-OFF

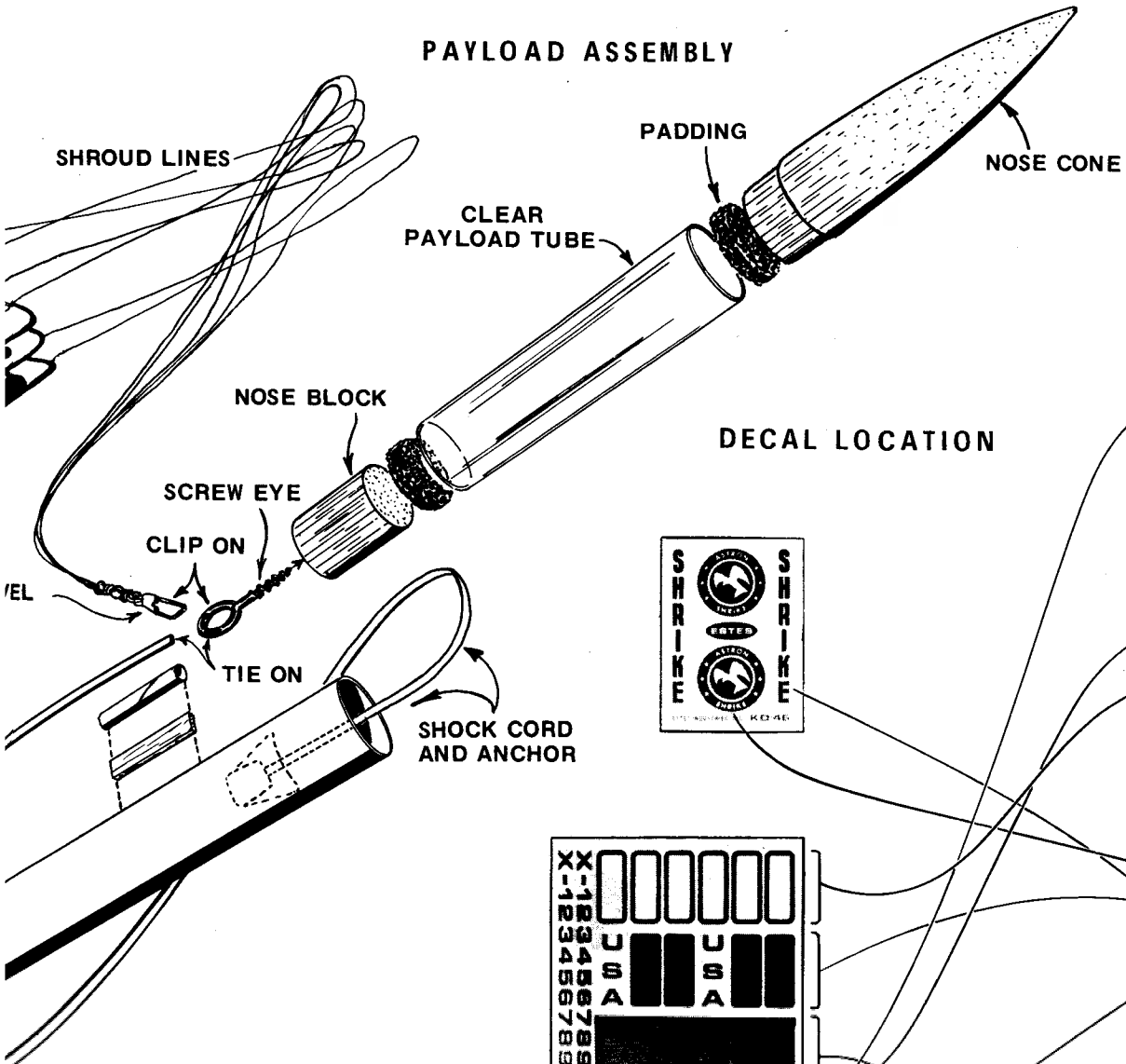


FINS

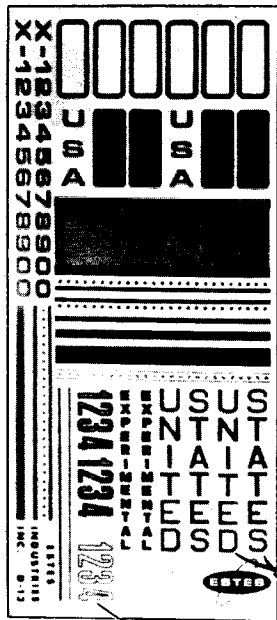
UPPER STAGE ENGINE MOUNT



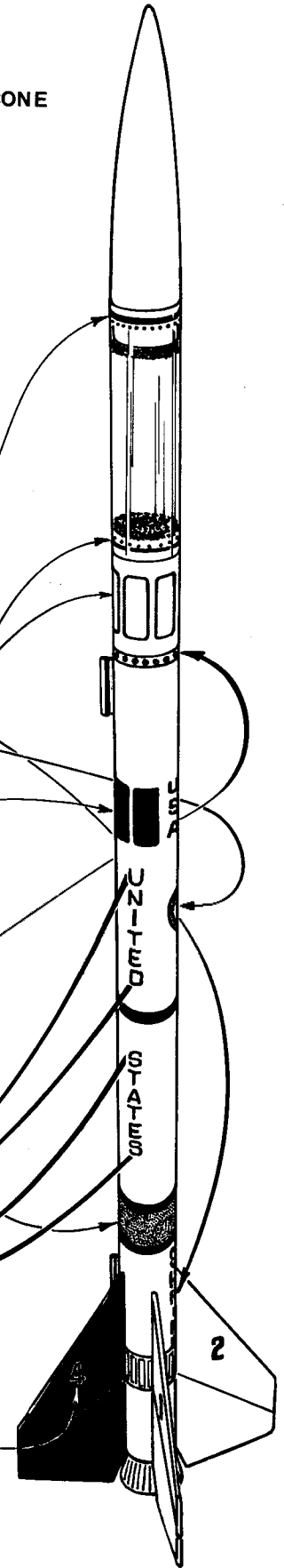
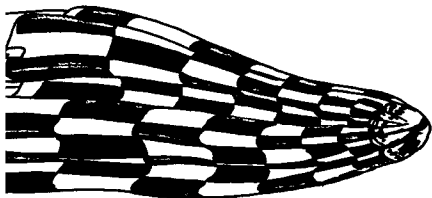
PAYLOAD ASSEMBLY



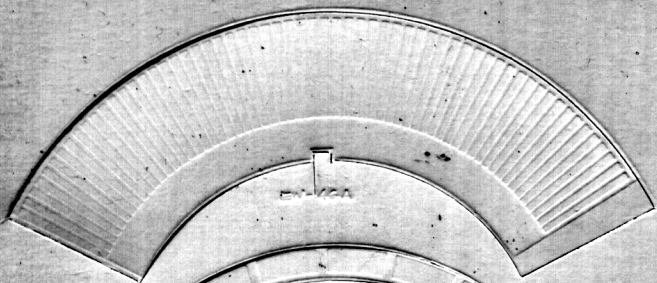
DECAL LOCATION



SPARE PARACHUTE



1 Inch

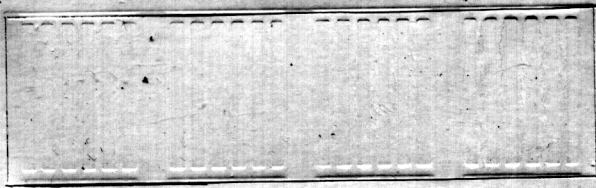


EW-100A



EW-100B

K-46 DECOSSING



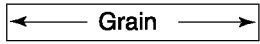
EW-100C



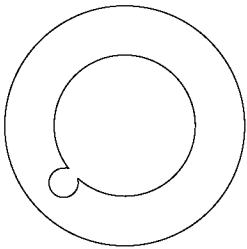
300
DPI

Astron Shrike Pattern Sheet

Note: Cut to the outside of pattern lines.

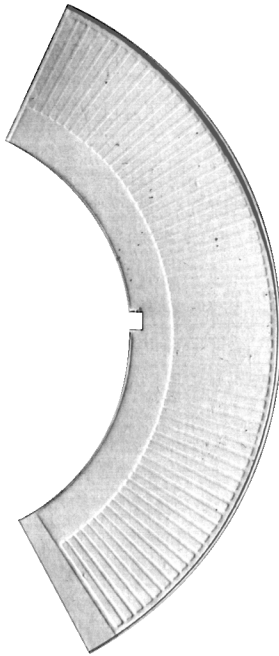


Launch Lug Standoff
Make 2
 (3/16" x 1 5/16")



TA-46 Nozzle Shroud Ring
 (this is very close in size to
 an AR-2055 centering ring)

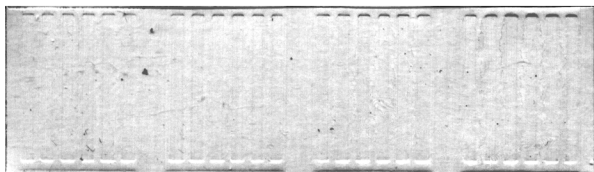
EW-46A Large Nozzle Shroud



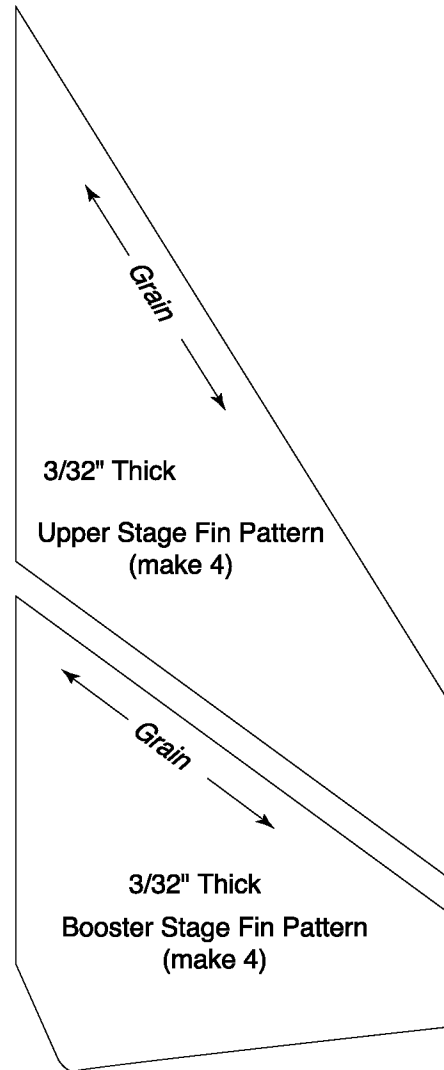
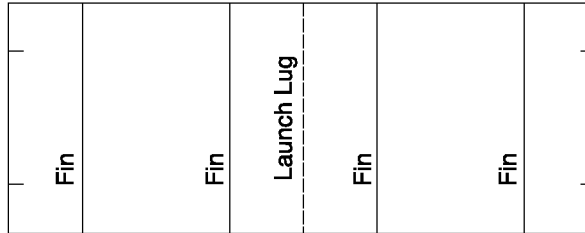
EW-46B Small Nozzle Shroud



EW-46C Upper Stage Wrap-on

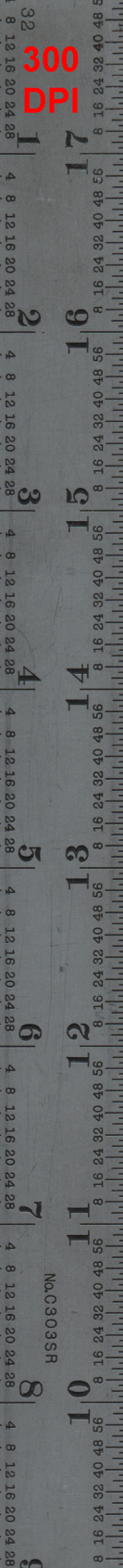
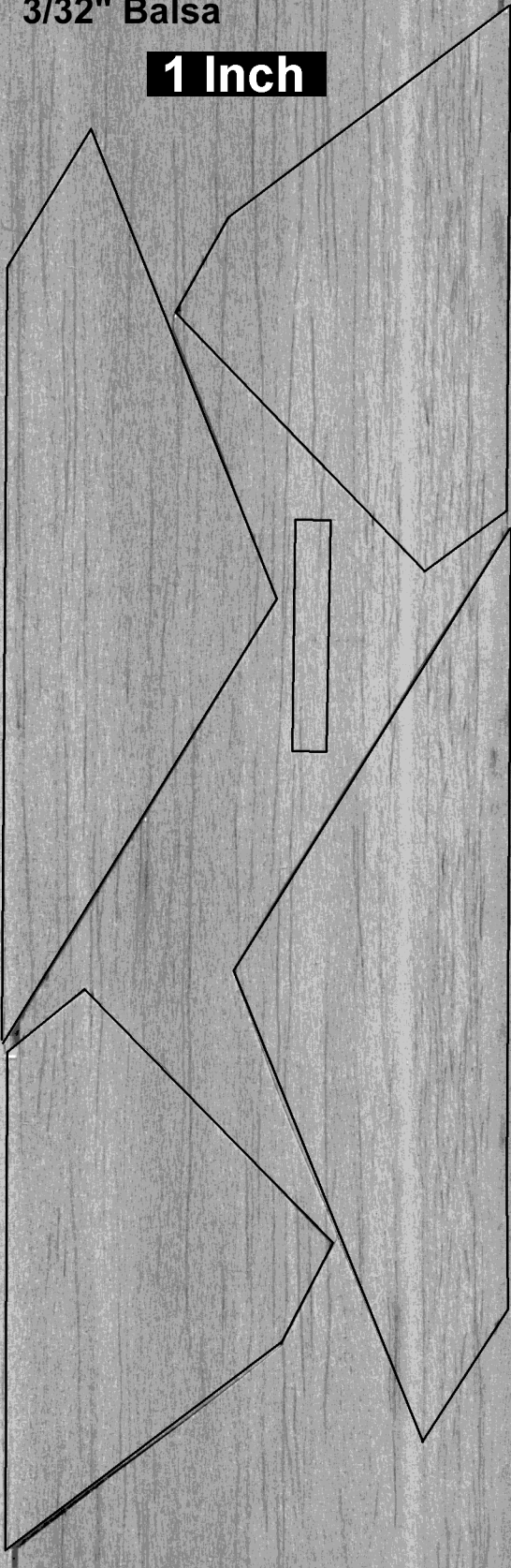


Body Tube Marking Guide



3/32" Balsa

1 Inch



300
DPI

No. C303SR

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ESTES



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ESTES INDUSTRIES, INC. KD-46



32

**300
DPI**

1

2

2

9

SHIRIKI



- Two stage model
- Motor with
- Motor including
- Motor and 40
- Motor
- Motor

The Shiriki is a two-stage model rocket. It is designed for use with a standard model rocket motor. The rocket is made of lightweight plastic and is easy to assemble. It is a great choice for beginners and experienced model rocketeers alike.

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