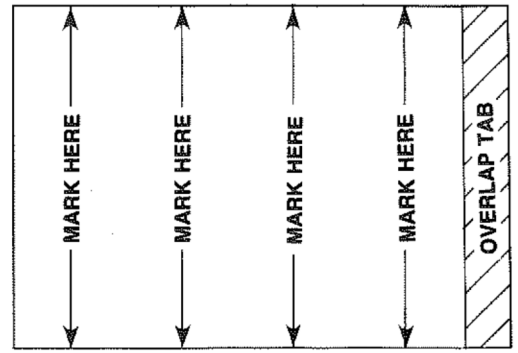
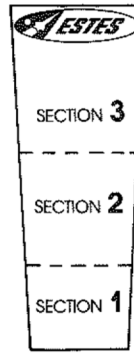




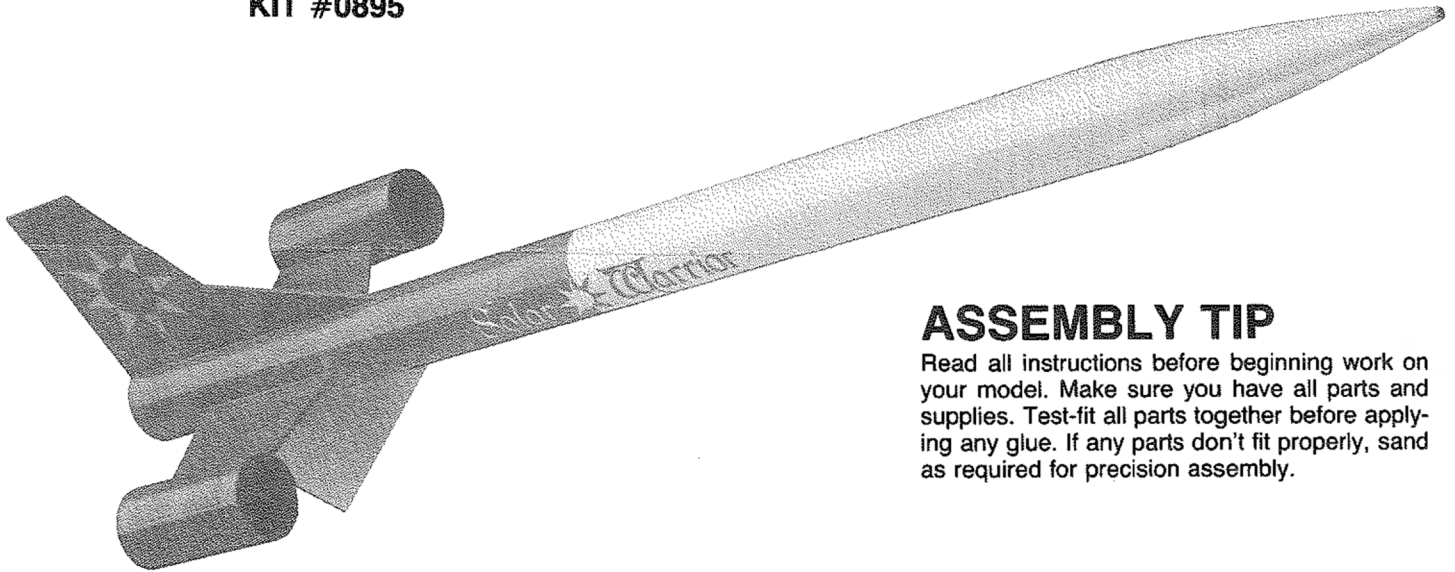


ESTES INDUSTRIES
1295 H Street
Penrose, CO 81240



Solar Warrior™

FLYING MODEL ROCKET
KIT #0895

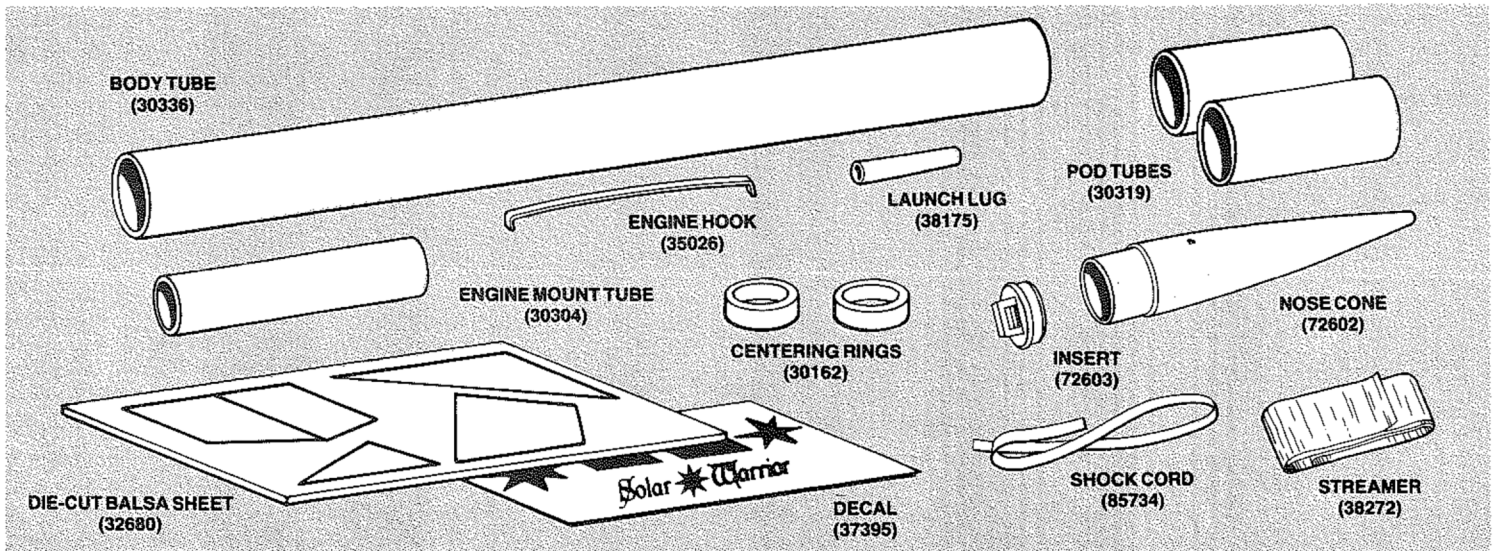


ASSEMBLY TIP

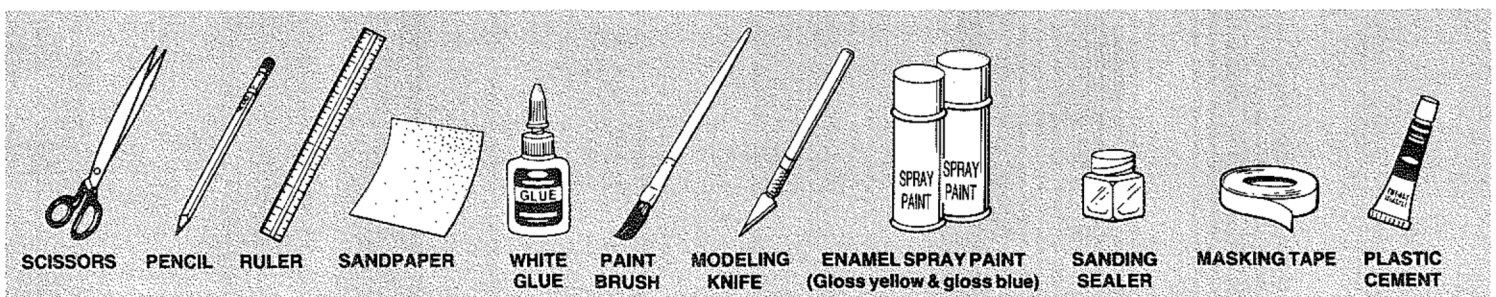
Read all instructions before beginning work on your model. Make sure you have all parts and supplies. Test-fit all parts together before applying any glue. If any parts don't fit properly, sand as required for precision assembly.

PARTS AND SUPPLIES

Locate the parts shown below and lay them out on the table in front of you.



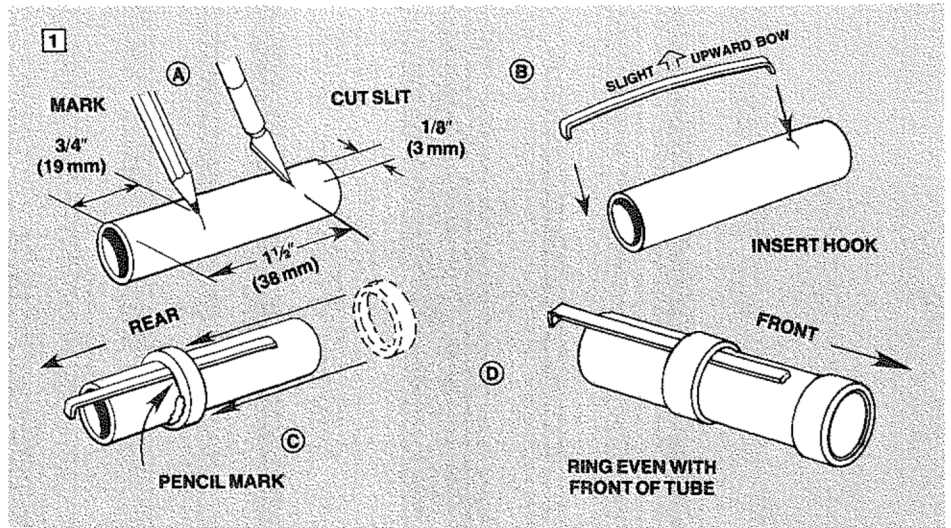
In addition to the parts included in the kit, you will also need:



NOTE: Use wood glue for all assembly except in step 9.

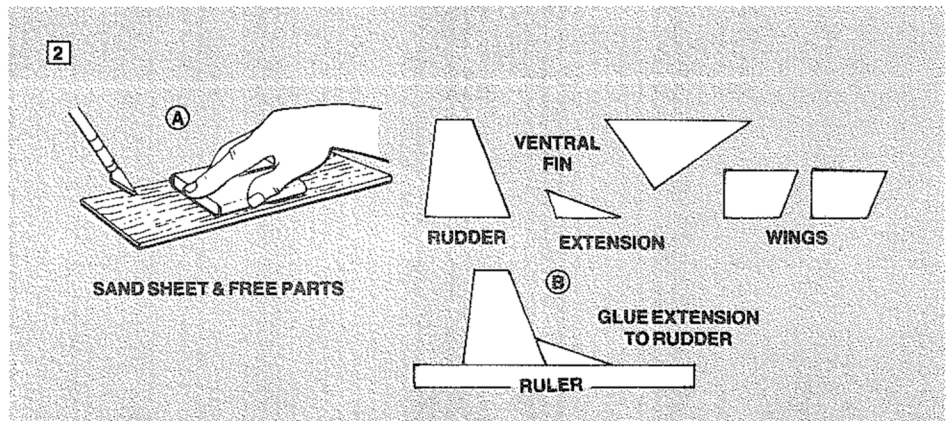
1.

- Mark the engine mount tube $3/4"$ (19 mm) and $1\frac{1}{2}"$ (38 mm) from one end. Cut an $1/8"$ (3 mm) wide slit in the tube at the $1\frac{1}{2}"$ (38 mm) mark.
- Bend engine hook so it has a very slight upward bow. Insert one end of engine hook in slit.
- Slide a centering ring over front of mount and push down to the pencil mark. Glue ring in place.
- Glue remaining ring to front of tube.



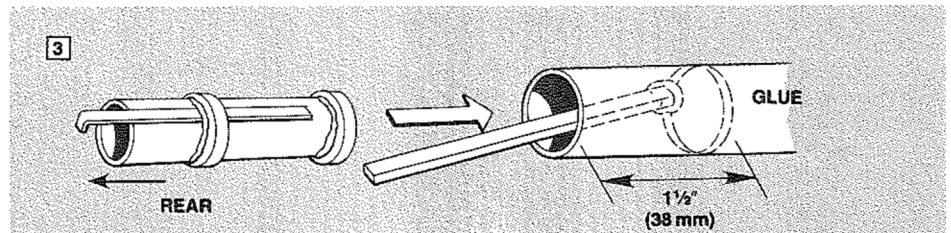
2.

- Sand both sides of the balsa sheet and free the die-cut parts with a knife. Sand edges of parts and sort and identify them.
- Using a ruler as a guide, glue the extension piece to the rudder. After glue has dried, smear a film of glue over joint, let dry, turn over and apply a film of glue to other side.



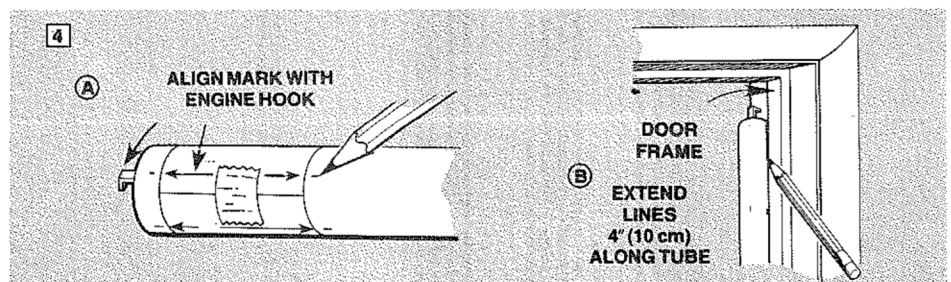
3.

Use a piece of scrap balsa to apply a bead of glue around inside of body tube about $1\frac{1}{2}"$ (38 mm) from one end. Push engine mount into body until ends of tubes are even. **CAUTION:** Do not glue mount in backwards. Stand body upright until glue dries.



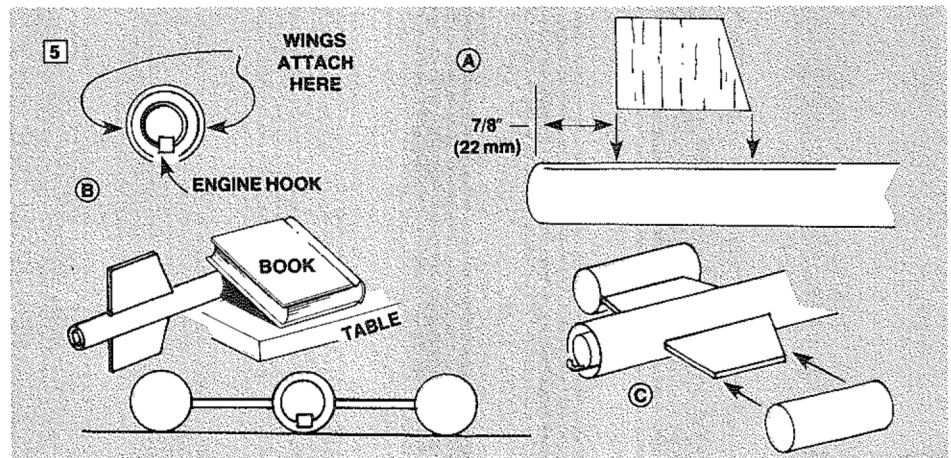
4.

- Cut the body marking guide from front page of instructions. Wrap the guide around rear of body and tape ends together. Rotate the guide so one arrow point is aligned with engine hook. Mark tube at arrow points. Remove guide.
- Using a door frame as a guide, draw lines on tube at the marks. Extend lines $4"$ (100 mm) from rear of tube.



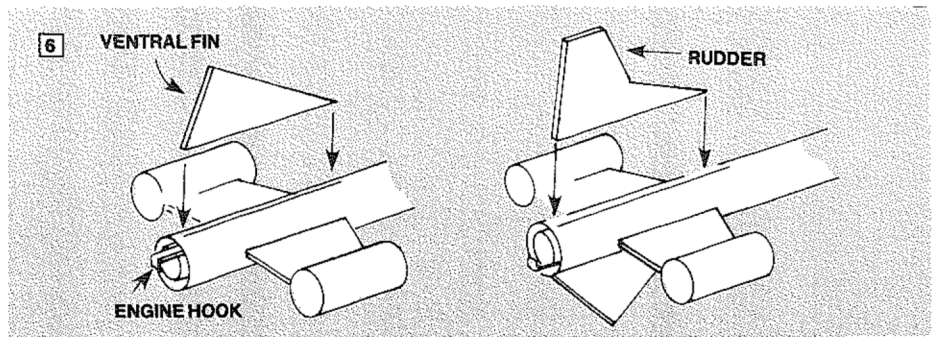
5.

- Mark two lines on either side of engine hook line $7/8"$ (22 mm) from rear of tube. Glue a wing to body, centered on line with rear of wing on mark. Make sure wing extends straight on tube. Support with wing pointing straight up until glue dries.
- Glue remaining wing to opposite side of body in same manner. Support as shown while glue dries.
- Place body on a flat surface and glue a pod tube to one wing. Rear of tube is even with rear edge of wing. Glue remaining pod tube to other wing.



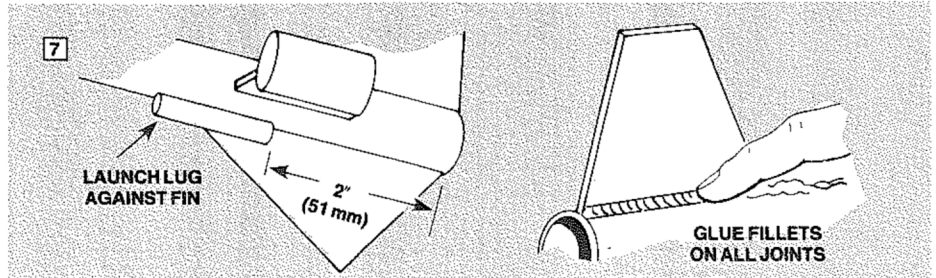
6.

- Glue ventral fin to body on line that is aligned with engine hook. Rear of fin is even with rear of body. Make sure fin extends straight from body then support with fin pointing straight up while glue dries.
- Glue rudder to remaining line in same manner.



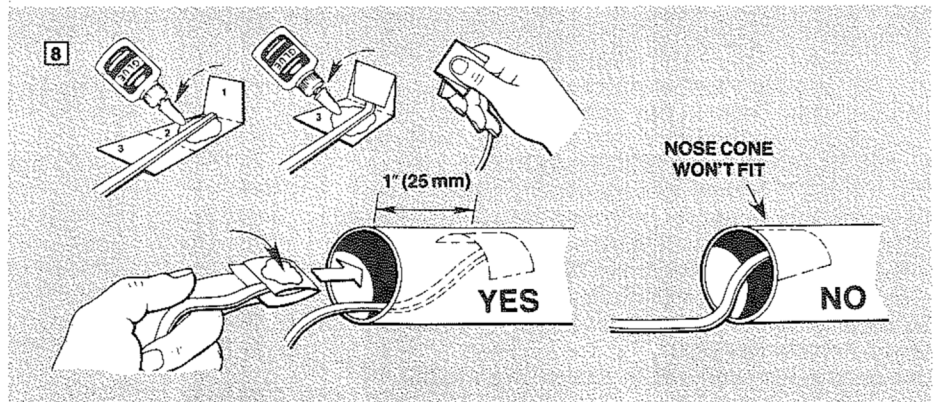
7.

- Glue launch lug to body in position shown.
- Apply a bead of glue to each balsa/body joint. Smooth glue into an even fillet with your finger.



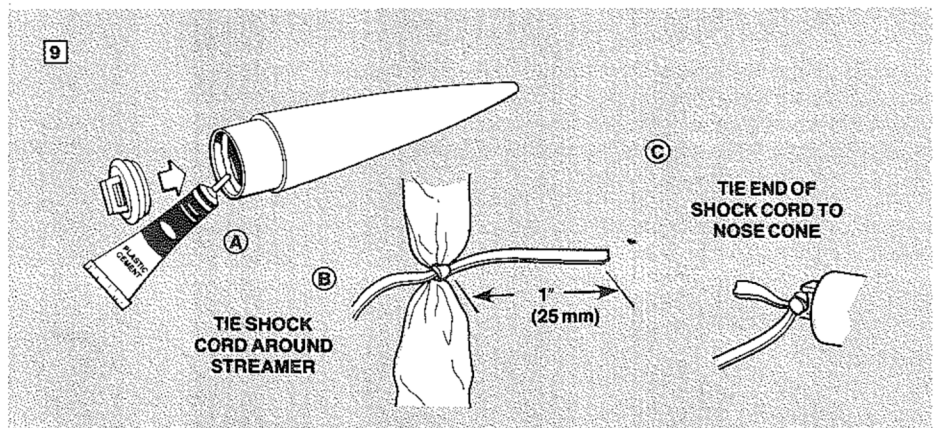
8.

- Cut shock cord mount from front page.
- Crease on dotted lines by folding. Spread glue on section 2 and lay end of shock cord into glue at a slight diagonal as shown. Fold section 1 forward. Apply glue to section 3. Fold forward again. Clamp firmly with your fingers until glue sets.
- Apply glue to the shock cord mount. With the shock cord mount positioned on the end of your finger or a pencil, gently position the mount into the front of body tube. Set back far enough from the front edge of the tube to allow the nose cone to fit into place (1" - 25 mm). Press shock cord mount into position. Smear a film of glue over the mount and surrounding area in the body tube to insure a good bond and a smooth surface.



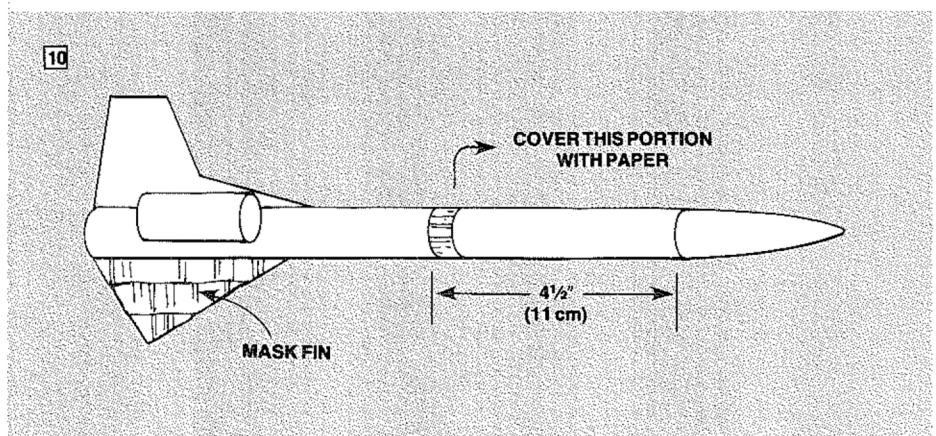
9.

- Apply plastic cement around inside of end of nose cone and install nose cone insert.
- Tie shock cord around middle of streamer at a point about 1" (25 mm) from end of shock cord.
- Tie end of shock cord to nose cone using a double knot. Roll streamer and place it and shock cord into body and socket nose cone in place.

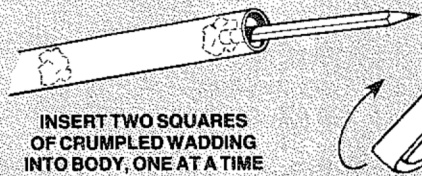


10.

- Proceed only if glue fillets (step 7) are thoroughly dry. Apply a coat of sanding sealer to all balsa surfaces. Let sealer dry, then lightly sand. Seal and sand again. Several coats may be required for a really smooth finish.
- Paint the rocket yellow. Set aside to dry overnight. Mask the ventral fin. Wrap a piece of masking tape around body at point shown. Mask the forward portion of rocket with paper. Make sure all edges are sealed with tape. Paint the rear portion of rocket blue. Let paint dry and remove tape and paper.
- Apply decals using kit panel as a guide. To apply decals, cut them one at a time from the sheet. Dip in water until decal slides on backing (usually 20 to 30 seconds). Slide from backing sheet onto model. Position decal where desired. Let it set a few minutes, then gently blot away water with a soft cloth.

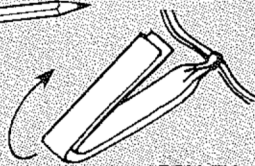


ROCKET PREFLIGHT



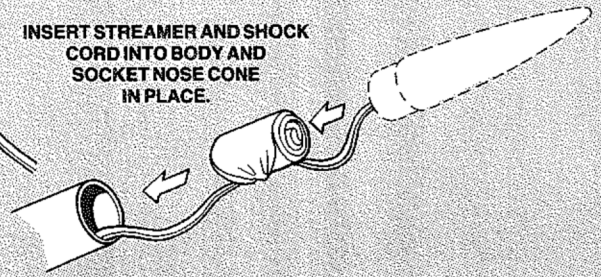
INSERT TWO SQUARES OF CRUMPLED WADDING INTO BODY, ONE AT A TIME

FOLD STREAMER IN HALF



ROLL TIGHTLY

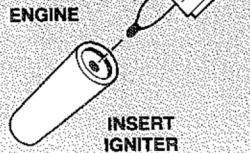
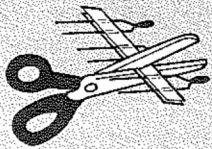
INSERT STREAMER AND SHOCK CORD INTO BODY AND SOCKET NOSE CONE IN PLACE.



NOTE: IF STREAMER FITS TOO TIGHTLY, REMOVE AND RE-ROLL

PREPARE ENGINE

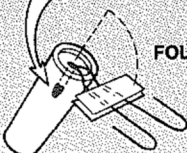
SEPARATE THE IGNITERS



ENGINE

INSERT IGNITER

IGNITER TIP MUST TOUCH PROPELLANT DEEP INSIDE NOZZLE OPENING

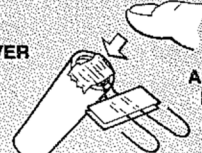


FOLD OVER

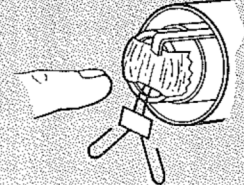
BEND LEADS IN U SHAPE

INSTALL ENGINE IN ROCKET

HOOK MUST LATCH OVER END OF ENGINE



APPLY AND FIRMLY PRESS MASKING TAPE IN PLACE



COUNTDOWN AND LAUNCH

LAUNCH SUPPLIES

To launch your rocket you will need the following items:

- Estes Electrical Launch System
- Estes Recovery Wadding No. 2274
- Recommended Estes Engines: A3-4T and A10-3T

To become familiar with your rocket's flight pattern, use an A3-4T engine for your first flight.

Use only Estes products to launch this rocket.

FLYING YOUR ROCKET

Choose a large field away from power lines, tall trees, and low flying aircraft. Try to find a field at least 250 feet (76 meters) square. The larger the launch area, the better your chance of recovering your rocket. Football fields and playgrounds are great.

Launch area must be free of dry weeds and brown grass.

Launch only during calm weather with little or no wind and good visibility.

MISFIRES

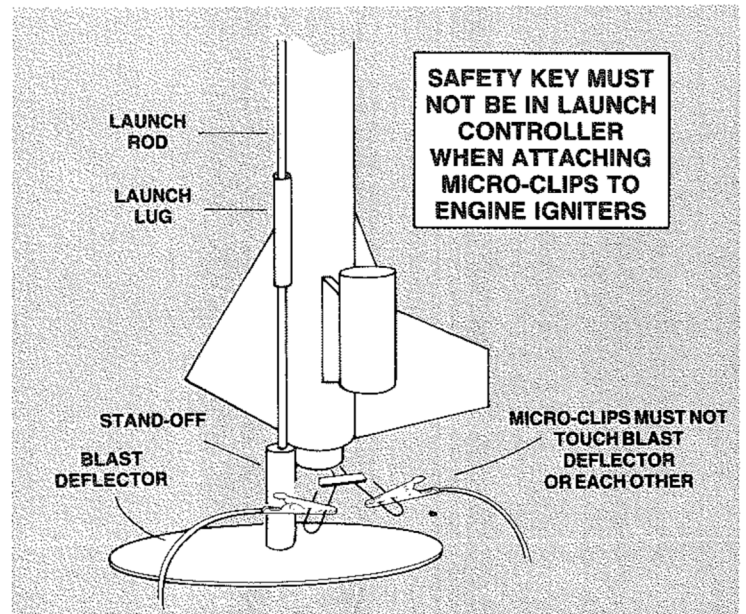
Failure of the model rocket engine to ignite is nearly always caused by incorrect igniter installation. An Estes igniter will function properly even if the coated tip is chipped. However, if the coated tip is not in direct contact with the engine propellant, it will only heat and not ignite the engine.

When an ignition failure occurs, remove the safety key from the launch control system and wait one minute before approaching the rocket. Remove the expended igniter from the engine and install a new one. Be certain the coated tip is in direct contact with the engine propellant, then tape the igniter leads firmly to base of engine as illustrated above. Repeat the countdown and launch procedure.

FOR YOUR SAFETY AND ENJOYMENT

Always follow the NAR-HIA* MODEL ROCKETRY SAFETY CODE while participating in any model rocketry activities.

*National Association of Rocketry-The Hobby Industry of America



SAFETY KEY MUST NOT BE IN LAUNCH CONTROLLER WHEN ATTACHING MICRO-CLIPS TO ENGINE IGNITERS

MICRO-CLIPS MUST NOT TOUCH BLAST DEFLECTOR OR EACH OTHER

- BE CERTAIN SAFETY KEY IS NOT IN LAUNCH CONTROLLER.
- Remove safety cap and slide launch lug over launch rod to place rocket on launch pad. Make sure the rocket slides freely on the launch rod.
- Attach micro-clips to the igniter wires. Arrange the clips so they do not touch each other or the metal blast deflector. Attach clips as close to protective tape on igniter as possible.
- Move back from your rocket as far as launch wire will permit (at least 15 feet - 5 meters).
- INSERT SAFETY KEY to arm the launch controller.

Give audible countdown 5...4...3...2...1

LAUNCH!! PUSH AND HOLD LAUNCH BUTTON UNTIL ENGINE IGNITES

REMOVE SAFETY KEY FROM LAUNCH CONTROLLER. REPLACE SAFETY KEY AND SAFETY CAP ON LAUNCH ROD.

32
300
DPI

1
21

2
91

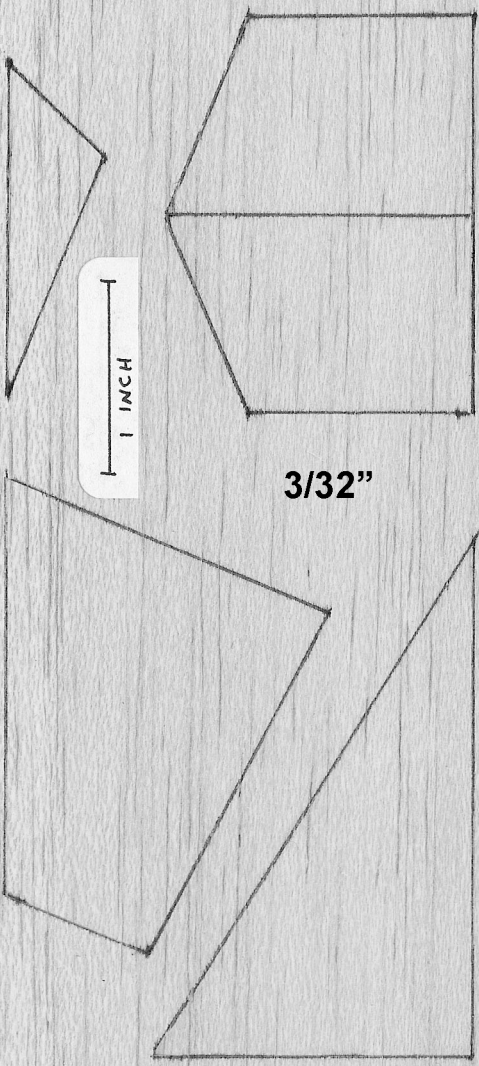
3
51

4
41

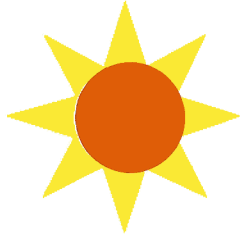
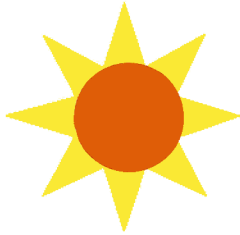
5
31

3/32"

1
H3N1 1



Solar  Warrior™



Solar  Warrior™

ESTES INDUSTRIES PN 37395



PARTS LIST KIT NO. 0895 - Solar Warrior								
Quantity	Description	Type	Number	Details1	Details2	Details3	Details4	Comment
1	PAPER BODY TUBE	BT-5BJ	30304	2" long	0.515" ID	0.541" OD	0.013" wall	Glassine
1	ENGINE HOLDER	EH-3	35026	1.8" long	.125" wide	.025" thick	13mm	Mini
2	CENTERING RINGS	AR-520	30162	.69" OD	.542" ID	0.25" long	Set of 2	Green
1	PAPER BODY TUBE	BT-20N	30336	9.75" long	0.710" ID	0.736" OD	0.013" wall	Glassine
2	PAPER BODY TUBE	BT-20AE	30319	1.5" long	0.710" ID	0.736" OD	0.013" wall	Glassine
1	BALSA FIN STOCK	BFS-30(3x6)	N/A	3" wide	6" long	3/32" thick	0.09375	Scan
1	LAUNCH LUG	LL-2A	38175	5/32" ID	1/8" rod	1.25" long		Mylar
1	PLASTIC NOSE CONE	PNC-20A	72602	2.81" long	.736" dia.	.5" shoulder	White	Injection Molded w/base
1	Plastic Streamer	?	38272	1.2" wide	18" long	Flo. Orange	Surveyor's Tape	polyethylene
1	Decal	KD-0895	37395	3" wide	6" long	Org, Yel	Waterslide	Scan
1	Shock Cord	SC-1B	85734	1/8" wide	12" long			Rubber

flying model rocket

Flies Over and Over
To **375 feet (114 meters)**

SKILL LEVEL **2**

solar warrior



12225 in. (31.1 cm)
1.75 in. (4.4 cm) W x 1.75 in. (4.4 cm)
Recommended engine: Estes E10 (1.0 sec. burn)

#0895



COLORFUL
EASY-TO-BUILD
SPORT MODEL



flying model rocket

SAFE, FUN,
EDUCATIONAL

ESTES INDUSTRIES

1595 N STREET,
KANSAS, CO
67450 USA



4 Peak Altitude & Ejection

This is a model kit requiring assembly. Gues and missing angles, punch system and engines for flight are not included.

1 MODEL & REQUIRED PARTS are at Cut-to-Release

Made in USA

30610A

FLIGHT SEQUENCE

LAUNCH AREA:

Choose a large field away from power lines, tall trees, and low-flying aircraft. This chart shows the smallest recommended launch areas:

ENGINE TYPE	ESTIMATED ALTITUDE		MINIMUM LAUNCH SIZE DIMENSION*	
	FEET	METERS	FEET	METERS
ALL DELAYS	200	61	50	15
A	400	122	100	30
B	800	244	200	61
C	1,600	488	400	122
D	1,800	549	500	152

*Minimum circular area = Diameter in feet or meters.
Minimum rectangular area = Shortest side in feet or meters.

Launch site must be free of obstructions and highly flammable materials.

3 Coast Tracking



2 Acceleration



1 Electrical Ignition & Lift-Off



Symbols indicate the following kit features:

- Parachute
- Size
- Streamer
- Recovery
- De-Cut Balsa Fins
- Filter Fins
- Plastic
- Nose Cone
- Nose Cone
- Plastic
- Fin-Unit
- Cut-to-Release Engine Mount

Kit
 Decals

Plastic bags can be dangerous. To avoid danger of suffocation, keep this bag away from babies and children.

Les sacs de plastique peuvent être dangereux. Pour éviter le danger de suffocation, ne laissez pas ce sac à la portée des bébés ni des enfants.

Complete Instructions, NAR Safety Code & Full One Year Warranty enclosed.

USE ONLY WITH ESTES PRODUCTS

Flies Over and Over
To **375** feet (114 meters)

SKILL
LEVEL

2

FOR THE EXPERIENCED MODELER

solar warrior™



Length: 12.526 in. (32.1 cm)

Dia.: .50 in. (12.7 mm) Weight: .67 oz. (19 g)

Recommended Engines: A10 (E-Fin) or A10-3

COLORFUL
EASY-TO-BUILD
SPORT MODEL



#0895

