

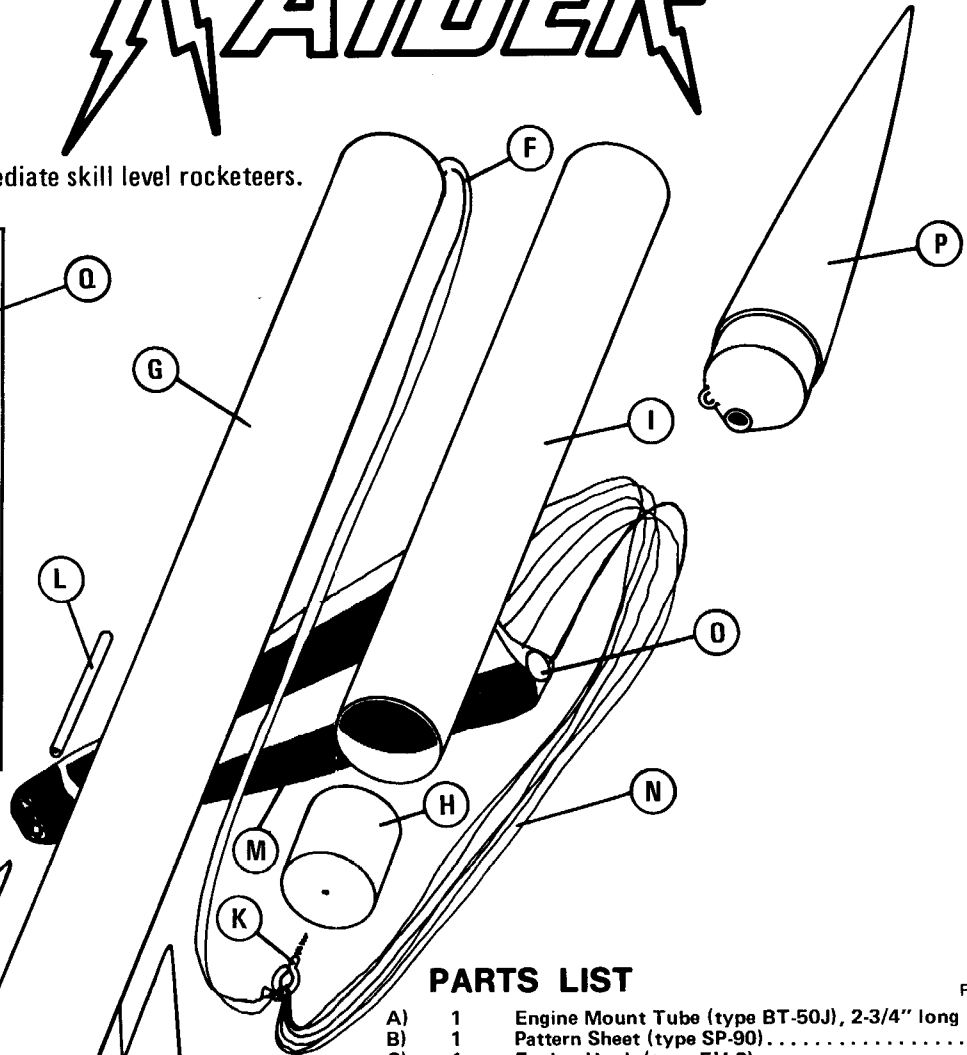
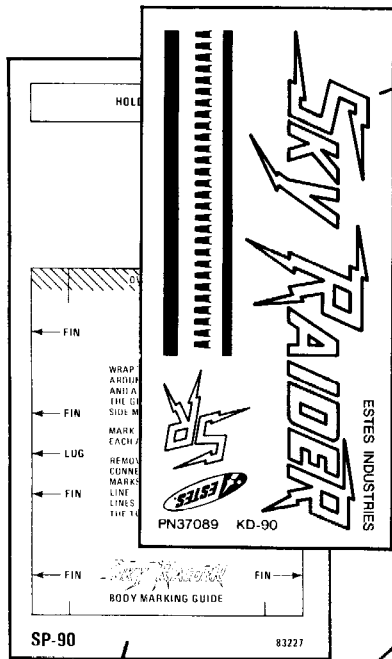


# SKY RAIDER

**KIT NO. 1290**

**Skill Level 2**

This kit recommended for intermediate skill level rocketeers.



## PARTS LIST

		PART NO.
A)	1	Engine Mount Tube (type BT-50J), 2-3/4" long . . . . . 30362
B)	1	Pattern Sheet (type SP-90) . . . . . 83227
C)	1	Engine Hook (type EH-2) . . . . . 35025
D)	2	Adapter Rings (type AR-5055) . . . . . 30166
E)	1	Engine Block (type AR-2050) . . . . . 30164
F)	1	Shock Cord (type SC-3), 36" long . . . . . 85744
G)	1	Body Tube (type BT-55), 18" long . . . . . 30382
H)	1	Nose Block (type NB-55) . . . . . 70162
I)	1	Body Tube (type BT-55IJ), 9" long . . . . . 30384
J)	1	Balsa Fin Sheet (type BF-L3) . . . . . 32254
K)	1	Screw Eye (type SE-2A) . . . . . 38252
L)	1	Launch Lug (type LL-2B) . . . . . 38178
M)	1	Parachute (type PK-18A) . . . . . 85566
N)	1	108" Shroud Line Cord (type SLT-108) . . . . . 38239
O)	6	Tape Discs (type TD-3F) . . . . . 38406
P)	1	Nose Cone (type PNC-55AC) . . . . . 71070
Q)	1	Decal (type KD-90) . . . . . 37089
R)	1	Shock Cord Mount (SCM-50) (Not shown) . . . . . 84444

In addition to the parts included in this kit you will need scissors, a pencil, a ruler, white glue, a sharp model knife (or single edge razor blade), sandpaper, masking tape, sanding sealer, and paint.

## IMPORTANT:

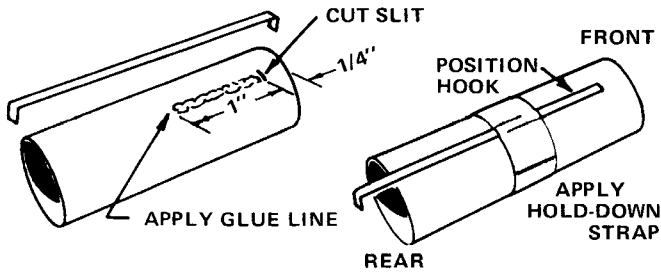
Read all instructions before beginning work on your model. Make sure you have all parts and materials. When you are thoroughly familiar with the assembly procedure, begin construction. Check off each step as you complete it. In each step, test-fit the parts together before applying any glue. If some part doesn't fit properly, sand lightly or build up as appropriate for precision assembly.



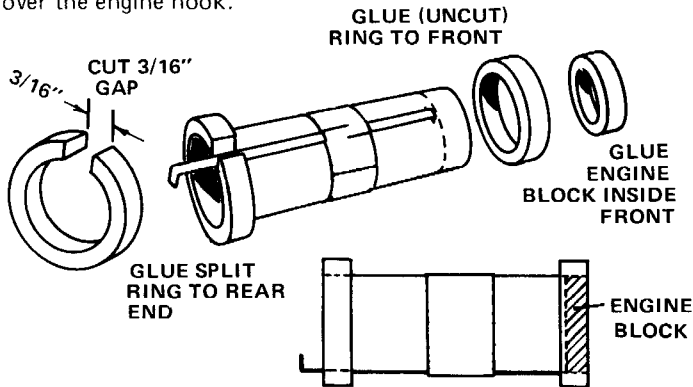
A SUBSIDIARY OF DAMON

**ESTES INDUSTRIES**  
PENROSE, COLO. 81240

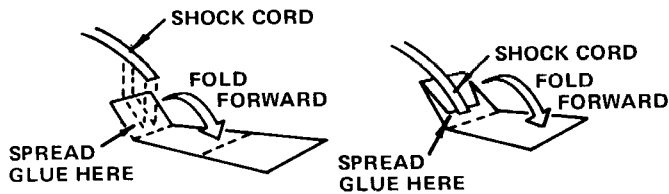
# ASSEMBLY INSTRUCTIONS



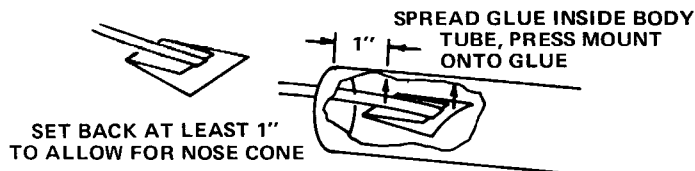
**1** Mark the engine mount tube (part A) 1/4" from one end. Cut a 1/8" long slit in the tube at the mark as shown. Cut out the hold-down strap from the pattern sheet (part B). Apply a 1" long line of glue to the tube as shown. Push one end of engine hook (part C) into the slit and press the main part of the hook into the glue. Apply glue to one side of the hold-down strap and wrap it tightly around the middle of the tube over the engine hook.



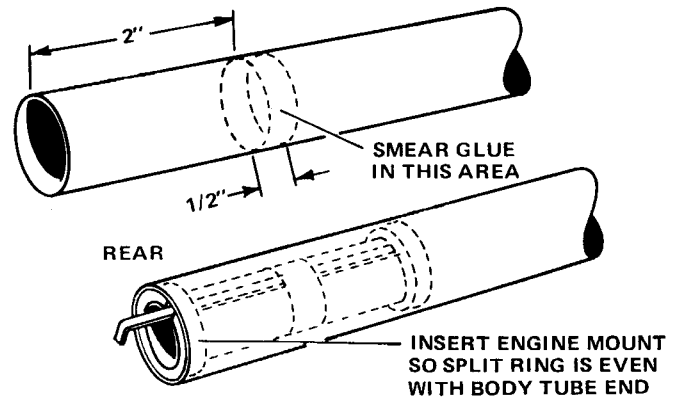
**2** Cut a 3/16" gap in one adapter ring (part D). Glue it to the end of the engine mount tube from which the engine hook projects. Make sure the engine hook is centered in the gap and free to move up and down. Glue the other (uncut) adapter ring against the end of the engine hook at the other end of the tube (the front). Glue the engine block (part E) inside the tube against the hook at the front.



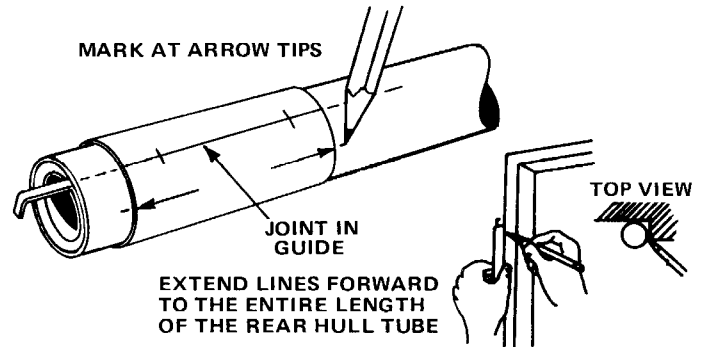
**3** Cut out the shock cord mount (part R). Crease it on the dotted lines by folding. Spread glue on the first section (1) and lay the end of the shock cord (part F) into the glue. Fold over and apply glue to the back of the first section and the exposed part of section 2. Lay the shock cord as shown and fold over again. Clamp the unit together with your fingers until the glue sets.



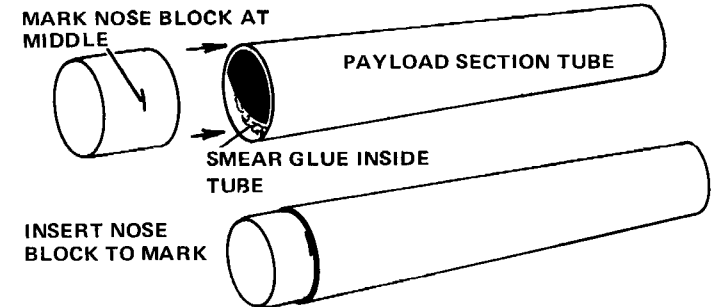
**4** Apply glue to the inside of the 18" long body tube (part G) at one end over an area about 1" to 2" from the end. The glued area should be the same size as the shock cord mount. Press the mount into the glue as shown and hold it until the glue sets.



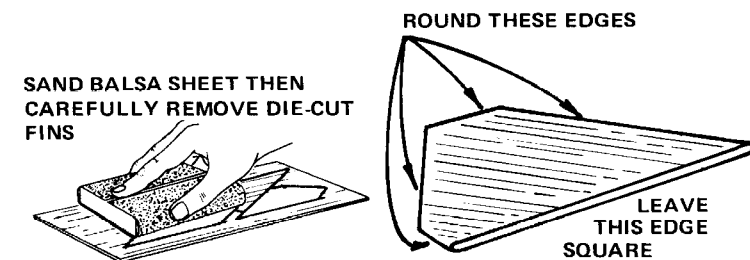
**5** Smear glue around the inside of the other end of the body tube to cover an area about 2" to 2-1/2" from the end of the tube. Immediately insert the engine mount unit, being careful to position it so the engine hook will stick out of the end of the tube. Push the engine mount in with one smooth motion until the ends of the tubes (and the split ring) are even.



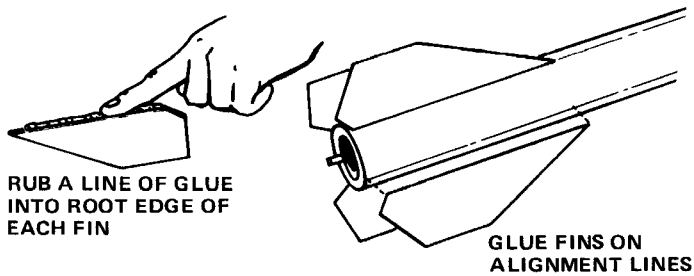
**6** Cut out the body tube marking guide from the pattern sheet. Wrap it around the rear of the body so the joint in the guide is in line with the engine hook. Mark the tube at each arrow point, front and rear. Draw a straight line connecting each matching front and rear mark. (Use a door frame as a guide when drawing lines.) Extend the launch lug line forward 10".



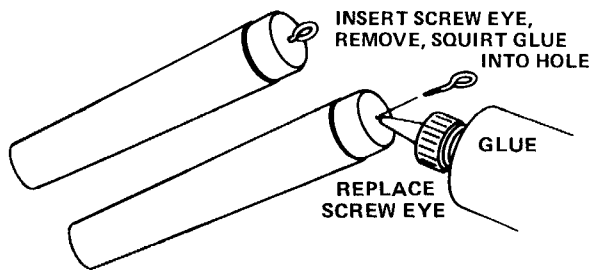
**7** Mark the nose block (part H) half-way along its length. Apply a line of glue around the inside of the payload section tube (part I), about 1/8" in from one end. Slide the nose block into place in this end of the tube so the mark is even with the end of the tube.



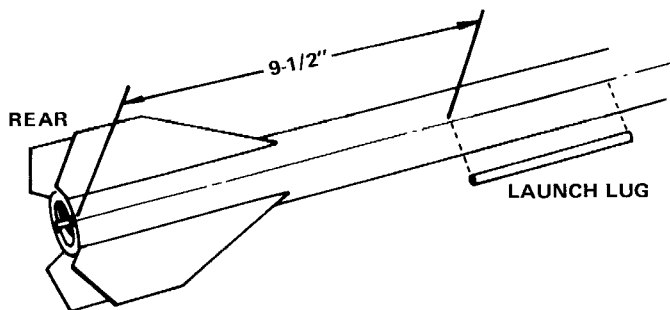
**8** Fine-sand the balsa sheet (part J), then carefully remove the die-cut fins from the sheet. Free the edges with a sharp knife. Sand the leading, tip, and trailing edges of each fin to a rounded shape. Make sure the root edge remains square.



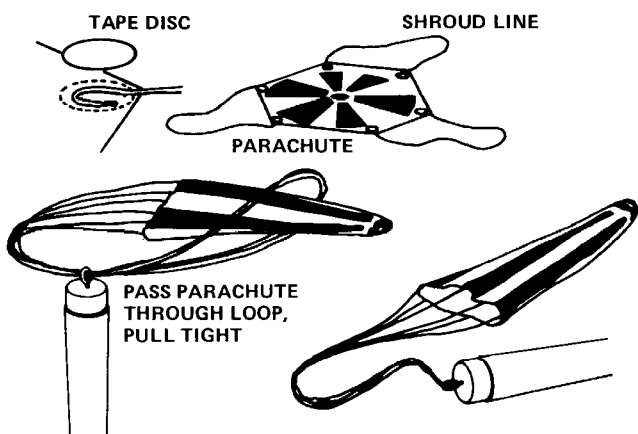
**9** Rub a line of glue into the root edge of each fin and allow to dry. Glue the fins to the body on the alignment lines drawn in step 6. Refer to the illustration to be sure you position the fins correctly. Adjust the fins so they project straight away from the body tube. Do not set the rocket on its fins while the glue is wet.



**10** Insert the screw eye (part K) into the base of the nose block. Remove the screw eye and squirt a small amount of glue into the hole. Re-insert the screw eye.

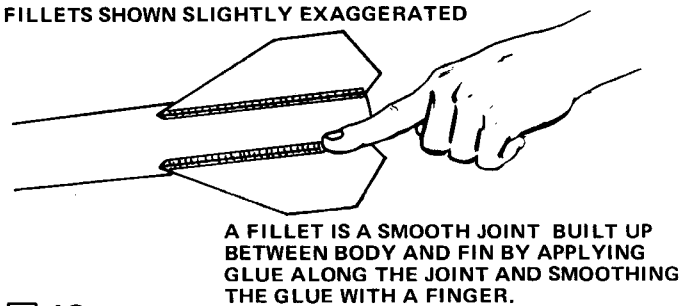


**11** Glue the launch lug (part L) to the body on its line. The front of the lug should be 9-1/2" from the rear of the body. Align it straight on the body.

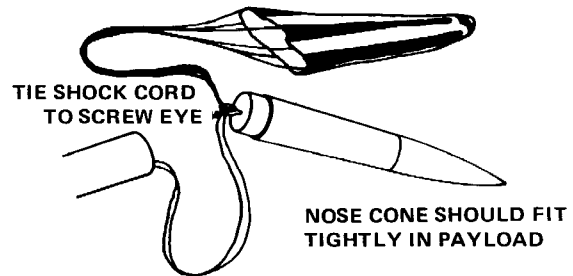


**12** Cut out the parachute (part M) on its edge lines. Cut three 36" lengths of shroud line (part N). Attach line ends to the top of the parachute with tape discs (part O) as shown. Pass the shroud line loops through the screw eye. Pass the parachute through the loop ends and draw lines tight against the screw eye. Set knot with a drop of glue.

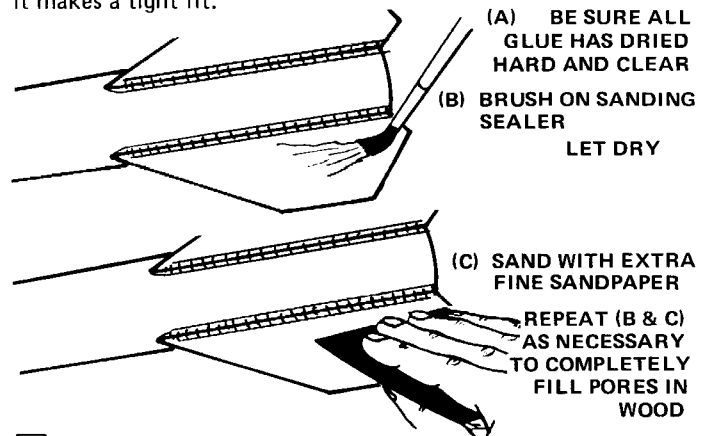
FILLETS SHOWN SLIGHTLY EXAGGERATED



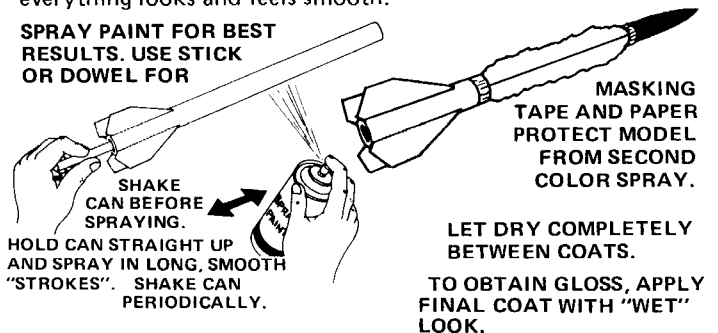
**13** Apply a glue "fillet" to each fin joint. Holding the rocket horizontally (level), apply a line of glue to both sides of each joint. Smooth out the glue with your finger. Keep the rocket level until the glue dries.



**14** Tie the free end of the shock cord to the screw eye. Insert the nose cone (part P) in the front of the payload section tube. If the nose cone is loose, wrap tape on its base until it makes a tight fit.



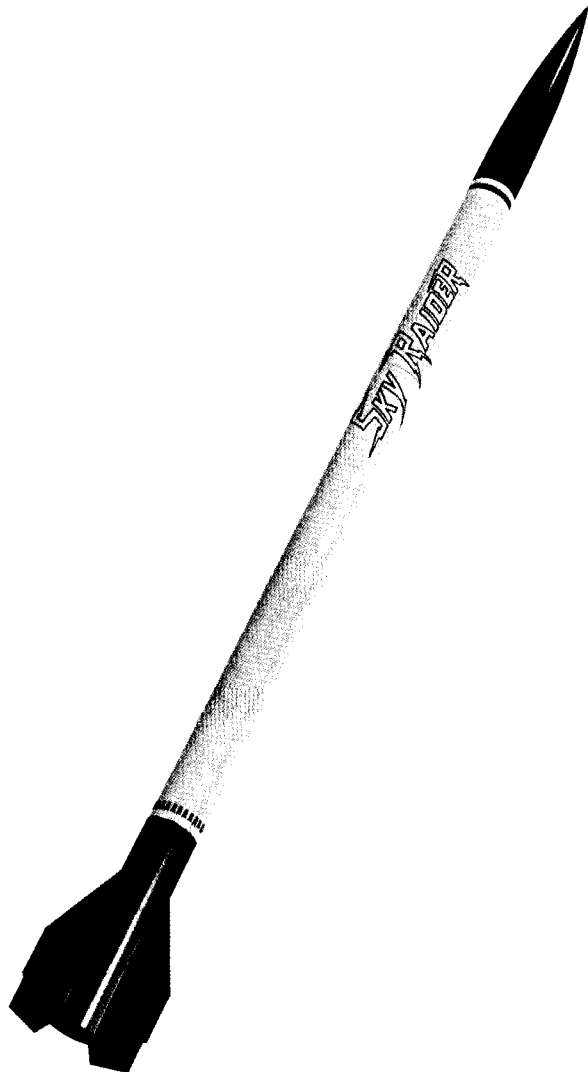
**15** When all glue on the outside of the model is dry, prepare the balsa parts for painting. Apply at least two coats of sanding sealer to the fins. Let dry and sand lightly between coats. Do this until the tiny holes in the wood are filled and everything looks and feels smooth.



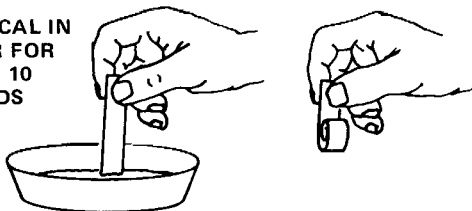
**16** After the sanding sealer is completely dry, paint the entire model white. Let the white dry overnight. Apply masking tape and paper to cover the body of the model. The "masked" area should start 2" from the front of the payload tube and end 4-5/8" from the rear of the body. Paint the exposed nose of the rocket black. Paint the fins and body rear red. Carefully remove the masking tape and paper as soon as the paint is dry.



## DECOR PHOTO



DIP DECAL IN WATER FOR ABOUT 10 SECONDS



**17** When all paint is dry, apply decals (part Q). Cut out a decal section, dip it in lukewarm water for 10 seconds, and hold it until it uncurls. Slip the decal off the backing sheet and onto the model. Blot excess water away. For best results, let the model dry overnight and apply a coat of clear spray to protect the decals.

## LAUNCHING COMPONENTS

To launch your rocket you will need the following items:

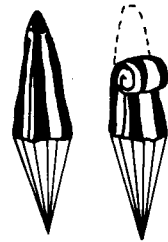
- An Estes model rocket launching system.
- Parachute recovery wadding (Estes Cat. No. 2274).
- Estes D12-5 or D12-7 model rocket engines. Use a D12-7 engine for the first flight. (C6-5 engines may be used if the model is fitted with an EM-2050 adapter kit, Cat. No. 3154, available separately.)

Be sure to follow the HIAA-NAR\* Model Rocketry Safety Code when carrying out your model rocketry activities.

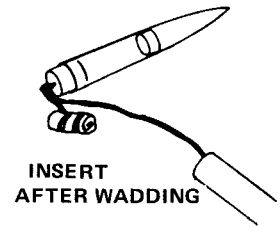
\*HIAA-NAR – Hobby Industry Association of America  
National Association of Rocketry

## COUNTDOWN CHECKLIST

**T-14** Pack seven or eight squares of loosely crumpled recovery wadding into body tube.



FOLD AND WRAP SHROUD LINES AROUND PARACHUTE



INSERT AFTER WADDING

**T-13** Fold the parachute into a triangular shape. Roll 'chute tightly as shown and wrap shroud lines around it. Slide 'chute into body above wadding. If 'chute is too large, unroll and re-pack until it slides easily into rocket. A fit that is too tight may prevent parachute from ejecting properly.

NOTE: DO NOT pack parachute until you are actually ready to launch. For maximum parachute reliability, lightly dust 'chute with ordinary talcum powder, especially in cold weather.

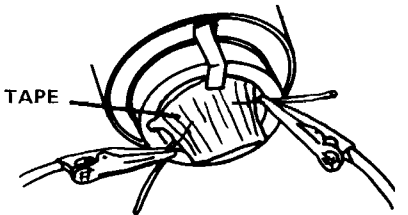
**T-12** Pack shock cord neatly into rocket, then slide payload section into place. Payload section should separate easily from rocket body tube, but should not be extremely loose. If it is too tight, sand inside of body tube and shoulder of nose block with extra fine sandpaper.

If payload section is too loose, add a wrapping of transparent tape or masking tape to the shoulder of the nose block.

**T-11** Select an engine and install an igniter as directed in the engine instructions. Engines recommended for use with this rocket are D12-5 and D12-7.

Use a D12-7 engine for your first flight.

MASKING TAPE



**T-10** Insert engine into rocket. Engine hook must latch securely over end of engine.

**T-9** Disarm launch panel--remove safety key.

**T-8** Place rocket on launch pad, making sure rocket slides freely on launch rod. Clean micro-clips and attach them to igniter leads.

**T-7** Clear the launch area, alert recovery crew and trackers. Check for low flying aircraft and unauthorized persons in recovery area.

**T-6** Arm launch panel--insert safety key.

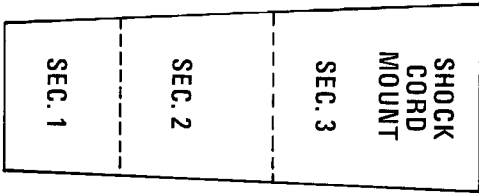
**5 4 3 2 1 LAUNCH!!**

## MISFIRE PROCEDURE

Occasionally an igniter will heat and burn into two parts without igniting the engine. This is almost always caused by a failure to install it correctly. Disarm launch panel, remove the model, clean igniter residue from nozzle, and install a new igniter. Follow launching procedure again.



**HOLD-DOWN STRAP**

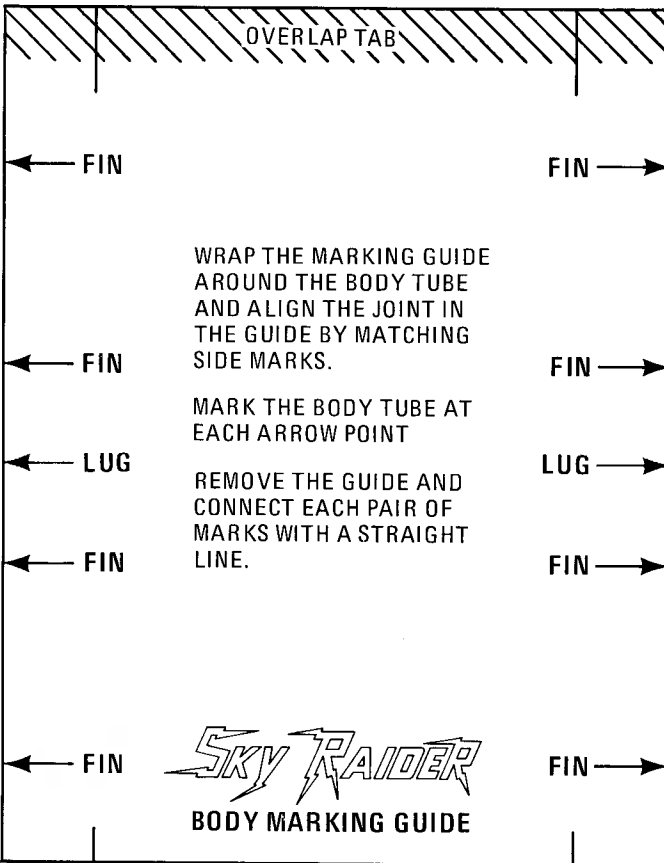


**SHOCK  
CORD  
MOUNT**

**SEC. 1**

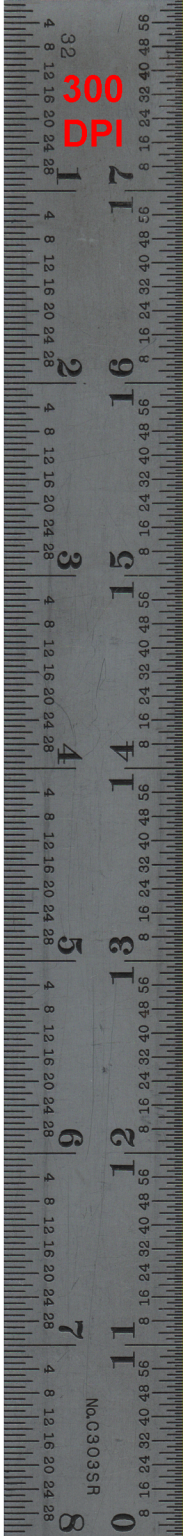
**SEC. 2**

**SEC. 3**



**SP-90**

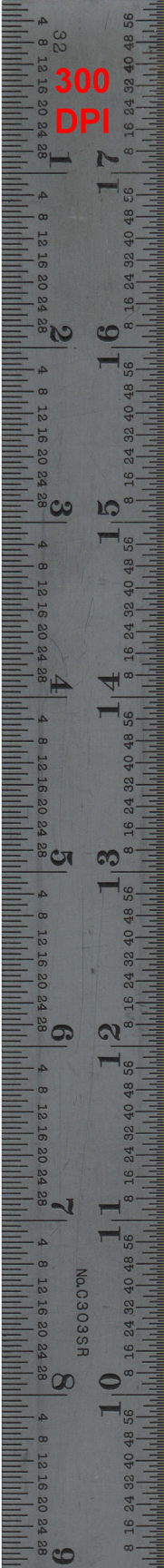
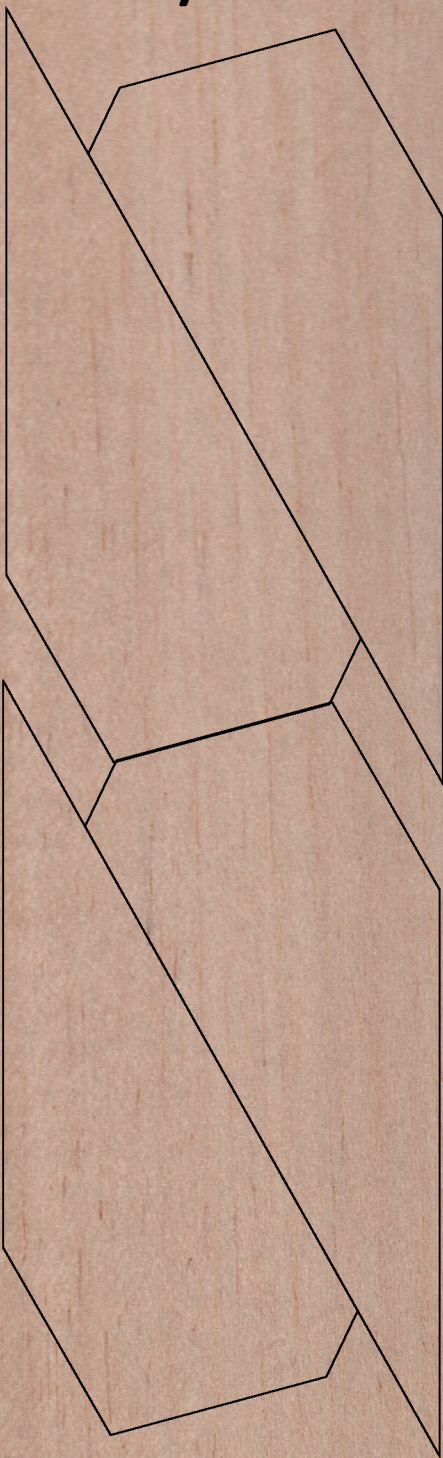
83227



**300  
DPI**

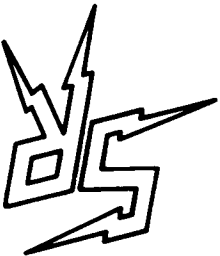
No. C303SR

3/32"



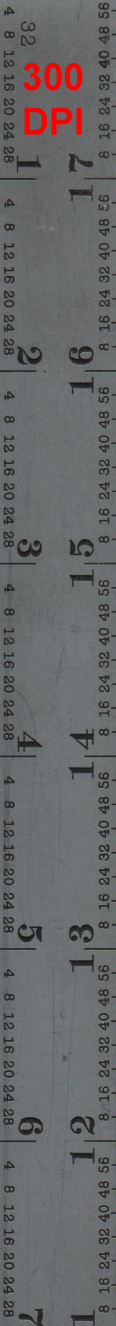
# SKY RAPER

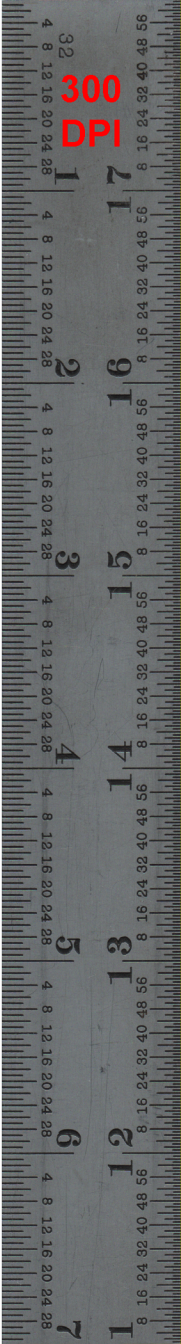
ESTES INDUSTRIES



PN37089

KD-90





SKY RAPER





PARTS LIST KIT NO. 1290 - Sky Raider								
Quantity	Description	Type	Number	Details1	Details2	Details3	Details4	Comment
1	PAPER BODY TUBE	BT-50J	30362	2.75" long	0.950" ID	0.976" OD	0.013" wall	Glassine
1	Pattern Sheet	SP-90	83227	4" wide	8" long	Cardstock		Scan
1	ENGINE HOLDER	EH-2	35025	2.8" long	.100" wide	.025" thick		Reg. & D
2	CENTERING RINGS	AR-5055	30166	.977" ID	1.27" OD	0.25" long	BT-50 in BT-55	Set of 2
1	Engine Block	AR-2050	30164	1/4" long	.737" ID	.949" OD	0.106" wall	Green
1	Shock Cord	SC-3	85744	1/8" wide	36" long			Rubber
1	PAPER BODY TUBE	BT-55	30382	18" long	1.283" ID	1.325" OD	0.021" wall	Glassine
1	BALSA NOSE BLOCK	NB-55	70162	1.25" long	1.283" dia.			BT-55
1	PAPER BODY TUBE	BT-55IJ	30384	9" long	1.283" ID	1.325" OD	0.021" wall	Glassine
1	Balsa Fin Sheet	*BF-L3	32254	3" wide	9" long	3/32" thick	Diecut	Scan
1	Screw Eye (Small)	SE-2A	38252	3/4" long				
1	LAUNCH LUG	LL-2B	38178	5/32" ID	1/8" rod	2-3/8" long		Mylar
1	Parachute	PK-18A	85566	18" dia.	18" x 6 Shrouds	LDPE plastic	Org/Blk/Wht	Damon Logo
1	Shroud Line	SLT-108	38239	108"	.020" diameter	Twisted cotton	3 x 36" shrouds	
6	Tape Disc	TD-3F	38406	1/2" dia.	Paper	Self-Stick	WO/Center Hole	Set of 6
1	PLASTIC NOSE CONE	PNC-55AC	71070	5.4" long	1.325" dia.	.5" shoulder	Secant-Ogive	Blow molded
1	Decal	KD-90	37089	3" wide	7" long	Blk	Waterslide	Scan
1	Shock Cord Mount	SCM-50	84444	1.5" wide	3" long	67 lb. Cardstock	See SP-90	Scan
*	BALSA FIN STOCK	BFS-30	32108	3" wide	9" long	3/32" thick	0.09375	



# SKY RAIDER

## SKY RAIDER



2-Intermediate

### ESTES Model Rocketry Safety Code

A SUBSIDIARY OF DAMON

The Estes Model Rocketry Safety Code is approved by the National Association of Rocketry and the Rocketry Industry Association of America.

847108

### BLAST-OFF!!

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

Membership includes Viper rocket kit, 10 card member card, certificate, launch pad, launch pad, range box, rocket, ESTES stationary Technical Manual, copy of Model Rocket magazine, SAC Product Bulletin, and a variety of exclusive club services.

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Check the appropriate space on your Rocket Kit Registration Card. Request coupon for a free membership brochure and apply form.

# SKY RAIDER

## KIT NO. 1290

Skill Level 2  
This kit recommended for intermediate skill level rocketeers.

### PARTS LIST

QTY	PART NO.	PART NAME	PART NO.
1	SP-90	Engine Mount Tube (Type SP-90, 2-3/4" long)	35262
1	SP-90	Pattern Sheet (Type SP-90)	53227
1	EP-21	Engine Hook (Type EP-21)	35925
2	AR-3050	Adapter Ring (Type AR-3050)	20166
1	AR-3050	Engine Block (Type AR-3050)	20164
1	SC-35	Shock Cord (Type SC-35, 36" long)	30744
1	ST-550	Body Tube (Type ST-550, 18" long)	35282
1	NB-550	Nose Block (Type NB-550)	35284
1	ST-550	Body Tube (Type ST-550, 18" long)	35284
1	BF-L21	Delta Fin Sheet (Type BF-L21)	32254
1	SE-2A1	Serve Eye (Type SE-2A1)	38252
1	LL-381	Launch Lug (Type LL-381)	38178
1	PC-15A2	Parachute (Type PC-15A2)	35566
1	SALT-100	100" Shroud Line Cord (Type SALT-100)	35239
1	TD-3F1	Type Disc (Type TD-3F1)	39406
1	PNC-6A1C1	Nose Cone (Type PNC-6A1C1)	71270
1	KD-90	Chisel (Type KD-90)	27089
1	SCM-50	Shock Cord Mount (SCM-50) (Not shown)	34444

In addition to the parts included in this kit you will need: rocket, a pencil, a ruler, white glue, a sharp model knife (or single edge razor blade), sandpaper, masking tape, sanding water, and paint.

### IMPORTANT:

Read all instructions before beginning work on your model. Make sure you have all parts and materials. When you are thoroughly familiar with the assembly procedure, begin construction. Check off each step as you complete it. Be sure to read the parts list carefully before applying any glue. If some part doesn't fit properly, sand lightly or build up as appropriate for precise assembly.

ESTES INDUSTRIES  
A SUBSIDIARY OF DAMON  
PERDUE, COLO. 80465

### ROTARY MAT

### PLAQUE DE COUPE "ROTARY"

CAUTION: This mat is designed for use with OLFA rotary cutters and is not to be used for other purposes. Always use proper cutting technique. Do not use for cutting other materials. Do not use for cutting other materials. Do not use for cutting other materials.

ATTENTION: Cette plaque est conçue pour être utilisée avec les coupeurs rotatifs OLFA. Elle n'est pas destinée à d'autres usages. Utilisez toujours la technique appropriée de coupe. Ne pas utiliser pour couper d'autres matériaux. Ne pas utiliser pour couper d'autres matériaux.

SOLUTIONS ET UTILISATION: Cette plaque est conçue pour être utilisée avec les coupeurs rotatifs OLFA à main. Elle n'est pas destinée à d'autres usages. Utilisez toujours la technique appropriée de coupe. Ne pas utiliser pour couper d'autres matériaux. Ne pas utiliser pour couper d'autres matériaux.

U.S. Model #9881  
CAN. Model # 9091  
MODEL / MODELE  
RM-86  
(24" x 18")

# SKY RAIDER

ESTES INDUSTRIES

PN37089 KD-90

### ESTES

SEC. 3  
PN 35884

SEC. 2

SEC. 1

### SHOCK CORD MOUNT

### SCM-50









# NEW! SKY RAIDER



- 1/2" Tip
- 1/4" Barrel
- 1/2" Cap
- 1/2" Cap
- 1/2" Cap
- 1/2" Cap
- 1/2" Cap
- 1/2" Cap



SKY RAIDER MARKER

SKY RAIDER MARKER  
 SKY RAIDER MARKER  
 SKY RAIDER MARKER

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