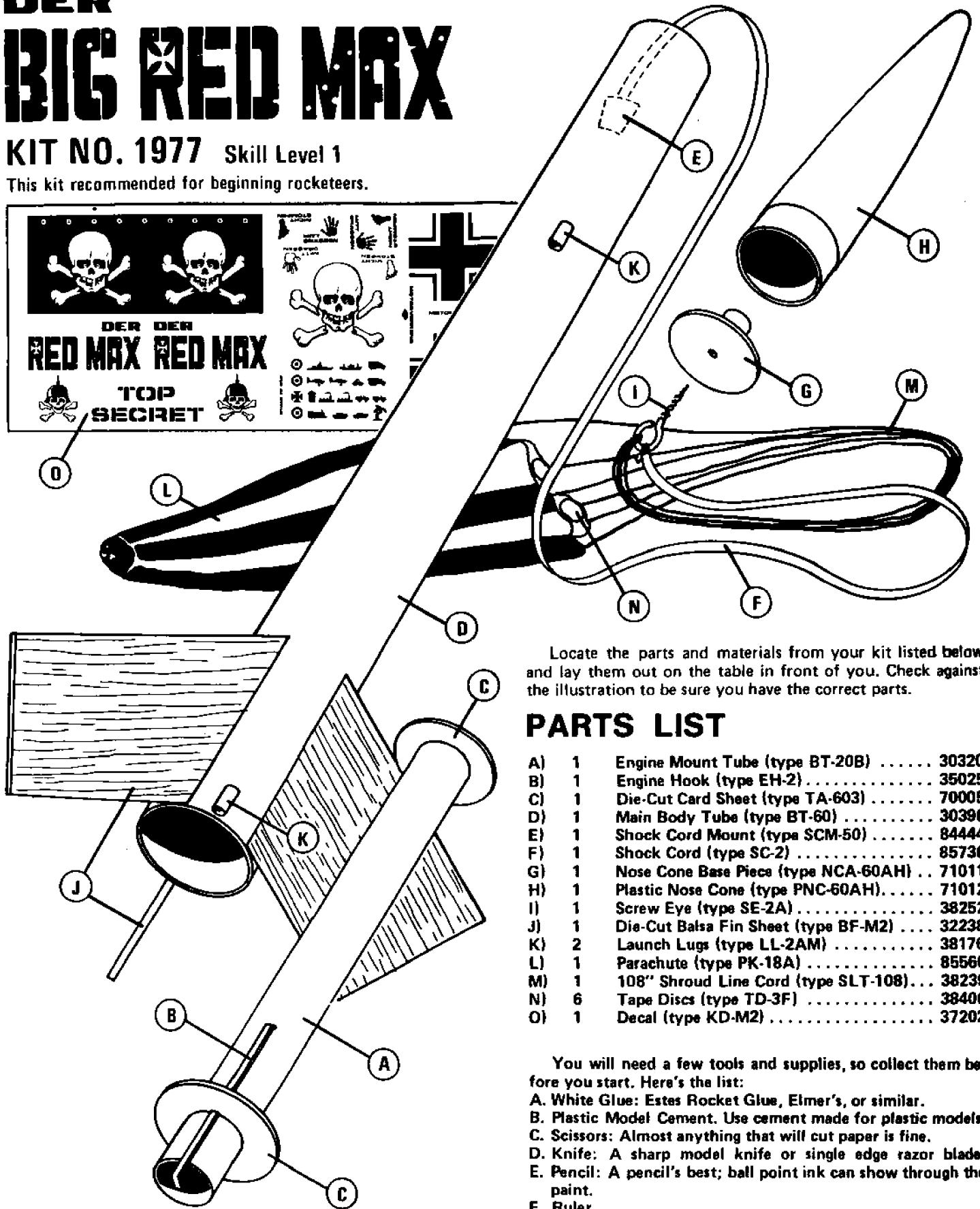
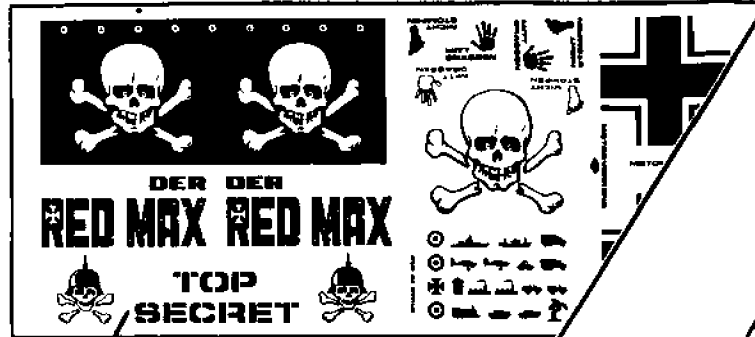




DER BIG RED MAX

KIT NO. 1977 Skill Level 1

This kit recommended for beginning rocketeers.



Locate the parts and materials from your kit listed below and lay them out on the table in front of you. Check against the illustration to be sure you have the correct parts.

PARTS LIST

A)	1	Engine Mount Tube (type BT-20B)	30320
B)	1	Engine Hook (type EH-2)	35025
C)	1	Die-Cut Card Sheet (type TA-603)	70005
D)	1	Main Body Tube (type BT-60)	30396
E)	1	Shock Cord Mount (type SCM-50)	84444
F)	1	Shock Cord (type SC-2)	85736
G)	1	Nose Cone Base Piece (type NCA-60AH) ..	71011
H)	1	Plastic Nose Cone (type PNC-60AH)	71012
I)	1	Screw Eye (type SE-2A)	38252
J)	1	Die-Cut Balsa Fin Sheet (type BF-M2)	32238
K)	2	Launch Lugs (type LL-2AM)	38176
L)	1	Parachute (type PK-18A)	85566
M)	1	108" Shroud Line Cord (type SLT-108)...	38239
N)	6	Tape Discs (type TD-3F)	38406
O)	1	Decal (type KD-M2)	37202

You will need a few tools and supplies, so collect them before you start. Here's the list:

- A. White Glue: Estes Rocket Glue, Elmer's, or similar.
- B. Plastic Model Cement. Use cement made for plastic models.
- C. Scissors: Almost anything that will cut paper is fine.
- D. Knife: A sharp model knife or single edge razor blade.
- E. Pencil: A pencil's best; ball point ink can show through the paint.
- F. Ruler
- G. Sandpaper: Fine and extra-fine for a smooth finish on your fins.
- H. Sanding sealer
- I. Paint



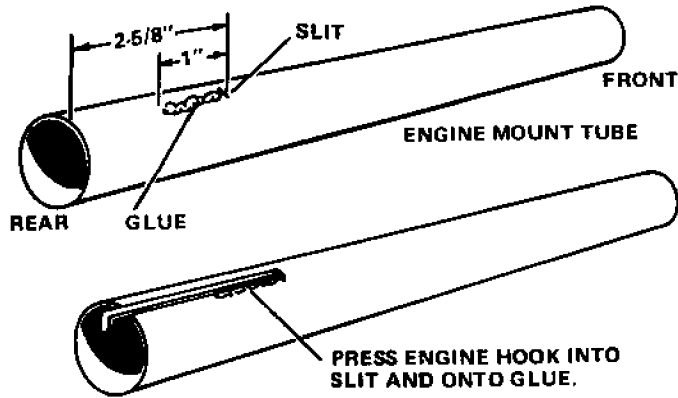
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ESTES INDUSTRIES
PENROSE, COLO. 81240

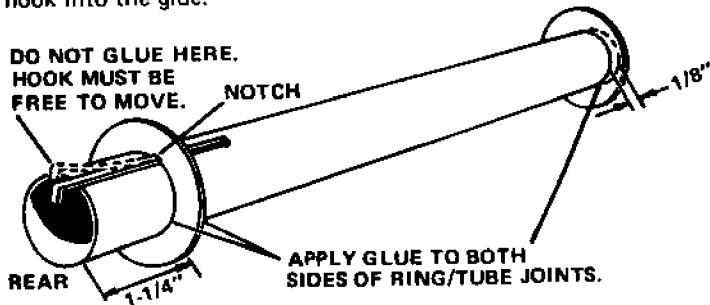
BEFORE YOU START:

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.

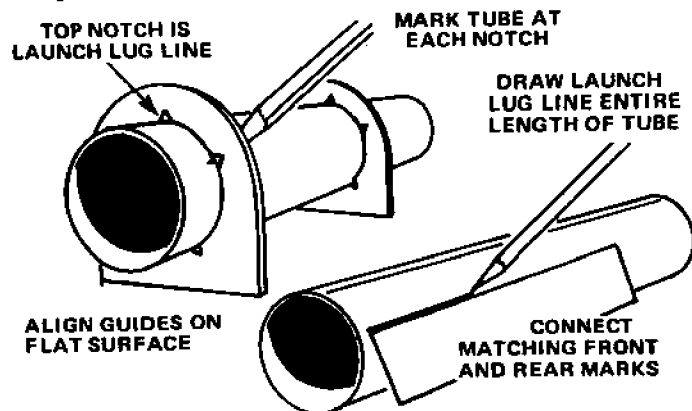
ASSEMBLY INSTRUCTIONS



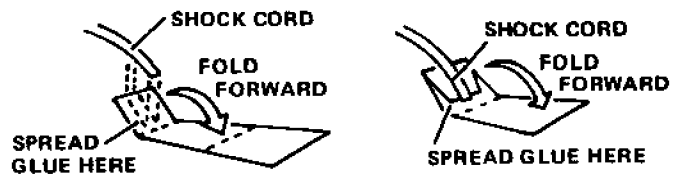
1 Cut a 1/8" slit in the engine mount tube (part A), 2-5/8" from one end. Apply a straight 1" line of glue to the tube beginning at the mark as shown. Push one end of the engine hook (part B) into the slit and press the main part of the hook into the glue.



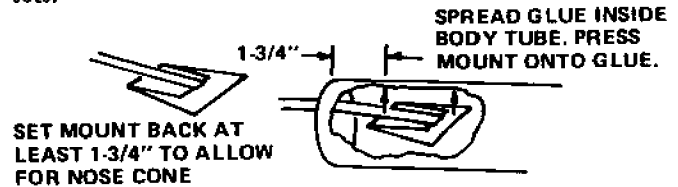
2 Separate the adapter rings from the die-cut card (part C). Position the notched ring at the center of the engine hook. Apply a line of glue to the ring-tube joint on both sides of the ring. Position the other ring 1/8" from the other end of the tube and glue it into place the same way.



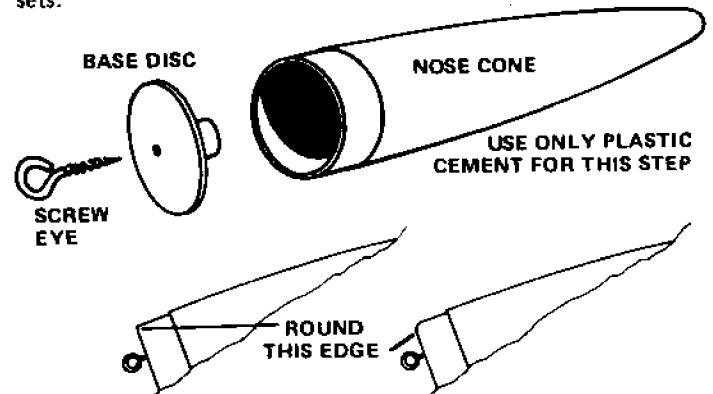
3 Remove the marking guides from the die-cut card. Position one die-cut marking guide near the center of the main body tube (part D). Position the other guide about 1/4" from one end of the tube. (This end will be the rear of the rocket.) Align the straight bottom edges of the guides on a flat surface. Mark the tube at each notch. Remove the guides and draw a straight line connecting matching front and center marks. Extend the launch lug line the length of the tube.



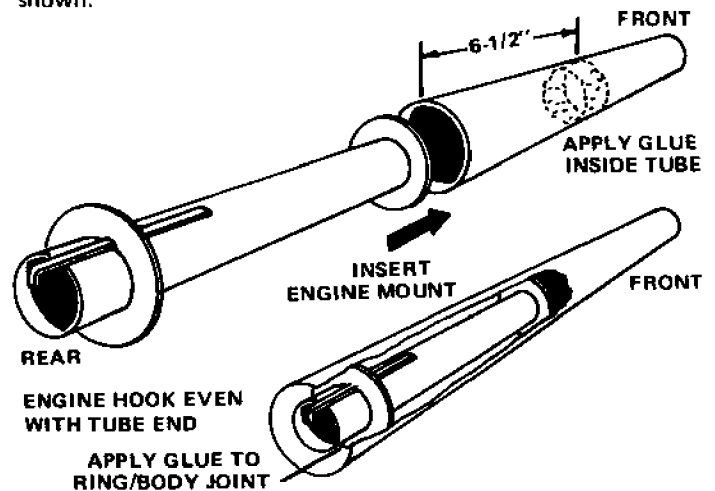
4 Cut out the shock cord mount (part E). Crease it on the dotted lines by folding. Spread glue on the first section (1) and lay the end of the shock cord (part F) into the glue. Fold over and apply glue to the back of the first section and exposed part of section 2. Lay the shock cord as shown and fold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



5 Apply glue to the inside of the main body tube at one end to cover an area about 1-3/4" to 2-3/4" from the end. The glued area should be the same size as the shock cord mount. Press the mount into the glue as shown. Hold it until the glue sets.



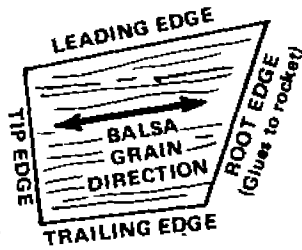
6 Cement the base disc (part G) into the rear of the nose cone (part H). Use PLASTIC CEMENT. Turn the screw eye (part I) into the nose cone base. When the plastic cement is dry, scrape and sand the rear edge of the nose cone to round it as shown.



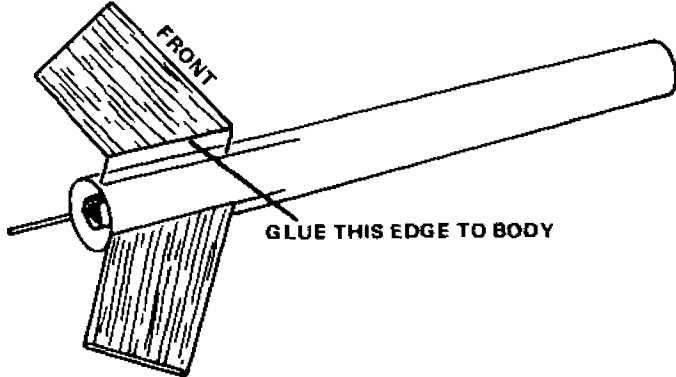
7 Using a dowel or paint brush, apply a 1/4" wide band of glue around the inside of the body tube about 6-1/2" from the rear. Slide the engine mount assembly, front ring first, into the body from the rear until the rear end of the engine hook is even with the rear end of the body tube. Apply a line of glue around the rear ring/body joint. Set the assembly on one end while the glue dries.



IMPORTANT: DO NOT PUSH BALSA PARTS FROM DIE-CUT SHEET. USE A MODELING KNIFE TO FREE ALL PART EDGES BEFORE REMOVING THEM.

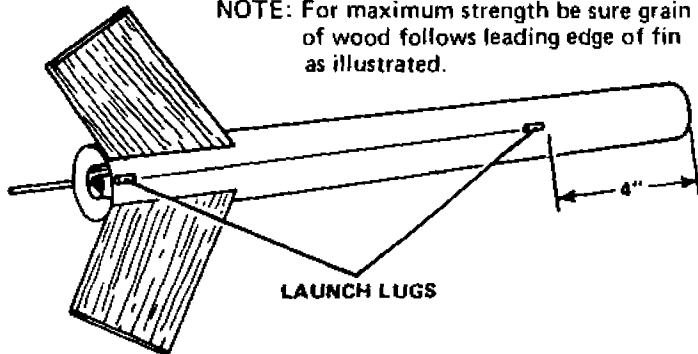


8 Fine-sand the balsa sheet (part J), then carefully remove the die-cut fins from the sheet. Free the edges with a sharp knife. Sand the leading and trailing edges of the fins round, leave the root and tip edges square.

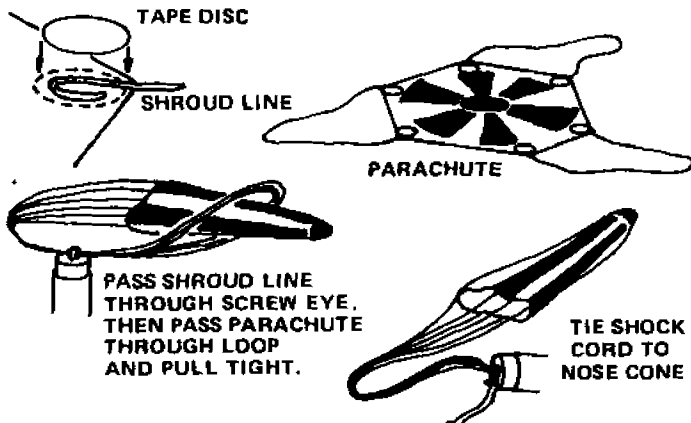


9 Rub a line of glue into the root edge of each fin and allow to dry. Glue the fins to the body on the fin alignment lines drawn in step 3. Refer to the illustration to be sure you position the fins correctly. Adjust the fins so they project straight away from the body tube. Do not set the rocket on its fins while the glue is wet.

NOTE: For maximum strength be sure grain of wood follows leading edge of fin as illustrated.

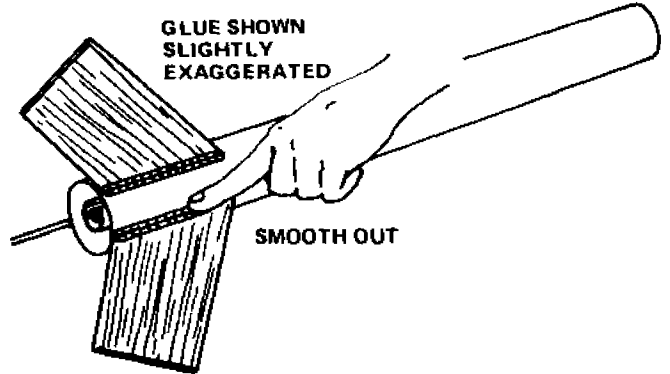


10 Glue the two launch lugs (part K) to the body tube on the alignment line as shown. The rear of the one lug should be even with the rear of the body. The front of the other lug should be 4" from the front of the body.

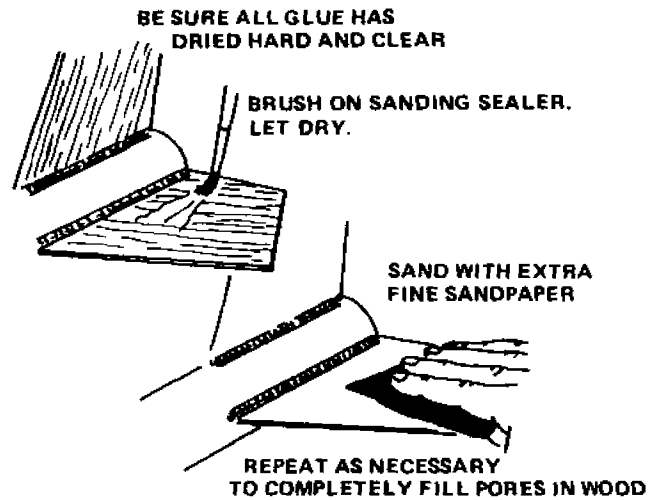


11 Cut out the parachute (part L) on its edge lines. Cut three 36 inch lengths of shroud line (part M). Attach line ends to the top of the parachute with tape discs (part N) as shown.

Pass the shroud line loops through the screw eye at the rear of the nose cone. Pass the parachute through the loop ends and draw line tight against the screw eye. Set the knot with a drop of glue. Tie the free end of the shock cord to the screw eye.

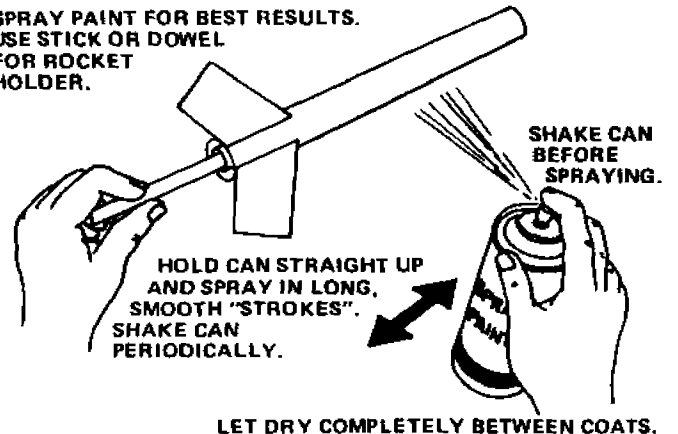


12 When the fin joints have dried, apply glue reinforcements to each joint. Holding the model level, apply a narrow line of glue to both sides of each fin joint. Smooth out the glue with your finger. Keep the model level until the glue dries.



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

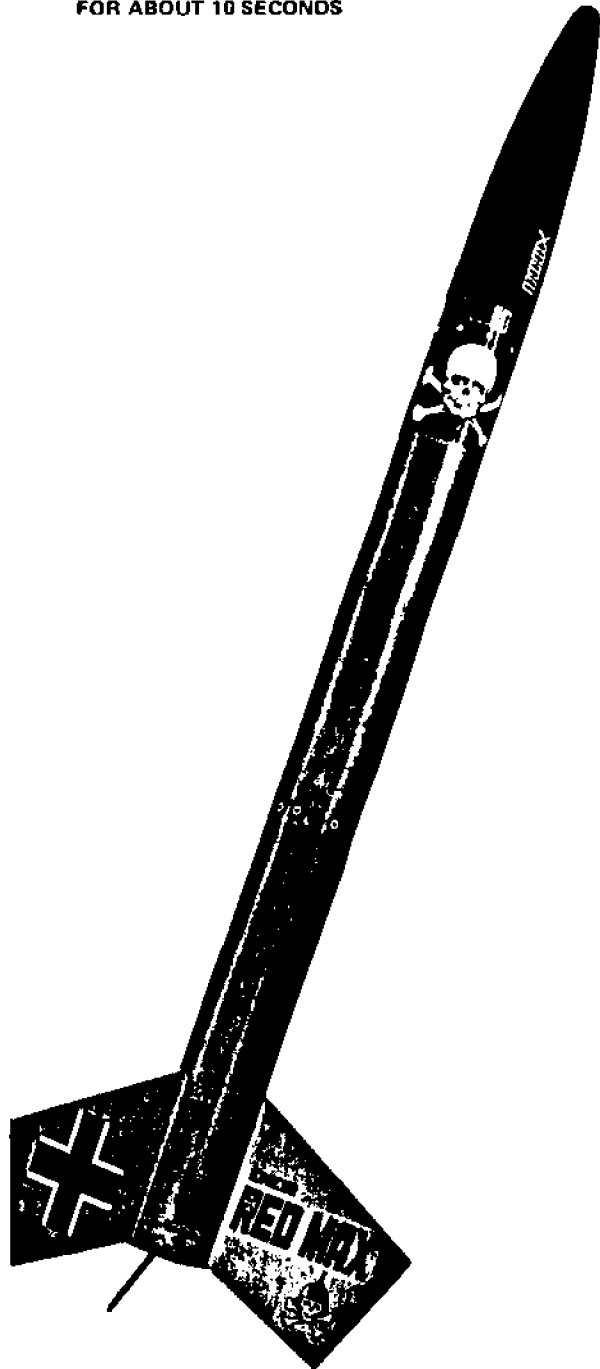
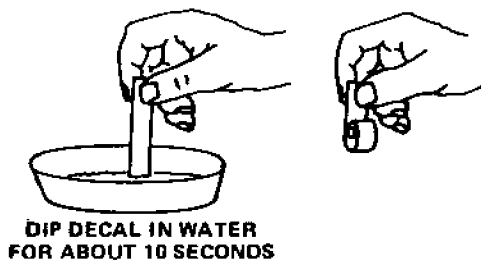
SPRAY PAINT FOR BEST RESULTS. USE STICK OR DOWEL FOR ROCKET HOLDER.



LET DRY COMPLETELY BETWEEN COATS.

14 After the sanding sealer is dry, paint the model. A suggested pattern is to paint the body and fins red (or orange) and the nose cone black. Enamel spray paint for plastic models is recommended. Spray in light, even strokes, and apply the paint in very thin coats.

DECOR PHOTO

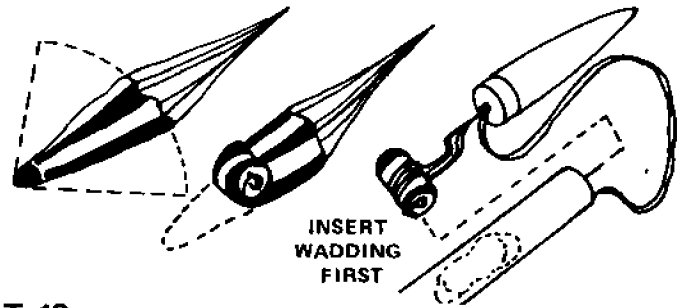


□ **15** When all paint is dry, apply decals (part O). The photograph shows one suggested decal pattern. To apply decals, cut out a decal section, dip it in lukewarm water for 10 seconds, and hold it until it starts to uncurl. Slip the decal off the backing sheet and onto your model. Blot excess water away. For best results, let the model dry overnight and apply a coat of clear spray to protect the decals.

COUNTDOWN CHECKLIST

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

T-14 Pack 10 to 14 squares of loosely crumpled recovery wadding into the main body parachute compartment.



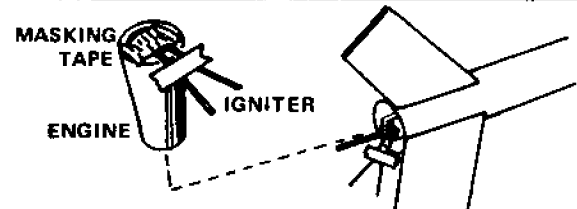
T-13 Fold the parachute into a triangular shape. Fold 'chute again as shown and wrap shroud lines loosely around it. If 'chute is too large, unroll and repack it until it slides easily into rocket. A very tight fit may prevent parachute from ejecting properly.

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

T-12 Pack parachute, shroud lines, and shock cord neatly into the body tube. Slide nose cone into place. Nose cone should separate easily from rocket body tube, but should not be extremely loose. If it is too tight, sand inside of body tube end and shoulder of nose cone with extra fine sandpaper. If nose cone is too loose, add a wrapping of transparent tape or masking tape to the shoulder of the nose cone.

T-11 Select an engine and install an igniter as directed in the engine instructions.

Estes engines recommended for use with this rocket are the B4-2, B6-2, B6-4, and C6-5. Use a B6-4 engine for your first flight.



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

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

T-8 Slide launch rod through rocket launch lug and place rocket on launching pad. Make sure rocket slides freely on launch rod. Clean the micro-clips and attach them to the igniter leads. Arrange clips so they do not touch each other or the metal blast deflector.

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

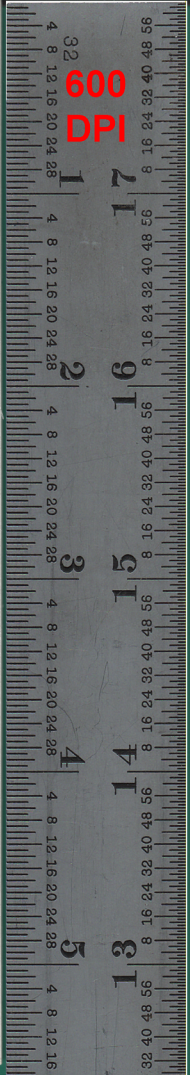
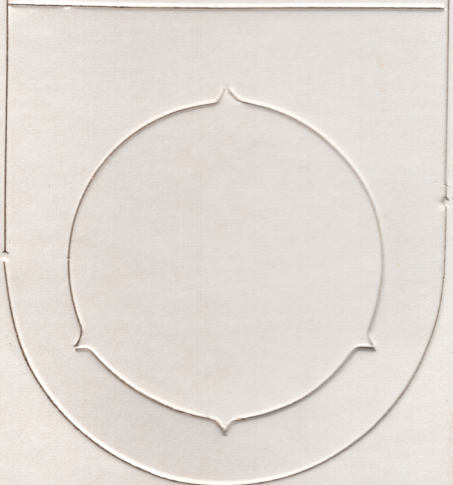
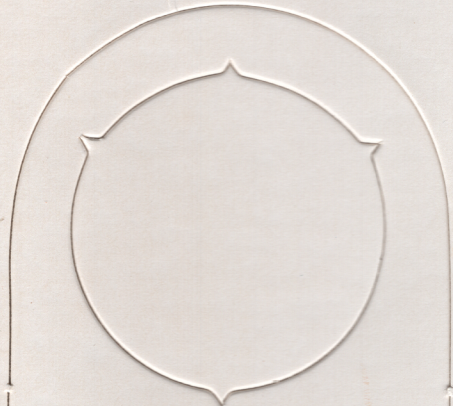
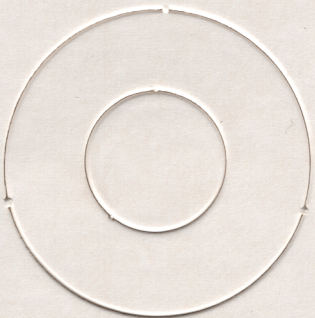
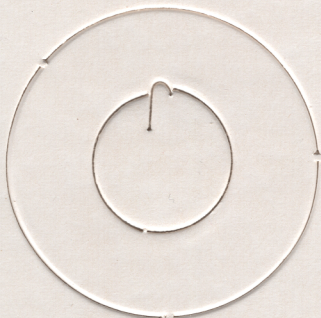
T-6 Arm the launch panel--insert safety key.

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

MISFIRE PROCEDURE

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

.050"





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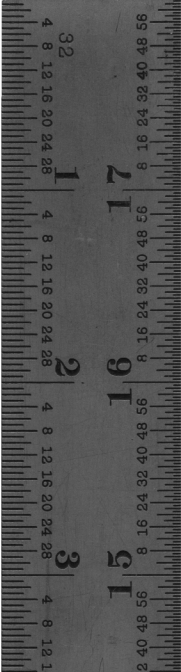
SEC. 3

PN 84444

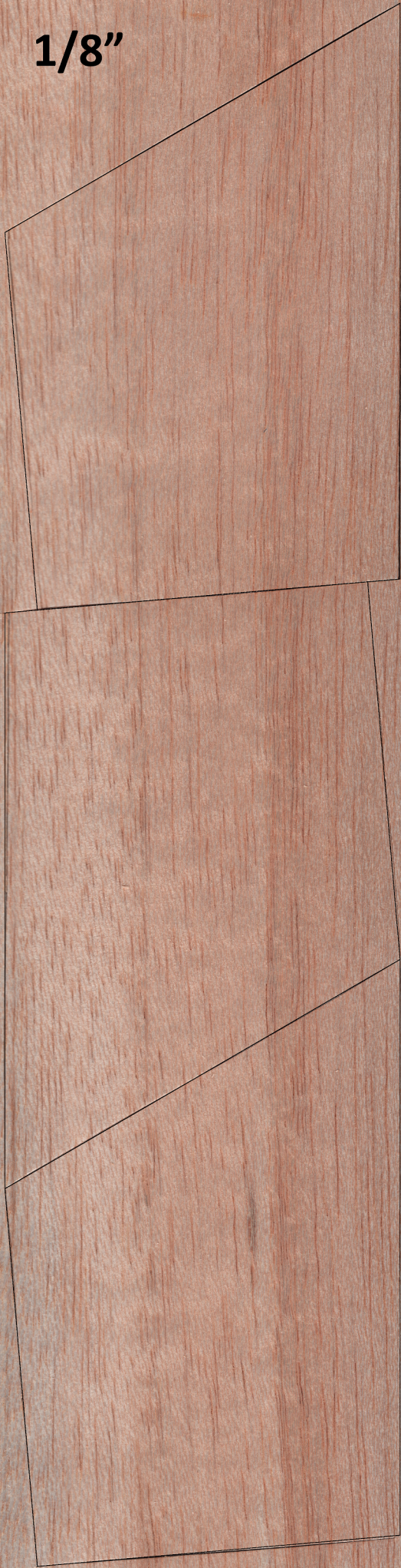
SEC. 2

SEC. 1

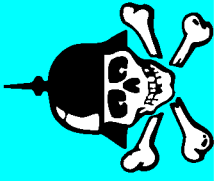
**SHOCK CORD
MOUNT
SCM-50**



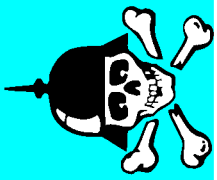
1/8"



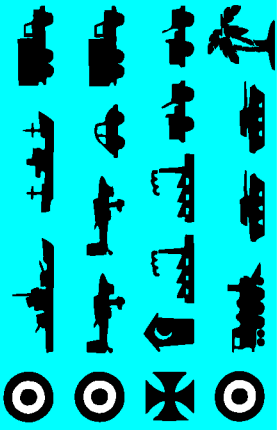
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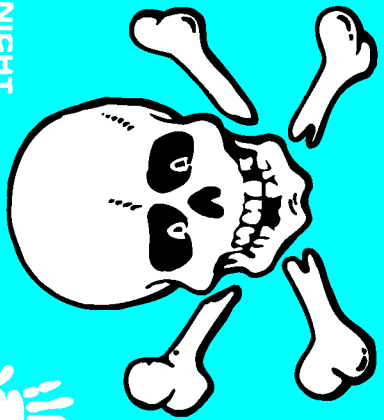
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DER DER RED MAX RED MAX



OPTIONAL FIN DECAL



MOTORVERKENS

MOTORVERKENS



No.0303SR

THE U.S. STARRETT CO.
ATHOL, MASS., U.S.A.

PARTS LIST KIT NO. 1977 - Der Big Red Max

Quantity	Description	Type	Number	Details1	Details2	Details3	Details4	Comment
1	PAPER BODY TUBE	BT-20B	30320	8.65" long	0.710" ID	0.736" OD	0.013" wall	Glassine
1	ENGINE HOLDER	EH-2	35025	2.8" long	.100" wide	.025" thick		Reg. & D
1	Die-Cut Card Sheet	TA-603	70005	.737" ID	1.594" OD	.05" thick	+Marking Guide	Scan
1	PAPER BODY TUBE	BT-60	30396	18" long	1.595" ID	1.637" OD	0.021" wall	Glassine
1	Shock Cord Mount	SCM-50	84444	1.5" wide	3" long	Heavy paper	BT-50 & larger	Scan
1	Shock Cord	SC-2	85736	18" long	1/4" wide			Rubber
1	NOSE CONE ADAPTER	NCA-60AH	71011	Fits PNC-60AH			Black	Injection Molded 1 of 2
1	PLASTIC NOSE CONE	PNC-60AH	71012	6.75" long	1.637" dia.	.875" shoulder	Black	Injection Molded 2 of 2
1	Screw Eye (Small)	SE-2A	38252	3/4" long				
1	BALSA FIN STOCK	*BFS-40L	3174	3" wide	12" long	1/8" thick	0.125	Scan
2	LAUNCH LUG	LL-2AM	38176	5/32" ID	1/8" rod	3/8" long		Mylar
1	Parachute	PK-18	85566	18" dia.	18" x 6 Shro	LDPE plastic	Org/Blk/Wht	Damon Logo
1	Shroud Line	SLT-108	38239	108"	.020" diame	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	Decal Sheet	KDM2	37202	5"wide	12" long	Blk/Wht	Waterslide	Scan
* Die-Cut Balsa Fin Sheet - BF-M2, Number 32238								