

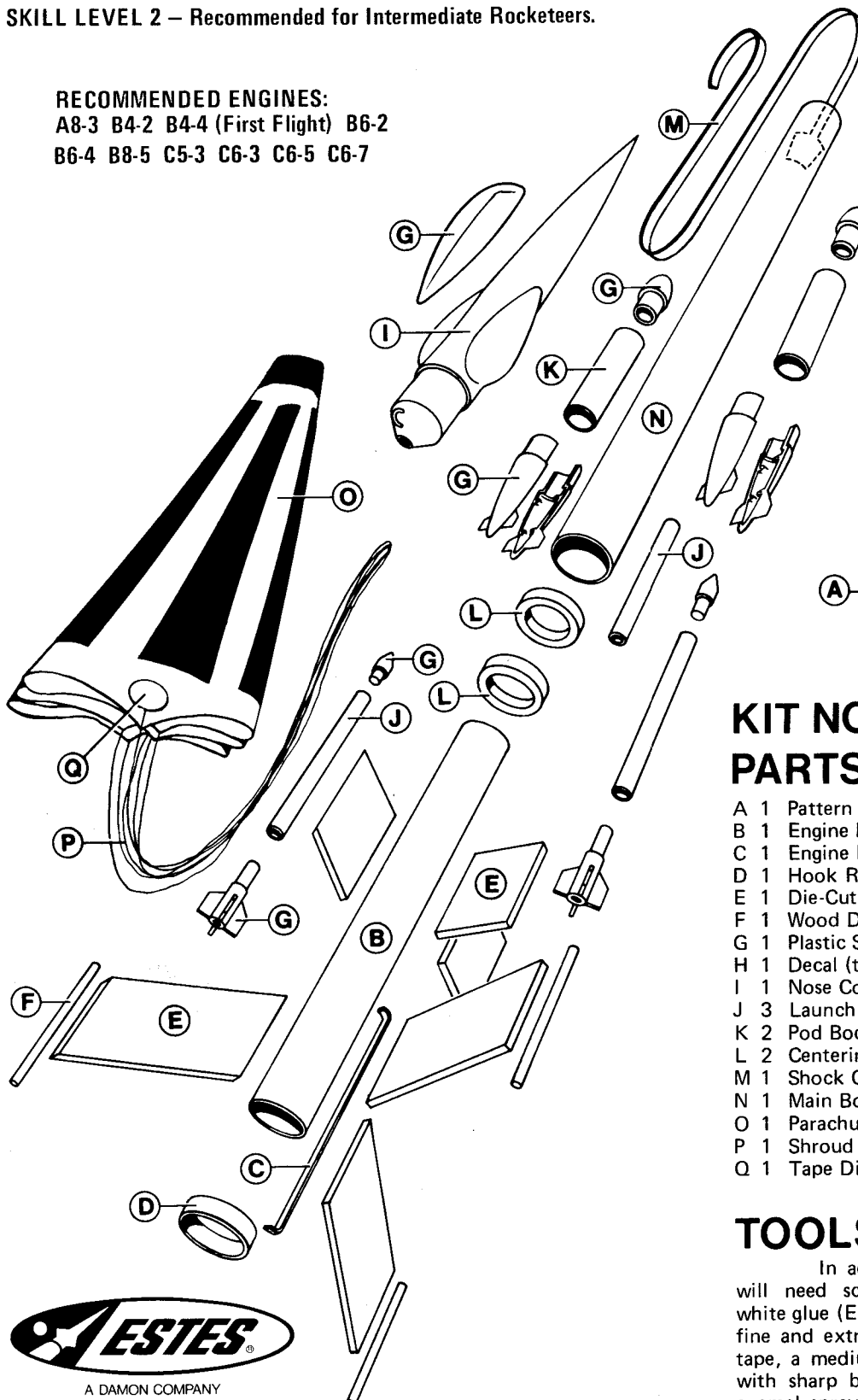
F-61 STARFIGHTER

SKILL LEVEL 2 – Recommended for Intermediate Rocketeers.

RECOMMENDED ENGINES:

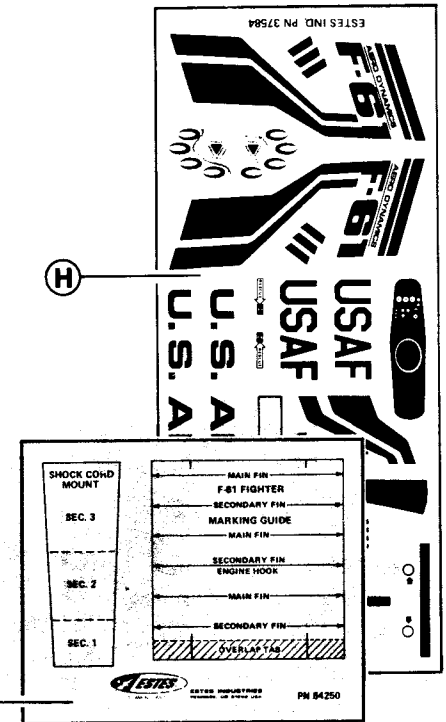
A8-3 B4-2 B4-4 (First Flight) B6-2

B6-4 B8-5 C5-3 C6-3 C6-5 C6-7



BEFORE YOU START

Read all instructions before beginning construction 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 required for precision assembly.



KIT NO. 1358 PARTS LIST

A	1	Pattern Sheet (type SP-1358)	84250
B	1	Engine Mount (type BT-20D)	30322
C	1	Engine Hook (type EH-2)	35025
D	1	Hook Retainer (type HR-20)	30168
E	1	Die-Cut Balsa Sheet (type BF-1289)	32297
F	1	Wood Dowel (type WD-1C)	85906
G	1	Plastic Set (type clear plastic)	34028
H	1	Decal (type KD-1358)	37584
I	1	Nose Cone (type PNC-50CA)	71005
J	3	Launch Lugs (type LL-2B)	38178
K	2	Pod Body Tubes (type ST-41)	31017
L	2	Centering Ring (type AR-2050)	30164
M	1	Shock Cord (type SC-1)	85730
N	1	Main Body Tube (type BT-50W)	30372
O	1	Parachute (type PK-12)	85564
P	1	Shroud Line (type SLT-72)	38237
Q	1	Tape Discs (type TD-3F)	38406

TOOLS AND MATERIALS

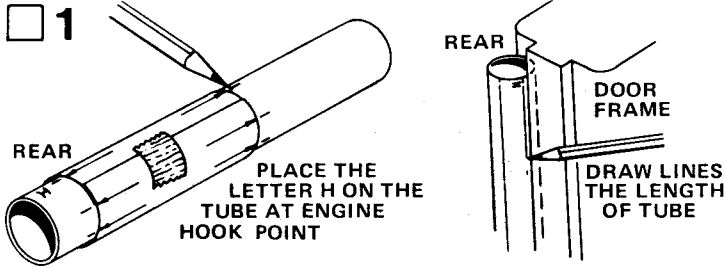
In addition to the parts included in this kit you will need scissors, tube-type plastic cement, household white glue (Elmer's, Titebond, or similar glue), pencil, ruler, fine and extra-fine grit sandpaper, sanding sealer, masking tape, a medium-size modeling paint brush, modeling knife with sharp blade, gray enamel spray paint, and sky blue enamel spray paint. Optional -- red, blue, white, and olive drab enamel bottle paints.



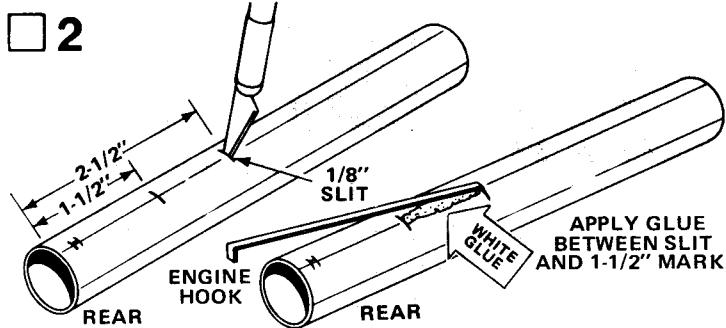
A DAMON COMPANY

ESTES INDUSTRIES
PENROSE, CO 81240 USA

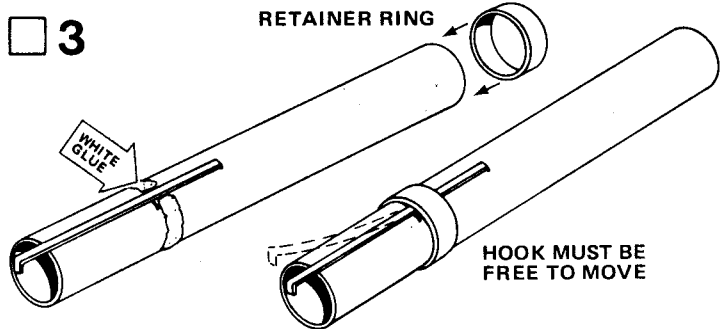
ASSEMBLY INSTRUCTIONS



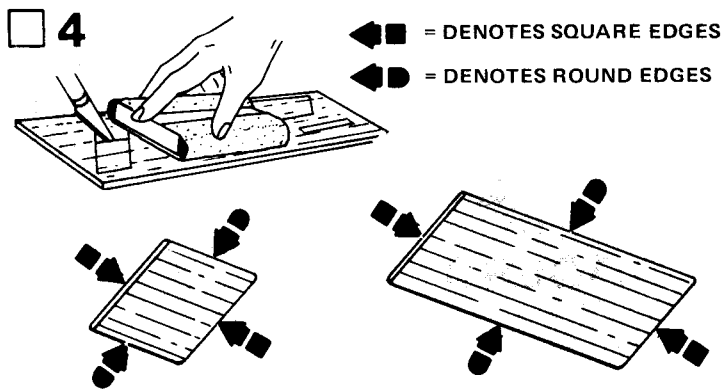
Cut out the fin marking guide from the pattern sheet (part A). Wrap it around one end of the engine mount tube (part B). Use a short strip of masking tape to hold the marking guide ends together as shown. Mark the tube at each arrow point, front and rear. Place a small letter "H" on the tube at the point labeled engine hook. Draw a straight line connecting each matching pair of marks. Use a ruler or the edge of a door frame when drawing lines.



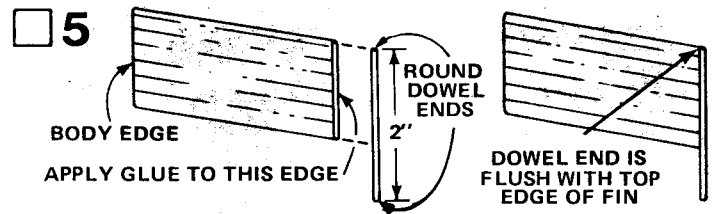
Mark the engine mount tube at 1-1/2" and 2-1/2" from one end on the line labeled with the letter "H" as shown. Cut a 1/8" slit in the tube at the 2-1/2" mark. Apply a line of glue between the marks as shown. Push one end of the engine hook (part C) into the slit and press the main part of the hook into the glue.



Apply a line of glue around the tube just ahead of the 1-1/2" mark. Slide the hook retainer ring (part D) onto the tube, centering it over the glue and next to the 1-1/2" mark.



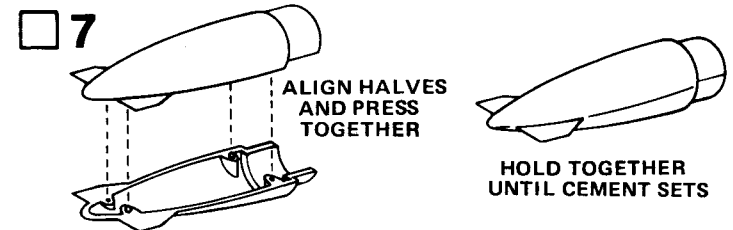
Sand both sides of the balsa fin sheet (part E) with fine sandpaper until smooth. Carefully remove the fin pieces, using a sharp knife to free the edges. Sand round the edges indicated on all the fins. All other edges must be square and sharp.



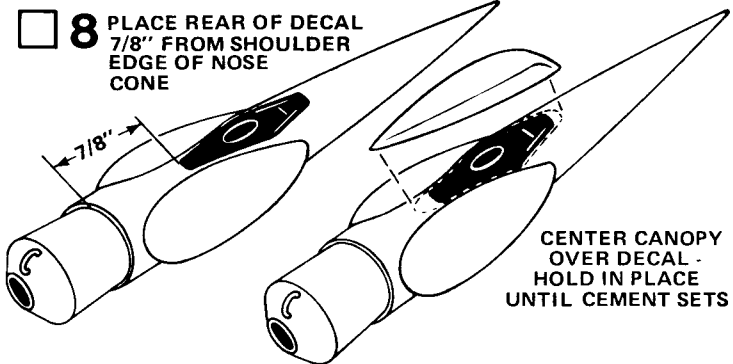
Cut three 2" long pieces from the 1/8" diameter wood dowel (part F). Sand one end of each dowel round. Glue on dowel to one short edge of each large fin as shown. Temporarily tape each dowel in position with a short strip of masking tape until the glue sets. Remove tape before glue dries completely.



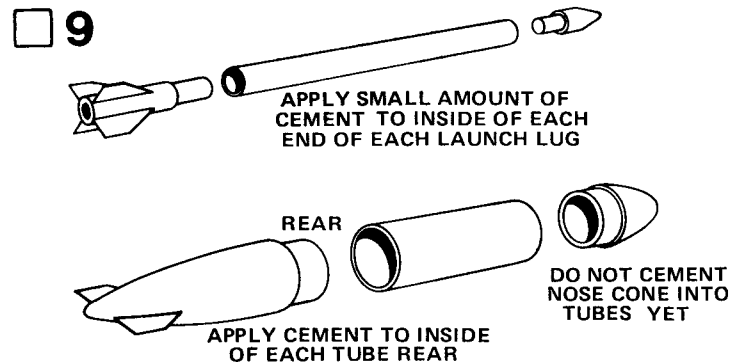
Apply a coat of sanding sealer to each fin. Apply sealer to all rounded edges but not to the square edges. When sealer is dry lightly sand all the sealed surfaces. Repeat sealing and sanding between each coat until balsa grain no longer shows.



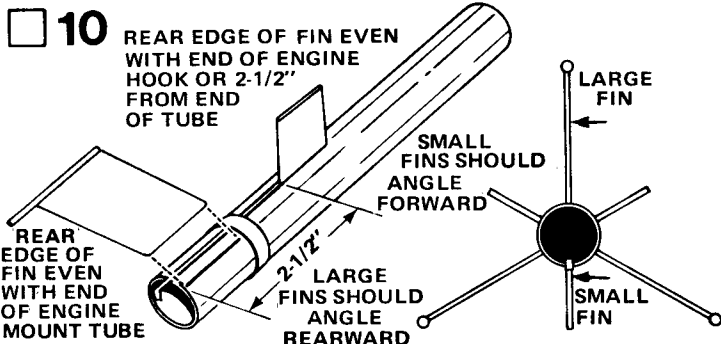
Use a knife to cut the clear plastic parts (part G) from the runner instead of breaking them off. Apply a small amount of tube-type plastic cement along the edges of each pod half. Align the halves so their pins and holes match and press them together. Hold halves together with your fingers until cement sets.



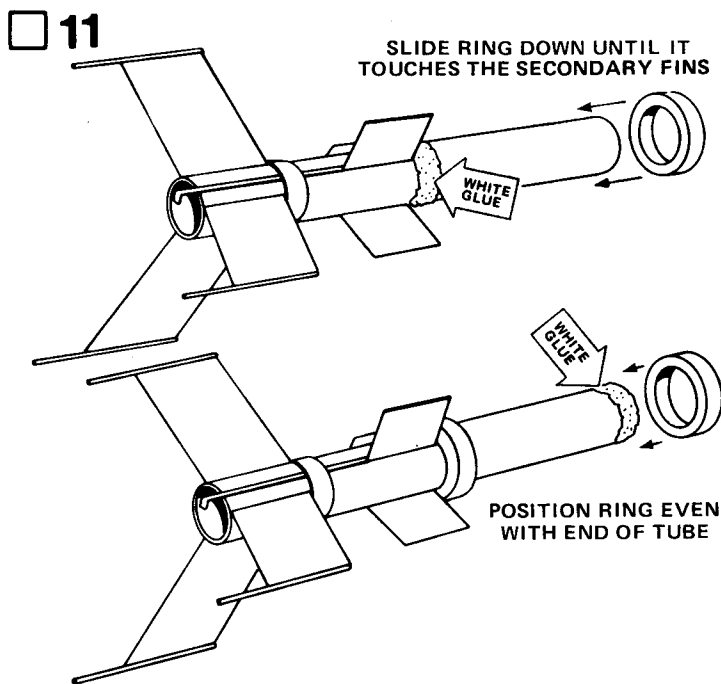
Cut the "cockpit interior" decal from the decal sheet (part H) and apply it (according to the instructions in Step 22) onto the nose cone (part I) exactly as shown. After decal has set apply tube-type plastic cement to the edges of plastic canopy, and attach the canopy to the nose cone. Center it over "cockpit" decal as shown.



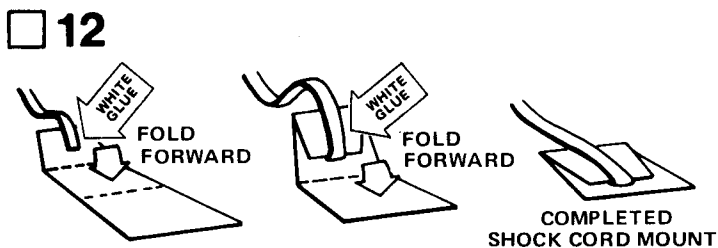
Assemble each missile, one at a time. Locate two launch lugs (part J) and the plastic tail and nose cone parts. Cut plastic parts off runner. **DO NOT BREAK THEM OFF.** Apply a small amount of tube-type plastic cement into the tube and slide the plastic parts into place. Assemble the pods in the same manner with two pod tail cones and two body tubes (part K). **DO NOT** cement the pod nose cone in place yet.



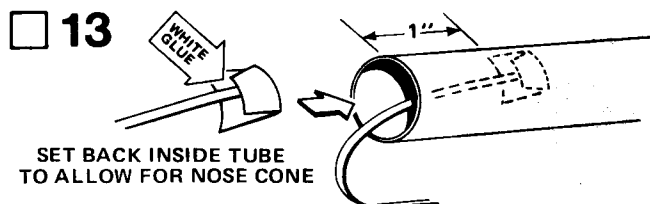
Rub a line of white glue into the root (body) edge of each fin and allow to dry. Apply glue once more to each root edge and position small fin on the engine hook line directly in front of the engine hook as shown. Glue a large fin on the next alignment line with the rear edge of fin even with the rear edge of tube. Position small fin on the next alignment line even with other small fin. Alternate large fins and small fins on the six fin alignment lines. All fins should project straight away from engine mount tube as illustrated. Do not set rocket on its fins while the glue is wet.



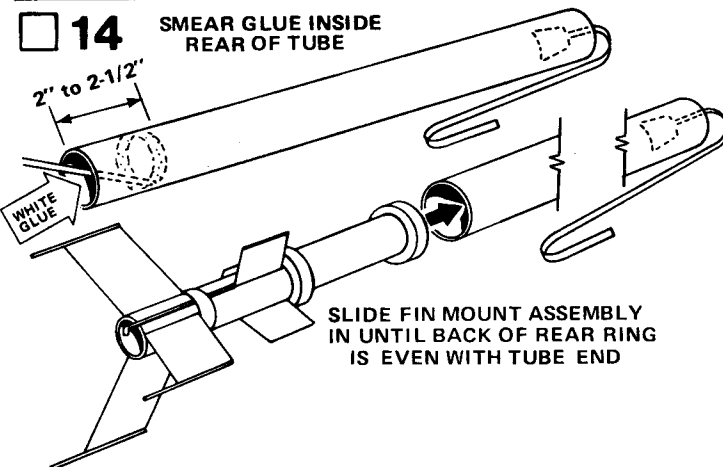
Apply glue around the engine mount tube just ahead of the secondary fins (small fins). Slide one of the centering rings (part L) down the tube and onto the glue. The rear of the ring should touch the secondary fins. Apply glue around the forward end of the tube and position other ring with front of ring even with the end of the tube as shown.



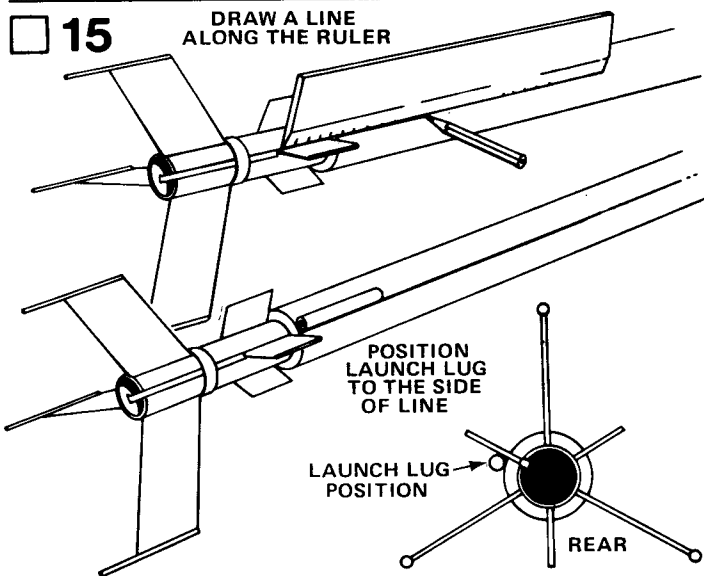
Cut out the shock cord mount from the pattern sheet. Crease it on the dotted lines by folding. Spread glue on the first section (1) and lay the end of the shock cord (part M) into the glue. Fold over and apply glue to the back of the first section and the exposed part of section 2. Lay the shock cord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



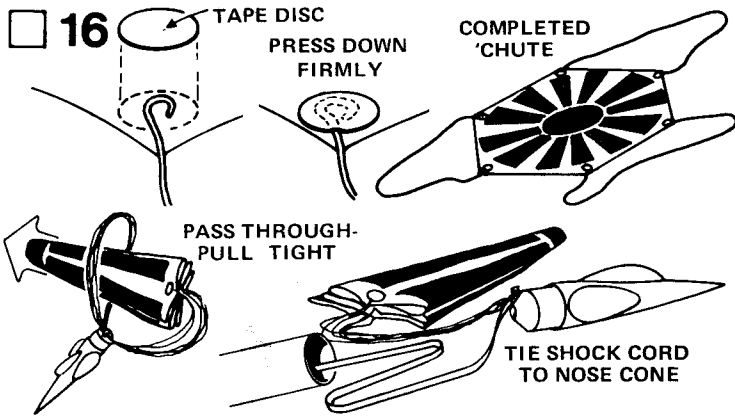
Smear glue over the back of the shock cord mount. Hold the mount as shown and press it into place at least 1" from one end of the main body tube (part N) to allow for the nose cone. Hold the mount in place until the glue sets.



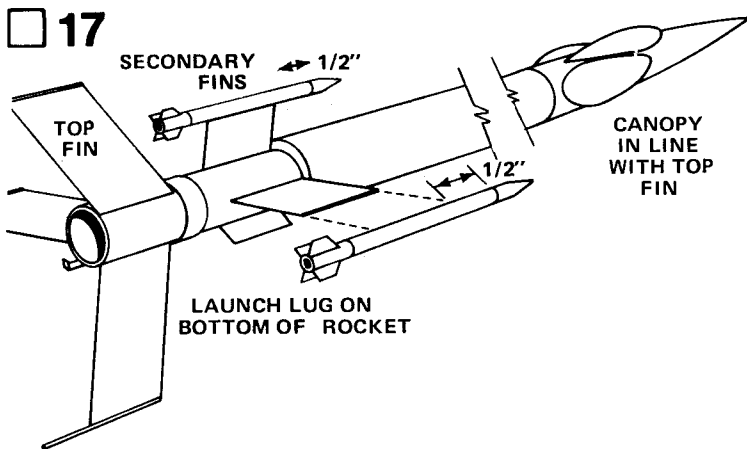
Glue the fin mount assembly to the main body tube at the end opposite the shock cord mount. Smear glue around inside of rear end of body tube to cover an area about 2" to 2-1/2" from end of the tube. Use a stick or dowel to apply glue. Immediately insert the fin mount assembly and push it in with one smooth motion until the rear of the main body tube and rear end of centering ring touching secondary fins are even.



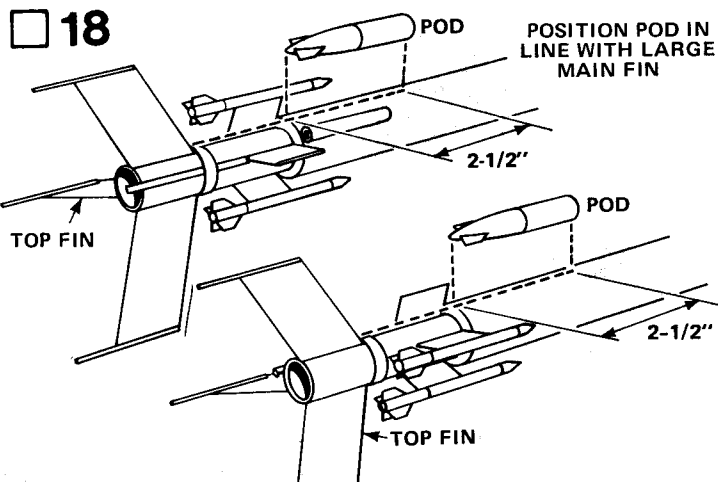
Position model as shown and place a ruler along the edge of the secondary fin in line with engine hook and draw a line on the main body tube about 3" up from rear of main body tube as shown. Glue the last launch lug to the main body with the side of the launch lug along the line and even with the rear of the main body. Sight from the rear of the model and make sure there is nothing in front of the launch lug as shown.



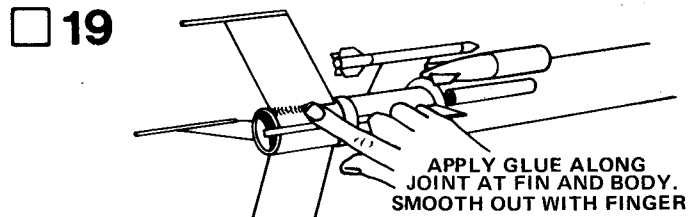
Cut out the parachute (part O) on its edge lines. Cut three 24" lengths of shroud line (part P). Attach lines to the top of the parachute with tape discs (part Q) as shown. Pass the shroud line loops through the eyelet on the nose cone. Pass parachute through the loop ends and draw lines tight against the eyelet. Tie the free end of the shock cord to the nose cone.



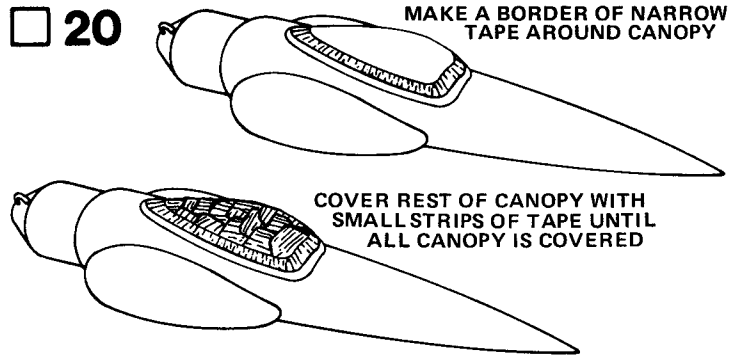
Pack parachute and shock cord into main body. Slide nose cone into place. Place model temporarily on flat surface so that model rests on fin tips and nose cone. Rotate the entire model until launch lug is at bottom of model. The fin which projects straight up from the flat surface will be the "top fin". Now rotate nose cone only, until the cockpit and canopy is in line with "top fin". Apply white glue to each of the two top secondary fins (small fins) and position the two rockets on them as shown.



Rotate model so right main fin is projecting straight up. Measure 2-1/2" from rear of main body tube and place a mark. Glue one of the pods in line with large main fin and the front of the pod tube on the 2-1/2" mark. Make sure pod lies parallel with the main body tube. After glue has set, rotate the model again and glue remaining pod in same way on front of left main fin. Let glue set before moving the model.

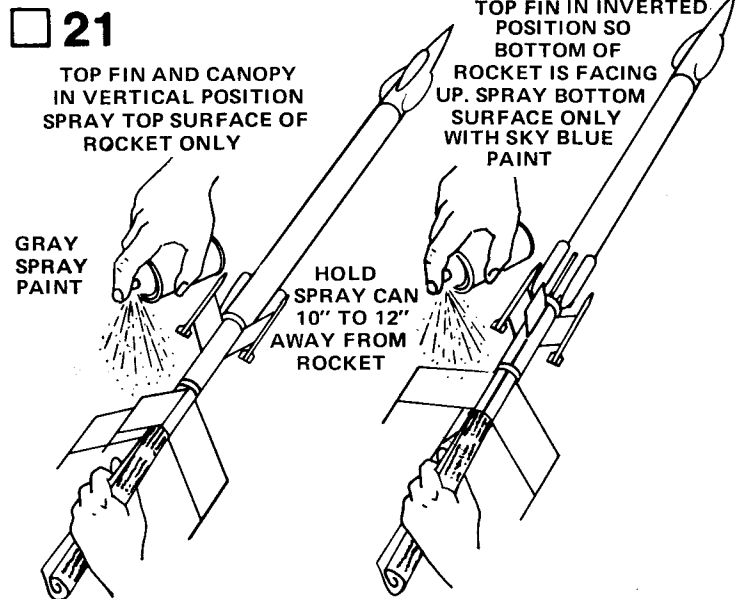


When the glue joints have dried, apply glue reinforcements to each main fin joint. Holding the fin mount assembly level, apply a narrow line of glue to both sides of each fin joint. Smooth out the glue with your finger. Keep the fin assembly level until glue dries.



Mask off the canopy with masking tape, as shown, to protect it while spray painting the model.

PAINTING AND DETAILING



When all glue on the outside of the model is dry, insert a sheet of rolled-up newspaper or heavy paper into rear of model as shown. Holding the model horizontally with top fin pointing straight up, apply two light coats of gray spray enamel to the top surfaces of the model and top surface of nose cone. Allow each coat to dry. There should be no paint on the bottom surfaces at this point. When paint is dry, turn model over so bottom surface is facing up. Apply at least two light coats of sky blue spray paint to only the bottom surface of the model. Along the sides of the model the two paints should begin to blend into each other. Allow paint to dry before removing masking tape from canopy.

CUSTOMIZING TIP

Optional paint decor for pods and rockets: Paint small rocket tubes white, fin units red, and nose cones blue. Pods can be painted olive drab. After paint on pods is dry, smear a small amount of tube-type plastic cement inside pod tubes and slide clear plastic nose cones into place.

DECAL PLACEMENT

□ 22



LOCATE THESE DECALS ON THE DECAL SHEET. USING A SHARP BLADE, CUT THEM OUT AS INDICATED BY THE DOTTED LINES. THIS TRIMMING WILL ALLOW FOR A SMOOTHER FIT.

Apply the decals (part H) in position shown in photos. Cut out a decal section and dip in lukewarm water for 10 seconds and hold it until it starts to uncurl. Slip the decal off the backing sheet and

onto the model. Blot excess water away. For best results, let model dry overnight and apply a coat of clear spray to protect the decals.

LAUNCHING COMPONENTS

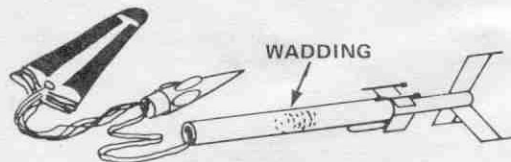
To launch your rocket you will need the following items:
 An Estes model rocket launch system
 Parachute recovery wadding (Estes Cat. No. 2274)
 Recommended Engines: A8-3, B4-2, B4-4 (First Flight), B6-2, B6-4, B8-5, C5-3, C6-3, C6-5, and C6-7.

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

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

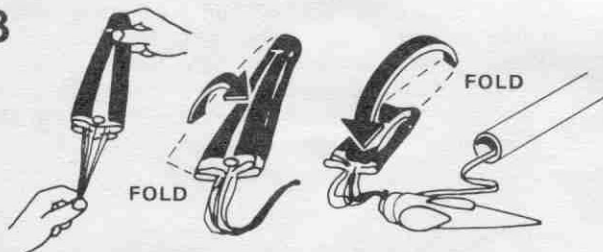
COUNTDOWN CHECKLIST

T-14



Pack 4 or 5 squares of loosely crumpled recovery wadding into the body tube.

T-13



Gather the parachute as shown, then fold into a triangular shape. Fold again and insert into rocket body.

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.

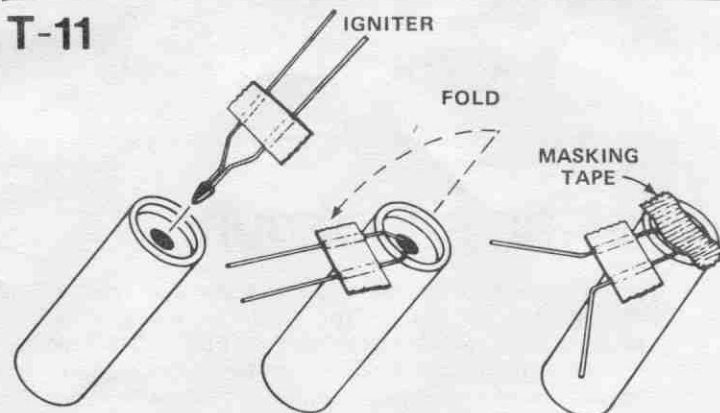
T-12



Pack parachute, shroud lines, and shock cord neatly into rocket body.

NOTE: Nose cone should separate easily from rocket body tube, but should not be extremely loose. If fit is too tight, sand inside of body tube and shoulder of nose cone with fine sandpaper. If fit is too loose, add a wrapping of transparent or masking tape to the shoulder of the nose cone.

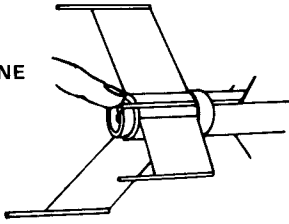
T-11



Select an engine and install an igniter as directed in the engine instructions. Use a B4-4 engine for your first flight.

T-10

MAKE SURE ENGINE
HOOK LATCHES
SECURELY OVER
ENGINE

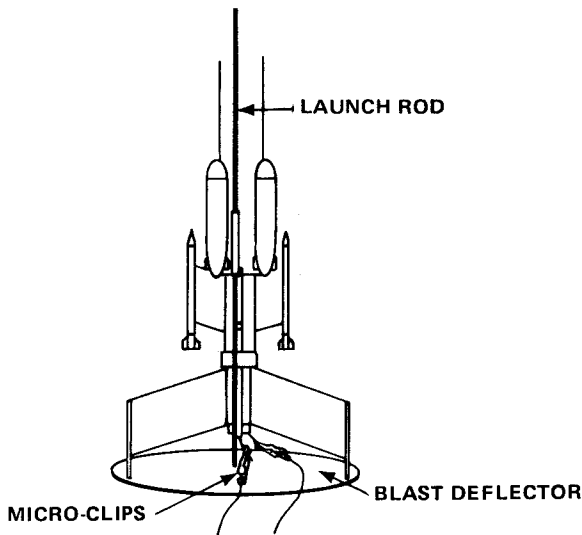


Insert engine into rocket engine mount. Engine hook must latch securely over end of the engine.

T-9

Disarm the launch panel -- REMOVE SAFETY KEY!

T-8



Slide launch rod through rocket launch lug and place rocket on launch pad. Make sure the rocket slides freely on the launch rod. Clean the micro-clips and attach them to the igniter wires. Arrange the clips so they do not touch each other or the metal blast deflector. Attach clips as close to engine as possible.

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!!

Repeat Countdown Checklist for each flight.

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. REMOVE SAFETY KEY from launch panel, remove the model, clean the igniter residue from the engine nozzle, and install a new igniter. Repeat the Countdown Checklist.

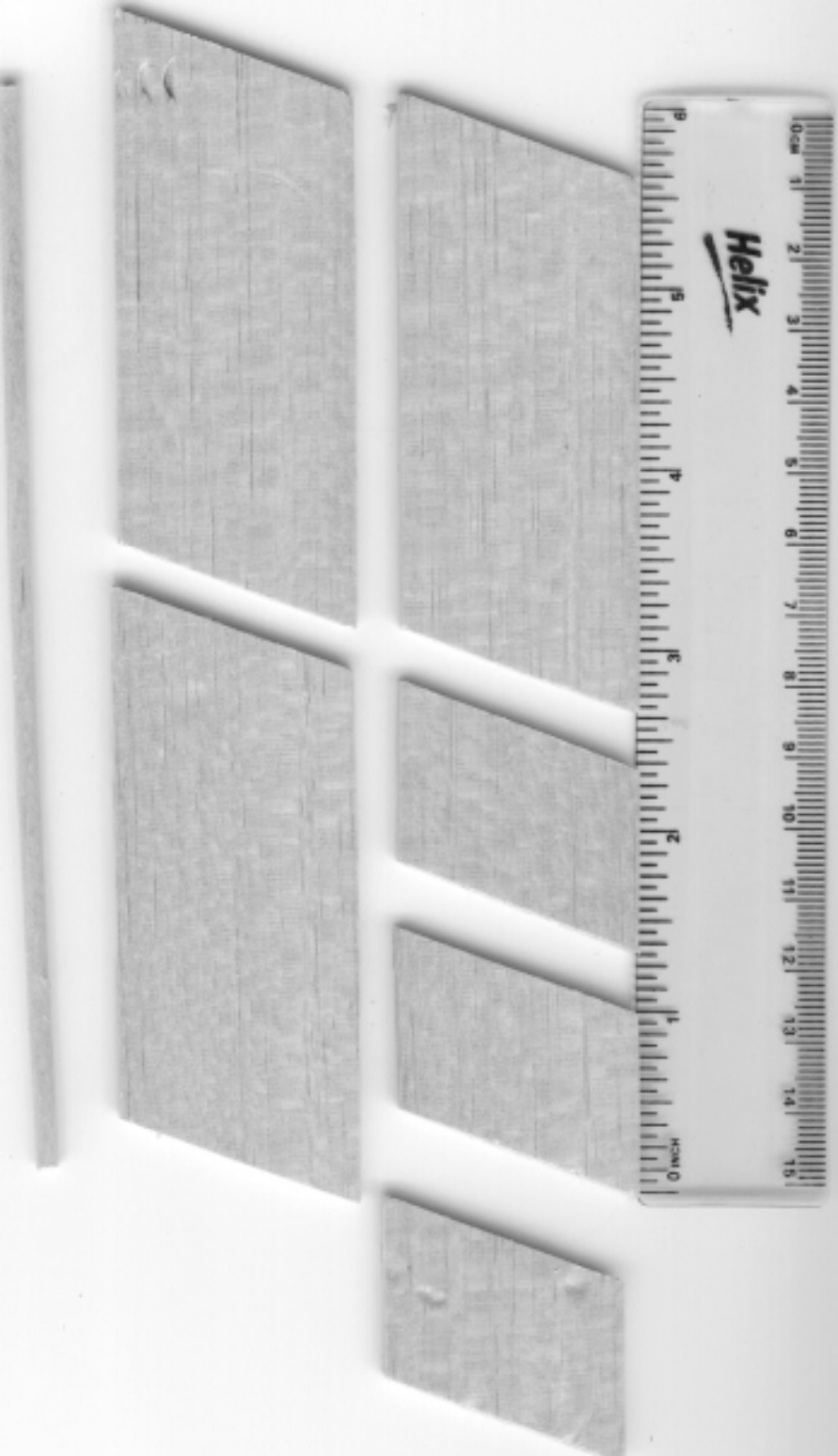
MODEL ROCKETRY SAFETY CODE

1. CONSTRUCTION - My model rockets will be made of lightweight materials such as paper, wood, plastic and rubber, without any metal as structural parts.
2. ENGINES - I will use only pre-loaded factory made model rocket engines in the manner recommended by the manufacturer. I will not change in any way nor attempt to reload these engines.
3. RECOVERY - I will always use a recovery system in my model rockets that will return them safely to the ground so that they may be flown again.
4. WEIGHT LIMITS - My model rocket will weigh no more than 453 grams (16 ozs.) at liftoff, and the engines will contain no more than 113 grams (4 ozs.) of propellant.
5. STABILITY - I will check the stability of my model rockets before their first flight, except when launching models of already proven stability.
6. LAUNCHING SYSTEM - The system I use to launch my model rockets must be remotely controlled and electrically operated, and will contain a switch that will return to "off" when released. I will remain at least 15 feet away from any rocket that is being launched.
7. LAUNCH SAFETY - I will not let anyone approach a model rocket on a launcher until I have made sure that either the safety interlock key has been removed or the battery has been disconnected from my launcher.
8. FLYING CONDITIONS - I will not launch my model rocket in high winds, near buildings, power lines, tall trees, low flying aircraft, or under any conditions which might be dangerous to people or property.
9. LAUNCH AREA - My model rockets will always be launched from a cleared area, free of any easy to burn materials, and I will only use non-flammable recovery wadding in my rockets.
10. JET DEFLECTOR - My launcher will have a jet deflector device to prevent the engine exhaust from hitting the ground directly.
11. LAUNCH ROD - To prevent accidental eye injury I will always place the launcher so the end of the rod is above eye level or cap the end of the rod with my hand when approaching it. I will never place my head or body over the launching rod. When my launcher is not in use I will always store it so that the launch rod is not in an upright position.
12. POWER LINES - I will never attempt to recover my rocket from a power line or other dangerous place.
13. LAUNCH TARGETS & ANGLE - I will not launch rockets so their flight path will carry them against targets on the ground, and will never use an explosive warhead nor a payload that is intended to be flammable. My launching device will always be pointed within 30 degrees of vertical.
14. PRE-LAUNCH TEST - When conducting research activities with unproven designs or methods, I will, when possible, determine their reliability through pre-launch tests. I will conduct launchings of unproven designs in complete isolation from persons not participating in the actual launching.



This Solid Propellant Model Rocketry Safety Code is Approved by The National Association of Rocketry and the Hobby Industry Association of America.





Helix

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0 INCH

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2

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4

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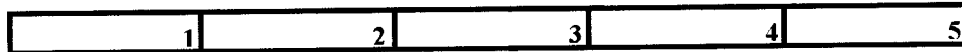
CRITICAL PART MEASUREMENTS

- PART B** 1 QTY. ENGINE MOUNT TUBE = 9 1/2" LONG
PART F 1 QTY. 1/8" WOOD DOWEL = 6" LONG
PART J 3 QTY. 1/8" LAUNCH LUGS = 2 3/8 " LONG
PART K 2 QTY. POD BODY TUBES = 1 1/4 " LONG
PART M 1 QTY. RUBBER SHOCK CORD = 21" LONG
PART N 1 QTY. MAIN BODY TUBE = 9 1/2 " LONG

CLEAR PARTS DRAWINGS

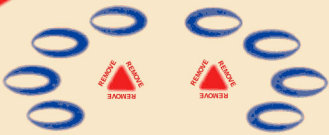
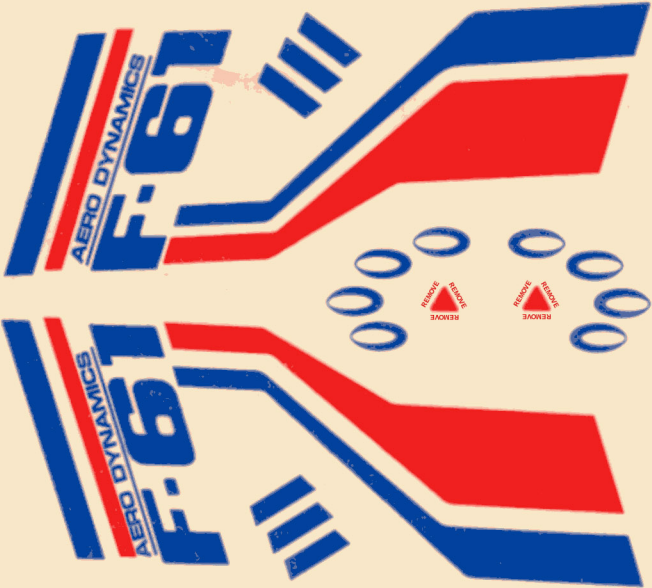


SCALE



COCKPIT DRAWINGS





U.S. AIR FORCE
U.S. AIR FORCE

USAF
USAF



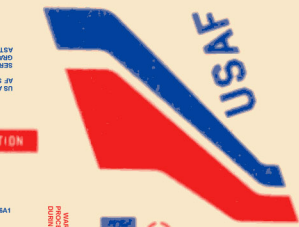
WARNING
PROCEED WITH CAUTION
DURING REMOVAL OF PANEL.



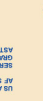
US AIR FORCE F-4
AF SERIAL NO. 101576A1
SERVICE IS AIRCR.
GRADE JP-4 OR TYPE
ASTM-D 1085

CAUTION

US AIR FORCE F-4
AF SERIAL NO. 101576A1
SERVICE IS AIRCR.
GRADE JP-4 OR TYPE
ASTM-D 1085



USAF



F-61

STARFIGHTER

FLYING MODEL

ROCKET

SKILL LEVEL 2

1 Beginner 2 Intermediate 3 Advanced
4 Expert 5 Elite

- Futuristic Starfighter Design
- Features Plastic Canopy, Air-To-Air Missiles, Laser Cannons, and Simulated Infra-Red Photon Torpedos
- Realistic Two-Color Decals
- Flights To 900'
- Die-Cut Balsa Fins
- Exotic Plastic Nose Cone
- 12" Parachute

Length:
18.75" (47.6 cm)

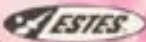
Diameter:
3.18" (81.3 mm)

Weight:
1.1 oz. (31.3 g)

Engine Types:
A2.1, B2.2, B6.6 (for F4.1),
B6.2, B6.4, B6.6, C2.2,
C2.3, E2.4

This is a hobby kit requiring assembly.
Recommended for ages 15 and above.
Engines, launch system, glue and finishing
supplies are not included. Adult supervision
is suggested for those under 17 years of age
when flying model rockets.

1358



ESTES INDUSTRIES
MARIETTA, GA 30067 USA