





# MICROSONDE III PAYLOADER R-209

**THREE STAGE THREE ENGINES REQUIRED**

**FIRST BOOSTER C6-0  
SECOND BOOSTER B6-0  
UPPER STAGE A3-2**

## WARNING!

(MODEL ROCKET)

A flying model rocket is a scientifically designed educational model . . . NOT A TOY! If misused it can be dangerous. It is capable of attaining speeds up to 300 mph. It should be used only as instructed, and treated with care and respect. Adult supervision is recommended.

(MODEL ROCKET ENGINES)

Solid propellant Rocket Reaction Engines are specifically designed for the sole purpose of propelling model rocket vehicles. They are scientifically designed, produced on automatic machinery, and subjected to statistical quality control tests. It is very important, however, that caution be exercised in their use. All instructions must be read thoroughly first and followed completely. Model rocket engines are designed for one purpose only. They are not toys—and their mis-use must be absolutely avoided. Model rocketry has proven itself to be as safe as any other hobby when common sense codes are followed.

This model rocket has been designed and developed to give you a straight, high flight if the instructions are followed carefully. The exciting and educational sport of model rocketry has grown into a full scale national activity, and will continue to grow every time you fly your rocket safely. Formation of a rocket club in your area will provide you with hours of enjoyment, even when you're not launching rockets. Look for our new models appearing on your dealers shelves soon.

Before you begin building, look over the instructions carefully. Following the procedure given, test fit the parts without gluing. This way you will be more familiar with the location of parts when it becomes time to use glue. The parts list will acquaint you with the pieces in the kit.

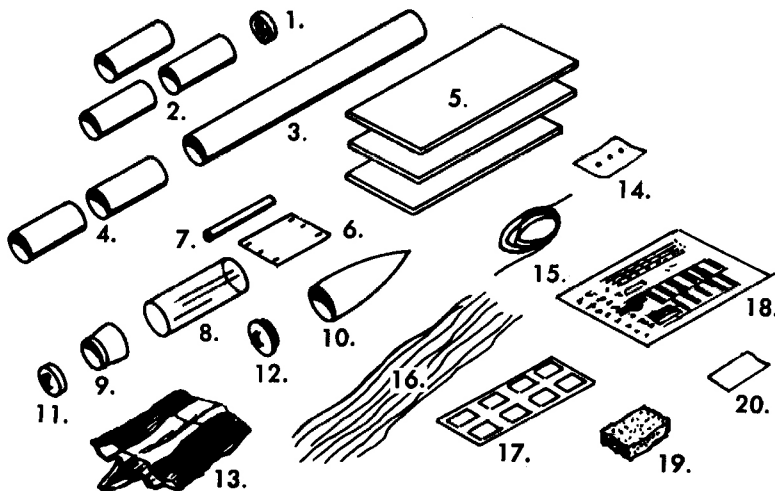
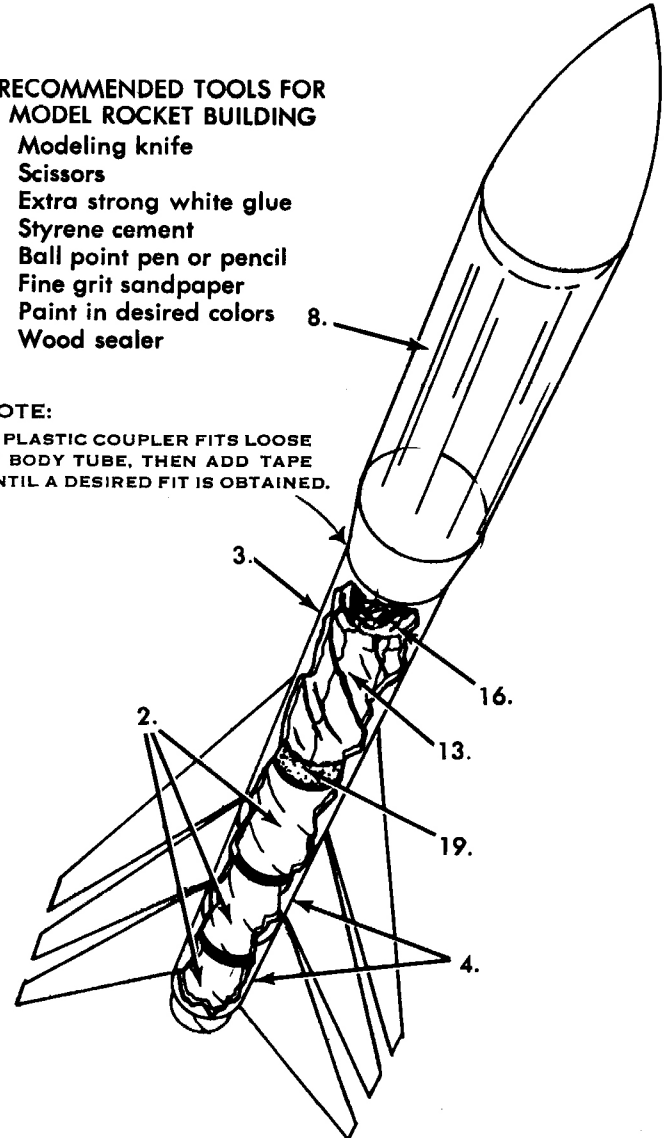
**For a good flight, each and every time, use an MPC LUNAR ELECTRIC LAUNCH PAD, and LAUNCH CONTROL to fly your model rocket.**

### RECOMMENDED TOOLS FOR MODEL ROCKET BUILDING

Modeling knife  
Scissors  
Extra strong white glue  
Styrene cement  
Ball point pen or pencil  
Fine grit sandpaper  
Paint in desired colors  
Wood sealer

### NOTE:

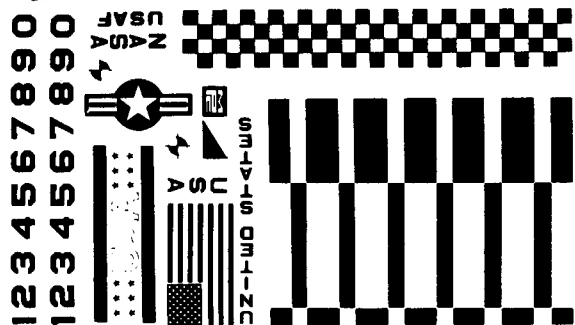
IF PLASTIC COUPLER FITS LOOSE IN BODY TUBE, THEN ADD TAPE UNTIL A DESIRED FIT IS OBTAINED.



### PARTS LIST

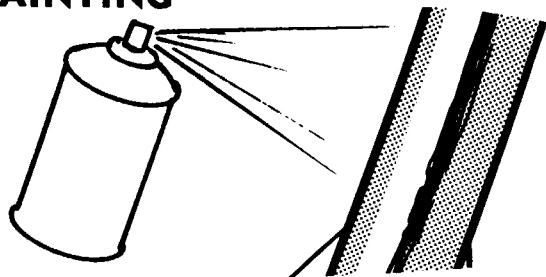
- |                        |                    |
|------------------------|--------------------|
| 1. ENGINE BLOCK        | 11. COUPLER PLUG   |
| 2. ENGINE COMPARTMENTS | 12. NOSE CONE PLUG |
| 3. MAIN BODY TUBE      | 13. PARACHUTE      |
| 4. BOOSTER BODY TUBES  | 14. SHOCK MOUNT    |
| 5. FIN SHEETS          | 15. SHOCK CORD     |
| 6. FIN GUIDE           | 16. SHROUDS        |
| 7. LAUNCH LUG          | 17. SHROUD TABS    |
| 8. PAYLOAD TUBE        | 18. DECALS         |
| 9. COUPLER             | 19. WADDING        |
| 10. NOSE CONE          | 20. ADDRESS LABEL  |

## 8. DECALS



Get decal ideas from the box your rocket came in. To apply decals, cut them apart individually, cut close to the designs, then dip in water for a few minutes. Next slide it off of the paper as you apply it to your rocket. Before the decals dry, smooth out any bubbles with a damp cloth.

## 9. PAINTING



For best flight performance, and appearance, your rocket should have a smooth, hard finish. The cardboard should have several coats of sealer, sanding lightly between each coat. When painting, if a brush is used, sand carefully after each coat. If a spray can is used, apply several light coats avoiding runs.

## ENGINE SELECTION

For your first flights we recommend the C6-0 for the first booster stage, a B6-0 for the second booster stage, and the A3-2 for the upper stage. After you've become acquainted with model rocket flights, more powerful engines may be substituted. For maximum altitude, use the C9-0 in the first booster stage, the C6-0 in the second booster stage, and the C6-6 for the upper stage.

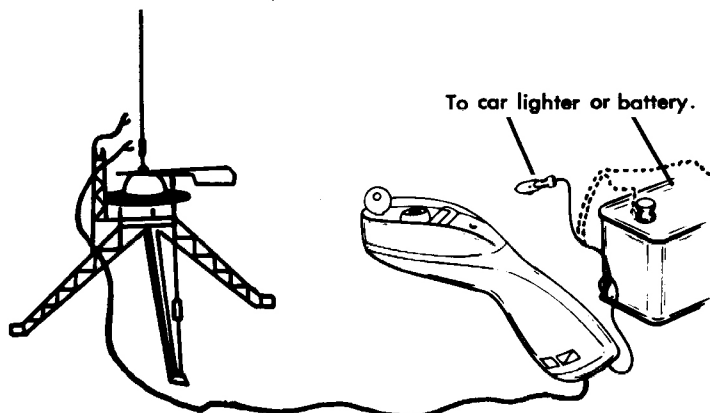
## SELECTING A LAUNCH SITE

Choose a level area as your launch site. Clear the area under the launch pad of dry grass, and other flammable materials. Your launch site should be clear of trees, high buildings, power lines, and roads and freeways. An area 500' by 500' minimum is recommended for safe flight and recovery.

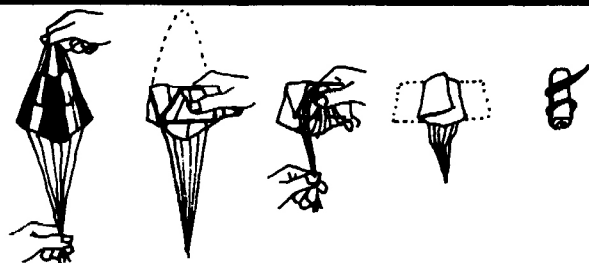
## LAUNCH INSTRUCTIONS

All model rockets must be launched electrically, using the MPC LUNAR-LECTRIC or similar launching system. Check with your hobby dealer.

**IMPORTANT:** All model rockets must be launched from a launch rod at least 36 inches long.

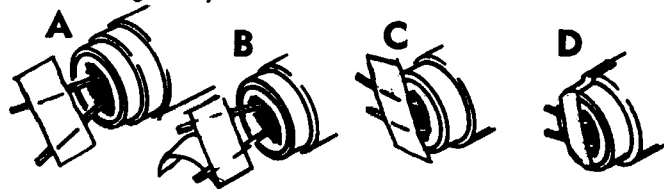


**For a good flight, each and every time, use an MPC LUNAR LECTRIC LAUNCH PAD, and LAUNCH CONTROL to fly your model rocket.**



Pack flameproof wadding into the top of the body tube, pushing it down toward the engine. Fold the parachute carefully, as shown and pack on top of the wadding. Use a small amount of talcum powder to keep the chute from sticking together. Pack the shroud lines and shock cord on top of the chute, and insert the nose cone or adapter in place.

The engines must not be installed until you are ready to launch. Each engine must fit securely in the engine compartment. If you can remove the engines with just your fingers, they are too loose. To remedy this, apply tape in strips lengthwise along the engine one at a time until the engines can not be removed with the fingers alone. Insert Ignitor into the engine as far as it will go. (A) Peel backing from tape. (B) Bend Ignitor over against engine. (C) Press tape down onto engine to hold in place. (D) This procedure for first stage only.



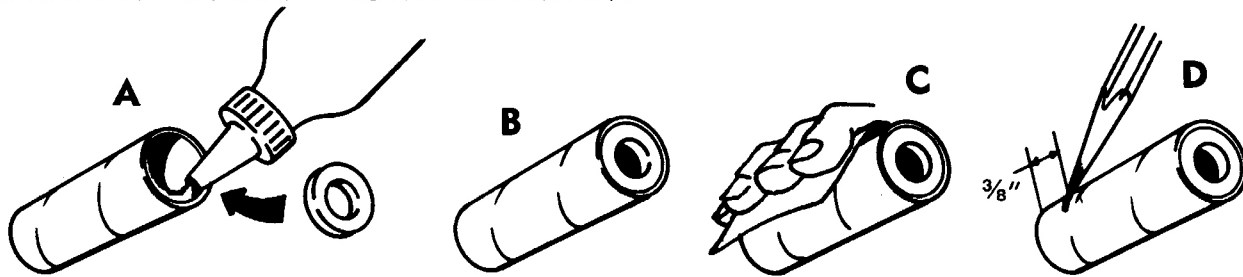
Before approaching launch pad, remove safety key from launch control handle, and disconnect leads from power source. Approach launch pad and install Ignitor.

Lower rocket onto the launch rod by sliding the launch lug over rod. Attach one micro clip to each of the Ignitor leads extending from the engine. Retreat to launch control and give an audible warning to persons in the area that a countdown is about to begin. Connect leads to power source, insert safety key in the LUNAR-LECTRIC launch control, or whatever launch control you're using. Begin countdown procedure from countdown card, included in every MPC model rocket kit.

In the event that engines are not available in your area, take advantage of our three engine package by sending \$1.25 to MODEL PRODUCTS CORP., 126 Groesbeck, Mt. Clemens, Michigan 48043.

If you are a minor your order must be accompanied with a note from parent or guardian.

# 1. MAIN ENGINE COMPARTMENT

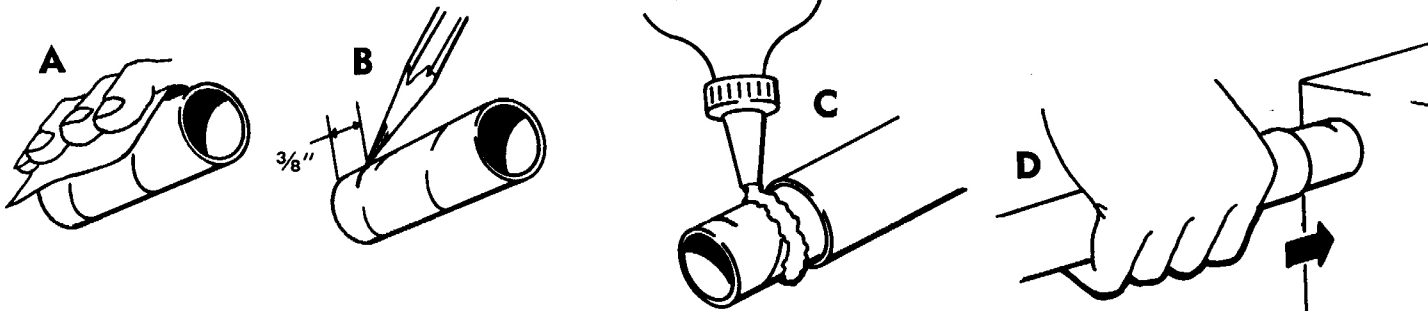


Apply glue around the inside edge of one of the brown tubes, (engine compartment). (A) Then insert engine block so that the ends are flush. (B) Allow glue to dry. Only the upper stage has

an engine block. Sand the outside of the engine compartment until it fits into the 9" body tube smoothly. (C) Make a pencil mark  $\frac{3}{8}$ " from the open end of the engine compartment. (D)

READ INSTRU  
CAREFULLY I  
STARTIN

# 3. BOOSTER ENGINE COMPARTMENT

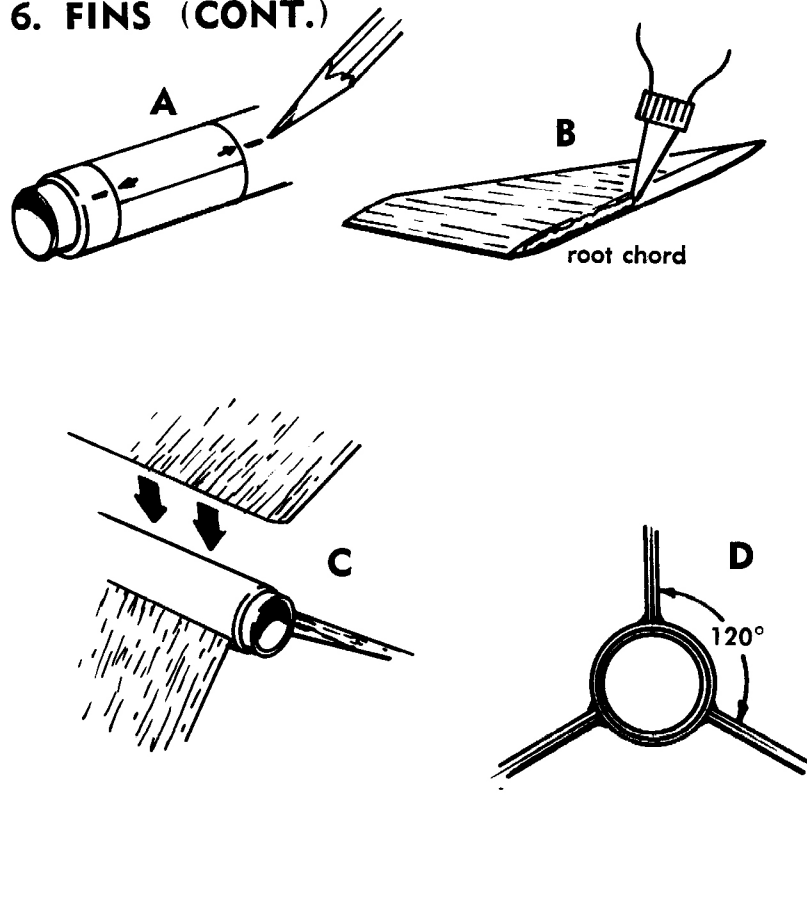


Sand another brown engine compartment until it fits smoothly into one of the  $2\frac{3}{4}$ " white body tubes. (A) Make a pencil mark  $\frac{3}{8}$ " from one end of the engine compartment. (B) Insert the engine compartment about halfway into the  $2\frac{3}{4}$ " body tube, and place a ring of glue around it. (C) With

constant pressure, against a wall or table push the engine compartment into the body tube until you reach the  $\frac{3}{8}$ " mark. (D) Repeat A, B, C, and D for the remaining of the engine compartment and tube.

4  
FIR  
BO

# 6. FINS (CONT.)



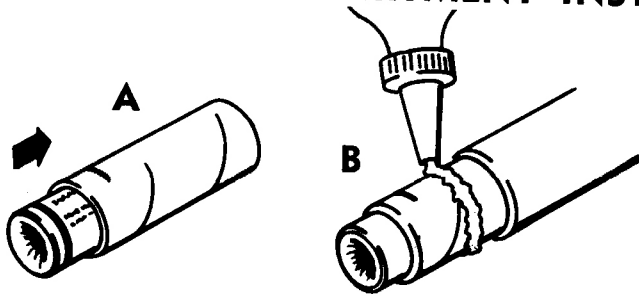
Wrap fin guide around body tube where fins will be attached. Mark the tube near the arrow tips (A) Remove the fin guide and connect these marks with a straight line to show fin attaching points. Use this procedure on all three tubes. Apply glue to root chord (that part which attaches to body tube). (B) Place fin on pencil line and push firmly. (C) Allow glue to dry before attaching other fins. When viewed from the end the fins should be at the angle shown in drawing (D). Repeat for other stages. Apply glue fillet to each joint and smooth with a finger. The launching lug in this kit must be mounted at least  $\frac{1}{8}$ " from the body tube, to clear the payload section. Cut two strips  $\frac{1}{8}$ " wide, and the length of the launch lug, from scrap balsa. Glue these strips together, glue lug to them, and glue to the body tube. The bottom of the lug should be 1" from the bottom of the 9" body tube. (E)

7. FINS  
ADDRESS  
LABEL  
Lace shock  
through sl  
mount as  
Glue this  
into the t  
9" body tu

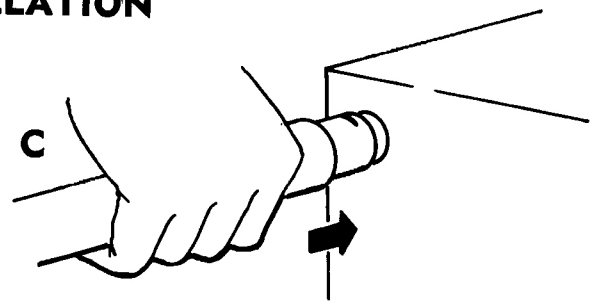


## 2. ENGINE COMPARTMENT INSTALLATION

CTIONS  
BEFORE  
IG



So you will not damage the tube during assembly, insert an engine into the engine compartment, (use a burned out engine if possible). (A) Insert engine compartment into the 9" body tube about halfway, and apply a ring of glue around



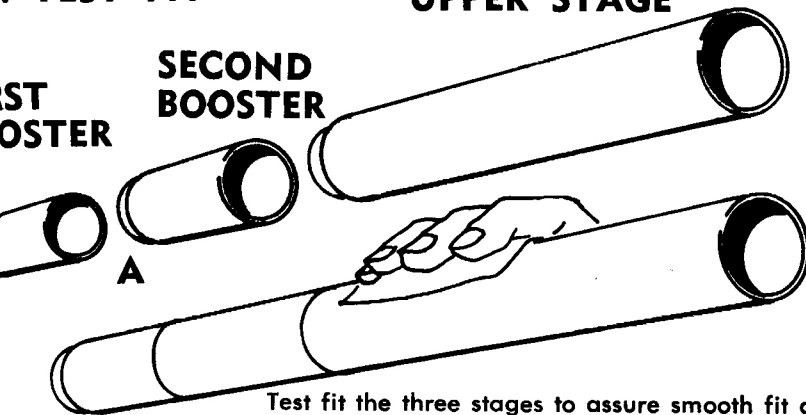
the engine compartment. (B) Place engine against a wall or table, and with constant pressure, push engine compartment into body tube until you reach the 3/8" mark. (C) Immediately wipe off excess glue.

## 3. TEST FIT

ST  
OSTER

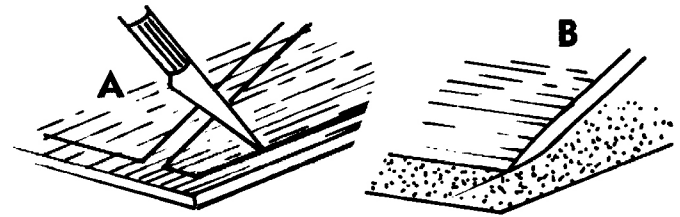
SECOND  
BOOSTER

UPPER STAGE



Test fit the three stages to assure smooth fit and proper alignment. (A) While the three stages are together, give the whole assembly a light sanding. (B)

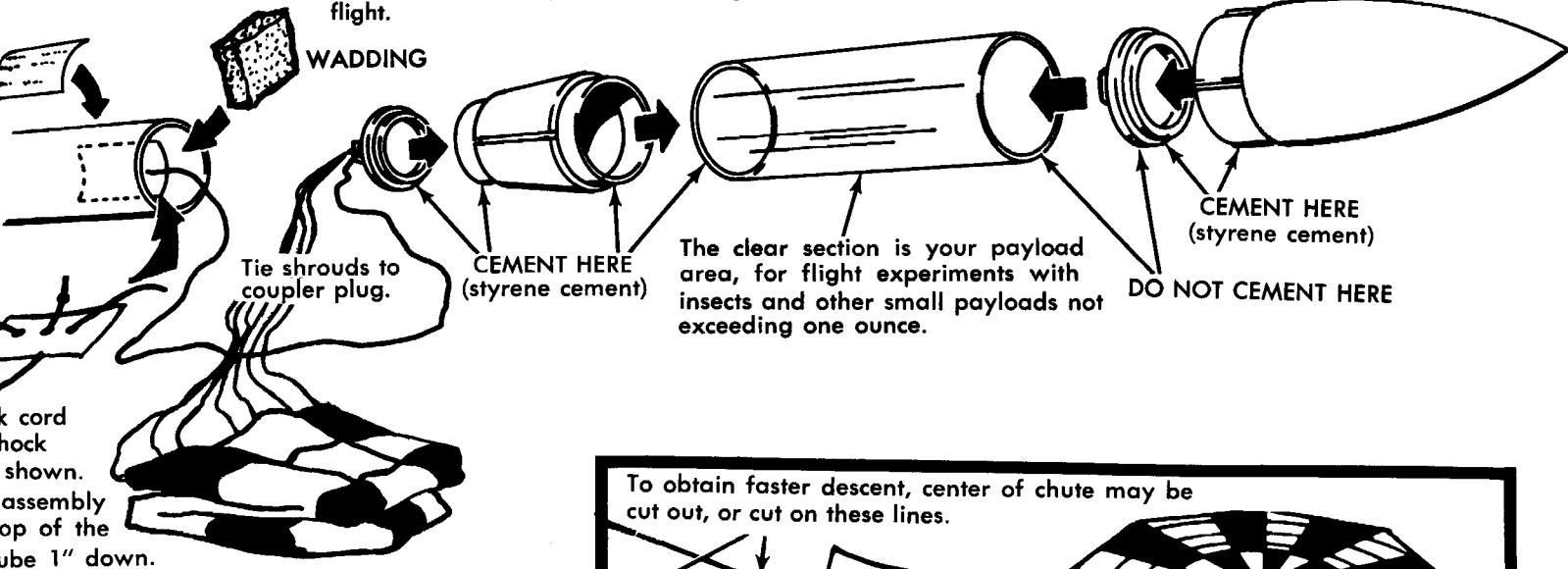
## 5. FINS



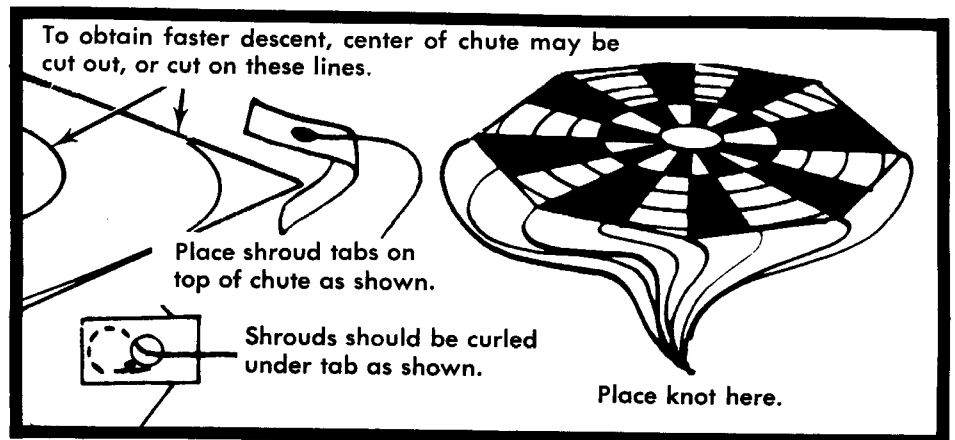
Cut fins from fin sheet. If possible use a ruler to help you get a good straight edge. (A) Fin sheets are numbered to correspond with the stages of the rocket: sheet 1 to upper stage, sheet 2 to middle booster, and sheet 3 to the bottom booster. Sand the three edges that do not attach to the body tube. Sand the fin surface smooth (B).

## FINAL ASSEMBLY

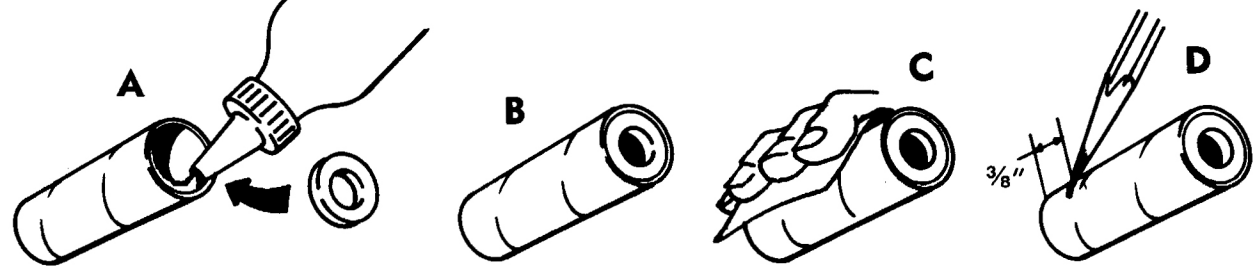
NOTE: Use a new piece of wadding with each flight.



k cord  
hook  
shown.  
assembly  
top of the  
tube 1" down.



### 1. MAIN ENGINE COMPARTMENT

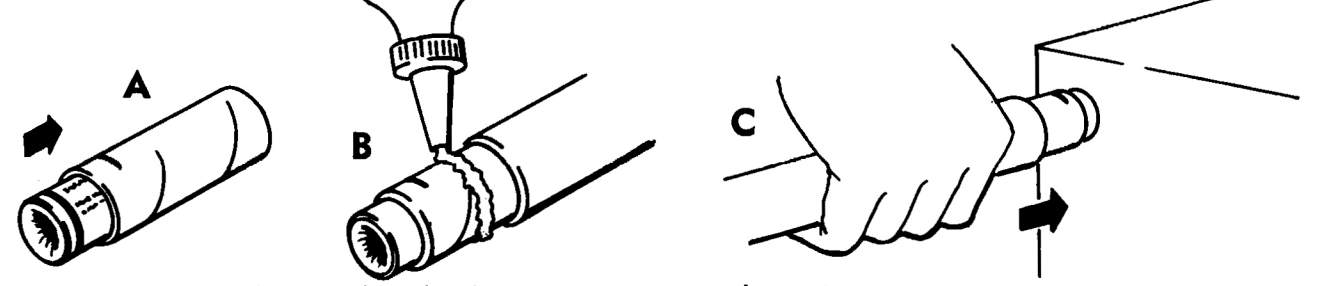


Apply glue around the inside edge of one of the brown tubes, (engine compartment). (A) Then insert engine block so that the ends are flush. (B) Allow glue to dry. Only the upper stage has

an engine block. Sand the outside of the engine compartment until it fits into the 9" body tube smoothly. (C) Make a pencil mark  $\frac{3}{8}$ " from the open end of the engine compartment. (D)

**READ INSTRUCTIONS CAREFULLY BEFORE STARTING**

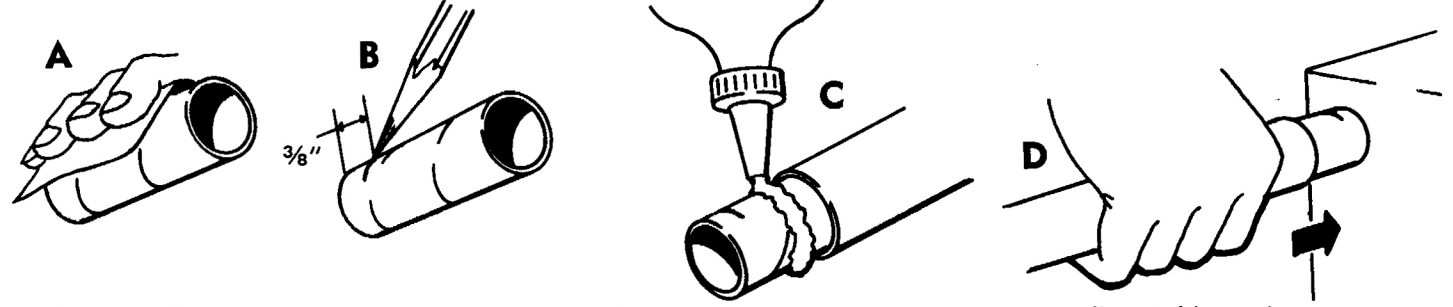
### 2. ENGINE COMPARTMENT INSTALLATION



So you will not damage the tube during assembly, insert an engine into the engine compartment, (use a burned out engine if possible). (A) Insert engine compartment into the 9" body tube about halfway, and apply a ring of glue around

the engine compartment. (B) Place engine against a wall or table, and with constant pressure, push engine compartment into body tube until you reach the  $\frac{3}{8}$ " mark. (C) Immediately wipe off excess glue.

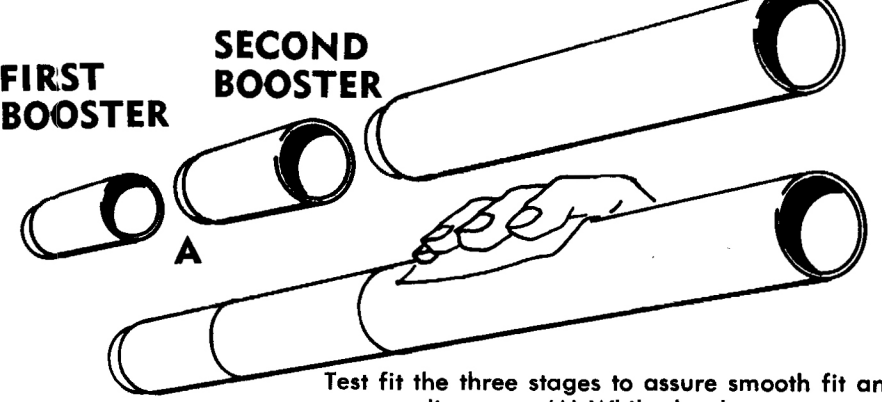
### 3. BOOSTER ENGINE COMPARTMENT



Sand another brown engine compartment until it fits smoothly into one of the  $2\frac{3}{4}$ " white body tubes. (A) Make a pencil mark  $\frac{3}{8}$ " from one end of the engine compartment. (B) Insert the engine compartment about halfway into the  $2\frac{3}{4}$ " body tube, and place a ring of glue around it. (C) With

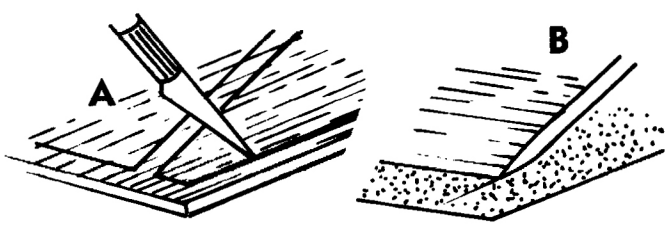
constant pressure, against a wall or table push the engine compartment into the body tube until you reach the  $\frac{3}{8}$ " mark. (D) Repeat A, B, C, and D for the remaining of the engine compartment and tube.

### 4. TEST FIT UPPER STAGE



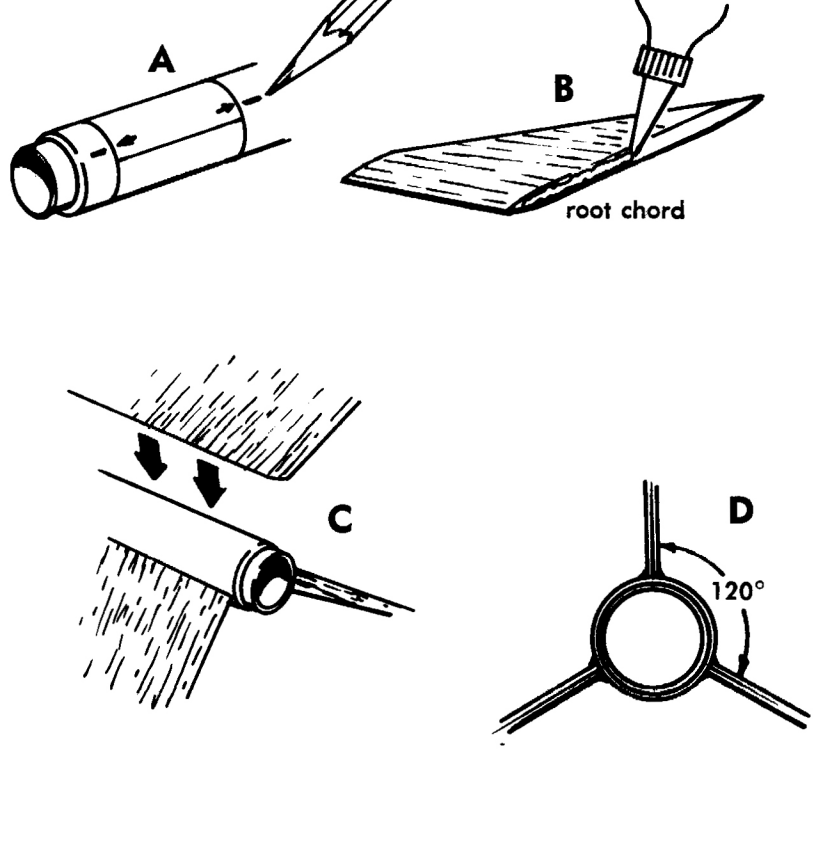
Test fit the three stages to assure smooth fit and proper alignment. (A) While the three stages are together, give the whole assembly a light sanding. (B)

### 5. FINS



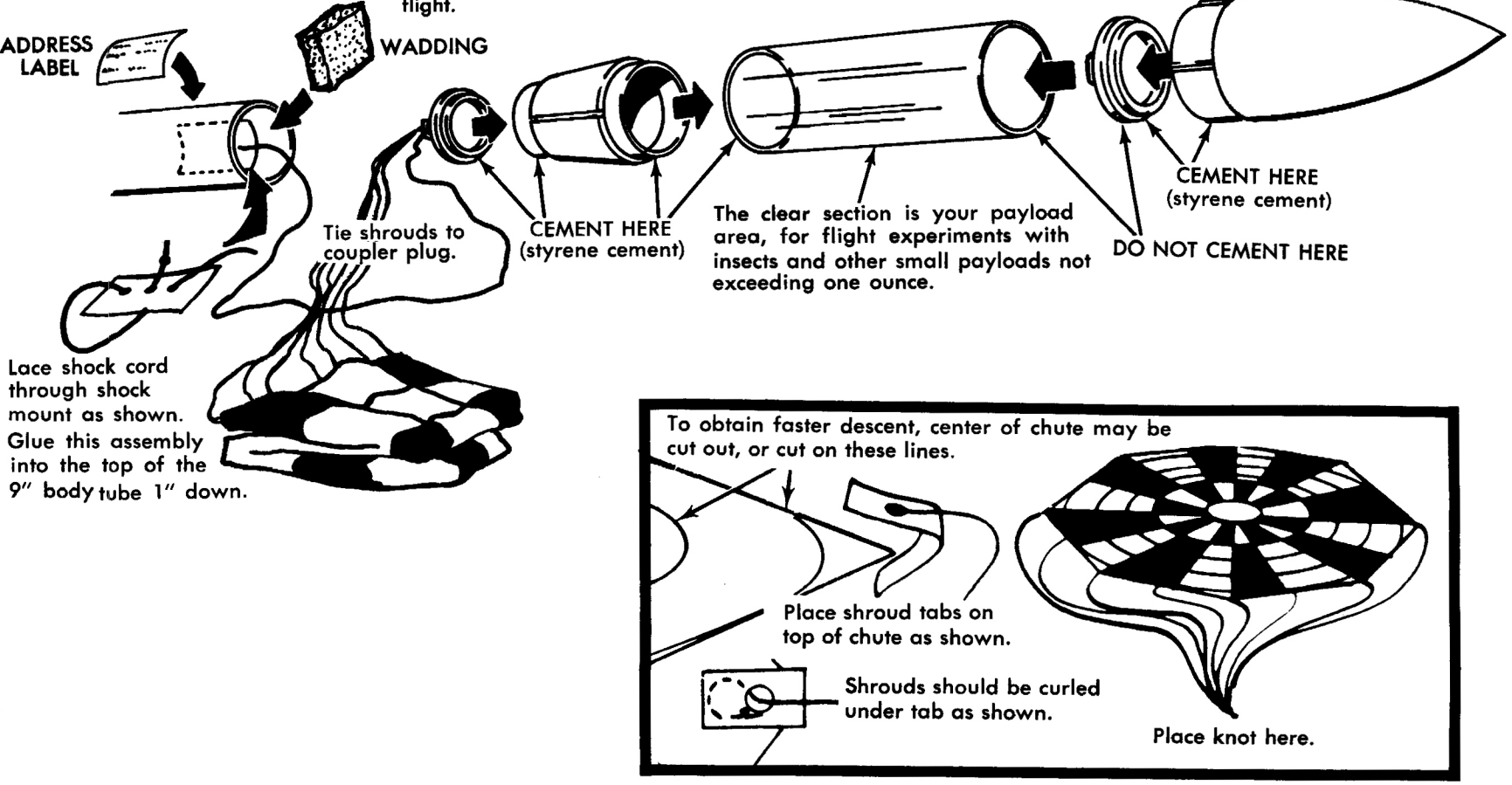
Cut fins from fin sheet. If possible use a ruler to help you get a good straight edge. (A) Fin sheets are numbered to correspond with the stages of the rocket: sheet 1 to upper stage, sheet 2 to middle booster, and sheet 3 to the bottom booster. Sand the three edges that do not attach to the body tube. Sand the fin surface smooth (B).

### 6. FINS (CONT.)



Wrap fin guide around body tube where fins will be attached. Mark the tube near the arrow tips (A) Remove the fin guide and connect these marks with a straight line to show fin attaching points. Use this procedure on all three tubes. Apply glue to root chord (that part which attaches to body tube). (B) Place fin on pencil line and push firmly. (C) Allow glue to dry before attaching other fins. When viewed from the end the fins should be at the angle shown in drawing (D). Repeat for other stages. Apply glue fillet to each joint and smooth with a finger. The launching lug in this kit must be mounted at least  $\frac{1}{8}$ " from the body tube, to clear the payload section. Cut two strips  $\frac{1}{8}$ " wide, and the length of the launch lug, from scrap balsa. Glue these strips together, glue lug to them, and glue to the body tube. The bottom of the lug should be 1" from the bottom of the 9" body tube. (E)

### 7. FINAL ASSEMBLY



NOTE: Use a new piece of wadding with each flight.

ADDRESS LABEL  
WADDING  
Tie shrouds to coupler plug.  
Lace shock cord through shock mount as shown. Glue this assembly into the top of the 9" body tube 1" down.

CEMENT HERE (styrene cement)  
The clear section is your payload area, for flight experiments with insects and other small payloads not exceeding one ounce.  
DO NOT CEMENT HERE  
CEMENT HERE (styrene cement)

To obtain faster descent, center of chute may be cut out, or cut on these lines.  
Place shroud tabs on top of chute as shown.  
Shrouds should be curled under tab as shown.  
Place knot here.

## RESEARCH REPORT

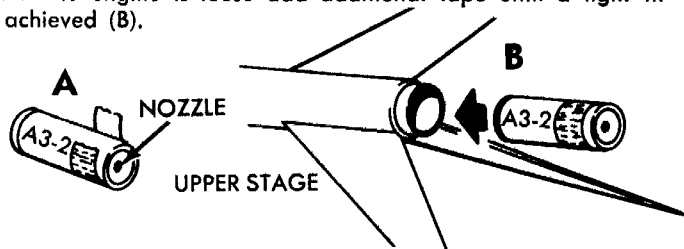
### ENGINE INSTALLATION FOR MULTI-STAGE ROCKETS

Multi-stage kits are intended for advanced modelers only.

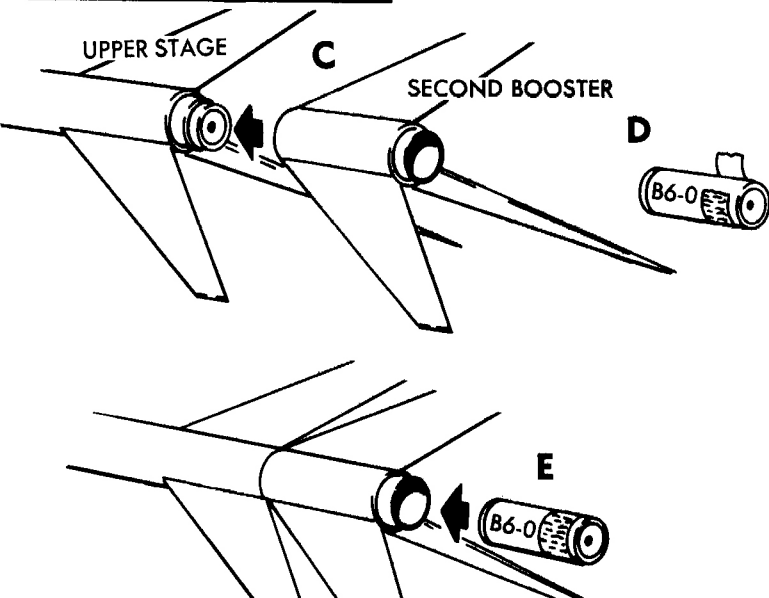
The MPC Research and Development dept. has found a new and better system for engine installation in multi-stage rockets. Although strips of tape applied lengthwise along the engine as previously recommended (in the instruction sheet), has proven to be satisfactory, we feel the following method shown to be superior.

**WARNING!** — Please read and follow these instructions carefully. If proper care is not taken to insure that the engines are held firmly in place in the engine compartment and are butted together, then upon staging the engine will be ejected from the body tube and will fail to ignite the next stage. If this happens, the parachute will fail to open, and you will have a free falling dangerous missile that will bury itself several inches in the ground upon impact. This can be extremely dangerous for anyone in the area. Therefore it is extremely important that a very large area be allowed for a flying field. We have recommended a field at least 500' on a side, but a larger area may be required if there is a wind blowing.

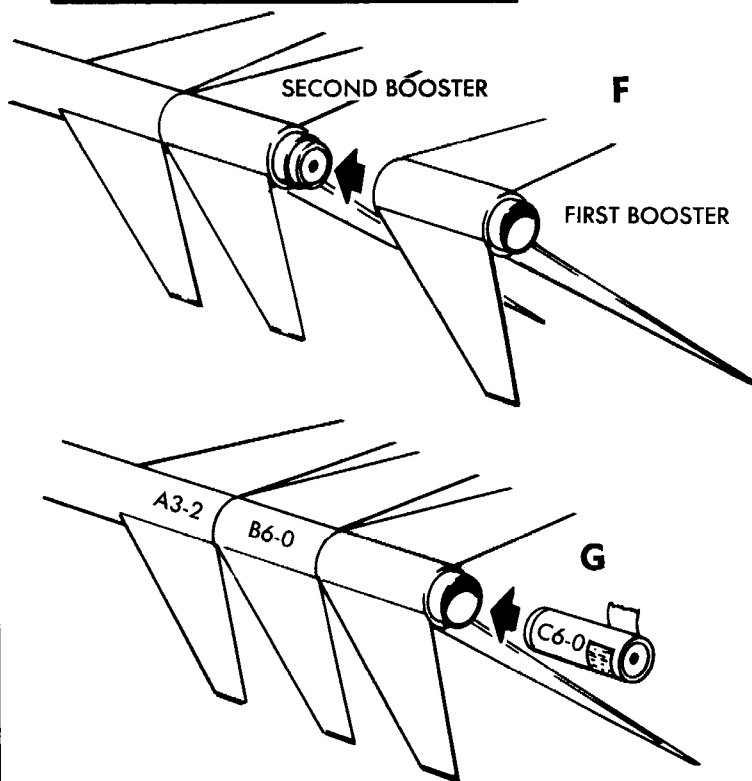
Wrap one layer of masking tape around nozzle end of A3-2 engine, as shown (A). Insert engine into upper stage, to check for fit. If the engine is loose add additional tape until a tight fit is achieved (B).



Once the upper stage engine is in place, slide the second booster stage over the upper stage engine compartment (C). Wrap a layer of masking tape around the nozzle end of the B6-0 engine (D). Insert engine into second booster stage, check for a tight fit, and add additional tape if needed (E). Make sure the B6-0 is touching the A3-2 engine.



Once the two stages are joined, with engines in place, slide the first booster stage over the engine compartment of the second booster stage (F). Wrap a layer of masking tape around the nozzle end of C6-0 engine. Insert engine into first booster stage, check for a tight fit, and add additional tape if needed (G). Make sure C6-0 is touching the B6-0 engine.

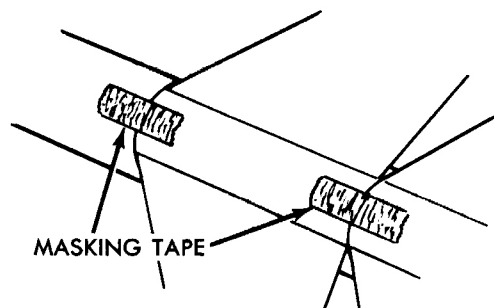


### ENGINE IGNITION

The first stage engine of a multi-stage rocket is ignited electrically with an ignitor wire. Upon burn-out of this engine hot gasses and burning particles are blown forward into the nozzle of the next stage igniting that engine automatically. This process continues for as many stages as you have.

If the stages are not joined securely, the pressure created by these hot gasses can cause the stages to separate prematurely, not allowing the next stage to ignite.

To insure that the stages stay together long enough to allow proper ignition, place two pieces of masking tape across each joint, one piece on each side of the rocket.



A field at least 500' on a side is required

MPC Microsonde III R-209

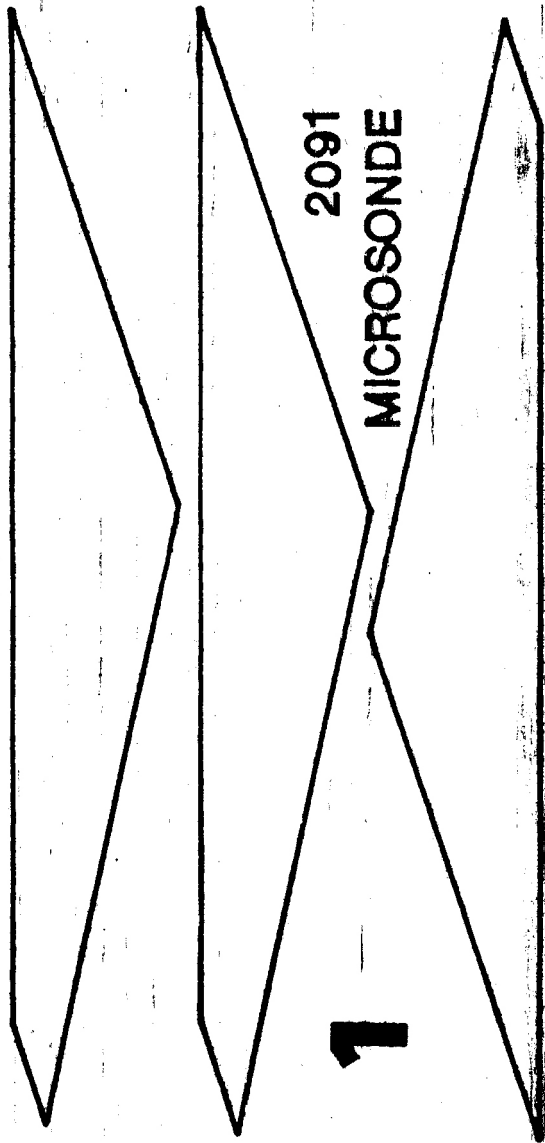
Q	Desc	Stk Num	Size	Other
1	Plastic Nose Cone	?	3 1/8"L	Parabolic Quest part?
1	Plastic Reducer/w caps	?	3/4"L	T-20 to T-25 Quest part?
1	Body Tube	T-20	9"L	Quest
2	Body Tube	T-20	2 3/4"L	Quest
3	Body Tube	BT-20	2 5/8"L	Estes
1	Clear Plastic Tube	?	4"L	BT-50 size
1	Balsa Sheet		3" x 7" x 3/32"T	
1	Balsa Sheet		3" x 9" x 3/32"T	
1	Balsa Sheet		3" x 11" x 3/32"T	
1	Engine Block	EB-20		
1	Launch Lug		2 3/8"L	
1	elastic Shock Cord		18"L	
1	Parachute		10"Dia.	Org/Wht
6	Shroud Line		15"L	
6	Tape Tabs		.25" x .75"	
1	Decal		3"W x 5"L	Red/Wht/Blu/Blk

2091

MICROSONDE

1

3/32" Balsa



TIP .5"

TRAILING EDGE 3.25"  
LEADING EDGE 5.25"

ROOT EDGE 2.75"

30°

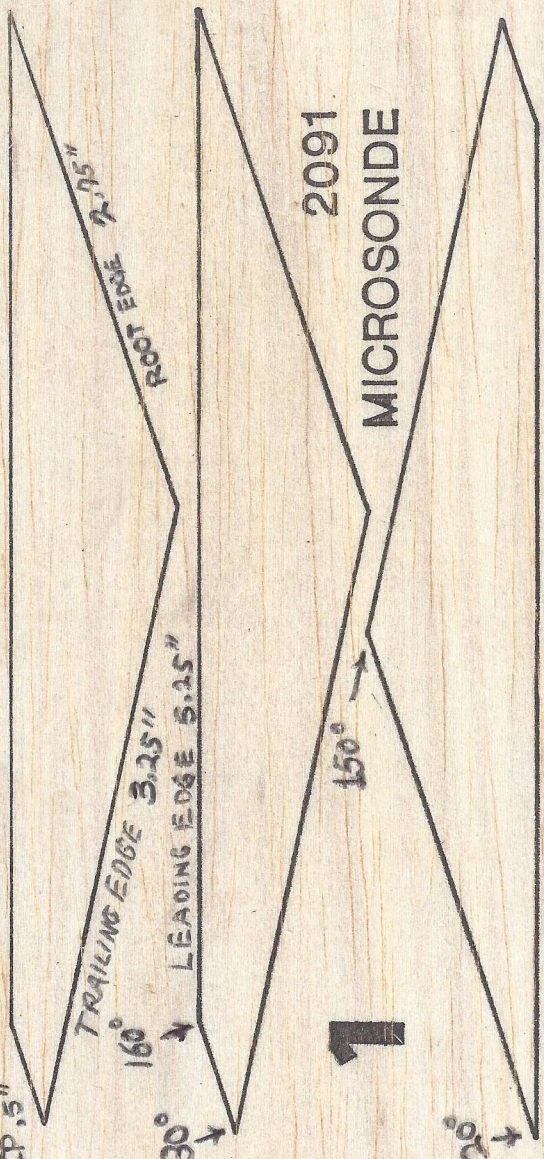
160°

1

150°

2091  
MICROSONDE

20°



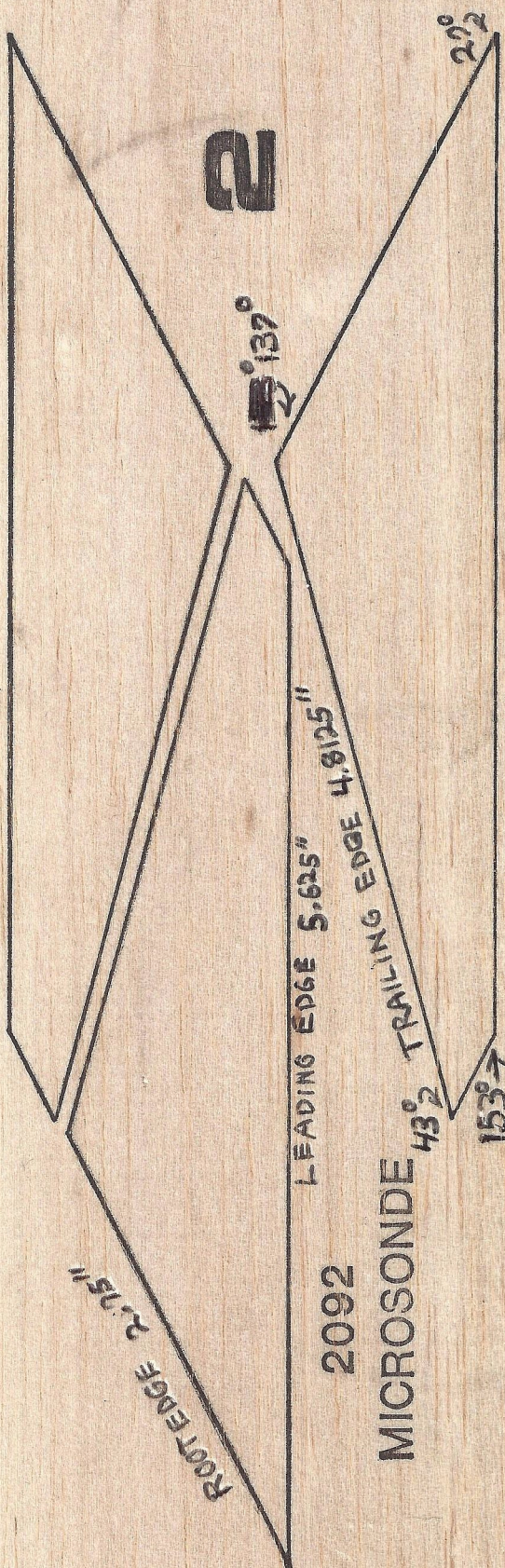
**3/32" Balsa**

**N**

**2092**

**MICROSONDE**





ROOT EDGE 2.715"

LEADING EDGE 5.625"

TRAILING EDGE 4.8125"

MICROSONDE

2092

2

137°

43°

153°

2092

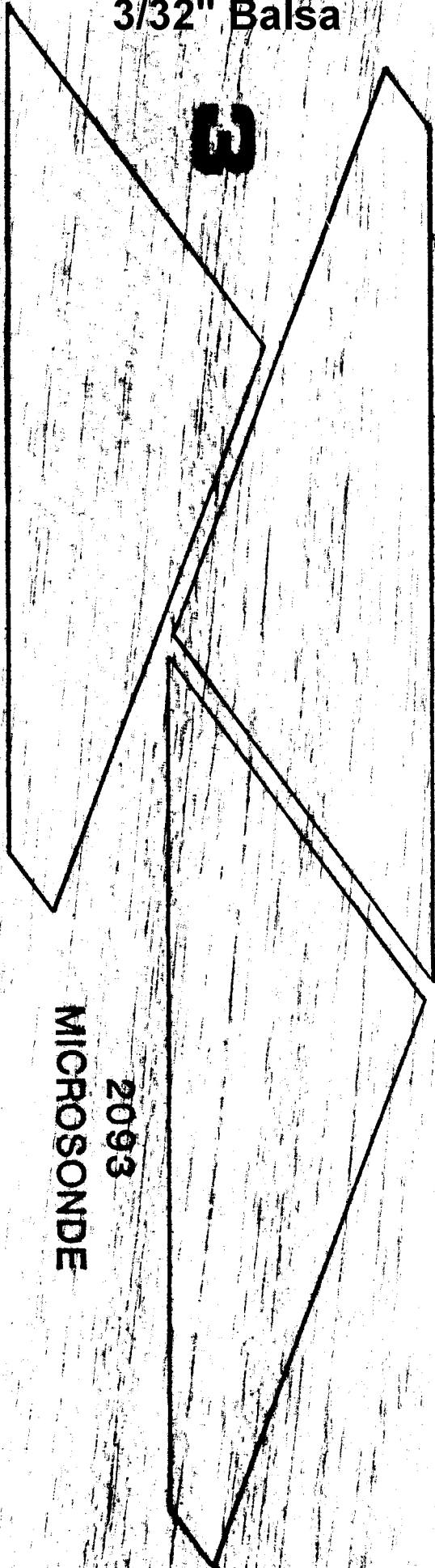


**3/32" Balsa**

**W**

**2093**

**MICROSONDE**



TIP .5"

Root Edge

2.75"



123°

33°

LEADING EDGE

2093

5.5"

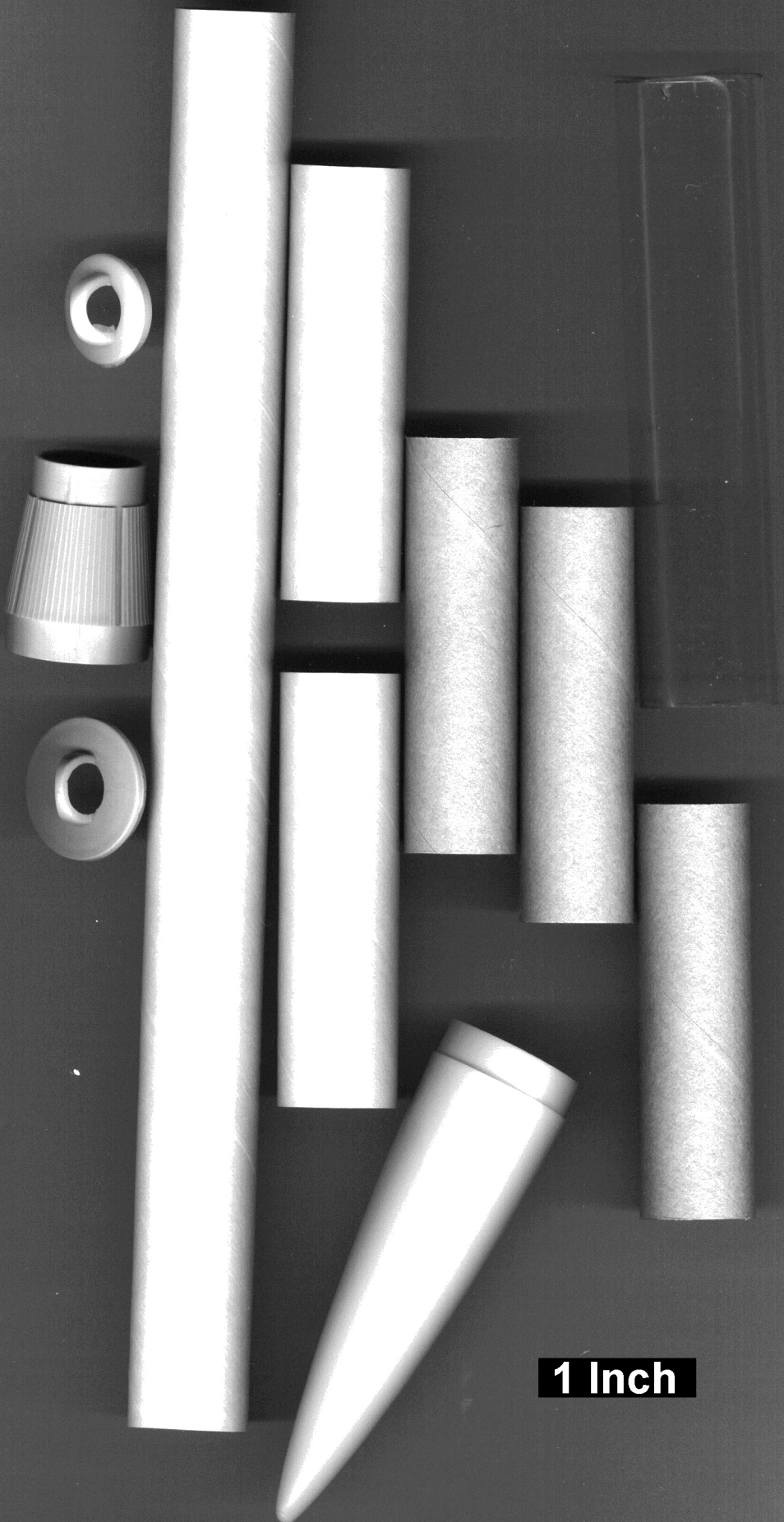
MICROSONDE

60°

140°

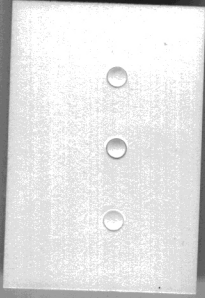
TRAILING EDGE

2.875"



**1 Inch**



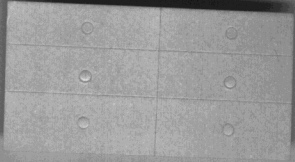
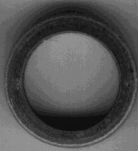


IF FOUND PLEASE RETURN TO

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

PHONE \_\_\_\_\_



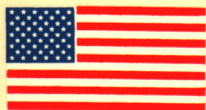
**1 Inch**

1 2 3 4 5 6 7 8 9 0

1 2 3 4 5 6 7 8 9 0



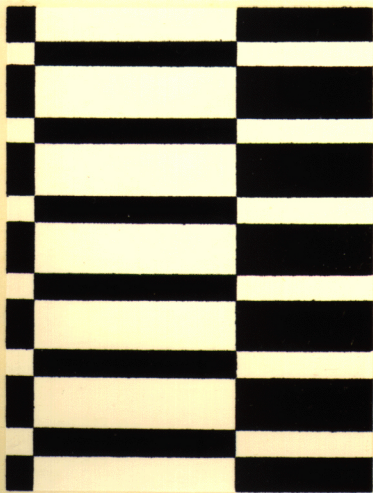
ASA  
NSA  
USAF

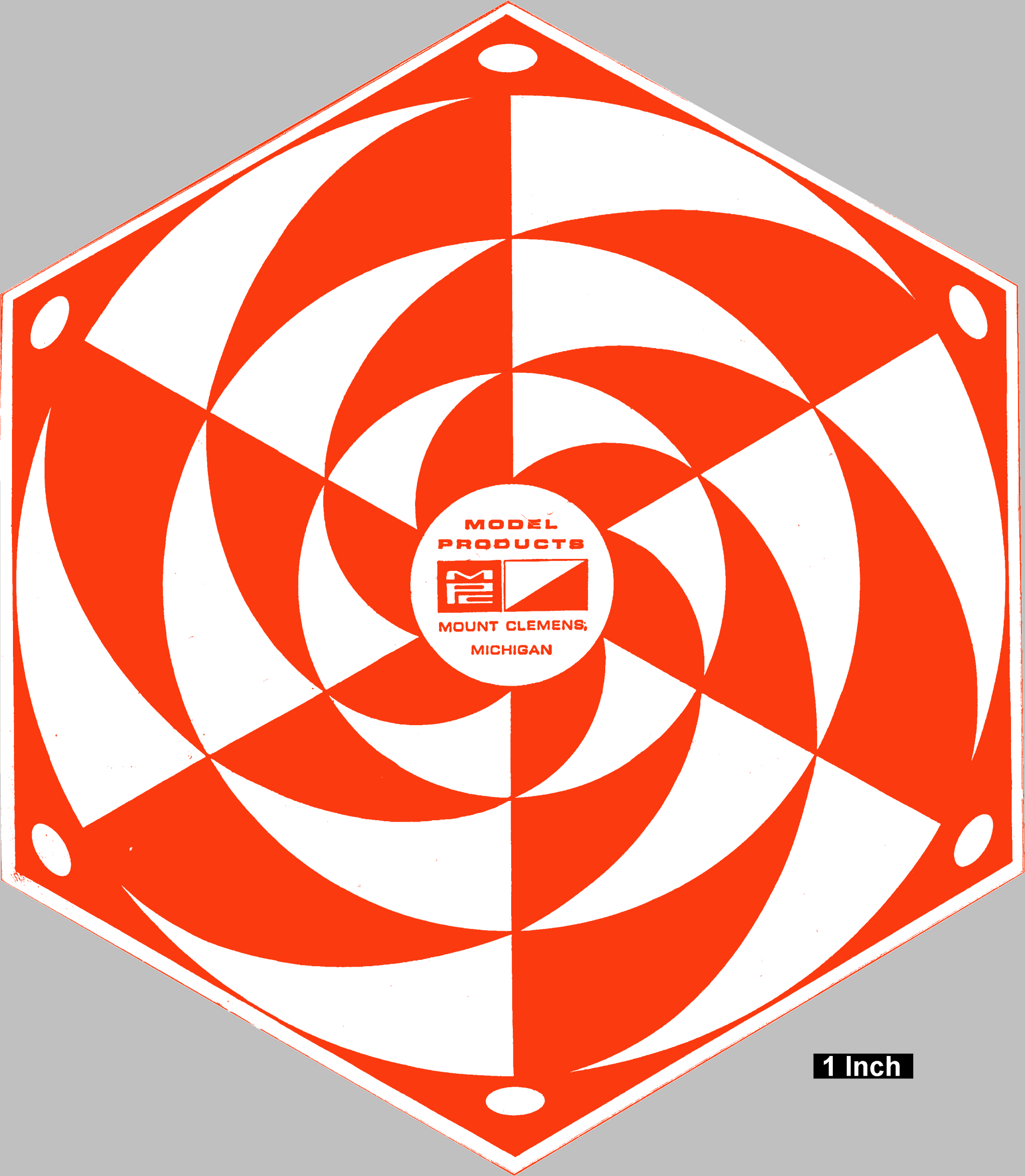


ASC



UNITED STATES





**MODEL  
PRODUCTS**



**MOUNT CLEMENS,  
MICHIGAN**

**1 Inch**



# COUNT DOWN CARD

## WARNING!

### (Model Rocket)

A flying model rocket is a scientifically designed educational model . . . not a toy! If misused, it can be dangerous. It is capable of attaining speeds up to 300 mph. It should be used only as instructed and treated with care and respect.

### (Model Rocket Engine)

Solid Propellant Rocket Reaction Engines are specifically designed for the sole purpose of propelling model rocket vehicles. They have been scientifically designed, produced on automatic machinery, and subjected to rigid statistical quality control tests. It is very important, however, that caution be exercised in their use. **ALL INSTRUCTIONS MUST** be read thoroughly first and followed completely. Model Rocket engines are designed for one purpose only. They are not toys, and their misuse must be absolutely avoided. Model rocketry has proven itself to be as safe as any other hobby when common sense codes are followed.

### **Model Rockets must be electrically launched using the MPC "Lunar-Lectric" or similar launch system.**

During an actual launching, the person in control of the firing switch should not stand closer than 12 feet from the rocket. Be sure everyone else is back at least 25 feet.

T Minus 10—**PRE-FLIGHT SAFETY CHECK:** Engine installed tightly; nose cone and recovery system GO; fins straight and undamaged.

T Minus 9—**FIRING SYSTEM SAFETY KEY IN HAND!**

T Minus 8—Load Launcher. Model slides freely on launch rod.

T Minus 7—Clean firing systems clips. Hook up ignitor.

T Minus 6—Adjust launcher tilt for wind.

T Minus 5—Clear launching area.

T Minus 4—**RANGE SAFETY CHECK:** Launch area clear. No aircraft overhead.

T Minus 3—**KEY IN.** Panel armed.

T Minus 2—**CONTINUITY LIGHT ON.**

T Minus 1—**IGNITION SEQUENCE START.**

T Minus 0 **ENGINE IGNITION LIFT OFF.**

**MISFIRE PROCEDURE:** Release firing switch. Remove safety key. Wait one minute. Approach launcher carefully. Keep hands and fingers from under model. Keep head, body and hands to side of model. Initiate misfire cause tests.

## MODEL ROCKETRY SAFETY CODE

1. **CONSTRUCTION** My model rockets will be made of light-weight 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 oz.) 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 10 feet 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 places.
13. **LAUNCH TARGETS AND 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.



MICROSONDE 3

# FLYING

MODEL ROCKET KIT



8-2008



FOR BEST RESULTS, REMOVE  
THE TOP CAPSULE

BEFORE LAUNCH

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TOP CAPSULE

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READ AND FOLLOW  
ALL INSTRUCTIONS  
BEFORE LAUNCHING  
MODEL ROCKETS.



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STAINLESS STEEL  
SPECIAL PURPOSE  
SPECIAL PURPOSE  
SPECIAL PURPOSE

PLUMBING Pliers



FOR USE WITH  
SPECIAL PURPOSE  
SPECIAL PURPOSE

Special Purpose



Special Purpose

Special Purpose

Special Purpose

Special Purpose

Special Purpose

Special Purpose

Special Purpose



Special Purpose

Special Purpose