





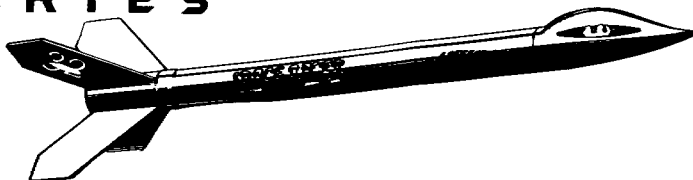
ESTES INDUSTRIES  
1295 H STREET  
PENROSE, CO 81240 USA

# BETA™ SERIES

# SPACE RACER™

## FLYING MODEL ROCKET KIT

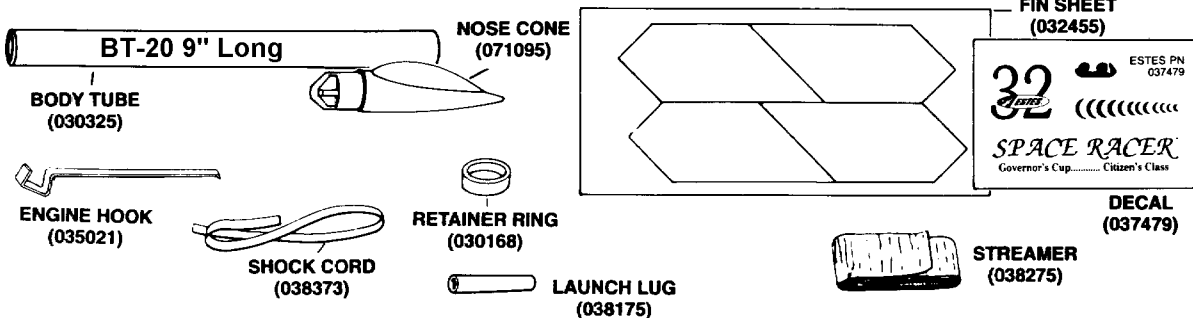
EST 2039



## HOW TO USE THESE INSTRUCTIONS: READ ALL INSTRUCTIONS BEFORE STARTING WORK ON THIS MODEL.

- A. This rocket, incorporating basic model rocketry construction techniques, will help you in the continuing development of your rocketry modeling skills.
- B. Read each step first and visualize the procedure thoroughly in your mind before starting construction.
- C. Lay the parts out on the table in front of you. (Check inside tubes for any small parts.)
- D. Use the parts layout to match all parts contained in kit.
- E. Collect all construction supplies that are not included in this kit.
- F. Test fit parts before applying any glue.
- G. The construction supplies required for each step are listed at the beginning of each step.
- H. Check off each step as you complete it.

## PARTS LAYOUT



**EXTREMELY IMPORTANT: THE PARTS LAYOUT IS FOR REFERENCE ONLY!**  
The parts layout is only intended to assist you in locating the parts included in this kit.

## CONSTRUCTION SUPPLIES

In addition to the parts included in your kit, you will need these construction supplies. Each step shows which supplies will be required.



SCISSORS



PENCIL



HOBBY KNIFE



SANDPAPER



WOOD GLUE  
(white or yellow)



MASKING TAPE



SPRAY PAINT



SPRAY PAINT  
(clear coat)



PRIMER  
(optional)



ROCKET BUILDER'S MARKING GUIDE  
(EST 2227) (optional)

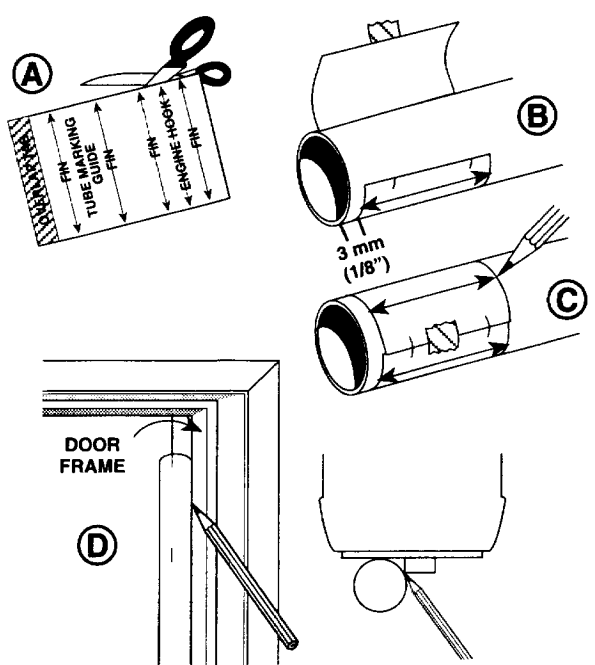
**GLUE IS APPLIED TO SURFACES SHOWN IN RED.**

# 1. TUBE MARKING DETAIL



**HINT:** Fins can be glued on easier by lightly sanding the body tube with #600 grit sandpaper. Do this before you mark the body tube.

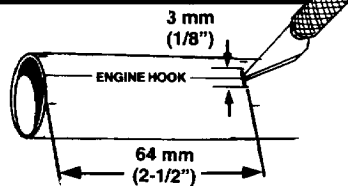
- A.** Locate and cut out the tube marking guide on the top of page 5.
- B.** Wrap the guide around the body tube 3 mm (1/8") from one end and tape it in place.
- C.** Mark tube at all arrow locations. Extend engine hook line 102 mm (4"). Remove marking guide.
- D.** Using a door frame as a guide, draw straight lines connecting each pair of fin marks. Extend these lines 102 mm (4") along the tube. Optional: You can use the Rocket Builder's Marking Guide™ to mark the tube. Use the BT-20 and four fin markings.



# 2. TUBE SLITTING



- Cut a 3 mm (1/8") wide engine hook slit 64 mm (2-1/2") from end of tube on engine hook line.



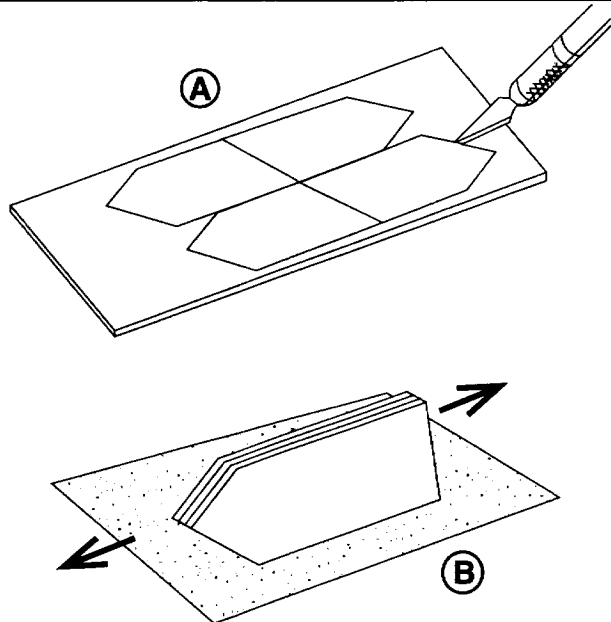
# 3. FIN PREPARATION



**NOTE:**

- Since your fins are not completely cut out of the white card stock, you will need to work carefully with your hobby knife to free the fins from the card.
- Be sure to cut completely around each fin outline before attempting to remove fins from the card.
- Check both sides of the card to make sure you cut through.
- Pay close attention to the corner areas where die cutting is not complete.
- As you cut around each fin, cut away from the adjacent fins so you will not damage the others fins on the card.

- A.** Free the fins from the card stock with your hobby knife.
- B.** Lay sandpaper, rough face up, on your table. Stack fins together and lightly sand all edges smooth and flat.

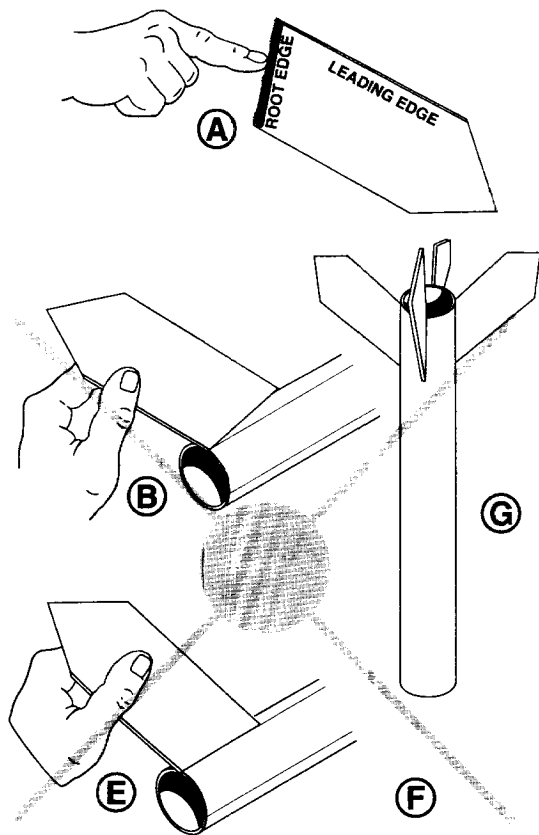


## 4. FIN ATTACHMENT



NOTE: Before gluing your fins, match the fin shape to the fin pattern shown in this step. Identify the root edge that will be glued to the body tube and the front (leading) edge. This will help you attach your fins correctly. Remember: Fins must be attached correctly for stable flights.

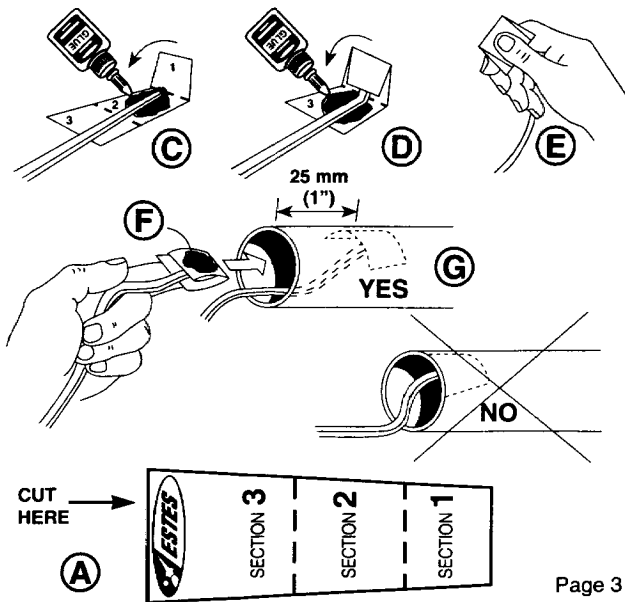
- A.  Apply a thin film of glue to the root edge of one fin.
- B.  Set the rear of the root edge of the fin on the bottom edge of the body tube and gently press the root edge along the body tube fin line.
- C.  Remove and allow glue to become tacky.
- D.  Add a bit more glue. Place back on tube line.
- E.  Carefully adjust the fin, if needed, so it will project straight up from body tube. Work slowly and carefully so as not to disturb the glue joint. Attach remaining fins in same manner. Do not set rocket on fins while glue is wet.
- F.  After all fins are attached, use shaded end view to check proper fin spacing.
- G.  Important: Stand rocket on table as shown. Allow fins to dry for five minutes or more before proceeding.



## 5. SHOCK CORD MOUNT ASSEMBLY/ATTACHMENT



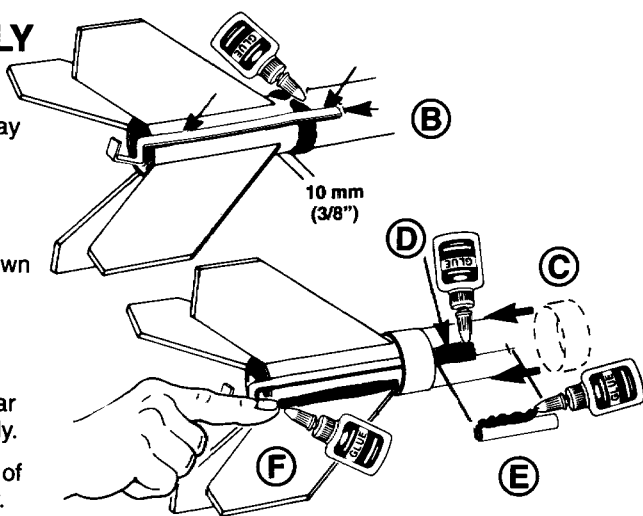
- A.  Cut out the shock cord mount to the right below.
- B.  Crease on dotted lines by folding.
- C.  Spread glue on section 2 and lay end of shock cord into glue at a slight diagonal as shown.
- D.  Fold section 1 forward. Apply glue to section 3. Fold forward again.
- E.  Clamp firmly with your fingers for two minutes until glue dries.
- F.  Apply glue to back side of the complete shock cord mount.
- G.  Push the shock cord mount against the inside of the body tube about 25 mm (1") from the forward edge. Allow glue to dry.



## 6. ENGINE HOLDER ASSEMBLY



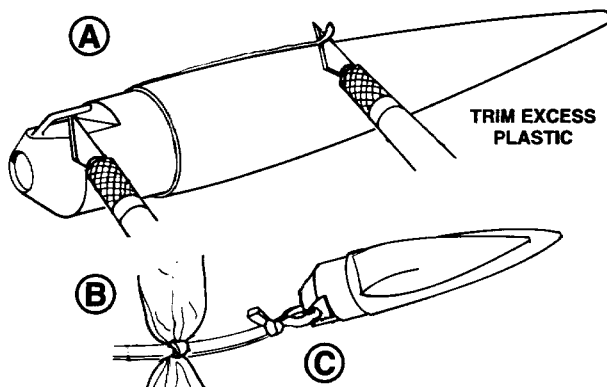
- A.  Push one end of engine hook into slit and lay hook straight along tube.
- B.  Apply a bead of glue around tube 10 mm (3/8") in front of fins.
- C.  Slide retainer ring over engine hook and down to edge of fins.
- D.  Add glue reinforcement to engine hook as shown.
- E.  Glue launch lug beside engine hook with rear against retainer ring. Let glue dry completely.
- F.  Apply a reinforcement of glue on each side of fins and launch lug. Let glue dry completely.



## 7. STREAMER AND NOSE CONE ATTACHMENT



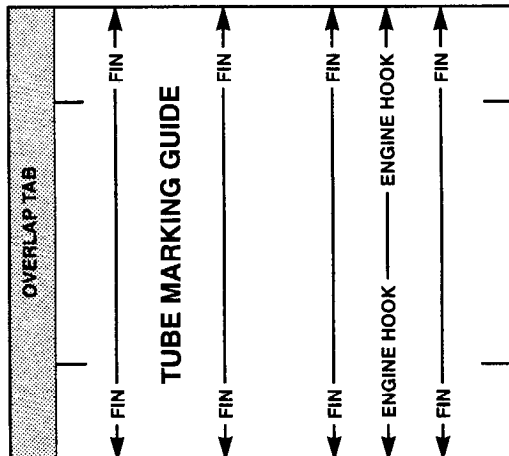
- A.  Trim excess plastic from around sides of nose cone with a sharp knife. Also remove any excess plastic from inside molded eyelet. Wipe nose cone with damp cloth to remove oil and dirt.
- B.  Tie streamer to shock cord.
- C.  Tie shock cord to nose cone with double knot.



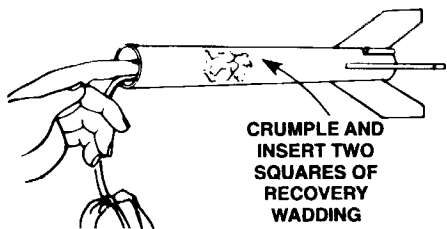
## FINISHING YOUR ROCKET

Optional: Before painting, spray entire model with automotive primer. Let primer dry. Lightly sand (#600 grit) before painting. Primer will allow the paint to adhere better and give your Space Racer™ a smoother finish. When completely dry, paint entire model with gloss Scarlet Red enamel spray paint. Allow paint to dry overnight.

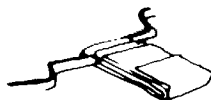
To apply decals, cut each from decal sheet, dip in lukewarm water for about 30 seconds and hold until it uncurls. Refer to the front of panel for decal placement. Slip decal off backing sheet onto model. Blot away excess water. For best results, let decals dry overnight and apply a coat of clear gloss spray to protect decals.



## ROCKET PREFLIGHT



CRUMPLE AND  
INSERT TWO  
SQUARES OF  
RECOVERY  
WADDING



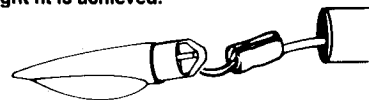
FOLD STREAMER  
IN HALF SIX TIMES



ROLL  
STREAMER  
TIGHTLY

NOTE: If nose cone fits too loosely, wrap tape around the shoulder until a snug but not tight fit is achieved.

INSERT SHOCK CORD, STREAMER AND NOSE CONE INTO ROCKET.

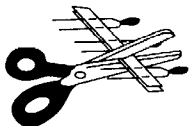


NOSE CONE COCKPIT MUST BE ON OPPOSITE SIDE FROM LAUNCH LUG

NOTE: If streamer fits too tightly into body, remove and re-roll. A too-tight fit could cause an ejection malfunction during flight.

## PREPARE ENGINE

NOTE: Igniter plugs come with rocket engines. If your engines did not come with plugs, follow the instructions that came with the engines.



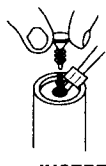
SEPARATE IGNITER AND IGNITER PLUG



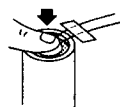
IGNITER MUST TOUCH PROPELLANT



HOLD ENGINE UPRIGHT, DROP IN IGNITER

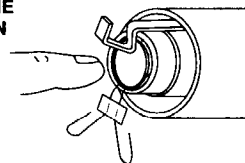


INSERT IGNITER PLUG



BEND IGNITER WIRES BACK

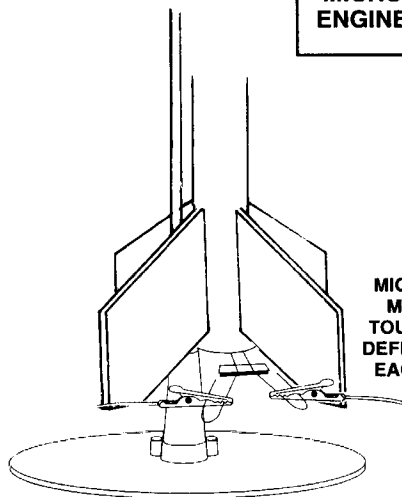
FIRMLY PUSH ALL THE WAY IN



INSERT ENGINE INTO ROCKET



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



## LAUNCH SUPPLIES

To launch your rocket, you will need the following items:

- Estes Electrical Launch Controller and Launch Pad
  - Estes Recovery Wadding No. 2274
  - Recommended Estes Engines: 1/2A6-2 (First Flight), A8-3, A8-5, B4-4, B6-4, B8-5, C5-3, C6-3, C6-5, or C6-7
- To become familiar with your rocket's flight pattern, use a 1/2A6-2 engine for your first flight.  
Use only Estes products to launch this rocket.

## FLYING YOUR ROCKET

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

Launch area must be free of dry weeds and brown grass. Launch only during calm weather with little or no wind and good visibility.

**If you use the E2™ or Command Control™ Launch Controllers to fly your models, use the following launch steps:**

A. After attaching micro-clips, etc., insert safety key into the controller receptacle. If the igniter clips have been attached properly to the igniter, the red L.E.D. will now begin to flash on and off and the audio continuity indicator will beep on and off.

B. Hold the yellow (left) arm button down. The L.E.D. will stop flashing and the audio indicator will produce a steady tone.

C. Verbally count down from five to zero loud enough for the bystanders to hear. Still holding the yellow arm button down, push and hold the orange (right) button down until the rocket ignites and lifts off.

## FOR YOUR SAFETY AND ENJOYMENT

Always follow the National Association of Rocketry (NAR) MODEL ROCKETRY SAFETY CODE while participating in any model rocketry activities.

## COUNTDOWN AND LAUNCH

- 10 BE CERTAIN SAFETY KEY IS NOT IN LAUNCH CONTROLLER.
- 9 Remove safety cap and slide launch lug over launch rod to place rocket on launch pad. Make sure the rocket slides freely on the launch rod. Make sure micro-clips are clean for a good electrical contact.
- 8 Attach micro-clips to the igniter wires. Arrange the clips so they do not touch each other or the metal blast deflector. Attach clips as close to protective tape on igniter as possible.
- 7 Move back from your rocket as far as launch wire will permit (at least five meters - 15 feet).
- 6 INSERT SAFETY KEY to arm the launch controller.  
Give the audible countdown 5...4...3...2...1

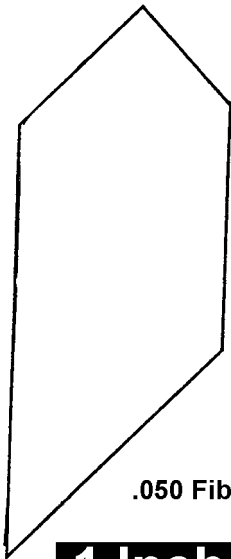
### LAUNCH!!

**PUSH AND HOLD LAUNCH BUTTON UNTIL ENGINE IGNITES REMOVE SAFETY KEY FROM LAUNCH CONTROLLER. KEEP SAFETY KEY WITH YOU OR REPLACE SAFETY KEY AND SAFETY CAP ON LAUNCH ROD.**

### MISFIRES

If the igniter functions properly but the propellant does not ignite, keep in mind the following: An Estes igniter will function properly even if the coated tip is chipped. However, if the coated tip is not in direct contact with the engine propellant, it will only heat and not ignite the engine.

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



**.050 Fiber**

**1 Inch**



ESTES PN  
037479



SPACE RACER™

Governor's Cup..... Citizen's Class

# **SPACE RACER™**

*SKILL LEVEL 1.* "Winner of the Interplanetary Governor's Cup", this racy model will fly to 1744 feet (532 m) with a C engine.

Length: 12.625" (32.1 cm) Dia.: 0.736" (18.7 mm) Wt.: 0.73 oz. (20.8 g)

**ENGINES:** 1/2A6-2 (1st Flt.), A8-3, A8-5, B4-4, B4-6, B6-4, B6-6, B8-5, C5-3, C6-3, C6-5, C6-7.

**No. 2039**



**BETA**  
SERIES

# SPACE RACER™

Flying Model Rocket  
Skill Level: 1

- Easy-To-Build
- Sleek, Futuristic High Performance Design
- Uses Many Of The Most Popular Engines

Length: 33.1 cm  
(13.0 in)

Diameter: 18.7 mm  
(0.738 in)

Weight: 20.8 g  
(0.73 oz)

Recommended Engines:

1000J, 1000F, 1000G, A6-3, A6-5, B4-C, B4-D, B6-A, B6-C, B6-D, C4-3, and C6-2

MADE IN USA

EST 2039



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PHI 84260 (Rev. 1/99)



APRAC BETA SERIES  
SPACE RACER  
MODEL ROCKET



APRAC BETA SERIES  
SPACE RACER  
MODEL ROCKET