



estesrockets.com

PRO SERIES II

# GREAT GOBLIN™

9724

AGES  
18+



Skill Level

**INTERMEDIATE**

## MODEL ROCKET INSTRUCTIONS

### KEEP FOR FUTURE REFERENCE

**IMPORTANT:** Please record date found on decal and keep for future reference. \_\_\_\_\_

**READ ALL INSTRUCTIONS.** Make sure you have all parts and supplies. Test fit all parts before applying glue. Refer to your glue manufacturer's dry times during build.

### SUPPLIES



SCISSORS



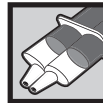
PENCIL



RULER



YELLOW GLUE



EPOXY



HOBBY KNIFE



MASKING  
TAPE



WHITE PRIMER



YELLOW &  
BLACK PAINT



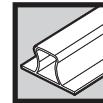
CLEAR COAT  
(OPTIONAL)



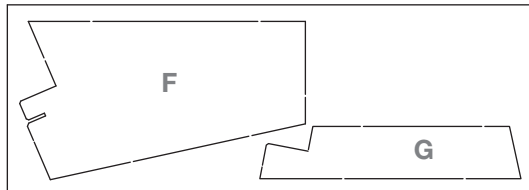
WAX PAPER



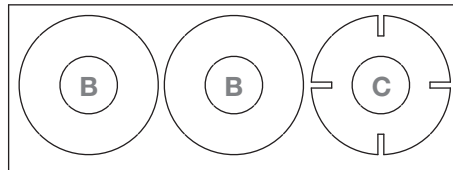
FINE  
SANDPAPER



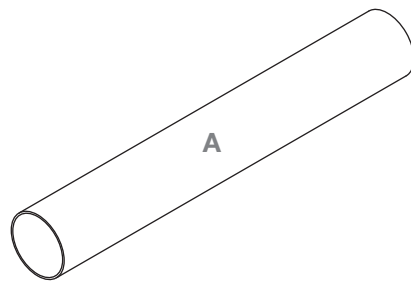
SANDING  
BLOCK



090051-9724  
Laser-Cut Balsa **x4**



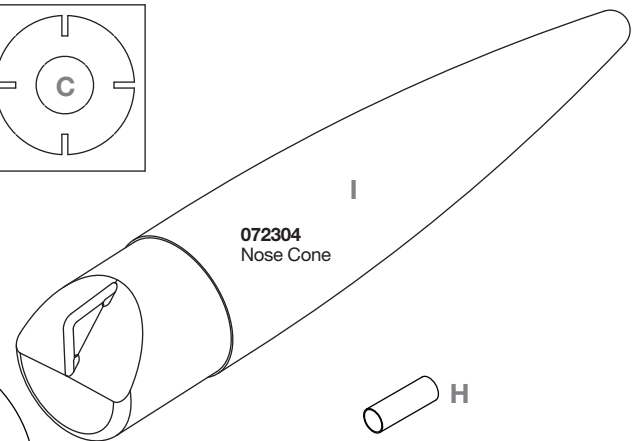
090052-9724  
Laser-Cut Cardstock Centering Rings



31360  
8 in. Engine Mount Tube



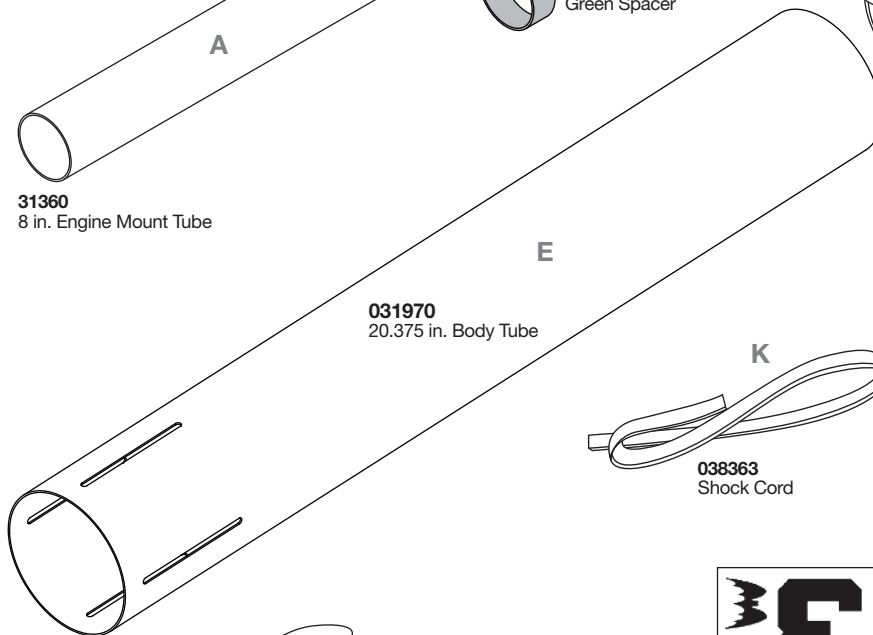
D  
31362  
Green Spacer



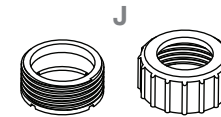
072304  
Nose Cone



H  
038181  
Launch lug **x2**



031970  
20.375 in. Body Tube



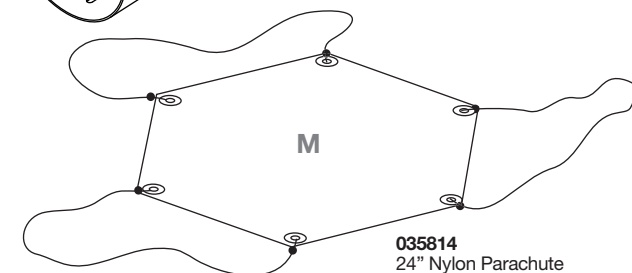
J  
072412  
Engine Retainer



K  
038363  
Shock Cord



L  
084445  
Paper Shock Cord Mount



M  
035814  
24" Nylon Parachute



090001-9724  
Waterslide Decal

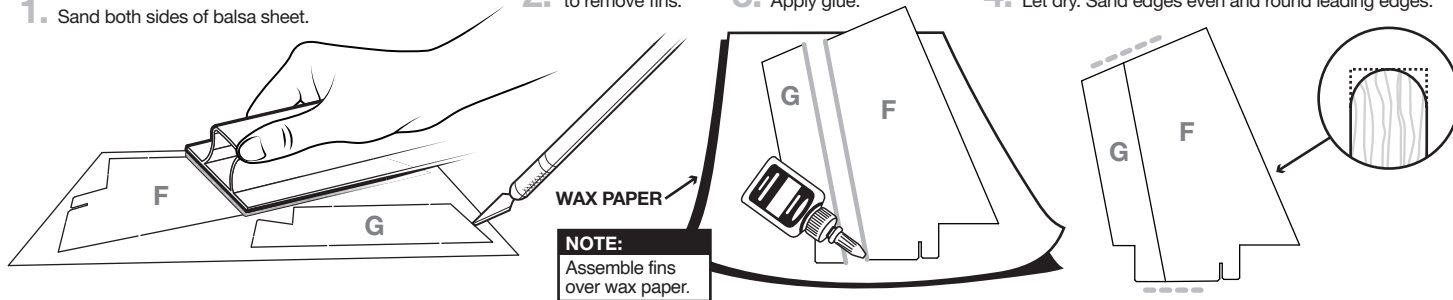
## PREPARE FINs

1. Sand both sides of balsa sheet.

2. Use hobby knife to remove fins.

3. Apply glue.

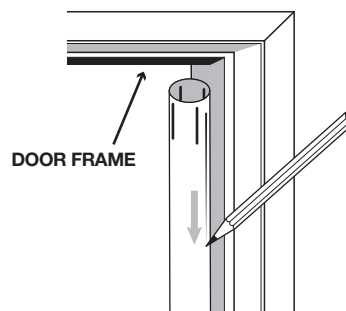
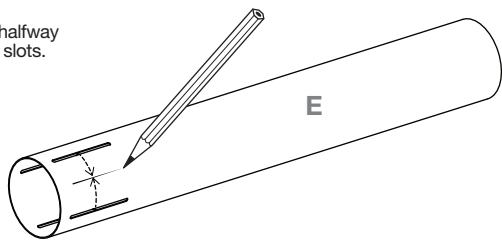
4. Let dry. Sand edges even and round leading edges.



## MARK BODY TUBE

1. Mark a line halfway between fin slots.

2. Use door frame to extend line to end of tube.

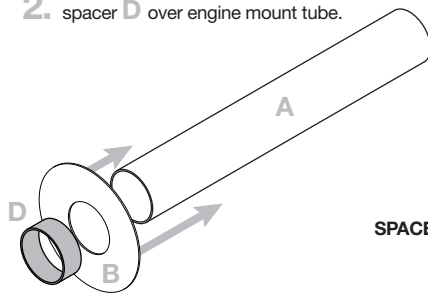
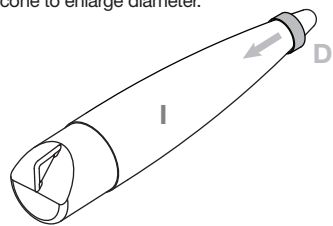


## ASSEMBLE ENGINE MOUNT

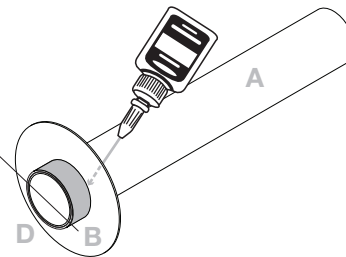
1. Push green spacer over nose cone to enlarge diameter.

2. Slide centering ring B and green spacer D over engine mount tube.

3. Apply glue to centering ring on opposite side of spacer.

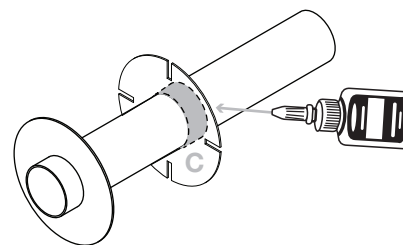
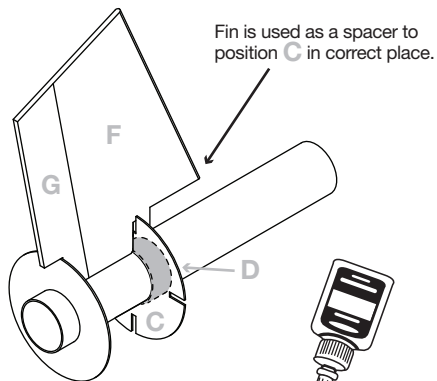
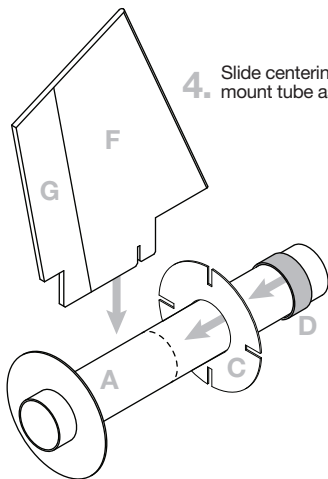


ENDS EVEN  
REMOVE GREEN SPACER IMMEDIATELY



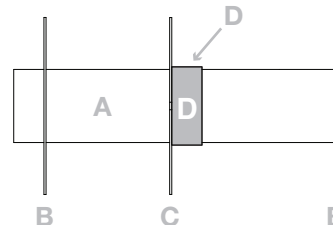
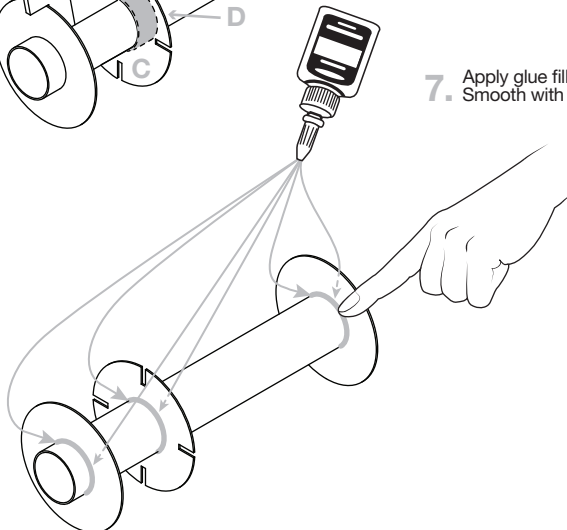
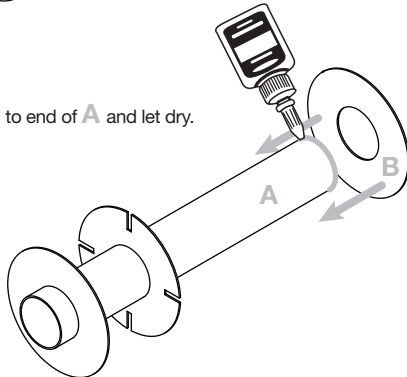
4. Slide centering ring C and green spacer over engine mount tube as shown.

5. Remove fin and glue C and D in place. Use fin to confirm position after gluing.



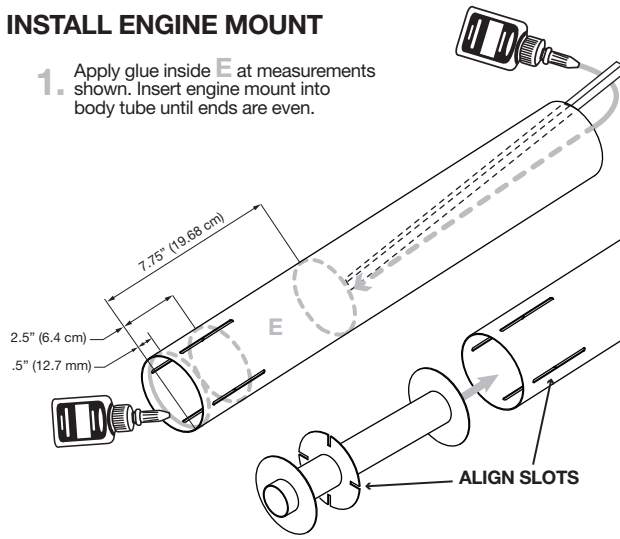
6. Glue B to end of A and let dry.

7. Apply glue fillets to both sides of B and C. Smooth with finger.

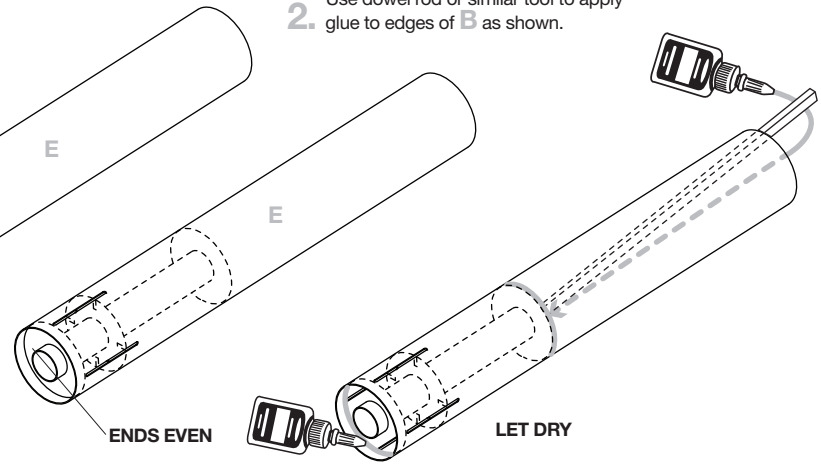


## INSTALL ENGINE MOUNT

1. Apply glue inside **E** at measurements shown. Insert engine mount into body tube until ends are even.

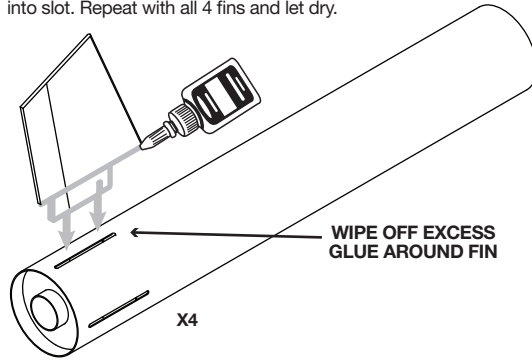


2. Use dowel rod or similar tool to apply glue to edges of **B** as shown.

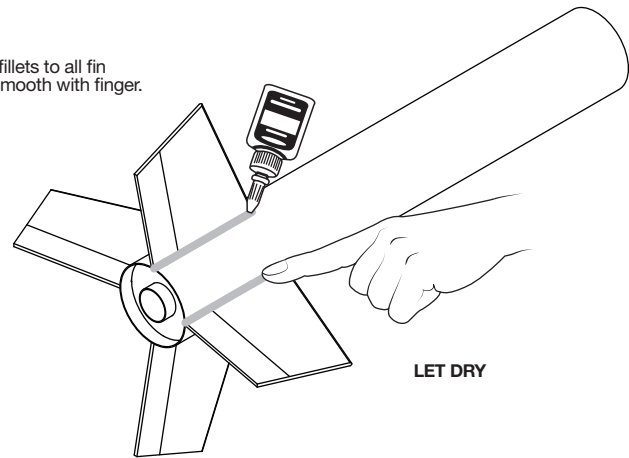


## ATTATCH FINS

1. Apply glue to fin as shown and insert into slot. Repeat with all 4 fins and let dry.

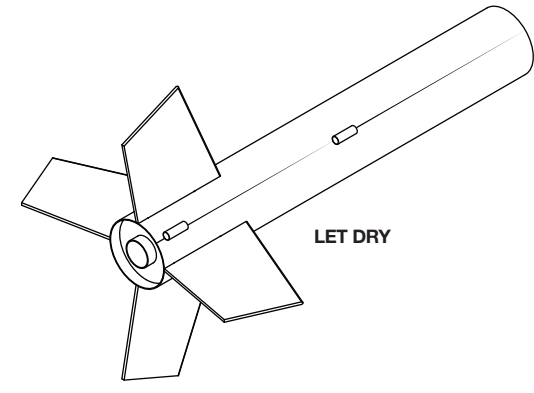
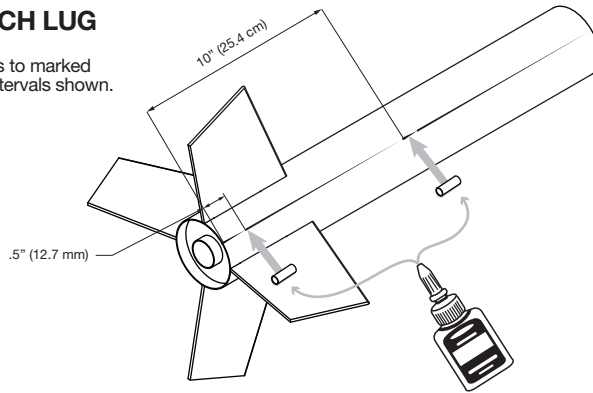


2. Apply glue fillets to all fin joints and smooth with finger.



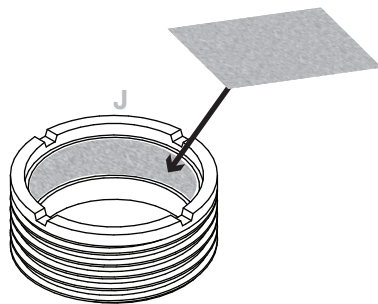
## ATTATCH LAUNCH LUG

1. Glue launch lugs to marked pencil lines at intervals shown.

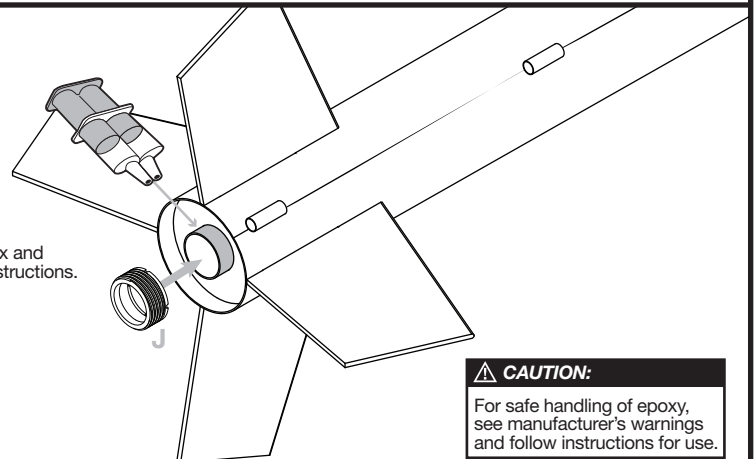


## ATTATCH ENGINE RETAINER

1. Rough up inside surface of **J** with sandpaper.



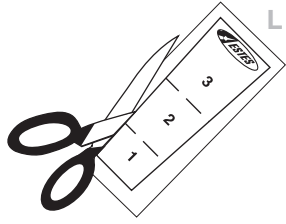
2. Attach with epoxy. Mix and apply according to instructions.



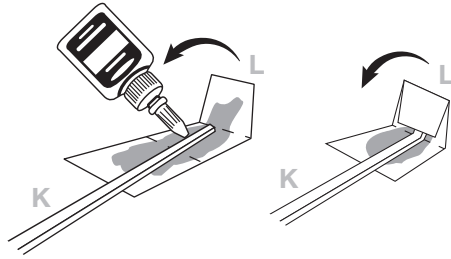
**CAUTION:**  
For safe handling of epoxy, see manufacturer's warnings and follow instructions for use.

## ATTACH SHOCK CORD

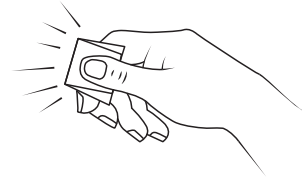
1. Cut out paper shock cord mount.



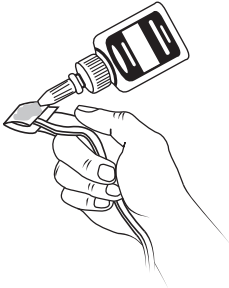
2. Apply glue to L. Hold shock cord in place and fold L along lines.



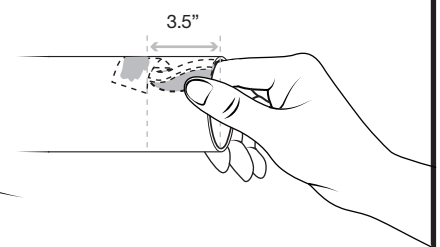
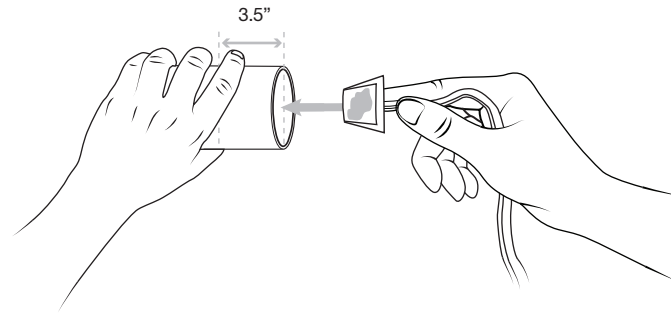
3. Hold until set.



3. Apply glue to shock cord mount.

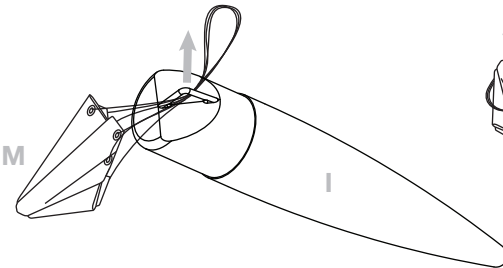


4. Glue shock cord to inside of body tube. Use finger to hold in place until glue sets.

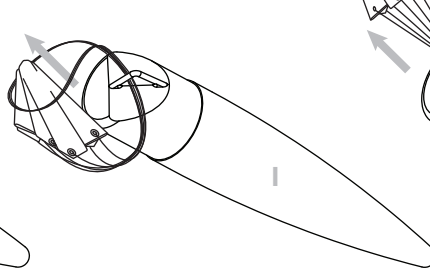


## ATTACH RECOVERY SYSTEM

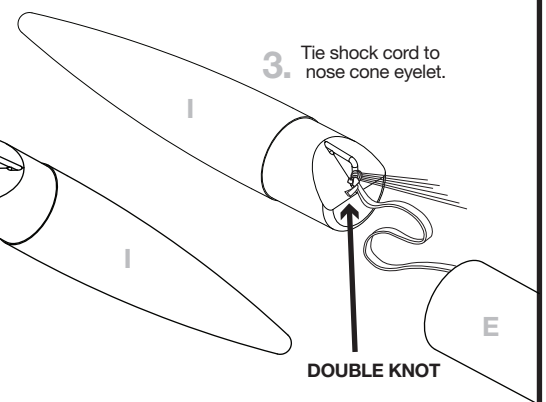
1. Thread parachute strings through nose cone eyelet.



2. Bring parachute through loop in strings and pull tight.

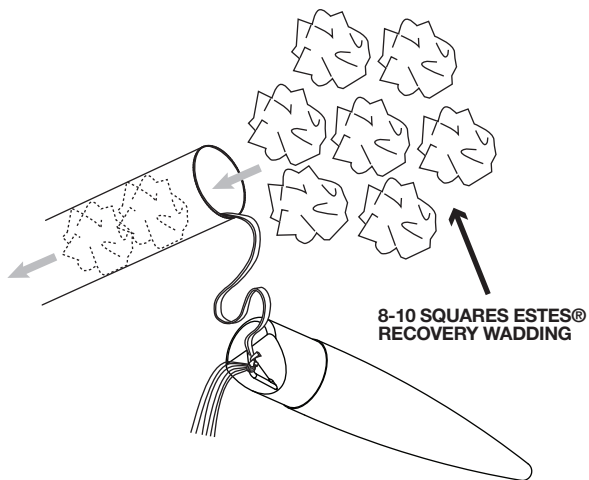


3. Tie shock cord to nose cone eyelet.

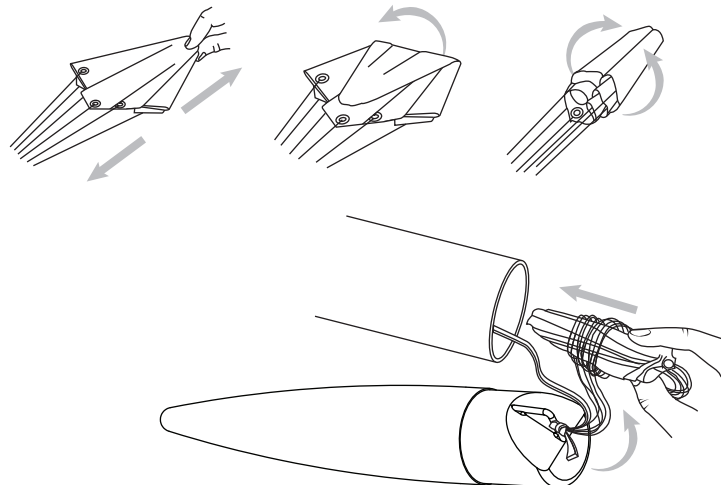


## PREPARE FLIGHT RECOVERY

1. Push recovery wadding to bottom of body tube.

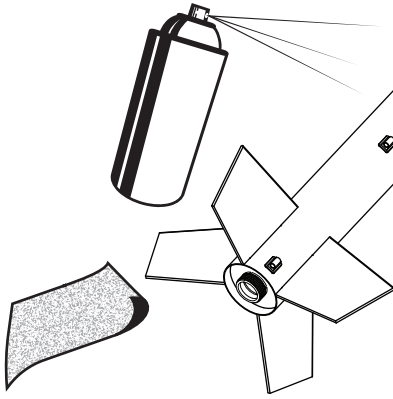


2. Fold parachute as shown. Wrap parachute lines loosely and insert into body tube. Recovery wadding and parachute must slide easily into body tube; redo if too tight.

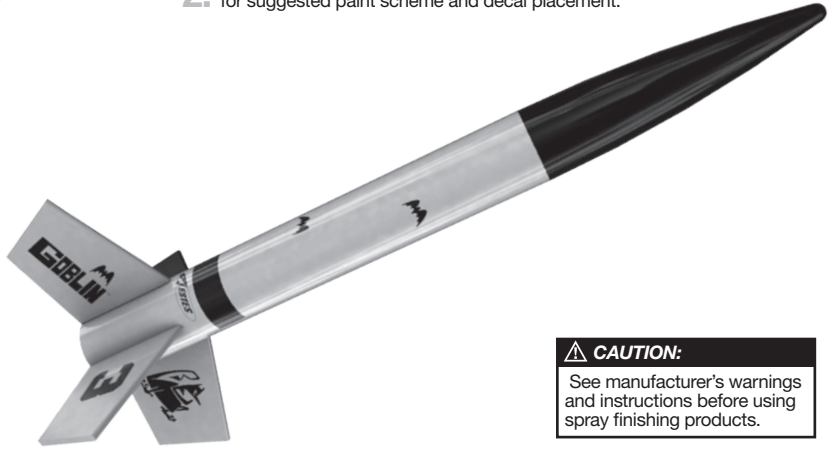


## ROCKET FINISHING

1. Spray rocket with white primer. Let dry, then sand. Repeat until rocket is smooth.



2. Paint rocket. Let dry, then apply decals. Refer to packaging for suggested paint scheme and decal placement.

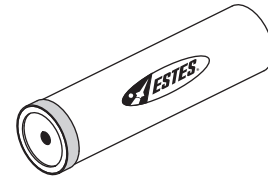
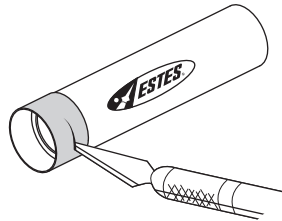
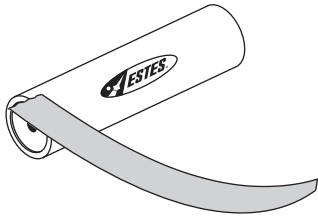


### CAUTION:

See manufacturer's warnings and instructions before using spray finishing products.

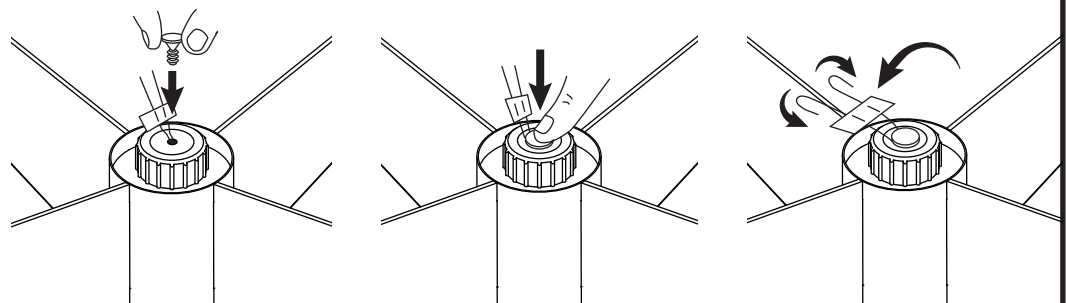
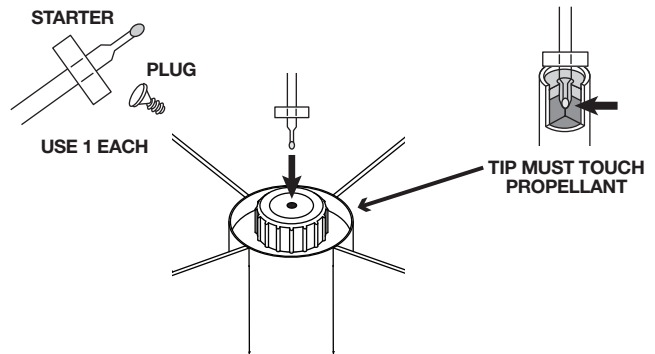
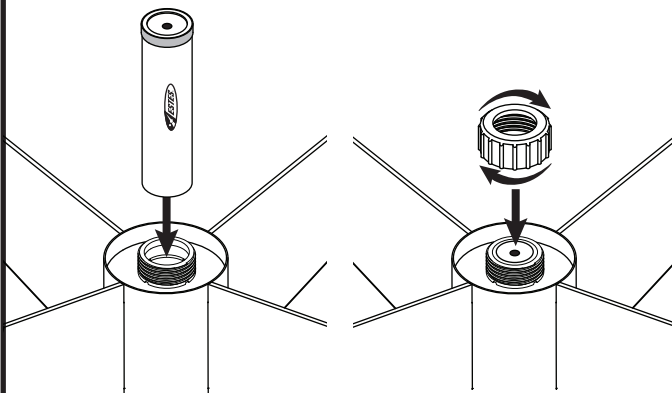
## PREPARE ENGINE RETENTION

1. Wrap 6 to 8 layers of masking tape over nozzle end of motor. Overlap end of engine by 1/4 inch (6 mm).
2. Trim off excess tape.



## PREPARE ENGINE

1. Insert engine into retainer and screw on cap.
2. Insert starter and plug into engine as shown. Fold starter wires over and bend the ends.

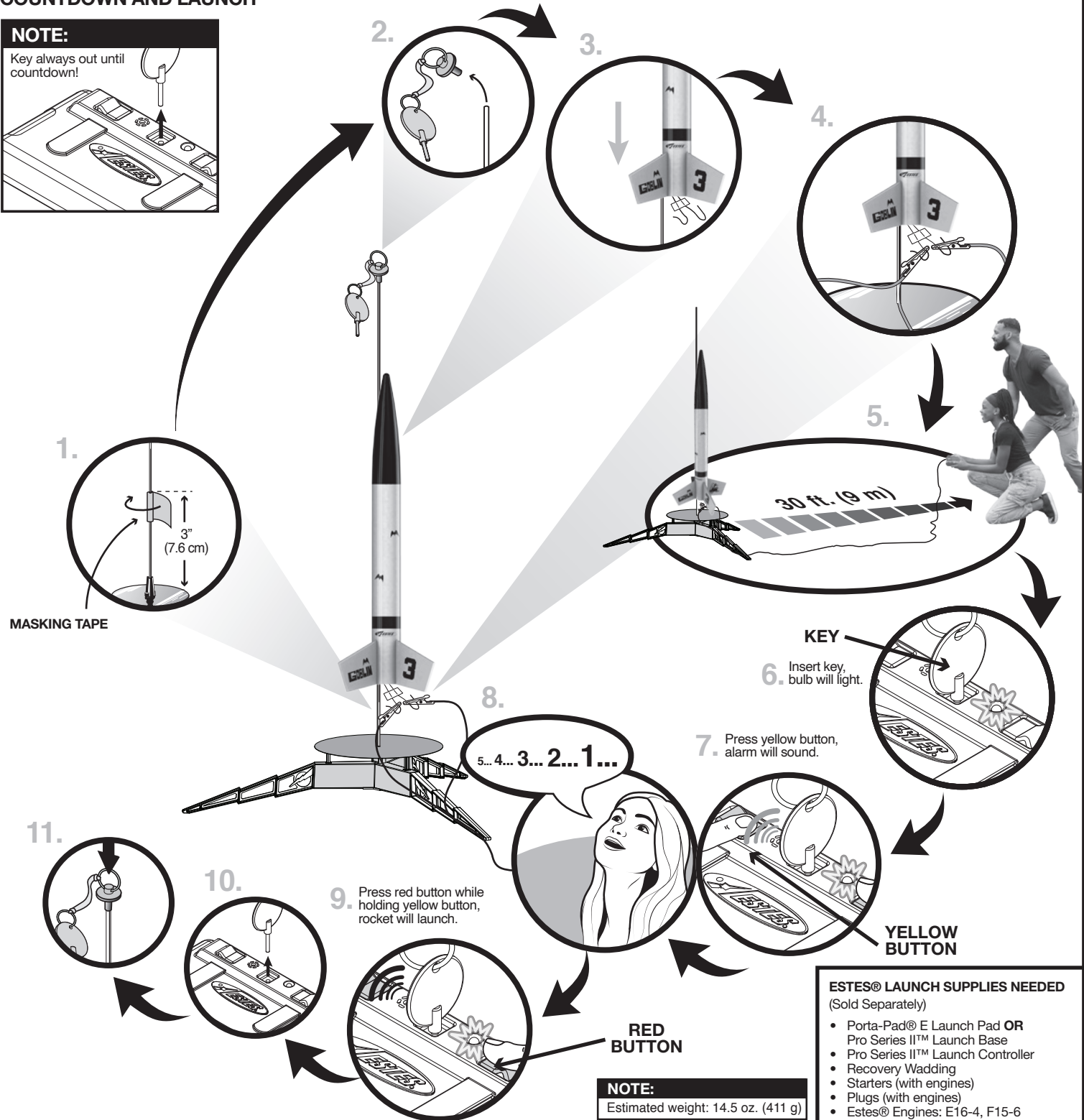


### WARNING: FLAMMABLE

To avoid serious injury, read instructions & NAR Safety Code included with engines. **PREPARE YOUR ENGINE ONLY WHEN YOU ARE OUTSIDE AT THE LAUNCH SITE PREPARING TO LAUNCH.** If you do not use your prepared engine, remove the starter before storing your engine.

## COUNTDOWN AND LAUNCH

**NOTE:**  
Key always out until  
countdown!



- ESTES® LAUNCH SUPPLIES NEEDED**  
(Sold Separately)
- Porta-Pad® E Launch Pad OR Pro Series II™ Launch Base
  - Pro Series II™ Launch Controller
  - Recovery Wadding
  - Starters (with engines)
  - Plugs (with engines)
  - Estes® Engines: E16-4, F15-6

**NOTE:**  
Estimated weight: 14.5 oz. (411 g)

## PRECAUTIONS

NAR SAFETY CODE

NO DRY GRASS OR WEEDS

**PRE-LAUNCH CHECK** For safety, never launch a damaged rocket. Check the rocket's body, nose cone and fins. Also, check the engine mount, recovery system and launch lug(s). Repair any damage before launching the rocket.

**FLYING YOUR ROCKET** Choose a large field (1000 ft. [305 m] square) free of dry weeds and brown grass. The larger the launch area, the better your chance of recovering your rocket. Launch only with little or no wind and good visibility. Always follow the National Association of Rocketry (NAR) SAFETY CODE (enclosed).

**MISFIRES TAKE THE KEY OUT OF THE CONTROLLER. WAIT ONE MINUTE BEFORE GOING NEAR THE ROCKET.** Disconnect the micro-clips and remove the engine. Take the plug and starter out of the engine. A burned starter means the starter tip was not touching engine propellant. Install a new starter; be sure the tip is touching propellant inside the engine. Push the plug in place. Repeat steps under Countdown and Launch.