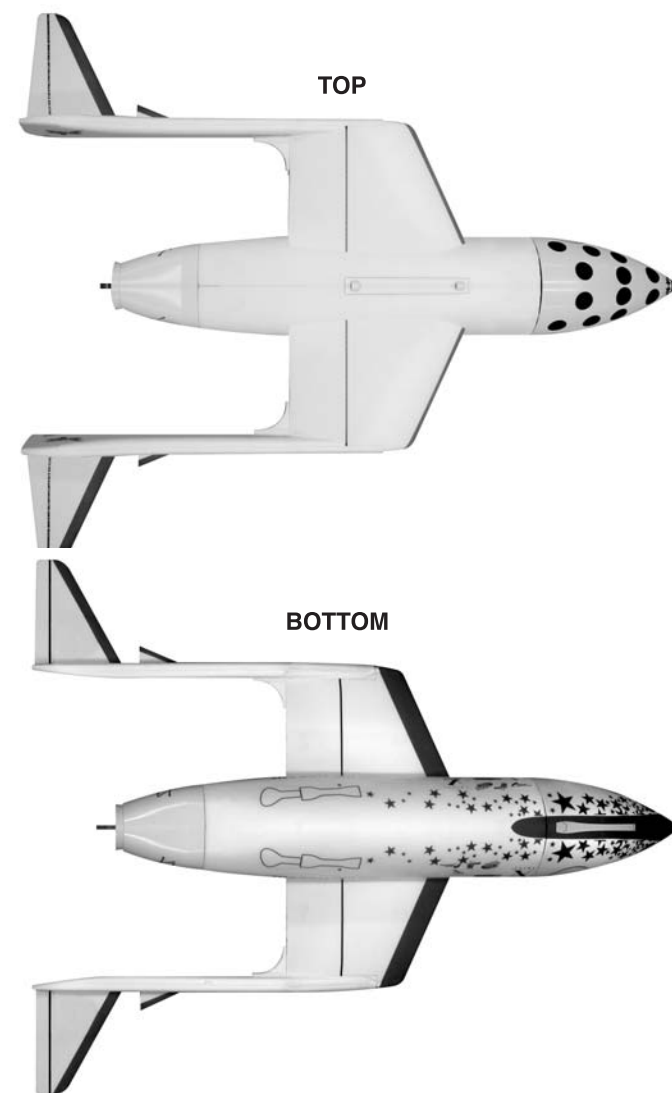


FINISHING YOUR ROCKET (CONT.)

C. Peel decals, one at a time, from backing sheet and apply where shown. Rub down to remove bubbles.



LEFT SIDE



RIGHT SIDE



COUNTDOWN AND LAUNCH

KEY ALWAYS OUT UNTIL FINAL COUNTDOWN!

1... MASKING TAPE

2...

3...

4... INSERT KEY. PUSH DOWN FIRMLY AND HOLD.

5... HOLD KEY DOWN AND PRESS LAUNCH BUTTON UNTIL LIFT-OFF!

30 FT. (10 m)

3/16" (5 mm) MAXI™ ROD

PORTA-PAD® E LAUNCH PAD

KEY

E™ LAUNCH CONTROLLER

LAUNCH BUTTON

ESTES LAUNCH SUPPLIES
(Sold Separately)

- Porta Pad® E Launch Pad (#2238)
- 3/16" (5 mm) Maxi™ Rod (#302244)
- E™ Launch Controller (#2230)
- Recovery Wadding (#302274)
- Igniters (with engines)
- Igniter Plugs (with engines)
- Recommended Engines: E9-4, E9-6

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 booms with 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 (500 ft. [152 m] square) free of dry weeds and brown grass. The larger the launch area, the better the chance of recovering your rocket. Football fields and playgrounds are great. Launch only with little or no wind and good visibility.

Always follow the National Association of Rocketry (NAR) Safety Code.

MISFIRES

TAKE THE KEY OUT OF THE CONTROLLER. WAIT ONE MINUTE BEFORE GOING NEAR THE ROCKET! Disconnect the igniter clips and remove the engine. Take the plug and igniter out of the engine. If the igniter has burned, it worked but did not ignite the engine because it was not touching the propellant inside the engine. Put a new igniter all the way inside the engine without bending it. Push the plug in place. Repeat the steps under Countdown and Launch.

REPAIRING FOAM PARTS

If you need to repair a foam part, use silicone adhesive, white glue or cyanoacrylate (CA for foam/plastic). Make sure the repaired part dries completely before attempting to launch again.



www.estesrockets.com

ESTES INDUSTRIES
1295 H Street
Penrose, CO 81240
PRINTED IN CHINA

MOJAVE AEROSPACE VENTURES

SPACESHIPONE™ (E-ENGINE)

FLYING MODEL ROCKET KIT INSTRUCTIONS
KEEP FOR FUTURE REFERENCE

#2196

ASSEMBLY TIP: Read all instructions before beginning work on your model. Make sure you have all parts and supplies.

TEST FIT ALL PARTS TOGETHER BEFORE APPLYING ANY GLUE! If any parts don't fit properly, sand as required for precision assembly.

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X PRIZE is a registered trademark of the X PRIZE Foundation and is used by permission.

PARTS

Locate the parts shown below and lay them out on the table in front of you. DO NOT USE THIS DRAWING TO ASSEMBLE YOUR ROCKET.

BT-60 7.5" (19.1 cm)

BT-50 10" (25.4 cm)

BT-52 4" (10.2 cm)

Body Tube (1) (30400)

Body Tube (1) (30456)

Green Engine Block (1) (30164-2)

Engine Tube Sleeve (1) (30386)

Black Engine Hook Retainer Ring (1) (30480)

Yellow Spacer Tool (1) (34997)

Die Cut Card RA-5060 (1) (61251)

Plastic Tail Cone (1) (61184)

Plastic Nose Cone (1) (61185)

Plastic Nose Cone Insert (1) (61186)

E-Engine Hook (1) (35022)

Decal Sheet - LEFT (1) (61176)

Decal Sheet - RIGHT (1) (61177)

Fuselage Half-A (LEFT) (1) (61180)

Fuselage Half-B (RIGHT) (1) (61181)

Plastic Launch Lug (1) (61187)

Gusset (2) (61188)

Boom-A (LEFT) (1) (61182)

Boom-B (RIGHT) (1) (61183)

Clay Weight (4) (85705)

Winglet (2) (61189)

Rubber Shock Cord 1/4" x 36" (1) (38370)

Red Nylon Assembled Parachute 18" (46 cm) (1) (35810)

SUPPLIES

In addition to the parts included in the kit you will also need:

SILICONE ADHESIVE WHITE

PENCIL

RULER

FINE SAND PAPER (#400-600 Grit)

TUBE-TYPE PLASTIC CEMENT

MODELING KNIFE

PAINT BRUSH

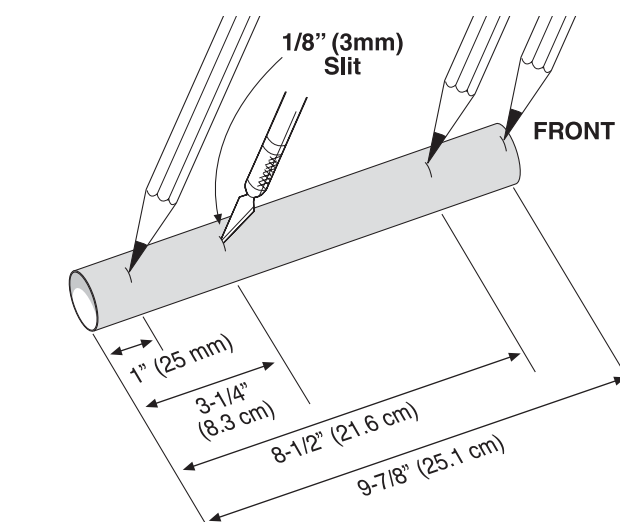
BLUE PAINTERS MASKING TAPE

RED ENAMEL PAINT

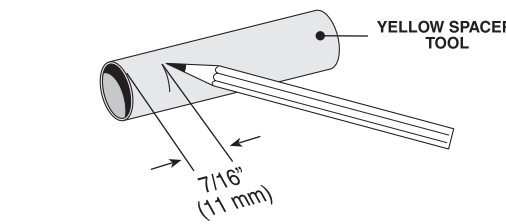
CARPENTER'S GLUE

WAX PAPER

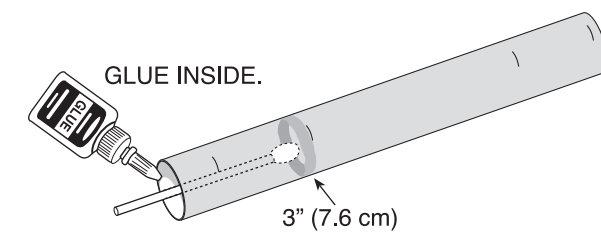
1. ASSEMBLE ENGINE MOUNT



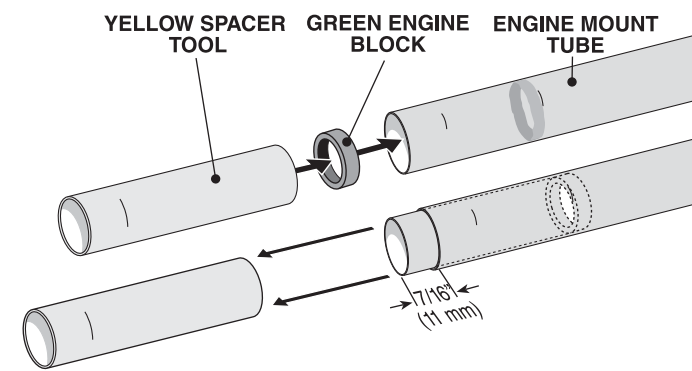
A. Mark BT-50 engine tube at 1" (25 mm), 3-1/4" (8.3 cm), 8-1/2" (21.6 cm) and 9-7/8" (25.1 cm). At the 3-1/4" (8.3 cm) mark, cut a 1/8" (3 mm) wide slit.



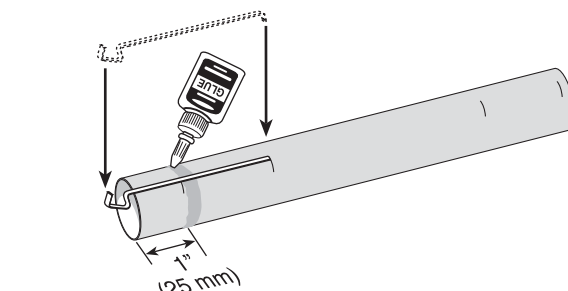
B. Mark yellow spacer tool 7/16" (11 mm) from end.



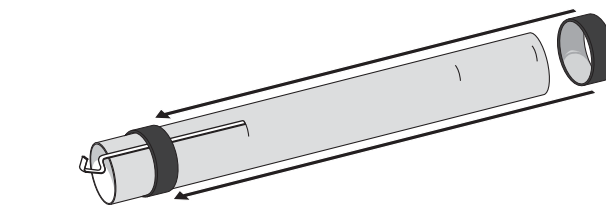
C. Use a cotton swab to smear glue 3" (7.6 cm) inside engine mount tube.



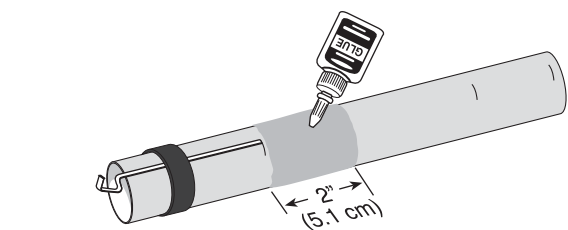
D. Push green engine block into engine mount tube with yellow spacer tool up to 7/16" (11 mm) mark. **Remove spacer tool immediately.**



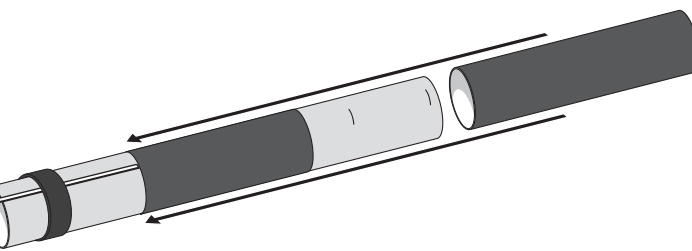
E. Position and insert engine hook into slit, then apply a ring of glue around tube just ahead of 1" (25 mm) mark.



F. Slide black engine hook retainer ring up to 1" mark. Wipe off excess glue. Let dry completely.

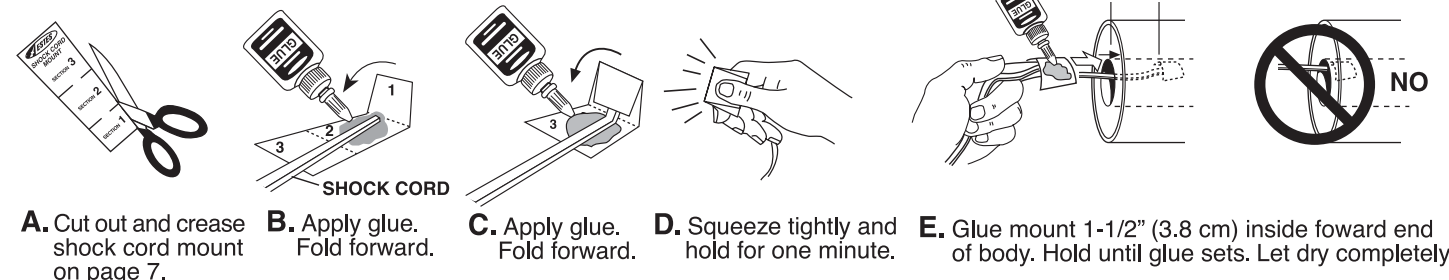


G. Apply a 2" (5.1 cm) band of glue around engine tube in front of engine hook.



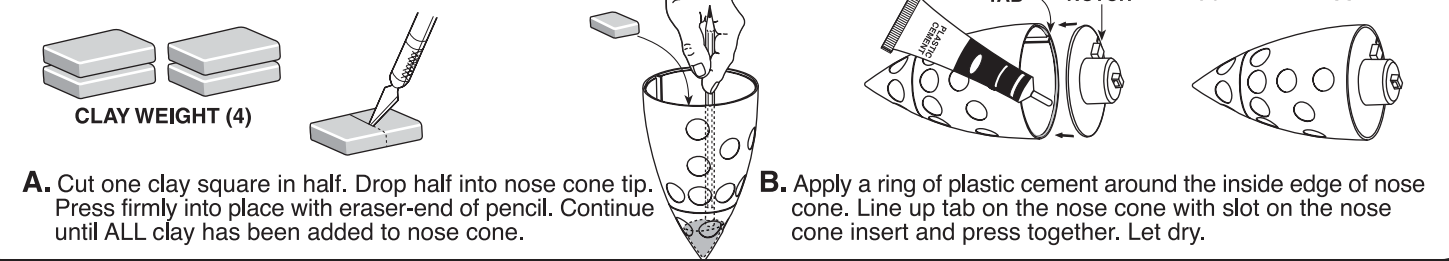
H. Slide black engine tube sleeve down engine mount tube flush with end of engine hook.

7. INSTALL SHOCK CORD MOUNT



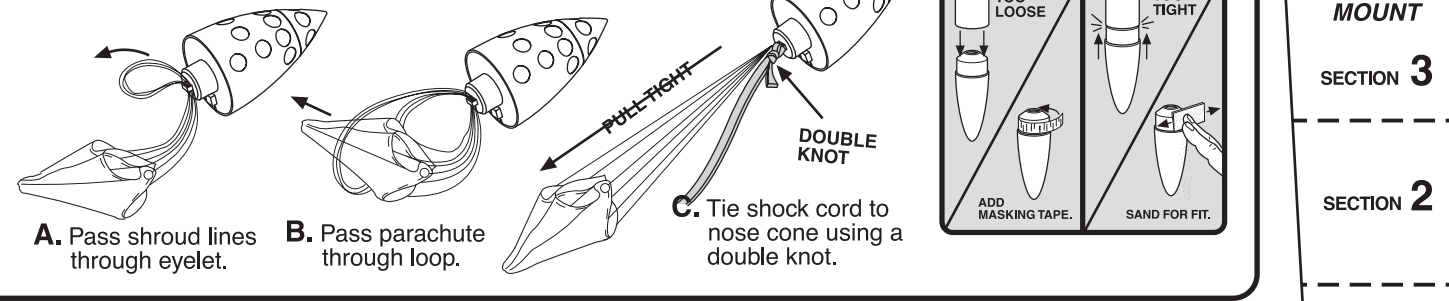
A. Cut out and crease shock cord mount on page 7. **B.** Apply glue. Fold forward. **C.** Apply glue. Fold forward. **D.** Squeeze tightly and hold for one minute. **E.** Glue mount 1-1/2" (3.8 cm) inside forward end of body. Hold until glue sets. Let dry completely.

8. INSTALL NOSE WEIGHT & ASSEMBLE NOSE CONE



A. Cut one clay square in half. Drop half into nose cone tip. Press firmly into place with eraser-end of pencil. Continue until ALL clay has been added to nose cone. **B.** Apply a ring of plastic cement around the inside edge of nose cone. Line up tab on the nose cone with slot on the nose cone insert and press together. Let dry.

9. ATTACH PARACHUTE AND SHOCK CORD

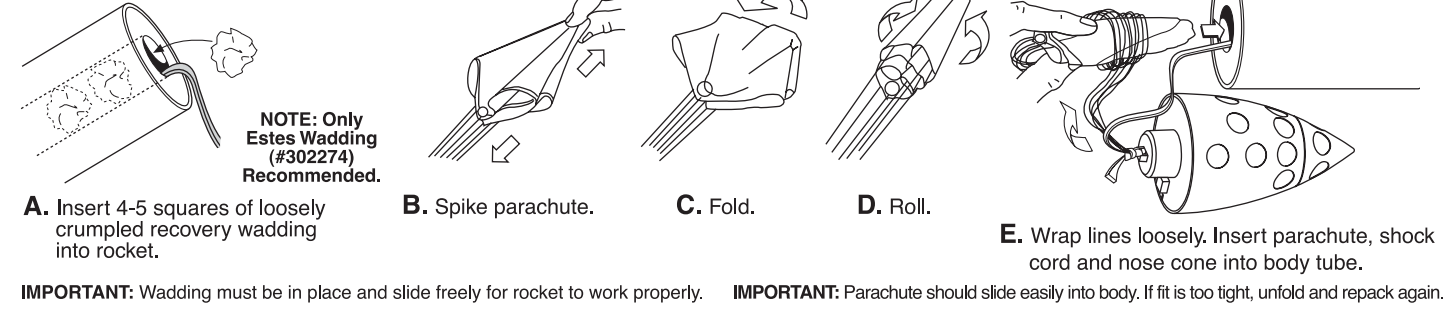


A. Pass shroud lines through eyelet. **B.** Pass parachute through loop. **C.** Tie shock cord to nose cone using a double knot.

FINISHING YOUR ROCKET

Your rocket is now ready for painting. Please refer to the finishing section.

PREPARE PARACHUTE FOR FLIGHT

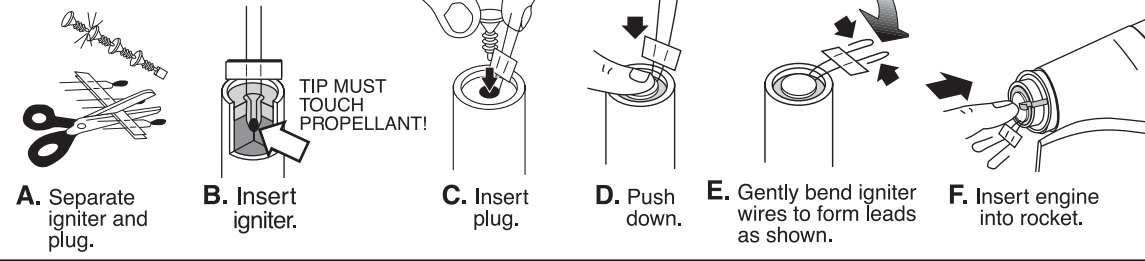


A. Insert 4-5 squares of loosely crumpled recovery wadding into rocket. **B.** Spike parachute. **C.** Fold. **D.** Roll. **E.** Wrap lines loosely. Insert parachute, shock cord and nose cone into body tube. **IMPORTANT:** Wadding must be in place and slide freely for rocket to work properly. **IMPORTANT:** Parachute should slide easily into body. If fit is too tight, unfold and repack again.

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 igniter before storing your engine.

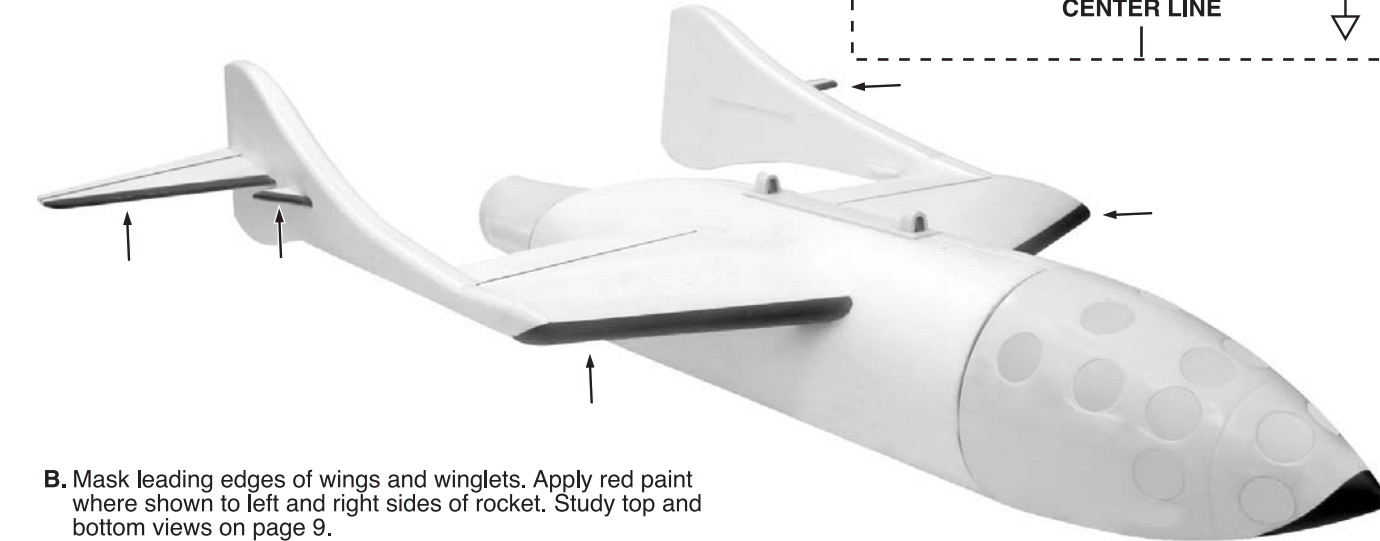
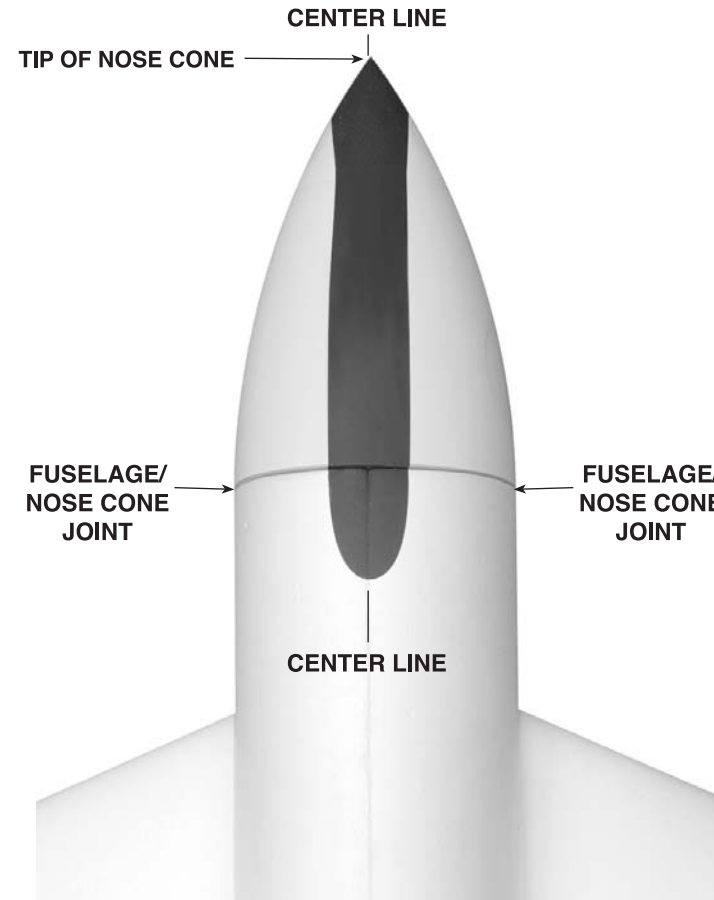
PREPARE ENGINE



A. Separate igniter and plug. **B.** Insert igniter. **TIP MUST TOUCH PROPELLANT!** **C.** Insert plug. **D.** Push down. **E.** Gently bend igniter wires to form leads as shown. **F.** Insert engine into rocket.

FINISHING YOUR ROCKET

A. Cut out red paint mask at right. Apply to underside of nose cone and body as shown and apply red paint. For best results, use only an enamel based paint. Let dry.



B. Mask leading edges of wings and winglets. Apply red paint where shown to left and right sides of rocket. Study top and bottom views on page 9.

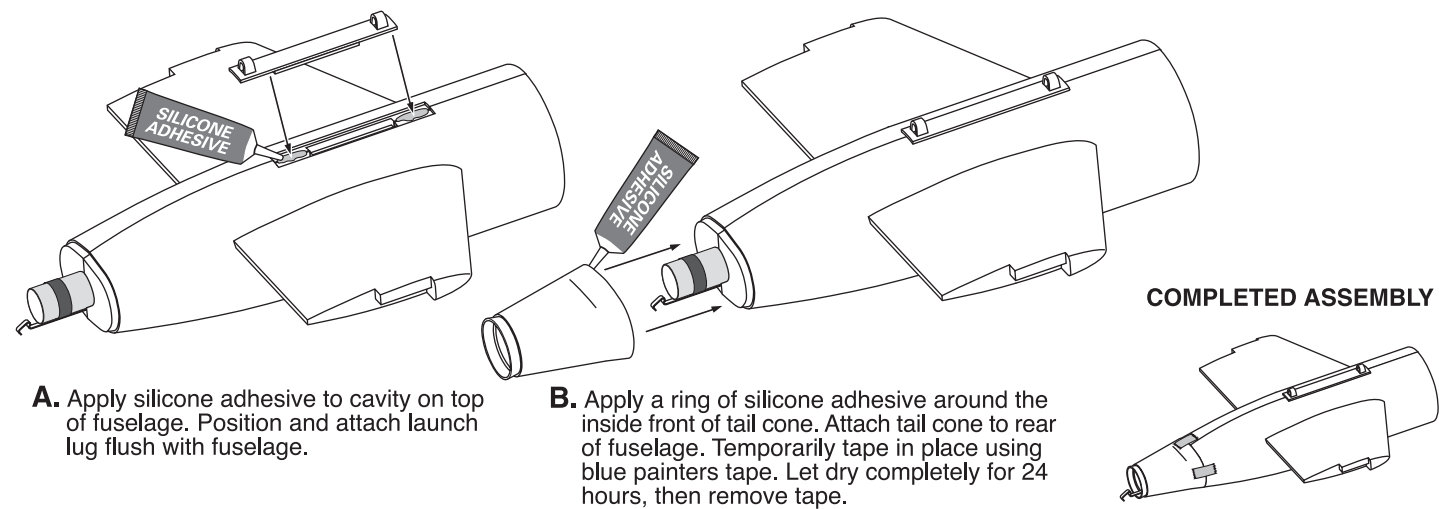


TEAM OVERVIEW Mojave Aerospace Ventures, LLC

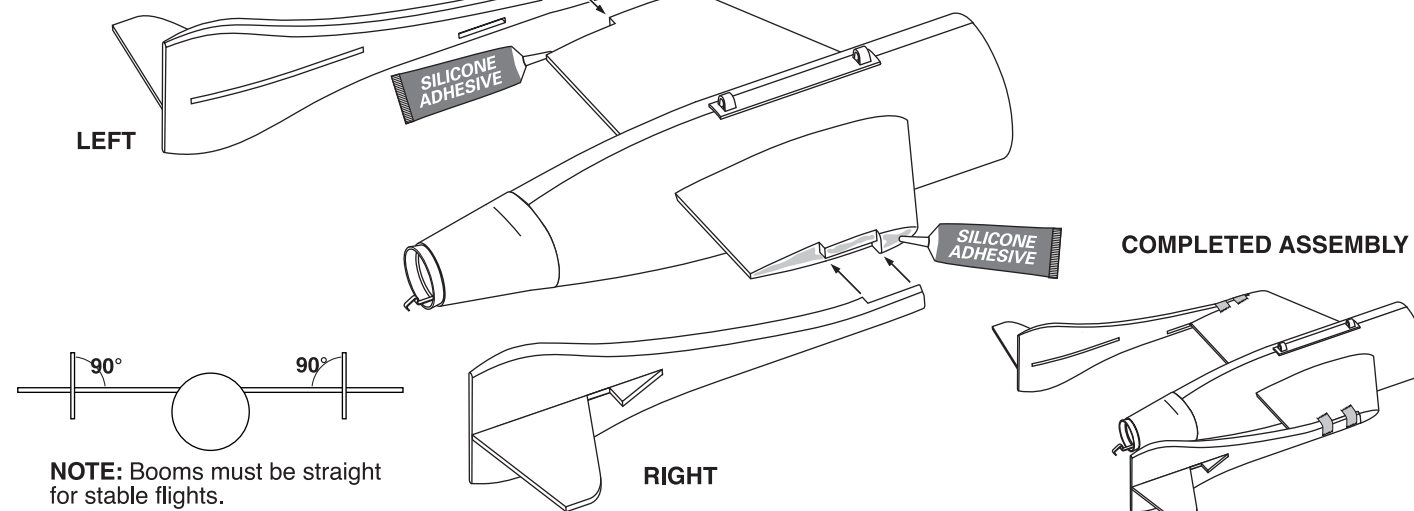
A joint venture between investor and philanthropist Paul G. Allen and Burt Rutan's Scaled Composites LLC, Mojave Aerospace Ventures was formed to investigate the possibility of commercially viable sub-orbital space flight. Allen, who is the co-founder of Microsoft® and the founder and chairman of Vulcan Inc., has been named one of the top 10 philanthropists in America. Scaled Composites is the world's most productive aerospace prototype development company. Scaled is currently developing new composite manufacturing processes for application to general and military aviation, and new space launch vehicles. The company currently employs 95 people at the Mojave, California airport.

TEAM SPECIFICATIONS:
Name: Mojave Aerospace Ventures. Website: www.vulcan.com or www.scaled.com
Country of Origin: Mojave, California, USA
VEHICLE SPECIFICATIONS:
Name: SpaceShipOne™
Wingspan: 16.4 feet (5 m) Diameter: 5.4 feet. GTOW: undisclosed. Dry Weight: undisclosed. Engines: One hybrid rocket engine. Total Thrust: undisclosed. Payload Capacity: 3 crew members.
Crew Environment: Short-leveled, pressurized cabin.
MISSION SPECIFICATIONS:
Launch Method: Carrier aircraft (White Knight™). Max Accel. Force on Ascent: 3-4 Gs. Max Speed: Mach 3.5 (240 knots). Max. Altitude: 62 miles (100 km). Time in Weightless Conditions: 210 seconds. Landing Method: Unpowered horizontal. Total Flight Duration: 90 minutes.

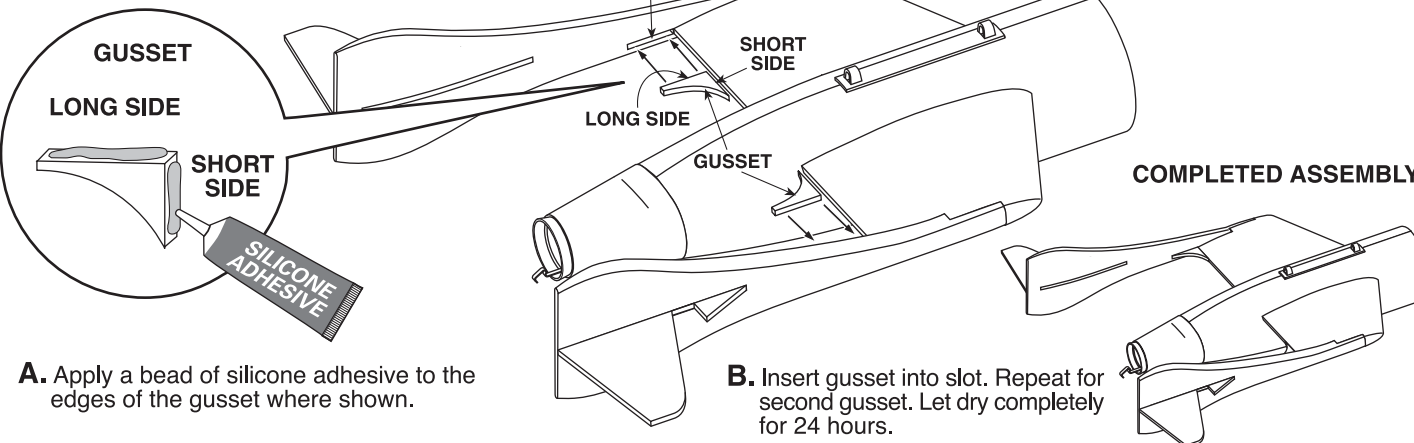
4. ATTACH LAUNCH LUG AND TAIL CONE



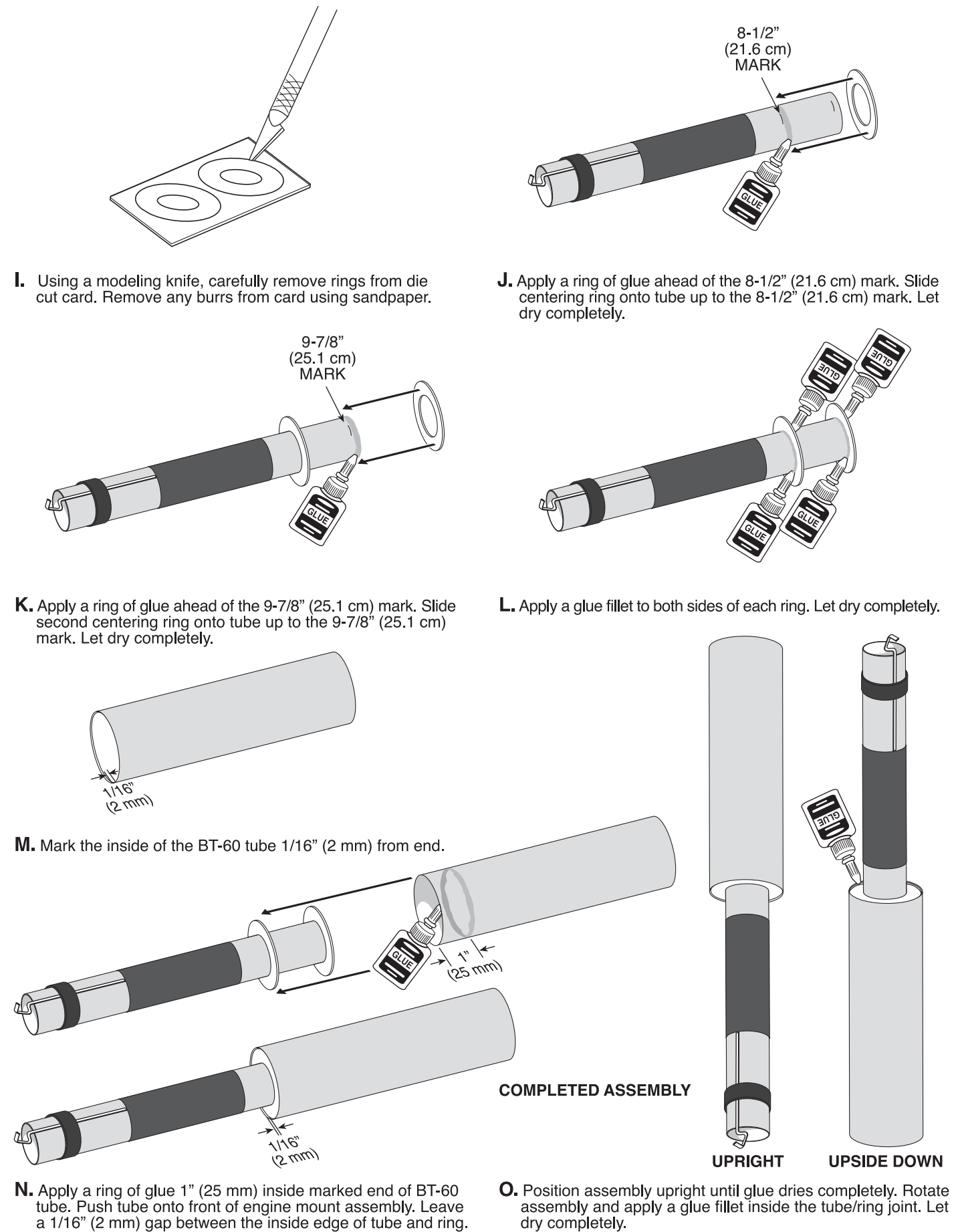
5. ATTACH BOOM TO WING



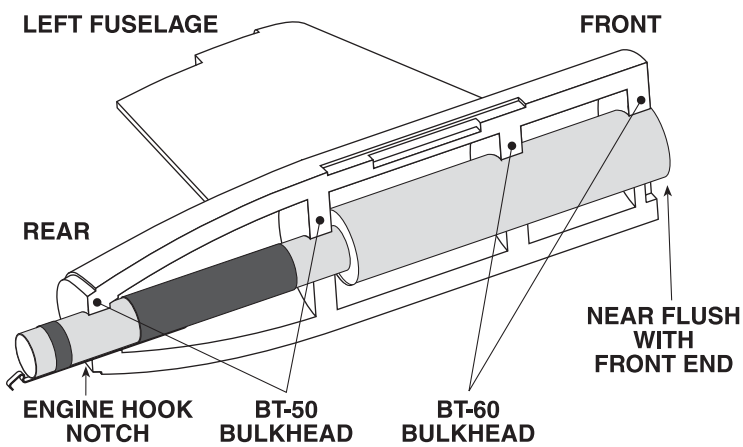
6. ATTACH GUSSET TO WING



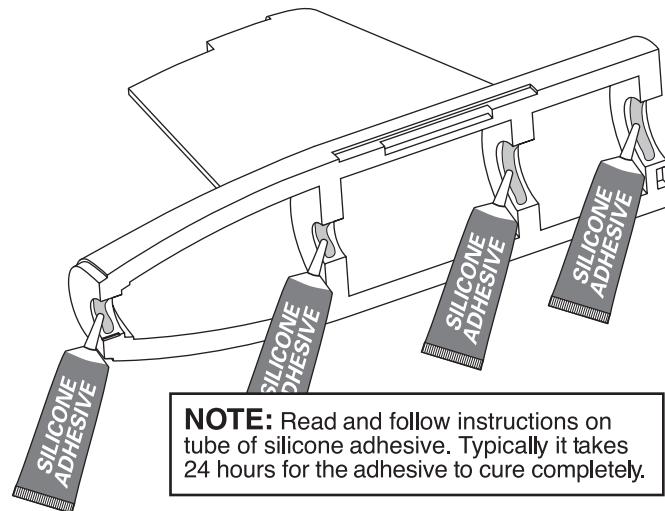
1. ASSEMBLE ENGINE MOUNT (CONT.)



2. ASSEMBLE ENGINE MOUNT INTO FUSELAGE

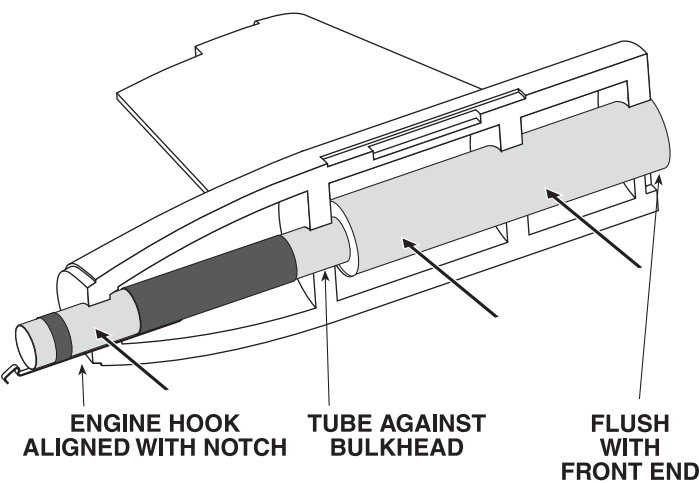


A. Test fit engine mount into left half of fuselage. Front of engine mount should be near flush with fuselage front end. Remove motor mount assembly.

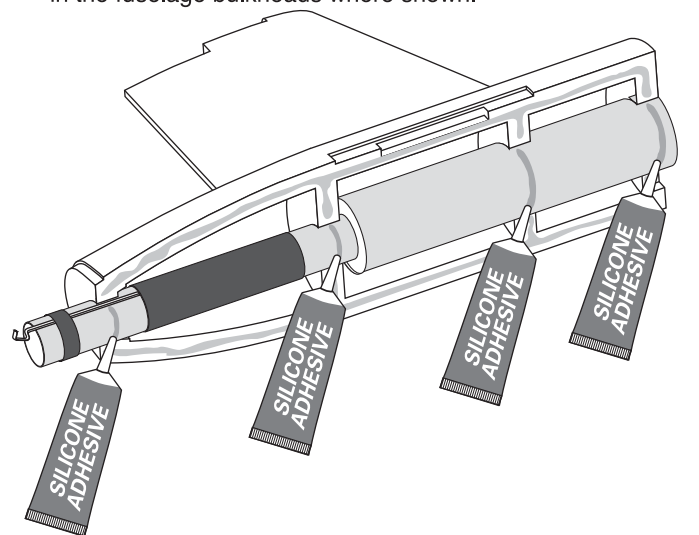


NOTE: Read and follow instructions on tube of silicone adhesive. Typically it takes 24 hours for the adhesive to cure completely.

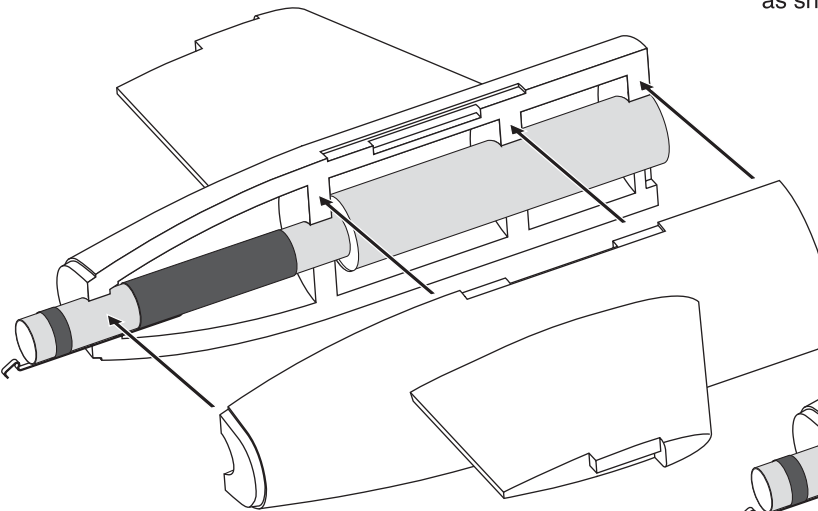
B. Apply a 3/16" (5 mm) bead of silicone adhesive to the cut outs in the fuselage bulkheads where shown.



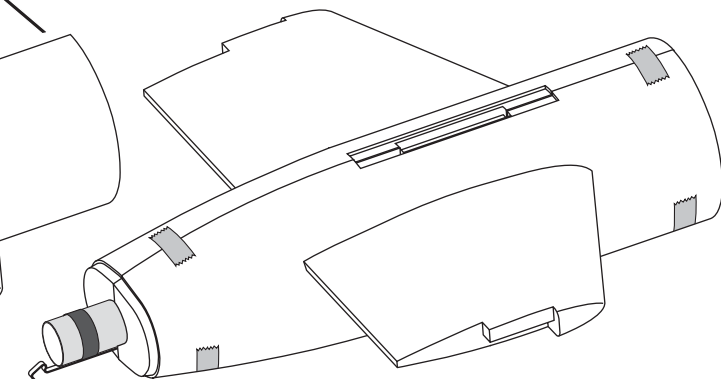
C. Press engine mount into bulkhead cut outs as shown.



D. Apply a 3/16" (5 mm) bead of silicone adhesive to all surfaces as shown and onto tubes at bulkhead cutouts.



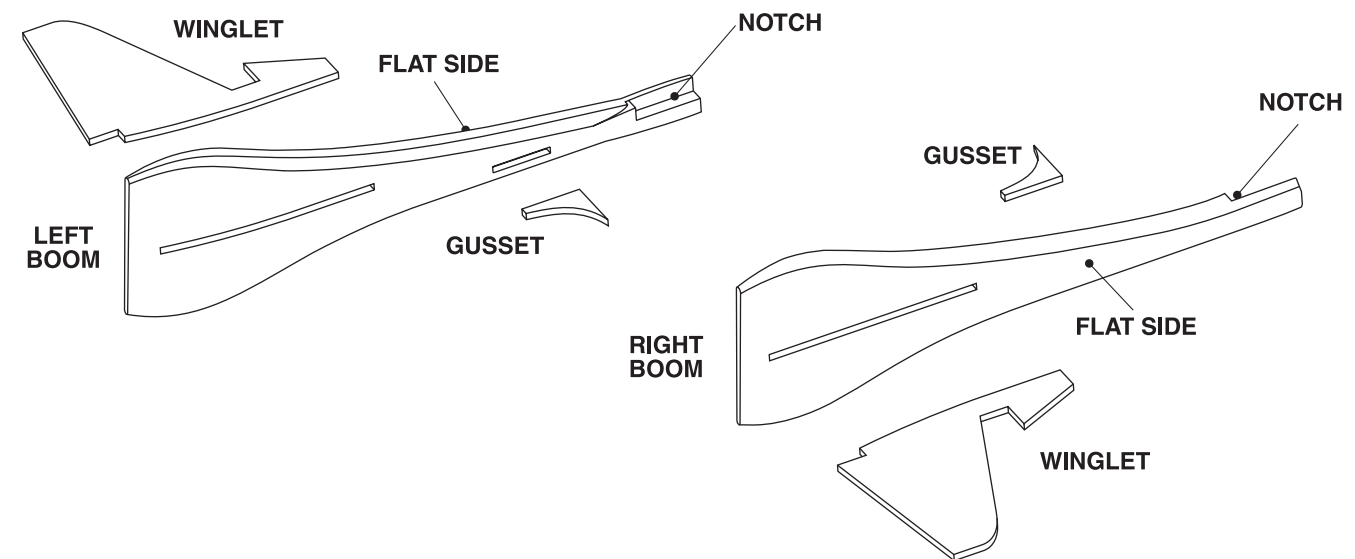
E. Align the two fuselage halves and press together. Wipe off any excess silicone adhesive.



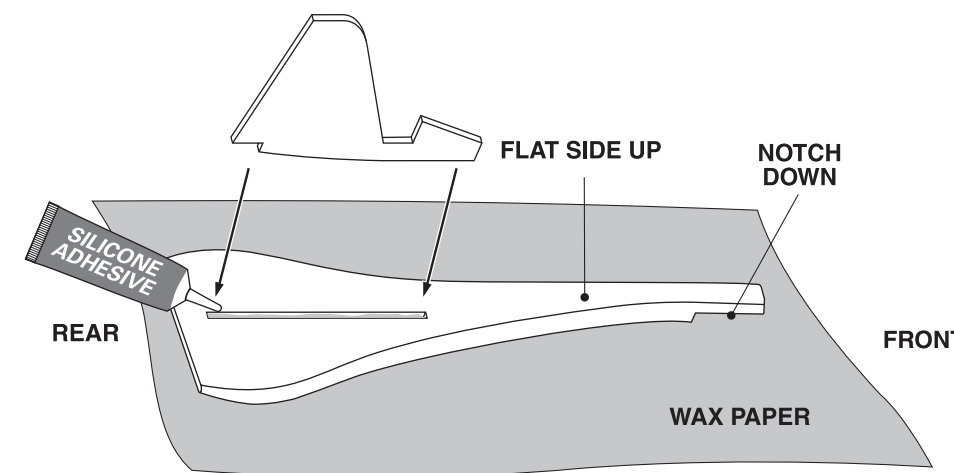
F. Temporarily tape both halves together using blue painters masking tape. Set aside and let dry completely for 24 hours, then remove tape. Sand front end of body tube so that it is flush with fuselage.

3. ATTACH WINGLET TO BOOM

IMPORTANT:
Note parts and position of notches.



A. Place a piece of wax paper on a flat surface. Position boom with notch down. Place a bead of silicone adhesive into slot. Position winglet with small end forward, as shown. Insert into slot so that winglet is flush with boom on the inside surface. Wipe off any excess adhesive. Repeat for second boom. Set aside and let dry completely for 24 hours before proceeding to step 5.



COMPLETED BOOM ASSEMBLIES

