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# SOUTHERN CALIFORNIA ROCKET ASSOCIATION

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SECTION 430

## MODEL ROCKET SAFETY ADVISORY

- All models should be launch-angled 5° out towards the center of the empty field (away from cars). If your model goes unstable (does loops) or crashes, you **MUST** get away from it until the engine's ejection charge is finished and then you **MUST RUN** toward it with a fire extinguisher and put out any fire you have caused. Please bring a jug of water and/or a fire extinguisher if using your own launch pad.
- **LIABILITY INSURANCE IS STRONGLY RECOMMENDED.** Your homeowner's policy may cover you for model rocketry, but not if you glued your model rocket together incorrectly! [NAR membership](#) includes insurance.
- **ALL MODEL ROCKETS MUST BE ASSEMBLED USING THE MANUFACTURER'S RECOMMENDED GLUE(S). THE GLUE(S) ARE CLEARLY LISTED IN THE INSTRUCTIONS:**
  - NEVER USE "HOT MELT GLUE" OR "TACKY/CRAFT GLUE" BECAUSE **MODEL ROCKETS GET HOT - MELTING THE GLUE!** TACKY GLUE DOESN'T SOAK INTO THE PAPER TUBE OR Balsa FINS AND IT DOESN'T STICK TO PLASTIC! (There are rare exceptions allowing use of hot melt glue, such as FlisKits models with Styrofoam parts not exposed to heat.)
  - "ROCKET CEMENT" ***IS JUST*** WOOD CEMENT. IT IS BEST ON Balsa-TO-Balsa JOINTS (i.e.: GLIDER WINGS) AND DOESN'T WORK WELL ON PAPER TUBES OR THRUST RINGS/ENGINE BLOCKS.
  - "SUPER GLUE" ("C.A.") IS BEST ON NON-POROUS MATERIALS (i.e.: PLASTIC-TO-PLASTIC) AND IT IS ALMOST NEVER RECOMMENDED IN THE INSTRUCTIONS.
  - THESE GLUES AND CEMENTS SELDOM WITHSTAND THE HUGE FORCES OF THRUST AND EJECTION IN CARDBOARD/PAPER ENGINE MOUNTS AND Balsa FINS CAN SNAP OFF THE CARDBOARD BODY TUBE. THIS IS A SERIOUS FIRE HAZARD!!!
  - "NON-TOXIC" PLASTIC CEMENT DOES NOT WORK ON THE PLASTIC USED IN MODEL ROCKET KITS. USE REGULAR PLASTIC CEMENT IF THE INSTRUCTIONS REQUIRE IT.
- WE MAY WISH TO PUSH AND PULL ON YOUR ENGINE MOUNT AND FINS TO TEST THEM. IF YOU ARE AFRAID OF DAMAGE BECAUSE YOU GLUED THEM IMPROPERLY, DON'T TRY TO CHECK IT IN. Take it back to the store and ask for a refund if *they* recommended the wrong glue. If it's your fault, take it home, disassemble it, sand it clean and re-glue it properly.
- **PLEASE USE THE ENGINES RECOMMENDED FOR FIRST FLIGHT FOR YOUR FIRST FLIGHT.** This helps you verify that your model will fly safely (stable) and will hold together. If everything goes O.K., feel free to work your way up in power one step at a time.
- **Estes foam space shuttle orbiters and plastic X-15 will not be allowed to fly.** The orbiter crashes on boost. The X-15 is subject of a safety recall. If you have one, we strongly recommend you return it.

- **Mini-Engine models from Estes have an engine hook problem.** The hook is too big and extends into the engine exhaust, deflecting it and creating enough sideways thrust to make the model unstable a large percentage of the time. **We will only allow you to fly a model with an Estes mini-engine hook if the hook is snipped back to its original design - just enough hook to hold the engine.**
- **The Sam-X from Custom Rockets and the X-15 from Quest** are unstable without clay weight in the nose cone. The same applies to the **Quest Totally Tubular** kits with a lightweight nose cone, so add nose weight or fly with mini motors (1/2A3-2T, A10-3T or A3-4T) using an adapter.
- **Two-Stage rockets** must not have a loose nose cone or it will fall off during staging and go unstable.
- **MK-109 Stingrays (NAVY) and Banshees (ARMY)** often fly unstable with C engines and sometimes with B engines. This is because the fins are too small and the engine's weight moves the center of gravity of the model too far aft (backward). You can fix this by installing clay weight inside the nose cone and doing a stability test. The NAVY model rocket in the Missile Command Set and the newer MK-109 kits now include clay and therefore do not have the stability problems of the older MK-109 kits, but the U.S. ARMY model in the Missile Command Set (and the Banshee) can have stability problems.
- **Bull Pups** need **both** pieces of clay in the nose **and** very straight fins **and** engine mounts installed at the correct location. We strongly recommend only using A8-3 engines or converting it to use mini-A engines to help control the center-of-gravity problem.
- **Wizards, Zingers, Yankees, Vikings** and other similar models are very sensitive to bad fin alignment or an engine installed too far back (sticking out too much). They also have very thin fins - if they aren't glued on very securely they can snap off during high-speed flight. **Please don't fly these with C engines unless you are sure they are stable and built properly!** Use 1/2A6-2, A8-3, A8-5 or A6-4 engines for first flight.
- **IF YOUR MODEL CRASHES:** First, as stated before, **if your model goes unstable (does loops) or crashes, you *MUST* get away from it until the engine's ejection charge is finished and then you *MUST RUN* toward it with a fire extinguisher and put out any fire you have caused.** After the area is safe, the LCO will try to record a description of a "Prang" (crash) or "Cato" (engine failure) on the flight card, but you are responsible for your model and determining what went wrong. If an engine fails, **for any reason**, fill out a [Malfunctioning Engine Statistical Survey](#) (M.E.S.S.) form. Send the form to the NAR and send a copy of the form along with the engine remains to the engine manufacturer. The manufacturer will use this information to improve quality and they will usually send you a new kit and engine(s). **Some Estes motors made a few years ago have nozzles that have eroded during firing resulting in partial loss of thrust and/or vectored (angled) thrust because they changed the clay formula. They have now fixed the problem, but if your model flies 'crazy' bring the motor over to the Range Safety Officer at the check-in table for post-flight inspection. If the nozzle was at fault, you are covered under your manufacturer's warranty and you can contact them for a free replacement rocket and motors!**
- **MISFIRES:** A "misfire" occurs when your igniter fails to ignite your engine. **Wait until the launch area is "safe and open" as stated by the LCO** (usually after a round is completed); then enter the launch area, get your model off the launch pad, and **go to the LCO and get your flight card back.** You leave the engine installed in the rocket and simply clean the nozzle and carefully install a new igniter. Take the rocket and original flight card **directly to the front of the check-in line** for a new pad assignment!

### **HELP KEEP OUR LAUNCH SITE CLEAN:**

**PLEASE PICK UP USED WADDING, IGNITER WIRES AND IGNITER PLUGS AND DISPOSE OF THEM IN A TRASHCAN! THANK YOU!**

**MAKE SURE YOU AND YOUR CHILDREN ARE PAYING ATTENTION TO THE P.A. ANNOUNCEMENTS AND REMEMBER TO STAY OUT OF THE ACTIVE LAUNCHING AREA AND THE FEILD IMMEDIATELY BEHIND THE LAUNCHING AREA (FOR AT LEAST 30 FEET)**