



Training

CAP MODEL ROCKETRY PROGRAM

This regulation establishes model rocketry as an authorized extracurricular activity in the Civil Air Patrol (CAP) cadet program. Cadet volunteer activities in model rocketry will supplement and enrich aerospace education now presented in the Cadet Program. Cadets who desire to take part in model rocketry activities may do so as an additional supervised project. **Note: This regulation is revised in its entirety.**

1. Terms Explained. In keeping with the safe practices that must be observed by all CAP cadets and senior member supervisors who engage in model rocketry activities, three terms need to be explained:

a. "Model rocketry" is the designing, building, and flying of small rockets that are made of paper, plastic, balsa wood, or any other nonmetallic product (model rockets constructed in this manner are approved for use by CAP members).

b. "Model rocket engines" are solid propellant engines that are made by commercial manufacturers and intended for use in model rockets of the construction described in the paragraph above. The manufacturer furnishes these "safe" engines ready for use (this type engine is the only type approved for use by CAP members). There is no need for the rocketeer to mix potentially dangerous chemical ingredients.

c. "Amateur rocketeer" is the term used to describe those inexperienced individuals who engage in unsupervised rocketry experimentation in which metallic airframes and homemade propellants are used. This type of experimentation is extremely dangerous and is **not** to be practiced in CAP model rocketry activities.

2. Establishing the Model Rocketry Program. Interested unit commanders should:

a. Identify cadets who are interested in participating in the CAP model rocketry program.

b. Provide interested cadets with an overview of the model rocketry program, including its objectives, requirements, and awards as contained in this regulation.

c. If warranted by cadet interest, establish a model rocketry program for the unit in accordance with paragraph 7 below.

3. Civil Air Patrol Model Rocketry Program Overview. The degree to which units ultimately develop their model rocketry program will depend upon their interest, time, and resources. Civil Air Patrol provides a ready-made rocketry program in the *Civil Air Patrol Model Rocketry* book, and the CAP Model Rocketry Program uses the guidelines found in that book. However, model rocketry instructors may develop additional expertise in the subject matter through individual reading or through aerospace education workshops on model rocketry.

a. Civil Air Patrol Model Rocketry Program. To conduct the model rocketry program and to provide the completion of the performance requirements in accordance with the *Civil Air Patrol Model Rocketry* book, the cadets will be required to complete three stages. Each is progressively more challenging and has its own written and hands-on phase. The senior members who assist the cadets in this endeavor should become thoroughly familiar with each of the phase's requirements. The completion of the program will authorize the cadets to wear the Model Rocketry Badge on their uniforms (see CAPM 39-1, *Civil Air Patrol Uniform Manual*). Although no time constraints or limits are imposed, the completion of the Civil Air Patrol Model Rocketry Program is envisioned to take approximately two to three months. The examination for the written portion of each stage of the program consists of a ten-question test. These tests are available from Civil Air Patrol, National Headquarters, Aerospace Education (NHQ CAP/LMA), and must be safeguarded in accordance with CAPR 50-4, *Test Administration and Security*.

b. Advanced Programs. Beyond the Civil Air Patrol Model Rocketry Program, the possibilities for further rocket flight activities are almost unlimited. The degree of sophistication in engaging in model rocketry activities is limited only by one's imagination. Model rocketry is also an excellent vehicle for getting across various aspects and concepts of aerospace, including Newton's laws of motion. To create an advanced rocketry program, units are encouraged to contact the National Association of Rocketry (NAR) at: <http://nar.org> (see paragraph 7 below).

4. Civil Air Patrol Model Rocketry Program Objectives. The model rocketry program for CAP cadets is designed to:

a. Acquaint CAP cadets with the importance of rocketry and its role in the future.

- b. Increase cadets' knowledge of aerospace sciences and motivate them to attain an even greater knowledge of aerospace sciences.
- c. Employ an interest in model rocketry to enrich the total development of CAP cadets.
- d. Provide activities and opportunities for the development of aerospace leadership skills.
- e. Arouse interest in aerospace careers that require a knowledge of rocketry.
- f. Contribute to the development of an understanding of aerospace power.
- g. Lead to the discovery and furtherance of the individual educational needs of cadets aspiring to careers in aerospace.

5. Civil Air Patrol Model Rocketry Program Requirements. The Civil Air Patrol Model Rocketry Program consists of three stages and will be conducted in accordance with the *Civil Air Patrol Model Rocketry* program book available from NHQ CAP/LMA. There is no charge for the book.

a. Qualified Senior Member. A Qualified Senior Member may be any unit command or staff member, or a currently registered Aerospace Education Member (AEM). Please check with NHQ CAP/LMA for an AEM near you who may be willing to assist. Particular attention should be given to the selection of instructional personnel. Although desirable, it is not necessary that model rocketry instructors be rocketry experts. However, before a unit model rocketry program is begun it should be decided how many instructors will be needed and enough time allowed them to become knowledgeable in the specialties they will teach (construction, propulsion, tracking, etc.). Although consideration should be given to using cadet instructors who are already members of rocket clubs (clubs which have been chartered by the NAR and operate according to the rules of NAR), the Model Rocketry Program depends upon Qualified Senior Members to witness and verify the cadet's progress. Besides reading and experimenting, model rocketry instructors may gain knowledge and experience in model rocketry through aerospace education workshops in model rocketry offered by various agencies and organizations. Instructors might also join together, within a unit or across units, to form their own workshop led by an experienced model rocketeer. It is the responsibility of the Qualified Senior Member to see that the NAR Safety Code guidelines (as presented in the *Civil Air Patrol Model Rocketry* program book) are followed.

b. Stage One Requirements (Redstone). The cadet must successfully pass a written examination. The cadet must have the squadron Test Control Officer (or the alternate Test Control Officer) administer the required test, in accordance with CAPR 50-4, *Test Administration and Security*, and sign the cadet's Official Witness Log. The cadet is required to build two non-solid fuel rockets, with alternate sources of power (not model rocket engines). The cadet must have a Qualified Senior Member witness the launch of the two models, with alternate sources of power, and sign the Official Witness Log. After completing these steps, the cadet is entitled to the Redstone Certificate. The squadron commander must review the completed Official Witness Logs and, if the squadron commander approves, sign the certificate so the cadet may advance to Stage Two, the Titan Stage. Both the Official Witness Log and the Redstone Certificate are found in the *Civil Air Patrol Model Rocketry* program book.

c. Stage Two Requirements (Titan). The cadet must successfully pass a written examination. The cadet must have the squadron Test Control Officer (or the alternate Test Control Officer) administer the required test, in accordance with CAPR 50-4, *Test Administration and Security*, and sign the cadet's Official Witness Log. The cadet is required to build two rockets in this stage (as presented in the *Civil Air Patrol Model Rocketry* program book). The cadet must prove, before flight, that the models are stable (as presented in the *Civil Air Patrol Model Rocketry* program book). A Qualified Senior Member must then witness the successful launch, flight, and recovery of the model rockets. The cadet must demonstrate NAR Safety Code Proficiency, follow a set pre-flight checklist, and execute the launch and recovery with safety. If the Qualified Senior Member believes the cadet has demonstrated NAR Safety Code in all areas, then the Official Witness Log can be signed for this phase. In other words, the cadet must have a working knowledge of the NAR Safety Code and give proof of it during all launches. After completing these steps, the cadet qualifies for the Titan Certificate. The squadron commander must review the completed Official Witness Logs and, if the squadron commander approves, sign this certificate so the cadet may advance to Stage Three, the Saturn Stage. Both the Official Witness Log and the Titan Certificate are found in the *Civil Air Patrol Model Rocketry* program book.

d. Stage Three Requirements (Saturn). The cadet must successfully pass a written examination. The cadet must have the squadron Test Control Officer (or the alternate Test Control Officer) administer the required test, in accordance with CAPR 50-4, *Test Administration and Security*, and sign the cadet's Official Witness Log. The cadet is required to have a working knowledge of the NAR Safety Code, as evidenced by the squadron Test Control Officer administering the tests and hearing the recitation of the NAR Safety Code. The cadet is required to build one rocket in the Saturn Stage (as presented in the *Civil Air Patrol Model Rocketry* program book). A Qualified Senior Member must witness the launch and safe recovery of the rocket. All of the NAR Safety Code guidelines must be followed and the Qualified Senior Member must sign the Official Witness Log after these flights. The squadron commander must review the completed Official Witness Logs and, if the squadron commander approves, signs this certificate so the cadet may complete the Model Rocketry Program. The cadet now becomes eligible to receive the official CAP Model Rocketry Badge. Both the Official Witness Log and the Saturn Certificate are found in the *Civil Air Patrol Model Rocketry* program book.

6. Model Rocketry Awards:

a. When the cadet has satisfactorily completed the written and performance requirements required by each of the three stages of the *Civil Air Patrol Model Rocketry* program book, and after the cadet's unit commander has certified the successful completion of all these requirements, the Model Rocketry Badge will be awarded. The badge is available from CAPMart.

b. If a cadet has earned the Mitchell Award and has satisfactorily completed the requirements for the Model Rocketry Badge, a silver star may be attached to the Goddard Achievement Ribbon. The silver star may be obtained through CAPMart.

c. Cadets who satisfied the requirements in paragraph a and/or b above prior to the effective date of this regulation are also eligible to receive the appropriate award.

7. Formation of NAR Model Rocketry Sections. Each squadron conducting the model rocketry program for cadets is encouraged to establish a National Association of Rocketry Section. CAP units can then enter into competitive meets with other NAR units at the section, area, regional, and national levels. Application for the establishment of a NAR Model Rocketry Section may be obtained from the National Association of Rocketry, <http://nar.org>.

SUMMARY OF CHANGES.

This revision establishes the new learning/teaching program, "*Civil Air Patrol Model Rocketry*" book to be used for the model rocketry program. As previously explained, this book maybe ordered from National Headquarters, Aerospace Education (LMA) free of charge. Also, as previously explained, the model Rocketry Badge may be ordered from CAPMart (previously known as the CAP Bookstore).