FEDERAL AVIATION AGENCY
AIR TRAFFIC SERVICE
WASHINGTON 25, D. C.

MAY 31 1962

CIVIL AIR REGULATIONS DRAFT RELEASE NO. 62 -26

SUBJECT: Amendment of Parts 48 and 60 of the Civil Air Regulations - Operation Rules for Rockets

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The Air Traffic Service of the Federal Aviation Agency has under consideration a proposal to amend Parts 48 and 60 of the Civil Air Regulations. Part 48, which now governs moored balloons and kites, would be amended to include operation rules for rockets. Concurrently, Part 60 would be amended to exclude rockets subject to Part 48. The reasons therefor are set forth in the explanatory statement of the attached proposal which is being published in the Federal Register as a Notice of Proposed Rule Making.

The Agency desires that all persons who will be affected by the requirements of the proposed regulation be fully informed as to its effect upon them and is, therefore, circulating copies in order to afford interested persons an opportunity to submit comments.

Because of the large number of comments which we anticipate receiving in response to this draft release, we will be unable to acknowledge receipt of each reply. You may be assured, however, that all comments will be given careful consideration.

All comments must be submitted in duplicate to the Docket Section, Federal Aviation Agency, Room C-226, 1711 New York Avenue, N. W., Washington 25, D. C. In order to insure consideration, comments must be received by the Agency prior to August 6, 1962.

D. D. Thomas

Director, Air Traffic Service

FEDERAL AVIATION AGENCY

AIR TRAFFIC SERVICE

/ 14 CFR Parts 48, 60 /

/ Reg. Docket No. 1234; Draft Release 62-26 /

NOTICE OF PROPOSED RULE MAKING

Operation Rules for Rockets

Pursuant to the authority delegated to me by the Administrator (14 CFR 405), notice is hereby given that the Federal Aviation Agency (FAA) has under consideration a proposal to amend Parts 48 and 60 of the Civil Air Regulations as hereinafter set forth.

Interested persons may participate in the making of the proposed rules by submitting such written data, views or arguments as they may desire. Communications should be submitted in duplicate to the Docket Section, Federal Aviation Agency, Room C-226, 1711 New York Avenue, N. W., Washington 25, D. C. All communications received prior to August 6, 1962, will be considered by the Administrator before taking action upon the proposed rule. The proposals contained in this notice may be changed in the light of comments received. All comments submitted will be available in the Docket Section for examination by interested persons at any time. Because of the large number of comments anticipated in response to this proposal, we will be unable to acknowledge receipt of each reply.

Part 48 now governs the operation of moored balloons and kites. The amendment to Part 48 proposed herein would incorporate regulations regarding the operation of rockets. Part 60 contains the Air Traffic Rules governing the operation of aircraft, including

rockets. The amendment to Part 60 proposed herein would exclude rockets subject to Part 48.

On February 25, 1961, in Draft Release No. 61-4 (26 F.R. 1666), the FAA proposed regulations pertaining to the operation of rockets and missiles. That proposal generated a great deal of interest, as evidenced by the large number of comments received. Rocket enthusiasts generally opposed the requirements advanced, while civil aviation interests endorsed the proposal. Satisfactory resolution of the many comments to the draft release would have resulted in a regulation substantially different from that originally proposed. The Agency, therefore, has developed the new proposed rule making contained herein, based on the valuable comments received.

In developing this proposal, the Agency has taken cognizance of the broad meaning which can be attached to the term "rocket." The earlier draft release spoke of "rockets and missiles" and made no differentiation between amateur rockets and model rockets. In this proposal, we consider the term "rocket" to include "missile" and have exempted model rocketry from regulation herein if certain conditions are met. Typically, model rockets are made of paper, wood, or fragile plastic, contain no substantial metal parts, and are powered by a pre-mixed propellant. Under these conditions, provided reasonable weights are not exceeded, no real hazard appears to exist and this proposal would not govern such operations.

Activity in the field of rocket operations is steadily increasing, especially experimental amateur rocketry. Amateur rocketry, unlike model rocketry, concerns itself with metallic

rockets which have a far greater thrust due to the use of more powerful homemade fuels; utilizes rocket systems which require extensive safety precautions and expert supervision; and requires a greater amount of land and airspace to contain the operations. The bulk of the amateur activity is carried on by youthful individuals, high school and college classes, local recreation department groups, and various rocket clubs. As these activities increase there is an increasing possibility of hazard to aircraft and to persons and property on the surface. Therefore, it has been determined that rules which will control the indiscriminate firing of rockets without unduly suppressing such activities are both necessary and reasonable. This proposal recognizes this need and contains regulatory measures regarding weather conditions, type of airspace, notification, and proximity of the operation to persons and airports.

The Agency recognizes that amateur rocketry has established a good safety record. No doubt this is due to the keen interest of the rocketeer and the realization of his legal and moral responsibilities. Also, many of the known rocket launchings have taken place in restricted areas under adult and military supervision. However, even there, elaborate safety precautions were taken, such as mobile fire equipment, protective type vehicles, heavily reinforced bunkers, and supervision by military ordnance experts.

These precautions emphasize the unpredictability and hazard of rocket operations. When launchings are confined to such approved areas and are properly supervised, the hazard to aircraft is greatly reduced; however, there is no assurance that rocket launchings will continue under such favorable conditions.

Members of this Agency have been present at several of the rocket meets held within restricted areas. They observed rockets ranging in sizes up to 11 feet long with diameters up to three inches. For the most part, these rockets were constructed of aluminum or steel tubing. They were powered by fuel mixtures such as zinc and sulphur or nitrate and sugar. In one instance the fuel alone weighed 31 pounds. The average weight was not ascertained, however, some amateur rockets have a gross weight of 65-75 pounds and are capable of reaching altitudes of over five miles. Since there are over 5,000 amateur rocket societies in the United States with over 40,000 members actively engaged in rocket activities, the potential hazard to aircraft created by amateur rocket operations is evident.

This proposal seeks to achieve two safety objectives. First, the possibility of hazard to aircraft would be minimized by prohibiting the operation of rockets within five miles of airports or within controlled airspace; and by charging the operator with the responsibility to operate the rocket in a manner that will not create a hazard to aircraft in flight. These provisions would restrict potentially hazardous objects from areas of concentrated air traffic and would make rocket operations more compatible with the activities of other airspace users. Second, protection to persons not associated with the operation would be provided by prescribing minimum separation standards between the rocket operation and such persons. This requirement would apply regardless of the location of the launching area.

"Controlled airspace" is a term referring to designated airspace of defined dimensions. It includes control zones, control

areas, transition areas, and the Continental Control Area. Controlled airspace is designated to contain the vast network of airways and the various areas of more concentrated air activity. The sizes and shapes of controlled airspace vary with the exception of the Continental Control Area. The latter consists of airspace of the 48 contiguous states and the District of Columbia at and above 14,500 feet mean sea level. Therefore, the proposed rule would allow rocket operations to be conducted up to 14,500 feet mean sea level if all other types of controlled airspace are avoided. In conjunction with this, however, the operator must assure that the rocket remains clear of clouds; that the cloud cover or obscuring phenomena in the area of operation does not cover more than five tenths of the sky; and that the horizontal visibility from the rocket is at least five miles during the entire operation. These limitations are specified so that the operator may visually scan the area and conduct his operation with due regard for the safety of aircraft.

The proposed regulation would require the operator of a rocket to give prior notice of the operation to the nearest FAA air traffic control facility. This information would be incorporated in a Notice to Airmen (NOTAM) informing airspace users of the existence and general location of the rocket operations, the duration of such activities, and the maximum altitude to which the rocket/s will be operated.

Section 60.1 of the Air Traffic Rules states in part, "the air traffic rules of this Part shall apply to aircraft operated anywhere in the United States. . . ." Since rockets are within the definition of aircraft, they are subject to all the provisions

contained therein. The scope of Part 60 would be amended so that rockets which are subject to the provisions of Part 48 would be excluded from the provisions of Part 60.

This proposal is subject to the FAA Recodification Program, recently announced in Draft Release No. 61-25 (26 F.R. 10698). The final rule, if adopted, may be in a recodified form, however, the recodification itself will not alter the substantive contents proposed herein.

In consideration of the foregoing, notice is hereby given that Parts 48 and 60 of the Civil Air Regulations are proposed to be amended as follows:

1. By amending Section 48.1 to read:

48.1 Applicability

This Part applies to the operation of moored balloons, kites and rockets in the United States.

NOTE: Radio transmitting equipment used in conjunction with operations under this Part must be licensed as required by the Federal Communications Commission, Washington 25, D. C.

2. By amending Section 48.3 by adding in proper alphabetical order the following new definitions:

48.3 Definitions

"Airport" means a defined area on land or water, including any buildings and installations, normally used for the take-off and landing of aircraft.

"Rocket" means an unmanned aircraft, whose flight in the air is derived from the thrust of ejected expanding gases generated in the engine from self-contained fuels or propellants and is not dependent on the intake of outside substance. It includes any part which becomes separated during the operation.

3. By amending Part 48 to include a new Subpart C to read:

SUBPART C - Rockets

48.20 Applicability

This Subpart applies to the operation of rockets in the United States, except those exempted in Section 48.21. Operations conducted within restricted areas shall comply only with Section 48.22(7) and with such additional limitations as may be imposed by the using agency or controlling agency.

48.21 Exempt Operations

This Subpart does not apply to the following:

1. Operations conducted under a written agreement reached by the operator with the Federal Aviation Agency.
2. Static testing activities in which the rocket is not operated in flight.
3. Pyrotechnics, such as firework displays, etc., conducted in accordance with local, county or state ordinances.
4. Model rocket activities, if —
   (A) Conducted in a manner that does not create a hazard to aircraft, persons, or property;
   (B) No more than four ounces of propellant is used; and

(C) The model rocket is made of paper, wood or breakable plastic, contains no substantial metal parts, and weighs no more than 16 ounces, including the propellant.

48.22 Operational limitations

A rocket may not be operated:

1. In a manner that creates a collision hazard with aircraft;
2. In controlled airspace;
3. Within five miles of the boundary of any airport;
4. At altitudes where clouds or obscuring phenomena of more than five tenths coverage prevail;
5. Into any cloud;
6. Unless the horizontal visibility from the rocket is at least five miles during the entire operation;
7. Within 1500 feet of any persons not associated with the operation; or
8. During the hours of darkness.

48.23 Notice requirements

A rocket may not be operated unless at least 24 hours, but not more than 48 hours, prior notice is given to the nearest FAA air traffic control facility. This notice shall include:

1. Name and address of the person in charge of the operation;
2. The number of rockets to be operated;
3. The maximum altitude to which the rocket will be operated;
4. The geographical location of the operation;
5. Date, time and duration of operation; and
6. Other pertinent information requested by air traffic control.

4. By amending Section 60.1 of Part 60 to include a new subsection, (c), to read:

60.1 Scope * * *

(c) Rockets which are subject to the provisions of Part 48 of this Title.

This Amendment is proposed under the authority of Section 307 of the Federal Aviation Act of 1958 (72 Stat. 749, 49 U. S. C. 1348).

D. D. Thomas

Director, Air Traffic Service

Issued in Washington, D. C. on MAY 31 1962