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FEDERAL AVIATION AGENCY
BUREAU OF AIR TRAFFIC MANAGEMENT
WASHINGTON 25, D.C. February 18, 1961

CIVIL AIR REGULATIONS DRAFT RELEASE NO. 61-4

SUBJECT: Revision of Parts 48 and 60 of the Civil Air Regulations.

The Bureau of Air Traffic Management of the Federal Aviation Agency has under consideration a proposal to amend Parts 48 and 60 of the Civil Air Regulations. Part 48, as proposed herein, would consist of three subparts. The existing regulatory material contained in Part 48 and in Civil Aeronautics Manual 48 is proposed to be combined into a new Subpart A. Proposed Subpart B will regulate the operations of unmanned free balloons; proposed Subpart C will provide regulatory material to govern operations of rockets and missiles. Part 60 would be amended by revising the scope of the Part so as to exclude unmanned free balloons, rockets and missiles. The reasons therefor are set forth in the explanatory statement in the attached proposal which is being published in the Federal Register as a notice of proposed rule making.

The Federal Aviation 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 copies of the proposed regulation are being circulated in order to afford interested persons ample opportunity to submit comments as they may desire.

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. However, all comments will be given careful consideration.

All comments must be submitted in duplicate to the Docket Section, Federal Aviation Agency, Room B-316, 1711 New York Avenue, N. W., Washington 25, D.C. In order to insure consideration, comments must be received by the Agency prior to May 30, 1961.

D. D. Thomas

Director, Bureau of Air Traffic Management

FEDERAL AVIATION AGENCY

BUREAU OF AIR TRAFFIC MANAGEMENT

[14 CFR PARTS 48, 60]

(Reg. Docket No. 665 ; Draft Release No. 61-4)

OPERATION OF MOORED BALLOONS, KITES, UNMANNED FREE BALLOONS, ROCKETS AND MISSILES

NOTICE OF PROPOSED RULE MAKING

Revision of Part 48; Amendment to Part 60

Pursuant to the authority delegated to me by the Administrator (14 CFR Part 405), notice is hereby given that the Federal Aviation Agency 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. Since this proposal contains three distinct subparts, it is requested that, where possible, comments be identified with respect to the individual subpart involved. Communications should be submitted in duplicate to the Docket Section, Federal Aviation Agency, Room B-316, 1711 New York Avenue, N. W., Washington 25, D. C. All communications received prior to May 30, 1961, 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 for examination by interested persons in the Docket Section when the prescribed date for the return of comments has expired. Because of the large number of comments which are anticipated in response to this proposal, the Bureau of Air Traffic Management will be unable to acknowledge receipt of each reply.

Part 48 currently governs the operations of moored balloons and the flight of large kites. Civil Aeronautics Manual 48 provides rules, policies, and interpretations regarding the application of various sections of the regulations. Part 60 provides the Air Traffic Rules governing the operation of aircraft in the United States.

It is proposed herein to amend Part 48 to include regulations governing the operations of unmanned free balloons and the firing or launching of rockets and missiles. It is proposed that Part 48 be divided into three subparts. Subpart A will consolidate the material currently contained in Part 48 with certain regulatory provisions of CAM 48. Subpart B will provide rules to govern the operation of unmanned free

balloons and Subpart C will regulate the firing or launching of rockets and missiles. Civil Aeronautics Manual 48 would be rescinded. In addition, the scope of Part 60 would be amended to exclude unmanned free balloons, rockets and missiles from the provisions of the Part.

The proposed Subpart A reflects no substantive change from the provisions of the existing Part 48 and CAM 48 except a deletion of the provision requiring the operator to obtain a permit from the Administrator prior to conducting operations. This requirement is rendered unnecessary by a modification of the rule in a manner which charges the operator with the responsibility to understand and to apply the provisions of the regulation in the manner prescribed. This concept of administering a rule is not unique. For example, the Air Traffic Rules of Part 60 have been applied successfully in this manner for many years. In addition, the new Subpart A would be revised editorially to conform with the new format of the Part.

The proposed Subpart B is designed to minimize the potential collision hazard to aircraft created by the release of unmanned free balloons. The data sought by the major users

of free balloons is generally obtained above 44,000 feet (standard pressure altitude). The ascent to and descent from this altitude are within the area of greatest conflict with other air commerce. Since these balloons may traverse a broad expanse of airspace including controlled airspace, presenting an unknown and unpredictable hazard to air commerce, regulations to render such operations as compatible as possible with the activities of the other airspace users are considered necessary.

Operations of unmanned free balloons have, for the most part, been conducted under the auspices of the Department of Defense. An increasing number of private organizations and governmental agencies have indicated an intent to conduct unmanned free balloon activities. The increase in activities of this nature requires the promulgation of rules to govern the conduct of unmanned free balloon operations. For this reason, regulatory measures applicable to the launching, tracking and impact of unmanned free balloons are proposed. In addition, the subpart proposes requirements with respect to weather, equipment components, safety devices, and computation of the airborne payload. Since the proposed definition of payload includes

such items as support rings, cable, antenna, valving devices and parachutes, a computation of the payload would include the weights of such items.

The proposed regulations contain requirements pertinent to launching sites, designed to insure that the site is located so as to minimize conflict between balloon operations and air commerce. The ascent of the balloon to 3,000 feet above the surface would be restricted to uncontrolled airspace and to airspace which does not overlie cities, towns or settlements. A minimum rate of ascent and descent below 44,000 feet would reduce the hazard to aircraft by limiting the time the balloon would operate in airspace common to manned aircraft. To reduce the hazard to persons and property on the ground, the proposal requires that the operator conduct the flight in such a manner that impact with the surface is made in an area other than within the confines of congested areas of cities, towns or settlements. The weather minimums proposed herein are designed to insure that sufficient flight visibility and clearance from cloud formations prevail to permit visual recognition and avoidance of the balloons. Notification to appropriate Federal

Aviation Agency facilities will enable the Agency to provide information by Notice to Airmen (NOTAM) to airspace users to inform them of the existence and general location of the balloon. For this reason, a requirement for an accurate system of tracking the balloon and an expeditious method of passing track data is considered necessary. Certain safety and quick release devices such as time clock cut-down, barometric cut-down or radio controlled command cut-down, capable of separating the balloon from its payload are proposed to be required.

Subpart C would provide the regulations governing the operation of rockets and missiles, excepting those rocket and missile operations conducted by the Department of Defense, the National Aeronautics and Space Administration, or any other U. S. Government Agency when operated in accordance with the terms and provisions of agreements reached between those agencies and the Federal Aviation Agency. Regulation of rockets and missiles was previously considered in Civil Aeronautics Board Draft Release 58-21 (23 F.R. 9298), which proposed to amend Part 48 to provide protection to aircraft in flight from hazards resulting from the indiscriminate launching or firing of rockets and missiles. The Board

proposed that all rockets and missiles be fired or launched only under certain specified conditions or in accordance with the provisions of a permit. It also proposed that rocket and missile activities might be conducted without a permit only if the rocket or missile remained at all times below 500 feet above the ground, at least five miles from any airport, and outside of control zones.

In January 1959, the Federal Aviation Agency assumed the safety rule making function of the Civil Aeronautics Board. Comments in response to Draft Release 58-31 were transferred to the FAA and have been carefully reviewed. The majority of the comments endorsed the proposed rule. The only objections to the proposal were received from several rocketry enthusiasts, who contended that the proposed regulations were too restrictive.

After consideration of the comments received in response to Draft Release 58-21, certain substantive changes appear warranted. For this reason and due to the length of time since the original proposal was published, the proposal is again being circulated for comment by interested persons.

This regulation is designed to fulfill two safety requirements. First, a measure of protection is provided to persons and property on the ground by prescribing a safe distance between the point of firing or launching and persons and property on the ground. Second, hazards to aircraft in flight are minimized by restricting the maximum altitude of rocket and missile operations and by prescribing certain requirements upon the areas where such operations may be conducted. The weather requirements proposed with respect to visibility and distance from clouds would enable pilots to see and avoid those areas wherein rocket and missile activity is being conducted. The proposed regulations would require the operator to give written notice to the appropriate Regional Office of the FAA at least 30 days prior to the operation if the activity would require the use of airspace 150 feet or more above the surface.

No operational restrictions are proposed to apply to rockets and missiles fired or launched so as to remain at all times within the confines of a restricted area, provided that prior permission has been granted by the using agency of such area.

Section 60.1 of the Air Traffic Rules states in part, "the air traffic rules in this part shall apply to aircraft operated anywhere in the United States, . . ." Since unmanned free balloons, rockets and missiles are within the definition of aircraft, they would be subject to all the provisions contained therein. The scope of Part 60 would be limited so that unmanned free balloons, rockets and missiles which are subject to the provisions of Part 48 of this Title would be excluded from Part 60.

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

1. By rescinding Civil Aeronautics Manual 48.
2. By amending Part 48 to read as follows:

TITLE 14 - AERONAUTICS AND SPACE

CHAPTER I - FEDERAL AVIATION AGENCY

PART 48

OPERATION OF MOORED BALLOONS, KITES; UNMANNED FREE BALLOONS; ROCKETS AND MISSILES.

GENERAL

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GENERAL

48.1 Scope. The provisions of this part shall apply to the operation of moored balloons, kites, unmanned free balloons, rockets and missiles anywhere in the United States, i.e., the several States, the District of Columbia and the several Territories and possessions of the United States including the territorial waters and the overlying airspace thereof, except:

(a) Those operations requiring deviation from this part, which are conducted in accordance with the terms and conditions of a certificate of waiver issued by the Administrator.

NOTE: An application form for certificate of waiver (Form ACA-400) may be obtained from the nearest office of the Federal Aviation Agency. The completed form should be forwarded to the FAA Regional Office having jurisdiction over the area of operation.

48.2 Definitions. As used in this part, terms are defined as follows:

BALLOON. A contrivance that incorporates a bag or envelope containing buoyant gases so that it rises and floats in the atmosphere.

BALLOON ASSEMBLY. The covering bag or envelope of the balloon containing the buoyant gases, the balloon top fitting, the balloon end fitting and any devices that are an integral part of the balloon bag or envelope.

CONTROL AREA. As defined in Section 60.60 of Part 60 of this Title.

CONTROL ZONE. As defined in Section 60.60 of Part 60 of this Title.

CONTROLLED AIRSPACE. As defined in Section 60.60 of Part 60 of this Title.

CUT-DOWN. The separation of the payload from the balloon and/or the beginning of the final descent of the balloon flight.

KITE. A framework covered with paper, cloth, metal, or other material intended to be flown in the air at the end of a string, rope or cable and having as its only support the force of the wind moving past its surface.

MISSILE. Any object other than a bullet or shell, fired, launched, or otherwise projected with an explosive force designed for the purpose of striking a target.

MOORED BALLOON. A balloon that is held captive on a mooring string, rope or cable secured to the surface of the earth.

OPERATE, OPERATING OR OPERATED. To moor, fly, launch, release, fire, otherwise be engaged in the actual flight of, or to authorize any of the foregoing.

PAYLOAD. The airborne portion of the balloon exclusive of the balloon assembly.

PERSON. Any individual, firm, copartnership, corporation, company, association, joint-stock association, or body politic; and includes any trustee, receiver, assignee, or other similar representative thereof.

RESTRICTED AREA. As defined in Section 60.60 of Part 60 of this Title.

ROCKET. A jet propelled vehicle designed for flight in space which derives its thrust by ejecting expanding gases generated in the motor/engine from self-contained fuels or propellants.

TRACK. A hypothetical path traced on the surface of the earth by the continuous vertical projection of the vehicle in flight.

UNMANNED FREE BALLOON. A balloon, without crew, not restrained from free flight by any connection with the ground nor equipped with any power plant or propelling device and the track of flight of which is determined by the wind.

48.3 Exempt Operations. Operations conducted wholly within the confines of a restricted area with prior permission of the using Agency are exempt from compliance with the regulations of this part.

48.4 Radio Equipment. Radio transmitting equipment used in conjunction with operations within the provisions of this part shall be licensed as may be required in accordance with the Communications Act by the Federal Communications Commission, Washington 25, D. C.

SUBPART A - MOORED BALLOONS AND KITES:

48.10 Applicability. The provisions of this subpart shall apply to moored balloons having a diameter of more than six feet or a gas capacity of more than 115 cubic feet and kites weighing more than five pounds.

NOTE: The term "kite" includes a gyro-glider operated by means of a towline attached to a vehicle on the surface. A gyro-glider, when operated in free flight, is considered an aircraft and, as such, shall be certificated and operated in accordance with applicable regulations.

48.11 Operational Requirements.

(a) No person shall operate a moored balloon or kite:

1. Closer than 500 feet to the base of any clouds,
2. During the hours of darkness,
3. When the ground visibility is less than three miles,
4. At an altitude of more than 500 feet above the surface, or
5. Within five miles of the boundary of any airport.

(b) A balloon or kite shall not be operated at an altitude between 150 and 500 feet above the surface unless written notice is given, 30 days prior to the date of operation, to the Federal Aviation Agency Regional Office having jurisdiction over the area of operation. Such notice shall contain the names

and addresses of the owners and operators, the period during which such activity will take place, and the location and altitude at which the proposed operation will be conducted.

48.12 Rapid Deflation Device. Moored balloons as described in Section 48.10 of this subpart shall be equipped with a device or means of automatic and rapid deflation in the event of an escape from its moorings.

48.13 Marking Requirements. The mooring string, rope or cable shall display colored pennants or streamers affixed at 50 foot intervals or fraction thereof. Such pennants or streamers shall be of sufficient size and conspicuity as to be visible at a distance of at least one mile.

SUBPART B - UNMANNED FREE BALLOONS.

48.20 Applicability. The provisions of this subpart shall apply to unmanned free balloons which:

(a) Are reinforced in any manner,

(b) Have a balloon assembly exceeding 18 pounds in weight,

(c) Carry a payload in excess of 4 pounds, or;

(d) Carry a payload of 4 pounds or less that is suspended by a string, rope, cable, or spacing device which requires an imposition of more than 50 pounds force for parting or separation of such payload from the balloon.

48.21 Operational Requirements. No person shall operate an unmanned free balloon:

(a) In controlled airspace during the initial 3,000 feet of ascent,

(b) In airspace over cities, towns or settlements during the initial 3,000 feet of ascent,

(c) At a rate of ascent less than 500 feet per minute between the surface and 44,000 feet (standard pressure altitude),

(d) At an altitude less than 44,000 feet except during the ascent and the descent phases of the operation,

(e) Closer than one mile to any cloud formation,

(f) When the visibility is less than three miles below 3,000 feet above the surface or less than five miles at 3,000 feet and above,

(g) At a rate of descent less than 500 feet per minute between 44,000 feet and the surface,

(h) In such manner that impact with the surface is made within the confines of congested areas of cities, towns or settlements, or;

(i) During the hours of darkness.

48.22 Safety Requirements. No person shall operate an unmanned free balloon without including:

(a) Provision for time clock cut-down in case the balloon fails to reach 44,000 feet within 100 minutes after being launched,

(b) Provision for barometric cut-down in case malfunctioning equipment causes balloon to descend anytime below 44,000 feet,

(c) Provision for radio controlled command cut-down,

(d) Parachute, where required by the operation, with canopies of alternate white and international orange segments or, if multiple parachutes are used, any combination of orange and white canopies, and;

(e) Provision for the trailing antenna to display colored pennants or streamers, affixed at 50 foot intervals, of sufficient size and conspicuity as to be visible at a distance of at least one mile.

48.23 Flight Path Forecast. No unmanned free balloon shall be released unless a qualified meteorologist forecasts the flight trajectory and estimated location and time of impact prior to the launching. Recalculations shall be made as considered necessary upon receipt of track data.

48.24 Tracking and Track Reports. All persons operating an unmanned free balloon shall track, either visually or electronically, the flight of each balloon during its entire operation. Position reports shall be recorded at least every two hours or as otherwise required by air traffic control, and such reports shall be made available to the appropriate Federal Aviation Agency Flight Service Station or air traffic control facility as requested.

48.25 Notification Requirements. All persons operating unmanned free balloons shall provide the following data to the nearest air traffic control facility:

(a) Prelaunch Notification. At least 12 hours prior to launching:

(1) Balloon or flight identification number,

(2) Estimated date and time of launching,

(3) Geographical location of launching site,

(4) Forecast trajectory to 44,000 feet,

(5) Cruising altitude,

(6) Estimated time required to reach 44,000 feet,

(7) Over-all length of balloon system not including length of trailing antenna (list trailing antenna length, if utilized),

(8) Duration of flight,

(9) Forecast time and location of impact.

(b) Launching Notification. At the time of the launching:

(1) Balloon or flight identification number,

(2) Geographical location of launching site,

(3) Date and time of launch,

(4) Any change of 10 minutes or more in time or 25 miles or more in distance with respect to the forecast time or location of the penetration of 44,000 feet respectively,

(5) Estimated time and geographical location of impact.

(c) Track Notification. Track notification reports 4 hours and 2 hours prior to the descent phase of the flight:

(1) Balloon or flight identification number,

(2) Date and time of balloon position,

(3) Position (geographical),

(4) Altitude,

(5) Forecast direction of flight trajectory for remaining portion of flight,

(6) Forecast time of penetration of 44,000 feet on descent,

(7) Forecast geographical location and time of impact.

(d) Impact Notification. As soon as possible, the time and geographical location of impact.

(e) Tracking Failure (NOTRAK). In case of failure of the tracking system, the nearest FAA air traffic control facility shall be immediately notified. Such notification shall contain the last recorded position of the unmanned free balloon and any revised forecasts pertinent to the operation. The FAA air traffic control facility shall be immediately notified if tracking is re-established.

SUBPART C - ROCKETS AND MISSILES:

48.30 Applicability. The provisions of this subpart shall apply to the operation of all rockets and missiles other than operations conducted by the Department of Defense (DOD), the National Aeronautics and Space Administration (NASA), or any

other U. S. Government Agency in accordance with the terms and provisions of agreements reached between those agencies and the Federal Aviation Agency.

48.31 Operational Requirements.

(a) No person shall operate a rocket or missile:

(1) In such proximity to other aircraft as to create a collision hazard,

(2) During the hours of darkness,

(3) At an altitude above 150 feet when the visibility is less than five miles,

(4) Closer than one mile to any cloud formation, unless below 150 feet,

(5) Within five miles of the boundary of any airport,

(6) In controlled airspace,

(7) Closer than 1,500 feet from any person or building not associated with the operation, or

(8) More than 500 feet above the surface.

(b) A rocket or missile shall not be operated at an altitude between 150 and 500 feet above the surface, unless written notice is given, 30 days prior to the date of operation, to the Federal Aviation Agency Regional Office having jurisdiction

over the area of operation. Such notice shall contain the names and addresses of the owners and operators, the period during which such activity will take place, and the location and altitude at which the proposed operation will be conducted.

48.32 Compliance With Applicable Laws. Persons operating rockets and missiles in compliance with the regulations of this subpart shall not be relieved of compliance with other applicable Federal, State and Local Laws governing other aspects of such operations.

3. By amending Section 60.1 of Part 60 by the addition of a new subsection (c) to read as follows:

60.1 Scope. * * *

(c) Unmanned free balloons, rockets and missiles 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 U.S.C. 1348).

D. D. Thomas

Director, Bureau of Air Traffic Management

Issued in Washington, D. C. on February 18, 1961

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