withdrawn

CIVIL AERONAUTICS BOARD
SAFETY BUREAU
WASHINGTON 25, D. C.

MAR 7 1947

January 17, 1947

CIVIL AIR REGULATIONS DRAFT RELEASE NO. 47-1

SUBJECT: Air Traffic Rules, Part 60; Specialized Rules for Helicopters

The Safety Bureau submits this draft release for comment of the aviation industry, a proposed amendment to Part 60, Air Traffic Rules, of the Civil Air Regulations, which has not yet been considered by the Civil Aeronautics Board.

On October 1, 1946, the Safety Bureau circulated Draft Release No. 46-5 to the industry for comment which set forth a proposed revision of Part 60, Air Traffic Rules. However, prior to submitting the revision of Part 60 to the Board, having given due regard to the many comments received, your suggestions are solicited on the following proposed rules which will provide for the specialized operation of helicopters in order that appropriate rules may be incorporated in Part 60 when considered by the Board.

In Draft Release No. 46-5, Section 60.923 defined a "rotorcraft" as "an aircraft whose support in flight is derived dynamically from the reaction on rotating surfaces in motion relative to the aircraft." This definition includes aircraft such as the "autogiro" type which derives its thrust from the conventional propeller and its lift from blades free to rotate in the horizontal plane, and the newer "helicopter" type, which derives both its thrust and lift from power-driven blades rotating in the horizontal plane.

Certain manufacturers of helicopters have been awarded Approved Type Certificates for such aircraft in accordance with Part 06, Rotorcraft Airworthiness. Helicopters are now coming off the production line and there is every indication that in the near future there will be sufficient helicopter operations to warrant the consideration of regulations which will permit their safe operation in services for which they are especially adapted.

In proposing rules to govern the operation of helicopters, special consideration must be given to their flight characteristics which are entirely different from those of fixed-wing aircraft. The helicopter can ascend and descend vertically and, in the event of power-plant failure, a safe emergency landing can be effected with autorotation into a limited space. Thus there is no need to confine helicopter operations to the use of full-scale airports and, when landings are made at established airports, runways designed for fixed-wing aircraft need not be used by helicopters. Due to the ability of the helicopter to adapt itself to traffic conditions through its capacity to ascend or descend vertically, to hover, to proceed at very slow speed, or to fly backwards or sideways, it is apparent that such aircraft may be flown with safety with very limited flight visibility.

Therefore, it is proposed to amend certain sections of Draft Release No. 46-5 as indicated below. The left column sets forth the proposed rules and the right-hand column is reserved for explanatory remarks:

Proposed Rules	Remarks
60.107 Minimum safe altitudes. Except when necessary for taking off or landing, no aircraft shall be flown: (a) Over the congested areas of cities, towns or settlements, or over an open-air assembly of persons, except at such an altitude as will permit, in the event of the failure of a power unit, an emergency landing without undue hazard to persons or property on the surface, but in no case shall the altitude when over such areas or an open-air assembly of persons be less than 1,000 feet above the highest obstacle within a radius of 2,000 feet from the aircraft: Provided, That helicopters may be flown over the congested areas of cities, towns or settlements at less than the minimums prescribed herein whenever the flight path of the helicopter over such areas is such that in the event of the failure of a power unit, an emergency landing can be effected without undue hazard to persons or property on the surface. (NOTE: No change in § 60.107 (b) is proposed. This rule is quoted for reference: "(b) When elsewhere than as specified in paragraph (a), at an altitude of not less than 500 feet, unless the flight can be made without hazard to persons or property on the surface."	The proposed rule is substantially the same as circulated to the aviation industry in Draft Release No. 46-5 except that, starting with the word "provided", an addition has been made which would permit the flight of helicopters over the congested areas of cities, towns or settlements at less than 1000 feet above the highest obstacle, but does not permit the flight of helicopters over an open-air assembly of persons at less than 1,000 feet. It should be noted that this rule requires the pilot of a fixed-wing aircraft to fly at such an altitude over cities and populous areas that a safe emergency landing can be accomplished, and charges the pilot with the responsibility for maintaining an altitude well above the minimum stated if essential to the safety of persons and property on the surface. The proposed addition places a like responsibility on the pilot of the helicopter and, further, if the helicopter is flown over the congested areas of cities, towns, or settlements at less than 1,000 feet above the highest obstacle, it requires the pilot to select a flight path, or route, over the congested area with due regard to places in which an emergency landing can be made with safety and to maintain an altitude along that flight path from which such an emergency landing can be effected. The proposed rule fully recognizes the flight characteristics of helicopters which can accomplish nearly vertical emergency landings within a relatively small space. However, because of the differences in flight characteristics between fixed-wing aircraft and helicopters and because of uses to which the

60.202 Outside of control areas and control zones. No aircraft shall be operated outside of Control Areas and Control Zones except in accordance with the following rules:

(a) Below 700 feet above the surface aircraft shall be flown clear of clouds and with a flight visibility of at least one mile: Provided, That helicopters may be flown at altitudes less than 700 feet above the surface with a flight visibility of less than one mile, if operated at a reduced speed which will give the pilot of such helicopter adequate opportunity to see and avoid other air traffic or any obstacle to flight in time to avoid any hazard of collision.

helicopter may be adapted, it may be determined after further experience that helicopters should be limited to certain operating minimums over congested areas such as 300 feet above the surface and a flight visibility of 1/8 mile.

The last part of this rule, starting with the word "provided," would permit flight of helicopters at altitudes less than 700 feet above the surface when the flight visibility is considerably restricted. However, in such instances, the pilot of the helicopter would be required to reduce his speed consistent with the extent of his visibility in order that he would have ample opportunity to see and avoid either obstructions to his flight or other helicopters which might be operating in the vicinity at a similarly reduced speed. Section 60.102, Carless and reckless operation, would also require reduction of speed in such instances in order to avoid endangering the life or property of another. In considering this rule, it should be noted that the minimum altitude permitted for flight in accordance with Section 60.3, Instrument Flight Rules, is 1,000 feet above the highest obstacle within 5 miles of the aircraft in flight; and, furthermore, visual flight operations of fixed-wing aircraft should not be conducted with a flight visibility of less than one mile unless otherwise authorized by air traffic control within control zones. Hence, helicopter operations at altitudes less than 700 feet above the surface with flight visibility of less than one mile should not conflict with any other operations. The flight of helicopters under the above conditions would not be permitted within Control Zones unless otherwise authorized by Air Traffic Control, and for all flight operations above 700 feet above the surface rotorcraft would be required to comply with all rules which apply to any other aircraft.

It is further proposed that the following definition be added under Section 60.9:

. Helicopter. A type of rotorplane whose support in the air is normally derived from airfoils mechanically rotated about an approximately vertical axis.

Rules providing for helicopter pilot qualifications and operating rules for helicopters will be circulated to the aviation industry for comment at an early date with the proposed revisions of Parts 20 and 43 of the Civil Air Regulations, which are in the process of preparation.

Your cooperation in forwarding your comments on the above proposal to the Safety Bureau, Civil Aeronautics Board, Washington 25, D. C., on or before February 20, 1947 will be appreciated.

L. S. Dawson
Director, Safety Bureau