UNITED STATES OF AMERICA
CIVIL AERONAUTICS BOARD
WASHINGTON, D. C.

Civil Air Regulations, Part 60
Interpretation No. 1
Adopted: July 22, 1954

AIR TRAFFIC RULES - MINIMUM SAFE ALTITUDES OF FLIGHT

In the Civil Air Policy Report of the Air Coordinating Committee, released by the President under date of May 26, 1954, the following policy statement appears:

"Existing federal regulations relating to minimum altitudes of flight should be re-examined by the appropriate agencies to determine whether revision of such regulations is necessary or desirable in order to dispel any possible inference that the federal government has not exercised its regulatory jurisdiction over the entire flight of an aircraft in the airspace above the United States navigable in fact."

The textual material that accompanies this policy statement indicates that the re-examination called for is desirable because of doubts which have been expressed as to whether current minimum safe altitude regulations of the Board specifically apply to aircraft while landing or taking off. Directly involved is the question whether the airspace which lies at and above the flight path of aircraft making normal take-offs and landings comes within the term "navigable airspace" as defined in the Civil Aeronautics Act. If it does, a public right of freedom of transit is recognized and proclaimed to exist for citizens of the United States by section 3 of that Act.

The current minimum safe altitudes for flight, so far as here pertinent, are set forth in §60.17 of the Civil Air Regulations, and read as follows:

"§60.17 Minimum safe altitudes. Except when necessary for take-off or landing, no person shall operate an aircraft below the following altitudes:

"(a) Anywhere. An altitude which 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;

"(b) Over congested areas. Over the congested areas of cities, towns or settlements, or over an open-air assembly of persons, an altitude of 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet from the aircraft. Helicopters may be flown at less than the minimum prescribed herein if such operations are conducted without hazard to persons or property on the surface and in accordance with paragraph (a) of this section; however, the Administrator, in the interest of safety, may prescribe specific routes and altitudes for such operations, in which event helicopters shall conform thereto;

"(c) Over other than congested areas. An altitude of 500 feet above the surface, except over open water or sparsely populated areas. In such event, the aircraft shall not be operated closer than 500 feet to any person, vessel, vehicle, or structure. Helicopters may be flown at less than the minimums prescribed herein if such operations are conducted without hazard to persons or property on the surface and in accordance with paragraph (a) of this section."

The particular part of the regulations to which this interpretation relates is that contained in the initial clause of the section: "Except when necessary for take-off or landing, no person shall operate an aircraft below the following altitudes". Is this to be read as establishing a rule prescribing a changing but continuously effective minimum altitude for each instant of the climb after take-off and approach to landing; or is it simply an exception to the general minimum altitude rule, relieving the pilot of the obligation of complying therewith on his way up to and down from the higher reaches?

In accordance with the recommendation of the Air Coordinating Committee, the Board has reviewed these minimum safe altitude regulations, taking into consideration past regulations on the subject, the legislative intent of the Congress, the powers and duties of the Board in this field, and the technical aspects of aircraft operation. In arriving at its conclusion that the revision of this aspect of its minimum altitude rules is neither necessary nor desirable, the Board does so because in its opinion the application of the rule as herein interpreted is productive of optimum safety in landing and take-off operations. This was so at the time the rule was promulgated. It remains so now.

In arriving at its interpretation of the current regulation the Board considers that the following factors are the ones which should be taken primarily into account:

(a) The legislative history of the Air Commerce Act of 1926 shows that the Congress intended the navigable airspace to extend down to the surface at airports. The regulation should therefore be interpreted so as to give effect to this expression of Congressional intent, if such an interpretation is possible.

(b) The duty of the Board under the Act is primarily to prescribe safe altitudes of flight, not to proclaim what is navigable airspace. Although navigable airspace has been defined by the Congress in terms of minimum altitudes, these must be fixed by the Board solely on the basis of safety.

(c) The matter of safety of flight in terms of safe altitudes is dependent upon many variables, including the type of aircraft flown, the weather conditions at the time, and the terrain below. An altitude which may be wholly safe and desirable for cruising flight at one time for one aircraft may be wholly unsafe for it under different conditions, or for other aircraft under the same conditions. For these reasons, minimum safe altitudes for flight cannot be described with the geometrical particularity of a conveyance. As a consequence the overriding minimum safe altitude rule is phrased in terms of performance of the particular aircraft related to the terrain below-- or that "altitude which 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".

(d) Landing and take-off operations require special treatment. This need arises by reason of the slanting nature of the flight path. However, as in the case of the en route rules, maximum safety may be achieved only by relating the requirement to the particular performance capabilities of the aircraft under existing conditions. It is true that, in the case of some airports, full compliance with the en route minimum altitude rules is possible even during landing or take-off; in many others, however, particularly in the case of those airports close to urban centers, compliance with the en route rules is not possible, and the Board's safety concern therefore lies in getting aircraft on and off such airports and up to and down from cruising altitude with the greatest degree of safety. Because of individual variations in aircraft performance, this goal of maximum safety cannot be achieved by a metes and bounds description of airspace surrounding airports applicable to all aircraft alike, or by a uniform formula prescribing a given angle of climb and descent. Any such fixed requirement might be appropriate to the performance capabilities of some aircraft, unduly lax with respect to others, and impossible of achievement by others. Either a meaningless average would have to be struck, or a minimum requirement fixed which could be met at all times by every aircraft possessing an airworthiness certificate. In either case the Board would not be fulfilling its obligation under the Act to provide safe altitudes of flight. To achieve the proper high level of safety, it is vital that every pilot, consistently with sound and conservative operating practices, take full advantage of the performance capabilities of his aircraft so as to spend as little time as possible at altitudes below the minimums established for cruising flight. The "when necessary" language used in current §60.17 achieves this result simply and directly. It prohibits low altitude flying except when a departure from the otherwise applicable minimum is necessary for landing or taking off. It prohibits unnecessary low flying during the execution of those maneuvers. At every point along the proper flight path for approach to landing or climb after take-off, an unnecessary dip would place the pilot in potential violation of this regulation. In effect, it requires the pilot to do the best he can consistently with sound flying practice and the machine at his disposal to avoid unduly prolonged low flight.

(e) Possibly other formulae could be devised which express the same standard of safety in specific terms of minimum altitudes linked to the normal and necessary downward or upward flight path of the particular airplane under the particular conditions. In this connection it makes no difference whether the prescribed minimum flight path is described directly by reference to the ground below or whether it is fixed in relation to the minimum en route altitudes which themselves have been ascertained by reference to the surface. In adopting this second solution, §60.17 fixes the flight path in terms of permissible deviation from the otherwise applicable norm. It applies the standard of necessity to accomplish specified ends and in so doing produces the maximum flight paths for climb and descent that are consistent with the safest operating techniques and practices. However worded, no other formula could do more or do it better.

In consideration of the foregoing, the Board construes the words "Except when necessary for take-off or landing, no person shall operate an aircraft below the following altitudes" where such words appear in §60.17 of the Civil Air Regulations, as establishing a minimum altitude rule of specific applicability to aircraft taking off and landing. It is a rule based on the standard of necessity,

and applies during every instant that the airplane climbs after take-off and throughout its approach to land. Since this provision does prescribe a series of minimum altitudes within the meaning of the Act, it follows, through the application of section 3, that an aircraft pursuing a normal and necessary flight path in climb after take-off or in approaching to land is operating in the navigable airspace.

(Sec. 205(a); 52 Stat. 984; 49 U.S.C. 425(a). Interpret or apply §601(a); 52 Stat. 1007; 49 U.S.C. 551(a))

By the Civil Aeronautics Board:

/s/ M. C. Mulligan

M. C. Mulligan
Secretary

(SEAL)

Part 60 last printed August 1, 1949.