

[Reg. Docket No. 6018; Amdt. #1-14]

**PART 91—GENERAL OPERATING
AND FLIGHT RULES**

**Radio Failure Procedures in IFR
Operations**

On June 13, 1964, a notice of proposed rule making was published in the FEDERAL REGISTER (29 F.R. 7605) stating that the Federal Aviation Agency proposed to revise the radio failure procedures in Instrument Flight Rules Operations.

Interested persons were afforded an opportunity to participate in the rule making through submission of comments. Due consideration was given to all relevant matter presented.

The Air Transport Association of America (ATA) commented that the proposed rule failed to provide adequately for the pilot who, after departure, is assigned an altitude below the highest route structure and then experiences radio failure. In this situation the crew, which might be operating a turbojet aircraft, would be required, under the proposed rule, to proceed at the last assigned altitude, or minimum altitude for IFR operation, whichever is the highest. Increased fuel consumption at the lower flight levels might create an impossibility for some flight crews to comply with the radio failure rule and reach the planned destination. The Department of the Air Force commented similarly. Both the ATA and the Air Force recommended procedural rather than regulatory changes to correct the problem. The Air Force recommended a procedural revision to insure that pilots programming flights be assigned a flight level, or an expected clearance altitude, if at FL 290 or above, of not less than 4,000 feet below the flight plan altitude; or, if below FL 290, a flight level of not less than 2,000 feet below the flight plan altitude.

During the study made by the FAA of procedures for the modified airway route system, careful consideration was given the procedures involving the assignment of initial altitudes to jet aircraft. It was determined that the present ATC procedures adequately provide for potential radio failures in turbojet aircraft. In certain situations the initial clearance issued under present procedures may not provide for an altitude high enough to

permit reaching the desired destination. The most desirable method would be to provide for altitudes which would always permit continuation of flight. However, if mandatory procedures to provide this method, as recommended by the Air Force, are established, they may prevent the controller from issuing a clearance with which the pilot could safely comply. Occasionally, extensive coordination would be required in order for the controller to issue a clearance at, or relatively close to, the filed altitude or flight level. Rather than delay issuing the clearance while this coordination is accomplished the controller issues a clearance which does not require immediate coordination, and then accomplishes the coordination without delay to the aircraft. The establishment of a mandatory provision would prohibit this procedure and create unnecessary delay since there would be times when an initial clearance, lower than any mandatory provision, might be acceptable even though the pilot had programmed for a much higher altitude or flight level. The pilot receiving the clearance is in the best position to determine whether the conditions are of a nature that he can accept the clearance, and, if not, to advise the controller that the clearance is not acceptable. The radio failure procedures are being studied and evaluated continuously. Certain changes pertinent to altitude accommodations can be accomplished more expeditiously through procedural methods than by regulatory measures.

ATA commented on the relation of the minimum useable flight level in § 91.81 to radio failure procedures. The specific question was raised, "If the altimeter setting should be something lower than 29.41" Hg., then the aircraft climbing on a sea level adjusted altimeter would reach 18,000 feet MSL, and, according to the rules, change a standard altimeter of 29.92" Hg. and then cruise with his altimeter reading 19,000 feet.

Question: "Does he remain at FL 190 which, under the existing circumstances, is the lowest useable flight level or descend to FL 180?" The ATA recommended providing for the lowest useable flight level.

Although the lowest useable flight level was not directly referred to in the proposal, it was not considered necessary. A pilot operating in a selected flight level determines the appropriate minimum flight level in accordance with § 91.81(c), thereby insuring operation at, or above, the lowest useable flight level as determined in § 91.81(b). Since it appears that the specific wording in the proposal may not convey fully the applicability of the minimum flight level to the minimum altitude, action is taken herein to amend the wording in order to clarify the intent.

The National Business Aircraft Association, Inc. (NBAA) expressed the view that, as a procedure for arrival and departure terminal controllers, a series of radar vectors must be preceded by advice to the pilot that the vectors will terminate at a specified navigational fix and altitude within the terminal area. Similarly, a pilot in the en route phase

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of flight must be advised of the navigational fix and altitude toward which a series of vectors is directed. Based on this reasoning, the NBAA suggested an addition to FAR Part 91 of paragraph 91.127(c)(1)(iv) which would read as follows:

In the absence of an assigned route due to radar vectoring away from such route, the direct route from the point of radio failure to the next navigational fix and altitude stated in the last ATC clearance obtained by the pilot shall become the assigned route.

ALPA commented that the proposed rule appeared inadequate in the area of radar vectors associated with Standard Instrument Departures. ALPA suggested that a provision should be added in the rule to the effect that when a pilot, who has neither an assigned route nor an "expect-further-clearance" loses communications while on a radar vector, he will proceed directly to the next radio facility defining the filed route.

Essentially, these procedures suggested by NBAA and ALPA are in effect at the present time. Current procedures require controllers to advise the pilot of the airway, route, or fix to which the aircraft is being vectored. It is considered that this advisory constitutes the "route assigned" in § 91.127(c)(1)(i). However, since the addition of more specific wording in the regulation may serve to increase clarity, the recommendation for that portion pertaining to the route is adopted and action is taken herein to insert this provision as § 91.127(c)(1)(ii). Proposed subparagraphs (ii) and (iii) are redesignated as (iii) and (iv), respectively. The altitude provision in the NBAA recommendation is adequately covered by subparagraph (2).

The Aircraft Owners and Pilots Association recommended that § 91.127(c)(5) be revised to provide that an Expected Approach Clearance Time (EAC), if received, would assume precedence over the Estimated Time of Arrival (ETA). If an EAC is received, air traffic control can be based upon this time, and an ETA need not be considered. However, if a pilot should fail to arrive at the approach fix before the EAC or ETA, descent should not be commenced until reaching the approach fix. Therefore, action is taken herein to amend § 91.127(c)(5) to the extent that a pilot shall commence descent upon reaching the fix, but not before the EAC or the amended ETA if no EAC has been received.

The Department of the Navy commented that the proposal did not specify whether the pilot should descend in a holding pattern to the initial penetration altitude before commencing an approach, or to commence the approach at the last assigned altitude or flight level. The Navy suggested wording to require that descent be executed in a holding pattern and that the approach be executed from the published initial approach altitude. Since descent is begun at the approach fix and published charts prescribe the altitude and distances for subsequent portions of the approach, pilots must determine whether descent in the holding pattern is necessary to comply with the procedure. Accord-

ingly, a mandatory requirement for descent in a holding pattern is not considered necessary.

Several comments suggested minor word changes for the purpose of clarification. Several of these changes were adopted. Among these were the changes in subparagraphs (4) and (5) where "radio facility" was changed to "fix" in order to accommodate TACAN and DME fixes where approaches are commenced. In addition, § 91.127(c)(3)(iii) was changed to better reflect the intent that the climb to the altitude or flight level involved is to the altitude at which "expect-further-clearance" has been issued.

Three comments were received concerning the proposal to substitute the term "obtained" for "received" wherever "received" appears in the section in reference to a clearance given by ATC to the pilot. It was the Navy's view that neither of these terms necessarily implies "acknowledgement" either by definition or common usage. Accordingly, they recommended use of the word "acknowledged." ATA also objected to the use of the word "obtained" and recommended substitution of "acknowledged by the pilot" since this phrase would remove for the controller and the pilot all doubts such as those relative to clearance, expect-further-clearance, altitude, and route. In much the same manner, the Department of the Air Force indicated that it did not agree that the general usage of the word "obtained" indicates acknowledgement by the pilot. While the term "acknowledged" has considerable merit when used in accordance with normal operating conditions, its literal use in the radio failure section may preclude the use of a clearance that has been broadcast to the pilot of an aircraft experiencing radio transmitter failure only. It was not intended that a substantive change be created by the substitution of these words. The comments, however, indicate that substitution may be interpreted as a substantive change, particularly when considered in the light of other sections of Part 91. If the term "acknowledged" was added by this rule, Part 91 would include reference to clearances that are "received," "obtained," and "acknowledged." Clarification of the terms "received" and "obtained" as used presently in Part 91 is under consideration within the Agency and may be the subject of a forthcoming proposal. Since any change in terminology, which would be construed as substantive, should be accomplished in all sections, the proposal to substitute terms in this section is withdrawn and the term "received" is retained.

In consideration of the foregoing, and for the reasons stated in the notice, § 91.127(c) of Part 91 of the Federal Aviation Regulations is amended, effective May 27, 1965, to read as follows:

§ 91.127 IFR operations; two-way radio communications failure.

(c) *IFR conditions.* If the failure occurs in IFR conditions, or if paragraph (b) of this section cannot be complied with, each pilot shall continue the flight according to the following:

(1) *Route.* (i) By the route assigned in the last ATC clearance received;

(ii) If being radar vectored, by the direct route from the point of radio failure to the fix, route, or airway specified in the vector clearance;

(iii) In the absence of an assigned route, by the route that ATC has advised may be expected in a further clearance; or

(iv) In the absence of an assigned route or a route that ATC has advised may be expected in a further clearance, by the route filed in the flight plan.

(2) *Altitude.* At the highest of the following altitudes or flight levels:

(i) The altitude or flight level assigned in the last ATC clearance received;

(ii) The minimum altitude (converted, if appropriate, to minimum flight level as prescribed in § 91.81(c)) for IFR operations; or

(iii) The altitude or flight level ATC has advised may be expected in a further clearance.

(3) *Climb.* When it is necessary to climb in order to comply with subparagraph (2) of this paragraph, the following applies:

(i) Climb to the assigned altitude or flight level in accordance with the last ATC clearance received;

(ii) Climb to the minimum altitude for IFR operation at the time or place necessary to comply with that minimum; or

(iii) Climb to the altitude or flight level ATC has advised may be expected in a further clearance at the time or place included in the expect-further-clearance.

(4) *Leave holding fix.* If holding instructions have been received, leave the holding fix at the expect-further-clearance time received, or, if an expected approach clearance time has been received, leave the holding fix in order to arrive over the fix from which the approach begins as close as possible to the expected approach clearance time.

(5) *Descent.* Begin descent from the en route altitude or flight level upon reaching the fix from which the approach begins, but not before—

(i) The expect-approach-clearance time (if received); or

(ii) If no expect-approach-clearance time has been received, at the estimated time of arrival, shown on the flight plan, as amended with ATC.

(Sections 307 and 313, Federal Aviation Act of 1958; 49 U.S.C. 1348 and 1354)

Issued in Washington, D.C., on March 15, 1965.

N. E. HALABY,
Administrator.

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