

# Title 14—AERONAUTICS AND SPACE

## Chapter I—Federal Aviation Administration, Department of Transportation

[Docket No. 9880; Amdts. Nos. 1-17; 71-6; 91-78]

### PART 1—DEFINITIONS AND ABBREVIATIONS

#### PART 71—DESIGNATION OF FEDERAL AIRWAYS, CONTROLLED AIRSPACE, AND REPORTING POINTS

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

##### Terminal Control Areas

The purpose of these amendments to the Federal Aviation Regulations is to prescribe air traffic rules for the separation, segregation and control of aircraft operated within "Terminal Control Areas."

The procedural history preceding the issuance of this rule has a direct effect upon the development of this amendment, and to the extent deemed necessary for purposes of this rule-making action, is summarized as follows: On September 30, 1969, the FAA issued a notice of proposed rule making (69-41, 34 F.R. 15252) in which it defined the concept of a terminal control area. It was indicated in the notice that the FAA would issue separate notices proposing airspace configurations at 22 designated terminal areas. To insure that the FAA obtained maximum public participation in this undertaking, 22 separate public hearings were conducted at the designated areas to openly discuss these proposals with the local user groups. As a result of these public hearings and the views expressed in the written comments to the Docket, which exceeded 1,800 in number, it became evident to the FAA that even though there was general agreement among individual users and user groups that something must be done to create a safer environment in the congested terminal areas, there was substantial disagreement over the best method to achieve this result.

Because of the public reaction to the proposal issued in Notice 69-41, the entire matter was carefully restudied. During the course of this study, careful analysis was made of the comments received from the public, to the end that a terminal area plan would be designed that would provide within the present air traffic control capability, the safest and most efficient terminal area environment possible.

On March 11, 1970, Notice 69-41B was issued (35 F.R. 4519). In that document the FAA explained in detail that because conditions vary sufficiently among the 22 hub airports, it would be inappropriate to have one set of rules applicable to all 22 locations regardless of the volume and complexity of the air traffic situation. For the purpose of designing operating rules that were better scaled to the individual needs of particular locations, the FAA divided the terminal

control area proposed for these locations into two groups, designated as Group I and Group II.

At this point, it appears appropriate to consider one of the more common written complaints made to the FAA by commentators in response to Notice 69-41B. These commentators, in varying degrees, stated that the proposal indicated favoritism toward the airlines over general aviation. Favoritism is not involved since that notice has been designed solely because of safety requirements. The Group I Terminal Control Areas represent 10 of the busiest locations in terms of aircraft operations and passengers carried, and it is necessary for safety reasons to have stricter requirements for operation within the terminal control areas at those locations than at other locations. The density of air traffic at all Group I locations consists of at least 300,000 operations per year, with more than 60 percent of this traffic involving air carrier operations. These Group I locations have a yearly minimum of 3.5 million enplaned passengers. It was noted in Notice 69-41, when referring to the Mid-air Collision Study Program, that 97 percent of the terminal area incidents occurred below 8,000 feet above ground level, and that the vast majority involved conflict between general aviation aircraft and either an air carrier, military or another general aviation aircraft. It was also highlighted that the mix of uncontrolled VFR and controlled IFR aircraft was a basic causal factor of these air traffic conflicts. Since at the Group I locations the density of air traffic is greater, and 60 percent of this traffic involves air carrier passenger operations, conflicts resulting from the above described mixture of air traffic have the greatest potential to cause a midair collision of catastrophic proportions. Accordingly, the FAA deemed it essential, at Group I locations, to impose maximum safety requirements. Thus, traffic will be segregated based on more stringent equipment and piloting requirements at the designated Group I Terminal Control Areas.

The Group II locations are generally less busy in terms of aircraft operations and passengers carried. There is small percentage of use by air carriers and a larger use by slower, more maneuverable aircraft at these locations. Based on these factors, and because the speed and operating characteristics are not as critical from an operational or air traffic standpoint, less stringent equipment and piloting requirements are needed to achieve a safe environment in Group II Terminal Control Areas.

Many of those who claimed that the FAA was favoring the airlines over general aviation linked the transponder requirement with the criticism of favoritism. As the FAA understands this criticism, it is claimed that since transponders and positive control go hand in hand, the light airplane operator will be required to unnecessarily purchase expensive equipment or refrain from operating within a terminal control area; and since the VFR pilot can maintain separation from other aircraft using the see and be seen principle, he is being

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unjustifiably discriminated against. At this point, it appears necessary to again emphasize that near misses and midair collisions have resulted primarily because of the random mix of uncontrolled VFR and IFR traffic. Because this finding has always been supported by the results of appropriate accident investigation studies, near miss report studies, and independent expert opinion, the FAA rejects the recommendation that aircraft separation unilaterally achieved by a VFR pilot using the see and be seen principle will meet the acceptable safety standard required for operation within a Group I Terminal Control Area environment. Additionally, because the Group I Terminal Control Area environment primarily accommodates a more sophisticated type aircraft, each of which will be assured of positive separation from the other aircraft, the benefits of immediate identification of aircraft and target reinforcement offered by a transponder will obviously enhance safety. Also of importance is the fact that much of the so-called general aviation fleet is presently equipped with transponders and satisfactorily satisfies the equipment requirements for operating within a Group I Terminal Control Area.

Finally, the FAA, in an attempt to impose as little restraint as possible upon the operators of aircraft, deliberately separated out for more lenient operating requirements (including that of not requiring a transponder) 14 locations now designated as Group II Terminal Control Areas. The FAA will continue to study the 24 designated Group I and II locations and, if appropriate, may reclassify any of these locations or remove them from regulatory restraint.

One other general type criticism of the transponder requirement related to an opinion that the returns would saturate the ground radar. The fear was expressed that numerous secondary radar returns will block out the scope completely. This problem was anticipated, and both electronic and procedural techniques exist to avoid the occurrence of such an event.

The balance of critical comments to this notice generally fall into four categories:

1. The lack of standardization of airspace configuration and the complexity of the Terminal Control Areas.

2. The imposition of an additional, unnecessary workload on the controller.

3. The compression of VFR traffic at the edges and under the Terminal Control Areas.

4. The preference for climb and descent corridors. Each criticism will be responded to specifically hereunder.

1. *The lack of standardization of the airspace configuration and the complexity of the Terminal Control Areas.* In general, pilots who made this type of comment were of the view that unless there is some standardization of the airspace configurations, a pilot may not be aware when he inadvertently penetrates a terminal control area, or know when to

vary altitudes in order to stay beneath the floors of the terminal control area. It was asserted that a lack of standardization into two or three basic types will result in inevitable confusion and cause the entire operation to be too complex. In order to effectively design a safe and efficient terminal control area, it is necessary to tailor the airspace configuration to the particular needs of that area. Included in each consideration are the types of aircraft used and nature of air operations at the airports within a terminal control area, the adaptation of the facilities at the airports and the navigational aids available for use at that location, and the air traffic capability to meet the needs of the terminal control area concept. Since each of these factors may vary at different locations, the design of each terminal control area airspace configuration must vary. Accordingly, there can be little, if any, standardization in the airspace configurations. The FAA recognizes that as a result of tailoring the airspace to the specific needs of each location, some further complexity has been added to the terminal control area configuration. However, to ease the situation and assist the pilot, new local area charts will be published at each location where a terminal control area is designated. The sectional and en route charts will carry notations advising the existence of terminal control areas, and a description and graphic illustration will be inserted in the Airman's Information Manual. Also, the FAA is planning an educational program to familiarize aviation personnel with the terminal control area concept and operation.

2. *The imposition of an additional, unnecessary workload on the controller.* In general terms, those making this type of comment expressed the fear that an additional controller workload would naturally result if VFR traffic was placed under positive control. This, it was asserted, would have the effect of eliminating most of the VFR traffic since the controller would first handle the IFR traffic. Again, it must be emphasized that the requirements for terminal control areas are established for reasons of safety. If the requirements of the system should prevent the present controller force from handling as much traffic as it did before the terminal control area concept became operational, then the reduction in capacity must be made for the benefit of safety. The metering effect may result in some increased delays, but this will be more than offset by the assurance for increased safety. Regardless of whether this rule will result in increased delays, all traffic will continue to be handled on a "first-come first-served" basis.

3. *The compression of VFR traffic at the edges and under the Terminal Control Areas.* The notice has been criticized because in the opinion of some commentators the rule, if adopted as proposed, will create an undue compression of VFR traffic at dangerously low altitudes under the shelf of the Terminal Control Area. Mixed with this position is the added

claim that the problem of congestion will be further increased by the compression of traffic at the VFR entry points. The problem of compression at the sides and under the terminal control areas has been often mentioned and discussed, as has the problem concerning congestion at the entry points. If entry points are recommended, they will not necessarily be used as funneling points for VFR traffic nor will their use be mandatory. They will be published so the pilot can report with respect to them and aid the controller in maintaining a smooth flow of traffic. There will be some compression under the TCA shelves. However, every attempt will be made to establish the floors of terminal control areas as high as possible. Also, a 200-knot speed limit has been imposed in the airspace underlying the terminal control areas. This speed limit also applies to the free VFR corridors that may be designated through some of the areas.

4. *The preference for climb and descent corridors.* Numerous individuals and organizations have recommended that the FAA adopt a "climb and descent corridor" concept rather than a "wedding cake" type configuration as the basic design figure for the airspace allocation. Those recommending adoption of the corridor concept have provided the FAA with suggested dimensions of the corridors. Some have recommended that the corridors take the form of very narrow extensions that start at the end of each airport runway and extend outwardly and up to certain limits. Others, in varying degree, have recommended corridors that start at the end of each runway and then fan up and out at various angles to a given distance from the airport. In some examples provided the FAA, the suggested corridors fan out to such a degree that the airspace described resembles that of a "wedding cake" profile. The FAA believes that much of the controversy involved in this subject has resulted from involvement with semantics rather than approaching the problem head-on to obtain a solution. What is really necessary is to allocate that amount of airspace necessary at a particular locality to implement the terminal control area concept. After study, it is concluded that the overall airspace description of a terminal control area may be best described as a "corridor-cake" type configuration, because at any given location the airspace allocation may be part wedding cake and part corridors or, for that matter, any type of airspace configuration that will satisfy the requirements of a terminal control area. It is the view of the FAA that the "corridor-cake" concept will provide the necessary flexibility and capability to enable air traffic control to handle a greater variety of traffic mix without suffering a drastic loss of capability. If the FAA adopted a rule that only "climb and descent corridors" would be used in a terminal control area, it would result in a reduced air traffic control capability to maintain an efficient flow of air traffic and it would not provide the airspace necessary to effectively

and efficiently satisfy the need for vectoring, sequencing and metering the flow of air traffic at many of the 24 high density terminal areas under consideration. Most certainly, the use of corridors alone would result in a drop in the capacity for most terminal areas because of the different performance characteristics of the various aircraft that would be using the corridors.

Several commentators questioned the requirement that helicopters have operable VOR or TACAN receivers since these aircraft operate in a unique manner and at low altitudes where no signal coverage exists. Because of the uniqueness of the helicopter and the manner in which it is operated, the proposal has been modified to exempt helicopters from the requirement.

Interested persons have been afforded an opportunity to participate in the making of these amendments, and due consideration has been given to all matters presented.

In consideration of the foregoing, Parts 1, 71, and 91 of the Federal Aviation Regulations are amended, effective June 25, 1970, as hereinafter set forth.

1. § 1.1, General Definitions, the definition of "controlled airspace" is amended to read:

"Controlled airspace" means airspace designated as a continental control area, control area, control zone, terminal control area, or transition area, within which some or all aircraft may be subject to air traffic control.

2. Part 71 is amended as follows:

a. By adding a new paragraph (c) to § 71.1, to read as follows:

§ 71.1 Applicability.

(c) The airspace assignments described in Subpart K of this part are designated as terminal control areas.

b. By adding a new § 71.12, to read as follows:

§ 71.12 Terminal control areas.

The terminal control areas listed in Subpart K of this part consist of controlled airspace extending upward from the surface or higher to specified altitudes, within which all aircraft are subject to operating rules and pilot and equipment requirements specified in Part 91 of this chapter. Each such location is designated as a Group I or Group II Terminal Control Area, and includes at least one primary airport around which the terminal control area is located.

c. By adding a new Subpart K to read as follows: Subpart K—Terminal Control Areas.

3. Part 91 is amended as follows:

a. By adding the following phrase immediately before the semicolon at the end of subparagraph (b) (1) of § 91.1; "and with §§ 91.70(c) and 91.90 of Subpart B."

b. By adding a new paragraph (c) immediately following paragraph (b) of § 91.70 to read as follows:

§ 91.70 Aircraft Speed.

(c) No person may operate aircraft in the airspace beneath the lateral limits of any terminal control area at an indicated airspeed of more than 200 knots (230 m.p.h.).

c. By adding a new § 91.90 after § 91.89 as follows:

§ 91.90 Flight in terminal control areas; operating rules and pilot and equipment requirements.

(a) *Group I terminal control areas—*  
(1) *Operating rules.* No person may operate an aircraft within a Group I terminal control area designated in Part 71 of this chapter except in compliance with the following rules:

(i) No person may operate an aircraft within a Group I terminal control area unless he has received an appropriate authorization from ATC prior to the operation of that aircraft in that area.

(ii) Unless otherwise authorized by ATC, each person operating a large turbine engine powered airplane to or from a primary airport shall operate at or above the designated floors while within the lateral limits of the terminal control area.

(2) *Pilot requirements.* The pilot in command of a civil aircraft may not land or take off that aircraft from an airport within a Group I Terminal Control Area unless he holds at least a private pilot certificate.

(3) *Equipment requirements.* Unless otherwise authorized by ATC in the case of in-flight failure, no person may operate an aircraft within a Group I Terminal Control Area unless that aircraft is equipped with—

(i) An operable VOR or TACAN receiver (except in the case of helicopters);

(ii) An operable two-way radio capable of communicating with ATC on appropriate frequencies for that terminal control area; and

(iii) An operable radar beacon transponder having at least a Mode A/3 64-code capability, replying to A/3 interrogation with the code specified by ATC. This requirement is not applicable to helicopters operating within the terminal control area, or to IFR flights to or from an airport other than the primary airport.

(b) *Group II terminal control areas—*

(1) *Operating rules.* No person may operate an aircraft within a Group II terminal control area designated in Part 71 of this chapter except in compliance with the following rules:

(i) No person may operate an aircraft within a Group II terminal control area unless he has received an appropriate authorization from ATC prior to the operation of that aircraft in that area.

(ii) Unless otherwise authorized by ATC, each person operating a large turbine engine powered airplane to or from a primary airport shall operate at or above the designated floors while within the lateral limits of the terminal control area.

(2) *Equipment requirements.* Unless otherwise authorized by ATC in the case of in-flight failure, no person may oper-

ate an aircraft within a Group II terminal control area unless that aircraft is equipped with—

(i) An operable VOR or TACAN receiver (except in the case of helicopters);

(ii) An operable two-way radio capable of communicating with ATC on the appropriate frequencies for that terminal control area; and

(iii) An operable coded radar beacon transponder having at least a Model A/3 64-code capability, replying to A/3 interrogation with the code specified by ATC. This requirement is not applicable to helicopters or VFR aircraft operating within the terminal control area, or to IFR flights to or from an airport other than the primary airport.

(Secs. 307 (a) and (c), and 313, Federal Aviation Act of 1958; (49 U.S.C. 1348 (a) and (c), 1354(a); sec. 6(c) Department of Transportation Act; 49 U.S.C. 1655(c))

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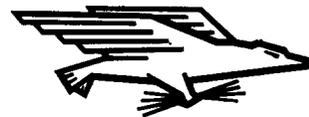
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