91-210

federal register

Friday
June 16, 1989

Part III

Department of Transportation

Federal Aviation Administration

14 CFR Part 91

Air Traffic Control Radar Beacon System and Mode S Transponder Requirements in the National Airspace System; Transponder With Automatic Altitude Reporting Capability Requirement; Rule

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 91

[Docket No. 25753; Amdt No. 91-210]

Air Traffic Control Radar Beacon System and Mode S Transponder Requirements in the National Airspace System; Transponder With Automatic Altitude Reporting Capability Requirement

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule; delay of effective dates.

SUMMARY: This action responds to a petition filed by the Experimental Aircraft Association (EAA), Aircraft Owners and Pilots Association (AOPA), and Helicopter Association International (HAI) concerning Mode S and Mode C transponder requirements. The Mode S transponder aspect of that petition is partially granted herein with a final rule that revises the dates associated with the installation of Mode S transponders. This final rule allows certain aircraft operators to install non-Mode S transponders in aircraft until July 1, 1992, instead of until January 1, 1992, provided that such transponders are manufactured prior to January 1, 1991, instead of prior to January 1, 1990. A manufacturer's comment to the petition which cites a delay in the production of general aviation type Mode S transponders necessitates this final rule action. This action also denies that portion of the petition concerning Mode C transponders.

EFFECTIVE DATE: June 16, 1989.

FOR FURTHER INFORMATION CONTACT: Mr. Reginald C. Matthews, Air Traffic Rules Branch, ATO-230, Airspace-Rules and Aeronautical Information Division, Federal Aviation Administration, 800 Independence Avenue, SW., Washington, DC 20591; telephone (202) 267-8783. Copies of this document may be obtained by submitting a request to the Federal Aviation Administration, Office of Public Affairs, APA-200, 800 Independence Avenue, SW., Washington, DC 20591; or by calling (202) 267-3479. Communications must identify the amendment or docket number of the document.

SUPPLEMENTARY INFORMATION:

Background

On December 28, 1988, the FAA published in the **Federal Register** (53 FR 52428) a summary of a petition for rulemaking received from the Aircraft Owners and Pilots Association (AOPA), Experimental Aircraft Association (EAA), and Helicopter Association International (HAI). That petition seeks to reduce the size of the area commonly referred to as the Mode C Veil (30-mile radius of a terminal control area (TCA) primary airport) where aircraft are required to be equipped with an altitude encoding (Mode C) transponder. Specifically, the rules the petitioners seek to change require, effective July 1, 1989, that aircraft operating (1) within 30 miles of any TCA or (2) at and above 10,000 feet above mean sea level (MSL) to be equipped with a Mode C transponder (these two requirements are hereinafter referred to as "the Mode C rule"). The petitioners' request would modify the Mode C rule by replacing all Mode C Veils with "buffers" around and below each TCA. Such buffers would be defined as a one-mile area beyond the TCA lateral boundaries and a 500-foot buffer below the TCA floors. Aircraft not having a Mode C transponder would be able to operate outside and below the buffers.

Additionally, the petitioners seek to establish a minimum altitude, higher than that established by the Mode C rule, above which an aircraft must be equipped with a Mode C transponder. Effective July 1, 1989. aircraft used for operations at and above 10,000 feet MSL must be equipped with a Mode C transponder. The petitioners' request would modify the Mode C rule to require such equipment only on aircraft operating above 10,500 feet MSL.

Further, the petitioners requested a delay of certain effective dates associated with Mode S transponder installation. Current regulations require that: (1) Non-Mode S transponders, manufactured after January 1, 1990, may not be installed in an aircraft; and (2) after January 1, 1992, all newly installed aircraft transponders meet the requirements of the technical standard order (TSO) for airborne Mode S transponder equipment (these two requirements are hereafter referred to as "the Mode S rule"). The petitioners seek to allow the installation of non-Mode S transponders in aircraft, provided that such transponders are manufactured prior to January 1, 1994, rather than prior to January 1, 1990, and to continue to allow installation of non-Mode S transponders indefinitely or until the transponder inventory is depleted, rather than until January 1, 1992.

Comments on the Petition

Approximately 12,000 comments on the AOPA/EAA/HAI petition were received in the docket A vast majority of these commenters were in favor of the proposals in the petition. The following is a categorization and discussion of those comments.

Transponder Manufacturer Comments

On December 23, 1988, Bendix/King General Aviation Avionics Division, a subsidiary of Allied-Signal Aerospace Company, petitioned the FAA for an exemption from a perceived non-Mode S transponder-manufacturing termination date. That date, January 1, 1990, is contained in § 91.24 of the Federal Aviation Regulations and indirectly affects the manufacturers of transponders.

On March 16, 1989, representatives from the FAA met with the manufacturer and a representative from its industrial association to discuss the petition. During that discussion, the attendees were advised that the rules pertaining to Mode S transponder installation are not directly addressed to manufacturers. Based on this meeting and discussion therein, the manufacturer subsequently notified the FAA to accept its petition as comments on the AOPA/EAA/HAI petition for rulemaking.

According to the manufacturer, a general aviation type Mode S transponder will not be produced in sufficient quantity to equip the fleet until approximately May 1992. Further, the manufacturer stated, that since an aircraft operator is prohibited from installing a non-Mode S transponder which is manufactured after January 1, 1990, and because there will not be a sufficient stockpile of non-Mode S transponders manufactured prior to that date, an owner of a general aviation aircraft without a transponder may not be able to purchase a transponder. Accordingly, the manufacturer requested that the FAA delay the January 1, 1990, date for one year. However, the manufacturer stated that there will be a sufficient supply of air transport type Mode S transponders to allow Parts 121, 127, and 137 operators to be in compliance with existing regulations.

Upon consideration of the comments received in response to the petition, data supplied by the manufacturer, and information contained in the petition, the FAA finds that the agency's efforts to modernize the National Airspace System would not be compromised by revising the regulations dealing with the manufacturing of air traffic radar beacon system and Mode S transponders. Therefore, the FAA is revising the regulations to allow certain aircraft operators to install non-Mode S transponders until July 1, 1992, provided such transponders are manufactured prior to January 1, 1991.

ATC Radar Coverage

There were comments that questioned why the FAA does not utilize the altitude-determining function of radar systems planned for use in the air traffic control (ATC) system in the near future. Other commenters suggested that the FAA use radar systems such as the 3–D radar system used in the Los Angeles, California, area to detect TCA intruders.

There are no radar systems currently available that provide accurate height information and are suitable for use at terminal radar approach control facilities. The air route surveillance radar–4 (ARSR–4), a new long-range radar system designed for use by both the FAA and the Department of Defense (DoD), is capable of determining and reporting target height. This system is accurate within plus or minus 5,000 feet of true altitude, 90 percent of the time, as measured in any 5-nautical-mile range interval to a range of 175 nautical miles. However, air traffic controllers must provide aircraft vertical separation by minimum of 1,000 feet (or 2,000 feet above 29,000 feet above MSL); therefore, data derived from the height detection function of the ARSR–4 cannot be used to effect such separation. Notwithstanding its height accuracy limitation, the FAA will use the other functions of the ARSR–4 for en route ATC. The FAA must depend on the altitude information derived from altitude encoding transponders until advancements in technology produce a system which can detect true altitude of aircraft with the necessary accuracy and reliability for ATC separation.

Additionally, the FAA recently evaluated a military tactical 3-dimensional radar system (3–D radar) in the Los Angeles, California, area. That equipment was evaluated for possible use in the ATC system. This evaluation indicated that the equipment has several limitations, e.g., it is capable of only 90 degrees of azimuth coverage, and the display is separate from the normal controller display. These limitations make the system unsuitable for ATC.

Controlled Airspace and Availability of ATC Services in the Veil

Some commenters stated that the majority of near midair collisions occurs in controlled airspace and, therefore wondered why the FAA would designate more controlled airspace with the Mode C Veil. Other commenters expressed amazement that the FAA would designate the Mode C Veil when the controllers are already overworked and cannot handle any more traffic.

The Mode C rule did not expand the areas within which ATC services are provided. Further, that rule did not convert any uncontrolled airspace to controlled airspace, nor has the FAA expanded ATC services over those operations in proximity to the affected airports. Aircraft operating in a Mode C Veil need only conduct such operations with a Mode C transponder. By operating with this equipment, the controller is furnished with information on the altitude of most aircraft within the area.

En Route Transponder Requirements

Most commenters supported that portion of the petition which would only require a Mode C transponder for aircraft operations above 10,500 feet MSL. These commenters wanted to preclude pilots conducting such operations in aircraft without a Mode C transponder from being confronted with 8,500 feet MSL as the ceiling for westbound headings. Other commenters stated that the 250-knot speed limit below 10,000 feet MSL and the increased visibility requirement above 10,000 feet MSL precluded the need of a floor below 12,500 feet MSL for the en route Mode C transponder requirement since pilots of aircraft operating below 12,500 feet MSL would be operating either at slower speeds and/or with visibility of 5 miles or more. Such operators, it was argued, would be able to see and avoid other aircraft without intervention from ATC.

While the increased visibility minimum above 10,000 feet MSL does provide a benefit to aircraft operating above that altitude, the FAA believes that the absence of a 250-knot speed limit above 10,000 feet MSL, with its associated impact on a pilot's ability to see and avoid other aircraft, is sufficient basis for a ceiling for en route non-Mode C equipped aircraft operations of 10,000 feet MSL. To illustrate, aircraft operating above 10,000 feet MSL, at speeds in excess of 250 knots and under the jurisdiction of ATC, receive more accurate advisories concerning noncontrolled aircraft when the noncontrolled aircraft is equipped with Mode C. Conversely, noncontrolled aircraft receive indirect benefit of ATC advisories to controlled aircraft when the pilot of the controlled aircraft is aware of the altitude as well as the position of the noncontrolled aircraft. The FAA believes that the elimination of this feature, as requested by the petitioners and supported by commenters, would result in an unwarranted reduction in the level of safety that would be provided by those aspects of the rule that will be implemented on July 1, 1989.

Replace the Mode C Veil With a Buffer

The vast majority of commenters supported the petitioners' suggested one-mile area beyond the TCA lateral boundaries and a 500-foot buffer below the TCA floors instead of the Mode C Veil.

The FAA believes that this aspect of the petition, if adopted, would not provide the desired degree of safety as does the Mode C Veil. If the suggested buffers were to be adopted, a controller could not determine if an aircraft without Mode C equipment is operating in or out of the TCA. Further, the FAA believes that when nearly all aircraft are equipped with Mode C transponders in a laterally defined airspace area, controllers will be provided with continuous and more complete traffic information. This allows altitude, distance, and azimuth information to be correlated and control instructions to be issued to assure that safe distances are provided between controlled and noncontrolled aircraft. In addition, radio communications are reduced as unnecessary traffic advisories concerning noncontrolled aircraft are eliminated when those aircraft are equipped with a Mode C transponder. This is true whether such aircraft are in uncontrolled or controlled airspace. In effect the petitioners' buffers would eliminate the primary safety benefit of the rule by eliminating information on many aircraft below the TCA airspace.

The petition, if adopted, would diminish the high level of safety that the FAA is obligated to maintain, i.e., to maintain the greatest degree of safety for the greatest number of people. Specifically, under the petition, those aircraft without a Mode C transponder operating below a 500-foot vertical buffer or outside a one-mile horizontal buffer in the areas below the actual TCA would still be observed on the controller's radar display as being inside the TCA. However, such aircraft operating within the same areas with the required equipment would appear on the controller's radar display with correlated altitude information.

Alternatives to the petition.

The FAA revisited various options which were considered during development of the amendment as well as several alternatives to the TCA-related proposal contained in the petition. Various configurations which would allow aircraft operations without a Mode C transponder in proximity of a TCA boundary or beneath a specific altitude were considered. For example, limiting the Mode C Veil airspace to that

airspace directly beneath the TCA, eliminating the Mode C transponder requirement in that portion of the Mode C Veil below 3,000 feet AGL between the outermost lateral TCA boundary and the edge of the Mode C Veil, reducing the Mode C Veil radius from 30 to 20 miles, etc. While the number of aircraft affected by the rule would be reduced by each option, the adoption of any of them would result in radar targets being displayed without altitude information on controller radar scopes. Therefore, for the same reasons stated above regarding the petitioner's proposal, these alternatives are also unacceptable.

Other Comments

There were other comments which duplicated comments received during the rulemaking process of Amendment No. 91-203 and which were not relevant to the petition at hand. Those comments expressed concerns regarding impacts on ATC operations and controller workload, ATC automation systems, access to airspace affected by the Mode C Veil, authorized deviations, radar coverage, and equipment costs associated with the amendment. All of these issues were previously addressed in the amendment. However, in regard to access to airspace affected by a Mode C Veil, authorized deviations, and radar coverage, discussion of the FAA's policy governing access to the affected airspace is warranted. That policy pertains to the processing of requests for authorization to deviate from the Mode C transponder requirement in a Mode C Veil. Essentially, air traffic facility managers will give the maximum consideration practicable to such requests to allow pilots of non-equipped aircraft to conduct operations:

1. To, from, and at airports in the fringe of a Mode C Veil.
2. When such an aircraft has an electrical system that cannot power a transponder.
3. When such aircraft have insufficient space available to install the required equipment.
4. In areas of no radar coverage.
5. When an operator has purchased and scheduled installation of the required equipment, during the interim pending installation.

Pilots may contact the appropriate ATC facility or flight standards field office for more detailed information about how to obtain such authorizations. Furthermore, the FAA acknowledges the helpful manner in which various user organizations have volunteered their services and publications to assist the FAA in disseminating information to pilots. Such assistance greatly complements the FAA's efforts to further the pilot's understanding of the regulatory requirements and FAA policies. Some organizations have already published a summary of the FAA's policy governing exceptions to the Mode C Veil requirements.

Conclusion

For the reasons stated above, the FAA is not adopting that portion of the AOPA/EAA/HAI petition that would replace the Mode C Veil with the petitioners' recommended buffers and the raising of the en route altitude above which a Mode C transponder is required. However, regarding the Mode S transponder aspect, the FAA is partially granting the petition by amending the regulations to allow the installation of non-Mode S transponders until July 1, 1992, provided that such transponders are manufactured prior to January 1, 1991.

Economic Evaluation

A full regulatory evaluation was prepared for the final rule in Docket No. 23799 and placed in the regulatory docket. This action to amend the effective dates of one part of that rule does not have a significant effect on the information and conclusions contained in that evaluation. Accordingly, the existing regulatory evaluation remains valid and no further evaluation is required. Also, for the reasons contained in the regulatory evaluation in the docket, I certify that this action will not have a significant impact on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

For the reasons set forth above, the FAA has determined that this amendment (1) is not a major rule under Executive Order 12291, and (2) is considered significant under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979).

The Rule

This rule amends Section 91.24 of the Federal Aviation Regulations relating to the installation of aircraft transponders. The effect of the rule is to allow certain aircraft operators to install non-Mode S transponders in aircraft until July 1, 1992, instead of until January 1, 1992, provided that such transponders are manufactured prior to January 1, 1991, instead of prior to January 1, 1990.

In order to notify those operators most affected by this action, this amendment must be issued prior to July 1, 1989. This does not allow time for publication of a notice of proposed rulemaking for public comment dealing with the issues. For this reason, I find that notice and public procedure under 5 U.S.C. 553(b) are impracticable and contrary to the public interest. For the same reasons, I find that good cause exists for making this amendment effective in less than 30 days.

Federalism Determination

The amendment set forth herein will not have substantial direct effects on the States, on the relationship between the National Government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, in accordance with Executive Order 12612, it is determined that this final rule will not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

List of Subjects in 14 CFR Part 91

ATC transponder, Automatic altitude reporting equipment and use.

Adoption of the Amendment

For the reasons set out above, the FAA is amending 14 CFR Part 91 of the Federal Aviation Regulations as follows:

PART 91—AIR TRAFFIC AND GENERAL OPERATING RULES—[AMENDED]

1. The authority citation for Part 91 continues to read as follows:

Authority: 49 U.S.C. 1301(7), 1303, 1344, 1348, 1352 through 1355, 1401, 1421 through 1431, 1471, 1472, 1502, 1510, 1522, and 2121 through 2125; Articles 12, 29, 31, and 32(a) of the Convention on International Civil Aviation (61 Stat. 1180); 42 U.S.C. 4321 et seq; E.O. 11514; 49 U S.C. 106(g) (Revised Pub. L. 97-449, January 12, 1983).

2. By revising § 91.24(a) to read as follows:

§ 91.24 ATC transponder and altitude reporting equipment and use.

(a) *All airspace: U.S.-registered civil aircraft.* For operations not conducted under Parts 121, 127, or 135 of this chapter, ATC transponder equipment installed within the time periods indicated below must meet the performance and environmental requirements of the following TSO's:

(1) *Through July 1, 1992:*

(i) Any class of TSO-C74b or any class of TSO-C74c as appropriate, provided that the equipment was manufactured before January 1, 1991; or

(ii) The appropriate class of TSO-C112 (Mode S).

(2) *After July 1, 1992:* The appropriate class of TSO-C112 (Mode S). For the purposes of paragraph (a)(2) of this section, "installation" does not include—

(i) Temporary installation of TSO–C74b or TSO–C74c substitute equipment, as appropriate, during maintenance of the permanent equipment;

(ii) Reinstallation of equipment after temporary removal for maintenance; or

(iii) For fleet operations, installation of equipment in a fleet aircraft after removal of the equipment for maintenance from another aircraft in the same operator's fleet.

* * * * *

Issued in Washington, DC, on June 12, 1989.

Robert E. Whittington,

Acting Administrator.

[FR Doc. 89–14299 Filed 6–12–89; 8:45 am]

BILLING CODE 4910–13–M