

DEPARTMENT OF TRANSPORTATION**Federal Aviation Administration****14 CFR Part 91**

[Docket No. 25753; Amdt. No. 91-221]

RIN 2120-AD89

Air Traffic Control Radar Beacon System and Mode S Transponder Requirements in the National Airspace System**AGENCY:** Federal Aviation Administration (FAA), DOT.**ACTION:** Final rule.

SUMMARY: This action deletes the requirement that a non-Mode S transponder installed in an aircraft prior to July 1, 1992, be manufactured before January 1, 1991. This rule will permit the installation of a non-Mode S transponder until July 1, 1992, regardless of the date that transponder was manufactured. After July 1, 1992, any transponder newly installed in an aircraft must be a Mode S transponder. This action is necessary to avoid predicted shortfalls in the supply of non-Mode S transponders after January 1, 1991. It responds to revised manufacturing and sales projections for non-Mode S transponders presented as comments to a petition for rulemaking. That petition was received from the Aircraft Owners and Pilots Association, Experimental Aircraft Association, and Helicopter Association International, and was published in the *Federal Register* on June 16, 1989.

EFFECTIVE DATE: January 4, 1991.

FOR FURTHER INFORMATION CONTACT: Mr. Richard Kagehiro, Air Traffic Rules Branch, ATP-230, Airspace-Rules and Aeronautical Information Division, Federal Aviation Administration, 800 Independence Avenue SW., Washington, DC 20591; telephone (202) 267-8783.

SUPPLEMENTARY INFORMATION:**Availability of Document**

Any person may obtain a copy of this document by submitting a request to the Federal Aviation Administration, Office of Public Affairs, Attention: Public Inquiry Center, APA-200, 800 Independence Avenue SW., Washington, DC 20591; or by calling (202) 267-3484. Communications must identify the amendment number of the document.

Background

Currently, § 91.215(a) of the Federal Aviation Regulations (FAR) provides, in part, that any air traffic control (ATC)

radar beacon transponder installed in a U.S.-registered civil aircraft through and including July 1, 1992, must meet the performance and environmental requirements of any class of the following technical standard orders (TSO's): TSO-C74b or TSO-C74c as appropriate, provided that the equipment was manufactured before January 1, 1991; or the appropriate class of TSO-C112 (Mode S). After July 1, 1992, all newly installed aircraft transponders must meet the requirements of the TSO for airborne Mode S transponder equipment.

Definition of "Manufacturing Cutoff Date"

Hereafter, the term "non-Mode S transponder manufacturing cutoff date" will refer to the requirement that a newly installed non-Mode S transponder be manufactured before a certain date. This term does not imply that the provisions of § 91.215(a) explicitly restrict avionics manufacturers from producing non-Mode S transponders after the cutoff date. Manufacturers may continue to produce non-Mode S transponders beyond the cutoff date (currently January 1, 1991). However, operators of U.S.-registered civil aircraft are currently restricted from installing any non-Mode S transponder that is manufactured on or after the cutoff date; therefore, the practical effect would be the elimination of a domestic market for non-Mode S transponders on and after January 1, 1991. Because there would be little economic incentive for avionics manufacturers to produce non-Mode S transponders for U.S.-registered civil aircraft after the cutoff date, the effect would be similar to an actual restriction on the manufacture of non-Mode S transponders for domestic purposes.

Related Agency Actions

On September 17, 1985, the FAA published Notice No. 85-16, Air Traffic Control Radar Beacon System and Mode S Transponder. Requirements in the National Airspace System (50 FR 37674, FAA Docket No. 23799). That notice proposed to require that all transponders newly installed in U.S.-registered civil aircraft on and after January 1, 1992, meet the performance and environmental requirements of the TSO for Mode S transponders. Before January 1, 1992, a non-Mode S transponder could be installed in an aircraft provided the transponder was manufactured prior to January 1, 1987. The 5-year period between the cutoff date for manufacturing non-Mode S transponders and the date after which all newly installed transponders must be Mode S transponders was proposed, in

part, to accommodate the development, testing, and production of a Mode S transponder and to facilitate the depletion of inventories of non-Mode S transponders. The FAA believed that avionics manufacturers would be able to stockpile sufficient quantities of non-Mode S transponders to meet the demand for automatic altitude reporting transponders prior to the availability of a Mode S transponder for the general aviation market.

Certain commenters to Notice 85-16 expressed concern that adequate supplies of non-Mode S transponders may not be available for the entire 5-year period between the non-Mode S transponder manufacturing cutoff date and the date after which all newly installed transponders must be Mode S transponders. These commenters believed that the price difference between a basic non-Mode S transponder and a Mode S transponder would result in a continuing demand for non-Mode S transponders until January 1, 1992, even if a Mode S transponder were available before that date. Further, the commenters believed that avionics manufacturers could not stockpile an adequate supply of non-Mode S transponders to meet the demand for such transponders for the entire 5-year period due to production limitations and high inventory costs. The commenters surmised that if non-Mode S transponders were unavailable, many operators having no expectation of flying in airspace with a transponder requirement would forego equipping their aircraft with a transponder rather than install a higher-priced Mode S transponder. To alleviate these concerns, the commenters recommended that the non-Mode S transponder manufacturing cutoff date be changed to January 1, 1990. The commenters believed that the manufacturers would be able to stockpile sufficient numbers of non-Mode S transponders to meet the demand over a 2-year period. Further, a 2-year period would correspond to the typical new product development cycle of 18 to 24 months and would ensure that manufacturers shift their resources to the development of a Mode S transponder for general aviation aircraft in sufficient time to meet the January 1, 1992, deadline.

The final rule was published on February 3, 1987 (52 FR 3380, FAA Docket No. 23799) (the "Mode S rule"). In response to the above comments to Notice 85-16, the manufacturing cutoff date for non-Mode S transponders was changed from January 1, 1987, to January 1, 1990. The date after which any newly

installed transponder must be a Mode S transponder was left as January 1, 1992.

AOPA/EAA/HAI Petition

On December 28, 1988, the FAA published in the *Federal Register* 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) (53 FR 52428, FAA Docket No. 25753). The petitioners asked the FAA, in part, to allow non-Mode S transponders manufactured prior to January 1, 1994, rather than prior to January 1, 1990, to be installed in aircraft. They also asked the FAA to continue to allow installation of non-Mode S transponders regardless of the date that such transponders were manufactured, or until the inventory of non-Mode S transponders was depleted, rather than until January 1, 1992. The FAA received approximately 12,000 comments to the AOPA/EAA/HAI petition, including comments from avionics manufacturers and industry representatives. The manufacturers stated that a basic Mode S transponder for general aviation aircraft may not be available on a full-production basis until approximately May 1992. The manufacturers further suggested that the date after which all newly installed transponders must be Mode S transponders be revised to accommodate delays in the development of a Mode S transponder. Further, the commenters recommended that the non-Mode S transponder manufacturing cutoff date be delayed for one year until January 1, 1991, to mitigate the possibility of a non-Mode S transponder shortage.

Information supplied from avionics manufacturers and other commenters relating to sales projections and production of non-Mode S transponders and Mode S transponder development schedules supported the belief that: (1) A Mode S transponder for general aviation aircraft may not be available by January 1, 1992; and (2) manufacturers could increase production of non-Mode S transponders to stockpile sufficient reserves of such transponders until a Mode S transponder becomes available.

Based on the comments to the AOPA/EAA/HAI petition, the FAA, on June 12, 1989, revised § 91.215(a) of the FAR to allow certain aircraft operators to install non-Mode S transponders until July 1, 1992, rather than January 1, 1992 (54 FR 25680; June 16, 1989). The FAA believed this action was necessary to ensure that Mode S transponders would be available by the date that all newly

installed transponders must be Mode S transponders. The non-Mode S transponder manufacturing cutoff date was revised from January 1, 1990 to January 1, 1991. Consistent with the intent of the Mode S rule, a different date was specified for the manufacturing cutoff date for non-Mode S transponders to provide time for the development of a general aviation type Mode S transponder and to facilitate the depletion of inventories of non-Mode S transponders.

Mode C Rule

On June 21, 1988, the FAA published the ATC Transponder with Automatic Altitude Reporting Capability Requirement Final Rule (the "Mode C rule") (53 FR 23356). This rule established the requirement for a transponder with automatic altitude reporting capability for aircraft operations within certain airspace. Hereafter, "Mode C transponder equipment" refers to a non-Mode S transponder having Mode 3/A 4096 code capability and automatic pressure altitude reporting equipment having a Mode C capability. July 1, 1989, was the effective date of the Mode C transponder equipment requirement for aircraft operations: (1) In the altitude stratum at and above 10,000 feet mean sea level and below the floor of a positive control area, excluding the airspace at and below 2,500 feet AGL; and (2) in the vicinity of a terminal control area primary airport (the Mode C "veil"). Although the effective date of the Mode C rule for aircraft operations in a Mode C veil was a full year after the publication date of the rule, many operators apparently delayed their decision to install Mode C transponder equipment in their aircraft until the FAA had acted on the above AOPA/EAA/HAI petition. In the rule issued on June 12, 1989, the FAA partially granted and partially denied the petition. The FAA revised, as noted above, certain portions of § 91.215(a) regarding the Mode S transponder installation deadline and the manufacturing cutoff date for non-Mode S transponders, but denied that portion of the petition which sought to revise the Mode C transponder equipment requirement for operations in the Mode C veil. As a result, there was a last-minute rush by operators to purchase and install Mode C transponder equipment before the July 1, 1989, deadline. Avionics shops that sell and install transponder equipment experienced shortages of Mode C transponder equipment due to the large increases in demand for such equipment.

The increase in demand for Mode C transponder equipment overwhelmed the ability of avionics shops to maintain supplies of such equipment and perform the required installations. Since the avionics shops did not carry significant inventories of Mode C transponder equipment, the transponder equipment had to be backordered from the manufacturers, resulting in significant delays for operators attempting to install Mode C transponder equipment. Further, the sudden increase in demand for non-Mode S transponders and altitude reporting equipment had depleted existing inventories of non-Mode S transponders that the manufacturers had been attempting to stockpile in anticipation of the non-Mode S transponder manufacturing cutoff date.

In response to concerns by aircraft operators over significant delays in purchasing and/or installing Mode C transponder equipment, the FAA, on June 30, 1989, published a policy statement regarding the issuance of ATC authorizations to deviate from the Mode C transponder requirement for aircraft operations within a Mode C veil (54 FR 27836). The policy statement established a 90-day transition period to accommodate delays in purchasing and installing Mode C transponder equipment for those operators attempting to equip their aircraft in compliance with the Mode C rule.

The manufacturers subsequently admitted that the overwhelming demand for non-Mode S transponders and altitude reporting equipment during the period immediately before and after the July 1, 1989, effective date had not been fully accounted for in their projections. Further, the manufacturers' ability to stockpile non-Mode S transponders was based on their expectation of increasing production of non-Mode S transponders to a level slightly exceeding projected sales of such transponders to slowly build an inventory by the manufacturing cutoff date. Since the actual demand for non-Mode S transponders had exceeded projected levels, particularly during the last two quarters of 1989, efforts by manufacturers to meet the actual demand for non-Mode S transponders have depleted existing stocks of such transponders and impaired the ability to build up an inventory. Although the demand for non-Mode S transponders and altitude reporting equipment has since leveled off, the Mode C rule and the ensuing demand for non-Mode S transponders and altitude reporting equipment have adversely impacted the manufacturers' efforts to stockpile sufficient quantities of non-Mode S transponders to meet the projected

demand for such transponders after January 1, 1991.

Revised Sales Projections and Production of Non-Mode S Transponders

On June 12, 1990, representatives from Bendix/King General Aviation Avionics Division, a subsidiary of Allied Signal Aerospace Company and a representative from its industry association met with the FAA to present an overview of industry Mode S product offerings. The information in this presentation was based on material presented at the 1990 Aircraft Electronics Association National Convention. Included in the presentation was information relating to Bendix/King's revised manufacturing, sales, and inventory projections for non-Mode S transponders from the second quarter of 1990 through the second quarter of 1992. Based on current transponder production levels and the predicted continued demand for non-Mode S transponders until July 1, 1992, Bendix/King is now projecting a shortfall of non-Mode S transponders starting from the third quarter of 1991 through the second quarter of 1992. Information from other avionics manufacturers indicates that they do not intend to stockpile significant numbers of non-Mode S transponders due to high inventory costs. This suggests that there may be significant shortfalls in the supply of non-Mode S transponders after January 1, 1991.

Need for Rulemaking

The FAA determined that a reconsideration of the January 1, 1991, manufacturing cutoff date for non-Mode S transponders is necessary. Information relating to sales projections and production of non-Mode S transponders on which the FAA, in part, based its determination to revise the manufacturing cutoff date for non-Mode S transponders (54 FR 25680; June 16, 1989), has been significantly revised by recent comments and presentations to the agency. The FAA now believes that those previous projections are inadequate for the following reasons:

(1) Previous projections did not account for the unprecedented demand for non-Mode S transponders during the last half of 1989. As a result of this demand, existing inventories of non-Mode S transponders were depleted and the ability of the manufacturers to stockpile sufficient reserves of non-Mode S transponders was impaired. Avionics manufacturers have now revised their sales projections and production figures and are concluding that they lack the time and resources to

stockpile sufficient reserves of non-Mode S transponders to meet the expected demand for such transponders after January 1, 1991.

(2) Based on the recent experience gained from the July 1, 1989, Mode C transponder equipment requirement for operations in a Mode C veil, the FAA believes that a similar increase in demand for non-Mode S transponders may result from the forthcoming December 30, 1990 Mode C transponder equipment requirement for operations in the vicinity of airport radar service areas (ARSA's) and certain designated airports.

(3) The FAA is anticipating another increase in demand for non-Mode S transponders during the time period immediately preceding the July 1, 1992, Mode S transponder installation deadline.

The FAA believes there is a strong possibility of a shortage of basic non-Mode S transponders after January 1, 1991. Should non-Mode S transponders be unavailable after January 1, 1991, the FAA is concerned that aircraft operators, desiring or having need to operate within airspace having a Mode C transponder equipment requirement, would not be able to do so or would choose to forego equipping their aircraft with transponder equipment and thereby not realize the safety benefits attributable to the operation of aircraft with altitude-reporting transponders.

The Adopted rule

Accordingly, the FAA is revising § 91.215(a) of the FAR to permit aircraft operators to install a non-Mode S transponder through July 1, 1992, regardless of the date that transponder was manufactured. By eliminating the manufacturing cutoff date for non-Mode S transponders, avionics manufacturers will have the ability to adjust non-Mode S transponder production levels accordingly to the actual demand for such products through July 1, 1992. This action will ensure that non-Mode S transponders are produced and sold according to market conditions and that adequate supplies of non-Mode S transponders will be available through July 1, 1992.

Eliminating the manufacturing cutoff date for non-Mode S transponders will not affect the overall transition of the general aviation aircraft fleet from non-Mode S to Mode S transponders. The date after which any transponder that is newly installed in an aircraft must be a Mode S transponder is not being revised by this action. Should the FAA consider revising the Mode S transponder installation requirement, a

determination would be made through a separate rulemaking action.

This action is intended solely to minimize the possibility of a shortage of non-Mode S transponders prior to July 1, 1992. This action is not intended to affect an individual operator's decision to purchase and install a Mode S transponder. In fact, avionics manufacturers' revised sales projections of Mode S transponders suggest that there will not be a significant demand for Mode S transponders by general aviation aircraft operators until July 1, 1992. Since the manufacturers' sales projections of Mode S transponders reflected only those sales of Mode S transponders to operators who would be inclined to install Mode S transponders even if non-Mode S transponders were available, the FAA believes that eliminating the manufacturing cutoff date for non-Mode S transponders will have little impact on the number of operators who will purchase and install Mode S transponders prior to July 1, 1992.

Regulatory Evaluation Summary

Cost Benefit Analysis

This action deletes the requirement that any non-Mode S transponder installed in an aircraft prior to July 1, 1992, be manufactured before January 1, 1991, and permits the installation of a non-Mode S transponder until July 1, 1992, regardless of the date that transponder was manufactured. (A more detailed description on the need of this rule is contained in the background section of the preamble).

This rule will not impose any costs, but it is necessary because of the projected shortage of basic non-Mode S transponders. In the absence of this action, some aircraft operators may elect not to equip their respective aircraft with transponders because of a shortage of basic non-Mode S transponders and the relatively higher cost of Mode S transponders. This type of situation would circumvent the intent of the Mode S rule. This particular rule will help to eliminate the projected shortage of basic non-Mode S transponders.

International Trade Impact Statement

This rule will not impose a competitive disadvantage to either U.S. air carriers doing business abroad or foreign air carriers doing business in the United States. This assessment is based on the fact that this rule will not impose additional costs on either U.S. or foreign air carriers.

Regulatory Flexibility Determination

In accordance with the Regulatory Flexibility Act of 1980, the FAA has determined that this rule will not have a significant economic impact, positive or negative, on a substantial number of small entities. This assessment is based on the fact that the rule will not impose any additional cost on aircraft operators.

Federalism Implications

The regulations adopted 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.

Effective Date

This amendment is adopted as a final rule in response to revised projections of sales and inventory levels of non-Mode S transponders, and to issues raised in and comments received on the AOPA/EAA/HAI petition (53 FR 52428), FAA Docket No. 25753. I find that further

notice and comment, and delay in granting the relief requested, are unnecessary and contrary to the public interest, and this amendment is excepted from the general notice and comment requirements pursuant to 5 U.S.C. 553(b). Because this amendment relieves a restriction, the amendment is effective upon publication pursuant to 5 U.S.C., 553(d)(1).

Conclusion

For the reasons discussed in the preamble, and based on the findings in the Regulatory Flexibility Determination and the International Trade Impact Analysis, the FAA has determined that this regulation is not major under Executive Order 12291, but that it is significant under DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). In addition, the FAA certifies that this regulation will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 91

Air traffic control, Aviation safety.

The Amendment

Accordingly, pursuant to the authority delegated to me, part 91 of the Federal

Aviation Regulations (14 CFR part 91) is amended as follows:

PART 91—GENERAL OPERATING AND FLIGHT RULES

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 (as amended by P.L. 100-223) 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; P.L. 100-202; 49 U.S.C. 106(g) (Revised Pub. L. 97-449, January 12, 1983).

§ 91.215 [Amended]

2. Paragraph (a)(1)(i) of § 91.215 is amended by removing the words “, provided that the equipment was manufactured before January 1, 1991”, which appear after the words “Any class of TSO-C74b or any class of TSO-C74c as appropriate”.

Issued in Washington, DC on December 28, 1990.

James B. Busey,

Administrator.

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