
Monday
April 9, 1990

Part III

**Department of
Transportation**

Federal Aviation Administration

14 CFR Parts 121, 125, and 129
Airborne Low-Altitude Windshear
Equipment Requirements and TCAS II
Implementation Schedule; Final Rules

121-217

and cargo revenues with other U.S. operators between points within the United States. Therefore, the amendments will not cause a competitive fare disadvantage for U.S. carriers.

Federalism Implications

The regulations 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. Thus, in accordance with Executive Order 12612, it is determined that these regulations do not have federalism implications requiring the preparation of a Federalism Assessment.

Paperwork Reduction Act Approval

The recordkeeping and reporting requirements contained in this final rule (§ 121.358) have been submitted to the Office of Management and Budget. Comments on these requirements should be submitted to the Office of Information and Regulatory Affairs (OMB), New Executive Office Building, room 3001, Washington, DC 20530. Attention: FAA Desk Officer (telephone 202-395-7340). A copy should be submitted to the FAA docket.

Conclusion

The FAA has determined that this amendment is not major under Executive Order 12291, but that it is significant under the Department of Transportation Regulatory Policy and Procedures (44 FR 11034, February 26, 1979). For the reasons discussed above, it certified that the amendments to part 121 will have a significant beneficial economic impact on a substantial number of small entities.

List of Subjects in 14 CFR Part 121

Air carriers, Air transportation, Aviation safety, Safety, Transportation, Windshear.

The Rule

Accordingly the Federal Aviation Administration amends part 121 of the Federal Aviation Regulations (14 CFR part 121) as follows:

PART 121—CERTIFICATION AND OPERATIONS; DOMESTIC, FLAG, AND SUPPLEMENTAL AIR CARRIERS AND COMMERCIAL OPERATORS OF LARGE AIRCRAFT

1. The authority citation for part 121 continues to read as follows:

Authority: 49 U.S.C. 1354(a), 1355, 1356, 1357, 1401, 1421-30, 1472, 1485, and 1502; 49

U.S.C. 106(g) (Revised Pub. L. 97-449; January 12, 1983.)

2. Section 121.358 is revised to read as follows:

§ 121.358 Low-altitude windshear system equipment requirements.

(a) *Airplanes manufactured after January 2, 1991.* No person may operate a turbine-powered airplane manufactured after January 2, 1991, unless it is equipped with either an approved airborne windshear warning and flight guidance system, an approved airborne detection and avoidance system, or an approved combination of these systems.

(b) *Airplanes manufactured before January 3, 1991.* Except as provided in paragraph (c) of this section, after January 2, 1991, no person may operate a turbine-powered airplane manufactured before January 3, 1991 unless it meets one of the following requirements as applicable.

(1) The makes/models/series listed below must be equipped with either an approved airborne windshear warning and flight guidance system, an approved airborne detection and avoidance system, or an approved combination of these systems:

- (i) A-300-600;
- (ii) A-310—all series;
- (iii) A-320—all series;
- (iv) B-737-300, 400, and 500 series;
- (v) B-747-400;
- (vi) B-757—all series;
- (vii) B-767—all series;
- (viii) F-100—all series;
- (ix) MD-11—all series; and
- (x) MD-80 series equipped with an EFIS and Honeywell-970 digital flight guidance computer.

(2) All other turbine-powered airplanes not listed above must be equipped with as a minimum requirement, an approved airborne windshear warning system. These airplanes may be equipped with an approved airborne windshear detection and avoidance system, or an approved combination of these systems.

(c) *Extension of the compliance date.* A certificate holder may obtain an extension of the compliance date in paragraph (b) of this section if it obtains FAA approval of a retrofit schedule. To obtain approval of a retrofit schedule and show continued compliance with that schedule, a certificate holder must do the following:

(1) Submit a request for approval of a retrofit schedule by June 1, 1990, to the Flight Standards Division Manager in the region of the certificate holding district office.

(2) Show that all of the certificate holder's airplanes required to be

equipped in accordance with this section will be equipped by the final compliance date established for TCAS II retrofit.

(3) Comply with its retrofit schedule and submit status reports containing information acceptable to the Administrator. The initial report must be submitted by January 2, 1991, and subsequent reports must be submitted every six months thereafter until completion of the schedule. The reports must be submitted to the certificate holder's assigned Principal Avionics Inspector.

(d) *Definitions.* For the purposes of this section the following definitions apply—

(1) "Turbine-powered airplane" includes, e.g., turbofan-, turbojet-, propfan-, and ultra-high bypass fan-powered airplanes. The definition specifically excludes turbopropeller-powered airplanes.

(2) An airplane is considered manufactured on the date the inspection acceptance records reflect that the airplane is complete and meets the FAA Approved Type Design data.

Issued in Washington, DC, on April 3, 1990.

James B. Busey,
Administrator.

[FR Doc. 90-8075 Filed 4-4-90; 10:10 am]

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14 CFR Parts 121, 125, 129

[Docket No. 25954; Amdt. No. 121-217, 125-14, 129-21]

RIN 2120-AD23

TCAS II Implementation Schedule

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: This rule revises the schedule for installing Traffic Alert and Collision Avoidance Systems (TCAS II) on airplanes with more than 30 passenger seats. The TCAS II system will provide a collision avoidance capability that operates independently of the ground-based Air Traffic Control (ATC) system and in areas where there is no ATC coverage. Congress recently passed legislation permitting an extension of the schedule. This action implements the legislation, reduces the prospect that carriers will divert critical maintenance and modification resources away from other safety programs to meet the TCAS II schedule, and allows the FAA to

evaluate the operation of TCAS II in the total ATC environment.

EFFECTIVE DATES: May 9, 1990.

Compliance Dates (Where Later Than Effective Date):

1. *Part 121.* TCAS II requirement for operations conducted under part 121 with more than 30 passenger seats as follows:

Date	Required equipage
December 30, 1990...	At least 20% of all covered airplanes, if the certificate holder operates more than 30 such airplanes.
December 30, 1991...	50% of all covered airplanes.
December 30, 1993...	100% of all covered airplanes.

2. *Part 125.* TCAS II requirement for operations conducted under part 125 with more than 30 passenger seats: December 30, 1993.

3. *Part 129.* TCAS II requirement for operations conducted under part 129 with more than 30 passenger seats: December 30, 1993.

FOR FURTHER INFORMATION CONTACT: Frank Rock, Aircraft Engineering Division, AIR-120, FAA, 800 Independence Avenue SW., Washington, DC 20591, telephone (202) 267-9567.

SUPPLEMENTARY INFORMATION:

Background

The Airport and Airway Safety and Capacity Expansion Act of 1987 directed the Federal Aviation Administration (FAA) to require the installation and operation of TCAS II in commercial airplanes operating in the United States that have a passenger capacity of more than 30 seats. Under a provision in the Act, 100 percent of this fleet was to be equipped with TCAS II by December 30, 1991. On January 10, 1989, the FAA promulgated the Traffic Alert and Collision Avoidance System rules (54 FR 940) requiring installation of TCAS II on civil airplanes, with more than 30 passenger seats, that operate in the United States. Before the final rule was published, however, the Subcommittee on Aviation of the U.S. Senate Committee on Commerce, Science, and Transportation questioned whether the aviation community had the capability to comply with the statutory schedule for TCAS II equipage. The Subcommittee asked the Office of Technology Assessment (OTA) to investigate this question, to identify other important issues raised by the final rule, and to present its findings in a report.

The OTA issued its report, "Safer Skies With TCAS," in February 1989.

Subsequently, the House Subcommittee on Aviation held a hearing on the report where it received testimony supporting OTA recommendations that the TCAS II implementation schedule be extended and that there be a relatively large-scale operational evaluation program to assess its impact on the safe and efficient operation of the Air Traffic Control (ATC) system. Based on the OTA report and testimony presented at the hearing, and anticipating a statutory revision to extend the time for installing TCAS II, the FAA invited public comment on a modified TCAS II installation schedule and on the need for an operational evaluation. The FAA proposed a modified schedule calling for phased-in TCAS II installation as follows:

Date	Required equipage
December 30, 1990...	20% of all civil aircraft with more than 30 passenger seats operated by airlines that operate more than 30 such airplanes under the provisions of 14 CFR parts 121 and 129.
December 30, 1991...	50% of all civil aircraft with more than 30 passenger seats operated by airlines that operate under the provisions of 14 CFR parts 121 and 129.
December 30, 1993...	100% of all civil aircraft with more than 30 passenger seats operating in the United States.

Extending the implementation schedule enhances air safety because it helps minimize the prospect that carriers will have to choose between installing TCAS II and performing other critical fleet maintenance procedures. Further, the extension means that a carrier may install TCAS II during its regular maintenance cycle; an economic benefit will accrue to carriers as a result of reduced downtime.

On July 10, 1989, the agency published a document in the *Federal Register* (54 FR 28978) announcing a public meeting and inviting written submissions on these issues. On December 15, 1989, the President signed Pub. L. 101-236, which allows the Administrator to extend the deadline for a period not to exceed 2 years.

Discussion of Comments

The agency received 21 comments addressing the implementation schedule for installing TCAS II and the propriety of an operational evaluation program.

Modified TCAS II Installation Schedule

Deadline for 100 Percent Equipage

Several commenters endorsed extending the deadline for 100 percent equipage to December 30, 1993. The agency agrees that the 1993 date will accomplish several important objectives recognized in the OTA report. First, it will give TCAS II equipment manufacturers time to produce and deliver necessary equipment under the revised technical standard order (TSO), TSOC-119(a), which references Radio Technical Commission for Aeronautics, Minimum Operational Performance Standard, DO-185, Changes 1 through 6. Second, extending the deadline for 100 percent equipage will give airlines and fuselage manufacturers time to redesign and modify airplanes. Third, it will give the agency time to perform a thorough evaluation of TCAS II equipment and altered airplanes in the total ATC environment. Further, extending the deadline will minimize the economic consequences of taking part of a carrier's fleet out of service to install TCAS II, and reduce the prospect that other critical maintenance and modification programs will suffer as operators endeavor to meet the TCAS II deadline.

Part 129 Operators

Commenters representing part 129 operators (foreign air carriers) opposed the 20 percent and 50 percent phase-in for installing TCAS II on foreign airplanes operating in the United States. These commenters argued that part 129 carriers do not dedicate specific airplanes to U.S. routes. Therefore, the only way to guarantee that a given percentage of the foreign fleet would meet the TCAS II phase-in requirements is to install the system in 100 percent of the fleet, or dedicate a part of the fleet to U.S. service. They suggested further that the FAA TCAS II rule did not conform with the International Civil Aviation Organization (ICAO) schedule because the rule called for installation outside of the ICAO schedule. These commenters suggested either that ICAO set the schedule for installing TCAS II in non-U.S. registered airplanes, or that part 129 operations be exempted from the phase-in schedule and be compelled to meet only the deadline for 100 percent equipage.

For the reasons stated by the commenters, FAA agrees that a mandatory phase-in schedule is inappropriate for part 129 operators and has deleted this requirement from the rule. The agency has no authority, however, to exempt these operators

from the 100 percent equipage deadline, because there is no discretion in the legislation to retreat from the December 1993 date for any operations to which the TCAS II rule applies.

FAA appreciates that this position does not fully accommodate an expressed concern of part 129 operators that they may be subject to conflicting U.S. and ICAO TCAS II standards. The United States government and FAA understand the need for international cooperation in setting standards for TCAS II and for its installation and use. Exempting part 129 operators from the phase-in requirements and extending the deadline for 100 percent fleet equipage gives the ICAO Secondary Surveillance Radar Improvements and Collision Avoidance Systems Panel (SICASP) time to complete a process that should result in a uniform ICAO/FAA TCAS II standard. The United States is committed to this effort. In the meantime, FAA invites and encourages part 129 operators to participate voluntarily in the operational evaluation program so that TCAS II may be assessed with a number and variety of airplanes sufficient to provide useful safety data.

Quantity of Airplanes Requirement

Two commenters questioned whether it was practicable for smaller 121 operators whose fleets contain foreign-made airplanes to comply with the phase-in schedule given that data necessary to retrofit their airplanes with TCAS II may not be available in time to meet the 20 percent and 50 percent deadlines. These commenters suggested that the modified schedule be amended so that an operator must have at least 50 subject airplanes (rather than the 30 in the proposed schedule) to trigger the phase-in requirement. The effect of such an amendment for some domestic carriers would be to exclude them completely from the phase-in requirements.

In its Report to the Senate Subcommittee on Aviation, OTA states that airlines that complete TCAS II installation on time face indirect cost penalties if their competitors do not commit similar resources to the installation of TCAS II and are granted extensions from the time deadline.

FAA does not wish to penalize complying operators by effectively granting a general exemption from the phase-in requirements to some part 121 operators. Further, in order to evaluate TCAS as a complement of the ATC system, there must be a critical number and variety of commercial airplanes equipped with TCAS II operating in all types of airspace. Because TCAS II

engineering technology is developed, FAA wishes to encourage operators to obtain the necessary technical support to facilitate its installation. Most importantly, Congress has expressed its belief that aviation safety will be served best by installing TCAS II on commercial airplanes as soon as practically possible.

If the agency followed the commenters' suggestion, for some carriers, the change would amount to a general exemption from the phase-in requirements. That action would place complying carriers at an economic disadvantage by compelling them to incur costs that their exempt competitors could avoid. FAA believes that economic equity, an effective evaluation of TCAS II in the ATC environment, and Congressional objectives weigh in favor of maintaining the schedule for all subject part 121 operators. On the other hand, the agency acknowledges that there may be circumstances where an operator cannot achieve full compliance with the phase-in requirements for reasons of impracticability. Therefore, the agency is amending the TCAS II phase-in requirements to permit waivers from full compliance where the operator makes a showing that it is impracticable to install TCAS II on each airplane falling under the phase-in percentages.

Quantity of Seats Requirement

One commenter suggested that carriers operating airplanes having less than 60 seats operating "exclusively in areas . . . which are free of congestion problems" be required to meet only the 100 percent equipage deadline. As this commenter suggests, however, determining what constitutes uncongested air space is difficult at best. The agency declines to introduce ambiguity into this critical program. Setting the TCAS II installation schedule by fleet facilitates program administration and adequately informs operators of whether and how they must comply.

Operational Evaluation Program

Five commenters endorsed the need for an operational evaluation program. One commenter suggested, however, that the evaluation consist of a minimum 25 percent of each operator's fleet, and that a required "representative" number and variety of airplanes be included in the evaluation phase.

Following the recommendation of the OTA Report, FAA intends to conduct a program during 1990, collecting approximately six months of in-use data to ensure that TCAS II will be safely and efficiently integrated into the ATC

system. However, the agency declines to dictate which specific numbers and types of airplanes the carrier must equip for the TCAS II evaluation. Further, there is no need to engage in more specific instructions in order to accomplish the goal that this commenter suggests. First, a carrier logically will install TCAS II as its fleet comes in for service. Second, different operators use different types of airplanes. Therefore, both the structure of airplanes maintenance and the variety of airplanes in the commercial carrier market naturally will produce the representative mix this commenter advises. Finally, FAA used the OTA report recommendation in arriving at 20 percent as the portion of the fleet that should be equipped for the evaluation. The agency believes that this number will present a sufficient mix to conduct a useful evaluation, and declines to impose an unnecessary cost on operators by requiring any greater percentage.

Rationale for Final Rule

Normally, the FAA publishes a formal "proposed rule" before issuing a final rule. In this case, however, the agency finds that there is good cause to dispense with a proposed rule for the following reasons. First, Congress has expressed its intent that TCAS II be installed on civil airplanes as soon as possible. The time for reasonable scheduling of the TCAS II retrofit and installations is critically short. Second, a notice of public meeting was published in the Federal Register (54 FR 28878) requesting both written and oral comments to the FAA's proposal to extend the compliance date. At the public meeting held on August 16, 1989, all interested parties were given the opportunity to comment on the subject matter of this rule and address the issues raised by the schedule modification and operational evaluation. Written comments were also accepted. Finally, many of the technical and economic issues raised by the revised implementation schedule are substantially the same as those involved in the original notice and the agency has considered those comments in adopting this rule. Accordingly, I find that the notice and public procedure requirements of 5 U.S.C. 556(b) have been satisfied and that further notice is unnecessary and contrary to the public interest.

The Rule

Paragraph (a) of § 121.356 is being revised to include the compliance schedule presented above for equipping

airplanes with more than 30 passenger seats with TCAS II and the appropriate class of Mode S transponder. In part 125, § 125.224(a) is being revised to extend the compliance date from December 30, 1991 to December 30, 1993; the same revision is being made to § 129.18(a). The effect of all of these revisions is to extend the compliance schedule for 100 percent installation of TCAS II to December 30, 1993. The more detailed schedule for part 121 certificate carriers will permit the FAA to evaluate the impact of TCAS II equipment on the total air traffic system as the equipment is being phased into that system.

Regulatory Evaluation Summary

Benefit-Cost Analysis

Executive Order 12291 dated February 17, 1981, directs Federal agencies to promulgate new regulations or modify existing regulations only if the potential benefits to society for the regulatory change outweigh the potential costs to society. The order also requires the preparation of a Regulatory Impact Analysis of all "major" rules except those responding to emergency situations or other narrowly defined exigencies. A "major" rule is one that is likely to result in an annual effect on the economy of \$100 million or more, a major increase in consumer costs, a significant adverse effect on competition, or is highly controversial.

This final rule is determined to not be "major" as defined in the executive order, so a full Regulatory Evaluation of alternative approaches has not been prepared. The FAA has, however, prepared a more concise Regulatory Evaluation, which includes an analysis of the safety and economic consequences of this rule. This analysis is included in the docket, and it quantifies, to the extent practicable, estimated costs to the private sector, consumers, Federal, State and local governments, as well as anticipated benefits and impacts.

A summary of the Regulatory Evaluation is contained in this section. For a more detailed analysis, the reader is referred to the full evaluation contained in the docket.

Costs

This rule extends the date by which air carrier airplanes with a passenger capacity of more than 30 seats flying in the United States must be equipped with TCAS II. Instead of all such airplanes being required to be so equipped by December 30, 1991, this amendment extends the existing deadline as follows:

20 percent of all such airplanes operating under 14 CFR part 121 by airlines that

operate more than 30 such airplanes must be equipped by December 30, 1990.

50 percent of all such airplanes operating under 14 CFR part 121 must be equipped by December 30, 1991.

100 percent of all such airplanes (parts 121, 125, and 129) must be equipped by December 30, 1993.

The primary cost of this rule is whatever reduction in aviation safety that may result from permitting 50 percent of the part 121 fleet to delay equipping with TCAS II for 2 years or until December 30, 1993. Information received since implementation of the original TCAS final rule indicates that some air carriers could not meet the December 30, 1991, date and would require some relief. Whatever negative safety impact this rule may have is limited to that resulting from carriers delaying installation of TCAS II equipment even though they could have met the original date. According to comments received on the notice, testimony heard at the public meeting held on August 16, 1989, and the findings of the special report on TCAS, "Safer Skies With TCAS," prepared by the Office of Technology Assessment (OTA), it is questionable that all of the airlines could have met the original December 30, 1991, deadline.

The OTA report makes the following statement:

Most airlines, domestic and foreign, view the deadline as difficult at best and unachievable at worst, since installing TCAS II will double the rate at which airlines ground their aircraft for heavy maintenance. The major U.S. airlines should be able to meet the deadline if required, although other maintenance and modifications may suffer. However, those airlines late in planning or those with limited facilities and financial resources are likely to be unable to meet the deadline for the following reasons. Additional technicians will be needed for the installation work force, and the supply of trained technicians will probably not be adequate to meet all the needs for every airline. Limited ramp and hangar space and other maintenance requirements may compound the labor shortage. Additionally, support equipment that could help speed installation, such as ground testing equipment, is still being developed.

Based on the above statements from the OTA report, it appears that some carriers (especially, the smaller ones) would have been forced to request exemptions from the original deadline. The FAA cannot quantify what safety reduction may occur as a result of these air carriers who could have met the 1991 deadline delaying for up to 2 years equipping the fleets with TCAS II. When evaluating the original TCAS rule, the FAA did not separate the expected benefits of TCAS from those of the

recently expanded Mode C requirements, but estimated that the future benefits over the next 15 years of the two rules together will be the prevention of a range of 2 to 7 midair collisions involving part 121 airplanes. Two actual midair collisions involving large air carriers actually occurred in the U.S. during the past 15 years in the absence of TCAS II and the expanded Mode C requirements. Under this amendment to the initial TCAS rule, 50 percent of the part 121 fleet will still meet the original December 30, 1991, deadline for becoming TCAS II equipped, the other 50 percent will become equipped over the following 2 years. The expanded Mode C requirements remain in effect. The FAA expects that whatever small safety reduction may occur because of extending the deadline for one half of the part 121 fleet will be more than compensated for by safety increases as discussed in the "Benefits Section" of this regulatory evaluation summary. Even in the unlikely event that all of the air carriers would have been able to meet the deadline, the FAA cannot estimate in definitive terms what aviation safety reduction would have resulted because of this rule.

A potential secondary cost of this rule is its impact on TCAS II manufacturers. Again, quoting from the OTA report:

The TCAS II installation requirement has a different effect on the various U.S. TCAS manufacturers. Expecting over 8,000 orders from domestic and foreign airlines by the end of 1991, these companies have invested accordingly. Under the current schedule, airlines may postpone taking delivery of equipment until late in 1991 to allow modifications to be made before their purchases are effective. Equipment manufacturers that were not early supporters of TCAS II development may reap benefits from such postponements, while those that invested heavily in development and testing programs will face cash flow problems as they gear up for production. A simple extension of the deadline could heighten cash flow problems by further postponing purchases.

While acknowledging that TCAS manufacturers may experience some costs as a result of this rule, the FAA is unable to estimate these costs and assumes them to be minor because no TCAS manufacturers objected to the rule at the public hearing or submitted comments to the docket on the notice.

Benefits

This rule is expected to generate potential benefits in the forms of enhanced safety and operational efficiency.

This rule will enhance aviation safety in two ways. First, it will ensure that at least 20 percent of the airplanes in the part 121 air carrier fleet have TCAS II installed by December 30, 1990. Under the old schedule (or in the absence of this rule), air carrier operators (with more than 30 passenger seats) had until December 30, 1991, to install TCAS II. The FAA expects that because of the high cost of TCAS and ongoing resource needs in other areas of airline operations, some air carriers (particularly, the smaller ones) may have waited until late 1991 before installing TCAS II. The exact number of air carriers that would have installed TCAS II by late 1991, in absence of this rule, is uncertain. In view of this uncertainty, however, this rule will ensure that there will be as much as a 20 percent reduction in aviation risk exposure for part 121 air carriers. The potential reduction in risk exposure, which would take the form of a lowered probability of midair collisions, as a result of this action will only be realized when part 121 air carriers equipped with TCAS II interact with other airplanes equipped with at least operating transponders. As the result of the Mode C rule, the vast majority of active airplanes are equipped with operating transponders.

The other safety benefit of this rule will accrue in the form of ensuring that safety is not reduced in other areas of airline operations in order to realize full implementation of TCAS II by the desired end-date in the future. According to the OTA report, the extended TCAS II implementation schedule will result in enhanced safety by making certain that monetary resources on the part of air carriers are not strained or diverted from other operational needs of airlines (such as modifications of aging airplanes, windshear warning installation, etc.) in order to implement TCAS II by December 30, 1991. Under this rule, 50 percent of the part 121 air carrier fleet is required to have TCAS II installed by December 1991 (instead of 100 percent under the old schedule). By December 30, 1993, all air carriers operating under parts 121, 125, and 129 fleets are required to have TCAS II installed. This extension will better allow the airlines (especially, the smaller ones) to refrain from a "rob Peter to pay Paul" approach with aviation safety in order to achieve full compliance with TCAS II. This latter safety benefit could only be accomplished as the result of improved operational efficiency in the allocation of monetary resources. Such efficiency improvements will result in economic

relief derived from the 2-year extension of the TCAS II implementation date.

As the result of the extension of the TCAS II implementation date, out-of-service (or down) time could be reduced significantly for some airlines. Now, airlines can install TCAS II in conjunction with the installation of windshear, to a large extent, during their routine 3- or 4-year heavy maintenance cycles. This economic relief benefit is the result of reduced downtime and the delay in the acquisition and installation of TCAS II for some airplanes. The quantification of these economic relief benefits is difficult because they embody much uncertainty, coupled with a lack of available information. For this reason, such benefits will not be estimated quantitatively in this evaluation.

Another potential benefit of this rule will be an earlier compatibility of U.S. and international standards. The extended TCAS II implementation schedule will better ensure that U.S. and ICAO TCAS II standards are compatible sooner than otherwise would have been in the absence of this rule. According to the OTA report, if international airborne collision avoidance standards are completed and approved as expected by mid-1990, an international implementation schedule can be then established.

Comparison of Costs and Benefits

Based upon information received since implementation of the original TCAS rule, the FAA deems that some air carriers could not have met the old schedule to equip their airplanes with TCAS II. In addition, those airline operators who could have met the old schedule may have been heavily pressured to cut corners on other safety initiatives in order to do so. While there may be a very small but temporary and unquantifiable increased risk of midair collisions by allowing 50 percent of the part 121 fleet and all of the parts 125 and 129 fleets a 2-year extension in becoming TCAS II equipped, this is more than offset by the safety benefits of allowing the extension. On balance, the FAA expects the benefits of this rule to exceed any costs that might be incurred as a result of its adoption.

Regulatory Flexibility Determination

The Regulatory Flexibility Act of 1980 (RFA) was enacted to ensure that small entities are not unnecessarily and disproportionately burdened by Government regulations. The RFA requires agencies to review rules which may have "a significant economic impact on a substantial number of small entities." The small entities potentially

affected by this rule consists of parts 121 and 125 airplane operators with passenger configurations of more than 30 seats. According to the RFA, however, foreign entities (such as part 129 air carriers) are not covered.

This rule will not impose any additional incremental costs, over those that would have been incurred under the original TCAS rule, on parts 121 and 125 airplane operators. As a matter of fact, this rule will impose a lower cost of compliance than would have been incurred under the TCAS rule using the old December 30, 1991, TCAS II implementation date. Therefore, the FAA has determined that this rule will not have a significant cost impact on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

International Trade Impact Assessment

This rule will have no impact on trade opportunities of United States firms doing business overseas or for foreign firms doing business in the United States. This rule will impose the same TCAS II requirements on both domestic operators under parts 121 and 125 and foreign air carriers subject to part 129. The incremental cost of compliance of this rule relative to the TCAS rule is zero. In fact, as the result of extending the implementation end-date for TCAS II by 2 years, the cost of compliance will be lower than it would have been under the old end-date of December 30, 1991. The reduced cost of compliance to foreign airplane operators flying into the United States under part 129 is likely to be very similar to the cost savings to be incurred by domestic operators. Thus, neither domestic nor foreign air carriers will be affected disproportionately by this rule. This rule, therefore, will not cause a competitive fare advantage for either U.S. carriers operating overseas or for foreign carriers operating in the United States.

Federalism Implications

The regulations herein would 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. Thus, in accordance with Executive Order 12612, it is determined that these regulations do not have federalism implications requiring the preparation of a Federalism Assessment.

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. 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. This regulation is considered significant under DOT Regulatory Policies and Procedures (44 FR 11034; February 26, 1979). A regulatory evaluation of this regulation, including a Regulatory Flexibility Determination and International Trade Impact Analysis, has been placed in the docket. A copy may be obtained by contacting the person identified under "FOR FURTHER INFORMATION CONTACT."

List of Subjects

14 CFR Part 121

Air carriers, Aircraft, Airspace, Air traffic control, Aviation safety, Safety.

14 CFR Part 125

Aircraft, Airplanes, Air traffic control.

14 CFR Part 129

Air carrier, Aircraft, Air traffic control.

The Amendments

In consideration of the foregoing, the Federal Aviation Administration amends parts 121, 125, and 129 of the Federal Aviation Regulations (14 CFR parts 121, 125, and 129) as follows:

PART 121—CERTIFICATION AND OPERATIONS; DOMESTIC, FLAG, AND SUPPLEMENTAL AIR CARRIERS AND COMMERCIAL OPERATORS OF LARGE AIRCRAFT

1. The authority citation for part 121 continues to read as follows:

Authority: 49 U.S.C. 1354(a), 1355, 1356, 1357, 1401, 1421 through 1430, 1472, 1485, and 1502; 49 U.S.C. 106(g) (Revised Pub. L. 97-449, January 12, 1983).

2. Section 121.356 is amended by revising paragraph (a) to read as follows:

§ 121.356 Traffic Alert and Collision Avoidance System.

(a) Unless otherwise authorized by the Administrator, each certificate holder operating a large airplane that has a passenger seating configuration, excluding any pilot seat, of more than 30 seats, shall equip its airplanes with an approved TCAS II traffic alert and collision avoidance system and the appropriate class of Mode S transponder according to the following schedule:

Date	Required equipage
December 30, 1990...	At least 20% of all covered airplanes, if the certificate holder operates more than 30 such airplanes.
December 30, 1991...	50% of all covered airplanes.
December 30, 1993...	100% of all covered airplanes.

* * * * *

PART 125—CERTIFICATION AND OPERATION: AIRPLANES HAVING A SEATING CAPACITY OF 20 OR MORE PASSENGERS OR A MAXIMUM PAYLOAD CAPACITY OF 6,000 POUNDS OR MORE

3. The authority citation for part 125 continues to read as follows:

Authority: 49 U.S.C. 1354, 1421 through 1430, and 1502; 49 U.S.C. 106(g) (Revised Pub. L. 97-449, January 12, 1983).

§ 125.224 [Amended]

4. Paragraph (a) of § 125.224 is amended by changing the date from "December 30, 1991" to "December 30, 1993".

PART 129—OPERATIONS: FOREIGN AIR CARRIERS AND FOREIGN OPERATORS OF U.S.-REGISTERED AIRCRAFT ENGAGED IN COMMON CARRIAGE

5. The authority citation for part 129 continues to read as follows:

Authority: 49 U.S.C. 1346, 1354(a), 1356, 1357, 1421, 1502, and 1511; 49 U.S.C. 106(g) (Revised Pub. L. 97-449, January 12, 1983).

§ 129.18 [Amended]

6. Paragraph (a) of § 129.18 is amended by changing the date from "December 30, 1991" to "December 30, 1993".

Issued in Washington, DC, on April 3, 1990.

James B. Busey,
Administrator.

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