

improvements in reliability, range, and payload capabilities that these new airplanes offered. Beginning in 1985, the FAA allowed air carriers to operate certain twin-engine airplanes on routes that included points more than sixty-minutes from an adequate airport under a formal program known as Extended Range Operation with Two Engine Airplanes ("ETOPS"). The regulatory basis of ETOPS was the deviation authority contained in 14 CFR section 121.161. With the cooperation of the airlines, manufacturers, and other interested groups, the FAA carefully controlled and monitored this new type of flight operation.

Historical Documents

Advisory Circulars 120-42 and 120-42A

In support of ETOPS, the FAA issued two Advisory Circulars (AC) 120-42 and 120-42A in 1985 and 1988 respectively. These two AC documents have been the basis for type design and operational practices for ETOPS to date. Initially, the FAA set a maximum approval of 120 minutes from an airport for ETOPS. During the nascent stage of ETOPS, air carriers gained significant service experience; the safety and efficiency of ETOPS became apparent. In 1988, the FAA increased that approval to 180 minutes based on demonstrated safety record of these operations.

Deviation Authority From § 121.161 Prior to ETOPS

Since the 1970s, the FAA has authorized two-engine operations on routes up to 75 minutes away from an airport exclusively in the Caribbean. These were not considered ETOPS flights. These flights were approved by the FAA as deviations under section 121.161, but were authorized before a formal ETOPS program was developed. These deviations were approved after a safety evaluation of the areas of operation, the airplanes, and the operators conducting them.

207 Minute ETOPS

In March 1999, the Air Transport Association (ATA) asked the FAA to extend the 180-minute ETOPS authorization an additional fifteen percent to 207-minutes. The FAA published the ATA letter and asked for comments (64 FR 22667, April 27, 1999). Several commenters suggested that the FAA should formalize ETOPS in the regulations rather than continuing to rely on the deviation authority in section 121.161 and advisory materials. In January 2000, the FAA approved 207 minute ETOPS and stated its intent to task an Aviation Rulemaking Advisory

Committee (ARAC) Working Group to study the issues and to recommend regulations for ETOPS (65 FR 3522, January 21, 2000). In this same notice, the FAA solicited comments from the public on its decision to approve 207 minute ETOPS.

Polar Operations Letter

The increasing use of Polar flights, while creating economic benefits, has brought new challenges to extended operations such as climactic extremes. Due to these new challenges and to the increasing similarity among all long-range operations, experience began to show that ETOPS requirements and processes are generally applicable to all long-range operations including those by three and four engine airplanes and would improve their safety.

Harmonization With International Standards

Related International Activity

Two related activities should be noted. First, the Joint Aviation Authorities (JAA) of European nations has chartered a working group that is also developing standards and guidance material for extended operations. In ongoing efforts of both the FAA and JAA to coordinate regulatory requirements, one of the ARAC ETOPS Working Group tasks was to "harmonize * * * standardized requirements across national boundaries and regulatory bodies." Toward that end, there are representatives who are members of both the ARAC ETOPS Working Group and the JAA Working Group. Also, the two groups met together twice in Europe to facilitate joint action and harmonization. Second, the International Civil Aviation Organization (ICAO) Air Navigation Commission (ANC) Operations Panel has decided to develop standards and recommended practices (SARPS) for extended range operations. In May of 2001, the ARAC ETOPS Working Group held one of its meetings in Montreal, Quebec, Canada (ICAO's headquarters city) for the purpose of briefing members of the ANC and ICAO Air Navigation Bureau staff.

ARAC ETOPS Working Group Task Statement

The FAA established the ARAC ETOPS Working Group through a notice in the **Federal Register** at 65 FR 37447, dated June 14, 2000. It was given the following tasks:

1. Review the existing policy and requirements found in Advisory Circular (AC) 120-42A, applicable ETOPS special conditions, and policy

memorandums and notices, for certification and operational regulations and guidance material for ETOPS approvals up to 180 minutes.

2. Develop comprehensive ETOPS airworthiness standards for 14 CFR parts 25, 33, 121, and 135, as appropriate, to codify the existing policies and practices.

3. Develop ETOPS requirements for operations in excess of 180 minutes up to whatever extent that may be justified. Develop those requirements such that incremental approvals up to a maximum may be approved.

4. Develop standardized requirements for extended range operations for all airplanes, regardless of the number of engines, including all turbojet and turbopropeller commercial twin-engine airplanes (business jets), excluding reciprocating engine powered commercial airplanes. This effort should establish criteria for diversion times up to 180 minutes that is consistent with existing ETOPS policy and procedures. It should also develop criteria for diversion times beyond 180 minutes that is consistent with the ETOPS criteria developed by the Working Group.

5. Develop additional guidance and/or advisory material as the ARAC finds appropriate.

6. Harmonize such standardized requirements across national boundaries and regulatory bodies.

7. Any proposal to increase the safety requirements for existing ETOPS approvals up to 207 minutes must contain data defining the unsafe conditions that would warrant the safety requirements.

8. The Working Group will provide briefings to the Transport Airplane and Engine Issues group.

9. The recommendations should consider the comments received as a result of the April 27, 1999 and January 21, 2000 **Federal Register** notices.

10. Within one year of publication of the ARAC task in the **Federal Register**, submit recommendations to the FAA in the form of a proposed rule.

Formation and Membership of the ETOPS Working Group

Formation

Following the formal tasking notice in the **Federal Register**, the ARAC organized an ETOPS Working Group.

Membership

The ETOPS Working Group consisted of over 50 representatives of U.S. and foreign airlines, aircraft and engine manufacturers, pilots' unions, industry groups, air disaster support groups, and