

Section-by-Section Discussion of the Proposal

We begin the discussion by clarifying the term "ETOPS". Since its inception eighteen years ago, the term "ETOPS" has described extended-range operations of two-engine air carrier airplanes under a deviation from 14 CFR 121.161. The term has gained broad acceptance among operators and regulators throughout much of the world.

This proposal would create regulatory requirements for extended operations for all air carrier airplanes. As described previously, the thresholds for applicability would vary by the number of engines and type of operation. In its deliberations, the Working Group stated that it struggled with the question of whether to use a new term to describe the operations of airplanes beyond 180 minutes from an adequate airport. Early on, the Working Group considered and agreed to the term "LROPS" which stands for Long Range Operations to describe flights beyond the 180-minute threshold. However, as their efforts progressed the Working Group found that the use of two terms (ETOPS and LROPS) for two-engine airplanes flying beyond 60 minutes and 180 minutes from an airport quickly became awkward and cumbersome. Further, the Working Group members representing the maintenance community expressed great concern that the introduction of the LROPS term would needlessly create confusion among the maintenance community and would also require painstaking and potentially expensive revisions to numerous maintenance manuals and programs. In order to avoid any potential confusion, the Working Group recommended the use of the term ETOPS for all air carrier extended range operations irrespective of the number of engines.

The FAA strongly agrees with this recommendation. The FAA also believes that the addition of a new term could needlessly create confusion. Further it would potentially dilute the intent of this proposal, which is to codify existing ETOPS standards and procedures and to extend those concepts to airplanes with more than two engines. The FAA believes that the introduction of a new term could be misinterpreted as creating a new operational concept as opposed to the extension of an existing one.

The proposed amendments to the Type Design Rules 14 CFR parts 25 and 33 and supporting advisory material are a consolidation of requirements taken from AC 120-42A, the 777 Special Conditions, and JAA Information Leaflet

(IL) 20. The materials contained in the proposed Airplane Type Design Rule (part 25) and AC are a compilation of the existing AC120-42A, 777 Special Condition, and JAA IL20.

The following discussion takes each of the Rule sections and attempts to capture all of the comments and discussion from the ARAC activities.

Part 1

Section by Section Discussion of the Proposed Changes to Part 1

Section 1.1—General Definitions

The proposed definitions were adopted directly from the ARAC recommendation. This proposal would establish three different definitions of ETOPS in three significant ways. In each case, the acronym would stand for "extended operations" for all airplanes regardless of the number of engines. The definition would vary in part 121, however, depending on whether the airplane involved has two engines or more than two engines. This proposal also would introduce ETOPS into part 135 for the first time, where ETOPS would have a third definition. The FAA believes the remainder of the proposed definitions for section 1.1 are self-explanatory.

Part 21

The amendments to part 21 would create reporting requirements for the holders of type certificate for two-engine ETOPS airplanes and ETOPS eligible engines. This would require type certificate holders to closely monitor the performance of their products to ensure their continuing reliability. These amendments would also ensure that the FAA is kept apprised of any existing or potential problems in a timely manner.

Section by Section Discussion of the Proposed Changes to Part 21

Proposed New Section 21.4—ETOPS Reporting Requirements

This proposal would add a new regulation consisting of two parts, Early ETOPS Problem Reporting & Tracking for all ETOPS airplanes, and ETOPS Operational Service Reliability Reporting for two-engine airplanes.

Explanation

1. Reporting for all ETOPS airplanes. The proposed rule is a codification of what the FAA considers to be one of the essential and objective elements of the early ETOPS Special Conditions (SC) for the B777 aircraft; specifically as they pertain to problem tracking and reporting. The FAA accepts the ARAC recommendation and proposes it as a new section 21.4. Section 21.4 would

require the type certificate holder to establish an early ETOPS problem reporting system. The proposed system would contain a means for the prompt identification of those problems that could impact the safety of ETOPS operations in order that they may be resolved in a timely manner. The system would also contain the process for the timely notification to the responsible FAA office of all relevant problems encountered, and identification of corrective actions deemed necessary and provide for appropriate FAA review of all planned corrective actions. The system would be in place for the first 250,000 engine-hours of fleet operating experience after the airplane enters service.

For two-engine ETOPS airplanes the system would remain in effect beyond 250,000 engine-hours of fleet operating experience until the fleet has demonstrated a specified and stable IFSD rate consistent with the approved diversion time of the aircraft. For the service period, this system would define the sources and content of in-service data that will be made available to the type certificate holder in support of the problem tracking system. The content of the data provided would include the data necessary to evaluate the specific cause of all service events reportable under section 21.3(c) of part 21, in addition to any other failure or malfunction that could affect the safety of ETOPS operation. Ten event occurrences, specifically defined with respect to reliable, safe ETOPS operation that would require reporting are defined in the proposal.

2. Reporting for two engine ETOPS airplanes. Paragraph (b)(1) of the proposed section 21.4 would require engine and airplane manufacturers to report periodically on the reliability of their two-engine airplane fleets. Reporting would include: IFSD events, IFSD rates, and ETOPS fleet statistics. This reporting may be combined with the reporting required by section 21.3. The proposed rule also would require the identification of cause and appropriate corrective action to assure reliable, safe ETOPS operations.

The periodic reporting of the reliability required of the manufacturers of engines and airplanes approved for ETOPS service would begin at the introduction of the product into service and continue throughout its product life. The interval of the reporting would be more frequent early in its product cycle and generally longer later in its product service life, especially after the product has achieved maturity with regard to engine reliability. Reliability would be indicated by a stable engine