

the certificate holder would have to provide a non-voice communication system, such as High Frequency (HF) data link, to ensure communication capability.

Paragraph 121.99(d) would apply on to ETOPS flights planned on greater than 180-minutes and would require the installation of an additional communication system. This communication system would have to be capable of providing immediate satellite based voice communication of land-line telephone-fidelity between the flight crew and air traffic services and between the flight crew and the company. The term "immediate" in the context of this section would mean the time period required to connect an ordinary land-line telephone call. The modifiers "land-line telephone-fidelity" are included as performance standards to describe the faithful reproduction of sound. The FAA is essentially describing Satellite Communication (SATCOM). At this time, only SATCOM provides this capability and compliance with this proposed rule. The FAA acknowledges that technological innovation may create alternatives to SATCOM or render the system obsolete. Certificate holders would be required to equip airplanes used in ETOPS beyond 180 minutes with SATCOM or other system that offers equivalent or enhanced capability. The FAA notes that the ARAC consolidated these requirements in a single paragraph (c) in their recommendation. The FAA elected to reformat for clarity.

Both paragraphs (c) and (d) would require the certificate holder to consider "potential routes and altitudes necessary for diversion to ETOPS alternates" when assessing the availability of voice communication facilities. The ARAC recommended that the FAA amend paragraph 121.99(a) to include the above-quoted language. The FAA has elected not to amend paragraph 121.99(a). Paragraph 121.99(a) is the baseline requirement for all domestic and flag certificate holders operating under part 121. The FAA believes the equipage and communication performance requirements for ETOPS should be separate and distinct from the baseline communication requirement for part 121. Further, the FAA has proposed amending paragraph 121.99(a) in the Area Navigation (RNAV) proposed rulemaking. See 67 FR 77326 (December 17, 2002).

The origin of paragraph 121.99(d) is the 207-minute policy letter, which conditioned extension of section 121.161 deviation authority upon the installation SATCOM for operation on

those routes. See 65 FR 3520 (January 21, 2000). The purpose of this proposal is to ensure that flight crews have the best communication capability in the event of an extended diversion. During a diversion, crew workload increases considerably. The use of an unwieldy communication system during a diversion would needlessly distract the crew from more important cockpit duties. SATCOM is not available in all regions of the world. In those regions, flight crews must have another means to communicate with the certificate holder and air traffic services.

Proposed New Section 121.106 Required Rescue Fire Fighting Capability at ETOPS Alternate Airports

The FAA proposes to add new section 121.106, requiring a rescue fire fighting capability at an airport designated as an ETOPS alternate.

Explanation

Currently, part 139 does not require any aircraft rescue fire fighting (RFF) capability at airports designated as Takeoff and Destination alternates. Alternate airports are referred to in part 139 but not defined. The common perception of an alternate airport is that it is an airport that is used infrequently, when diversions occur. The original use of the definition was limited to the destination or takeoff airports. There was no specific mention of the en route alternate until Advisory Circular 120-42, Extended Range Operation With Two Engine Airplanes (ETOPS), was issued in 1985. The airport regulations specified in part 139 were first published in 1972 prior to the inception of ETOPS. For these reasons, and as outlined further, we propose new section 121.106 to include the requirement for RFF at an en route alternate airport.

Normally a flight diverts to its destination alternate airport because of poor weather at the destination airport or the aircraft having a low fuel state. In contrast, a diversion to an ETOPS en route alternate is likely attributable to an engine or system failure or medical emergency. Throughout the ETOPS flight the designation of the en route alternate may be revised, with consideration of the designated en route alternate airport maintaining an adequate level of weather and runway conditions to safely land the airplane. At the most critical point of an ETOPS en route diversion there is no other choice as to the diversion airport. It remains necessary to ensure that all the facilities and services are adequate to ensure that a safe landing can be made at the diversion airport in the event that

it is necessary to divert. Thus, some have argued that there is an increased importance of a rescue fire fighting service at airports designated as an ETOPS en route alternate. Further, they have argued that establishing such a requirement in the Federal Aviation Regulations is consistent with ICAO Annex 6, Part I, Attachment E, wherein an "adequate alternate aerodrome" is defined. The definition includes a list of various facilities and services, including "rescue and fire fighting", as being necessary. (An attachment to ICAO Annex is intended as a guide or supplementary material to ICAO Standards and Recommended Practices and as such, is not a requirement.)

The fact that en route diversions have occurred in the past and will continue to occur necessitates evaluation of the facts surrounding those events and the needs they identify. ETOPS operators in the United States (as well as Europe) operating across the North Atlantic have encountered difficulties in being able to designate certain Canadian airports as ETOPS en route alternates due to the reduction of RFF service capability (Canadian airport privatization) and numerous military base closures.

History has shown that in-flight diversions occur for a variety of reasons, other than In-Flight Shutdown (IFSD) of two engine aircraft. Any aircraft conducting extended range operations could experience a critical emergency requiring diversion to an en route alternate airport. Thus, it is proposed by some that a regulation be established to require an en route alternate for all extended range flight operations (aircraft with 2, 3, and 4 engines) because, in such an event requiring a diversion, a simple emergency evacuation in a hostile environment (for example, due to cold temperatures) could be deadly, or in a similar way, a mechanical event requiring a need to land could result in an unanticipated accident, such as a runway overrun and thus become catastrophic. It is further argued by some that these considerations have led to the conclusion that some level of accident mitigation systems should be required for airports designated as en route alternate airports. This accident mitigation protection is provided for at airports designated as origin and destination airports in the regulations of part 121, and the appropriate levels of protection are specified in the airport certification regulations designated as part 139.

Part 139 specifies the level of aircraft Rescue and Fire Fighting (RFF) as a function of aircraft size. This level of protection is deemed the "Index" and