

flight segment. The airspeeds associated with cruise at cabin depressurization altitude are not conducive to ice build-up. Moreover, pilots can avoid icing with minor changes in altitude or by changing the cruise speed, either of which can have a large effect on ice accretion. Based on the CASP II study, considering the probability of encountering depressurization at the critical point and icing on the same flight, an argument was made that fuel for icing in addition to fuel for depressurization is not necessary. However, as a conservative measure, this section requires fuel to compensate for the greater of the effect of airframe icing (including the fuel used by engine and wing anti-ice during this period) during 10 percent of the time for which icing is forecast, or a combination of fuel for engine anti-ice, and for some models of airplanes based on their characteristics and the manufacturer's recommended procedures fuel for wing anti-ice for the time during which icing is forecast.

The proposal also requires that the fuel supply be increased by 5 percent to account for deterioration in cruise fuel burn performance unless the certificate holder has a program established to monitor airplane in-service deterioration of cruise fuel burn performance and includes in fuel supply calculations fuel sufficient to compensate for any such deterioration.

Finally, if the APU is a power source required by this appendix, then its fuel consumption must be accounted for.

#### H. Maintenance Program Requirements

##### (a) Configuration, Maintenance, and Procedures (CMP)

This type design document establishes the baseline configuration standard for each specific airplane and engine combination used in ETOPS. The importance of the CMP is discussed more fully above in the discussion of part 25 amendments of this proposal.

##### (b) Continuous airworthiness maintenance program (CAMP)

A CAMP is a comprehensive oversight program to ensure the continuing airworthiness of an airplane. A CAMP includes but is not limited to maintenance tasks, inspection tasks, auditing requirements, and data analysis. CAMP is required by section 135.411(a)(2). The proposed regulation would expand the scope of CAMP for ETOPS operators to encompass issues unique to ETOPS. The following are considered basic additional elements of a CAMP for an ETOPS operator.

##### (1) ETOPS pre-departure service check

The pre-departure service check is designed to ensure that ETOPS significant systems will perform their intended function throughout the flight. An ETOPS pre-departure service check would have to verify the status of ETOPS significant systems. Some certificate holders conducting ETOPS flights have elected to add other items to their check as a result of operational experience and knowledge gained through reliability data. Regardless of any additional items an operator may add to a check, the focal point of this check must be inspection, servicing, and maintenance of ETOPS significant systems.

##### (2) Dual Maintenance

There have been instances of a single mechanic repeating a maintenance error on multiple systems. An example of dual maintenance is failing to install o-rings on engine oil or fuel components on multiple engines. Establishing procedures to avoid dual maintenance can minimize the probability of such errors. The use of two or more mechanics reduces the risk of this type of error. Routine tasks on multiple similar elements, such as oil and fuel filter changes, should never be assigned on the same maintenance visit.

However, the FAA is aware that under some limited circumstances, dual maintenance may be unavoidable. For instance, a pilot's report of a discrepancy on an ETOPS significant system may require maintenance on one engine at the same time as a scheduled maintenance event for the other engine. In such cases, the certificate holder must establish and follow procedures to mitigate the risk of a common cause human error jeopardizing the ETOPS flight.

##### (3) Verification Program

The verification program ensures the effectiveness of ETOPS maintenance actions. Verification programs are designed to identify any potential problems and may consist of ground tests, flight tests, use of built in test equipment (BITE), and other tests as appropriate. Verification action must be accomplished following corrective action to an ETOPS significant system, primary system failure, IFSD or in response to significant adverse trends. The certificate holder must establish procedures to clearly indicate who is going to initiate the action, what verification action is necessary. A verification flight may be performed in combination with an ETOPS revenue flight, provided the verification phase is

documented as satisfactorily completed upon reaching the ETOPS entry point.

##### (4) Task Identification

ETOPS maintenance programs include numerous tasks. Under this proposal, the certificate holder would have to identify specific tasks that must be accomplished by ETOPS qualified personnel. These ETOPS-specific tasks are performed during all phases of maintenance. On the other hand, some tasks in an ETOPS maintenance program are identical to tasks on a non-ETOPS airplane. The FAA realizes that tasks, such as checking seat belts prior to a flight, do not involve ETOPS significant systems and may be performed by non-ETOPS qualified personnel. ETOPS specific tasks would either be identified on the certificate holder's routine work forms and related instructions or parceled together and identified as an "ETOPS package."

##### (5) Centralized Maintenance Control Procedures

The certificate holder would have to develop and clearly define in their program ETOPS related procedures, duties, and responsibilities, such as involvement of centralized maintenance control. The function of centralized maintenance control is to be a focal point for operational aspects of ETOPS maintenance and to ensure that ETOPS aircraft are airworthy. Procedures and centralized control processes would be established which would preclude an airplane being dispatched for ETOPS flights after a propulsion system shutdown, significant primary airframe system failure, or significant adverse trends in system performance without appropriate corrective action having been taken. Confirmation of corrective maintenance would require appropriate verification action prior to dispatch on an ETOPS flight. Depending on the size and scope of the ETOPS operation, the maintenance control entity could be an entire department or one ETOPS-qualified individual for a small operation. "Centralized maintenance control" is also referred to as "technical services center", "maintenance operations control (MOC)", and "maintenance coordination center" among other terms within industry.

##### (6) ETOPS Program Document

The certificate holder would have to develop a document that identifies all ETOPS requirements, including supportive programs, procedures, duties, and responsibilities for use. The ETOPS program document would be for use by personnel involved in ETOPS and would be readily accessible to those