

be available, each of which must be capable of providing power for all of the equipment required by this part for the duration of any diversion.

(b) *Fuel System.* The fuel supply system must be able to provide sufficient fuel for the duration of any diversion following any single failure of fuel system components.

*(D) Certificate Holder Requirements*

(1) No certificate holder may operate an airplane in accordance with ETOPS unless the planned route for that airplane remains within 240 minutes flying time (in still air and one engine inoperative) from an airport meeting the requirements of § 135.385, § 135.387, § 135.393 or § 135.395, as applicable, and § 135.219 or § 135.221 as applicable.

(2) In addition to the requirements of § 135.83, § 135.225 and § 135.229 the certificate holder will ensure flight crews have in-flight access to current weather and operational information on all enroute alternate, destination and destination alternate airports proposed for each ETOPS flight.

*(E) Operational Requirements*

(1) No pilot in command may allow a flight to continue beyond the ETOPS entry point unless the weather and operating conditions at the required enroute alternate airports are reviewed and expected to be at or above the operating minimums specified in the operations specifications during the period in which that airport may be expected to be used based on expected estimated times of arrival at that airport. The planned route of flight may be amended while en route to allow use of additional enroute alternate airports provided weather is forecast to be at or above operating minima and the airport is within the maximum ETOPS diversion time.

(2) Pilots shall plan and conduct ETOPS under instrument flight rules.

(3) Time Limited Systems.

(a) For ETOPS, the time required to fly the distance to the planned ETOPS alternate or alternates, at the all engines operating cruise speed, correcting for wind and temperature, may not exceed the time specified in the Airplane Flight Manual for the airplane's cargo fire suppression system time (if installed), minus 15 minutes.

(b) Except as provided in paragraph (a) above, the time required to fly the distance to the planned ETOPS Alternate or Alternates, at the approved one engine inoperative cruise speed, correcting for wind and temperature, may not exceed the time specified in the Airplane Flight Manual for the airplanes most time limited system time (except for cargo fire suppression) minus 15 minutes.

(c) Certificate holders operating turbine-engine powered airplanes that, on the effective date of this regulation, lack the airplane flight manual information required by paragraphs a and b above, may continue ETOPS operations for a period not to exceed the date that occurs eight years following the effective date of this rule.

*(F) Communications Requirements*

(1) No person may conduct an ETOPS flight unless the following communications

equipment, appropriate to the route to be flown, is installed and operational:

(a) Two independent communication transmitters (at least one must allow voice communication).

(b) Two independent communication receivers (at least one must allow voice communication).

(c) Two headsets, or one headset and one speaker.

(2) In areas where voice communication facilities are not available, or voice communication is not possible or is of poor quality, communications using alternative systems may be substituted.

*(G) Fuel Planning Requirements*

1. No person may take off a flight for operations in ETOPS unless the fuel carried on board is the greater of:

a. Fuel required under § 135.223, or

b. Considering forecast wind and other weather conditions, the airplane carries sufficient fuel to complete the flight under the following conditions:

(i) Greater of:

(a) Fuel sufficient to fly to a ETOPS enroute alternate airport assuming a rapid decompression at the most critical point followed by descent to a safe altitude in compliance with the oxygen supply requirements of § 135.157; or

(b) Fuel sufficient to fly to a ETOPS enroute alternate airport at the approved one engine inoperative cruise speed assuming a rapid decompression and a simultaneous engine failure at the most critical point followed by descent to a safe altitude in compliance with the oxygen supply requirements of § 135.157; or

(c) Fuel sufficient to fly to a ETOPS enroute alternate airport at the approved one engine inoperative cruise speed assuming an engine failure at the most critical point followed by descent to the one engine inoperative cruise altitude.

(ii) Upon reaching the enroute alternate airport, hold at 1500 ft. above field elevation for 15 minutes and then conduct an instrument approach and land.

(iii) Add a 5% wind speed factor (*i.e.*, an increment to headwind or a decrement to tailwind) on the actual forecast wind used to calculate fuel in paragraph b.(i) of this appendix to account for any potential errors in wind forecasting. If a certificate holder is not using the actual forecast wind based on wind model acceptable to the FAA, allow 5% of the fuel required for a above, as reserve fuel to allow for errors in wind data.

(iv) Compensate in paragraph b.(i) above for the greater of:

(A) The effect of airframe icing during 10 percent of the time during which icing is forecast, or

(B) Fuel for engine anti-ice, and if appropriate wing anti-ice for the time during which icing is forecast,

2. 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, increase the fuel supply by 5 percent to account for deterioration in cruise fuel burn performance.

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

*(H) Maintenance Program Requirements*

Each certificate holder authorized to conduct ETOPS under section 135.364 must have a maintenance program that includes the following:

(a) *Configuration, Maintenance, and Procedures (CMP) compliance.*

A system to ensure compliance with the minimum requirements set forth in the Configuration, Maintenance and Procedures (CMP) for each airframe and engine combination, or the Type Design document for each airframe and engine combination.

(b) *Continuous airworthiness maintenance program (CAMP).*

Develop and follow a continuous airworthiness maintenance program based on the manufacturers maintenance program or one currently approved for the operator and supplemented for ETOPS for each airframe and engine combination. The program must include the following:

(1) *ETOPS pre-departure service check.* A check that must be accomplished immediately prior to an ETOPS flight and certified complete by an ETOPS qualified maintenance person

(2) *Dual maintenance.*

(a) Procedures to preclude ETOPS dual maintenance.

(b) Procedures to use if ETOPS dual maintenance cannot be avoided.

(3) *Verification program.* Procedures for corrective action to an ETOPS maintenance significant system.

(4) *Task identification.* Identify ETOPS specific procedures or tasks that must be accomplished or verified by ETOPS qualified personnel.

(5) *Centralized maintenance control procedures.* Establish and document procedures for centralized Maintenance Control related to ETOPS.

(6) *ETOPS program document.* Develop a document for use by personnel involved in ETOPS. All ETOPS requirements, including supportive programs, procedures, duties and responsibilities, must be identified in this document and submitted for approval to the CHDO. This document is not required to be inclusive but must at least reference the maintenance programs and clearly define where they are located in the certificate holder's document system. Changes to the ETOPS document must be submitted to the CHDO and approved before such changes may be adopted.

(7) *ETOPS parts control.* Develop an ETOPS parts control program to ensure the proper identification of parts to maintain the ETOPS configuration.

(8) *Enhanced Continuing Analysis and Surveillance System (CASS) program.* The certificate holder must include the ETOPS program elements in the certificate holder's CASS program. The program must incorporate reporting procedures for significant events detrimental to ETOPS flights.

(a) In addition to the reporting requirements in § 135.415 and § 135.417, the following items must be reported within 72 hours to the CHDO.