Extended Operations (ETOPS) of Multi-Engine Airplanes

OMB #2120-0718

A. Justification

1. Explain the circumstances that make the collection of information necessary.

Prior to the publication of the "Extended Operations (ETOPS) of Multi-Engine Airplanes" rule on January 16, 2007 (72 FR 1808), 14 CFR Part 121.161 prohibited operators from flying over a route that contains a point that is more than 1 hour flying time from an adequate airport, except through a deviation. Over the past 20+ years the FAA has issued deviations to the regulation to allow for long-range flights up to 207 minutes. The "Extended Operations (ETOPS) of Multi-Engine Airplanes" regulation codified the previous practices that permitted certificated air carriers to operate two-engine airplanes over these long-range routes and extended the procedures for extended operations to all passenger-carrying operations on routes beyond 180 minutes from an alternate airport. This option is voluntary for operators and manufacturers. Because it is voluntary, the FAA provides an estimate of the paperwork burden for those who may participate in the future. The paperwork burden is associated with safety requirements to enable the FAA to assess the safety of long-range extended operations (ETOPS). These requirements required changes to parts 21, 25, 33, 121, and 135.

This regulation is necessary to support the following elements of the DOT's Strategic Plan:

- **Safety: Enhance public health and safety by working toward the elimination of transportation-related deaths and injuries.** The safety of long-range, or extended, operations depends on the risk of critical loss of engine thrust, additional system failures during a diversion, the distance from an adequate airport used in a diversion, and the conditions encountered upon arrival at the diversion airport. This regulation contains requirements for engine monitoring, additional maintenance procedures, and the specific designation of adequate airports for diversions. Taken together, these requirements will increase the safety of flight for operations that go great distances around the world.

- **Mobility: Advance accessible, efficient, intermodal transportation for the movement of people and goods.** Long-range operations are more efficient in that they utilize shorter routes, use less fuel, and eliminate the need for multiple take-offs and landings. These extended operations are simply a more efficient way of moving passengers across long distances in less time. Competition in international travel will increasingly depend on extended flights

- **Global Connectivity: Facilitate a more efficient domestic and global transportation system that enables economic growth and development.** As mentioned before, because long-range operations require fewer take-offs and landings, and incorporate practical efficiencies in areas of security, movement through airports,

economy of time, and less disruption of airport facilities, they greatly facilitate economic growth and development.

This regulation also supports the FAA's Strategic Plan:

- **Global leadership**- The worldwide aviation industry is interested in extended operations. Civil aviation authorities of other countries and international aviation organizations are carefully watching the FAA's efforts to develop regulations to govern extended operations. This regulation enhances worldwide air travel safety and efficiency.
- **System efficiency**- Allowing extended operations allows operators to take more direct routes to long-range destinations and improves overall system efficiency.
- **Safety**- The regulation addresses the safety aspects of extended operations through increased engine and fuel monitoring, maintenance training and procedures, and planning for the adequacy of alternate airports in case of a diversion.

2. Indicate how, by whom, and for what purpose the information is to be used.

The FAA uses this information collection to ensure that aircraft for long range flights are equipped to minimize diversions, to preclude and prevent diversions in remote areas, and to ensure that all personnel are trained to minimize any adverse impacts of a diversion.

3. Describe whether, and to what extent, the collection of information involves the use of automated, electronic, mechanical, or other technological collection techniques or other forms of information technology.

The FAA continues to encourage the use of automated, electronic collection methods whenever possible. Air carriers may utilize existing maintenance, monitoring, and training databases wherever they exist to assist in the reporting of this information. The FAA estimates that electronic collection techniques can be utilized for 95% of the records.

4. Describe efforts to identify duplication.

There is no duplication in the requirements of this regulation. In most cases, where the FAA has added an additional requirement, there are existing record-keeping requirements already in place. For example, this regulation adds ETOPS training to training requirements that already exist, but only for those operators who wish to participate in ETOPS operations. Likewise, there are existing requirements for maintenance records. ETOPS would add certain entries to these existing records.

5. If the collection of information impacts small businesses or other small entities (Item 5 of OMB Form 83-I), describe any methods used to minimize burden.

The FAA does not believe that this collection impacts small entities.

6. Describe the consequence to Federal program or policy activities if the collection is not conducted or is conducted less frequently, as well as any technical or legal obstacles to reducing burden.

If the collection of information is not received, the FAA will not be able to proceed with this program because there would be no way to ensure safety. The FAA has sought to minimize the collection burden to the extent that safety is not compromised.

7. Explain any special circumstances that would cause an information collection to be conducted in a manner inconsistent with 5 CFR 1320.5(D)(2):

Because of the nature of extended operations, operators must report emergency conditions that cause a diversion immediately (within 72 hours), which may require respondents to report information to the agency more often than quarterly, as per 1320.5(d)(2)(i). Note that this is only a notification; it is not a plan for correcting the deficiency, which may take more time.

8. If applicable, provide a copy and identify the date and page number of publication in the Federal Register of the agency's notice, required by 5 CFR 1320.8(d), soliciting comments on the information collection prior to submission to OMB.

A 60-day notice was published in the Federal Register on March 14, 2017 (82 FR 13708) to allow the public to comment on this submission. No comments were received.

9. Explain any decision to provide any payment or gift to respondents, other than remuneration of contractors or grantees.

There are no payments or gifts to respondents.

10. Describe any assurance of confidentiality provided to respondents and the basis for the assurance in statute, regulation, or agency policy.

There is no assurance of confidentiality. The information submitted is a matter of public record in the interest of safety. Obtaining such information, however, would be subject to 5 U.S.C 552(b)(4). Specific areas of proprietary information may be held as confidential to the extent possible.

11. Provide additional justification for any questions of a sensitive nature, such as sexual behavior and attitudes, religious beliefs, and other matters that are commonly considered private.

There are no questions associated with this regulation of a sensitive nature.

12. Provide estimates of the hour burden of the collection of information and the cost for those hours.

ETOPS requirements only apply to operators that exceed the "180-minutes from an alternate airport" threshold. Therefore, there are few operators that meet this criterion. As noted in the response to question 1, the FAA is providing an estimate of the paperwork burden for those who may participate in the future. The estimated number of respondents is thirteen (13) part 121 operators in the South Pacific, two (2) part 121 operators in the South Polar region and one (1) part 135 operator in the South Pacific. Plus, there is one (1) manufacturer that would incur information collections for certification of airplanes for ETOPS operations. Although the current number of affected operators and manufacturers is still below the estimated numbers, the FAA maintains the projected numbers as a conservative estimate of potential burden.

As of the date of this submission, there are currently four (4) engine manufacturers who would incur information collection costs for engine monitoring. There have been changes to the estimated hourly burden and wage rates since the previous submission to account for this increase in the number of affected engine manufacturers. Thus, this submission includes a total of 21 respondents.

The collection of information includes seven areas, but not all seven areas apply to each operator or manufacturer. We list the areas specifically. All of these information requirements are considered *reporting* because they are required to gain extended operation or "ETOPS" authority.

1. Thirteen (13) part 121 operators who conduct extended operations in the South Pacific are required to prepare a passenger recovery plan applicable to the designated ETOPS alternate airport listed in the carrier's operations specifications; we estimate that there are two such plans. A passenger recovery plan includes how a carrier would deal with a diversion to the alternate airport – what emergency vehicles (ambulance, fire fighting, etc.) are available; hotels or facilities for protecting passengers, etc.

Initial: 13 operators x 2 plans x 100 hrs. = 2600 hrs. x $110 = $286,000.

Total over next 14 years: 26 plans x 40 hrs. x $110 = $114,400 x 14 yrs. = $1,601,600 + $286,000. = $ 1,887,600

These operators are also required to provide training for diversions. Pilots, dispatchers, and flight attendants are trained to deal with the special situation in which a diversion requiring extraordinary procedures.

Initial:
13 operators x 50 pilots x 1hr. = 650 hrs. x $185 = $120,250
13 operators x 5 dispatchers x 1 hr. = 65 hrs.x $66 = $4,290.
Total Initial Hrs. = 715 Total = $124,540

Years 2-16 = $12,454 (estimated 10% turnover) x 14 = $174,356

Total: $124,540. + $174,356. = $298,896

2. The two (2) part 121 operators in the South Polar region have to plan for communication disruptions caused by solar flare activity and thus incur planning costs. These operators also have special fuel considerations requiring reporting fuel freeze strategies.

Solar flare: 2 operators x 100 hours x $107. = $21,400.
(Years 3-16) 2 x 40 hours x $107. = $8,560 x 14 years = $119,840.
Total: $21,400. + $119,840. = $141,240.
Fuel strategies: 2 operators x 100 hours x $107. = $21,400.
(Years 2-16) 2 operators x 40 hours x $107 x 14 years = $119,840.

Total: $21,400. + $119,840. = $141,240.
Total for South Polar = $282,480.

3. Part 21, specifically § 21.4 contains reporting requirements for problem reporting and tracking, including in-flight engine shutdowns. One manufacturer of airplanes suitable for ETOPS makes such reports to prove the reliability of engines for ETOPS. This manufacturer is also required to investigate causes of engine shut-downs in flight.

Reporting
Initial:
1 manufacturer x 2 staff members x 2080 hrs. = 4,160 hrs. x $48 = $199,680.

Total: 16 years x $199,680. = $3,194,880.

Investigations (also a reporting requirement)
Initial:
1 operator x 1,000 hrs. x $96 (engineer) + 1,000 hrs. x $60 (technician) = 2,000 hrs. at cost of $156,000

Total:
2,000 hrs. x 16 yrs.=32,000 hrs $156,000 x 16 yrs. =$2,496,000.

4. Part 25, which contains the certification requirements for large airplanes, requires certification of fire suppression systems, electrical systems design, fuel system design, and system assessments for ETOPS. One manufacturer will incur these costs. Because of the reliability required for long range flights, these are information collections beyond what is normally required for certification purposes.

(Note: The burden is expressed in current dollars for a 16-year period based on the total extended compliance periods. That is, 10 years plus the 6-year compliance for fire suppression.)

Fire suppression: 1 manufacturer x 21,000 hours (13 engineers) x $96 = $2 M
Electrical system: 1 manufacturer x 30,000 hours (15 engineers) x $96 = $2.8 M
Fuel system design 1 manufacturer x 30,000 hours (15 engineers) x $96 = $2.8 M
System assessment: 1 manufacturer x 10,000 hours (5 engineers) x $96 = $960,000.

Total: $8,736,000.

5. The regulation adds engine requirements for an engine manufacturer seeking ETOPS approval. Part 33 requires oil tank design requirements to prevent oil loss and that the manufacturer develop an engine monitoring program. Currently, four (4) engine manufacturers incur these one-time costs.

Engine monitoring.
4 manufacturer x 1 technician x 5,000 hrs. x $85. = $1,700,000.

6. One operator has pilots and dispatchers who require training on ETOPS specific procedures to comply with the existing provisions of Section 121.415 that require training on the provisions of the operating certificate and operating manual.

Training:
50 pilots x 4 hours x $185 = $37,000.
3 dispatchers x 4 hours x $66. = $792.
Years 2-16, assume 10% replacement cost of $3,779. x 15 = $56,685.
Total: $94,477.

Flight planning: One operator conducting 1,460 flights per year.
$21 per flight x 1,460 = $30,660. x 15 years = $459,900.

7. Most of the Part 135 operators plan their flight to avoid going over 180 minutes from an airport so as to avoid ETOPS requirements. (Flights from the West coast to Hawaii, for example.) There is the possibility, however, of one Part 135 South Pacific operation that may exceed the 180-minute exclusion.

1 operator x 16 pilots for 4 hours initial and 1 hour recurrent training.
16 pilots x 4 hours x $77 = $4,928
(Years 2-16) 16 pilots x 1 hour x $77 x 14 years = $17,248.
Total: $22,176.

Summary of Initial and Total Paperwork Hours and Costs

Category	Initial Hours	Initial Cost	Sixteen Year Hours	Sixteen Year Cost
Part 121				
Passenger Recovery Plans	2600	$286,000	17,160	$1,887,600
Passenger Recovery Training	650	$120,250	1651	$298,896
South polar – flare planning	200	$21,400.	1320	$141,240.
South polar – fuel strategies	200	$21,400.	1320	$141,240.
Section121.415 training				
Pilots	4	$37,000.	9.6	$94,477.
Dispatchers	4	$792.	9.6	$1,188.
121.415 computer planning		$30,660.		$459,900.
Part 21				
ETOPS Reporting	4,160	$199,680.	66,560	$3,194,880.
Investigations	2,000	$156,000.	32,000	$2,496,000.
Part 25				
Fire suppression	21,000	$2,016,000.	21,000	$2,016,000.
Electrical system design	30,000	$2,880,000.	30,000	$2,880,000.
Fuel system design	30,000	$2,880,000.	30,000	$2,880,000.
System assessment	12,000	$960,000.	12,000	$960,000.
Part 33				
Engine monitoring	5,000	$400,000.	20,000	$1,700,000.
Part 135				
South Pacific operations	64	$4,928.	224	$22,176.
TOTAL	107,882	$10,014,110.	2,197,542	$21,461,197.

Average yearly total are divided by 16.

13. Provide an estimate for the total annual cost burden to respondents or recordkeepers resulting from the collection of information. (Do not include the cost of any hour burden shown in Items 12 and 14).

There are no additional costs not already included in question 12.

14. Provide estimates of annualized costs to the Federal government.

Because ETOPS operations have been on-going for 20+ years, inspectors are familiar with the overall requirements. Only minimal training in new requirements has been necessary.

15. Explain the reasons for any program changes or adjustments reported in Items 13 or 14 of the OMB Form 83-I.

There have been changes to the estimated hourly burden and wage rates since the previous submission to account for an increase in the number of affected engine manufacturers. Since respondents are not required to submit annually, this collection results in responses and annual time burden.

16. For collections of information whose results will be published, outline plans for tabulation and publication. Address any complex analytical techniques that will be used. Provide the time schedule for the entire project, including beginning and ending dates of the collection of information, completion of report, publication dates, and other actions.

There are no plans for publication.

17. If seeking approval to not display the expiration date for OMB approval of the *information collection, explain the reasons that display would be inappropriate.*

There is no plan to seek such approval.

18. Explain each exception to the certification statement identified in Item 19, "Certification for Paperwork Reduction Act Submissions," of OMB Form 83-I.

There are no exceptions.