

Supporting Statement
Widespread Fatigue Damage
2120-0743

1. Explain the circumstances that make the collection of information necessary. Identify any legal or administrative requirements that necessitate the collection.

The 2010 rule requires actions to preclude widespread fatigue damage (WFD) in transport category airplanes. It applies to transport category, turbine-powered airplanes with a type certificate issued after January 1, 1958 and a maximum takeoff gross weight greater than 75,000 pounds, regardless of whether the maximum takeoff gross weight is a result of an original type certificate or a later design change. It applies to airplanes whose maximum takeoff gross weight has been decreased to 75,000 pounds or less by a design change approval for which application is made after the effective date of the rule. And it applies to all transport category airplanes to be certified in the future, regardless of maximum takeoff weight.

(1) Section 26.21 [§ 26.21(b)] requires design approval holders to establish a limit of validity (LOV) of the engineering data that supports the maintenance program for affected airplane models. This section requires design approval holders to evaluate the airplane structural configuration of each model for which they hold a type certificate to determine its susceptibility to WFD and, if susceptible, to determine that WFD would not occur before the LOV. The evaluation would be based on test data, analyses and, if available, service history, and teardown inspections of high-time airplanes. Using the results of the evaluation, the design approval holder must then establish an LOV. Although the rule allows design approval holders to establish LOVs without relying on maintenance actions, the FAA expects most current design approval holders to adopt LOVs that will rely on such actions. If they choose to establish LOVs that rely upon maintenance actions to prevent WFD before the LOV, § 26.21 requires design approval holders to identify those actions and, unless the necessary service information already exists, develop the service information in accordance with a binding schedule approved by the FAA. Those actions would then be mandated by future airworthiness directives. Section 26.21 also requires, unless previously accomplished, that design approval holders establish an Airworthiness Limitations section (ALS) in the Instructions for Continued Airworthiness for each airplane structural configuration evaluated, incorporate the applicable LOV, and submit it to the FAA Oversight Office for approval.

Section 26.21 [§ 26.21(d)] requires that design approval holders develop and submit a compliance plan to the FAA for approval. The purpose of the compliance plan is to ensure that affected persons and the FAA have a common understanding and agreement of what is necessary to achieve compliance with these sections. The plan will also ensure that the affected persons produce an ALS and service information that is acceptable in content and format in a timely manner. Integral to the compliance plan will be the inclusion of procedures to allow the FAA to monitor progress toward compliance. These aspects of the plan will help ensure that the expected outcomes will be acceptable and on time for incorporation by the affected operators into their maintenance programs in accordance with the operational rules contained in this proposal.

(2) Sections 121.1115 and 129.115 require operators of an affected airplane to incorporate into their maintenance programs the Airworthiness Limitations section of the Instructions for Continued Airworthiness that includes an LOV for the airplane. The amendments to parts 121 and 129 have the effect of prohibiting operation of an airplane beyond its LOV¹ unless an extended LOV is approved.

¹ Under 14 CFR 91.403(c), no person may operate an airplane contrary to its applicable airworthiness limitations. By requiring operators to incorporate the LOV airworthiness limitations developed by the design approval holders under this rule, this final rule makes those LOVs applicable to the affected airplanes, and § 91.403(c) requires operators to comply with them.

(3) Section 25.571 and Appendix H require applicants of future transport airplane designs to include the LOV in the Airworthiness Limitations section of the airplane's Instructions for Continued Airworthiness. The LOV will apply regardless of how or by whom the airplane is operated.

(4) Section 26.23 allows any person to extend the LOV for an airplane if that person can demonstrate that the airplane will be free of WFD up to the extended LOV and develops a maintenance program that supports the extended limit, if necessary. The extended LOV is optional. To operate beyond the initial LOV or any subsequent LOV, the operator must incorporate the extended LOV and the associated maintenance actions into its maintenance program and may not operate the airplane beyond that limit.

This collection of information supports the DOT strategic goal of safety.

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

TC and STC holders would use the documentation to demonstrate to their FAA Oversight Office that they have complied with the rule by establishing limits of validity of the engineering data that supports the maintenance program (LOVs). Operators would submit the LOV to their Principal Maintenance Inspectors to demonstrate that they are compliant with the rule. When the airplane is sold or transferred, the new owner would comply with the ALS requirements. An operator may not operate an airplane beyond its LOV unless the operator has incorporated an extended LOV and associated maintenance actions.

The compliance plan required by § 26.21(d) will be used by the FAA to assist the design approval holder in complying with its requirements. This requirement is modeled substantially on "The FAA and Industry Guide to Product Certification," which is currently used for developing project-specific certification plans for type certification programs to ensure that the project proceeds in a timely manner and reaches its original goal. It is necessary in this instance because the rule contains requirements for operators to incorporate the LOV into their maintenance programs. The rule specifies a date by which the design approval holder must make the LOV available to operators. The operators' compliance date, 12 months after the design approval holders' compliance date, is also specified in the rule. If the design approval holder has not produced the LOV by the specified compliance date, operators will not have the information they need. If the design approval holder produces the LOV 6 months late, then the operators will have only 6 months, instead of 12 months, until their specified compliance date. So the compliance plan is necessary to ensure that the design approval holder is progressing towards successful completion of the LOV and that there will be no unexpected delays to prevent its timely completion.

3. Describe any consideration of information technology used to reduce burden as well as any technical or legal obstacles to reducing burden.

A successful electronic submission process requires actions by both the FAA and the applicant.

- The FAA and the applicant must use compatible e-signature recognition software.
- The applicant's internal security procedures must allow transmission of proprietary data electronically in a format that can be recognized by the e-signature recognition software -- some manufacturers do not believe that encrypted e-mail is sufficiently secure.
- The FAA and/or the applicant must be able to store and retrieve records (all the compliance data and FAA approvals) for the life of the airplane, which often is longer than 50 years.

The FAA has been working toward electronic submission agreements with large airplane manufacturers since Order 8000.79 was released; however, we do not have a suitable electronic records retention system, we do not have a secure data transmission system that is acceptable to all applicants, and we cannot require that applicants change their internal procedures to transmit documents electronically with e-signatures rather than on paper with ink signatures -- a change in process must be voluntary on the part of

the applicant. These issues have prevented electronic submission agreements so far. Most manufacturers will voluntarily e-mail or allow secure download of technical reports, service information, and similar data, but will simultaneously prepare and send hardcopy submittals with ink signatures.

We estimate that approximately 10% of the design approval holders and operators will submit the information electronically.

For recordkeeping, we do not require that operators keep their records in any special format.

4. Describe efforts to identify duplication. Show specifically why any similar information already available cannot be used or modified for use for the purpose(s) described in 2 above.

These documents will be developed by TC and STC holders for operators to comply with this rule. There is no evidence of duplication because this information is not currently available elsewhere.

5. If the collection of information has a significant impact on a substantial number of small businesses or other small entities (item 14 of the Paperwork Reduction Act submission form), describe the methods used to minimize burden.

This rule will not have a significant economic impact on a substantial number of small entities for the following reasons.

1. Entities potentially affected by this rule include part 25 manufacturers; applicants for future type certificates; applicants for certain future supplemental type certificates (STCs) and amended type certificates; and part 121 and 129 operators of transport category airplanes.
2. The FAA uses the size standards from the Small Business Administration for Air Transportation and Aircraft Manufacturing, which specifies companies having less than 1,500 employees as small entities.
3. The current United States part 25 airplane manufacturers that are affected include: Boeing, Lockheed Martin, and McDonnell Douglas (a wholly-owned subsidiary of The Boeing Company). These manufacturers will incur type certificate (TC) and amended TC costs. Because all U.S. transport-aircraft category manufacturers have more than 1,500 employees, none are considered small entities.
4. Future type certificate applicants will incur additional compliance costs. But these applicants will make the choice to incur the cost only if they believe that expected revenue from additional sales will exceed the expected cost. While future STC and amended TC costs will be passed on to airplane operators, it is not possible to determine which operator will buy and install such STCs. Because expected revenue will be greater than the expected cost, the FAA believes there will not be a significant impact on a substantial number of STC applicants.
5. The FAA has determined that no part 25 manufacturers are small entities, there will not be a significant impact on a substantial number of amended TC or STC applicants, and the estimated operator compliance cost will not be significant.

The FAA will provide guidance material to aid those impacted by the proposed WFD rule.

6. Describe the consequence to Federal program or policy activities if the collection is not conducted or is conducted less frequently.

If the collection was not conducted or was conducted less frequently, it would be impossible for operators to comply with the rule.

7. Explain any special circumstances that require the collection to be conducted in a manner inconsistent with the general information collection guidelines in 5 CFR 1320.5(d)(2)(i)-(viii).

There is only one circumstance that requires the collection to be inconsistent with the guidelines in 5 CFR 1320.5(d)(2) and that is the requirement that the airplane records be maintained for the life of the airplane.

8. Describe efforts to consult persons outside the agency to obtain their views on the availability of data, frequency of collection, the clarity of instructions and recordkeeping, disclosure, or reporting format (if any), on the data elements to be recorded, disclosed, or reported.

A 60-day notice for public comments was published in the Federal Register on December 14, 2016 (81FR 90407). No comments were received.

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

Not applicable.

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

Respondents are not given assurance of confidentiality. Certain records would be available through the Freedom of Information Act.

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 of a sensitive nature.

12. Provide estimates of the hourly burden of the collection of information.

Section 21.50 already requires that at least one complete set of Instructions for Continued Airworthiness, prepared in accordance with § 25.1529, be provided to the owner of each type aircraft. This amendment to part 26 requires that holders of design approvals for certain existing transport category airplanes establish LOVs for those airplanes. Those design approval holders are also required to revise the Airworthiness Limitations section of the Instructions for Continued Airworthiness to include the LOV.

Design approval holders have completed the initial one-time effort (spread over five years) associated with establishing LOVs and incorporating them in a new or revised Airworthiness Limitations section. Also, many airplanes from the original 33 affected models are no longer in production or are no longer being flown by part 121 or 129 operators. As a result, there are 16 models affected by the requirements related to applicants amending type certificates after the initial compliance period.

We estimate that design approval holders will spend 20 labor hours per airplane model to submit each new or revised Airworthiness Limitations Section with the LOV incorporated to the FAA for approval. We estimate that this task will affect six models on average every year and take approximately 120 hours to complete. The corresponding average annual costs are \$9,840 (using the burdened hourly cost of \$82 for an engineer).

Future applicants for either supplemental type certificates (STCs) or amendments to type certificates (TCs) that decrease or increase maximum takeoff gross weights would be developing a compliance plan for the certification project. The Paperwork Reduction Act compliance for development of these

certification plans is covered by OMB's previous approval of part 21. We estimate the additional burden to include information on a plan for establishing an LOV for these airplanes would be minimal.

We estimate 2 labor hours per airplane model to submit each revised maintenance program with the LOV to the FAA for approval. We estimate this task will take the affected operators approximately 12 hours each year. The corresponding average annual costs are \$984 (using the burdened hourly cost of \$82 for an engineer).

Other costs associated with the information collection requirements within this rule (in addition to the monetized hourly costs reflected above) are minimal.

This rule results in an annual recordkeeping and reporting burden as follows:

Documents Required to Show Compliance with the Rule	Total Average Annual Hours	Present Value Discounted (2017) Cost
FAA-approved revised or new ALS	120	\$9,840
FAA-approved maintenance program revision for operators	12	\$984
Total	132	\$10,824

The FAA computed the annual recordkeeping (total hours) burden by analyzing the necessary paperwork requirements needed to satisfy each process of the proposed rule. The average cost per hour varies due to the number of affected airplanes in each group, the amount of engineering time required to develop programs, and the amount of time required for each inspection.

13. Provide an estimate of the total annual cost burden to respondents or recordkeepers resulting from the collection of information.

There are no costs that are not already included in Question 12.

14. Provide estimates of annualized cost to the Federal Government.

There is no additional cost the government incurred by this collection. The design approval holders routinely submit information to the FAA; review of the information is part of the FAA's existing oversight responsibilities.

15. Explain the reasons for any program changes or adjustments reported in Items 13 or 14 of the OMB Form 83-1.

The FAA adjusted the hourly burden and costs to reflect that all affected design approval holders and operators have complied with the initial requirements.

The wage rate for engineer costs has been updated.

16. For collections of information whose results will be published, outline plans for tabulation, and publication.

Not applicable, the FAA will not publish the information collected. The rule requires design approval holders to make the data available to operators.

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.

Approval to not display the expiration date is not requested.

18. Explain each exception to the certification statement identified in Item 19, “Certification for Paperwork Reduction Act submissions,” of OMB Form 83-1.

There are no exceptions.