

no servicing whatsoever since delivery that would ensure adequate lubrication of the turbine bearing. In light of this, the FAA has clearly identified an unsafe condition that must be addressed by the actions specified by this AD to be incorporated in the operators' maintenance programs.

Further, the FAA points out that the normal means for air carriers to comply with AD's such as this is to incorporate the repetitive requirements into their approved maintenance program. Therefore, the FAA could accomplish this same result by enumerating the specific overhaul/servicing actions identified by the maintenance program revision. However, from an administrative point of view, there is a distinct advantage in requiring a maintenance program revision. By imposing the overhaul/servicing requirements, compliance with the AD with respect to each action would have to be recorded in the operator's maintenance records; whereas, in the case of this AD, the only required recording of the compliance relates to the one-time changes in the maintenance program required by paragraph (b) of the rule.

One commenter requests that the proposal be revised to require only a one-time inspection and servicing of the RAT. Data gathered from the results of the inspection could then be evaluated to determine the condition of the fleet and if additional actions are warranted. This commenter believes that the reported bearing failures were isolated incidents, and that issuance of the proposed AD is an "overreaction" to these reports. The FAA does not concur. From data already obtained, the FAA has determined that a sufficient number of failures have occurred which clearly indicate that the RAT installed in the Model L-1011-385 is likely to develop problems in the turbine bearing unless measures are implemented to periodically lubricate the bearing. Issuance of this AD is the result of that determination.

One commenter supports the intent of the proposed rule, but requests that proposed paragraph (b) be revised to delete the requirement for a complete overhaul of the RAT every eight years. The commenter considers this to be excessive. The commenter states that the turbine separation problems, like those that have occurred, should be correctable by periodically performing only the servicing procedures in accordance with Lockheed TriStar L-1011 Service Bulletin 093-29-098, dated December 6, 1993 (reference Dowty Service Bulletin RAT16C10-29-168). The FAA concurs that the

servicing procedures are acceptable in ensuring that the addressed problems associated with the turbine blade assembly are monitored and corrected in a timely manner. Accordingly, the FAA has revised paragraph (b) to provide operators with the option of accomplishing either the complete overhaul of the RAT or the servicing procedures, at eight-year intervals.

Another commenter requests that the proposal be revised to allow RAT's that have been overhauled previously in accordance with Dowty Overhaul Manual 29-21-01 to be considered in compliance with the AD, even though the overhaul manual does not call for the replacement of the roller bearing, part number RA56341. The commenter states that the lubrication problem addressed by the proposed AD occurs mainly in the turbine ball bearing (part number 601017118), not the roller bearing. The Dowty Overhaul Manual does not call for replacement of the roller bearing if it is still serviceable; however, Lockheed TriStar L-1011 Service Bulletin 093-29-098, dated December 6, 1993, which was cited in the proposed rule, calls for the replacement of the roller bearing, regardless of its condition. The FAA does not concur with the commenter's request. The replacement of the roller bearing, as called for in the referenced service bulletin, is necessary because of corrosion damage problems that can occur in the roller bearing. This corrosion damage may be difficult to detect by visual inspection alone; thus, initial replacement of the bearing (during overhaul) is all the more important. However, this corrosion problem will be monitored and corrected, if necessary, during the regular repetitive servicing or overhaul (every eight years) required by this AD. In light of this, inspection and reinstallation of both the roller and ball bearings, if serviceable, would be acceptable at the recurrent actions required by the AD. A note has been added to the final rule to clarify that replacement of the roller bearing is necessary when initially overhauling the RAT.

The FAA has recently reviewed the figures it has used over the past several years in calculating the economic impact of AD activity. In order to account for various inflationary costs in the airline industry, the FAA has determined that it is necessary to increase the labor rate used in these calculations from \$55 per work hour to \$60 per work hour. The cost estimate information, below has been revised to reflect this increase in the specified hourly labor rate.

After careful review of the available data, including the comments noted above, the FAA has determined that air safety and the public interest require the adoption of the rule with the changes previously described. The FAA has determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

Cost Estimate

There are approximately 236 Lockheed Model L-1011-385 series airplanes of the affected design in the worldwide fleet. The FAA estimates that 117 airplanes of U.S. registry will be affected by this AD.

For operators electing to service the RAT, it will take approximately 48 work hours per RAT to accomplish those actions, at an average labor rate of \$60 per work hour. Based on these figures, the total cost impact of the servicing actions on U.S. operators is estimated to be \$2,880 per RAT.

For operators electing to overhaul the RAT, it will take approximately 170 work hours per RAT to accomplish those actions, at an average labor rate of \$60 per work hour. Based on these figures, the total cost impact of the overhaul actions on U.S. operators is estimated to be \$10,200 per RAT.

The number of work hours that will be required to perform either the servicing or overhaul of the RAT, as indicated above, is presented as if those actions were to be accomplished as "stand alone" actions. However, in actual practice, these actions for the most part could be accomplished coincidentally or in combination with normally scheduled airplane inspections and other maintenance program tasks. Therefore, the actual number of any necessary additional work hours will be minimal in many instances. Additionally, any costs associated with special airplane scheduling will be minimal.

Incorporation of the requirements of this AD into the FAA-approved maintenance program will require approximately 40 work hours per operator to accomplish, at an average labor rate of \$60 per work hour. Based on these figures, the total cost impact of incorporation of the maintenance program change on U.S. operators is estimated to be \$2,400 per operator.

The FAA recognizes that the obligation to maintain aircraft in an airworthy condition is vital, but sometimes expensive. Because AD's require specific actions to address specific unsafe conditions, they appear to impose costs that would not otherwise be borne by operators.