

**GE Aircraft Engines
Flight Safety Office**

Subject: GEAE Comments on Enhanced Airworthiness Program for Airplane Systems
(FAA-1999-5401)

Date: January 15th 2003

Dear Sir

The purpose of this letter is to transmit GEAE comments regarding the interim final rule "Enhanced Airworthiness Program for Airplane Systems" published in the Federal Register on December 6 2002.

GE appreciates the opportunity to comment upon the proposed rule. After review and consideration, GE has some major concerns regarding the justification for this rule as currently written. This rule is not justified by the safety record, and is therefore contrary to the data-driven prioritization process for safety-related rule-making espoused by the FAA in the Broderick directive, the Safer Skies initiative and in CAST. The proposed rule is also contrary to the provisions of Executive Order 12866, which states:

- 1. When an agency determines that a regulation is the best available method of achieving the regulatory objective, it shall design its regulations in the most cost-effective manner to achieve the regulatory objective. In doing so, each agency shall consider incentives for innovation, consistency, predictability, the costs of enforcement and compliance (to the government, regulated entities, and the public), flexibility, distributive impacts, and equity.*
- 2. Each agency shall assess both the costs and the benefits of the intended regulation and, recognizing that some costs and benefits are difficult to quantify, propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs*

The FAA has not shown in its cost-benefit analysis that the benefits of this regulation justify its costs. The benefits are presumed to exist, but the evidence cited is open to other interpretations. For instance, the existence of 88,000 SDRs on cracks in a given time period is interpreted as clear evidence that a problem exists. It could equally be interpreted as evidence that existing processes are successful in detecting cracks and preventing unacceptable crack propagation. The FAA has acknowledged that there have been no fatigue-related accidents to date in the commercial transport fleet.

- 11. Each agency shall tailor its regulations to impose the least burden on society, including individuals, businesses of differing sizes, and other entities (including small communities and governmental entities), consistent with obtaining the regulatory objectives, taking into account, among other things, and to the extent practicable, the costs of cumulative regulations.*

By imposing a very significant economic burden upon the industry without any effect upon the commercial transport accident rate, the FAA has clearly not succeeded in "imposing the least burden upon society". Given that the proposed regulation is an attempt to address an "unknown area" of fatigue cracking in an aging fleet, it would be more appropriate to map the area before proceeding with broad-based regulation. For instance, conducting inspections on a small fraction of the fleet, such as 100 fleet leaders, would provide considerable insight as to whether fleet aging is indeed presenting a serious increase in risk. This approach would go far to answering the concern "we don't know what we don't know...".

It must also be recognized by the FAA that imposing a burden of absolute proof that an airplane is free of a given age-related damage is unreasonable, and takes no account of design features and Continued Airworthiness programs intended to account for an accommodate such damage.

Specific concerns also exist regarding details of the cost-benefit analysis and the discussion of previous economic or cost comments, as follows:

The relative risk assessment process is inappropriately applied. There is no means to determine from this assessment whether the alleged 100-fold risk increase is acceptable or otherwise. A hundred-fold risk increase may still be much smaller than that allowed during the certification of a new aircraft, in which

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case, no risk to the traveling public exists.

The relative risk assessment process is based on the following unfounded assumptions:

- 50 years is the mean time to (Catastrophic) aircraft cracking.
- three sigma away from this assumed mean equals a 14 year old airplane
- the three-sigma point in the statistical distribution is numerically equivalent to the safe life used in structural fatigue life calculation.

Since the alleged 100-fold risk increase (between a 14 year old airplane and a 35 year old airplane) is based on completely unsupported assumptions, it is meaningless.

If the FAA desires a statistical risk analysis, the correct way to approach it in this case is using a Weibull analysis, with a Bayesian assumption of one pending event. This removes the need to "guess" mean and standard deviation.

The cost-benefit analysis cites publication of ADs on airplane cracking as justification for this rule. Past allegations by the FAA (that cracks present an Unsafe Condition) do not translate into factual data supporting their allegation that a rule is needed. The analysis then goes on to discuss the hazards of depressurization, in emotionally charged language. The cracks against which ADs were written did not produce depressurization; it is not clear why the topic of depressurization is introduced into the analysis.

The FAA did not appear to respond to the comment by an Alaskan part 135 operator, and therefore GE repeats this valid and important comment:

“The FAA expects operators to work with STC holders and the original TC holder to develop damage-tolerance-based supplemental inspection programs which would require that each individual combination of type design and STC require a separate inspection program. The cost analysis is therefore too low, by a factor of the number of unique STC and type design combinations obtaining for each type design.”

The FAA assumes that where the cost of the SSIP exceeds 50% of the economic value of the airplanes in that group, the SSIP will not be applied and the airplanes will be forced out of service. The cost of this process is assessed as 50% of the economic value of the airplanes in question. This neglects the cost to the operator of replacing each such airplane. The FAA acknowledges that this process may force some operators out of business. This does not appear consistent with the provisions of executive order 12866, given the unquantifiably small incremental safety benefit of this regulation.

Again, GE appreciates the opportunity to participate in the rulemaking process, and to assist the FAA in improving overall safety of the commercial transport fleet.

Sincerely

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