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Federal Aviation Administration
Office of Chief Counsel
Attn: Rules Docket (AGC-200)
Docket No. 28293
Room 915G
800 Independence Avenue, SW
Washington, DC 20591

FAA-00-7952-39

Subject: Service Difficulty Reports -- Information Collection Requirements.

Greetings:

Thank you for the opportunity to review and respond to the information collection requirements imposed in the final rule on Service Difficulty Reports, published in the *Federal Register* (Docket No. 28293).

United Technologies Corporation, responding through Pratt & Whitney Division, has reviewed the subject document on behalf of United Technologies Corporation's forty-eight (48) 14 CFR Part 145 foreign and domestic repair stations. Based on our review, we believe that this final rule will burden repair stations -- particularly those performing maintenance on powerplants, propellers and related components -- and impose information collection requirements that are unjustified and expensive.

Each of the "Service difficulty reports (structural)" sections requires certificate holders to report failures or defects relating to corrosion, cracks, or disbonding. Each of these sections can be assigned, and most likely will be assigned, to a repair station by a certificate holding operator. The repair station section (§145.63) applies to "aircraft, powerplant, or propeller, or any component of any of them". In many cases, normal operation, particularly of powerplants, propellers and components thereof, results in corrosion, cracks and disbonding that already are addressed in manufacturers' manuals and/or approved technical data. These conditions either require replacement or repair of the part and are usual findings of maintenance. Improper determinations of serviceability or improper repair/overhaul could have a safety impact; conversely, proper findings and repair/overhaul are by far more prevalent and a routine part of normal business. Nothing is gained by repetitively reporting the results of normal maintenance.

However, this rule would impose substantial reporting requirements for the potentially thousands of the parts that are inspected, and for the millions of determinations made and repairs carried out for each routine propulsion system maintenance event. If a report were filed for each cracked, corroded or defective part, notwithstanding that the

literal text seems to require a report of each condition found on a part, there could be more than a thousand reports for **EACH** large turbofan engine heavy maintenance event, without any finding being significant or unusual as compared to other propulsion systems.

We are strongly of the opinion that information collection requirements be restricted to significant and unusual findings that could impact an entire class of products in service.

Within our company alone, we estimate that implementing the rule will cost in excess of \$6.7 million per year recurring, plus additional non-recurring costs of approximately \$837,000. This cost will be incurred with no measurable increase in safety.

This economic impact could be significantly reduced if the rule were clarified to specifically exclude failures, malfunctions and defects found during shop maintenance and testing of powerplants, propellers and components that are covered by manufacturers' manuals and/or approved technical data and are determined to be routine by the certificate holder.

Specific Comments on Proposed Text:

§121.703 Service difficulty reports (operational)

We recommend that this section contain a definition that specifically excludes reporting of items found during testing, either as a diagnostic test or as a test after maintenance activity. During these activities, which occur under controlled conditions, the aircraft, powerplant, propeller or components thereof are being evaluated. The testing parameters are specified in the manufacturers' manuals and/or approved technical data. As literally written, many test cell runs or aircraft check flights would require reports to be generated. The reporting requirement should be limited to service operation.

§121.704 Service difficulty reports (structural)

There is no definition of what "structural" means. This needs to be tightly defined; otherwise, every piece of an aircraft, propulsion system, propeller or component thereof may fall under this section. If so, virtually every crack, defect or failure would require a report. There is some indication that this section was proposed to relate to critical airframe structure only. This must be clarified.

Paragraph (a) requires that a report be filed for each failure or defect. In the context of the rest of this section, a separate report is required for each defect. A major case (or frame) in the hot section of an engine will have several cracks which require repair. Corrosion is also likely on some of these parts. Literally, a report would need to be filed for each crack or corrosion area including per subparagraph (d)(8) the length of the crack or corrosion classification. Such report would have to provide enough detail to allow an analysis of the cause. This would require the reports to contain a limited amount of analysis and could require lab work and lab reports to be filed to support further analysis. Again, for repairs already contemplated in the manufacturers' manuals and/or other

approved technical data, there is no significant benefit which would offset the cost and effort of the reporting and analysis data preparation required by this rule.

Sub-paragraph (a)(1) requires defect reporting for all parts replaced due to corrosion, cracks and disbonding. The inspection sections of manufacturers' manuals and/or other approved technical data provide these limits and contemplate these conditions. There does not seem to be a benefit to report on each part or multiple reports on the same part for multiple conditions where adequate technical data for determinations exist.

Sub-paragraph (a)(2) requires defect reporting for all parts repaired due to corrosion, cracks and disbonding which exceed the manufacturer's allowable damage limits. The inspection sections of manufacturers' manuals and/or other approved technical data provide these limits and contemplate these conditions, particularly for powerplants, propellers, and components thereof. There does not seem to be a benefit to report on each part or multiple reports on the same part for multiple conditions where adequate technical data for determinations exist and repairs are provided for.

Sub-paragraph (a)(3) requires defect reporting for all primary structure or principal structure element parts that have corrosion, cracks and disbonding in composite structure. This appears to be more related to airframes and, if so, the sub-paragraph should be specifically limited to airframes to reduce unnecessary reporting. Further, definitions of "primary structure" or "principal structural element" should be referenced or contained in the section.

Sub-paragraph (a)(4) requires reporting of repairs made in accordance with approved data not contained in the manufacturer's maintenance manual. We strongly object to reporting these repairs, as this will cause a substantial reporting burden without improving safety. These repairs have already been approved and in many cases will contain proprietary data that may not be able to be properly protected. Further, the 8110 forms are already submitted to the FAA with DER repairs and are available within the FAA system. If approved data exists, filing reports serves no useful purpose but substantially increases paperwork and is extraordinarily redundant.

Paragraph (b) appears to be airframe only and exclusive of propulsion systems, propellers and components thereof. We recommend that the exclusion be specifically stated.

Paragraph (c) sets a reporting period. We recommend that "holiday" be specifically defined either as a US Federal holiday or as a local holiday in the place where the finding is made.

Paragraph (d): The content of this paragraph re-enforces that this §121.704 should have been limited to airframes exclusive of powerplants, propellers and components thereof. The majority of the data is not normally known by or provided to non-airframe 14 CFR 145 repair stations. Specific comments:

(d)(1): A repair station for a propulsion system, propeller, or component thereof would not have knowledge of the manufacturer, model, serial number, and registration number of the aircraft. Further, these items are often interchanged in the field and may be operated on many different aircraft between maintenance action. The data may have little or no relevance.

(d)(2): The customer to the repair station may be a leasing company or a distributor and the operator designator is unknown.

(d)(4): A repair station would not have any way of knowing the stage of ground operation during which the failure or defect was discovered.

(d)(5): To be more specific, it is recommended that a part number be added to the requirements if the objective is to be able to sort data effectively.

(d)(7): The aircraft total cycles and total time are not relevant parameters to items such as propulsion systems, propellers and components thereof which are interchanged between aircraft. Propulsion systems, propellers and components thereof in many cases have their own stated life limitations that are expressed in terms of the operation of that item. If this section is not limited specifically to airframes, then the required report needs to address the parts with the defect or failure. Most propulsion system, propeller, and components are not tracked for time and cycles, except for those with life limits. In the course of maintenance activities, parts can and are interchanged between these major items so that such parameters as the time or cycles on an engine or module, for example, are not necessarily relevant to specific parts. It would be impossible to track all parts and the cost of doing so was not contained in the foregoing cost impact estimate.

(d)(8): The section would require data for an analysis on the cause of the failure or defect. For repairs already covered in the manufacturers' manuals and/or other approved technical data, there seems to be little to be gained to prepare these reports, particularly on a per defect or per failure level. The phraseology "type designation of the major component" needs to be clarified, particularly as the reports seem to be required on a part level basis.

Paragraph (h) presents a burden to track all reports made in order to update the report if supplemental information becomes available. If this rule is interpreted literally as written, there can be hundreds to more than a thousand reports generated in one single wide-body turbofan engine heavy maintenance activity. Tracking the data and updating become an on-going requirement with little benefit, particularly if the repairs are already covered in the manufacturers' manuals or can be accomplished by obtaining approved technical data.

The above comments are applicable to the proposed §125.409, §125.410, §135.415, and §135.416 that restate the same requirements for other classes of aircraft operation.

Part 145 – Repair Stations §145.63 and §145.79

The current §145.63 and §145.79 already require that serious defects be reported, albeit the proposed rule allows 96 hours rather than the current 72 hours. However, it has generally not been the norm, in the propulsion system, propeller and components repair stations to report cracks, corrosion and delamination where inspection limits and repairs already exist in the manufacturers' manuals and/or other approved technical data. The foregoing sections of this rule seem to significantly increase the amount of reporting required. This may lead to duplicative reporting, particularly at the part repair shop level as cracks, corrosion and delamination may be reported that the airline has already found at tear-down. This may over report some findings. Furthermore, as the airlines can now contract the increased reporting requirements on to the repair stations, there is a potential for duplicative reporting if a condition was originally reported during the operational mode and now is confirmed during maintenance.

In summary, the proposed rule will increase paperwork and reporting with no significant increase in safety while imposing significant costs upon the industry. Again, we estimate for our repair stations an annual recurring cost of \$6.7 million and a start-up cost of approximately \$837,000. The proposed rule should be limited to cracks, corrosion and delamination that are not covered in manufactures' manuals and approved technical data.

Respectfully submitted,

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Pratt & Whitney