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Reducing Cost and Improving Readiness Through DOD Acceptance of FAA PMA and DER Approvals

Executive Summary

- The Department of Defense (DoD) can save tens of billions of dollars by eliminating the duplicative Source Approval Request (SAR) process for third-party parts and repairs used to support DoD's fleet of Commercial Derivative Aircraft (CDA).
- Doing so would enhance efficiency, readiness, and safety and allow DoD to leverage work done by the government agency responsible for ensuring civil aviation safety, the Federal Aviation Administration (FAA). The FAA has an established and proven method of approving replacement and modification articles as well as maintenance, preventive maintenance and alteration activities for aircraft used in civil aviation.
- DoD should revise all its applicable regulations and policies to recognize any approval issued by the FAA for a product, material, part, component, process or appliance as eligible for use on a CDA.

Background

- Parts Manufacturer Approval (PMA) for civil aviation replacement and modification articles and Designated Engineering Representative (DER)-approved maintenance and alteration processes are the methods by which FAA determines compliance and fitness for use on civil aviation aircraft, including those from which CDA are derived.[1]
- By law, DoD has broad authority to make airworthiness determinations in any manner it chooses.[2] Unfortunately, the department has translated this authority into an extraordinarily burdensome series of policies and instructions that require aircraft parts manufacturers and maintenance contractors – including those with Commercial Off-the-Shelf (COTS) solutions already approved for use in civil aviation by the FAA – to go through a redundant, expensive, slow and burdensome SAR process to gain DoD approval.[3]
- As a result of this redundant burden, the DoD is not taking advantage of cost savings associated with FAA-approved parts and repairs which are proven to provide an equivalent or better level of safety and reliability.

Accepting FAA Approvals Will Improve DoD Safety, Efficiency, and Readiness

- Existing FAA certification processes are equivalent to, and in many cases better than, parallel DoD standards and specifications. For example, many of the FAA certification processes allow for input from industry committees and standards groups, allowing safety and performance improvements to be more easily incorporated.
- ARSA members that have applied for SARs relate that, although allowed by DoD policy and regulations, SARs based upon reverse-engineering or any other non-Original Equipment Manufacturer data are not granted. Most DOD program offices will apparently not even consider such SAR applications. As a result, DoD has limited its ability to take advantage of FAA-approved solutions, even though the department requires initial certification of its derivative aircraft from the FAA.

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[1] *See, e.g.,* 14 C.F.R. Part 21, Subpart K - Parts Manufacturer Approvals; FAA, Order 8110.37F, Designated Engineering Representative Handbook (2017).
[2] *See, e.g.,* 10 U.S.C. § 113.
[3] *See, e.g.*, Defense Logistics Agency, Source Approval Request Template.

- The FAA's regulatory framework is designed to ensure the safety of U.S.-registered aircraft operating worldwide. Together, the FAA and America's civil aviation sector have forged an outstanding and unprecedented safety record.[4]
- Commercial air carriers also have an enviable reliability record. According to the Department of Transportation, in 2016 just 1.17 percent of flights were cancelled and in December 2016, "only 6.59 percent [of flights were delayed] by factors within the airline's control, such as maintenance or crew problems."[5] By comparison, "[m]ission-capable rates — the metric by which the Air Force measures how much of its fleet can fight or fly other missions at any given time — are trending downward, slowly but steadily. In fiscal 2014, mission-capable rates for all of the Air Force's airplanes and helicopters were just shy of 74 percent. One year later, that rate had dropped to 73 percent. It fell even further in 2016, to about 72 percent."[6]

Accepting FAA Approvals Will Save DoD – and Taxpayers – Tens of Billions of Dollars

- Rand's National Defense Research Institute (NDRI) recently explored ways DoD could reduce operating and support costs without affecting safety or reliability by making increased use of PMA parts and DER repairs on CDA engines. In the case of the F103 engine used on the KC-10 aircraft (civilian DC-10), NDRI estimated savings at roughly 20 to 25 percent – more than $1 million – per overhaul, an average of $50 million per year. The institute estimated that making greater use of commercial refurbished parts or of PMA parts and DER repairs for commercial-derivative military engines could save the DoD more than $80 million annually.[7] It is important to note that NDRI's report only examined engines; there are similar opportunities to save money in every other aviation maintenance area.
- A study by the Institute of Defense Analysis (IDA) on the use of FAA maintenance data for DoD CDA cited estimates of "tens of billions" in savings annually if DoD if it followed commercial practices on systems derived from commercial aircraft. While stating that it had not independently estimated potential savings, IDA found that "significant savings are plausible."[8]

Policy Recommendations

- In light of safety and efficiency gains and significant cost savings, ARSA recommends that DoD revise all applicable regulations and policies to recognize any approval issued by the FAA for a product, material, part, component, process or appliance as eligible for use on a CDA.

ARSA is the trade association representing the global civil aviation maintenance industry. For information regarding this document, please contact ARSA Executive Vice President Christian A. Klein at 703.739.9543 or christian.klein@arsa.org.

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[4] Since Jan. 2006 there have been only 97 passenger fatalities resulting from U.S. Part 121 (air carrier) or Part 135 (commuter and charter) operator accidents. In contrast, in the prior decade (1996 to 2005) there were nearly 800 (not counting 9/11). *See,* National Transportation Safety Board, "Accidents Involving Passenger Fatalities: U. S. Airlines (Part 121) 1982 – Present"; NTSB, "Accidents Involving Passenger Fatalities: U. S. Commuters (Part 135) 1982 – Present, NTSB".

[5] U.S. Department of Transportation, "2016 Flight Cancellation, Mishandled Baggage, and Bumping Rates are Lowest in Decades", Feb. 14, 2017.

[6] Air Force Times, "Growing Readiness Woes: Only Seven in 10 Air Force Planes Are Ready to Fly", April 2, 2017.

[7] RAND Corporation, Saving the Government Money: Recent Examples from RAND's Federally Funded Research and Development Centers (2016) at 8.

[8] Institute for Defense Analysis, Department of Defense Access to Intellectual Property for Weapon Systems Sustainment (2017) at 56.