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MRO

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BIGGER & BETTER

DAE chief Jeff Wilkinson on how Joramco's Hangar 7 and new training academy are central to its future growth

P.22

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SOPHISTICATED SOFTWARE

Planning and scheduling goes high tech

P.44

REGION OUTLOOK

Observations of MRO activity in Europe

P.68

LINE MAINTENANCE

Best practices for documentation and record-keeping

P.86



KEEPING IT IN LINE

Mario Pierobon explores the various types of requirements line maintenance organisations are exposed to, the main differences among the EASA and FAA regulatory systems, and best practices for documentation and record-keeping



While line maintenance may at first sight appear a simple and linear activity, the fact is that like pretty much any other type of aircraft maintenance it relies on complex regulations and compliance processes that are often dictated by multiple stakeholders and requirements.

REGULATORY COMPLEXITY

For countries that follow the regulatory system of the European Union Aviation Safety Agency (EASA), the EU Regulations for Continuing Airworthiness of Aircraft provides all aircraft maintenance specific requirements, highlights Jim Maguinness, quality manager at EirTrade Aviation Maintenance.

“Compliance with these regulations for what would seem to be a simple line maintenance operation may appear complex, but EASA provides Acceptable Means of Compliance (AMC), Guidance Material (GM) and User Guides,” he says. “The organisations develop procedures and associated documents and forms appropriate to their intended operation and this is presented as a Maintenance Organisation Exposition (MOE) to the authority for its evaluation of compliance with EASA Part-145.”

Complexity is dictated by the design and content of the MOE, explains Maguinness. “It is best to keep it simple and appropriate for what is done and to follow the guidance from EASA and the authority’s airworthiness inspector. Maintenance must be within the scope of the approval, which can be later extended with the approval of the authority,” he says.

Caerdav’s line maintenance operation based at Cardiff Wales Airport is an approved line station that falls under the approvals held at the company’s nearby St Athan base, says Richard Pitts-Robinson, commercial director at Caerdav. “This helps to lessen potential complexities for the operation, but we still ensure we have stringent technician compliance systems in place, meaning we are able to track all work and employee currency,” he says. “When coupled with the traditional paper processes, we know that all parties understand exactly what maintenance has been accomplished and the status of the aircraft at all times.”

“WHILE THERE ARE DIFFERENCES IN MEETING EASA VERSUS FAA REQUIREMENTS, THE OBJECTIVE REMAINS THE SAME”

According to Urs Kunzelmann, general manager of SR Technics Line Maintenance, complexity in line maintenance activities is driven by EASA Part-145 requirements, the requirements from all foreign national authorities when additional approvals are held, and specific operator/airline requirements. “In addition, requirements are continuously increasing in complexity with safety management procedures and the upcoming IT procedures to protect cybersecurity, which are part and prerequisite of the basic maintenance approval,” he says.

Processes can become increasingly intricate when multiple civil aviation agencies are involved, affirms Dana Batarseh, director of integrated marketing and IT at Certified Aviation Services (CAS). “We navigate this complexity through adherence to three critical pillars of compliance: Code of Federal Regulations, CAS Internal Quality Assurance Requirements and Customer-Specific Requirements,” she explains. “We strictly follow the regulations set forth for repair stations, ensuring that all operations meet or exceed the stringent standards mandated by federal authorities and we uphold our own rigorous internal standards for quality assurance, reflecting our commitment to maintaining the highest levels of safety, reliability and operational efficiency. Also, we meticulously adhere to the unique specifications set by our customers, particularly air carriers, tailoring our services to meet their precise needs and regulatory demands.”

LINE MAINTENANCE



1



2

EASA VS FAA REQUIREMENTS

Aircraft registered in the EU must be maintained by EASA Part-145 approved maintenance organisations, while aircraft registered in the US must be maintained by FAA approved repair stations. The main difference is that EASA approves the organisation, whereas FAA approves the facility at a fixed location, affirms Maguinness. “The EU and US have developed bilateral aviation safety agreements (BASA) for coordination on the regulation of aviation safety. The Maintenance Annex Guide (MAG) provides that EASA and FAA shall accept each other’s inspections and monitoring of repair stations/maintenance organisations for compliance with their respective requirements for the issue and continued validity of certificates.”

Maguinness continues: “The detailed differences and certification procedures are given in the MAG. To apply for an FAA repair station approval, an EASA-approved organisation applies to its authority, providing an FAA supplement to the MOE and the application forms. Probably the most notable example of the coordination of differences is the changes to the EASA Form 1 and FAA Form 8130-3, where the format is now the same.”

According to Carol Chan, general manager of line maintenance (Centre of Excellence, Planning & Cabin) at HAECO Hong Kong,

while there are differences in meeting EASA versus FAA requirements, the objective remains the same. “Aircraft maintenance must be performed by qualified personnel, using the correct parts, in an appropriate environment, and documented correctly according to the OEM’s maintenance schedule. Adhering to these standards is crucial for maintaining the airworthiness and safety of the aircraft,” she explains. “We adhere to the relevant national aviation authority (NAA) requirements for our line maintenance operations, as we are audited for compliance. The NAA ensures that the airline’s air operator certificate (AOC) holder maintains their aircraft according to the original equipment manufacturer (OEM) maintenance schedule, both within its home territory and at other locations.”

CAS’ line maintenance operations must also comply with regulations from different regulatory bodies, including the FAA and EASA, affirms Steven Bybee, quality engineer at CAS. “When servicing customers whose aircraft are registered under EASA, the requirement is to adhere to EASA regulations at the specific locations where those aircraft operate. While there is significant overlap in the regulatory requirements of the FAA and EASA, there are notable differences, particularly in areas such as training requirements,” he says. “For instance, EASA requires that recurrent human factors



▲ Jim Maguinness, quality manager, EirTrade Aviation Maintenance

“PROCESSES CAN BECOME INCREASINGLY INTRICATE WHEN MULTIPLE CIVIL AVIATION AGENCIES ARE INVOLVED”

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training must incorporate organisation-specific lessons learned from the previous year into the new training being provided to technicians.”

DOCUMENTATION AND RECORD-KEEPING

Kunzelmann observes that documentation must be kept, maintained and archived to meet NAA or operator requirements. “Recording all forms, procedures and reports in accordance with regulations requires a solid enterprise resource planning (ERP) system to ensure full traceability,” he says.

Indeed, the completion of the documents for a task is a very significant and important part of the job for the maintenance team, affirms Maguinness. “It can take some time to complete the paperwork before the aircraft can be released to service i.e. record the task, aircraft maintenance manual (AMM) and illustrated parts catalogue (IPC) references, parts, components, tools etc,” he says. “In a small organisation, the engineer may also have to carry out task evaluations, review training, competency and currency, check stores and suppliers’ records. Best practices include checklists, breaking down complex tasks into smaller steps, and independent checks for completion of records.”

Caerdav’s line maintenance customers conduct training with Caerdav’s engineers to ensure they complete all paperwork in line with their processes and requirements, affirms Pitts-Robinson. “One of our customers uses dual paper/electronic logbooks, which we are happy to support. Of course, along with much of the industry, we are trying to move towards paperless processes to increase efficiency and

clarity. However, as the use of both paper and electronic systems is still prevalent, we are happy to work in whatever way ensures that all parties have up-to-date information on the latest status of the aircraft,” he says.

In performing line maintenance services, HAECO ensures that all necessary documents are collected, checked and archived in a secure location, safe from potential damage by floods, fire and humidity, points out Chan. “This ensures the availability of these records for inspection at any time during an aircraft’s operational life, plus a designated retention period. This meticulous documentation work is handled by a dedicated support team at HAECO,” she says.

At CAS, most of the administrative tasks, including documentation and record-keeping, are managed by administrative staff or station managers at the station level, which helps minimise the additional workload on the maintenance teams, affirms Batarseh. “This division of responsibilities allows our maintenance professionals to focus primarily on their technical tasks without being overwhelmed by paperwork. Furthermore, we have a dedicated quality assurance and training team at headquarters that oversees and navigates the complex requirements of various regulatory environments,” she says.

Batarseh adds: “This team ensures that all documentation and record-keeping practices comply with the relevant standards, thereby streamlining processes and maintaining high levels of accuracy and compliance. By adopting these best practices, we effectively reduce administrative burdens on maintenance personnel while ensuring meticulous adherence to all regulatory and operational requirements.” ●



▲ Richard Pitts-Robinson, commercial director, Caerdav

1. Caerdav opened a dedicated line maintenance station at Cardiff Wales Airport in May