Sofema Aviation Logistics Workshop 15th September 2026

- Primary Documentation References and Considerations for the Aviation Stores Inspector (EASA & FAA)
- Why The Part 145 Supply Chain is Critically Important to the Aviation Eco-System
- EASA Part 145 Stores Inspection Staff – Human Factors Considerations
- EASA Part 145 - Considering Tooling and Alternate Tooling Management
- Store Inspector Approval Process & Authority
- Acceptance Criteria for EASA Form 1 and FAA Form 8130-3
- EASA Compliant Incoming Inspection Of Class 3 (Typically AGS Parts)
- Managing Aircraft Component AD's within an EASA Part 145 Organisation
- EASA Compliant Stores Procedures to Manage Multiple Shelf Lives
- Tool Calibration Considerations within an EASA Part 145 Organisation
- The Problem of Suspect Parts Viewed from the Landscape of EASA Approved Organisations
- Discussion on PMA Critical Parts
- Entry Level Qualification for an EASA Compliant Stores Inspector

Primary Documentation References and Considerations for the Aviation Stores Inspector (EASA & FAA)

Introduction and Executive Summary

The role of the Stores Inspector (or Receiving Inspector) is the critical first line of defense in the aviation maintenance, repair, and overhaul (MRO) supply chain.

The modern Aviation Stores Inspector operates at the critical intersection of logistics, technical data analysis, and regulatory compliance.

- Relying comprehensively on documentation such as EASA Part-145 guidelines, FAA Form 8130-3 (guided by the instructions in Order 8130.21), OEM CMMs, TCH IPCs, PMA, and TSOA data is non-negotiable.
- Furthermore, specific expertise in mitigating the risks associated with SUPs and ESDS components highlights the specialized nature of this role.
- Ensuring robust compliance requires organizations to invest heavily in the ongoing competence, training, and support of their stores inspection personnel, safeguarding the overall airworthiness of the fleet.

This discussion document provides a comprehensive analysis of the primary reference materials, regulatory frameworks, and operational considerations necessary for a Stores Inspector to perform their duties effectively.

Functioning as the gatekeeper, the Stores Inspector ensures that all incoming aeronautical components, materials, and consumables meet the stringent airworthiness requirements set forth by regulatory

bodies, primarily the European Union Aviation Safety Agency (EASA) and the Federal Aviation Administration (FAA).

Regulatory Frameworks: EASA and FAA Interoperability

Aviation supply chains are inherently global, requiring Stores Inspectors to be deeply familiar with both EASA and FAA regulations, as well as the Bilateral Aviation Safety Agreements (BASA) that govern the mutual acceptance of certified parts.

2.1 EASA Part-145 Regulations

Under the EASA regulatory framework, the primary regulation governing the acceptance of parts is **EASA Part-145 (specifically 145.A.42 - Acceptance of Components)**. This regulation mandates that an organization shall only install components that are in a satisfactory condition, have been appropriately released to service on an EASA Form 1 (or equivalent), and have been appropriately marked. The Stores Inspector must verify:

- The presence and authenticity of the EASA Form 1 (or accepted equivalent like the FAA Form 8130-3 for new/used parts under BASA conditions).
- That components are segregated into approved, unapproved, and quarantine categories.
- That shelf-life limits, preservation, and storage conditions specified by the Original Equipment Manufacturer (OEM) are strictly adhered to.

2.2 FAA Order 8130-21 and FAA Form 8130-3

In the FAA jurisdiction, the Authorized Release Certificate is the **FAA Form 8130-3**. The procedures for the completion and use of this certificate are meticulously detailed in **FAA Order 8130.21 (currently at revision H or later)**.

The Stores Inspector must utilize FAA Order 8130-21 to verify that incoming 8130-3 forms are completed correctly. Key inspection points include verifying the status of the part (e.g., "New," "Newly Overhauled," "Repaired," "Inspected"), ensuring the certifying organization's approval number is correct, and confirming that any dual-release statements (indicating compliance with both FAA and EASA requirements) are appropriately explicitly stated in Block 12 (Remarks) as per the Maintenance Annex Guidance (MAG).

3. Primary Technical Reference Data

To accurately assess the conformity and airworthiness of incoming materials, the Stores Inspector must cross-reference physical parts and their accompanying paperwork against a suite of controlled technical documents. Navigating these documents effectively requires specific training and access to current revisions.

Document Type	Definition / Source	Stores Inspector Application & Use Case
OEM CMM (Component Maintenance Manual)	Provided by the Original Equipment Manufacturer.	Used to verify packaging requirements, shelf-life limitations, preservation procedures (e.g., oiling, vacuum sealing), and specific storage temperature/humidity tolerances.
TCH IPC (Type Certificate Holder Illustrated Parts Catalog)	Provided by the Aircraft or Engine Manufacturer (Boeing, Airbus, etc.).	Crucial for verifying Part Numbers (P/N), acceptable alternate or superseding part numbers, and verifying the effectivity of the part for the specific fleet.
STC Data (Supplemental Type Certificate)	Approved major modifications to an existing type-certified product.	Verifying that parts associated with an STC are properly identified, conform to the modified design data, and are accompanied by the specific STC installation instructions.
AD Data (Airworthiness Directives)	Mandatory safety regulations issued by EASA/FAA.	Ensuring that incoming parts comply with any active ADs (e.g., verifying that a required modification has been performed before the part enters stores).
SB Data (Service Bulletins)	Recommendations issued by the OEM for product improvement.	Tracking the SB status of a component. Stores inspectors check if a required or customer-requested SB has been incorporated, often indicated by a modified Part Number or a dash number.
Standards Manuals (e.g., MIL-SPEC, DIN, NAS)	Standardized hardware specifications.	Verifying raw materials and standard hardware (nuts, bolts, rivets). Checking material composition certificates and dimensional conformance against the standard.

4. High-Risk Operational Focus Areas

4.1 Suspected Unapproved Parts (SUPs)

The proliferation of Suspected Unapproved Parts (SUPs) is one of the most severe threats to aviation safety. A SUP is any part that lacks the approved documentation, has been counterfeited, has exceeded its life limit, or has been illegally repaired and misrepresented as airworthy.

The Stores Inspector is the primary barrier against SUPs. Detection requires a high degree of skepticism and detailed verification. The inspector must scrutinize:

- **Documentation Integrity:** Typographical errors, unusual formatting, altered dates, or missing approval numbers on FAA 8130-3 or EASA Form 1 certificates.
- **Physical Discrepancies:** Inferior machining, incorrect surface finishes, mismatched colors, or part numbers applied using non-standard methods (e.g., vibro-etching when the CMM specifies laser engraving).
- **Traceability Gaps:** Inability to trace the part back to a Part 21 approved production organization or a Part 145 approved maintenance organization.
- **Pricing and Source:** Unusually low prices from unknown or unvetted brokers and distributors.

If a SUP is identified, the Stores Inspector must immediately quarantine the part and initiate the organization's Mandatory Occurrence Reporting (MOR) procedures to notify the competent authority (EASA or FAA).

4.2 ESDS (Electrostatic Discharge Sensitive) Components

Avionics and modern composite aircraft rely heavily on ESDS components. Microprocessors and circuit boards can be catastrophically damaged by static electricity charges too small to be felt by a human (often less than 100 volts). A Stores Inspector must be intimately familiar with standards such as ANSI/ESD S20.20 and European equivalents.

Handling and Compliance Considerations for ESDS:

- **Recognition:** Identifying ESDS warning labels (the standard yellow hand with a slash).
- **Packaging Intactness:** An inspector must NEVER open an ESDS sealed faraday cage bag or pink poly anti-static bag during receiving inspection unless they are stationed at an approved, grounded Electrostatic Protected Area (EPA) workstation while wearing appropriate grounding wrist straps and footwear.
- **Storage:** ESDS items must be stored in static-shielding packaging, kept away from high-voltage fields, and handled only by trained personnel. If the packaging is damaged upon receipt, the part must be quarantined and potentially sent for electrical testing.

5. Compliance and Competence Issues

5.1 Compliance Vulnerabilities

Stores Inspectors frequently face compliance pressures. Common issues include:

- **Time vs. Thoroughness:** AOG (Aircraft On Ground) situations create immense pressure to expedite the receiving process. Skipping verification steps (e.g., not checking AD effectivity or blindly accepting an 8130-3 without verifying the dual release) leads to non-compliance.
- **Shelf-Life Management:** Managing elastomers, sealants, adhesives, and survival equipment. Failing to correctly calculate expiration dates based on the OEM CMM or cure dates leads to unairworthy parts being issued to the hangar floor.
- **Traceability of Consumables:** Batch splitting and transferring fluids or chemicals into secondary containers without carrying over full batch traceability and hazard data (MSDS/SDS).

5.2 Competence Issues and Training Requirements

Under EASA 145.A.30(e), an organization must establish and control the competence of personnel involved in any maintenance, management, and quality audits. This explicitly includes Stores Inspectors. The role requires far more than basic logistical skills; it is a highly technical regulatory function.

Core Competency Deficits Often Observed:

- **Inability to navigate TCH IPCs:** Misunderstanding effectivity codes, leading to the acceptance of a part that is physically identical but structurally unsuitable for the specific aircraft MSN (Manufacturer Serial Number).
- **Misinterpretation of Regulatory Forms:** Not understanding the nuances between an EASA Form 1 issued for "Production" versus "Maintenance," or failing to spot a discrepancy in Block 12 of an FAA 8130-3.

Remediation through Continuation Training:

Competence is not static. Stores Inspectors require rigorous initial and recurrent (continuation) training. This training syllabus must include updates to EASA Part-145 and Part-21, FAA regulations, suspected unapproved parts (SUPs) identification techniques, ESDS handling, human factors in maintenance, and hands-on exercises in navigating CMMs and IPCs.

6. Conclusion

The modern Aviation Stores Inspector operates at the critical intersection of logistics, technical data analysis, and regulatory compliance. Relying comprehensively on documentation such as EASA Part-145 guidelines, FAA Form 8130-3 (guided by 8130-21), OEM CMMs, and TCH IPCs is non-negotiable. Furthermore, specific expertise in mitigating the risks associated with SUPs and ESDS components highlights the specialized nature of this role. Ensuring robust compliance requires organizations to invest heavily in the ongoing competence, training, and support of their stores inspection personnel, safeguarding the overall airworthiness of the fleet.

Discussion Document: Primary References and Considerations for the Aviation Stores Inspector (EASA & FAA)

1. Introduction and Executive Summary

The role of the Stores Inspector (or Receiving Inspector) is the critical first line of defense in the aviation maintenance, repair, and overhaul (MRO) supply chain. Functioning as the gatekeeper, the Stores Inspector ensures that all incoming aeronautical components, materials, and consumables meet the stringent airworthiness requirements set forth by regulatory bodies, primarily the European Union Aviation Safety Agency (EASA) and the Federal Aviation Administration (FAA). This discussion document provides a comprehensive analysis of the primary reference materials, regulatory frameworks, and operational considerations necessary for a Stores Inspector to perform their duties effectively. It addresses specific requirements such as EASA Part-145 regulations, FAA release certificates (8130-3) and its associated guidance (Order 8130.21), technical data (CMM, STC, AD, SB, IPC, PMA, TSOA), the detection of Suspected Unapproved Parts (SUPs), and handling protocols for Electrostatic Discharge Sensitive (ESDS) items, culminating in an evaluation of compliance and competence issues.

2. Regulatory Frameworks: EASA and FAA Interoperability

Aviation supply chains are inherently global, requiring Stores Inspectors to be deeply familiar with both EASA and FAA regulations, as well as the Bilateral Aviation Safety Agreements (BASA) that govern the mutual acceptance of certified parts.

2.1 EASA Part-145 Regulations

Under the EASA regulatory framework, the primary regulation governing the acceptance of parts is **EASA Part-145 (specifically 145.A.42 - Acceptance of Components)**. This regulation mandates that an organization shall only install components that are in a satisfactory condition, have been appropriately released to service on an EASA Form 1 (or equivalent), and have been appropriately marked. The Stores Inspector must verify:

- The presence and authenticity of the EASA Form 1 (or accepted equivalent like the FAA Form 8130-3 for new/used parts under BASA conditions).
- That components are segregated into approved, unapproved, and quarantine categories.
- That shelf-life limits, preservation, and storage conditions specified by the Original Equipment Manufacturer (OEM) are strictly adhered to.

2.2 FAA Form 8130-3 and FAA Order 8130.21 Guidance

In the FAA jurisdiction, the Authorized Release Certificate is the **FAA Form 8130-3**. It is important to explicitly distinguish that **FAA Order 8130.21 is not a release certificate itself, but rather the comprehensive guidance and prescriptive instructions** detailing how to properly complete, use, and evaluate the FAA Form 8130-3.

The Stores Inspector must utilize the guidance in FAA Order 8130.21 to accurately verify that incoming 8130-3 forms are compliant. Key inspection points include verifying the status of the part in Block 11 (e.g., "New," "Newly Overhauled," "Repaired," "Inspected"), ensuring the certifying organization's approval number is correct, and confirming that any dual-release statements (indicating compliance with both FAA and EASA requirements) are appropriately explicitly stated in Block 12 (Remarks) as per the Maintenance Annex Guidance (MAG).

3. Primary Technical Reference Data

To accurately assess the conformity and airworthiness of incoming materials, the Stores Inspector must cross-reference physical parts and their accompanying paperwork against a suite of controlled technical documents. Navigating these documents effectively requires specific training and access to current revisions.

Document Type	Definition / Source	Stores Inspector Application & Use Case
OEM CMM (Component Maintenance Manual)	Provided by the Original Equipment Manufacturer.	Used to verify packaging requirements, shelf-life limitations, preservation procedures (e.g., oiling, vacuum sealing), and specific storage temperature/humidity tolerances.
TCH IPC (Type Certificate Holder Illustrated Parts Catalog)	Provided by the Aircraft or Engine Manufacturer (Boeing, Airbus, etc.).	Crucial for verifying Part Numbers (P/N), acceptable alternate or superseding part numbers, and verifying the effectivity of the part for the specific fleet.
PMA Authority (Parts Manufacturer Approval)	FAA design and production approval for replacement parts alternative to the OEM.	Stores inspectors must review the PMA supplement to ensure the part is explicitly approved for installation on the specific aircraft make and model (effectivity). Inspectors also verify physical "FAA-PMA" markings on the part.
TSOA Data (Technical Standard Order Authorization)	FAA minimum performance standard approval for specified materials, parts, and appliances (e.g., seatbelts, radios).	Verifying the TSO marking (e.g., TSO-C114) on the component data plate and confirming that the accompanying release certificate explicitly states it meets the relevant standard.
STC Data (Supplemental Type Certificate)	Approved major modifications to an existing type-certified product.	Verifying that parts associated with an STC are properly identified, conform to the modified design data, and are accompanied by the specific STC installation instructions.

Document Type	Definition / Source	Stores Inspector Application & Use Case
AD Data (Airworthiness Directives)	Mandatory safety regulations issued by EASA/FAA.	Ensuring that incoming parts comply with any active ADs (e.g., verifying that a required modification has been performed before the part enters stores).
SB Data (Service Bulletins)	Recommendations issued by the OEM for product improvement.	Tracking the SB status of a component. Stores inspectors check if a required or customer-requested SB has been incorporated, often indicated by a modified Part Number or a dash number.
Standards Manuals (e.g., MIL-SPEC, DIN, NAS)	Standardized hardware specifications.	Verifying raw materials and standard hardware (nuts, bolts, rivets). Checking material composition certificates and dimensional conformance against the standard.

4. High-Risk Operational Focus Areas

4.1 Suspected Unapproved Parts (SUPs)

The proliferation of Suspected Unapproved Parts (SUPs) is one of the most severe threats to aviation safety. A SUP is any part that lacks the approved documentation, has been counterfeited, has exceeded its life limit, or has been illegally repaired and misrepresented as airworthy.

The Stores Inspector is the primary barrier against SUPs. Detection requires a high degree of skepticism and detailed verification. The inspector must scrutinize:

- **Documentation Integrity:** Typographical errors, unusual formatting, altered dates, or missing approval numbers on FAA 8130-3 or EASA Form 1 certificates.
- **Physical Discrepancies:** Inferior machining, incorrect surface finishes, mismatched colors, or part numbers applied using non-standard methods (e.g., vibro-etching when the CMM specifies laser engraving).
- **Traceability Gaps:** Inability to trace the part back to a Part 21 approved production organization or a Part 145 approved maintenance organization.
- **Pricing and Source:** Unusually low prices from unknown or unvetted brokers and distributors.

If a SUP is identified, the Stores Inspector must immediately quarantine the part and initiate the organization's Mandatory Occurrence Reporting (MOR) procedures to notify the competent authority (EASA or FAA).

4.2 ESDS (Electrostatic Discharge Sensitive) Components

Avionics and modern composite aircraft rely heavily on ESDS components. Microprocessors and circuit boards can be catastrophically damaged by static electricity charges too small to be felt by a human (often less than 100 volts). A Stores Inspector must be intimately familiar with standards such as ANSI/ESD S20.20 and European equivalents.

Handling and Compliance Considerations for ESDS:

- **Recognition:** Identifying ESDS warning labels (the standard yellow hand with a slash).
- **Packaging Intactness:** An inspector must NEVER open an ESDS sealed faraday cage bag or pink poly anti-static bag during receiving inspection unless they are stationed at an approved, grounded Electrostatic Protected Area (EPA) workstation while wearing appropriate grounding wrist straps and footwear.
- **Storage:** ESDS items must be stored in static-shielding packaging, kept away from high-voltage fields, and handled only by trained personnel. If the packaging is damaged upon receipt, the part must be quarantined and potentially sent for electrical testing.

5. Compliance and Competence Issues

5.1 Compliance Vulnerabilities

Stores Inspectors frequently face compliance pressures. Common issues include:

- **Time vs. Thoroughness:** AOG (Aircraft On Ground) situations create immense pressure to expedite the receiving process. Skipping verification steps (e.g., not checking AD effectivity or blindly accepting an 8130-3 without verifying the dual release) leads to non-compliance.
- **Shelf-Life Management:** Managing elastomers, sealants, adhesives, and survival equipment. Failing to correctly calculate expiration dates based on the OEM CMM or cure dates leads to unairworthy parts being issued to the hangar floor.
- **Traceability of Consumables:** Batch splitting and transferring fluids or chemicals into secondary containers without carrying over full batch traceability and hazard data (MSDS/SDS).

5.2 Competence Issues and Training Requirements

Under EASA 145.A.30(e), an organization must establish and control the competence of personnel involved in any maintenance, management, and quality audits. This explicitly includes Stores Inspectors. The role requires far more than basic logistical skills; it is a highly technical regulatory function.

Core Competency Deficits Often Observed:

- **Inability to navigate TCH IPCs:** Misunderstanding effectivity codes, leading to the acceptance of a part that is physically identical but structurally unsuitable for the specific aircraft MSN (Manufacturer Serial Number).
- **Misinterpretation of Regulatory Forms:** Not understanding the nuances between an EASA Form 1 issued for "Production" versus "Maintenance," or failing to spot a discrepancy in Block 12 of an FAA 8130-3 according to 8130-21 guidelines.

Remediation through Continuation Training:

Competence is not static. Stores Inspectors require rigorous initial and recurrent (continuation) training. This training syllabus must include updates to EASA Part-145 and Part-21, FAA regulations, suspected unapproved parts (SUPs) identification techniques, ESDS handling, human factors in maintenance, and hands-on exercises in navigating CMMs and IPCs.

Why The Part 145 Supply Chain is Critically Important to the Aviation Eco-System

By establishing robust supplier oversight, embedding dynamic compliance monitoring, and enforcing meticulous stores inspection techniques, Part-145 organizations effectively secure their supply chain, safeguard against suspected unapproved parts, and uphold overall airworthiness integrity.

Introduction

Under EASA Part-145 regulations, Specifically aligned with safety management principles detailed in Regulation (EU) 2021/1963

- The European Union Aviation Safety Agency places total responsibility for component eligibility and airworthiness directly onto the approved maintenance organization.
- Because competent authorities do not directly oversee or certify commercial parts stockists and brokers, the primary safeguard against compromised airworthiness is the organization’s ability to "know your supplier."
- Managing the aviation supply chain is no longer a passive procurement function; it is an active risk-management process where the organization's Compliance Monitoring System (CMS) must fully integrate with the Safety Management System (SMS) to exercise rigorous oversight.

Supplier Evaluation and the Role of the Compliance Monitoring System

The transition of regulatory responsibility mandates that a Part-145 organization establishes robust mechanisms for component acceptance under point 145.A.42. The organization must ensure that every part, standard hardware item, or raw material installed on an aircraft or component is fully compliant with approved design data and accompanied by authentic certification.

The "Know Your Supplier" Framework

Establishing supplier legitimacy requires a multi-tiered evaluation methodology tailored to supplier classification:

- **Production and Maintenance Approval Holders:** Original Equipment Manufacturers (OEMs), Part-21G production organizations, and Part-145 maintenance organizations hold regulatory approvals that reduce supply chain risk. Oversight focuses on verifying current approval schedules, capability lists, and scope of approval.
- **Distributors and Stockists:** Non-certified Stockists present the highest supply chain vulnerability. The CMS must establish strict qualification criteria, favoring distributors accredited under recognized industry standards (such as ASA-100, EN/AS 9120, or FAA AC 00-56). Unaccredited brokers must undergo direct quality audits or be subjected to stringent incoming inspection controls.
- **Raw Material and Standard Parts Vendors:** Suppliers of raw stock (metallic sheets, extrusion bars) and standard hardware (AN, NAS, MS standards) must provide full Certificate of Conformity (C-of-C) traceability from the original mill or manufacturer, including material test reports (MTRs).

CMS Integration into Supply Chain Oversight

The CMS must transition from traditional static desk audits to dynamic, risk-based oversight. Effective CMS oversight involves:

- **Risk-Based Audit Schedules:** Audit frequency and depth must reflect vendor criticality, historical performance, part complexity, and commercial origin. High-risk brokers or vendors supplying life-limited components require regular on-site audits rather than simple desktop questionnaires.
- **Closed-Loop Performance Monitoring:** The CMS must collect operational data from receiving inspection, including scrap rates, paperwork errors, packaging failures, and suspected unapproved parts reports. Poor performance metrics must automatically trigger vendor status downgrades or corrective action requests (CARs).
- **Cross-Functional SMS Interface:** Supply chain hazards—such as recurring documentation errors or component lead-time pressures—must feed directly into the organization's SMS hazard register. This ensures safety risk assessments evaluate how vendor performance impacts maintenance operations.

Identifying Suspected Unapproved Parts (SUP) and Traceability Issues

Suspected Unapproved Parts (SUP) pose an immediate threat to aviation safety. Identifying SUP, counterfeit items, and fraudulent documentation requires specialized audit techniques during stores inspections.

- Incoming Component
- Physical Inspection
- Documentation Verification
- Database/Registry Cross-Check

- Acceptance / Quarantine

Advanced Audit Techniques for Document Verification

Document fraud is increasingly sophisticated. Auditors and receiving inspectors must apply systematic techniques to verify airworthiness release certificates (such as EASA Form 1, FAA Form 8130-3, TCCA Form One, or UK CAA Form 1):

- **Form Structural Analysis:** Audit the physical or digital document for anomalies. Check for mismatched fonts, irregular spacing, pixelated corporate logos, missing tracking numbers in Block 3, or altered text in Block 12 (Remarks).
- **Authorization Scope Validation:** Cross-check the organization approval number listed in Block 4 against official authority registers (such as EASA's online list of approved organizations). Verify that the maintenance or production organization held active approval for that specific part number or capability on the exact date of release.
- **Block 12 Remarks Scrutiny:** Ensure Block 12 explicitly details the work performed (overhaul, repair, inspection, modification), cites approved technical data used, and lists any relevant Airworthiness Directives (ADs) complied with. Generic statements like "repaired per CMM" without specifying revision status or AD compliance indicate potential non-conformance.
- **Dual Release Integrity:** For components carrying dual EASA/FAA release, verify that the organization holds both approvals and that the dual-release statements in Block 12 conform precisely to bilateral aviation safety agreement (BASA) implementation procedures.

Physical Inspection Techniques for SUP Detection

Physical examination of parts must go beyond counting quantities:

- **Surface and Marking Anomalies:** Audit parts for signs of re-stamping, double-vibro-etching, hand-ground part numbers, or altered serial numbers. Check whether casting marks, mold lines, and surface finishes match OEM manufacturing standards.
- **Refurbishment Discrepancies:** Inspect "new" parts for subtle evidence of prior installation, such as safety-wire impression marks, wrench wear on bolt heads, painted-over corrosion, thread wear, or residual fluid contamination.
- **Standard Hardware Verification:** Audit high-strength fasteners and standard parts using optical comparators or thread gauges. Verify head markings against industry standards. Counterfeit fasteners often exhibit poorly forged head markings, inconsistent thread pitches, or missing manufacturer identification symbols.

Ensuring Back-to-Birth Traceability for Life-Limited Components

Components subject to mandatory life limitations (such as engine disks, landing gear structural members, and rotorcraft dynamic components) require unbroken chain-of-custody documentation:

- **Historical Log Reconciliation:** Auditors must verify that the documentation contains complete operating history, including total flight hours, flight cycles, calendar time, and modification history from initial manufacture.
- **Operational Environment Tracking:** Confirm whether the component was previously installed on aircraft subjected to extreme environments (such as military operations, salt-water exposure, or fire-fighting applications), as these conditions impact structural integrity and life limits.
- **Verification of Intermediate Handlers:** Audit the paper trail through intermediate owners, leasing companies, and repair stations to ensure no undocumented time gaps exist in the component's operational lifecycle.

Stores Compliance: Common Findings and Objective Assessment Strategies

Stores compliance directly impacts maintenance quality. A breakdown in stores controls allows non-conforming or unairworthy components to migrate onto active maintenance lines.

Receiving Inspection

- **Common Findings:** Receiving inspectors accepting components based solely on a distributor C-of-C without verifying original airworthiness release documentation; failure to inspect external packaging for shipping damage or environmental exposure; inspectors signing off parts outside their scope of authorized approval.
- **Objective Audit Assessment:** Select a sample of recently received components across various categories (repaired, new OEM, standard parts, raw materials). Audit the physical shipment against the purchase order, incoming check sheet, and authorized release certificate. Shadow a receiving inspector during a live receipt process to assess adherence to Maintenance Organisation Exposition (MOE) procedures.

Component Segregation and Storage Environment

- **Common Findings:**
    - Co-mingling of serviceable and unserviceable parts;
    - Inadequate storage of Electrostatic Discharge Sensitive (ESDS) components (such as ungrounded workbenches or conductive packaging materials);
    - Failure to maintain regulated storage environments for temperature- and humidity-sensitive materials (such as composite pre-pregs, sealants, and structural adhesives).
- **Objective Audit Assessment:** Inspect physical store barriers.
    - Verify that serviceable items, unserviceable components, scrap parts, and customer-furnished equipment are physically segregated.
    - Audit environmental data loggers in chemical storage units and composite freezers, comparing historical temperature records against manufacturer storage specifications.

- Test ESDS workstations using calibrated wrist-strap and surface-resistance meters.

Shelf-Life Control

- **Common Findings:**
  - Expired elastomeric seals, O-rings, adhesives, paints, or chemical agents found in active picking bins;
  - Failure to recalculate shelf-life expiry dates upon opening multi-use containers;
  - Lack of automated notifications within the Enterprise Resource Planning (ERP) software.
- **Objective Audit Assessment:** Perform targeted sampling of time-sensitive materials in active inventory bins and cold-storage units.
  - Compare the physical cure date, assembly date, or opening date against the manufacturer's maximum allowable shelf-life.
  - Test system controls by attempting to process a simulated issue request for an intentionally expired batch number within the inventory management software to confirm automated blockades function.

Quarantine Controls

- **Common Findings:** Insecure quarantine areas allowing unauthorized physical access;
  - lack of physical quarantine tags on non-conforming parts;
  - failure to maintain digital quarantine locks within inventory software;
  - delayed disposition of quarantined parts leading to store clutter and accidental re-introduction into service.
- **Objective Audit Assessment:** Test physical security by attempting unauthorized access to quarantine cages or designated holding zones. Select items currently in quarantine and trace their disposition logs in the ERP system. Verify that items marked as quarantined in software cannot be issued or transferred to an active job card.

Tagging and Component Traceability

- **Common Findings:** Unserviceable parts missing internal work tags detailing the specific reason for removal or defect description;
  1. Raw stock (such as sheet metal or tubing) lacking batch/heat numbers tied to original mill test certificates once cut into smaller pieces;
  2. Unidentifiable components residing in store bins without internal trace tags.
- **Objective Audit Assessment:** Perform bidirectional audit trails:

1. **Backward Trace:** Select an installed part from an active maintenance work pack on the hangar floor. Trace its identity backward through the store issue slip, receiving log, purchase order, supplier file, and original airworthiness release certificate (EASA Form 1).
2. **Forward Trace:** Select a physical raw-material batch or lot of standard hardware from a store bin. Trace its distribution forward to every work order where fragments or items from that batch were issued and installed.

Strategic Best Practices for Supply Chain Assurance

To mitigate supply chain risks under EASA Part-145, organizations must go beyond basic compliance and implement proactive operational controls.

Risk-Based Supplier Rating Engines

Integrate real-time vendor performance data into procurement systems. Automated algorithms should calculate vendor risk scores based on incoming inspection acceptance rates, documentation accuracy, on-time delivery, and audit results.

- Procurement software may automatically restrict purchase order generation for vendors whose quality rating drops below established thresholds.

Digitized Receiving Inspection and Verification Gates

Replace paper-based receiving checklists with digitized, mandatory workflow gates within the inventory management system.

- Receiving personnel must upload scanned copies of airworthiness certificates, input batch numbers, and complete mandatory verification fields before the software permits bin allocation or printing of internal serviceable tags.

Joint CMS and SMS Oversight Integration

Establish a unified oversight interface where audit findings from stores inspections and supplier audits feed directly into the organization's SMS safety risk management workflow.

- When a supplier delivers a non-conforming part or falsified document, treat the occurrence not merely as a quality defect, but as an operational safety hazard subject to root cause analysis, human factors evaluation, and safety risk quantification.

Specialized Continuous Training

Conduct specialized, recurring training for receiving inspectors, stores managers, and quality auditors.

- Training programs should cover physical anti-counterfeiting identification methods, dynamic EASA/FAA bilateral agreement provisions, advanced document authentication, and human factors in store operations (such as time-pressure management during high-priority aircraft-on-ground scenarios).

EASA Part 145 Stores Inspection Staff – Human Factors Considerations

Sofema Aviation (SA) Considers key aspects of repetitive tasks and their potential impact on Stores Inspection Staff.

Introduction

Stores incoming inspection under EASA Part 145 (aligned with AMC1 145.A.42) acts as the primary defense against unapproved or non-conforming parts entering the airworthiness supply chain.

Because effectiveness relies heavily on manual verification, inspectors face distinct human factors risks like visual habituation, cognitive overload, and physical fatigue.

Core Human Factors Challenges

- **Visual Habituation & Expectation Bias:** Inspecting high volumes of identical standard parts (e.g., O-rings, hardware, sealants) leads to pattern fatigue, causing the brain to fill in details and miss subtle dimensional, plating, or material defects.
- **Environmental & Physical Strain:** Inadequate visual contrast, sub-optimal lighting spectrums, ambient logistics noise, and prolonged standing lead to rapid ocular and postural fatigue.
- **Temporal & Operational Pressure:** High inventory throughput combined with urgent AOG requests creates implicit pressure to expedite documentation validation (EASA Form 1, Certificate of Conformity) and physical intake.

Leadership Strategies & Mitigation Best Practices

Dynamic Task Scheduling & Rotation

- Enforce structured 25 minute to Maximum 45-minute active visual inspection cycles followed by 15-minute to 20-minute operational shifts (e.g., moving to documentation reviews or inventory binning). (The critical point being to recognise the importance of time on task)

Note - Rotating tasks breaks visual monotony and resets cognitive focus, directly counteracting the onset of complacency.

Ergonomic Workstations & Technical Support

- Equip receiving bays with high-CRI (>90) adjustable LED lighting, digital magnification tools, high-contrast inspection surfaces, and anti-fatigue matting (mat-gray non-reflective surfaces to minimize eye strain).

Note - Upgrading workspace ergonomics directly reduces physical discomfort and eye strain, the two main drivers of secondary cognitive fatigue.

Just Culture & Workload Limits

- Establish strict batch processing maximums per shift and explicitly grant inspectors "Stop Work / Pause Inspection Authority" when fatigue sets in, fully aligned with EASA 145.A.30(e) safety management principles.

- Removing schedule-driven pushback normalizes fatigue reporting and stops inspectors from rushing through critical intake steps.

Managerial Accountability Under Just Culture

- If a manager forces an inspector to override intake steps to hit a turnaround time, the manager explicitly assumes legal airworthiness accountability under EASA 145.A.30(e) and 145.A.200.
- Schedule-driven pressure should be reported into the Safety Management System (SMS) as an organizational hazard. Tracking "production pressure events" shifts the management conversation from "Why is receiving taking so long?" to "How are short-term delays preventing a potential catastrophic exposure?"

Digital Assistive Tools

- Depending on the size and throughput within the organisation consider to Implement digital overlay comparison screens, automated barcode cross-referencing, and standardized visual defect guides directly at the workstation.

Note – If it is possible to offload raw memory retrieval tasks to digital tooling reduces cognitive burden during high-density intakes.

Recurrent Defect Benchmarking

- Maintain a physical "library of non-conformities" featuring known bad, damaged, or suspect unapproved parts for regular hands-on calibration.
    - Collect authentic examples of suspect unapproved parts (SUPs), counterfeit OEM logos, altered EASA Form 1 documentation, incorrect thread pitches, sub-standard plating, and minor micro-cracking.
- Use tactile feedback (feeling for micro-burrs or thread binding) and specialized lighting angles, rather than relying solely on direct line-of-sight scanning.

Cognitive Impact Development

- **Breaking Expectation Bias:** Exposing the visual cortex to genuine defects immediately before routine intake raises signal detection sensitivity (d'), actively disrupting the brain's tendency to default to "pass" mode.
- **Competency Tracking:** Log drill completion and detection performance within the EASA 145.A.30(e) training system. Use the data to identify systemic blind spots across the team rather than penalizing individuals, reinforcing a healthy quality culture.

Physical Safeguards: Permanently mark all training specimens with high-visibility red resin or mechanical etching ("DEMO ONLY - NOT FOR USE") and store them in a locked stores inspection cabinet to prevent cross-contamination with live inventory.

- **Contextual Fault Cards:** Attach a detailed index card to each sample explaining the hidden defect, how it bypassed vendor checks, and the specific tool (e.g., optical comparator, thread gauge, UV light) required to detect it.

EASA Part 145 - Considering Tooling and Alternate Tooling Management

Sofema Aviation (SA) Considers key features of an effective aviation tool management system

Introduction

EASA Part 145 (145.A.40) mandates that maintenance organizations use the tools specified in aircraft technical data unless an alternative procedure is formally approved in the Maintenance Organisation Exposition (MOE).

In EASA third-country (Foreign Part 145) environments, establishing clear boundaries between technical evaluation and receiving inspection is vital to maintaining regulatory compliance.

Alternate Tooling Governance & Responsibilities

- Engineering & Quality (System Owners): Hold sole authority for assessing technical equivalency, conducting risk assessments, and issuing formal Alternate Tool Approvals (procedural equivalence, accuracy, capacity, and interface fit) before procurement.
- Procurement: Orders tools matching exact OEM part numbers or pre-approved alternate part numbers logged in the engineering database.
- Stores Inspector (System Executor): Executes physical receiving and document verification against established MOE standards without making independent technical or engineering equivalency determinations.

Managing the Stores Inspector Boundary Because the stores inspector operates within an evaluation framework, they do not "own," their compliance role must be clear and procedural:

- Binary Verification: The inspector cross-checks incoming items against an "Approved Alternate Tooling Register." If an alternate tool lacks a linked engineering approval reference, it must be quarantined immediately.
- Decoupled Liability: The inspector’s stamp validates procedural compliance (undamaged condition, valid paperwork, matching part numbers), leaving engineering liability strictly with the technical system owners who authorized the tool's use.

Receipt & Inspection of Tooling, Materials, and Tool Certificates

- Documentation Audit: Verify the Certificate of Conformity (CoC), OEM test sheets, and valid Calibration Certificates traceable to national standards (e.g., ISO/IEC 17025 or equivalent third-country national metrology institutes).

- Part & Revision Matching: Confirm that the received part number and revision state match both the purchase order and the referenced Alternate Tool Approval document.
- Physical Inspection & Data Entry: Inspect for shipping damage, check serial numbers against paperwork, verify calibration tags, log calibration interval data into the tool-tracking software, and apply tool tags.
- Quarantine Protocol: Automatically quarantine any item arriving with missing calibration certificates, unapproved part number substitutions, or missing traceability data.

Typical MOE 2.5 Procedure: Acceptance and Receiving Inspection of Alternate Tooling

1. Purpose & Scope Defines the receiving, inspection, and acceptance workflow for standard and alternate tooling in compliance with EASA Part 145.A.40 and EASA Foreign Part 145 guidelines.

2. Roles & Responsibilities

- **Engineering & Quality (System Owners):** Hold sole authority for conducting technical equivalency evaluations, safety risk assessments, and issuing Alternate Tool Approvals. Maintains the Approved Alternate Tooling Register (AATR).
- **Stores Inspector (System Executor):** Executes physical verification against established technical registers. Operates strictly within procedural boundaries and holds no authority to evaluate technical equivalence.

3. Receiving Inspection Workflow

- **Step 1 - Part & Approval Verification (Stores Inspector):** Cross-check the incoming tool part number against the Purchase Order and the active AATR. Immediately quarantine any alternate tool not pre-listed in the register.
- **Step 2 - Document Audit (Stores Inspector):** Verify the Certificate of Conformity (CoC) and Calibration Certificate. Ensure calibration is traceable to ISO/IEC 17025 or equivalent national metrology standards.
- **Step 3 - Physical Inspection (Stores Inspector):** Inspect for transit damage, check anti-tamper seals, and confirm physical serial numbers match paperwork.
- **Step 4 - Acceptance & System Entry (Stores Inspector):** Apply physical tool identification tags showing the Tool ID and Calibration Due Date, stamp receipt documentation, and log calibration metrics into inventory software.
- **Step 5 - Defect Escalation (Stores Inspector):** Quarantine non-compliant tools (missing paperwork, transit damage, or unapproved part numbers) and issue a Quality Discrepancy Notice (QDN) to Engineering.

4. Tool Certificate Verification Criteria

- **Certificate of Conformity (CoC):** Confirms manufacturing or modification matches approved technical specifications.
- **Calibration Certificate:** Issued by an accredited facility, detailing actual measured values versus tolerances, uncertainty metrics, and explicit national standard traceability.

5. System Boundary Limitations The Stores Inspector's stamp confirms procedural compliance only (document match, visual condition, listed approval). Technical performance liability for alternate tooling remains strictly with Engineering.

Addressing EASA Part 145 Stores Inspection Staff Approval

Sofema Aviation (SA) Considers both the regulatory requirements and best practices for the issue of Stores Inspection Approval by the EASA Part 145 Organisation.

EASA Part-145 mandates strict controls over the competence of receipt inspection personnel to prevent unapproved, improper, or unairworthy components from entering active aircraft maintenance inventory.

Regulatory Obligations & Direct References

- **EASA Part-145.A.30(e) (Personnel Requirements):** Mandates that the organisation establish and control the competence of all personnel involved in any maintenance, management, and/or safety audits under a procedure agreed upon by the competent authority.
- **GM2 145.A.30(e) (Competence Assessment Procedure):** Explicitly lists logistics and stores personnel in the competence matrix. It requires documented evaluation of knowledge regarding regulatory requirements, logistics processes, part identification, and documentation verification.
- **EASA Part-145.A.42 (Acceptance of Components):** Establishes that components, standard parts, and materials must be categorized and inspected prior to installation.
- **AMC1 145.A.42(b)(i) & GM1 145.A.42(b)(i):** Outline the physical inspection (packaging, damage, preservation, shelf-life) and document verification (EASA Form 1, equivalent release certificates, Certificate of Conformity) required during incoming inspection.

Managing Competence: STC Modifications & Bilateral Certification

To ensure stores inspectors are competent to receive complex modification and foreign-sourced parts, the organisation must build specific training and assessment criteria into its competence management system:

- **Bilateral Agreements (FAA, TCCA, UK CAA):**
    - **Requirement:** Inspectors should understand the EASA Technical Implementation Procedures (TIP) and Maintenance Annex Guidance (MAG).
    - **Competence Scope:** Distinguishing when an FAA Form 8130-3 or TCCA Form ONE is acceptable (e.g., dual-release requirements, specific Block 12 statements for new vs. maintained parts) vs. when a component requires an EASA Form 1.

- **Supplemental Type Certificate (STC) & Modification Parts:**
    - **Requirement:** Inspectors must understand EASA Part-21 design approval linkages.
    - **Competence Scope:** Verifying that incoming modification parts (including Parts Manufacturer Approval / PMA parts under foreign bilateral agreements) explicitly reference an EASA-approved STC or validated design approval standard on the release document.
- **Suspected Unapproved Parts (SUP):**
    - Training must cover identifying bogus parts, fraudulent documentation, and quarantine workflows per AMC1 145.A.42(a)(iii).

Store Inspector Approval Process & Authority

1. Prerequisites & Formal Training: Completion of EASA Part-145 regulatory training, Human Factors (AMC2 145.A.30(e)), EWIS/CDCCL awareness, Bilateral Agreements (MAG), and SUP detection.

2. Practical On-the-Job Training (OJT): Supervised receipt inspections covering physical checks, software verification, shelf-life validation, and document tracing, documented in an official OJT logbook.

3. Competence Assessment: Evaluation against the organisation's structured competency matrix (matching GM2 145.A.30(e) criteria), conducted by the compliance monitoring function.

4. Final Approval & Authorization: Formal approval is granted by the Compliance Manager (or designated Compliance Monitoring delegate), who issues an internal company Stores/Receipt Inspector Authorisation.

5. Roster Management: Inclusion of the authorized inspector in the official company authorization register specified in MOE Section 3.11 or 2.15.

Specific Requirement for Store Authorisation in EASA 145

- An internal company Store Authorisation is a mandatory regulatory requirement driven by 145.A.30(e) and 145.A.42.
- The organisation must define the qualification, competence assessment, and authorization mechanism in its competent-authority-approved Maintenance Organisation Exposition (MOE).
- Only personnel formally assessed and granted an internal authorization by the Compliance Monitoring framework are legally permitted within the EASA Part-145 system to perform incoming receipt inspections and sign component acceptance records.
- Only personnel formally assessed and granted an internal authorization stamp/privilege typically performed by the Compliance Dept are legally permitted within the EASA 145 system to perform incoming receipt inspections and sign acceptance records.

Considering the typical challenges faced by EASA Part 145 Stores Inspectors

EASA Part 145 stores inspectors face a demanding balance: acting as strict regulatory gatekeepers under 145.A.42 while supporting fast-paced aircraft maintenance operations. The core challenges center on international compliance nuances, counterfeit risks, and formal authorization hurdles.

Bilateral & Design Approval Pitfalls

- **Navigating Foreign Releases:** Deciphering FAA Form 8130-3 and TCCA Form ONE certificates under Maintenance Annex Guidance (MAG) require precise knowledge of dual-release requirements and specific Block 12 statements to avoid accepting invalid documentation.
- **STC & PMA Traceability:** Verifying that foreign-sourced Parts Manufacturer Approval (PMA) components and modification parts explicitly link to EASA-approved or validated Supplemental Type Certificates (STCs) under Part-21 guidelines.
- **Inconsistent Documentation:** Distinguishing between manufacturing vs. maintenance release releases across global suppliers who often use non-standardized documentation formats.

Suspected Unapproved Parts (SUP) & Technical Verification

- **Counterfeit Detection:** Spotting increasingly sophisticated fraudulent release certificates, altered serial numbers, and unapproved component refurbishments.
- **Complex Material Integrity:** Managing specialized physical checks—such as electrostatic sensitive device (ESD) packaging, shelf-life limits, preservation states, and embedded software versions—while enforcing isolation under AMC1 145.A.42(a)(iii) quarantine workflows.
- **Lack of Real-Time Data:** Lacking direct access to technical design data or OEM drawings when evaluating physical non-conformities at the receiving dock.

Regulatory Competency & Operational Tension

- **Broad Matrix Requirements:** Maintaining dynamic competency criteria outlined in GM2 145.A.30(e), which mandate continuous proficiency in Human Factors, EWIS, CDCCL, bilateral guidance, and SUP protocols.
- **Strict Authorization Process:** Completing rigorous, multi-step qualification pathways (formal training, logbook-backed OJT, and Compliance Monitoring assessments) before earning the internal MOE 3.11/2.15 authorization stamp.
- **Gatekeeper vs. Operational Urgency:** Resisting time-pressures from AOG (Aircraft On Ground) maintenance teams urging rapid part release, while bearing sole personal and regulatory accountability for signing acceptance records.

Acceptance Criteria for EASA Form 1 and FAA Form 8130-3

Sofema Aviation (SA) Considers Challenges and Acceptable Practices related to parts acceptance supported by EASA Form 1 & FAA 8130-3

Introduction

Under the EASA-FAA Bilateral Aviation Safety Agreement (BASA) and Maintenance Annex Guidance (MAG), legal acceptance criteria for EASA Form 1 and FAA Form 8130-3 certificates are fully harmonized. However, individual airline receiving departments often introduce fragmented compliance interpretations that create unnecessary supply chain friction.

Key Challenges & Operational Friction

- **Dual-Release Phrasing Misinterpretations:** Receiving inspectors may reject valid FAA 8130-3 certificates due to unfamiliarity with the precise dual-release statement mandated in Block 12 under MAG rules, or due to demanding an EASA Form 1 when a dual-release FAA 8130-3 is legally equivalent. (Are you familiar with MAG Rules?)
- **Over-Conservative CAMO Rules:** Individual airlines may impose arbitrary internal receiving rules for example requiring original physical ink-signed hard copies when digitally certified copies are legally valid under EASA AMC1 145.A.42—leading to immediate stock quarantines.
- **Repair Data & STC Discrepancies:** Component repairs certified on an FAA 8130-3 may cite FAA-approved repair data that lacks automatic EASA acceptance (or requires explicit EASA STC/minor change approval numbers), would you be able to identify this in your Stores causing rejections during fleet transfers or pool-part exchanges.
- **Zero-Tolerance Administrative Rejections:** Minor clerical typos in Block 6 (Item Number), Block 7 (Description), or batch/serial numbers often trigger outright rejections rather than standardized vendor administrative correction workflows.

Industry Best Practices for Harmonization

- **Strict Alignment with MAG Directives:** Base receiving inspection manuals strictly on EASA-FAA MAG directives (Section B, Supplement 1 and 2), explicitly auditing against regulatory standards to eliminate non-regulatory "airline-custom" criteria.
- **Standardized Block 12 Validation Checklists:** Utilize a unified digital compliance matrix to systematically check for mandatory dual-release wording, approved maintenance data citations, and valid organization approval numbers.
- **Digital Pre-Clearance Protocols:** Require suppliers and repair stations to upload airworthiness certificates for pre-clearance prior to physical dispatch, resolving document discrepancies before parts arrive at the facility.
- **Cross-Organizational BASA Training:** Conduct joint training for MRO and CAMO incoming inspection personnel focusing on bilateral equivalence, acceptable electronic signatures, and mutual recognition agreements (including UK CAA / Transport Canada TCCA overlaps).

Post-Brexit regulatory changes and Canadian bilateral agreements add distinct certification paths to global component supply chains.

UK CAA Post-Brexit Requirements Following the UK's exit from EASA, the UK Civil Aviation Authority operates independently, issuing the **UK CAA Form 1**.

EASA Acceptance Criteria

- **Part-145 Maintenance Releases:** EASA does **not** accept standalone UK CAA Form 1 maintenance releases under Annex 30 of the EU-UK Trade and Cooperation Agreement (TCA). Maintenance releases require the UK facility to hold an EASA Third-Country Part-145 approval and issue an EASA Form 1.
- **New Production Releases:** Under TCA Annex 30, standalone UK CAA Form 1s are accepted strictly for **new** products, parts, and appliances issued by UK Production Organisation Approval (POA) holders.
- **Pre-2021 Releases:** EASA Form 1s issued by UK facilities prior to January 1, 2021, remain valid indefinitely.

Canada.ca

- **UK-FAA Dual Release:** Under the UK-US BASA MAG, UK facilities holding FAA Part 145 repair station certificates issue a UK CAA Form 1 with dual release by checking both boxes in Block 14a and citing 14 CFR Part 43 compliance alongside their FAA certificate number in Block 12.

Transport Canada Civil Aviation (TCCA) Requirements Canada utilizes the **TCCA Form One** (Form 24-0078), which operates under separate bilateral frameworks:

Endeavor Elements

- **TCCA-EASA (Technical Arrangement on Maintenance):** Used components from a Canadian CAR 573 AMO must be accompanied by a TCCA Form One carrying a **dual release**. The Canadian facility must hold an EASA-approved supplement. Standard TCCA Form Ones from non-EASA-approved Canadian AMOs are non-compliant under EASA Part-145.

www.easa.europa.eu

- **TCCA-FAA (Maintenance Implementation Procedures):** The FAA-TCCA MIP framework governs mutual recognition. A Canadian AMO issuing a dual release for US installation must cite both CAR 573 and 14 CFR Part 43 compliance in Block 12.

National Air Transportation Association

Bilateral Acceptance Matrix

Release Form	EASA Acceptance	FAA Acceptance	Primary Receiving Pitfall
UK CAA Form 1	Accepted via EU-UK TCA Annex 30.	Dual release required under UK-US BASA.	Missing FAA repair station number in Block 12 for US operators.

Release Form	EASA Acceptance	FAA Acceptance	Primary Receiving Pitfall
TCCA Form One	Dual release required (AMO needs EASA Supplement).	Accepted via TCCA-FAA MIP.	Accepting TCCA Form One from an AMO lacking EASA approval.
FAA 8130-3	Dual release required (MAG Section B).	Native airworthiness tag.	"Rebuilt" status in Block 11 or missing Block 14a dual check.
EASA Form 1	Native airworthiness tag.	Dual release required (MAG Section C).	Maintenance data cited in Block 12 lacks FAA validation.

Triple Release Protocols In global inventory pools, parts frequently carry a **Triple Release** (FAA, EASA, and TCCA).

- **Signatory Scope:** Valid only if the issuing MRO concurrently holds active approvals from all three authorities.
- **Block 12 Entry:** Must explicitly state compliance with 14 CFR Part 43, EASA Part-145, and CAR 573, listing all three approval certificate numbers.

EASA Compliant Incoming Inspection Of Class 3 (Typically AGS Parts)

Sofema Aviation (SA) Considers the following Question

- Receiving parts, such as bolts, from an approved supplier who is however not the manufacturer, that do not have a P/N showing on the actual items. The container in which they are received is labelled only by the supplier. The paperwork is traceable back to the supplier. What is the correct method of verifying that the supplier has provided the correct items?

Introduction

Under EASA regulations, there is no direct approval or certificate issued by the agency to parts suppliers or distributors. An "approved supplier" refers strictly to a vendor that has been evaluated, qualified, and placed on receiving Part-145 organization’s internal Approved Supplier List (ASL) in accordance with its own Maintenance Organisation Exposition (MOE) procedures.

Clarification of Supplier Status Under EASA

- **No Direct EASA Supplier Approval:** EASA certifies production organizations (Part-21 Subpart G) and maintenance organizations (Part-145), but not component distributors or hardware vendors.
- **Organization Responsibility:** Under EASA 145.A.42(b)(iv) and AMC1 145.A.42(b)(iv), the receiving organization bears sole regulatory responsibility for evaluating suppliers. "Approval" means the distributor meets the receiving facility’s internal audit criteria (or holds an industry quality standard like EN/AS 9120).

Correct Verification Protocol for Unmarked Bolts in Supplier Packaging

1. Verification of Batch Traceability (Documentary)

- **Unbroken Chain to Manufacturer:** Paperwork traceable *only* to the distributor is legally non-compliant under EASA AMC1 145.A.42(b)(i). The receiving inspection must demand and verify documentation establishing an unbroken chain from the distributor back to the original manufacturer's batch or lot production code.
- **Standard Specification Statement:** For standard parts (AN, MS, NAS), the accompanying Certificate of Conformity (CofC) must explicitly state compliance with the governing standard and tie the batch directly to the producer's original release.

2. Physical and Technical Verification Because the individual bolts lack part numbers and the container carries only vendor packaging, physical verification against the governing Standards Manual or specification drawing should be considered where deemed necessary:

- **Head Marking Audit:** Inspect bolt heads under magnification to identify raised or indented manufacturer identification symbols and strength class markings (e.g., NAS/MS head stamps) required by the standard specification.
- **Dimensional Inspection:** Measure shank diameter, grip length, thread pitch, thread runout, and surface treatment using calibrated micrometers and thread gauges to confirm alignment with the standard drawing parameters.
- **Hardness & Material Testing:** Perform Rockwell or Vickers core hardness testing on a statistical sample taken from the batch. Cross-reference the hardness values against the material strength tables in the applicable Standards Manual (e.g., SAE J429 or ASTM specifications) to physically confirm the heat-treat condition.

3. Quarantine Protocol

- Under EASA AMC1 145.A.42(a)(iii), if the distributor fails to provide documentation linking the shipment back to the original producer's batch, or if physical hardness testing fails to match the standard's specifications, the receiving inspector must immediately quarantine the batch. The hardware cannot be released to active stock until documentation is rectified or physical compliance is conclusively established.

Managing Aircraft Component AD's within an EASA Part 145 Organisation

Sofema Aviation (SA) Looks at the control processes to ensure all component AD's are correctly addressed.

Introduction

When an Airworthiness Directive (AD) is issued affecting components already in stock, their active serviceable status is effectively and immediately suspended until compliance or non-applicability is formally established. (The integrity of the management system is paramount in this regard)

Important Note - The interface between CAMO oversight, store management, and maintenance certification relies on clear boundaries of technical responsibility.

Quarantine and Serviceability Status

- **Status Suspension:** Components affected by a newly issued AD can no longer be considered serviceable, even if accompanied by an authorized release certificate (such as an EASA Form 1 or FAA Form 8130-3).
    - An authorized release certificate only guarantees airworthiness as of its date of issuance.
- **Mandatory Quarantine:** Store personnel must be instructed to immediately transfer suspect part numbers and serial numbers to a secure quarantine area, or apply a digital hold in the inventory management system, to prevent accidental issuance to the hangar floor.

Verification Responsibilities: Stores vs. CAMO/Engineering

- **Limits of Store Authority:** Storekeepers are responsible for physical inventory control, batch traceability, and receiving inspections. They are neither licensed nor legally authorized to evaluate AD applicability, assess modification states, or determine technical compliance.
- **Formal Technical Disposition:** Store personnel must wait for a formal directive from CAMO or the AMO's Engineering group (such as an Engineering Order, Technical Instruction, or AD Compliance Statement) specifying whether the batch is affected, requires modification, or is exempt.

Process Management Workflow

1. AD Screening (CAMO / Technical Engineering): Cross-reference newly issued ADs against active store inventory databases.

2. Inventory Hold (Store Personnel): Apply a digital ERP block and physically transfer suspect parts to quarantine.

3. Technical Assessment (CAMO / Quality Assurance): Determine exact serial number applicability, modification state requirements, or required work.

4. Rectification & Release (Part-145 AMO): Perform the required AD task, issue new release documentation, and return the part to the main store.

5. Pre-Installation Check (Certifying Engineer): Verify final AD compliance and modification state immediately prior to fitting the component to the aircraft.

Key Concerns and Best Practices

- **System Safeguards over Manual Memory:** Relying on storekeepers to remember AD applicability introduces human error. CAMO should enter new ADs into an Enterprise Resource Planning (ERP) system that automatically flags and locks matching part numbers.

- **The Engineer's Ultimate Responsibility:** While CAMO manages airworthiness status and Stores manages physical inventory, the certifying engineer bears final legal liability upon installation to ensure the part meets all current AD and modification standards.

CAMO Control Drivers

An automated Enterprise Resource Planning (ERP) holds workflow bridges the gap between CAMO airworthiness oversight and physical warehouse operations by enforcing real-time digital inventory blocks.

Trigger and Ingestion Mechanism

- **Automated Cross-Referencing:** When CAMO logs a new Airworthiness Directive (AD) or mandatory Service Bulletin (SB) into the MRO software (e.g., AMOS, TRAX, Maintenix), the system automatically queries the active store database for matching Part Numbers (P/Ns) and Serial Numbers (S/Ns).
- **Immediate Digital Hold:** The moment a match is identified, the system applies an automated "CAMO Technical Hold" status. This instantly locks the inventory records, preventing store personnel from generating picking slips, transfer orders, or issue certificates for affected parts.

Store Floor Actionable Alerts

- **System-Driven Relocation Tasking:** The ERP automatically generates a high-priority physical task for storekeepers, instructing them to move the flagged P/N or S/N into the physical quarantine area.
- **Barcode and Issue Locking:** If a storekeeper attempts to scan or physically issue a locked part at the counter, the warehouse terminal displays a hard-stop alert stating the item is quarantined pending technical disposition.

Engineering Disposition and Release Workflow

- **Digital Engineering Orders (EO):** CAMO issues a work package directly linked to the quarantined inventory item. This specifies the required action, such as physical inspection, off-site modification, or administrative verification of serial number non-applicability.

Hangar Floor Gatekeeping

- **Pre-Installation Scan:** Before fitting the component, the certifying engineer may scan the part barcode directly into the aircraft work package.
    - Depending on the system a final real-time check against the CAMO AD compliance database may be performed to verify that no new directives affecting that part were issued while it sat in stock.

EASA Compliant Stores Procedures to Manage Multiple Shelf Lives

Sofema Aviation (SA) Considers the challenge and best practice to manage Multiple Lives (Including Shelf Life) Compliant with EASA Part 145

Introduction

Managing multi-tiered life limits is one of the most critical audit focal points in an EASA Part 145 Stores and Logistics environment. Under EASA Part 145.A.42 and its associated AMC/GM, a component is unserviceable if any of its independent shelf-life, operational-life, or interval parameters expire.

The primary operational challenges fall into two main categories: tracking nested maintenance triggers (storage vs. interval checks) and managing the transition between storage shelf life and operational life during removal/re-installation.

Challenge 1: Managing Compounding Limits (Storage vs. Check Intervals)

Items like fire extinguishers, oxygen cylinders, emergency escape slides, and survival equipment do not have a single "expiry date." They operate under distinct, parallel timers:

- **Storage / Shelf Life:** Set by the CMM or OEM based on elastomer degradation, seal decay, or chemical breakdown.
- **Weight Check Interval:** Typically an annual or semi-annual maintenance action to ensure zero leakage of propellant/agent.
- **Hydrostatic Pressure Test Interval:** MANDATORY pressure vessel integrity test required by airworthiness data or international transport standards (e.g., every 3 to 10 years depending on the cylinder specification).

Practical Risk in Stores

An item can pass its overall storage shelf life date, yet be unserviceable because its hydrostatic test or weight check expired while sitting on the rack.

Systemic Controls (The Inspector's Standard)

1. **Multi-Field Tracking in ERP / MRO Software:** The inventory management system must track multiple individual dates rather than a single "Expiration Date" field:
    - DOM (Date of Manufacture)
    - Storage Expiry Date
    - Next Hydrostatic Test Due
    - Next Weight Check / Inspection Due

The computer system should automatically lock and quarantine a part as soon as its earliest expiration or inspection date arrives. This stops staff from printing a pick list or issuing the part for an aircraft.

Physical Storage Labels Physical labels on storage bins should clearly show all check and expiration dates. For example, if an item needs a weigh-check every 12 months, the label should display the date of that next check—not just its final shelf-life date.

Challenge 2: Storage Life vs. Installed Life (Part Removal & Re-use)

A complex scenario occurs with components that have dual lifespans defined by the OEM/CMM—for example, a seal kit or oxygen mask that has a 5-year storage shelf life, but a 3-year installed operating life upon fitment.

- Total Storage Shelf Life Limit (e.g., 5 Years)
- Installed at Year 2
- Operational Life Trigger Begins (e.g., 3 Years)
- Removed at Year 3.5 (1.5 Years operational use)
- Serviceability Assessment Required for Re-store

The Scenarios for Removal & Re-installation

When a part with remaining operational life is removed from Aircraft A before its installed limit expires and brought back into Stores for eventual installation on Aircraft B:

1. **Rule of the Shortest Timer:** Once installed on an aircraft, the Installed Operating Life clock starts running. Upon removal, the part does not revert to a fresh storage shelf life. Its remaining life is governed by whichever expires first:
    - The remaining portion of its Installed Operational Life OR
    - The original Storage Shelf Life limit defined from the Date of Manufacture (DOM).
2. **OEM / CMM Governing Instructions:** The CMM must be consulted to confirm if a used part can even be returned to stock. Some manufacturers state that once an elastomer or chemical unit is installed and pressurized/exposed to fluid, its storage life is voided, and it must either remain in active rotation or be overhauled/discarded.
3. **Traceability & Logging (Form 1 / Maintenance Records):**
    - The removing Part 145 organization must issue an entry in the logbook / removal tag clearly stating: Accumulated Installed Time/Cycles and Exact Date of Installation.
    - When issuing an EASA Form 1 for a removed serviceable part (per AMC 145.A.50 / 145.A.42), Block 12 (Remarks) must explicitly detail both the cumulative operating hours/calendar time AND the original DOM/storage expiration.

The Audit Baseline for Part 145 Stores Inspectors

When auditing your receiving inspection and storage management system, ensure the following controls are fully established:

Control Area	Requirement & Best Practice
Receiving Inspection	The Receiving Inspector must verify **all** sub-expiry dates against the OEM/CMM documentation and record each individually into the system.
Physical Labeling	Labels must display Earliest Expiration Action. If a bottle needs a weight check on June 2026, but its shelf life is 2028, the physical bin label MUST show June 2026 as the primary review date.
Removal Protocols	Implement a procedure requiring technicians to log installed exposure time on component removal tags. Stores must reject removed shelf-life/time-limited parts if the flight/calendar hours on the aircraft are unverified.
First-In, First-Out (FIFO)	Enforce strict FIFO picking logic based on the *earliest due task*, not the manufacture date.
Store Maintenance Procedures	Define a process in the MOE (Maintenance Organisation Exposition, Chapter 2.11 / 2.25) detailing who is authorized to perform and re-certify in-store inspections (e.g., weight checks performed by shop staff within the 145 approval domain).

Tool Calibration Considerations within an EASA Part 145 Organisation

Sofema Aviation (SA) Considers How to handle calibration and re-calibration period if the tool manufacturer has no recommendations on the same.

Introduction

Under EASA Part 145.A.40(b) and AMC1 145.A.40(b), when a tool manufacturer provides no calibration specifications, the Part 145 organization assumes full responsibility for establishing, justifying, and controlling its own calibration program within its Maintenance Organization Exposition (MOE).

Regulatory & Governance Requirements

- MOE Documentation: Section 2.4 (Equipment and Tools) must formally document the internal calibration policy, risk assessment matrix, decision rules, criteria for Calibrate Before Use (CBU) status, and protocol for adjusting intervals.
- Metrological Traceability: All internal and third-party calibrations must maintain traceability to national or international measurement standards, such as those provided by an ISO/IEC 17025 accredited facility.
- Interval Optimization: Calibration history must be actively tracked. Consecutive cycles demonstrating high stability justify interval extensions, while tools showing measurement drift require shortened intervals or retirement.

Tooling Risk Assessment Criteria

- Task Criticality:
    - High Airworthiness Risk: Measurements affecting primary airframe structures, flight control rigs, engine turbine clearances, or critical joint torque limits. An out-of-tolerance (OOT) tool directly threatens structural integrity and flight safety.
    - Low Airworthiness Risk: Non-critical dimensions, cabin interiors, or general troubleshooting measurements where secondary verifications exist or errors do not impact airworthiness.
- **Vulnerability & Operating Context:**
    - **Physical Robustness:** Mechanical tools with internal springs suffer fatigue from use, whereas digital instruments hold calibration longer but remain vulnerable to drop shock.
    - **Environment:** Harsh line-maintenance conditions, weather extremes, and fluid contamination accelerate wear compared to controlled workshop environments.
    - **Usage Frequency:** Daily heavy usage justifies cycle-based intervals, whereas idle tools face unmonitored damage or static degradation during storage.
- Historical Drift: Analysis of past calibration certificates determines measurement drift relative to tolerances.

Calibration Interval Strategies

- Fixed Periodic or Usage-Based Intervals: Standardized calendar baselines (e.g., 6 to 12 months) or duty-cycle counts (e.g., 1,000 cycles) applied to high-use tools like torque wrenches and multimeters.
- Calibrate Before Use (CBU): Recommended for low-frequency, idle, or specialized tools. Equipment remains tagged/quarantined and is calibrated immediately prior to task execution to prevent valid calibration time from expiring during storage.
- Pre-Use Operational Verification: Mandatory daily zero-point checks or check-block tests implemented between formal calibrations to catch immediate damage or drift.

Out-of-Tolerance (OOT) & SMS Integration

- Retrospective Impact Study: When a tool fails re-calibration, an immediate safety impact assessment must determine whether aircraft or components released since the last valid calibration require re-inspection.
- SMS Feedback Loop: OOT events must feed directly into the organization’s Safety Management System (SMS) to evaluate broader operational airworthiness risks and initiate necessary corrective actions.

The Problem of Suspect Parts Viewed from the Landscape of EASA Approved Organisations

As an EASA Subject Matter Expert (SME), I have watched the aviation industry wrestle with Suspected Unapproved Parts (SUPs) for decades, but the current operational landscape represents an entirely new level of threat.

Driven by compounding supply chain pressures, extended OEM lead times, and sophisticated fraud networks, EASA's SUP database has surged past 7,700 flagged entries. High-profile international scandals, such as the *AOG Technics* fraud involving thousands of falsified EASA Form 1 certificates for CFM56 engines, and the recent EASA alerts regarding hundreds of stolen, non-airworthy parts intercepted from the disposal pipeline, prove that the threat is no longer rare; it is a systemic attack vector.

For an EASA Part 145 Approved Maintenance Organisation (AMO), compliance with Part 145.A.42 (Acceptance of Components) is the frontline defense. Here is a deep dive into the 7 major issues Part 145 organizations face regarding suspect parts, backed by anecdotal industry patterns and actionable best-practice solutions.

Sophisticated Identity Fraud & "Paperwork Cloning"

The aviation supply chain relies heavily on documentation. Today's bad actors do not just forge low-quality certificates; they execute high-fidelity "identity fraud" at the supply chain level. They use genuine PDF editing tools to clone real EASA Form 1 or FAA 8130-3 forms, altering only serial numbers, batch numbers, or life-limited data to match a counterfeit or unapproved part.

- In recent fraud investigations, receiving inspectors found that checking the listed Form 1 number against an actual MRO's internal database revealed the number was valid, but it had originally been issued for a completely different component five years prior.
- **Best Practice Solution:** Shift from passive document reading to Active Source Verification. Cross-reference the issuing agency’s digital portal or directly contact the Quality Department of the certifying Part 145 organization listed on the Form 1 to validate that the specific serial number matches their release logs.

Supply Chain Desperation & The Broker Trap

With global commercial aircraft production experiencing massive shortfalls and severe engine parts shortages, Part 145 procurement teams face unprecedented pressure to avoid AOG (Aircraft On Ground) situations. When traditional, approved OEMs and Tier-1 distributors quote 40-week lead times, buyers are heavily tempted to turn to secondary markets, unverified brokers, and web-based parts aggregators where oversight is thin.

- A component buyer, desperate to source an engine fuel booster pump, finds a rogue broker who magically has "New Surplus" stock available immediately. The part arrives with a convincing, though ultimately forged, airworthiness release.

Important Note – EASA clearly identifies the “End User” as being 100% responsible for acceptance – are you fully utilizing your Compliance Department as part of the Vendor Supply chain assessment?

- **Best Practice Solution:** Implement a strict Supplier Risk Scoring System. Enforce a rule that any part sourced outside of an OEM or an AS9120/ASA-100 accredited distributor must automatically trigger an elevated, multi-tiered engineering and quality review before procurement signs off.

The Re-Laundering of Discarded & Stolen Parts

A growing issue is the interception of components that are destined for scrap or mutilation. Fraudsters intercept parts from the disposal pipeline, cosmetic-refurbish them (such as stripping and painting used components to appear new, or applying improper weld repairs without engineering data), and re-introduce them into the market with forged tracing records.

- EASA issued an urgent alert warning the industry that hundreds of turbofan engine parts, formally declared non-airworthy and marked for destruction, were stolen and funneled back into the global marketplace.
- **Best Practice Solution:** Part 145 workshops must enforce Definitive Mutilation Practices for all scrap parts (e.g., cutting through critical dimensions or drilling holes) and keep meticulous destruction certificates.
- On the incoming side, receiving inspectors must be specifically trained to look for "cosmetic masking" such as fresh paint over pitting, non-OEM vibro-peening, or stripped and replaced data plates.

Substandard "Blind" Receiving Inspection Techniques

Many Part 145 stores rely on purely administrative receiving inspections, checking if the part number matches the PO and if a form is attached. However, physical anomalies are often the only true giveaway of a counterfeit or illegally altered part.

Without proper tooling and specific physical inspection training, storefront inspectors miss highly technical red flags.

- Counterfeit landing gear bushings and fasteners superficially match approved models but fail instantly under load because they lack certified material heat-treatment or correct alloy composition.
- **Best Practice Solution:** Equip the receiving bay with high-magnification digital microscopes, precise dimensional measuring tools, and comparative weight scales. Maintain a "Known Good Component" library or digital photo archive so inspectors can compare the texture, markings, font types, and markings of an incoming part against a verified genuine OEM sample.

Inadequate Training on EASA / FAA Bi-Lateral Differences

EASA Part 145 personnel frequently misinterpret the precise legal boundaries of acceptable dual-release documentation under the EASA-FAA Bilateral Aviation Safety Agreement (BASA). Differences in how the FAA handles "Surplus" parts versus how EASA classifies acceptable components under Part 145.A.42 create legal loopholes that suspect parts can slip through.

- A U.S.-based repair station releases a component on an FAA Form 8130-3 under "regular" domestic rules without checking the specific EASA block for a dual-release. The EU Part 145 store accepts it anyway due to sheer volume, inadvertently installing a part that does not meet European continuing airworthiness rules.
- **Best Practice Solution:** Mandate recurrent, targeted SUP Detection and Regulatory Compliance Training (specifically tailored to 145.A.42 and FAA AC 21-29D guidelines) for all logistics, purchasing, and certifying staff. The training should heavily focus on identifying missing block validations on release forms.

The "Fear of Reporting" & Slow Information Sharing

When a Part 145 organization discovers a suspect part, the internal reflex is often to simply return the part to the vendor for a refund and wash their hands of the issue. Formally reporting an item via the Mandatory Occurrence Reporting (MOR) system under Regulation (EU) 376/2014 takes time, invites regulatory scrutiny, and can lead to legal pushback from suppliers. This lack of reporting allows bad actors to simply sell the rejected part to another, less-vigilant MRO.

- A Compliance Manager flags a part as suspicious, alerts the vendor, receives a swift refund, and returns the part. Two months later, that exact same serialized part turns up at a neighboring MRO facility.
- **Best Practice Solution:** Cultivate a transparent Just Culture internally where reporting a SUP is celebrated as a safety success. If a part's origin cannot be verified, it must be legally quarantined in a secure, locked "SUP Cage" and reported to EASA via the portal *prior* to negotiating returns with the supplier, effectively pulling it out of circulation.

Lack of Serialization & Traceability on Non-Critical Parts

While life-limited parts (LLPs) and critical engine components are heavily tracked, commercial aircraft contain thousands of non-serialized standard parts, fasteners, and consumables (such as cabin items, seals, and brackets). Fraudsters heavily target these items because they lack unique serial tracking, making it exceptionally easy to mix counterfeit or uncertified batches into legitimate store stock.

- Counterfeit cockpit utility components or non-aviation-grade seals are mixed into bulk bins, escaping detection until they cause premature system leaks or smoke in the cabin.
- **Best Practice Solution:** Apply batch-level verification and look for physical irregularities in bulk shipments (such as mismatched packaging materials, unusual fonts on labels, or unbranded boxes). Part 145 organizations should also actively monitor and subscribe to EASA’s Lost and Stolen Parts Database to ensure they aren't buying batches linked to known facility breaches.

Discussion on PMA Critical Parts

What Makes Parts Critical and who decides?

- **Who Decides:** A component is determined to be critical either by the Design Approval Holder (DAH) during the initial product certification process, or otherwise by the Authority for the State of Design (SoD).
- **What Makes Them Critical:** These parts are typically identified by specific maintenance and lifecycle criteria.
    - They include parts for which a replacement time, inspection interval, or a related safety procedure is explicitly specified in the Airworthiness Limitations Section (ALS) or within the certification maintenance requirements of the manufacturer's maintenance manual or Instructions for Continued Airworthiness (ICA).

How are they produced?

- **PMA Definition:** An FAA Parts Manufacturer Approval (PMA) is a combined design and production approval issued for modification and replacement articles, allowing a manufacturer to produce and sell them for installation on type-certificated products.

Production Pathways

- **Traceability Requirements:** To be accepted for distribution, they must be produced under an approved quality system and accompanied by documentation that ensures strict traceability to the FAA-approved Production Approval Holder (PAH) and conformity to the approved design data.
- **Production Pathways:** Under the guidelines, critical PMA parts can be produced using one of two primary data frameworks:
- **Two Data Frameworks:** The guidelines recognize that critical PMA parts are categorized by whether or not they use a licensing agreement.
    - **Under a Licensing Agreement:** This path is correct; it denotes parts conforming to design data obtained directly from the original TC or STC holder. Under TIP Rev 7 Amdt 1 paragraph 3.3.4.2, these are eligible for direct EASA acceptance if the underlying TC or STC has been validated by EASA.
    - **Without a Licensing Agreement:** This path is also correct; independent development occurs via identicality without a licensing agreement, or through test reports and computations.
    - According to paragraph 3.3.4.3 and 3.5.3.2(c), critical components design-approved via these methods are explicitly classified as Non-Basic and require an equivalent EASA STC.

How are they Certified?

The certification and validation pathways differ significantly depending on the relationship with the original design holder:

- **Direct EASA Acceptance (Licensing Pathway):** EASA will directly accept an FAA PMA approval without further showing if the part is a critical component that conforms to design data obtained under a licensing agreement from the TC or STC holder, provided that the underlying TC or STC has already been validated by EASA.
- **Technical Validation Pathway (Non-Licensing Pathway):** If the critical PMA part is produced without a licensing agreement, it is automatically classified as a **Non-Basic** project. This means it

cannot be automatically accepted and must undergo a formal Technical Validation process by EASA to receive an EASA STC.

- **Export Certification Marking:** Upon export, specific certifying language must be written into the remarks block of **FAA Form 8130-3**:
    - If produced under a license: "Produced under licensing agreement from the holder of [INSERT TC or STC NUMBER]."
    - If the PMA holder also holds the EASA STC: "Produced by the holder of the EASA STC number [INSERT FULL REFERENCE]."

Challenges from the point of view of EASA acceptance

- **Higher Level of Involvement:** Because independent (non-licensed) critical PMA parts trigger a "Non-Basic" classification, they require an extensive EASA validation work plan rather than a streamlined administrative sign-off.
- **Stringent Data Burden:** Applicants face challenges compiling the specialized validation package required by EASA, which must include detailed technical overviews of the data sent to the FAA and robust safety-communication protocols.
- **Maintenance Facility Restrictions:** U.S.-based repair stations operating with EASA Approved Maintenance Organization certificates face restrictions; they cannot routinely incorporate FAA critical PMA parts as subcomponents during maintenance or alterations unless specific, highly traceable documentation conditions are met.
- **Automatic Revocation Dependencies:** If a critical PMA part's approval is surrendered, withdrawn, or terminated in the U.S., EASA is structurally obligated to execute a parallel enforcement action to revoke its corresponding STC.

Can a critical PMA part be created through an STC? If so, how?

Yes, a critical PMA part's design can be approved via an FAA-issued Supplemental Type Certificate (STC).

- **The Validation Process:** For this part to be valid for installation on an EASA-certified or validated product, EASA must explicitly validate that FAA-issued STC.
- **The Non-Licensed STC Process:** If the PMA design was approved via identicality or test reports/computations without a licensing agreement, the applicant must apply to EASA, and EASA must issue an equivalent STC.
- **Application Requirements:** To achieve this, the application submitted to EASA must include:
    - The FAA PMA approval and all supplements, detailing how it was granted.
    - A comprehensive overview of the technical data submitted to the FAA.
    - Actionable descriptions of the mechanisms used to notify users of any safety-impacting changes made by either the PMA holder or the original TC holder.

Critical Part PMA concerns in general

- **Continuous Airworthiness Responsibility:** Because critical parts have a direct impact on aircraft safety, the FAA retains strict, ongoing responsibility for the continued airworthiness of all critical

PMA parts manufactured under its authority. The FAA is required to investigate all non-compliances and formally notify EASA of corrective actions.

- **Mandatory Unsafe Condition Tracking:** If an unsafe condition is identified on a critical PMA part, the FAA must immediately notify EASA. This obligation persists even if the PMA holder is in the middle of surrendering their certificate.
- **The "Two-Way" Change Awareness Risk:** A central operational concern is keeping the end-user informed of safety variances from two separate design entities. Systems must be in place so that the user is alerted if the PMA holder alters the part , **or** if the original TC holder introduces a design change that inadvertently creates a potential safety conflict with the installed PMA part.

Entry Level Qualification for an EASA Compliant Stores Inspector

Presented by Sofema Aviation (SA) taking a deep dive into the roles, responsibilities and training of a Stores Inspector Competent in the acceptance of EASA & FAA Product & Material.

Introduction

The regulatory guidance and rules for a Stores Inspector will be found within Annex II (Part-145) and Annex I (Part-M) rules.

Incoming Inspection & Component Classification

Stores and logistics personnel act as the primary safety gatekeepers, verifying that all incoming components, materials, and hardware are sound and accompanied by valid certification prior to entering the supply system.

Part-M Section

M.A.608(c): "The organisation shall inspect, classify and appropriately segregate all incoming components, standard parts and materials."

GM1 M.A.501(b): "To ensure that components, standard parts and materials are in satisfactory condition, the persons referred to under M.A.801(b)(1), M.A.801(b)(2) or M.A.801(c) or the approved maintenance organisation should perform an incoming physical inspection.

- The incoming physical inspection should be performed before the component is installed on the aircraft."

Essential Part-145 Domain Section

145.A.42(a) Classification of components: "All components shall be classified into the following categories:

(i) Components which are in a satisfactory condition, released on an EASA Form 1 or equivalent...

(ii) Unserviceable components...

(iii) Components categorised as unsalvageable...

(iv) Standard parts...

(v) Material both raw and consumable used in the course of maintenance..."

145.A.42(b)(i): "The organisation shall establish procedures for the acceptance of components, standard parts and materials for installation to ensure that components, standard parts and materials are in satisfactory condition and meet the applicable requirements of point (a)."

AMC1 145.A.42(b)(i): "The procedures for the acceptance of components, standard parts and materials should have the objective of ensuring that the components, standard parts and materials are in satisfactory condition and meet the organisation's requirements.

These procedures should be based upon incoming inspections which include:

(1) physical inspection of the components, standard parts and materials;

(2) review of the accompanying documentation and data, which should be acceptable in accordance with 145.A.42(a)."

Component Segregation & Storage Facility Controls

Both domains enforce the physical separation of inventory to eliminate any possibility of mixed stock or inadvertent installation of unairworthy parts.

M.A.504(a): "Unserviceable and unsalvageable components shall be segregated from serviceable components, standards parts and materials."

M.A.605(c): "Secure storage facilities are provided for components, equipment, tools and material. Storage conditions shall ensure segregation of unserviceable components and material from all other components

- Storage conditions shall be in accordance with the manufacturers' instructions and access shall be restricted to authorised personnel."

145.A.25(d): "Secure storage facilities are provided for components, equipment, tools and material. Storage conditions ensure segregation of serviceable components and material from unserviceable aircraft components, material, equipment and tools.

- The conditions of storage are in accordance with the manufacturer's instructions to prevent deterioration and damage of stored items. Access to storage facilities is restricted to authorised personnel."

AMC 145.A.25(d): "1. Storage facilities for serviceable aircraft components should be clean, well-ventilated and maintained at a constant dry temperature to minimize the effects of condensation.

- Manufacturer's storage recommendations should be followed
- Storage racks should be strong enough to hold aircraft components and provide sufficient support for large aircraft components such that the component is not distorted during storage.
- All aircraft components, wherever practicable, should remain packaged in protective material to minimize damage and corrosion during storage."

Personnel Competence & Qualification

Logistics, warehouse, and goods receiving inspectors are integrated into the technical quality chain, meaning their competence must be continuously tracked, examined, and documented.

M.A.606(e): "The qualification of all personnel involved in maintenance and airworthiness reviews shall be demonstrated and recorded."

AMC M.A.606(e)(1): "Personnel involved in maintenance should be assessed for competence by 'on the job' evaluation and/or by examination relevant to their particular job role within the organisation before unsupervised work is permitted."

145.A.30(e): "The organisation must establish and control the competence of the personnel involved in any maintenance, airworthiness reviews, safety management and compliance monitoring in accordance with a procedure and to a standard agreed with the [competent authority].

- In addition to the necessary expertise related to the job function, the competence of the personnel must include an understanding of the application of safety management principles..."

AMC1 145.A.30(e) Guidance: This standard explicitly demands that store and warehouse inspectors "are assessed for competency before unsupervised work commences and competency is controlled on a continuous basis.

- Competency should be assessed by the evaluation of : on-the-job performance and/or testing of knowledge by appropriately qualified personnel..."

Stores Inspection Staff Personal Development

Under EASA Part-145 and Part-M - The relevant requirements and regulatory references from the attached document are detailed below:

Safety and Human Factors Training Requirements

Personnel working in the stores department are directly recognized as impacting the basic maintenance service and are mandated to undergo specialized safety and human factors training.

Initial and Recurrent Safety Training: Under AMC4 145.A.30(e) Personnel requirements — SAFETY TRAINING (INCLUDING HUMAN FACTORS), it is specified that:

"Personnel involved in the delivery of the basic maintenance service of the organisation should receive both initial and recurrent safety training, appropriate for their responsibilities. This should include at least the following staff members: [...] Stores department staff, purchasing department staff;"

- Syllabus and Recency: This training must address the application of safety management principles, human factors, and human performance issues appropriate to their function (145.A.30(e)).
- Initial safety training must cover the full training syllabus specified in GM1 145.A.30(e) (which covers human error models, material handling, and defect identification), and recurrent safety training must be completed within each 2-year period (AMC4 145.A.30(e)).

Competency Assessment and Professional Records

- **Competency Control:** Pursuant to 145.A.30(e), the organization must establish and control the competency of all personnel involved in any maintenance activities.
    - According to AMC1 145.A.30(e), this requires that staff members *"are assessed for competency before unsupervised work commences and competency is controlled on a continuous basis"*.
- **Domain Recognition:** In GM3 145.A.30(e) under the *Aviation Maintenance personnel experience credential* template used to formally record professional history and qualifications, the "Store department" is explicitly listed as a qualified domain of employment.

Execution of Incoming Physical Inspections and Component Acceptance

Stores inspection staff are responsible for executing the organization's component acceptance procedures to prevent the installation of non-compliant items.

- **Establishing Procedures:** Under 145.A.42(b)(i):

"The organisation shall establish procedures for the acceptance of components, standard parts and materials for installation to ensure that components, standard parts and materials are in satisfactory condition and meet the applicable requirements of point (a)."

Incoming Inspection Elements: According to AMC1 145.A.42(b)(i), these procedures must be carried out by staff based upon incoming inspections that include:

"(1) physical inspection of the components, standard parts and materials; (2) review of the accompanying documentation and data, which should be acceptable in accordance with 145.A.42(a)."

Typical Check Items: Under GM1 145.A.42(b)(i) INCOMING PHYSICAL INSPECTION, the specific items that stores inspection staff must check are itemized:

(1) verify the general condition of the components and their packaging in relation to damages that could affect their integrity;

(2) verify that the shelf life of the component has not expired;

(3) verify that items are received in the appropriate package in respect of the type of the component: e.g. correct ATA 300 or electrostatic sensitive devices packaging, when necessary;

(4) verify that the component has all plugs and caps appropriately installed to prevent damage or internal contamination."

Part-M Requirements: Under the parallel Part-M standard for smaller maintenance setups (**M.A.608(c)**), the requirement states:

"The organisation shall inspect, classify and appropriately segregate all incoming components, standard parts and materials."

Integration with Exposition and Working Manuals

The precise steps and roles assigned to stores staff must be explicitly mapped inside the organization's approved documentation.

- **Part-145 MOE Content:** Under AMC1 145.A.70(a), the Maintenance Organisation Exposition (MOE) layout must detail how stores staff execute functions within "PART 2 MAINTENANCE PROCEDURES", specifically covering:
    - *2.2 Acceptance/inspection of aircraft components and material, and installation*
    - *2.3 Storage, tagging and delivery of components and material to maintenance*
    - *2.19 Return of defective aircraft components to store*
- **Part-M MOM Content:** Similarly, for Subpart F organizations, Appendix IV to AMC M.A.604 specifies that the Maintenance Organisation Manual (MOM) must contain working procedures under "Part D — Working Procedures" detailing:
    - *Procedures used for incoming inspection and storage of parts, tools and materials*
    - *Procedures for accepting components from stores including eligibility check*
    - *Procedures for returning unserviceable components to stores*

Core Entry-Level Competency Attributes

To effectively operate within an EASA Part 145 stores environment, an inspector must meet several entry-level baseline criteria:

- **Regulatory Awareness**: Candidates must possess a strong foundational knowledge of Part-M, Part-ML, Part-145, and other relevant aviation regulations.
    - They must also understand the applicable parts of the organization's Maintenance Organisation Exposition (MOE) and standard procedures , along with organizational capabilities and limitations.
- **Technical Data Proficiency**: An inspector must be capable of using corporate information systems and reading, interpreting, and applying technical maintenance data, work orders, and work cards.
- **Safety & Airworthiness Knowledge**: Personnel must thoroughly understand the baseline conditions required to ensure the continuing airworthiness of aircraft and components.
    - This includes recognizing safety risks in the immediate work environment and having awareness of Critical Design Configuration Control Limitations (CDCCL) where applicable.
- **Operational & Human Factors Skills**: Basic prerequisites include adequate literacy and communication skills , practical knowledge of logistics processes , and a clear understanding of

human performance, human limitations, and professional integrity. Inspectors must also be fully aware of their specific authorizations and limitations.

- **Specialized Technical Knowledge Requirements**
  - Beyond general logistics skills, a compliant Stores Inspector must have an explicit, qualified understanding of specialized areas through formal training and competence management:

Dangerous Goods (DG) Awareness

- **Regulatory Responsibility**: Inspectors must be legally aware of and comply with the International Civil Aviation Organisation (ICAO) Technical Instructions and the International Air Transport Association (IATA) Dangerous Goods Regulations. Recurrent training in this field is strictly mandated every 24.
- **Hazard & Label Recognition**: Entry-level proficiency requires the ability to identify diamond-shaped primary hazard labels across the nine distinct classes of dangerous goods.
- **Segregation Rules**: Staff must understand chemical compatibility and loading segregation tables to prevent dangerous interactions (such as storing Class 8 corrosives alongside Division 4.3 water-reactive solids) in the event of a leakage.

Electrostatic Discharge Sensitive (ESDS) Controls

- **Component Sensitivity**: Because sensitive electronic components can suffer fatal micro-fracture or circuitry damage from static events as low as 5 to 10 volts—well below the 3,000-volt threshold a human can feel—inspectors must treat ESDS items with extreme care.
- **Workstation Protection**: Inspectors must know how to operate ESDS protective packaging and verify the wristband system using dedicated wristband checkers. They must also ensure that the ESD workstation (EPA) surface undergoes periodic resistance verification checks on a monthly basis.

EASA - FAA Certification Standards & Documentation

- **Primary Release Documents**: An entry-level inspector must know that no component can be transferred to a bonded store or installed on an aircraft unless it is in a satisfactory condition and appropriately released on an EASA Form 1 or an officially recognized equivalent.
- **FAA Bilateral Statements**: Under the EASA-FAA Bilateral BASA Maintenance Annex Guidance (MAG), components released via an FAA Form 8130-3 by a US-based repair station must feature a specific, approved bilateral statement in the remarks section to certify EASA Part 145 alignment.
- **Parts Manufacturer Approval (PMA) Verification**: Inspectors must inspect FAA-PMA parts to ensure they are not "critical components" and confirm that mandatory design data or licensing agreement statements are explicitly written into Block 13 of the 8130-3 form.

- **Standard and Consumable Tracking**: Personnel must distinguish components requiring full release tags from standard parts (e.g., fasteners complying with NAS, AN, or SAE metrics) and raw/consumable materials, which do not receive an EASA Form 1 but require accompanying documentation detailing manufacturing/supplier sources and statements of conformity.

Specialized Aviation Storage Conditions

- **Environmental Controls**: Secure storage facilities must be kept clean, well-ventilated, and strictly maintained at a constant dry temperature to minimize condensation. Staff must regularly log atmospheric conditions using a wall-type hygrometer.
- **Stock Management Systems**: Inspectors must enforce a strict First In - First Out (FIFO) stock rotation system to ensure older materials are utilized before new batches.
- **Shelf-Life Management**: Inspectors are responsible for identifying shelf-life restrictions upon receipt and entering the limits into the computerized inventory system. Items exceeding these dates must be pulled from stock immediately and transferred to a physically or procedurally segregated quarantine store.

ATA 300 Packaging Requirements

- **Transit Case Specifications**: Inspectors must evaluate reusable shipping containers against the ATA 300 specification to confirm they are weather-resistant and properly configured to protect materials during transit and storage.
- **Physical Component Integrity**: This requires general knowledge of compliant structural criteria—such as minimum panel thickness, tongue-and-groove valance extrusions, cold-rolled steel hardware, and ANSI/ASTM-tested interior cushioning foam—to verify that packaged aircraft items will not distort or deteriorate during handling.