



MRO Tracker for Part 21 approval holders

How MRO Tracker supports design and production approval holders under 14 CFR Part 21, AS9100 / IA9100 product realization and EASA Part 21, element by element.

MRO Tracker 2.2 · October 2026 · Leesburg Aviation LLC

Summary

MRO Tracker is an aviation operations, maintenance and quality platform. Its **Production** workspace serves the people who design and make aircraft parts and products: STC, PMA and TSOA holders, production certificate holders and their suppliers. It keeps the whole chain a Part 21 manufacturer has to prove in one system:

- approved design data under change control;
- production orders and travelers, with inspection by calibrated gauges;
- material from approved sources;
- nonconformance and Material Review Board;
- the FAA Form 8130-3 or EASA Form 1, and shipment to the customer with a certificate of conformance;
- the feedback, quality escapes, failure reports, airworthiness directives and ICA revisions that come after delivery.

The same record then carries the product into service: operations, maintenance, reliability and continued airworthiness.

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elements of the 14 CFR 21.137
quality system supported

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AS9100D clause 8 areas fully
supported, the other 2 in part

FAA + EASA

8130-3 and EASA Form 1; 21.3 and
21.A.3A reporting

How the rules are kept. Who may sign what, the order of operations, independent inspection, qualified operators, calibrated gauges, approved sources and the checks before a release are enforced in the database itself. The website and the mobile apps follow the same rules, so nothing can be signed that the rules don't allow, and every signature is kept with who, what and when.

1. How Part 21 is built

Part 21 sets the procedures for certifying products and articles. It has three layers: approving a design, approving its production, and approving each product or article for airworthiness and release.

Layer	Subparts	What it covers
General	A (21.1 to 21.9)	Applicability and definitions; 21.3: TC, STC, PMA and TSO holders report listed failures, malfunctions and defects to the FAA within 24 hours.

Design approval	B Type certificates, C Provisional, D Changes to type certificates, E Supplemental type certificates	The certification basis, showing compliance, minor and major changes (21.93 to 21.97), 21.50 Instructions for Continued Airworthiness (ICA), 21.99 design changes required by airworthiness directives.
Production approval	F Production under a TC, G Production certificates, K Parts Manufacturer Approval, O Technical Standard Order authorization	A production certificate, PMA and TSO authorization all rest on the same quality system, 21.137 , a quality manual approved by the FAA (21.138 / 21.308 / 21.608), an accountable manager (21.135 / 21.305 / 21.605) and FAA approval before moving a facility (21.139 / 21.309 / 21.609).
Airworthiness and release	H Airworthiness certificates, I Provisional, L Export airworthiness approvals, N Import acceptance	Standard and special airworthiness certificates, export approvals, and the authorized release document (FAA Form 8130-3), completed under FAA Order 8130.21J (September 2025).

Subparts J and M are reserved. The 2024 safety management system (SMS) rule brought Part 21 holders of a type certificate and a production certificate under 14 CFR Part 5 (effective May 28, 2024); an STC-only or PMA-only company is not in scope of that rule. In Europe the equivalents are EASA Part 21 Subpart J (design organisation approval) and Subpart G (production organisation approval), which now include safety management (Regulation (EU) 2022/201).

2. What MRO Tracker provides

Area	In MRO Tracker
Approvals and part master	A register of the TC, STC, PMA, TSOA and PC approvals you hold, with eligibility, limitations, status and documents. Products carry their approval, current revision, critical-part and serialization settings and 45.15 marking. Each revision holds its design data, bill of materials, routing and inspection characteristics, and is locked once released.
Production orders	Orders are made only from released revisions, and only under an active approval. The traveler is copied from the routing and the parts get serial or lot numbers. Operations are signed in sequence and bought off by an inspector who didn't do the work. Orders can be held or cancelled, and operations marked not applicable, each with a reason. A contract review, with the customer's special requirements, can be required before an order is released. Labor hours are logged per operation against the estimate. The traveler prints as a PDF.
Inspection	A result for every characteristic and serial number. Pass or fail is worked out from the drawing limits. A gauge that is overdue for calibration is refused. Final inspection is blocked until everything passes. An as-built record is kept for each order.
Gauges	When calibration finds a gauge out of tolerance, the gauge recall lists everything it measured since its last good calibration, by order and serial, shows which parts have already been released or shipped and which results were near a limit, and raises nonconformance reports from there. Gauge R&R studies (AIAG average and range) give repeatability, reproducibility, %GRR of the variation and of the tolerance, and the number of distinct categories.
Material traceability	Material is issued from Stores only if it was accepted at receiving, is certified, came from an approved source and is the part on the BOM (or an approved alternate). Lot, certificate and source stay with the order. An override needs the quality manager and a recorded reason.
Special processes and suppliers	Special processes with their specification and Nadcap requirement, and qualified operators with expiry dates. The approved supplier list records what each supplier is approved for. Your production requirements print on purchase orders to those suppliers, and each supplier's acknowledgment is recorded.
Nonconformance	Nonconformance reports with containment and evidence. The Material Review Board dispositions them. Use as is, repair and regrade need engineering, a second MRB member and the approved data. Rework and repair are re-inspected before the report closes. A suspected unapproved or counterfeit part is quarantined in Stores straight away, with a draft of the FAA report. Corrective action goes into the quality system.

Release	FAA Form 8130-3 and EASA Form 1 for new parts, issued only by authorized signatories. Neither can be issued until the first article inspection is accepted and no nonconformance is open. A voided form stays on file. Both print in the form's block layout. An export release records the importing country and its special import requirements in block 12.
Shipping	Released parts go out on a shipment with a packing slip and a certificate of conformance in your own wording. Each serial number is marked shipped to that customer, so a field report or an escape finds who holds which part. A shipped shipment stays on file; only carrier and tracking can be added.
After delivery	Field reports from operators and customers. Quality escapes with the 21.3 (24-hour) or 21.A.3A (72-hour) reporting clock, a report draft and the record of the report. Alerts go by email, Microsoft Teams and text message as the deadline nears.
Continued airworthiness	ICA, flight manual supplements, installation instructions and service bulletins for each approval, by revision, with the list of holders, who has the current revision, and sending the new one by email with a download link (or recording it as sent by mail). Airworthiness directives against your own approvals are evaluated and, where a change is needed, raised as a change order.
Configuration management	Change orders classified minor or major under 21.93, with effectivity, the handling of work in progress and a delta FAI. Engineering and quality both approve, and a major change needs the FAA's approval first. The new revision is drafted from the current one. Functional, allocated and product baselines are kept.
Process verification	First article inspection on the AS9102 forms 1 to 3, built from the order's own records. A new FAI is required after a change or two years without production. An SPC control chart with Cp and Cpk for each characteristic.
Certification	A compliance register with the certification basis, means of compliance (MC0 to MC9), compliance documents, who shows each one and the finding. Requirements import from the MBSE tool with traceability to how each is verified. Conformity: the 8120-10 request, the 8130-9 statement and the 8100-1 record. An inbox for design releases from PLM. Design review records with participants, outcome and actions.
Quality system	Audits, findings and corrective action; document control with read and sign; calibration; receiving inspection; training and authorizations; SMS. Record retention of 5 or 10 years, and records on file can't be deleted. A compliance matrix for 21.137, the holder duties, AS9100, IA9100 and EASA Part 21 Subparts G and J. The accountable manager signs each quality manual revision; changes notified to the FAA and authority delegated to suppliers are recorded.
Shop floor	The Mechanic app (iPhone, iPad, Android). Sign operations, accept or reject them, answer the special-process question, and record measurements for each characteristic and serial with the gauge used, all next to the part.

3. The 21.137 quality system, element by element

21.137 element	Status	How MRO Tracker supports it
(a) Design data control	Supported	Revisions with their design data; released revisions locked; changes only by change order; orders only from released revisions.
(b) Document control	Supported	Read and sign for the quality manual and procedures, with revisions; design documents kept with each revision.
(c) Supplier control	Supported	Approved supplier list by scope, enforced when material is issued and when special processes are signed; flow-down on purchase orders, with acknowledgment; supplier scorecard and audits.
(d) Manufacturing process control	Supported	Production orders and travelers; operations in sequence; special processes only by qualified people or approved sources.
(e) Inspecting and testing	Supported	Inspection characteristics for each revision, results for each serial, and buy-off and final inspection blocked until everything passes; functional tests recorded on the FAI.

(f) Inspection, measuring and test equipment	Supported	Calibration records and due dates; a gauge overdue for calibration is refused when a measurement is recorded; gauge recall when one is found out of tolerance; gauge R&R studies.
(g) Inspection and test status	Supported	Status for each operation and each serial number (in work, conforming, nonconforming, released, shipped, scrapped), and to which customer each serial was shipped.
(h) Nonconforming product	Supported	Nonconformance report and Material Review Board, with dispositions, signatures, approved data and re-inspection; suspect parts quarantined.
(i) Corrective and preventive action	Supported	Raised straight from a nonconformance or a quality escape: root cause, actions, effectiveness check.
(j) Handling and storage	Supported	Receiving inspection, quarantine, shelf life, locations and preservation in Stores.
(k) Quality records	Supported	Retention of 5 or 10 years, settable; records on file can't be deleted, only cancelled or voided; an as-built record for each order.
(l) Internal audits	Supported	Audit programme, checklists, reports and findings; the compliance matrix points each element at its evidence.
(m) In-service feedback	Supported	Field reports for each part and serial, evaluated into nonconformances or quality escapes.
(n) Quality escapes	Supported	Affected serials, containment, customer notice, service bulletin, the 21.3 decision and the report.
(o) Authorized release documents	Supported	FAA Form 8130-3 and EASA Form 1 for new parts, issued by authorized signatories after the checks above.

4. Holder duties beyond the quality system

Duty	Status	How MRO Tracker supports it
Report failures, malfunctions and defects (21.3; EASA 21.A.3A)	Supported	The reporting clock starts at the determination; then a report draft, the record of the report, and alerts by email, Teams and text as the deadline nears.
Marking (45.15)	Supported	Marking for each product, checked on the routing, and printed in the release form remarks.
PMA holder responsibilities (21.316)	Supported	Conformity to the approved design, marking and the approval documents; authority delegated to suppliers recorded with its scope, period and conditions.
Instructions for continued airworthiness (21.50)	Supported	ICA and supplements by revision for each approval, the holders, who has the current revision, and new revisions sent to the holders without them.
Design changes required by ADs (21.99)	Supported	ADs against your approvals, with applicability, evaluation and due date, raised as change orders; the service bulletin goes out through ICA distribution.
Accountable manager and quality manual (21.135, 21.138, 21.305)	Supported	Accountable manager role and sign-off of each quality manual revision; the manual under document control; compliance matrix with the procedure for each element.
Facility and quality system changes (21.139, 21.150, 21.320)	Supported	Each change recorded with when and to whom it was notified, and the FAA's approval where it is needed first (a facility move).
Export airworthiness approvals (21.331 to 21.335)	Supported	The importing country and its special requirements on the release form, stated in block 12.
SMS for TC and PC holders (Part 5)	In part	SMS module with hazards, risks and safety review; quality escapes and field reports feed it.

5. AS9100 / IA9100 product realization

Most Part 21 companies and their suppliers also run an aerospace quality management system certified to AS9100D. Its clause 8 is "product realization". The IAQG is replacing AS9100D with IA9100, which puts more weight on data-driven process control. Certification is of your company, not of the software; MRO Tracker's job is to hold the records the auditor asks for.

AS9100D clause	Status	How MRO Tracker supports it
8.1.1 Operational risk	In part	Program and SMS risk registers; operational risks confirmed on each contract review.
8.1.2 Configuration management	Supported	Revisions, change orders, effectivity, baselines, as-built records.
8.1.3 Product safety	In part	Critical parts and key characteristics.
8.1.4 Prevention of counterfeit parts	Supported	Approved sources enforced when material is issued; suspect parts quarantined and blocked; draft of the FAA report.
8.2 Requirements for products	Supported	Contract review on each order, with special requirements, signed before release (and required, if you choose).
8.3 Design and development	Supported	Requirements with verification traces, design reviews with actions, compliance register, change control.
8.4 Externally provided processes and products	Supported	Purchasing, receiving inspection, scorecard, audits, the approved supplier list by scope, flow-down.
8.5.1 Production control, 8.5.1.2 special processes, 8.5.1.3 FAI	Supported	Orders and travelers, labor hours, qualified special processes, AS9102 first article inspection.
8.5.2 Identification and traceability	Supported	As-built record for each order: materials, lots, operators, inspections, nonconformances.
8.5.3 / 8.5.4 Customer property, preservation	Supported	Stores.
8.5.5 Post-delivery activities	Supported	Shipping with certificate of conformance, field reports, quality escapes, ICA and service bulletins.
8.5.6 Control of changes	Supported	Change orders.
8.6 Release of products	Supported	8130-3 and EASA Form 1.
8.7 Control of nonconforming outputs	Supported	Nonconformance reports and the Material Review Board.
9 Performance evaluation (IA9100 process data)	Supported	SPC with Cp and Cpk on key characteristics; gauge R&R; audits; supplier and quality metrics.

6. Configuration baselines

MRO Tracker follows the SAE EIA-649C model:

- **Product baseline:** recorded automatically each time a revision is released, with its design data, bill of materials, routing and inspection characteristics.
- **Functional and allocated baselines:** hold the requirements, each with its ID, source and how it is verified.
- **Change orders:** carry the classification and effectivity.
- **As-built record:** for each order, shows which revision was built and any approved deviations.

7. MBSE and PLM: connecting, not replacing

On larger programs, requirements, architecture and safety analysis live in model-based systems engineering tools (SysML v2, ARP4754B) and the design lives in PLM. MRO Tracker doesn't replace those tools. It connects to them and carries the digital thread into production, conformity, release and service:

- **Requirements import:** as ReqIF, SysML v2 API JSON or CSV from tools such as Cameo, Capella, DOORS, Polarion or Jama. Each requirement is traced to what verifies it: a certification requirement, test, inspection characteristic, conformity, change or FAI. The set goes back out as ReqIF with its verification status.
- **Certification compliance register:** the certification basis, means of compliance, compliance documents, delegates (DER, ODA unit member) and findings, printed as the compliance checklist.
- **Conformity:** the FAA's Request for Conformity (8120-10), the articles checked against their drawings, deviations, the statement of conformity (8130-9) and the FAA or DAR inspection record (8100-1).
- **PLM inbox:** released item revisions from Teamcenter, Windchill or 3DEXPERIENCE arrive through MRO Tracker's partner API. An engineer applies each one, as a new revision or a change order. Your PLM team sets up the connector on its side; smaller shops can upload a file instead.

8. On the roadmap

Item	Supports
Shipping and labor hours in the Mechanic app, next to the part	AS9100 8.5.1, 8.5.5
Holder acknowledgment of ICA and service bulletin revisions from the email link	21.50
Product safety and operational risk linked to critical parts and key characteristics	AS9100 8.1.1, 8.1.3

9. What stays with your organization

Software holds the records and enforces the rules you set. It does not replace these:

- your FAA- or EASA-approved quality manual and procedures. MRO Tracker's compliance matrix has a place for each procedure reference and for how each element is met;
- your approvals and the FAA's or EASA's findings of compliance;
- your AS9100 certification by an accredited registrar;
- the people you appoint and train as inspectors, MRB members and authorized signatories.

10. Getting started

1. Enter your organization's details, approval numbers, reporting office and supplier flow-down, and give people their production roles.
2. Add your approvals and products. For each product, enter the first revision's design data, bill of materials, routing and inspection characteristics, and release it.
3. Add your special processes with their qualified people, and your approved supplier list.
4. Run a first order through to the first article inspection and the 8130-3. Then fill in the compliance matrix against your quality manual.

Next step. We can walk through your own part, from its approval to a signed 8130-3, using your data. Contact sales@mrotracker.com or 703.415.4545. A screen-by-screen walkthrough, *Life of a part*, is available on request.

Sources

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Regulatory text is summarized for planning; check the current eCFR, FAA orders and standards before relying on it. MRO Tracker coverage reflects version 2.2 as of October 2026.