TRACEABILITY 101: DECODING WHAT IT IS AND WHY IT MATTERS

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What is aircraft part trace? Why do you need it?

Trace ensures that quality, trustworthiness, and professionalism follows aircraft material through its various supply chains.

It's not a form of airworthiness. **It's a record of who had what and when.**

And this is where the confusion sets it.

End users often have conflicting trace rules, buyers haven't been trained in how to communicate trace needs, sales people use trace terminology loosely and the gap of what trace is needed widens.

Associations like the Aviation Suppliers Association, ISO, and various others do a great job of setting quality standards **but there's still confusion that looms on what is needed and when**.

Trace is not the law, it's a suggestion

Trace is not the law, it's a suggestion

This will cause a lot of turmoil.

There's no requirement under U.S. law that you need documentation to follow the aircraft parts from one owner to the next.

According to Jason Dickstein (http://www.avm-mag.com/the-parts-traceability-puzzle/), "In FAA Registry cases, for example, the courts have recognized that the way that the law treats documentation of complete aircraft is different from the way that the law treats documentation of aircraft parts."

Now before steam shoots out of your head, **this is about traceability**, not manufacturing or maintenance. We're speaking of trace, not airworthiness.

(http://giphy.com/gifs/angry-mad-donald-duck-qDfgfLkj47lDi)

There are requirements for certain companies to prepare and maintain documents under U.S. law.

For example, "…when any authorized party completes maintenance, they must complete a record of that work under 14 C.F.R. § 43.9. When a

they must complete a record of that work under 14 C.F.R. § 43.9. When a repair station completes a major alteration, it must complete a FAA Form 337. If that same repair station completes a major repair, then it must either complete a FAA Form 337 or else it must place the maintenance release language found in the regulations on the work order (and return that work order to the client)."

So why bother?

Trace is used to ensure quality standards are being met

Using trace is a commercial practice.

Guidelines have been established by the FAA (https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_00-56B.pdf), EASA and various quality assurance programs (http://www.aviationsuppliers.org/) to maintain these standards.

But, there's no law, it's a guideline.

Here's a great example: (http://www.avm-mag.com/the-parts-traceability-puzzle/)

> *"Even though most people think that back-to-birth traceability is mandatory for such parts, the FAA has repeatedly said that U.S. law does not require back-to-birth traceability – not even for life-limited parts. A record of current life status is sufficient to meet the regulatory obligations of the operator. The FAA Chief Counsel's Office has issued multiple opinion letters on the subject., But just try to sell a life-limited part without back-to-birth traceability! The marketplace has deemed that this is the "appropriate" paperwork for life-limited parts, and so commercial practice has evolved such that this form of traceability is a de facto requirement for U.S. transactions in life-limited parts. If you think about the commercial utility of*

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HOW TO SPOT COUNTERFEIT

life-limited parts. If you think about the commercial utility of such traceability, then its value becomes apparent. Life-limited parts are the parts that engineering analysis has shown to need to be removed from the aircraft before a likelihood of failure begins to be realistic. The life-limit is a known safe point, before which failure from fatigue or other related causes is unlikely. Thus, ensuring that a part has not yet reached its life limit is an important safety obligation. It is so important that installers wish to be able to review the paperwork to validate the allegations of current life status found in the records of current life status.

Therefore, it has become a commercial norm to ask for back-to-birth traceability in order to have the documentation that validates the allegation of current life status."

Trace is a commercial practice to ensure quality parts are being used.

A simple guide to ensure the trace you're getting is sufficient

There's **no one piece of paper** that's appropriate in every case.

Take an aircraft part distributors for example. The lack of uniformity creates a huge headache for them as every repair station and every air carrier could have different standards for what they'll accept. **It's pull-your-hair-out maddening**.

With the various quality systems, **it's about building uniformity into a dominant system**. And again, not because it's the law, but because it is commercially viable to ensure quality products are the only viable source within the supply chain system.

Here's a great tool to use according to the FAAs AC 20-154 "Guide for Developing a Receiving Inspection System for Aircraft Parts and Material (https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_20

(/blog/how-to-spot-counterfeit-aircraft-parts-and-why-it-matters) AIRCRAFT PARTS AND WHY IT MATTERS (/BLOG/HOW-TO-SPOT-COUNTERFEIT-AIRCRAFT-PARTS-AND-WHY-IT-MATTERS)

(https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_20-154.pdf)."

1. Acceptance of New Parts Manufactured by FAA-Certificated Sources. Receiving personnel should ensure that new parts produced by FAA-certificated sources are accompanied by the referenced documents or other information:

(1) PC Holders. Invoice, packing list, or equivalent documentation (normal shipping documents), stating the part number(s) and corresponding quantities in each shipment.

(2) STC Holder. Normal shipping documents, documentation that identifies the part as an STC part and the production authority under which the part was produced.

(3) TSOA Holder. Normal shipping documents, documentation and/or markings that identify the part as a TSO part.

(4) PMA Holder. Normal shipping documentation and/or markings that identify the part as an FAA-PMA part. The part or packaging must be marked "FAA-PMA."

(5) APIS Holder. Normal shipping documents, other documentation and/or data plates that identify the product as being produced under a TC only with an Approved Production Inspection System.

(6) Letter of Direct Ship Authority Authorization. Evidence that authority was given to the supplier from the PAH to ship parts directly to the customer, which may have a statement on the purchase order stating that the part/s "were produced under FAA

approved manufacturing and quality control systems/methods as set forth in the FAA Production Certificate."

2. **Acceptance of New Parts From Non-FAA Certificated Sources.** Receiving personnel should ensure that the distributor (seller) provides sufficient documentation to show traceability to one of the following:

(1) A copy of shipping tickets, packing lists, invoices and/or other documents providing evidence that the origin of the part is from an FAA PAH or that the original acquisition was from an FAA-approved source.

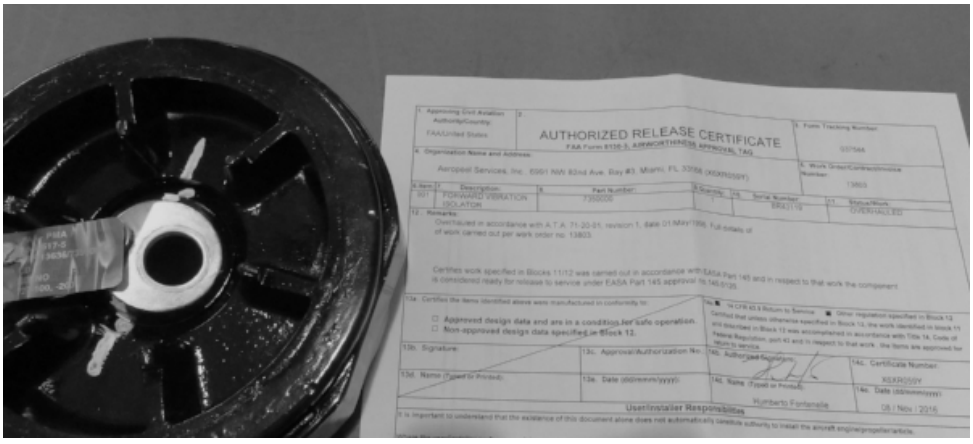
(2) A copy of the written letter of direct shipment authorization that includes a statement that those parts were produced in accordance with the PAH quality system.

(3) A copy of the Certificate of Conformance (C of C) (i.e., standard parts). This certificate should identify the acceptable standard to which the part was produced.

(4) A copy of the return to service from FAA-approved foreign repair stations and/or FAA certificated sources.

(5) The return to service entry under part 43 maintenance record entry.

(6) A return to service record entry from an FAA-certificated air carrier operating under part 121 or 135.



3. Acceptance of Used, Repaired or Overhauled Parts from FAA-Certificated Sources. One or more of the following should accompany parts approved for return to service procured from FAA-certificated

parts approved for return to service procured from FAA certificated sources:

(1) Repair station work order.

(2) FAA Form 8130-3, Airworthiness Approval Tag, JAA Form 1 (prior to 11/28/04), EASA Form 1 (after 11/28/04), or Transport Canada Form 24-0078.

(3) FAA Form 8130-3, Authorized Release Certificate, Airworthiness Approval Tag; JAA Form 1 (prior to 11/28/04); EASA Form 1 (after 11/28/04); or Transport Canada Form 24-0078.

(4) Air carriers operating under parts 121 or 135 return to service maintenance record entry; part 145 repair station return to service maintenance record entry that the repair station is authorized to perform.

(5) Part 145 repair station return to service maintenance record entry that the repair station is authorized to perform.

(6) Parts/components maintained under part 43 return to service release.

1. Approving National Aviation Authority/Country: UNITED STATES

2.

AUTHORIZED RELEASE CERTIFICATE

FAA Form 8130-3, AIRWORTHINESS APPROVAL TAG

3. Form Tracking Number:

4. Organization Name and Address:

5. Work Order/Contract/Invoice Number:

6. Item:	7. Description:	8. Part Number:	9. Eligibility:*	10. Quantity:	11. Serial/Batch Number:	12. Status/Work:

13. Remarks:

14. Certifies the items identified above were manufactured in conformity to:

☐ Approved design data and are in condition for safe operation.

☐ Non-approved design data specified in Block 13.

15. ☐ 14 CFR 43.9 Return to Service ☐ Other regulation specified in Block 13

Certifies that unless otherwise specified in block 13, the work identified in Block 12 and described in Block 13 was accomplished in accordance with Title 14, Code of Federal Regulations, part 43 and in respect to that work, the items are approved for return to service.

16. Authorized Signature:	16. Approval/Authorization No.:	20. Authorized Signature:	21. Approval/Certificate No.:
17. Name (Typed or Printed):	18. Date:	22. Name (Typed or Printed):	23. Date (mm/dd):

User/Installer Responsibilities

It is important to understand that the existence of this document alone does not automatically constitute authority to install the part/component/assembly.

Where the user/installer performs work in accordance with the national regulations of an airworthiness authority different than the airworthiness authority of the country specified in Block 1, it is essential that the user/installer ensures that his/her airworthiness accepts parts/components/assemblies from the airworthiness authority of the country specified in Block1.

Statements in Blocks 14 and 19 do not constitute installation certification. In all cases, aircraft maintenance records must contain an installation certification issued in accordance with the national regulations by the user/installer before the aircraft may be flown.

FAA Form 8130-3 (6-01) *Installer must cross-check eligibility with applicable technical data. NSN: 0052-00-012-9005

SAMPLE

4. Acceptance of Used, Repaired or Overhauled Parts from Non-FAA Certificated Sources. Parts procured from non-FAA certificated sources, such as distributors, should be accompanied by one of the following:

(1) A return to service maintenance record entry from an FAA-certificated air carrier operating under part 121 or 135;
(2) A return to service maintenance record entry from an FAA-certificated air agency operating under part 145; or
(3) The return to service entry from the certificated entity that performed the original repair or overhaul under part 43.

5. Acceptance of Parts from Foreign Sources. The need to maintain aircraft and components outside the United States has continued to expand along with an increase in the rise of foreign-manufactured aeronautical products used by U.S. operators and repair facilities. Receiving personnel should ensure they receive the proper documents with parts that were repaired or manufactured from foreign sources.

6. Acceptance of Life-Limited or Time-Controlled Parts from Any Source. Procedures for accepting life-limited or time-controlled used parts into an inventory system require special attention due to safety ramifications. In addition to the documentation listed in paragraphs 8(a), (b), (c), or (d) receiving inspection personnel should ensure that life-limited and time-controlled Par 7 Page 15 AC 20-154 12/12/05 parts are accompanied by the following documentation to substantiate the time remaining on the part:

(1) The accumulated total time or remaining hours, cycles, and/or calendar times, whichever time limit applies to the part;
(2) AD status;
(3) Modification status (i.e., service bulletins, technical bulletins), if applicable;
(4) All major repairs, alterations, and modifications, which may have been accomplished;
(5) Any usage/storage history, which may result in an adjustment to the remaining life of the part; and
(6) Record of work accomplished during the last maintenance, repair, overhaul, or alteration performed.

repair, overhaul, or alteration performed.

So what does do 121, 129, 135, & 145 mean?

If you've been in aviation long enough, you've seen your share of these numbers.

These numbers give you an idea of what FAA regulated source your aircraft material came from.

(http://giphy.com/gifs/hoppip-black-and-white-vintage-hoppip-eTVG7eVNnud8Y)

Let's define each.

- **OEM (Original Equipment Manufacture):** Trace back to the OEM. It either came from the OEM direct or through a distribution partner. If it's traced back to the OEM you'll always receive an OEM certificate of conformance (C of C) but you are not guaranteed to always get an 8130.

- **121:** Trace will come from a United States domestic airline.

- **129:** Trace will come from a foreign air carrier permitted to operate in the United States.

- **FC (foreign Carrier):** Trace will come from a foreign air carrier not permitted to operate in the United Stated.

- **135:** Trace will go back to a charter airline with unscheduled routes.

- **145:** Trace will go back to an MRO operation. The term repair station refers to a maintenance facility that has a certificate issued by the Federal Aviation Administration (FAA) under Title 14 of the Code of Federal Regulations (14 CFR) Part 145 and is engaged in the maintenance, preventive maintenance, inspection, and alteration of aircraft and aircraft products.

- **B2B:** Trace will have back to birth records.

And that sums up trace.

If you'd like to know more or go deeper into this topic, I encourage you to train yourself using Aviation Suppliers Association (http://www.aviationsuppliers.org/) as your guiding light.

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