

**GEORGE J. RINGGER, MAS, P.E.**  
**FAA-DER FAA-DAR**

*Providing Engineering, Quality System,  
Training, and Airworthiness services  
to the aviation industry*

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## OEM vs PAH: A Review



*What you need to know before  
you buy the part!*

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## Why should we care?

- Many customers demand 8130-3 tags for every part they purchase.
- There is confusion as to which parts are eligible for domestic or export 8130-3 tags.
- There is confusion related to the significance of the country where the part was actually produced versus the country where the airworthiness production approval resides (e.g. Mexico vs USA).
- It helps to recognize OEM parts from SUPs.

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## A Typical Query...

I have a NEW part traced to the OEM.

It is made in the United States.

My customer needs an 8130-3.



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## From the Inquirer's POV

- 1) It's new:
  - It works
  - It's worth more than a used one
- 2) It's traced to the OEM:
  - It's "Back-to-Birth"
  - You can't get better than this!

- 3) It's made in the United States:
  - All parts made in the USA are FAA Approved
- 4) My customer needs an 8130-3:
  - It is eligible for an 8130-3

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## Let's Compare Perception with the Facts (1) It's new!

<b>Perception</b>	<b>Facts</b>
<ul style="list-style-type: none"> <li>● It works.</li>         <li>● It's worth more than a used one.</li> </ul>	<ul style="list-style-type: none"> <li>● It might work. It might not.                             <ul style="list-style-type: none"> <li>– Broken?</li> <li>– Workmanship?</li> <li>– Preservation?</li> <li>– AD compliance status?</li> </ul> </li>         <li>● The part's value (\$) is simply not relevant.</li> </ul>

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Let's Compare Perception with the Facts  
(4) My customer needs an 8130-3

Perception	Facts
<ul style="list-style-type: none"><li>• It is eligible for an 8130-3.</li></ul>	<ul style="list-style-type: none"><li>• The determinant for 8130-3 issuance is independent from customer needs.</li></ul>

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## FAR PART 1

Definition:

“*PERSON* means an individual, firm, partnership, corporation, company, association, joint-stock association, or governmental entity. It includes a trustee, receiver, assignee, or similar representative of any of them.”

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## What is an FAA Production Approval?

To answer this let's first understand...

...what an FAA Approved Part is.

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## FAA Approved Parts:

- Parts which have been manufactured under Title14 CFR Part 21.
- Parts that display evidence of FAA approval, verifying their eligibility for installation.

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## 14 CFR Part 21 Certification Procedures for Products and Parts

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### § 21.8 Approval of articles

- If an article is required to be approved under this chapter, it may be approved:
  - (a) Under a PMA;
  - (b) Under a TSO;
  - (c) In conjunction with type certification procedures for a product; or
  - (d) In any other manner approved by the FAA.

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## § 21.9 Replacement and modification articles

- (a) If a person knows, or should know, that a replacement or modification article is reasonably likely to be installed on a type-certificated product, the person may not produce that article unless it is:
  - (1) Produced under a type certificate;
  - (2) Produced under an FAA production approval;
  - (3) A standard part (such as a nut or bolt) manufactured in compliance with a government or established industry specification;
  - (4) A commercial part as defined in § 21.1 of this part;
  - (5) Produced by an owner or operator for maintaining or altering that owner or operator's product; or

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## § 21.9 Replacement and modification articles

- (6) Fabricated by an appropriately rated certificate holder with a quality system, and consumed in the repair or alteration of a product or article in accordance with part 43 of this chapter.
- (b) Except as provided in paragraphs (a)(1) through (a)(2) of this section, a person who produces a replacement or modification article for sale **may not** represent that part as suitable for installation on a type-certificated product.
- (c) Except as provided in paragraphs (a)(1) through (a)(2) of this section, a person **may not** sell or represent an article as suitable for installation on an aircraft type-certificated under §§ 21.25(a)(2) or 21.27 unless that article:
  - (1) Was declared surplus by the U.S. Armed Forces; and
  - (2) Was intended for use on that aircraft model by the U.S. Armed Forces.

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## Let's see how an FAA Approved Part is born...



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## What PAH's do that OEMs do not



- DESIGN THE PART
- SUBMIT DESIGN TO FAA
- FAA GRANTS CERTIFICATE (TYPE, STC, DESIGN)
- BUILD PROTOTYPE
- FAA INSPECTS PART & FACILITY
- FAA GRANTS PRODUCTION CERTIFICATE (PC; PMA; TSOA)

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## Who is an FAA Approved Production Approval Holder?

... any person who is granted FAA production approval *and* who manufactures parts in accordance with the FAA Production Approval;

... and who is referred to as a... "PAH".

Let's see who this is...

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## SO, WHO IS AN FAA APPROVED SOURCE?

### 14 CFR PART 21 CERTIFICATION PROCEDURES FOR PRODUCTS AND PARTS

defines production approval methods for aircraft parts:

- TC - TYPE CERTIFICATE (INCLUDING STC'S)
  - PC - PRODUCTION CERTIFICATE
  - TSOA - TECHNICAL STANDARD ORDER AUTHORIZATION
  - PMA - PARTS MANUFACTURER APPROVAL
- 
- PAH's
- OWNER/OPERATOR PRODUCED PARTS (for their own aircraft)
  - PARTS FABRICATED DURING MAINTENANCE (but never for sale!)
- 
- Not PAH's

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# TC - TYPE CERTIFICATE

- A CERTIFICATE ISSUED BY THE FAA THAT APPROVES A DESIGN FOR AN AIRCRAFT, ENGINE, OR PROPELLER (ref. FAR 21, Subpart B)

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# TC - TYPE CERTIFICATE

The United States of America  
Department of Transportation  
Federal Aviation Administration

*Type Certificate*  
Number A-769

This certificate issued to Sky Enterprises, Inc., certifies that the type design for the following product with the operating limitations and conditions therefor as specified in the *Federal Aviation Regulations* and the *Type Aircraft Specification* meets the airworthiness requirements of Part 23 of the *Federal Aviation Regulations*.

Plane Model DC-3

This certificate, with the *Type Aircraft Specification* and *Operating Limitations*, shall remain in effect until superseded, suspended, or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application: August 21, 1945

Date of issuance: October 15, 1947  
Reissued: March 10, 1955  
Reissued: January 21, 1965  
Reissued: October 7, 1970  
(To STC Amphibian Corporation)  
Reissued: July 15, 1987  
(To STC Amphibian Corporation,  
to replace 1947 certificate)  
Reissued: March 2, 1988 (Signature)

By direction of the Administrator,  
*Jack A. Bentley*  
Jack C. Bentley  
Acting Manager, Atlanta Aircraft  
Certification Office

This certificate may be transferred if endorsed as provided on the reverse hereof.

Any alteration of this certificate and/or the Type Certificate Data Sheet is prohibited by a fine of not exceeding \$1,000 or imprisonment not exceeding 1 year, or both.

FAA FORMATION 10-82

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# PC - PRODUCTION CERTIFICATE

- A CERTIFICATE ISSUED BY THE FAA AUTHORIZING THE PRODUCTION OF A TYPE CERTIFICATED PRODUCT (ref. FAR 21, Subpart G)

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# PC - PRODUCTION CERTIFICATE

By Order of the Board of Directors  
Department of Transportation  
Federal Aviation Administration

**Production Certificate**

Number 208

This certificate, issued to  
**THE BOEING COMPANY**  
whose business address is  
**7725 EAST MARGINAL WAY SOUTH  
SEATTLE, WASHINGTON**  
and whose manufacturing facilities are located at  
**SEE SUPPLEMENTAL SHEET FOR ADDRESSES**  
authorizes the production of the various models shown of aircraft's  
types of AIRPLANE AND TYPE DESIGN CHANGES APPROVED BY  
SUPPLEMENTAL TYPE CERTIFICATES which are manufactured in  
conformity with substantiated data including drawings, test data, type  
Certificates specified in the section and currently effective Production  
Certificate Record book issued. Any facilities, methods, and procedures of  
the manufacturer have demonstrated as being adequate for the production of  
such airplanes as of the date of **March 21, 1939**.

**Conditions:** This certificate shall continue in effect indefinitely  
provided the manufacturer complies with the requirements for  
original issuance of certificate, so long as the certificate is checked, suspended,  
or revoked.

REVISED JUNE 13, 1949  
FEDERAL AVIATION ADMINISTRATION - MARCH 21, 1939

By Order of the Administrator  
**FRANK J. COVINO**  
R.C. MANSFIELD, CHIEF CLERK  
FAA - BOEING  
CERTIFICATE MANAGEMENT OFFICE

This certificate is not valid unless accompanied by the original certificate of approval of the  
aircraft design and the original of the certificate of approval of the aircraft manufacturer's  
approval to the original design of a type of aircraft or engine or propeller or rotor or other  
FAA FORM 8130-4 (2-45) (REVISED) FAA FORM 8130-4

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# TSOA - TECHNICAL STANDARD ORDER AUTHORIZATION

- An FAA design and production approval issued to a manufacturer which has been found to meet a specific TSO.
  - TSO - an Order issued by the FAA which is a minimum performance standard for a specified article used on civil aircraft.  
(ref. FAR Part 21, Subpart O)

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Department of Transportation  
Federal Aviation Administration  
Aircraft Certification Service  
Washington, DC

TSO-C26c

Date: 5/18/84

## Technical Standard Order

Subject: TSO-C26c, AIRCRAFT WHEELS AND WHEEL-BRAKE ASSEMBLIES, WITH ADDENDUM I

This addendum provides clarifications and corrects certain omissions in TSO-C26c. These changes are considered non-substantive and do not affect technical standard order authorization or design approvals previously issued under TSO-C26c.

Addendum I changes to TSO-C26c Appendix 1 are as follows:

1. Paragraph 4.1(c)(3) Roll-on Rim Test should read: "The main wheel (nose wheels are excluded from this test) without a tire must... Table II. The test axle angular orientation with the load surface under maximum static load must be specified. At the end of the test..."

2. Paragraph 4.1(c)(3) Table II under Roll Distance should read, " $V_L^2 \times 0.5$  need not exceed 15,000 feet."

TSO-C26c, as amended by Addendum I, is set forth in its entirety below.

### TSO-C26c, AIRCRAFT WHEELS AND WHEEL-BRAKE ASSEMBLIES

#### a. Applicability.

(1) Minimum Performance Standard. This Technical Standard Order (TSO) prescribes the minimum performance standard that aircraft wheels and wheel-brake assemblies must meet in order to be identified with the applicable TSO marking. This TSO has been prepared in accordance with the procedural rules set forth in Subpart O of the Federal Aviation Regulations, Part 21. New models of such equipment that are to be so identified and that are manufactured on or after December 31, 1979, must meet the requirements of Appendix 1 of the TSO titled, "Federal Aviation Administration Standard for Aircraft Wheels and Wheel-Brake Assemblies" dated December 31, 1979, or Appendix 1 dated May 18, 1984, as amended and supplemented by this Addendum I.

DISTRIBUTION: ZVS-326; A-W(WS)-3; A-X(FS)-3; A-X(CS)-4; A-FFS-1,2,7,8(LTD); A-FAC-0(MAX); AVN-1(C cys)

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## PMA - PARTS MANUFACTURER APPROVAL

- An approval issued by the FAA to produce a modification or replacement part for sale for installation on a Type Certificated product (Ref. FAR Part 21, subpart K)

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## OWNER/OPERATOR PRODUCED PARTS –

Are not eligible for an 8130-3

- Parts fabricated in which the owner or operator participated in controlling the design, manufacturer, and/or quality of the part; and
- Parts fabricated using methods and procedures acceptable to the FAA.

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**PARTS FABRICATED DURING  
MAINTENANCE –  
Are not eligible for an 8130-3**

- Are internally consumed during maintenance operations as defined in FAR 43; and
- Are not fabricated with the intention of being sold as a stand alone aircraft part.

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**FCAA - FOREIGN CIVIL AVIATION  
AUTHORITY APPROVAL –  
Are not eligible for an 8130-3**

- May be manufactured in foreign countries and supplied to U.S. Certificated operators for use on their aircraft as long as the parts are certified by the foreign civil aviation authority with whom the U.S. Maintains a Bilateral Airworthiness Agreement (BAA).
- Must also comply with all applicable FAR'S and airworthiness directives.  
(ref. Far Part 21, Subpart N)

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## An approved part **for sale** ...

is any part manufactured by one of these FAA  
Approved sources:

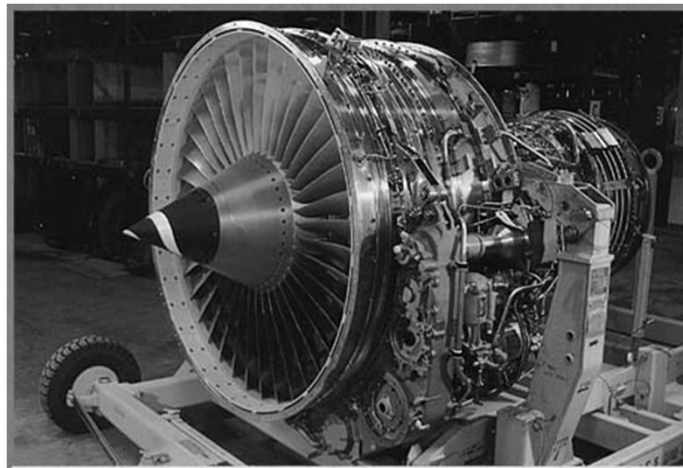
- TC - (~~INCLUDING STC'S~~)
- PC
- TSOA
- PMA
- ~~OWNER/OPERATOR PRODUCED PARTS~~
- ~~PARTS FABRICATED DURING MAINTENANCE~~
- FCAA production parts



But not eligible for  
DAR 8130-3s

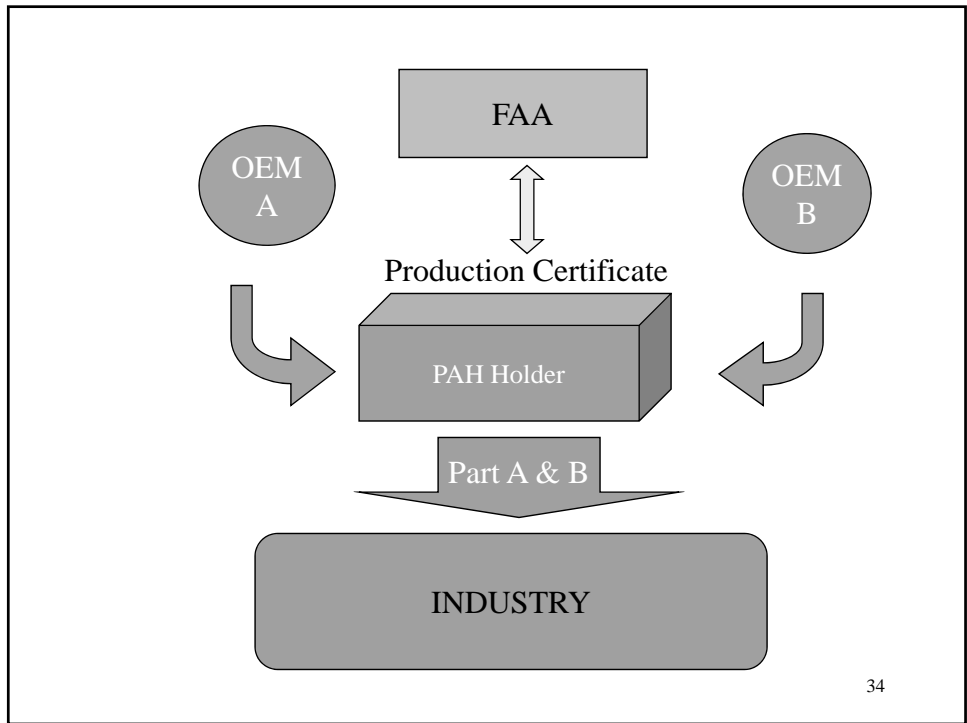
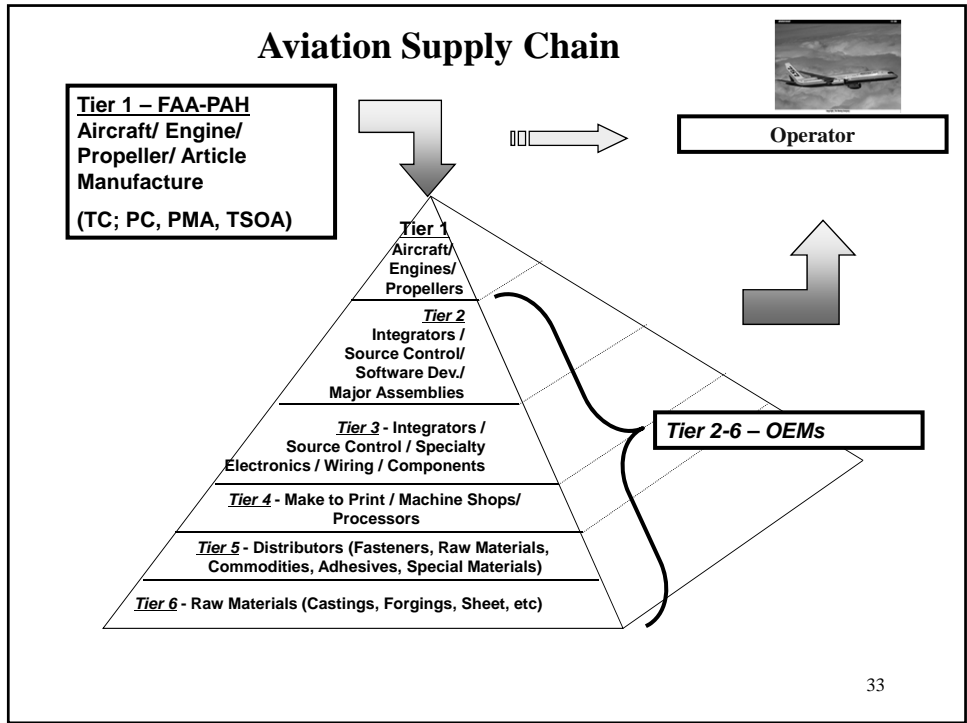
31

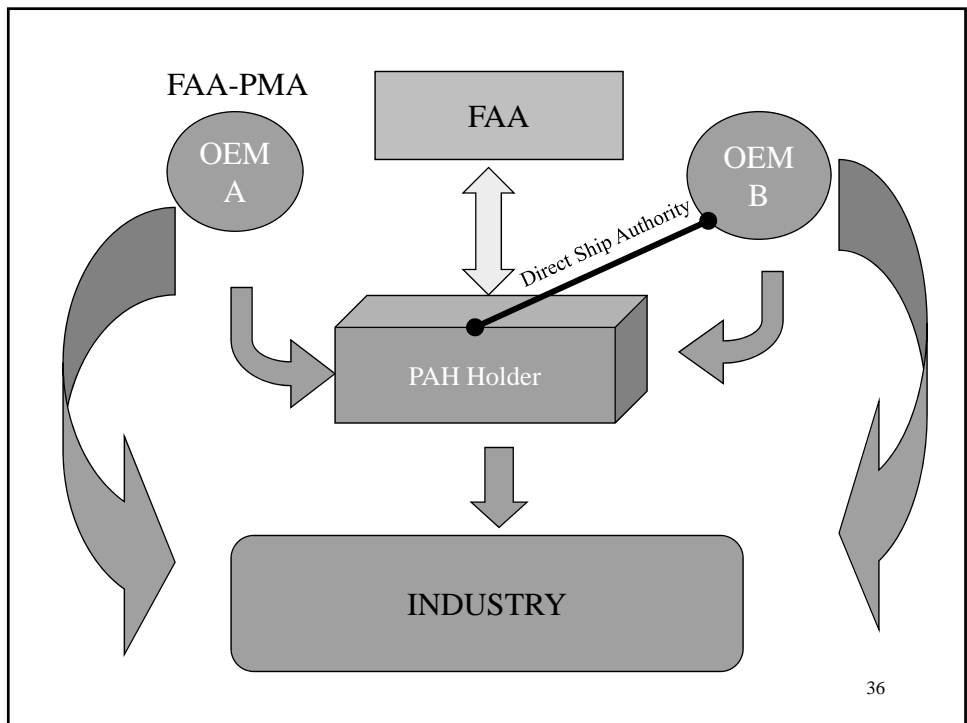
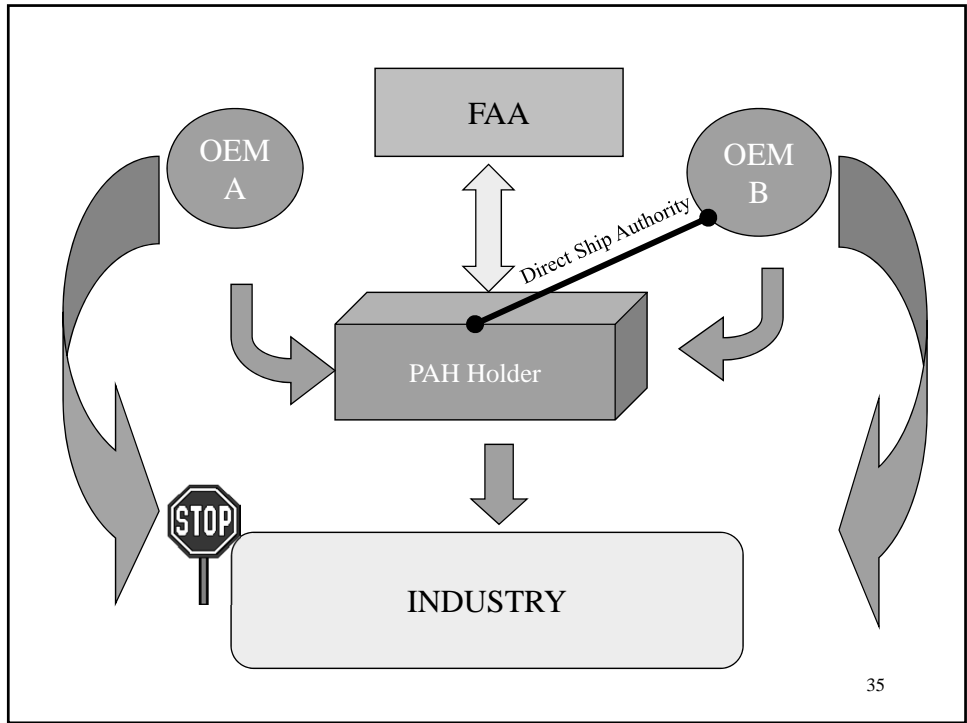
## So, who then is an OEM? Let's see how this works...



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# Direct Ship Authority

**CUSTOMS INVOICE/PACKING SHEET**

SELLER: **KIRK HILL AIRCRAFT PARTS COMPANY**  
 3120 E. ENTERPRISE  
 BREA, CA 92821

**SUPPLIER DIRECT SHIPMENT**

IT IS HEREBY CERTIFIED THAT (A) THE PARTS AND/OR MATERIALS REFLECTED HEREIN WERE PRODUCED UNDER FEDERAL AVIATION ADMINISTRATION APPROVED MANUFACTURING AND QUALITY CONTROL SYSTEMS/METHODS AS SET FORTH IN FAA PRODUCTION CERTIFICATE NUMBER 700 ISSUED TO THE BOEING COMPANY AND (B) SUCH PARTS AND/OR MATERIALS ARE NEW AND IN AN AIRWORTHY CONDITION.

*Santhosh*  
 CORPORATE VICE PRESIDENT OF QUALITY

SHIP TO: [Redacted]

Prof. Routing: CC | RTN: FEK- SAVER -  
 O/S FEK

FEDEX - 1141-5058-4  
 FEDEX - 1141-5058-4

P.O. NUMBER	ITEM NO.	PART NUMBER	SIS No.	QTY	UOM	COUNTRY OF ORIGIN	NOTE
	0010	AME8227-1	SJ204G	6	EA	US	
REPL:		DESC: HANDLE		US-HTS: 8803300030		SER:	

**SUPPLIER DIRECT SHIPMENT**

IT IS HEREBY CERTIFIED THAT (A) THE PARTS AND/OR MATERIALS REFLECTED HEREIN WERE PRODUCED UNDER FEDERAL AVIATION ADMINISTRATION APPROVED MANUFACTURING AND QUALITY CONTROL SYSTEMS/METHODS AS SET FORTH IN FAA PRODUCTION CERTIFICATE NUMBER 700 ISSUED TO THE BOEING COMPANY AND (B) SUCH PARTS AND/OR MATERIALS ARE NEW AND IN AN AIRWORTHY CONDITION.

*Santhosh*  
 CORPORATE VICE PRESIDENT OF QUALITY

FORWARD TO:

TOTAL DOLLAR VALUE:

**BOEING**

These commodities, technology or software were exported from the United States in accordance with the Export Administration Regulations, Division contrary to U.S. law prohibited.

8871981122180

## Don't get confused!!!

- An Authorized Distributor is not the same as an OEM who has been granted Direct Ship Authority from the PAH!!!
- An authorized distributorship is merely a marketing agreement between an OEM and a company designed to increase sales, usually by offering a discount off of list-price to that company .

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## Typical Scenario Quiz

### Which are eligible for 8130-3 tags?

#### PAH to...

1. You
2. Airline to you
3. Repair Station
4. Distributor to you

**Yes!**

#### OEM to...

1. You
2. Airline to you
3. Repair Station
4. Distributor to you

**No!**

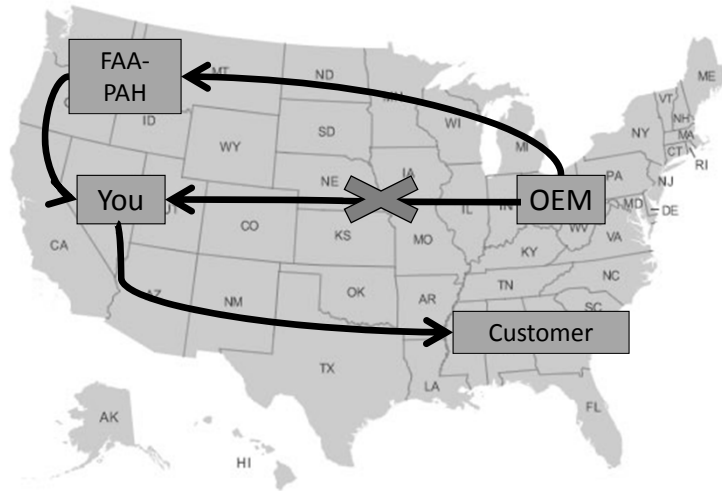
39

## Remember this!...

If an OEM holds an FAA Production Approval for the part you are purchasing, then they are a PAH!

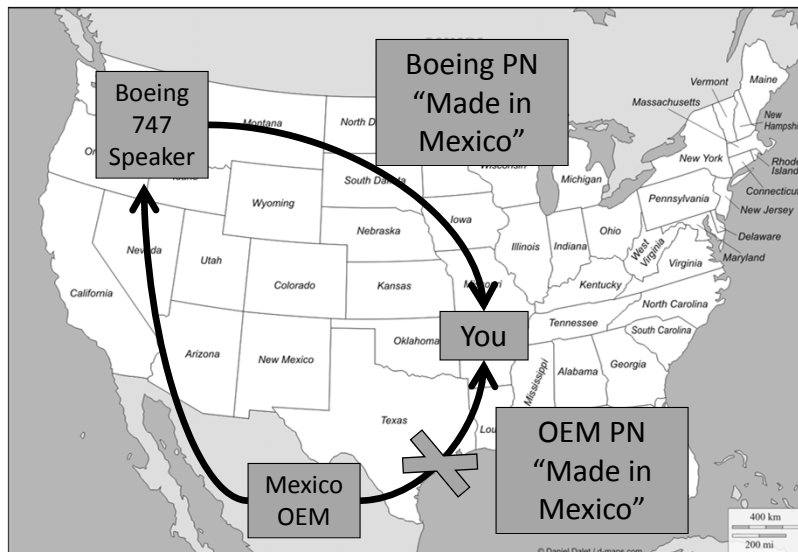
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## Within the United States

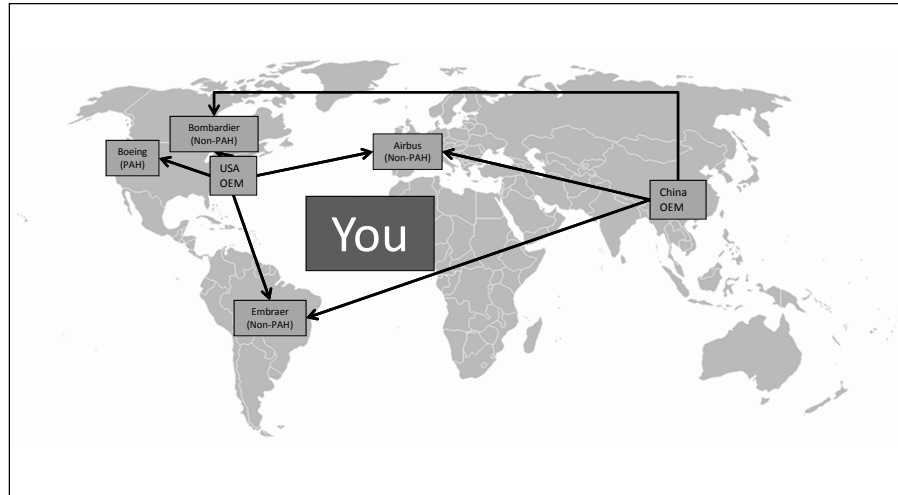


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## Within the Americas



# Internationally



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The following are listed in AC 20-62 as FAA Acceptable sources for aircraft parts:

- FAR 121 AIR CARRIER



- FAR 135 AIR CARRIER



- FAR 127 ROTORCRAFT



- FAR 129 Foreign air carrier



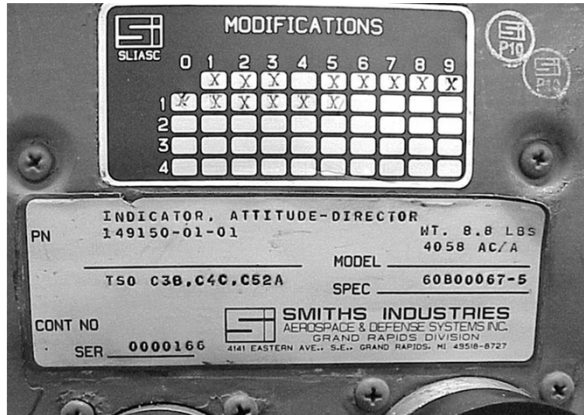
- FAR 145 Repair station



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## Part Identification

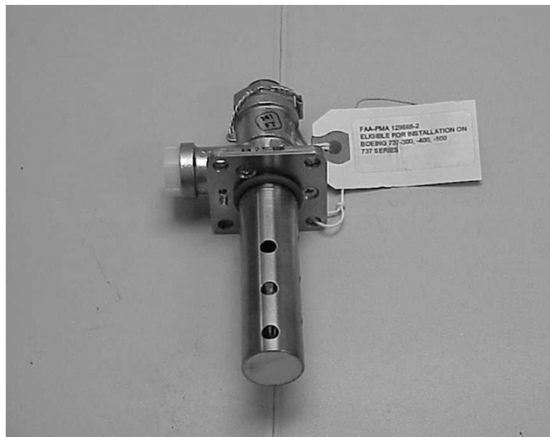
### Let's look at an FAA-TSO part...



- P/N; S/N
- MFG
- TSO Markings
- Insp. Stamps
- Mod Status

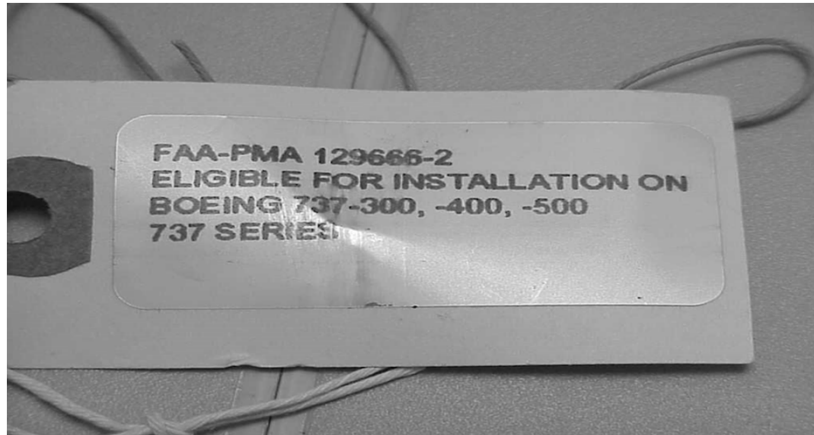
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## Let's look at FAA-PMA Markings...



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# FAA-PMA TAG



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1. Approving National Aviation Authority/Country: FAA/UNITED STATES	2. <b>AUTHORIZED RELEASE CERTIFICATE</b> FAA Form 8130-3, AIRWORTHINESS APPROVAL TAG	3. Form Tracking Number:
4. Organization Name and Address:		5. Work Order/Contract/Invoice
<ul style="list-style-type: none"> <li>• PART &amp; INST. CONFORMITY</li> <li>• RETURN TO SERVICE:             <ul style="list-style-type: none"> <li>• Far 43.9 Repair Station</li> <li>• Other CAA RTS ( e.g. EASA members)</li> </ul> </li> <li>• DOMESTIC AIRWORTHINESS</li> <li>• EXPORT</li> </ul>		
FAA Form 8130-3 (6-01) * Installer must cross-check eligibility with applicable technical data .		NSN: 0052-00-012-8005 48



13 JUL 99 015165  
 OVERBOX NUMBER: 015165  
 BOEING  
 AIRCRAFT SPARES  
 Boeing Commercial Airplanes  
 3900 Lakeside Blvd.  
 Long Beach, CA 90846

CUSTOMS INVOICE/PACKING SHEET  
 COUNTRY OF ORIGIN U.S.A.

OVERBOX SIZE:  
 HT 6.00 WDT 6.00 LGTH 17.00 WT 2.00

IT IS HEREBY CERTIFIED THAT (A) THE PARTS AND/OR MATERIALS REFLECTED HEREIN WERE PRODUCED UNDER FEDERAL AVIATION ADMINISTRATION APPROVED MANUFACTURING AND QUALITY CONTROL SYSTEMS/METHODS AS SET FORTH IN FAA PRODUCTION CERTIFICATE NUMBER 700 ISSUED TO THE BOEING COMPANY AND (B) SUCH PARTS AND/OR MATERIALS ARE NEW AND IN AN AIRWORTHY CONDITION.

Robert R. Seif  
 BOEING QUALITY ASSURANCE MANAGER

Can you find the C of C?

ACKNOWLEDGEMENT  
 BUYER'S ORDER IS RECEIVED BY THE BUYER AND ONLY ON THE CONDITION THAT BUYER AGREES TO THE TERMS AND CONDITIONS SET FORTH ON THE BACK OF THIS FORM. BUYER'S ORDER IS RECEIVED BY THE BUYER AND ONLY ON THE CONDITION THAT BUYER AGREES TO THE TERMS AND CONDITIONS SET FORTH ON THE BACK OF THIS FORM. BUYER'S ORDER IS RECEIVED BY THE BUYER AND ONLY ON THE CONDITION THAT BUYER AGREES TO THE TERMS AND CONDITIONS SET FORTH ON THE BACK OF THIS FORM.

TOTAL BOX VALUE: \$ [REDACTED]

DO NOT PAY FROM THIS DOCUMENT - PAYMENT INVOICE TO FOLLOW

PAGE 1 OF

## LET'S RECAP...

An approved part is any part manufactured by one of these FAA Approved sources:

- TC - TYPE CERTIFICATE (INCLUDING STC'S)
- PC - PRODUCTION CERTIFICATE
- TSOA - TECHNICAL STANDARD ORDER AUTHORIZATION
- PMA - PARTS MANUFACTURE'S APPROVAL

} PAH's

- OWNER/OPERATOR PRODUCED PARTS (for their own aircraft)
- PARTS FABRICATED DURING MAINTENANCE (but never for sale!)

} Not PAH's

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**More Examples, if we have  
time....**

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