

# HEICO



*FAA-PMA Parts and DER Repairs  
IATA/AACO Forum, Kuwait October 2<sup>nd</sup> 2019*

## Different types of Design Basis for PMA Parts

### ▶ **STC (Supplemental Type Certificate)**

- Major Change to Type Design
- Separate approval for Design and Production

### ▶ **Identity by License**

- Design is approved with the Aircraft / Engine
- Typical for Sub-Tier OEM

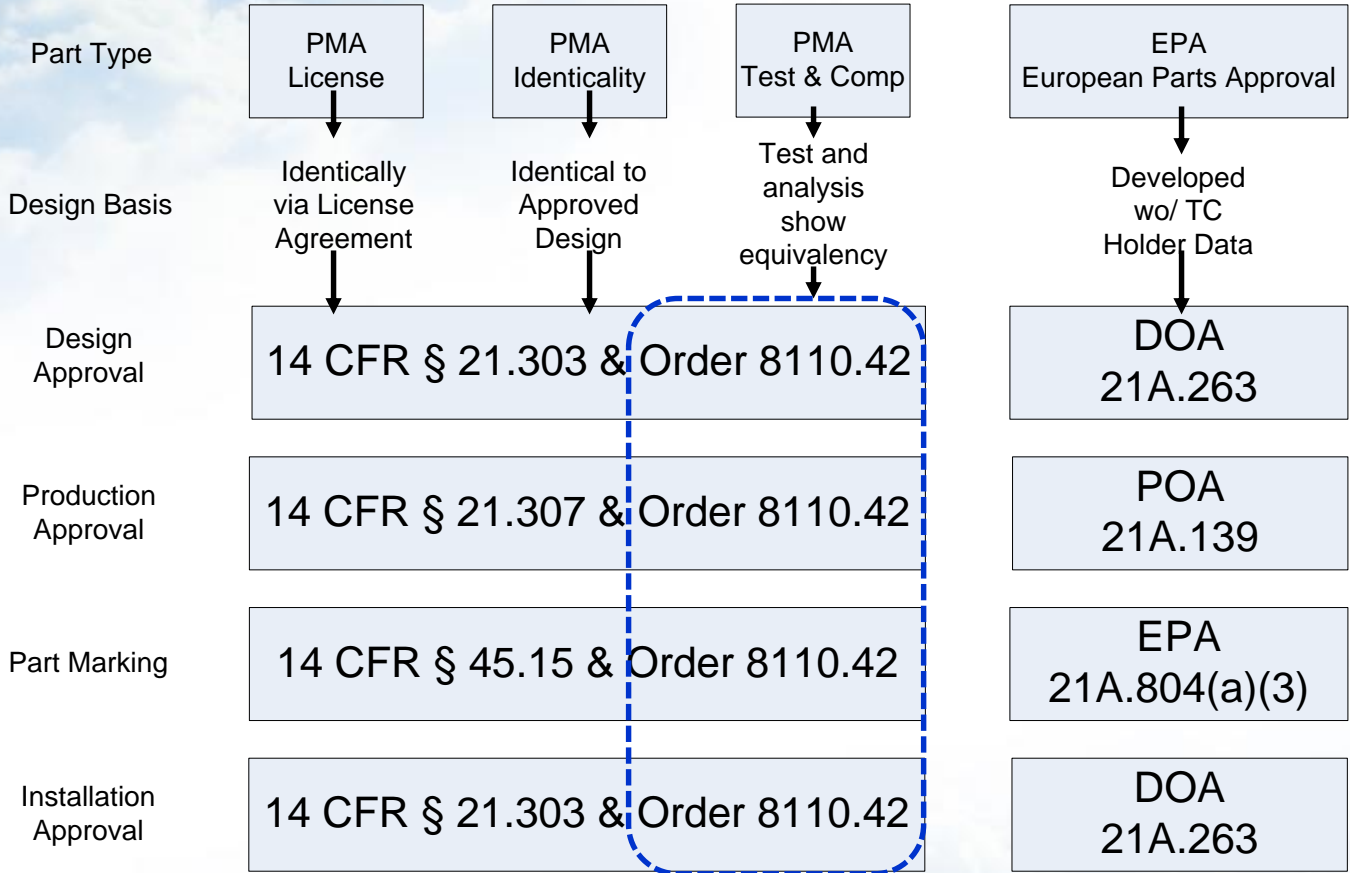
### ▶ **Identity without a License**

- Design is identical to TC Holder but used without agreement

### ▶ **Test and Computations**

- Reverse Engineered Parts.
- Must be Equal to or Better than the “OEM” part

## PMA vs EPA Parts (Regulatory Approval)



**FAA Order 8110.42 ties it all together for the PMA Holder**  
EPAs need a DOA, a POA, EPA marking and a minor change

# PMA Restrictions = Myths & Misconceptions

## *Myth*

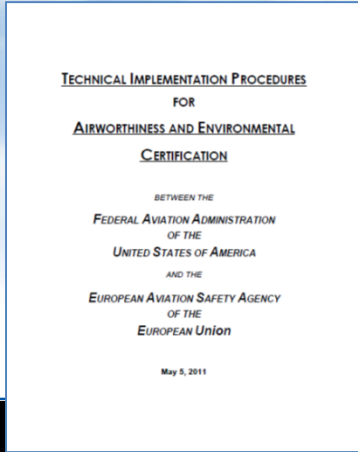
- Lessors will not allow the use of PMA parts.
- PMA parts decreases the value of your asset.
- Using PMA parts voids the warranty.
- OEM ICA only applicable to OEM parts PMA parts are of inferior quality to the OEM parts.
- PMAs/DERs are not safe.
- OEMs are the experts in maintenance.

## *Fact*

- Certain lease agreements do allow the use of PMA parts. Others have been renegotiated, to allow the use of PMA parts.
- The use of HEICO PMA parts do not decrease the value of your asset. HEICO parts are not life limited critical parts
- HEICO will warranty their parts at the same level as the OEM
- The FAA approval process and the stringent HEICO reverse engineering process guarantees that HEICO's PMA parts are equal or better than the OEM
- The FAA would not approve the parts if they were deemed unsafe
- They are experts, but they are not the only experts



# Industry Today – Strong Regulatory Support



**EASA/FAA TIPS  
2011 BASA**

**2011 BASA  
EASA/FAA TIPS**

## FAA SAIB NE-08-40

**FAA Aircraft Certification Service SPECIAL AIRWORTHINESS INFORMATION BULLETIN**

NE-08-40 Approved / Original Type and Production Certificate Holder Parts and Alterations/Modification and Replacement Parts SAIB: NE-08-40 Date: August 8, 2008

*This information only. Recommendations are advisory.*

This Special Airworthiness Information Bulletin (SAIB) alerts owners, operators, and certificated repair and maintenance providers of the responsibilities of type and production certificate (TC/PC) holders, supplemental type certificate (STC) holders, and the parts manufacturer approved (PMA) holders to support the continued operational safety (COS) of their product or part design.

**Background**

Producers of aircraft, aircraft engines, propellers, and replacement parts comprise an elite segment of a global industry that has produced some of the safest aviation products in the world. The FAA recognizes that this is due to many factors including advanced design tools, testing and analysis techniques, materials, early fault detection capability, and the regulatory certification environment that the industry operates in.

In today's competitive market, owners and operators are continuously searching for ways to reduce costs while maintaining safety. One way to do this is to reduce maintenance expenses by finding alternative sources of replacement parts. This naturally opened new markets for replacement parts.

Recently, some engine manufacturers responded to the FAA's approval of PMA and STC for parts involving their type design engine models by telling customers that support of their products could be limited if such parts are installed, since they do not have data on these PMA and STC parts and the effect these parts may have on the overall system. Some TC/PC holders have included language in the FAA-approved airworthiness limitation section (ALS) of their engine instructions for continued airworthiness (ICA) stating that the ICA was developed only for use with their parts.

The FAA understands that the TC/PC holder has no knowledge or data about the PMA and STC parts installed in the product and, therefore, can only assess the airworthiness and systems effects of these parts installed in the product.

PMA and STC parts are thoroughly evaluated for compliance with respect to any changes they introduce and their effect on the original type design. The need for supplemental ICAs, new airworthiness limitations, and other conditions is established by the FAA to ensure the safe integration of the PMA and STC parts into the product.

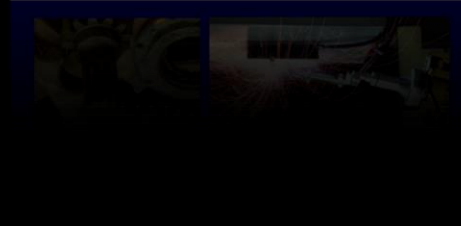
**Recommendations**

The following information is provided to assist the aviation community with regard to the installation of FAA-approved replacement parts—

- 1) FAA-approved TC/PC holder, PMA, and STC parts are interchangeable within the certificated product since they are approved only after a full demonstration of compliance to the applicable requirements of Title 14 of the Code of Federal Regulations (14 CFR). A PMA or STC part, when FAA-approved for installation on a certificated product, is a valid replacement part to the TC/PC holder part according to 14 CFR;

**Aviation Safety, (AVS) Repair, Alteration and Fabrication (RAF) Study**

August 6, 2008



**Korea / FAA**

**China / FAA**

**Hong Kong / FAA**

**Argentina/ FAA**  
IMPLEMENTATION PROCEDURES

**Brazil/ FAA**

IMPLEMENTATION PROCEDURES

FOR  
**AIRWORTHINESS AND ENVIRONMENTAL CERTIFICATION**

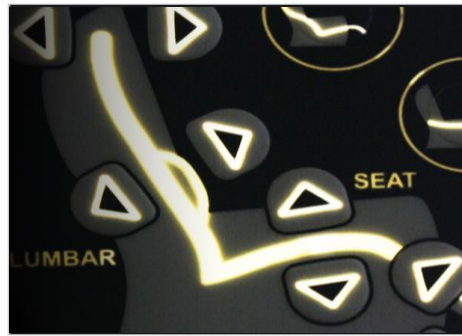
Covering  
DESIGN APPROVAL, PRODUCTION ACTIVITIES,  
EXPORT AIRWORTHINESS APPROVAL,  
POST DESIGN APPROVAL ACTIVITIES, AND  
TECHNICAL ASSISTANCE

Under the Agreement between  
The Government of the United States of America  
and  
The Government of the Federative Republic of Brazil  
For Promotion of Aviation Safety

Revision 2  
September 17, 2018

**We are not aware of any country that does not allow PMA parts and DER repairs.**

# PMA and DER Parts are Found Everywhere



## Fuselage/Interiors

- In Flight Entertainment
- Lavatories
- Seat Parts
- Tray Tables
- Galleys
- Overhead Bins

## Cockpit/Avionics

- INUs, IRUs
- Display Units
- DGAs
- Instruments
- Autopilots
- Radomes
- Nose Cowls
- Battery Packs
- Cockpit Paper

## Landing Gear

- Wheels and Brakes
- Landing Gear

## Engines Parts

- Fuel Pumps
- Nozzles
- Gears
- Shafts
- Bearings
- Starters
- Rings & Spacers
- Expendables



## Engines Supported:

- CFM56
- CF6
- CF34
- PW2000
- PW4000
- V2500
- JT8D
- JT9D
- LM2500/5000/6000

## Wing

- Flight Controls
- Actuation Systems
- Guides

## Components

- Electro-Mechanical
- Hydraulic Pumps
- ACMs, CSD/IDG
- Batteries
- APUs

## Engines

- Combustion Chambers
- Blades & Vanes
- Fan Exit Guide Vanes
- Shrouds (single crystal & equiax)
- Thrust Reversers

- Acoustic Panels
- Pneumatic/Bleed/Anti Ice Valves
- Heat Shields
- Insulation Blankets

## HEICO Offers a Wide Range of PMA and DER

### Components

- Electro-Mechanical
- Hydraulic Pumps
- ACMs, CSD/IDG
- Batteries
- APUs

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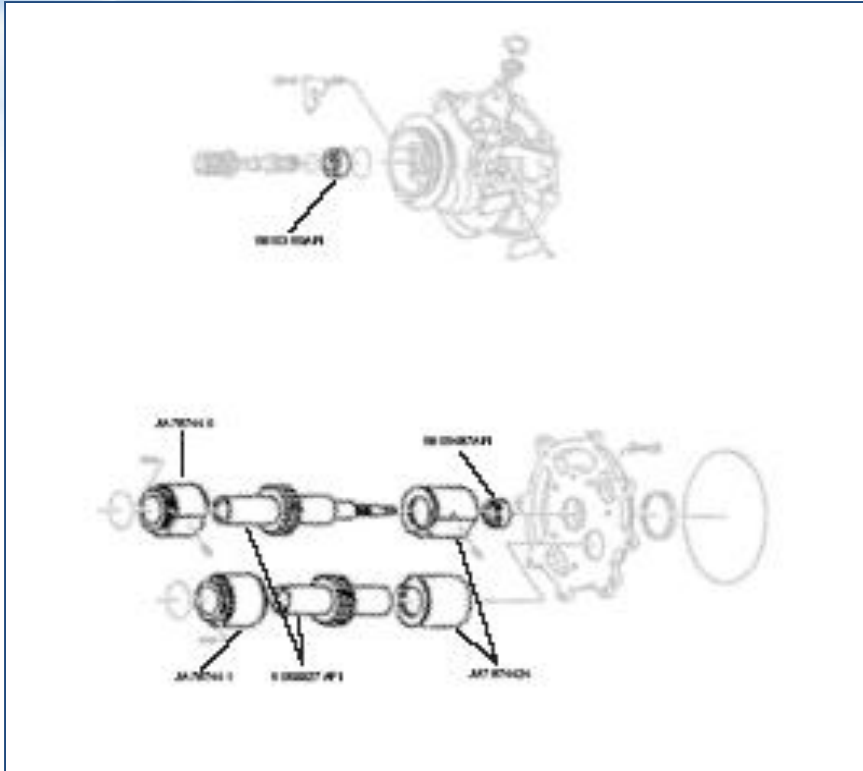
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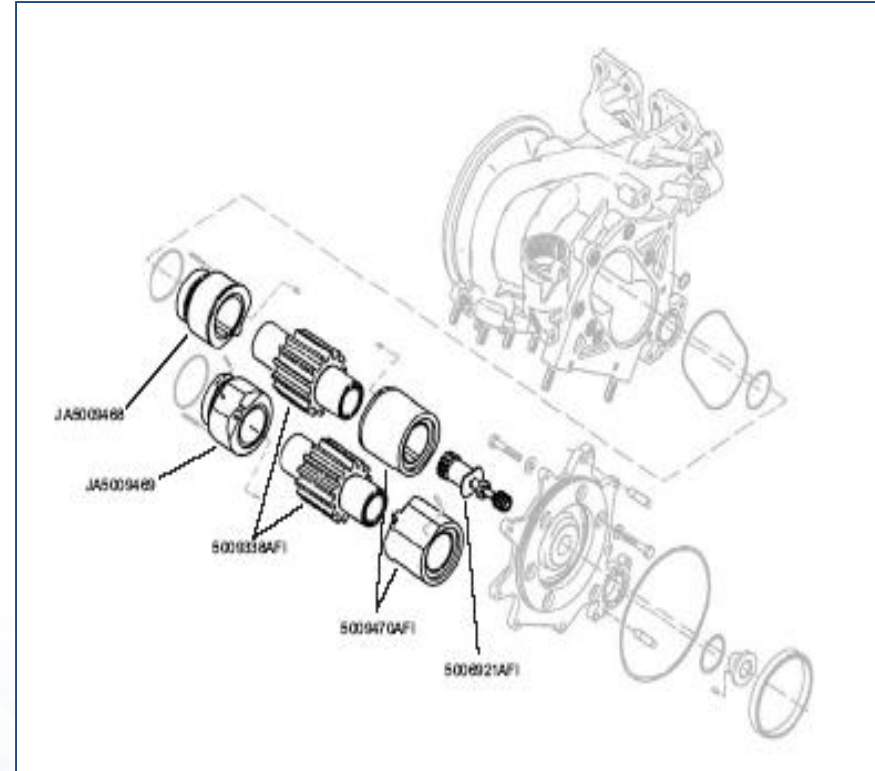
## Example PMA used in Component Repairs

### Hamilton Sundstrand V2500 Main Fuel Pump



**Estimated Savings for a V2500  
Fuel Pump Overhaul = \$12,000**

### Hamilton Sundstrand CF6-80C2 Main Fuel Pump



**Estimated Savings for a CF6-80C2  
Fuel Pump Overhaul = \$15,000**

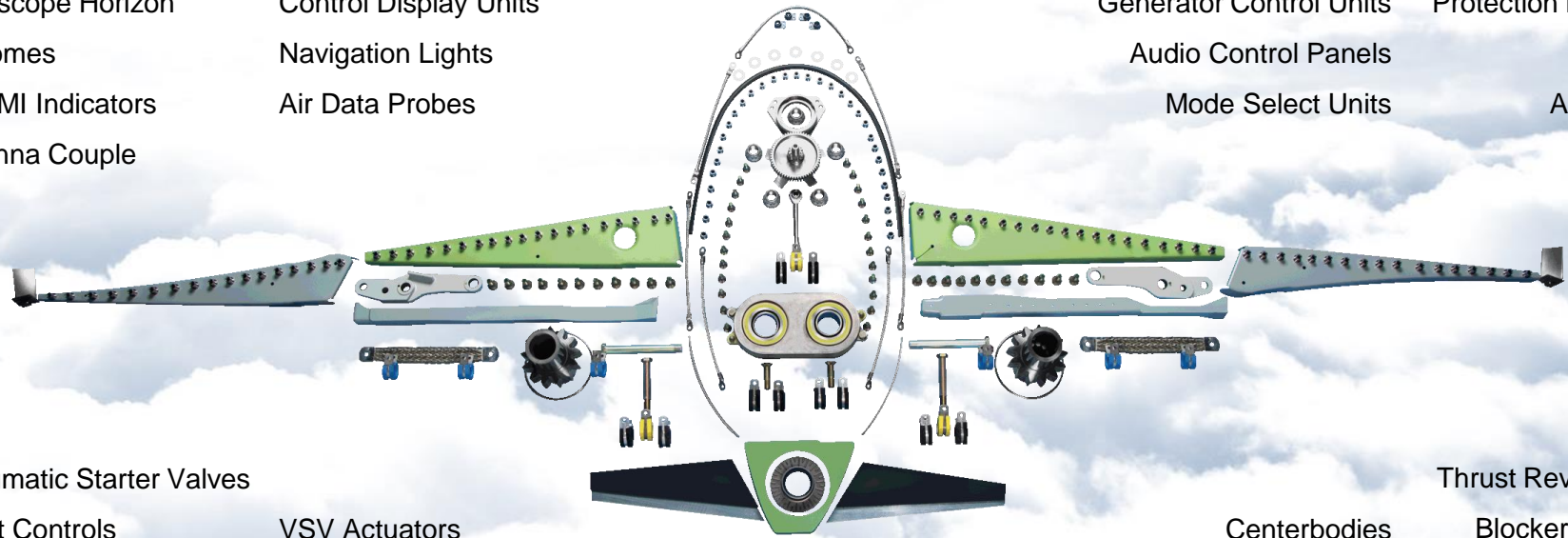


## HEICO Repair A320 Capability Examples

Gyroscope Horizon  
Radomes  
DDRMI Indicators  
Antenna Couple

Control Display Units  
Navigation Lights  
Air Data Probes

Generator Control Units  
Audio Control Panels  
Mode Select Units  
Protection Panels  
CVRs  
ADIRUs  
INUs



Pneumatic Starter Valves  
Flight Controls  
Flap Actuators  
Hydraulic Pumps  
IDGs

VSV Actuators  
Servo Controls  
APU Generators  
Rudder Dampners

Trimable Horizontal Stabilizer Actuators  
Turbine Clearance Control Valves

Thrust Reversers  
Centerbodies  
Blocker Doors  
Exhaust Nozzles  
Cascades  
Flight Control Surfaces  
Nose Cowls  
Main Engine Fuel Pumps  
Fan Cowls

Extensive MRO Capabilities for the A320 Aircraft:

**91%**

of all **Structural** components

**70%**

of major **Accessory** components

**25%**

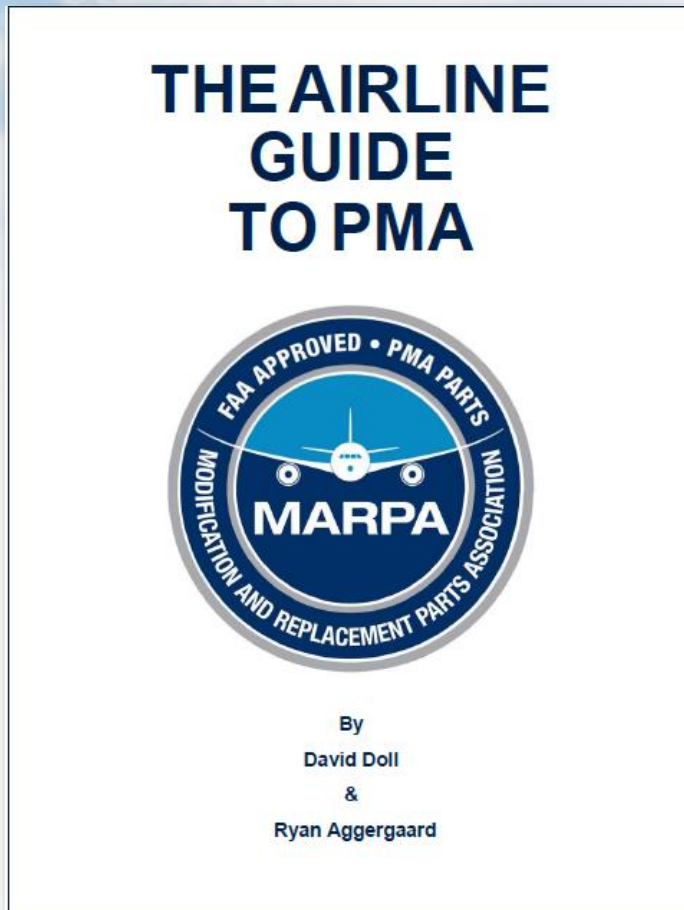
of major **Avionic** components

# DER Repair Development and Approval

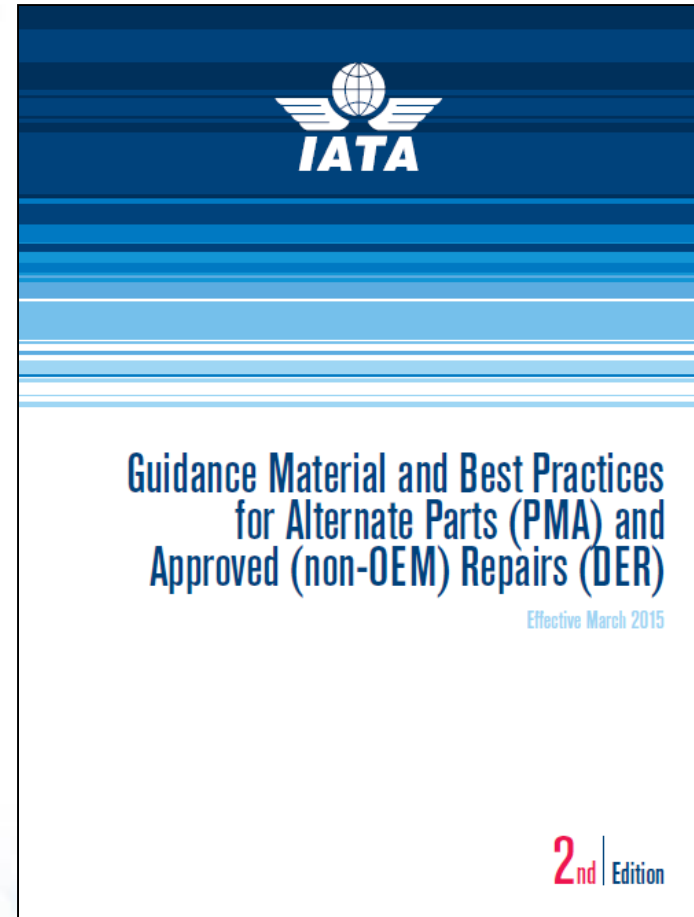
- ▶ The Applicant (DER Repair Company) is Responsible for:
  - Developing the repair specification.
    - ▶ Purpose, Scope, Capabilities, Detailed Procedure, Metrics, Substantiation, and ICA
  - Determining if the proposed repair affects compliance with any existing Airworthiness Directives (AD).
  - Substantiating the repair specification,
  - Submitting the repair specification for data approval,
  - Correcting any deficiencies in the repair specification prior to FAA authorization, and
  - Using the repair specification within the limitations of its authorization.
  - Providing a list of articles fabricated for use in the repair and method of identification of those articles.
  
- ▶ How a Repair Specification is Approved.
  - A repair specification is authorized for use by the FAA.
  - The approval process includes a joint evaluation of the repair specification by the FSDO/CMO/IFO and the ACO Repair Specification-DER (or RS-DER).
  - The ACO (or RS-DER) approve the of the Repair Specification Data.
  - The FSDO/CMO/IFO authorize it for use.
  - Only when both groups have approved, then it is included in the OpSpecs.

Source: 14 CFR §43.13(b) FAA AC 43-210 & FAA Order 8300.14

## Other PMA Light Reading



<http://www.pmaparts.org/pdf/AirlineGuideToPMA.pdf>



<https://www.iata.org/whatwedo/workgroups/Documents/MCTF/PMA-DER-2nd-Edition.pdf>