

IA SEMINAR 2017

Presented to: EA -27 IA's

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Federal Aviation
Administration



Federal Aviation
Administration

Field Approval Process

- WASHINGTON / DULLES FLIGHT STANDARDS DISTRICT OFFICE
- 13873 Park Center Rd, Suite 475
- Herndon, Virginia. 20171
- 703-230-7664



Field Approval Process

- Objective
- Data
- Form 337
- Approval Process
 - Internet Web Sites
 - Q & A



Field Approval Process

Objective:

- Standardization of form 337 industry wide.
- Enhance your ability to properly complete form 337
- Provide regulatory & policy aspects of alterations & repairs



Field Approval Process

Objective:

- Applicable Regulations & Guidance
 - CFR's
 - AC's
 - FAA Orders
 - Inspectors Handbook
 - FAA internet web sites



Field Approval Process

Approved
vs.
Accepted



Field Approval Process

Approved Data:

- Type Certificate data Sheets
- STC's
- AD's
- DER
- Manufactures FAA Approved Data
- ACO's



Field Approval Process

Approved Data:

- CAR's
- CAA Form 337 prior to 10/1/1955
- AC 43.13-1B Major Repairs
 - When appropriate to product being repaired
 - When directly applicable to repair
 - When it is not contrary to manufacturer's data



Field Approval Process

Acceptable Data:

- Manufactures Manuals
- Manufactures Data
- AC's i.e. 43.13-1B & 43.13-2B
- TSO
- PMA
- FAA Form 337 (depicting the same data)
- Mil Specs



Field Approval Process

Definitions & Concepts:

- 14 CFR 1 Defines Major and minor Alterations and Repairs
- Webster defines Alter - Change, Make Different
- Appreciable Affect - Perceived or Measured



Field Approval Process

MAJOR ALTERATION CONSIDERATIONS



Field Approval Process

Considerations:

- Installer Qualifications & Responsibilities
- STC or Field Approval
- Effect on Aircraft
- Certification Basis
- Field Approval Guidance
- Human Factors



Field Approval Process

Installer Qualifications & Responsibilities:

- Authorized, Experienced & Trained
- Familiar with aspects of airworthiness certification
- Engineering Assistance:
 - ACO
 - Field Inspector
 - Manufacturer



Field Approval Process

STC
vs.
Field Approval



Field Approval Process

STC:

- What is a STC?

It is a change to the Type Certificate Design

- Must meet Applicable Requirements 14 CFR 21
 - Obtain Approval for Installation on Certificated Aircraft or,
 - Obtain a Production Certificate



Field Approval Process

Field Approval:

- What is a Field Approval?

It is a Design Approval based upon data.

- It is the same as a STC but with 2 distinct differences:
 - Informal Data and,
 - Applicability is limited to a one time use.
- ACO Involvement may be required



Field Approval Process

Field Approval Data:

- Drawings, Sketches, Photographs
- Stress Analysis
- Engineering Orders
- Operating Limitations
- Approved Flight Manual Supplement
- Electrical Load Analysis
- ICA (Instructions for Continued Airworthiness)



Field Approval Process

Considerations:

- Weight & Balance
- Structural Strength
- Performance
 - Airframe
 - Engines
 - Propellers
 - Appliances
 - Avionics



Field Approval Process

- Who decides what type of data is required?
- Flight Standards Service Aircraft Maintenance Division
- What can and cannot be Field Approved



Field Approval Process

Major
vs.
Minor



Field Approval Process

- Minor
 - ✓ Mechanic
- Major
 - ✓ IA
 - ✓ CRS
 - ✓ AC
 - ✓ Mfg..

- Minor
 - ✓ Maintenance Record Entry 14 CFR 43.9(a)
- Major
 - ✓ FAA Form 337 and Maintenance Record Entry IAW 14 CFR Part 43.9



Field Approval Process Records Retention

Minor

Mechanic:

1 Year Max.

✓ 14 CFR Part 91

Repair Stations:

2 Years

✓ 14 CFR Part 145

Major

Transfer with Aircraft

✓ 14 CFR Part 91

Repair Stations:

2 Years

✓ 14 CFR Part 145



Field Approval Process

- Do not cut metal before approval
- Form 337 can be found on the FAA website:
 - FAA FSDO
 - AC's
 - 43.13-1B & 2B
 - 20-33 CAR / CAM
 - 20-62 PMA
 - 20-110 Index of TSO's
 - FAA Orders



Field Approval Process

Form 337: (Front)

- Block 1. Aircraft Information
- Block 2. Aircraft Owner Information
- Block 3. FAA USE ONLY
- Block 4. Unit Information
- Block 5. Type
- Block 6. Conformity Statement
- Block 7. Approval for Return to Service



Block 8

The Back side

This is the hard
Part, or at
least it seems to be
for SOME mechanics
and repair stations

NOTICE

Weight and Balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

8. Description of Work Accomplished

(If more space is required, attach additional sheets. Identify with nationality and registration mark and date work completed.)



☐ Additional Sheets Are Attached



Field Approval Process

Form 337:

- Block 8.
 - A detailed description and location of the work performed, detailed in such a way that a third party could locate it without trouble.
 - Identification of drawings, documents, specifications, etc.
 - Attach all supporting documentation and check the additional sheets attached box at the bottom.



Field Approval Process

Form 337:

Block 8 continued

- Data or data referred to must identify all required testing such as, pressure, flow, structural, flight check, electrical load analysis, weight & balance, equipment list changes, limitations, flight manual supplements and operational limitations.
- Describe any additional actions taken to complete the return to service required to substantiate compliance with the CFR's and applicable certification standards.



Field Approval Process

Form 337:

Block 8 continued

- Refer to applicable data complied with i.e.. CFR's, Manufactures drawings, Maintenance Manuals, Installation Manuals, etc. BE SPECIFIC. Use manual P/Ns
- [Instructions for Continued Airworthiness](#) (ICAs)
- Samples are available on the FAA website.



Field Approval Process

Form 337:

Block 8 continued

➤ **Don'ts;**

1. Put hardware p/n's, sheet metal p/n's, wire type/size
2. Put Weight and Balance Calculations

➤ **Do's;**

1. Removed equipment
2. Arm/Water line locations
3. Reference putting Pilot Guides in the Aircraft
4. Reference putting Flight Manual Supplements in the Aircraft Flight Manual
5. Reference removing Flight Manual Supplements for removed Equipment



Field Approval Process

- **What's Next**

1. Submit the form 337 for field approval in duplicate to the local FSDO by U.S. Mail or e-mail for field approval.
2. Upon completion of the modification give the aircraft owner a copy of the 337 and
3. Forward a copy of the 337 and applicable data to Oklahoma City at the address listed in 14 CFR Part 43 Appendix B and
4. Retain a copy for your records.
5. For STC installations forward directly to Oklahoma City at the address listed in 14 CFR Part 43 Appendix B and
6. Retain a copy for your records.



<https://www.faa.gov/nextgen/>

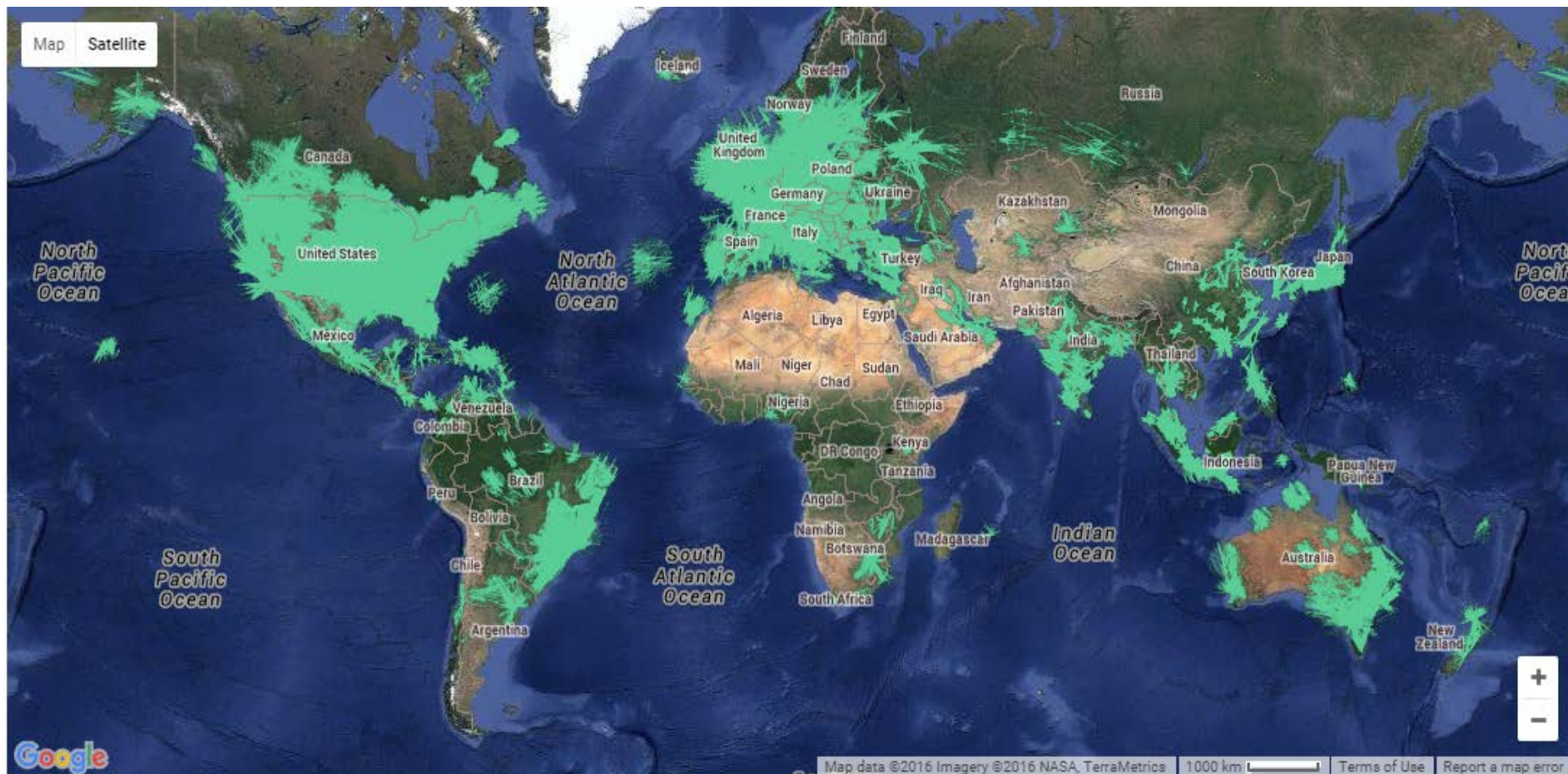
NextGEN



RADAR WORLD MAP



ADS-B WORLD MAP



Things to know before you upgrade to ADS-B

- **1. ADS-B Out avionics will be required in most airspace by 2020.**
- **2. A WAAS GPS must be included in your ADS-B Out solution.**
- **3. ADS-B Out compliance with panel-installed equipment (no portables).**
- **4. ADS-B In equipment (for weather and traffic) is optional.**



ADS-B Certified Equipment

FAA-Approved ADS-B Out (as of 31-Dec-2015)

ACSS

Avidyne

Exelis/Free Flight

Garmin

L-3 ACSS

Rockwell

Aspen Avionics

Bendix King

Free Flight

Honeywell

NavWorx

Trig-Avionics



ADS-B Certified Equipment

**FAA-Approved ADS-B In
(as of 31-Dec-2015**

ACSS

Free Flight

Honeywell

NavWorx

Aspen Avionics

Garmin

L-3 ACSS

Rockwell



FAA Field Approval Guidance

- **Current Guidance** allows for field approvals under specific conditions.

Check first to see if your installation complies with the rule, you can request:

- **Compliance report for field approvals and post installation performance certification**
- **Certification report for certification of ADS-B systems per AC 20-165B section 4-3 a (1)**



FAA Field Approval Guidance

NOTICE	U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION	N 8900.362
	National Policy	Effective Date: 5/9/16
		Cancellation Date: 5/9/17
SUBJ:	Policy for Installation of ADS-B OUT Systems	



NOTICE N8900.362

- Initial Approval of ADS-B OUT Systems. Initial ADS-B OUT system **pairings** (transmitter and Global Positioning System (GPS)) must be approved for installation using the Type Certificate (TC), amended TC, or Supplemental Type Certificate (STC) process. The appropriate Aircraft Certification Office (ACO) should be consulted to determine the approval process for new system pairings.
- Once the performance of the initial pairing has been established, the FAA considers follow-on installations of the same pairing to be approved.



NOTICE N8900.362

- Installation Compliance. The installation is performed in accordance with 14 CFR part 43. Acceptable methods, techniques, and practices may be found in the current edition of AC 43.13-2, Acceptable Methods, Techniques, and Practices—Aircraft Alterations.
- Maintenance Record. The ADS-B OUT alteration must be documented in the aircraft maintenance record per part 43, § 43.9(a) and include the statement, “The installed ADS-B OUT system was shown to meet the equipment performance requirements of 14 CFR part 91, § 91.227.”
- Submit FAA Form 337, to document ADS-B OUT alterations. On FAA Form 337, Block 8, include the following compliance statement, “The installed ADS-B OUT system was shown to meet the equipment performance requirements of 14 CFR part 91, § 91.227,” along with the applicable ADSB OUT transmitter and GPS make/model information.



NOTICE N8900.362

- Submit the completed Form 337 to:
Aircraft Registration Branch, AFS-750
P.O. Box 25504
Oklahoma City, Oklahoma 73125
- The FAA Form 337 can be submitted directly **without** FAA approval in Block 3.



The Install

1. Order the Kit
2. Read the Manual
3. Begin the Installation
4. Complete the Wiring and Sheet Metal
5. Before
6. After



The Kit Arrives



Read the Manual

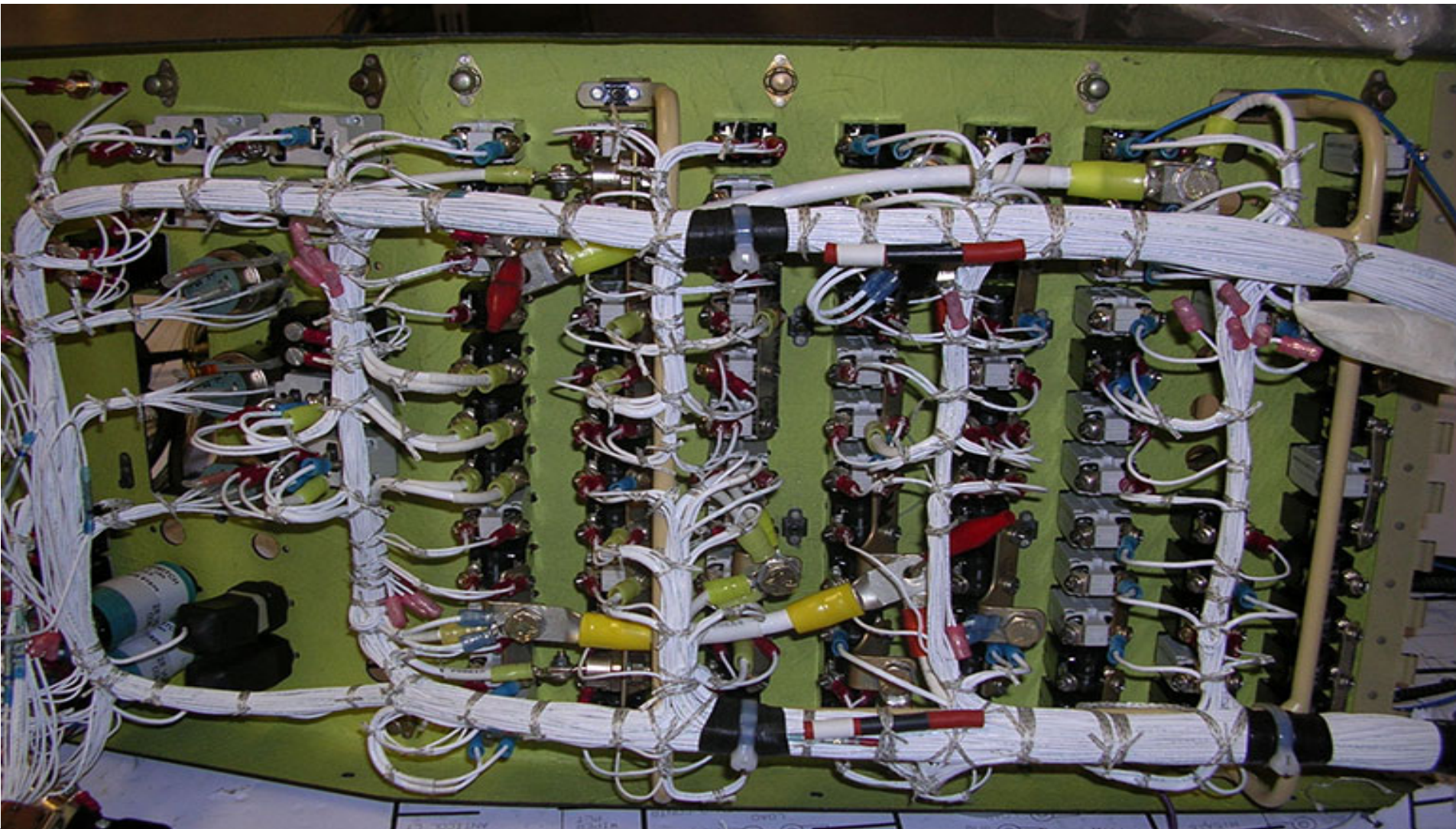


Begin the Installation

Notice the non-standard wooden support bracket



Wiring Installed



Before



After

