



PRESENTERS

- **STEVE CUMMINS** — Assistant Manager for Operations, Seattle AEG
- **TED HUTTON** — Airworthiness Specialist, Flight Standards Division, Northwest Mountain Regional Office
- **GLENN DIEFENDERFER** — FSB/FOEB Chairman, Seattle AEG Operations
- **TOM NEWCOMBE** — Assistant Manager for Airworthiness, Seattle AEG

AGENDA

TIMES	PRESENTER	SUBJECT
0800 - 0830	Steve Cummins	Introductions/Overview
0830 – 0900	Ted Hutton	Regional Flight Standards Division
0900 – 0915 BREAK		
0915 – 1015	Glenn Diefenderfer	AEG Operations FSB, FOEB, MMEL, Operational Suitability
1015 – 1030 BREAK		
1030 – 1130	Glenn Diefenderfer	AEG Operations FSB, FOEB, MMEL, Operational Suitability
1130 – 1230 LUNCH		
1230 – 1345	Tom Newcombe	AEG Airworthiness MRB, ICA's, CAMPS
1345 – 1400 BREAK		
1400 – 1515	Tom Newcombe	AEG Airworthiness MRB, ICA's, CAMPS
1515 - ????	Steve Cummins	Questions

Aircraft Evaluation Groups

HISTORY

Added as a part of the Flight Standards Service (AFS) in 1971 to determine and establish:

- An operational perspective to engineering and certification activities.
- Initial and continuing pilot training/checking requirements.
- Continuing compliance with operating regulations.

Aviation Safety Inspectors (ASI) Are Specialists in Three Career Fields

- Operations (pilots)
- Airworthiness (maintenance)
- Airworthiness (avionics)

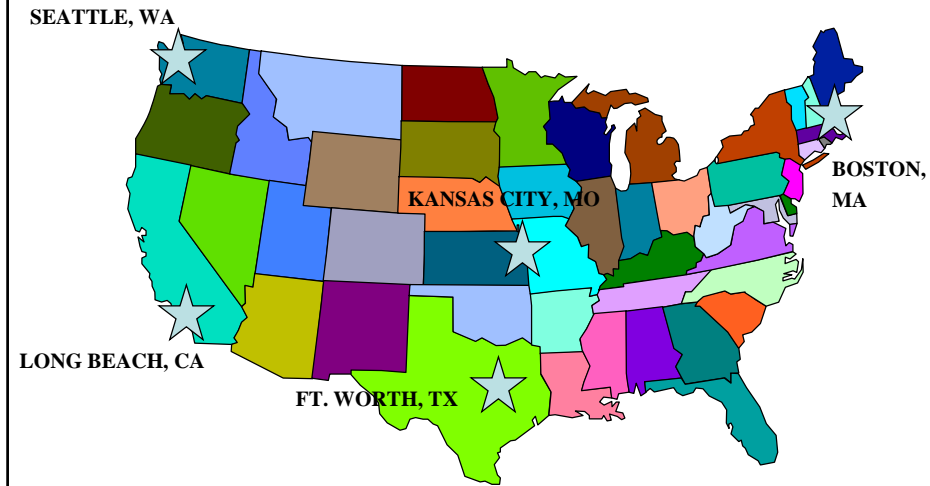


Aircraft Evaluation Groups (AEG's)

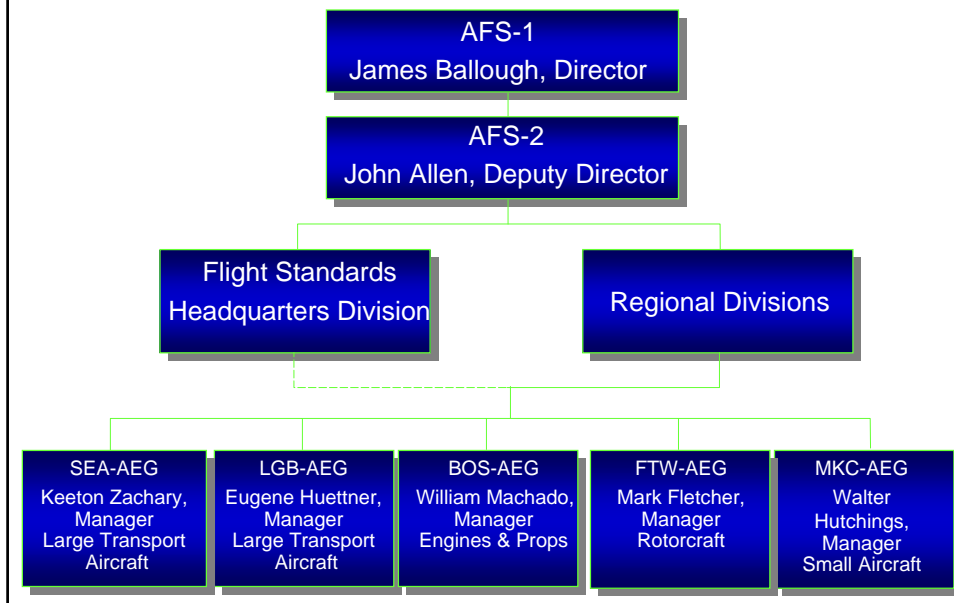
- Five AEG offices, each is responsible to the AFS regional geographic division in which they are located.
- Most are co-located with Aircraft Certification Directorates and Offices.
- Serve as a bridging organization between Aircraft Certification and Flight Standards Service.
- Interface with Flight Standards FSDOs, CMOs, Air Carriers (domestic and foreign), aircraft manufacturers, international regulatory authorities, and the public.



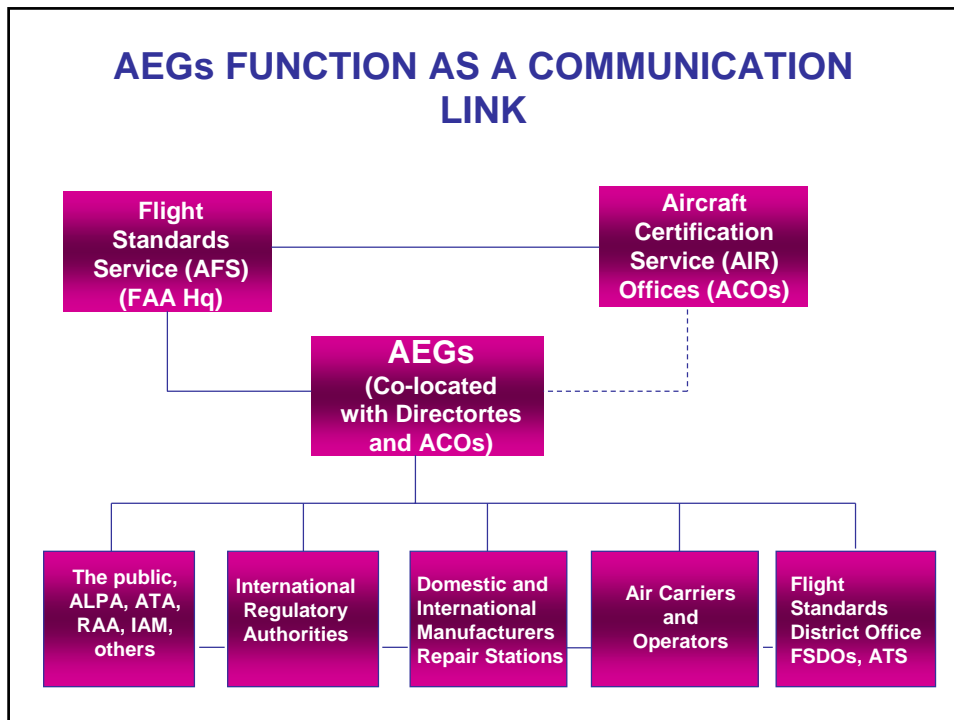
Aircraft Evaluation Group Offices



Aircraft Evaluation Group (AEG) Organization Chart



AEGs FUNCTION AS A COMMUNICATION LINK



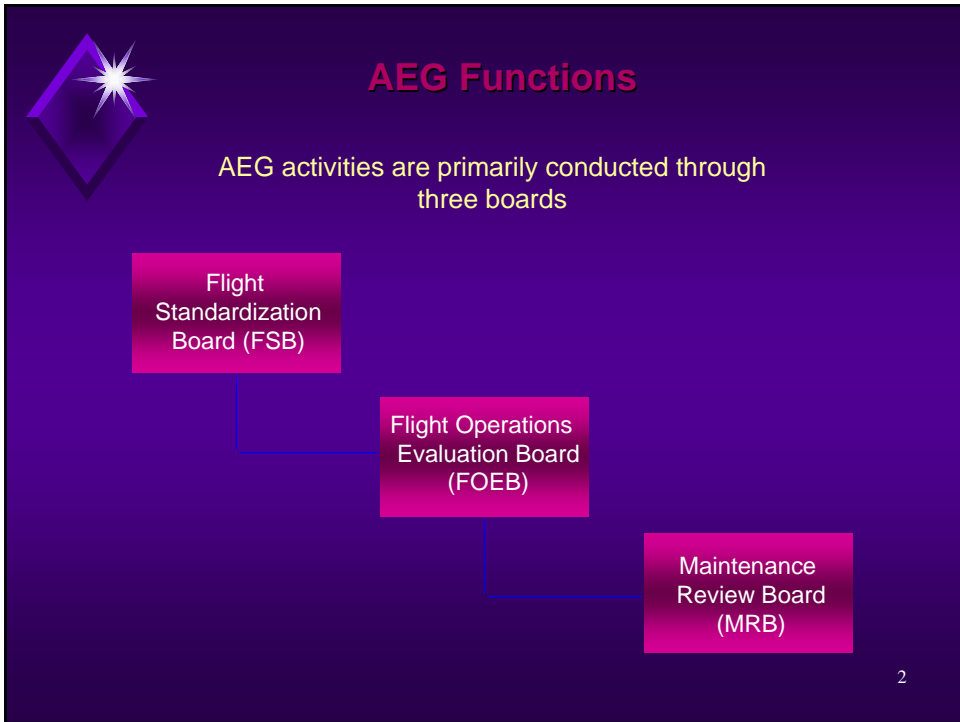
FLIGHT STANDARDS SERVICE (AFS) RESPONSIBILITIES

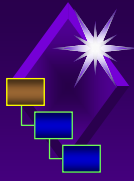
- Operations Oriented (Maintenance and Pilots)
- FSDOs and CMOs serve Air Carriers, Operators, & Repair Stations
- AEG's serve FSDOs, CMOs, Manufacturers, and Air Carriers.
- AFS Responsible for certification items under 14 CFR:
 - Part 43 (Maintenance and Alterations)
 - Part 61 (Certification - Pilots and Instructors)
 - Part 65 (Certification - Maintenance Technicians)
 - Part 91 (General Operating Rules)
 - Part 121 (Air Carriers/Airlines)
 - Part 125 (Corporate Operating Large Aircraft)
 - Part 127 (Air Carriers - Helicopters)
 - Part 129 (Foreign Air Carriers and Operators - US Registry)
 - Part 135 (Air Taxis)
 - Part 145 (Repair Stations)

AEG Provides Services Associated With Specific FAR Requirements

- Seattle (SEA-AEG) Transport Category, 14 CFR Part 25
- Long Beach (LGB-AEG) Transport Category, 14 CFR Part 25
- Boston (BOS-AEG) Engines/Propellers, 14 CFR Part 33, 14 CFR Part 35
- Fort Worth (FTW-AEG) Rotorcraft, 14 CFR Part 27, 14 CFR Part 29
- Kansas City (MKC-AEG) Small Airplanes, 14 CFR Part 23 and Selected Small Business Jets, 14 CFR Part 25



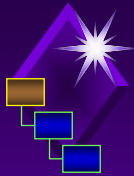




The Flight Standardization Board (FSB) Develops Crew Member Training and Qualification Standards

- ◆ An Operational Board composed of the AEG Chairman, Aviation Safety Inspectors (ASI), and Washington, D.C. representative
- ◆ May be as few as 2 to 3 people, or as many as 10 to 12 people
- ◆ Establishes training, checking and currency requirements for captains, first officers, instructors, check airmen, dispatchers, and flight attendants
- ◆ Initial, transition, and differences training for model variants
- ◆ Establishes requirements for type rating: new, common, or same
- ◆ Evaluates changes in type design; STC, AD, etc.

3



The Flight Standardization Board (FSB) Develops Flightcrew Member Training and Qualification Standards (continued)

- ◆ Reviews Airplane Flight Manuals (AFM), operations manuals, checklists, and training program materials and evaluates training devices and simulators
- ◆ Participates in crew workload, function and reliability (F&R), and flying and validation
- ◆ Conducts initial pilot (FAA) check rides; issues Letters of Authority
- ◆ Gives check rides to Manufacturer's pilots and industry pilots
- ◆ Drafts the FSB report for coordination and approves the final report

4

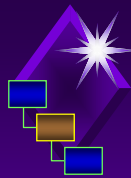


The Flight Operations Evaluation Board (FOEB) Develops the Master Minimum Equipment List (MMEL)

The FOEB is typically a five to seven member board:

- ◆ Chairman from AEG (operations), typically the same as the FSB Chairman
- ◆ Maintenance, Avionics and Engine specialist from AEG
- ◆ Flight test pilot from the ACO
- ◆ FAA Headquarters representative
- ◆ Operations specialists from a FAA field office

5



The FOEB Develops the Master Minimum Equipment List (MMEL) (Continued)

- ◆ Preliminary MMEL (PMMEL) submitted by the manufacturer. Based on analysis, experience, and simulator or flight tests
- ◆ Items evaluated by the FAA and the manufacturer
- ◆ Operator comments are solicited
- ◆ Public meeting
- ◆ Final MMEL prepared by the FOEB and approved by the Chairman

6



The MMEL Is the Cornerstone Document for the Operator's MEL

MMEL

DDPG
AFM/AD
configuration
of operator's
aircraft

Operator's application

Principal's
(POI's)
approval

MEL

7



AEG Follow-On Support

Revisions

- FSBs
- FOEBs (MMELs)
- MRBs

Coordinate

- FAA field offices
- Aircraft certification
- Manufacturers
- Regulatory agencies
- Operators

Technical assistance

- Principal inspectors in field
- Drafting bulletins (ACOBs, FSIBs)

Technical input

- STC's Continued Airworthiness
- Issue Papers: RVSM
- Policy
- Low visibility landings
- AD's

Accident investigations

- Support & Information follow-up

8

Federal Aviation Administration



The ACO & AEG Partnership



ACO/AEG INTERFACE

- ◆ **AEG Pre & Post Certification Responsibilities:**
 - ◆ **Operational Suitability**
 - ◆ **Maintenance Suitability**
 - ◆ **Coordination Focal Between Flight Standards & ACOs**
 - ◆ **Coordination Focal Between the CMOs, Operators, & Manufacturers**



ORDERS RELATING TO AEGs

- ◆ • 1100.5C AIRCRAFT CERTIFICATION DIVISION
- ◆ • 8000.51 AIRCRAFT CERTIFICATION DIRECTORATES
- ◆ • 8100.5 AIRCRAFT CERTIFICATION DIRECTORATES PROCEDURES
- ◆ • 8110.4B TYPE CERTIFICATION PROCESS.
- ◆ • 8110.ICA Guidance for ICA process (NEW)
- ◆ • 8300.10 AIRWORTHINESS INSPECTOR HANDBOOK
- ◆ • 8400.10 AIR TRANSPORTATION OPERATIONS INSPECTOR HANDBOOK
- ◆ • 8110.50 ICA's for TC's, ATC's and STC's
- ◆ AC 21-40 APPLICATION GUIDE FOR OBTAINING STC's

11



ORDERS RELATING TO AEGs

- ◆ • 8430.21A FLIGHT STANDARDS DIVISION AIRCRAFT CERTIFICATION DIVISION AND AIRCRAFT EVALUATION GROUP RESPONSIBILITIES
- ◆ • 8430.22 FLIGHT OPERATIONS POLICY STANDARDIZATION PROGRAM
- ◆ • 8700.1 GENERAL AVIATION OPERATIONS INSPECTOR'S HANDBOOK

12



ORDERS RELATING TO AEGs

- ◆ • **N8110.74 STANDARDIZED CERTIFICATION PROJECT NOTIFICATION AND ELECTRONIC DISTRIBUTION**
- ◆ • **M8040.1 AIRWORTHINESS DIRECTIVE MANUAL**

13



AEG Certification Responsibilities

- ◆ Operational Aspects: (Operational Suitability)
 - ◆ Determine Pilot Type Rating (FSB function)
 - ◆ Establish Pilot Training , Checking , & Currency Requirements
 - ◆ Determine Operational (Part 61, 91,121,125,135, etc.) Acceptability
 - ◆ Airplane Flight Manual (AFM) Review
 - ◆ Cockpit Design Evaluations
 - ◆ Function and Reliability Evaluations
 - ◆ Training Simulator Evaluations
 - ◆ Determine Master Minimum Equipment list (MMEL) Requirements
 - ◆ Emergency Evacuation Demonstration
 - ◆ Forward Observer Seat Evaluation
 - ◆ Determine Acceptable Flight Crew Sleeping Quarters
 - ◆ Accident Investigation Support
 - ◆ Instructions for Continued Airworthiness

14



Accident or Incident Investigation Support

- ◆ **When accidents or incidents involving AEG-assigned aircraft occur, investigating Flight Standards District Offices (FSDO) may use the experience of AEG inspectors to support the investigation or to develop corrective actions.**
- ◆ **Also provide technical assistance to NTSB investigation team**

15



The Transport Directorate Certification Project Notification Process (CPN)

- ◆ The ACO opens a project number. (Includes DAS Project Notification Letters (PNL))
- ◆ The ACO completes a CPN form Part A and transmits it to the Transport Aircraft Directorate
- ◆ The TAD completes CPN form Part B and transmits it to the appropriate Transport AEG (Seattle, Long Beach, or Kansas City)
- ◆ Within ten days after receipt of CPN, the appropriate Transport AEG notifies the ACO project engineer of the desired level of AEG involvement

16



The Transport Directorate CPN Process

- The level of AEG involvement may be-
 - Full- Pilots, Maintenance, Avionics
 - Partial- ICAW's only
 - Delegated- To other Flight Standards or ACO personnel
 - None- Project is not significant/Repeat project-work complete
Our workload won't allow us to participate.
Will acknowledge with Unable-to-Support statement
- The project engineer should always expect an AEG response detailing the expected level of involvement.

17



Certification Plans & the AEG

- ◆ A certification plan (PSCP) should include meeting the needs of the AEG
 - ◆ The Plan should account for DATA deliverables needed by the AEG-
 - ◆ ICAW's (AMM, IPC, W/D supplements) Note: Maintenance & Operations data are separate & distinct meeting separate needs
 - ◆ Structural Inspection changes needed to maintain Damage Tolerance (FAR 25.571) and inspection methods
 - ◆ FCOM and flight crew procedures changes
 - ◆ Submittal of proposed MMEL changes
 - ◆ Submittal of AFM changes
 - ◆ Submittal of proposed flight crew training requirements

18



Certification Plans & the AEG (con't)

- ◆ The Plan should include a schedule of when DATA will be delivered. The schedule needs to coincide with the planned certification efforts. The AEG needs 30 days minimum to plan, schedule, and review.

- ◆ Location of evaluations impact the AEG's. A system of Flight Standards AEG delegation is not in place. Undue burden efforts should consider AEG travel.

19



The AEG & Type Inspection Authorization (TIA) 18.c Items

- ◆ TC's & STC's
 - ◆ Type Inspection Authorization (TIA) 18.c Items
 - ◆ Instructions to the FAA Aircraft Evaluation Group (AEG) are typically contained in Section 18.c of the TIA. The FAA AEG is the liaison between FAA Certification and FAA Flight Standards who have oversight of the operational aspects of aircraft in the United States. This section provides a set of tests as determined by the AEG that the aircraft modification complies with FAA operational regulations. This section is added when the nature of the type design or type design change may affect the pilot type rating, procedures, pilot training program, Master Minimum Equipment List (MMEL) or the aircraft maintenance procedures

20



Supplemental Type Certificates (STC)

- ◆ FAR 21.50 (b)
- ◆ STC's require ICAW per FAR 25.1529
- ◆ Appendix H provides details

21



Certification Plans & the AEG

COORDINATION WITH AIRCRAFT EVALUATION GROUP

The AEG activities related to the issuance of STC's are described below. The extent of AEG involvement and the applicability of these activities will be defined in the PSCP and agreed upon as part of AEG's approval of the PSCP. Not all documents listed are applicable to every project.

Supplemental Type Certificate (STC) responsibilities of the AEG include the following:

1. Participate as necessary in the STC testing of modifications accomplished to an aircraft for determining operational suitability in meeting the operational FAR requirements.
2. Review **STC applicant(s)** recommended aircraft maintenance manual and maintenance program changes for acceptable compliance with "Instructions for Continued Airworthiness" requirements of the applicable FAR.

22



Certification Plans & the AEG

3. Review as necessary proposed Aircraft Flight Manual Supplements.
4. Review proposed changes to Master Minimum Equipment Lists.
5. Evaluate as necessary proposed Flight Crew Operating Manual (FCOM) procedures requirements.
6. Evaluate as necessary proposed flight crew training requirements.
7. Participate as necessary in emergency evacuation demonstrations.

23



OVERVIEW

- ◆ **TEAMWORK NEEDS TO START WITH PROJECT INITIATION**
- ◆ **AIRCRAFT CERTIFICATION AND AEG OPERATIONAL EVALUATIONS NEED TO BE ACCOMPLISHED CONCURRENTLY TO ACHIEVE SUCCESS**
- ◆ **AEG EVALUATIONS CONTRIBUTE TO TIMELY AND SUCCESSFUL INTRODUCTION OF AIRCRAFT INTO REVENUE SERVICE**
- ◆ **AEG PARTICIPATION SHOULD BE CONSIDERED AS THE NORM FOR ALL PROJECT TEAMS**

24

AEG Ongoing Functions

Provide operational and maintenance consultation

Coordinate with and assist aircraft certification

Provide representative to type certification boards

Provide representative on AD boards

Determine operational suitability

Summary of AEG Activities

Communications

Bridge between FAA field offices, aircraft certification, and HQ Policy Divisions

Functions (boards)

- FSB (Report)
- FOEB (MMEL)
- MRB (Report)

Continuing coordination

- STC's
- AD's
- Service Bulletins
- Operations Bulletins



TAIWAN CAA Visit

Seattle AEG Airworthiness and Avionics

Presented to: Cheryl Chang, Eric Chen, David Lin

By: Thomas Newcombe

Date: April 13, 2007



AEG Airworthiness and Avionics Discussion topics

- **International Maintenance Review Board Policy Board (IMRBPB)**
- **Order 8110.54 Instructions for Continued Airworthiness**
- **Advisory Circular 121-22A Maintenance Review Board Procedures**
- **ATA MSG-3 Operator/Manufacturer Scheduled Maintenance Development**
- **Advisory Circular 25-19 Certification Maintenance Requirements (CMRs)**
- **Supplemental Type Certificates and Parts Manufacturing authorization**



IMRBPB

- **Charter**
- **Participants**
- **EASA maintains web site**
- **Policy**
 - Policy is established by each regulatory authority

[Charter](#)
[Issue Paper](#)

<Presentation Title – Change on Master Slide>
<Date of Presentation – Change on Master Slide>



Federal Aviation
Administration

3

Order 8110.54

- **Purpose**
 - Show aircraft/engine certification office and aircraft evaluation group staff how to review and find Instructions for Continued Airworthiness acceptable
 - Describes who is responsible for these tasks
 - Harmonize with other authorities
 - TCCA AARP-5009-3-53 Review Supplemental ICA
 - EASA

[8110.54](#)

<Presentation Title – Change on Master Slide>
<Date of Presentation – Change on Master Slide>



Federal Aviation
Administration

4

Advisory Circular 121-22A

- **Purpose**
 - Provides guidelines that may be used by industry during its development and revisions of the initial minimum scheduled maintenance/inspection requirements for derivative or newly type-certificated transport category aircraft and powerplants for submittal to the FAA for approval
 - [121-22A](#)

<Presentation Title – Change on Master Slide>
<Date of Presentation – Change on Master Slide>



Federal Aviation
Administration

5

Advisory Circular 25-19 Certification Maintenance Requirements

- **Purpose**
 - Provides guidance on the selection, documentation, and control of Certification Maintenance Requirements (CMRs)
 - Provides a rational basis for coordinating the Maintenance Review Board and CMR selection processes in order to minimize the impact of CMRs on airplane operators.
- **Certification Maintenance Coordination Committee (CMCC)**
- [25-19](#)

<Presentation Title – Change on Master Slide>
<Date of Presentation – Change on Master Slide>



Federal Aviation
Administration

6

Supplemental Type Certificates (STC) Parts Manufacturing Authorization (PMA)

- **Process uses Order 8110.54**
- **Acceptance provided to engineering or applicant as appropriate.**
 - Applicant could be a Designated Alteration Station (DAS) or Delegation Option Authorization (DOA)

<Presentation Title – Change on Master Slide>
<Date of Presentation – Change on Master Slide>



Federal Aviation
Administration

7

Helpful Web Sites and Office information

- <http://www.easa.eu.int/home/index.html>
- [Aircraft Assignment List](#)
- [Seattle AEG Phone List](#)

QUESTIONS

<Presentation Title – Change on Master Slide>
<Date of Presentation – Change on Master Slide>



Federal Aviation
Administration

8

Contact Information

If you have further questions, Please send them to:

For Airworthiness

Thomas Newcombe

Seattle AEG

1601 Lind Ave

Seattle, WA 98057

425-917-6602

Tom.Newcombe@faa.gov

For Operations

Steve Cummins

Seattle AEG

1601 Lind Ave

Seattle, WA 98057

425-917-6603

Steve.Cummins@faa.gov

<Presentation Title – Change on Master Slide>
<Date of Presentation – Change on Master Slide>



Federal Aviation
Administration

9