F46 Aerospace Personnel Main Committee Opening
19 August 2015
Sam Haycraft
F46 Chairman
www.astm.org
F46 Main Opening and Welcome

Sam Haycraft
F46 Chairman

www.astm.org
Welcome To Kansas City
## Overview of Schedule

### Day 1:

<table>
<thead>
<tr>
<th>Time</th>
<th>August 19th</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ROOM</strong></td>
<td>Room</td>
</tr>
<tr>
<td>1:00 – 1:30 PM</td>
<td>F46 Main Opening and Welcome</td>
</tr>
<tr>
<td>1:30 – 2:30 PM</td>
<td>F46 Scope and Significance</td>
</tr>
<tr>
<td>2:30 – 2:45 PM</td>
<td><strong>BREAK</strong></td>
</tr>
<tr>
<td>2:45 – 3:30 PM</td>
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<tr>
<td>4:00 – 5:00 PM</td>
<td>F46 Standards, Training and Certification Panel</td>
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## Overview of Schedule

### Day 2:

<table>
<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td><strong>ROOM</strong></td>
<td>Room</td>
</tr>
<tr>
<td>8:30 – 9:00 AM</td>
<td>F46 Day 2 Goals and Objectives</td>
</tr>
<tr>
<td>9:00 – 10:30 AM</td>
<td>F46.10 Avionics and Information Technology Subcommittee</td>
</tr>
<tr>
<td>10:30 – 10:45 AM</td>
<td><strong>BREAK</strong></td>
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<tr>
<td>10:45 – 12:00 PM</td>
<td>F46.20 Airframe, Systems and Powerplant Subcommittee</td>
</tr>
<tr>
<td>12:00 - 1:00 PM</td>
<td><strong>LUNCH</strong></td>
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<tr>
<td>1:00 - 1:45 PM</td>
<td>F46.20 Airframe, Systems and Powerplant Subcommittee</td>
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<tr>
<td>1:45 - 2:30 PM</td>
<td>F46.30 Furnishings and Equipment Subcommittee</td>
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<tr>
<td>2:30 - 2:45 PM</td>
<td><strong>BREAK</strong></td>
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<tr>
<td>2:45 - 4:00 PM</td>
<td>F46.30 Furnishings and Equipment Subcommittee</td>
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<tr>
<td>4:00 - 4:20 PM</td>
<td>Navigating ASTM Online</td>
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<tr>
<td>4:20 - 5:00 PM</td>
<td>F46 Main Committee Closing</td>
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</tbody>
</table>
Introduction of Elected Officers:
F46. 90 Executive Subcommittee

2 year terms, with limit of 3 consecutive terms…

<table>
<thead>
<tr>
<th>Position</th>
<th>Name (Final)</th>
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<tbody>
<tr>
<td>Chairman –</td>
<td>Sam Haycraft</td>
</tr>
<tr>
<td>1st Vice Chairman –</td>
<td>Steve King</td>
</tr>
<tr>
<td>2nd Vice Chairman –</td>
<td>Patrick Delahoussaye</td>
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<tr>
<td>Recording Secretary –</td>
<td>Mike Adamson</td>
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<tr>
<td>Membership Secretary –</td>
<td>Mark Mata</td>
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Subcommittee Chairman needed…

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<th>Vice-Chair or Secretary</th>
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<tr>
<td>F46.91 Terminology</td>
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<td>F46.92 Regulatory Liaison</td>
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<td>F46.93 Industry Liaison</td>
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<td>F46.94 Academic Liaison</td>
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Members at Large (7 permitted)… - TBD
Introduction of Attendees…

1. Name
2. Company
3. Job Title / Role
Scope and Significance

Sam Haycraft
Jim Sparks
Hobby or Profession?

December 17, 1903
Current Focus

1. Develop and promote the Next Generation Aircraft Technicians
2. Educate and Train Technicians for the Now and the Future
3. Scholarships assisting development of specialized Technicians
4. Expand World-Wide Communication & Collaboration in our Industry
5. Global Aircraft Cabin Connectivity and Communication
NEXT-TECH FOR NEXTGEN:

Is an initiative intended to promote global change in the aviation maintenance profession. This is brought about as a result of sweeping technological changes in the design and operation of today’s aircraft. The NEXTGEN project is modernizing aircraft navigation, communications and surveillance utilizing space based satellites, high speed digital communication and data links. Business aircraft expand on these concepts to create a modern office in the sky. Capabilities include advanced Cabin Management Systems (CMS) along with sophisticated cabin communications. One of the challenges faced by maintenance providers worldwide is keeping up with technology. If not clearly referenced in the Federal Air Regulations, how can this be defined as “fit for flight”?

This multifaceted call for action first targets the “need to know” for a technician tasked with return to service of a modern day aircraft. This “call for action” proposes change to the overall description of the profession. Once defined, curriculums used by schools to educate entry level technicians must be aligned with the new required knowledge. Antiquated regulations intended for life in the analog world must evolve into those applicable to the digital age and existing technicians must receive the appropriate dose of knowledge to make them compliant. Global acceptance and harmonization is an essential part to insure economical operations across all oceans and continents. Not only will technicians certify the NEXTGEN aircraft as Airworthy but also fit for the mission.

In short:
• Create new standards for those just entering various segments of the profession.
• Insure training and education standards are in place to up lift the current work force
• Engage regulatory authorities to renew regulations
• Promote our profession to the next generation
Boeing Forecasts Rising Demand for Commercial Pilots and Technicians

SOURCE: BOEING COMPANY JUL 30, 2014

Boeing's 2014 Pilot and Technician Outlook, released today at EAA AirVenture Oshkosh, projects that between 2014 and 2033, the world's aviation system will require:

- 533,000 new commercial airline pilots
- 584,000 new commercial airline maintenance technicians
Overall, the **global demand** is driven by steadily increasing airplane deliveries, particularly wide-body airplanes, and represents a global requirement for about 27,000 new pilots and 29,000 new technicians annually.

- Latin America – 45,000 pilots and 44,000 technicians
- Middle East – 55,000 pilots and 62,000 technicians
- Africa – 17,000 pilots and 19,000 technicians
- Russia and CIS – 18,000 pilots and 24,000 technicians
Carbary, vice president, Boeing Flight Services:

"This is a global issue that can only be solved by all of the parties involved—airlines, aircraft and training equipment manufacturers, training delivery organizations, regulatory agencies and educational institutions around the world."
Aircraft Maintenance Technician (AMT)

Traditional Career Segments
- Airlines
- Manufacturing
- Maintenance and Repair Organization
- General Aviation
- Military
- Business Aviation
- Non-Aviation Career
- Unmanned Aircraft Systems (Drones, RPAS, etc)
- Space Vehicles
Return to Service Authority?

Are available technicians Qualified?
Current Industry Practice

Typical Return to Service Authority (Defined by local Regulation):
- Technician
- Repairman
- Airframe and Powerplant (A&P)
- Inspection Authority (IA)
- Aviation Maintenance Engineer (AME)

Non-Return to Service (Defined by Organizations):
- Installers (avionics, cabin entertainment)
- Interior Fabrication and Installation
- Structural Repair (traditional & non-traditional)
- Specialists (parts and components)

** If they are defined at all!!!
Industry Objective and Goals:

1. Consensus agreement on base “Need to Know” requirements
   - Between industry and regulators globally
   - Adaptable to different industry segments

2. Achieve Consensus (Objective 1)
   - Through F46 industry standards development
   - With regulator participation and feedback as needed

3. End Result
   - Regulators would ACCEPT the industry consensus standards
   - Global base knowledge implemented through training and education

4. Next Level
   1. Increase competitiveness and career development
      - Additional endorsements and specialized knowledge certifications
      - Example: “NCATT AET” and ”NCATT AET endorsements”
Potential Technician Privileges

- 8130 Approvals
- 91.411/413 Sign Off
- LOA/ MSPECS, OPSPECS limited signature authority under FSDO
- 8110 limited signature authority under FSDO
- FAA DER/DAR pool
- OEM Tech Pubs error correction authority
- 337 Sign Off
- MSG-3 signature authority for SRM repairs
- FAA designated 145 Training and Inspection authorization
- All or any Part 65 IA privileges
The Future of Aerospace Personnel

Going Global
Going Global with ASTM International….

Report on Organizational Meeting

- December 2014 in Washington, DC – *held at RTCA HQ*
- Approximately 40 attendees
- Formal Part of ASTM Process to “organize an activity”

Get Involved / Technical Committees / Committee F46 / Scope

Committee F46 on Aerospace Personnel

Staff Manager: Christine DeJong 610-832-9736

Committee Scope

The scope of the committee shall be the development and maintenance of internationally accepted standards and guidance materials for aerospace personnel education, qualification, testing, certification requirements, and continued education concurrent with technological advancement. The work of this committee will include but is not limited to maintenance. The work of this committee will be coordinated with other ASTM committees and organizations having common interest.
Committee Officers have been ELECTED

First Official Meeting is now

Managed Agenda:
- Establish subcommittees
- Solicit Global Participation

Establish what standards to create first
- All actions will be in-line with ASTM protocol
- Goal is to establish a “LIVING” entity capable of adaptation
Video
# Afternoon Break

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[www.astm.org](http://www.astm.org)
About ASTM and Our Process

Standards Training

19 August 2015
Christine DeJong
Manager, Technical Committee Operations

www.astm.org
What is ASTM?

A proven and practical system
- Established in 1898
- 145 Committees & 12,500+ Standards
- 32,000 members
  - 8,000+ International Members from 135 countries
  - 5,100 ASTM standards used in 75 countries
- Accreditation: American National Standards Institute (ANSI)
- Process complies with WTO principles: Annex 4 of WTO/TBT Agreement
- All stakeholders involved (Public & Private Sector Cooperation)
- Neutral forum
- Consensus-based procedures

Development and delivery of information made uncomplicated
A common sense approach: industry driven
Market relevant globally
No project costs
What is an International Standard?

<table>
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<th>WTO / TBT Principles</th>
<th>ASTM Principles</th>
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<td>Transparency</td>
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<tr>
<td>Openness</td>
<td>Openness</td>
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<tr>
<td>Impartiality and consensus</td>
<td>Impartiality and consensus</td>
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<tr>
<td>Effectiveness and relevance</td>
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<tr>
<td>Coherence</td>
<td>Coherence</td>
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<tr>
<td>Consideration of developing nations</td>
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“**Constraints on developing countries, in particular to effectively participate in standards development should be taken into consideration in the standards development process.**”
ASTM: The Power of Partnership

- All stakeholders involved
- Neutral forum
- Consensus-based procedures
- Private and public sector cooperation
- Every member has equal say
- 1 vote per interest

EXAMPLE
- Manufacturers
- Federal agencies
- Design professionals
- Professional societies
- Trade associations
- Financial organizations
- Academia
Balance of Interest

Technical Committees are balanced. No excess influence by any interest group. Ensures market relevance of the content of standards.
Voting Rights - Voting vs. Non-Voting

1 official vote per interest (company)

All are welcome to participate in technical discussions

All members receive a ballot and are eligible to vote on technical issues

All negatives are considered the same way

*Ensures large and small organizational have fair say in the industry. Keeps market competitive and innovative.
4.2.1 Producer: a member who represents a voting interest that produces or sells materials, products, systems, or services that are covered in the scope of the committee.
Discussion: For example schools, associations, organizations, examiners, testing centers or academia providing training or representing training providers to aerospace personnel covered in the scope of this committee or its subcommittees would be classified as a Producer as currently defined in 4.2.1.

4.2.2 User: a member who represents a voting interest that purchases or uses materials, products, systems, or services (other than for personal use) that are covered in the scope of the committee.
Discussion: For example, technicians (licensed or pursuing license), airlines, aircraft or parts manufacturers, service or repair stations, maintenance facilities, corporate flight departments, or military branches utilizing or employing aerospace personnel would be classified as a User as currently defined in 4.2.2.

4.2.3 General Interest: a member who represents a research organization without commercial interest; state, federal, and/or international regulators of materials, products, systems, or services that are covered in the scope of the committee; and others who do not fall within any of the preceding categories as determined by the Executive Subcommittee.
Discussion: For example, civil aviation authorities, associations or organizations not providing training or representing training providers, would be classified as General Interest as currently defined in 4.2.3.
Technical Committee Structure

- Formed to address specific industry subjects
- Subcommittees address subsets of specialized subject matter
- Subcommittees organize their expertise into Task Groups to write standards
- Direct Member Participation
ASTM Balloting Scheme

Committee on Standards

Main Committee / Concurrent

Subcommittee

Task Groups

**COS** – 30 day ballot, Review Due Process, Appeals

**Main** – 30 day ballot, 60% return, 90% approval

**Sub** – 30 day ballot, 60% return, 2/3 approval

**TG** – no official ballot, bulk of work completed here, unofficial voting sometimes takes place
Time Frame for Developing Information

- Complexity of the job
- Urgency of needs
- Time devoted by members
- Utilization of new informational technologies
Standard, n—as used in ASTM, a document that has been developed and established within the consensus principles of the Society and that meets the approval requirements of ASTM procedures and regulations.

Types—The various types of ASTM documents are to provide a flexibility of form, communication, and usage for both the technical committees and the myriad users of ASTM documents. The type of ASTM document that is developed and titled is based on the technical content and intended use, not on the degree of consensus achieved.
Types of ASTM Standards

**Specification**: an explicit set of requirements to be satisfied by a material, product, system or service.
- Discussion—Examples of specifications include, but are not limited to requirements for: physical, mechanical, or chemical properties, and safety, quality, or performance criteria. A specification identifies the test methods for determining whether each of the requirements is satisfied.

**Test Method**: a definitive procedure that produces a test result.
- Discussion—Examples of test methods include, but are not limited to: identification, measurement, and evaluation of one or more qualities, characteristics, or properties.

**Practice**: a set of instructions for performing one or more specific operations that does not produce a test result.
- Discussion—Examples of practices include, but are not limited to: application, assessment, cleaning, collection, decontamination, inspection, installation, preparation, sampling, screening, and training.

**Guide**: an organized collection of information or series of options that does not recommend a specific course of action.
- Discussion—A guide increases the awareness of information and approaches in a given subject area.

**Classification**: a systematic arrangement or division of materials, products, systems, or services into groups based on similar characteristics such as origin, composition, properties, or use.

**Terminology**: a document composed of terms, definitions of terms, descriptions of terms, nomenclature, and explanations of abbreviations, acronyms, and symbols.
Development of Technical Information

Proven democratic and open process
Staff management support for committee
  • Staff administrative support
  • Professional editors
  • Meetings management
  • Templates for new standards
  • Interactive electronic forums
  • Web conferencing
  • Electronic submittals and balloting
Standards in Industry and Regulation
What role do they play?

19 August 2015
Christine DeJong, ASTM International
Earl Lawrence, FAA Small Airplane Dir.

www.astm.org
Types of Standards

**Company Standard**
- Consensus among the employees of an organization.

**Consortium Standard**
- Consensus among a small group of organizations; usually like-minded companies forced to undertake an activity that is beyond the resources of any one member.

**Industry Standard**
Consensus among the many companies within an association or professional society.

**Government Standard**
- May reflect many degrees of consensus. Some are written by individuals within government agencies, many are now being developed in the private sector and then adopted by reference as mandatory.

**Voluntary Consensus Standard**
- Consensus is developed by representatives of all sectors that have an interest in the use of the standard. These sectors can include producers, users, and those having a general interest (government and/or academia), as well as ultimate consumers. Consensus standards, with their broad input, are considered by many as the most technically sound and credible documents. They are often used as the basis for commercial and regulatory action.
How Are ASTM Standards Used?

Developed voluntarily and used voluntarily
Cited in a contract

Government agency reference them in codes, certification, regulations, and laws, supports P.L. 104-113

Used by tens of thousands of individuals, companies, and agencies globally
U.S. Legal Framework

Legislative Mandate for Government Agencies:

- **National Technology Transfer and Advancement Act of 1995 (NTTAA)**
  - Requires federal government agencies to use standards developed by voluntary consensus standards organization when possible
  - Encourages federal government agencies to participate in standards development organizations

- **OMB Circular No. A-119**
  - Reinforces goals of National Technology Transfer and Advancement Act
  - Discourages federal agencies from using government-unique standards
Global Acceptance:

- Used as a means of compliance to regulations
- Regulations says “what” to meet and Standards say “how” to meet regulation
- Bilateral Agreements between aviation authorities are benefited by use of industry standards.
- Global CAAs participating and voting

Incorporation:

- Directly in Regulation
- Referenced in Policy *(Advisory Circulars; Notices of Availability, Policy Statements)*
Standards in Industry and Regulation

Earl Lawrence
Federal Aviation Administration
Small Airplane Directorate

www.astm.org
Standards, Training and Certification Panel

Mike Adamson
F46 Recording Secretary
Aircraft Electronics Association

www.astm.org
NCATT Standards
Industry and Education Impact

19 August 2015
Mike Adamson
Aircraft Electronics Association

www.astm.org
NCATT

Standards, Certifications, Recognition

– Standards identified by industry professionals to promote integrity, safety and professionalism in the aerospace workforce

– Certifications to demonstrate the knowledge base of the advanced aerospace technician

– Accreditation and Recognition programs for educational and training providers meeting NCATT standards

“NCATT certifications are an industry defined mechanism to identify professionals who demonstrate their knowledge through testing and commit themselves to the aerospace industry.”
Industry Impact

Getting recognized

12 NCATT Standards Completed

Avionics

PRIMARY CERTIFICATION
- Aircraft Electronics Technician (AET)

ENDORSEMENTS
- Dependent Navigation Systems (DNS)
- Autonomous Navigation Systems (ANS)
- Radio Communication Systems (RCS)
- Onboard Communication & Safety Systems (OCS)

2,400+ NCATT Certifications /Endorsements issued

NCATT, along with their industry partners, has developed the Aircraft Electronics Technician (AET) Standard and Certification and its corresponding endorsements to address the Aircraft Electronics/Avionics career filed. The AET is the primary certification and is required for all endorsements in the career field. The AET certification identifies the core knowledge of an Aircraft Electronics/Avionics technician that is common across the industry. This includes the military, air carrier, air cargo, repair stations, fixed-based operators, corporate flight departments, and manufacturers.
Industry Impact

Getting recognized

- 4,000+ Students enrolled in education and training courses utilizing NCATT standards, educational materials, curriculum, and promotion materials annually

- 73 Industry conferences/events at which NCATT provided educational materials and certification exams

- 800,000+ - Estimated total attendance at conferences attended

- Required by several manufacturers for field service engineers and product support representatives.
Education/Training Impact

NCATT in the Schools

– 23 Accredited Training Providers
  – Major universities, technical and community colleges
– 4 Recognized Training Providers
  – Industry training organizations

– AET instructor required as part of an accredited training provider
– A condition of employment for several avionics education programs.

State of Michigan Adopted NCATT AET and FOE Standard for all Aerospace Secondary School Programs Funded by the State
Discussion: *Standards*

Within F46 Structure:

Types of Knowledge Requirements Define
1. General – minimum requirements
2. Industry “Segments”
3. Specialization
Discussion: Standards

F46 Standard “Practices”

Title: Standard Practice for Training, Certification and Credentialing an aerospace personnel XXX

Scope: This practice cover the knowledge and experience based requirements of an aerospace personnel.

Content:
- Define Levels of Personnel
- What information/research will personnel be trained and testing to?
  - Information can be detailed in standards or by reference to published resource
Discussion: *Training Programs*

F46 Industry Standards Serves as the basis for global:

- Training Provider Programs
- Educational Programs (undergraduate and graduate)
- Part 147 Schools Program
Discussion: *Certification*

Standards specify what the Certification Programs would test you knowledge:

Examples:
- Inspection Authorization (IA)
- NCATT Certifications (AET)
- NCATT Endorsements
- Other