A Career in Aerospace – Limitless!

Lockheed Martin
USAF F-35 Lightning II

TOGETHER. A WORLD OF EXPERTISE.
P.O. Box 736, Rocky Hill, CT 06067
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Email: alsamuel@acm-ct.org
Web: www.aerospacecomponents.org
What is ACM?

A Collaboration of Leading Small & Mid-Sized Aerospace Manufacturers in Connecticut & SW Massachusetts

Independent Companies Behind a Single Mission: To be a World Leader in Manufacturing of Aerospace Components

Unsurpassed Quality, Competitively Priced, Delivered on Time

THE WORLD’S AEROSPACE ALLEY.
TOGETHER. A WORLD OF EXPERTISE
- Membership = 95 Firms (CT Mfg = 4,350)
  - 17 new members in ‘14 with larger geography
    (20% increase without solicitation or membership drive)
  - 7000 employees (CT Mfg = 163,000)
  - $2 Billion annual revenue
  - $600Mil in wages (CT Mfg = $13.6B)
  - Primarily Tier 1 and Tier 2 Engine Component Suppliers for OEMs (PWA/PWC, GE, Rolls-Royce UK & Indy, Snecma France, Honda)
  - More recent diversification up the Value Stream to direct Airframe Components for Boeing (Seattle & Carolina), Airbus (France & Alabama) and Bombardier (Mexico & Canada)
What Do We Actually DO???

We Manufacture Detail Parts
What Do We Actually DO???
Aerospace Companies Design and Build.....

Detail Components and Subassemblies

Major System Assemblies

Finished Aerospace System

PW GTF

Boeing 747

PW 4000-94

ACM
Aerospace Components Manufacturers

TOGETHER. A WORLD OF EXPERTISE.
What Do We Actually DO???

Military sector includes....

Mature & New Aircraft Programs

Transport Aircraft
- Boeing USAF C17 Globemaster III

Fighter Aircraft
- F35 Lightning II

Helicopters
- Sikorsky US Army UH-60 BlackHawk

Ground Attack Aircraft
- Northrop Grumman USAF A10 Thunderbolt

Bomber Aircraft
- Northrop Grumman USAF B2 Spirit
What Do We Actually DO???

*Commercial sector includes....*

**Passenger Airliners**
- Airbus A380
- Boeing 787
- IAE V2500
- PW GTF

**Helicopters**
- Sikorsky S76

**Turbine Propulsion**
- unknown image
What Do We Actually DO???

Space Sector includes....

Rocket Engines

Unmanned Launch Vehicles

Manned Vehicles
What Do We Actually DO???

*Power Generation* sector includes....

Ground Based Gas Turbines

Generate Electrical Power

PW FT8

PW SwiftPac

PW MobilePac
ACM – The last 10 years
(January 2014 Survey)
Industry Projections
Commercial Aerospace Tsunami of Growth

Where are we in the cycle?

Commercial aircraft deliveries have followed a cyclical historical pattern, but with consistent long-term growth.

Commercial Unit Deliveries by Segment (1980 – 2012)

- Regional - Turboprop
- Regional
- Narrow
- Wide
- Jumbo

Global Fleet vs. Global RPM (1990 – 2013)

- Fleet
- RPM

Travel is Accelerating...

...but Aircraft are Getting Bigger

2013 Fleet: 25,434

R² = .958

Note: RPM (Revenue Passenger Miles); dataset includes western jets and turboprops and relevant nonwestern platforms; fleet = in-service aircraft at Jan 1, each year. Sources: Ascend, Airline Monitor, OEMs, RSAAdvisors analysis

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Industry Projections
Commercial Aerospace – How Long will it Last?

This cycle truly has been different and it looks sustainable

Where are we in the cycle?

Commercial Aircraft Cycles
(Indexed Aircraft Deliveries)

Year 1 = 1st Year of Declining Global Traffic

Deliveries dropped 25% in the last 3 cycles, but 2013 is up 25%

Commercial Aircraft Backlog
(Backlog / Previous Full Year Deliveries)

The OEMs have built up backlogs that cover 7 years worth of deliveries

- Record backlogs support production ramps provide high out-year visibility
- Globalization of demand reduces regionally-driven order volatility
- Airframers are deliberately managing production rates for gradual ramps
- High fuel prices and cheap financing support preference for new v. used aircraft

Sources: Ascend, Airline Monitor, OEMs, RSAdvisors Commercial Aircraft Model, RSAdvisors analysis

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Industry Projections
Commercial Aerospace – Where’s the demand coming from?

New-build Commercial & Regional Aircraft

Asia-Pacific has continued to grow its share of global deliveries, while North America’s proportion has still not recovered from the recession.

Commercial Unit Deliveries by Region (2008-2012)

<table>
<thead>
<tr>
<th>Year</th>
<th>Asia Pacific</th>
<th>Middle East</th>
<th>Latin America</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>26%</td>
<td>33%</td>
<td>17%</td>
<td>25%</td>
</tr>
<tr>
<td>2009</td>
<td>32%</td>
<td>33%</td>
<td>17%</td>
<td>18%</td>
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<td>2010</td>
<td>38%</td>
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<td>15%</td>
</tr>
<tr>
<td>2011</td>
<td>37%</td>
<td>26%</td>
<td>14%</td>
<td>15%</td>
</tr>
<tr>
<td>2012</td>
<td>44%</td>
<td>30%</td>
<td>12%</td>
<td>14%</td>
</tr>
</tbody>
</table>

Current In-Service Commercial Fleet by Region (September 2013)

- Asia Pacific: 33%
- Europe: 25%
- Latin America: 24%
- Middle East: 8%
- Africa: 5%
- Other: 5%

Total Fleet: 26,154 Aircraft

Note: Dataset includes commercial western jets & turboprops in-service; current fleet total is 26,154; Latin America includes the Caribbean; Europe includes CIS (e.g. Russia); the United States comprises ~27% of the global commercial fleet; China, Canada, UK, and Germany comprise 8%, 4%, 4%, and 3%, respectively; 5-year deliveries = 6,333

Sources: Ascend, OEMs, RSAdvisors analysis

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Industry Projections
Biz Jet and Defense – The 2 down market segments

Business Unit Deliveries by Segment (1965-2012)

Global Fleet vs. Global GDP (1990-2013)

Total US Defense Spending (Budget Authority) (FY2012 SB)

Current FYDP projections
Possible new "floor" ~$450B
Historical funding "floor" ~$380B
Manufacturing Job Projections

On Average, 22% of manufacturers expect to grow their workforce above 5% in 2015 (approx. 9,000 jobs), with that number forecasted to increase to 29% by 2018 (approx. 47,000 jobs).

In addition, 85% of manufacturers plan to hire primarily full-time employees by the end of 2015, a significant jump from 30% in 2011.

Manufacturers report that overall employability and technical skills, advanced skills, and interpersonal/teamwork skills were the qualities most lacking among recent or attempted hires.

Entry-level production and CNC machinists are two of the most in demand positions, while manufacturers said Tool-and-Die makers and CNC programmers were the most difficult jobs to fill.

While manufacturers are pursuing a number of strategies to address the skills gap, including in-house training and expanded apprenticeship programs, the survey’s findings highlight the need for even greater collaboration between educational institutions and businesses.

Where does ACM get the workforce?

1. **Industry**: other members and non-members; “musical chairs”

2. **4-year colleges**: primarily Engineering and Management

3. **Community College Manufacturing Programs**: Basic Skills needing OJT
   - **Issues**: A) OJT reduces productivity (STEP-UP helps offset), B) Many companies don’t have robust training programs, C) Current curriculum primarily focused on CNC – not customized like Companies are.
   - **Solutions**: Some well capitalized Companies creating partnership with Colleges for customized training moving some OJT into the classroom (Ex. EDAC & Tunxis, Bristol Spring) – Advancing current DOL Apprenticeship

4. **Tech High Schools**: Basic Skills needing OJT which requires robust in-house training programs (apprentice/interns); Issues = Same as #3

5. **Displaced/Unemployed Workers**: STEP-UP incentive provides more of a safety net & allows for more risk taking, esp. for resumes with “gaps”

6. **Returning Veterans**: Untapped source of discipline and responsibility

7. **Comprehensive High Schools**: Minimal pipeline due to lack of marketing & understanding. Another untapped source
Path to ACM Members?

High School or Technical Trade School Graduate's Career Path

College Certificate Career Path

Have Cert, Seeking Employment? Interested in Cert Pgms?

College Graduate Career Path

Have Degree, Seeking Employment? Going to College?

Contact CT’s Community Colleges for Manufacturing Technology programs

- Middlesex CC
- Vinyl Tech Adult Ed

--Visit the ACM website at www.aerospacecomponents.org and go to Member Profile Page to obtain contact info on each company

--Link from ACM website to each Company’s website to learn about their firm

Contact your High School Guidance Counselor to understand best college programs for aerospace
AEROSPACE CAREER
FINANCIAL OPPORTUNITIES

High School or Technical Trade School Graduate’s Career Path

- Entry Level Positions
  - $28,000 to $39,000 per year
  - $10 to $14 per hour + OT*

  After 2 Yrs OJT Experience
    (Average Performer)
    - $37,000 to $48,000 per year
    - $13 to $17 per hour + OT*
  
    After 2 Yrs OJT Experience
    (High Performer)
    - $54,000 to $68,000 per year
    - $19 to $24 per hour + OT*

  After 2 OTJ as CNC Programmer
  - $80,000 to $110,000 per year

  After 5 Yrs OJT Experience
    (Average Performer)
    - $51,000 to $62,000 per year
    - $18 to $22 per hour + OT*

  After 5 Yrs OJT Experience
    (High Performer)
    - $68,000 to $82,000 per year
    - $24 to $29 per hour + OT*

College Certificate Career Path

- Entry Level Positions
  - $34,000 to $45,000 per year
  - $12 to $16 per hour + OT*

College Graduate’s Career Path

- Engineering Entry Level
  - (with a 4 year BS degree)
  - $58,000 to $65,000 per year

Aerospace Career paths typically include higher than average benefits - medical/dental/vision/life insurances, paid vacations & holidays, 401K plans, profit sharing, tuition reimbursement, etc.

Note: Plans WILL vary from company to company!

* Based on an Average Total Workweek of 50 Hours

OJT - "On the Job Training" in a production environment including formal classroom training where applicable.

Calculated annual values assume 52 weeks of straight time (no OT).

Information provided above are current or envisioned examples of pay scales. This data is provided for general information only and is NOT guaranteed in any manner.
How ACM markets career opportunities:

✓ ACM Annual Career Fair (Oct 23rd A.M.)
  • 800+ Middle School, Comprehensive High School, Tech High School, Community College and Four-Year College students
  • Attendance has grown 33% annually since 2010 inception

✓ Participation on high school and college advisory Boards

✓ Speaking engagements at Middle Schools, Comprehensive High Schools & Tech Schools

✓ Career fair displays at Comprehensive High Schools, Chambers of Commerce & Colleges & Dream It.Do It. events

✓ Most Recent: Partnerships with Comprehensive High Schools to host weekly “Intro to Manufacturing” class as part of elective curriculum (Ex. Granby with Delta Mfg & Region 4 with Whalen Mfg.)
Marketing Bullets for a Career in Aerospace Manufacturing?

Industry is Stable and Growing
Business supports both Commercial and Defense Aerospace Sectors

Innovative, High Technology
Constantly improving – Leading the World!

Viable & Long Term Career Opportunities
Growth Opportunities / Multiple Career Paths

Salaries are among the Highest in Connecticut
Excellent Benefits Packages

Work in a Clean, Safe & Progressive Environment – Not “your grandfather’s” factory

Willingness to Train
Entry Level Skills
Career Advancement Skills

Broad Range of Opportunities
What are the Career Opportunities Available in Connecticut’s Aerospace Industry?

MANUFACTURING
Machine Operators / Machinists (77)
Sheet Metal Fabricators (18)
Welders (26)
Assemblers (5)
Internal Transportation / Drivers
Technicians
Supervisors (11)

BUSINESS SUPPORT
Sales & Business Development (1)
Accounting & Financial Management
Procurement (2)
Business Management
Office Staff & Clerical Staff
Human Resource (4)

TECHNICAL SUPPORT
Manufacturing Engineers (33)
Numerical Control (N/C) Programmers (7)
Quality Engineers (4)
Lab Technicians
Maintenance Workers (6)
Supervisors (3)

QUALITY ASSURANCE
Inspectors (4)
Coordinate Measuring Machine Operators (2)
Technicians
Supervisors

Parenthesis indicate current posted openings
What are the Requirements for Entry-Level Positions?

- High School diploma or equivalent with reading and math capability
- Dependable; Good work habits
- Willingness to work, take direction and interact as a member of a team; demonstrate flexibility and be open to suggestions and change
- Mechanical aptitude and interest; must have a sense of how things go together
- Attention to detail
- Strong desire to learn: there is a lot to learn!
- Independent Thinking/Problem Solving
- Certifications are a plus (NIMS, AWS/Welding, CNC Cert, etc.)

Good character and attitude!
Views of Current State Programs

- **Small Business Express & MAA**: excellent for growth & capex
- **STEP-UP**: Many members have successfully utilized to hire unemployed with “holes” & encourage full funding for continuity
- **Expansion of Community College Manufacturing Programs**: Has greatly increased the basic skill pipeline and should continue & be expanded for increased class sizes or more colleges!
- **Re-investment in the Tech High Schools**: Increased the level of talent being produced due to the equipment they are now utilizing (now on par with Colleges) while also making them more appealing thereby increasing pipeline – Must continue & be expanded!
- **Apprenticeship Program**: Advantage is tax credit and curriculum but under utilized because tax credit doesn’t apply to pass through entities and curriculum is “vanilla”; STEP-UP and custom basic skills training programs are being utilized over Apprenticeships
- **Incumbent Worker Training**: Completely lacking; Was once a source for customized in-house training & access to experts who could develop training programs
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