AHS International
The Vertical Flight Technical Society

Forum
May 20-22, 2014
Montréal, Québec
Canada

Celebrating
International
Cooperation in
Vertical Flight
Technology

Final Program

Thank you to our Forum 70 Sponsors

AgustaWestland
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Airbus Helicopters

Bell Helicopter
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ATR36 WHEN SOLDIERS' LIVES ARE AT STAKE, SPEED MATTERS.

*Speed, Reach, Agility, Affordability* • At 350+ knot cruise, the ATR36 achieves speed with fixed-wing fuel efficiency. Capable of 5 G's, it out-maneuvers all helicopters. In terrain flight or above the threat at 35,000+ feet, the ATR36 is the most survivable rotorcraft ever. The ATR36 meets or exceeds all Joint Multi-Role desired attributes. It gets there faster, stays longer, and carries more.
Welcome to Forum 70

As the Chair of the Board of Directors of AHS International for 2013-2014, it is my pleasure to welcome you to the 70th Annual Forum & Technology Display. For 70 years, the world’s foremost engineers, scientists and leaders have gathered together, determined to advance vertical flight throughout the world. The Annual Forum is the premier event for government, industry and academia to exchange ideas, discuss the latest breakthroughs in theory and technology, and work together to tackle the toughest challenges.

This year’s Forum theme is “Celebrating International Cooperation in Vertical Flight Technology,” and I cannot think of a better place to demonstrate this international partnership than here in Montreal. Vertical flight has become a truly global marketplace, but there are still tremendous accomplishments every year made possible by teamwork, supply chain integration, and joint ventures and cooperative initiatives across our industry.

Personally, all of us at Bell Helicopter have seen a tremendous return on investment from supporting AHS, and hope all of you do as well. I encourage each of you to learn all you can this week at Forum 70 and to leave here with a passion and desire to give back to the larger technical community through AHS International. The more all of us continue to support and grow AHS, the more benefits we will see across the entire vertical flight industry.

John Garrison
President and Chief Executive Officer
Bell Helicopter Textron

FORUM 70 Sponsors

AHS gratefully thanks the following companies for their generous support of the AHS 70th Annual Forum and Technology Display.

- AgustaWestland
  - Technical Sessions

- Airbus Helicopters
  - Registration Bags

- Automated Dynamics
  - Technical Session Refreshment Break

- AVX Aircraft
  - Hotel Key Card

- Bell Helicopter Textron
  - Vertical Flight Foundation Reception & The Grand Awards Banquet

- Boeing Company
  - Exhibit Hall Luncheons

- CAE, Inc.
  - Technical Session Refreshment Break

- GE Aviation
  - Novelty Desk

- Lockheed Martin
  - Technical Session Refreshment Break

- Lord Corporation
  - Lanyards

- PIC Wire & Cable
  - Forum 70 Proceedings CD

- Pratt & Whitney Canada
  - Badge Holders

- PCC Aerostructures
  - Technical Session Refreshment Break

- Safran Turbomeca Canada
  - General Session Refreshment Break

- Sikorsky Aircraft
  - Exhibitor/Industry Reception

- TenCate
  - Technical Session Refreshment Break
# Forum 70
## Final Program

All events will take place at the Palais des congrès de Montréal unless otherwise noted.

### Sunday, May 18, 2014

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 a.m. - 5:00 p.m.</td>
<td>Exhibitor Move-In (Exhibitors Only), 210/220 A/230</td>
</tr>
<tr>
<td>2:00 p.m. - 5:00 p.m.</td>
<td>Attendee Registration Open, 210 Prefunction</td>
</tr>
</tbody>
</table>

### Monday, May 19, 2014

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:00 a.m. - 5:00 p.m.</td>
<td>Show Office, Room 512 H</td>
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<tr>
<td></td>
<td>Student Volunteer Office, Room 512 F</td>
</tr>
<tr>
<td>7:00 a.m. - 5:00 p.m.</td>
<td>Registration Open (Exhibitors and Registrants), 210 Prefunction</td>
</tr>
<tr>
<td></td>
<td>Speaker Ready Room, Room 512 G</td>
</tr>
<tr>
<td>8:00 a.m. - 5:30 p.m.</td>
<td>Exhibitor Move-In (Exhibitors Only), 210/220 A/230</td>
</tr>
<tr>
<td>8:00 a.m. - 12 noon</td>
<td>AHS Technical Council Meeting, Room 510 A</td>
</tr>
<tr>
<td>8:00 a.m. - 5:00 p.m.</td>
<td>STAR Meeting (By Invitation Only), Room 510 B</td>
</tr>
<tr>
<td>9:00 a.m. - 4:00 p.m.</td>
<td>Rotorcraft Technology Short Course, Room 510 C</td>
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<tr>
<td></td>
<td>Presented by Dr. Richard (Dick) Bennett</td>
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<tr>
<td></td>
<td>(Additional registration required)</td>
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<tr>
<td></td>
<td>Short Course on Aerodynamics of Helicopter Accidents, Room 510 D</td>
</tr>
<tr>
<td></td>
<td>Presented by John (Jack) Cress</td>
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<tr>
<td></td>
<td>(Additional registration required)</td>
</tr>
<tr>
<td>12 noon - 1:30 p.m.</td>
<td>Journal Editors Meeting, Room 510 A</td>
</tr>
<tr>
<td>12:15 - 3:45 p.m.</td>
<td>Bell Helicopter and CAE Tours (Reservations Required)</td>
</tr>
<tr>
<td>1:30 p.m. - 2:30 p.m.</td>
<td>Session Chair Meeting, Room 510 A</td>
</tr>
<tr>
<td>2:30 p.m. - 4:00 p.m.</td>
<td>Student Volunteer Meeting, Room 511 D</td>
</tr>
<tr>
<td>4:00 p.m. - 6:00 p.m.</td>
<td>MAV Student Competition, Exhibit Hall 220 A</td>
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<tr>
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<td>Five university teams are competing for $10,000 in prizes against</td>
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<td>the challenging rules established by the AHS International Unmanned</td>
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<tr>
<td></td>
<td>VTOL Aircraft and Rotorcraft Technical Committee.</td>
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<tr>
<td>4:30 p.m. - 6:00 p.m.</td>
<td>Safety Technical Committee, Room 512 A</td>
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### Tuesday, May 20, 2014

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>6:00 a.m. - 5:00 p.m.</td>
<td>Show Office, Room 512 H</td>
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<tr>
<td></td>
<td>Student Volunteer Office, Room 512 F</td>
</tr>
<tr>
<td>7:00 a.m. - 5:00 p.m.</td>
<td>Registration Open, 210 Prefunction</td>
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<tr>
<td></td>
<td>Speaker Ready Room, Room 512 G</td>
</tr>
<tr>
<td>8:00 a.m. - 9:15 a.m.</td>
<td>Modeling &amp; Simulation Technical Committee, Room 512 B</td>
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**Tuesday, May 20, 2014 (Continued)**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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</thead>
</table>
| 8:00 a.m. - 12 noon | **Special Session:**  
US Army Aviation Program Manager Briefings, Room 516 C  
Moderated by Brigadier General Robert Marion, U.S. Army PEO for Aviation  
- BG Robert Marion, PEO Aviation  
- COL Jeffrey Hager, PM-Apache Attack  
- COL Rob Barrie, PM-Cargo  
- COL Thomas Todd, PM-Utility  
- COL Tim Baxter, PM-Unmanned Air Systems (UAS)  
- COL Jim Brashear, PM-Non-Standard Rotary Wing  
- Mr. Rod Bellows, Dep. PM-Aviation Systems  
- Mr. Dan Bailey, PD-Future Vertical Lift (FVL)  
On-site Facilitator: Mr. Randy L. Robinson, S&T Program Manager, PEO Aviation.  
Note: some presenters will be briefing remotely due to US Government travel restrictions. | Room 516 C |
| 8:00 a.m. - 12 noon | **Technical Session A**  
- Aerodynamics I, 516 A/B  
- Dynamics I, 516 D/E  
- Handling Qualities I, 511 F  
- Manufacturing Technology & Processing I, 513 D/E/F  
- Operations I, 510C  
- Product Support Systems Technology, 510 D  
- Test & Evaluation I, 511 E  
- Wind Energy I, 511 D |           |
| 9:00 a.m. - 10:00 a.m. | Acoustics Technical Committee, Room 512 A |
| 10:00 a.m. - 12 noon | Noise Working Group, Room 510 A |
| 9:30 a.m. - 10:00 a.m. | Refreshment Break – Sponsored by Precision Castparts Corp., Meeting Room Corridors |
| 11:00 a.m. - 7:00 p.m. | Exhibit Hall Open |
| 11:00 a.m. - 12 noon | Crew Stations & Human Factors Engineering Technical Committee, Room 512 A |
| 12 noon - 1:30 p.m. | Exhibit Hall Luncheon – Sponsored by The Boeing Company |
| 1:30 p.m. - 3:30 p.m. | Opening General Session, Room 710 A/B  
Welcome  
Mike Hirschberg, AHS International Executive Director  
Keynote Address  
Brigadier-General Christian Drouin, Deputy Commander Force Generation, Royal Canadian Air Force  
Moderated by Kenneth Swartz, Vertical magazine  
- Daniele Romiti, CEO – AgustaWestland  
- Jean-Brice Dumont, CTO – Airbus Helicopters  
- John Garrison, CEO – Bell Helicopter Textron  
- David Koopersmith, VP/GM Vertical Lift – Boeing Military Aircraft  
- Mark Miller, VP Engineering – Sikorsky Aircraft Corporation |
| 3:30 p.m. - 4:00 p.m. | General Session Refreshment Break – Sponsored by Safran Turbomeca Canada, Room 710 A |
| 4:00 p.m. - 5:00 p.m. | Alexander Nikolsky Honorary Lectureship, 710 A/B  
“Unified Approach for Accurate and Efficient Dynamic Modeling of Composite Rotor Blades”  
Prof. Dewey Hodges, Georgia Institute of Technology |
<p>| 4:00 p.m. - 5:00 p.m. | Aircraft Design Technical Committee, Room 512 A |
| 4:00 p.m. - 5:00 p.m. | Manufacturing Technology &amp; Processing Technical Committee, Room 510 A |</p>
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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</table>
| 5:00 p.m. - 7:00 p.m. | **Exhibitor/Industry Reception, Exhibit Hall**  
*Sponsored by Sikorsky Aircraft Corp.*                                                                |
| 7:00 p.m. - 8:00 p.m. | AHS International Chapter Meeting, Room 510 A                                               |
| 7:00 p.m. - 8:30 p.m. | **Dynamics Technical Committee**, Room 512 A                                                |

**Wednesday, May 21, 2014**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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</table>
| 6:00 a.m. - 5:00 p.m. | **Show Office, Room 512 H**  
**Student Volunteer Office, Room 512 F**                                          |
| 7:00 a.m. - 5:00 p.m. | Registration Open, 210 Prefunction  
**Speaker Ready Room, Room 512 G**                                                      |
| 7:30 a.m. - 9:00 a.m. | **Aerodynamics Technical Committee**, Room 512 D                                              |
| 8:00 a.m. - 12:15 p.m. | **Special Session:**  
**US Navy/Marine Corps Aviation Program Manager Briefings, Room 516 C**  
Moderated by Rear Admiral Cindy “CJ” Jaynes, Navy PEO for Air ASW, Assault & Special Mission Programs  
- Rear Adm. CJ Jaynes, PEO(A)  
- Col. Robert Pridgen, Program Manager, PMA-261, H-53 Heavy Lift Helicopters  
- Mr. Larry Pugh, Principal Deputy Program Manager, PMA-274, Presidential Helicopters  
- Col. Daniel B. Robinson, Program Manager, PMA-275, V-22 Joint Program  
- Col Steven R. Girard, Program Manager, PMA-276, USMC Light and Attack Helicopters  
- CAPT Jim Glass, Program Manager, PMA-299, H-60 Multi-Mission Helicopters  
*On-site Facilitator: M. E. Rhett Flater*, Consultant on Aerospace and Defense Industrial Base Issues  
*Note: presenters will be briefing remotely due to US Government travel restrictions.* |
| 8:00 a.m. - 12:15 p.m. | **Technical Session B**  
- Acoustics I, 511 E  
- Joint Aerodynamics/Dynamics, 516 A/B  
- Crew Stations & Human Factors, 510 D  
- Handling Qualities II, 511 F  
- HUMS/CBM I, 510 C  
- Modeling & Simulation I, 511 D  
- Structures & Materials I, 516 D/E  
- Unmanned VTOL Aircraft & Rotorcraft I, 513 D/E/F                                           |
| 9:00 a.m. - 12 noon | **Board of Directors Meeting, 510 A**                                                      |
| 9:00 a.m. - 10:00 a.m. | **Avionics & Systems Technical Committee, Room 512 B**                                     |
| 9:00 a.m. - 10:30 a.m. | **Product Support Technical Committee, Room 512 A**                                       |
| 9:00 a.m. - 5:00 p.m. | **Exhibit Hall Open**                                                                       |
| 9:30 a.m. - 10:15 a.m. | **Refreshment Break – Sponsored by TenCate Advanced Composites, Exhibit Hall**  
**Prize Drawing – Sponsored by AHS at 10:00 a.m. (Must be present to win)**             |
| 12 noon - 1:30 p.m. | **Exhibit Hall Luncheon – Sponsored by The Boeing Company**                                |
| 1:00 p.m. - 1:30 p.m. | **Continuum Dynamics Technical Briefing, Booth 314**                                       |
| 1:45 p.m. - 6:00 p.m. | **Special Session:**  
**Suppliers & Subsystems Technology Panel, Room 516 C**  
Moderated by Raymond Leduc – VP Operations, Bell Helicopter Canada  
- Walter Di Bartolomeo – VP Engineering, Pratt & Whitney Canada  
- Gilles Labbé – President & CEO, Héroux Devtek  
- Greg Yeldon – President, CMC Esterline Electronics |
### Wednesday, May 21 Continued

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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</table>
| 1:45 p.m. - 6:00 p.m. | Technical Session C  
  • Acoustics II (1/2)/Operations II (1/2), 510 D  
  • Avionics & Systems I, 513 D/E/F  
  • Crash Safety, 516 A/B  
  • Dynamics II, 516 D/E  
  • HUMS/CBM II, 510 C  
  • Modeling & Simulation II, 511 D  
  • Systems Engineering, 511 F  
  • Test & Evaluation II, 511 E |
| 1:45 p.m. - 3:15 p.m. | AHS Membership Committee, Room 510 A                                |
| 1:45 p.m. - 2:45 p.m. | Structures & Materials Technical Committee, Room 512 A               |
| 1:45 p.m. - 2:45 p.m. | Propulsion Technical Committee, Room 512 D                           |
| 2:00 p.m. - 2:30 p.m. | Shimco North America Technical Briefing 1, Room 512 E               |
| 2:30 p.m. - 4:00 p.m. | Advanced Vertical Flight Technical Committee, Room 512 B             |
| 3:00 p.m. - 4:00 p.m. | Award Recipient Orientation (By Invitation Only), Room 710 A/B       |
| 3:00 p.m. - 3:30 p.m. | Alcoa Fastening Systems Technical Briefing 1, Room 512 E             |
| 3:00 p.m. - 4:00 p.m. | Unmanned VTOL Aircraft & Rotorcraft Technical Committee, Room 512 C |
| 3:15 p.m. - 4:00 p.m. | Refreshment Break – Sponsored by Automated Dynamics, Exhibit Hall    |
|                  | Prize Drawing – Sponsored by AHS at 3:45 p.m. (Must be present to win) |
| 3:30 p.m. - 4:00 p.m. | Avion Solutions Technical Briefing, Booth 112                       |
| 4:00 p.m. - 4:30 p.m. | Pennsylvania State University Technical Briefing, Room 512 E         |
| 6:00 p.m. - 7:00 p.m. | Vertical Flight Foundation Cocktail Reception  
  Sponsored by Bell Helicopter |
| 7:00 p.m. - 9:30 p.m. | Vertical Flight Foundation Cocktail Reception  
  AHS Grand Awards Banquet  
  Sponsored by Bell Helicopter |

### Thursday, May 22, 2014

<table>
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<tr>
<th>Time</th>
<th>Event</th>
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</table>
| 6:00 a.m. - 5:00 p.m. | Show Office, Room 512 H  
  Student Volunteer Office, 512 F |
| 7:00 a.m. - 3:00 p.m. | Speaker Ready Room, Room 512 G                                       |
| 7:30 a.m. - 1:00 p.m. | Registration Open, 210 Prefunction                                  |
| 7:30 a.m. - 9:00 a.m. | Technical Committee Chair/Session Chair Meeting, Room 510 A          |
| 8:00 a.m. - 12:15 p.m. | Technical Session D  
  • Advanced Vertical Flight I, 511 E  
  • Aerodynamics II, 516 A/B  
  • Aircraft Design I, 516 D/E  
  • Awards (1/2)/Manufacturing Technology & Processing II (1/2), 511 F  
  • History, 510 D  
  • Modeling & Simulation III, 511 D  
  • Propulsion I, 510 C  
  • Structures & Materials II, 513 D/E/F |
Thursday, May 22 Continued

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>8:00 a.m. - 12 noon</td>
<td>1st Workshop on Benchmarking Methods for Autonomous Rotorcraft Guidance, Room 510 B</td>
</tr>
<tr>
<td>8:00 a.m. - 9:30 a.m.</td>
<td>System Engineering Technical Committee, Room 512 B</td>
</tr>
<tr>
<td>8:30 a.m. - 10:00 a.m.</td>
<td>Crash Safety Technical Committee, Room 512 D</td>
</tr>
<tr>
<td>9:00 a.m. - 12 noon</td>
<td>Exhibit Hall Open</td>
</tr>
<tr>
<td>9:00 a.m. - 10:00 a.m.</td>
<td>Operations Technical Committee, Room 512 A</td>
</tr>
<tr>
<td>9:30 a.m. - 10:15 a.m.</td>
<td>Refreshment Break – Sponsored by CAE, Exhibit Hall</td>
</tr>
<tr>
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<td>Prize Drawing – Sponsored by AHS at 10:00 a.m. (Must be present to win)</td>
</tr>
<tr>
<td>9:30 a.m. - 10:30 a.m.</td>
<td>STEM Meeting, Room 510 A</td>
</tr>
<tr>
<td>10:00 a.m. - 10:30 a.m.</td>
<td>Alcoa Fastening Systems Technical Briefing, Room 512 E</td>
</tr>
<tr>
<td>10:15 a.m. - 12:15 p.m.</td>
<td>Special Session: Canadian Rotorcraft: From Research to Operations, Room 516 C</td>
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<td>• Barry Kohier – Chair, Aerospace Industries Association of Canada (and President, Bell Helicopter Canada)</td>
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<td>• Fred Jones – President &amp; CEO, Helicopter Association of Canada</td>
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<td>• Jerzy Komorowski – Director General, NRC Institute for Aerospace Research</td>
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<td>• TBD – Transport Canada</td>
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<tr>
<td>10:15 a.m. - 11:45 a.m.</td>
<td>Handling Qualities Technical Committee, Room 512 D</td>
</tr>
<tr>
<td>10:30 a.m. - 12 noon</td>
<td>Test &amp; Evaluation Technical Committee, Room 512 B</td>
</tr>
<tr>
<td>10:45 a.m. - 11:15 a.m.</td>
<td>Automated Dynamics/Surface Engineering Technical Briefing, Room 512 E</td>
</tr>
<tr>
<td>12 noon - 1:00 p.m.</td>
<td>Student Design Competition Steering Committee, Room 512 C</td>
</tr>
<tr>
<td>12:15 p.m. - 1:30 p.m.</td>
<td>Voucher Lunch – Sponsored by The Boeing Company</td>
</tr>
<tr>
<td>1:00 p.m. - 2:30 p.m.</td>
<td>History Committee Meeting, Room 512 A</td>
</tr>
<tr>
<td>1:30 p.m. - 5:30 p.m.</td>
<td>Technical Session E</td>
</tr>
<tr>
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<td>• Advanced Vertical Flight II, 511 E</td>
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<tr>
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<td>• Aerodynamics III, 516 A/B</td>
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<tr>
<td></td>
<td>• Aircraft Design II, 516 D/E</td>
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<td>• Dynamics III (1/2)/Wind Energy II (1/2), 511 F</td>
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<td>• HUMS/CBM III, 511 D</td>
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<td>• Propulsion II, 510 C</td>
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<tr>
<td></td>
<td>• Test &amp; Evaluation III, 510 D</td>
</tr>
<tr>
<td></td>
<td>• Unmanned VTOL Aircraft &amp; Rotorcraft II, 513 D/E/F</td>
</tr>
<tr>
<td>3:30 p.m. - 4:00 p.m.</td>
<td>Refreshment Break – Sponsored by Lockheed Martin, Meeting Room Corridors</td>
</tr>
<tr>
<td>4:00 p.m. - 5:00 p.m.</td>
<td>Safety Technical Committee (Meeting 2), Room 512 A</td>
</tr>
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Save the Date!

**71st Annual Forum & Technology Display**

May 5-7, 2015
Virginia Beach, VA

Transforming Vertical Flight Technology
Developing reliable composite structures with repeatable results.

Automated Dynamics has 30 years of experience manufacturing high performance composite structures for aerospace. We are a world leader in composite fiber placement technology. We build automated fiber placement and tape laying equipment which we use to manufacture high performance composite structures. This gives us the unique advantage of building equipment optimized for your performance requirements.

The key benefits of using composites in aerospace include:

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- Decreased life cycle cost
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- Damage tolerance
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May 20-22
MONTREAL, QUEBEC CANADA

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Forum 70 Technical Briefings

Wednesday, May 21, 1:00 p.m. – 1:30 p.m.  
Continuum Dynamics, Inc.  
Title of Briefing:  
Advanced Aerodynamic Analysis of Ducted Fan Concepts  
Briefing Description:  
In recent work, CDI has studied the aerodynamics of several ducted fan concepts using both advanced rotorcraft CFD and comprehensive analyses. In this technical briefing, CDI will outline the major results of this work and discuss selected insights on methods suitable for assessing these systems for use on high speed compound aircraft.

Wednesday, May 21, 2:00 p.m. – 2:30 p.m.  
Shimco North America Inc.  
Title of Briefing:  
Benefits of Laminated Shims  
Briefing Description:  
Learn about the benefits of using laminated parts to minimize inventory.

Wednesday, May 21, 3:00 p.m. – 3:30 p.m.  
Alcoa Fastening Systems  
Title of Briefing:  
Ergo-Tech® Blind Bolt  
Briefing Description:  
The Ergo-Tech® blind bolt is a new blind fastener from AFS offering high strength, light weight and simple installation. The presentation would be of interest to structural, stress, manufacturing and maintenance engineers.

Wednesday, May 21, 3:30 p.m. – 4:00 p.m.  
Avion Solutions  
Title of Briefing:  

Booth 314  

Ultrasonic Shot Peening for MRO Environments  
Briefing Description:  
Demonstrating portability, time efficiency and unique applications of ultrasonic shot peening.

Wednesday, May 21, 4:00 p.m. – 4:30 p.m.  
Pennsylvania State University  
Title of Briefing:  
Recent Advances at the VLRCOE  
Briefing Description:  
Educational and research programs have been taking exciting leaps forward. Come learn more!

Thursday, May 22, 10:00 a.m. – 10:30 a.m.  
Alcoa Fastening Systems  
Title of Briefing:  
FC43® Panel Fastener  
Briefing Description:  
The FC43® panel fastener is a new structural panel fastener from AFS. FC43® panel fastener offers potential weight savings, “pin hold out” in any position, easy remove/replace and excellent load transfer capabilities. The presentation would be of interest to structural, stress, manufacturing and maintenance engineers.

Thursday, May 22, 10:45 a.m. – 11:15 a.m.  
Automated Dynamics / Survive Engineering  
Title of Briefing:  
Automated Dynamics and Survive Engineering Announce Strategic Alliance  
Briefing Description:  
Automated Dynamics has teamed with Survive Engineering to design and manufacture advanced composite structures for rotorcraft applications.

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Win a $200 Amazon.com Gift Card

Prize drawings to be held in the Exhibit Hall during the Forum 70 Technical Session Refreshment Breaks . . .

Wednesday, May 21 at 10:00 a.m.  
Wednesday, May 21 at 3:45 p.m.  
Thursday, May 22 at 10:00 a.m.

Forum 70 attendees may enter to win by dropping a business card in the ticket tumbler located in the Exhibit Hall during the refreshment break. A prize drawing winner must be present in the Exhibit Hall to win and must claim the prize by the close each Exhibit Hall Refreshment Break. A prize may be claimed at the location of the ticket tumbler. An unclaimed prize will be made available for a repeat prize drawing at a later refreshment break.

Sponsored by AHS International – The Vertical Flight Technical Society
At CAE, we understand flight training can be challenging and demanding. But we believe the rest of the experience shouldn’t be. That’s why we offer convenient and enjoyable locations, unsurpassed service, and tailored programs and schedules that meet your needs. So work with the people who work with you. CAE. Elevate your training.

TrainWithCAE.com    Visit us at Forum 70 booth 226.
All Forum 70 attendees must register to receive a badge. Badges must be visibly displayed to gain admittance to both the Exhibit Hall and the technical sessions. FULL THREE-DAY REGISTRATION includes:

- Admittance to all sessions and coffee breaks
- Entry to the Exhibit Hall during scheduled hours
- Tickets to Luncheons, the Exhibitor/Industry Reception, Vertical Flight Foundation Reception and Grand Awards Banquet
- Forum 70 Proceedings CD-ROM

**Registration Hours**

<table>
<thead>
<tr>
<th>Date</th>
<th>Hours</th>
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<tr>
<td>Sunday, May 18, 2014</td>
<td>2:00 p.m. – 5:00 p.m.</td>
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<td>Monday, May 19, 2014</td>
<td>7:00 a.m. – 5:00 p.m.</td>
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<td>Tuesday, May 20, 2014</td>
<td>7:00 a.m. – 5:00 p.m.</td>
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<tr>
<td>Wednesday, May 21, 2014</td>
<td>7:00 a.m. – 5:30 p.m.</td>
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<tr>
<td>Thursday, May 22, 2014</td>
<td>7:30 a.m. – 1:00 p.m.</td>
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**Forum 70 Proceedings**

Proceedings will be available in two formats – printed or the CD-ROM version – and contain all papers presented at the technical sessions. Printed Proceedings will not be available until after the Forum. The CD-ROM is complimentary for all Full Three-Day Registrants! Other registrants may purchase it onsite at the reduced rate of $205.00.

**Publication Bins**

Publication bins will be located in the registration area stocked with the May/June 2014 issue of *Vertiflite* and industry relevant periodicals and literature.

**Speaker Ready Room**

Speakers may organize and review their presentations in the Speaker Ready Room. Hours are from 7:00 a.m. – 5:00 p.m. on Monday, Tuesday, and Wednesday and from 7:00 a.m. – 3:00 p.m. on Thursday.

**AHS Novelty Desk**

AHS publications, shirts, hats, mugs, key chains, golf balls and other new novelty items will be available for purchase at the Novelty Desk located in the AHS Registration area.

**Technology Display**

Be sure to allocate ample time to visit the Forum 70 Technology Display in the Exhibit Hall. Scores of companies and organizations will be presenting the latest developments in vertical flight technology and showing the advancements in airframe, propulsion, avionics, systems integration, simulation technology and much more.

To maximize the opportunity to view exhibits, social events such as lunches on Tuesday and Wednesday, the Exhibitor/Industry Reception and most Technical Briefings are held in the Exhibit Hall. The technology display is open to registrants. AHS reserves the right to make modest changes to the Exhibit Hall hours without advance notification to exhibitors or registrants.

**Exhibit Hall Hours and Events**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Hours</th>
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<tr>
<td>Tuesday, May 20, 2014</td>
<td>Exhibit Hall Open</td>
<td>11:00 a.m. – 7:00 p.m.</td>
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<tr>
<td></td>
<td>Exhibit Hall Luncheon</td>
<td>12 noon – 1:30 p.m.</td>
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<tr>
<td></td>
<td>Exhibitor/Industry Reception</td>
<td>5:00 p.m. – 7:00 p.m.</td>
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<tr>
<td>Wednesday, May 21, 2014</td>
<td>Exhibit Hall Open</td>
<td>9:00 a.m. – 5:00 p.m.</td>
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<td></td>
<td>Refreshment Break</td>
<td>9:30 a.m. – 10:15 a.m.</td>
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<tr>
<td></td>
<td>Exhibit Hall Luncheon</td>
<td>12:15 p.m. – 1:45 p.m.</td>
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<tr>
<td></td>
<td>Refreshment Break</td>
<td>3:15 p.m. – 4:00 p.m.</td>
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<tr>
<td>Thursday, May 22, 2014</td>
<td>Exhibit Hall Open</td>
<td>9:00 a.m. – 12:00 noon</td>
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<tr>
<td></td>
<td>Refreshment Break</td>
<td>9:30 a.m. – 10:15 a.m.</td>
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**Exhibit Hall Technical Briefings**

Industry technical briefings from exhibiting companies will be held at the company’s booth in the Exhibit Hall. Some briefings will also be conducted in meeting rooms. These briefings will provide attendees with a more comprehensive overview of the company’s capabilities and services. Exhibitors are invited to contact AHS International to arrange briefings and have the announcement published in the AHS International Forum 70 Final Program. This is a genuine value-added benefit offered to exhibiting companies and attendees.

**Exhibitor/Industry Reception**

<table>
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<tr>
<th>Date</th>
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<tr>
<td>Tuesday, May 20, 2014</td>
<td>Exhibitor/Industry Reception</td>
<td>5:00 p.m. – 7:00 p.m.</td>
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**Vertical Flight Foundation (VFF) Reception and Grand Awards Banquet**

**Wednesday, May 21, 2014**

The VFF Reception will be held 6:00 p.m. – 7:00 p.m. and the Grand Awards Banquet 7:00 p.m. – 9:30 p.m. Distinguished guests from government agencies and military branches, as well as the international vertical flight industry, will be among the attendees. This exciting event will honor distinguished award recipients for their achievements. Attendees will enjoy an excellent dinner and entertainment. Full registration includes a ticket to this event; all others must purchase tickets in advance. The event is business attire and military uniforms.

**Exhibit Hall Luncheons**

<table>
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<tr>
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<td>Exhibit Hall Luncheon</td>
<td>12:15 p.m. – 1:45 p.m.</td>
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</table>
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The following AHS staff members and industry volunteers are available to assist you:

**Forum 70 Programs and Events:**
Mike Hirschberg, Executive Director

**Technical Sessions & Special Sessions:**
Kay Brackins, Deputy Director

**Exhibits & Sponsorships:**
David M. Renzi, Director of Meetings & Advertising

**Audio Visual Oversight:**
Dr. Cliff Smith and Dr. Anita Tracy

**Onsite Registration:**
Randy Johnson, Director of Information Resources (Onsite Registrar)
and Liz Malleck, Director of Membership (Exhibitor Registration, Corporate Membership Contact, Awards POC)

**AHS Novelty Desk:**
Holly Cafferelli, Director of Administration (Pre-Forum Registrar, Novelty Sales, Proceedings, Speaker Briefing Drop-Off)

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**AHS International offers its sincere thanks to the Forum 70 Chairs:**

Dan Newman, The Boeing Company – AHS International Technical Chair

Prof. Marilyn J. Smith, Georgia Institute of Technology – Forum Technical Chair

Mme. Blanche Demaret, ONERA – Deputy Forum Technical Chair

Dr. Marc Gervais, Airbus Helicopters – Acoustics Session Deputy Chair

Dr. Charles Tinney, The University of Texas at Austin – Acoustics Session Deputy Chair

Kit Borden, U.S. Army – Advanced Vertical Flight Session Chair

Michael Strauss, Sikorsky Aircraft Corporation – Advanced Vertical Flight Session Deputy Chair

Mark Potsdam, U.S. Army – Aerodynamics Session Chair

Edward Reed, Sikorsky Aircraft Corp. – Aerodynamics Session Deputy Chair

Dennis McGuire, Lord Corporation – Aircraft Design Session Chair

Dr. Richard Markiewicz, Defence Science and Technology Laboratory (DSTL) – Aircraft Design Session Deputy Chair

Dr. Melvin Johnson, U.S. Army Aviation Engineering Directorate – Avionics and Systems Session Chair

Dr. Walter Rawle, Ultra Electronics Flightline Systems – Avionics and Systems Session Deputy Chair

Dr. Akif Bolukbasi, The Boeing Company – Crash Safety Session Chair

Christof Kindervater, German Aerospace Research Center (DLR) – Crash Safety Session Deputy Chair

J. Kristin Little, The Boeing Company – Crew Stations Session Chair

Jeffery Erwin, Bell Helicopter Textron, Inc. – Crew Stations Session Deputy Chair

Dr. Matthew Flores, U.S. Army Research Lab – Dynamics Session Chair

Dr. Jinsong Bao, Sikorsky Aircraft Corp. – Dynamics Session Deputy Chair

Dr. Michael Jump, The University of Liverpool – Handling Qualities Session Chair

Joseph Driscoll, Sikorsky Aircraft Corporation – Handling Qualities Session Deputy Chair

Brian Tucker, Bell Helicopter Textron, Inc. – Health and Usage Monitoring Systems (HUMS) Session Chair

Eric-Paul Carney, NAVAIR – Health and Usage Monitoring Systems (HUMS) Session Deputy Chair

Dr. Bruce Charnov, Hofstra University – History Session Chair

Prof. Daniel Schrage, Georgia Institute of Technology – Manufacturing Technology & Processing Session Chair

William Harris, Sikorsky Aircraft Corp. – Manufacturing Technology & Processing Session Deputy Chair

Dr. Mark White, The University of Liverpool – Modeling and Simulation Session Chair

Daniel Spiro, Pegasus Research & Technologies – Modeling and Simulation Session Deputy Chair

John Barber, Bell Helicopter Textron, Inc. – Operations Session Chair

Terry Parisher, Northrop Grumman Corp. – Operations Session Deputy Chair

Treven Baker, U.S. Army AATD – Product Support Systems Technology Session Chair

Jason Johnson, Heli-One – Product Support Systems Technology Session Deputy Chair

Eric Sinusas, Bell Helicopter Textron, Inc. – Propulsion Session Chair

Michael Spratt, Rolls-Royce Corporation – Propulsion Session Deputy Chair

Jeffery Schaff, Sikorsky Aircraft Corporation – Structures & Materials Session Chair

Mark Gurvich, United Technologies Research Center – Structures & Materials Session Deputy Chair

Oxana Fedak, The Boeing Company – System Engineering Session Chair

Dr. Joan Pham, Sikorsky Aircraft Corp. – System Engineering Session Deputy Chair

Paul Taylor, QinettIQ Australia – Test & Evaluation Session Chair

Marc Alexander, National Research Council of Canada – Test & Evaluation Session Deputy Chair

Patrick Fabiani, ONERA – Unmanned VTOL Aircraft & Rotorcraft Session Chair

Chad Goerzen, San Jose State University – Unmanned VTOL Aircraft & Rotorcraft Session Deputy Chair

Dr. Glen Whitehouse, Continuum Dynamics, Inc. – Wind Energy Technology Session Chair

Prof. Jonathan Naughton, University of Wyoming – Wind Energy Technology Session Deputy Chair
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<th>Booth No.</th>
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<td>Advanced Rotorcraft Technology, Inc.</td>
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<tr>
<td>Advanced Torque Products LLC.</td>
<td>903</td>
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<tr>
<td>Advanced Turbine Engine Company (ATEC)</td>
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<tr>
<td>AgustaWestland</td>
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<td>AHS International</td>
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<tr>
<td>AHS Montréal-Ottawa Chapter</td>
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<td>AIAA</td>
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<td>Airbus Helicopters</td>
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<td>Alcoa Fastening Systems</td>
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<td>Altair Engineering, Inc.</td>
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<td>Aurora Flight Sciences</td>
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<td>Automated Dynamics</td>
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<td>Av-DEC, (Aviation Devices &amp; Electronic Components)</td>
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<td>Dayton T. Brown, Inc.</td>
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<td>UTC Aerospace Systems</td>
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<td>West Coast Industries</td>
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Advanced Rotorcraft Technology, Inc. #617  
www.flightlab.com

ART is an aerospace consulting firm specializing in rotorcraft engineering and simulation. Products include FLIGHTLAB, a simulation modeling and analysis tool; SIMphony, a distributed run-time environment for interfacing FLIGHTLAB models to simulator systems; and HeliFlight, turnkey aircraft specific or reconfigurable helicopter simulators.

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AgustaWestland #221  
www.agustawestland.com

AHS International #120  
www.vtol.org

AHS International is the world’s premier professional vertical flight technical society. Since its inception in 1943, AHS has been a major force in the advancement of a global rotorcraft industry, marked by rapid technical developments and expanding military capabilities and commercial applications. The strength of AHS as a professional and technical society is its diverse international professional and corporate membership. The aim of the society is not only to emphasize and further engineering excellence in traditional rotorcraft platform disciplines, but to expand this focus to the multidisciplinary fields of vertical flight and the related support industries. By supporting the needs of today’s vertical flight community and advocating the requirements for tomorrow’s industry, the Society helps both military and commercial sectors of the rotorcraft industry.

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www.aiaa.org

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www.appliedcomposites.com

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www.aurora.aero

Aurora’s Aerostructures group specializes in design, rapid prototyping and build of aircraft structure fabricated from advanced composite and metallic materials. Offering a full service solution, the company rapidly engages their best-in-class engineering and manufacturing talent to produce new products. Aurora Flight Sciences’ mission is to provide the best value and total solution for integrated aerostructures assemblies and components. Aurora is a tier 1 supplier to Sikorsky Aircraft on the CH-53K, S-97, S-92, H-92, and MH-60R and was awarded the AHS Supplier of Excellence Award in 2013.

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AVIOR Integrated Products #814
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BAE Systems #214
www.baesystems.com

Since introducing the first successful military crashworthy crew seat in the UH-60 Black Hawk in 1977, BAE Systems has earned the reputation as a pioneer in aerospace crash safety and occupant-centric survivability. Building upon its legacy brand, Simula, BAE Systems provides innovative, lifesaving products to the rotorcraft market. Among BAE Systems’ products are crashworthy cockpit, crew and troop seating systems, airframe and occupant armor as well as air bag systems. Also offered is a full range of lightweight composite, ceramic-composite and transparent armor solutions.

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CAE #226
www.cae.com

CAE is the leading international business aviation training provider with easily accessible training locations in Asia, Europe, the Middle East, North America and South America. CAE offers flexible training options, customized to your operational requirements, and a unique service experience. So work with the people who work with you. Elevate your training. www.trainwithcae.com

CanRep Inc. #821
www.canrep.com

CanRep, prides itself on the constant broadening of our services to meet our clients’ evolving needs and supporting them to attain new heights. As a Transport Canada accredited distributor and representative for several companies specialising in the manufacturing of equipment, parts and accessories, CanRep's growth is based on its renowned expertise and its highly flexible approach in the Canadian and international markets. We also offer related services such as logistics operations, warehousing, kitting and Just in Time (JIT) Delivery. As an approved Transport Canada/FAA/EASA repair station, CanRep offers specialized services in the ATA 25 (Aircraft Furnishings) and ATA 38 (Waste/Water) areas. Using factory trained technicians, they are able to provide a quick, efficient turn-around repair or overhaul for the line operators equipment, reducing the need for extensive pools of exchange equipment. Additionally, CanRep constantly strives to develop new repair schemes for components to extend the service life of components and avoid replacing costly components with new assemblies.

CD-adapco #515
www.cd-adapco.com

CD-adapco is the world’s largest independent CFD-focused provider of engineering simulation software, support and services. It has over 30 years of experience in delivering industrial strength engineering simulation to a wide range of industries and application.

Continuum Dynamics, Inc. #314
www.continuum-dynamics.com

Continuum Dynamics Inc. (CDI) is an industry leader in developing software products for advanced rotorcraft engineering analysis, design and simulation, and in providing engineering services supporting the design of novel VTOL concepts ranging from high speed UAVs to multi-role compound rotorcraft. At Forum 70, CDI is featuring new variants of its family of software modules that plug into rotorcraft analyses, CFD solvers and real-time pilot-in-the-loop flight simulations to improve modeling of aerodynamically demanding environments including brownout, formation flight, refueling and shipboard operations. CDI will also be demonstrating state-of-the-art methods for incorporating ship and terrain airwake effects into rotorcraft flight simulations.

Dayton T. Brown, Inc. #123
www.dayontbrown.com

Since 1950, Dayton T. Brown, Inc. has established itself as a leader providing elite product life-cycle services to the aviation communication, specializing in rotorcraft and vertical flight. They offer tailored engineering, prototyping, testing, technical publications and logistics services to some of the most demanding aerospace organizations in the world. The company is committed to delivering innovative solutions and services that are superior, competitive and of the highest quality in support of vertical flight.
Eagle Technologies LLC. #117
www.eagleaviationtech.com

Eagle Technologies, LLC (ETL), located in Hampton, Va. provides engineering design, analysis and testing capabilities coupled with precision machining and composite fabrication. AS9100 Rev C: Design to Production. Their contracts include main rotor blades for Sikorsky X2 and S97 Raider. Rotor and drive systems for KARI Smart UAV. Eagle produces the Sikorsky S-76D Inlet Door and Engine Air System, Avionics Door UH60A-L model. ETL has a unique and extensive blend of aerospace prototype and production capability.

East/West Industries, Inc. #414
www.eastwestindustries.com

For 46 years, East/West has designed and manufactured innovative, cost effective, high quality critical systems such as aircraft seats, life support and ground support equipment for the aerospace industry. At AHS Forum 70, East/West is highlighting two of its many innovative products – their Crash-Attenuating Seats and their Master Crane®. East/West is a woman owned small business and is a registered AS 9100 Company.

Esterline CMC Electronics #312
www.esterline.com

Esterline CMC Electronics (CMC) delivers innovative cockpit systems integration and avionics solutions to its customers worldwide. CMC’s expertise encompass cockpit avionics systems integration, navigation and flight management systems, enhanced vision systems, electronic flight bags, aircraft information servers, GPS receivers, satellite communications antennas, and a wide range of custom displays and microelectronics. The company is a major supplier to the aerospace and high-technology industries, airlines, government and military agencies around the world.

Fatigue Technology #910
www.fatiguetech.com

Fatigue Technology (FTI) pioneered cold expansion technology over 40 years ago and has advanced this science to develop innovative solutions for bushing installations, fastener applications and aerospace fitting and hardware installations. FTI products improve aircraft structural durability and reduce manufacturing and maintenance flow-time and costs in metal and composite applications.

Flight Light Inc. #711
www.flightlight.com

Flight Light Inc. was founded in 1993 to supply robust, rugged, and cost-effective airfield, helipad and obstruction lighting products to commercial, private and military customers worldwide. Flight Light is a veteran-owned small business and our Quality Management System is registered to ISO 9001: 2008. Their fixtures are providing mission-critical lighting at ground and rooftop helipads around the world. With hundreds of heliports successfully completed, the company’s staff has the experience and skills to provide the best recommendations and technical support each project demands.

Garmin USA #914
www.garmin.com

Garmin is a leading provider for solutions to Original Equipment Manufacturers (OEM), aftermarket, military, and government customers. Garmin’s portfolio includes navigation, communication, flight control, hazard avoidance, surveillance, and other products and services that are known for innovation, reliability, and value.

GasTOPS Ltd. #622
www.gastops.com

GasTOPS provides innovative fluid sensing and analysis solutions for aircraft health monitoring and prognostics. Their MetalSCAN on-line oil debris sensor technology, originally developed for the engines of the F22 Raptor, has also been selected as a key component of the health monitoring systems of the F35 Joint Strike Fighter, Eurofighter Typhoon, S61 Sea King, Pilatus PC12 aircraft and more recently, for the Pratt & Whitney PurePower® Engines on the Airbus A320neo, Bombardier CSeries, Mitsubishi MRJ and Irktu MS-21 airliners. MetalSCAN’s unique full-flow detection capability for both ferrous and non-ferrous metallic particles has set a new standard for early identification and monitoring of critical bearing and gear damage, including the ability to estimate the remaining service life of damaged components. The company also supplies advanced oil debris analysis products and services for at-line determination of the metallurgy of captured oil debris particles and the assessment of the criticality of suspected bearing and gear problems.

GE Aviation #116
www.ge.com/aviation

GE Aviation, an operating unit of the General Electric Company, is a world-leading provider of jet engines, components and integrated systems for commercial and military aircraft. GE Aviation also has a global service network to support these offerings.

Georgia Institute of Technology #816
www.ae.gatech.edu

Georgia Institute of Technology operates an internationally recognized Center of Excellence in Vertical Lift Technology. The university performs research in Aerodynamics, Aeroelasticity, Dynamics, Engines, Composites, Structures, Flight Mechanics, Controls and System Design. They also
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comes from collaboration
In a world that moves at light speed, RTI partners with you to create advanced vertically integrated solutions for the global vertical flight industry.
provide a world-class education in Rotorcraft for both undergraduate and graduate students. The School of Aerospace Engineering and Georgia Tech are ranked in the top engineering schools and universities both nationally and internationally.

**Heroux-Devtek Inc. #717**
www.herouxdevtek.com

Heroux-Devtek Inc. is a Canadian company specializing in the design, development, manufacture and repair and overhaul of landing gear and actuation systems and components for the Aerospace market. The corporation is the third largest landing gear company worldwide, supplying both the commercial and military sectors of the Aerospace market with new landing gear systems and components, as well as aftermarket products and services. The corporation’s head office is located in Longueuil, Québec with facilities in the Greater Montreal area (Longueuil, Laval and St-Hubert); Kitchener and Toronto, Ontario; Springfield and Cleveland, Ohio; Wichita, Kansas; and Runcorn, Nottingham and Bolton, United Kingdom.

**Hutchinson Aerospace #815**
www.hutchinson-aerospace.com

Hutchinson Aerospace is a worldwide leader in the Design and Manufacture of Anti-Vibration Systems, Fluid Transfer Systems, Sealing Systems, Thermal and Acoustic Materials, and Control and Display Systems, and focuses these products to provide integrated solutions for the Cabin and Engine Environments, Airframe, and Equipment. Hutchinson Aerospace supports the Operators via a worldwide Customer Support Organization with 3 main Services Centres in the USA, Europe and China, all three being FAA, EASA and CAAC approved.

**ITT Enidine, Inc. #415**
www.enidine-defense.com

ITT Enidine designs and manufactures energy absorption and vibration isolation products for commercial, business and civil aviation as well as military and cargo aircraft. Their products offer APU and engine mount isolation, helicopter cabin noise attenuation, avionics and electronics isolation as well as protect target sight systems, FLIR and cameras. ITT Enidine’s extensive knowledge and experience enable the company to provide its customers with superior analysis, products, services and support.

**Kamatics RWG #909**
www.kamatics.com

Kamatics RWG is the manufacturer of Kaflex driveshafts, which are STC approved for Models 206A, B, BILL, 206LI, LIII, B0105, and are available directly from Kamatics. Kamatics also manufactures a complete line of self-lubricating KAron bearings.

**Karem Aircraft, Inc. #603**
www.karemaircraft.com

Karem Aircraft develops advanced tiltrotor aircraft for military and commercial applications based on its patented Optimum Speed Tilt Rotor (OSTR) technology. Karem is currently supporting the U.S. Army’s Joint Multi-Role (JMR) Technology Demonstrator (TD) program as well as DARPA’s Vertical Take-Off and Landing Experimental Aircraft (VTOL X-Plane). In parallel to these military efforts, Karem Aircraft is undertaking private-venture development of the AeroTrain civil transport tiltrotor with 120-180 passenger capacity (VTOL 737). Karem is currently manufacturing the AeroTrain long-lead subsystems. Abe Karem, President, led the development of fixed-wing UAVs (Amber, Gnat 750 and Predator) in 1980-1993. He also led the development of the Hummingbird A160 advanced unmanned helicopter and the patented Optimum Speed Rotor (OSR) in 1998-2004.

**LORD Corporation #303**
www.lord.com

LORD is a technology and manufacturing company developing highly reliable adhesives, coatings, motion management devices, and sensing technologies that significantly reduce risk and improve product performance. For 90 years, LORD has worked in collaboration with its customers to provide innovative aerospace, defense, automotive and industrial solutions. With world headquarters in Cary, NC and 2013 revenues in excess of $880 million, LORD has more than 2,900 employees in 26 countries and operates 16 manufacturing facilities and eight R&D centers worldwide.

**MDS Coating Technologies Corporation #315**
www.mdscoating.com

MDS Coating Technologies Corporation (MCT) designs, manufactures and tests protective coatings for gas turbine engines used in the aerospace, commercial and defense industries, including the award winning BlackGold® Coating. The MCT Erosion and Corrosion Resistant Coatings designed for the compressor section of gas turbine engines are field proven and have been in operation since 1991. Field data confirms that the MCT coating increases operational time by up to 12 times and has saved a major operator $8 million annually per aircraft. The coatings retain engine efficiency leading to less fuel burn, reduce replacement and repair costs, and provide protection against volcanic ash erosion. The nanotechnology is Nadcap accredited and is certified with several OEMs, including GE Aviation, Rolls-Royce, Siemens and MAN Turbo.

**Micro-Coax, Inc. #121**
www.micro-coax.com

Micro-Coax fabrique des câbles hyperfréquence, des cordons assemblés et des fibres métallisés pour blindage
WE KEEP YOU FLYING

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Our team of 6,000 specialists worldwide focus their energy and expertise on a common goal: providing your helicopter missions with the highest levels of safety and reliability. Through innovation, the design of new engines and the deployment of proximity services worldwide. Turbomeca strives to earn the satisfaction of every single customer.
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Integrated products combining its two core activities; NSE AUTOMATECH, a dynamic Canadian company, offers www.nse-automatech.com

R&D.

Simulators, and a Bell 206B used for sensor and avionics helicopters among its fleet of 9 research aircraft: Bell including both fixed and rotary wing aircraft. NRC operates affecting the design, technology, manufacture, support the Canadian aerospace community in matters advancement of aerospace technology in our region. In September of 2015 we will be hosting “Sustainability 2015”, an international conference on environmental sustainability in air vehicle design and operations of helicopters and airplanes.

AHS Montreal-Ottawa Chapter #823
http://mtlott.vtol.org

The Montreal-Ottawa Chapter of the Society was founded in 1987 and has made significant contributions to the advancement of aerospace technology in our region. In September of 2015 we will be hosting “Sustainability 2015”, an international conference on environmental sustainability in air vehicle design and operations of helicopters and airplanes.

National Research Council Canada #113
www.nrc-cnrc.gc.ca

As Canada’s national aerospace laboratory, the National Research Council (NRC) undertakes and promotes R&D to support the Canadian aerospace community in matters affecting the design, technology, manufacture, performance, use, and safety of aerospace vehicles, including both fixed and rotary wing aircraft. NRC operates 3 helicopters among its fleet of 9 research aircraft: Bell 412 and Bell 205 fly-by-wire helicopters used as airborne simulators, and a Bell 206B used for sensor and avionics R&D.

NSE AUTOMATECH #905
www.nse-automatech.com

NSE AUTOMATECH, a dynamic Canadian company, offers integrated products combining its two core activities; high precision machining and specialized wiring. The success of the company is linked to its creativity, rigorous execution and to the privileged contact it offers to each of its customers. NSE AUTOMATECH works in a participative management mode where the contribution of each person is profitable and where the responsibility of each individual at all levels of the organization ensure the satisfaction of its customers.

MicroTek Finishing, LLC #614
www.microtekfinishing.com

MicroTek Finishing’s Micro-Machining Process (MMP) is the only surface finishing technology of its kind in the world. MMP produces a perfectly controlled surface that is both repeatable and traceable. MMP is unique in its ability to selectively remove specific components of roughness evenly across the entire surface of the part.

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The world’s leading aircraft manufacturers rely on TenCate’s CCS Composites molded parts group to deliver complex, molded composite parts at the lowest possible cost to meet their most demanding performance requirements. Why?

TenCate CCS Composites designs and produces compression molded parts that are up to 40% lighter than the same parts made of machined aluminum. We also mold panels, access covers and doors as single, ribbed structures to replace expensive sandwich panel designs. And, with the ability to mold parts with integrated fasteners, galvanic barriers and lightning strike layers, we can significantly reduce the price of highly engineered advanced composite parts.

At TenCate, we simplify the process of molding complex composite parts. Call us today to discuss how we can solve your composite puzzle at 707-359-3400.

Go with the Leader. Go with TenCate.

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composites. Depending on the client’s needs, Placeteco has the resources and knowledge to offer its clients the full support they need to intervene during the initial phases of the project, during the design stage or work right up to the development and/or manufacturing of the actual parts. We can provide 3D models of the components as well as 2D drawings. Placeteco offers feasibility studies, prototyping, weight analyses, finite element, conceptualization, detailed drawings, production engineering, description of manufacturing process, programming of CNC machines, material characterization, evaluation and qualification, process, analysis and test reports.

**Pratt & Whitney Canada #419**
www.pw.utc.com

Pratt & Whitney Canada (P&WC), is a world leader in the design, manufacture and service of aircraft engines powering business, general aviation and regional aircraft and helicopters. P&WC’s global dependable support network includes a rapid response 24 hour Customer First Centre, 30 P&WC-owned and designated service facilities, field support representatives, mobile repair teams, rental and exchange engines and advanced diagnostic capabilities. P&WC’s customer service commitment is backed by over one-half billion hours of in-service experience.

**QuesTek Innovations LLC #620**
www.questek.com

QuesTek Innovations LLC rapidly designs, invents, develops and qualifies new materials using its advanced Materials By Design® computational technology, and commercializes them by licensing its intellectual property to proven third-party producers, processors or Original Equipment Manufacturers (OEMs). QuesTek works closely with governmental agencies, OEMs, product designers and fabricators, and material producers and processors to accelerate the invention and application of these custom-designed materials for helicopters and other high-performance products.

**REM Surface Engineering #715**
www.remchem.com

Decrease friction, reduce noise and vibration, increase power density, and extend mean time between maintenance with REM’s ISF Process. The ISF (Isotopic Superfinish) Process creates a smooth, micro-textured surface without metallurgical risk and is used to produce isotropic, superfinished gears, shafts, bearings and other drive train components. The process is used in both military and civilian fixed wing and rotary aircraft and has a proven record of reducing wear and increasing durability.

**Rensselaer Polytechnic Institute #523**
www.rpi.edu

The RAMS (Rotorcraft, Adaptive and Morphing Structures) Laboratory at RPI engages in a wide range of activities in the areas of helicopter aeromechanics and advanced configurations. Current efforts focus on high-speed configurations (including slowed rotor compound, coaxial rotors and stopped rotor/wing), and active rotor control and morphing (including rotor span, chord and camber/twist variation). Fundamental work on variable stiffness structures, bi-stable structures and cellular structures feed into adaptive rotor designs. Experimental facilities available include an instrumented micro-rotor test apparatus (capable of testing up to 2 ft diameter rotors). The group currently has seven PhD students and a number of undergraduate research assistants.

**RF System Lab #327**
www.rfsystemlab.us

RF System Lab is a worldwide leader in remote visual inspection and video borescope technology. The company makes leading edge, fully (360°) articulating, video borescopes like the innovative VJ-Advance; available in 2.8mm, 3.9mm, or 6.9mm insertion tube diameters. The VJ-Advance delivers the ideal features sought after by rotorcraft professionals. RF System Lab offers an industry-first, no obligation demo program to allow companies to test the VJ-Advance on an inspection at their facility for free.

**Rotor & Wing Magazine #120**
www.aviationtoday.com/rw/

*Rotor & Wing* is indisputably the number one publication in the helicopter industry, serving readers in all aspects of civilian and military rotorcraft operation. Widely respected and international in scope, this monthly magazine is considered the “bible” of the industry and a must-read for all players in the helicopter world. Subscriptions to *Rotor & Wing* are complimentary to the helicopter industry professionals. To receive your FREE subscription to *Rotor & Wing* visit www.omedamedia.com/rw and to learn more about our products please visit us at the www.aviationtoday.com/rw website.

**RTI International Metals, Inc #227**
www.rtiintl.com

RTI International Metals, Inc., headquartered in Pittsburgh, PA, is a leading vertically integrated global producer of advanced titanium and other specialty metals products and services for the commercial aerospace, defense, energy and medical device markets across the entire supply chain. For over 60 years, RTI has been taking titanium further through advanced manufacturing and engineering processes. RTI delivers a full range of titanium mill products as well as other titanium and specialty metals products and services including extruded shapes,
formed and 3-D printed parts, and precision engineered and machined components. RTI accomplishes this through its facilities located throughout the United States, Canada, Europe, and Asia. To learn more about RTI International Metals, Inc., visit the website above.

Saab Defense and Security #519
www.saabgroup.com

Saab offers world-leading solutions, products and services for military defense and the civil security sector and is continually developing, adapting and improving its technology to meet its customers’ changing needs in over 100 countries. Saab has approximately 14,000 employees with annual sales close to $4.0 billion USD, of which around 25 per cent was related to research and development. Saab serves the global market of governments, authorities and corporations with products, services and solutions ranging from military defense to civil security.

Sentient Science - CANCELED
www.sentientscience.com

Sentient Science is a technology and services company based in Buffalo, New York and Idaho Falls, Idaho. Since 2001, its team has been committed to developing model-based prognostic technologies to predict how, when, and where materials fail at a microstructure level. This research led to the development of a series of tools and services now offered commercially to help companies improve the life and performance of their rotating products in service, in testing, and in design. By interfacing prognostic models with online software and sensors to improve the life of fielded assets, Sentient supports what GE and others call the Industrial Internet.

Shimco North America Inc. #618
www.shimco.com

For over 25 years, Shimco has served the aerospace, defense, space, industrial and other sectors worldwide. With headquarters in Markham, Ontario, Shimco is a leader in manufacturing precision parts, laminated and edge-bond shims, tapers and spacers in materials ranging from aluminum and titanium through to synthetics and composites. Shimco partners with many industry-leading companies including Bell Helicopter, Boeing and Bombardier Aerospace. For more information, visit the website above

Sikorsky Aircraft Corporation #103
www.sikorsky.com

Sikorsky Aircraft Corporation is a world leader in the design, manufacture and service of military and commercial helicopters; fixed wing reconnaissance aircraft; spare parts and maintenance, repair and overhaul services; and civil helicopter operations. Sikorsky Aircraft employs 17,000 worldwide and is a subsidiary of United Technologies Corp. (NYSE:UTX).

TenCate Advanced Composites #722
www.tencate.com

TenCate is a supplier of advanced composite materials (including out of autoclave capable prepregs for helicopter rotor blades)and compression molded composite parts. TenCate is a leader in designing, developing and producing compression molded parts for the helicopter and military aerospace industry. They are also materials leaders in thermoplastic structural composites, and low dielectric thermoset quartz-based radome prepregs.

Triumph Aerospace Systems #311
www.triumphgroup.com

Triumph Aerospace Systems, located in Newport News, Virginia, is an industry leader in the engineering and manufacture of experimental aerospace hardware for both ground and flight test applications. Triumph Engine Control Systems, located in West Hartford, Connecticut, is a leading independent aerospace fuel control system supplier for the commercial and military aircraft markets.

University of Maryland #820
www.aero.umd.edu

The Alfred Gessow Rotorcraft Center (AGRC) of the University of Maryland (UMD) conducts cutting-edge research in rotorcraft aerodynamics, dynamics, acoustics, structures, human-powered flight, flight mechanics, and autonomous vehicles. The AGRC is a designated Vertical Lift Research Center of Excellence by the US Army, Navy, and NASA. Experimental facilities include two fully instrumented rotor rigs (a hover tower and a 10 ft vacuum chamber), an acoustic chamber, motion capture facilities, and two comprehensive particle image velocimetry (PIV) laboratories. Applied research on smart structures and composite materials is carried out. Another research focus includes the use of pneumatic actuators for primary control and vibration reduction of helicopter rotors, as well as active magnetorheological damping devices to enhance crash safety of crew seating and landing gear. Experimental and computational studies on rotorcraft brownout funded by the Air Force Office of Scientific Research focuses on the understanding of the underlying two-phase fluid dynamics and flow physics, as well as on possible brownout mitigation through rotorcraft design. The US Army-funded Collaborative Technology Alliance MAST on micro-system mechanics aims to enhance tactical situational awareness of micro air vehicles (MAVs) in urban and complex terrain by enabling the autonomous operation of an ensemble of multifunctional, mobile micro-systems through novel optic flow sensing capabilities and networked control strategies for parallel-platform operation.
University of South Carolina (CBM) #921
http://cbm.me.sc.edu

The CBM program at the University of South Carolina combines research and implementation solutions to support the U.S. Army Aviation program through historical data analysis, component testing, and advanced condition indicator development. Utilizing these CBM practices has led to extensions of component life limits and multi-million dollar military cost avoidance. Further savings can be achieved through this combination of theory and empirical testing to create predictive tools for the remaining useful life, improved design, and more accurate diagnosis of component health.

UTC Aerospace Systems #321
www.utcaerospacesystems.com

UTC Aerospace Systems, comprised of industry leaders Goodrich Corporation and Hamilton Sundstrand, is one of the world's largest suppliers of technologically advanced aerospace and defense products. They design, manufacture and service systems and components and provide integrated solutions for helicopters around the world as well as commercial, regional, business and military aircraft.

West Coast Industries #514
www.coldwork.com

West Coast Industries has provided fatigue life enhancement solutions for over 45 years. Coldworking, or cold expansion, greatly enhances the life of fatigue-critical holes on the aircraft; WCI maintains a large stock of tooling for AOG situations. Additionally, they provide the BushMax expanded bushing system, Advanced Drilling and Positioning technologies, and the revolutionary HaloSensor, a system that eliminates back drilling, resulting in greater accuracy and reduced scrap.
SOME THINGS YOU NEVER LEAVE TO CHANCE. MARITIME SECURITY IS ONE OF THEM.

Maritime security demands the most advanced multi-mode anti-submarine and anti-surface warfare helicopter. One with a sophisticated mission system that provides complete situational awareness. One with network-enabled data links that allow information sharing and instant decision making. One that is operationally proven and in production.

www.mh-60.com

MH-60R. The right choice for Maritime Security.
The CH-47F Chinook is the most versatile, mission-capable heavy-lift helicopter in the world. More powerful than ever with advanced flight controls and avionics, the CH-47F is in a class by itself, whether it’s transporting troops and equipment, on deep combat assault, performing search and rescue, or delivering disaster relief. Extraordinary performance—it’s what you expect from Chinook.