

Steven Meyers is an experienced aircraft accident investigator that combines scientific analysis, material science, laboratory testing, piloting expertise, aircraft maintenance, and human factors to investigate air safety issues. He has a Masters Degree in Aeronautical Science, B.S. in Engineering Physics, A.S. in Manufacturing Engineering Technology, and an Extension Diploma in Applied General Metallurgy.

Profile



Aviation and Human Factors: Piloted / instructed in 51 different types of aircraft ranging from turbines to gliders to sea planes. Multi-engine, instrument rated commercial pilot, active flight instructor, FAA licensed Airframe and Power Plant Mechanic (A&P), and FAA maintenance inspector (IA). Understands the interrelationship between the Person-Machine-Environment.



Accident Investigator: Applies scientific methods to accurately reconstruct and explain the circumstances of an accident. Investigations ranging from the in-flight failure of composite airframe structures to the use of unapproved parts to reconstructing ground vehicle incidents. Adjunct Faculty Member in the Aviation Department of Lewis University teaching courses in Applied Aircraft Accident Investigations. IL licensed Private Detective.



Material Scientist: Brings a strong experience in applying modern materials science coupled with a focus on failure analysis and the use of standardized testing techniques. Evaluates the effects of corrosion, temperature, and mechanical stresses on the performance of materials. Analysis performed on fractured thru-bolts, crankshafts, fuel pumps, carburetors, and bearings.



Failure Analyst: Provides practical and comprehensive laboratory testing that is independent and unbiased. Capable of performing a broad range of tests to determine the strength, physical, chemical, and wear properties of metals, coatings, ceramics, composites, and plastics. Access to ASTM qualified test machines, optical microscopes, SEM, FTIR, load cells, and accelerometers.



USAF Non-Commissioned Intelligence Officer: Confident public speaking skills with experience in preparing briefings and making recommendations to high-level military commanders.

Expertise

Aircraft Design and Operation
 Aircraft Performance
 Avionics & Autopilots
 Piloting & Training
 Turbines/Reciprocating Engines
 Major Repairs/Alterations
 Human Factors
 Aviation Psychology
 FAA Regulations & Certification

Wreckage Reconstruction
 In-Flight Break-Ups
 Mid-Air Collisions
 Flight Path Reconstruction
 Crashworthiness
 Loss of Control
 System Failures
 In-Flight Fires
 Cockpit Automation

Mechanical Testing
 Material Compatibility
 Fracture Analysis
 Metal Fatigue
 Composite Materials
 Mechanical Fasteners
 Tribology & Wear Testing
 Fretting, Galling & Corrosion
 Lubricants, Greases, & Fuels

Accident Investigation

- Investigated the in-flight separation of an aircraft engine cylinder due to improper maintenance.
- Analyzed the crashworthiness and vehicle kinematics of a composite aircraft impacting a soft farm field during an emergency off-field landing.
- Investigated the brake failure of a large aircraft tow tug that resulted in an impact with a passenger terminal building.
- Investigated the failure of a composite helicopter rotor blade due to alleged improper repair procedures not authorized by the original equipment manufacturer.
- Evaluated the rotor downwash created by helicopters operating near construction sites, and the associated hazards for flying debris.
- Investigated an in-flight fire due to a weld failure on an aftermarket turbocharger manifold.
- Evaluated wreckage evidence in an accident involving a flat spin resulting in ground impact.
- Performed a trade study on the placement and functionality of cockpit controls.

Material and Wear Analysis

- Evaluated low-friction, impact-resistant, abrasion-resistant, and hydrophobic materials to be applied to the bottom of the NSF's ski equipped LC-130 cargo aircraft.
- Conducted a comprehensive material and corrosion wear survey of returning military weapon systems from Iraq and Afghanistan for the U.S. Army (TARDEC).
- Evaluated the failure of coating systems on the Stinger Missile system for the U.S. Marines.
- Provided a detailed analysis on the failure of a tire due to impact damage with road debris.
- Investigated the failure of a bolted joint in the steering control linkage of high speed of vehicles.
- Evaluated properties of stainless steel and Inconel in highly corrosive environments.
- Led a product development team funded by the U.S Special Operations Command (SOCOM) to design, fabricate, test, and field advanced composite structures.
- Developed a field portable fuel lubricity tester, for U.S. Army (TACOM), to test in-theatre fuel depots for adequate lubricity, to prevent fuel pump failures in vehicles.

Laboratory Testing

- Performed full scale reciprocating engine tests for the NTSB on subject artifacts.
- Performed in-flight measurements of the force required for pilot control inputs.
- Performed a detailed microscopy inspection on subject and exemplar springs used on actuator assemblies that ultimately prevented the extension of an aircraft landing gear.
- Performed large scale static load tests on composite structures to verify FEA modeling.
- Tested unknown grease and oil substances to determine chemical composition and properties.
- Performed extensive material compatibility studies for the small and medium caliber weapon systems for the U.S. Army Benet Weapons Laboratory (ARDEC).
- Performed acceptance test procedures for delivery of advanced avionics.

Education Degrees and Certificates

- **Master of Aeronautical Science**, Embry-Riddle Aeronautical University, 2009
- **Bachelor of Science in Engineering Physics**, Benedictine University-IIT, 1997
- **Associates of Applied Science in Manufacturing Engineering Technology**, College of Du Page, 2008
- **Extension Diploma, Applied General Metallurgy**, Materials Engineering Institute, 2010
- **Certificate, Program Management**, DePaul University, 2001
- **USAF Intelligence School: Collection, Analysis, and Dissemination of Classified Information**, 1994
- **USAF Special Operations School: Asian-Pacific: Cultural, Sociological, and Political Studies**, 1995
- **USAF Non-Commissioned Officer School: Leadership and Management Training**, 1997-2000
- **USAF Combat Survival School: Survival (Land and Water), Evasion, Resistance, and Escape**, 1998

Studies Professional Development

Failure Analysis and Investigation:

- **Vehicular Accident Reconstruction and Investigation Course**, Northwestern University, 2000
- **Aircraft Accident Investigation Course**, University of Southern California (USC), 2001
- **Principles of Failure Analysis Course**, Materials Engineering Institute (ASM International), 2003
- **Advanced Aircraft Accident Investigations Course**, Embry Riddle Aeronautical University, 2008
- **Mechanical Testing of Metals Course**, Materials Engineering Institute (ASM International), 2009

Technical:

- **Metal Castings Technologies Course**, Cast Metals Institute-American Foundry Society, 2003
- **Managing Complex Product Development Programs Course**, MIT, 2003
- **Vehicle Dynamics and Control**, Skip Barber Racing School, 2005
- **Lubrication and Tribology Testing Workshop**, STLE, 2006
- **Corrosion Detection, Prevention and Control Workshop**, NACE, 2009
- **Small Weapon Design, Maintenance, Repair & Operation**, Black Water USA, 2005-2008

Flight:

- **Specialized High Altitude Physiological Education & Training**, FAA Aero-Medical Institute, 2001
- **Post-Crash Survival & Cabin Evacuation Training**, FAA Aero-Medical Institute, 2001
- **PA-60 Navajo Training, Advanced Weather Avoidance, & Single Pilot IFR**, RTC, 2004
- **Flight Instructor Renewal Course**, American Flyers 2001-2011

Mechanical Maintenance:

- **Textron-Lycoming Aircraft Engines, Factory Power Plant Education & Training**, 2002
- **Teledyne-Continental Aircraft Motors, Factory Power Plant Education & Training**, 2002
- **Advanced Composite Material Fabrication and Repair Training**, Flight Safety International 2002
- **Williams International, Factory FJ44/33 Turbine Engine Education and Training**, 2007
- **FAA Inspection Authorization Renewal Training**, Lewis University, 2001-2011

FAA Ratings

Airman & Mechanic Certificates

Commercial / Instrument:

- Single Engine – Land
- Single Engine – Sea
- Multi-Engine – Land
- Glider

Instructor:

- Single Engine – Land
- Adv. Ground Instructor

Endorsements:

- High Performance
- Turbine Training
- Tail-wheel
- Complex

Maintenance

- Airframe
- Powerplant
- Inspection Authorization

Piloting

Aircraft Flown

Aviat A-1A **Auster** -5J4 **Beechcraft** BE-76, BE-90C, V-35 **Boeing** PT-17 **Cessna** 140, 150, 152, 170, 172, 172RG, 175, 177, 180 Float, 182, 182RG, 310, 337, 414 **Commander Aircraft** -115 **Diamond Aircraft** DA-20, DA-40, HK36TC **ERCO Ercoupe** -415C **EAD Socata Rallye** 100 **Experimental** Long EZ, Glasair III, RV-6A, Breezy **Grumman** AA-5B **Grobe** –Motorglider **Lake** LA-4 **Piper** J-3, PA-23-150, PA-23-180, PA-23-235, PA-28-150, PA-28-161, PA-28-180, PA-28-235, PA-30B, PA-34-200, PA-38 **Mooney** M20J **North American** T-6, T-28 **Ryan** NAV-4 **Simulator** Frasca: Pilatus PC-9, PA-60, Beechcraft Baron, Citation III, King Air C-90, RTC: Piper PA-60, Flight Safety: Saab 340D **Stinson**-108 **YAK**-52W **ZLIN** Z-526F

Employment

2005 to Present

Vice President, Institute of Tribology and Coatings (ITC), Sugar Grove, IL

ITC is an advanced Research and Development organization providing technical solutions to the military and industry. Mr. Meyers consults on all aspects of mechanical, material, and design related problems.

2009 to Present

Adjunct Faculty, Lewis University Aviation Department, Romeoville, IL

Teaches *Applied Aircraft Investigation Techniques*. This graduate level course covers: the investigation process, understanding the relationship of the person-machine-environment, and apply engineering methods.

2006 to Present

President, DVI Aviation Inc, Bolingbrook, IL

DVI Aviation provides Human Factors based flight instruction and flight reviews. These in depth programs cover cockpit leadership techniques, error management, risk management, human factors, aviation psychology, and expert based scenario training. Other services include aircraft specific checkouts, flight department audits, safety seminars, and general aviation maintenance services.

2000-2005

Director of Aerospace, Packer Engineering Inc, Naperville, IL

Packer Engineering is a nationally recognized forensic engineering firm. Mr. Meyers consulted on all aspects pertaining to aircraft accident investigations and failure analysis.

1994-2001

Non-Commissioned Intelligence Officer, USAF-ANG, 126th Air Refueling Wing, Chicago, IL

Responsibilities included planning, organizing, and managing unit intelligence mobility capabilities for possible deployment. Knowledgeable about the principles, practices and procedures of operational intelligence activities involving the application of intelligence information in direct support of combat flying operations. Knowledgeable of the techniques and procedures for collecting, researching, evaluating, analyzing, exploiting, and disseminating all source intelligence information. Knowledgeable of the intelligence reference libraries, capabilities of enemy offensive and defensive weapons systems, including the geographical, political, psychological, and military aspects of United States, allied, and foreign countries. Participated in the Bosnian and Kosovo Peace Keeping Efforts.

1998-2000

Project Engineer, Flight Visions Inc, Sugar Grove, IL

Flight Visions designed and manufactured Heads-Up-Displays and weapon delivery systems for transport and fighter aircraft. Mr. Meyers contributed technical expertise to a wide variety of airframe applications, including: Boeing-Aerovodochy (L-139/159), Lockheed-Martin (F-35 JSF, C-130AMP), Northrop Grumman (F-14B), Israeli Aircraft Industries (KFIR), and Pilatus (PC-9).

1998-2000

Flight Instructor, Lumanair, Sugar Grove, IL

Lumanair is a 40+ year old fixed based operator with flight training and charter services. Mr. Meyers provided primary and advanced flight instruction, flight reviews, and aircraft checkouts.

1998

Intern and Project Engineer, Frasca Flight Simulators International, Champaign-Urbana, IL

Frasca manufactures flight training equipment for airlines, flight schools and military organizations worldwide. Mr. Meyers contributed technical expertise to both civilian and military applications.

1993-1997

Apprentice Aircraft Mechanic / Lineman, A&M Aviation, Bolingbrook, IL

Performed routine maintenance on GA aircraft, and responsible for refueling and positioning of aircraft.

Leadership

Board, Officer, and Committee Experience

2011 to Present	Subject Matter Expert, FAA General Aviation Joint Steering Committee, Loss of Control Working Group
2006 to Present	Chairman of the Board, DaVinci Ventures Inc.
2011	Technical R&D Proposal Reviewer, U.S. Army, Joint Services Small Arms Program Office, Materials Processing Committee
2006 to 2012	Board of Director, Illinois Aviation Museum
2008 to 2009	Waubensee Community College Manufacturing-Industrial Advisory Board
2003 to 2005	Board of Director and President, Packer Wings NFP
2004	In-situ Board Member, Aviation Professional Educational Center

Technical

Selected Papers and Presentations

Papers:

1. Fildes, J.M., Kilparti, R., Meyers, S.J., & Schelp, E. (August 2010). *“Improved Ball Crater Micro-Abrasion Test Based on a Ball on Three Disk Configuration”*. Elsevier Wear Journal, manuscript number: IH-6210. Pending review.
2. Fildes, J.M., Kilparti, R., Meyers, S.J., & Schelp, E. (2010). *“Micro-Abrasion Test Instrumentation Based on a Ball on Three Disk Configuration”*. Technical Report Supplied to U.S. Army Joint Munitions & Lethality LCMC ACQ Center, ARDEC, by the Institute of Tribology and Coatings.
3. Fildes, J.M., Kilparti, R., Meyers, S.J., & Schelp, E. (2010). *“Bench-Scale Abrasive Wear, Adhesive Wear, and Coefficient of Friction Test Performance of Advanced Hard Coatings for Weapons Systems”*. Technical Report Supplied to U.S. Army Joint Munitions & Lethality LCMC ACQ Center, ARDEC, by the Institute of Tribology and Coatings.
4. Fildes, J.M. & Meyers, S.J. (February 2010). *“Collaborative Support for Weapons Tribology and Coatings”*. Final Report Supplied to U.S. Army Joint Munitions & Lethality LCMC ACQ Center, ARDEC, by the Institute of Tribology and Coatings.
5. Meyers, S.J. (October 2009). *“A Study of Flight Reviews Conducted in Technologically Advanced Aircraft”*. A Graduate Capstone Project Submitted to Embry Riddle Aeronautical University in Partial Fulfillment of the Requirement of the Degree of Master of Aeronautical Science.
6. Curry, D.G. Knutson D.F., & Meyers, S.J. (June 2009). *Are Technologically Advanced Aircraft Safer?* Binder, Aviation Insurance Association’s Semi-annual Publication, June, 2009, Volume 33, Number1.
7. Curry, D.G. Knutson D.F., & Meyers, S.J. (April 2009). *“Is Safer Really Safer: Pilot Error and Technologically Advanced Aircraft”*. Mentor, National Association of Flight Instructors, April, 2009, Volume 11, Number 4

8. Meyers, S.J. (2008). *"High Technology Education to Work Opportunity Grant"*. Final Report Supplied to Illinois Department of Community and Economic Opportunity by Institute of Tribology and Coatings.
9. Fildes, J.M. & Meyers, S.J. (2008). *"Collaborative Support for Weapons Tribology and Coatings."* Final Report Supplied to U.S. Army Joint Munitions & Lethality LCMC ACQ Center, ARDEC, by the Institute of Tribology and Coatings.
10. Knutson, D.F., Meyers, S.J., & Yock, D. (2007). *"Safety Comparison Between an Internal and External Flight Departments."* Final Report Supplied to a Fortune 100 Corporation, by DVI Aviation Inc.
11. Meyers, S.J. (2007). *"High Technology Education to Work Opportunity Grant"*. Final Report Supplied to Illinois Department of Community and Economic Opportunity, by Institute of Tribology and Coatings.
12. Meyers, S.J. (2006). *"Investigation of Nano-particles within Cutting Fluids"*. Final Report Supplied to U.S. Army National Automotive Center, TARDEC, by the Institute of Tribology and Coatings.
13. Meyers, S.J. (2006). *"Mid-East Military Wear Survey"*. Final Report Supplied to U.S. Army National Automotive Center, TARDEC, by the Institute of Tribology and Coatings.
14. Meyers, S.J. (2006). *"Investigation and Development of Metrology Equipment for Measuring Wear in the Contact Zone"*. Final Report Supplied to U.S. Army National Automotive Center, TARDEC, by the Institute of Tribology and Coatings.
15. Meyers, S.J. (2001). *"Feasibility Study of Stuff-Proof Composite Materials for the MKV Ship"*. Final Report Supplied to United States Special Operations Command.
16. Meyers, S.J. (1999). *"Acceptance Test Procedures USN F-14B HUD"*. Technical Manual Supplied to Northrop-Grumman by Flight Visions Inc.
17. Meyers, S.J. (1999). *"Functional Qualification Tests Pilatus PC-9 HUD"*. Technical Manual Supplied to Pilatus Aircraft Inc. by Flight Visions Inc.
18. Meyers, S.J. (1999). *"HUD Assembly Line Procedures Boeing L-159"*. Technical Manual Supplied to Boeing and Aero Vodochy by Flight Visions Inc.
19. Meyers, S.J. (1999). *"HUD Maintenance Procedures Boeing L-159"*. Technical Manual Supplied to Boeing and Aero Vodochy by Flight Visions Inc.
20. Meyers, S.J. (1997). *"Electronic Control Loading of Flight Controls on the PC-9 Simulator"*. Technical Manual Supplied to Pilatus Aircraft by Frasca Flight Simulators International.

Presentations:

1. Curry, D.G., Knutson, D.F., Meyers, S.J., & Meyer J. (November 19-20, 2010). *"Applied Aircraft Accident Investigation Short Course"*. Accredited for Undergraduate/Graduate Credit, Lewis University Aviation Department, Romeoville, IL.
2. Meyers, S.J. (June 23, 2010). *"A Case Study of Identifying Coatings to Improve the Performance of Weapons in Abrasive Environments."* Presented at the National Small Arms Center Consortium Meeting, Battelle Institute, Columbus, OH.
3. Meyers, S.J. (April 22, 2010). *"Human Factors: The Insidious Threat"*. Presented at the FAA Wings Safety Program at the Illinois Aviation Museum, Bolingbrook, IL.
4. Curry, D.G., Knutson, D.F., & Meyers, S.J. (March 12-13, 2010). *"Applied Aircraft Accident Investigation Short Course"*. Accredited for Undergraduate/Graduate Credit, Lewis University Aviation Department, Romeoville, IL.
5. Fildes, J.M. & Meyers, S.J. (December 2009). *"Failure Analysis and Solutions for Abrasion Related Jamming of Weapons"*. Presented to the Annual Meeting of the National Small Arms Center, Maryland.
6. Curry, D.G., Knutson, D.F., & Meyers, S.J. (October 2-3, 2009). *"Applied Aircraft Accident Investigation Short Course"*. Accredited for Undergraduate/Graduate Credit, Lewis University Aviation Department, Romeoville, IL.
7. Meyers, S.J. (July 28, 2009). *"Human Factors in Private Flying"*. Presented at the Civil Air Patrol Quarterly Safety Briefing, Clow International Airport, Bolingbrook, IL.
8. Curry, D.G., Knutson, D.F., & Meyers, S.J. (March 13-14, 2009). *"Applied Aircraft Accident Investigation Short Course"*. Accredited for Undergraduate/Graduate Credit, Lewis University Aviation Department, Romeoville, IL.
9. Meyers, S.J. (February 13, 2009). *"Evaluating Airmen on Form 5 Check Rides"*. Presented at the National Check Pilot School, Civil Air Patrol, West Chicago, IL.
10. Fildes, J.M. & Meyers, S.J. (December 3, 2008). *"The Effectiveness of Bench-Scale Testing of Small Arms"*. Presented at the Annual Meeting of National Small Arms Center, Columbia, South Carolina.
11. Meyers, S.J. (February 28, 2008). *"How to be a Pilot"*. Presented at the FAA Wings Safety program at the Illinois Aviation Museum, Bolingbrook, IL.
12. Meyers, S.J. (February 8, 2007). *"Returning to Aviation- How to Pass a Flight Review"*. Presented at the FAA Wings Safety program at the Illinois Aviation Museum, Bolingbrook, IL.
13. Meyers, S.J. (January 18, 2007). *"Investigating Aircraft Accidents"*. Presented at Sun City Flyers, Huntley, IL.

14. Meyers, S.J. (October 27, 2006). *"Role of Science in Education"*. Presented at Bolingbrook Educational Consortium, Bolingbrook, IL.
15. Meyers, S.J. (May 4, 2006). *"How to Get Back Into Flying"*. Presented at the FAA Wings Safety program at the Illinois Aviation Museum, Bolingbrook, IL.
16. Meyers, S.J. (November 17, 2005). *"Air Safety Investigation"*. Presented at the FAA Wings Safety program at the Illinois Aviation Museum, Bolingbrook, IL.
17. Meyers, S.J. (October 13, 2005). *"Winter Flying Hazards"*. Presented at the FAA Wings Safety program at the Illinois Aviation Museum, Bolingbrook, IL.
18. Meyers, S.J. (July 15, 2005). *"Maintenance and Repair of Aging Aircraft"*. Presented at the FAA Wings Safety program at the Illinois Aviation Museum, Bolingbrook, IL.
19. Meyers, S.J. (March 17, 2005). *"Aerodynamics of General Aviation Aircraft"*. Presented at the FAA Wings Safety program at the Illinois Aviation Museum, Bolingbrook, IL.
20. Fildes, J.M. & Meyers, S.J. (March 12, 2005). *"Composites as Engineered Materials"*, Presented at Lewis University- FAA IA Renewal Workshop, Romeoville, IL.
21. Meyers, S.J. (February 23, 2005). *"Composites in Aviation"*. Presented at Milwaukee Society of Automotive Engineers (SAE) Meeting, Milwaukee, WI.
22. Meyers, S.J. (November 27, 2004). *"Air Safety- Learning from Accidents"*, Presented at FAA Wings Safety Program, Bolingbrook, IL.
23. Fildes, J.M. & Meyers, S.J. (November 19, 2004). *"Composite Airframe Structures"*. Presented at Chicago Area Business Aviation Association Quarterly Meeting, Oakbrook, IL.
24. Meyers, S.J. & Nowicki, J.W. (October 2, 2004). *"Maintenance of Ultra light and Sportcraft Aircraft"*. Presented at Fox Valley Ultra Light Club FAA Wings Safety Program, Bolingbrook, IL.
25. Dorr, J., Fildes, J.M., & Meyers, S.J. (September 30, 2004). *"Design, Fabrication, and Inspection of Composites"*, Presented at Organization of Flying Adjusters Annual Meeting, Key Largo, FL.
26. Meyers, S.J. & Nowicki, J.W. (February 18, 2004). *"Building/ Flying a 1903 Wright Flyer"*. Presented at American Society of Mechanical Engineers (ASME) Quarterly Meeting, Chicago, IL.
27. Meyers, S.J. & Nowicki, J.W. (December 9, 2003). *"Operating Antique Aircraft Engines"*. Presented at Society of Automotive Engineers (SAE) Quarterly Meeting, Milwaukee, WI.
28. Meyers, S.J. & Nowicki, J.W. (February 3, 2003). *"The Science of the 1903 Wright Flyer Engine"*. Presented at Technical Managers Association of Chicago (TMAC) Monthly Meeting, Lisle, IL.

29. Meyers, S.J. (February 15, 2002). *"Investigating GA Accidents"*. Presented at Experimental Aircraft Association (EAA) Chapter 464 Monthly Meeting, Bolingbrook, IL.
30. Meyers, S.J. (August 15, 2002). *"Anatomy of Aircraft Accident Investigations"*. Presented at EAA Chapter 101 Monthly Meeting, Schaumburg, IL.
