

Robson Forensic

Engineers, Architects, Scientists & Fire Investigators

MATTHEW D. LYKINS Aviation and Mechanical Expert

Experienced in safe private and commercial operations, management, training, maintenance, modification, troubleshooting, repair, overhaul, upgrade and certification, of both fixed-wing and helicopter aircraft and their equipment and systems.

Aircraft (Airframe) Inspections, Operations, Repair, Maintenance, Troubleshooting, Recertification: Airframe electrical including lighting and caution and warning systems, landing gear systems including electrical, hydraulic, emergency extension systems, flight controls systems – manual, electrical, and hydraulic including proper installation and rigging, structural repair processes – sheet metal, wood and composites, breathing oxygen systems, cabin pressurization systems, cabin heating, cooling, and ventilation.

Aircraft (Power Plant) Inspections, Operations, Repair, Maintenance, Troubleshooting, Recertification: Engine electrical and electrical power generation and control, engine ignition systems, engine mechanical, engine fuel scheduling and management systems including carburetors, fuel injection, turbo-charging, turbine engine hydro-mechanical and electronic fuel controls, engine oil systems, engine cooling systems, engine induction and exhaust, auxiliary power units (turbine), propeller and governor systems including feathering and reversing systems, engine and airframe fire detection and extinguishing systems including continuous loop type and High Rate of Discharge (HRD) extinguishing systems, low-thrust detection and warning systems on multi-engine aircraft, propeller and rotor dynamic balancing.

Aircraft (Avionics / Electronics) Inspections, Operations, Repair, Maintenance, Troubleshooting, Recertification: Avionics, digital flight instrumentation, integrated navigation / communication systems, GPS, auto-pilot systems, electronic engine monitoring and management systems including FADEC, glass cockpit.

Material Handling / Lift Equipment: Safety inspections, operations, repair, maintenance, and troubleshooting of hydraulic and pneumatic systems, components, and controls, guards and safety features, on lift vehicles including lift trucks, lift gates, loading dock levelers, forklifts, fork trucks, scissor lifts, pallet jacks, and boom lifts.

Tools: Hydraulic jacks and lifts, hoists and slings, raised work stands, engineered work platforms, ladders, bench grinders, rotary pneumatic drills, drill presses, impact wrenches, welders - acetylene, Metal Inert Gas (MIG), Tungsten Inert Gas (TIG), pneumatic rivet guns, compression testers, multi-meters, crimpers, band-saws, lathes, hydraulic presses.

Technical / Vocational Training and Teaching: Classroom lecture / instruction, shop / lab training and supervision, tool equipment usage training and evaluation, shop floor safety, school lab and shop safety, student progress and evaluation, engine start-up and operation training, test administration, student advisement, course development, Federal Aviation Administration (FAA) approved training program development.

Safety Procedures and Requirements: Shop floor safety, development and enforcement of safety policies and procedures, material safety data sheets (MSDS), right-to-know, lockout / tag-out,

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operational guards, caution and warning signs, instruction manuals, training, airport ramp and ground operations procedures including aircraft towing and tow vehicles, ground support vehicles, baggage handling equipment, jet-ways, air-stairs, single point and over-wing refueling equipment, flight line operations procedures including aircraft marshalling and signaling during day and night conditions, aircraft run and taxi, flight line maintenance operations, and maintenance flight procedures, forklifts, forklift operations, material handling.

Certification Processes: FAA Certified Repair Station (Part 145), FAA Certified Air Carrier (Part 135 / 121), FAA Certified Airframe and Power-Plant Technician School (Part 147), FAA Designated Mechanic Examiner – testing for and issuing of FAA aircraft mechanic certificates.

Inspection and Testing: Non-destructive Examination (NDE) / Non-destructive Testing (NDT), aircraft inspection programs – annuals, 100 hour, progressive, FAA Approved Aircraft Inspection Programs (AAIP), altimeter, pitot-static and transponder tests and inspections, emergency locator beacon (ELT) tests and inspections, pre-purchase evaluations, special flight permit (ferry permit) inspections.

PROFESSIONAL EXPERIENCE

2010 to present **Robson Forensic, Inc.**
Associate

Provide technical investigations, analysis, reports, and testimony toward the resolution of commercial and personal injury litigation involving maintenance shops, associated tooling and equipment, aircraft ground operations, training and technical school environment, aircraft systems and product failure analysis.

2009 to present **Matthews Aerospace Training and Technical Support (M.A.T.T.S.)**, Franklin, IN
Founder and President

Consulting, Training (DME), and Aircraft Maintenance Services

- Develop and consult aerospace company management on 14 CFR 145 FAA certified repair station application process, which includes Statement of Compliance, Repair Station Manual, Quality Control Manual, Training Program, and all repair station forms and instructions for use of each form.
- Provide expert technical and flight support for real-time in-flight emergencies involving aircraft mechanical failures directly affecting the safe termination of a flight. (24/7 availability) This includes direct communication in real-time with FAA air traffic controllers, the flight crew on board the affected aircraft, aircraft manufacturer technical support staff, as well as direct airborne support as necessary to evaluate the extent of the problem and assist the pilot in command in executing all possible procedures to get the aircraft on the ground safely.

MATTHEW D. LYKINS
Aviation and Mechanical Expert

- Provide aircraft maintenance facilities, repair personnel, and aircraft owners with critical troubleshooting and repair support and training as necessary for unusual failures on the various aircraft systems.
- Perform pre-purchase evaluations on aircraft prior to a sales transaction. This includes mechanical, operational, flight, and documentation evaluations, which are all detailed on a pre-purchase evaluation report that is provided to the perspective buyer and the seller.
- Apply for and obtain from the FAA special flight permits for aircraft needing flown to another location for necessary maintenance affecting airworthiness. Inspect these aircraft for safe flight under the permit. Fly the aircraft under the permit to the maintenance location as needed.
- Consult aircraft owners and operators on technical matters including special maintenance items and equipment upgrades to their aircraft. This often includes a feasibility study.
- As a FAA Designated Mechanic Examiner for the past 12 years, provide FAA testing and final evaluation of Airframe and Power Plant Mechanic applicants. Issue FAA Form 8040-4 Temporary Airmen Certificate to those who successfully complete the testing process.

2009 to
present

Aviation Institute of Maintenance, Indianapolis, IN
Instructor, Airframe and Power Plant

Teach as an aviation technical instructor for the following subject areas for a FAA Approved Part 147 school. This includes training through lecture, lab projects and research on theory, application, operation, fabrication, repair, overhaul, troubleshooting, inspection, standards of airworthiness, major and minor repair design of airframes, power plants, and systems, major and minor alterations of airframes, power plants, and systems, failure prediction and forecasting, identification and reporting of faults, malfunctions, failures, and design defects:

- A. Basic Electricity, both AC and DC theory
- B. Aircraft Drawings and Blueprints
- C. Weight and Balance
- D. Fluid Lines and Fittings
- E. Materials and Processes
- F. Ground Operations and Servicing
- G. Cleaning and Corrosion Control
- H. Mathematics
- I. Maintenance Forms, Records, and Federal Aviation Regulations
- J. Physics
- K. Maintenance Publications
- L. Aviation Mechanic Privileges and Limitations
- M. Wood Structures
- N. Aircraft Coverings

Robson Forensic

Engineers, Architects, Scientists & Fire Investigators

MATTHEW D. LYKINS Aviation and Mechanical Expert

- O. Aircraft Finishes
- P. Sheet-Metal and Non-Metallic Structures
- Q. Welding
- R. Assembly and Rigging
- S. Airframe Inspection and Troubleshooting
- T. Aircraft Landing Gear Systems
- U. Hydraulic and Pneumatic Power Systems
- V. Cabin Atmosphere Control Systems
- W. Aircraft Instrument Systems
- X. Communication and Navigation Systems
- Y. Aircraft Fuel Systems
- Z. Aircraft Electrical Systems
- AA. Position and Warning Systems
- BB. Ice and Rain Control Systems
- CC. Fire Protection Systems
- DD. Reciprocating Engines Theory and Operation
- EE. Turbine Engines Theory and Operation
- FF. Engine Inspection and Troubleshooting
- GG. Engine Instrumentation Systems
- HH. Engine Fire Protections Systems
- II. Engine Electrical Systems
- JJ. Lubrication Systems
- KK. Ignition and Starting Systems
- LL. Fuel Metering Systems
- MM. Engine Fuel Systems
- NN. Induction Systems
- OO. Engine Cooling Systems
- PP. Engine Exhaust and Turbo-Charging Systems
- QQ. Propellers
- RR. Turbine Powered Auxiliary Power Units

1999 to 2009 **Skyward Air Service, LLC**, Seymour, IN
Founder and President

- Acquired FAA Part 135 Air Carrier Certification, Director of Maintenance for Part 91 and Part 135 aircraft
 - Aircraft acquisitions
 - Maintenance Program development and implementation
 - Pilot and crew hiring, training, evaluation, scheduling
 - Managing personnel issues and concerns
 - Marketing charter business
 - Coordinating all aspects of the charter business with the FAA including FAA inspections and audits
 - Developed and implemented FAA Drug and Alcohol Abatement Program
- Acquired FAA Part 145 Repair Station Certificate

Robson Forensic

Engineers, Architects, Scientists & Fire Investigators

MATTHEW D. LYKINS Aviation and Mechanical Expert

- Equipment acquisitions and calibration tracking
- Personnel hiring, training, and development
- Pitot-Static, transponder, and altitude reporting equipment tests and inspections as a repairman with return-to-service authorization
- Performed avionics and instrumentation system upgrades.
- Troubleshoot electronic, navigation, communication, engine monitoring systems including airframe electrical systems on aircraft.
 - All Cessna single-engine and multi-engine piston aircraft
 - All Piper single-engine and multi-engine piston aircraft
 - All Beechcraft single-engine and multi-engine piston aircraft
 - All Grumman single-engine piston aircraft
 - All Mooney single-engine piston aircraft
 - Bellanca Viking series aircraft
 - All American Champion aircraft
 - All Diamond DA20, DA40, and DA42 diesel aircraft
 - Cirrus single-engine piston aircraft
 - Various experimental / homebuilt single-engine piston aircraft
 - Cessna Citation 500, 501, and Bravo turbine aircraft
 - Lear 24, 25, 35 turbine aircraft
 - Beechcraft King Air 90, 100, and 200 turboprop aircraft
 - Bell 47 piston helicopter
 - Bell 206 turbine helicopter
- Coordinated maintenance scheduling with aircraft owners/operators and the maintenance department.
- Built job estimates for scheduled, unscheduled, and upgrade maintenance projects.
- Managed maintenance projects from start to finish.
- Performed pre-purchase evaluations on all aircraft listed in paragraph (f) above for prospective buyer anywhere in the U.S.
- Performed annual, 100 hour, progressive, daily, and phase inspections (as required) on aircraft listed above.
- Performed the required repairs and servicing (including major airframe and power plant repairs and alterations) to aircraft listed above.
- Developed and enforced company policy and procedures.
- Provided consulting services to airport management regarding security, emergency procedures, standards, and events.

1999 to **American Trans Air**, Indianapolis, IN

2000 *Instructor, Maintenance Training*

Provided on-site advanced training to line and overhaul technicians at Indianapolis and out-stations regarding the Boeing 757, Boeing 727, and Lockheed L-1011.

Robson Forensic

Engineers, Architects, Scientists & Fire Investigators

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Developed new courses for advanced composite structural repairs to the Boeing 727, 757, and Lockheed L-1011 aircraft.

1998 to 1999 **American Trans Air Training Academy**, Indianapolis, IN
Instructor

Aviation technical instructor for the following subject areas for a FAA Approved Part 147 school. This included lecture, labs, research projects, and troubleshooting scenarios with class sizes ranging from 5 to 25 students.

1995 to 1998 **Aero Tech, Inc.**, Danville, KY
A&P Mechanic

Serviced, repaired, rebuilt, and maintained general aviation aircraft under part 91 and 135.

PROFESSIONAL CREDENTIALS

FAA Repairman Certification, 2005-2009
FAA Designated Mechanic Examiner, since 1998
FAA Inspection Authorization, since 1997
FAA Mechanic Airframe and Power plant, since 1990
FAA Pilot Certificate, since 1990
Commercial rating
Instrument
Multi-engine
High performance endorsement
Over 1500 flight hours logged

EDUCATION

Bachelor of Science, Aviation Maintenance Technology, Purdue University, 1995
Minor: Composite Technology; Minor: Management/Supervision
Associate of Science, Aviation Maintenance Technology, Vincennes University, 1991
FAA Airframe and Power-plant Certificate with Inspection Authorization

PROFESSIONAL MEMBERSHIPS

Lawyer-Pilots Bar Association
Aircraft Owners and Pilots Association
Experimental Aircraft Association

AWARDS

FAA Maintenance Technician of the Year 2005

Robson Forensic

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Aviation and Mechanical Expert

OTHER

Eagle Scout, 1988
Missionary Service, 1991-1993
Bi-lingual: English and Spanish

EXPERT NOT RETAINED