

Lectromec

EWIS Risk Assessment

*Aerospace Wire Degradation
Testing and Analysis*

WHO WE ARE

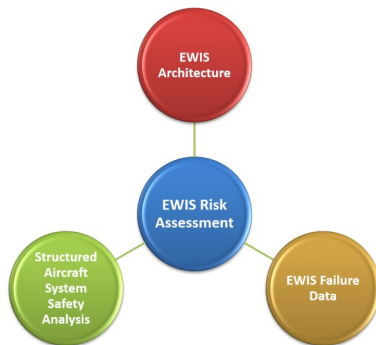
Founded in 1984, Lectromec is an engineering firm and laboratory specializing in aircraft wire system testing, EWIS certification services (including on staff EWIS DER for Part 25 platforms), specialized test equipment, research, and design. Lectromec's laboratory is equipped to test and analyze various types of electrical systems for a variety of industries.

Lectromec has extensive understanding of the electrical and physical properties of wire and the ill effects of damaged wiring system components.

EWIS RISK ASSESSMENT

Lectromec has been at the forefront of Electrical Wire Interconnection System (EWIS) risk assessment technologies. Based on years of helping aircraft OEMs and maintainers identify and resolve EWIS issues, Lectromec's EWIS risk assessment technologies can be applied to both new and existing aircraft.

For new aircraft, Lectromec's engineers can help to identify EWIS risk before they propagate deep into the aircraft's design where design changes become more costly. Our DERs can help through the design process to ensure all work performed is directed toward EWIS certification.

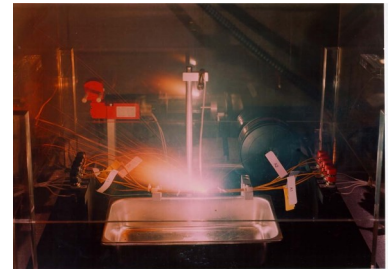


Lectromec was the first company perform an EWIS risk assessment on an existing aircraft. This study combined system design, safety analysis and wire system failure probabilities into one comprehensive package. This work was the reason that the **US Air Force selected Lectromec for the development of an EWIS handbook supporting the needs of aging military platforms.**

RESEARCH

Our consistent research and development efforts related to wire system design, degradation, and analysis are key to the quality solutions Lectromec delivers. We make this investment to develop innovative testing techniques and wire degradation models to provide the best, most comprehensive failure forecasting models possible.

These failure models and research has provided key insights for our customers maintaining or designing mission critical systems.



EWIS SERVICE LIFE EXTENSION

Lectromec's comprehensive "turn-key" EWIS risk assessment consists of combining the aircraft's information with the physical assessment of EWIS components. Designed to conform to both commercial and military requirements, Lectromec's approach can be easily integrated into service life extension programs (SLEPs).

Lectromec continues to extend its knowledge base with continued research into wire system failure damage potential, insulation degradation research, and system evaluation techniques.



EWIS CERTIFICATION TESTING

Lectromec's **ISO 17025_2005 certified laboratory** is equipped to perform most wire system component certification test methods. Whether it is an SAE, ASTM, EN, MIL or other standard, we can generate the quality test data you need. See the back for a listing.

TEST CAPABILITIES

EN, MIL standard, SAE, ASTM; we can do it all. This is a brief listing some of analysis specific tests we perform. Often customization is needed and can be done with little or no cost impact.

- Accelerating ageing
- Adherence of plating
- Air-excluded ageing
- Attenuation
- Bend Test
- Cable to cable abrasion
- Capacitance per unit length
- Capacitance variation
- Characteristic impedance
- Circumferential Elongation (PTFE only)
- Cold bend test
- Conductor Diameter
- Conductor Elongation
- Conductor Resistance
- Conductor Solderability
- Conductor Strand Adhesion
- Conductor Stranding
- Conductor Tensile break strength
- Continuity of conductors
- Corona extinction voltage
- Deformation resistance (installation with plastic cable ties)
- Delamination and blocking
- Diameter
- Dielectric Test
- Differential scanning calorimeter (DSC test)
- Dimensions
- **Dry Arc Propagation Resistance**
- Dynamic Cut Through
- Electrical loop resistance per unit length
- Elevated Temperature Aging
- Fire resistance
- Flexibility
- Flexure endurance
- Fluid Immersion
- Force Hydrolysis
- Humidity resistance
- Insulation color marking
- Insulation Blocking
- Insulation Concentricity
- Insulation Thermal Shock
- Insulation Wrap back test
- Laser markability
- Life Cycle
- Marking Durability
- Notch propagation
- Overload resistance
- Permanence of manufacturer's marking
- Plating continuity
- Resistance to dry arc propagation
- Resistance to fluids
- Resistance to Oil: Insulation and Sheath
- Scrape Abrasion
- Screen pushback capability
- Shrinkage and delamination
- Smoke Resistance
- Solderability
- Stripability and adherence of insulation to the conductor
- Surface resistance
- Tensile strength and elongation
- Thermal endurance
- Thermal Index
- Thermal shock
- Thermal stability
- Torsion
- Transfer impedance
- UV Laser Marking
- Velocity of propagation
- Visual examination
- Voltage proof test
- Voltage Withstand Test
- Weight
- Wet Arc Propagation Resistance
- Wet short circuit test
- Wicking
- Wrapback Test

SPECIAL TEST EQUIPMENT

Arc Track Resistance Test

Equipment: Lectromec builds arc track resistance test equipment for all aerospace specification. All equipment is designed to be ergonomic and limit the test supervision time thereby maximizing productivity.



5-Series: Designed to meet the requirements of ASTM D495, the LEC 5-Series test system for High-Voltage, Low-Current, Dry Arc Resistance of Solid Electrical Insulation is another in a Lectromec's line of polymer test equipment.



6-Series: The LEC 6-Series test system provides simplified performance of Dust-and-Fog Tracking and Erosion Resistance of Electrical Insulating Materials in accordance with ASTM D2131 (D 2131). The three test sample system allows for unattended operation after initial setup and configuration of the test samples.



EWIS TRAINING

Lectromec offers EWIS training on system design & certification as well as EWIS maintenance & sustainment. On-site courses are available.

SPECIALIZED TESTING

Lectromec has performed specialized testing for a wide range of industries and customers. This testing often goes above and beyond common standards and requires customization, design, and advanced data analysis techniques. Contact Lectromec to find out more.