Aircraft Wiring SE Commodity (AWSEC)

SLIDES ONLY

NO SCRIPT PROVIDED

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AWSEC Overview

Peculiar Support Equipment (PSE) *

- Interface cable design & rapid prototyping.

Automatic Wire Test Set (AWTS) *

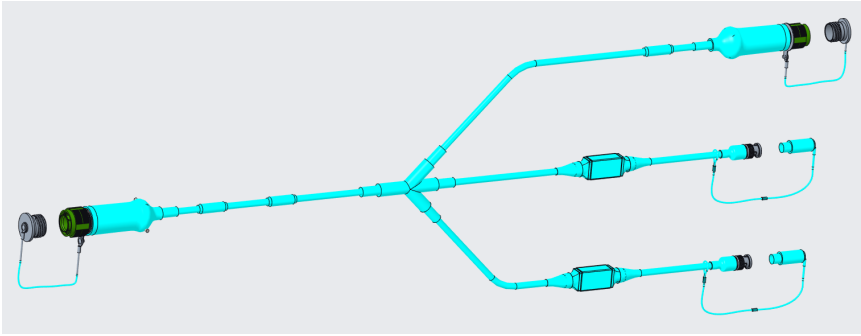
- Organic Test Program Set (TPS) developments and support for electrically troubleshooting aircraft Electrical Wiring Interface Systems (EWIS).

Tool Set Design and Support

- Peculiar aircraft wiring tool set design.

R&D Project Design and Support

- Cabling, EWIS test equipment, wiring inspection with Augmented Reality, and others new technologies.



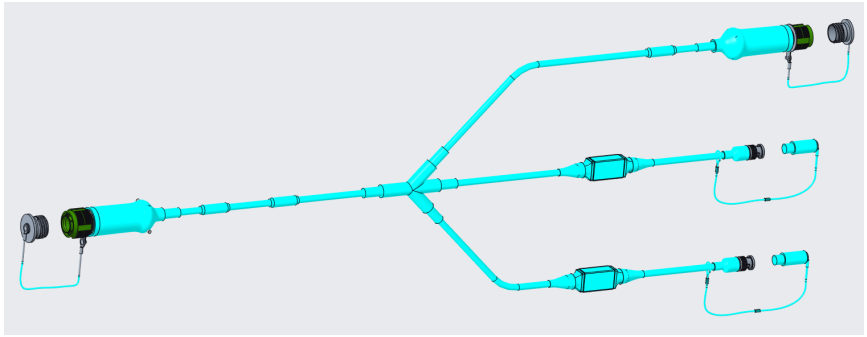
PSE Cable Design & Rapid Prototyping

AWSEC specializes in the requirement analysis and design of interface cables to mate PSE with aircraft systems.

Our team provides full analysis, design, and delivers final SE procurement technical data package for:

- Copper & Fiber cable designs
- Electrical system interface hardware/enclosures
- Circuit design

The AWSEC Lab enables rapid prototyping of engineering development assets and provides a validated finalized design ready for procurement.



CREO Model for an I-Level Cable design

Ethernet Test Set Adapter Cable Engineering Development Asset

Engineering Development Asset build

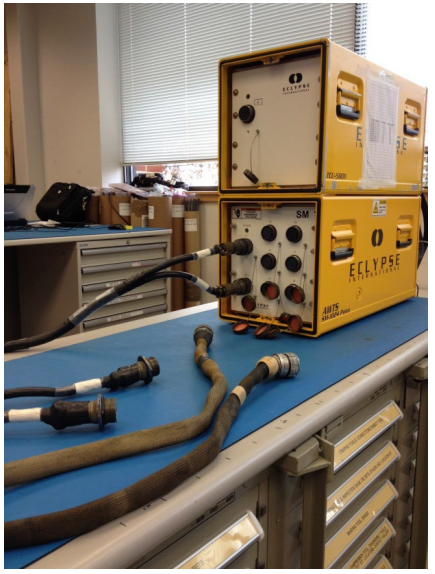
AWTS Development and Support

AWTS is a Common SE (CSE) automated tester supported by PMA-260 to test Electrical Wiring Interface Systems (EWIS).

"AWTS Assists in troubleshooting and performing Fault and Isolation testing using various electrical testing techniques."

We focus in:

- Gathering and analyzing system requirements
- Developing Test Program Set (TPS) organically
- Provide TPS support throughout its lifecycle.
- Work closely with PMA-260 to enhance CSE capability.
- Research new technologies that can potentially increase AWTS capability, ex. Augmented Reality, Artificial Intelligence, etc.



AWTS Use Cases

AWTS is currently supporting numerous platforms such as V-22, F-18, T-45, TH-73, CH-53K, and many others…

Qualified to I & O Level:

- I-Level: Back shop automated testing of wiring harnesses, wiring integration assemblies (WIAs), junction boxes, relay/circuit breaker panels, flight controls, etc.
  - Isolated Component Testing in shop environment
  - Identify and perform system repairs
- O-Level: In-Depth On-Aircraft single and multi-system testing.
  - On-aircraft troubleshooting or scheduled maintenance (Phase/PMI/calendar)
  - Scheduled testing – Track EWIS integrity

Value Added:

- Automated Testing
  - Reduce maintenance time and errors
- Troubleshooting Tool
  - Pinpoint failures
- Qualitative Measurements
  - Proactive Testing
- Data Logging
  - Access to data post testing.

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× Continuity CTP × × × × × × × × × × × FAILED × × × × × × × × × × × × × × × × × × × ×
× Circuit: Wire 22AWG                          Test: Continuity Certification      ×
× From: 1P-P001B 45                            To: 52P-E356 26                     ×
× Test Number    Note              Result       Expected                 Measured  ×
× 3.067          a) 0.01A Stim     PASSED       <5.00ohm                 =1.314ohm ×
× 3.067.CTP1     b) 0.10A Stim     PASSED       <1.50ohm                 =1.342ohm ×
× 3.067.CTP2     c) 1.00A Stim     PASSED       <1.50ohm                 =1.037ohm ×
× 3.067.CTP3     d) 0.01A Stim     PASSED       <1.50ohm                 =880.0mohm ×
× 3.067.CTP4     e) b - c          FAILED-HIGH  >-50.0mohm, <50.0mohm     =304.6mohm ×
× 3.067.CTP5     f) d - a          FAILED-HIGH  >-50.0mohm, <50.0mohm     =433.7mohm ×
×                                                                                   ×
× DEGRADED CONTINUITY                                                              ×
× Review results for details                                                       ×
×                                                                                   ×
× - Continuity Certification includes 5 tests                                      ×
× - CTP1      Tests with Stimulus = 0.1A                                           ×
× - CTP2      Tests with Stimulus = 1.0A                                           ×
× - CTP3      Tests with Stimulus = 0.01A                                          ×
× - CTP4      Tests resistance linearity (b - c)                                   ×
× -           Measured resistance should not change                                ×
× -           between 0.10A and 1.00A stimulus                                     ×
× -           b - c should be approximately 0 ohms                                 ×
× - CTP5      Tests resistance stability                                           ×
× -           Tests resistance change from a to d                                  ×
× -           A tight and clean conductor resistance                               ×
× -           will not change after 1A stimulus.                                   ×
× -           d - a is expected to be 0 ohm                                        ×
× - These results indicate degraded continuity from 218 to 122.                    ×
× - Inspect aircraft connectors for fluid/contamination/corrosion/                 ×
× - recessed contacts/improper crimps.                                             ×
× - It is strongly encouraged to clean the aircraft connector(s)                   ×
× - and retest if this failure was not encountered on a previous run.              ×
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Questions?

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