

# No Fault Found and Intermittent Testing

Precision Testing with the Automatic Wire Test Set

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# Introduction

- ▶ Eclipse International Corporation
- ▶ Automatic Wire Test Set(AWTS)
  - ▶ Existing DoD Approved Test Set.
- ▶ Certification Test Protocol (CTP)
  - ▶ Precision Testing method develop By Eclipse and the 160<sup>th</sup> SOAR Troubleshooting Analysis Group(TAG) @ Fort Campbell, KY on a CTMA cost share program
  - ▶ Identifies physical non-uniformities (degradation) in the EWIS.
    - ▶ Root cause fault causing the NFF problem

# Intermittent Function Failures and No Fault Finds

- ▶ An Intermittent Functional Failure is a functional failure that does not always occur.
  - ▶ Most commonly occur in the harsh inflight environment.
  - ▶ Do not occur on the ground, making detection and repair difficult.
  - ▶ Often result in a No Fault Found (NFF).
  - ▶ The process repeats.
- ▶ No Fault Found are the result of:
  - ▶ Failures are difficult or impossible to repeat on the ground.
    - ▶ Intermittent Functional failures in the EWIS.
    - ▶ Intermittent Functional Failures in Avionics Chassis.
  - ▶ Poor Troubleshooting
  - ▶ Incorrect Technical Manuals

# Testing with AWTs and CTP

- ▶ Eliminates the NFF due to poor troubleshooting and Incorrect Technical Manuals.
- ▶ Most Intermittent Functional Failures are caused by non-intermittent faults in the EWIS.
  - ▶ 160<sup>th</sup> SOAR results indicate that Most No Fault Finds are caused by physical wiring degradation and not the boxes that are sent in for repair.
  - ▶ The Physical degradation of the conductor(faults) results in many in-flight Intermittent failures before it becomes a constant (non-intermittent) failure.
  - ▶ The Fault or ROOT cause of the Intermittent Functional Failure is not intermittent.
  - ▶ Typical faults corrosion, loose pin, sticky relay etc are present until repaired.

# AWTS with CTP - Implementation

- ▶ 2019 - V-22 rolled out AWTS Testing with CTP.
  - ▶ 16 Marine sites.
  - ▶ 5 A.F. Sites.
  - ▶ 1 Navy Site.
- ▶ 2020-2022 F/A -18E rolling out AWTS Testing with CTP to 22 sites.
- ▶ 2016 - 160<sup>th</sup> SOAR Ft Campbell.
  - ▶ 2021 - Rolling out to two additional sites