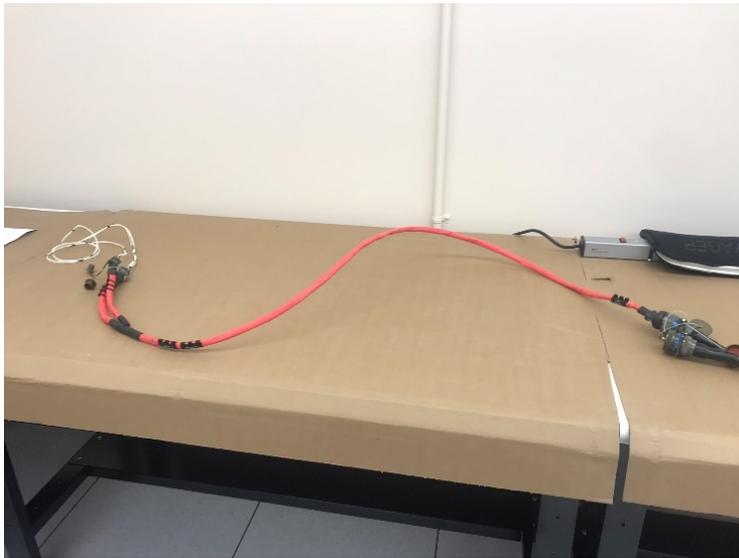


Universal Synaptics

[REDACTED]
Voyager Intermittent Fault Detector™ (IFD™) Capability Assessment
12 - 14 June 2018
Summary Notes – Out Brief

The AWTS Rudder Cable was selected by [REDACTED] Engineer as the first AWTS cable to test on the Voyager Intermittent Fault Detector (VIFD).



AWTS Rudder Cable P/N: 18D5297-1



AWTS Rudder Cable connected to Voyager via AWTS Patch Cable

- Utilizing the AWTS patch cable we connected the Voyager to the AWTS Rudder Cable – P/N: 18D5297-1. The following test functions were performed:
 - VIFD AutoMap function was performed to map the AWTS Rudder Cable
 - A standard continuity check on the AWTS Rudder Cable was performed and the cable passed continuity testing
 - VIFD intermittence testing was performed on the AWTS Rudder Cable and the cable was certified as intermittent free

- VIFD AutoMap function was performed to map the V-22 modified Rudder Actuator Cable (built by [REDACTED] - to create repeatable intermittent events)
- A standard continuity check on the V-22 modified Rudder Actuator Cable was performed and the cable passed continuity testing
- VIFD intermittence testing was performed on the V-22 modified Rudder Actuator Cable and the cable was certified as intermittent free



AWTS Rudder Cable P/N: 18D5297-1
connected to Voyager via AWTS Patch Cable



V-22 modified Rudder Actuator Cable

- Utilizing the AWTS patch cable we then connected the Voyager to the AWTS V-22 CCFDA (Cockpit Control Functional Display Actuator) Cable – P/N: 18D90118-1. The following test functions were performed on two cables:
 - VIFD AutoMap function was performed to map the AWTS V-22 CCFDA Cable #1
 - A standard continuity check on the AWTS V-22 CCFDA Cable #1 was performed cable passed continuity testing
 - VIFD intermittence testing was performed on the AWTS V-22 CCFDA Cable #1 and the cable was certified as intermittent free
 - VIFD AutoMap function was performed to map the AWTS V-22 CCFDA Cable #2
 - A standard continuity check on the AWTS V-22 CCFDA Cable #2 was performed cable passed continuity testing
 - VIFD intermittence testing was performed on the AWTS V-22 CCFDA Cable #2 and the cable was certified as intermittent free



Advanced Technology Team Engineer utilizing Voyager to test AWTS V-22 CCFDA Cables



AWTS V-22 CCFDA Cables P/N: 18D90118-1

- Utilizing the AWTS patch cable we next connected the Voyager to the AWTS H1 YZ MLVA (Memory Loader Verifier Assembly) Cable which consists of four separate cables – W1 P/N: 18D90271-1, W2 P/N: 18D90272-1, W3 P/N: 18D90273-1, W4 P/N: 18D90274-1. The following test functions were performed on the four cables:
 - VIFD AutoMap function was performed to map the AWTS H1 YZ MLVA (Memory Loader Verifier Assembly) Cable W1
 - A standard continuity check on the AWTS H1 YZ MLVA (Memory Loader Verifier Assembly) Cable W1 was performed and cable passed continuity testing
 - VIFD intermittence testing was performed on the AWTS H1 YZ MLVA (Memory Loader Verifier Assembly) Cable W1 and the cable was certified as intermittent free

 - VIFD AutoMap function was performed to map the AWTS H1 YZ MLVA (Memory Loader Verifier Assembly) Cable W2
 - A standard continuity check on the AWTS H1 YZ MLVA (Memory Loader Verifier Assembly) Cable W2 was performed and cable passed continuity testing
 - VIFD intermittence testing was performed on the AWTS H1 YZ MLVA (Memory Loader Verifier Assembly) Cable W2 and the cable was certified as intermittent free

 - VIFD AutoMap function was performed to map the AWTS H1 YZ MLVA (Memory Loader Verifier Assembly) Cable W3
 - A standard continuity check on the AWTS H1 YZ MLVA (Memory Loader Verifier Assembly) Cable W3 was performed and cable passed continuity testing
 - VIFD intermittence testing was performed on the AWTS H1 YZ MLVA (Memory Loader Verifier Assembly) Cable W3 and the cable was certified as intermittent free

 - VIFD AutoMap utilized to find the as-wired configuration and mapped the AWTS H1 YZ MLVA (Memory Loader Verifier Assembly) Cable W4

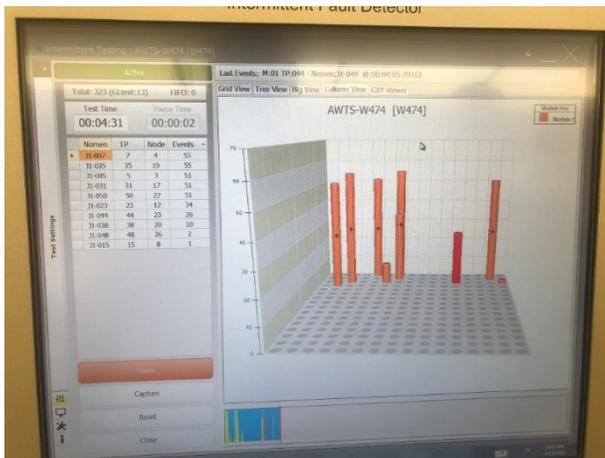
- A standard continuity check on the AWTS H1 YZ MLVA (Memory Loader Verifier Assembly) Cable W4 was performed and cable passed continuity testing although there was high ohmic resistance deviation (believed to be attributable to the connector style of the wrap-around connector)
- VIFD intermittence testing was performed on the AWTS H1 YZ MLVA (Memory Loader Verifier Assembly) Cable W4 and intermittence was detected and isolated on test point 31, node 17 and test point 7 node 4 located in and around the cable splice – there was also intermittence detected due to the cannon plug threading issue not tightening...



Four AWTS H1 YZ Memory Loader Verifier Assembly Cables



Intermittence was detected and isolated in the cable splice of W4



Cannon Plug Connection Issue caused Intermittence to show throughout cable - threading issue highlighted potential field issue when connecting asset



- Utilizing the AWTS patch cable we next connected the Voyager to the AWTS Remote Switching Valve Cable – P/N: 18D5386-1. The following test functions were performed:
 - VIFD AutoMap function was performed to map the AWTS Remote Switching Valve Cable
 - A standard continuity check on the AWTS Remote Switching Valve Cable was performed and the cable passed continuity testing
 - VIFD intermittence testing was performed on the AWTS Remote Switching Valve Cable and the cable was certified as intermittent free

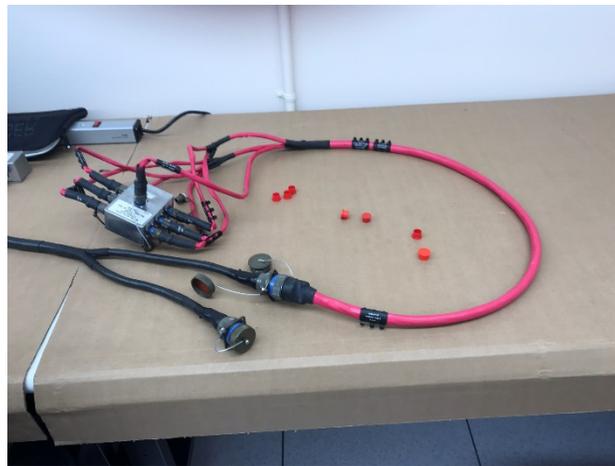


AWTS Remote Switching Valve Cable P/N: 18D5386-1

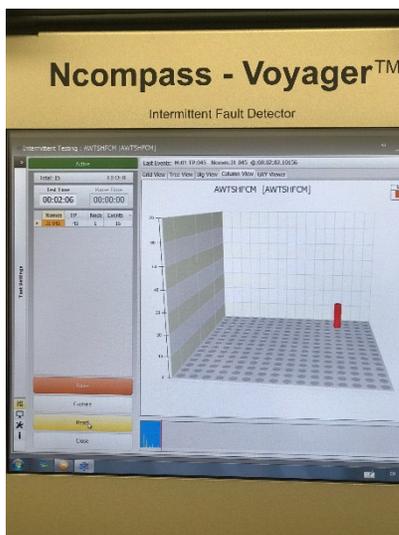
- Utilizing the AWTS patch cable we next connected the Voyager to the AWTS W1 HFCM/HFCUM – P/N: 18D5287-1. The following test functions were performed on two cables:
 - VIFD AutoMap function was performed to map the AWTS W1 HFCM/HFCUM Cable #1
 - A standard continuity check on the AWTS W1 HFCM/HFCUM Cable #1 was performed and the cable passed continuity testing
 - VIFD intermittence testing was performed on the AWTS W1 HFCM/HFCUM Cable #1 and intermittence was detected and isolated on test point 45, node 1
 - VIFD AutoMap function was performed to map the AWTS W1 HFCM/HFCUM Cable #2
 - A standard continuity check on the AWTS W1 HFCM/HFCUM Cable #2 was performed and the cable passed continuity testing
 - VIFD intermittence testing was performed on the AWTS W1 HFCM/HFCUM Cable #2 and intermittence was detected and isolated on test point 45, node 1



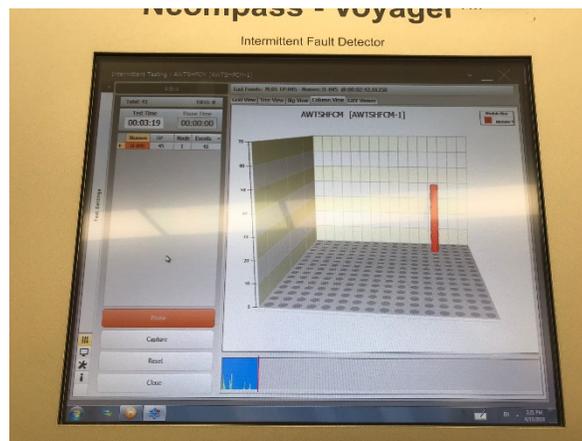
AWTS HFCM/HFCUM Intermittence



AWTS W1 HFMC/HFCUM Cable P/N: 18D5287-1

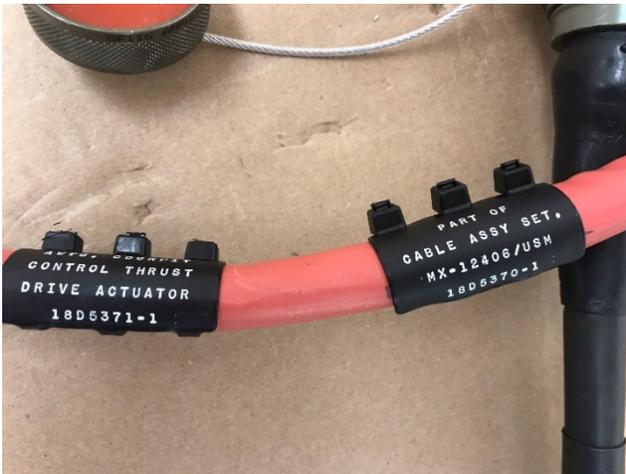


Voyager Cable #1 display screen isolating intermittence



Voyager Cable #2 display screen isolating intermittence

- Utilizing the AWTS patch cable we next connected the Voyager to the AWTS Cockpit Control Thrust Drive Actuator – P/N: 18D5371-1. The following test functions were performed:
 - VIFD AutoMap function was performed to map the AWTS Cockpit Control Thrust Drive Actuator Cable
 - A standard continuity check on the AWTS Cockpit Control Thrust Drive Actuator Cable was performed and the cable passed continuity testing
 - VIFD intermittence testing was performed on the AWTS Cockpit Control Thrust Drive Actuator Cable and the cable was certified as intermittent free



AWTS Cockpit Control Thrust Drive Actuator Cable P/N: 18D5371-1

- Utilizing the AWTS patch cable we next connected the Voyager to the AWTS W1 WRM/RCV Cable – P/N: 18D5366-1. The following test functions were performed:
 - VIFD AutoMap function was performed to map the AWTS W1 WRM/RCV Cable
 - A standard continuity check on the AWTS W1 WRM/RCV Cable was performed and the cable passed continuity testing
 - VIFD intermittence testing was performed on the AWTS W1 WRM/RCV Cable and the cable was certified as intermittent free



AWTS W1 WRM/RCV Cable P/N: 18D5366-1

- Utilizing the AWTS patch cable we next connected the Voyager to the AWTS BBCM/Utility Isolation Valve Cable – P/N: 18D5361-1. The following test functions were performed:
 - VIFD AutoMap function was performed to map the AWTS BBCM/Utility Isolation Valve Cable
 - A standard continuity check on the AWTS BBCM/Utility Isolation Valve Cable was performed and the cable passed continuity testing
 - VIFD intermittence testing was performed on the AWTS BBCM/Utility Isolation Valve Cable and the cable was certified as intermittent free



AWTS BBCM/Utility Isolation Valve Cable P/N: 18D5361-1