



NAVAIR Attacks Wiring Issues From All Sides

By Jim Jenkins

In an average year, the Navy has 78 not-mission capable aircraft because of wiring discrepancies. NAVAIR is taking steps to identify and fix these wiring problems in several different ways: incorporating and integrating training, updating manuals, and validating new tools. Our Sailor and Marine maintainers will have access to better and proper tools, as well as the skills needed to keep aircraft flying safely.

NAVAIR's special skills training/training support branch (AIR 6.7.5.2) offers wiring-systems awareness computer-based training on the aviation maintenance training continuum system (<https://amtes.kpt.nuwc.navy.mil>). A training DVD for aircraft-wiring inspection also is available at the same website—simply follow the “MediaTrax” link. The ordering number for the DVD is 008-R-500-001-1.0-D, or simply type in the name “aircraft wiring inspection training” in the search field.

“The DVD is a great way to get refresher training on inspection techniques,” said AOC(AW) Richard Burry, of AIR 6.7.5.2. “Plus the shops/squadrons can use it as professional on-the-job training and document it in their training jackets/cycle.”

NAVAIR's wiring systems branch (AIR 4.4.5.3) coordinates the hands-on wiring awareness inspection training (WAIT). Dave Quinzani leads this effort that aims to refresh the training maintainers get in the schoolhouse. They also offer new techniques at finding faulty wires in aircraft on the line.





Quinzani and others from AIR 4.4.5.3 travel around the world, setting up training at various squadrons around the fleet. The team takes a hands-on approach to teaching Sailors and Marines the proper way to thoroughly look for, find, fix, and report wiring problems. The WAIT training generally takes two days; the first day, Quinzani and the command's CDIs and QARs assess the installation and condition of the wiring on squadron aircraft. The wiring assessment team looks for common trends such as chafing and corrosion, photographs these problem areas, and incorporates this information into a brief given on day two. Day two is a half day classroom session on the problems, causes and remedies of common wiring issues. Part of the time is spent focusing on the previous day's assessment of the squadron's own aircraft. For the rest of the day, class adjourns to the hangar where the assessors and maintainers get their hands dirty practicing the new inspection techniques.

The NA 01-1A-505 (or -505 for short), Joint Service General Wiring Maintenance Manual, is the cornerstone for wiring and fiber-optic maintenance. All platform-specific aircraft wiring manuals refer back to it for general/common tasks. Back in 2002, NAVAIR tasked the aging aircraft IPT (AAIPT) to update the manual, which hadn't been revised in approximately 15 years.

The AAIPPT coordinated the effort with the wiring systems branch (AIR 4.4.5.3), design interface and maintenance planning (AIR 6.7) and the Naval Air Technical Data and Engineering Service Command (NATEC)

(AIR 6.8) which resulted in reducing the 31-volume Navy (as well as seven-volume Air Force manual) -505 to four joint volumes. The result is a practical document for all maintenance-specialty rates to refer to when researching information on the proper way to maintain aircraft-wiring systems. With more than 1,000,000 maintenance man-hours (MMH) spent on wiring maintenance annually in the Navy, the AAIPPT expects the

Flight, Flight-Related, and Ground Class A and B Mishaps 09/20/2007 to 12/16/2007

Class A Mishaps

Date	Type Aircraft	Command
09/24/2007	MH-60S	HSC-25 SEA COMP
Aircraft crashed into FENA reservoir. Three personnel rescued and one fatality.		
09/27/2007	T-45A	VT-21
Aircrew ejected from aircraft during RTB to home field.		
10/01/2007	T-45A	VT-21
Goshawk impacted ground in landing pattern. Aircrew ejected safely.		
10/11/2007	FA-18A	VFA-87
Hornet crashed into water. Pilot ejected successfully. Aircraft destroyed.		
11/01/2007	T-45A	VT-22
Aircraft had engine failure immediately after takeoff and struck the ground.		
11/06/2007	MV-22B	VMMT-204
Aircraft had nacelle fire on short final to LZ. Damage/injuries TBD.		
11/09/2007	HH-60H	HS-2
Helo struck water while in transit to carrier.		
11/27/2007	AV-8B	VMA-513
Harrier crashed during night air-to-surface training. Pilot ejected safely.		

Class B Mishaps

Date	Type Aircraft	Command
10/01/2007	FA-18E	VFA-105
Gun bay door blew open on takeoff. Left engine fodded. No injuries.		
10/02/2007	E-6B	VQ-4 SHORE
Upon landing, damage was discovered on port and starboard inboard flaps.		
10/08/2007	AV-8B	HMM-261
During aerial refueling, tanker refueling aircraft stuck the canopy refueling.		
10/10/2007	E-6B	VQ-4 SEA
Aircraft landed and blew all four tires on starboard side, damaging flaps and landing gear.		
10/30/2007	T-45C	VT-9
Goshawk had a bird strike after takeoff. Aircraft damaged. No injuries.		
11/09/2007	FA-18C	VFA-195
CATM-88 departed aircraft on landing and was lost at sea.		
12/03/2007	FA-18A	VMFA-232
CATM-88 departed aircraft after arrestment. No injury.		
12/08/2007	CH-53E	HMH-361
Crew chief dragged under right mainmount during ground taxi.		
12/12/2007	AV-8B	VMA-214
Unmanned and parked aircraft rolled and struck light cart during maintenance.		



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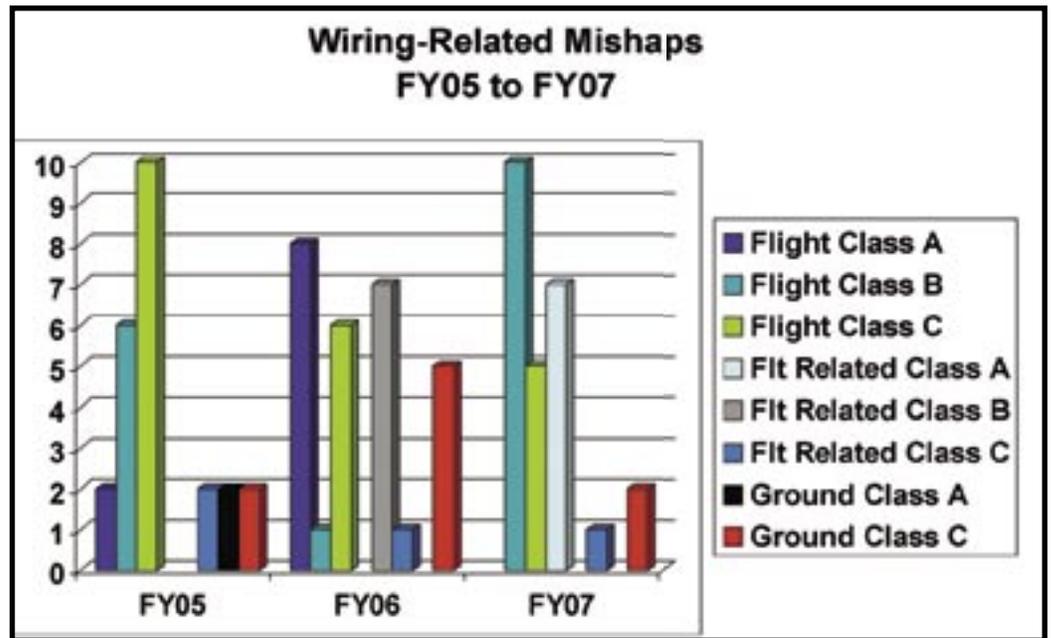
updated manual alone to produce a 20,000-to40,000-MMH reduction per year.

Volume 4, the manual referring to fiber-optic maintenance, is new and is the only general-series manual in the DoD that addresses fiber-optic maintenance. The NAVAIR team has taken great efforts to make the -505 a living document, encouraging maintenance personnel to submit technical-publication discrepancy reports (TDRPs), which go directly to the coordinator of the -505, ensuring they get into the proper manual.

This strategy is effective, and Volume 1 (NA-01-1A-505-1) already has undergone two revisions since the initial re-write in 2004, mostly from inputs received from fleet users.

“We tried to balance required updates and replacing obsolete tools and processes, with the incorporation of text and clarification to make it easier for the end user to understand,” said Bob Ernst, director of the aging aircraft branch.

Forty percent of the 470 updates in Volume 1/Change 1 came from fleet users. Other changes in the -505 occur because of the rapid technology refresh rate of three to five



years. Some of those changes included adding new tools and instructions on how to use them. These items have been validated for use and help maintainers solve wiring issues. It also includes new diagnostic and fault-location equipment, as well as information on digital multi-meters, time-domain reflectometers, meggers and procedures for using the Eclipse ESP+ and 3M 900AST fault-location meters. Also introduced were procedures for wrap-around heat-shrink repairs, new connector potting and cleaning compounds.

Change 2 incorporated new lead-free solder guidance, authorized Loctite for backshell screws, and incorporated the electromagnetic interference test results for the ESP+ and 900AST handheld meters. In November 2006, the new Volume 2 was released with updated information on all military circular connectors, which will be followed this October by Volume 3, which will address all rectangular connectors.

The NA01-1A-505 joint-service general wiring-maintenance manual is a living document dependent upon fleet input. Maintenance personnel are encouraged to follow their squadron’s TPDR process. NAVAIR relies on fleet feedback to give the warfighters the best tools and processes available. The entire NA01-1A-505 manual series can be accessed at <https://www.natec.navy.mil> and is made available to end users in digital format. ✚



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