Aviation Support Equipment
PMA260

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**PMA Summary**

**Aviation Support Equipment**

- **Mission:** Provide cost effective aviation common support equipment in support of fleet operations and maintenance activities. Fund requirements for replenishment of peculiar support equipment for out of production weapon systems.

- **Scope:**
  - 2,049 total different end items of Common Aviation Support Equipment
  - 106 funded programs across the FYDP
  - 120 current contracts currently in place
  - Current Designated Programs:
    - 1 ACAT II = Consolidated Automated Support System (CASS/RTCASS)
    - 1 ACAT IVM = electronic CASS (eCASS)
    - 51 AAPs (Abbreviated Acquisition Programs)
  - FY11 total execution responsibility: $260.9M
• Additional responsibilities
  – Provide Support Equipment leadership role within NAE
  – DoD Executive Directorate for Automatic Test Systems
  – Joint Panel for Aviation Support Equipment committee
  – Manage Support Equipment Requirements Management Information System
  – Manage Aviation Support Equipment for Maritime Prepositioning Ships program
• OPNAV Sponsors
  – CDR Ron Kaelber (USN) – N8811
  – Major Dave Donnell (USMC) – N881C4
Support Equipment
Technology Modernization
Mainframe CASS Modernization

Mainframe CASS
(Procured 1990 – 2003)

RTCASS
(Procured 2003 – 2012)

Mainframe CASS
(Hybrid – RF – CNI – HP – EO)

eCASS
(Procured 2013 – 2020)
eCASS
Mainframe CASS Modernization

- In 2015, early CASS stations will be 25 years old
  - Must address obsolescence while inserting technology to satisfy emerging weapon system test requirements & reduce Total Ownership Costs
  - Fewer stations required

- Mainframe CASS Modernization called “eCASS” – a new test system

- Leverage RTCASS and other test technology developments

- TPSs will be transportable among eCASS, RTCASS and Mainframe CASS
eCASS Technology Enhancements

- **Modernized control computer**
  - 64 bit Windows 7 OS, 12GB RAM, Dual Hard Drives, DVD-RW Drive
  - Computer remains powered in Standby Mode
    - Allows IETM viewing while remaining station is powered off
    - Provides multiple run-time environment (ATLAS, TestStand, etc…)

- **Dual touch-screen display monitors**

- **Ultra-Capacitors vice lead-acid battery backup power**

- **Open architecture**
  - COTS-based instruments vice custom instruments

- **Virtual instruments used for select functionalities**
  - Single instrument can be software commanded to perform various functions

- **Compatible design architecture aligned with F-35 Depot ATE (LMSTAR)**
  - Includes internal General Purpose Interface (GPI) switching to provide a seamless path that allows F-35 TPS Interconnect Devices to connect directly to the eCASS GPI without any additional adapter or conversion
Smart Test Program Sets
for use with the CASS family of testers

Description: Technology enhancement to a CASS TPS that integrates the use of aircraft bit data, historic maintenance data, and a diagnostic reasoner to reduce the time required to test a UUT and improve the test programs ability to correctly isolate to a faulty component.

Opportunities for use: F/A-18 and V-22 avionics where the aircraft platform captures the BIT data. Currently fielded to improve maintenance on the ATFLIR and ALR-67 weapon systems.

Technology Enhancements/Modernization

- Provides a Directed Test that reduces diagnostic maintenance time by entering a test program where the failure is located vs. running the entire diagnostic WRA test
- Utilizes a TPS corrective actions “Maintenance History Database” to facilitate “Smarter” UUT fault isolation with a higher confidence level
CASS TPS Reliability Improvement Plan

Description: Redesign of OTPS hardware using latest technology to improve reliability and maintainability

Current TPS Candidates:
- F/A-18 APG-65 RADAR Lot 3 (RE & RTDP)
- F/A-18 ATS Lot 1

Future TPS Candidates:
- APG-65 Lot II (Transmitter)
- F/A-18 APG-73 RADAR
- AV-8B EETS OTPS 5

Technology Enhancements/Modernization
- Eliminate use of wire wrap connections
- Replace wire wrap boards with printed circuit boards
  - Eliminate carbon resistors; Incorporate pull-up resistors
  - Incorporate buffer circuitry
- Redesign cable sets (conduits & connectors)
  - Use Sunbank casings & backshells
  - SMA coaxial connectors
  - Key connectors
- Redesign Interface Devices for maintenance access
- Revising TPS test strategies and reducing TPS run times
Computed Radiography

**Description:** Processes radiographic imaging plates radiated by currently fielded I-Level x-ray tube head systems (Lorad LPX-160) to provide digitized radiographic images of inspected components

**Legacy Support Equipment Replaced:** wet film processors

**Inventory Objective:** 75 units

**Delivery begins:** Late 2011

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**Technology Enhancements/Modernization**

- Elimination of wet film method HAZMAT
- Improved operator safety
- Capability to view through multiple densities
- Indefinite digital image storage w/o space and environmental control requirements of film
- Ease of data transfer allowing for collaboration and consultation
- Decreases footprint/portability
Common Video Borescope

**Description:**
Video borescope used to inspect interior engine components and airframes for cracks, FOD, corrosion, etc. Capable of defect measurement and storing images for further analysis.

**Legacy Support Equipment Replaced:**
1998AS100-1, 2023AS100-1, 3353AS100-1, 3354AS100-1, 3355AS100-1, 3356AS100-1, 3358AS100-1, other PSE borescopes

**Inventory Objective:** 1000 units

**Delivery begins:** Late 2011

**Deliveries complete:** 2016

**Technology Enhancements/Modernization**
- COTS item modified to meet EMI and environmental requirements for both above and below flight deck usage
- Battery operated remote monitor add for external viewing
- Meets all known common USN/USMC requirements
- Readable display in direct sunlight
- Improved survivability
- Additional replaceable tips included to allow for focal distance, field of view, and lens orientation
**Shipboard Helicopter Handler**

**Description:** The Shipboard Helo Handler (SHH) is used to tow, turn, and spot H-60 helicopter variants in the confines of the hangar deck of CV, CVN, LHA, LHD and LCS class ships. It was specifically designed with a low profile to accommodate H-60R/S variants.

**Legacy Support Equipment Replaced:** SD-2 spotting dolly for H-60 applications

**Inventory Objective:** 38 units for CVN/L Class ships

**Delivery begins:** 2013

**Deliveries complete:** 2014

**Technology Enhancements/Modernization**

- Low profile unit that allows hangar bay spotting H-60’s without the need to over service rear aircraft strut
- Battery powered vs. diesel
- Controlled via tethered joystick
- Proposed solution for H-60 operation on LCS Class ships
Next Generation Software Loader

**Description:** Compact, portable unit capable of uploading/verifying Operational Flight Programs (OFPs) and User Data Files (UDFs) into avionics reprogrammable systems via single-point or direct loading at the O and I-Level

**Legacy Support Equipment Replaced:** AN/USQ-131B Memory Loader-Verifier Set

**Inventory Objective:** 723 units

**Delivery begins:** 2012

**Deliveries complete:** 2016

**Technology Enhancements/Modernization**

- Provide a “One Box” Common Support Equipment replacement for multiple legacy Peculiar Support Equipment configurations that have known loading deficiencies and obsolescence issues
- Capitalizes on current SW adapted from USAF software loading program
- Ruggedized and EMI/EMV hardened to operates in shipboard, flight deck, and shore based environments
- Added provisions for possible future hardware interface upgrades in support of emerging aircraft
ADU-902 Ground Handling Equipment Adapter (Power Drive Tool)

**Description:** New design program used to support the Linkless Ammunition Loading System (LALS) and the Next Generation Munitions Handler. The ADU-902 consists of three major components: the power drive unit, battery, and carrying case with wheels that can be pulled around the deck or mounted on the back of the LALS assembly.

**Legacy Support Equipment Replaced:** LALS Speed Handle

**Inventory Objective:** 160 units

**Delivery begins:** 2016

**Technology Enhancements/Modernization**

- Designed to significantly reduce the fatigue factor of manually driving the LALS loader with a speed handle
- Will enable Ordnance personnel to rapidly load/unload 500-1000 lb bombs when used with the Next Generation Munitions Handler
- Researching possible application for aircraft wing-fold serving
**Next Generation Munitions Handler**

**Description:** New design program to develop a munitions transporting and push-up loading adapter which mounts to the legacy MHU-191 Munitions Transporter. Adapter employs simple mechanical design while maintaining current transporter weapons density.

**Legacy Support Equipment Replaced:** None

**Inventory Objective:** 956 units

**Delivery begins:** 2016

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**Technology Enhancements/Modernization**

- Designed to work with the Power Drive Tool
- Will significantly reduce back injuries from hand-loading 500-1000 lb bombs
- Will reduce loading times by eliminating the need to transfer the weapon from a transportation skid to a loading skid
- The Next Generation Munitions Handler serves as a ‘Trans-loader’
## Common Aviation Ground Support Equipment Technology Modernization Road Map

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Legacy Equipment  Technology Upgrade
Summary

• PMA260 is committed to:
  – Reduce Life Cycle costs
  – Right-size the Aviation Support Equipment Inventory Footprint
  – Modernize Automatic Test Systems and Ground Support Equipment

PMA260 is your #1 resource of choice for Common Support Equipment solutions