



Aviation Support Equipment PMA260



CAPT Fred Hepler
29 June 2011



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



PMA Summary (cont)



- 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



Mainframe CASS Modernization

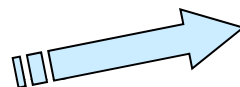


(Procured 2003 – 2012)

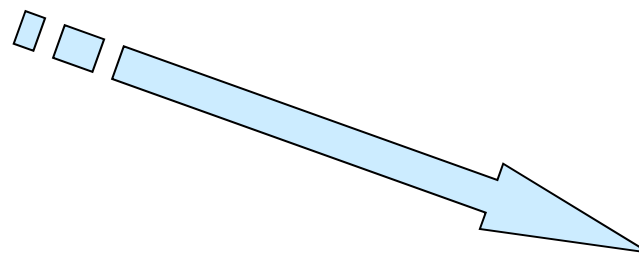
(Procured 1990 – 2003)



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



RTCASS



(Procure 2013 – 2020)



eCASS

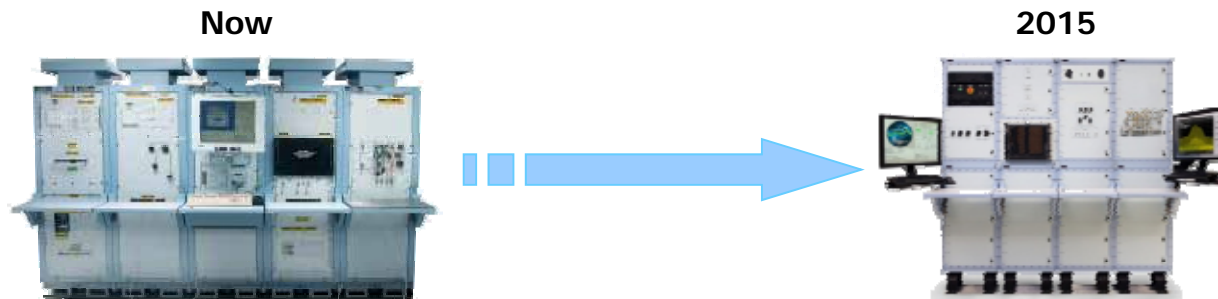


eCASS

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**





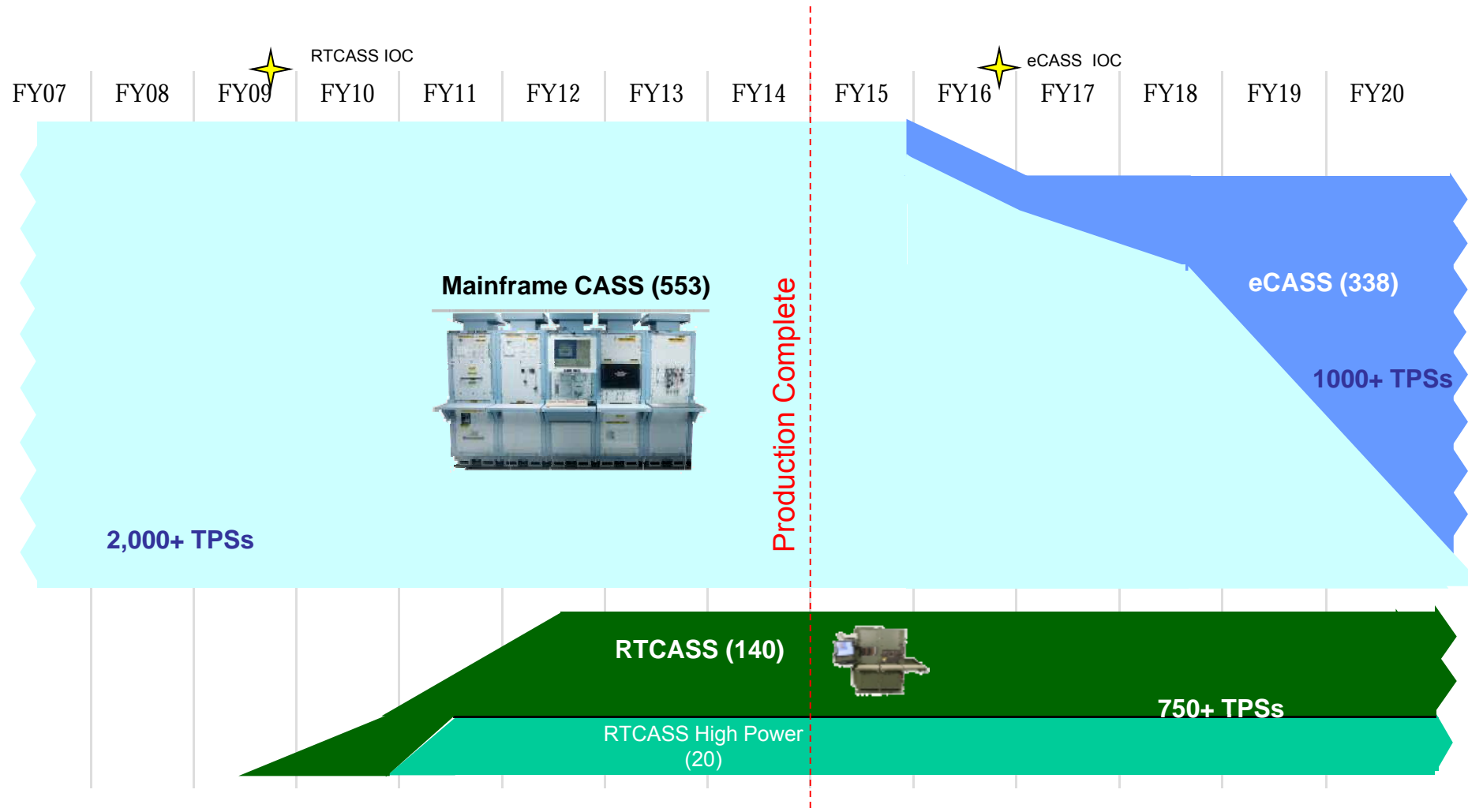
eCASS Technology Enhancements



- **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



CASS Roadmap



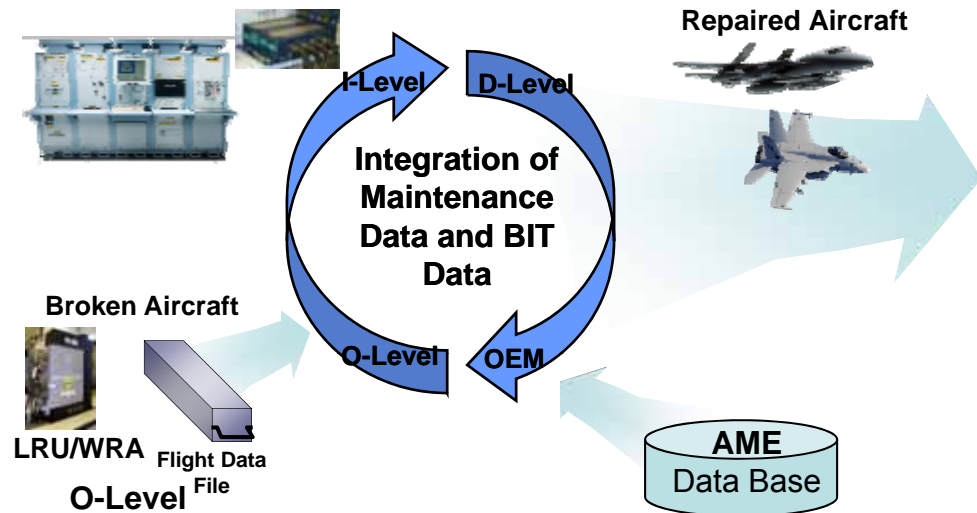


Smart Test Program Sets for use with the CASS family of testers



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



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 operate 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



Technology Enhancements/Modernization

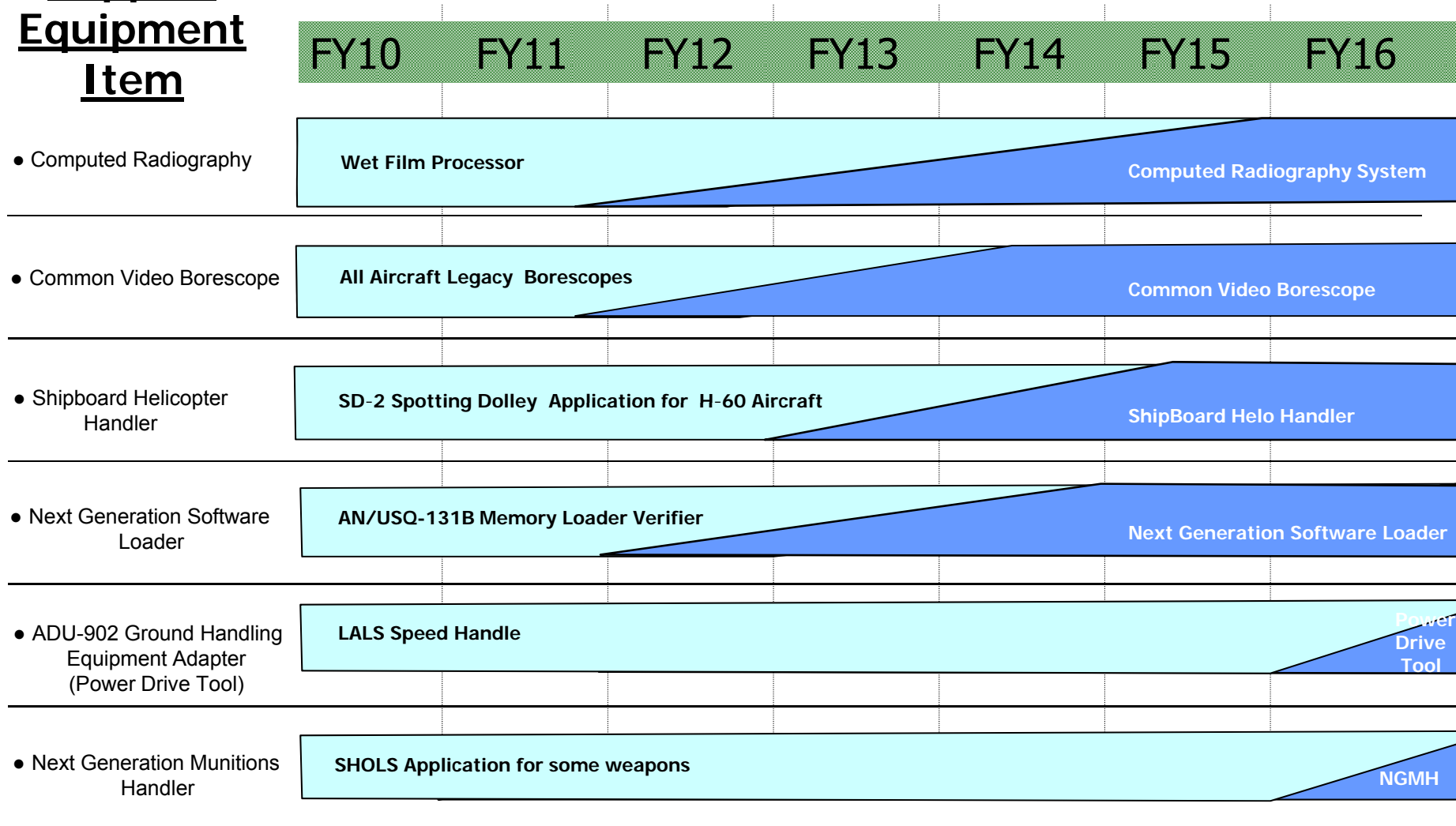
- Designed to work with the Power Drive Tool
- Will significantly reduce back injuries from hand-loading 500-1000 lb bombs
- Will reduce loading times by eliminating the need to transfer the weapon from a transportation skid to a loading skid
- The Next Generation Munitions Handler serves as a 'Trans-loader'



Common Aviation Ground Support Equipment Technology Modernization Road Map



Support Equipment Item



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**