

Aviation Support Equipment



CAPT Mike Belcher
PMA260

October 2008

michael.e.belcher@navy.mil



PMA260 Overview



- ❑ Provide cost effective aviation common support equipment in support of fleet operations and maintenance activities. Fund requirements for replenishment of peculiar support equipment (PSE) for out of production weapon systems

- ❑ Scope:
 - 2,482 total different end items of Aviation Support Equipment
 - 157 funded programs across the FYDP
 - 124 current contracts in place
 - Current Designated Programs:
 - 1 ACAT II = Consolidated Automated Support System (CASS)
 - 4 ACAT IVM
 - Hydraulic Power Supply System
 - Land Based Mid Range Tow Tractor
 - eCASS
 - Legacy Automatic Test Equipment Offload to CASS
 - 45 Abbreviated Acquisition Programs (AAPs)



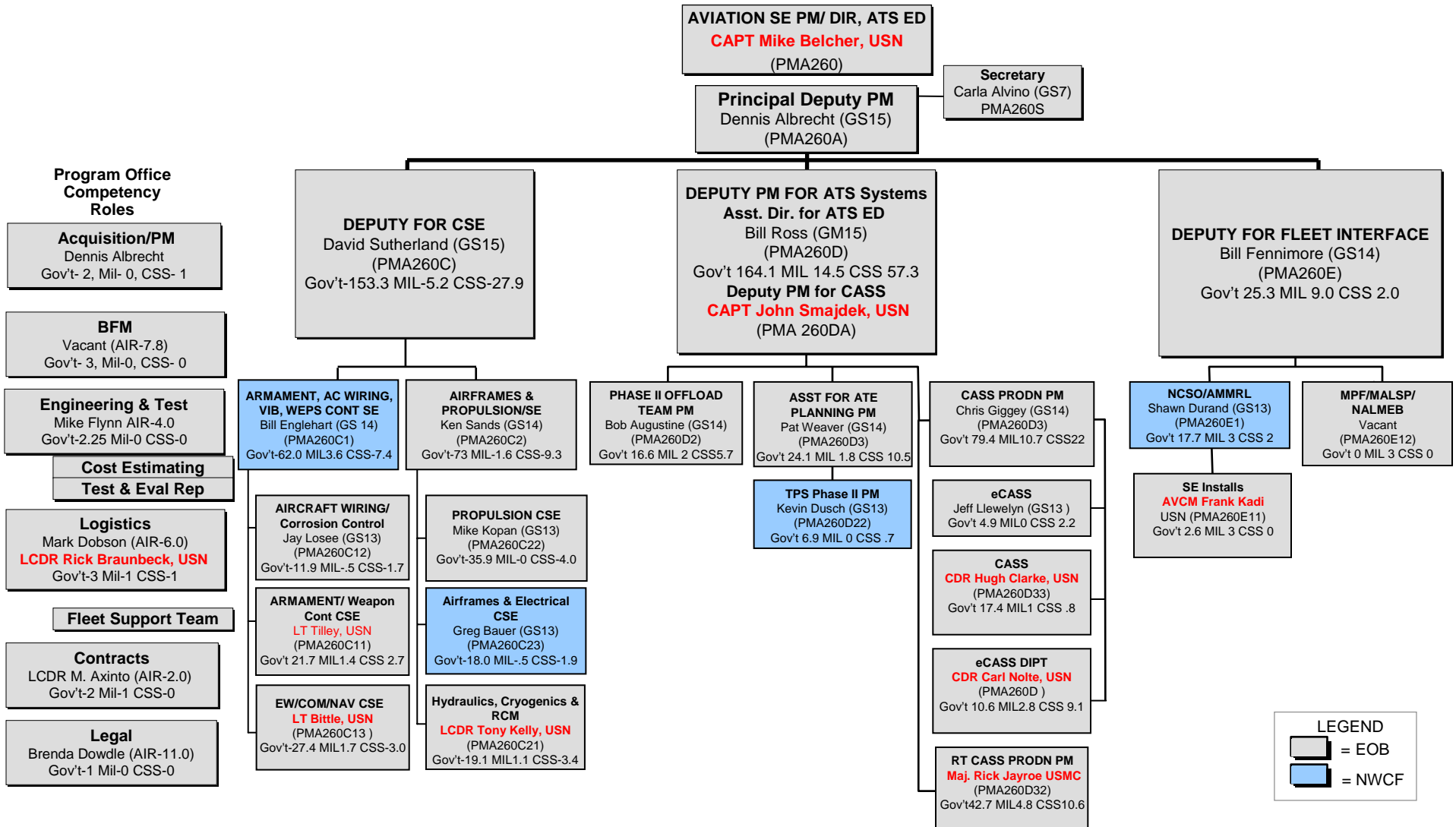
PMA260 Overview (con't)

- ❑ Additional responsibilities
 - Provide SE leadership role for the Naval Aviation Enterprise
 - DoD Executive Directorate for Automatic Test Systems
 - Member of the Joint Panel for Aviation Support Equipment (JPAVSE) committee // Aviation Common Systems (ACS)//Joint Aeronautical Logistics Commanders (JALC)
 - Manage AUTOSERD & SERMIS (SEMS)
 - Designated as an USD(AT&L) Reduction of Total Ownership Cost (RTOC) Special Interest Program

- ❑ OPNAV Sponsors
 - CDR Richard Dorn – N881C5
 - LCDR Louis Goncalves – N881C3
 - Major John McDermott – N881C4



PMA260 IPT Structure





SUPPORT EQUIPMENT
PMA260
WITHOUT GROUND SUPPORT
THERE IS NO AIR SUPPORT

CASS





Near-Term CGSE Deliveries



New SE Item	Legacy SE Replaced	Delivery Status
A/S32A-45 Mid Range Tow Tractor	A/S32A-30A SE and A/S32A-42 Mid Range Tow Tractors	650 (out of 1,249) tractors delivered thru May 08
A/M27T-14 (Electric) and A/M27T-15 (Diesel) Hydraulic Power Supplies A/M27T-11 Purifier	A/M27T-5/5A & 7/7A Power Supplies	107 Diesel, 59 Electric, and 60 Purifiers delivered thru May 08
Mobile Frequency Converter	MMG-1A Mobile Motor Generator	IOC – Dec 08
Large Landbased Air Conditioner	A/M32C-17 Diesel Air Conditioner in support of C130, P-3, P-8 and E-2C/D aircraft	IOC – 3 rd QTR FY09
Jet Engine Test Instrumentation (JETI)	Instrumentation package being installed in T-1, T-6, T-10 and T-36 engine test cells. Supports testing of F414, F404, J52, F405 & F402 engines	20 systems installed including 11 CN/CVNs
Shaft Engine Test Instrumentation (SETI)	Instrumentation package being installed in T24 and T16 engine test cells. Supports testing of T-700 and T-64 engines	IOC – 4 th QTR FY09



Near-Term CGSE Deliveries



New SE Item	Legacy SE Replaced	Delivery Status
Portable Oxygen Regulator Test Set (PORTS)	Replaces the Oxygen Component Test Stand "Green Monster"	IOC – 2 nd QTR FY10
Computed Radiography	Digitizes radiographic images of inspected components. Replaces wet method development of radiography film.	IOC – 4 th QTR FY09
Hydraulic Tube Bender	A/E27M-9 Tube Bender CL215 Bench Mounted Tube Bender	IOC – 4 th QTR FY09
Parts Washers Sink Large Aqueous Solvent	Replaces various units divisions to be installed: Sink: 400, 500 & 600 Large Aqueous: 500 & 900 Solvent: 500	Sink IOC: 2 nd QTR FY00 Large Aqueous IOC: 2 nd QTR FY09 Solvent IOC: 2 nd QTR FY10
Aircraft Fluid Servicing Units	PON-6 & HSU-1 Separate servicing units for transmission, engine oil, hydraulic fluid and rotor fluid	IOC: Sep 08
A/F27T-10 Hydraulic Component Test Stand SEC 5701	Replace obsolete components (monitor, computer, printer, keyboard, software, hard drive)	Depot field team installation began Nov 07



Near-Term CGSE Deliveries



New SE Item	Legacy SE Replaced	Delivery Status
AN/AWM-103 Stores Management Subassembly Test Set (SMSTS)	Replaces obsolete AWM-92, -96A, -98, - 100, - 101, ASM-464, A/E-24T-216, TS3519, and MK432 Mod 6 to allow for checkout of weapons release and control interfaces prior to weapons loading.	Deliveries of all 777 units to be complete by October 2009. ECP in work to support emerging AV-8B Litening Pod, MH-60 Torpedo, and P-3C Harpoon & Maverick requirements.
TTU-597E Fuel Control Test Set	Replaces TTU-378A/E and A/E24T-159 for O-level testing and troubleshooting of aircraft fuel quantity probes and indicators.	Deliveries complete for EA-6B, E-2, C-2, and H-60 applications. Integration efforts against remaining aircraft to be complete 1 st quarter FY09 with deliveries to follow.
LALS III Loader	Replaces the GFK-21/E32K-7 LALS II Loader. Provides improved tensioner and Aircraft Interface Unit to improve system operation and reliability. Existing LALS II Loaders will be upgraded to LALS III configuration via ECP.	ECP kits currently being delivered to Kitting facility. New LALS III units to be delivered SEP 2008 through 2011



On-Going CGSE Modernization Efforts



New SE Item	Legacy SE Replaced	Program Status
Handheld Aircraft Wire Tester (HAWT)	Replaces Tektronix 1502 TDR for diagnosing aircraft wiring faults by detecting opens and shorts. Provides a new capability to determine the distance to these faults.	Full Rate Production Decision planned for 2 nd quarter FY09.
Automatic Wire Test Set (AWTS)	Replaces existing 3174AS300 Wire Test Set and 3174AS3200 Switching Unit to provide a tester that will analyze the integrity of wiring harnesses based on "pin-out" and electrical characteristics.	Full Rate Production Decision planned for 3 rd quarter FY09.
Fiber Optic Test Set (FOTS) and Fiber Optic Repair Set (FORS)	New capability required to support the installation of fiber networks on new and emerging platforms. Sets will contain tools/instruments required to test, troubleshoot, and repair fiber optic cabling.	Tracking new maintenance requirements through NAVAIR Fiber Optics Working Group. Full Rate Production Decisions Planned for FY10.
Common Video Borescope Set (CVBS)	Will replace multiple PSE and CSE borescopes in an effort to meet the following goals: 1) Improve Survivability, 2) Reduce Proliferation/inventory, 3) Reduction of Maintenance Cost, 4) Improve Training & Reliability, 5) Upgradeable Design, 6) Maximize Commonality of O/I-Levels.	R&D effort with multiple vendors was completed to demonstrate achievability of goals. Production contract scheduled for 1 st quarter FY09 with Full Rate Production Decision planned for 1 st quarter FY10.



On-Going CGSE Modernization Efforts



New SE Item	Legacy SE Replaced	Program Status
AN/USM-715 Rocket Pod Test Set	Replaces the obsolete MKIII Rocket Pod Tester for confidence testing of 2.75" and 5.0" Airborne Rocket Launchers. Additional inventory required to support new requirement for rocket pod loading on CVN and L-Class ships.	CDR scheduled for Nov 08. Full Rate Production Decision planned for 1 st quarter FY09.
AN/USM-713 Signal Generator Test Set	Replaces obsolete AN/USM-482, -482A, and -638 for testing and troubleshooting on aircraft of RF transmission lines, in-line components, and antennas. Required only for aircraft that do not use JSECST.	Full Rate Production Decision planned for 1 st quarter FY09.
AN/ARM-206 I-Level TACAN Test Set (ITATS)	Replaces obsolete AN/ARM-155, AN/ARM-156, 972(V)-1 and DTS-200 TACAN test sets and provides automated I-level capability for testing and troubleshooting of ARN-118, -136, & -153 TACAN systems.	Navy developmental testing scheduled for 2 nd quarter of FY09. Full Rate production Decision to follow successful completion of testing.
AN/USM-708 CNI/RF Avionics Flightline Tester (CRAFT)	Replaces legacy SM-511, SM-511A, ID-1956, AN/ASM-663, AN/ARM-201, AN/UKM-7, and AN/APM-480A and provides new capability to support Mode 5 IFF testing. IFF only variant also being developed to support shipboard Mode 5 applications. IFF only variants to be delivered in FY09 to support Mode 5 OPEVAL.	Design, development, and contractor testing efforts on-going. Navy development test on full CRAFT scheduled to begin 2 nd quarter for FY-09 with Full Rate Production Decision planned for the end of FY09.



On-Going CGSE Modernization Efforts



New SE Item	Legacy SE Replaced	Program Status
Handheld Radar Simulator	Replaces requirement for various handheld PSE test sets to provide a pre-flight check to ensure that the aircraft's EW systems (RWR, ESM, ECS) are operating properly to detect expect threats.	Initially being developed for support of F/A-18E/F ALR-67(V)3. Navy Developmental Test scheduled for 3 rd quarter of FY10. Addition applications to be developed following successful testing. Full Rate Production Decision planned for 1 st quarter FY11.
TS-4543/G Precipitation Static (P-Static) Diagnostic Test Set	Replaces various PSE test sets procured in small quantities by individual platforms with a common solution for locating insufficient p-static bonded components on airframes of blunt nose aircraft.	Full Rate Production Decision planned for 1 st quarter FY09.
Turboprop Test Instrumentation (TPTI)	Replaces legacy A/E37T-17 and A/E37T-19 turpoper engine test systems.	Currently in the design and development phase with IOC planned for 2 nd quarter FY11.
Next Generation Software Loader	Replaces the AN/USQ-131B Memory Loader-Verifier Set (MLVS) due to obsolescence issues and to support emerging software loading protocols (Gigabit Ethernet, Fiber Channel, 1553, RS-422, RS-232, JTAG, Serial RS-485, and USB)	Currently working with USAF to develop a variant of their CAPRE system to meet Navy requirements. IOC would be in 1 st quarter FY11.



On-Going CGSE Modernization Efforts



New SE Item	Legacy SE Replaced	Program Status
Shipboard Tow Tractor	Replaces A/S32A-31B for moving aircraft up to 74,500 lbs on the flight deck aboard all CV/CVN, LHA, LHD, & LHP ships.	Contract award scheduled for 1 st quarter FY09 with Full Rate Production Decision planned for 3 rd quarter FY10.
Shipboard HELO Handler	New item required to spot H-60 aircraft in close proximity in shipboard hanger bays.	Contract award scheduled for 1 st quarter FY09 with Full Rate Production Decision planned for 4 th quarter FY10.
A/M32K-10 Munitions Trailer	Replaces the USMC A/M32K-4A Prime Munitions Trailer due to the redesign of the USMC prime mover MTVR 7-ton truck.	Extensive testing program to start 1 st quarter FY09 with Full Rate Production Decision planned for 1 st quarter FY10.



Reducing the CGSE Footprint

I-Level TACAN Test Sets

- AN/ARM-155
- AN/ARM-156
- 972(V)-1
- DTS-200

4 → 1

AN/ARM-206
I-Level TACAN
Test Set (ITATS)

60% Inventory Reduction



O-Level CNI Test Sets

- SM-511
- SM-511A
- ID-1956
- AN/ASM-663
- AN/ARM-201
- AN/UKM-7
- AN/APM-480A

7 → 1

AN/ARM-206
I-Level TACAN
Test Set (ITATS)

59% Inventory Reduction



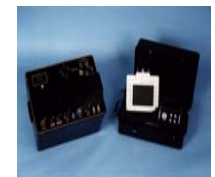
O-Level EW Test Sets

- AN/USM-482
- AN/USM482A
- AN/USM-406
- AN/USM-638

4 → 2

AN/USM-670
JSECST
(F/A-18, EA-6B, AV-8B, & E-2)

8% Inventory Reduction



AN/USM-713
Signal Generator
Test Set
(All other a/c not supported by JSECST)

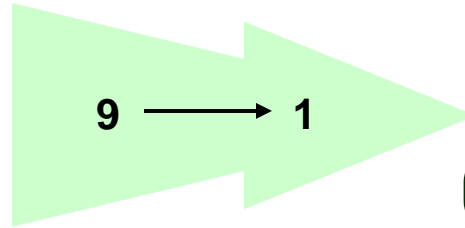




Reducing the CGSE Footprint

O-Level Weapons Release & Control Test Sets

- AN/AWM-92
- AN/AWM-96A
- AN/AWM-98
- AN/AWM-100
- AN/AWM-101
- AN/ASM-464
- A/E-24T-216
- TS-3519
- MK-432 Mod 4/6



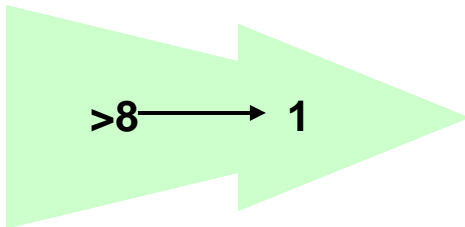
AN/AWM-103
Stores Management
Subassembly Test Set



57% Inventory Reduction

O & I Level Borescope Sets

- 1998AS100-1
- 2023AS100-1
- 3353AS100-1
- 3354AS100-1
- 3355AS100-1
- 3356AS100-1
- 3358AS100-1
- Additional PSE Borescope Sets



Common
Video Borescope
Set (CVBS)



>13% Inventory Reduction



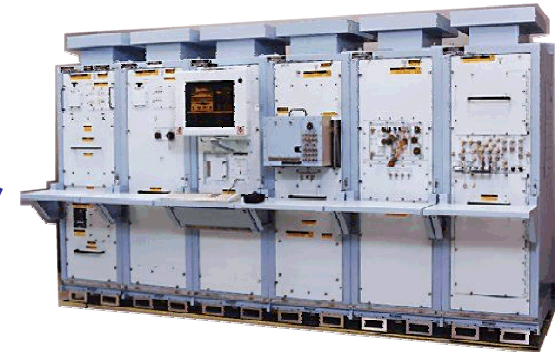
Replacing Legacy ATE with CASS



- APM-469 RSTS
- AN/USM247 VAST
- AAM-60 EOSTS
- AN/USM470(v)2 TMV
- AN/USM614 ESTS
- AN/USM403 HATS
- AN/USM470v(1) ATS
- AN/USM604 EETS
- AN/APM446 RSTS
- AN/AWM23 RFTS
- AN/AWM23 LFTS
- AN/AWM23 C&D TS
- AN/AWM23 CTS
- AN/ASM-686 IATS
- AN/USM484 HTS
- AN/USM629 EOTS (F/A-18)
- AN/USM467 RADCOM
- AN/USM429 CAT IIID
- AN/USM458 NEWTS
- OJ-615 EA-6B HP
- OJ-510 DTB
- APM457 S-3
- AN/ASM-608 IMUTS
- A/E24T-205 Electrical Test Set
- AN/ARM-146 Decoder TS
- GACT/GRAD

NECs	-	41
Tech Pubs	-	624
Personnel	-	105
Space	-	2,700 ft ²
Spares	-	30,000

\$3.8B Reduced Total Ownership Costs



NECs	-	5
Tech Pubs	-	4 disks
Personnel	-	54
Space	-	1,900 ft ²
Spares	-	3,800

Offload not Complete

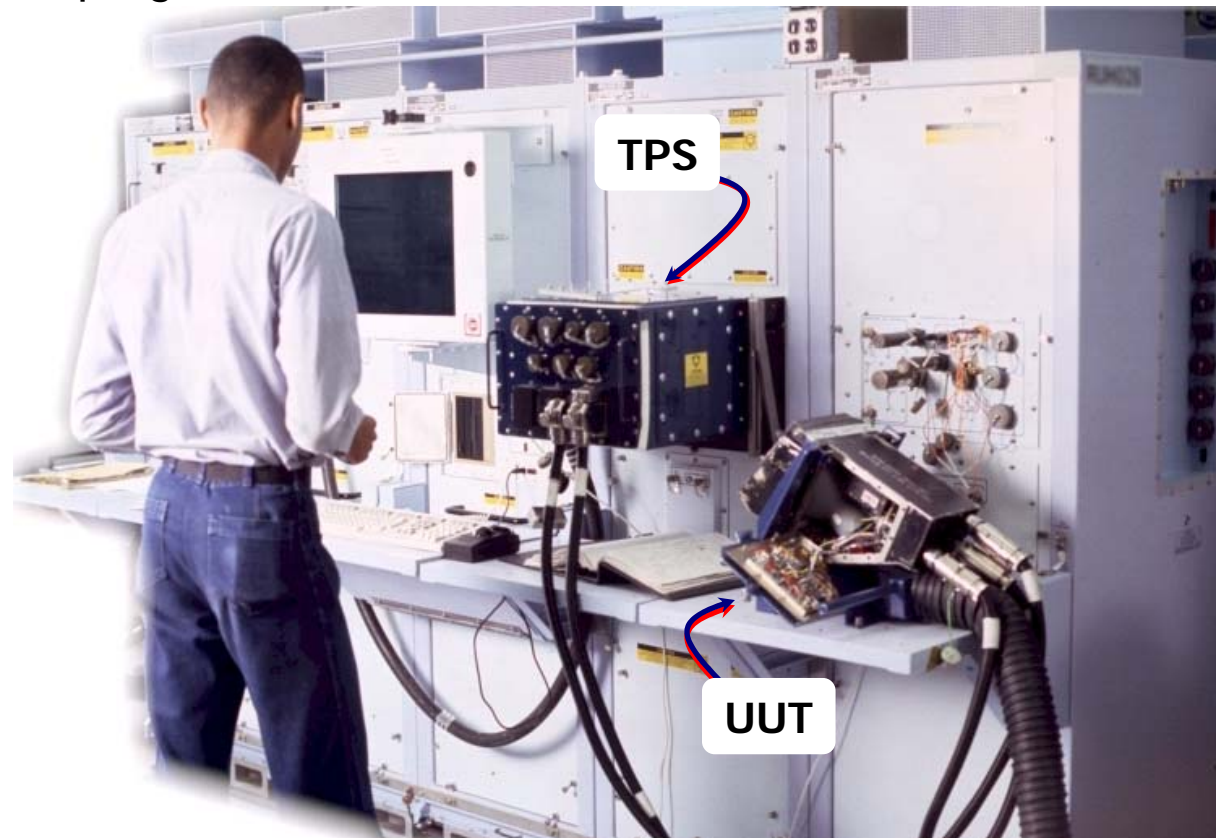


TMS Specific Operational Test Program Sets (OTPS)

- ❑ PMA260 manages the CASS program
- ❑ TMS PMAs manage their own specific OTPS that provide the:
 - Hardware interface between the CASS station and the Unit Under Test (WRA/SRA)
 - Software test program for the Unit Under Test

Typical CVN OTPS Inventory

F/A-18: 39
E-2C: 29
EA-6B: 25
MH-60: 13
HH-60: 1
Common: 5





Legacy ATE Retirement



□ Anticipated completion of removal of I-Level stations:

- EOTS FY-09, 1st QTR
- TMV FY-09
- DTB FY-10
- IMUTS FY-10
- ARM-146 FY-10
- NEWTS FY-11
- RADCOM FY-11
- IATS FY-12
- CAT IIID FY-12
- HTS FY-12



Mainframe CASS Modernization



(Procured 1990 – 2003)
[553]

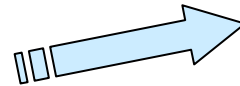


Mainframe CASS
(Hybrid – RF – CNI – HP – EO)

(Procured 2003 – 2011)
[160+]



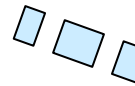
RTCASS



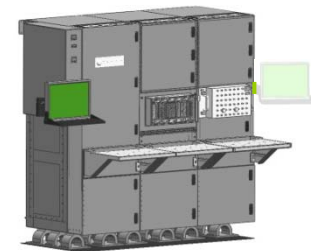
(2004 – 2008 demo)
[2 prototypes]



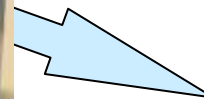
ARGCS ACTD
(tech demo)



(Procure 2014 - 2020)
[368]



eCASS
(notional)





Carrier Vessel Support Equipment Productive Ratio Initiative



Completed Carrier SE inventory allowance Reductions

S/E	AIR CONDITIONER 01-208-8705	JENNY T-6 01-159-4744	HSU-1 01-088-4611	TMU-70 LOX CART 00-158-0657	NAN CART AM26U-4/A 01-517-9308	T20/3FH 01-064-2889	T20/2FH 00-102-8441	T30-1VH5 00-516-2017	T10-1VH4 00-516-2019	T20/1VH5 00-865-7838	NET-4/3000 ENGINE TRAILER 00-123-8073	BOMB HOIST (HLU 196) 01-447-4628	HLU-196/E Battery Charger 01-494-5201	BOMB HOIST (HLU 288) 01-161-8623	ADU-400/E WEAPONS SKID 00-143-8788	MHU-191 WEPS SKID 01-244-3449	TOWBAR 15 FT 01-155-2670
NAVAIR Recommended / CNAF Approved	2	2	2	3	4	10	5	0	5	9	4	12	8	14	0	250	40
Total Reduced per CV	1	2	1	3	1	10	4	5	5	9	1	3	4	4	2	66	20
Square Feet	72	3	1	53	30	60	24	30	30	54	60	4	0	4	30	495	20

- CVN SE allowance reductions implemented with CNAF concurrence based upon fleet utilization rates
- O&S Cost savings of 938K per year, CV fleet wide (AVDLR, AFM, MHRS)
- 107 End Items removed from each Aircraft Carrier
- 975 square feet footprint reduction per carrier



ASE RTOC Program CSE RCM Analysis Completed



A/S48M-2 & 3
Manlift
(Diesel & Electric)



A/S32A-37
A/C Tow Tractor



A/S32A-31A
A/C Tow Tractor



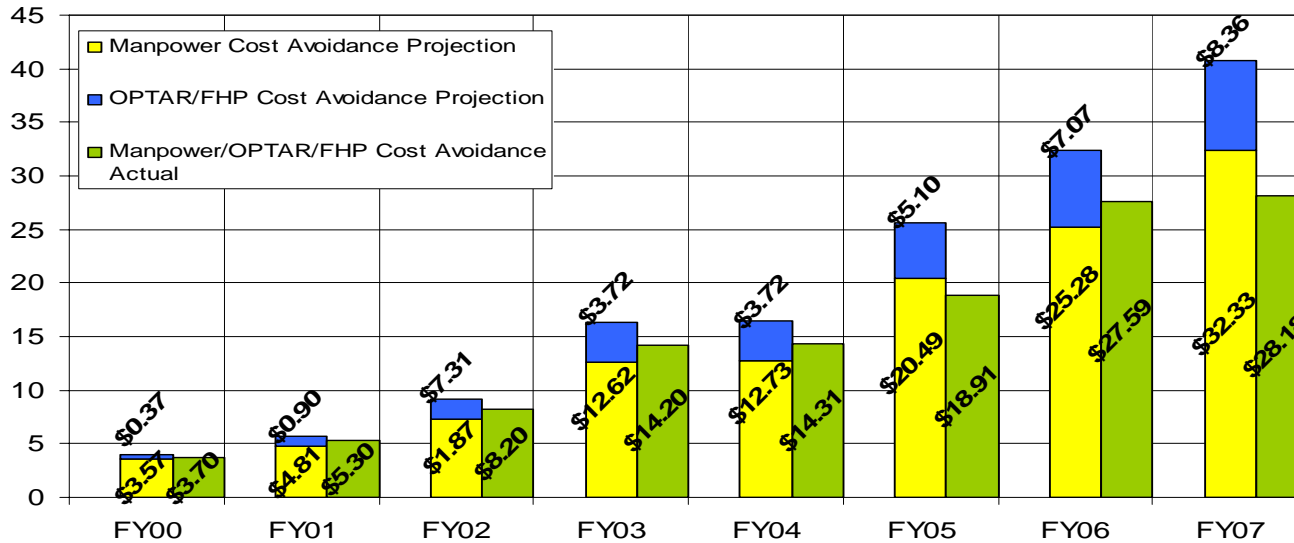
A/M32C-17
Mobile Air
Conditioning Unit



A/S32K-1D
SATS Loader



MMG-1A
Mobile Electric
Power Plant



CASS Airflow Sensor System
Battery Backup /
MOV's / GPI / DTU



A/M27T-5 & 7
Hyd Servicing Unit
(Diesel & Electric)



A/S32A-32 Spotting Dolly



PMU-55E Hydraulic
Fill Unit



A/S37A-3 Shipboard MEPP



Aircraft
Maintenance
Platforms 20

- Annual Cost Avoidance Projection of 34 RCM analyses completed through FY 04 (Implemented by FY 07) = \$40.7M
- Annual Cost Avoidance Actual of RCM analyses completed by FY 04 (Implemented by FY 07) = \$28.2M

Note: -Cost savings typically experienced ~2 Yrs after completion of RCM Analysis due to implementation in Fleet.



NAN-3/-4/-4A
Nitrogen Servicing
Unit



NC-10B/C
A/S32A-108
Mobile Electric
Power Plants



A/U26U-1
Oxygen Servicing
Cart



A/E37T-17 T56
AETS



A/M32C-21
Mobile
Air Conditioning



TS4508/U
ADTS



A/S32M-14
Pettibone



A/S32A-42
A/C Tow Tractor



Aircraft
Jacks



A/S32A-30A
A/C Tow Tractor



MSU 200NAV
Air Start Unit



Summary



- ❑ PMA260 is committed to:
 - Modernizing Common Support Equipment, including CASS
 - Mitigating obsolescence
 - Making our CSE better for the operator
 - Removing Legacy ATE and reducing the amount of CSE needed

Bottom Line

PMA260 – a great place to work, help the Fleet and advance your career