Aviation Support Equipment

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PMA260
October 2008
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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)
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 (J PAVSE) committee // Aviation Common Systems (ACS)//Joint Aeronautical Logistics Commanders (J ALC)
- 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
## Near-Term CGSE Deliveries

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

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

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<tr>
<td>AN/AWM-103 Stores Management Subassembly Test Set (SMSTS)</td>
<td>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.</td>
<td>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 &amp; Maverick requirements.</td>
</tr>
<tr>
<td>TTU-597E Fuel Control Test Set</td>
<td>Replaces TTU-378A/E and A/E24T-159 for O-level testing and troubleshooting of aircraft fuel quantity probes and indicators.</td>
<td>Deliveries complete for EA-6B, E-2, C-2, and H-60 applications. Integration efforts against remaining aircraft to be complete 1st quarter FY09 with deliveries to follow.</td>
</tr>
<tr>
<td>LALS III Loader</td>
<td>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.</td>
<td>ECP kits currently being delivered to Kitting facility. New LALS III units to be delivered SEP 2008 through 2011</td>
</tr>
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## On-Going CGSE Modernization Efforts

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<th>New SE Item</th>
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<tr>
<td>Handheld Aircraft Wire Tester (HAWT)</td>
<td>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.</td>
<td>Full Rate Production Decision planned for 2nd quarter FY09.</td>
</tr>
<tr>
<td>Automatic Wire Test Set (AWTS)</td>
<td>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.</td>
<td>Full Rate Production Decision planned for 3rd quarter FY09.</td>
</tr>
<tr>
<td>Fiber Optic Test Set (FOTS) and Fiber Optic Repair Set (FORS)</td>
<td>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.</td>
<td>Tracking new maintenance requirements through NAVAI R Fiber Optics Working Group. Full Rate Production Decisions Planned for FY10.</td>
</tr>
<tr>
<td>Common Video Borescope Set (CVBS)</td>
<td>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 &amp; Reliability, 5) Upgradeable Design, 6) Maximize Commonality of O/I-Levels.</td>
<td>R&amp;D effort with multiple vendors was completed to demonstrate achievability of goals. Production contract scheduled for 1st quarter FY09 with Full Rate Production Decision planned for 1st quarter FY10.</td>
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<td>AN/USM-715 Rocket Pod Test Set</td>
<td>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.</td>
<td>CDR scheduled for Nov 08. Full Rate Production Decision planned for 1st quarter FY09.</td>
</tr>
<tr>
<td>AN/USM-713 Signal Generator Test Set (ITATS)</td>
<td>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.</td>
<td>Full Rate Production Decision planned for 1st quarter FY09.</td>
</tr>
<tr>
<td>AN/ARM-206 I-Level TACAN Test Set (ITATS)</td>
<td>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, &amp; -153 TACAN systems.</td>
<td>Navy developmental testing scheduled for 2nd quarter of FY09. Full Rate production Decision to follow successful completion of testing.</td>
</tr>
<tr>
<td>AN/USM-708 CNI/RF Avionics Flightline Tester (CRAFT)</td>
<td>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.</td>
<td>Design, development, and contractor testing efforts ongoing. Navy development test on full CRAFT scheduled to begin 2nd quarter for FY-09 with Full Rate Production Decision planned for the end of FY09.</td>
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### On-Going CGSE Modernization Efforts

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<td>Handheld Radar Simulator</td>
<td>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.</td>
<td>Initially being developed for support of F/A-18E/F ALR-67(V)3. Navy Developmental Test scheduled for 3rd quarter of FY10. Addition applications to be developed following successful testing. Full Rate Production Decision planned for 1st quarter FY11.</td>
</tr>
<tr>
<td>TS-4543/G Precipitation Static (P-Static) Diagnostic Test Set</td>
<td>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.</td>
<td>Full Rate Production Decision planned for 1st quarter FY09.</td>
</tr>
<tr>
<td>Turboprop Test Instrumentation (TPTI)</td>
<td>Replaces legacy A/E37T-17 and A/E37T-19 turoprop engine test systems.</td>
<td>Currently in the design and development phase with IOC planned for 2nd quarter FY11.</td>
</tr>
<tr>
<td>Next Generation Software Loader</td>
<td>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 )</td>
<td>Currently working with USAF to develop a variant of their CAPRE system to meet Navy requirements. IOC would be in 1st quarter FY11.</td>
</tr>
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<td>Shipboard Tow Tractor</td>
<td>Replaces A/S32A-31B for moving aircraft up to 74,500 lbs on the flight deck aboard all CV/CVN, LHA, LHD, &amp; LHP ships.</td>
<td>Contract award scheduled for 1st quarter FY09 with Full Rate Production Decision planned for 3rd quarter FY10.</td>
</tr>
<tr>
<td>Shipboard HELO Handler</td>
<td>New item required to spot H-60 aircraft in close proximity in shipboard hanger bays.</td>
<td>Contract award scheduled for 1st quarter FY09 with Full Rate Production Decision planned for 4th quarter FY10.</td>
</tr>
<tr>
<td>A/M32K-10 Munitions Trailer</td>
<td>Replaces the USMC A/M32K-4A Prime Munitions Trailer due to the redesign of the USMC prime mover MTVR 7-ton truck.</td>
<td>Extensive testing program to start 1st quarter FY09 with Full Rate Production Decision planned for 1st quarter FY10.</td>
</tr>
</tbody>
</table>
Reducing the CGSE Footprint

### I-Level TACAN Test Sets
- AN/ARM-155
- AN/ARM-156
- 972(V)-1
- DTS-200

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

<table>
<thead>
<tr>
<th>Current</th>
<th>Reduced</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

**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

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

<table>
<thead>
<tr>
<th>Current</th>
<th>Reduced</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>1</td>
</tr>
</tbody>
</table>

**59% Inventory Reduction**

### O-Level EW Test Sets
- AN/USM-482
- AN/USM-482A
- AN/USM-406
- AN/USM-638

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

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

<table>
<thead>
<tr>
<th>Current</th>
<th>Reduced</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

**8% Inventory Reduction**
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

![Diagram showing 9 & 1]

**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

![Diagram showing >8 & 1]

- 13% Inventory Reduction

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14
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/USM470(v)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 IID
AN/USM458 NEWTS
Oj-615 EA-6B HP
Oj-510 DTB
APM457 S-3
AN/ASM-608 MUTS
A/E24T-205 Electrical Test Set
AN/ARM-146 Decoder TS
GACT/GRAD

$3.8B Reduced Total Ownership Costs

NECs - 41
Tech Pubs - 624
Personnel - 105
Space - 2,700 ft²
Spares - 30,000

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
Anticipated completion of removal of I-Level stations:

- **EOTS** FY-09, 1\textsuperscript{st} QTR
- **TMV** FY-09
- **DTB** FY-10
- **IMUTS** FY-10
- **ARM-146** FY-10
- **NEWTS** FY-11
- **RADCOM** FY-11
- **IATS** FY-12
- **CAT III D** 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)
Completed Carrier SE inventory allowance Reductions

<table>
<thead>
<tr>
<th>S/E</th>
<th>AIR CONDITIONER</th>
<th>JENNY T-6</th>
<th>HSU-1</th>
<th>TMU-70 LOX CART</th>
<th>NANN CART AIM-26U-4A</th>
<th>T20/3FH</th>
<th>T20/2FH</th>
<th>T30/VH5</th>
<th>T0-516-2017</th>
<th>T20/1/VH5</th>
<th>T0-516-2019</th>
<th>NET-4/3000 ENGINE TRAILER</th>
<th>TMU-70 LOX CART</th>
<th>HLU-196/Battery Charger</th>
<th>HLU-196/Battery Charger</th>
<th>BOMB HOIST (HLU 288)</th>
<th>BOMB HOIST (HLU 196)</th>
<th>ADU-400/E WEAPONS SKID</th>
<th>MHU-191 WEAPONS SKID</th>
<th>TOMBAR 15 FT</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAVAIR Recommended / CNAF Approved</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>10</td>
<td>5</td>
<td>0</td>
<td>5</td>
<td>9</td>
<td>4</td>
<td>12</td>
<td>8</td>
<td>14</td>
<td>0</td>
<td>250</td>
<td>40</td>
<td></td>
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</tr>
<tr>
<td>Total Reduced per CV</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>10</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>9</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>66</td>
<td>20</td>
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<tr>
<td>Square Feet</td>
<td>72</td>
<td>3</td>
<td>1</td>
<td>53</td>
<td>30</td>
<td>60</td>
<td>24</td>
<td>30</td>
<td>30</td>
<td>54</td>
<td>60</td>
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<td>4</td>
<td>30</td>
<td>495</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- 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

> 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.
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