NAVAIR History

1911 – First Navy aircraft purchased from the Glenn Curtiss company of Hammondsport, NY

1921 – Bureau of Aeronautics was created. Prior to that, the ownership of all aircraft was distributed across the Navy

At the start of World War II, the Navy had 1,800 combat aircraft. By the end of the war, the Navy had 41,000 total aircraft.

1959 – BUAER merged with Bureau of Ordnance (BUORD) to form Bureau of Naval Weapons (BUWEPS)

1966 – Naval Air Systems Command (NAVAIRSYSCOM) established

1985 – NAVAIR now reports directly to Chief of Naval Operations (CNO)

1990’s – NAVAIRSYSCOM moves to Patuxent River Naval Air Station
NAVAIR’s Role in Naval Aviation

- Develop, acquire and support aircraft, weapons and related systems which can be operated and sustained at sea
- Provide analysis and decision support for cost / schedule / performance trades and investment decisions
- Increase Navy and Marine Corps capability, readiness and affordability in a joint / coalition environment

Our capabilities support the unique mission of naval aviation
NAVAIR Strategic Imperatives

Align existing resources to better support today’s Readiness

- Fixing existing issues
- Predictive vice reactive
- Tactical and strategic

Increase Speed of Products to the Fleet

- Accept more risk – Well understood, balanced, managed risk acceptance
- Change program team staffing model (smaller and more empowered)
- Significantly reduce “derived requirements” – Across the Board!
- Resource rapid response capabilities to maximum capacity (e.g. AIRWorks)

Ready to Fight Tonight. Capabilities and Capacity to Win the Future.
“We must continue to improve our readiness for today’s fight, while at the same time ensuring we remain relevant for the conflicts we know will come in the future.”

– CMC Robert Neller

“We have got to move faster. We have got to learn faster. We’ve got to adjust our acquisition systems to adopt that technology faster… I need an acquisition system that will allow for quick technology refreshes to continuously improve performance, rather than relying on massive game changers every 20 years”

– CNO John Richardson
## Strategy Alignment

**CNO**

<table>
<thead>
<tr>
<th>Strengthen Naval Power</th>
<th>Increase Readiness, Affordability and Speed</th>
<th>Readiness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ready to operate and fight, and advance information warfare capabilities</td>
<td>Ready to fight tonight – Capabilities and capacity to win the future</td>
<td>Expand readiness efforts, and experiment and test new concepts and capabilities</td>
</tr>
</tbody>
</table>

**NAVAIR**

<table>
<thead>
<tr>
<th>High Velocity Learning at All Levels</th>
<th>Learning, Knowledge Management</th>
<th>Training and Simulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accelerate learning, innovation and creativity, and expand learning-centered technologies</td>
<td>Encourage creativity, innovation, hands-on learning through collaboration tools</td>
<td>Ensure business models and operating concepts are relevant and adaptive, and focus on innovation and learning</td>
</tr>
</tbody>
</table>

**CMC**

<table>
<thead>
<tr>
<th>Strengthen our Navy Team for the Future</th>
<th>Agile, Adaptive Workforce</th>
<th>People</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accelerate Sailor 2025 efforts and strengthen leadership development programs</td>
<td>Smaller, flexible and empowered teams that take well understood, balanced risks, and develop leaders at all levels</td>
<td>Ensure our workforce is the right size with the right skill sets, and focus on new-age training/education continuum</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expand/Strength Network of Partners</th>
<th>Mature Government / Industry Partnerships</th>
<th>Integration with Naval and Joint Force</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integration with Joint Services and increase interaction with industry, non-traditional partners</td>
<td>Robust government, industry and service partnerships, and FMS engagement</td>
<td>Shape our force to operate as part of the Joint Force to leverage capabilities of all branches</td>
</tr>
</tbody>
</table>

*Source: A Design for Maintaining Maritime Superiority Released 5 Jan 2016*

*Source: USMC FRAGO: Advance to Contact Released 19 Jan 2016*
Mission

The Navy’s principal RDAT&E, engineering and fleet support activity for naval aircraft, engines, avionics, support systems and ship/shore/air integration.
## NAWCAD Key Resources

### Lakehurst, New Jersey
- 123 Structures totaling 1,057,831 sq. ft. on 7,400 acres
- Aircraft Platform Interface Lab
- EMALS Test Site
- Steam Catapult Complex
- Runway Arrested Landing Site
- Jet Car track Site
- Jet Blast Deflector Site
- Carrier Analysis Facility
- Prototype & Manufacturing Facility

### Patuxent River, Maryland
- 665 Structures on 13,812 acres, with 10 Hangars, 5 Runways
- 2,700 sq. miles Patuxent Special Use Airspace to 85,000 ft.
- Access to more than 50,000 sq. miles of additional offshore air and sea space
- Anechoic Chamber, Becker Lab, ACETEF, SAIL, APF, P&P
- Test Wing Atlantic, USNTPS, Webster Field
- Controlled RF environment
- Over-water Approaches Instrumentation & Fabrication

### St. Inigoes, Maryland
- 60 Buildings on 852 acres with 2 Active Runways
- Shipboard ATC/Combat ID
- Ship/Shore Communications
- Controlled RF environment
- Over-water Approaches
- Aircraft tracking opportunities
- Pier and shoreline access

### Orlando, Florida
- 40.5 acres and co-located with Team Orlando
- Navy – NSA, NAWCTSD
- Army – PEO-STRI, RDECOM
- USAF – AFAMS
- Coast Guard
- USMC – PMTRASYS
The Naval Air Warfare Center Weapons Division (NAWCWD) is an organization within NAVAIR dedicated to maintaining a center of excellence in weapons development for the Department of the Navy.

**Mission**

Research and Development

Ranges and Facilities to Test and Evaluate Navy Systems

In-service Support/System Phase-out

- Missiles/Freefall Weapons
- Weapon System Integration
- Electronic Warfare Systems
- Land Range/Sea Range
- Non-Lethal Weapons

**Chinese Lake, CA**

**Point Mugu, CA**
NAVAIR Ranges

NAWCWD Ranges

- R2508 Complex Airspace
  - Approximately 20,000 square miles
  - 20,000 feet (FL200) to unlimited altitude
- China Lake Land Ranges
  - Approximately 1.1 Million Acres
  - Surface to unlimited altitude
- IR-200 Low Level route connecting Sea and Land Ranges
- Point Mugu Sea Range
  - Warning Areas 36,000 square miles; expandable to 220,000 square miles
  - Surface to unlimited altitude
  - Extensive area for supersonic testing
  - Unique geography for Directed Energy Testing

Atlantic Test Ranges

- Chesapeake Test Range
  - Approximately 2,700 square miles controlled airspace
  - Surface to 85,000 feet
- Offshore Ranges
  - Access to 50,000 square miles in the mid-Atlantic Warning Area
  - Surface to unlimited altitude
Commander, Fleet Readiness Centers (COMFRC) delivers effective and efficient flight-line readiness through a globally managed, responsive and integrated sustainment system.
# Naval Aviation Maintenance

## Three Levels of Aircraft Maintenance

<table>
<thead>
<tr>
<th>On-Aircraft Maintenance</th>
<th>Level 1 – Organizational Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Squadron Level</td>
</tr>
<tr>
<td></td>
<td>Servicing</td>
</tr>
<tr>
<td></td>
<td>Replace Parts</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Off-Aircraft Maintenance</th>
<th>Level 2 – Intermediate Level (Level 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Components / Engines</td>
</tr>
<tr>
<td></td>
<td>Scheduled maintenance</td>
</tr>
<tr>
<td></td>
<td>In-service Repair</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Off-Aircraft Maintenance</th>
<th>Depot Level (Level 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Scheduled maintenance</td>
</tr>
<tr>
<td></td>
<td>Modifications</td>
</tr>
<tr>
<td></td>
<td>In-Service Repair</td>
</tr>
<tr>
<td></td>
<td>Field Team In-Service Repair</td>
</tr>
<tr>
<td></td>
<td>Manufacture</td>
</tr>
</tbody>
</table>

*BRAC 2005 Initiative: Single Off-Aircraft Maintenance Organization (COMFRC)*
## PEO(T) Programs

<table>
<thead>
<tr>
<th>Program Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMW/A-101</td>
<td>Multifunctional Information Distribution System</td>
</tr>
<tr>
<td>PMA-231</td>
<td>E-2 / C-2</td>
</tr>
<tr>
<td>PMA-234</td>
<td>Airborne Electronic Attack Systems &amp; EA-6B Prowler</td>
</tr>
<tr>
<td>PMA-251</td>
<td>Aircraft Launch and Recovery Equipment</td>
</tr>
<tr>
<td>PMA-257</td>
<td>AV-8B Harrier</td>
</tr>
<tr>
<td>PMA-259</td>
<td>Air-to-Air Missile Systems</td>
</tr>
<tr>
<td>PMA-272</td>
<td>Advanced Tactical Aircraft Protection Systems</td>
</tr>
<tr>
<td>PMA-265</td>
<td>F/A-18 / EA-18G</td>
</tr>
<tr>
<td>PMA-298</td>
<td>Air Warfare Mission Area</td>
</tr>
<tr>
<td>PMA-213</td>
<td>Naval Air Traffic Management Systems</td>
</tr>
<tr>
<td>PMA-273</td>
<td>Naval Undergraduate Flight Training Systems</td>
</tr>
<tr>
<td>PMA-261</td>
<td>Presidential / Executive Lift Helicopters</td>
</tr>
<tr>
<td>---------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>PMA-264</td>
<td>Air ASW Systems</td>
</tr>
<tr>
<td>PMA-275</td>
<td>V-22 Osprey</td>
</tr>
<tr>
<td>PMA-276</td>
<td>Light / Attack Helicopters</td>
</tr>
<tr>
<td>PMA-299</td>
<td>Multi-Mission Helicopters</td>
</tr>
<tr>
<td>PMA-290</td>
<td>Maritime Patrol &amp; Reconnaissance Aircraft</td>
</tr>
<tr>
<td>PMA-271</td>
<td>Airborne Strategic Command, Control &amp; Communications</td>
</tr>
<tr>
<td>PMA-207</td>
<td>Commercial Transport &amp; Support</td>
</tr>
<tr>
<td>PMA-274</td>
<td>Presidential / Executive Lift Helicopters</td>
</tr>
</tbody>
</table>
PEO(U&W) Programs

- PMA-281: Strike Planning and Execution Systems
- PMA-201: Precision Strike Weapons
- PMA-263: Small Tactical UAS
- PMA-208: Navy Aerial Targets and Decoys
- PMA-262: Persistent Maritime UAS
- PMA-242: Direct and Time Sensitive Strike
- PMA-266: Multi-Mission Tactical UAS
- PMA-268: Unmanned Carrier Aviation
- PMA-280: Tomahawk Weapons System
AIR-1.0 Programs

PMA-260
Aviation Support Equipment

PMA-226
Specialized and Proven Aircraft

PMA-209
Air Combat Electronics

PMA-205
Aviation Training Systems

PMA-202
Aircrew Systems

PMW/A-170
Communication and GPS Navigation

Program Management Competency/Functional Lead
Policy / Process / Tools Stewardship across AIR-1.0 and PEO (A, T, U&W, JSF) Programs
NAVAIR International Programs

A group of professionals executing 2,075 work years of international work at eight geographic sites within nine commands, eight competencies, and 28 program offices; managing a portfolio of 1,103 open cases for 85 countries with an overall value of $40.8B and generating sales of $3.9B for FY17.
International Programs Portfolio

**AIR-1.0**
ARC-210 Radio; A-4; H-3; H-2; Sonobuoys; Trainers; S-2; T-6; T-2

**PEO(T)**
Radios, Flares and Impulse Cartridges; ALRE; E-2; AV-8B; F/A-18; A/C Protection Systems; Sidewinder

**PEO(U&W)**
JSOW; TMPS; Harpoon; SLAM-ER; HARM; Smokey Sam; AARGM; Tomahawk; Triton; Targets; JMPS; Scan Eagle

**PEO(A)**
AH-1; C-130; H-53; P-3; P-8; H-60/S-70; V-22
F-35 Multi-Mission Capability

- **Destroy Targets Deep in Enemy Territory**
- **Protect Ground Troops Engaged in Combat**
- **“Knock Down the Door” for Other Platforms**
- **Clear the Skies of Enemy Aircraft**
- **Suppression/Destruction of Enemy Air Defenses**

**What’s Different from Legacy Aircraft**

**Stealth**
- Ability to go undetected
- Maneuver at will throughout battlespace

**Sensor Fusion**
- Combine many sources of info
- Provides superb battlespace awareness

**Interoperability**
- Pass vital information and data to all US legacy platforms
- Makes everyone in battlespace smarter

**Survivable Against World’s Most Sophisticated Threats Now and in the Future**

**Critical to US and Allied Air Dominance for the Next 50 Years**
F-35 Weapon System Overview

F-35A
Air Force – 1,763
Conventional take-off and landing
Partners – 441
FMS – 132

F-35B
Marine Corps – 353
Short take-off vertical landing
Partners – 168

F-35C
Navy – 273 and Marine Corps – 67
Aircraft carrier variant

F-35 Program – More than Just the Aircraft

1 Program / 3 Variants / 14 Customers / 3,197 Aircraft
Big, Complicated Program with Significant Allied Participation
## Delivering Results

### Actual FY17 Deliveries

<table>
<thead>
<tr>
<th>Category</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>135 New Aircraft</td>
<td></td>
</tr>
<tr>
<td>24,291 Missiles / Bombs</td>
<td></td>
</tr>
<tr>
<td>137* Unmanned Air Vehicles (UAV)</td>
<td></td>
</tr>
<tr>
<td>7 UAV Ground Systems</td>
<td></td>
</tr>
<tr>
<td>99 Training Devices</td>
<td></td>
</tr>
<tr>
<td>536 Aircraft Repairs (Includes Commercial/Inter-Service)</td>
<td></td>
</tr>
<tr>
<td>1,724 Engine Repairs (Includes Commercial/Inter-Service)</td>
<td></td>
</tr>
<tr>
<td>65,159 Component Repairs</td>
<td></td>
</tr>
<tr>
<td>3,360 Support Equipment Repairs</td>
<td></td>
</tr>
</tbody>
</table>

* Includes Program of Record and Non-PoR UAVs for USMC (PMA-263)
Naval Aviation Enterprise

Mission

Sustain required current readiness and advance future warfighting capabilities at best possible cost.

NAVAIR is part of the Naval Aviation Enterprise (NAE)

Led by Commander, Naval Air Forces; Marine Corps Deputy Commandant for Aviation; Commander, NAVAIR

Includes all naval aviation communities

Facilitates collaboration, information sharing and process improvement

Helps stakeholders understand costs, readiness degraders and resources

Ensures naval aviation is aligned, from the warfighter at sea or on the ground to the providers in government and industry

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