

AIRCRAFT LAUNCH AND RECOVERY EQUIPMENT (ALRE)



The NAWCAD Lakehurst ALRE Department executes the timely development, acquisition and sustainment of ALRE systems for the ALRE Program Office (PMA-251). The department is responsible for all systems and equipment used for launch and recovery of fixed and rotary wing aircraft:

- Aircraft Launch & Recovery Systems
- Visual Landing Aids
- Wind-Measuring Systems
- Shipboard Aviation Information Systems
- Shipboard Aviation Marking and Lighting
- Shore-based Recovery Systems & Visual Landing Aids
- USMC Expeditionary Airfields Matting, Recovery Systems, Landing Aids and Airfield Lighting

Personnel within the ALRE Department provide expertise in program management, engineering, logistics and fleet technical support. Integrated product teams plan, analyze, design, develop, evaluate, support, verify and certify ALRE systems for customers including:

- U.S. Navy
- U.S. Marine Corps
- U.S. Coast Guard
- Foreign Countries

ELECTROMAGNETIC AIRCRAFT LAUNCH SYSTEM (EMALS)

EMALS is a complete carrier-based launch system designed for USS Gerald R. Ford (CVN 78) and all future Ford-class carriers. The launching system is designed to expand the operational capability of Ford-class carriers, providing the Navy with capability for launching all current and future carrier air wing platforms. The mission and function of EMALS remains the same as traditional steam catapult; however, it employs entirely different technologies. EMALS uses stored kinetic energy and solid-state electrical power conversion. This technology permits a high degree of computer control, monitoring and automation.

EMALS BENEFITS:

- Increased reliability and efficiency
- More accurate end-speed control and smoother acceleration
- Expanded operational capability with increased sortie rates

- Cost reduction over time due to decreased manning and maintenance requirements
- Ability to launch a broader range of naval aircraft - from lightweight unmanned to heavy strike fighters- with less stress on the aircraft
- Provides necessary higher launch energy capacity
- EMALS over steam catapults means quieter and cooler work and living spaces for Sailors
- More intuitive maintenance software will reduce troubleshooting times

The team at Lakehurst provides EMALS life-cycle acquisition management in support of PMA-251, to include program management, engineering, financial analysis, logistics and test and evaluation. Joint Base McGuire-Dix-Lakehurst is also home to a land-based, ship-representative EMALS test site. This site allows for continued system testing and personnel training.



ADVANCED ARRESTING GEAR (AAG)

AAG is a modular, integrated system consisting of energy absorbers, power conditioning equipment and digital controls, which was designed to replace the existing MK-7 arresting gear. The AAG architecture, Health Monitoring and Prognostics technology and digital control system, provides built-in test and diagnosis, resulting in the system requiring less maintenance and manpower to operate than the Mk-7. This change in architecture is designed to provide higher reliability and safety margins, while allowing Sailors to focus on other areas of need. The system is also designed to allow potential arrestment of a broader range of aircraft, from the lightest unmanned aerial vehicles to the heaviest manned fighters.

AAG BENEFITS:

- Employs advanced technologies to provide higher reliability and safety margins
- Requires less maintenance and manpower to operate than the legacy arresting system
- Recovers all current and projected future carrier-based aircraft
- Allows for increased sortie rates, lower energy consumption and a decreased gross ship weight

NAWCAD Lakehurst provides the unique facilities and subject matter expertise required to support testing of the next generation arresting gear. Lakehurst is home to the Jet Car Track Site (JCTS) and the Runway Arrested Landing Site (RALS), both of which enable in-depth system testing to ensure AAG meets fleet requirements.

Joint Base McGuire-Dix-Lakehurst is home to two single-wire, ship-representative AAG systems. One of these systems is located at the Lakehurst JCTS test facility and is utilized for arrestment testing with dead-loads that simulate fleet aircraft; while the other AAG single-wire system is located at the Lakehurst RALS test facility, where integration testing with manned aircraft is conducted.

