



DEFENSE LOGISTICS AGENCY

THE NATION'S COMBAT LOGISTICS SUPPORT AGENCY



Aircraft Launch and Recovery Equipment (ALRE)

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WARFIGHTER FIRST



Agenda



- ALRE Overview
- ALRE Key Aspects
 - Critical Safety Items and Critical Application Items
 - Common Contract Data Requirements Lists (CDRLs)
 - Common Manufacturing And Inspection Processes
- Source Approval Request (SAR) Process
- Q/A



ALRE Overview



Purpose & Goal

This briefing is to equip vendors with information peculiar to ALRE items and the contractual obligations required by the government to substantiate the quality of the items.

The end goal is increase the supplier base for ALRE items by providing potential vendors with enough insight into the process to confidently quote, manufacture and deliver.

Aircraft Launch and Recovery Equipment

The highly critical ALRE program includes catapult launch and arrested landing system equipment that launches aircraft from an aircraft carrier or air capable ship, guides the aircraft back to the ship or expeditionary airfields and recovers them safely. The DLA ALRE population of stock numbers includes several hundred Critical Safety (CSI) and Critical Application Items (CAI) essential to system performance and operation, the preservation of life and the safety of operational personnel.



ALRE Overview

1 Improved Fresnel Lens Optical Landing System (IFLOLS) is an optical presentation that provides approaching aviators glide slope information, or the angle the aircraft descends to land aboard the ship, to guide them to the selected touchdown point on the flight deck.

2 Manually Operated Visual Landing Aid System (MOVLAS) is a backup system used to provide glide slope information when the primary optical system (IFLOLS) is inoperable.

3 Pickle Switches are the controllers used by Landing Signal Officers (LSOs) to operate the wave-off/cut lights and Arresting Gear Officers (AGOs) to control deck status, indicating the flight deck is ready for an arrestment.

On CVN 78, Pickle Switches are located:

- 3A** LSO Platform
- 3B** 07 Level (new location)
- 3C** Flight Deck (controls the Landing Area Status Signal System (LASSS))

VISUAL LANDING AIDS

4 Flight Deck Marking and Lighting Systems provide the pilots and crew with a clear visual reference for approach lineup and landing area and deck edge limits.

5 Integrated Launch and Recovery Television Surveillance System (ILARTS) is a day/night closed-circuit television and video recording system that provides real-time viewing and recording of fixed wing aircraft launches/recoveries and helicopter take-offs/landings.

The CVN 78 ILARTS features a redesigned console; new cameras that can be controlled remotely from the ILARTS control room one level below the flight deck; a special panoramic camera, which seamlessly stitches together eight individual views for real-time view of the entire flight deck; and high-speed, pan-tilt-zoom (PTZ) cameras. These cameras provide the operator and the Aircraft Handling Officer situational awareness on and around the flight deck and control of PTZ cameras for the purpose of monitoring and recording flight deck operations. CVN 78 includes 18 cameras as compared to 10 previously found on Nimitz-class aircraft carriers.

6 Long-range Lineup System (LRLS) uses eye-safe lasers, projected aft of the ship, to give pilots a visual indication of their lineup relative to the ship's centerline from as far as 10 nautical miles out and until the landing area can be seen at around one nautical mile.

7 Integrated Catapult Control Station (ICCS) (a.k.a. "the bubble") serves as the control center where the Launch Control Officer and Launch Control Monitor conduct fixed-wing launches. The bow ICCS is raised for launches and lowered into the deck when not in use, while the waist ICCS is fixed.

The bow ICCS on CVN 78 is unique as it utilizes electromagnetic actuators (EMAs) instead of hydraulic.

LAUNCHER

8 Jet Blast Deflectors (JBDs) are specialized, heat-dissipating panels that are placed at the rear of aircraft catapults, positioned to protect other aircraft and personnel from exhaust blast damage as pilots apply full throttle in preparation for launch. JBDs lie flush with the flight deck until raised or lowered. The Ford's JBDs utilize EMAs instead of hydraulic.

9 Nose Gear Launch (NGL) equipment provides a positive and automatic means of attaching the aircraft launch bar to the catapult shuttle and spreader.

10 Electromagnetic Aircraft Launch System (EMALS) uses stored kinetic energy and solid-state electrical power conversion to provide the Navy with capability for launching all current and future carrier air wing platforms – lightweight unmanned to heavy strike fighters.

EMALS is the Navy's first new carrier-based launch technology in 60 years. EMALS offers accurate end-speed control and smoother acceleration, as well as cleaner and quieter work and living spaces environment for Sailors.

11 Aviation Data Management and Control System (ADMACS) is a tactical, real-time data management network that provides air operations planning and execution information, such as aircraft position and status of launch and recovery operations, which is displayed in numerous work centers, including flight deck control, Primary Flight Control (Pri-Fly), the Bridge, LSO Platform, Carrier Air Traffic Control Center (CATCC), Combat Direction Center (CDC), Strike Ops, Air Wing's Operations Office, and squadron ready rooms.

CVN 78 features the Block II version, with additional upgrades for EMALS and AAG interfaces. ADMACS now enables cross-check functionality, which confirms IFLOLS and Arresting Gear data are properly set for the approaching aircraft.

INFO SYSTEMS

12 Moriah Wind System provides digital wind speed and direction information, including crosswind and headwind, to support decision-making for air operations, combat, navigation, tactical planning and firefighting.

13 Landing Signal Officer Display System (LSODS) is an integrated set of displays, controls, and processing equipment that provides the LSO with video imagery, radar data, and other landing pertinent information aiding the safe and expeditious recovery of aircraft during their final phase of flight.

ALRE SYSTEMS IN SYNC

On board the U.S. Navy's newest and most technologically advanced aircraft carrier, it takes an entire suite of systems to enable safe and effective operations on the flight deck. As shown, USS Gerald R. Ford (CVN 78) employs several Aircraft Launch and Recovery Equipment (ALRE) systems, supported by NAVAIR's PMA 251, in addition to debuting two new technologies – Electromagnetic Aircraft Launch System (EMALS) and Advanced Arresting Gear (AAG).

15 Barricade Stanchions are raised to support nylon webbing that has been stretched across the flight deck between them. The barricade is used to recover aircraft in emergency situations that preclude standard recoveries.

The barricade stanchions on CVN 78 utilize EMAs rather than hydraulic.

RECOVERY

14 Advanced Arresting Gear (AAG) is a modular, integrated aircraft recovery system consisting of energy absorbers, power conditioning equipment and digital controls.

AAG is a brand new system, designed as the follow-on to the Mark-7 arresting gear and Advanced Arresting Control (ARC) system used on Nimitz-class carriers. AAG offers a change in architecture which provides higher reliability and reduced fatigue impact to aircraft, at a reduced operating cost.



Aircraft Launch and Recovery Equipment (ALRE) Program Office (PMA 251)

U.S. Navy photo



Unique ALRE Requirements



- **CSI & CAI Requirements can include but are not limited to the following:**
 - First Article Testing/Production Lot Testing.
 - Extensive Quality & Inspection Requirements/ Source Inspection.
 - Higher Level Requirements with NAVY Oversight/NAVAIR/DCMA Joint Inspections.
 - Platings and finishes such as cadmium and anodizing.
 - Metal pre-treatments and coatings such as alodine and epoxies.
 - Hydrostatic testing, Heat-treatment and hardness testing.

- **Diminishing and Overburden Sources of Manufacturing**
 - A significant impediment to the ALRE mission is the limited and overburdened manufacturing base, leading to critical backorder situations and increased potential of disruption to mission.
 - Raw material shortages and fewer qualified suppliers with adequate capacity has significantly affected ALRE.
 - Almost half of the ALRE CSI/CAI population managed by the ALRE Maritime team is limited to only one approved source of supply.



Source Approval Request (SAR)



- Source Approval Request (SAR)

- The U.S. Navy uses the SAR process to evaluate a manufacturer's capabilities to approve the supplier for CSI and CAI Items.
- The SAR Package would contain all relevant technical data and would demonstrate evidence of the manufacturer's ability to produce a particular item with acceptable quality, traceability and sub-vendor control.

- Elements of "Good" SAR packages

- Must include all the required information per the NAVSUP SAR Brochure for Spares.

- Lessons Learned from bad SAR Packages

- SAR packages will be rejected/disapproved if required information and requirements are not met per the NAVSUP SAR Brochure.
- Seek help throughout the process and remain engaged.



Contract Data Requirements Lists



- **Contract Data Requirements Lists**
 - CDRLs are required for most ALRE CSI/CAI parts.
 - Found in the Technical Data Bid Set posted to DIBBs.
 - Inspection /certification data is required to substantiate specific requirements for each ALRE part procured.
- **Common CDRLs**
 - First Article Testing Report.
 - Production Test and Inspection Report.
 - Certificate of Quality Compliance.
 - Production Lot Test Report.
 - Welding Procedures.
- **Effective Communication and Pre & Post Award Conferences**
 - Effective communication is essential to ensure understanding of the requirements in order to eliminate errors and time delays.



The Ask!!!



- **We Need Sources!**

- Assess your resources and capabilities and see if supplying ALRE items fits your business model.
- Talk with our team members about your current product lines and machining capabilities.

- **How Can You Help?**

- By taking the time to evaluate the quality provisions, contract deliverables and navigate the source approval process to become an approved ALRE source.

- **How Can We Help!**

- DLA stands ready to provide the necessary information on items needed and to assist navigating the source approval process.



Q/A

