Aircraft Launch and Recovery Equipment (ALRE)

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June 20, 2018
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
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**

**Warfighter First**

**ALRE Systems 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 NAVSEA PMA 251, in addition to deploying two new technologies - Electromagnetic Aircraft Launch System (EMALS) and Advanced Ammunition Management Gear (AAMG).

**Barricade Stanchions** are remotely support rollウェブに自動で横断するために備えられた。They are used to recover aircraft in emergency situations that provide standard recoveries.

**The nanoscale interactions on CVN 78 with EMALS rather than hydraulic.**

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

**EMALS** is the Navy’s first new carrier-based launch technology in 50 years. EMALS offers accurate enhanced control and smoother acceleration as well as quieter and quieter work and living space environment for sailors.

**Aviation Data Management and Control System (ADMCS)** is a tactical, real-time data management network that provides air operations planning and execution information, such as aircraft positions and status of launches and recovery operations, which is displayed in numerous work centers, including flight deck control, Primary Flight Control (PFC), the Bridge, LSO Platform, Carrier Air Traffic Control Center (CATCC), Command Interconnection Center (CIC), Strike Ops, Air Wing’s Operations Office and Tactical Staff offices.

**CVN 78** features the Block 8 version, with all Naval New interfaces for EMALS and AAMG interfaces. ADMCS now enables enhanced functions, which confirms FLODS and Ammunition Gear data are properly set for the approaching aircraft.

**Flight Deck Marking and Lighting Systems** provide the pilots and crew with a clear visual indication for approach, Kemp, and landing area and deck edge limits.

**The CVN 78 ALRE systems include two new technologies - Electromagnetic Aircraft Launch System (EMALS) and Advanced Ammunition Management Gear (AAMG).**

**Long-range Linear System (LRLS)** uses radar-like lasers, projected off the ship, to give pilots a visual indication of their linear distance to the ship’s centerline from as far as 10 nautical miles out and until the landing area can be seen at about one nautical mile.

**Jet Blast Deflectors (JBDs)** are specialized, heat-proving plates that are placed at the rear of aircraft catapults, positioned to protect other aircraft and personnel from kicked up damage as pilots take off the wings in preparation for launch. JBDs in bulk with the flight deck and raised to be lowered.

**The Ford’s JBDs utilize EMALS instead of hydraulic.**

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**Integrated Launch and Recovery Television Surveillance System (ILRTSS)** is a day/night, close-circuit television and video-recording system that provides marine warning and recording of fixed wing aircraft launches/recovery and helicopter take-offs/liftoffs.

**The CVN 78 ILRTSS features a redesigned console new cameras that can be controlled remotely from the ILRTSS control/monitor level below the flight deck: a special panoramic camera, which can quickly stitch together eight individual views for real-time view of the entire flight deck and high-speed, zoom and home PTZ cameras. These cameras provide the operator and the Aircraft Launch Officer additional 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 Mid-Size-class aircraft carriers.**
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)**
  - 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**
  - 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**
  - 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.
- **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