

NEW DEVELOPMENTS

Worldwide P-3 Status Report - 1994 Update

By
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The P-3 Orion has, in recent years, emerged from being the preeminent ASW aircraft of the Cold War, into the premier Maritime Patrol platform of the 1990's and beyond. The inherent multi-mission capabilities of the Orion were firmly established and demonstrated, within the past twelve months, worldwide. With enhanced sensors and systems now being introduced, the P-3 will have advanced capabilities for air-to-air interdiction; counter-narcotic operations; passive, long-range intelligence gathering, anti-mine warfare and non-acoustic ASW, as well as long-range, standoff targeting for many of the next-generation missile systems.

U. S. Navy

Despite recent base closings, downsizing and funding restrictions, the U.S. Navy's P-3 community has seen a marked increase in activity.

Fiscal Year 1993 saw active Patrol Squadrons TWENTY-TWO, FORTY-NINE and Fleet Replacement Squadron THIRTY-ONE disestablished. Reserve Wing squadrons were also affected with Patrol Squadrons SIXTY, SIXTY-SEVEN, NINETY and NINETY-THREE retired earlier this year. Under FY 1995 budget, several more active squadrons are scheduled to stand down. Those nominated include Patrol Squadrons TWENTY-THREE, SEVENTEEN and TWENTY-FOUR, reducing the USN MPA force structure to fourteen active and nine reserve, plus Patrol Squadron THIRTY as the only replacement training squadron.

US Navy P-3 programs continue to advance with FY 94 funding earmarked for upgrade programs such as the ASUW Improvement Program (AIP) and the Sustained Readiness Program (SRP). A Prototype AIP aircraft is expected soon, with production kits to be produced and installed on designated aircraft through concurring Fiscal Year funding.

Other specialized navy update projects are underway and include:

CP-2244 Computer Upgrade Project

The ASQ-212 central-processing system upgrade is proceeding with the installation of the CP-2044 computer. This processor replaces the current P-3C update III AN/ASQ-114 (CP-901) tactical computer. Installations are being fitted at the rate of five aircraft per month, with a total of approximately 56 aircraft equipped to date.

Counter Drug Update Project

One innovation for Navy P-3s is the Counter Drug Update (CDU). The P-3 CDU in a specially-configured Fleet Orion with an air-to-air intercept capability to detect and monitor suspected drug-smuggling aircraft. The CDU System components include the APG-66 (F-16) fire-control radar, the Cluster Ranger standoff, a stabilized high-resolution electro-optical device, and a dual enhanced-communications suite, with an interface to the Cluster Ranger for timely transmissions of airborne intelligence imagery. Several fleet P-3s are currently equipped with proof-of-concept systems that are designed for quick installation or roll-on /roll-off. The final system configuration will also be tailored for quick installation, with an estimated 24 hours to

swap CDU between aircraft. The CDU Mod contains wiring provisions for 18 aircraft and 8 additional CDU Mod kits. The first five units are expected to be available by mid 1995.

AGM-65F-IR

Maverick Missile System

With the initiation of operation Sharp Guard, the UN-enforced embargo against the warring factions of the former Yugoslavian republic, U.S. Navy P-3 Orions began armed flights in support of UN sanctions.

The AGM-65F- Maverick missile is being utilized as a low-cost, infrared, anti-ship missile operationally deployed on the P-3 for the first time. The Maverick Mod includes control displays located at sensor #3, TACCO and the co-pilot positions. Incorporated into the survivability and vulnerability provisions of the AIP improvement program, the Maverick control displays are to be integrated into the AIP's universal display system.

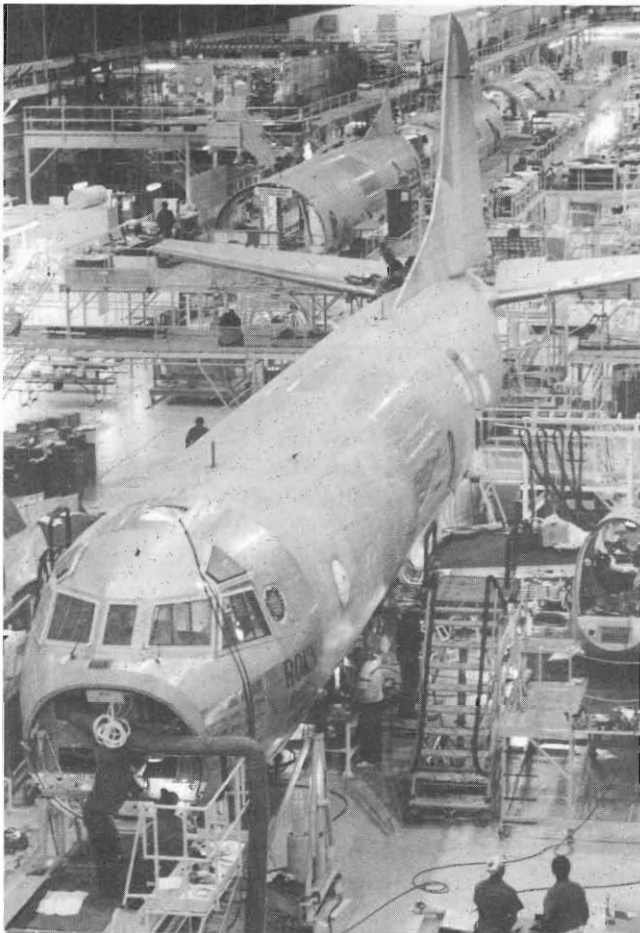
Phased Depot Maintenance Program

One program to come to fruition late last year was the long-awaited Phased Depot Maintenance Program (PDM). On August 14th 1993, the Naval Aviation Depot Jacksonville, FL, rolled out the

First Chilean UP-3A

(Bob Shane)





Korean P-3 165098/5831 on Lockheed's Marietta production line. (Lockheed)

first PDM P-3C Orion, and thereby established the future of depot level maintenance. The Phased Depot Maintenance program is a new maintenance plan initiated to replace the Standard Depot Level Maintenance (SDLM) and Aircraft Service Period Adjustment (ASPA) procedures in an effort to cope with the deteriorating material condition of P-3s because of severe corrosion.

EF-3E ARIES / CILOPS Program

The EP-3E Aries II conversion-in-lieu-of-procurement program (CILOPS) continues with NADEP Alameda delivering four of the remaining seven aircraft by mid 1996. Due to the closing of Alameda, the CILOPS conversion program is now scheduled to be transferred to NADEP Jacksonville for completion. The last three EP-3E Aries II CILOPS candidates will be authorized for one-time flights to NAS Cecil Field by November of this year. NADEP Jax will devise a Mod shop there, and convert the remaining aircraft, with final delivery

scheduled for mid 1998.

P-3 IFR Tanker Modification Program

One proposed navy modification program gathering momentum is the P-3 Inflight Refueling Tanker Mod. This Tanker Mod would give current fleet P-3C update III Orions an added capability for refuelling carrier-based aircraft. The added ability would not degrade any of the P-3's current mission capabilities, and requires minimum change to the aircraft.

The main focus of the modification is to the existing fuel system and fuel tank five. New pumps are required to transfer fuel to MK 32 pods housing KC-10 type hose-and-drogue receptacles. This allows fuel to pass from the P-3's standard fuel cells into tank five,

then out to the wing pods for delivery. The process maintains aircraft balance and stability with a minimal impact to the airframe.

When funded, per OPNAV requirements, a prototype aircraft would be developed. Then several proof-of-concept P-3 IFR Orions would be modified and flown by fleet patrol squadrons. Later funding would provide for kit production and installation of the IFR setup.

Also being considered is a secondary project to provide the P-3 with a refueling system to take on fuel in flight. The current IFR proposal is driving an additional mod consideration for an in-flight probe, or receptacle, to receive fuel from KC-135 or other IFR equipped P-3s.

Several In-flight refueling (receive) systems were flight tested by Pax River during the 1970's. With the engineering and test flights having already been done, any mod program would only need funding for prototyping and installation.

International

In the past year, the P-3 community welcomed Chile into its ranks with the delivery of eight UP-3A Orions. The beginning of this year saw two more countries, Greece and Thailand mark their entry into the P-3 community.

Germany

Despite having been a lead-off customer, and proposed codeveloper of the P-7A LRAACA, Germany has postponed a decision on a replacement MPA aircraft. The German Navy continues to employ its BR 1150 Atlantic aircraft, which were upgraded as of the mid 1980's.

Greece

With the signing of an FMS case on February 16th, 1994 Greece became the newest member of the worldwide P-3 community. Under a revised program, the Hellenic Navy will lease four P-3B TACNAVMOD Orions fresh from USN reserve service, Two P-3A TACNAVMOD and two straight P-3A-configured Orions will also be acquired as ground trainers and parts aircraft. They will be flown to Greece and later dismantled. Delivery is to commence within 12 to 18 months of the date of signing of the agreement.

Japan

The Kawasaki UP-3C variant Orion is still in production, and scheduled for roll out in January 1995. The airborne-systems test-bed aircraft, designed for testing new avionics and electronic systems, will undergo a three to four month flight-test program, and be assigned to VX-51 Air Development Squadron.

The JMSDF is currently engaged in acquiring several CP-2044 computers, with plans to produce the advanced central processor domestically under license. One of the units is scheduled to be installed in the 100th Japanese P-3C update III on the Kawasaki production line. Another three units will be retrofitted to several aircraft during standard, depot-level maintenance. Then, when licensed, the CP-2044 will continue to be installed during SDLM cycles.

The JMSDF is also developing and installing GPS and SATCOM systems into their P-3C Orions. These are indigenous NAVCOM systems unique to Japan.

Netherlands

The Royal Netherlands Navy is currently conducting a study to establish requirements for a Capabilities Update Program for their P-3C II.5 Orions. The CUP program enhances the ASUW capability of the aircraft with an additional

upgrade to the acoustic suite, affording commonality with other P-3 operators. They are in the process of identifying specific systems, and are currently circulating requests for information. Planned enhancements include an imaging radar, new acoustic processor with a modern 99 channel sonobuoy receiver set, and updated ESM system as well as new multipurpose, high-resolution displays. With systems procurement and delivery scheduled for mid 1998, a prototype aircraft could be completed and flying by the following summer.

The Royal Netherlands Navy is also continuing with a number of avionics upgrade projects. These projects include new UHF/VHF, radios for the communications suite, GPS for Navigation and the installation of a Forward Looking Infrared system in the aircraft. The Netherlands has selected the FLIR Systems Inc. AN/AAQ-22 SAFIRE thermal-imaging system. The SAFIRE is a gyro-stabilized, high-resolution, digital thermal imager. The FLIR systems, originally acquired for Dutch H-14 Lynx helicopters, are being fitted to existing IRDS-provisioned, retractor mechanisms and sensor-operator consoles. The thermal imaging system has greatly enhanced the Netherlands' P-3 surface-surveillance capabilities and became indispensable in recent UN support operations in the Adriatic, and counter-narcotics missions in the Caribbean.

The Netherlands Navy has also recently awarded a 13.6 million dollar P-3 overhaul-and-rework contract to the Portuguese government's Oficinas Gerais de Material Aeronautico. OGMA will conduct standard, depot-level maintenance type work on the Dutch P-3s, cycling them through the OGMA facility in Alverca, Portugal over the next three years. OGMA has also acquired a similar contract to overhaul Norwegian P-3C aircraft.

New Zealand

The Royal New Zealand Air Force is currently finalizing a contract with Lockheed for the purchase of five to six pairs of P-3C Orion wings, as part of a New Zealand P-3 Orion re-winging program called Project Kestrel. The project also includes replacement of the horizontal stabilizers and refurbishing of engine nacelles.

New Zealand is also in the process of studying the feasibility of upgrading their P-3K Orions in the wake of the

cancelled Rigel II program. Proposed improvements would encompass new, electronic search equipment, an IFF interrogator, digital MAD, improved acoustics suite, new integrated HF and UHF radios and tactical, data-link networks (Link 11) as well as advanced ESM, ECM and GPS systems. Other identifiable systems include a computer/data-processor upgrade, and a Glass Cockpit. Essentially upgrading the Kiwi Orions to a P-3C update III (III+) configuration.

Norway

The RNOAF is pursuing an upgrade Mod program. The project is to enhance the Norwegian P-3s ASW operations capabilities, while improving the aircraft's ASW capacity. Project particulars include an imaging radar, GPS, SATCOM, the installation of the CP-2044 processor, and an improved ESM system. This ESM system incorporates a dedicated ESM sensor-operator position similar to the proposed Australian AP-3C refurbishment program. The proposed sensor #5 operator position is to be located approximately across from the current sensor #3 station on the Norwegian P-3C update III.

Other upgrade improvements consist of new integrated displays throughout the aircraft, and survivability and vulnerability self-defense provisions, including a radar/laser missile-warning system.

Pakistan

The political standoff between the U.S. and the Pakistan government continues. The Pressler Sanctions are still in effect, denying delivery of the Pakistan aircraft that include three P-3C (update II.75) Orions that were originally scheduled for delivery in 1991. The P-3s are

currently in storage at AMARC, the desert aircraft storage facility, pending resolution of the sanctions. In the meantime, the Pakistan Navy continues to utilize two Atlantic and at least one F-27 patrol aircraft.

Republic of Korea

The Korean P-3 program continues to progress, with the test flight of the first aircraft off the Marietta, GA, production line to take place in September 1994. This is the first of eight P-3C update III aircraft ordered by Korea. With requirements for more than the eight aircraft in production, Korea is expected to request additional Orions in the future.

Thailand

In January, Thailand took delivery of two P-3A Orions and saw a third inducted into the NADEP Jacksonville Mod Shop. The Mod program consists of three ex-USN P-3A TACNAVMOD Orions converted into two P-3T and one UP-3T Orion variants by the Naval Aviation Depot, Jacksonville, Florida. The P-3T airframes will have a complete Standard Depot Level Maintenance cycle performed, which includes several systems upgrades. The aircraft will be essentially equivalent to a TACNAVMOD P-3A.

The UP-3T Mod includes major conversion to a utility configuration with all the ASW gear and sonobuoy launching systems stripped out of the aircraft. Installations include the existing radio-operator's station re-configured to a SENTAC station. This combines elements of a sensor #3 and TACCO operators station into one. Other changes to the airframe include new floor panels, with floor and ceiling tracks for cargo trans-

Dutch P-3C displaying AN/AAQ-22 SAFIRE thermal imaging system.

(FLIR Systems Inc.)





First Thailand P-3T (152142) on NADEP Jacksonville Mod line. (Bob Shane)

engines, and six-bladed Dowty high-tech composite props for lower engine-operating costs, increased fuel efficiency, and greater reliability and maintainability. The program also features a modernized flight station with a full Glass Cockpit, electronic controls and heads up-displays. This is a two-man cockpit, with Mil-Std DataBus Architecture.

The P-3 program also borrows more modern manufacturing techniques from the C-130J program, with an emphasis on corrosion prevention and protection, and alternative component replacement for such items as Kapton wiring.

This P-3 Modernization program can also be incorporated into other Proposed P-3 Programs like ACP. The Airframe Conversion Program proposed by Lockheed augments the US Navy's SPAP program, and creates an interim aircraft-replacement alternative that could be further enhanced by offering the ACP green airframes with the advanced GMA 2100 turboprop engines and two-man Glass Cockpit. The green airframes will already benefit from the modern manufacturing criteria that has now been established by the C-130J program.

Potential Customers

Although most of the recent additions to the P-3 community have been through U.S. Navy FMS sales, Lockheed continues to develop potential customers interested in new Orion platforms. The United Kingdom is currently evaluating possible replacements for the Nimrod, with the P-3C update III as a leading candidate. Approximately 25 aircraft are being sought.

Other potential new customers for the Orion include a number of Middle Eastern nations and one in East Asia. With the possibility of Korea ordering additional aircraft, potential future Orion production could exceed 59 new aircraft.



port and passenger seating, as well as new interior wall coverings and trim.

Two other baseline P-3A Orions, included in the FMS case, have been delivered to Thailand as ground trainers and spare-parts aircraft. The Thai Orions are scheduled to be flown from the Royal Thai Naval air base at Utapao on Maritime Patrol and Surface Surveillance missions.

Turkey

In response to a 1991 offer of ten P-3A TAVNAVMOD Orions, the Turkish Navy has decided not to accept the proposed FMS case. The capabilities of the P-3 exceeds their MPA requirements.

Lockheed Aeronautical Systems Company Programs

As many countries continue to ex-

amine and pursue means to extend the operational use of their existing Orion aircraft, Lockheed is endeavouring to anticipate the future needs of the international MPA community, and to provide alternative, P-3-based programs to meet those needs now.

Proposed US Navy P-3 Modernization Program

This is a P-3 program that is synergetic with Lockheed's C-130J program, now under production at the Marietta production facility. What this means is that Lockheed can now produce new P-3C Orion airframes with modernized advancements standard in the C-130J Hercules. These incorporate advanced-technology turboprop GMA 2100

1994 USN Isbell Trophy Winners Announced

Patrol Squadron FOUR based at NAS Barbers Point, HI, and Patrol Squadron FORTY-FIVE based at NAS Jacksonville, FL have won the coveted Isbell Trophy in competition with all other USN VP squadrons in their respective commands.

The annual award sponsored by the Lockheed Aeronautical Systems Company is given by the Chief of Naval Operations to airborne units that excel in ASW activities during the past year. Awards are based on objective scores in fleet exercises and on input from fleet ASW force commanders.

The annual award honors Capt Arnold J. Isbell, a career naval officer, famous for ASW actions and tactics as commander of USS Card and an ASW task group operating in the North Atlantic during World War II.

While the original trophy is displayed in the Navy Department in Washington, DC, each winning squadron is given a replica trophy, and each member of the squadron wears a distinctive replica pin.