

UNITED STATES OF AMERICA

BMUP+ AND LSRS: ANOTHER USN SPECIAL PROJECT

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PART 1

Top Secret units operating P-3 Orions have been around since the 1960s and probably will remain as such for the next twenty years. History has proven however that, after several years of operations even initially sneaky US Navy squadrons like VQ-1/VQ-2 operating the EP-3E Aries II Elint Orions and VPU-1/ VPU-2 operating special project P-3 Orions, have become publicly known. However there is another special project unit, which operates at least three anonymous P-3 Orions out of Dallas Love Field, Tx since at least 1978, for which no official US Navy designation was known. In official documents the few Orions operated by this unit are assigned to NASC-FS, which is an abbreviation for Naval Air Systems Command-Flight Support Detachment. The unit has also been given the generic name NAWC-23, which refers to a special projects facility that utilises specialised Orions, which are located in Dallas, Texas. Other names given to the operator of these Orions are NASA, PMTC, Texas Instruments and the CIA. In 2001 the name 'Project Gayfeather' was associated with this unit, but no other source has confirmed this so far. Gayfeather is the name of a flower which has a much similar shape as the canoe shaped pods which are carried below the fuselage of some P-3 Orions. Just like the VPU units, the amount of available information is scarce and this article can only be seen as an attempt to shed more light on the subject.

Actually this article is about two different subjects, which have one thing in common, namely the so-called LSRS-pod, the canoe shaped pod which is carried below the fuselage of some P-3 Orions. For what it is worth, it should be noted that the US Navy officially denies that the two subjects are in one way connected.

LSRS

Flight International published an article in August 2007 in which it announced new details of the US Navy's Littoral Surveillance Radar System (LSRS), which appeared by name only in a handful of official documents, but was never detailed.

LSRS is described in Flight magazine as a product of an industry team including Boeing, Raytheon, and L-3 Communications, with Boeing serving as the systems integrator. Raytheon supplies the previously undisclosed APS-149 sensor and L-3 Communications is providing maintenance and systems support. In 2007 the team had delivered seven LSRS units to the US Navy. The supplemental war budget for 2008 included funding for five additional LSRS radars which should be fielded in 18 to 24 months, with subsequent systems coming online every few months after that.

In January 2009 more details became available, thanks to an article about the MMA on the navlog.org website:

"A US Navy radar developed in secrecy for tracking targets at sea, has been playing an important role on land because of its ability to track objects smaller than trucks or cars. One knowledgeable official says the radar is one of the "groundbreaking" insurgent-hunting technologies referred to, though not by name, in Bob Woodward's latest book, "The War Within". Since the publication in August 2007, the official designation of the Littoral Surveillance Radar System (LSRS) pod has become known as AN/APS-149.

The LSRS, was "born black" and was developed as a "deeply, deeply classified system", according to a knowledgeable official who was not authorized to speak for the program. LSRS operates from P-3C Orions and can be used to track targets on land or sea and to provide images of those targets to intelligence analysts and commanders.

The core secret of LSRS is its fidelity. Other airborne radars, including the Army-Air Force Joint Surveillance and Target Attack Radar System (E-8 J-STARS) aircraft, can track cars and trucks through clouds and at night. Because of the wars in Afghanistan and Iraq, the Pentagon pushed the US defence industry to develop radars capable of detecting and tracking people.



Some time during 1986 the large Bureau Number was removed from 152739 and it became more anonymous. This picture of the NP-3B with the LSRS pod was taken at NAS Brunswick in the late 1980s.

LSRS is conceptually similar to J-STARS. It is a wide-aperture active electronically-scanned array (AESA) surveillance radar. AESA radars are solid-state, without moving parts, and include thousands of transmitter/receivers that track a high number of targets at one time. It is the kind of radar that can track and target land and maritime targets, both stationary and moving. Besides the AESA radar, LSRS also includes data storage, display, and control hardware. The system has been used in demonstrations to cue a Boeing AGM-84K SLAM-ER to strike a simulated launcher for an Iranian Shahab-3 ballistic missile on June 1st, 2006. On September 13th, 2006 Boeing's SLAM-ER weapon system scored a direct hit against a moving, remotely-controlled land target during a recent flight test at the Naval Air Warfare Center, China Lake, Ca. For this test, a Littoral Surveillance Radar System-equipped aircraft (probably an Orion) sent real-time targeting data to an F/A-18 Hornet, which relayed the data to the SLAM-ER after the weapon's launch. The SLAM-ER acquired and impacted a simulated SA-10 missile launcher in a desert environment.

Officially the US Navy began funding work on LSRS in the mid-1990s, inspired by the success of the J-STARS aircraft in the 1991 Persian Gulf War. Mind you, Orions with similar pods were already seen in 1978! As its name implies, LSRS was originally designed for monitoring vessels on near-shore littoral waters, but the military pressed it into service in Iraq in 2005. The Navy did not start flying LSRS radars over the water until 2007. Before the Navy started publicly acknowledging details of LSRS, the LSRS "Advanced Sensor Technology Team" won a Department of Defence award for "innovative acquisition management techniques." on October 4, 2006.

To operate the LSRS system the P-3C BMUP version of the Orion was selected. Twenty-five US Navy Orions have been modified to BMUP standard, but only 16 P-3C BMUP's can operate the LSRS. Altogether, these sixteen Orions had accumulated more than 2800 hours in flight as of February 2007, according to a released government document.

BMUP

When the P-3C Block Modification Upgrade Program (pronounced Beamup) started sometime during 1996, it was an effort to standardize the Navy's P-3C force into a common configuration with updated display and control technology. BMUP was at least the tenth upgrade of the P-3 since the P-3A baseline aircraft joined the fleet in 1962. In the 1990s funding shortfalls slowed the P-3 Orion Update III Retrofit program, which resulted in many Update III components becoming obsolete or going out of production. The BMUP program began to convert Update II/II.5 Orions to a configuration compatible with the Update III in 1997. The crew stations appeared to be Update III stations, but with state-of-the-art avionics behind the panels.

A total of 25 BMUP kits were funded by the US Congress in FY 1997 — FY 2001. Following this funding Lockheed Martin Tactical Defense Systems in Eagan, Minn., was awarded two Naval Air Systems Command contracts for BMUP upgrades. The company was awarded \$45.5 million for 17 BMUP kits in 1999 and in November 2000 Lockheed Martin announced it had been awarded another contract to deliver the BMUP equipment for the upgrade of another 8 P-3C Update II/II.5 Orions. Conversion of the 25 P-3C Update II and II.5 models started in 1999 at the company's facility in Greenville, SC. The first two BMUP Orion had been delivered as of December 1st, 2001. The BMUP prototype was BuNo 161129 which was delivered to the US Navy at Greenville SC on February 8, 2001 and soon after that it was flown to Patuxent River, Md. for testing by the NFATS (which later became VX-20) and VX-1.

The P-3C BMUP brought Update II and Update II.5 P-3 aircraft in line with current Update III performance parameters – the most advanced P-3C configuration in the US fleet, before the AIP model was developed. For the first 10 aircraft Lockheed Martin Aircraft Corporation (Greenville, SC) completed the functional installation verification aircraft and the test kit installation aircraft modifications, while L-3 Communications Integrated Systems (Greenville, Tx) completed the follow-on installations.

In November 2002 VP-66 was the first Reserve squadron to receive the BMUP Orion, in the shape of the former prototype 161129, while VP-64 was the second squadron. Both Reserve Squadrons were based at NAS Willow Grove, Pa. and both squadrons have since been disbanded. The last of these 10 BMUP Orions was delivered by Naval Air Systems Command's (NAVAIR) Maritime Surveillance Aircraft block modification upgrade program (BMUP) on July 21, 2003 to VP-64. This squadron was also the first command to operationally deploy the new platform in 2003. Other Reserve squadrons to operate the BMUP model are VP-62, VP-69 and VP-92 (disestablished on February 11th, 2006). From the first 10 BMUP Orions 8 are flown by Reserve squadrons, so it can be assumed that these were paid for by the Navy Reserves.

In February 2004 plans were unveiled to convert a further 15 Orions to BMUP standard. But in contrast to the first 10 modifications, little was published about these 15 Orions. This time the modification was done by L-3 Communications at their plant in Waco, Tx. It was not until the first deployment during the second half of 2006 that the existence of the BMUP+ model was unveiled. The extra + mark added to the designation is to indicate that this BMUP version is capable of carrying the LSRS pod. Until April 2011 the following US Navy squadrons have been reported to operate the BMUP+ model: VP-1, VP-4, VP-8, VP-10, VP-26, VP-40 and VP-46.

So actually there are two BMUP versions. One which was originally produced for the Reserves, which is compatible with the Update III Orion and another one for the front line community which is used for carrying the highly sophisticated LSRS system. In 2010 it was confirmed by an official source that 16 BMUP aircraft are equipped to carry the Boeing APS-149 LSRS housed in a large canoe-shaped pod suspended along the ventral centreline of the fuselage. So far 15 BMUP Orions have been seen carrying the LSRS pod and these do not include the two anonymous Orions which have been photographed at Dallas, whilst carrying a similar pod.

When not carrying the APS-149 LSRS pod, the most significant feature of BMUP Orions are the two ARC-182 blade antennae which

have moved from under the wing to the rear fuselage. Another feature is the lack of SRS antennas, which an Update II/II.5 model would have.

For several years now, Orion variants, which are also configured for over-land operations are equipped with a Missile Warning Receiver system. When the BMUP+ Orions first saw action in 2005 only two of these were equipped with a MWR system (BuNos 161415 and 161586). Starting in 2009 more P-3C BMUP+ Orions have received the typical “cats-eyes” at nose and tail which house the AAR-47 MWR system.

With the cancellation of the MMA project in 2009, it became apparent that a successor for the BMUP+ Orions will not be available in the near future. Long after the P-8A Poseidon will have entered service in 2019, special mission Orions will remain on strength with the US Navy. These will include 12 EP-3E Aries II, the Special Project P-3 Orions of the VPU force and of course the 16 P-3C BMUP+ Orions.



Anonymous NP-3C 161410 was photographed at MCAS Cherry Point on May 14th, 1997

(Photo by Andy deLaney).