UNMANNED PLATFORMS

Business Leads and Market Intelligence in Unmanned Vehicle Systems

MAY 2013

Navy Makes History With First Launch Of UAV From Aircraft Carrier

VIDEO CREDIT TO U.S. NAVY

FEATURED STORIES:

- Navy's Triton Takes Flight
- What's Next For K-MAX?
- Clashing Over Global Hawk
- Pentagon Spending On UAVs Down

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Aviation History: Navy UAV Launched From Carrier

By Mike McCarthy, Defense Daily

The Navy made aviation history in May when the service conducted the first ever aircraft carrier-based catapult launch of an unmanned aerial vehicle.

The X-47B aircraft lifted off the deck of the USS George H.W. Bush (CVN-77) and flew for 65 minutes May 14 before arriving on land at Naval Air Station Patuxent River, Md. The launch marked a key milestone for a program the Navy hopes will evolve into a cornerstone of future operations.

"We saw a small, but significant pixel in the future picture of our Navy as we begin integration of unmanned systems into arguably the most complex warfighting environment that exists today: the flight deck of a nuclear-powered aircraft carrier," Vice Adm. David Buss, the commander of Navy Air Forces, said in a statement.

The Navy has two of the X-47Bs, built by Northrop Grumman [NOC], that were developed under the Unmanned Combat Air System (UCAS) demonstration program, a precursor to the aircraft the Navy is developing for future operations, known as Unmanned Carrier Launched Surveillance and Strike (UCLASS).

The next key step in the UCAS program is to land the X-47B on the aircraft carrier by capturing the arresting gear used by other planes to rapidly stop. The Navy for the first time last week successfully did so on land at the Patuxent River station. The Navy said it plans to do a carrier-based landing this summer.

UCAS Program Manager Capt. Jaime Engdahl said the X-47B will conduct multiples approaches to the Bush in the weeks ahead, while arresting gear test landing will continue on shore.

The Navy last year for the first time loaded an X-47B on a carrier to evaluate its maneuverability and integration into flight deck operations, and also carried out the first catapult launch with a shore-based system.

During Tuesday's test, control of the X-47B transitioned from a carrier-based operator to one at Patuxent River, and the aircraft also safely navigated controlled airspace.

THE X-47B APPROACHES OVER THE AIRCRAFT CARRIER. PHOTO BY NORTHROP GRUMMAN

"The flight today demonstrated that the X-47B is capable of operation from a carrier, hand-off from one mission control station to another, flight through the national airspace, and recovery at another location without degradation in safety or precision," Matt Funk, the lead test engineer for Navy's UCAS, said.

The Navy in the next few weeks is expected to release a request for contractors to submit preliminary design proposals for the follow-on UCLASS program. In 2011 the service issued four separate UCLASS research and development contracts to Boeing [BA], General Atomics Aeronautical Systems, Lockheed Martin [LMT] and Northrop Grumman.

The Navy could release a final request for proposals as early as 2014. Plans to deploy UCLASS were delayed last year by two years to 2020 to give more time for the technology to evolve, officials said at the time.

Navy's Triton Takes First Flight

By Mike McCarthy, Defense Daily

THE NAVY'S TRITON TAKES TO THE SKIES OVER CALIFORNIA'S DESERT. PHOTO BY NORTHROP GRUMMAN

The Navy's MQ-4C Triton, a variant of the Air Force's Global Hawk, took its maiden flight on May 22, the first of a series of tests to validate the aircraft designed for intelligence, reconnaissance and surveillance before it heads into production.

The unmanned Triton took off in Palmdale, Calif., flew for 80 minutes and reached an altitude of 20,000 feet. The Navy developed the Triton under the Broad Area Maritime Surveillance (BAMS) program and plans to eventually build 68 of the land-based aircraft for flying high-altitude, long-endurance missions.

"This flight represents a significant milestone for the Triton team," said Rear Adm. Mat Winter, the program executive officer for unmanned aviation and strike weapons at Naval Air Systems Command (NAVAIR). "The work they have done and will continue to do is critical to the future of naval aviation, particularly to our maritime patrol and reconnaissance community."

The Triton program had been delayed to overcome some technical problems with the aircraft mission management software and to resolve an issue with its V-shaped tail known as a ruddervator. The Triton is an adaptation of the Global Hawk for operating in a maritime environment.

The Navy said in April it needed to delay the low-rate initial-production (LRIP) phase from 2014 to at least 2015 because of the technical problems. Northrop Grumman [NOC] is the prime contractor for Triton.

The Navy envisions the Triton as a key part of the maritime patrol missions in the future and the aircraft is expected to work in conjunction with the manned P-8 Poseidon, a program also in the early stages of production.

The Triton is designed to fly for more than 24 hours at altitudes reaching 60,000 feet.

"When operational, the MQ-4C will complement our manned P-8 because it can fly for long periods, transmit its information in real-time to units in the air and on ground, as well as use less resources than previous surveillance aircraft," Rear Adm. Sean Buck, the Navy's commander for patrol and reconnaissance, said. "Triton will bring an unprecedented ISR capability to the warfighter."

The flight tests are expected to continue for the next several months at the Palmdale site before the aircraft head to Naval Air Station Patuxent River, Md., in the fall, NAVAIR said. The Navy has built or is in the process of building five Tritons with Northrop Grumman under the systems development and demonstration (SDD) phase.

In the budget request for fiscal 2014, the Navy added $200 million to the research and development account for Triton and subtracted about $425 million that would have gone toward production. The Navy now plans to spend $375 million on R&D in 2014 and $52 million on production, according to the budget documents.

Post Afghanistan: What's Next For Marines' K-MAX And Unmanned Cargo Supply?

By Mike McCarthy, Defense Daily

K-MAX FLIES AUTONOMOUSLY TO DELIVER CARGO TO REMOTE OUTPOSTS. PHOTO BY LOCKHEED MARTIN

Since arriving in Afghanistan 18 months ago, the Marine Corps' two K-MAX unmanned helicopters have earned high marks for their ability to deliver cargo in support of operations in remote areas, while putting fewer lives at risk by lessening the need for ground convoys vulnerable to roadside bombs or ambushes.

The Marine Corps, along with Naval Air Systems Command (NAVAIR), developed the two autonomously flying helicopters under an urgent requirement called Cargo Unmanned Aerial Systems (UAS). After some testing, the vehicles were shipped to Afghanistan and began operations in December 2011. The K-MAXs were initially to deploy for six months, but their effectiveness prompted the Marines to extend the stay, and now they are planned to be there indefinitely--or until U.S. troops come home.

That's where the future of the Cargo UAS program remains uncertain despite all of K-MAX's success. The military is slated to withdraw from Afghanistan in 2014. There are no plans at the moment to purchase additional K-MAXs, no program of record and no clearly defined requirements, at least made public, for the aircraft beyond Afghanistan.

Further, the Pentagon is in an era of reduced spending and budget uncertainty. Without a ground war, it could be more challenging to fund the Cargo UAS program even if the Marines identified future requirements.

"I don't think there is any question that the operational requirement will persist," Loren Thompson, a defense consultant and analyst, said in a recent interview. "It's not hard to figure out what your requirements are but doing it with the money you have is a separate issue."

Navy Capt. Patrick Smith, the program manager at Navy and Marine Corps multi-mission tactical unmanned aircraft at NAVAIR, told reporters on a conference call Wednesday that options are being explored for the current fleet, including additional testing and demonstrations. He said the program's future will depend on how the Marine Corps defines the next steps for the capability.

"There's definitely been lessons learned going forward from the 18 months we've been there," he said.

The K-MAXs have delivered nearly 3.3 million pounds of cargo in Afghanistan, said Maj. Daniel Lindblom, who, as an officer for a Marine UAV squadron, has been overseeing K-MAX operations in the country. In one instance they delivered 30,000 pounds of supplies in six flights in a 24-hour

K-MAX ON THE GROUND IN AFGHANISTAN. PHOTO BY LOCKHEED MARTIN

period. The K-MAX's have ferried everything from ammunition to generators to basic goods like water, food or even mail.

Lindblom said there have also been several emergency resupply demands under his watch. In January, his team learned a forward operating base in southern Afghanistan's Helmand province was under fire and running low on ammunition. He said the unit was able to mobilize within hours and delivered 60 mm mortar rounds and 30 mm ammo on consecutive days to the base's landing zone.

"That's where we really make our money," Lindblom said in the conference call, adding the unmanned birds were sent after it was determined an air delivery using manned MH-53 helicopters was too risky. Lindblom said a K-MAX delivery is equal to one truck driven by two Marines, or two MH-53 helicopters, which each require a crew of five.

"That's 10 less people whose lives are at risk flying into that LZ," he said.

The Lockheed Martin [LMT]-and Kaman Aerospace [KAMN]-built aircraft cost about $11 million for each system, with an hourly flight bill of about $1,200-$1,300. Adding in contractor services, the total monthly bill for operating the K-MAXs comes to about $1 million.

"None of these systems are cheap," Micah Zenko, an analyst at the Council on Foreign Relations who has written extensively on UAVs, said. "I think the biggest constraint will not be the mission to use them, but the money to buy them."

Zenko added, however, that UAVs bring a level of flexibility that makes them suitable for a variety of missions, even without a ground war and as the Pentagon heightens focus on the more maritime oriented Asia-Pacific region.

"The one thing that we have learned about (UAVs), however they may be used, is that people have found other missions for them," he said. "Whenever they are deployed to any theater people find a reason to use them."

Lockheed Martin SMSS Aims To Become Program of Record

By Ann Roosevelt, Defense Daily

AN SMSS LOADED WITH RUCKSACKS. PHOTO BY LOCKHEED MARTIN

The program's champion is Ft. Benning, Ga., home of the infantry and the Maneuver Center of Excellence, said Frank St. John, vice president of Tactical Missiles and Combat Maneuver Systems at Lockheed Martin, during a Lockheed Martin media day briefing May 14.

The small truck, a six wheel all-terrain vehicle known as "Ox," demonstrated "the flexibility and autonomy of the platform" during a five-month deployment with troops to Afghanistan, he said.

On the whole, "soldiers loved it," St. John said. They could offload the heavy packs they carry, and has room for all kinds of gear.

One of the Army's abiding interests is to reduce the amount of weight a soldier carries.

The vehicle is smart enough, has advanced recognition software, to follow a soldier as he moves.

Lockheed Martin continues to work with Army Tank Automotive Research, Development and Engineering Center (TARDEC) examining potential capabilities for the system.

For example, in November at Camp Grayling, Mich., the SMSS demonstrated its ability to be remotely operated by satellite and the ability to conduct intelligence gathering using a sensor and then send data back. This could be useful for border security, St. John said.

Working with TARDEC, Lockheed Martin also is examining an IED sensor for IED discovery and defeat.

Again, with TARDEC, SMSS is participating in the Autonomous Mobility Applique System (AMAS) effort.

This stems from the safety issues arising in convoys, where an autonomous system could assist a driver with issues such as staying on the road and in the right proximity to other vehicles, St. John said.

A kit and sophisticated software are being adapted to eight different kinds of military vehicles that the company will develop and deliver for evaluation, he said. The kits could be used to autonomously drive vehicles, for example, while a soldier actually drives the lead vehicle in the convoy. The kit would have the technology to provide the intelligence necessary to keep the vehicles automatically following each other.

But there would be lots of ways to use the capability, St. John said.
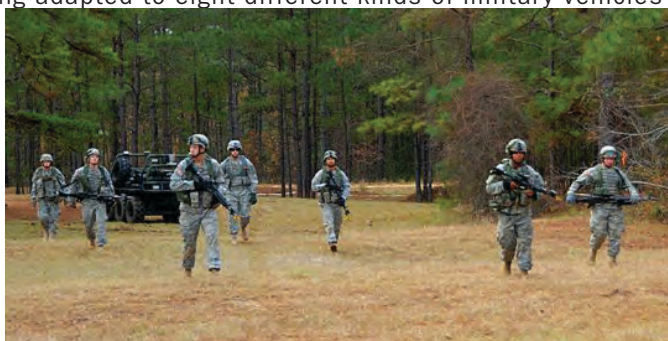
AN SMSS ACCOMPANYING SOLDIERS AT FORT BENNING. PHOTO BY LOCKHEED MARTIN

Congress, Air Force Clash Over Global Hawk Block 30

By Emelie Rutherford, Defense Daily

The Air Force defended its attempt to stop purchasing a variant of the Global Hawk drone before frustrated lawmakers in May.

House Appropriations Defense subcommittee (HAC-D) member Jim Moran (D-Va.) quizzed service leaders about why they haven't purchased three final Global Hawk Block 30s, as directed by the panel.

The Pentagon annoyed lawmakers last year when it proposed killing the variant of the Northrop Grumman [NOC] unmanned aerial vehicle. Military officials argued the Block 30 variant of the multi-version aircraft will rise in the coming years and they can save money by extending their use of the similar, but aging, manned U-2 spy plane. Congress, though, banned the Air Force from retiring the drones in fiscal year 2013 and mandated the Air force operate them through the end of FY '14.

Moran told Air Force Chief of Staff Gen. Mark Welsh at the May 9 hearing that his service has "ignored the intent of the subcommittee" by not purchasing three final Global Hawk Block 30s.

"You've decided to shrug your shoulders and not to do so," Moran said.

GLOBAL HAWK. PHOTO BY NORTHROP GRUMMAN

He added the HAC-D has received a report from the Air Force on the Northrop Grumman drone. "And despite repeated claims when you've come before this subcommittee, the report shows that the committee was right and you were wrong, frankly," Moran said. "The U2, piloted aircraft, is more expensive to operate than the Global Hawk. The flying cost per hour (is) approximately the same, but the Global Hawk is much cheaper to operate overall because you need fewer aircraft."

He said "pages of data" comparing the Global Hawk Block 30 and U2 are "pretty conclusive that the committee was right and that the Air Force continues to insist on an aircraft that is largely outdated."

Moran alleged that the Air Force may favor the U2 because it is piloted.

"But this committee not only, one, expects you to do what is instructed, but, two, to take advantage of the progress of technology so that we have the largest range of (intelligence, surveillance, and reconnaissance) ISR possible and we can most-effectively present this information to the people in the field," the congressman said.

Welsh said the fact that the U2 uses pilots in the airplane "had absolutely nothing to do with it."

"We couldn't care less," the general said. "We want the platform that will do the best job in accomplishing the mission assigned, manned or unmanned, and we've said that all along."

Welsh responded to Moran's statements on the costs of the two platforms, which he said are roughly the same but can have variations.

"The difference is how we use the two," he said. For example, the Global Hawk can cost more to operate than a U2 on longer-endurance flights, because they often have longer distances to travel because of where they

are located, he said.

Still, Welsh said "cost is not the factor."

He addressed Moran's concern that the Air Force has not responded to Northrop Grumman's offer to add desirable functions of the U2–including sensors–on the Global Hawk for a fixed price of $75 million.

"It takes the sensors off the U2s, which means you can't use the U2s anymore," Welsh said.

The Air Force general said "product quality is a real issue for our combatant commanders," and some of the sensors are not as good on the Global Hawk Block 30 as they are on the U2.

"Every one of our collection managers in our combatant commands will tell you that," Welsh said, adding he knows Northrop Grumman understand those concerns.

"The quality assessment from our combatant commanders says they would prefer a U2 product in many mission areas over the Global Hawk," the general said. "The central ranges are longer on the U2 as well, which is beneficial... Those were the big things that drove our assessment."

Welsh added the service "will do what the law tells us to do," but still is requesting permission to not buy the three additional Global Hawk Block 30s.

"We think they're excess to the requirement established by the Joint Staff," he said. "We don't think we need them to do the job. If we are unable to get that relief, our intent is to figure out how to obligate those funds in the ways directed by the law. The issue is not that we don't want both. We'd love to have both to better meet ISR requirements around the globe. We just don't have the resources to do both."

Moran left Welsh with a final warning–pointing out that the HAC-D has data showing the Global Hawk Block 30 has a "much larger range" and lower operational costs than the U2.

"I do think that it's an issue that needs to continue to need to be addressed, because the committee has a consensus that we need to move forward," Moran said about requiring the Air Force to buy the three Global Hawk Block 30s.

iRobot To Provide PackBots To Brazil

By Ann Roosevelt, Defense Daily

iRobot Corp. (IRBT) says it won contracts totaling $7.2 million from the Brazilian government to provide iRobot 510 PackBot robots, spares and associated equipment through December .

"iRobot continues its international expansion, and Brazil represents an important market for the company's unmanned ground vehicles," Frank Wilson, senior vice president and general manager of iRobot's Defense & Security business unit, said May 15. "iRobot is excited to be providing the company's state-of-the-art robotic technologies to Brazil as the country prepares for several high profile international events, including the 2014 FIFA World Cup."

iRobot has delivered more than 5,000 robots to military and civil defense forces worldwide. The company's tactical mobile robots perform multiple missions for troops and public safety professionals, improving situational awareness, reducing risk and increasing the potential for successful missions.

The PackBot is a member of the Robot Hall of Fame created by Carnegie Mellon

PACKBOT. PHOTO BY IROBOT

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in 2003. PackBot has served in Iraq and Afghanistan and was one of the first robots to enter the Fukushima Daiichi Nuclear Plant after the 2011 tsunami.

Germany Scraps Plans To Buy Northrop Grumman's Euro Hawk

By Mike McCarthy, Defense Daily

GERMANY SCRUBBED PLANS TO BY EURO HAWK. PHOTO BY NORTHROP GRUMMAN

Germany has pulled the plug on plans to buy its version of the Global Hawk unmanned aerial vehicle.

The German Defense Ministry said May 15 that it has to cancel the procurement of four Euro Hawks because of complications associated with getting it approved for operations in European skies.

Northrop Grumman has produced one Euro Hawk for the German Defense Ministry that had been in flight tests in the country, according to reports by Bloomberg news and German media.

That decision ends a $650 million program after about a third of that money had been expended.

Northrop Grumman's president for aerospace systems, Tom Vice, said the company wanted to learn more about the decision to cancel Euro Hawk and was hopeful the concerns could be addressed to keep the program alive.

"We can't speculate on any of that until we've had formal discussions with the Germans," Vice said.

Vice said he believed that issue could be addressed, pointing to the comprehensive airspace certification plan involving NATO's intention to operate the alliance's variant of Global Hawk.

"I am confident we can address that, but we haven't entered that discussion yet" with Berlin, Vice said.

Euro Hawk is the first international variant of the U.S. Air Force's Global Hawk, designed to conduct intelligence, surveillance and reconnaissance (ISR) missions. It can fly at altitudes reaching 60,000 feet and can stay aloft for more than 24 hours.

Northrop Grumman developed Euro Hawk in partnership with EADS Deutschland subsidiary Cassidian, which provides the ISR sensors.

ONR Develops Common UAV Software

By Mike McCarthy, Defense Daily

The Office of Naval Research has developed software that can be shared across the range of unmanned aerial vehicles in an effort the organization believes will save money and streamline training.

The Unmanned Aerial System Control Segment (UCS) software for the Common Control System has recently been successfully tested during a dry run on the ground and will be used in a test flight with a UAV later this year, said Wayne Perras of ONR's C4ISR rapid prototype and experiments program.

The software allows program managers to acquire it from a Pentagon database and avoids the costs associated with developing system specific and proprietary software, Perras said.

A SOLDIER LAUNCHES AEROVIRONMENT'S RAVEN. PHOTO BY AEROVIRONMENT

"Clearly the benefit is there if the government and program managers don't have to go out and buy a proprietary system," Perras said in an interview May 7.

UCS can be used on any UAV, from large scale ones like Northrop Grumman's [NOC] Global Hawk to small hand-launched systems such as AeroVironment's [AVAV] Raven. The baseline software is designed with an open interface to allow it to function with the UAVs and operate across the military services, Perras said. ONR developed the software with Phoenix-based Kutta Technologies.

ONR said in a release announcing the completion of the software that with the Pentagon's spending boom over the last decade on UAVs, the UCS software will help save money by avoiding the software provided by defense contractors that is proprietary and built to only operate a single system.

"They are all uniquely controlled by proprietary software created by numerous vendors, and the data they provide is sent out in unique formats, making it very difficult to control various systems with one master control or sift through all of the information being transmitted," ONR said.

"Getting rid of custom-built components and systems will simplify the systems themselves, as well as purchasing and training processes, thereby reducing costs," ONR said.

ONR chief Rear Adm. Matthew Klunder said the common software will be the way of the future for UAVs.

"Some day in the near future you'll have a sailor controlling an Air Force unit's unmanned system, or an Airman sitting at a desk

BOEING SUBSIDIARY INSITU'S INTEGRATOR READY FOR A LAUNCH. PHOTO BY BOEING

controlling a naval unmanned system or a Marine controlling an Army platform," he said in the release.

The plan is to store all of the data gathered by UAVs in a cloud computing environment that can be easily access and navigated across the military services, enabling faster information gathering.

ONR is working with the Pentagon's Office of Strategic and Tactical Systems, Naval Air Systems Command, Naval Undersea Warfare Center, Program Executive Office (PEO) Integrated Warfare Systems and PEO Unmanned Aviation and Strike Weapons on the software.

Pentagon Trimming UAV Spending By One-Third

By Mike McCarthy, Defense Daily

The Pentagon plans to cut spending on unmanned aerial vehicles in fiscal 2014 by one-third of the amount over the previous year, in part because of the winding down of operations in Afghanistan and the end of the U.S. military role in Iraq.

A PREDATOR FIRES A HELLFIRE MISSILE. PHOTO BY GENERAL ATOMICS

Dyke Weatherington, the Pentagon's director for unmanned warfare and strategic and tactical systems, told a House committee in April that research and development as well as procurement funds were reduced by 34 percent in the fiscal 2014 spending request. That amounts to $1.4 billion for R&D accounts and $1.2 billion for procurement, he told the House Armed Services Committee subcommittee.

Weatherington emphasized that the military is still committed to unmanned systems and will continue to develop improved technologies for carrying out intelligence, reconnaissance and surveillance missions. But there is less demand for the small UAVs remotely by soldiers on the ground to detect possible improvised bombs or other threats, he said, noting that flight hours have dropped.

The flight hours "are now beginning to decline as operations in Iraq have completed and Afghanistan operations have stabilized," he said in his prepared testimony.

The Pentagon in 2014 is proposing to buy only two of Northrop Grumman's [NOC] Global Hawk, and that's for NATO, as it moves to the next block upgrade in the Air Force program. It plans to buy 27 General Atomics Predator aircraft, including the two variants for the Air Force and Army. Plans to start large production of the Navy's variant of Global Hawk known as Triton were delayed by a year to address some technical problems.

The Pentagon expects to begin production of the mid-size Integrator for the Marine Corps and built by Insitu, a subsidiary of Boeing [BA], in fiscal 2014.

The department, however, did not request funding to buy more of AeroVironment's [AVAV] Raven, a small hand launched UAV that has been a workhorse for foot soldiers.

The Pentagon bought more than 1,100 of the Raven systems in 2012 and an additional 234 in fiscal 2013 for a combined cost of $111 million, but plans to buy zero in 2014, according to budget documents released earlier this month.

Instead, the Pentagon wants to spend $10.8 million to upgrade current Raven systems as well as for training and contractor services, the documents said.

Air Force Awards Northrop Grumman $556 Million For Global Hawk Modernization

The Air Force in May awarded Northrop Grumman [NOC] a $555.6 million indefinite-delivery/indefinite-quantity (ID/IQ) contract for Global Hawk unmanned aerial vehicle (UAV) modernization.

The tasks on each delivery or task order will fall into, but are not limited to, the following categories: management, including program, business and technical areas; engineering efforts, including configuration management, data management, reliability, availability and maintainability; and other areas such as technical refresh, diminishing manufacturing sources; and studies an analyses.

Work is expected to be completed by May 14, 2015. The award is the result of a sole source acquisition. The Air Force did not specify which Global Hawk block would be modernized.

Northrop Grumman Launches New Unmanned Ground System

By Mike McCarthy, Defense Daily

Northrop Grumman [NOC] has launched its latest unmanned ground vehicle called CUTLASS, which is designed for the remote surveillance and handling of hazardous threats such as bombs, the company said in April.

Northrop Grumman has designed, developed and manufactured CUTLASS at its Coventry, United Kingdom, location for the British government.

"Our CUTLASS vehicle is setting new standards in the UGV market and significantly enhancing the ability of users to handle hazardous threats safely. It is more dexterous, cost effective and, as a package, four times faster than any other UGV," said Greg Roberts, managing director, defense and security, Northrop Grumman Information Systems Europe. "The vehicle is already in service across the U.K. and has proven itself to be robust and capable in the most demanding environments."

Northrop Grumman will display CUTLASS at the Counter Terror Expo in London, April 24-25.

The company said CUTLASS consists of a modular design, enabling it to deal with a full range of threats from a distance, including the detection and disposal of explosive ordnance.

The robot has an arm equipped with a three-fingered, state-of-the-art gripper and has nine degrees of freedom for greater movement and agility inside limited spaces.

Boeing X-48C Blended Wing Body UAV Successfully Finishes Test Flights

By Liz Gormisky, Defense Daily

BOEING X-48C. PHOTO BY NASA

Boeing's [BA] X-48C blended wing unmanned aerial vehicle (UAV) has successfully completed 30 test flights over an eight-month research period, the company said.

The blended wing body (BWB) concept is an attempt to make planes more aerodynamic and more fuel efficient with a flat, airfoil design. The wings blend evenly into the body of the plane, which has no tail and its engines are mounted on the top back.

"We have shown that a BWB aircraft, which offers the tremendous promise of significantly greater fuel efficiency and reduced noise, can be controlled as effectively as a conventional tube-and-wing aircraft during takeoffs, landings and other low-speed segments of the flight regime," said Bob Liebeck, the head of Boeing's BWB program.

The X-48C remained in the air for approximately 30 minutes at speeds of 140 miles per hour and an altitude of 10,000 feet during its test flights. The tests were conducted at NASA's Dryden Flight Research Center in April.

The craft improves upon two previous versions of the X-48. The X-48C has two engines in lieu of three, a longer

aft deck and its wingtip winglets were moved inboard nearer to the engines.

As for military applications, Boeing said the craft could assist in transporting cargo and aerial refueling. Those uses, however, are 15 to 20 years of development in the future.

"The purpose of this research is just to verify the aerodynamics of the concept," said Boeing spokesman Tom Koehler said of the recently completed tests.

Boeing said it will build a larger-scale BWB craft now that the X-48C has proven viable.

Navy Deploying Laser For Taking Out Drones

By Mike McCarthy, Defense Daily

NAVY READYING TO DEPLOY THE LASER WEAPON SYSTEM (LAWS). PHOTO BY OFFICE OF NAVAL RESEARCH

The Navy plans to deploy a solid-state laser on a ship early next year that has been successfully tested against unmanned aerial vehicles and could be used to counter threats in the Strait of Hormuz.

The plans to place the Laser Weapon System (LaWS) on the USS Ponce, an old amphibious transport dock ship converted to operate as a forward staging base, in early 2014, was announced in April by Rear Adm. Matthew Klunder, the chief of the Office of Naval Research (ONR), and Rear. Adm. Thomas Eccles, the deputy director at Naval Sea Systems Command (NAVSEA) for engineering.

The Ponce is deployed with the Navy's Fifth Fleet, which covers the Persian Gulf region, where the Navy frequently has close encounters with Iran. The system is expected to be deployed for at least a year, Klunder said.

Speaking at the Navy League's Sea-Air-Space symposium just outside Washington, Klunder showed a video of LaWS lighting up a small drone and sending it plummeting in flames into the ocean off the San Diego coast. That was one of three tests carried out in August and September of last year aboard the USS Dewey (DDG-105) destroyer. It was successful in all three tests and in nine previous tests involving UAVs and small boats.

"We think this is a very compelling weapon system for today and into the future," Klunder said.

The Navy has been developing LaWS for years as part of an overall effort to introduce directed energy systems onto ships as a way to save the spaced required by munition-oriented weapons, as well as to save money. Klunder said firing LaWS costs less than $1 per shot.

"If we can generate the power, then we can take a shot," Klunder said.

Eccles said placing LaWS on the Ponce will involve fully integrating the weapon with the

LAWS HAS BEEN TESTED AGAINST UAVS

ship, and he added that it can operate off existing combat systems. He said during the testing LaWS utilized the tracking system on the Phalanx Close-in Weapons System (CWIS), which is a massive Gatling gun deployed as most Navy ships for self-defense.

The admirals would not disclose the laser's power level, saying it was classified. Eccles did say, however, it amounted to the power required in a standard industrial laser.

Klunder said the drone used in the test was on the smaller side, but said the laser was capable of destroying larger targets.

"Smaller targets are harder to hit than larger targets," he said.

Navy Orders Six More Large Fire Scouts

By Mike McCarthy, Defense Daily

THE MQ-8C FIRE SCOUT UNDER PROCUREMENT FOR THE NAVY. PHOTO BY NORTHROP GRUMMAN

The Navy has ordered six of the latest Fire Scout unmanned helicopters that feature a larger airframe than those already deployed with the fleet are intended to fly and remain on station longer for intelligence, surveillance and reconnaissance missions.

The Navy awarded Northrop Grumman [NOC] a $71 million contract modification in March for the six of the MQ-8C aircraft. It was a follow-on to a contract issued in April for two developmental MQ-8Cs and for six production versions.

The MQ-8C is based on the 407 airframe built by Textron [TXT] subsidiary Bell Helicopter, and will be capable of 15 hours of flight time, including eight on station--twice that offered by the smaller MQ-8Bs that have been deployed on naval vessels and in Afghanistan for ISR missions.

Northrop Grumman and Bell internally funded the development of the new Fire Scout as a Fire-X demonstrator, which had been flying at Yuma Proving Ground, Ariz., since December 2008. The MQ-8C will utilize the same avionics as its predecessor and will be capable of carrying a variety of payloads, Northrop Grumman has said.

AN MQ-8B, A SMALLER VERSION OF FIRE SCOUT, IS ALREADY IN SERVICE. PHOTO BY NORTHROP GRUMMAN

The first MQ-8C is scheduled to deploy with the Navy in 2014. The Navy plans to purchase a total of 30 MQ-8Cs, according to Northrop Grumman.

FAA Issues RFP For UAV Test Sites

By Mike McCarthy, Defense Daily

AEROVIRONMENT'S RAVEN. PHOTO BY AEROVIRONMENT

The Federal Aviation Administration has issued a request for proposals (RFP) for six ranges that will be used to test unmanned aerial vehicles (UAVs) as part of the government's plan to integrate the technology into national airspace.

Establishing the test sites is a component of the Federal Aviation Administration Modernization and Reform Act of 2012 signed by President Barack Obama a year ago with the goal of fully integrating UAVs into the airspace by 2015.

The RFP, which arrived months later than anticipated, was accompanied by a request for comments regarding privacy concerns related to the operation of unmanned systems in national skies.

The FAA hopes to award the sites by the end of September, according to the RFP issued in February.

Opening skies to UAVs has a host of possible uses, including law enforcement, firefighting and other public safety issues, or infrastructure, environmental and agricultural monitoring, assessing the impact of a natural disaster, or even to carry cargo. It is also a potentially lucrative opportunity for UAV makers who have been mostly dependent on the military for business.

FAA Administrator Michael Huerta, in a letter accompanying the release of the RFP, said he is confident his agency will be able to safely integrate UAVs, and compared the mission to the FAA's effort in the 1950s to bring jet aircraft into national airspace.

"While the expanded use of (unmanned aerial systems) presents great opportunities, it also presents significant challenges since unmanned aircraft are inherently different from manned aircraft," Huerta said. He said the FAA is prepared to work with state and local authorities as well as UAV experts to "achieve our mission of the safe, timely, and efficient integration of" UAVs.

Huerta, citing industry forecasts, said the market for UAVs could reach $90 billion over the next decade.

The association that represents the UAV industry in Washington strongly backed the FAA bill and released a statement welcoming the RFP.

The "announcement by the FAA is an important milestone on the path toward unlocking the potential of unmanned aircraft, and creating thousands of American jobs," Michael Toscano, the president and CEO of the Association for Unmanned Vehicle Systems International (AUVSI), said. "Whether it is helping search and rescue teams, assisting in disaster response, or aiding scientific research, unmanned aircraft extend the human reach and allow us to accomplish dangerous and difficult tasks safely and efficiently."

Bringing more UAVs into U.S. airspace does have critics concerned their presence could impose on individual privacy. In addition to cameras, UAVs can carry highly sophisticated infrared and imaging technology and wireless network detectors that could be used to snoop. Others have expressed public safety concerns and skepticism over whether the technology will be sufficiently advanced to avoid accidents or mid-air collisions.

The Congressional Research Service (CRS) in January said the bill brings with it a "host" of complicated legal issues that will have to be resolved. The CRS report said the government will need to address the regulatory framework for permitting the use of UAVs in national airspace, as well as the tricky issue of privacy rights and

flying the aircraft over private property.

Challenges will play out for government and private operators of drones that could have constitutional implications, such as balancing the ability of news organizations to gather information under the First Amendment, while protecting against what might be considered unreasonable searches and seizures under the Fourth Amendment, the Jan. 30 CRS report said.

Marine Corps Small UAV Cleared For Production

By Mike McCarthy, Defense Daily
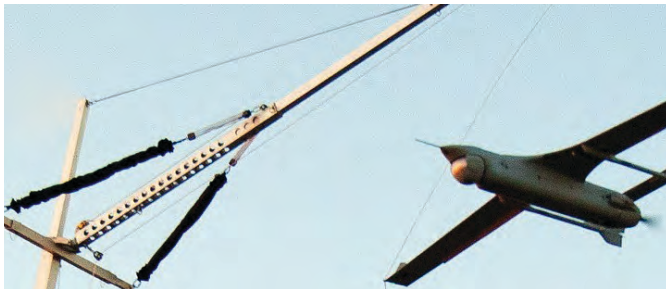
THE MARINE CORPS RQ-21A HOOKING A RETRIEVAL LINE. PHOTO BY INSITU

The Marine Corps RQ-21A unmanned aerial vehicle has been cleared for low-rate production following the successful completion of the engineering and manufacturing development phase of the program, the Navy said May 23.

The RQ-21A are being procured by Naval Air Systems Command (NAVAIR) for the Marine Corps under the Small Tactical Unmanned Aircraft System (STUAS) program. The aircraft for carrying out intelligence, surveillance and reconnaissance missions are built by Boeing [BA] subsidiary Insitu and are also known as the Integrator.

The NAVAIR program manager for STUAS, Marine Col. Jim Rector, said the rapid development, system engineering and testing of the air vehicle has been "superb" and the RQ-21A will give first hand ISR to commanders in the field.

"They will no longer be waiting for this level of intelligence from joint or higher headquarters, but these tactical commanders will have it organically at their level–land or sea," he said. "The ability to 'find, fix and then finish' adversaries and threats has been greatly accelerated with the RQ-21A" multi-intelligence unmanned system, Rector said.

NAVAIR awarded Insitu the contract to develop the RQ-21A in 2010. The aircraft is a larger offshoot of Insitu's venerable ScanEagle, but larger and capable of carrying bigger payloads. Earlier this year, it flew off an amphibious assault ship, marking its first flight at sea.

The Pentagon in its fiscal 2014 budget request released in April requested $66.7 million to procure 25 RQ-21As. The RQ-21 can fly at a radius of about 50 nautical miles from its operating center. It is launched on a catapult and recovered by snagging it with a vertical line via a wing hook.

First Triton Deployment Planned For 2016

By Mike McCarthy, Defense Daily

THE MARINE CORPS RQ-21A HOOKING A RETRIEVAL LINE. PHOTO BY INSITU

The Navy plans to continue testing on Triton in the coming months following the first flight of the unmanned aerial vehicle and intends deployment of the first of the aircraft abroad in about three years, senior Navy officers said May 24.

Navy and manufacturer Northrop Grumman [NOC] officials addressed the media one day after the MQ-4C Triton, a variant of the Air Force's Global Hawk, took its maiden flight over California's Mojave Desert, marking a key milestone for the program designed for intelligence, surveillance, and reconnaissance ISR) missions.

The two Tritons built so far will be flying about every seven to 10 days over the next several months in Palmdale, Calif., before transitioning later this year to Naval Air Station Patuxent River, Md., said Mike Mackey, Northrop Grumman's deputy program manager for unmanned aerial systems.

There are eight missions planned to expand the test envelop in the development of the aircraft and "as we go through that we'll continue to look at several other parameters," Mackey said. He said Northrop Grumman will begin integrating Triton's sensor suite late this year or early next year for testing at Patuxent.

Rear Adm. Sean Buck, the Navy's commander for patrol and reconnaissance, said the Navy's goal is to start fielding "orbits" of Triton's the Middle East in 2016--about one year ahead of the initial operational capability timeframe.

An orbit refers to a maximum of four aircraft yet varies depending on mission and coverage requirements, he said. Tritons will be subsequently deployed to the Asia-Pacific region and then the Mediterranean. They will also be stationed on the eastern and western coasts of the United States, he said.