The Precision Strike Digest

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"Dedicated to advancing the art and science of precision engagement concepts and technology"

PSA
PRECISION STRIKE ASSOCIATION
Affiliate, National Defense Industrial Association

VISION STATEMENT

We aspire to be the premier association dedicated to advancing the art and science of precision engagement concepts and technology. To accomplish this, we will promote the development of systems and procedures in order to locate, fix, track, target, and attack fixed, moving, and relocatable targets. We recognize that battlespace management, the network within which it functions, and the adjunct command and control requirements are crucial to success on the battlefield. PSA has a global perspective and welcomes international participation.

Preview of PSA Annual Programs Review

This spring as our coalition forces are reaching an extremely critical stage in operations in Iraq and Afghanistan, the Precision Strike Association (PSA) Program Committee believes the Annual Programs Review (APR) is the opportune time to bring together leadership from industry and government who are striving to meet the needs of the warfighter.

The enemy is changing, and so must our coalition forces' capabilities. This year's theme, *Precision Engagement–Adapting Technology to Meet Emerging Warfighter Needs*, intends to go to the heart of this goal.

Our APR keynote speakers are second to none!

APR continues PSA's tradition of outstanding well informed and informing keynote speakers with: **Lieutenant General Stephen Speakes**, USA, deputy chief of staff, G-8. He is responsible for the future Army through programming, materiel integration, and management of studies and analysis.

Lieutenant General Stephen Speakes, USA
Deputy Chief of Staff, G-8

The next day the program leads off with Deputy Under Secretary of Defense (Acquisition & Technology) **James Finley**. One initiative AT&L is working hard at is to focus technology to meet warfighter needs; in fact, it's an expressed goal. This year's theme provides an excellent opportunity for Mr. Finley to tell us about the AT&L vision, and to stimulate a dialogue on how the precision strike community can join in the journey.

Honorable James I. Finley
DUSD for Acquisition & Technology

The lineup of topics for the remainder of the APR is also top-notch. You will hear from members of the Joint Staff, USJFCOM, OSD (NII), to name just a few. Of particular interest will be a presentation on the newly instituted AT&L Portfolio Management Concept by Dave Ahern, director, portfolio systems acquisition, OSD (AT&L) with information on the most current DOD acquisition management practices.

Meanwhile, the venue will be superb! For the first time, PSA is holding an event at Waterford Receptions of Springfield. Waterford is conveniently located in Springfield, Va and is well known as an outstanding facility for conferences and symposiums. ■

IN THIS ISSUE

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Chairman's Column

Hearty congratulations to the USAF and the Boeing Small Diameter Bomb Team for their receipt of the 2007 William J. Perry Award. The small Diameter Bomb is going to bring an amazing set of precision engagement capabilities to our warfighters. Well done!

At our recent Winter Roundtable, I realized in what a critical period the U.S. and coalition partners find themselves. The strategic and political landscape is as uncertain as it has ever been since the end of the Cold War. Our enemies remain formidable and more sophisticated than anyone expected. They are savvy not only about our fielded military capability, but are also hoping that the freedom we enjoy in our society and in our political processes will weaken our resolve and ultimately bring about the downfall of our way of life; to be then supplanted by their own extremist world views. We can't allow this to happen.

The Precision Strike Association remains committed to helping provide our commanders and their forces with precision engagement capability that keeps us ahead of our adversaries— tactically and operationally. From the global persistence needed at the front end of the Kill Chain, to the precise weapon effects delivered in the attack phase, the precision strike community must collaborate to get that job done. We don't want a fair fight with this enemy; we want to dominate him at every turn.

Strategically, sufficient national security requires that we have the capability to dissuade any near-peer competitor from considering armed conflict against us as a viable policy. Again, we see the precision strike community hard at work as our military addresses the need for prompt and long range global strike capability. Once our leaders have achieved this, we will be able to attack targets anywhere on the globe at very short notice and effectively create conventional strategic deterrence.

And adjunct to any of these capabilities is the desire of our forces to dominate the information domain-to transform the functions undertaken to execute the Kill Chain so that our commanders can shrink timelines, attack simultaneously instead of sequentially, and force any adversary to fight on our terms.

All in all, it's an exciting time to be involved in this business!

Bill Dalecky
Chairman of the Board
Precision Strike Association

"Precision strike capabilities and technology development are key components of the 2006 Quadrennial Defense Review. I am encouraged by the PSA's support for high-level discussion and information sharing on these important topics."

"I have circulated the PSA Digest and brochure among the Joint Staff, as there is great interest in the subject matter. Your continued support of our men and women in uniform is appreciated."

General Peter Pace, USMC
Chairman of the Joint Chiefs of Staff

(Excerpt of General Pace's letter written to Ginny Sniegon 25 Jan 2007)

Winter Roundtable 2007 Wrapup:

Precision Engagement—Strategic Context for the Long War

The Precision Strike Association held its annual Winter Roundtable on February 1, 2007 at the Crystal Forum, Arlington, Virginia.

Bill Dalecky (PSA's Chairman of the Board) and Ginny Sniegon (PSA's Programs Chair) welcomed senior DoD and U.S. military officials and industry representatives to the popular unclassified forum structured to provide insights to policies and strategies from the perspective of those high level officials charged with implementing and executing both. Included in the all-day discussion was the critical role precision strike plays in shaping our national security environment.

John Douglass, president of the Aerospace Industries Association, led off the day's slate of speakers. He spoke of the progress being made in fielding unmanned systems and the technology's support of a "pre-emption" strategy implemented in the wake of the Sept. 11, 2001 terrorist attacks. Douglass said "unmanned systems and precision strike systems are playing major roles in that new strategy… I think a large component of any future strikes will include unmanned systems. We can now conduct precision strike using unmanned systems while reducing loss of life."

John Douglass

Peter Huessy, president of GeoStrategic Analysis, offered his perspectives on the wide range of national defense policy issues facing U.S. lawmakers, the intelligence record and the role of the media in shaping public opinion.

Peter Huessy

Huessy said precision strike weapons must have good intelligence if they are to be used effectively. "You can have precision strike weapons, but if you don't have good intelligence on targets, you have a problem," he has concluded.

He said thorny defense issues the Congress will have to deal with in the near term include the Pentagon's development of a conventional ballistic missile and China's development of a primitive anti-satellite weapon. China fired a ballistic missile on Jan. 11 at one of its aging weather satellites. A kill vehicle in the missile successfully deployed and collided with the spacecraft, destroying it, thereby creating space debris.

Lisa Marie Cheney

Lisa Marie Cheney, acting principal deputy assistant secretary of defense for legislative affairs, continued Huessy's theme, discussing newly-appointed Secretary of Defense Robert M. Gates' engagement strategy with the Congress regarding defense legislative priorities. "It's a new Congress, a new defense chief. We have been busy," said Cheney. Whereas Donald Rumsfeld's focus was on transformation of the military, Gates' two core priorities are the global war on terrorism and intelligence reform, noted Cheney.

She said the 110th Congress is "very determined" to focus on oversight of the U.S. Department of Defense, trying to reverse criticism over the last six years, that lawmakers failed to provide the necessary oversight.

Colonel Bill Hix, USA, strategy division chief, J-5 Strategic Plans and Policy Directorate, The Joint Staff, presented a review of the Joint Strategy offering "a strategic context for the long war." He said the Joint Strategy has evolved as the threat has changed. "Since 911, the U.S. armed forces have transformed in stride to meet the current threats and the emerging challenges," Hix stated. "Irregular warfare has become the more dominant form of warfare in the 21st Century, but the U.S. must have a broad set of capabilities, including cutting-edge technologies, such as precision strike weapons, to guard against disruptive threats," he has concluded. Hix noted that improvements have been scored with human intelligence and special operations assets.

Colonel Bill Hix, USA

"We are not driven by programmatics… This is a strategy driven process. We set a series of objectives. We analyze the strategic environment. Our capabilities-based force is constantly evolving to meet the challenges we face," said Hix.

Frank Cappuccio, Lockheed Martin's executive vice president and general manager, advanced development programs and strategic planning, discussed the U.S. government's inability to clearly define what it wants for future

Frank Cappuccio

long-range strike is causing confusion and frustration in the defense industry.

He said industry is left in the untenable position of spreading out its internal investments over a wide range of possible solutions. "We are trying to cover the waterfront because we don't know which way we want to respond to the national need and how to serve our government," the head of Lockheed Martin's famous Skunk Works stated. "The lack of a strategy at a central level is what relates to this rough journey," Cappuccio added.

A high-point of Winter Roundtable 2007 was the presentation of the PSA's 11th annual William J. Perry Award to the government/industry team that has delivered the Small Diameter Bomb (SDB) to the U.S. military's precision weapons inventory.

The SDB program was initiated in 2002 with the challenge to deliver to the warfighter a significant sortie-effectiveness improvement within four years. The SDB increases platform weapon load-out, provides standoff from threats and reduces collateral damage while demonstrating effectiveness against a wide variety of targets. A better than 95 percent success rate on guided flight tests raised the bar for excellence in development programs. Launched from the F-15E Strike Eagle, SDB saw first combat use during Operation Iraqi Freedom and Operation Enduring Freedom.

William J. Perry Crystal Award presented to the **Small Diameter Bomb Team** of The Boeing Company and the U.S. Air Force

"The Small Diameter Bomb Program Team has exemplified the ideals of precision strike and the Precision Strike Association. The Team has established a high standard for acquisition excellence while providing significant improvement to precision engagement capability," the Perry Award Citation states.

Deputy Secretary of Defense **Gordon England** said the "very special" William J. Perry Award "recognizes a very, very successful collaboration between industry and government." He said the SDB is "a necessary small bomb for us, perfect for counter-insurgency operations. It is precise and there is less chance for collateral damage. This is about taking out targets on the 21st Century battlefield."

Honorable Gordon England

In accepting the award for the government team, **Colonel Richard D. Justice, USAF**, Commander, 918th Armament Systems Group, Eglin AFB, FL said the SDB has armed the F-15E since October, complementing JDAM and laser guided bombs, thus providing an "incredible" loadout. "The weapon has been very reliable. We are extremely pleased with its performance. SDB is providing additional flexibility and capabilities for the Combat Commanders," Justice stated.

Colonel Richard D. Justice

Virginia Barnes

Virginia Barnes, Boeing's vice president for weapons, said the SDB represents "a new era of precision guided weaponry. SDB is a great weapon with fabulous capabilities," she added.

"The SDB program provides the Air Force an affordable new weapon system that strikes targets with precision and minimal collateral damage," said Dan Jaspering, Boeing SDB program manager. "Delivering an important weapon system on cost and ahead of schedule is a source of pride for our employees and partners."

The SDB I weapon system, which includes a four-bomb capacity carriage, is the first of a new generation of weapons whose small size and robust performance greatly increase the mission capability of current and future platforms. The all-weather SDB I has a standoff range of over 40 nautical miles. At 71 inches long, this 250-pound class weapon quadruples the number of weapons each aircraft can carry.

The Perry Award recognizes public or private sector leadership or achievement that results in significant contributions to the development, introduction, or support of precision strike systems. The SDB team was recognized for "outstanding contributions to the operational concept of precision engagement in providing Combat Commanders with significantly improved attack capabilities and delivering on-schedule and on-cost."

Named after the former U.S. defense chief and precision strike weapons advocate, others to have received the prestigious Perry Award include: Dr. Perry, the first recipient (1977); former Vice President Dan Quayle (1998); RADM Walter M. Locke, USN (Ret.) (1999); The Johns Hopkins University, Applied Physics Laboratory (2000); the NAVSTAR Global Positioning System Joint Program Office (2001); Rep. James V. Hansen (R-UT) (2002); Terry Little, a well-respected acquisition reform pioneer (2003); the USAF/USN/Boeing JDAM Program Team (2004); U.S. warriors of Operation Euduring Freedom and

Presentation of the William J. Perry Award: *Bill Dalecky*, Chairman of the Board; ***Honorable Gordon England***, Deputy Secretary of Defense; ***Ginger Barnes***-Vice President, Weapons-The Boeing Company; ***Colonel Richard D. Justice***, U.S. Air Force, Commander, 918th Armament Systems Group, Eglin AFB, FL and ***Michael W. Wynne***, Secretary of the Air Force.

Operation Iraqi Freedom (2005); and the government-industry Tactical Tomahawk Team.

Rear Admiral James A. Winnefeld, Jr., USN

Those attending the afternoon session heard from **Rear Admiral James "Sandy" Winnefeld, USN**, director of the Joint Experimentation Directorate (J9), U.S. Joint Forces Command (JFCOM), discussed real-world precision engagement operations, recounting his experiences as commander of Carrier Strike Group Two and the Theodore Roosevelt Carrier Strike Group in 2004, deploying to the Persian Gulf again in support of Operations Iraqi Freedom and Enduring Freedom in 2005-2006.

He said the missions were "hot, tiring and dirty" with aircraft carrier-based aviators primarily supporting troops on the ground. "It wasn't fast paced strike warfare, a blitz campaign," noted Winnefeld. Pilots flying in a "complicated airspace environment" worked closely with joint tactical air controllers on the ground. "Airspace control measures weren't as user-friendly as we wanted," he added. "Accuracy is everything, and GPS-guided weapons got the job done." Winnefeld stated.

Regarding his current job, Winnefeld described some ongoing JFCOM projects dealing with joint urban fires. He is attempting to provide joint warfighters with the ability to call for and apply timely precision fires, from any source, in an urban environment. Another JFCOM project is working on improving joint fires command and control.

A view of the major defense policy and budget issues facing law makers on Capitol Hill was presented by **Jim Pitchford**, Sen. Bond's military affairs advisor.

James Pitchford

John S. Wilcox, assistant deputy under secretary of defense for precision engagement, discussed precision engagement in a strategic context for the so-called Long War, offering a weapons technology blueprint for the future.

John S. Wilcox

He said the kill chain for the global war on terrorism is complicated in that target detection may be difficult and requires non-traditional means with the enemy hiding in populated areas. Meanwhile, mobile/relocatable targets remain a problem.

Wilcox said the Pentagon is attacking the problem with technology initiatives involving surveillance and knowledge systems, energy and power technologies, and combat identification and rapid targeting technologies. Demonstration programs underway include the Focused Lethality Munition (FLM), a composite cased warhead with specialized fill to reduce fragmentation effects while increasing blast effects. On the other hand, a Global Observer high-altitude, long endurance liquid hydrogen powered unmanned aerial system would be able to stay aloft for a week, providing persistent intelligence, surveillance and reconnaissance (ISR) capabilities.

Wrapping things up for the day was **Colonel Barry Shoop, USA**, chief scientist with the Joint IED Defeat Organization. He described the "devastating fight" involving the improvised explosive device threat, the IED challenges, and the numerous programs underway to combat the threat to U.S. and coalition ground troops in Iraq and Afghanistan.

Colonel Barry Shoop, USA

Although U.S. forces are seeing a six-fold increase in the number of IEDs in Iraq, bomb handlers are clearing half of them. And the casualty rate has held steady over the past two years. ■

PSA would like to thank **Raytheon Company** for Sponsoring the **2007 Precision Strike Winter Roundtable**

Compass Call Continues to 'Jam' Enemy

BAGRAM AB Afghanistan—In two years, aircrews with the 41st Expeditionary Electronic Combat Squadron have flown 5,000 combat hours in support of the war on terrorism.

An EC-130H Compass Call sits on the flightline at Bagram AB, Afghanistan, while maintainers perform a routine check.

The squadron has flown more than 940 sorties supporting ground troops here. This milestone reflects the longest deployment in the squadron's history, said USAF TSgt. Brandon Bennett, 41st EECS flight engineer.

The EC-130H Compass Call, a modified version of the C-130 Hercules, provides electronic warfare protection to ground troops. The aircraft and its crew respectively employ offensive counter-information and electronic attack capabilities in support of U.S. and coalition tactical air, surface, and special operations forces.

"It [also] reflects the sustained commitment to bring the terrorists to justice," said Capt. Clay Small, EC-130H weapons officer.

Essentially, the aircraft provides an electronic shield around ground forces. The system prevents the enemy from using many of their technological assets, which could potentially cause harm to ground forces.

"We've flown these hours with only one known mishap and that was over a year ago," said Capt. Matt Mihalick a 41st EECS pilot. "Given the pace of operations, that's a tremendous feat."

Not only is the mission being accomplished by the aircrew daily, but the maintainers are an important part of the mission as well.

"On numerous occasions, [the maintainers] have changed propellers, engines, made major repairs and we still fly night after night," said Sergeant Bennett. The 41st EECS maintainers have sustained over 95 percent mission capable rate, almost 20 percent over the home station standard.

"What is important is that the planes are ready to fly, ready to jam, every night," said Lt. Colonel Dean Worley, the 41st EECS commander.

The fight here means a lot to the airmen and troops assigned to the 41st, said MSgt. Douglas Pike a 41st EECS maintenance production superintendent.

"Being deployed here makes the mission realistic," he said. "Here we see the operations we are directly supporting first hand and know the immediate impact we have."

Each sortie the crew flies and every safe return is a mission accomplished for everyone, he said.

"The 41st EECS is a very lean operation," Col. Worley said . "What brings success is the tremendous teamwork between operations and maintenance, and every member understanding the importance of our mission—protecting our troops on the ground." ■

FCS Restructuring a 'Balancing Act'

The U.S. Army's Future Combat System (FCS) program has been restructured as part of a "balancing act" between equipping the current force and modernizing the future force.

Under the restructuring, four of the 18 systems in the program were deferred, and the fielding rate for the system's brigade combat teams was stretched out over five more years. The changes to the FCS program will eliminate $3.4 billion from its budget over the next five fiscal years, says U.S. Army Maj. Gen. Jeffrey A. Sorenson, deputy for acquisition and systems management.

The FCS was designed as a "family" of 18 individual systems, plus the network and the soldier — referred to as 18+1+1. The systems are a variety of manned and unmanned vehicles, sensors, launch systems and unmanned aerial systems. All are connected by a common network with the soldier. With four of the systems deferred, the system is now 14+1+1.

None of the program adjustments compromise the systems' capabilities, he said.

"Clearly we've had to go through a very difficult period here in terms of making sure we can modernize as well as support the current operations and the current force," Sorenson said.

"It was a balancing act with respect to funding priorities in modernization as well as making sure the current force is taken care of," he said.

Most significantly, the changes call for stretching the fielding of the 15 FCS brigade combat teams from over a 10-year period to 15 years. The fielding for the first is slated for fiscal 2015. This will reduce costs by roughly $700 million.

Two of the four classes of unmanned aerial systems in the program were deferred after a study concluded that there wasn't an immediate need. But, additional funds were redirected in the program to buy more of the two remaining classes of UAVs whose prototypes have been successful in Iraq, officials said.

The heavy Armed Robotic Vehicle system was deferred to later in the program, but the numbers of some lighter robotic versions were increased.

Also, the intelligent munitions system, an armed sensor that allows troops to control an area without a physical troop presence, was separated from the program. The Army will not buy any more than what is currently under contract to produce. But, again, the numbers of other sensors in the program were increased.

Besides reducing costs, the changes will deliver future technologies into the hands of troops in the fight quicker, Sorenson said.

In 2005, program officials developed a "spin out" strategy, which would field elements of the FCS family of systems as they were developed, instead of waiting until the complete system is fielded.

Initially, some of the unmanned systems and part of the network will be fielded, Sorenson said.

Starting in fiscal 2008, program officials hope to deliver some of the unattended ground sensors to soldiers. There are two categories of the sensors: tactical and urban. The sensors can be used to gather intelligence and conduct surveillance and reconnaissance, as well as provide troops additional security as they clear and secure buildings.

Micro Air Vehicle under test.

The network, which will enhance battle command capabilities, will be available as much as two years earlier under the restructuring.

Sorenson said that, despite the cuts, FCS remains the largest modernization program for the Army. The program is on time, on cost and still the No. 1 priority of Army leadership, he said.

"It is absolutely the No. 1 priority. And, though we've had to make some adjustments in the program, we have not walked away from the fact that the Army will have to have to modernize in the future," Sorenson said.

Total cost of the program is expected to be $162 billion with another $2 billion slated for additional construction required.

Sorenson said he does not anticipate problems with the program being approved as part of the newly submitted U.S. defense budget. ■

Combat Hammer Tests Air-to-Ground Bombing Capabilities

Eglin AFB's western range, Bravo 70, late last year was the site for the largest-ever Combat Hammer Weapons System Evaluation Program (WSEP), sponsored by the 86th Fighter Weapons Squadron. More than 40 precision-guided weapons were dropped, including laser-guided bombs, joint-direct attack missiles and Maverick AGM-65s.

A Canadian CF-18 Hornet from the 409th Tactical Fighter Squadron launches a laser-guided bomb during one of the unit's weapon systems evaluation program scenarios. The Canadian aircrew launched 12 LGBs during their week at Eglin AFB, FL.

"We wanted to maximize our time — more bang for our buck," said USAF Major Chris Bridges of the 86th FWS. "A typical WSEP here is with only one unit, but we felt we could accomplish more."

The squadron evaluated the accuracy of weapons systems of an A-10 Thunderbolt II unit from the 354th Fighter Squadron at Davis-Monthan AFB, AZ, as well as B-52 Stratofortresses from the 20th Bomb Squadron at Barksdale AFB, LA. Also participating was a Canadian unit, the 409th Tactical Fighter Squadron from Cold Lake Air Base, Canada, which brought nine CF-18 Hornets to the exercise.

Combat Hammer is about gathering air-to-ground weapons system data, all aspects are evaluated from the cradle to the grave, said USAF Major Jim Barnes of the 86th FWS.

"We analyze everything, including the man, the machine and the aircraft," Barnes said. "All of those parameters, along with the data received after the weapon has done its job, goes into the model we use to determine effectiveness."

Canadian units participate in the WSEP program each year, alternating between Combat Hammer and Combat Archer, the air-to-air WSEP conducted by the 83rd FWS at Tyndall AFB, FL. This year, during the Canadian's Combat Hammer, the 86th FWS tested 12 LGBs. The 86th's job is to gather, review and evaluate the data from those drops as well as the data from the other units participating.

Boeing B-52 Stratofortress heavy bombers practiced delivering 'smart' bombs at Combat Hammer.

Most of the Canadian pilots have very little experience dropping the weapons used during Combat Hammer. "The Canadian Air Force has only six active targeting pods in their inventory, so those who come to WSEP finally get to use those pods, most of them for the first time," said Bridges. "That type of combat experience is much desired and invaluable to their pilots."

Capt. Ian DeCarlo launched his first GBU-10 at this year's WSEP. "It's a huge deal to be able to fire one of these bombs for the first time," he said. "A simulation doesn't compare to actual combat training."

In an air threat scenario, the Canadian pilots faced adversary aircraft of F-16 Fighting Falcons and F-15 Eagles from the 85th Test and Evaluation Squadron before heading to the range to drop their bombs. A chase aircraft goes along to monitor the scenario.

"This process is repeated among all the units at WSEP over the three-day event," Major Barnes said.

Once at the range, cameras and other devices record mission information from the time the weapon is dropped to the time it impacts. Precise measurements of the impact are taken later, but the 86th FWS takes the recorded information from the day's sorties and uses it to provide initial feedback to the Combat Hammer players.

The entire analysis and evaluation process takes three months before a final report is issued. The goal of the 86th FWS and WSEP is 80 percent confidence in all weapons dropped. The test numbers are tracked over five years to get that confidence interval.

Information from all of the drops were gathered and the groups met for an outbrief and went through lessons learned. From the data obtained, the 86th reported the Canadians scored well based on their quality of equipment. The 86th offered some advice to help increase the Canadians' accuracy and target success rate. ■

'Spooky' Gunship Gets New Cannons

'Spooky' is about to get a little scarier.

Crews at Hurlburt Field, FL have put the finishing touches on the first AC-130U Spooky gunship armed with the 30mm Bushmaster cannon. The rearmed Spooky retains its 105 mm cannon, but replaces the 25 mm and 40 mm guns with Bushmasters.

The project is a "win-win," according to Air Force Special Operations Command (AFSOC) officials — unless you're one of the bad guys.

"We're buying increased lethality and accuracy at the same time we're improving reliability," said USAF Lt. Col. Mike Gottstine, AFSOC's chief of strike/intelligence, surveillance and reconnaissance requirements, "The bottom line is we'll have more gunships available for the warfighter on a day-to-day basis."

The aging 40mm Bofors cannon, which has been around in various guises since World War II, is increasingly hard to maintain, Gottstine said, and there is no production line set up to replace shrinking ammunition stocks. While the 25mm gun is newer, he said, "it is a maintenance hog as far as the amount of money and time we spend maintaining the ammo handling system." In addition, because no other Air Force aircraft use the 25mm cannon, no one is working on developing new types of ammunition that could be effective for gunship operations, he said.

The Bushmaster cannon, on the other hand, will arm the Marine Corps' new amphibious assault vehicle, is installed on some Navy ships and is being looked at for uses in other capacities. Because of that, "the services are developing a lot of variations of 30 mm ammo," Gottstine said. "Different types of ammo will allow us to perform different missions or maybe give us some options to prosecute our targets differently."

The 25mm cannon was originally installed in gunships as a suppression weapon to keep enemy troops pinned down so they could not move or shoot, said Paul Brousseau, AFSOC AC-130U requirements contractor support. However, the 25mm has no air burst capability, which is often preferable for suppression fire, he said. "The Marine Corps is looking at a 30 mm airburst round that could possibly be a good capability for us sometime in the future," he said.

AC-130U 'Spooky' Gunship

The new cannon fires 200 rounds a minute, faster than the 40 mm and a bit slower than the 25mm guns it replaces, Gottstine said. "The 25 mm throws a lot of lead down, but it scatters it more than the 30 mm will. We're expecting increased lethality and increased accuracy with this weapon," he said. "Hits are what counts."

Gunners from the 1st Special Operations Wing at Hurlburt Field are ready to put their new weapon to the test.

"It's going to be fun, it's going to be interesting," said USAF Master Sgt. Chris Jette, an aerial gunner with 1st Special Operations Group standardization/evaluation. "Overall, we don't know what the round actually does from our platform until they do the testing, but it looks like it's going to be good."

"I'm impressed with how easy it is to work on," said USAF Technical Sgt. Ben Lerman, an aerial gunner with the 4th Special Operations Squadron. "Hopefully, it will make our job as gunners easier. Commonality between the (forward and rear guns) means we will have interchangeability of parts so we can fix them in the air."

The ability to perform repairs while airborne is important, Jette said.

"We can actually troubleshoot and repair the front gun where, with the 25 mm, once it breaks we can't do anything to it," he said.

The 30 mm-armed AC-130U will undergo flight testing through May. It should be declared operational and in the hands of "U-boat" crews from the 4th SOS in July, Brousseau said. Three more modified U-model gunships will join the fleet by December 2007, he said.

The rest of the fleet will be modified as funding is available, with installation probably in the mid-2009 time frame, he said. The fleetwide modification should be complete by fiscal 2010, he said.

The desired goal is to eventually install the 30 mm cannons on AFSOC's AC-130H Spectre fleet as well, Gottstine said. ■

News Briefs

ATK Milestones

Alliant Techsystems recently conducted a successful divert flight test of its low-cost Precision Guidance Kit (PGK). The PGK round was fired from a 155mm howitzer at the Yuma Proving Grounds, Yuma, AZ. The round maintained aerodynamic stability throughout its flight and demonstrated an in-flight divert capability well in excess of the company's design requirements for Increment 1, which is a 50 meter CEP.

ATK's design features a fixed canard guidance package with gun-hardened electronics, a self-generated power supply, and a minimum number of moving parts. It is designed to not only meet, but exceed requirements for range, accuracy, and cost.

In July of this year, ATK was awarded one of two technology demonstration contracts to rapidly design and fly a PGK projectile. The company expects to enter into a fly-off that will determine the final down-select for a System Development and Demonstration contract.

The firm also recently received a contract to provide 30mm air bursting ammunition for the U.S. Marine's Expeditionary Fighting Vehicle (EFV). Under terms of the contract, ATK will provide 1200 rounds within the next six months to the U.S. Navy for qualification tests. The contract contains three production options for deliveries of 30mm air bursting ammunition. This is the first ever production contract for air bursting ammunition and highlights ATK's role as a gun-system provider of choice.

ATK's air bursting technology is an affordable, operator-friendly design that can be scaled down and integrated into other medium-caliber gun systems, such as the 25mm M242 Chain Gun.

Key components of the system include ATK's Mk44 Chain Gun, a gun control unit with an inductive fuze setter; a fire control system and the 30mm x 173mm Air Bursting Munition.

Milliseconds before the round is chambered, the sophisticated fuze is programmed to explode at the precise range selected by the gunner — who uses an advanced laser range finder to determine the distance. Once the round exits the gun, the ATK-designed fuze technology computes the projectile's revolutions and velocity to determine the exact moment of detonation.

The first platform scheduled to incorporate ATK's 30mm air bursting ammunition will be the EFV, which is equipped with ATK's Mk44 Gun System. Other Mk44 platforms include the U.S. Navy's San Antonio Class LPD-17 amphibious ship, numerous NATO armored and ground combat vehicles, and potentially an up-gunned Bradley Fighting Vehicle. ■

First SDB Full-Rate Production Order

Late last year, Boeing was awarded an $80 million full-rate production contract for the Small Diameter Bomb I (SDB I) system from the USAF

The order calls for Boeing to deliver 1,600 weapons, 300 carriages and other equipment to the Air Force by 2008. This is the first full-rate production contract for the SDB I system.

SDB on target

Boeing will manufacture more than 24,000 SDB I weapons and 2,000 carriages for the Air Force, with deliveries planned beyond 2015.

Boeing builds the GBU-39 weapon at its lean manufacturing facility in St. Charles, MO Sargent Fletcher, Inc., of El Monte, CA builds the BRU-61 carriages. ■

BAE Systems Tests Precision Guidance Kit Solution

BAE Systems has successfully fired 155mm projectiles equipped with the company's Precision Guidance Kit (PGK) test modules as part of the U.S. Army's PGK Technical Development program.

BAE Systems fired M549 Rocket Assisted Projectiles (RAP) to a range of about 20.5 kilometers from an M109A5 howitzer to evaluate the functional performance, stability and structural integrity of the PGK fuze. The tests demonstrated the PGK divert capability in both range and cross-range while maintaining the stability of the M549A1 RAP round. The ability to acquire GPS, calculate the navigation solution, and deploy aerodynamic brakes to adjust the trajectory were also demonstrated.

PGK provides a near-precision accuracy capability for conventional 155 mm and 105 mm ammunition.

Meanwhile, another BAE Systems unit has successfully demonstrated a passive geo-location capability that enables aircraft to quickly and accurately identify enemy positions in crowded radio frequency (RF) environments. The equipment can be deployed on any type of military aircraft.

The company demonstrated, for the first time, the ability to nearly instantaneously construct a geo-location solution, without the need for multiple aircraft to simultaneously receive the same pulse of an enemy radar signal. ■

Boeing/USAF Demonstrate Advanced Airborne Networking

Boeing and the U.S. Air Force have demonstrated for the first time how — with advanced airborne networking and information management technology — a near-space vehicle can be used as a flexible, low-cost, theater-wide information broker that provides real-time tactical information to ground forces to enhance their effectiveness and survivability.

The recent demonstration was the first in a series of experiments dubbed Project Marti.

The Marti concept seeks to combine the wide-area coverage and loiter time of a near-space vehicle (such as a High-Altitude, Long Endurance or HALE concept vehicle) with the sensing ability and agility of lower-altitude unmanned air systems (such as the Boeing/Insitu ScanEagle UAS).

The goal is to provide information over a large geographic region, beyond the reach of a single low-altitude asset, without the need for expensive space-based assets that are often reserved for higher priority missions.

In the demonstration, multiple information sources, including ground-based software clients representing low-altitude unmanned aerial systems (such as the Boeing/Insitu ScanEagle), delivered near real-time imagery and data through an Internet Protocol network to an airborne information broker (onboard a balloon acting as a surrogate for a near-space vehicle). ■

PEOPLE

Retired Navy Vice Admiral **John M. McConnell** becomes the second director of national intelligence, replacing **John Negroponte**. McConnell served as director of the National Security Agency from 1992 to 1996. Negroponte assumes the post of deputy secretary of the State Department.

U.S. Army **General George W. Casey, Jr.**, who served as the commanding general of Multinational Force Iraq since July 2004, has taken over as the U.S. Army's chief of staff, replacing U.S. Army General **Peter Schoomaker** who is retiring. Schoomaker was called from retirement in 2003 to serve in the top Army post. Casey served as Schoomaker's vice chief of staff before becoming commander of ground forces in Iraq.

U.S. Army General **David Petraeus** succeeded Casey as the top coalition military leader in Iraq, having served as commander of the U.S. Army Combined Arms Center and Fort Levenworth, KA.

U.S. Navy Admiral **William J. Fallon** succeeds retiring U.S. Army General **John Abizaid** as commander of the U.S. Central Command. U.S. Navy Admiral **Timothy J. Keating** replaces Fallon as commander of U.S. Pacific Command. Keating had headed the Northern Command.

U.S. Navy Vice Admiral **David Venlet** has assumed command of the Naval Air Systems Command from U.S. Navy Vice Admiral **Walter Massenburg**. Before assuming command of NAVAIR, Venlet served as program executive officer, tactical air programs. **Steffanie Easter** is the new assistant commander for acquisition at the Naval Air Systems Command.

The White House has nominated U.S. Army Major General **Jeffrey A. Sorenson** for appointment to the rank of lieutenant general and assignment as chief information officer/deputy chief of staff, G-6, U.S. Army. He is currently serving as deputy for acquisition and systems management, Office of the Assistant Secretary of the Army (Acquisition, Logistics and Technology).

Air Force Lt. Gen. **Victor "Gene" Renuart** to assume Keating's NORTHCOM post. Renuart currently serves as Gates' senior military assistant. If Bush nominates him as NORTHCOM commander, as expected, and the Senate confirms the nomination, Renuart would receive his fourth star.

Net-Centric Multi-Platform CDL Demonstrated

L-3 Communications has successfully completed flight tests of its IP-enabled, wideband Multi-Platform Common Data Link (MP-CDL).

Flying multiple missions on two Big Crow NKC-135 aircraft, L-3's MP-CDL demonstrated high capacity net-centric communications between aircraft and from the aircraft to the Global Information Grid (GIG), the Internet, and the public switched telephone network using the Department of Defense's (DoD) Network CDL, Standard CDL, and Advanced CDL waveforms at data rates up to 274 Mbps and ranges beyond 300 nautical miles.

A product of CS-West, MP-CDL is a production-ready data link delivering advanced communications capabilities including automatic self-healing network formation, IP routing, adaptive transmit power and data rate selection, automatic signal acquisition and jam resistance. ■

EDO Provides Additional Smart Racks

EDO has been awarded a $13.3 million contract to produce an additional 175 BRU-55 "smart" bomb-ejector racks used on Navy' F/A-18 aircraft. The contract also includes acceptance testing and non-recurring engineering and is expected to be completed in September 2008.

The BRU-55 allows carriage of two smart weapons on a single pylon, effectively doubling the capacity of the aircraft. EDO's proprietary electronics enable individual targeting and release of each weapon. The BRU-55 is compatible with the F/A-18A+ /C /D /E and /F versions. ■

HDAM Missile in Flight Test

Raytheon's HDAM missile recently completed a series of free flight tests, successfully engaging a radar system emitting low-power levels, a new accomplishment for an anti-radar missile. HDAM stands for HARM destruction of enemy air defense attack module.

The new HDAM variant adds INS/GPS (inertial navigation system/Global Positioning System) capability to the battle-proven HARM (High-speed anti- radiation missile), greatly improving HARM's effectiveness while eliminating the possibility of fratricide. Earlier test flights validated the missile's improved software and INS/GPS capabilities.

HDAM flight tests have determined the new HARM version has long-distance, time-critical target attack with minimum supersonic flight time and precise accuracy and the capability to attack low-power targets quickly and efficiently from stand-off range.

Jeff Wadsworth, the HARM program director, said "the three successful HDAM flight tests concludes the highly successful cooperative research and development agreement providing the Air Force with an opportunity to upgrade its existing inventory to a system that can be utilized as a suppression or destruction of enemy air defenses weapon with additional capability as a high-speed strike weapon. HDAM can be a new, multi-role arrow in the Air Force warfighter's quiver." ■

CALENDAR OF EVENTS

Precision Strike Annual Programs Review
Date: April 24-25, 2007
Theme: *"Precision Engagement—Adapting Technology to Meet Emerging Warfighters Needs"*
Location: Waterford Receptions of Springfield—Springfield, VA

Precision Strike Summer Forum*
Date: July 10-11 2007
Theme: *"Joint Perspectives on Precision Engagement"*
Location: Virginia Beach Resort Hotel, Virginia Beach, VA

Precision Strike Technology Symposium (PSTS-07)*
(To be conducted at the SECRET/NOFORN level)
Date: October 23-25, 2007
Location: Johns Hopkins University Applied Physics Laboratory, Laurel, MD

Call for Papers NOW available for PSTS-07 – Deadline for technical paper submission is June 15, 2007. Please download a copy from our website: www.precisionstrike.org

For more information on these events, check out our website: www.precisionstrike.org.

*Sponsorships and Exhibit Space Available

Sniper Advanced Targeting Pod for Harrier

Lockheed Martin has received a UK Ministry of Defence (MoD) contract to supply Sniper Advanced Targeting Pods (ATP) for Harrier GR9 aircraft to satisfy an Urgent Operational Requirement (UOR.)

The selection of the Sniper ATP will allow the UK MoD to respond quickly to the UOR established by Royal Air Force (RAF) commanders in late 2006. The Sniper ATP's advanced capabilities and interoperability between multiple platforms give commanders flexibility, and will allow the RAF Harrier to provide air cover for a broad array of coalition missions. Additionally, the Sniper ATP permits pilots to detect and identify weapon caches and individuals carrying armaments while remaining outside jet noise ranges.

The Sniper ATP deliveries was to begin in March 2007, with a full capability deployment in June 2007.

The UK joins the Royal Norwegian Air Force; the Polish Air and Air Defense Force; the Royal Air Force of Oman; the Belgium Defense and other international customers in selecting the Sniper ATP. Sniper ATP is also flying on USAF F-15s, F-16s, A-10s and B-1s. ■

Raytheon Demos Engine for Powered JSOW

Raytheon has successfully demonstrated the engine for the Joint Standoff Weapon Extended Range (JSOW ER), a new low-cost extended-range missile.

The engine ground test of JSOW ER successfully evaluated a flush inlet design and overall engine performance and showed that engine performance matched simulation results. The inlet will maintain the missile's excellent low observable characteristics.

Hamilton Sundstrand manufactures the JSOW ER 150-pound thrust engine that will significantly increase the range of the battle-proven glide weapon.

Continued prototype design and testing will continue in 2007. A free flight is planned in 2008 with the potential for production in 2011.

JSOW ER will enable additional mission areas than possible with the current Joint Standoff Weapon range of up to 70 nautical miles (approximately 80.5 statute miles), and additional payload options will also be considered with JSOW ER. ■

JASSM Contract

Lockheed Martin received $294 million from the USAF in late January for production lots six and seven of the AGM-158A Joint Air-to-Surface Standoff Missile (JASSM). ■

Boeing Awarded $296 Million JDAM Contract

(ST. LOUIS, Nov. 22, 2006) — Boeing [NYSE: BA] last week was awarded a $296 million U.S. Air Force contract for 12,889 Joint Direct Attack Munition (JDAM) tail kits. Boeing will deliver the Lot 11 JDAM kits in 2008 and 2009.

Known as the world's most accurate bomb, JDAM is a GPS-aided, near-precision weapon that the U.S. Air Force and Navy have used extensively in global combat operations, including Afghanistan and Iraq.

JDAM guidance kits are capable of guiding 500- to 2,000-pound inventory warheads, and are widely acknowledged as the "warfighters' weapon of choice." Since 1998, Boeing has produced more than 160,000 tail kits. Source : Boeing ■

Cruise Missile Test Successful

A test of a U.S. Navy Tomahawk Block IV cruise missile was conducted Jan. 17, from USS DONALD COOK (DDG-75), an Arleigh Burke-class destroyer underway in the Gulf of Mexico sea ranges off the coast of the Florida panhandle.

Seconds after launch from the ship's vertical launch system, the Tomahawk missile transitioned to cruise flight. It flew a fully-guided 645-nautical mile test flight using global positioning satellite and digital scene matching area correlator navigation. The one-hour, 30-minute flight concluded at a target and recovery site on the Eglin AFB Base land range.

The Tactical Tomahawk Weapons Control System (TTWCS) provides command and control of the missile during launch and while in-flight. Using TTWCS, the ship can redirect the Tomahawk to a new target while in flight. TTWCS has been developed for the Navy by Lockheed Martin.

This marked the first execution of a Tomahawk Block IV test mission into Eglin ranges.

It also marked the first Block IV launch from the USS DONALD COOK. Although a first with Block IV, the ship is very familiar with the Tomahawk missile, as it took part in the first strikes in Operation Iraqi Freedom on March 20, 2003. ■

QinetiQ Explores Advanced Sensors

QinetiQ has secured a two-year, $5 million research contract from the Defense Advanced Research Projects Agency (DARPA) in support of its Large Area Coverage Optical Search While Track and Engage (LACOSTE) program that will investigate using first-of-their-kind sensors, like lensless imaging, to provide persistent tactical surveillance and precision tracking capabilities.

The concept is to develop a suite of sensors that can be operated at high altitude, possibly on an airship or endurance unmanned aerial system, that detect and simultaneously track large numbers of moving vehicles in dense urban areas with a high degree of accuracy, 24 hours a day.

In order to achieve this the sensors need to be high resolution and sensitivity and have a wide field-of-regard and a variable almost instantaneous reconfigurable field of-view.

QinetiQ's novel lensless imaging solution is the basis of this approach and is itself a disruptive camera technology with a wide range of defense, security, industrial and commercial applications. ■

Neutralizing Snipers

Boeing has been awarded a USAF contract for a Ground Situational Awareness Toolkit (GSAT) that integrates a ScanEagle unmanned aircraft system (UAS) with a ShotSpotter gunfire detection and location technology system. The integrated solution is designed to provide additional force protection for military convoys and bases against sniper fire.

The Air Force's 820th Security Forces Group (SFG) at Moody AFB (AFB), GA will conduct a four-month military utility assessment to validate ground detection and aerial location of sniper fire.

The ShotSpotter gunshot location technology is based on sophisticated acoustic sensors that can detect muzzle blast and, depending on the circumstances, the sound of a projectile while it travels. The system also can differentiate between gunfire and false events such as a car backfire.

ShotSpotter sensors are ground-based, personnel wearable and vehicle mounted. In the GSAT application, the system can provide ScanEagle the coordinates of a shot's origin to enable the vehicle to point its camera at that location. ■

QinetiQ-led Team Wins £5m Guided 155mm Shell Contract

QinetiQ, as UK prime contractor for Team ImpaQt, has secured a £5m contract for a 30-month Output 6 research program into 155mm Guided Munition (GM) technology.

The program focuses on reducing overall risk in two key GM technology areas: guidance navigation and control (GNC) architecture; and composite shell body structural integrity.

Team ImpaQt is comprised of: QinetiQ, NEXTER (until recently known as Giat Industries), BAE Systems Bofors AB and MBDA. Team ImpaQt is currently conducting guided munition and related research programs for the UK and French Ministries of Defence. By exploiting the synergies between these programs, Team ImpaQt customers gain maximum advantage without compromising individual governmental aspirations for their particular munitions.

Building on knowledge gained within the team during previous risk reduction activities, the two work packages will commence with a design phase and go through to live firing demonstrations. The GNC architecture developed within the program will be modelled using a six "Degree of Freedom" model to predict the performance of two munitions, known as ImpaQt Mk1 and Mk2.

ImpaQt Mk1 consists of a metal shell body, containing various payloads, and the airframe is aerodynamically stabilized by a freely spinning tail fin assembly. The ImpaQt Mk1 concept is proposed as the basis for the airframe in the French Munition Portée Precision Accrué (MPPA) demonstrator program.

The ImpaQt Mk2 concept offers enhanced capability over existing munitions by using lighter, composite materials to reduce the overall mass to achieve greater accuracy, range and payload delivery.

The firing trials will test both the design of the on-board GNC sub-system, and its ability to withstand firing, and the structural integrity of the composite shell-body design.

"In developing this family of advanced gun-launched precision guided munitions we will be extending and providing modern capabilities to an already extensive global arsenal of indirect fire applications," explained John Anderson, managing director of QinetiQ's weapons business. "Team ImpaQt provides unparalleled experience and capability in this rapidly evolving area of defence systems and the products it develops are designed to satisfy the most demanding user requirements."

To date, Team ImpaQt has won a UK IFPA Gun Launch Guided Shell Risk Reduction program; phase one of the French DG MPPA program; the UK AOD program; and most recently this Output 6 GM program. Team ImpaQt is also currently bidding for phase two of the French DG MPPA program and is confident that they will be able to maximize customer benefit by leveraging technology development between the various programs. ■

Airborne SigInt Payload Takes to the Air

Northrop Grumman's Airborne Signals Intelligence Payload (ASIP), a next generation signals intelligence sensor for the U.S. Air Force, recently took to the air on its first flight aboard the U-2 aircraft, launching the flight test phase of the program.

ASIP delivers enhanced signals intelligence capabilities to the warfighter. It detects, identifies and locates radar and other types of electronic and modern communication signals. A key attribute of the ASIP payload is an open, scaleable architecture that allows future system upgrades to be easily added and sensors readily reconfigured in support of evolving warfighter needs.

The ASIP U-2 flight test program begins with sensor and aircraft calibration activities and progresses to full signals intelligence functional and performance flight test. Three ASIP sensors will complete flight test on the U-2 in 2007 with operational fielding expected in 2008. The Global Hawk variant of the ASIP sensor will complete flight testing in 2008 and begin production in 2009 with operational fielding expected in late 2011.

ASIP is a system-of-systems development program involving multiple Air Force and industry organizations. The ASIP industry team includes Northrop Grumman as prime contractor for the development of the ASIP sensor and the Global Hawk platform; Lockheed Martin Corporation, which provides the U-2 aircraft and ground station interface; L-3 Communications, which provides the data link; and, Raytheon, providing sensor support and ground station interface. ■

U-ADD Offers Deployment Options to Expand UAV Missions

Textron Systems says its Universal Aerial Delivery Dispenser (U-ADD) was successfully deployed from an Army RQ-5 Hunter UAV during a USAF inert drop demonstration conducted at the U.S. Army Electronic Proving Ground, Ft. Huachuca, AZ.

The GPS-guided U-ADD flew for the entire flight trajectory and ejected the inert munition payload cleanly from the tube dispenser at the designated above-the-ground aim point.

According to Tom McNamara, Textron Systems' senior vice president, Advanced Solutions Center, "We are very pleased at having met our objectives for this demonstration. The guided dispenser's performance illustrates clearly that the multi-mission U-ADD is ideally suited for use on tactical UAVs." ■

Correction The 4th Quarter 2006 *Precision Strike Digest* inadvertently identified Michael Cook—a speaker at the 16th Precision Strike Technology Symposium—as an employee of Raytheon. In fact, Mr. Cook works for Rockwell Collins. The Precision Strike Association regrets and apologizes for the error.

Mark your calendar for

PRECISION STRIKE ANNUAL PROGRAMS REVIEW

24-25 APRIL 2007

WATERFORD RECEPTIONS – SPRINGFIELD, VA

Precision Engagement–Adapting Technology to Meet Emerging Warfighter Needs

— Confirmed Keynote & Select Speakers —

- **Lieutenant General Stephen M. Speakes**—Deputy Chief of Staff, G-8
- **Honorable James I. Finley**—DUSD (Acquisition & Technology)
- **General Paul J. Kern, USA (Ret)**—Former CG, U.S. Army Materiel Command
- **Major General Mike Hostage III, USAF**—J-8, USJFCOM
- **Major General Thomas A. Benes, USMC**—Director, Expeditionary Warfare (N85)
- **Dr. Ronald C. Jost**—DASD for C3, Space & Spectrum, OASD(NII)
- **Dr. Ernest Seglie**—Science Advisor to Director, Operational Test & Evaluation, OSD
- **Dave Ahern**—Director, Portfolio Systems Acquisition, OUSD(AT&L)
- **Brigadier General Gregory A. Feest, USAF**—DD for Force Application, J-8 Force Structure, Resources & Assessment, The Joint Staff
- **Eileen Giglio**—ADUSD for Strategic Plans & Initiatives, DUSD (BTO), OUSD(AT&L)
- **Lt Col Robert "Prince" Valin, USAF**—Weapons Branch Chief for Force Application, J-8, The Joint Staff

— Select Topics —

Precision Attack to Ensure Dominant Maneuvers (Army Chair)
Joint Deep Strike Systems (Air Force Co-Chairs)
Sea and Land Strike Systems (Navy Co-Chairs)
International Perspective (MBDA Chair)
Overall Analysis of the Long War
Acquisition and Technology-The New Vision
Portfolio Systems Acquisition Role in New A&T Structure
Joint Critical Initiatives for Precision Engagement
Information Sharing in the GIG Environment
Streamlined Acquisition Process to Meet Emerging Warfighting Needs
Reliability and Sustainability of Weapons Systems
Acquisition Transformation
Non-Lethal Weapons Capability Roadmap
The Health of NATO

IN THE NEXT ISSUE

Wrapup on PSA's Annual Programs Review 2007

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General Dynamics C4 Systems
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