



## Lockheed chief test pilot hits 1,000 hours in Raptor

by Linda KC Reynolds  
staff writer

Friends and family gathered April 6 to congratulate F-22 Lockheed Martin Chief Test Pilot James "JB" Brown III on his 1,000 hours of flying an F-22 at the Air Force Flight Test Center, Edwards Air Force Base, Calif.

Brown is the first test pilot to reach 1,000 hours in a Raptor.

Guests cheered as lieutenants poured traditional buckets of ice water over his head.

"I think they are a little too eager," joked Brown as he shivered and tried to dry off.

"We are so proud of him - it was a hard earned accomplishment," said his wife Lisa speaking of close calls and the loss of several friends including Lockheed Martin Test Pilot David "Cools" Cooley in an F-22 crash. "I just wish David could

have been here today, that would have been very special."

Brown's accomplishments include Fellow and past president of the Society of Experimental Test Pilots, Fellow of the Royal Aeronautical Society, flying 8,800 hours in 124 different aircraft, a 16 year career in the U.S. Air Force, United Airlines pilot and chief test pilot for F-117 Nighthawk, where he helped develop and test improvements to the weapons system that were highly valued in Operation Iraqi Freedom and Operation Allied force.

What is his favorite aircraft?

"The F-22 of course," said Brown. "Then again, for sheer stick and rudder fun my favorite is a 1946 clipped-wing Piper Cub.

"The Raptor actually does represent a marriage of all the things a fighter pilot wants - power, speed, maneuverability, stealth, situational aware-



Lockheed Martin photographs by Kevin Robertson

Above: Lockheed Martin F-22 Chief Test Pilot James "JB" Brown III lands at Edwards Air Force Base, Calif., after reaching 1,000 hours in the Raptor. Brown has more stealth fighter hours than anyone worldwide. So far he has flown 8,800 hours in 124 different aircraft. Left to right, wife Lisa, Lily, James, Whitney and Callie Brown.



ness and a truly lethal arsenal of weapons."

The F-22 is the third fighter in which he has achieved more than 950 flight hours. The F-4 and F-117 were the others. With the F-117, he has more stealth fighter hours than anyone in the world.

"This is fantastic," said Boeing F-22 Test Pilot Steve "Hooter" Rainey of Brown's success. "It's always great to see a superior aviator and a superior aircraft together - especially on such a noteworthy occasion."

One of his biggest accomplishments: raising six daughters ages ranging from 30 to two and a half.

Brown was born in Bluefield, W.Va., in 1954 and raised in Birmingham, Ala.

His father was an amateur pilot and inspired him to fly.

"I was six years old and watched Alan Shepard walk out to his Mercury Redstone rocket and fly into space," said Brown. "This represented the pinnacle of technology and human achievement. Pretty impressive stuff for a first grader; besides, I thought the space suit was really cool."

Brown applied to the NASA astronaut-training

program but was rejected because of an abnormal electrocardiogram.

With his quick wit and good nature, he is often a master of ceremonies at special events. True to form, he rattled the base with a sonic boom before landing. "That was for my girls."

"JB never heard a joke he couldn't remember and is a choir master for colorful fighter pilot drinking songs," said Darin Russell, a Lockheed Martin photographer who has flown often with Brown. While attending the USAF Test Pilot School at Edwards, Brown's fellow students presented him with the Onizuka Prop Wash Award as the student who contributed most to class spirit and morale.

"Today I hit 1,000 hours but that only represents a small part of the tens of thousands of hours our crew chiefs, engineers and maintenance team spends in time for preparation," said Brown. "They are the ones who get up early and bloody their knuckles to make it all happen so I can hop in and have fun. They are the best, and for them I am truly thankful."

## Last piggyback ride

NASA's Shuttle Carrier Aircraft number 905 arrived at the Kennedy Space Center, Fla., April 10 for its final shuttle-related mission.

The aircraft will ferry the space shuttles to their final resting places by fall.

Currently, NASA technicians are preparing Discovery for the ferry flight early next week to the Smithsonian's Udvar-Hazy Center at Dulles airport in Virginia. Swapping Discover for Enterprise, the modified 747 will fly to JFK airport later this month.

Enterprise will be on display aboard the decommissioned aircraft carrier USS *Intrepid* in New York harbor.

Then it's back to Florida to pick up Endeavour, before delivering it to Los Angeles.

NASA 905 will assume a new role with the agency's stratospheric observatory for infrared astronomy program. NASA 911, the second SCA, transferred in February to support the SOFIA mission out of Palmdale Calif., joining the 747SP airborne telescope already used in this role.



## U.S. drone crashes on Seychelles runway

A U.S. Embassy statement from Nairobi, Kenya, says an American military drone used to monitor piracy off the East African coast has crashed at an airport on the island nation of Seychelles.

A U.S. statement said the unmanned, unarmed Air Force drone crashed April 4 near the Seychelles International Airport runway.

The aircraft "came to rest in sea water" adjacent to the airfield. The statement said there were no indications that any hostile act contributed to the crash.

A drone crashed at the same airport in December when it wasn't able to stop before the end of the runway.

The April 4 statement did not speculate on the cause of the most recent crash.

The U.S. military has a small team in the Seychelles to operate a drone program. *AP*

## India inducts Russian nuclear submarine into navy

India has added a Russian Nerpa nuclear submarine to its navy, becoming the sixth country to operate underwater nuclear-powered vessels.

The ship renamed INS Chakra-II is on a 10-year lease from Russia at a cost of nearly \$1 billion.

The April 4 induction of the submarine takes India into an elite group of countries operating underwater nuclear-powered vessels. It joins the United States, France, Russia, Britain and China.

Defense Minister A.K. Antony says the submarine will strengthen the Indian navy.

Over recent years, India has emerged as one of the world's leading defense spenders spurred by rivalries with both its major neighbors — Pakistan and China.

Modernizing its army is also part of India's ambition to become a regional and global power. *AP*

## First Boeing 787 made in South Carolina rolling out this month

The first Boeing 787 made in South Carolina is being rolled out in a few weeks.

Boeing has announced that the rollout ceremony is set for April 27 at the aircraft manufacturer's plant in North Charleston.

State officials and Boeing executives are planning to speak at the ceremonies.

The aircraft is being built in Boeing's \$750 million assembly plant in North Charleston. The plant, which opened last summer, represents the largest single industrial investment in South Carolina history.

## Marines seek DOD guidance on social media use

Marine Corps officials are seeking additional guidance from the Pentagon regarding service members' use of social media.

California Republican Rep. Duncan Hunter's office says the Marine Corps notified him of the plans April 6.

They come amid discharge proceedings against Camp Pendleton Marine Sgt. Gary Stein, who criticized President Barack Obama on Facebook.

Hunter had urged military authorities to withdraw the proceedings because policies regarding service members' use of social media are ambiguous.

A Marine Corps administrative board concluded after a daylong hearing Thursday that Stein violated the Pentagon policy limiting free speech and should be dismissed.

The case now goes to a general who can accept or deny the recommendation. *AP*

## Seven injured in U.K. military helicopter mishap

Seven people were hospitalized with minor injuries after a British Chinook helicopter suffered a "mishap" April 7 during a landing exercise in the Arizona desert, a military spokeswoman said.

The crew was practicing how to land the aircraft 15 miles north-east of Yuma when "something went wrong," said Michelle Dee, a spokeswoman for Naval Air Facility El Centro, Calif.

The people aboard the Chinook had non-life-threatening injuries and were sent to the hospital for evaluations as a precaution, Dee said. The helicopter sustained damage but Dee said she didn't know the extent of the damages. She did not disclose their nationalities.

The cause of the mishap was under investigation.

The Chinook was operating out of the naval base in California's Imperial Valley. The facility hosts allied troops throughout the year for training over the California-Arizona border because the area's craggy mountains and hot, dusty conditions are similar to Afghanistan's harsh environment. The clear weather also allows for constant flying.

In February, seven Marines were killed when two helicopters crashed in midair during a routine exercise over the Yuma Training Range Complex. *AP*

## U.S. Navy deploys second aircraft carrier to Gulf

The U.S. Navy says it has deployed a second aircraft carrier to the Persian Gulf amid rising tensions with Iran over its nuclear program.

Cmdr. Amy Derrick-Frost of the Bahrain-based 5th Fleet said April 9 that the deployment of the nuclear-powered USS *Enterprise* along the *Abraham Lincoln* carrier strike group marks only the fourth time in the past decade that the Navy has had two aircraft carriers operating at the same time in the region.

The two carriers will support the American military operations in Afghanistan and anti-piracy efforts off Somalia's coast and in the Gulf of Aden.

The warships also patrol the Gulf's strategic oil routes that Iran has threatened to shut down in retaliation for economic sanctions. *AP*

## Veterans sign petitions for new VA hospital

Hundreds of veterans have signed petitions in support of a new hospital in East Tennessee.

*WBIR-TV* reports that veterans gave the petitions to elected leaders during a meeting April 7 in the hope of enticing them to vote in favor of a plan that would create a veteran's facility from an old hospital in the city of Harriman, Tenn. The city has offered to lease the space to the Department of Veterans Affairs for a dollar a year.

Officials say if approved, the hospital would serve a 10-county area and assist close to 50,000 veterans.

Officials say April 7 was the first of a five-step process to in a move to get approval for a third VA hospital in the state. *AP*

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# B-1 mission planning software early release improves capabilities

by **Patty Welsh**  
Hanscom AFB, Mass.

The Electronic Systems Center at Hanscom Air Force Base, Mass., recently completed an early fielding of B-1 Mission Planning Release 6.0 software.

This release provides new features and capabilities and minimizes the time currently needed to do mission planning.

"Currently, the user has to conduct mission planning by using a previous release of the software designated for the last aircraft upgrade and convert that output through a data conversion tool so that it can be flown on the current aircraft upgrade," said Joe Blanchard, B-1 program integration monitor.

Mission planning software releases are usually fielded in conjunction with the block upgrades for the aircraft. When the previous release 5.0 was canceled, due to a Critical Change Request against the Joint Mission Planning System Increment IV, users were forced to use the conversion tool to enable the mission planning software.

The need to use a data conversion tool puts the user at a disadvantage in two ways; one, by being a step

behind capabilities available in the newer versions of mission planning software; and also in that conversion requires a two-step process to achieve a valid mission plan. The release 6.0 upgrade will eliminate that second step for the current and previous aircraft block upgrades.

"An example of using the conversion tool would be like trying to take Word 2007 documents and making them compatible with Word 2003," said 1st Lt. Patrick Gernert, program manager. "The users of 2003 can see and use those documents, but they don't have the added capabilities the 2007 would have."

Designed to be backward compatible with the two previous aircraft blocks, release 6.0 will be released approximately 10 months before the fielding of the next aircraft block upgrade.

During development, the ESC team worked hard to ensure software errors were identified and corrected before this version was released. As a result, overall software stability of release 6.0 is greatly improved over previous releases, significantly reducing workload and user frustration.

Release 6.0 brings several important new capabilities to the field.

A new feature of 6.0 is that it now

allows planning for the Guided Bomb Unit-54 Joint Direct Attack Munitions, the "latest great advancement in the war fighter arsenal," according to program officials.

Additional capabilities include the ability to support the radar reliability and maintainability improvement program, automatic generation of B-1 routes from Communication Navigation Management System and Inertial Navigation System Upgrade. It also sets the stage for a fully integrated data link merge with the next block upgrade for the B-1.

"As the B-1 recently completed its 10,000th combat mission for the Air Force, we want to ensure we're providing the most up-to-date capabilities for this important platform and its mission planning," said Gernert.

Other improvements include eliminating mission binders and creating a standard file structure. With release 6.0, the user now has the capability to create and save in a structure that is the standard for the B-1 community. Therefore, a user can easily go back to a specified file date of a sortie and either review or reuse mission data. The war fighter also has the ability to generate all paper products for a mission from one source. With previous versions, planners had to go to multiple systems to get everything they needed.

"Time is of the essence when it comes to mission planning," said Blanchard. "Now, we've been able to minimize that (mission planning) time so the user can devote more time to other parts of his or her mission preparation."

Fielding and training of release 6.0 has recently been completed at Dyess AFB, Texas, a forward operating location and Ellsworth AFB, S.D.

"We could never field early as we were always waiting for the aircraft



Air Force photograph by A1C Peter Thompson

Maj. Jeff Moffitt, 337th Test and Evaluation Squadron, Dyess AFB, Texas, works on the newest B-1 bomber mission planning software March 29, 2012. The Electronic Systems Center recently completed an early fielding of the B-1 Mission Planning Release 6.0 which provides new features and capabilities.

or there were delays in our production," said Blanchard. "However, by reducing our test cycle and the other obstacles to production and creating a backward compatible product we took advantage of this

'window of opportunity' to release the software early, thus providing this improved capability to the user. And in addition to all the positives achieved in the program, we also came in significantly under budget."

## Scaled Composites hosting career day at Mojave airport

by **Raphael Jaffe**  
staff writer

Timed to create a fun and family day in conjunction with Plane Crazy, Scaled Composites is holding its first-ever Career Day April 21, at the Mojave Air and Space Port, Calif.

Scaled will open its hanger doors, and several dozen employees will be available to discuss potential job fits with applicants.

There is listing of current "hot" job categories, but all interested people are welcome to come with resume in hand, or better yet, submit one promptly to [resume@scaled.com](mailto:resume@scaled.com) and make the subject line "Career Day."

"Our entire company and their families are invited to attend the career day; many will put their airplane, car or personal project on display alongside our company aircraft," said Ben Diachun, vice president of engineering. "The career day was scheduled to coincide with Plane Crazy Saturday, so there should be a festive open house atmosphere. We will have several dozen employees specifically working at the career day, answering questions and getting to know the candidate employees."

Diachun is an example of Scaled's 'promote from within' policy. He joined the company in 20023 as a design engineer, and was successively project engineer, flight test engineer, business development manager and is now director of engineering.

"Weather permitting; we will open our hangar doors in order to display our aircraft inside, but work areas will be closed," he said. "Weather permitting; WhiteKnightTwo and Firebird will be outside on display. WhiteKnightOne and BiPOD will be on display inside.

Additionally, "There will be a briefing on "Flying SpaceShipTwo" by members of the project team. It will be held at 11 a.m., in the board room of the Mojave Air and Space Port."

**Scaled Composites is looking for applicants with the following skills:**

- Aerodynamicist
- Avionics Engineer
- Composite Fabricator
- Composite Structural Analyst
- Composites Design Engineer
- Data Analyst Engineer
- Electrical Engineer
- Manufacturing Engineer
- Materials and Process Engineer
- Mechanical Design Engineer
- Program Business Manager
- Program Business Analyst
- Domain/Software Administrator

In 2004, when Scaled was developing and flew SpaceShipOne, there were approximately 130 employees. There were approximately 350 employees during development of SpaceShipTwo.

Scaled employs 371 people currently. Of this total about 50 percent are shop personnel working directly on our projects as composites fabricators and aircraft technicians. Engineers and project leads make up another 25 percent of our workforce. "The remaining 25 percent of our staff serve in support functions."

"Our shop is made up of composite fabricators and subsystems technicians; many of whom are licensed airframe and power plant mechanics as well," Diachun said. "They can build anything our engineers throw at them and often make the design better in the process. You could describe our composite fabricators as skilled craftsmen. We have some of the brightest minds and best hands in aerospace working at Scaled.

"Our engineers are creative and intelligent; you can see this in the elegance of their design and in their analysis efficiency," he continued. "Engineers at Scaled are just as comfortable working out in the shop with their hands as they are designing behind a computer. Approximately 70 percent of our engineers are pilots and many have built their own airplane. A majority of our project leads and test pilots come out of engineering."

Scaled Composites is constantly looking to the future.

"We foresee significant growth here at Scaled

over the next few years to support upcoming project demands," Diachun said. "Over the next year, specifically, we expect our employment level to grow by approximately 20 percent and are projecting this growth to be linear.

"During this growth, we plan to keep our project teams efficient and effective by hiring highly capable individuals, giving them lots of ownership and responsibility while at the same time keeping the team sizes as small as possible," he said.

And while the current hiring is linked to the Stratolaunch Systems contract Scaled recently received, it is not limited to that.

"We are on contract with Stratolaunch Systems to build the carrier aircraft for their mobile launch system," said Diachun. "Our need to expand is primarily due to the Stratolaunch project, but not exclusively. We have other existing projects and some developing opportunities that will require additional talented staff as well."

And what skill sets are required to work at Scaled Composites?

"Nearly all of our projects benefit from computer aided design in some form today," he said. "That said, our engineers are acutely aware that they must use the right tool for the given job. No better tool exists than the pencil for some jobs; for others, the computer will yield the best results.

"Our engineers are proficient with both. Burt Rutan was also a heavy CAD user during the later years," Diachun said.

# Study says worldwide UAV market will total \$89 billion

Unmanned Aerial Vehicles continue as the most dynamic growth sector of the world aerospace industry this decade, report Teal analysts in their latest integrated market analysis.

Teal Group's 2012 market study estimates that UAV spending will almost double over the next decade from current worldwide UAV expenditures of \$6.6 billion annually to \$11.4 billion, totaling just over \$89 billion in the next 10 years.

"The UAV market will continue to be strong despite cuts in defense spending," said Philip Finnegan, Teal Group's director of corporate analysis and an author of the study. "UAVs have proved their value in Iraq, Afghanistan and Pakistan and will continue to be a high priority for militaries in the United States and worldwide."

"The Teal Group study predicts that the U.S. will account for 62 percent of the worldwide RDT&E spending on UAV technology over the next decade, and 55 percent of the procurement," said Teal Group senior analyst Steve Zaloga, another author of the 574-page study.

The ninth edition of the sector study, World Unmanned Aerial Vehicle Systems, Market Profile and Forecast 2012, examines the worldwide requirements for UAVs, including UAV payloads and companies, and provides ten-year forecasts by country, region, and classes of UAVs.

Teal Group analysts already cover the UAV market in their World Missiles and UAV Briefing, which examines the UAV market on a program-by-program basis. Sensor payloads are also treated in Teal's Military Electronics Briefing. The sector study examines the UAV market from a complementary perspective, namely national requirements, and includes both a comprehensive analysis of UAV system payloads and key UAV manufacturers.

## UAV payloads

The 2012 study provides 10-year funding and production forecasts for a wide range of UAV payloads, including Electro-Optic/Infrared Sensors, Synthetic Aperture Radars, SIGINT and EW Systems, C4I Systems, and CBRN Sensors, worth \$2.7 billion in fiscal year 2012 and forecast to increase to \$6 billion in fiscal year 2021.

The UAV electronics market will grow steadily, with the fastest growth and opportunities in SAR and SIGINT/EW, according to Dr. David Rockwell, third author of the new study.

"Few now question that ISR is 'the centerpiece of our global war on terrorism', with production beginning for major endurance UAV systems such as MP-RTIP, new development programs such as wide angle EO/IR systems, a variety of ground and foliage-penetrating radars and an ongoing 'sensor drift' as more sophisticated non-EO sensors are developed for smaller and smaller UAVs".

"The payload portion of the 2012 study includes many new systems and system types, including a new section on UAV self-defenses. Overall, UAV SIGINT and EW markets will see a massive 20.2 percent CAGR (Compound Annual Growth Rate) from fiscal 2012 to fiscal 2017," according to Rockwell.

## UAV companies

The study also includes a UAV Manufacturers Market Overview that reflects the worldwide UAV market "again continuing as one of the prime areas of growth for defense and aerospace companies," said Finnegan.

The new study reflects the rapid growth of interest in the UAV business by increasing the number of companies covered to some 40 U.S., European, South African and Israeli companies, and reveals the fundamental reshaping of the industrial environment.

All companies have been updated including their involvement and strategy in UAVs and five new companies have been included: Canada's Aeryon and CAE, Inc., South Africa's Denel, US-based Griffon Aerospace and France's Dassault Aviation.

As prime contractors and small companies compete in the dynamic UAV market, they are adopting widely different strategies.

"Our overview tracks the widely varying approaches being taken by these key companies, ranging from outright acquisitions to teaming arrangements and internal development of new UAV systems," said Finnegan.

The 2012 edition increased 25 percent in size, and, for the first time, includes UAV market forecast spreadsheets, permitting data manipulation and offering a powerful strategic planning mechanism.

## Spirit AeroSystems opens Kansas, facility

Spirit AeroSystems, Inc. formally opened a 55,000-square-foot manufacturing facility in Chanute, Kansas, April 5.

Spirit AeroSystems is the world's largest non-OEM designer and manufacturer of aerostructures for commercial aircraft.

The ribbon cutting and grand opening ceremony was hosted by Spirit President and CEO Jeff Turner. Other special guests included Kansas Governor Sam Brownback, Kansas Secretary of Commerce Pat George, U.S. Congresswoman Lynn Jenkins, Chanute Mayor Jim Chappell, Chanute City Manager J.D. Lester, Spirit Chanute employees and their families and numerous community partners from the region and state.

Employees at the facility, who officially began work March 2, will perform small aircraft sub-assembly bench work for Spirit work packages.

"The opening of this facility in Chanute fits well with our company's strategy to increase our capacity in a cost effective manner and improve our ability to compete in this challenging global economy," said

Turner. "We're positioning ourselves to take advantage of the upswing in commercial aviation, and we can only do that with the right people and capabilities in place."

Employees are recruited and trained through a partnership between Spirit, KANSASWORKS and Neosho County Community College.

"This facility represents a great accomplishment for Spirit AeroSystems, Chanute, and Kansas," said Brownback. "It brings to bear some of the best assets that Kansas has to offer - excellent infrastructure, an experienced workforce, and exemplary training opportunities through Neosho Community College. I want to congratulate Spirit on this expansion."

"This is a special day as we cut the ribbon in front of this facility," said John Pilla, Spirit senior vice president/general manager, propulsion business unit. "Spirit is experiencing unprecedented demand for our products, and our company has found an innovative way to meet those needs through this facility - we're proud to be doing business in Chanute."

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# AAI Unmanned Aircraft Systems, KOR Electronics enter into strategic alliance

AAI Unmanned Aircraft Systems and KOR Electronics Defense Solution announced April 11 a strategic alliance that combines AAI's expertise as a UAS systems integrator with KOR's signals intelligence equipment.

AAI UAS is an operating unit of Textron Systems, a Textron Inc. company, and KOR Electronics Defense Solutions is a subsidiary of Mercury Computer Systems.

The organizations intend to integrate KOR's SIGINT products, focused on expeditionary tactical unmanned aircraft such as AAI's renowned Shadow Tactical Unmanned Aircraft System, as a new addition to AAI's family of Multi-Mission Payloads.

Each modular MMP "pod" can be attached quickly to the Shadow aircraft to equip it for the mission at hand.

"This technology provides war fighters actionable, time-sensitive data on the capabilities and activities of their adversaries," said Steven Reid, senior VP and general manager of AAI Unmanned Aircraft Systems. "Equipping our Shadow aircraft - a trusted and omnipresent asset for so many U.S. and allied customers - for this collection

mission can help deliver intelligence fast, and to a broader array of deployed forces and formations."

"During the process of evaluating initial alliance partners, KOR recognized that AAI Unmanned Aircraft Systems was a market leader in UAS design, development, production and support, and that the Shadow Tactical UAS is ideally suited for KOR's market-leading SIGINT precision location capability," said KOR Electronics President and Chief Executive Officer Kevin Carnino. "KOR's precision location capability, coupled with the Shadow aircraft's existing electro-optic/infrared sensor, will significantly improve the find, fix and finish timeline and enhance the utility of the Shadow system's intelligence, surveillance and reconnaissance role."

# Boeing announces next leg of tour

Boeing will bring the 787 Dreamliner to seven more cities on the sixth leg of the Dream Tour later this month and continuing into May.

Stops include cities in the United Kingdom, Norway, Italy and the United States.

"The Dream Tour has provided us with a great platform to show customers, partners, government officials and other stakeholders just what the team has achieved with the 787," said Larry Loftis, vice president and general manager of the 787 program. "It's an honor to showcase this airplane as we bring it around the world."

The airplane will depart from Seattle on April 21. The dates listed below are landing dates for each city or airport. Customers, employees, partners, government officials and other stakeholders will be invited to attend tour events at each location. There are no general public tour opportunities.

- April 22 - London's Heathrow Airport
  - April 23 - Manchester Airport
  - April 25 - London's Gatwick Airport
  - April 27 - London's Heathrow Airport
  - May 1 - Oslo, Norway
  - May 4 - Taranto, Italy
  - May 7 - Ronald Reagan Washington National Airport - Washington, D.C.
  - May 11 - Dallas, Texas
  - May 14 - St. Louis, Missouri
- More than 44,500 guests from around

the world will have toured the airplane at the end of the fifth segment of the tour later this week and the airplane will have logged more than 82,366 nautical miles. The sixth segment will add an estimated 12,750 more guests and an additional 15,500 nmi.

The Dream Tour airplane, ZA003, is outfitted with the 787's special cabin features including a welcoming entryway, dramatically larger dimmable windows, bigger bins and dynamic LED lighting. The airplane is configured with a luxurious busi-

ness-class cabin, an overhead crew rest compartment and an economy class section.

Dates and locations for additional tour stops will be announced approximately one month in advance. At many of the stops, local media will have the opportunity to participate in tours of the airplane and discussions with Boeing executives and pilots.

For updates on the 787 Dream Tour, including videos, photos and reports from the tour stops, visit [www.newairplane.com/787/dreamtour](http://www.newairplane.com/787/dreamtour).



Boeing photograph

The Boeing 787 Dreamliner lands for the first time in Turkey April 6, making Istanbul the latest destination on its global Dream Tour. Over the next five days, airline customers, suppliers, and invited guests will get a chance to see firsthand the Dream Tour 787 outfitted with the Dreamliner's special cabin features including a welcoming entryway, dramatically larger dimmable windows, bigger bins and dynamic LED lighting.

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# AEDC engineers support 'airstart' testing

Test pilots at Edwards Air Force Base, Calif., have successfully performed "airstarts" on the F-35 Joint Strike Fighter over the last few weeks, an important milestone in opening up the aircraft's test syllabus, according to a Lockheed Martin test pilot.

During an in-flight "airstart" the pilot secures power to the engine at altitudes between 15,000 and 30,000 feet and then restarts it in a carefully prescribed sequence to ensure the safety of the aircraft and surrounding airspace.

David Kidman, the Air Force Flight Test Center technical expert for the propulsion integration flight test at Edwards AFB, said data derived from ground testing played a significant role in the recent flight testing.

Kidman credits the success of the propulsion flight testing program in part to data and technical expertise derived from past F135 engine altitude development testing and the partnership with AEDC.

"AEDC's contribution to our recent in-flight engine airstarts is that the engine has just gone through development at AEDC," Kidman said. "As a result, AEDC engineers had firsthand knowledge of how the system should operate. Additionally, AEDC engineers had firsthand knowledge on how the system should be tested, including where to expect the best performance and where to expect problems and what test procedures might work best. AEDC engineers are sharing this system and test knowledge with Edwards' engineers through regular communication and the AEDC QLR's (Quick-Look Reports)." Dr. Charles Vining, AEDC's Turbine Engine Ground Test Complex technical director, said he is one of Kidman's counterparts in this collaborative effort.

"My role is providing advice and coordination with Dave Kidman on developing common analysis approaches," Vining said. "The over-arching objectives include improving the use of statistical methods in test and evaluation and to develop an understanding of the similarities and differences between ground test simulations of altitude starting characteristics compared to flight test data."

Vining said the program office and both test centers benefit from this collaboration through improved test and evaluation and communications. This is why he and Kidman re-energized the Propulsion Integration Ground/Flight Test Interchange in August of 2010.

Kidman added, "The Air Force benefits from this collaboration by the sharing of system and test expertise learned from AEDC testing. As a result, we have a pretty good idea what to expect from the engine. The new piece is that now the system is fully integrated with the airframe (e.g. inlet and power extraction) which changes engine operation."

Capt. John Dayton, a Turbine Engine Ground Test Complex project engineer, and Mike Wrenn, an ATA lead analysis engineer, traveled out to Edwards to provide support.

"The reason that we were out there for airstart testing specifically, is because that's one of the easiest direct links you can make between what we test on the ground here at AEDC and what they test in the air," Wrenn said. "We're making a direct comparison and a correlation between the test points that they're running [and what] we're looking at here. "There are lessons learned and guidance that we can provide to them, including the timelines that we developed on how long it would take the engine to restart. This corresponds directly to what they're using out at Edwards to help put the safety mechanism in place to ensure their pilots understand what they're getting into, that they fully understand the altitude loss during the maneuvers and how to accomplish that flight test safely."

Dayton added, "We were out there in an observational and a relationship-building role with the flight test engineers in the program. One of our goals coming back is [to determine] where can we get more involved in the future, to improve our products and analysis. And then also, where do we best inject our experience into the test plan or test procedures."

John Kelly, AEDC's Turbine Engine Ground Test Complex F135 test manager, and Melanie Link, Propulsion Integration Lead for the F-35



Air Force photograph by SrA. Julius Delos Reyes

An F-35 Lightning II marked AA-1, lands at an Edwards AFB runway Oct. 23, 2008. The F-35 concluded an air start test validating the aircraft's ability to shutdown and re-start its engine in flight.

Integrated Test Force at Edwards, worked with the rest of the team with one goal.

"We were trying to figure out how we, as a test enterprise, can seamlessly go from one test to another, so ultimately our [ground test data] output would be the input to flight test; our reports would be what guides the plans for a flight test," said Kelly. "During the flight test the pilot literally turns the engine off and then he can either use ram air effect from the motion of the airframe or he can also do a starter-assisted start and basically use both the air and the starter to get it started. And we've done those tests here before they ever did them out there."

Kelly said the pilot's feedback during the flight and airstarts literally becomes another "data point" to support the tests.

Link put the recent airstart testing into perspective.

"We're still in the early stages of air-start testing of the aircraft," she said. "Airstart testing for the STOVL (Short Take-Off and Vertical Landing) jets is still in planning stages, only ground start testing has been done at Naval Air Station Patuxent River, Md., thus far. We've been flight testing since 2007; airstart testing for the production engine though has just begun. Air-start testing for STOVL jets will also be done at Edwards AFB."

## Radar program proceeding with revised acquisition strategy

by **Patty Welsh**  
Hanscom AFB, Mass.

The Air Force program to provide a new ground-based, long-range radar system is moving forward with a revised acquisition strategy. The program office recently held an industry day here to explain the changes and its latest draft request for proposal.

The Three-Dimensional Expeditionary Long-Range Radar, or 3DELRR, will be the principal U.S. Air Force long-range, ground-based sensor for detecting, identifying, tracking, and reporting aircraft and missiles in support of theater commanders. It will replace the current Air Force radar, the TPS-75.

"A combination of several factors, including a somewhat atypical acquisition strategy and the U.S. budget crisis, led to the change," said Lt. Col. Brian McDonald, 3DELRR program manager.

A September 2007 memorandum from John Young, then the acting undersecretary of Defense for Acquisition, Technology, and Logistics, encouraged competitive proto-

typing up to Milestone B. Originally, the 3DELRR Program had been planning to award to a single contractor prior to Milestone B.

"We modified the strategy to further leverage competition to look at needed capability, different approaches to delivering that capability and doing so in the most affordable manner," McDonald said.

During the industry day briefing, he also showed how the program budget had been reduced in the Fiscal Year 2013 President's Budget by approximately \$80 million over the next five years compared to the 2012 budget.

McDonald cited industry offerings as a third factor.

During his presentation in the base theater, McDonald walked through a graphical depiction of the revised acquisition strategy and the changes that have been made.

Now, up to three contracts may be awarded as an outcome of the upcoming full and open competition to complete the Technology Development Phase, referred to as the Pre-Engineering and Manufacturing Development (Pre-EMD) period.

The 3DELRR source selection will use the lowest price technically acceptable approach, which is also a significant change.

"Competitive offerors must be at the same maturity level as the government has attained on this program," said McDonald. "We do not want to turn back the clock. We want to move forward from the government investment to date."

In addition, fixed price contracts, including Firm Fixed-Price and/or Fixed-Price Incentive Firm, are planned for the Pre-EMD, EMD, and low rate initial production phases from what was once a cost plus incentive fee approach.

The revised strategy includes a minimum of three full and open competitions to reach full operational capability. McDonald pointed to the third competition that will award scope beyond Milestone B to a single contractor.

"There will be much activity, in parallel, leading up to Milestone B," explained McDonald. "We will need a strong, crisp effort by industry on these contracts while the program office simultaneously conducts the

next source selection and prepares for Milestone B."

One change that McDonald strongly emphasized was the early examination of cost versus capability trade-offs. While there has been no change in the 3DELRR requirements since Technical Requirement Documents Revision D was posted in October 2011, McDonald explained the plan to issue a new revision, during the period of performance, against which successful bidders would produce their preliminary designs.

"We need to look closely at cost versus capability," he said. "The first contractual activity is to complete detailed analyses of top cost drivers to see how cost varies as capability is incremented. Are there relatively large cost savings to be gained by relatively small reductions in capability and, if so, what's the risk?"

McDonald discussed how the acquisition community and operational community will then come together to set 3DELRR requirements.

The 3DELRR program has also been selected as a "designated system" to participate in the Defense

Exportability Features Pilot Program, to potentially increase sales and lower production costs.

"I'm excited to be a pilot for the Defense Exportability Features Program because it's forward thinking, it's good for the U.S. government and it's good for U.S. industry," McDonald said. Addressing the audience of mostly company representatives, he added, "I hope you're excited too."

The 3DELRR Program Office is planning for a Defense Acquisition Board in late April and, if approved, anticipates release of the final RFP in May. Currently, the program office expects to award the contracts, totaling approximately \$108 million dollars, by late August.

"No one is immune from the budget crisis," said McDonald. "This acquisition strategy is our response. Now, we need strong industry performance to offer the most affordable solution that provides this needed capability to our warfighters."

More information on the 3DELRR program, as well as solicitation details, can be found on the FedBizOpps website at <https://www.fbo.gov>.

# Navy investigates unmanned helicopter mishaps

The Navy recently experienced two unrelated operational mishaps with the MQ-8B Fire Scout unmanned helicopter.

There were no injuries to personnel and no damage to other aircraft.

An MQ-8B Fire Scout operating off USS Simpson (FFG-56) March 30 was ditched at sea upon returning from a maritime surveillance mission in support of Africa Partnership Station. The air vehicle was unable to achieve UAS Common Automated Recovery System (UCARS) lock on, a requirement for landing aboard a ship at sea. After multiple approaches and exhaustive troubleshooting by operators, the aircraft was positioned a safe distance from Simpson and the flight was terminated. Subsequently, Simpson crew performed a nighttime recovery of the aircraft.

The second incident occurred April 6 when an MQ-8B operating in northern Afghanistan crashed while conducting a routine surveillance mission in support of Regional Command North. The cause of the crash is unknown at this time.

The Navy is conducting a thorough investigation of both incidents.

Since 2006, the MQ-8B Fire Scout has accumulated over 5,000 flight hours with more than 3,000 flight hours tallied during operational deployments. Fire Scout has played a significant role in multiple operations including three counter-piracy actions, a search-and-seizure operation, support of successful transits of the Strait of Hormuz; completion of a special operations proof of concept; and use as an intelligence, surveillance and reconnaissance asset for Operation Odyssey Dawn in Libya. In Afghanistan alone, Fire Scout has provided significant support to ground commanders by enhanced situational awareness to joint forces closely engaged against enemy combatants.

In light of the recent mishaps, the Navy has temporarily suspended Fire Scout flight operations for 14 air vehicles in inventory while system performance and operational procedures are reviewed.



Navy photograph by PO1 Chris Fahey

Navy pilots look at a Fire Scout unmanned aerial vehicle during a static display of current and historic Navy aircraft at Naval Air Station North Island, Calif.

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# Navy test pilot knows his ABCs

In the alphabet soup of military acronyms and abbreviations, it can be difficult to keep the ABCs straight.

Despite the alphabetical hurdles, one Navy test pilot used his ABC knowledge to write a new chapter in flight test history.

On March 23, Lt. Christopher Tabert completed the government acceptance flight for AF-14, a production-level F-35A Lightning II Joint Strike Fighter for the U.S. Air Force.

In doing so, he became the only military test pilot to fly the A, B and C versions of the F-35, said Marine Corps Col. Art Tomassetti, vice commander of the 33rd Fighter Wing, Air Education and Training Command at Eglin Air Force Base, Fla.

"I didn't really have time to reflect on that," Tabert said of the distinction. "We were busy trying to get the test completed. I was just lucky enough to be in the right place at the right time and was glad to help out the team."

The three versions of the F-35 include the U.S. Air Force F-35A, the U.S. Marine Corps F-35B short takeoff and vertical-landing model, and the U.S. Navy F-35C carrier variant.

"The ability for a pilot to move seamlessly across the F-35 variants really puts the 'Joint' in JSF," Tomassetti said. "We'll be able to leverage

the capability in training and in future joint operations."

For Tabert, the differences between the models are slight.

"The flying qualities of the A felt a lot like the B and C," Tabert said. "You really can't tell much of a difference between the three from the cockpit."

Even though Tabert started testing the F-35 only nine months ago, he already has a number of milestones on the aircraft under his belt: the first steam catapult launch; the first weapons pit drop for an inert 1,000 pound GBU-32 GPS-guided bomb; a supersonic flight; and the first launch from the Electromagnetic Aircraft Launching System.

The F-35B and F-35C naval variants of the Joint Strike Fighter are undergoing test and evaluation at NAS Patuxent River prior to delivery to the fleet. The 33rd Fighter Wing will provide initial fleet training on the F-35.

Lockheed Martin photograph

Navy Lt. Christopher Tabert on March 23 completed the government acceptance flight for AF-14, a production-level F-35A Lightning II Joint Strike Fighter for the U.S. Air Force.



## U.S. Air Force participates in Exercise Kiwi Flag

by Capt. Rebecca Heyse  
Air Force News

Two C-17 Globemaster IIIs and 70 airmen from the U.S. Air Force participated in the Royal New Zealand Air Force's Exercise Kiwi Flag from March 26 through April 4 at RNZAF Base Whenuapa, New Zealand.

Exercise Kiwi Flag is a multilateral, tactical air mobility exercise that aims to improve the interoperability and partnership of the participating nations.

U.S. Air Force airmen worked alongside Royal Australian Air Force, New Caledonia French Defense Force, Republic of Singapore Air Force and RNZAF counterparts as well as a KC-130 Hercules crew from the U.S. Marine Corps. During the exercise, they conducted combined flight operations to include aircraft mission generation and recovery, low-level navigation and tactical airdrops.

The exercise was part of the larger 75th anniversary of the RNZAF celebrations.

"The U.S. is honored to partici-

pate in the 75th anniversary celebration of the Royal New Zealand Air Force," said U.S. Air Force Lt. Col. Jay Belmear, the U.S. exercise director for Kiwi Flag. "Through exercises such as Kiwi Flag, the U.S. is able to develop and expand combined airlift capabilities with regional partners, enhancing our relationship as well as our ability to respond to any variety of events throughout the region should the need arise."

The New Zealand terrain offers unique training opportunities for aircrew, allowing them to hone low-level navigation skills under the watchful eye of the New Zealand hosts.

"Hosting aircrew and personnel from the U.S. Air Force as well as our other regional partners is thrilling for us," said Squadron Leader Andy Scott, the RNZAF exercise director. "We are excited to get to showcase some of the distinctive opportunities that come with flying in our country whilst getting to learn from our partners about how they conduct every aspect of the flying mission from planning to debriefing."

In addition to the airlift missions, personnel exchanged best practices

and tactics during subject matter expert exchanges in aeromedical evacuation,

aircraft maintenance and parachute jumps.



U.S. Air Force and Royal New Zealand Air Force airmen prepare for a combined parachute jump.

## Board says Marine who criticized Obama should be dismissed

by Julie Watson  
Associated Press

A U.S. Marine who criticized President Barack Obama on his Facebook page has committed misconduct and should be dismissed, a military board recommended.

The Marine Corps administrative board made the decision late April 5 after a hearing for Sgt. Gary Stein. Stein's lawyers argued that the 9-year Marine, whose service was to end in four months, was expressing his personal views and exercising his First Amendment rights.

The board also recommended that Stein be given an other-than-honorable discharge, meaning Stein would lose his benefits and would not be allowed on any military base.

The board's recommendations go to a general who will either accept or reject them. If the general disagrees, the case could go to the secretary of the Navy.

During the hearing, the prosecutor, Capt. John Torresala, said Stein went as far as superimposing images of Obama's face on a poster for the movie "Jackass."

Torresala argued that Stein's behaviour repeatedly violated Pentagon policy that limits the free speech rights of service members, and said he should be dismissed after ignoring warnings from his superiors.

"Sergeant Stein has broken no law," said his defence attorney, Marine Capt. James Baehr.

Stein created a Facebook page called Armed Forces Tea Party. He has said his opinions are his own and has put a disclaimer on his Facebook page saying so. His attorneys argued service members have a right to voice their opinions as long as they do not appear to be presenting their views as being endorsed by the military.

Stein has said he is fighting for his constitutional rights and should be allowed to stay in the military. His lawyers and the American Civil Liberties Union contend his views are protected by the First Amendment.

"Think about how dangerous this could be if the U.S. government can prosecute you for something you say on your private Facebook page," Baehr said.

The Marine Corps has said it decided to take administrative action after Stein declared on Facebook that he would not follow orders

from Obama and later clarified that statement, saying he would not follow unlawful orders.

Stein said his statement about Obama was part of an online debate about NATO allowing U.S. troops to be tried for the Qur'an burnings in Afghanistan. In that context, he said, he was stating that he would not follow orders from the president if it involved detaining U.S. citizens, disarming them or doing anything else that he believes would violate their constitutional rights.

The military has had a policy since the Civil War in the 1860s limiting the free speech of service members, including criticism of the commander in chief.

Pentagon directives say military personnel in uniform cannot sponsor a political club; participate in any TV or radio program or group discussion that advocates for or against a political party, candidate or cause; or speak at any event promoting a political movement.

Commissioned officers also may not use contemptuous words against senior officials.

Stein's security clearance was taken away and he has no future in the Marine Corps because he can't do his job without that clearance, Torresala said.



# Future aircraft to be faster, have smaller logistics footprint

by C. Todd Lopez  
Army News

The Army's aircraft of the future will be faster than what the service has now, it will carry more weight, it will require less of a logistical footprint, and officials said it will better do what Army aviation is meant to do: serve the ground commander.

While what is now being called "Future Vertical Lift," or FVL, by the Army is still a concept, its capabilities are already known.

The FVL concept will be "able to support the Army and the ground commanders better than we can do it today," said Maj. Gen. Anthony G. Crutchfield, commander, U.S. Army Aviation Center of Excellence. "I see this aircraft being able to do all the missions that we currently do. I see the aircraft that can do it because it can be scaled. It may be a medium variant, something that is the size of maybe a Black Hawk or an Apache is today, that can do the attack mission, or the assault/lift mission. I see the same aircraft scaled smaller that will be able to do the reconnaissance mission, similar to what a Kiowa Warrior does today."

Crutchfield said it's not known if the FVL concept will end up producing a rotary-wing aircraft, like the

Army AH-64 Apache, or a tilt-rotor aircraft like the Marine Corps MV-22 Osprey.

What the FVL will do is perform missions the Army does today with its aviation assets, missions that will not change.

"The vision is that we can have an aircraft that can do all the missions that we currently have," he said. "Our missions will not change. We still will do attack and reconnaissance, we still will do sustainment and troop movements. It's an enduring mission that will not change. I just want to do it better."

The FVL aircraft will perform multiple roles, Crutchfield said, and that means that the end result is that there

will be fewer types of aircraft in the Army's fleet. It's also possible that there will be fewer aircraft overall, because a more capable aircraft means that fewer aircraft will be needed.

"Today there are concepts where there are aircraft that we consider rotary wing, that can fly in excess of 300 knots," Crutchfield said. "No other aircraft we have today can fly 300 knots. If you have an aircraft that can fly 300 knots, it can cover more terrain faster, and if you can cover more terrain faster, theoretically, you would need less airframes to do the same type mission."

And because Crutchfield said the idea behind the FVL concept is to have the same aircraft be able to per-

form multiple missions, the Army will need fewer types of aircraft. That means a smaller number of parts will be needed to sustain the fleet, and a shared pool of maintainers and maintenance equipment. That will result in a reduced cost for logistics.

Crutchfield said that the FVL could come in different sizes, depending on the mission it will perform, but things like engine, drive train, and cockpit components would be the same, common between the two, and swappable.

Today's Army aircraft, Crutchfield said, are capable. But there is a limit to the performance that can be squeezed from them.

"Although we have great aircraft today, the best in the world, no mat-

ter how much money we invest in these aircraft of today – the aircraft are not going to fly any faster than they fly right now," Crutchfield said. "They are not going to be able to carry any more payload than they do right now. They will not be able to reduce any of the logistical footprint [more] than they do right now. That's what future vertical lift will do. That's what we see for the Army Aviation force of 2030."

It's expected that this summer, performance specifications for the FVL aircraft will be unveiled. Development of the program is an Army-led, joint program, that includes all military services, including the Coast Guard.

*"Although we have great aircraft today, the best in the world, no matter how much money we invest in these aircraft of today – the aircraft are not going to fly any faster than they fly right now. They are not going to be able to carry any more payload than they do right now. They will not be able to reduce any of the logistical footprint [more] than they do right now. That's what future vertical lift will do. That's what we see for the Army Aviation force of 2030."*



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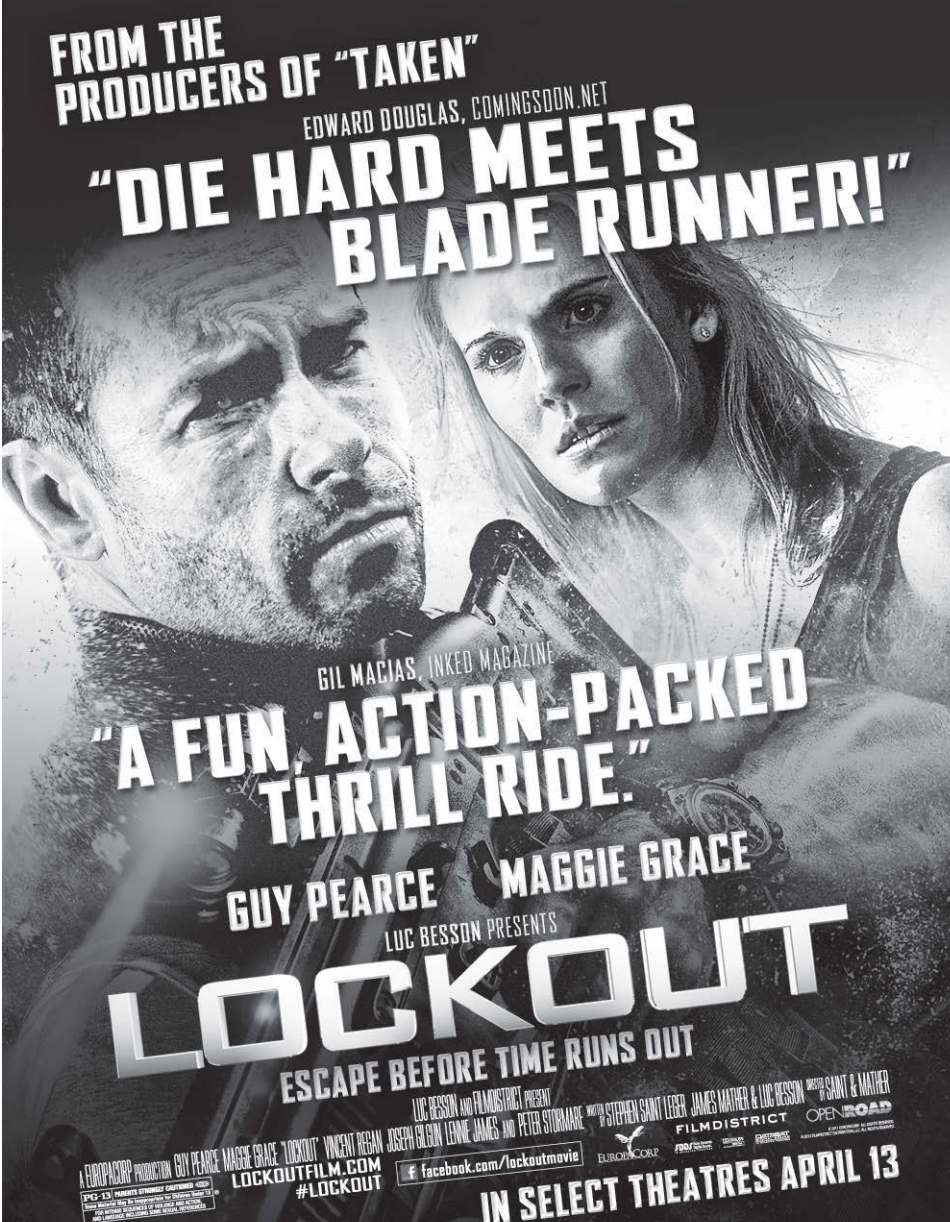
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# Vietnam War pararescueman finally brought home

by TSgt. Richard A. Williams Jr.  
Air Force News

Air Force pararescuemen were able to bring home one of their fallen comrades April 6 at Arlington, Va.

As the ceremonial caisson rolled to a stop in Arlington National Cemetery, Tech. Sgt. Allen Avery, an Air Force pararescueman who lost his life during combat operations in Vietnam, was escorted to his final resting place by family and more than 60 PJs past and present in their traditional maroon berets.

"Honor and service," were the words retired Chief Master Sgt. Cole Panning, a fellow PJ who served with Avery in Vietnam, used as a quick description of Avery's service.

"He had the integrity of the best but wasn't afraid to take a chance," Panning said.

Airmen from the Air Force Honor Guard stood overlooking Avery's final resting place as they performed the traditional rifle volley. A lone bugler stood apart from the group to play "Taps", a tradition at U.S. military funerals since 1891.

As the ceremonial flag was folded for the last time, the Air Force chaplain presiding over the ceremony quoted the inscription on the John Paul Jones Memorial, "In life he honored the flag. In death the flag shall honor him."

When the service concluded, PJ's past and present lined up to render a final salute, remove the pararescue flash from their maroon berets and place them at Avery's final resting place, a sign of respect shown to a fallen PJ, said CMSgt. Lee Shaffer, Air Force pararescue career field manager.

"When one of our warriors falls, we want to attempt to give back as much as we can to both the service member who lost his life and the family," Shaffer said. "This beret and the flash that stays on it is probably the single most important thing to a pararescueman."

"It takes two years to earn it and for us it represents our heart and soul, and we want our fallen warriors to be buried with what is most precious to us and what was the most precious to

them," Shaffer said.

The maroon beret symbolizes the blood shed by past PJs as well as the blood current PJs are willing to shed to save lives. The flash, which is a guardian angel wrapping its arms around the world, symbolizes the scope and responsibility as a worldwide rescue and recovery professional. At the bottom of the flash are the words "So others may live," the Air Force Pararescue credo.

Avery, along with Capt. James H. Alley, Capt. Peter H. Chapman, Capt. John Hall, Tech. Roy Prater and Sgt. William Pearson, were flying a combat search and rescue mission April 6, 1972, to recover the downed air crew of call sign "Bat 21" in their HH-53C Super Jolly Green Giant helicopter over Quang Tri Province in South Vietnam, when they were hit by enemy ground fire and crashed.

During Avery's previous mission, he had been a tail gunner and his helicopter had taken a lot of enemy fire, Panning said.

"The flight engineers couldn't believe he was still alive, and he had a red fluid all over him which turned out not be blood but hydraulic fluid all over him and he didn't have a scratch on him," Panning said. "To go through what he did, having his helicopter shot up previously he could have said, 'Hey, I have already been through this. Pick someone else,' but he didn't he just said, 'Hooah, a chance for another save, I want the mission'."

It wasn't that he had to take the mission because it was his turn, he wanted the mission because he wanted to save lives, Panning said.

"That was the type of man he was," Panning said.

The crew, all except for Avery who had not been positively identified at the time, received a full honors funeral were buried at Arlington Nov. 17, 1997. However, advancements in DNA testing allowed the Department of Defense POW/Missing Personnel Office to officially identify his remains and release them to his family for service at his final resting place.

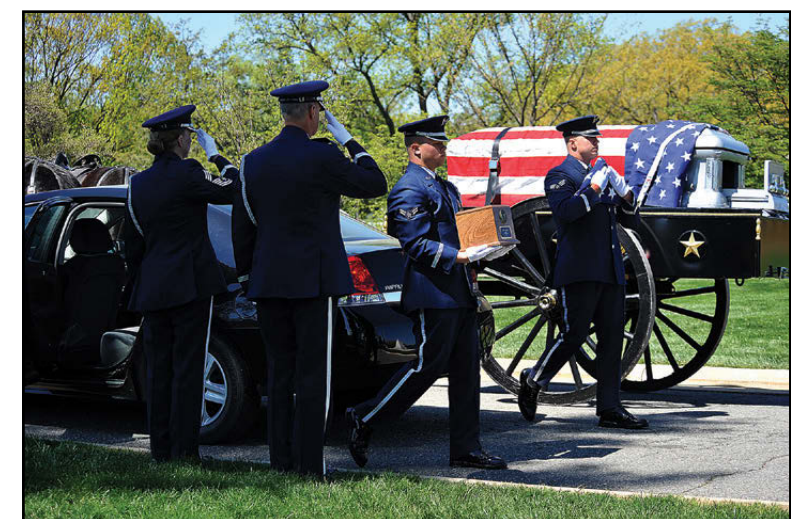


Debbie McBride blows one last kiss to her father, TSgt. Allen Avery during his burial April 6, 2012, at Arlington National Cemetery in Arlington, Va. Avery was a pararescueman who, along with five others, was killed during a recovery operation in Vietnam on April 6, 1972. Avery's remains were recently identified via new DNA techniques and returned to the U.S. He was laid to rest with full military honors along with his fellow crewmembers who were interred in 1997.



Air Force photograph by MSgt. Raheem Moore

Maj. Gen. Steven Lepper presents the American flag to Debbie McBride at her father, TSgt. Allen Avery's burial April 6, 2012, at Arlington National Cemetery in Arlington, Va. Avery was a pararescueman who, along with five others, was killed during a recovery operation in Vietnam on April 6, 1972. Avery's remains were recently identified via new DNA techniques and returned to the U.S. He was laid to rest with full military honors along with his fellow crewmembers who were interred in 1997. Lepper is the Air Force Deputy Judge Advocate General.



Air Force photograph by Val Gempis

A1C Josh Busch, center, carries an urn containing the remains TSgt. Allen J. Avery while SrA. Jeremy Dotson, background, carries a folded American flag during Avery's burial ceremony at Arlington National Cemetery, Va., April 6, 2012.



Air Force photograph by Val Gempis

Debbie McBride, holding a teddy bear, and family members watch as U.S. Air Force honor guard Airmen place an urn containing the remains of her father, TSgt. Allen J. Avery, inside a casket during Avery's burial ceremony at Arlington National Cemetery, Va., April 6, 2012. Avery was part of a combat search and rescue mission aboard an HH-53C Super Jolly Green Giant helicopter when they were shot down over Quang Tri province, South Vietnam, April 6, 1972.

# Soldier missing in action from Korean War identified

The Department of Defense POW/Missing Personnel Office announced April 9 that the remains of a serviceman, missing in action from the Korean War, have been identified and will be returned to his family for burial with full military honors.

Army Cpl. Patrick R. Glennon of Rochester, N.Y., will be buried April 11, at Arlington National Cemetery.

Nov. 1, 1950, Glennon, and the G

Company, 8th Cavalry Regiment, 1st Cavalry Division, were holding a defensive position along the Nammyon River near Unsan, North Korea, when they were attacked by Chinese forces. Glennon was listed as missing in action following the heavy fighting.

In April 2007, the Democratic People's Republic of Korea handed over six boxes of remains of American service members to New Mexico Govern-

nor Bill Richardson and former U.S. Secretary of Veterans Affairs Anthony Principi, who were visiting North Korea. The remains had been recovered from areas near Unsan, where Glennon had been lost.

Metal identification tags bearing Glennon's name, and other material evidence were included with the remains. To identify the remains, scientists from the Joint POW/MIA Accounting Com-

mand and the Armed Forces DNA Identification Laboratory used circumstantial evidence and forensic identification tools such as dental records and mitochondrial DNA – which matched Glennon's cousins.

Today, more than 7,900 Americans remain unaccounted-for from the Korean War. Identifications continue to be made from the remains that were returned to the United States.

## Veteran's Resources

### Department of Veterans Affairs

www.va.gov

#### Contact numbers:

VA Benefits: Burial, Death Pension, Dependency Indemnity Compensation, Direct Deposit, Directions to VA Benefits Regional Offices, Disability Compensation, Disability Pension, Education, Home Loan Guaranty, Medical Care and Vocational Rehabilitation and Employment – 1-800-827-1000

Beneficiaries in receipt of Pension Benefits – 1-877-294-6380

Debt Management Center (Collection of Non-Medical Debts) – 1-800-827-0648

Children of Women Vietnam Veterans (CWVV); Foreign Medical Program (FMP); and Spina Bifida Health Care Program – 1-877-345-8179 or 1-888-820-1756

Civilian Health and Medical Program of the Department of Veterans Affairs; CHAMPVA In-House Treatment Initiative – 1-800-733-8387

Education (GI Bill) – 1-888-442-4551

Health Care Benefits – 1-877-222-8387

Income Verification and Means Testing – 1-800-929-8387

#### Life Insurance:

Service members and/or Veterans Group Life Insurance Program – 1-800-419-1473

All other VA Life Insurance Programs – 1-800-669-8477

Mammography Helpline – 1-888-492-7844

Meds by Mail – 1-888-385-0235 or 1-866-299-7389

Special Issues: Gulf War/Agent Orange/Project Shad/ Mustard Agents and

Lewisite/Ionizing Radiation – 1-800-749-8387

Status of Headstones and Markers – 1-800-697-6947

Telecommunications Device for the Deaf (TDD) – 1-800-829-4833

For health care services, contact your nearest VA medical facility. To locate all VA facilities, visit [www.va.gov/directory/](http://www.va.gov/directory/).

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Telephone: (317) 630-1200

The American Legion Washington Office

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### Veterans of Foreign Wars

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## DARPA seeks robot enthusiasts to face off

As iconic symbols of the future, robots rank high with flying cars and starships, but basic robots are already in use in emergency response, industry, defense, healthcare and education.

DARPA plans to offer a \$2 million prize to whomever can help push the state-of-the-art in robotics beyond today's capabilities in support of the DOD's disaster recovery mission.

DARPA's Robotics Challenge will launch in October 2012. Teams are sought to compete in challenges involving staged disaster-response scenarios in which robots will have to successfully navigate a series of physical tasks corresponding to anticipated, real-world disaster-response requirements.

Robots played a supporting role in mitigating fallout from the Fukushima nuclear plant disaster in Japan, and are used by U.S. military forces as assistants for servicemembers in diffusing improvised explosive devices. True innovation in robotics technology could result in much more effective robots that could better intervene in high-risk situations and thus save human lives and help contain the impact of natural and man-made disasters.

The DARPA Robotics Challenge consists of both robotics hardware and software development tasks. It is DARPA's position that achieving true innovation in robotics, and thus success in this challenge, will require contributions from communities beyond traditional robotics developers. The challenge is structured to increase the diversity of innovative solutions by encouraging participation from around the world including universities, small, medium and large businesses and even individuals and groups with ideas on how to advance the field of robotics.

"The work of the global robotics community brought us to this point—robots do save lives, do increase efficiencies and do lead us to consider new capabilities," said Gill Pratt, DARPA program manager. "What we need to do now is move beyond the state of the art. This challenge is going to test supervised autonomy in



perception and decision-making, mounted and dismantled mobility, dexterity, strength and endurance in an environment designed for human use but degraded due to a disaster. Adaptability is also essential because we don't know where the next disaster will strike. The key to successfully completing this challenge requires adaptable robots with the ability to use available human tools, from hand tools to vehicles.

"Robots undoubtedly capture the imagination, but that alone does not justify an investment in robotics," said DARPA Acting Director, Kaigham J. Gabriel. "For robots to be useful to DoD they need to offer gains in either physical protection or productivity. The most successful and useful robots would do both via natural interaction with humans in shared environments."

The DARPA Robotics Challenge supports the National Robotics Initiative launched by President Barack Obama in June 2011.

To answer questions regarding the Robotics Challenge and provide an opportunity for interested parties to connect, DARPA will hold a virtual Proposers' Day workshop April 16.

For more information on the BAA and Proposers' Day, visit <http://go.usa.gov/mVj>.

## NASA announces winners in space game challenge

Three school student teams in the fifth through eighth grades have been selected as the winners of NASA's second annual Spaced Out Sports challenge.

The students designed science-based games that will be played by astronauts aboard the International Space Station.

The games illustrate and apply Newton's laws of motion by showing the differences between Earth's gravity and the microgravity environment of the space station. The challenge is part of a broader agency education effort to engage students in science, technology, engineering and mathematics activities.

To design their game, students use up to five items from a two-page list of objects aboard the ISS. The list includes such items as socks, exercise putty, bungees, cotton swabs, tape, rubber bands, zipper-top bags, chocolate-covered candies and drink bags.

Students at Pierremont Elementary MOSAICS Academy in Manchester, Mo., earned the top prize with their game "Starfield." In this activity, astronauts will travel through a course to

gather "power stars" and throw them through a "black hole target."

Second-place honors went to students at East Brook Middle School in Paramus, N.J., for their "Outstanding Obstacles" game. It calls on astronauts to race through obstacles including "hair band shooting" and "ring toss."

The third-place winners are students at Tyngsborough Middle School in Tyngsborough, Mass., for their "Learning Takes You Around

the World" game, in which astronauts will propel through rings, collecting slips of paper.

"Congratulations to the 2012 Spaced Out Sports winners," said Leland Melvin, associate administrator for education at NASA Headquarters in Washington and two-time shuttle astronaut. "By combining solid STEM skills with imagination and teamwork, these students have demonstrated that they have what it takes to be our next

generation of engineers and designers."

The Spaced Out Sports challenge is a NASA Teaching from Space activity and was first offered in 2010. Using an accompanying curriculum, teachers lead students through a study of Newton's laws, highlighted by hands-on activities and video podcasts featuring NASA scientists and engineers explaining how the laws are used in the space program.

"The three top games were selected but everyone really is a winner in this challenge," said Katie Wallace, director of NASA's Stennis Space Center Office of Education near Bay St. Louis, Miss., where the challenge and accompanying curriculum were developed. "Every student involved wins by learning more about science and establishing an educational foundation that will serve them well throughout their careers and life."

## NASA releases new Open Government Plan

NASA April 9 released version 2.0 of its Open Government Plan, which includes a flagship initiative to build a new web architecture and a renewed focus on open data sharing, open source development and a variety of technology acceleration efforts.

The plan also features a directory of more than 100 participatory, collaborative and transparent projects, offering citizens opportunities to understand, support and engage with the agency. Throughout the next year, NASA will continue to add projects to the directory.

NASA's Open Government efforts launched two years ago in response to the December 2009 Open Government Directive, which called on executive agencies to become more open and accountable. Since then, the agency has worked to implement 147 goals addressing policy, technology

and culture throughout its centers and offices. Also released today is an infographic summarizing the status of progress made toward these goals, available at <http://open.nasa.gov/plan/progress>.

"Open Government principles are already evident in numerous activities underway throughout the agency," said Sasi Pillay, NASA chief technology officer for IT at the NASA Headquarters in Washington. "This revision of the Plan captures these activities in one place for the benefit of all."

The new plan provides a strong framework to better support the agency's vision to reach for new heights and reveal the unknown.

To read the plan, visit <http://open.nasa.gov/plan>.

# NASA extends Kepler mission through 2016

The Ball Aerospace & Technologies' Kepler Mission for NASA will continue its mission following a program extension through 2016.

Ball Aerospace is the mission prime contractor for Kepler, designed to search for Earth-size planets around other stars.

Ball Aerospace built the photometer and spacecraft, and managed system integration and test for the NASA Ames Research Center and Jet Propulsion Laboratory-led Discovery class mission. Ball is currently managing on-orbit operation of the satellite for NASA Ames.

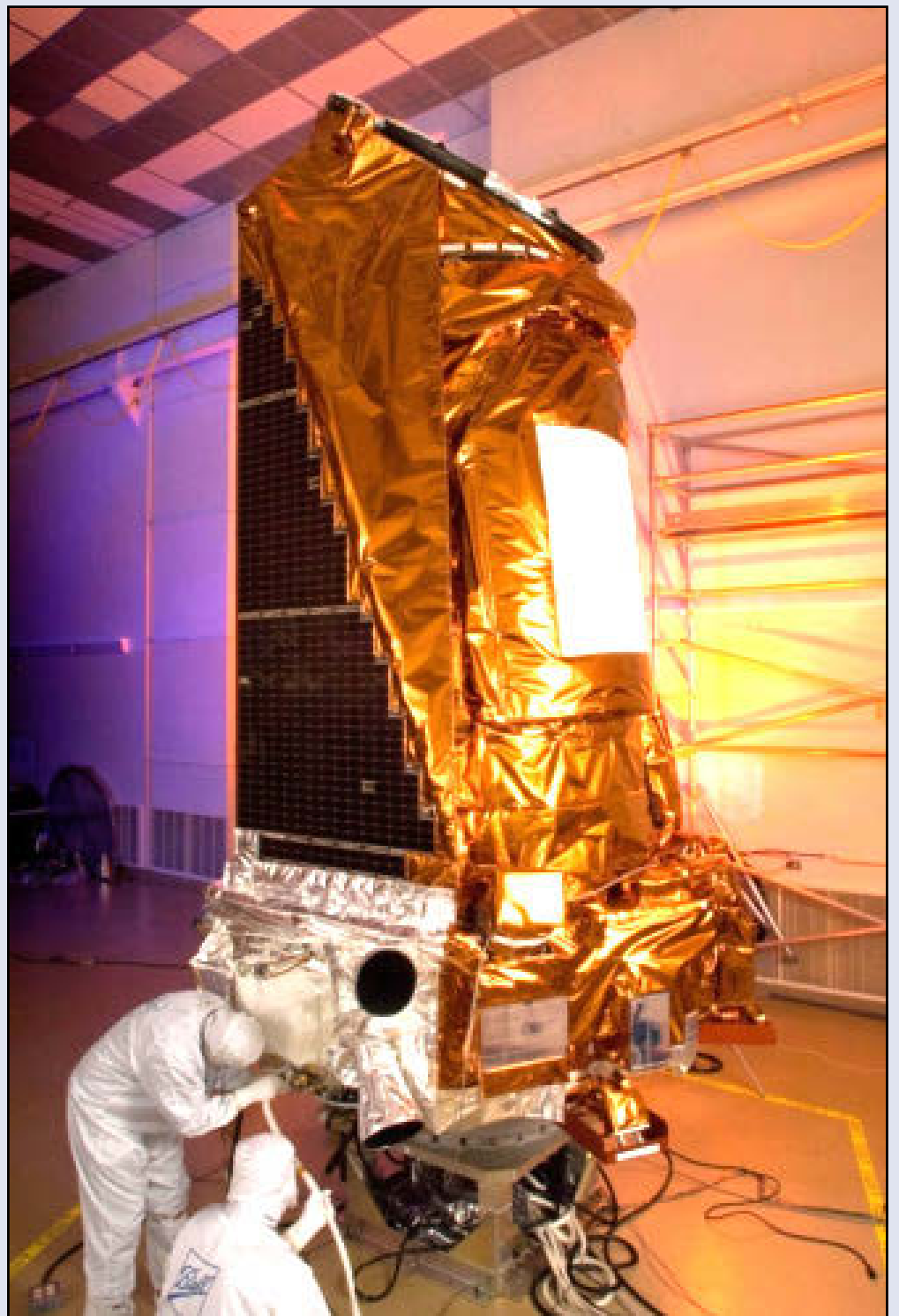
The extension will allow Kepler to continue its already successful search, four years past the original end-date of November 2012. The additional observation time means Kepler will be able to determine what fraction of stars host Earth-size planets in our galaxy. The extended mission will also allow Kepler to search for planets in longer period orbits, like Earth, in the habitable zones, the region in the planetary system where liquid water could exist. Kepler has identified more than 2,300 candidate planets and more than 900 are smaller than twice the size of Earth. Of the 46 planet candidates found in the habitable zone, 10 of these candidates are near-Earth-size.

"The Kepler mission has proven to be a terrific return on the nation's investment and the extension will further our scientific understanding of other solar systems in our galaxy," said Cary Ludtke, vice president and general manager for the Ball Aerospace Civil and Operational Space business unit.

The Kepler mission is the 2012 recipient of three awards from the aerospace community:

\* Space Foundation John L. "Jack" Swigert Award for Space Exploration

\* Aviation Week & Space Technology Laureate Award for Space  
National Space Club Nelson P. Jackson Aerospace Award



## NASA awards launch contract for GOES-R, GOES-S missions

NASA has selected United Launch Services, LLC of Englewood, Colo., to launch the Geostationary Operational Environmental Satellites-R and S, or GOES-R and GOES-S.

The spacecraft will launch in October 2015 and February 2017, respectively, aboard Atlas V 541 rockets from Space Launch Complex-41 at Cape Canaveral Air Force Station, Fla.

The total cost of the GOES-R and GOES-S launch services is approximately \$446 million. This estimated cost includes launch service for the Atlas V and additional services under other contracts for payload processing, launch vehicle integration, mission unique launch site ground support and tracking, data and telemetry services.

The advanced spacecraft and instrument technology used on GOES-R and GOES-S will result in more timely and accurate weather forecasts. It will improve detection and observation of meteorological phenomena that directly affect people's lives.

The GOES-R and GOES-S Flight Projects Office, which oversees the development of the Space Segment, is managed by NASA's Goddard Space Flight Center in Greenbelt, Md. The overall GOES-R and GOES-S Program is managed by the National Oceanic and Atmospheric Administration. NASA's Launch Services Program based at the Kennedy Space Center in Florida is responsible for Atlas V launch vehicle program management and launch services.

## ULA announces new human launch services organization

United Launch Alliance announced April 9 the formation of a new organization that will focus exclusively on NASA's human spaceflight programs.

ULA's Human Launch Services organization will be dedicated to supporting NASA and its partners in the development of capabilities to deliver U.S. astronauts to Low Earth Orbit and human exploration beyond Earth orbit.

"NASA is making tremendous progress towards closing the U.S. human spaceflight gap and we are committed to supporting them with our flight-proven Atlas V and Delta IV launch vehicles and technologies," said Michael Gass,

ULA president and CEO. "ULA understands that human spaceflight requires the utmost attention to safety and reliability and the new organization will focus our energy and attention towards those crucial goals."

ULA's Human Launch Services Organization will be led by Dr. George Sowers. Prior to this position, Sowers headed ULA's Business Development and Advanced Programs team and brings with him more than 25 years of launch systems design, development and integration expertise.

"ULA is extremely proud of our heritage in human spaceflight beginning 50 years ago with the Mercury/Atlas launch delivering John Glenn to

orbit," said Sowers. "We look forward to working with NASA and our commercial crew customers to leverage our unprecedented success record with Atlas V and Delta IV to meet the nation's need for assured access and crew safety for missions to the International Space Station and other destinations."

The ULA Human Launch Services Organization will be based in Denver, and will have resident support at key NASA Centers. The organization will draw upon the same engineering, production and operations expertise currently supporting ULA's national security and NASA science customers.

"The new organization will draw upon the same processes and people that have made our launch vehicles the most reliable in the world," said Sowers. "The intent is to leverage our successful heritage while providing our human spaceflight customers with an organization focused exclusively on their needs."

ULA program management, engineering, test and mission support functions are headquartered in Denver, Colo. Manufacturing, assembly and integration operations are located at Decatur, Ala., and Harlingen, Texas. Launch operations are located at Cape Canaveral AFS, Fla., and Vandenberg AFB, Calif.

# Mojave Makers Open House shows group's enthusiasm

by **Raphael Jaffe**  
staff writer

A new volunteer group at Mojave Air and Space Port is off to a good start, based on the interest of more than 30 visitors to its first open house April 10.

The group is sort of a high tech hobby club that provides tools, space, support and social interaction to its members.

They are part of the growing global "makerspace" or "hackerspace" or "creative spaces" groups. Their general motto might be "incubating the technologies of tomorrow." One flourishing group is Crash Space, located in Culver City, Calif.

East Kern Airport District generously supports them, and has rehabilitated Bldg. 82 for their use. They rent the building through an informal arrangement with Space Studies Institute, which is also their strong backer here at Mojave airport.

The district has deferred rent for the building for up to one year. This is because they are an asset to the airport's high tech tenants, as they provide a means for the employees to use their creative energy.

The founding Mojave Makers are Michael Clive [XCOR], Andrew

Bingham [Firestar], Scott Nietfeld [Masten], Nadir Bagaveyev [XCOR] and Ethan Chew [Masten].

The group is in the process of organizing as a 501(c)3 non-profit organization.

Clive is the organizer of the group, and he summarized their mission statement as "Do whatever the members want to do. We share space and equipment to assist each other."

Before coming to Mojave, he was facility manager for Crash Space. Many of the equipment items are his, either donated or on "permalan" to the group.

Mojave makers tools presently include a Puma 10S lathe, a four axis Seig mill, and an electronics shop [including a scope]. They are connected to the internet at 6MBs, but a 12MBs upgrade is in the works. The PUMA lathe is an enclosed 30 hp, 12-inch chuck with a 30-inch travel machine. It weighs eight tons, and was donated by Union Swiss Manufacturing Co. of Glendale, Calif.

The building also includes a social area, an office, kitchen facilities and an ADA approved rest room.

Founding member Bingham spoke of his motivation for Mojave Makers.

"There is access to a better shop than I could put together, and the social asset of interacting with people

with the same sort of interests," he said. His planned projects include a custom computer keyboard, a solar heater for his spa, and work on a small rocket that could reach 16,000 feet.

Founding member Nietfeld is interesting in woodworking, metal working, and a mini-rocket capable of vertical ascent and decent flights.

Prospective member Doug Weathers will be working on his electric car.

It is a 1971 Volkswagen Karmann Ghia. The gas engine is being replaced with an electric motor. His plans call for a 30-mile cruising range, with speeds up to 80 mph. He's also interested in fly-back booster rockets. He'll be working on modifying model rockets at first.

Several potential members signed up at the open house. There are two membership levels available. For a

\$40 per month fee, members can use the facilities whenever they are open and in use by others. For \$80 per month, the member gets a keycard, so has independent access at all times. The group will be self-supporting, and donations are gratefully accepted.

Their web site is [mojavemakers.org](http://mojavemakers.org). For more information, email [clive@XCOR.com](mailto:clive@XCOR.com).

## Edwards hosts retiree appreciation day

The Retiree Activities Office at Edwards Air Force Base, Calif., is hosting a Retiree Appreciation Day 8 a.m.-noon, May 5.

The event, at the Oasis Community Center on base, is open to all military retirees regardless of service branch.

The event will include guest speakers, retiree program updates, booth displays, lunch, tours, door prizes, limited pharmacy, legal services and ID card updates. There will also be exchange and commissary discounts, golf and bowling specials, and more.

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## B-17 Flying Fortress

### An American heavy bomber that returned crews home safely

by **Marti Jaramillo**  
staff writer

The Boeing B-17 "Flying Fortress" is a World War II American heavy bomber used primarily in Europe and that helped turn the tide in the battle of World War II.

Boeing's corporate historian, Michael Lombardi said, "The B-17 and the United States Army Air Forces strategic warfare strategy was instrumental in destroying the German air force and ensuring that the only airplanes that would be flying over the beaches of Normandy on D-Day would be Allied airplanes. After D-Day, continued attacks on vital war munitions, petroleum and manufacturing accelerated the collapse of Nazi Germany."

Boeing Chairman Claire Egtvedt, the "father" of the B-17, set Boeing on a new course to build "big" airplanes, rather than the smaller aircraft popular at that time.

Egtvedt, along with Boeing designers C.N. "Monty" Monteith, Robert Minshall, E.G. Emery and Ed Wells, all had the vision of designing an aircraft with four engines rather than the standard two-engine design, in order to meet the U.S. Army's request for a multi-engine bomber.

The decision saved the B-17 (Model 299) prototype, from being a footnote in aviation history. The project financed entirely by Boeing, went from design board to flight test in less than 12 months.

The B-17 was a low-wing monoplane that combined aerodynamic features of the XB-15 giant bomber, which was still in the design stage, and the Model 247 transport.

The B-17 was the first Boeing military aircraft with a flight deck instead of an open cockpit and was armed with bombs and five .30-caliber machine guns mounted in clear "blisters."

In 1934, the Boeing Aircraft Company of Seattle, Wash., began construction on the four-engine heavy bomber. The Boeing model 299 took its first flight on July 28, 1935, from Boeing Field in South Seattle.

Seattle Times reporter Richard Smith dubbed the new plane, with its many machine-gun mounts, the "Flying Fortress," a name that Boeing quickly adopted and copyrighted.

Boeing test pilot Les Tower took the model 299 for its first flight that July day and later made a record-breaking flight from Seattle to Wright Field in Dayton, Ohio. The aircraft was to fly against its competition, the Douglas DB-1 (B-18). Tower died from injuries sustained when the Model 299 crashed.

Boeing delivered more than 12,000 B-17s during the war. That number includes the 3,000 that came off the Douglas Aircraft assembly line, between 1942 through 1945, in Long Beach, Calif.

The B-17 underwent a number of improvements over its 10-year production span. Models ranged from the YB-17 to the B-17-G model.

Throughout the War, the B-17 was refined and improved as battle experience showed the Boeing designers where improvements could be made.

The government ordered production of 13 of the now designated Y1B-17. Delivery of these first production models was between Jan. 11 and Aug. 4, 1937.

The first B-17s saw combat in 1941, when the British Royal Air Force took delivery of several B-17s for high-altitude missions. As World War II intensified, the bombers needed additional armament and armor.

The B-17E, the first mass-produced model Flying Fortress, carried nine machine guns and a 4,000-pound bomb load. It was several tons heavier than the prototypes and filled with armament.

It was the first Boeing airplane with the distinctive and enormous tail for improved control and stability during high-altitude bombing. Each version was more heavily armed.

"The men of the 'Mighty Eighth' based in England, and the 15th Air Forces based in Italy, flew up to 50 missions into the heart of the enemy's homeland with only heated flight suits and oxygen masks to protect them from an environment similar to that at the top of Mount Everest," said Lombardi.

"They faced an even greater danger from the expert pilots of the German Luftwaffe and some of the heaviest anti-aircraft fire in history, all determined to destroy the American bombers."

In the Pacific, the planes earned a deadly reputation with the Japanese, who dubbed them "four-engine fighters." The Fortresses were also legendary for their ability to stay in the air after taking brutal poundings.

In World War II, aircrews liked the

The B-17 Flying Fortress served in every World War II combat zone, but is best known for daylight strategic bombing of German industrial targets.



B-17 for its ability to withstand heavy combat damage and still return its crew safely home.

Because of their long-range capability, formations of B-17s often flew into battle with no fighter escort, relying on their own defensive capabilities to ensure a successful mission.

Between 1935 and May of 1945, 12,732 B-17s were produced. Of these aircraft, 4,735 were lost during combat missions. Production peaked at 16 airplanes a day in April 1944.

The final B-17 production model, the B-17G, was produced in larger quantities (8,680) than any previous model and is considered the definitive "Flying Fort." With its 13 .50-caliber machine guns - chin, top, ball and tail turrets; waist and cheek guns - the B-17G was indeed an airplane that earned the respect of its combatants.

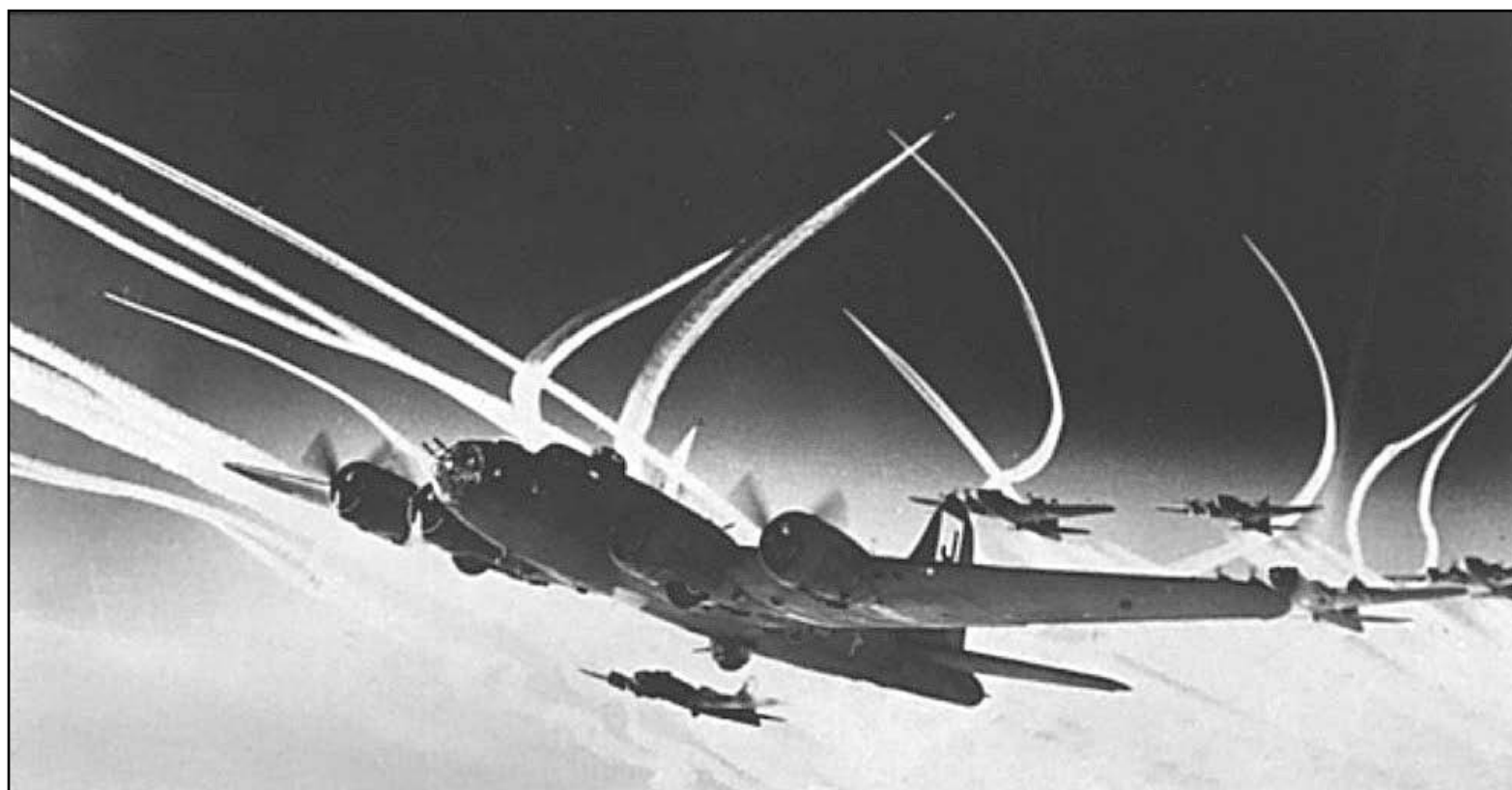
Lombardi said, "The sacrifice was great, the air war in Europe claimed the lives of more than 30,000 American fighter and bomber crews and nearly

half of the over 12,000 B-17s built for the war."

During the War, B-17s were among the most modern aircraft in the U.S. inventory. However, the advent of the jet age and advances in technology made the Flying Fortress obsolete soon after the conclusion of the War. The B-17 is now dwarfed by modern-day bombers and jumbo jets.

In the years following World War II, most B-17s were cut up for scrap,

See B-17, Page 16



B-17 Flying Fortresses.

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## Subscriber Services

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## Story ideas, letters, editorials

Please address all letters and editorials to Stuart A. Ibberson, editor, 456 E. Ave. K-4, Suite 8, Lancaster CA 93535

## Web Site

Access the Aerotech News web site at [www.aerotechnews.com](http://www.aerotechnews.com)

Submissions for upcoming events, air shows and museums should be addressed to Web Updates, 456 E. Ave. K-4, Suite 8, Lancaster CA 93535

For questions concerning the web site, contact the webmaster at [webmaster@acrotechnews.com](mailto:webmaster@acrotechnews.com).

## Where you can get Aerotech News and Review

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Your comments are welcomed and encouraged. Write to the address below.

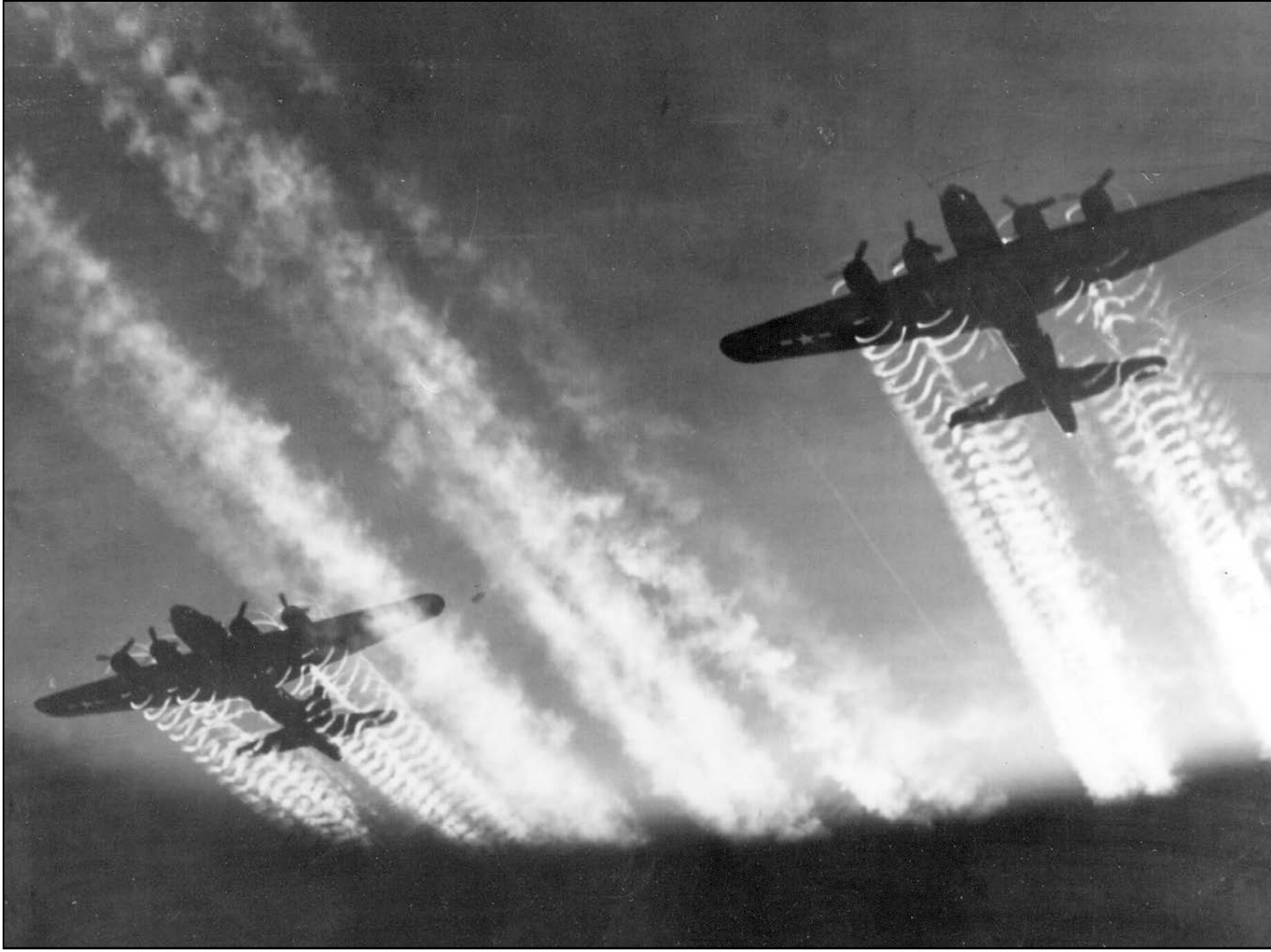
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Visit our web site at [www.aerotechnews.com](http://www.aerotechnews.com)



Air Force photograph

The vapor trails from two Boeing B-17 Flying Fortress aircraft light up the night sky. The B-17 prototype first flew July 28, 1935.

## B-17, from 15

used in Air Force research or sold on the surplus market.

Some of the last Flying Fortresses met their end as target drones in the 1960s — destroyed by Boeing Bomarc missiles.

Today, fewer than 100 B-17 airframes exist and there are about a dozen B-17s still flying. At one time, more than 1,000 B-17s could be assembled for mass combat missions.

Some of the flying examples that still remain include: Aluminum Overcast, Yankee Lady, My Gal Sal, Nine-O-Nine, Sally B, Texas Raiders and Sentimental Journey.

Picadilly Lilly II is being restored to flight status at the Planes of Fame Museum in Chino, Calif.

Memphis Belle, one of the first B-17s to complete a tour of duty of 25 missions in the 8th Air Force, is now being restored for display at the USAF Museum in Dayton, Ohio, along with the

Swoose, the oldest surviving B-17D, built in 1940.

Liberty Belle, a former engine test bed was restored as flying example, but was destroyed in a forced landing June 31, 2011, outside of Chicago, Ill., with no fatalities.

Research shows the B-17 underwent a long series of small modifications and successive production advancements during its mission lifetime. These advancements improved the performance of the aircraft. The data was collected over thousands of mission flight hours. Mechanics in World War II had to rely on what the aircrews reported and what they observed during ground testing.

“Nowadays, in comparison, technology is recording and transmitting critical system performance data to ground systems with advanced software to analyze and isolate problems on an aircraft before it lands,” said Terry Langerman,

Boeing’s C-17 Globemaster III sustainment and affordability director.

But beyond the technical wonders of its day and the legacies of modern aircraft, no one can take away the romance crews held for the Flying Fortress.

“The stable and rugged B-17 to this day is still loved by her crews who called her ‘Queen of the Skies,’” said Lombardi. “The affection was well earned; there are volumes of stories of B-17s that returned their crews safely to their bases, so badly damaged that they never flew again.”

Lombardi stated that, Gen. Carl Spaatz, the American air commander in Europe, summed it up by saying: “Without the B-17 we may have lost the war.”

“The success of the B-17 and her crews made the plane an icon of American air power and made a solid reputation for Boeing,” added Lombardi.

## B-17G Flying Fortress general characteristics

**Primary function:** Bomber

**Primary designer/builder:** Boeing, Vega Aircraft Company (now Lockheed), Douglas Aircraft

### Dimensions

Wingspan: 103 feet, 9 inch

Wing area: 1,420 square feet

Length: 74 feet, 4 inch

Height: 19 feet, 1 inch

Crew: Ten-Pilot, Co-pilot, Navigator, Bombardier, Flight Engineer (top turret gunner), Radio Operator, 2 Waist Gunners, Tail Gunner and Ball Turret Gunner

### Weights

Empty: 34,000 pounds

Operational: 65,500 pounds

### Performance

Maximum speed: 300 mph at 30,000 feet

Cruising speed: 170 mph

Service ceiling: 35,600 feet

Range: 1,850 miles. Range could be extended when equipped with “Tokyo Tanks” which provided a total capacity of 3,630 gallons

### Power plant

Engines: 4X Wright Cyclone Model R-1820-97, engines. These engines are nine cylinder, radial, air-cooled type with a 16:9 gear ratio. The propellers are three-bladed Hamilton Standard propellers, 11 feet, 7 inch, in diameter. Engine power developed: 1,200-horsepower each

### Armament

Guns: Thirteen Browning M-2 .50 caliber machine guns. Fire rate approximately 13 rounds per second. No gun on a B-17 carried more than one minute’s supply of ammunition.

Bombs/Rockets: Depending on types of bombs, maximum normal load could go to 8,000 pounds. If B-17 was fitted with special external racks, maximum normal short-range bomb load could go as high as 17,600 pounds.



# AEROTECH & DESERT WINGS CLASSIFIED AD POLICIES AND FORM

## FREE ADS

The ONLY personnel eligible to place free ads in the Desert Wings and Aerotech News are:

- *Active Duty Military and DoD personnel Stationed at Edwards AFB and their dependents, and retired military.*

The ONLY Classified ads that are available as free ads to above listed personnel are:

- Pets - Free To Good Home
- Roommate Wanted
- Lost & Found
- Cars & Trucks (Except RV's)
- Furniture & Appliances
- Misc. For Sale
- Garage & Yard Sales
- Motorcycles
- Misc. Wanted

All other categories are paid.

If you are eligible use the form below:

### FREE CLASSIFIED AD FORM

#### AD COPY

One word, phone number, price per space.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Code: \_\_\_\_\_ (For Aerotech Office Use Only)

Name: \_\_\_\_\_ Rank: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

## PAID ADS

The following categories are paid ads:

- |                          |                         |                            |
|--------------------------|-------------------------|----------------------------|
| • Homes For Sale         | • Recreational Vehicles | • Acreage                  |
| • Houses For Rent        | • Work Wanted           | • Income Property          |
| • Apartments For Rent    | • Condos For Sale       | • Farms & Ranches          |
| • Lots                   | • Townhomes             | • Services                 |
| • Hotels & Motels        | • Industrial Properties | • Employment Opportunities |
| • Commercial Rentals     | • Mobiles For Sale      | • Child care               |
| • Loans                  | • Mobiles For Rent      | • Condos For Rent          |
| • Investments            | • Misc. For Rent        |                            |
| • Business Opportunities |                         |                            |

The following ads are also considered paid ads if you do not qualify under FREE ADS Guidelines.

- Pets - Free To Good Home
- Lost & Found
- Cars & Trucks (Except RV's)
- Furniture & Appliances
- Misc. For Sale
- Garage & Yard Sales
- Motorcycles
- Misc. Wanted
- Roommate Wanted
- Rooms For Rent

For PAID ADS, use the form below:

### PAID CLASSIFIED AD FORM

- |   |   |
|---|---|
| <input type="checkbox"/> HOMES FOR SALE         | <input type="checkbox"/> MOBILES FOR RENT         |
| <input type="checkbox"/> HOUSES FOR RENT        | <input type="checkbox"/> MISC. FOR RENT           |
| <input type="checkbox"/> APTS FOR RENT          | <input type="checkbox"/> ACREAGE                  |
| <input type="checkbox"/> LOTS                   | <input type="checkbox"/> INCOME PROPERTY          |
| <input type="checkbox"/> HOTELS & MOTELS        | <input type="checkbox"/> FARMS & RANCHES          |
| <input type="checkbox"/> COMMERCIAL RENTALS     | <input type="checkbox"/> MISC. FOR SALE           |
| <input type="checkbox"/> LOANS                  | <input type="checkbox"/> SERVICES                 |
| <input type="checkbox"/> INVESTMENTS            | <input type="checkbox"/> EMPLOYMENT OPPORTUNITIES |
| <input type="checkbox"/> BUSINESS OPPORTUNITIES | <input type="checkbox"/> PETS                     |
| <input type="checkbox"/> RECREATION VEHICLES    | <input type="checkbox"/> CARS & TRUCKS            |
| <input type="checkbox"/> MOTORCYCLES            | <input type="checkbox"/> FURNITURE & APPLIANCES   |
| <input type="checkbox"/> WORK WANTED            | <input type="checkbox"/> MISC. WANTED             |
| <input type="checkbox"/> LOST & FOUND           | <input type="checkbox"/> GARAGE & YARD SALES      |
| <input type="checkbox"/> INDUSTRIAL PROPERTY    | <input type="checkbox"/> CHILD CARE               |
| <input type="checkbox"/> MOBILES FOR SALE       | <input type="checkbox"/> CONDOS FOR RENT          |

#### ALL ADS MUST BE PREPAID

AMOUNT\$ \_\_\_\_\_

CASH \_\_\_\_\_

CHECK # \_\_\_\_\_

AUTHORIZATION \_\_\_\_\_

DATE \_\_\_\_\_

#### AD COPY

One word, phone number, price per space.  
Four lines (\$18.00) minimum. Payment must accompany ad copy

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

To this line - \$18.00 (minimum)

To this line - \$22.00

To this line - \$26.00  
Each additional line \$4.00

Code: \_\_\_\_\_ (For Aerotech Office Use Only)

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Visa/Mastercard/American Express # \_\_\_\_\_

Exp. Date: \_\_\_\_\_ Daytime Phone: \_\_\_\_\_

### ALL ADS MUST BE RECEIVED BY TUESDAY NOON FOR THAT FRIDAY'S PAPER

#### To Submit Ads:

Public Affairs will no longer accept classified ads! Please submit your ads via one of the following methods:

**BY MAIL:**  
Paid And Free Ads  
456 E. Ave. K-4, Ste 8  
Lancaster, CA 93535

**BY FAX:**  
Paid And Free Ads  
(661) 723-7757 or  
Toll-Free (877) 247-9188

**BY EMAIL:**  
Paid And Free Ads  
judy@aerotechnews.com

**BY PHONE:**  
Paid Ads Only  
(661) 945-5634 or  
Toll-Free (877) 247-9288

**Homes for Sale**

**WEST LANCASTER CUSTOM HOME**  
\*\*\*\*\*  
  
Built in '06  
3-Bedroom, 2-Bath  
1-Acre+All Usable Land  
Granite Counters, F/P  
All Appliances, 3-Car Garage  
Hardwood Floors  
in Common Areas  
\$255,000  
Agent 661-816-7759

**Homes for Rent**

CORNER HOUSE ON CUL-DE-SAC Single-Story, 3-Bedroom, 2-Bath, Attached 2-Car Garage, Covered Patio Wood & Ceramic Tile. Dishwasher/Stove Landscaped Front&Rear \$1,250/Month+Deposit. No Section 8. Call 661-266-1522 or 310-748-3452

**RENTING YOUR HOME? HIGHLIGHT YOUR AD IN YELLOW TO GET MORE ATTENTION!**  
  
**CALL 877-247-9288 TO PLACE YOUR AD**  
  
**Aerotech News & Review**

ROSAMOND 3-Bedroom, 2.5-Bath 2,000 Sqft. Nice Front & Backyard in Quiet Family Neighborhood. \$1,400/Month. Includes Gardner & H2O. Contact Wayne -All Pro Property Manager. for More Information. 661-945-5444  
  
NICE CAL CITY 3-Bedroom, 2-Bath, 2-Car Garage w/Open-er. Kitchen Appliances, Fully Landscaped Front & Rear w/ Fence, Pets on Approval. \$775/Mo.+Deposit. Available Now! Call 760-301-2855

Beautiful View Home in West Palmdale, 4bdm/3 bath, 2,700sqft, 3 car garage. , 2 story, close to schools/shopping/freeway/ restaurants, Gardener included. \$1500/mo + security. Please Call 818-730-5019.

**ROSAMOND**  
2002 Home, 3-BR,2-BA  
1,750 Sqft., 3-Car Garage  
Washer/Dryer, Patio  
Central Air/Heating  
Quiet, Near Schools, EAFB  
\$1,400/Mo+Sec. Deposit  
No Smoking  
Possible Small Pet  
Call Paul 562-714-6686  
jtdsigner@aol.com

**Apartments for Rent**

Rosamond Apartment 2BR, Very Clean & Quiet, Private Garage, Appliances Included, Near 14 & Edwards AFB, Military Discount \$639/Mo Call 661-270-0707 or 661-547-3027

**Roommate Wanted**

CALIFORNIA CITY  
\$300/Month, 1/2 of Utilities  
Edwards AFB  
Employees Only!!  
Must Have Solid Employment  
760-514-5164

**ROSAMOND - AVAILABLE NOW!** 1-Bedroom w/Private Bath in Clean Quiet Home. Full House Privileges. Close to Edwards AFB \$350/Month+\$150 Security Call for More Information 661-317-1665

**Cars & Trucks**

**Selling Your Car or Truck? Your Ad Could Be Here!**  
  
**Call Us! We Can Help!**  
**Aerotech News & Review**  
**877-247-9288**

**Electronics**

**Getting Rid of an Old Computer, DVD, or Electronic Device?**  
\*\*\*\*\*  
**Advertise It Today!**  
**Call 877-247-9288**  
**Aerotech News & Review**

**Announcements**

\*\*\*\*\*  
**PLEASE REMEMBER!!**  
\*\*\*\*\*  
**THE DEADLINE FOR ALL CLASSIFIED ADS IS TUESDAY AT NOON FOR THE SAME WEEK'S EDITION.**

**Misc. Wanted**

**SURROGATE MOTHERS NEEDED!**  
  
Are you a mom between the ages of 21-38?  
Become a surrogate mother. and help a couple in need become a family.  
Numerous emotional and financial rewards for any woman who participates in this wonderful experience.  
**Earn up to \$35,000!**  
Apply At:  
1 888-898-8123  
[www.FertilityMiracles.com](http://www.FertilityMiracles.com)

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**Enjoy the Exciting Benefits of Eyelash Extensions!!**  
  
Natural Fuller Look,  
Darker Eyelashes w/out  
Use of Mascara!  
Weightless, Smudge Proof  
Various Lengths  
to Fit your Needs  
Call Natalie 661-208-0337  
[nmendes83@yahoo.com](mailto:nmendes83@yahoo.com)  
25% Military Discount

**Pets**

**Selling or Looking for a Pet? Lost or Found a Pet?**  
  
Advertise it Here!  
Call 877-247-9288  
Aerotech News & Review

**Garage & Yard Sales**

**GARAGE SALE**  
Palo Verde Drive  
Furniture, Decor & More!  
Great Second Hand Treasures!  
April 20th & 21st  
9am - 5pm

6/Miles from Base  
Call for time/may rain!!!!  
Appliances /Kitchen  
Furniture(stuff),  
Kids Furniture/toys Women's  
Clothes, Men's Stuff. Military  
ID 50%off. 310-755-8057.

**Having a Yard Sale? Attract More Customers With A Classified Ad!**

Call 877-247-9288  
Aerotech News & Review

**Industrial Property**

AUTO/MOBILE SALES LOT  
" Natural Gas Station?"  
High Traffic Street.  
Display 100+, Lights, Signage  
Security Posts, Office.  
Get-Ready Parking  
\$2,500/Month, Easy Terms  
661-945-7280 or 661-618-9692

**Commercial Properties**

Auto Service / Detail Garage  
Gated Customer Parking  
Lancaster  
661-940-4449  
661-618-9692

**Real Estate**

*All real estate advertised in this publication is subject to the Federal Fair Housing Act of 1968, which makes it illegal to advertise any preference, limitation or discrimination based on race, color, religion, or national origin, or an intention to make such preference, limitation or discrimination. Real estate advertisements that are in violation of the law shall not be accepted for publication. All dwellings advertised in this publication are available on an equal opportunity basis.*

**Personals**

**ANNIVERSARY? BIRTHDAY? SPECIAL OCCASION? for SOMEONE SPECIAL? PLACE AN AD TODAY!**  
  
Call 877-247-9288  
Aerotech News & Review

**NEW FOR CLASSIFIED ADS**

**Homes for Rent**

Beautiful and Spacious  
2 Master Bedrooms/2.5 Baths/2 Car Garage 1332 sq. ft. in Great Community. Appliances included. Fenced Yard, Community Pool.  
\$995/mo.

**You can now get your Paid Classified Ads highlighted in Yellow!**

*Homes for Rent • Apartments for Rent  
Employment Opportunities • Cars & Trucks  
Furniture & Appliances • Yard Sales  
Services • and many more...*

For information, call  
**toll free 877-247-9288**

**HUGE SURPLUS EQUIPMENT & YARD SALE**

**Aerotech News and Plasticmart**  
**456 East Avenue K-4, Suite 8 & 9, Lancaster**  
**are having a huge joint sale of surplus equipment and personal items including:**

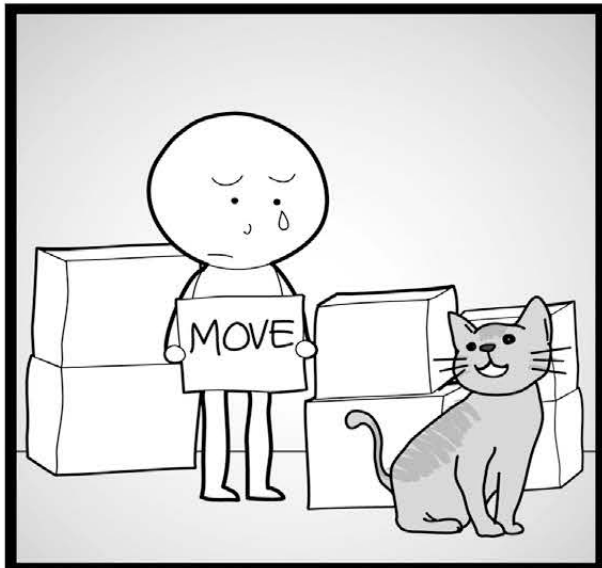
Office Cubicles with complete desks, filing cabinets and overhead lights, cabinets  
21 foot Trade Show Display with lights and counter  
6 foot Motorized Conveyor  
Electrical Supplies including conduit, disconnects, etc.  
Office Desks  
Construction work lights  
Very Large Dry Erase Board  
Sofas (5)  
Dressers (4)  
Curio Cabinets  
Glass Table  
Lawn Mower  
Bathroom Vanity Top  
Trundle Bed  
Bed & Bed Frames  
Tons of Household items  
Chandelier  
Clothes (men's, women's, kid's, infant)  
Computer Parts  
Beanie Babies  
Chrome 19" rims for 5 Series BMW  
Acrylic Pedestals - up to 1 1/2 thick (Square and Waterfall style)

5 sided covers with rabbeted bases, all clear, all sizes  
Acrylic bases - all sizes, thicknesses up to 2"  
Aquatic Pump  
Aquarium  
5 Sided clear covers for shadow box frames for mounting sports jerseys  
Football/Basketball display Cases  
Acrylic Table  
Acrylic Lamp  
Vacuum Forming Machine  
Acrylic Office Desk  
Acrylic Risers, all sizes  
Formica Pedestals  
Acrylic Coffee Table  
Acrylic TV Table on wheels  
Acrylic pieces from 1/8" non-glare to 4" thick blocks  
Acrylic Computer Corner Table  
Japanese Coin Slot Machine  
1998 Isuzu Box Van  
Office Desks  
Car Parts for Chevy - starter, fuel pump  
Scooter  
Double Pizza Oven  
and much, much more!

**Sat. - Sun. April 28-29**  
**8 am - 4 pm**  
**456 East Avenue K-4, Suite 8 & 9, Lancaster**  
**Sale takes place in rear parking lot**

# it's not cat's fault

by TheShelterPetProject.org



# KIEFFE & SONS FORD



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## SWAP YOUR RIDE SALES EVENT

Here's what competitive owners are saying about Ford.



“40 miles per gallon!  
We can save so much money.  
And it's way more spacious than  
I thought it would be.”

*Mee-Lin Demaree, Nissan owner*



“EcoBoost® does what it's supposed  
to do. You get 22 miles per gallon?  
That's better than my Chevy.  
And the F-150 just seems tougher.”

*Mike Pennisi, Chevy owner*



“The big-screen nav³ is easy to read.  
And with EcoBoost, you get 30 miles  
per gallon and more than 500 miles  
on a tank⁴. I'll take that to the bank.”

*John Varela, Nissan owner*

Test-drive a Ford today at  
KIEFFE & SONS FORD  
during our Swap Your Ride Sales  
Event and find out for yourself what  
everyone's talking about.

SAVE BIG NOW ON  
AMERICA'S FAVORITE BRAND.⁵



KIEFFE & SONS FORD  
KIEFFEANDSONS.COM

¹EPA-estimated 28 city/40 hwy/33 combined mpg, SE with SFE Package. ²EPA-estimated 16 city/22 hwy/18 combined mpg, 3.5L V6 4x2, Class is Full-Size Pickups under 8,500 lbs. GVWR, Non-Hybrid, 26-gallon tank. 21 hwy mpg 4x4 shown. ³Optional. ⁴Based on EPA-estimated 30 hwy mpg, 18-gallon tank. ⁵Based on CYTD sales, 11/11.

**ROSAMOND**

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**MOJAVE**

661-824-2477



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