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I am very pleased to report that we finished FY 2012 with a positive cash flow from operations for the fifth consecutive year. I continue to believe that this is an outstanding achievement given the current state of our economy. Total visitor numbers increased by 4 percent over last year. The Titan Missile Museum’s attendance climbed back over 51,000 and the Pima Air & Space Museum set a new annual attendance record of more than 161,000 visitors. Admissions, the Museum Stores, Tours and Membership all saw improved revenue over FY 2011.

Also in FY 2012 the 390th Memorial Museum, located on the grounds of the Pima Air & Space Museum, broke ground on a capital improvement project that includes the addition of a mezzanine level and new entrance to their building, as well as the installation of new exhibits. This project should be completed in the fall of 2013. While technically not part of the Pima Air & Space Museum, the 390th Memorial Museum is an important asset to our organization and a valued partner. Many of our visitors tour the 390th to see its marvelously restored B-17, and I am sure that once the improvements are complete even more of our visitors will enjoy this memorable museum.

I want to thank all of the members who attended the Annual Meeting of the Membership on Mar. 26, 2013. As our membership grows it is very gratifying to see more and more members attending this important meeting. Staff, volunteers and Trustees work very hard on behalf of the Foundation throughout the year and we enjoy talking directly with members who share our enthusiasm.

We recently completed the installation of perimeter fencing along the eastern and southeastern boundaries of the Pima Air & Space Museum, a project that the Board has wanted to complete for a number of years. The entire grounds of the museum are now protected by a 7-foot chain-link fence topped by barbed wire on the north boundary and razor wire on the east, south and west boundaries. The added fencing provides an additional layer of security for our important aircraft.

Throughout 2013 we will be working closely with Pima County to prepare for the Bond Election in November 2014. If we are successful, Pima County voters will be voting on two projects that will benefit the Pima Air & Space Museum—funds to build a 120,000 square foot Cold War Hangar and funds to build a new Space Gallery here devoted to showcasing the University of Arizona’s impressive achievements in space. That our museum may be considered for two separate projects on the same bond election is a testament to the strong relationship the Foundation has forged with Pima County.

As you will read elsewhere in Skywriting, the Board of Trustees recently surprised me by naming Hangar 1 in my honor. It is my pleasure and one of the great passions of my life to be fortunate enough to lead the Foundation, and I want to thank the Board of Trustees for honoring me in this fashion. I look forward to continuing to work with the Trustees, staff, volunteers, donors and our members as we continue to improve and promote our world class museums.
November of 2012 marked Count von Galen’s 15th anniversary as a member of the Board of Trustees and his 10th anniversary as the Chairman of the Board. Last summer the Board took advantage of one of his rare absences to reflect on how far we’ve come under his leadership and to determine how we could honor him for his vision and philanthropy on behalf of the Foundation. Count von Galen is our longest-serving Chairman, our second-largest donor and our most successful fundraiser. Under his leadership our relationship with our landlord, Pima County, is the best it’s ever been and we’ve completed close to $10,000,000 in capital improvements. As soon as he became Chairman of the Board he reignited the capital campaign for a new visitors’ center at the Titan Missile Museum, making not only the tough decisions on scaling the project to our budget, but making the lead gift for the project as well. Just eighteen months after he took office we held the ribbon-cutting ceremony for the Count Ferdinand von Galen Titan Missile Museum Education and Research Center—and that was just the beginning.

The project at Titan was followed by projects at the Pima Air & Space Museum. The first capital project at PASM was the Spirit of Freedom Hangar, home to our most popular aircraft, the SR-71 Blackbird, as well as one of our rarest aircraft, the PBM Mariner. After that came the Flight Central Hangar—southern Arizona’s largest event venue—and the Flight Grill Restaurant. As I write this, we are just a month away from completing construction of the new wash pad and water treatment system for the Restoration Hangar. Ten years and $10,000,000 in capital improvements and there are more on the horizon thanks to Count von Galen’s leadership.

For these reasons and many more, the Board of Trustees voted unanimously to name Hangar 1 at PASM in Count von Galen’s honor, which we did in early March at a surprise party hosted for the occasion by Countess Anita von Galen. (Thank you, Countess von Galen. It was a beautiful and memorable party.) I know I speak for all of the Trustees when I say it is an honor to work with Count von Galen and we are grateful for his tireless efforts on behalf of the Foundation. It was our pleasure and our privilege to name Hangar 1 the Count von Galen Hangar.
SURPRISE PARTY FOR COUNT VON GALEN

Above Left: Arizona Aerospace Foundation Vice Chairman Boyd Drachman and Chairman Count von Galen.

Above Right: Jim Click, Ferdinand Otto von Galen, Susan Hutchinson, Senator Jim DeMint and Charles Simonyi.

Left: Ann and Ray Carroll, Chuck Huckelberry and Donald Diamond.

Below: Entertainment for the evening was presented by the Harry James Orchestra, conducted by Fred Radke.
EXECUTIVE DIRECTOR’S NOTES
by Yvonne C. Morris

I first want to echo the Vice-Chairman’s remarks about how fortunate we at the Foundation are to have a dynamic leader like Count von Galen. Ten years ago when he took over as Chairman of the Board, our museums were struggling to rebound from the negative effects on tourism and travel created by the terrorist attacks on September 11, 2001. Our relationships with Pima County and the Bureau of Land Management were strained, and as an organization we were not living up to our potential. As a member of the Board of Trustees at that time, I remember thinking that Count von Galen had his work cut out for him.

As Boyd Drachman said, one of the first things Count von Galen did was to reignite the Titan Missile Museum capital campaign. In one of the worst fundraising climates in the last fifty years, he raised more money in 18 months than the Foundation had been able to raise in five years. After that, he reignited the Foundation itself—running the Foundation (with two other Trustees) for a year while the Board searched for a new Executive Director. Pledging his personal honor, he forged new and stronger bonds with the County and the BLM. With his drive and commitment he propelled the Foundation forward into a new era of expansion, fiscal responsibility, and extraordinary achievement. Today, more than 10 years and $10 million in capital improvements later, I believe our museums are finally beginning to realize their potential. It’s been an honor for me to work with Count von Galen these past few years and to be his partner in transforming our museums. I am delighted that the Board of Trustees decided to name Hangar 1 in his honor.

Over the summer, staff at the Pima Air & Space Museum will be working on developing a new and improved website for the museum. Some of the improvements that will be folded into the new website include better functionality, expanded views of some of our most popular aircraft, and the ability to purchase and renew memberships online. Other e-commerce functions, including a web store and the ability to make donations online, are also in the works. We expect the new website to go live sometime in the fall.

At the Titan Missile Museum, preparations are under way to commemorate the 50th Anniversary of Missile Site 571-7 becoming operational—along with the other 53 Titan II missile sites around the United States. Preservation of the Cold War’s physical legacy is caught up in an area of contention where public memory, emotions, agenda and scholarly arguments collide. Many Americans under 40 recall very little about the Cold War and attribute even less importance to it. But more than a third of our visitors not only remember the Cold War, they have firsthand experience with it. Balancing our interpretation of the missile site to accommodate these two extreme perceptions is an ongoing challenge. We must always be flexible enough in our approach to adapt to the evolving knowledge and viewpoints of future generations.

Many of our visitors over the years have been openly skeptical when they learned that the mission of the Titan II was “Peace through Deterrence,” that its very existence was designed to discourage the former Soviet Union from thinking that it could survive a nuclear war with the United States. These same visitors are equally wary when docents tell them that the Titan II would have failed its mission if even one missile had ever been launched in anger. This skepticism often abates once the Titan II story is placed in context. As the steward of this nationally significant site, the museum’s mission is to honor its status as a National Historic Landmark by doing just that—placing the Titan II in its proper historical context in the Nuclear Age, the Cold War, and the Space Age.

The first part of our mission is rooted in the past, but the second part of our mission looks to the future. The United States remains the only country to have used an atomic weapon and many people still struggle with this part of our nation’s history. In that respect there is no other venue in our country that is better equipped to carry out the museum’s second mission of inspiring public dialogue on the ramifications of that decision, the Cold War, nuclear weapons proliferation and disarmament, and the future of nuclear weapons.
The museum will commemorate the 50th anniversary on Jul. 13 during its regularly scheduled Moonlight MADness event and again on Jul. 15, the actual 50th anniversary. During Moonlight MADness the Southern Arizona Rocketry Association will launch several rockets, weather permitting, and also have a static display. Between their rocket launches, the museum’s MAD Scientists will be launching seltzer rockets with the kids. Titan II historian and author Chuck Penson will be on hand for a book signing. Visitors will be allowed to visit the missile crew quarters where a number of former Titan II crew and maintenance personnel will be available to chat and answer questions. Door prizes will be awarded throughout the evening and visitors will also be able to purchase raffle tickets for a catered dinner for 4 with Chuck and me in the crew quarters. We are also hopeful that Brig. Gen. Kevin Jacobsen, the longest-serving missile-launch officer in the Air Force, will be able to attend. General Jacobsen and I served together in the 390th Strategic Missile Wing from 1980 to 1984, and he recently took time out from a trip to Davis-Monthan AFB to visit the museum with members of his staff. These are just a few of the activities scheduled for the site’s 50th anniversary. Visit Titan’s website and Facebook page for more details on this momentous occasion.

More than 1 million visitors have toured the Titan Missile Museum since it opened in 1986, and all of them drove over the same road to the missile site that was built in 1961 and used by the missile crews and maintenance technicians to access the site. Fifty-two years is a long time for a road to go without repairs and in the last several years the access road had really started to deteriorate. In November and December of 2012, thanks to a partnership with Pima County and American Legion Post 69, as well as a matching grant from FreePort McMoRan Copper and Gold, we were able to resurface the access road to the museum as well as its parking lot. As you can see from the before and after photographs below, this was a much needed improvement. The Foundation is grateful to our partners and to FreePort McMoRan Copper and Gold for making this capital improvement possible.

We continue to create new opportunities for our members and visitors to touch 100 years of aviation history and there are new and exciting programs and exhibits at both museums. Information about them can be found in this newsletter, on our websites and on our Facebook pages. As always, thank you for your continued support. I hope you will stop by one of our great museums in the near future.

Yvonne Morris and Brig. Gen. Kevin Jacobsen during one of his recent visits at Titan.
DETERRENCE AND THE ULTIMATE WEAPON: Titan II 50 YEARS Later

by Chuck Penson, Titan Missile Museum Archivist

This year marks the 50th anniversary of the “first alert” of Titan II—the first day a Titan II missile crew stood ready to launch their terrifying missile. So it seems like a good time to take a brief look back and ask how Titan II—the largest and most powerful nuclear weapon system ever deployed by the United States—came to be.

Singer and songwriter Carol King once wrote, “My life is like a tapestry of rich and royal hue, an everlasting vision of an ever changing view.” History is like that also, a richly woven tapestry sewn from the countless billion threads of people, places, things, events and ideas. The way the threads run parallel or perpendicular to each other—and occasionally loop around each other—creates an ever-changing tapestry of all that has passed. Very often it is possible to look closely and follow just a few threads from where they start to get a sense for how some individual event came to pass.

The U.S. nuclear-missile program, including Titan II, was a product of many historical threads, but a rough picture of the whole can be stitched together from as few as three. These threads do not run in neat lines, but twist, turn and tangle in many places through the fabric of time.

Physics

The first thread is that of physics, beginning in 1896 with Henri Becquerel’s observation of mysterious radiations from a piece of uranium. Becquerel’s chance discovery quickly led to the discovery of the electron, proton and neutron, and more generally, to the unraveling of the inner workings of the atom. Previously thought of as being like billiard balls, atoms were now correctly seen as a constellation of even smaller particles, each with their own distinct characteristics. Soon it was determined that these particles were glued together with some kind of energy. Further, it was found that if one smashed a bundle of these particles with sufficient force, not only would they break up into smaller clumps, but also some of the energy that held them together would escape. Along the way, Albert Einstein put an exclamation point on this phenomenon with his famous equation—E=mc²—which says, in essence, that a very small amount of matter contains a very large amount of energy.

Physicists are a clever lot and it didn’t take long to put two and two together and figure out that if you split atoms rapidly and in large enough quantities, the energy released from the process could make a considerable bang. By the start of World War II in 1939 just about everyone in the physics community understood that it was at least theoretically possible to build a bomb—a bomb of unprecedented power—by splitting atoms, a process called fission.

In the world of science and technology it is axiomatic that if it is possible to do something, eventually someone will actually do it. And so it was with the atomic bomb. In the early morning hours of July 16, 1945, after two years of secret work by dozens of the brightest minds in the world, the world’s first atomic bomb was exploded in a remote corner of New Mexico.
Engineering
The second historical thread we see is engineering.

Rockets have been around for a very long time. The Chinese were building small rockets both as weapons and as fireworks as early as the 13th century. In the history of the development of modern rockets, two names stand apart from all others: Robert Goddard and Wernher von Braun. Neither of these men started out trying to build rockets for use as weapons. Both were interested in space travel.

Robert Goddard, an American, is credited with launching the first successful liquid-fueled rocket in 1926. By 1940 he had developed a number of important concepts and systems still in use today, gyroscopic stabilization among them. Although Goddard invented and patented many important technologies, he was never able to integrate all his advancements into a single, fully successful design. His best rocket, fired in 1937, reached an altitude of only 9000 feet (2.7 km). Still, in the history of rockets, progress was often measured one painful step at a time.

In Germany, during the 1930s, Wernher von Braun was one of a group of amateur enthusiasts working on rockets mostly for fun. He too was interested in space travel. But it wasn’t long before his extraordinary talents drew the attention of the military and he soon found himself working on rockets for use as weapons. With the power and financial might of the German armed forces von Braun made rapid progress, and in the final months of World War II thousands of von Braun’s V-2 rockets reigned terror on England and Europe. The V-2 was the world’s first fully developed and successful long-range missile.

In the United States prior to World War II there wasn’t much interest in rockets—at least within the military. But after the war, having seen the V-2 in action, the military put rockets at the top of their wish list. The appeal of rockets is very simple. Because of their tremendous speed rockets are essentially unstoppable. Unlike “lumbering” bomber aircraft that could be shot out of the sky with comparative ease, there is no defense against an attack with missiles.

Here is where the thread of physics gets twisted with the thread of engineering: attach a super bomb to an unstoppable rocket and you have the ultimate weapon.

Politics
The final thread is that of politics. Americans had always been deeply suspicious of communism, but after World War II their fears were heightened by the thought of the Soviet Union taking over all of Europe and the idea that the Soviets were bent on world domination.

In 1949 the Soviets exploded their own atomic bomb and this is where the thread of politics gets tangled with those of physics and engineering. In 1956, the Soviet leader Nikita Khrushchev made his infamous “we will bury you” remark, and the following year Americans awoke to the news of Sputnik — the world’s first satellite.

From that moment the arms race was on. Politics drove physics, physics drove engineering, and engineering drove politics. This cycle, driven by the fear of communism, could spin in either of two directions—toward a few missiles with larger bombs or toward a lot of missiles with smaller bombs. In the case of the United States it spun both ways.
In 1958 the Air Force proposed a force of 10,000 Minuteman missiles, each with a yield of one megaton. The Kennedy Administration bargained down to 1,000 missiles, but also conceded to the addition of a smaller fleet of larger Titan II missiles, each with a yield of nine megatons. For perspective, nine megatons is about 650 times the yield of the Little Boy atomic bomb dropped on Hiroshima, and sufficiently powerful to lay waste to an area of about 900 square miles (2,300 sq. km).

With each side’s nuclear arsenal growing ever larger and more powerful, it slowly became clear that actually winning a nuclear war would be essentially impossible. If both sides had weapons for which there was no defense, how could one win a war? We shoot at them. They shoot at us. Everybody dies. There must be a better strategy for nuclear war. Bernard Brodie, a military strategist at the RAND corporation (an Air Force think tank), summed it up nicely. He said, “Thus far the chief purpose of our military establishment has been to win wars. From now on its chief purpose must be to avert them.” He was framing a strategy that became known as deterrence.

Brodie is widely regarded as the father of deterrence, a strategy based on the fear of mutual annihilation, coupled with the knowledge that there is no defense against a nuclear-tipped guided missile, and predicated on the idea that each side could destroy the other, but only at the cost of being destroyed themselves. Dr. Strangelove said it best in Stanley Kubrick’s 1964 classic film Dr. Strangelove: Or, How I Learned to Stop Worrying and Love the Bomb. Strangelove said that “Deterrence is the art of producing in the mind of the enemy the fear to attack.”

Deterrence. This was the “winning” strategy and the mission of Titan II—not to start a war, but to prevent one from starting. Titan II made it clear to the Soviets that 35 feet underground in a fortified concrete and steel bunker, we could ride out a first strike and live to retaliate. And that if we were forced to do so, the consequences for the Soviets would be so unspeakably horrible that maybe they would prefer not to pick a fight with us in the first place.

It seems to have worked.

For 24 years, from 1963 to 1987, Titan II served admirably the purpose for which it was built—deterrence. Since its retirement in 1987, Titan II has had a new mission—that of preventing the threads of history from unraveling so that future generations can learn from the past. This is especially important because the past is not static. We see the past in the context of the present. And because the present is always changing, so also is our view of the past. As King wrote, “…an everlasting vision of an ever changing view.”

History matters. As the philosopher George Santayanna once remarked, “Those who do not understand the past are condemned to repeat it.”
Each Titan II launch complex was equipped with a variety of antennas designed to provide constant communication with higher headquarters. In the past, visitors to the museum could see all of these antennas—except one: the Survivable Low Frequency Communication System Antenna, or SLFCS (usually pronounced as “slifix”). The reason visitors could not see the SLFCS antenna is that it is buried. The reason for burying the antenna is that putting it underground makes it all but indestructible—it can survive anything but a direct hit. It becomes the antenna of last resort. If everything else topside had been destroyed the SLFCS system would still work. Thanks to blueprints discovered in the archive a few years ago we know the exact location of the SLFCS antenna here at 571-7, as well as its location at all the other sites in Tucson.

A number of years ago we made friends with Drew who had purchased one of the other launch sites in Tucson. He invited us to document the process of excavating his complex. In the course of that work we had occasion to look at a number of blueprints for his site, and mentioned to him the existence of the underground antenna, noting that it probably had not been dug up when the site was demolished, and that most likely the antenna was still there. Drew was intrigued and said that someday he might dig it up and donate it to the museum.

That someday turned out to be December of last year. We got a call from Drew last November telling us that he was going to dig up the SLFCS antenna, and did we still want it? When we said yes Drew fired up his trusty backhoe and started digging. It didn’t take long to find this buried treasure. The top of the antenna was just four feet below the surface. Of course the antenna is six feet in diameter so a lot more digging was required. But in just a few hours Drew had fully excavated the antenna and hoisted it to the surface.

We had always imagined the SLFCS antenna was made of something like fiberglass or rigid plastic of some kind, but it turns out to be made of some sort of very flexible rubber-like material and is springy to the point of being able to bounce a little.

Drew rolled the antenna onto a trailer and hauled it to the museum. He then generously donated his time and energy to mounting the antenna topside were visitors can, at long last, see what it looks like. He poured a concrete foundation and custom welded steel mounting brackets.

The SLFCS antenna is actually two separate antennas, each with its own connecting cable. There is a north-south hoop and an east-west hoop. Switches in the control center allowed the crew to select whichever hoop provided the best reception—this was a receive-only radio. Inside the two hoops are coils of copper wire that are the actual antennas. The SLFCS system received digital signals that printed out messages on a narrow strip of paper, like a cash register receipt. Because of its low operating frequency—between 14 and 60 kilohertz—the system is very slow and messages could take 20 minutes or more to complete. At frequencies this low the earth is transparent and radio signals can pass through the earth as if it wasn’t even there. Just the ticket for post-attack communications.

We have installed the new antenna directly over the spot where our antenna remains buried. We hope you’ll visit soon and see this new display. We are truly grateful to Drew for his generosity and the hard work required to make this happen. Thanks!
Missile site 571-7 under construction in 1962. The silo structure is seen at left side of excavation, with the blast lock and control center to the right. The cableway tunnel has not yet be installed.
Missile site 571-7 as it appears today. By 1980, civilization had encroached significantly on the complex, causing much concern among Air Force officials. Current photography by Chuck Penson and pilot Bert Zaccaria.
**Moonlight MADness**
This event takes place during the second Saturday of each month June - September, from 5-9pm with the final tour beginning at 8pm. Due to space limitations, reservations are required. Don’t miss this special event, which features many special kids’ activities, reduced admission prices (just $7 for each adult, and kids 12 and under are free), and a chance to see the missile lit up after dark. Dates for 2013 are: Jun. 8, Jul. 13, Aug. 10, and Sep. 14. Admission is free for members. For reservations or more information call 520 625-7736 or e-mail info@titanmissilemuseum.org.

**Top-to-Bottom Tours**
This tour is nearly five hours long and takes you through all eight levels of the underground silo. The tour is limited to six people so reservations are required. For more information or to make reservations call 520 625-7736 or email info@titanmissilemuseum.org.

**Beyond The Blastdoor Tours**
Get a deeper understanding of the Titan II by going to areas of the missile site normally closed to the public. This tour is offered the first and third Saturday of every month at 9:30am and is free to members. Reservations are required. For more information or to make reservations call 520 625-7736 or email info@titanmissilemuseum.org. This tour is not handicapped accessible.

**Titan Missile Museum MAD Scientists**
We are proud to have our very own team of MAD Scientists here at the Titan Missile Museum. Stop by our classroom on Tuesday mornings until 11am to see what interesting experiments and activities are taking place. You never know what important discoveries may take place in our laboratory. Our MAD Scientists are also available for school tours and at Moonlight MADness.
## CALENDAR OF EVENTS

### MAY 2013

- **May 7**
  - 2:00pm
  - Crew Tour
- **May 8**
  - 8:00am
  - Titan Top-to-Bottom Tour
- **May 10**
  - 8:00am
  - Titan Top-to-Bottom Tour
- **May 14**
  - 2:00pm
  - Director’s Tour
- **May 15**
  - 8:00am
  - Titan Top-to-Bottom Tour
- **May 17**
  - 8:00am
  - Titan Top-to-Bottom Tour
- **May 18**
  - 9:30am
  - Beyond the Blastdoor Tour
- **May 21**
  - 2:00pm
  - Crew Tour
- **May 28**
  - 2:00pm
  - Crew Tour

### JUNE 2013

- **June 1**
  - 9:30am
  - Beyond the Blastdoor Tour
- **June 4**
  - 2:00pm
  - Crew Tour
- **June 8**
  - 5-9pm
  - Moonlight MADness
- **June 11**
  - 2:00pm
  - Director’s Tour
- **June 12**
  - 8:00am
  - Titan Top-to-Bottom Tour
- **June 14**
  - 8:00am
  - Titan Top-to-Bottom Tour
- **June 15**
  - 9:30am
  - Beyond the Blastdoor Tour
- **June 18**
  - 2:00pm
  - Crew Tour
- **June 19**
  - 8:00am
  - Titan Top-to-Bottom Tour
- **June 21**
  - 8:00am
  - Titan Top-to-Bottom Tour
- **June 25**
  - 2:00pm
  - Crew Tour

### JULY 2013

- **July 2**
  - 2:00pm
  - Crew Tour
- **July 6**
  - 9:30am
  - Beyond the Blastdoor Tour
- **July 9**
  - 2:00pm
  - Director’s Tour
- **July 13**
  - 5-9pm
  - Moonlight MADness
- **July 16**
  - 2:00pm
  - Crew Tour
- **July 20**
  - 9:30am
  - Beyond the Blastdoor Tour
- **July 23**
  - 2:00pm
  - Crew Tour
- **July 30**
  - 2:00pm
  - Crew Tour

### AUGUST 2013

- **August 3**
  - 9:30am
  - Beyond the Blastdoor Tour
- **August 6**
  - 2:00pm
  - Crew Tour
- **August 10**
  - 5-9pm
  - Moonlight MADness
- **August 13**
  - 2:00pm
  - Director’s Tour
- **August 17**
  - 9:30am
  - Beyond the Blastdoor Tour
- **August 20**
  - 2:00pm
  - Crew Tour
- **August 27**
  - 2:00pm
  - Crew Tour

### SEPTEMBER 2013

- **September 3**
  - 2:00pm
  - Crew Tour
- **September 7**
  - 9:30am
  - Beyond the Blastdoor Tour
- **September 10**
  - 2:00pm
  - Director’s Tour
- **September 11**
  - 8:00am
  - Titan Top-to-Bottom Tour
- **September 14**
  - 5-9pm
  - Moonlight MADness
- **September 17**
  - 2:00pm
  - Crew Tour

### Reservations

Reservations required for all listed tours.
Call 520 625-7736 or email: info@titanmissilemuseum.org
All tours FREE to members except the Top-to-Bottom Tour.

**Daily Tours:**
Docent-led Walking Tours offered daily starting at 9:00am

**Museum Hours:**
8:45am - 5:00pm daily (last tour at 4:00pm)
Open every day except Thanksgiving and Christmas.
What was it like for Titan II crew members to sleep underground only a few feet away from the largest missile ever made by the United States?

Now you can find out firsthand when you and three of your closest friends or family spend the night in the crew quarters at the Titan Missile Museum. This rare and unique experience is offered just a few times a year and can be custom tailored to your interests. Join the elite few who have slept in Titan’s lair.

For more information, contact Steve Caputo, Site Manager of the Titan Missile Museum, at scaputo@titanmissilemuseum.org or 520 625-7736.

Executive Director Yvonne Morris takes a father & son team through the launch sequence during their overnight stay at the Titan Missile Museum.
ARIZONA AEROSPACE FOUNDATION - NEW TRUSTEES

The Arizona Aerospace Foundation is pleased to announce the addition of 3 new members to its Board of Trustees:

Graham Dorland  
Tom Murphy  
John Talличhet

“We are fortunate to have such concerned individuals as Graham, Tom and John among our trustees,” said Count Ferdinand von Galen, Chairman of the Board. “The Foundation’s success depends greatly on the guidance, knowledge and counsel of our officers and board of trustees.” Count von Galen continued, “We are grateful to these dedicated individuals for their service.”

About the recently elected Trustees

Graham Dorland graduated from Arizona State University in 1965. He is a successful entrepreneur who founded and served as the CEO of ABX Air, Inc., dba Airborne Express, the third largest package express carrier in the US and the only air carrier to own a Cat II Airport. Dorland later partnered in the development of DC-9 Hush Kits and then went on to found/serve as the CEO of Nautamatic Marine Systems, Inc., a marine autopilot manufacturer. His most recent venture is the Inde Motorsports Ranch in Willcox, the only sanctioned track in Arizona by the Sports Car Club of America. Mr. Dorland is involved in numerous community organizations and he is the Past Chairman of Big Brothers of Seattle, WA and a Past Trustee of Wilmington College in Ohio.

Tom Murphy is a third generation Tucsonan who graduated from the University of Arizona’s College of Law in 1972. Murphy practices general corporate and commercial law with an emphasis on healthcare law at Gust Rosenfeld. Prior to joining Gust Rosenfeld, Murphy served as General Counsel for the Carondelet Health Network, the oldest and largest nonprofit healthcare provider in Southern Arizona. In addition to healthcare law, Murphy also has expertise in nonprofit corporation law. He is a life member of the Tucson Fiesta Bowl Committee and of the St. Mary’s Centurions. A member of the DM-50 since 2001, he has served as Secretary, Vice President and President and he is currently the immediate Past President.

John Talличhet graduated from the University of Southern California and he also holds MBA degrees from the Haas School of Business at UC Berkeley and the Columbia Business School at Columbia University. Tallichet has over 25 years of restaurant-industry experience and he is the CEO and President of Specialty Restaurants Corporation where he is responsible for the company’s restaurant, real estate and aviation divisions. Tallichet is a member of the California Restaurant Association and has served on the CRA’s Orange County Board of Directors. He also serves as a board advisor to The Sam Pievac Company and he is a Trustee of the Flight Test Historical Foundation which supports the development of the Air Force Flight Test Museum at Edwards AFB, CA and the museum’s Blackbird Airpark Annex at USAF Plant 42 in nearby Palmdale.
On January 26 the Pima Air & Space Museum held the 2nd Annual Great Paper Airplane Fly-Off. Nearly 150 children ages 6-14 braved the heavy rain to put their paper-airplane-folding abilities to the test in three different age categories. The giant M&M, Red, was there to cheer on all of the contestants, courtesy of the Fly-Off sponsor, Mars, Inc. Guinness World Record holder for “time aloft” for a paper airplane, Ken Blackburn, joined us again as the event emcee. Mars, Inc. also brought its sponsor tent complete with a prize wheel for everyone to enjoy. The three Fly-Off winners each received a green pilot’s jacket emblazoned with the Great Paper Airplane and museum logos, and a check for $500. The winners’ names will also be engraved on the perpetual trophy that will remain on display at the museum as part of the Great Paper Airplane Exhibit. Stay tuned for info on the 3rd Annual Paper Airplane Fly-Off, coming your way in early 2014.
LEFT PAGE:
TOP: Ken Blackburn instructs a heat to throw their planes.
BOTTOM: The Mars Inc. sponsor tent was a huge hit for all contestants and their families.

THIS PAGE:
TOP: Contestants fold their paper airplanes.
RIGHT: The perpetual trophy that will live at the Pima Air & Space Museum as part of the Great Paper Airplane Project.
BOTTOM LEFT: A heat prepares to throw their planes.
BOTTOM RIGHT: The 2013 Fly-Off winners left-right: Aaron E. (Ages 9-11); Ken Blackburn; Nathaniel R. (Ages 6-8); Tobias H. (Ages 12-14)
In May of this year we will have completed our refurbishment of the museum’s Avro Shackleton. This airplane has been a popular addition to our collection and is very keenly followed by fans all over the world.

Soon after the end of World War II the Royal Air Force issued a requisition for a new four-engine long-range maritime patrol plane to replace its American-made Liberators and Fortresses. The Avro Company responded with a new design based on the Lincoln bomber and Tudor airliner and a little bit of everything else that was in use from iconic Avro designs like the Lancaster. The first prototype flew on March 9, 1949. It was configured to carry nine general purpose bombs, or three torpedoes or depth charges, and two 20 mm cannons, and was powered by the WW II classic Merlin series engines. The new design was named Shackleton after the famous British Antarctic explorer and entered service in February 1951. Beginning in 1971, a dozen Shackleton MR.2s were modified into Airborne Early Warning (AEW) aircraft by the addition of radar systems and domes removed from the Fairey Gannet. These aircraft served with the RAF until 1991 when the last of them were retired.

The “Shack” is a very popular spectacle for our visitors. Invariably anyone who spends even a few moments taking in its lines can’t help but fall a little bit under its spell, an ugly duckling that has an almost unrivalled history of service, versatility and devotion from those who flew on it, serviced it or built it.

Two members of the Shackleton Association, Dave Hencken and Kevin Byron, summed up this affection in one of their presentations on the Shackleton:

I believe that the key to the mystery lies in her uniqueness. She looked like an antique when she was new and while the rest of the Air Force was equipping with modern aircraft like the Valiant Vulcan and Victor, Coastal Command was getting its Shacks. It was difficult to believe that a machine that looked like a box of frogs could do the job at all, but her crews have always taken a perverse delight in proving conclusively that they could not only do the job with the old girl—but mostly do it better than anyone else could. In the process they tended to become fiercely protective towards the Shack. I have seen this demonstrated on 8 Squadron with young men who were not born until she had almost finished her first ASW incarnation. Among consenting adults in the Squadron they were as scathing as Shack crews have always been about her manifest shortcomings, but let an outsider pass a derogatory comment and he’s dead. Although it must be said that Shack crews are the first to appreciate any Shack-related witticism, such as delivered by the Colonel who described the Shack as reminding him irresistibly of an elephant’s bottom—grey and wrinkled outside and dark and smelly inside.

By 1951 the MR.2 variant came into service and ultimately evolved into the AEW.3 in response to the evolution of the needs of the RAF and its role in securing the maritime sea lanes. Our Shackleton here at PASM finished service life in 1991 in AEW.3 configuration.
Our plane, Avro Shackleton WL790 Mr. McHenry, was delivered to the RAF on June 26, 1953. The typical Shackleton mission was the hunting of submarines, possibly for several hours, at around 500 feet or lower over huge desolate tracts of ocean.

When we reached the scene, the gunrunning sampan was still running free and the Navy asked us (as if it was our fault) if there was anything we could do; e.g. fire shots across the gentleman’s bow? They could not do it because of the downward angle. This was all being observed by an Indonesian Gunboat a few inches over on his side of the International border.

I immediately requested permission to arm weapons, Steve said “Wait a minute, I’ll try something else.” We entered the arena at 40 feet or so, flat chat and right over the lad’s head. Before we could have a look and see what effect that had, the Navy said “I think that will do, thank you!’ The Indonesian Gunboat went home and the RN sent a boat to pick up a shocked gunrunner. Our post flight briefing spent quite a while on the possible maintenance required by mountings in the Tropics.

The world’s last airworthy Avro Shackleton completed what may have been the type’s last flight on 16 December 2007, as it relocated from the Commemorative Air Force (CAF) ramp at Midland, TX to the Pima Air & Space Museum in Tucson, AZ. (A group of enthusiasts are currently trying to get WR963 back into the air – so a Shack may yet again take to the skies.)

Since 2005 there had been uncertainty over our "Shack's" fate. During that time, the aircraft's owner, Michael Collett of Atlantique Classic Flight, had been between a rock and a hard place: the Civil Aviation Authority in the UK would issue a ferry permit for the aircraft to fly back home, but once there they would ground her unless a very costly spar replacement was performed.

The aircraft had been for sale in the U.S. for a couple of years, but no interested parties ever appeared. The grey old lady was slowly dying under layers of Texas dust despite the efforts of the CAF, who had kindly allowed the aircraft to be parked on its ramp for free and who would also hangar her when the group's other aircraft were away.

The Pima Air & Space Museum was more than happy to offer WL790 a new home. Given the dry, warm climate in Arizona together with the experienced staff at Pima, this was probably the best place for the Shackleton to retire.

The aircraft will wear the markings of 8 Squadron RAF, the unit it retired from and served the longest with over its nearly 40-year service. It has been to the far reaches of the globe, flying maritime reconnaissance missions, anti-submarine, intelligence gathering, antipiracy and anti-insurgency missions in addition to humanitarian search and rescue. We hope it continues to capture the imagination of our visitors for decades to come.
AIRCRAFT RECENTLY PLACED ON DISPLAY

After numerous hours of polishing, the Boeing KB-50J Superfortress was placed back on display.

The McDonnell F2H-2P Banshee was recently placed on display after receiving a new coat of paint.
The Cessna 120 received a new coat of paint.

The Piper U-11A Aztec.

The Cessna 310.
The Avro AEW.3 Shackleton is now in the Restoration Hangar being prepped for paint.

The Hind-D Helicopter is reassembled and prepped for paint.
The P-39 Airacobra is prepped and awaiting paint.

The Fm-2 Wildcat is in Area 51 for re-assembly, strategic repairs and selective re-painting. This will be done in such a manner to preserve its 1945 “as found” essence.

The Douglas A-24 SBD is in restoration currently having small parts work done.
RECENT ACQUISITIONS

Boeing 737

The F-18A—Retired Blue Angel.
The English Electric F.53 Lightning.

This B-52 Tail Gun assembly will be integrated into the Vietnam display in Hangar 1.

The L-1011 Cockpit arrived from Roswell, NM. This will be turned into an interactive cockpit and placed in Hangar 1.
The Pima Air & Space Museum recently placed on display a mockup of the Phoenix Lander. Phoenix was a robotic spacecraft that landed on Mars under the Mars Scout Program. It was launched from Florida on August 4, 2007. The Phoenix lander successfully landed on Mars on May 25, 2008. Mission scientists used instruments aboard the lander to search for environments suitable for microbial life on Mars, and to research the history of water there.

The lander itself was originally built for the cancelled Mars Surveyor lander mission in 2001 and had been in storage for several years before being reactivated and modified for the Phoenix program. The multi-agency program was headed by the Lunar and Planetary Laboratory at the University of Arizona, under the direction of NASA’s Jet Propulsion Laboratory and included participation by universities in the United States, Canada, Switzerland, Denmark, Germany and the United Kingdom; NASA; the Canadian Space Agency; the Finnish Meteorological Institute; Lockheed Martin Space Systems; MacDonald Dettwiler & Associates (MDA) and other aerospace companies. It was the first mission to Mars led by a public university in NASA history. It was led directly from the University of Arizona’s campus in Tucson, with project management at the Jet Propulsion Laboratory in Pasadena, CA, and project development at Lockheed Martin in Denver, CO. In addition to leading the mission, the University of Arizona contributed the design of several of the lander’s scientific instruments and cameras to the project.

Phoenix was NASA’s sixth successful landing out of seven attempts and was the first successful landing in a Martian polar region. The lander completed its mission in August 2008, and made a last brief communication with Earth on Nov. 2nd as available solar power dropped with the Martian winter. The mission was declared concluded on Nov. 10, 2008, after engineers were unable to re-contact the craft. After unsuccessful attempts to contact the lander by the Mars Odyssey orbiter up to and past the Martian summer solstice on May 12, 2010, JPL declared the lander to be “dead.”

Technical Specifications:

- Total Width with solar panels: 18 feet
- Diameter of lander’s science deck: 4.9 feet
- Height: 7.2 feet
- Weight: 770 pounds
The rearranging of Hangar 4’s aircraft was done to make room for several new aircraft to be added to the hangar and to make it easier to move the new planes into the building. The largest move was the shifting of the C-46 Commando from one side of the hangar to the other. This required that the plane not only be moved to the opposite side of the room but that it also be turned nearly all the way around to face in the opposite direction. Once this had been accomplished the F4U Corsair was moved next to the P-51 Mustang and its wings were lowered to the extended position. Two aircraft have been added to the hangar so far, the Naval Aircraft Factory N3N firefighting aircraft and the MiG-15 fighter. These will be joined at a later date by other World War II and Korean War aircraft that are currently undergoing restoration including the P-39 Airacobra, F-86E Sabre, and FM-2 Wildcat.
Construction of the new Restoration Wash Pad should be complete by the end of May. This will allow us to work on our largest aircraft.
These concept drawings are of what the 390th Memorial Museum will look like after the current remodeling project is finished. The new exterior of the building will be squared off and a second floor mezzanine will be added, allowing for more square footage inside. A more modern exterior design will complement the surrounding Pima Air & Space buildings and draw visitors in. Both new and remodeled displays are being planned to improve the flow of the story of the 390th to Museum visitors. New windows will allow for more natural interior lighting and allow visitors to enjoy the surrounding desert landscape outside.

A view from the upper mezzanine level.

The new entranceway that will greet visitors to the Museum. The “J Wall” is shown in its future home on the left of the picture.

A cutaway view showing the new interior with mezzanine level.
RECENT HAPPENINGS

On Apr. 11, 2013 the Oscar Mayer Wienermobile paid a visit to the Pima Air & Space Museum. It took a slow lap around the museum grounds to the delight of many museum guests.

The Southern Arizona Greys had a special Greyhound Meet & Greet on Apr. 13 at the Pima Air & Space Museum. Our museum guests had an opportunity to meet fast greyhounds while looking at fast planes and talk to experienced adopters about what great companions greyhounds make.

Retired racing greyhounds that formerly raced at 45 mph are now looking for their forever homes, ready to “race into your heart.” For more information please go to: www.agreyhoundadoption.org
On February 20, we experienced a Snow Day, which are few and far between at the Pima Air & Space Museum. The white stuff didn’t get deep, nor did it stick around for long, but it did create a rare sight.
On Feb. 22-24 we hosted the Huey Forum. During this event, 23 Huey pilots, crew, and designers shared their stories about this amazing aircraft. Visitors were treated to a pre-event reception on Friday night, a fly-in by a UH-1H Huey owned by DillonAero, and a keynote address by Robert Mason, author of the bestseller “Chickenhawk.” We plan to hold events similar to this each year focusing on a different aircraft, so check the website frequently to learn more details.
The Pima Air & Space Museum welcomes its first mobile app! The GeoTrexpedition—which runs within the MyGeoTrex app. MyGeoTrex is a free GPS-based app that provides information about the aircraft and exhibits as you explore the grounds. While outdoors, the four closest exhibits to your location will pop up on your screen. You can then touch anyone of those four tiles for additional information on that aircraft or exhibit. While indoors, since the GPS capability of your smartphone or tablet is limited, you can touch the “Manual Update” button at the bottom of the screen and you’ll be able to look up the exhibit alphabetically by scrolling the slider bar.

To start: The app can be downloaded by searching for “MyGeoTrex” in the Apple app store or Google Play for the Android version. If you are accessing the app for the first time, a tutorial will pop up and explain the different features of MyGeoTrex. Once the app is installed, find the Pima Air & Space Museum Trex under the Museums, Aquariums and Zoos category. Please note: You’ll use your device’s dataplan to download the information. (The museum does provide free wi-fi in Hangar 1—however, as stated earlier, inside a metal hanger GPS does not generally work.) Enjoy!

FOUNDATION WISH LIST

VISITOR SERVICES
- Durable Plastic Wagons
- Wheelchairs
- Filing Cabinets

EDUCATION
- Plastic Storage Bins with Lids
- Children’s Books on Aviation & Aerospace

OPs AND RESTORATION
- Gently Used Gator / Utility Vehicle
- Portable Generator
- Golf Carts
EDUCATION PROGRAMS & HAPPENINGS

by Mina Stafford, Curator of Education

ARTS INTEGRATION SOLUTIONS

Last fall we entered into a partnership with Art Integration Solutions. This organization strives to transform the educational system by bringing the classroom practice of arts integration to every child, in every classroom, every day, helping them succeed in math, science, literacy and life. The Pima Air & Space Museum is working with Ai Solutions to develop a professional-development program that will help teachers teach the science and math of aviation through arts integration. Stay tuned for more details about this awesome professional-development program.

OUTREACH ACTIVITIES

During the Winter and Spring months the education department has been very busy with community outreach. We have had tables at community education events like the Ted Walker Youth Day at Old Tucson, the UApresent Children’s Festival, Science In the City at the Children’s Museum Tucson, and Science City at the Tucson Festival of Books. We will continue our community outreach throughout the Spring and into the Summer at the Pima Community College Northwest Campus Earth Day Fair Apr. 17th, Mini Time Machine Museum’s 4th Annual May Day Celebration Apr. 27th, and other events to be announced. I hope to see you at one of these great events.

MODEL AIRPLANE BUILDING WORKSHOP

On Mar. 2nd we had our first all-day model airplane building workshop. Members of the Sonoran Desert Model Builders volunteered their time and expertise to teach kids ages 10 and up the exciting hobby of model building. We made a model of the Hawker Hurricane and took the kids to study our Hawker Hurricane in Hangar 3 so they could be accurate in their paint jobs. Each kid took home a completed model and enjoyed a fun day at the Pima Air & Space Museum.

Mark your calendar for August 3 from 10:00 - 3:00pm for another Model Airplane Building Workshop. The workshop will be held for children ages 10 and up. The cost is $15 for nonmembers and $11 for members. Price includes the model and lunch. To make a reservation please email mstafford@pimaair.org or call 520 618-4819.
SCHOOL TOURS AT THE PIMA AIR & SPACE MUSEUM

The docents at the Pima Air & Space Museum have been busy providing exciting and informative tours for students of all ages from all over the state. Students experience the wonder of aviation and aerospace history and learn about the science behind flight.

If you have children in school, encourage their teachers to make plans to visit the museum.

VOLUNTEER PRESENTATION SERIES

The Volunteer Presentation Series is held the third Saturday of each month, at 10:00am in the Stitt Education Center at the Pima Air & Space Museum.

May 25
Jim Evans – “Dam Busters” raid by Avro Lancaster bombers from 617 Squadron on Ruhr Valley dams in Germany (70th anniversary of event).
Mr. Evans will give an overview of a WWII RAF mission called Operation Chastise. In May 1943, RAF Lancaster bombers attacked the great dams of the Ruhr Valley in Germany using unique tactics and weapons. Jim will walk us through this raid and assess its importance and effectiveness.

June – August Summer Hiatus

Sep. 21
Paul Woodford – The F-15A and F-15C
Mr. Woodford will be discussing the F-15A and F-15C and their flying characteristics, radar capabilities, and armament. Mr. Woodford will talk about basing, past and current.

NIGHT WINGS

This summer we will be open from 5:00-9:00pm for Night Wings on Jun. 22nd, Jul. 27th and Aug. 24th. Make plans to come out and enjoy the museum in the cool of the evening. We will have hands-on activities for kids of all ages, tram tours of the outdoor aircraft until sundown, and a different special attraction each month. We look forward to seeing you in the evening light at Night Wings.
**SOARIN’ SATURDAYS**
by Mina Stafford, Curator of Education

**Model Airplane Make ‘N Take**
1:00pm—1st Saturday of the month
Enjoy model building with the Sonoran Desert Model Builders. For children 5 years old and older and their adult companions. This program is designed to introduce students to the hobby of model building and the math and historical research used to build accurate scale models. Each student will build a snap-tight airplane they can take home with them and see models made by expert model builders.

**Imagine Rockets**
1:00pm—2nd Saturday of the month
Learn about the science behind rocketry. For children 8 years old and older and their adult companions. This program is designed to introduce students to the principles of rocket science through demonstrations and hands-on rocket-building and testing activities. During this program participants get to build and test experiments that demonstrate basic rocketry principles. Our rocket expert will lead you through Newton’s laws of physics and show you how physics and chemistry are used in rocket science. Everyone gets to take home the experiments they build as well as test the Mighty Missile Launcher and the Mighty Seltzer Rocket which are available for purchase in our Museum Store. Members receive a 10% discount on all museum-store purchases.

**How Things Fly**
1:00pm—4th Saturday of the month
Experience the fun and excitement of flight. For children 8 years old and older and their adult companions. During this program students will build and test aviation experiments that demonstrate things like the power of air pressure, aircraft stability, and lift. All students get to take home the experiments they build.

**Young Flyers Fun**
1:00pm—4th Saturday of the month
For children ages 4-7 years old and their adult companions. This program is designed to introduce children to the world of Aviation and Aerospace through gallery activities and tours, story books, demonstrations and hands-on craft projects that can be taken home. A different topic will be featured each month.
TOURS:
Docent-led Walking Tours
Daily 10:15am
Tram Tour
Daily 10am, 11:30am and 1:30pm.

390th AMARG TOUR
Monday-Friday, excluding Federal Holidays. Call 520 574-0462 for current times.

For information on all tours, please contact Visitor Services at 520 574-0462 or visit our
CALENDAR OF EVENTS

MAY 2013
May 4
1:00pm
Model Airplane Make 'N Take *

May 11
9:30am
Volunteer Orientation
-and-
1:00pm
Imagine Rockets *

May 18
9:00am
British Invasion
-and-
1:00pm
How Things Fly *

May 25
10:00am
Volunteer Presentation Series
-and-
1:00pm
Young Flyers Fun *

JULY 2013
July 6
1:00pm
Model Airplane Make 'N Take *

July 13
9:30am
Volunteer Orientation
-and-
1:00pm
Imagine Rockets *

July 20
1:00pm
How Things Fly *

July 27
5:00pm
Night Wings

AUGUST 2013
August 3
1:00pm
Model Airplane Make 'N Take *

August 10
9:30am
Volunteer Orientation
-and-
1:00pm
Imagine Rockets *

August 17
1:00pm
How Things Fly *

August 24
5:00pm
Night Wings

SEPTEMBER 2013
September 7
1:00pm
Model Airplane Make 'N Take *

September 14
9:30am
Volunteer Orientation
-and-
1:00pm
Imagine Rockets *

September 21
10:00am
Volunteer Presentation Series
-and-
1:00pm
How Things Fly *

September 28
1:00pm
Young Flyers Fun *

MUSEUM HOURS:
9-5pm daily. Last admittance at 4pm. Open every day except Christmas and Thanksgiving.

TOURS:
Docent-led Walking Tours
Daily 10:15am
Tram Tour
Daily 10am, 11:30am and 1:30pm.

390th AMARG TOUR
Monday-Friday, excluding Federal Holidays. Call 520 574-0462 for current times.

For information on all tours, please contact Visitor Services at 520 574-0462 or visit our

GIVE THE GIFT OF MEMBERSHIP
An annual membership to the Arizona Aerospace Foundation provides the recipient with 365 days of free admission to both the Pima Air & Space Museum and the Titan Missile Museum, including special activities and tours. Members also receive a 10% discount in the museum stores and at Flight Grill, and a one-year subscription to Skywriting.

To order an annual membership please call Membership Services at 520 574-0462
PASM DOCENT RECEIVES FAA’S WRIGHT BROTHERS MASTER PILOT AWARD

by Savanna Sargent

The Federal Aviation Administration (FAA) presented Larry Clark, a Pima Air & Space Museum Docent, with the distinguished “Wright Brothers Master Pilot Award” on Dec. 12, 2012. This distinguished award is presented to pilots who have demonstrated excellence by maintaining 50 or more consecutive years of safe flying in both civil and military capacities. Larry has achieved 51 consecutive years of safe flying with over 12,000 flying hours in 45 different airplane and helicopter models. He himself has owned 16 different airplanes. He also holds FAA licenses as an Airline Transport Pilot (ATP) for airplanes and helicopters, Airframe & Powerplant Mechanic (A&P), and in Inspection Authorization (IA).

Larry was trained as a helicopter pilot in the U.S. Army and flew with the 128th Aviation Company in Vietnam under the call sign “Gunslinger 37” from 1965 to 1966. He was awarded 14 Air Medals and the Bronze Star for his combat flying. He has an Aeronautical Engineering Degree and has worked for several commercial helicopter operators, flying a hospital-based EMS helicopter, TV News helicopter for KHOU-TV in Houston, and surveying and forest fire fighting in Alaska. He is also a former Experimental Test Pilot for Honeywell’s Commercial Aviation Systems in Phoenix, AZ.

At the award ceremony, Larry was presented with a certificate and his wife, Diana, was presented with a lapel pin. He is now recognized in the “Wright Brothers Master Pilot Award – Roll of Honor” that is located online at www.FAASafety.gov. Dominick Gallo of the FAA presented the prestigious award, which has only been given to 45 pilots in Arizona, four of those in Tucson, since the award’s establishment in 2003. FAA volunteers Lee Unger, Brian Forstall and Barbara Harper were in attendance as well. Ms. Harper is the Chair of the Arizona Aviation Hall of Fame Selection Committee as well as an inductee.

The Wright Brothers Master Pilot Award is only one of many achievements for Larry Clark. He holds two U.S. patents on cockpit human interface, two U.S. and World Aviation records, and he is the founder of the Vietnam Helicopter Pilots Association. In addition to being a docent at the Pima Air & Space Museum, Larry is currently in training to achieve a Commercial Glider pilot rating.

The Arizona Aerospace Foundation congratulates Larry Clark for this most prestigious award. 51 years of safe flying is certainly something to celebrate!

Gall (left) presenting award to Clark (middle) and his wife Diana (right).
VOLUNTEER APPRECIATION DINNER

The annual volunteer recognition dinner was held on Feb. 13 in Flight Central at the Pima Air & Space Museum. It was the largest recognition dinner with 376 guests in attendance. The volunteers of the Pima Air & Space Museum and the Titan Missile Museum contributed 87,983 hours in Fiscal Year 2012. Col. Robert Lepper, 309th AMARG Commander, and Rick Barrett, both Trustees of the Foundation, were guest speakers and thanked the volunteers for their countless hours of volunteerism.

Left: Volunteer Appreciation Dinner

Below: First Flight, photo by John Daniels

HAPPY BIRTHDAY ORVILLE (NATIONAL AVIATION DAY)

Join us for a special celebration commemorating Orville Wright’s birthday at Pima Air & Space Museum on National Aviation Day: Mon. Aug. 19, 2013. Watch a special showing of the Wright Brothers’ National Memorial film “Flight Room Talk” depicting how the Wrights developed the first successful “heavier-than-air” flying machine. The 25-minute movie will be shown in the Education Room in the Dorothy Finley Space Gallery throughout the day (check our website for times). [This DVD will be available for purchase during the month of August in our museum shop too.]

Climb into the T-33’s open cockpit. Enjoy a cupcake (limited quantities, first-come-first served) in Flight Grill. As a special thanks to our members, receive an extra 10% off in the museum shop on Aug. 19th only! Yes, a total of 20% savings even on summer clearance items! Members only! All included with regular admissions or membership.
THANK YOU - VOLUNTEERS

Our large corps of volunteers at both the Pima Air & Space Museum and the Titan Missile Museum help out in almost every department at both museums, interacting with our 200,000 annual visitors, or working behind the scenes in collections, restoration and on committees. Listed are volunteers with 250+ hours through March 2013.

250+ Hours
Susan Flemming
Clint Swartz
Paul Woodford
Marsha Kwolek
Phil Lacovara
Catt Kestler
Virginia Swartz
Tom Cantrell
Jim Evans
Larry Macon
Richard Hart
Lorne Hawkins
Lloyd Sandmann
Jim Devine
Bob Walsh
Diana Clark
Cliff West
Robert Bassett
Jim Hemenway
Jim Abbey
Tom Campbell
Larry Knaff
Len Voermans
Bob Balck
Jim Zimmerman
Tom Gorman
Lewis Hawkins
Buster Cormier
Doug Jenkins

500+ Hours Cont.
Richard Rogers
John Kaminski
John Gieb
Christina Bentley
Larry Clark
Terry Eichenseer
Bill Scott
Mike Berk
Dennis Anderson
Jim Bergstrom
Bill Sproull
Ed Ackerman
Kirby Dominguez
Andy Stephenson

500+ Hours
Floyd Dickerson
Bernadette Bauer
Kyle Rossi

750+ Hours
Richard Carter
Ed Duthweiler
Jim Hartigan
Randy Hoffman
Tom Collins
Tom Walton
Don Kohls
Werner Lawson
Ed Bowers
Steve Slocum
Mike Noreen
Michael Lennon
Steve Austin
Jim Hoffmann
Joe Petska
Buz Hudacky
Fred Denson
Karl Krumel

750+ Hours Cont.
Chuck Winkerwerder
Lee Besse
Gerald Geise
Jack Battaglia
Damon Blair
Joyce Petska

1,000+ Hours
Margie Humphrey
Richard Dougall
Martin Anderson
John Miller
Jack Briggs
Tom Schart
John McGee
Roger Misgen
Steve Holt
Dave Hinkelman
John Newton
Paul Kuras
George Felton
Hap Sumner
Tom McDonnell
Dana Lorenz
Dennis Brindle
Bob Robuck
Al Ranes
Jim Seidel
Pete Herrman
Don Severe
Ken Crombie
Bill Preble
Jim Simonds
Herbert Wolfe

1,000+ Hours Cont.
Jacquie Thomas
Wes Frost
Hans Oppe
Larry Fieland
Bruce Saunders
Jim Lewelling
Ben Wermes
Ken Leland
Keith Connolly
Marian Walsh
Jeremy Rogers
Lynne Severe
Rey Johnson
Felice Rolfes
Bob Kurneta
Bob Spackman
John Eichelberg
Terry Lingrel
Bob Gaines
Gerald Kohls
Allen Shanahan
Gary Thomas
Jerry Carl
Art Blue
Don Cassiday
Rod Farley
David Steuck
Bob Berger

2,000+ Hours
Wayne Butler
Clifton Sonberg
Dennis Mart
Bob Darcangelo
In Memoriam

We would like to offer our sincere condolences to the families and friends of our recently departed Museum volunteers:

Tom Clark
Hank Dykhuis