If your Birthday is missing from the list, please send an email to Katha Lilley, tootiekat@live.com thanks.

**Our Mission**

To inspire and educate
To promote and preserve aviation and space history
To honor the patriotic service of our veterans

**IN MEMORIAM**

FRED HASCH
STAN RICHARDSON
WENDELL WILLARD

**JULY BIRTHDAYS**

1- Ken Mills
1- Rob Murice
3- Dave Christian
3- Chis Loveland (cad)
4- Colin Scott
5- Ken Harms
6- Ray Davis
7- Thomas Braeunig
8- Jean Wittrock
9- John Dozzi
13- Don Thomson
14- Terry McGowan
15- James Ranier
15- Keith Riggs
17- Ben Erb
17- Cecil Mead
20- Tom Braeunig
20- Dan Simonsen
20- William Walker
20- David Rabe
22- Rusty Denham
25- Katha Lilley
26- Michael Axtman
26- Tom Kranovich
28- Richard Copsey
28- Jerry Martin
28- Jim Hancock
29- Greg McGill
29- Robert Lalonde
30- Cliff Anderson
30- Robert Gang
31- Donn Anderson

**WELCOME NEW MEMBERS**

Scott Mowery
Scott Morgan
William Whiteman
Mark Henderson
Curtis Heimberg
Neal White
George McNamee
Joseph Kremers
Bradley Rhoses
Anton Schuster
Malcolm Cagle: I do not believe any broad-minded pilot who has flown both will deny that the Hellcat is an easier plane for the average pilot in training to learn how to fly. First of all, it’s absolutely “honest.” The Hellcat will shake and shudder like a dog in heat before it stalls—the Corsair doesn’t always give such an emphatic warning. The Hellcat can be spun, and simply releasing the controls will usually bring it out—the Corsair, on the other hand, is restricted from spins, and once in one, takes a strong pair of arms and legs to get her out. Moreover, the visibility from the Hellcat’s cockpit is superior in the landing attitude—an important factor in learning to fly any plane.

Now then, let’s honestly compare the two planes. We Hellcat pilots will admit that the Corsair is a wee mite faster—the Navy gives the Corsair an official 4-knot advantage, which is perhaps not generous enough. And we will admit that the Hellcat can’t hold a candle to the Corsair’s rate of climb, range, gas consumption, acceleration, and ceiling. That’s a lot to concede, I’ll admit, but from here on, we’ll fight for every quality and win the over-all battle; firepower is equal and the edge in maneuverability securely belongs to the Hellcat. Durability? The Hellcat proved in the last year of the war to be tougher, more capable of taking damage, less susceptible to the pounding that all carrier planes take than the Corsair. In target adaptability, the two are at least equal, for the Hellcat will carry the same practical weight of bombs and rockets that the Corsair will.

As far as carrier work goes, the Hellcat again holds the edge. While the Corsair is generally admitted to have a better arresting hook and faster operating flaps (permitting it to get out of the arresting gear on the carrier’s deck more quickly that the Hellcat), this is its only winning point. The Hellcat wing spreading and locking device is more positive and reliable, the plane requires less parking space and, most important, it is far more adaptable to repair and overhaul than the Corsair. The “6” requires fewer spare parts, is easier to service and easier to maintain. Ask any flattop that has handled both planes, which is the best all-round carrier plane, and the answer will be Hellcat every time.

There are several other advantages the F6F holds. In the matter of pilot convenience and comfort, the F6F is superior. The fact that the late models of the Corsair (F4U-4) adopted the Hellcat’s well-organized instrument panel and cockpit arrangement is proof of this. There’s no reaching for the wheels, no inconvenient and bothersome need to retract the hook before the wheels can be raised (important on wave-offs), and no tugging on the wing-locking device. The Corsair has two air coolers, one in each wing, to the Hellcat’s one. This arrangement lost many a Corsair to a single bullet. Moreover, the Corsair has more gasoline in the wings than the “6,” an obvious hazard.

And just as a matter of record, for every Jap plane a Corsair shot down, the Hellcat destroyed ten.
**SIX TURNIN’, FOUR BURNIN’**

**Part Three of Six**

**Prologue:** The expression “six turnin’, four burnin’” referred to the six props and four jets that powered the ten-engine B-36. But B-36s initially had just six (6) engines. I served on the ground crews of two of these early models, 047 and 069. Later models, beginning with the B-36D, had an additional four jet engines, two under each wing’s outer panels. Eventually all six engine B-36s were upgraded to the ten-engine configuration. When 069 returned to Convair for conversion, our crew was given Aircraft 051, a recent B-36B to B-36D conversion. (Previously misidentified as 054)

**Aircraft 051:** Surely 051 was the most unlucky B-36 ever. During the first months following conversion 051 aborted several key missions and its flight crew frequently had to use other aircraft to maintain their “lead crew” status. On 051’s final flight the crew had accepted the aircraft even though only two of its four alternators could be brought on line.

During climb out, the engine driving one of those two good alternators would not maintain full power and was shut down. The pilot now declared an emergency and turned back. On the down-wind leg the engine driving the remaining good alternator caught fire requiring it to be shut down. At this point the flight engineers un-feathered the weak engine reestablishing electrical power as the pilots turned onto their base leg. Upon touchdown and reversing propellers a second engine caught fire.

The FBI and Air Force CID eventually cleared the ground crew of any charge of sabotage. Fire damage was extensive, and a special team came from Convair to rebuild 051. The squadron was initially unsure of the outcome of the accident investigation, and as the rebuild would take a long time, our squadron decided it would break up the 051 team. I found myself transferred to a maintenance squadron assigned to Engine Buildup.

**Engine Buildup:** The term was a misnomer. Engine Nacelle Buildup would be more accurate. The R-4360 was mounted in the nacelle at seven points. The nacelle was attached to the wing at four points. The four-point change needed less aircraft down time than seven-point change.

When an engine change was needed, the old engine/nacelle was removed and taken to Engine Buildup where reconditioning was accomplished via an assembly line process. First the engine was extracted. Then heat exchangers, superchargers, and intercoolers (two of each) were removed and sent to Subassembly Overhaul. Next the fire wall and support structure were inspected for cracks and other weaknesses, needing repair. Then the rebuilding began, ultimately producing a new/reconditioned engine/nacelle ready for a needy aircraft.

All of this was a part of the Strategic Air Command, which meant that from time-to-time, there were surprise alerts. The phone would ring with orders to report to the base, super fast. It did not take long to learn that the first people to arrive were often the last to be released to go home. No officer questioned our ever growing response times.

Nevertheless, once I drove like the wind. The call came on a three-day weekend. I reasoned that this had to be a real WAR ALERT as not even General Curtis LeMay would dare interrupt a three-day, peace-time weekend. At the gate each car was stopped and ordered, “Give me your lighter and all your matches.” The base had been struck by a tornado. Fuel was raining from the ruptured wings of dozens of B-36s. About eighty B-36s from all squadrons had been scattered like autumn leaves, most had lost their tail sections. One B-36 had been deposited on top of another... and what about unlucky 051? The rebuild had finished late Friday, with first flight scheduled for Tuesday. The storm changed all that by picking up 051 and dropping it in a gravel quarry... so 051 was scrapped.

[Next time B-36 experts]

Earl Scott
**SUMMER CAMP**

**R/C (Remote Control) Camp:** July 9th-11th: 9am to 3pm
Do everything, from learning how the remote control system works, to designing your own model remote-controlled aircraft. Students Grades 5-8 will learn how to fly using a Horizon Champ they get to keep at the end of camp. End the week with handling the controls on a real remote control aircraft!
Cost: $225 General Public, $200 Museum Members. Advanced R/C: July 16th-18th: 9am to 3pm

**New for 2014! Advanced Rocketry Camp** will allow students Grades 5-8 who have taken the beginning Rocket Camp to advance to a more powerful and complex rocket. In addition to an E motor rocket, students will design and build a Boost Glider rocket. A more advanced team rocket will also be designed and flown during this exciting, high-flying camp.
Cost: $150 General Public, $125 Museum Members. Advanced R/C: July 23rd-25th: 9am to 3pm

**New for 2014! Advanced R/C camp** is for students Grades 5-8 who have taken our beginner R/C camp and are ready for a new challenge. Our advanced R/C camp will feature a full day of refresher 3-channel flying ending in an afternoon of 4-channel trainer flying. Students will build and fly their own 4-channel aileron aircraft they get to take home. The Evergreen Aero Modelers will be with us for advanced training, and students will also get stick time on ducted fan jets!
Cost: $275 General Public, $250 Museum Members. Fun Fridays (Day Camps)

**Water Water Everywhere** (at the Waterpark): August 1st: 9am to 3pm
This is the only camp that will be held at Wings & Waves Waterpark, where campers Grades 1-4 will learn all about water. Several experiments will be done, underwater robots will be demonstrated, the H2O Hands-On Science Museum will be utilized as well. And…what would a visit to the Waterpark be without some Waterpark fun? From 1pm-3pm students will have free time in the park (campers will need an adult chaperone to attend after class swim time at 1pm)

**Junior Astronauts:** August 15th: 9am to 3pm
Campers Grades 1-4 will learn all about our nation’s manned space program, and the history and future of space exploration. We will also explore our neighboring planet, Mars. Campers will design a mission to Mars, build a Mars rover and fly paper rockets!
Cost: $45 General Public, $40 Museum Members.

**Ace Aviation Camp:** August 29th: 9am to 3pm
All things that fly will be discussed. Campers Grades 1-4 will build a variety of fun flying machines and learn the forces that make them fly.
Cost: $45 General Public, $40 Museum Members.
Arlington National Cemetery commemorated its 150th anniversary with a series of special events from May through June 2014. The events began with a wreath laying ceremony on May 13 at the grave-site of Army Pvt. William Christman, who was the first military burial at Arlington, and concluded with a wreath laying ceremony at the Tomb of the Unknown Soldier on June 15, the day Arlington officially became a national cemetery. The cemetery also hosted lectures and tours that highlighted the history of the United States through the military conflicts that shaped the cemetery and the nation.

Arlington National Cemetery was created during the American Civil War and has become a national shrine for hundreds of thousands active duty military members and veterans who have served during times of war and times of peace. America’s heroes are buried here from every American conflict, from the Revolutionary War to the conflicts of the 21st century.

One of the tours highlighted the Medal of Honor, the highest award for valor which can be bestowed upon an individual serving in the Armed Services of the United States. Approximately 407 Medal of Honor recipients are buried at Arlington National Cemetery. A tour on June 6 covered the story of American conflicts through the valor of Medal of Honor recipients.

For general information:  [A Visitors Guide to Arlington National Cemetery](http://www.arlingtoncemetery.mil/)

Or [http://www.arlingtoncemetery.mil/](http://www.arlingtoncemetery.mil/) for the official website
Famous Aviators—Eddie Rickenbacker

“Courage is doing what you are afraid to do. There can be no courage unless you are scared.”
Eddie Rickenbacker

He had only a seventh grade education, but Eddie Rickenbacker rose to the heights of World War I air combat and, later, business, during a varied and distinguished career.

An Ohio boy whose parents were German-speaking Swiss, Rickenbacker exhibited a reckless tendency from an early age. It would result in many near-death experiences throughout his life.

He was 13 years old when his father died. He quit school to support his mother, taking odd jobs until his late teens. He became enamored with automobiles and landed a job with the Columbus Buggy Company as a salesman. He began racing some of the company’s automobiles and soon was a well-known driver, competing in the Indianapolis 500 four times prior to WWI.

Rickenbacker enlisted in the US Army at the beginning of WWI and arrived in France in 1917. His lack of academic credits kept him from joining the new flying corps, but he managed to become a mechanic in one air group. He took the opportunity to learn how to fly. His flying abilities were soon recognized, and he was assigned to an air combat unit in 1918. In April of that year he shot down his first enemy aircraft. He went on to lead all US combat pilots in aerial victories, achieving a total of 26 by war’s end.

After WWI Rickenbacker returned to his roots, founding an automobile manufacturing company (it failed), buying the Indianapolis Motor Speedway, and founding an airline with a friend. That airline eventually merged into Eastern Airlines, with Rickenbacker as President. In that capacity he steered EAL into a position of prominence, leading the way toward acquisition of larger and faster airlines, such as the DC-4 and Lockheed Constellation.

It was on an Eastern Airlines flight that Rickenbacker had one of his near-death experiences. While on a routine flight in a DC-3, it crashed near Atlanta, GA. Although severely injured, he encouraged all of the passengers and directed efforts to seek help. He barely survived and was actually reported as dead by the press.

As World War II began, Rickenbacker was out of political favor, having opposed President Roosevelt’s policies prior to the war. Secretary of War Henry Stimson saw Rickenbacker’s value to war effort, however, and bypassed Roosevelt to involve him in promoting the country’s needs. On a tour of South Pacific bases, Rickenbacker hitched a ride in a B-17. The bomber strayed far off course and was forced to ditch in the Pacific near Japanese held islands. He and the other survivors drifted many miles for 24 days before being spotted by a patrol aircraft and being rescued. Rickenbacker assumed leadership of the group and was credited with saving all of their lives. Again, the press had reported him as dead.

In the later years of his life, Rickenbacker continued to be active in Eastern Airlines business until his resignation in 1963. He traveled the world extensively, became a sought-after speaker throughout the USA, and spoke out for the causes he held to be important. He died in 1973 at 82 years of age.

Rickenbacker’s SPAD, in which he gained most of his aerial victories.
THE TITAN II

Last month’s article covered the Titan II Inertial Navigation System and new Room Temperature Propellants. Now consider its Combustion Instability Problems and Hot Stage Separation.

During the development of the Titan-II first and second stage engines Combustion Instability Problems developed that could burn a hole through the upper part of the rocket engine thrust chamber resulting in catastrophic failure. This combustion instability problem was essentially eliminated by placing baffles on the face of the thrust chamber injector. A section of a Titan II second stage injector is located at the entrance desk of the Space Museum. It shows an early design of the baffles. All subsequent liquid rocket engines with flat face injectors have been similarly equipped with these baffles and combustion instability is no longer a threat. Great examples of these ‘baffles’ can also be seen on the H-1 engine, the Titan-II second stage engine, the Titan IV first and second stage injectors and the separate M-1 injector on display in the Museum’s Space area.

In earlier multistage rockets separation of stage 2 from the expended stage 1 started with the shutdown of the stage 1 rocket motor(s). The stages were then typically separated by a system containing springs, explosive bolts, and small solid propellant rocket motors. When the stages were about 50 feet apart, the second stage rocket engine would start causing the second stage to accelerate away. This process can take five or more seconds resulting in a decrease of vehicle velocity and subsequent range. To shorten this effect, and thus maximize range, the Titan II utilized a Hot Stage Separation technique. Hot separation begins when the second stage engine starts while the two stages are still joined together. The initial hot exhaust gases from the second-stage rocket engine are ducted overboard through the rectangular and circular openings in the Titan’s interstage structure assembly. These are visible just below the USAF star insignia in the photo from our Titan II in the Space Museum.

When the buildup thrust of the second-stage rocket engine exceeded the decreasing thrust of the first-stage engine, explosive bolts fired to release the two stages from each other.

John Jennings

Ref: Titan-II.com, History of Liquid Propellant Rocket Engines (George P. Sutton)

An old lady was knitting as she was driving down the highway, not paying any attention to the road. Pretty soon, a police officer pulls alongside her car and yells, "Pull over!"

The lady yells back, "No - mittens!"
Quotable Quotes - Military Secrets

♦ The only time you have too much fuel is when you are on fire
♦ Friendly fire—isn’t
♦ Airspeed, altitude, and brains. Two of these are always necessary to successfully complete the mission - Basic Training Manual
♦ Any ship can be a minesweeper. Once!
♦ If you hear me yell, ‘Eject, Eject, Eject!” The last two will be echos.’ If you stop to ask “Why?”, you’ll be talking to yourself, because by then you’ll be the pilot.’
   Pre-flight briefing from a Canadian F104 Pilot

Star-Spangled Manners

The American flag is especially prominent in the U.S. every summer from Flag Day to Independence Day. As you celebrate important milestones and salute liberty, take a moment to brush up on flag etiquette. Check the website below for guidelines on flag handling...

http://www.moaa.org/main_article.aspx?id=14507

TRI MOTOR GOODBYE

Photo submitted by Angie Garcia
5-MINUTE HISTORY:

AVIATION IN JULY

As mentioned last month, on June 29, 1937, Amelia Earhart (born July 24, 1898) and Frank Noonan arrived at Lae, New Guinea, to refuel and get some rest. The remaining 7,000 miles of their ‘round-the-world journey would be over the Pacific with stops at Howland Island, Hawaii, and California. As we all know now, they didn’t make it. On July 2, 1937, they were lost somewhere near Howland and never heard from again. The official search was abandoned on July 17th, although some continue to search.

July 4, 1956 — A Lockheed U-2 reconnaissance aircraft makes its first operational over-flight. It is designed to fly at subsonic speeds and photograph the earth from 60,000 feet.

July 5, 1940 — The first American paratrooper unit is formed at Fort Benning, Georgia.

July 11, 1935 — Laura Ingalls (not to be confused with Laura Ingalls of Little House on the Prairie fame) arrives in Burbank, California, after an 18-hour flight from Floyd Bennett Field, New York, making her the first woman to fly east-to-west across the United States.

July 13, 1957 — President Eisenhower becomes the first United States President to fly in a helicopter when he is flown from the White House to an unnamed military post in a USAF Bell UH-13J.

July 15, 1916 — Timber merchant William E. Boeing forms a new aircraft company, the Pacific Aero Products Company.

July 16, 1971 — Jeanne M. Holm, director of WAF, becomes the first woman promoted to Brigadier General. She was born in Portland, Oregon, in 1921.

July 18, 1915 — Katherine Stinson becomes the first woman to loop the loop in an airplane. The stunt pilot performed the full rotation of her airplane over Chicago.

July 20, 1969 — Neil Armstrong lands the lunar module “Eagle” on the surface of the moon. His immortal first words are, “that’s one small step for man, one giant leap for mankind.” USAF Colonel “Buzz” Aldrin joins Neil Armstrong on the surface of the moon while USAF Lt. Colonel Mike Collins remains in orbit.

July 25, 1909 — Louis Blériot of France, who flies his Blériot “No.Xi” monoplane from Les Baraques to Dover, England in 37 minutes, makes the first airplane crossing of the English Channel. (Our replica sits across from the Wright Flyer) The event increases public and government awareness of the possible military aspects of the airplane.

July 26, 1947 — President Truman signs National Security Act creating the USAF as a separate service.

July 29, 1958 — President Eisenhower signs the National Aeronautics and Space Act, creating a new federal agency, the National Aeronautics and Space Administration (NASA). NASA’s stated goal is to enable the United States to lead the exploration of space for peaceful purposes to benefit humanity.

Spencer Vail
JUNE BOARD OF CAPTAINS MEETING

Larry Wood asked that if a volunteer has an issue with a staff member, that volunteer should take the issue to the Day Captain who will inform Larry of the issue.

The new IT person is Ralph Plizga who can be seen dealing with the various computers in the Museums.

Melissa Grace will provide Staff Officer calendars for weekends. Copies will be at all admissions desks for the weekend Day Captains. That staff person will have a radio, monitoring and transmitting on channel 8. Melissa also asked that volunteers taking photographs in the Goose to be careful with their tone of voice in working with the staff in the Museum store and the front desk. Most of these staff members are young and may be intimidated by the “older folks”. Be friendly and have patience.

New summer hires are coming on board in admissions, Museum store, and the cafes.

The movie schedule was changing on June 22 with some old favorites added back in.

Restoration has three new aircraft: F-86H, O-2 Skymaster, and the C-45. There are still no tools or machinery for the restoration volunteers to work on the aircraft. It is not clear as of yet where the planes will be worked on.

Ideas as needed for recruiting new volunteers. Laurel Adams would appreciate any ideas of getting the word out to the public for new volunteers.

Paul Gelinas is putting a Book on War Birds on the desk in the west wing in the Aviation Museum. It is a great reference item for the volunteers. Please do not take it home or remove it from the Museum.

The next meeting will be on July 11 as the first Friday is July 4th. Jim Lilley

JULY LAUNCH PAD

Launch Date

1 Delta 2  United Launch Alliance to launch Orbiting Carbon Observatory-2
Satellite to study CO2 in the atmosphere. Launch from Vandenberg AFB

1 Antares  Orbital Sciences to launch 3rd Cygnus cargo freighter on 2nd operational
flight to the ISS. Launch from Wallops Island, VA

8 Rockot  Russian vehicle to launch 3 Gonets M communications satellites.
Launch from Plesetsk Cosmodrome, Russia

10 Soyuz  Arianespace rocket to launch a mission from Guiana Space Center.
Will carry 4 satellites for O3b networks to provide broad-band service to developing countries. Launch from ELS, Sinnamary, French Guiana

23 Soyuz  Russian: rocket to launch 56th Progress cargo delivery ship to ISS.
Launch from Baikonur Cosmodrome, Kazakhstan

25 Ariane  Arianespace to launch European Space Agency’s 5th Automated Transfer
Vehicle. ATV carries cargo to ISS. Launch from ELA-3, French Guiana

31 Atlas 5  United Launch Alliance in the 401 configured rocket to launch AF’s 7th
Block 2F navigation satellite for Global Positioning System.
Launch from Vandenberg AFB.

Provided by John Jennings
I was reared on a 3500-acre farm and ranch, the Lone Tree Branch, 18 miles north of Conrad, Montana, where I attended grade school and high school. And I did go to a country school for the first six years. After graduation from high school, I married and lived with my in-laws until my husband was called up for service in Vietnam. We both loved airplanes so chose the Air Force to avoid being drafted into the Army.

He trained as a B-52 mechanic in Rantoul, Illinois, where our son was born. This was our first experience out of Montana. While there, Rantoul experienced the worst snowstorm they had ever had. With no transportation, we had to walk everywhere. It was a scary time for a naive country girl.

We were transferred to Glasgow AFB, Montana, until it was closed down. Our second child, a girl, was born there. Then we went to Guam; later to Fairchild AFB, Washington.

My husband left the service in 1972 after being asked to re-enlist but being trained as a chopper mechanic didn’t appeal to him. I wanted to stay in the AF, but he decided to buy his father’s farm where we lived until selling it.

While on the farm, we bought a Cessna 150 after he completed his flight training and got his pilot’s license with the help of the GI bill. We built a grass strip on the farm and flew whenever we could, checking the cattle from the air. The cattle could pasture in some coulees which were hard to get to by 4-wheel drive or dirt bikes.

One day while checking the cattle and flying alone, he crashed the plane in an irrigation ditch and was lucky not to be killed, but those were the end of our flying days. We couldn’t afford a new plane, and he lost his pilot’s license because of health reasons.

For 25 years, I was a licensed cosmetologist and owned and operated my own hair and tanning salon. I also took a few college courses to keep my mind active. My main interests are air shows, air races, race cars, motorcycles, music, dogs, photography, crafts, dancing (I clog), the ocean, garage sales, sprint boat races, pro-rodeos, and EASM.

After retiring and moving here, I saw an opportunity to be around all the aircraft and meet wonderful people with great stories. This is a great time in my life; even though I don’t have much experience, I am learning a lot. What wonderful people to be around on the Thursday crew.

Submitted by Bob Osborn