



# UN-SCRAMBLE



The Official Newsletter of the Valiant Air Command Warbird Museum  
6600 Tico Road, Titusville, FL 32780 - (321) 268-1941  
website: <http://www.valiantaircommand.com>  
email: [warbirds@valiantaircommand.com](mailto:warbirds@valiantaircommand.com)

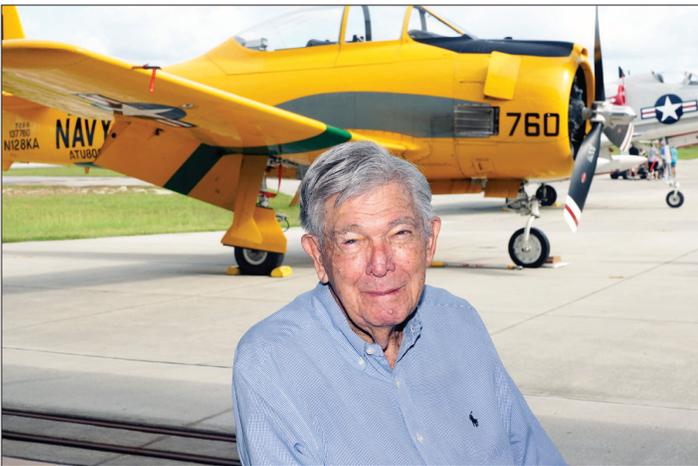
## 2nd Quarter Review - April, May, June 2016



The newest addition to our pedal plane squadron



6/25 F-100 Super Sabre in restoration



6/11 Bud Evans, Former VAC Executive Officer, visits the VAC and enjoys our new Fly-in Buffet



6/11 Enjoying all the goodies at the Fly-in breakfast

MUSEUM AND GIFT SHOP - OPEN 7 DAYS A WEEK - 9AM TO 5PM

Closed Thanksgiving, Christmas and New Year's Day

Adults \$20.00 - Senior or Military \$18.00 - Students 13 to 18 years old \$10.00

Children 5 to 12 years old \$5.00 - Children under 5 years old \$Free - Special Tour Rates Available

### *Statement of Purpose*

*The Valiant Air Command was formed to perpetuate the history of aviation, to encourage gathering of men and women in camaraderie, research and Warbird restoration, to serve as an educational tool for young and old alike; and to assure that the memory of those who gave their lives in service to their country shall not perish.*

501 (c) (3) Non-Profit Organization Museum Recognized by the Internal Revenue Service

## Future Events • 3rd Quarter • 2016

July 4	Independence Day - Please be careful!	August 13	Fly-in Breakfast & C-47 rides R.S.V.P.
July 9	Fly-in Breakfast & C-47 rides - make your reservations now.	August 18	Full moon.
July 16	RIP Hunters - Paranormal team investigates the VAC - You need tickets.	Sept 5	Labor Day
August 6	Anniversary of Enola Gay dropping the first Atomic Bomb on Hiroshima, Japan - 1945	Sept 16	Fly-in Breakfast & C-47 rides R.S.V.P.
		Sept 22	First day of Autumn
			Check the VAC website for late, breaking dates <a href="http://www.valiantaircommand.com">http://www.valiantaircommand.com</a>



### Commander's Report

*Norm Daniels, Commander*  
 Email: [Commander@valiantaircommand.com](mailto:Commander@valiantaircommand.com)  
 (321) 268-1941

The past six months have been exciting. We were notified that the Warbird Museum has been Top Rated in TripAdvisor. Our flying aircraft have been requested to support other venues and have traveled to MacDill AF Base, Sun and Fun, Stuart and Vero Beach. These requests are in recognition of our continuing efforts to showcase the Valiant Air Command and Museum. The efforts of Karl Holly, Director of Operations and Charles Hammer, Director of Maintenance and their respective teams make this possible. Those of you who are pilots know how much effort and skill is required to keep aircraft flying. Thanks to the efforts of Jim Owens, Executive Officer and a grateful thanks to VAC Member, Richard Jones we have modern hi-speed internet communication system that will shortly allow the VAC to timely inform members of upcoming events and happenings. We have initiated an aggressive marketing plan with Bob Boswell, Public Relations Director in charge of the effort. Our Procurement Director, Bob Frazier has developed a strong source network and due to his efforts, we will receive first dibs on some special aircraft as they become available. Tom Etter has been elected as Facilities Director and is already taking care

of business.

Restoration of the Canberra and the B-52 cockpit continues. Within a week painting of the Canberra will begin, it will look as good as new. Prepping of the B-52 for primer and paint inside and out is continuing including the ejection seats and instruments. The Restoration team has just finished refurbishing one of our jet engines now on display in the main hangar.

Next in line for restoration is F-100 Super Saber. This aircraft has been moved into the restoration hangar and work has begun. Some new metal skin has already been fabricated and installed where corrosion had eaten away the original metal. Members interested in restoration should see this aircraft now and see it again when completed to view the transformation the restoration volunteers will have created.

Plans are continuing for the 2017 AirShow lineup. As noted in the last Unscramble, we have the USAF Thunderbirds headlining the show.

Our Museum Gift Shop is continuing to bring in new merchandise. When you visit, Anita, Lorraine, and Louise will make sure you do not miss anything or leave empty-handed. Remember your 10% member discount.

### Restoration Hangar



6/18 - Canberra is primed and ready for painting (above & below)



6/18 - The crew is making progress on the B-52 Cockpit



Jet engine all cleaned and painted and is now on display in the main hangar; looks fantastic

*Would you like to be part of the restoration crew? Fill out an application on our website or stop at the Gift Shop and get an application.*



## Executive Officer's Report

Jim Owens, Executive Officer  
Email: ExecutiveOfficer@valiantaircommand.com  
(321) 268-1941

In my new responsibility, I have been tasked with updating our infrastructure, both computer network and telephone system. Our computer network has grown out of necessity incrementally over the years and is seriously inadequate. Our telephone system is old technology many years old to the point that new replacement cards are not available only used from eBay.

### INFRASTRUCTURE

Our updated internal network is almost complete. We were extremely lucky to have the majority of the hardware donated thru: Brevard County's Asset Management, Brocade Inc., and Florida Institute of Technology. Our new software was deeply discounted thru "Techsoup" an organization that makes current software and hardware available to non-profit organizations like ours. Currently, we have a network that would cost any organization in excess of \$30,000. We have updated our internet connection to a much faster bandwidth and reliability with Florida High-Speed Internet. The majority of this cost saving effort was due to efforts of our new tech support person and VAC Member Richard Jones. We are now in the final stages of completing the functionality of our network and need everyone's cooperation to complete this process. The intent was to have a network that is more current in technology and is equivalent to any other business today.

The primary goals were as follows:

- Establish a network server that belongs to and is maintained by VAC personnel. We have two Physical Servers and two Virtual servers - completed.
- Establish fiber-optic links to switches in our outlying buildings - completed.
- Hard-wire all computers directly to the network switches to minimize the use of wireless connectivity - completed. The only remaining wireless connections are those who choose to do so.
- Establish wireless access points in the hangers for those with portable wireless devices - almost complete.
- Establish security controls on user access to the network, access by login and password only, monitored and administered by Richard Jones - almost complete.
- Establish network monitoring and trouble analysis on a routine basis. Remote access to accomplish this task is thru TeamViewer which allows user-initiated remote access to the PCs on the network to assist the staff with computer problems - completed.
- Establish a centralized network and computer trouble reporting process "Richard Jones: Helpdesk@valiantaircommand.com" - completed.
- Establish centralized drive storage for files commonly used and accessed by all VAC staff, we refer to it as your "G" drive - completed.
- Establish private drive storage for files and information accessible only by you, we refer to it as your "H" drive - completed.

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## Gone West

Retired Staff Sgt. David Jonathan Thatcher, 84, one of the last two surviving members of the Doolittle Raiders died 23 June 2016 in Missoula, Montana.

### Join the Paranormal R.I.P. Hunters at the Valiant Air Command Warbird Museum

Saturday, July 16, 2016, at 8:00 PM a group will meet at the Museum and explore the paranormal activities that are taking place in the museum. It will be led by Paranormal/R.I.P. Hunters. If you are interested go to <http://www.meetup.com/riphunters/events/231570679/> and get your ticket.



L-R Norm, Barb, Lynn and Bob

May 30, 2016 - Norm and Barb Rathborne & Lynn and Bob Foraker presented a wreath on behalf of the VAC at the Titusville Memorial Day ceremony

 **UN-SCRAMBLE** 

The Official Newsletter of the Valiant Air Command

**The Un-Scramble Team**  
Ron Davis - Lorraine Juhl - Louise Kleba - Phyllis Lilienthal - Genie Owens

1st Quarter - Jan, Feb & Mar  
Submission deadline - Mar 27th NL Published - April 1st

2nd Quarter - April, May & June  
Submission deadline - June 25th NL Published - June 30th

3rd Quarter - July, Aug & Sept  
Submission deadline - Sept 25th NL Published - Sept 30th

4th Quarter - Oct, Nov & Dec  
Submission deadline Dec 24th NL Published - Dec 31st

Please note: Items submitted after the submission deadline will not be published or will be published the next month if applicable.

## Executive Officer's Report

*Continued - From Page 3*

- Establish a common email system, provided by Microsoft and managed by VAC Technical Staff - complete.

Every Officer now has their own individual email address: `firstname.lastname@valiantaircommand.com`, you can also use distribution group email addresses as well and it will point to your email box i.e., "financedirector@valiantaircommand.com".

One of the driving reasons for this email system update was to eliminate multiple email addresses where multiple individuals were answering the same email creating confusion. There is now a single point email address for the VAC, [Warbirds@valiantaircommand.com](mailto:Warbirds@valiantaircommand.com), it is checked several times a day and if an email comes in for a particular Officer it will be forwarded to that Officer for resolution. For this reason, each Officer (if you haven't already) should start using their own

assigned VAC email address for VAC business. This email address can be accessed from anywhere. If you haven't already set up your VAC email account or if you need a computer, see or email Richards Jones. There are only a few not yet set up. We need to make the maximum of our investment.

### TELEPHONE SYSTEM

We currently are taking bids on replacing our old phone system with more current technology which would include new VOIP telephone sets. The new system would include voice mail, a menu tree with options available to the caller. During special events such as our airshow, we could have a menu for directions or tickets, limited only by one's imagination.

As soon as our budget allows we will replace our current telephone system.

**Jim Owens,**  
*Executive Officer*

## Facilities Officer's Report

*Tom Etter, Facilities Officer*

*Email: [FacilitiesDirector@valiantaircommand.com](mailto:FacilitiesDirector@valiantaircommand.com)  
(321) 268-1941*



I am too new to have a report. I am excited to be on the Board of Directors where I can perhaps help the VAC more than as a Volunteer.

Jim Owens asked me to do a 'walkabout' noting things that would make the VAC better for our Visitors, Safety items, and places to help our Volunteers work with less effort. Norm Daniels gave me a list he had been working on. The resulting two-page list of items gives me direction as to what I will be

doing. Don Leathers, Dutch, Charlie, and Bob Boswell have also pointed out needs or repairs as have many of our fellow Volunteers. So far, our Volunteers have been giving me great and enthusiastic support and I look forward to working with everyone keeping the VAC great.

My hobby all my life is to visit museums, forts, and ships. I feel we are unique in the way we operate and present ourselves. This, I will continue.

May 14, 2016 - Fly-in Breakfast catered by Chef Matt, owner of DIYM Catering



It all begins here at the beginning of the buffet line.

Lorraine Juhl (right) will take your money and Chef Matt (center) will make you a delicious omelette



(L-R) Barb Rathborne, Sandy Boswell, Sous Chef Lynda Evans and Chef Matt stand behind the pastries, cookies and fruit



(L-R) Barb Rathborne, Sandy Boswell serving the hot items on the buffet line



[DIYMCatering.com](http://DIYMCatering.com)

**321-501-5701**

*"Delicious in your mouth"*



## Maintenance Officer's Report

Charlie Hammer, Maintenance Officer  
Email: MaintenanceDirector@valiantaircommand.com  
(321) 268-1941

The 2nd quarter of 2016 has been fairly quiet for the "Tico Belle", with the exception of an exciting 3-day visit to the Sun-n-Fun Airshow in Lakeland on April 5th. Each day, hundreds of folks lined up to tour the plane and truly enjoyed hearing about her history. Many people had stories of their own about their experiences with DC-3's and C-47's. Our next excursion was the Vero Beach Air Show on the 25th of June. The Belle flew down on the 24th and remained static while individuals and families enjoyed the Warbird experience. The T-28 Trojan also went to the airshow and owner and pilot Karl Holly did some formation

flying with other aircraft. In an effort to make the C-47 more appealing to the public,



we have added tables to the plane and adopted a "club seating" arrangement so the passengers can enjoy the flight while facing each other, creating a more comfortable social environment.

The A-4C Skyhawk has had a quiet 2nd quarter, currently down for a broken hydraulic line. A replacement

line is on order and hopefully this great airplane will be back in the sky soon.

There has sadly been no change to the status of the TBM. She is still in the hangar waiting for the repairs she so desperately needs. We have acquired some new test equipment that may help us determine the root of her problems and we will soon be back to work on the plane to resolve these issues.

I would be remiss if I didn't mention the guys and gals on the hangar floor that help maintain and keep these planes ready. It is their support that makes us look so good when we visit the Central Florida events that we attend. The Volunteer spirit is alive and well at the Valiant Air Command Warbird Museum.

*Charlie Hammer, Maintenance Officer*



Col. Hugh Maxwell, USAF Ret., 99 year old WWII B-25 pilot visited the VAC and Tom Reilly gave him a ride in his B-25 "Killer B". Col. Maxwell was thrilled to get to fly in a B-25 once again; notice the great big smile on his face in the photo on the right. Col. Maxwell, now 100 years old, is sent a big VAC Birthday wish.

**JOE REUS, AUTHOR OF KRIEGSGEFANGENER (WAR PRISONER),  
WILL BE AT THE JULY 9TH FLY-IN BREAKFAST TO AUTOGRAPH BOOKS.  
COME, MEET THE AUTHOR AND GET YOUR AUTOGRAPHED COPY!**



## Operations Officer's Report

Karl Holly, Operations Officer  
Email: [OperationsDirector@valiantaircommand.com](mailto:OperationsDirector@valiantaircommand.com)  
(321) 268-1941

Welcome to the Dog Days of summer. Yes, it's been a scorcher, especially for those working in the hangars and on the ramp. At least now we can slow down and take a breather.

We have started tapering off on events after a very hectic first quarter. Of course, you are aware that our own Tico Warbird AirShow wrapped up back in March, but we kept our flight crews and all of those needed to support them busy with follow-on events. The week after our own show, we sent two aircraft, Tico Belle and the A-4, to MacDill AFB for their Tampa Bay Airfest. It was a well-attended event, and we had many visitors eager to see our C-47. Unfortunately, we had a mechanical with the A-4 canopy, that required a lot of work from various groups to get it back home. Thank you to all of those who pitched in.

Our next event was the well-regarded Sun 'n Fun show in Lakeland. We got our C-47, SNJ, and T-28 there. Thanks to some great help with the organizers and the Warbirds of America group, we were given the opportunity to bring a rental motor coach to the Warbird line, giving our volunteers a great place to recover from the heat and noise. We got strong support from those attending the show, with lots of donations and PX sales. Our goal is to build on this, with a better presentation of who and what we are. It's paramount that we educate our communities about our organization, to generate more interest and support, whether

financially or through volunteerism. We hear the phrase "I never knew that was there" way too often, even in Titusville. That needs to change if we want to make our operation stronger.

Our planned static display at Patrick AFB fell through, which disappointed all involved. We wrapped up May with a Memorial Day flyover at Cocoa Riverfront Park, which was well received by their organizers and attendees.

We just returned from the Vero Beach Air Show. With the tragic loss of Blue Angel #6, the Blues had to cancel their appearance in Vero. They had a couple of other birds cancel on them, so the organizers approached us about additional



*Karl's T-28*

support. We put two members T-28s in the show, which gave them some much-needed noise and smoke, and wrapped up by flying formation with the FM-2 Wildcat. What a privilege and thrill. While their air show was not well attended, the organizers and volunteers performed well, and were always upbeat and supportive. I'm so glad that we were able to help.

Our upcoming events are few, but very exciting. Many of you haven't seen some of the interior changes to Tico Belle. Thanks to our own Charlie Hammer, the seating

is now in a club-seating style, with two seats facing another two, and custom tables between them. This is in preparation for our upcoming "Champagne Flights." Our goal is to have the crew in uniforms circa WWII and have them serving champagne and snacks to our paying customers for a bit longer flight. We'll try several formats, to see what resonates with customers, and stimulates additional demand for flights. Stay tuned for the upcoming schedule on that. We will publish more news on our website.

Besides the C-47 flights, there will be an airshow in Punta Gorda, the Florida International Airshow, on 21-23 October. Our big finale in 2016 will be the Stuart Airshow on 4-6 November. Please come and see their shows and our crews at work.

After listening to your feedback, we have reinstated our Breakfast Fly-in on the second Saturday of each month. We have a new vendor with a new menu, which, while a bit more costly (around \$12/person), has been very well received. We will have added attractions in conjunction with the breakfast which should stimulate more interest. Our own VAC member, Major Joseph H. Reus, will be signing copies of his book "Kriesgefangener: War Prisoner." We are also hoping to have a couple of our other authors signing their books as well. More details will be published in our Fly-in Breakfast flyers and emails. If you would like to receive notices of events like this, please let us know via email, and we'll get you on our mailing list.

Thank you for your support

*Karl Holly, OPS Officer*



## Procurement Officer's Report

Robert Frazier, Procurement Officer  
Email: ProcurementOfficer@valiantaircommand.com  
(321) 268-1941

**L-13 AIRCRAFT** - We recently sold the museum's partially restored L-13 aircraft and the remaining used parts. The buyer intends to procure or make the missing assemblies and complete the restoration to flying status.

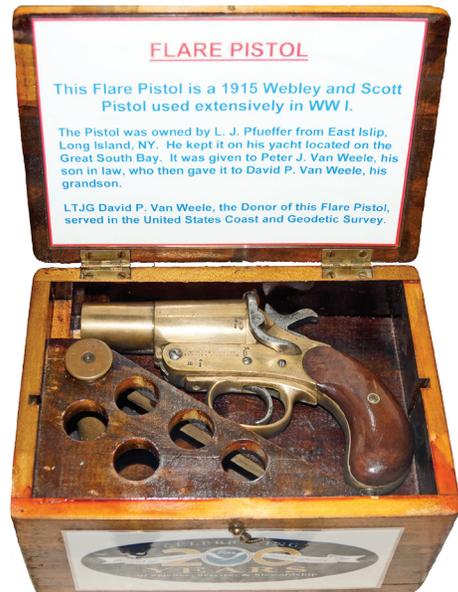
**FIGHTER AIRCRAFT** - The possibility of obtaining the loan of a USAF stored F-89 or an F-84F for the VAC Museum is being evaluated. The disassembly and relocation costs for a large fighter is a major consideration.

**DONATIONS** - There has been a significant increase in donations in the past several months, one example being the jacket with patches (shown on the right). The jacket is an enlarged Army field jacket that has a collection of over 100 US Army, Navy, Air Force and



Lynn Foraker (Secretary from the office) is modeling the jacket. Thanks Lynn  
Airline unit patches sewed on all inner and outer surfaces. It was a hobby of a past member.

Other items having to do with the history of Florida (like a 1915 Flare Pistol) as well as aeronautical equipment, aircraft

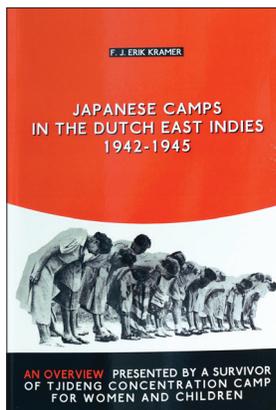


accessories, military clothing, and books have been received. Items are being evaluated for the museum. Thank you.

Robert Frazier

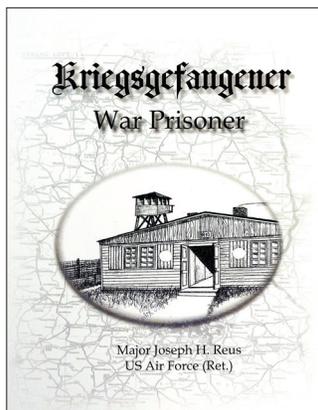
# THE BOOK CORNER

Japanese Camps In The Dutch East Indies by F. J. Erik Kramer



An overview by a survivor of a Japanese Concentration Camp for women and children.

Kriegsgefangener War Prisoner by Major Joseph H. Reus, USAF, Ret.



A very interesting read of Joe's experiences beginning at the start of WWII.

Letters Home by Bernice "Bee" Falk Haydu



Stories interspersed with letters sent home while serving in the "Women Airforce Service Pilots".

*Editor's note: These books were written by VAC Members or by VAC Volunteers and are for sale in the VAC Gift Shop. Kriegsgefangener and Letters Home are autographed.*



## Public Relations Officer's Report

Bob Boswell, Public Relations Officer  
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(321) 268-1941

First off I would like to thank the entire membership in advance for support that will truly be needed as I welcome the challenge of being the new Marketing and Public Relations Officer.

As I have traveled throughout Brevard promoting the museum at various events the comment heard most is something like this; "I did not know there was a military aviation museum in (select one or others) Brevard, Titusville or around here". In an attempt to spread the word and attract new visitors to our museum we are planning a major media campaign. Local awareness will be one area of emphasis with our "out of county" visitors the other. The media program will include local publications as well as domestic and foreign travel advertisements to let folks know what a great entertainment and educational experience we offer. Our Museum Rack Cards have been updated and are being distributed. Our Museum Visitors Guide has also been updated and the gift shop is designing a map for use as a Visitors Self-Tour Guide. Hosting multiple events at the museum is another avenue we will strive to improve on.

In June we hosted Honor Flights' very successful fund raising dinner of around 300 attendees in the main hangar. We recently hosted the Brevard Emergency Amateur Radio Service (BEARS) team who staged at the museum over the weekend for Disaster Response training.

Looking forward, the RIP Paranormal Ghost Hunters Team will be at the Warbird Museum on Saturday Night July 16 from 8-Midnight to investigate the Ghosts of past Military Heroes. This event will be open to the public and reservations and ticket information can be found at [Meetup.com/riphunters](http://Meetup.com/riphunters).

Due to popular demand we have gone back to our monthly fly-in breakfast on the second Saturday of each month from 8-10:30. You can fly-in or drive-in for this event. Members always get into the Museum for free so you only have to pay for the breakfast. Come out for a great meal, meet with other aviators and see the latest improvements.

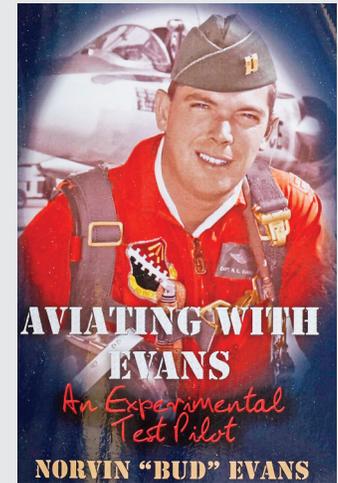
Our next major event is the Veterans Day Weekend Open House Saturday and Sunday, November 12th & 13th. Admission is free for VAC Members, all Florida Residents and all Military, active, retired, reserve and guard. This annual event provides the VAC an opportunity to showcase our Warbird Museum and to thank the local residents for their community support. We will have many different displays to see (planes, trains, cars) and good food. Bring a family member or friend and enjoy your museum.

It has been suggested that we should have some park benches inside the hangar display areas for our visitors, especially some of the seniors, to be able to take a short rest break during their tour. I am looking into the cost of the benches and am starting a

program asking for sponsors for each one. The sponsors name, etc. would be displayed on the bench. We would only need a limited number of benches. More details in the next letter.

Our next Warbird AirShow is March 10-12, 2017 with the Thunderbirds as we celebrate the 70 anniversary of the U.S. Air Force. It is not too early to think about volunteering to help during this event.

*Bob Boswell, PR Officer*



Since my last "Aviating With Evans" article I have been recovering from a broken hip and have also published the book that so many of you readers have asked me to do for the past 10 years. The book "Aviating With Evans" is now on sale at the V.A.C. P. X.. This first book is the stories from my entry into to the USAAF in WWII through my retiring from the USAF. My next book will consist of stories from my next 27 years of civilian flight testing; if you enjoy reading the first book I can assure you that you will enjoy the second book..

N. C. "Bud" Evans

*Editor's Note:*

*Bud has been a contributing writer for the Unscramble and the Scramble (AirShow Program) for many years. If you enjoyed his articles, you will love his book.*

## Gift Shop News

Anita, Louise, Lorraine, Rich  
 Email: VAC-PX@valiantaircommand.com  
 (321) 268-1941

You can tell summer is upon us...hot, humid and afternoon showers. WHOOPEE.

We have many new items in the Gift Shop; great new toys for the kids and a lot of new T-shirts.

Our 2016 Air Show T-shirts are 50% off, and our one of a kind Bomber Jackets

are 35% off (Only from July 1st to September 30th with a valid VAC Member ID card).

We have Gift Certificates available for birthdays, Christmas, etc.; you can give one to your favorite aviation person. How about a certificate for a ride in Tico Belle?

Our featured book this

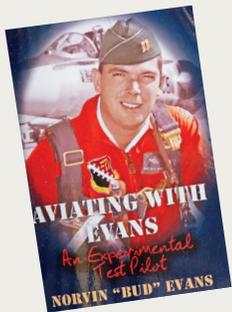
quarter is our own Bud Evans "AVIATING WITH EVANS". You can buy his autographed book in our Gift Shop for only \$24.99.

We are looking forward to all that our new Commander, Norm Daniels, has planned for the Gift Shop.

Be careful out there and have a safe, happy summer.

Anita, Louise,  
 Lorraine, Rich

## TRENDING @ THE GIFT SHOP



Get your autographed book while they last



Unique one of a kind leather bomber jackets are reduced by 35% for the months of July, August & September with a valid VAC Member ID.

John Wayne Flying Tiger Jacket shown on the right.  
 The famous Blood Chit Jacket shown on the left.

**35% OFF**  
 All Bomber Jackets with Member ID



### INVESTIGATE THE VALIANT AIR COMMAND WARBIRO AIR MUSEUM WITH THE R.I.P. HUNTERS - PARANORMAL INVESTIGATION TEAM



**SATURDAY, JULY 16, 2016**  
**8:00 PM - TILL ???**  
**WARBIRO AIR MUSEUM**  
**6600 TICO ROAD**  
**TITUSVILLE, FL 32780**



This is a very unique museum, there are 3 hangars filled with aircraft flown in all the wars by our military war heroes throughout time. The RIP Hunters Team has already spent an evening there and we are very excited to be able to share this with the public. Come join us on this amazing walk through aircraft history and experience it for yourself. This is a once in a lifetime opportunity so take advantage of it and RSVP soon to insure your spot for this awesome event.

For Tickets and more info - <http://www.meetup.com/riphunters/events/231570679/>

### TOP RATED ON LINE BY TRIPADVISOR

VALIANT AIR COMMAND WARBIRO AIR MUSEUM  
 TITUSVILLE, FL

CUSTOMER COMMENTS

"Fantastic!" "This is one of the better museums in Florida!" "Informative and inspirational." "Outstanding aircraft, beautifully presented." "The guides and staff are all very friendly." "Amazing part of history!"

TOP RATED MILITARY MUSEUM

# F-14A Tomcat

*Dr. F. J. E. Kramer, Warbird Historian*

When Grumman F-14 Tomcat flew its last mission in February 2006, it was the end of an era; one that naval aviation is not likely to see again.

The F-14 was the heaviest and perhaps the most famous fighter ever catapulted from a carrier. Nothing in the fleet today can match the long reach of its radar or the devastation of the six Phoenix Missiles it could carry. The airplane was capable of six-hour long endurance missions. Grumman made every effort to make the cockpit as comfortable as possible. The canopy would have to be made of one piece, but at the time (the early seventies) there was not a factory that could shape a big enough piece of Plexiglas. The F-14 was given a flat windshield as opposed to F-15's single curved shield. The Tomcat's front windshield is a multifunction device. It provides an undistorted vision for the pilot, acts as a bullet (and bird) resistant shield, while it displays vital flight control and weapon system information to the pilot. The HUD (Head-Up-Display) windshield projection is an F-14 first and has proven very effective. It gives the Tomcat a better ballistic protection, and this design was more bulletproof than the shield on the F-15.

This famous twin engine two-seat fighter jet was designed as both an air-superiority fighter

and a long-range naval supersonic interceptor. The Tomcat had a long career; it was introduced on 22 September 1974 and retired from active service on 22 September 2006. The Tomcat's design succeeded in improving on the F-4 Phantom's air combat performance in most aspects. During its 32 years of fleet service, the F-14 Tomcat was transformed from an analog fighter to a digital precision attack platform. It was originally designed to keep Russian bombers away from the carrier battle groups by employing very long-range Phoenix Missiles. By the time the F-14 had retired in 2006, it was capable of missions as far ranging as forward air control and deep-strike operations. This



*F-14 Tomcat on display at the VAC Warbird Museum*

capability made it CENTCOM's (USA Central Command) platform of choice for missions over Iraq and Afghanistan. Experts agreed that the Tomcat's air-to-air weapon mix was just unmatched. The AIM-54 Phoenix Missile was used exclusively in conjunction with the

F-14 radar. That combination was lethal up to 115-miles range. After a missile was launched, it would turn on its own internal radar that provided targeting instructions. The F-14 could launch six missiles and track more than 24 targets, all at the same time; it was a fighter pilot's dream for any intercept mission. The radar was key to the operation; one of the explanations of the size of the Tomcat is the need to accommodate this huge radar system.

The Tomcat features variable geometry wings that rotate automatically during flight. Wing positions could be set to different angles depending on the "need for speed". For high-speed intercept, wings are swept fully back and they swing forward to accommodate lower speeds. The entire process is executed automatically and fully controlled by computers.

Navy specs called for a speed of Mach 2.34. However, during test flights, the F-14 actually reached Mach 2.5 repeatedly. With afterburners ignited, engines produced about 42,000 lbs of thrust. Navy pilots are trained to fly at 1,500 miles per hour, subsequently, they had to slow down to what has to feel like a dead stop before landing on a giant moving building, otherwise known as an aircraft carrier.

Engines made the F-14 a hot-rod that could go from Mach 0.8 to Mach 1.8 in 90 seconds; that is basically going from 600 mph to 1,400 mph.

According to combat pilot

Charlie Brown, who was part of the F-14 design team and as well an experimental test pilot said "Flying an F-14 is in all aspects like sitting in a Cadillac". Another well-known achievement of the Tomcat was the famous 4-G inverted dive with a fictitious MIG Soviet fighter.

Unfortunately, the first F-14 crashed on its second flight due to a hydraulic failure. However, both crew members ejected safely.

One of the great weaknesses of the first versions of the Tomcat was its engine. The F-14A version was equipped with an underpowered TF30-P-412 Pratt & Whitney axial flow turbofan. The engine's output with afterburners engaged was 20,900 lbs of thrust. Total engine thrust of 41,800 lbs was merely enough to lift a 71,000 lb fully loaded F-14A from the flight deck. Common problems that occurred with the engine involves threaded fan blades and low-speed compressor stall, especially flying at low speed and at high altitude. To overcome these issues the more powerful P-414 engine was fitted to the Tomcat; it was an improvement over the P-412, but engines still suffered from problems at high altitude.

In order to reduce the speed of incoming air to the inlets of the engines, the supersonic F-14 features a complex air inlet system. It was a challenge to the inlet designers to get airflow's speed down in high Mach and maneuvering situations. The engine only accepts subsonic air or the compressor will be stalled. Once the Tomcat flies at supersonic

speeds, the physics of slowing down the speed of high-velocity air upon entering the engine requires a system with rectangular air-inlets and movable ramp doors to slow the air down. This computer controlled design features hydraulic pistons moving in such a fashion to slow the air down before it reaches the compressor section of the engine.

The automatic guided ramp-door system required a lot of attention by highly skilled mechanics. It is one of the reasons why after each mission, 55 maintenance-man-hours were required to dispatch Tomcat for the next mission. Also, throughout the 1970s and 1980s, the F-14 was subjected to numerous upgrades, especially in computer and weapon systems. All additional hardware had to be accommodated in existing spaces, which were already crowded with previously installed equipment. Mechanics had a difficult job to distinguish between the different integrated systems and much time was needed to complete their task correctly.

On 3 October 1997 an F-14 on a routine training mission crashed in the Atlantic Ocean. Both crew members ejected successfully. It was the seventh military plane crash in one week. These crashes led to a one-day break in training flights for a safety review by all services. US Navy suffered its only loss of a tomcat on 21 January 1991 when an F-14 was shot down by an SA-2 SAM missile when on an escort mission.

F-14's participated in the following operations: "Desert Storm", OPS "Deliberate Force",

OPS "Allied Force", OPS "Enduring Freedom", and OPS "Iraqi Freedom".

Tomcat's successor, the FA-18 Hornet, has only 36% of the F-14/D's payload-range capability. Sure, FA-18E/F's improved, but has at best 50% of the F-14/D's capability; consequently, carrier radius drops to 50% of what it would have been operating with the same number of F-14/D's. No wonder the Navy is working on a "buddy-tanker" version of the Super Hornet.

The F-14 pilot credited with the most kills is not a US Navy pilot, but is the Iranian fighter pilot Jalil Zandi. Flying his F-14 he shot down eleven soviet-built Iraqi fighter jets during the Iranian-Iraqi War.

After retirement, almost all of the American F-14's were shredded. Once Iran became an enemy, there was a concern the Iranians would somehow source parts, needed for their aging F-14 fleet, via US "boneyards" in Arizona. To prevent this action, all F-14's were destroyed with the exception of those donated to War-Bird museums.

Our F-14 Tomcat was flown into the VAC Museum by a Navy pilot and still has all its components, including the two engines! The Navy does not allow flying donated planes: doing so would have been prohibitive considering the astronomical maintenance cost, but assuming the VAC was to have maintained the fighter according to Navy's maintenance manuals, our museum would be the only place outside Iran that would have a Tomcat in flying condition.

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# AVIATING WITH EVANS

## *A new approach to flying and working as a test pilot*

When I was studying at the USAF Test Pilot School I expected I would have a desk and file cabinet with which I could study and file my research and test reports. It turned out that I had a desk assigned but my reports, books, calculator and aircraft manuals were kept in classroom cabinets and book shelves. My knee clipboard on which I attached the data card I had to prepare prior to each flight carried the maneuvers I had to fly hand record and were my main tools of the trade. After I arrived at my first Test Pilot assignment I was surprised to find that I had my own assigned desk, engineers to prepare test cards and secretaries to type my reports. At all of my prior assignments in Operational units, only the Commander, Executive Officer and the Operations Officer had desks. The rest of the pilots had only the Ready Room, their locker and the cockpit from which to do their job. It wasn't long before I realized the tremendous responsibility the job of "Experimental Test Pilot" carried with it in the overall mission of the Air Force.

Another big change in the job was that as a fighter pilot my flying was always performed in formation, either as a leader or a wingman but very seldom did I fly alone except when flying functional test flights following major maintenance on an aircraft. From the day I entered the prestigious world of Experimental Testing my flights were almost always alone and almost always searching for aircraft responses to a pre-selected maneuver such as placing the aircraft in a position it has never been in before. Gener-

ally, you are all alone and most of the time during the first years of my test piloting the only way that the results relied on my qualitative report which was made after the flight and then several days later when the instrumentation data was reduced it was compared to my assessment. This soon establishes the reputation of a Test Pilot among the Engineering and Program Managers.

When assigned a project, whether it was a new system or a new aircraft you became the primary source of data collecting while flying the airborne tests. When in the process of completing a flight test program if time allowed, you had other test pilots fly the system or aircraft and used their qualitative comments and data as part of your final evaluation report. There usually was a flight test engineer assigned to the program who prepared the test plans, made up the test data cards, reduced the quantitative data and wrote up the results of the technical data. The final evaluation of the aircraft or system that carried the most weight was the "Test Pilots Report". I became a manager, engineer and pilot with all of the authority and responsibilities that accompanied those jobs. It was the ultimate position of a pilots dream and I suddenly found myself faced with the wonderful reality that I was THERE! That might sound a little egotistical but the reality was that the responsibilities that accompanied the job were tremendous! I had not just stepped into the job. It had been a long rough road!

From the first day I dreamed of becoming a pilot at age 5, I only

thought about the wonders of leaving the solid ground and being a part of that glorious freedom of soaring above the earth and joining the clouds. When the dreams became a reality and I achieved that goal of winning the silver wings of an Army Air Force pilot in WWII, I knew there was no other life for me. Flying was not a job it was a privilege and always remained that way in my mind and heart. After finding myself in the position of being in one of the first jet fighter squadrons in the USAF and breaking into new speeds and altitudes almost every day, it increased my desire to expand the experience into the newest and fastest aircraft that were available. During my two combat tours in Korea, I became one of the first Americans to fly combat in a jet aircraft and had been selected many times during those early missions to perform something that had never been done in a jet. On returning to the United States in March of 1951 was assigned to an F-86 Saber-Jet equipped squadron and made my



*F-89 Scorpion*

first trip beyond the speed of sound. After a couple of years we were equipped with the first All-Weather Jet Interceptor F-89C "Scorpion" which required carrying a Radar Officer in the rear seat.

I had become dedicated to trying to become an Experimental Test Pilot in the Air Force but was stymied by the requirement of having to have an Aeronautical Engineering Degree; which I did not

## AVIATING WITH EVANS - *continued*

have. My next assignment was to fly and instruct qualified fighter pilots in the U.S.A.F.'s newest fighter, the F-86D. It was the U.S.A.F.'s first single cockpit All-weather jet fighter and had a complicated radar and air-to-air rocket launching system. This was the final motivating factor in my deciding to apply for the USAF Experimental Test Pilot School at Edwards AFB, California. It was a long shot but with the strong recommendation from my Commanding Officer who was also one of my Group Commanders in Korea, I was accepted. I was convinced that, if the Test Pilots at Edwards could allow an aircraft with the poor flight handling qualities of the first model F-



*F-86 Sabre*

86D to go into operational service, they really could use some help.

During my first ground school class at the school the instructor, noting my lack of an Aeronautical Engineering Degree, told me not to unpack my bags. That was a real blow to my ego but gave me more determination to succeed. I ended up graduating with high marks. I was then a fledgling pilot once again except I had more jet experience and jet combat experience than any of the test pilots I met. The road to what has always been my "Impossible Dream" had come true and I reveled during the following 38 years in the thrills, spills and knowledge that I was fulfilling my internal commit-

ment to my chosen role in life!

During the first few months with flight test at Wright-Patterson after being assigned to the Fighter Test Operation, I was relegated to flying test flights on programs that were assigned programs of other test pilots. It was the reason I was so receptive to the blind offer to take on an ultra secret test program when it was offered to me after being on the job for only three months. Once I had made that decision I relinquished any opportunity to take on anything other than short-term projects such as Light Weight Fighter Radars, Mig-15 vs F-86F Combat Comparative Capabilities, Fighter aircraft rain removal systems, "Wingtip Buddy Tow" systems just to name a few. I flew to Patrick AFB, Florida to fly an F-84F numerous times to flight test a flight director system that was designed to place me over "Ground Zero" within 1/10th of a second in the upcoming nuclear bomb tests in the South Pacific. After many trips flying the test flights on this system, I never had a flight where I had a completely successful operation of the system. Time constraints on the test aircraft with which I was going to fly this "Radist" system cut short the required testing. The system had to be delivered to the facility that was installing test data recording equipment to measure heat and structural impact loads on the aircraft I was to fly in the tests. All test aircraft had to be in place on Eniwetok Atoll by May of 1956. (Five were using the Radist system). As primary Officer from Fighter Test Operations, I had to make the decision on the deadlines for delivery dates. (The Hydrogen Bomb Test had dictated the "Drop-Dead" dates at which the sys-

tems had to be installed on the two F-84F's, F-101 A, B-57 and B-66 aircraft that were being instrumented for measuring shock and heat).

The Bombers which were participating departed Wright-Patterson and flew to Hawaii while Capt. Kitchens and I (The 2 F-84F pilots) left Dayton by airliner to California where we flew to Hawaii



*F-84 Thunderstreak*

on Air Force contracted airline. (An interesting story I will relate in the "Eniwetok" story). Our F-101A test pilot had picked up the test aircraft at the factory and managed to damage it severely on landing back at Wright-Patterson. He injured his back so Major John Apple brought the replacement F-101 A to Eniwetok three months later.

My five and a half months flying from Eniwetok resulting in my flying closer to five (5) hydrogen and two (2) atomic test bomb explosions measuring heat and shock wave effects on the U.S.'s strongest built aircraft. Kitchen's F-84F was measuring sideload effects on aircraft in flight and was not positioned quite as close as I was thus providing me with the position of having been closer to nuclear explosions than any living person. Unfortunately, the high security placed on the program prevented me talking about it for 22 years. By then my "Record" was no longer of interest although it still stands to this day!

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N. C. "Bud" Evans

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## 6 AUGUST 1945

*On August 6, 1945 – 71 years ago – the B-29 bomber Enola Gay dropped an atomic bomb on the city of Hiroshima, Japan – hastening the war's end*



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