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# *The Sport Flyer*

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*The Official Newsletter of the Georgia Sport Flyers Association, Inc.*

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**December 2013 – Fall/Winter Edition (Volume 1)**



**Happy Holidays to all from the GSFA**

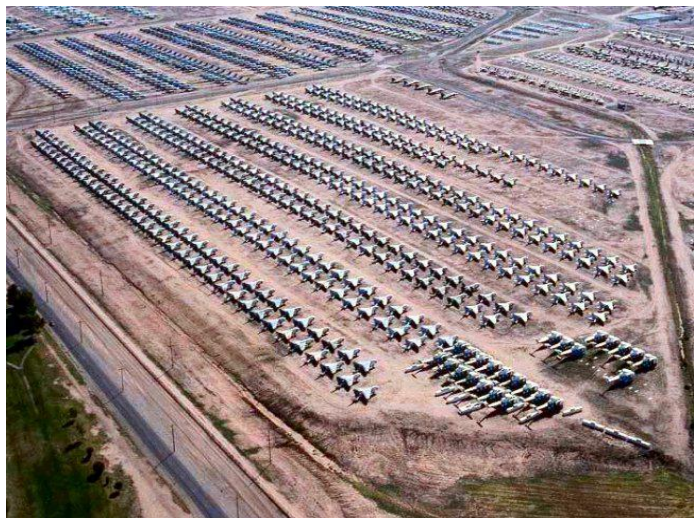
**Our Next Meeting is January 11<sup>th</sup> at Etowah Bend at 11am**

# Aviation road trip to the west coast report

*By Richard Johnston*

Last month my wife and I had some extended time off from work so we decided to make a long planned road trip to the west coast, visit relatives and see many of the sites along the way. If you are like me, reading or seeing photos from someone's vacation can be boring – a “wish you were here” kind of thing. At the risk of boring all of you with our vacation, I thought I would share some of the memorable aviation related stops.

## **Pima Air & Space Museum – Boneyard tour**



Our first stop for more than an overnight stay was in Tucson where my step-son and family reside. Last year I submitted an article about our visit to the Pima Air & Space museum. Unfortunately on our first visit we were not able to take the “Boneyard tour” which only occurs Monday-Friday and not knowing this we had visited on a weekend. This time we took the tour of the Boneyard which is located on the Davis-Monthan AFB. The tour consists of a bus tour through the Boneyard with an expert narrator for the tour. In our case our tour narrator was a commercial bush pilot from Alaska who lives in Tucson during the winter –

guess the flying is not so much fun in Alaska during the winter! The text in this article and in the others in this newsletter was cloned & modified from other articles with my additions. I wish I knew this much about this museum and others you are reading about in this issue.

Immediately after World War II, the Army's San Antonio Air Technical Service Command established a storage facility for B-29 and C-47 aircraft at Davis-Monthan AFB. Today, this facility is the 309th Aerospace Maintenance and Regeneration Group (309 AMARG), which has grown to include more than 4,400 aircraft and 13 aerospace vehicles from the Air Force, Navy-Marine Corps, Army, Coast Guard, and several federal agencies including NASA.

Besides storing aircraft until they're needed again, the AMARG has a dizzying list of other missions. The facility conducts overflow depot maintenance on the A-10 attack aircraft and variations of the C-130; it has a verification role to play in the Strategic Arms Reduction Treaty on nuclear arms; it hosts a program that converts old F-4 Phantoms—and soon F-16s—into aerial target drones; it stores and reconditions aircraft that will be transferred to allies under the foreign military sales program; it is an auxiliary facility of the National Museum of the US Air Force; it stores tooling for out-of-production aircraft; disposes of aircraft the US military no longer needs; and it helps keep Air Force "heritage flight" aircraft available for special flying occasions.

Chief among its missions, however, is supporting the flying Air Force with parts. It frequently makes the difference between aircraft being operational or grounded.

In Fiscal 2012, for example, the Boneyard "pulled" more than 10,000 parts, with a value of \$472 million. That figure is down a bit from the totals of previous years, due in part to reduced demand, following the end of US operations in Iraq. During Fiscal 2012, the five fleets calling for the most parts, in order, were the F-15, B-1B, F-16, C-5, and C-135—collectively accounting for some 60 percent of the total. The only Navy airplane on the top 10 list, the P-3 Orion, came in sixth.

Moreover, those parts are usually pulled for an urgent need. Consistently over the last five years, "priority" orders accounted for an average of 76 percent of the parts pulled.

Each aircraft that arrives at the AMARG brings along its entire history of documentation: the write-ups and maintenance actions over, frequently, dozens of years of service.

The Air Force airplanes, they usually come with boxes of paper, while the Navy records are usually supplied on a disc. The records are kept in a special facility nearby.



**Bell UH-1 (Huey) with Spraylat applied**

## **Baking in the Sun**

Each aircraft is washed on arrival except for the giant C-5 transports; they get washed before they come. The washing is especially important for aircraft that have served aboard aircraft carriers or in tropical locations where they were subject to the corrosive effects of warm, salty air. Each airplane then gets a "flush" of its fuel and is run with a lightweight oil that puts a protective coating on all parts of the engine and fuel system. Explosive devices—ejection seat pyrotechnics, for example—are removed and any caustic chemicals drained. Other steps are taken to ensure the aircraft is safe for anyone to approach and work on. Also, the clocks and data plates are removed. Why? There have been a high pilferage rate on these items from visitors seeking a memento of a particular aircraft they flew. The clocks work and make a nice desk decoration while the data plates are specific to an individual aircraft.

Aircraft at the AMARG are in-processed according to the type of storage they require. Type 1000 storage means an aircraft will be maintained in a condition where it can be recalled to duty and fly again. This is called "inviolable" storage, meaning no parts can be pulled from these aircraft without the express permission of the type's system program office at Wright-Patterson AFB, Ohio, which technically "owns" them. Only some 10 percent of the aircraft in the Boneyard are kept in Type 1000 condition.

Type 2000 storage is similar to Type 1000, except the aircraft are designated as "cann birds" whose parts can be cannibalized for the flying fleet. Both Type 1000 and 2000 aircraft, after in-processing, will be given a treatment of "Spraylat"—short for sprayable latex—a two-stage sealing process covering gaps and holes and generally blocking the intrusion of moisture or wildlife. The bottom coat is black, but the topcoat is white. This tremendously aids in reducing the degradation of the aircraft in the desert heat. With the white coating, interior temperatures will usually remain within 15 degrees of the ambient air temperature. The Spraylat isn't cheap—it runs about \$550 for a five-gallon bucket—but it lasts and pays back its cost in preservation of valuable parts that, as time goes by, may not be available anywhere else.

In summer, the Spraylat also has to be applied before 10 a.m.; after that, aircraft skin temperatures can exceed 120 degrees Fahrenheit, and the material simply won't stick. As a result, summer shifts for those working in the field tend to be quite early. Most fighter aircraft need about 50 hours of labor to be prepared for storage; it's 80 hours for helicopters because a box has to be built to protect their rotor heads. Big aircraft such as the B-52 can require up to 300 hours for mothballing.

Type 3000 storage—considered "temporary" visitors to the Boneyard—receive the most active care. Every 30 days, their engines are run, they are towed to lubricate their bearings, and their fluids are serviced.

Aircraft receiving the least active care are Type 4000. They usually only get the Spraylat treatment on engines and canopies, and their engines may be removed for storage elsewhere. The Type 4000 aircraft are generally the oldest and those least likely to ever be recalled to service. When all useful parts have been harvested from them, they are scrapped.



### **F4s in storage**

Aircraft can be moved to different categories as well and return to duty even after decades. The record for an aircraft returned to flying status after extended storage was an F-4 brought out of Type 2000 status and reconditioned to be a target drone after more than 20 years in the desert.

Before aircraft come to the Boneyard, maintenance crews at their last base will swap out whatever newer parts are on them for the aircraft remaining in the flying inventory, said James Fletcher, lead reclamation planner with the 577th Commodities and Reclamation Squadron.

"That only makes sense," he said. "Why send new tires to the Boneyard?"



**Engines preserved for future use**

**Source of Last Resort**

The Boneyard is the "source of last resort." Generally, technicians in the active force will try to obtain brand-new parts, to keep their aircraft as up-to-date as possible. The AMARG comes into play when there is no other source for a part, or perhaps a temporary is needed until a new one can be acquired. The incentive is to buy new, because logisticians are charged the as-new price for parts that come from the AMARG.

Sometimes the AMARG supplies parts not usable in their existing condition but repairable.



**One of a kind aircraft nicknamed "Big Ed"**

The Boeing YAL-1 Airborne Laser Testbed (formerly Airborne Laser) weapons system is a megawatt-class chemical oxygen iodine laser (COIL) mounted inside a modified Boeing 747-400F. It is primarily designed as a missile defense system to destroy tactical ballistic missiles (TBMs), while in boost phase. The aircraft was designated YAL-1A in 2004 by the U.S. Department of Defense.



**YAL-1 in flight**

The YAL-1 with a low-power laser was test-fired in flight, at an airborne target in 2007. A high-energy laser was used to intercept a test target in January 2010, and the following month, successfully destroyed two test missiles. Funding for the program was cut in 2010 and the program was canceled in December 2011 after spending 5 billion dollars. It made its final flight on February 14, 2012 to Davis–Monthan Air Force Base in

Tucson, Arizona to be prepared and kept in storage at the "Boneyard".



### **Nuclear capable B-52s**

One area of the Boneyard is designated for storage of nuclear capable aircraft as shown in the picture above. One of the requirements of the Strategic Arms Limitation Treaty known as S.A.L.T. requires that these aircraft are stored at this location in order to be monitored by the U.S.S.R. by satellite.

A short but nice video tribute to the Boneyard can be viewed at:

<http://www.youtube.com/watch?v=w8CXvXsmwA4> and another video with history can be viewed at <http://www.youtube.com/watch?v=1AosnKvZuvM> .

And now here are a few more of the photos I took during the tour. Unfortunately the photos had to be taken from the inside of the tour bus as nobody was allowed to exit the bus during the tour.





**Retired Blue Angel**



**C-130s by the hundreds**



**F-14D "Tomcat"**



**F-15**





**B-1Bs in Storage**



**F-16s in Storage**



**B-52 on display**



## San Diego AirCoupe Flight

*By Richard Johnston*

In the last couple of years, I reconnected with Ron Shipley who was one of the neighbors on the street where I lived in San Diego over 50 years ago. I was 5 years old and he was 17 at the time. My father enlisted in the Navy during WWII and again in the Army during the Korean conflict, and as an officer in the National Guard. My father helped Ron enlist into the Army where he eventually retired as a Captain. It turns out that he is also an aviator and owns an AirCoupe (early models called the ErCoupe) and offered to take me flying when I was out in the San Diego area again. That was an offer I could not refuse!



**AirCoupe owner Ron Shipley**



**AirCoupe and author**

### **ErCoupe History** (from ErCoupe's history page)

ERCO stands for "Engineering Research Corporation" whose first product was the ErCoupe. This was the first production tricycle aircraft and was designed by Fred Weick. Fred is famous for many things, including the NACA cowling and the standard "takeoff/landing over a 50-foot obstacle" specification. He went on to design the Piper PA-28 Cherokee and other well-known airplanes.

The first JATO (Jet Assisted Take Off) was tested on an ErCoupe which led to the foundation of the Jet Propulsion Laboratory.

The ErCoupe, with its distinctive twin-tail design, was originally provided with "coordinated controls", i.e. the rudder was connected to the yoke and yaw correction was automatic - *it had no rudder pedals*. The steerable nose wheel was connected directly to the yoke - you taxied exactly like you drive your car. This, and limited up elevator travel, contributed to the result that the 'Coupe is "characteristically incapable of spinning!" You can try, but the plane will fly out of an incipient spin. An entirely new category of pilot license was created for the thousands of new pilots who had never seen a rudder pedal.

This plane was designed pre-WWII and didn't get into real production until 1945 when thousands were sold through such esteemed aviation outlets as the Men's Department at Macy's. "Rudder Kits" are available to convert the plane from 2-control ("coordinated") to 3-control ("conventional").

Landing a 2-control 'Coupe is an "interesting" experience! You crab it into the wind and land that way. The nose wheel will turn and straighten it out *on the runway*. Another historical fact: all original Boeing 707 pilots were taught to land in the 'Coupe - the 707 had a similar problem - the low hanging engines meant that you couldn't drop a wing into a crosswind - you had to land them crabbed. The Ercoupe's main gear does not swivel, a common misconception, but the geometry causes the airplane to turn in the direction of forward motion. If you fight this tendency you can ground loop.



**AirCoupe Instrument Panel**

The plane was built by a series of manufacturers including ERCO, Sander, Forney (name changed to AirCoupe), Alon and Mooney (name changed to M-10/Cadet). Mooney built the last 59 with a "Mooney tail" instead of the distinctive twin tail of all previous production. This, and other changes, created an airplane which could stall and spin with the best but also lost a lot of performance. It was their intention that the M-10 Cadet be their "trainer". Ron told me that from his experience the Ercoupe and Aircoupe will not stall (due to a limited up elevator) it cannot spin. It "mushes" instead.

"Alon" was an interesting bit of history: While Forney was building the 'Coupe, one company which came mighty close to buying the type certificate was Beech. John Allen (the Beech plant manager) and Lee Higdon (the Beech accounting manager) felt strongly that Beech should take it on, but Olive Beech got cold feet and said no. So they quit and setup the Allen-Higdon (ALON) company to do it. They were so impressed with the plane that they bought the company. Alon made a number of speed/power changes to the airplane and reverted to providing rudder pedals as standard, with the 2-control by special order only. They changed from vertically sliding window entry to a sliding canopy.

Some people dump on 'Coupes. It's unfair and ignorant criticism, but it keeps the prices down and the secret in the family. If you ever have to opportunity to fly a 'Coupe - try it!

The Ercoupe has climb and cruise performance very similar to the performance of a Cessna 150 - but it drops like a rock when the power goes off. The best thing about a 'Coupe is you can fly it with the sliding windows down. The Ercoupe, Forney, Alon, and the Cadet can all be flown with the windows down or the canopy open if flown no faster than 100 mph.

The 415-C and -CD models have a gross weight of 1260 lbs and qualifies as an LSA (Light-Sport-Aircraft) and therefore may be flown by pilots with only a Sport Pilots license. It is the only standard category aircraft to meet these requirements that is not a tail-dragger. As such, the price on these models has skyrocketed since the Sport Pilot license was created.



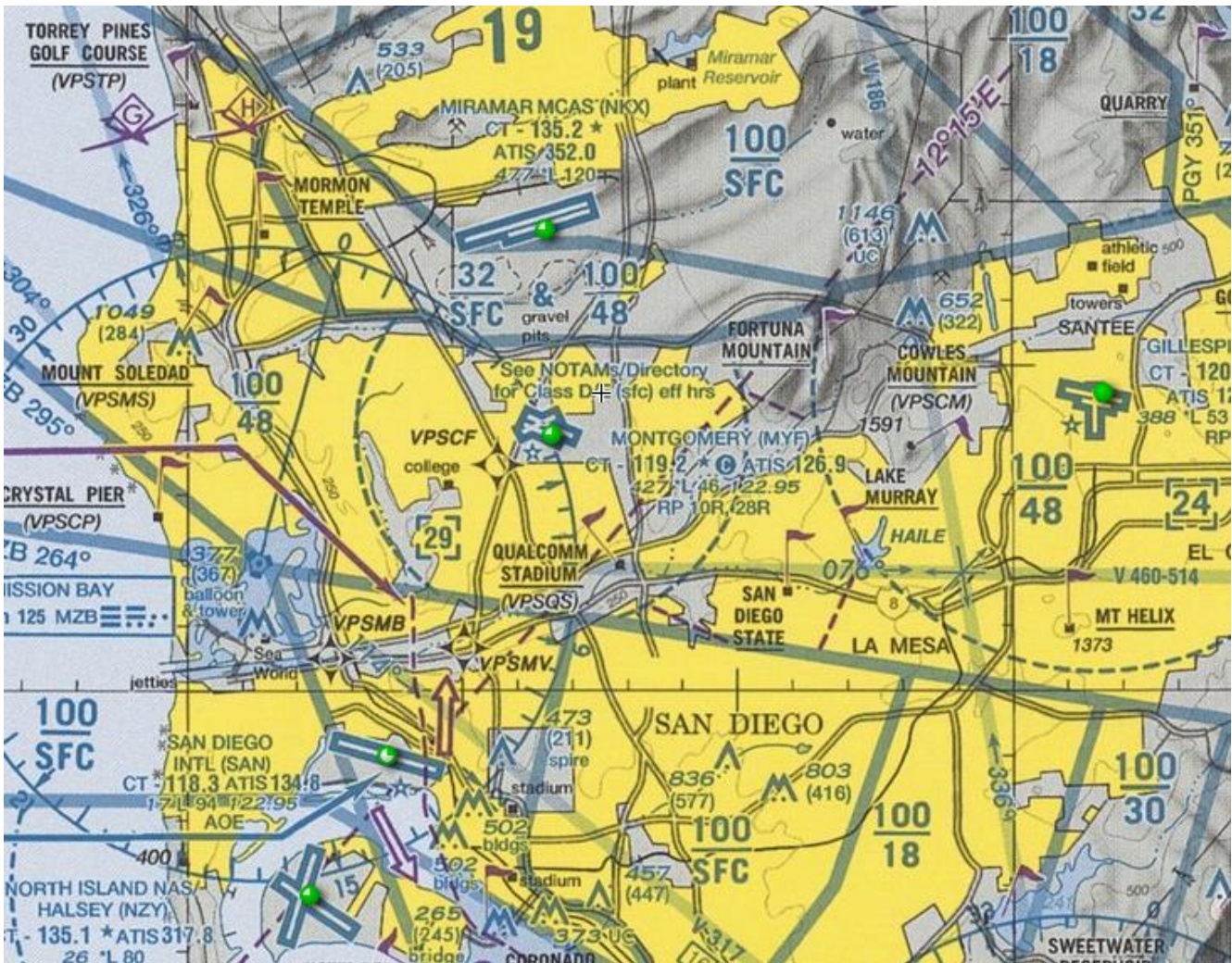
I really like the paint job on Ron's AirCoupe! Ron explained that a WW-II ACE named Dominic Gentile flew a P-51B and P-47's in Europe. He was second only to Richard Bong (who flew a P-38 in the Pacific) as the leading ACE. Ron's Aircoupe is painted exactly like that aircraft except there wasn't room on the cowling to paint the small fighting/boxing cartoon eagle that had been painted on Dominic's aircraft. Ron said "Someday, if I can find decals of the right size and shape, I'd like to apply four or five "mosquitoes" to the side of my canopy indicating my "kills"!"



**Time to launch!**

### **Our Flight**

We met Ron at Gibbs Aviation on Montgomery field (MYF) where his AirCoupe is hangered. After a short preflight we were ready to go. It was a beautiful day with light winds out of the west. This airspace has to be some of the most congested airspace that you can find as the airport is located between Miramar Marine Corps Air Station (MCAS) very close to the north and San Diego International to the south as shown in the sectional below.



Quiz for the day: Can anyone tell me what the departure and arrival headings and altitudes are required for Montgomery Field (MYF)?

I had taken some video of the flight with my smartphone and created a short video of our flight as we headed north up the coast from La Jolla towards Encinitas. The link to the video while it is on the GSFA web page is [www.georgiasportflyers.com/files](http://www.georgiasportflyers.com/files). It will not play correctly unless you download it to your computer first. To do this, click on the link here and then right-click the file "AirCoupeFlight.mp4". A pop-up menu will be displayed, select the "save-as" menu option and then select the directory on your computer to download the file to. Once downloaded, play it with Windows Media Player. In the audio, you can't hear anything except the engine running so turn down the volume!

Enjoy!



## San Diego Air & Space Museum

*By Richard Johnston*

Another aviation destination on our journey was the San Diego Air & Space Museum. My uncle Bob Johnston is now retired and volunteers his time at the SDASM to help solicit donations and locate aircraft for possible restoration and exhibit at the museum. Both my father and uncle have spent a large portion of their careers in the aerospace industry. Both worked at the Convair division of General Dynamics. My father eventually worked for NASA on many programs to include the Saturn V and Space Shuttle. My uncle continued to work for GD. Through my aunt and uncle's volunteer connections, they were able to locate free or heavily discounted tickets to many attractions in the area to include the SDASM, San Diego Zoo, and the USS Midway Museum. My wife and I will be forever grateful.

We had free admission to the SDASM with a VIP tour with my uncle and other staff to include areas that visitors to the museum are not allowed entry. The museum has a private aviation library with just about every aviation related book that has been published. Downstairs we were able to visit the restoration area where future exhibit aircraft were undergoing restoration – simply amazing! If you are in the San Diego area, you will not be disappointed with a visit here.





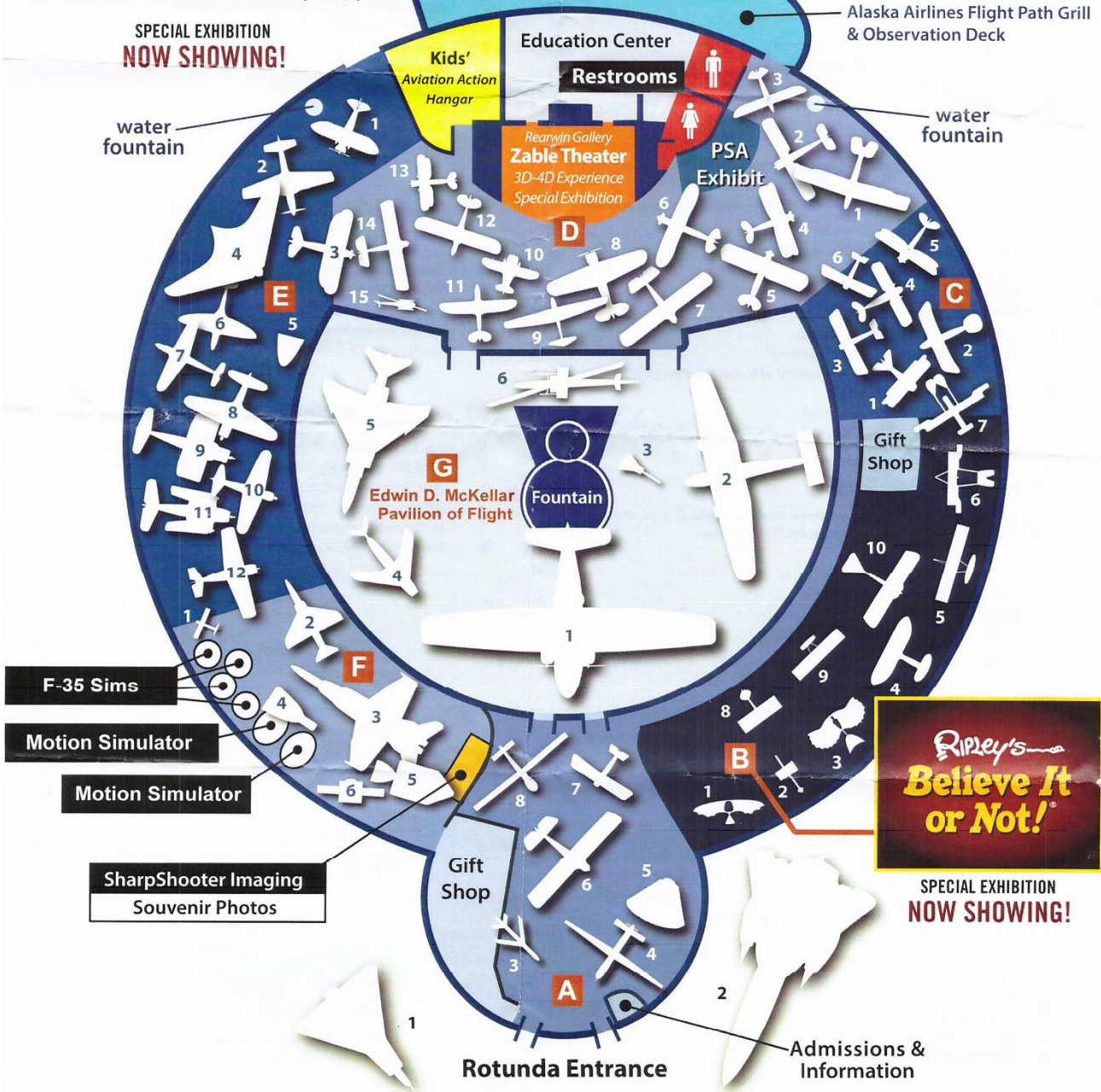
SAN DIEGO  
AIR & SPACE  
MUSEUM

SAN DIEGO AIR & SPACE MUSEUM  
2001 Pan American Plaza • Balboa Park  
San Diego, California 92101  
619.234.8291 • sandiegoairandspace.org

(See Reverse Side for Map Key)

**Ripley's**  
**Believe It or Not!**

*Alaska Airlines* FLIGHT PATH GRILL



# COLLECTION LISTING (Museum Collections and Special Exhibitions subject to change)

## Front of Museum

- 1 Convair YF2Y-1 Seadart
- 2 Lockheed A-12

## A Theodore Gildred Rotunda

- 3 Ryan BQM-34F Firebee II
- 4 Genral Atomics RQ-1K Predator
- 5 Apollo 9 Command Module "Gumdrop"
- 6 NYP-3 Spirit of St. Louis (flying replica)
- 7 Sopwith Pup
- 8 Northrop Grumman RQ-4A Global Hawk (model)

## B Ripley's Believe It or Not! (Special Exhibition)

Gallery of unique reproductions of early flying machines hanging above the Special Exhibition.

- 1 Leonardo Da Vinci Ornithopter (mock up)
- 2 Cayley Glider (reproduction)
- 3 Lilienthal Glider (reproduction)
- 4 Montgomery Evergreen Glider
- 5 1902 Wright Glider (reproduction)
- 6 Beachey "Little Looper" (reproduction)
- 7 Curtiss A-1 (reproduction) (Centennial of Naval Aviation Exhibition)
- 8 Chanute Glider (reproduction)
- 9 1901 Wright Glider (reproduction)
- 10 Deperdussin 1911 Type Militaire

## C World War I Gallery

Stroll amongst the rudimentary machines that took gallant men of warring nations into the perils of aerial combat for the first time.

- 1 Fokker Dr-1 (reproduction)
- 2 Albatros D Va (reproduction)
- 3 Fokker E III Eindecker (reproduction)
- 4 SPAD VII
- 5 Nieuport 28
- 6 Nieuport 11

## D Golden Age of Flight Gallery

Relive the dangers and adventures faced by barnstormers, airmail pilots and the first airlines during the Twenties and Thirties.

- 1 Lincoln-Standard J-1
- 2 Consolidated PT-1 Trusty
- 3 Aeronca C-3 Collegian
- 4 Fleet Model 2
- 5 Ryan M-1 (replica)
- 6 Ryan ST3KR (PT-22) Recruit
- 7 Curtiss B-1 Robin
- 8 Lockheed Vega 5B (mock-up from movie *Amelia*)
- 9 Bowlus SP-1 Albatross (reproduction)
- 10 Gee Bee R-1 (reproduction)
- 11 Ryan STA
- 12 Piper J-3 Cub
- 13 Pitts Special
- 14 Ryan B-5 Brougham
- 15 Robinson R44 Helicopter

## E World War II Gallery

Witness this worldwide fight in the skies, from the Flying Tigers over China, to the RAF over the English Channel, to carrier pilots over the Pacific.

- 1 Boeing P-26 Peashooter (reproduction)
- 2 North American P-51D Mustang
- 3 Stearman N2S-3 Kaydet
- 4 Horton 229 V3 (mock-up)
- 5 Douglas C-47 (DC-3) Nose/Cockpit Section
- 6 Supermarine Spitfire Mk.XVI
- 7 Messerschmitt Bf 109G-14 (mock-up)
- 8 Douglas SBD-4 Dauntless
- 9 Chance Vought F4U Corsair
- 10 Mitsubishi A6M7 Zero-sen
- 11 Grumman F6F-3 Hellcat
- 12 Grumman F4F-4 Wildcat

## F Modern Jet & Space Age Gallery

- 1 Bee Aviation Wee Bee (replica)
- 2 Douglas A-4B Skyhawk
- 3 F/A-18 A Hornet "Blue Angel 1"
- 4 Gemini spacecraft (mock-up)
- 5 Apollo Service Module (mock-up)
- 6 Boeing GPS-12 Satellite

## G Edwin D. McKellar Pavilion of Flight

- 1 Consolidated PBV-5A Catalina
- 2 Ford 5-A-B Trimotor
- 3 Mercury spacecraft (mock-up)
- 4 Mikoyan-Gurevich MiG-17
- 5 McDonnell Douglas F-4J/S Phantom II
- 6 Bell AH-1E Cobra Helicopter

**Ripley's**  
**Believe It or Not!**

**SPECIAL EXHIBITION  
NOW SHOWING!**

**vibrant culture  
vibrant city**  
Commission for Arts and Culture  
City of San Diego

## **SDASM History**

San Diego has one of the richest aviation heritages of any city in the country. Convair, home of such famous aircraft as the B-24 Liberator and the PBY Catalina, was founded here. Ryan Aeronautical, home of Lindbergh's Spirit of St. Louis, was located here, and North Island Naval Air Station is the birthplace of naval aviation. Much of that knowledge is captured and conveyed through the San Diego Air & Space Museum, a major institution unique to the region and one of the preeminent aviation museums in the nation.

Many local residents, including Preston M. "Sandy" Fleet, son of the founder of Consolidated Aircraft, and Captain Norvel R. Richardson, USN, believed the love affair with flight that began for San Diego in 1910 should be shared with the world. They took their ideas and enthusiasm to a group of prominent San Diego businessmen, including T. Claude Ryan and Joseph Jessop.

The San Diego Aerospace Museum was established on October 12, 1961, when the articles of incorporation submitted by the non-profit Citizen's Committee were approved by the State of California. When the idea was presented to then-Mayor Charles Dail, he recommended the vacant Food and Beverage Building in Balboa Park as an ideal location, and the City Council approved the recommendation.

Charles Brown was selected as the Museum's first executive director and worked untiringly to make the dream a reality. On February 15, 1963, the San Diego Aerospace Museum opened its doors for the first time. Although small in number, the items on display on that opening day were impressive. They included a reproduction of the Navy's first seaplane, the Curtiss A-1; a 1929 Fleet Model 7; the original rocket engine from the Bell X-1; and an extensive collection of artifacts relating to John J. Montgomery.

The Museum was an immediate success. In the first sixteen months of operation, almost a half million visitors entered the Museum. On March 15, 1964, the International Aerospace Hall of Fame (IAHF) was established to honor aviation and aerospace pioneers.

The Museum's collection grew at an incredible rate, and additional space was needed. By the summer of 1965, the Museum had moved to the larger Electric Building nearby. In addition to increased display area, the new Museum boasted of a library and archives. During the Electric Building period, the Museum acquired many notable aircraft, including a flying replica of Lindbergh's Spirit of St. Louis. It quickly became clear, however, that the Electrical Building would soon be too small to house the growing collection, however, and the Museum set its sights on further expansion.

Throughout the 1970s, the Museum negotiated with the city to move into the historic Ford Building, which had been put on the National Register of Historic Places in 1973. The Ford Building had an illustrious past but had fallen into disrepair. The City Council believed that the building could be returned to its past glory with some work and a new paint job. When a federal grant for \$2.64 million was granted in 1977, the city approved the Museum's move. Before the move could take place, however, the Electric Building and most of its contents were destroyed by a devastating fire on February 22, 1978. More than fifty aircraft, the IAHF, and the Museum's extensive artifact and archival collections were consumed in a matter of minutes.

The citizens of San Diego were touched by the loss, and the Museum immediately began rebuilding. An Aerospace Museum Recovery Fund was formed by then-Mayor Pete Wilson to raise funds for the effort. The Board, staff, volunteer corps, and members, with strong support from the community, worked to reconstitute the Museum's collection in the Ford Building. The new museum, which opened on February 22, 1980, held twenty-five aircraft, including a replica of the Spirit of St. Louis. A large aircraft restoration facility was opened in the facility's basement; and, with the help of the public, the library & archives collection was reconstituted. In April 1993, the International Aerospace Hall of Fame merged with the Museum.

As the Museum has grown in membership and attendance each year, its holdings, exhibits, and other programs have also increased. A new Education Department was established to expand the Museum's educational and outreach programs. The Education Department now offers lectures, School-in-the-Park, family days, ground school, a new classroom, and a wide variety of special activities. The Museum's Library & Archives houses one of the most extensive collections of aerospace-related books and archival materials in the country. Included in the collection are tens of thousands of books, aircraft and equipment manuals, personal and organizational papers, and more than 2 million images and videos of importance to aviation history.

As the Museum continued to grow in the 1980s, an annex was opened at Gillespie Field in El Cajon, CA, to house additional and larger aircraft and to provide additional collections storage space. In addition to some restoration efforts there, aircraft are on display for air shows and tours. In 2006 the Museum acquired the Low Speed Wind Tunnel near Lindbergh Field, where companies and individuals test their equipment and students can study aerodynamics. Also in 2006 the Museum's name changed to San Diego Air & Space Museum to better reflect its mission and collection.

In 1986 the Museum became the first aero-themed museum to be accredited by the American Association of Museums, and it is now a Smithsonian affiliate. The California Legislature voted to declare the Museum "California's official Air and Space Museum and Education Center. Because of San Diego's contributions to aviation and aerospace history and technology, it is only fitting that the Museum is now recognized as one of the country's premier aerospace museums.



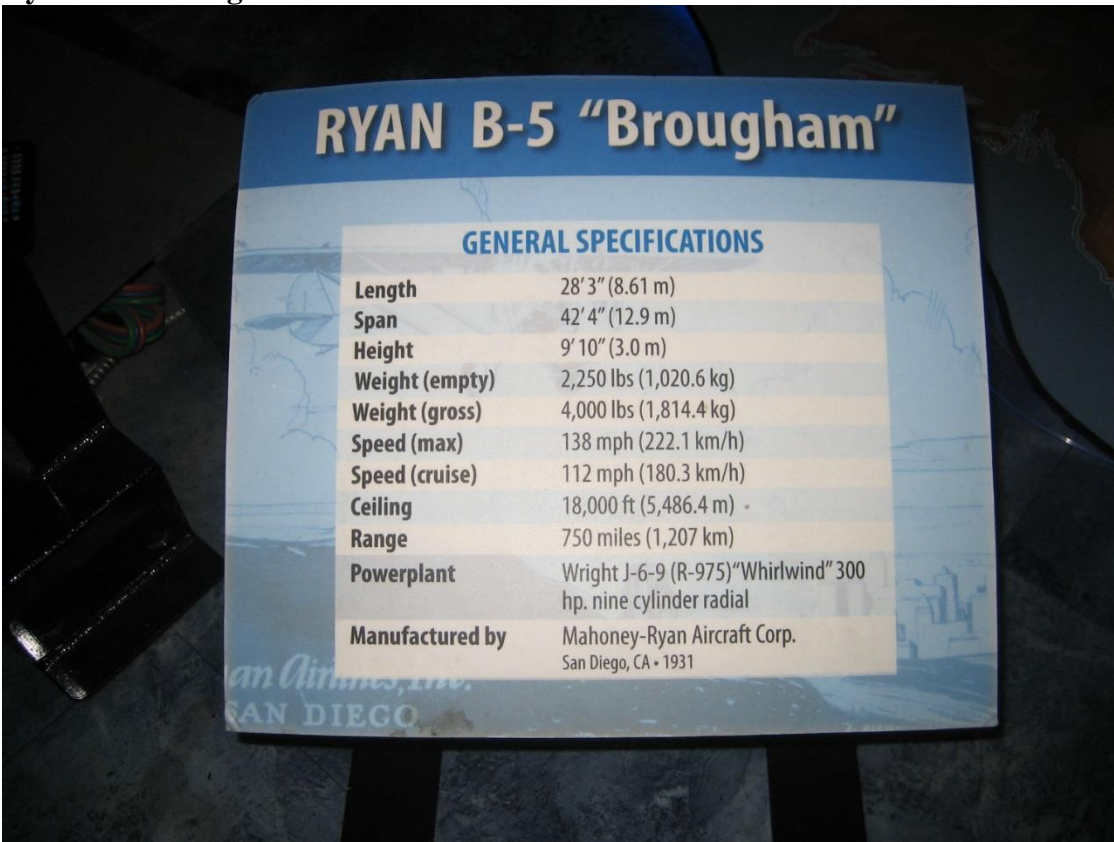
**Fokker E III Eindecker**



**Consolidated PT-1 "Trusty"**



Ryan B-5 "Brougham"





**North American P-51D Mustang**





**Supermarine Spitfire Mk.XVI**



**Chance Vought F4U Corsair Cockpit**



**F/A-18 A Hornet "Blue Angel 1"**



### LINDBERGH

#### The Goggles he wore on his epic flight (20-21 May 1927)

Given to Marcel Jancel, Director of Le Bourget Airport in Paris, by Charles Lindbergh in May 1927.

Acquired by IAHF 6 June 1979 through the generosity of Dr. Gifford Ewing and the Directors of La Valencia Hotel.



### CHARLES A. LINDBERGH'S Medal of Honor

Charles Lindbergh received the Medal of Honor on March 21, 1928, for the Valor and Heroism he exhibited on his historic solo crossing of the Atlantic, on May 20/21, 1927: New York to Paris, France in just over 32 hours. The medal was presented by President Calvin Coolidge to then Captain Lindbergh.

*(This Medal of Honor was a gift from the Lindbergh Family in 1992)*





**Gee Bee R-1**



**Boeing P-26 Peashooter**



**You think you have too many instruments!**



**Red Baron Decorations**





**McDonnell Douglas F-4J/S Phantom II**



**Car made from dimes in adjacent “Ripley’s Believe It or Not!” Exhibit**



**Ford 5-A-B Trimotor**



**Mikoyan-Gurevich MiG-17**



**Restoration Area**

# San Diego: Birthplace of Naval Aviation

In 1909, President Theodore Roosevelt sent America's battleships, called the Great White Fleet, on a world cruise. Dispatched largely as a goodwill gesture to Japan, the Fleet was scheduled to make San Francisco its first stop. Led by local businessman John D. Spreckles, a group of San Diego businessmen seeking federal investment in their city, chartered a steamer and met the Fleet off Baja California. They convinced the Fleet's commander that they would be enthusiastically welcomed by the city.

On April 14<sup>th</sup>, 1908, 16 battleships dropped anchor off the beach just south of the entry to San Diego harbor. True to the promise made by the delegation, more than 20,000 people flocked to the shore to welcome the Fleet.

Over the next four days the city's reception committee headed by William Kettner, who would one day become the region's representative in the U.S. Congress, welcomed the men of the Fleet with an endless series of balls, guided tours, dinners, teas, and stage plays. In response to the city's festive welcome, the Fleet sent 64 companies of officers, bluejackets and Marines who paraded down Broadway (one old San Diego's main thoroughfares). More than 75,000 excited onlookers watched while Governor James Gillet officially extended the state's welcome.

San Diego made quite an impression on the Navy. In a speech during the grand review, a naval officer said, "San Diego appreciates the Navy and the Navy appreciates San Diego". On December 4<sup>th</sup>, 1910, the cruiser USS California sailed into the newly dredged harbor and anchored near the current location of the USS Midway exhibit.

Six weeks after the arrival of the USS California in San Diego Harbor, aviation pioneer Glenn Curtis established a flying school in an inlet just across the bay. There he trained Lieutenant Theodore Ellyson and three Army officers who became our first military pilots.

In addition to training pilots, Curtis developed a "hydroaeroplane", which could take off from and land in water. On January 11, 1911, Curtis proved the adaptability of this airplane when he flew his new aircraft across the bay, landed in the water, had it hoisted aboard the cruiser Pennsylvania, then lowered it back into the water alongside the ship. After flying his aircraft back to his base in Spanish Bight, it was hard for anyone to deny that aircraft could indeed take a practical role in our nation's Navy.

On September 25<sup>th</sup>, 1917, the Navy established its first permanent Naval Air Station at North Island, directly across the bay. This station consisted of a pilot training station, a mechanics school, and a patrol plane base. By 1924, the U.S. Naval Air Station North Island had grown to a modern facility sporting a control tower that can still be seen today.

On November 29<sup>th</sup>, 1924, the Navy's first aircraft carrier, the USS Langley, tied up to the pier at the naval air station at North Island. A converted coal transport, she had a flight deck 500 feet in length and could carry more than 30 aircraft. By 1928 the aircraft carriers USS Saratoga and Lexington both constructed on cruiser hulls, joined the USS Langley in San Diego waters where they were used in training aviators. That training played a significant role in victory in the Battle of Midway 14 years

later. The carriers Yorktown and Enterprise also called San Diego their home port in 1940. On the eve of World War II, North Island and San Diego were, in every sense of the word, home to carrier aviation.

During the war, aircraft carriers loaded squadrons of aircraft and men aboard at North Island before racing off to fight battles in the Pacific. In their absence, replacement aircraft continually arrived and new pilots were continuously trained day and night, 7 days a week to replace those lost in battle.

As military installations were closed due to post World War II reductions, the Navy concentrated its west coast operations in San Diego. During the cold war, the area became a major training center for supplying men, ships, and aircraft to the Pacific Fleet.



**USS Ronald Reagan in port at North Island**

Today San Diego is host to 35 aircraft squadrons with more than 400 aircraft; 48 surface ships with including guided missile cruisers, destroyers, frigates, amphibious assault ships, and various patrol craft; as well as seven submarines. The harbor is home port to deep water vessels such as two nuclear-powered aircraft carriers the USS Nimitz and the USS Ronald Reagan, and nine Military Sealift Command ships.



**USS Midway Museum**  
*By Richard Johnston*



## USS Midway History

The Midway is one of the longest-serving aircraft carriers in the United States Navy, operating from September 1945, just after World War II ended until 1992 when she was decommissioned. The USS Midway is now docked in San Diego Bay and has been transformed into one of the most-visited ship museums in the world. It is interesting to learn how the Midway got her name.

As most of you know, the Midway was named after an important battle during World War II. This battle, which took place on Midway Island in the Pacific, represented a decisive victory for the Allied forces. That's why the Navy chose Midway for the name of this ship.

One of the first things you will notice about the Midway when you arrive is the large 41 painted on the side of the ship. The Navy numbers its ships in order, as they are built. The very first aircraft carrier ever built in the United States was number 1, the USS Langley, built in 1922. The Midway, built in 1945, was number 41. The newest carrier now in use is the USS George H. W. Bush, number 77.



**Deck of the USS Midway**

The next thing you will notice about the Midway when you drive up close to her is her size. She is HUGE! She is 1,001 feet long, which is about the length of 3 football fields. (The Titanic, by comparison, was just over 880 feet in length.) The Midway is as high as a 20-story building. And, she weighs almost 70,000 tons. She has two anchors, each weighing 20 tons, and four propellers, each one measuring 18 feet in diameter. The Midway could carry up to 80 planes. She has 3 elevators that were used to move planes from the flight deck to inside the ship. Each of these elevators could carry 10,000 pounds. The Midway's crew numbered 4,500 men. In order to keep those men well fed, the Midway's 4 galleys (kitchens) had to serve over 13,000 meals a day.

The USS Midway sailed in every ocean in the world and fought in the Vietnam War and in the First Persian Gulf War. Over the years, she was deployed to the North Atlantic Ocean, the Caribbean Sea, the Mediterranean Sea, the Indian Ocean, and the Western Pacific Ocean. Not just a warship, she was also involved in humanitarian efforts. In 1975, the Midway was off the coast of Vietnam to help evacuate South Vietnamese people fleeing from those who had taken over their country. In 1991, when Mt. Pinatubo erupted in the Philippines, the Midway delivered emergency supplies and rescued stranded American military personnel.

In 1992, after a career that lasted 47 years, the Midway was finally decommissioned. She was getting old and there were newer, more modern ships that had been built to take her place. During those 47 years, over 200,000 men had served on the Midway. She had received many awards for outstanding service. Many people wanted to honor the Midway's fine history instead of seeing her rust away and get turned into scrap metal. So, for 12 years, a group of citizens in San Diego met with lawmakers, Navy officials, environmentalists, and city officials to make plans for bringing the Midway to San Diego and turning her into a museum. Finally, in June of 2004, the USS Midway Museum opened its doors. Since that day, over 4,000,000 visitors have come on board.

## **The Museum**

Exhibits range from the crew's sleeping quarters to a massive galley, engine room, the ship's jail, officer's country, post office, machine shops, and pilots' ready rooms, as well as primary flight control and the bridge high in the island over the flight deck. Especially popular are the museum docents you'll meet throughout the ship. Each is eager to share a personal story, an anecdote, or amazing statistic, adding to your amazement throughout your adventure. (Most visitors spend 3-4 hours aboard Midway!)



**View from the flight deck**



**Douglas SBD Dauntless**



**Air Boss, Mini Boss Bridge**



**Air Boss, Mini Boss Bridge**



**Pri-Fly or Primary Flight Control**



**Chart Room**

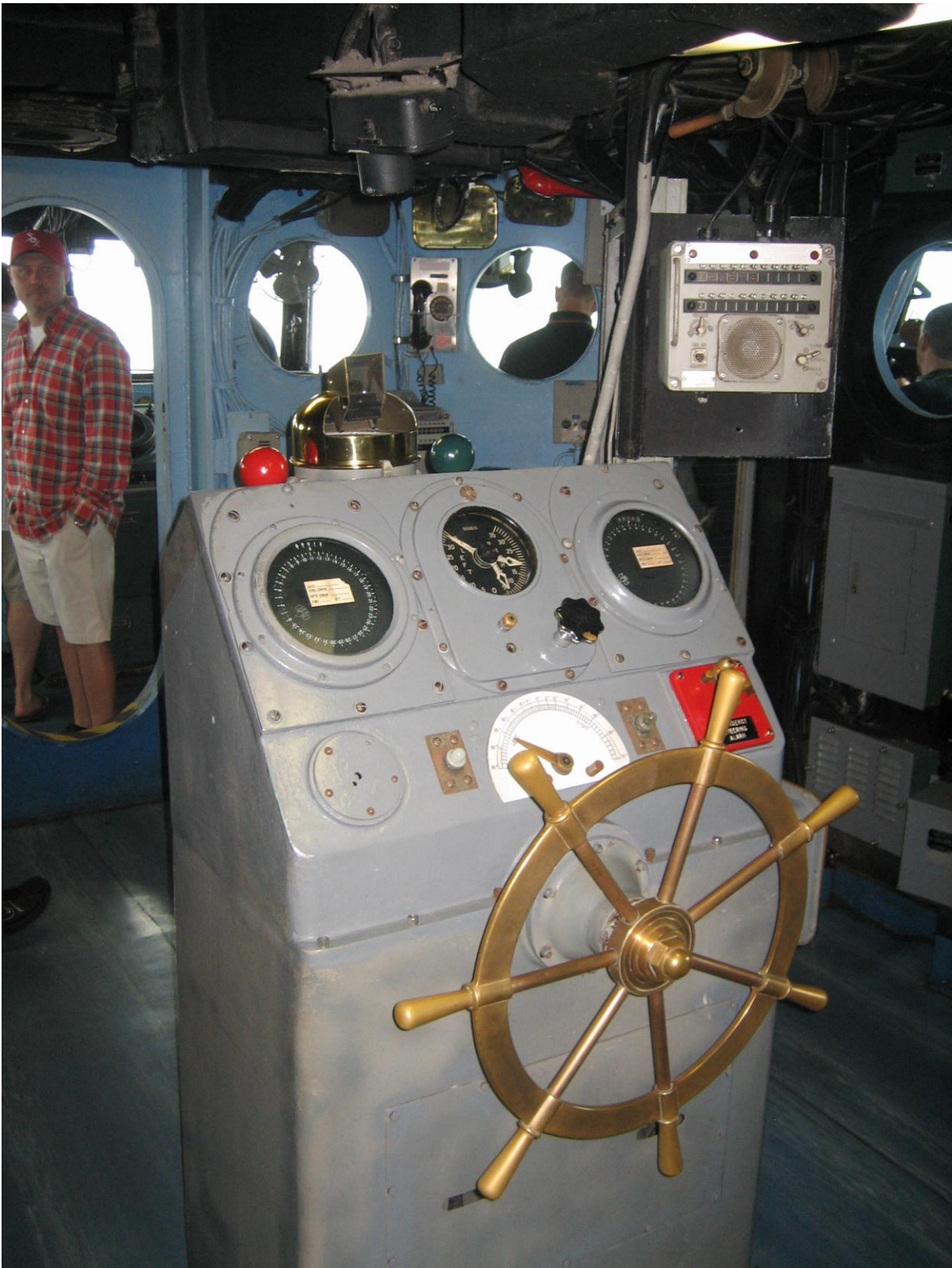




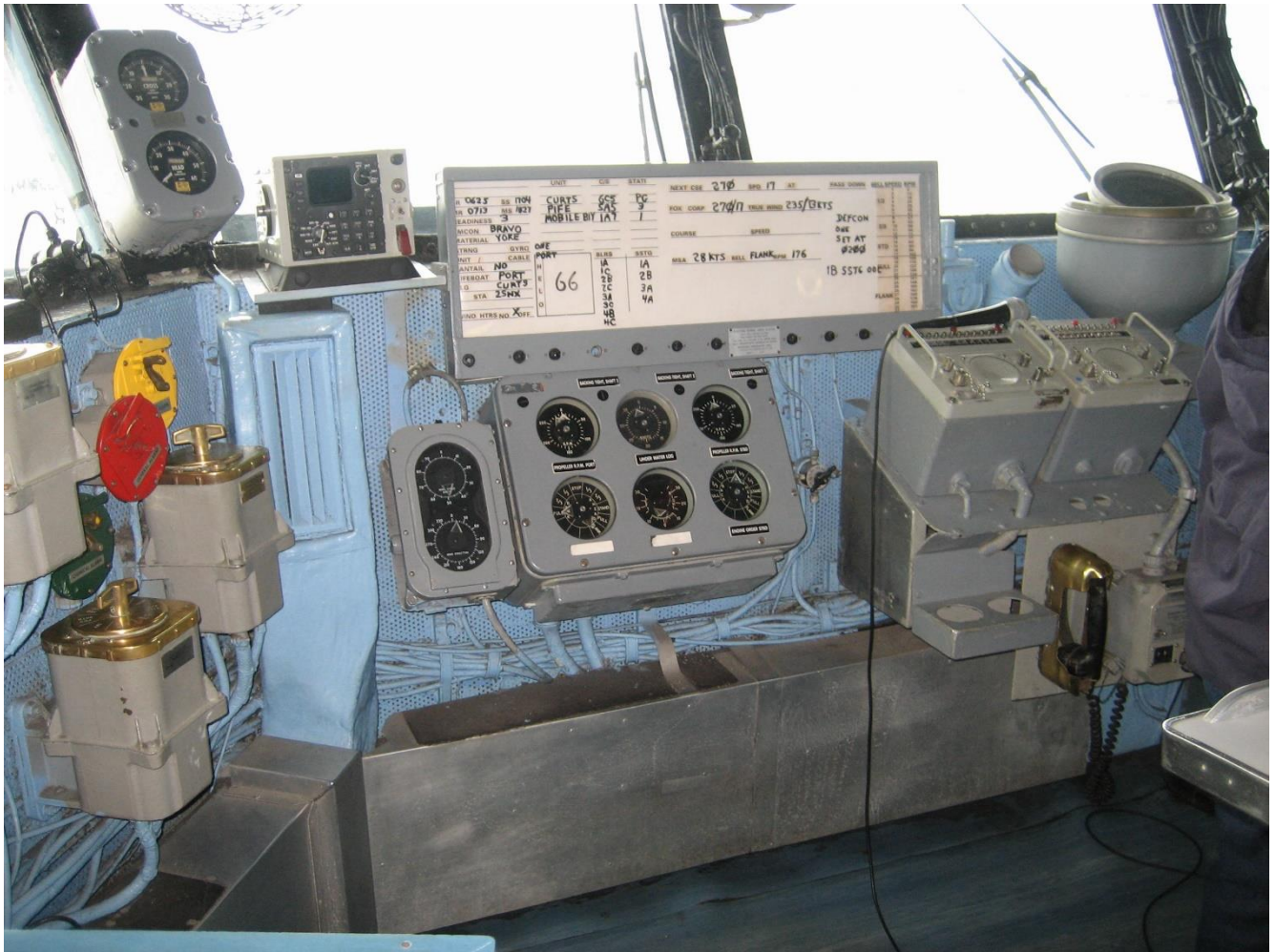
**Chart of San Diego Harbor**



Full speed ahead!



Ship's wheel



**Main Bridge**



**Captain's Chair**



**Captain's bunk**



**SNJ Texan – Navy version of North American T-6 Texan**



**Flight Deck**



**Vought F-8 Crusader**





**Vought F-8 Crusader on the catapult**



**Northrop Grumman E-2 Hawkeye**

From the GSFA Archives – March 94 Newsletter

# THE SPORT FLYER



Newsletter of  
The Georgia Sport  
Flyers Association

March Edition  
1994

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## **TARA FIELD**

### **BIG CHANGES COMING**



This month, Strip Search visits Hampton, Georgia. Tara Field, alias Henry County Airport, Bear Creek and Clayton County Airport, has recently been bought by Clayton County from local resident Ronnie Thornton. It is located right next to Atlanta International Raceway and has been designated a "reliever" airport for Hartsfield. This is expected to allow the FAA to pay 90% of the purchase price for land and improvements, with 10% being donated by land owner Thornton.

Clayton County's new Airport Director is Keith Wood and he wears two county hats. Keith is also Director of Emergency Management. That title may have helped him when the facility first changed hands. The grass wasn't cut, the buildings needed paint and even fuel sales had stopped. Thanks to Keith and Clayton County, the place has a new name and a new face. More changes are coming. Runway expansion and thickening, an instrument approach and a new administration building on the north side of the runway are among the county's plans. Several new fuel trucks with 100LL and Jet A are already in operation.

Keith doesn't want this to scare away general aviation people. "We want to attract executive aviation for sure but we also want to keep it open for general aviation." More GA tiedowns are planned for Spring. "I would hope that by next year," says Mr. Wood, "we will

have doubled the number of people operating here."

On ultralights, Keith Wood keeps an open mind. He HAS seen the infamous 20/20 piece but he has lately seen Jeff Hatle's Rans and admits that ultralight construction has come a long way. This fellow should know about aircraft construction. He was a flight test mechanic for Lockheed and he tested the C-130 prototype. No better-built plane ever flew! Since talking to the GSFSA newsletter, he knows more about us and our sport.

Will Tara Field be the next Hartsfield? He says that any second commercial hub on the south side would likely be closer to Macon or Albany, particularly if the state gets involved. Many state legislators from rural middle and south Georgia would like to have the economic engine that a second Hartsfield would be, while a lot of Atlanta's suburban lawmakers, especially in Gwinnett, would like to have the Son-of-a-Hartsfield go down there, or to Hahira or to Antarctica.

Corporate traffic will increase at Tara Field. Balancing the needs of general and corporate aviation is going to be a delicate task, especially when it comes to two-stroke powered planes in the pattern heavier and faster planes. Tara Field could set an example for other airports with how it's all handled. Some of our planes can go as fast as a cub or a Cessna 150 in the pattern and they should be able to mix in. A control tower is still a while away. In the meantime, airband radios are going to be necessary long before they are required by Class D airspace. Class D won't come for a while.

A small taste of things to come can be had whenever there's a race next door at A.I.R. It appears that race drivers don't ride around in pickup trucks, dragging their racers behind them anymore. Today, they arrive in Lears and other big, fast stuff. Between the Cessna's, the jets and Shamu the Blimp, Tara Field is a real aerial circus during races. The Army brings in a mobile control tower and operates it for local traffic. They always use an actual tower frequency that is published in advance in a NOTAMS.

The runway is presently 4500 feet, there is a nice, paved taxiway and the headings are 6 and 24 just like South Expressway a few miles to the north.

It appears that the club has a clean slate with current Tara Field management. I could be that at this airport, we'll be judged by how, not WHAT, we fly.

## THE POSSUMS ARE GOING TO SUN 'n FUN

By STAN SULLIVAN



And you, my friend, (yes, YOU) can be a Possum, too! That's right, you can earn your possum 2nd class tee-shirt and your 1,000 km patch by flying to Lakeland and back. It's not just for the young and foolish, it's for the old and foolish, too.

No, we don't kill our wounded or eat our young, but we do fly in head-winds, cross-winds and light to moderate tornadoes (just kidding about the tornadoes, Stuart). Actually, the trip to Lakeland is just a series of 80 to 100 mile hops down Interstate 75 with plenty of open fields once you get south of Atlanta. Anyone who can cruise at 55 to 60 mph and fly for 2 hours on a tank of gas with a comfortable fuel reserve is more than welcome to join the adventure. It's no walk in the park but don't worry, we've made this trip more than a few times. In other words, you'll probably get to stress test your landing gear before we get back. By the way, you can unload those "extra" gas tanks on the ground crew before we fly into Lakeland.

There are several rules to keep in mind on a cross-country trip:

**RULE #1:** We always have a headwind. Like your father told you, he walked five miles to school and back, in the snow and it was uphill, both ways.

**RULE #2:** The IQ of a group is inversely proportional to the number of people in the group. I'm not making this up. That's right, the more people in the group - the lower the IQ of the group. You will generally do things you would not do if you were the only one there. That's how the military works. (ask Ben) Which brings us to Rule #3.

**RULE #3:** Preflight your machine, preflight your machine, preflight your machine - yes, that means before you leave, and at every gas stop on the way. That muffler spring that was there in Valdosta may be missing in Ocala. You are responsible for your own plane, enough said.

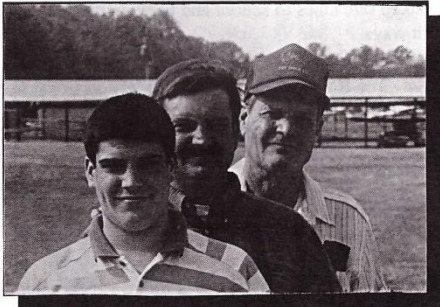
**RULE #4:** Get a radio; get a CB; get an aircraft radio; learn hand signals; or all of the above. Ground crews have radios, most flyers will have radios. It's a lot more fun to share those dead stick landings with friends and loved ones. We will have a trailer if you should to down. (If we don't know you went down, we can't pick you up). Which brings us to Rule #5.

**RULE #5:** We would much rather you practice dead stick landings before the trip than during the trip. It makes you a better pilot - Honest!

Flying isn't the only thing ... if you don't want to fly, leave your ultralight at home and join the ground crew. We plan on leaving Friday or Saturday, April 8th or 9th, weather and schedules permitting. Let us know what you think. It's a day and a half trip and we usually only stay two days. Just getting there is half the fun. Like Jack McCornack says, "People who like this sort of thing will find it just the sort of thing they like". Besides, we're running out of Possums.

## THREE GENERATIONS OF ULTRALIGHTERS

By Mike Carpenter



The Carpenters: Darrell, Mike Jr and Mike Sr.

I became interested in planes when I was a child. I became an ultralight pilot ten years ago. I had owned my Phantom for two months when my father liked what he saw as his son flew around the airport. Dad's flying experience was in Piper Cubs in his younger years. One day while I was out flying and having fun, my dad decided to try flying once again so he took off down Bear Creek's long runway in my Phantom.

Well, I guess you know what happened next. My dad HAD to have one of these things. After he bought his own Phantom, we flew many hours over Georgia.

My four-year-old son, Darrell cried because he could not fly with his dad. Well, one day I changed planes and came home with a new Kolb Mark II and that was what Darrell was waiting for! Then he got to go up with me and fly right along side of Grandad while giving him a big smile and affirming the joy of seeing the world from above.

As Darrell has gotten into his teens, he can now take off and fly with me as baggage. The landings are still a bit bumpy but with a little help he brings it to a safe stop. As soon as Darrell gets a little more age and training, he'll be able to fly solo in the Kolb, to complete three generations of ultralighters.

## NEXT MEETING

The next GSFA meeting will be held at the Pickens County airport in Jasper. Come one and all! For those who have never flown into Pickens County Airport, all you have to do when flying up from the metro area is head for the pointy little, pyramid-shaped mountain to the northwest of Mathis Airport. Once you're over Cherokee County Airport, just follow the road north, between the mountains (foothills, for those Jasper-ites).

The Pickens County runway is 3600 ft and is laid out on headings of 16 and 34. There is a hill on the west side of the south end and with a west wind, you may encounter some turbulence at the south end of the runway. The pavement is in excellent condition and the buildings are kept up very nicely. The office has a sort of log cabin look to it and it has a big front porch with plenty of rocking chairs for verbal flying. Elevation is 1535 ft and the unicom frequency is 122.8. Recommended pattern altitude is 2300 ft.

The fly-in will also be a cookout. Burgers and dogs will be on hand and in mouth so plan to arrive light and leave heavy. Some of us were there for last fall's fly-in but they plan to let us back in anyway! If the weather isn't flyable, DON'T DRIVE UP! We'll cancel it. BAD WEATHER - NO JASPER MEETING!

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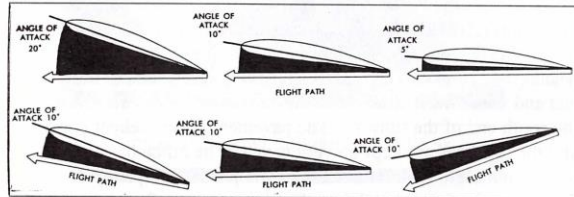
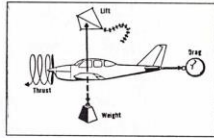
# UNSAFE AT ANY (STALL) SPEED

By Pierce Day

The ingredients for a steady state stall condition are as follows:

LIFT=WEIGHT and THRUST=DRAG

When these forces are at equilibrium, the aircraft is operating at one G. At equilibrium, the wing angle of attack, Alpha, is usually at some point above zero degrees, depending on the design of the airfoil.



This stall angle of attack is always the same regardless of weight, speed, headwinds, fuel on board, or any other variables. When the wing reaches its critical *angle of attack*, it stalls. It will stall at that angle of attack if you are in level flight or climbing or diving or banking. Increasing the weight of the aircraft does increase the stall-

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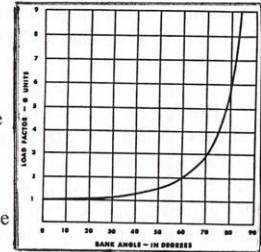
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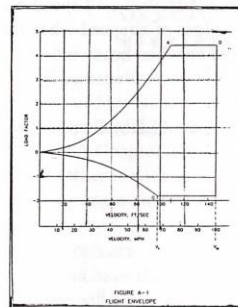
speed but only because, in order to lift the extra weight, the aircraft flies at an increased angle of attack so as to create the lift necessary. This moves the angle of attack closer to its critical (stall) angle of attack.

Placing the aircraft in a coordinated turn will increase Alpha. The curve below shows the effect of bank angle on G forces. This is standard for ALL aircraft. The load factor on a wing in a coordinated turn is in proportion to the bank angle. The load factor due to a gentle 30-degree turning bank causes an increase in stall speed of 8%. A turning bank angle of 60 degrees will increase the stall speed by 40% and create a 2-G force. Note that it is theoretically impossible to make a coordinated 90-degree banked turn. These load factors assume that altitude is maintained during the turn.

The curve below is taken from the Stress Analysis of the MiniMax. Note that the curve starts at Zero G, not one G. In following the curve up from 0 to 4 1/2 G's (The design load factor for the Minimax series) we see that the aircraft can be stalled at *any speed from 0 to 100 MPH (Vne)*. This stall occurs because the angle of attack has reached its critical point due to the loads imposed on the airfoil. Note that the curve shows a 35 MPH stall at 1G.



This is the maximum G force that can be created from the available lift at 35 MPH. Or, in order to prevent a stall at 35 MPH, the aircraft must be flown at less than 1G ..... if you can. At the top of the curve you, see that it requires 70 MPH to create a 4G stall. Or, at 70 MPH, 4G's is the maximum lift attainable before the wing stalls because the critical Alpha is reached.



Also note that the load factor on the wing SQUARES AS THE STALL SPEED DOUBLES.



Now, just what is this all getting to? We must always be aware of the fact that AN AIRCRAFT WILL STALL AT ANY AIRSPEED GIVEN THE PROPER CONDITIONS!!

Consider the following pattern situation: A 10 MPH crosswind in the direction of base, an aircraft with a 1G minimum stall speed at 35 MPH, and a pilot flying the downwind at 45 MPH, 10 MPH above "stall".

When the pilot turns from downwind to base, he increases the load factor on the wings (and increases the angle of attack) in an amount proportional to the bank angle. This brings the wing nearer to stall. In addition, he is now turning into a downwind situation so that his real airspeed has dropped from 45 to 35 MPH. The airspeed drop alone could cause a stall, but it has been accelerated by the increased load factor on the wings due to the turn. The result: a stall at an altitude too low for recovery.

How can this be avoided? Make gentle turns when at low altitudes. Add a safety factor to your airspeed. Instruction manuals for sailplanes call for an approach minimum of stall speed plus 50%, plus 50% of the wind velocity. A bit conservative, but they only get one shot at the runway. Ultralights have no mass to speak of and usually have a high frontal drag. This causes them to slow down rapidly when throttle is reduced. Therefore, there is no reason to fly the pattern at a slow airspeed. Slowing down can be done quickly. Do not slow down until the final flightpath for touchdown has been established. Even at this point, maintain airspeed well above the established stall speed of your aircraft. This will prevent stalls due to loss of airspeed when the winds suddenly shift to a quartering tailwind or when headwinds suddenly disappear.

The lesson in this lesson: Fly fast-stay above ALL stall conditions until you're at the runway.

HAPPY LANDINGS!

## STEWART'S SAFETY TIP:

Before we all get busy flying, take the time NOW to look at some things on your plane that you don't often see. Check carb needles for wear in the grooves. They should not rotate in the clip. Look for cracks in carb boots and other rubber things. Take the bolts out of wing and strut attach points and REALLY LOOK for elongated holes or cracks radiating from them. Check all the stuff that's hard to get at.

It'll be a lot more fun cruising along, for all of us, if we have each gone over our planes and gotten them in top shape. Flushing out fuel tanks and lines is another very un-fun thing that needs to be done now. Water and goo have had plenty of time to gum of the works during all this "Seattle weather" we've had. March is now officially MAKE YOUR STEED SUCCEED month!

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### CARTERSVILLE A COMIN'!

\*\*\*\*\*

The benefit fly-in at Cartersville Airport is coming up on the weekend of May 22nd-23rd. The event is beginning to shape up real well, according to Activities Director, Pierce Day.

EAA Chapter 268 will be doing their Young Eagles thing and if the weather is with us, a lot of young (and not so young) folks will be getting a bird view of the countryside. L-birds will be the main attraction, as they were last year.

Efforts are now underway to secure an area for camping so that we can have the field to ourselves (almost) the next day. Barbecue will be catered Saturday night for the main event.

## FLY MARKET

USED ULTRALIGHTS FOR SALE- Single and Two-Place.  
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Basement Sale - MiniMax model 1300Z kit for Zenoah or 1/2 VW engine. Both wings 2/3 complete. New kit price now \$3495.00 - yours for \$3195.00. 404-591-7284

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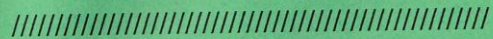
Fiberglass work needed. Wind fairing for Challenger to build. Anyone got the stuff and the expertise? B. Liles 474-1241

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## **ON THE HORIZON**



Mar 12	Club Fly-In #1 (NE)	Pickens County Airport-Jasper, GA
Apr 8-16	Club Trip to Sun N Fun	Lakeland, FLA
May 22-23	Bartow County Benefit Fly-In	Cartersville, GA
June 10-12	Club Fly-In #2 (SW) (Atlanta Auto Show)	Atlanta Raceway Bear Creek Airt
July 16	Club Trip to Savannah	Savannah, GA
Aug 27	Club Fly-In #3 (SE)	?
Sept	Club Trip to Flight World	Greer, SC
Oct	Club Trip to Marble Festival	Jasper, GA

Note: All scheduled club fly-in events are based on the assumption that Club Liability Insurance coverage will have been obtained prior to the event dates.

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