



AMA Chapter #3798

Chino Valley Model Aviators

Official News



December 26, 2018

Volume 21 Issue 12

www.chinovalleymodelaviators.org

"To create an interest in, further the image of, and promote the hobby/sport of radio controlled aircraft"

Inside this issue

- ⇒ Mystery Plane 2
- ⇒ President's Message 2
- ⇒ Safety Column 3
- ⇒ Members Flying 4
- ⇒ UAV Flight Tests 5
- ⇒ Metal Fatigue Issues 6
- ⇒ Name The Plane Data 7
- ⇒ Amazing WWI Story 8
- ⇒ Club Christmas Party 9

Aviation Fact:

As well as being the second oldest airline in the world Qantas, formed in 1920, also has the best safety record with no fatal crashes in their history. Tick Tock...



Support our Local Hobby Shop

6594 E. Second Street
Suite C
Prescott Valley, AZ
(928) 771-4071

Two Embry-Riddle UAV Flight Teams - Two Flight Tests Same Day



Team Two



Team One



More on Page 5

RICK NICHOLS' HOBBY KING EXTRA 330





2018 is rapidly coming to a close and so it might be a good time to review.

Facilities are in good shape with a few projects completed. In mid-April, the winds were howling and it was a perfect time to finish the paving on the east side of the runway.

Our May field day saw a lot of junk hauled to the dump and a chunk of fencing removed. Some new chairs were procured just

before an event. November saw our charging system batteries replaced.

We had four events this year, starting with our Spring Fling Fun-Fly, then a 4th of July pot luck.

September saw our very successful Steve Crowe Memorial Fun-Fly and we ended with the Build-N-Fly Challenge.

Our monthly club meetings were unusually eventful with two being

cancelled due to our normal location being renovated. The outdoor meeting in July was memorable.

Our membership continues to grow, up to a record 153 members. As usual, we had lots of fun, a few tears, a little sweat, and a dash of blood. Tears came from all of us that crashed a plane this year. Some sweat was shared by Marc, Glenn and Clint when they repaired the front gate. Greg

donates the blood story when he nearly took a few fingers off in a prop back in February. We continue to see an influx of new members escaping California, and welcome them with arms wide open. In all, it was a great year.

Merry Christmas to all, and to all a good night.



What Plane Has This Cockpit?



See Page 7

CVMA NEWSLETTER
 AMA Chapter #3789
 Published Monthly

President — Don Crowe	
Vice President — Bill Gilbert	
Treasurer — Marc Robbins	
Secretary — Bob Steffensen	
Safety Officer — Steve Shephard	
At Large Member — Randy Meathrell	
Newsletter Editor — Bob Shanks	



MARK YOUR CALENDARS

Club events for 2019

Club events for 2019 to be finalized as part of January general membership Meeting.



Club Meetings:

Third Wednesday of Each Month—7 PM
Prescott Airport Executive Building



BORN IN A BARN?

IF YOU ARE THE LAST ONE TO LEAVE THE FIELD:
PLEASE REMEMBER TO LOCK THE GATE.



SAFETY: ALWAYS A CRITICAL ISSUE

This year is fast approaching the history books. And in thinking about safety perspectives, we have had a fairly safe 2018 with no really major injuries at the field. Like most clubs, we seem to have our share of prop accidents, keep those fingers clear of those rotating slicers. Always think safety as we enter into our 2019 flying year.

If you have safety issues or interests please remember our new safety officer for 2019 is [Steve Shephard](#). Also report any major safety issues to him you might see or be aware of, as he, like most on the board, can't be at the field every day. Drop him a line or give him a call.

As part of our January meeting we will be discussing our club field rules for final approval. Any safety ideas or issues should be brought up at that time.

We will be finalizing our club activity schedule for 2019 at our January

meeting as well so if you have any ideas or flying activity we could conduct at one of our regular events (Steve Crowe Fun Fly as an example) let anyone on the board know your idea.

In visiting with our safety officer he reports that we have had a rash of unsafe incidents mainly from older more experience members. The experienced flyers need to set the example for everyone. Steve also emphasized that safety at the flying field is everyone's business and responsibility.

We all should make a point to talk with anyone who has just flown unsafely for whatever reason. Of course as stated last month's column, approach folks in a positive diplomatic manner as you explain what the infraction happens to be or what they did that was unsafe.

We can't stress strongly enough that this can be a dangerous hobby and it doesn't take much to have someone get hurt.

Safety Officer, [Steve Shephard](#) has constantly stressed, as one of our flight instructor, that we need to mentor new members and make sure we are there for them when they are flying to make sure they are flying safe. Being there for them can mean just being a spotter and assisting them as needed. However, be aware, that repeat offenders who keep breaking the rules; there are penalties in our by-laws that we can enforce if we need to.

As your editor, I can think of one incident that occurred recently when an experienced member took off side ways to the runway, not enough clear runway for a take off, so he flew diagonally right over the helicopter pad and road coming into the field. Needless to say, he was approached in a positive manner and he admitted he should have taxied to the end of the runway before turning around to take off. Fly safe in 2019 members.

Club Pilot's Flying Machines



At left is *Riley Harley's* Bristol, right is *Craig Hale's* very nice foam scale EDF A-10 Warthog. Below right is *John Meyers'* very accurate scale electric P-38.



Dave Bates Mirage 2000C "Tiger Meet" by Freewing, sold through Motion RC. It has a 80mm 9 blade fan and flies on a 6S 4500MAH battery.



Jack Potter's Tower Hobbies "Slow Ride".



Bill Gilbert puts his electric chopper through some aerobatics.



Rick Nichols' yard stick fuselage repaired slow stick.

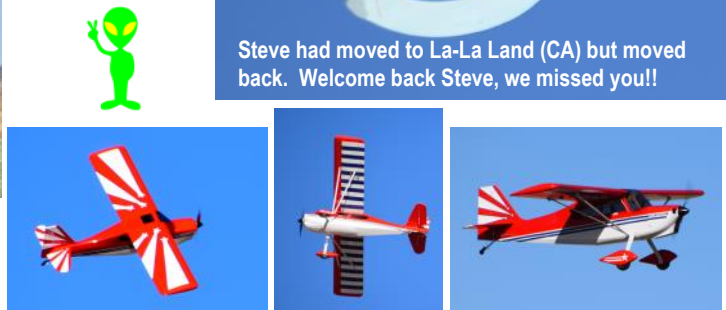


Richard Gunder brought out his little baby A-10 and flew it with Shel Liebach's big brother A-10. Both fly very well.



Steve Zingali's UFO.

Steve had moved to La-La Land (CA) but moved back. Welcome back Steve, we missed you!!



Shel Liebach's gas powered Decathlon.

Embry-Riddle UAV Maiden Flight Tests

One of our club's primary community support activities is to be available to assist Embry-Riddle's Advanced Aeronautical Design class with development and testing of their student constructed UAV/UAS designs.

This year's efforts are all electric and as in past years they are pusher type aircraft. They often design their own versions or modify current UAV aircraft designs. Students must use the same materials found in conventional UAV aircraft, fiberglass, aluminum and carbon fiber but no balsa or RC type materials. Each plane was equipped with a GoPro camera in the nose of the aircraft. Each plane weighed in at about 22 pounds.

We always emphasize the primary goal is not just to get them to fly, it has to do with team work and the total design process for a UAV or UAS aircraft. This group was particularly enthusiastic as the first one lifted off there was a huge outcry of support and cheering from all the class students. Each plane was piloted by a student with RC experience. Of course they all hope for a successful maiden flight. What a cool and calm group of student flight support staff.

The blue UAV was taxied about the runway to familiarize the pilot with high speed taxi traits and get familiar with our runway. After some tinkering with the retracts and one false start it flew remarkably well. The student pilot landed it like a pro, smooth and taxied it back as if it was a normal flight.

The black UAV was a bit shaky on its landing gear but slowly lifted off with some severe trim issues, it flew for a few moments but before anyone could assist with trimming it nosed in well north of our runway. One student is holding up some duct tape in the cover shot, the quick repair before it was tested. It did fly and again a huge outcry of cheers erupted from the students at lift off.

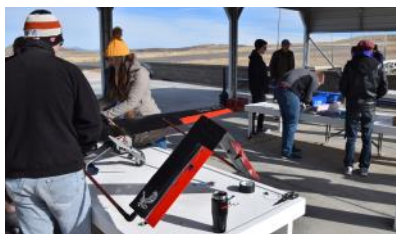
Hats off to the Unmanned Aircraft Systems college staff at ERAU.



Each design had a GoPro camera installed in the nose. Hopefully they got some interesting test flight footage.



The relative size of each design can be seen in all of these photos as each team is working on assembling and getting their UAV designs ready to test fly.



Metal Fatigue Related Crashes That Changed Commercial Aviation

Hawaii Boeing 737 Crash 1988

On April 28, 1988, a weary, 19-year-old Boeing 737-297 on a short hop from Hilo, Hawaii, to Honolulu, leveled off at 24,000 ft., a large section of its fuselage blew off, leaving dozens of passengers riding in the open-air breeze. Miraculously, the rest of the plane held together long enough for the pilots to land safely. Only one person, a flight attendant who was swept out of the plane, was killed.

The National Transportation Safety Board (NTSB) blamed a combination of corrosion and widespread fatigue damage, the result of repeated pressurization cycles during the plane's 89,000-plus flights. In response, the FAA began the National Aging Aircraft Research Program in 1991, which tightened inspection and maintenance requirements for high-use and high-cycle aircraft. Post-Aloha, there has been only one American fatigue-related jet accident—the Sioux City DC-10.

<https://www.aerotime.aero/yulius.yoma/18542-history-hour-aloha-airlines-flight-243-incident>



Sioux City DC-10 Crash 1989

On July 19, 1989, at 1516, a DC-10-10, N1819U, operated by United Airlines as flight 232, experienced a catastrophic failure of the No. 2 tail-mounted engine during cruise flight. The separation, fragmentation and forceful discharge of stage 1 fan rotor assembly parts from the No. 2 engine led to the loss of the three hydraulic systems that powered the airplane's flight controls. The flight crew experienced severe difficulties controlling the airplane, which subsequently crashed during an attempted landing at Sioux Gateway Airport, Iowa. There were 285 passengers and 11 crewmembers onboard. One flight attendant and 110 passengers were fatally injured.

The National Transportation Safety Board determines that the probable cause of this accident was the inadequate consideration given to human factors limitations in the inspection and quality control procedures used by United Airlines' engine overhaul facility which resulted in the failure to detect a fatigue crack originating from a previously undetected metallurgical defect located in a critical area of the stage 1 fan disk that was manufactured by General Electric Aircraft Engines. The subsequent catastrophic disintegration of the disk resulted in the liberation of debris in a pattern of distribution and with energy levels that exceeded the level of protection provided by design features of the hydraulic systems that operate the DC-10's flight controls.

<https://www.ntsb.gov/investigations/accidentreports/pages/AAR9006.aspx>



<https://www.robsonforensic.com/articles/aircraft-engine-materials-expert>

Turbine Disk Failure

In metallurgy, fatigue is the weakening of a material from iterative applied loads. The load applied to turbine disks is primarily experienced during climb and reverse thrust. These processes repeatedly subject engine materials to extreme temperatures and pressures.

Aircraft design methods have shifted from safe-life, where parts are used for a fixed amount of time then retired, to a damage-tolerant design, where parts are used indefinitely so long as they remain within acceptable damage tolerances. The damage-tolerant methodology is more heavily dependent upon inspection, which brings in a human component, relying on inspectors to determine, e.g., if a crack in a turbine disk exceeds a critical length to the point where the part must be replaced.



Cockpit Plane Photo: McDonnell Douglas AV-8B Harrier II

The McDonnell Douglas (now Boeing) AV-8B Harrier II is a single-engine ground-attack aircraft that constitutes the second generation of the Harrier Jump Jet family. Capable of vertical or short takeoff and landing (V/STOL), the aircraft was designed in the late 1970s as an Anglo-American development of the British Hawker Siddeley Harrier, the first operational V/STOL aircraft. The aircraft is primarily employed on light attack or multi-role missions, ranging from close air support of ground troops to reconnaissance. The AV-8B is used by the United States Marine Corps (USMC), the Spanish Navy, and the Italian Navy. A variant of the AV-8B, the British Aerospace Harrier II, was developed for the British military, while another, the TAV-8B, is a dedicated two-seat trainer.



The project that eventually led to the AV-8B's creation started in the early 1970s as a cooperative effort between the United States and United Kingdom (UK), aimed at addressing the operational inadequacies of the first-generation Harrier. Early efforts centered on a larger, more powerful Pegasus engine to dramatically improve the capabilities of the Harrier. Due to budgetary constraints, the UK abandoned the project in 1975.

Following the withdrawal of the UK, McDonnell Douglas extensively redesigned the earlier AV-8A Harrier to create the AV-8B. While retaining the general layout of its predecessor, the aircraft incorporates a new wing, an elevated cockpit, a redesigned fuselage, one extra hardpoint per wing, and other structural and aerodynamic refinements. The aircraft is powered by an upgraded version of the Pegasus, which gives the aircraft its V/STOL ability. The AV-8B made its maiden flight in November 1981 and entered service with the USMC in January 1985. Later upgrades added a night-attack capability and radar, resulting in the AV-8B(NA) and AV-8B Harrier II Plus, respectively. An enlarged version named Harrier III was also studied, but not pursued. The UK, through British Aerospace, re-joined the improved Harrier project as a partner in 1981, giving it a significant work-share in the project. After corporate mergers in the 1990s, Boeing and BAE Systems have jointly supported the program. Approximately 340 aircraft were produced in a 22-year production program that ended in 2003.

Typically operated from small aircraft carriers, large amphibious assault ships and simple forward operating bases, AV-8Bs have participated in numerous military and humanitarian operations, proving themselves versatile assets. U.S. Army General Norman Schwarzkopf named the USMC Harrier II as one of several important weapons in the Gulf War. The aircraft took part in combat during the Iraq War beginning in 2003. The Harrier II has served in Operation Enduring Freedom in Afghanistan since 2001, and was used in Operation Odyssey Dawn in Libya in 2011. Italian and Spanish Harrier IIs have taken part in overseas conflicts in conjunction with NATO coalitions.

During its service history, the AV-8B has had a high accident rate, related to the percentage of time spent in critical take-off and landing phases. USMC and Italian Navy AV-8Bs are to be replaced by the Lockheed Martin F-35B Lightning II, with the former expected to operate its Harriers until 2025. Most of the first "day attack" AV-8B Harrier IIs were upgraded to Night Attack Harrier or Harrier II Plus standards, with the remainder being withdrawn from service. The AV-8B cockpit was also used for the early trialing of Direct Voice Input (DVI), which allows the pilot to use voice commands to issue instructions to the aircraft, using a system developed by Smiths Industries. The main attack avionics system in original aircraft was the nose-mounted Hughes bombing system. The system combined a TV imager and laser tracker to provide a highly accurate targeting capability. Defensive equipment include several AN/ALE-39 chaff-flare dispensers, an AN/ALR-67 radar warning receiver, and an AN/ALQ-126C jammer pod.

The trainer version of the AV-8B is the TAV-8B, seating two pilots in tandem. Among other changes, the forward fuselage features a 3 ft 11 in (1.19 m) extension to accommodate the second cockpit. To compensate for the slight loss of directional stability, the vertical stabilizer's area was enlarged through increases in chord (length of the stabilizer's root) and height. USMC TAV-8Bs feature the AV-8B's digital cockpit and new systems, but have only two hardpoints and are not combat capable. Fielded in 1991, the Night Attack Harrier was the first upgrade of the AV-8B. It differed from the original aircraft in having a forward looking infra-red (FLIR) camera added to the top of the nose cone, a wide Smiths Industries head-up display (HUD), provisions for night vision goggles, and a Honeywell digital moving map system. The FLIR uses thermal imaging to identify objects by their heat signatures.



Strange Aviation Stories

<http://www.historynet.com/amazing-but-true-stories.htm>



Editor's Note:

Aviation history has a lot of crazy and amazing stories that are true. Of course many are fiction so careful verification is needed before publishing any of these tales of flying. From time to time we will include some of them in our newsletter. WWI is full of wild stories of daring and questionable feats. This one is particularly interesting and was easily verified.

During a dogfight in January 1918, Royal Flying Corps pilot Captain Reginald Makepeace bunted his Bristol F.2B into a steep dive, the negative Gs tossed his gunner/observer, Captain John H. Hedley, out of his seat. The RFC didn't issue its airmen parachutes in those days, thinking it would make them less aggressive if they had such an easy out, so Hedley was doomed. Or was he?

Hedley fell several hundred feet, but so did the F.2B. Gunner and airplane somehow came together, and Hedley found himself clinging to the flat-topped aft fuselage of the fighter. He managed to crawl back to his cockpit and continued his duties, apparently not at all phased and went on to score 11 victories before being shot down and imprisoned two months later.



More on Captain Makepeace



Bristol F.2B

Captain Makepeace, in his career, scored 17 victories with his forward-firing gun, so he and his gunner, John Headley, were literally a deadly duo. After the war, Hedley became an American and moved to Chicago and at least for a while made a living billing himself as "The Luckiest Man Alive" and giving lectures about his adventure.

If pilot Captain Makepeace had moved to Berlin, he'd have had to share the stage with 1st Lt. Otto Berla, who on May 24, 1917, was the observer aboard a German Albatros C.V when a sudden bout of turbulence forced the airplane's nose down and popped the unbelted Berla up and out of his rear seat. He and the airplane briefly reunited as a second updraft forced the tail up again just in time to meet the rapidly descending

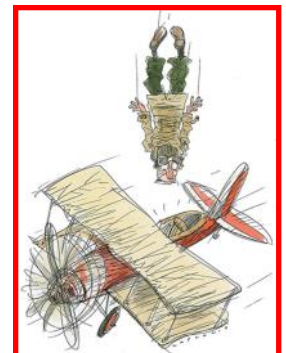
Berla, who punched his feet first through the plywood-skinned turtle deck just aft of his cockpit. Very happy to be back aboard, Berla rode back to base in his new position.

World War One Propaganda Note

By the time that World War I came around, the United States was a leader in the art of movie making and the new profession of commercial advertising. So when The U.S. entered the War in 1917 it was an associated power on the allied side of Britain and France.

These new advertising technologies played an instrumental role in shaping the American mind and altering of public opinion into a pro-war position. Perhaps the most influential man behind propaganda in the United States during World War I was President Woodrow Wilson. In one of Wilson's most famous declarations, he outlined the "Fourteen Points" which he said the United States would fight to defend. Aside from the restoration of freedom in European countries suppressed by the power of Germany, Wilson's Fourteen Points called for secrecy regarding discussion of diplomatic matters, free navigation of the seas both in peace and war time, and equal trade conditions for all nations. The Fourteen Points would serve as a blueprint for world peace to be used for peace negotiations after World War I. Wilson's points inspired audiences around the world and greatly strengthened the belief that Britain, France and America were fighting for noble goals.

https://en.wikipedia.org/wiki/Propaganda_in_World_War_I





Annual Club Christmas Party



Our annual Christmas party had a total of 34 in attendance. We had planned and advertised it for December 8 not December 7. Unfortunately the Airport Centennial Club wrote down the wrong date. Several members missed the party, your editor included.

Member **Rick Nichols** did another humorous and outstanding MC job. He handed out awards to **Steve Shephard** for his continued teaching of new student members, **Greg Daebelliehn** for his record number of crashes in 2018 and to **Randy Meathrell** for sitting in one of our chairs at the field, it collapsed while he was sitting in it!

Rick has three other awards to hand out but due to the date confusion, he will be handing these out at our January 2019 meeting.

Thanks to **Bob Steffensen** for the photo collage below and for getting this set up for this year.



Photos Courtesy of Bob Steffensen