



AMA Chapter #3798

# Chino Valley Model Aviators

## Official News



December 20, 2019

Volume 22 Issue 12

www.chinovalleymodelaviators.org

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

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### Aviation Thought:

"If you're ever faced with a forced landing at night, turn on the landing lights to see the landing area. If you don't like what you see, turn 'em back off."

*unknown*

### Support our Local Hobby Shop



Valley Hobby  
Prescott Gateway Mall

## Christmas Banquet for 2019 a Success



MC Rick Nichols did his normal outstanding job as MC. Don Crowe, our former president received the Jay Riddle Perpetual Trophy at left for taking the club presidency for so many consequent years and supporting the club in such an outstand all around manner. He was unable to be present to receive the club trophy.

## DENNIS O'CONNOR'S & JOHN STEWART'S GAS POWERED CORSAIRS



Dennis' Corsair has a yellow cowl, John's is white.



John Stewart's Corsair chasing Jeremy Beck's P-51



## Bill Gilbert: CVMA President's Message



As our flying season comes to an end, marked by the Thanksgiving Holidays and our first significant snowstorm, let's be grateful for the generally great flying conditions we experience here in Northern Arizona throughout the year. We've had some spectacular flying days in mid-December that should be the envy of a lot of the country.

We've enjoyed some great camaraderie and made some new friends while participating in our beloved hobby this year. The membership in general has been pretty active with some flying days being very well attended.

We also just held the annual Christmas Banquet with a good participation. Lots of cheer, and good food was enjoyed by those in attendance. [Congratulations to Don Crowe, this year's Jay Riddle Perpetual Trophy winner always given out at our banquet.](#)

Thanks to our member volunteers, we completed a year-end push to clean up the entrance to the field. The entry

gate area is well trimmed, a new sign with our current logo was installed, and the road into the field was leveled. The entrance now looks inviting to our members and visitors alike.

A club volunteer, *Bob DeNoyelles*, also leveled Santa Fe Trail and the entry road on a cold blustery Sunday afternoon with his tractor and a weighted rear blade to cut through the hardened mud. Thank you Bob and also thanks to the great membership teamwork with the field maintenance all around!

Let's look forward to Improved weather in the New Year and a continuation of our flying. In the meantime, it's "building season", hopefully you have some new projects or repairs to keep the interest level alive and stave off cabin fever. Let's continue our enjoyment of the hobby and our club in the coming year.

Keep the participation alive with the building and flying of your models, and volunteering for club activities; this helps keep the club enjoyment high and the maintenance level of our facilities also high. We

have a great club and facility, please help keep it that way!

We hosted the ERAU Aerospace Engineering class for test flying their project aircraft. Very interesting design and creativity from those young Aerospace Engineering students! It is very fun to watch their enthusiasm and learning process, as they try and launch their aircraft for the 1<sup>st</sup> time. Sometimes it doesn't go as planned, as in this case, ground handling issues prevented flight success.

I wish everyone a Merry Christmas and a Happy New Year! Enjoy the holidays with your loved ones!

Have a very safe and enjoyable 2020. See you all at the field.

*Bill*



Flight Instructors



Needed

### CVMA NEWSLETTER

AMA Chapter #3789  
Published Monthly

President — *Bill Gilbert*



Vice President — *Doug McBride*



Treasurer — *Harold Ellis*



Secretary — *Bob Steffensen*



Safety Officer — *Steve Shephard*



At Large Member — *Dan Avilla*



At Large member — *Dennis O'Connor*



Newsletter Editor — *Bob Shanks*



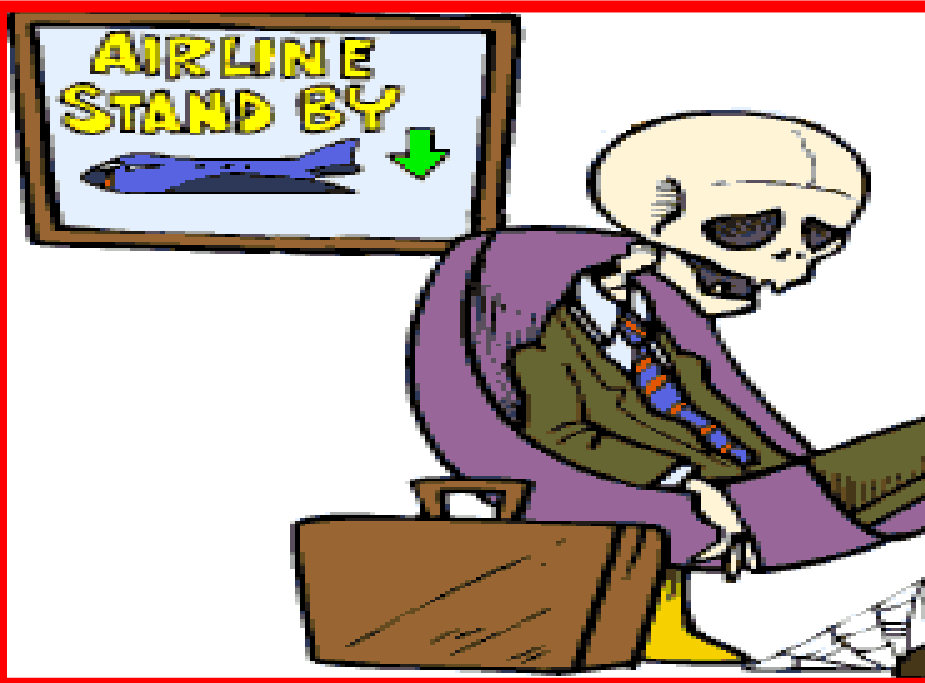
## What Plane is This?



See Page Ten

**2019 — MARK YOUR CALENDARS****2019 Events to be Scheduled in January****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**

A tourist from California has been fined \$20,000 after his drone got away from him and eventually wound up at McCarran International Airport in Las Vegas.

Television station KVVU reports that the drone operator, Reuben Burciaga, said he was trying to get a photograph of the High Roller observation wheel at the Linq hotel and casino on the Las Vegas Strip. He was apparently not authorized to fly the aircraft in the area. Burciaga said that during the flight, his aircraft "started acting weird and just took off". It flew more than two miles at an altitude of more than 450 feet before finally landing a few feet away from an active runway at McCarran.

Workers found the drone and handed it over to local authorities. It was tracked back to Burciaga through its registration number.

The FAA initially fined Burciaga \$15,000. "This was really a very serious incident, which is why we imposed such a large fine," said FAA Spokesperson Ian Gregor. "In this situation, the pilot committed a litany of serious violations and really flew the drone carelessly and recklessly."

Burciaga did not pay the fine, and it was upped to \$20,000. The fine was turned over to the Treasury Department, which will try to collect the money through his income taxes.

Burciaga admits to the infraction but says he does not have the money to pay the fine, or fight the charge. "I wouldn't even have an idea how to fight it. That's half my year's paycheck for trying to take a picture," he said.

[This news story above is at the root of all the problems the FAA is now trying to address with new legislation. The "Drone" world or industry is actually starting to affect our hobby. If all these issue are not carefully followed and mediated as necessary future FAA legislation could possibly kill the RC hobby as we know it.](#)

The FAA published new regulations in 2016 to control the commercial use of drones. But because the 2012 law limited the rules the FAA could impose on RC hob-

byists who flew as part of organized clubs, the academy of Model Aeronautics (AMA) has largely been able to write its own rules and work with all its members.

If one checks the Internet there is a host of stories and reports on both sides of this issue between "Drones" and RC hobbyists. The FAA on the one hand is being pressured to exert more control over any air space hence the debate and discussion we had at our November club meeting of possibly having a 700' ceiling as a flight limit. Any altitude limit is fraught with problems around the size of the model, type such as turbines or gliders and amount of power used for control and many other considerations.

We all bear a responsibility to follow this issue closely and to keep in contact with the AMA, our representative is *Lawrence Tougas*, Box 278, Fairfield, CA 94533. His phone number is (707) 480-2053.

Don't hesitate to share your ideas, concerns and possible solutions to this constant growing drone problem.

# Club Members Flying Machines



Dan Avilia's F-16 Thunderbird

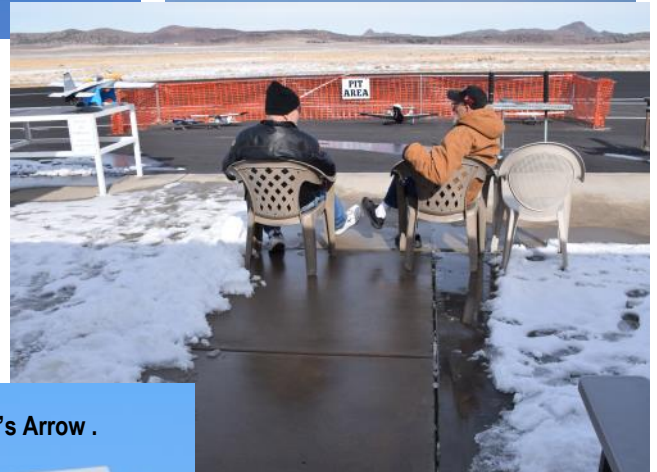


New field sign, looks really good.

Charlie Gates little foamie.



A Steve Zingali creation.



Matt Mrdeza's Arrow .



Steve Zingali launches Matt Mrdeza's Arrow

**ERAU Test Flight Fails**  
Embry Riddle's Advanced Aeronautical Design class brought out the end of semester's design for testing. It was to have been a vertical take off UAV but due to weight problems it was converted to a horizontal take off but due to ground handlings problems due to a weak tail wheel, along with power to weight issues it never took flight. Whether a student designed plane flies or not the semester long class is heavy in design, lab work, wind tunnel testing and development. The learning curve is steep and very beneficial for many aeronautical design and development careers.



ERAU Advanced Aeronautical Design class Dec. 2019

# FIELD ENTRY ROAD WORK, GATE WEEDED AND SANTA FE TRAIL



As most of our flying members know, Santa Fe Trail leading to field was a muddy mess as was our road into the field. So a crew of volunteers lead by our president Bill Gilbert assembled to de-weed gravel and smooth out the ruts at the gate area. The ruts had hardened so the work centered on the gate weed over growth and muddy entry way. Gravel was laid down and smoothed out. Glenn Heithold dragged the road but the hardened mud was like concrete so Bob Denoyelles worked on it a few days later with his equipment. A big thank you to all the members who showed up to work on the entry gate area and especially to Bob DeNoyelles.

The following Sunday Bob Denoyelles came out with his tractor with a weighted down rear blade and spent over two hours on Santa Fe and the rough areas of our road. [Thanks for devoting your energy to this job Bob much appreciated.](#)

On a rainy snowy Taco Tuesday prior to all the work a few members braved the weather and elements to fly. Most of those there had four wheel drive vehicles but alas your editor did not and got stuck leaving the field after the road thawed out into sticky mud. As you can see from the photos he was stuck deep but Triple AAA saved the day. The tow truck only backed down a short distance on Santa Fe so as not to get stuck as well and then with the winch and long cable dragged out your hapless editor.



Santa Fe Road after Bob cut the ruts down.



Bill Gilbert spread gravel out at the field entry point .

Santa Fe road into the field above was a quagmire of mud, the picture at right shows a smoother road after **Bob DeNoyelles** went over it many times with his weighted rear tractor blade. At right Bob with his tractor.



The road to the field parking area and runway area is now also much smoother thanks to member Bob DeNoyelles hard work and time using his own equipment.

# Lithium Batteries, Basic Principles and Safety\*

## Editors Note:

Lithium-polymer batteries can be dated back to the 1970's. Their first design included a dry solid polymer electrolyte that resembled a plastic film.

Therefore, this type of battery can result in credit card thin designs while still holding relatively good battery life. In addition, lithium-polymer batteries are very lightweight and have improved safety.

However, these batteries will cost more to manufacture and have a worse energy density than lithium-ion batteries. Although the lithium-polymer battery is sleeker and thinner, lithium-ion batteries have a higher energy density and cost less to manufacture.

<https://www.androidauthority.com/lithium-ion-vs-lithium-polymer-whats-the-difference-27608/>

## Emergency Safety Alert: Lithium Battery Fires

Lithium batteries are becoming very popular for powering the control and power systems in our models. This is true because of their very high energy density (amp-hrs/wt. ratio) compared to Nickel Cadmium (Ni-Cds) or other batteries. With high energy comes increased risk in their use.

The principal risk is fire which can result from improper charging, crash damage, or shorting the batteries. All vendors of these batteries warn their customers of this danger and recommend extreme caution in their use.

In spite of this many fires have occurred as a result of the use of Lithium Polymer (Li-Poly) batteries, resulting in loss of models, automobiles, and other property. Homes and garages and workshops have also burned.

A lithium battery fire is very hot (several thousand degrees) and is an excellent initiator for ancillary (resulting) fires. Fire occurs due to contact between lithium and oxygen in the air. It does not need any other source of ignition or fuel to start, and burns almost explosively.

These batteries must be used in a manner that precludes ancillary fire. The following is recommended:

**Store and charge in a fireproof container**, never in your model.

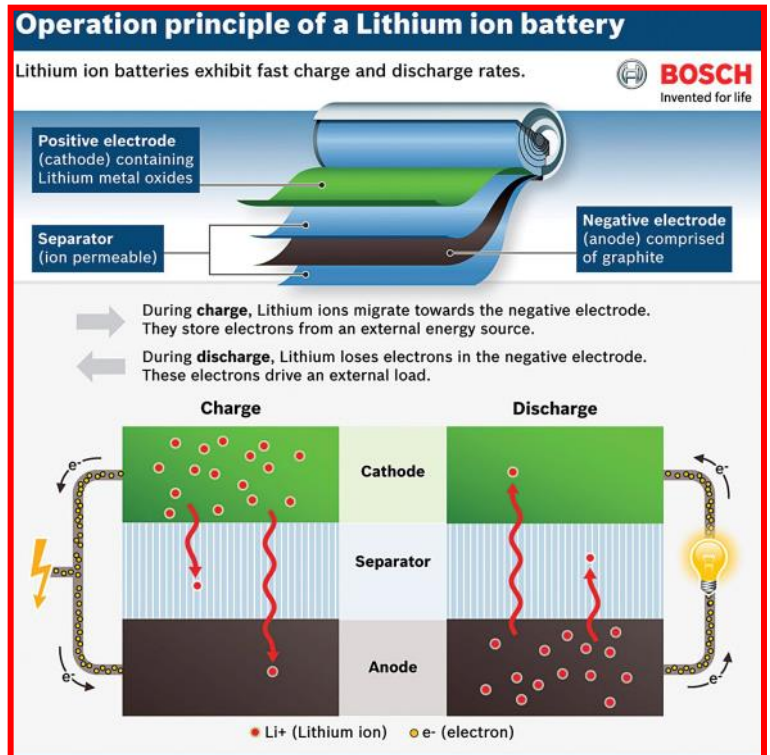
Charge in a protected area devoid of combustibles. Always stand watch over the charging process. **Never leave the charging process unattended.**

In the event of damage from crashes, etc., carefully remove to a safe place for at least a half hour to observe. Physically damaged cells could erupt into flame. After sufficient time to ensure safety, damaged cells should be discarded in accordance with the instructions which came with the batteries. **Never attempt to charge a cell with physical damage regardless of how slight.**

- Always use chargers designed for the specific purpose, preferably having a fixed setting for your particular pack. Many fires occur in using selectable/adjustable chargers improperly set. Never attempt to charge lithium cells with a charger that is not
- specifically designed for charging lithium cells. **Never use chargers designed for Ni-Cd batteries.**
- Use charging systems that monitor and control the charge state of each cell in the pack. Unbalanced cells can lead to disaster if it permits overcharge of a single cell in the pack. If the batteries show any sign of swelling, discontinue charging and remove them to a safe place—outside—as they could erupt into flames.
- Most important: **NEVER PLUG IN A BATTERY AND LEAVE IT TO CHARGE UNATTENDED OVERNIGHT.** Serious fires have resulted from this practice.

**Do not attempt to make your own battery packs from individual cells.** These batteries cannot be handled and charged casually such as has been the practice for years with other types of batteries. The consequence of this practice can be very serious and result in major property damage and/ or personal harm.

\*Basic Information from the AMA Safety Committee





In place of our regular monthly meeting we held our annual Christmas club banquet at the Prescott Airport Executive Club. Attendance was very good, we had 36 members celebrating Christmas. We thank Bob Steffensen for his work at getting all this set up each year.

The traveling *Jay Riddle Perpetual Trophy* was won this year by Don Crowe. Don stepped up as our club president for 2 years and 3 years as Treasurer.

As always, our M.C., a very formally dressed Rick Nichols, interspersed his masterful M.C. job of running the banquet with occasional club humor. He was dressed to the hilt and asked why none of us

had received the memo about the dress requirements for the evening, then he said he probably forgot to send it out!!

Of course, the favorite part of each banquet is Rick highlighting excellent club ideas as well a strange and extremely funny happenings at the flying field. Rick puts together framed awards as he "roasts" each member according to their deeds.

The first award was to Charlie Gates for his carrier landing on the top of the cabana; Steve Zingali for his very fun build and fly event at the field by teams within a 2 hour time limit; Harold Ellis received his certificate for our monthly "Flying Ass Trophy" for each month's best crash; Randy Meathrell was given the ICFA award (It's Carol's Fault Again) for his

forgetting things at home and at the field, he even forgot to bring his wife once to the field; our editor was recognized for his off-road challenge after burying his Dodge Challenger in the mud on the road leading from the field after a Tuesday flying day. He had to be rescued by AAA!



Bob Shanks award.



Charlie Gates award.



Randy Meathrell award.



Editor's Challenger stuck just off the road into the field.



Harold Ellis award.



Steve Zingali award.

More banquet news on next page...

# More on the 2019 Club Christmas Banquet Festivities

Our current club President, Bill Gilbert, spoke briefly pictured at right, about how fortunate our club is and for all the excellent members. He wished everyone a Merry Christmas and a very successful new year in 2020. Our winner of this years Jay Riddle Trophy is Don Crowe. Don was not present to receive the award. The trophy is shown with Bill. After Bill's brief remarks the drawings for the raffle award winning tickets were drawn from everyone who attended. Each person received a door prize ticket a Man's or Woman's raffle ticket. The night's winners are as follows: Wendy Zingali won the \$50 gift card to Kohls and Marc Johnson was the lucky man's winner of the \$50 Gift Card to the Home Depot and Rick Nichols also won a \$50 Home Depot Gift Card for his show and tell projects.



*Wendy Zingali at right has the sheer look of excitement to have won the fifty buck gift card to Kohls.*



*Marc Johnson at left scooped up the fifty dollar Home Depot Gift card bag.*



**Table 1** left to right, John & Denise Meyers; Mark & Muffi Delaney and Dave & Johanna Bates.



**Table 4** left to right, Cindi Shanks, Lou Yanni, Chris & Heather Perry and Bill Gilbert.



**Table 2** left to right, Colleen & Dan Avilla, Marcia & Walter Findlay, Steve & Wendy Zingali, Harold & Esther Ellis . **Table 5** Left to right, Phyllis & Bob Steffensen, Mike & Pam Kidd, Mark & Jane Lipp.



**Table 3** left to right, Jolyne & Rick Nichols, Pam & Don Ferguson, Randy & Carol Meathrell. **Table 6** left to right, Ramon and Susan Jimenez, Kris & Marc Johnson, Charlie & Connie Gates.





# Since 1977: Flight of Voyager Endures

From Smithsonian Air & Space Magazine, January 2020

Low on power and billions of miles from Earth, NASA's twin space craft still explore with a little TLC from home. The twin Voyager spacecraft, NASA's oldest, most venerable explorers, are still continuously transmitting data back to Earth. Launched in 1977 to study the large outer planets, Voyager 1 and 2 are now respectively, more than 13 billion and 11 billion miles from Earth, exploring the outer boundary of the heliosphere – a vast magnetic sphere created by the sun that surrounds the solar system. The 42-year-old spacecraft also present immense challenges to those responsible for the care.

Suzann Dodd, program manager for Voyager at the Jet Propulsion Laboratory (JPL) likens the task to caring for ageing grandparents. "Every year it's a little more difficult," she says. As the spacecraft gradually lose power, engineers periodically decide which instruments to switch off a complex process that must balance scientific priorities with the need to sustain vital "life support" systems that keep the space craft warm enough to operate at frigid temperatures.

The data stream from the Voyagers is continuous at a rate of 160 bits per second. NASA captures the data when one of the antennas in its Deep Space Network is pointed at the spacecraft, about six hours per day for each probe. The data is then transferred from the antenna site to JPL's central mission control, and then to the project mission support office, which processes the data and makes it available to the science teams.

The data also allows JPL engineers to regularly monitor the space crafts vital signs. Seeing the health or weakness of the instruments, the engineers improvise creative fixes, working with equipment built for planetary exploration that must now adapt to the needs of an interstellar mission. "it's repurposing systems to the things they were not designed to do, but can do," says Dodd.

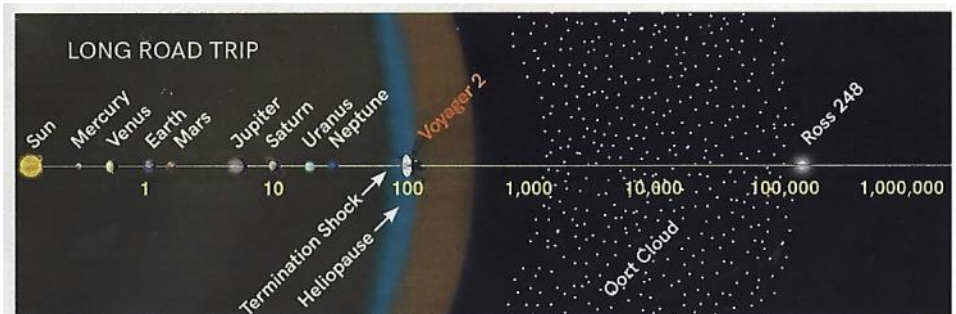
For instance, the magnetometer (MAG) was originally designed to measure the magnetic field of Jupiter, Saturn, Uranus, and Neptune, is now studying the interaction of the magnetic field of the sun with the magnetic field of interstellar space for researchers to learn more about the shape of the heliosphere.

Each spacecraft is powered by three radioisotope thermoelectric generators using plutonium-238 that decays and generates heat, which is converted into electricity. The dwindling supply of decaying plutonium accounts for a loss of four watts of electrical power a year. Today, the generators produce about 40 percent less power than they did at launch.

In addition to powering the instruments, the generators keep the heaters running. Without heat, the temperature aboard the Voyagers would plummet. While some instruments can function at the subzero temperature in deep space, the freezing point of the spacecraft's propellant is around 34.5 degrees Fahrenheit. If the propellant lines freeze, engineers would no longer be able to use the probes' thrusters to keep their antennas oriented toward Earth to transmit data. "So for about the last five years, it's actually been a balance of power and thermal," says Dodd.

Despite its success in keeping the Voyagers going, NASA has reached the point where it's one anomaly away from losing the spacecraft. JPL engineers have instead fired up another set of thrusters that were used for trajectory corrections maneuvers and haven't been used since the planetary flybys early in the mission some 40 years ago but still work!

"I always tell people, my personal goal is to have a spacecraft that celebrates its 50th anniversary from launch," says Dodd. With more than a little luck, the Voyagers might make it to 50 years.



## NAME THE PLANE: BACHEM BA 349

Dr. Erich Bachem's Ba 349 Natter (Viper) was the world's first, manned, vertical-take-off interceptor. The aircraft was an imaginative solution to a desperate problem but World War II ended before the weapon saw combat. Dr. Werner von Braun first proposed the concept in 1939 but the Air Ministry (RLM) rejected it as "unnecessary and unworkable." Bachem, an engineer with the Fieseler works, thought the idea had merit. He tried but failed to generate interest in several different proposals for a rocket interceptor.

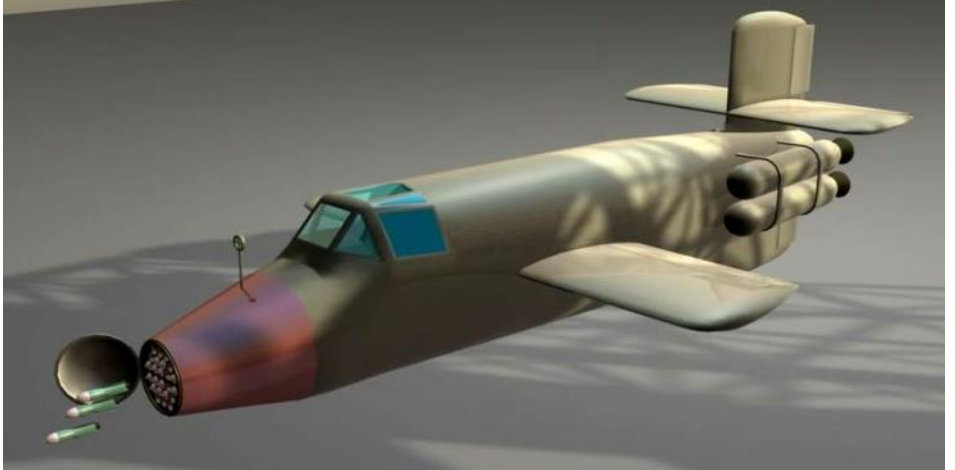
During spring 1944, the Allied bombing offensive began taking a serious toll on the German war machine. None of the conventional methods employed by the Luftwaffe to intercept the bombers seemed to work so the service began to explore unconventional means.

Bachem's design was simple and easy to build. Semi-skilled labor could construct one in about 1000 man-hours. The wings were plain rectangular wooden slabs without ailerons, flaps, or other control devices.

Two liquid fuels combined inside the motor to generate thrust. When T-Stoff (a highly caustic solution of hydrogen peroxide and a stabilizing chemical) mixed with C-Stoff (a hydrazine hydrate/methanol/water mixture), combustion was spontaneous so extreme care was required to handle both chemicals. The Walter motor generated about 1,700 kg (3,740 lb.) of thrust but a loaded Ba 349A weighed more than 1,818 kg (4,000 lb.) so liftoff required more power.

Bachem got the extra thrust from four Schmidding 109-533 solid-fuel rocket motors that he bolted to the aft fuselage, two per side. Each motor produced 500 kg (1,100 lb) of thrust. At liftoff, all five motors ignited, generating about 3,700 kg (8,140 lb) of thrust. The resulting 1.6 to 1 thrust-to-weight ratio produced acceptable climb performance.

American daylight bomber formations often approached a target at an altitude of 6,250 m (20,000 ft) to 9,375 m (30,000 ft). After the Natter had climbed even with the formation, the pilot took control, steering his Natter in close. At a range of about 1.6-3.2 kilometers (1-2 miles) from the formation, the Natter pilot jettisoned the nose cone and shotgun style, salvoed all 24 Henschel Hs 217 Föhn unguided rockets.



Rocket fuel would be nearly exhausted by now, so the pilot began to descend. At about 1,400 m (4500 ft), the pilot released his seat harness and fired a ring of explosive bolts to blow off the entire nose section. A parachute simultaneously deployed from the rear fuselage and the sudden deceleration literally threw the pilot from his seat. The pilot activated his own parachute after waiting a safe interval to clear the bits of falling Natter. Ground crews recovered the Walter motor to use again but the airframe was now scrap.

On February 25, 1945, carrying a dummy pilot a flight was attempted. The launch proved that the complete flight profile was workable. All went according to plan, including recovery of the pilot dummy and Walter rocket motor.

Now a man had to fly and the first test came on February 28. Oberleutnant Lothar Siebert climbed into a Ba 349A, strapped in, and rocketed off the launch tower. At about 500 m (1600 ft), the Natter shed its canopy and headrest and the aircraft veered off and flew into the ground, killing Siebert. No cause was determined but the ground crew may have failed to lock the canopy and it could have struck the pilot.

Despite the tragedy, more pilots volunteered to fly and the Bachem team launched three flights in March.

With the end near, the Germans erected a battery of ten Natters at Kirceim near Stuttgart. Pilots stood alert day after day but no U. S. bombers flew into range. The U. S. Seventh Army overran the site but not before the Germans blew up all ten Natters and their launchers.

It is interesting to speculate about the Natter's potential effectiveness. Realistic flight training was next to impossible using an aircraft that destroyed itself after every flight. However, given the short duration of a typical interception (about 5-10 minutes), and positive ground control for much of the flight, the German could have eased training with a simple ground simulator.

Once the German's erected a Natter site, U. S. Army Air Forces strike planners could easily route the bombers out of harm's way. Accuracy of the unguided rocket salvo is also questionable and it was a one-shot opportunity. It is safe to assume that the Bachem Ba 349A Natter was a bad idea from the start and as a bomber interceptor, it was a total failure.

Only two Bachem Natters are known to exist. The Deutsches Museum, Munich, Germany, displays a Ba 349A restored in the colors and markings of one of the unmanned test aircraft. The NASM has the other Natter. U. S. forces captured this artifact at war's end and shipped it to Freeman Field, Indiana, for analysis.

The captured equipment number T2-1 was assigned to the Natter and the U. S. Air Force transferred it to the National Air Museum, now the National Air and Space Museum (NASM) on May 1, 1949.

