

# Chino Valley Flyers Official Club Newsletter



### June 30, 2022

### Volume 25 Issue 6

www. chinovalleyflyers.org

"To create an interest in, further the image of, and promote the hobby/sport of model aviation"

### Inside This Issue

$\Rightarrow$ President's Message	2
$\Rightarrow$ Name the Combat Plan	e 2
$\Rightarrow$ Safety Column	3
$\Rightarrow$ Field Flying	4 & 5
$\Rightarrow$ C/L Safety Cone	6
$\Rightarrow$ Northrup Tacit Blue	7
$\Rightarrow$ Mystery Combat Plane	8
$\Rightarrow$ Hypersonic Missile	9
$\Rightarrow$ June Club Meeting	10



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Both John and Riley often fly these beautiful 95" WS Hanger 9 gas powered Spitfires together. Above they are in formation making it look easier than it is; one model has a 61cc powerplant the other a 55cc engine. Both have electric retractable landing gear.

## Brian Sutton's Glow Powered Control Line Shoestring



LVERS

### Page 2



Flying at the field seems to tributed financially into this have returned to a more nor- project. This is a big investmal state with reduced winds, and the summer Mon- Thank You Members. soon season is also upon us. This is good news for our water supply, but also in terms of reducing the fire danger at our grass field. Please continue to stay vigilant and practice safe flying to protect our field.

The cabana project is finally making some tangible they have an enjoyable time headway with the dirt pad being prepared. We are all excited to see this project finally move forward into reality.

This is a good segue into a thank you to all the members for the next few months of that have given us support for, and those that have con- hope many of you will

ment for the clubs' future.

We've had a surge in membership lately, both from CdA and with new arrivals. Please welcome these new members as you meet them flying at the field. Help them ease into our way of doing things from a safety and courtesy point of view so that as well.

If we can all wear our badges while flying it will be easier to ascertain names and make introductions.

We have events lined up summer flying weather, I

WHAT MAJOR COMBAT AIRCRAFT IS THIS?

participate and join in the fun. That's what this is supposed to be about: flying with friends and having a good time with this great hobby of ours!

Bill

Semper Supra

"Always Above" Space Force Motto

Flight Instructors

- > Al Morello Chief Flight Instructor
- > Randy Meathrell -**Control Line Flying**
- > Marc Nelissen-Basics
- > Jack Potter-Gliders

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Vice President — Mark Lipp

Treasurer — Don Crowe





Secretary — Bob Steffensen

Safety Officer - Rick Nichols



Chief Flight Instructor - Al Marello



At Large Member — Dan Avilla



At Large Member — Dennis O'Connor

Newsletter Editor — Bob Shanks





Training for Control Line Flying		
ERN	MARK YOUR CALENDARS	
	Eucarts June 18 - E- July 4 - Proving July 16 - Construction Aug. 19-21 - 1 Sept. 17 - Son Oct. 15 - From Nov. 12 - From Dec. 2 - Art	<i>for 2022</i> warbird races ot luck Fun Fly & chino Valley Town reworks Blider Endurance Event IMAC Shootout Steve Crowe Fun Fly ourth Annual Build & y Challenge all Swap Meet & Fun Fly nnual Christmas Banquet

WERE YOU BORN IN A BARN?

**CVF Official Newsletter** 

IF YOU ARE THE LAST ONE TO LEAVE THE FIELD CLOSE & LOCK THE GATE.

# **CRITICAL RC FLYING SAFETY ISSUES**

### **Rick Nichols Club Safety Officer**

am sorry to report on yet another caution and requirement that we are asked to follow. This was touched upon at the May 28 general membership meeting.

The problem arose when pilots were observed by gun range officials hunting for their downed plane on the hill behind the gun range. That area is considered a **HOT** area to them and is subject to ricochets. A representative from the range paid us a visit and made us aware that that area is off limits to us. Bear in mind that our leased area ends just a few feet east of our runway.

The management of the gun range requires that if we have an airplane down in that area that we go to the range office and they will close down the range out of caution until the plane is retrieved.

This is something we do not want to impose on them for obvious reasons

unless we have to; possibly due to an out-of-control lost plane that happens to end up in the gun ranges hot areas. Then we have to call the range office. Please adhere to this requirement members.

My suggestion is that all active flying be conducted to the west of the east end of our runway with an extension of that area to be used for landings only. At no time should we fly south of the centerline of the runway on approach.

Our club flying field is very valuable to each of us and we must do everything necessary to protect it and its assets. Our lease with the town can in no way be jeopardized by our actions. Our sister club Casa de Aero was permanently closed down by the actions of just one member. They are finding it very hard to locate a replacement flying site.

My thanks to the early arriving

members that are making the fire and crash cart available when they arrive. It looks like we are in for a very hot summer and all attempts should be made to be ready for a fire.

Our membership has been very safety conscious and it is appreciated by all.

### Fire & Crash Cart Donated to the club by Dan Avilla



### **CVF Official Newsletter**

teve Zingali's Biplane

# Chino Valley Flyers Action at the Field







Tumbleweed ready for C/L flying?





























### Take Your Trash Home Members



Page 4

### CVF OFFICIAL NEWSLETTER



# Our Chil Member's Wild Hying Machines!

Terry Steiner's Funmaster



**Rick Nichols racer test flight** while a glider heads for altitude.





Steve Zingali's T-28 racer test flight.











# The Elevated Cone in the Control Line Area is for Safe RC Landing Approaches



The control line circle is safely located away from the main runway approach but occasionally some flyers make wide RC flight turns to land bringing the plane too close to the C/L circle and road coming into the field. The purpose of the elevated cone near the C/L area is a general guide for RC flyers. One should always line up to land RC down the center of the runway keeping safely away from the entry road into the field as well as the control line area. We always have stressed not making wide landing approaches near the entry road and now especially with a lot of members now also flying control line.

In photo A one can see the cone designating the general edge of the runway area from the center of the control line circle; B shows what it looks like from the main runway and C shows an actual control line plane in flight relative to the edge of the runway. Notice the words "general" and "relative" are used, because when flying RC nothing is usually exact or perfect.

We should all practice proper landing approaches staying away from the entry gate and road whether or not control line flying is taking place, its just practicing common RC flight safety.

# Some Fast Club History of Control line Flying at Our Field

Some C/L (control line) club history is in order to enlighten our many newer members. For a number of years, the board and various past officers had been asked about where members could fly C/L models at our field. Several areas were looked at and discussed over the years but nothing definitive was ever decided. As the club has grown in membership, the

control line questions began to emerge and be asked again. So in the last couple of years more effort went into getting our control line circle started. There are a number of reasons for this renewed interest.

One main reason for this rebirth is many of our members started out in modeling flying control line and are still interested in that aspect of our hobby. If one follows what is in our monthly model AMA journal, it's easy to see that the whole area of C/L flying is still alive and doing quite well. In fact, your editor and others have noticed frequently that there are often more members at our C/L area than flying RC off our main runway. The popularity and number of members interested and now flying C/L has really increased. It is worth noting as well that the whole idea of flying C/L again has been generally very positively viewed by all members. *Thanks to President Bill Gilbert who donated a large sum of cash and John Stewart for donating a number of kits to sell to help out with the costs that are out of sight these days. A big thank you to Bill and John.* Our diverse memberships interest in all phases of modeling highlights how fortunate we are to have a flying field with the space and support of members for almost all modeling activities. Of course, some members can't fly control line due to the inability to overcome dizziness or other reasons. Many of our key club C/L flyers constantly ask and invite members to try flying C/L again or for the first time if they have never flown C/L line and many have tried it. So stop by the "circle" some day when at the field, our club control line flyers are very positive and helpful about this phase of our hobby.

# NORTHRUP TACIT BLUE AND BONDO \*

By Brett Tingly and Tyler Rogoway

In the late 1970s, the Pentagon saw a need for a new class of battlefield surveillance aircraft <u>that could penetrate</u> <u>into denied airspace and collect</u> <u>intelligence in real-time for long periods</u> <u>by using a new technology that was</u> <u>beginning to emerge known</u> as stealth. With this in mind, the U.S. Air Force and the Defense Advanced Research Projects Agency approached the Northrop



Corporation, which had some experience with stealth technology already, to build a reconnaissance aircraft built around an advanced radar system. The resulting prototype aircraft was known as Tacit Blue, now regarded by the Air Force as one of the most successful technology demonstrators ever funded.

To shed light on the history of the Tacit Blue Project, the Western Museum of Flight in Torrance, California hosted veteran Northrop aerospace engineer Don Murray. The museum's director introduced Murray as "a key player in the development of highly stealthy technology" and "widely recognized among the pioneers of stealth." The long-time engineer began the talk with a brief introduction, stating he was involved with at least 12 "new aircraft programs" during his 50 years working for Northrop Corporation, which then merged with Grumman Aerospace in 1994. "Several of them were very unique, probably none of them more so than the Tacit Blue program," Murray said.

Murray was assigned to be a second shift supervisor for the Tacit Blue project, which grew out of an Air Force and Defense Advanced Research Projects Agency (DARPA) initiative known as the Battlefield Surveillance Aircraft-Experimental (BSAX) program. That program was aimed at producing a technology demonstrator aircraft that combined the battlefield survivability aspects of a low-observable stealth aircraft with a low probability of intercept (LPI) radar and data-link suite. This type of radar uses a variety of techniques to collect high-fidelity intelligence without compromising its own position. In other words, it is very hard for the enemy to detect its emissions and thus the presence of the platform it is mounted on.

In Tacit Blue's case, the giant Hughes radar it was built around was designed to provide ground-moving target indicator (GMTI) capabilities, where formations of vehicles can be tracked with great precision over a wide area. It could also provide synthetic aperture radar mapping, which provides satellite picture-like images of the battlefield. None of the intel it gathered would be processed onboard. Instead, an LPI datalink would send it to a remote station on the ground for processing and rapid exploitation. The secret program existed in parallel to the larger PAVE MOVER/ASSAULT BREAKER initiatives underway at the time that were aimed at using a radar system like Tacit Blue's to rapidly detect and counter Soviet armor advances in any weather.

While prior spy aircraft, like the SR-71, were able to collect brief 'snapshots' of intel while flying quickly in and out of target areas, the Tacit Blue project was aimed at producing a stealthy aircraft that could loiter deep inside or very near denied airspace and deliver a near real-time intelligence feed using its advanced sensors over long periods of time. This shift from momentary to persistent airborne intelligence-gathering over enemy territory was a revolutionary idea at the time, one that is still being expanded upon operationally today.

When giving an overview of the general specifications of the Tacit Blue demonstrator, designated AP-1, Murray said that the aircraft incorporated a Clark Y airfoil, a wing profile that features a flat bottom. This profile has a high lift-to-drag ratio and was used throughout the 1920s and 1930s on aircraft but was rarely found on more modern aircraft. Northrop chose to use this older airfoil profile because the flat bottom offered a reduced radar cross-section and could offer the levels of lift needed for a high endurance aircraft such as the Tacit Blue. Remember, the idea is that Tacit Blue could penetrate and persist for long periods of time over or very near enemy territory, sucking up extremely high-quality intelligence without the enemy even knowing it was there.

When he joined the program, the basic airframe had been completed and assembled. Murray explained that the wings and fuselage of the demonstrator were constructed out of a standard aluminum alloy, while the radar-sensitive empennage and leading edges of the wings and fuselage/chines being built from a "proprietary Northrop composite material" that was key to the aircraft's stealthiness. The front landing gear was from an F-5, while the main landing gear was from an F-16.

The program encountered few problems during pre-flight development, but Murray explained how the team had difficulty "attaining the smoothness and curvature on the fuselage to satisfy low observable requirements." To remedy this, Northrop engineers turned to Bondo, a plastic-based auto body filler commonly found in auto parts stores. "We had a joke that if we ever lost our jobs, we could always get a job with the car customizers in the L.A. area sanding Bondo because everybody got a chance to apply and sand Bondo," Murray said with a laugh. Twenty years earlier, he says, Northrop had used Bondo on the X-21 demonstrator built to test drag reduction concepts.

\* https://www.thedrive.com/the-war-zone/44299/automotive-bondo-gave-the-stealthy-tacit-blue-demonstrator-jet-its-smooth-skin

# Major U.S. Combat Aircraft — A-10C Thunderbolt II \*

### **Mission**

The A-10C Thunderbolt II is the first Air Force aircraft specially designed for close air support of ground forces. They are simple, effective and survivable twin-engine jet aircraft that can be used against light maritime attack aircraft and all ground targets, including tanks and other armored vehicles.

### <u>Features</u>

The A-10C offers excellent maneuverability at low airspeeds and altitude while maintaining a highly accurate weapons-delivery platform. They can loiter near battle



areas for extended periods of time, are capable of austere landings and operate under 1,000-foot ceilings (303.3 meters) with 1.5-mile (2.4 kilometers) visibility. Additionally, with the capability of carrying precision guided munitions and unguided munitions, they can employ above, below and in the weather. Their wide combat radius and short takeoff and landing capability permit operations in and out of locations near front lines. Using night vision goggles, A-10C pilots can conduct their missions during darkness.

Thunderbolt IIs have Night Vision Imaging Systems (NVIS), goggle compatible single-seat cockpits forward of their wings, Helmet Mounted Cueing Systems, and a large bubble canopy which provides pilots all-around vision. The pilots are protected by titanium armor that also protects parts of the flight-control system. The redundant primary structural sections allow the aircraft to enjoy better survivability during close air support than previous aircraft.

<u>The aircraft can survive direct hits from armor-piercing and high explosive projectiles up to 23mm. Their self-sealing fuel cells are</u> protected by internal and external foam. Manual systems back up their redundant hydraulic flight-control systems. This permits pilots to fly and land when hydraulic power is lost.

The Thunderbolt II can be serviced and operated from bases with limited facilities near battle areas. Many of the aircraft's parts are interchangeable left and right, including the engines, main landing gear and vertical stabilizers. Avionics equipment includes communications, inertial navigation and GPS, fire control and weapons delivery systems, target penetration aids and night vision goggles. Their weapons delivery systems include heads-up displays that indicate airspeed, altitude, dive angle, navigation information and weapons aiming references; and a low altitude safety and targeting enhancement system (LASTE) which provides constantly computing impact point freefall ordnance delivery. The aircraft also have armament control panels, and infrared and electronic countermeasures to handle surface-to-air-threats, both missile and anti-aircraft artillery.

The Thunderbolt II's <u>30mm GAU-8/A Gatling gun can fire 3,900 rounds a minute</u> and can defeat an array of ground targets to include tanks. Some of their other equipment include electronic countermeasures, target penetration aids, self-protection systems and an array of air-to-surface weapons, including laser and GPS guided munitions, AGM-65 Maverick and AIM-9 Sidewinder missiles.

### **Background**

The first production A-10A was delivered to Davis-Monthan Air Force Base, Arizona, in October 1975. It was designed specifically for the close air support mission and had the ability to combine large military loads, long loiter and wide combat radius, which proved to be vital assets to the United States and its allies during Operation Desert Storm and Operation Noble Anvil. In the Gulf War, A-10s had a mission capable rate of 95.7%, flew 8,100 sorties and launched 90% of the AGM-65 Maverick missiles.

### General Characteristics

Primary Function: A-10 -- close air support, airborne forward air control, combat search and rescue Contractor: Fairchild Republic Co. Power Plant: Two General Electric TF34-GE-100 turbofans Thrust: 9,065 pounds each engine Length: 53 feet, 4 inches (16.16 meters) Height: 14 feet, 8 inches (16.16 meters) Wingspan: 57 feet, 6 inches (17.42 meters) Speed: 420 miles per hour (Mach 0.56) Ceiling: 45,000 feet (13,636 meters) Maximum Takeoff Weight: 51,000 pounds (22,950 kilograms) Range: 800 miles (695 nautical miles)

### <u>Armament</u>

One 30mm GAU-8/A seven-barrel Gatling gun; up to 16,000 pounds (7,200 kilograms) of mixed ordnance on eight under-wing and three under-fuselage pylon stations, including 500 pound (225 kilograms) Mk-82 and 2,000 pounds (900 kilograms) Mk-84 series low/high drag bombs, incendiary cluster bombs, combined effects munitions, mine dispensing munitions, AGM-65 Maverick missiles, laser-/GPS-guided bombs, unguided and laser-guided 2.75-inch (6.99 centimeters) rockets; infrared countermeasure flares; electronic countermeasure chaff; jammer pods; illumination flares and AIM-9 Sidewinder missiles. Crew: One <u>Date Deployed: March 1976</u> <u>Unit Cost: \$9.8 million (fiscal 98 constant dollars)</u> Inventory: Total Force – approximately 281

\* Source: https://www.af.mil/About-Us/Fact-Sheets/Display/Article/104490/a-10c-thunderbolt-ii/

# HYPERSONIC MISSILE SETS ENDURANCE RECORD

https://www.airforcemag.com/new-hawc-hypersonic-missile-sets-record-for-endurance/#:~:text=Lockheed%20Martin's%20version%20of% Authored by John Tirpak: published in Air Force Magazine May 2022 pp 24-25.

Lockheed Martin's version of the Hypersonic Air-breathing Weapon Concept (HAWC) missile demonstrator set a record for hypersonic flight under scramjet power in a just-revealed March flight test, the Defense Advanced Research Projects Agency (DARPA) confirmed.

The flight test likely achieved about 327 seconds of hypersonic flight under scramjet power, versus 200 seconds achieved by the Boeing X-51 *Waverider* in 2010, based on figures provided by DARPA. "DARPA, in partnership with the U.S. Air Force, recently completed a second successful test of a Hypersonic



Air-breathing Concept, known as HAWC," Stefanie Tompkins, head of DARPA, told the Senate Armed Services subcommittee on emerging threats and capabilities. "This test set a record for scramjet endurance, and we believe it's an inflection point on the path to reclaiming U.S. leadership in hypersonic weapons."

DARPA issued a release saying it had flown the Lockheed HAWC 300 miles at altitudes up to 65,000 feet. Scramjets require supersonic speeds to ignite and are boosted to those speeds by a detachable rocket. Since hypersonic flight begins very quickly after the rocket fires, most of the 300 miles would be flown under scramjet power.

At 65,000 feet, the speed of sound is 660 mph. Hypersonic flight is considered above Mach 5, or five times the speed of sound, meaning the HAWC's speed at that altitude would be at least 3,300 mph. At that speed, 300 miles would be covered in 1/11 of an hour, translating to a flight time of 5:45 minutes, or about 327 seconds. A Darpa spokesman also said, "We were at hypersonic speeds for the majority of that distance, and it would be a longer flight than Boeing's X-51".

Pentagon officials said the Lockheed HAWC test was not immediately made public to avoid escalation in the Ukraine war, in which Russia had just used a hypersonic missile to attack a weapons depot. "This Lockheed Martin HAWC flight test successfully demonstrated a second design that will allow our warfighters to competitively select the right capabilities to dominate the battlefield," said Andrew Knoedler, HAWC program manager in DARPA's tactical technology office, in a DARPA press release. "These achievements increase the level of technical maturity for transitioning HAWC to a service program of record."

In the September test, DARPA said the Raytheon missile "kicked on" just seconds after being released from its launch aircraft, then "compressed incoming air mixed with its hydrocarbon fuel and began igniting that fast-moving airflow mixture, propelling the cruiser at a speed greater than Mach 5," DARPA said at the time.

DARPA said the Raytheon missile achieved all its primary goals for the test, including vehicle integration and release, safe separation from the launch aircraft, booster ignition, boost, booster separation, engine ignition, and cruise." There is a total of \$577 million for Hypersonics weapon research in the fiscal 2023 budget to continue building on the Hypersonic Air Breathing Weapon (HAWC) concepts. (John Tirpak: Air Force Magazine May 2022 pp 24-25)

## According to Grumman: There are Two Types of Hypersonic Weapons

https://www.northropgrumman.com/space/engineering-a-future-safe-from-hypersonic-threats/?gclid=CjwKCAjwwdWVBhA4EiwAjcYJENnlZkekTAUn-79K8HjYKwXXiiluYxDLhTHn6uUfruLUI5Chk\_hUbxoCsxIQAvD\_BwE

- Hypersonic glide weapons, which comprise an unpowered glide vehicle launched on a ballistic missile or rocket booster.
- Hypersonic cruise missiles, which are powered by high-performance, air-breathing engines known as scramjets.

<u>Ballistic missile warheads have a very predictable, parabolic trajectory</u>. If we know where they were launched from and something about their initial trajectory, we can pretty well predict where they're going to land." <u>But by contrast, hypersonic weapons are quite unpredictable</u>.



### Chino Valley Flyers: June General Membership Meeting

The General Membership meeting on Saturday June 25, 2022 opened at10am with the Pledge of Allegiance.

Club membership now stands at 136 paid members. 39 Members signed in for today's meeting. Minutes of the May 2022 meeting were unanimously approved by members.

#### President's Agenda

Don Crowe presented the Treasurer's report to date. Don highlighted recent donations toward the additional costs of the cabana project. Treasurer's report was unanimously approved by members. Today President Bill Gilbert updated members on the cabana project. The concrete contractor has begun filling and leveling for the pad. After compaction and forms the concrete will be poured as soon as concrete is available. This work should not impede your flying activities although trailer parking will be limited until the construction is finished.

We need to watch costs and preserve what cash we have for runway maintenance. The cost of everything is going up. A new porta potty will be delivered soon by a new contractor.

The grant we requested to offset costs of cabana was not approved. We have also applied for silver status for the club, which when achieved will give us additional points and increase chances of obtaining future grants.

Field Maintenance - Thank you to those who participated in the June 4 the clean up. The field looks good. Another work day will be scheduled just before the AMAC event in August. The angled fence at the west end of the taxi way remains to be completed.

A recent crash into the new fence prevented the aircraft from penetrating, however, it did damage the fencing...we may have to go to chain link in the future.

Do comply with the FAA registrations requirement and label each of your planes with your FAA number.

First to the field? Bring out the fire cart. If we have a fire all should participate to stop the spread. Fire danger remains high. Thank you for continuing to be stay safe... we have had no recent incidents.

Mark Nelissen recently gave some basic flying instruction to a few members. He will do this again in the future. Bill was modeling a new hat and t-shirt with

the new Club logo. You can purchase these from Tom's Print Shop. Hats for \$25 and shirts for \$16.

### Upcoming Events

Foam Warbird Race that was canceled last week has been rescheduled for July 2. Randy Meathrell is EM.

The 4th of July potluck has been canceled. The Town of Chino Valley will not be having a fireworks display, and members at today's meeting did not wish to continue with the potluck.

The Glider Event is July 14, Jack Potter is EM. When asked about a potential combat event there was interest. Randy Meathrell and Steve Zingali will look into it. Bill suggest a STOL event and there was some interest in that as well. A float fly will be scheduled soon. The build and fly will be in late October...get your build on! The Christmas Party has been scheduled for Friday December 2.

Safety Officer Rick Nichols said bring out the fire cart each day. Do stay off the ridge to the East of the field. The gun range has a problem with that. If you need to look for a plane the range must be contacted first...but we don't want to do that ... let us not be a problem. I.E., don't fly south of the runway center line in either direction.

Secretary Bob Steffensen gave additional details on preparation for the Christmas Party. Do expect the cost per person to be increased due to these inflationary times

### **Member Comments**

Steve Zingali requested that we all park a little closer together and if you are not flying to park on one side of the shed or the other. Randy Meathrell requested volunteers to assist with the Warbird Race on Saturday. We broke about 10:29 for a variety of goodies provided by Garv Cosentino. Thanks Gary! We resumed at 10:39.

### **Planes and Projects**

Dave Domzalski showed a new CL F4F Wildcat profile and a German warbird TA152H; Jack Potter brought in his rebuilt Edge 540; and Steve Zingali showed his new P51 warbird with "distinctive" markings.

#### Door Prize/Raffle

Steve Zingali won the door prize with: a crying towel, glue sticks and super glue. Matt Campos had the winning ticket for the Space Walker ARF

A motion to adjourn the meeting was offered and unanimously approved about 10: 50 am.

Respectfully, Bob Steffensen Club Secretary



Above is Steve Zingali's P-51 Pylon Racer.



Dave Domzalski's F4F Control Line above and to the right is Dave's German TA152H.

> At right is Jack Potter's Edge 540.









### Meeting Photos by Paul Gendarme.

& Door Pr.





Steve Zingali, left, won the Door Prize, Matt Campos took home the Raffle prize, a Space Walker II.