AMA Chapter #3798

Chino Valley Model Aviators
Official News

July 30, 2020 Volume 23 Issue 7 www. chinovalleymodelaviators.org

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

Inside this issue

Quote of the Month:

If it's stupid but it works, it isn't stupid!

U.S. Navy Operations Manual

(This Navy dictum fits RC model aviation very well)

DAN AVILIA'S GENERAL DYNAMICS COLOR SCHEME BVM TURBINE POWERED 1/5TH SCALE F-16

F-16 Specs

Length 120" Wingspan 80" Weight: 46 Lbs. + 1 1/2 gallons of fuel; Power: By a King Tec 260 about 58 Lbs. of thrust Flight Time: 7+ minutes, he has 45 flights so far.

Two Balsa USA Nieuport 28's Built by John Stewart

Both Nieuport 28's are Balsa USA kits built by member *John Stewart*. The big one is 1/4 scale the smaller one is 1/3 scale with Zenoah 26 cc and 62 cc magneto engines respectfully. The large one is John Stewart's and the smaller one is *Denise O'Connor's*. The fly-by above is *Dennis O'Connor's*.

Bill Gilbert: CVMA President's Message

I hope all our members are enjoying the summer weather and getting in a lot of flying. The C-19 virus just won't go away; at least flying is a great distraction for that!

We are still searching for a long-term meeting venue in case the airport meeting room is permanently non-available. A promising venue was checked out by your Board of Directors, but it is not really suitable for a membership meeting, as they are in the business of catering and would have to charge us. However this venue, "Goods from the Garden" in the Gateway Mall, appears to be an excellent venue for our next Christmas Party.

There is an item that will be of utmost interest to the club as we review our facility maintenance needs and balance those expenses with the need to fund the future runway resurfacing; That is, the reality that we should update our dues structure. The last increase from $65 per year was many years ago. Similar clubs in the PHX area have dues of ~$100 plus an initiation fee. We need to come up to a similar level of funding in order to provide and maintain the facility that you all expect. We will discuss in more detail at the next meeting, but it is something I will ask all of you to consider, with an open mind.

Another item that is becoming evident as the club adds new members is expectations and capabilities. We try to accommodate all the different facets of RC flight, but there are some activities that are just not compatible with our club due to space and safety.

When we joined, we all signed the application with the disclaimer that we will abide by the club constitution, by-laws, club rules, field safety rules, and Academy of Model Aeronautics (AMA) Safety Code. Any RC activity that shortcuts that disclaimer will not be supported by the club.

We are in that part of the year where we have monthly events. Two big ones coming up are the IMAC event and the Annual Steve Crowe Memorial Fun Fly. The Steve Crowe event is our opportunity to shine with the Town of Chino Valley, our lease-holders. Please volunteer, and help the EM's make this a success for the club.

See you at the field!

CVMA Flight Instructors

•Steve Shephard-
Chief Flight Instructor

•Al Marello-basic
•Lloyd Oliver-basic
•Riley Harley-basic
•Jack Potter-gliders

What Cool Plane Has This Cockpit?

See Page Eight

CVMA NEWSLETTER

AMA Chapter #3789
Published Monthly

2020 — MARK YOUR CALENDARS

Aug. 8	Combat Wing Contest
Aug. 28 - 30	Southwest Region IMAC Shootout at our Field
Sept. 19	Annual Steve Crow Memorial Fun Fly
Oct. 24	Annual Build & Fly Challenge
Dec. 4	Christmas Banquet

Field Clean Up as Needed Before Events

Club General Membership Meetings:

Meetings usually the third Wednesday of each month, location TBD.

BORN IN A BARN ?

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

SAFETY IS ALWAYS A MAJOR ISSUE

By Rick Nichols, Club Safety Officer

Congratulations to all of our flying members for another month or two with no injuries or major safety events. The only 2 flying mis-events worth noting have been not calling out landing intentions and therefore a pilot landing while another was still on the active runway, It was very close to a collision accident. I observed the two pilots discussing the issue and did not intervene.

The other event involved a newer pilot doing taxi tests on the runway while the runway was active with 3 airplanes aloft. I had a word with that pilot.

It is still Rattlesnake season and I highly suggest that pilots and crew use our Fire/ Rescue Vehicle to retrieve your downed aircraft.

On the weather…Yes, we are in the southwest and we have very hot summers. Please remember to bring your almost favorite liquids to the field when you fly. Adult beverages are not permitted (for obvious reasons) but be sure to stay hydrated. Your Safety Officer recently became de-hydrated at the field and had to be assisted by other members.

Along with our summer weather comes the Monsoons. We are all aware of this weather cycle but we have some new members who have moved here from other areas that may not have experienced this type of weather. Typically when the Monsoons draw near we start to gather our airplanes when the raindrops start getting our airplanes wet.

This is my caution to our pilots. Lightning can strike a target when a storm center is as far as 8 – 10 miles away.

I suggest that we be more observant of a storm as it approaches our flying area. It is certainly not a great idea to be standing on the flight line with a transmitter and antenna in your hands during a storm event.

Please remember that we are all Safety Advisors. You are all officially my Deputies. If you see an unsafe action, please politely make the issue aware to the pilot or let me know. I will in turn handle the situation with Thunder, Lightning and an Iron Hand.

OK Guys. Maybe not quite that harsh. I have not taken the job as Safety Officer to cause any hard feelings with my friends. We are all in this sport to have fun and do it as Safely and Sanely as possible. I appreciate your understanding.

We have new pilots joining us all of the time, and we have to be understanding of their not being up to the workings of our field. Please help them if you can. We were all there once.

Rick

Editor's Note:

Please review our club rules posted at the field. We don't have a big long list of complex rules as some clubs do.

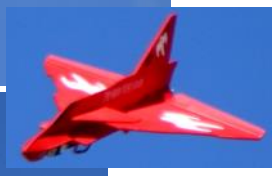
Members Models at the Field

Steve Zingali's XB-70

Jim Scott's Scout

Dan Avila working on the modifications.

Before adding larger tires and a lift kit the recovery vehicle got hung up to easily in some of our rougher field areas.

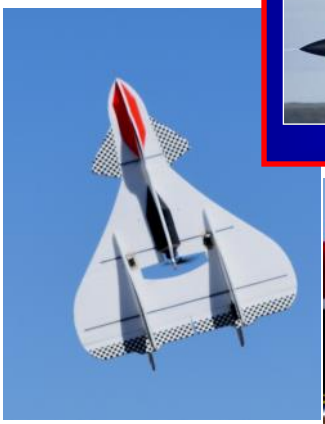


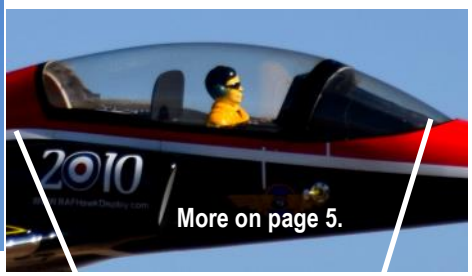
Bob Shanks' Red Swedish AJ-37 Viggen.

Steve Zingali's Swedish AJ-37 Viggen. These are Steve's Foam designs he cut out.

Actual full sized Swedish Saab AJ-37 Viggens in flight.

Steve Zingali launches his Z'sPG (Planet Garage) VTO Jet, it does also take off vertically from the runway.

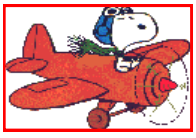




More on page 5.

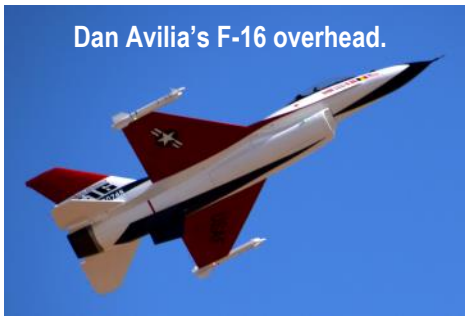
Bridge to the Potty, thanks to *Bob Steffensen.*

Shel Liebach's BVM King Cat



MORE COOL MEMBER FLYING MACHINES

Dan Avilia's F-16 overhead.



Don Ferguson launches Randy Meathrell's little Bearcat.

Shel Liebach's BVM King Cat, 82" WS. Powered by a Jet Cat 120 Turbine, with 30 pounds of thrust. See previous page (4).

John Stewart's Nieuport 28 pilot

At left, where's the social distancing?

Bottom up: ***Doug McBride, Clint Manchester, Ron Arrigoni, Don Ferguson, and Randy Meathrell.***

Member Project of Note

Dave Domzalski's English Sussex Aviation Tiger Moth

Dave says that this is a Great Planes 2005 71" span Tiger Moth designed for a .61 glow engine. He converted it to electric using a 6 cell 5000mah battery Endurance is TBD but he says it is well over 6 minutes. He also reports it is a real pussycat and fun to fly.

The Kawanishi Emily R/C Model Crash Investigation

By Member *John Riese*

There was an article recently in the local *Courier* newspaper about the Aircraft Accident Investigation Laboratory at Embry Riddle Aeronautical University (ERAU). When one of our models crashes, we sometimes do similar forensic analysis to discover the cause of the mishap. Here is a real-life RC modeling story of how I found the reason for the demise of my Emily flying boat.


John's Emily

What is an Emily? The Kawanishi HK8 was the most advanced flying boat in the world during WWII. In March of 1942 two Emily's bombed Hawaii in the longest distance bombing run of the war. There is one left on display at a park in Tokyo.

It looked like an interesting challenge; I had to build one. It took me two years to design using CorelDraw and build a six-foot R/C model. In 2007 there were no brushless motors so I used geared down Speed 480 can brushed motors. In order to save weight, the whole model was built with very light weight contest balsa, covered with Polyspan and nitrate dope. As I recall it weighed about six pounds, which is incredibly light for a four-motor six-foot R/C airplane.

I had my professional photographer friend Ben Strasser film the first and subsequent flights. You can see the video on "R/C Groups" under the title "First Flight Emily Seaplane." My two years of work were worth it. It was a very good flying airplane.

Unfortunately, the sparking from the brushed motors caused interference with the analog Airtronics FM receiver. I was using a JR 7202 system, which came with a PCM receiver and digital servos. I replaced the receiver and servos with the JR items. The transmitter modulation was changed from PPM to SPCM to match. This eliminated the interference problem.

On the next outing my photographer friend was also present. The first flight didn't last long that day. The plane took off, started a steep climb to a couple of hundred feet then performed a stall turn and dove into the water. The model exploded due the lightweight construction and was destroyed.

What happened? Why the sudden turn? This is where the accident investigation began. I kept studying the crash video and couldn't figure it out for many years. Eventually I came to a tentative explanation which I believe is right.

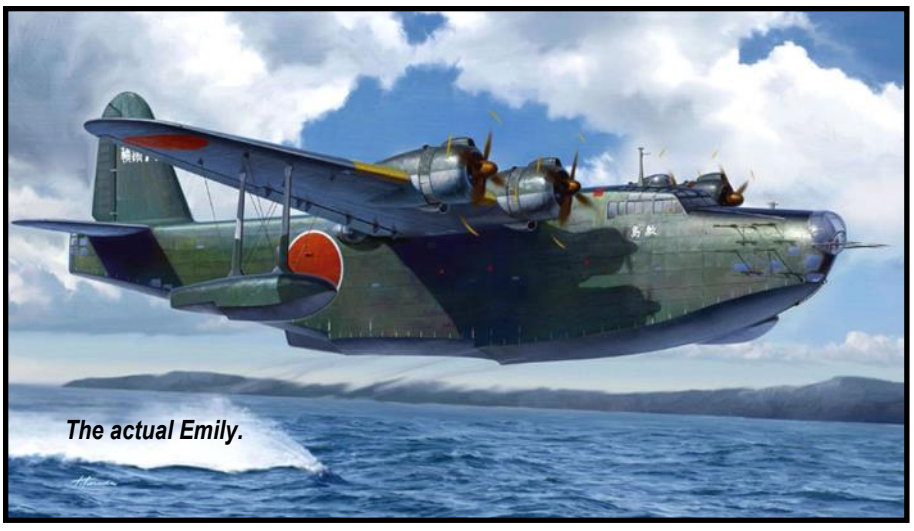
Was it structural failure? There was no evidence in the video of anything falling off the plane; it looked intact until impact. Did a servo fail? The plane was in a steep climb at low airspeed. Even with full servo deflection the aircraft could not perform such a sudden turn; the rudder was too small for that. Radio failure? After the crash, the radio system worked fine. The only explanation for the maneuver was that the motors on the right side were at full power and the left side motors went into idle cutoff. How could this happen?

The motors were programmed with a separate speed control for each side of the plane. I used the programmable mixing to enable differential thrust for water steering. This let me omit the water rudder to save weight. The left motors were on channel 1, which is the default for throttle.

The PCM radio had a fail-safe provision in case of loss of signal or voltage "brownout". I never set this up; the old Airtronics analog receivers did not have this function. I believe that channel 1 for the left side motors was set up to go to low throttle upon activation of the failsafe. This would explain the sudden turn to the left.

Why did it go into failsafe? The digital servos draw much more current than the analog servos when they start to move. The BEC in the speed control probably couldn't maintain the voltage to the receiver. Well, that's my story and I'm sticking to it!

John Riese


The actual Emily.

Lithium Ion Batteries Power Full Size Formula E Racers

https://www.fiaformulae.com/en/discover/history

Formula E race car power is strictly electric, a *Williams Advance engineering 28KWh\Lithium-ion SRTO5e: McLaren Applied Technology 54 KWh battery* are used in all racers.

The ABB FIA Formula E Championship is the brainchild of Spanish businessman *Alejandro Agag*. Working previously in Formula One, his tasks included acquiring sponsors. Once he had a customer who, for ecological and noise reduction reasons, no longer wished to advertise in Formula One, realizing this had ceased to be consistent with his company's image.

That encouraged Agag to think about establishing a race series which placed greater value on promising drive alternatives and sustainability. A few years later he convinced *Jean Todt*, President of the world motorsport federation FIA, that his idea had merit, and the first race in this new championship was run in Beijing, on September 13, 2014.

Formula E is the world's first fully electric international single-seater motorsport series. It provides a platform for testing and developing road-relevant technologies in a competition environment, and for improving the design and functionality of electric vehicle components. It also serves as a catalyst for developing and applying sustainable mobility solutions throughout the world. Formula E believes that electric vehicles represent the future of mobility and are the solution to sustainable transport and combatting climate change.

Formula E reflects the idea of sustainability by reducing the carbon footprint as far as possible and having a positive impact on mankind and the environment. This is practiced in all areas:

Energy

The Formula E cars are almost emissions-free and driven using 100% renewable energy supplied by their revolutionary Formula E glycerin generators. The unique tires are hybrids which have been specially developed by Michelin. They can be driven in all weather conditions, will last for the entire race, and can be later recycled.

Circuits

Formula E is a road racing series, run directly over temporary circuits in the heart of the world's largest cities including Rome, Paris, Berlin, and NYC.

Spectators

Formula E brings fans to the city centers in order to encourage the use of public transport. That's why there are no parking lots in Formula E for the spectators. The races can also be followed live online and in 360°.

Formula E features a single chassis type which all the teams must use. With the start of the 2018/19 season, the FE18 Spark Racing Technology—better known as Gen2—replaced the Sport SRT_01E which had been driven for the first four years of the championship. In the first year of Formula E the cars also raced with identical powertrains. However, since the second year of the championship, registered manufacturers have been permitted to develop their own e-motors, inverters, transmissions, rear suspension, and software. Now nine different powertrains are produced, and only three private teams buy theirs from competitor teams.

Starting in 2020, two further premium German manufacturers, Porsche and Mercedes, so that, for the first time in the history of motorsport, all the four major German marques—Audi, BMW, Mercedes, and Porsche—are competing against one another at the same time, as works teams, in a race series. There are twelve teams with 24 cars and drivers at the start in total, so that the maximum number of competitors has been reached.

The Lithium Ion battery is a uniform component developed in a cooperation between McLaren Applied Technologies, Sony, and Lucid Motors. All Formula E teams use this same battery. The battery stores a total of 54 kWh of power of which the drivers have 52 kWh available during the race (analogue to the 28 kWh of useable power in the uniform Williams Advanced Engineering battery.

Cockpit Belongs to the North American RA5C Vigilante *

The Vigilante was the largest and fastest airplane to ever operate from an aircraft carrier. Douglas' A3 Skywarrior was a contender, as it could launch at a heavier weight (its trap weight was the same) and it had a wider wingspan. The Vigilante was a little bit longer; it was basically an even contest between the two, but the "and fastest" settles the score because the Vigilante's approach and top speed was higher.

In 1969, the London/New York Mail Race was held. A new 156 series Vigilante was delivered to NAS Albany without the reconnaissance canoe installed. North American engineers said the Mach 2.0 speed restriction was Navy conservatism, and the airplane was capable of higher speeds. On a practice run for the race, the Vigilante went to Mach 2.5, and the pilot said he felt he could go faster. A series of KA-3 tankers were arranged over the Atlantic. Then the Navy bureaucracy gave a thumbs down on the idea. The unlimited category was won by an RAF Phantom.

Another record is a sad, but proud, one. The RA-5C had the highest loss rate of any Navy aircraft during the Vietnam War. Twenty-three Vigilantes went down. The loss rate had nothing to do with the airplane itself but was the hazard of its primary mission; pre- and post-strike photography. Getting in before a major Alfa strike was relatively easy; there was an element of surprise and the Vietnamese gunners were waiting for the attack aircraft. It was getting the vital bomb damage assessment (BOA) photos that was risky. The smoke and dust from bombs took 10 minutes to clear, so the Vigilante would wait to come back over the target. This was also how long it took for the gunners to reload their weapons. The exact target was obvious, and the sky above would be filled with flak.

The Navy Bureau of Aeronautics wanted a nuclear-armed aircraft to replace or compliment the North American AJ Savage, the Lockheed P-2 Neptune, and the Douglas A-3 Skywarrior. The result of the competition was the Vigilante, the last strategic bomber built for the Navy. It was designed to fly a high altitude, supersonic speed attack profile, and like the U.S. Air Force's Convair B-58 Hustler, was vulnerable to the new long range high altitude surface-to-air missiles entering service.

The A3J was first flown in August 1958. On December 13,1960, while carrying a payload of 1,000 kilograms, Pilot Leroy (Roy) Heath and B/A serious design shortcoming involved the unique linear bomb bay. In simple terms it consisted of a tube running inside the fuselage, between the two engines. The weapon was loaded through an opening between the two jet exhausts. Weapons ejection was also effected via this opening, with a solid fuel cartridge used to propel the device clear of the aircraft once the jettisonable tail-cone faring had been ejected. The weapons bay was considerably longer than the nuclear weapons which the Vigilante was originally intended to carry therefore some of this space was utilized for additional fuel. This fuel was contained in two jettison-able tanks located aft of the weapon and linked to it. The tanks, which were ejected with the bomb, acted as aerodynamic stabilizers for the bomb's free-fall to the target.

Although a viable system in theory, in actual practice difficulties were encountered in clearing the linear bomb bay during operational use. At the same time a major shift in Navy policy deleted the strategic bombing role. Consequently plans to produce the improved Vigilante attack-bomber were abandoned after it had reached the flight-test phase.

The first squadron deployment occurred in August 1962 aboard the USS Enterprise on its first cruise. Shortly thereafter the Navy's strategic bombing mission was assumed by nuclear powered submarine Polaris missiles. The A3J's mission then reverted to that of photo reconnaissance with the introduction in 1963 of the RA-5C "Vigilante."

After the decision was made to end the A-5 strategic bombing mission, the A-5A's were quickly relegated to training roles, and removed from the active inventory as heavy attack aircraft. At a later date, all surviving airframes were returned to the North American plant at Columbus for conversion to RA-5C standards.

The A3J was first flown in August 1958. On December 13,1960, while carrying a payload of 1,000 kilograms, Pilot Leroy (Roy) Heath and B/N Larry Monroe flew an A3J to a new world altitude record of 91,450 feet

Performance

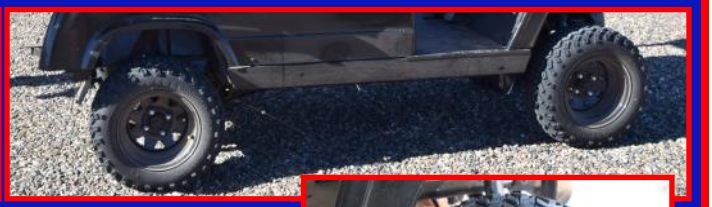
Speed: 1,320 mph
Service Ceiling: 52,100 feet
Crew: Two
Range: 2,050 miles
Wingspan: 53.2 feet
Empty Weight: 37,489 pounds
Maximum Weight: 79,588 pounds
Power: Two J79-GE-10 turbojet engines
Thrust: 17,859 lbs thrust each

* http://www.bobjellison.com/RA5C_Vigilante.htm

Important Modifications at Our Flying Field

Our Recovery and Rescue vehicle now has new larger wheels with a new lift kit installed to help navigate the rough outer areas of our field when going after a downed plane.

Thanks to member donations and work on the vehicle.



These photos show the wheel size comparisons as well the vehicle now sits much higher for safely navigating some of the rough over flight areas of our field.

The Hanger (Shed) is Now Clean and Organized

Thanks to a nice group of members who showed up on a clean up day, the Field Hanger is now clean and organized. So many were helping it is hard to name them all. However, a big thanks to member Rick Nichols who took quite a load of "junk" out to the dump. The hanger has the same combination as the field gate allowing members to use it as needed.

There is now enough room to park the Recovery and Rescue vehicle, photos above.

SETTING UP CONTROL THROWS WITHOUT USING RADIO PROGRAMMING

By member John Riese

Editor's Note:

Member John Riese has submitted articles, one last month on investigating an RC crash and two in this issue. If any member has ideas or wants to send in an article, simply contact me or email it to me. This is good information we can all use, thanks John.

Here is a method for the initial setup of a model's control throws that will work with any radio. We are going to try to obtain the correct deflections of the controls without using any of the advanced radio features.

Connect the servos to the receiver and route the control rods or cables to the flight control surfaces. Turn on the receiver and transmitter. Set up the radio for high rate, 100 percent travel or ATV, and centered trims. Check that the servo moves the control in the right direction. For a right turn the right aileron or elevon should go up and the left one move down. Center the trims on the transmitter. At neutral the servo arm should be perpendicular to the direction of pushrod travel in Fig 1.

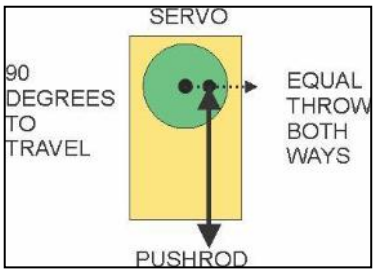


Fig.1

Adjust the control surface for neutral. On a model with a flat bottom wing align the lower surfaces of the aileron and wing, Fig2.

Fig. 2

For a symmetrical or semi symmetrical airfoil see Fig 3.

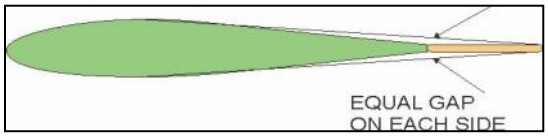


Fig. 3

If both throws are different in each direction then there are some adjustments you can make. This effect is usually caused by the hole in the control horn not in alignment with the hinge line. You can compensate for this by moving the servo arm.
See Fig 4 and Fig 5. Then move the transmitter stick, to check accuracy. I like to use the "Throw Meter" by Valley View RC, in figure 6.

Fig. 4

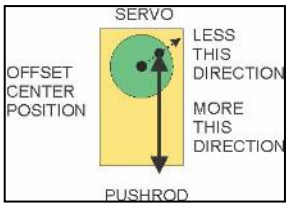


Fig. 5

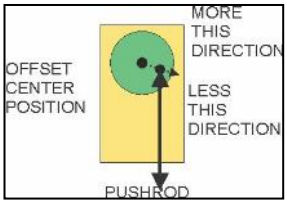


Fig. 6

Take the servo arm off and rotate it to the next spline and retighten the set screw. Re-center the control surface by turning the snap link in or out, or by loosening the servo adapter setscrew and moving the pushrod. Check to see if the control throws are closer to equal. You can tell right away if you go the wrong way! It might take a few tries to get it right.

You can also use the offset servo arm centering technique to obtain aileron differential, instead of trying to program it in the transmitter. The directions for the Lemon Rx Stabilizer Plus say to not use differential mixing in the transmitter, for instance. In that case the differential must be done mechanically.

Now check for the correct amount of total throw on the control surface. Move the pushrod connector on the servo out for more throw, in for less. You can also move the connection at the control horn in or out to another hole, the effect is opposite; moving in will cause more throw and out less.

For split elevators using left and right servos you can adjust for equal deflection on each half. Also you can adjust the travel on the left and right ailerons or elevons to be equal on each side. Now set up the dual rate and exponential as you desire.

This completes the initial setup and you still have the option of using the computer radio functions for fine tuning. After you fly the plane and have the controls adjusted to your liking, the values can be recorded for reference. I copy the model Setup Sheet from the manual for my JR radio and fill in the deflection degrees for each surface.

CVMA's General Membership Meeting Held July 25th At The Field

The General Membership meeting for July 25, 2020 was opened at 10am at the flying field. We opened with Pledge of Allegiance.
Club membership stands at 133. There were 44 members present including new members *John Dora, Bob Baker and John Kiefer*.
Minutes of June 2020 meeting were unanimously approved without correction.

President's Agenda

President *Bill Gilbert* and upcoming events: *John Meyers* and *Dave Bates* host the Combat Wing event on August 8th with pylon racing and combat events. The IMAC event is August 28-30…a good opportunity to bring in some revenue for the Club. *Mark Lipp* will be Event Manager for the Steve Crowe Fun Fly in September…step up guys and volunteer...planning is progressing. The October Build & Fly is Oct…get in the shop and get your bird built and ready to maiden. The Christmas Party is December 4th at Goods from the Garden. There will be work days prior to the events…dates and times will be announced.
Bill led a discussion on a proposed Club new etiquette rule, which was put to a vote: "Those who use the cabana tables to assemble and disassemble aircraft…must fuel and defuel in the pits", not on the table. If not the tables get messy with fuel and dirt all over. Motion to add to the Field Etiquette pasted with majority, a few nays were heard.

VP *Doug McBride* repaired some tables. He will be renting a tractor to mow the fire breaks once more. Field will be closed on mowing day and the closer will be announced.

Treasurer *Harold Ellis* presented Treasurer's report. The account balances total $10,888. Report was approved unanimously. Support the club buy hats and T-shirts with a fresh CVMA logo and profits for the runway fund. $5000 was put into a six month CD.

Secretary *Bob Steffensen* gave an update for the Christmas Party with a change in venue. *Bob* will meet with the Manager of Goods from the Garden in early September and have ticket pricing at the September meeting.
Safety Officer *Rick Nichols* said that he painted the "X" on the end of the runway. Further thanked us for continuing to be safe…and reminded us to always LOUDLY announce our flight intentions in and around the runway.

Member Comments

Steve Zingali said that he had a couple of remaining combat wings if you want to get in on the fun on August 8. *Larry Parker* stated that CA was inexpensive at the Bead Shop in PV. *Mark Lipp* said Tom's Print Shop in Chino does great graphics work. *Bob Shanks* said articles from members are welcome for the newsletter. *Mark Delaney* brought cookies for the Saturday attendees. Thanks Mark!

Planes and Projects

Don Ferguson brought in his beautiful Ford Tri-Motor that he recently completed; *Steve Zingali* and *Bob Shanks* showed off their foam SAAB pusher a "Z" design; *Larry Parker* demonstrated his foam E-flite Extra 300; *John Riese* built a Little Stick with a big gas engine; *Glenn Heithold* showed off his resurrected, scratch built "VI"; *Steve Zingali* demonstrated his prop sizing kit that he sells for $20 each.

Door Prize/Raffle

Steve Shepherd won the door prize consisting of glue, LED flash light, and razor knife; *Bill Gilbert* won the E-flite Radian.
We adjourned about 11:10am, *Bob Steffensen* Club Secretary

Mark Lipp is heading up the Steve Crowe Fun Fly September 19.

Don Ferguson 's Ford Tri-motor.

At left a pop-up tent was used for the Board due to the hot sun during our Saturday meeting.

Pilot projects left to right: *Glenn Heithold* showed his "VI", *Larry Parker's* Extra 300, *John Riese's* little Stick, *Steve Zingali* and *Bob Shanks* with their Saab Viggen AJ37 jets.

Dave Bates and *John Meyer* explain the Delta combat coming up Saturday August 8.

Raffle Prize Winner

Bill Gilbert, left, won the door prize but *Randy Meathrell at right,* bought it...more cash for the club.

Door Prize Winner

Steve Shephard