

WOODLAND/DAVIS AEROMODELERS



Aug Newsletter 2018

PREZ SEZ: Well as I sit here and type this up it is supposed to be 106 degrees outside today. The reason I bring this up is if you have been around the field at all this summer you might have noticed it is not green this year. The typically lush, cool grass is not there as it has been in years past. The reason for this is the cattle rancher to the west of us where we get our surface water from has changed his practices. The irrigators are not running the pump nearly as long so we are not getting the tail water like we normally have in past years. This lack of irrigation water creates many issues around the site. Besides the lack of green grass it means the ground is starting to dry out and crack. This cracking presents hazards to aircraft and ankles alike.

The green grass all around the runway also creates a natural fire break. If we have an aircraft go down and start a fire in the dry area and it burns in towards the runway the green grass might save our runway surface from being damaged. Right now with how dry the grass is, if we had that scenario we would probably lose the runway in a fire as well as it burns through. The board is aware of this and has a plan. Unfortunately it means spending some more money that we had not budgeted on spending this year.

Our intention is to purchase a 3"-4" diesel water/trash pump. With that pump we can lift water out of the slough to the north of us and bring it on to our property to irrigate with. By having our own pump we can do this at regular intervals when we need to water, not when we happen to get water as we have been doing in the past. I am mentioning this for a couple reasons. First I want to pass the preverbal hat and encourage everyone to help out. Similar to what we did last year

when we lost the runway and had to replace it. Through the generosity of the membership's donations we raised enough to just about cover the cost of the runway replacement. I would love to cover as much of this unexpected cost through donations if we can. I have had a couple individuals say they would toss in some funds. So please if you have a bit to share, it would be nice. Just like last year, any person donating will get a letter from the club for tax purposes indicating your donation to the club as a non-profit. The club has a basic yearly operating budget and as such we are trying to not tap into the club savings. The board is still trying to save for the day we can purchase this site when it comes up for sale. So every dollar that can be

**NEXT WDA CLUB MEETING TO BE HELD at the
Woodland Library, Leake Room, Monday
August 13th @ 7pm
Board meeting @ 6pm**

This month:

- | | |
|---------------------------------------|----------------|
| • Prez Sez | Forrest Barton |
| • Board Meeting Minutes | Mike Frint |
| • Club Meeting Minutes | Mike Frint |
| • Meeting pictures | Mike Frint |
| • Modeling pet peeves... | Rich Geertson |
| • 2.4 Ghz...All its cracked up to be? | |
| • Remaining 2018 Events | |
| • Event Flyers | |

stashed away in our savings puts us that much closer to our ultimate goal of owning our own site. The other reason I bring this up is I know it is a long shot, but if anyone knows where we can get a deal on a 3"-4" water/trash pump please let me know. We have one possibility we are working on right now, but it's dealing with a bureaucratic entity and not going too fast. If we can't come up with a deal we may just have to break down and buy one outright.

We had a couple of events this past month; the Wings of Victory and the Golden Age Fly. Both went well as far as I know. I didn't make the Golden Age as I had a family commitment. However I did make it out to Wings and spent several hours. I intended on flying but had a physically demanding day prior and the thought of getting the planes out in the heat just wasn't appealing to me for the day. So I came out to visit and see everyone and just hang out and relax. Being around the field will do that for me. Just sitting down and talking shop and watching some beautiful aircraft is a great way to spend the day.

I want to thank Monty Welch for putting together the crash carts that are now at each end of the pits. I had the opportunity to use one at Wings of Victory. We had one of the big electric T-28's land with its 5000mah 6S pack severally swollen. That pack was pulled immediately and placed in the sand pails for safety reasons. That is a great addition to the site...thanks Monty.

Speaking of Monty he has relinquished the point chair position. I had made mention of this at the last meeting if anyone is interested in that position let me know. You do get all your points for the year and you just need to have some basic computer skills with Microsoft Excel to track the points. It's a very easy job and a good one for one of our older members that may not be able to get out and physically work on site. If you are interested please let me know.

We had a safety audit last month presented by John Lett to the board. There were some minor issues. Nothing super glaring, but we will be prioritizing these to address some of the concerns, making for a better site. The club will be taking some of those items on at the next work party which should be Saturday August 18th.

John Lett also will be making a presentation to the general membership about the AMA's Large Model Aircraft (LMA) program. For those of you that don't know John is our local AMA inspector for Northern California dealing with the LMA program. If you have an aircraft that is over 55lbs it starts to fall into different rules than what we are used to. John will be educating us on what is involved in that program, both during building, inspections, certifying and the ongoing certifications requirements dealing with a LMA. If you have an interest in large, heavy aircraft this should be of interest to you. That will be at either the August or September meeting. I have not heard for sure which, that will all depend on John's schedule.

As always if you have questions or concerns drop me a line. Otherwise I look forward to seeing you all around the field. Thanks, Forrest

July 9, 2018 Board Meeting Minutes

Board Members/Officers present: President: Forrest Barton, Vice President: Doug Vice, Treasurer: John Eaton, Secretary: Mike Frint. Board Members: Doug Barton,, Mike O'Kane,Danny Winters. Safety Officer: John Lett. **Absent:** Chris Dellinger, Kerry Roberson

The meeting, held at the Woodland Public Library, was called to order by Forrest Barton at 1808 hours. 10 persons were present. No guests or new members. A motion was made by Forrest to approve last month's minutes. The motion was adopted with 7 ayes and 0 noes.

Website: Doug Vice reported that the club website has been "unlocked" and that Comcast customers should be able to access it now.

Officer reports:

President: Had nothing

Vice President: Had nothing

Secretary: Had nothing.

Treasurer/Membership: John stated we are down in funds since we spent money on the fence and portable toilets. We had one member return after a couple years of absence, Jeremy Schultz.

Old Business: Water supply for irrigation discussion. Getting water into the north/south ditch is the issue. John estimated we may need to spend up to six thousand on a lift/trash pump for the east/west ditch. We are not getting as much water as last year. Doug B. said we have 34 sprinklers running now and that the current pump from the north/south ditch keeps up fine as long as there is water to be had. The lift pump should preferably be powered with a diesel engine. Mike O. suggested taking the engine from the unused Jacobsen mower to power the second pump.

Events: Pattern contest went well except for heat and wind. One idea is to move it to late October. This event netted about four hundred dollars for the club. Mike O. stated that Gonzalo would like to move the helicopter event to earlier in the year because of the heat. Golden Age-Doug V. said there was a nice turnout. He estimated twenty planes.

New Business: A work party was scheduled for July 14 for fence, awnings and cleanup. More materials need to be obtained. Kerry R. did the prototype for the tennis net attachment but is out of state and can't help. The Vacaville Library wants us back in November again. We need to obtain the date from them. A motion was made by Mike O. to get a memorial plaque for Milt DeGroot. The motion was seconded and passed with no opposition. John is the person that obtains the plaques.

Upcoming Event: Wings of Victory July 21st. Some

members spend all weekend out there.

Other Business: Doug B. asked Mike O. where he buys the tarps. They come from Northern Hydraulics in Michigan.

Safety Audit: John Lett has performed a safety audit and presented it to the Board tonight. AMA requires that this be done every year. He stated the Board is responsible after the audit to do what they feel is necessary. The club is doing pretty well. He had the following items: 1. The sign on the road needs a contact phone number. 2. Add cones or something along the north/south ditch plus a speed limit sign. 3. There is no obvious first aid equipment on the control line side of the field. (Doug B. said there is equipment but it is locked in the shed and only about seven people have a key.) John L. suggested a sign that says "inside" or "go to R/C side of the field." 4. The water pump and electrical box along the north/south ditch is vulnerable to being hit by a vehicle-suggested some bollards. 5. There is a lot of dry grass in general. 6. There is no fire break between us and the cow field. (John E. added that our discs can't handle the dirt and we would need to hire out for heavier equipment and we can't get a permit to do a controlled burn.) 7. We need a way during events to keep people, especially children, from getting into the connex boxes. 8. The water tanks near the connex boxes need to be labled. 9. We need to paint a more obvious X mark on the runway in yellow. From the air the current marking is inadequate. Somebody in a gyrocopter attempted to land on it until Jeff Lovitt waved him off. 10. The AMA safety code sign was out of date (this has been fixed.) 11. At least one fire extinguisher needs work. 12. The first aid box is a total mess inside and needs phone numbers placed on it. (Doug V. said we need a "wet location" box.) Thanks to John Lett for doing this audit.
Meeting adjourned at 1858 hours.

July 09, 2018 General Meeting Minutes

Board Members/Officers present: President: Forrest Barton, Vice President: Doug Vice, Treasurer: John Eaton, Secretary: Mike Frint. Board Members: Doug Barton,, Mike O'Kane, Danny Winters. **Absent:** Chris Dellinger, Kerry Roberson. Safety Officer: John Lett. Meeting called to order at 1903 hours by Forrest Barton at the Woodland Public Library. There were 14 persons present. There was one guest, Paul Zasso, who was particularly interested in indoor flying. He is from Granite Bay. A motion was made by Doug B. to approve last month's minutes. The motion was adopted with 11 ayes and 1 nay. (for humor.)

Officer reports:

President: Forrest briefly mentioned the safety audit.

Vice President: Doug Vice deferred until later.

Treasurer: John stated we are down in funds since we

spent money on the fence and toilets. We did get some donations. We will need to spend some money on the water pump purchase.

Secretary: Mike stated he was finally able to access the club website again after three months. The May newsletter is labled April. If you need some tiny drill bits you can find some at Harbor Freight Tools.

Membership: John said we are at 98 members. One member returned after a couple years of absence, Jeremy Schultz.

Safety: John Lett departed after the Board meeting.

Chair reports:

Field: Bill McGaughey and Doug Barton have done a lot of mowing. Bill said he didn't have a key and depended on Art to be there on Thursdays, so Bill was given a key to the connex boxes.

Newsletter: Rich was absent.

Points: Points are not up to date. The points chair is open. Monty and Linda resigned from the position at the end of the June meeting.

Website: Kerry was absent. Doug V. stated that people should be able to access the site again. He also mentioned the e-mail that Kerry send to all the Comcast members. Let Kerry know if you still can't access the website.

Old/New Business:

Fence-Posts were installed in concrete during a recent work party. The rest of the work has been done by volunteers as they found time. A work party was scheduled for July 14 for more fence work, awnings and cleanup. John Eaton made a motion to not put the tennis nets on the angled ends of the fencing. Discussion ensued. John was not sure we needed the nets on the ends and since they were the most expensive parts that maybe we should keep them as spares. After discussion the motion was put to vote. The motion failed with 4 ayes, 5 noes and the rest of the members abstaining. The passing of Milt DeGroot and Daniel Culverwell was mentioned.

Events: Wings of Victory scheduled for July 21. Indoor flying was scheduled for July 21. The arena we use has lost their lease. There will hopefully be an event for August. Forrest might try two events. This will most likely be the last at this location and the last indoor flying for some time. Helicopter event-Mike O. mentioned the possible move of the helicopter event to earlier in the year because of hot weather. Only the EMU Huey will fly in this year, no private full-scale helicopters. We will again be doing the Vacaville Library event in November during the middle of the week.

Event reports: Pattern contest went well except for heat and wind. One idea is to move it to late October. This event netted about four hundred dollars for the club. Golden Age event: Doug Vice and John Eaton took photos. John will post them to his website. Weather was nice and about 15 pilots. One airplane was a Cub that is 31 years old. Another was a big electric Ryan with a sound system onboard.

Other: New neighbors have moved into the house on the

east end of the gravel road. Please slow down to avoid kicking up dust. Also, the Oakdale club has been shut down due to excessive fire danger. At our field, fire carts have been added at the pit areas. These have a bucket of sand for li-po fires and an extinguisher, The locks use the field combination. John suggested not flying on really windy days if there is risk of fire being started. Bill McGaughy was given the new AMA safety code poster to be installed at the field. Jeff Lovitt's plane was pictured at Top Gun in a recent Model Airplane News magazine.

Toilet Seat Nominations: None

Show and Tell: Lou Fox brought in another four meter powered sailplane. This one is made in Holland using carbon tow, has a 3S/1500 battery running a German motor with carbon propeller and only weighs 54 ounces. Lou had extra paint added to the wing to help keep temperature changes from causing problems with the wing joiners on its' three piece wing. It is used to compete in the F5J category, altitude limited event. The motor runs for only thirty seconds and the pilot climbs to the lowest altitude that he thinks he can fly for exactly 10 minutes. It carries an onboard altimeter that is verified after the flight. Lou says this airplane "indicates" the presence of thermals and turns very well. It can climb to about 225 meters in 30 seconds. He hopes to become a member of the US team for this event.

John Eaton brought in two airplanes, an E-Flite P-51 and a 1938 Goldberg Clipper old-timer. He bought the P-51 to have something for Wings of Victory. The Clipper weighs 42 ounces with battery. It has a span of 72 inches with ply and balsa cowl. He has a build thread on his website (goldeneramodel.com). John sold kits for this to be used in the SAM 21 (San Jose) one-design contest. He said it was a lot of work to design and to build. It uses a Suppo 2418-8 motor, 12 x 8 propeller with a 60 amp ESC and pulls about 40 amps. It is covered in Silver Ultracote and uses clear Monokote for the windshield since the shape makes it difficult to use plastic.

The meeting was adjourned at 2026 hours.



Modeling pet peeves

Rich Geertson

I want to bring to your attention a FIRST in my life-time... the latest Tower Talk catalog - Summer 2018 - arrived and something was conspicuously absent...? KITS! **Not a single kit advertised in the latest Tower Talk...all ARFs, RTFs, BnFs...**

CA glues: Have you ever noticed that your CA glue tip is NEVER clogged when you're not in dire need of it? But heaven help you if you're at Devcon 5, straining your limbs and digits to hold some geometric compound curve of various woods together and all you need is a precious drop of Cyanoacrylate to keep your creation from exploding! ...Solid as a rock.

Cheap engines: Hey, I fully understand the zeal for a deal. I GET IT; I REALLY DO! What I will never understand is the scale modeler that goes to the trouble of building an incredibly detailed model aircraft, representing hundreds if not thousands of hours of blood, sweat and tears, only to opt for a cheap engine with which to power it. This seems to be ubiquitous!? Maybe it's just me, but I'm thinking THE most important thing in a scale model is engine reliability. I'm sorry, but when you pay less, you get less, and often it's in the carburetor or ignition system. A failure of either could ruin not only your day, but your latest treasure. Second, why go to all the trouble of building a scale propeller driven aircraft, only to power it with the screaming 2 stroke? Not only would a name-brand four stroke sound SO much better, odds are it would also improve the reliability quotient considerably.

Used RC stuff: If that RC thing you're selling is SO valuable, why does it look as though you've never taken so much as a dirty rag to it? Or worse, why does it look like it's been stored in a "temperature controlled, smoke-free environment" at the bottom of a lake? And while we're on that subject, how about exercising some basic grammar?

4sale wizbang byplane . only too flites perfekt. enjun barely broken plus 4 servos. ad yor receever fule charg and fly!! Local pickup only no shipping. can meat haf way betweene Lodi and riovista. \$400 or trade for turbin jets

The word "just" - as in "just" replace the fuel lines or "just" swap engines or "just" reprogram your new radio...

"That's not so bad" - as in after a crash. "Ah that's not so bad. You'll have that fixed in no time"...

sure, except for the fact that my CA glue tips are always clogged!!!

Until next month...

Bill McGaughey supplied his own carpet for field improvement projects, including the start-up stands



John Eaton's E-Flite P-51 and a 1938 Goldberg Clipper old-timer as referenced in the Meeting Minutes



Is 2.4GHz All It Is Cracked Up To Be?

By David Horvath
1/11/2011

A substantial number of unexplained crashes of radio control model airplanes on 2.4GHz frequency prompted me to write this article on the so-called "interference free" radio control systems on the 2.4GHz band.

The electromagnetic wave spectrum is subject to the immutable laws of physics.

The propagation characteristics of the 2.4GHz wavelength and the environmental effects of this frequency are more complex than on the 72MHz band. To better understand this, we have to look at the electromagnetic wave spectrum where 72MHz band is in the broadcasting region and the 2.4GHz band is in the microwave region. It is easier to see the huge difference between 72MHz and 2.4GHz frequencies when we convert 2.4 gigahertz to megahertz. Now it is 2400MHz versus 72MHz. When frequency increases, wavelength decreases. Therefore, the 2.4GHz wavelength is shorter and closer to visible light on the electromagnetic wave spectrum. Since visible light is also an electromagnetic wave, 2.4GHz wavelength behaves more like visible light and travels in straight lines until it is reflected, deflected, diffracted or absorbed. Reflection and diffraction will create *interference*.

When parallel rays of light are reflected by a concave mirror, it greatly increases the intensity of light at the focal point. A parabolic dish antenna works the same way for a 2.4GHz electromagnetic wave. Since we can not focus a high gain directional parabolic dish antenna between our constantly moving model airplane and our transmitter, we have to use an omnidirectional vertical antenna system which has *much lower signal intensity*.

Interference

The FHSS (frequency-hopping-spread-spectrum) and the DSSS (direct-sequence-spread-spectrum) techniques can share the same band. However, they interfere with each other causing a degradation of performance. Range decreases as the number of clear channels decreases. Bandwidth drops each time FHSS encounters a blocked frequency on a crowded spectrum.

The crowded spectrum on the 2.4GHz band reduces the bandwidth, increases the ever present background noise, increases the adjacent channel leakage ratio, *reduces the range*, and causes overlapping. Overlapping is a *direct interference*.

Unlike the 72MHz wavelength which penetrates most objects, the 2.4GHz wavelength behaves more like visible light. Signal absorption from objects on a model airplane like the engines, electric motors, batteries, servos, pushrods, landing gears, switches, wires, etc., may cause path *interference*.

Signal reflection from objects in the terrain, like fences, walls, buildings, trees, hills, power lines cause line of sight *interference*. High speed data transfer reduces the receiver's sensitivity on 2.4GHz band. There is a trade-off between speed versus range.

The signal strength decreases quadratically as distance increases at constant radiation levels. This is called path loss. When frequency increases, path loss also increases. This is one of the reasons why 72MHz radios have a better range than the 2.4GHz radios. We can see this clearly when we look at the Wireless Range Calculator:

| Frequency | Distance | Loss |
|-----------|----------|------------|
| 100MHz | 0.2 mile | 62 decibel |
| 2400MHz | 0.2 mile | 90 decibel |

These calculations are under non-existing ideal conditions, less Fresnel (pronounced Frehnel) effect.

When we fly our model airplane on 2.4GHz, the area around us is known as the Fresnel zone. Since we have to use an omnidirectional antenna system, the electromagnetic waves will scatter and diffract from objects and from the terrain around us. When the diffracted wave reaches the receiver antenna, it is slightly lags behind the signal which traveled to the receiver antenna in a straight line that creates *interference* due to the phase canceling effect.

The Fresnel effect also deals with the behavior of electromagnetic waves over a water surface. As mentioned before, the 2.4GHz radiation behaves more like visible light, so we have to think of reflections and shadows. Flying a 2.4GHz radio control model over a reflective surface like water, snow, ice or wet terrain negatively affects the radio link. Occasionally a 3D aerobatic model plunges into water while hovering. When the rudder is near the water surface, the prop wash creates a chaotic wave pattern which generates a myriad of false-signals.

The Fresnel effect and the described interference on the 2.4GHz band work pretty well. We successfully tested this at different locations. Unfortunately, the "unbreakable Tx-Rx link" broke when our model was over 0.2 miles away at 45 degree angle. Despite the fact that a 90 decibel signal loss over a thousand feet (0.2 miles) is rather significant, we should have had control at this distance. There are too many factors that can determine the overall range on 2.4GHz.

2.4GHz receivers are not immune to ignition and electrical noise as advertised. Occasional arc from high tension insulators could break the bind.

Latency

Latency is the time between stimulation and the beginning of response caused by propagation delays. There is a huge time difference in latency claims by different radio manufacturers. Some latency claims are in milliseconds, others are in microseconds! This is confusing since one millisecond is one thousandth of a second and one microsecond is one millionth of a second.

Velocity of electromagnetic waves is 186,283 miles per second. The velocity of the electric signal through conductors is nearly at the speed of light. With an adequate power output, our radio signal will travel one microsecond which is one millionth of a second to reach our model airplane one thousand feet away. This applies to all brands of radios on 72MHz or on 2.4GHz. As we know, nothing travels faster than the electromagnetic waves. Therefore, I don't see how latency could be improved "50 %" over the leading competitors regardless of different processing.

A seven millisecond latency or a fourteen millisecond latency claim is irrelevant since the human being, the RC pilot, has a painfully slow 200 millisecond latency and can not differentiate between seven or fourteen milliseconds.

Conclusion

At huge events, like Nationals, the 2.4GHz pin-free radio system makes life easier for competitors and organizers. However, there is a huge difference between flying on 2.4GHz band in the beautiful country side near Muncie where chances are good that there won't be any *noticeable* interference and flying on 2.4GHz band in the middle of one of the largest concentration of population and industries in Los Angeles or other urban areas.

2.4GHz radios under harsh conditions work most of the time, however most of the time is unacceptable. Illegal signal boosting, ham radio, and rolling hills further aggravate the situation. 2.4GHz wavelength has higher incurred losses than 72MHz wavelength. In any case, we should hold on to our *assigned* frequencies on 27MHz, 50MHz, and 72MHz bands.

Despite glowing reviews, the so-called "bulletproof 2.4GHz technology" has had range and reliability problems since day one. A bench test inside a building in a controlled environment where the receiver is a few inches away from the transmitter is meaningless.

2.4GHz wavelength is not the best choice to control model airplanes. Furthermore, we have ended up with complex radio systems on an overcrowded band on the electromagnetic wave spectrum.

The bottom line is that glitch-free software, error-free computers, and an interference-free radio link is only an *illusion*.

References: All can be found using: www.google.com

electromagnetic spectrum

Images for electromagnetic spectrum

Videos for electromagnetic spectrum

Frequency-hopping spread spectrum

DSSS and FHSS-Spread Spectrum tutorials

2.4 GHz interference

Interference in the 2.4GHz ISM Band:

Challenges and Solutions by N Golmie

20 Myths of Wi-Fi Interference (RF Solutions)

path loss in the 2.4GHz

Speed vs. Distance ISA

900 MHz versus 2.4GHz – Learning Center

fresnel zone

Images for fresnel zone

ZyTrax-Fresnel Zones and their Effect

diffraction

Images for diffraction

Diffraction-Wikipedia

polarization of light

Images for polarization of light

Videos for polarization of light

MIT Physics Demo-Microwave Polarization

2.4GHz Spread Spectrum problems

www.radiolabs.com

Wireless Range Calculator
Free Space Loss

Events for 2018

| | |
|------------|---------------------------|
| 18-Aug | Warbirds Livermore |
| 25-Aug | Waldo Pepper |
| Aug 25-26 | Goyet Stunt Fest |
| 3-Sep | Labor Day |
| 8-Sep | Old School RC Jamboree |
| Sept 12-16 | Reno Air Races |
| Sept 21-23 | Jets AMOS |
| Sept 22-23 | Meet n' Meat |
| Sept 27-29 | Heli Scale Masters |
| Oct 5-7 | WDA Float Fly |
| Oct 13-14 | Warbird Race Championship |
| 1-Jan | Chilly n' Chili |



AUGUST
25-26
8:30AM



Directions:

From I-5 exit west on to Walnut Grove-Thornton road and proceed for 5.4 miles. Turn left onto Race Tract Road For 1.9 miles, the TRCM field Will be on you left through the Gates.



Contact Wally Felahy at: walifela@hotmail.com

WARBIRD AND ALL SCALE FLY IN

- NO landing fee
- Plenty of shade and parking
- Open to any type of warbird or scale type airplane
- 750' x 55' runway
- BBQ lunch available (hamburger, chips, soda)
- Flying starts at 8:30 till the sun sets
- Proof of AMA membership required
- Guests and visitors are always welcomed!

Tokay Radio Control Modelers Present



Their Annual All Scale Fly-In

August 25-26, 2018

Flying begins at 8:30 a.m.

- NO LANDING FEE!
- 750' x 55' runway
- Plenty of shade and parking
- Open to ANY type of scale type aircraft. Warbirds are very welcome.
- BBQ lunch available (hamburger, chips, soda) at "Wally's Market" value pricing
- Flying starts at 8:30 in the morning until the sun sets
- Proof of AMA membership required
- Guests and visitors are always welcomed!



Directions:

I-5 exit Walnut Grove-Thornton Road and head west.

Proceed for 5.4 miles.

Turn left onto Race Track Road

Proceed for 1.9 miles.

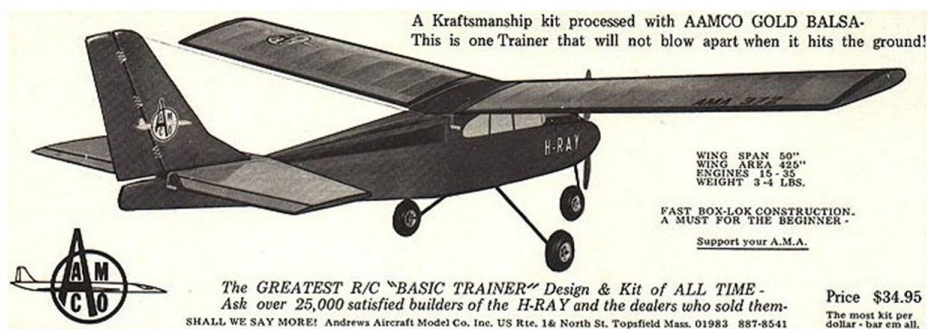
The TRCM field will be on the left. Enter through the gates.

Do you remember removing T-pins and tape first thing in the morning, hoping the glue was set? Do you miss the smell of methanol and castor? Do you recall the simple joys of RC flight?



Come, relive the early years of RC at the 4th annual OLD SCHOOL RC JAMBOREE!

This is a non-competitive event dedicated to BUILT-UP, GLOW-POWERED, RC AIRCRAFT; *the older, the better!* **NO ARF's, electrics or gas allowed.**
ONE DAY ONLY, Woodland/Davis Aeromodelers, **Saturday Sept. 8, 2018**
CD Richard Geertson geertson@sbcglobal.net \$10 Landing Fee
Award for: BEST Old School RC MODEL



WDA Officers and Board

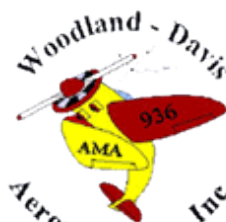
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Jet Turbine Instructors

⇒ OPEN

Helicopter Instructor (Only):

⇒ OPEN



Next Club Meeting: Aug 13th at 7pm
 Woodland Public Library "Leake" Rm., 250 1st St, Woodland, CA



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