



# Air Currents



The Official Newsletter of Diablo Valley Radio Controllers

Werner Hoch's plane, DVRC 2017 Open House





## President's Corner

We are now well into the summer flying season albeit for the relentless winds that seem to keep us away from our dearly beloved flying site.

Although California was declared "Open" in mid-June, there are hotspots of Delta Variant Covid-19 erupting in all 50 states. Despite immunization, it is still possible to catch Covid, but you are less likely to suffer extreme symptoms (and hospital care) if you have been fully vaccinated. We'll keep you posted if there are any changes to the club's pandemic restrictions.



On a brighter note, the pandemic has highlighted the benefits of our remote controlled hobby. Lockdown was a concern for us all, but those of us who can build from kits of balsa and plywood, were kept busy for much of that time.

I spent 8 months building a Sterling Models PT-17 Stearman and have included the maiden flight in the following YouTube video link:

PT-17 Stearman maiden flight: <https://youtu.be/DqD1n5ofFA8>

Another endeavor that I chose to undertake recently was the system redesign of an obsolete "Twin" powered aircraft. I had never built or flown a twin engine aircraft but was given a partially assembled obsolete ARF kit from 2008. The original system design included early brushed motors, turning 5x3 props, and driven by a basic pc board controller and a stack of "C" size NiCads. I will provide more information in an article, later in the newsletter. I have also included a YouTube video link of the Twinstar II's maiden flight below:

Twinstar II maiden flight: <https://youtu.be/-lkgPqxsMo>

As I mentioned earlier, our hobby has many benefits for health and wellness which you might not have considered before.

For us elderly types, we benefit from meeting fellow members at our club meetings and also when we fly at our club site. It is wonderful to talk about model planes with others who have similar interests. We share stories of successful flights, or otherwise, and enjoy the camaraderie of being together.



Furthermore, building model planes from balsa and plywood kits, or just assembling ARFs, all require that we must read and absorb instruction manuals to achieve the final result. This may involve many skills that we have learned during our lifetime, drilling, sawing, sanding, grinding, gluing, covering, soldering etc., trying to build our airframes as straight as they were designed. Once finished and covered, we have to plan the radio installation, test, and finally, obtain the correct center of gravity, which is possibly the most important task of building the aircraft.

Then comes the challenge of the maiden flight. This challenge can be quite stressful, especially when you have spent much time and money in the aircraft's completion. Although many say stress is bad for you, short term stress such as maiden flights can be a healthy challenge and quite exhilarating, especially when the new aircraft survives unscathed.



Our hobby also compares favorably against other forms of recreation such as golf, which can be quite expensive. Provided you don't crash too much, the cost of our hobby is reasonably priced and our club fees are only \$6 per month, a bargain at twice the price.

My final comment relates to relatively new technology which has improved our hobby tremendously, with the advent of aircraft stabilization. With this technology, we can now fly successfully in winds that we might not have considered flyable some years ago. If you have not tried it yet, it is worth your consideration since many of our summers days tend to have 15 mph winds, or more.

Till next time, remember this "The worst day of flying still beats the best day of real work."

Happy Flying,

Nigel Watson, President, DVRC

## Upcoming Events (weather permitting)

DAY	DATE	TIME	EVENT
Saturday	9/4/2021	9am	Work Party (first Sat of each month)
Saturday	9/11/2021	9:45am	General Club Meeting (outside, in the pits)
Saturday	10/2/2021	9am	Work Party (first Sat of each month)
Saturday	10/9/2021	9:45am	General Club Meeting (outside, in the pits)
Saturday	10/23/2021	9am	Donut Drop Contest (see flyer on last page)



# Volunteers and Leadership in Action



Thanks to our many volunteers that work during and outside of our work parties. This is a picture of just some of the members who helped seal the edges of the runway at one of the parties.

Now we have a smooth transition and wider runway.



Leadership arranged to have the runway re-sealed and lines painted.



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## Notes From The Membership Coordinator

We have a 2021 Year to Date total of 84 active members and 1 Associate Member!

Although some of the new members of 2021 have been active; I would like to mention all of the new members for 2021.

Daniel Howsepian of Pittsburg

Earl Browne of Pittsburg

Vincent Comendant of Oakland

Daniel Peterson of Pittsburg

Michael Martinez of Concord

Baixiao Huang of Walnut Creek

Eugene Manalang of Pacheco

Anthony Moore of Orinda

Miles Moore of Orinda. Associate, 11 years old!



A special note to **Miles**...a very special welcome! Miles is our future and we would welcome any of Miles' friends that have an interest in learning to fly!

We welcome all...if any new member has any questions or requests please call me or email me. I might not have the answers but will certainly try to find an answer to questions or requests.)

Gordon LaPorte, DVRC Membership Chairman



## Notes From The Safety Officer

Last year was a good year from a safety perspective. We got through the year without any reportable accidents or injuries at our flying site. Let's continue to practice safety in the enjoyment of our hobby.



I have noticed a few things that need to be mentioned as a reminder to ensure safe operation of our aircraft. Never install the battery in an electric powered aircraft on the setup tables, use the startup tables when installing the batteries. Taxiing in the pit area is not allowed. When operating a gas-powered aircraft AMA requires that a fire extinguisher be readily available.

High-speed passes must not be performed down the runway.

Remember, if you are not vaccinated, you must practice social distancing when within six feet of another individual and must wear a face mask or other face covering. If you are fully immunized against Covid 19, masks are optional, but are not required in the Pits.

Stay safe and I hope to see you all at the field.

Ron Penn, DVRC Safety Officer



## Member Contributed Content

### System Redesign of the Twinstar

*by Nigel Watson*

I was given the Twinstar II kit some time ago, looked at it, and realized that the power system and motors were obsolete technology, resulting in an aircraft that was outdated and quite underpowered.



I put the aircraft on the back burner because I had other, more pressing projects that I wanted to complete. However, as I completed those projects, I realized that the back burner was moving closer into view.

The kit manufacturer, Multiplex, had originally sold the Twinstar in the year 2000, but then re-released it in 2008 as a 56" wingspan Twinstar II. It was made from foam, but was unusually hard and strong. It turns out that the foam was called "Elapor", a type of foam that could be assembled and glued with any type of super glue (CA); in fact it was recommended.

I reviewed the components inside the kit and realized that I needed to make some significant changes to the power system since the included motors were of a brushed inrunner design, as compared with brushless outrunner motors which are routinely used in most electric powered planes of today.

Using the eCalc program from the internet, I redesigned the power system to include two Turnigy 2830 motors, two 30-Amp ESCs, and a 4S, 2700mAh LiPo battery. Rewiring the system wasn't difficult using the gold-plated pin/socket connector approach, as compared with the suggested method of soldering the wiring harness of the motors, speed controller, and NiCad battery holder together.

The original system also included 2 small 5x3 plastic propellers, however, with the 2830 motors I needed larger propellers to dissipate the motor's power. The program recommended the use of contra-rotating 9x6, 3-blade props, which would theoretically cancel-out any motor torque on takeoff, and I wired the motors accordingly.

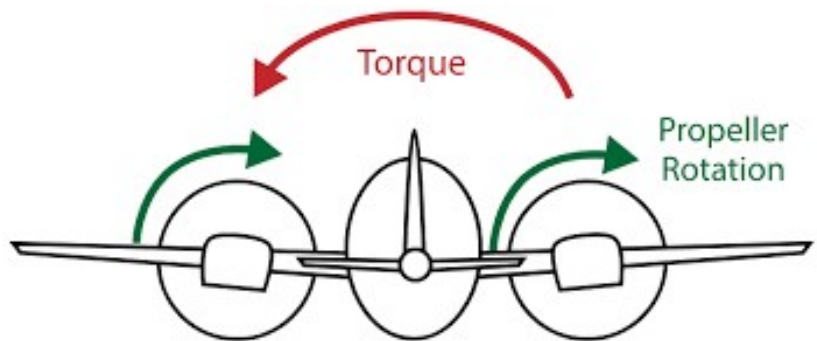
Although the plane was designed to be hand-launched, the flying weight was close to 4 pounds, which I considered quite high for hand-launching. I was also concerned that it would be highly likely that I would break a prop when it came in for a belly landing, as a result of a ground strike.

I reviewed all the available landing gear products on the internet and found a sturdy set of glass reinforced plastic main gear from Du-Bro and proceeded to integrate it onto the fuselage.

I had always put-off the thought of building a twin powered plane in the distant past because of the difficulty of tuning both 2-stroke engines to the same RPM, prior to flight. Another issue was that if

one engine dead-sticked, then the difficulty of flying the plane would go up exponentially. I had read that you never turn into the dead engine because the plane will become uncontrollable and will crash.

However, with the new technology of reliable electric motors and ESCs, both sipping juice from the same LiPo battery, twin aircraft had become a definite possibility. Essentially, this configuration should result in twin motors that would beat in unison, regardless of the throttle setting.



Anyway, the completed aircraft flew well for a maiden flight, despite running out of enough elevator up-trim to fly straight and level. The plane also had a nasty tendency to ground loop on takeoff with the tail skid that I had fabricated for it. There seemed to be no easy way to add another servo inside the plane for a steerable tailwheel. Therefore, I resorted to adding the servo outside the plane, between the legs of the main gear. I then ran a pushrod down the belly of the aircraft in a groove that was originally meant for an FM Rx antenna. Now I have a steerable tail wheel instead of a tailskid, which improved the takeoff considerably, reducing the ground looping tendency.

I have continued to make minor changes to the plane to improve her flight characteristics and, since mid-June, have had five, 6-minute flights on her despite the relentless winds.

It's good to try new aspects of our sport and recreation. Technology is changing our hobby all the time, opening up new opportunities and new challenges for us.

### 3D Printed Plane

*by Gene Aughtry*

Thanks to Gene for sharing some pics and bringing his 3D printed P47 Thunderbolt. The parts were printed by a friend and Gene assembled it and installed all the gear. He's putting the final touches on the P47 and hopes to get it in the air soon.



## Battery Maintenance for Windy Season

by Ray Simon

This windy season we may end up going home from the field with a lot of fully charged batteries. Long-term storage of Lipo's at full charge will degrade them. What "degrade" means to pilots is shorter flights and less throttle punch.

For long-term storage, LiPo batteries should be at about 50% charge which is 3.8 volts per cell. If you have a 3 cell battery the storage voltage is 3.8 volts per cell x 3 cells = 11.4 volts for the entire battery.

Back when I had one plane and one battery, I would run the motor until the battery was down to about 50%. Last windy Saturday I came home with 12 fully charged batteries.

So how do I get 12 batteries down to 50% for safe storage? My charger has a storage-level discharge function but the current load it draws from the battery is so low that the task would take all weekend.

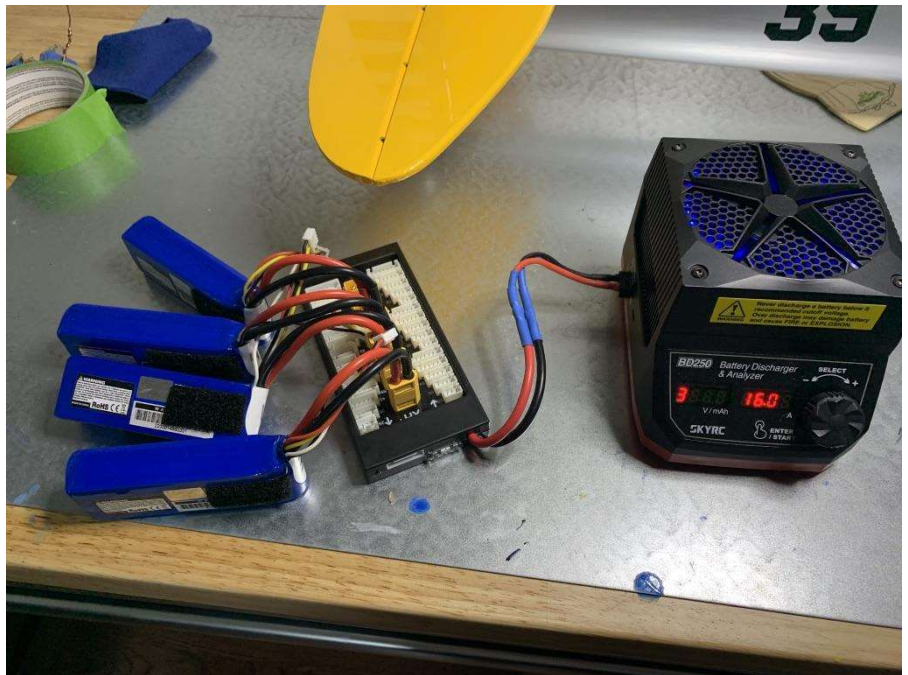
I purchased a battery discharger that lets you set the cutoff voltage and current draw. This makes discharging batteries to the 50% storage easy.

Used in conjunction with a parallel board, multiple batteries can be discharged at once. I've done 8 batteries simultaneously at 2 Amps

per battery by setting the current to 16 Amps and the cutoff at 11.4 Volts. The discharge cycle took 30 to 40 minutes. My battery tester showed they were balanced (meaning each cell within the battery was at about the same voltage, 3.8volts). Note that I only discharge similar batteries in parallel (same number of cells, same capacity, and same charge level) to avoid problems.

My discharger is the SkyRC (pictured above) which is good although it does not balance the battery pack so I need to check and sometimes balance them by putting them back on my charger.

There are several brands of Lipo dischargers on the market. A Google search on "lipo battery discharger" shows several models. Recently I discovered one brand, "Kacallap" which advertises that it balances while discharging.



Member Projects

by DVRC members

As Nigel pointed out in "President's Corner", the unusually windy weather has grounded many of us, and also given us a chance to focus on projects. Here are a few that our members have been working on.



Check out the detailing by Doug Schramm on this pilot figure! Only to be matched by the weathering he did on the fuselage below. Amazing work Doug!



Huey Nguyen is building a BTE Venture 60, kitted by Bruce Tharpe, who designed some incredible kits while employed at SIG including the 1/3-scale Spacewalker, the Four Star 40 and 120 and others. The Venture 60 kit does not include the motor mount. Huey designed his own using CAD software and cut it using his home CNC machine. Bruce Tharpe was so impressed with Huey's design that he asked Huey to share the design files with him! What an incredible acknowledgement to Huey's skills!



Completed RYAN ST was built by this author from plans published in March 1969 RCM magazine. Wing span is 50" and all-up weight is 2.75 lbs. Now I'm just waiting for a calm day and calm nerves to maiden her!

You can find the build log for this plane on our club's RCGroups page here:

<https://tinyurl.com/2wz4tr7w>

**A note from the newsletter editor:** *Thanks everyone for sending in your articles. It's never too early to send me your article. Thank you! - Ray Simon*



# New and News

Hopefully, everyone has read Nigel's email about changes to the boundaries of our club's space, as agreed with the City of Pittsburg. Nigel includes all of the details in that email. Here is a picture of the areas we have agreed to operate. Good news is that the entire runway and pits continue to be dedicated to DVRC. Parking areas are for us to continue to use as well. See Nigel's email for complete details.





## **DVRC Contacts**

**President: Nigel Watson;** (925) 229-2336; Resolves questions on bylaws, policy, etc. Contact the president to get items put on the meeting agenda.

**Vice President: Steve Anderson;** (925) 672-7352; If President is not available, same as above. Solicits items for and plans meeting program.

**Secretary: Doug Schramm;** (650) 222-8060; AMA dealings, keeps DVRC forms, records, correspondence. Takes minutes at Board Meetings and monthly Membership Meetings.

**Treasurer: Mel Nash;** (925) 597-8142; Collects dues, special assessments, other revenues. Pays expenses. Keeps financial records.

**Board Members:** All Officers listed above plus: Bill Selling, Gene Aughtry, Werner Hoch, Gordon Laporte, Marshall St. John

**Membership Coordinator: Gordon LaPorte;** (925) 997-0709; Maintains membership Manual. Sends out new member packages when requested and processes new members.

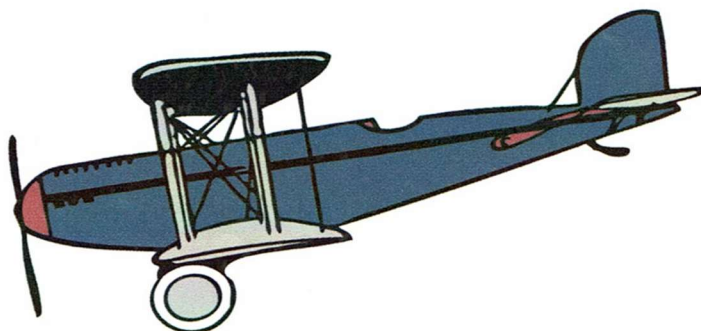
**Field Manager: Ron Williams;** (925) 375-1494

**Safety Officer: Ron Penn;** (925) 383-3232

**Newsletter Editor: Ray Simon;** (415) 310-3041

**Raffle: Allen Fleurrey** (925) 291-6459

**Contact DVRC - PO Box 9411, Pittsburg, CA, 94565**



## DVRC DONUT DROP 2021

When: October 23, 2021

Where: DVRC Field

When: Pilots meeting at 9:00 AM

This event is open to winged aircraft only (**no Heli/no Quad/etc.**). All Pilots must have a Yellow Flight badge.

**Objective:** Is to drop the donut into the large coffee cup that is positioned on the runway. (We will use mini bagels in place of donuts)

### Rules:

- ❖ Measurements will be made from the bottom edge of the cup out to your bagel (or the largest piece).
- ❖ Measurements will only be made to bagels that land on the runway or adjacent apron. Others will be "DQ" (Disqualified)
- ❖ Bagels will be provided by the CD, and will be the only bagels allow in the competition.
- ❖ You can only put enough tape on your bagel to keep it on you drop devise. CD will explain.
- ❖ Strong twine for attaching bagel to aircraft will be provided by CD, and is the only attachment medium allowed. (Exception is rubber bands.)
- ❖ You can make 3 attempts (passes) at the cup, but only 1 drop. You will be disqualified if your plane lands (crashes) in the cup.
- ❖ **All squabbles will be resolved at the discretion of the CD.**

Prizes will be awarded, and Real Donuts will be provided by the CD, you should bring your own coffee. Hope to see you there.

Gene

## Donut Drop Mechanism

Here are some examples of mechanisms for dropping the donut from your plane for the October 23<sup>rd</sup> event. Your mechanism may vary, but the general method should be the same. Hope to see you at the event!

