

# THE SLOW ROLL



CHARTERED #921  
Since DEC. 1974



**President—Lou Pfeifer IV**  
**Vice President—Andrew Schear**  
**Treasurer—Dan Smith**  
**Secretary—Robert Poe**  
**Editor—Bob Purdy**

# JULY 2018

# the 4<sup>th</sup>

# of July

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**Inside this issue: Cover Photo by Bob Purdy with Ray Olsen/Tony Quist /T-1 Sportjet/KingTech**

Smoke it

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Birthdays in back

ESC

SVF CLUB Starting 43 years

**SVF MEETING NO JULY MEETING**



## Presidents Report For July 2018

Hello all;

I hope everyone is having a great summer! Please Remember there will be **NO JULY MEMBERSHIP MEETING DUE TO THE 4th of July!** There will be a Board meeting on Monday July 9th.

There has been some damage to our solar charging station! It seems like this occurred early on a Sunday morning. If anyone has any info on this please call me. There also have been some vandals trying to get into our shed. They cut the lock but did not get in. Please be on the lookout for people that do not belong at our club!

We had John Serio spray the field for weeds last week. Thanks John for a great job! We also had Ben drag our field and our road. Thanks Ben for a great job as usual. The field has never looked so good!

We had some problem with our site but it is fine now thanks to Bob True. Thanks Bob. The Board has approved new rules pertaining to High Altitude Flying. I will be putting the final draft out as soon as Robert Poe gives it to me. In the meantime please fly with spotters and practice see and Avoid! Please no more calls from the tower.

We had someone get hurt in the pitts. **Please DO NOT ARM YOUR PLANES IN THE PITTS! If you are working on your ELECTRIC PLANE take off the prop! As always no running any motors in the pitts. Please be safe!!**

Well that's about it for this report. Please stay cool and hydrated. Have fun, be safe. The Fire Extinguisher on the west end in the box has been refilled. Thanks Bob. The code for the Fire Extinguisher is the same as the gate code. There is a new American flag flying thanks to Bobby Santoro. Thanks Bobby!!

## **Lou Pfeifer IV.**

President



## Sun Valley Fliers General Membership Meeting Minutes – 06/06/2018

Meeting called to order by Lou Pfeifer at 7:04 pm. There were 23 members present.

**Executive members in attendance** President – Lou Pfeifer, VP.- Andrew Schear, Treasurer- Nate D’Anna, Secretary - Robert Poe

**Board Members in attendance:**

- Jamie Edwards, John Geyer, Wayne Layne, Steve Myers, Ernie Mack, Wayne Robinson, Bobby Santoro, Bob True

**Absent:** Bryant Mack, Ernie Mack

**Open:** Welcome back to the Board members Frank Moskowitz and John Geyer. New Treasurer welcome to Danny Smith. Lou presented a service award to Bob True for all his efforts on the election and website. Well done Bob and thank you for your service to the Club!

**Guests:**

- None

**New Members:**

- None

**Solo Pilots:**

- None

**Secretary’s Report – Robert Poe**

- Secretary’s report was approved as written by 1) John Geyer 2) Bobby Santoro

**Treasurer’s Report – Danny Smith**

- Treasurer’s report was approved as written by 1) Dan Crum 2) John Geyer. Report on file to see by request by any member.

**Membership Director’s Report – Bob True/Bobby Santoro**

- 222 members as of 05/30/2018. 2 renewals in last month

**Safety Officer’s Report – Ernie Mack**

- None, absent

**Old Business**

- Notify members the the Board is working on new approached to handling high altitude flying issues. Will be discussed in detail at next membership meeting.
- Board is also discussing new spotting techniques, will be revisited at next BOD meeting.

**New Business**

- Field will be sprayed for weeds and dragged as soon as Lou gets start date from John Serio. John will have to work around the weather and field may be shut down for this work.
- Fire extinguisher has been refilled. Has been used on a few small fires. **Code for fire extinguisher lock is same as gate code.**
- **NO membership meeting for the month of July due to the 4th holiday.** BOD meeting per usual schedule for month.

**Door Prize Winners:**

- **Bob True, Wayne Robinson, Dan Crum, Tony Quist**

**50/50 Winner:**

- **Bobby Santoro.**

**Show And Tell:**

- **Wayne** updated the group on his progress with the legendary P-38 model. Working .50 caliber machine guns and 20mm cannon to be installed later...

The meeting adjourned at 7:39 pm 1) Wayne Robison 2) Dan Crum

Respectfully submitted,

*Robert Poe*



## 06/11/2018 Sun Valley Fliers BOD Meeting Minutes

Meeting called to order at 6:32 pm by Lou Pfeifer IV.

**Executive Members in Attendance: President-Louis Pfeifer IV., Andrew Schear - VP, Treasurer-Danny Smith**

**Board Members in attendance:**

- Ernie Mack, Frank Moskowitz, Wayne Robinson, Bob True, Bobby Santoro

**Absent: Robert Poe**

**Open: Welcome to the Board**

**Members/Guests:**

- None

**Guest Statements:**

- None

**Secretary's Report – Robert Poe (absent)**

- **Minutes** from **May 2018** meeting were reviewed and approved. 1) Frank Moskowitz 2) Wayne Robinson.

**Treasurer's Report – Danny Smith**

- **Financial report** for **May 2018** were approved and on file for review. 1) Bob True 2) Bobby Santoro.

**Membership Director's Report – Bob True/ Bobby Santoro, 222 members to date**

**Safety Officer's Report – Ernie Mack- none**

- Please do not start or arm planes in the pits electric or fuel planes (Lou).

**Old Business:**

- Revisit the approved Spotting Rule for some changes.
  - o Provisions for flying smaller electric aircraft
  - o If a member is the only pilot at the field, they may fly an aircraft with a wingspan of no more than 60", either electric or fuel, turbines of any size are excluded. Pilots flying by themselves are still required to abide by See and Avoid (AMA 540d). Motion by Andrew S 2) Frank M. Motion passed by unanimous vote

**New Business:**

- There will be NO MEMBERSHIP MEETING FOR JULY due to the holiday. There will be the regular scheduled Board Meeting for July on July 9th.
- Welcome to SVF sign, do we want to replace it? Frank M. was the only one interested in doing it.

**The meeting adjourned at 7:25 pm, Frank motion to adjourn, 2) Bobby S.**

Respectfully submitted,

*Robert Poe*

# What's Happening



Lou presenting Bob True with an award for his hard work in keeping the SVF going.



What duck is this?

- A: DAFFY
- B: DONALD
- C: GANDER



Barbara Vidales is back with dog AND Geronimo



What airplane is this?

- A: WILDCAT
- B: HELLCAT
- C: PUSSYCAT



# SOMEWHERE IN TIME



## RC Smoke Systems Explained– Tips for long hang time

### Model Airplane News

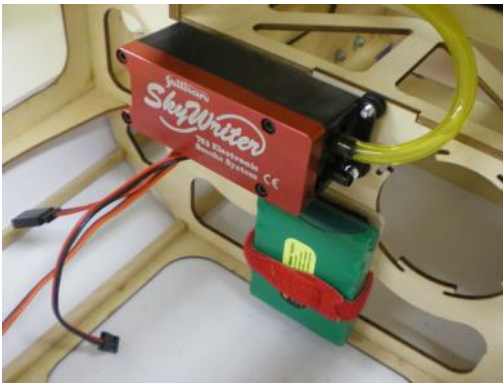


If you have ever been to an RC airshow, then you've seen aerobatic airplanes using smoke during their flight routines. When used properly, smoke systems can add a great deal to your flight presentation. The uniqueness it gives to specific segments of your flight routine will increase their appeal and pizzazz to both the spectators and your fellow pilots alike.

MAN contributor and expert aerobatic pilot and national champion John Glezellis give us an up-close look at installing a smoke system properly for consistent performance.

### Decisions, Decisions

Today, many commercially-available smoke systems use a separate battery source to control the smoke pump unit. I recommend these types as they don't draw current from your receiver battery, and the volume of smoke that is produced can be easily controlled via your computer radio. While I have not used all of the smoke systems that are commercially available, I have tested and have successfully used several of them over the years.



My personal favorites include the SmartSmoker from Tajera Microsystems Engineering, Inc. (TMJ), and the Skywriter from Sullivan shown above. Other popular manufacturers include 3W and Slimline, and while I have not personally used these pumps, I know they work equally as well.

### Pumpless Smoke

Another popular smoke system is an older product but it still works great and doesn't have a electrically driven pump. It is the B&B Specialties Smoke Pumper. This high volume smoke system contains the Pump, BB Control Valve, hose and all fittings for easy installation. The Super Smoke Pumper does not include the smoke generating muffler or smoke fuel tank. The heart of the BB Smoke System is, of course, the pumper which operates on engine crankcase pulsing pressure. No need to worry about a ruptured smoke fuel tank filling the inside of the fuselage with fluid. The smoke fuel tank is not pressurized. It is a surefire way of moving fluid from the smoke tank to your smoke generating muffler. Simple and effective.



### Installation

If you are using a smoke pump such as the SmartSmoker or the Skywriter, you will need to gather the following materials:

- Smoke Pump Unit
- Check Valve
- Battery pack (4.8 – 6V)
- Fuel Tank for Smoke Fluid
- Fuel filler Dot
- Zip Ties

- Gasoline-proof fuel line
- Neoprene tubing
- T-Fitting

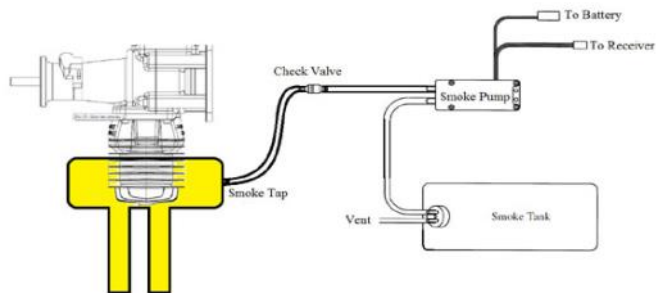
Some pilots will be using the same aerobatic airplane for IMAC (sequence competition) as they use for their free-style competition. Since smoke isn't needed for IMAC routines, making a removable tray to support the smoke tank, pump, and pump battery, is a simple and quick way to save a pound or more in weight. If your model is a tad on the heavy side, give this idea some thought.

Start by installing the smoke tank. If there's room, I always prefer to mount my fuel tank and smoke tank together in an area very close to the airplane's Center of Gravity. This way as fuel and smoke fluid is depleted the model's CG will remain unchanged throughout the flight. If your fuel tank and smoke tank are located in the front of the model, you'll find that your model is nose heavy at the start of the flight and as the flight progresses, you'll have to change elevator trim as the model becomes more and more tail heavy.



I run three lines out of the smoke tank. One line simply vents to the outside of the aircraft on the bottom of the model, the second attaches to the smoke pump (the internal line is attached to the clunk), and a third line that is used for filling the tank and is attached to a fuel dot. I also prefer to mount my pump close to the smoke tank, and close to the tank's height within the airframe. I also make the smoke battery removable. I use a 2000mAh NiMH battery, but with such a small current draw, a 500mAh battery could be used and will provide about 30-minutes of smoke-on time.

With a smoke pump like that from TME and Sullivan, you will notice that two servo leads come out of the pump. One is connected to the battery and the second lead plugs into a spare channel port in the receiver.



### Twin Cylinder Setup

While using a twin-cylinder engine with two mufflers, Like this Zenoah GT 80 and Slimline Smoke Mufflers shown above, the smoke system needs a T-fitting to supply fluid to both mufflers. I attach Neoprene line from the "T" Fitting

to each exhaust header (via a threaded pressure tap,) that I further secure to the header using JB Weld. I use gasoline tubing from the pump to a "T" fitting and Neoprene line after the T-fitting. Neoprene withstands heat much better than standard gasoline line. A check valve helps prevent muffler pressure pushing fluid backwards through the smoke pump during periods where the smoke system is off. The check valve is located between the tank and the T-fitting.

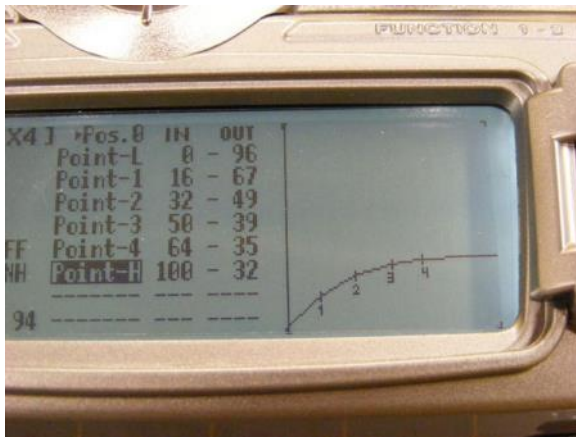




**Smoke Pump Programming**



If you feel that simply assigning your smoke pump to operate on a switch at one standard speed is acceptable, think again! When smoke is injected into the model's muffler or exhaust system, it is critical to change the volume of fluid being pumped. If too much oil is injected into the muffler while the throttle is at a low setting, it can kill the engine. Not good for a maneuver like a spin with smoke on.



Above, Now, it is important to utilize a Curve Mix to ensure that the smoke pump is off when the throttle stick is at idle, and the pump gradually increases in speed as the throttle is advanced. In addition to using a Mix, you can also decrease the smoke pump rate by using your ATV screen. Here, we have decreased the speed, when activated, to 50%. Find the proper balance by using both the Mix, and the ATV screen, to find the optimal rate.

For my airplanes, I plug the smoke pump into a spare channel and assign it to a switch. For example, let's say that I have Aux 4 as a free port on my receiver. In this case, I'll assign Aux 4 to the Mix Switch on my transmitter. Then, I will utilize one of the programmable mixes to mix Throttle (the master channel) to Aux 4 (the slave channel). I then assign this mix to the switch (Gear Switch), and pro-

gram different points on my mix graph (using a mix curve,) for different pump speeds to operate at in relation to the throttle setting. For example, at idle, I want the pump to barely operate so that little to no smoke fluid is pumped into the exhaust. As I increase the throttle, the smoke pump increases the flow. Using both the Adjustable Travel Volume screen and the Mix function can change the rate at which the pump operates at its fullest potential. Remember, though, the curve mix is critical!

When programming the smoke volume, you can make most adjustments on the ground. For maximum power, though, let your engine idle for a minute or two on the ground. Then, activate your smoke pump at or close to full power. If you see a large burst of smoke initially followed by a smaller amount of smoke, decrease your smoke rate as too much oil is being used. Making fine adjustments like this will ensure that you have a reliable and impressive amount of smoke during your flights. Fine tuning the pump will also maximize your "Smoke On" time.

### Enhancing Your Flight

If you simply use your smoke during the entire flight, it isn't nearly as impressive as if you use it only to highlight specific maneuvers. For example, if you want to perform a knife-edge pass, turn the smoke on before you roll the model to knife-edge, and then shut it off after you complete the maneuver and you roll back to upright level flight. This is much more entertaining, adds a unique visual dimension, and optimizes your smoke fluid usage.

### Final Thoughts



### Final Thoughts

Installing and properly using a smoke system with your aerobatic plane is both quick and easy to accomplish. Laying down a long, thick, long lasting smoke trail is very satisfying and can be used for both an aerobatic routine, or with WW1 and WW2 warbirds. It's all about having fun and impressing your flying buddies. Until Next Time, Smoke on and fly hard!

### Smoke Fluid

Over the years, I have had great success by using Super Dri Aviation Smoke Oil by MDW Aviation. This fluid is designed for both full scale and model airplanes alike, and it burns very well. Also it is safe for the environment and is bio-degradable.



Smoke fluid is also available from Robart Mfg., and their "Liquid Sky" smoke fluid is white in color, long hanging and a unique and pleasing Root Beer scent. Pilots everywhere are boasting about great success with Robart's Liquid Sky and it is popular because it does not attack foam. It's also available in larger containers for the really active show pilot.



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# A SUNDAY IN JULY WITH SVF'ers



## Don't cook your speed control!

### Model Airplane News

#### Avoid these common power system mistakes

Electric fliers all have one thing in common regardless of the size or type of models they fly—the electronic speed control (ESC). It doesn't matter if you fly helicopters, airplanes, giant-scale, indoor, or micro models; at the heart of your power system is the speed control, and if it's unhappy, you will be too. The costs and types of speed controls vary in every aspect and that includes quality. The one constant, however, is your understanding of how to make them last, which in the end, saves money and your aircraft!



**Poorly constructed motors can throw magnets and cause extreme current spikes that will destroy a speed control.**



#### Quality Matters

This pretty much covers everything. Quality motors, connectors, speed controls, installation, solder joints, etc., but let's talk about components. When encountering speed control problems, we don't often think about whether they might have been caused by a cheap (poorly made) motor, but it can and does happen. I recently experienced a catastrophic failure in a foam jet that caused the speed control to melt and actually burn its way out of the bottom of the aircraft. Parts of it were left inside, but it unsoldered itself and melted completely. Upon post-mortem inspection, I found that the magnets inside the motor were

unevenly spaced and one had actually come loose and been chewed into pieces as the motor spun. The funny thing about electric motors is when something starts to go wrong, the motor will just ask for more current so it can work to overcome it. My on-board data logger showed normal current at takeoff and shortly after, it began to climb until it spiked off the scale. This is an indication that the motor was failing and the binding of the magnet chunks caused the excessive current spike that subsequently melted the speed control. Some speed controls have over-current protection and others don't. Look for one that does! This doesn't guarantee that it won't be damaged by a sudden failure like mine, but it just may help save the speed control. This was an expensive failure due to a poorly made motor.

#### BE COOL!



**The speed control in this foam jet is jammed into the nose, so it's fully insulated and gets no cooling air. With the heavy load from the motor and too many servos, this will overheat and die quickly.**

Install your speed control in a place where you can get maximum airflow across it. Remember that if you let cool air into the fuselage, you have to provide a place for the air to get out too. That exit hole should be about twice the size of the inlet hole. Heat is the enemy, so the cooler you keep your speed control, the happier it will be.

**Eleven servos and an onboard LED lighting system overtax the speed control's BEC.**

#### SIZE MATTERS

The quickest way to get experience buying speed controls is to buy them too small for the application—meaning the motor voltage and current requirements along with the BEC (battery eliminator circuit) requirements if you're using one. If you're sizing your speed control based on the maximum requirements of the system and you're just barely meeting them, go to the next size up. If you can use one with a heat sink, do so. If your BEC requirements match or exceed the ratings of the speed control's BEC, then choose a different speed control or disable the BEC and use appropriate receiver power. Re-



member, if your BEC fails, you lose the airplane.

## Proper Soldering

**A good soldered joint between the wire and 6mm bullet will handle a lot of current. Note that there is no excess solder running all over the outside of the bullet and the joint is shiny clean.**



Many of the connectors in our electric power systems need to be soldered to wires. Always use properly sized wire gauges and quality connectors. Even the best soldering job can't make up for bad wire and poorly made connectors. A properly soldered joint is shiny! Your components can't be too clean, so clean the components before trying to solder them. Your fingers will get oils on everything, so be careful with what you touch. Tin both surfaces before joining them and then use just enough heat to let the solder flow between the two pieces. If the iron is oversized and too hot, it will end up being a dark, burned joint. If the solder flows and ends up nice, shiny, and bright—you've

been successful.

## Wiring Basics



**This is a big motor requiring a large speed control and unfortunately, this one isn't up to the task. Adding to the problems is the small gauge wire and adapter using uninsulated bullets. This system was caught and changed before there could be a problem.**

A question I often hear is, "Is it better to lengthen the wires from the battery to the speed control or to lengthen the wires from the speed control to the motor?" Online forums are full of ideas, opinions, conjecture, and debate over this question. Let me give the simple answer first; it is better to lengthen the wires from the speed control to the motor and keep the battery wires as short as possible. That's it, plain and simple.

The debate arises over resistance and inductance. It's argued that using a larger gauge wire reduces the resistance, making Recipe for a Cooked longer battery wires acceptable. While it does reduce resistance, it doesn't take into account the increased inductance it causes. Proponents of lengthening the battery wires say that can be overcome by adding additional capacitors to the front of the speed control. This is a patch, not a fix. The speed control comes with capacitors installed as determined by the manufacturer for its intended application. Without specific knowledge on current and how good the flyback diodes are, along with the switching speed of the FETs, voltage rating of the FETs, and types of FETs, you're grasping at straws. If you do know those things, you'll still need to do a lot of math to figure out the appropriate caps to add.

## Recipe for a Cooked Speed Control

- Take one undersized speed control
- Add cold solder joints
- Use extra long wires from the battery to the speed control
- Pack it in a foam plane with no cooling air
- Fly partial throttle settings extensively
- Push the BEC to its max limits and beyond
- Fly consecutive flights without a break

Here are quotes from AstroFlight's Bob Boucher on the topic of which wire to lengthen:

- **Wire resistance may rob you of a bit of power, but it will not destroy your speed control or motor.**
- **Wire inductance will not damage your motor nor will you be able to detect any effect even with 100 feet**

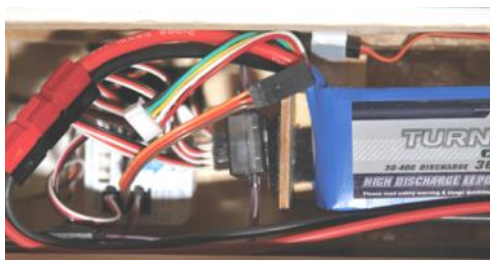
of wire.

- **Wire inductance will kill the mosfets in your controller and may even blow the caps.** Ed. Note: Bob is comparing inductance in the motor to speed control wire with inductance in the speed control to battery wire.
- **You must keep battery wires as short as practical. Short means one foot or less, brushed or brushless makes no difference.**

Bob is better known as “AstroBob,” former owner of AstroFlight and holder of a patent on electric flight. When AstroBob talks, I listen. Always lengthen the wires from the motor to the speed control if needed. The best possible solution is to keep all wires as short as possible, but we know that’s not always easy when you’re doing that special scale project.

## NEATNESS COUNTS

**All of these unsecured wires flopping around right over the receiver antenna will cause trouble. There is also 18 inches of wire from the battery to the speed control, and that’s WAY too much!**



Remember what your mother told you, “neatness is important.” A jumble of wires just stuffed into a fuselage can cause many problems, especially if they are unsecured and flopping around on top of your receiver antenna. We have become overly secure with our robust 2.4 systems, but wires moving around in close proximity or touching the antennas can and will cause reception problems. If you have so much wire that you need to bundle them or tie them up, take the time to trim them to the proper size. This makes the plane safer, but also shortens wires and decreases resistance. This counts whether it’s for your motor/speed control or servos.

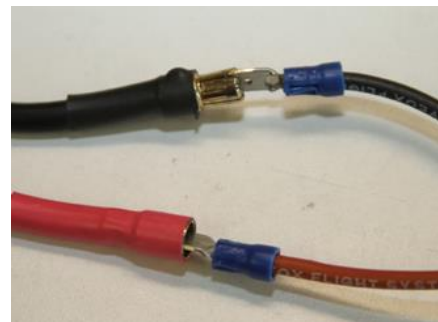
**Mismatched connectors are ALWAYS a bad idea.**

## Connectors & Adapters

**Note the securely attached speed control for this big power system and how the connections are well insulated and secured. Short wire runs and a protective grommet in the firewall, where the wires pass through, ensures no shorts over time.**



**An improper extension made by jamming a bullet into the EC5 connectors. Great connectors ruined by a bad idea.**



**A homemade parallel battery connector in a plane; wire nuts belong at home, not in your plane.**

There is no standardization between connector types, so most of us end up using an adapter at one time or another. Be sure to wire and solder them carefully. Double check the adapter before using it. The goal in electrics is to reduce the possibility for increased resistance in our circuits. This causes heat and wasted power. It’s best not to use an adapter, but if it’s necessary, be sure it’s properly sized and constructed. Wire nuts have their places in home wiring construction, but NEVER belong inside our aircraft.



Check your manufacturer’s website to see the limits of their connectors. If you’re pushing the limits of your 4mm bullet connector, then go to a 6mm size.

The same applies when you’re using EC3s or whatever brand. You want the most surface contact and least amount of resistance you can get for maximum



efficiency from your system.

### Tips for a Happy Speed Control

- Buy a quality speed control
- Buy one large enough to handle the load
- Don't exceed the BEC limits
- Provide cooling; all that you can get
- Keep wires as short as possible
- Use appropriate connectors

NEVER mismatch connectors. I've seen Dean's Ultras jammed into female bullet types and that is a recipe for disaster. I've also seen spade plugs shoved into the grooves between the contacts on a male bullet connector. Likewise, alligator clips have no place in an electric airplane. They may seem like a universal fix, but it's actually a universal mistake. All of these things can be inefficient, but more importantly—they are all dangerous and create a fire hazard.

### MOUNT IT SECURELY

It's not always easy to find the right place to securely mount the speed control, but it's absolutely necessary. Some larger controllers come with mounting brackets so they can be screwed to the front of a firewall, etc. Most smaller controllers depend on you to figure it out. Velcro is the usual method of choice and works well. Be sure it is secure though. If in doubt, use industrial strength versions or rigid lock tabs. Whatever you do, don't allow it to flop around inside your plane held only by the wires.

### BOTTOM LINE

No one wants to cook their speed controllers! As with everything else involved in our hobby, it's the small details that matter the most. Avoid these common mistakes and you'll maximize your airplane's efficiency and greatly lengthen its lifespan. —BY GREG GIMLICK

Updated: June 5, 2018 — 2:36 PM

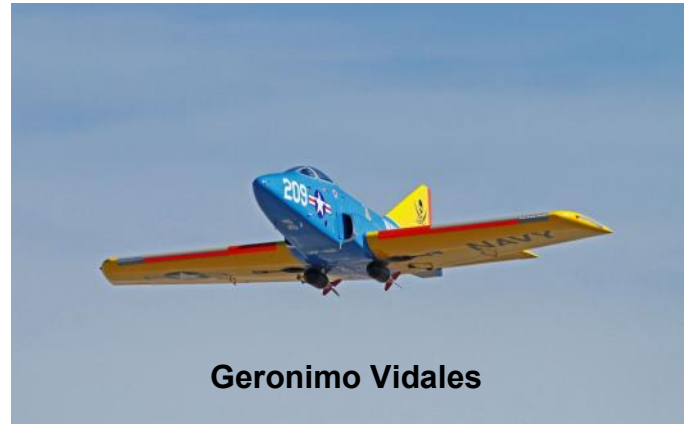


**AMA Expo West**  
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# More SVF Happenings



Mike Dolan



Geronimo Vidales



October 2016 SVF Swap Meet







We have downloaded many interesting articles from Vintage Wings our good friends from Canada. I wonder if any SVF members know of any other sites around the world that may be of interest to put in the Slow Roll. USA included.

**NO. 31 BOMBING AND GUNNERY SCHOOL, PICTON, ONTARIO**

# *For the Record*

**NEW PHOTO ALBUM COMES TO LIGHT**

<http://www.vintagewings.ca/VintageNews/Stories/tabid/116/articleType/ArticleView/articleId/611/For-the-Record.aspx>

## JULY 2018 SVF Birth Day Boys

John Murnane

William Bedford

Larry Stephens

Murray Duncan

Michael Marranta

Rusty Fried

Robert Pencak

Aaron Rathbone

Christopher Hirsch

Robert Gruenstern

John Wanner

Robert Putnam

Spencer Kleinhans

Dale Payne



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SUN 11:00 AM — 6:00 PM

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M-F 9:30-9PM, SAT 9:30-6PM, SUN 11-5PM

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# THE SLOW ROLL



### Club Officers 2018-2019

Lou Pfeifer IV, President  
Andrew Schear, Vice President  
Dan Smith, Treasurer  
Robert Poe, Secretary  
Safety Officer Ernie Mack

Bobby Santoro

Website Supervisor

Please check your  
Membership list for  
Phone numbers.



### Board of Directors

Wayne Layne '17-19  
Jamie Edwards '17-19  
Bryant Mack '17-19  
Bob True '17-19  
Wayne Robinson '18-20  
Bobby Santoro '18-20  
Frank Moskowitz '18-20  
John Geyer '18-20  
Ernie Mack '18-20



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**43**



**YEARS**



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