Tri City Radio Control Modelers

AMA FRIA

5001 Beardsley Rd.
Richland Wa

TCRCM Leading Edge



From the editor:

As we head into November, the flying season may be winding down, but there's still plenty to enjoy at TCRCM! Thanks to everyone who contributes their time, talents, and enthusiasm to make our club special. As you look toward winter, start thinking about what you'd like to see at the field in 2027. Your ideas and involvement help keep our club strong!



Happy flying,
Camille
Newsletter Editor

2026 Officers

President: Gary Grosso
president@tcrcm.com

VP/Web Admin:
Dave Holland

Secretary/Newsletter:
Camille Page
secretary@tcrcm.com

Treasurer: John Patton

Safety Officer:
John Pulsipher

Field Manager: OJ Brooks

Comm. Liaison:
Scott Page

Lead Instructor:
Lyle Laughery
instruction@tcrcm.com

Past newsletters can be found at https://www.dropbox.com/home/TCRCM%20Newsletters

Calendar of Events

- Nov. 18, 7:00, Club meeting– election of officers, Benton REA Community Room, 2121 Cooperative Way, West Richland.
- December 16, 7:00, Social Snacks, Benton REA Community Room
- January 1, 2027, Polar Bear Fly





Nominations for 2027 Officers:

President: Gary Grosso
VP Dave Holland
Secretary Camille Page
Treasurer: John Patton

Other club positions are filled by appointment from the President.

President's Message

Dear TCRCM Members,

November is here, and with it comes the shift from long days at the field to cooler weather and shorter flying days. There may still be opportunities to get out and fly, so keep an eye on the weather and make the most of them. And when the conditions keep you grounded, this is a great time to get back into the shop, finish a project, or start building that next airplane.

As our regular flying season winds down, I want to thank everyone who came out to fly, took part in club activities, and helped make TCRCM a welcoming place to share our hobby. The flying is what brings many of us together, but the friendships, willingness to help, and time spent together are just as important to the strength of our club.

I also want to recognize OJ and his crew—Joe, Rodney, Jim, and Matt—for the work they put into keeping our field in great shape. Their efforts throughout the year make a real difference, and we should not take that work for granted. These efforts take time and hard work, and they are greatly appreciated. If you have some time to spare, consider lending a hand. A little help from more members makes the work easier for everyone and helps us take pride in our flying site.

As we head into the quieter months, there is still plenty we can



do to keep TCRCM moving forward. Winter is a good time to work on projects, share ideas, help maintain our facilities, and look for ways to make the club even better. Our progress depends on members who stay involved and are willing to contribute, whether at the field, in the shop, or behind the scenes.

As your president, I remain committed to strengthening our club—our facilities, our camaraderie, and our presence in the region. Let's continue looking out for one another, welcoming fellow hobbyists, and doing our part to make TCRCM a club we can all be proud of.

Thank you for your continued support, enthusiasm, and commitment to TCRCM. Enjoy the changing season, stay involved, and I look forward to seeing you at the field whenever the weather cooperates!

With appreciation,
Gary Grosso
President, TCRCM

Club Meeting Minutes 10-21-26

1. Membership: Currently 59 members with 16 present plus 6 guests.

2. Financial report

3. Safety: O.J. observed a young club member flying at a school yard. O.J took the opportunity to educate the young man. Schools and many parks prohibit RC flight.

5. Field Maintenance: Fresno valves need to be replaced. O.J. will get it scheduled. Need volunteer mowers and field help.

6. Calendar:

- November 18, 6:00, BOD meeting, Benton REA Community Room
- November 18, 7:00, Club meeting and elections for 2027 officers, Benton REA Community Room
- December 16, 7:00, Social Snacks, Benton REA Community Room, maybe indoor flying
- January 1, Polar Bear Fly-in, must have dues paid before you fly.
- February 16, Banquet, 5:30, Isla Bonita

7. New Business- There are inconsistencies between the web site and the By-Laws. Dave inherited the web site and is making progress updating it. The BOD needs to set aside a meeting to discuss it.

Renew early, please.

Nominations for 2027 club officers: same as last year, President: Gary Grosso, VP: Dave Holland, Treasurer: John Patton, Secretary: Camille Page. Motion for nominations by Scott Page, Second by O.J. Brooks
Other positions will be appointed by the president.

Call for help with events. Historically, we have more club participation and camaraderie if we offer regular fun-fly events. We have a list of 40-50 events for RC flight that look incredibly fun, but need chairpersons. Most are very simple to run if individuals offer to chair it. Can you grab a buddy and take one on?

8. New solo pilot awards- see next page.

9. RCBattery.com winner: Paul Meyer

10. Presentation by Dave Holland- Dave showed his new transmitter and several types of ProModeler servos and capacitors and described their advantages. He led a good discussion of chatter/flutter of servos.



Move to adjourn- seconded.

Why Should RC Pilots Take the FAA TRUST Test?

- It's the law. Recreational RC pilots must pass TRUST before flying.
- It promotes safety. Learn the rules for sharing the airspace with full-scale aircraft.
- It protects our hobby. Responsible flying helps preserve access to our flying fields.

It's free and easy. Take the test online and keep your completion certificate. Take the free test here: https://trust.modelaircraft.org/
Every RC pilot should be TRUST-certified!

Being an AMA member does not exempt us from TRUST.

Three New Solo Pilots, and Two More on the Way!



Congratulations to Lincoln Greenhalgh, JB Aguilhon-Levesque and Jeffrey Broussard, who received their solo certificates from Dave Holland at last Wednesday's club meeting. Going solo means they can now fly at the field without an instructor on their shoulder or a buddy box, and that's a big milestone. Our club has a whole team of trainers, but Dave took the lead with all three of these pilots, and together they add up to nearly 100 trips to the field this year. That's a remarkable investment of time and patience, so a huge thank you to Dave, and well done to our newest solo pilots!

More good news is coming. John and Jake Pulsipher have been training twin brothers Nathan and Jacob Rasmussen, and the twins recently passed their check-off flights with head instructor Lyle Laughery. They're now solo pilots too. We expect to present their certificates at the November club meeting, so come help us cheer them on. Thank you to the Pulsiphers for all the hours they've put into teaching the boys,.



Just because you can buy it, doesn't mean you should fly it.

Charge Smarter at the Field

Oct 26, 2026, R. Scott Page

At the flying field, you can cut your battery charging time almost in half by stopping the charge at 4.10 volts per cell instead of 4.20.

The waiting game

You land, plug your battery into the charger, and wait. And wait. Most of us have stood around a charging table watching the numbers creep up while the sky is perfect for flying.

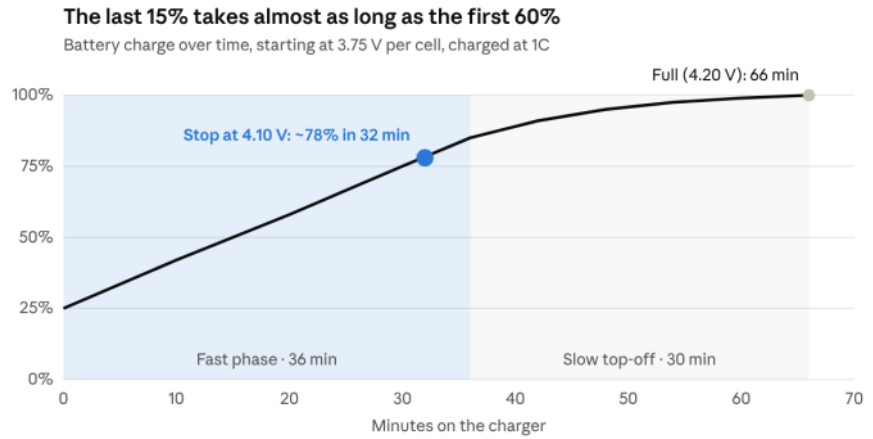
Here's the surprise: most of that waiting happens at the very end of the charge. The last little bit of energy takes the longest to put in. If you skip that last bit, you get back in the air much sooner and lose only a few minutes of flight time.

How a LiPo battery charges

A LiPo charger works in two phases: a fast phase and a slow top-off.

- **The fast phase.** The charger pushes a steady, strong current into the battery. The voltage climbs quickly. This phase fills the battery to about 80 to 90 percent.
- **The slow top-off.** Once each cell reaches 4.20 volts, the charger can't push harder without damaging the battery. So it holds the voltage steady and lets the current slowly shrink. This last 10 to 20 percent can take almost as long as everything before it.

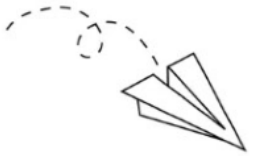
Think of filling a glass of water from a fast faucet. You can pour quickly until the glass is nearly full. Then you have to slow way down so it doesn't spill over. That careful last pour is the slow top-off.

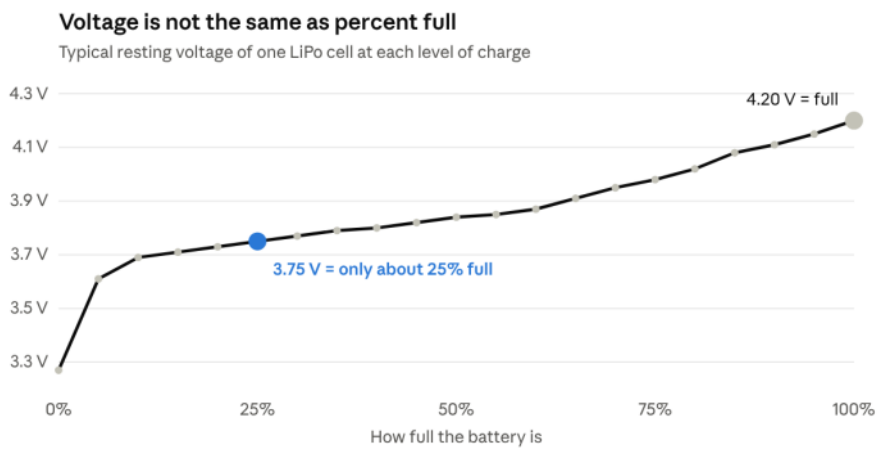


Typical LiPo charge at 1C · estimates; real times vary by battery and charger

The line climbs steeply during the fast phase, then flattens out. That flat part is where your waiting time goes.

One more thing to know: battery voltage is not the same as battery percent. A cell at 3.75 volts is only about 25 percent full, and a cell at 3.50 volts is basically empty. Almost all of a LiPo's energy lives between about 3.70 and 4.20 volts per cell.





Typical LiPo resting-voltage chart · approximate; varies by battery

The voltage barely moves through the middle of the charge, then rises quickly near the top. That is why a small change in voltage can mean a big change in how full the battery is.

The numbers

Going from 80 percent to 100 percent roughly doubles your charging time. Here is an example: a battery that starts at 3.75 volts per cell (about 25 percent full), charged at a normal 1C rate (for example, 2.2 amps for a 2200 mAh pack).

Modern quality battery packs are fine to charge at 2C to about 4.1 v per cell, so 2C charging further cuts the pack charge time. The “wear and tear” comes from charging too quickly above 4.1 volts.

Charge to	How full	About how long
4.10 V per cell, fast phase only	75–80%	30–35 minutes
4.10 V per cell, with top-off	88–90%	40–45 minutes
4.20 V per cell (full)	100%	60–70 minutes
4.25 V per cell (overcharge)	102–104%	70–75 minutes, and unsafe

These times are estimates. Real times depend on the battery's age, its condition, the temperature, and your charger.

Our recommendation for field charging

At the field, charge only through the fast phase, or stop at 4.10 volts per cell.

- **You fly sooner.** You can cut your wait by 20 to 35 minutes per battery.
- **You barely notice the difference.** You lose only about 10 to 20 percent of your flight time. On a 6-minute flight, that is about one minute.
- **Your batteries last longer.** LiPo batteries wear out faster when they are pushed all the way to 4.20 volts. Stopping a little short is easier on them.

At home, when time doesn't matter, a full charge is fine. Just remember: if a battery won't be flown within a day or two, put it at storage voltage (about 3.85 volts per cell) instead.

How to do it, and stay safe

Most modern chargers can stop early. Look for one of these:

A **"Fast" charge mode**, which ends near the close of the fast phase.

A setting called **"Charge end voltage"** or **"Terminal voltage."** Set it to 4.10 volts per cell.

For a whole pack, multiply 4.10 by the number of cells:

Pack	Stop at
3S (3 cells)	12.3 volts
4S (4 cells)	16.4 volts
6S (6 cells)	24.6 volts

Safety rules:

Never charge a regular LiPo above 4.20 volts per cell. Overcharging adds almost nothing and raises the risk of swelling and fire.

LiHV batteries are different. They are built to charge to 4.35 volts per cell, and only in your charger's LiHV mode. Check the label before you charge.

Never leave a charging battery unattended, and charge on a fireproof surface or in a LiPo bag.

Avoid charging above 1C to voltages above 4.1v/cells to maximize the battery life.



FOR SALE:

Tool box with tools, ham band radio with over the shoulder bracket, foamie airplane, misc batteries, another Futaba radio. $75 obo.

Doug Larson

Former club president

douglarson01@protonmail.com

TCRCM Takes Flight at Kiona-Benton Elementary!



On October 15, 2026 TCRCM Secretary Camille Page and Introductory Pilot Program (IPP) instructor Scott Page visited Kiona-Benton Elementary School to share the excitement of aviation with a group of enthusiastic third graders.

The visit began with a look at the parts of the Mamba biplane, introducing students to airplane terminology and the control surfaces that help pilots guide their aircraft. Next, the students rolled up their sleeves and assembled their own FPG-9 Foam Plate Gliders, discovering how a few simple materials can become a flying machine. One of the day's highlights was adding “scarce” pennies as weights to help balance their gliders!

The activity brought science, technology, engineering, art, and math to life. Students explored the science of flight and used creativity and problem-solving skills to build their gliders. Teamwork was in full flight as classmates helped one another with assembly and celebrated their progress.

Then, under beautiful sunny skies, it was time to head outdoors!



The students launched their gliders and experimented with how the rudder and elevons influence an airplane's direction and turning ability. There was plenty of excitement as they watched their creations fly and discovered how small changes can affect flight.



The visit also opened the door to conversations about aviation careers and the many opportunities available in the world of flight—from pilots and aircraft designers to aerospace engineers, mechanics, and air traffic controllers. Who knows what future career ideas took off that day?

And here's a little secret for anyone who wants to feel like a rock star: carry a model airplane through an elementary school hallway! The wide-eyed looks, excited questions, and enthusiastic smiles make you an instant celebrity. It's a wonderful reminder of how much joy and inspiration a model airplane can bring to young people.

TCRCM is proud to help introduce the next generation to the excitement of aviation, the value of hands-on learning, and the joy of flight. Perhaps among these enthusiastic third graders are a few future RC pilots!



Why and When to Add Capacitance to RC Aircraft

Intro to John Beech's ProModeler article, submitted by Dave Holland



Purpose: Capacitors help prevent voltage drops that can weaken servo performance or cause receiver brownouts and loss of control.

Why capacitors matter

- Voltage drops: Servos draw high current when starting, reversing direction, or moving control surfaces against aerodynamic forces.
- Reduced performance: Low voltage can reduce servo torque and speed, making control surfaces less responsive.
- Receiver brownouts: If voltage drops too far, the receiver may reset, potentially causing a crash.

Long extensions: Servo extensions longer than 30 inches increase resistance and voltage loss.

Where to install capacitors

- At the receiver: Helps buffer sudden current demands and reduce the risk of receiver brownouts.

At distant servos: Use a Y-harness to connect a capacitor near the servo when using extensions longer than 30 inches.

When are they most useful?

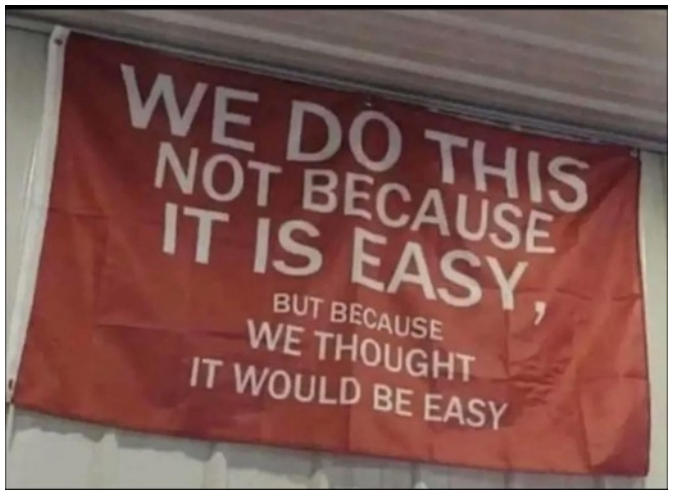
Capacitors are particularly beneficial for aircraft with high-torque, high-current servos, large control surfaces, long servo extensions, or demanding aerobatic maneuvers. They can also benefit ordinary sport aircraft.

Bottom line

Capacitors provide inexpensive insurance against brief voltage drops. The author recommends installing one at the receiver and adding one near each servo with an extension longer than 30 inches.

For extremely power-hungry servos, a capacitor may not be enough. An appropriately sized external BEC or separate receiver battery may be needed.

Note: These are the author's recommendations. Capacitors supplement a properly designed power system; they cannot compensate for an undersized battery, BEC, wiring, or connectors.



How Many Amps Can an RC Servo Connector Handle?

Condensed from John Beech's ProModeler article. Submitted by Dave Holland



The key numbers

Connector rating	Current
Continuous current	3.5 amps
Intermittent current	5 amps

Traditional JR-, Futaba-, and similar servo connectors use small pins originally designed for lower-current servos. Modern high-torque servos can draw more than 5 amps individually, with some exceeding 10 amps under heavy load.

Why this matters

- Overheating: Sustained current above 3.5 amps can heat, deform, or melt connectors.
- Combined servo loads: Several servos operating simultaneously can exceed the current capacity of the single power connection feeding the receiver.
- BEC limitations: Even if a BEC can supply high current, a single undersized connector can restrict how much current reaches the receiver.

Three solutions the author recommends:

- Power distribution system: Use a power box to distribute servo current without routing all of it through the receiver.
- Multiple receivers: Split servo loads between two receivers, reducing the current carried by each.
- Dual battery leads: Use two power leads from the receiver battery, connected to separate receiver ports, to distribute current across two connectors.

Bottom line

- The power source's current rating isn't the same as the connector's current capacity. A powerful battery or BEC cannot overcome the limitations of an undersized connector.
- For larger models and high-current servos, evaluate the total servo load, wire gauge, connectors, and power-distribution system together.

Practical note: The 3.5-amp figure is the article's stated rating for the connector style discussed, not a universal guarantee for every connector or installation. Follow the specifications of your actual equipment, and ensure any dual-feed arrangement is compatible with the receiver and power system.



21 Ways to Kill Your Club

The following list was obtained from a leading national community service organization. We can all learn from it.

1. Don’t attend meetings, but if you do, arrive late.

2. Be sure to leave before the meeting is over and make sure everyone hears you leave.

3. Sit in the back so you can talk with other members during the meeting.

4. Never have anything to say at meetings; wait until you get outside, then always be negative.

5. After meetings, find fault with club officers and fellow members.

6. Hold back your annual dues as long as possible, or better yet, don’t pay at all.

7. Never accept an office or serve on a committee. It is much easier to criticize than to do.

8. When everything else fails, abuse the club’s officers.

9. Don’t bother enlisting new members; let the others do it all.

10. At meetings, agree to everything, then go home and do nothing.

11. Don’t tell the club how its policy can help you, but if it doesn’t help you, tell everyone else it’s useless.

12. Do nothing more than what’s necessary, but when other members roll up their sleeves and willingly use their ability to help matters along, complain that the club is being run by a clique or dictator.

13. Talk cooperation but never cooperate.

14. Get all that the club has to give but give nothing in return.

15. Threaten to leave the club if something isn’t the way you want it.

16. If you’re asked to help, always say you don’t have time.

17. Never read any mailings or seek information. You might find out what’s going on.

18. If appointed to a position, never devote any time to it. Let someone else do it all.

19. Overlook your own shortcomings and concentrate on what they are not doing.

20. Repeat all the unpleasant things about your club to anyone who will listen.

21. Always criticize club officers whenever the opportunity arises.



ALL ABOUT GLUE Jeff Whitney,

https://rcsb-tutorials.s3.amazonaws.com/Glue/glues.pdf



Way back in the dark ages, the glue of choice was Ambroid, a cellulose-based glue. Believe it or not, it still has its uses today. One great thing about Ambroid is that it sands well, so it could be used in laminations, as long as the final shape will be fiberglassed.

However, what we are going to discuss here are the more commonly used glues: CyanoAcrylate (CA), epoxy, Super-Phatic, aliphatic resins, and Gorilla Glue.

In the beginning, there was Hot Stuff – this was the first glue I learned to stick my fingers together with . . . It was made by Satellite City (or distributed by them) and introduced the fast build era we live in today (unless you are me – it does not matter what glue I use I am slow). Initially, all we had was thin Hot Stuff, and then they introduced medium and thick varieties. We had a representative from ZAP show up at our club and to a demonstration once – quite interesting.

CA works best when you have a tight-fitting joint, so take a couple minutes extra and cut that angle precisely. Sometimes you just can't get it right, and that is when you use medium or thick. Of course, both medium and thick take longer to "kick" and the parts must be either held or clamped in place. Medium and thick are (in my opinion) best used in balsa to ply or hardwood joints. (Even better here would be epoxy – more later.) On occasion, you may want to "preglue" the joints – apply a drop or two on each piece, let them kick, then join them and re-glue.

Moisture will make CA turn – medium gets thick, thick gets rigid and thin gets gooey. If you live in a humid climate, try to keep your CA in a jar with a desiccant. A friend of mine has a small refrigerator in his shop – he keeps his CA in sealed containers in the fridge. He keeps his LiPos in there too. To extend the shelf life of your unopened CA, keep it in the refrigerator – just make sure your wife knows not to use it as a condiment.

Be careful using CA kicker – make sure the spray is not directed anywhere near your opened container of CA. I like the pressurized spray can the best, the bottled "pump" type always seems to me to spit rather than spray – and you only need a very light mist to make the CA kick. Be aware, that using kicker on medium and thick CA will often cure only the outer surface – you still need to hold the parts for several seconds to get full cure. If it turns white, you have over done it.

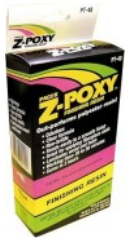
There are several types of CA now: thin, thick, medium, foam safe, "gel" and "sheet zap" which is really slow to cure.

When gluing hardwoods (spruce and bass, etc.) it is sometimes handy to "woodpecker" the joints – take a pin and puncture the surfaces where you will be gluing.

The fumes given off by CA when it cures rapidly can really affect you – many people become allergic to CA. Try to arrange a small fan blowing from behind your shoulder if you are doing a lot of gluing or at least arranged in such a way as to blow any possible fumes away from your face.

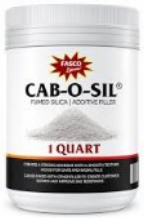
CA applicators: There are a few different kinds of applicators, Z-Ends and Z-Extenders are probably typical of what most people use. Our buddy Don Rice (drice) keeps a small jar of acetone handy – when one of the Z-Ends gets clogged, he pulls it off and tosses it in the acetone, taking a clean one from the jar.

Epoxy is a two-part resin and is anaerobic, meaning it does not need air to cure. If you read the bottles, one usually says "hardener" – this is the catalyst that causes the chemical reaction. Epoxy for glue is usually mixed 1:1, while finishing resins are mixed 1:4 or 1:5 or some other ratio. Finishing resins should not be used for glue. Note that West Systems epoxy, TAP 4-1 Epoxy and Zap Finishing Epoxy are NOT glues, they are finishing resins. They are not formulated for strength per se, but for their finishing characteristics. Epoxies are classed as 5-minute, 6-minute, 30-minute and 45-minute. You should have one of each of the "fast" and "slow" cures in your shop. The actual mixed ratio is not highly critical but should be mixed as closely to the specified ratio as possible. If the ratio is off enough it can really change the cure time and final strength. Gordon Banks of RC Report did a test a few years ago where he deliberately mixed up several batches improperly. In all cases the epoxy finally cured, and final strength was somewhat compromised – so mix as accurately as you can.



"Quick" cure epoxy is used where a high strength is not necessarily needed – joining wing panels for instance (because the joint is later fiberglassed). Slow cure is used for things like firewall to fuselage joints. Also note that while they cure in the specified time, full cure can take hours.

Do not thin epoxy to be used as glue with alcohol – this does reduce strength. You can mix in micro-balloons or Cabosil as fillers – this makes



the epoxy stiff and less runny, so it will stay in place. Cabosil filled epoxy is harder to sand than micro-balloon filled epoxy. Years ago, Sears sold a "filled epoxy" in a squeeze tube (like a toothpaste tube). This was good stuff, it would stay where you put it and sanded well. Have not seen any for a long time, but you never know if you will run across it again.

SuperPhatic and Aliphatic resins. Best known in the US as Titebond – Titebond is an aliphatic resin and Titebond II is a polyvinyl acetate. Both are good for our use. I have used both to join wing sheeting together and to glue wing skins to the ribs, or sheeting to the fuselage. No special precautions with either are necessary, just clean your hands after using and keep it out of your eyes.

Like epoxy, titebond takes clamping and patience. You have a few minutes working time, so you can coat several pieces and then start clamping or pinning them in place. Don't try to do to many at once, and after clamping let them set for several hours. This would be good glue to use for sheeting in the morning before leaving for work. It would be cured enough to handle by the time you get home.



Titebond is water-based, and they say on their tips sheet that you should wait several days for the water to evaporate and the wood swelling to go back to normal before you plane or sand it. SuperPhatic (SP) is a variety of aliphatic resin that has been reduced (I am told by denatured alcohol) to a water-like consistency. SP is good for strip planking and some sheeting. It tends to cure fairly quickly depending on your environment. It is supplied with a tube dispenser – be sure and clean it out at the end of a session! Ask me how I know . . .

Pin your parts in place, add a couple drops of SP and move on to the next one. If you are using it for strip planking, do a strip on one side, go to the other side and add a plank, by the time you get back to the first side you can usually remove the pins and do the next strip. (You want to alternate sides when strip planking anyway – helps keep the bow out.) I have not had much luck gluing balsa stringers to ply or lite-ply formers – it may be my technique. Worth testing on your own to see what you come up with.

Gorilla glue is a fairly recent arrival. It is a urethane prepolymer with polymeric MDI. Got that from the MSDS at Gorillatough.com and I have absolutely no idea what it means, but it sounds good. It is mildly toxic to breathe, do not ingest it; if you get it on your clothes, take them off ASAP (like right now) and use a hand cleaner based on polyethylene glycol or plenty of soap and water. It would be a good idea to wear gloves when using this stuff.

I personally am not a fan of this glue, but it is very effective and some people really like it. I have used it to sheet foam wings – it is very effective for that. You HAVE to clamp your parts, and you HAVE to clamp them securely so they will not move. This glue foams up somewhat as it cures and it can push your parts apart. When sheeting foam wings with it, you spread it out on either the sheeting or the foam core, give a light mist of water to the other part, join them and start piling weights on. Make sure you have a lot of weight. Then add some more. Ask me how I know THAT too . . .



According to their website, it requires 20-30 minutes of clamp time and fully cures in 24 hours.

They also have a Gorilla Wood Glue which does not expand as much and is for use on wood only. You still need to clamp for 20-30 minutes, is 80% cured in 1-2 hours. The website says both glues are sandable, but my limited experience with the other one indicates that it is not, or at least not very.

Test pieces for any glue and situation are always advisable. Set up tests so that you can test several types of joints to see how they fail, then choose the glue for the situation. Think I might do that when I have some time.

The following is from drice's (Don Rice) Zirolli Corsair thread, referring to Gorilla Glue: Tom, I love gorilla glue. Many guys use slow-zap where I would use gorilla glue because a) they are faster, more confident, and more skilled, than I am, and b) I am more patient than they probably are.

I really like it for the sheeting process. The gorilla glue definitely has plenty of working time for me to get it spread on all the ribs, spars, stringers, whatever, which generally takes less than 5 minutes. Occasionally, the 1st parts I apply it to, might start to bubble slightly, but it's still plenty liquid enough for me to get the sheeting fitted. I'd say you have at least 15 minutes to get it applied and to start the lay-down of your sheeting. The minor bubbling that might start doesn't mean anything. I then take my time and get all the clamps, pins, lead weights, stacks of magazines, dancing

girls & liquor bottles, etc in place, and walk away for a couple hours...or days.



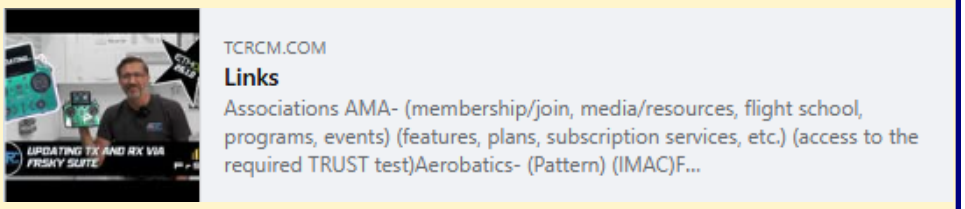
It is very sandable. Far more so than epoxy and zap.

I'm talking about the honey-colored original gorilla glue, not the new clear stuff. It is less strong, bubbles up a good 50% more, and is at least 50% faster than the original. I love it too, but I use it for things where strength isn't really an issue.

So there you have it. The beginners guide to glue, and when to use what. Most of it comes down to experience and preference (and trial and error). Speaking of preference – I prefer the Bob Smith CA because it has a screw on cap which makes the use of the pipettes easy. As usual, your mileage may vary. Not an endorsement for BSI (but it IS an endorsement for screw on caps!).



Website update: We've added a new link to the Links page at tcrcm.com. It goes to SPAD (Simple Plastic Airplane Designs) free plans (spadtothebone.net/freeplans.htm), a source of free RC plans if you're looking for your next build. You'll find it in the kits and suppliers list, right after Kitcutters. Take a look: https://www.tcrcm.com/links/



Thanks, Dave!



Master the Figure-M:

Two stall turns & a twist

(Article from Model Airplane News)

If you want to become the best aerobatic pilot possible, you need to master key maneuvers by taking small steps. First, make sure you're proficient in performing maneuvers like inverted flight, vertical and horizontal rolls, inside and outside loops and stall turns. You can then perform these moves in sequences to create show-stopping routines. In this post, I'll highlight a precision maneuver called the Figure-M, which incorporates two stall turns with a little twist. Without further hesitation, let's get started!



Before we Begin

Before you attempt your first Figure-M, it's important that you're able to perform vertical rolls, the stall turn and an outside loop. This maneuver combines elements of all three of these maneuvers, and pilot proficiency is a must for success. For the most part, precision aerobatic airplanes, which are often referred to as pattern or F3A-style airplanes, are required to perform a maneuver like the Figure-M. We have all heard the expression that you need the right tool for the right job. Similarly, not only do you need an aerobatic model to perform this maneuver, but you also need the proper mechanical and programming setup for your aircraft.

To simplify this, I always recommend the use of a flight mode (all dual or triple rates for all control surfaces are on one switch). In the low rate condition of this flight mode, start with low rate aileron and elevator values of about 20 degrees of deflection on the aileron control surface with 35% exponential (expo) and 12 degrees of elevator deflection with 35% expo. You should then use maximum deflection on the rudder with about 65% expo. There is no need for a high rate configuration to properly execute the Figure-M maneuver.

Also note that these recommended expo values should only serve as an example. They can be considered as a starting point, and you can increase or decrease the expo values and/or dual rate values to suit your style of flying. Any RC pilot can benefit greatly from using expo as it softens the aircraft's control/response feel around the center stick position. By doing so, it's easier for you to perform any given maneuver with the utmost precision.

Overview

Let's perform this maneuver with 3⁄4 rolls in the same direction (to the left) on all vertical segments. When performing any precision maneuver, flying smoothly is essential, and all your roll rates should be the same throughout this maneuver. As a side note, the Figure-M is a "centered maneuver" and the model should be inverted and 50% complete with a 1/2 outside loop right when the model approaches the pilot's center. Now, to make the maneuver a bit easier to understand, let's break the Figure-M into four basic steps.

By the Numbers

One

First establish a flight path that's parallel to the runway and add full power. Then, before the model comes to the aerobatic center (where you're standing), pull to a vertical up-line. Perform a brief line segment (about two seconds long) and perform a 3⁄4 roll to the left. Then, perform another line segment that's equal to the first line segment. Pull the throttle back and perform a stall turn by applying full-rudder deflection. Release rudder input after the model pivots 180 degrees to establish a vertical down-line.

Two

Now perform another line segment that is equal in length to the previous two and then perform a 3/4 roll to the left. After the roll, perform another line segment of equal length and perform a 1/2 outside loop while increasing power to establish a vertical up line. As I mentioned earlier, the model should be inverted and the maneuver 50% complete as the airplane is directly in front of you.

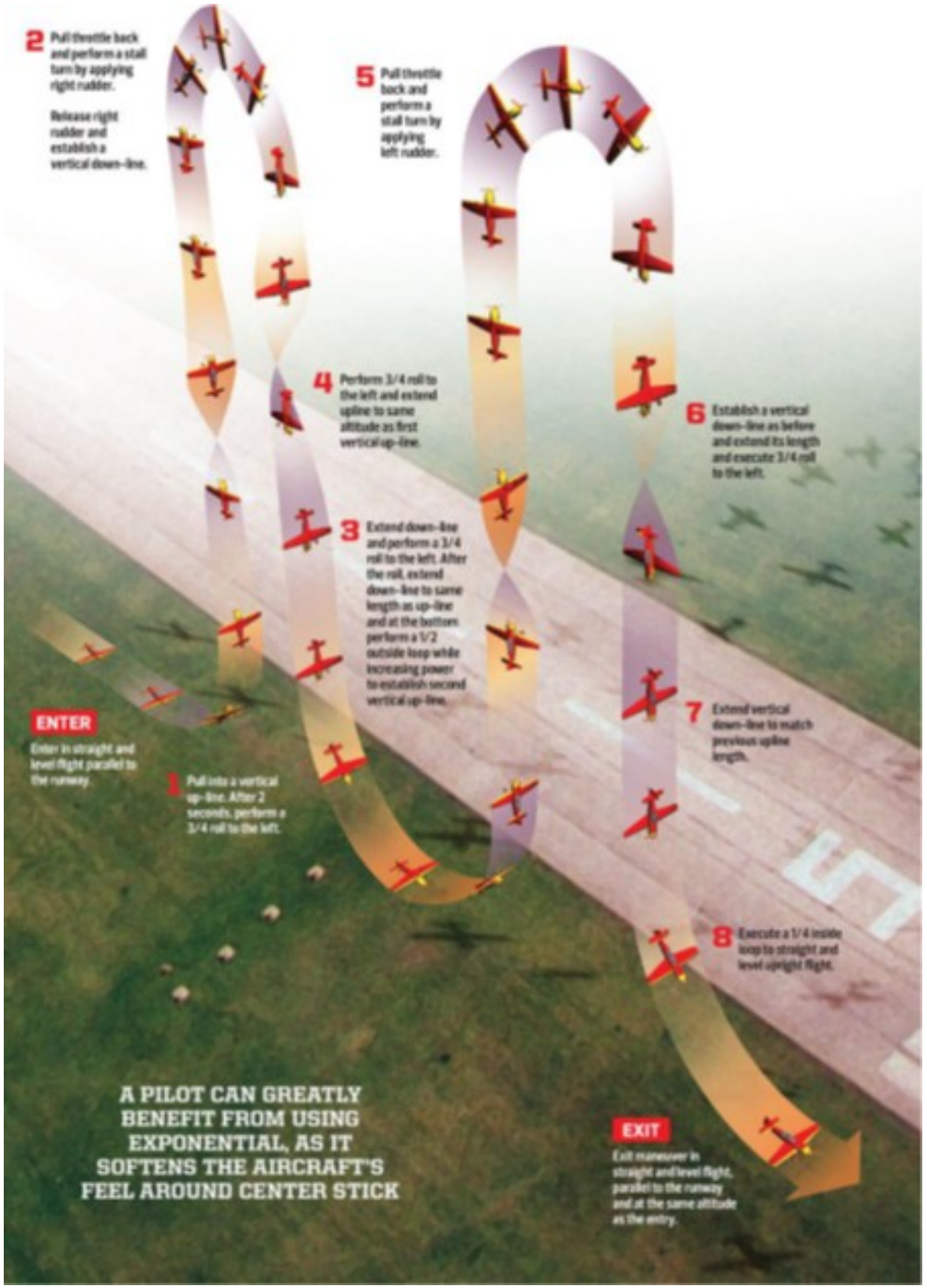
Three

After you have performed the 1/2 outside loop and the model is tracking on a vertical up line, execute another line segment of equal length. Then, perform another 3⁄4 roll to the left. After the roll, perform another line segment of equal length and gradually pull the throttle back to perform another stall turn. Just before the model stops traveling upward, apply full rudder deflection and let the model pivot 180 degrees to enter another vertical down line. Usually, the model will pivot more easily in one direction (mostly into the wind). Pivot the model so it will perform a stall turn and not just flop over the top. Note that in competition aerobatics, if the stall turns aren't executed properly throughout the maneuver and the model flops over the tops, a final score of a zero is given to the pilot!

Four

After the vertical down line has been established, perform another line segment of equal length, another 3/4 roll to the left, and the final line segment that is still equal in length to the previous line segments. Lastly, perform a 1/4 inside loop to a horizontal upright exit while increasing power so that the model remains at a constant flight speed.

When complete, make a 180-degree turn and give this maneuver another try! Remember, practice makes perfect, especially for complex maneuvers like this one. After you've learned the fundamentals of performing the Figure-M maneuver with 3/4 rolls, you can fine tune your timing and control inputs. Aside from knowing how to perform this impressive aerobatic move, be sure to also spend some time to properly set up your aircraft to minimize any unwanted control corrections. You want to perform this and any other aerobatic maneuver smoothly with a minimum of deviations. For example, if your airplane is a bit too sensitive while pushing on the 1/2 outside loop, try decreasing the elevator throw on that dual- or triple-rate setting and/or try adding a touch more exponential as needed. As time goes on, you'll learn that behind every great aerobatic pilot is a well-trimmed and properly set-up aircraft. Until next time, patience is a virtue. Fly safely and always remember to have fun!



Is the Blackbird waking up? By Scott Page



For 27 years, the last SR-71 ever to fly sat on a pole outside NASA's flight research center at Edwards. This year it quietly disappeared into a hangar, and NASA started calling retired Blackbird engineers back to work. Is the fastest crewed jet ever built about to fly again, or is this just a rumor from the field? **Open the attached article that was sent with the November e-mail, "The Blackbird Stirs," to find out what's really going on with tail 844**, why the Blackbird still deserves our support, and what it would take to build one of your own for a low pass that turns every head at the field.

