

PHOENIX MODEL AIRPLANE CLUB

HAVING FUN WITH MODEL AIRPLANES SINCE 1937

VOLUME 16 NUMBER 7

JULY 2011



NEXT MEETING

Tuesday Sept. 13th

07:00 PM

Granite Reef Senior Center

1700 N. Granite Reef Rd.

Scottsdale, AZ



NEXT CONTEST

“FALL KICK OFF”

Sunday

September 18th

WEBSTER FIELD

ELOY

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FLYING ACES

PREZ SPEAKS

By the time you read this, I will be enjoying the cool temperatures of Minnesota. All right, so it's very humid and the mosquitoes are huge and want your blood. But it's home sweet, swat home!

We lost another long time member on June 10th. George Tallent who lived in the small community of Picacho was a brilliant man who loved to make engines go fast. Some of you may not have had an opportunity to get to know George because in recent years his model airplane interest was principally old time RC. As such he was very well known in the SAM community. So much in fact that he was made a member of the SAM Hall of Fame in 2002. He developed a method of over-hauling the Ohlsson 60 engines and was the only person who had the capability of repairing the engine when the steel cylinder . aluminum crankcase seal failed. He lived in New Mexico many years ago. During that time he flew U-control speed with non-other than Bob White of F1B-Wakefield World Champion fame. It was during this time that he also helped the Unser family with their race cars. After moving to Picacho he became well known in Arizona race car circles building up engines for some of the top Sprint and Midget cars that raced at the Manzanita race track. George will be sorely missed by all of us.

I plan to have some surgery of both feet after returning from Minnesota. Since these will be done one foot at a time, it could be that I won't be clear of surgical boots until late fall. Chasing models in the Eloy dust will likely be impossible until then. I plan to have a little time between surgeries so I can make the early October SAM Champs.

See ya down wind!

Elmer Nelson

DAWN PATTROL

Here's your Dawn Patrol schedule for this summer. We can start anytime [sunrise ~ 5am] and go home when it begins to get hot. There's safety in numbers and it's not a good idea to go flying alone. PMAC DP is an informal scheduling of test sessions where you should expect to find others flying . or you can call/email folks to find out who is going. No attempt has been made to compare this schedule with out-of-town contest dates so you'd have to do your own checking. I should be there for at least half of the dates . hope to see you there, too! / AL

| 2011 Dawn Patrols at Eloy | | |
|---------------------------|----------|--------|
| Month | Saturday | Sunday |
| July | 9 | 24 |
| August | 6 | 21 |
| September | 3 | |

George Tallent, Jr

January 21, 1923 ~ June 10, 2011

George passed away at his home in Picacho. He succumbed to a fast moving brain tumor. George served in the Navy during WWII as a Sea Bee machinist. Most of his life he worked as a self employed mechanical engineer and lived the majority of his life in New Mexico and in Picacho, Arizona. Behind his home, he had a large machine shop that housed lathes, milling machine, drill presses, grinders, etc. He also had two or three kilns where he worked with lost wax casting of aluminum. Before each Southwest Regional old timer RC fliers would congregate there and test fly from a neighboring vacant lot.

George was the world's expert on Ohlsson & Rice model engines. Those engines were built with two spot welds that held the crankcase and cylinder together.

Over time, the gasket between the two pieces often fails disabling the engine.

There is no easy fix, but George figured out a way to disassemble the engine and replace the gasket. He usually took a light milling cut on the top of the crankcase to assure a good gasket fit. Reassembly required some special tools he designed and made. He could also balance the engine, replace bearings, relieve by-pass ports and generally soup up the motor. George has been quoted as saying this about engine modifications: "If you can't see it, it doesn't count."

While living in New Mexico, George became a close ally of the Unser racing family. George worked on their engines. Among the two brothers and one son, the Unsers rang up a total of nine wins at the Indianapolis 500 race! He also built up some very competitive Ford 60, V-8 engines for midgets. There were restrictions on engine displacement that were enforced by tearing down the winning car's engine after the race. On one racer George had set it up with a water tank over the top of one bank of cylinders. When it came to tear down the engine, the judges chose the easier to get to other side. That side measured stock bore. The cylinder bank under the water tank had been bored out as far as possible!

As tough a competitor as he was, he was also a gentle gracious person and well liked by all who met him. He also had a great sense of humor. Steve Riley can attest to this. At one contest, Steve and his wife Jeri were walking up to George when he asked: "What your wife, Steve?" Steve replied, "yes" George responds "Well that's not the one you brought last time!"

A reflection of how well known George was and how much many people felt about him is the fact that he was inducted into the SAM Hall of Fame in 2002.

We will all miss him. May you always have clear skies and tail winds, George!

Elmer Nelson

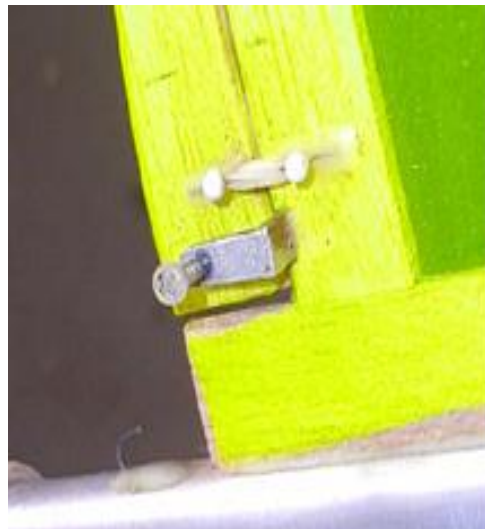
Yaw Control

Dick Nelson

Yaw control is accomplished with two adjustments, rudder tab and engine side thrust. Each acts in its own unique way independent of the other. Thrust line adjustments act immediately after launch and then appear to fade as the aerodynamic forces increase with increased airspeed. The yaw force due to side thrust is constant till the engine shuts down; however it soon becomes masked by the stronger aerodynamic forces as airspeed increases. Rudder tab adjustments are not yet active at launch and will gradually ramp up the yaw force as airspeed increases. These two adjustments can fight each other and cause gnashing of teeth and bad words or they can compliment each other for much joy and celebration. Build a teachable model and show it the finer points at first and it will respond with love and devotion.

Unless there is some obvious deviation from symmetry on the plans, side thrust is best set at zero at first. Many times the designer will specify side thrust because that's where the model ended up flying the best, as he taught it. Or he may be trying to correct for torque. We will never know just what he had to do to teach it to fly with that offset. It might fly better without the offset, but he might not have ever tried it that way. The reason for no offset is that with side thrust the slight immediate yaw after launch (hard to see) followed by a sideslip followed by a correction with the rudder tab is complicated, unnecessary and hard to observe. It also costs a bit of power that is better used to gain altitude. There is one situation where an offset might be favorable and that is discussed later.

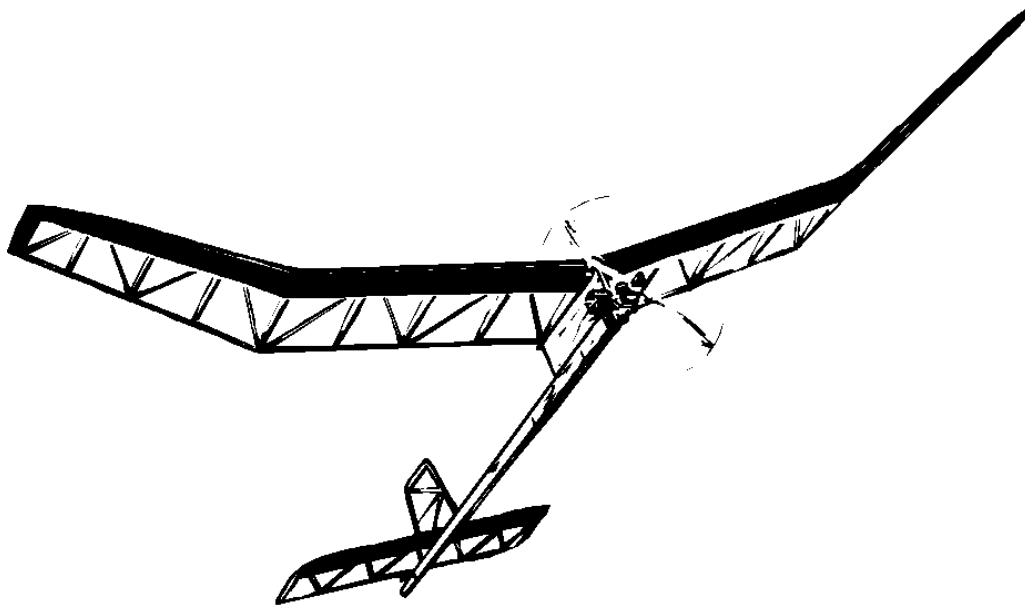
Some flyers have the ability to make fine yaw adjustments to a rudder tab with shims or other means, but it is fraught with danger. Tabs in this location are very powerful because of the distance to the horsepower end of the model. Shown below is a method whereby a 2-56 nylon screw is used for infinitely fine temporary adjustments. Dental bands between bent straight pins are used to hold the tab setting which becomes permanent after a grooving climb is obtained. The screw holder is a tiny slice of extruded aluminum and the hinge (CA'd in place) is found in the local hobby shop.



A successful transition from climb to glide is dependent on several things. The airspeed attained versus the attitude of the model at engine shutdown is the most important determining factor. Complicating this is how the model reacts to the sudden cessation of thrust, prop wash, torque and the thrust line offset. If, for example, a tiny amount of left thrust is built-in, the model will yaw slightly to the right and roll slightly in a clockwise direction at engine shutdown. (Newton's third law) These small forces are hard to discern at the top of the climb pattern but they can help the transition if gliding to the right and they will fight a neat transition to a left glide. A perfect transition is when the correct attitude is obtained early in the climb and the momentum carries the model into a no-stall glide with exactly the airspeed necessary for the built-in CG location and decalage. Yaw control ends there. Powerful engines and fast climbing speeds (strong, tough construction) enhance the transition because of all the momentum. The correct (best) yaw adjustments generally require lots of flights; they are hardly ever simple or easy.

Shims are also often used for adjustments to the horizontal stab, but that surface is subject to gross changes with shims when very fine tweaking is often necessary. A nylon screw can be used in place of shims to provide infinitely small decalage adjustments. Balsa hardened with thin CA can be tapped 8-32 or 10-32 or even 1/4- 20 to eliminate shims. A small piece of 1/32 plywood on top of the balsa provides a wonderful screw base. The sequence is: drill, tap, harden, and then tap again for cleanup.

Dick Nelson





Elmer Nelson presenting trophies to Gene Wicks and Bob Hanford.
Gene and Bob are two of the best power model flyers around.



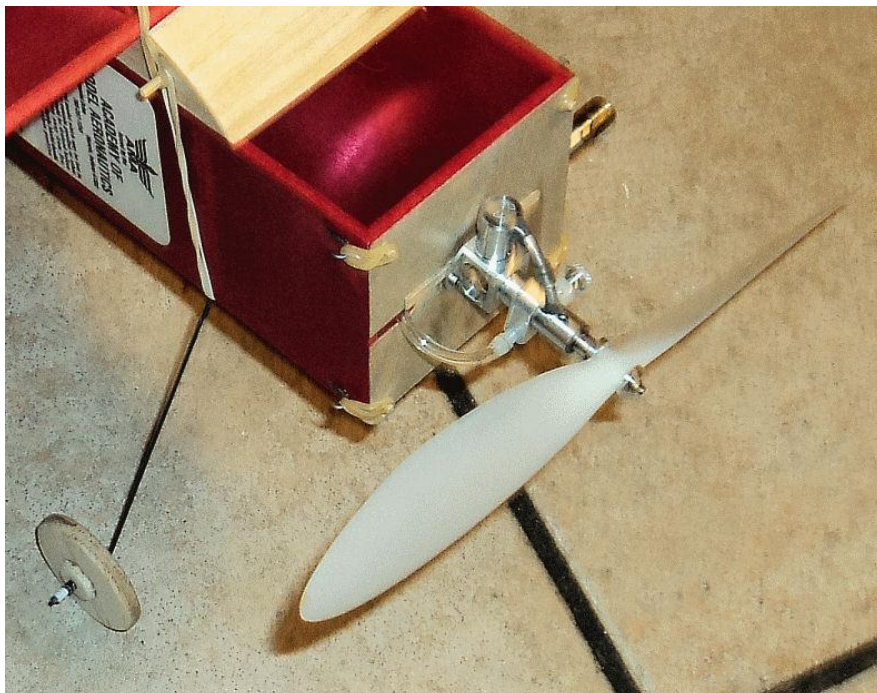
Tom Miller receiving a trophy from Elmer. Who has the biggest smile ?



Enes Pecenkovic receiving an award from Elmer, our club Prez.



Al Lidberg's latest compressed air model with the shop foreman+getting into the picture..

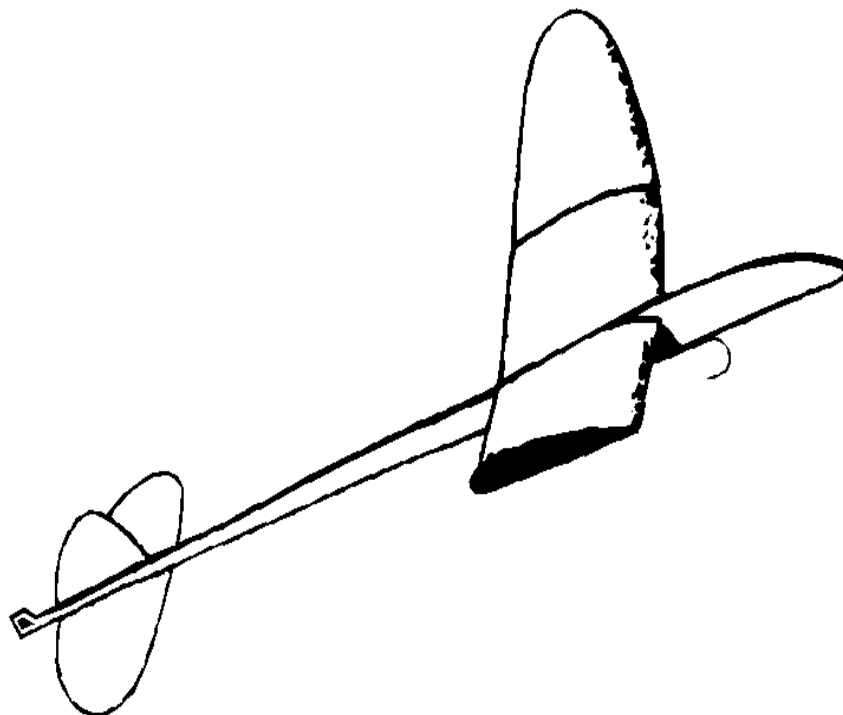


Cheap launcher for Catapult Gliders

By Homer Smith

*Reprinted here from the FAC Eagle Squadron Flight Log —
September/October 2005*

If you are planning to fly catapult launch glider and don't have a launching stick, the following might help. Get a foam brush from a store that sells paint, etc. Tear off the foam and what you have is a $3/8$ " or $1/2$ " dowel about 6" long with a slot cut into the top. Drill a hole through the top at 90 degrees to the slot and near the end of the dowel. Use a 10-32 or larger screw through the hole and it helps to have a wing nut with washer to hold the slot shut. The rule says the rubber must be no longer than a 9" loop of $1/4$ " rubber. Very few people have arms long enough to use that much rubber but start with enough rubber to make a 10" loop and tie a knot in the end. Put the knot one side of the stick with the loop on the other. You now have an adjustable launching stick! Keep shortening the loop and retieing the knot till you get maximum extension of the rubber when your model is stretched as far back as you can get it. Most of the launch speed is obtained from the last couple of inches of stretch.



GETTING THE MAX OUT OF YOUR CAT GLIDER LAUNCH HANDLE

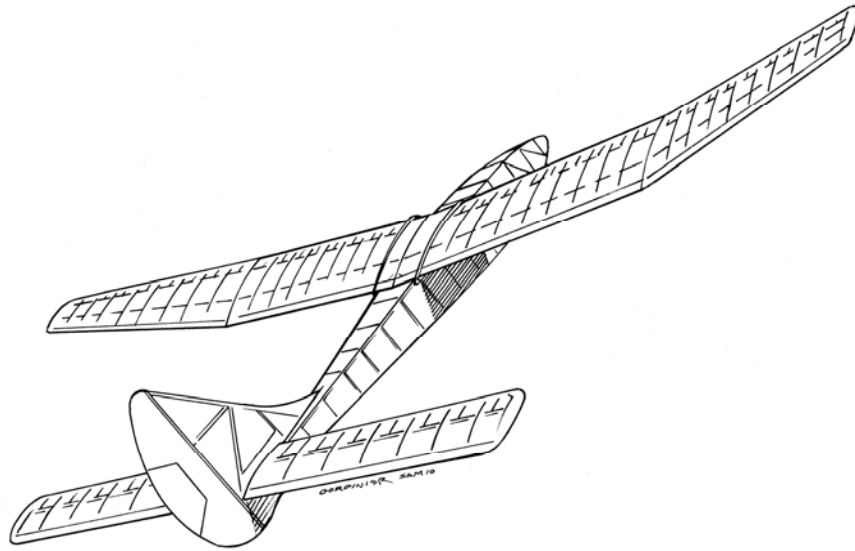
By Bob Thoren

Behold my latest invention!! It's a Catapult Glider launch handle on steroids. It meets the 6-inch maximum allowed length and is legal for competition. I've enclosed 6 inches of the loop inside the handle so I can increase the stretch to near max using Tan II and easily to max with FAI or Champion black rubber. Max stretch means more launch altitude. Without this aid I can only get 75% of max stretch and probably less than 50% of max energy since most of the energy is in the last 25% of the pull.

I made the launch handle out of a piece of flared 3/4 inch schedule 40 PVC pipe. Three-quarter inch schedule 40 tubing is really a bit over 1 inch OD (1.052) with .125+ thick walls. Home Depot carries it in 10' lengths with one end flared. For \$3, I can cut off the flared end and either use the rest of the tube for blast tubes or toss it out - it is that cheap. The rubber is anchored at the bottom by a #6-32 bolt with brass tubing over it to protect the rubber. The loop passes over a bobbin at the top which acts like a pulley for smooth elongation of the loop. The bobbin is a standard rubber model bobbin I bought years ago but never used.



| Pounds per cubic foot | | | | | | | | | | | | | | | | | |
|-----------------------|---------|------------|--------|--------|--------|--------|-------|--------|-------|--------|-------|---------|-------|---------|-------|---------|-------|
| thickness | | sheet size | 2 lb | | 4 lb | | 6 lb | | 8 lb | | 10 lb | | 12 lb | | 14 lb | | |
| fraction | decimal | | grams | ounces | grams | ounces | grams | ounces | grams | ounces | grams | ounces | grams | ounces | grams | ounces | |
| 1/32 | 0.0313 | 2x24 | 0.788 | 0.028 | 1.575 | 0.056 | 0.083 | 2.363 | 0.083 | 3.150 | 0.111 | 3.938 | 0.139 | 4.725 | 0.167 | 5.513 | 0.194 |
| | | 3x36 | 1.772 | 0.063 | 3.544 | 0.125 | 0.188 | 5.316 | 0.250 | 7.088 | 0.250 | 8.859 | 0.313 | 10.631 | 0.375 | 12.403 | 0.438 |
| 1/20 | 0.0500 | 2x24 | 1.260 | 0.044 | 2.520 | 0.089 | 0.133 | 3.780 | 0.178 | 5.040 | 0.178 | 6.300 | 0.222 | 7.560 | 0.267 | 8.820 | 0.311 |
| | | 3x36 | 2.835 | 0.100 | 5.670 | 0.200 | 0.300 | 8.505 | 0.400 | 11.340 | 0.400 | 14.175 | 0.500 | 17.010 | 0.600 | 19.845 | 0.700 |
| 1/16 | 0.0625 | 2x24 | 1.575 | 0.056 | 3.150 | 0.111 | 0.167 | 4.725 | 0.222 | 6.300 | 0.222 | 7.875 | 0.278 | 9.450 | 0.333 | 11.025 | 0.389 |
| | | 3x36 | 3.544 | 0.125 | 7.088 | 0.250 | 0.375 | 10.631 | 0.500 | 14.175 | 0.500 | 17.719 | 0.625 | 21.263 | 0.750 | 24.806 | 0.875 |
| 3/32 | 0.0938 | 2x24 | 2.363 | 0.083 | 4.725 | 0.167 | 0.250 | 7.088 | 0.333 | 9.450 | 0.333 | 11.813 | 0.417 | 14.175 | 0.500 | 16.538 | 0.583 |
| | | 3x36 | 5.316 | 0.188 | 10.631 | 0.375 | 0.563 | 15.947 | 0.750 | 21.263 | 0.750 | 26.578 | 0.938 | 31.894 | 1.125 | 37.209 | 1.313 |
| 1/8 | 0.1250 | 3x36 | 7.088 | 0.250 | 14.175 | 0.500 | 0.750 | 21.263 | 1.000 | 28.350 | 1.000 | 35.438 | 1.250 | 42.525 | 1.500 | 49.613 | 1.750 |
| 5/32 | 0.1563 | 3x36 | 8.859 | 0.313 | 17.719 | 0.625 | 0.938 | 26.578 | 1.250 | 35.438 | 1.250 | 44.297 | 1.563 | 53.156 | 1.875 | 62.016 | 2.188 |
| 3/16 | 0.1875 | 3x36 | 10.631 | 0.375 | 21.263 | 0.750 | 1.125 | 31.894 | 1.500 | 42.525 | 1.500 | 53.156 | 1.875 | 63.788 | 2.250 | 74.419 | 2.625 |
| 7/32 | 0.2188 | 3x36 | 12.403 | 0.438 | 24.806 | 0.875 | 1.313 | 37.209 | 1.750 | 49.613 | 1.750 | 62.016 | 2.188 | 74.419 | 2.625 | 86.822 | 3.063 |
| 1/4 | 0.2500 | 3x36 | 14.175 | 0.500 | 28.350 | 1.000 | 1.500 | 42.525 | 2.000 | 56.700 | 2.000 | 70.875 | 2.500 | 85.050 | 3.000 | 99.225 | 3.500 |
| 5/16 | 0.3125 | 3x36 | 17.719 | 0.625 | 35.438 | 1.250 | 1.875 | 53.156 | 2.500 | 70.875 | 2.500 | 88.594 | 3.125 | 106.313 | 3.750 | 124.031 | 4.375 |
| 3/8 | 0.3750 | 3x36 | 21.263 | 0.750 | 42.525 | 1.500 | 2.250 | 63.788 | 3.000 | 85.050 | 3.000 | 106.313 | 3.750 | 127.575 | 4.500 | 148.838 | 5.250 |
| 7/16 | 0.4375 | 3x36 | 24.806 | 0.875 | 49.613 | 1.750 | 2.625 | 74.419 | 3.500 | 99.225 | 3.500 | 124.031 | 4.375 | 148.838 | 5.250 | 173.644 | 6.125 |



NEXT MEETING

Tuesday Sept. 13th

7:00 P.M.

Granite Reef Senior Center

1700 N. Granit Reef Rd.

Scottsdale, AZ

NEXT CONTEST

"FALL KICK OFF"

Sunday

September 18th

WEBSTER FIELD

ELOY

Phoenix
MODEL AIRPLANE CLUB

Steve Riley

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