

EL TORBELLINO

NEWSLETTER OF SAN DIEGO ORBITEERS FREE FLIGHT CLUB

AUGUST 2020



Prez's Corner – Mark Chomyn

We are well into our second month of the hot summer hiatus. September will soon be here and so will our September 20 outdoor contest kicking off the second half of our flying season. The contest will feature P-30, Power and Glider events. So, get those entries dusted off. Put a fresh rubber motor in your P-30, prepare a fresh launching stick for your catapult glider, do some arm exercise to warm up for hand launch or tip launch glider and check the batteries in your E-36 or the glow plug and starting equipment for your gassie. It's been a rough year for us free-fighters. The latest cancellation victim was the July 27 -31 AMA outdoor nationals. Let's hope the second half of 2020 offers us more opportunities to fly. As Bob Dylan said "the times are a changin". And, I think that may also apply to the AMA itself. Why? As I noted in previous Prez Corner rants, there were three articles by Bob Benjamin on the construction of a Keil Kraft Ajax rubber power free flight. As a cynic I thought, good luck seeing another free flight feature for a year or more. Guess what? The August edition of Model Aviation arrives and OMG another rubber power free flight feature article! This can't be happening. But there it was. A five-page article by Pat Tittle on the building, TRIMMING and FLYING of the WHYNOTT, a 28-inch span sport rubber model. I capitalize the trimming and flying in the previous sentence because that was my gripe with the Benjamin article on the Ajax. In Mr. Tittle's article he does spend the time to talk about finding the CG, test gliding and adding ballast as needed, using a drag tab to improve the glide circle and what size motor he used and how many turns for each test flight. That's much-needed info for the beginner and even for a more skilled flyer. I really like the WHYNOTT. It looks like an easier build for the beginner than the Ajax. Sorta has the look



of a Carl Goldberg Ranger 28. Would make a great one-design contest subject. But the WHYNOTT article was not the end of the surprise. I turned a few more pages and hit the Focal Point section of MA. Quickly scanned the photos submitted by builders and thought, "Same old thing all R/C stuff". Then I took a closer look at the Comet Curtis Robin photo. No mention of an engine or radio equipment. Still I thought could be an electric R/C. So, I got the CVS cheap cheater specs on and took a better look. Sure looks like a Peck grey prop up front and that white thing on the nose sure looks like a Peck nose bearing. Still I wasn't thoroughly convinced so I look toward the tail and there it was.... an aluminum tube rubber motor peg. Wow, this good-looking plane is a rubber power free flight! Maybe I'm not the most observant person, but I swear I don't recall seeing a rubber power free flight plane in the Focal Point section before. All I can say to AMA is keep up the good work. As like many of you I've spent a good deal of my social distancing time putting together some new planes. I finally finished covering my Comet Hellcat. All that remains now are the details. Finding paint for the nose block to match the tissue color, inking some control hinge lines, canopy, insignias, and setting up the front end

(thrust button with down and right thrust, propeller shaft, washers and Peck silver 8 or 9-inch prop). Should be ready for fall and I hope a Scale Staffel two-day event.

That's it for now.
Mark

When I was a kid in the early thirties there were more damn model clubs to join than you could count on both feet!

Eddie Faria, Turlock CA
(From "Do You Speak Model Airplane",
By David Thornburg 1992)

ORBITEERS MEMBERSHIP DUES

Annual Membership - \$20
Lifetime Membership - \$250
Non-Member Newsletter Subscription - \$15
Junior Members 16 years old or younger - Free

Submit Dues to Club Treasurer:

Howard Haupt
3860 Ecochee Avenue
San Diego, CA 92117-4622

THE FINE PRINT THE FINE PRINT

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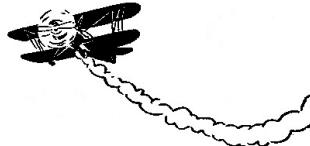
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THREE NITE P-30

By Mike Jester



Universally questioned by other fliers practically from the time of its conception, I nevertheless designed and built a P-30 with a flat wing, i.e. a wing with tip plates instead of conventional angular dihedral. Based on my research, nobody has ever published or kitted a design for a flat wing P-30. My research included a review of the exhaustive "*P30 Survey 2010*" published by Free Flight Quarterly. As the project evolved, I decided to design a "beginner's" P-30 with a flat wing. I wanted a substitute for the ONE NITE 28 and *Square Eagle* P-30 designs that would be easier and quicker to build. The former has been renamed the *Almost 30* by Wind-it-Up Enterprises, the successor to Peck-Polymers, but its website usually says that the kit is OUT OF STOCK. The *Square Eagle* kit has not been commercially available for some time. I seriously doubt that anyone ever built the ONE NITE 28 in only one evening. Because of this, and in view of the fact Wind-it-Up abandoned its ONE NITE 28 trademark, I named my beginner's model the THREE NITE P-30. Shortly before I completed the build of my new P-30 (pictured below), Volare Products announced that it would begin selling a laser-cut kit for the *Square Eagle* P-30. If I had known this in advance, I may have decided not to design and build a beginner's P-30 model. Nevertheless, here is the rest of the story.



THREE NITE P-30 by Mike Jester

A free flight model airplane needs some form of dihedral in the wing in order to maintain roll stability. Dihedral prevents a free flight model from spiraling into the ground when upset by turbulence. Tip plates on the ends of the wing effectively provide dihedral and can also reduce drag by minimizing wing tip vortices. Early in my efforts one flier questioned whether tip plates would work on an outdoor model since its wing has a higher Reynolds numbers than the wing of an indoor duration model such as a Penny Plane. The *Big Cat Embryo* that is sold in kit form by Volare Products has vertical tip plates and is an excellent outdoor flier. My *Flat Iron Embryo*, which is my own design, also has a flat wing with vertical tip plates and is a very stable outdoor flier. So, I had little doubt that my flat wing P-30 would at least have marginal roll stability.

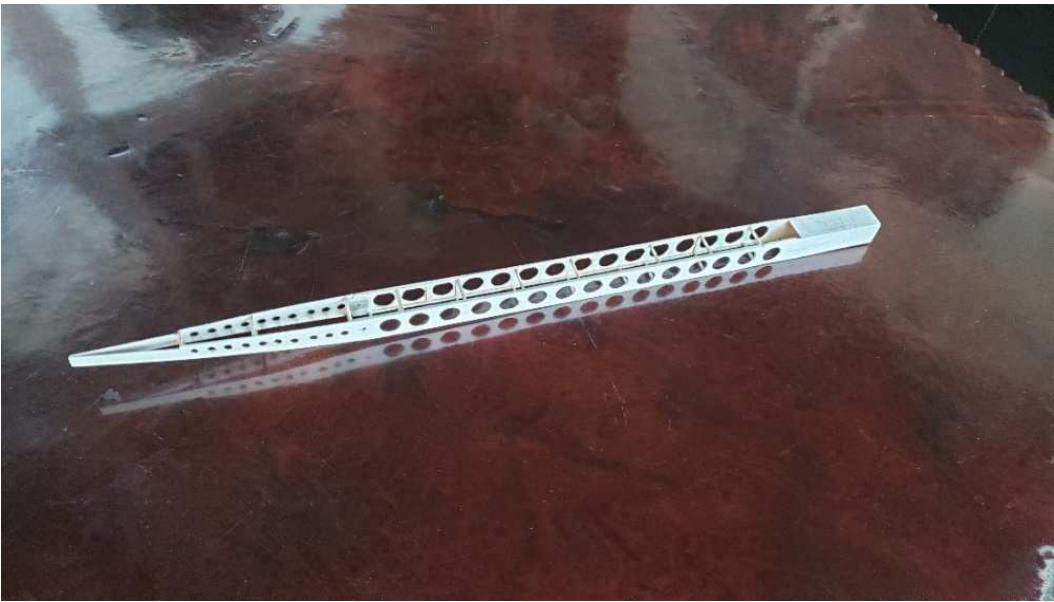
Many novice model builders have difficulty accurately and securely joining angled wing sections. Therefore, my idea was to have them build a flat wing, i.e. one that is all one horizontal section. The wing tip plates are cut from 1/16-inch sheet balsa wood and are simply glued to the outermost ribs of the single flat wing section. The flat wing of my beginner's P-30 measures 29 7/8-inches by 4 1/8-inches which gives it 123 square inches of wing area. This is right in the sweet spot recommended by John Oldenkamp in an article included in the survey mentioned above. John was a long-time member of the San Diego Orbiteers and one of the originators of the P-30 event. The wing ribs have a Neelmeyer airfoil with a flat bottom. A thinner wing with under camber would provide better performance, but would be much more difficult for a novice to build and cover.

Many novices also have difficulty accurately and securely mounting a single vertical fin to the aft end of a fuselage, or to the center of a stab. The vertical fins of the stab of my beginner's P-30 can be easily and quickly glued to its outermost ribs. The stab of my beginner's P-30 measures 12 ¾-inches by 3-inches and also uses ribs with the flat bottom Neelmeyer airfoil. The vertical fins are each made of 1/16-inch sheet balsa wood and have a combined area more than double that of a typical single P-30 vertical fin. Therefore, I thought that the twin fins of my beginner's P-30 would provide adequate yaw stability.



Uncovered wing and stab of THREE NITE P-30

I constructed the fuselage of my beginner's P-30 with two slab sides made of 1/16-inch sheet balsa wood. The fuselage measures 28-inches long x 1 1/8 -inch wide x 1-inch tall. It easily accepts a blast tube of sufficient internal diameter to accommodate a standard 6 x 1/8-inch P-30 rubber motor when full of knots. The motor peg holes are located to achieve a 19-inch hook-to-peg distance. That's the length of a conventional 6 x 1/8-inch 9.8-gram P-30 rubber motor. The slab sides are joined with 3/32-inch square balsa wood cross-pieces. If my beginner's P-30 is ever kitted the slab sides with all the holes and notches for the cross-pieces will be laser-cut. I cut out the ¾-inch diameter holes by hand using a sharpened segment of Aluminum tube. The small holes in the tail section were cut with a Dremel tool equipped with a ¼-inch Forstner drill bit. The 3 ½-inch long nose section is fully sheeted without holes in the sheeting. This is because the modeler will need to handle this portion of the fuselage while inserting the nose block. In the nose region the upper edges of the slab sides and the rectangular top and bottom pieces can have laser-cut interlocking tabs and notches to facilitate quick and accurate assembly.



Slab Sided Fuselage of THREE NITE P-30

A novice should easily be able to assemble the fuselage of my beginner's P-30 in less than one hour using laser-cut slab sides, laser cut top and bottom nose pieces, and pre-cut cross- pieces. The laminated nose block and 9 ½-inch plastic prop extend approximately 1-inch forward from the front end of the fuselage. If a Gizmo Geezer prop assembly with a spinner is used, having two inches of available length beyond the forward end of the fuselage will ensure that the airplane does not exceed the 30-inch limit in the P-30 rules.

Several very seasoned fliers warned me to include a DT in my beginner's P-30. I did include a typical DT with a viscous timer on my beginner's model so that I would not lose it right away and could determine if it could be trimmed for stable flight. However, I recall John Hutchison advising a novice to skip installing a DT on the ONE NITE 28. I have to agree with John because in my own experience as a beginner, properly installing and then adjusting a viscous timer DT without a mentor is a mystifying challenge, to say the least. The instructions for building my beginner's P-30 will therefore tell the builder to glue the stab to the inclined recessed upper edges of the rear end of the fuselage. This will avoid the complexities of keying a pivoting stab with twin fins to ensure that the fins are always at the same angle. The trailing edge of each of the fins can have a horizontal laser-cut slit near the top so that they can be bent to yield a tiny amount of right rudder, if needed. Any necessary adjustments to the decalage of my assembled beginner's P-30 can be accomplished by adding or removing shims between the leading edge of the wing and the wing saddle. The wing can first be moved fore and aft with the rubber motor installed and the wing saddle later glued in place to permanently locate the CG at 60%.

The wing, stab and fuselage of my beginner's P-30 are all covered with Esaki tissue. Domestic tissue, or preferably the slightly better Mount Fuji tissue from Easy Built Models can be used in place of discontinued Esaki tissue.

Test flights of my beginner's P-30 model at my small local park have so far been promising. No pitch, roll or yaw instability issues were detected during low power flights that took place in a light breeze. The weight of my completed beginner's P-30 (less rubber) as shown in the first picture is 45.5 grams. This weight includes 2-3 grams for the viscous timer DT. Careful wood selection would make a finished weight closer to the 40-gram minimum under the P-30 rules, but this is not necessary to achieve decent performance. By way of example, lighter 1/16-inch or even 1/20-inch sheet balsa wood could be used for the tip plates on the ends of the wing and the twin fins on the ends of the stab. This change alone would probably save a couple of grams. I dare not exceed 300 turns and 2 inch-ounces of launch torque with my THREE NITE P-30 at my local park or else I will risk losing the model. I plan to gradually increase to 1,000+ turns and a launch torque of 5+ inch-ounces, on a much larger flying field. If high power flights prove that my design is viable, I hope a laser-cut kit manufacturer will commercialize it. I expect that such a company would make

improvements to my design. For example, to facilitate shipping the kit the fuselage slab sides could each be laser-cut in two pieces on 14-inch long balsa wood sheets, and joined end-to-end by the builder. The cross-pieces that join the slab sides could be laser-cut and include gussets at each end for strength. A length of DT fuse and an Aluminum snuffer tube could be included in the kit for those flying in areas that are not prone to wildfires.

I do not expect my THREE NITE P-30 to be competitive with pre-built P-30 models from the Ukraine like Burdov's *Pirate* P-30 and other proven top P-30 models flown by experts. But it should be easy to build from a laser-cut kit in less than eight hours and will hopefully get a novice hooked on our hobby. If you are an experienced builder and you looking for a kit to build a highly competitive P-30 then I recommend the *Boomer MKIII* kit sold by CB Model Designs. Starlink Flitetech might still have a few of Stan Buddenbohm's excellent *Air Shark* P-30 kits available. That design is a proven winner since its introduction decades ago. If you are looking to scratch build a highly competitive P-30, then I recommend Don DeLoach's *Polecat MK X*. Another good choice for scratch building is Don Bartick's *Hightail* P-30 which has won many contests. The plan for Don's great looking P-30 model is available from the National Free Flight Society (NFFS). The *Hightail* P-30 is on my personal build list.

In closing, I should mention that my beginner's P-30 model was cobbled together without ever drawing up a plan. Obviously, no plan will be needed if my THREE NITE P-30 turns out to be a one-off build.



From the Workshop – John Merrill

The last few months I told myself I wouldn't start a new model until I finished up some of the several that have been in the works for awhile. I lied. Although I have finished a few, four actually, I still have 3 or 4 more to go.

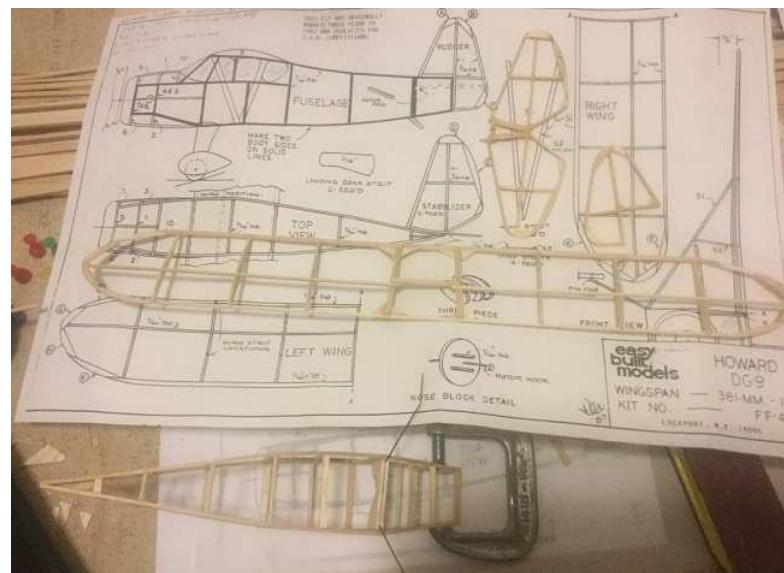
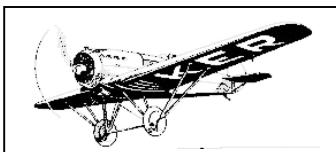
Unfortunately, at some point last week, temptation got the better of me. I've had this little Dime scale kit sitting around for a while now. In fact, I think I got it at an Orbiters' banquet. The kit, pictured with most of the bones completed, is a 1937 Howard DGA-9 from Easy-Built Models.

There were only 7 of this particular version built, with 2 of them going to the military (USAAF) and became a UC-70D in 1942. As per usual, I've had as much fun researching and learning about the plane as I've had building it.

I'm sorry I didn't get it finished in time for the newsletter, but hopefully for next month's edition.

So, what's on your building board?

Stay safe and stay healthy!
John



From the Workshop – Don Bartick

Today, August 07, I finished the Supermarine Spitfire XIVc. It was a challenging build, especially the camouflaged covering. Scanned the drawings in PDF and used them as an underlay in AutoCAD. Was able to trace the camouflaged pattern from the drawings. Also traced the outlines for ailerons, flaps and wheels. Did some tricks to get the covering to transition from the wings to the fuselage. Once I had the patterns in CAD, I filled the sections with color to match the ARF colors defined on the drawings. Used the CAD file to print white tissue for the covering. Once done, I hung all the appendages on and gave the plane 2 coats of nitrate dope thinned 50%. The finished weight was 50.6 grams. I'm now in the process of balancing the plane to the specs provided. The spinner is large enough for me to add the weight around the propeller, hence giving me the best opportunity to add the minimum amount of weight. Regardless, it's going to take at least 8-10 grams. Once balanced, I'll start the trim process. Hope to have it ready for the next FAC WWII mass launch.

Don Bartick



JULY 2020 Fun Fly - Perris CA - Photos by Arline Bartick



Tim Batiuk



Bernie Crowe



Robb Cobb



Randy Secor



Clint Brooks



Jim Parker



Continued Next Page 



Donut Break



Mike Mayea

Orbiteers
DRONE CHAMPS



Don Bartick



Ron Thomas



Phil Ronney



Eric Strengel



Ray Peel

54th Rocky Mountain Free Flight Championships

September 5–7, 2020

Cat. III, Class AAA, National Cup *Exempt*

- FAI America's Cup: *Dynasty Cup* • FAC Mountain States Scramble

Located about 20 miles ESE of downtown Denver. Drive six miles east of E-470 on Quincy Ave. Continue one mile east of "T" intersection at Watkins Road, look for MMM entry gate on right (south) side. Call or e-mail for gate combo.

Friday, 9/4 3 - 5 p.m.

Late registration and FAC Scale judging at the flying site.

Saturday, 9/5 8 a.m. - 5 p.m.

Dynasty Cup: FIA, B, C | P, Q
Vintage FAI Power
AMA Mulvihill | Moffett combo
AMA A | B Electric combo
AMA A | B Gas combo
NFFS Classic Towline
Nos. 1/2A | Early 1/2A | 1/4A Gas
FAC WWI Combat (10 a.m.)
FACGreve | Thompson, NAR ML, (12pm)
5x5 HLG (2 p.m.)
FAC No-Blue-Max Horde (4 p.m.)
FAC Golden Age | Modern Civil combo
FAC Dime Scale
FAC Embryo
FAC OT Stick

Sunday, 9/6 8 a.m. - 5 p.m.

Gollywocks Galore: 7:30 a.m. launch
Dynasty Cup: FIG, H, J, S
AMA C | D Gas combo
AMA CD Classic Gas
AMA HLG
Nos. B | C Gas combo
SAM OTHLG | OT CLG
Sm. Nos. | Andrade | SAM Sm. OT comb.
FACLW. Trainer M.L. (10 a.m.)
FAC WWII M.L. (12 p.m.)
FAC Modern Military M.L. (2 p.m.)
FAC 2-Bit + 1 | Jimmie Allen combo
FAC OT Fuselage
HLG Mass Launch (5:30 p.m.)
FAC Jet Catapult Scale

Monday 9/7 8 a.m. - 3 p.m.

Dawn Power: 7:30 a.m. launch
AMA AB Classic Gas
AMA 1/2A | 1/2A Classic combo
A Nostalgia Gas
AMA E-36
AMA Catapult Glider
SAM .020 Replica | ABC combo
E-Nos. 1/2A | ABC combo
MMM Slow Open Power
AMA P-30
SAM Large O.T. | Nos. Large Rubber
combo



The following events may be flown any/all of the three days (need not finish on day started): FAC Peanut Scale, FAC Rubber Scale, Junior P-30, Junior E-36, Junior HLG, Junior CLG.

Contest Directors: Don DeLoach, 719-964-7117, <ddeloch@comcast.net>; Chuck Etherington, 720-201-6218, <etherington.freestyle@outlook.com>. Visit <www.themmmclub.com>.



The Fine Print:

- COVID-19 precautions in effect; attendees will be briefed on site.
- On-site tent/RV camping allowed, no water or hookups, \$25 flat fee for any number of nights.
- All events will follow current AMA, NFFS, FAC, FAI, and SAM rules unless otherwise noted.
- In combined events contestants may fly any/all events within the groupings for National Cup points and/or to better an existing score for RMFFC award purposes. For example, in C/D Gas Combo, you may fly separate flight strings with both C and D models. Only your best score of the two will count for RMFFC awards purposes; both scores count for National Cup points.
- MMM SLOP: 20K ground RPM limit up to .10, .10 and over limited to 18K. Category II Nostalgia engine runs and maxes.





- At CD's discretion HLG and CLG (AMA and OT) may be flown from a launch pen.
- Old Timer HLG/CLG: same flyoff rules as AMA CLG/HLG (120s max, one chance to max, keep maxing until you drop).
- FAI events: 60 minute rounds starting at 8:00 a.m., weather permitting. Seven rounds of F1A-B-C/P Saturday; 5 rounds of F1G-H-J-S Sunday. Flyoffs (if needed): 5:10-5:20 p.m. or the following morning.
- FAC *No-Blue-Max* Flying Horde open to any FAC model, scale or duration, non Blue Max holders only. Single round, winner gets a Kanone.
- Gollywocks Galore: Meet at 7:15. Launch window: 7:30-7:40 a.m. Must wind and launch inside the 10-minute window, no max, timed to the ground. Eligible models: Gollywock, Vargowock, Jabberwock, Dynamoe. All SAM rules apply.
- Dawn Power: 7:30-7:40 a.m. launch window. All power models fly together including FAI, Nos, AMA, SLOP, Electric. One attempt allowed for one flight with no max. Engine run will be 15 seconds unless weather dictates shortening.
- **Dave Wineland's Gas Attack!** \$100 cash to the longest string of maxes in any regular RMFFC gas event including AMA, Nos, SAM, FAI, MMM SLOP. Must follow rulebook engine runs/maxes including flyoffs. Automatic, free entry. Thanks Dave!
- "5x5 HLG" special event flown on Saturday 9/5. AMA HLGs flown in five 5-minute rounds with 90-second maxes; 10-minute chase period between rounds. 5 minute rounds starting at 2:00 p.m. Part of the "Ruckus in the Rockies" \$300 Challenge.
- Plaque awards through third place in all events.
- The following RMFFC perpetual trophies will be awarded: F1A, F1B, Gollywock, Mulvihill, Rubber Scale, Collins Glider Hi-Point, Gibbons Rubber Hi-Point, McGhee Power Hi-Point (includes electric events), and the 1961 RMFFC Grand Champion Trophy.
- Grand Champion scoring: Choose up to 5 events: 1 Rubber, 1 Power, 1 Glider, 2 of any. 5, 4, 3, 2, 1 points for 1st, 2nd, 3rd, 4th, 5th place. If only 4 flyers 4 points for 1st, etc. If 3 or fewer flyers, 3 points for 1st, 2 for 2nd, 1 for 3rd. Tiebreaker: Total points accrued in flyers' other events apart from the five chosen events.
- CD reserves the right to reduce maxes/engine runs to suit weather/retrieval conditions.
- Raffle during awards ceremony Monday, appx 4 p.m. **PLEASE DONATE ITEMS**. 100% of ticket sales benefit MMM and our great flying site.
- Glider Champion, Rubber Champion, Power Champion scoring: 5, 3, 1 points for 1st, 2nd, 3rd, per the NFFS scoring matrix. All glider/rubber/power events count including scale (excluding mass launches). No maximum number of events to be counted. Tiebreaker: total number of maxes achieved. "Power" includes electric events.
- Junior/Senior Championship award: for highest scoring Junior/Senior per the RMFFC Grand Champion scoring (above). \$50 cash award
- **RMFFC Sweepstakes award - \$100 cash to the flyer with the most championship points in all events – no maximum number of events and all events count. Fly all you can for the big pot!**
- Accomodations: 1. Super 8, Parker, Colo., 720-851-2644, ~\$90, 20 min. from field. 2. Hampton Inn, Parker, Colo., E-470 at U.S. 83/ Parker Rd., 303-841-2977, appx \$110. 20 min. from field. 3. Motel 6, 9201 E. Arapahoe Rd. 303-790-8220. Appx \$53, 30 min. from field. 4. Country Manor Motel, 32681 E. Colfax Ave. Watkins, CO 80137, (303) 261-9650, appx. \$75, 15 min. from field.

Detach & mail (or scan and email) to: Don DeLoach 831 E. Willamette, Colorado Springs, CO 80903, <ddeloach@comcast.net>. Entry Fees: Adult: \$20 first event, \$10 each event thereafter, \$50 max. Juniors/Seniors: \$10 flies unlimited events. Make checks payable to "MMM Club" or Paypal to <mmmmffclub@gmail.com>. **Make your contest directors happy...PLEASE PRE-ENTER!**

>> Pre-entry: Unlimited events for \$40, if entry & payment received by 8/28/20<<

Name _____ Address _____
City, State, Zip _____ AMA # _____ J S A

On-Site camping (enclose \$25)? Circle: Y N Paypal check here _____ Total enclosed : \$ _____

Circle events you wish to enter. Star or highlight your five Grand Champ events (1 glider, 1 power, 1 rubber, plus 2 of any type.) Must choose Grand Champ events prior to flying any.

Saturday: F1A, F1B, F1C/P, F1Q; Vintage FAI Power; P-30; A | B Electric Combo; AMA A | B Gas Combo; AMA Mulvihill | Moffett Combo; NFFS Classic Towline; SAM A | B | C.O.T. Gas Combo; Nos. 1/2A | Early 1/2A | 1/4A Gas Combo; 5x5 HLG, FAC WWI Combat (11 a.m.); FAC Embryo; FAC Greve | Thompson | NAR M.L.; FA; FAC Golden Age | Modern Civil Combo; FAC Dime Scale; FAC *No-Blue-Max* Flying Horde M.L.; FAC OT Stick.

Sunday: Gollywocks Galore; F1G, F1H, F1J, F1S; AMA C | D Gas Combo; AMA CD Classic Gas; AMA HLG; SAM OT HLG | CLG Combo; Nos. Small Rubber | NFFS Andrade | SAM Small OT Rubber Combo; Nos. B | C Gas combo; FAC Low Wing Trainer M.L.; FAC WWII Combat; FAC Modern Military M.L.; FAC 2-Bit + 1 | Jimmie Allen Combo; FAC Jet Catapult Scale; FAC OT Fuselage; HLG Mass Launch.

Monday: Dawn Power; AB Classic Gas; A Nostalgia Gas; AMA E-36; AMA P-30; AMA Catapult; SAM .020 Replica | ABC Combo; MMM Slow Open Power; SAM Large O.T. | Nos. Large Rubber Combo; AMA 1/2A | 1/2A Classic Combo; E-Nos. 1/2A | ABC Combo.

Any day: FAC Peanut Scale, FAC Rubber Scale, Junior P-30, Junior E-36, Junior HLG, Junior CLG.

Ruckus in the Rockies



HLG throwdown @ 2020 Rocky Mt. FF Champs a 3-part composite event for \$300 in prize money!

I. "5x5 HLG" Saturday, 9/5. Five rounds, 5 minutes each, from the pen. All flights count, 5-flight total, 90-second maxes. Fifteen-minute chase period between rounds. Round 1: 2-2:05 p.m.; Round 2: 2:20-2:25; Round 3: 2:40-2:45; Round 4: 3-3:05; Round 5: 3:20-3:25.

II. AMA HLG (from launch pen, AMA rules, National Cup points); Sunday, 9/6.

III. AMA HLG Mass Launch (5:30 p.m., 3 elimination rounds); Sunday, 9/6.

Scoring: 5 pts for 1st, 4 for 2nd, 3 for 3rd, 2 for 4th, 1 for 5th places in I, II, III above. Highest total score of (I+II+III) is Ruckus Champ! \$150 to 1st, \$100 to 2nd, \$50 to 3rd.

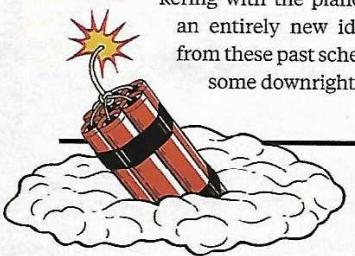
MMM CLUB THANKS OUR GENEROUS SPONSOR, TIM BATIUK

Details: Don DeLoach ddeloach@comcast.net, 719-964-7117 <themmmclub.com>.

CLOUD CONTROL

Everyone complains about the weather. These scientists and inventors set out to change it

AS CLIMATE CHANGE churns up extreme weather, would-be geoengineers are proposing revolutionary new technologies to minimize the effects of global warming. Reflect sunlight into space with orbiting mirrors! Absorb atmospheric carbon dioxide with artificial trees! Bulk up sea ice by cooling it with giant pumps! Even proponents acknowledge that such extravagant measures would be risky, assuming they could be implemented. But tinkering with the planet's thermostat isn't an entirely new idea, as you can see from these past schemes—all ingenious, some downright explosive.

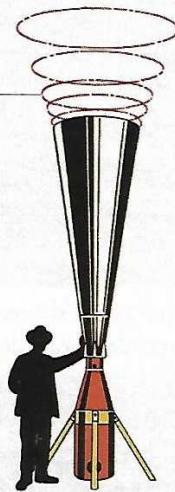
**BATTLE PLAN**

Soldiers had long observed that rain seemed to follow battles, and common wisdom attributed this apparent link to the smoke and

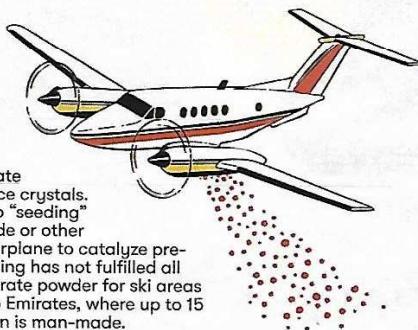
noise caused by munitions. In August 1891, Robert Dyrenforth, a Washington patent lawyer and retired Union Army major, took this idea to its logical conclusion in the first government-funded effort to control the weather. Supplied with \$7,000 from the U.S. Senate and armed with mortars, electrical kites and hydrogen balloons, Dyrenforth traveled to West Texas, where he attempted to create a downpour by setting off a series of loud explosions in the lower atmosphere. He took credit for the precipitation that fell several hours after each volley, but it may be that what Dyrenforth got right was just timing: The rainy season was due to start anyway.

VINEYARD DEFENSE

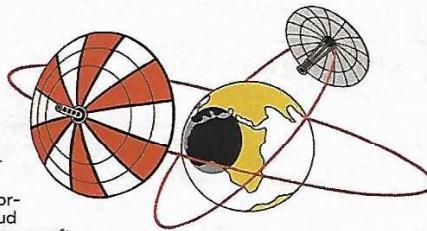
For more than a century, farmers around the world have fired hail cannons at the sky to stave off icy precipitation that could destroy delicate crops. (The trend began in the 1890s, when one Austrian winegrower raised a small army to wage "war on the clouds.") The tall conical devices are believed to disrupt the formation of hail by blasting shock waves every few seconds during a storm. While proof of their efficacy is anecdotal at best, hail cannons are still in use at vineyards from California to New Zealand.

**RAINMAKERS**

In 1946, Vincent Schaefer, a General Electric chemist, discovered that dry ice—super-cooled solid carbon dioxide—could be used to create an artificial cloud full of tiny ice crystals. Further experimentation led to "seeding" clouds with dry ice, silver iodide or other chemicals dropped from an airplane to catalyze precipitation. Though cloud-seeding has not fulfilled all its promises, it is used to generate powder for ski areas and rainfall in the United Arab Emirates, where up to 15 percent of annual precipitation is man-made.

**IN THE SHADE**

In 1989, James Early, a California engineer, proposed going to the Moon to assemble a glass parasol more than 1,200 miles across that would be launched into space to deflect solar radiation. Other experts have made similar suggestions, including an enormous orbiting mirror or a cloud of millions of umbrella-like spacecraft floating between the Earth and the Sun.

**BLAZING AWAY**

James Espy, a 19th-century schoolteacher known as "the Storm King," made contributions to the study of cyclones. But he never secured permission to test his most audacious idea: setting massive forest fires to regulate the continent's weather. The heat from weekly blazes in the Rocky and Appalachian mountains, he argued in 1845, would ensure that "it will rain enough and not too much . . . and the health and happiness of the citizens will be much promoted."

**WEAPONIZING WEATHER**

"Operation Popeye" was a classified U.S. program that deployed cloud-seeding during the Vietnam War. The aim was to hinder North Vietnamese troops and suppress anti-aircraft fire. Whether the program worked remains in question. But after it became public, in 1972, it prompted a congressional investigation and, eventually, a United Nations treaty forbidding military action intended to cause "earthquakes, tsunamis [or] changes in weather patterns."



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WHAT'S HAPPENING - August / September 2020

Sept. 20, 2020 - **Orbiteer Outdoor Monthly**
SCAMPS Field, Perris CA, 8:00 am.
Feature Event: **P-30**
Other Events: **E36, Power, HLG and Catapult Launch Glider**

Oct. 18, 2020 - **Orbiteer Outdoor Monthly**
SCAMPS Field, Perris CA, 8:00 am.
Feature Event: **Coupe**
Other Events: **E36, Power, HLG and Catapult Launch Glider**