

# PHOENIX MODEL AIRPLANE CLUB

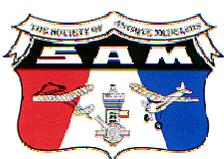
HAVING FUN WITH MODEL AIRPLANES SINCE 1937

VOLUME 12 NUMBER 7

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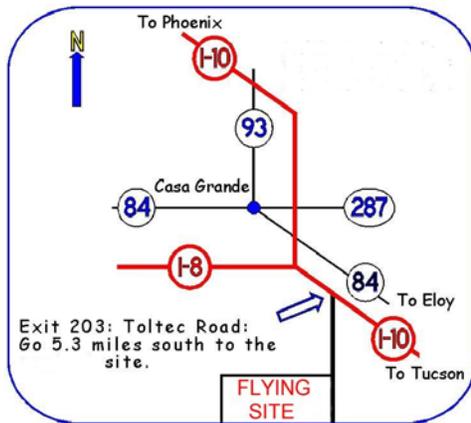
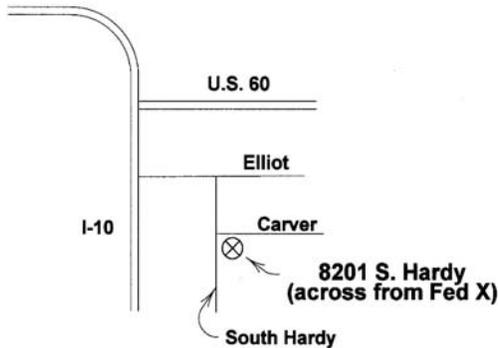
**nffs**



**FLYING ACES**



**SWR**  
SOUTHWEST REGIONALS



**NEXT MEETING**  
**SEPTEMBER 11<sup>th</sup>**  
**7:00 PM.**  
**8201 S. Hardy**  
**Tempe police Dept.**  
**Auditorium**

**NEXT CONTEST**  
**DAWN PATROL !**  
**JULY 14<sup>TH</sup>**  
**JULY 29<sup>TH</sup>**  
**ELOY, ARIZONA**

**NEW WEB SITE**

Thanks to Alan Petersen, we again have a web site

<http://www.freeflight.org/PMAC/>

## CLUB OFFICERS

*President:*

*Vice President:*

*Secretary:*

*Treasurer:*

*Newsletter Editor:*

*Webmaster*

Al Lidberg (480) 839 8154

Peter Brocks

Bill Sewel (623)-551-8678

[bseweanthem@qwest.net](mailto:bseweanthem@qwest.net)

Elmer Nelson

Steve Riley (505) 615 8112

[steveriley@cableone.net](mailto:steveriley@cableone.net)

Alan Petersen

[alan@apetersenpaintings.com](mailto:alan@apetersenpaintings.com)

Summer is here. Our regular series of contests are on hold until cooler weather returns in the fall. We are also delaying club meetings until September.

But there are still lots of opportunities to fly.

We have our "Dawn Patrol" to which Dick Nelson has added the following;

### **Dawn Patrol High Time**

Sponsored by Dick Nelson

Rules:

1. One hour window. Time to be announced, but generally 1/2 hour before sunrise to 1/2 hour after sunrise.
2. Any AMA, NOS, Classic or OT gas freeflight airplane.
3. 15 second VTO or ROG, 12 second HL
4. Highest single flight time (No DT) wins \$10
5. Entry Fee \$1 per flight.

Then there are some contests around the cooler parts of the country like the NATS and SAM champs.

There is the big contest in Colorado on Labor Day with several PMAC guys already making preparations to be there. The field is 5 miles wide and 7 miles long. It's not every day we get to fly on a field like this.



Wow ! What a field !

I think the dog is headed for the scheduled Sat. night BBQ.

Thermals and how to find them is a subject that has been printed many times. Peter Brocks is one of the better thermal pickers and has a little different approach. Well worth reading.

Steve

## Picking Thermals

***Presented by Peter Brocks on May 8, 2007 at the Phoenix Model Airplane Club meeting***

I want to talk about picking thermals. This activity is the most important part of competitive flying and winning contests. It is more important than good rubber or having a model fly perfectly. To make it easy on me I wrote this one page hand-out in 2000. Don't look at it too closely.

What tools do you use for picking thermals? Mylar streamers are the favorite, set out in front of you spaced randomly up wind. When a thermal is building you will see wind coming from different directions, going this way and that way, which means a thermal is starting to build up and swirl. The big question is do thermals go clockwise or counter-clockwise in Eloy? It depends on if you are looking from the top down or the bottom up. In the northern hemisphere and if you are looking up you will think they are going clockwise and when you are looking down they are going counter-clockwise. Birds will usually circle to the left. One of our club members, Dick Wood, has spent a lot of time coming up with a device which records temperature change over time and the present US Team, especially the F1B and F1C guys, will all have one courtesy of their money when they go to the Ukraine in June. There is a thermistor and inside a microprocessor and an analog to digital converter, as the main components to power the plotter on the screen of the device. Over time (4 minutes) you see the temperature change plus the temperature and the difference in digits. Dick Wood's temperature plotting device was displayed, a "thermal sensing device". The device tells you when the temperature is going up and then when the temperature drops. When this happens the warm air or thermal has left. Other thermal indicators that people are using are fluffies and the soap bubble machine.

Thermals or just buoyant air early in the morning? Most people think about thermals as bubbles that go up in the air. If you put your model right in it, it will be good. But if you put your model to the side of the thermal, the model will sink badly. But in the early morning it is quite different. You have the sun coming up on the horizon, the temperature will slowly increase and the whole air around you will expand. It is just like a balloon that gets bigger and bigger and bigger, so early in the morning just after sun rise if you fly you are not going to get in some bad air but you have nice buoyant air. Early in the morning the relative humidity is fairly high and dry air has a molecular mass of 29 g/mol and water vapor has a molecular mass of 18. Humid air is lighter than dry air. The ground has more moisture early in the morning. Not too much in Eloy but in other places the grass in the morning is very moist. After some time in the warming air the actual relative humidity will go down because of the expanding air. Because the humid air is much lighter than dry air it will go up. So when the ground is kind of humid and there are no clouds, probably one hour after sun rise, the air will always be buoyant which means you can fly anytime. At that time you will get a much better air time than when you fly afterwards, because the whole air around you will expand and just go up gently. Question: Is this a predictable thing or measurable thing? Can you measure on a thermometer? No you can not. On a thermometer you will see at sunrise a temperature of perhaps 55 degrees and ½ hour later it is 60 degrees and ½ hour later it is 67 degrees. At that time the air is just constantly warming up and especially if it is calmer there are no thermals to speak of. At this time the whole air is expanding until the moisture at the ground is evaporated. If I fly my glider out at Eloy in the first round if it is calm I can launch at any time and make four minutes. If I fly later and the sky is overcast when there are no big thermals I will only do three minutes. It is possible that your flight time will be 30% more if you fly early. At that time if the sun is at a certain angle and you have expanding air you have a better chance of achieving a max. At Eloy most of the time it is of course a little different, after the sun comes up the wind will start to blow. Not at Eloy but at some other places where the air is so much more humid early in the morning the moisture will rise up into the cold sky and condensate and form cumulus clouds. The most important thing is that early in the morning you typically will have very buoyant air. When you fly early in the morning at Lost Hills you have buoyant air.

If I fly my glider out at Eloy in the first round if it is calm I can launch at any time and make four minutes. If I fly later and the sky is overcast when there are no big thermals I will only do three minutes. It is possible that your flight time will be 30% more if you fly early. At that time if the sun is at a certain angle and you have expanding air you have a better chance of achieving a max. At Eloy most of the time it is of course a little different, after the sun comes up the wind will start to blow. Not at Eloy but at some other places where the air is so much more humid early in the morning the moisture will rise up into the cold sky and condensate and form cumulus clouds. The most important thing is that early in the morning you typically will have very buoyant air.

When you fly early in the morning at Lost Hills you have buoyant air.

Later when you have strong thermals you also have down drafts, or bad air. You must avoid down drafts. As soon as the sun comes out you will have some thermals. Strong thermals can provide up drafts of 30 meters per second. If you have a model with a sink rate of 1 foot per second and a thermal with lift of 2 to 3 feet per second you will gain altitude in the glide. If during the power stage of your rubber model you are gaining altitude at 2 feet per second and the air is rising at 2 to 3 feet per second you are gaining 4 to 5 feet per second. It makes a big difference if you get into a thermal or not. The higher you get the longer you will fly. Now we will get into my very simplified series of drawings. During the day you just stand there and the wind is blowing just a little bit and you just wait for something to happen. This means the air is going to warm up around you and some kind of a thermal bubble is going to form. As you are watching your streamer it shows some movement sideways. If you have a little upward bias as it gets warmer you will say that there is "something" building and it is going to be nice real soon. As soon as the warm air is starting a so called thermal around you the wind around you is going to be less. If you are looking at your thermometer you will see that it will top and then begin to drop very quickly. This could be a few tenths of a degree or it could be 2 or 3 degrees when it is a really strong thermal. Now you will feel the colder wind blowing at you, the so called "fill". Depending on the wind speed and the climb speed of your model you want to wait perhaps a bit until after the real fill has come in. You want to wait a bit also to make sure that the thermal has actually taken off. You don't want to launch too soon to get above a thermal which is still sitting on the ground. The drawing shows that as soon as the streamers go up, you still want to wait a bit until it actually drops. Then you will fly right into the thermal. When there are a couple of streamer poles out there you may have an indication where the center of this swirling thermal mass is. The other thing of course is that darker surfaces will warm up much quicker and lighter surfaces will reflect the sun's rays. So later on in the day darker surfaces are going to be warmer than the light ones and if you can choose to fly over dark grass or darker dirt then that is going to give you better air than if you fly over reflective surfaces. It is a quite different thing if the wind is really blowing. Even when the wind is blowing at 14 or 15 miles per hour there are thermals. But then you have to act fairly quickly. You have to wait for a lull, which means you have to feel that the wind speed is just a little less than the 14 miles per hour, perhaps 12. If you feel that the wind is somewhat calmer for a couple of seconds, this could be three or four seconds, then at the end of the lull launch immediately and you will have a much better chance of getting into a thermal than if you just launch because there is no real temperature change on your thermometer. The worst thing is when it is pretty hot and there is no wind blowing, they call it the doldrums. At that time the soap bubbles or fluffies will be going up but you have to wait for some actual wind movement, the real fill, to come in. You just look at the streamer and it points up nicely but it is still kind of calm. These are just little mini-thermals for hand launch gliders. These mini-thermals will just dissipate before really rising up to where you want to be with your rubber or gas model.

Questions:

Do not launch if there is a chance the sun might come out, what's the story there?

If the sky is pretty cloudy and the ground is going to be shady and no direct sunlight is coming down, you definitely want to wait till the sun comes out and the temperature will rise again. Not that there are no thermals when it is cloudy, but thermals are definitely smaller when there is no direct sun action. If there is a chance for the sun to come out you should wait for a few minutes for the sun to warm up the surrounding areas to give you some nice air.

Is there any relationship of color of wing and stab that would be advantageous to dark surfaces if you are flying in an area consistently?

The color of the model is not going to do anything to the air around you going up or coming down, the color of the model is important so you can see it for a long distance. You need some big surfaces to create a thermal. Thermals typically have a diameter of a hundred feet or sometimes more, much more.

A hundred feet like a bubble? Yes. The air mass will heat up over a certain area and your model will go up whether you launch here or there. It will end up in the same thermal. Of course, if you launch near the edge of the thermal then there is going to be some friction of the warm air going up, with the regular cool air filling in. If you get thrown out of the thermal you are going to be in air that is going down. The center of the thermal goes up the fastest. As you move out from the center the air is going up a little slower and farther out you get into the down air. It is very difficult to see what this thing called "thermal" actually looks like, and nobody really knows. It sure would be nice if it had some color. If you have several streamers they will definitely show you where the center is. You can always see that the swirling is going to the left.

Can a field be cyclical about thermals?

Yes. A new thermal typically forms every three or four minutes. If you are in a fly-off as in the FAI events you have a 10 minute window which means you have to launch within 10 minutes. After the start of this fly-off window you can start winding your Coupe. This might take you two minutes. While you are getting your model ready someone looks at your thermometer indicating a thermal leaving and some other people already launched and got into some good air. Now you have to relax and wait till another thermal forms. And typically you have to wait two minutes or three minutes, but it could be six minutes and there is a chance it could take ten minutes.

What on the meter told you it was a big one?

When you had a big temperature rise and then a big temperature drop. What is big? It depends on the time of day. In the early afternoon when the sun is strong it is pretty hot, it could be a drop of five degrees. The fill came in and the big thermal went. The temperature dropped all the way down and now it is building up, up - then dropping a little bit, but the then again up, up. It is calm when you look at the wind speed meter but then all of a sudden the temperature drops a little then it drops more and then you will feel the wind blowing. The big thermal is going up and if you launch now it will be good.

How much does Dick charge for the machine?

You don't want to know.

Transcribed from the recording tape by Bill Sewell, Secretary PMAC



**nffs**

**The Magnificent Mountain Men Free Flight Aeromodeling Club  
proudly announce the**

# 42<sup>nd</sup> ANNUAL

## Rocky Mountain Free Flight Championships

Saturday, Sunday and Monday, September 1st, 2nd, and 3rd, 2007  
at the magnificent 27,000 acre MMM Field in Denver, Colorado.

**AMA – SAM – NFFS – FAC & FAI "Dynasty Cup"  
America's Cup & NFFS National Cup Competition**

(one of four National Cup "exempt" contests for 2007)

**AMA License required - Category II Class AAA**

**Awards through Third Place in all events.**

**All MMM RMC Perpetual Trophies will be awarded:**

**DesJardins Memorial F1A, F1B, Gollywock, Mulvihill, Rubber Scale,  
Collins Memorial Glider Hi-Point, Gibbons Memorial Rubber Hi-Point,**

**McGhee Memorial Gas Hi-Point, and The 1961 RMC Grand Champion Perpetual**



<b>Saturday 9/1/07 8:00 AM-5:00 PM</b>	<b>Sunday 9/2/07 8:00 AM-5:00 PM</b>	<b>Monday 9/3/07 8:00 AM-3:00 PM</b>
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F1A	F1H	1/2A Gas
F1B	F1G	ABCD Classic Gas Combined
F1C	F1J	1/4A Nostalgia Gas
F1P	CD Gas	A Nostalgia Gas
1/2A Classic Gas	MMM Slow Open Power	Mulvihill
1/2A Nostalgia Gas	HLG	Catapult Glider
AB Gas	Nostalgia Wake/Rubber Combo	SAM OT Catapult Glider
NFFS Classic Towline	BC Nostalgia Gas combined	SAM Small OT Rubber
P-30	SAM Large OT Rubber	Dawn Gollywock
.020 Replica	SAM OT HLG	
SAM OT Gas Combined	Dawn Gas	

The following events may be flown any of the three days, but all flights must be completed on the same day started:  
FAC Peanut Scale, FAC Rubber Scale, FAC Power Scale, FAC Golden Age Scale, Junior Rubber, Junior Gas, Junior HLG, Junior CLG, Junior Towline.

### The Fine Print:

- In combined events, you may fly any/all events within the groupings for National Cup points and/or to better an existing score for RMC award purposes. For example, in Nostalgia BC Gas, you may fly both Nos B and Nos C. Only your best score of the two will count for RMC awards purposes, but both scores count for NC points.)
- Dawn Gollywock: 7:00-7:10AM launch window. Can start winding before 7:00AM. No launches before 7:00 AM. No max—timed to the ground.
- Dawn Gas: 7:00-7:10 AM Launch window. All gas models fly together including FAI, Nos, AMA. 1 attempt allowed for one flight—no max. 9 or 12 sec engine run depending on conditions.
- RMC Grand Champion: Choose 5 events: 1 rubber, 1 gas, 1 glider, 2 of choice. 5-3-1 points for 1st-2nd-3rd respectively, bonus points based on number of people in each event per the NFFS scoring matrix. See NFFS 2007-2008 rulebook, page 16: <http://www.freeflight.org/competition>. Tiebreaker will be the total points accrued in flyers' other events apart from the five chosen events.
- Glider Champion, Rubber Champion, Gas Champion perpetuals: 5-3-1 points for 1st-2nd-3rd, per the TGD/NFFS scoring matrix. All glider/rubber/gas events count including scale. No cap on number of events that may be counted. Tiebreaker: total number of maxes achieved.
- Unless otherwise noted all applicable 2007 rules will be in full effect: AMA, FAI, SAM, NFFS, FAC. Time cards will have maxes, engine runs and flyoff information posted.
- SAM rules do not address flyoffs for OTHLG and OTCLG. Therefore this contest will mirror AMA HLG/CLG rules for flyoffs in the OT glider events. For example, after posting three maxes each flyer shall have 1 attempt to attain the max on each successive flight. The flyer shall continue until a max is dropped. Once a max is dropped the sequence of flights ends and total time is added up.

## "Dynasty Cup" Rounds Schedule:

### Saturday Sept. 1st F1A-B-C-P

Round 1	8:30 - 9:30 AM
Round 2	9:30 - 10:30 AM
Round 3	10:30 - 11:30 AM
Round 4	11:30 AM - 12:30 PM
Round 5	12:30 - 1:30 PM
Round 6	1:30 - 2:30 PM
Round 7	2:30 - 3:30 PM
Flyoffs (if needed)	7:30 AM Sunday

### Sunday Sept. 2nd F1H-G-J

Round 1	8:30 - 9:30 AM
Round 2	9:30 - 10:30 AM
Round 3	10:30 - 11:30 AM
Round 4	11:30 AM - 12:30 PM
Round 5	12:30 - 1:30 PM
Flyoffs (if needed)	TBD

#### Directions to the Field:

The beautiful 27,000 acre MMM flying site is located ESE of downtown Denver, seven miles east of E-470 on Quincy Road (one mile east of "T" intersection at Watkins Rd.). Look for the entry gate on the south side. Call or e-mail for gate lock combo and **lock the gate behind you at all times.**

#### Contest Directors:

**Don DeLoach**, 719-964-7117, ddeloach@comcast.net

**Jerry Murphy**, 719-685-3766, JB\_Murphy@msn.com.

Visit [www.themmmclub.com](http://www.themmmclub.com) while you're at it.

#### Lodging:

Super 8, Parker, CO: (720) 851-2644. Motel 6 at I-225: (303) 873-0286. Motel 6 at Arapahoe Rd. & I-25: (303) 790-8220.

#### Detach, Fill Out, and Mail to:

Don DeLoach, 831 E. Willamette, Colorado Springs, CO 80903

At-Field Fee Payment: Open: \$20 first event, \$10 each event thereafter, \$40 maximum fee. Juniors and Seniors: \$5 flies unlimited events. Make checks payable to "MMM Club"

**DO YOURSELF AND THE CD's A FAVOR: \$30 for Unlimited Events if entry is received by 8/20/06**

NAME \_\_\_\_\_ ADDRESS \_\_\_\_\_

CITY / STATE / ZIP \_\_\_\_\_ AMA# \_\_\_\_\_ Jr Sr Op

**Saturday Night Banquet\*** Number of tickets at \$20 each \_\_\_\_\_ **TOTAL ENCLOSED \$** \_\_\_\_\_

\*Excellent Barbeque Feast including a beverage. There will also be a cash bar.

**Circle events you wish to enter (below):** Place a star next to your five Grand Champion events (1 glider, 1 gas, 1 rubber, plus two of choice.) You must choose your five Grand Champ events prior to flying any of the five.

Saturday Events	Sunday Events	Monday Events
F1A	F1H	1/2A Gas
F1B	F1G	ABCD Classic Gas Combined
F1C	F1J	1/4A Nostalgia Gas
F1P	CD Gas	A Nostalgia Gas
1/2A Classic Gas	MMM Slow Open Power	Mulvihill
1/2A Nostalgia Gas	HLG	Catapult Glider
AB Gas	Nostalgia Wake/Rubber Combo	SAM OT Catapult Glider
NFFS Classic Towline	BC Nostalgia Gas combined	SAM Small OT Rubber
P-30	SAM Large OT Rubber	Dawn Gollywock
.020 Replica	SAM OT HLG	
SAM OT Gas Combined	Dawn Gas	

#### Any Day

FAC Peanut Scale, FAC Rubber Scale, FAC Power Scale, FAC Golden Age Scale, Junior Rubber, Junior Gas, Junior HLG, Junior CLG, Junior Towline

# Flying Aces Club Mountain States Scramble

at the

## Rocky Mountain Free Flight Championships

September 1st & 2nd, 2007 Denver, Colorado

>> AMA sanctioned -- license required <<

### Events

FAC Scale\*

FAC Peanut Scale\*

FAC Power Scale\*

FAC Golden Age Scale\*

FAC Jimmie Allen\*

WWI Mass Launch, monoplanes allowed (10:00 AM Saturday)

Greve/Thompson Mass Launch (12:00 PM Saturday)

WWII Mass Launch (10:00 AM Sunday)

•fly either day but must complete all flights for an event on the same day started.

**Scale Judging:** Friday evening, August 31st. 4:00 - 7:00 PM. Motel 6 Aurora East, 14031 E. Iliff Ave. Aurora, CO 80014 303-873-0286. Judging at the field for late arrivals.

**Entry Fee:** \$30 covers all events including unlimited RMC entry. Please pre-enter! Mail check (made out to MMM club) to Don DeLoach, 831 E. Willamette Ave. Colorado Springs, CO 80903.

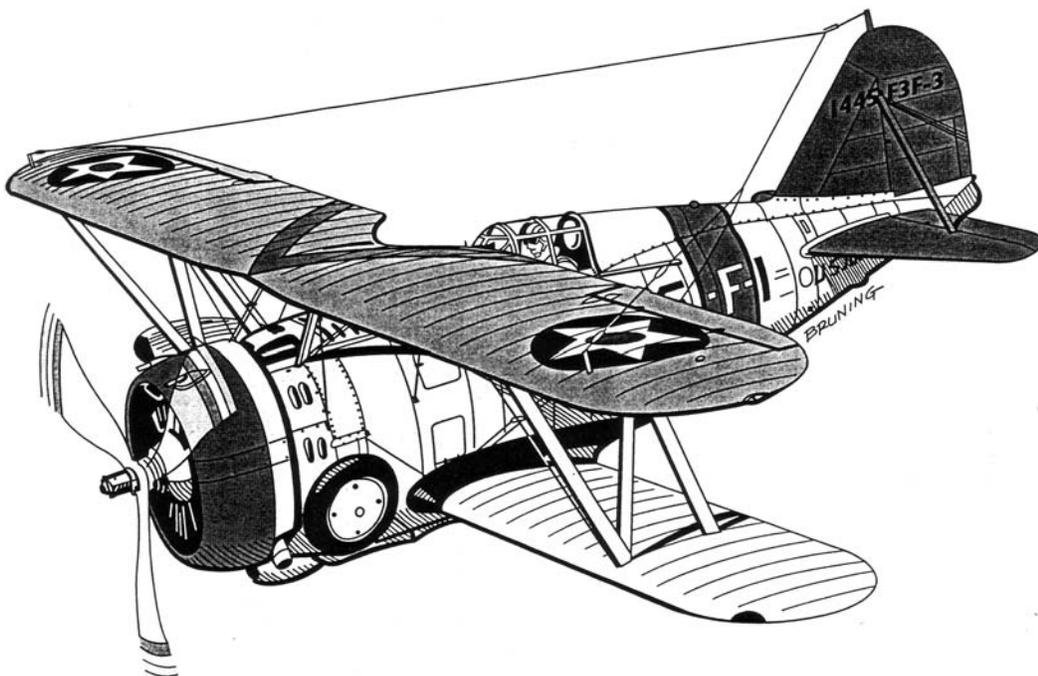
**Banquet:** Saturday night, \$20 for premium BBQ feast. Cash bar. Send \$20 with pre-entry.

**Directions to the Field:** The beautiful 27,000 acre MMM flying site is located about 20 miles ESE of downtown Denver. It is seven miles east of E-470 on Quincy Road one mile east of the "T" intersection of Quincy at Watkins Rd. Look for the entry gate on the south side. Call or e-mail for gate lock combo and lock the gate behind you at all times.

**Lodging:** Motel 6 at Iliff & I-225, Aurora, CO (20 min. from field and 20 min. from banquet): 303-873-0286. Super 8, Parker, CO (20 min. from field, 5 min from banquet): 720-851-2644.

### Contest Directors:

**Don DeLoach**, 719-964-7117 (cell), [ddeloach@...](mailto:ddeloach@...), **Jerry Murphy**, 719-685-3766



**Meeting Minutes**  
**Phoenix Model Airplane Club**  
**June 12, 2007**

Location; Tempe Police Substation

President, Al Lidberg called the meeting to order at 7:00 pm

Ten members present

Al reviewed an article in the Tempe news paper which said that an Appellate Court interpreted Arizona statutes such that one puts up fences to keep cattle out, not to fence them in. It could protect the owner of the Eloy free flight site. We will continue to buy AMA's site insurance, however, just to make sure that our use of the Toltec Road site can continue.

Every one introduced himself.

**Old Business**

Elmer reported that after we corrected the vote dealing with a request from the 07 FAI team, erroneously reported in the April minutes and corrected in the May minutes and getting approval from the Tucson club, who share the contest account with PMAC, we missed the deadline so money was not sent. (I think this took \$100,00 of news letter space-secretary opinion)

**New Business**

Elmer moved and Sewell seconded that we drop the July and August meetings. Vote 6 yes, 0 no, carried

Dawn patrol at Eloy June 17 and 30. Sun up around 5:00 to 5:15 am and light 45 minutes before that. Done by 10:00, Saturdays good also.

**Show and Tell**

Al passed around a Flying Models story on heads to adapt Nelson plugs to FF engines. Plugs and a head were also passed around. Nelson plugs can provide additional rpm and reliability and are legal in AMA classes. NFFS has also decided to allow Nelson plugs:

**Rules Clarification: Nostalgia Glow Plugs**

*The NFFS Nostalgia Committee recently issued a clarification on acceptable glow plugs for Nostalgia competition. This clarification resulted from questions concerning legality of certain plugs.*

*The ruling, as contained in the NFFS Nostalgia Rulebook 2007-2008, reads as follows: "Any screw-in glow plug, including GloBee and Nelson, with a vertical element, is legal for use on any Nostalgia engine. Note: The flat-coil GloBee head (insert/button type with flat element and any facsimile thereof) is allowed for use only in the Cox 0.020 family of engines."*

Al mentioned the Wood Workers Source which has hardwood and tools for working with hard wood. It is located on Elliott. A few blocks east of Hardy.

He also mentioned The Wood Craft of AZ, catalogs and some tools from both places were passed around. This store is located on Country Club just north of Elliot.

The Library of Paints, located at 1102 West Madison (602-252-2321) was mentioned as a useful hobby paint supplier.

Al displayed a Dragonfly from the Eloy Truck Stop, he later demonstrated it in the parking lot.

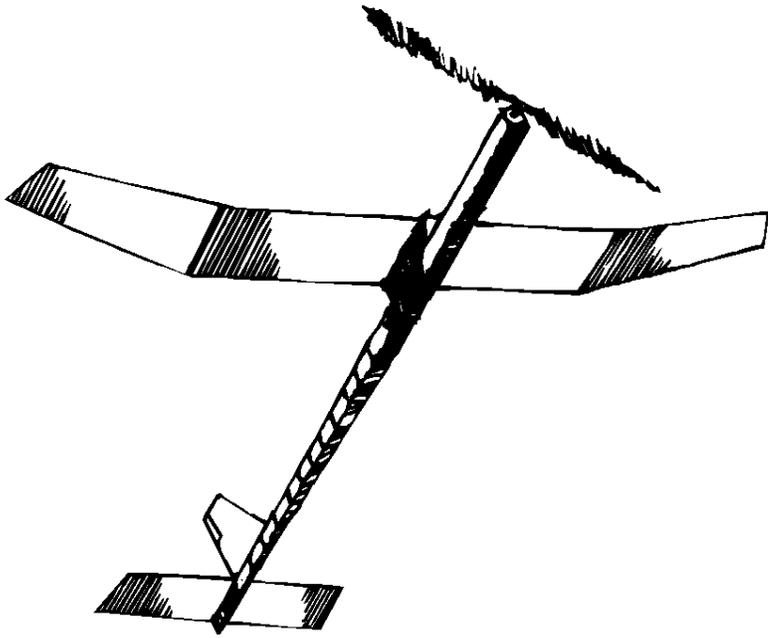
Elmer passed around a Joe Foster Honeybee 1/2A kit from BMJR, he had a Cox Killer Bee with a flood off timer on it. He also passed around several covering materials.

Dave Haught passed around several indoor flying scale models; a B-17,

two B-24's, two Valkyries (different sizes), a Turbo Porter and more. He also had a video of them flying indoors, WOW ! Thanks Dave, he can be reached at: [pastor@atonementLutheranhurch.org](mailto:pastor@atonementLutheranhurch.org)

Elmer presented a video on the history of Comet Model Airplane Company beginning in 1934. It was well received. Copies may be obtained from Bill Hannan at Hannan's Hangar.

*Bill Sewell*



**NEXT MEETING  
SEPTEMBER 11<sup>TH</sup>**

**NEXT CONTEST  
DAWN PATROL !  
JULY 14<sup>th</sup>  
JULY 29<sup>th</sup>**

**ELOY**

**PHOENIX**

**MODEL AIRPLANE CLUB**

Steve Riley

605 La Casa De Prasa Dr. S.E.

Rio Rancho, New Mexico 87124