

Terry Overton

Skymasters, the modeling community, and of course his family and friends lost a great person when Terry Overton passed away on January 18th. Terry was a life long modeler – who's skill and ability in design and construction was admired by many. Terry was a member of Skymasters for many years. His son Graham was also a long time member - one of the few father and son teams to each win the Skymasters Top Gun trophy. But Terry was best known in modeling for his amazing scale projects - winning honors at many events. Always willing to share how he did things, Terry would take the time to explain his designs and spread his knowledge. He will be missed by all that knew him. Fly safe Terry. Our thoughts and prayers are with his family and friends.

Greg Cardillo

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2011 Club Officers & Appointees...

President: Greg Cardillo Vice Pres: Neil Krohn Secretary: Dan Stolz Treasurer: Bob Donohue Mark Smith Ron Sokacz State Park: Bill Stark

Editor:

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Lake Orion	48359	248-391-5970
Sterling Hts	48310	586-977-1404
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Clarkston	48348	248-394-0414

President's Message...

Welcome to another edition of Skywriter!

Open House

For those that have been in the area for a while - you might remember the back room of Henderson's Hobby shop and the Saturday morning sessions there. After Henderson's closed, one of our members opened his workshop to us. Steve Fredericks is once again opening his now 1100 sq ft workshop to all area pilots on Saturday, February 5th from 9am till noon for an Open House. Coffee and donuts provided. Bring a project you want some help with - or just come to talk and have some fun. See flyer in this issue of Skywriter, or information on our website! Thank you Steve for your hospitality!

Magazine Coverage

Skymasters has received quite a bit of national coverage over the years... In the recent issue (Volume 5, Winter 2010) of R/C Heli Pilot (Maplegate Media Group), there is an article by Skymaster Paul Goelz about our first annual Heli Fun Fly! (photos by yours truly...) Paul described how we went about setting up our first heli event – and the wonderful response we received...

While not a Skymasters event, several Skymasters and their planes appeared in the February 2011 Flying Models (Carstens Publications) NEAT Fair coverage. Many of the photos in the article are mine – including the cover!

Our thinks to the magazines that provide the coverage for our events!

Volunteers Needed...

As we set our event schedule for 2011, we are finding ourselves in need of a couple of volunteers! The Electric Fly (June 11) is in need of an Event Director. Previous E.D. Pete Foss is stepping up to run the Midwest Regional Float Fly this year – and would like someone else to take on the Electric Fly. This would be a good event for someone new to volunteer for – there will be plenty of help to assist!

Our annual Fish Fry is also in need of a coordinator. Tentatively scheduled for Wednesday, August 10 – this is a very popular club event. Again lots of help to assist – just looking for someone to oversee and keep things on track. If you would like to help with one of these, please let me know!

Structure of Skymasters...

I'd like to share a bit about how Skymasters works behind the scenes, and why we are structured as we are... Having been in other R/C clubs elsewhere in the US – we are rather unique in our structure – which gives us many advantages in operations.

If you visit other clubs for their meetings, you will often find business meetings including detailed discussions about finances for every expense the club makes. We used to do that too. Meetings weren't fun to attend, discussions were long, and little progress was made.

The club made a decision to restructure, and our current Constitution and structure was formed. The business of the club is conducted by the Board of Directors or Executive Committee. The voting members of the Board consist of the current club officers (President, Vice President, Secretary, and Treasurer), along with the Past Presidents that are still members. This was done to provide balance - the history of why things are as they are, balanced with the new ideas of current officers. We typically have 3-5 active Past Presidents attending meetings, and others in the email 'peanut gallery' offering their words of wisdom. In reality issues rarely come down to a vote - we discuss an issue, typically reach a



consensus agreement and move on.

There are other regular participants in the Board meetings - including appointed positions of Chief Flight Instructor, Park Liaison, Newsletter Editor, Membership Director, Webmaster, and several other members that have chosen to attend and give their time over the years. All members are welcome to attend - whether you have an issue you want to discuss - or just to learn more about how the club works. Just let me know, and I'll give you the details on when/where. (We do meet in a member's house so do try know in advance how many will be attending.)

This structure has allowed us to do things that in my mind other clubs couldn't do. We can guickly react to opportunities in the interest of the club where others need to wait for a full club meeting to discuss and vote. Two examples that come to mind in recent past were the initial startup of the Indoor Flying at Ultimate and the recent purchase of the new tractor. These were both opportunities with a very short timeframe to react and be able to achieve what we have - a phenomenal Indoor Flying venue and season, and a great tractor to care for our field for years to come.

This structure has also allowed our meetings to focus on fun – a (Continued on page 5)





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program/symposium presented from one of the industry leaders to those from one of the many talented Skymasters members we have. Our clubs reputation and treatment of our guests has allowed us to bring in some great programs in the past, and we look to continue that in 2011 and be-

yond!

Happy Landings! Greg Cardillo

Skymasters Meeting Minutes...

Skymasters

General Meeting Minutes January 12, 2010 Announcements: *Flying Models:* Several Skymasters and their planes highlighted in the February 2010 issue NEAT Fair coverage. Photos by Greg Cardillo. *R/C Heli Pilot:* Poul Goelz' article about our first annual Heli Fun Fly appears in Volume 5 Winter 2010 issue with photos by Greg Cardillo

- Feb 16 No meeting- Swap shop
- 1st time Visitor- Bruce Bennet- He is in to helicopters.

Joe Rubinstein - Presentation



- Soldering and Brazing.

Three types of silver soldering- Easy, Medium and Hard. (Refers to silver content).

Heat sources: Acetylene – Dirty Flame – loots of carbon soot

Propane, natural gas and MAP gas cleaner flames. Various methods tot support items:

Third hand, tweezers, charcoal block and binding wire.

Two types of Flux- paste and liquid- Borax main ingredient of flux.

Discussion of differences in soft and hard soldering and brazing.

Joe passed around various examples of silver soldering.

Soft – Lead solder.

Rosin core for electrical

Acid used on plumbers solder for non –electrical



Visual inspections:

Grey frost surface - Cold Joint -poor connection - week joint

Bright & Shiny – good solder joint

Show and Tell:



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Skymasters Meeting Minutes...

(Continued from page 5)

Pat Norton- Hanger 9 RV-8 with Scorpion motor , flaps and 75 amp ESC.\to fly on 4s battery weighs 6 $\frac{1}{2}$ lbs.



Chuck Adams – Mini-Cassutt- built from RC group plans WS 18in. About 6 oz, 15 gr. motor , 10 amp esc, 3x5gram servos with a 7X4 prop.



Wade Wiley – Nitro Planes – Spymasters set up as a camera plane motor equv. 120 or 1500 watts, setup with flight 3 axis flight stabilization camera to be 90-120 Wide angle

Greg Cardillo – **AreoCat V2**- Very fast -32in WS 40 amp Esc 8 oz with out battery 14 oz with 2200 ma pack.

Show and Tell – Wade Willey 50/50 – Fred Engelman

Submitted by: Paul Zabawa

Skymasters General Meeting Minutes January 26, 2010

Attendance: 40 Members Greg Cardillo called the meeting to order at 7:00PM Greg Cardillo made the following announcements: Indoor Flying continues at Ultimate Soccer on Tuesdays 11:00-1:00.

◆Indoor Flying at Ultimate Soccer will have two extra dates this weekend, January 28 & 29 from 7:30PM-9:30PM. Cost is \$10 per session. This is NOT a Gold Card or Punch Card date. Indoor Flying will contain an extra date on Presidents Day which is Monday, February 21 at 11:00AM-1:00PM. This WILL be a normal Gold Card and Punch Card date.

•Steve Fredericks is hosting a Skymasters Open House in his newly expanded workshop (1100 sq. ft) from 9:00AM-12:00 Noon February 5. All pilots are welcome from Skymasters and other clubs.

•Retiree and Wannabe breakfasts are every first and third Monday of the month at 9:00AM at the Red Olive Restaurant on Walton Blvd.

•Next Skymasters meeting will be the Swap Shop on Wednesday, February 16.

- •Chesaning RC Swap Meet date is February 6.
- ◆PMAC Ice Fly is February 20.

•Greg Cardillo introduced Richard Lukasik and Phillip McRoberts from RDLites.com who design and sell custom strobe, beacon, and navigational lighting systems. They will design many different lighting schemes and are open to working with you individually on any custom applications you may need. If they like your idea and think they may be able to resell it, they will give you the lights for your application at no charge. They use 32 gauge micro wire that is capable of handling approximately .5 amps current. Phillip uses C++ programming for the micro chip that controls the lighting sequences for machine guns, landing lights, strobes lights, navigation lights, etc. The lights can be plugged in-line with the battery or into a servo channel giving the ability to tie the sequence with your throttle or possibly other airplane functions. Each light requires about 9-10 mAH of power and if they are blinking it is about 1/2 this amount. The lights do not put a lot of stress on the battery. The resulting product is very attractive and short circuit proof in case any wires are cut in the "heat of battle". One piece of advice from Phillip - do NOT mount the wiring on the leading edge as this can be detrimental to the lighting system. They are also working on an afterburner system which should be ready for the Toledo Weak Signals Show the first weekend of April.

◆Pete Foss showed us a lighting strip he sourced from Hobby King for about \$6-7 per meter. They are available in one meter strips with three LEDs wired in series repeated many times in parallel allowing you to cut the strip every three LEDs or approximately two inches. The lights take about 400mAH per meter. Pete demonstrated the lights connected directly

Skymasters Meeting Minutes...

(Continued from page 6)

to a battery. You can use a 2-3 cell battery very effectively. Pete also demonstrated the lights with a speed control and showed us how you could dim the lights so they were not as bright which sometimes can be a problem. One interesting application was to use 9mm EPP foam building your airframe and embed the lights in the foam. This provides an interesting muted looked and can be very attractive.

• Show-N- Tell included some interesting projects.

◆T-28 Trojan

Weaks Gary showed his very detailed T-28 built from Dave Platt plans. It took Gary about two years of off/on building and featured a fully detailed cockpit using manv materials from Michaels. The T-28 finish was sheeted balsa covered with Ultracote had that been scuffed with 2000-3000 grit sandpaper to take the sheen off. Garv then used pattern tracing а tool to dimple the



Ultracote and create rivets. The T-28 weighs 17.5 pounds with an 81" wingspan. It also includes a bomb release, working flaps, and Robart pneumatic retracts.

•eMoth – John Hakala showed his eMoth built from a Retro RC kit using Ultracote Lite covering. It was equipped with lights from RAM which uses an extra channel on the receiver. John's eMoth was equipped with landing, strobe and navigation lights.

•Miss Bohemia – Wade Wiley showed us his kit built plane with light tubes. Wade says the plane flew really well at the NEAT gathering but the lights were a little dim. And when the moon shined brightly, the lights were really dim! Wade knows this from experience.

•Stuka ARF from Black Horse Models - Joe Rubinstein showed us his latest project that has a 75" wingspan. It is a very interesting project because Joe will be using an electric motor with a sound system from Model Solutions located in Canada. He has two 20 watt speakers mounted with a small amplifier and various recorded sounds (Daimler engine, siren, machine gun, etc.) that can be synchronized with the throttle. Installing the speakers has proven to be a challenge but Joe has engineered a solution. The Stuka will be using an eight cell battery for the motor and a three cell battery for the sound system.

•Greg Cardillo gave an update on the proposed heli field to be located on the opposite side of our parking lot from the current flight line. The new Bald Mountain Park management is supportive of the idea but there are delays in pursuing the proposal with the DNR in Lansing. Currently the DNR is without an

O p e r a t i o n s Manager. Until this position is filled, the DNR is concentrating on daily operations. At this time, strategic initiatives are secondary.

◆Greg Cardillo also mentioned April 16 is Bald Mountain Involvement Day. It is very important for us to have an especially large turnout for the event this year. This will go a

long way showing the Skymasters commitment to helping maintain Bald Mountain Park. Not only is this important in general, but it is even more important this year as we try and get our lease amended for the proposed heli field. We would encourage ALL PILOTS – both heli and airplane to join us on April 16. Steve Fredericks is currently working with park management to determine the various projects. A \$10 gift certificate will be given to each family represented. Lunch will also be provided.

•Lastly, Greg Cardillo discussed the new Passport sticker. One interesting note concerned those of you who drive a company vehicle where you are not the one who registers the vehicle. If this is you, you can still get a window sticker at the Park Office and the cost is \$10 which is the same price as a Passport obtained through the standard vehicle registration process.

Joe Rubinstein won the gift certificate for Show-N-Tell. There was no 50/50 tonight. Meeting adjourned at 8:35.

Submitted by: Dan Stolz, Skymasters Secretary





Hi All,

Well, I goofed the last month (or two) as our new newsletter editor and I did not fully communicate. I assumed Mark had material and he actually did not. Sorry about that.

I have a few more topics to cover in helicopter lore, then I promise to move on. This time I want to talk about how the main blades are actually controlled and then a few words on what a governor is.

Let's start with how the main blades are controlled. A few columns ago, I discussed how the main blades use collective and cyclic pitch to control lift, roll and pitch without regard to how the blades are actually controlled. If you may also recall, the tail blades are used to control yaw, and use just collective pitch (unless it is a small electric).

A term that you may have heard a while ago has become quite common on helicopters now and it is called CCPM - this stands for collective-cyclic pitch mixing. It refers to having the transmitter take on the majority of mixing for the servos on controlling the blades. It has become the standard in almost all helicopters now, with only the older Thunder Tiger Raptor series (newest ones are now CCPM as well). We need a little history and perspective first.

In a helicopter, one of the most amazing mechanical components is where the stuff that twirls around meets the stuff that does not. This interface happens essentially in one component and it is called the swash plate. A swash plate is two concentric rings that are centered around the helicopter main shaft. the outer ring is connected to the main swash servos (the ones that do the CCPM) and the inner ring is connected to the mechanics that rotate with the blades. This swash plate is remarkably simple in construction, but quite complex in operation.



Typically, when a command to add collective pitch is driven to the swash (remember collective is both blades changing pitch simultaneously) the swash will slide vertically up (or down) on the main shaft which causes the mechanics hooked to the inner race to change the pitch of both blades simultaneously. When a roll (aileron) command is driven to the swash, the swash will actually rotate (as viewed from behind the heli) in the same direction as the roll command. Similarly, a pitch (elevator) will cause the swash to tilt forward or back. Combinations of these commands will make the swash take on some interesting tilts during flight. The tilting of the swash causes (via all those mixing arm, bell cranks, and connecting rods) provides the cyclic pitch control on the blades. Exactly how this swash gets rotated and slid up and down is the job of the swash servos.

In my Raptors, which are NOT CCPM, each one of the

tasks (roll, collective pitch, elevator) is handled by an independent servo that does just a single function. My aileron servo only causes a left-right swash tilt via bell cranks and rods for example. This was the common way of controlling all helis until about 10 years ago when a then new methodology called CCPM was rolled out to us heli pilots.

CCPM's initial reason for being was actually one of lowering costs to the heli manufacturer. CCPM uses many less parts than traditional control on my Raptor and its initial incarnations showed up on lower end helis trying to drive out as much cost as possible. As with everything in our hobby, the idea was then worked on and many of the bugs were worked out to make it now the standard for all helis.

CCPM relies upon your computer radio to actually mix all of your swash servos together for the pitch, roll and elevator commands. When you give a collective pitch command to a CCPM heli, all 3 (typical number) swash servos will lift the swash (or lower it) together. For a cyclic command, you will notice the 3 servos working together to create a pure roll or elevator pitch. This requires considerable intelligence in your heli radio and has evolved now into well established capability.

CCPM will also show up mechanically on your heli in one of two styles of implementations. One will use bell cranks between the servo and the swash, the other will drive the swash directly. Smaller electric helis are dominated by direct hook up to the

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swash, as it can keep weight down and make for a smaller setup. One advantage of this setup is direct movement of the swash from the servo. One drawback is that even small crashes or bumps can instantly wreck the gear chain of the servo as the connection is direct back to the gear train.

For larger helis, it is common to see one or more bell cranks between the servo and the swash plate. if you have been in the hobby for more than 10 years, you may take pause at anything using bell cranks, but I can assure you that bell cranks on helis are nothing at all like the ones we used to use. They are very firm, often metal, and are supported by at least one ball bearing. The advantage of the bell crank is that the force of the servo can be multiplied (a bell crank is a lever after all) and that they will actually help save the servo gear train in a mishap (not that mishaps ever happen to me....).

In the early implementations of CCPM, the geometry of the servo placement coupled with the differing speeds of the servos lead to many problems in CCPM. Those problems have mostly been cured and are really no longer an issue. One way you can see this is when you set up your heli on the radio, it asks for the geometry of the swash servo layout - 3 or 4 servos, 90, 120, or 140 degree, etc. - Some of these items are a direct result of the manufactures attempts to isolate early problems of CCPM - It really no longer is a

problem for us, as the heli manufactures have worked out the geometry issues and the radio manufactures have made continuous improvements as well.

If you go to program your CCPM radio, it can at first appear to be a bit daunting. Newer radio manuals do a great job leading you through step - by- step of setting up CCPM on your heli, and the heli instructors at the field can help out here as well. In reality, after you do it once or twice, it becomes quite straight forward to do again.

As the radio manufacturers add more functionality, the configurability of CCPM setups continues to get more powerful (perhaps more complex?), and gives us more and more possibilities.

The last topic I will cover before leaving helis is one I still get asked about, but not as much as before and that is the governor. In our heli radios (Apologies to mode I fliers) our left vertical stick actually controls both throttle and collective pitch. As we add collective pitch, the engine needs to develop more power to keep the blades moving at the same speed. This is because as we add pitch, we add more drag and lift, both of which require more power to maintain main blade RPM. Helicopter radios allow (via functions called pitch curves and throttle curves) independent control of the pitch from throttle even though they are on the same control stick. The primary goal is to get the main blade to keep a constant RPM regardless of load, so these pitch and throttle curves could be

quite complex and problematic to get correct. Not impossible, but they can take significant effort depending on your flying style.

Futaba and a few other manufacturers decided to create something to help alleviate the necessity of throttle and pitch curves (although you should always program basic ones in case a governor fails) by taking control of the engine throttle via the governor. The governor works by reading the rpm motor (typically by a magnet pickup on the crankcase or the fan) and directly controlling the throttle servo to keep the engine at a constant RPM regardless of load. This ultimately frees up the left stick to essentially just control collective pitch, making one less thing to worry about while you fly. Constant RPM at the motor will make constant blade main blade speed. Governors are not mandatory, but they remove one more thing for the pilot to worry about setup and run, so they are growing in popularity and you will often see them included in new heli combo packages.

Overall, helicopters can appear to be quite complex and impossible to master, but I continue to hold firm to the belief that almost every one of you who can comfortably fly a sport plane can learn to fly a heli. The manufactures keep making better and better equipment for us and it just keeps getting easier

"Hope you leave the field with as many pieces as you bring..."

Joe





STOP BY FLIGHT LINE HOBBIES LOCATED MINUTES AWAY CALL STEVE FOR MORE INFORMATION 248-693-6686

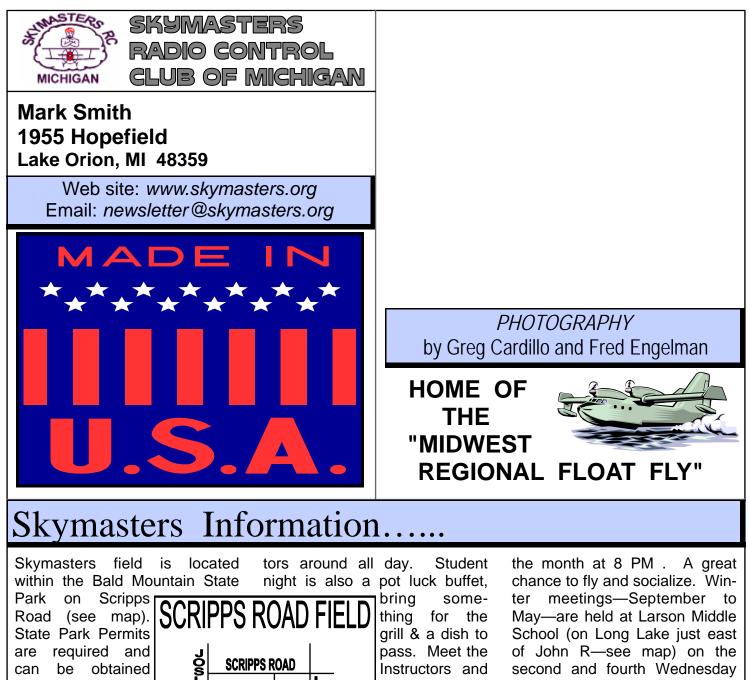
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20 PMAC ICE FLY	21 BREAKFAST DOME FLYING	22 DOME FLYING	23 MEETING	24	25	26
27	28					

Skymasters R/C Club 2011 Application For Membership



Information (print clearly)

Information (print clearly)	New Member() Renewal()
Last Name:	First Name:
AMA #:	Pilot: () Student: ()
Address:	Home Phone:
City:	Work Phone:
State: ZIP:	Cell Phone:
E-mail:	
Birth Date:	Newsletter: Will be sent by email. If you need a paper
Significant Other:	copy, please check here: Standard Mail ()
Other Family Members Who Fly	
Name:	AMA #: Pilot () Student ()
Name:	AMA #: Pilot () Student ()
6) You must not fly behind the flight line.7) AMA Safety Code and Skymasters Field Rules must be fol8) All vehicles at field are required to have current Recreation	narrow band. must be placed in slot on frequency board when pin is removed. lowed.
I have read the above rules and agree to abide by them an	d all other Skymasters and AMA rules and regulations.
Aember's Signature: Date:	
Club Officer Use:	
Date: Dues Paid: CK () CA	A() AMA Verified *Voted In
To renew by mail, send the following: 1) *Renewing members: Check for \$70 (\$100 after Fe 2) *New members: Check for \$100 (\$70 Dues + \$30 I 3) Photocopy of 2011 AMA Card 4) Self addressed stamped envelope	nitiation Fee) 8189 Eston Road S. Clarkston, MI 48348
5) Completed & Signed Application	Make checks payable to Skymasters
We are asking <u>ALL MEMBERS</u> to fill out an applica	tion to help verify our records. Thank You.



Park from the Headquarters located on Greenshield Road or at club events. Flying is permitted from 10 AM to 8 PM. The noise limit is 94 dBa at 10 feet—this noise rule is strictly enforced.

In the summer. Wednesday evenings are Student Nights and there are usually instruc-

APEER **SCRIPPS** FIELD PALACE I-75 WINTER MEETINGS LONG LAKE ROAD DUGD-ZDRU J O H N LARS'ON SCHOOL

arrange for instrucmore time totion gether on other davs. Our Chief Flight Instructor is Ron Sokacz (586)977-1404.

From June to August, Club meetings are held at the field, on the second Wednesday of

of the month at 7:00 PM. Bring a model for Show and Tell, enjoy coffee with donuts and listen to the speaker of the evening.

The Skywriter newsletter is sent to members, local hobby shops, and other R/C clubs in the area and around the country. All contributions are welcome. Please send articles to the Editor. If you know of anyone who may be interested in R/C Aviation, please give them a copy of this newsletter or a copy of an AMA magazine. It may spark their interest!