



Skywriter



Academy of Model Aeronautics

Skymasters R/C Club Newsletter - November 1996

President's Message

Well, the days are getting shorter, and evening flying is coming to an end for the year... Our fall meetings have started again at Larson Middle School. We have some interesting program lined up for the upcoming months. Suggestions for future programs are always welcome. Several club members have done meeting programs for us this year, sharing their knowledge of a part of our hobby. I would like to thank them for their efforts: *Darrell Watts* for Float Flying, *Carl Long* for Vacuum Forming; *Jim Schwarz* for Fiberglass Molds, and *Joe Finklestine* for Radio Information.

And now a look at the events of the past month: On October 5, we participated in the American Heart Association Heart Walk in Bald Mountain Park. Skymasters raised \$276 dollars for this cause! Thanks to *Denise Cardillo* for coordinating our efforts. Thanks also to the walkers: *Steve and Marita Mandalari*, *Bob and Donna Burns*; and to *Darrell Watts* and *Bill Leppard* for helping me in the kitchen cooking over 250 fat free hot dogs, and with the static display of planes which attracted the attention of walkers. We received a nice thank you note from *Susan Lowell* and the American Heart Association for our efforts.

On October 22, *Graham Overton* and I visited an engineering class at Lahser High School in Bloomfield Hills. We brought in several planes and talked with the class about RC flying. We are scheduling a return trip to take some aerial photos of the football field which will be used for scale drawings of a stadium project. They are also applying for a grant to allow a class to build RC airplanes next year!

On to other things...

Have you seen the October issue of Flying Times?? A large portion of this issue covers our Float Fly at Island Lake State Park. There are some wonderful pictures and a write-up on the event in this Michigan RC newspaper..

Swap Shop Season is in full swing already in Southeast Michigan. I have been to two already... (Yes dear, that is a new wing rack in the basement... There just wasn't room for the newest addition in the old rack...) OK, so I already bought a plane... and there are many more swap shops to go! Don't forget to bring in your newest addition (built or purchased) for Show & Tell. The more planes, the better, and you get a chance to win a \$10 gift certificate too.

A reminder that there is only ONE meeting in November (13), and ONE meeting in December (11) due to holidays.

Our November meeting is the forum for our annual elections. If you, or anyone you know is interested in running for an office, please talk to a member of the board. We would be happy to tell you more about what's required. It can be a lot of fun, and is a chance to give something back to the club. We always like to have a mix of old and new on the board. There is plenty of help from past officers for what needs to be done, and new ideas are always welcome.

Our December meeting is our annual Holiday party at the school. Plan to bring the family, and your airplanes! More on this next month.

Happy Landings,
Greg Cardillo

MEETINGS: 13-NOV-96 } ONLY ONE MEETING
11-DEC-96 } IN NOV & DEC !!

1996 Club Officers

- President: Greg Cardillo 2086 Cedar Key Court, Lake Orion, 810-391-6803
- Vice-President: Carl Long 47278 Jeffery, Utica, 810-254-0048
- Secretary : Paul Shurtliff 1915 North Lake Drive, Troy, 810-689-3489
- Treasurer: Jack Fleming 322 Jerrffery, Royal Oak, 810-435-4487
- Editor: Gary Walling 3403 Nichols Drive, Auburn Hills, 810-299-4654

Articles must be received by the 20th for the next issue. Articles may be reproduced from Skywriter.

October 9, 96 Meeting at Larson Middle School

- Minutes from the September 25, 1996 meeting were read and accepted.
- Treasurers report - The treasurer was not in attendance (up north with buddies).

PRESENTATION

Presenter - Jim Schwarz

Jim did a presentation on fiberglass cowl making. Jim explained that he made a pattern out of foam (blue foam worked better than white), applied a released agent on the foam then pressed it into a container of plaster; a layer of Gal Coat is placed on the dry plaster mold then the fiberglass strips are applied. Jim had brought with him samples of past cowls he made (they looked great). **Thanks**

Jim for your many presentations over the years!

SHOW and TELL

Joe & Christopher Haas - Joe & Chris displayed an ST Sonic Blaster, a rocket powered glider which weighs 1 lb., it uses an F24 refillable engine which produces 8 lbs. of thrust in 1/2 second, the engine burns for 2.5 seconds. (Joe & Chris won the gift certificate).

Chris Knee - Chris displayed a Combat Zero, it is a foam kit with some balsa on the wings, it weighs 2.1 lbs. and is powered by an OS 20.

OLD BUSINESS

- Make sure that you vote in the AMA elections.
- If you pay your AMA membership fee before November 15, 1996 you save \$3.00.
- The Skymasters raised \$276.00 for the Heart Association during the October 5th Heart Walk at the Bald Mountain Trout Lake area. **A big thanks goes out to those club members who participated in and worked this event.**

NEW BUSINESS

- Is anyone interested in being a club Officer next year? Each position is available: President, Vice President, Treasurer, Editor, Secretary. If you would like to learn more about these positions, please speak to an officer. Elections will take place on November 13, 1996.
- A field closing gathering will take place on Friday evening October 25th at the field, hope you can attend (the field doesn't really close).
- There will not be a club meeting on November 20th.
- The Kevin Phillips (the builder of Ugly Bob, covering by Mr. Petke) band will play for us at our December 11th Christmas party. **Thanks Kevin!**

Wanted: Balsa USA "Enforcer." Darrell Watts is looking for an Enforcer for some testing, before building a model of his own design off of this general plan-form. How it looks is not important, even if it is a little heavy that's no problem. Should be reasonably straight for flight test evaluation. If you have one for sale, call Darrell at 810-373-8777.

"Your Complete Model Shop"

Tel: 810/757-7160
Fax: 810/754-4060



Specializing In
Radio Control Models

23326 Van Dyke
Warren, Michigan 48089

SKYMASTERS

Club Jackets

(Order Form)

New Club Jackets come in **three options**:

1. The jacket referred to below as "*Satin*" looks like the same material as our current jackets has snap front and blue with white stripe knit cuffs, collar and waist band.
2. The jacket referred to as "*Oxford*" is the same color as the satin but the finish of the material is more like an oxford cloth dress shirt.
3. The one referred to as the "*Sport*" is the same color of blue but has a zipper closure, white and red bands around the sleeves, a full "turn down" type collar that is red and the "flap" that covers the zipper is red on the inside.

Samples of all three coats will be at the Nov. 13th meeting. These sample jackets will be "on sale" at that meeting. If you cannot make the meeting, complete this order form and get it to Darrell Watts (810-373-8777) by Nov. 13th if you want your jacket or shirt(s) by Christmas!

To calculate the price of your jacket take the price of the jacket plus the price of the logo. If you wanted both the small logo on the chest or the large logo on the back...add the price for both.

Monogram--There is no additional charge if you want your first name embroidered on the chest of the jacket, T-shirt or golf shirt.

	<u>Jacket</u>	<u>Small Logo</u>	<u>Large Logo</u>	<u>Name</u> Yes/No	<u>Total Price</u>
"SPORT"	\$50.00	\$12.00	\$25.00	_____	_____
"SATIN"	\$32.00	\$12.00	\$25.00	_____	_____
(Childrens size)	\$18.00	\$12.00	\$18.00	_____	_____
"OXFORD"	\$30.00	\$12.00	\$25.00	_____	_____
(Childrens size)	\$22.50	\$12.00	\$18.00	_____	_____

T-SHIRTS or GOLF SHIRTS -- available in medium blue or white. (Specify color when ordering)

Fruit of the Loom "best" 50%cotton/50%polyester T-shirt with chest logo - \$14.00 _____

Outer Banks II golf shirt with chest logo (monogram on sleeve if desired) - \$25.00 _____

>>>SIZE - Adult Size: XXXL ___*; XXL ___*; XL ___; L ___; M ___; S ___; Children's Size:XL ___; L ___; M ___; S ___

*(Jackets size XXL is \$3.00extra & XXXL is \$5.50extra. Larger sizes available [up to 10X] at additional cost.)

If you want your first name on the chest, carefully print in the boxes below. Example:

D	a	r	r	e	l	l
---	---	---	---	---	---	---

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Name: _____ Telephone: _____

Additional Instructions: _____

FROM THE AMA NATIONAL
NEWSLETTER :

Cryogenics

Make Your Speed Engine Stronger

You Gussed It—Take Your Engine and Freeze It!

by John Tate, North American Speed Society 129

History: I was watching a TV program called *Next Step* on the Discovery Channel. They were reporting on a company called 300 Below Inc. The company was freezing metal items from golf clubs to automobile engine blocks. I started paying attention when they pulled out the go-cart racing engine case from the freezer. The company claims that by freezing certain types of metal, they can make it up to 100% to 500% stronger with less friction between the metals. This process sounded unbelievable to me. Have our metal stress problems been answered?

Theory: The *Next Step* program explained that molecules in metals are not equally spaced from each other. This is the problem with all metals after they have been processed by melting, then poured, molded or forged. The old method of stress relieving was to heat the metal evenly for a long period of time and bring it back to room temperature very slowly. This only relieves the internal stresses in the metal and makes it the same strength overall. The cryogenic process (freezing) brings the molecules as close together as possible and then allows them to redistribute equally by slowly thawing the metal. This will relieve the metal of internal stresses, plus the metal will also become stronger (tempering). There would be less friction between metals with the molecules distributed equally. The secret to this method is to do it very slow and controlled accurately.

The Company: 300 Below Inc. has freezers cooled with liquid nitrogen. The temperatures in the freezers are controlled by a computer. The computer takes the temperature of the metal down to the coldest it can go and then brings the temperature back up slowly to room temperature. The process takes around 24 hours to complete. They don't just drop the metal into liquid nitrogen. The metal would go into thermal shock and shatter when it hits the liquid nitrogen. The engine for the quarter mile record holder gasoline burning Harley Davidson motor was treated by 300 Below Inc.

Plan of Attack: I found their number and gave them a call and asked if they could freeze treat a model airplane engine. Well, guess what? A model airplane engine has not been treated as to date. They told me to dismantle the

engine and send all of the components except items made of rubber, plastic or glass. They did not know how much to charge me because nothing this small had been done before. The minimum charge was about \$49.50 so the model engine should not exceed this. They only charge \$89 to do a Harley Davidson block. I have two Super Tigre 29X engines that are still new in the box. The engines were taken apart, cleaned, fitted and reassembled. Both engines were fitted as close together as possible to each other. The piston and cylinder fits were a little loose. The pistons could be pushed all the way through the cylinders with a little pressure. Both the engines were test run one time. The (open exhaust) max rpm was close to 22,000 for each. One was disassembled and packaged for shipment to 300 Below Inc. Everything but the glow plug, head gasket and crankcase gasket was sent. The ball bearings have brass retainer cages so they went also. The other engine was not sent so comparison testing between them could be done. All I had to do was to sit back and wait for the engine to come back from 300 Below Inc. Second thoughts started to come to my mind. Were the brass bushings in the aluminum connecting rod going to crack due to the aluminum shrinking more than the brass? Was the chrome in the cylinder going to flake off? Will the piston and cylinder still be round? What else could go wrong?

Results: The engine came back 1-1/2 weeks later. All items looked the same as when they were mailed out. 300 Below Inc. stated that "the only thing that would look different when the engine came back was the bill added to the box it came in. The metal items would not change color. The only thing that would be different is that the metal items would be stronger."

Cylinder: The first thing I noticed was that the piston would barely go back into the bottom of the cylinder. The piston stopped at the middle of the exhaust port. Comparing the stock cylinder to the treated one, it was noticed that the treated cylinder shrank just a little. The before and after dimensional check of the cylinder was almost the same. I could not measure the difference (not within a 10 thousandth of an inch) with the crude equipment I have. No doubt a large bore gauge could have shown the difference, but I don't have one. The cylinder slid back into the case just a tad bit easier

(almost not enough that one could tell). The cylinder had to be honed out for the piston to fit. Usually it takes me about fifteen minutes to hone a cylinder to fit a piston properly. The chrome in the cylinder was harder than ever (if that is possible) The honing process took over one hour to make the piston fit as it did before. I had to hone through the chrome into the brass of the cylinder only at the exhaust and intake ports area. Usually the chrome will start to chip off when I hone through the chrome and go to the brass liner. The treated cylinder did not do this. The cylinder was the hardest I have ever honed. I could not tell when the hone ground through the chrome to the brass as I normally could. An examination of the cylinder determined that the area around the ports constricted during the freezing process and did not return to the original diameter.

Piston: No noticeable changes could be measured.

Connecting rod: The inside diameters of the wrist pin and crank bushing had been reduced in size. The difference was so minute that no corrective action was taken (lapping or reaming to fit). The bushings did not look as if they had cracked because of cryogenics.

Crankshaft and bearings: No dimensional changes could be measured, except the bearings hand spun over with less friction.

Crankcase, head and internals: No noticeable changes could be measured. The case had to be heated to install the bearings, as it took to remove them. The bearings and crankshaft fit seemed better. The head fit

the cylinder the same. The back plate and disk set up were the same.

Spinner nut: The brass spinner nut would not screw back onto the crankshaft. It had shrunk just enough not to be able to screw back on the crankshaft threads. All that was needed was to clean out the threads in the spinner nut (maybe a thousandth at the most). This was the hardest thing I ever had to tap. A 1/4" x 28 plug tap was used. I bent several pieces of piano wire that were inserted through the spinner nut so it could be held to be tapped. The chunk on the lathe was locked in position and the tap was tightened as much as possible. The only other material that I have tapped this tough was titanium sheet for landing gear.

Reassembly: The engine was reassembled and it felt close to the same as before the freeze treatment. Usually I over tighten the head and back plate screws to where the screwdriver leaves marks in the screw head slots. This time you could not see any screwdriver marks in the screw head slots. Yes, the screws were made harder also.

Testing: The decision was made to test run the engine with the brass exposed in the cylinder. This area is below where the piston starts to get a close fit. I know the treated brass is not as hard as chrome, but the piston should not hit this area very much anyway.

Both engines were test run with open exhaust only (no tuned pipes). The engines had 30 minutes (10 runs at 3 minutes each) before the max rpm was recorded. A fast rich setting of 20,000 rpm was easily set for the full 30

Cryogenic Treated	Untreated
Super Tigre 29	Super Tigre 29
Propeller = Top Flite Quarter Midget Pylon Racing 6-7 Narrow	Propeller = Top Flite Quarter Midget Pylon Racing 6-7 Narrow
Glow Plug = K&B Long	Glow Plug = K&B Long
Fuel = 10% Nitro with 20% Oil (Half castor, half synthetic)	Fuel = 10% Nitro with 20% Oil (Half castor, half synthetic)
RPM (max) 24,300	RPM (max) 23,100
Notes: Max RPM was easy to set. Max RPM was held steady with no tendency to drop off	Notes: Max RPM was hard to maintain. The max RPM wanted to drop off. The K&B plug finally blew trying to hold max RPM.

minutes of break-in time for each engine. The engines have stock and timing parts.

The engines were taken apart after test running. There was no wear and tear on any of the internal parts that I noticed. The treated piston did not show any wear by running in the liner with the brass exposed around the intake and exhaust ports. Where the piston seated to the cylinder (polished ring around the top of the piston) was the same for both. The crankshaft bearings were checked by turning the crankshaft over by hand. The crankshaft in the treated engine spun over effortlessly compared to the non-treated engine. This was the first time I ever had bearings that felt as good as these. The crankshaft seemed like it would turn over forever when spun over by hand. The engines will be retimed for B speed.

Conclusion: The cryogenic treated engine did run faster than the non-treated engine as hoped. The crankshaft bearing had less resistance for the treated engine verses the non-treated engine. The 10% fuel doesn't wear on the engines like the high nitro fuel used to. The wear patterns will be checked throughout the engine's lifetime. I felt like the cryogenic process was worth the trouble.

Afterthoughts: Hopefully this article will start some NAAS members to think of ways to improve the engines we use. Maybe they can figure out which parts in a speed engine need to be freeze treated and which ones do not. It would be nice to have a speed engine that would not break or wear out. The glow plug should have been sent out and treated also, even with the danger of cracking the seal. A glow plug element that is 100% to 500% stronger would be nice to have. Maybe someone can get a glow plug manufacturer to send in a spool of the element wire and have it freeze treated. The cost of \$50 for a few thousand feet of wire sounds inexpensive to me. The glow plug is usually the first thing we need to change in speed engines. The future can only tell how long we make these speed engines last. If you want to try this process, the address and telephone number are listed below:

300 Below Inc.
1160 South Monroe
Decatur, IL
(217) 423-3070

from Speed Times
 North American Speed Society
 Box 82294
 North Burnaby, British Columbia, Canada
 V5C 5P7

P . . a . . r . . t . . y . . ! . . !

Skymasters Christmas Party

December 11th

7:30 'til ???

Larson Middle School

Good Food!!! ... Good Fun!!!

Santa and Gifts for the Children

(12 and under)

Huge Static Display of Favorite Planes

Plan now to bring your favorite and/or newest and/or most unusual and/or niciest airplane for display and conversation!



Skymasters Swap Shop

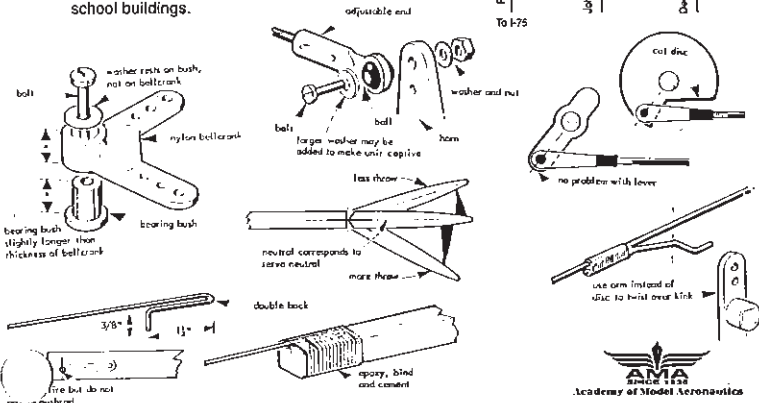
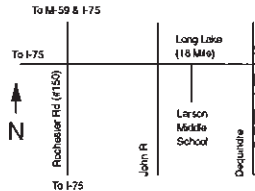
Join the Skymasters Radio Control Club
for our annual Swap Shop on :

Wednesday 26th February 1997

Table set-up - 6PM, general entry - 7PM

Larson Middle School
Long Lake (18 Mile), east of John R., Troy

- \$3.00 Admission includes :
Door prize ticket.
One free table (first come - first served)
- Refreshments available.
- 50/50 drawing.
- Raffles drawn throughout the evening
- Please remember - no smoking in the school buildings.

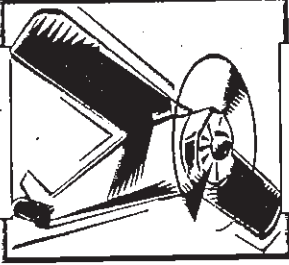


For more information call Gary Walling on 810-299-4654

**9th ANNUAL
MIDWEST R/C SOCIETY**

SWAP MEET

**SUNDAY
NOVEMBER
3RD
9:00 A.M.
TO
3:00 P.M.**



**\$
50-60
RAFFLE
\$**

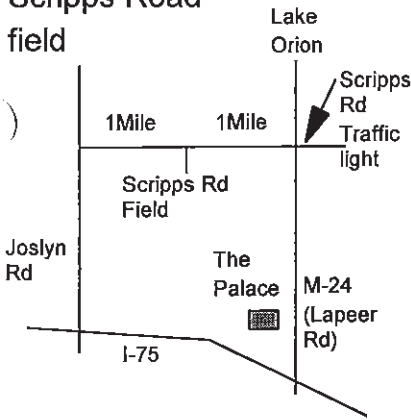
R/C BOATS - CARS - HELICOPTERS - PLANES
AT NORTHVILLE ACTIVIES CENTER
303 WEST MAIN, NORTHVILLE, MI
ADVANCED TABLE REGISTRATION - \$12.00 - AT DOOR - \$14.00
INCLUDES ONE ENTRY FEE AND RESERVED PARKING IF RECEIVED BY OCTOBER 18TH
ADMISSION \$3.00 - UNDER 12 YEARS OLD FREE
DOOR PRIZES EVERY HALF HOUR (MUST BE PRESENT TO WIN)
FOOD, POP, HOT DOGS, COFFEE, DONUTS, HOMEMADE BAKED GOODS
AMPLE PARKING AVAILABLE
FREE RADIO FREQUENCY CHECK BY PETE WATERS
BUILDING & COVERING DEMONSTRATIONS
FOR GENERAL INFORMATION & TABLES CALL
HERB JUDD - (810) 477-0349 OR RAY WHITNEY - (313) 591-9314
DON' T MISS IT!!!

Ho - Ho - Ho

It's time to order that Skymasters apparel!

Christmas is fast approaching. If you want Santa to bring you a club jacket, golf shirt or T-shirt you need to get it on order now. Darrell Watts will bring samples to the November 13th meeting so you can place your order there. The jackets samples we have had will also be for sale at a special price at that meeting. If you can't make the 13th meeting then mail the order form included in this letter to Darrell by Nov. 13th!

Scripps Road
field

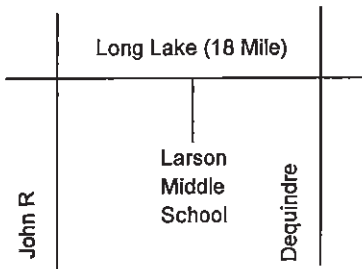


Skymasters information

Skymasters (AMA club # 970) field is located within the Bald Mountain State park (see the map). State park stickers are required and can be obtained from the Park Station located on Greenshield road which is couple of miles south of Scripps road on M-24. Flying is permitted from 10AM to 8PM. The noise limit for 1996 is 96Db at 10'. This noise rule is strictly enforced.

Students are encouraged at any time and co-ordination with a flight instructor may be advisable during week days. During the summer months Wednesday evenings is student night and there are usually instructors around all afternoon. Student night is also 'pot-luck' buffet night so that you can fly-n-feed (though not usually at the same time). Chief Flight Instructor : Pete Foss 810-652-8756, Assistant Chief Flight Instructor : Graham Overton 810-628-1651.

Winter meetings



From June to August Club meetings are held at the field on the first Saturday of the month at 12 noon - a great chance to fly and gossip too ! Winter meetings are held at Larson Middle School (on Long Lake just east of John R - see map) on the second and fourth Wednesday of the month and they start at 7:30PM. Show and tell, coffee and donuts, and model-speak are the order of the evening. Come along - they are fun.

The Skywriter newsletter is sent to all members, local hobby shops and other local R/C clubs. Any and all contributions are welcomed, please pass any articles to the Editor. If you know of anyone who may be interested in our hobby (friend, relative, neighbour, colleague or acquaintance) - why not give them a copy of this newsletter or a copy of an AMA magazine.



G Walling
3403 Nichols Drive
Auburn Hills
MI 48326

Skymasters

Radio Control Club of Michigan