

THE CONNECTOR

The Official Newsletter of the Aeroguidance Society, Inc.

Endicott, New York



TONY CAMMARATA EDITOR

President-JAMES McKEOWN Vice President-ROBERT PUNKAR
Secretary-JOE FELICE Treasurer-GROVER ELLIS
Board Member-RICHARD FISH Board Member At Large-BART McTAGUE



VOLUME 20

ISSUE X

October 5, 1987

AGS CALENDAR OF EVENTS

DATE	TIME	PLACE	EVENT
10/03/87	10:00 AM	FOREST HILL PARK	FLOAT FLY
10/14/87	7:30 PM	NYSEG BUILDING	AGS REGULAR MEETING
10/14/87	8:30 PM	NYSEG BUILDING	ELECTION OF OFFICERS
10/14/87	7:00 PM	NYSEG BUILDING	NOLL'S GROUND SCHOOL
10/19/87	7:30 PM	TO BE ANNOUNCE	AGS BOARD MEETING
11/10/87	8:00 PM	NYSEG BUILDING	AGS ANNUAL AUCTION
11/10/87	7:00 PM	NYSEG BUILDING	NOLL'S GROUND SCHOOL
11/10/87	7:30 PM	NYSEG BUILDING	AGS REGULAR MEETING
11/16/87	7:30 PM	TO BE ANNOUNCE	AGS BOARD MEETING

RE-ELECT JIM MC NEILL
AMA EXECUTIVE VICE PRESIDENT

AGS OCTOBER DUES DUE

DUES FOR THE 1ST HALF OF THE 1988 FLYING SEASON IS DUE (MY HOW TIME FLY'S...). MAIL YOUR CHECK OUR TREASURER GROVER ELLIS AT THE CLUB MAILING ADDRESS; P.O. BOX 39 VESTAL N.Y. 13850-009 OR DIRECTELY TO GROVER'S HOME: R.D. #4 BOX 22 RHODES RD. APALACHIN N.Y. 13732.

PREZ SEZ
by Jim McKeown

My term of office is rapidly coming to a close and it is with mixed emotions that I will leave the office of President. The nominating committee, chaired by Bob Punkar has provided an excellent slate of officers for the coming year.

The nominated officers are as follows:

President:	Bob Noll
Vice President:	Frank Gioffredo
Secretary:	Joe Felice
Treasurer:	Grover Ellis
Board Member at Large:	Dick Allen

In addition to these nominations, Dick Fish has agreed to serve the remaining term as Board Member at Large for Bart McTague who has been unable to complete his appointment due to work commitments.

I would like to take this opportunity to thank all of the club membership for the support that I have received during my term of office. For me, this has been a very interesting year and, I have learned a lot about the way the club is run.

Please don't forget that the October meeting which, by definition in the by-laws is the annual business meeting, is scheduled for WEDNESDAY OCTOBER 14TH AT NYSEG.

With the exception of the By-Laws committee, all of the committee appointments which I made at the beginning of my term will be dismissed as of this meeting. I am sure that the new President will be contacting us all for the same quality assistance which I have received this year in running the club. Again many thanks for your help.

The Program for the October meeting will, as required by the by-laws, be the Historian's report which will be given by Gerry Skreckowski. This will be fairly brief and will be followed by a report by Bill Underkofler on the status of the frequencies being introduced at the end of 1987.

Again don't forget the change in the meeting from Tuesday to WEDNESDAY, OCTOBER 14. I hope to see a real good turn out at this meeting so we can all have our part in electing the new slate of officers. Keep 'em flying.

**RE-ELECT JIM MC NEILL
AMA EXECUTIVE VICE PRESIDENT**

SAFETY CORNER

By Tony Cammarata.....Editor

*There are a couple of things I would like to pass on to you this month.

First, do not, I repeat do not be so anxious to fly that you neglect to perform vital safety checks on all your airplane's controls. Yes, your intrepid Editor thought he had checked everything out, but as luck would have it, a malfunction of a nose wheel on take off run resulted in an abort of take off. On repair of the nose wheel I discovered that the nose wheel was tight, but the servo arm for the wheel came off the servo. I know I tightened the screw, but apparently not securely. Vibration caused the servo arm to pop off during take off. Losing ground control actually saved my airplane from sure disaster. Upon discovering the detached nose wheel control (this meant I would have no rudder control; that would have been bad enough since I was flying on redder and elevator only); but I further discovered that the elevator servo arm screw was loose, and half way up or off the mount. No doubt that the loss of the rudder arm during take off saved my plane from sure disaster.

Frequency Alert

A word about the visual identification to be used on your transmitter antenna when using a new frequency to become legal, the first of 1988. To the uninitiated, the frequency colors you fly will not be as evident to others as your colors are today (on the old frequencies). With the frequency markers (channel number) to be located at the base of the antenna and the single flag at the tip of the antenna, (this identifies your band) one cannot easily tell your channel from your flag colors. One of our fliers was using the new flag system and it appeared he was flying on an "old" 27mhz frequency. On closer observance he was flying a current channel (54 I believe) but using the new system of frequency identification. If I had not been following the rules and went to the frequency board to place my card in the flying position, I would not have discovered this aberration. We must be on our toes when the new frequencies are upon us.

Safety is no accident; make it not happen

THE ACTION AREA by Bob Noll

SOUND ADVICE - This month I'll present the data that I have collected at our field during the past several months relative to sound measurements. I'll also present some information and a few conclusions that can be obtained from this data. I do not intend to give a technical course in sound measurement which is a very complex subject as I have discovered, but will pass along a few tidbits of information that can be used by each club member as we plan our projects for next year. Knowing a little bit more than we did last year at this time may help us make a wiser purchase regarding an engine or muffler. You'll also notice that prop selection is an important factor.

You've probably noticed that the AMA speaks of sound while many of us talk about noise. Just what is the difference? To the physicist, noise is a sound, whose character can be defined and whose properties can be measured with the same equipment that measures other sounds. To the psychologist, who is also interested in all types of sounds, noise is an undesired sound, as contrasted with music and speech, which are usually desired sounds.

First let me mention that there has been much written in Model Aviation regarding sound and that there is considerable disagreement among modelers around the world regarding the methods of measuring sound and the interpretation of the data. For our purposes I have decided to let this up to the FAI sub-committee for aerobatics and have used the procedure as defined in the FAI rules. FAI Aerobatics is the only category of R/C that has a defined rule governing sound levels.

The sound from our engines comes from several different sources. These include the prop, exhaust, mechanical vibrations (from the plane also) and the air intake. I believe that the greatest percentage of the sound comes from the props we use and careful selection of props and the speed we turn them at can be a great factor in reducing sound. Next seems to be the exhaust and better selection of mufflers and pipes will have a definite advantage here. Mechanical vibration can be handled by mounting the engine on shock mounts, a technique that many FAI competitors are beginning to use.

The present FAI rule for R/C Aerobatics is as follows:

"The maximum noise level will be 98dB measured at three meters from the centerline of the model with the model placed on the ground at the flying site. With the motor running at full power, measurement will be taken 90 degrees to the flight path on the right-hand side and down wind from the model. The microphone will be placed on a stand 30cm above the ground in line with the motor."

Lacking any better standard to compare our data with, I decided to make our measurements in accordance with this criteria. Therefore, this past spring, I located two stakes on our field 3 meters apart so that they are even with the surface of the ground and favor our prevailing wind direction. The sound meter is affixed to a wooden stand in order to meet the 30cm specification. All measurements presented in the table were made in this manner.

Lets take a look at the sound of the 40 size engines that were all using the same size, 10x6, props.

Engine	Muffler	Prop	RPM	Sound
-----	-----	----	-----	-----
Enya	Enya	Master Air Screw	12,000	94
Enya	Enya	Zinger	12,000	95
K&B	Homemade	Zinger	11,000	91
HB	HB	Top Flite nylon	10,000	95
HB	K&B	Master Air Screw	12,500	98

Notice that the highest speed engine had the highest noise reading, but the slowest engine was not the quietest. Maybe the nylon prop is a factor since it definitely flexes more than either a wood or fiberglass prop. Could be that the homemade muffler of Bob Punkar's is a bit better than the commercial ones.

Of particular interest is another 40. This one was using a Master Air Screw 11x7 prop and turning at 10,000 RPM. It was an OS with OS muffler and registered 87dB. Not only did the sound meter show this very low reading, but it was obvious to everyone who heard this plane in the air that it was very quiet.

However, the best reading of all on a 40 came from the K&B turning a Rev-Up 12x8 THP prop at 6800 RPM. This was not the maximum RPM for this engine but it was done as part of a little experiment to compare the 2 cycle 40 with an electric motor turning the same prop at the same RPM. This was the maximum RPM for the Astro 25 and to everyone's amazement the sound readings from the two motors were essentially the same. Surprise!

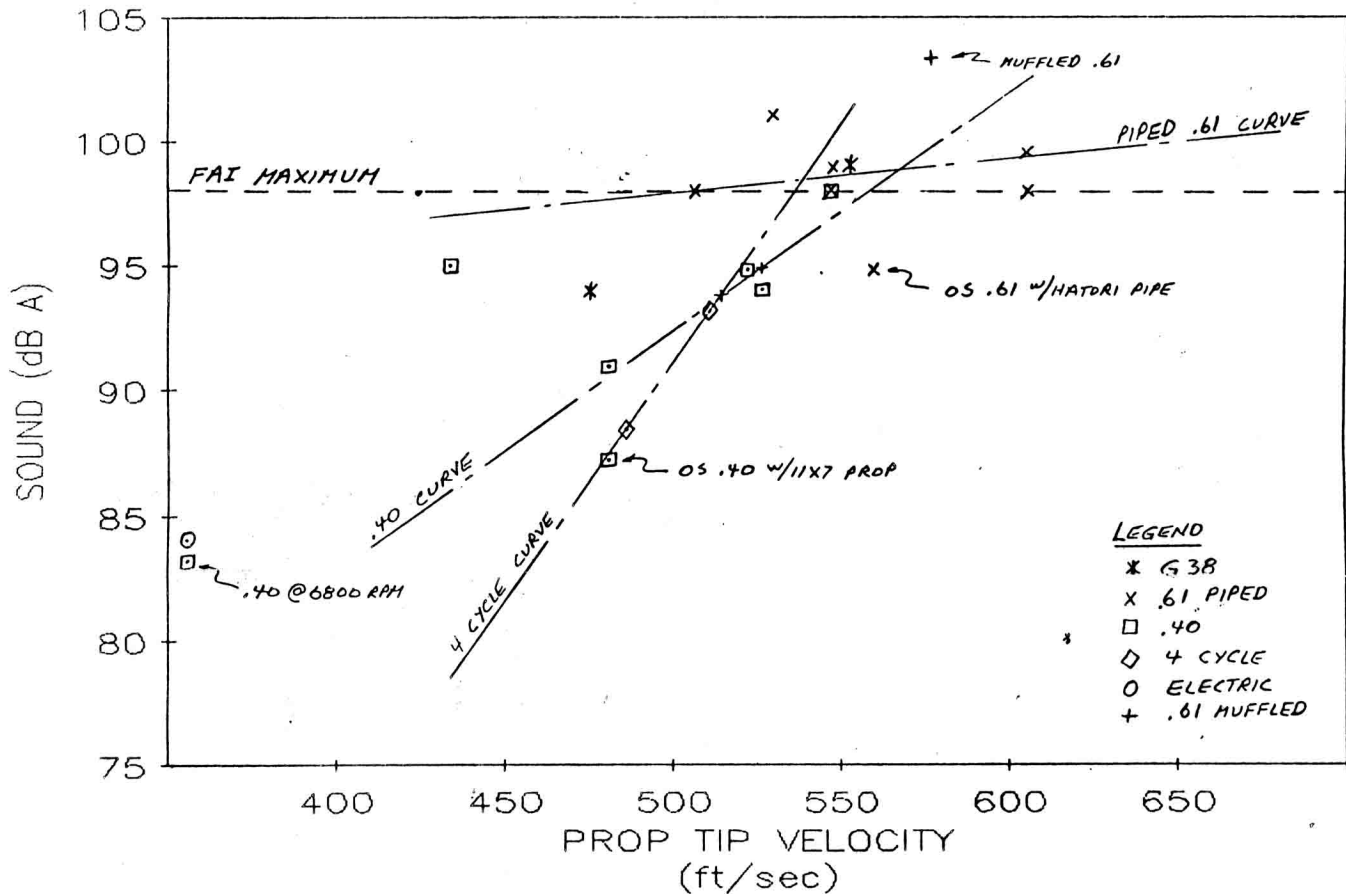
I was interested in trying to find a factor that would take into account the prop diameter and RPM and therefore I calculated the PROP TIP VELOCITY (TV) in ft/sec. These values were plotted on the accompanying chart and several conclusions can be drawn.

1. All engines can be made to meet the 98dB maximum.
2. The curve for the piped 61 Rossi is rather flat indicating that variations in TV do not change the sound levels significantly.
3. The curve for the 40's is nearly 45 degrees and therefore a more pronounced relationship between the TV and dB.
4. The curve for the 4 cycle engines is very steep indicating that possibly the mechanical noise is more of a contributor to noise in these engines than for 2 cycle engines.
5. The loudest engine was a muffled 61.
6. The quietest engines were the ones operating at low, 6800 RPM.
7. The OS 61 with a Hatori pipe was the quietest of the 60/61's.

I'm sure you will be able to draw more conclusions as you study the data. It is important to note that this is a very small sample size from which to draw any conclusions, but we'll keep making measurements and adding to our data base so more statistical results can be achieved.

Every time my Tan Van is at the field the measuring equipment is there also. So don't hesitate to ask me to make a sound check. The more data the better.

Aeroguidance Society Inc. Sound Data — Summer 1987



**RE-ELECT JIM MC NEILL
AMA EXECUTIVE VICE PRESIDENT**

AEROGUIDANCE SOCIETY INC. SOUND DATA - Summer 1987

PILOT	PLANE	ENGINE	MUFFLER	PROP	RPM	SOUND
Ralph J.	AT-6 Porterfield Fokker D7	G-38 Astro 25 G-38	Q50(m) Elec. Q50	Z 20x8/14 R 12x8 THP Z 20x6/10	5400 6800 6300	94 84 99
Dick A.	15-500 Tiger Tail	Enya 40 Webra 61 BH	Enya Semco FT Semco C Webra	M 10x6 R 12/7 THP	12000 11000 10000 9800	94 103 95 94
Bob P.		K&B 40	Homemade	Z 10x6 R 12x8 THP	11000 6800	91 83
Paul K.	Kadet	OS 40 SF	OS	M 11x7	10000	87
Dick F.	Kaos 40	Enya 40 XTV	Enya	Z 10x6	12000	95
Jerry S.	Tweety Bird	OS 25 FSR	OS	T 8x5(m)	12200	98
Frank G.	Kommander 2	Enya 60 4C		M 11x7	10100	88
Bob N.	MAYA	Rossi 61 RE	Rossi pipe	MK 11.5x8+11 DW 12x8 DW 12x9 W 12x9 A 11.4x11 Temp. 72F 62F 70F Hitori 72F	10000 11500 11500 10500 11000 10500 11000 11200	98 98 100 99 99 101 98 95
Ed H.	Taube	HB 40	HB	T 10x6 nylon	10000	95
Joe F.	P-39	HB 40 PDP	K&B 40	M 10x6	12500	98
Jim M.	Nieuport 28	Saito 80 4C		T 12x8 PP	9800	93
Bill U.	Cobra Heli	Enya 49	Homemade	?	?	88

NOTE: Sound values are dB A as measured by Radio Shack Meter 33-2050.
RPM values were measured by ACE Tachmaster II.

Legend: MUFFLER m = modified
 FT = flo-thru
 C = closed

PROP THP = true helical pitch
 m = modified
 Z = Zinger
 R = Rev-Up
 M = Master Airscrew
 T = Top Flite
 W. = World Engines
 A = Asano

ELECTRIC CHALLENGE: UPDATE.... by Jerry Skreckoski

Since the last update there has been two more attempts to break the AGS Electric duration Record which stood at 20:20.

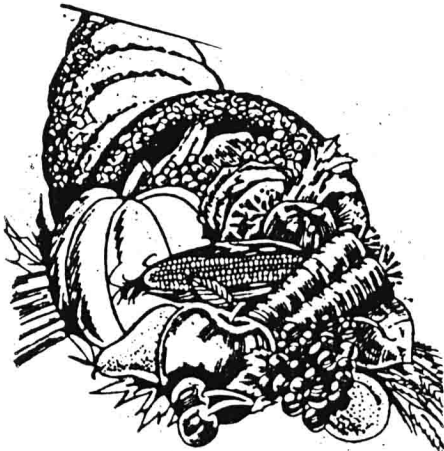
Dick Allen's "Challenger" glider had a second try which increased his actual time to 20:09 but officially 19:09 because of the hand launch. This was a significant improvement over his original actual time of 15:02 (official: 14:02). He did this by REDUCING the 1.2 amp hr cell count from 8 to 6 cells. The same .15 Astroflite cobalt motor was used in both flights. He also down-sized the propeller but I don't know the size finally selected.

Another attempt by myself resulted in an actual and official time of 21:51. This was done with an Olympic 650 glider with .05 Astroflite cobalt motor and a landing gear for ROG to avoid the 1 minute penalty. Two power packs with a dual switching mechanism (I will describe in more detail in a future article) allowed choice of a 7 cell 800 mamp pack for take off and climb or an 8 cell (2-fours in parallel) pack for cruise. An 11-6 Revup prop was used. Why not a speed controller? Space and cost consideration.

The most interesting part of this is that although I am carrying more battery, I am only 2:42 ahead of Dick. It appears that there are two factors in Dick's favor. His glider is smaller AND CLEANER aerodynamically.. less drag. The .15 motor is more efficient at the low power range needed for duration.

This is not the final chapter of the Electric Challenge.

RE-ELECT JIM MC NEILL
AMA EXECUTIVE VICE PRESIDENT



FLASH - BY DICK FISH

Our Inter-Club float fly October 3rd at Forest Hill Park was postponed due to very bad weather conditions. Bart mcTague, Bob Noll, Grover Ellis and I ventured out to the lake Saturday morning, but decided to set another date after getting a look at the situation. The cold winds, rain and very soggy ground from previous rains convinced us to try for better weather conditions in a couple of weeks. I talked to the owners and we now have Saturday, October 17, 1987 set-up for our next try. If you have been working on your floats and didn't quite get them ready, this will give you two more weeks to finish them. We should be getting some more good weather before winter, so think SUN for October 17th.

Our 1988 Mall Show will be January 23, 24th so try and plan to finish any of your pet projects if you would like to put them on display. The Mall Show is one of the best ways to show off our hobby to the general public and I would like to see as many of our members as possible participate. This is also a good opportunity to meet and recruit potential new club members. More news on this later. Plan now to attend the October meeting as it is our annual election of officers.

See you at the FLOAT FLY - October 17th at 10 A.M.

CONNECTOR 10-87

Terry

WELL, THE 4TH ANNUAL AGS FLOAT FLY AT GREENWOOD PARK HAS COME AND GONE. THOSE OF YOU WHO STAYED AWAY BECAUSE OF THE THREAT OF RAIN MISSED A GOOD DAY OF FLYING. THERE WAS NO WIND AND THE TEMPERATURE WAS A COMFORTABLE 65 DEGREES. WE DID HAVE 11 REGISTERED FLYERS WHO PUT IN 33 FLIGHTS. THE SHORE WAS MUDDY BUT THE WATER WAS FINE. AS USUAL, WE HAD A NUMBER OF SPECTATORS IN ADDITION TO THE FLYERS. I HOPE SOME OF THEM WILL RETURN NEXT YEAR WITH PLANES.

SPEAKING OF NEXT YEAR; IT HAS BEEN SUGGESTED THAT WE CONSIDER EXPANDING THE MEET TO 2 DAYS. THIS WOULD REQUIRE A LITTLE GREATER PARTICIPATION ON THE PART OF MORE CLUB MEMBERS TO ADMINISTER BUT I AM WILLING TO BE CD AND DO THE GROUND WORK IF THE CLUB IS INTERESTED. LET ME OR ONE OF THE BOARD MEMBERS KNOW HOW YOU FEEL.

THE 2 NORTHSTARS SEEMED TO GENERATE THE MOST INTEREST AND COMMENTS. MINE FLEW FOR THE FIRST TIME AND I AM VERY HAPPY WITH IT'S PERFORMANCE. UNFORTUNATELY THE OTHER NORTHSTAR WAS TOTALED ON IT'S 3RD FLIGHT WHEN THE ELEVATOR QUIT WORKING AND IT TRIED TO NEST IN A TREE.



Aero Guidance Society, Inc.
Post Office Box 39
Vestal, New York 13850-0039

