

THE CONNECTOR

The Official Newsletter of the Aeroguidance Society, Inc.

Endicott, New York



TONY CAMMARATA, EDITOR

President	: Robert Noll	Vice President	: Frank Gioffredo
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Past President	: James McKeown		
Membership Chairman	: Thomas Donlon		



VOLUME 20

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AGS CALENDAR OF EVENT

<u>DATE</u>	<u>TIME</u>	<u>PLACE</u>	<u>EVENT</u>
11/12/87	7:00 PM	NYSEG BUILDING	GROUND SCHOOL
11/12/87	7:30 PM	NYSEG BUILDING	AGS REG. MEETING
11/12/87	8:00 PM	NYSEG BUILDING	AGS ANNUAL AUCTION
11/16/87	7:30 PM	ELLIS'S RESIDENCE	AGS BOARD MEETING
12/09/87	7:00 PM	NYSEG BUILDING	GROUND SCHOOL
12/09/87	7:30 PM	NYSEG BUILDING	AGS REGULAR MEETING
12/09/87	9:30 PM	PIZZA HUT	SOCIAL HOUR
12/14/87	7:30 PM	FELICE'S RESIDENCE	AGS BOARD MEETING
01/19/88	7:00 PM	NYSEG BUILDING	GROUND SCHOOL
01/19/88	7:30 PM	NYSEG BUILDING	AGS REG. MEETING
01/19/88	9:30 PM	PIZZA HUT	SOCIAL HOUR
01/25/88	7:30 PM	FISH'S RESIDENCE	AGS BOARD MEETING
01/26/88	7:30 PM	NOLL'S RESIDENCE	HANGER SESSION (RSVP)
01/23/88	7:00 AM	OAKDALE MALL	AGS MALL SHOW-ALL DAY
01/24/88	10:00 AM	OAKDALE MALL	AGS MALL SHOW-ALL DAY

TREZ NOTES

I THANK JIM MCKEOWN FOR SENDING ME A FRUIT BASKET FROM THE AGS MEMBERS AND MANY THANKS TO DICK ALLEN, DICK FISH AND OTHERS WHO HAD BROUGHT ME BOOKS TO READ AND OTHER MATERIALS AND VISIT ME WHILE I WAS IN THE HOSIPTAL RECOVERING FROM A MILD HEART ATTACK FOR WHICH I HAD ON SEPT. 22 1987.

AND MANY THANKS GOES TO BUD GRANT, DICK FISH AND PHIL ANDREWS FOR ALL THE HELP AND SUPPORT THEY GAVE ME AND THE SUSQUEANAGO R/C MARINERS BOAT SHOW AT VESTAL FRONT ST DAYS ON SEPT. 26

GROVER ELLIS
AGS TREASURER

The PREZ SEZ - by Bob Noll

Thank you very much for expressing your confidence in me by electing me as your new President. If my memory serves me correctly, this is the fifth time I have been elected to this office and I look forward to serving you and continuing the AGS tradition.

Just a short bit of information regarding my background for the newer members in the club. I built my first R/C plane in 1953 and moved to Endicott in 1959 upon graduating as a mechanical engineer from Lehigh University. I joined the AGS that summer and in August of '59 Lanny and I got married. We started our family in 1964 with the birth of our first daughter, Crystal and added another in 1968 when Tracey came along.

Over the years, I have built my share of planes including gliders, pylon racers, scale, pattern, sport and even a helicopter. My love of pattern flying has dominated over the years and therefore the majority of planes in my hanger are pattern designs.

Crystal is now a lisenced pharmacist living in Blue Bell PA, Tracey is a freshman at Keuka College and my love for this hobby has continued through the years and I think will do so for many more years to come. And again I am excited about serving the AGS as its president.

NEW MEETING DATES - As mentioned at the last meeting, we have been having trouble reserving NYSEG for our meetings on the second Tuesday of the month. NYSEG will only accept reservations two months in advance and for the past several months we have had to accept alternate dates. Therefore, the board has decided that our monthly meeting should be changed so that we can get back to a regular meeting schedule. After speaking to NYSEG we have determined that the probability of continuing to get a meeting room on a regular basis is much greater if we move to the third week of the month. Seems that most organizations meet the first or second weeks.

Therefore, starting in January we will be meeting the **THIRD TUESDAY OF THE MONTH.**

NEW BULLETIN BOARD - I have just completed a new bulletin board and it will be hanging at GJ's by the time you read this. We have needed a board that would better serve the communication needs of the organization. The new board features the names and phone numbers of the President and Membership Chairmen for those prospective newcomers who may be looking for a club to join. There is place for listing our next meeting date and program, our next activity date, function and location and a place for pictures and special information and notices.

The board members will be taking turns keeping the bulletin board up to date so you will be able to check it for the latest club meeting and activity information.

YOU THE PEOPLE - I am very interested in knowing what each of you want from the AGS during my term in office. Therefore I'll be calling each of you with a few questions during the next month.

* * * * *

SAFETY CORNER

By Tony Cammarata.....Editor

Some propeller talk again this month. Two items; the first is one that is probably benefit new fliers more; that is, those of us that do not quite have landings perfected yet. In my case when the wind is stiff I "fly" the plane to a landing. If my reaction is a bit slow on the flair, my propeller may nick the runway. With a wooden propeller I may (and have) incurred an imperceptible crack in my propeller. Even on fairly close inspection, I could not see the hairline crack. When I last flew, on the last landing, the prop DID nick the runway and I cracked the prop and did not notice the crack. Coincidentally, I decided to try a glass propeller to see how it would perform compared to the wood propeller. On removal of the wooden propeller I FELT THE CRACK that I could not at first see. On very close re-inspection, I could see the hair line crack and subsequently took the prop out of circulation.

The second item has to do with engine flooding and the possible consequences. After fueling up your favorite bird you might experience difficulty in starting as your engine flooded out because your motor was below the gas tank during fueling, and the fuel flowed into the carburetor. This flooding makes it difficult to start a engine. On use of a starter (electric) you may experience a backfire that results in the propeller flying off the prop shaft. THIS IS DANGEROUS. On two occasions, I have experienced this phenomena. Fortunately, the propeller did not hit anyone. I tilted the plane to "pour" gas out of the carburetor and that solved the starting (and backfire) problems.

Editors Note: In the last connector there were several references to one of the candidates running for AMA office. The inclusion of that information in the connector was inappropriate. A more appropriate notice is one that encourages all AMA members to vote for their candidate of choice.

Safety is no accident so make it not happen.

Special Club Calendar Dates

- * November 12. A Thursday is the next regular club meeting the program will be our annual AUCTION
The meeting room is cafe number 2.
- * December 9. A Wednesday is a regular meeting to be held in the Auditorium.
- * November 17. Next board meeting at Grover Ellis'

The New Frequencies..... Good News/Bad News
By Bill Underkofler

One more reminder: As of December 20, 1987 the old frequencies (designated by color: Brown/White, Red/White, etc.) may no longer be used. At the same time, new numbered channels 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, and 34 will be activated.

Unfortunately the introduction of more channels creates some additional interference problems. I worked up a chart showing all possible interferences that each channel was subject to. I was hoping to pick "best" channels. What I found was that no channel is free of all types of interference, but they do vary as to type of problems.

Some specific items to consider:

1. Illegal continuing use of old frequencies will be deadly. the new channels subject to old channel interference are: 14, 18, 22, 26, 30. Do not pick one of these if you expect to fly with non-AMA members. They may not know (or care) about the revised frequency situation.
2. Do get a narrow band (1991) receiver when buying new equipment - especially if you operate where all channels are in use without grouping (like at a quarter scale rally). This should protect you against everything except 3IM and illegal old frequencies.
3. At the club field a new grouping plan is needed if we wish to protect existing broad band receivers. A six group plan would be nearly bullet proof (except against illegal old frequencies).
4. Preferred Frequencies: Not all channels are created equal - their problems differ. For 1991 receivers there should be no serious problems with any channel. However, channel 12, 32, 38, 40, 54, 56 have a slight edge.

For broad band receivers selection should be based on which type of interference is most likely at your flying site (i.e., 3IM, old channel, IF, etc.)

5. Some (but not all) older equipment can be converted to a new channel. Check with your service center. Also consider the cost of conversion, and whether it's worth it. Your money might be better spent on a new radio.

Kit Reviews

As a further service to newcomers we are starting a new feature in this publication: Kit and product reviews. The review will appear in the Connector once then be put on file in the club library so that anyone can view them at a later date. During the first phases we will be experimenting with format and content of the reviews.

If you have recently purchased a new product or completed a new kit we would invite you to fill out a review sheet for our files. While we will file any review, the ones we are primarily looking for are ones that will be of use to newcomers. there are 3 reviews currently in the works, Sig Kadet, Sig Astro Hog, and Northeast Trainair .40. Terry Terrenoire.

AUCTION 1987

With the coming of winter also comes the annual AGS auction. This year, as we have done for so long, the November meeting will be short so that we may devote the evening to the redistribution of cash and goodies.

We will sell anything that can be hauled into the auction room, but we would prefer to have items of general modeling interest. Planes, Engines, Radios, Boats, Cars, etc. In the past there have been many good buys particularly on completed aircraft and new kits.

The rules are simple. Sign in and get a number when you arrive. Tag your items to be sold with your number. During the auction keep track of who bought your items and who you purchased items from. When we are done you have to settle up with your debtors and creditors. The club makes nothing from this event, but if you have any items you would like to donate they will be gratefully appreciated.

If you have items you would like to sell, but will not be able to attend call me and I will try to help.

Auctioneer, Terry T. 748-8146

Note of Interest: by Bart McTague

The other day I received a letter from one of our members that moved to Michigan. Most of you remember Brian Peters. He and his wife are doing fine out there, now to the letter. Brian has been doing quite a bit of flying since he moved. He has rebuilt his RED STICK into a tail dragger. He states he has had a crash recently and is now rebuilding it, the aileron servo went, and I know what that's like...wing over and down. Brian also says he is teaching an older fellow to fly. Brian would like to thank everyone in the club for their help especially Dick Fish, as Brian says every time he turns around he remembers something that helps him out of a jam. Just a couple more items and I will close. Brian also states that he misses float flying as no one out there is interested in it. Brian says HI to all, especially to Harold and "fast" Freddy. I hope you all enjoyed this bit of information about a past member.

The article appearing on the next two pages is provided by Dick Allen who brought it back from an electric fly he attended in Philadelphia, Pa.

CONNECTOR & WIRE LOSS TESTS

AN OPEN LETTER TO ALL ELECTRIC PILOTS
FROM KEITH D. SHAW

Recently I decided to do some testing of the losses caused by the wire and connectors we typically use. The results are included and may be used in any column, or newsletter, as long as credit is given.

WIRE TEST

	V	I	Ω /L	Weight/L
Jomar 12 ga.	.108	20	1.8 m Ω /ft	.33 oz/ft
Belden 14 ga.	.166	20	2.77m Ω /ft	.25 oz/ft
Astro 13 ga.	.170	20	2.84m Ω /ft	.35 oz/ft
Jomar 16 ga.	.266	20	4.44m Ω /ft	.18 oz/ft
Lampcord 16ga.	.356	20	5.94m Ω /ft	.25 oz/ft

NOTES:

1. All wire length was 36", voltage drop measured with a Fluke 8024, and current with a Simpson 0-50 amp precision panel meter.
2. Jomar 12 ga. has 665 strands and is quite limp.
Jomar 16 ga. has 259 strands and is like cooked spaghetti!
3. Belden 14 ga. is a 30 strand industrial wire that I have used for years in all my planes. It compares favorably to the "high-tech" wire, is substantially lighter, although a little stiffer.
4. The lamp cord is standard hardware store grade NOT recommended for electric flight use.

CONNECTOR TEST

BRAND	CONTACT RESISTANCE (MILLIOHMS)
Sermos	.27 \pm .05
Adams	.35 \pm .05
Jomar	.45 \pm .05
4 pin Deans	.90 \pm .1
Tamiya	1.4 \pm .1
Astro (gold Molex)	4.0 \pm .5

Notes:

1. All tests were done at 20 amp, voltage drop measured by wires soldered directly to connector body (Fluke 8024).
2. All tests are an average of at least three connectors; the Astro test was over five plugs.
3. The Sermos connector wins, although it must be completely seated; otherwise, resistance can creep up to .40 m Ω .
4. The Adams plug is a beautifully made gold unit with a very solid contact. A real quality product.

5. The Jomar plug is an industrial quick-disconnect unit (also available at Radio Shack) and is a very impressive performer at a cheap price!
6. 4 pin Deans uses 2 pins paralleled. Small and light for tight installations.
7. Tamiya plug is the bulky, standard "car" type, also used by Leisure (and now Astro). Mediocre at best.
8. The real surprise is the small gold Molex plug used by Astro. I checked 5 plugs, both sides (even tried tightening them) to be sure these readings weren't a fluke.

* * * * *

What do these results really mean to performance? Let's look at a best case/worst case comparison. Assume we have a sport plane with plugs on the motor and battery pack (4 contacts), 20" of wire, and a 20 amp current drain.

Best case: (Sermos connectors, Jomar 12 ga. wire)

$$\text{Voltage Drop} = 4 \times (.27) \times 20 \text{ amp} + \frac{20}{12} \times (20 \text{ amp}) \times (1.8 \frac{\text{m}\Omega}{\text{ft}}) = 82 \text{ mv}$$

Worst case: (Astro connector, lamp cord)

$$\text{Voltage Drop} = 4 \times (4.0) \times 20 \text{ amp} + \frac{20}{12} \times (20 \text{ amp}) \times (5.94 \frac{\text{m}\Omega}{\text{ft}}) = 518 \text{ mv}$$

Power delivered to the motor goes like V^2 , so percentage power loss would be:

$$\text{Power loss} = \frac{V_o^2 - (V_o - \text{Loss})^2}{V_o^2} \times 100 \%$$

The voltage loss (due to wire and connectors) will affect higher cell count systems less than small systems.

Power loss in 24 cell system (cobalt 60)--Best case .7% loss

Worst case: 4.3% loss

Power loss in 4 cell system (cobalt 02)--Best case: 4% loss

Worst case: 24% loss(!)

* * * * *

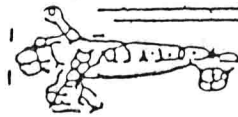
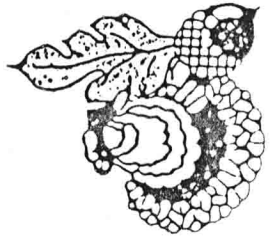
To verify these calculations, I made up test harnesses. The experimental results check out in close agreement.

I hope all this work will help guide electric modelers to chose components wisely. Soldering is not hard to learn, so it is possible to get good performance, rather than rely on ready made (and not-so-good) harnesses.

After making these tests, I rewired a Cobalt 02 plane (no plugs, direct wired) and obtained a full 1000 rpm increase! A "mild" plane suddenly became a real performer.

It pays to pay attention to details.

Count on Us
For Performance



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