

# EVA EXHAUST SYSTEMS

The Newsletter of the East Valley Aviators

May 2002

## Officers:

President - John Pomroy #759-4976; Vice President - Brian Sodt #539-9781;  
Secretary - Gene Coleman #982-4338; Treasurer - Don Manchester #854-8396;  
Safety Officers/Board Members - Mike Wyman #641-4810, Bill O'Brien #985-9261  
Newsletter Editor - Doug Sharpe #288-6300

## Exhaust Systems gets new Editor

Commencing with the May 2002 issue Doug Sharpe has volunteered to take over as Newsletter Editor for Susan Campbell. Doug is a full time Apache Junction resident and started flying with EVA last summer. Although he hasn't been flying for very long he has over 25 years of radio controlled hobby experience racing RC cars and boats, both gas and electric. Doug also brings previous club newsletter experience with him to the position, having been the Secretary and Newsletter Editor for the Camarillo Pond Rats RC boat club in Camarillo, CA.#

important that you keep us informed about changes to your mailing address, telephone number and e-mail account. Several newsletters were returned or rejected by e-mail and it takes considerable effort to track you down. Send changes to Don Manchester, (480) 854-8396 or [dmanchesterm@aol.com](mailto:dmanchesterm@aol.com). If you received the newsletter by mail and would like to get it faster through e-mail, send Don your e-mail address.

*(Continued on page 2)*

## Membership

Submitted by *Don Manchester*

### EVA Treasurer Report – May 2002

2002 MEMBERSHIP. We now have 250 members, the maximum number authorized in our Club By-Laws. We were able to accommodate everyone on the waiting list and now have 26 new members. Several of them were at the last meeting, but since then we gained; Paul Doucet, Derek Cevedia, Greg Thompson, Kenny Mills, Tyler Mills, Daryl Fuller, Damien Loecker and Ken Miller. Give them a warm welcome when you see them at the field.

There are two new applicants on the waiting list. We hope to enroll them as soon as a vacancy occurs. Call Don Manchester (480) 854-8396 if you have any questions about membership.

CLUB ROSTER. The Club Roster is used for the newsletter and other club business so it is

## May Membership Meeting

Palmas Del Sol East  
Wednesday, May 1<sup>st</sup>  
7:00 pm

Located at 3400 S Ironwood Drive

**Directions are:** Go east on Highway 60. Exit at Ironwood Drive as if you were going to the field. Go South on Ironwood and take the first right (200 yards) into Palmas Del Sol East park. The gate guard will know that you are coming and will direct you to the clubhouse which is 1/4 mile straight in on the left.

You can't miss it.

## PRESIDENT'S PODIUM

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**Submitted by John Pomroy**  
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Congratulations to the Sodt family on the birth of their 2<sup>nd</sup> child, Ashley Caroline, who was born Sunday March 31st at 11:08pm. I've seen a couple pictures and she's a real cutie!

We are still looking for a new, permanent meeting location! The ideal locale would be between Baseline and Southern east of Gilbert Rd and west of Power Rd. In particular, Val Vista Lakes or Greenfield Village would be great if anyone has access to these facilities. If you, or anyone you know, is living in this area please check into meeting locations and let the BOD know of any possibilities. We really need you help on this!

Things have been going smoothly at the field with a few exceptions. The first issue has been associated with non-member use of our field. Please review the guest policy below and be diligent in enforcing it. The policy has been updated to explicitly state that guests must have proof of current AMA membership to fly even though this was implied via standard club membership requirements.

EVA is a private club and visitors/guests not escorted by a current member are not authorized to use our field. The member bringing a guest is responsible for him or her. The member must insure that all club rules are being adhered to and only use the sponsor member's badge to claim a frequency pin. No AMA cards or other identification is suitable in lieu of the EVA badge. The sponsor member must be at the field at all times while the guest is on the property. **All guests are required to have proof of current AMA membership.**

There are several reasons for this policy. First, it insures that a non-member guest is aware of our club rules and flight line procedures vital to insuring the safety of everyone's person and

property at the field. Secondly, our AMA insurance does not cover accidents associated with non-members using our field unless they are on a buddy-box with a club member. Thirdly, it allows any member to easily identify a visitor as sponsored or not by a member by checking the badge (or lack thereof) on the frequency board. Please be diligent in enforcing this policy. It's not fair to you and your fellow club members to have non-members using your facility for free.

The second issue relates to flight line practices. It's always a good habit to call "take-off" or "landing" and in what direction whenever someone else is flying with you. It's also a good idea to have a spotter stand with you while you fly to help you monitor other traffic; especially at times when several flight stations are in use. Lastly, pay attention to the take-off and landing pattern before you taxi out for takeoff or setup for a landing. It is common to have the wind change direction between the time you took off and are going to land so be alert to changes in the traffic pattern. Always take off and land into the wind!

The next meeting will be at the Palmas Del Sol location on Wednesday, May 1<sup>st</sup> at 7pm. Directions are located elsewhere in the newsletter.

That's it for now. Fly safe and see you at the club meeting

*John #*

*(membership continued)*

SUNSHINE COMMITTEE. The Sunshine Committee consists of Don Manchester (854-8396 [dmanchesterm@aol.com](mailto:dmanchesterm@aol.com)) and Gene Coleman (982-4338 [gene505@juno.com](mailto:gene505@juno.com)). We have had some recent incidents where we learned too late about members being ill or hospitalized and we want to remedy this, but we need your help. If you know of someone who is seriously ill, hospitalized, has a serious family medical problem or worse, make an extra effort to let either Don or Gene know so they can arrange for an appropriate card.

CLUB HATS. All of the Club hats have been sold. We will order more if there is enough demand for them. Let Don or John know if you are in favor or getting more.

AMA INSURANCE. Everyone knows that our club is insured by the AMA and that all members and guests must be AMA members. **There is one exception**, an individual without AMA insurance can be given a **one time familiarization flight** on a buddy box with a club member instructor. **But, and this is important, the airplane must belong to the club member and not to the student. In other words, your AMA insurance is not valid if you use the student's airplane for the buddy flight.**#

## **Minutes of the General Membership Meeting Held March 8, 2002**

Compiled by *Gene Coleman*

There were 46 members in attendance for this meeting held at the Palmas Del Sol Clubhouse at I-60 and Ironwood Drive in Apache Junction. Coffee and cookies were served.

President John Pomroy introduced 18 new members to our club. Each stood and told us where they were from and their level of experience.

President Pomroy mentioned the great fun fly day we had in February and the huge attendance. The possibility of the year end banquet was discussed and will be looked into further as the year progresses.

Discussion was held on our fall fun fly. It will be non-competitive and food will be served. It was also suggested that we have our annual swap meet in conjunction with the fun fly so as not to conflict with the VDO swap meet in February. Turkeys or certificates for them could be the prizes for the fun fly.

Helicopters and their flying safety was discussed and Jon Thompson was asked to provide some guidelines as to safe helicopter flying at our field.

Susan Campbell, our newsletter editor who has done a fabulous job for 2 years wishes to retire from that position so we need a new newsletter editor. Anyone with computer literacy and desktop publishing experience will be considered for the job. We need volunteers for that position.

Don Manchester and Gene Coleman have graciously accepted the positions on the sunshine

committee. If you know of any member who is sick or undergoing surgery, please notify either Don or Gene so we can send them a card wishing them a speedy recovery. Don can be reached at 480 854 8396 and Gene can be reached at 480 982 4338.

Mike Wyman, contest director of our last fun fly presented hats to the event winners of the contests held that day.

Jon Thompson, our training director, offered training to all in the club who desire it. Jon also would like anyone who would like to assist in the instruction to contact him. We are always in need of instructors.

Don Manchester gave a financial and membership report. We dropped 46 members on the 1st of March and picked up 25 that were on the wait list. When the wait list is exhausted we will have 246 members.

Gene Coleman mentioned resources that could be tapped for the scratch builder including sources for small screws and wood from local resources.

Brian Sodt, Vice President, gave an excellent deposition concerning float flying and suggested that 5 or 6 members get together for a float fly somewhere in Arizona. Dub Feth graciously brought his float flying plane in to help with the lecture that Brian gave.

### **Show and Tell**

In the show and tell department, 3 items were brought in for your viewing pleasure. First was a beautiful Hog Bipe built by Gordon Briggs and painted in a very pretty red, white and blue.

Second was an equally beautiful F-14 Tamecat that Bryan Ferguson had recently built. It is powered by a Rossi .40 and had not flown as yet.

Lastly Gene Coleman displayed a fully framed up Something Extra kit by Sig to show the excellent job that Sig is doing with their laser cutting techniques. Thanks to those 3 modelers for sharing their expertise.

Several door prizes were raffled off to everyone's delight. We would ask the membership to continue supporting their local hobby stores as they assist our club in many ways including donation of prizes and at cost levels on other prizes.

Lastly, I, Gene Coleman would like to remind all of our members to please make our new

members feel welcome at the field. We have a good reputation for that and we would like to see it continue. Someone gave me a hand once in awhile and we all need it from time to time. Thank you all.

Respectfully, Gene Coleman, Secretary EVA #

Recently a ducted fan jet showed up at the EVA field and flew very well with Rob Grisolia and Mike Thomson at the controls. The model, constructed by Mike and sold to Rob has a .91 O.S.



ducted fan engine that develops 4.5 HP. You will see more of the jet as Rob is planning to bring it to the field as much as he can. Mike flies in California at the El Toro marine station. They have a sanctioned field there. In the picture Rob is on the left and Mike on the right. - *Gene Coleman#*

## Modern R/C Battery Systems

Part 1

Submitted By *John Pomroy*

When I started flying RC in the mid 1970s there was only two types of batteries used in RC equipment. Low-end radio systems used AA alkaline dry cell batteries. In these systems, you typically put four AA batteries in the airborne system and eight in the transmitter. Once these batteries were dead you threw them away. High-end radio systems of the day utilized rechargeable

batteries known as NiCds in both the airborne system and transmitter. The 'new' NiCd batteries were AA type cells with four for the airborne system and eight for the transmitter just like their alkaline counterparts. That's all there was back then and how things have changed. Today's battery technology is extremely sophisticated and specialized. A glance through the battery section of a modern day hobby store will show all types of battery pack sizes, shapes, capacities, voltages, and chemistries. The variety of choices is quite overwhelming and confusing if you don't know a little bit about battery terminology and what your needs are.

Let's review a few important definitions applicable to any battery of yesterday, today, and tomorrow.

**Chemistry** – This refers to the active materials in the battery that allow storage of electrical energy as chemical energy. For example, NiCd is short for Nickel-Cadmium, which are the two key materials that make it a battery and not just ballast used to balance your plane.

**Voltage** – Refers to the electromotive force of the battery. In simple terms it means how hard a battery can 'push' the device connected to it. For example, a higher voltage airborne battery (e.g. 6V vs. 4.8V) will make your servos

move faster. Battery pack voltage depends on the type of cells (i.e. chemistry), number of cells and how they are wired together. Every battery pack has a rated voltage marked on it somewhere.

**Capacity** – Refers to how much charge the battery can hold. It is always expressed as mah, which is short for milliamp-hours. A milliamp is one-thousandth of an amp (0.001 amp = 1 milliamp). For example, 500mah battery pack can deliver .5amps for one hour at its rated voltage (or 1 amp for a ½ hour). You can think of battery capacity as the size of your fuel tank. A bigger capacity battery is like having a bigger fuel tank in your plane to run the radio equipment. Every battery pack has its rated capacity marked on it somewhere.

As far as I know every transmitter sold today comes with a 9.6V NiCd battery with the capacity required providing about two hours of operation on a full charge. Basic and mid-range radios usually have a 500~600mah Tx battery and the higher end

computer radios have an 800~1000mah Tx battery. The computer radios consume more power due to all that fancy software so the batteries are usually bigger in those systems. Unless you fly a lot more than most on any given day there isn't much need to change the Tx battery that came in your system. If you do fly a lot you can always fast charge your Tx at the field between flights and keep flying (more on fast charging later). If you think about it, whether your flying a 40 size trainer, a 40% aerobatic plane,

32oz tank in your 40 size trainer and filling it up every time you fly; your carrying enough fuel to fly for an hour but you only need 15 minutes worth. The table below shows typically battery selections for a range of aircraft setups.

Regardless of the battery you have in your plane the most important thing you can do to avoid a crash due to battery failure is check your batteries after every flight. If you don't have a meter, buy a good ESV (expanded scale voltmeter) such as those

Engine Range	Airplane Characteristics	Servos	Battery
0.020 to 0.15 ci	WS ≤ 36", Wgt ≤ 3 lbs	2 or 3 Micro or Mini	150 to 250 mah
0.15 to 0.60 ci	WS ≤ 65", Wgt ≤ 8 lbs	4 or 5 Standard	500 to 600 mah
0.60 to 1.80 ci	WS ≤ 80", Wgt ≤ 14 lbs	5 to 6 Mid/High Torque	800 to 1200 mah
1.80 to 3.5 ci	WS ≤ 90", Wgt ≤ 18 lbs	6 to 8 High Torque	1200 to 1500 mah
3.5 to 6.0 ci	WS ≤ 105", Wgt ≤ 26 lbs	7 or 9 Ultra High Torque and/or Digital	1700 to 2400 mah
> 6.0 ci	WS ≤ 132", Wgt ≤ 45 lbs	10~14 High Torque	3200 to 4800 mah

or a park flyer your transmitter is doing the same thing every time you turn it on (at least in terms of battery use). As a result, the stock setup works great for everyone. The airborne battery is a very different situation. Obviously, the airborne battery provides power to the receiver and all the servos. The power consumed by the receiver to process transmitter signals and generate servo commands is trivial compared to the power consumed by the servos to perform the work of moving control surfaces and the throttle. As a result, the size of your plane, the number and type of servos, the flight envelope of your aircraft, and many other factors affect what the right battery size is for your situation. The typical radio system comes with a 4.8V, 500~600mah NiCd receiver battery. This is a good battery for up to 60 size models using 4 to 5 standard size servos. For anything beyond this typical setup an airborne battery 'upgrade' is in order.

So how do I go about choosing the right battery you ask? First of all, there is no one best battery choice for any given situation. There are usually several choices that will satisfy your needs. Of course, you can always put a bigger battery in your plane than it requires with the only down side being added (and perhaps unnecessary) weight to your plane. This would be analogous to putting a

sold by Hobbico. They run about \$15 to \$30 depending on type. These meters have a 'load' built into them equivalent to about 350 milliamps of current draw. This load is appropriate for most setups up to 60 size aircraft that use the 'standard' 500~600 mah battery. Once you get down to 5.0 volts for a 4.8V pack or 6.2 volts for a 6.0V pack under load it is time to recharge. After a half dozen flying sessions you'll start to develop a sense of how many flights you get on a full charge. This is very useful information because most NiCds battery packs show a gradual reduction in capacity over many cycles as they get old and before they fail completely. Continued monitoring of your batteries after every flight allows you to notice gradual reductions in battery capacity that is the signal it's time to replace your battery. Don't keep flying with a marginal pack! Just replace the battery. If you really feel the need to try and salvage your battery you'll have to buy a good quality battery cycler which will cost you at least \$100 or more. These are great devices if you have several battery packs to maintain and monitor but I don't recommend them for the beginner. You can buy 4 or 5 500~600mah packs for the cost of a cycle and when you only have one or two planes this will keep you in the air for many years before you've spent what a cycler costs. Spend your first dollars on a good quality

ESV. I guarantee it will pay for itself within a year by preventing the most common cause of in-flight failures (assuming you use it).

The 2<sup>nd</sup> most valuable piece of battery field support equipment I recommend is a field 'fast-charger' such those sold by Hobbico. If you fly a lot each time you go out you will find this device invaluable. You can fully recharge your Tx and Rx in about 20 minutes! One of these devices allows you to fly from dawn until dusk without having to go home because of low batteries. They run about \$35 to \$40 and can be hooked up to any 12V DC power source such as your car battery.

That's it for now. Part 2 of this subject will be in a Frequently Asked Questions (FAQ) format in the next newsletter. I have several points I'll bring out next time but if you have any specific questions let me know and I'll include them in part 2.#

Look out guys here she comes. Amanda Mull (18) and her brother Joe (6), both members of EVA proudly display Amanda's new stunt plane built by her grandpa, Gene Coleman. Amanda



recently soloed and now wants to try acrobatic flying. This plane should fill the bill for her. Joe likes to loop and roll but the "in betweens" leave him uninterested. It will be a few more years until he solos.- Gene Coleman #

## General Membership Meeting Schedule

The East Valley Aviators general membership meets 6 times each year on the first Wednesday of the month. Meetings are held in the months of January, February, March, May, October and December. An issue of the *Exhaust Systems* newsletter will be published the week before each of the meetings. We are still looking for a permanent meeting place. Until that time the meeting location will be published in the *Exhaust Systems*. We are always looking for input from all of our club members. If you have any, articles, pictures or classified ads you would like to see published please contact Doug Sharpe (480) 288-6300 or [dougsharpe@worldnet.att.net](mailto:dougsharpe@worldnet.att.net). - Doug Sharpe #

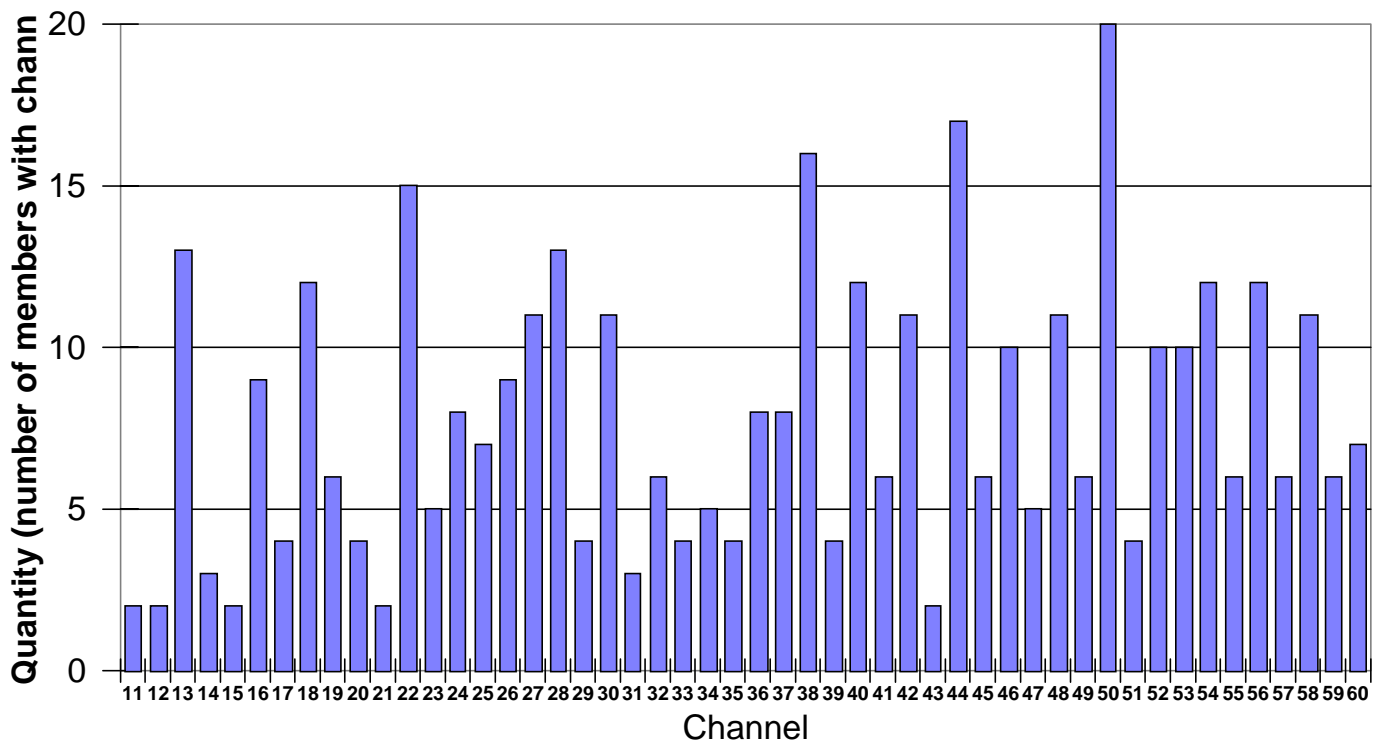
## Sunshine Committee Report

We saw Milt Svoboda at the field again. Milt has a new knee and is doing just fine.

Bill O'Brien got a new hip on April 15 and is getting used to it at home. We hope to see him back out at the field soon.

Remember, tell your Sunshine Committee about these "events." - Don Manchester #

### EVA Frequency Tree (Radio Channel Distribution)



April 13, 2002

Here is the latest update on our survey of transmitter frequencies being used in our club. Not everyone has responded so there will likely be more members using a given channel than shown. We will periodically update this as we get additional information.

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