The Transmitter

Suburban RC Barnstormers - P.O. Box 524, Bloomingdale, IL 60108

AMA CHAPTER 640 IMAA CHAPTER 194 November 2012

http://www.suburbanrcbarnstormers.com

Coming in November and December

November 12th, Club Meeting, Bloomingdale Public Library, 7:00pm
November 15th, Dome Fun Fly, White Pines Golf Dome, 11:00pm
November 26th, Board Meeting, Bloomingdale Public Library, 7:00pm

December 10th, Christmas Meeting, Bloomingdale Public Library, 7:00pm
December 14th, Dome Fun Fly, White Pines Golf Dome, 11:00pm
December 17th, Board Meeting, Bloomingdale Public Library, 7:00pm

Message from the President

By Mike Maciejewski

Hello to all,

It is election time, and it is not too late to run for office or Board member. If you would like to be president of the club, (and we know you do) let your friends know so you can be nominated. It is a good way to meet more members of the club. So come to the meeting and cast your vote for one of the lucky people who were nominated.

Don't forget to vote for District Vice President, there are two candidates. Read their campaign speech and vote for one them.

I have heard from the Forest Preserve people about the new flying field. The agreement with CN railroad took longer than expected. The agreement should come up for a vote by the end of the year. They are still working on the field layout based on comments we gave. Also, it looks like for budgetary reasons, the shelter will have to come in a future phase. They will grade the area for it for when the money is available. Where will the money come from to seal coat the runway every few years?

Just because it is November does not mean flying season is over. I have two small airplanes for flying in the cold weather and have a set of skies to put on one of them. If you are going to fly over the winter don't forget to get your flying permit from the county for next year.

According to the November issue of Model Aviation we had a swap meet in August. So when you see Debbie Howe, ask her how it went. I think it is great that Debbie was willing to put in so much effort to have a second swap meet. I would have liked to have gone, I need a new pair of wheels for my Sweet N Low. ☺

Nominees So Far

President: Mike Maciejewski
Vice President: Steve Thill, Steve Merrill
Treasurer: Bob Elsner
Secretary: Scott Taylor
Fun Fly Chairman: Steve Merrill, Bob Sarley, Hector Rivera
Flight Instruction Chairman: John Howe
Safety Chairman: Tom Lyons
Automatic Board Member: Dave West
Board members at large:
Marty Schrader, John Kubitz, Jeff Peca, Scott Stampfli, Ed Wonnocott, Ron Hilger

Notes of the Suburban RC Barnstormers Membership Meeting

October 15, 2012

ATTENDANCE
There were 35 members.

OFFICER REPORTS
President: Mike Maciejewski presided over the meeting.

Mike reminded members it is election time for the National AMA Officers. Please take the time to read the candidate material and vote!

Vice President: Dave West said the door prizes were some adhesive backed sandpaper and some strap type Velcro. The F-20 Tigershark has returned, but for one last time. It will go tonight!

Dave said John Howe would talk about the International Miniature Aircraft Association for which he is an Assistant Director

Treasurer: Bob Elsner said that he was doing some house cleaning and came across some pictures taken by Manny Rico during a Delta Dart build. He posted them on the bulletin board for members to view.

Secretary: Scott Taylor said a replacement label printer has allowed him to get back in the nametag business.

COMMITTEE REPORTS
Fun Flys – Scott Stampfli said thanks for all the members help with the Fun Flys this year. He wishes his best to the new Chairman, whoever that is!

Dome Flying – Marty Schrader said dome flying is just 3 weeks away! He is still in need of one more dome staffer. Staffers need to be able to help in the dome at least one night per week but will be able to fly at no charge. Please volunteer. If there are no volunteers, he is going to start calling!

Marty is preparing promotional materials and admission will be about the same as last year. Discount and season passes will still be available ($175 for season pass).

Dome Fun Flys – Ron Hilger said get ready for the dome fun flys. These take place each month on the Thursday after each meeting. The first dome fun fly will be a pylon race, both on the ground and in the air. Don't forget to inflate your tires!

Swap Shop – John Howe said the Swap is on and he has already gotten a reservation for the first table. The Swap is the Saturday before Easter and is very early this year.

OTHER BUSINESS
Elections - Scott Taylor reviewed the by-laws regarding club elections. Then conducted nominations for Officers, Committee Chair positions and Board Members. Nominations remain open through the next meeting. If you know someone you feel will make a good candidate, please nominate them at the next meeting!

ENTERTAINMENT
IMAA District VI Assistant Director – John Howe talked about the International Miniature Aircraft Association (IMAA), which is a special interest group within the AMA for Giant Scale RC models. Giant Scale aircraft are defined by size. Models with single wings must have at least an 80-inch wingspan to qualify. Multi-wing (i.e. biplanes) must have a minimum 60-inch wingspan and autogyros can be 50 inch. Also, true quarter scale models qualify.

The IMAA is the largest special interest group within the AMA with 155,000 members. There are 13 Districts and they have their own quarterly publication called High Flight.

The Suburban RC Barnstormers have their own IMAA Chapter called the Hell's Barnstormers. Ever notice the other chapter number at the top of the newsletter? That's them!

Membership is and additional $25 per year. Any questions? Ask John!

PLANES and THINGS

John Howe showed the members a couple of his favorite tools. A balsa stripper, used to make narrow strips of balsa. John also had a long straight edge with sandpaper for sanding long items like ailerons.

John also had a Giant Extra 330 ARF (from Hanger 9). It is powered by a Zenoah 445.

Jeff Mrachek showed members his new Stringer ARF. He has powered his by an OS 55AX engine with a Pitts style muffler. It weights in around 5 pounds 7 ounces.

Marty Schrader had three versions of an electric powered jet made from foam insulation. They had different wing configurations. Marty encouraged members to experiment!

RAFFLES

John Kubitz was the winner of the Turkey raffle. **Bob Babyar** took home the sandpaper and **Tom Jacobs** got the Velcro. **Scott Taylor** took home the F-20 Tigershark.

November Entertainment

By Dave West

Our November meeting will likely be a busy one -- with the club election and turkey raffle distribution. So, we will not have a featured speaker or demonstration. However, there should be plenty of time for airplane "show and tell". If you have a new plane you would like to show, please feel free to bring it along.

We will also have a special rollover raffle at the end of the meeting. Before leaving for his new home in California, long-time member Tom McAvoy generously donated his Blade CX2 helicopter to the club. The Blade is ready to fly and includes the transmitter and many spare parts. It 's ideal for dome flying.

This will be a one-night raffle with a reduced number of available one-dollar squares. Someone will be the winner Monday night -- maybe it's you!

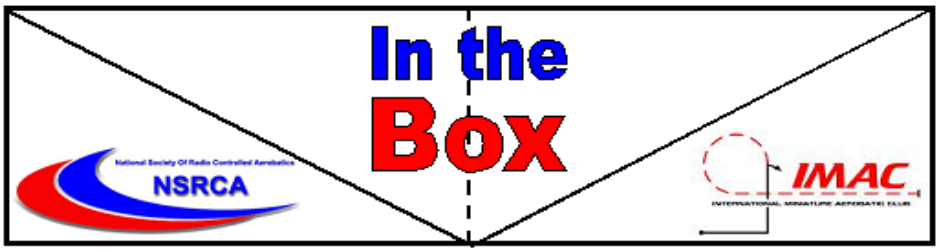
Turkey Winners

Below is a list of members that have won “turkeys” at our monthly meetings. You will receive your Jewel gift/turkey card at the next meeting. But, the great thing about these “turkeys” is they don’t melt if you can’t pick it up at the meeting. If you can’t make the meeting, you will find your “turkey” in the mail!

Frances Crowe
Leno DiDonna
Thomas Jacobs
John Kubitz

Glenn LaRocco
Lynn Littlefield
Tom McAvoy
Jeffrey Mrachek

Scott Stampfli
David West



Pattern Flying - Precision Aerobatics

Taking your passion for flying RC airplanes to the next level!

By: Bob Sarley

More on Servos: In this month's article we will expand on the discussion of how the servo provides the sophisticated proportional control of our aircraft's control surfaces.

Since the early 1990's servos have used a de-facto standard Pulse Width Modulation technique to control the position of the output shaft. Servos are connected to the receiver via a three-wire connector providing the power, signal and ground leads. The R/C receiver relays the control pulse from the transmitter to the servo via the signal line, but the signal line does not supply power to the motor directly. It is used as input to a control chip inside the servo that supplies the higher current pulses required of the servo motor. The power (+) wire supplies the power to the servo electronics and the motor (by way of the motor controller). The ground (-) wire is a common ground for both power and signal returns. The current supplied to a servo varies from almost nothing (10mA or less) when the servo is not receiving any control signals, to a significant current when the servo is operating under full load (600mA or more).

Although manufacturers have not officially standardized the pin-out configuration of the three wires, most connectors are wired the same way. But beware, there are exceptions. One that comes to mind is the Airtronics connector configuration where the power and ground wire is reversed. Connecting a servo that is wired incorrectly can damage the electronic circuitry in your servo or receiver or both. Because Airtronics received so much bad press about the reversed polarity of their servo connections, in December 1997, Airtronics started shipping servos with an optional "Z" connector that matches the connector found on Futaba, JR, Hitec and other brands. This means that if you have an Airtronics servo with one of the "Z" connectors, you do not have to switch power (+) and ground (-) wires to use that servo with non-Airtronics receivers. If needed, most servos can be rewired simply by carefully lifting the plastic tab holding the pin into the connector, pulling the pins out the back, and reinserting the pins in the proper place.

The electrical signal used for servos provides fully proportional control and when you consider that one signal line is presenting the servo with both direction and location information you begin to appreciate the elegance of the solution.

The control part of the signal is a result of varying the duration or width of the signal pulse from 1ms (the minimum "on time" required for synchronization) to a maximum of 3ms plus an "off time" or delay of approximately 20ms. The combination of control pulse and delay or off time represents the control "frame" that is relayed from the transmitter to the receiver approximately 50 times per second. This delay or "off time" is used by the transmitter/receiver to provide individual control of multiple servo channels. Pulses for each discrete servo channel will be sequentially placed in the frame. The receiver de-multiplexes the received pulses and directs one pulse to each channel/servo output in order (channel 1, then channel 2, etc.). A six channel transmitter, for example, will jam six successive pulses into each frame. The receiver will send pulse one to servo channel one, pulse two to servo channel two and so on through pulse six to servo channel six, then start over at servo channel one. The rising edge of each successive pulse tells the receiver that this signal belongs to the next servo channel.

Nomenclature: It is important to remember that the "channels" of a multi-channel transmitter/receiver combination are not actually RF channels separated by unique frequencies like radio or TV stations (Frequency Division Multiplexed). The servo control pulses are on a single RF channel operating on a dedicated frequency and separated only by time (Time Division Multiplexed).

The proportional control comes from altering the width of each servo's signal pulse between 1ms and 3ms in duration (Pulse Width Modulation) in many small steps (resolution). A received positive pulse of 1ms duration typically causes the servo to go full counterclockwise and a 2ms wide pulse causes the servo to go full

clockwise (this can be reversed). A pulse of 1.5ms duration will center the servo arm. Servos have their own proprietary circuitry built inside the servo case. This circuitry consists of a pulse width comparator, which compares the incoming signal from the receiver with a timer whose period depends on the resistance of a potentiometer connected to the servo's drive shaft. This positional feedback is what provides the stability for the control circuitry. The difference between the control signal and the feedback signal is the error signal. This error signal is used to control a circuit that toggles the direction the current flows through the motor and dictates the width of the power pulse being sent to the servo motor. The output of this comparator circuit drives another circuit that handles the high current going through the motor. The greater the difference between the servo output shaft's current position and the position indicated by the control stick on the transmitter, the greater the pulse width of the motor control pulses resulting in more torque and acceleration of the servo arm. When the commanded location of the servo arm is obtained, the difference is "0" and the motor pulses stop.

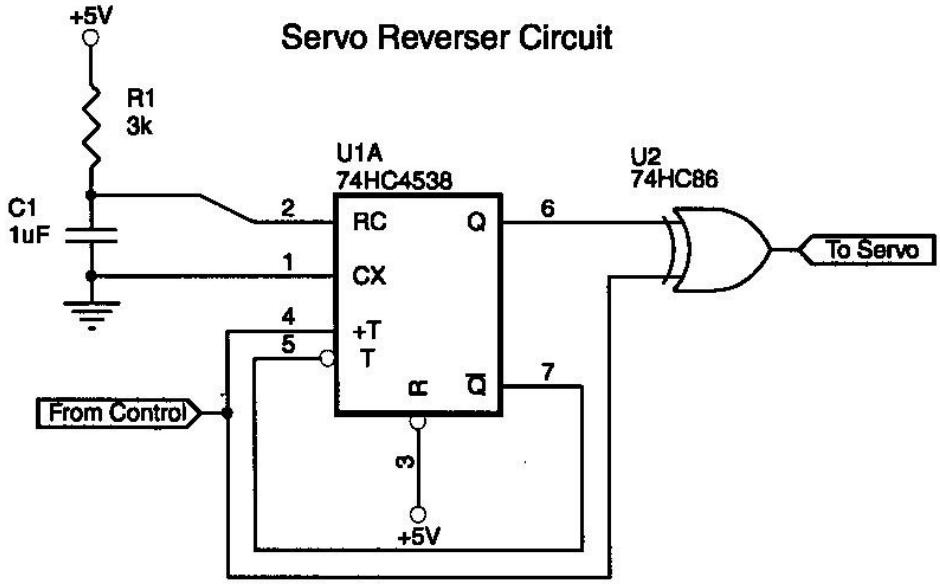
Servo Reversing Circuit:

Servos occasionally have to be mounted in such a way that they respond opposite to the intended direction (dual elevator servos connected via a "Y" connector, for instance). You pull on the control stick for an up command and one servo drives the elevator the wrong way. You can solve this problem by re-wiring the servo potentiometer and motor leads, which requires disassembly of the servo and decent soldering skills. Another solution is to provide the servo with an inverse of the received signal pulse duration.

If the positive pulse of 1ms duration causes the servo to go full counterclockwise and a 2ms duration causes the servo to go full clockwise, then we need to reverse this logical state (1ms pulse received produces a 2ms pulse to the servo and vice versa).

If you build it, they will reverse:

The circuit below provides a base pulse of 3ms duration from which a received command pulse of 1ms duration will be subtracted to yield the desired 2ms pulse width and a received 2ms pulse will be subtracted from the 3ms base pulse to yield the desired 1ms pulse width. The centered pulse width of 1.5ms remains the same in either case. A one-shot timer supplies the 3ms pulse when it is triggered by the rising edge of the control signal. This aligns the rising edges so the "subtraction" has a reference point.



If you do not feel like building your own reversing circuit from scratch, there are commercially available servo reversing accessories on line and at your hobby shop and they are essentially what you see above.

Until next time – fly as much as you can!

The Transmitter

This newsletter is published monthly by the Suburban RC Barnstormers, Inc.

We reserve the right to edit all information forwarded to us. Permission is hereby given to reprint any article that we publish as long as proper credit is given.

Material can be submitted for publication: (1) at a meeting, (2) by mailing to Suburban RC Barnstormers, Inc., P.O. Box 524, Bloomingdale, IL 60108, (3) sending it to the email of the editor, Scott Taylor, at taylorsr@core.com

Articles must be received by the 4th Saturday of the month to be included in the following month's newsletter.

OFFICERS/BOARD OF DIRECTORS

President	**Mike Maciejewski**	**630-513-1476**	macieml@sbcglobal.net
Vice President	**Dave West**	**630-837-6553**	dwest@wingedshadow.com
Treasurer	**Bob Elsner**	**630-653-5345**	Srcbarn@aol.com
Secretary	**Scott Taylor**	**630-669-7287**	taylorsr@core.com
Flight Instruction	**John Howe**	**630-541-3054**	lflyrc2@comcast.net
Fun Fly Chairman-Dome	**Ron Hilger**	**630-833-8111**	Ronhilger@aim.com
Fun Fly Chairman-Outdoor	**Scott Stampfli**	**630-440-6475**	stamper022@comcast.net
Safety Officer	**Tom Lyons**	**630-668-9525**	gtpslyons@comcast.net
Board	**Orvil Fluharty**	**708-624-3856**	orvilret@comcast.net
Board	**Steve Dietrich**	**630-272-0005**	sgdtrick@gmail.com
Board	**Jeff Peca**	**630-305-0018**	j_peca@yahoo.com
Board	**Glen LaRocco**	**847-741-9363**	EagleN2FB@comcast.net
Board	**Stan Warden**	**630-654-8476**	frenchstan@comcast.net

NEWSLETTER STAFF

Web Masters	**Marty Schrader**	**(630) 588-0241**
Editor/Publisher	**Scott Taylor**	**(630) 669-7287**

Please Support The Following Hobby Shops

Al's Hobby Shop,Inc.	**121 Addison, Elmhurst, IL**	**(630) 832-4908**
HobbyTown–St Charles	**2061A Lincoln Highway, St. Charles, IL**	**(630) 587-1256**
Lagrange Hobbies	**25 South LaGrange Rd, LaGrange, IL**	**(708) 354-1220**
Strictly R/C	**7719 W Lawrence Ave., Chicago, IL**	**(708) 456-9100**
True RC	**http://www.TrueRC.com**	**truerc@comcast.net**
Adventure Hobbies	**23 Huntington Lane, Wheeling, IL**	**(847) 537-8669**

Visit our web site at http://www.suburbanrcbarnstormers.com