

Newsletter of the Jet Pilot's Organization

Contrails

Fall 2012

Volume 24, Issue 4



Sam Snyder's scratch-built Gloster
Javelin reaches for the runway in Waco,
TX. Greg Moore photo.



The *iGyro* Simplified!

I have a confession that, frankly, I am an older person. As such, the common wisdom is that I should move slowly, complain a lot and struggle with all of the new technologies. Unfortunately...all three are probably true to some extent.

The hesitancy to jump into newer and more complicated technology has probably kept me from looking seriously at gyroscopic control augmentation in my jets, despite the advances of the offerings in this area. I came up with lots of reasons...lack of speed-based sensitivity gain, complexity-of-installation, compatibility, risk...and so on. But the tipping point came when Jack Price from Durallite called with information on the new Powerbox *iGyro* three-axis system. I have used Powerbox electronics for years, and their products have always been innovative and reliable, so I decided to give this new system a closer look.



Jumping to the end of the story...I move more sprightly, I am a happy guy, and I am hooked on the *iGyro*. In short, it has a wide range of capabilities, is easy to install, and performed remarkably well. Like most complex, highly functional technology, however, there is a learning curve to climb. What I will attempt to do here is provide a checklist that will (hopefully) simplify the process for you, and improve your chances for success.

A couple of caveats. First, while much of the *iGyro* set up process is the same for all radio types, there are some manufacturer specific steps. My comments here will be

representative of a JR DSM2 set up ... you will need to spend a little time with the radio section of the manual to identify the wiring and binding instructions for your radio type. Secondly, while the capabilities of this little piece of equipment are vast, my checklist will be devoted to basic installation, set up and first flights. Again, a review of the manual will highlight some of the advanced features I will not touch on. Finally, this is not an in-depth technical review. I could talk about MEMs, sensors and nano technology at length, but then I couldn't title this article THE *IGYRO* SIMPLIFIED!

OK, lets get started. I will cover the installation and programming steps in a few minutes, but first, there is some basic information you should be aware of that will be helpful before you unpack the box.

- The *iGyro* has up to five inputs. They consist of two aileron channels, two elevator channels and one rudder channel. If you have twin rudders, you will need a Y-harness or a Matchbox.

- In some radio configurations, such as the JR DSM2 or DSMX mode, the *iGyro* actually serves as the receiver for the gyro-stabilized channels. Three additional remote antennas will be required.

- The sensitivity (gain) of a traditional gyro is typically set to prevent oscillation at the highest speed, where the least sensitivity is required. It will thus suffer from a lack of authority during slower speeds and the landing phase. An optional GPS sensor on the *iGyro* will feed speed data to the system, allowing it to actually increase sensitivity (gain) as the aircraft slows. I highly recommend this option.

- The *iGyro* operates in two primary modes, "normal" mode and "heading" mode. "Normal" mode functions in the traditional sense of a gyro...if a gust of wind causes the plane to roll unintentionally, the gyro counteracts this external force. In "heading" mode, the gyro maintains a constant control surface input to achieve a constant heading. An example would be a constant rudder deflection to maintain level flight in a knife edge. "Heading" mode is normally in operation when the stick is at neutral position while "normal" (or damping) mode takes over when the stick is away from center position, commanding a change in attitude. The nice thing about separating control into these two modes is that you can set sensitivity (gain) for each independently, or even fly with one or the other mode off.

- *iGyro* operation is controlled through a dedicated channel associated with a three-position switch. Switch position one sets the gain for all flight surfaces to zero, basically turning off the *iGyro*. Positions two and three are for pilot-configurable gyro-gain values between 1% and

100%. You may choose to use position two to turn on damping mode and position three to turn on both damping and heading. Or, if you did not purchase the optional GPS sensor, you may want to have gain at low levels in position two and high levels in position three. It is up to the pilot to decide how to use these switch positions. Note: it is not desirable to have the rudder in heading mode during normal flight, as it will cause the plane to "knife edge" through the corners, which is an interesting but non-scale look. Heading mode on the rudder should be turned on for maneuvers like knife edge, slow rolls, four point rolls, etc., but you should be able to turn it off in either position 2 or 3.

- Flight testing will determine the exact sensitivity for each of the control surfaces required for your specific model. For this flight testing, you will need a minimum of one and preferably two channels on a temporary basis to find the proper amount of gain in the air. It is best that you use channels that you can associate with a rotary knob. When gain is determined and permanently saved in the *iGyro*, these channel(s) will once again be available for other purposes.

With these basics in mind, let's get started with the preliminary work of installing, configuring and testing the *iGyro*, which is a twelve-step process. Formal menu names from the *iGyro* screens are in **BOLD** print. Important cross checks are in ***Bold Oblique***.

Step One: Fly the model *without* the *iGyro* installed.

It is important to establish trims on all the flight surfaces before you activate the *iGyro*. Do not program in any cross-control surface mixing, such as rudder-to-aileron, aileron differential or aileron-to-rudder, as the *iGyro* will compensate for these corrective mixes when activated, though it is OK to program crow functions. I would recommend also programming elevator trim to compensate for flap deployment, particularly if there is a significant amount required. It will be useful to have this mix available should you ever decide to land with the *iGyro* turned off as well.

Step Two: Create a working copy of the aircraft program.

While this is an optional step, I would strongly recommend that you create a copy of the model in an unused memory slot in your radio. If you are adapting an existing plane to the *iGyro*, this will be important in preserving any changes to channel assignments, dual-rate and/or existing mix settings you make as you install the *iGyro*, should you ever decide to remove it. ***Also, measure and record throws and trim points. This will allow you to cross-check everything during iGyro installation and programming.***

Step Three: Install the gyro unit.

Study the diagrams in the manual that apply to your

specific receiver type! The *iGyro* can be installed horizontally, vertically or laterally, as long as the unit is at right angles to the direction of flight. Do not install it diagonally. Make sure the unit is secure, as any movement of the unit will cause the gyros to react.

The location of the GPS sensor is not critical as long as it is kept a reasonable distance from carbon fiber or metal, and the sensor switch does not need to be permanently mounted. Assuming the plug is accessible, the switch only needs to be connected for programming.

If you are using Spectrum technology, install the remote antennae as you normally would.

Move aileron, elevator and rudder servo leads from your receiver to the appropriate labeled slot on the *iGyro*. Note that the ground wire must be on the top, or screen-side, of the *iGyro*. If you are using jumper wires to provide power to the *iGyro* from the Spectrum/JR receiver, strip out the signal (orange) wire, leaving just the red and brown wires. This is important, as stray signals between the receiver and the *iGyro* will adversely impact binding and may lead to other forms of interference.

Step Four: Complete any radio reprogramming.

If you need to change any model functions to clear channels for the *iGyro* mode control and gain adjustment, now is the time to do so. Reset any channels that you will use for *iGyro* mode control and gain control in the radio. Clear out any sub-trims and reset the throws to 100 percent in either direction. Eliminate any reversing that has been selected for these channels and clear any mixing from these channels. ***Confirm these channels are clear by observing the monitor function on your radio.***

Assign a three-position switch for mode control and rotary knob(s) for gain adjustment and verify their operation through the "monitor" function. Note that if you are a heavy user of dual rates, consider using a reduced value since the gyro control will dampen stick inputs. I ended up with about 50% of the rates I normally use.

Step Five: Plug in the Sensor Switch and play with the menus.

The "set" button on the switch serves as a "select" button while the other two buttons move the circular cursor or change values. Notice that the small circular cursor lights up when a menu item is selected, and is hollow when an item is not.

When assigning channels in the **INPUT MAPPING** menu, a value of "0" means that there is no channel assigned. All other values refer to the channel used for that

function in your radio. Play with the various menus. It is a good way to gain quick familiarity with the basic parameters they contain and in a few quick minutes, you will be comfortable enough to begin programming. You can't hurt anything at this point.

Step Six: Select the receiver type and bind the *iGyro*

Insert a bind plug into your receiver (if applicable) and switch on the power to the model and select the **RECEIVER SETTINGS** menu on the *iGyro*. Cursor to the appropriate radio technology and select. The cursor will light up momentarily and then turn off when the selection is recorded.

Cursor down to the **BIND** option (if applicable) and select. You will see a message appear on the *iGyro* **OLED** screen instructing you to turn off power to the receiver. Do so. Turn on the power to the receiver once again and when all of the satellite antennae are flashing, hold the bind button on the radio and power it up. When all the satellite antenna LEDs are solid, remove the bind plug. Don't be alarmed at this point if some of the flight controls do not work properly. You need to assign channel numbers to them in the next step before the *iGyro* will recognize the proper programming from your radio.

Step Seven: Assign channels to flight controls.

Select the **INPUT MAPPING** menu. As you noted when you were playing with the programming, there are five separate screens in this menu. The first defines the channels your radio is using to control ailerons, elevators and rudder. The second, third and fourth are used to assign the temporary channel or channels you will be using for gain control adjustment during flight testing. The fifth and final screen defines the channel you are using for the three-position mode switch.

Start on the first screen and enter the channel from your radio associated with each of the control surfaces you are using. **At this point, test all of the control surfaces. They should be moving in the proper direction. Throws and trim points should cross-check against the pre-installation measurements you took.**

On the second, third and fourth screens in this menu, you will assign the channels you have selected to temporarily control the gain adjustment during flight testing. For now, assign a gain control channel to all of the flight control surfaces in the "normal" gain sections on all three pages. This will allow you to test and set the proper direction of gyro correction in one of the next steps. Keep the channel assignment at "0" in all the "heading" sections for now. Remember, a "0" value means there is no variable gain channel assigned.

On the final screen of the **INPUT MAPPING** menu, assign the channel for the *iGyro* mode switch. **Double check the operation of the *iGyro* mode switch by returning to the main screen and verifying that the Flight Mode value displayed changes from 1 to 2 to 3 as you operate the switch.**

Step Eight: Define the position of the *iGyro*.

To define what is up/down, left/right and fore/aft to the *iGyro*, you will program the orientation of the unit. This is accomplished by defining which way the OLED screen and switch plug face. In the **GENERAL SETTINGS** menu, select these two items and enter the proper values. There is a slight language anomaly here...up/down is really asking top or bottom.

Step Nine: Define zero point.

Set the model on the ground in a level attitude with the receiver on and the motor switched off. Select ZERO GYRO from the menu. Depress the "set" button and observe the cursor disc. It should light up and then return to hollow status after a few seconds. Now move the aileron, elevator and rudder sticks to both ends of their travel, but, do this only once for each control surface. If you change trim settings, it is advisable to repeat this procedure.

Step Ten: Set gain and check direction of movement.

Assuming you have assigned all of the **NORMAL** gain control settings to the temporary gain control channel operated by the rotary knob in step seven, increase the gain setting to 100%. Now flip the three-position mode switch to position 2 to activate the gyros. The *iGyro* should now be compensating for movement of the airplane. If the direction of any control surface is opposite the intended movement, go to the **GYRO SETTINGS** screen and select "reverse" for **DIRECTION**. **When you are done, go back and recheck for proper gyro reaction a second time, as an incorrect setting here will be a serious problem in the air.**

Step 11: Preflight Programming and checks

If you have only one channel available for gain control, assign it first to the **NORMAL** gain selection in the **INPUT MAPPING** menu, test fly, set the **NORMAL** gain channel back to 0, and then reassign the gain control channel to the **HEADING** selection. If you have two channels available for gain control, assign one of them to the **NORMAL** gain selections and assign the other to the **HEADING** gain selections. With only one channel, you will need to make one flight for each of the six gain settings. With two channels, three flights will suffice.

As you power up the aircraft prior to flight, check to make sure that all of the LEDs in the remote antennae are solidly lit, all control surfaces move in the proper

President's Report (cont'd)

Keith Sievers

direction, the iGyro OLED screen shows that the GPS is logged in and that the sensors show activity (do not read "idle") when the plane is moved. Flip the three-position mode switch and check to make sure that the mode cycles on the OLED.

Make sure the mode switch is in position 1 and that the rotary knob is set to zero gain. Move the aircraft to ensure there is no gyro activity. Flip the mode switch to position 2 and set the gain to 100%. Move the aircraft and validate that the gyro is only active on the control surface being set, and that the direction of operation is correct. Reset the mode switch to position 1 and reduce the gain to 0%.

Step 12: Set the Gain(s) in flight

Take off with the mode switch in position 1. Fly a high racetrack pattern at a slow, but comfortable speed. Flip the switch to position 2 as the plane passes, and observe that there is no change in flight characteristics.

On the next circuit, increase the gain slowly until you see oscillation of the control surfaces. Then back off the gain slightly until the oscillation stops. Gradually increase speed to maximum, and make sure the oscillation does not reappear. If it does, you will need to land and adjust the **AIRSPED FACTOR** to a value of 3 on the **GYRO SETTINGS** screen. Repeat the test.

If you are using both **NORMAL** and **HEADING** gain controls, set the **NORMAL** gain first and then move on to the **HEADING** gain. Briefly move the mode switch to position 3 to copy the settings to this position.

Leave the knob(s) set to the gain values you have selected and land the aircraft. Before you switch power off, save the values permanently in the iGyro. This is done by

resetting the gain control channel back to 0 on the appropriate **INPUT MAPPING** screen for the control surface and mode you were testing. When the gain control channel for aileron, for example, is reset to 0 (no channel assigned), the iGyro stores the value between 1-100% that was last set. **You can confirm this by checking the value on the GYRO SETTINGS menu and by moving the model with the mode switch in positions 2 and 3.**

As I mentioned at the outset, the iGyro has some additional features and functions that you may wish to take advantage of as you gain experience with the unit. A quick perusal of the manual will explain these. The kit also contains a USB cable that will allow you to install updates as they become available. Any updates, and a Windows program to apply them, are available on the Powerbox website.

The impact of the iGyro on the flight characteristics of any aircraft are significant and will immediately reduce your pilot load and result in arrow straight and smooth maneuvers. I conducted my evaluation using a DV8R, a plane with a high degree of coupling between control surfaces. For example, I was using a very high degree of aileron differential to provide axial rolls, which became unnecessary with the iGyro in operation.

My last thought is to encourage you to get in the habit of performing the preflight checks outlined in Step 11. If anything should go astray with the iGyro, these checks should catch the problem while still on the ground. If a problem does develop in the air, be ready to flip the gyro mode switch to position 1. Practice this occasionally so that the execution of this is natural. When you fly with the iGyro turned off, you will also develop an appreciation for how capable this little piece of equipment truly is!

Keith

Treasurer's Report

Beginning Balance as of July 31, 2012		\$4,303.07
Income:		
	Dues - Cash/Check	\$312.50
	Dues - PayPal	\$142.95
	Log book sales	\$12.00
	Total Income	\$467.45
Expenses:		
	Contraails	\$1,285.87
	Postage	\$52.90
	JPO Trophies	\$393.00
	PayPal Fee	\$0.30
	Total Expenses	\$1,732.07
Ending Balance as of Oct 31, 2012		\$3,038.45

Respectfully submitted: Carol Brusa

District III Report

Mark McCracken



Ohio
Pennsylvania
West Virginia

OC-Turbo Fest

Reported by Rich Miller; aka: RCISFUN

The OC-Turbo Fest event is located in northwest Pennsylvania at the Titusville Municipal Airport. Titusville, is the birth place of the oil industry which started in 1859 along Oil Creek. There is an excellent museum showcasing the early years of the oil industry only about five miles from the airport for those pilots who are interested in visiting some of the area's attractions.

The summer edition of this event is held in June and the fall edition in late September - the first event was held in October of 2007, making this one our fifth fall event. The OC-Turbo Fest was started when it was suggested by the airport manager that it would be a good idea to hold an event to get the general public out to the airport. We (The Oil Creek Flyers) were more than happy to oblige his request and now rest is history. The club is exclusively for turbine-jet aircraft and is small by many standards, with less than a dozen members; however, we were able to put on this event at a premier venue due to the help and generosity of the airport personnel. We are allowed to camp on site, have full use of the hanger and electric service, lawn cutting machinery, and the airport's John Deere *Gator* for recovery operations. The airport also has on site Jet-A available for purchase, which is a real convenience during the event. The club is very fortunate that there are very few private flights in or out of the airport and no commercial flights, and we only had to pause model flight operations a couple of times on Saturday during the event. The weather is always a factor and it worked out in our favor this year, with all three days having light winds down the runway, partial sunshine, and temperatures typical for this time of year. The fall colors were out in full force which provided a beautiful backdrop with the trees lining the runway in brilliant colors.

The goal of the OC-Turbo Fest is to provide a premiere flying site for all jet pilots to have fun and to fly as much or little as they may want. This year was no different. At the fall meet we had twenty-five pilots from an area that spanned from Rochester, NY to Detroit, MI to Cincinnati, OH to Erie, PA. There were over 50 turbine aircraft and everyone in attendance said they enjoyed the facilities and that they would return for next year's event. Our small entry fee is more of a donation with a large portion being donated to the airport to try to repay them for what they give to the club. Additionally, we have not actively looked for outside

sponsorship; however, this year we were fortunate to have Mike Deni Lin from Global Jet Club donate a \$250 gift certificate. The lucky winner was Garrett Wolfe, who is a member of the Nighthawks R/C club in Ohio. Micro Fasteners also donated some sample packs that were distributed among the flyers.

Friday evening, we were treated to a fish fry by club member Cliff Bendig, whose other past time is fishing in Lake Erie for Walleye. Cliff fried up a mess of fish for everyone's enjoyment and was it ever good!

Next year, we will be holding the spring edition from June 21-23, and the fall edition will be September 27-29.

For up-to-date information, please check the Jet Event calendar on RCU at: <http://tinyurl.com/d5r8y9u>. For more photos of the fall event, please see the OC-Turbo Fest Thread on RCU at: <http://tinyurl.com/cxw3zws>.



District V Report



Alabama
Florida
Georgia
Mississippi
Puerto Rico
South Carolina
Tennessee

Scott Harris

2012 Flying Season

I would first like to apologize for my lack of diligence with writing these articles in a timely manner. There is no excuse other than that sometimes life makes certain things take the back seat. With that said, this article is a conclusive montage of summer 2012 in review.

The summer began with First in Flight at the end of May. My wife and I headed up to Wilson, NC to enjoy a long weekend of planes, good weather, and visiting my brother David and my mom. David is, in fact, beginning to fly r/c and enjoyed the weekend accompanying me in flying the *Shock Jet* via buddy box.



Scott (L) and David Harris (R) pose with their jets.

From there we made a brief stop back at home for a month, then headed to Kentucky Jets in July with my local flying buddies. I'm lucky to have such a large group of jet enthusiasts like me, located here in Nashville. While there, I took my Skymaster BAE *Hawk* for its maiden flight, which was a major success. This event is always a lot of fun to attend, seeing as how it brings good people from all over the country. It's always a good trip to regroup, and is also safe to say the Nashville contingency will return for next year's turnout.



A gaggle of *Shock Jets* and their pilots pose for the camera.



Chris Quin holds Glen Sheppard's *Turbinator* prior to flight.



Len Sheppard (L) and Scott pose with Scott's *Skymaster Hawk*.



Randy Moore and Andy Hau prep the *EuroSport* for flight.



Boli Muentes shows off the shirt that describes him.

After Kentucky Jets, I attended the U.S. Scale Masters in Rosewood, IN. This was a new experience for me - it was my first time attending. Upon arrival, I noticed I might not have made a good decision, seeing as the main crowd had only propeller planes, while I came equipped with my F86. However, Scale Masters was an incredible event, and I thoroughly enjoyed myself. I ran into some old friends while there - jet enthusiasts Mike Barbee and John Boyko. Mike was kind enough to volunteer to spot for me, and with his help I went on to win Grand Champion of the event.



Mike Barbee and Scott pose with Scott's F86 Sabre.

The next event was Georgia Jets. First of all, I must say, if you have never been to Georgia Jets you are missing out on an amazing event! The facility is outstanding and the staff always ensures that you have a good time. Additionally, my local flying guys - Glen, Wayne, and Andy - attended this event with me for their first time, and I know they will definitely be returning in the future.



Wayne Kackley preps his Shock Jet prior to a flight.

All in all, I would like to thank everyone who spent many hours and put efforts into making these events as memorable as they are. Great job, guys!

As always, please keep me in the loop with your goings on in the district, and the events you sponsor/attend.

See you at the field!

Scott

Remember!

It's

Renewal

Time!

District VI Report

Lance Campbell



Illinois
Indiana
Kentucky
Missouri

Once again, for those of us in the midwest, flying season is starting to wind down. On the one hand it's a bit of a bummer, but on the other, it's a chance to dive into building season.

On the back half of the season, I made it to two events, Minnesota Jets and Route 66 Jets. Illini Jets was taking place the same weekend as Minnesota Jets so we could not make both at once, unfortunately. Along those lines, I'd like to really encourage anyone that is in attendance at a District VI jet meet, that I don't have the opportunity to attend, to please drop me a note, with some info and pictures, so we can get something into print about the event. Everyone works really hard to make these events a reality for all of us, so I want to make sure those that are doing the work get all the credit they very much deserve.

On the other side of that coin, is if you've got an event going on in your area, go out and be a part of it. There is so much to be learned and enjoyed when we all get together in one spot. Those few extra in attendance at an event might be enough to make it a better show, which in turn might make a local airport manager or city council member think just a bit more positively about an event and keep it going. Those of us that have been doing this for awhile have seen many jet events come and go over the years. They don't go on forever and our continued support and involvement are key to keeping our hobby out in the public eye, in what is almost always a very positive exposure.

Minnesota Jets

Dave Dennison continues to do a great job with this very informal jet meet in south eastern Minnesota. I know it's not in District VI, but wanted to make sure Dave, his wife, and airport manager - Mike, were recognized for the effort they put into what is a very fun event. Usually, there are only around 20 or so pilots, which translates into as much jet flying as you'd like, in a very relaxed atmosphere. Even with the event being one of the smaller ones, BVM continues to be a loyal, many-year, sponsor of the event. The event takes place at a full-size, N-S runway. You face east, and can fly until dark every day. Saturday night ends with a catered meal and bonfire into the late hours of the night.



These are some pretty tall weeds when you're looking for a missing aircraft, and you look back and almost lose the Gator in them....



Your host, Dave Dennison.



Jason Reger poses with his *KingCat* at MN Jets. Jason does a great job with his bird, and as the saying goes ... 'Fly it like you stole it' ... and he does!



New hanger for overnight storage at MN Jets.



David Elsinger shows off his sharp-looking Boomerang Torus, powered by a JetCat P-160 at MN Jets.



Collection of pilots and birds at MN Jets.

Route 66 Jets

Once again, Roger Shipley and the airport rep Jim Wright, have hosted, what is for us, a great conclusion to the flying season in Litchfield IL. This year, Route 66 Jets had great weather and people got a bunch of flying in. This year had 46 pilots in attendance and I think the flight count was nearly 600 for the four days of flying. Thanks Roger!



Joey Thompson and his girl attend their first jet rally. Welcome aboard !



Andy Low was on hand with his crew from *Electrodynamics*.



Great flying with a very busy flight line.

District VI Report (cont'd)

Lance Campbell



I'm guessing that the snarl from Steve Collins is because the jet meet is starting to come to a close.



What's this? Bob Borgmeyer at a jet meet with a jet... glad to see it, Bob!



Nice collection of pilot prizes at Route 66 this year.



Route 66 has great spectator turn-out from the community, especially on Saturday afternoon.



Nick Mitrakos with his bird at Route 66. Great weathering detail!



Andy Andrews and his yet-to-be-completed WJM bird. Andy showed us a sneak peek at Route 66 Jets.



Your Route 66 CD, Roger Shipley, with his bird and his Russian space helmet.



Jet guys are not the only ones that take a project to extremes. Route 66 CD Roger had his friend, Sidney Newell, bring his ride out to the event to entertain everyone.

US World Jet Masters Team

The United States team is set for the 10th World Jet Masters, to be held next fall in Switzerland. There were just enough volunteers to fill out the team fully, so there was no need for a qualifier, which is held preceding Route 66 Jets.

- The team roster is:
 Jason Bauer, Team Captain
 Andy Andrews
 David Ribbe
 David Shulman
 Rod Snyder
 Scott Harris
 Rei Gonzalez, 1st alternate
 Lance Campbell, Team Manger

Yes, you read that right, yours truly was elected as Team Manager, and I'm looking forward to helping the team the best that I can. It should be quite a unique experience. Last year, I was CD for the same event in Dayton, so I've got a pretty good idea of what to expect, considering I was working quite a bit with the Team Managers from all the other countries.

I think we've got a really solid looking team this time around and have no doubt that the US effort should have a strong showing in Switzerland. The level of competition at this event is really hard to comprehend until you see it close up. Stay tuned for details.

Take this wind-down of flying season as a good opportunity to go over your birds in detail this winter. It's so much easier to fix things properly in the shop, rather than deal with less-than-ideal field fixes next to the runway.

Lance

Official Ballot

Vice President:	Al Watson	___	Other:	_____
District II:	Len McIntosh	___	Other:	_____
District IV:	Lee Reightler	___	Other:	_____
District VI:	Lance Campbell	___	Other:	_____
District VIII:	Ron Schwarzkopf	___	Other:	_____
District X:	Dave Reynolds	___	Other:	_____

Ballots to be sent to: JPO Secretary/Treasurer
 7433 McCormick Woods, Dr, SW
 Port Orchard, WA 98367

**All Ballots must be received
 by January 31, 2013**



District X Report

Arizona
California
Guam
Hawaii
Nevada
Utah

David Reynolds

As I write this, Best in the West 2012 has just wrapped up and pictures are on the various forums, but have yet to be sent my way for publication here. You can find some video at: <http://tinyurl.com/bxjzqe5>, and official pictures from Joe Balabon should be up at the Best in the West site soon at: <http://bestinthewestjetrally.com/gallery/photos.html>.

Upcoming events. The Arizona Model Aviators will be hosting the 24th Annual Arizona Jet Rally. That means the 25th is coming up next year, so plan accordingly. March 8 and 9 means it's time for the Tucson Jet Rally. It's a super fun and relaxed event.

As always, I am more than happy to publicize your favorite event, both on these pages and on Facebook at the JPO District 10 page, but I can't do that if you don't tell me about it....

Last issue, I talked a bit about fan setup, some of the language used and some ideas on picking a motor. One of the specs to look at as discussed last time is Kv. However, this is not the only thing to look at and if you do, you might be in for an unpleasant surprise!

Let's compare the specs on two different motors. Motor A has a Kv of 10300 and motor B has a Kv of 870. Both of these motors are sold as ducted-fan motors, so it would seem like an easy choice to make. Look a bit further down the spec sheet, and the high Kv motor is rated for a max of 6 amps and only a 1S (3.7 volts) battery. Motor B, while having a Kv of only 870, is rated for 110 amps and a 12S (44 volts) battery.

The difference is intended application. Motor A measures 12 by 22mm, just right for a 30 to 40mm fan in a micro EDF to fly in the local high school gym. Micro EDFs do not have lots of room inside for batteries and the load of a small rotor with thin blades does not push the amp draw up too high, so you can get away with a high Kv without getting too crazy with Amp draw. Motor B is a 19 by 76mm motor, and tips the scales at a bit over one pound, which means that this is not very suitable for an indoor flyer! It is, however, good for spinning up a 120mm fan (Dynamax-sized) in your large EDF that has room for lots of batteries. Also, larger fans with more blades, pitch, and weight can send your amp draw up dramatically if you are not careful. That is another reason why it can be a good idea to have a lower Kv.

The other factor to consider is *inrunner* verses *outrunner*. These terms refer to the motor construction. An *inrunner* motor has the magnets spinning on a shaft in the middle of the motor and the electrical windings are on the outside - ie: a "traditional" motor.



An *outrunner* is the opposite, the electrical windings are on the inside and the magnets are attached to the can that spins. It's easier to look at the pictures than talk about it. In both pictures the motor on the left is intact and the motor on the right has been opened up.



So which is better? Unfortunately, this is a great question to start a flame war with most internet forums. Some state there is no difference whatsoever between the two. Others claim that inrunners generally will turn more rpms and outrunners will generate more torque, due to the flywheel effect of the spinning can. I have also read that outrunners are less expensive to manufacture and that leads to lower prices. Outrunners can also have a bit of an edge in heat dissipation.

More important than *outrunner* verses *inrunner* is the C rating of your battery. This is probably the easiest term to come to grips with. Basically, the C rating is how much electricity can flow out of a battery. The higher the C rating, the higher the flow of electricity. It's kind of like comparing a garden hose to a fire hose. One word of caution! A higher C rating can increase your amp draw, so if your ESC is on the marginal side of amp capacity, bumping up your C rating can push it over the edge and let the smoke out, and as we all know, everything electronic runs on smoke - if the smoke comes out, it no longer works.

That's all the ramblings I have for this go-around, so until next time, keep the low passes where they belong and be sure to renew your membership to JPO.

Dave

District XI Report

Bob Brusa



Alaska
Idaho
Montana
Oregon
Washington

The 22nd Jets Over Whidbey (JOW) was held the last weekend in August where good weather and a great turnout made it a very successful event. This is, by far, the premier jet event for the Pacific Northwest. We have pilots that come from MT, ID, OR, AK, AZ, CA, Canada, and sometimes even HI. Put it on your calendar for next year: Aug 23-25, 2013. I've included some nice photos for all to see.



This 1/6 scale Hawker *Hunter* (from the Ripmax/Global Jet Club kit) belongs to Kirk Sonnier. This is an incredible EDF. Possibly the heaviest EDF to be known to exist. It has a 68-inch wingspan, is 93 inches long, and weighs 28 lbs without batteries and 36 lbs with batteries! It uses a Schuberler DS94 HST fan that puts out an amazing 29 lbs thrust.



This beautiful EA-18 (FA-18 converted to electronic warfare) belongs to Bill Broderick.



How about a not-often-modeled DeHaviland *Vampire* owned by John Smith for your event-viewing pleasure?

The first ever Washington Warbirds event was held August 31 to September 2, at the airport in Goldendale, WA. This was an all warbirds events including airplanes, turbine-powered jets, and helicopters. We had beautiful blue skies all weekend. Though I flew the only turbine-powered plane there. Perhaps next year we will see more.

The annual fall jet event in Princeton, B.C. (Canada), was held from September 20-23.



Bob's *Torus* is navigating the crosswind just fine as he comes in for a landing.

Canada District Report

Paul Dries



So, I gotta say I tried. I had hoped that instead of you having to read whatever decided to ooze out of my brain come deadline time - I would have some contributions from other jet sectors in Canada. Canada is a big country and the jet population is grouped in areas that are all separated by thousands of miles. On the West Coast, other than through Forums, we don't get much exposure to what's going on in the rest of the country. So...I had hoped that others would offer some words of wisdom to send in with this report, but as of the deadline nothing had come forth.

As far as MAAC and jets go, there has not been a whole lot of new activity. Of note is ALL of the old LOPs (Letter of Proficiency) will expire at the end of 2012 and the only MAAC members entitled to fly in the US with the backing of MAAC will have to present the new TOC (Turbine Operators Certificate). As a reminder, there is a list maintained on the MAAC website of valid TOC holders and their status, including those who have had theirs revoked. There has also been considerable debate on how to handle fire risk and fire bans, especially as it pertains to model turbine operation. Last year, wildfires almost completely decimated a small town in Alberta, so the awareness of the fire danger has been heightened in this province. As a result of this issue being raised with MAAC executive, new guidelines for turbine operations in times of high fire risk are being considered to be made part of the MAAC safety code.

The only event I can report on is the Princeton Fall rally (also known as the Gerard McHale Memorial Rally). This year was marked with several days of the best temperatures and flying conditions that anyone could remember. Once again, one of the highlights of the event was a big cookout at the field with some good eats and drinks with old and new friends. At the BBQ, Steve Hughes - the MAAC Zone Director, had everyone sign a card for long-term member and Princeton club founder, Bill Wiens, as he was suffering from a very aggressive form of cancer. I am sorry to report that Bill has since passed away and he will be missed by the modeling community.

Pictures from the event are courtesy of Kelly Williams:



Jenner Richards joins the jet fraternity with a CARf Flash.



Bill Wiens as we all remember him.



Annual BBQ/cookout enjoyed by all.



Bruce Bender inaugurated into the 2L club by Paul Dries and Kevin Forsyth.



After the BBQ we decided to do some turbine run-ups - here's Paul's *Torus* with smoke on.



John Harwood chases Jenner's *Flash* back on the taxiway.



Sal Schenato flares his F16 for landing.



Roy Holt and Bill Rietzel intently watch Roy's EDF SU-29 burning electrons.



Sal and company taxi the big F16 back after Sal's first full flight at the controls.



Roy Flaring the SU-29 - This big EDF has impressive performance and about 5 minutes of endurance.



High speed flyby of Paul's Boomerang *Torus*.



Bob White - proud new turbine pilot with his *Hotspot*.



The *Torus* emitting a nice smoke trail.



Three Comp-Arf *Tutors* prepare for a formation flight.



Sean and Marc McDonald's FPV/GoPro equipped Quadcopter.



The *Tutors* lining up for take-off.

Canada District Report (cont'd)

Paul Dries



Tutors 3 plane Diamond formation.



The only major casualty of the event - Kelly Williams' HotSpot goes home in a body bag after the turbine flamed out on takeoff

District XI Report (cont'd)

Bob Brusa

This is always a four-day event, and a great one to attend. See the article from our Canadian JPO rep, Paul Dries, following our own District XI article.

If you would like to receive your quarterly issues of Contraails by e-mail, rather than hard copy, let me know or any officer shown on the inside back cover of *Contraails*. With e-mail, you will receive the full-color version of *Contraails*.

It is time to once again renew your dues for 2013. We are featuring a free, JPO-logoed T-shirt for all who join or renew in 2013. Please include your size when renewing or joining (M, L, XL 2XL) - the t-shirt is pictured below.



Those of you who would like to have a nice polo shirt or hat (both pictured below) with the JPO logo on it, go to the JPO website - jetpilots.org - and they can be purchased there. For a small fee you can also have your name embroidered on the shirt.



I keep requesting photos of your airplanes or any other info any of you might like to share with your fellow jet modelers, but no one has taken me up on my offer yet! Here's a chance for all of you to get your favorite airplane in a national model magazine!

Bob

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All renewals and new members will receive a free JPO T-Shirt. Size needed (circle one): M L XL 2XL



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Bob Brusa's *Panther* stretches
for the runway.