Newsletter of the Jet Pilot's Organization

Contrails

Spring 2010

Volume 22, Issue 2

Boli Muentes impressed the crowd on numerous flights with his dual-exhaust, smoke-spewing CompArf *Tucano* turbo-prop at Florida Jets.
Craig Gottschang photo

President's Report — Keith Sievers

FAA Update

There is not too much new to report on the FAA SUAS rule-making initiative. I remain in close contact with the AMA, and they continue to work on their initial submission and I have been told it will be based on the current AMA rules, regulations and safety code. The AMA has attempted to get some insight into those issues that might be significant to the FAA, but has not had great success despite their repeated efforts. It appears that the first meaningful feedback will come from the FAA response to the initial AMA submission. While there is no reason to believe that the FAA will suggest revisions to the turbine regulations, the JPO will be a primary partner with the AMA should this be required. Until then, everyone can help by making sure to fly safely and do their best to support the AMA safety code and turbine regulations.

PowerBox BaseLog from Duralite Flight Systems

A couple of years back, I collected crash data for the JPO to prove to the AMA that speed was rarely a factor in model-jet incidents. While the data showed the absence of speed-related crashes, there were quite a few incidents related to battery and other electrical issues. From that point forward, I have made it a habit to install redundant electrical capability and to monitor the condition of my batteries closely. It has prevented the loss of a model on several occasions.

Duralite Flight Systems recently provided an opportunity for me to evaluate a new piece of equipment from PowerBox Systems called the BaseLog. It features fully redundant systems, including regulators, microprocessors and other electrical components. An incredibly bright OLED screen displays a significant amount of data for each battery, including actual voltage in digital and graphic form, system output voltage, time since last reset, remaining capacity in both digital and graphic form and a parameter called minimum value memory. This takes the form of a black line on the graphic output display that shows the minimum voltage during the flight. On a Lipo battery, for instance, the graphic display has a range of 6.8 to 8.4 volts. If the voltage drops to a low of 7.6 volts during use, the black bar will appear approximately at the mid-point of the graphic voltage display. The significant value of this data is that it will point to batteries that may not be up to the loads imposed, particularly if they develop problems as they age. Lastly, the display will also communicate any malfunctions, such as a regulator failure.

The BaseLog handles all modern battery types including LiPo, NiMH, Nicad and LiFePo. This last setting is used for A123. Battery chemistry is selected in the programming mode, as is the battery capacity and output voltage. The unit utilizes high capacity multiplex connectors for input and output, but Duralite Flight Systems has patch cords available for all major receiver systems on the output side. The BaseLog measures 2.5 by 3.25 by .75 inches and weighs a very light 3.2 ounces. The unit will handle peak current of up to 20 amps on each side.

President's Report (cont'd) — Keith Sievers

The unit is powered on by the familiar SensorSwitch. If you have never used this switch, it is a neat piece of gear that features an arming button and separate "on" buttons for each battery with LEDs to show power. If the switch fails, it has a safety feature that leaves the PowerBox in a powered state. The unit also has two remote LEDs that can be mounted in a convenient location for visual confirmation of power with the plane closed up and ready for flight.

The BaseLog has one other unique and very interesting feature. In keeping with coming telemetry trends, the unit is capable of transmitting real-time battery information utilizing either the Multiplex or Spektrum telemetry standards. Spektrum already supports telemetry for surface use, and recently announced an air transmitter with telemetry capability at the Nuremberg Toy Fair. I suspect that it will only be a short wait before a telemetry-capable receiver is available.

The BaseLog is available from Duralite Flight Systems here in the US. I have used Duralite products with great success over the years and Jack Price, their president, has always been accessible and ready to answer my questions. Visit their website at www.duraliteflightsystems.com for more information on the BaseLog or to place an order.

Canadian Representation

It has been some time since the JPO has had active Canadian representation. Thanks to the recruiting efforts of Al Watson and Bob Brusa, that is about to change. The JPO board has recently appointed Paul Dries to be the District VP for Canada until the next general election.

Paul has a mechanical engineering background and holds a managerial position at a company that specializes in drive systems for off-highway and military vehicles. He has been involved in modeling for more than thirty years, starting with boating and cars. For better than10 years he has been flying fixed-wing models with the last two years primarily focused on turbine-jets. Paul states his goal is to increase exposure of the JPO to Canadian jet pilots. More importantly, he will provide a link between the MAAC Jet Committee Chairman and the AMA. Welcome, Paul!

Thanks, Fred!

If you happened to be in Toledo this year, you might have noticed that the JPO had a booth for the first time in a number of years. It was organized and manned by Fred Gambino, who put a significant amount of his own time and money into the volunteer effort. Art Arro, Ron Swartzkopf and Len McIntosh (JPO District VPs) also spelled Fred in the booth from time to time. I wanted to take a minute to publicly thank Fred for his efforts on behalf of the JPO.

Next Issue

I just received another new piece of electronics from PowerBox and Duralite Flight Systems called the Cockpit. There was not time to fully review it before my *Contrails* deadline, but I should soon have it installed in my MIBO A10. This model, with its myriad of servos, will put the Cockpit to the test. If you are interested in information on the Cockpit prior to the next issue of *Contrails*, keep an eye on RC Universe or drop me an email.

I am also working on a new DV8R for *JetPower* magazine. On paper, the DV8R promises to be a great entry-level turbine, but the proof will be in the flying. Construction is nearly completed, and so far, it has lived up to expectations.

Keith

Toledo Photo

The ground crew on Joe Grice's A10 get things ready.

Vice President's Report

Al Watson

Looking Back

Well it is time for another *Contrails* article and this time I thought I would take a look back at the progress of turbine-modeling over the years.

I can remember very well the first time that I saw a turbine-powered model fly. It was 1994, at the Rally of the Giants held at Arlington Airport, just north of Seattle. I was the Contest Director for the event and someone suggested that we should have Kent Nogy come up from California and fly his turbine-powered model for the mid-day show. At that time, I had no idea that model turbine engines even existed, but one of the members of the rally committee said that he had seen this model fly and convinced everyone that we would be impressed.

We contacted Kent and he agreed to perform at noon each of the three days of the rally. The model was a Bob Violet *Viper* modified to take a JPX turbine running on propane, which Kent tells me produced thrust in the 9-10 pound range. I had seen ducted-fan jets fly and was not sure what to expect, but as promised, I was impressed by the speed and sound produced by that airplane. Kent was good on the sticks and flew a beautiful routine. I remember telling my pylon friends that I would give up pylon racing if I could have a turbine-powered model like that one.

I kept in touch with the progress of model turbines and sometime in the late 90's "air start" turbines came on the scene. These turbines used kerosene for fuel and propane for the start process. Spooling up the turbine was accomplished with compressed air from a scuba tank, hence the name "air start." On Kent's model this task was accomplished with a guy using what looked like an old fashioned tire pump and working up a sweat.

I retired from pylon racing in 2000 and decided that it was time to move to turbines. My first turbine was an "electric start" RAM 750 PLUS - similar to the "air start," except that the scuba tank was replaced by a small electric motor/bendix located on the front of the turbine which was used to spool up the turbine. The start box was very simple with only a couple of switches and a Liquid Crystal Display. The switches spooled the turbine, fed the propane for the start, and the display provided the operator with the turbine state. Getting rid of the scuba tanks was a big step forward.

Then came the "auto start" turbines a year or two later. Once fueled, these turbines are started from the transmitter and take us to where we are today. Initially, "auto start" turbines ran on butane/propane for the start process and then switched to kerosene. Most of the turbines in use today are in this configuration. A couple of years ago we started to see "kero start" hit the market. These turbines are still "auto start," but no longer need the butane/propane to get thing going. By replacing the standard glow plug with a powerful electric-powered igniter, we can now start these miniature marvels using only kerosene.

Another area of major improvement in our turbines was the spool-up time. In the early days, it took a while to get from idle RPM to full RPM so throttle management was important, especially when it came time to land the airplane. Spool-up times gradually improved over the years and is no longer an issue.

Airplanes have changed during this time also, but not as much as the turbines. Earlier turbine models were usually constructed using fiberglass fuselages and built-up wings and tail surfaces. Some wings/tails utilized foam cores sheeted with balsa. All these models required good building skills - fiberglassing the balsa surfaces was required and the airplanes had to be painted. Then came a number of "composite airframes" like the BVM *Super Bandit*, where the wings and tail structures were completed and the modeler was left to install all of the radio and turbine equipment etc. The model still needed to be painted.

We reached the "ARF" age a few years ago where the models are "painted in the mold" and much of the work is completed, leaving the modeler to install all the various sub-systems - still a fairly big task if you take the time to make everything neat and tidy. The quality of these models varies so it is always a good idea to check things out before you lay down the cash.

Vice President's Report (cont'd) — Al Watson

Radio equipment changes are probably on a par with the turbine changes. I have been a JR guy for many years and when I first got into turbines the 10X had just hit the market, so that was my choice. That transmitter has served me well and is currently being used with a SPEKTRUM 2.4 module. I purchased a 12X when that system was released and that radio has improved programming over the 10X, plus it is dedicated to 2.4 gHz.

The 2.4 gHz has major benefits for the turbine modeler. First it allows us to install our radio and turbine system components and wiring without fear of range degradation, which with 72 mHz systems we needed to be careful about the proximity of things like fuel-pumps-to-receivers and turbine-wiring-to-radio-wiring, which could cause range issues. These problems do not happen with 2.4 gHz, although I still like to keep things separate. The second, and greatest benefit, that I see with 2.4 gHz is the relaxed feeling that it provides. With 72 mHz frequency, control was an ever-present issue.

Batteries are another area where great strides have been made, although I stuck with Nicads until eighteen months ago, when I switched to A123s. NiMH batteries came on the scene and, while they were lighter and more compact than Nicads, I was always afraid of false-peaking issues and the higher internal impedance which resulted in lower voltages under load. Lithium batteries frightened me because of the dangers associated with charging - it is just too easy to make a mistake. Also, I did not like the need to remove the battery from the model for charging - difficult to do on a lot of our jets. A123s have been working well for me these past eighteen months, since they possess all the things that I like in a battery - half the weight of comparable capacity Nicads, safe, fast-charging, low internal impedance, and they lose very little charge over long periods of time.

There are a lot of other devices that I have not discussed. Sequencers, brake valves, power boxes, high-powered servos, etc. Many of these devices were not around a few years back and they go a long way to make our jets special and interesting models.

Looking back, we have come a long way - who would ever have guessed that we would be starting our turbines with a simple flick of a switch from the transmitter, or have the freedom to fly without concerns for frequency control? These are truly great times to be involved in turbine-jet modeling, and I wonder what the next decade will bring to this wonderful part of our hobby.

Let's stay smart and play safe, so that we can all enjoy this sport/hobby in the years ahead.

Al

Toledo Photos

Hal Parenti's nicely-executed Me-262 at the Toledo show.

Detail of the pilot's office on Graeme Meers' 1/5 scale Red Flag F-16 at the Toledo show.

District I Report

Bob Radford

Connecticut
Maine
Massachusetts
New Hampshire
Rhode Island
Vermont

Spring is finally here and we've been having great weather in New England - I hope many of you had the chance to get some flying in to prepare for the upcoming season, and I've heard of a few things going on for our JPO members through the grapevine.

Dominic Mirabello tore up the skies at Florida Jets with his usual precision flying, and Brian Lloyd and Janet tied the knot in April - congratulations to Brian and Janet!

I am exploring leads on some closing or closed military sites in District I for possible jet-flying activity - stay tuned for updates. There is also a possibility of the Green Mountain Jet Rally being revived in Rutland, VT!

Thanks to all of you who have already renewed your JPO membership for 2010! Please renew as soon as possible if you haven't already done so. You can renew right on the JPO website and PayPal makes it very easy.

Upcoming Jet Events

The inaugural First in Flight Jet Rally, May 28-30 in Wilson, NC is going to have District I representation.

The early edition of OC-Turbo Fest is June 18-20 in Titusville, PA.

The Big Apple Jet rally is taking place June 26-27 in Brooklyn, NY.

Capitol Jets is July 16-18 at the South Albany Airport near Albany, NY. The Capitol Jets website was recently updated with the latest information.

Liberty Bell is August 5-8 in Lebanon, PA.

The 5th Annual New England Jet Rally is August 20-22 at Gardner Airport in Gardner, MA.

The Maine Jet Rally is September 10-12 at Sanford Airport in Sanford, Maine. This event is back after cancelling last year due to runway maintenance.

The fall edition of OC-Turbo Fest is October 1-3 in Titusville, PA.

The Hamburg, PA Jet Rally is October 7-10.

As a reminder, the JPO reps will have JPO decals and pilot logbooks for sale at the jet events.

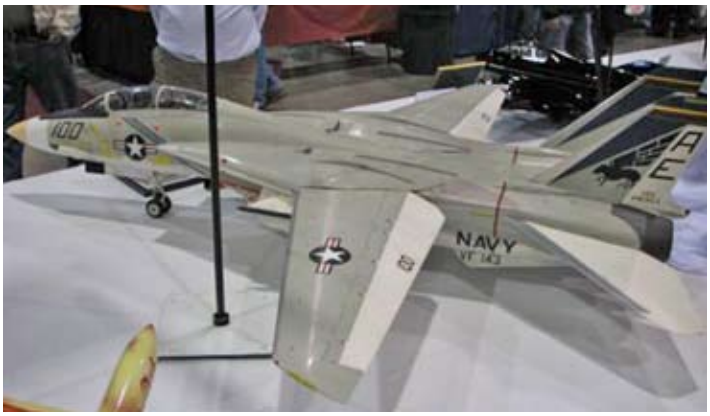
We need to start thinking about my replacement as the District I JPO Rep as this will be my last year. If anyone wants to be considered, drop me a line and we can chat about it.

Please send me your comments and suggestions for topics.

Fly Safe,

Bob

Toledo Photos



District II Report

Len McIntosh

New Jersey
New York
Europe

56th Annual Toledo R/C EXPO Report

After a several year hiatus, JPO staffed an exhibit booth at the Toledo R/C Expo from April 9-11, 2010. Fred "Doc" Gambino, a member/volunteer from Dist. VII, honchoed this effort and was assisted by Len McIntosh (Dist. II Rep), Ron Schwarzkopf (Dist. VIII Rep) and myself (Dist II Rep). Our Prez, Keith Sievers, was also scheduled to attend, but a last minute family medical emergency altered his plans. Doc arrived early to set up Exhibit Booth 265, and we were ready for business at the show's opening on Friday morning. He brought his spanking new Boomerang *Elan* jet model for display, and an explanation of the turbine installation and its features, including landing lights. I arrived about noon, and both Len and Ron shortly after.

Our mission was to show the flag to the attendees at this Expo, capture some new members, along with renewals, and provide for the sale of logbooks, stickers and shirt apparel. We also provided a wealth of information to the crowds about R/C jets just for the asking.

Along with Doc's *Elan*, JetCat provided us with a cutaway of a typical model turbine along with a production example of their new P-20 nano turbine. This miniature turbine is rated for 5.2 lbs of thrust at 245K rpm, weighs just 13 ounces, and it easily fits within a standard 12-ounce beverage container. Additionally, Jet Central provided us with their product line literature and we had a supply of *Contrails* magazines for handout.

The overall attendee traffic flow was fairly continuous across all three days of the Expo. Attendance was down somewhat, due to the economy, but it was manageable. We netted eight new members, two renewals, and sold several logbooks and stickers to boost our treasury. Note that our exhibit booth was complimentary, and we absorbed incidental expenses such as booth carpeting, etc.

Kudos goes to Doc Gambino for all his hard work at initiating our return to the Toledo Expo; and following through with booth setup, staffing and tear down. Both Len and Ron were also heavily involved in staffing the booth during the active Expo hours. We look forward to future Toledo Expos and plans are already underway for 2011.

Fred "Doc" Gambino volunteered his services to set up and staff a JPO exhibit booth at the 56th Annual Toledo R/C Expo in early April. He was assisted by Len McIntosh, Ron Schwartzkopf and Art Arro. We signed up 8 new members and 2 renewals at this show.

Take care, be well and fly safe.

Art Arro

Bruce Sanders of Century Jet Models displaying his prototype 68" length Hawker Hunter, for smaller power systems, at the Toledo show.

District III Report

Mark McCracken

Ohio
Pennsylvania
West Virginia

The early part of the flying season in District III seems to be quiet, as far as the jet rally season goes. The first one on our list is Cincinnati Jets, from July 23-25, followed by The Liberty Bell Jet Rally from August 5 -8. As in years past, Donegal Springs Airpark will be hosting LBJR, and Mike and his family have always put on a great event with plenty of pilots from many states attending. Make your hotel reservations soon, as they go quickly. Another event on our list in District III is the NightHawks Jet Rally in North Jackson, Ohio being held on August 21-22.

A popular event that seems to be growing by leaps and bounds is the all electric-jet event from September 9-12. E-Jets International is four days of flying with pilots from Canada, Great Britain, Austria, Germany, Russia and pilots from all over our homeland, here in the USA.

The next event is one of my favorites, and is close to home, on an all-grass runway. The Farview Flyers have made a few changes this year in the hope of making this year's event, their best yet. JPO is proud to be a part of this event, and will be awarding a JPO Top Gun award to one of the pilots.

As for the changes: The Farview R/C Flyers have decided to be a 2.4 gHz frequency ONLY event, with the event being held from October 7-10. With a 300 foot x 1800 foot, smooth grass runway and a wide open over-fly area, in a just a few short years the Hamburg Jet Jamboree has quickly become one of Northeast PA's finest jet rallys.

If there are any event CDs wishing to have coverage of their event posted in the next issue of *Contrails*, OR if I have missed an event, please contact me with your information and pictures.

The same applies to ALL District III members: if you have something to share with other jet pilots in any District, please e-mail me.

I'll close with a few photos from last year.

Safe Flying...

Mark

District V Report

Craig Gottschang

Alabama
Florida
Georgia
Mississippi
Puerto Rico
South Carolina
Tennessee

I hope you are all enjoying the 2010 jet flying season! Florida Jets was a complete success and I have highlighted some of the action in my report and photographs that follow. I have also written the second part of my article on multi-engine jets and I hope you find it interesting, even if you have no plans for a multi-engine jet in the near future.

I will be attending the Mississippi After Burner event in late-April and will have a report in the next issue of *Contrails*. After that, it's on to Kentucky Jets. I am also encouraged to hear a new jet event, the "First in Flight" Jet Rally will be held in late May in nearby North Carolina. It's good to know that jet modelers are willing to step to the plate and organize new events, particularly when other events are cancelled.

Attending a jet event takes a fair amount of effort and money, but I don't think I've ever been to one where I didn't think it was worth it! If you see me at an event (I'll probably be wearing a JPO or Georgia Jets shirt with "Craig" on it), please introduce yourself and say hello. As always, please keep your JPO membership current and encourage your jet-flying friends to do the same.

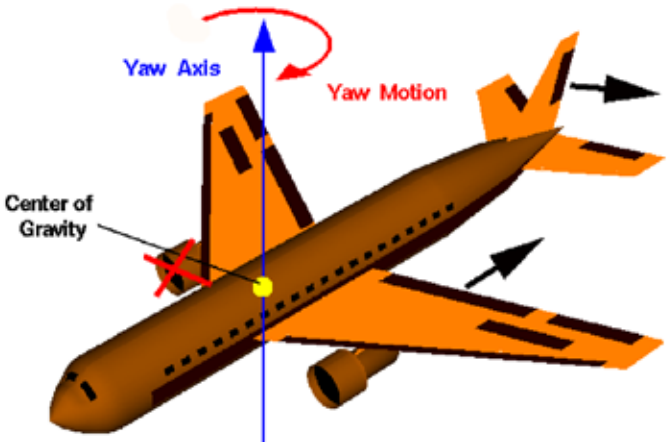
Multi Engine Jets - Part 2

In the last issue of *Contrails,* I wrote an article on multi-engine jets, which focused on some general concepts of twin-turbine installations. Topics covered included single-engine versus multi-engine pros and cons, thrust requirements, installation guidelines, and starting methods and techniques. In this article I will focus on the actual flying of multi-engine R/C jets.

In the simplest sense, flying a multi-engine jet is exactly the same as flying a single. That is, until one engine quits! As long as both engines are running and responding in unison, there are no special procedures or techniques needed, and in fact, you would be hard pressed to even know whether you were flying a single or a twin. That all changes when an engine fails or has a serious loss of thrust, and handling a flameout situation is what multi-engine flying is all about.

Let's first start by recognizing that multi-engine jets fall into two categories: center-line thrust and non-center-line thrust. The difference in single-engine handling between the two is so significant, that in full-scale aviation, special training and certification is required for non-center-line thrust multi-engine aircraft, but not for center-line thrust only. The distinction has to do with the effect on the handling and flying characteristics of a multi-engine aircraft that loses one of its engines.

With very few exceptions for over/under mounted engines (such as the English Electric *Lightning)*, all multi-engine turbines are mounted to the left and right of the aircraft center line. This means that when one engine fails, the thrust from the operating engine will produce an asymmetric force on the aircraft. This force is always in the yaw axis (side-to-side) and produces movement around the center of gravity. For most aircraft, this yawing motion has the same effect as rudder input and will frequently result in a rolling moment in addition to the yaw. The severity of the yaw motion is dependent upon the engine distance from the center line and the amount of thrust. The greater the distance and/or thrust, the greater the yawing motion. Non-center-line thrust aircraft in particular must take this yaw motion into account as it can seriously affect the ability to control the aircraft under certain conditions of high thrust and low speed. More on this later.



Loss of the right engine in this example causes a yawing motion to the right from the thrust of the running engine. Result is similar to inputting right rudder.

District V Report (cont'd) Craig Gottschang

Virtually all the fuselage-mounted twin-jets we are likely to fly are considered center line thrust. A partial list includes the F-4, F-5, F-14, F-15, F-18, F-22, F-111, F-117, A-6, T-2, T-38, *Eurofighter*, *Rafale*, SU-27 and Mig-29. Because their engines are located fairly close to the fuselage center line, the resulting yaw motion from a flameout is relatively benign. During normal flight-speed conditions, it may not even be apparent that an engine has failed, with the main indication being that more throttle is needed to maintain speed. In situations of high power and low speed, primarily during takeoff or go-around, the loss of an engine will generally produce a small amount of yaw which is easily countered with opposite rudder and/or aileron.

"Centerline" thrust, twin-powered Fei Bao F-15 only needed "a little rudder input" when an engine quit at liftoff according to pilot Adrian Valencia. Once on downwind he said "it flew normally."

It's a different situation with non-center-line thrust jets. These aircraft are characterized by pod or wing-mounted engines which can produce large yawing moments in the event of an engine failure. Although we usually associate these with commercial airliners and business jets, there are others that fall into this category, such as the A-10, ME-262, SR-71 and most military jet bombers. The greater yaw force is due to the increased distance from the turbines to the fuselage center line, and the effect of an engine loss can be so severe that the aircraft is uncontrollable below a certain speed. This is referred to as the Minimum Single Engine Control Speed or Vmc and is the speed below which the rudder and ailerons are unable to counteract the yaw/roll produced by a single engine at full power. For that reason, it is critical to recognize and react to an engine failure, particularly when speed is low and thrust is high. Full-scale multi-engine pilots spend a lot of time training for the dreaded "V1 cut," the loss of an engine on takeoff when it is too late to stop or land on the remaining available runway. We can learn from the procedures they use, but need to recognize that our models differ from their full-scale counterparts in several ways.

As scaled-down versions of real aircraft, the dynamics of our models are not the same. The primary issues have to do with inertia and an aerodynamic principle called Reynolds Numbers. The real world consequence is that our models will very likely react quicker to an engine failure than the full-size aircraft. The problem is compounded when we overpower our twins and create an even greater yawing motion that will require more rudder and speed to overcome. Finally, we do not have the advantage the full-scale pilot has of actually being in the aircraft to feel the yaw and roll of the aircraft, or to be alerted of an engine failure by the aircraft's instruments and warning systems.

So what should we do if we lose an engine on our R/C jet during a critical phase of flight such as takeoff or go-around? The response or "procedure" I suggest next is applicable to all multi-engine jets, but is particularly critical to follow for those with non-center-line thrust. As with all in-flight emergencies, the first priority is always to maintain control and "fly the aircraft." If an engine fails, your first indication will probably be a yawing and then rolling motion which you will instinctively respond to with opposite aileron to re-level the wings. As soon as you realize the aircraft is flying in a side-slip, yawing attitude, you should correct the condition with rudder. If you are not sure which direction to use, just add rudder in the same direction as the aileron control you are holding to keep the wings level (i.e. if you are holding left aileron, put in some left rudder). As you add in rudder, you will be able to relax the aileron input, ideally to the point that aileron control is neutral for level flight. It is extremely important to not use aileron only to counteract yaw in this situation! Doing so will create aileron-induced yaw in the same direction as the single-engine thrust yaw, requiring more and more aileron until control is eventually lost.

While controlling the roll and yaw, you should also lower the nose and shallow out the angle of climb in order to maintain airspeed. This is also crucial because

District V Report (cont'd) Craig Gottschang

if the airspeed gets too low, you may not have enough rudder and aileron authority to counteract the yaw and roll. Be aware that this so called Vmc speed is likely greater than the normal stall speed, and under ideal conditions, you should actually accelerate as you are able to during your climb to a safe altitude.

Steven Ellzey describes his in-flight flame-out experience flying Sam Snyder's twin-powered Vulcan: "The model yawed a bit but not boldly…just light rudder control and landed without incident." The Vulcan is non-center-line thrust, but engines are not as widely spaced as most bombers and transport jets.

The worst case scenario is that, even with the correct opposite rudder and aileron input and a lowering of the nose, the aircraft continues to yaw and roll. The only option at this point is to immediately reduce power, and by removing the source of the yawing motion (i.e. the asymmetric thrust from the good engine), regain control of the aircraft. Depending upon how high are you are, it may be possible to trade altitude for airspeed and gradually increase thrust as speed increases. As long as you maintain control, thrust can be increased to the point where a climb can be re-established to a safe altitude. Use only as much thrust as necessary.

CAUTION: Only attempt to regain control in this situation if the aircraft is headed away from the flight line and other potential ground hazards! Otherwise, immediately shut down the running engine as you dump the nose, and attempt to steer the aircraft away from people and property!

In all scenarios where the aircraft is under control, continue a climb to a safe pattern altitude and keep turns shallow until established on the downwind leg. Accelerate to a comfortable, medium-range speed and throttle back to maintain that speed. You will be able to relax some of the rudder input as the yaw will decrease as thrust is reduced. You may also find it helpful at this point to add in rudder trim (in the same direction you are holding rudder) so you won't need to hold rudder continuously. Set up for a normal landing pattern, keeping in mind that a slightly faster final approach will provide some margin for error in the event of a go-around or sudden need for extra thrust. You may also consider a slightly steeper final approach, which reduces the amount of thrust required (and the yaw it produces), from the running engine. Try to avoid large throttle movements on final, as each change in thrust will require a corresponding control response to counteract the change in yaw. When the landing is assured, pull the throttle to idle as you normally would for landing and be ready to counteract the small amount of opposite direction yaw that may result if you have previously trimmed the rudder.

I have lost an engine twice during takeoff with my MIBO A-10. Full rudder trim of about ½" throw nicely cancels out the yaw produced by the operating engine.

One final topic concerning engine failure on a twin-engine jet -there is a school of thought in the R/C jet community, that the best response to an engine failure is an automatic and immediate shutdown of the other engine. This concept goes against every principle and procedure observed in full-scale aviation and negates one of the primary reasons for multi-engine aircraft in the first place, namely, the safety and security of being able to continue to fly with the loss of an engine. It is also true however, for reasons previously mentioned in this article, that certain R/C jets do not react to an

engine failure in the same manner as the full-scale jet. In those cases where a design is known to have a rapid and potentially uncontrollable response to an engine failure, or during experimental flight testing of a new design it may be appropriate to automatically shut down one engine if the other fails.

JetCat offers this capability in newer version ECUs, where one engine will retard or shut down in the event a thrust differential develops between two turbines. The amount of thrust differential, time delay and response of the running engine are all user selectable. (Note: this option requires a custom order from JetCat to electrically connect the two I/O boards.) I have also heard suggestions of cross-connecting the fuel shutoff valves between turbines, that if one fails, its ECU will command the fuel valve on the other turbine to close. I strongly recommend against this option, as it does not allow for single-engine starts or any practical method to deal with engine problems individually.

Widely-spaced engines and unique flight characteristics make Lance Campbell's SR-71 nearly uncontrollable with the sudden loss of one engine. Lance has set up his scratch-built prototype with the JetCat "auto shutdown" feature to immediately kill the other engine if one fails.

Let me emphasize that except for some unusual designs, the vast majority of commercially-available twin turbine R/C jets can be flown safely and reliably when an engine fails. Virtually all center-line-thrust and most conventional non-center-line thrust jets will remain controllable if the steps and procedures outlined above are followed. It would be nice to be able to practice those "procedures," just like the full-scale pilots do, but we know that is not practical. It is practical to mentally remind yourself of what you need to do if you lose an engine at critical point and be ready if it happens. The objective is not to fly a smooth and flawless pattern and landing, but to keep your jet under control and get it safely back on the ground. It is a rewarding challenge to build and fly a multi-engine jet, and in the process decrease the chance and consequences of a dead stick landing when the inevitable flameout happens. That's what multi-engine flying is all about.

Florida Jets 2010 - Event Report

For the second year in a row, Florida Jets enjoyed nearly perfect weather for most of the March 4-7 event. Morning temperatures were cool, but crystal blue skies made for great flying conditions and nearly perfect picture-taking opportunities. This is undoubtedly the most photographed and media-covered R/C jet event in the country! And with 172 registered pilots and 17 vendors displaying their latest and greatest products, there was plenty to photograph! Rather than duplicate that coverage, this report will focus on some general observations and trends, and a few selected photographs.

As in years past, this is an international event. There was strong representation from both pilots and manufacturers around the world, and particularly from England and Germany. It seemed that at any particular moment, Ali Machinchy or Thomas Singer were putting their respective SkyMaster or CompArf jets through their paces and, in some cases, at the same time. There was some spectacular formation-flying by these two with similar-sized and colored BAE *Hawks*. All the more amazing when Ali told me later that it was unrehearsed, and with him speaking English and Thomas speaking German!

Other spectacular flights were turned in routinely by Robby Lynch, David Shulman, Dustin Buescher, Raul Lozano, Joey Tamez and many others. The "noon-time" manufacturers' demo and runway jet-lineup for the spectators was limited to Saturday only. The only other time turbine-flying was interrupted was once or twice on Friday and Saturday for a 15-minute "*HABU*" mass launch. The *HABU* is a Park Zone "foamy" EDF jet with adequate performance for knife-edge fly-bys, "high-speed" passes, and other sport-jet-type maneuvers, including takeoffs and landings with its fixed-landing-gear. Everyone enjoyed the sound, excitement, near-misses and minimal damage mid-airs of 30 plus EDFs in the air at once, and no one seemed to mind the brief break in turbine-flying.

District V Report (cont'd) Craig Gottschang

Most of the non-foamy EDF jets seemed to be BVM products such as the *Electra*, *E-Bandit* and F-86. Several of these were equipped with the new "EVF- 2" power system which reportedly ups the thrust and increases flying time over previous versions. Both electric jet awards were won by BVM products.

There were a few "heavy metal" kit-built jets that were flown and appreciated by the crowd and judges, including Scott Marr's big Skygate *Hawk*, Jack Diaz's BVM F-100, the big CompArf A-4 and my MIBO A-10. For the most part, however, ARFs dominated the skies and the manufacturers' display tents. There were numerous new ARF jets flown and displayed, but to my knowledge, no new kit-built jets were present or announced. On the other hand, two new turbines were debuted. On the small side was the 2 ½ inch diameter JetCat P-20SE, weighing only 32 ounces, but producing 5 pounds of thrust! At the other end of the spectrum was the Jet Central *Mammoth,* a 4.88 inch diameter, 4.9 pound turbine which puts out 48 pounds of thrust!

A couple of "firsts" for this event included a "2.4gHz only" rule and the use of radar guns to monitor and enforce the 200mph speed limit. The 2.4 rule eliminated the need for any sort of transmitter impound or frequency control and did not appear to have impacted attendance significantly. The radar gun use was only mentioned at the Saturday morning pilots' briefing where organizer/CD Frank Tiano said that 3 or 4 jets had exceeded the limit and pilots were advised to watch their speed. Nothing else was said publicly and no one seemed particularly offended by the use of the speed guns.

All in all, Florida Jets 2010 was a well-run, well-attended and enjoyable kick-off to the 2010 flying season in the southeast. A complete listing of the 25 award winners and an extensive photo gallery can be found here: www.franktiano.com/FljetsFrameset.htm.

Craig

FL Jets promoter Frank Tiano conducts the morning pilots' briefing. As in years past, announcer Sam Wright (left) kept spectators informed and entertained.

Colorful staging area and flight line. Jets queued up at one of two start/taxi ramps.

Big CompArf Tutor in Snow Bird livery, flown by Andreas Gietz, won a Special Recognition Award.

David Shulman wowed the crowd with his on-the-deck passes and smoke-on aerobatics. Custom painted Ultra *Lightning* had power to spare with AMT Netherlands *Olympus* HP installed.

District V Report (cont'd) Craig Gottschang

Scott Marr's giant Skygate *Hawk* caught mid-roll. This impressive jet won Best Military Jet and Critics Choice Awards.

Germany's Thomas Singer hovers thrust-vectored Eurosport "3-D Universe" a few feet off the ground. His complete routine, choreographed to music, won the Best Sport Jet Performance.

Jack Diaz gets ready for another flight on his BVM F-100. Superb detail and flying skills earned him Best Craftsmanship Award and Best Scale Jet Performance.

Craig Gottschang's MIBO A-10 won the Best Multi-Engine Performance for the second year in a row.

***"Victory"* jet is a scale version of the full-size light biz jet. Rick Schrameck designed both the full-scale and R/C version, and earned the Engineering Excellence Award!**

District V Report (cont'd) Craig Gottschang

This is the new and big T-33 ARF from Fei Bao, flown by Pablo Fernandez. The 108" wingspan jet won runner up, Best Military Jet Performance Award.

Ali Machinchy puts the new Skymaster 2M *Viper Jet* through its paces. Awarded the Most Outstanding Flight.

First public viewing of the new Jet Central *Mammoth*. Impressive specs including 48 pounds of thrust at only 104,000 rpm.

In contrast, tiny JetCat P-20 needs 245,000 rpm to produce 5 pounds of thrust! Only uses 3oz/minute of Jet A in the process.

A few of the 30 or so *HABU* foamy jets preparing to launch. Cheap (relatively) jet entertainment during a short break from turbine flying.

Scott Marr's *Hawk* looks for the center line.

District VI Report

Lance Campbell

Illinois
Indiana
Kentucky
Missouri

I thought I'd pass on some things I've learned about epoxy and the interesting things you can get it to do for you, based on what you might mix into it. I'll preface things with the following disclaimer: There are countless ways to skin a cat when it comes to how to do epoxy and fiberglass work (no offense to our cat, Alfred). Many are valid, and I only offer the following information as in: "Lessons that I have learned."

When we talk epoxy, most jet guys have three things that pop into mind - 5-minute, 30-minute, and *Aeropoxy*. All are valid and have their place, but what I'm going to get into are other types of epoxy. Once you step away from the above three, the next one most people *might* have heard of is West Systems epoxy. I've used it quite a bit, and it's a good all-purpose epoxy. The same company has a bit more expensive brand called 'Pro-Set,' which has a bit better properties and is quite valid to use as well. Recently, I've been using a high-temp epoxy variant from Resin Services, which is good up to 325 degrees, and only requires room temperature to cure out properly.

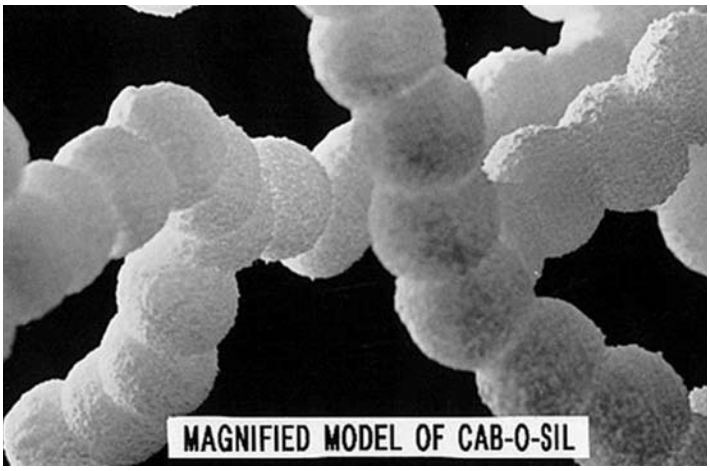
Most guys would consider these 'finishing' resins, as they are usually used to lay-up fiberglass, and have relatively long cure times. When I say long, I mean, it can sit in the mixing cup for 30 minutes. After being spread out or put in place, it is workable for an hour or two. It's *green* in 12 hours, which is a good time to trim any extra away if you were laying up fiberglass cloth. In 16-plus hours, you can progress onward, such as sanding and working with it, but it won't be fully cured to its maximum strength for a few days.

But, they have uses well beyond doing fiberglass lay-ups, and there are ways that you can take advantage of the long cure times. The basic concept behind any glue is that the liquid soaks into the things you want to glue together, and then sets up and thus holds the parts together. Epoxies cure by a chemical reaction turning them from a liquid to a solid, and the pace they do that is very important. The 5-minute epoxy you have in your field box is great if you are in a hurry. But it's lousy for gluing in a former to a fiberglass fuselage since the glue does not have sufficient time to creep into the wood grain or dig into the microscopic scratches you put into the fiberglass during your sanding prep work.

However, if you used a resin that takes 12 hours to setup, it would all run out of the seam before it could do you much good either. This is why the 30- to 45-minute epoxies are as popular as they are. It's a compromise between time to soak in, but yet not run away from where you want it. It's also why *Aeropoxy* has been so popular, as it stays put, while semi-decently soaking into the wood grain. Now having said all of that, if you could get a glue that sets up slow, allowing it to soak deep into the parts, but yet stays put ... that would be a nice combination!

There are two additives I want to bring to your attention. The first is *Cab-O-Sil*. To quote from the Wick's Aircraft website: "...is a fumed silicone dioxide and is used to modify the flow properties of epoxy to keep it from sagging when used on vertical surfaces. Does not change the properties of the epoxy."

Let's ponder this a moment. If you look at the following picture, you'll see why it works this way. It is because its long chains slow down the movement of the epoxy. Also, because of this - adding it does not weaken the epoxy's strength.



It comes in a gallon-sized bag for under nine bucks, so for the average guy, this is a lifetime supply. It's a super-fine white powder, like you're used to seeing with micro-balloons. You can mix it just a little, or a bunch, depending on your need. Do just a little, to keep your epoxy from running away from you, or a lot,

District VI Report (cont'd) Lance Campbell

to make a thicker batch to form a fillet.

Think about combining different mixes, for example on a single glue job. For instance, if I'm going to glue in a former, I'll mix my slow, 12-hour epoxy, and before I add anything to it, it's quite runny. I'll take a small 1-inch brush, and coat my fuse and wooden part, that will be soon glued together. Since I've sanded the area I'm going to glue to in the fuse, and cleaned it with acetone, it's all ready to take the very thin glue. The thin glue will soak into the tiny scratches of the fiberglass fuse, and soak nice and deep into the wood....just as deep as you're used to when using thin CA.

Next I'll mix in some *Cab-O-Sil*, to get it to the consistency of a weak jelly, and put a bead on my former, and put it in place. Lastly, I'll mix in some more *Cab-O-Sil*, to get it to about toothpaste consistency, and put in a small fillet on either side of the former. I've done all three steps/consistencies, with the same batch of epoxy we just mixed.

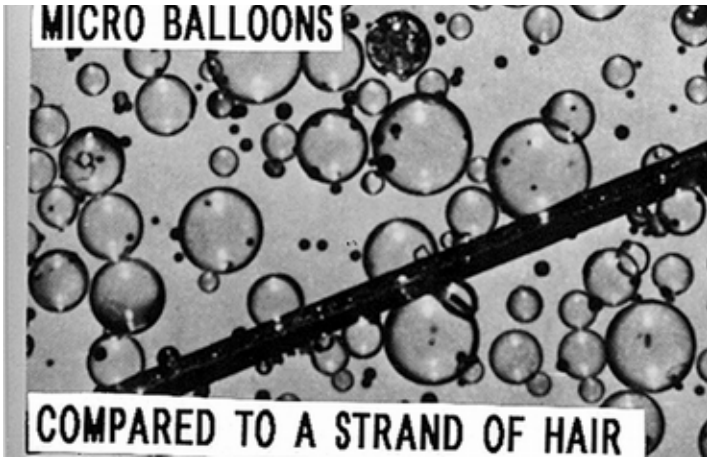
Since it's all the same glue, all the different 'blends' chemically bond with each other, and when it's all set up, it is an extremely strong bond, with no problems of anything running where it should not have - and I had several hours to get it positioned just right and all the excess glue removed.

The other additive many of you have used before are *Micro Balloons*, which has a different purpose. It is used in places that you want to build up something which will eventually be sanded. Do not use it where structural loads will be required. Instead, you could use it to fill imperfections in the fuselage, or put plastic film on the wing, and some epoxy/*Micro Balloons* mix on the fuselage, and bolt the two together to make a nearly invisible seam.

You can add WAY more *Micro Balloons* than you think you can if you are using one of the very slow epoxies like we are talking about here. Because you used so many *Micro Balloons*, it makes sanding much easier. To be honest, I'll add a pinch of *Cab-O-Sil*, to a filler batch I'm making with Micro Balloons to help keep it from running away, but don't get carried away with it, since sanding Cab-O-Sil is like sanding concrete.

The reason you don't ever want to use a *Micro Balloon* mix for anything structural, is because as you'd expect, the additive is made of little spheres. If you've ever watched a kid dive into one of those plastic ball pits, you'll know they go right through - balls don't do much for holding anything.

Here's the Wick's Aircraft description of it: "Glass and quartz bubbles also called micro-balloons used to add to mixed epoxy and hardener. Totally nonstructural and very light, with a texture and color approaching talcum powder, they are used to thicken epoxy. Slurry consistency is still quite runny, similar to honey. Ratio of filler to epoxy is not critical, simply add filler to well-mixed epoxy until the desired consistency is achieved. If it gets too thick, add more epoxy. Slurry is used to coat and seal the raw sanded foam before laying on the glass cloth. Also aids in easing the removal of trapped air bubbles by sealing off the foam. Dry micro is achieved by adding additional filler to the slurry. Similar to dry bread dough, has excellent and easy sanding characteristics, but very light in weight. Use by painting on a thin coat of epoxy, then add dry micro mix. Press in place. Dry micro is good for filling low spots, totally nonstructural."



You can see in the above picture why it's non-structural. When the epoxy is put under strain, the spheres hinder the epoxy's ability to hold together. But, it's also the reason why it makes it easy to sand.

I've got 2 other additives I'll use, but they are more for mold making, so I'll just briefly mention them. The first is West Systems 423 Graphite powder. I'll use this in the very first resin I mix up when laying down a 'gel coat' as the first glue going on in making a mold. A tiny amount of this turns the epoxy jet black, and is

District VI Report (cont'd) — Lance Campbell

supposed to make it a smoother, harder surface, although probably a bit more brittle. The nice thing is, that since it's black, when I lay all the many layers of white fiberglass cloth on top of it, to build the mold thickness, I can see how well the fiberglass is wet out. If it's wet out properly, the fiberglass goes nearly transparent, and I can see the black very well. If it's not, then the white of the fiberglass cloth is still showing, and I need to put in more epoxy.

The last additive, which is also really just used for mold-making is called "cotton flock," which is essentially powdered cotton. When soaked with resin, it becomes very, very heavy, so it's not good for going into your airplane. But if you need to build up a large bulky area while mold making, it works great. Fiberglass does not like to be poked into square corners, so a nice big half-inch radius or so of cotton-flock-soaked resin in there will help, then lay up cloth above it and it stays put.

One last remark: The above resins - West's, ProSet, and Resin Services, all run around $100 per gallon including the hardener. **But** - a gallon of resin will last most people for ages. Each have their own mixing ratios, and some come with pumps to do it automatically, for others you mix by weight. Pumps can be as simple as one squirt of resin and one of hardener. Or, if by weight, you just put your mixing cup on the scale, and put one part hardener, and three parts resin, for example. The main point here is that it's not 50/50, like you're used to using with the regular hobby stuff, but it's not hard either.

I know that in today's age of ARFs and CA, glue that takes 12 plus hours to set up could seem like a step backwards, but given how smooth our turbines run, and how little vibration our airframes can see, we can have airframes seeing service for years. Given how long you could be flying "that" bird, I like knowing that when I'm gluing in critical things, such as engine bulkheads or formers, that they will stay put for the long haul.

Lance

Treasurer's Report

Beginning Balance as of March 30, 2010		**$9,278.37**
Income		
Dues - Cash/Check	$625.00	
Dues - PayPal	$143.32	
Log Book sales	$22.00	
Decal Sales	$12.00	
JPO Shirt Sales	$20.00	
Total Income		$822.32
Expenses		
Contrails Winter 2010	$1,449.29	
Postage	$69.10	
Top Gun Trophies	$89.95	
Total Expenses		$1,608.34
Ending Balance as of April 30, 2010		**$8,492.35**
Checking Account		$7,874.71
PayPal Account		$142.32
Cash/Checks on Hand		$474.32
		$8,492.35

Respectfully submitted, Carol Brusa

District VIII Report

Ron Schwarzkopf

Arkansas
Louisiana
New Mexico
Oklahoma
Texas

The jet event season is just starting down here, so I'm hoping you have been able to get your model prepared for this upcoming flying season. It has been a bit rainy, so that can only mean we'll be getting some good flying weather for the rest of this year. Well, at least we can hope!

The first two events in our district will be the Central Texas Jet Rally which will be held from May 14-16, down in Austin, TX, at the Austin Radio Control Association field. It is a great event, with a nice field layout, a 575-foot runway, and a great supporting club. Ken White is CD of the event, and if you need more info on the event, you can check their website at www.austinrc.org .

The next event is from June 11-12 in Mt. Pleasant, TX - the Northeast Texas Jet Rally. CD of the event is Gus Hudson, and this field is also another nice flying site. The club website is www.mtpleasantrc.com. I am going to try to make it to both events, as they are high on my fun-list.

Fully understanding not all jet rallies occur in Texas, some of us from District VIII did make the drive to Arizona and the Tucson Jet Rally, which was held from March 5-7. This was the first time I had attended this long-running event. Toward the end of the event, the wind did get a bit ornery, but didn't prevent us from having 2-3 great flying days. I thought Debbie Sherrow did a great job with CDing the event, and fed us well! I hope to put this jet fly on my schedule again in the future.

Every few years, I get the itch to go to the Weak Signals R/C Show in Toledo OH, so this year I did. The expo is usually held the first week of April, and if you've not had the chance to make it yet, I'd recommend trying - you won't be disappointed! It is a great place to see *what's new* coming our way in the hobby, and of course, not focused just on jets. A few photos of this event are scattered throughout this issue of *Contrails.* I did happen to eye a nice looking little EDF F-86 *Sabre* coming out by E-Flite. Since I have no electric ducted-fan models, I may have to think hard on this one. The gears are turning….

I am embarrassed to say, due to my last several months of work schedule, I am still waiting for schedule and weather to converge to allow myself to clearcoat my BVM *Bandit* ARF. This model will go down in my books for the "Longest ARF Build, Ever!" So feel free to give me a hard time about it if you see me at an event. Perhaps peer pressure and taunting might make an effect on me!

On the other hand, I like to check out the website www.UAVDE.com, which is a website showing essentially what Sam Snyder has been up to. Sam was our previous district rep, and gave up being rep simply because he had many scratch-built models to design and build. Here is an example of his latest project - a Gloster *Javelin*. So check out his website if you really want to learn how to build!

Well, that is all for now. I hope to see you at the next jet fly. Happy model jet flying!

Ron

District X Report

David Reynolds

Arizona
California
Guam
Hawaii
Nevada
Utah

This April marked the first edition of what is hoped to be a new event in Arizona, an all-electric-jet rally: Ejets of the West. Clay Sherrow, who also helps run the Tucson Jet Rally with his wife Debbie, put on a laid back, fly-all-day event. I did so much flying that I took only two pictures, one group shot and one shot of a typical table at this event.

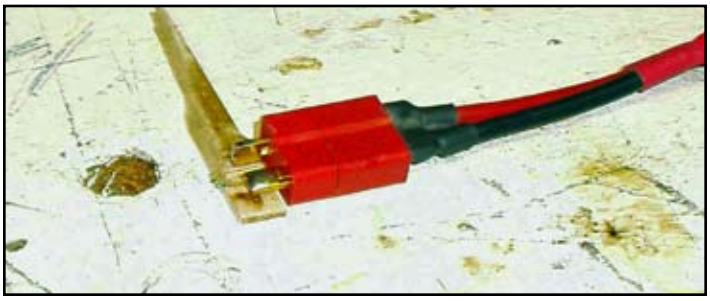
Safety Alert. It is no secret that Lipo batteries can release a lot of energy in a very short period of time, as in catch fire. Most of us are aware of this and are very good about monitoring charging and treat our equipment accordingly. I did witness an event at the Tucson electric jet rally that I had never thought of. While one pilot was pulling a large battery out of a small jet, the battery caught the edge of a plywood former and the former managed to cut the battery and start a fire. Fortunately, nobody was hurt, nor did the plane get damaged. As we stuff bigger batteries into tighter airplanes, we should keep all sharp edges, no matter what the material, away from those batteries.

Connecting batteries. Most high power EDFs use multiple-battery packs for power. This helps with packaging inside the model. Many times one 6S pack will not fit, but two 3S packs will and a series-connector will bring the total pack voltage up to where it should be. Many commercial connectors are available and they work well. However, sometimes what is available on the market just won't work. They could be too short or too long, or if you are a cheap bugger like me, you just don't want to spend the money. For most applications, Deans connectors work great, and if done correctly, they are easy to get apart, polarized so you can't hook things up backwards, and can handle a decent amount of power. The secret to putting Deans connectors together - solder them only when they are plugged into each other, as shown below.

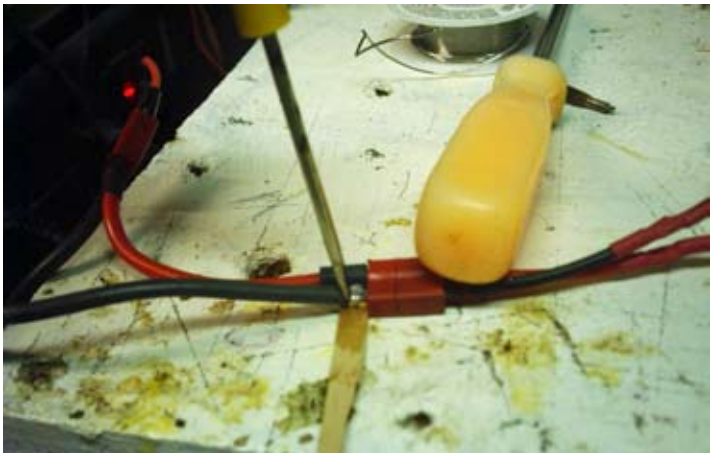
This keeps the connectors aligned, preventing the evil hard-to-get-apart Deans connectors syndrome. As you assemble the wires, don't forget to slip the shrink wrap on before attaching the next connector, otherwise you will have to take things apart and start over.

District X Report (cont'd) — David Reynolds

A small scrap of 1/16-ply placed under the tab helps to keep things from moving around on your bench and also helps to keep things lined up.



After the solder melts through the wire and on the tab, use a screwdriver to hold the wire in place until the solder is solid.



Check to make sure that the battery 1 positive goes to motor positive and negative goes to battery 2 positive. Battery 2 negative goes to motor negative. Before you seal the shrink wrap around the joints, give them a squeeze with some pliers. A bad solder joint that did not get hot enough will snap apart and a good joint will stay together.

The finished product! Hopefully the joints are good, shrink the wrap and go fly!

Until next time, keep the low passes where they belong.

Dave

Toledo Photos

Joe Grice's impressively-detailed MiBo A-10 at the Toledo show.

Some of the weaponry aboard Joe's A-10 at the Toledo show.

District XI Report

Bob Brusa

Alaska
Idaho
Montana
Oregon
Washington

It is now spring and flying has once again begun in the northwestern USA. I attended Tucson Jets in March, and you'll probably find more info and pictures in Dave Reynold's column for District X. In case he doesn't use it, I thought I'd post a picture of our new JPO banner that Mark McCracken, the JPO rep for Dist III, made. Mark did a great job on these and they look very good. We signed up seven new people at Tucson Jets, and I think the banners really help. The following picture shows four of your JPO officers and reps. From left to right is Ron Schwarzkopf, District VIII rep, Dave Reynolds, District X, Carol Brusa, JPO Secretary, and yours truly.

A small group of us gathered at the Navy field in Coupeville, WA, on a Friday to do some turbine flying and I have enclosed several photos.

SM *Viperjet* being flown by Bill Broderick.

Paul Dries's CARF *Flash* on its maiden flight.

My *KingCat*

Our vice president, Al Watson, was also there flying his *KingCat* and we all had a great day of flying. I mentioned in the last issue that I hadn't flown my new *KingCat* yet, well I now have four flights on it and the *KingCat* is a very nice-flying plane. I fly it with a JetCat P120.

Here's an update on the jet events for District XI, including some for Canada:

Princeton Jets in BC, Canada: June 3-6.
Idaho Jets in Parma, ID: June 11-13.
Montana Jets in Whitefish, MT: July 16-18.
Jets Over Cayley in Cayley, Alberta, Canada (north of MT): July 23-25.
Jets Over Whidbey in Coupeville, WA: Aug. 27-29
Princeton Jets in BC, Canada: September 15-19.

We will have a special guest at Jets Over Whidbey this year - retired Rear Adm. Bill Neumann, who was the leader of the *Blue Angels* for two years and flew plane #1. He will talk at our Saturday night banquet and he is always very interesting. I've been to two of his presentations.

We have not had a Canadian JPO rep for awhile, and Paul Dries has agreed to accept the position. Welcome to the group, Paul!

Keep encouraging your fellow jet pilots to join JPO, and they will still receive a logbook if they are new members and a nice JPO vinyl decal if they are new or renewing.

Following, is a special report from Christopher Rankin, about a new R/C jet company here in the northwest. Enjoy it!

Bob

District XI Report (cont'd) Bob Brusa

With the 2010 flying season now in full swing, you might think it's too early to be thinking of that next project, but is it ever too early to dream of that next jet? There are times I think I'd like to endeavor into a scale project but the choices are pretty much limited to the military variety. How about something different, maybe general-aviation-related, and what would you say if I told you it was made right here in District XI? If you are like me and have an interest in something unique, then read on.

Recently, I had the opportunity to visit with the folks at *Acme Jets*, here in beautiful Bend, Oregon. Acme produces the Epic Aircraft *Victory* Jet. The creator of Acme Jets is none other than Rick Schrameck who designed and owned the real Epic Aircraft Company. Rick is no longer directly involved with Epic Aircraft but he still keeps his hands in the aviation side by doing special projects for various aerospace groups, and making kits for his Epic line of R/C aircraft. Rick has always had a thing for Chuck Jones' *Wile E. Coyote*, and the *RoadRunner* cartoon series, and this is where the idea for the name of Acme Jets came from. Rick Schrameck along with his long-time friend and design engineer, Freidel Deffner, both have a long history of R/C modeling - well before the creation of Epic.

Rick has flown just about everything, up to and including Madera racers, and Friedel, being from Germany, was heavily into designing and flying high end sailplanes. Personally I think there is a great deal of sailplane influence in the graceful lines of this airplane, with its crescent-shaped wing. The radio-controlled *Victory* actually got its start as a 1:4 scale spin-test model for the full-scale jet, which is one reason the airplane makes for such a great scale project, with all panel lines and hatches, even down to the door handle. Not wishing to reinvent the wheel, they used the same molds to create display models for the Epic Aircraft Company showroom.

The *Victory* Jet started making the rounds at many of the mainstream jet events in 2010, like Florida Jets, where it won Best Civilian Jet and Best New Design. Flying prototypes 2 and 3 (which are production airplanes), the guys were able to show off the latest improvements in the design.

Early on, they set a target at offering up a very high quality kit, on par with the finest model manufacturers, and from everything I've seen they have achieved exactly that. The fit and finish of the new jet is as good as the best being produced anywhere.

Rick says, "It's lighter and stiffer than most composite jets, and about equal to CompArf in build factor." The new version is a glass-composite airframe with carbon in a few select areas such as the spar and flap hinges. Other control surfaces use the live-hinge method for a clean, strong slick setup. Landing gear is of a trailing-link design, just as it is on the full-scale ship, and these are currently being manufactured by Aero Tech and Behotec, then distributed by Altecare R/C. The interior space is huge, as you could put in enough stuff for three airplanes with all the room that's available for the electronics.

The standard fuel load is right at 1.3 gallons, so you won't have to search for the ground five minutes into your flight. The engine is located in the tail, again just as in the full-scale. To date, the airplane has been flown with engines ranging from a Jetcat P-80 all the way up to the 160 series turbines. A very good match for this airframe is the 120-size engine and while that's what Rick recommends, his own personal Victory Jet is powered by the G Booster 160. Those that flew this at Florida Jets made comments such as, "insane power" and I must admit the vertical performance is staggering with this engine. I had the pleasure of flying prototype number one at Jets Over Whidbey 2009 with this engine. It was a mostly carbon-fiber airplane, and heavier than the new glass birds, and the G Booster pushed this airplane with authority. A fuel pump failure ended my flight just as I was getting to know the airplane. I can tell you from personal experience that energy management in this airplane is really a no-brainer. The high aspect ratio wing just keeps going and the airplane is a total joy to fly.

Most of the time I hesitate recommending this caliber of airplane as an entry-level starting point for a new jet pilot, but realistically, the airplane has no bad habits and flies like an oversized trainer. This is not a small airplane, spanning some 110 inches, which makes it a little intimidating, but get past that and yes, you really could make this your first jet. The *Victory* is very stable, plus it has a huge speed range with its CAD wing and fowler flaps. The airplane with flaps at 25 degrees and ailerons reflexed up can be safely flown at speeds of around 30mph. Rick stated that they had

District XI Report (cont'd) Bob Brusa

radar speeds down in the 20s which is pretty amazing. With the crow setup, there is no pitch change when selecting flaps, which makes the airplane more stable on approach and not float so much on landings. Since the airplane is marketed in countries where there are no speed restrictions, flight testing of the *Victory* has shown level speeds of 220mph without breaking a sweat. Another "one off" prototype with twin EDFs is in the works with anticipated speeds somewhere around 260 mph.

The Epic line of aircraft are distributed by Graupner in Europe, and since Europeans like to build more than Americans do, the airplane comes as a true kit - with glass parts in white gel coat and a wood kit with formers and such that have to be installed. In the US, the airplane can be purchased directly from Acme and comes in two versions - one is painted while the other is in white gel coat. Both versions come with all formers installed, wings and tail pre-drilled for mounting, landing gear, wheels and brakes, along with fuel cells. A very minimum of building is required with all the hard stuff already done for you.

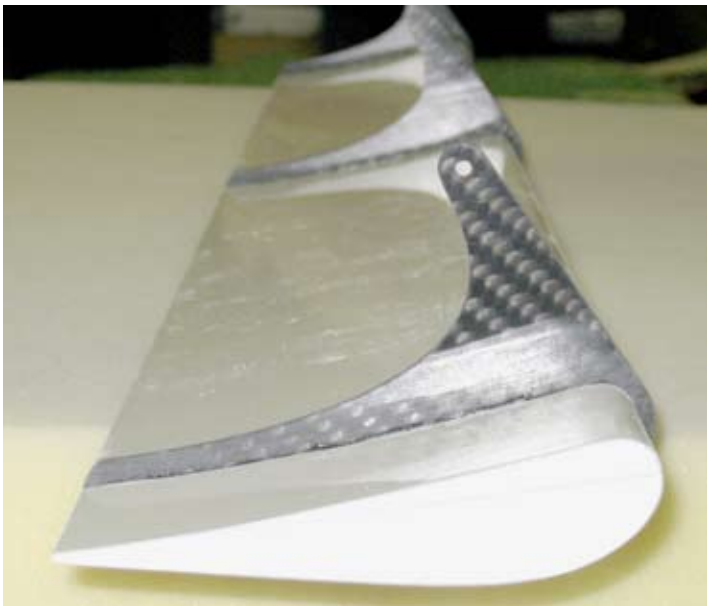
Prices are comparable to any high quality model of this size with $6000 being the magic number for the custom-painted version. The base line standard kit will sell for $4300, with the gear being added for $1250.

What's next? Underway is the release of the Epic LT turboprop, which is at 1:5 scale, the prototype being powered with a JetCentral turboprop; and the Epic *Elite* twin jet, also at 1:5 scale, this being designed for twin EDF. Currently, the plan is to produce one airplane per week for each of its three products. Also in the planning stage are a few sport jets which will revolve around the *Victory* design, but without all the scale detail along with a few subtle changes. These will be priced accordingly.

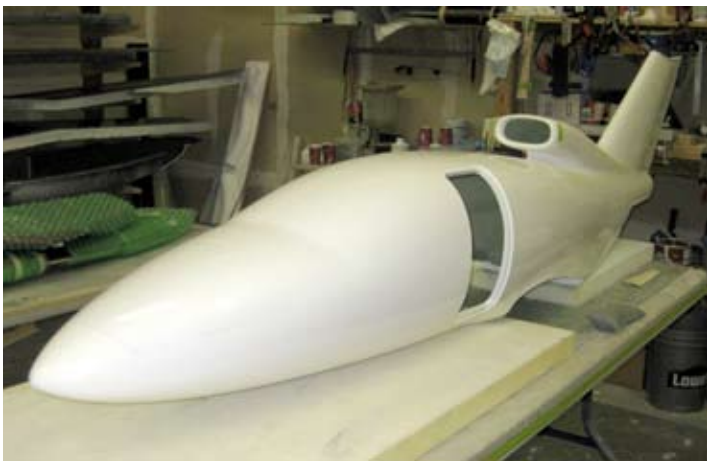
For more information on the *Victory* Jet or any other Epic line of aircraft manufactured right here in the northwest, you can check out their website at www.acmejets.com

Christopher Rankin

Freidel Deffner, fellow JPO member and design engineer ACME Jets.



Flap assembly carbon hinges.



***Victory* with formers just installed.**

Canada District Report

Paul Dries

Hey everyone,

With my first submission to *Contrails* I would like to start by introducing myself.

I have a mechanical engineering background and am currently in senior management at an engineering company that develops and produces specialty drive systems for off-highway and military vehicles. One of the interesting products our company is currently working on is the vehicle drive system and controls for a teleoperated/ autonomous ground-based vehicle on a military platform.

I have been involved over many years in almost every facet of R/C including boats, cars, and for the last 10 years, fixed-wing aircraft. Along with general sport R/C flying, I have competed up to the advanced level in Precision Aerobatics and IMAC, and for the last three years have switched to flying turbine-powered models. I am at a loss to explain how hard and fast the turbine side of the hobby has taken hold of my time (and finances) where I have found both the technical and flying aspect of turbine aircraft fascinating and challenging. I am also generally really impressed with the caliber of people turbine jets seems to attract.

As a tie-in to this position, I have also been appointed vice-chair of the MAAC Jet Committee in Canada. The idea here is to work closely with the Committee Chairperson - Kelly Williams in Canada and liaison between MAAC and the JPO in their respective countries. From this I hope to be able to inform each organization of the key activities and issues facing each other and foster cross-border sharing of both information and turbine-jet operation.

There are some really good events planned in Canada this year and I encourage our friends south of the border to make plans to attend one of these events. Here is a short list - I'm sure there are more:

Princeton (BC) Spring Warm-up: June 3-6
Wingham (Ontario) Jets: June 11-13
Jets Over Cayley (Alberta): July 23-26
Note: Jets over Cayley is the week after Montana jets, which is only 4-5 hours north of Kalispell
Gerard McHale Memorial Rally, Princeton (BC): Sept 16-19

Until next time!
Paul

Victory Photos

The *Victory* on short-final at Desert Jet Storm in February.

Jet Central Turboprop in the 1:5 scale Epic LT.

Upcoming Events

Mount Pleasant, TX Jet Rally: June 10-12, 2010
Mt. Pleasant, TX
CD: Gus Hudson
www.mtpleasantrc.com

OC-Turbo Fest-Early Edition: June 18-20, 2010
Titusville Airport; Titusville, PA

Jets over the Heartland: June 20-27, 2010
Winamac, IN
http://winamacaeromodelers.com/whats_new.html

18th Annual Big Apple Jet Rally: June 26- 27, 2010
Brooklyn, New York

Jets over Kentucky: July 4-11,2010
www.visitlebanonky.com/events/kyjets.htm

Capitol Jets VI: July 16-18, 2010
South Albany Airport, S. Albany, NY
www.capitoljets.com

Montana Jets: July 16-18, 2010
Kalispell, Montana
www.glacierrcers.org

Gateway Jet Rally: July 16-18, 2010
St. Louis, MO
www.SLRCFA.com
CD: Phil Westrich

3rd Annual Cincinnati Jets: July 23-25, 2010
Hook Field in Middletown, OH
CD: Gary Jefferson

4th Annual Mid Georgia Jet Rally: July 23-24, 2010
Located at Hodges Hobbies, Andersonville, GA
www.hodgeshobbies.com

Jets over Cayley: July 23-25, 2010
High River Airport,
Near Calgary, Alberta, Canada

Cool Cities Annual Jet Meet: July 30-Aug. 1, 2010
Two Rivers, Wisconsin
CD: Al Howarth
TCMarine@lakefield.net
www.manitwoflyers.com

9th Annual Liberty Bell Jet Rally:
August 5-8, 2010
Donegal Springs Airpark, Marietta, PA.
www.libertybelljetrally.com
CD: Mike Lesher

Michigan Jets Charity Event: August 13-15, 2010
Grosse Ile, MI
CD: Burt Eisenberg

Minnesota Jet Rally: August 19-22, 2010
Rushford, MN
CD: Dave Dennison
ddennison@yahoo.com

New England Jet Rally: August 20-22, 2010
Gardner, MA
www.wachusettbarnstormers.org

Nighthawks Jet Rally: August 21-22, 2010
North Jackson, Ohio (Youngstown area)
http://nighthawksrc.com/Home_Page.html

Illinois Super Jets: August 26-29, 2010
Monticello, IL.
www.elifield.com

Jets over Whidbey: August 27-29, 2010
Whidbey Island, WA
www.wircsrc.com.
CDs: Al Watson and Bob Brusa

Jet World Masters Qualifier for the 2011 USA Team:
September 4-7 or 8, 2010
Litchfield, Illinois Municipal Airport
CD: Roger Shipley

Route 66 Jets: September 8 or 9-12, 2010
Litchfield, Illinois Municipal Airport
CDs: Roger Shipley and Jim Allen

Greater Southwest Jet Rally: September 9-12, 2010
HOTMAC club field; Waco, TX.
www.hotmacrc.org

E-Jets International: September 9-12, 2010
TORKS club field; Columbus, OH
www.ejetsinternational.com

Maine Jet Rally: September 10-12, 2010
Sanford Municipal Airport
Sanford, Maine

Super Jets South-GA Jets: September 23-26, 2010
www.georgiajets.org

OC-Turbo Fest-Fall Edition: October 1-3, 2010
Titusville Airport; Titusville, PA

Hamburg Jet Rally: October 7-9, 2010
Hamburg, PA
www.farviewflyers.net

Woodland Davis: October 8-10, 2010
Woodland, CA
www.wdarc.org

Jets over Sun Valley: October 14-16, 2010
Sun Valley Field; Scottsdale, AZ
www.sunvalleyjets.com

4th Central Plains Jet Rally: October 14-17, 2010
www.clearviewfield.com

Sin City Jets: November 4-6, 2109
Las Vegas, NV.
www.sincityjets.com

22nd Arizona Jet Rally: November 19-21, 2010
Superstition Airpark; Mesa AZ.
www.azmodelaviators.com

Officers and District Representatives

PRESIDENT AND WEBSITE MANAGER
Keith Sievers
12926 Littleton Bend Road
Jacksonville, FL 32224
904-318-7171
pilot114@aol.com

VICE PRESIDENT
Al Watson
130-145th Ave. N.E.
Bellevue, WA
98007
425-746-9519
alenawatson@msn.com

SECRETARY/TREASURER
Carol Brusa
7433 McCormick Woods Dr,SW
Port Orchard, WA 98367
360-874-1517
bhaven2@earthlink.net

CONTRAILS EDITOR
Greg Moore
790 Royal Crown Lane
Colorado Springs, CO 80906
719-576-3781
jetflyr@comcast.net.

DISTRICT I
Robert J. Radford
P.O. Box 1640
Plaistow, NH 03865
603-475-2200
r.radford@comcast.net

DISTRICT II
Len McIntosh
51 Jesse Street
Freeport, NY 11520
516-623-1780 (H)
516-551-1819 (C)
mcintoshl@verizon.net

DISTRICT III
Mark McCracken
180 Blackman Street
Wilkes-Barre, PA 18702
570-760-6987 (W)
570-825-0713 (H)
jpnepa@hotmail.com

DISTRICT IV
Lee Reightler
108 W. Heather Road
Bel Air, MD 21014
410-838-4208 (H)
clrmd@msn.com

DISTRICT V
Craig Gottschang
1291 Blue Ridge Drive
Sautee Nacoochee, GA 30571
706-878-1098
craig@georgiajets.org

DISTRICT VI
Lance Campbell
4601 Nathaniel Drive
Columbia, MO 65202
573-474-1588
the-campbells@charter.net

DISTRICT VII
Vacant

DISTRICT VIII
Ron Schwarzkopf
8744 Hunters Point Way
Ft. Worth, TX 76123
817-292-5712
ronschwarzkopf@sbcglobal.net

DISTRICT IX
Vacant

DISTRICT X
David Reynolds
2126 E. Callie Los Marmoles
Tucson, AZ 85706
520-807-9633
dsr100@dakotacom.net

DISTRICT XI
Bob Brusa
7433 McCormick Woods Dr.SW
Port Orchard, WA 98367
360-874-1517
bhaven2@earthlink.net

CANADA
Paul Dries
2739 Mara Drive
Coquitlam, B.C.
V3C 5L6
Canada
604-941-1624
Paul_Dries@shaw.ca

Greg Moore
790 Royal Crown Lane
Colorado Springs, CO 80906

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Craig Gottschang caught Boli Muentes impressing the crowd with his CompArf *Tucano* on a "smoki'in pass" down on the deck. Well deserved Special Recognition Award.