Newsletter of the Jet Pilot's Organization

Contrails

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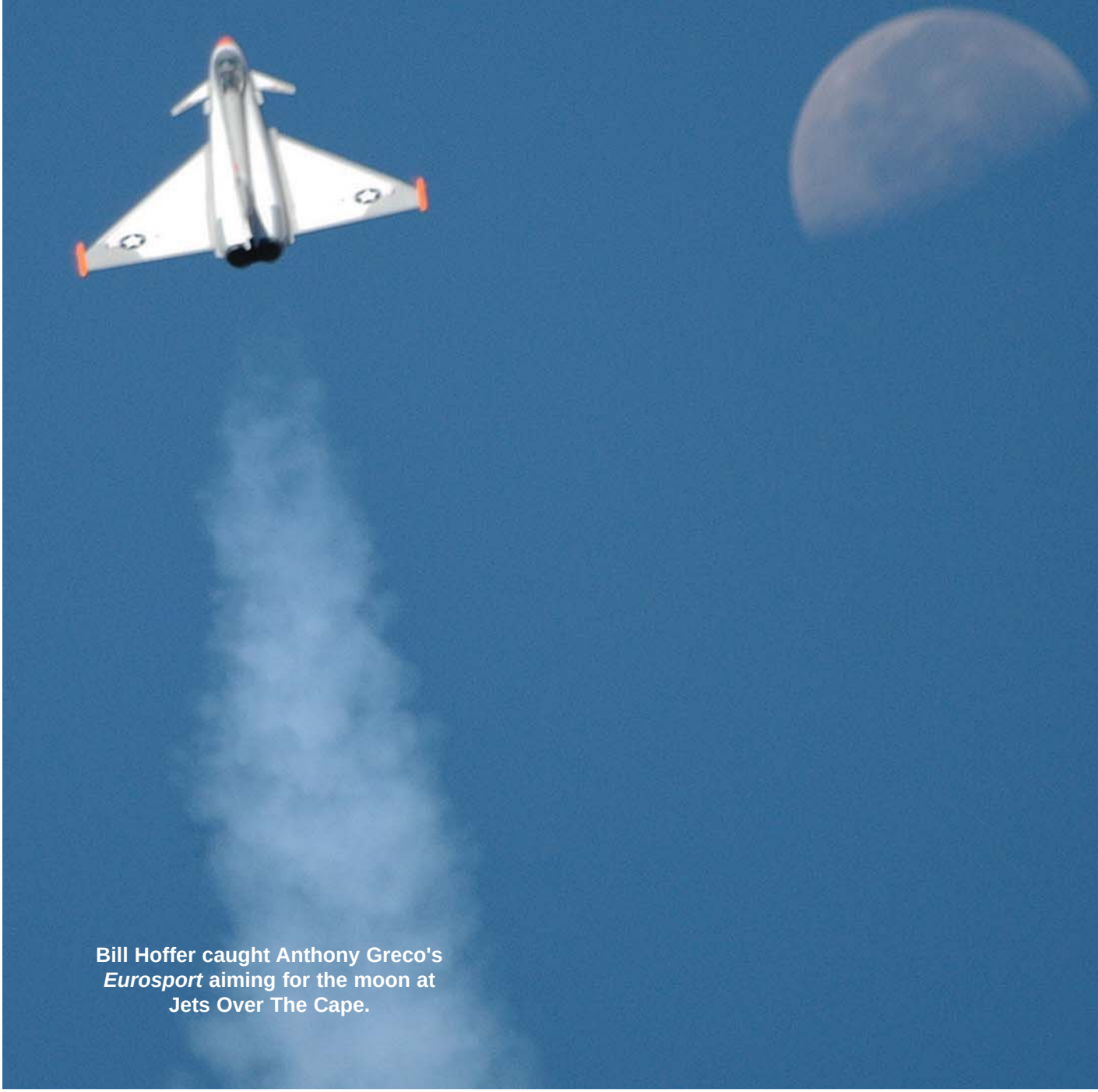


Bill Hoffer caught Anthony Greco's *Eurosport* aiming for the moon at Jets Over The Cape.

President's Report — Keith Sievers

The Need for Speed ....

Recently, there have been posts on the BVM web site and RC Universe concerning the need to support AMA speed limit regulations for turbine aircraft. The JPO organization was referenced in these posts, and I thought I would take a minute to speak directly on behalf of the organization and our board.

1) The JPO does endorse the need to support current AMA speed guidelines, regardless of their source or heritage. Having said this, the focus solely on speed is misplaced. For example, based on loss statistics collected by the JPO and other recent events, inexperienced pilots and flying unproven or unfamiliar aircraft in highly public environments would pose a greater potential for loss. Most of us have been flying long enough to understand the types of behaviors and issues that expose us to loss, and again, speed is only one of them.

2) For a variety of reasons, our segment of the hobby is coming under additional scrutiny and that is unlikely to change soon. Most of us have taken liberties with the regulations, but the time has come to tighten up compliance, individually and as a group. While the JPO is not an enforcement arm of the AMA and has no intention of becoming one, we are interested in safety and have encouraged the AMA to look at their role in policing the policies and regulations it promulgates. We would like for the FAA to continue the long tradition of allowing the AMA to set governance for model activities, and we believe the FAA's inclination to do so may be influenced by its confidence in the AMA to insure compliance.

3) The AMA looks to CDs and clubs as their primary administrators to insure regulations are followed. The JPO would encourage everyone in the jet community to do their best to support CDs and club officials in their efforts. It is a difficult job to be sure, and they need the influence of community peer pressure on their side. If we can do a credible job in rules enforcement within our community, the AMA and FAA will possibly feel less need to do so for us.

4) On a personal note, having spent my career in the insurance business, I do not believe it will be possible for the jet community to avoid the "big one" forever, as a mechanical or structural failure can happen to any of us at any time. Despite our best efforts, attention to safety and personal diligence in following rules, the law of probability will catch up to us and injuries will occur. When that does happen and actions are second guessed, you do not want to be in a situation where your disregard for the rules resulted in injury or worse to others.

5) We would encourage everyone to be aware that everything we do publicly during these times is watched, so please be prudent in your forum and video postings as otherwise innocent items can be misinterpreted by the uninitiated. We can't legislate what goes on in the rest of the world. People in other countries are going to do things not permitted in the US and that information will become public, be it aircraft size, speed, thrust, etc. ... what I am really encouraging - is that people not flagrantly publicize their transgressions of the rules, rather than advocating a gag order on perfectly legal or permissible activities.

6) Let's also take this time to manage conflict and personal disputes out of the public eye and portray what we really are for the most part ... a group of great people who share a common passion for a hobby. Now is not the time to be needlessly calling attention to ourselves.

7) One last thought on speed: Simply put, pursuing the edge of the performance envelope and setting records is part of the American heritage. Thinking that it can be stopped is probably a utopian thought. While now is not the time, here in the US, at some point the JPO, AMA and FAA may agree upon a set of standards and safety guidelines that will allow the establishment of speed records supported by the FAI, the NAA and the AMA. Pursuit of these records under controlled conditions where danger to the public is contained may, and I emphasize may, be a possibility. To use an analogy, no one will be allowed to take their rocket car out on the freeway, but if you "have the need for speed," you are welcome to head to a "Bonneville Salt

President's Report (cont'd) Keith Sievers

Flats" where you might pursue your interest without putting others in harm's way. The JPO would be interested in your comments on this.

The reaction to David Shulman's recent Guinness record of 337 mph has mostly brought positive feedback, but I have seen some letters that express concerns about the FAA's potential reaction. While not everyone in regulatory roles thinks as broadly as we would like, I do believe that those in senior positions who will eventually make the ultimate decisions got there, and stay there, because they are reasonably good decision makers. I have to believe this because I don't think there is a way to "hide" things in today's information age. Most of them are aware of the capabilities of our models in terms of speed, payload and range, or are busy right now ascertaining that information. Our focus should be on relationship-building, encouraging open and factual dialog, and making sure the information that the regulatory decision makers are getting is accurate. If we have a logical interchange of information, the odds are better that we can have an open discussion on where the concerns may be, and then regulate those concerns that can't otherwise be dismissed or addressed. Emotion, mistrust and misinformation rarely result in a good outcome, in my experience.

While on the subject of the FAA, I have continued my dialog with Dave Mathewson on the Small Ultralight Vehicle rule-making, and not much has changed since my last article. We do expect to see the initial set of regulations from the FAA some time in the first half of this year. Dave has assured me that the JPO will be involved in any response or follow-up with the FAA, should that even be required.

If you would like to comment on any of this privately, you can go to the JPO Website: www.jetpilots.org and click on the *HERE* word at the end of the letter to share your thoughts.

My Personal Thanks

To Art Arro, who has recently stepped down as the District VP for New York and New Jersey. Art has been a long-term board member and active supporter of the organization. He has invested significant time in representing the organization at Toledo and other modeling events as well as serving as the AMA liaison and has had much to do with the positive image the jet community has with the AMA. He has tirelessly recruited new members and has generally been a role model for the kind of leadership we both seek and need.

As his last official act, Art brought Len McIntosh to the organization as his replacement. I have met Len several times and while he has some big shoes to fill, I think he will continue the tradition of leadership excellence that Art has established in District II.

To Susan Moore, our departing Secretary/Treasurer. One of the most time-consuming jobs in the JPO is the role of Secretary/Treasurer. On a day-to-day basis, bills need to be paid, bank accounts maintained, memberships processed, money collected, membership listings and mailings managed, and a fair share of correspondence handled. Susan holds down a full time job with the airlines, manages a family, and while not a jet pilot herself, still found time as a pure volunteer to help out the JPO and its membership.

Carol Brusa was recently elected to the board to fill this key role. She, like Susan, is another volunteer who is supporting our organization for the sheer satisfaction of her contribution. Carol has done an amazing job of absorbing the significant amount of information Susan has passed along about the job, and has seamlessly transitioned into the role. I don't think we have missed a beat.

Please join me in thanking Art and Susan for their efforts on our behalf, and in welcoming and supporting Len and Carol into their new roles.

Join us in Toledo

Fred Gambino, a JPO member from Michigan, has volunteered to organize and man a JPO booth at Toledo this year. Art, Len and I will be there to lend a hand, but Fred is doing all the heavy lifting. Come see us ... there will be T-shirts and JPO stickers for sale while supplies last, and we would all be happy to talk jets with you at the show.

Keith

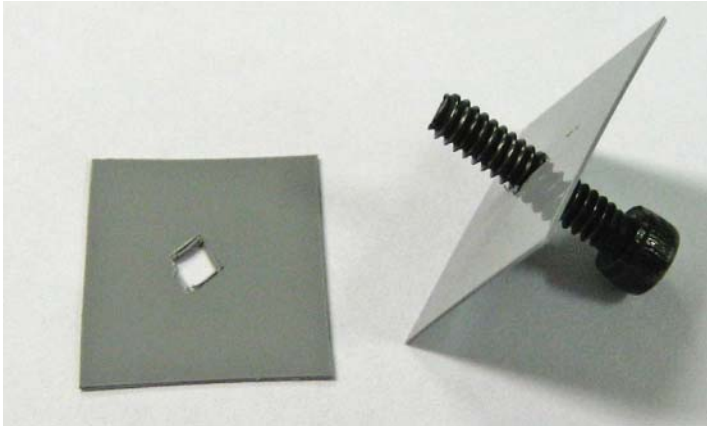
Vice President's Report

Al Watson

As I write this article, another year has passed and we are in the middle of winter. Our earliest opportunity for turbine flying will be around the end of February - if we are lucky. This time of year is a good time to perform any necessary maintenance on your models, so that when the weather improves they are ready to go. If you have time to spare after all the maintenance is completed, how about working on some of those half-finished projects? Like most modelers, I have a few half-finished airplanes and I am hoping to complete at least one of them for the coming season.

As we all know, our turbine models can provide lots of challenges during the build and maintenance process. Space is always at a premium and some tasks can be difficult and frustrating due to the cramped quarters. I am always looking for ideas which will make these tasks easier. So, with that in mind, I will share a couple of ideas which you might be able to use.

The first idea deals with the installation of the nosecone on the BVM *KingCat*. The nosecone is attached with four 4-40 socket head bolts which are accessed through the canopy opening. It is fairly easy to remove the nosecone, but getting it back on can be a frustrating exercise. Generally, you can manage to start two or maybe three of the bolts into the blind nuts before the fourth bolt falls out of the hole! Now you must remove the nosecone and start over.



Here's the solution: As just shown, find yourself a piece of plastic sheet (I found some .010 inch thick plastic at the local hobby shop) and cut four squares approximately .50 inch x .50 inch. Next, cut a small diamond-shaped hole in the center and make sure that a 4-40 screw can be threaded into the center hole. Install the four bolts through the forward bulkhead and then push the plastic pieces onto the bolts. The plastic parts will hold the bolts in place during installation and removal of the nosecone - no more frustration!

The second idea deals with installing lockwire on fuel and pneumatic lines inside the airplane. This can be a difficult task because of the limited space. I plan the installation such that I can do as much of the lock-wiring as possible outside of the model, but there will be some work that simply must be accomplished inside the airplane, and if you are like me, you struggle with long-nose pliers or whatever you can find that is compatible with the space available. Surfing RCU one evening, I noticed a thread where someone was trying to find a source for lockwire pliers. I have never seen lockwire pliers that were small enough to access the tight places on our jets, so I had resigned myself to the long-nose pliers. Anyhow, one of the posters on that thread had a really neat idea! It consisted of a metal rod about six-inches long, with a hole in one end, which you feed the lockwire through after it has been placed around the tubing. Then you simply twist the rod and you have a perfect installation - see the following two pictures.

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

In the last issue of *Contrails* I described the system I was using to open and close the canopy of my Yellow F-15. The canopy is hinged at the aft end and can be removed from the airplane, but it is a difficult task. The hinge is made by placing two spring-loaded hatch latches back-to-back. In order to remove the canopy, you have to reach in and squeeze the hatch tangs toward each other, which then releases the canopy. If the equipment trays are not in the airplane it can be done, but once the trays are installed, there is no way. In addition, the tangs are able to swivel forward and aft, which makes removal of the canopy impossible, whether the equipment trays are in place or not. This rotation problem was fixed by glueing in a couple of small pieces of ply, which keeps the tangs pointing down all the time, and easier to catch. After thinking about things for a while I decided that a pliers-like device, which could reach in and hook onto the latch tangs, would work. It took a little fiddling around, but I now have a device which will unlock the canopy - see the following pictures. The lines that you see on the arms of the tool are there for a purpose. The short line across the tool shows how far it needs to reach inside the fuselage to engage the hatch tangs, and the longer line running down the arm defines how far the pliers need to be open. When the arms are squeezed together, the latches are retracted and the canopy is released.

Well that is all for now. I hope that some of you will find these tips useful.

Al

District I Report

Bob Radford

Connecticut
Maine
Massachusetts
New Hampshire
Rhode Island
Vermont

Greetings, it's 2010 already - and, WOW! it seems like only yesterday we were all worried about the calamities Y2k would bring us.

With the winter snows melting, it is time to get your equipment and your flying skills ready for the upcoming flying season. There are many options for maintaining your flying skills over the winter and polishing them up in the spring - I like to use a combination of real and simulated flying. R/C flying on New Year's Day has been a tradition I have been following for nearly 10 years now.

I use a *Kougar* or a trainer for my New Year's Day flights, as it is usually cold and snowy here in New England and I don't fly my jets when it gets too cold. I find that for me, the New Year's Day flights are just the practice I need to keep my flying skills from deteriorating too much between our last jet event in October and our first one of the new year in May. I also use the *Real Flight* simulator to keep my proficiency up. Usually in the spring, I'll take 10 flights on the *Kougar* or *King Kobra* before I'll even think about taking out my BVM *BobCat*. Other folks may have different techniques but this seems to work for me.

Three Jet Events, for 2010, in this area, have been recently announced. They are:

- Capitol Jets - July 16-18 at South Albany Airport near Albany, NY
- The 5th Annual New England Jet Rally - August 20-22 at Gardner Airport in Gardner, MA
- The Maine Jet Rally - September 10-12 at Sanford Airport in Sanford, ME

I look forward to seeing you at these great events over the summer, they are always great fun and the food is always superb.

Over the last four issues we have been repairing a damaged *King Cat*. This issue will focus on the steps to finish it up.

1) Ensure you have the proper safety equipment (respirators, gloves, safety glasses, and *read the directions, cautions and warnings* of all materials you will use.

2) Fill any voids with Aeropoxy or Polyester filler.

3) Smooth any excess and allow to dry.

4) Sand any high spots and ensure the surface is flush.

5) Fill voids and feather the edges of the paint for a smooth transition.

6) Wipe the surface with Prep-Sol cleaning solvent to remove any dust.

7) Spray a light coat of high-build sandable primer and let dry.

8) Sand the primer until you can almost see through to the surface.

9) Wipe the surface with Prep-Sol to remove dust.

10) Apply another coat of primer and let dry.

11) Fill any voids.

12) Sand the primer.

13) Wipe the surface with Prep-Sol.

14) Apply the paint and clear coat.

I hope you have enjoyed the wing-repair series. Please send me your comments and suggestions for topics.

This year JPO district reps will have new JPO banners thanks to the generosity of our District III Rep Mark McCracken. Additionally, JPO reps will also have JPO decals and pilot logbooks for sale at the jet meets.

Until next time, fly safe.

Bob

District II Report

Len McIntosh

New Jersey
New York
Europe

My name is Len McIntosh and I have been asked to fill in as the District II Representative for the retiring Art Arro. Art is not going away, he will still be guiding and approving most of whatever I contribute to this office/column.

I've been a model airplane hobbyist for most of my life, and flying model jets for the past ten years. I started out with rubberband-powered gliders and progressed to u-control, combat, stunt, carrier and ultimately radio-control (single-channel, pulse-operated rubber escapement).

Growing up in New York City, my flying was confined to the city parks such as Van Cortland and Flushing Meadow, and occasionally in playgrounds that were big enough to allow a 120' circle. I knew that there was u-control flying going on in Brooklyn, but that was a long subway ride from Hunts Point, in the Bronx.

I did most of my hobby shopping at places like Brown's Hobby Center (Seymour taught me to fly R/C), Polks and American Hobby Center. It was a real treat to attend events, such as the Mirror Meet in Union City and the occasional local club event. At these contests there were many different classes and pilots from all over the tri-state area - it was literally a candy store for me and my brother, Mike, where the pages of *Model Airplane News* seemed to come alive. You got to see the latest kits completed, painted and flown - but more importantly, you got to meet and compete against some of the local legends (Billy Suarez, Sam Bridges, Bob Forenzio, Moe (?) and Ray Gonzales). Bob and I are still friends today and make it a point to catch up every year at Florida Jets.

District II has two sites that support model turbines - the South Albany Airport near Selkirk, NY and Floyd Bennett Field (FBF) located in Brooklyn, NY.

South Albany Airport is available only for AMA-Sanctioned Events, such as Capitol Jets scheduled for July 16-18, 2010. The airport management requires all model activities, including jets, to be under the direct control and presence of Frank Alvarez.

FBF on the other hand, is a very active and jet-friendly field that is home to the Big Apple Jet Rally held in June. The field is part of the Gateway National Parks system and is open 7 days a week for jet traffic. The Pennsylvania Avenue Radio Control Society (PARCS), under AMA rules, does an excellent job of managing and maintaining the field.

On any given weekend, there are, on average five-to-ten jet pilots, with a dozen or more turbine/electric aircraft. At the height of the flying season, we could easily have 20 pilots jockeying for the five flightline positions available. More information and directions are available at: www.flyparcs.com/index.html.

The field has become a base of operations for a group of us from the NY/NJ metropolitan area. We travel up and down the eastern seaboard as a group to various jet events from Florida to Maine. Outside of the obvious love of flying jets, we share a common approach to safety and concern for our fellow pilots. We bring an atmosphere of friendship and fun - sometimes loud, but always supportive. I guess the common thread is that we all realize how precious and tenuous our jet-flying privileges are. We have to remain vigilant about safety and aware of the current political environment.

That last statement is the reason I wanted to try my hand at being the District II Representative. The JPO is proactively involved in helping the AMA and FAA to refine and develop current and future regulations. Regulation is a fact of life, and the jet community is a small one, but I believe we can influence and advise the governing bodies as to the safest way to regulate and preserve our hobby. Generally the most important issues facing District II are:

Preserving our flying privileges. Promoting a safe environment. Providing a forum for District II Issues. Make the JPO more visible. Grow JPO membership.

I'll see you in the next issue of *Contrails* and please remember to **RENEW YOUR JPO MEMBERSHIP**.

Len

District III Report

Mark McCracken

Ohio
Pennsylvania
West Virginia

Here we are, the start of a new season, and a new year - and it seems that many of us have been busy building something new in the shop this winter. Larry is putting the finishing touch on his MB-339 and it should be ready to take to the air by the time this copy of *Contrails* hits your coffee table.

As for me, I finally bought my Skymaster L-39 from Kerry Sterner. The L-39 was an easy build, very little work was needed while mounting the servos for the tail, though it seems that Skymaster loves to use Hysol. About 75% of the way through the build, I came to he hardest part ... a color scheme. I must have looked at hundreds of different shots of many L-39s before I decided to go with one that raced at the Reno Air Races.

Since I have built several jets, there were a few new items that I incorporated into this L-39. The first was a lighting system, since I thought I would like to build something that flew great and to add all the scale I can. Details-4-Scale has a really nice lighting system. These lights came pre-wired and marked, which made for an easy installation. While I was mounting the lights, I had a few questions and Dan Gill was just a phone call away with his expert help.

The second item is a gyro. Last year when I built my *Boomerang X*L, I was going through my inventory and came across a few gyros I had for my heli's. I added one to the nose wheel on the *Boomer*, and it works great. When I posted online about using the gyro, I had many e-mails and PMs asking what kind and how I set them up. I use the ones that are *not* heading hold, and I set the gain to my own liking. The *Boomerang* has a G410T (which I had in stock), and it works great. The choice of gyro for my L-39 will be a GWS PG03. GWS gyros are small and compact, which is great for tight areas, and can be found online for about $35.00. If you choose to use a gyro where gain can be adjusted from the radio, a suggestion would be to couple it with a retracts switch, so the gyro can be switched off when the nose gear is up.

District III Report (cont'd) — Mark McCracken

It seems that over the years you hear about jet pilots losing their flying sites and not having anywhere else to go, and I can speak about this first hand. In years past, Larry and I have flown at a few airports that were great locations, only to lose them because of situations that were out of our hands. Meaning, we decided to share our home with other jet pilots and that sunk the boat. I was once told by a very smart man, “Be careful whom you invite to your home field,” and we had to learn the hard way that he was right. A friend of mine in California asked me a short time ago, "How do you find these airports that let you fly your jets there?"

The first location we had was one that we had for years, the owners were even into R/C, which opened the door for fly-ins and everyday flying. Over the years, this small 1900-foot paved-runway airport grew. The parking areas started filling up, student pilots took more flights, and the skydivers were dropping every 25 minutes. This is where a Nav-Com comes in handy. We have learned that when sharing active runways at a full-scale airport, being able to communicate is a huge advantage. On a few occasions, we have invited others to fly with us - which, unfortunately, did not work out very well. Inevitably, through someone else’s fault, we were asked to leave as jet flying will no longer be allowed at their facility.

Shortly after leaving, we found another home. It was a great location, with wide-open skies. Many of you have seen this place for yourself, as I hosted two jet rallies there - well, tried to, since both occasions were weathered out. But being in the Poconos, and at 2,000 feet, good weather is hard to come by, since wind and fog seems to be the norm for this airport.

The loss of this site occurred during the first day of a jet rally. Not to fault a specific pilot, but there was a crash during a flight. The jet impacted on the other side of the highway and resulted in a fiery crash - causing the airport to show concern. Their main concern were the hangars on both sides of the runway since they did not want to risk a jet hitting one of them.

Presentation is a key part when obtaining a new place to fly our jets, so be prepared when approaching airport management/owners. When we lost our first airport, I had to jump through hoops to get the one in the Poconos. The friend of mine in CA asked me to explain in detail how we got such great sites, and I told him how we do it here in PA.

First, arrange a meeting with the airport management and bring your jets and equipment, and copies of insurance (AMA or another form of Insurance). Obtaining the last airport was an easy, but long, process. I met with the manager and board members at their facility and I went into detail about who we are, what we are, and how we do it. Most of the board members were experienced pilots and had never heard of turbine-powered R/C aircraft. I invited them out to my truck and showed them my jet, which at that time was my Facet 2300, explained the start-up procedure, safety precautions, fire extinguisher, even as much as showing them how we log every flight. Being it was in the middle of an ice and snow storm, they invited me into the hangars and asked if I could start it.

That's how we got our first approval, I then had to attend a board meeting. I brought with me all of my papers and photos. Easier to bring photos to this meeting than the jets. We flew at this location for a little over four years, until we held the last jet rally. After we lost this site, many phone calls were made and, by luck, an airport manager agreed to talk with us. We explained once again how we do things, we flew for him and we have been there ever since.

The point I am trying make here, is when you are approaching an airport for permission to fly at their facility, be prepared and look professional. Secondly, be very picky whom you invite to fly with you. Finding small airports to fly at can be easy. Keeping them ... well that's another story. A few “do’s and don'ts” we have found are: don't invite too many friends up at one time, and don't hog the sky when full-scale operates from there on a regular basis. Do use a nav-com or scanner while flying, do watch and listen for full-scale aircraft coming and going by using spotters. Clean up your area after you are done for the day, and most important, be courteous to all that walk up and ask, "what are those."

On many occasions, more than a few of the area residents have come up to watch us fly and later walked away amazed how our hobby has grown over the years.

Mark

District V Report

Craig Gottschang

Alabama
Florida
Georgia
Mississippi
Puerto Rico
South Carolina
Tennessee

Happy days, the jet-flying season is back! By the time you read this, Florida Jets will be over and other jet events are just around the corner. Look for a full event report on Florida Jets in the next issue of *Contrails.*

In this issue, I have written an article on multi-engine jets. I based the article on the experience I have gained with my twin-MIBO A-10, as well as some research and discussions with other twin-jet modelers. As with every other aspect of this hobby, there is a "learning curve" to a multiple-turbine installation, and hopefully, you will find this introduction informative. Also this month there is an event report from the Jets Over the Cape event held last October 10-11 in Cape Coral, FL. Thanks to Mike Russell for submitting this article.

Finally, if you have not yet renewed your JPO membership for 2010, please do so now! It's easy; just go to: www.jetpilots.org and select "*Join JPO.*" If you are renewing, then select "*renewal.*" Pro-rated "initial" dues, when joining later in the year, only apply if you were not a member last year. By the way, all members joining or renewing this year will receive a colorful and attractive 7" x 3" JPO sticker to display. We have some important issues to deal with this year and we need your support!

Multi-Engine Jets - An Introduction

By my estimate, approximately half the scale jets seen at R/C events are replicas of full-scale multi-engine jets. Twins are by far the most numerous, and the majority of these are later era military fighters. F-4s, F-18s, F-15s, A-10s, the *Eurofighter* and *Rafale* are some of the more popular ones that come to mind. Yet with the exception of the A-10, it is very unusual to see any of these jets actually equipped with 2 turbines. Twins are certainly more "scale" and presumably offer advantages over single engine installations, so why are they so rarely used by jet modelers?

Lots of scale twins in this 2009 KY Jets picture, but very few actual multi-engine installations. Complexity and cost are two big reasons.

The first of several reasons I can think of, is that because all of these jets, excluding the A-10, have internally-mounted engines. Unlike their scale-prop counterparts, it is neither obvious by sight, nor sound, that the multi-engine R/C jet is, in fact, being powered by a single engine. The sound of a single turbine engine is very similar to two turbines running together and is quite convincing, even in a scale competition environment.

A second reason for using a single engine versus twins is the reliable and powerful thrust of the turbines available to us. In most cases, we simply don't need two engines to provide the required thrust, and although we sacrifice a degree of security with a single engine, the improving reliability of our turbines lessens the risk.

Finally, a single turbine is much more economical and less complex than a twin installation. These two reasons alone probably trump any perceived advantage to multi-engine operations.

There are, however, some disadvantages to a single-engine installation in a multi-engine scale jet. Reliability is the most obvious, as a failure of the turbine or any of its associated components results in a total loss of power. Less obvious is the loss of efficiency when the single turbine exhaust is split in two to match the dual exhaust of the scale counterpart. The majority of twin installations use a "bifurcated" (Y shaped/split) pipe to achieve this and the resulting disruption in exhaust flow will reduce overall thrust by approximately 15%. This means a 35 lb thrust turbine will lose 5 lbs or more of thrust in a bifurcated installation. Some jets, such as the CompARF

District V Report (cont'd) Craig Gottschang

Eurosport avoid this penalty by running a single pipe between scale "dummy" exhausts, but this method is more the exception than the rule and can compromise the appearance of a true scale jet.

Multi or single? Exhaust plume and sound make it difficult to identify this F-4 as a single engine jet. Bifurcated pipe reduces 35 lb thrust Pegasus HP to about 30 lbs.

Single pipe between dummy exhausts trades efficiency for scale on this thrust vectored CompARF *Eurosport.*

If you have ever thought you might want to attempt a multi-engine installation, I would strongly suggest a jet that has been designed for that purpose. There are major internal differences in the structural requirements, intake/exhaust design, fuel tanks and other components between a single- and twin-installation in the same model. Manufacturers will generally design and sell a particular kit for either single, twin, or at-a-minimum, provide formers/hardware/instructions/etc. for the conversion. Do yourself a favor and let someone else do the engineering and parts customization/production for a twin installation!

Once you have chosen a jet for a twin project, the next question is, how much thrust do I need? Obviously, you want the total thrust from both engines to power the jet in an adequate manner, the same as you would for a single engine. From a reliability standpoint, you also need to make sure that a single engine will be able to power the plane to a safe landing from any point during the flight. The most critical engine failure point is generally regarded to be at lift-off, during a maximum weight take-off and, as a result, this is how full-scale aircraft are designed. I think most modelers tend to overestimate this single-engine thrust requirement and, as a result, may end up with more power than they really need.

I have JetCat P-120s in my 65 lb A-10 set to 23 lbs of thrust each, and twice I have lost an engine on takeoff and had no difficulty whatsoever getting back to the runway. In one case, I actually flew several laps around the field and most who observed the flight didn't even realize I had lost an engine. A 1-to-3 (or 33%) thrust-to-weight ratio with a single engine is approximately twice what commercial airliners require and should be more than adequate for most of our twin jets. If you really want to stuff larger turbines in your twin, you might consider limiting the thrust via the throttle travel, and program a switch-activated-mix that will allow full thrust in the event you lose one engine.

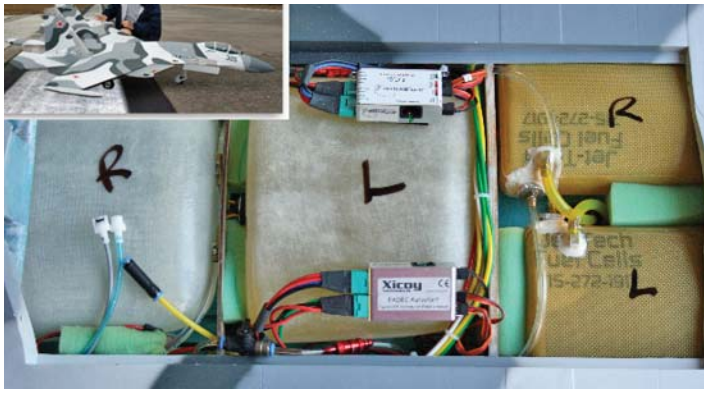
Multi-engine install on Gordon Dickens's 55 lb Mig-29. 22 lb thrust P-80s provide plenty of power for dual- and single-engine flight.

District V Report (cont'd) Craig Gottschang

The next issue to consider in a multi-turbine jet is component redundancy and installation. As a general rule, each turbine should have its own dedicated components, and they should be kept completely independent of the other turbine. This goes for the ECU batteries and fuel systems as well. There may be a temptation to feed fuel to both engines from a single tank, or series of tanks, but in doing so, you would be defeating a large part of the reliability of multiple engines. Even with separate UATs, two turbines drawing from a single tank could cause problems with fuel pickup, adequate flow, and venting. The fuel system is probably the most common cause of turbine flameouts and it just makes no sense to risk a dual flameout by skimping in this area. Separate aux, main and header tanks, as appropriate, should be used to feed each engine's UAT.

Space will be tight with twice as many turbine components so it's important to keep your installation as tidy as possible. Clearly mark each ECU input/output as either "LEFT" or "RIGHT" engine. The same goes for each fuel pump, solenoid, battery, IO board, etc., as well as for the connections to the turbines. Crisscrossing any of these attachments is an easy mistake to make and *must* be avoided. Turbine components should also be kept electrically separated. Do not allow any metal parts to touch each other and do not mount opposite engine components on a single carbon or metallic tray. JetCat and possibly other turbine brands may experience ECU problems if grounding occurs between the two turbines.

Space is tight even in my big MIBO A-10 for twin engine components. Note labels to identify left & right UATs, IO boards and solenoid valves in the previous photo.



Keith Sievers prototype twin Fei Bao Su-27 also has clearly marked components. Note separate "L" and "R" fuel tanks in the twin Jet Central Rabbits.

The only exception to the separate component rule, for non-kero start turbines, is the propane supply. Since propane is only used during the start sequence, it does not affect the reliability of either turbine once they are both running. A small amount of space/weight can be saved by using a single on-board tank and fill line with a feed to each turbine's propane valve via a Festo or similar "T" fitting. A single tank charge will easily start both engines.

The last major issue to consider is throttle control. A simple Y-harness is all that is needed to connect each ECU's throttle input to the receiver. There is really no reason I can think of to provide separate throttle controls and unnecessarily complicate your setup. With the throttles connected together, each ECU can be programmed, via the manufacturer's instructions, to recognize the *Off, Start, Idle* and 100% throttle/trim positions just as you would with a single engine. Once running, the turbines will respond to throttle movement in unison. If you are concerned that the turbines will not spool up evenly or produce asymmetric thrust, you can request a matched pair from the manufacturer. Both JetCat and Jet Central offer this service, and others probably do as well. My personal experience is that slight differences in engine performance are not really noticeable in flight.

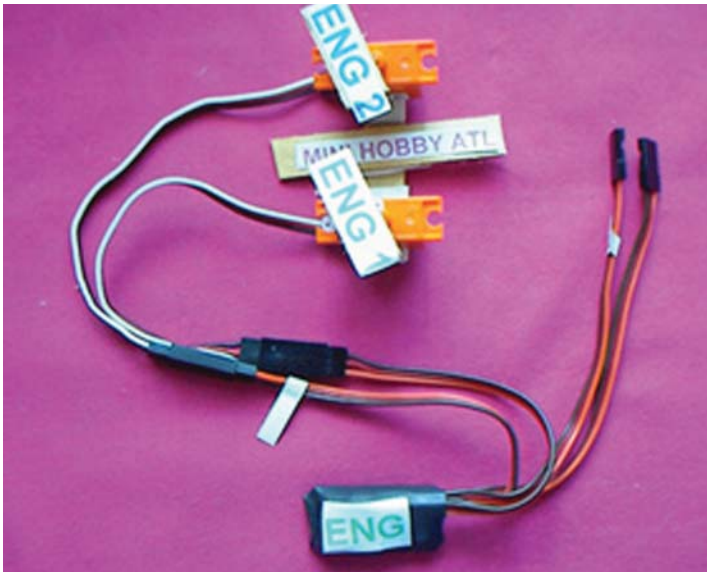
There is one complication resulting when both ECU throttles are connected to a single channel and that is

District V Report (cont'd) Craig Gottschang

the start process. It is possible to start both engines at once with this setup and as long as everything goes smoothly it will work. Problems arise however, when one of the engines does not start normally (not all that unusual), and you have to deal with it while the other engine continues to start and/or keep running. It's not easy to do, since if you abort the start, both engines will shut down and you will have to deal with them simultaneously. Worse yet, if you get a hot start or some sort of fire in the process. It is a long-standing practice in full-scale aviation to start one engine at a time so the pilot(s) can devote full-time attention to each start, and handle problems one engine at a time.

Individual startups can be handled in several ways. At a minimum, you must have an accessible method to separately shut off power to each ECU. This can be as simple as being able to unplug the battery connection to the ECU, or having an inline switch or plug to disconnect power. With some turbine brands, an on/off switch in the throttle connection to the ECU will accomplish the same task. To start one engine at a time, disconnect power to one of the ECUs and start the other engine normally. To start the second engine, reconnect power and re-select the appropriate start switch/throttle position on the transmitter. For example, with Jet Central turbines, re-cycle the throttle to full and back to idle, to start the second engine. If there is any sort of problem with either engine during start, disconnect power from the "bad" engine to allow its ECU to reset in preparation for another start. The other engine will remain running normally at idle.

Some manufacturers provide programming in their ECUs for individual engine starts from the transmitter. JetCat allows you to set one ECU for "IMMEDIATE" start, which will start that turbine when the throttle trim is moved full forward. The second turbine is set to "SEQUENCE," and will start when the throttle is momentarily moved full forward. If your turbine brand does not have this option, it can also be accomplished with a neat device from Mini Hobby (minihobby.com). The small electronic unit acts as both the Y connection for the throttles but also connects to the flap channel. With the flaps up, the first engine will start normally. Selecting flaps down then allows the second engine to start. After that, the flaps and throttle operate independently! Called the "Mini Hobby Twin," it is available for about $100.



Finally, many turbine brands provide for "manual" starts through their handheld data terminal, GSU, etc. This is actually my preferred method for starting my A-10, as it allows me to closely monitor start parameters, and I have full authority to immediately shut down, monitor, or do anything else I want with each turbine as it starts. I can switch control to the transmitter or back again, as necessary. Manual starts can be accomplished one at a time with a single GSU, but I like to have one connected to each ECU throughout the start process.

Two assistants help me start my A-10 at FL Jets 2009. One mans the fire extinguisher while the other monitors the start and is ready with a blower.

Whichever start method you select that is compatible with your turbine brand, please heed two cautions. First, make sure you have at least one, and preferably two, qualified assistants during startups. It is easy to become engrossed with start mechanics and data

terminal monitoring, and fail to notice smoke or flames that may indicate a problem. Assistants should be equipped with a fire extinguisher and blower and have clear cut responsibility to monitor the turbine and tailpipe areas. Second, make sure both engines are running and under control of the transmitter before you taxi! For internally-mounted engines, the only way to do this properly is with your data terminal hooked up while you run up both engines.

That's a quick overview of some considerations for multi-engine jets. Next time, I'll offer some observations and suggestions on flying a twin turbine.

Jets Over the Cape Event Report
by Mike Russell

Hot, hot and hotter was the word of the day in Cape Coral, Florida as the R/Sea Hawks hosted their third annual "Jets Over The Cape" event. Usually October brings cooler weather with low humidity…not this time; we had record heat with all the humidity that the air could hold. However, the wind gods were smiling on us and its direction was down the runway.

The R/Sea Hawks "Air Park" is a first-class facility with a 600 x 52 foot paved runway and a parallel grass runway to the north. It also has overruns at each end for the rare extended landings. Safety fences with protected pilot boxes provide the pilots with confidence while they are flying. They are pretty strict at the park, enforcing AMA guidelines and trying to provide the safest environment that can be achieved.

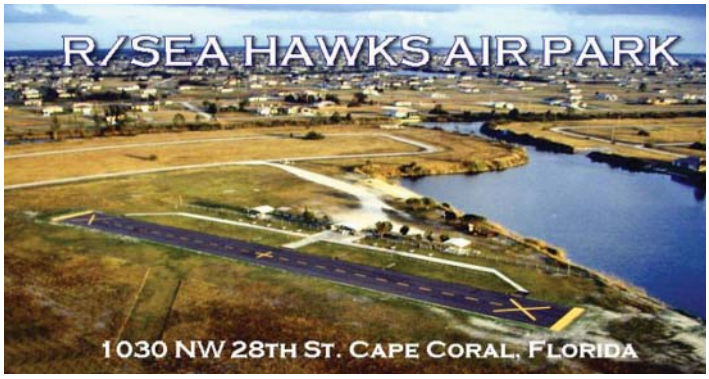
The excitement started right from the get-go as the ROTC presented the colors and a dedicated fly-over of smoke-trailing jets honored the men and women of the armed forces. Also honored were all the veterans, both past and present, that have made the supreme sacrifice so that all of us may live in freedom. It was a great way to start the event.

The flight and starburst maneuver were flown by Bob Underwood and Tom Telesca with their *BobCat* ARFs and Anthony Greco with his *Eurosport*.

CD Ed Gamils and assistant CD Mike Russell, worked hard to make sure all went well during the event. They want to thank all of the assistants that helped to make the event a success with special thanks to Pablo Fernandez, Bob Hibbs, Anthony Greco, Robert Underwood, Russ Ostrander and all the guys on the flight line that endured the heat to keep things safe.

Jet engine reps and dealers were lending their expertise to all. JetCat, Jet Central, Ram and others were there to share their stories. TBM demonstrated their new *Ultra Shockjet* and we can't wait until it becomes available. Paradise Hobbies of Cape Coral, along with Port Charlotte Hobby Shop helped sponsor the event. Paradise Hobbies donated a Spectrum DX-7 Transmitter for the grand prize along with some pilot prizes.

There was a great display of jets in all flavors from the most sophisticated military machines to jet-trainers that can help hone our skills. Here are a few photos of the event, all taken by Bill Hoffer, the "official" event photographer.



Aerial view of the R/SEA Hawks field

Mike Russell, JPO member/assistant CD/announcer giving wheels-up-to-wheels-down description of the action. Mike limited flying of his own F-16, Shockjet and the Boomerang XL due to event duties and to "let our guests have the runway for the weekend."

District V Report (cont'd) Craig Gottschang

Start-up area and flightline.

Russ Ostrander's FW226.

TBM demo'd their new *DV8R.* It was due for release in a few weeks!

Bobcat on takeoff.

Our Top Notch registration crew Don, Ray and John.

Best Pilot award shared by Matt Fehling and Dean Eberly.

Anthony Greco, Tony Greco, Ed Gamils & Mike Russell won Best Civilian Aircraft award for their L-1011.

Francis Pischner took top honors with his BVM Bandit in the Sport Jet category.

District VI Report — Lance Campbell

Illinois
Indiana
Kentucky
Missouri

Take a Hint Already....

I've a tale of woe for you this time. It's a tale about listening to the soft whisperings that your airplane is trying to tell you, and for you to take heed and listen. How many times does something go wrong, and you look back and realize you should have seen the subsequent problem coming at you?

Eighteen months ago, I took my trusty F-15 to the Minnesota Jet Rally. We had just arrived and were eager to get in the air - always a common feeling after being on the road for hours on end. Upon arriving at the airport (we were one of the first to arrive), we quickly started getting set up since the weather was looking gorgeous for the next 4 days, and I had visions of many gallons of kerosene being burnt.

During the first flight all was well, when this freakish black cloud, not much bigger than a couple hundred yards across, drifts our way amongst the white puffy clouds that are everywhere else. Just as it gets to the airport area, with me mid-flight, we go from 2-3 mph winds down the runway, to a 20-plus mph 90-degree cross wind. What the? So now, with only minutes of fuel left, just getting the plane down safely, let alone in one piece, is in question.

I set up the approach, a bit faster than normal to have a buffer for the gusts, and didn't like it, so I did a go around, being knocked all over ... *go around #1*. Set up number 2 is not much better ... *go around #2*. I'm now getting very concerned about running out of fuel, so approach number 3 will have to be a landing, no matter what. This approach is the best of the three, but I'm still nearly having my hat blown off my head. Touch down is way faster than normal, but smooth. The trouble is, the plane is crabbing so badly (about 20 degrees to the right), that upon the smooth touch down, the right wheel's angle causes undue stress on the axle, shearing it, and taking the wheel and axle completely off of the plane.

Now without a main wheel, the F-15 takes an arcing path towards the side of the runway, and still going at a decent clip, goes off-road, into the tall grass - doing minor damage, but staying upright. After recovery, certain things jump out, mainly the retract that had the axle shear, has broken the trunion block and is now canted rearward about 45%, causing some additional damage to the fuse. The damage is so obvious in this area, I should have lifted my head up and looked a bit further to areas that might not normally be looked over, but did not.... By the way, 5 minutes after this incident, the freak cloud has left the area, and 2-3 mph winds have resumed down the runway.

So, after some grumbling, I start figuring out how to fix my problem. I coupled my phone to my laptop, called up Robart's website, and found the schematic with part number. Then, a 10-minute call later, I've got a part being shipped, next-day delivery, to the airport and, in theory, will be back in business tomorrow afternoon. So, I pack up my stuff for the day, and turn my attention to helping Jerry on his bird, and getting some good training flights in for him.

The next day at around noon, my part shows up and I jump in on the repairs, while everyone else is flying jets during another perfect day. A few hours later, I've got my retract rebuilt and everything put back together. Did I take this time to thoroughly inspect everything else? Nope. Cursory glance? Yes. I was a bit more thorough on the two elevons and their linkages, since they essentially fly the plane, but that's about it. Was this a mistake? Yes.

So, after all this work, and sitting on my hands for over a day missing out on the jet action, I'm back in the air, having a good time. I do a gear-check pass a lap before normal, just in case any issues arise, and am pleased by seeing 3 wheels poking out the bottom on the flyby. I set up like normal, and proceed to do a greaser of a landing. So much so, that it lands on the mains only, and I roll out with the nose wheel in the air for a good hundred feet or so. At this precise moment all is perfect ... then the nose wheel settles down, and unbeknownst to me is cranked over 20+ degrees because a clevis has been fouled by the off-road activity the day before. The plane goes from rolling straight down the center of the runway, to fishtailing all over the place, yanking hard in all directions on a very confused pilot - and this time when it goes off road, it

District VI Report (cont'd) — Lance Campbell

digs in a wing tip and cartwheels in the tall grass - breaking off the top of one fin, and cracking the nose to the point that in one brief second I see the entire nose of the airplane cranked over 45 degrees to the side.

What is the point of this tale of woe? As you begin your winter maintenance this year, be critical in what you're seeing, and expand your view to look at things you take for granted. We can all get sucked into the *because it worked last time, it must still be okay* mode. Perhaps a better perspective would be to inspect your birds as if they were not yours, looking them over as if you just bought it from someone else. I'm willing to bet that you would be a bit more critical of checking the small details.

So, here's to wishing all of you good luck finding those simple little things that can creep up and bite you so that this spring you're ready to roll out and have a smooth flying season

Lance

Treasurer's Report

Beginning Balance as of Dec 31, 2009	**$8,185.10**
Income	
Dues - Cash/Check	$375.00
Dues - PayPal	$575.28
Total Income	$950.28
Expenses	
Decals	$718.45
Contrails Fall 2009	$1,521.80
Postage	$8.85
Top Gun Trophies	$93.75
Total Expenses	$2,342.85
Ending Balance as of Jan. 31, 2009	**$6,792.53**
Checking Account	$6,192.25
PayPal Account	$575.28
Cash/Checks on Hand	$25.00
	$6,792.53

Respectfully submitted, Carol Brusa

Membership/Renewal Application

Please add/renew my JPO membership!

Name:_____ AMA Number*: _____

Address: _____

City: _____ State: _____ Zip: _____

Email Address: _____

Home Phone: _____ Cell Phone: _____

*AMA membership is required for U.S. Residents. JPO Annual Membership Fee is $25.
Send with check or money order made out to: "The Jet Pilot's Organization" to:
Carol Brusa, JPO Secretary/Treasurer: 7433 McCormick Woods Dr. SW, Port Orchard, WA 98367

Or renew online at: www.jetpilots.org

District VIII Report

Ron Schwarzkopf

Arkansas
Louisiana
New Mexico
Oklahoma
Texas

The weather here in north Texas has been a bit on the wet and cold side, so I hope you've managed at least a few flights during this season. If not, I hope your building season is going well! Toward the beginning of our building season, one thing I decided I was going to do was to clean my model shop of some things I had no need for…or, in other words: *old chemicals in the model shop - get rid of them!*

My work area isn't large, so space is at a premium. If you're like me, you're likely to find bottles of epoxy that haven't been used in quite a while. Squirreled away in a cabinet, I found old K&B epoxy paint cans that have only a very small amount of paint in them, old gelcoat resin, paint catalysts, etc. Below is a photo of about half of the model-related liquids I found in my shop cabinets. I even found a half gallon of Wildcat DF fuel which has been waiting to be used - about 5 years after I sold my last ducted-fan model!

Also, I have a box of old batteries (mostly Nicads) that are well past their lifetime. Most have a dead cell, but I didn't want to just throw them in the garbage can. Some are good for weight on rare occasions, but even so, all of these items fall into the category of dangerous chemicals.

I finally gathered these items (and grabbed a few car-related items from the garage, too), and took them down to the local Environmental Collection Center. It's all waste, and they know how to get rid of it properly. You might want to take a look at your city website or phonebook, and see if there is a facility near you. Then, make the drive and get rid of all the stuff you are sure not to use again. It will free up some space in the shop, and make it safer.

21st Annual Arizona Jet Rally

My flying time this season has been brief. I did, however travel to Mesa, AZ for the 21st Annual Arizona Jet Rally. This was held November 20-22, hosted at the club field of the Arizona Model Aviators, and the weather was very nice. Attendance-wise, the event had more electric-fliers than turbine- or IC-ducted-fan models. Several EDFs performed quite well, and it seems modelers are now beginning to tackle some of what might have been considered a "large model" for electric power. It will be interesting to see the performance increases in the next couple of years, due to recent progress in battery design and chemistry.

Rick Silz's Velox being charged for its next flight at the Arizona Jet Rally.

Some upcoming jet events include the Central Texas Jet Rally - May 13-15, and the Mt. Pleasant Jet Rally - June 10-12. JPO hopes you can make one or both!

Happy Landings!

Ron

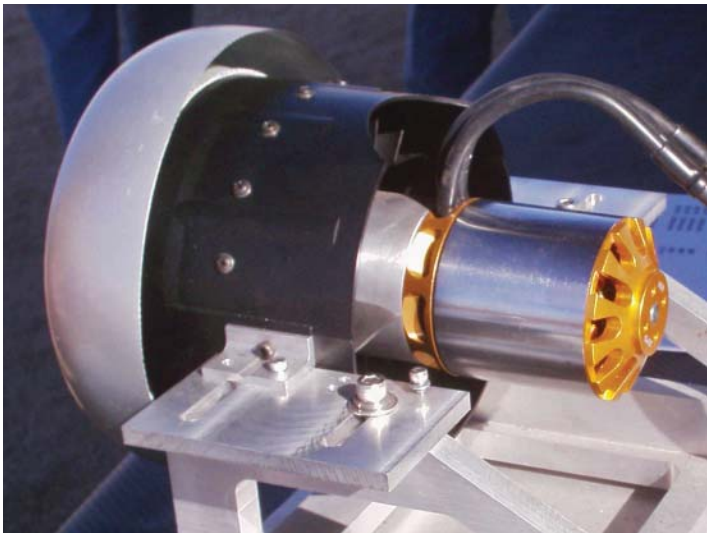
District X Report

David Reynolds

Arizona
California
Guam
Hawaii
Nevada
Utah

Attendance for the Arizona Jet Rally was down this year, which made for a more relaxed event than in the recent past. The big news for this year, were the numbers of what *did* show up. Not a single icdf was flown and edfs outnumbered the turbines. Small edfs were given time in both the morning and mid-afternoon to alleviate speed conflicts. This system worked well, and is a nice solution that gives the small fry a chance to fly in the larger events without as much conflict. The big edfs that flew with the turbines had no problems keeping up! Saturday evening, the Arizona Model Aviators provided pizza and salad for dinner and a good time was had by all.

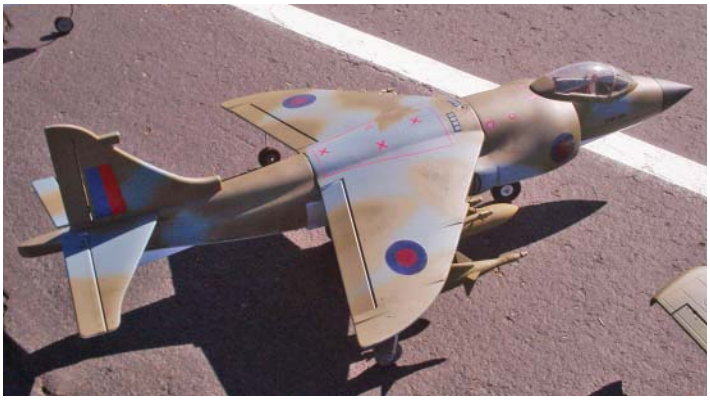
The XPS crew were out in force demonstrating their new Dynamax/Little Screamers combo, including a converted Byron F-15 that flew quite well, even with one fan out, and a Yellow Aircraft *Starfire*. Always one to tinker with things, Bob Ruff took one of the XPS/Screamer motors and put it in a Haoya fan to create an even more budget-friendly unit that worked quite well. Check out the thread on The E-Zone for many more details on how he did it at: www.rcgroups.com/forums/showthread.php?t=1144408.



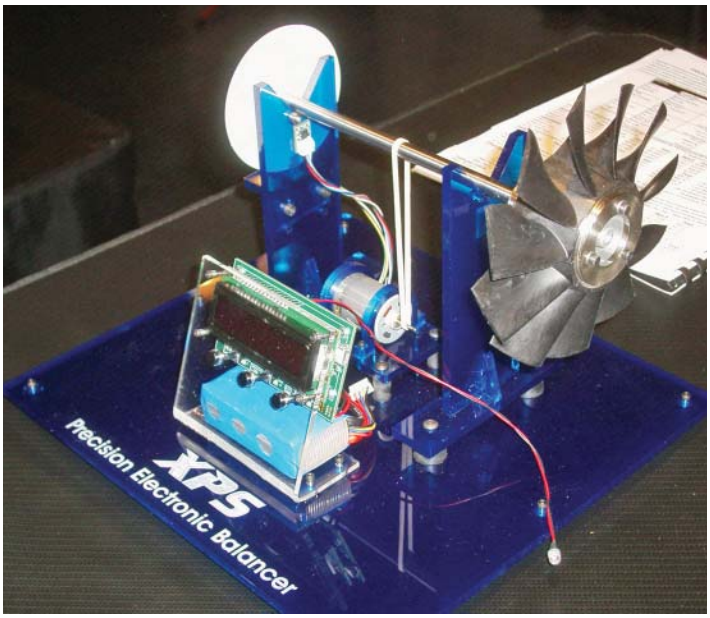
District X Report (cont'd)

David Reynolds

There were some very nice jets on display at the AMA convention in Ontario, CA. I'll let the pictures do the talking.



District X Report (cont'd) David Reynolds



Original test model for *Space Ship One.*

I have recently created a Jet Pilots Organization District 10 page on Facebook. Check it out, post pictures, and promote your latest jet event too!

'Till next time, keep the low passes where they belong.

Dave

District XI Report

Bob Brusa

Alaska
Idaho
Montana
Oregon
Washington

There is not a lot to report this quarter as we are in our winter season and jet flying has come to a halt. I'll share some photos of a couple of jets with you though. The first plane is the very familiar BVM *Super Bandit* that is owned by none other than the JPO vice-president Al Watson. It is painted in a custom scheme by Jeremy Ferguson of LGM Graphics out of Abbottsford, British Columbia. The pictures just do not do justice to the beautiful handiwork of Jeremy. The plane is done in yellow and trimmed in black and red and it is exceptionally beautiful!

Al's granddaughter Andrea shows his new model.

I have a new BVM *KingCat* (purchased used with 23 flights on it) that I have ready to go, and just need the weather to give us a nice day. As you can see it is the military scheme, and is powered with a JetCat P120. There are 2 other gentlemen in our local club - Kim Waterhouse and Behzad Pakzad - that have the same *KingCat* with the same color scheme, so it should be fun with 3 of us flying together! Behzad has flown his already, while Kim and I are still waiting. Bummer!

Some of the events scheduled in Dist XI, and other events nearby, for this year are: The Apple Blossom Festival in Wenatchee Apr 30 - May 2, Princeton Jets in BC late May/early Jun - date not set yet, Idaho Jets usually held in June, Montana Jets on July 16-18, Jets over Cayley near Calgary in Alberta, Canada, on July 23-25, Jets Over Whidbey Aug 27-29, and Princeton Jets in BC on Sept 16-19.

Remember to renew your JPO membership for 2010, and this year you will receive a very attractive and colorful JPO logo decal that is approx. 3" x 7". It's great for your flight box, or even on a plane and is a super nice way to showcase JPO and encourage other jet pilots to join.

Bob

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CANADA
Vacant

Upcoming Events

California Jets: March 25-28, 2010
Bakersfield, CA
www.ca-jets.com

Top Gun: April 28-May 2, 2010
Lakeland-Linder Airport, Lakeland, FL
CD: Frank Tiano 863-607-6611
www.franktiano.com

19th Mississippi Afterburner Jet Rally: April 29-May 1, 2010
John Bell Williams Airport
Raymond, MI (suburb of Jackson, MI)
www.mississippijets.com

20th Annual Central Texas Jet Rally: May 13-15, 2010
ARCA Club Field, Austin, TX
www.austinrc.org

Jets over Colorado: May 21-23, 2010
Drake Field, Loveland, CO
CD: Dan St. John (970-231-01252)

The First Electric Ducted Fan Jet Rally in Canada
May 29, 2010
Ottawa, Canada
CD: Jean-Claude Terrettaz
www.rideauflyers.com

5th Annual Blue Grass Jet Jam: June 3-6, 2010
SKYMAC Club Field
Bowling Green, KY
www.skymacrc.com

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

Gateway Jet Rally: June 11-13, 2010
St. Louis, MO
www.SLRCFA.com
CD: Phil Westrich

OC-Turbo Fest-Early Summer 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

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

Phillip Todd caught Greg Moore's Avonds' F15 at Arizona Jets in Mesa, AZ

JPO
JET PILOTS ORGANIZATION

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