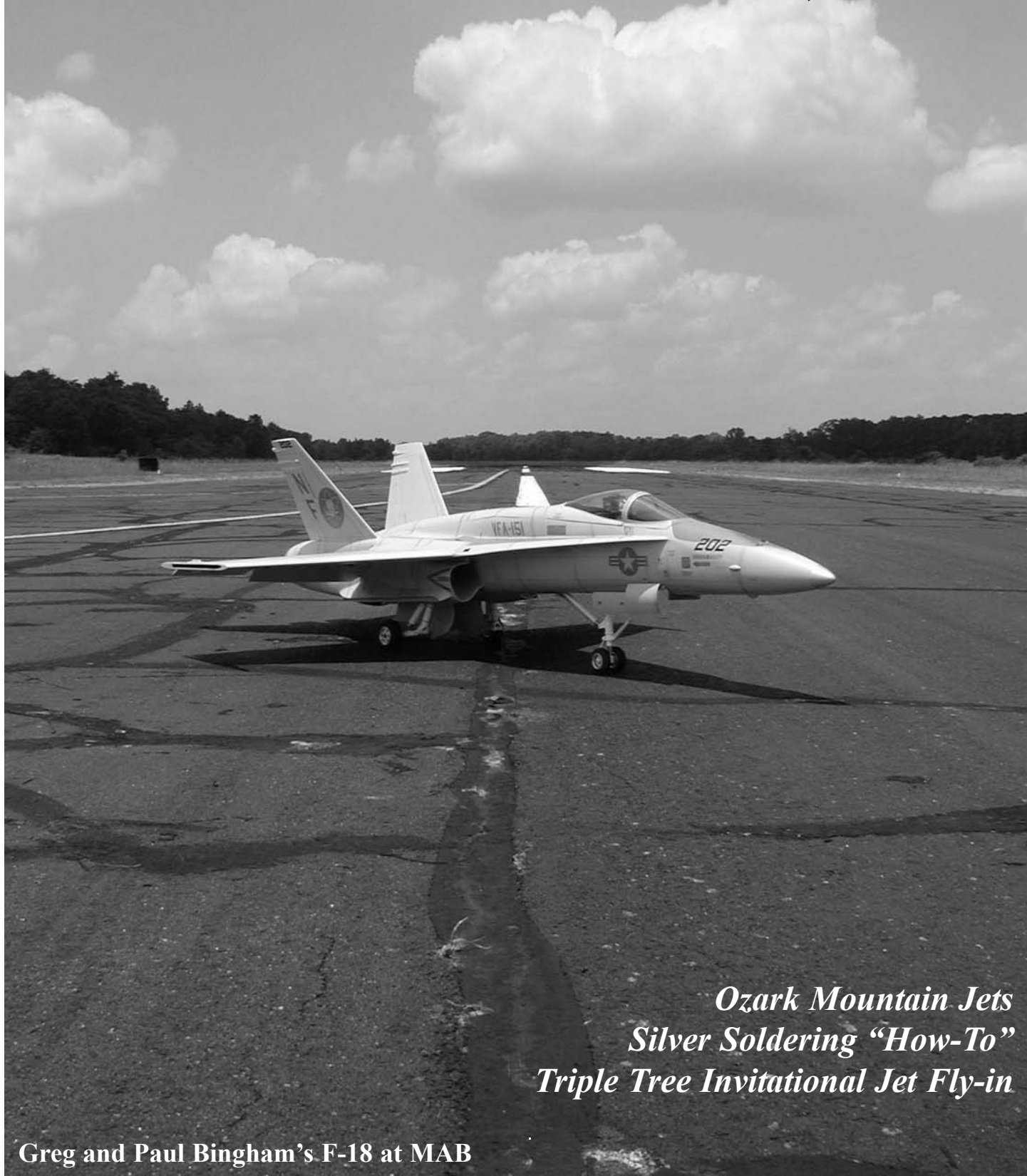


Newsletter of the Jet Pilot's Organization

Contrails

Winter 2005

Volume 17, Issue 1



*Ozark Mountain Jets
Silver Soldering "How-To"
Triple Tree Invitational Jet Fly-in*

Greg and Paul Bingham's F-18 at MAB

Treasurer's Report
Ed McElvy


Beginning Balance \$5,647.10

Income:

Memberships 22x\$25.00	\$550.00
Memberships 1x\$325.00	\$325.00
Pay Pal 8x\$23.97	\$191.76
Total	\$6,713.86

October Expenses

Bank Charges	\$14.00
Pay Pal Overcharge	\$10.00
Sub-Total	\$24.00

November Expenses

Bank Charges	\$14.00
Contrails Expense	\$216.00
Fed Ex.	\$17.74
Sub-Total	\$244.74

December Expenses

Bank Charges	\$14.00
Stamps	\$37.00
Fed Ex.	\$15.17
Contrails Newsletter	\$740.00
Sub-Total	\$806.17

Total Expenses \$1,074.91

Balance as of January 1, 2005 \$5,638.95

Welcome to my first issue as the editor of *Contrails*

An especially big thankyou needs to go to my wife Susan for re-entering the entire issue following a software... err....hickup! (I need to be polite here!)

You'll notice entirely too much white space, but your district representatives can't be everywhere! Please send photos to your reps, or alternatively to me; and if you've got a "how-to" that you'd like to share...please do!

This is "**YOUR**" publication, but I need your information to get it out to you! The deadline for submission for the Spring edition will be the first of April.

Don't forget that up-to-date event information can be found on the JPO web site at: www.jetpilots.org.

Greg



President's Report

Steven Ellzey

New year, new faces

With the start of this year we have several new faces helping JPO along. Our new Vice President is Keith Sievers. It is becoming clear that insurance issues drive much of our hobby's concerns these days, and Keith brings our organization a professional understanding of these issues.

As of the creation of the election ballots, we did not have a candidate for District VIII representative. If you read Dawn's reports, you know that she had decided to get some new blood in the position, since she had been doing it for some time. Around mid-December, Mark Osborn contacted me and told me he would like to take on the position. Mark's name was submitted to the Board of Directors and was accepted. Mark is yet another insurance professional and CDs one of the District VIII events in Odessa, Texas.

And last, but by no means least, our new *Conrails* Editor, Greg Moore. Greg took this challenge on to put something back into the hobby. On the down side, this means I can no longer wait until everyone else is finished to write my part, but at least maybe my typos will get caught now.

Keith, Mark, and Greg - thanks for your commitment and welcome to the cause.

Steven

Hints and Tips - Silver soldering

The key to many control linkages is a good silver solder joint. It should be clear that silver solder refers to silver-bearing solder, not silver-colored solder. Never use electrical solder for any high-strength solder joints, since electrical solder is much softer and weaker than silver solder. There are also different grades of silver solder; the low-end is still used for electrical use and the high-end requires more heat to use than most modelers would want to use. Sta-Bright silver solder works well for all modeling activity.

As with most parts of modeling, the right tools are essential to doing the job right. Silver solder requires more heat than electrical solder. A soldering gun with over 100 watts of power works well, since it heats fairly quickly, and will make good joints for control linkages. It is necessary to make sure that the tip is kept clean where it attaches to the gun, and that the fittings are tight. If a soldering gun ever appears to be going bad, remove the tip and clean the attachment point and then try again.

If a soldering gun has been used with electrical solder, the tip should be cleaned with a damp rag, while it is hot, so as to remove as much of the solder as possible before using silver solder.

A large soldering iron of over 100 watts works well for linkages and larger parts. The soldering iron has a much larger tip than does a gun, so it has more thermal reserve than the gun. When either an iron or a gun is touched to a cold metal part, the tip cools down, however, the iron will cool less since it has more mass. This higher thermal reserve is what allows the iron to solder larger parts. The downside of the iron is that it takes several minutes to reach operating temperatures.

You should take the same care of an iron's tip as you would a gun's. A small pencil torch works well for almost all structural soldering. The torch provides instant heat, and enough of it to handle any silver soldering job. Another small benefit is that since only a flame is touching the part, solder will not be deposited on the outside of couplings and clevises, making for a more attractive joint. The downside is that the torch takes more practice to master, and requires more effort when tinning a surface, but when used properly, it will produce the best results.

Tools that do not work well include soldering pencils that are used for electrical work, and propane torches. Soldering pencils cannot provide enough energy to heat the parts to a high enough temperature, and propane torches normally have too large of a flame, which will oxidize the metal and prevent the solder from attaching.



To make a good solder joint for a control linkage, start by cleaning and tinning the rod. Fine steel wool or sandpaper will clean the rod end, and then apply a small amount of flux to the rod. Be certain to wet all of the rod that will need solder on it, going at least 1/4" beyond the end of the coupling or clevis. If using a soldering gun or iron, apply heat to the area that was fluxed, and melt a small amount of solder on the tip. This solder will help transfer heat to the rod.

Next, hold the solder to the opposite side of the rod. When the solder starts to melt, use the tip of the gun or iron to move the molten solder around so that it covers all of the area that was fluxed. If using a pencil torch, apply the heat next to the fluxed area, and touch the solder to the fluxed area. Do not put solder into the flame. When the solder melts, use a small wire to move the molten solder around and cover the fluxed area. Use as little solder as possible at this stage. The solder should look like a shiny film on the rod. If there are lumps or areas that are not accepting solder, clean the rod with soap and water, apply flux over the soldered area, and reheat the rod and correct the problem.

If soldering on a clevis, next apply a drop of flux to the end of the clevis. Use a small wire to make sure that the flux reaches the entire inside of the part of the clevis that is to be soldered. Place the clevis on the prepared rod, and heat the center of the part of the clevis that is being soldered to, not the rod. Touch the

solder to the junction of the rod and the clevis. Once the solder starts to melt, keep adding more until solder starts to come out the other end. A point to note here is that solder flows towards heat, so if you heat one end more than the other, you will end up with more on that end.

If soldering on a coupling, apply a drop of flux to the end of the coupling and use a small wire to make sure that the flux is applied to the bottom of the socket. Try to remove as much flux as possible with a paper towel. It is fairly normal to not be able to slip a tinned rod into a coupling without heating the coupling. Apply heat to the side of the coupling just above the threads, and push the rod in as the solder melts. Continue applying heat and add more solder to the junction of the coupling and rod until a small fillet forms. At this point, keep applying heat, and look to see if there is any bubbling going on in the solder. If there is, this is excess flux boiling out, and you should continue heating the part until the bubbling stops.

For both clevises and coupling, once the part has cooled, wash it thoroughly with soap and water, and then inspect your work. If the exposed solder forms a smooth shiny fillet, apply a light coat of oil to the part and you are done. If the join is dull or rough, apply flux to the exposed solder and reheat the part until the solder melts. Normally, it will flow out smooth this time. Once the part has cooled, clean, inspect and oil the part. It should be noted that the flux used for silver soldering is an acid. When first applied, it eats away dirt and oxidation, leaving very clean metal. Its continued presence prevents air from contacting the part, which would allow it to oxidize again. However, in a few minutes, it can start to corrode the metal, so you should solder a part quickly after fluxing it. When finished, clean off all residues, and then use oil to prevent any further problems.



Vice President's Report

Keith Sievers

First off, let me say that I am looking forward to being a more active part of JPO in the coming year as your new Vice President. For a little more than a year, I have been working with Gordon Dickens and Joe Rafalowski on the JPO Risk Management Initiative (RMI). Our group was initially formed, in part, to address AMA concerns with safety exposures arising out of excessive flight speed. As you might remember, about this time last year, there was a proposal floated to the AMA Executive Committee that would have required speed limiting technology on all of our aircraft. The JPO initiated several studies to separate fact from fiction, including actual airspeed measurement for a number of popular models, and a data collection effort to determine if speed emerged as a factor in crashes during 2003 jet meets. With the help of the CDs, the Risk Management Initiative collected information from 33 different events. The data ultimately demonstrated that speed was not a significant contributor to jet crashes. The speed limit proposal was subsequently dropped from the new regulations.

The RMI group has been busy again in 2004 with the continuation of our data collection effort. A summary of our findings will be published in the next issue of *Contrails*. We have also begun work on a knowledge bank, and will make a number of contributions in 2005 to provide a repository of reference material on various aspects of turbine operation.

Since this is my first issue of *Contrails* as Vice President, Steve asked if I would provide a brief biography, as boring as that may be. I have actually been involved with radio-control since I was a boy. This is going to make me sound ancient, but my first R/C plane was a single-channel trainer. The radio was a Heathkit Mule, with a single button. Push the button once, and the rudder moved left. Push it again, and it centered. Push it one more time, and it moved right, and so on. The "servo" in the plane was really just a relay that allowed a rubber band-powered escapement to rotate in 90 degree increments,

moving the rudder. The plane was set up to climb gradually under power. To lose altitude, you would simply do 360s. The plane landed when it ran out of gas. I don't have many memories of flight, but do remember the evening repair sessions.

I really got into the hobby when my own son expressed an interest in learning to fly many years later. We both trained on a Kadet, the standard trainer of the day. Several other prop planes followed, but of course, our real interest was jets. We ordered a Top Gun F-15, and the prop planes were relegated to ceiling hooks. My son has since gone on to other interests, but the jets have stuck with me. I have flown (and crashed) most manufactured ducted-fan kits. When turbines came along, like most of you, I gladly made the transition. I am currently flying a KingCat and a Skymaster F-18, with a Yellow F-15 project under way.

Professionally, I have been in the insurance business for my entire career. I hope to work more closely with the AMA on this topic on behalf of the JPO in the future. If you have insurance questions relating to model aircraft, I'd be happy to try to help - just drop me a note.

One last comment on the coming year - I would like to see all of us work together to increase our membership ranks in 2005. The level of influence we have as an AMA SIG will be directly proportional to the percentage of turbine waiver holders we represent. If we build a substantial membership now, it will add credibility and authority to our interaction with the AMA, and help insure our active participation in the rule-making process.

Keith



District I Report

Ray Davis

Connecticut
Maine
Massachusetts
New Hampshire
Rhode Island
Vermont

Greetings from District II! Pretty cold and dreary here at the moment; had a monster storm hit 'ol Cape Cod after Christmas, losing power for 36 hours. Not a time for any R/C flying, one would think, but it was melted and almost completely gone on New Year's Day for Otis Model Aero Club, Inc's, annual "Chili-Fly." Chilly but clear, and with spicy hot chili served at our local club field. A tradition - whatever the weather - and we had about 40 pilots out enjoying the "hot" sun. No jets (read below re: my Eurosport), always a blast with the prop beaters, but otherwise there's little direct contact with the jet world these months. I'd certainly welcome reporting any District I jet news by posting your pictures, etc. Send it my way for the Spring *Contrails*....my ramblings below are surely a poor second to real news!

At 63, perhaps I'm entering the more senior ranks of our Membership...and I don't like it one damn bit. So, I've vowed to renew my efforts next year and really focus on what I'm doing, keep my lens prescription up to date...keep them all in closer, and practice, practice, practice. Maybe even try a G3 simulator. Certainly gonna have to if I wanna avoid another season like this one past. Two would-be totals (if I wasn't already so practiced at rebuilding and repainting), and while it's fun to build, it ain't fun to repair. Not for me. Both crashes due to pilot error, of course... but building and rebuilding may be what our long winters up here are really for...right?!

So far, I haven't even faced repairing my 310 twin that clipped the trees last spring at the District I Masters Scale Qualifier in a tad-too-low pass.

Then in late September, I let my Eurosport get low and slow and too far out turning base... compounded the error in guessing the wrong wing was down. No time to recover after the "correction" (only thing I did right was kill the engine just before impact). Ahhh...so that's disorientation...?! But finally, the ES is now repaired and repainted and I'm reinstalling systems at the moment. There was a lot more damage than first suspected. I really shoulda bought a new fuse and

right wing, but pieced it all back instead. Happily, I did find that the C-ARF epoxy paint is great stuff to work with, a perfect match, and buffs nicely where blended into the old. Another plus for the Eurosport are the readily available parts and matching paint!

There was some compressor FOD, so AMT looked over the 400, and I had my ECUs updated for the AMA '05 regulations. All Waiver holders have been notified that in '05, we must be flying failsafe-capable radios and the FS engine setting must be for shutdown within two seconds of a continuous signal loss. That delay would keep the flame going during short glitches (two seconds has been deemed by the experts to be sufficient time for that). Any longer without control, the model is probably lost anyway, and an FS shutdown will prevent runaways and fires. A good thing! But, pilots must program their radios for this to work and the ECU should be capable of distinguishing between a Fail Safe condition and a pilot-initiated emergency (instantaneous) shutdown.

If your ECUs don't have delays for FS, then you're losing any additional glitch flameout protection not provided by a Tx hold period. CDs may be checking in '05, too....

The AMA website section 510 explains it all. And, for Waiver renewal in '06, we will need notarized Pilot Turbine Waiver Affidavits (510-E) on file; i.e., renewals won't be automatic anymore. Pilots will need to show they have flown twenty flights in the previous twenty-four months...maybe a log book...might as well get familiar with this stuff, guys!

Ray



District II Report

Art Arro

New Jersey
New York
Europe

Best wishes to all in 2005 and beyond as I'm writing this just after New Year's. Most of District Deuces are immersed in the winter building mode with either new projects or refurbs on existing jets. Periodic battery-cycling is useful along with a detailed inspection of your airframe. I pay particular attention to control linkages, hinges, landing gear and extension servo leads/cables. A bit of maintenance will yield big payoffs during your first flight outings in the spring. Some guys also like to keep their flight skills active by the use of a flight simulator.

New AMA turbine regulations for 2005, which were mailed in late 2004, require an engine shutdown within 2 seconds of signal loss failsafe. A simple test was described to verify compliance with this new regulation. Basically, the turbine is started by the transmitter or start box with the throttle control function governed by the transmitter. With the turbine running at idle, you are instructed to turn off the transmitter and begin a simple one-two count. The turbine should shut down within this interval. Shutdown may be commanded as a function of the R/C system failsafe and/or the turbine ECU. Some R/C transmitters have an adjustable time increment for failsafe while others are near-instantaneous or fixed at some short period.

In addition, various turbine ECUs have different shutdown functions depending on the brand, specific model, and version of the installed ECU software. Note that the two-second shutdown requirement is a **cumulative** interval. The autostart RAM and FTE ECUs can be upgraded to a variable shutdown interval with the default value set at two seconds. This upgrade also includes a signal loss hit counter and their duration to help monitor your airframe installation and any interference. This is similar to the JetCat ECUs. The RAM/FTE upgrades are performed by Bob Price for a very nominal fee. You must specify the version of the current ECU software and whether your RAM engine has the new or old-style starter motor. I understand that AMT will also offer an ECU upgrade and other supplier manufacturers may follow suit. I recommend having this upgrade performed during the

slow winter months to minimize downtime. Generally, you need only to send the ECU in for the upgrade and not the entire turbine system.

Painting your jet is one of the final steps of completion, and most jet pilots use an automotive base coat/clear coat system. I personally never got into this paint system, having accumulated a large supply of twin-pack epoxy paint, such as K&B Ultrapoxy, Superpoxy, and Pettit Hobbypoxy, from my pylon-racing activities. Very few of the automotive paints would stand up to 65+% nitromethane used in Formula I fuels. I soon depleted my supplies of epoxy thinner, but managed to locate small quantities at swap shops and hobby shops.

Recently, a new supplier of twin-pack epoxy paints called Klass Kote appeared, and received good reviews from the R/C scale-modeling community. Further investigation revealed that Klass Kote epoxy paints, catalysts and reducers (thinners) were interchangeable and compatible with the former Superpoxy and Hobbypoxy products (but not Ultrapoxy). Klass Kote initially released about a dozen colors plus primer, matte, and gloss catalysts. These colors included fawn, buff, and turquoise, but omitted the true primary colors of red and yellow. You can mix any color from the primary red, yellow and blue colors. Recently, Klass Kote added true red and yellow, along with a couple of shades of blue. This allows one to mix virtually any color or shade (hue). I've purchased Klass Kote epoxy paints and will try them out on my latest jet projects as soon as the weather warms up. I'll share my experiences in a future column, and would also appreciate any personal feedback on Klass Kote epoxy paints. For further information, you can contact Nate Dickerson at <http://www.KlassKote.com> or phone him at 612-243-1234.

Remember to use protection from paint vapors with a respirator mask equipped with fresh charcoal filters. Most of the urethane base coat/clear coat systems contain iso-cyanate, which is a cumulative toxic poison absorbed through the skin, eyes, and lungs. Epoxy paints are less hazardous, but it is wise to exercise caution during paint spraying.

I look forward to seeing everyone at the local hobby trade shows and jet events. Remember that the Big Apple Jet Rally has now moved to June in hopes of better weather. Hope to see you there!



District IV Report

Lee Reightler

Delaware
District of Columbia
Maryland
North Carolina
Virginia

Time Flies When You're Having Fun...

It seems like it was just yesterday that I was flying my BobCat at the Liberty Bell and Heart of Ohio jet rallies, and debuting the KingCat at Superman. The leaves are now gone from the trees, and soon our runways will be covered with snow.

But, we in District IV look upon it from the bright side. In three more months it will be spring. It will be time to dust off our trusty steeds and get ready for another flying season. Perform our maintenance checks and once again smell the fragrance of Turbine #1.

During this interim period, we will turn our attention to our "Wish List." Everybody has one. The influx of new models is occurring at such a rapid pace, it's pretty hard to keep up with them. So, which one will you fly next season?

Personally, I have my eye on one of the F-18E kits that will be introduced in the spring. However, the main project will be the Martin B-57B Canberra bomber.



Fifteen years or so ago, Robert Hayes and I designed and scratch-built a DF model of this aircraft. A foam model was also built and flown, using a pair of .60-sized engines in place of the DFs, to test the flight characteristics. The wing span was 88" and the body length was 84".

I never completely finished the model, for some reason or another. It has sat in my "hangar" all this time, until recently. Robert convinced me that we should redesign the model for turbine engines. Fortunately, all of our original information is on a cad program.

The "new" model will be built in a mold, employing the latest building technique, powered by 18 lb. thrust engines, and controlled by state of the art electronics. Here are pictures of the prototype as it appears today.



David Plaine and Benjamin Hayes, Our Assistant "Engineers," Display The Model



A Close-Up Of The Cockpit With Enough Space For All The Goodies

District IV Report (cont'd)

Lee Reightler

**A View From The Back**

Having worked in the engineering department of the Glen L. Martin Company at the time this aircraft was being built, I am quite familiar with the B-57's construction. Also, one of the test pilots was a member of our flying club. This should be an interesting project.

In the 2004 Spring issue of *Contrails*, I published an article by Dr. Steven Wilderson on how he went "From Props to Blades to Turbines." He was JPO District IV's newest member at that time. I would like to present Part 2 of his story:

From Props to Blades to Turbines (Part 2)*

Spring 2004 - January 2005

As I mentioned in the earlier article, I was fortunate in becoming the branch head of a group of highly competent programmers and robotics researchers. I plotted a course that has led us from props to helicopter blades to turbine engines. Shortly after my first article, we learned that there existed several thousand foam Mig117B aircraft that were to be used as target drones for the U.S. Army. It seemed that we could make these foam Migs fly on our autopilot and, with the GPS and camera technology we had already developed, provide soldiers in combat a quick and almost expendable Unmanned Air Vehicle (UAV). This effort diverted us from our goal to work with turbines for the summer, but gained us some valuable insights in the process. Our Mig aircraft is seen in Figure 1 with our primary pilot, Robert Hayes. The Mig is outfitted

with an OS .60-sized engine, which was later changed to a brushless electric Hacker motor. The goal was to get the autonomous hand launched Mig to take off, fly, and make a reasonable belly landing.



**Figure 1 - Robert Hayes With The Mig 177B
Target Drone**

During the process of developing the Mig's flight profile, we made contact with a group at NASA, who were also doing work with the Mig aircraft. Their aircraft could already take-off and land using the same autopilot we were using. But, they were using a wheeled version that had been modified to include a rudder. The original Mig only had ailerons and elevator controls and we were working on autonomy with this version. I felt that by joining with this group we could better present our idea to the Rapid Equipping Force (REF) for deployment to South West Asia for test and evaluation. Our initial presentation went well, and we were told that 6-8 of these Migs would be sent for further evaluation. However, the Army eventually decided not to deploy the Mig aircraft. This was a big disappointment for our team and our NASA collaborators. But, in the process of working with NASA, we met a college Professor by the name Dr. Robert Klinke from the Virginia Commonwealth University, who was working on jets with Dr. Mark Motter from the NASA group in Langley, Virginia.

*This is a follow on to the article published in the Spring issue of *Contrails*, Volume 16, Issue2.

Robert has several jet aircraft of his own, and is interested in working on control mechanisms for UAV systems. Another discovery was that the NASA folks were working with KingCat jets programming them to fly autonomously. After several conversations with



Figure 2 - Pilot Robert Hayes With The KingCat

NASA officials, we decided to ask one of our sponsors if we could purchase a KingCat for experimentation and collaboration with NASA. Seen below in Figure 2 is our KingCat jet ready for flight.

Another big event we participated in was a demonstration for the Office of the Secretary of Defense (OSD). Having perfected the Mig aircraft for autonomous flight, we were able to turn over control of these aircraft to some talented programmers at the Applied Physics Laboratory (APL). The APL group then used the autonomous Migs to demonstrate collaborative robotic and UAV technologies. The Mig aircraft were controlled by computer programs during the demonstration at ground stations and onboard robots. The algorithms told the aircraft where to fly and when. All we needed to do was watch. This demonstration was a huge success and has only encouraged the team to work harder.

We discovered right after the APL OSD demonstration that a group at Lockheed Martin in Orlando was experimenting with the KingCat using the Micro Pilot Autopilot and was interested in collaboration with our team and NASA. NASA declined the invitation and this left only our group to work with Lockheed Martin. The Lockheed Martin

team provided us with their Autopilot flight files for the KingCat in exchange for us helping them fine tune the autopilot "in flight" characteristics. This was easily

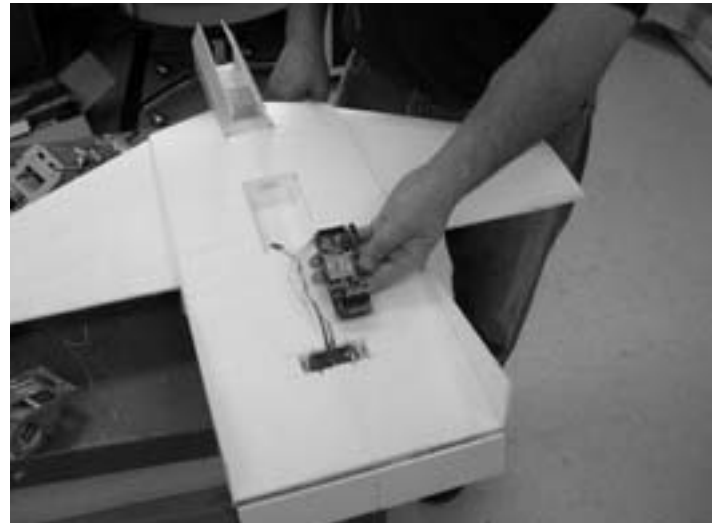


Figure 3 - Autopilot From Micro Pilot

accomplished in our shop and with the flying out of the way, we could concentrate on the more difficult task of take-offs and landings. Figure 3 shows our Autopilot to give you an idea of the size of this item, which only weighs 28 grams.

One of my team members and I traveled to Florida to assist in getting the Lockheed Martin KingCat ready for flight using the Autopilot. Within two weeks, we had their system fine-tuned to the point of successful flights. Meanwhile, Dr. Klinke and Robert Hayes readied our system for flight testing. Despite numbers delays due to the weather, our team in Maryland finally got our bid aloft. After a number of shake down flights and fine tuning, we got on with the business at hand of training our pilot to fly jet aircraft. Under the watchful eyes of Dr. Robert Klinke and Lee Reightler, Robert

Table 1 - Army Research Laboratory KingCat Features

BVM ARF with Navy high visibility paint job
Navy markings will be changed to ARMY soon
AMT 400 Turbine
Futaba Radio gear
Sequenced nose gear door
BVM Pylongs installed for deployment of air dropped UGVs
40 oz. tank added to extend flight time.



Figure 4 - Robert Klinker Readies Our KingCat For Flight



Figure 5 - First Flight, Up Up And Away!

Hayes passed his jet check out exam. So now with two experienced pilots and a partially developed autopilot system, we are well on our way to using small scale jet aircraft for military surveillance. Table 1 shows some basic information about our turbine system.



District V Report

Gordon Dickens



Alabama
Florida
Georgia
Mississippi
Puerto Rico
South Carolina
Tennessee

Two events were held in the fourth quarter of 2004 in District V. The Triple Tree Jet Meet and the Florida International Jet Rally. Craig Gottschang has put together an event report for the Triple Tree event.

2004 Triple Tree Jet Meet Event Report

by
Craig Gottschang

The 2nd annual Triple Tree Invitational Jet Fly-In was held on October 21 through 24 at the Triple Tree Aerodrome near Greenville, SC. Owned by Pat Hartness, this sprawling site is home base for the Confederate Air Force and is best known for the Joe Nall fly-in held each May. The event attracted approximately 25 jet pilots who enjoyed a relaxed atmosphere of flying and modeling camaraderie.



Mike Altis Poses With His King Cat After Another Successful Flight

Exceptionally wide grass runway required lots of power to taxi and very little brakes.



Anthony Weinek Poses With His Turbine-Powered BVM F-86

Authentic paint scheme is unusual, but attractive.



Bob Violet Prepares His F-100 For Another Flight



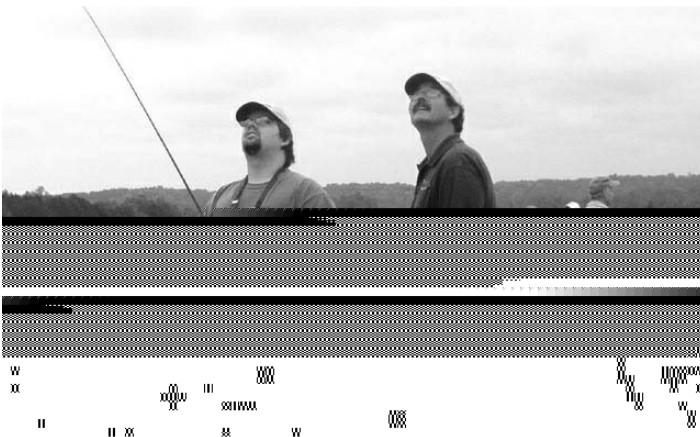
Tom Dodgen And Tony Masiello Flew Their Twin KingCats Through An Impressive Formation Routine

District V Report (cont'd)

Gordon Dickens

**No, This Is Not A “Trick” Picture**

Tom Dodgen actually made repeated passes this low and only touched the ground once, bouncing back into the air without a scratch!

**Dickens Duo Of Lee And Gordon Logged Numerous Flights During The Event****Lee Dickens Maneuvers His EuroSport For Another High-Alpha Pass****Craig Gottschang's KingCat Makes A Smoke-On Pass****Incredible “Spiderman” Paint Scheme On Rod Snyder's KingCat Attracted Much Attention**

These 5 KingCats Flew An Impromptu, But Impressive Formation Flight On Saturday
L to R; Craig Gottschang, Eric Meyers, David Reid, Tom Dodgen, and Tony Masiello



District VI Report

Roger Shipley

Illinois
Indiana
Kentucky
Missouri

building a Mig, specifically for SJM, and Dustin Buescher is building an F-86. Steve Collins will attend the winter IJMC meeting in Bonn to present our plan to host the WJM in 2007 at Sullivan, Missouri, home of the Ozark Mountain Jets. In the more immediate future, we hope to have a booth at Toledo.

HEY, HEY, HEY just in!

A new event in District VI "Windy City Jets" is being organized by Jeff Anderson, one of our Turbine Waiver Signoff Officials. The dates are July 15-17 at St. Charles, IL, in the Fox River Valley. St. Charles is a suburb of Chicago, about 20 miles west of O'Hare International Airport. This is a totally new, exclusively R/C field, measuring 800' x 50' with good grass for overruns. The site also includes taxi ramps, paved parking, and shelter. Thanks, Jeff. I look forward to supporting your efforts to make this a premiere event.



USA World Jets Master Team and Organizers

Quality Pictures by Benny Lanterman
At Ozark Mountain Jets



Windy City R/C Grounds

"Windy City Jets" brings us to a total of five jet events in our district:

Jet Over the Heartland	(June 23-26)
Windy City Jets	(July 15-17)
Bardstown Jets	(August ?)
Ozark Mountain Jets	(September 8-11)
Superman	(September 27-Oct 2)

The USA World Jets Master Team is shaping up. All the qualifiers are on board to compete this August in Hungary. *Jet Power* magazine (see article on the Qualifier in the January/March issue) reported commitments from 21 nations and 83 pilots registered to participate as of November 2004. Rod Snyder is designing and making arrangements for the uniforms. Doc Yates is in charge of fundraising. Dave Ribbe is



District VI Report (cont'd)

Roger Shipley



The New Product (Electric Start) By AMT/USA





District VII Report

Art Gajewski

Iowa
Michigan
Minnesota
Wisconsin

Greetings! A new flying season is about to begin here in the northern part of the country. We also have an updated set of turbine guidelines to operate under. One of the more stringent requirements is to have the turbine shutdown in the event of a 2-second radio signal loss. Not a trivial matter. This requires that your radio installation be of the highest-quality possible, such that your radio-links never lost. This month's article focuses on the results of an investigation that was conducted to improve the effectiveness of the radio installation on my BVM 60" wingspan F-86. The results were pretty impressive. Please read on. If you have any questions, please email me and I'll try to answer them.

Background

In the spring of 2004, I put the maiden flight on my new 60-inch wingspan, AFS BVM F-86. Radio trouble occurred on the eleventh flight, while at the Michigan Jets event on Sunday, July 25, 1\2004. On the third flight at that event (I was the CD, so my flying opportunities were limited!), I experienced a crash. Essentially, the plane fell from the sky while turning from the base leg of my approach to final. Upon arriving at the crash scene, I was relieved to find that the damage was fairly mild, in my view, as it was pretty much limited to the right wing-panel, the three landing gears and their mounts, and some minor scuffs on the fuse bottom. This crash event left me quite disgusted for a few months. After getting over the disgust, I finally repaired and repainted the damaged sections of the wing.

Crash Investigation

The crash investigation revealed the following: upon turning final, the F-86 literally fell out of the sky onto its right side wing panel. I checked the GSU to find that it experienced a 2-second failsafe event which reduced the turbine to idle (note that I was carrying about a one-eighth throttle setting on my base leg). Upon the failsafe event, the commanded throttle to idle setting resulted in too little power available to

keep the plane in the air, especially while turning.

Now what? Well, over the course of the next week I consulted a number of "experts," and all indications pointed to a radio glitch of some sort. How could that be? I did my best to carefully route the Rx antenna away from the battery, servo leads, fuel pump wiring and other potential sources of interference. I had range-checked the plane in my usual unsophisticated manner before the first flight and had my typical ground range per that test. I'd had no indication of radio glitches on any of the prior ten flights.



The Conventional Antenna Can Be Seen Routed In The Tube, Alongside The Shroud At The Top Of The Photo

So I sent the JetCat P80 ECU (V4.90) off to the manufacturer for evaluation. Results came back as NO TROUBLE FOUND. JetCat USA did upgrade the ECU to V5.00B and mounted it in a hard shell case.

I sent the JR 940S 10-channel PCM Rx off to the JR Service Center for evaluation. Results came back as NO TROUBLE FOUND.

I also sent the JR 10Sx 10-channel PCM Tx off to the JR Service Center for evaluation. Results came back as NO TROUBLE FOUND.

Experiment

Now I was really stumped as to what caused the failsafe event on my F-86. So, I decided to do my own more thorough investigation!

I had read about jet pilots using Rx mini-whip antennas with good results in extending their radio's range, and had seen them perform well in helicopter applications. Could the whip-style antenna really

District VII Report (cont'd)

Art Gajewski

make that much of a difference in my F-86? Only one way to tell - test it and see.

Here's what I decided to do. Compare radio reception of conventional Rx antenna installation to one with a Deans Mini Antenna (PN 1102, retail cost \$10.95). My basic test plan was as follows: to the extent practical, do the testing in accordance with the JR recommended procedure found on the Horizon website called "Advanced PCM Range Testing." You can visit that site at <http://www.horizonhobby.com/Explore/Article.aspx?ArticleID=1079>. Then I replaced the older JR940S Rx with newer technology - a JR955S Rx. I measured the radio range from the plane with Tx-oriented at the nose, then each side and then the tail. I used a radio failsafe setting of "UP Elevator" to indicate when an FS event occurred. I tested with the turbine OFF and then again with it ON and running at idle. I did this for the conventional Rx antenna and then again using a Deans Mini Antenna on the Rx. I modified the Rx antenna connection at the test site, to accommodate installation of the Deans Mini Antenna. Lastly, I determined if there was a range difference between the two Rx antenna installations.

Sounds easy enough, doesn't it? So I ordered the Deans Mini Antenna from my LHS, scrounged up a tape measure and a PVC stand to raise the plane off the ground, and recruited a few helpers (thank you, Jack Kezelian and Joe McCarthy). Off to the club flying field we went to conduct the experiment.

Results

Well, as most things go, it wasn't as easy as it sounds. Quite a number of data points had to be recorded. Portions of the experiment had to be repeated for a variety of reasons, including limited access to the runway (club members wanted to fly), flaky, non-repeatable results due to batteries depleting, locating the Deans Mini Antenna too close to the batteries (which contain metal)...anyways, we finally got it pretty well sorted out, but, we had to complete the tests in two afternoons instead of the originally planned one.



Photo Of F-86 On PVC Stand - Two Feet Above The Ground And Author Holding Tx For Test

Here's a summary of the "raw" data results (note each pace was 2.8 feet):

Rx Antenna Type	Turbine Setting	Range in Paces (Feet)	Tx to Plane Orientation @ Min Range	Tx to Plane Orientation @ Max Range
Conventional	OFF	46 to 118 (129' to 330')	Facing the Tail	Facing Right Wing
Conventional	ON	47 to 107 (131' to 300')	Facing the Tail	Facing Left Wing
Deans Mini	OFF	80 to 128 (224' to 358')	Facing Nose	Facing Left Wing
Deans Mini	ON	70 to 107 (196' to 327')	Facing Nose	Facing Left Wing

District VII Report (cont'd)

Art Gajewski

This data can be boiled down to a few important facts. Deans Mini Antenna improved minimum range by 49%, with turbine ON (from 47 to 70 paces), compared to a conventional wire antenna installation. Next, with the Deans Mini Antenna, range with turbine ON was reduced by 12.5%, compared to turbine OFF range. This is less than the 20% bogey recommended in the "Advanced PCM Range Testing" article. Lastly, the recommended minimum range, engine ON (again in the article titled "Advanced PCM Range Testing") is 150 feet (with model sitting on the grass). This test was not conducted on grass, but I am comfortable with the 196 feet (70 paces) of minimum range it now has, and I intend to fly it as it is.

BEWARE: The Deans Mini Antenna is sensitive to metallic components. The instructions warn about placing the base of the antenna within 1" of anything metallic. Initially, I mounted the Rx and ECU batteries adjacent to the antenna base, not thinking that the batteries also contain metal. The range was poor with that scheme. Subsequently, I moved the batteries a few inches away, and the range improved to the values summarized above. I believe that the battery locations are still limiting the range. Note that the minimum range readings are for when the Tx is facing the nose, where the Deans Mini Antenna is mounted, flanked by the batteries. However, the batteries must be located in the nose for balance. The Deans Mini Antenna could be relocated, but I haven't found a better spot to conveniently locate it yet. So it will have to stay where it is for now.

Conclusion

The good news is that I found a way to extend the range of the radio link in my F-86. The antenna difference is significant, indicating a 49% improvement in minimum range with the Deans Mini Antenna

The bad news is that the Deans Mini Antenna is quite visible on this scale jet. However, at this point, avoiding radio-induced crashes is more important than preserving the scale look of this plane.



Photo Shows The Deans Mini Antenna Mounted On The Fuse

In conclusion, I will confidently fly my F-86 with the Deans Mini Antenna installed in the spring of 2005. I learned a valuable lesson about the importance of achieving a very robust radio link with my turbine-power airplanes. This should go a long way in helping me to prevent recurrence on similar installations in the future. I hope you, too, can benefit from my crash and subsequent investigation. I wish you many safe landings!



District VIII Report

Mark Osborn

Arkansas
Louisiana
New Mexico
Oklahoma
Texas

Greetings to District VIII

As 2005 promised to be a year of positive changes, new beginnings are amongst us. My name is Mark Osborn, and I am your new District VIII representative. Although I have become acquainted with many of you over the past few years, I lack knowing many more and look forward to making new friends.

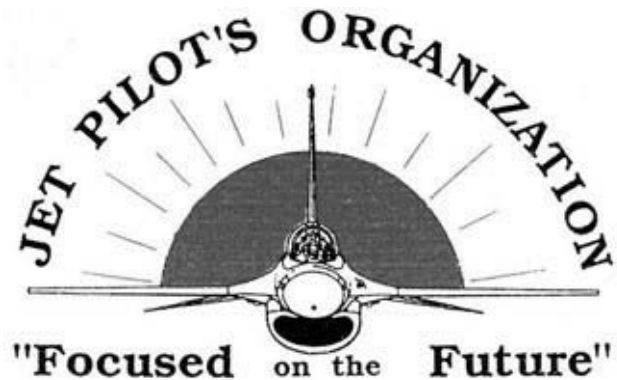
I believe our hobby is one of great interest, and will continue to grow with the involvement of motivated members participating as you all do so well.

I would like to tell you a little bit about myself. I am a local insurance agency owner in Odessa, TX. I have been in business for 24 years, 9 of which are in insurance.

I have been a member of the Propbuster R/C club for 11 years, flying various types of aircraft. My flying experience extends to full-scale gliders and some ultra-lights. I founded the West Texas "JETFX" Rally in 2004, the first turbine event in the history of the club. The rally hosted 11 pilots and drew over 800 spectators, which allowed us to donate generously to the Special Olympics.

I enjoy just about any event that involves active and motivated people and have found this combination particularly with all of you. In conclusion, I look forward to a year of safe flying, fun events and good friendship.

Mark



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