Newsletter of the Jet Pilot's Organization

# Contrails

Spring 2017

Volume 29, Issue 2

Ron Schwarzkopf captured a Eurofighter making a pass at Bomber Field, TX

## President's Report — Bob Klenke

As I write this, the First in Flight Jet Rally in Wilson, NC is three weeks away. That's the first jet event in the spring that Louie and I get to attend. I'm really looking forward to it and to seeing all of my fellow jet flyers that will be there. It's been a long winter and getting back in the air will be great!

Being a university professor, this is also a busy time as the spring semester wraps up. The end of the semester means exams, final class projects, etc. It also means that the senior capstone design projects are being feverously completed. As some of you may know, in addition to teaching computer engineering, I also run a UAV research lab where we develop flight control systems (i.e., autopilots) and electronic data payload systems for UAVs.

This year, I had a group of students who worked to develop a Vertical Takeoff and Landing (VTOL), fixed-wing UAV. The aircraft is based on a 100" wingspan off-the-shelf arf UAV kit and features the addition of 4 vertical lift motors. The vertical lift motors allow the aircraft to takeoff and land like a multicopter, but then it can transition to fixed-wing flight. The aircraft they developed is shown below.

This is not a completely new concept, even for UAVs, but generally the aircraft that are capable of this type of operation are much larger, more complex, and much more expensive. One of the unique features of this aircraft is that the flight control system, which was completely developed in-house by the students in the lab, is capable of complete autonomous flight, including multirotor takeoff, transition to fixed-wing flight, waypoint flight, and transition back to multi-rotor flight for landing.

Sorry it's not a jet, but it's pretty cool and has been quite a project for the students to complete. Because of the lousy weather so far this spring, we haven't completed a lot of flight testing on the aircraft, but it should prove to be interesting.

As far as the JPO is concerned, I have an update on one item that a lot of guys have been interested in – t-shirts! I'm currently working on getting a batch of t-shirts printed up. Here is what they are going to look like:

I should have them done in time for the First in Flight Jet Rally and have them there for sale. I'm not 100% sure of the price yet, but I think it will be around $15. After FIF, I will be putting them on the JPO webpage and offering them for order. In that case, there will be a small additional charge for shipping. I'll have more details as soon as the shirts get produced.

We have a few other things we'll be working on this year and of course, we'll be working with the AMA to represent our jet community.

This summer, we'll be attending First in Flight, Kentucky Jets, Georgia Jets, and the Fall Tiger meet. I hope you have a great flying season and hope to see you out there!

Bob

## Vice President's Report — Jim McEwen

Greetings! Several years ago I was at an event where a good friend had a fuel pump fail in a plane he'd recently purchased. We had a spare pump and I offered to help him swap the pump out in order to get the jet back in the air. Little did we know what lay ahead….

By all outward appearances it was a beautiful jet, but it was a complete nightmare to do any maintenance on. Upon removing the canopy, you saw a two foot long, full-width component board. It was beautifully painted and decorated and held only a few components from various systems (fuel, air, radio) all of which had to be removed in order to remove the board to gain access to the rest of the installation. To make matters worse, the lines leading to the components had little slack so they couldn't be moved out of the way. After breaking into the fuel system, and the air system, and removing batteries, we were able to remove the board to discover ANOTHER board underneath. This second board mounted the Powerbox, ECU, solenoid valves, air valves, and once again, the board needed to be removed to access the fuel pump. All the servo and receivers leads had to be unplugged from the Powerbox and NONE of them were labeled. We finally got the second board out to discover that the fuel pump was buried behind the UAT and there was insufficient slack in the lines to move the UAT out of the way. Eventually we accessed the fuel pump, only to discover that the original builder had modified the pump by soldering in an extension splice so the fuel pump wires would reach the ECU. So we had to modify the spare fuel pump. After we finally got the new pump installed, we then set to work reconnecting everything we'd disconnected. All in all (including testing to make sure we reconnected everything correctly), the job took about six hours. Yep, twelve man-hours to do something that should have taken 10-15 minutes with a maintenance-friendly installation.

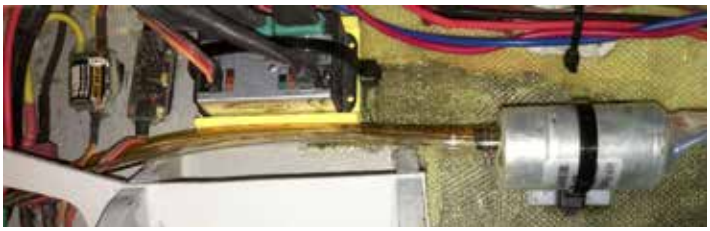
As a result of this experience, I developed McEwen's Rules for Installations. They are:

*1) You must be able to remove any component from your plane and have it in your hand in less than 5 minutes.*

*2) In order to gain access to a component, it is permissible to remove a maximum of one other component, but the 5 minute rule still applies. In other words, you must be able to remove both components in 5 minutes, total.*

It takes a bit of planning in order to perform an installation that meets these rules, but the benefits are well worth it. Not only will it be easier to fix your jet if any component fails, but the increased accessibility/visibility to all items means that you will more easily notice a problem before it's too late.

I've included some pictures of the install in my *Rafale*. As a scale jet, it's a bit more challenging than a sport plane, but, with some additional effort, it can be relatively easy to maintain. Rather than using big component boards, I like to build smaller boards or even individual mounts and install them directly to fuselage sides. Where possible I try to avoid using screws (which invariably fall into impossible to reach places) and used tie-wraps instead.



**Fuel pump and ECU installation. Small wood mounts support these items which are held in place by tie-wraps. Cut the tie-wrap and the item is quickly in your hand.**

**The retract, brake, and door valves & servos are fitted to small boards Velcro'd™ to the fuselage sides. They can be removed in seconds.**

The Spektrum batteries in the Rafale have leads which are about two inches too short to reach my Jeti Central Box 200. The batteries also have EC3 connectors while the CB200 needs Multiplex. Soldering extension wires and Multiplex connectors on the batteries would have worked, but if ever a battery failed (like that's never happened), I would have to make the same modification to the new battery. So, instead, I made an EC3 to Multiplex extension cable that was about 5" long. This enables quick replacement of the battery with an off-the-shelf unit and the extra slack makes the job that much easier.

Another thing to consider when building a jet is ease of assembly/disassembly. Unless you have a vehicle big enough to transport a fully assembled plane, some assembly/disassembly is needed every time you go to the field. For most jets, you'll have to connect a minimum of three air lines (gear up, gear down, brakes) and two servos cables (aileron & flaps). If you have fitted gear doors or lights, the number of connections goes up. A suggestion is to consider using bulkhead connectors in the wing roots that automatically connect when you slide the wing on. Once properly installed, you can't possibly cross-connect them nor will they come loose in flight. Multiplex makes 6-pin connectors (perfect for aileron/flap servos) and 8-pin connectors if you have added

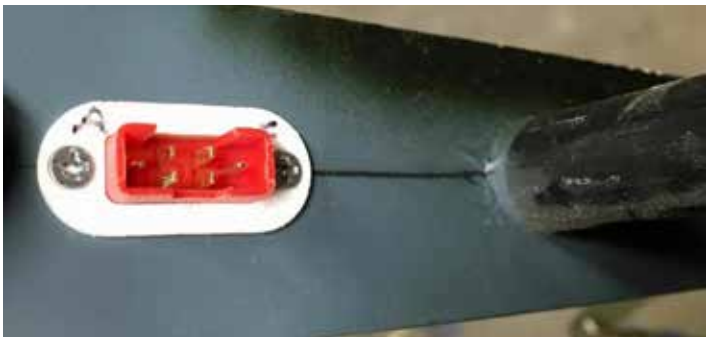
## Vice President's Report (cont'd) Jim McEwen

lights. Mount the connectors as close to the spars as possible to prevent relative movement between the connectors in flight, especially the pneumatic connectors which should have the O-rings cleaned/lubricated often.

Another suggestion is don't solder the servo wires directly to the Multiplex connector. Instead, solder short leads with female servo connectors; this way you can easily replace the servo if needed.

When I was rebuilding my *Rafale*, I took the opportunity to simplify the installation of the canards (which are removed for shipping). Removal/installation of the canards required tightening a cap screw to clamp a control horn to each canard axle. The screws could only be reached with an Allen wrench, and even then, there wasn't much room to turn the wrench. It was a challenge with the right canard where the screw faces forward, but the left side has the screw facing rearwards where it is nearly impossible to access. Invariably, the reinstallation of the left canard is accompanied by increased blood pressure, hair pulling, and at least 10 minutes of swearing. Are we having fun yet?

The solution to the problem was to modify the left control horn (so that the cap screw faces forward) and relocating a couple of items so that the screws for both control horns could be reached using a long ball driver. Now it takes about 2 minutes (and no swearing) to reinstall them.



**Plug in wing connections. They reduce assembly time and eliminate the chance of miss-connecting the servos.**

**Tightening the left canard control horn. So much easier now!**

**A Hard Lesson Learned**

I recently lost a jet in a landing incident. I bring it up as things could have been much worse and there are a few lessons to be learned by all. Here's what happened….

I haven't gotten much flying done in the last year but it was time to sharpen-up for Top Gun so I took a couple of days off work and went to a small jet rally a couple of hours away. I went to the event early to get in a few flights before the crowd arrived. I had a lot of fun chatting with people and getting ready to fly. I patiently waited until the afternoon (when most folks had finished flying) so I could fly alone.

I took off and, after being in the air a few minutes, another pilot ran up to me to tell me that he finally got his engine started (he'd been working on it all day) and he wanted to fly. I don't own the airspace so I said sure, and he took off. He and his spotter were soon busy trimming the plane out and it became apparent that this was a test flight. After about three minutes, they surprised me and called "Landing" (there was no obvious issue requiring them to land). I'd been in the air about 6-1/2 minutes and was actually about to call my landing. I replied that "I have 10% fuel remaining" (plus reserve: enough for one go around) which was, I thought, a nice way of saying please don't land now, I need to land. They replied "OK, we're landing" and set up their approach. They mis-flew the approach and had to go around. In the meantime, I dropped my gear/flaps and prepared to come in behind them calling "I'm on fumes" I told them. They landed about a bit long and both the pilot and spotter immediately left the flightline to retrieve the plane. I'm soon on final and my spotter tells me that they are back taxiing while walking along the side of the runway. My spotter is yelling to get clear of the runway but they stopped about halfway back to the pits and stood waiting at the side of the runway waiting for me to land.

During my approach the wind shifted to a 60 degree gusting crosswind so I increased my approach speed. I was a bit high (like I said, I'm a bit rusty) and needed to land long but with the pilot/spotter/plane on the edge of the runway I couldn't go long and being near out of fuel I couldn't go around. So I forced the plane down early but with too much speed and the plane bounced into the air and the crosswind caught the plane pushing it towards the pilot/spotter/plane at the side of the runway. So with there being a high likelihood of hitting them, I dumped the plane. It cartwheeled and was destroyed.

How many errors were made in the above incident? Here's a few I can think of:

1) I was out of practice but went to a jet rally to fly.

2) They should have waited until I was done before test flying their plane.

3) They could have used a taxi tank while they were waiting. since getting the engine started was an issue.

**Continued on Page 7**

# District V Report

Rex Briant

**Alabama**
**Florida**
**Georgia**
**Mississippi**
**Puerto Rico**
**South Carolina**
**Tennessee**

What a privilege it is to represent jet pilots in the Southeast, just sayin! The R/C season is in full swing now, with warmer weather and jet events spaced out evenly and even stacked on top of each other now through the end of September. Actually, at my two home clubs in the greater Atlanta area, I am seeing a tremendous increase in "turbine waiver training/process/certification requests". All of the guys I have spoken with will be great additions to the jet community for sure, many having many years of R/C experience, and now wanting to venture into jets!

We are seeing some great growth in JPO membership in our district now, picking up several since the beginning of 2017 and six more at the Mississippi event. I encourage EVERY turbine waiver holder to join the JPO and I am asking those of us that are members to get our friends that fly jets on board too!

**Mississippi Afterburner 2017 Event Coverage**

What a great time! Once again, CD Vernon Montgomery and his crew, including Dennis Lott and "Bob O" Covish did an amazing job, hosting 81 pilots from 12 states over this three day event (April 22-25). Of course, it's always a treat to have Jonathan and Joanne Smith from England with us. The weather for the most part, was outstanding with all three days full of unlimited flight line time right up until 5:00pm Saturday…when the rain finally came…just in time for everyone to head to the hanger for a world class Mud Bug, fried catfish, slow-cooked pork, homemade hushpuppies, corn on the cob, homemade cobblers, homemade ice cream banquet dinner! Final talley…200lbs of crawfish, 90 lbs of pork, who knows how much fried catfish and hushpuppies, 13 gallons of ice cream and 50lbs of Cobbler!

It was great seeing so many familiar faces, with a fantastic range of different airframes flying throughout each day. David and Kim Payne were there, bearing gifts from Horizon for the Raffle and Auction. Sport jets were still strong in *Kingats, Ultra Bandits* and *Bandits*. As a matter of fact, Bill Culberson

## District V Report (cont'd) Rex Briant

and a few of his gang had three *Bandits* in the air together pretty often each day. The new *Havoc* and *Rebel Pros* were in full force too.

Military airframe action was high too. The BVM PNP F-16, and Skymaster 1/5 F-16 were regulars on the flightline. I was able to see the new CARF F-100 up close and personal and MAN-OH-MAN, what a bird! Amazing detail and of course, Pablo Fernandez flew it like he owned it…WAIT…I think he does own it! Marcio Jorge gave his "loaded up with weapons" Fei Bao F-15 a great workout all three days also. All in all, it just could not be any better than it was, flying and hanging out with those that love what we love!

It was cool seeing some new airframes, one of which is the *"Natrix"* by Paritech out of Germany, assembled and flown by former JPO District V Rep, Craig Gottschang. This was Craig's "Winter Project" this past year, maidening it a month or so before this event. Craig put a bunch of flights on it at MS, making the airframe look great in air with some crazy big smoke trails too! Slow flight was amazing on this bird and of course, it flew like it was on rails at speed too. It is powered by a Jet Central Rhino 200 with Jeti radio. WS is 105" and length is an impressive 121" with a dry weight of 42 lbs. Craig says it's a solid airframe and great to fly.

**The peanut gallery (The Georga Jets guys) busy scoring landings.**

The final tally … Vernon shared that the event raised $11,000 (record year) for the Hinds Community College Aeronautics Scholarship Fund. Thanks to Barry Hou and Kingtech Turbines for donating a K-210 (which Greg Wright won) and also Horizon Hobby for donating a 20x to auction off (which Chris Hogg took home). Other Sponsors included BVM, Details4Scale, Scott Marr, Jet Central, Dreamworks RC, Demon Cortex and Jersey Modeler.

Until next time!

Rex

## District VII Report — Tim Toutant

**Iowa**
**Michigan**
**Minnesota**
**Wisconsin**

Hello Everyone! Welcome to my first column in *Contrails.*

Here comes another summer, with winter hopefully behind us, here in the Midwest. Today was a balmy 59 degrees and sunny, but as for me, I've got a cold and trying to nurse myself back to health. I have a new job, which in itself is hectic, as a Safety Specialist for an automotive parts assembly plant. Airplane-wise, I hope to have my new A-10 in soon. I was going to get the new FMS 70mm A-10 but have decided to wait for the new Free Wing 80/90mm offering. I was at a few jet meets last year including Canada's ThunderThrust event. It was about a one hour drive from where I live in Michigan, over the bridge in Detroit to the Chatham-Kent Airport in Ontario. It was a well attended event and there were a lot of nice jets present. I took my Free Wing 90mm *T-Bird* to fly and it was well received. I am mostly flying edfs right now, but maybe someday I'll have a turbine jet in the hanger. I hope to get to several fly-ins this year to meet all the nice people of this great hobby. For now, I have some work to do on an LX Models A-10 project and clean up the Free Wing F-16. There is quite a bit of dust in the fan and it needs to be cleaned out. Until next time, have a save summer flying season and enjoy the photos from Thunder Thrust.

Tim

**As you might be able to tell, I like A-10s! This photo is for scale documentation for a model I built (and I got to be in it!).**

**A nice LARGE *Hawk* and an edf Flight Works F-104 share ramp space at Thunder Thrust.**

## Vice President's Report (cont'd) — Jim McEwen

4) I should have clearly and loudly said "NO, I'm low on fuel and need to land now" when they announced their intent to land.

5) Upon hearing that I only had 10% fuel remaining, they could have reacted and told me to land. (As I said, there was no obvious problem requiring them to land immediately.)

6) There was no event staff to control the flightline.

7) While their jet was still on the runway, both the pilot and the spotter left the flightline making it difficult/impossible to effectively communicate with them.

8) There was no need to back taxi. They should have cleared the runway as quickly as possible especially because another plane was landing.

9) Rather than picking up their plane and carrying it away from the runway (it was ~100 feet to their pit area), they stayed at the side of the runway putting themselves at increased risk and preventing me from using the full length of the runway.

About an hour after the crash, the other pilot approached me and expressed his sympathy (he's a nice guy and I've known him for years) and said that he hoped he didn't do anything that contributed to the crash. So we had a long frank chat. Like I said, he's a nice guy.

So what can we all learn from this…

1) Don't go to a jet rally unless you and your plane are ready.

2) Speak in clear direct voice on the flightline. Keep the message simple.

3) Listen to other pilots/spotters on the flightline. Make appropriate decisions.

4) CDs, have a flightline controller. Always.

5) Clear the runway as soon as possible, don't back taxi if someone is landing.

6) Do not hang out at the side of the runway; you are at an increased risk of getting hurt.

7) Do everything possible to avoid injuring someone. Dump your jet if you have to. It's a sacrifice, but it's the right thing to do.

8) If there is an incident, behave like reasonable adults. Everybody makes mistakes now and then.

Regards,

Jim

## District VIII Report — Ron Schwarzkopf

**Arkansas**
**Louisiana**
**New Mexico**
**Oklahoma**
**Texas**

Hello from District VIII. The jet fly-in season has already started – I hope you'll be able to make it to some events this year if you haven't started yet….I've been able to make it to Tucson Jets, where we had great flying weather and camaraderie, and I just got back from Mississippi Afterburner last weekend – another great event! Those events are in other districts so I will just mention them.…In our district, I was able to attend Jets over Houston, and also the Austin ARCA club held their Jet Lag Jet Fly, which I was not able to make.

**Upcoming events in District VIII**

June 23-24: West Texas Jet Rally, Lubbock TX, Bryan McLarty CD
Sept 7-9: Greater Southwest Jet Rally, Waco TX, Larry Garrett CD

**Jets Over Houston – March 30, 2017**

Robert Bernal and the members of the Houston Bomber Field Club put on another successful event! The event drew about 40 fliers from the surrounding area. Robert was also chief cook for the now famous grilled chicken sandwiches on jalapeño buns, so this is now expected at all Houston jet flies! Plenty of other food was available, and more importantly, much flying was done.

Probably the most interesting flight was of the biggest model there, one of the new Elite Aerosports *Havocs* flown by Joey Tamez and his son Josh (photo below). Josh was expertly flying the Havoc model when the model's turbine shut down…Josh managed to roll the model upright (of course he was inverted at the time), turned the model back to the field, and passed the transmitter to his dad Joey, who did a very nice landing – as if the whole event had been practiced! The issue with the turbine has since been resolved with a more optimal UAT relocation.

At times it had gotten windy, but when doing so, the wind was mostly right down the runway. So good job for another well-run event, and hopefully we'll be down there at the next Bomber Field event!

**An edf Mig 21 landing at Bomber Field.**

**Prepare for take-off!**

**Paul Bloxham's Hawker *Hunter* - flew many flights!**

**An *Excalibur* and small *Avanti* beg for more fuel.**

## District VIII Report (cont'd) — Ron Scwarzkopf

**Vernon Montgomery's *Rebel* comes in for a landing.**

**The F-4 has a Gun Pod**

In our last column, I mentioned I was going to start on a centerline SUU-16/23 Gunpod for the Skymaster F-4 *Phantom*. Well, we have the first one finished and installed on Buck Garza's F-4 model. I've made a total of 5 of these for now – if anyone is interested in one, please contact me. Fellow jet modeler Skeet Hunt from California informed me he was in the squadron that initially tested these gunpods on F-4s – so now we have an expert on the subject! It is always interesting to hear from the folks that had actual experience with the stuff we model. I'm also starting on AIM-7 *Sparrow* missiles right now – another item that evidently is not offered for the kit.

**F-8 *Crusader* Back in Business**

David Hudson has once again been busy squirreling away time to work on his F-8 *Crusader* project. It is good to know he has continued on this project, even though I realize he also spent a lot of time doing a car restoration, and other things that get in the way of modeling. At 1/6 scale and 109-inches in length, it should have nice presence on the ground and in the air. He has also been working on much more detail to add to the model. If all goes well, we hope to see it in the air this summer for test flights. Good luck, Dave!

Well, that's all for now. Happy Building and Flying!

Ron

## Treasurer's Report — Sid Gates

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|---|---|---|---|
| **Beginning Checking Account Balance** | | | **$ 5,035.40** |
| **Income** | | | |
| **Member Dues 2017** | **$ 2,045.98** | | |
| **Member Dues 2018** | **$ 23.97** | | |
| **Total Income** | | **$ 2,069.95** | |
| **Expenses** | | | |
| **Bank Fees** | **-$ 6.00** | | |
| **Web Site Hosting** | **-$ 155.00** | | |
| **Contrails Printing** | **-$ 625.84** | | |
| **Trophies (Top Gun)** | **-$ 642.20** | | |
| **Mail Supplies** | **-$ 145.77** | | |
| **Total Expenses** | | **-$ 1,568.81** | |
| **Ending Checking Account Balance** | | | **$ 5,542.64** |
| **Current PayPal Balance** | | | **$ 47.64** |
| **Total Cash on Hand** | | | **$ 5,590.28** |

## Canada District Report

Jeff Daly

Good day everyone! The weather has been quite unfriendly to flying any sort of flying machine up here in the north. The constant cold and rain will soon be over followed by clear skies and balmy weather…at least that is our dream! Here's an update to the event forecast in Canada:

**UPCOMING JET EVENTS in CANADA**

8-11 June: Princeton Jets Spring Warm-up, Princeton, B.C.
9-11 June: Forest Jets, Forest, ON
16 (evening) - 17 June: Ottawa Valley Jets, Carp Airport, ON
21-23 July: Wingham Jets, Wingham, ON
17-20 Aug: Sky Harbour Airshow, Goderich Airport, ON
28 Sept - 1 Oct: Princeton Jets Fall Event, Princeton, B.C.
21-24 Sept: Thunderthrust over Chatham-Kent, Chatham, ON

I'd like to make a plug for the Ottawa Valley jet event, since it is organized by my local Ottawa Valley Jet Club. It is taking place at the Carp Airport on 16-17 June. Like last year it is only open after 5pm on Friday 16 June and all day (dawn to dusk) on Saturday 17 June. I know that's not ideal for most pilots, so the Phelan Club in Ottawa has kindly opened up their private facility for the pilots to use all day Friday and Sunday. Their facility has a paved strip, RV parking, shelters, and is a good site for flying lighter-weight jets and electrics.

Also, another popular event is Wingham, Ontario held 21-23 July. It is just two hours northwest of Toronto. It's an amazing facility and its easy-going atmosphere attracts 70+ pilots from across Canada and the USA. I hope to see you there.

For the Canadian pilots out there, don't forget to renew your JPO membership for 2017! Your support is much appreciated. Enjoy your flying season and be safe!

**Product Updates**

Since there have been no jet flying activities to report on, I thought I'd give some teasers (so you'll check back next issue) on a couple of Details 4 Scale products that I installed on my Skymaster F-4E.

First is their Drogue Chute system. Dan Gill did a very good design on this system, which is lightweight (being in the aft tail) and installed very well. Most of my time was spent fitting the new tail cone for a nice match. As a suggestion, I recommend installers to add a layer of medium carbon cloth to the walls of the lower aft tail section. This greatly stiffens and strengthens the structure considering the tail cone no longer provides torsional stiffness to the area. I also carry the back-end of the jet with one hand under the lower aft section, so it adds some strength for that too. For the pneumatic air source, it tapped into the air line for the down gear. That way if the servo or switch is accidentally switched on in flight, there will be no air supply until the gear are down. I have not used the system yet, so I look forward to seeing this cool chute work.

Another new product Details 4 Scale now sells is their new Multi Watt Elite Nav Light Controller and ultra-bright LED lights. I had purchased this system because his previous Multi-Watt Pro unit with LEDs did not produce bright enough landing lights that can be seen during day-light.

What a difference the new system is. This system is powerful and operates from a single 3.7V LiPo or 3.6V LiFe battery. Even though it will drive up to 17 high output lighting ports, I am just using it to drive two landing lights. The LEDs are PC board-mounted and quite small. The lights mounted onto a small mount supplied with the F-4 kit and I mounted them in a custom-made structure made from plastic zap glue covers and 1/64 ply. Using some zap and aeropoxy, I have a fairly-scale-looking dual-landing light set mounted on the forward gear door. To further enhance the LED field of light, I purchased a set of 15mm lenses from Unilight. Check out the photos.

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# IT'S TIME TO RENEW YOUR MEMBERSHIP!

**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.
Renewal can be online at: www.jetpilots.org via PayPal or credit card; or you can fill out and send with check or money order made out to: "The Jet Pilot's Organization" to:
Sid Gates, JPO Secretary/Treasurer, 2380 S. Holly Place. Denver, Co 80222

At the Mississippi Afterburner, the JPO TopGun Trophy went to Alabama's own Mike Williams for his incredible passion for the hobby, how he promotes it and his encouragement to the jet community as well as his tenacity to fly jets.