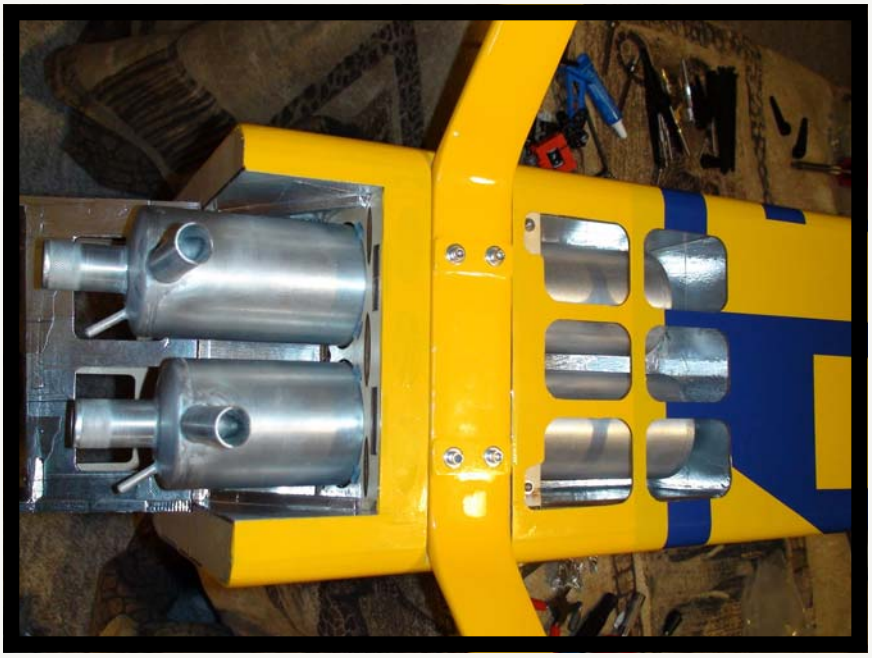
Newsletter of the State College Radio Control Club

FLITE LINES

JANUARY, 2010

VOLUME 1, ISSUE 1

Building Season is Underway



Matt Chapman 85~100cc EAGLE 580 — Jon & Caden

Jon's current project is this 100cc CAP 580 shown above. This particular version of the CAP is designed around a different exhaust than that which is being used. Two 3W tuned exhaust canisters are being fitted into the fuselage in an effort to reduce the noise signature of this model. Some modification is required because of this change including an aluminum surfacing of the area surrounding each canister to reduce the heat absorbed into the airframe. The small fitting on the canisters is for smoke fluid and comes standard on the 3W cans. The current plan is to have a removable smoke system in an effort to keep the all-up weight as low as possible for 3D maneuvers. Pop the smoke system in the airframe and it's IMAC precision with the trail to prove it (or disprove in my case). *See page 4*

First to Fly in 2010

The State College Radio Control Club brings in the new year "RC" style as Woody and Bob start the day with a full scale flight in a Champ outfitted with ski's. Sam Stitzer then continues the fun with the first RC flight for the club. Although Sam started out with some metal ski's, he soon traded up for wheels when he noticed that the ski's had rotated into large vertical flaps. A quick tap on the ground seemed to fix the problem until one tether came off and rotated only one ski into an asymmetrical "air break" condition. *See page 3*

UPCOMING EVENTS:

NEXT MEETING — 1/5/2010

INDOOR FLYING — 1/17/2010

WINTER BANQUET –1/23/2010

CLUB CONTACTS:

PRESIDENT:
Ron Lueth – 814-266-2626
rdlueth@gmail.com

VICE PRESIDENT:
Robert Krankel – 484-802-7499
rhk110@psualum.com

SECRETARY:
Daryl Allen – 814-353-8294
darylcallen@msn.com

TREASURER:
Al Jones – 814-237-2284
speedydixiedoc@gmail.com

NEWSLETTER:
Jon Guizar – 570-263-0353
jon@ncc-bridges.com

FIELD MARSHAL:
Elwood Struble – 814-238-8118
woodystruble@verizon.net

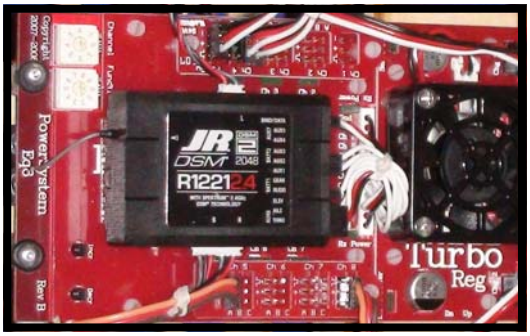
SAFETY OFFICER:
Hugh Zinsmeister – 717-667-2406
hlzins@gmail.com

WEBMASTER:
Al Niessner – 814-234-6931
alniessner@psu.edu

INSIDE THIS ISSUE:

Technically Speaking

by: Jon Guizar



Smart-Fly EQ6 Turbo - Power Expander

"YOU COULD HAVE A DEAD SHORT IN WIRING ON ONE SERVO WHILE THE OTHERS CONTINUE TO FUNCTION NORMALLY AND THE RECEIVER IS COMPLETELY UNAFFECTED BY THE EVENT."

Several folks have asked me about power expanders and/or multiple servos on a single flight control. This photo is my latest setup in the CAP 580 project. The CAP is designed around 10 servos. In this particular case the JR 1221 receiver could have done the job alone but not without some potential risks. Because the ship uses digital servos with a coreless motor the potential for relatively high current draw through the servo is very real. A quick test by applying a small load to the rudder revealed a current draw of nearly 1.5 amps for just one servo. Multiply that by 8 or 10 servos and it's not a stretch to see a 10 to 15 amp load being passed through the receiver. This constantly varying load produces a corresponding constantly varying voltage to the receiver which in turn maximizes the possibility of interference thereby causing frame losses and holds from your receiver. As such, it didn't take me long to realize the benefit of the EQ6.

"MULTIPLY THAT BY 8 OR 10 SERVOS AND IT'S NOT A STRETCH TO SEE A 10 TO 15 AMP LOAD BEING PASSED THROUGH THE RECEIVER."

This little gem provides a constant 5.0 volts to the receiver regardless of the load being delivered to the individual servos. I needed to see that for myself so I connected a voltmeter to the receiver and observed while applying a variable load to multiple servos and the voltage never changed even 0.1 volt. Nice smooth & clean power at a constant value.

While the built-in regulator feature on the EQ6 turbo filters the power supplied to the receiver, the servo outputs offer many other features as well. Among the top features for this application were servo matching, independent center and endpoint adjustment on all servos individually, and endpoint hold for setting up the maximum throw on each servo / control surface. The ability of the EQ6 to isolate each servo from the others as well as from the receiver also provides a big boost to the reliability of the overall system. In layman's terms...you could have a dead short in wiring on one servo while the others continue to function normally and the receiver is completely unaffected by the event.

Servo matching on a single channel is made easy. Servos a, b, & c can be set and matched without ever unplugging the other servos. In the case of 2 servos on a single aileron you would start with servo a by setting the center point, then each end point to the high rate specs for your application. When you begin to program servo b you can place an ammeter inline and balance that servo to the lowest current draw at the three points. In my application the current draw goes to zero at the center point.. When completed, you now have two servos working in harmony to hold the control surface in the commanded position.

The last two features of the EQ6 to present for this article are the failsafe switching and the fiber-optic ignition cut-off switch.

The failsafe switch operates by actively preventing power to the system such that any malfunction of the switch or broken wiring reverts the system to ON, even if the wiring comes completely disconnected from the EQ6. Once again another failure point is eliminated.

That leads me into the fiber-optic cut-off switch. For any battery powered ignition system, the EQ6 emits a signal through a fiber optic cable to a receiver at the ignition module. Should the receiver be locked out for any reason the EQ6 will shut the ignition off. Furthermore, should a throttle servo malfunction or even if the linkage to the carburetor was broken or disconnected you simply turn off the ignition from your transmitter to "save the day."

In closing I would have to say that the EQ6-Turbo seems to be a fine product that addresses many safety, operational, and setup issues that we face especially as we move into large or giant scale models. If you either have or are considering expanding your fleet with a model suited to this type of equipment, I would recommend keeping the smart-fly line on your equipment short-list.

First to Fly *(continued)*

Sam wisely brought snoopy in for a quick change back to tires and continued to fly. Al was next in line to fly and was able to navigate the snow with little effort for takeoff and landing. Al's yellow bird was a nice sight against the all white background that mother nature had set for us.

Woody was close on Al's heels for getting in the air with his glow-driven float plane. Startup was

quick, a little tweak of the mixture, and Woody was off and flying with a skidding takeoff turn as the floats easily slid on the fresh snow. Once airborne in the morning calm, the float plane was looping and rolling. When asked where the other members of the club were Sam quickly reminded me that this was absolutely a hangover-dependent event and that others would no doubt soon arrive.

Caden was the next in the air and was also able to log the first USB flight in the club.

When I call it a whirly bird I am quickly reminded that it is a "USB." Caden is still working on what that stands for so "USB" it is. Well, Sam was right, then came the next round of flyers to the field. Ron and Henry were next in line. Ron proudly accepts the first crash of the year award as he launches his flying disc with the transmitter set to high rates. The 5-second flight ended with a broken motor mount so that plane went in for service as others were summoned to the flight line.

The flat-out foamie was smooth sailing and Ron was able to get some good stick time with loops, rolls, and hovers before the wind really started to pick up a bit. Meanwhile, back at the hangar, Henry and his crew of on call mechanics were hard at work tuning and tweaking so he could get in the air. It didn't take long and Henry was up for round one.

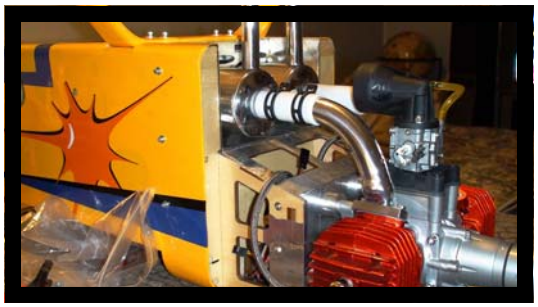
See page 4

FIRST TO FLY GOES TO SAM STITZER.

RON LUETH IS THE PROUD OWNER OF FIRST TO CRASH

FIRST LOGGED FLIGHT OF A "USB" GOES TO CADEN GUIZAR

Building Season *(continued)*



3W-110 CS Engine with tuned canister exhaust

The 12.8 horsepower engine combined with a 3W 26/11 three-blade propeller should keep the noise level to a minimum while still providing enough thrust to accelerate vertically. Several modifications from the kit are underway including the exhaust system, the electronics configuration, and a split cowling with full engine baffling for proper cooling. The current projected all-up weight is in the low to mid 26-pound range and slightly higher for IMAC with the smoke system in place. The rest of the winter will be detailing the little things and finishing the split cowl / baffling project. Leah says the whole thing is great if I can just figure out the last two details of the project.

1. Getting the 8' long plane out of the basement.
2. Getting the plane and gear to the airport.

Rebuilding the cowling after cutting the top off

FIRST DEAD-STICK LANDING GOES TO HENRY MARGUSITY

FIRST HELICOPTER FLIGHT GOES TO JON GUIZAR

First to Fly *(continued)*

Round one was a short flight and Henry was able to get in the first dead-stick landing of the year. No worries though, his mechanics were on triple holiday pay getting him back in the air after some tweaking, turning, and swapping out the glow plug. Henry was able to get back in the air in record time for some fun flying and smooth landings.

FIRST GLIDER FLIGHT GOES TO TODD COOK

I was then able to log the first helicopter flight for the club around the same time Todd was trying to test his long range vision by flying a mostly white glider against a near all white back drop. All of this of course took place just as the winds were really starting to pick up. As seen in this picture of Todd *after* the flight, he was happy to have his glider back in-hand and in-tact. That pretty well concluded the events for the day. While some faired better than others I believe it is safe to say that we all had fun bringing in the new year "SCRC" style.

From the Editor

Welcome to 2010 ! We have some new faces on the board *and* in the club as we once again begin a new year. Also new for 2010 is the club's newsletter.

I am hopeful that you find the all new "Flite Lines" to be a useful tool in keeping up to date with the happenings of the club as well as a resource for names, numbers, and dates when the computer is just not available. I would encourage all to offer feedback on any and all aspects of the newsletter so that we may continually improve on what I have offered in this issue.

I too am relatively new to the club and to RC flying. I began in Feb. 2007 by trying to teach myself to fly a trex-450 helicopter. I find RC to be a very rewarding activity and look forward to many years of enjoyment and sharing with my son Caden who is now hooked on the sport at age 4. Caden is also a member of the club now and will likely attend meetings with dad.

I am also a full scale pilot of 20+ years and enjoy those conversations as well.

As for the *new*sletter, you will notice a sponsor spot on the last page. To offset some of the costs associated with printing, mailing, etc., I am accepting sponsorship for a nominal annual fee. I would also encourage ads at a different fee structure if you know of any interested parties. The newsletter will be distributed via email, and web as a .pdf file for easy viewing in its native layout. I will also make some hardcopies available for those in need of that format.

Enjoy and Happy Flying,

"I FIND RC TO BE A VERY REWARDING ACTIVITY AND LOOK FORWARD TO MANY YEARS OF ENJOYMENT AND SHARING."

Meeting Minute Highlights *(condensed version of Daryl Allen's December report)*

Treasurer:
No payments since last meeting. Only income from 50/50. Treasurers report was approved.

Old Business:
Motion carries for future meetings to be held at CPI in Pleasant Gap. Field Search—No new developments. Indoor flying at Our Lady of Victory postponed until insurance details are finalized. Motion carried for up to $40.00 to be spent toward additional insurance rider if needed. Nomination committee read proposed slate of officers and opened floor for additional nominations. No additional nominations provided so unanimous vote to accept nominations was recorded. New officers for 2010 are listed on page 1. Motion carries for 2010 winter banquet to be held at the Autoport on January 23rd. The cost is $16.50 per plate and details will follow.

New Business:
AMA safety rules were offered to those in attendance. Club dues to be paid by the March meeting. Jeff offered to order glow fuel for all those willing/wanting to order. For the January meeting Rob Krankel will present a program on aeronautical design.

Show and Tell:
George Mock showed his GWS Slow Stick equipped with the following: Camera Mount, 400xt Motor, Carbon Fiber Gear Struts, and more. Rob Krankel performed an impressive flight with his E-Flight Blade msr micro heli. Jon Guizar brought a 26/11 carbon fiber 3-blade prop and spinner that will be mounted on a giant scale Matt Chapman project that is underway. Daryl Allen showed his scratch built aerobatic indoor stick-type plane that is under construction. The intent is a 30" wingspan acrobat made from 6mm Depron Aero foam (formerly known as Gediplac). This foam is sold by RC foam and is 20% lighter than regular Depron. Daryl's 6mm wing should be stiffer, tougher, and likely no heavier than a 3mm Depron wing with an excess carbon fiber support.

Complete Meeting Minutes are on the Web.
http://www.scrc-club.com

"MOTION CARRIES FOR FUTURE MEETINGS TO BE HELD AT CPI IN PLEASANT GAP."

Newsletter Sponsors

Submissions:
Our club welcomes and encourages all submissions to our newsletter. Please send your articles, artwork, photography, editorials, equipment evaluations, trip reports, and other material to the editor for inclusion in upcoming issues.

Editor
c/o Jon Guizar
1318 Joanna Drive
Bellefonte, PA 16823

You may also submit materials via email to jon@ncc-bridges.com

AMA CHARTER NUMBER 682

VISIT US ON THE WEB

http://www.scrc-club.com

Webmaster: alniessner@psu.edu

JANUARY 2010 *CLUB CALENDAR*

SUN	MON	TUE	WED	THU	FRI	SAT
					1 1st Flight	2
3	4	5-Meeting	6	7	8	9
10	11	12	13	14	15	16
17 OLV Fly	18	19	20	21	22	23 Banquet
24	25	26	27	28	29	30
31						

State College Radio Control Club
c/o Editor: Jon Guizar
1318 Joanna Drive
Bellefonte, PA 16823

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