R/C REPORT ONLINE!

July 2011
Issue 300

RC REPORT ONLINE

OFFICE NOTES

Happy Independence Day! Please enjoy the holiday responsibly!

We are finally experiencing some relief from the recent dry-spell here in North Alabama. In typical Southern fashion, we are now complaining about the rain and how many times a week we have to mow the lawn! The 90 degree weather makes it a little too hot to fly comfortably, but the constant thunderstorms make it impossible!

We have lots of interesting tidbits in this issue for all of you! Enjoy!

Ed Moorman is back among us this month. He's been hard at work in "real life" lately!

Don't skip over Mail Call this month! Other readers have some questions and there is good news for Nook users.

There are a couple of new listing in Classifieds this month! Take a look!

Sadly Photo-ops is a big fat zero this month! Many thanks to all of you who have recently sent in items! More would be appreciated! Pictures and write-ups are always welcome, whether it was your event or one you participated in at another club.

In case you missed it before, here's a little technical news for you. Some subscribers have been experiencing some issues with Adobe X. At the moment, our site is not compatible with this software. We encourage you to stay with Adobe 9 for the time being

Communication is still the key word for 2011! If you don't contact me about a problem; I can't correct it. It seems that the main issue people have is the inability to login. It's a simple fix. An email is normally all it takes. On rare occasions, a phone call might be needed. The next biggest complaint is regarding the PDF download. Again, I can help you with this.

There is no reason, if you have a premium subscription, that you would not be able to download the PDF. I can't stress enough, if there is a problem; please contact me. I want you to be satisfied and be able to enjoy RC Report Online.

We are still socializing on Facebook. Join us! Click the Facebook icon to go directly to our home page!

Kindle users; email me if you would like to receive the Kindle version of the magazine via email. Nook users, the Kindle version is not compatible with your reader. We have yet to look into the Nook, but promise to try and do so soon.

Bye for now,

Julia

Smile! You could be the next Winner!

Smiley Face Contest #7 2011!

Throughout this issue we have placed five or more Smiley Face Figures like the one shown here (☺), but as before this page doesn't count. Write us and tell us where at least five are, and you'll be eligible for a random drawing in which the winner will receive a free 12-month Premium Subscription to RC Report Online. The subscription may be used as a renewal or be gifted to someone else. Winners will be selected by a random drawing from all the correct entries received no later than July 31, 2011. No entries will be accepted after this date. Entries must be sent via US mail or E-mail only, and reference the correct contest number in subject line or address. Hobbico employees, RC Report Online employees, columnist and advertisers are ineligible for prizes. No Purchase Required. Valid in USA and Canada only. smileys@rcreport.net Subject line: Smiley Face Contest #7 2011

US Mail: Smiley Face Contest #7, 2011 PO Box 12051 Huntsville, Al 35815

All terms subject to change without notice. This contest is void in any area, state, or locality where taxed or prohibited.

For June, I have 8 smileys and 1 sad smiley.

Thanks,

Larry

Dear Julia,

Why do I do this? When I know that I need only five smiley faces I still scan the entire magazine looking for more after finding the first five. It must be an obsession with making things complete since it serves no other purpose. Maybe this month it's also because I was so happy to see you back on line that I wanted to look the whole issue over from "cover to cover." Thanks for making it back with us this month and please keep on coming!

I found eight smiley faces, the first six on the even-numbered pages 30, 32, 34,36,38,40 and the other two on odd-numbered 41 and 43. I've never seen you pay that much attention to the Oily Hand feature, but Brian deserves the attention, he's such an asset to the magazine.

Frank Maguire

Glad you didn't get blown away in all the storms! Maybe that is why you put a frowny on P6, all the rest are smileys :o) BTW, welcome back!

EIGHT

Daniel Schaller

I found 8 this month. Every other page of "the oily hand" and "prop cuts".

Dan Yaeger

EIGHT!

That is all for this month and greetings from a warm North Dakota.

Manfred Decker

Still loving the smileys! The winner will be contacted and announced in the September issue. The winner will receive a 12-month premium subscription to RC Report Online. Keep searching those articles and columns.

Total Smileys for the June 2011, issue was EIGHT.

April's winner is Daniel Yaeger of Tonawanda, New York!

Thanks for your submission, Daniel!

Julia Coberly

Mail Call

Well, folks keep your questions, comments and jokes coming.

Julia,

I downloaded the RCRO PDF file to my computer, then copied it to the "My Documents" folder on my Nook via the USB cable, and it opens and reads just fine, graphics, ads, and of course "Smileys" and all.

W4VTH, the Skipper
H. B. "Skip" Delius

Hello!

I\'m hunting a "lozenes pattern covering" that is on a giant scale D7 a friend has; three color pattern – blue, pink and mauve. Any info appreciated. Please contact me at tuckearl@comcast.net.

Chuck Browning

Got this one from Larry!
Curtis and Leroy saw an ad in the Starkville Daily News Newspaper in Starkville, MS, and bought a mule for $100.
The farmer agreed to deliver the mule the next day.
The next morning the farmer drove up and said, "Sorry, fellows, I have some bad news, the mule died last night."
Curtis and Leroy replied, "Well, then just give us our money back."
The farmer said, "Can't do that. I went and spent it already."
They said, "OK then, just bring us the dead mule."
The farmer asked, "What in the world ya'll gonna do with a dead mule?"
Curtis said, "We gonna raffle him off."
The farmer said, "You can't raffle off a dead mule!"
Leroy said, "We shore can! Heck, we don't hafta tell nobody he's dead!"
A couple of weeks later, the farmer ran into Curtis and Leroy at the Piggly Wiggly and asked, "What'd you fellers ever do with that dead mule?"
They said, "We raffled him off like we said we wuz gonna do."
Leroy said, "Shucks, we sold 500 tickets fer two dollars apiece and made a profit of $898."
The farmer said, "My Lord, didn't anyone complain?"
Curtis said, "Well, the feller who won got upset. So we gave him his two dollars back."
Curtis and Leroy now work for the government
They're overseeing the Bailout Program.

From Dick! Thanks!
This guy is sitting at home alone when he hears a knock on the front door.
There are two sheriff's deputies there. He asks if there is a problem. One of the deputies asks if he is married, and if so, can he see a picture of his wife.
The guy says "sure" and shows him a picture of his wife.
The sheriff says,
"I'm sorry sir, but it looks like your wife's been hit by a truck."
The guy says, "I know, but she has a great personality and is an excellent cook."

~It's Classified~

Non-Commercial Ads

Ads from subscribers are published free of charge for one month on a space available basis. Free ads are limited to one per subscriber per month and may contain up to ten items. Add $1.00 per each item over ten. Add a photo for $5.00. Please email your ads to juliac@rcreport.net. Include your name and email address. Phone numbers are optional. Modeling items only!

Commercial Ads

Commercial Ads are those offering a service, more than one of the same item, soliciting business, etc. If in doubt, call or email for details. Commercial rates are $.25 per word and must be prepaid. Please contact the office for special multiple-month discounts. Cancellations will be accepted by mail, email or phone, but are non-refundable.

RC Report Online Classifieds

PO Box 12051

Huntsville, Alabama 35815

FOR SALE

Goldburg Sukoi: New never flown. 72"WS powered with a Webra 120-2 stroke engine. Complete with radio Fill the tank and fly. New engine must be broken in. Multicolor covering. $600.00

Ace 4-120: This is a big bi-plane. 72" top wing. Bottom wing is 60". Powered with YS 120 4 stroke engine. Plane has never been flown. Engine has less than 1 hr. running time. Model has been modified with a tapered top wing and a taller rudder for more rudder control. Complete with radio. Fuel it up and fly. $600.00

Goldberg Extras (2): #1 is the older version. #2 is a newer version.

#1 has a YS 4 stroke engine. #2 has a ST 2000 2 stroke engine. Neither has ever been flown. Complete with radios. Fuel and fly. Multicolor covering on both. $600.00 each.

Thunder Tiger Trainer: Never flown. ST.60 engine. 72" WS. Complete with radio. Fuel up and fly. $200.00

Leo L. Humenick Sr. Email at leosr@pa.metrocast.net.

I have some magazines from the 60's and 70's and on thru the 90's that someone might like to have at a fair price. They are American Air Craft Modeler, R/C modeler Magazine, Model Airplane News, Flying Models, and even some Model Boating magazines. I also have a 1965-66 World Engines Catalog. Would say their condition runs from fair to excellent. If interested, call or email me at 406-227-5924 or rsprau2@msn.com and we could work something out.

Dick

PHOTO OPS


DON'T WANT TO LOOK AT THIS BIG RED DOT NEXT MONTH?
WELL, SEND ME YOUR PICTURES AND I WILL MAGICALLY MAKE IT DISAPPEAR!

Rhinebeck South Jamboree 3 by Robert (Bob) Temple

The weather gods smiled upon us once again for our third annual Rhinebeck South Jamboree sponsored by the Palm Beach Radio Control Association and held at Westervelt Field, West Delray Regional Park, Delray Beach, FL. Civilian and military aircraft built prior to the end of 1939 qualify for entry in this event. Research revealed that the B-17, B-25, P-38, and AT-6 qualify.

Bob Temple's B-25 qualified as it was in production in 1939

Contest Director Mike Knight on left, showing off one of his 3 trophies and assistant CD Jim Perdue.

Trophies are given in three categories: Spectators' choice of best civilian and military aircraft, Pilots' choice of three best civilian and military aircraft, and the Col. Art Johnson trophy for the most outstanding aircraft. This year the spectators chose Mike Knight's Gilmore racing plane to win the civilian category and Doug Smith's B-17 for the best military entry. The pilots chose Mike Knight's Stinson SR9, Vicar Hernandez' T-craft, and Butch Wenrich's Aeronca C3 to win in the civilian category. In the military category, the pilots chose Buc Scherer's Eindecker, Walt

Bob Temple's Handley Page 400 did not fly at this event but was flown at Rhinebeck, NY in the 70's and now resides with its 5th owner.

Very special thanks to Mike Knight for his work as CD this year. We also thank our friends and R/C dealers for their generous contributions. Included are Sig Manufacturing, Tower Hobbies, Micro Fasteners, Heliproz, R/C Revolution, Frank Tiano Enterprises, Aero Works, Cosmic R/C, 3Gs Hobby Shop, R/C Report Online, Outback Steakhouse, and Lynn University. We also thank Steve Westervelt for the T-shirts and Pedro Jordan of Publix Markets for the food and beverage donations. Thanks, once again, to Artie Mundell, our able photographer, and graphics expert Joe Mannino. Our special thanks go out to Chris Stellas for the coffee and doughnuts. There are too many volunteers to mention by name, but we thank all of them.

Walt Mouchas Bristol Scout, scratch built of course; what else is new?

Jay Echler with his Fokker D8

Don Selen and Ken Harding. Don's Waco is Great Planes' latest and is powered by a G26

Contest Director (CD):	Mike Knight
Assistant CD:	Bob Temple
Assistant CD:	Jim Purdue

Doug Smith's B-17 has been flying for the past ten years in many, many Florida events

SFRCF AND LNRCFC BUILD A PARADE FLOAT

On June 4, 2011, the Sanderson Field RC Flyers (SFRCF) and the Lake Nawhatzel RC Float Club(LNRCFC) participated in the Mason County Forest Festival's Paul Bunyan Grand Parade at Shelton, Washington. The clubs have participated together in the parade in previous years. This year, the clubs decided to rebuild the float.

The float was built on a trailer donated by a member of both clubs, Burt Daggett. The trailer is 12X16 feet after two-foot hinged extensions were added to each side.

After several discussions during club meetings and with "detailed engineering," construction began on May 16.

Detailed Float Engineering

Construction began by bolting pressure treated 2X6 boards to the trailer frame and screwing a 3/4 inch plywood floor to the boards. The plywood floor was then covered with a wood preservative. At this time, 2X4 extension supports were built into the floor to support the hinged extensions. From the beginning, the clubs decided to "do the job right" so as not to have to rebuild the float again next year.

After giving the preservative a week to dry, the central pyramid was constructed, adding additional mounting surface for RC aircraft. The trailer extensions were then hinged to the trailer sides and received a coat of wood preservative.

Bob Treinen(L) and Bob Beatty(R) Construct the Pyramid

Thanks to Royce for sharing with us again this month! Great job!

Dick Robb(T) and Bob Treinen(B) Hinge the Extensions

Chuck Kentfield Rolls On the Wood Preservative

After allowing time for the newly applied wood preservative to dry, a work party assembled to cover the float with outdoor carpet. At the same time, visible parts of the trailer frame received a coat of green paint. The trailer was now ready for selection and positioning of the RC aircraft.

Burt Daggett(L), Dick Robb(C), and Bob Beatty(R) Staple the Carpet

Dick Robb Applies the First Coat of Paint

A week before the parade, club members brought their aircraft to the float. This year, the selected aircraft included war birds, float planes, and helicopters. Once the aircraft for the parade were selected, the club members determined positioning for them on the horizontal and vertical mounting areas.

Burt Daggett(L), Bob Treinen(C), and Chuck Kentfield(R) Position the Aircraft

For many of the aircraft mounted on the horizontal surface, supports were cut, epoxied, and painted to raise the tails so that parade spectators would be able to see the whole aircraft fuselage.

Dick Robb Cuts the Tail Supports

Painted Supports

1-Hole 'D' Ring Hangers were screwed into the plywood base for aircraft mounting. Small bungee cords and tie wraps were used to hold the aircraft to the hangers. After positioning and trial mounting, the aircraft were removed--but the "D" rings were left in place for parade day. For reference later, pictures were taken of the float before removing the aircraft. The float was ready for final preparation on the day of the parade.

1-Hole 'D' Ring Hangers

On parade day, club members assembled early in the morning to complete the float. The aircraft were positioned and mounted securely and a green skirting was attached to the sides of the float. Members could then stand back and admire the completed float.

Darcy Niebeling(L), Bob Beatty(C), and Bob Treinen(R) Secure the Aircraft

Mary Daggett Attaches the Float Skirt

Shortly after 11AM, the float entered the parade route for its trip down Railroad Ave., Shelton, WA. A beautiful hand-made quilt by Burt and Mary Daggett graced the rear of the float and spectators could buy a chance to win the quilt. Money from the raffle will be given to SFRCF.

In the Paul Bunyan Grand Parade

Special thanks to Chuck Kentfield, Bob Beatty, Burt and Mary Daggett, Gordon Osberg, Dick Robb, Jay Lowe, Bob Treinen, and Darcy Niebeling for their help with the float. Thanks to all who may not be on the list above and who gave their advice and support to the float project.

From Left to Right: Jay Lowe, Bob Beatty, Darcy Niebeling, Gordon Osberg, Richard Robb, Bob Treinen, Mary Daggett, and Burt Daggett

Image Notes:

All images were taken by the author using an older point-and-shoot, 5.1MP, HP Photosmart R707 camera. The images were processed in Adobe Photoshop in six steps as follows:

1. Crop the desired portion of the image to 400px width,

2. Adjust the Shadows and Highlights, especially to bring out shadow detail,

3. Use a gentle Unsharp Masking to sharpen the image somewhat,

4. Use curves to provide a bit more contrast between shadows and highlights,

5. Put a black 1-pixel stroke (or boarder) around the image, and

6. Optimize the image for the Web by saving as a 72 pixels/inch, very high quality (80) JPEG.

The processing creates images for the Web that have good detail but load quickly over the Internet. For display, the images can be resized to a smaller image without loss of detail but are degraded if resized to a larger image size (without specialized software).

Royce Tivel

ASTROWINGS OF WISCONSIN

Presents our 22nd annual charity

Fun Fly

To benefit Troop 840 of the Boy Scouts

Astrowings will be partnering with local Boy Scout troops to host the annual Fun Fly. Every year the Boy Scouts have been a tremendous help by managing the parking for our event. We will be donating a portion of the Fun Fly proceeds to them.

Saturday, July 16
(rain date July 17)
9 a.m. to 4 p.m.
PUBLIC WELCOME

Scale planes ◆ Jets ◆ Warbirds
Acrobatics ◆ Helicopters

SCHEDULE	
8:00 a.m.	Pilot Registration—$5 Fee
8:30 a.m.	Pilots' Meeting
9:00 a.m.	Open Flying Begins
Noon	Flying Demonstration
3:30 p.m.	Pilots Raffle Drawing

PILOTS:
Registration Fee: $5
AMA Membership required to fly
Pilots Prize Raffle

For more information contact:
Jim Hendrickson, VP Astrowings
414-358-9501

Or visit our Web site:
www.astrowings.com

Directions:
From Milwaukee take I43 north to Exit #93 (Hwy. 32 East)
First road on the right will take you to the parking area.
(Approximately 22 miles from downtown Milwaukee)

AMA Sanctioned Event

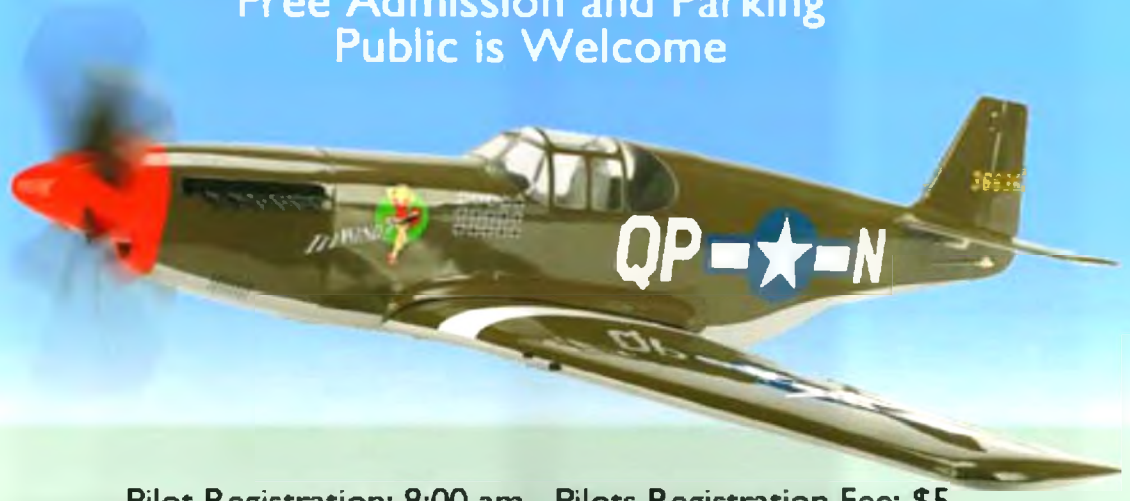
Don't miss our Electric Fun Fly & Swap Meet August 27, 2011

AstroWings of Grafton Wisconsin
All Electric Fun Fly and Swap Meet

Saturday, August 27- 9am to 4pm

Rain Date: August 28

Flying Open to all AMA Members
Concessions and Facilities on Site
Free Admission and Parking
Public is Welcome



Pilot Registration: 8:00 am
Pilots' Meeting: 8:30 am
Open Flying Begins: 9:00 am
Swap From Your
Trunk or Tent: 8 am-2 pm
Raffle Drawing: 3:30 pm

Pilots Registration Fee: $5
AMA Membership Required to Fly
Electric Planes Only

Grand Prize: E-flight P51B!

50/50 Raffle Every Hour

This is an AMA Sanctioned Event

For More Information Contact
Steve Tarney, AstroWings President
at 414-351-5015,
Jeff Thompson at 414-704-5900,
Mark Koerner at 414-254-6355
or visit us at AstroWings.com

ASTRO•WINGS
WISCONSIN

Directions
I43 exit 32 east
First road on the right will take you to the parking area.
(Approximately 22 miles from downtown Milwaukee)

CANYON CROSSWINDS 2011 EVENT/ACTIVITY SCHEDULE

EVENT	ACTIVITY	Date(s)
Swap meet & Fun Fly	General swap meet and gueat flying - All day	April 2, 2011
Scale Fun Fly	Guest flying, scale demonstrations, raffle prizes	June 11, 2011
Fourth of July	Members and families only fun fly, BBQ, and fireworks	July 4, 2011
3D Heli Jamboree	Guest flying, 3D demonstrations, overnight camping	Sep 9,10,11, 2011
Float Fly, Lake Castaic Lagoon	Guest flying, raffle prizes	September 17-18, 2011
Castaic Days	Demonstration Booth	September 24-25, 2011
Night Flying - Monthly	Night flying the first Friday of each month starting May 6, 2011	May 6, 2011 thru September

Charm City IMAC Challenge

July 9th & 10th, 2011

Friday July 8th set aside as a practice day

Basic - Sportsman - Intermediate - Advanced - Unlimited

Unknowns for All Classes. (optional for Basic) Freestyle Encouraged.

We will break in the early afternoon on both Saturday and Sunday for Freestyle.
IMAC and AMA rules apply with the following exception: No Sound Testing

Entry Fee: $30*

***includes $10 discount for IMAC members. $40 w/o IMAC membership**

NOTE: $25 Entry Fee for Basic Contestants**

** $10 discount for IMAC members. If you have not yet joined IMAC, $25 Basic entry fee will also pay your IMAC dues.

Delicious Grilled Food Served Each Day. Camping Available at field. NO HOOKUPS.

If you have any questions or concerns, contact either Art Vail (410-925-6306) (artvail@verizon.net) or Nir Schweizer (301-257-9888) (Nir.Schweizer@verizon.net)

Pre-Registration Form

tear off at dotted line

☐ YES, I am interested in attending the ***Charm City IMAC Challenge*** and I would like to participate. I've enclosed my payment. ☐ $40 ☐ $30* ☐ $25** ☐ $15***

* IMAC discount ** Basic Contestant without IMAC discount ***Basic Contestant with IMAC discount

NAME: _____ (First Name / Last Name) E-mail: _____

ADDRESS: _____ (Street / City / State / Zip)

TELEPHONE: (____) _____ (H) AMA # : _____

(____) _____ (cell) IMAC# : _____

CLASS: Basic Sportsman Intermediate Advanced Unlimited
Please circle one

Please make payment out to "**SWAP Modelers**", and mail to:

Charm City IMAC Challenge
c/o Art Vail
1327 Sulphur Spring Road
Arbutus, MD 21227

Note: If you are planning to come, but don't wish to pay ahead of time, please email me with your information so we can speed up registration the day of the contest. Thanks. Art Vail artvail@verizon.net

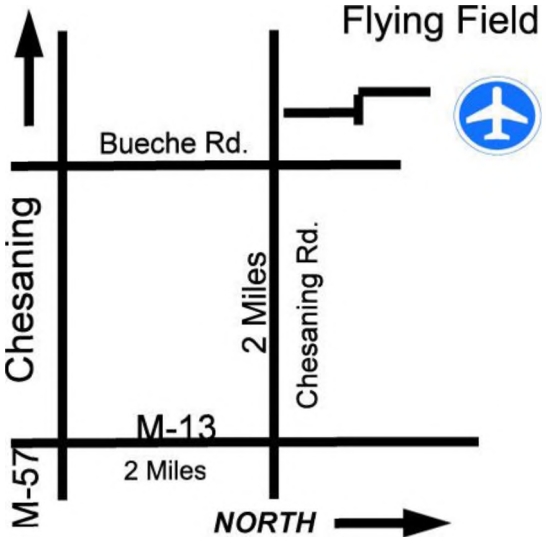
CHESANING AREA MODEL FLYING CLUB

7/9/2011 - 7/10/2011 -- Maple Grove Twp, MI (C) ***SPORT SCALE FUN FLY.***

Jim Breidenstein CD, PH: 810-241-2541 Email: foundryratjim@charter.net. Visit: chesaningrcclub.org.

Event for RC Sport Scale models of powered planes, gliders, helicopters and control line models of the same. Must meet 98db at 25'. Non competitive event, landing fee is a canned food donation or money for the same.

Sponsor: ***CHESANING AREA MODEL FLYING CLUB INC.***



FLOAT FLY
FALCONS OF LAKE DALLAS
JULY 30,2011

WILLOW GROVE PARK
LAKE DALLAS, TX
899 Hundley Dr
Lake Dallas, TX 75065

- Sign In 0900
- Fly All Day
- $15.00 Landing Fee
- Retrieval Boat
- Transmitter Impound
- AMA Sanctioned
- Camp Sites Available
- Bring your lunch - cokes and water will be provided

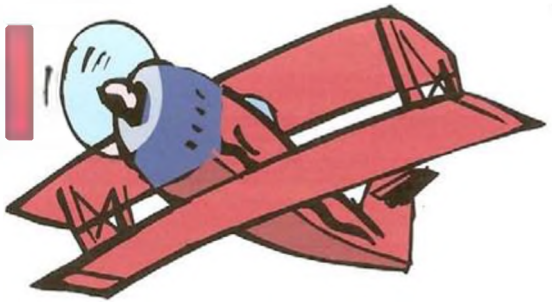
LOTS OF PRIZES, LOTS OF FUN
COME AND JOIN US

Take I35 N to the HUNDLEY DR. exit continue North to E. Hundley Drive, turn right. Stay on Hundley into the Park.

From the North, take I35 S to the Switzer exit. Cross over I35 and turn left on E. Hundley Drive. Stay on Hundley into the park.

For information call:
Gerald Sanders (972) 247-7611
Butch Mallam (940) 241-2466

19th Annual Fun Fly



AMA Charter #3220 * Sanction #11-0624

Hosted by:

Northwoods R/C Flyers, Rhinelander, WI

Saturday, July 9, 2011 * 9am to 3pm

Pilots Meeting at 9am * $5 Landing Fee

AMA Safety Rules will Apply

AMA Membership Required to Fly

Sponsored by:

D&J Repair * Pope's Hobbyland * Northwoods R/C Flyers
Snap-on Tools*Carquest*Rhinelander Napa*Auto Value

Food & Beverages * Raffle Prizes

Spectators Welcome!

Directions: Hwy 47 North of Rhinelander, 1 mile past Co. Hwy. K, turn left on Forest Lane, the club field is about 1 mile on the right.

Contact: John Wich 715-282-5025 * flashj@frontier.com
or Larry Slowiak 715-282-6622 * larryslow@charter.net

Sponsored By King RC

The Riverside Aero Modelers Society

Announces

The 10th RAMS Dragonfly Helicopter Fly-in

Date: July 16th & 17th, 2011

Location: RAMS Airfield, King, NC

Format: Open Flying! Obstacle Course to Test Your Skill!
Beginners - Bring Your Helicopter for Expert Help
Spectators Welcome!

Field Location and description: RAMS field is approximately 15 miles NW of Winston-Salem, NC. The airfield is located on bottomland adjacent to the Yadkin River, with beautiful Pilot Mountain visible in the distance. A map to the field is on the reverse side of this flyer.

The RAMS field features the following amenities:

New 1000 ft. X 100 ft. Runway
Large Grass Pit Area — A Covered Spectator Area
Ample Parking — Concessions
Restroom Facilities — Camping On Site / No Hook-Up
$15 Two Day / $10 One Day Landing Fee — Spectators Free

For More Information Contact:

Rod Stauffer, 4631 Oakwood Circle, Winston-Salem, NC 27106
Phone: (336) 924-8010, e-mail: rgsflrs@windstream.net
Visit the RAMS Website at www.riversiderc.com

Prizes: * Door Prizes provided by King R/C
* Obstacle Course Awards

Riverside Aero Modelers Society
GPS Location:
5852 Poindexter Road
East Bend, NC 27018
Lat/Long: 36.22491,-80.442597

Iron Range Radio Control Club

2011 Annual Summer Fun Fly

When: **Saturday August 13th, rain date: Sunday 14th**

Where: **Thunderbird Field**

Sheldon Jct. Road (CR 372)

Time: **9am until the fun stops**

Food and pop on site, drawings for donated & purchased items.

$5.00 landing fee for pilots, AMA required to fly. All aircraft welcome.

Come and see the impressive lineup of warbirds, aerobatic, and sport planes.


NCRCC presents
W.W.I. Giant Scale Fly In
Date: July 10, 2011
Location: NCRCC Flying Field
Green Road, Ellington, CT
Specifics:
1. must be WWI Giant Scale
2.$5.00 landing fee
3. Free camping and RV Parking
4. Safety Inspection Required
For further info contact Bob Boulais
DAWNPATROL536@juno.com or www.ncrcc.org

Model Air Show

Sky Rovers R/C Flying Club, 2011

July 23 & 24, 2011

Ford Field, located at 2269 McBurney Road, Phelps, New York, 14532

Signs will be posted on Routes 96 & 88 to direct visitors to our field

- Free Camping for RV's campers and tents. No hook ups.
- Our world famous refreshment stand open both days of event.
- Flying open to all models, scale, giant and sport planes.
- Sorry, No Turbine powered aircraft.

All are Welcome to this Family Event!

Registration for Guest Pilots: 9:00 am both days	AMA or MAAC Credentials Required	Hours of Flying: 10 am to 5 pm daily

For Additional Information Contact

Contest Director at:
1.315.548.3779
E-mail: dreid@zoom-dsl.com

Visit us on the WWW:
http://www.skyrovers.com/

AMA SINCE 1936

An Academy of Model Aeronautics Gold Leader Chapter

JULY 30-31, 2011

WARBIRDS OVER THE WABASH

Celebrating the 100 Year Anniversary of First Flight over Vincennes, Ind

R/C Military Fly-in

Hosted by the

Tri-County Aero Club

Vincennes State Historic Sites

Mid-American Air Center

The Vincennes Lawrenceville Airport

AMA Non-Competition Military Fly-In: (TURBINES WELCOME (with AMA waiver))

Flying from a Ultra Light Aircraft Grass runway

Open to any size WW I thru Modern Jets and Classic Aircraft

Military Paint/Scale schemes required

Transmitter Impound for 72 MHz

R/C Flying Registration:

Landing fee $10
Friday: 3:00pm with limited flying
Saturday & Sunday: 9:00am, Flying at 10:00am
Raffles and Concessions available
Primitive camping on site no hookups

FREE - NON-FLYING EVENTS:

Information, pictures and displays about 100 year anniversary of the historic event
Building balsa free flight models
Free flight model contest
Full Scale Ultra-Light Aircraft
Remote Control Simulator

Location:

The Mid-American Air Center is located approximately 4 miles northeast of Lawrenceville, IL, and 6 miles northwest of Vincennes, IN on U.S. Highway 50 West
Route 4 Box 195, Airport Rd. Lawrenceville, IL 62439

www.tricountyaeroclub.com
www.indianamuseum.org/sites/vinceduc.html
www.midamericanaircenter.com
GPS: 38-45-51-467N 087-36-19.784W

Rev2-4.1.11

AEROLOFT DESIGNS

Model Aircrafters

2011 Warbirds Over Pennsylvania

23rd Annual Jim Simmons Memorial Giant Scale Fly In

Date: July 23rd & 24th, 2011

Registration: 8 AM

Flying: 9 AM - 5 PM (3PM on Sun)

*Early arrival and Flying OK

Landing Fee: $10

Information

- **Beautiful flat 1000' grass runway with open unrestricted view of flying area.**
- **Stay for the whole weekend. Large turnout is expected.**
- **RV parking available—no hookups**
- **Food and drinks will be available**
- **Raffles**
- **Vendors welcome, contact us for reservation**
- **Flea market items welcome**

Rules and Details

- AMA & IMAA sanctioned event. AMA & Club rules apply
- IMAA guidelines: 80 inch wingspan monoplane/60 inch wingspan bi-plane
- After 12 noon on Sunday any size **Warbird** allowed to fly
- Set Fail-Safe to go to low throttle (If you have it)

BUC-LE AERO SPORTSMEN

Location: BUC-LE Jon P. Fritzges Memorial Flying Field at the corner of Rosenberger and Kumry Rds., Quakertown, PA 18951. Visit our website for detailed directions.

Lodging: Local lodging available, visit our website, www.buc-le.org, LODGING section for details of hotel locations and telephone numbers.

For more information, please visit our website: www.buc-le.org

THE OILY HAND BRIAN WINCH

THE OILY HAND: Covering engine topics and working with metal for models. Send your comments or questions to: oilyhand@bigpond.net.au or write to Brian Winch, 33 Hillview Pde, Lurnea NSW 2170. Australia. International Response coupon (Post Office) required if you want a written reply.

SPARKLING AND NEW

I have a nice new engine for you to read about this month. At 25 cc (1.55 cu in), it is a nice new capacity for O.S. and it has the added advantage of their super reliable diaphragm pump. Great for medium size scale and sport models - particularly good if the tank placement is a bit of a problem and with the added reliability of a positive fuel supply right to the last drop. All you need do is to check the long lasting O.S. - F glow plug occasionally and you can be assured of reliable running from takeoff to landing. What"s that? Somebody at the rear of the class mumbled something about how the hell do you check a glow plug? If it glows when you apply power, isn"t it working? Well, no actually, is the answer. To check a glow plug for efficiency and reliability, first examine it without power applied - the dead cold element. A plug element, in good working condition is well formed - neat even coils - and the metal of the element is quite shiny. A plug on its way out or past its prime will have a dull, frosty appearance on the metal element and there is often a slumping or distortion of the element coils. Second test is to apply GOOD power to the plug. By GOOD I mean adequate power - a good 1.5 Volt supply (RCATS plug power is one excellent way to provide perfect power - look it up on the Internet - they are made on

your island - USA), or at the very least, a freshly charged, good quality Nistarter. Keep in mind that the battery in a Nistarter has a nominal voltage of 1.25 - a bit low for a good glow. It is the charge above that 1.25V that gives the best glow, but…not for long. Other than water in your fuel, your engine will protest (if you are listening) when the plug is less than good. Note the RPM of the engine when started and further note any change when the plug power is switched off (or Nistarter removed). A small drop of no more than around 300 RPM is acceptable, but no more. A well tuned engine with good fuel and a good plug will not change at all when the plug power is switched off so that is something to aim for…provided your engine is not going over the hill (wearing out). Another test is to let the engine warm up to operating temperature - about 1 to 2 minutes - listen carefully as you power up the plug again.

If there is an increase in RPM it is an indication that the plug is going off song or is too cold or more nitro is needed in the fuel. Everything being correct, the powering up of the plug in a good engine with good fuel quite often causes a slight REDUCTION in RPM as the power boost to the plug advances the timing a little.

Glow plugs should glow brightly and almost for the full length of the element.

A 'sick' plug - keep it as a 'lender'.

There"s a bit more to glow plugs than meets the eye as the choice of plug can make so much difference to the running and reliability of an engine. It causes me to scratch my wooden head at times as to why so many modelers are mean (mingy, lousy, short arms-deep pockets, penny anti and other descriptions of being tight fisted with a dollar) when it comes to coughing up for a reasonable range of plugs and a small supply of NEW replacement plugs. Have YOU ever done the following? Your engine is complaining about something, so after a bit of useless needle fiddling and swearing, you decide to change the plug, You either DO have a new replacement or you BORROW one from a mate. The engine is now happy and you put the plug you removed from it in a draw of your field caddie as…..„It MIGHT be okay in another engine or maybe later on". Get real mate…sick plugs don"t cure themselves in the collection of junk in your caddie drawer or any other place you put it. They also do not mature or get better with age like a good red wine…they turn sour and horrible like a bottle of wine that is „corked" (an air leak through the cork which turns the wine into lousy tasting vinegar). Throw the bloody plug away - you"ve had your money"s worth of it. Better still, DO keep it for the next time the club sponger (bloke who never has enough fuel, spare plugs or props and „borrows off all other members, but…never pays back). THIS is the plug you keep for him next time he puts the bite on you, but…never consider using it again for any of your engines. I know it can be painful for some blokes to spend a few dollars for which there is no immediate benefit, but believe, the best $25 to $50 you can spend is for a little cache of sparkling new plugs. You always have a new plug on hand as well as a few close to the heat range you use for experimenting. Consider the overall cost of your model, engine and radio. A lousy few dollars spent insuring reliable engine running might just save you the cost of a garbage bin bag - the one you use to carry the remains of your crashed (totaled) model. Go on,

put your hand deep into your pocket - the rattlesnake is not there anymore (then again…err…maybe we will leave it there) so you won"t get bitten. The spending out for a plug supply subsides quickly, especially when you then boast to your flying mates, "Oh yes, it is false economy to not have spare glow plugs…I always carry my own private supply…for my own use only."

A BIT OF COUNTRY AIR

I travel to a few country events on a regular (annual) basis mainly for the purpose of chatting with long distance mates, photographing the models for magazine articles and offering help with any modeler at the event who might be plagued with an engine problem, Not much worse than traveling several thousand miles (kilometers here) to an event and not being able to fly due to an engine problem. Most of the time the problem can be sorted, but if not, due to the local model shops sponsoring and assisting with the big events, a new engine can be purchased, and more often than not, at a special price offered for the duration of the event. The photos in this article were taken at Wagga Wagga - a very large country city about 5 hours drive from my home. This particular event is the Military Scale Competition covering aircraft from WW1 - between the wars, WW11 and after. Originally the models had to be scratch built, but now they have an extra section for ARF models with judging points awarded for the flying only. The event is run over three days, really well organized, very good catering and prizes worth entering for plus, every pilot gets to select a gift from the „goodies" table - a variety of excellent products donated by the local business companies. It is held, always, on the period closest to Anzac Day as a memorial to our Australian and New Zealand Armed Corps who fought in WW1, the landing at Gallipoli in 1915 and now includes all Australian and New Zealand defense personnel. Close to the flying filed is Kapooka, a suburb of Wagga Wagga and it is here where the Department of Defense"s Blamey Barracks are set up for all Army Recruit Training - a very fitting neighbor for the annual event, now entering its 28th year - the longest running competition event in Australian model history. Enjoy the photos.

Red Pilatus - Rowdy (Scott) Mathews, DLE 30 engine.

Yellow Tiger - Bill Mansell. OS 120 AX

DH4 - Rowdy Mathews, 2.3 meter span. OS FS200.

Kawasaki Hinie - OS 55 AX. Ben Tennant - 8 years young. Youngest Gold Wing classification flier in Australia.

Fokker D7 - Barry James. OS FS200

Feisler Storche - Graham Allen. Magnum 120

Fairey Swordfish -
Brian Hutchinson, 102” span. Saito 300 twin

Swordfish folded neatly ready for bed.

Albatross - Robert Zyp, OS FS200

Junkers JU87B - Don Murray - 89” span. Moki 1.8. Totally scratch built.

A little engine maintenance for insurance of a good flight.

The following are various photos of models flying at the event.

WEIRD THINGS HAPPENING

I thought most weird and strange stuff occurred around my workshop or in my underground laboratory, but I have been pipped at the post (beaten, in Oz language) apparently by, none other than, our own dear editor (and, probably, her collection of dogs). As many of you would know, I spent time on your island some years back on a special Police assignment and spent a little time working from quite a few Police precincts where I met a great lot of fellow officers who treated me really well. I still have contact with many and receive reports of „happenings" that might be of interest to me. The last report I received came from Sergeant XXX (undercover officer - name protected) who just happens to work in the area wherein our own Tony and Julia Coberly reside …and where the magazine is edited and made up. Well, it appears (or is alleged, in Police terminology) that, around midnight or thereabouts on the 7th day of June, 2011, a ghostly figure was seen in the silvery moonlight in the rear section of the Coberly property. The figure was described as a female and she appeared to be thrusting long wooden stakes into various locations in the earth. On being questioned, the answer given by the person of interest was that she was "staking her tomatoes". Oh yes…staking tomatoes?…at midnight? Trying to avoid being seen by neighbors? Tell us another one, sister. *(That's my story and I'm sticking to it! Julia)* Further investigations are being carried out with a view to ascertaining if there is a vampire interest in the area. I mentioned quite some time back in this magazine that I had been, at one time, „slimed" by a Wereslug - a human during the day and a hideous slimy creature by night. Was Julia (if that is her REAL name) stirring up her band of slimy creatures or wooden staking opposition vampires in her „garden"?

Boy…and here"s me thinking this was a respectable magazine under the loving hand of a gentle husband and wife team. Just goes to show you - you just never know who is on the other side of the fence and….what they get up to in the dark hours. I advise all readers to have a generous supply of salt handy (slugs cannot abide salt) as a deterrent to being „slimed" unmercifully.

Senior Sergeant Winch

Emeritus

PEACE AND QUIET

The „drongo" (Oz tem for a fool etc.) has a new interest at present - advancing his education. Over here we have TAFE colleges - a college for Technical And Further Education where you can enroll in short or long course to study quite a large range of topics. Reading an advertisement in the newspaper recently, the drongo saw an advert" for a new and exotic ladies perfume…and the incredible amount of money it cost. Perfume? Just smelly water as far as he figured and sold at enormous profits. Anybody could make sweet smelling water, but the ingredients were a bit of a challenge - ergo - he is now enrolled at the TAFE college in a class that teaches the science of perfumery. His first experiment was somewhat of a failure and I certainly hope he does not repeat it as you can still smell it around here and…my three dogs found it so bad, they left home and are living about two miles away in a strip of bushland. Here"s what he did.

The teacher told the class that some really gross items were used to make really expensive perfumes. One super expensive perfume is made from ambergris - a vile smelling jelly like substance vomited up by a sperm whale (true fact). She said that the students should research other rotten smelling substances that could be used in a similar fashion.

Drongo" had some skunk oil he got when he was in the USA - I believe you folk spray it on their front door to deter religious callers - it is a whole new story when it comes to rotten stinks. He mixed it, 50/50, with fish sauce which is another contender in the vile smelling stakes, dead snail shell washings and strained it through a long time worn gym sock. The result was horrendous. He took it to class and opened it for the teacher to smell. She gagged, put her hand across her nose and mouth and ran from the room making strange whimpering sounds. Problem was…she bumped into him when she raced away and the stuff spilled on his clothes. The entire class ran from the room and the school cat rolled over and coughed up the biggest fur ball you have ever seen. Going home, the driver would not let him on the bus (he actually skidded the wheels as he accelerated away) so he had to walk all the way on his own. On the way he was bitten by two dogs, hosed by three old ladies and pelted with barker eggs (dog manure) by a bloke working in his garden who vomited violently as he walked past. He found a can of smelly old castor oil down the back of the shed and he is going to soak his clothes in that to sweeten the smell. I remember that castor moved things very rapidly if you took a dose for a crook gut years ago - maybe it will get rid of the smell…I hope it will as it is lingering around and my chooks (chickens) have gone off the lay (not laying eggs). Perhaps I could send some to Julia to deter the Wereslugs.

From WINCH - THE WARLOCK WIZ

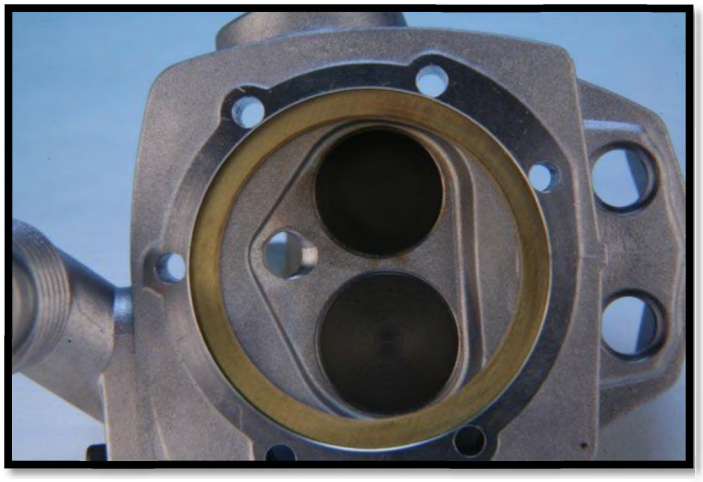
O.S. 155

ENGINE	O.S. FS a - 155 - P
CONFIGURATION	Four stroke with fuel pump.
DISPLACEMENT	25.36 cc
BORE	33.6 mm
STROKE	28.6 mm
WEIGHT	805 g
STATED POWER	2.6hp/10,000 RPM
R.P.M. RANGE	2,000 - 10,000
PROP" RANGE	16 x8 - 18 x 8 tested
FUEL	Common 4 stroke mix.
SHAFT THREAD	UNF 5/16 x 24
SUPPLIED WITH	Glow plug, needle extension, exhaust system, instructions, and decals.
AVAILABLE FROM:	Distributed by Model Engines (Australia) - most hobby shops.

FOREWORD

The introduction of the FS 200 at 34.4 cc was quite a jump from the, then, largest single cylinder four stroke, the 120 at 20 cc. The range from the smallest - the FS30 to the FS120 is certainly well covered with a good range of intermediate capacities and we are, so to speak, almost spoilt for choice. The FS 120 series has been extremely popular from the very first twin rocker engine in 1983, and indeed, many of these are still giving very good service. Since that particular engine we have had a range of 120 engines, and like the first one, all have their followers in the modeling fraternity. The only shortcoming was that if you wanted to build (or buy) a model that was just a little too big for an FS120, the only choice in the O.S. range is to consider the FS160 Gemini twin - a lovely engine, but out of the price range for many modelers. Plus, it is a horizontal twin and it might not suit the particular model. Next choice up, in recent times, is the FS200; but this might be just a bit too much for the model as far as power and physical size. Until now the only option was to use a two stroke or another brand of engine, but…many modelers are dyed in the wool O.S. fans - to them there is no other engine. What to do? Well, the answer is here with this 120 size engine that is close to the FS200 in power and the next step up from the FS120. Where the FS120 almost finishes in the prop range around a 16 x 6, this FS155 starts its propeller range with a 16 x 8 and will quite easily go up to an 18 x 8 and still show a good turn of RPM.

Looking back, the O.S engine is ¾ of a century old this year - 75 years since Mr Shigeo Ogawa produced his, now, historic „Type 1" engine in 1936. It was, obviously, a success at the time so, spurred on by the need to develop more engines and the obvious sales of his first production, Ogawa San set up the O.S. ENGINES MFG. Co, Ltd in 1941. The original „Type 1" - named „Pixie" was a lapped piston petrol engine with a capacity of 1.66. In 1938 he produced a 3 cylinder inline marine engine and in 1949, the first „29"series of 4.79 cc and glow plug ignition. In those days an engine of such capacity and performance was a world beater, and, indeed, my very first O.S. engine. On the flying field the question was why anybody would need an engine of such a large capacity. How things have changed and what tremendous progress we have experienced.



The bathtub and spa shape puts the plug in a high position. The inlet valve is the larger one.

I see this new engine gaining popularity quite quickly in the scale field. A 20 cc engine is a very popular size in the middle range of scale models, but as you hear so often, the weight has to be watched as scale detail and painting adds such a lot of weight and you certainly don"t want the model waffling for the want of a little extra power. Another plus is the benefits of the larger range of propeller diameters that will be a great bonus for scale flying with particular

emphasis on draggy biplanes and the very early aircraft that has a lot of parasitic drag. It will be nice to be able to fly the model without having to press „pedal to metal" (full speed operation) just to keep the model airborne. When you read the propeller figures you will see that you will, probably, have the „go" stick somewhere between ½ and ¾ open for easy flying with no anxious moments.

It goes without saying that this engine is of the extremely high standard maintained by O.S., and, indeed, it is pleasure to see the parts inside and marvel at the quality and finish. While I was photographing the parts, a modeler mate dropped in for a quick visit and I showed him the crankshaft I was just setting up for a photo. He looked at it for some time then said, "That"s one of the reasons why I use only O.S. Engines." As we go through the description of parts, you will see the reasons for his comment.

Going back through my bench notes recorded during the testing period, I have the basis for a story as to why you should consider this engine if you are considering a model that needs a bit more power than a standard 120 but, one that will fit in where a 120 would normally go.

The pump and carburetor neatly packed behind the engine away from harm.

Starting was in an instant. I spun the engine with a starter to prime the pump, felt the compression by hand in case of a hydraulic lock, switched the glow power on and gave it a touch with the starter for an instant bust into life. Now, some readers will note that I said, „with the starter" instead of „by hand" which is my normal method. Fact is, this is a powerful engine of a high capacity and one of unknown character. I certainly did start it by hand on several occasions, but…it will bite unless you have the throttle open at least 1/3 so - be very careful. At around ¼ throttle, a quick tap with the starter gets it going without any fuss or bitten fingers.

No shortage of finning for cooler, quieter operation.

At all settings the RPM was very steady (more on this in the pump section), extremely reliable idle and a very good transition. The tuning was generally quite broad - about 1/3 turn of the needle on average, vibration was quite low for an engine of this capacity, cooling was very efficient with the crankcase quite cool during running and the general finning was only „quick touch" hot at full song. The muffler is effective at taming the exhaust considerably and I recorded a considerable sound increase with the

baffle removed and a higher idle speed (low idle speed requires, in part, sufficient back pressure) so, simple answer, do not remove it.

The engine was tested on 17.04.11 with the temperature at 22 degrees C and 71% humidity. Fuel was 18% Coolpower blue oil, 10% nitro and 72% methanol.

Streamlined is the word for the neat muffler.

GENERAL BREAKDOWN

As with all the Alpha series four stroke engines, this is a totally sealed unit as far as lubrication - that is, no external breather. Really, you could say the lubrication is recirculating; but only infinitesimally so. The lubrication system of our model four stroke engines is one of rapidity rather than volume. Actually, the process is very similar to a fuel injector in an engine. Due to the requirement of one part to move in another, there is a difference in size of the two parts - in this case, the piston and internal liner - the piston must slide freely within the liner. A piston ring is fitted and it takes up the difference - acts as a seal - when acted on by the force of combustion but, it must also slide within the liner so there is a very small fit tolerance with it as well. Also, to maintain the spring of the ring, it is cut (broken circle) to allow for springing and heat expansion. This „break" is the ring gap and in this engine it is 0.13 mm - a very effective injector size that actually squirts a very small amount of fuel/oil down to the lower section of the engine. Like a dripping tap that will fill a bucket overnight, the frequency of the injection of oil is half the RPM at which the engine is running - more than adequate for the entire lower section lubrication. In days past and with most other four stroke engines - this is a „total loss" oil system as the oil in the crankcase is ejected by the positive pressure of the piston (down stroke) though the breather nipple (making a mess on your model).

Reducing the diameters in the crankshaft speeds up the oil flow to the spray hole.

The O.S. engine has this problem properly licked from the bottom up. First is the crankshaft, a truly magnificent example of superfine engineering, machined from bar stock chrome molybdenum (steel) alloy, extremely finely finished on all surfaces, heat treated then finally treated with a special surface finish to greatly assist in the prevention of surface corrosion. From the counterweight end the shaft is drilled in three stages - each one a reduction in diameter - to form a pressure build up as the

All the oil sprays out this hole for the next stage of its trip upwards.

oil is forced - nowhere else to go - into the first section hole. The stepped reduction increases the travel speed of the oil until it reaches the final section just beyond the pinion (small gear section machined into the crankshaft) where it is then flung with considerable force (pressure and centrifugal force combined) out a 2 mm hole to saturate the camshaft, camgear, support bearings and the rear shaft bearing. The front bearing is on its own - it is fully sealed (rubber sealed) and lubricated internally for its life.

The camgear now has a timing line - more precise than the previous dot mark.

We now have this whirlpool of oil wetting all parts but, very soon, it is too much for the area and, besides, there is still the pressure from behind urging it ever onward. The only way out is up and up it goes through the channels machined into the cam follower sleeves (bearing section). It is now lubricating the cam followers as well as carrying away engine heat assisted by the very intense finned section of the cam follower housing. From the top of the housing the push rod covers extend up to the head and these are tightly sealed top and bottom with a neat fit and

Final trip for the oil - down the gurgler into the inlet chamber.

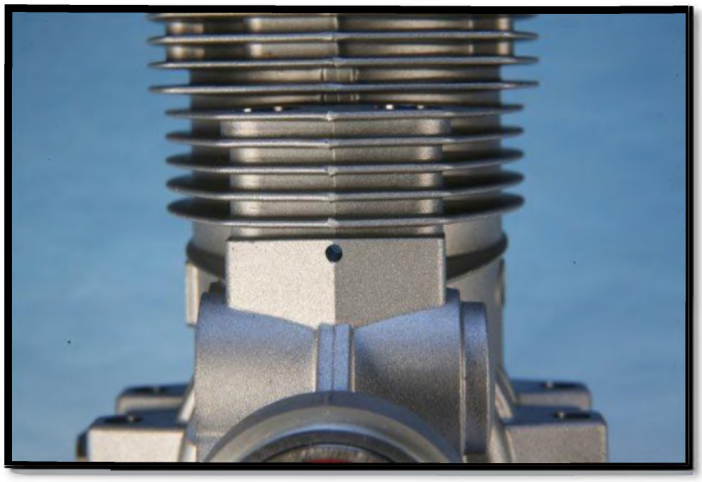
an O ring insert each end. As the oil enters into the tubes it takes care of the pushrod ends in the socket cavity of the cam followers and does the same as it reaches the top end for the under sockets in the rocker arms. Like an oil well gusher, the oil sprays out into the rocker chamber lubricating the rocker arm pivots, valve contact area, the springs and the valve stems in the valve guides. A small amount settles into the small wells surrounding the valves where they enter the head in order that the stems have a constant oil bath at all times.

Oil channels machined into the inner sides of the cam follower sleeves.

The rest of the oil is building up in the sealed rocker cover as is the slight pressure and…there is nothing left to lubricate. Suddenly the intake rocker arm is activated, presses the intake valve down and there is a great suction and a push from atmospheric pressure developed in the valve chamber to draw in a fresh fuel charge and drive it down into the combustion chamber. Just behind the valve chamber there is a small hole with a counterbore (to act as a funnel), and during the movement down of the fuel charge, the residual oil in the rocker chamber is sucked in at a great rate. It mixes with the fresh fuel charge, and with the exhaust gas; the majority of it is then ejected out the exhaust - gone forever. However, if you really delve into the process, it stands to reason that a very small part of the sucked in oil would „go with the flow" and re-enter the lubrication from the crankcase. Realistically, this is quite feasible and it surely happens, but…without calculating - if it could be done - I would venture a „guesstimate" that the amount that does recirculate might be one small drop in every five liters of fuel. This should allay the fears of those few who consider „worn out oil" as it is of no concern and, besides, oil does not wear out - it"s life span is governed by the amount of pollution is gains (from combustion) and even this is removed when oil is re-refined - cleaned - so, suffice to say, this engine re-refines any used oil. One thing for sure, the engine - and any model into which it is fitted - will remain clean as far as blowby oil from the engine.

LOOKING AT THE CRANKCASE

Very familiar conrod but no little end bush.



In a time to come you will find this hole very handy.

Quite similar to other O.S four stroke engines with the trademark finning of the Alpha series extending out and beyond the cam follower

housing. It certainly does a good job as this area remains quite cool (in comparison) while the engine is running. Below this section is the cam housing for the camshaft that is supported by shielded bearings both ends. The camshaft is one piece comprising the two cam, shaft and gear and it of similar finish to the crankshaft. Below the finned section and in the centre of the cam housing block there is a 2 mm hole and, very pleasing it is to see. In years to come when the engine requires a bearing job and a general internal clean, to remove the crankshaft the conrod has to be removed. To remove the conrod the piston and liner is slid up and the gudgeon pin is withdrawn through the hole in the rear of the barrel. Sounds easy to say, but….you try to remove one from an engine that has a buildup of internal gunk and maybe a bit of rust on the gudgeon. Believe me, I have spent more than an hour at times on really gunked engines and I wondered (at the time) why the hell I bothered doing engine repairs. One engine was so bad I ended up drilling a hole (using the gudgeon pin as a drill guide) right through to exit the front of the cam housing. I enlarged the end of the hole in the cam housing end and then, using a metal rod, drove the gudgeon pin out the back. O.S. has improved on the idea by not drilling the gudgeon pin through - it is hollow both ends with a solid internal centre - and drilling the 2 mm hole in the cam housing. A length of 2mm music wire inserted and tapped will drive the gudgeon out, and….no swearing or hair tearing - top marks O.S.

Reliable, trouble free pump in the rear cover.

There is a similar size hole in the rear cover but for a different purpose. As we have seen, the engine is fitted with a fuel pump and it is of the pulse diaphragm type. Positive pulses from the piston drive through the hole and actuate the pump diaphragm which, in turn, draws fuel from the tank which can be up to 600 mm back from the engine, and within reason, no restriction as far as tank position - higher or lower than the carburetor is not a concern. It is quite a simple consideration that the pump pulses more as the engine RPM increases and, more pulses equal more fuel to satisfy the demand of the faster running engine. To take care of this varying fuel flow and to smooth matters out, the carburetor is fitted with a flow regulator, and it also has a diaphragm but this one works on the demand of the correctly tuned carburetor. More RPM (or less) and the pulses of this diaphragm vary to supply the precise amount of fuel on demand. A delightfully simple system that works extremely well, no excess fuel pressure, no feedback to the tank and just a simple one line (tube) connection from the tank through the pump up to the carburetor regulator and into the engine in precise measured amounts. The system is very flexible so I repeat my oft given advice - but

even more so in this case, don"t fiddle with the tuning. Set it and (almost) forget it. Maybe a very slight adjustment for extremes of elevation or extremes of weather, but try it first before you fiddle for fiddling sake - you never know…it could just be correctly tuned as it is.

Both adjustments together - a 'no fiddle' zone.

SOME OTHER OBSERVATIONS

Interesting to note that he connecting rod (conrod) is of the very common style for O.S. engines - machined from very tough stock aluminum alloy, but a little difference in that only the big end is bronze bushed - the little end has no bearing insert. This doesn"t concern me in any way at all as it is common in many other engines - indeed…no insert either end and has not been a problem for many years. When you consider the quality of the alloy such as is used in non ringed engines for the piston, it is easy to see that, really, no bearing insert is quite in order and I consider that, in time, O.S. will do away with the big end insert. For now, only the little end is plain bearing as it has very limited rocking motion and the support is assisted by the piston as the gudgeon pin is free floating - it moves in both the little end eye and the piston so the wear factor - so little it is, is shared by three bearing surfaces - the little end of the rod and both side bosses of the piston. Also, the rod is symmetric - no front or back side which is easy for new assembly, but do put it back the same way if you remove it after running the engine.

Superfine finish and surface treatment to prevent corrosion.

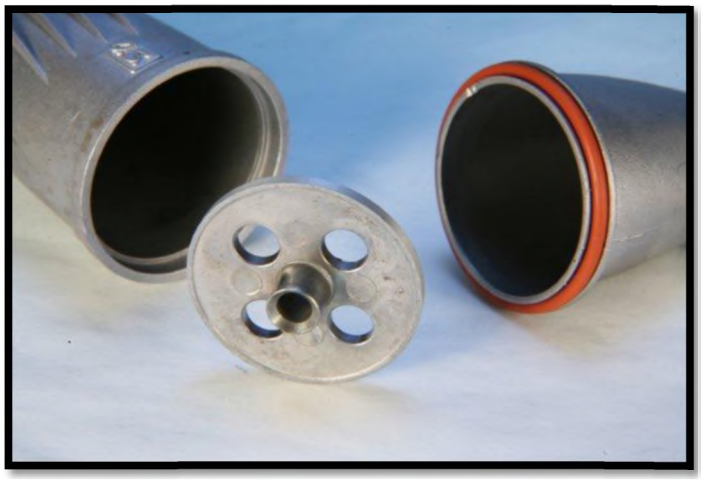
The valve rockers - a very nice assembly - are surface treated the same as the crankshaft and cam shaft and there is another feature that applies to all these surface treated parts - the final finish is superfine - smooth as the surface of a mirror. In engineering, any component that is subject to corrosion will suffer a lot quicker and with a greater attack if the outer surface has any rough areas - the smoother the finish the less chance there is of surface corrosion. Add to this the chemical treatment used by O.S. and you lessen the chances down close to zero. Run your engine hot and dry at the end of the flying day and corrosion won"t be a problem to consider.

The carburetor is the 70R series with the main mixture adjustment and the idle mixture adjustment side by side at one end. The tapered main needle is part of the rotor and is in the throttle arm end - it moves in an out as the rotor is turned.

Regulation of the fuel takes place here at the carburetor.

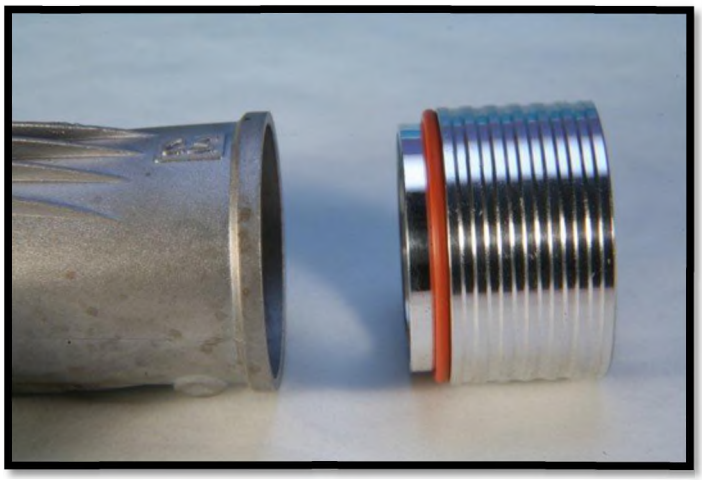
To regulate the fuel flow it enters into the main jet and the taper blocks more of the jet area (bore) as the rotor moves in (slower running). The smart extra bit is the idle mix adjustment. The slotted head insert (aka idle needle) actually moves the main jet towards the main needle. In effect it causes the thicker section of the needle taper to enter sooner as the rotor moves across and this leans the idle mix flow - conversely, moving the jet back richens the idle mix. Simple and very effective.

A ram tube (trumpet) is fitted to the air intake of the carby and it sets up a smooth and even flow of air when atmospheric pressure forces up as the rotor opens. As the flow of air - high pressure - hits the main jet and needle it forms a mini low pressure area that draws out the precisely measured amount of fuel. If you intend to use this engine inverted I advise you to remember to close the throttle right off after each flight to prevent atmospheric pressure sneaking in the open aperture and drawing a few drops of fuel that might slightly flood the engine on the next start.



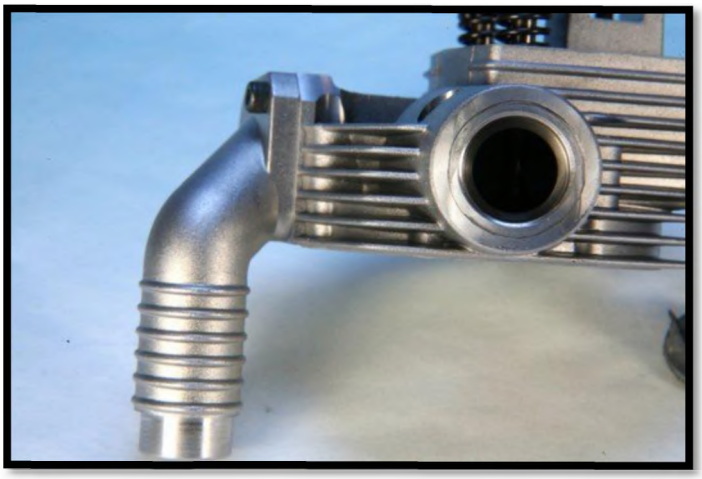
Baffling in a muffler is part of the performance design and important for noise reduction.

Last item in the „box of bits" is the muffler assembly. The assembled muffler has a very pleasant streamlined shape that complements the engine nicely. It is of 5 sections being the front main body (expansion chamber), the flat baffle, centre extension insert, rear cone that can be fixed to allow the outlet to suit your application and the full threaded header that ties



High temperature O rings ensure no leaks around the muffler joints.

the muffler to the engine and is secured by two locknuts. The sections are sealed with high temperature O rings and the extension section is well finned - an important part of lessening the



Very thick section around the exhaust manifold dissipates the heat and lessens the chance of the header loosening in operation.

sound by cooling the exhaust. The front section is also well fined with four stylish tapered fins top and bottom. There is an optional 90 degree header available for tidy installations in side mounted or inverted engine fitting. All neat and nice.

Deep fins around the cam follower housing prevent a buildup of heat.

TO THE BENCH

In closing, a very pleasant engine to run, handle and study. Typical of the renowned O.S. quality - an engine that will perform very well and give very long service with a minimum of fuss. I"m sure you have a model in mind that needs just this very engine.

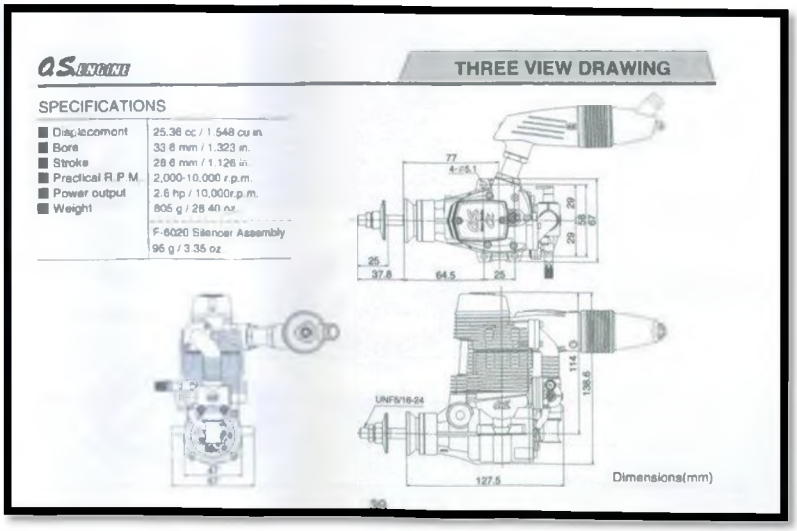
PROPELLER FIGURES

APC PROPELLERS

16 X 8	8976	1560 IDLE
16 X 10	8635	
17 X 6	9517	
17 X 8N	8675	
17 X 10N	8021	1370 IDLE
17 X 12N	7490	

BAMBULA WOOD

18 X 8	7915



PROP CUTS CHRIS HANDEGARD

FOR THE COMBAT ENTHUSIAST and FIGHTER PILOT WANNABEE

The heat is on all over the USA and the combat season is in full swing! What's that, no contest in your area? Well get off your parachute and drive to one! Then bring that enthusiasm back home and get something started yourself. It's the only way to create a new group of active combat pilots! There's only one way to fly RC Combat; all or nothing! Talk is cheap so stow the blah-blah and get real! Come on now, don't be shy, get in there and get some!

BE THERE OR BE SQUARE

Events for July are: 7-6 thru 7-9 "RC Combat Nationals (The NATs)", Open B, SSC, Scale 2948, and Limited B, Muncie, IN. 7-9 "Furball Over Phillips Field", 2610 and Open B, Pocatello, ID. 7-16 "Street Brawl", SSC and 2948, Street, MD. 7-16 "Summer Scorcher", SSC and 2948 Scale, Sherman, TX. 7-23 "Battle Over Hemet" SSC and Open B, Hemet Model Masters Field.

July is finally here, the month for RC Combat at the national headquarters in Muncie, Indiana. Get there if you can! I don't think I'll be able to travel from Florida to Indiana this year, bummer!

The contest calendar is filled up with numerous events from now until fall all over the country. Sign up, suit up and show up! Here's the link to go to the RCCA's event calendar and sign up: http://rccombat.net/events/index.asp

Signing up online prior to the contest date should be done as soon as possible. This helps the event coordinators and contest directors get all the needed supplies, manpower and club resources to make the event run smoothly. Also the scores of those who pre-register are recorded more easily by the National Points System (NPS) score keeper, Randy Hodges, when you sign up online before the contest. Seeing the names of other pilots you may know or want to compete with is a good draw to encourage participation, so don't be shy! Sign up early!

Be there or be square!

EVENTS DEBRIEF

A number of events have taken place and debrief forums mention a few details, but unfortunately no pictures so I can't show you what they looked like. You can go here to read about them.

http://rccombat.net/forum/viewforum.php?f=21&sid=36a3653ebdb82238776989cee6be2385

"Cutting Up Over the Dump"

This contest took place in West Palm Beach, Florida, on June 4. It was attended by 8 pilots from Florida. The conditions were good overall, but the wind steadily increased from breezy in the morning to a brisk 20-25mph by afternoon which is when the contest began. This "mini" contest format is one way to get a few rounds in without taking up the field for a whole day and running the risk of the disgruntled club member syndrome.

The windsock was standing straight out during the contest which gives an idea of how windy it was.

The contest featured 5 rounds of SSC which is a departure from our usual all day or two day contest and took only 2 hours to complete. SSC planes with their .15 size motors have to be expertly piloted in conditions like this to remain under control. The wind did push one over the pilot line earning him -400 points for the round, oops!

Young Nick Windsor took home first place with Craig "Big Dog" Buttery nipping at his heels all the way. Flying Craig's new design, which he has renamed the "Screech", Nick, Craig, and a growing number of others are doing very well in SSC and Open B.

The action during a round of SSC in "Cutting Up Over the Dump"

When the volunteers equal or outnumber the pilots it makes for a smooth running competition that moves along quickly and gives the pilots a better chance of getting up for every round and this was no exception. The Bush Pilots club members in attendance doing the judging allowed us to fly all 8 pilots up every round and finish in a blazing 2 hours!

I flew the same plane from start to finish, but got mid-aired out twice with the last one doing enough damage to retire the airframe. Some of my Avengers are getting a bit long in the tooth and when successive repairs start to reduce the flying performance it's time to rotate them out anyway.

The unanimous consensus was favorable and positive. The club has scheduled another "mini" contest for SSC on August 21. The event CD, Craig Buttery also plans to alternate some Scale 2948 and Open B classes in his future events. Looking forward to it!

I have a few Air Combat America Team Combat Demonstrations to report on; first and foremost- TOP GUN 2011 Invitational Scale contest. The team flew a demo in the halftime show on Saturday and again on Sunday. The noon show is full of exciting acts of which our team enjoys being an annual feature.

Team Planes

Event promoter Frank Tiano has a well known weak spot for the Republic P-47 which I was only too happy to capitalize on. I offered one of my own design scale combat models of a P-47N for him to fly along with us in the demo. This is the second year he has flow this model in the show with us and he always gets a kick out of it!

Air Combat America Combat Demonstration Team Posing at Top Gun L-R; Matt Chontos, Jim Nadaskay, Kenneth Clements, John Harding, Ricky Valdes, Glenn Gelatt, Chris Handegard

Frank Tiano, in black, flying my P-47N with the Team planes in the combat demo.

On day one he got tangled up in a couple streamers early on and drove my P-47 into the ground hard enough to break the firewall and crack the fuse. I repaired it after the show and on day two he flew it again, this time with more success, getting cuts, but coming down after a minor mid-air that thankfully broke only the prop this time!

Frank limping the P-47 back to base with trophy streamers and a broken prop.

The only damage to Team planes was a mere prop embedded in a wing when two of us got a little too close for comfort! The team has become rather expert at flying close formation to clip streamers while doing their best to avoid collisions. Being sponsored with equipment provided by Frank Tiano, Horizon Hobbies, and AirScharnell, flying in the air show at Top Gun each year is a highlight of our schedule that we all look forward to and thoroughly enjoy!

The goal of the team and the reason for doing this is not just to have fun however. We are dedicated to promoting more RC Combat activity by showing others what it looks like and talking to them about it. Our efforts have paid off in the form of new combat pilots, new club flying sites opening up to hosting a contest, and much needed exposure to the public. If RC Combat is to survive and thrive, I think this is one good way to go about it.

The next Demo the team flew was at the EAA Learn to Fly day at our regional municipal facility, North County Airport. The event featured full scale aircraft galore parked

Air Combat America at the North County Airport EAA Learn to Fly Day posing in the hangar L-R Craig Buttery, Glenn Gelatt, Jim Nadaskay, Ricky Valdes, Chris Handegard

demos I am endeavoring to get them interested enough to give it a try or promote an event in their area. Where front runners go others tend to follow. After the demo I spoke with club president Beverly Cole and scheduled a combat contest for October. Another success story!

And also be sure to check out the Palomar Flyers Combat Forum at http://pfcombat.hyperboards.com/index.php for some cool combat tips, event debriefs and discussion forums.

everywhere on the tarmac, full scale flying demonstrations, helicopter rides, static displays, and an RC demonstration of which we were a part. Many expressed interest in our planes and watched the combat demonstration. Conditions were very unfavorable with a stiff tail wind that gave a couple of the guys fits trying to launch but we pulled it off.

Air Combat America and friends at the MPPA Big Bird Fly; in L-R Pablo Fernandes, Chris Handegard, David Storer, Craig Buttery, Jim Nadaskay, Ken Sr. and Kenny Jr. Clements

Finally, the team just flew a demo at the Markham Park Pilots Association club in Ft. Lauderdale Big Bird Fly-In event on 6/17. Four team members were joined by the event CD David Storer and District V Associate VP Pablo Fernandes (who I also had included in the Top Gun demo a couple months ago) to make six pilots.

By inviting prominent RC Celebs and leaders in the modeling community to fly with us in

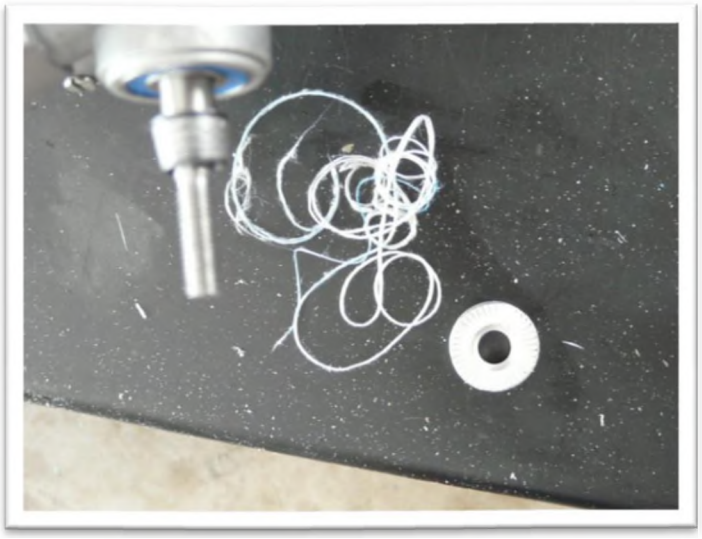
FROM THE BENCH

In my last column I mentioned a common problem of the Magnum .15XLS; getting string wrapped behind the thrust washer. I found a cheap 3-jaw gear puller to pull the thrust washer off but it required modification to work on the Magnum. After grinding the jaws down to be thin enough to fit the groove on the magnum's thrust washer I was finally able to pull it off and extract the

string that was caught there. I found the gear puller with a Google search and ordered it from Amazon but you can find them at places like Harbor freight for pretty cheap.

Puller on Motor

Thrust Washer Loose



String wrap removed

Here are a couple photos of my latest creation for Scale combat, the Spitfire MkXVI. This is one sweet flier and will be available in kit form immediately along with my first two designs, the Nakajima Ki-43 "Oscar" and Republic P-47N. E-mail me for ordering information, kit price $65 plus shipping, 2-pack $125 plus shipping.

Spitfire

Spitfire

Well, that's it for this month gang; I hope you enjoyed it and am looking forward to hearing your comments at chandegard@peersonaudio.com. Don't forget to clear your guns before you engage and check your six o'clock frequently!

FUN AEROBATICS ED MOORMAN

MANEUVER OF THE M☺NTH: 4-Leaf Clover

The 4-leaf clover is an oldie, but goodie control line maneuver that also makes a nice RC maneuver. It is also one you don't see very often. I can remember doing then with my CL stunt planes back in the 1960s and continued to do them after I learned how to fly RC.

Description of the 4-Leaf Clover: The 4-leaf clover is four loops, two inside and two outside, done in the order of: inside, outside, outside and inside. You can't just do four in a row because they would overlap. This means you have to fly a short straight leg between each loop.

The first leaf is an inside loop and you do the whole loop. All the rest of the leaves are really only three-quarter loops. That is, except for the first loop, you enter going one direction and exit going in a direction 90 degrees from the entry. Take a look at the drawing of the 4-leaf clover on the RC Report Aerobatics Card.

Keys to the 4-leaf clover: The 4-leaf clover isn't a hard maneuver; you just have to go step-by-step so you don't get lost in the middle somewhere. If you try to do all four leafs on your first try, you'll probably get lost.

Airplane and Set-up for the 4-leaf clover: You'll need a sport aerobatic or fun fly type plane with at least a semi-symmetrical airfoil. A 40-sized Stick or 4-Star 40 with a .46 size engine would be great. Two of the loops of the

4-leaf clover are outsides and outside loops are harder to do well with a high wing plane that has dihedral. Planes with a lot of dihedral tend to track poorly in outsides. They'll try to roll off to one side on their own; making the maneuver more difficult than if you had an Ultra Stick or a low wing plane.

If you have not done many outside loops, take your plane up and try a reverse outside loop. This is the one that starts from inverted and goes upward. This will tell you that your plane has plenty of down elevator control.

RC REPORT MAGAZINE	
TEACH YOURSELF AEROBATICS CARD	**4-LEAF CLOVER** By Ed Moorman

Description of the 4-Leaf Clover: Basically the 4-leaf clover is four leafs (loops), one inside, two outsides and a final inside, tied together. You can't just do four in a row because they would overlap. This means you have to fly a short straight leg between each leaf.

Keys to the 4-leaf clover: Go step-by-step so you don't get lost.

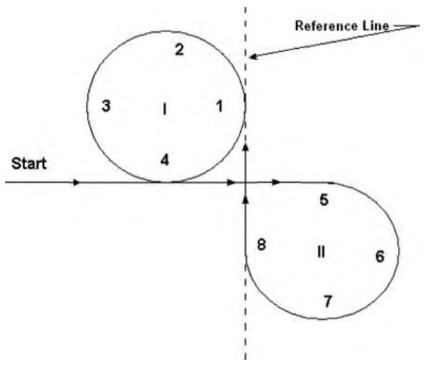
Airplane Required: Sport aerobatic plane. A 40-sized Stick or 4-Star 40 would be great.

Set-up for the 4-leaf clover: You'll be doing an outside loop going downward. Make sure you have plenty of down elevator.

Standard Set-up: 1. Full power 2. Parallel to the runway 3. TWO mistakes high.

Flight Direction: Do the 4-leaf clover into the wind.

Step 1: LEARN THE FIRST TWO LEAFS



Check the drawing of the 1st two leafs. YNote there is a reference line in the middle of the maneuver. This line should be right in front of you.

–Start your run in. Just before you get in front of yourself, pull up into a loop. Use about half elevator. When the plane is vertical, it should be directly in front of you.
–Finish the loop. Level off and fly level a short distance to point 5. You will have to judge how far this is. Start an outside loop going downward.

–After you get around to point 8 continue vertically and break out of the maneuver.

Doing the 4-leaf clover: Standard Set-up

Start off with our Standard Set-up. This consists of 1. Full power, 2. Flight path parallel to the runway, and 3. Two (2) mistakes high. This set-up is a little higher than usual, but the second loop of the 4-leaf clover is going downward so you'll want some extra ground clearance.

Flight Direction: Do the 4-leaf clover flying into the wind.

What to do:

Step 1: Learn the first two loops. Take a look on the Maneuver Card at the drawing of the first two loops. Note there is a reference line in the middle. This line divides the maneuver in half and should be right in front of you. The "two-loops" part of the maneuver looks like a vertical 8 with the lower loop displaced over to one side.

Loop I, and that's Roman numeral I, is the only complete loop. The rest of the loops look like loop II, a three-quarters loop.

Notice in the two loops portion that you exit going straight up.

Start your run in and just before you get in front of yourself, pull up into a loop. Use about half elevator. There is no need to use full up. When the plane is vertical at point 1, it should be directly in front of you. Remember this spot, if you can, because this is your center reference line.

Continue the loop back around through points 2, 3 and 4. Level off and fly straight a short distance. You will have to judge how long you'll need to fly from point 4 to 5. You want to start an outside loop going downward so that when you hit point 8, climbing vertically, you are back on your center reference line.

Here are a couple of points of advice. First, don't worry too much about the 4 to 5 distance. You will probably make a very tight outside loop on your first attempt so it won't need to be too long. Second, you may want to throttle back as you start the dive into the outside loop. Some people have a hard time coordinating their left hand into the maneuver and I normally don't throttle back myself. Some other people throttle back at point 5 and add power back in at point 7. Whichever way you use, make sure you have done some outside loops before hand and you are sure your plane has enough down elevator to make it around. We are talking full power dive at point 6. If you're flying a Stick, I

wouldn't worry about it. Sticks make nice tight outsides.

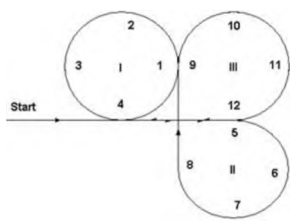
After you get around to point 8 continue vertically and break out of the maneuver. The second leaf is the hard one and you need to learn it before you go on to the rest of the maneuver. After you learn the second leaf, the rest is anti-climatic and goes zip, zip.

Step 2: Add the third leaf. Check the maneuver card for Step 2. This shows the maneuver with the third leaf added. The third leaf is pretty easy even though it's an outside because your plane starts it going straight up and its speed has slowed down. The third leaf seems like the plane is in slow motion so you'll need to ease off on the down elevator, otherwise you'll make loop III really tight.

Let's add the third loop. Do the first two loops like you have practiced, but instead of breaking off at point 8, continue vertically to point 9. This is the reason your third loop is so slow. If you don't have a powerful engine, it's probably struggling by the time you claw your way up to point 9. When you are up even to where the middle of your first loop was, put in a small amount of down elevator and do another outside. Trust me; it'll be a slow motion outside. When you reach the bottom at point 12, release the down and hold inverted flight. Once you are stabilized in inverted, roll over and break off.

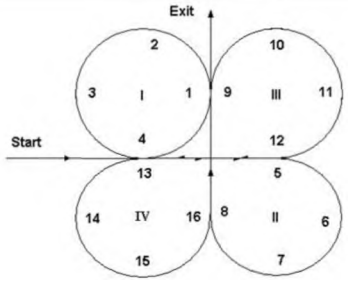
Step 3: Finish up with the 4th leaf. After you have the third leaf down, it's time to finish up. Check Step 3 on the card. The fourth leaf is an easy one even though it goes down. It's an inside loop and just about everyone is comfortable doing an inside loop. Think split-S.

Step2: ADD THE THIRD LEAF



–Do the first two leafs, but instead of breaking off at point 8, continue vertically.
–When you are even with the middle of your first leaf, point 9, put in a small amount of down elevator and do another outside loop.
–When you reach the bottom of the loop at point 12, release the down and hold inverted flight. Once you are stabilized in inverted, roll over and break off.

Step 3: FINISHING THE 4-LEAF CLOVER



–The fourth leaf is an easy one even though it goes down. Think of a split-S.
–Finish the third leaf and fly inverted until you are back under the first leaf you flew, then you do an inside loop. Break off when you are vertical and continue out the top. —
–Finish off with a vertical victory roll, of course, then spin back down.

CLIP OUT-TAKE TO THE FIELD-COLLECT THE WHOLE RC REPORT SERIES

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Ed Moorman E-mail: emoorman25@gmail.com

You know, you're inverted and you pull up elevator and go down. That's really the fourth leaf. You finish the third leaf and fly inverted until you are back under the first leaf you did, then you do an inside loop with UP elevator. Hold it until you are going straight up, then you're done. Break off when you are vertical and continue out the top.

☺f course you can finish off with a vertical victory roll or three, and then spin back down. A flat spin is excellent.

Errors: The biggest error is getting lost in the maneuver. This is why I teach learning the 4-leaf clover in steps. You have to start high enough (not in the stratosphere, but safely high) so you have good ground clearance in the second loop, the first outside. Finally, it is

harder to do a 4-leaf clover, or any outside maneuver, with a plane that has roll coupling. High wing planes with dihedral can do the 4-leaf clover; it's just much easier with a plane without coupling. These planes want to roll over in an outside and get right side up. You spend so much time keeping the wings level throughout the maneuver you don't have time to concentrate on other parts.

Charles Keel shows off his "Gator Raider." He ordered a World Models Sky Raider Mach II racing version in solid orange. His son, a University of Florida fan, picked the colors and name. Power is a Thunder Tiger .46.

Mark Pfeiffer had his little electric Seawind up at the lake. It does pretty good acro. It's all stock from Great Planes.

I've known Chris Michaels for over 35 years and he is Mr. Contender. He has built many Contenders over the years and this is one of two he has now. I always liked it because it looked like an RC Flite Streak, my favorite CL profile. This one is powered by a GMS .47.

Another flying buddy of 35 plus years, Herb Hardwick holds his WingMan I from the Wings Maker. It's electric power. When I first met Herbie, he had a Goldberg Falcon 56 that had the wings covered in orange Monokote. He still has the plane. Why don't mine last that long??

Bobby Franks and his Hawk 300S. The plane is a low wing version of a plane I designed 20 years ago or so. The tapered, sheeted foam wing has a 15% thick root airfoil and a 17% thick tip airfoil. The stab and elevator are 23% of the wing area. I flew it as a shoulder wing, Stick type plane with slight anhedral. This one flies as well or better. The power is an OS BGX-1 3500 glow engine.

FEATURE ☺F THE MONTH: More on Stalls. Last time when I started this feature on stalls, I gave you several proper book definitions of aerodynamic terms. In this half of the feature, let me get down to "at-the-field" RC definitions.

Knowing about angle of attack is great, but what tells you that your RC plane has stalled? It quits flying and falls. It can mush down, as a lot of trainers do when you cut power and try to hold altitude, or it can drop a wing and roll off into a spin or spiral. For example, say you are on landing approach and you hold enough back stick (up elevator) to keep the plane from descending at the correct rate, the plane may drop its nose or it may roll off on one wing tip. Both of these are stalls-that is, your plane quit flying. In the case of the roll off on one wing, the wing that dropped stalled before the other wing. This is normally called a tip stall.

Stalls, especially down low to the ground, like on landing, is a serious problem in RC. If the plane stalls straight ahead, it can mush down-sort of slowly fall with the nose level or slightly up, or it can drop the nose quickly. In either case, the landing isn't going to be a good one. In a tip stall, the wing drops and you can either cartwheel on roll over into a vertical dive. Both are very bad news for the plane.

Stall Warning: We don't have a stall warning horn that beeps in our ears like a full scale plane warning us an approaching stall. We also aren't the plane, so we can't feel the shaking of the plane as the air flow burbles and swirls over the wing in a stalled condition. We can do a couple of things to help alleviate stalls. First, either you or your instructor should take the plane up to a safe altitude, throttle back to idle and keep increasing the up elevator to attempt to hold a constant altitude. The plane will soon stall. Watch and remember what it does. This will let you know what will happen if you get too slow on landing. After you recover from the stall, climb back up to altitude and do it all again.

This time, keep a few clicks of power on the engine. Make a few turns to get the feel of the plane. Notice how slow the plane looks and how sluggish the controls feel. This is basically all you can do-watch the airplane and notice if it looks slow or if the controls seem slow to respond. There is no magic formula, it takes experience on your airplane and the willingness to test and see what a stall and an approaching stall looks like.

Testing your plane for stall characteristics is an excellent habit to get into. A few years ago, I was asked to test fly and trim a giant B-25 model, powered by a couple of .70 sized 4-strokes. The takeoff and trimming went easily enough. The in-air handling was great. One thing I always do during test flights is a stall test. I climbed to a good, safe altitude, throttled back to idle and added back a couple of clicks. I didn't want a flameout on the test flight. Just as I said above, I kept adding back stick to hold altitude and everything looked good. Then, in a heartbeat, one wing dropped and the plane rolled over into a nose straight down attitude. The owner, who was standing next to me, gasped. I released the sticks, added power smoothly and recovered. "I guess I won't land without flaps," I thought to myself.

I climbed back up throttled back part way and asked the owner to deploy the flaps. Sometimes, people put the flaps on some weird switches, and I wanted to make sure I got them down. The flaps came down and I throttled back to do the stall test again with flaps. This time, the big plane dropped its nose a little and started sinking straight ahead, fully controllable. I added power for a go around and cleaned the plane up. The land with flaps went very nicely.

After landing, I told the owner to not even consider landing the plane without flaps. "If the both flaps aren't working properly, do not even consider flying."

A trainer is going to have a nice, easy stall. It's designed that way. As you get better and start flying higher performance or scale planes, doing a stall test becomes more of a must so you don't total your plane on the test flight.

One more thing before I move on. I tell my students that on landing approach, if you can see the bottom of the airplane, especially the wing, you have the nose too high and a stall is in the near future. On final approach, the nose of the plane should be down in a glide attitude until you get to 5'-6' altitude, just over the runway. You should not be pulling the nose up 20'-30' in the air. You'll just be begging for a stall.

Wing Design: Earlier, I mentioned that trainers are designed to have good stall characteristics. You are probably thinking it's the flat bottom airfoil. Nope! It's the shape of the wing. Looking down on the top of the wing, you see what is called the "plan form" of the wing. A rectangular plan form wing stalls near the root first, and then the stall progresses out toward the tip. That's good because it normally it means no tip stalling. Think of all the trainers you have seen and all the Sticks of any first name and all of the sport planes advertised as a good second airplane and I can just about guarantee they all have one characteristic in common-a constant chord, rectangular wing.

When you taper or sweep the wing plan form, the region that stalls first moves outward from

the root toward the tip. Sharply tapered and swept back wings tend to tip stall very easily.

Some airfoils are also not as tolerant as others when it comes to flying near to stall speed. For the most part, these odd, full scale airfoils have been replaced on scale RC models with airfoils that are good RC flying airfoils. Here are a couple of examples.

Several years ago, there were plans for a scale CAP of some model number, I forget which. I read the article and noted the designer mentioned he crashed on his first takeoff. The plane had a scale airfoil which was fairly thick, but had the thickest part of the airfoil fairly forward at about 15% of the chord. Out normal RC airfoils usually have the thickest part in the 30%-33% of the chord. It turned out that the full scale airfoil was designed for a competition plane to do precision snap rolls. It would snap and recover very quickly. It was also very sensitive to CG placement, with a forward CG being preferred. The designer used a normal RC CG of 25%-3 ☺% back from the leading edge. It sounded good, but apparently, for this airfoil, it was too far to the rear, causing a very snappy response to elevator. This resulted in the snap roll during the pull up right after liftoff.

A second example also comes from a full scale acro plane. In this case, the airfoil was a fairly normal looking, symmetrical airfoil. To make this plane perform precision snap rolls, its designer used a tapered wing and a 14% thick root airfoil with only a 10% thick tip airfoil. A model built like this would be very snappy and tend to tip stall at slow speeds, like on landing. For an RC plane, you would like a thicker tip airfoil percentage wise than the root airfoil, or at least the same percent thick airfoil on both root and tip.

All of this means that it is sometimes difficult to translate directly from the full scale airplane to the smaller RC model. I know the well known and reputable RC designers and distributors won't sell an ARF designed like this. They test to make sure the plane is relatively easy and safe for the normal RC'er to fly. Just be aware that something listed as exact scale may or may not be the best flying plane, especially if it has an exact scale airfoil. Scale light planes and non-high performance planes should be perfectly fine.

TAILS FROM THE OTHER SIDE BAILEY

Isabelle is taking the month of July off in celebration of her birthday, so since dogs drool and cats rule; I'm taking over!

Name's Bailey and I am the senior cat of the family. Isabelle failed to wish me a happy birthday last month – I turned 15.

Well, let's cut to the chase and see what's happening. Not getting any younger here!

August is too early for most of the country to hang up their props and stop flying, but here are a couple of non-flying events for you shopping pleasure.

Visit Winston Salem, North Carolina, on August 8, 2011 for the RIVERSIDE AERO MODELERS 5TH ANNUAL SWAP MEET/TRADE at the Gate 9 Home And Garden Bldg. Email Albert Fortin at bosco78429@aol.com for more information. There will be door prizes, raffles, food and drinks. Open to the public from 7AM to dusk.

That same day, you could travel to Dayton, Ohio, for the ANNUAL SUPER SATURDAY SWAP MEET held at 5339 Huberville Avenue. Contact Gregory Tobias at g209t@att.net or visit www.wsrenegades.org. Tables will be across from the Museum of the United States Air Force, in the parking lot of Radical RC. Free admission, $10 vendor space, door prizes, early registration only $8 per table. Contact Ron at lamsco@donet.com for additional information. Sponsor: WRIGHT STATE RENEGADES

For clarification purposes, I am the black and white cat. Scotchie is the one being camera shy.

The following weekend (8-13), take a trip to Denton, Texas, for a SWAP MEET AND AUCTION at the Denton Civic Center. John Larsen can answer your questions when you email him at jrlarsen@verizon.net. Visit: www.northtexasaeromodelers.com. Swap hours 8AM to 1:30PM, auction 12PM - 1:30PM. Advance table rental: $15 first table, additional tables $10 (by 8/6), all tables $15 day of event. Admission $5 all day, ladies and under 12 free. Concessions planned on site. Sponsor: NORTH TEXAS AEROM☺DELERS

Set up camp in Texas and visit Kingsland on August 20, for the HLF SWAP MEET held at the Kingsland Community Center. Email Michael Mcdougall at mmcdougall@nctv.com. New bigger location, more tables. $5 entry fee, $5 table fee. Kids under 12 and spouses free. Food and drinks on site. Prizes and raffle drawings. Sponsor: HIGHLAND LAKES FLYERS

Now that you spent all your money, let's go fly!

The MODELAIRES 75TH ANNIVERSARY will be held in Bondurant, IA on August 6 at Club Field. Email James Lewis at clone2tb@mchsi.com or visit www.desmoinesmodelaires.com. Celebrate 75 years of modeling with us. 9AM to sunset, open flying, AMA required. Demonstrations, giant scale, aerobatics, helicopters, free hands on training flights. Food and fun for all ages. Limited camping on site. Sponsor: DES MOINES MODELAIRES

Join the fight against cancer in Morrison, IL, on August 7, at the SUSAN G KOMEN FLY IN BENEFIT at Rockwood Field. Contact Darryl Miller at dlmrcpilot@gmail.com. Visit www.mmafrc.org. Open flying all day starting at 10AM. Lunch available. $15 landing fee. All proceeds go to Susan G Komen Foundation. Help us beat Cancer! MORRISON MODEL AIRCRAFT FLYERS

Columbus, IN, will be the site of the 3RD ANNUAL JOE GRUBE MEMORIAL BIG BIRD FLY IN on August 6. This event will be held at Club Field. Kenneth Erickson can help you with directions. Email him at ken_erickson@comcast.net or visit www.bcrcfliers.org. Flying, food and fellowship! Bring 80" mono, 60" biplane, true 1/4 scale or larger. Grass runway 90x500'. Landing fee $10 includes lunch. You must have your AMA card. Sorry, no jets. Sponsor: BARTHOLOMEW COUNTY R/C FLIERS

The (C-Restricted) 30TH ANNUAL MONSTER MASH will take place on August 13, in New Haven, IN, at Club Field. Ronald Ballard can be reached at strikemaster@onlyinternet.net or visit www.flyingcircuits.org for more information. Join them in celebrating the 30th Monster Mash. All giant scale aircraft welcome. Open flying after 6PM on Saturday. Open flying all day on Sunday. 300' paved 800' grass area. Free pilots dinner on Saturday for all registered pilots at 6PM. Primitive camping, no hook ups. Early set up Friday with cook out. Sponsor: FT WAYNE FLYING CIRCUITS INC

Spend August 12-14, in Owatonna, MN, and enjoy the (C) NORTHERN ALLIANCE MILITARY FLY IN at Club Field. Email Calvin Branton at brantoncfb@msn.com or visit www.smmac.com. Entry fee before August 1, $20, after August 1, or at the door, $25. Rib dinner $14. Sponsor: SOUTHERN MN MODEL AIRCRAFT CLUB

Visit Beach City, OH, that same weekend for (C) AIR SHOW 2011 at the Beach City Airport. David Dessecker has the information you need. Email him at davepeg169@hotmail.com. This is the 16th year for this event! All size models will be flown from electrics to the giant scale. No landing fee, but donations will be accepted. Concessions by the Beach City Pilots Assn. Large grass runway. Sponsor: TUSC ☺ RC CLUB

Stay awhile in Ohio and have some fun on August 20-21, in Cincinnati at the AL JONES - FRANK GARZON MEMORIAL SPEED MEET held at Lunken Field. Email David for more information at speedtimes@chartermi.net. Events 301-310(JSO). All AMA speed events plus NASS sport jet, perky speed, and C speed will be flown. Sponsor: QUEEN CITY U-CONTROL

Maybe you are closer to Oregon? The (C) NW VINTAGE FAI CHALLENGE will take place on August 19, in Plainview at the Plainview Flying Site. Email Robert Stalick if you get lost. His email is: freefliter@aol.com. Visit www.willamettemodelersclub.weebly.com for more information. Power and rubber flown in rounds as per NFFS rules. All contestants are welcome. Sponsor: WILLAMETTE MODELERS CLUB INC

All the way on the other side of the US, in West Middlesex, PA, the (C) HUBBARD WINGSNAPPERS FLY IN will be held on August 21, at Club Field. Ken Jennings can be reached at rsoheliman@yahoo.com or visit www.hubbardwingsnappers.com. Fall fly in. Bring anything to fly. There will be a raffle, 50/50 drawing and great food. Come, relax and enjoy the day!

Travel south the following week and stop by York, SC, for the (C) YCF SUMMER FUN FLY held at Club Field. Contact Brent Good at bgood65@carolina.rr.com or visit www.yorkcountyflyers.com for more information. Open to all types of aircraft. $10 landing fee, concessions available. Raffle and pilots prize, pilots meeting at 9AM, flying until ? Sponsor: YORK COUNTY FLYERS INC

Continue further south that weekend (August 27-28) and visit Tullahoma, TN, and have some fun at the (C) COFFEE AIRFOILERS GIANT SCALE FUN FLY at Club Field. George Schmidt can be emailed at gws303@gmail.com. Visit www.coffeeairfoilers.com for more information. RV primitive space available. Email to reserve.

If you are more in the mood for water fun, visit The Colony, TX, on August 27 for the (C) NORTH DALLAS RC CLUB ANNUAL FLOAT FLY at Hidden Cove Park. Email Charlie Viosca at viosca4@aol.com. Park located north of The Colony, TX on Lake Lewisville.

Send in your event information by email, via the office: juliac@rcreport.net, with information concerning upcoming events that you are aware of – no matter how big or small! Attach a flyer, too! If you don't tell the RC world about it, the RC world will never know to visit and fly with you in your part of the country!

Isabelle will be back next month. I'll pop in from time to time to say hello, so until next time…I will leave you with little bit of wisdom: Spay and neuter your pets and AD ☺ PT – don't buy! Rescued is my favorite breed!

Bailey

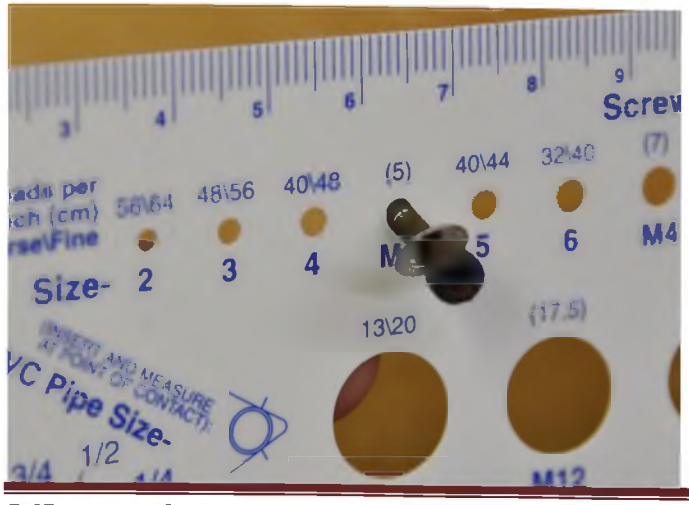
UTILITAS EFFECTIVAS.....(LATIN FOR COOL TOOLS?)

Howdy folks! Welcome to Cool Tools. This monthly little snip-it will give you tips on my most recent little garage sale, swap shop and closeout finds. Now these may not be things you will find at the local hobby barn, or the two big online RC superstores, but rather items you can find that will fit that little rinkychink to make your shop more usable!

While wandering the endless hall of the of Home Depot looking for some 2x4 studs for a set of saw horses, I found this little ditty on the aisle with the nuts, bolts and such - a little plastic card from Gage-It. It's hardware gauge (Imagine that, a name that makes sense!). This little card has gobs of measurements, conversions, slots and holes. The holes are labeled for ya so you can find that right drill from your index set, check the size of the wire on your battery.(if you're into the electron based planes) There is a gauge on the end to check the size of your nut, as to make sure you use the correct bolt! This handy little thing has 101 uses, and only costs $1.98 so get a couple! It is a great help when trying to follow those tiny little instructions when you have four screws that are close to the same size. Just lay the screw up to the ruler, standard or metric; don't matter either, it's got both!

'Til next month

Latin Prof. Post Hole Digger



Sparky's Revolt

by Tony Coberly

Wow! This year is flying by like a bullet greased with lard shot, from a rail gun!! I attended a swap meet here in Huntsville in January of 2008. I purchased a Bullit flying wing from Hobby Lobby. I have always loved flying wing aircraft, so I picked up this one at the swap meet, even though it was already started. Since the Bullit is not readily available right now, I will go through the build and electric conversion process, and look at the different power systems we can use.

First thing is the size of the Bullit. It has wing span of 33 inches and a wing cord of 22.5 inches. The Bullit is designed for a glow power system up to .32. It is a bit smaller that my other flying wing, the Outlaw from Extreme Flight. The power system I chose in the Outlaw is far from efficient or optimal, but it is what I had on hand. The Outlaw is setup to handle up to 12 cells, and has wattage up around 2000. The Outlaw is crazy fast, but crazy heavy too! I want to keep things a little more on the level and easy with the Bullit, so I first look at the expected weight of the Bullit. OOPS! I forgot to mention that I have no instructions to go by!!

I am going to use two Futaba 9650 digital mini servos for the elevons. The Futaba 9650 has a torque specification of 50 oz-in @ 4.8 volts. I use these servos a lot because they have plenty of power and only weigh .9 oz. So that's about 2 oz. for servos, my E-flite 60 Amp ESC weighs in at 2.3 oz. and finally my Futaba 7-Channel FASST receiver is only .35 oz. With the airframe weighing in at 21 oz., we have a total expected weight without battery or motor of about 26 oz. Here is where I am going to change gears for a minute.

We have starting point, but I want this model to fly fast. If we consider the accepted rule that 50 watts per pound is good for glider/trainer like performance, 100 watts per pound for sport performance and 150 watts per pound for extreme performance; then let's apply this to the model if we added a power system that weighs 8 oz. Now our model weighs 34oz. or 2.125 pounds. Glider performance we need 2.125x50=106.25 watts to fly this plane. In theory, that might work; but we are looking for speed, not a glider. Sport plane performance would give us 2.125x100=212.50 watts. This is getting there, but like I said speed is the idea here. Extreme performance is 2.125x150=318.75 watts. Now these are very early numbers, but a baseline. Currently, we are assuming a weight for our power system to be 8 oz. This system could be up to a 16 ounce power system if we chose to use it. Let's look at something that several folks do not look into until the plane is built. Wing loading!

Because we can probably make this plane weigh between 34 and 50 ounces based on power system, we need to know the wing area so we know what to expect. The wing area computes out to be 371 sq. in. Now we apply a few more generally accepted rules. Wing loading for glider flying characteristics is about 10 oz/sq.ft. Trainer like flying will need to be 15 oz/sq.ft. Sport plane loadings are usually about 20 oz/sq.ft. Scale

planes tend to have wing loadings of 30 oz/sq.ft or better. So let's apply the theoretical weights we looked at earlier. 371/144=2.57 sq.ft wing area. 34 oz. / 2.57sq.ft=13.22 oz/sq. ft. Okay, so let's look at something more like 50 oz. total weight and calculate it out. 50oz./2.57sq.ft=19.45 oz./sq.ft. We now have a wing loading range of 13.2 oz. /sq. ft to 19.45 oz./sq.ft to figure our power system. Now back to original overall weight figure of 34 oz. This would be a very light aircraft, but with only 8 ounces to work with, you would be limited to a battery in the 4-5 ounce range and the same weight range for the motor. Remember in the weights we used earlier I already figured in a 60 Amp ESC, so it's not a concern right now. Let's look at general weights for some motor and battery sizes. Generally an electric motor equivalent to a .15 size glow engine would be something like an E-Flite power 15, or the Rimfire .15 35-36-1200. The E-Flite Power 15 weighs in at 5.4 oz. and the Rimfire .15 weighs 3.6 oz. Let's look at a four cell LiPo pack for the motors described. The average generic four cell LiPo in the 25☺0 mAh range weighs in at about nine ounces. So, if we have about a nine ounce battery coupled with a motor that weighs about four ounces on average, we have a power system weight of 13 ounces. Wing loading calculations from earlier showed that a power system up to 16 ounces would still provide us with a wing loading of 19.45 oz./sq.ft. A wing loading under 20 oz./sq.ft is very lightweight and easy to hand launch, so we are in the ballpark. This leaves us with several options and allows us room to add a bit more weight to make as much power as possible! Remember earlier that I mentioned that I want speed!

Now I am going to shoot for a maximum weight in the area of 50 ounces ready to fly, with the most power I can muster! I have two five cell LiPo packs in my arsenal, so that's what I'll plan to use, one pack per flight. My Hyperion 5-cell 4000mAh LiPo packs weigh in at 18 ounces. So I need a motor that weighs no more than six ounces to be at our maximum of 50 ounces ready to fly. Using five cells, I am shooting for a RPM at or near 14000 with an APC prop in the 10x7 or 10x8 range. This will result in thrust numbers of nearly 90 ounces of grunt!! Remember that I am looking at about a 50 oz. ready to fly plane! This means nearly two to one power to weight ratio! So if we are using a five cell LiPo, that means we have a full charge voltage of 21 volts. We can assume that under a load of a prop at full throttle we will have about 19.5 volts. So 140000RPM /19.5 volts = 717kV. Now a higher kV means faster, but also more heat! This is just a jumping off point, but at least we are not just guessing.

I always first look in my file cabinet to see what I have in the shop before heading out to the local hobby shop in Huntsville. I didn't really expect to find what I wanted, but I did find something very close. I found an ElectriFly Rimfire 45-50-800 that weighs about 7 ounces. This motor is considered a .32-.46 size glow equivalent motor and is capable of sustained current of 925 watts and bursts to 1480 watts! Now the motor is 800 kV, so that means we can assume that our RPM will be a bit higher than we initially calculated, but it is very close to what we calculated. A slightly higher kV will yield a bit more RPM, and of course more current and heat, so we will have to do some real world testing to see what we actually have. I expect that a 10x7 APC will still pull very well. Let's give it a try!

The Bullit needs a few modifications to accept the power system that we talked about, so I started in the belly of the beast. I have heard of times that while pulling to vertical at high speed, the center of the wing in planes like this have simply failed and the battery has left the plane through the bottom! I placed a layer of fiberglass on the bottom of the belly and wrapped it up the sides slightly to reinforce this area. Just some epoxy or even thin CA glue will allow a great deal of additional strength. Once the glue dried, I fit my battery in the belly and found out very quickly that my receiver, speed controller and battery will not all fit comfortably in this space. I decided to just move my receiver back behind the battery in line with the servos. I just need to cut out a small access hatch to fit the receiver into. Now I have a bit of additional room for the speed controller and battery.

Now I have to consider cooling! This baby needs some place for air to escape, so out came the Dremel! Now I didn't get very picky here, I just opened a hole in the bottom rear of the cavity, and an additional hole in the top hatch. (Photo 1) One final hole behind the speed controller that opens up into the hand launch holes to make sure the rear of the speed controller gets some cooling as well. Moving forward we can now mount the motor!

The Rimfire 42-50-800 has a mount on the rear that requires about one inch of spacing to allow the prop to clear the front of the fuselage. I used nylon spacers from local hobby shop for a perfect fit. Simple 4/40 blind nuts are marked, drilled and installed. Now for the important part: More Cooling!

I already opened up exit holes for the air entering the fuselage, but the single hole up front will just not cut the mustard! I drilled four more holes evenly spaced between the blind nuts, but not too close, to allow more air in! (Photo 2) Now we can mount the motor and start tiding everything up! I decided to keep cooling at a maximum by not putting my motor wires through and out of the holes in the firewall, but rather run the wires to the speed controller

Photo 1: Note the cooling holes marked in the bottom of the battery tray and on the hatch cover. Just quick and dirty with a felt marker!

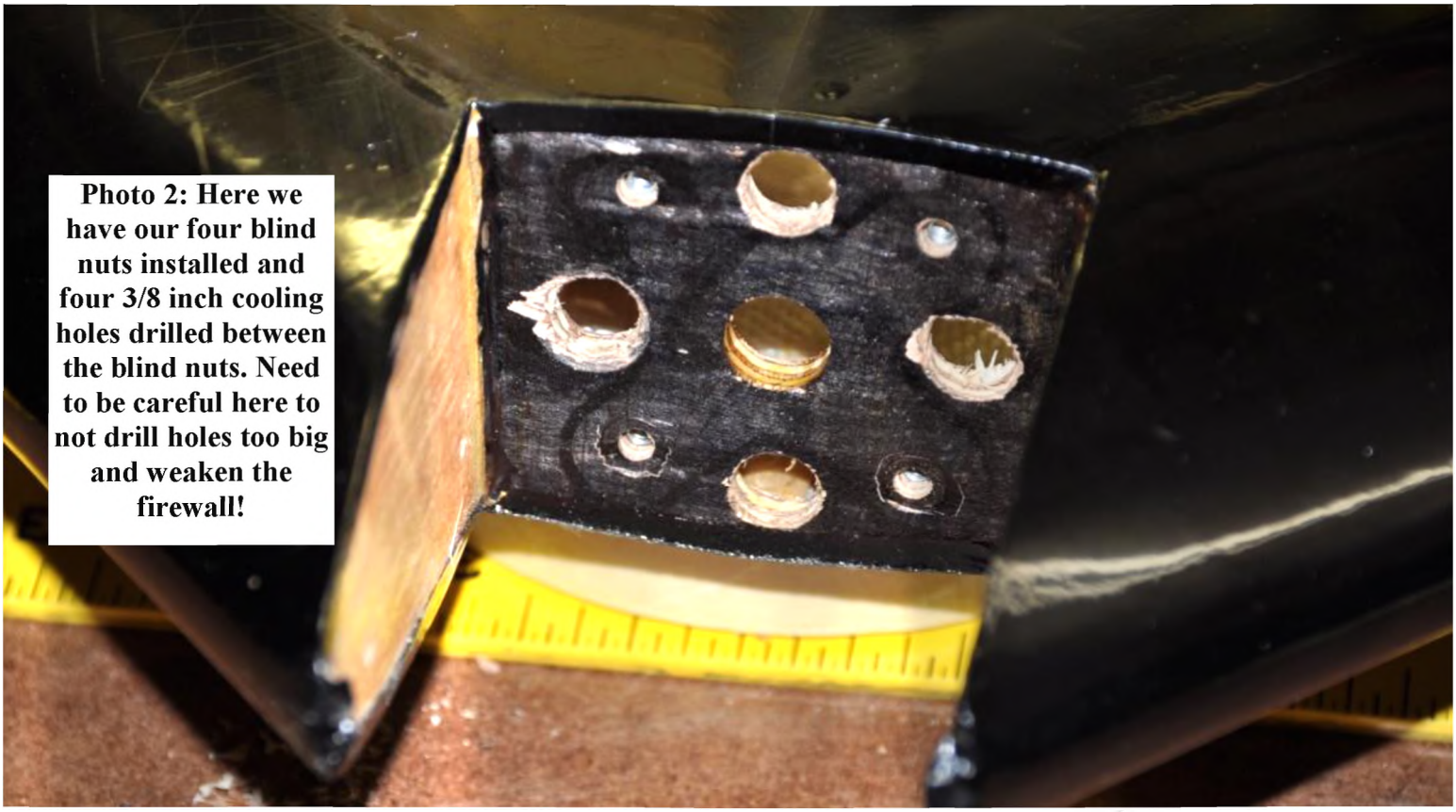
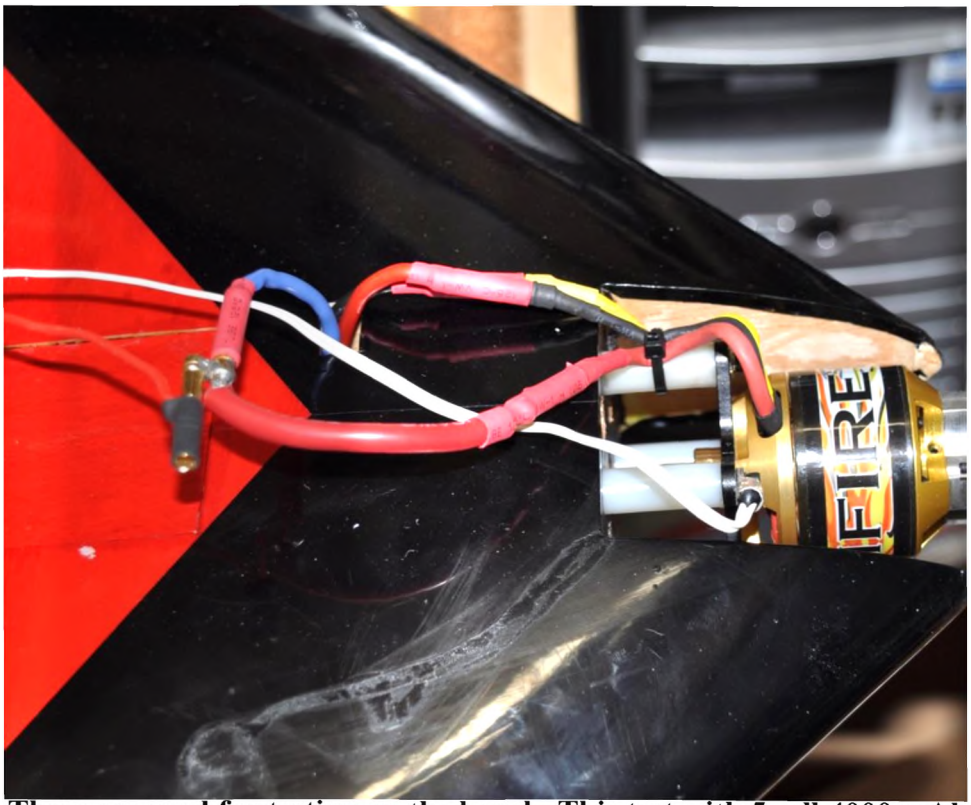


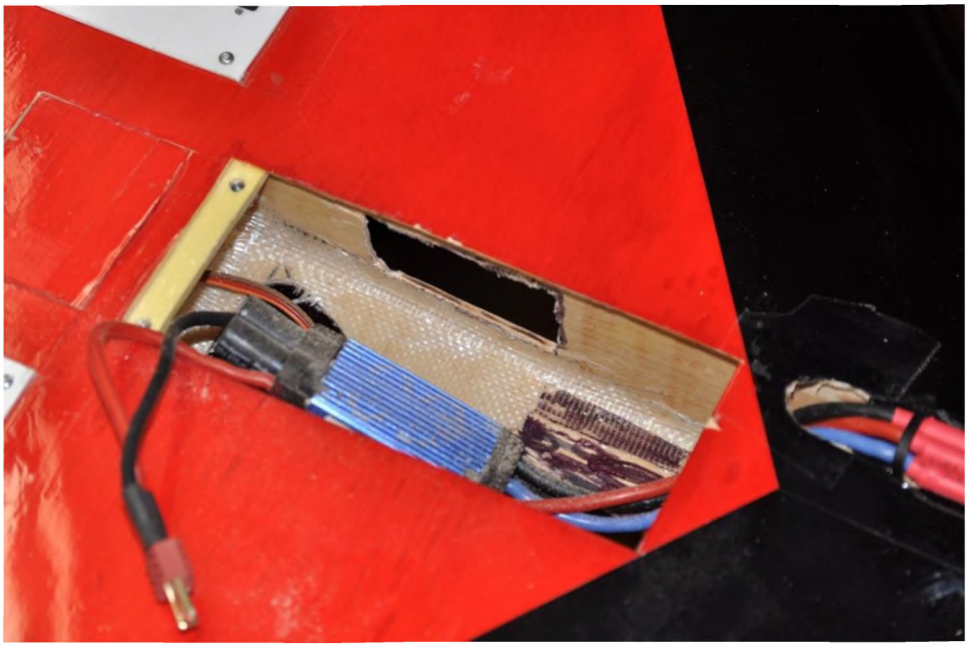
Photo 2: Here we have our four blind nuts installed and four 3/8 inch cooling holes drilled between the blind nuts. Need to be careful here to not drill holes too big and weaken the firewall!



These are used for testing on the bench. This test with 5 cell 4000 mAh pack and a APC 10x7 yielded 905 watts, 14550 RPM and only 47 amps. This will be a great power system!

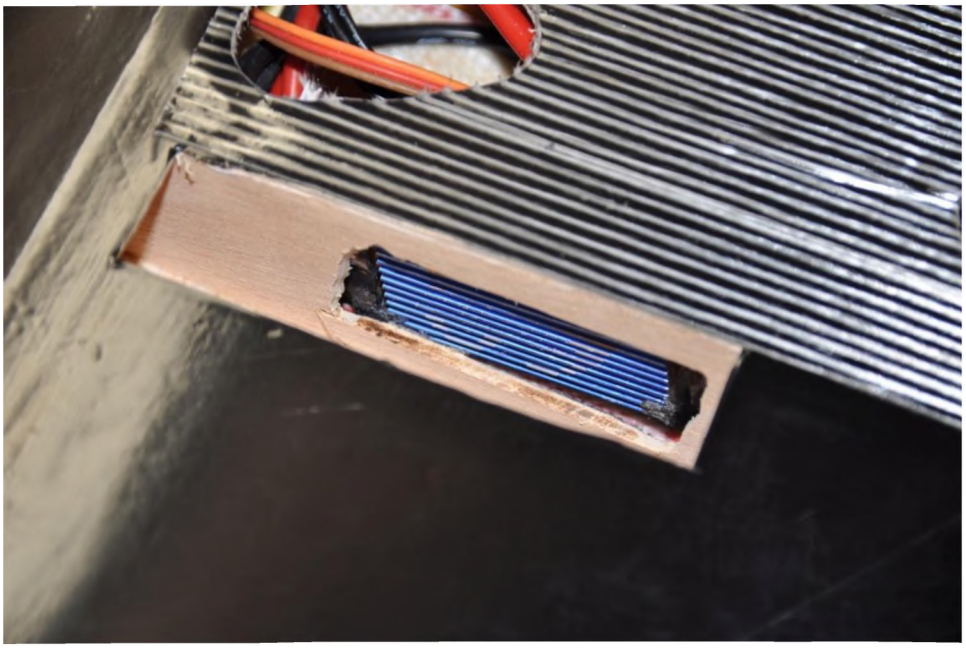
on top of the fuselage and down through a small hole in the top of the wing just before we get to the hatch. This also allows for a bit more room in the battery area. (Photo 3) A simple tie wrap to the motor spacer and we are getting close to getting to the field! After a few test runs on the bench I noticed that the ESC was getting a bit hotter than I really wanted so I decided to cut another cooling hole on the back side of the ESC. The back side of the ESC opens up to a hand hold and launching area on the bottom of the fuselage. This should be more than adequate air onto the ESC. (Photo 4&5)

The radio setup is very simple these days with my Futaba 12FG radio and the elevon mixing done for me. A



little tiding up of the wires and receiver, and a couple of hatches over the servos and we are basically ready to fly! I am using an educated guess on the CG balance point, and on the throws of the control surfaces, since I don't have any instructions. The first flight should be interesting at least!

Flying the Bullit resulted in a very quick and powerful system. The Bullit will accelerate out of a hand launch at a 45 degree angle and climb to the moon. My power analyzer shows a 47 amp, 905 watts and a measured RPM of 14550 static on the ground with an APC 10x7 E prop. The Hyperion 4000 mAh 5-cell LiPo give a flight time of 5-7 minutes with minimal throttle management. The calculated speed exceeds 80 MPH and is very fun to fly. Now I can experiment with props and get more speed. The speed controller is capable of 60 amps continuous draw from the motor and the battery can handle over 100 amps. This setup is still not pushing the component limits, yet we have over 200 watts per pound and very good performance and efficiency. I guess that I can probably push this system with an APC 10x10 and gain another 15 MPH or so.

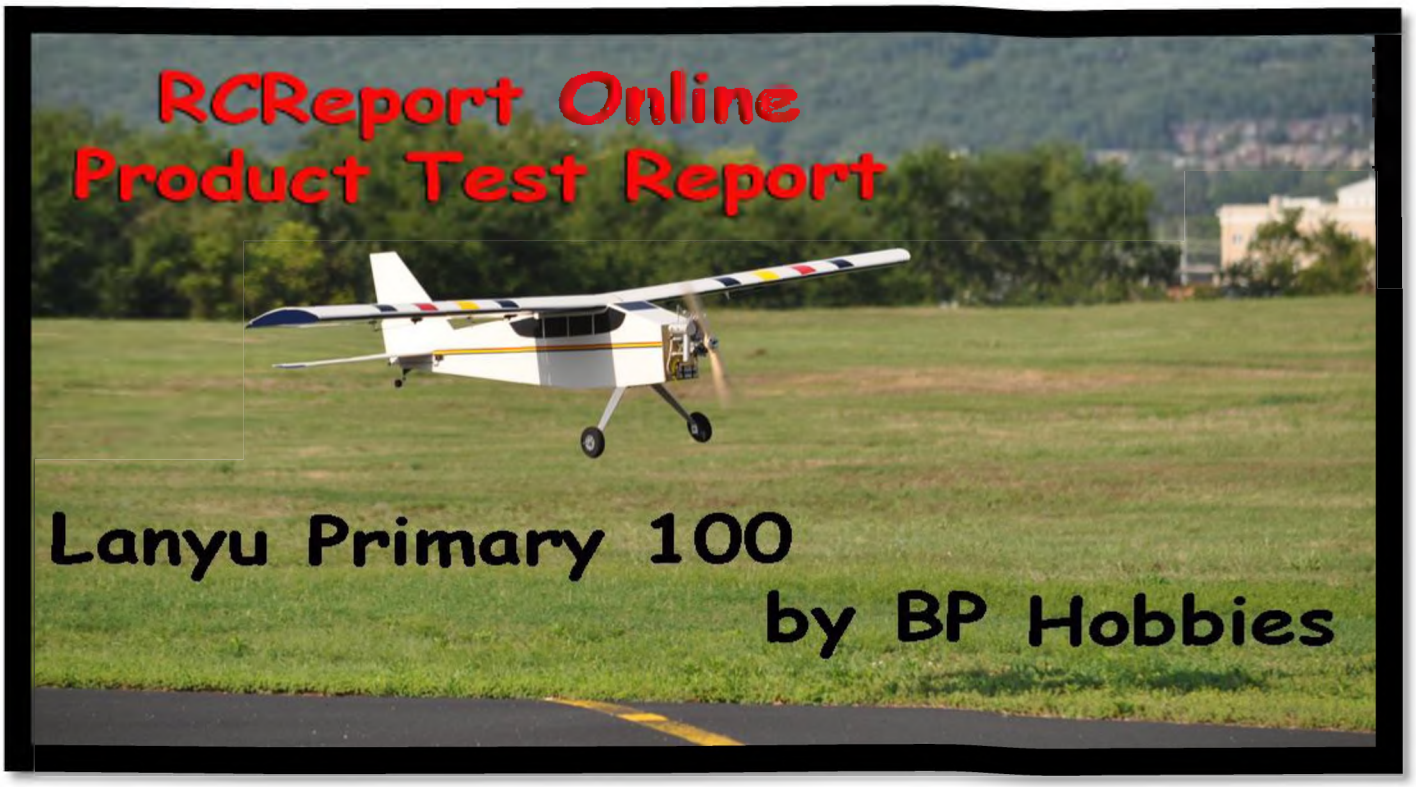


Please let us know what you want to see in RCReport Online! We are here to keep you informed and entertained !

Until next month!

Tony Coberly

tonyc@rcreport.net



Model:	Lanyu Primary 100 ARF
Airplane Type:	Trainer/Utility
Manufacturer:	Lanyu Mode Company
	Henan P.R. China
Distributor:	BP Hobbies
	115 Stryker Lane Building 4 Unit 10
	Hillsborough NJ 08844
Typical Price	$199.99
Sale Price	$179.99
Wing Span	Advertised: 100 in
	Measured: 98.75 in
Wing Area	Advertised: 1719 sq.in
	Measured: 1600.25 sq.in
Airfoil	Flat Bottom

Wing Type	Built up balsa/plywood
Wing Joiner	hardwood block Fuselage Length Advertised: 72.5 in
	Measured: 72 in
Pushrod type	Wire
Hinges included	Yes
Hinges Installed	No
Rec. Controls	Ail, El, Rud, Throt, Flaps
Engine Mount Installed	NO
Rec. Engine	1.4+ cu.in. 2-stroke
Landing Gear Installed	No
Wheels Included	Yes
Advertised Weight	Not provided
Hardware:	Metric

Hardware Included: Pushrods, fuel tank, wheels, axles, rubber bands, tail wheel assembly

Items needed to complete: 1.40+ 2 stroke gas engine, 18x8 prop, switch harness, 6-7 36in servo extensions, 6-8 high torque servos, 30 minute epoxy, CA glue, 6-8 channel receiver, Rx battery, foam, lead weights

Covering Material Iron on Generic

Fuel Proofing required No

Estimated Assembly Time 15-20 hours

Estimated Skills required

Building: Intermediate

Flying: Intermediate

Drilling required: Yes-Servo arms, servo screws, motor mount, and control horns, firewall

Assembly Tools required: Hobby knife, small drill bits, pliers, side cutters, #1 and #2 Phillips head screw drivers, various metric hex wrenches

Adhesives required: Thin CA glue, 30 minute epoxy

Completed Model Specifications

Finished Weight: 17lbs 4oz.

Wing Loading: 24.84 oz/sq.in

Engine Used: RCGF .26CC

Propeller Used: Zinger 18x8 Wood

Fuel Tank Used: provided

Main Battery used: Hyperion 2-cell LiFe 1450 mAh pack without regulator

Ignition pack used: Converted B&D VPX 1100 mAh A123

Radio used: Futaba R6014HS Rx with Futaba 12FG transmitter

Servos used: 4-Spektrum A6000 digital servos: ailerons and dual elevators 2-Futaba S9650 digital servos on rudder and throttle, 2- Futaba 3152 servos on flaps

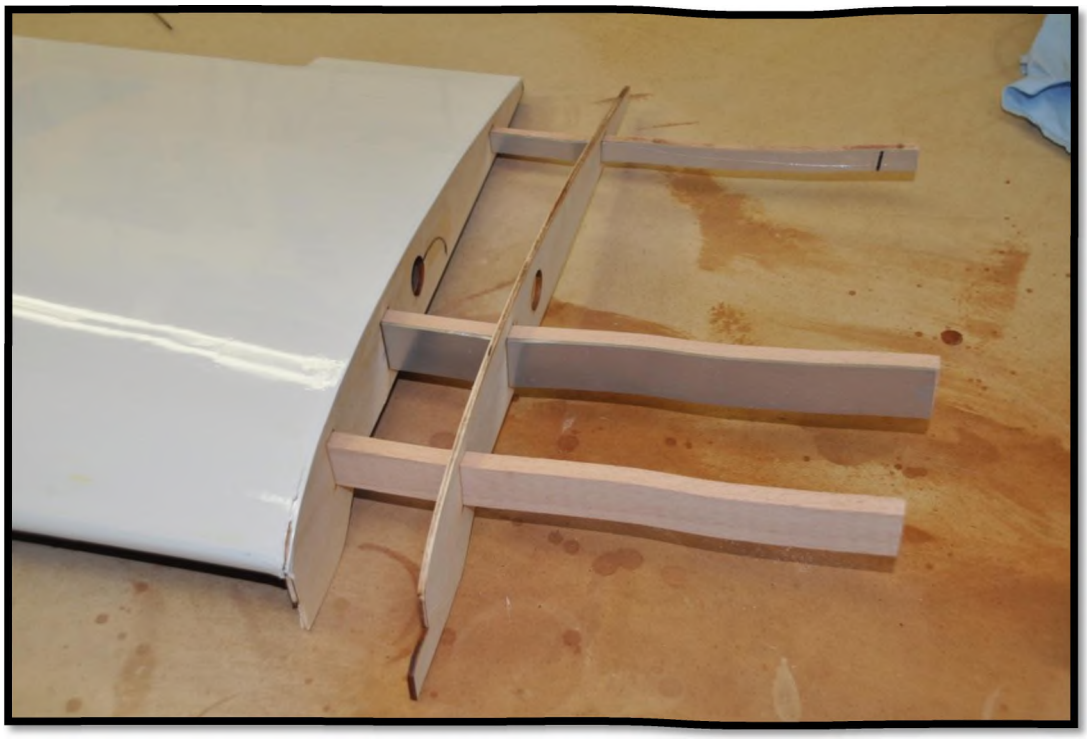
Cheers: Light wing loading allows for utilitarian use, flies slowly and can be used as trainer, very inexpensive for a plane this size

Jeers: Hardware kit is not complete, instructions are laughable and should be burned, wing damaged due to bad packing

The Lanyu Primary 100 is a large trainer like plane that is designed to be used as a "TUG" for tow launching of gliders, aerial video and most any other utility type platform. I was looking for a platform for a small gasoline engine and this was at the local hobby shop, so I said why not! Let's get started

The first thing you notice is the size of the box. Considering it is a trainer style plane, you expect the box to be big, but this box is nearly as tall as I am! Well it is supposed to have a 100 inch wingspan; so of course, it has to be at least 50 inches per half, so I shouldn't have been so surprised. (I guess I have been building small electrics for too long.). I pull all the parts out and spread them out on my bench to have a look at everything.

The first thing I found was that both halves of the wing panels had tabs broken off from the center leading edge of the wings. Hmmm… Not good. The plane covered my entire bench, and that's saying something because my bench is 48 inches by 97 inches! With all the parts laid out, I grabbed the instructions and perused the pages...or at least tried.

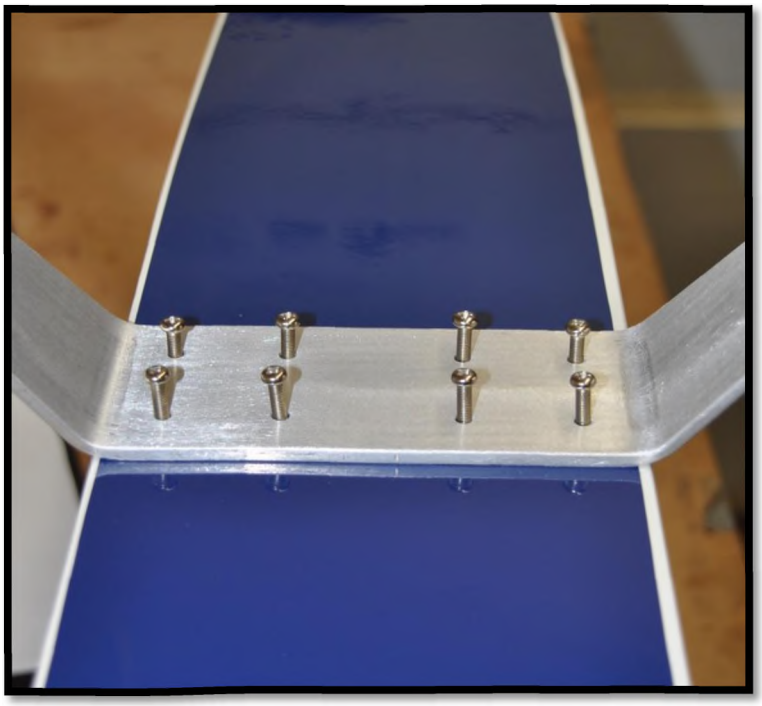


The instructions are filled to the brim with statements like "*into both wings, agglutinating Insert the two gemels each other regularly"* and then "*tight the wing and aileron with hinge."* Clearly there was a very loose translation from Chinese here, but at least there is the Chinese text here as well! The instructions do have several decent illustrations to help us along, but with the terrible text you would NOT want to build this as your first model airplane. I suppose we can get started and just wing it!

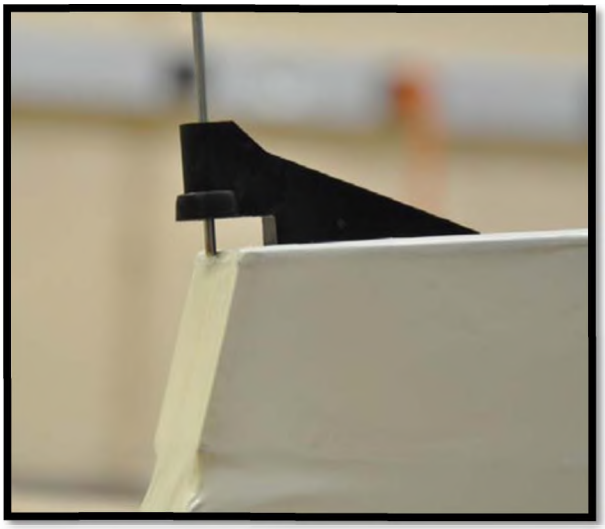
I decided that I would start with the joining of the two wing halves. The wing halves are joined with several hardwood blocks and aluminum reinforcing pieces. Along with the wing joiners there is a root rib provided for the seam in the wing panels. We are instructed to simply glue everything together, and then block up the wing tips by what appears to be 2.5 degrees according the instructions. The hardwood blocks fit into the slots in the wings very well, whereas the aluminum supports act as filler in the slot. Now I used 30 minute epoxy from Bob Smith Industries to glue the blocks into one wing half first. Make sure that you rough up the aluminum pieces before mixing up the epoxy

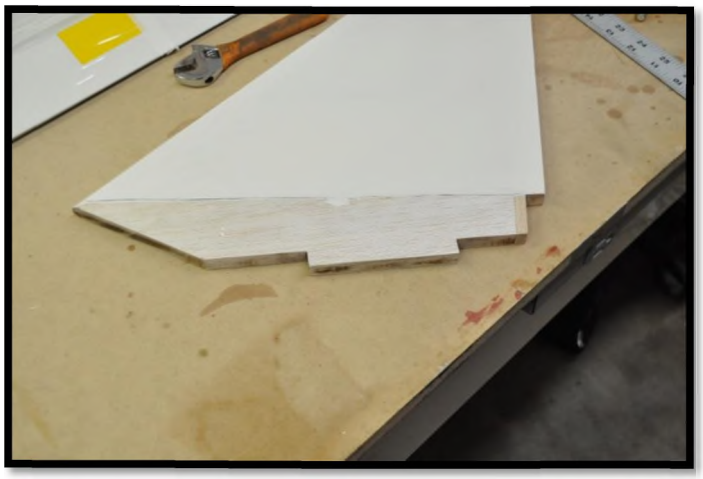
because the aluminum is very smooth and will not bond well. I recommend that you get an extra hand here, because this 100 inch wing is quite hard to handle as you try to slide the halves together. Once glued together, I blocked on wing panel flat on the bench, and propped up the opposite side of the wing until the dihedral gap in the center of the wing closed up. The right wing ended up with the tip 5 inches off the bench. Now with the epoxy drying, I moved onto the fuselage.

The fuselage seemed very heavy, and I looked inside the fuselage and I see why. You are hard pressed to find any balsa in the fuselage other than a bit of corner reinforcement. The sides of the fuselage are $1/8^{th}$ inch plywood that is reinforced with more $1/8^{th}$ inch plywood. Well at least it's strong! I like to get the landing gear on as soon a possible, so that's where I started.



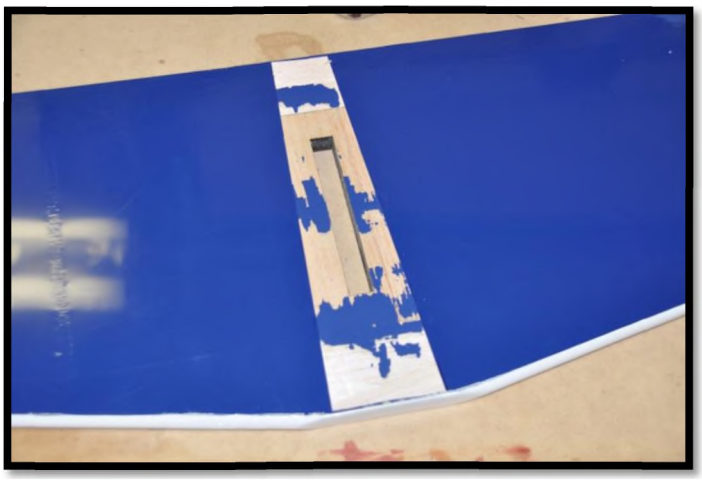
The aluminum strap landing gear is held onto the fuselage with eight 4x20mm screws. Sounds like a lot, but at least it should not break the screws on a hard landing! Because this model will have a gas engine we need to make sure all the machine screws are installed with thread locking compound, so don't forget. The landing gear is predrilled for the axles, so I attempted to attach the axle to the gear; but the hole was too small for the threaded portion of the axle to fit. I drilled the hole out to fir the 5/32 in axle and attached the axle with the nut provided. The wheel fit on the axle and a wheel collar holds the wheel on. The axles are overly long and look a bit goofy, but I'll leave them alone for now.



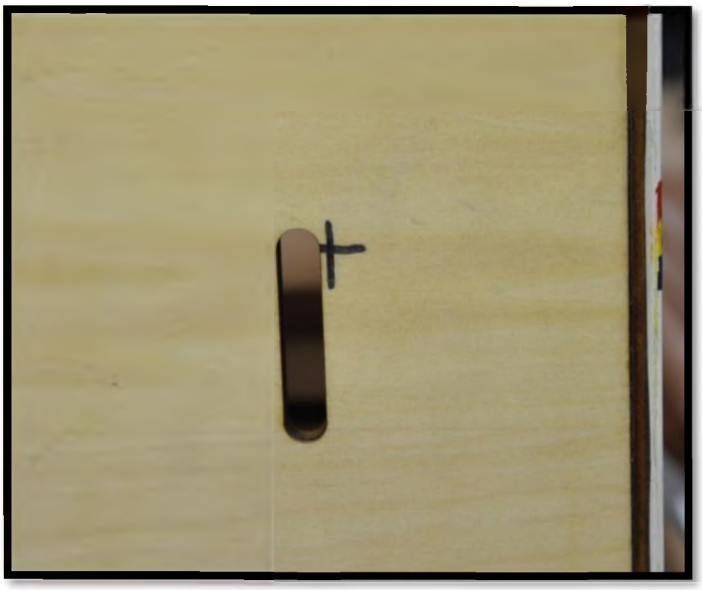


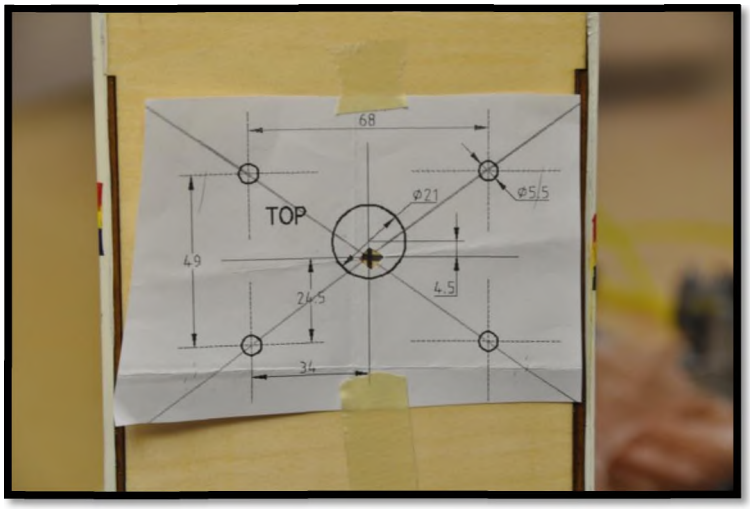
Now I like to get the tail wheel installed as well. The plastic tail bracket is screwed into the plywood in the tail of the plane. Now looking at the instructions, they show the bracket being lined up with what will be the rudder hinge line, but it's not possible! The angle of the fuselage tail post is NOT 90 degrees to the bottom of the fuselage, so it does not line up correctly. I attached the bracket to the fuselage, but I'll hold off on the actual wire later. Now at least the fuselage won't get beat up while dragging it around on the bench.

The tail surfaces are pre-covered as usual, so we just need to open up the slots in the fuselage for the vertical and horizontal stabilizer fins. I temporarily installed the vertical and horizontal fins and lined them up so I could mark the covering so it can be removed. The covering material is more like MonoKote rather than UltraCote, but when I cut it loose and remove it; some of the color stayed on the wood. The stabilizers are very straight and true, but quite heavy as well, but I guess that's better than being fragile and weak. Now the stabilizers fit very well and lined up with the wing very well, with just a little material removed from the right side of the horizontal stabilizer slot. I used more 30 minute epoxy to hold everything in place, and some masking tape to make sure nothing moved while the epoxy dried.



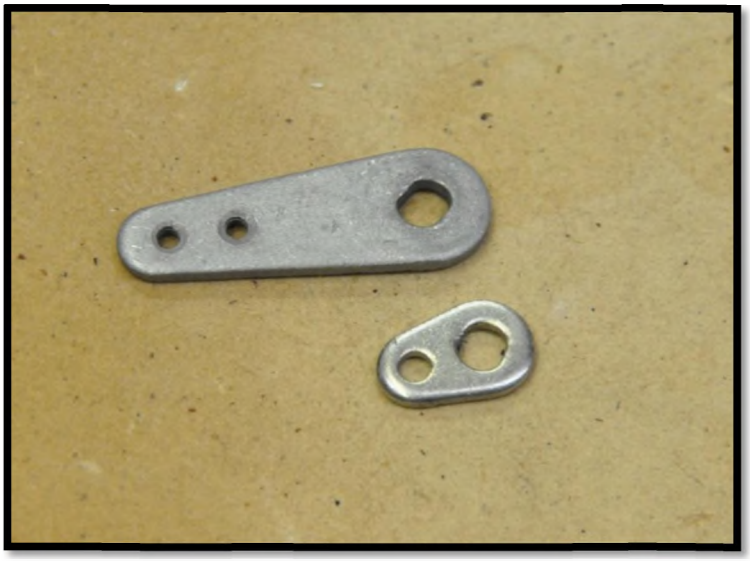
Now I decided to go ahead and get the recommended RCGF .26 gas engine on the firewall. This fuselage has no cheeks or cowling or anything, so mounting is very easy. I just mounted the drilling template provided with the engine. The firewall has an X where the center of the prop shaft of the motor should be located. The template has a corresponding X to line up the motor mount holes with. I just line up these two marks and I can mark the holes so I can drill them. With the mounting holes drilled, I added the provided standoff mounts. The aluminum mounts are not quite long enough, so I had to add four nylon spacers to move the motor far enough from the firewall for the choke plate to clear. The bolts come through the firewall and through the nylon spacers





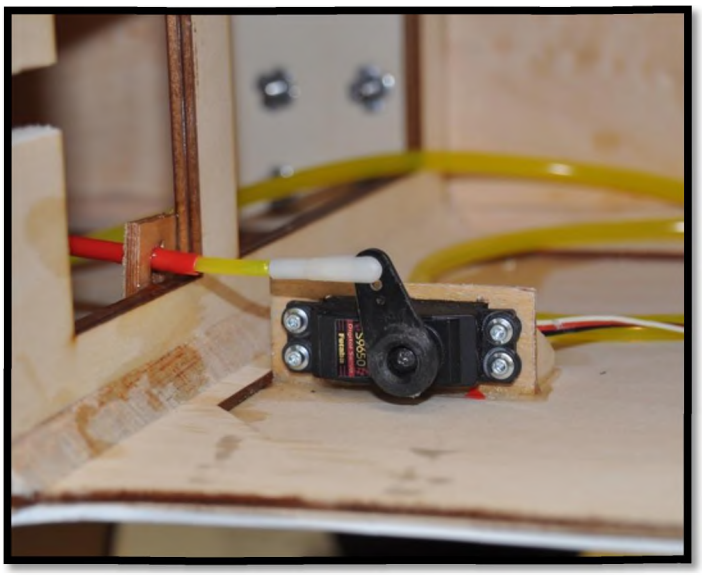
and thread into the aluminum standoffs. Once again we need to make sure to add thread locker on the bolts. The engine now just mounts onto the opposite end of the standoffs and the engine is completed.

The engine has a very short throttle arm, so while I was at the hobby shop I picked up a longer arm to make the throttle pushrod work better. The replacement arm just screws onto the throttle pushrod and now we can drill a hole for the throttle pushrod. Now whenever you have a spark ignition engine, it is best to isolate the engine ignition system from the receiver as much as possible. This means I don't like to use solid steel for the throttle. A steel rod can conduct unwanted radio frequency noise from the ignition system back to the throttle servo and then back to the receiver. I use a Sullivan



nylon pushrod with a nylon clevis on the throttle arm. The nylon is a good insulator and will not carry any RF noise.

The engine uses electronic ignition for the power for the spark plug rather than a magneto. The ignition module needs to be mounted on the firewall so the plug wire can reach the top of the engine. I chose to mount the ignition module below the engine. I drilled six holes in the firewall for nylon tie wraps. I mounted a piece of foam rubber to the backside of the module and fastened the module with three tie wraps. I routed the power lead for the module through the firewall into the fuselage.

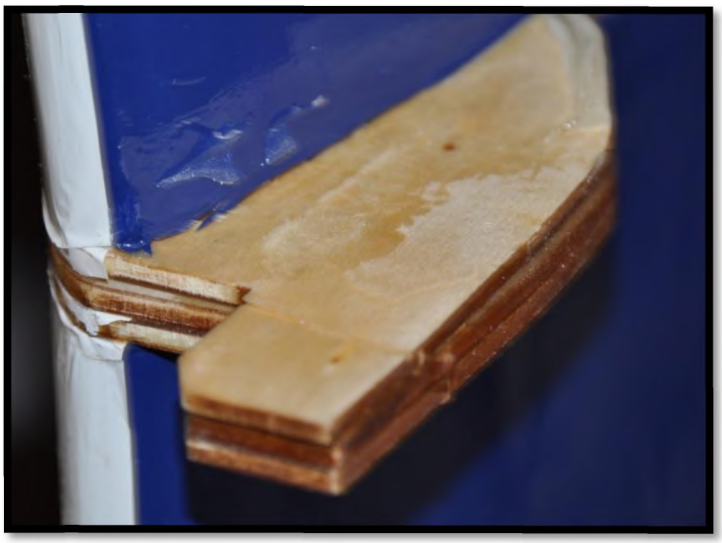


I decided to try to keep the belly of the fuselage very open, (as to be able to use as a candy drop plane or something like that). I mounted the throttle servo high on the left side of the fuselage. I just used a few triangle pieces of ¼ inch plywood and a 1/8 in plywood to hold the servo. I was going to add a servo for the choke arm, but considering that there is no cowling, it doesn't make much since. I'll just move the choke by hand as needed.

Now we can move onto the gluing of all the control surfaces on the wing and tail. All the surfaces are pre-covered with hinge slots already cut in them. The hinges provided are CA type hinges. They fit in the slots very well considering the slots that the manufacture cut in are twice the width of the hinges. For the elevators I decided that I did not want to use the torque rod provided, but rather use two servos, one for each elevator half. All the slots lined up very well, so I just used some thin CA from Bob Smith and I moved onto the servo installation.

Servo installation is next, so I'll start with the wing. I grabbed several servos from my servo box and found enough to suit the needs. The flap servos are Futaba S3152 digital servos, whereas the aileron servos are Spektrum A6000 digital. The plane came with some large control horns that were well suited for the ailerons and flaps. I had to use four 36 inch heavy duty servo extensions to complete the wings. Now the pushrods provided were in question. They are a threaded rod steel wire type. The wire hooks up to the servo with a steel clevice, but attaches to the control horn with a simple 90 degree bend and a plastic clip. I am a bit concerned about this setup, but it seems tight and holds well. Since this is basically a trainer, speed shouldn't be a problem; only time will tell.

Now I will attempt to repair the shipping damage on the center pin of the wing support. The tabs were broken off each wing panel, but thankfully the center root rib was not damaged. I decided to first glue the broken pieces back in place. I then used a piece of thin 1/16 hard plywood on the outside of the broken pieces. I laminated both sides of center support and glued with 30 minute epoxy. These laminations added just under 1/8 inch to the center support so I had to open up the width of the slot in the fuselage.



The tail of the plane has two servo holes cut in just in front of the stabilizer. Originally these holes were designed for one elevator servo and one rudder servo. I decided to use these holes for one elevator for each elevator half. Again I used two Spektrum A6000 digital servos with the provided large control horns. That leaves the rudder to deal with. I decided to just cut an additional servo in above the left elevator servo. I used a smaller Futaba 9650 digital servo since the rudder is rather small. I used three more 36 in heavy duty servo extensions to get the leads down through the fuselage to the receiver.

As for the receiver installation, I was originally going to use a 7 channel; but I found that I may want to add a servo for dropping a parachute or a glider so I used my 14 channel FASST receiver instead. I just used some foam and Velcro fastener to hold the receiver to the side of the fuselage. Now I installed two MPI charge switches: one for the receiver and one for the ignition battery. There is a location already cut out on the right side of the fuselage, but it is designed for the standard older style switch that comes with a basic radio system. I put both switches on the left side of the fuselage, opposite the muffler. Both batteries are located in the bottom of the fuselage under where the fuel tank will be, wrapped in foam rubber. The VPX converted 1100mAr 2 cell A123 is on the ignition, and a Hyperion 1450mAr 2 cell LiFe on the receiver pack.

Installing the fuel tank first requires a stopper for gasoline. I used a Dubro replacement stopper and 36 in of 5/32 in Tygon brand gas line. There are no rails or platform for mounting the fuel tank so I have to build something. I fabricated two rails from ¼ in plywood and glued them to the side of the fuselage above where the batteries will be located. I then cut two pieces of 3x1/4in balsa and glued them to the rails as a platform. I added a piece of foam rubber on the platform and set the fuel tank on top of it. Now I just added pieces of

foam rubber on each side of the tank until it was tight in the space between the fuselage sides. The fuel lines go through the firewall via the slot provided. I secured the vent ling next to the ignition system and hook the fuel feed line to a T-fitting and then into the carburetor. Now with a short piece of fuel line and a wire as a plug, I'm nearly done.

In order to finish up and go fly there was guessing to be done. I looked in the instructions and then on the internet and I could not locate a reference for the CG of the plane. As I built, I established that the CG was back from the leading edge at 36% of the cord of the wing. This is quite far for a trainer type plane, so decided it would be best to add some nose weight. I didn't want to mount anything to the firewall so I just added a spare 3700mAh NiMh battery pack that I had. This pack weighs 9 ounces and I put it in the bay under the gas tank. This moves the balance point to the 34% of cord range.

Now as for the control surface movement, I again had absolutely no reference, so I left a high rate aileron at 3/4inch, and a low rate at ½ in. The elevator had a bit mote throw at 7/8in on high rate and a low rate of 5/8 inch. I left the rudder at a full throw because I'm a firm believer that you cannot ever have enough rudder throw, especially on a high wing tail dragger! Let's go fly!

Flying the Primary 100

It was a warm Saturday afternoon in June with a fairly high humidity, when I took off to the local field. With flight and ignition batteries charged, I assembled the Primary 100 and fueled up with a 92 octane 32:1 gasoline/oil mix, since I am still breaking in the engine. With the plane tethered to a pole, I started the engine easily in a few steps. First I closed the choke and turned on the ignition. I advanced the throttle four clicks and flipped the engine four times and the engine fired up and then stalled. I turn off the ignition for safety and opened the choke. Leaving the throttle at four clicks, I flipped the prop three more times and the engine started at a high idle! The engine sounded good so I unhooked my tether rope and taxied out. Immediately I saw that the tail wheel spring was entirely too loose as the tail wheel bracket bounced off the ground. I was still taxing out, so into the air we go! As soon as the Primary

100, broke ground, it banked right and took a lot of aileron trim to correct. The Primary 100 climbed out with little problem as the RCGF 26CC was turning the zinger 18x6 at 7200 RPM. As always, I took off with full high rate settings, but I decided that the elevator was a bit touchy. I think this was a combination of a lot of elevator movement and perhaps a slightly aft CG of the plane. The aileron control was good on high rate, and could even use a little bit more. The Primary 100 will do nearly continuous loops from level flight, and will seemingly fly forever on a tank of gas. As expected, when the flaps are dropped, the nose pitches up severely and requires 28 clicks of down elevator trim to account for the additional lift. The Primary 100 flies like the trainer on steroids that it is, but perhaps 5MPH faster on landing without the flaps. Landing with the flaps down is a much nicer scale looking landing. Full flaps is about 30 degrees, so simply line up on the runway with just over ¼ throttle you can land slowly by just holding the nose level, and control altitude by moving the throttle stick. The first flight lasted for 15 minutes and only used about 1/3 of the gas in the tank! I was able to fly all day and only refilled the tank once!

Conclusions

The Lanyu Primary 100 is actually a great flying plane with looks that only a mother could love! I mean it IS a large trainer, but it is just boxy and the nose is blunt as a spoon. It is designed to be a workhorse that can carry, pull or drop most anything! The recommended engine is reliable and easy to start, and just sips gas!

The hardware included with the kit is not even close to decent. You need to buy additional pushrods, replacement tail wheel, fuel line, rubber stopper, and min my case make repairs. You should NOT buy this plane unless you have built a few higher quality ARF type planes before, because you will need to know the basics to complete it without the help of English instructions!

Overall the Primary 100 is very cheap, at less than $200.00 for a BIG Bird legal airplane, but be prepared to spend about $60.00 or so on required hardware over and above the cost for an engine and radio system! I do like the Primary 100 and I have plans for it, and it's always good to have a big old plane to mess around with.

Tony Coberly

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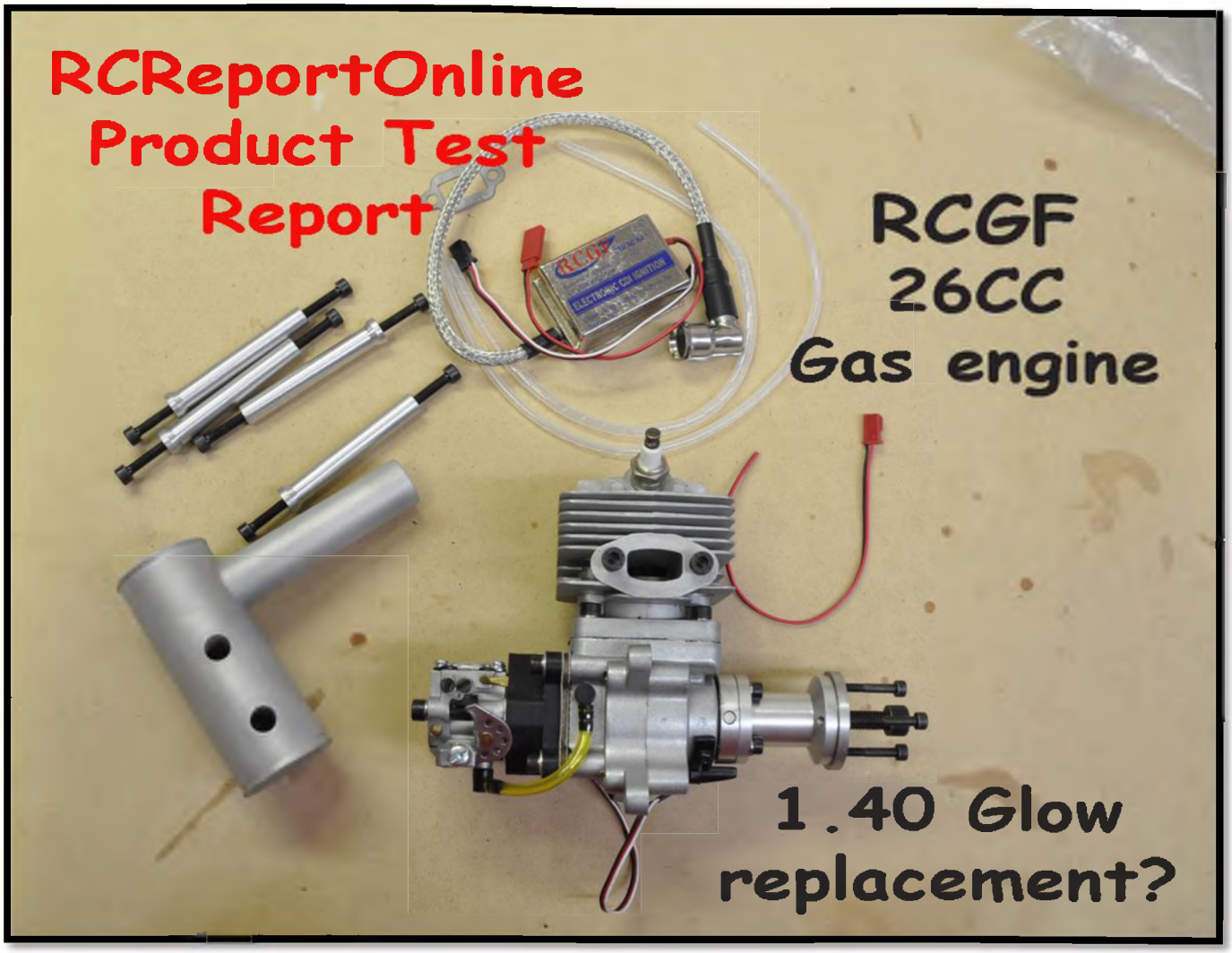


Engine Size: 2 stroke 26CC (~1.58 cu.in)

Engine type: Gasoline

Engine weight actual: 46.2oz with ignition

Ignition type: Electronic CDI

Ignition voltage required: 4.8-7V nominal 800+mAh

Ignition current draw Measured @ 6.6V:

1600RPM=.41Amps

2700RPM=.68Amps

7100RPM=.91Amps

Mixture type: 90 octane, 30:1 break in, 50:1

Plug type: 14mm NGK BPMR6F

Distributer: BP Hobbies

Manufacture: Zhejiang RCGF Model and Engine Co

RPM Range Advertised: 1500-8000

Minimum RPM 18x6 Wood Zinger prop: 1600

Maximum RPM 18x6 Wood Zinger prop: 7350

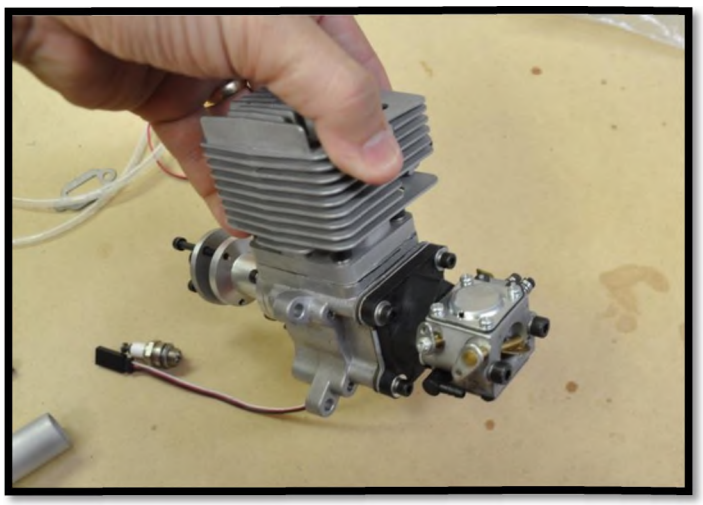
Price: Advertised: $269.99

Actual: $192.99 Local

The RCGF 26CC 2-stroke gasoline engine is designed to be used in place of large 1.40+ size glow fuel based engines. This engine is equipped with an electronic Capacitive Discharge Ignition (CDI) system to automatically advance or retard the engine time as needed for optimum performance. I have flow a lot of gas engine powered planes, but never any on this small variety. Let's go through the system and check it out!

Included in the box with our RCGF 26CC engine is the engine itself. The engine has a rearward facing carburetor that appears to be similar to a Walbro brand carburetor. The carburetor has a manual choke, and a spring close throttle butterfly. The engine includes a single outlet Pitts style muffler, along with four machined aluminum stand offs. The spark plug is an offset style the exits the head at a 45 degree angle. The prop is attached with a larger center bolt along with three smaller bolts around the perimeter.

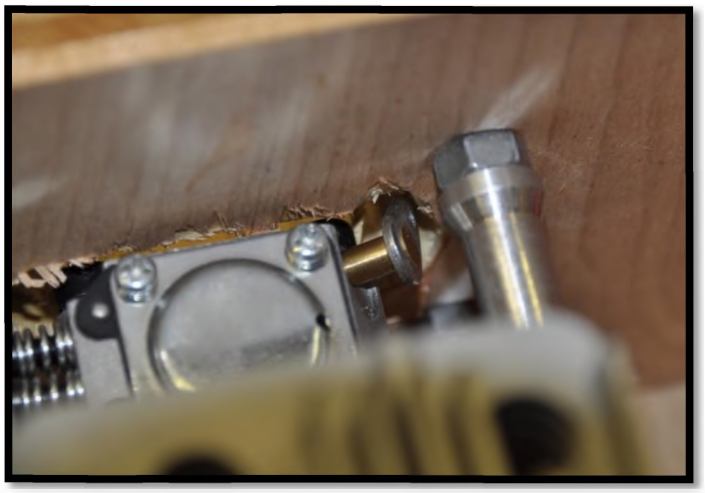
The engine is supplied with several booklets and information pages. First is the general operations manual for all RCGF engines. This pocket sized manual provides all the required safety information as well as procedures for break in, carburetor adjustments, engine layout, maintenance and troubleshooting. The manual is NOT the normal software translated Chinese to English version, it's much better! The English is very good, but occasionally there is a bit of a hint that it was translated. The procedures outlined for break in, starting and adjustment cover the basics very well, and I am hard pressed to change them.



There is a second card for warranty registration. To be honest, I don't think I have ever filled out one of these for any of my engine, motors or even radio systems!! Oops! There is also an ignition system instruction sheet regarding the manual adjustment of the timing on the engine by moving the Hall Effect pickup. The adjustment is listed as adjustable from 28-35 degrees from Top Dead Center on the engine. I have found on other gas engines that you leave this alone until it is a last resort. If you are having problems with the engine running right, just change the fuel to new fuel, change the ignition battery and try again. Exhaust all other possibilities before you play with the timing manually.

Installation

The first thing I notice is that the aluminum standoffs provided are making the assumption that your fire wall will have a hole in it. I say this because I had to install a spacer on the standoffs to install the engine on my test stand, and still had to drill a hole in my firewall. You can see in the photo that even with the 1/4x20 nuts as spacers, I had to open up the test stand firewall with a paddle bit drill.



I simply hooked up my 2 gallon gas can on the test bench outside with an 1100 mAh A123 LiFe pack and prepared to start the engine. I drilled and installed an 18x6 Zinger propeller and was ready to start the engine. I choked the engine and turned the idle air adjustment screw all the way in to open up the throttle butterfly and proceeded to try to start the engine with a flip of the hand…..well I did not waste much time before I went and got an electric starter to try. My standard Hanger 9 starter with 10 NiMh cells was able to turn the engine with no problem. The engine started after a few seconds and off we went. I adjusted the screw on the

throttle plate until my tachometer read 2500 RPM and I let the engine run for 20 minutes. After 20 minutes I unplugged the ignition battery and the motor died promptly. I allowed the motor to cool for one hour, and repeated the process two more times. After 60 minutes of engine running I found that I could hand start the engine rather easily. Just chocked the engine and flip until it fires up and then dies. Now open the choke again and flit three more times ant it fired right up. During the third run I began to run the throttle up to full throttle and test RPM, then allow the motor to run at high idle again. I found the mixture was quite rich and the engine would stumble during the transition to full throttle. I adjusted the low end needle setting just

about 1/8th of a turn and the stumbling cleared up nicely. I ran a total of minutes on the engine and I was pleasantly surprised to see that there was hardly a dent in the 1 gallon of fuel I had for it.

Flying the RCGF 26CC engine

At the field I was ready to put the RCGF 26CC in the air on a warm day in Huntsville, Alabama. The RCGF 26CC pulled the 17+lb. trainer like plane into the air easily. The throttle transition from idle to full throttle was very good, but there was still a slight cough as the motor puked out the slightly rich mixture. After over an hour of break in I mixed up a 40:1 gallon of gas and added it to the ¾ gallon of 32:1 mixture for the flight testing. I flew the engine several times throughout the afternoon for a total of over 60 minutes of actual flight time. I had one dead stick during that time, when I simply ran out of gas!! The final flight of the day was more than 20 minutes when the engine sudden lost RPM and had an odd exhaust note. It sounded like the muffler had fallen off the engine, so I made my approach. The engine was running and responding to throttle commands, but it was very low on power. I landed without problem and began to diagnose the problem. Since the muffler was still on the engine, I had another theory that I could check very easily! I plugged in my voltage tester in the MPI charging switch for the ignition battery and confirmed the theory. The ignition battery was completely dead with a voltage of only 4.1 volts. I shouldn't have been surprised since I knew that the ignition would draw between .5mAh and .8mAr form the 1100mAh pack. I had flown for more than 1 hour of actual flight time through the day. Heck, I actually handed off the plane to 2 other flyers at the field to get a quick break! I simply ran out of voltage before I ran out of GAS!

Overall I liked the RCGF 26CC engine very well. I currently have three hours of run time on the engine and I have had no problems at all. The engine is predictable and starts the same every time. Three or four flips of the prop while choked, and the throttle open about four clicks, results in a pop and fire and the engine stalls. Now open the choke and flip again three or four more times at the same throttle setting and she runs like a top.

When compared to a glow fuel powered engine like an OS 1.60, the RCGF 26CC does not make as much power as the OS, it weighs more than the OS(+3.5), but cost about $100.00 less! Not to mention that it uses about 30% the fuel that the OS. The RCGF uses gas that costs about $5.00 per gallon (including oil mix), whereas glow fuel costs about $18.00 per gallon! The RCGF is a good solution for a model that would normally want a 1.4-1.6 Glow power plant, but has enough wing area to carry a bit the few (3.5) additional ounces of the gas engine.

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