



PRESIDENT'S Prop-Wash



Larry Lewis

Some months are just like this....a lot happens but there's no time to talk about it. The First in Flight Jet meet is coming together, as are a number of other flyins leading up to the Nall, and for weekends after as well! Take a look at the coming events to see what is available to us all, if we want to take the time to go fly :) The high winds on Sunday were a real treat to fly in, my T28 was just bouncing all over the place including going into reverse on the runway!! Anyways, normal programming will resume just as soon as we figure out what the heck normal is :) Fly high and have fun, and the Pres will be back next month!





Minutes of RDRC meeting

By: Secretary Dave Hockaday

Minutes of the RDRC Meeting March 24th, 2010

- The meeting was called to order at 7:34 by President Larry Lewis.
- Ralph Ransone and Jim Cooper introduced themselves as new members.
- 19 were in attendance.
- The minutes of the February meeting were read by Jason Jarvis. The minutes were passed as read.
- The treasurers report was given by Dustin Hedrick. Dustin stated that we have total funds of \$8,817 and discussed major club expenses, including portable toilets, grass cutting, rent and power. It was noted that power costs are increasing slightly due to new services such as field cameras and weather reporting, as well as increased charging from more members flying electric.

- Minor upcoming field improvement costs are expected due to improved flight stations.

The safety officer's report was given by Larry Lewis as Mark Lofgren was unable to attend. Issues discussed were the safety of flying helicopters on the runway and in the field behind the parking areas. Everyone was reminded that we should always fly from a flight station. Flying soon after a crash was also discussed. It was noted that an aircraft that has been in any type of crash or incident should not be flown again until a thorough inspection and repair has taken place.

Old Business

- 4/17 Spring Fly-In discussed, everyone was reminded that this is a fly anything event.
 - o A local church is handling food sales
 - o Dave Hedrick will handle sound
 - o The club agreed to purchase a simulator for a raffle prize
 - o Flight station pads are expected to be in place the week of 3/29
 - o Field set up will take place on Friday 4/16
- Blair Price was in attendance and feeling much better after surgery
- Jim Charbonneau appreciates our cards and thoughts.
- Everyone was asked to keep the Charbonneau family in our thoughts and prayers as they are going through a very difficult time.

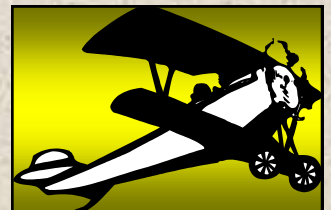
New Business

Raider racing – SPRA Summer Shootout will be at the Old Julian Airport on June 19th. This event will not host a Raider class, but should be an excellent opportunity to spectate and get a feel for the event format. Everyone was invited to get a Raider, practice and get involved ! The first race for the Raiders is now expected to be May 1st.

- The First in Flight Jet Rally was discussed, Memorial Day weekend, May 28th, 29th and 30th at the Wilson Industrial Air Park. This is not an RDRC event, but many of our club members are involved in organizing the rally.
 - o The club agreed to allow the use of club tables for the event
 - o Everyone is invited to the event, pilots, spectators and volunteers are welcome.

www.FirstinFlight.org

- The meeting as adjourned at 8:36.



Safety Officers Report



Mark L ofgren

SAFETY FIRST...Cheech and Chong had a famous line that some RDRC members have reworked to explain why a field rule is not being

followed. "Pattern?...We don't need no stink'n pattern!" Oh yes we do when others are in the air with us. Wind direction determines the pattern. A takeoff to the north (left) requires a flight pattern from right -to-left. A takeoff to the south (right) requires a pattern left -to -right. A shift in wind direction, which happens often at the RDRC field, will require the first observant flier to call out the change in the pattern. The shift is usually first noticed by someone entering the runway finding that a takeoff requires a change in direction from that planes currently in the air used. Call out the takeoff's direction and the need to change the pattern. Call it out as a necessity, not a suggestion. A windless day, a rare occurrence at RDRC, usually requires a left-to right pattern. Dead stick landings have priority. Call out the direction of a deadstick landing so others understand why you might be opposing the pattern. Flying the pattern with as many as four other fliers requires courtesy in many ways. The "pattern" is an important one.



Mark Lofgren
clipclop@mindspring.com



RDRC Spring Fly-in 2010



from young to...happy!!



Will YOU be here next year??



Notices - Upcoming Events

MAY
28-30

The inaugural

First in Flight



RC JET RALLY

NORTH CAROLINA



May 28-30, 2010

WILSON INDUSTRIAL AIR CENTER

**4545 Airport Drive NW
Wilson, NC 27896**

GPS 35-46.224417N / 077-58.187483W

- **Only 2 miles off Interstate I-95 - Exit 121**
- **Many hotels, restaurants, & stores nearby**
- **Pre-paid tent rentals available**
 - Call CD to order soon!
- **Jet-A sales on-site**
 - No need to transport fuel to event
- **Motorhomes/campers welcome - no hookups**
 - Sorry, no tent camping



www.firstinflight.org CONTACT - Larry Lewis, CD 919-231-4983 rclarry@aol.com

Orville and Wilbur would have been proud!

Notices - Upcoming Events



Bombs Away Over Vanceboro!

May 1, 2010

*Gaskins Field
1445 Old Brick Rd. Vanceboro, N.C.*

- AMA Sanction
- Restricted to all size warbirds
- \$10.00 landing fee
- Pilots meeting 9:00 a.m.

Beautiful 100'X600' wide open runway

Plenty of Parking - Good Food - Primitive Camping Welcome

Coming Up!

--- June 5, 2010 Southern Air Spring Fly-in [\(INFO\)](#)

--- November 6, 2010 Southern Air Annual Big Bird Fly-in [\(INFO\)](#)



1451 Old Brick Road
Vanceboro, NC

(About 3.5 miles South East of
Vanceboro)

From New Bern take US17 North. In approx. 10 miles you will come to the intersection of US17 and NC43. (Traffic Light). Proceed North for approx 2 more miles. Turn right on the Coley Iock Road. At next stop sign, turn left Look for our sign on the right.

From Greenville take NC43 and **From Washington** take US17 South. These two routes will converge in Vanceboro. At the intersection of US17 and NC43 proceed South for approx. 1 mile. Turn left on the Coley Iock Road. At next stop sign, turn left. Look for our sign on the right

Notices - Upcoming Events



RIVERSIDE AERO MODELERS SOCIETY



GRAND RE-OPENING

**Field Improvements
1000 x 100 Feet of flat grassy runway**

**This will be an open Fly-in. Bring your Jets, Warbirds,
Scale, Heli's, Fixed wings of ALL sizes, wet or dry and of any
construction.**

Come and Show-Off your Warbirds and Scale Aircraft

**May 1st and 2nd - That's right all day Saturday and Sunday,
Pilot meeting will be held at 10:00 AM
There is a \$10.00 Landing fee**

**Saturday night flying
There will be Raffles, Door Prizes.**

**Food and Drinks will be served including
Chef Tony's Bambi Burgers, Bambi BBQ
and our World Famous RAMS Dogs !!!!**

Visit www.riversiderc.com for directions or contact:

**Butch Fortin: CD
BOSCO78429@aol.com
336.399.1201**

**Tony Simmons: co, CD
Sonvt@aol.com
336.817.1070**

SPONSERED BY: KING R/C & JR

www.KINGRC.com

Notices - Upcoming Events

Now the [AMA provides an Event calendar](#) I will try to remember to pull events for the next month into here. If you know of other events PLEASE let me know!!

2010 May NC

5/1/2010 - 5/2/2010 -- East Bend, NC (C) RUNWAY IMPROVEMENT GRAND OPENING. Site: Club Field. Albert Fortin CD PH: 336-399-1201 Email: bosco78429@aol.com. Visit: www.riversiderc.com. RAMS club field improvement and grand opening. Open flying, warbirds would be appreciated.

5/1/2010 - 5/2/2010 -- Huntersville, NC (AA) CAROLINA CLASSIC. Site: Waymer Flying Field. Howard Shenton CD PH: 864-963-3504 Email: panzer4hs2001@yahoo.com. For 319, 320, 321, 323, 324, 325, 326 (JSO). Saturday; basic flight, profile stunt, old time stunt, nostalgia 30 stunt, speed limit combat (75mph) , carrier - 15, profile, class I & II combined. Sunday; PAMPA - beginner, intermediate, advanced and expert. Sponsor: METROLINA CONTROL LINE SOCIETY

5/1/2010 - 5/2/2010 -- Julian, NC (AAA) OLD JULIAN AIRPORT SPRING RACE. Site: Old Julian Airport. James Katz CD PH: 704-846-0252 Email: mrjrkatz@aol.com. Visit: www.oldjulianairport.com. Thunder Tiger Pro .40 APC 9"x6". Sponsor: OLD JULIAN AIRPORT MODEL AIRPLANE CLUB

5/1/2010 - 5/2/2010 -- Mocksville, NC (AA) WSRC SPRING PATTERN CLASSIC. Site: Club Field. Bill Mitchell CD PH: 336-731-3326 Email: daddyb3089@aol.com. Visit: www.wsrconline.com. Events 401, 402, 403, 404, 406(SO). Camping available, no hook ups. Sponsor: WINSTON-SALEM RC CLUB

5/1/2010 -- Sanford, NC (C-Restricted to [IMAA](#)) 26th Annual Joe Kitts Big Bird Fly In. Site: Club Field. Mark Cline CD PH: 919-776-9504 \$5 landing fee, 600' grass runway, food on site, reg begins 8:15 flying 9am until ??, raffle day of event. Sponsor: SANFORD MAC

5/1/2010 -- Vanceboro, NC (C) Bombs Away Over Vanceboro. Site: Gaskins Field. Michael Zaytoun CD PH: 252-229-9161 Email: michale@zaytouncustomcabinets.com. Pilots registration \$10, pilots meeting 9am, 100'x600' grass runway beautiful open field, plenty of parking, primitive camping welcome, great food, plenty of prizes, all types of warbirds welcome. Sponsor: [SOUTHERN AIR RC](#)

5/8/2010 -- Johnsonville, NC (C) SPRING FUN FLY. Site: Club Field. James Hoffler CD PH: 919-497-0977 Hwy 87-24 North from Fayetteville, exit right, cross 87, approximately 6 miles, Hwy 27 will join from right. Take first road to left, approximately 1 mile on left. Sponsor: JOHNSONVILLE MODEL ARCRFT SOC

5/15/2010 -- Greenville, NC (C) 5TH ANNUAL ELECTRIC FLY IN. Site: Frankie Coburn Memorial Field. Frankie Coburn CD PH: 252-714-2679 Email: ramhorn@suddenlink.net. Visit: www.ncspacecowboys.com. Take bypass around Greenville and follow signs, "any" thing electric can fly, no impound 2.4 but 72 will be impounded, food and drinks available, vendors welcome, come and fly off one of the best fields in NC, we will have a great time, registration 8am, fly 9am. Sponsor: NORTH CAROLINA SPACE COWBOYS

5/22/2010 -- Conover, NC (AA) CVRC ONE DAY [IMAC](#). Site: Cvrc Field. Mark McClellan CD PH: 828-612-3726 Email: markmcclellan@charter.net. Visit: www.cvrcflyers.com. Events 411, 412, 413, 414, 415(JSO). This is a one day [IMAC](#) contest all classes offered. Sound is an issue at this field and in flight sound rules will be used. Sponsor: CATAWBA VALLEY RCERS

Notices - Upcoming Events

5/29/2010 -- Goldsboro, NC (C) 8th Annual ECRC Spring Fly In. Site: Randy Webber Field. Michael Stokking CD PH: 919-735-8505 Email: msnj109@nc.rr.com. Visit: www.ecrcflyers.com. Food, raffle, primitive RV, restroom, demos and vendors welcome. Sponsor: EAST CAROLINA RADIO CONTROLLERS

5/29/2010 -- Hudson, NC (C) 2ND ANNUAL CAM FUN SOAR. Site: Club Field. Donald Bourdon CD PH: 828-728-0249 Email: dbourdon47@bellsouth.net. Visit: www.caldwellaeromodelers.com. All types of sailplanes welcome. Electrics, piggy back aerotow permitted. Electric winch and high starts available. Newcomers encouraged to participate. Sponsor: CALDWELL AERO MODELERS

5/30/2010 -- High Point, NC (C) 19TH ANNUAL CCRC OPEN HOUSE AND CHARITY FUN FLY. Site: Club Field. John Marsh CD PH: 336-869-4844 Email: jamfam@triad.rr.com. Visit: www.crcm.com. Show off your flying skills and help introduce model aviation to the public as well as raise money for the NC Aviation Museum. No landing fee, registration and flying begins at 9AM. Lots of fun games and door prizes. Gold Leader Club field, 700x70' grass. Full concessions and facilities. Sponsor: CENTRAL CAROLINA MODELERS



Hanover Radio Control Flying Club Open House

Overview

Simply an opportunity to have some fun and invite fellow flyers from other clubs to come check out our field and have some fun. Raffle profits (assuming we make some profit) will go to Toys for Tots.

Spectators Welcome!!!!

Date

Saturday, May 22 and Sunday May 23, 2010 (the weekend after Joe Nall)

Time

8:00-Sunset each day

Location

Hanover Radio Control Flying Club Field

Our flying field is a 4 acre facility located on a 600 acre farm in eastern Hanover County. The site is located approximately 15 miles east of the center of Richmond and 8 miles East of Mechanicsville on U.S. Route 360.

Traveling east on Rt. 360, you will pass Spring Run road and then begin to drop down into an area known as Broaddus' Flats. Rt. 360 is a divided highway with cross-overs connecting the East and West bound lanes. The entrance to the field is located at the fourth (4th) cross-over past Spring Run Road and is marked by a sign.

Access to the flying field is via a dirt farm road leading off of U.S. Rt. 360. The field is marked by a sign on the south side of Rt. 360 (right-hand side traveling East). Follow the dirt farm road from Rt. 360. Make the first left hand turn from the farm road and follow the tree line. Continue on the farm road until you see an opening in the tree line to the right and a second sign marking the entrance to the field.

GPS Coordinates are: **37 39.659 North – 077 12.477 West**

Hotels

The two closest hotels to the field are:

Holiday Inn Express Mechanicsville, Virginia

www.hiexpress.com

7441 Bell Creek Road, Mechanicsville - (804) 559-0022

Hampton Inn Mechanicsville, Virginia

www.hamptoninn.com

7433 Bell Creek Road, Mechanicsville - (804) 559-0559

There are numerous other hotels and motels in the greater Richmond area.

Raffle Prizes – Any profits will go to Toys for Tots.

Exhibitions

O IMAC Pattern

O Helicopter

Static Displays

Orientation Flights

Newcomers who may want to “Try it out” can fly an airplane with an instructor under our “Intro Pilot Program”.

Camping

Camping requests must be made in advance by contacting hrcfc@hanoverrc.org including number of campers and type of equipment (Tent, Pop-Up, Truck-Bed Camper Shell, etc.) and you must receive an affirmative confirmation back to assure we can accommodate you and your type of camping gear. **No Buses or large RVs.** No Fires. No Hookups. No Shower Facilities. Porta Pots provided.

Concessions

Hot Dogs, Burgers, Chips, Sodas, Coffee and Muffins will be on sale

Landing Fees

Pilots - \$15 Landing Fee for 1 day (lunch included) or \$25 for the weekend (2 lunches included)

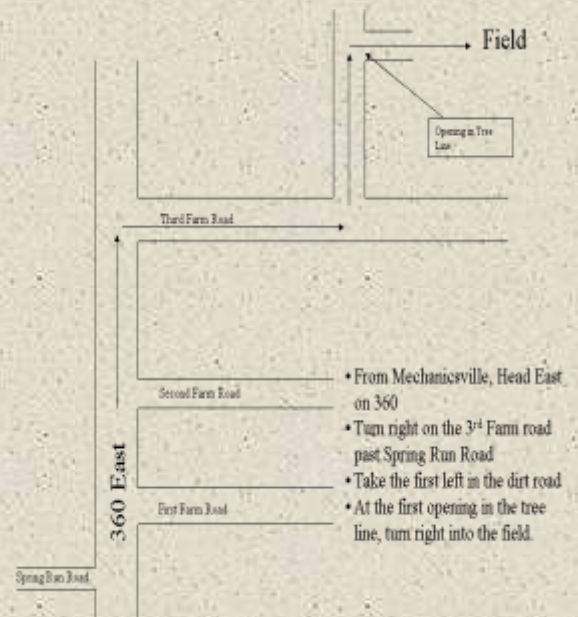
Spectators - Free

Pilots must present a current AMA card

Transmitter Impound for 72 mHz

The Hanover Radio Control Flying Club reserves the right to exclude equipment or pilots from flight as necessary to maintain the protection of people and property.

Questions or more info, contact hrcfc@hanoverrc.org



Introduction to gasoline model aircraft engines

Updated November 2007

Gasoline engines are now popular for use on larger model aircraft. They have the advantage of long life, low cost of operation, and adaptability to larger sizes. Making the transition from glow fuel engines to gasoline will be easier with an understanding of the basics of using small gas engines.

Why Gasoline? Is it right for me?

A glow fuel engine consumes roughly twice the amount of fuel that is used by a gasoline engine of the same size. The practicality of glow engines stops with aircraft above about 15 pounds. At that point the amount of fuel that must be carried, and the cost of that fuel, become significant problems. A 1.80 cubic inch glow engine will consume 1.5 to 2 ounces of fuel per minute. That works out to something like 1 ½ hours of flying on a gallon of fuel. At \$15 per gallon (rough price of a gallon of glow fuel at the local hobby shop) it's costing about \$1.50 for a 10 minute flight.

Warning! Gasoline is highly flammable and can be dangerous if not handled properly. Follow all the recommendations on the gas can and at the gas pump, keep a fire extinguisher handy at all times, and do not allow gas fumes to accumulate in a closed space. Gasoline can explode and kill you. A stray spark can cause a disaster.

For models weighing less than 10 pounds total, a glow-fueled engine is almost certainly the right choice. In smaller planes the power and simplicity of glow engines cannot be beat. The cost of the fuel, and the weight, are insignificant drawbacks. A .40 size engine uses so little fuel that the cost is negligible, and the extra weight of a gas engine's ignition system would be a major drawback. From 10 to 15 pounds, it's a toss of the coin, which one do you like. The gas engine costs a bit more to start with, and probably weighs a little more, but not so much more that it is not practical. The costs of fueling a large (1.20 and up) glow engine can be a drawback, where the cost of gas is almost zero. When you get past 15 pounds, there's no choice to be made, gas power is the only practical choice. There are a few large multi-cylinder glow engines, but for every day flying they are not practical and are used mostly with scale aircraft requiring realistic looking engines, usually radial or opposed twin. So to summarize, if you want to fly giant scale, you will need to become familiar with gasoline engines.

How do I select a gas engine?

There is always a small loss of power when using gasoline as a fuel over alcohol, which is the primary ingredient in glow fuel. Alcohol/air mixed at the optimum ratio produces roughly 10% more energy when oxidized (burned) than does gasoline, and it takes almost twice as much alcohol by volume to mix properly with an equivalent amount of air. So you get a little more power from an engine but consume twice the fuel. And Nitromethane can be added to alcohol to increase power further, this is not true with gasoline.

So we need to use a larger (displacement) engine with gas to get the same power as a glow engine. The equivalent to a 1.8 cubic inch glow engine (30 cc)* will be approximately a 2.4 cubic inch, or 40 cc, displacement. This is a very rough equivalence, but the relationship will hold for engines of similar type. There are good and not so good engines in both categories. With gasoline, there are three types of engines.

- a. Purpose built engines specifically designed for model aircraft and UAVs.
- b. Hybrid engines that use industrial parts with purpose built foundations.
- c. Converted industrial engines like chain saw and weed-eater engines

Examples of engines in category “a” are 3W (from Germany) ZDZ (Czech republic), and DA (Desert Aircraft, American made).

Engines in category B include Brison, Zenoah, older BME engines, and a half dozen less well-known brands.

Recently there has been a large influx of inexpensive Chinese engines in small and large displacements. Most of these fall into category B, hybrid engines. And most of these Chinese hybrids are extremely cheap, both in price and quality. For the most part I recommend that you stay away from the really cheap motors. These fall into the “throwaway” category, if something goes wrong it’s probably cheaper to throw it away than to try to repair it, especially if your time is worth anything. Poor machine work, poor quality materials, and poor design usually mean an engine that will be very frustrating.

Some of these engines are very good, specifically the 3mm TOC-53 and the DL-50.

These are both category A engines, built specifically for model airplanes. They are both more or less copied from other successful engines. The TOC-53 uses parts that are similar in most respects to the 3W 106, the same cylinder, piston, etc. While it is different in many respects, the TOC-53 looks like it could be in the 3W catalog. The DL-50 is patterned after the DA-50. Some parts will even interchange, though there are also significant differences. Engines in group c are really not suitable for applications requiring high power to weight ratios, they are generally restricted to sport models. There are lots of converted Ryobi and Homelite 2 stroke engines around, but they don’t produce power to weight in the same league as the other types of engines. We want to select an engine for our plane that will provide the best flight characteristics and installation available. Interestingly, we really don’t care about the displacement of the engine, that’s something that is totally irrelevant to engine selection. What we care about is physical size, weight, vibration, cooling and suitability for use. Pay close attention to the weight of an engine and its power output, almost everything else is irrelevant. We do want to be concerned about physical size and how much vibration is generated, but in 2007 most of the purpose-built gas engines available are of excellent quality and are not considered “shakers”.

What’s available?

Assuming we are staying within groups a and b, there are still several engine type variations on the market. Let’s discuss what’s available before getting into how to choose.

Things to select from include ignition type (magneto or electronic or hybrid), induction method (piston port, reed valve, rotary valve), carburetor location, (side, bottom, or rear) and exhaust location (side exhaust or rear exhaust). Briefly, here’s what this all means.

Electronic ignitions. In ignitions, electronic ignitions are separate boxes, powered by batteries and triggered by a magnetic pickup on the crankshaft. They are easy to hand start and are very light-weight. They take more time to install (though it's not hard, just more stuff to do) and are generally the easiest to live with. They tend to be slightly less reliable than magnetos but are still very reliable if properly maintained. Most competition type giant scale airplanes use electronic ignitions. Electronic ignitions (in almost all cases) have the advantage of automatic ignition timing advance, which allows optimum timing at all speeds. Without some type of spark advance mechanism (electronic or mechanical) the engine will either be hard to start (fully advanced) or will be down on power because the spark is retarded.

Magneto ignitions are simpler, a bit heavier, and usually require some starting method like a spring or electric starter. A magneto generates its own power by moving a magnet past a coil. To do this the magnet must be moving at more than just hand cranking speed. Magnetos are very reliable but generally are not favored by competition pilots. A Zenoah G62 is a good example of a magneto equipped engine. In many cases (like with the G62) there are kits to convert from magneto to electronic ignition. Magnetos usually have fixed spark timing, although there are a few engines (Fuji is notable) that have magnetos with advance mechanisms. Fixed spark timing means the engine will have ideal spark timing at only one RPM, usually full power. This hampers efforts to achieve easy starting, maximum power output and a smooth low idle.

A hybrid system uses a battery booster to make hand starting possible, but then uses a plain magneto when running. These have not gained great popularity.

For the most part in 2007 magneto equipped engines are no longer viable because of the weight and inflexibility involved. An exception is in warbirds, scale and tow planes where weight is not a concern and where they normally fly it full throttle most of the time. For aerobatic type planes electronic ignition with automatic timing control is the only way to go.

The right engine for the job.

Let's go at this one item at a time. First, the engine must fit in the plane. That's a given. In some very tight installations like scale warbirds that model a plane with an inline engine (like a P51 Mustang) there's very little room. You must be very careful with installations like these, lots of things can be wrong. In this case your selection may be limited. Things to worry about include overheating, too much noise (you won't be very popular at some fields if you don't have a good muffler and that takes a lot of room). So when you choose an engine for your new bird, take a few minutes and measure the cowl width, distance from the firewall to the cowl spinner face, look to see if there is room for the muffler you want to use, etc. A little planning here goes a long way. Often people choose an engine, and then later regret it because either it doesn't fit or it's too heavy and they spend hours and hours trying to accommodate that engine. Look before you buy. I recommend either asking someone who has done it before (often the airplane manufacturer will know what is a good fit and what is not) or wait until you have the plane and borrow the engine of your dreams and do a test fit. Or ask the vendor of the plane what engine they recommend, most of the time they will know what works best. You will save a lot of pain.

The second point is the engine must be suitable for the job. You don't want excessive weight in an aerobatic plane, but in a big scale WW I biplane you may need a lot of weight in front just to make it balance. A high performance high RPM racing engine is great for a giant scale pylon racer, but would be useless in almost anything else. The list goes on, and once again a little planning pays off big. Single cylinder engines have become excellent values recently. DA and 3W have some excellent singles that are lighter than twins and just as smooth, possibly even smoother. In the past as a general rule singles shook more than twins, but that is no more. The larger the engine the more it shakes, However there are many excellent single cylinder engines and a few really bad twin designs, so nothing is cast in stone. If you need anything over 100cc, you'll almost certainly be forced into a twin. Below that many singles are excellent selections and will be roughly half the price of a twin. Consider the DA-85 to be equal in performance in the air to a DA-100 due to weight savings. Since this document is aimed primary at the aerobatic flyer, here is what is generally done. 3W sells a line of single cylinder engines that have various configurations, these are excellent engines though they tend to be heavy. 3W also sells an excellent line of twins, however these engines tend to be a little heavier and also wider, sometimes requiring openings in the cowl to clear the spark plug caps. 3w makes both bottom carb and rear carb versions, look before you buy to be sure the engine will fit in your plane. But they are very good engines, smooth and powerful. Recently 3w has release some lighter weight engines, the 106cc twin for example. But watch out, many 3w engines. Are **HEAVY**. Dealer support with 3W in the USA can be hit or miss. Some people have excellent results, others report less than stellar experiences. Caveat Emptor. Desert Aircraft builds the only (as of today) 100% purpose built American made engines. They are light and very powerful, and smooth. Excellent engines with excellent support. The DA singles are excellent values. The Zenoah G62 has been a very popular engine with this scale airplane and sport-flying crowd. It can be a good aerobatic engine and benefits from a conversion to electronic ignition. The G62 has the unique characteristic of being widely available both new and used. You can do much worse than to buy a used G62 and convert it to electronic ignition and a lightweight muffler. Zenoah also makes a very nice 80cc twin. It uses magneto ignition and is a bit heavier than its competitors, but it's powerful and reliable and very available. For the most part I recommend against purchasing new Zenoah because for the money there are better solutions on the market, but they last seemingly forever and are quality products.

Installation

Ok, you have your plane (hopefully a WildHare ARF) and your engine. Now what do I do? Mounting the engine is fairly straightforward. Most installers will bolt the engine rigidly to the firewall. Be sure that firewall is strong and properly glued in. Use minimum 10-32 screws to hold the assembly to the firewall. Bigger engines need bigger bolts. If you have a rear-carb engine you will need to plan for access to the carb so you can set up the throttle and choke linkage. Gas engines require the use of the choke for starting, so think about how you will open and close the choke before you start bolting and cutting. A little planning....

You will also need to plan for emergencies. You need a kill mechanism.

What?

What happens if for some reason you cannot use the throttle? Sounds silly, but it happens to every one of us sooner or later, the throttle linkage comes loose or the servo fails and we're stuck flying around until the plane runs out of fuel.

If you are unlucky enough to have a throttle failure at partial power setting with a full gas tank, you could be out there flying for an several hours, plenty of time to run down the receiver batteries which will cause a crash. Before you have this tragedy, install some kind of kill mechanism. This can be a servo actuated ignition switch, an electronic ignition switch, a fuel cutoff, or my favorite, a servo actuated choke. This solves two problems, how to operate the choke with the cowl on and how to kill a runaway engine. I use a standard servo to operate the choke, it costs about \$10 and weighs almost nothing.

Fuel system

The fuel system on your gas engine is different from your glow engine. Not more complicated, actually simpler, but different. You will use the same type of tank (Du Bro makes a nice selection) but you will not need as much capacity. For a 40cc engine you will need about 12 ounces for a 15 minute flight. Larger engines need more fuel. My DA-85 engine burns about 2/3 of the 24 oz. tank in a 12 to 15 minute flight.

Gas engine carburetors have a built in pump that draws gas from the tank. The pump operates off the pressure pulses from the engine crankcase. Don't worry about it, it's all automatic, you don't need to do anything. The pump allows you to locate the tank almost anywhere that is convenient, no need to keep it close to the engine. Normally you would want to locate the tank on or close to the airplane's CG. By doing this the plane's balance does not change as the tank empties.

You must use a gasoline resistant stopper in the tank. The ones for glow fuel will dissolve in gasoline. Same with tubing, don't use silicone tubing. Use Tygon hose for gas, it doesn't get hard, it's transparent so you can see what's happening in the line. Gas fuel line doesn't need to be as large as for the equivalent glow engine. Gas engines only burn about half the volume of fuel, remember?

The tank on a gas engine is not pressurized; just leave an open vent line to the atmosphere. You might want to put a loop of vent line from the tank vent, around the rear of the tank, and then out through the lower front somewhere. This way if you tip the model over nose down with the tank full you don't drain gas out the vent. Remember that gasoline kills grass, dissolves asphalt and paint, and is generally unfriendly. It also smells bad, so the less spilled the better. Use a fuel dot or inline filler to fill the tank. Wild Hare has a custom made fuel dot that we supply with our hardware kits.

Ignition and radio interference.

Time was when spark ignitions and radios did not get along at all. Modern ignitions and radios have no problems if all is installed properly. I have used both PCM and FM receivers with spark ignitions without problems. Just follow some simple rules.

****Note about 2.4 Ghz. Radios.** The manufacturers claim that these radios are immune to interference from ignitions and metal-to-metal contact. Good news, but it does not hurt to follow the rules anyway.

First, consult the ignition manufacturer's instructions and read them.

There should be at least a 12-inch separation between any radio components and any ignition parts, though this is a rule of thumb that is frequently violated. I normally put my throttle and choke servos in front close to the engine and ignition with no adverse effects. Use no metal parts to make engine control linkages. At a minimum use nylon clevises to insulate the engine from the throttle or choke pushrods. Make sure there are no metal-to-metal contacts that can rattle around when the engine starts and is running. Metal pushrods in a metal hole, metal clevises, etc. can cause radio noise and interference. Absolutely the spark plug cap must be in good condition so as not to allow any sparks to jump out to ground. I had a cap with a pinhole in it, when I got in wet grass sparks would travel through the pinhole and moisture to ground. Make sure the ignition system is well grounded to the engine. The plug lead will have a grounded cap or a ground pigtail. The best place to ground is to the base of the spark plug; use a work type hose clamp for this. Second best is to a screw into a fin on the cylinder head. Do not solder a terminal on the ground wire, crimp it on. Solder will melt. Mount the ignition box and ignition battery in foam rubber to protect them from engine vibration. This is important; the ignition can be damaged easily.

Speaking of batteries, use a good 4.8 or 6-volt battery, NiCad or NiMH, unless otherwise specified by the manufacturer. A single cylinder engine will use up an 800-mah battery in about an hour. Twins use twice as much energy. Decide how long you want to fly and select your battery pack. Do not use a voltage higher than specified by the manufacture, it does no good and can damage the ignition. Avoid using a voltage regulator if possible, electronic ignitions may not get full performance with an inline regulator. Better to use a simple unregulated Nimh or Nicd battery pack.

Throttle and choke control

When using a gas engine (or for that matter any engine) it's important to use a good quality servo for the throttle linkage. Sloppy throttle management can make a plane harder to fly. Don't just grab any old used servo for the throttle. While it doesn't take a lot of force to work the throttle, it's important that the servo linkage is tight and free of slop, and that the servo itself is precise and free of slop. A good ball bearing nylon-gear servo will do nicely. Don't try to save \$5 here and buy a non-ball bearing servo, it can cause the throttle to be imprecise at that worst possible times. And don't allow any metal-to-metal contact, particularly do not allow a metal pushrod to make electrical contact with the engine, it can act as an antenna and radiate interference. If you choose to use a servo to drive your choke, this is where you can use your worn out servos. The choke is an all-open and all-closed affair; it has a snap that forces it one way or another. In this case it's important that the servo's travel matches that of the choke lever, otherwise what will happen is the servo will be resisting the choke spring and will draw excess current. A worn out servo is easier to adjust in this case. Ideally adjust the travel to be approximately correct, then use your computer radio and adjust the endpoint travel (ATV is a common term) so that the servo doesn't buzz in either the open or closed position. Don't have a computer radio? Get one. You're in the big leagues now. Get a decent radio.

* Throughout this document I use cubic inches and CCs interchangeably. They mean the same thing, they refer to the amount of air that moves through an engine in one revolution or combustion cycle, but they have different scales. One cubic inch is equal to 16.4 cubic centimeters (cc). 10 CCs equals .061 cubic inches. Therefore a 50cc engine is 3 cubic inches. Engine displacement measurements are rarely exact, assume that any reference to size means "approximately".

The above article is taken from the Wild Hare website. www.wildharerc.com

Quantas Problem Solving

After every flight, Qantas' pilots fill out a form, called a "gripe sheet," which tells mechanics about problems with the aircraft. The mechanics correct the problems, document their repairs on the form, & then pilots review the gripe sheets before the next flight. Never let it be said that ground crews lack a sense of humor. Here are some actual maintenance complaints submitted by Qantas' pilots & the solutions recorded by maintenance engineers. By the way, Qantas is the only major airline that has **never** had an accident.

(P= The problem logged by the pilot.) (S= The solution and action taken by mechanics.)

P: Left inside main tire almost needs replacement.

S: Almost replaced left inside main tire.

P: Test flight OK, except autoland very rough.

S: Autoland not installed on this aircraft.

P: Something loose in cockpit.

S: Something tightened in cockpit.

P: Dead bugs on windshield.

S: Live bugs on backorder.

P: Autopilot in altitude hold mode produces a 200 feet per minute descent.

S: Cannot reproduce problem on ground.

P: Evidence of leak on right main landing gear.

S: Evidence removed.

P: DME volume unbelievably loud.

S: DME volume set to more believable level.

P: Friction locks cause throttle levers to stick.

S: That's what they're for.

P: IFF inoperative.

S: IFF always inoperative in OFF mode.

P: Suspected crack in windshield.

S: Suspect you're right.

P: Number 3 engine missing.

S: Engine found on right wing after brief search.

P: Aircraft handles funny.

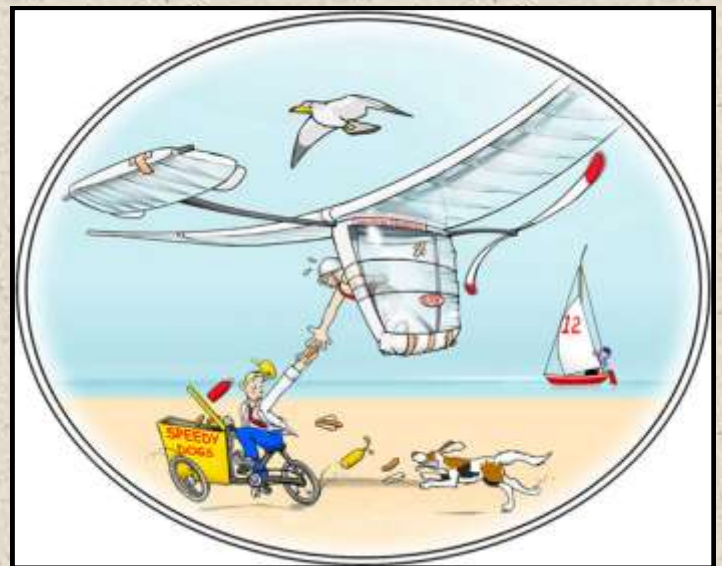
S: Aircraft warned to straighten up, fly right, and be serious.

P: Target radar hums.

S: Reprogrammed target radar with lyrics.

P: Mouse in cockpit.

S: Cat installed

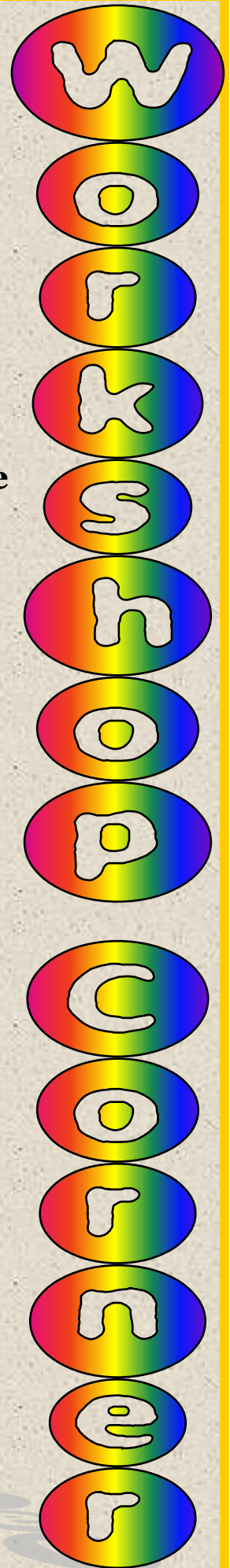




No hints or tips sent in this month.....come back and see
what is here next month..
or you could always email me something to use! :)

Internet Access at RDRC

High speed internet access is available at the RDRC field for those of you with laptops, iPhones, netbooks, and other wireless devices. We have installed a feed for our cameras and weather equipment, and included a wireless router for support of other wireless devices. Some of you had mentioned wanting to help support the internet feed for the field data streams in exchange for secure wireless access at the field. If any of you are interested in this, send an email to: wb4iuy@teara.org
If anyone wants to chip in, we'll pass along the rotating security codes to those who support the system.



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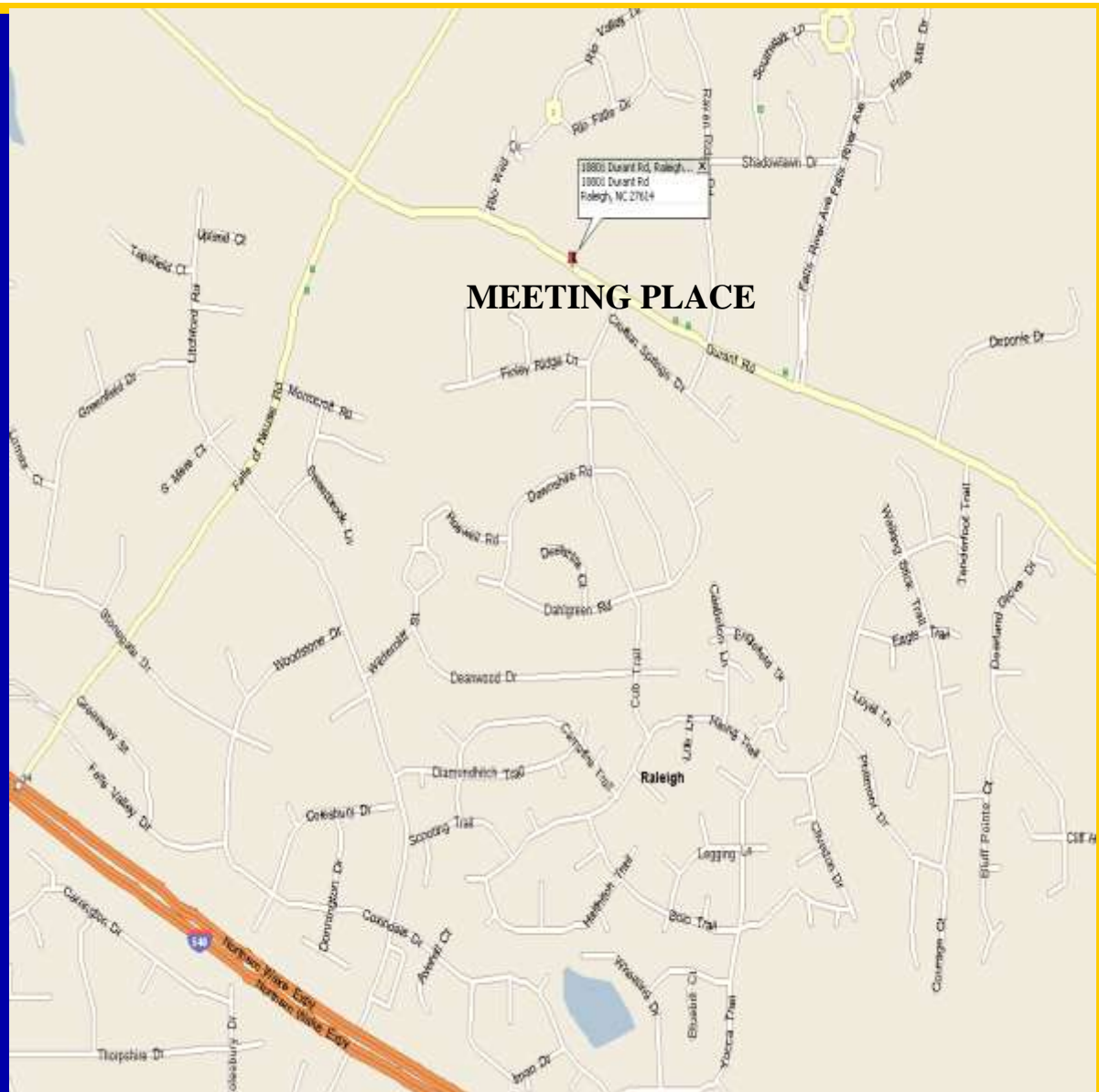
Newsletter

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Submittals:

All club members are urged to submit material to be published in the newsletter. The material should be received by the second Saturday of each month. Text is easily submitted in the form of regular mail or e-mails sent to my address above, photos can be attachments in any format that your camera produces (or scanned photos).



Thoughts from the slipstream :

Send in some hints and tips so your fellow modelers can benefit from your experience, mistakes or just to show us all how good you really are at modeling :)
Pictures of days at the field are worth showing off, THIS is a good place to do it!
All it takes is a little time and an email or two!! Come on, **let's fill the pages with good information and pictures showing off what we all love to do most.....**
.....BUILD and FLY MODEL AIRCRAFT!!!

See y'all at the meeting on the 28th April. 'til then fly safe, have fun!

