

# December 2002



## **The Monthly Newsletter of The New Hampshire Flying Tigers Radio Control Club**

Send all correspondence to: The NH Flying Tigers RC Club, P.O.Box 99, Derry, NH 03038-0099

President - Glen Bolser Vice President – Paul Pazolt Safety Officer - John Lavery Field Marshall– John D. Stevens  
Secretary - Dave Annicelli Treasurer - Dan Wilder Newsletter Editor - Will Widgren Training Coord. – John D. Stevens

**This Month's meeting will be on  
Wednesday, December 18<sup>th</sup>, 6:30 pm at  
the Marion Gerrish Community  
Center, Derry, NH**

## **What's Happening**

**Annual Christmas Party at this Month's meeting. Note that the meeting is one week earlier and the start time is ½ hour earlier at 6:30.**

**Don't forget to renew your membership.**

**A desert contribution for the party will be much appreciated.**

## **MINUTES OF LAST MEETING**

Meeting began at 7:05 with 17 Members present.

Paul Pazolt archived all club documents onto CD-Rom.

Paul also had a few positive comments about the club.

Glen and Dave S. toured potential flying sites. They found none of the sites suitable for club use. They will continue to search.

Members were asked what they would like to see on the website. One possibility was a member's only area.

The training program will be updated in January.

The membership discussed club rules and the importance of following them.

Club elections were held. Dave Sigillo is our new Vice President. Congratulations, Dave.

Meeting ended at 8:30

## **PRESIDENT'S CORNER**

Happy Holidays to all of you and your families, and may you receive all you wish for, and may you be surrounded by family and friends, and please remember those less fortunate than ourselves and do whatever you can to shine a little hope and joy on them at this time of year. May you have a truly Merry Christmas, and a great 2003.  
Glen

I am looking forward to the Christmas Party which will be on the 18th due to Christmas falling on the last Wed. of the month. As usual we will be providing pizza and refreshments for the party, all members and their families are welcome. We are going to do the Yankee Swap again this year as in years past. It is a fun night for all who attend. If for any reason a member does not wish to

participate in the Yankee Swap please feel free to come and have a good time anyway. Also, if anyone would like to bring a side dish or a desert to the party, it would be appreciated.

The lawn tractor has been reassembled, along with a fresh coat of paint. I have replaced one bad spindle on the mower deck, new cutting blades, front wheel and pivot bearings, steering gear, all new belts, new deck wheels along with some new castor wheels to support the front of the deck, and a fresh coat of grease on all moving parts, I need to thank my brother in law for allowing me to work on the tractor in a nice warm environment with access to any tool I needed from the welder to basic hand tools. It certainly made the task a lot easier to accomplish although I really didn't mind doing it.

I hope to see all of you at the party, and if I don't see you, have a Merry Christmas and great 2003.  
Happy Holidays, Your Humble Servant,  
Glen

### **Yankee Swap.**

As in years past, the guidelines for the Yankee swap is a new gift costing between \$10 and \$20, preferably hobby related, cleverly wrapped in newspaper. Each person that wishes to participate draws a number. No. 1 gets first pick, followed by the others in sequence. No. 2, and so on, get one chance to swap their gift with anyone that has already opened a gift. No. 1 gets to swap after all gifts are distributed, and gets to swap with anyone.

## **Almost Ready to Fly**

*by Durell Leister Sr.*

Not so long ago many people predicted that by the turn of the century Americans would be enjoying a shorter work week. These people with vision saw most of us spending huge amounts of time fishing, golfing, boating, and flying our miniature aircraft.

Unfortunately, these wise people did not also see run-away inflation, downsizing, and a host of other pressures that play upon the typical American.

Do you know anyone who absolutely loves golfing, but has not golfed in years? Or how many members of our own club continue to pay membership dues, but you rarely see them at our club functions? As you well know, club participation used to be a condition of membership especially during our club's E-fly days.

Usually newcomers are attracted to our hobby because they are fascinated with airplanes and flying and believe that this would be a way to explore this interest. They will visit the local hobby shop, take a look at all the options, and then decide how much money they can afford to spend and

the amount of time necessary to build a model and then learn to fly it. Some will actually go and purchase a kit, start construction, and then eventually give up. Others will pursue the Almost Ready to Fly (ARF) route, learn to fly, but then never advance to the next level. We would probably all be amazed at the percentage of kits purchased compared to the percentage completed. Maybe half?

As you can see, the time-old tradition of building our own masterpiece piece by piece is gradually ending. Voila! Enter the next phase of our hobby ... buy and fly. The already built or ARF aircraft is steadily taking over the industry, from the many different size trainers up to the increasingly popular large scale aircraft.

It appears that many of us faced with time constraints are turning to these ARF or ARC (Almost Ready to Cover) model aircraft. Also, some of us are using companies who will build your dream aircraft ready to fly. When you think about the cost or value of your time it becomes a real bargain to pay someone else to do the building for you. Industries that perform services for people are the fastest growing part of American society.

When you think about it, is it really worth a few bucks to change your own engine oil in your automobile? Can you afford to spend hundreds of hours to build a model? Maybe or maybe not. Of course there will always be builders, but I think there will be fewer and fewer in the future.

Are we breeding an elite group of modelers who can afford to spend almost any amount of money for the aircraft they want? You know as well as I do that most modelers do not get into RC until they are adults. Of course the most evident question, "Where are the kids?"

I can see an apparent danger in the buy/built saga and that is its affect on the hobby industry. There will be fewer tools, less accessories and gadgets, and of course there will be that loss of personal pride that only comes when you experience the thrill of seeing a box of balsa become a flying miniature aircraft.

I for one have become bitten by the ARF bug. Its hard not to with the number, price and quality of ARF kits available today. With less time spent building you have more time to devote to other things in life and of course more time to spend flying! I still love the feeling I get from building that special aircraft from that box of balsa and seeing it fly and thinking, "I built that with my own two hands." But for sure, things, they are a changing. To build or to ARF ... that is the question.

from *The KRC Downwind Approach*  
Keystone Radio Control Club  
Durell Leister Sr., editor  
Hatfield PA

# Beginning Model Engine Operations

*by John Hunton*

We are in the age of the ARF. These Almost Ready to Fly models are attractive and seem to promise a lot. They bring a new generation of modelers to the flying field who may not be experienced in model airplane engine operation. ARFs will not begin to deliver on their promises if the engine will not start. It is hoped that these notes will assist the beginner to get going successfully and enjoy model aviation to its fullest.

Most trainer type ARFs are powered by model engines of the two-stroke cycle type. Two-stroke cycle basically means that the engine fires every time the piston goes up and compresses the air/fuel mixture (four-stroke cycle engines fire every other time). The big difference in the two types of engine is in how the fuel/air mixture is transferred to the cylinder. While the four-stroke engine uses the upper part of the piston to pump fuel/air in and exhaust out, the two-stroke uses the bottom of the piston as the induction pump.

When the two-stroke piston goes up it creates a vacuum in the lower part of the engine (crankcase), a port opens and fuel/air is inducted through the carburetor. After the piston reaches the top of its stroke the intake opening is closed. As the piston moves downward from the force of combustion it moves past an exhaust port which lets most of the products of combustion escape. The piston moves further downward and opens intake ports, which allow the compressed air/fuel mixture in the crankcase to transfer into the upper cylinder.

The amount of power generated by the typical combustion action is controlled by the throttle (amount of air/fuel mixture) and the needle valve (ratio of air to fuel). For any given throttle setting there is an ideal air/fuel mixture, which modern carburetors are capable of providing over a wide range of throttle settings.

While it would seem prudent to set the needle valve to the maximum rpm for every throttle setting, it is important to realize that lubrication for all moving engine parts is mixed with the fuel.

Therefore as the mixture is changed from rich (needle more open) to lean (needle more closed) there is less lubrication available for the engine. With a lean needle setting and less lubrication the engine will run hotter. With a rich setting the engine will run cooler. As we will see, neither rich nor lean is ideal: too lean leading to short engine life and seizing up at full power and too cool leading to unreliable idle.

Modern engines are generally not run-in at the factory. Parts are not seated yet and fits are tight. A new engine is not reliable at all, so it is prudent to run at least one tank of fuel through it before trying to fly. The way an engine is broken-in determines to a large part how long it will last. Make the first run on a new engine on the rich side to provide good lubrication and to keep the engine relatively cool.

If you are trying to start a new engine this is what will usually happen. The cylinder is cold, therefore the engine needs a richer mixture to begin the combustion process and start to heat up. You can choke the engine to provide that fuel rich mixture by placing your finger over the intake and turning the propeller (this gets fuel up in the fuel line ready to begin feeding) or you can prime it with raw fuel. In either case when you try to start the engine this super-rich mixture will usually cool the glow plug when it is transferred into the upper cylinder. This is why you cannot expect the engine to start if you are flipping or applying the starter continuously. It is best to choke or prime with sufficient fuel to start combustion, then wait a while for the glow plug to heat up again before flipping.

Use the starter in short bursts, leaving a little time between bursts.

Modern engines use muffler pressure to the fuel tank. While there was much resistance in the modeling community to using mufflers when they were introduced many years ago, the use of muffler pressure has greatly improved engine operation reliability. But if you have started your engine and it quits for some reason, residual muffler pressure will continue to cause fuel to flow into your engine, perhaps even enough to cause hydraulic lock, which can severely damage your engine.

If you get to a hydraulic lock condition and you try to flip the engine, the propeller will stop dead as the piston moves upward (air is compressible, liquids are not). If you are flipping, and you experience hydraulic lock, your finger will move up the back edge of the propeller blade and it may be cut severely. It is a good idea to wear a glove while flipping an engine. With hydraulic lock it is best to remove the glow plug and flip over the engine by hand or starter to clear the raw fuel.

While you have the glow plug out, attach it to your glow driver to observe the color of the element. A bright orange color is normal. A dull red color indicates that the driver may need charging or the plug needs replacing.

Notice where the fuel level in your tank is in relation to the middle of the carburetor. If the fuel level is above the carburetor this may cause siphoning into the engine. If it is below the carburetor, it may be difficult for the carburetor to draw it up in time to sustain running. Check this fuel level for first engine operations and add or remove fuel or

tilt the model as required for the proper fuel level condition.

During break-in you will probably be adjusting the needle valve more than any other time. Please use a wooden propeller to save your fingers. Factory needle settings are usually very close to optimum so open the needle a few clicks to provide a good rich mixture.

You have started the engine and have run a tank through it. It is now time to prepare your engine for flight. At full throttle set the needle to optimum, which for now is just the rich side of maximum rpm. If your new engine will hold this setting without seizing it is ready to fly (if not run another tank through it). There are two conditions that will make this mixture setting invalid. One is that as fuel burns off the level in the tank gets lower and this causes the mixture to go leaner.

The other condition is acceleration. With fuel tank behind the engine the force of acceleration during takeoff will tend to make the engine go lean. The usual result of this leaning tendency is engine failure at the worst possible time. Most modelers simulate the takeoff acceleration scenario by tilting the model to the vertical and setting the needle on the rich side of optimum at maximum rpm in that orientation.

A word about the other end, reliable idle. When an engine is idling and the model is coming down, massive amounts of cooling air flow over the engine with little heat being generated. A too rich idle adjustment will cause the engine to run even cooler and it will usually quit. Keep the idle setting fairly lean. Adjust the throttle linkage so full off trim will stop the engine and full on trim will cause a high enough idle setting to be completely reliable and you can adjust trim in the air to a low but reliable position.

It is hoped that these procedures can help you learn successfully in a day what it has taken many of us so many years to develop.

from *LadyHawks Aerie*  
LadyHawks LLC  
Ann Wilson, editor

## Check out this website

<http://www.modellsport.de/welcome.htm> This site, located in Germany, was mentioned in an email sent to the editor promoting a magazine called JetPower. On checking the site, it also had some additional books and pictures of historic planes.

### From The Editor

Any comments or suggestions will be greatly appreciated. If anyone has anything to contribute please mail to:

**Will Widgren, 17 Dyer Avenue, Salem NH 03079.**  
or: [widgren@attbi.com](mailto:widgren@attbi.com)

**Deadline for submissions: January 20<sup>th</sup>**  
**Web Newsletter:** The club newsletter is available on the web at: [www.nhflyingtigers.com](http://www.nhflyingtigers.com)

### Tarmac shots

