



Smoke Signals

Monthly Newsletter of the Meroke RC Club

January 2008

AMA Gold Leader Club #458 - established 1963

Is Model Building a Dying Art Form?

Die-hard builders have for years now been saying that the Almost-Ready-To-Fly (ARF) model aircraft industry is going to be the end of model building and life on Earth as we know it.

When we first noticed the proliferation of ARF's, we were all saying the same thing. It is not our intention to rehash the kit vs. ARF vs. scratch-building debate, but some facts are applicable.

It's doubtful anyone would dispute that a good builder is capable of building higher quality models than what is available as an ARF given that he is willing to invest the effort and time.

Like any industry that uses mass-production methods, the ARF industry must take measures to keep costs down to be competitive. That means the best materials are seldom used because it is more costly to always use the best quality or best construction technique if the benefit is highly offset by cost.

Arguably, ARF's are engineered to be suitable for the lowest common denominator (bad pilots) so that the planes can be considered safe and airworthy even when carelessly assembled or flown outside their intended flight envelope. Consequently, ARF's are over-built and over-weight.

The point being, not to bash ARF's. Indeed, they have come a long way in terms of quality. Nevertheless, it is clear to me that a good pilot will be limited by the performance of an ARF. He will have no choice but to learn to construct higher quality, purpose-built airframes or have someone else do it for him.

Those of us who aren't really good pilots but who are good builders simply don't want to settle for a

compromised airframe when we know we can build one that is better — even if the plane is much more capable in flight than we are as pilots.

Those are two reasons why the art of model building probably won't die but are the least important as far as we are all concerned. Technical superiority will be eternally a moot point when the subject is creative endeavors.

The most important reason that model building will last is that there will always be artists. True model-builders are artists. They build because they enjoy creating — not having. Model building is creative, productive and highly rewarding. Builders are limited only by their skills, knowledge and imagination — not a board of directors.

(continued on page 8)

Meroke Calendar

January 3 rd	Club Meeting 8 PM - first meeting of 2008 - Show & Tell
January 17 th	Club Meeting 8 PM - Club Auction
February 7 th	Club Meeting 8 PM - Show & Tell
February 21 st	Club Meeting 8 PM - Virtual Fun Fly
February 22 nd to 24 th	WRAMS Show
March 6 th	Club Meeting 8 PM - Show & Tell
March 20 th	Club Meeting 8 PM - Helicopter Fun Fly
June 8 th	Open Fun Fly
June 21 st	Club Picnic (tentative date)
August 3 rd	Come Fly with Us
December 4 th	Awards Dinner

Meetings are held the first and third Thursday of each month at 8:00 PM at the First Presbyterian Church of Levittown located at 474 Wantagh Avenue. The church is about 1 mile north of Exit 28N on the Southern State Parkway. Additional information can be found on the club website - www.merokes.com.

Club Officers & Volunteers

President	Dave Bell 516-633-0034	dave.bell0323@verizon.net
Vice President	Lou Pinto 516-785-6890	meroke36@aol.com
Treasurer	Herb Henery 631-665-6274	hahenery@aol.com
Recording Secretary	Al Weiner 516-868-5674	
Corresponding Secretary	Curtis Underdue 917-213-4459	curtisu@msn.com
Board of Directors	Mark Klein 516-326-0855	mclein@optonline.net
	Ed Wiemann 516-735-0733	eww46@man.com
	Nelson Ramos 631-420-2889	ne198rc@optonline.net
	Ernie Schack 516-481-1814	radioschack2@aol.com
Chief Field Controller	Bob Reynolds 516-775-4377	mrbrew@optonline.net
Asst Chief Field Controllers	Tony Pollio 516-794-9637	rctony@optonline.net
	Ed Wiemann 516-735-0733	eww46@man.com
Field Safety Officer	Tony Pollio 516-794-9637	rctony@optonline.net
Smoke Signals Editor	Russell Rhine 516-484-0368	rrhine@optonline.net
Membership Programs	Tom Scotto To be named	
Education	Charlie Lando	
Friends of Cedar Creek	George Carley	
Building Program	Charlie Lando	Ernie Schack
Archivists	Ron Berg	Stan Blum
Webmaster	Ted Evangelatos	
Social (Coffee)	Irv Kreutel	Al Hammer
Raffles	Mark Klein Nick Guiffre	Curtis Underdue
Show and Tell	Ben Corbett	
Video Librarian	To be named	
Come Fly With Me	Mark Klein	Dave Bell
Open Fly-In	Ernie Schack	Tony Pollio
Monthly Fun Fly	Bob Reynolds	Gene Kolakowski
One Fly	Ted Evangelatos	
Picnic/Dinner	Al Weiner Nick Guiffre	Chris Mantzaris
Contest Directors	Allen Berg Tony Pollio Tom Scotto	John De Sena Ernie Schack
Flight Instructors	Allen Berg Ted Evangelatos Dan Gramenga Gene Kolakowski Tim Murphy Rick Porqueddu Bill Streb Al Weiner	John De Sena Douglas Frie Mark Klein Ken Mandel Tony Pollio Bob Reynolds Ernie Schack

President's Message

As we enter into 2008, I would like to wish everyone a Happy and Healthy New Year. Just to bring you all up to date, the new Board met on December 8, 2007 and finalized a few dates and plans for the upcoming year.

Those dates are posted on the front page of this newsletter and please mark your calendars with these dates.

I will be looking for volunteers for the (2) vacant positions - Programs and Video Librarian. May I remind you that our By-Laws allows for the President to appoint a person or persons to any vacant positions, if your feeling un-lucky, I suggest you volunteer, or you may be the chosen one.

If you have any questions or concerns about any of the Committees or would like to help on any Committee, please make contact with the Committee member(s).

On another note, as you know from our last meeting, we again made Gold Club Leader status for 2008. In order to maintain this high level of Club Leadership in the AMA, we need to maintain a membership of over 100 members. Currently, we do not meet that criteria, so unless we increase our membership during 2008, we stand a good chance of losing this status once again. So I am asking every member to please try to get friends or relatives or whomever, interested in RC Flying, so we can increase our Membership. We are hoping our scheduled events, open to the Public, will draw new members, but we cannot always count on that, so try to get others interested in Meroke Membership.

The Board is looking forward to an eventful and exciting year of flying, Club events and camaraderie. If you have any suggestions, ideas or concerns, please contact any member of the Board.

From the Editor

Wasn't left with much space, so our best wishes for a Healthy and Happy 2008 from the staff at Smoke Signals. I'll have more to say in February.

LiPo Battery Storage

A question that seems to come up quite often is the proper long-term storage of Li-poly batteries; everyone has a different idea on how we should store them over the winter. Is there a proper way to store LiPo batteries over a long period of time, like three to four months?

There are certain things you can do for long-term LiPo storage that will prolong the life of a battery pack. How and where the packs are stored is perhaps the biggest factor in prolonging their performance. Keep batteries in a cool dark environment and not in a place with temperature extremes such as a car, a trailer or an un-insulated storage shed. High temperatures will destroy a battery in short order, so always keep battery packs out of the sun and heat. The other extreme is allowing packs to freeze; this will also damage them beyond repair. A refrigerator that maintains a temperature of about 40 to 45 degrees is just about the perfect place to store packs (do not use the kitchen refrigerator that has food in it). Allow the packs to come to room temperature before using or charging.

LiPo batteries do self-discharge—granted, at a very slow rate; but over time, they will lose their charge. Packs that go completely dead, or fall below 2.5 volts per cell, can be damaged beyond repair and thus become useless. Never store a discharged battery for long periods of time. Also, don't store a fully charged battery because the cells will drift and discharge at different rates and result in a pack in which the cells have become out of balance from one another. If left unbalanced, the cells in this battery pack will continue to drift farther apart after each charge and discharge cycle. The best thing to do is put the batteries away with a "storage charge" of about 3.85 volts. This gives each cell enough voltage to keep them stable for long-term storage. The cells will discharge at a similar rate and maintain a better balanced pack over time. When it's time for the charge and discharge cycles to begin, the battery pack will start the cycle in balance and will perform better. The other advantage of the 3.85V charge is that it still provides

plenty of storage time before the pack reaches the low-voltage minimum of 2.5 volts per cell.

Label the battery with the date and type of charge (i.e., full or storage), as it's easy to forget when you've last charged a battery pack. Also, when you charge the battery for the first time after storage, charge it at a slower rate until it is fully charged. This brings up all the cells at a slower rate and will help to keep them in balance.

Use these suggestions for LiPo storage to help prolong the life of your battery pack, so come spring, your plane will continue to perform at its best with lots of e-power.

Engine Myths Busted

Modern engines produced to precision tolerances don't require break-in; just set the needle valve a little rich, and fly.

In today's plug 'n' play society, you may be tempted to heed this advice. After all, you can buy an ARF and have it ready to fly the next day. Is it really necessary to spend time breaking in the engine when you could be out flying?

When all else fails, we can look at the engine manufacturer's owner's manual. There does not appear to be a consensus among engine makers regarding the importance of engine break-in. Some manufacturers downplay the importance, stating that no break-in is required, while others stress its importance and give very detailed break-in instructions.

It is true that many engines produced today are manufactured using high-tech, computer numerically controlled (CNC) equipment. CNC equipment can produce parts to very close tolerances, but there will still be some variation (albeit very small), and the only way to achieve the optimum clearances between the cylinder and the piston is through engine operation. Metals expand with increasing temperatures; therefore, the engine must be

Ask Dr Phil

at operating temperature for the piston to seat properly. A proper break-in will ensure that these clearances are established.

There is another reason to carefully break in your engine. During its manufacture, stresses are built into the individual parts. This applies to all engines, from small 2-stroke glow units to full-scale piston and turbine engines. Turbine engines, which are probably manufactured to the highest standards of all, are given a thorough break-in. The break-in cycle is carefully designed to relieve stress on the parts. The cycle consists of incrementally increasing the temperature, with cool-down periods between each increase. If this process is not controlled, the internal stresses could distort the parts and cause engine damage. If you are really pressed for time or you live in an area where the engine noise will disturb the neighbors, there are still some things you should consider doing. If possible, mount the engine on a test stand so that you can become more familiar with it. Running it on a test stand also makes the initial mixture adjustments easier. For most engines, when the top-end rpm hold steady for a reasonable period, the idle is reliable and the transition is fair, the engine should be ready to fly. Continue the break-in during your initial flights by making certain that the needle valve is set on the rich side. Also, vary the throttle to thermally cycle the engine. Your engine will appreciate it!

Tech Tip

Never partially charge your battery

When you fast charge a battery pack on a peak detect charger, it will be done automatically. Full charge is sensed and the charger cuts itself off. For overnight charging, the charger should be left on for 10 hours or more. Some modelers are of the belief that if only a small amount of charge is used up, only a short recharge is necessary. That is definitely not the case. The battery chemistry always expects a full charge. Never partially charge a battery. This is especially true for RC system batteries.

Hi Folks,

I hope everyone had a Happy, Healthy and Peaceful New Year. Now that everyone has sobered up, I would like to start this years Dr Phil with an item submitted by Bob Henken. He writes the following: When is wax paper not wax paper? Members have found that their glues have been sticking to surfaces that are supposed to be protected by a sheet of wax paper. The problem is that Cut-rite wax paper formerly manufactured by Scott Paper Company is now made by Reynolds and it is not the same product. The Reynolds paper is okay to wrap your Bologna in, but it does not have the non stick surface of the Scott product. I guess we have to try a different brand.

Thanks for the information. If in doubt always make a test sample.

2008 Permits

Your 2007 permit will be good until January 7th, 2008. The new 2008 permits will be available starting Tuesday - January 8th, 2008. Permits will be issued 11 am - 4 pm, Tuesday through Saturday.

Auction Alert

The meeting on Thursday - January 17th will include our annual auction. Assemble those items you no longer want and bring them in on that date. You will also be able to purchase items that might be very useful to you.

January Birthdays

- 2 Philip Hajohn
- 5 Mike Elbers
- 7 Jerry Leibman
- 10 Matthew Comerford
- 13 Tony Pedalino
- 22 Charles Lando
- 24 Ben Corbett
- 24 Angel Cruz-Ortiz
- 29 Peter Heinz



Glow Engine Maintenance

Disassembly, Bearing Replacement and General Cleaning

Following is a procedure for overhauling a basic two-stroke glow engine. It will show how to disassemble an O.S. .46SF, clean the various parts, do an inspection and replace the bearings before reassembling and test running the engine. The techniques shown are applicable to any brand of engine.

PREPARATION

Before beginning any job, you should assemble the proper tools and prepare your work area. You might start by placing a clean sheet of cardboard on your worktable, but an old towel also works well. Gather the necessary tools and supplies for the job—in this case, a selection of Allen keys, screwdrivers, a small pair of pliers, a scribe (for marking metal), a puller, cleaners/brushes/work tray, some shop towels and assembly oil. A soldering iron and hot-air gun are also often needed. Keep organized and work somewhere you don't mind making a little mess. This is not a job for the good dining table.

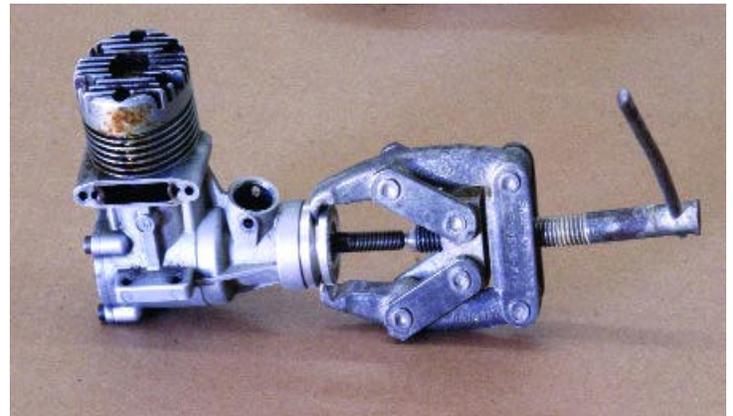
DISASSEMBLY

Taking apart an engine is not something to be feared. However, if this is your first time, it is recommended that you also keep a pen and paper handy to take notes that hopefully will help make putting things back together a lot easier.

First remove the muffler. If the bolts are stuck, try heating them with a soldering iron to soften any congealed oil. Make sure to use the correct size Allen wrench or Phillips screwdriver to prevent damaging the screw heads.

Next remove the carburetor. Usually the carburetor is secured with two screws or a drawbar. Remove the prop nut and washer and set them aside. Most engines today use a split, tapered collet to hold the drive washer in place. The easiest and best way to remove a collet is with a small puller. You can fashion a set of your own from a battery terminal puller available at most automotive

supply stores, or purchase a small puller as shown in photo below.



Use a small scribe to lightly mark an X on the rear of the head, the rear face of the connecting rod and the rear side of the top of the piston. These index marks help you orient the engine components properly during reassembly.

You may find the screws securing the back-plate or rear cover are packed with dirt or grime. Clean them out with the scribe to allow the Allen wrench or screwdriver tip to engage the screw completely and prevent stripped heads. Again, if the screw is especially tight, try the soldering iron trick—it works! Carefully ease off the back-plate and try to prevent the gasket from tearing. Use a small hobby knife to ease the gasket from the case or back-plate flange. If you tear the gasket, you will have to purchase a new one or cut one from gasket stock. A leaky back-plate will prevent an engine from running well.

A well-run engine will generally have a lot of burnt oil and grime caked on the head, which can be difficult to remove. Most modern engines use brass or aluminum gaskets under the head, which can leak if not seated properly. Ease off the head and try to pry the gasket free with the knife or scribe point. If it is damaged, a replacement gasket may be necessary.

In some engines, there is a tiny roll pin inserted in the top of the crankcase that aligns the cylinder liner, preventing improper insertion. If it does not have an alignment pin, remember how the ports line up with the crankcase. The exhaust ports are usually the tallest, with the bypass and boost ports lower down. Improper liner installation will render the engine unable to run at all.

Now ease the connecting rod off the crankpin and remove the piston and rod assembly. Be extra careful not to

damage the piston ring (if present) during removal. On some engines (usually modern four-strokes) the rod cannot be taken off without first removing the wristpin and piston. These engines will have an access hole in the rear of the case through which the pin is slid out. The O.S. .46 SF does not have this feature.

The crankshaft can now be eased out of the case and bearings. If the engine is bushed, the crankshaft should easily slide out. A light tap with a plastic or brass-headed hammer can tap out the crankshaft. Do not use a steel hammer or you will deform the threads and possibly ruin the crankshaft.

Now that the engine is all apart, you can take the old bearings out. The aluminum case will have to be expanded with heat to release the



bearings. Use a paint-stripping heat gun to apply heat. You can also set the case in a toaster oven set at 250 degrees for 10 minutes. A propane torch should not be used. You can easily distort the case with too much heat or uneven heating. The heat gun is safer and works great. Once the case is hot enough, a sharp rap on a wooden block should allow the old bearings to fall out.

CLEANING

Use a water-based citrus degreaser and an alkaline detergent when cleaning engine parts. Although solvents like lacquer thinner and even mineral spirits can be used, they are flammable, give off harmful fumes, and are not good for your skin. You can buy detergent in bulk, but similar products are sold for cleaning model engines.

Pour some citrus cleaner into a plastic container and use a toothbrush and small stainless-steel wire brush to clean

the parts one at a time. Only use the wire brush for external surfaces, and the toothbrush to clean all internal parts. The nylon bristles won't hurt anything but are stiff enough to clean well.

Now dilute some of the detergent 50/50 with water and wash the part again, before rinsing the part in clean warm water. After rinsing, set the part aside on a clean shop towel to dry.

Spray a light coating of WD-40 as a rust preventative on any steel parts such as the crankshaft and fasteners after the rinse. If you reassemble the engine soon after cleaning, the assembly oil will also take care of that issue.

Stubborn burnt-on oil can usually be removed with the stainless brush. Lightly scrape off the heavy stuff with an X-acto blade. Heavy carbon buildup on the piston top can also be removed with a knife blade but be very careful not to nick the edges of the piston. Sometimes a small piece of a medium-grit 3M Scotch-Brite pad can also be used to clean the stubborn stuff.

Some engines may need to undergo a much more extensive cleaning, but for the majority of engines a simple hand cleaning as described here is more than satisfactory.

Once all of the individual parts are clean and dry, you can move on.

INSPECTION

Look over the parts for wear and damage while the engine is apart. Inspect the piston and liner for scratches. Large grooves on a lapped ABC/ABN-style engine may mean a replacement is necessary. On a ringed engine, the ring should be clean and free in the groove. Do not remove the ring unless you plan to install a new one.

The connecting rod should not have excessive play at either end. You can measure the rod bushings for both size and out of roundness with a pair of calipers. If the lower bushing is less than 0.003 inches larger than the crankpin, the engine should run fine. The wristpin bush should have slightly less play—if you measure an out of roundness, or more than 0.002 inches of clearance, consider a new connecting rod and pin.

Inspect the crankpin for any roughness or wear. If an engine has been run with adequate lubrication and not excessively lean the mating parts should be shiny and smooth. Parts that look scratchy and worn are usually signs that either foreign material (like sand) has passed through the engine, or it has been running without adequate lubrication.

The bearings can be cleaned, slightly lubricated with light oil, and checked for smoothness and play. Any roughness will degrade the engine's performance and a new set of bearings should be installed. Varying levels of bearing quality are available, but even the most inexpensive bearings are more than adequate for our sport engines.

It is also important to inspect the crankcase and crankshaft where the rotary valve is located. Even on a bearing-equipped engine, the fit of the crank to case must be very close to provide a good, leak-free seal for the rotary valve, and to prevent excessive case pressure loss out the front bearing. If you have an engine with a lot of wear and scoring in this area, it may be the end of the engine's useful life. Replacing the crankshaft and case usually costs more than a new engine.

Finally, inspect all the O-rings and gaskets. Replace any gasket that has a nick or break, or any O-rings that have become hard and brittle.

REASSEMBLY

Start by installing the new bearings. Wear a glove to prevent burns and heat the crankcase again to allow the new bearings to slip into their cavities. When the case is warm enough, press the bearing in and tap it home with a wooden block or a plastic hammer. Do not force the bearings in. If they are too tight, warm the case further until they slip in easily or with a gentle tap. The crankshaft should be able to slip back into the bearings now, and a gentle tap will seat it up against the rear bearing. The bearings should come pre-greased, but you may want to also use after-run oil on all parts during reassembly. Making sure all parts are well lubricated will prevent any chance of damage when you run the engine for the first time after it's back together.

After the crankshaft is in, slip the rod and piston back onto the crankpin using your scribe marks to make sure of proper alignment. Slide the liner down onto the piston and into the case. Some liners will have slight

interference fit to the cylinder so you may need to warm the cylinder. If you have a ringed engine, ease the liner over the ring while compressed with your fingers. Also, be aware of the ring pin, and align the ends of the ring to seat properly.

Place the head and gasket on the cylinder and tighten them down. Snug each head screw evenly and not too tightly. The engine should be able to be easily turned over by pinching the crankshaft nose. Uneven torque on the head bolts may distort the liner, and cause some binding when turning the engine over.

Replace the rear cover and then the carburetor. Assemble the collet and drive washer and put a prop onto the shaft and tighten it with the washer and nut. Add a few extra drops of oil down the head before installing the plug and muffler to ensure adequate lubrication of all parts.

That's it! Flip the prop over—check for compression and leaks from the head or back-plate, around the carburetor, etc. The engine should now be looking fine, and ready to mount and test run.

TEST RUNNING & SETUP

All that is left to do now is get the engine on the test stand (preferred, but test running back in the aircraft is also fine). Remember there is no need to break it in again, but this is about assuring the needle settings are correct and the engine is operating properly before committing to flying.

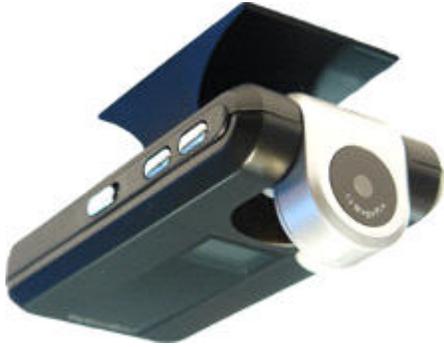
Set up the O.S. 46 with your choice of propeller, a new glow plug and fuel. Once started, reset the high-speed and low-end needles and ran a tank of fuel through the engine while checking the throttle, idle ability, and top-end power. Also, check for leaks at the head muffler, back-plate, and front bearing. Any leaks should be dealt with immediately.

CONCLUSION

Working on your engines doesn't have to be intimidating. With some time, patience and a little experience you can do it. Once you have the engine back together and set up, you are ready to remount it and hopefully enjoy many more years of service.

"FlyCamOne2" Micro Video Camera

NEW! Version-2: 3 in. x 1 1/2 in. x 1/2 in. (camera only), 1 oz. V.2 changes include: larger resolution, LCD display, rotating lens, longer battery life, and a thermal-activated motion detector. Video camera includes audio, still photos, a voice recorder, USB drive, and a Webcam. Unit is small enough to mount on just about any model airplane, small park flyer, RC car, train, skate board, or even a kite. Can be remotely activated using an additional servo. Videos are recorded with a resolution of 640x480 for clear playback, complete with sound, and 1280x1024 pixels for still photos. Camera lens rotates 90 degrees so you can take photos or video from multiple angles. Built-in rechargeable 200 mAh Li-Ion battery that charges via the USB port on your computer in about 1 to 1 1/2 hours. For video and audio-recordings, FlyCamOne2 requires an SD memory card (not included). With a 2GB SD card (not included) the video recording time is about 30 minutes. Webcam use requires the included software and USB cable. No software required for all other uses! You can edit and compress the .avi video files using Windows Movie Maker, included with Windows XP SP2 and Windows Vista. It costs \$98.80.



What is actually happening should not be called the death of an art form but a culling of the herd. The guys who don't want to build don't have to — at least until they become exceptionally talented pilots anyway.

Back in the days before ARF's the only way to have a model airplane was to build it. A lot of guys hated building which isn't any different than the way things are today. These guys almost certainly would have bought ARF's had they been available.

In the mean time if we want others to find the same fulfillment we have found then we need to stop being zealots. The word zealot is synonymous with obnoxious. Every time a zealot's opinions are inflicted on us we are more likely to do just the opposite of what he wants just to annoy him.

We need to be there to help, but not to shove it down people's throats. If they ask then show the way.

It's not anyone else's place to tell people what they should or shouldn't enjoy. Each person can and should decide for himself how to find fulfillment whether that be collecting kits that never get built, flying ARF's and never building or hermiting way in a shop building model airplanes and never seeing daylight long enough to fly them.

There will always be model-builders so we can stop worrying about it any time now.

CHICKEN WINGS®

BY MICHAEL AND STEFAN STRASSER

