



The R/C Flyer

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February 2006

Next Meeting – February 9, 2006, Clear Lake Park Building – 7:00 PM

January meeting minutes

By: Mike Goza, JSCRCC Secretary

The Meeting started at 7:00pm 1/12/2006

Old Business:

The club handed out some model of the month trophies that were left over from last year.

Dave Hoffman handed out the checks for the winners of the model of the year. The winner was Ken White and Troy Whitehurst was second.

We now have a contact at NASA for field improvements. Herman will be contacting him soon.

New Business:

The club is required to have a safety officer per the AMA rules. Dane Russo was appointed to the position by the members at large.

Tas related a safety issue with a practice written about in a magazine. The article suggested drilling and installing pins in the hub of a 4 stroke motor to keep the prop from backfiring and throwing the prop. If you drill the hub as suggested it will weaken the prop and make it extremely dangerous. Recently, at a local club, a

prop modified this way exploded while being cranked! Luckily no one was injured. DO NOT modify your props in this manner.

A few members have had a problem getting on site. The problem was that the list was lost in the guard shack. To help remedy the situation, it was suggested that the list be printed on paper the same color as our badges. We will also talk with security to see what we can do about the sporadic situation.

It was brought up for discussion ways to promote our hobby, increase participation at meetings, and possibly increase membership. It was suggested to bring back the monthly entertainment. It can even be short talks by club members on general information. People with suggested topics or volunteers for talks should contact James Lemon.

The Prop Nuts field will hold a Fun Fly on April 8 and 9.

Alvin Big Bird Fun Fly is on April 15.

MOM

Dane Russo brought a Four Star 60 to the meeting.

It is covered in red pearl Ultracote.



Ken White won MOM with a semi scale German gyrocopter. I unfortunately did not get the name. Ken scratch built the model from magazine plans. Setting up the rotor system was very tedious and the blades are hand carved from spruce and balsa.



Meeting adjourned 8:30pm.

Make a Custom Muffler

By Roger Sailors

*From the Columbus-Fort Benning RC Flyers, Columbus GA
Courtesy of the AMA National Newsletter*

Technical Editor's Note: This article does not cover how to braze. If you do not know how to braze, get instructions before attempting this.

Making a muffler for a gas engine, or even a glow engine is not beyond the abilities of most modelers. Careful browsing of hardware stores with an imaginative eye is all it takes.

All of the mufflers I have made have been for Scale airplanes with gas engines. The finished product may not be attractive, but it will be durable and functional. It may weigh a bit more than an off-the-shelf component, but most of the Scale models I have built needed nose weight.

Basic Tools

First you will need low-fuming, flux-coated, brass brazing rod. This material is available where welding supplies are sold. One tube is virtually a lifetime supply. I have an oxygen/propane torch, but a MAPP gas torch will do the job. A propane torch alone may not get components hot enough for the process to work well.

You will also need a vice or some other fixture to hold items being brazed. If you configure your components to mechanically hold position prior to brazing, you may be able to skip this item.

Some heavy leather gloves will save burned digits, and last, you will need some basic metal working tools—files, drills, stone grinders, and a saw(s).

Basic Parts

All basic mufflers have some common components. You will need a piece that mates with the exhaust manifold of the engine, a part that carries the hot gasses to the expansion chamber, and an expansion chamber where hot gasses expand and cool prior to exiting the unit.

Lastly, you will need an exhaust stub (or stubs) that will carry the exhaust out and away from the airplane.

The plate to mate the exhaust manifold must be flat and heavy enough to resist both heat and mechanical distortion. I have successfully used both large fender washers, and the plates used to protect electrical wires in walls. The washers have the advantage of having a centered hole already started while the plates offer more surface area for large exhaust manifolds.

I use a flexible gas hookup pipe made for gas appliances to route the gasses to the canister. This pipe is available in several sizes. I buy the largest size available—one piece goes a long way. It is very flexible, and can be repositioned a few times before the metal begins to fatigue. The brazing rod will adhere to it. Keep in mind that it is thin wall material, and as such, will heat up very rapidly. It is possible to burn through this material.

To make the canister, I have used the sleeves that connect pieces of chain-link fence. I have also used lawn mower mufflers. Either works fine. The muffler made from the fence sleeve is actually quieter. It is sealed at each end by a steel electrical outlet plate trimmed to fit.

I use copper water pipes to make the stubs leading into and out of the canister body. The exhaust stub is brazed to the inside of the muffler before the ends are assembled. It is then brazed through the opposite outside wall.

In order for the gases to escape, 5/32-inch holes are drilled into the body of the pipe that rests inside the canister. Gases come into the canister via the inlet, expand, and then exit the exhaust stub through these holes. I've read that this breaks up the gas waves and helps reduce engine noise. It worked for me—it was quieter than the stock muffler. The lawn mower muffler is pretty much self explanatory and surprisingly, it is not very quiet.

The Process

As the brazing material flows out, it will become liquid. This liquid has a very strong surface tension (what makes a water bead on a good wax job). It will flow into the opening via capillary action, but it will not flow across and into a large opening. It is worth your time to make components fit as tightly as reasonably possible.

The brazing material will move towards three things: heat, mass, or gravity. For example, a large clump of brazing material will be attracted to its own mass. For this reason, use only enough to do the job. This material will make a very strong joint. If your fittings are reasonably tight, you will not have to rely on a big blob to hold things together. You can “pull” the material along a seam, leading it with the heat of the torch. The heat must be evenly distributed between the components being brazed. This is easy when the parts are of similar material and mass, but you won't get that lucky often.

When joining dissimilar materials, clean each thoroughly. Start the heat on the heaviest part. As you see it start to glow, move the touch to play across the lighter component.

Heat flows toward mass so it will try to travel away from the joint to the heaviest side. A lighter material means there is less mass to conduct the heat and it will heat up faster. This means you will need to concentrate the flame on the heavier side and play across to the lighter side.

Some of the heat will be already moving towards the lighter side, so it won't take much to bring it up to temperature. When both sides take on a light glow, apply the rod to the heavier component side of the joint. As it flows, move the heat along the seam keeping the distribution of heat even. The brazing material will flatten out and flow when you have it right. If it doesn't, then it probably isn't hot enough. Try to set up your work so that

you start at a high point, heating from below and pulling the brazing material down with the torch.

Most of the parts you will be working with cost pennies, so do some practice work before you do the final part you are making.

The consequences of vibrations should be considered. On a gas engine it can be significant. I mounted the muffler on my Chipmunk to a plate on the firewall that was faced with some rubber mat about 3/16 of an inch thick. It was set up snug, but still allowed a bit of insulation from vibration. On the G-38 muffler, there is a separation between the exhaust tubing that is spanned with a piece of auto radiator hose. The muffler will be hard mounted to the side of the fuselage with this rubber spanner providing insulation from conflicting vibration between the engine and the airframe. I'd recommend some type of vibration protection.

Upcoming Events

3/11/06 – 3/12/06: Crosby IMAC Challenge at Propnuts Field. Contact CD Allan Smith at 281-328-5770 for more information.

4/8/06-4/9/06: Propnuts Annual Flea Market and Fly-In. CD is Taswall Crowson, 281-474-9531.

4/15/06: Alvin RC Big Bird/Swap Meet. Contact CD Ken White at 281-331-7724 for more information.

5/6/06: Bomber Field Float Fly, Monaville, TX. CD is Nick Stratos, 281-471-6762.

6/3/06-6/4/06: Bomber Field War Bird Event. Nick Stratos CD, 281-471-6762.

Monday, February 20th is a Federal Holiday and flying will be permitted all day at the club field. Mark your Calendars!

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