



# Stetson Flyer

Stetson Flyers Model Airplane Club

March 2001



**Darcy Whyte** shows off his well earned trophy—the first Pink Pig award of the season!



**Winter Fun Fly a Success!!** On March 3rd there were more than a dozen planes out for one of the nicest flying days of the winter, including this little fella belonging to Gerry Pronovost. Thanks goes to Rick Ramalho for organizing the event!

## Next Meeting

Tuesday March 27<sup>th</sup>  
7:30 pm

## Electric Night

*Coordinated by*  
Richard Robichaud  
Discount Hobbies, Orleans

Jean-Claude Terretaz  
*From Canadian National Team*

Jeff Dessert—Club Member  
*Will display his Electric Texan*

***There will be a draw for a  
.60 Size VMAR Texan***

*Don't forget your "Bring'n'Brag"!*

## Coming Events...

March 27 <sup>th</sup>	Regular Meeting
April 24 <sup>th</sup>	Club Auction
May 29 <sup>th</sup>	Regular Meeting
June 3 <sup>rd</sup>	25 <sup>th</sup> Anniversary FunFly
July 1 <sup>st</sup>	Canada Day Display at NAM
August 4th	Turkey Shoot Fun Fly
September TBD	Giant Scale Rally
September 25	Regular Meeting

Our website address: <http://www.stetsonflyers.com>

## Club Officials and Contacts

<b>President</b>	Gerry Nadon	824-9100
	gerald.nadon@sympatico.ca	
<b>Vice-President</b>	Peter Barnes	824-5352
<b>Secretary</b>	Erich Zappe	830-7549
<b>Treasurer</b>	Christine Devlin	830-7533
<b>Events</b>	open	
<b>Chief Flying Instructor</b>	Bob Butterworth	487-2851
<b>Field</b>	open	
<b>Webmaster</b>	Roger Hiscocks	837-0186
	hiscocks@idirect.com	
<b>Newsletter</b>	John Jackson	445-5726
	john.jackson@netmanage.com	

### *Mailing Address:*

The Stetson Flyers Model Airplane Club  
P.O. Box 456, Orleans, ON, K1C 1S8

### *Web Page:*

<http://www.stetsonflyers.com>

### *Dues:*

\$55.00 per calendar year; \$30.00 for students under 18

### *Meetings*

The Stetson Flyers meet at 7:30 on the last Tuesday of each month, except for December, June, July or August. The meetings are held at the National Aviation Museum in the Bush Theatre.

## Receive this newsletter via email!

Instead of sending a printed newsletter by Canada Post, we can send you an email notice with the web site address where you can download the newsletter each month. The file is an Adobe Acrobat PDF file, which means that you need to use a FREE Acrobat Reader software to view or print the document. There is a link to the Adobe site to get the FREE software on our web site.

The benefits to you are faster delivery, colour pictures, less cost to the club, and environmentally friendly to boot!

To receive the newsletter by email, send **your** email address to [john.jackson@netmanage.com](mailto:john.jackson@netmanage.com).

## Please visit our web site at

<http://www.stetsonflyers.com>

Our web site is hosted as a community service by

**Magma Communications**  
(613) 228-3565

Would you like a member discount on your internet access? Contact club member Rick Ramalho at [rick@magma.ca](mailto:rick@magma.ca) to receive information on discounts for

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## T-Shirts—2nd Chance!

Any members who missed the run on the Stetson Flyer shirts or would like another, can contact me (Doug Tufts) as I have five requests for another run. The shirts are \$20 each, and sweatshirts are \$35.

There is a minimum of 20 shirts per run. You can reach me at 613-745-0041 or e-mail [doug\\_tufts@hotmail.com](mailto:doug_tufts@hotmail.com)

## Engines For Sale

Contact **Ed Rae** 613-749-4923

Saito FA 40 4 Stroke	\$75.00
HP 40F	\$50.00
OS MAX H60	\$60.00
OS 35	\$25.00
FUJI 15	\$10.00
COX Queen Bee .074	\$10.00
COX TD .049	\$10.00

## Aerografixs

At the February meeting there was a demonstration of fibre-optic servo extensions, Multiplex Radios and digital servos by Roger Forgues of Aerografixs. Roger ran out of business cards, and asked us to pass along his web site address for those members who would like more information.

Roger Forgues  
<http://www.aerografixs.com>  
[rogerandorna@sympatico.ca](mailto:rogerandorna@sympatico.ca)

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**For Sale:** If you have something you would like to sell, feel free to send me the details and I will add it to our next newsletter!

## Minutes from Meeting-February 27 Aviation Museum

1.0 Gerry opened the meeting welcoming all including guests, Roger Rouleau our MAAC zone director and Roger Fogues who would speak on fibre optics, servos, and radios.

1.1 A motion to accept the minutes as published in the last newsletter was accepted Motion put forth by Jerry Elias, seconded by Tom Saunders.

1.2 John Jackson asked if anyone had problems receiving the newsletter by email. Seems everyone received it okay. John added that if anyone who isn't on the email list they can be added by calling him. Events can also be advertised on the website. Members can choose to receive the newsletter by both mail and email.

1.3 The Winter Funfly has been scheduled for Saturday March 3.

1.4 The June Funfly will be our event to celebrate our 25<sup>th</sup> anniversary. Gerry asked if anyone has ideas for this event and that help will be needed. Other clubs will be invited to attend.

1.5 To participate in Canada Day celebrations at the Aviation Museum July 1 with a flying demo and static display was accepted. Motion made by Jim Brown seconded by Ed Whynott.

1.6 The Pattern event will be discussed at the next meeting. Ken Langille was not able to attend this evening.

1.7 Gerry asked for comments regarding the Giant Rally for this year. More people are needed to help in setup, field preparation and tear down. Weather and pig roast costs threaten the success of the event. Having a steak barbeque(frozen) was suggested to lessen the risk of fixed costs that the pig roast has. A motion to have the Giant Rally this year was made by Ed Whynott, seconded by Michel Boulerice and was passed.

1.8 Jim Brown spoke on the Turkey Shoot funfly on August 4. This event will have an Axis/Allies theme but will be open to all.

1.8 A suggestion to list all club members on the website was raised. For privacy of club members this will not be done. A motion to have a membership list distributed at the May Meeting was made by Marc Shaw, seconded by Ed Whynott and was passed.

1.9 Darcy Whyte was awarded the Pink Pig for looping his Fun Bat into the snow.

2.0 Nigel Field mentioned that the pits may be fertilized this spring to help aid grass growth. Ditch digging will take place as the waters subside, perhaps late spring.

2.1 A motion to close the business portion of the meeting was made by Jim Brown, seconded by Ed Whynott and was carried.

2.2 Coffee and Bring'n'Brag followed. A magazine subscription from Flying Models magazine was drawn from the Bring'n'Brag participants. Ed Whynott was the lucky winner.

2.3 Roger Rouleau spoke on current issues regarding MAAC.

2.4 Roger Fogues gave a talk on fibre optics in modeling, Multiplex digital servos, and radios.

## President's message

Winter has not dampened everyone's spirit. Our winter fun fly on March 3<sup>rd</sup> was a great success. We had a lot of fun, the weather was just perfect and so was the company.

Thanks to Rick Ramalho for getting things ready and to Ed, Erich and Doug for helping out. I am probably forgetting someone, Thanks.

Sixteen pilots brought wing type, to diesel, electric models and the regular variety of glow (us normal people) powered airplanes. At least 20 modelers came to see the event, to make the field busy. For the no-shows, you missed a good time.

Our last meeting was a blast. We had nice presentations for Bring n' Brag, Roger Fogues and Rick Harper came to show Roger's fiber optics for models and to talk about new radios, digital servos. A magazine subscription of Flying Models was drawn for participation in Bring N' Brag.

Let us not forget that **dues are due** as of January 1<sup>st</sup>.

The next meeting is Electric night, organized by Richard Robichaud. You will see some special items on display. Also, a scale ARF kit will be drawn. This one, you should not miss. As well, in a conversation with David Crocker, I found out he had a 1960's digital radio and so do I. So we both agreed to bring them for Bring N' Brag. A galloping ghost radio from those days would be nice for this presentation.

See you March 27<sup>th</sup>.

Happy flying. Gerry Nadon

## Making Excellent Printed Circuit Boards

Copyright © 1996-2000 by Stefan Vorkoetter  
<http://www.capable.on.ca/rcstuff.html>

This article was originally written as a letter to some of my friends who wanted to know why my printed circuit boards turned out so well. After I sent it, they suggested I turn it into an article. So, here it is:

There are only a few secrets to making really good printed circuit boards. The first is to get everything completely clean. The second is to use a good etch resist.

Here are the materials you'll need:

- some black Sharpie® brand permanent markers (from a stationery store)
- the board to be etched
- dope thinner
- automobile rubbing compound (without wax) (available at auto supply stores)
- a 1/32" drill bit and a 1/8" drill bit
- a plastic tray (Tupperware, Rubbermaid, etc.)
- a piece of 1/8" x 1/4" balsa wood
- ferric chloride etchant (available at Radio Shack®)

First, buy yourself three Sharpie brand permanent markers. Get the ones with black ink as they seem to work best. Get two fine point (which really has a bullet-shaped medium point in my opinion), and one ultra-fine. The ultra-fine has a steel barrel-tip with a very fine marker poking out the end.



Label your jar of dope thinner "Board Cleaner and Etch-Resist Remover".

Next, clean the board **very** well. I found that automotive rubbing compound works really well for that. It gets really black and messy while you're doing it, but rinse it off, and voila, shiny copper. After you've rinsed it, use some dope thinner to get any traces of oil or grease off the board. From this point on, only handle the board by its edges. If you must touch the surface, put something between it and your fingers so you don't get any skin oils on it. It may be tempting to use sandpaper to clean the board, but don't do this. You will make millions of tiny grooves in the board, which may not fill with etch-resist, and you'll get hairline cracks in the finished traces.

The next step is drill the holes. Use a 1/32" bit. Use a piece of perf-board with holes on 1/10" centres as a guide, and make sure you drill from the copper side, not from the component side. If any of the holes need to be larger, enlarge them now (e.g.. with a thicker bit, or a needle file).

Now take a 1/8" drill bit, and by hand, use it to remove the raised ridge of copper that for some reason forms around each hole as it's drilled. Don't over do it. You don't want to make the hole in the copper larger than the hole in the board or it will be no fun to solder, since the component leads won't be close enough to the copper.

Take a loop of masking tape and tape the board, copper side up, to a piece of cardboard (e.g.. the back of a writing pad). Press it down flat (but don't touch it with your bare fingers). Now you have a handy means of handling the board and holding it still while you draw the traces on it.

Next, draw all the pads. For this I use the larger of the two markers. I generally start by putting the tip of the marker in the hole and turning. This draws a nice circular pad around the hole. After you gain some skill in this, you can run the tip of the marker around the rim of the hole and make a larger pad that way. The rim of the hole will bite into the marker and keep it from sliding all over the board. Keep this particular marker for making the pads, since making the pads tends to wear out the marker tip a bit and it's no longer so good for drawing traces.

After all the pads are done, using the second large marker, draw all the traces that don't have to go through tight spaces (like between pins). The traces that you draw should be about 1/16" wide. Any power or ground traces that are next to the edge of the board should be extended right to the edge of the board (especially if they will be handling motor currents).

Now, draw the remaining traces that do go through tight spots. Use the super-fine point marker for this. The super-fine doesn't seem to put the ink on as thick, so go over each trace a few times.

Inspect the board carefully. If there are any areas where the ink looks thin, go over them. Dabbing the ink on with the marker tip works well.

Let the board dry for at least 2 hours. The ink is dry to the touch almost immediately, but like paint, it's still pretty soft for a while.

Get a plastic tray whose bottom has about 4 to 8 times the surface area of the board, and put about 1/4" of etchant in the bottom. Microwave on high for 20 to 30 seconds (don't let it boil, or someone will be very angry with you). **Do not put the board in the microwave!!** If you don't have a

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microwave, put the whole bottle of etchant in a sink full of hot water for half an hour first. Open it occasionally to relieve the pressure.

Place the tray on a table (on some newspaper), with a 1/8" x 1/4" strip of balsa under the middle of it to act as a pivot for rocking it. Place the board in the tray, copper side up. Rock the tray constantly while the board etches. It will take about 20 minutes.

When done, rinse the board under running water for at least 2 minutes to get all the etchant off. Then, using tweezers, dip the board in the dope-thinner and swish it around. Take it out, wipe it off. Do this a few more times to get all the etch resist off. The copper will have microscopic fissures in it and you want to get all the ink out of these or soldering will be a pain.

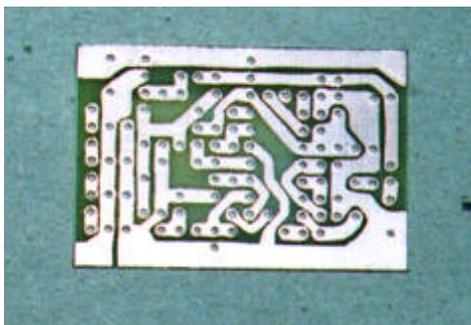
Try not to touch the surface of the copper after etching either or you'll get oils on it and it will be hard to solder. If you're not going to use the board right away, wrap it up tightly in plastic wrap to keep it from oxidizing.

Clean all component leads. I find the best way to do this is to scrape them with an X-acto knife. They should be as shiny as the board.

Use at least a 30W iron. You are much more likely to damage a component with a 15W iron because you need to hold the heat on it longer. Personally, I use a 45W iron. You should also clip an alligator clip onto the lead you are soldering when soldering a semiconductor (transistor, MOSFET, diode, IC). This will prevent excessive heat from reaching the component.

Radio Shack sells a kit, catalog number 276-1576, which contains circuit board material, etchant, etch-resist remover, a Sharpie-like pen, an etching tray, and a 1/16" drill bit (which is too large). They also sell the etchant separately as catalog number 276-1535. Radio Shack doesn't sell any single-sided copper board separately, but they have double side board, catalog number 276-1499, which can be turned into single sided by either peeling or etching the copper off of one side.

If you have any questions or comments, I can be reached at stefan@capable.on.ca.



## Question about Latex Finishes

Email from Marc Shaw to Roy Vaillancourt

I enjoyed the subject article written by Roy Vaillancourt (<http://www.modelairplanenews.com/apr01.asp>). It was very timely as I am covering my latest project, the SIG Astrohog. I have covered the plane with Koverall and adhered to the airframe with nitrate dope. Will the latex paint be compatible with the nitrate base? If so, once the latex paint has been used, can a clear coat of butyrate dope be used to make the latex glow fuel proof?

### Reply from Roy Vaillancourt:

The latex can go on over the dope no problem. BUT Do Not put dope on top of the latex. Latex can be put on over Nitrate or Butyrate dopes. The key here though is to make sure the dope is fully cured. Most dopes out gas for a fairly long time. Sometimes three to five weeks depending on the temperature and humidity. A good test is to sniff the surface up close. If you can still smell the dope then it hasn't finished out gassing.

The problem with this is that when you paint over the dope while it is still out gassing you trap this gas and it will eventually dissolve or lift the latex. This lifting process would also occur if you put epoxy or any other paints over dope that is not fully cured. In most cases you will not need a primer for the latex over the dope. If you do chose to use a primer either solvent or water based will work. If using water based primer you'll need to wait for the dope to out gas. If you are using a solvent based primer you'll need to wait for it to finish out gassing before applying the latex. In either event, primer or not, Just sand with 300 wet and dry prior to applying the latex to give the latex a surface to bite to.

Latex doesn't need to be top coated if you are using a gas engine. It takes exposure to gasoline very well after the full cure time. However, it turns to a gooey mess if glow fuel gets on it.... If you are using glow fuel the latex most definitely has to be top coated. Here clear epoxy or polyurethane works good. But you must wait until the latex has cured fully and then be careful not to flood on the clear. Remember that both epoxy and polyurethane paints use a toluene based thinner. I have also used water-based polyurethane with equally good results. I have top coated the latex many times before. My preference has been K&B Hobby Poxy clear. Works very well. Just don't flood it on as stated in the article.

I generally do military stuff so the clear I use is mixed with "satin" hardener. Sometimes I add talcum powder to the mix. Works great. Just go easy on the clear. You'll only need a little more then a dust coat. You can apply

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your decals after the first coat of clear, then lightly over spray them with the clear to fuel proof them. The key word here is LIGHTLY overcoat them.

When masking the latex, go to your local auto body supply shop for masking tape. Use the good 3M stuff. Use the low tack variety. Don't use cheap stationary store grade masking tape. After applying the tape and covering all surrounding areas you don't want paint on, spray lightly along the taped edge. Dry this with the heat gun. Repeat this two more times before doing the whole area required. Do the spray and heat gun bit here again as described above. Only this time after the last coat is applied partially force dry the area near the tape. Then remove the tape and head for a beer.... After all is FULLY cured you can apply your clear coats as above.

You should be able to use the HVLP guns on the market today. The air pressure will have to be played with as well as the amount of "thinner". Everything is a slight experiment as latex from different manufacturers act differently. You'll also find that the color itself will cause changes in settings and techniques... Just remember to go easy and only change one setting at a time. Good luck and send in a photo of your completed project.

Hope his helps you out.

# Tinker Toy Balance Jig

By Howard Sullivan  
hlsulliv@mindspring.com

The performance of a model is directly dependent on how well it is balanced. It is difficult at best to balance a model without a means of supporting the model at the precise center of gravity. The use of the old method of supporting the model with a finger under each wing may be suitable for some of today's trainers but is not adequate for balancing a precision aerobatic model. Every modeler should have a fixture which will support a wide variety of models while allowing for hands free operation during balancing.

The "Tinker Toy" balance jig is easy to build from readily available materials using common tools. The skills required to construct this balance jig are well within those of many beginners. It is easy to assemble simply by slipping the shafts into the holes, hence the name "Tinker Toy". It is easy to set up for any model and accurately locates the center of gravity. It can be taken apart for storage.

Materials listed are for one (1) complete assembly

## Bill of Materials

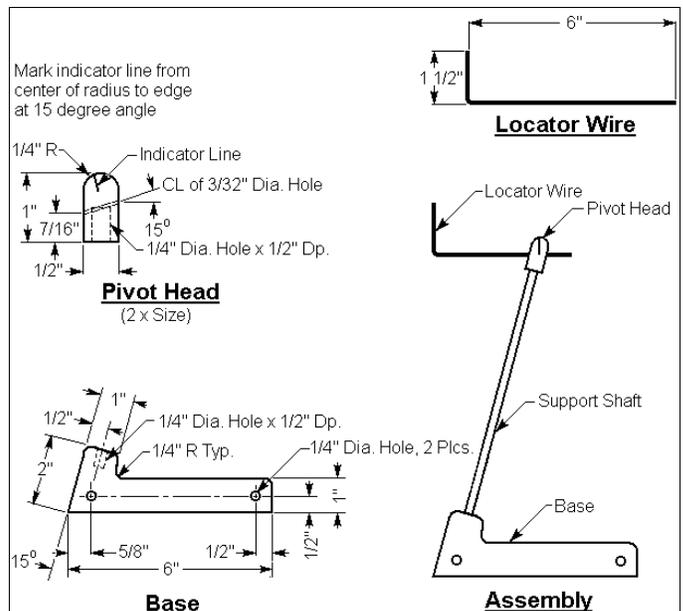
QTY	DESCRIPTION
2	1/2" x 2" x 6" Plywood
2	1/2" x 1/2" x 1" Hardwood Block
2	3/32" Dia. Music Wire x 7 1/2" Lg.
2	1/4" Dia. Alum. Arrow Shaft x 8 1/2" Lg.
2	1/4" Dia. Alum. Arrow Shaft x 10" Lg.

Construction begins with obtaining the materials required. There is nothing critical about the items listed. These just seem to be the ones which work the best. A 1 x 6 board can be ripped to make the bases. A 1/4" hardwood dowel can be used in place of the arrow shaft but the assembly will not be as stiff. The dimensions of the assembly can be increased to accommodate larger models.

The bases are first cut from the selected material. The 1/4" holes for the support shaft are drilled at a 75 degree angle from horizontal. The bases should be stacked for drilling the 1/4" holes for the slide shafts to ensure proper alignment. The shafts should be a snug fit in the holes but should slide in the holes with little effort.

The pivot head is made by locating a point 1/4" from one end and on the center of the side. This is the center of the 1/4" radius. A line should be permanently marked at a 15 degree angle from this point to the end of the block. This is done on one side of one block and on the opposite side of the other so there is a right and a left pivot head. Next, the 1/4" hole is drilled in the center of the block on the opposite end from the reference line. The 3/32" hole for the locator wire is drilled at a 15 degree angle at the loca-

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tion shown centered in the block. Finally, the 1/4" radius is cut and sanded on the top end of the block.

The locator wire is made simply by bending the 3/32" music wire according to the detail. The inside radius of the bend should not less than the diameter of the wire. The bend should be at a near perfect 90 degree angle. The wire should be a snug fit in the hole in the pivot head.

To use the jig, the distance from the leading edge of wing to the center of gravity is measured from the plans of the model. This distance is set by moving the locator wire so that the distance from the indicator line to the back side of the locator wire is set to the required dimension. The distance between the pivot heads should be set to clear the fuselage by sliding the bases on the slide shafts. Finally, the model is set on the pivot heads with the locator wire just touching the leading edge of the wing. Balancing the model can commence.

That is all that is required to produce a balance jig for trouble free operation. It is inexpensive, easy to build, easy to use, and easy to store. Put simply, building and using the "Tinker Toy" balance jig is child's play.

## Automatic Device Locator

Tony van Roon,

<http://www.uoguelph.ca/~antoon/gadgets/adl.html>

### Parts List:

R1 = (3M3) \*see text

IC1 = LM555/NE555

R2 = 1K

T1 = 2N3906

C1 = 220uF/16V Buzzer 3v (using Rx) or

C2 = 220uF/16V or 12v using 9V

### Automatic Device Locator—A Couple of Notes:

o With this circuit you can find your aircraft easily in high grass, corn fields, soybeans or whatever. As soon as you power on you receiver the timer will start to count down.

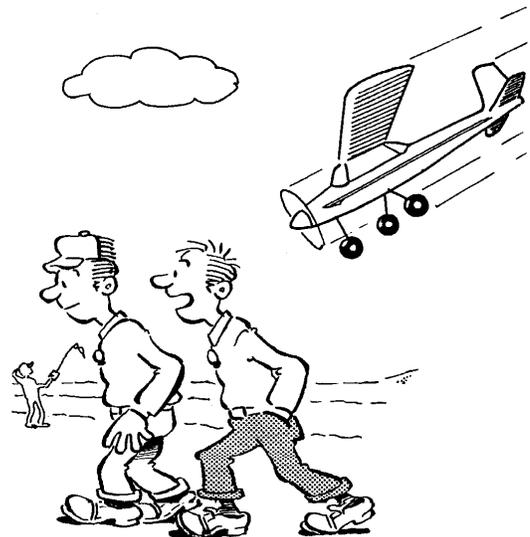
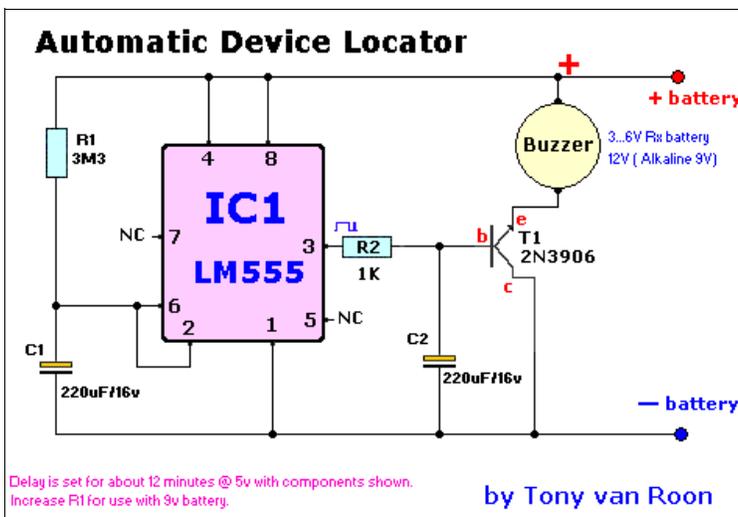
o If you power the unit via the receiver battery, make sure to purchase a 3 - 6 volt buzzer! Remember that in the case of a crash (heaven forbid!) the receiver may loose its power from the battery pack because of the force of impact. It would be safer to provide the ADL with a 9-volt Alkaline battery + on/off switch and wrap the whole thing in 1/4" SIG latex rubber.

o The timer, with the components shown above, goes off in about 18 minutes @ 9-volt. To increase the delay, increase the value of R1. Also, R1 could be made adjustable with a 5-Mega Ohm trimpot of the proper wattage.

o A CMOS version of the 555 timer is available (MC1455P1), and preferred, which will cut the power-drain on battery powered circuits. The MC1455P1 is pin-compatible with the NE555, and most other 555 chips. C1 and C2 are electrolytic capacitors so watch the '+' and '-' orientation. T1 (2N3906) can be most any substitute so it's not critical; just watch the position of the emitter/collector as some european type have them reversed (like the BC types).

o The ADL can be used for all forms of R/C equipment, the only thing needed may be to adjust the delay to tailor your needs.

o This device is tested for interference with JR, Futaba, HiTec, Airtronics, and ACE radio equipment. None were found and none are expected when used with other brands of Radio equipment.



Boy, those electrics sure are quiet

# Winter Fun Fly 2001



Gerry Nadon making field adjustments to his engine. The nice white snow made it much easier to find all the little parts.



Event Organizer Rick Ramalho adding his secret ingredient to the coffee. "Castor Oil keeps more than the engines running on a cold day!" Rick is misquoted as saying.



Darcy Whyte dons snowshoes to retrieve his plane from the flight area. Due to heavy crust, we were able to keep the runway intact all day.

