Hobart Model Aero Club Inc.

TorqueBack

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Inside this issue:

Presidents Report

I would like to take this opportunity to congratulate our editor Garth Wilmot for his recent well deserved inclusion to both MAAA and TMAA as a life member. Garth has been one of the major instigators for aero modelling clubs in Tasmania and has contributed considerably to our hobby both here in Tasmania and on the mainland, and I think I would not be wrong in saying that if it had not been for Garth's input we would not be enjoying aero modelling here in Tasmania as it is today. On behalf of Hobart Model Aero Club Inc, thank you Garth.

As I mentioned at the AGM we have been approached by members of other clubs that would like to join us but will not on the grounds that we do not cater for helicopter flying. At our recent committee meeting the decision was made that HMAC would continue 'as is' and not introduce the flying of model helicopters. Whilst we certainly do not wish to reject any prospective member it was felt that with at least two other clubs in the area with qualified instructors catering for this discipline of the hobby it would not be in our best interests to change our existing policy. Should any other clubs members wish to join HMAC they are very welcome to do so by becoming an associate member.

All clubs have been notified by TMAA of a serious accident on the mainland caused by starting an engine on a table without any restraint on the model. Apparently the model shot forward into the operator's stomach and has caused very serious and permanent injury. I cannot over emphasize the need to have your model restrained whilst starting and adjusting both on the ground and on tables or cradles etc.

On a brighter note there is a report in the latest 'Airborne' magazine from one of the visitors to the last HMAC hosted State Electric Fly-in, whilst at this time of writing I have not had an opportunity to read it, I believe it to be quite complementary.

Safe flying to all, Mike.

HMAC office bearers for 2010/2011

President: *Michael Hawkins.8 Calder Crescent, Blackmans Bay 7052 62295902* *michael.h@wacco.com.au*

Vice-president: *Peter Ederle. 32 Pegasus Drive, Dromedary 7030 marholymes@yahoo.com*

Secretary: Tony Sheppard. 16 Quamby Avenue, Sandy Bay 7005, 62316700 *tony_sheppard@mac.com*

Treasurer: *Stuart Smith. 44 Grange Road, Rokeby, 7009 62477423* *stuarttsmith@netspace.net.au*

Committee:

Jim Dicker. 32 Lachlan Road, New Norfolk 7140, 62614088 megs@iinet.net.au
Robert Morrison. 434 Tinderbox Road, Tinderbox 7054, 62296376

Roy Baker. 18 Sirius Street, Howrah 7018, 62473834, roybaker@internode.on.net

HMAC fees for 2010/2011 are as follows:

Senior member	*$200*
Spouse of senior	*$150*
Country member	*$180*
Spouse of country member	*$130*
Junior member	*$60*
Pensioner member	*$180*
Spouse of pensioner	*$130*
Senior plus junior	*$250*
Social member	*$15*

Members are reminded that only financial members may fly models at Kelly Field from 1st July 2010.

Due to insurance requirements this will be strictly enforced and any breach could lead to the insurance cover of the entire membership being compromised.

Prompt payment of subscriptions makes the treasurer's job much easier.

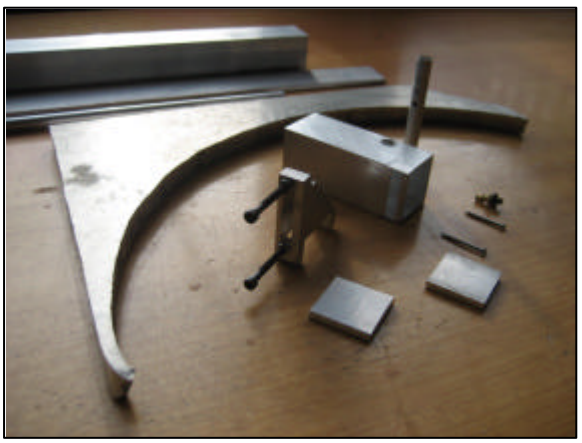
Hi guys - welcome once again to ***Bench Torque****.*

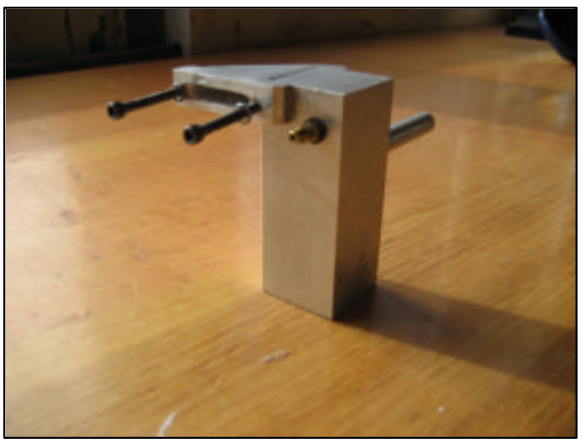
In previous articles I indicated that it was my intention, in a future column, to explain how I dealt with the construction of the custom mufflers that are, hidden inside the cowlings of my scale Turbulent and Pottier models. Well finally, here goes!

In producing such an article, a few pictures of the construction process are indeed worth a thousand words but, unfortunately, no such pictures were taken during the construction of the two original mufflers referred to. However, following a recent decision to repair, rather than burn, the shattered remains of the Pottier following its sudden and catastrophic encounter with terra firma some three or four months ago, I decided to build a new and improved muffler for the model and, at the same time, document the process with a few pictures. I trust these will now assist you in gaining a clearer understanding of what is involved.

In my view there is nothing that detracts more from the appearance of a nicely built model, scale or otherwise, than a large and obviously non-scale muffler poking out of the fuselage. If you are into large models with relatively large I.C. engines, there are certainly some muffler alternatives commercially available for consideration. In the case of small engines however, if you need something more compact than the muffler provided by the engine manufacturer, you will simply have to build it yourself! At this point let me emphasise that, for small engines at least, this is definitely not as difficult as one might imagine, and you certainly don't need any significant engineering skills or equipment. Perhaps most importantly, the cost is likely to be miniscule, particularly if you can source some of the small bits and pieces of aluminium tube, bar and plate required from workshop scrap bins as I did. You will however need a little time and patience but, rest assured, the end result will certainly be worth it!

The LHS photograph below shows, at the back, the basic materials required and, in front, the various components of the new Pottier muffler cut, drilled and tapped ready for assembly. On the RHS is the completed new muffler which is similar to that used in the Turbulent, but features a slightly more complex triangular manifold allowing placement below and behind the engine's downward facing exhaust stack.





Tools Required

? *Hacksaw - preferably both standard size and smaller hobby type.*

? *Electric drill or, preferably a bench drill press.*

? *Small fine cut flat and rat tail files..*

Taps/drills to suit muffler retaining screws and pressure nipple (Du Bro catalogue items).

Materials to construct muffler for OS .15

? *25mm square section aluminium tube, available from any good hardware store. (50cm length costs about $15 and will be enough for at least 15 mufflers!)*

? *25mm flat aluminium bar approximately 4mm thick (available as above)*

? *Scrap 10mm thick aluminium plate, (I obtained mine for nothing out of the rubbish bin at a friendly local metal fabrication workshop).*

? *6mm K/S round aluminium tube.*

? *Suitable cap head muffler retaining bolts (Du Bro catalogue items)*

? *Tank pressure nipple (Du Bro catalogue item)*

Epoxy glue.

Construction of muffler components

? *Measure the internal volume of the standard muffler provided by your engine manufacturer. This can most easily by done by sealing the exhaust outlet and pressure nipple with tape, and filling with water using a graduated plastic disposable syringe.*

? *Having obtained the volume required, calculate the length of 25mm square aluminium tube required to provide the same or similar volume. Carefully mark, and then cut, a section of 25mm square tubing to the required length after adding an additional 8mm to allow for the insertion of the 4mm end plates (mufflers for my OS.15 powered Pottier and Turbulent are both 64mm in length). It is suggested that, when cutting either the aluminium tube or bar, all cut lines are marked out very carefully on all four faces of the material using a small square and a hard point scribe, and that the material is always cut slightly oversize. Then place the piece in your vice and, very carefully, file the cut edges back to the scribe line on each edge in turn.*

? *Now take your flat aluminium bar and cut two squares to form the end caps of the muffler. These must be cut and filed one edge at a time, with a very slight chamfer so that the four inside edges just fit inside the tube with about 2mm of the cap thickness slightly oversize. The trick is to start by filing the first two adjacent chamfered edges. When the first two edges are an exact fit into a corner of the tube, progress to the third side and so on. Take your time and check the fit constantly. If you file off too much, make another one; a loose fit is simply not an option.*

? *The next task is to make the exhaust outlet pipe. Select a length of K/S aluminium tubing with an internal diameter the same as your standard muffler outlet. The pipe is going to be inserted through a hole in the bottom of the muffler and needs to be long enough to project up to the top of the muffler chamber. Provide for the exit of exhaust gases by drilling the internal section of the pipe with a series of four transverse 2mm holes. The resulting eight holes in the pipe will function as an internal baffle and, as long as the total area of these holes is about equal to the cross sectional area of the exhaust pipe, it should not restrict engine power output. The position of these holes is not critical, but make sure that the bottom pair are level with the inside bottom surface of the muffler so that any excess fuel can easily drain out. At this stage leave drilling the hole in the muffler body until you have completed the exhaust manifold and decided exactly where you want the exhaust pipe to exit the muffler.*

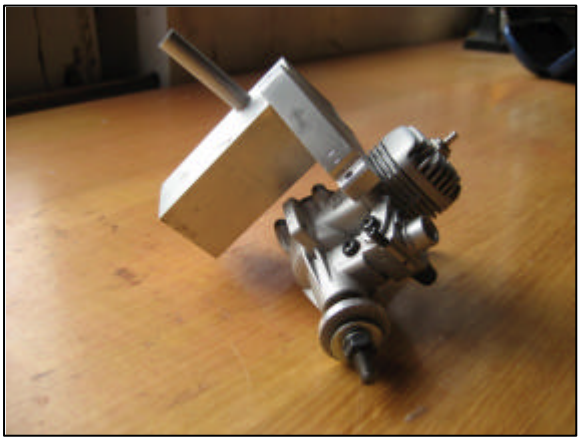
? *The last component is the exhaust manifold. This is cut from a scrap piece of 10mm aluminium plate, and is certainly the most taxing element of the whole project. The mufflers constructed for both my Turbulent and Pottier models follow common full size aircraft practice, in placing the muffler laterally across the fuselage directly below and/or slightly behind the downward facing engine exhaust port of the side mounted engines. The simplest arrangement is to mount the muffler directly below the engine exhaust stack as in my Turbulent (see picture under). In these circumstances the manifold is a simple rectangular shape, with a rebate cut in the bottom surface to create two retaining lugs which are cut to fit tightly down around the front and back of the muffler body. These retaining lugs should be at least 5mm thick and should overlap the front and back surfaces of the muffler body by at least 10mm. Once the manifold has been cut to shape with a hacksaw and filed to the required finished dimensions, it is then chain drilled from top to bottom to create a slot that mirrors the internal dimension of the engine exhaust stack. Initially join up the chain drilled holes with a rat tail file, before*

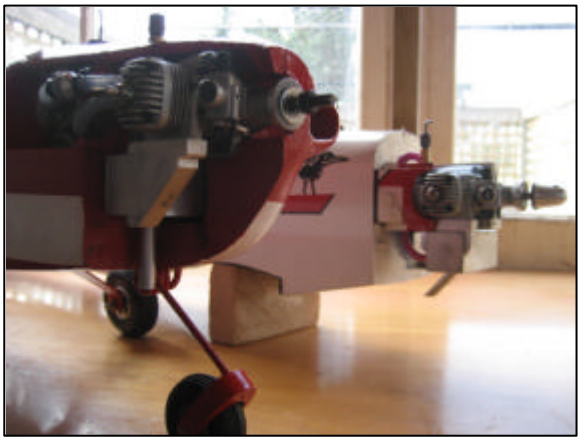
finishing the slot with a small flat file. Finally, drill and tap the two holes for the manifold retaining screws, and drill 1.5mm holes through each of the two manifold retaining lugs to allow fitting of locking pins after assembly.

? *The alternative triangular shaped Pottier manifold is fabricated in the same manner as previously described, however creation of the triangular shaped slot requires some very careful and controlled chain drilling from both inlet and outlet sides in order to remove the necessary material from inside the slot. The greater complexity of this version does however deliver a significant benefit, in that it positions the muffler body closer to the firewall and allows you to accommodate a larger muffler within a narrow cowling.*

With all basic components now available, confirm the correct position of the manifold on the muffler body, and chain drill and file a matching inlet slot in the muffler body. In doing this don't forget to allow for the pending intrusion of the end caps! Establish the correct position of the exhaust pipe and drill an appropriate hole in the bottom of the muffler. It is suggested that the exhaust pipe be positioned tight against the inside rear wall of the muffler body, and that you drill undersize and ream out to create a tight fit,. Finally drill and tap a hole in the top surface of the muffler to accept the tank pressure nipple.

The pictures below show, on the LHS the newly completed muffler attached to the OS.15 engine; and, on the RHS, the Pottier with its engine and new muffler installed together with the Turbulent with its somewhat simpler manifold that results in the muffler sitting directly below the engine exhaust stack.





Assembly

? *Smear the mating surface of the manifold and muffler with epoxy, and carefully assemble the manifold to the muffler body, by compressing the components together in a vice until the epoxy has cured.. Now extend the 1.5mm drill holes in the locating lugs through the muffler body, and tap in slightly oversize steel panel pins to lock components permanently together. Cut off excess length inside and out, and file flush.*

? *Insert exhaust pipe into position and epoxy to rear wall of muffler body, taking great care to ensure that it is located so that the internal vent holes are completely clear of the epoxy.*

? *Smear epoxy onto the mating surfaces of the two end plates and carefully compress them into position in the ends of the muffler body, using a vice.*

Finally, clean up the whole muffler using a soft wire rotary wheel, and fit the pressure nipple.

Congratulations; you have finished!

Unfortunately, no pictures of Ken's Models this time, as muffler construction took rather more space than I had anticipated. If you would like to take a closer look at the mufflers described above, you only have to ask and I can arrange it. As previously, any contributions or questions will certainly be welcome and should be emailed to the Editor with a copy to me at: maidenerleigh@bigpond.com

Notes for beginners from Nils Powell.

The responsibilities of being a student - or - how to get your act together. I hate to think how many times the average instructor has spent more or less his whole flying day setting up a model for someone prior to it's first flight? For the beginning student this is normal and no instructor begrudges this time especially in the early stages, being as it is, an integral part of the learning process. Unfortunately in many instances pilots that should know better, arrive at the field with a poorly prepared aircraft, when their knowledge is enough to ensure the aircraft is properly prepared at home with only minor tuning remaining.

So - what follows is the basics of model preparation so that whoever inherits the honour of making the first flight can do so without unreasonable demands on other training or personal flight time.

First - do all the controls move in the correct direction? Self explanatory but it often happens that this is wrong. Easily corrected via trim reverse in the Tx.

Second - Are the control surfaces neutral when the transmitter sticks are centred? If not, it is usually a result of the arm not being installed at the right point on the servo and simply corrected by pulling the arm off the servo, and with the radios on, centering the sticks so the servo is centred as well then reinstalling the arm at the 90 degree position. Before doing any control setup though, make sure ALL trims are at 0 - including any sub trim in the Tx.

Third - are the control throws within sensible limits? There is absolutely no reason for the extreme throws often seen. About 10 degrees is quite adequate for normal operation on the model types we are talking about. Arrange the servo and horn attachment points to give such movement. To get LESS movement IN on the servo arm and OUT on the control horn. Reversing this sequence will give more throw. If, as can happen, the movement is still too large then travel limiting via the transmitter will have to be done, but get it mechanically right first.

Fourth - Is the CG in the right position? On most trainer type models this will be expressed as a distance behind the leading edge of the wing and is the point at which the model is expected to balance level if supported at this point. A good CG balance is absolutely essential and is initially established with the fuel tank empty. If the model balances behind the correct point there will be difficulties that will worsen to the point of complete loss of control (and model) the further aft the balance point lies. Forward of the correct position is less of a problem in that the result is a sluggish model not responsive to control inputs, irritating and disappointing but not immediately destructive. Which is why, on first balancing the fuel tank which is normally well forward on the model is left empty Any fuel then added to the tank moves the CG further forward but always with the CG slightly ahead of the correct point.

When establishing the correct CG there is a sequence to be followed.

(a) make sure the model is complete with the prop / spinner combination to be used.

(b) move the battery as far as you can in the correct direction . If, as is usually the nature of things, this is not enough to bring the model to balance then weights will have to be used and securely bolted as far forward or aft as possible. Adding lead weights is always a last resort adding nothing to the aircrafts performance or handling but nevertheless essential if the model is to survive.

From the chief flying instructor. Peter Ralph.

Taking advantage of the recent school holidays, Simon Brown and Bradley Nus made the most of the good weather to gain their Bronze Wings. Simon is now getting plenty of solo practice with his trainer, while Bradley has been working on getting his Tiger 40 trimmed to perfection. Don Jones is flying very well. As well as using the club trainer he has been sharpening his skills flying several members Wild Wings as well as a large Cherokee powered by a Saito 80. Chris Rowe must have been impressed, because he insisted that Don fly his 100% scale Pottier to get a feel for a model that is a genuine replica of a full size aircraft. Knowing of Don`s building skills perhaps an equivalent standard of model may eventuate in the future.

David Watson has made great progress and is giving his Tiger .60 a good workout in the aerobatic department. Both Don and David just have to make consistent landings and Bronze Wings will be awarded.

*Terry Shearing has also put in quite a few hours practice up high, honing his aerobatic skills with occasional assistance from Nils Powell. It looks as if Gold Wings are on Terry`s horizon. (**Stop press: he now has passed the gold wings test).***

The Boomerang 60 is an excellent training model and going by the excellent progress made in very short time spans by our young and especially the not so young members, this would have to be the best investment the club has ever made. Thanks must go to the foresight of Peter Hubbard for pushing the concept.

Chris Venn has moved from the mainland and is back in training mode as is grandson Felix.

ELECTRIC WING RACES AT MANGALORE 29TH MAY by W Deal

The 29th of May brought rain almost everywhere except the Mangalore area. The Aeromodelling Gods had smiled and handed out a calm and dry afternoon for the third annual Wild Wing and Fireworks day at Elaine & Tony Gray's Mangalore property.

The races commenced at 1.00pm and continued for 2 hours with 9 rounds flown. Competitors were: Peter Allen, Bernard McKay, Scott Webberley, Eric Webberley, Mike Ralph, Tony Gray, Lyell Glover, Gavin Hallam & Mike Rutledge. Mark & Geoff Leverton turned up late in the afternoon thinking there would be no racing as it was pouring with rain in Lindisfarne.

After the dust had settled Mike Ralph won the day with consistent top performances. The least sought after trophy "crash of the day" looked like going to Lyell Glover after he managed to relocate the bottom pylon a couple of times, however a late bid was submitted by Peter Allen when he managed to "land" on the Gray residence roof. Something about the model lost in the late afternoon fog!! Unanimous decision, trophy to Peter.

The mild evening proved ideal for the bonfire and BBQ. A superb fireworks display followed, special thanks to Anthony Gray who provided the bulk of the fireworks and acted as chief of pyrotechnics.

Many thanks to Elaine & Tony for all the hard work setting up and hosting the day. It was a memorable day thoroughly enjoyed by all. This was the final fireworks display as the existing permit system has now been cancelled.

Tomboy Competition – Kelly Field – 23 May 2010 ***Report: W Deal***

We finally hit the jackpot with a magnificent late autumn day with a just a hint of thermal activity. Models consisted of Tomboys, Cardinals, Simplex and a Bay Ridge. Unfortunately for Geoff Leverton his very neat Bay Ridge model broke the engine mounting plate during practice and was a non starter. Jack Tonks also had trouble with his motor and did not record a time.

Three rounds were flown in the excellent conditions with each competitor's best time to count. The highlight of the day was the close finish in round 2 with Tony landing just seconds in front of Gavin. JJ, Mike & Scott all recorded excellent times as the previous best competition times had been around 5 minutes.

It was a fitting result for the Veron Cardinal to finish on top this weekend as we were to learn the sad news that the Veron designer Mr. Phil Smith had passed away on the same weekend. Although in his ninety's he was still sending out plans and corresponding with modeler's world wide. Phil was an iconic figure in the aeromodelling community and will be sorely missed, however his designs will live on to enjoy.

Many thanks to Greg Hall for his assistance with starting and timing.

RESULTS

Tony Gray	*Cardinal*	*MPJ 0.6*	*9 min 30 secs*
Gavin Hallam	*Tomboy*	*MPJ 0.6*	*9 min 20 secs*
John Jongbloed	*Tomboy*	*MPJ 0.6*	*8 min 50 secs*
Mike Hawkins	*Simplex*	*PAW 0.5*	*7 min 49 secs*
Scott Webberley	*Cardinal*	*MPJ 0.6*	*5 min 56 secs*
Peter Allan	*Tomboy*	*Irvine Mills 0.75*	*3 min 20 secs*
Jack Tonks	*Tomboy*	*MPJ 0.6*	*No Time Recorded*
Geoff Leverton	*Bay Ridge*	*MPJ 0.6*	*DNS*

OPERATING SMALL DIESEL ENGINES ***(Typical MPJet 0.60) by Tony Gray***

Handy mod is to drill a small hole 1.0mm dia in the top of the tank. This allows air to escape when filling with fuel otherwise excess fuel is forced into the intake tube causing flooding.

If your engine has a tight compression screw then discard the locking lever as it won't be required and can cause a problem as it interferes with the needle valve.

Typical Fuel Mixture: 30% castor oil – 35% Ether – 35% Kerosene Very Important: Use only castor oil (Typical Castrol M) and not synthetic oil in all diesel engines.

Running the Engine

The MPJ's usually have a tight fitting piston and require at least 20 minutes bench running before using in a model. Small diesels can sometimes take a little effort to start and run the first time, however after a little bedding in they are very easy to operate. For initial running use a heavy prop, a 9 x 4 propeller cut down to 8 x 4 is a good choice as this gives the inertia required to keep the engine spinning over. Once the engine has been run then you can use a standard 8 x 4 nylon for the run in period. For general operation in a model sizes 7 x 4 or 8 x 4 are all you need. Best to use flexible nylon props either Kavan yellow or Graupner grey nylon – they perform well and are very easy on the engine in case of landing tip over.

Starting from cold

Compression as set previous run session

Open needle 1 to 1 1/4 turns

Finger over the intake and choke a couple of turns, prime exhaust with fuel bottle with exhaust closed and it should start within 6 flicks. If no start prime exhaust again with exhaust closed.

Once running the engine will misfire as it warms up from cold. Let it warm up then screw in the needle valve to lean the mixture and the misfire should disappear. The compression setting should be OK as per previous run, however if the engine starts to slow when hot back off the compression. Conversely if misfiring when hot just screw the compression in a "tad"

When the engine is hot only a couple of turns with finger over the intake is all that should be required to start.

For best operation in a Tomboy competition, start and warm the engine with a couple of runs during the 2 minute pre start period, ensuring the engine is nice and warm. With engine running say 25 sec before launch wait till last practical moment to top up tank before release. For performance reference, two standard MPJ 0.6cc engines both achieved the identical figure of 8000 rpm using a Kavan 8 x 4 nylon propeller.

Wanted to buy.

YS 45 two stroke—any condition

Tony Gray Ph 62681111

New members.

We welcome the following new members:

Simon Brown (Junior), Bradley Nus (Junior) &David Watson.(Senior).

Hobart Model Aero Club Inc.

PO Box 1117 Rosny Park 7018

Pictures from the Tom Boy event.

From the left: Tony Gray, Geoff Leverton, Peter Allen, Mike Hawkins, John Jongbloed, Jack Tonks and Gavin Hallam.

Mike Hawkins with Reduced scale Simplex with rudder only.

John Jongbloed below with Tomboy. One of the few competitors who managed a smile.

Around the hangar.

If you are missing this segment in this newsletter, it is due to a lack of snippets from members. If this news is required in future issues it depends largely on contributions from members.