

## Torque Back



Volume 10 Issue 2

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Who's a lucky boy now!  
We heard that member  
Danny Port was going  
for a fly in this thing.

As most of you know,  
Danny is currently  
studying in the U.S.A.  
And this is one of the  
benefits.

### Presidents Report.

*The new mower is proving to be ideal for the job and I am told, very easy to use. Maintenance is not overcomplicated as the Toro was, leaving more time for flying and less for mowing. Providing we look after it, which I am sure we will, we should get many years of trouble free service.*

*Whilst in the decision stage regarding the purchase of a new mower, Ray Maun-der donated an old ride-on mower that he had on his property, but for which he had no use . It was thought that it could be repaired and used in the interim. Sadly it was in need of lots of love and attention and not a viable option. ( cont page 2.)*



We are on the net. <http://www.hobartmodelaeroclub.org.au/>

A week or so before Christmas former member Alan Rough was unfortunate enough to suffer a stroke. Fortunately he has made a fairly good recovery and returned home after about 3 weeks in hospital. Luckier than most I would say!

We would like to welcome Don Jones, Ken Sheppard and Willem Minnebo to the club. I know that members will be pleased to offer any assistance required.

Danny Coles managed to crash the Greg Robertson designed and built Ace 1. This was, without doubt, the best 25 sized pattern model that I have ever flown and I would love to have an electric powered version. Welcome to the up elevator club Danny!

The Wild Wings fraternity is receiving a further boost with Peter and Ron McGuiness, Terry Shearing and Chris Rowe joining the field. A small number have also been sold to members of other clubs. At the time of writing there is just one left in stock.

Ray Stidston was actually seen effecting some very good landings recently. There is now a chance that he will be able to do it consistently.

Prolific builder Mark Slade has promised to return to the field in the near future. Family duties have kept him away for some time but he continues to build very nice models. His latest creation is shown on page 7.

(continued page 7)



Luckily Tony Gray knew of someone who needed spares for an identical mower, so it was sold for \$250. I would like to thank Ray for his kind donation of \$250!

I believe our new website is up and running although not 'Googleised' at this time of writing. The existing website was not easily accessible and difficult to update. Thanks go to Greg Hall for doing an outstanding job in creating and implementing the new site. Greg is also taking on the role of webmaster and would welcome some of member's favourite photos for the gallery.

I have been recently criticised for being too zealous and 'nit picky' in my approach to safety matters. I take on board these comments along with other comments on safety from concerned members which I will address at a forthcoming committee meeting. One suggestion has been that we revert back to our old policy and appoint a designated safety officer. This person would need to be well-versed in MAAA and HMAC safety requirements along with the necessary people skills. This position is a normal requirement in most model aircraft clubs and I feel may become a mandatory requirement in the future. If any member that feels that they have the necessary skills required to tackle this challenging position, please contact me. I would also like to add that whilst I do not apologise for expecting a high standard of safety awareness, I do apologise to any member who feels that I have offended them.

The Model Makers and Collectors Exhibition is once again with us and all details are available elsewhere in this newsletter; Bill Deal is coordinating, so contact him if you wish to exhibit. HMAC did not participate last time as it was felt that the organisation was sadly lacking, the exhibition was turning into a trade show, and that we got little value out of it. This year the organisers assure us that changes have been made for the better, and with Bill Deal coordinating things, should be better. My company recently exhibited in an industrial trade show (cont page 6.)

Hi guys - welcome once again to **Bench Torque**, and thank you to those members who, during the past few weeks, have commented favourably on the introductory column.

As previously indicated, this article will focus primarily on how I managed to produce the cockpit canopies needed for my scratch built scale Turbulent and Pottier models. But first **Torque Reaction** - a segment of the column which I hope will, in future, encourage active contributions from a wide range of members, either in the form of questions that require answers, or your particular solutions to questions that have previously been asked.

### **Torque Reaction.**

### **Painting and Finishing.**

Arising from my previous suggestions regarding painting and finishing Peter Hubbard recently suggested to me that, no matter how much care you may take, or what type of paint or masking tape you may use, in practice it still remains difficult, if not impossible, to avoid an annoying number of bleeds under the edge of the masking tape which, if uncorrected, clearly detract from the final appearance of your model.

Well Peter, about a year ago I voiced an almost identical complaint to Geoff Leverton. To my considerable surprise, Geoff immediately remarked that there was in fact a simple solution to the problem. All you need to do is, after applying the masking tape, simply seal the edge of the tape with clear polyester finish and allow this to dry before applying your normal prime and finishing coats. If there are going to be any bleeds under the tape, it will be the clear polyester which bleeds and, for all practical purposes, any such bleeds will be invisible.

I must confess that I have not yet tried Geoff's solution. When I get to the painting stage, an additional layer of paint inevitably means an additional overnight delay in the completion of the model and, at this stage I have to admit, my patience is all but exhausted. You may however be interested in what happened very recently, during the painting of the white film-covered wings of my Pottier Mk3; it has caused me to rethink my priorities and I shall certainly be adopting the Leverton method on my next model!

As previously described for Pottier Mk2, following covering with white film, the white flashes on the wings were masked and the remaining wing area cleaned with turps. In this case, after some prior experimentation, I decided however to omit application of the **Wattyl Killrust Etch Primer** used previously, and simply applied the red **Wattyl Killrust Epoxy Gloss Enamel** directly to the cleaned white film surface. As on previous occasions, I allowed the paint to dry overnight before removing the masking tape. When compared with the wings of Pottier Mk2 the results were really disappointing in that there were numerous tiny bleeds of bright red paint along virtually all of the white flash edges. The problem was, I now believe, caused by my omission of the etch prime coat which appears to be of a thicker consistency, and dries more quickly, than the finishing enamel.

Faced with what at first appeared to be a minor disaster I decided, somewhat in desperation, to see if I could clean up the edges by very gently rubbing along the lines with a soft cloth dampened with turps. Much to my surprise, and considerable relief, this approach did indeed work; in fact it worked far better than I could possibly have expected. It appeared that the fully exposed paint surface bounded by the mask line, had dried fully overnight and was thus able to withstand being gently wiped with turps. On the other hand, until the masking tape was removed, the paint bleeds had not dried properly because they had been protected from exposure to the air, and thus they were easily removed by gentle wiping. The result, thankfully, was a very acceptable set of wing markings, virtually without blemish. It must be noted however, that this solution will of course only work when you are using turps based enamel paints.

### **Custom Canopies**

As I remarked in the previous article, in deciding to build a model of the Turbulent D9, what really worried me was the question of whether or not I could successfully mould the scale cockpit canopy that the model required. Over the years I, like most of you I suspect, have read a number of magazine articles about how this might be accomplished. Regrettably however, for me the perceived difficulties posed by the need for a custom canopy had always, to this point in my modelling career, proved to be the deciding factor in the selection of what model to build next.

Given the continuing numbers of scratch built models around that continue to resemble 1930/40's open cockpit or high wing cabin types, I suspect that I have not been the only modeller with such misgivings! The truth is however, that if  
**(continued on page 4)**

you can conquer the canopy problem, the number of full size aircraft available to replicate immediately grows exponentially!

So having finally grasped the nettle after severely, and unnecessarily, limiting my own model choices over more than sixty years, I have news for you all. It does take some time and effort, but it's not really all that difficult or expensive after all!

Here's how I did it:-

First I suggest that you go to **Associated Plastics Tasmania, 1 Birchwood Ave. Moonah**, where you can purchase a 1000 by 700mm sheet of 0.7mm PVC at a cost of about \$13.00. This is the thinnest PVC sheet they stock, and it produces a very nice strong canopy. Dependent of course on the size of models involved, a sheet this size should be enough for at least 6 canopies.

You will also need to buy a heat gun if you don't already have one. As I indicated previously, I found a really cheap one on special at K/D for about \$20.00 and it's still working fine.

Next I suggest you rummage around your workshop and see if you can find about half a metre of 150 by 19mm pine board to use for the base and surround of the moulding apparatus. It doesn't have to be pine of course; any similar board will do, but pine will be easier when it comes to cutting and shaping the canopy profile cut out.

You will also need some scrap pieces of reasonably solid ply, I used some cheap 9mm structural ply, because that is what I found at the back of the workshop! Any old ply will do, but it should be at least 5mm thick to survive the pressure involved in the moulding process.

Finally you will need sufficient block and sheet balsa to make up the male canopy plug. I used small pieces of 12.5 and 25mm balsa sheet to build up the plug, rather than trying to carve it from an enormous block which inevitably results in considerable wastage.

Next trace the profile of the bottom of the canopy area from the plan view of the fuselage, and extend the profile at both ends by at least 25mm to ensure that the ends of the moulded canopy are not distorted during the moulding process. Transfer the plan profile onto the middle of your pine board, and then cut out the base of your canopy plug, being careful to make the base about 1mm undersize to allow for the thickness of the canopy wall. Having removed the plug base smooth the profile of both edges and widen the hole left in your base board if necessary, sufficient to allow the finished plug to be reinserted into the hole in the board with at least a 1mm allowance for the PVC material all around.

Next take the baseboard and, with a saw, extend the side profile lines at least 25mm on both ends. This is to allow you to insert a loop of PVC material that is at least 50mm wider than the total length of the male canopy plug.

Using whatever scrap timber or plywood you can find, make up two cleats which will be used to hold the PVC material to the base. Like the cuts in the base board, the cleats need to be 50mm longer than the sides of the canopy plug, and should be pre-drilled ready to be screwed to the bottom of the base board. In the photograph, the base board and retaining cleats used in forming my Pottier canopy are pictured upside down at bottom left.

Next cut a piece of plywood to match the vertical profile along the centre line of the cockpit canopy, and similar plywood vertical end plates; it is important however to extend all of these profiles vertically by at least 25mm to ensure no distortion of the finished moulded canopy walls. These profile pieces are then glued and screwed to the pine base of the plug. The full shape of the plug, which must replicate the inside of the canopy, is then made up by gluing in place appropriate balsa blocks and, when dry, carefully carving and sanding the balsa to the correct shape as defined by the previously placed plywood centreline and end plate profile. In the photograph, the plug for my Pottier canopy is at top left, and the plug for the Turbulent at top right.

Some articles that I have read suggest that such plugs should be filled, and then finished, with a hard epoxy surface to avoid imperfections in the plug surface being reproduced in the subsequent plastic moulding process. As can be seen

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(cont from page 4)

5.

from the photograph, I just finished the balsa/ply surface with fine sand paper, and it worked fine. I think however, that this may have been because I used a relatively thick PVC material, and I certainly wasn't planning on making multiple canopies from the plugs.

So now to the really interesting part - after all your hard work, actually moulding your canopy should only take a few minutes, and most of that is the time it will take to screw the PVC sheet in place on the base board!

Cut a strip (or where necessary a U shaped piece) of PVC that is 50mm wider than your plug or about the same width to fit through the extended saw cuts in your base board. The strip needs to be long enough so that when it is looped, and inserted into the slots in the base board, the top of the loop is slightly lower, at both ends, than the tops of the end plywood profile plates of the plug when it is fully inserted. To achieve this, as in the case of my Pottier canopy, it may be necessary to tilt the PVC backwards or forwards so that the amount of stretch necessary in the PVC is reasonably equal at the front and back of the canopy. It is in these circumstances that you will find it necessary to use a U shaped piece of PVC rather than a straight strip. I suggest you experiment with newspaper before attacking your new sheet of PVC.

Mark the correct position of the PVC loop by running a marker pen around the base board, and double check that it is correct. To do this another pair of hands may be helpful!

Next remove the plug, and fasten the PVC in place under the base board, by bending the PVC outwards and securing it in place using the two wooden cleats and appropriate screws.

Sit on a saw horse or something similar and place the plug on the floor in front of you. Place the loop of PVC attached to the baseboard over the top of the plug, and hold the base board in place with one foot on either end; and finally -



Take up your heat gun; switch to LOW heat setting; and holding it about 100mm above the PVC move it in a widening circular motion, starting from the centre of the canopy where the maximum draw is required, whilst maintaining a constant downward pressure on the ends of the base board with your feet. As the PVC heats up you will feel the material stretching into shape. Increasing the temperature by lowering the gun towards the surface of the plastic will accelerate the process, but be warned; too close, or too high a temperature setting, can result in an instant large hole in the PVC.

The secret, as with most aspects of model building, is to take your time and hasten slowly. With a little bit of practice I am sure that you will find, whilst a little extra work is certainly involved, modelling aircraft with canopies no longer really presents any insurmountable problems.

So that's it from me for this, the second edition of **Bench Torque**. In the next column, if space permits, I will explain how I tackled the problem of building the custom mufflers that are hidden inside the engine cowlings of both the Turbulent and Pottier models. Once again, it was something I had never before attempted but, for me at least, it was something that simply had to be done. I just happen to think that, when you going to spend a great deal of time and/or money building a realistic model aircraft, a large non-scale cylinder head and attached non-scale muffler poking out of the side of the model, really does rather spoil the effect!

Finally, can I again remind you all that, without substantial input from you fellows, I fear that I shall very quickly run out of things to write about! So please email me with your questions or your answers! Any contributions will certainly be welcome, and should be emailed to the Editor with a copy to me at: [maidenerleigh@bigpond.com](mailto:maidenerleigh@bigpond.com)

## **10<sup>th</sup> Model Makers & Collectors Exhibition – 2010**

6.

### **HMAC returns to Exhibition with Model Aircraft Display & Flight Simulator**

Where: Derwent Entertainment Centre

When: 20<sup>th</sup> & 21<sup>st</sup> March 2010

Times 19<sup>th</sup> March – set up display only 1pm to 9pm

20<sup>TH</sup> March – 10 am to 6 pm

21<sup>TH</sup> March – 10 am to 4 pm

HMAC Co-ordinator: William Deal

email: [wdeal@internode.on.net](mailto:wdeal@internode.on.net)

Phone: 6228 2538 Mobile: 0420 882 392

*We have been allocated a good position in the main hall, size 8 metres x 3 metres with back of table against the wall. I will be speaking to members at the field in the next few weeks, however please contact me if you wish to exhibit or help on the display stand. I will be drawing up a roster in due course; we probably will require 2 or 3 people in attendance for the duration of the opening hours. Some will be happy to be in attendance for say half a day, however if you can help with a couple of hours that will be appreciated.*

*Our plan is to have the simulator up & running – thanks to President Mike for the provision of the laptop computer.*

*Hopefully our members will be generous in offering some of their many fine models – I have already had several models confirmed. We should attempt to display examples of the varied categories of members' models – from "Tomboys to Twin Engine Bombers" Certainly appreciate your suggestions and help.*

*If possible a model description "display card" with relevant details would be appreciated – or just the details sent to me and I will make one.*

*Please see the attached Official Bulletin from the MMACA Co-ordinator and note the conditions of entry, particularly the safety aspects. I will ensure our power requirements have appropriate compliance (for simulator operation).*

### **President's report from page 2.**

*where I heard the comment from one exhibitor—"being in this show doesn't really improve sales figures and we don't get much out of it, but not being in it is seen as a demise, and has disastrous consequences on our business".*

*Finally I would like to thank all of you who have been sympathetic to me during my recent illness.*

*Happy flying.* **Mike Hawkins.**

### **Coming events.**

*Amended details for Electric Fun Fly Weekend:*

**Saturday 6th March:** Electric Fly-in

**Sunday 7th March:** Electric Fly-in and Electric Wild Wing Pylon

*Note! Tomboy Competition will be re scheduled date TBA.*

## Member Profile - Jack Tonks

Your first aircraft encounter - Full Size or Model - can you recall?

*Full Size DC3 at Cambridge.*

How long have you been an aero modeller?

*From 1950 Control Line; 1974 Radio Control .*

Your first model aircraft - details please?

*Starbomb Control Line powered by Sabre 19.*

Your first full time Employment?

*Cadbury – Sheet metal & Welder - 47 1/2 years.*

Your present Employment (or last if now retired)?

*As Above.*

Name three model categories in which you are currently interested?

*Scale – Electric - Wings .*

Have you been involved in other Hobbies i.e. Boats, Trains etc?

*Model Power Boats (with Tony Gray at Pelham) .*

Most admired person in model aviation?

*Shaun McMurtrie (USA) and Peter Goldsmith (Australia).*

Do you have confidence aero modelling will survive the ipod age?

*Yes I do .*

Do you have a current project on the building board?

*Large P51 Mustang – 85 ½" wing span powered by Zenoah 45 cc petrol Engine..*

Favourite full size aircraft?

*F86 Sabre.*

Favourite model engine?

*OS 160 twin four stroke.*

Best memory of model building or flying?

*Mid-air collision's with son John.*

Favourite place in Tasmania (other than Kelly

Field)?

7.

*Scamander – East Coast.*

*Thanks for sharing with us.*

Around the hangar (continued from page 2.)

Greg England recently turned up at the field with a profile foam ducted-fan Rafale and impressed those in attendance on the day. As a result a further 7 similar models have been acquired by members, with a few more interested members in the wings.

I continue to be surprised at the number of members who pay their annual subscriptions and never or very rarely appear at the flying field. As membership currently stands at a record 81 it is probably fortunate that they don't all turn up at one time.

I would apologise for the varying type sizes in this publication but contributions late arriving aren't always easy to fit in the space available.



Mark Slade's latest—SIG King Kobra powered by an OS 91FX.



8.



*Before and after shots of Stuart Smith's E.P. DH Hornet. R.I.P.*



*This is the first of a series of articles for beginners, for less-experienced pilots, or even for older pilots like me trying to cope with modern equipment.*

*It's intended to have a look at the various features on the relatively inexpensive modern 4 to 7 channel transmitters common on the flight-line. Almost all, these days, are computer-based sets which means pilots are able to change many of the operating parameters to their advantage.*

*We'll have a look at some of these over the coming articles, but first, how do you tell if your radio has this type of programming availability? Simple, you could try the manual (a bit extreme I know!) or less taxing: if it has a LCD display, then somewhere down in the depths of its cold little heart, lies a microprocessor. It has to be emphasized that these adjustments will be specific to one plane only, so unless taking your models home in plastic bags satisfies some deep inner urge, knowing which plane is selected is essential and incidentally, explains the large number on the tail of each of my models.*

#### *First - Exponential (expo)*

*A very useful, if not well-understood quality, normally available on elevator and aileron. Without expo dialled in (0% expo); servo movement should be linear with stick movement. To take an example – If the elevator stick is moved then the elevator control surface will move in proportion to the stick deflection. Thus if the stick is moved through 50% of its travel, then the elevator should also be at 50% of the available travel. This is fine, and is what you'd expect, but if you find the sensitive stick movements often needed on take-off or approach, difficult to make without the model over-reacting, then expo may be the answer for you.*

*In essence, exponential changes the linearity of stick movement progressively from the centre onwards, and if selected correctly, the controls will be less sensitive in the first part of stick travel, but all the available travel will still be available, with the greater part of the travel concentrated in the upper range of stick movement.*

*Thus initial stick movement becomes less sensitive and therefore the model's reaction to stick movement much gentler. Quite a nice quality for take-off and landing, so as to avoid ballooning, high angle climb-outs and the nausea associated with a model 30' off the runway with no airspeed.*

**A word of caution** - before selecting exponential, check your flight manual. Terms vary, some use the word positive and others negative to have the same meaning; get it wrong and as JR say - "the aircraft may become uncontrollable". Most radios do allow both positive and negative expo, but what we are talking about as being desirable, is a reduction in stick sensitivity in the initial range of movement. I've no idea what the sensitivity concentration in the centre range of stick travel is used for other than to produce a nice adrenalin rush as the model displays a measure of independence, but for most of us, expo when correctly selected is the enlightened way forward to a calm and peaceful future.

*I mention this because on some radios the difference is only indicated by a very small triangle, and I can tell you from experience, get it wrong and expo is not a quality worth investigation unless you carry a change of underclothing.*

*Exponential is also handy for aerobatics and pattern flying where the quite extreme control surface deflections used, would make subtle landing and take-off inputs difficult. For everyday use, about 30% negative exponential would be a reasonable starting point with anything over 50% needing more experienced advice as there is probably something else wrong with the control setup.*

*Next time we'll look at dual rates which has nothing to do with the reduced fees for us country members.*

Unfortunately the club trainer hit the ground a little hard recently and the engine/nose wheel bulkhead needs to be glued back in place. A trainee did not do the damage either!!!....ergo??...instructor??

Looking at the big picture, the minor bingle interrupted the training of new member Don Jones who was in the process of mastering the basics of which stick did what.

As well, Ron McGuinness, being just on the verge of Bronze Wings standard had to readjust. Ron did his early training on his son Peter's low wing Tiger .40/46. The Tiger proved to be an excellent model to learn with, as long as moderate power is used. Switching to the club trainer Ron continued his landing practice. When the little bingle occurred, the switch had to be made to my old Seagull .60 trainer powered by an ever reliable .65 Saito four stroke. (For younger members ....current Boomerang .60)

It was back to the old days, as the radio gear used in the model was early JR, obtained years ago from one G. Wilmot, at the usual bargain price. There was no facility for buddy box tuition either. This proved no problem for either of the trainees. Interestingly the "miniature" receiver is the size of a cigarette packet.

Don made sudden unexpected excellent progress while training on a day where calm conditions had prevailed.

While having a steadying coffee break, from out of now where, a strong and gusty northerly breeze kicked in. Not wanting to waste valuable time we decided a session or two to test the conditions would be in order.

After struggling with the vigorous breeze for a few circuits in the first session, everything clicked for Don during the second session. Five circuits with no interruptions from the instructor. Success....now another confident and competent flyer in windy conditions. Well done Don.

On the next outing, a day later,, the breeze was from the south. Just what the doctor ordered for Ron and the big Seagull. A bit of practice with right hand circuits, a few practice approaches and then half a dozen safe landings....Bronze Wings achieved.

Actually, when a pupil can land from all directions without a Buddy Box, there can be no doubt that the student is of Bronze Wings standard. If they are not up to standard.....the damaged model is irrefutable proof of the need for further training.

Xmas fun fly LMAC December 19th 2009 - Tony Gray and Peter Allen travelled north to the LMAC club for the Tomboy event which was held in near perfect weather. Five group flights consisting of eight models, launched simultaneously were completed and thankfully no collisions! Merv Cameron was aloft for about fifteen minutes chasing thermals and finally had to be called down so we could start the next round. A great day







Former Territorian **11.** now Queenslander, Steve Raskin, (the Simitar man), sent me photos of his latest creation X-facta.

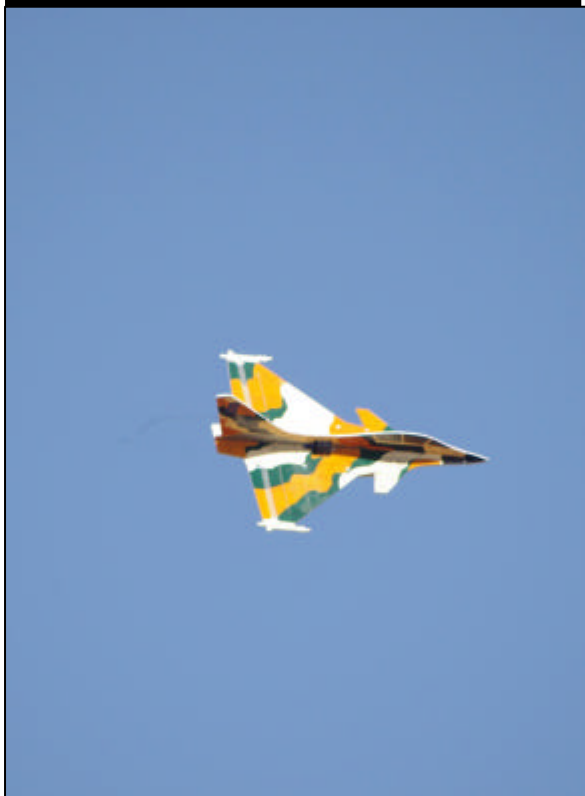
*It was at the time un-flown and appears to be electric ducted fan.*

*We were very sorry to learn of the passing of John Tonks' wife Julee on 7th February.*

*I am sure that all members would offer sincere condolences to John, Colleen and Jack.*



*Nils Powell's electric ducted fan Rafale has proved a huge success and there are quite a few similar profile models coming to a field near you.*







**Pictures from the top down.**

*Peter Ederle's somewhat sad looking Mosquito.*

*Looks like Doug Keating's Ultra Stick has met its end.*

*(I hope he took his rubbish home.)*

*That's one way to retrieve the wreckage!*

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**Safety first.**

*Members are reminded that they should not run engines in the public area.*

*Tables have been placed in the pit area for this purpose and it is requested that these be used in future.*

*It has been noted that not all members are using model restraints when starting and/or tuning engines.*

*Thanks are due to Mike Hawkins who recently donated a laptop computer to the Club. The laptop will be available for general use as well as providing some much needed grunt for the model simulator - very much appreciated Mike!*

