

The MICROMETER

AUCKLAND SOCIETY OF MODEL ENGINEERS INCORPORATED

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Number 647

July
2019

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REGISTERED NEW ZEALAND PUBLICATION

Don't Forget

Hamilton Model Engineers Inc
New Zealand International Model
Engineering Convention
January 9th - 13th 2020

Check out their website at
www.hme.co.nz





Train Roster

Date	Electric Driver	Electric Driver	Steam Driver	Train Controller	Station / Guard	Station / Guard
7-Jul-19	M Granger	M Hollis	Voluntary	<u>P Dowdeswell</u>	M Luxton*	L Brown
14-Jul-19	D Housley	J Lankow	Voluntary	<u>T Lawrence</u>	K Ryan*	B Matchett
21-Jul-19	M Moore	P Moy	Voluntary	<u>S Meikle</u>	R Souter*	M Vickers
28-Jul-19	M Plant	R Reichardt	Voluntary	<u>T Robinson</u>	A Stratton*	D Beecher
4-Aug-19	A Shirley	P Woodford	Voluntary	<u>G Anderson</u>	R Stratton*	D Vaughan
11-Aug-19	I Ashley	B Matchett	Voluntary	<u>D Russell</u>	D Wilson*	M Vickers
18-Aug-19	G Beazley	M Granger	Voluntary	<u>G Wills</u>	R Crook*	L Brown
25-Aug-19	M Hollis	D Housley	Voluntary	<u>B Aickin</u>	P Jones*	D Beecher

Bold and Underlined Name = **Train Controller**, i.e. the person in overall control of all operations for the day

Bold with Asterisk* Name = **Stationmaster**, i.e. the person responsible for activities in the station area and for the day's takings.

Please Note:

If for some reason you are unable to attend on your rostered date, you are respectfully reminded that it is **your** responsibility to find a replacement member to fill the gap – please don't let the rest of the team for the day be left short-handed. **Note: the Train Controllers for both affected days must be informed of the swap in advance. It is the responsibility of the person who initiated the swap to do this.**

The details of the swap should be noted in the Run Book.

Also, please ensure the member you arrange a swap with is one who is rostered to undertake the same role to ensure we always have members with the appropriate training and experience on the day.

JULY CALENDAR

Tuesday July 2nd, 7.30pm - General Meeting, ASME clubrooms. Allan Stratton will demonstrate the use of the video download facility he has created (and was postponed from the June meeting).

Tuesday July 9th, 7.30pm - Workshop Night, ASME clubrooms

Tuesday July 16th, 7.30pm - Committee Meeting, ASME clubrooms

Coming Up - Tauranga Model Marine and Engineering Club 40th Anniversary July 5th-7th.
 - Hamilton Model Engineers Inc. **Steam N' Steel 2020 Convention**, Hamilton January 9th-13th 2020. See www.hme.co.nz/page/steam-and-steel-2020/ for registration and other information.

Committee Comments

Committee Comments – July 2019

Plans for a 60th Anniversary Exhibition at the Clubhouse are in Dave Housley's capable hands and as soon as he returns from his imminent expeditions to Fiji and Malaysia, he will be getting into the detail. This is just an early "heads-up" that he will be looking for model engineering items to be exhibited over the weekend of 9th & 10th November as well as helpers to set up and man the event over that weekend. So please put your mind and actions into what you can contribute to help make this an interesting and successful exhibition. What can **you** build, restore or polish up in time for the display? Interestingly, that weekend will be almost exactly 60 years since the club was first mooted via a formative meeting convened by Alex Pealing in his workshop at Princes St, Onehunga.

Following on from the Exhibition weekend, a lunch and film outing is planned for the following Saturday, 16th November at Ryder's Cinema & Restaurant in Avondale from approx 11am to 3pm. This will be a joint 60th Anniversary/Xmas meal, including presenting the awards to successful members for their exhibits at the Exhibition weekend. More details will be posted next month but for now, please mark out these dates in your diaries so you avoid double bookings in the busy pre-Christmas period.

With the upcoming 60th anniversary activities, Grant Anderson recently undertook a search of the archives room to see if there were any old photos available. He came across a box of slides donated by the late Basil Wilson, and he has been busy scanning these into digital format to make them easier to view in the modern world. While the 50th Anniversary booklet and the ASME website give a good potted history, we haven't had access to much photographic record to date. He is pleased to report that Basil's slides cover much of the club railway history (and indeed other clubs that Basil visited), especially the early years.

Rental rates for our tenants are to be increased from 1st July; the two aero clubs' rates have been agreed with a rise to a new rate per meeting night. We are negotiating with SMM given their greater activities, permanent room space and the pond and expect to have this resolved by next month.

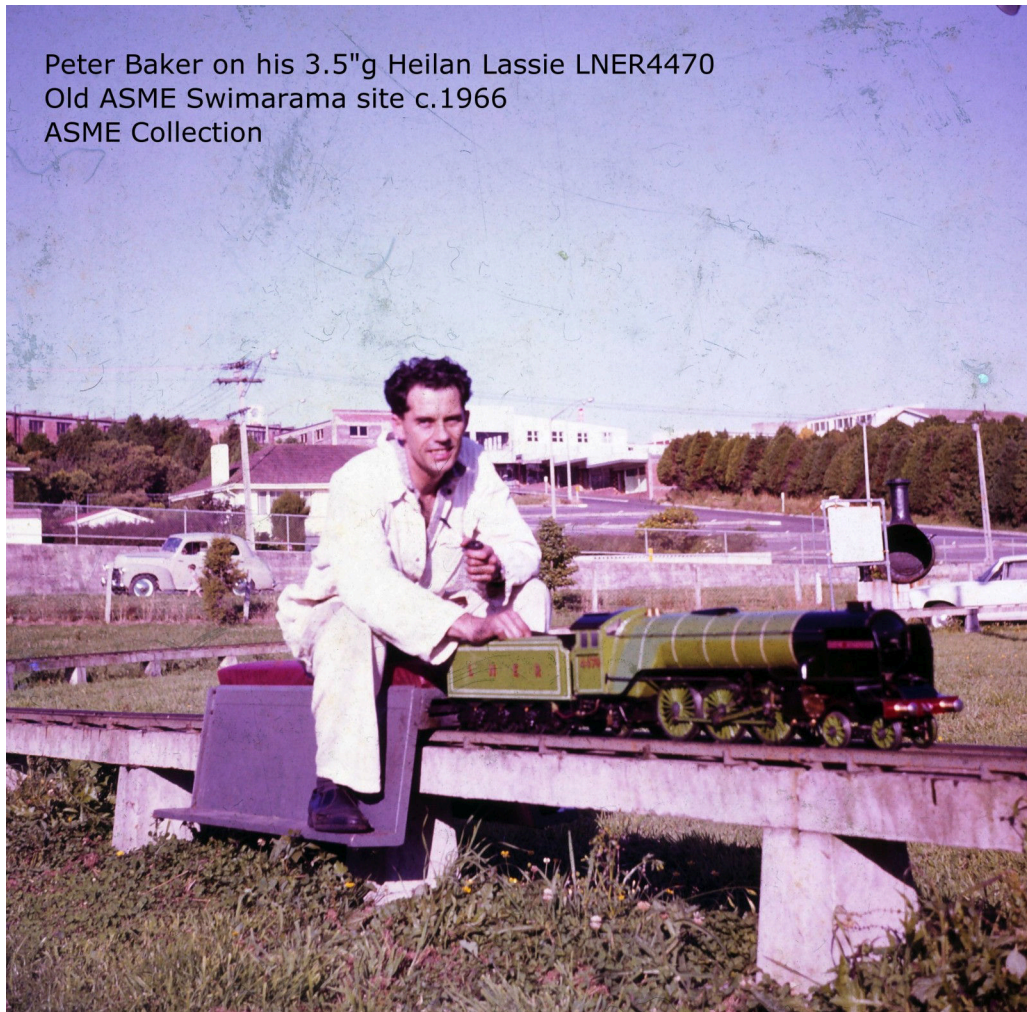
In answer to a request from the 2020 Convention "before & after" Ramble organiser, it has been agreed that we will open the clubhouse and operate the WMR on the morning of 8th January 2020 to enable model engineering visitors to experience the ASME facilities.

Grant adds:

The scanning of Basil Wilson's slides showed a number of the LNER 4470 Pacific "Green Maggot" which I have sent to Bruce Cooper, and he has confirmed that this loco and the one that he had at the last meeting are one and the same!

As you would expect, Bruce is not too keen on the nickname and wonders how it came about - a matter still to be researched if I can ever find the club's (really) old newsletters. Suffice to say it's great to have the loco back in our club and no doubt operating in "as new" condition soon (maybe for the 60th Anniversary event?), if Bruce's recent work on Kathleen is anything to go by.

Here's a photo of Peter Baker driving the "Green Maggot" - the loco was owned by Peter (an amazing railway artist member) and built by Les Fitt with Peter's help.



Bruce Cooper's Model on the Bits and Pieces table.



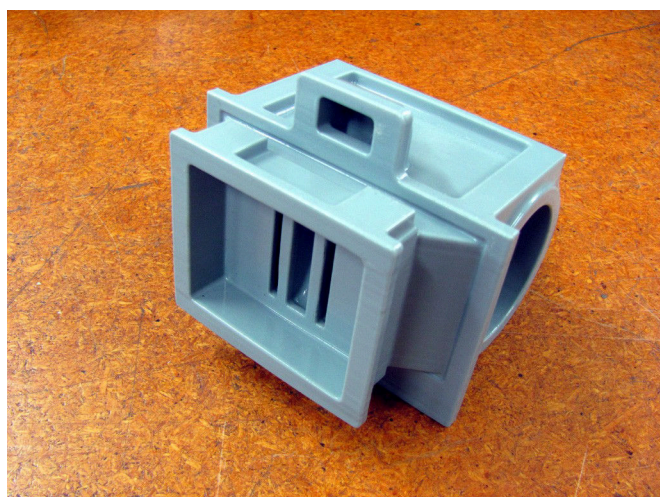
Bits and Pieces, June 4th 2019

Presented by Dave Russell, Report and pictures by Dave Russell

Bob Aickin likes to make these puzzles to keep the grandchildren occupied. This one made from six pieces of wood is called the locked cross - it looks simple but is quite tricky.

If you are ever in Wanaka there is an attraction there called "Puzzling World", visited by more than 200,000 people a year it is a must see and has a large 3D maze for all to enjoy.

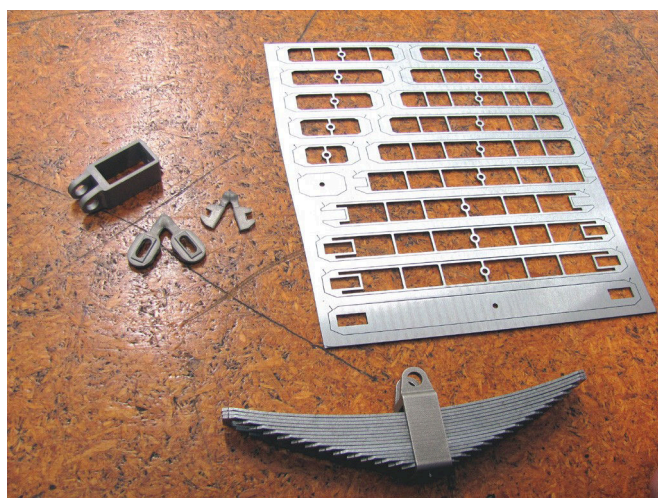
<http://www.puzzlingworld.co.nz>



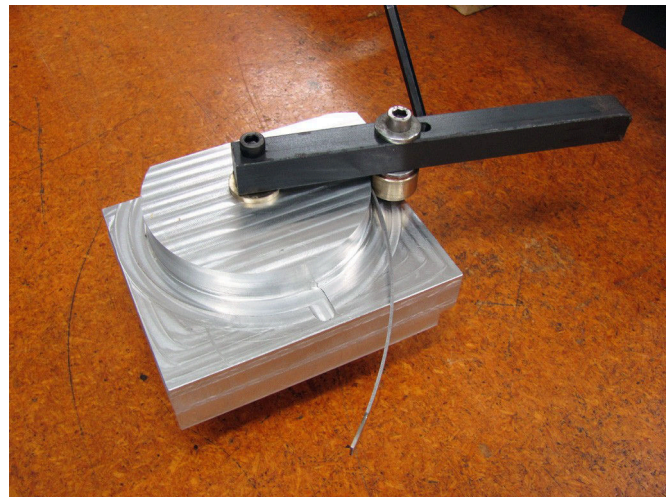
Mike Jack brought along this cylinder casting mould that had been 3D printed in PLA material. This can be used as a casting pattern with PLA being melted out like wax in a conventional Investment casting. Mike says as the PLA does not burn it is important to make sure it has all been removed from the mould or the finished casting will have artefacts.

Just when we thought we had seen it all, Mike showed us the extraordinary length he is going to producing scale springs for his BR 2-6-2 std class 3MT fine scale locomotives in 5" gauge. After obtaining some spring steel sheet and doing many calculations on spring rates, deflection and loading Mike drew up the CNC drawing for the laser cutting man to cut the leaves of the springs. Note the large spaces in the leaves that you can only see the edges of (when the spring is assembled).

Then each sheet has to be surface ground to the correct scale thickness. The finished spring is to scale and provides the correct springing.

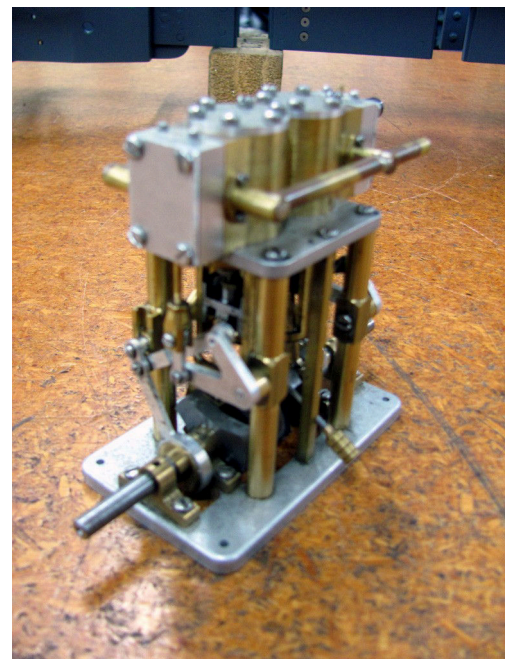


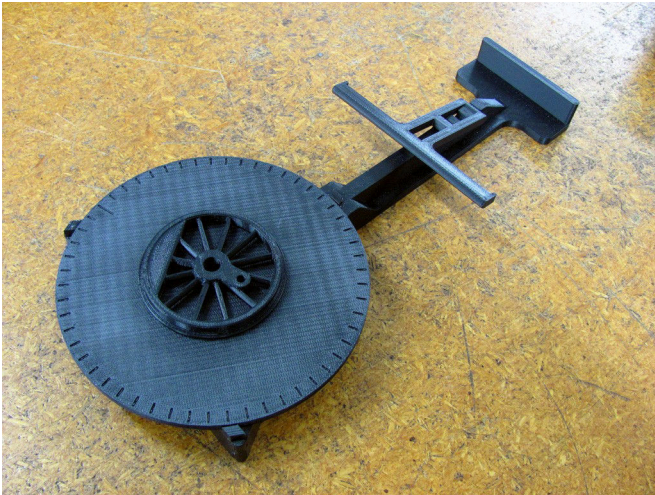
This photo shows the jig made to bend the spring leaves to the correct curvature. Only one thing to say here - WOW, Mike!



This fine 3-1/2" gauge locomotive is under rebuild by **Bruce Cooper**, unfortunately the original builder is unknown. (*But see Committee Comments, p3 - Ed*). The locomotive is the "Hielan Lassie" as designed by LBSC (Curly Lawrence) and modelled on the full-size Thompson rebuild of the LNER A1/1 Pacific tender engine. The locomotive is described in Model Engineer 1946. Bruce is reasonably new to the club but is making his mark by showing fantastic workmanship and quality while being able to produce results quickly. Good to see that 3-1/2" locos are being cared for and brought back to working order.

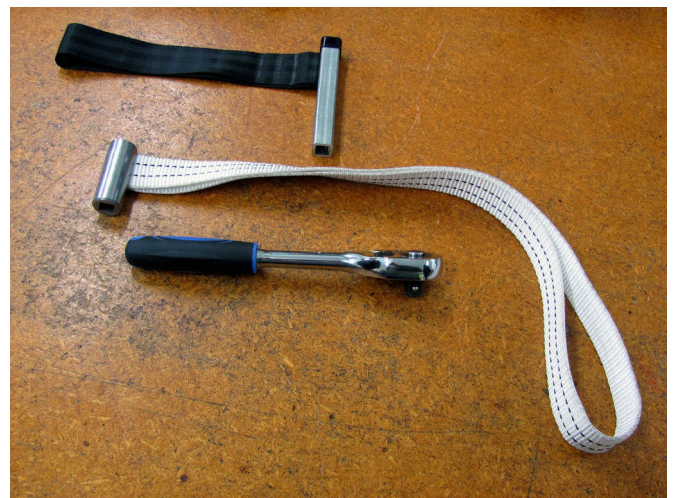
First, I must apologise for this bad photo. This little twin cylinder reversing, self starting engine was put together by visitor Bill Parker, It is a "Gage TVR1A" and features 1/2" bore and 5/8" stroke with Hackworth Valve Gear easily adapted to remote control to suit model marine applications. The engine comes as a kit of parts that can be assembled using common hand tools. The kit is available from Bill.





OK **Greg Burrows**, we ask, what next? This gadget's parts have been printed on a 3D printer and its purpose is to enable a series of photos to be taken by an app on your smart phone while the phone is held to the frame in the upper right of the picture. The photos are taken one by one moving the turntable one division between shots: any item can be placed on the turntable and the wheel is only an example. When photos are completed the app does its magic and using the pictures turns out a CAD file of the photographed item ready for use in manufacturing duplicates. Amazing, and free I think.

Many of us will be familiar with the strap wrench at the top of this picture as that generally used to grip old oil filters to remove them from a vehicle engine. Well **Peter Woodford** made up the much longer and stronger item to hold a flat style appliance motor from turning while being tightened onto a shaft. The 1/2" drive was naturally spark eroded, and the unit can be dismantled to allow differing length strapping to be fitted if required.



Greville Wills brought this 7" cut off wheel in as an example of what happens when you use a masonry wheel to cut stainless steel: it does not last very long! "Watch it shrink before your eyes".

Lastly Greville wanted to make a parallel concentric bush for the gear shown but was having a bad day and finally produced what he wanted on the 7th attempt. Maybe he was using some of those dodgy drill bits from China that he showed us a couple of months back.

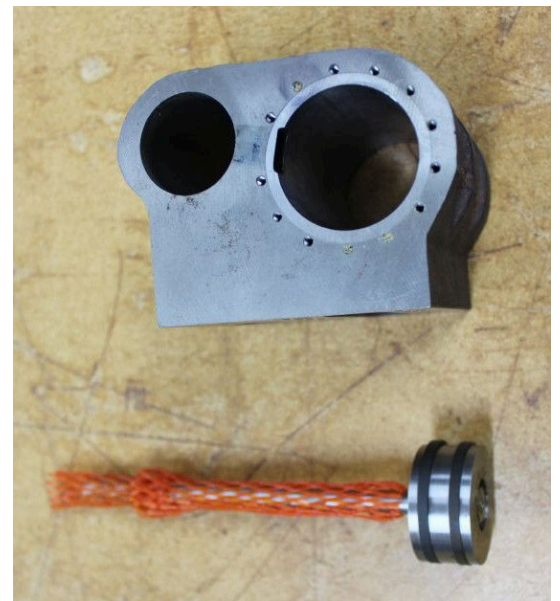


Workshop Night 11th June 2019

This Tuesday night started off looking like there was only going to be 3 or 4 of us there at 7-25pm: it was a cold winter night and I thought well maybe a couple more will turn up for a cup of hot tea. By just after 7-35 we had another well attended ASME Workshop Night and approximately 13 members turned up to talk about the bits and pieces they had brought along. We started the meeting and at the same time we got the tea pot out and made some hot drinks to help the night roll along. A little while just after the start we had **Peter George** from the New Plymouth club join us and it was great to see a visitor drop in. Part way through the meeting we got onto the subject of boilers and the use of different materials and what best to use and why not to use others. Peter's input was most valuable and welcome with NDT testing of pressure vessels being his business and with a background in chemistry he put the guys there back on the right path with regards to using the right materials in our boilers and how to look after them correctly. Thanks a lot Peter.

The meeting was closed down at around 10-00pm.

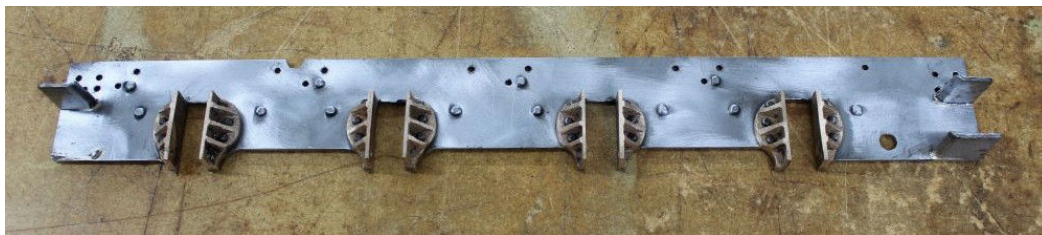
Les Brown, one of our newer visitors to the workshop night, brought along this cylinder of the loco he is rebuilding. The casting had some quite bad corrosion and pitting in it so he has re-bored it and put a nice new cylinder liner in. Les thinks the material was some kind of stainless but couldn't be sure; like a lot of us model engineers we use what we can get our hands on. This started off quite a discussion on the material used and what he was going to use on the pistons for rings or packing. So hopefully we have put him on the right track to fix his cylinders.



Graham Beazley, our resident telescope maker, has been busy making quick-change tap and die holders for use in his lathe's tailstock. These help to make your threads run nice and true with the item you have held in the chuck. And by making a set of them for a selection of tools you can set them up and run each one into the part and when the next one is required you just pop out the holder and replace it with the next one complete with its tool.



These parts are also from Graham. He has a couple of different size tool holder blocks on the cross slide of his lathe. He has made up two different hold down handles for them so that when you tighten them up they stop in the right position every time. You don't want the handle hitting the chuck or anything else that might be in the way. He machined a little bit of the bottom face until he got them to stop right where he wanted them to.



Bruce Cooper is rebuilding another loco he has picked up off one of our members. The loco has been around ASME for many years: she is called the Green Maggot and is 3-1/2" gauge and was built by the late Les Fitt in the 60's. Bruce has really stripped her down and here we see one of the side frames of the tender with paint removed and ready for some re aligning of some of the castings and rivet replacement and tightening.

This item was brought in by **Mike Banks**. When Mike started out his career as an aircraft mechanic one of the first things he had to do was make himself an engineer's vice. It was made from a set of castings using machines like shapers, drill press and hand tools. As you can see it has really been worked hard over the years and has given Mike plenty of good use.



Peter Woodford brought along this 1/2" drive extension for use in torquing up nuts, bolts etc with a rattle gun. Pete used to work in a tyre shop many years ago and these were used to stop the guys from doing up fasteners tighter than what the setting on the air-driven torque wrench was set to. The idea was each bar was made for a set amount of torque and when this was reached it would twist a little and not let the torque for the wrench over-power it.





Michael Jack has been furiously working on loco parts getting them together for his kits. First up is the latest batch of castings for various parts, but the most interesting detail is that Mike has cast the little nuts as part of the finished item. These nuts have no thread in them at casting time but it makes the assembly of the casting to the next part very easy. You don't have to try and get a little nut into some tight little corner your finger won't go in, and the big advantage is when you tap these nuts you get an extra amount of material for each thread (like two layered parts together as one).

Michael has a bag full of castings made from a master that he made and got the foundry to make up a silicon mould from to make the lost wax patterns for each new casting. This is a much cheaper way to make up large numbers like this.



Michael has been doing lots of calculations and experiments to try and determine the correct sizes of the leaves for the main springs for his loco's. These are cut from pre hardened and tempered spring steel sheet. One of the things he had to do was grind the spring steel sheet down to a calculated size to give the right amount of deflection for a given weight. Another part of the calculations was to reduce the amount of material in the middle of each leaf so as to get the movement he wanted.

Timothy Robinson has been busy making some new vacuum tanks for some of the club trollies. These are made of storm water pipe that is very heavy walled and with glued-on end caps. He also explained about some of the problems getting the little vacuum switches to work reliably.



This from **Greg Burrows** is a little ceramic knife that was used on the production line at work to trim off the edge of plastic parts that has been moulded. The knife is a safety knife in that it will not actually cut you but will scrape the edge of plastic sheet and parts.



Greg brought in this little blade out of an F18 jet fighter gas turbine engine. "When I worked for Air New Zealand as an aircraft engineer we had a contract to overhaul the engines for the Royal Australian Air Force's F18 fleet of planes, and at the end of the contract we made up these little plaques to give out to all the team that carried out the work".



Greg Burrows again: "One of my jobs I used to do at Air NZ was to work in the welding shop, and every 6 months we would have to carry out weld test pieces of different materials and have them examined to make sure they met the specifications to be airworthy. These would be X-rayed for penetration of the weld and for impurities".

Well that is a quick round up of the Workshop Night and as always it is good to see members interested in supporting this night. Remember if there are questions about engineering or other ideas on how to do something that you would like help with, just bring them to the night.

So remember this meeting takes place at 7-30 on the second Tuesday of the month and all members are welcome to come along and join in. Cheers, Greg B.

