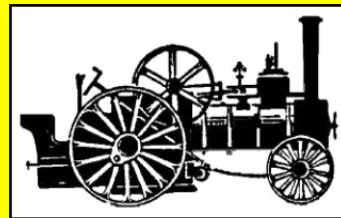


A Wisp of STEAM SUPREME



Extracts from the Melbourne Steam Traction Engine Club's Newsletter

Stagger Wheel Mowers!



Unidentified Stagger Wheel lawn mower donated by the Orchard Sprayer People



Tram Museum

Well Worth a Visit



Monash Rail
Challenge Results

Best in 3 categories for an overall 4th



Plastic Sleepers

Laying experimental recycled plastic sleepers on a carriage stabling track

More on the ORCHARD PUMP

A bit more of the

background of our latest acquisition since last month .

A nice lady recently contacted our Secretary and said her parents ran an Orchard in the 1960s and her father was keen to donate a pump system he used to spray the pear trees to an organisation that would value it for its age.

He recently passed away and she has been cleaning out the packing sheds. The pump has been covered since it was last used in the late 1960s. • I am not looking to sell it. I would like to donate it as this was my father's wishes. The property is in the hills East of Melbourne • I will send through some photos. If the club is not interested please let me know. Well after seeing the pictures the answer was *Yes please !* with Chris undertaking to arrange collection.

The first I knew about it was when it arrived down at our grounds on the back of Robert Jones's little truck. It looks like Robert Jones put his hand up for the job.

Anyway I found the engine pretty interesting , well I am sure the whole lot has a story to tell. Rohan Lamb was able to identify the engine straight away from it's serial number ending with BP

It is a small Tangye , an open crank single cylinder with a side shaft but has evidence of what appears to be more recent non standard modifications. One would have to speculate these were done to bring it up to date at the time it was set up as an orchard sprayer unit / pear tree irrigation unit. Not much can be found on these small Tangye engines but Rohan Lamb was able to advise the letter P at the end of the serial number stands for petroleum engine, and the B is the size, in this case 4hp.

The earliest reference to a spark ignition petrol version I could find on the internet is 1924 so this could well be when it went into production .

One internet illustration showed a town gas version



with a large horseshoe magnet flick type magneto mounted above the cylinder and activated by a pecker on the side shaft . It also has hit and miss arrangement to control engine speed by a pendulum governor

Our engine is fitted with a modern Lucas RS 1 rotary magneto chain driven from the side (cam) shaft . The chain cover in this picture is shown pulled back a bit to show the bicycle chain drive . It is cleverly driven at twice camshaft speed to ensure a good spark at cranking speed. The extra spark occurs when the piston is at the end of the exhaust stroke so causes no backfiring difficulties .

Also apparent is the modern single chamber gravity feed petrol tank

The Lucas RS 1 rotary magneto first came out in 1937 so is unlikely to be original .





The next thing to notice is the T model Ford carby rigged up with a hand throttle control and adjustable main jet. Since no governor is apparent it looks like a clever bit of engineering to make the engine more suitable for the job of driving the pump. *Also note the modern spark plug in cylinder head.*

Tangye Engine Production .

Although it is not talked about much on the internet it becomes apparent that normal production of engines ceased in 1939 with the start of WW 2 . At this time Tangye's special skills and equipment were put to better use making specialized machine tools in order for others to make armaments and munitions for the war effort. Another essential during a war is maintaining adequate supplies of fuel and oil to the

armed forces . With Tangye's expertise in high pressure hydraulic pumps and pipelines they became heavily involved in one of the most secret but successful engineering achievements during the war !!! PLUTO Pipe Lines Under the Ocean were fuel and oil was pumped from England to France to supply the entire D Day forces.

At the end of the war with Tangye on its knees and it's 20 acre factory in Birmingham England in tatters, from continued enemy bombing , engine production never properly cranked up again and slowly fizzed out in the hands of corporate raiders.

Given this engine probably was only in production from the mid 1920's to the late 1930's and knowing the spray unit dates from the 1960's it is reasonable to speculate that the more modern magneto and proper carburettor was fitted at the time it was set up on the purpose built spray pumping unit .

Now for the **spray Pump** with Metters 510 clearly cast on its body.

Metters is best known for their wood stoves which are still available today.

The business was founded in West Adelaide in 1891 and the 3 brothers soon had a large factory making cast iron wood burning stoves along with other small enamelled cast iron items like basins and sinks Works were soon set up in Sydney and Perth to cater for the rising demand in these regions.

During WW1 they concentrated almost entirely on military cooking requirements which they found highly profitable. WW2 saw another surge in military cooking requirements but also included land mines and pontoon bridges. This then went on to include windmills, stock troughs and farm water tanks. but little mention of their pumps and irrigation equipment was found on the internet .

Luckily a 1950 catalogue showing quite a range of pumps was found . It included our No 510 heavy duty model with Brass lined cylinder 5 in bore X 10 in stroke and 2,800

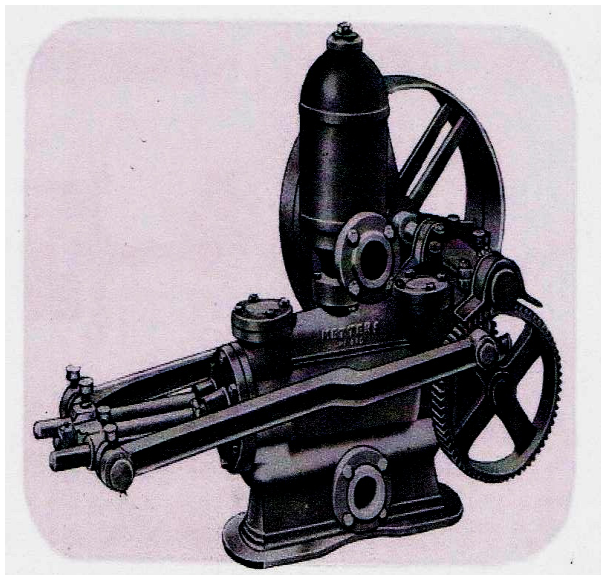
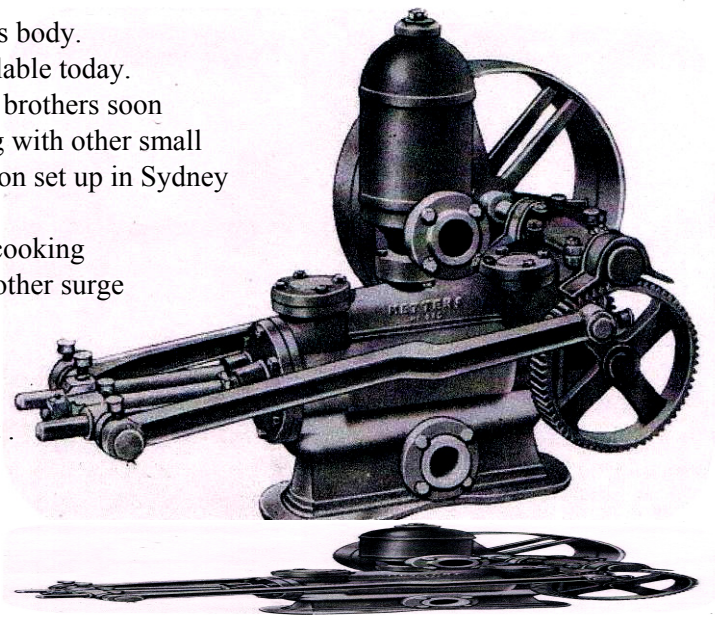
gallons per hour

to an elevation of 350 feet . Quite a pump with plenty of pressure for spray irrigation or capable of lifting water up from a dam across a gully

With this information about the pump and engine it is reasonable to speculate that in the 1960s the farm had this orchard spray unit specially set up using a early Tangye engine updated with a later carby and magneto driving a locally made Metter pump all mounted on a 1936/7 Chevrolet car chassis (mentioned last month) The whole set up is Done to a high standard , most likely by a local Engineering firm at a time when money was tight and new parts in short supply so you had to make do .

I worked for Verde's Farm Service in the tobacco growing districts at this time so can relate to this type of job . I am impressed by this installation and very keen to see how well it performs .

With a provenance like this no wonder the lady was keen to see it go to a good home . Lets do it justice Warwick Bryce June 2026





During the packing shed clearing process the lady with the Orchard Sprayer came across this rather unusual little mower which she wanted us to have so we eagerly accepted. (Ref SS 665 June) ↑

Actually nothing is known about it except it has a rather unusually positioned right hand front wheel, a basic 2 stroke engine and is missing the handle bars.



← All that I could find on the internet was this 1952 American Lawn Boy which has an identical deck but a completely different engine so there could well have been some tie up

The post was accompanied by the observations that, like many vintage mowers it has a 2 stroke engine, the type that requires oil to be mixed with the fuel for lubrication

Also early models featured the offset wheel which some declared was to prevent the wheels running in the same groove thereby giving a more even cut and preventing scalping. "A newbie on me but I do not mow too often!"

Also the light weight deck utilizing cast aluminium and magnesium makes it incredibly easy to manoeuvre and rust-resistant. "Salesman's talk magnesium corrodes terribly!"

While the Under Deck muffler makes for quieter operation "OK."

Another post commented "Years ago, when I used to work at the cemetery, we used Lawn Boy lawn mowers to trim around the headstones," That may have well been the key to it → So it is pretty certain to me that the base of our mower is Lawn Boy but may be not much else.

As for the engine here is an identical one fitted to an unidentified mower but touted as being a 98 cc JA Prestwich engine and what looks like Victa handle bars. Vintage Mower web site. Mower make not stated.





This internet pic confirms the engine is a JAP , possibly 98 cc so that settles the make of engine which is obviously intended for rotary mowers from the extended shaft , flange mounting and below deck exhaust discharge.

The internet was not much help as to where JAP engines were made as Artificial Intelligence kept mistakenly directing me to Japanese engines and mowers but we know it stands for J.A.Prestwich of London who kicked off making motor bike engines in the early 1900's in England and selling to many different marquee . They soon became famous for their speedway records. During the war they concentrated on small industrial engines making nearly a quarter of a million but by the end of hostilities was a spent force and by the mid 1950's was brought out by Villiers .

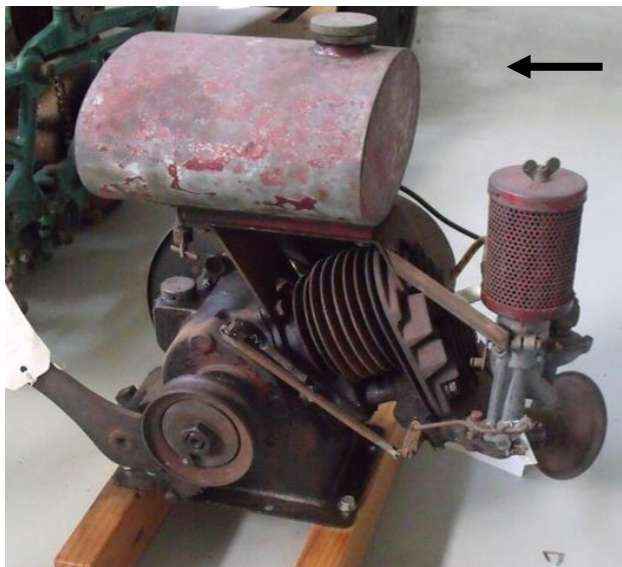
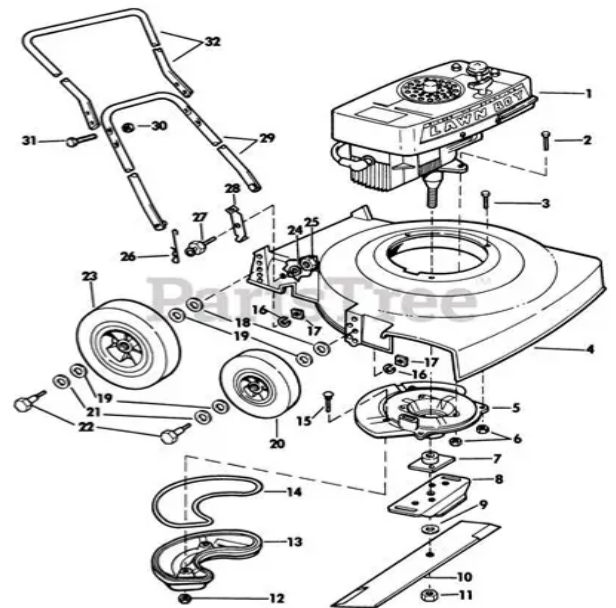
It is well known that Villiers set up a modern factory in Ballarat in the early 1950's and over the years made a variety of engines locally to avoid punitive

import restrictions .I have nothing to indicate that production extended to JAP 2 strokes at Ballarat as Villiers had their own line of vertical shaft mower engines .

Back to Lawn Boy , this illustration from their Johnson Iron Horse spare parts book shows the original Lawn Boy stagger wheel base and it's standard engine .

While the base seems to be the same as ours the engine is completely different bearing no resemblance to a JAP . I am guessing it is a Johnson engine as the brothers were an early engine manufacture based in the "Mid West" of USA whose main line was small engines . They were acquired by Outboard Marine Corporation after failing during the Depression but went on to become one of the largest manufacturer of small engines in the world many, being 2 stroke out boards including the brand Evinrude.

I would be surprised if they fitted competitors engines to their mowers especially for Australia since small vertical shaft engines was their bread and butter !



Johnson Iron Horse 4 stroke engines were made in Australia for the war effort and afterwards marketed as Cooper (Sunbeam) engines but clearly not suitable for a rotary mower

Another view of our Stagger Wheel mower with it's JAP engine . It might be a mixture of parts as punitive import restrictions in Australia did that.

Remember Holden Commodores sold by Toyota as Lexons ?



Our little stagger wheel mower remains a bit of a mystery but someone will know . I remember seeing one in the engine pens a couple of years ago at one of our Rallies. Perhaps one of the Port Phillip experts may be able to shed some light on it. ***Just told ours is a Qualcast so will follow up nest month thanks ED.***

Meanwhile our weird little mower certainly deserves to be tidied up and put on display in our museum .

Just a word of caution from one of the lawn mower forums .

After years of disuse the plastic wheels on his had become brittle and crumbled. No sooner than he had fitted new steel ones and got the engine running sweetly on first try he hit a bump and the whole wheel fell off revealing a base weakened from fatigue and corrosion .

Best limit ours to a static restoration we do not want to risk that
Warwick Bryce Ackn Internet lawn mower
forums , Wiki and AI.



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MONASH RAILWAY EXPRESS



Challenge Results are in !

Over the last few months many of you will have noticed the Monash Uni Engineering students down at our grounds using our 12 " gauge railway to develop and prove their entry in the student World Railway Challenge. Well results are in !

Participants were required to design and manufacture a miniature (10¼" inch gauge) railway locomotive in accordance with a set of strict rules and detailed technical specification ready for testing at the end of June 2026 at Stapleford Miniature Railway in Leicestershire, England . In this prestigious competition students would need to demonstrate their engineering expertise, innovation and teamwork through the design, construction and operation of a miniature locomotive in a live testing environment where several categories of winners and an overall Railway Challenge Champion will be crowned . After months of pressure and long hours it is just about over and results and pictures from Stapleford have just started to trickle in on their Instagram web site but first I will set the scene.

Day 1 kicked off with team arrivals, registration, unloading of locomotives and individual team briefings.

Each entry got allocated a turntable track as their pit area . Note the brick lined turntable with about 12 tracks radiating from it bears an uncanny resemblance to ours. →

That would help them feel at home given the hours they have spent at MSTEC.



Day 2 kicks off with the operational safety briefing and teams hard at work ensuring their locomotives are ready for static scrutineering, dynamic scrutineering and the maintainability challenges!

The Monash entry is in the guise of vintage Melbourne tram called Wallaby in contrast to the futuristically styled ultra modern one from Poland next to it but do not let that fool you into thinking there is any lack of technology in ours .



Day 3 sees teams beginning their individual test runs, in preparation for tomorrow's track-based challenges along with continuing the maintainability and autocoupler trials . As well there are the innovation and business case challenges. These presentations are given to a live audience featuring members of other competing teams, spectators and judges. Track based challenges will include doing individual manoeuvres at various markers such as acceleration , stopping and braking while monitoring energy consumption and regeneration.



STOP PRESS

Just 1 hour before writing this the exciting message came through on Instagram :-

Congratulations to the [@monashrailwayexpress](https://www.instagram.com/monashrailwayexpress)

(MRex) team on achieving an outstanding fourth place at the 2026 Institution of Mechanical Engineers Railway Challenge, competing against leading industry and university teams from around the world.

... this prestigious competition challenges students, apprentices and graduates to demonstrate their engineering expertise, innovation and teamwork through the design, construction and operation of a miniature locomotive in a live testing environment.

Competing in its first full Railway Challenge with their locomotive 'Wallaby', MRex claimed first place in the Technical and Aesthetic Poster Challenge; Design Challenge; and Reliability Challenge categories, (looks like all the testing at MSTEC paid off Ed) as well as receiving an honorary award for "Furthest Travelled Competitor". (1/2 way around the world!)

[monashengineering Instagram](https://www.instagram.com/monashengineering)

Congratulations to the [FH Aachen - University of Applied Sciences](https://www.fh-aachen.de/) (Germany) rail team who are the overall winners with 2nd place going to [The University of Sheffield](https://www.sheffield.ac.uk/) team (Just down the road) and [Politechnika Poznańska's PUTrain](https://www.putrain.pl/) team (from Warsaw in Poland)coming in at 3rd place.

What a great achievement and we feel proud that we played a key part in it's success Warwick Bryce MSTEC.

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Around

our

Club

RAILWAY



Sieving the new heap of ballast for the new third track in the train shed.

Delivery of Ballast Another delivery of miniature ballast has recently been received at the club (once they mistakenly delivered full size ballast which we had to send back) .Ballast is being regularly added to the track in places where the ballast has settled and used where we are extending rail sidings particularly around the station yard at the moment . **Cont**

A Third Tack In the train shed has been installed and connected. The value of this track was immediately clear as Steam locomotive No.43, Clive is now stabled on the new track. This gives clear access on all sides so work can be done inside the shed eliminating the need to move it outside.

This also allows our Third carriage to be stabled in the train shed. If a busy day is expected it is now much easier to add it to the train. Previously vehicles from the train shed had to be moved out of the way and placed on the turntable siding. This blocked access to the turntable. Now, vehicles can be parked on the new siding to Shed Road 3.

Steam loco No.43 Clive Each month the loco has to be prepared for running which includes putting back the four foundation ring inspection plugs. This has always been a bit of a battle to get them to seal as access is difficult. Andrew McCoy, Hamish Hough and Ben Klaster have been working on getting these plugs to seal without so much effort every month. This included Ben making replacement bronze plugs, with better sealing faces and hexagon heads in addition to a special tool to get everything square. This work has been successful in achieving a water tight seal during train running. Rob Worland, Railway Manager

STEAM SHOVEL Walls the 2 extra sheets and lengths of angle iron along with bolts and nuts to finish off the walls has arrived thanks to Rob Jones .

Coal Bunker is ready for first fitment trial thanks to the Blacksmiths .

Paint Touch Up Ron King is organizing the areas missed by the sandblaster or scratched during assemble to be touched up.

Boiler Andrew McCoy and Andrew Greaves are planning how to attack the boiler in conjunction with Roy Odgers.

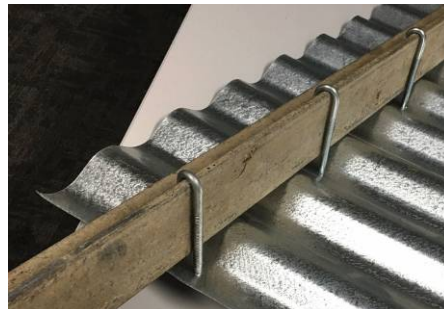
Corrosion below Z ring about 1/2 square metre of 1/2 " ms plate required to replace exfoliated area . Not in a pressure area so Kerri is happy to do the welding .

Tracks Need to get them working . False alarm over a link is just a stiff one , that is why we need to move it to get it up the top where we can work freeing it up some more.

Thickness documentation Andrew McCoy is going to help with photographing the results.

Roof Some prototypes of the hook bolts to secure the curved corrugated sheets to the angle iron perlins have been made and a sample mock up made to try them out and they are looking very good .

A special rubber seal and profiled lead washer is used to retain the sheets thanks to our resident Heritage Roofer Rob Jones



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Experiencing with

PLASTIC SLEEPERS

*Plastic sleepers being layed through our Station
Rob Worland photo .*

RAILWAY We have just taken delivery of a new batch of railway sleepers made from recycled plastic . It will be be now over 12 years since we trialed our first batch after getting encouraging reports from the Diamond Valley miniature railway. They sourced their sleeper material from a Ballarat concern which concentrated on non critical applications like park benches picnic tables and garden " sleepers " Unfortunately , at the time, their manufacture could not help us as we needed a larger 75 mm x 50 mm section than they had

available .

The Steam Club found the other supplier, Integrated Recycling, in Mildura , who set up to make the larger cross section specially for us.

Purchase of 1500 sleepers was approved on 5-May-2015 for use along the Eastern Railway realignment. Rob Worland photo

Track Laying with the plastic sleepers started at our front entrance, past the station and progressed east till about 10m through the double gates, which was our old boundary. Then south along the Eastlink boundary and up through the big cutting. 10 years later these sleepers are still in perfect condition.

As for Red Gum, by 2026 we had enough experience to be able to report on the lifespan of wooden red gum sleepers. Building of the original track was started in about April 1992, using this wood for sleepers. A lot of those original sleepers were still in service in 2025, when the last were replaced with plastic sleepers. That is 33 years of service with perhaps 80% of the last ones still in sound condition. This long life required well drained ballast and a lack of falling leaves. Even though many of the last sleepers were sound and safe to use they had the appearance of being well weathered on the upper surface. Their shabby appearance was becoming more of an issue than their ability to hold the track in place. This 33 years of service from red gum must be some sort of record amongst miniature railways.

A search of the web shows the concept of replacing life expired wood timbers with alternatives made from recycled agricultural plastic had its origins in the Mildura area where they had the problem of what to do with tonnes of life expired agricultural plastic particularly grape vine covers made from plastic.

Around 10 years ago Monash Universities' Rail Research center entered into a joint project to develop plastic sleepers in conjunction with Duratrack and a grant from Sustainability Victoria with the aim of coming up with sleepers that had improved life and less environmental impact than cutting down trees, so turned to recycled plastic.

Initial applications have been on tracks through suburban stations, rail sidings and regional freight lines.

An internet pic of laying experimental plastic sleepers note the close spacing. Duratrack Sustainability Victoria.

My personal observations on our little railway is that our plastic ones have lower stiffness and greater thermal expansion rate when laying out in the sun but this has not been a problem. Warwick **Collaboration** Around the same time Smorgans were getting into making 100 x 100 mm posts from recycled plastic for use as bollards and engaged MSTEC member the, late Brian Smith in a project to develop a process for embossing recessed lettering in the faces. *One of Brian's recycled plastic bollards now being used as bearers for old stationary engines at the club.*

It is ironic that if only we had known Monash Uni's Rail Department had also been working in parallel on plastic sleepers for the last 10 years the collaboration and enjoyment we have had working with them recently could have started 10 years ago!

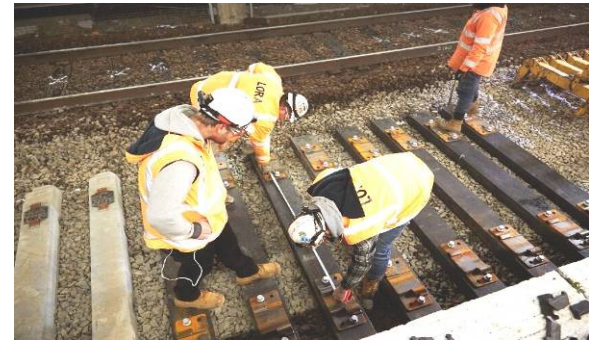
Monash Universities' Rail Express team trialing their experimental electric tram on our Scoreby plastic sleepered track in front of our W class electric tram. Warwick's photos

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Melbourne Tram Museum Visit

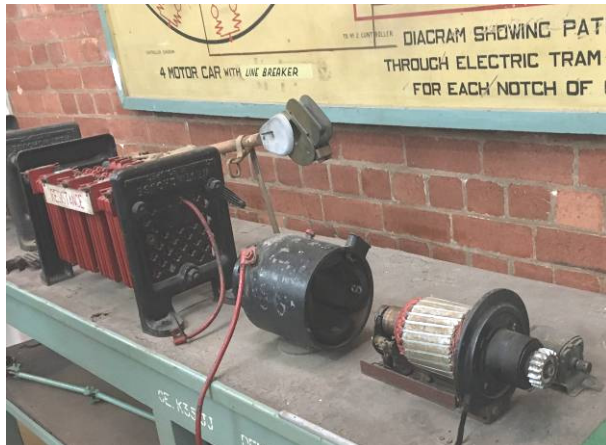
Talking of Trams The other weekend we had a family visit to the Melbourne Tram Museum in the Heritage listed old Hawthorn tram depot just before the Yarra on Riversdale road. You know you are getting close to a tram depot when you see this type of road then all you have to do is follow it to the doors.

When we arrived it was quite busy but then again it is only open a couple of days each month and it is quite compact but none the less house about 20 trams a conductors room and training room which contain interesting displays. Entry is very modest at a gold coin or donation as you please



There are plenty of guides to show you around who are very knowledgeable and friendly but then again they are mostly ex conductors so have good people skills .

Exhibits range from the earliest cable cars of around 1890 then a range of the iconic W class trams introduced in 1930's . Thanks to a program of continuous upgrades and improvement these were still being built up until the mid 1970's when the first of the new look trams were introduced like our Z 51 . The tour also included the conductor training room with a number of displays showing the evolution of the Melbourne network which for the last 120 years has been one of the biggest in the world and they are convinced it is still the way forward.



Another room

← showed maintenance and repair of the control and propulsion system with a bench set up where they could simulate faults on a scaled down drive system . It was interesting to see for motors they used the old North Eastern electric starter / generator off vintage Dodge cars . A unit still much loved for powering miniature railways today ! There were a number of trams on display that had been lavishly decorated

for various festivals and special occasions .

Well worth a visit Warwick



JUNE RunDay

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When I got there, just after lunch, the carpark was pretty full but it soon started thinning out . suggesting the main attraction was our train rides which according to Rob Worland did pretty well . . Activities on the arena were probably down a bit but on the other hand this gave an opportunity for visitors to have a closer look and a chat to the operators who were a bit more relaxed than sometimes.

Neil Myer had the Marshall roller out and was happy to explain it's operation



Jo Lloyd had her Ruston Proctor George out on the arena giving the occasional visitor a ride which certainly made some peoples day .

The high light had to be Adam Powell's "Steam Cart" On which he has set up a Wiles Cooker boiler driving , an air compressor converted into a steam engine which in turn powers a 32 volt generator which runs an electric drill . Adam delights in explaining the various energy conversions taking place especially when it comes to how the injector can put water back into its own the boiler , but to the uninitiated, loses all credibility when he shows how the whole thing is powered by burning black stones !

Hopefully they will come back for another look when they have done a bit of homework

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