

# OLD PLOUGHS AND PISTONS

Newsletter of the Machinery Preservation Club of W.A. (Inc.)

[www.machinerypreservationclub.com.au](http://www.machinerypreservationclub.com.au)

PO Box 1471, Midland 6936



THOMAS KINKADEE  
*Painter of Light*



**PRESERVING FOR THE FUTURE**

**Vol.18 No.4**

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**MONTHLY MEETINGS:** 1<sup>st</sup> Wednesday of each month (except January) from 7.00pm, Block 3 clubroom.

**NOTE:** WORKSHOP PLAY DAY. Each Tuesday morning join us for a Sausage sizzle \$5.

## **PRESIDENT'S REPORT by**

### **Ralph Thomas**

#### ***News from around the Club.***



This last three months have again been an interesting time for the MPC, and as usual it is the busiest time for our Rally season. We started with the Hotham Valley Railway Festival at Dwellingup, which was followed by What a Tool Day at Mundaring; both were first time attendances by the MPC. Next came the Swan View Show and the same day, Bert our traction engine, attended the Toodyay Show. The Perth Hills Festival was another one we had not attended for a good number of years, and according to those attending, it was a very successful day. As usual, we attended the Kelmscott Show, which still has a definite flavour of agriculture, with lots of action for all, particularly for younger people, and this is extremely important for the future of these type of events. On the same day the MPC mounted a challenge at the Wundowie Iron Festival, with our own Iron Monster, built by Keith and George Chappell and Graeme

Duncombe. Hats of to these blokes, as they came away with second prize; extremely good for a first-time attempt. Well done gentlemen.

Then came our second 'Open Day' for the year. The club put on an excellent display and we were rewarded by good numbers attending. We were well supported by members of several Vintage Vehicle and Motorcycle Clubs. Grateful thanks must go to them for their assistance. We were also honoured to have on display, the Replica Shearer Steam Wagon, the first outing since being built by member Doug Baker and his team. The day was also financially rewarding for the club, and thanks here to all who contributed to the day's success; well done! Last on our rally list was the Canning Show. Unfortunately, this was not the best Canning Show we have attended, as spectator numbers were down on both days.

It must be said that our members have not been supporting the events that the MPC have committed to attend, some of which have been financially rewarding. Concerns have been raised as to whether we are committing ourselves to a larger work load than we should. Before we commit to events next year, we will need to

ensure we can carry out our commitment to the accepted events. Here I must thank Steve Barlas and Max Leggett for organising events, and Ross Morton who kindly towed the fence trailer to most rallies. I must not forget to also thank the regular members who have supported most of the season's events. I have not put in too much detail on some of the events, as I am sure there will be further reports in this issue.

The next big event on our calendar is of course the Christmas Party on the 9<sup>th</sup> December. The lunch is being catered for by WA Spit Roast with the MPC sponsoring 50% of the cost. This will allow all members to relax and enjoy the event. I look forward to seeing you there and trust you will enjoy the day.

### **MPC FUTURE PLANS**

A lot of buzz is happening regarding our future at our present location in Block Three. As yet, we have not received any communication from the MRA regarding our tenure. The recent meeting of the Swan Community Workshops, as was reported from the Consultants, revealed that the MPC did not fare well regarding inclusion for a permanent home, being left at the bottom of the list. It has also been mentioned that the Swan City Council may be involved with the MRA in decisions regarding the future of the MRW site allocation. Where do we go from here? The MPC has indicated that we favour staying in the Workshop Precinct, with the Power House complex our choice. It will be up to the Membership to decide the next move. We hope to have support from several Politicians; soon we will find out just how much.

A letter from the MPC outlining our wish to remain at the MRW Precinct was sent to Planning Minister Rita Saffioti. A response was received, acknowledging the contribution the MPC had made to the preservation of WA and MRW historical artefacts, and she assured us that we would be considered in future planning and distribution of accommodation at the MRW.

I must mention here, thanks go to David Ashfold, Bob Wallis and the team who have put in countless hours to get the SCW project to this stage. I don't think the result was what they had

wished for and I am sure they feel disappointed. Please note, a lot of what I have written here are my thoughts and interpretations, not necessarily fact, and may be subject to change. All correspondence is available for your perusal from the Secretary.

### ***THIS IS WHERE WE WANT TO BE!***



### **MPC Rules of Association.**

Secretary Robert Brayshaw and Committee Member Eric Rose have been revising the MPC Rules of Association and rewritten them to a draft form. They will be discussed at Committee level before a final edition is presented to the general membership for adoption at the AGM. It is acknowledged the huge task that Robert and Eric have undertaken, which has required many hours of diligent work, thank you both.

### **Member's personal equipment removal.**

We have pretty much completed the sale of the John Milne collection, all but a few bits and pieces have gone to new homes. The left overs have been donated to the MPC shop. There is still some members' gear not removed, and we ask that this is done asap; before the MPC looks at taking a firmer stand.

**Restoration projects.** Several projects are available, giving members a choice should they wish to take one on. We are still seeking a set of wheels suitable for the Hornsby engine; information is also required for identification.

**NHMA 2019 National Rally.** If you wish to attend this Rally you will need to get your accommodation booked as many places are already full. For more information go to their website. [NHMA2019nationalrally](http://NHMA2019nationalrally)

It is that time of year when membership subs are due, which includes the public liability insurance. Members are encouraged to ensure their partners are also covered, so they can participate in all club activities; i.e. helping at open days and

being allowed access to the machinery compound. The cost is nominal and well worth the peace of mind.

Welcome to new members Neil and Allan Millstead, and prospective new members Kevin Harry and Jane Swan. We trust you will enjoy being part of our organisation. Please make yourselves known when you attend, and I am sure you will receive a warm welcome. To those of you not enjoying the best of health, we wish to a speedy recovery, and happy birthday to anyone having a birthday around this time. To anyone going on a holiday soon, Bon Voyage and enjoy yourselves.

To all members we do not see before the festive season, Wendy and I wish you all a very safe and pleasant Christmas, and a Happy New Year to you and all your loved ones.

### **EDITORIAL by Les Jones**

We had an excellent result with the sale of John Milne's engines. I'm sure he will be happy with the price they fetched and the members were also happy as they walked away with at least something to add to their collection.



September has been full on with shows running back to back, Max and Eric are going to work on an itinerary for next year and place it on the notice board so members can plan well in advance.

With this year's show season over it has freed me up to get back to what is needed for the National at Murray Bridge. Time is getting away with only 3 months before heading off and don't forget the workload around Christmas. I've had to shelve



most of the other engine projects and concentrate on the little International Titan (Famous). It needed a complete restoration with a bent con rod and

a missing big end bearing. While the rod was relatively easy to straighten, the white metal (Babbitt) bearing has been a new learning curve.

Thankfully Chappell Inc. came to my rescue by pouring the Babbitt, that's if Ralph's Bonzer doesn't get in the way. The President does have priority, so he tells me.

While the progress on the restoration has been slow, I can start to see the light at the end of the tunnel as the engine is now painted and the parts from the US have arrived. It's been hard concentrating on one engine but as I always say "finish one project before starting another". Hopefully it will burst into life at the end of January before bundling it up for shipping to the National.



As mentioned in the last newsletter I will be including previous articles from old OP&Ps as well as innovations that have changed our lives. Refer below extract in *Italic* on large aircraft piston engines and what better innovation than the power plant that got the Wright Brothers up into the air.

Hope everyone has a Merry Christmas and a happy New Year, Di and I are having a quiet Xmas as the kids are away in Kiwi land visiting relatives.

### **EXTRACT FROM THE PAST ( June 2013)**

#### **AIRCRAFT PISTON ENGINES (part 1) by Les Jones**

##### ***Curtiss Wright R3350 32W Cyclone 18cyl. 2 row radial eng.***

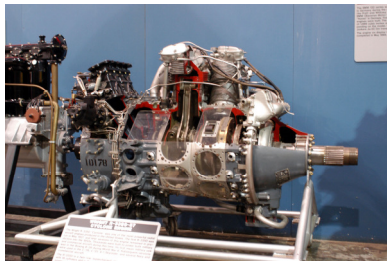
*This was the last of a series of 2 row radial engines that were manufactured towards the end of WW2, initially to fulfil a US Airforce requirement to power a Bomber with the range to reach Germany from the US. It was rushed into production to supply power plants for the Boeing B29 Superfortress, a high altitude long range Bomber that was needed for the invasion of Japan.*



*Due to the temperature on the Pacific airstrips and the rushed development they suffered badly*

*with overtemp on the rear cylinders and on occasions a magnesium crankcase fire would start and burn at 5,000F core temp which would melt the wing spars in a matter of seconds. At the time they were the most powerful aircraft piston engine (3,700hp) and were in competition with the Pratt & Whitney Company who eventually won out with their 4 row 28 cyl Corn Cob engine (4,300hp). Wright tried to counter with a 22 cyl. 2 row radial but was shelved with the advent of jet engines.*

*The Wright 32W was my favourite piston engine and my first day at Qantas straight out of school was cleaning an old Conny engine. It was left over from the company's Super Constellations and the tales the tradesmen told about the problems with keeping the units flying, filled me with admiration of their engineering skills. Watching the same engine being started and run at the Mudjee Rally brought back those memories.*



**(Ed: there is a good example of the 32W at the Bullcreek Aviation Museum, left over from when the Yanks did an engine change on their Satellite tracking Constellation).**

### **Wright Brother's Aircraft Engine**

**(Ed) Being an aircraft buff, I don't think any innovation has affected us more than man getting into the air. The Wright Brothers accomplished this in 1903; interestingly their power plant shows much similarity to our early stationary engines i.e. Make and Break ignition and atmospheric inlet valves.**

#### **Extract from the Wright Aeroplane Company**



nce they had decided to attempt powered flight, the Wrights calculated they needed an engine that produced at least 8 horsepower and weighed no more than 200 pounds (91 kilograms). A quick survey of the automotive market showed there was no such engine available and they would have to make their own. An acquaintance at the nearby

Buckeye Irons and Brass Works advised them, that they could save weight if they cast the engine block from aluminium. Although this was a soft metal, alloys had recently been developed that were much stronger – both Benz and Daimler in Germany were successfully making engines with aluminium blocks. The Wrights decided to cast the block from an alloy of 92% aluminium and 8% copper.



After the castings had been made the Wrights "mechanician," Charlie Taylor, machined the parts and assembled the engine. He later described his work:

"We didn't make any drawings. One of us would sketch out the part we were talking about on a piece of scratch paper, and I'd spike the sketch over my bench. It took me six weeks to make that engine. The only metal-working machines we had were a lathe and a drill press, run by belts from the stationary gas engine.

"The crankshaft was made out of a block of machine steel 6 by 31 inches and 1-5/8 inch thick. I traced the outline on the slab, and then drilled through with the drill press until I could knock out the surplus pieces with a hammer and chisel. Then I put it in the lathe and turned it down to size and smoothness.



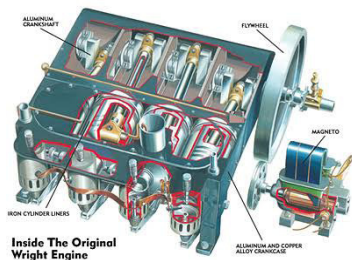
"The body of the first engine was of cast aluminium and was bored out on the lathe for independent cylinders. The pistons were cast iron, and these were turned down and grooved for piston rings.



"The completed engine weighed 180 pounds and developed 12 horsepower at 1,025 revolutions per minute. [It actually produced nearly 16 hp when it was first started but this dropped to 12 hp as the engine heated up.]

"...The fuel system was simple. A one-gallon fuel tank [it actually held just 22 ounces] was suspended from a wing strut, and the gasoline

fed by gravity down a tube to the engine. The fuel valve was an ordinary gaslight pet cock. There was no carburettor as we know it today. The fuel was fed into a shallow chamber in the manifold. Raw gas blended with air in this chamber, which was next to the cylinders and heated up rather quickly, this helping to vaporize the mixture. The engine was started by priming each cylinder with a few drops of raw gas.



"The ignition was the make-and-break type. No spark plugs. The spark was made by the opening and closing of two contact points

inside the combustion chamber. These were operated by shafts and cams geared to the main camshaft. The ignition switch was an ordinary single-throw knife switch we bought at the hardware store. Dry batteries were used for starting the engine, and then we switched onto a magneto bought from the Dayton Electric Company. There was no battery on the plane.

"Several lengths of speaking tube, such as you find in apartment houses, were used in the radiator. Other features included a bicycle chain turned the camshaft which operating the spark breaker arms and exhaust valves, but the "automatic" intake valves were opened by



suction. Having no throttle, the motor only ran at full speed, tuned with a lever that adjusted the camshaft timing. A splash system lubricated the bearings and other moving parts in the crankcase, while a small gear-driven oil pump supplied oil to a tube that that dripped into the cylinders and onto the pistons.

The engine was first run on 12 February 1903. The very next day it overheated and seized up on the bench during a test run. New castings arrived from the foundry on 20 April 1903 and Charlie had the engine rebuilt and ready to go

by early June. The rest is history with Orville Wright powering the Flyer on four flights at Kitty Hawk on 17 December 1903; the engine was seriously damaged when wind overturned the Flyer. Today, the original cast aluminium engine block is displayed at the museum attached to the Wright Brothers Monument at Kitty Hawk, NC.

### **SHEARER STEAM WAGON BUILD by Doug Baker**

I could offer many personal reasons for wanting to build the replica Shearer Steam Wagon; however there is one controlling principle: to experience the same thrill as the



population of 1898 when the first motorised vehicle manufactured in Australia moved. Inclusive, the build will offer a tangible testimony honouring the outstanding engineering ability of David Shearer. Today the original Shearer Steam Wagon is housed in the Birdwood National Motor Car Museum for all to admire. Further, it is my personal opinion the original vehicle should never be driven again. The historic value to Australia and the motoring world is incalculable; the vehicle is so unique if anything happened to it, I feel it would be a catastrophe.



The original has had a number of modifications during its lifetime, some for the better, others not so. However, I hasten to state, without the involvement of the enthusiastic persons of days past who preserved the vehicle as a legacy we cherish today, it most likely would have been lost to history. To these people I am sincerely grateful, I am also genuinely hopeful there is a record of these enthusiasts accrediting them for their dedication.

Over an 18-month period, approximately 150 CAD drawings have been produced; inclusive are 300 photos of the original



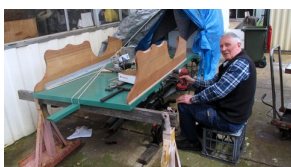
components enabling the design and construction work to be carried out as close as possible in this modern world. I therefore feel it necessary to expose the use of the word “replica” as this could be challenged, this modern build is not an exact facsimile, but as close as possible as can be made. Outwardly the two vehicles will appear identical; most of the intrinsic components were manufactured embracing modern practices. As an example, it was not practical to utilise blacksmith skills of days past if it was to be an exact copy; these skills are not readily available, sadly, almost an extinct art.



When designing the build, it was also necessary to consider the ever-lurking expectations of the Australian Standards and ordinance, especially when designing and building the boiler. The demands governing the integrity of pressure vessels today are light years ahead compared to when the original was built. This also applies to various other demands, all of which did not exist 120 years ago.

The construction is progressing well, it took David Shearer eleven years to build the original; we are attempting to build the replica in less than half that time.

The engine and boiler were commenced in 2016 with the chassis first laid up on the building frame 2/11/17, with the outcome as seen today taking not quite 12mths.



Every Thursday, friend Bruce Weir-Smith assisted with the build and without his help the results would not have progressed at the rate it has. Also included are friends Iain McDonald, David Ray, Ernie Redford and Matthew Lombard, all of whom offered a gargantuan effort when asked. I sincerely thank you for your support.

It will take approximately another two years to complete when returned to my workshop after it has been displayed at the All Steamed Up Weekend in Mannum, then displayed at the

National Vintage Machinery Rally to be held in Murray Bridge March 2019.

For further information about David Shearer and the Steam Wagon I recommend you Google as there are many very interesting and informative articles written by academics offering historical facts.

**(Ed.) What magnificent workmanship, a credit to Doug and his volunteers who built everything from the ground up. Shows what can be done if you have the passion**

## **SHOW REPORT**

### **KARRAGULLEN HILLS FESTIVAL 13<sup>th</sup> Oct 2018 by Colleen Morton**

We were early for a change, mainly because Ross and I had picked up the club trailer on Friday afternoon and because we weren't sure where we were supposed to be going, so had allowed ourselves plenty of time.

We found our area to set up; the bays were clearly marked, however the verbal instructions were not clear. The MPC had been allowed 3 bays, which meant there was plenty of room to park our cars and trailers.



When everybody had arrived and all the engines had been unloaded, the members put the fence up. It looked like it was going to be a better day than had been forecast. Except for one heavy downpour at lunchtime and a couple of light showers later on, the day was fine.

MEMBERS WHO ATTENDED – Ross and Colleen Morton, who displayed their Moffat Virtue; Les and Diane Jones; Steve Barlas; Mike Harris; Les Smith with his Cooper engine (a work in progress) and Stewart Macpherson with his Shearing Trailer display. For only 6 members, it was a decent display.



ON THE OVAL – The types of stalls were varied with only two exceptions. There were 5 vans selling ice-cream (what a shame George and Kerry weren't there) and almost as many Coffee outlets. Some of the other stalls were Farm



Machinery, Trailers, Cooking Displays, Fruit Trees and Plants, Clydesdale Horses, a Little House of wheels, and many others. Off the oval

there was a large shed, which held even more displays.

At 4pm the engines were turned off and while they were cooling down, the fence was put back on the trailer and had to be fixed before they could move. As many hands make light work that repair was soon made. By 5pm we were ready to leave, with the exception of Les and Diane, a door had fallen off their Museum trailer. All in all it had been a good day.

### **MPC OPEN DAY – 28<sup>th</sup> October 2018 by Ralph Thomas**

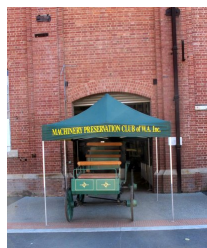
Those Members who supported the “Open Day” would agree that it was without doubt, a resounding success. You can all give yourselves a pat on the back for your combined effort to achieve this. The BBQ Crew made an early start and was soon serving hamburgers and sausage



sizzles, with tea, coffee and cakes from the kitchen; this continued for most of the day. The engine crews also had engines fired up, with “Bert” on full steam

adding to the action, and the big doors were opened to blow out the fumes and smoke. Our “Swap Meet” also did good business, getting rid of excess items. This looks to be something we will pursue in the future. The big bonus of the day has got to be the honour of having the Shearer Steam Wagon on display for the first and only appearance in Western Australia. Doug Baker and his crew have done an excellent job in building this magnificent replica, and it was admired by all who attended.

The Shearer will be heading for the Dock Museum in Mannum, South Australia soon, where it will be on permanent display. From all the MPC members, a big thank you and well done Doug. I have attached some photos of yesterday.



Thanks here must also go to all the vintage enthusiasts who displayed their motor cycles and cars. Something we should bear in mind should they request our attendance at one of their functions.



It was pleasing to see a lot of familiar faces, some of whom travelled great distances to attend our day.

### **KELMSCOTT SHOW – 20<sup>th</sup> October 2018 by Ralph and Wendy Thomas**

Despite being a small crew of members, we managed to put on a good display for this year's show.

This is always a well-attended event by the public and one of the better remaining Agricultural Shows in the metropolitan area. There is still a large amount of animal events, both performing



and showing, as well as the usual number of stalls and food/drink vendors. It is also very child-friendly; with many ‘hands-on’ attractions for the

children to get involved in, and the fun they attract is obvious by the smiling faces as they make something out of wood, blow bubbles or play many of the games available.

THE MEMBERS WHO ATTENDED – Were Ralph and Wendy Thomas, with their collection of model engines and memorabilia, along with their barrel organ; Max Leggett with some of his very interesting stationary engines; Stephen and Liz Barlas with ‘Wee Jim’; Ross and Colleen Morton



with their Moffat Virtue, and Dudley Jenson with his Lister and Ruston motors. The weather remained fine although quite cool and overcast.

## HOLIDAY IN TASMANIA by Steve Barlas

During a recent holiday to Tasmania I stayed on the World Heritage listed Woolmers Estate in Longford. While out on a walk around the grounds I enjoyed looking into the various sheds, and marvelled at the fine collection of old cars and trucks. I also found quite a collection of old engines, one of the old engines looked like a hit



and miss engine with a generator and radiator (photo attached), **(Ed: The curved spokes indicate a UK engine)** another was quite a mystery, looking like a generator with the engine on top. I have never seen another one like it! **(Ed:**

**Steve, It's a Delco Farm Light Plant)** In the shearing shed I found a Cooper Shearing Stand and a boat with a Recal engine and a Baldridge model A gearbox made in Detroit U.S.A.

One of the photos shows a muffler sticking out of a wall; can you guess what type of engine it is attached to?

In another shed I found a saw bench, behind it were two doors, a cooling tank, a muffler and a forty four gallon drum fuel tank. Can you guess what was in the shed?



The answers will be published in the next edition of Ploughs and Pistons.

## TOOLBOX CHATTER

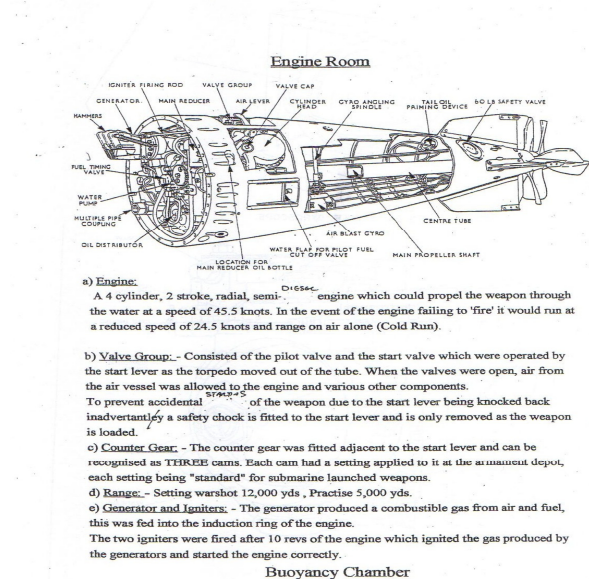
### The Mark 8 Torpedo by Les Jones

Eric Coates sent me an Email asking why aircraft radial engines have uneven number of cylinders i.e. 5, 7 & 9 cyl. The reason he asked, is the Maritime Museum has a 4 cylinder radial engine in a torpedo (refer below diagram). The answer is a bit complex but simply put Radial aircraft engines are 4 strokes but if they had a 2 stroke cycle than it could have an even number of cylinders. It gets back to the 4 stroke firing order occurring on every second cylinder on the radial engine due to the common master



connecting rod. With the Torpedo engine if it were a 4 stroke it would fire number 1 and 3 and then back to 1 so missing the firing on nbr 2 and 4. With a 2 stroke it would fire every cylinder in one revolution, if this was done with a 4 stroke then the next revolution all cylinders would be induction and the vibration would be excessive.

Aircraft piston engines are normally 4 stroke but saying that the trend for homebuilt aircraft is moving over to 2 cycle engines with radial engines being developed (i.e. Victa 500 two cyl. 2 stroke light aircraft engine sold at John Milne's sale).



**FOR CLUB APPAREL. Contact Ralph or Wendy**

Polo Shirts – Bottle Green – with Pocket, Name and Logo. \$30.60 each.

Polo Shirts – Gold – with Pocket, Name and Logo. \$33.55 each. Without Pocket. \$28.60 each.

Caps – Bottle Green – with Logo. \$14.70 each.

Hats – Wide Brimmed – with Logo. \$20.20 each.

Jackets – Bottle/Gold – Lightweight – with Logo. \$47.10 each.

Overall – Action Back – Bottle Green – with Logo. \$107.10 each.

Coverall – Bottle Green – with Logo. \$123.00



**FOR SALE**

1. Rotary magnetos various types \$200ea.
  2. Magneto instruction books  
i.e. ML, RS1, CK1, CK2 **Refer Norm Robins 9458 8899**
- 



1. Fairbanks Morse 3hp "Z" restored stationary eng. on transporter, new Bosch AB33 magneto, fuel tank and new rings, \$1,600

2. International Harvester 3hp "M" stationary engine restored in working clothes on skid. New fuel tank, rings and Bosch magneto. \$1,500



**Refer Les Jones  
0407945398**

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1. Books on the pictorial history of the Midland Railway Workshop. Many never seen photos of the Workshops early years. \$22 ea limited number available **Contact Bob Wallis to view and place orders.** 94596425

**WANTED**



1. Igniter and bracket for a Nelson Bros . 1 1/2hp Little Jumbo.
2. Webster Low Tension magneto model "M" to suit Little Jumbo

**Contact Les Jones 0407945398.**

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**PARTS WANTED TO COMPLETE CLUB PROJECTS**

1. ML magneto KS flick model for parts to repair the Lister L.
2. "T" model ford carby for club's LB Crossley

**Contact Keith Chappell 0407341279**