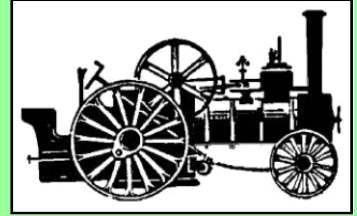


A Wisp of STEAM SUPREME

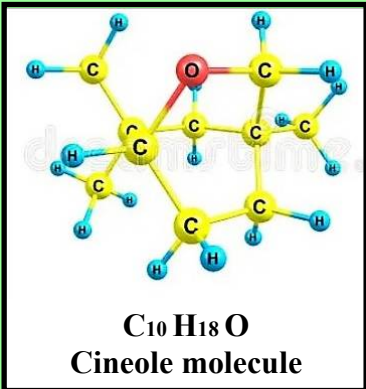


Extracts from the Melbourne Steam Traction Engine Club Newsletter



Michael Stapmanns had his Merry Go Round engine in steam for our Vintage Drivers visit

Also
In this
Issue



Eucalyptol



Vintage Drivers Visit



Waterous Boiler Update

The Bristol
Car Engine

Waterous Boiler Update



The Lloyds are making slow but steady progress working towards restoring their Waterous portable steam engine. Jo Writes

Restoration was progressing well until it was discovered the boiler was totally shot

It is as well we could not anticipate all the setbacks and difficulties ahead or we may have had second thoughts about undertaking the restoration of the Waterous. It is a bit like the Willans. Would the club have gone ahead with this had we known the ultimate cost before we started? But having got there in the end it is very much worthwhile. We anticipate similar satisfaction if we complete the Waterous before age totally catches up with us.

Finding that the Waterous boiler was not restorable was a big blow but having already invested substantially in cash and labour to replace the unique spark arrestor, buying tubes and making new wheels we decided to take a big breath and make a replacement boiler. The plan was to source what we could then get professional help to put it together.

We went ahead and had new tube plates made, rolled boiler plate for the shell and firebox and purchased the necessary rivets before dispatching it to Goulburn for assembly. It was another big blow when this fell through. Having got this far we were unable to find a replacement boiler manufacturer that we were confident could do the job in a timely and satisfactory manner. So we took another big breath and Ross got on with doing the job himself getting what assistance he could along the way.



First step was to rivet up the shells and put the tubeplates in. Ross drilled and bolted them, then we were ready to do the riveting. Doing the riveting was physically beyond us and again we had trouble finding someone with the time, expertise and experience to undertake the task. South Australian club member Kevin Cross came up with the answer after reading of our difficulty in Steam Supreme and soon we were off to Huntington Engineering near Adelaide to get the rivets in. A major decision in choosing Huntington was that they had rivet squeezers capable of doing much of the job. The boiler standards recommend using a rivet squeezer rather than using an air hammer as it gives a tighter result.

The hydraulic riveting team at work . From L. to R. Kevin, Simon and Ross with Hayden, Simon's poor hard working apprentice, stuck in the barrel in 40C temperatures)

The rivet squeezer which rotates and self aligns made putting in the tube plate much easier .

There were some difficulties with the squeezer that we had hoped to use to reach in to do the longitudinal seams but after a second trip to South Australia we got the job done and brought the shell and firebox back to Melbourne ready to get on with the next step.



In the original boiler the firebox was joined to the shell by bending the bottom portion of the firebox out then down to fit the diameter of the outer shell before riveting. This form of join is prone to undetected corrosion in the crevasse between the



two plates and our boiler inspector preferred that we instead insert a foundation ring between the shells.

The foundation ring was cut out of 50mm thick boilerplate
The foundation ring was machined to the exact diameters required.

The centre was retained and cut to form the firing hole spacer, it was wash ground down to about 34mm thick then rolled to the shell diameter.

The same technique is used as a spacer between the shells around the firing hole.

We wanted to complete the mud door and hand hole openings before the firebox was riveted in restricting access. The boiler inspector was happy with using the existing doors and dogs and the holes were cut and finished to fit them.



We had had our other engines down for their regular boiler inspections and at the same time got the inspector to inspect and record progress on the Waterous before the firebox went in.

There are a number of openings required for pipework most of which shouldn't present any problems but the main steam outlet was concerning us. We are relying on the "Grandfathered design" provision in the boiler code to allow us to register our boiler without the great expense and time delay of having design engineering computations and a certified design registered. The rationale behind grandfathering is that if it had performed satisfactorily in the years before certification was required the design is deemed proven.

The outlet is 2½"NB (approx 75mm). On the existing boiler it is threaded at 14tpi which gives the four threads in the shell conforming to the current boiler code. However for pipes 1" and above 11tpi is normal thread pitch but this would not give sufficient threads in the shell. Our Buffalo Pitts portable has addressed this problem by using a sleeve riveted on the inside to give sufficient thickness to get four threads at 11tpi. We were hopeful that our boiler inspector would accept a sleeve of this nature welded inside. If we were to do this it would need to happen before the fire box went in so we wanted the boiler inspectors OK. Unfortunately, the answer was "No", he wanted us to go with the 14tpi in the shell. We had to have a tap specially made as 14tpi is nonstandard for a pipe of this size. We had been worried about drilling and tapping through the curved shell and trial runs on spare plate in our garage were disastrous. Ross eventually came up with the technique of threading a guiding piece of steel which was then firmly lashed to the boiler over the pre-bored hole. This ensured the tap was square on and guided it through the shell. This was another "take a big breath and go for it" moment. Thankfully it glided through perfectly

The smaller pipework is also 11tpi and does not give four full threads but will be acceptable as this mimics the grandfathered boiler.

The foundation ring and spacer were tacked in place and it was time to get the firebox in position ready for drilling the rivet holes. This was not a perfectly simple task of just dropping it in.



The tap we had made using the pre tapped guide to align it.

Pulling the foundation ring onto the fire box.



With the boiler upside down the fire box was manoeuvred into place.

The firebox sits flush against the firing hole spacer but the rivets around the tube plate extend out and the firebox has to be tilted to clear the spacer. After a fair bit of manoeuvring this was achieved.

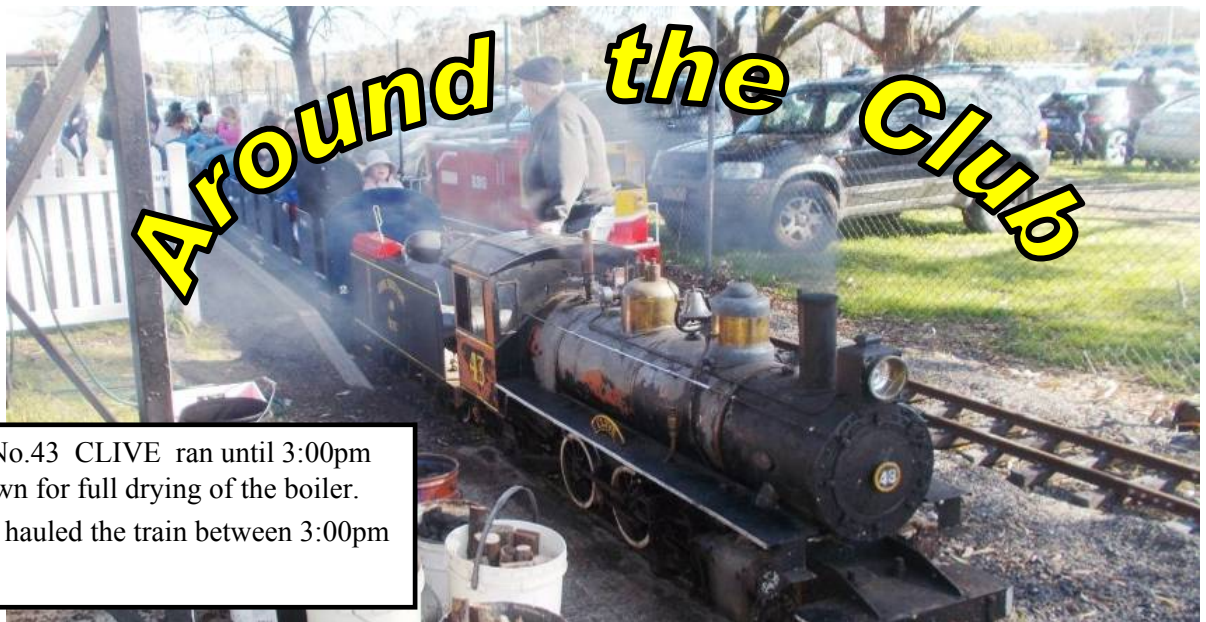


Now for drilling and bolting the foundation ring and firing hole then off to South Australia for another round of riveting and possibly getting the stays in.

It is beginning to seem like a boiler!

Photos and words Jo Lloyd

SS SS SS SS SS SS SS SS SS SS SS SS



Our Steam loco No.43 CLIVE ran until 3:00pm then was shut down for full drying of the boiler. Diesel P11 REG hauled the train between 3:00pm and 4:00pm.

Highlights for Sunday, 30th July.

Railway manager Rob Worland writes

Hi Everyone, A new record number of tickets sold on a Sunday (Outside of Steamfest) 656 Compared with the previous record of 583 passengers on 3-Apr-2011, when there must have been a very special activity to attract such large numbers. (It was Waverley Industries Day of Champions Festival . A not for profit charitable organization that provides employment for people with disabilities when over 1200 visitors attended See SS 484) Ed A better comparison is the best figure for 2022 of 432, during a very strong year. A new record for revenue on a Sunday (Outside of SteamFest) of \$2624 (and there was no party) Compared with the previous record of \$1449 on 27-Nov-2022 including parties. Possible contributing factors to the increase in passengers:
• Display of heritage cars by the Vintage Drivers Club
• Following an extended period of wet and cold Sundays, this day was sunny and mild. In the middle of winter there is a natural need to get outside for even a short time. Over the last 50 years a pattern has been observed where train patronage during winter can sometimes be unexpectedly high because of this need.
The car park on the west side of the main entrance was full, telling all passing traffic that something is happening. Also, revenue was boosted by the recent fare increase from \$3 to \$4. No reports have been received of any adverse comments from the passengers.
Train crews were : Full day: Tony Z Stephen H Rob Worland . First half of day: Geoff Lintott Noel Warden Oliver Harris . Relief while others took a break: Michael Stapmanns
At least one more helper was needed throughout the day, to allow for better rotation of duties. Great job, Rob

Eucalyptus Oil Encouraging feed back from a number of readers on the Eucalyptus story last issues produced unexpected results as well as bringing back memories, for some, of the numerous stills in the bush around Bendigo and the various cobbled up old boilers of the old day. Warwick also remembers discovering an old boiler in the bush up the top of the King Valley , behind Paradise Falls , that was also a still .

Our Tractor man down at the club Nag Vajraia was also very interested about eucalyptus as being in the colouring and flavouring game at The Product Makers he said these properties of natural products are the result of certain chemicals and if you can isolate them you can for example produce strawberry flavoured milk that has never been near a strawberry. I said what about eucalyptus ? Not a problem ! A small sample soon turned up . Yes it smelt a bit like what I remember of eucalyptus . Next opportunity down at the club I picked a few gum leaves and crushed them up and repeated the sniff test . Bang on exactly the same. Well done Nag !

Bottle of Eucy that has never been near a gun tree

Looking at ‘ THEPRODUCTMAKERS’ web site their experienced bioactive experts are dedicated to reviewing new natural ingredients that enhance the flavour and properties of manufactured products . They are generally derived from plants such as sugar cane and are easily added into commercial products to improve sweetness , enhance flavour , make them more healthy and easier to process .



Around the club continued We have done well in the press lately getting a plug in 2 major UK vintage machinery publications .

THE FIRST PUBLIC VIEWINGS OF TWO RARE ENGINES IN AUSTRALIA

Old Glory
Thanks to their Technical editor and MSTEC friend Derek Rayner



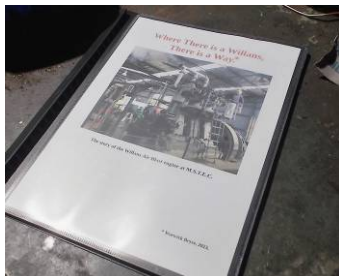
OLD GLORY gives us a good plug . First there is a good rundown giving the history and background of our rare Thornycroft compound marine Torpedo boat engine . This is based on Rohan Lamb’s recent article in Steam Supreme. Their second engine story of course is the Willans . Derek describes the world wide significance of this engine and the saga of its rescue and preservation based on what Warwick has written for our Newsletter .

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Patrick Knight, Editor of this magazine , which is the top in it’s field, devotes a full page outlining the Willans Story .

Ian Malcolm , so thrilled to see the picture of himself in print, has done one better and produced a whole folder on the Willans based around what appeared in Steam Supreme but enhanced by more detail and inclusion of a number of large A4 photos and drawings for the engine not seen in SS . It is aimed at having an information folder by the engine for visitors to read but such has been the reception it is wondered if it should not be available to our visitors as a booklet . Have a look at it and see what you think



Remember positive publicity like this is not good luck , you have to make it .

Training the Train

One of the last jobs is setting the hydraulic pressure relief valves for the hydraulic system .

The limiting factor is determining the pressure that wheel slip occurs . There is no point in having any higher pressure than needed as it only creates stress and heat

Readings were taken under various conditions running around the track. Normal cruising on straight level track only required about 300 to 900 psi . Climbing up through the cutting 1800 psi . The most demanding point was accelerating away round the up hill curve just past shed 12 .

Pressures up to 2000 psi could be momentarily required. Note we had no passengers so it is not the worst case so there is not much scope for lowering the relief pressure below 2500 psi

An area requiring further refinement is stopping the train . If the control lever is too quickly brought back to zero without allowing the train to fully come to a stop high pressure spikes, over 2000– psi in the return line , were observed . This is accompanied by jerking, wheel slip and relief valve buzz. It appears that with the lever at zero no oil can pass through the pump but with the wheels still turning their hydraulic motors are now acting as pumps and trying to force oil around the system that is now dead headed. *Akin to putting your car into park before waiting to stop* . Lowering relief valve settings is the first step but a function is under development to open a cross line automatically allowing the oil to by-pass the pump at low swash plate angles *Simulating the action of putting your foot on the clutch* of your manual car before you come to a stop



July RunDay



Greg Vlahakis having a good time demonstrating our Availing Barford Diesel roller at the Vintage Drivers day. Greg and his lad Spiros have recently become involved with the railway team and get down to the grounds to work on the rolling stock whenever they get the opportunity



Mobile steam was out on the arena . It is a great thrill when we can give members of the public a ride on a Steam Engine . Something they will remember for the rest of their life as there is not too many other places in the world were they can do that , especially for nothing!

Shed 6 has something for everyone . Young and old alike never stop being fascinated by Hayden’s displays such as the model railway and steam engines being looked after by Peter Cox who has just celebrated his 94 birthday

On again at the same place . If you would like to display any models you own please contact Bruce Rodda via email brucerodda@yahoo.com

THE MELBOURNE SOCIETY OF MODEL AND EXPERIMENTAL ENGINEERS

'LET'S MAKE IT!'
Exhibition

SATURDAY . 16 . SEPTEMBER
10AM - 5PM 2023

South Oakleigh College, Bakers Road,
South Oakleigh Vic 3167

The Vintage Drivers Visit provided a great attraction for our members and visitors alike on our July RunDay .

With the weather behaving the vintage cars were out in force with estimates of close to 100 attending . This is in contrast to a previous car club visit on a miserable Sunday when only 4 brave vehicles turned up .

The Vintage Drivers Club promotes all types of activities to encourage the enjoyment of historic motoring in cars built up until 1958 . The result is a great variety of cars and activities to cater for all members tastes . Their MSTEC outing was actually their New Members day which was designed to encouraged those recently joined to bring their cars and get to meet other members . Having it coincide with one of our monthly run days added to the experience by giving them the opportunity to have a look at our displays and chat about the diverse range of vintage machinery we have on display .

The focal point of their activities was our shade cloth area where they set up a club marquee and sausage sizzle stall. Near by was their club coffee van and our refreshments man who is rapidly becoming established and greatly appreciated by our members and run day visitors alike.

A Look at Some of the Vintage Drivers Cars



MG Magnette

One of our more recent members, Tony Schapendonk took the opportunity to kill 2 birds with one stone by taking part in the VDC event and showing us his magnificent MG Magnette .(He has the wheel caps , they are just off for brake adjustment

It is a ZA model made in 1954 . It utilizes MG and Wolseley running gear such as the 1.5 L 4 cylinder OHV engine which produces 61 hp with the help of twin SU carburettors . Gearbox is 4 speed manual . Brakes are hydraulic and Steering is rack and pinion . Appointments are upper class with leather seats and wood panelling on doors and dash obviously aimed at the prestige buyer . All implemented in rather traditional ways that are representative of British mass production at the time. This is reflected in a curb weight of over 1118 kg resulting in a rather leisurely acceleration of over 20 sec to reach 60 mph .

A pair of model A Fords caught my attention .

I am not sure if the lady in the very restored white one approves of the Ewan McDonalds family's red cut down racer parked in front .

Basically standard running gear but a subtle modification was the radiator cap .

Ewan explains. When it overheats you can safely relieve the pressure before opening to avoid scalding . And if it is boiling make yourself a cuppa while waiting for it to cool down. Not quite as pretentious as for instance a Bentley's but



← certainly more functional and getting more chuckles.

Also not back to front like the Bentley's when viewed from the other side !



This area being central with its grassed areas and paved perimeter road is fast becoming the set up area of choice for our visiting groups .

Perhaps there is an opportunity to further improve its amenity.



*This magnificent 1925 Wolseley turned everyone's heads . It's boat tailed body with streamlined mudguards and imposing headlights caught everyone's attention . The powerful looking twin carburetted overhead camshaft engine and oversized brake drums had them dreaming of speeding around Brooklyn's banked track showing a clean pair of heels to the Bentley's. **Dream on !***

A search of the internet confessed it was not all that it appeared to be . Built from the chassis of a rather humble 1925 Wolseley it was given the treatment to resemble a racer from the 1920's era . Some artistic licence was taken in the body rebuild and the adding of embellishments in Steam punk style. Completing the effect was the cleverly created vintage patina .

The core car was a 1925 Wolseley



The 16/ 65 single overhead cam engine is 65 brake horsepower at 4,400 rpm in twin carby form .

The valves were actuated directly from a shaft driven overhead cam based on WW1 Hispano aero engine technology .

While this configuration is good for reliability and rpm the less efficient breathing of the in line valve cylinder head

and ridiculously long piston stroke handicapped it to the extent that power was only modest.

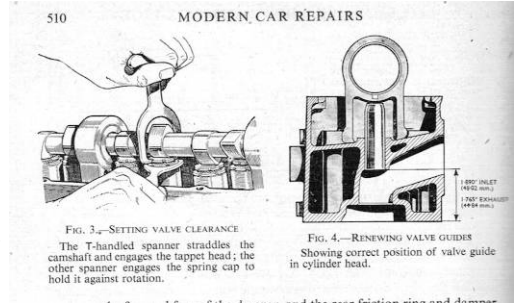


FIG. 3.—SETTING VALVE CLEARANCE
The T-handled spanner straddles the camshaft and engages the tappet head; the other spanner engages the spring cap to hold it against rotation.

FIG. 4.—RENEWING VALVE GUIDES
Showing correct position of valve guide in cylinder head.

The next car to attract my attention was this Green Bristol 400 of the post WW2 period .

A true British luxury car with exotic mechanical specifications, hand built in small numbers and with an interesting background and high price.

With the end of WW2 the Bristol Aeroplane Company needed to find new bussiness for their aircraft factories. They decided to concentrate on production of a high spec car in order to utilize their skills in wooden framing , aluminium panel fabrication and piston engine manufacturing which they developed during the war . Company representatives travelled to Germany and with the help of the war reparations scheme acquired the rights to the BMW 327 model and its engine. They also took the opportunity to employ one of the BMW Engineers to lead the engine design team back at Bristol . Facilities were set up and about 100 cars per year were made using this engine which carried through to 1961 when it was replaced by a Chrysler V8. In the meantime a number of sporting cars including Frazer– Nash , Cooper , AC and Lotus had used hotted up versions of the Bristol engine with competition success.



By 2011 after a number of reincarnations the Bristol car manufacturing business had fizzed out.

I had heard the engine was rather unconventional being a 6 cylinder 2 litre with hemispherical combustion chambers and unusual valve gear and producing 80 hp at 4,000rpm. I would have loved to see the engine and talk to the owner to find out about it but we did not catch up . Turning to the internet there were plenty of pictures of cars on display or for sale but very little technical info . I guess owners of this sort of cars do not do their own repairs . I then remembered an old book in the attic written for mechanics 'Modern Car Repairs' by E Molloy . 4 volumes each about 400 pages and not only was there a whole section on Bristols but Wolseleys and Magenttes as well . I guess British cars in those days needed a lot of fixing !

On the next page is a what I gleaned about this unique Bristol engine.

BRISTOL ENGINE DETAILS

The Engine block is a very conventional cast iron , inline 6 cylinder of small 66 mm bore and long 96 mm stroke design . Far from ideal for high revs but dictated by punitive rego fees of the day based solely on the dia of the cylinders. The camshaft is low down on the left side of the block driving the oil pump and distributor as well as the pushrods. All very obviously derived from a conventional pre war pushrod Over Head Valve engine .

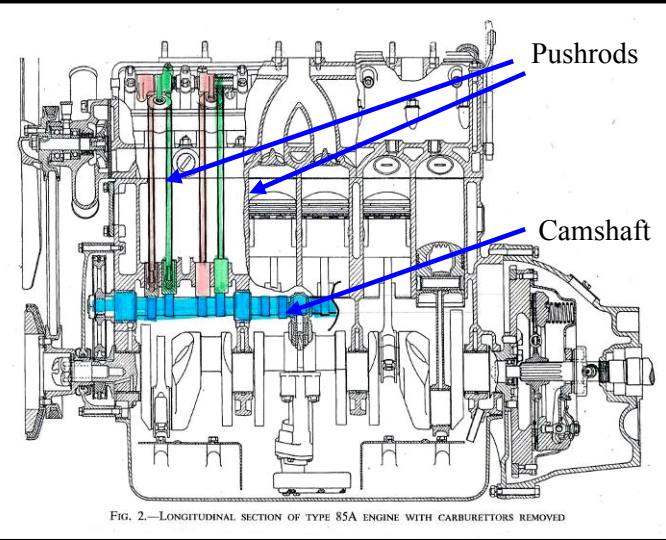
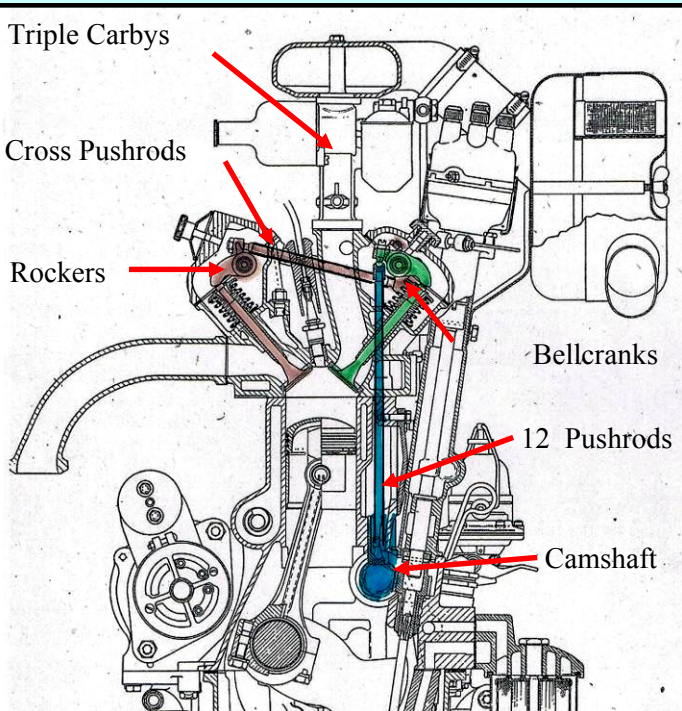


FIG. 2.—LONGITUDINAL SECTION OF TYPE 85A ENGINE WITH CARBURETTORS REMOVED

valves with minimum of restriction. A layout widely considered the ultimate before the days of 4 valves per cylinder and low bonnet lines. The drawback to this configuration is how do you drive all the valves from a camshaft that is low down on the side of the original cylinder block .



Use lots of rockers and pushrods was their solution!

All 12 primary pushrods come up the left side of the engine . Six actuate the inlet valves through back - to - front rocker arms acting directly onto the end of these valves. Now the hard part is the exhaust valves which are on the opposite side of the engine ? The other 6 pushrods act on a series of bell cranks which are fitted to the same shaft as the inlet rockers . These transfer motion to a second set of horizontal pushrods passing across the cylinder head which in turn actuate the inlet valves through yet another set of rockers.

The cast aluminium cylinder head is something special , a most unconventional layout obviously an attempt to make the best of an obsolete engine block while trying to get it to all fit in.

It features hemispherical combustion chambers with oversized valves splayed at 90 degrees with exhaust down the right (drivers side) and inlet valves on the left . The spark plug is positioned centrally in the chamber for faster burn .

A clever and distinctive part of the design is the triple vertical carburetors running down the center of the head feeding straight to the inlet valves with minimum of restriction.

All good in theory but the golden rule of valve gear for performance engines is to have it light and stiff and immune from wear . Never the less it produced 81 hp at 4,000 rpm but in Wiki's words Owners soon found that maintaining the settings and clearances in the valve train was difficult but vital to keeping the engine in tune .

No doubt the design was a compromised forced on the original

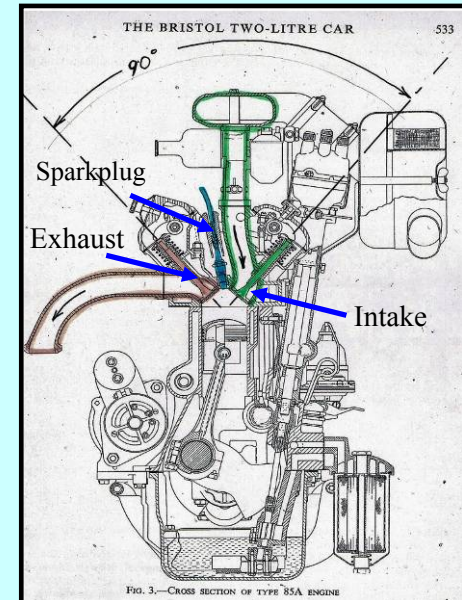
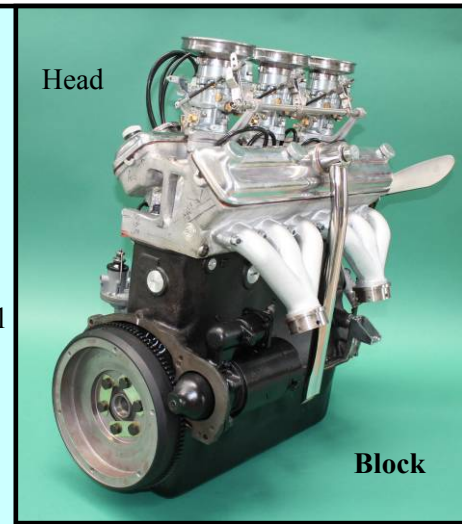


FIG. 3.—CROSS SECTION OF TYPE 85A ENGINE

BMW engineers in the troubled pre WW2 days . They could have their new head as long as it was compatible with the original block . After the war what was left of the BMW factory fell into communist hands with the Reds only able to produce the old pre war base push rod OHV engine . Bristol carried on with their upgraded version of the engine until 1961 then fitted Chrysler V8 s. The modern BMW we know is a mid 1950's Bavarian reincarnation so never made this unique engine .

The wonderful and stimulating range of historic cars on display by the Vintage Drivers started me drawing comparisons between the diverse range of designs and technologies in the car industry over the last 100 years . Being in the game I have taken just few landmark examples in the 2 litre valve in head class and made a table to get an idea of what has been done and what it has achieved and perhaps why . Of course this is easy with the advantage of hindsight but there was obviously other factors that influenced the progress I do not know about .

TWO LITRE ENGINE SPECS 1925 to 2022						
CAR		ENGINE			VEHICLE PERFORMANCE	
Year	Make	Configuration	Power HP @ RPM	Bore mm Stroke mm	Acceleration sec 0 to 60 MPH	Top MPH
1925	Wolseley	Single OHC	65 @ 4,400	65 x 101	Could not make it	59
1948	Holden	Pushrod	60 @ 3,600	76 x 79	19.2	75
1950	Bristol	Pushrod Hemi	81 @ 4,200	66 x 96	18.5	95
2022	Corolla	Double OHC	169 @ 6,000	80 x 97	7.3	118

The table compares 3 historic 6 cylinder 2 litre engines with a modern 4 cylinder one that is representative of current engine technology . .

SUMMARY The historic cars are all pretty ordinary although the Bristol is the most powerful of the 3 suggesting it must be getting some benefit out of its elaborate cylinder head. The current Corolla has at least double the power of the older cars so clearly has some secret that they do not have. At first glance it appears to be max RPM but this is only 50 % higher than them so does not explain everything . Holden has the least power so overhead valves and pushrods are not the answer. Wolseley has got a few more revs with its overhead cam but I suspect it cannot breath with its small valves crammed into a narrow bore . The Bristol has a good breathing head but cannot rev with its clunky push rod operated valves so that tells us something . Maybe beware of the bosses whims and fancies or there just was not enough money to go the full way !

Today we know power is fundamentally a function of airflow through the engine . Higher revs is the first step but to do this requires the valves to be able to open and close quicker . This needs direct acting overhead camshafts and the lighter 4 valves per cylinder. Both things Bristol missed out on with its new head. In addition to high RPM good airflow requires inlet and exhaust passages to be larger and more aerodynamically shaped . Bristol got this right with their triple down draught carburettors but these days the lower bonnet lines dictate fuel injection instead . Today most modern cars have all these enablers which reflect in their ability to accelerate at least twice as fast those of 50 years ago.

Is this performance what the customers really needs or have they just been told they do ? In the past luxury models , such as our examples, usually only had 1 or 2 of these enablers not the lot so did not reap the full benefit of the technology so why did they have it . It could be suggested it was a marketing ploy or , as in the case of BMW , a compromise forced on the Engineers due to cost restraints. Pondering further the first Holdens had none of these bells and whistles yet was arguably by far the most successful model with over 50 % of the Australian market ! What does this tell us ? Anyway thanks to the Vintage Drivers for bringing along their cars which all brought everyone so much pleasure in different ways.

Warwick Bryce

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LOUD & PROUD - We Are A Child Safe Organisation!

This month Committee member Paula Thynne introduces the subject of our responsibilities to be a child safe place to visit . She will be following up with full details in coming issues

MSTEC and National Steam Museum have always welcomed and valued Junior members and Family membership. Many

of you have generously mentored the next generation and shared your expertise and technical skills in restoring and preserving heritage machinery. We also invite families, children and young people to visit our Museum, to have their Birthday Parties with us, to ride our miniature railway, and of course to come and enjoy SteamFest.

Like any organisation that works with children and young people under 18 years, MSTEC and the National Steam Museum, have to comply with the current legal requirements for a child safe organisation: **Victorian 11 Child Safe Standards.**

The committee will be circulating the recently developed **MSTEC Child Safe Policy** and **MSTEC Child Safe Standards of Behaviour** (Code of Conduct) and put these up on display on the notice boards around the club and museum. Also, in compliance with state law, we will be developing a **Complaints Process** that is child-friendly as well as adult friendly, to go on display. We will all need to become familiar with these documents and help in implementing these standards.

There's a photo of Paula's Flynn with Spiros starting an engine together. Greg has given permission to use the photo of Spiros. Thanks Paula



August RunDay This month the Chrysler Restorers Club made our grounds the destination for their club run . Beautiful weather saw them arriving around 10 o'clock in a diverse range of cars under many badges from that manufacturer . The great thing with car clubs is that many of their members have an interest in most things mechanical so found our place very interesting and love to have an in depth chat making it enjoyable for their members and our member alike.



Len Brighton Photo

This stylish "1958" Dodge Custom Royal 4

door hard top caught many peoples eye with its multiple layers of tail fins and bumper bars on bumper bars . That is what tends to happen when you bring out a new model every year , whether it is needed or not and it has to be different !



◀ It is a long time since I have seen a Sigma or a Valiant . Peter Lynch Photo
Remember when we had a thriving car industry ?

Good to see Phil Randall back on his feet talking to the Diesel crew and enjoying the Willans running. ▼



Last months Social Meeting

was a great success with Stephen Phillips giving his talk on A. G. Mitchell and his invention and commercialization of the tilting pad hydrodynamic thrust bearing after studying fluid flow at Melb Uni . After the talk Stephen was chuffed to be shown our examples on display y from the Lyttelton engine.

Coming Events

SOCIAL Meeting
6 September
Talk on making and flying BIG model helicopters

Regular Events :-

MSTEC Social meetings, 8 pm Scoresby. First Wednesday of each month .
Museum open every Thursday, Saturday and Sunday . Miniature Train running every Sunday 11 am to 4 pm
Museum Machinery in action. Last Sunday of each month except end of year..