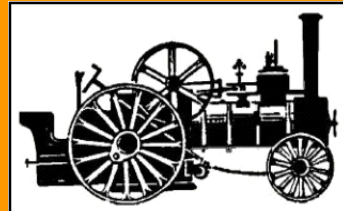


A Wisp of STEAM SUPREME



Extracts from the Melbourne Steam Traction Engine Club's Newsletter

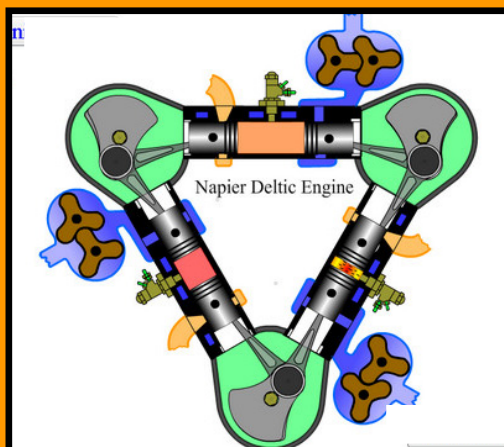
Darnum Heritage Display



Brian Atken had the crowd riveted as he put his face shovel through it's paces at the Darnum Heritage Display .



Warwick reunited with
his Track Machine after
40 years



A look at alternative
arrangements for Opposed
Piston engines



Monash Uni Students
learning from old Steam
nuts !

***February 7 & 8
2026 saw the
inaugural Darnum
Heritage Display
near Warragul in
Victoria's East
Gippsland***

It was primarily organized by the Trafalgar Truck Restorers Club and the Baw Baw Old Engine and Auto Club, but it is really much broader than that to cover steam, military, farm, earthmoving and collectables so is better billed as a Heritage Display.

It springs from the Truck, Auto and Old engine displays held at Lardner park for the last couple of years but now the group has developed it's own facilities on a 6 hectare site including a large building used for storage, social functions and restoration projects.

Inside view shows good progress on lining out a corner of the shed to form a meeting room and office. Photo Rob Tyler →

The surrounds have been landscaped and developed to include display compounds and a loading ramp.

Having a permanent site gives the potential to better accommodate the many aspects of our hobby as well as cater for club and public displays bringing together collectors, restorers, and enthusiasts with a broad range of interests from a wide area of Gippsland such as the Trafalgar Truck restorers Club. Info based on club website.

The Old Rockly Pump Engine is in a specially constructed bay outside the main building. It is the club's pride and joy. In 1929 Ronakdson Tippet supplied a 28 hp Diesel of 11 & 3/4 inch bore and 20 inch stroke. This was to drive a Kelly and Lewis triple flow positive displacement pump to supply Warrigal with fresh water from the Targo River.

Retiring after 20 years, due to electrification, the local engine club was given the opportunity to save it. It was stored for 29 years and after a huge amount of work was finally running in 2019. I know the feeling our Willans engine took 47 years to come to fruition Ed.. Feb Steam Supreme.



Prominent new sign and Giant flywheel make it hard to miss being just across the lane from the Darnu, Footy Ground.



A closer up view of the Kelly and Lewis triple flow positive displacement pump of 15,000 gallons per hour at 55 rpm. To its left is it's Richardson's reduction drive gearbox which in turn is driven by 6 inch wide flat belt from the 28 hp Ronaldson Tippet Diesel

Steam For those enthusiasts a number of very well presented portable , traction and models steam engines did not disappoint .

Coleman's Buffalo Pitts traction engine with its distinctive spindly wheels , overhung crankshaft , boiler with a steam dome and feedwater tank cantilevered out the front left no doubt of it's American origins.



Colemans Buffalo Pitts traction engine was displayed driving a flood irrigation pump through a long belt

According to the information board the engine had a very chequered career . Originally bought for thrashing and general farm work in 1910 the engine was being used on a creek bank for pumping water when the bank gave way and it fell into the water . It lay there for 60 years before it was re covered for restoration but this did not start till 2012 . Completed in 2014 it is now ticketed at 140 psi so is obviously still very sound.

This Fordson E27N tractor based Malcolm Moore motor roller caught my attention being electric start and on club plates makes it an ideal sort of thing to take to local shows and events. →

We have an identical one outside our smoke room which deserves to be got going being locally made at Port Melbourne for the Victorian Country Roads Board. Beside it is the donated replacement tractor unit just waiting to be slipped in as the original has suffered the usual Children's playground damage. A good project to involve younger members of all ages



The Auto Club part of the show had a diverse contingent of vehicles on display to cater for all tastes . Spanning Early vintage T Fords , customized cars from the 60's where also very much in evidence . These were usually luxury American machine often lowered , fitted with wide chrome wheels and hotted up V8 engines. Machines very much to be enjoyed for club touring on fine weekend .



In contrast to the over restored cars was this early Morris Minor looking like it had been just been dragged out of the shed . → Beside it is a similar soft top model fully restored to like new . I wonder which one gets the most attention ? I know which one was the most work . !

← **Very smart looking FJ Holden**

Twin carbys , tubular exhaust , alloy rocker cover , door handle scuff plates and fancy wheels all make it look very smart.

This brings to mind other popular improvements of the day often included a 12 volt electrics system to help starting and allow a wireless . A bigger radiator to minimize boiling , VH 44 power brakes to improve stopping and bucket seats to avoid a numb bum were also high on the list . It brings back memories of the "good old days " which is part of what this thing is about.





A Head Turner *was this Diesel powered face shovel. of Gary Aiken's young fellow Brian* Passers by stood transfixed as he shifted a pile of dirt from here to there and back again. On digging in the dipper the 3 cylinder Diesel engine would labour down chuffing out black smoke as the governor opened up the rack making some think it was a steam shovel. With the bucket emerging full he would slew it around as the revs picked up and dump it on the new pile. Certainly a great display for such a small machine being put through it's paces. Actually it is similar to the one Dave Mickle gave us and Adrian Anderson restored after Paul McMillan made a new bucket and boom for it. Lets finish it off and get it going it is so near complete but still needs a bit of track work.

Talking to Gary Atkien he suggests replacing the worn 1 inch track pins with stock 28 mm metric bar which, while not perfect, should take up enough slack to get it mobile. Great for run days and a chance for younger ones to have a go.

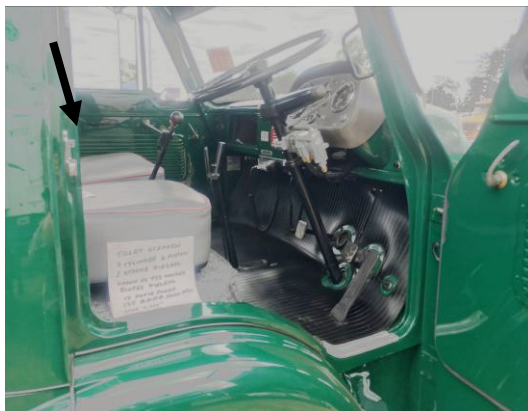
Trucks Of course with this show now incorporating the Trafalgar Truck Restorers Club's major annual event trucks of every possible age and style were on display.



One that caught my eye was Mick Dorlings Commer.

I was not prepared for its stunning restoration aptly named Micks Pride every detail was like it had just been driven out of the show room.

I had been following it's restoration for years and is truly a eye stopper complete with its semi trailer stock crate. Stock carting being one of Micks games as well as

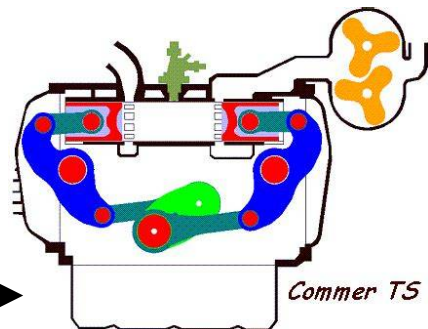


running Fish Creek Motors.

The interior is like new

Adding to the appeal of Micks Commer truck is its Tillings Stephens 3 cylinder opposed piston 2 stroke Diesel engine operating on the same cycle as Fullagars Diesel but using a different mechanical layout

The 3 sets of horizontal pistons are operated by pairs of sturdy rocker arms from a single crankshaft underneath with complete success making it unique



Commer TS



Great variety of tractors ancient and modern

Military vehicles were there in variety including a Jeep, Landrover, Halfinger and a huge 6x6 truck.

Two WW 11 Rodgers tank transport trailers that brought in a WW2 Stuart tank and a Cummins powered Federal 6x6 prime mover. Some of these vehicle dropped in at a primary school on the way much to the delight of the children who made sure their parents brought them to the Heritage Festival. They certainly were not disappointed



*The footpath
mosaic in
Goolwa, near the
mouth of the
Murray that led
to this story.*

Bill Dazenko photo



On a recent visit to Goolwa South Australia, club member Bill Dazenko, came across the story of Australia's first railway and the first in the country to use iron rails. A replica of the original horse drawn carriage is on display in a specially constructed pavilion near the wharf. The idea for a railway came about with the need to get cargo and passengers safely off the paddle steamers plying the Murray River and on to ocean shipping at Port Elliott bound for Adelaide and further a sea.

The problem comes about because, despite being Australia's longest river the Murray's mouth does not reliably reach the ocean. The river actually empties into lake Alexandria and under conditions of low flow sand is deposited at its mouth to the ocean building up a bar causing restrictions and the risk of closure under certain wind and tidal conditions.

Map showing Lake Alexandra and how the water struggles to reach the sea after dropping about 1000 m over its 3500 km journey from South East Queensland.



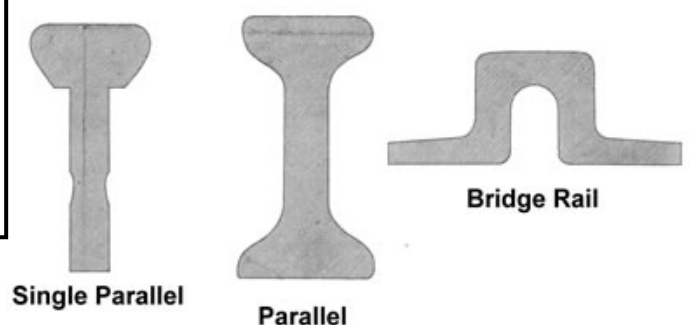
The plan was to build a tramway overland between Goolwa on the lake and Port Elliot on the ocean and transfer the goods and passengers the 7 km overland. It went ahead and was finished in 1854 with goods now being off loaded at Goolwa, transported by horse drawn rail to Port Elliot, and then shipped to the world.



A replica of an early horse drawn passenger carriage as used on the Port Elliot railway from 1854 to 1884. It was presented to the Goolwa community after the railway Centenary celebrations in 1954.

The carriage was rejuvenated for the 150th celebrations in 2004 and rehoused in a glassed in building funded with the support of the Goolwa Lions Club. *Bill Dazenko photo*

The original rails were always of wrought iron construction but of the unusual Bridge crosssection.



This made it the first railway in Australia to use iron rails . The story does not say how long the Bridge cross section rail was used before changing to the familiar flat bottom profile but the spacing of the rails was 5 foot 3 inches on the recommendation of the British Gauge Commission which of course was the spacing adopted and still used by the states of South Australia and Victoria .

Although the railway was a success Port Elliot was not . The lack of shelter and shallow anchorage, proved treacherous with seven ships wrecked between 1853 and 1864, which meant the port was moved a bit further around the coast to Victor Harbor and the railway line extended to there.

Such was the success that the line was soon extended north in the other direction from Middleton to Strathalbyn joining up with the main line to Adelaide .

Commercial operations ceased in the 1980's after 130 years and today the line is open as a tourist railway and known as the Cockle Train that runs on weekends and holidays .

Now Operated regularly by SteamRanger Heritage Railway if you plan it carefully you may end up behind a steamer on the oldest steel railed railway in Australia .

After leaving Port Elliot the train climbs to the top of the coastal cliffs .

Passengers then experience some of the most picturesque coastal scenery on the Fleurieu Peninsula, with nothing separating you from the beach below and a perfect view of the Southern Ocean

SteamRanger Heritage Railway pic

Thanks to Bill Dzenko for photos and genesis of the story .



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Uni students with their Monash Rail Express prototype bogey being tested on our turntable in preparation for next years overseas competition.

Warwick photo



MSTEC Sponsors Student Project Our Railway has seen much activity lately by visitors from **MONASH RAIL Express** students. Monash University's Department of Mechanical Engineering has always been strong in railway studies and over the last couple of years has become involvement in the Annual Rail Challenge A world competition, run by the Institute of Mechanical Engineers, in which students from around the world build a 10 ¼ ' gauge (1/5 full size) battery powered locomotive in accordance with a set of specifications as a test of their technical skills , design ability , project management and business knowledge . This live competition takes place on the Stapleford Miniature Railway in Leicestershire UK latter this year . Aspects being judged will include energy storage , efficiency , reliability , traction and remote data acquisition. Also things like ride comfort and safety including auto stop functions will come under scrutiny.

The students have been working closely with local rail related industry with much effort being concentrated on the construction of a couple of bogeys with the next stage involved real on track testing . This looked like a show stopper as there is no 10 ¼ gauge track available locally . The breakthrough was when they discovered our 12 " gauge track and came up with a scheme on how to make the wheel spacing adjustable.

Continued →

Since then they have been down a number of times trying out aspects of their bogey design and taking measurements to characterize rolling resistance .

As a result they have become quite interested in the design of our self made carriage bogeys particularly in relation to stability and our tractive effort and rolling resistance calculations we used to optimize the drive system of our Diesel hydraulic loco Reg .

The prototype bogey on display at a recent rail convention . They have greatly appreciated our assistance and make sure the Melbourne Steam Traction Engine Club features prominently on their list of corporate sponsors much to the bemusement of some .

This collaboration between generations of thinkers falls right in the category of S.T.E.A.M. as mentioned by Associate Professor from Swinbourne University of Technology Francois Malherbe in his Article in Ferntree Gully News recently. See SS 660 Jan 2026

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Geelong Refrigeration Compressor Foundations

The foundations are well on the way to set up a Giant Linde ammonia compressor at the Royal Geelong Show grounds as a monument to the world pioneering work done in the export of frozen meat . To this end an extensive ever growing refrigeration display has been set up in the Museum building at the Geelong Royal showgrounds with their latest project the foundation for their 40 tonne Linde Ammonia compressor .

Here the bottom slab , about the size of 2 carports has been poured and starter bars for the plinth are going in .

As you know Geelong is very proud of the role city father James Harrison played in the development of refrigeration on the banks of



The man gives an idea of the size of the foundations .

Recent picture of the dismantled ammonia compressor which is similar in size to our Sugar Mill engine

Acknowledgements Geelong Machinery group including Lex Chalmers and Stephen Larcombe . Tim Stephens and AIRAH



the Barwon river. This led him to appreciate that food stored at below 20 deg C lasts indefinitely which he subsequently patented and pioneered work on overseas shipping of frozen meat. A direct result led to Geelong becoming a leading exporter of frozen mutton to the UK by the 1900 's. For example in 1909 Jacksons Meat Works installed 3 huge UK built Linde ammonia refrigeration compressors at Corio. These were in continuous service until 1967 . The Geelong Vintage Machinery group managed to save one of these 40 tonne machines complete with its 5.5 m flywheel . Incredibly this has survived against all odds and the time has come to install it at the Showgrounds as a marker for the Museum and a tribute to Harrison and all who contributed to the industry over the years .

Bus and Coach Society Visit

Here's a few shots from last RunDay , there were around 40 buses on display.



← *This old 1/2 cab brought back memories of Fishermans Bend in the 1970's and Africa quite a few years later .*

It is a pity , that with not much activity on our arena , a few buses did not take the opportunity to park there to be more easily seen by passer byers on the road .

→ *Modern buses also attracted a lot of attention . Len Brighton photos*



Members Exhibits A number of members were busy over the weekend preparing their exhibits for the fast approaching SteamFest.



← *Adrian Anderson had the wheels of his Blitz*

→ *Robert Jones working on his Yorky helped by Josh Davies and John Mills*

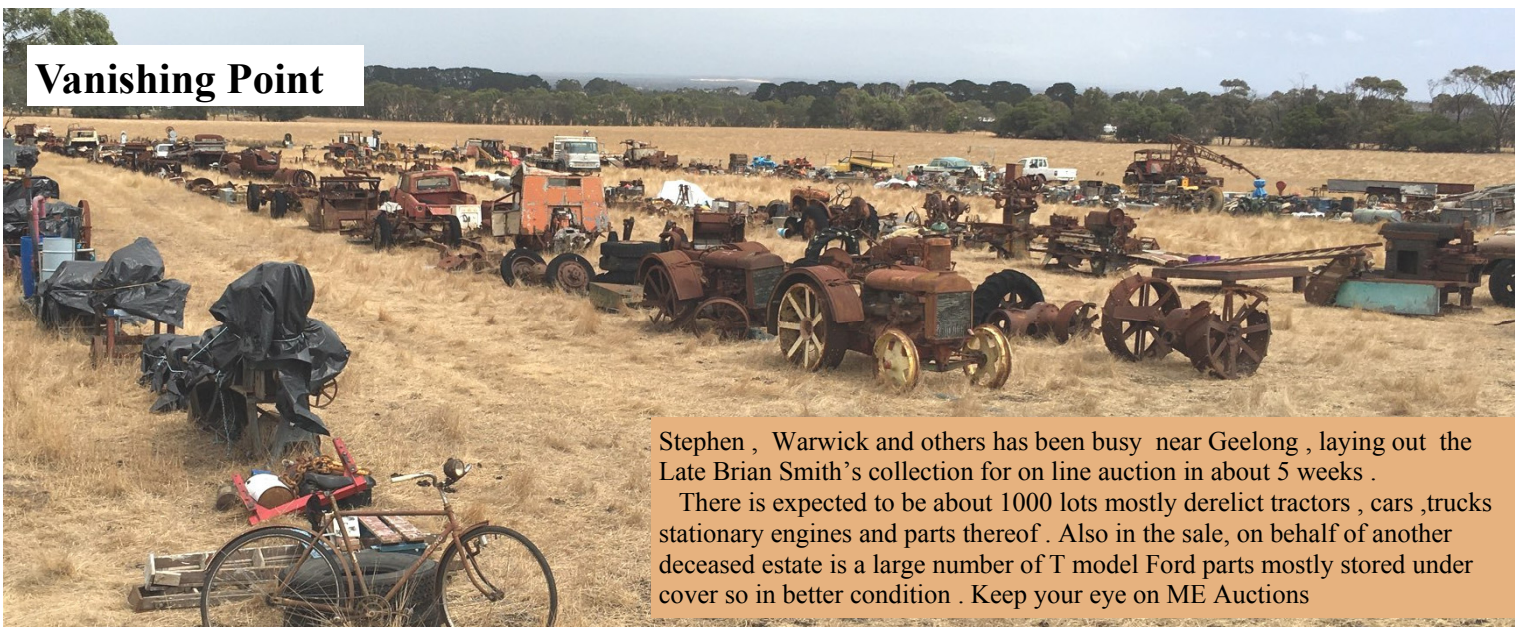


← *Peter Morris set up his water cannon on our lake to aerate it a bit and counteract algae growth due to high water temps and conditions of no flow*

→ *Warwick has just picked up this TrackMachine and is busy loosely assembling it for display at the rally . It has been recently rediscovered after 40 years and had to be dismantled for transport.*



Vanishing Point



Stephen , Warwick and others has been busy near Geelong , laying out the Late Brian Smith's collection for on line auction in about 5 weeks .

There is expected to be about 1000 lots mostly derelict tractors , cars , trucks stationary engines and parts thereof . Also in the sale, on behalf of another deceased estate is a large number of T model Ford parts mostly stored under cover so in better condition . Keep your eye on ME Auctions



Tim and Hamish putting a bit of bling to Lloyd's Marshall Road loco Black Butt for the rally
Jo Lloyd photo

Rally Preparations A New Watering Point One of the jobs was putting in a tap on the west side of the arena so that engines pulled out of the Fed Shed can be filled up in preparations for starting . This involved cutting a trench across the road from the Fed Shed and running a pipe along the edge of the arena towards the road far enough to be away from the gate.

Richard with his Cat excavator digging the trench while Rohan measures the position of the tap . Aaron photo ? →



Oiling the Railway Boom Gates *Graham Symonds*

← *busy in preparation for the rally .* Actually the train has been very busy lately so lets hope it stays that way for the rally.



→ *Digging up the road were the water was bubbling up to locate the leak .*

→ *This time a smaller pipe*



Disaster Strikes Just when things were starting to fall into place disaster struck with the obligatory pre rally burst water main . This time we were lucky as it was easy to get at being under the road way between the Steam and Blacksmith shed so was fairly accessible and Rich already had his digger out . It did not take long to uncover and fortunately a local plumber could respond quickly . Lets hope that is it for the rally as the time and expense of repeated failures is getting beyond a joke. Aaron pics

→ *The plumber replacing a section of the pipe*



FULLAGAR vs. DOXFORD *Opposed Pistons Engines and Engineers*

Richard Keir's article, SS Feb 2026, about the New Zealand Fullagar engine generated a lot of interest. One of the first to reply was UK MSTEC member Jack Jordan, now in his 90's his entire working life was spent as an Engineer with Doxford Marine Engines and shipyard at Pallion, Sunderland south of Newcastle in the UK. Doxfords first opposed piston 2 stroke of the 3 throw, side rod Junkers layout was built in 1914 with the last built at the end of the 1970's after nationalization.

Jack and his colleague John Cartridge have written a wonderful book of some 453 pages on these engines. Incidentally some 35 Doxford engines were built in Melbourne by The Commonwealth Government Engine Works who also have a booklet available through the local Historical Society.

FULLAGAR the Man Jack relates being told by his father that in the early 1920's as an apprentice when helping installing a Fullagar engine in one of their vessels he had the good fortune to speak to Mr Fullagar who came over from his Newcastle office to see how things were going. Mention is made in Graces Guide of the first prototype marine Fullagar engine being installed in the worlds first fully electrically welded ship aptly named **Fullagar** built by Cammel & Laird at Birkenhead. Electrodes were iron rods coated in asbestos paste so Fullagar was obviously an Engineer of note in his day with a number of patents including improvements to steam turbines to his credit.

As an aside if you subscribe to the 6 Degrees of Separation concept (outlined in the Jan SS), things become interesting because, if you know me you are only 4 steps away from Mr Fullagar! It goes You → Me → Jack Jordan → Jack's Father → Mr Fullagar and goodness who Fullagar knew. Warwick Bryce

Back to Jacks story he drew my attention to page 327 of his book in which he relates how, in the 1950's opposed piston marine engines were the flavour of the month with other engine manufactures embarking on the process of developing designs.

Jack book gives us sketch's of several of the variations including Fullagars.

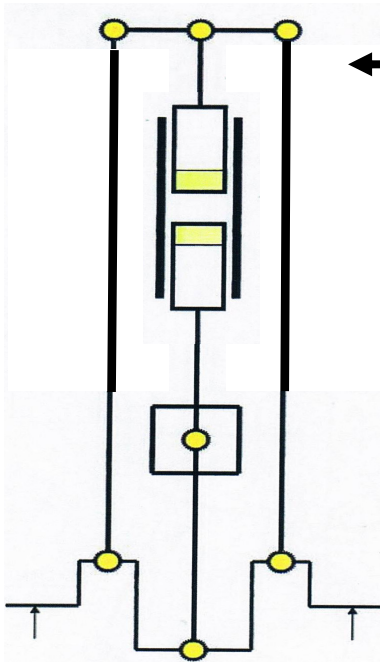
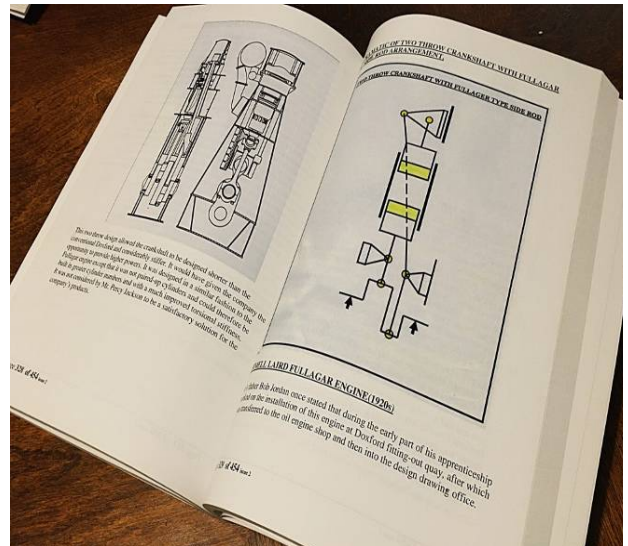


As Doxford had taken out a patent in 1931 they took a dim view which ended in some sort of out of court settlement.

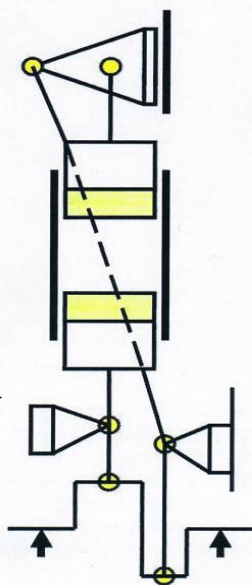
Doxfords long standing design.

It uses 3 crank throws per cylinder.

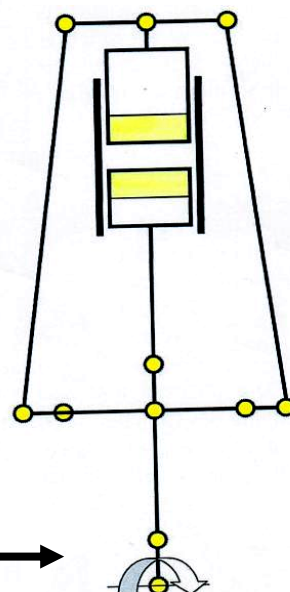
To prevent any future problems all staff in the R & D office were requested to come up with as many configurations as possible as disclosed ideas cannot be patented by others. At least 6 were drawn and 1 patented, only one was built.



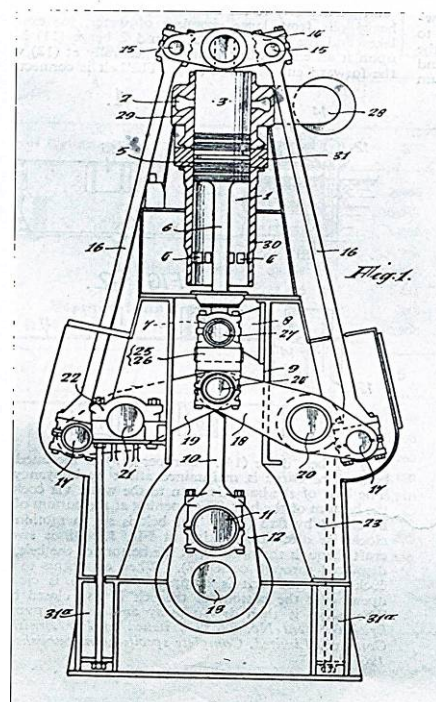
Doxfords alternative 2 throw design adds much complication and sliding friction for no real gain.

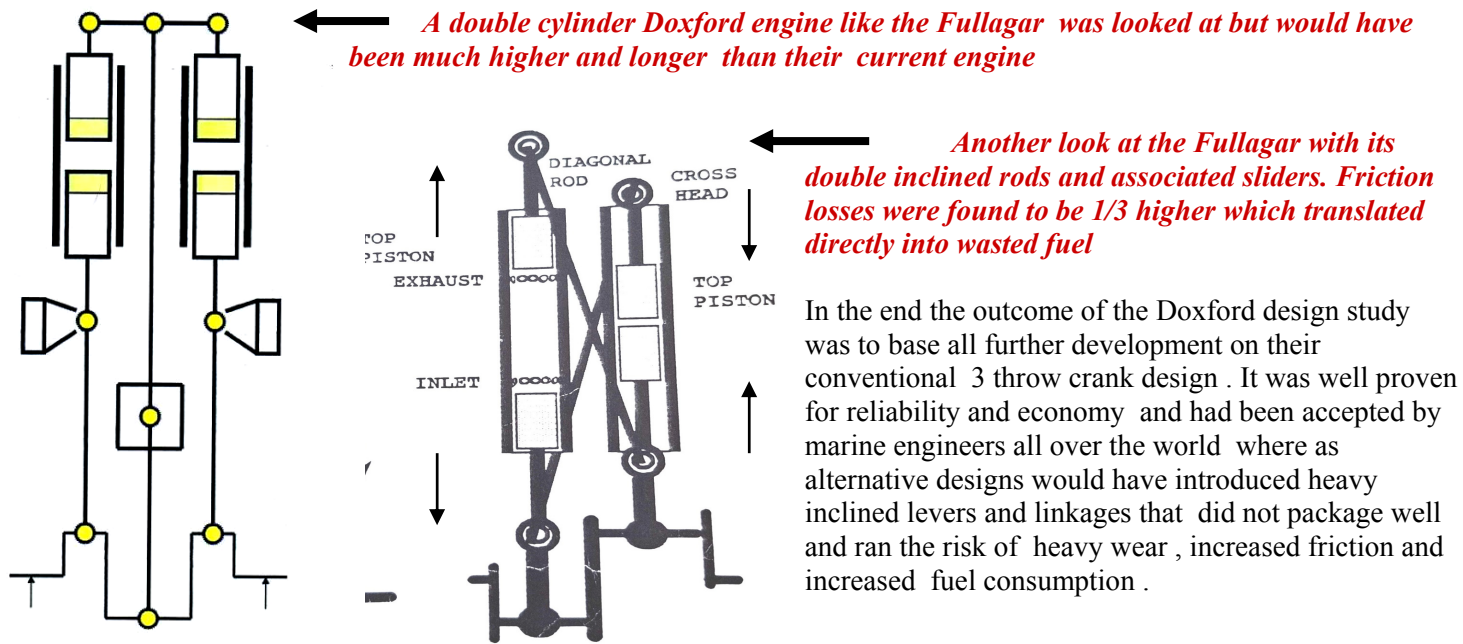


Doxfords stick diagram for a single crank throw concept adds a pair of side rocking levers.

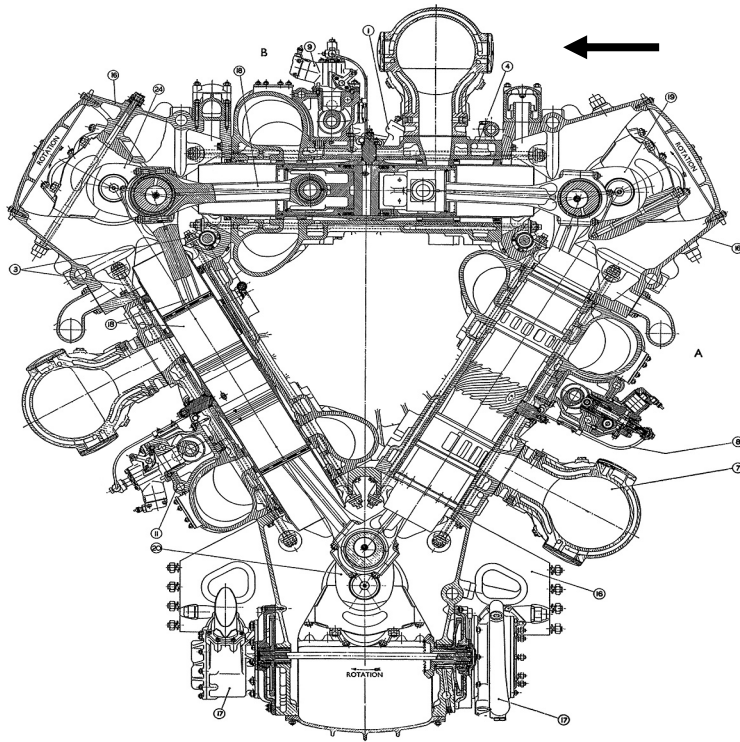


When transferred into a proper design and stress calculation performed it became apparent just how heavy cumbersome and prone to breakage it would become so the idea was dropped





Some Other Configurations for Opposed Piston Diesel Engines.



Twin crankshafts geared together along the lines of the early Junkers aircraft engines were always popular . 

Later used in post WW 2 British tanks with less than complete success .

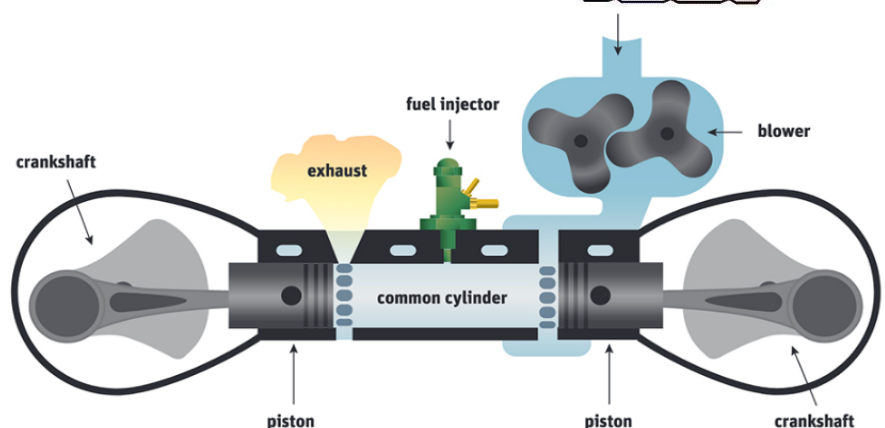
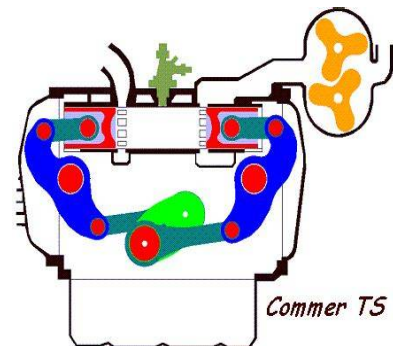
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The amazing Napier Deltic triangular cylinder arrangement with a crankshaft at each apex serving 2 banks of cylinders . I crank turns the other way so the exhaust opening leads for all cylinders

It had 6 banks of cylinder giving 88 litre displacement from 18 cylinders while using 36 pistons .

Designed to produce 2000
hp with a 15 minute rating
for
torpedo boats it did the job

The previously mentioned Commer TS3 was probably the only really successful truck version.



COMING EVENTS

Social Meeting
Wednesday 4 March

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 December.**