GARDNER

Engine Forum

Spring 2021

www.gardnerengineforum.co.uk

No. 39

GARDNER Engine Forum

Membership Application

Title	Mr / Mrs / Miss / Dr / Other		
Forename(s)			
Surname			
Address			
		Post Code	
Telephone No		Ex-Directory	Yes/No
Mobile Telephone Number			
Email Address *			
Engine Model			
Engine Serial No			
Engine Date			
Engine Application	Stationary	Road	Marine
Name of vehicle / vessel			
Any other information			
Signed		Dated	

Periodically we produce a membership list and circulate to members. The list comprises of the membership number, name and address only. To be included in the list and therefore receive a copy please indicate your preference.

Yes please include me ☐ No Thank You ☐

* To keep the cost of running the forum as low as possible we use email communication for the notification of renewal and confirmation of membership where possible. If supplied the email address will not be passed on to any third party and will only be used for communicating matters relating the the Forum.

Membership details are maintained on a computer database accessible to authorised committee members only.

Membership fee £10.00 per annum (UK) renewable on the anniversary of joining.
Payable by cheque, standing order mandate or electronic fund transfer.
Cheque's to be made out to Gardner Engine Forum.
For standing orders please complete the form below.download the complte form from the website

For electronic funds transfer please tick the box. ☐ we will contact you with the banking details

Send the completed form to
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Email:- gardnerengineforum@blueyonder.co.uk

Gardner Engine Forum Philosophy

The aims of the Forum are to promote and foster interest in all Gardner engines"

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Cover Pictures

1934 3LW

Photo's by S Gray

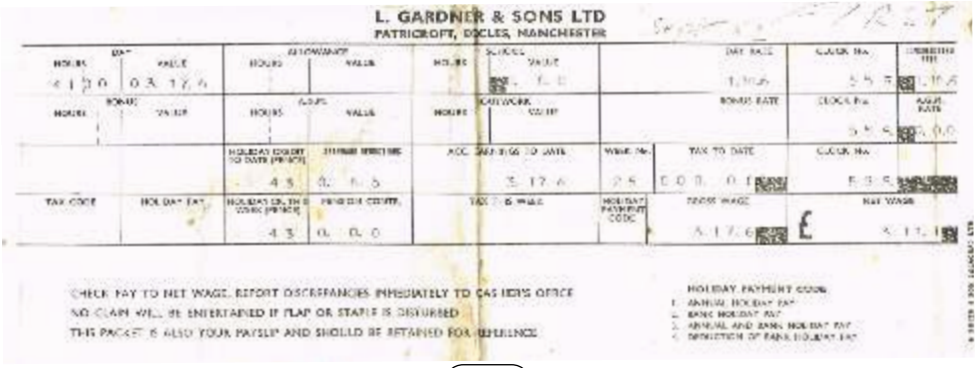
Chairmans Notes

Welcome to the spring newsletter,what a year it has been, as we creep to the one year anniversary of the first lockdown. I write this on the 13th March looking back I noted 22nd March clamp down, “self isolation for coronavirus”

We seem to be slowly moving to some form of normality and I hope to be sitting in a cafe again with friends, we will appreciate it more than ever. In the last newsletter I mentioned briefly operating a Kendal & Gent milling machine, re:- the LK sumps being a Magnesium alloy called Elektron. I remember the foreman, he was a likeable man who spent a lot of time with me, hence he once took me outside and demonstrated how the swarf could catch fire, there were buckets of sand around the machine as a precaution. I spent some time on the milling department, for those of you who have an overhead photograph of the works the department was 19/20 with the gear cutters. One of the machines that I worked on was multi headed for machining valve cams, again the manufacturing engineers amongst you will know what I am referring to. The milling department was next to the canteen so when the bell went we were first in the queue! The tea trolleys came round once in the morning and again in the afternoon, you had either a mug or “brew can”, things are so different today with vending machines instead.

Now to more mundane matters, although we have a roadmap out of the covid situation, deciding on a date and location for an A.G.M still cannot be done with any degree of certainty, therefore we are not planning to hold one this year. There has been very little happening, therefore there is little to report anyway. You will find a copy of the accounts for the last twelve months with this newsletter, if you have any queries please do get in touch with the treasurer. For any other query just contact a committee member. Next year hopefully we will be able to hold the cancelled rally which was to take place at Bugswoth Basin, Whaley Bridge. It would be appreciated if some members could come forward to help with the organisation of the event or if you have any ideas or suggestions please don't hesitate to let us know.

To close I have been going through my “Gardner memorabilia”, I found my first wage packet and my first job card from my time in the grinding department Bay1,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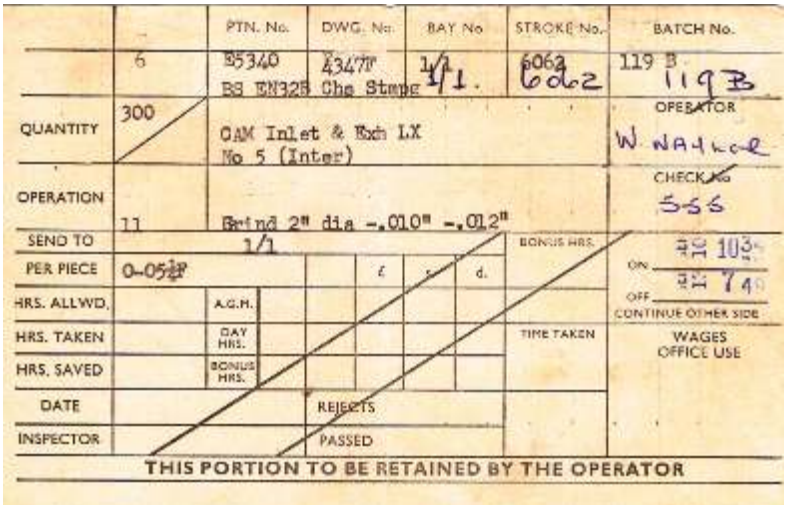


		PTN. No.	DWG. No.	BAY No	STROKE No.	BATCH No.
	6	B5340 BS EN32B Che Steel	A347F	1/1.	6062 6d.2	119 B 119B
QUANTITY	300	CAM Inlet & Exh LX No 5 (Inter)				OPERATOR W. WALKER
OPERATION	11	Grind 2" dia -.010" -.012"				CHECK 5-56
SEND TO	1/1				BONUS HRS.	ON 3H 103
PER PIECE	0-05½		£	s	d.	OFF 3H 74
HRS. ALLWD.		A.G.H.				CONTINUE OTHER SIDE
HRS. TAKEN		DAY HRS.				TIME TAKEN
HRS. SAVED		BONUS HRS.				WAGES OFFICE USE
DATE		REJECTS				
INSPECTOR		PASSED				

THIS PORTION TO BE RETAINED BY THE OPERATOR

where I started at Barton Hall. I wonder if my friend Eddie has his. I would like to thank the committee for keeping things going and to all you members for your support during these difficult time. We have maintained very much the same number of members for some years now. On page 20 you will find an advert from Charles Mills who is looking to get new L2 blocks manufactured , final cost is dependant on the number of units, please spead the word.

I would like to welcome new members, Howard Evans, Elizabeth Heelin, Per Snarud, M Rowan.

I wish you well and keep safe.

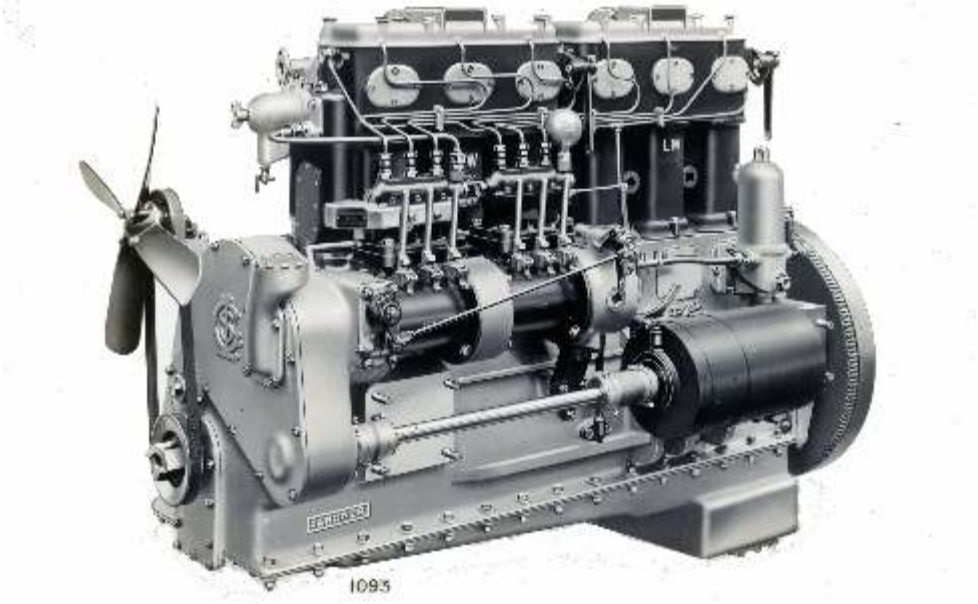
John

1931–2021 90 Years of LW

The success of the L2 range as automotive engines lead to the design and introduction of the LW series some 2 years later in 1931. Making use of aluminium alloy for many parts reduced the relative weight of a 4 cylinder engine to 9 ½ cwt under two thirds of the L2 equivalent. The max rpm was increased to 1700 rpm compared to 1300 rpm for the L2 coupled with a fuel consumption of 0.370 lb per bhp per hour it was to lead the field for the next 30 years in the public transport and heavy goods areas.

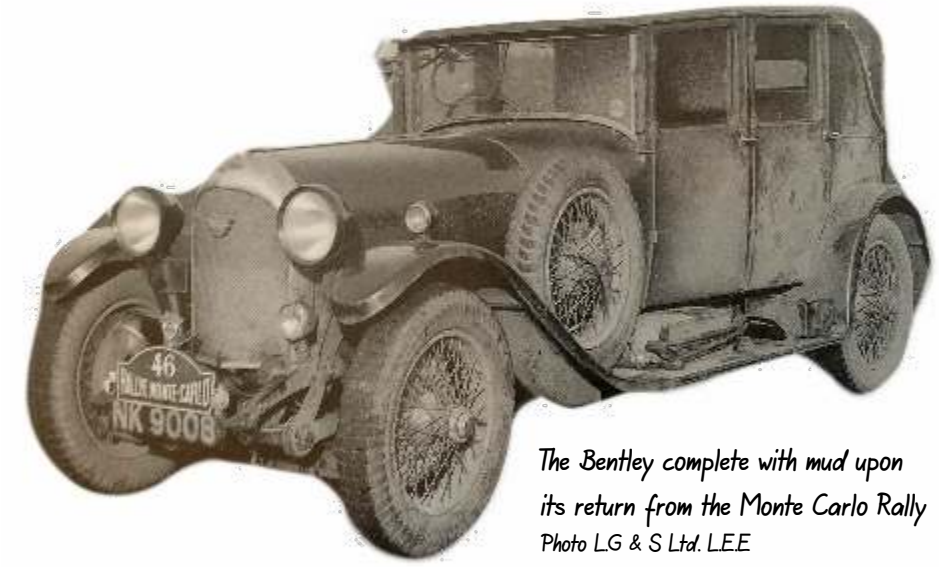
Although the prototype engine was a six cylinder version, the first production engines (4LW.s) were dispatched in October 1931, the first being engine number 29259, and was supplied to Peerless Lorries, the next four also four cylinder were dispatched to individual owners to replace petrol engines. The first production 6 cylinder built was engine no 29240 but wasn't the first to be dispatched, that honour goes to 29252 which had been sent to Guy Motors of Wolverhampton for installation into one of their lorries. By the end of October the sixth 6LW had been dispatched to Foden at Sandbatch. The fifth 6LW had been supplied to

Leeds Corporation who installed it into a bus and became the first municipality to operate a diesel powered public service vehicle. By the end of 1931 19 4LW:2 5LW and 8 6LW units had been dispatched, a good start. The earliest 5LW serial number 292269 was sent to the General London Omnibus Company for fitting into a Leyland "C" bus. After a lengthy period of evaluation it was returned to

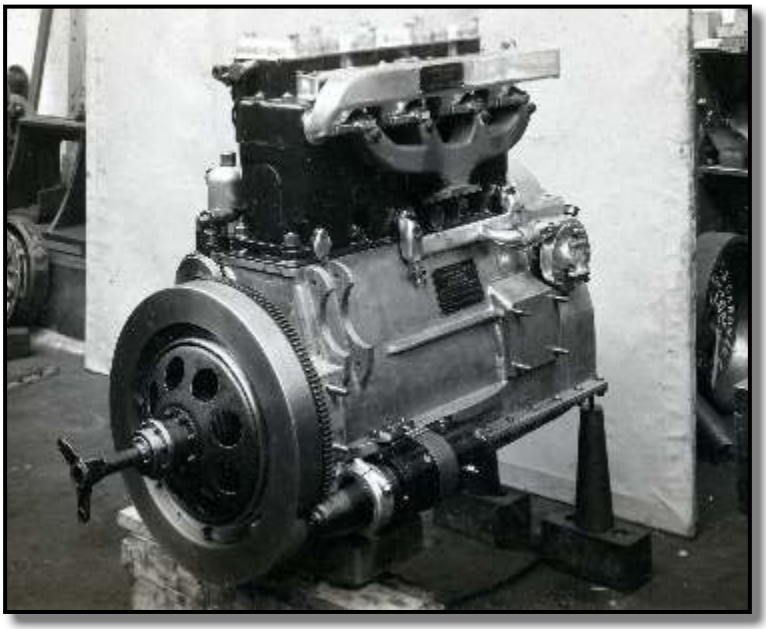


Patricroft and was installed into one of Gardner's own fleet of lorries. The G.L.O.C still owned AEC whose engines were being used at that time. Although the LW range was developed as an automotive engine in the early days Gardner's were of the opinion that the L2 was more suited to Heavy lorries with the LW being more suited to passenger vehicles. However the Road Traffic & Transport act of 1933 made the need for lower tare weights important as maximum gross weights were introduced. With the popularity of the LW increasing Gardner's also offered week long courses at Patricroft for fitters to gain the necessary expertise in servicing and maintaining the latest technology.

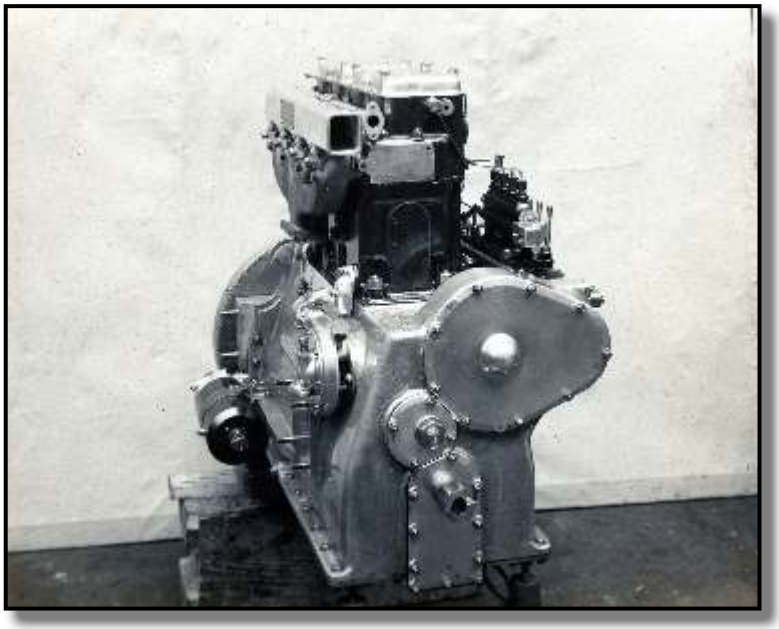
By the end of 1931 just 3 months after the start of production new lorry builders such as Karrier, Scammell, Guy, Tilling Stevens Motors, Foden, Albion, Bristol, ERF, Daimler, Maudsley, Sheffex, Vulcan, Dennis, Atkinson, and the Birmingham Carriage and Wagon Co started to offer Gardner engines as an alternative to the petrol engines that they were using at that point.
By February 1932 a 4LW had been installed into a 1925 Bentley for test and evaluation. On a trip to the lake district it returned an impressive 29.7 MPG costing 1s-11d, in comparison the equivalent petrol cost would have been 14s-3d. It also achieved a top speed of 80+mph with the engine running at 2500 rpm. In the first year it passed the 20,000 mile mark. In 1933 the car was entered into the Monte Carlo Rally. The Gardner family were unable to spare the time to compete so the drive was given to Lord Howard de Clifford. It was the first diesel powered vehicle to be entered into the event and acquitted itself admirably. After 2350 miles in bad weather it came in fifth overall having achieved first position in the Monte de Mules hill climb section. Only seventy two of one hundred and eleven



The Bentley complete with mud upon its return from the Monte Carlo Rally
Photo L.G & S Ltd. L.E.E



Given the unusual position of the starter motor, the additional drive from the rear of the camshaft and the drive system from the flywheel it is possible that this is the 4LW that was fitted to the Bentley. The picture's are from an album which is believed to have belonged to Joseph Gardner which also contain's the first 6LW photographs



starters. It seems likely that the experience gained with the experiment lead to the development of the LK which was a more compact higher revving engine by design.
It is interesting to note that five cylinder engines of any kind were unusual and one cannot but wonder why they came to be included in the range. It may be that the overall length of a five cylinder more closely matched the size of six cylinder petrol engines of the same period. For the years 1935 to 1939 More 5LW's were sold than either the 4 or 6 LW's. It wasn't until 1940 that the number of 6 cylinder units overtook both 4&5 cylinder units, it may have been the demand for heavier vehicles that were needed for the war effort.

The 3LW was introduced in 1933, for some small commercials the 4LW was still too big to replace the petrol engines in use, it was trialed in the works 30cwt Vulcan Lorry. By the end of 1936 163 engines had been sold. Over the next nine

years only 40 were sold and should you be the owner of one built in 1938 or 1944 then you have the only one sold in those years.
The late 1920's and early 1930's must have been very busy years as the L2 had been introduced to the world in 1929, the LW in 1931, the L3 in 1932 and the LK in 1935. It is little wonder that delivery time became long. In the 1930's as demand for the Automotive LW increased the manufacture of other models were discontinued, the "F" type in 1931, "M2 type in 1933, "V" type in 1935, "CR" type in 1936 the "T &VT" in 1938, "J" type in 1940 and finally the "HF" in 1942. So over the period of a little over 10 years production had changed from

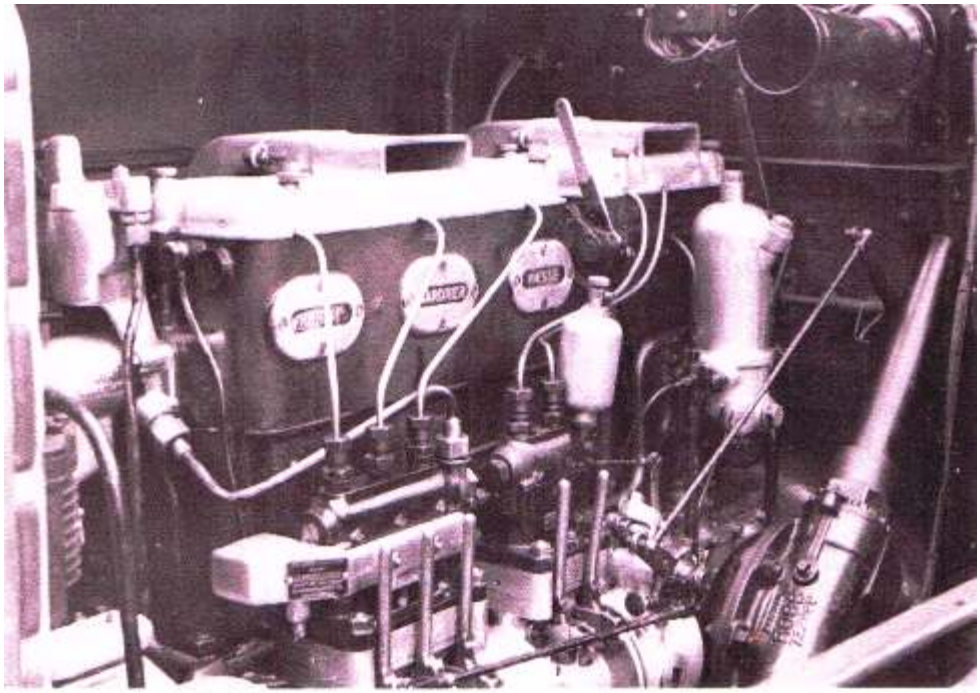
horizontal and vertical gas,spirit (petrol/paraffin), semi diesel hot bulb engines to cold start High Speed Compression Ignition Engines..

From the scammell register website:– https://scammellregister.co.uk/history/

Two years later, in 1929, the Company introduced the world's largest lorry, the articulated "Hundred–Tonner" heavy haulage vehicle. Only two of these revolutionary lorries, designed by Oliver North, were ever made. They were initially built with the Scammell 7 litre petrol engine, which consumed a gallon of fuel every ¾ mile! After a couple of years they were rebuilt with the then new Gardner 6LW diesel engine, and consumption improved to 4.2 mpg. With a full 100 ton payload (the heaviest load one ever carried was 165 tons) the front axle weight was 10 tons, and there was no power steering. The drive axle comprised 4 separate solid–tyred wheels in line and carried 40 tons, the remaining 80 tons being on the 8–wheel steerable carrier bogie. Even though this bogie had brakes, they were controlled by the rear steersman, who, not surprisingly, had to have a telephone connection to the driver to tell him when to apply them! Fortunately the speed when laden was no more than 3 mph

In the mid 1930's the reputation of Gardner engines had spread to the European continent, Gardner's entered into agreements with Kromhout of Holland, FN (Fabrique Nationale de Armes, of Herstal) of Belgium, Miesse of Belgium, and Bernard and Latil of France to manufacture engines under licence. Bernard manufactured 1,232 engines contributing £12.778 a little over £10 per unit, Kromhout paid £4 per unit but manufactured more engines, the fee was based on the size of the company and the projected number of engines to be built. Gardner's already had an agreement with Kromhout to use their patented little end bearing that was used on "T" & "J" type engines. Kromhout also built a hybrid version designated the LS (light Ship) which used an LW block, Head and Valve Gear but with an L2 style crankcase. It was normal practice at the time for ships and boat engines to be dismantleable without having to lift the engine bed plate.

Miesse 5LW Photo courtesy A Imrie



www.transportmuseum.be

Auto-Miesse met Gardner diesel 105pk

Image by L Worden from Facebook

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DES AVANTAGES

1° DIESEL 4 TEMPS LE PLUS PUISSANT A CYLINDREE EGALE.

2° CONSÉQUENCE : SA CONSOMMATION EST LA PLUS FAIBLE REALISEE A CE JOUR.

3° C'EST UN VRAI DIESEL IL PART A FROID SANS AUCUN RECHAUFFAGE ET A LA MANIVELLE.

4° IL POSSÈDE UN REGULATEUR SPÉCIAL QUI DONNE AUTOMATIQUEMENT, SANS AUCUNE MANETTE COMMANDEE A LA MAIN, L'AVANCE CONVENABLE.

5° UNE POMPE D'INJECTION, SPÉCIALE A NOS MOTEURS, ÉVITE AINSI TOUTE FUMÉE ET ENCRASSEMENT.

6° DE CE FAIT SA RÉSISTANCE A L'USURE EST SUPÉRIEURE A CELLE DU MEILLEUR MOTEUR A ESSENCE.

TYPE 3 L

50 CV

TYPE 4 LK

NOUVEAU DIE
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sur le marc

55 CV

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Images from Trucknetuk.com

This "mystery truck", which went round several forums for quite a time has just been positively identified by J-F Colombet (Chief-Editor of French magazine Charge-Utile) as a Miesse T 618. Extensively modified with front part of a Berliet GDM cab and a pre-WW II Berliet radiator grille. Powered by a Gardner 6 LW.

A Bernard 6LW with smoke effect

https://www.youtube.com/watch?v=rk3phyN73

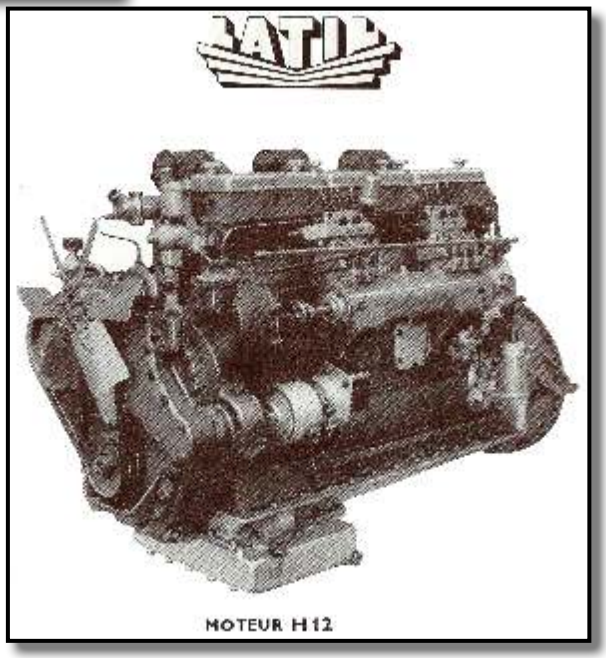
In 1935, the new ten-ton lorry Latil H2 Y10 replaced the predecessor model Latil FY10 / LY10. It was propelled by the new Latil H 12 six-cylinder diesel engine (license Gardner)

Information about Latil is somewhat sparse, a trawl of the Internet has resulted in the images on this page, both available on the LATIL facebook group.

The number of engines built by Latil is unknown at the time of compiling this article, it would appear that it was probably lower than either Kromhout or Bernard. The advisement alongside is dated 1935.

Other researchers have noted that the companies licensed to build Gardner engines also had ideas of their own. The H12 shown alongside features an LW bore size on a crankcase similar to the LK

Although a French company in the early 1930's they also opened a branch in England. Latil Industrial Vehicles, to build Tractors. Also licensing Shelvoke and Drewey as a manufacturer of their products. In 1955 Latil merged with Somua and Renault to form Saviem



Photos from the Kromhout__motoren__museum__Amsterdam

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https://commons.wikimedia.org/w/index.php?curid=17503217

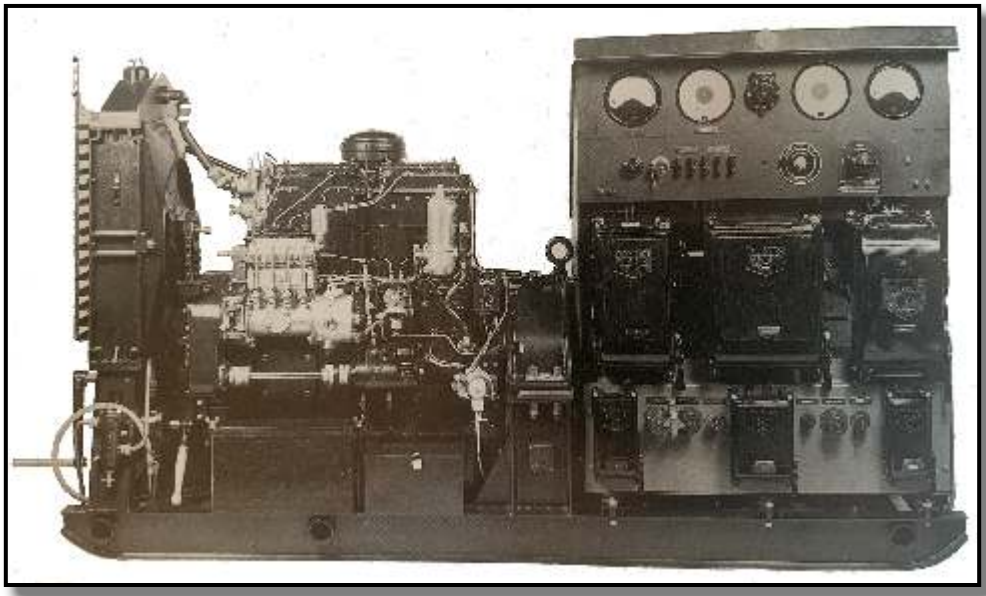
The war years saw production switched to a variety of different applications,

The 6LW powered Scammell Pioneer was used for moving artillery and tank recovery

During the war years

Photo by SG

A 4LW skid mounted radar set of a type used in many locations. Others formed part of a mobile or static radar controlled searchlight battery.
Photo L.G & S Ltd. L.E.E.



Both the 2LW and 8LW were introduced in 1946. For marine applications the 2LW was only available with a cast iron crankcase. For other industrial applications i.e. road rollers small generator sets and other types of portable equipment then the choice of either aluminium or cast iron crankcases were offered.

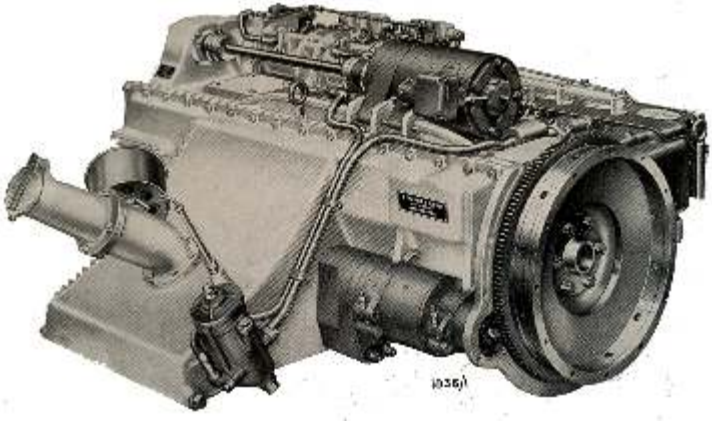
Due to the overall length of the 8LW the uptake for road transport applications was low.

Photos by SG

From its introduction in 1931 until 1950 the design of the LW had only seen minor changes, none affecting the ability to replace the earlier version with the updated part. With the demand from road transport for more power as loads increased the LW saw an increase in output, raising the output of the 6LW from 102 bhp to 112 bhp, an increase of 1.6 bhp per cylinder, a modest increase. This was achieved by reducing the internal friction, improved gas flow and an increase in injection pressure. These engines were designated "LWK". When overhauled earlier engines would see improvements when fitted with the updated parts.

With improvements to manufacturing methods, the Charabanc with its front mounted engine was being usurped by new fangled coaches with under floor mid mounted engines. This brought about the need for a different style of engine, the standard vertical engines required to much space so a horizontal version was developed, it was not just laying an engine on its side there were numerous issues to sort, the obvious being the sump arrangement, others were about oil feed to the crankshaft and redesigning the water passages to ensure there were no pockets where air could accumulate.The next major change would have been the switch from white metal thick shell bearings to thin wall steel backed shell bearings.

HLWs were available in 4,5,6 cylinder configurations



Firstly with the big ends in the second half of 1962 and then the mains from engine no 144978 in March 1964. This would have resulted in a reasonably substantial change to the manufacturing process to implement.
The last major upgrade in 1968 was to increase the output up to 20 bhp per cylinder. This was achieved by a modified sprayer, a change to the fuel pump element, an improved piston design and further improvements to the induction and exhaust. These engines were designated LW20. The upgrade applied to both vertical and horizontal engines although no horizontal units were built. By this time there must have been a very limited market for the larger LW engines as the LX had been in production for 10 years and had itself been up-rated from 150bhp to 180 bhp two years earlier.

In 1974 after being produced for 43 years the LW range was discontinued. This however was not the end in the early 1990's there was a potential new market for traditional style slow revving marine engines for the inland waterways scene, the only real competitor in this area were Russell Newbery who built engines on demand at a premium price. After a feasibility study and consultation with boat builders the decision to commence manufacture was taken and the engine was put onto the market in 1995 at a price around £10,000. Even at this price it was never going to be a massive money maker unless it could be sold on a global market as well. There were many 2&3 LW's still out in the wild just begging to be restored at a lower price. They were re imported from South Africa by the container load. In 1994 the last automotive engines were built. Up to 1979 the number of LW's produced was 90,565 in comparison a total of 81,773 LX and its variants had been manufactured. The LW had revolutionised the use of the High Speed Diesel Engine in road transport and has found its way into the marine, stationary engine and plant applications, it richly deserves its reputation for reliability and economy. There is of course much more that could be written about the subject but I have run out of space.

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L Gardner and Sons Ltd. Legendary Engineering Excellence, Graham, Edge. Gingerfold Publications. (LG & S Ltd. L.E.E)

Anson Engine Museum Archive.

S.G

Electronic Magazine

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The file will be in PDF format (usually around 2 Mb) so is universally readable

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The museum is also open each Friday & Sunday between Easter and the end of October but on these occasions the number of engines running may vary depending which volunteers are available. If no engines are running a reduced entry fee will apply.

The Museum holds many records of Gardner and other makes of engine and also offers a dating service. Go to http://www.enginemuseum.org/news.html to find the downloadable enquiry form

Special events occur throughout the year normally at Bank Holidays
See the Museum Website www.enginemuseum.org for up to date information

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