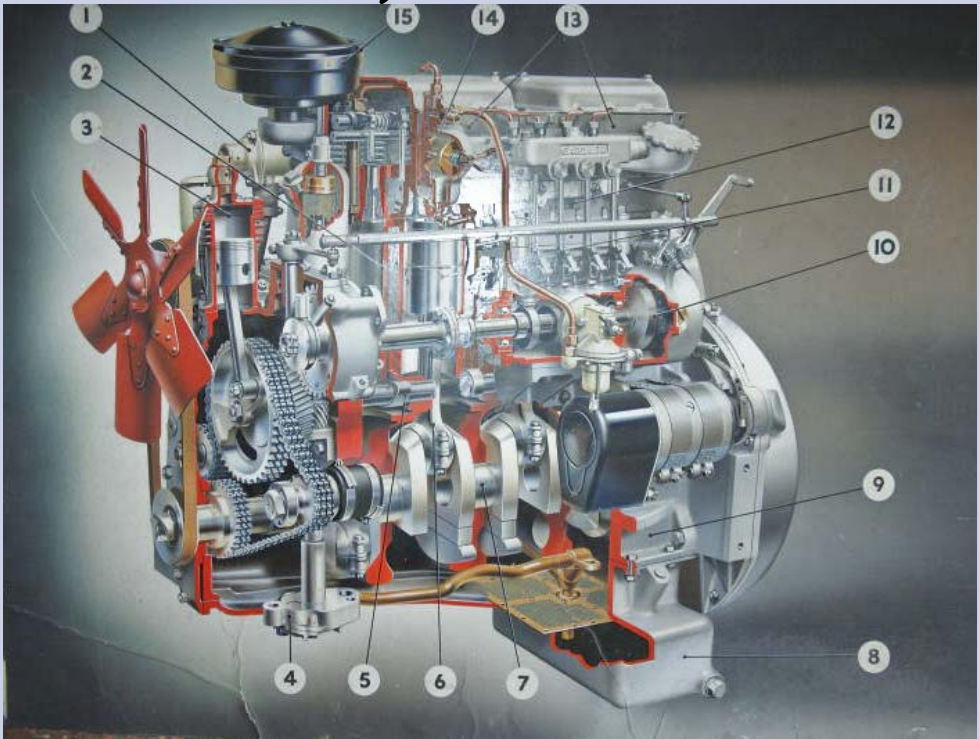


# GARDNER

## Engine Forum



*Summer 2009 Issue*

[www.gardnerengineforum.co.uk](http://www.gardnerengineforum.co.uk)

No. 16

## Gardner Engine Forum Philosophy

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

### Subscription

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**Advertising Rates:**  
**Free for Members Personnel Ads**  
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### **Cover Picture**

4LK  
See page 3

## Chairman's Notes

When I was elected to the post of Chairman of The Gardner Engine Forum at the 2009 Annual General Meeting, held at the Anson Engine Museum, I considered it to be an honour to serve as such. I will endeavour to "make a good fist" of the job and to uphold and, hopefully, increase the status of the Forum in preservation and engineering circles. About myself, I joined the Merchant Navy as a boy of 16, drifted into truck driving game by the age of 30 and lock keeping on the Llangollen Canal by 60. I currently run a small boat delivery business, own a 47 ft tug with a 2LW fitted and also posses a couple of 6L2s as a future restoration project!

My current and main concern is the 2011 Gardner Rally. Your Committee and I are presently considering a couple of sites in the North West of England. A committee meeting is to take place shortly at one of these sites to view its potential. Should Forum members in the South of England fell left out and its accent on the Midlands and North for past present and future rallies, then perhaps they can come up with some viable alternatives in the South that are canal and road connected, with amenable landlords.

Thank you again for giving me the opportunity to serve the Forum. I will do my best.

### Welcome to new members

Mr T Mills	4LK
Mr G Shaw	3HF
Mr T Millward	3LW
Mr E M Gordon	201
Mr A G Watson	3LW
Mr A Martin	4LK
Mr P Garner	4L2
Mr J C Smith	3LW
Mr A Fielder	2LW & 6LW
Mr & Mrs A Bagshaw	2L2
Mr M Compton	
Mr D Gray	3LW
Mr J Gordon	

## Cover Photo

I have attached a copy of an original drawing of a Gardner Diesel engine painted by my Grandfather .I believe it is approximately 40 years old, possibly older .I would be interested to learn if this is of a production engine or prototype.

I remember being told that at the time my grandfather was not supposed to be drawing the engine or that for some reasons, possibly that of security, that no one was to know that he was carrying out the art work and as such it was hidden under the bed for a period of time.

It is obviously a drawing for a manual due to the pointers and numbers attached.

My grandfather was a very talented man whose skills included draughtsmanship, clock and watch making, lithographic printing and sign writing.

I would appreciate it if you could shed some light on this drawing.

Many Thanks

Richard Thompson

The above was received by email from Richard who is keen to find out what the drawing may have originally been used for , the numbers are generally applied to major features I.e Crankshaft, Cylinder Heads etc, this would seem to point in the direction of a sales brochure highlighting the plus points of the LK engine.

If you have any idea or even a copy of something similar please contact the editor who will pass on any information received

## Where Have I Been

With very little response to the question "Who am I" published in the autumn edition of the Gardner Forum newsletter, the mystery still continues further regarding the engine's life so the enquirer changes to where have I been.

Being a very rare Gardner 3L3 marine engine built as a "Port" left hand model which could perhaps be one of a pair, its working life history is lost through the ravages of time. Manufactured in 1941 during the second world war, it appears so far that records were not kept and its life cycle remains a total mystery. It is blatantly obvious the engine has passed through the hands of some guys who have pulled it to bits and that they did not understand Gardner Engineering Language. The engine hasn't run for many years during which time presumably it has been lying in storage; but where? Again one wonders where it has been in the last 65 years. Certainly it has received a hard life of abuse, evidence of this is seen from the heavy hammer bruising, stilson claw marks and crowbar use. How cruel can one get. All the damage has to be repaired before it can be brought back to life. This task is greatly amplified due to difficulties in locating and obtaining replacement components. Given time no doubt this will be achieved but at what cost, well a huge amount of "labour of love" in short T.L.C. What type of boat or perhaps barge was it initially installed in, was it for commercial cargo work or could it have been a ferry boat, did the engine go out to sea in a fishing trawler or was it used inland, working the navigable rivers and canals, in my own mind I've got the feeling that this 3L3 went to sea, furthermore, judging by the severe external corrosion it may well have been drowned (sunk) but I don't know.

During the war years and through the 1950's there would have been a huge demand for good efficient reliable engines, Gardner was the top proving its durability and excellence throughout that era.

A big question still remains, where has this rather unusual marine engine been throughout its life, Has it travelled the world!, the country or has it been lying around some dirty old garage floor for many years. There must be some interesting stories associated with it, but who will spill the beans!?. One can only ponder and wonder.;

P.J. Freakley

My thanks to Graham Edge for bring this article in the Brisbane Courier Mail to our attention. Although the article does not specifically mention Gardners the 2nd does, from this it would appear that it is propelled by 2 8L3B's

## MV Mirimar still goes with the flow

By Mike O'Connor. Brisbane Courier Mail. April 22, 2009.

WHEN Rob Treasure slipped anchor and left the Royal Australian Navy, he was happy to drift with the tide.

"I joined as a junior recruit when I was 16," he says as his hands caress the helm and the wheelhouse vibrates to the steady thump of the diesels several decks below .

"I was in for 12 years, serving aboard the HMAS Perth, Vampire, Stalwart and Albatross. I was just a sailor but it was a great life for a single guy. I went all over South-East Asia and the Indian Ocean and to Pakistan, Africa, India, Singapore a million times, the Pacific, Fiji, New Guinea.

"My plan was to buy a yacht eventually but this came up. I never thought I'd end up with a piece of Brisbane's history."

That piece is the MV Mirimar, the wooden-hulled ship launched on June 13, 1934, and which still departs its mooring behind the State Library at South Bank seven days at week at 10am and heads upriver with its cargo of day trippers to the Lone Pine Koala Sanctuary.

"When I got out of the navy in 1987, I mucked around for 10 years, labouring, cooking, that sort of thing," he says.

"Then I found myself working as a real estate salesman at Mount Gravatt and doing some part-time work on the boats going to Tangalooma resort on Moreton Island to get my skipper's ticket. Then I heard about a job which had come up as a deck hand on the Mirimar.

"It was just a weekend job, so I took it and quit real estate. I struggled for a while, and then a full-time job came up on the Mirimar so I took that," he says pausing as he eases the Mirimar out to midstream as we steam past

the architectural charm of Toowong's Regatta Hotel on a warm, blue sky autumn morning.

"As it turned out, the owner was retiring. He'd just turned 65 and my brother Mark was just selling up his business in Victoria so he came up here, joined up with me and we bought it.

"That was four and half years ago."

"Mark's a chef, so he looks after the books and the food and I look after the boat," he says as his brother appears on the upper deck with an offer of coffee.

"For 12 years I'd owned an old homestead doing weddings and functions in the Gippsland area near Sale in Victoria," says Mark. "So I sold that and came up here to work this with Rob."

"The old girl still runs pretty sweetly, considering these engines were built in 1942," says Rob as we glide past St Lucia and the trimmed lawns of the fortunate few whose properties run to the river's edge.

No one is certain how many tens of thousands of nautical miles the Mirimar has steamed but Rob has researched part of its history.

"She is one of the old Hayles Cruises boats. There were three sister ships, the Mirabelle, the Mirana and the Mirimar. One is in Sydney and the other is a houseboat on the Tweed River. All three were built at the Norman Wright shipyards at Hamilton here in Brisbane," Rob says.

"The Mirimar did 15 years in Townsville as a ferry running to Magnetic Island and for 30 years did a twice weekly run with supplies to the settlements around Moreton Bay like Amity and Dunwich on North Stradbroke Island.

"We've had people on board who were in the army in World War II and who remember being transported on board the Mirimar out to American navy ships."

Mirimar maintains its military ties and on Saturday, Anzac Day, will host a group of World War II veterans. "They have a couple of beers and talk about the old days," Rob says. Nostalgia, he says, is ever present on the Mirimar.

"We get older people, particularly ladies, who used to catch the boat every Saturday night. There used to be a dance hall just past Lone Pine called Mandalay which must have been in the late '40s," he says.

"I get the impression from some of their remarks that it must have been quite a place in its time.

"We also get a lot of people who remember that when they arrived at Lone Pine on the Mirimar, they were greeted by an alsatian dog with a koala on its back, but the RSPCA stopped that."

As we continue upriver, the recorded commentary retells the history of the city and its river, of its floods and the white sand beaches that could once be found around Yeronga, Indooroopilly and Tennyson.

I take a seat in the sun amid the Japanese, English and German tourists who seem to comprise the bulk of the 50-odd passengers on this day and watch the panorama unfold.

I did this trip as a child. How many years ago? I can't recall, but before the chic Tuscan and glass-and-steel multimillion-dollar homes appeared with their private jetties and sweeping views of the river's broad reaches.

The decision to retire the Mirimar has been forced upon the two brothers by changing times.

"We didn't buy it with the view of replacing it," Rob says. "But the Queensland Transport laws are getting tougher and tougher with things like sewage systems and emission levels.

"And we only get four days a year to do maintenance. She really needs to be taken off the run for four weeks every year and we can't afford to hire another boat to do that so we're better off giving it to the museum where the old guys there can spend all day playing with her and making her pretty.

"We'd like to run this business for maybe the next 10 years and by then this boat won't be worth anything. We wanted to have something to sell in 10 years time so we thought we might as well make a move now and replace it.



"The new boat is being locally built. We decided all this just before the global financial crisis came along and we thought that if we didn't go ahead, we'd just be falling into line with everyone else and doing nothing and we didn't want to be like that.

"We're negotiating with the Maritime Museum to see if they'd like to have it. Hopefully they'll get a grant from the Federal Government.

"The new boat will be called Mirimar II and will be a catamaran design with a lot more deck area and we'll go up the river a little bit faster.

"We don't know exactly when the new boat is going to be ready but some time towards the end of June, around the old girl's 75th birthday," he says, shutting down the engines as the tourists file off the boat and up the steep path to the koala sanctuary.

By then, the Mirimar may be more than happy to slip quietly into what will hopefully be the honourable retirement which is its due.

The complete article with pictures can be found at  
<http://www.news.com.au/couriermail/story/0,,25365192-5012446,00.html>

○ ----- ○

From [www.mirimar.com](http://www.mirimar.com)

The Mirimar launched on the 13th June 1934 and was built in Brisbane by Norman Wright & Sons.

Proudly made from Queensland timber, she was Brisbane's largest launch with a length of 96 feet, a beam of 18 feet 6 inches and a draft of 5 feet 6 inches. She is currently fitted with Gardner228HP diesel engines making her capacity of speed up to 13 knots for a cruising range of 2,000 miles.

The Mirimar didn't get off to a good start! On her maiden voyage, and first official outing, the newspapers couldn't even spell her name correctly. However, by the 31st July 1934 she was making regular trips to Amity Point on Stradbroke Island and earning a reputation as a happy boat.

Because fishing was the sport of the day the Mirimar Amateur Fishing Club was formed in 1936. Members and other keen fisherman regularly filled the boat on their fortnightly fishing trips to Jumpinpin, the Southport Broadwater



and North Stradbroke Island. In 1986 a half century badge was specially minted to mark the 50th anniversary of the Club.

One of the happiest and most memorable 'Mirimar' stories is about Ken and Claire Bateman. During the 1930's Ken worked in the Mirimar gally while Claire worked in the gally of another famous river boat the 'Kooopa'. For two years they would wave tea towels to each other through the port-holes as the vessels passed. Then one day they met, eventually married, and had many happy years together.

Here's a very fitting story. The last wishes of devoted long time crew member captain Alec Swenson, was that when he died he wanted his ashes to be cast over the water of Moreton Bay. On the day the family were fulfilling his last wishes, the Mirimar' was making a trip out into the bay, by coincidence half-way through the ceremony the Mirimar sailed passed and they cast his ashes through the wake of the boat he loved so much.

There were some infamous times as well. Captain Watts was fined 20 pounds in 1935 for overloading the Mirimar on a trip to Amity Point. There were 400 passengers on board, almost twice the allowable number. He pleaded guilty, saying he thought many of the people on board were just saying goodbye to other passengers.

After many successful years in the Brisbane River and Moreton Bay as a showboat and during wartime as a supply vessel with the Australian Army the Mirimar was taken to North Queensland for 17 years where she was used for inter-island cruises.

When the Mirimar returned to Brisbane in 1986 she was completely re-stored. During her years of operation she has had many alterations, but thanks to a lot of love and hard work she is still sailing the Brisbane River and Moreton Bay



Email from the editor of the Moreton Bay journal ([www.bayjournal.com.au](http://www.bayjournal.com.au)) For you interest is a picture from Hayles taking around 1960 that shows two of the cruise launches used by the company at that time: the Mirana and Mirimar under the landmark bridge of the time, the Story. I believe they were sister ships and so most likely to have had similar engines.

We still haven't heard what will become of Miramar. It is a grand old vessel but, like everywhere else in the world, the economic downturn has hit the buying power of the Queensland Maritime Museum too. It would be a pity to see it broken up or abused but the Museum has a big problem on it hands just keeping the wonderful old tug Forceful in operating condition.

We will see,  
Lee.

## Gardner Engine Rally

The biannual rally took place on the 20th & 21st of June at Park head Dudley.

This years event attracted a total of 28 individual engine entries, comprising nine road, five stationary, and fourteen in narrow boats. We had HF13, 1L2, 2L2 ,4L2, 2LW, 3LW, 6LW,4LK, 6LXB, 6LXCT, The earliest being from 1931, the latest from 1984.

In previous years judging has been carried out by the employees and enthusiasts from Gardner Parts, with the disappointing decision of Gardner Parts not to attend and support the event directly this year, entrants were asked to review and submit their own opinions as to the various category winners, thanks to those who took the time out from nattering to submit your opinions.

Winners were

Best Stationary	1L2	Mr J Sandilands
Best Marine	4L2	John & Eileen Garner
Best Road	4LK	Landrover Henry Tuer
Best Overall	4LK	Rolls Royce John Witter

In addition to the engine judging a quiz was distributed to each entrant to test their knowledge of all things Gardner.

This was won by Edwin Fasham with a total of 96 correct answers.

Although Gardner Parts were not in attendance they did supply us with official merchandise to sell, this was on sale over the weekend with the stall being operated by Rita Paillin, Judith Gray, Yvonne Crane, & Penny Heath, thank you ladies.

We received support for the event from Gardner Enthusiast who were in attendance on Sunday and were selling Filters and other items

On the Saturday night there was a bring your own Noggin & Natter in the marquee, where information, experience and anecdotal comments were exchanged , The event was wound up on Sunday night with the usual gathering and a last supper at a local hostelry, this turned out to be an comedy event all of its own thanks to the landlord.



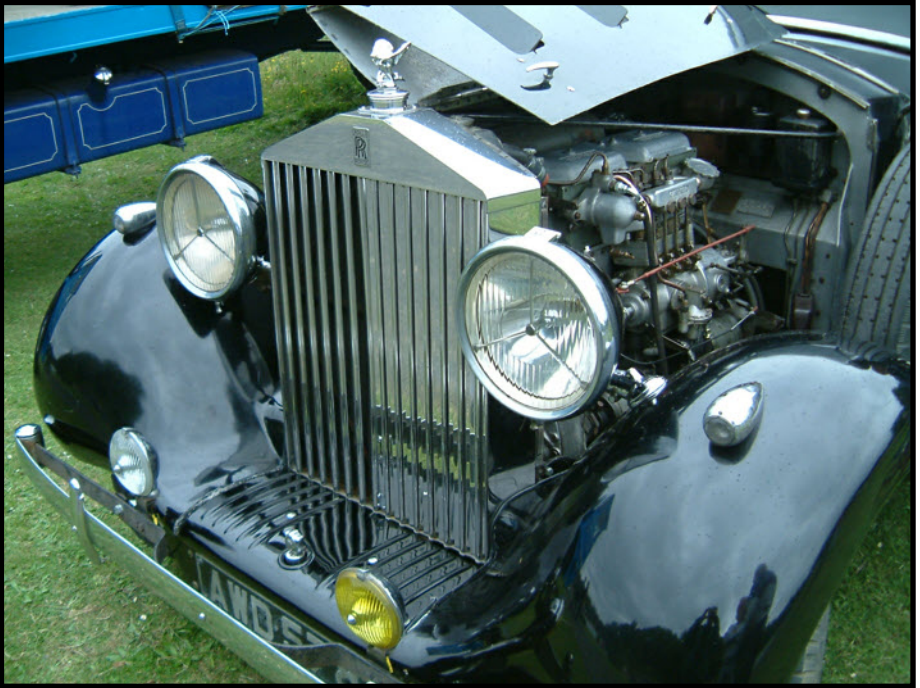
Award Winners  
Left  
Best Stationary  
1L2 John Sandilands

Below  
Best Marine  
4L2 Paul & Eileen Garner

Right Top  
Best Road  
4LK Landrover Henry Tuer

Right Bottom  
Best Overall  
4LK Rolls Royce John Witter

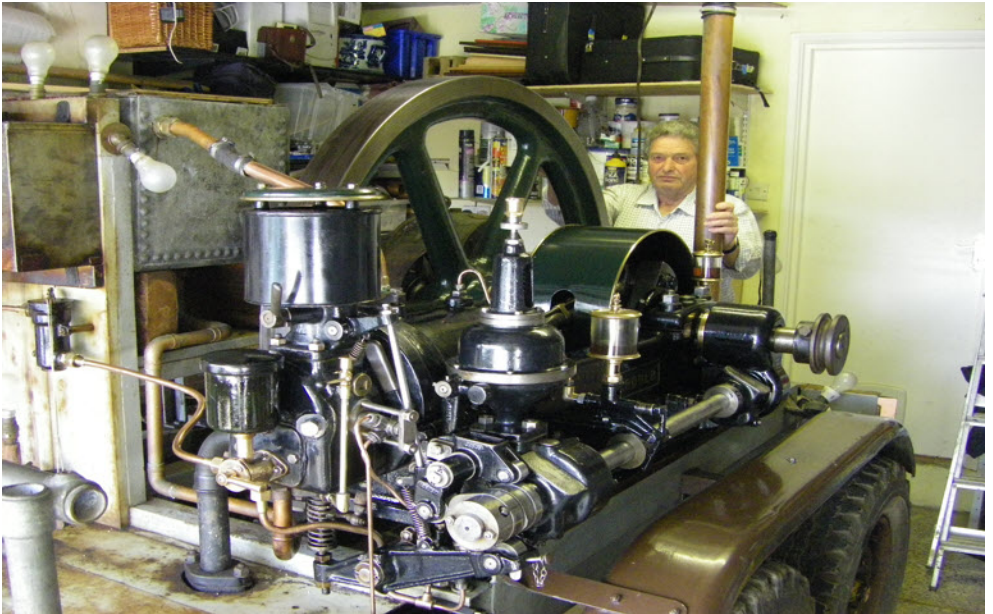




## HF 3

### Engine number 27253

I have owned the above engine for over thirty years. It was installed at Hamstead Grange, near Yarmouth on the Isle of Wight in 1926. It ran a Metro Vickers dynamo which recharged the batteries used to supply electricity to the house. It is believed that it was one of a pair, the other 27522 being exported to Calcutta. When I acquired the engine, I enlisted the help of an old friend who eventually got the engine running again. Retirement from business has now given me



the time to devote to the engine and we were re-united in March. Through the Forum, in particular the Newsletter, I would be very grateful to receive any information regarding this lovely engine. In particular, to hear of any spare parts that may be available, technical details or any interesting 'snippets'. I still have the dynamo coupling but would be very pleased to receive any information about the actual dynamo. Should anyone know of the whereabouts of one, I would be interested in purchasing it. I look to receiving information from fellow club members -

Gerald Shaw

Please send any info to the editor & I will forward to Gerald

## Rally Quiz

1. In its heyday how many employees worked at Barton Hall ?
2. What does the L in L Gardner & Sons stand for ?
3. Which model of engine is famous for being installed in the midget submarines ?
4. When was the original 4L2 first tested ? (year)
5. What does the Letters LW stand for ?
6. What model was only one produced ?
7. What year was L Gardner & Sons taken over by Hawker Siddley
8. What three words are Gardners synonymous with?
- 9 Why was the 8 LW unpopular in commercial vehicles ?
10. Which Institution is famous for the purchase of Gardner Engines?
11. What M.P.G did the Jaguar do with the 4 LK fitted ?
12. Why were Gardners reluctant to Turbo charge their engines ?
13. How many engine types did Gardner produce. ?(1 point for each)
14. What type of vehicle was the L2 type first fitted to ?
15. What length of stroke does an L2 series have ?
16. Why are older Gardner's prone to smoky exhaust's when cold ?
17. What is the name of the Museum in Cheshire which houses the EX Gardner display engines ?
18. What other products were Gardner's known for ?
- 19 What was the maximum number of engines that were produced in one year ?
20. What is the the bore of a 4LK

Answers on page



**LW TYPE**  
(MARINE)

ENGINE No. 522/98430.

**SUPPLEMENTARY INSTRUCTIONS**

for the Operation of

**GARDNER**

**LW MARINE TYPE OIL ENGINES**

(To be used in conjunction with LW Type Instruction Book No. 56 and No. 2 U.C. Reversing  
and Reducing Gear Instruction Book No. 44-1)



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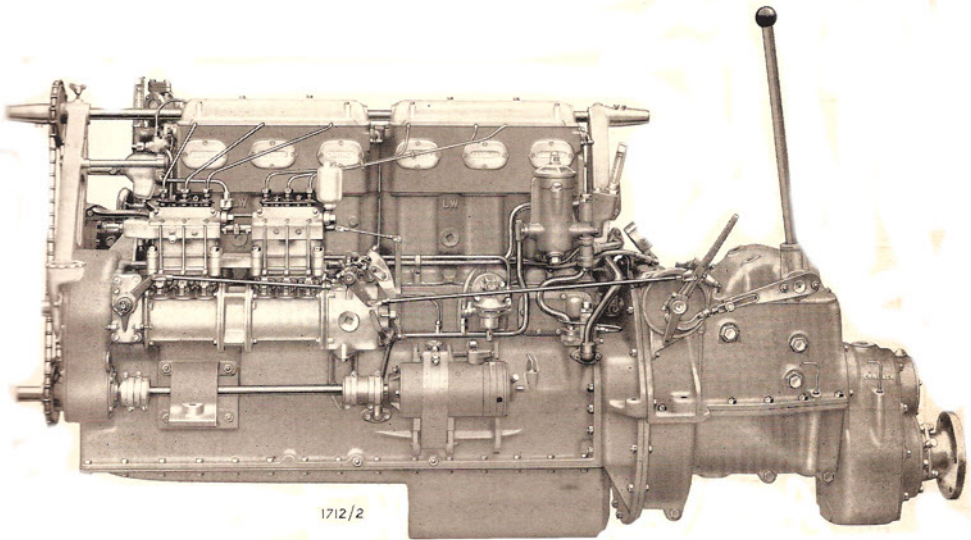
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**GARDNER**

# LW MARINE TYPE OIL ENGINES



1712/2

6LW Engine and No. 2 U.C. 2-1 Reversing and Reducing Gear



SUPPLEMENTARY INSTRUCTIONS FOR THE OPERATION OF MARINE ENGINES TO BE USED IN CONJUNCTION WITH LW TYPE INSTRUCTION BOOK NO. 56 AND NO. 2 U.C. REVERSING AND REDUCING GEAR INSTRUCTION BOOK NO. 44-1

LW denotes the mark of the engine, the numeral denotes the number of cylinders. 4LW, for example denotes the LW series engine of four cylinders. The Bore and Stroke of all engines is  $4\frac{1}{4} \times 6$ " (107.952 mm.  $\times$  152.4 mm.) respectively.

<b>Cast Iron Construction Engine, Reverse Gear and Reducing Gear</b>						
Engine	Swept Volume LITRES	B.H.P.	R.P.M.	Approximate Weights		Arrangement Drawing No.
				Cwts. Direct Drive	Cwts. With 2 : 1 Reducing Gear	
2LW	2.8	24	1200	16	17 $\frac{3}{4}$	12800
3LW	4.2	36	1200	18 $\frac{3}{4}$	20 $\frac{1}{2}$	12801
4LW	5.6	48	1200	20	21 $\frac{1}{2}$	12802
5LW	7.0	60	1200	22	23 $\frac{3}{4}$	12803
6LW	8.4	72	1200	24	25 $\frac{3}{4}$	12804

**distinct from commercial craft, which may operate continuously at maximum hours per annum.**

**Cast Iron Construction Engine, Reverse Gear and Reducing Gear**  
(for special application and subject to individual consideration Aluminium Units can be supplied).

Engine	Swept Volume LITRES	B.H.P.	R.P.M.	AL	CI	AL	CI	Arrangement Drawing No.
				—	16	—	17 $\frac{3}{4}$	
2LW	2.8	30	1500	—	16	—	17 $\frac{3}{4}$	12800
3LW	4.2	45	1500	15 $\frac{1}{2}$	18 $\frac{3}{4}$	16 $\frac{3}{4}$	20 $\frac{1}{2}$	12801
4LW	5.6	60	1500	16 $\frac{1}{2}$	20	17 $\frac{3}{4}$	21 $\frac{1}{2}$	12802
5LW	7.0	75	1500	18 $\frac{1}{4}$	22	19 $\frac{1}{2}$	23 $\frac{3}{4}$	12803
6LW	8.4	90	1500	20	24	21 $\frac{1}{4}$	25 $\frac{3}{4}$	12804

**Aluminium Construction Engine, Reverse Gear and Reducing Gear**

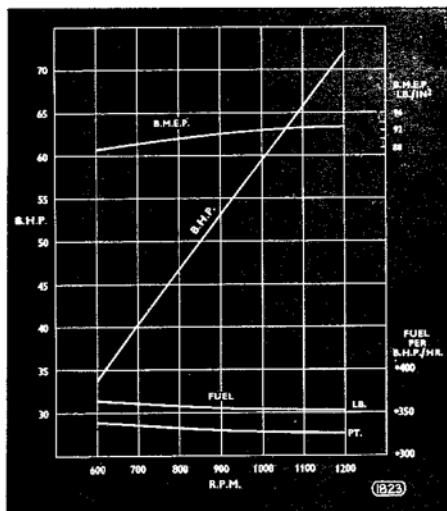
Engine	Swept Volume LITRES	B.H.P.	R.P.M.	Cwts.	Cwts. With 2 : 1 Reducing Gear	Arrangement Drawing No.
4LW	5.6	71	1700	15 $\frac{1}{2}$	16 $\frac{3}{4}$	12802
5LW	7.0	89	1700	17 $\frac{1}{4}$	18 $\frac{1}{2}$	12803
6LW	8.4	107	1700	19	20 $\frac{3}{4}$	12804

The above tables give the powers developed at normal atmospheric temperature and pressure.

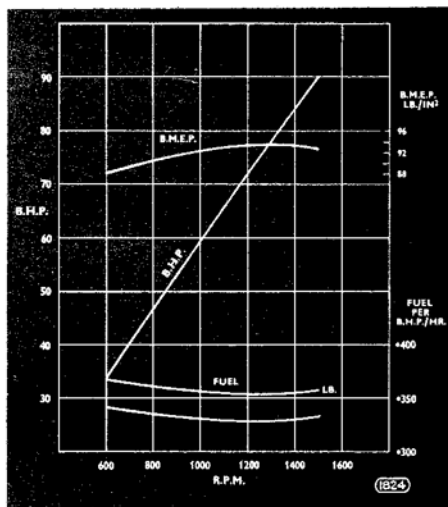
For Rating under less favourable conditions, we observe the provisions of British Standard Specification No. 649-1949.

All engines revolve anti-clockwise when looking on propeller, but when reducing gear is fitted, propeller revolves clockwise.

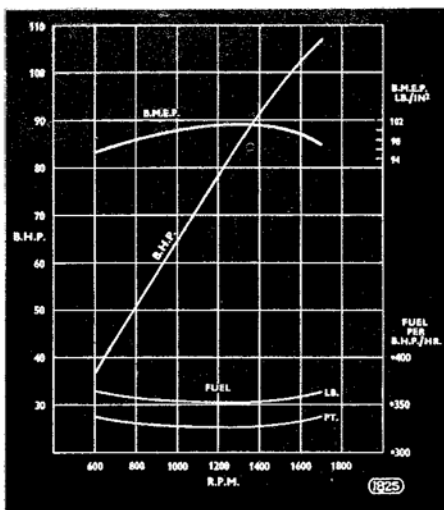
## LW MARINE PROPULSION UNITS PERFORMANCE CURVES



1200 R.P.M.



1500 R.P.M.

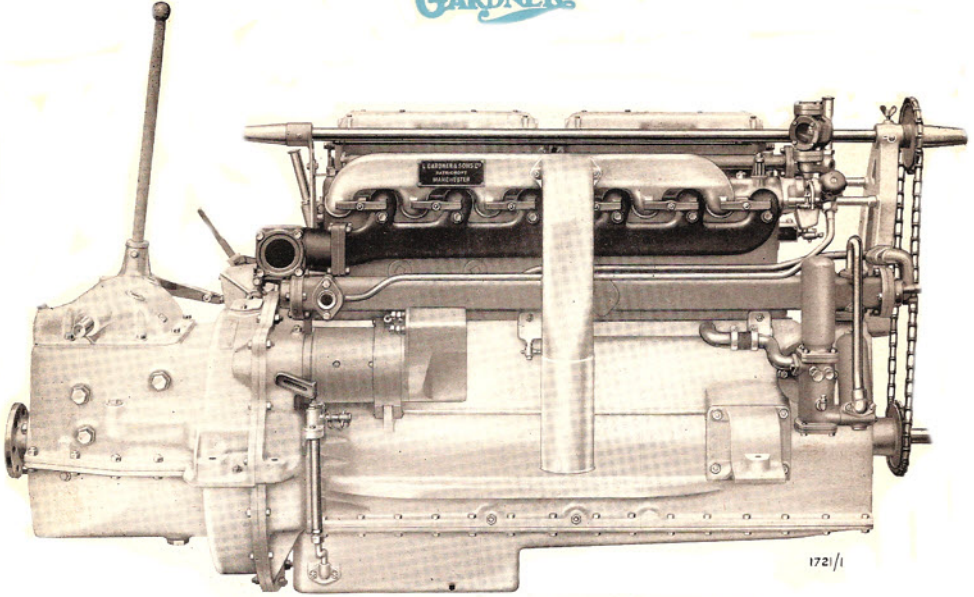


1700 R.P.M.

The above are the performance curves of the six-cylinder LW engine. The power and torque of the other sizes of engines are as above but proportionate to the number of cylinders. The fuel consumption and mean effective pressure remains sensibly constant for all numbers of cylinders.

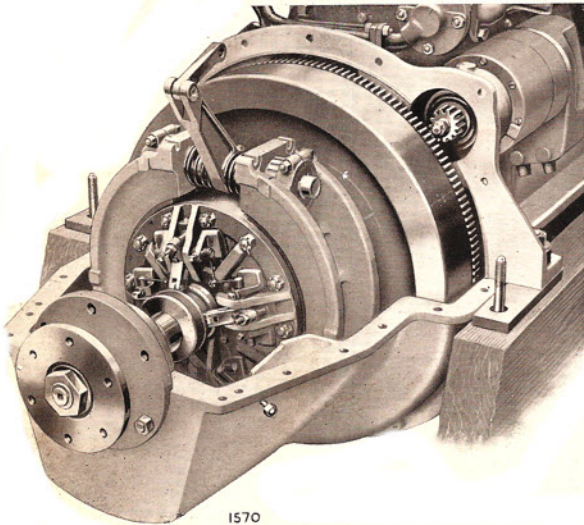
These curves are made from figures regularly observed during normal production tests of the engines. Large scale prints of all performance curves are available on application.

GARDNER



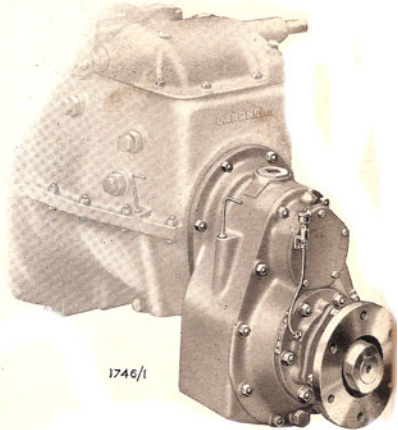
1721/1

6LW Aluminium Construction Engine and No. 2 U.C. Reversing Gear



1570

No. 2 U.C. Gear with upper half casing removed



1746/1

No. 2 U.C. 2-1 Reducing Gear

LW MARINE ENGINES.  
Supplementary Instruction Book No. 60.

The following information deals with certain items which are special to LW Marine type engines and the information now given is supplementary to standard Instruction Book No. 56 for LW engines. Detailed instructions in respect of the No. 2 U.C., Reversing and Reducing-Reversing Gear fitted to LW Marine engines are contained in Instruction Book No. 44.1.

1. ALIGNMENT SHIMS FOR ENGINE AND PROPELLER SHAFT. - Full details in regard to these shims will be found on Pages 15 to 17.
2. BILGE PUMP. - This is a ram type pump built into the engine. It is driven through the intermediary of a friction clutch so that it may be started and stopped at will. It is incorporated in the main timing chain cover and is driven by an eccentric from the valve camshaft. The pump is a counterpart of the plunger type water circulating pump except, of course, for the friction clutch and many of the parts are interchangeable with the engine circulating pump.

Engines are not supplied with bilge pumps unless specially ordered; they are then the subject of an extra charge.

3. BILGE PUMP FRICTION CLUTCH (WHEN FITTED). - Outside the gearcase of the pump is a large hand-nut with a central locking screw. The hand-nut is attached to a sleeve which screws in and out of the gear case cover. To engage the clutch, screw in the sleeve as far as it will go; to disengage the clutch, unscrew as far as it will go.

For the purpose of adjusting the spring load on the clutch, the hand-nut is screwed on to the sleeve and locked by the central screw so, that when this screw is slackened, the hand-nut is free to turn upon the screwed sleeve. To increase the spring load on the clutch, first disengage the clutch as above, then slacken the central screw and unscrew, by a fraction of a turn, the hand-nut on the sleeve and lock again. It will be evident that unscrewing the hand-nut relative to the sleeve increases the stroke of the sleeve and therefore the spring pressure.

4. CYLINDER WATER JACKETS. - After lengthy periods of use the water jackets will, in "open" circulating systems, accumulate a certain amount of sediment, the amount and time taken to accumulate varying considerably according to where the craft is operating; i.e. whether in muddy rivers or harbours or sandy estuaries.

In marine engines there is always a likelihood of sand or mud accumulating in the water jackets except in cases where a "closed" system incorporating a water-cooled heat exchanger is fitted. On account of this sediment it is always advisable to observe from time to time that it has not accumulated sufficiently to impede the flow of water through the jackets.

Whenever necessary, therefore, and certainly at each major overhaul, the cylinder block water jacket spaces must be thoroughly cleaned by flushing through with clean water. The cylinder doors and all inspection and core plugs should be removed to facilitate this operation. New packings should be used when replacing the cylinder doors, inspection and core plugs.

5. FRESH WATER COOLING. - Diagrammatic arrangements of the fresh water cooling system consisting of a Heat Exchanger, Centrifugal Sea Water Pump and Fresh Water Header Tank etc. for LW marine engines are shown on Pages 12 & 13.
6. HYDRAULIC REMOTE CONTROL SYSTEM. - Installation instructions will be found on Pages 19 to 23.
7. INTERLOCKING SPEED AND REVERSING CONTROL. - A manual speed control is mounted on all marine engine units and consists of a permanently loaded cork lined friction disc which will remain in any selected speed position.

This control can be connected to one or more control stations and does not require any additional locking device. The speed control can thus be effected from either the engine room or from a remote station such as the bridge or wheel house.

To prevent engagement of the Reverse Gear Ahead and Astern clutches at high engine speed, the engine speed and reverse gear controls are suitably interconnected. This allows maximum engine revolutions only when the reverse gear lever is in the position Ahead or Astern and the return of the gear lever to Neutral position automatically reduces the engine speed.

The idling speed adjusting screw is fitted to the Speed Control Plate and the interlocking speed control is so arranged that, when changing from Ahead to Astern or vice versa, the engine speed is automatically reduced to 770 r.p.m. when the gear lever is in the Neutral position.

In the event of the Adjustment between the Speed Control Interconnection Forked Eye and Interconnecting Link being disturbed it must be reset so that the speed in the Neutral position is limited to 770 r.p.m. There is, however, no reason to interfere with this setting which is interconnected with other intimate engine speed adjustments. Where necessary, certain adjustments are permanently set and suitably sealed before the engine is passed off test.

8. "TELEFLEX" REMOTE SPEED CONTROL. - Installation details are given on Pages 25 to 28.

9. TIMING OF VALVES AND FUEL INJECTION. - With the exception of the Fuel Injection Timing, the valve timing diagram on Page 54 of LW Instruction Book N<sup>o</sup> 56 is correct for all marine engines.

The correct timing of Maximum Fuel Injection for all LW marine engines is given in the following table:

FOR ENGINES SET TO MAXIMUM SPEED OF:	ALL ENGINES BEARING SERIAL Nos. UP TO & INCLUDING 83848	ALL ENGINES BEARING SERIAL Nos. AFTER 83848
1,200 r.p.m.	25° 24' before T.D.C.	25° 24' before T.D.C.
1,500 r.p.m.	27° 48'       "       "	26° 48'       "       "
1,700 r.p.m.	29°           "       "	28°           "       "

If there is any doubt as regards the timing of fuel injection it is always advisable to refer to the figures stamped on the Injection Control Plate. Please also refer to paragraph 91 of Instruction Book N<sup>o</sup> 56 for further details.

10. WATER CIRCULATION. - All LW marine engines are equipped with a plunger (ram) type pump fitted with air vessel, drain tube, snifting valve and safety valve. The pump is driven through an eccentric and clip from the valve camshaft and is accessible, silent in operation and so constructed that water cannot enter the engine crankcase.

When marine engines leave the works the Snifting Valve, Safety Valve and Drain Plug are removed from the water circulating and Bilge Pumps and securely attached to the pump by wire.

This precaution is taken to avoid damage in transit and to drain off any water that may accumulate before the engine is put into use again.

Warning Labels are attached to the parts and stress the importance of the Snifting Valve, Safety Valve and Drain Plug being replaced before attempting to run the engine.

On the outward end of the pump body will be found a small vent or snifting valve. This consists of a bronze ball resting on a seat and limited in lift by a knurled headed screw. The purpose of this valve is to admit a small amount of air together with the water during the Suction Stroke of the pump and so prevent water hammer. To set the valve correctly the knurled screw should be screwed down by hand as far as it will go, and then unscrewed approximately quarter of a turn and locked in this position. If the valve is set too wide open too much air will be drawn into the pump and so reduce the amount of water delivered.

To be continued in the next newsletter



## Quiz Answers

1. 3000
2. Lawrence
3. 4LK
4. 1929
5. Light Weight
6. 6LK
7. 1977
8. Reliability,Longevity,Economy
9. It was to long to fit under the cab and intruded on load space
10. Royal National Lifeboat Institution
11. 90.84 M.P.G
- 12.Hugh Gardner was opposed to the use of turbochargers
13. Horizontal Types No,1,2,3,4,1A,5,6,6/6,7,8,9,10,11,12.  
F Types, H Types 2BR,HC,HF,HLW,HLX,HLXB,HLXCT.  
Vertical Types MVHV,BN,DM,FM,JM,KN,NM,SM,FHM,FRM,KRM,  
BCM,DCM,CR,ACR,BCR,CCR,DCR,TS,RC,FD,KD,TP.  
V Types 2WT 1W2  
Semi Diesels VT,T,2T  
Full Diesels  
L2,L3,L3B,LW,LW20,LK,LX,LXB,LXC,LXCT,LY,LYT,LXDT
14. Bus
15. 6 inch
16. Low compression direct injection diesels are prone to incomplete combustion until operating temperature is reached
17. Anson
18. Machine Tools, ie Crankshaft turning machines,Dynamos,Air compressors,Water pumps,Marine Gearboxes,Variable pitch propellers,Dentist chairs,,boot sewing machines,Woodworking machines.
19. 6189 in 1971
- 20 Aluminium blocks     3.750 in  
Cast Iron Blocks        3.753 in

The questions and answers are based on Graham Edges book L Gardner & Sons Legendary Engineering Experience.



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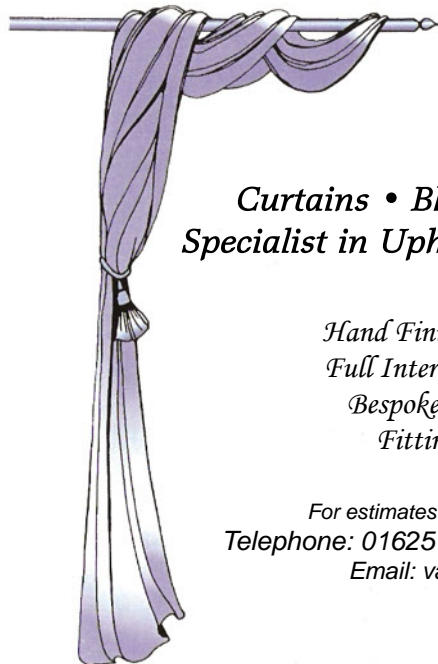
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