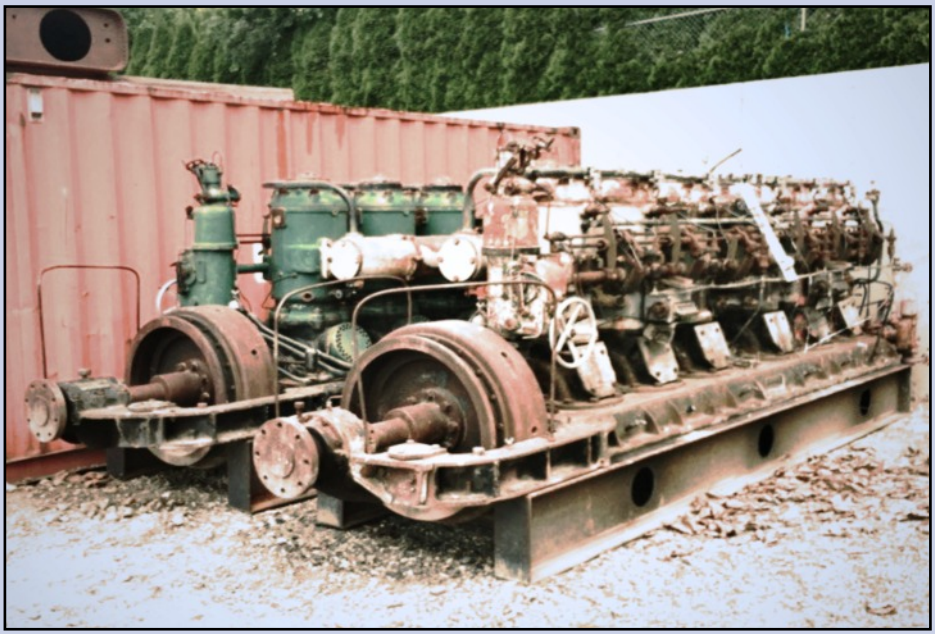
GARDNER

Engine Forum



Spring 2019

www.gardnerengineforum.co.uk

No. 35

GARDNER Engine Forum Membership Application

Title	Mr / Mrs / Miss / Dr / Other		
Forename(s)			
Surname			
Address			
	Post Code		
Telephone Number		Ex Directory	Yes / No
Mobile			
Email Address			
Engine Model			
Engine Serial Number			
Engine Application	Stationary	Road	Marine
Year of Manufacture			
Name Vehicle /Vessel			
Signed		Dated	
Any Other Info			

This information will be held on a computer database

Membership fee £10.00 per annum
Renewable on the anniversary of joining,
Payable by cheque, electronic funds transfer or standing order.
For electronic payment please tick the box ☐
The treasurer will contact you with the banking details
Cheque's payable to:- Gardner Engine Forum
A complete application form can be downloaded from the website at www.gardnerengineforum.co.uk/subscribe
Please complete the above and send to

Mrs J Gray
29 Verity Walk
Wordsley
Stourbridge
DY8 4XS

Gardner Engine Forum Philosophy

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

Forum Officers

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Advertising Rates:
Free for Members Personnel Ads
Trade ½ page
£25 per 2 editions

Cover Picture

A Pair of "6T9" engines

On sale at Preston Services (Feb 19)

http://prestonservices.co.uk

Chairmans Notes

Welcome to the Spring Newsletter of Chairman's notes. A year ago snow was on the ground mid-February. This year Spring has arrived and some say it might shape up as the warmest February on record. Will we pay for it? This morning we had a radiation fog, winter may not be done. "Fog in February, frost in May!" I believe this is an old wives tale!

I had to go to Scotland at the end of January, early February when we had some snow. On my return I came off the M6 at Penrith and stopped at the café in Shap for some refreshment. Shap will be well remembered by lorry, coach and motorists before the M6 was opened in October 1970. In the early days it was either the A1 or A6 linking England to Scotland. People of a certain generation will have a story to tell, I certainly have. A booklet which I bought "The Shap Fell Story" is well worth a read and is published by the Shap Local History Society.
I well remember one trip in the late 1960's when I was in the Service Garage at L.G&S, the foreman was Eddie Bostock. One thing I remember about Eddie was his cap!, he always had the peak side on over his ear! Anyway, I had to go to Shap with Norman James in the Morris Traveller to repair an LW. This was January and the weather was snowy. The first thing was to light a fire under the engine to thaw the diesel fuel as it had waxed up. Those were the days! The Jungle Café was very welcome and incidentally the famous Leyland Clock is near the centre of Kendal now.

I have noted from a periodical I receive, a pair of large Gardner engines (cover photograph) are for sale. I spoke to Preston Services who are handling them. Evidently a pair of 6T9's 300 BHP at 290 RPM, weight 12 tons each and would fit into a container. They are in Canada and have come out of a Canadian Tug boat, they were built in 1926? for the National Railway Company. One has evidentially been overhauled, so a nice project for somebody! I was unable to find out the price, one has to make an offer, carriage is extra.
Before I close, can I say a very big thank you to members who replied to Judith with suggestions for our 2020 Rally. Also a big thank you to members who undertook looking and enquiring about suggested sites. By popular demand the site chosen by our member's for our 2020 Rally is Bugsworth Basins. The date for your diaries is the weekend of 6th and 7th June. I look forward to seeing you there.
A reminder that our AGM takes place next month at the Museum of Carpet in Kidderminster, I hope to see a number of you there. (Details on page 3).
John.

2019 Annual General Meeting

Due to dwindling numbers at our A.G.M's held in non rally years and as our membership is widespread. We have decided to try out different locations around the country, in an attempt to increase the attendance at these meetings, So this years A.G.M will be held

At the
Museum Of Carpet
Stour Vale Mill
Green Street
Kidderminster
DY10 1AZ
on

Saturday 13th April
At 1.30pm

We will be arranging a conducted tour of the museum after the meeting. If you are intending to attend and would like to join the tour, please let us know by email to gardnerengineforum@blueyonder.co.uk or by telephone on 01384 827745

There is a Morrisons supermarket attached to the museum, that has a cafe which serves lunches and other refreshments, for anyone interested in a local place to eat, prior to the A.G.M.
Museum website https://museumofcarpet.org/

NORRIS. HENTY & GARDNERS LTD., LONDON

13th February. 1925

CCR ENGINES
FOR LIFE BOAT & MARINE WORK GENERALLY

In order to meet the demand for a 4 BCR Petrol-Paraffin Engine for Life Boat Work, to give 22BHP@1000 revs., We have established provisionally a CCR engine which is substantially the same as a BCR engine. The BCR cylinder is replaced by one of larger bore and the crankshaft has been stiffened as much as is practicable without designing a new engine. The following are the particulars of the new engine:

1. Cylinder: 4 ½" bore, 4 ½" stroke.
2. Power: 5 ½ BHP per cylinder for paraffin
3. Fuel: Paraffin, The engines are not offered for petrol because the new cranks are not considered stiff enough.
4. Marine: They are offered for Marine Work generally but not offered at present for combination with dynamos or for stationary work when electric wheels are employed.

The CCR engine is to be considered a tentative measure .

If the results of the first few engines are sufficiently encouraging it is our intention to design an entirely new engine.

The necessary new patterns for the CCR engine are well in hand and the first engine should be available in about two months

A copy of the above memo was provided by Eddie Rayner and is reproduced as accurately as possible.
The CR range of engines was produced from 1906 until 1936, non of the catalogues of the period mention a CCR version. Sales catalogue 503 dated Febru-

ary 1925 lists both BCR and DCR , so was the CCR which would have fitted between the BCR & DCR intended to capture a new market?, Or was it a response to a sales enquiry?. Have any CCR's survived into preservation?.

The BCR was obviously well established quite quickly as it was being sold at least in Germany by 1914 as the Brochure below shows

An abridged version of Catalogue 503 Circa 1925

GARDNER ENGINES

CR
VERTICAL
PETROL-PARAFFIN
SERIES

A 1906 1ACR exhibited at the 2015 Bugsworh Rally by Jeff Ramsey

GARDNER ENGINES

BARTON HALL ENGINE WORKS, PATRICROFT

CR TYPE

PETROL—PARAFFIN

ENGINES

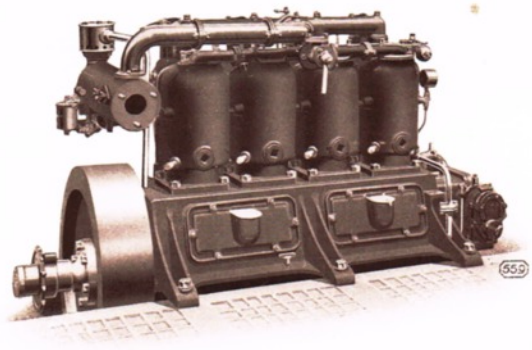
for MARINE PROPULSION
ELECTRIC LIGHT &
GENERAL POWER PURPOSES

NORRIS, HENTY & GARDNERS LTD.

(*Proprietors :* L. GARDNER & SONS LTD.)

BARTON HALL ENGINE WORKS
PATRICROFT, Manchester

GARDNER
PETROL-PARAFFIN
ENGINES



48 BHP (4 DCR) Engine

PRELIMINARY

THE Gardner CR Engine is a Vertical, Four-Cycle, Petrol or Paraffin Engine designed for lightness with moderately high speeds. It is made in two sizes, the BCR and the DCR, each of 2, 3, or 4 cylinders.

It was designed specially to meet requirements of Marine Propulsion and of small Electric Generator Sets. The enormous number that are now at work, taken together with the satisfactory reports of the users, form sufficient testimony of their value, both from an engineering and commercial point of view, and, above all, of their long life.

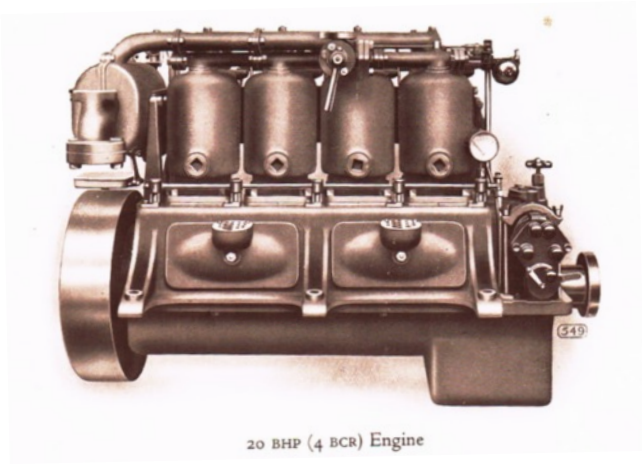
The flowing list is by no means exhaustive of their scope of application:

Lifeboats,
Launches,
Yachts,
Pleasure Boats,
Emergency Lighting Sets,
Country House Lighting and Power
Wireless Telegraphy,
Cinema Theatres,
Portable Electric Welding Plants,
etc., etc., etc.

SPECIAL FEATURES

PERFECT VAPORIZATION, EASY AND SAFE STARTING,
DURABILITY, SIMPLICITY
HALF COMPRESSION GEAR, HARDENED STEEL HELICAL GEARS,
ACCESSIBILITY, SILENT GEARING,

"FLOW AND RETURN" LUBRICATION.



20 BHP (4 BCR) Engine

GENERAL DESCRIPTION

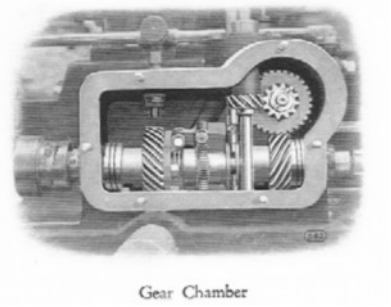
UPPER CRANK CASE. – This forms the principal sub-structure of the engine and carries the crank shaft bearings, one on either side of each crank. It is divided into compartments, one for each crank and one containing the gears, the centrifugal governor, and the lubrication pump, Large doors give ample access to the interior for examination and adjustment of bearings, etc.

CYLINDERS. – Each cylinder is a separate unit embodying a section of the exhaust manifold, so that when the cylinders are in position they form a continuous, water-cooled, exhaust manifold, The cylinder bores are finished and sized by the Planet grinding machine.

PISTONS. – These are finished and sized by grinding, The finished diameters diminish in steps from front to back to allow for varying diametral expansion when at work. The varying diameters being accurately pre-determined by long experience, eliminate all "easing by hand"; consequently the life of both piston and cylinder bore is immeasurably prolonged.

CRANK SHAFTS. – These are, of course, cut from the solid steel forging, machined all over, and fitted with balance weights which balance the crank pins, crank webs, and the proper proportions of the mass of the connecting rods.

GEAR CHAMBER. – This contains the counter shaft for driving the cam shaft, the centrifugal governor, the lubrication pump, the magneto, and the circulation pump. Both shafts are driven by helical gears of hardened steel, and the thrust due to them is taken by thrust collars. The lubrication of the gears and of all parts in the gear chamber is derived from the "flow and return" system described further on.



Gear Chamber

GOVERNOR. – As already mentioned, the centrifugal governor is totally enclosed in the gear chamber, and is lubricated from the main service system described further on. It can be depended upon to give the extremely "close governing" required for Electric Generating Sets.

SPEED VARIATION. – The speed here referred to is that which is measured by the usual appliances such as tachometers; it is distinct from the cyclic variation of the next paragraph.

For Stationary Engines or Generating Sets the speed is varied within certain limits by the loading of an external spring.

For Marine Engines, in addition to governor control, there is provided a hand control by which the speed may be instantly varied from maximum to " just ticking round," or to any intermediate speed.

CYCLIC VARIATION OF SPEED. – This refers to the variation that takes place during one complete cycle of the engine. For two-cylinder engine the cycle = one turn of the crank shaft; for a three-cylinder engine the cycle = two-thirds turn of the crank shaft; for a four-cylinder the cycle = one-hald turn of the crank shaft. Following the universal practice, this variation is measured as follows:

If N denotes the maximum speed during one cycle at full load,

If n denotes the minimum speed furing one cycle at full load,

Then C, the co-efficient of variation, is given by

$$C\text{-}2\ \frac{N-n}{N+n}$$

Example. – N = 810 revs. Per minute.
n = 805 revs. Per minut

$$C=2\frac{810-805}{810+805}=\frac{1}{161}$$

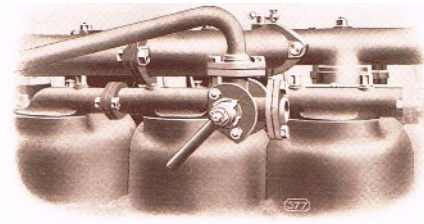
Which is sufficiently low for Ordinary Electric Generating Sets.
The CR Engines can be "flywheeled" to respond to any reasonable value of the co-efficient C.

LUBRICATION SYSTEM. – The system employed is that of "flow and return." A pump of relatively large capacity is continuously driven by the countershaft, and delivers oil to a main service pipe, which distributes it to the main bearings, the crank pins, gudgeon pins, and the other principal elements of the engine. After having done its work the oil falls into the lower crank case and thence to the sump, whence it is again put into circulation by the pump.

MAGNETO IGNITION. – The ignition is effected by a high tension magneto. Provision is made for mounting a secondary ignition where demanded, consisting of high tension coil and battery

WATER CIRCULATION. – This is effected by a rotary pump of bronze, protected from sediment by a water strainer of generous size. For Stationary Engines ordinary cooling tanks are generally used. For Portable Plants the cooling is effected by radiator and fan (as in a motor-car), the engine, radiator, and fan being mounted on a light frame or chassis.

For Marine Engines the water is, of course, taken from and returned to the sea. It is common practice to inject part of the cooling water into the exhaust pipe after leaving the engine, so as to mingle with the exhaust gases and so cool the whole length of the exhaust pipe. For this purpose a regulating valve is embodied with the main water service manifold which regulates the water injected into the exhaust pipe, or which shuts off the supply if not needed.



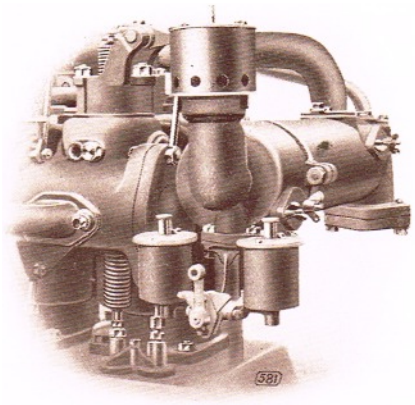
Water Regulating Valve for Exhaust

HALF COMPRESSION GEAR. – For starting, the compression is reduced by turning a hand lever which alters the period of opening of each exhaust valve.

STARTING. – Owing to the gear just mentioned and the general construction of the engine, starting is an exceedingly easy operation. The starting handle is applied either directly to the cranck shaft or through the intermediary of a chain drive, according to requirement. The latter is always used for Marine Engines. After starting, the chain drive is automatically thrown out of action and remains at rest while the engine is running.

FUELS. – The Petrol Engines are designed to run on petrol, benzol, or other light fuel such as are used for Motor-Car Engines. The carburation is effected by a carburator, fed by a float feed chamber. The subsequent vaporization and distribution of the carburated charge has received very special attention.

The Petrol-Paraffin Engines are started on petrol and run for a very short time until the Paraffin Vaporizer is hot enough, when the petrol is instantly changed by paraffin. The first step of carburation is effected by a carburator, as in the petrol engine. The carburated charge then passes through the interior of a vaporizer, which is heated by an envelope through which the exhaust gases pass and is there effectively vaporized. The complete vaporizer is entirely enclosed in a neat casing to prevent undue radiation of heat into the engine room.



Vaporizer, showing Float Chamber

In order that the change from petrol to paraffin may be instantaneously the carburator is furnished with two float feed chambers, one foe petrol and the other for paraffin. The time required for the change is therefore merely that of turning a two-way cock.

It may be stated here that, as a general rule, the most exacting authorities concerned with the control of shipping permit the storage on board of sufficient petrol for starting purposes.

In the rare cases where petrol is prohibited, provision is made for the preliminary heating of the vaporizer, before starting, by a lamp.

WATER INJECTION in the interior of the cylinders is NOT used on these engines.

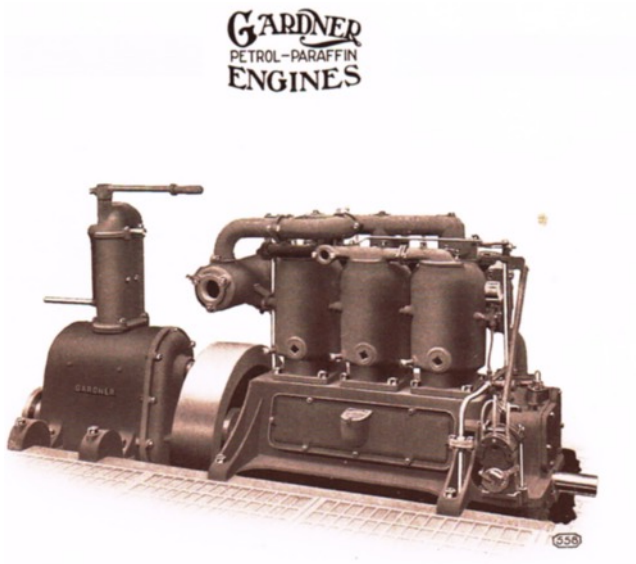
TESTING. – All engines are thoroughly tested for power, consumption, general behaviour, etc., etc, by a competent staff who have at their disposal the most modern apparatus and instruments. This applies equally to Electric Generator Sets.

Purchasers or their representatives are cordially invited to be present at the tests of their engines.

ACCESSORIES SUPPLIED WITH THE ENGINE

The spares supplied with the engine include: 1 Oil Can, 1 Tun Dish, Supply of Packings, 1 Spare Sparking Plug, 1 Set of Spanners and Springs, 1 Screw Driver. In the case of Stationary Engines, 2 Wall Tanks are supplied.

MARINE SECTION



TRANSMISSION REVERSE GEAR. – Aa a general rule, the power from the Engine is transmitted to the Propeller by the well-known Gardner Reverse Gear, which is operated by a single hand-lever. The Thrust Bearing is combined with the reverse gear. All the gears are machine cut, are hermetically closed, and run in oil.

PROPELLING MACHINERY. – A full range of Gardner Stern Gear and Skin Fittings are established for each size of engine. They are designed and manufactured in a special department of the Barton Hall Engine Works, directed by a Marine Engineer. The services of this department are at the disposal of clients for general installation arrangements, thus making am "all Gardner" job, from the raw materials to the trial trip.

LLOYD'S OR BOARD OF TRADE SURVEY.- The engines are constructed to the rules of theses authorities, but if they are to be built "under survey" notification of this fact should accompany the order,so that the regulation tests may be made as the work proceeds. A small extra charge is made for engines built under survey to cover the fees for testing and inspection

Llandudno
Pleasure Boat
"*White Thistle*"

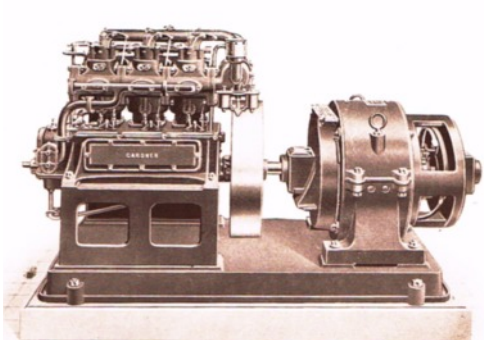
An 18 BHP
(4 ECR)
Installation

ELECTRIC GENERATOR SECTION

We have supplied an enormous number of Generating Sets, and have specialized in such combinations. As a general rule the purchaser orders the generator to be sent to us. We then make the bedplate to carry the engine and generator, couple and align them accurately, and make all the tests of the combined set. The test bay is equipped with all the necessary instruments.

Special attention is given to speed variation and cyclic variation. The engines are "flywheeled" to give a very low co-efficient for the latter.

INSTALLATION. – When desired we will, after receiving plans of the engine room, prepare a complete installation of Cooling Tanks, Pipes, and Fittings to suit the accommodation available.



36 BHP Engine (3DCR) and Dynamo

The Gardner CR Engines of varying sizes have proved remarkably suitable for Kinematography in all its phases in projecting, producing, theatre lighting,etc. The economy and steady running attained with these engines as well as the economy of fuel and lubricating oil, makes their installation for the all classes of work in connection with Theatres, Picture Houses, Studios etc., a good business proposition

GARDNER NEWS
DIESEL ENGINES SPRING '85

BIGGEST GARDNER DISPLAY AT COACHING SYMPOSIUM

The biggest ever display of Gardner diesel engines at the Coaching Symposium was shown at this year's event at the National Exhibition Centre, Birmingham, in February.

In addition to the 6LXCT and 6HLXCT, Gardner also exhibited its three new engines, the 138 kW (185 bhp) five cylinder 5LXCT, the 6LXDT available in three ratings of 186, 194 and 201 kW (250, 260 and 270 bhp respectively) and the 246 kW (330 bhp) top-of-the-range 6LYT.

A 6LYT has recently been installed in a Neoplan Skyliner coach for operator Harry Shaw of Coventry ready for the 1985 holiday season. The 246 kW rating ensures that the coach will meet Tempo 100 regulations. The vehicle was supplied by Carlton P.S.V. Sales, Worksop.

Left to right: Harry and Mrs. Shaw, Gardner Representatives Peter Hobson Bus and Coach Sales Manager, A. B. H. Davies M. D., Paul Gardner Technical Director, Tim Cummins Sales Director, Bill Povey of Carlton P.S.V.

SUCCESSFUL EVALUATION OF GARDNER 6LXDT LEADS TO FURTHER SALES

The combination of the lightweight Foden chassis and the 6LXDT, weigh in lighter than many twin steer tractors available at present. Since going into regular service, consistent returns of better than seven and a half miles per gallon have convinced Massey Wilcox that the 6LXDT is a good performer.

The engine, one of the many pre-production engines that was evaluated prior to production, has been further endorsed by Massey Wilcox placing a further order with Forden Commercials of Avonmouth for two more Fodens with Gardner 6LXDT engines.

Massey Wilcox Transport Limited of Chilcompton, Somerset, have as many other haulage operators, built their business to some extent on the reliability and cost effectiveness of Gardner engined vehicles. Appropriately, their most recent purchase was a Foden S106T, 6 x 4 double drive tractor fitted with the recently introduced Gardner 270 bhp 6LXDT, driving through the new twelve speed twin splitter Fuller gearbox.

FEATURED INSIDE

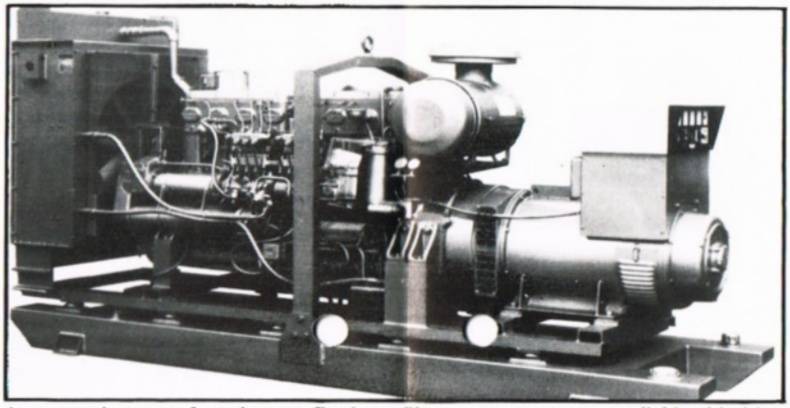
HIGH POWER GENERATOR SETS

GARDNER MARINE IN AUSTRALASIA

We are pleased to publish this, the first issue of Gardner News, which will be issued quarterly to keep everyone up to date with the latest news from Gardners, their agents and customers around the world. But to keep it up-to-the-minute, stories are needed from you, the readers.

If you feel you have a worthwhile contribution to make drop a line to: Marketing Services Dept., Gardner News, L. Gardner & Sons, Barton Hall Engine Works, Patricroft, Eccles, Manchester.

TURBOCHARGED POWER



A generating set featuring a Gardner 8LXCT eight cylinder, turbocharged diesel engine has been introduced by Shannon Power Services Limited of Greater Manchester. The industrial 8LXCT diesel is a derivative of the proven range of Gardner automotive diesels.

The Gardner powered Shannon generating set can be operated at both 1,500 rev/min and 1,800 rev/min for 50 or 60Hz operation. At 50Hz continuous output the set produces 165.62 kVA and 132.5 kW, or 182.5 kVA and 146 kW during standby operation. At 60Hz continuous output the set produces 188.75 kVA and 151 kW, or 208.12 kVA and 166.6 kW during standby operation.

Shannon generators are available with either manual or automatic control. The engine and alternator are close coupled and mounted on a robust steel fabricated baseplate. The instrument panel incorporates oil pressure and water temperature gauge and battery charging ammeter.

The company offers a full range of Gardner diesel powered generators, from the 4LW which provides a 46.25 kVA continuous output to the 165.62 kVA continuous output of the 8LXCT. Gardner premium engines are ideally suitable for base load operations under varying climatic conditions.

CROSVILLE CONVERTED TO GARDNER

Crosville Motor Services has completed its 50th conversion of a Leyland National Mark One to a Gardner engine. Crosville has also sent conversion kits to Australia. Crosville's conversions are said to pay for themselves in four years.

GARDNER RINGS THE WORLD

At 12.10 p.m. on February 2nd 1985, a cannon salute from the Royal Western Yacht Club in Plymouth, Devon, heralded the arrival of the first man to complete three single handed round the world voyages. David Scott Cowper completed this third trip in an ex-lifeboat, Mabel E. Holland, powered by two Gardner 4LW marine engines.

This nine month, 27,000 mile voyage means that David Scott Cowper is the first person to motor around the world single-handed.

Prior to his departure last year, David spent a considerable period at the Gardner engine factory in Patricroft, Manchester where he was involved in an intensive training course on engine familiarisation and general maintenance procedures. The vessel itself underwent a thorough conversion process to make it more suitable for such a long journey. Ten extra fuel tanks were fitted,

and the steering gear, propellers, sh bearings and electrics were all overhauled.

The vessel performed admirably and David Scott Cowper commented on his return to Plymouth that the voyage had gone 'remarkably well' with the Mabel E. Holland proving 'an excellent seaboat with truly remarkable engines.'

Doctor Ian McKim Thompson R.I.P

It is with much sadness that we hear about the passing away of Ian, 2nd January, 2019. He was just into his eighties and had been bravely battling the return of his cancer during the past two years. A battle Ian was not to win.

Ian was very well known through many Waterways Clubs and Societies. He was regularly the stand in doctor at many IWA National Rallies and was a very enthusiastic and dedicated gentleman to many causes. Ian achieved high ranking positions on various committees due to his knowledge and lovely jovial attitude towards life in general.

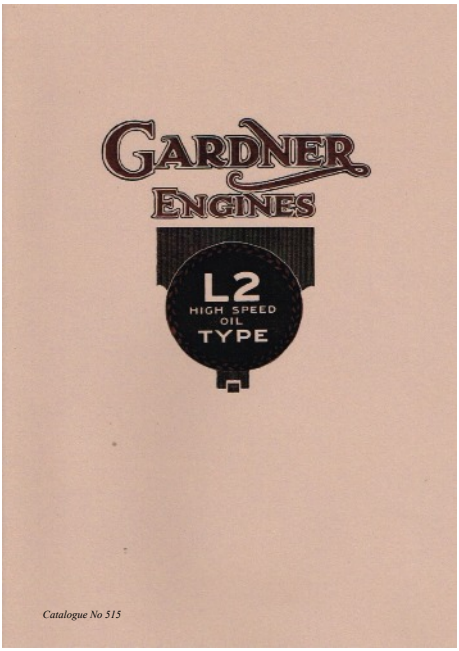
Ian gained a lot of pleasure, having three beautifully painted canal boats. Both his Gardner and Russell Newbury engines were his pride and joy. He would be up with the larks every morning and off making his own version of the dawn chorus, whilst listening to the slow heavy rhythmic exhaust note sounds. What could be better! Ian loved his boating.

Ian contributed most generously in various ways. It must be said his work was often "behind the scenes" for which many of us have greatly benefited.

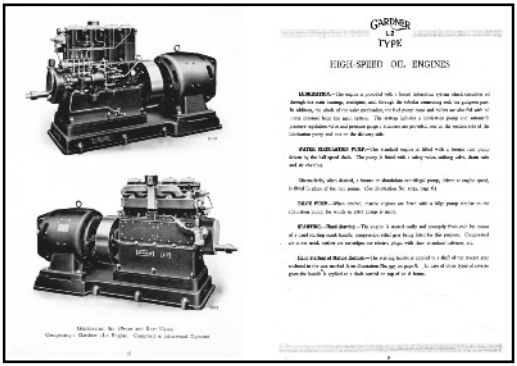
There were a very large number of people who came to pay tribute at his funeral service, all with their own memories and stories of Ian. He was obviously a very popular and loved person, who will be greatly missed by his family and all those who knew him.

Peter Freakley.

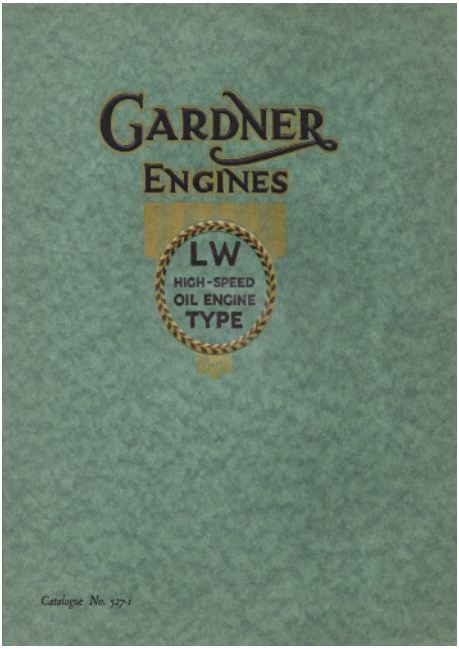
Merchandise



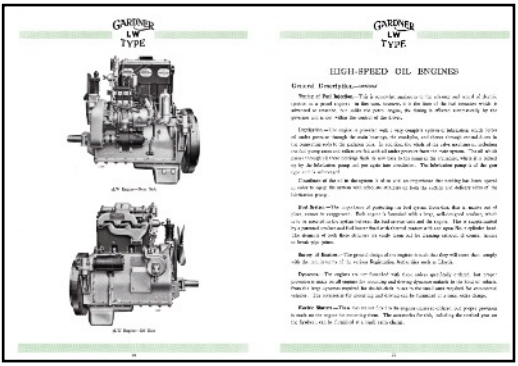
Reprint of sales catalogue 515, scanned and cleaned up from an original circa 1930 edition.
24 pages detailing the available range of 1-6 cyl engines with installation and outline drawings.
Printed on good quality paper and slightly enlarged to A4



Both publications are available at £7.00 each plus £1.50 for P&P



Reprint of sales catalogue 527.1, scanned and cleaned up from an original circa 1935 edition.
32 pages detailing the available range of 3-6 cyl engines highlighting the qualities and advantages of the engine.
Printed on good quality paper and slightly enlarged to A4
Original copy provided by the Anson Engine Museum



Gardner Merchandise

Long Sleeve Fleece
Sizes L,XL,XXL
Colour. Black.
£20.00 each

Gillets
Sizes. L,XL.XXL.
Colour. Black.
£15.00 each

Long Sleeve Sweat Shirt
Sizes. M,L,XL,XXL.
Colour. Grey
£17.00 each

Round Neck Tee Shirts.
Sizes. M,XL,XXL.
Colour. Grey
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Sizes. M,XL,XXL
Colour. Light Grey.
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High Quality Fleece
Sizes. S.M,X,XL,XXL
Colour. Navy Blue or Black
£30.00 each

Beanie Hats £5.00 each
Colour. Black

Baseball Hats £7.00 each
Colour. Black

China Mug 275ml
Colour. White
£5.00 each

Pin Badges £4.00 each

Pens £1.00 each

Cut Vinyl Sticker
External Surface Fixing
Size. 175mm x 45mm
£2.00 each

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Sizes listed are generally in stock, other sizes available to order
Postage and packing to be added at time of despatch
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