

# GARDNER

## *Engine Forum*



*Autumn 2023*

No. 44

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



Engine  
Forum

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## Gardner Engine Forum Philosophy

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

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# Chairmans Notes

Welcome to your Autumn Newsletter, I apologise if it is a little on the late side. Firstly a big thank you to the members who organised and helped to get the rally together at the Alvecote Boat Yard and to you members who attended it. We now have to think about 2025.

I have recently been going through all the past newsletters (thanks to a recent donation of old editions I now have a complete set). In the first issue from 2001, I read a reprint of "a diesel sports car". This was the run from the works to Bala, then on to Bwich-y-Groes and back to Manchester again. The car was a 1933 Lagonda, powered by the latest 3.8 litre Gardener diesel, this was the LK. I think I am correct in that the prototype first ran in 1933. It then went into production in 1934. Did the company manufacture more than one 6 LK, that can currently been seen at the Anson Museum. It would be interesting to learn more about the development of the LK. At the beginning of the reprint mention is made of Lord de Clifford who entered the Monte Carlo Rally in a 1925 fabric saloon with a somewhat lightened 4 LW this was in 1933, ninety years ago, hence the reprint. As an afterthought, it would make an interesting project to recreate that car, though very expensive.

I would like to welcome new members:- Phillip and Fiona Dawson, Kevin Seeley, Steven Howlett, John and Linda Grainger, Jon Nicholls, Kirsteen Russell, Iain Williams, David Williams and Matthew Brown.

*John Naylor*

Editors note:- Copies of all the newsletters can be found on the website publications page.

## IMPORTANT DATE FOR YOUR DIARY

### The 2024 Annual General Meeting

Will take place at  
The Anson Engine Museum on  
Sunday 12<sup>th</sup> May at 2pm

We have not held our meeting here since 2018

So it will be a good chance to see the latest additions to the collection

There will be further information in the next newsletter

# RALLY AT THE SAMUEL BARLOW, ALVECOTE. 5/6 AUGUST 2023

Well at last we managed to have a rally this year after disappointingly having to cancel two dates in 2022.

A very big thank you to everyone who managed to attend, either by road or water with a Gardner engine and those who came to visit. It was very pleasing to note that 50% of the boats attending had not been to a GEF rally before. In turn we joined up nine new members on site, so that bodes very well for the future of the Forum.

Our thanks to Mike Hodgkinson and Val Lipworth who negotiated the use of the



site and acted as harbour masters over the weekend, what a good job they did. The only thing out of our control was the weather. We all probably thought that it would be nice weather at the beginning of August, but storm Antoni had other ideas, starting with heavy rain on Saturday morning and blustery wind on the





1935 1L2 Laboratory Engine  
Driving a Gardner General  
Service No2 Water Pump

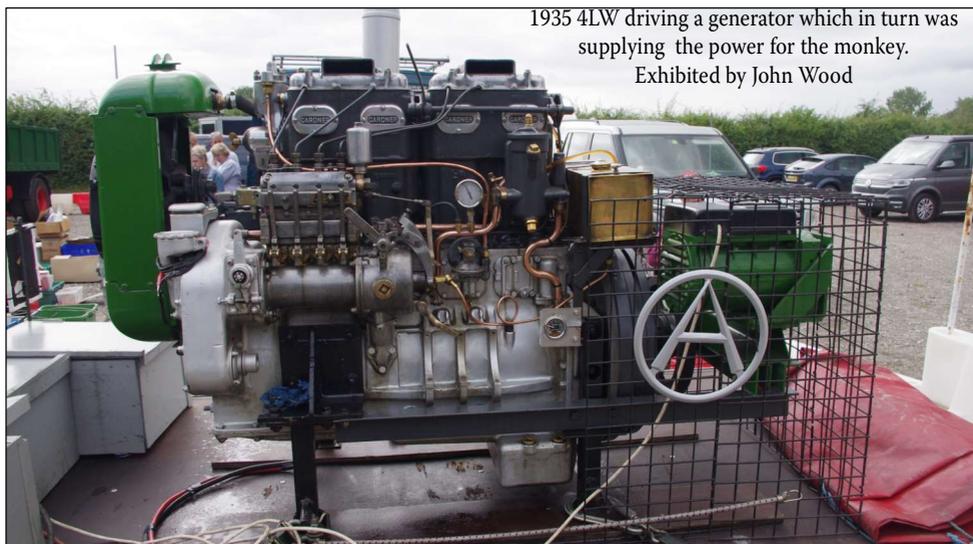
This engine was installed new in the ESSO Laboratory at Vauxhall Bridge London and was used in lubrication trials to determine the amount of wear associated with differing makes and types of lubricating oils. However, it was found that the engine was so generously proportioned in the bearings that it would not discriminate between a good or bad oil. After the 2nd World War the engine was moved to the ESSO Research Centre in Feltham. In 1967 the whole research Centre was moved to Abingdon. The engine was now removed from the original Heenan & Froude Water brake dynamometer and coupled to a British Thompson Houston electric dynamometer, capable of measuring the engine output to a very high accuracy. To enable this change, the engine was converted to run in the opposite direction. In this this new configuration the engine was used as a fuel economy viscometer, accurately checking the effect of oil viscosity on fuel consumption and engine power output. This type of research led to the modern trend of much thinner oil with superior lubricating properties that can protect modern engines under extreme operating conditions whilst allowing high engine outputs.

The engine is now exhibited mounted on a genuine Gardner base and coupled to the pump with a cone clutch to simulate a typical marine environment, using a water bleed from the pump to cool the engine via a heat exchanger to separate the cooling flow from the cooling in the engine jacket.

Owner Jeff Ramsey. Aylesbury.



1911 1V Spirit Engine exhibited by Tony and Paul Redshaw



1935 4LW driving a generator which in turn was supplying the power for the monkey.  
Exhibited by John Wood



1900 "0" Gas Engine exhibited by Paul & Jessica Pharaoh

Sunday. In between we did manage to get some dry periods. It was not easy to keep the shop gazebo up and running in the rain and wind. However, we did our best and as always you supported us.

In total we had 19 narrowboats which were powered by an assortment of 2 or 3LW's plus a 5LW, along with 2 and 3L2's plus 4LK's as well.

On the stationary engines we had the trailer mounted HF13 with its associated 1L2 and 0VC which continues to be exhibited around the country by Tony and John. The recently restored 1V spirit engine, and the 1L2 in the custody of Jeff Ramsey who has added a Gardner water pump since the last time we saw it at one of our rally's. The oldest engine on site was the "0" gas engine brought down from Gretna Green by Paul & Jessica Pharaoh. Lastly the trailer mounted 1935

4LW complete with begging monkey.

On the transport side we had, Henry Tuer with his Landrover and ERF both powered by 4LK's, and David Reed with his ERF, The HF13 is drawn by another ERF this one with a 6LXCT.

Organising caterers for Saturday evening proved to be a little more difficult this time around, it would seem that "Covid" either caused them to increase their prices to a point that we felt were unacceptable, eventually we found Swift Catering a husband and wife team who were close to the site. They were happy to tailor a package that we felt was acceptable at a reasonable price. From the feedback we have received, everyone enjoyed the food on Saturday evening and our thanks go to them for doing an excellent job for us. We must also thank to the gentleman who ran the bar at The Samuel Barlow, who allowed our caterers to set up under cover and for us to eat inside the pub, which we more than filled. We are sure everyone appreciated the hospitality shown to us.

Final thanks need to go to Malcolm and Matthew Burgee, the owners and operators of Alvecote Marina and the Samuel Barlow for allowing us to hold our rally on their grounds free of charge, the only caveat was that we frequent the bar, which you did admirably over the time that we were onsite.

We now move on to consider a location for a rally in 2025. As always, any feedback or suggestions for a rally site are always welcomed. Even better, lend a hand, it can be fun!

Best Wishes. Judith & Steven Gray

## Philip Whitter

In June we received the following email from Sally Whitter. Although not a member of the Forum, Philip attended some of our rallies with the Rolls. I can find photographs of the Rolls from the 2009 Dudley Rally the 2015 Bugsworth Rally and the 2018 Rally at Stoke on Trent. (ed)

I wanted to let you know the sad news that my father, Philip Whitter, passed away on Tuesday 30<sup>th</sup> May 2023 It came completely unexpected, and we are all devastated. He was a keen Gardner engine enthusiast and had converted many vehicles to Gardner engines, a Rolls Royce Phantom III, an agricultural tractor are just two of the many vehicles he had with Gardner engines, not to mention lorries and boats with Gardner's fitted as standard.

He attended one of your rallies at Dudley with the Rolls Royce, and while not an avid fan of shows and groups, he loved to participate when and how he could.

The Heskin Steam Rally on Saturday and Sunday 3<sup>rd</sup> & 4<sup>th</sup> June held a tribute for Philip, and we all attended with the Rolls Royce, which was lovely of them to hold

such a spectacular tribute to my father. I have attached the write up which accompanied the car in the main arena on Sunday.

I am not sure how many of your members knew Philip, but if you wanted to circulate the news in what ever format you see fit, then that would be very much appreciated. He touched a lot of lives in so many different ways, and once met it would have been difficult to forget him for good, bad or indifferent reasons.

Thank you

*Sally Whitter*



The 2018 Rally at  
Stoke on Trent



# Philip Whitter.

The tribute from the Heskin Rally

John Philip Whitter known to us all as Philip started his working life as an apprentice plant fitter at H Leverton. Caterpillar dealers in Wigan, at the age of 15. In 1970 Philip left Leverton's to start his own business - J P Whitter, Waterwell engineers, Philip, along with his family continued to grow this business which is still going strong to this day.

Philip had a keen interest in any kind of machinery and had built up a large collection of vehicles over the years He had a fondness for diesel engines, in particular Gardner engines. Philip converted many vehicles to Gardner engines over the years, including the Rolls Royce Phantom 3 that is here today.

He would say that this engine pulled better than any diesel engine and considered Gardner engines to be the finest engines ever. Philip died suddenly at home on Tuesday, 30 May .

He leaves behind his loving wife Susan, his four daughters, Emma, Sally, Jennifer and Lucy, and his son John. Philip was also grandfather to 11 grandchildren and 2 great grandchildren.

Philip was well known amongst the local steam show community. with many classing him as a true friend and one of the kindest people you could ever wish to meet.

Philip would always attend the Heskin show, where he would spend the weekend chatting to his friends eating far too many ice creams and smoking his beloved pipe.



Photographs on this page courtesy of the Whitter family

# And Now The Diesel Engined Car

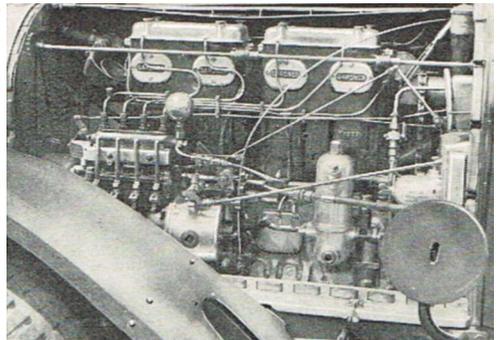
An article from the January 29th 1932 edition of The Autocar

As is well known, the compression ignition (or Diesel) engine is making very rapid progress in the field of road transport. Large numbers of buses and heavy lorries are now in operation in various parts of the country, equipped with power units of this type.

One of the most advanced engines of its kind is the Gardner, made by L Gardner and Sons Ltd of Patricroft, Manchester, who produce high speed heavy oil engines in several varieties with from two to six cylinders. All these engines have a common cylinder size of 108 by 152.4 mm and they work on the direct injection principle. i.e the fuel is sprayed directly into the combustion space through an atomising sprayer, when the piston reaches top dead centre, ignition is brought about solely by the heat of the pure air compressed in the cylinder. The compression ratio being 13 to 1.

The standard Gardner bus engine with its six cylinders and total volume of 8364 C.C. (R.A.C. rating - 43.5 h.p) develops over 100 b.h.p. when running under normal conditions. But, if fuel economy is sacrificed somewhat, it can be tuned to give nearly 130 b.h.p. Under ordinary conditions however, its power to weight ratio is in the order of 14 lb. per b.h.p., which is comparable with car engines of the less efficient types at any rate. Thus disposing of the criticism that the compression ignition engine must necessarily be very much heavier than a similar petrol engine. While there has, so far been no serious effort to apply the compression ignition engine to cars, there are many far-seeing people who visualise the day, when the system will be common in all except the smallest of road vehicles. At the moment the difficulty of metering and injecting very minute quantities of fuel, holds back progress in this direction, for the only

control of the engine is in the regulation of the quantity of fuel for each explosion. This is at once the weakness and the strength of the type. For while it makes the reduction of size difficult it is the main reason this type of engine is about half as economical again as a petrol engine, which wastes fuel at low speeds and small loads. Nevertheless, to prove that the present development of the C. I. Engine, is so far forward that it can be applied to a

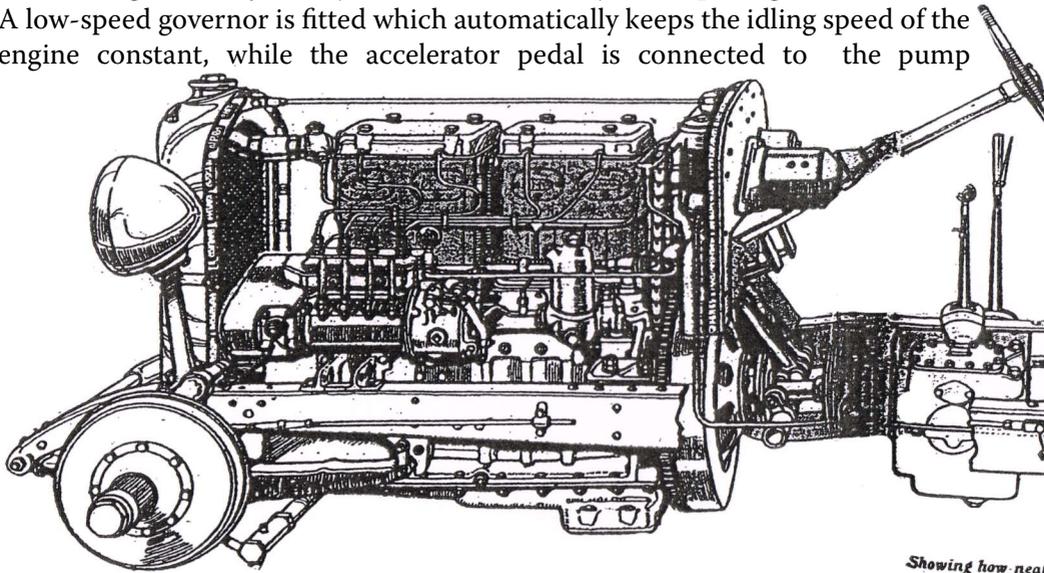


*The Gardner compression-ignition (Diesel) engine in the Bentley chassis*

private car without the result being excessively crude in running and performance. Mr. Hugh Gardner has just installed one of his four cylinder engines in a 1925 three litre Bentley chassis. The engine is the standard Gardner production except that slight modification to the crankcase was necessary to accommodate it in the chassis. The opportunity was taken to make the casting in Elektron in order to reduce the weight still further, with a capacity of 5576c.c. The engine weighs 975 lbs and having a maximum power output of 88 b.h.p. The power to weight ratio is approximately 11lb. per horsepower, its R.A.C. rating is 29 h.p. (tax £49).

## Sturdy Construction

Due to the heavy stresses imposed by the high compression ratio and the pressures developed in the cylinder. The construction of the engine is very massive and the crankshaft is no less than  $3\frac{1}{4}$ " in diameter, running in five plain bearings. The cylinders are held with bolts which pass down through the main bearing caps, so taking the stress direct. Detachable cylinder heads are fitted and these carry the vertical push-rod operated overhead valves. The cylinders and heads are cast in pairs. On the near side of the engine and driven from the timing gear is the Bosch fuel pump unit, consisting of four plunger pumps, giving a variable delivery of fuel oil to the spraying nozzles which are set vertically in the cylinder heads between the valves. The plungers are operated by a camshaft of Gardner design which is driven through a variable coupling, giving a range of about 8 deg, whereby the injection can be timed just as spark ignition is timed. A low-speed governor is fitted which automatically keeps the idling speed of the engine constant, while the accelerator pedal is connected to the pump



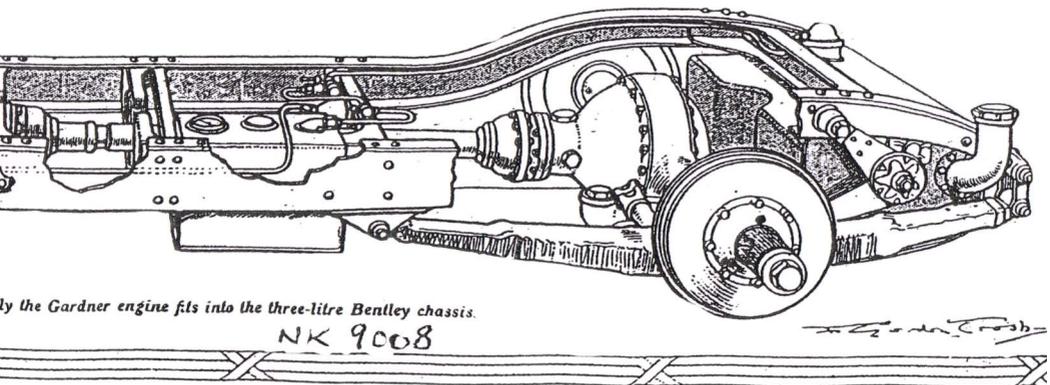
*Showing how near*

regulating sleeves which bypass more or less oil, so controlling power and speed.

The engine is somewhat longer than the three litre Bentley petrol engine, so that the radiator has had to be set forward about four inches, its trunion brackets being carried on a light built-up steel cross-member. The engine is carried in the frame by four built-up brackets which are beautifully made and as light as possible. Other modifications include the fitting of a belt drive from the end of the camshaft to the dynamo, which on the Bentley is carried in the scuttle. There is also a chain drive for the revolution counter. Somewhat stiffer springs have also been called for as the unit is about 2 cwt. heavier than the petrol engine it replaces. No change has been made to the transmission layout apart from strengthening the clutch spring to deal with the higher torque of the oil engine at lower speeds and for the same reason raising the ratio of the back axle to 3.92 to 1 from 3 to 1.



Fuel supply arrangements have been modified in order that a total capacity of fifteen gallons shall be available. This will give the car a cruising range of about 500 miles. The extra tankage (carrying five gallons) has been arranged in the centre of the chassis in front of the back axle and fuel is lifted from the tanks to fuel injection pumps by a couple of Petrolift units mounted on the dash. Controls are exactly the same as before. Speed and power are regulated by the accelerator pedal, with governor control of the slow running position. Injection timing corresponds to, the usual spark control, while a stopping lever acts in lieu of a switch. This lever controls the governor mechanism in such a way as to prevent



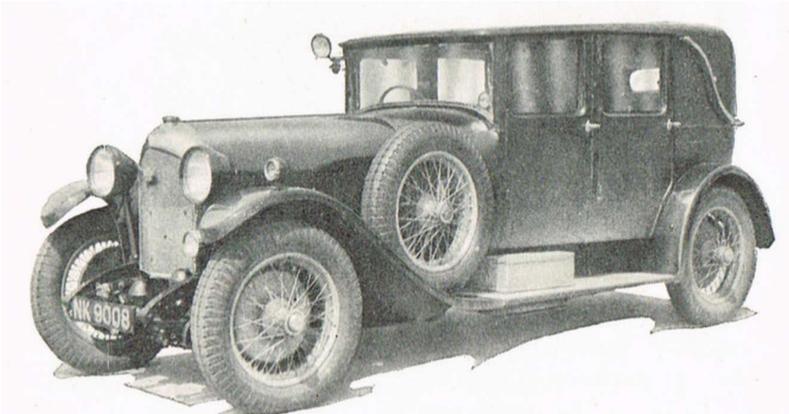
by the Gardner engine fits into the three-litre Bentley chassis.

any delivery of fuel. Should anyone wonder how the engine is started in view of its 13 to 1 compression ratio, the explanation is simple. A control lifts the inlet valves on the three rear cylinders, thereby releasing the compression. At the same time the inlet rocker of the other cylinder is moved slightly in such a way as to ensure late opening and early closing of the valve. There by obtaining the maximum charge of air as the engine is turned slowly. The heat of compression is sufficient to ignite the charge of oil injected into this cylinder and when it fires the decompressor control is moved back and all the cylinders take up their work. The



operation of the decompressor calling for no more skill than the use of an air strangler. However, this arrangement is only provided in case it is necessary to start by hand. Ordinarily the starter motor is used. A feature of the whole conversion is the excellent way in which all the detail work has been carried out. The whole assembly, although "experimental", is also finished to a remarkable degree, this is in conformity with the high standard set at the Gardner engine works, a finish so exact that the cylinder heads are assembled on to the blocks metal to metal and hold compression pressures of well over 500 lb per. square inch.

The Gardner-Bentley incidentally, has been entered in the R.A.C. Rally.



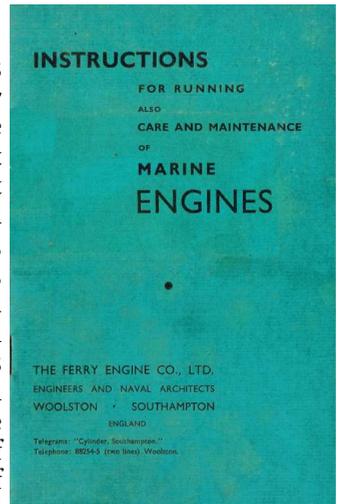
*Those interested in the modern lightweight Diesel or compression-ignition engine should obtain "The Modern Diesel" a new handbook published from these offices at 2s 6d (post free 2s 9d)*

# RNLI Life Boat Engines

Whilst compiling an earlier edition of this newsletter, I came upon a reference that the Gardner Diesel Engine had replaced the "Ferry Engine" in the new life boats being built circa 1953. An internet search at that time produced nothing of note about the company. Earlier this year I received an email asking if I was interested in some Gardner books, there were also some relating to CAV pumps, Coventry Victor, Kelvin and Ferry engines, they had belonged to the father of Nick who had emailed. In the end there weren't any Gardner books, but I was happy to purchase the Ferry books, pointing Nick in the direction of people who may be interested in the other books. No one came forward so for the cost of the postage I ended up with all of the books, so if anyone is interested in the other books which I will list at the end of the article please drop me an email.

The Ferry FKR 3 Diesel engines were fitted in the 21 of the 31 Liverpool Class of Life Boat, built between 1945 and 1954. (Wikipedia:- Liverpool class life boats).

I was unable to find any pictures of the diesel engines. There were a couple of the BM4 petrol engine, to which the Instruction book applies, interestingly it has two independent ignition systems, one from a magneto the other from a battery, coil and distributor. This was the first time I had seen this. Twin magnetos are common on engines used in aircraft to ensure safe operation.



Kelvin Spares List for 3 ½" & 5 ½" engines. (1958)  
Kelvin Ricardo Petrol & Paraffin Marine Engines "E" & "F" series sales brochure with prices (1952)  
Kelvin Marine Motors sales catalogue No 9 for Petrol, Paraffin engines.

Kelvin Poppet Valve Engines. The Running and Repairing of All Models Instruction book 10  
Various Information sheets for Fuel Tanks, Engine Foundations, Propeller Shafting Installation,  
These books are mostly in as new condition.  
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# Royal National Lifeboat Institution

Diesel Engines In Life-Boats Date: September 1955 Volume: 34 Issue: 373 of the  
Life-boat magazine from the RNLI online archive

WHEN diesel engines were first fitted into a life-boat in 1932, a new policy was adopted which was to be of the greatest importance in the history of life-boat construction. Just how important this development has been, is shown by the fact that every life-boat being built today is fitted with diesel engines. The problem of finding the ideal method of providing a life-boat with mechanical power, has occupied the minds of designers and engineers for more than a century. For many years experiments were made with steam. At the Great Exhibition of 1851 a model of a steam life-boat, which was entered in the competition for the Duke of Northumberland's prize was shown.

Steam life-boats had only a limited success, for many of the difficulties which they inevitably presented were found to be almost insurmountable.

Writing in 1874, Richard Lewis, who was then Secretary of the Institution, pointed out very rightly, that the violent motion of a life-boat, would often prevent air from being drawn in for the fires as a result, engines would be disabled. Moreover, there would always be difficulty in finding men with sufficient skill to work these engines among the fishermen and long-shoremen who formed the bulk of the crews.

## *First Steam Life-boat*

In 1886 the Committee of Management appointed a special Committee to inquire into the practicability of using steam power in life-boats. The first order was placed in 1887 for a steam life-boat, although the method of propulsion was that of hydraulic ejection, in itself a forerunner of the Hotchkiss principle later used by the Institution. By 1912 only four steam life-boats and a tug had been built. It was in 1904 that an internal combustion engine was first installed in a lifeboat. The experiment was not an immediate success. It was not until 1910 that a boat fitted with a Blake motor made a passage of 538 miles in 11 days, without any serious mechanical trouble. In the same year, another boat fitted with a Tylor engine made a passage of 425 miles in 4 days without mechanical trouble. From then onward's it became increasingly clear that the internal combustion engine provided the ideal method of driving a life-boat.

## *Risk of Fire Reduced*

During the last half-century there have been many developments in the design of life-boat engines, but none has been more important than that of the use of diesel fuel. The petrol engine, although initially cheaper to make than the diesel engine, has a much higher fuel consumption for the useful work obtained. It had been found that buses fitted with diesel engines were able to travel twice as far as those fitted with petrol engines, with the same fuel consumption. Diesel



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fuel was also cheaper, and because it is less volatile and inflammable the risk of fire was greatly reduced. In short, apart from the higher cost of the engines in the first instance, it was clear that the diesel engine would be in every way more suitable. The first life-boat with a diesel engine was the Yarmouth boat, into which a single 6 cylinder cell-type engine of the Ferry Engine Company's design, was fitted in 1932. This boat gave good service both at Yarmouth and while she was in reserve. The fitting of this engine gave an opportunity of comparing two boats built at approximately the same time, the Yarmouth boat and the Portpatrick boat, which was fitted with CE4 petrol engines of equal horse power. The Yarmouth boat could continue at full speed for 118 miles, using 29 pints of fuel per hour. The Portpatrick boat could continue at full speed for only 57 miles with a fuel consumption of 64 pints per hour. At a cruising speed of 7 knots, the difference in petrol consumption and therefore the radius of action was even greater.

#### *Twin Diesel Engines*

The single 6-cylinder cell-type diesel engine was followed by the development of twin 4 cylinder diesel engines. The Institution has up to now placed orders for as many as 134 of these engines. The earlier diesel engines were fitted into the larger life-boats, but it was clearly desirable that the smallest classes, the 35-foot Liverpool and self-righting types, should also be driven by diesel engines. Boats of these classes often have to be manoeuvred on a carriage and launched over shingle or sandy beaches, so the weight of the engine installation is clearly a matter of great importance. A dozen years or more ago diesel marine engines in common use for commercial purposes were mostly of some 40 horse power and weighing approximately a ton. The only really suitable diesel engine which could be developed for use in the smallest classes of life-boats, was the FKR3 made by the Ferry Engine Company. Weighing less than half a ton and developing 21 horsepower at 1,600 revolutions per minute, the engine used in these small life-boats was a supercharged two stroke high-speed engine with three cylinders, a modified version of the four cylinder unit developed for the Admiralty and used in great numbers in 16ft fast-planing dinghies. The engine used by the Admiralty was in itself a smaller and modified version of the General Motors GM6 engines.

#### *Kadenacy Principle*

The life-boat engine, worked on the principle developed by the Frenchman "Kadenacy," whereby a higher compression and higher power are obtained. The essence of this principle is that if gases under reasonable pressure, having done

most of their useful work, are suddenly released or exhausted there will follow a slight vacuum in the space previously occupied by the gases. If the inlet ports are made to open when the vacuum is created, the incoming air will rush in at increased speed, if the ports remain open long enough a natural supercharging effect will result.

The first of the FKR3 engines was fitted in the Rhyl life-boat in 1949. It has given good service ever since and there are now 24 life-boats fitted with these engines.

### *Commercial Engines*

Late in 1950 the Committee of Management gave close consideration to the possibility of fitting commercial engines into life-boats. The problems of cost, simplicity of maintenance and ready availability of spares influenced the decision which was eventually taken. It had also become clear that it was extremely difficult to maintain engines in a completely watertight state. Certain items such as ball-races and magnetos of the older petrol engines were tending to deteriorate rapidly. It was apparent too that there would be advantages in adopting an engine in daily use in the commercial world which had survived the tests of competition.

### *Experiments Continue*

In 1954 a new type of life-boat fitted with twin 4LW Gardner diesel engines

*William Tyler of Oldham No 907.  
The first of the 42ft Watson Class  
powered by a pair of 4LW's*

was sent to Coverack. A full description of this boat appeared in the September, 1954 edition of the Life-boat. A boat of a similar type was later sent to Troon. As in all matters connected with the construction and design of life boats, experiments continue. There is now no room for doubt that the policy of fitting diesel engines has been an unqualified success.



## **The Life Boat September 1954**

### **A New Type of Life Boat**

**By Commander T.G Michelmores, R.D., R.N.R**

The new 42-feet by 14ft Watson cabin life-boat, the first of which has now gone to her station at Coverack, Cornwall, is the successor of the 41-feet by 11ft 8in Watson type boat, which first came into service twenty-one years ago. The 41-foot Watson type of boat is of comparatively shallow draft, specially designed for launching from harbours where there is only very shallow water at low tide, or where a shallow bar has to be crossed

The Committee of Management has for some time been of the opinion that

greater power was desirable in this type of boat in order to give maximum power when necessary and to permit the engines to be run economically at other times. After much research into the question, it was decided to power the new boat with two 48 h.p. Gardner 4.L.W. diesel engines. These give her a full speed of 8.38 knots with a total endurance at this speed of 238 miles, as compared with the 7.78 knots and 125 miles endurance of her predecessor, which is powered with twin 35 h.p. petrol engines. The fuel capacity in each case is the same, i.e. 112 gallons.

#### *Watertight Inner Bottom*

Another major modification embodied in the new boat, is the construction of a watertight inner bottom to her engine room. Together with its watertight wing bulkheads and watertight forward and aft bulkheads, makes it virtually a watertight box within the hull of the boat.

Among several minor modifications embodied for the first time in this type of boat are a combined mast exhaust, Kent clear-view screen, a twin R/T aerial, which gives greater range and wooden bulwarks both forward and aft for greater protection from the sea.

Early in May, when this boat had satisfactorily completed her normal trials at Littlehampton, where she was built by Messrs. William Osborne, Ltd.

She was dispatched on a somewhat rigorous extended sea trial. This took her up the east coast of Britain!, To the Inverness neighbourhood, through the Caledonian Canal, down the west coast and back to Littlehampton. The object of the trial was to test the Gardner engines, which were new to the Institution thoroughly, by driving them hard all the way and to obtain the views of life-boat crews from comparable lifeboat stations on her engines and the new method of watertighting the engine room.

#### *Complete Success*

The trial was a complete success. "The lifeboat completed 1,500 miles in 181 steaming hours at an average speed of 8.8 knots, despite very heavy weather on two occasions, without the least suspicion of engine trouble. Altogether, before leaving her station, she completed 213 hours running, the equivalent of four or five years' normal running. During this trial, some nineteen deputations from lifeboat crews were given an opportunity of going afloat in her. All of whom, without exception, expressed themselves as being entirely satisfied both with her engines and the new watertighting arrangement. Criticisms of her were invited, but very few and those were of a superficial nature were received. In fact, she created a most favourable impression everywhere.

Commander E. W. Middleton, District Inspector (General), who commanded this boat for part of her extended sea trial, made the following report on his trip. With Coxswain Upperton and Mechanic Philcox of Shoreham on board in addition to a crew of six, we left Littlehampton at nine o'clock on the morning of Saturday, the 1st of May. The weather was fine with a light south-south-westerly breeze and a smooth sea.

#### *Feeling of Great Power*

On passage to Shoreham, the coxswain and mechanic were able to inspect the new life-boat thoroughly and to test her manoeuvring qualities. On reaching Shoreham we ran in alongside the life-boat slip, landed the Shoreham men and were away again inside ten minutes. The quiet, smooth-running Gardner diesels

gave a feeling of great power and all hands were already impressed by the new boat's qualities. The remainder of the passage to Newhaven, where we were scheduled to spend the night, took place without incident. Soon after 12.30 in the afternoon we were rounding the breakwater. Had we not been working to a fixed programme in order to allow deputations from other stations to inspect the boat, it would have been easy to have made Ramsgate that day. When we left Newhaven at 6.15 on Sunday morning, there was a strong south-south-westerly breeze and a steep breaking sea on the bar. With the engines eased well down in order to give the new vessel a chance of learning her tricks gently, the steepest seas were ridden cleanly and easily.

### *Gale Conditions*

The wind and sea were "increasing", and it was obvious we were in for gale conditions. Making a good offing, we stood well out clear of Beachy Head before bringing the wind and sea just abaft the beam on the course for *Dungeness*.

Off Beachy there was a big lump of sea, and with the engines at full operational revolutions, it was a good test of the new boat's running qualities. Every now and then she would pick up and run on the top of a breaking wave in exhilarating fashion, but she always left the helmsman a feeling of complete control, with never any suggestion of broaching.

Under the lee of *Dungeness*, we were able to embark Coxswain Tart and Mechanic Oilier of that station. Once more a complete inspection and opportunity to handle the boat was arranged.

Somewhat, to my surprise the *Dungeness* men were in their Sunday best, and on my remarking that this was not quite the gear I should have chosen in such weather, Coxswain Tart replied: "Well, we didn't expect to get wet in a fine new boat like this." They didn't.

### *Yachts Capsize*

A message by radio telephone informed us that the Walmer deputation were unable to get off the beach owing to the bad weather, so arrangements were made to pick them up at Dover. Off Dover harbour there was the usual confused sea produced by the tide in gale conditions and there was a nasty break across the eastern entrance. However, the life-boat took both in her stride and without shipping anything other than spray. A quick change over in the Camber and we were away again, with Coxswain Fred Upton and Mechanic Percy Cavell of Walmer on board. Again the boat was inspected and tried out and pronounced "very



*Dorothy and Phillip Constant*

#### Class overview

<b>Name</b>	42ft Watson-class
<b>Builders</b>	William Osborne, Littlehampton Groves & Guttridge, Cowes J Samuel White, Cowes
<b>Operators</b>	 Royal National Lifeboat Institution
<b>Preceded by</b>	41ft Watson
<b>Succeeded by</b>	various
<b>Cost</b>	£26,000-£36,000
<b>Built</b>	1954-1962
<b>In service</b>	1954-1987
<b>Completed</b>	10
<b>Retired</b>	10

#### General characteristics

<b>Class and type</b>	42ft Watson
<b>Displacement</b>	17 tons
<b>Length</b>	42 ft (13 m)
<b>Beam</b>	12 ft (3.7 m)
<b>Draught</b>	3 ft 7 in (1.09 m)
<b>Propulsion</b>	2 × 48bhp Gardner 4LW 4-cyl. diesel
<b>Speed</b>	8 knots
<b>Range</b>	235 nm
<b>Crew</b>	7

good indeed" by these two most experienced life boatmen. The entrance to Ramsgate harbour looked very unpleasant when we arrived, with a confused breaking sea and masses of spray. Inside were a number of French trawlers, which had come in for shelter, including two which had been escorted in by the Ramsgate lifeboat shortly before our arrival. Four or five yachts capsized at their moorings and conditions generally were in keeping with what is often called life-boat weather. We felt the new boat had had a vigorous introduction to her job.

### *Lively Passage*

From Ramsgate to Whitby the weather continued changeable, with fresh or strong winds from all points of the compass. A further deputation was embarked at Aldeburgh and landed at Lowestoft, and the next night was spent at Gorleston. Gorleston to the Humber is rarely a smooth-water trip. On this occasion the wind soon found its way into the north-east and gave us a somewhat lively passage from Cromer to Spurn. In the short steep seas of the Wash, the boat again behaved excellently and not once did she fall into the trough with that teeth-chattering crash, which some seamen refer to as "hitting a milestone".

At Spurn, we refuelled fed and got away to sea again before midnight. After passing Flamborough Head at first light, we were entering Whitby harbour at nine in the morning, tired, but ready for breakfast.

Of the rest of the long journey north through the Caledonian Canal, down the west coast and along the south coast back to Littlehampton, I can only tell at second-hand, as I left the life-boat at Whitby.

Commander S. W. F. Bennetts the Deputy Chief Inspector, who was in command from Whitby to Berwick made a night passage under very unpleasant conditions.

### *"A Grand New Boat"*

The wind was south-westerly up to four in the morning, when it started to blow hard and veer to the north west. For the last two hours of the trip the boat was plunging into a big head sea and once more received severe testing, which she came through splendidly. For the rest of the trip scarcely any bad weather was encountered, but many crews were embarked and allowed to examine the boat and see how she handled. Crews from Whitby, Berwick, Dunbar, Whitehills and Buckie all made trips in her and without exception all pronounced her "a grand new boat".

The Northern District Inspector was in command as far as Troon, then the Western District Inspector took over. After calling at the Isle of Man and Moelfre in Anglesey, handed over to the Irish District Inspector at Dun Laoghaire.

Down the coast of Ireland and across to Newlyn, where the Southern District Inspector took over, the voyage lasted only twenty-eight hours.

At Coverack a special welcome had been arranged and not unnaturally the new life-boat was received with even greater enthusiasm than anywhere else. Up channel to the Solent, where further speed trials were run, then, just twenty-three days after her departure and exactly on schedule, the life-boat steamed into Littlehampton, where she was built.

Throughout this long and exacting trial there was not a falter from the engines or a sign of a defect in the boat itself. For what better reward could her designers and builders wish?

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