

PETROL ENGINES

of 1911

BY
WHITE & POPPE LTD

PETROL ENGINES

As designed and manufactured by

White & Poppe, Ltd.,
Coventry.

Telegrams: "MOTORS, COVENTRY."

'Phone: 394 COVENTRY.

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Nov. 1st, 1910.

"My White & Poppe is giving extra good results."



**STANDARD TYPES
OF THE
WHITE & POPPE
ENGINES.**

FOR CARS.

Cyls.	Bore	Stroke.	R.A.C.	B.H.P.	Desc'd on page
4	80	130	15·8	18	10
4	90	110	20·1	24½	12
4	90	130	20·1	24½	14
4	100	130	24·8	32	16
4	110	130	30·0	40	18
4	120	130	35·7	50	18
6	127	150	59·99	85½	20
6	140	150	72·9	110	20

SMALL STATIONARY ENGINE.

Cyls.	Bore.	Stroke.	B.H.P.	Desc'd on page
1	80	90	3	24



Our Record.

The publication of this Booklet offers us an opportunity of presenting to the reader a few salient facts as to our record in the past and of stating briefly our intentions for the future.

As to the former it may not be generally known that we were the first British Manufacturers to specialize in the production of the Petrol Engine, and ever since the inception of this business we have concentrated all our skill, knowledge, and experience on the object we set out to fulfil, with the result that to-day our position is unequalled and the White and Poppe Engines renowned throughout the World for their exceptional efficiency and service.

Since that date the record of our sales and the long list of successes with which our Engines have been constantly associated prove irrefutably—

First, that the policy we originated was one which the conditions prevailing in the Trade entirely justified, and—

Afterward that the exceptionally fine limits to which we have always worked have not only been appreciated by both Manufacturer and Owner, but have resulted in the highest possible standard of accuracy and precision—a standard upon which our reputation has been reared and which to-day is acknowledged throughout the trade as unexcelled.

"Your engine is the quietest I ever heard."



"Your engine has given me the greatest satisfaction."



From these conditions has grown the popularity of our productions, and that popularity is reflected in the growth of our business and the periodical enlargement of our Works, and the constant and uninterrupted employment of the whole of our facilities..

From the earliest days of our experience nothing but the finest workmanship has been employed in the production of the White and Poppe Engine, and as type has succeeded type each has stood out as a perfect example of the most modern engineering practice.

As in the past, so in the future our one object will always be to maintain the standard which has been responsible for our success, to produce only the engine that is perfect in design and workmanship, that will run smoothly and silently at all speeds, prove exceptionally economical in petrol consumption, and do all this with a regularity which in itself will be a guarantee of perfect service and the owners' lasting satisfaction.

Turning to the range of types covered by our standard models, a tabulated statement of these appears on Page 2, and full specifications of each type will be found on Pages 10 to 21 and 24 and 25.

The range is such as to cover all general requirements, the brake h.p. varying in engines for car use from 15.8 to 110, and, additional to the car types, is included a single cylinder stationary engine eminently suitable for motor boat equipment of 3-h.p.

In all of these the main principles of construction are identical and may be described as follows :—

"I may say that the engine is running perfectly."

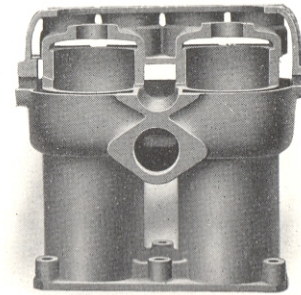


"I am satisfied with your engine in every way."



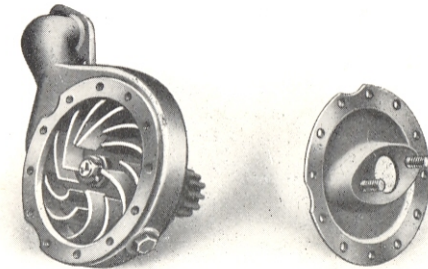
Cylinders.

In the four cylinder Engines of 80, 90, and 100 bore these are cast in pairs, but in all other types the engines have separate cylinders. Throughout, these are made of a very close grained cast iron, and both before and after machining are carefully tested by hydraulic pressure. Water jackets of generous dimensions are provided for both combustion chambers and valve pockets.



Water Circulation.

On all types of less than 110 bore, the water for cooling the combustion chambers circulates through the jackets and radiator on



the thermo-syphon principle, and on all of 110 bore and over by pump, either method completely meeting the requirements of the engine, and proving equally successful on both engines for stationary or car purposes. In this connection users should note the absolute necessity in the case of the thermo-syphon type for keeping the radiator well filled, and care should be taken at all times that the water is not allowed to fall below the inlet pipe, otherwise circulation will naturally cease.

"Your engine has never caused me a minute's delay."



"I have had this engine six years and it has done remarkable service."



Pistons.

A careful examination of the pistons will reveal two features of exceptional value, viz., lightness and the special method of fixing the gudgeon pin. The latter is a drive fit in the piston and has a ring over the ends which entirely obviates the use of set screws. In all types there are, additional to the retaining ring, four rings on each piston, and in all cases the pistons are turned to weight, and in conjunction with the connecting rods most carefully balanced.



Crank Shaft.

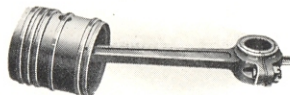
The Crank Shaft of all White and Poppe Engines has invariably been made from the finest possible material.

This is, in every case, selected with the utmost care and its suitability ensured by the most rigorous tests. The workmanship throughout is distinguished by that scrupulous attention to detail of which every part bears equal evidence, and in every case the Shaft is of ample dimensions and has a wide margin of reserve strength.

Thus is an exceptional immunity from trouble absolutely ensured, and a durability made possible which, under other and less stringent conditions, could not be acquired.

Connecting Rods.

These are produced from the best quality spring steel and, after every one of the many operations included in their manufacture, are most carefully examined and when complete each set is accurately balanced.



Like all other reciprocating parts of the "White and Poppe" they are made as light as possible consistent with the full margin of strength and fitted with a scoop in order to ensure the ample lubrication of the big end bearings.

"Your engine gives me unqualified satisfaction."



I thoroughly appreciate the splendid workmanship and design."



Bearings.

In all engines except the 90 x 110 type these are made from white metal with gun metal housings, the gudgeon pin end being bushed with plain phosphor bronze.

Long bearings are provided between each throw of the crank shaft, four cylinder engines having five, and six cylinder seven, a practice which experience has convinced us is the most conducive to durability.

Crank Chamber.

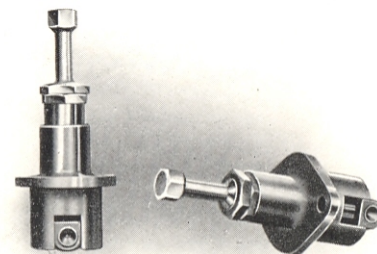
This is of aluminium except in the case of the 80 x 90 single cylinder stationary engine, where cast iron is used to meet the requirements of certain users.

The chambers are partitioned between each crank path, thus forming wells under each cylinder in which the proper quantity of oil can be retained on steep gradients.

Plugs are placed in such positions as to facilitate the effective draining off of oil.

Tappets or Valve Lifters.

These have several special features. They are hardened and ground to very fine limits, are adjustable and so designed as to prevent the oil from working past them.



Where they meet the valve stem they are fitted with a fibre inlay which effectively eliminates the noise due to the striking of the former, and where they rest upon the cam, with a hardened and ground steel roller for the purpose of reducing friction.

They are very easily adjusted and should be so set that when the engine is running and a finger is placed upon the valve spring collar no concussion is felt.

"The four cylinder engine has run magnificently."



"We congratulate you on the beautiful running of the engine."



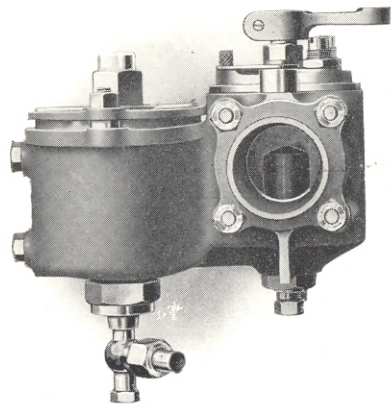
Carburettor.

The "White and Poppe" carburettor which is fitted to all our engines possesses several distinctive and entirely exclusive features.

Prominent among these is the variable jet, which provides a definite and constant mixture for all speeds, with the result that the engine will run for a long period at a very low number of revolutions without either sooting the plugs or flooding the carburettor.

With the throttle fully open there is practically no resistance to the passage of the gas, hence at high engine speed the cylinders are ensured of their full charge.

NOTE.—A full description and many valuable hints concerning this device will be found in a separate booklet which we shall be pleased to send to any interested reader upon request.

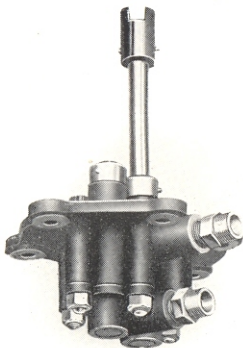


Lubrication.

The system of lubrication adopted throughout all types is such as to ensure absolute efficiency and safety. It is a system which we have employed for a number of years, and which during that period has been proved by experience to give unequalled results.

In this system a double oil pump is employed and driven from the crankshaft. This takes up oil from a tank which can be fitted in any convenient part of the chassis, distributes it to the engine bearings, and returns any surplus to the reservoir.

In the case of the 80 x 90 single cylinder engine lubrication is by splash.



"The White and Poppe engine deserves every praise."



"The engine gives exceptional results both in power and consumption."



The Foregoing Description

should impart to the reader a fair knowledge of the principles adopted in the construction of the "White and Poppe" engine.

Further particulars and detailed specifications will be found on the following pages, and line drawings in quarter size showing the general arrangements of each type can be supplied upon request.

We can also furnish customers who are designing chassis, with useful information as to the correct ratio of gear to employ and also inform them as to the requisite area of radiator surface.

"My White & Poppe engine runs excellently."



"Your engine pulls splendidly."



80×130 Type, 15 H.P., 4 Cylinders.

This, our latest introduction, replaces that which, probably, has been the most popular Petrol Engine ever made—our 80×90 four Cylinder.

To its smallest details this new type represents the very latest practice, and as will be seen from the illustration, is of particularly neat and compact design.

The Cylinders are cast in pairs, the Valves are all on one side, and the Valve Springs which are held in position by a simple form of Collar and Cotter, are easily fitted, and are enclosed by an Aluminium cover which can be readily detached by the removal of a winged nut.

The Inlet and Exhaust Pipes are on opposite sides, giving the greatest possible accessibility.

The Crankshaft runs on five white metallised bearings of large size, and the lower half of the Crank case can be readily removed for internal examination and adjustment. The sides of the Crank case which extend between the arms form a perfect protection against dust and dirt.

The Valve Tappets are adjustable, and so designed as to entirely prevent oil working past them. They are fitted with a fibre inlay where they meet the valve stem, and high grade steel rollers where they rest upon cams.

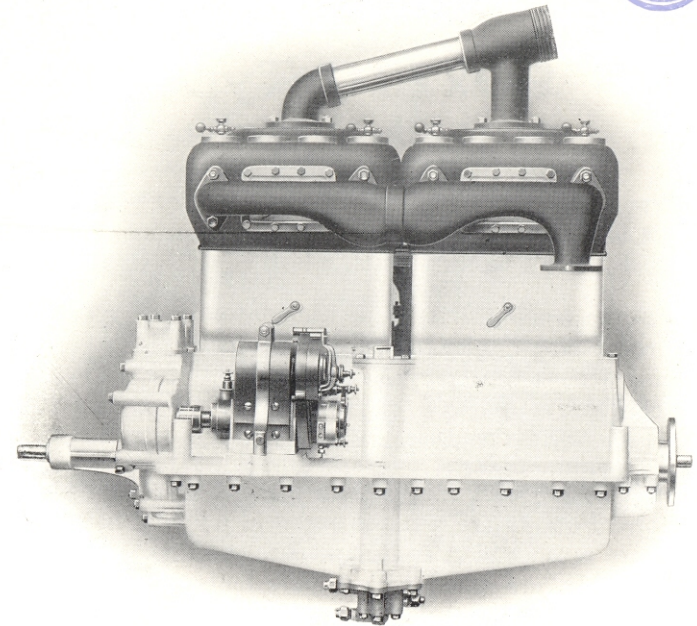
The Gallery for Oil supply is inside the Engine, and the oil is delivered thereto by a double action Pump, which not only circulates the oil, but maintains a constant level in the case.

NOTE.—The design of this Engine is throughout exactly similar to our 90×130 and 100×130 types, and description of other constructional details will be found on pages 14 and 16.

"The White & Poppe engine gives very sweet running."



"Your engine is giving great satisfaction."



Specification in brief.

BORE.	80 m.m.	STROKE.	130 m.m.
NORMAL SPEED.			1,150 R.P.M.
BRAKE H.P.			23½ at normal speed.
GUARANTEED H.P.			14½
ACTUAL PETROL CONSUMPTION. . . . .			.65 pints per h.p. hour at normal speed.
GUARANTEED . . . . .			.89 " " " " " "
H.P. R.A.C. RATING.			15.87.
COOLING.			Thermo-syphon principle.
OVERALL DIMENSIONS.			Length (from front of case to fly wheel flange) 28 ⁹ / ₁₆ -in. Width 22 ¹ / ₄ -in.
WEIGHT.			372 lbs.
VALVES.			All on one side.
TAPPETS.			Adjustable and fitted with fibre buffer.
IGNITION.			High tension Magneto.
CARBURETTOR.			No. 25 W. & P. with variable jet.
LUBRICATION.			By pump.
OIL CONSUMPTION. . . . .			.029 pints per h.p. hour.
BEARINGS.			5 large bearings of white metal.

PRICE

(including Carburettor, Bosch Magneto, double oil pump and starting clutch)

"My car with the White & Poppe engine runs perfectly."



"I am more than satisfied with the engine."



90x110 Type, 18 H.P., 4 Cylinders.

This type ranks particularly high in the matter of efficiency, it is compact in design, and generally its construction ensures an accessibility to all wearing parts, which is much appreciated.

Many of the leading Motor Car Manufacturers have adopted it as their standard Engine, and that they have been justified by their selection, is proved by its long record of successes, the latest of which is a speed of 84.24 miles per hour—a record made at the 1910 October Brooklands Meetings.

Its Cylinders are cast in pairs, and the Combustion Chamber and Valve Pockets are water-jacketed in a liberal fashion. The Valves are arranged on opposite sides, and the Tappets, which are adjustable, are fitted with a fibre buffer, which effectually eliminates noise. The timing gears are of hardened steel and are exceptionally silent.

The Cooling is on the thermo-syphon principle.

The lower half of the Crank Chamber is easily detached, without the necessity of interfering with any other part, with the result that internal examination is a simple matter, and adjustments of the big end bearings can be readily carried out when necessary.

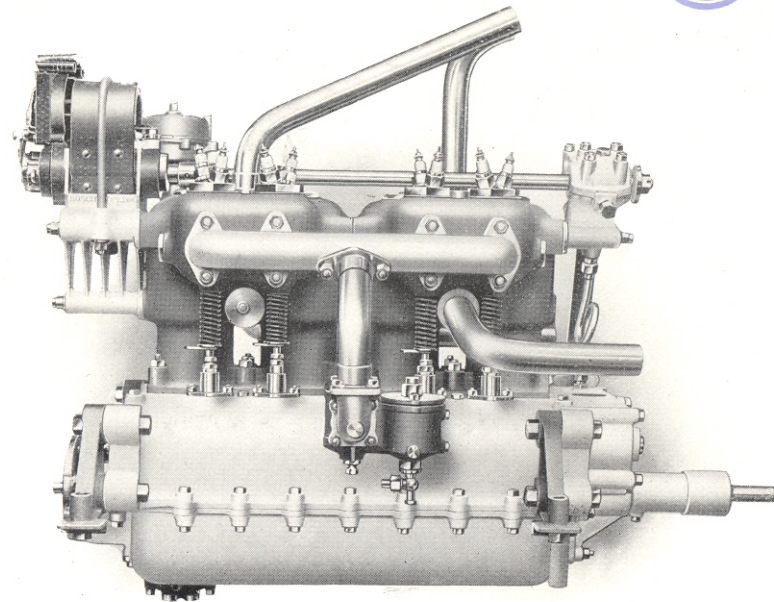
The Cams are ground to shape after hardening, and the Cam Shaft is so arranged that it can be withdrawn without dismantling the Engine. The Magneto is supported by a bracket on the rear cylinder, in an accessible position, and out of the way of dirt, and the shaft which drives it, is extended forward, giving a positive drive to the fan.

It can be supplied to suit any width and depth of underframe.

"Never has your engine failed us."



"I have had no trouble whatever with the engine."



Specification in brief.

BORE.	90 m.m.	STROKE.	110 m.m.
NORMAL SPEED.			1,360 R.P.M.
BRAKE H.P.			27½ at normal speed.
GUARANTEED H.P.			19½
ACTUAL PETROL CONSUMPTION			.75 pints per h.p. hour at normal speed.
GUARANTEED			.82
R.A.C. RATING.			20.89.
CYLINDERS.			Cast in pairs.
OVERALL DIMENSIONS.			Length (from front of case to flange for fly wheel 29-in. Width 21-in. Minimum distance from centre of No. 1 cylinder to radiator—8-ins. Without fly wheel, 352 lbs.
WEIGHT.			Without fly wheel, 352 lbs.
VALVES.			Arranged on opposite sides and interchangeable.
TAPPETS.			Adjustable with fibre buffer.
COOLING.			Thermo-syphon principle.
IGNITION.			High-tension magneto and coil and accumulator.
CARBURETTOR.			No. 25 W.&P. with patented variable jet
LUBRICATION.			By pump.
CRANKSHAFT.			Journals and pins hardened & ground.
BEARINGS.			Phosphor bronze of large dimensions.

PRICE

(including Carburettor, Bosch D.U. 4 adjustable magneto, positively driven fan spindle, double oil pump and starting clutch)

"Your engine is working perfectly."



"We are highly pleased with your engines."



90×130 Type, 20 H.P., 4 Cylinders.

This Engine is constructed on exactly similar lines to our 80×130 type, but with increased dimensions throughout, and resulting increase of H.P.

Its general design possesses all those features enumerated in the description of the 80×130 (see page 10), and its efficiency, silence, and smoothness of running is in every respect up to the W. & P. standard.

As in the 80×130 the Cylinders are cast in pairs, Valves are on one side only and enclosed in Aluminium cover, while Inlet and Exhaust Pipes are on opposite sides giving the maximum accessibility.

Oil feed is on the same principle as in the 80×130, and by this system the oil is distributed to the main bearings, and any surplus returned to the tank.

The lower half of the Crank case carries a double Oil Pump, and this pump is driven by the camshaft by means of spiral gear.

Where the two halves of the Exhaust Pipe join, an Expansion Ring is fitted and a particularly neat form of Air Release Cap is situated on the exhaust side of the Engine.

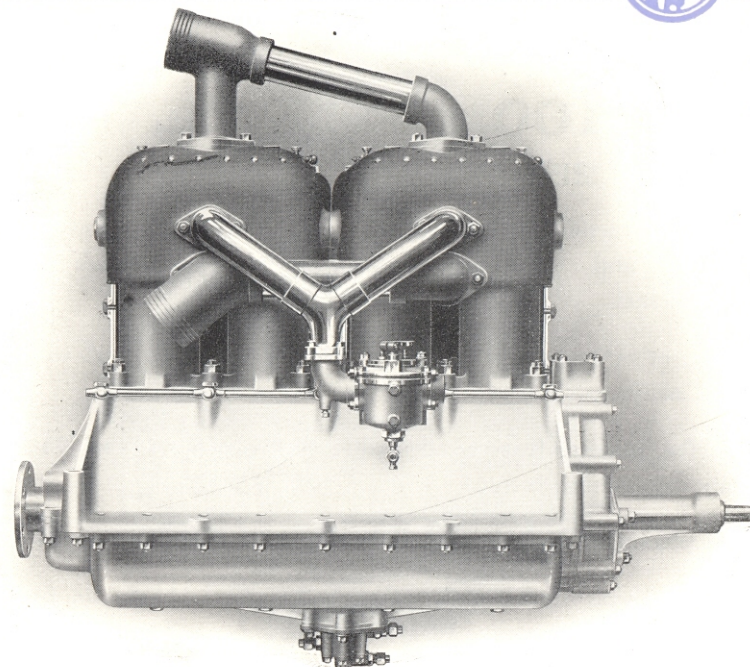
Connecting Rods are of spring steel stampings fitted with scoop at the big ends.

NOTE.—For description of other details see pages 10 and 16.

"I am well satisfied with the powerful running of the White & Poppe engine."



Your engines far exceed our expectations."



Specification in brief.

BORE.	90 m.m.
STROKE.	130 "
NORMAL SPEED.	1,150 R.P.M.
BRAKE H.P.	27½ at normal speed.
GUARANTEED H.P.	19½ "
PETROL CONSUMPTION.	.82 pints per h.p. hour at normal speed.
R.A.C. RATING.	20.89.
COOLING.	Thermo-syphon principle.
OVERALL DIMENSIONS.	Length from front of case to fly wheel flange 32½-in. Width 21-in.
WEIGHT.	478 lbs.
VALVES.	All on one side.
TAPPETS.	Adjustable and fitted with fibre buffer.
IGNITION.	High-tension Magneto.
CARBURETTOR.	No. 25 W. & P. with variable jet.
LUBRICATION.	By pump.
BEARINGS.	5 large bearings of white metal.

PRICE

(including Carburettor, Bosch Magneto, double oil pump, and starting clutch)

"Your engine is magnificent—its flexibility is wonderful."



"I am exceedingly pleased with your engine."



100×130 Type, 25 H.P., 4 Cylinders.

The construction of this type is exactly similar to that of our 80×130 and 90×130 Engines, the only variations being dimensional.

As in other types, the Cylinders are cast in pairs, and exceptional neatness characterizes the whole design.

All the special features described on pages 10 and 14 are embodied—these include:—

The placing of the Valves all on one side.

The enclosing of the Valve Springs by an Aluminium cover, which is readily removed by means of a winged nut.

The holding of these springs in position by a simple form of Collar and Cotter, thus facilitating detachment and fitting.

The placing of Inlet and Exhaust Pipes on opposite sides, giving great accessibility.

The carrying of the Crankshaft on five large white metal bearings, one between each throw.

The extending of the sides of the Crank Case between the arms, to form a protection against dust and dirt.

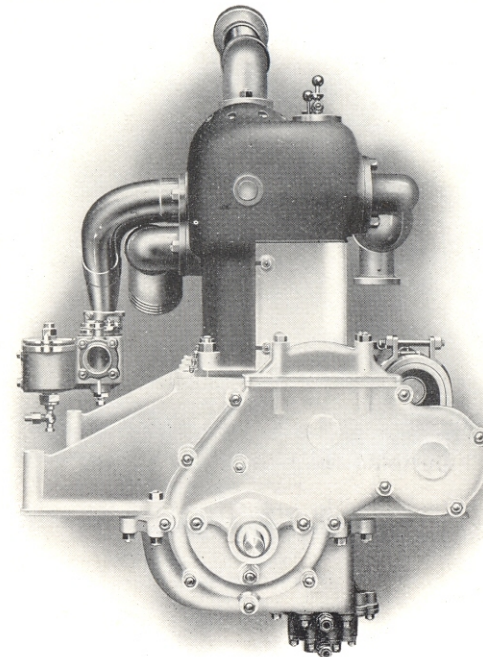
The facility for internal examination afforded by the ready detachability of the lower half of the Crank case.

A special system of Lubrication as described on pages 10 and 14, and specially designed Valve Tappets.

"Its climbing capabilities are greater than any other engine."



"Have had no trouble whatever with the engine."



Specification in brief.

BORE.	100 m.m.	STROKE.	130 m.m.
NORMAL SPEED	. . . . .		1,150 R.P.M.
BRAKE H.P.	. . . . .		36 at normal speed.
GUARANTEED H.P.	. . . . .		25½
ACTUAL PETROL CONSUMPTION	. . . . .		.66 pints per h.p. hour at normal speed.
GUARANTEED PETROL	. . . . .		.78 " " " " " "
R.A.C. RATING	. . . . .		24.8.
COOLING.	. . . . .		Thermo-syphon principle.
OVERALL DIMENSIONS.	. . . . .		Length from front of case to fly wheel flange 32½-in. Width 21-in.
WEIGHT.	. . . . .		485 lbs.
VALVES.	. . . . .		All on one side.
TAPPETS.	. . . . .		Adjustable and fitted with fibre buffer.
IGNITION.	. . . . .		High tension magneto.
CARBURETTOR.	. . . . .		No. 30 W. & P. with variable jet.
LUBRICATION.	. . . . .		By pump.
BEARINGS.	. . . . .		5 large bearings of white metal.

PRICE

(including Carburettor, Bosch Magneto, double oil pump and starting clutch)

"The running of your engine is generally admired."



"We are very pleased with the silent running of your engine."



110×130, 120×130 Types, 30 & 35 H.P., 4 Cylinders.

In these types the Cylinders are cast separately, with Combustion Chambers and Valve Pockets water-jacketed in a very liberal manner and Drain Plugs fitted at the lowest points. The cooling water is circulated by Centrifugal Pump. The Valves are arranged on opposite sides and are interchangeable. The Valve Tappets are adjustable and the top of the valve plunger is fitted with a fibre buffer in order to eradicate noise.

The Crankshaft is machined from a solid forging and is supported on five bearings, lined with white metal. The lower half of the crank chamber may be detached without interfering with any other part of the engine.

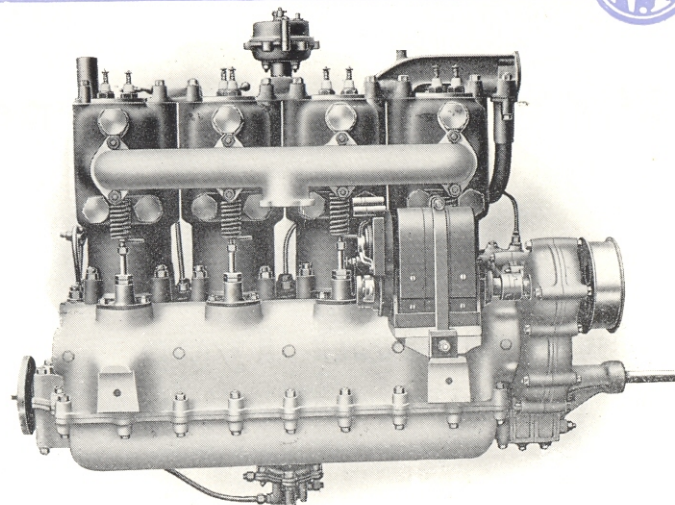
The Connecting Rods are of spring steel and the small end is bushed with phosphor bronze.

The arrangements for lubrication are very efficient—the oil being circulated by the double Pump, which is an outstanding feature of the W. & P. Engine. This system never gets out of order, keeps the bearings thoroughly lubricated, entirely eliminates all necessity for unsightly fittings on the dashboard, in which position all that is essential is a small indicator to show whether the oil is in the delivery pipe between the pump and the engine.

"I am delighted—the engine runs beautifully."



"Your engine is running sweetly and developing great power."



Specification in brief.

BORE.	110 m.m.	STROKE	130 m.m.
NORMAL SPEED.	1,150 R.P.M.		
BRAKE H.P.	41½ at normal speed.		
GUARANTEED H.P.	32½ " "		
PETROL CONSUMPTION.			
	.72 pints per h.p. hour at normal speed.		
R.A.C. RATING.	30.		
CYLINDERS.	Cast separately.		
OVERALL DIMENSIONS.	Length from front of case to flange for fly wheel 36-in. Width 23-in. Minimum distance from centre of No. 1 cylinder to radiator, 8-in. 537 lbs. without fly wheel.		
WEIGHT.	537 lbs. without fly wheel.		
VALVES	Arranged on opposite sides and interchangeable		
TAPPETS.	Adjustable and fitted with fibre buffer.		
COOLING.	By centrifugal pump.		
IGNITION.	High tension magneto and coil and accumulator.		
CARBURETTOR.	W. & P. with patented variable jet, providing a mixture of constant strength.		
LUBRICATION.	By double oil pump.		
CRANKSHAFT.	A solid forging with large bearing surfaces.		
BEARINGS.	The 5 main and the big-end bearings are white metal lined, all other bearings are phosphor bronze.		

The 35-h.p. 4-cylinder Engine is identical in all particulars, except that the cylinders have a bore of 120 m.m. The b.h.p. is 51 at normal speed; actual and guaranteed petrol consumption .68 and .72 pints per h.p. hour respectively, and R.A.C. rating 35.7 h.p.

PRICE

(including Carburettor, Contact breaker, Bosch D 4. Magneto, Pump and starting clutch)

"I cannot speak too highly of your engine."



"The engine is very flexible and pulls well up hills."



140x150 Type, 70 H.P., 6 Cylinder.

On the opposite page, we give a detailed Specification of this type, and—

Additionally, need only say—That throughout the long period during which these Engines have been in use, they have proved themselves exceptionally efficient and reliable.

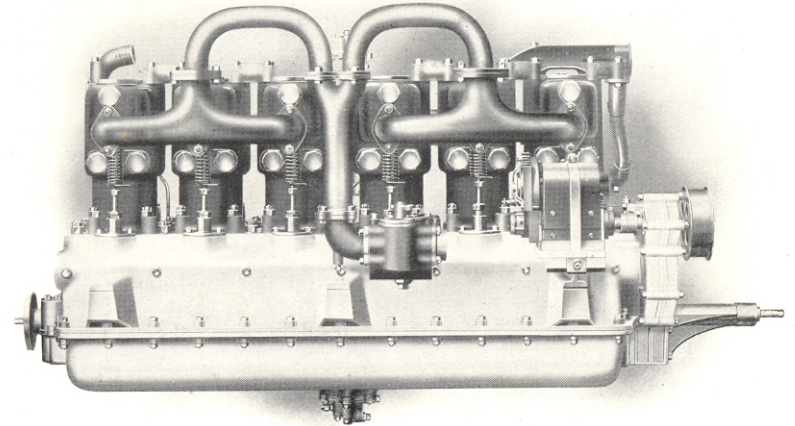
We attribute this efficiency to the thought and care we have bestowed on their design; our first consideration being the necessity for such an Engine to run for long periods under a heavy load, with a minimum of attention.

That our 140x150 does this, has been proved time and time again, by users with a wide experience—hence its increasing popularity.

"I am confident I cannot have a better engine."



"The engine has run magnificently."



Specification in brief.

BORE.	140 m.m.	STROKE.	150 m.m.
NORMAL SPEED.			1,000 R.P.M.
BRAKE H.P.			108 at normal speed.
R.A.C. RATING.			72.9.
PETROL CONSUMPTION.			.68 pints per h.p. hour.
CYLINDERS.			Cast separately.
OVERALL DIMENSIONS.			Length (from front of case to flange for fly wheel, 56-in. Width, 25 $\frac{3}{4}$ -in. Minimum distance from centre of No. 1 cylinder to radiator, 14-in.
WEIGHT.			995 lbs. without fly wheel.
VALVES.			Arranged on opposite sides and interchangeable.
TAPPETS.			Adjustable, and fitted with fibre buffer.
COOLING.			By centrifugal pump.
IGNITION.			High-tension magneto and coil and accumulator.
CARBURETTOR.			W. & P. with patented variable jet, providing a mixture of constant strength.
LUBRICATION.			By double oil pump.
CRANKSHAFT.			A solid forging with large bearing surfaces.
BEARINGS.			The main and the big-end bearings are white metal lined, all other bearings are phosphor bronze.

This Engine is also made with 127 m.m. bore, and 150 m.m. stroke; R.A.C. rating, 59.92.

PRICE

(including Carburettor, Contact breaker, Bosch D.R.6 Magneto, Pump and Starting Clutch)

"I cannot give your engine too much praise."



"The engine is eminently satisfactory."



Gear Ratios.

The following Table gives the maximum weight of loaded car for given reductions in back axle for each of the various types of engine we manufacture. A reduction of 1 to 4 or 1 to 4½ is usual and a greater reduction of 1 to 5 is exceptional. The table will serve to indicate the most suitable engine for a given weight of car and a known gear reduction.

Engine.	Tyres.	Reduction in Back Axle.		
		1 to 4	1 to 4½	1 to 5
		Weights in Cwts.	Weights in Cwts.	Weights in Cwts.
4 Cyl. 80 × 130	760	26¼	29½	32¾
	810	24½	27½	30¾
	880	22½	25½	28¼
4 Cyl. 90 × 110	760	28	31½	35
	810	26½	29¾	33
	880	24½	27	30½
4 Cyl. 90 × 130	760	33¼	37½	41½
	810	31¼	35	39
	880	28¾	32¼	35¾
4 Cyl. 100 × 130	810	38½	43¼	48
	880	35½	39¾	44¼
	920	33¾	38	42¼
4 Cyl. 110 × 130	810	46½	52½	58
	880	43	48	54
	920	41½	46	51½
4 Cyl. 120 × 130	810	55½	62½	69
	880	51	57½	64
	920	49	55	61
4 Cyl. 127 × 130	810	62¼	70	77¾
	880	57	64½	71½
	920	54¾	61½	68¼

"On hills, your engine is superb."



"Your engine is simply grand."



Re-Engining.

Although in many cases it does not pay to re-engine a car, there are instances where it is a distinct advantage to adopt this course.

In such case the owner cannot do better than select one of the many types of White and Poppe Engines, and—

When writing for particulars of Engines for this purpose or to suit a chassis that has already been constructed, we shall be glad if Car owners will give us the following particulars in order that we may definitely recommend the type which will necessitate the least structural alteration to the chassis.

1. Make of Car.
2. Make of engine.
3. Number of cylinders.
4. Bore.
5. Stroke.
6. Approximate normal speed.
7. Diameter of tyres on driving wheels.
8. Distance travelled during 10 revs. of motor on
 - 1st speed.
 - 2nd speed.
 - 3rd speed.
 - 4th speed.
 (State which is direct.)
9. Number of passengers carried.
10. Weight of Car empty.

"I cannot give your engine too much praise."



"Your engine runs very smoothly."



Small Stationary Engine. 80 x 90 Type. Single Cylinder.

(Specially suitable for Marine Work).

There are many uses to which this handy little engine can be put, and the increasing demand for a compact and efficient power producer is continuously reflected in the increase in its sales.

As will be noted from its specification it gives a H.P. of 3—it entails but a moderate initial outlay, is very cheap to run (its fuel consumption being only '85 pts. per H.P. hour) and requires no special attention beyond lubrication.

It is eminently suitable for agricultural purposes, and contractors' work, and can be readily mounted on a small hand truck.

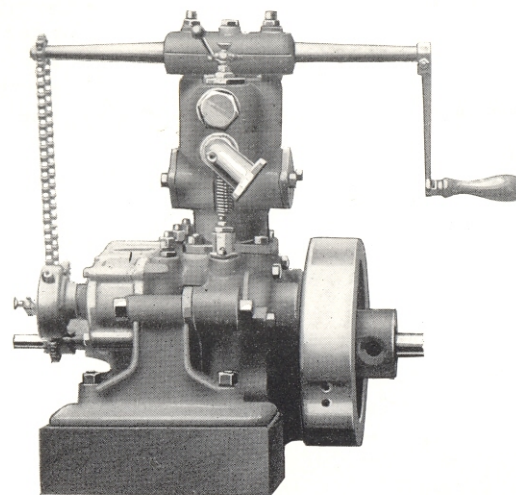
For Marine purposes it certainly has no compeer. It will drive an 18 foot boat at the rate of $6\frac{1}{4}$ to 8 knots per hour in still water and, under similar conditions, a 24 foot boat at $5\frac{1}{2}$ to $6\frac{1}{2}$ knots per hour.

It is light, compact, easily fitted, and will stand any amount of wear—it starts readily, pulls smoothly at all speeds and is remarkably free from vibration.

"It is a fine engine."



"Your engine is very powerful on hills."



Specification in brief.

BORE.	80 m.m.
STROKE.	90 "
B.H.P. at 1,100 R.P.M.	3.
B.H.P. at 800	$2\frac{1}{2}$.
PETROL CONSUMPTION.	.89 pints per h.p. hour.
COOLING.	Water circulation by Albany pump.
OVERALL DIMENSIONS.	Length, $18\frac{1}{2}$ -in.; width, $17\frac{1}{2}$ -in.
WEIGHT.	88 lbs.
IGNITION.	H.t. by accumulator and coil. W. & P. contact breaker.
CRANKSHAFT.	Very strong, with journals and pins hardened and ground.
BEARINGS.	Phosphor bronze of large surface.
VALVES.	Interchangeable.
LUBRICATION.	Splash system.
CARBURETTOR.	W. & P. patented, with variable jet.
TAPPETS.	Adjustable and fitted with fibre buffer.

PRICE

(including Inlet, Exhaust and Water Tubes, Contact breaker, Carburettor, Pump, Silencer and Fly wheel)

"I am quite satisfied with the running of the engine."



"Your engine gives plenty of power."



Lubrication.

After such White and Poppe engines as are fitted with the double oil pump have been drained, there should be sufficient oil replaced in the reservoir to ensure its return to the tank when the engine is running slowly. This, refers particularly to the following types :—

- 80 × 130.
- 90 × 130.
- 85 × 110.
- 90 × 110.
- 100 × 130.
- 100 × 150.
- 100 × 110. 1909 and 1910 models.
- 110 × 130.
- 120 × 130.
- 127 × 130. 4 and 6 cylinders.
- 140 × 150. 6 cylinders.

In the case of the following engines, which are lubricated on the splash system, these require the definite amount of oil stated below to be first placed in the crank chamber :—

- 85 × 85. Cycle engine, $\frac{1}{6}$ pint.
- 80 × 90. 1 cylinder, $\frac{3}{4}$ pint.
- 80 × 90. 2 cylinder, 1 pint.
- 80 × 90. 3 cylinder, $1\frac{1}{2}$ pints.
- 80 × 90. 4 cylinder, 2 pints.
- 80 × 90. 6 cylinder, 3 pints.
- 100 × 110. 1908, 3 pints.

"We can say that its flexibility is superb."



"I am sure the engine is the finest I have yet seen."



Spare Parts.

We keep in stock a complete supply of parts for all types of the W. & P. Engine, and usually we are in a position to supply by return.

When ordering these the serial number of the Engine, which is stamped on the top of the Crank case immediately in front of No. 1 Cylinder, should be quoted.

"I am well pleased with the engine."



"Your engine is admired by all."



Guarantee.

The reputation of the manufacturers of an article is, after all, the best guarantee of quality, but to satisfy those customers who prefer the same in legal form we issue the following:—

Instead of the guarantee implied by statute or otherwise we guarantee that all precautions which are usual and reasonable have been taken to secure excellence of materials and workmanship in every engine sold by us.

We undertake subject to the following conditions, to make good within 6 months of date of delivery any part which is defective, in material or workmanship; but in this direction no purchaser shall be entitled to claim any consequential loss or damage.

Any part alleged to be defective must be sent to us carriage paid with particulars of complaint attached, and the sender must advise us at the same time under separate cover, that he desires to have it repaired or replaced free of charge under our guarantee, and must additionally furnish us at same time with the number of the Engine, the name of the Dealer from whom it was purchased, and the date of such purchase.

The Bosch Magnetos are guaranteed separately by the makers.

"It is the quietest engine I ever heard."



Terms of Business.

PAYMENT. One-fifth of the total value of all orders must accompany the same, and balance must be paid on notification that goods are ready for delivery at our Works.

AGENTS. The term "Agent" is used in the usual complimentary sense only, and those persons or Firms who style themselves our Agents, are not authorized to advertise, incur any debts, or transact any business on our account, other than the sale of goods which they may purchase from us, nor are they authorized to give any warranty or make any representation on our behalf other than those contained in our usual guarantee.

PACKING & DELIVERY. All engines before despatch are very carefully packed in a substantial case, which is charged for but credited in full if returned in good condition without undue delay. Cases for small parts are charged extra at a nominal price and are not returnable. Delivery is, as customary, carriage forward.



A Final Word.

Our first object in the compilation of the foregoing pages has been to furnish the reader with the fullest possible information concerning every type of engine we produce.

In this we believe we have succeeded, but we also desire to emphasize the fact that—

We shall at all times be pleased to hear from any user or prospective user of a White and Poppe engine, and where any difficulty arises, place our knowledge and experience unreservedly at their disposal.



Index.

	Page.
Standard Types - - - - -	2
Our Record - - - - -	3 to 9
Cylinders - - - - -	5
Water Circulation - - - - -	5
Pistons - - - - -	6
Crank Shaft - - - - -	6
Connecting Rods - - - - -	6
Bearings - - - - -	7
Crank Chamber - - - - -	7
Tappets or Valve Lifters - - - - -	7
Carburettor - - - - -	8
Lubrication - - - - -	8
80 × 130 Type 15 H.P. 4 cylinders - - - - -	10
90 × 110 „ 18 „ 4 „ - - - - -	12
90 × 130 „ 20 „ 4 „ - - - - -	14
100 × 130 „ 25 „ 4 „ - - - - -	16
110 × 130 „ 30 „ 4 „ - - - - -	18
120 × 130 „ 35 „ 4 „ - - - - -	18
140 × 150 „ 70 „ 6 „ - - - - -	20
Gear Ratios - - - - -	22
Re-Engining - - - - -	23
Small Stationary Engine, 80 × 90 Type, Single Cylinder	24
Lubrication - - - - -	26
Spare Parts - - - - -	27
Guarantee - - - - -	28
Terms of Business - - - - -	29

