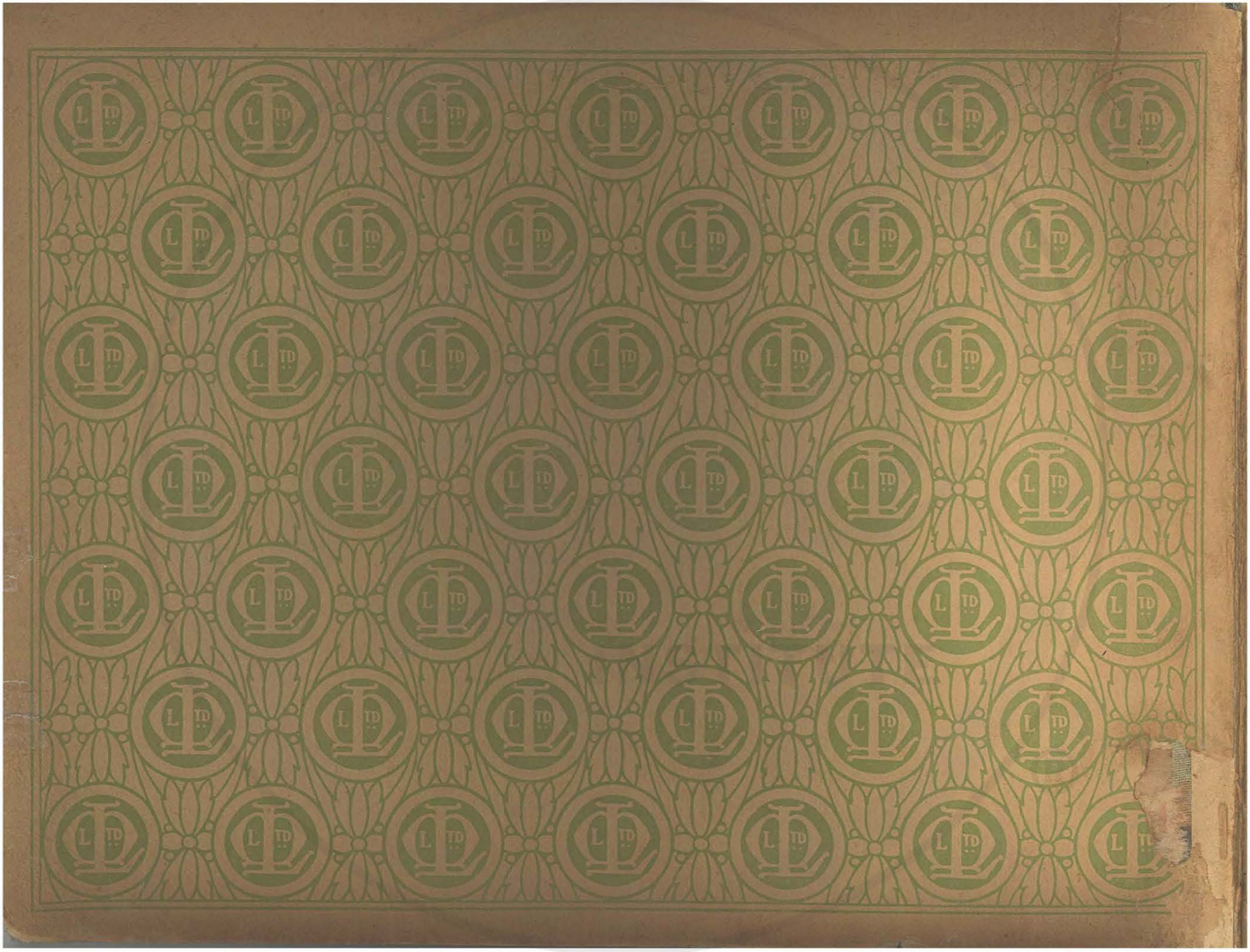
BY APPOINTMENT

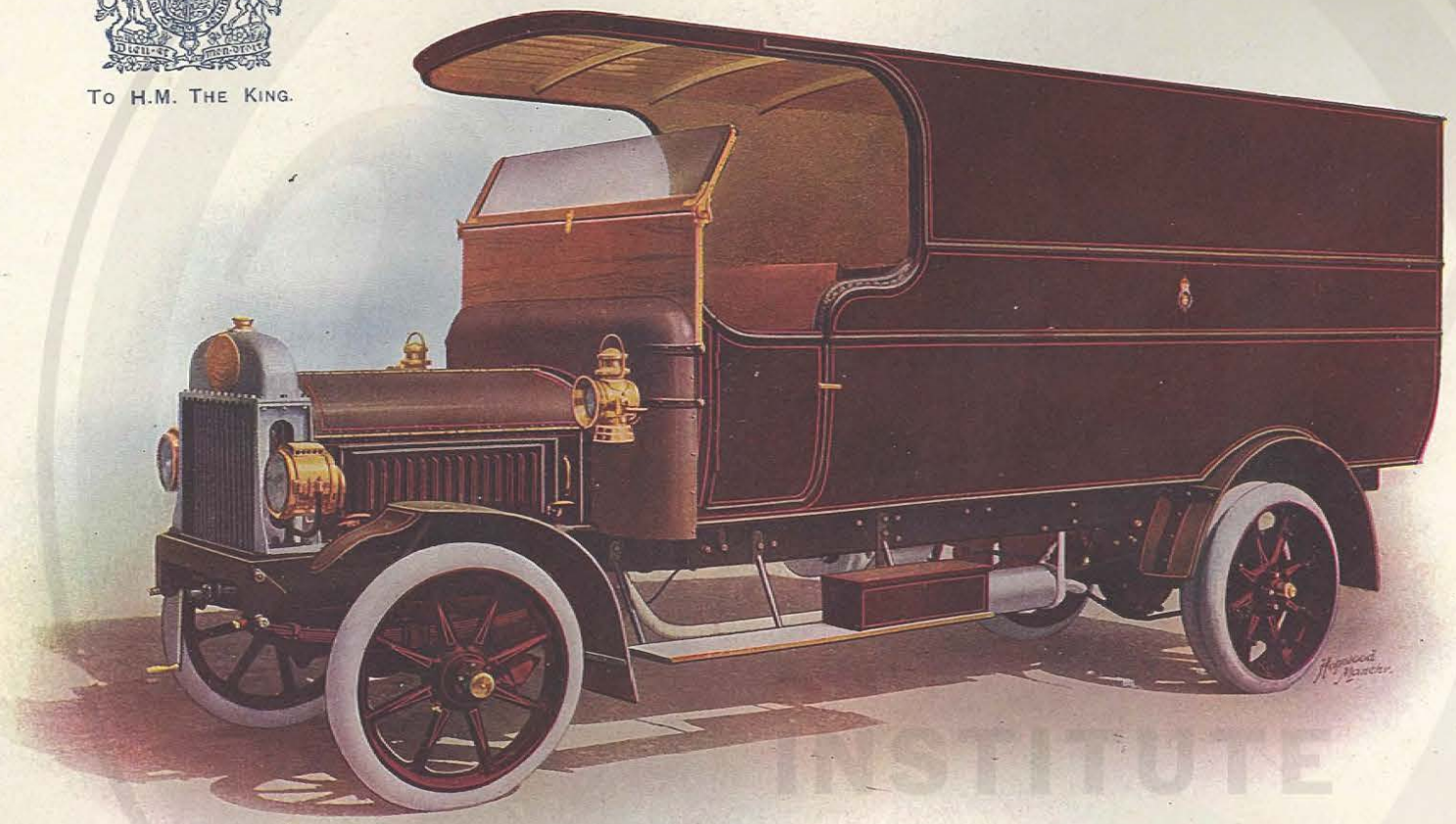
LEYLAND MOTORS LTD

ENGLAND.



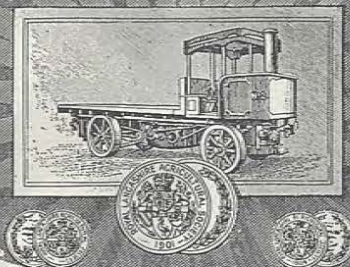
BY APPOINTMENT

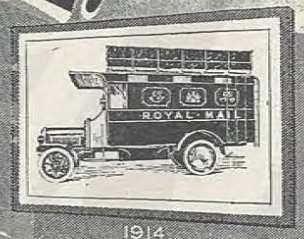
TO H.M. THE KING.



2-Ton Luggage Van, supplied to His Majesty King George V.

LEYLAND MOTORS LTD





LABORE MULTO LABORATA

THE SOCIETY OF MOTOR MANUFACTURERS & TRADERS

LEYLAND.

TWO £100 PRIZES.

Contractors to His Majesty the King, the Post Office, Admiralty, War Office, Crown Agents for the Colonies, and many of the Largest Municipal Authorities at Home and Abroad. Certificated Builders of War Office Subvention Type Lorries.

Works and Head Offices: LEYLAND, near Preston.

London Office: 47, New Kent Road, S.E.

Telegrams: "Motors, Leyland."
Telephone: No. 37, Leyland. (2 lines.)
" No. 1823 Central, Liverpool.

Telegrams : : : "Motatura, London."
Telephone: No. 8963 Central, London.
" No. 567 Hop, London.

London Depot and Garage (Open Day and Night) . . . 47, New Kent Road, S.E.
Liverpool Depot and Garage . . . . . Pickop Street, Vauxhall Road.

3000

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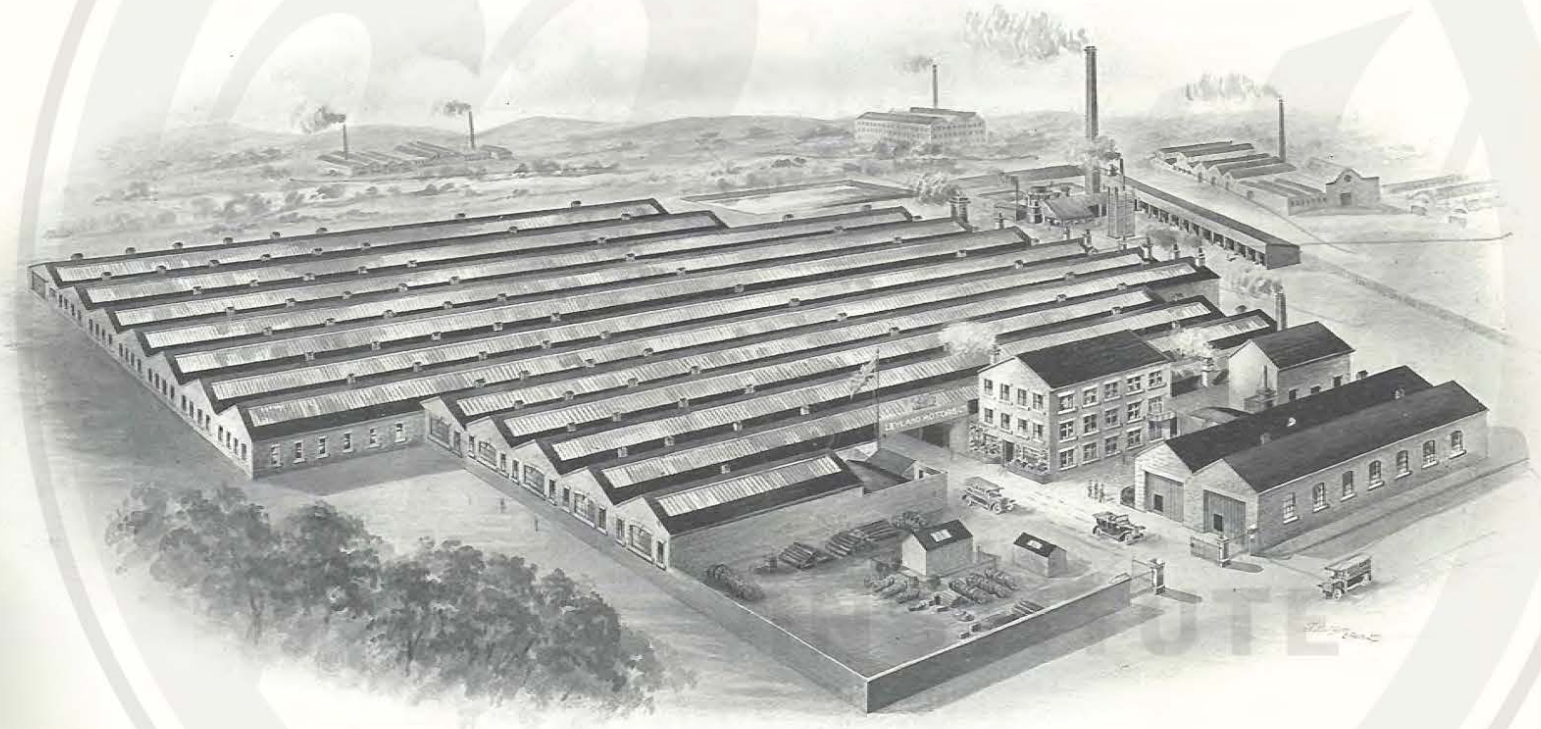


General View of the Leyland Works.

Terms of Business

Agent

The term " Agent " used by any party in connection with the sale of our manufactures is used in a complimentary sense only, and those parties whom we style agents are not authorised to advertise, incur any debts, or transact any business whatsoever on our account, nor are they authorised to give any warranty or make any representation on our behalf.

Guarantee

Every care is exercised that only the very best material and most careful workmanship are employed in the construction of our vehicles, and we are prepared to supply at our works, free of charge, any part which may prove faulty, through defects of workmanship or material, within six calendar months of delivery. In every case the defective part must be returned to us, carriage paid, for examination before we can accept liability. This guarantee does not apply to rubber tyres or electrical details not of our manufacture. We do not undertake any contingent liabilities.

Prices

The prices in this catalogue are Nett, and include delivery free on rail Leyland, and are subject to alteration without notice.

Tyres

Tyres of leading make, of proper section, and guaranteed in this country for 10,000 miles, are fitted and included in all petrol Chassis prices.

Improvements

The Company reserve the right to carry out alterations and improvements from time to time without further notification.

Customers' Vehicles

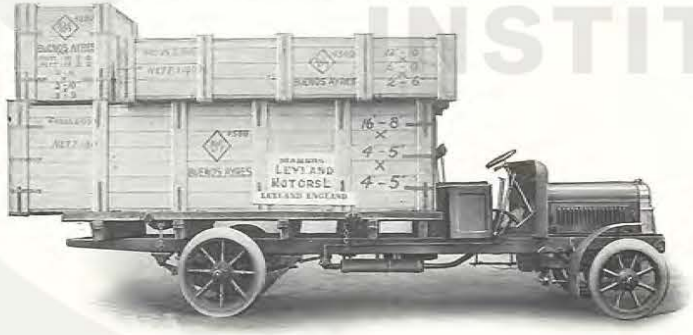
Customers' vehicles are driven by our staff only at owner's risk and responsibility.

Expert Driver

Expert driver sent, if required, for one week of 60 hours, free. Overtime and expenses charged for.

Foreign Shipment

For shipment to the Continent and to the Mediterranean, vehicles can generally be carried on deck sheeted over, at a cost for preparation of about £6, and cost of delivery alongside.



A Petrol Tip Wagon packed for Export.

For long distance shipment, however, they must be properly packed in wooden cases, with a water-proof lining, and be more or less dismantled.

Throughout our catalogue prices are given for our vehicles packed and unpacked.

If machines are to be packed in the smallest possible cases to save the most freight, Add Code Word **Dimaba.**

Payment

One-third cash with order, balance after testing in the presence of the purchaser or his representative in the neighbourhood of our works, when ready for delivery.

Painting

Estimates include ordinary painting and lining out, three coats, and colours to customers' requirements, and lettering within reason. Gilding and elaborate devices will be charged for as an extra.

Outfit

With complete vehicles we supply a horn, two side lamps, one tail lamp, with the necessary lamp brackets, and the regulation number plates.

With all Chassis we supply a full kit of tools, including oil cans, lifting jack, all necessary spanners, and certain spare parts.

Delays

It is to be understood that the Company is not in any way liable for losses caused by failure to deliver by any special date. We do our utmost to give delivery at the time promised, but in the event of strikes, lock-outs, trade disputes, accidents, fires, or other unforeseen circumstances, delivery may be suspended or delayed, and the Company cannot undertake, under any circumstances, any liability for such delay.

One of five similar fleets of "Leyland" Wagons owned by Messrs. Carter Paterson & Co., Ltd.

Six, 1909. Nine, 1910. Twenty-three, 1911. Sixteen, 1912.

Messrs. Carter Paterson's Orders

Foreword

The Firm

Leyland Motors Limited has been established since 1895, and has grown rapidly year by year, and is to-day the leading firm manufacturing both types of vehicle, viz. :—Steam and Petrol. The Works are situated near Preston, and the vehicles are tested on the Lancashire roads, which are admittedly amongst the hardest of any in the country.

The Works

The illustration on page 3 gives a rough bird's-eye view of the present Works, which cover an area of about 13 acres and employ upwards of 1,000 hands.

Messrs. Viney's Orders. Three, 1907. One, 1909. Three, 1910. One, 1911. Three, 1912. Two 1913.

Night Shift

A night shift has been worked consecutively for three years, and a great deal of new machinery is constantly being installed.

Our Future Policy

Leyland Motors Ltd. being a progressive firm, have secured a large area of ground in Leyland to provide for the further extensions which will be inevitable in the near future.

Messrs. Fairrie's Orders

Five, 1911. Two, 1912. Two, 1913.

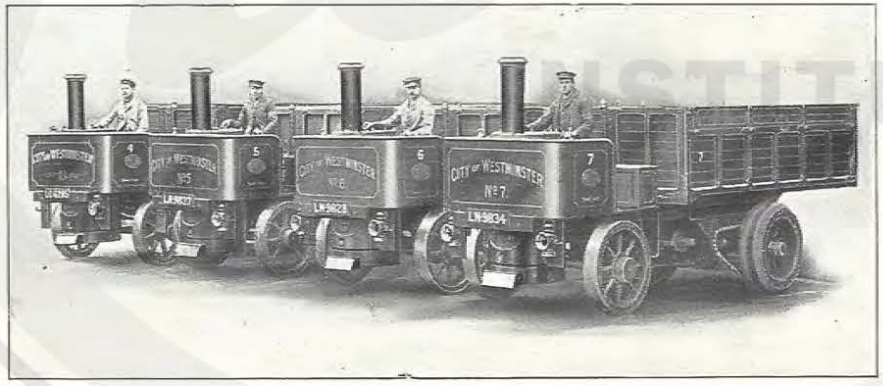
Tuition of Drivers

Prospective driver selected by purchaser may be sent to the works for a fortnight for training, pending delivery of the vehicle ; he must conform to the workshop regulations while at Leyland, and this arrangement is to be clear of any expense to us beyond that involved in the necessary instruction.

Accessibility

All parts of the " Leyland " Chassis are particularly accessible as will be readily seen from an inspection of one of our machines. Large inspection covers are provided in the crank case for access to the big ends, and large covers are fitted both to the gear box and to the back axles. The magneto, the water pump, and the oil pump are also in the best possible situation.

Some of the "Leyland" Westminster Wagons



Orders and Repeats 1906—1908—1908—1909—1910—1913

For other groups see pages 96 and 123

Interchangeability — All parts of the " Leyland " Vehicles are machined to jigs, replacements are therefore strictly interchangeable.

Spare Parts — A full series of all parts of our Chassis that are liable to wear or be damaged by accident are kept in stock for immediate delivery.

Price Lists — Illustrated price lists of Spare Parts, including Part Numbers, Code Words, Description, and Price, are in preparation, and will shortly be supplied with each Chassis turned out.

Trial Runs — A few days' trial can generally be arranged, purchase being conditional on a satisfactory result. The rates vary from 30/– to 80/– per day according to conditions.

Instruction Cards — Instructions printed on stiff cards in bold type and varnished are sent out in the tool boxes of the wagons.

Some Official Successes

Silver Medal (Highest Award) for Self-moving Vehicles, by the Royal Agricultural Society of England, Manchester, 1897.

First Prize, £100, for Self-moving Vehicle, by the Royal Agricultural Society of England, 1898.

First Prize, £100, for Self-moving Vehicles, by the Liverpool Self-Propelled Traffic Association, Incorporated 1898.

Gold Medal (Highest Award), Liverpool Trials, 1901, etc., etc.

Silver Medal (Highest Award), Royal Lancashire Agricultural Society, Manchester (for " Composite " Road Wheels), 1903.

Silver Medal (Highest and only award for Steam Road Wagons), Royal Lancashire Agricultural Society, Southport (for Patent Steam Motor Tip Wagon), 1904.

ONLY CERTIFICATES for Success in First War Office Subsidised Vehicle Trials, November, 1912, granted to Leyland Motors Ltd. for both Class " A " 3-Ton Lorry, and Class " B " 30-cwt. Lorry.

One supplied 1905; Three in 1907; Two in 1912.

Our Liverpool Premises, Vauxhall Road.

Some Liverpool Owners of "Leyland" Motors

† Petrol Type. * Steam Type. †* Both in use.

†West Lancs. Division Territorial Force.
†*Messrs. W. & R. Jacob & Co., Ltd., Scotland-rd.
,, *Jackson McConnan & Temple, Ltd.
,, *Thos. W. Roberts, Kirkdale, Liverpool.
,, *Bennetts' Haulage, Warehousing and Wharfage Co., Ltd., Liverpool.
,, *J. Bibby & Sons, King Edward Street.
,, *Liverpool Vesta Cake Co., Ltd.
,, *Binnie & Co., Ltd., Liverpool.
,, †*Fairrie & Co., Ltd., Liverpool.
,, †Wm. Hartley, Aintree, Liverpool.
,, †*Morris & Jones, Liverpool.
,, †*Liverpool United Gas Light Co.
,, †The Liver Furnishing Co., Scotland Road.
,, *J. Appleby & Sons, Ltd., Liverpool.
,, *Ismay, Imrie & Co., White Star Works.
,, R. W. Stewart, Ltd., Liverpool.
,, *Harland & Wolff, Bootle, Liverpool.
,, *John Murphy, Vauxhall Chemical Works.
,, *John Hughes, Ltd., Bootle, Liverpool.

*Messrs. Henry Tate & Sons, Ltd., Bootle.
,, †Crane & Sons, Liverpool.
,, †British Workman Public House Co.
,, *Macfie & Sons, Liverpool.
,, *Wm. Harper & Sons, Liverpool.
,, *Ridgway's, Ltd., Liverpool.
,, †*Liverpool Corporation, Liverpool.
,, †Liverpool Fire Brigade, Liverpool.
,, †Bryant & May, Liverpool.
,, *Mersey Dock and Harbour Board.
,, *F. Leyland & Co., Liverpool.
,, *Ellerman Lines, Ltd., Liverpool.
,, *David Rollo, Liverpool.
,, †Blake & Co., Liverpool.
,, *Crichton & Sons, Liverpool.
,, †B. Dudley & Sons, Liverpool.
,, †Crawford & Sons, Liverpool.
,, †English Margarine Works, Ltd.
,, *V. B. Co., Ltd., Liverpool. Etc., etc.

Telegraphic Address "MACFIE" Liverpool.

From *Macfie & Sons,*
34. Moorfields.
Liverpool, March 5th 1913.

To Messrs Leyland Motors Ltd.,
LEYLAND.

Dear Sirs,

We have pleasure in confirming our order for a fourth Leyland Steam Wagon, and are happy to state that the first wagon supplied has done excellent work since we received it more than 12 months ago, and has required no repairs whatever during that period.

Yours truly,
Macfie & Sons

A few interesting details on "Costs"

What people want to know when they first consider purchase of Commercial Vehicles, is—

1.—The Prime Cost ? And, having decided to face the capital outlay.
2.—What will they cost to **run ?**
3.—Shall they be **steam** or **petrol ?**
4.—Shall they be **rubber** or **steel** tyred ?
5.—What nett profit will they make above the cost of rail or horse transport ?

The above are all vital questions to the prospective owner. In this short article we discuss these various methods of transport to help him to arrive at a decision.

Prime Cost

(1).—The prime cost of Steam Wagons is on page 16, Petrol Chassis on page 30. Special bodies, etc., under the various sections.

Running Costs

(2).—The answer is given very fully on pages 14 and 15, where the costs are worked out fairly and under average conditions. The rates per year, per week, per day, per mile, and per ton-mile are all given, and even for ton-mileage when loaded one and both ways. All that is necessary is to decide on the carrying capacity required, and then refer to the heading under this size, and costs are given in detail for mileages of 40, 60, 80, and 100 per day. Heavy bodies, such as Vans, etc., must be considered partly as load carried. In these tables the body is assumed to be a plain platform, and as such is **not** included in the **load,** which is therefore nett. Thus, if a 3-ton motor is decided on the 3 tons can be carried on a plain platform. But only about $2\frac{1}{2}$ to $2\frac{3}{4}$ tons in a van body.

Steam v. Petrol

(3).—This question requires a careful consideration of circumstances, depending greatly on mileage, loads, local conditions, terminal delays, and so on. It is really best to consult us directly on the matter. We always have the customer's interests at heart, and especially as we make both **steam** and **petrol** lorries we can advise truly. We have a staff of technical experts, whom we will willingly send over to discuss the local aspects with you. As a general rule, however, **steam** is better for **short mileages** and **big loads,** especially where a trailer is employed and the loads get up to 8, 10, and even to 12 tons. For **long mileages** and **small loads** the **petrol** lorry is better, as it goes at a greater speed than the steamer, viz., 12 miles per hour as against 5 miles per hour. Take examples of the two cases.

Steam

Take first, a steam wagon and trailer loaded **both** ways with 10 tons and a mileage of 20 miles out and the same back. The ton-mileage is 400, and the cost on macadam roads (which are more severe by a long way than setts), is £8 per week, see page 15, column 42. This comes out at 32/– per day or $\frac{\textbf{32/-}}{\textbf{40 miles}} = 9\frac{1}{2}$d. per mile, or 1d. per ton of load per mile carried. These conditions are the best that can be got out of a steam wagon. Loaded **one** way only the ton-mileage is just about 10% less than double, or 1.8d. per ton per mile, or say 2d. at the very outside. The conditions in general town work are easier, and the costs come nearer 25/– per day, or if three loads are obtained = 30 tons (loaded one way) **the cost per ton = 10d.** for a haul of say four miles, on the average. This has even been improved with a 12-ton load, and four journeys or 48 tons (such cases are common on an organised collection and delivery) to $6\frac{1}{2}$d. per ton hauled. On work like this a

Petrol

petrol motor cannot hope to compete. So one asks where then does a petrol motor come in ? The answer is : when mileages of 50, 60, 80, or 100 are tackled in the day. A steam wagon cannot do this, since it only travels at 5 miles per hour, as already stated. The petrol does 12 miles per hour, *i.e.*, 2½ to 3 times the speed, but **without** a trailer. A case in point is a railway rate of 12/– per ton and loads of 5 tons (say) **both** ways. Take page 14, column 6, for a 5-tonner at 60 miles per day, and you get total cost at 49/– per day of 5/– per ton, or loaded **one way**, 9/6 per ton. This shows a saving of not less than 2/6 per ton, or £3 2 6 per week, or £156 per annum. Generally, loads are obtained both ways, showing a saving of 7/– per ton, or £17 10 0 per week, or £875 per year, as it is called, " paying for the motor the first year."

Tyres

(4).—The question of tyres is also important. Petrol motors in this country seldom or never run on steel tyres, rubber being the best for high speeds. Steam wagons are sometimes run on rubber tyres, but in 90% of the cases steel is the cheaper. It is not that rubber would not **suit** steam wagons, but because the price paid is next door to prohibitive. Let us explain this. The steam wagon is very heavy in itself. It tares 5 tons without water, fuel, oil, or men. Add a tank full of water to that in the boiler, several cwts. of coke or coal, oil, men, etc., and the tare (unladen) comes up to nearly 6½ tons dead weight. Now put a load of 5½ tons on, which brings the gross load up to the 12-ton legal limit, and you have 8 tons on the back axle and 4 tons on the front axle with an evenly-distributed load. You now see why the fitting of rubber tyres is " barred " on steamers. The legal speed (on rubber) goes up to 8 miles per hour, but remember the law does not allow you a trailer at the higher speed, and so you lose the best paying part of the load. There are a few exceptions where a steam vehicle may pay on rubbers, but they are not of such general importance to be considered by the average user. One of these conditions is snow, as the steel-shod tyre cannot be used with success. But the percentages of days stopped for this reason do not warrant the heavy expenditure (about £250) for rubber tyres and spare wheels.

Tare

Speed

Snow

Light Steamer

Now take a problem, which is receiving a certain amount of consideration at present, due to the temporarily high price of petrol—we refer to the 3-ton steamer on rubbers and supposed to travel at 12 miles per hour. We refer you to costs under columns 45 and 46 on page 15. Compare same with 3-ton petrol costs under Columns 13 and 15 on page 14. A glance shows you that the steamer cannot compare at all favourably ; in fact, we may state that up till recently we made a 3-ton steamer ourselves and found we **had no sale** for same in competition with our own make of 3-ton petrol. The reasons are obvious—the tare of the " light " steamer is just about 10-cwts. less than the 5 and 6-ton steamer, which comes out at 6 tons dead unladen. Granted (at the present price of petrol) a saving is shown on the steamer fuel, but look at the price of the tyres. And the steamer requires two men always, and is more or less dirty, and takes about one hour to get up steam. It has to pick water about every 15 miles, and can only carry a limited amount of coke or coal. The petrol is **always** ready to start, is clean, has a tare unladen of 3¼ tons only, and carries fuel for 160 miles or so in a small tank under the driver's seat. So convinced are we of the advantages offered by the 3-ton petrol that, as stated, we quite recently ceased to manufacture the 3-ton steamer. Our opinion is **unbiassed** too, as we are makers of both types—steam, 5 tons and upwards, and petrol, all sizes from 6 tons down to 15-cwts.

Tare

3-Ton Steamer obsolete

(**5**).—Let us now compare cartage by horses. To be fair in both cases (motor and horses) all charges are to be included.

Take the case of a 2-horse lorry complete :—

Cost of Horse Haulage

Capital Outlay.

2 horses at £60 each	£120	0	0
2 sets harness at £20 per set	40	0	0
1 lorry	30	0	0
	£190	0	0

Annual Expenditure.

Interest at 5% on £190	£9	10	0
Depreciation, horses, 10%	12	0	0
,, lorry, 10%	3	0	0
,, harness, 10%	4	0	0
Fodder, at 13/6 per week	66	0	0
Stables, at £10 per year per horse	20	0	0
Harness and repairs	4	0	0
Vet.'s charges, £1 10 0 per horse	3	0	0
Farriery, £3 10 0 per horse	7	0	0
Carter, at 35/– per week	91	0	0
Insurance, 2½%	5	0	0
	£227	10	0

This shows that a team lorry costs (say) £230 per annum, or £4 12 0 per week, or 18/– per day. Take the average mileage at 18 per day, and the average load at 4 tons. This gives a rate of 1/– per mile, or loaded **both** ways, 3d. per ton per mile, or loaded **one** way, 5.4d. per ton per mile. (Average speed of horse, 3 miles per hour).

Now to compare motors with above, let us take two examples—"A" petrol, and "B" steam. The petrol motor averages 12 miles per hour, and carries (say) 4 tons on a mileage (say) of 60. The steam motor averages 5 miles per hour, and carries 6 tons, or 10 tons on (say) 18 miles.

Petrol v. Horse

"A" Costs of 4-ton PETROL Motor from table. (80 miles per day.)

1 motor, as per costs under column 10, page 14.
£656 per annum as cost for 80 miles per day.
Or £13 2 0 per week of 5 days.
Or £2 12 6 per day.

Costs of 8 Horses and 4 Lorries. (18 miles.)

8 horses and 4 lorries as per detailed costs.
£910 per annum at 18 miles per day.
Or £18 per week.
Or £3 12 0 per day.

Assume length of journey 10 miles out and same back (approximately).

Description.	1 Motor.	2 Horses.	8 Horses.
Time travelling	1¼ hours	10¼ hours	10¼ hours.
,, loading and unloading	1¾ hours	1¾ hours	1¾ hours
In 12 hours	4 journeys	1 journey	—
,,	4 journeys	—	4 journeys
,,	16 tons	4 tons	16 tons
,,	3/4½ per ton	4/6 per ton	4/6 per ton

"B" Costs of 6-ton STEAM Wagon from table.

1 motor as per cost under Columns 41 and 42.

£400 per annum as cost for 36 miles per day.
Or £8 per week of 5 days.
Or £1 12 0 per day.

Costs of 4 horses and 2 lorries. (18 miles).

4 horses and 2 lorries as per detailed costs.
£455 per annum.
Or £9 per week.
Or £1 16 0 per day.

Steam v. Horse

Assume length of journey again at 3 miles out and same back.

Description.	1 Motor.	1 Motor and Trailer (10 tons).	2 Horses.	4 Horses.	6 Horses.
Time travelling	1 hour	1 hour	2 hours	2 hours	2 hours
,, loading and unloading ..	1¼ hours	1¼ hours	1 hour	1 hour	1 hour
In 9 hours	4 journeys	4 journeys	3 journeys	—	—
,, ...	4 journeys	4 journeys	—	6 journeys	9 journeys
,, ...	24 tons	40 tons	12 tons	24 tons	36 tons
,, ...	1/3 per ton	9½d. per ton	1/6 per ton	1/6 per ton	1/6 per ton

These two cases are instructive, as they show at once that on the short mileages, where **horses** still are in favour, that one petrol lorry will do the same tonnage as **8** horses at a less rate per ton. The capital outlay on the petrol (4-tonner) is about £760, and on 8 horses and 4 lorries the very same.

Now in the case of the 6-ton steam wagon the results are also better than horses. Without a trailer **4** horses are displaced for a similar tonnage, and work done at 3d. per ton less ; but with a trailer and a 10-ton load more than **6** horses are displaced and the cost per ton reduced 50%. The advantages therefore of **short** mileages and **large** tonnages are all in favour of the steam wagon. Capital outlay for steamer £550, and for 6 horses and 3 lorries, £570. This, we want you to note, does not by any means prove that the petrol is out-done either by horses or steam wagons ; it simply means that the short mileage added to the delays in loading and unloading are not suitable for a fast vehicle. To prove this one has only to take an **actual** case in point. Again we take the 4-ton petrol and load it **one** way first, and give it a straight run of 30 miles out and 30 miles back—total 60 miles. Refer to costs sheets (Column 10) and you will see that £2 3 0 per day covers all the costs. The rate per ton is therefore 10/9 and the railway rate is 13/- per ton, saving 2/3 per ton loaded one way. But a return load is almost always found, and so the results **actually** are 8 tons at 13/- per ton = 104/- per day. Motor costs, £2 3 0 per day. So saving is 61/- or £3 per day or £15 per week, or £750 per annum ; or, as already stated, the motor " pays for itself in a year." Result :—Long mileage and loaded both ways show a very large saving by petrol motor over horse, railway, or steam wagon.

Railway

One final word re motors. A great deal of congestion at present exists in Railway Goods Stations, Docks, Warehouses, etc., which causes serious delays in loading and unloading and in getting loads at all. Does it not, therefore, stand to reason that motors will reduce this congestion ? Why ? Because one motor does away with 4, 6, 8, or more horses for same tonnage moved, and so the fewer number of vehicles are about at one time to get in one another's way. Think this article carefully over, and write us for further information.

Relief for Congestion

Approximate Costs of Working

NOTE.—These costs are based on 250 days to a year and 5 days to the week.

		6-Ton Petrol.				5-Ton Petrol.				4-Ton Petrol.				3-Ton Petrol.				2½-Ton Petrol.			
..	Column No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
(1)	Miles per day	40	60	80	100	40	60	80	100	40	60	80	100	40	60	80	100	40	60	80	100
(2)	Cost—Chassis (with tyres and platform)	£885	..	..	..	£825	..	../	..	£763	..	..	..	£701	..	..	..	£639	..	..	..
(3)	Rubber tyres (guaranteed 10,000 miles)	£163	£244·5	£326	£407·5	£121	£181·5	£242	£302·5	£105	£157·5	£210	£262·5	£95	£142·5	£190	£237·5	£80	£120	£160	£200
(4)	Interest, 5 per cent.....	£36·5	£36·5	£36·5	£36·5	£35	£35	£35	£35	£32·5	£32·5	£32·5	£32·5	£30	£30	£30	£30	£27·5	£27·5	£27·5	£27·5
(5)	Depreciation, 15 per cent.	£109·5	£109·5	£109·5	£109·5	£105	£105	£105	£105	£97·5	£97·5	£97·5	£97·5	£90	£90	£90	£90	£82·5	£82·5	£82·5	£82·5
(6)	Repairs (per year)	£35	£40	£45	£50	£30	£35	£40	£45	£27·5	£32·5	£37	£40	£25	£29	£32	£35	£24	£27	£30	£32
(7)	Driver (35s. per week)..	£91	£91	£91	£91	£91	£91	£91	£91	£91	£91	£91	£91	£91	£91	£91	£91	£91	£91	£91	£91
(8)	Oils (per year).....	£8	£10	£12	£14	£9	£10	£12	£14	£9	£10	£11	£12	£8	£9	£10	£11	£8	£9	£10	£11
(9)	Insurances	£15	£15	£15	£15	£15	£15	£15	£15	£15	£15	£15	£15	£15	£15	£15	£15	£15	£15	£15	£15
(10)	Petrol at 1/1½ per gallon.	£112·5	£169	£225	£280·5	£94	£141	£187·5	£234	£80·5	£120	£161	£201	£70·5	£106	£141	£176	£62·5	£94	£125	£157
(11)	Petrol consumption (miles per gallon).....	5	..	..	..	6	..	..	..	7	..	..	..	8	..	..	..	9	..	..	..
(12)	Loader (22s. per week) ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(13)	Coke (8½d. per cwt.)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(14)	Coke Consumption (miles per cwt.).....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
(15)	Total Yearly Cost.	£ 571	£ 715·5	£ 860	£ 1004	£ 500	£ 613·5	£ 727·5	£ 841·5	£ 453	£ 538	£ 656	£ 741·5	£ 424·5	£ 512·5	£ 599	£ 685·5	£ 390·5	£ 467	£ 540·5	£ 617
(16)	Cost per week (about) ...	£11·4	£14·3	£17·2	£20·6	£10	£12·25	£14·5	£16·8	£9	£10·75	£13·1	£14·8	£8·5	£10·2	£12	£13·7	£7·8	£9·34	£10·8	£12·34
(17)	Cost per day (about)....	£2·3	£2·85	£3·4	£4	£2	£2·45	£2·9	£3·35	£1·8	£2·15	£2·62	£2·97	£1·7	£2	£2·4	£2·74	£1·56	£1·87	£2·16	£2·47
(18)	Cost per mile (about)....	13·75d.	11·4d.	10·3d.	9·6d.	12d.	9·8d.	8·7d.	8d.	10·9d.	8·65d.	7·9d.	7·1d.	10·2d.	8·2d.	7·2d.	6·7d.	9·4d.	7·8d.	6·5d.	5·95d.
(19)	§Cost per ton-mile (loaded both ways).....	2·3d.	1·9d.	1·72d.	1·6d.	2·4d.	1·96d.	1·74d.	1·6d.	2·72d.	2·16d.	1·97d.	1·78d.	3·34d.	2·72d.	2·4d.	2·23d.	3·75d.	3·1d.	2·6d.	2·37d.
(20)	§Cost per ton-mile (loaded one way).....	4·14d.	3·42d.	3·1d.	2·8d.	4·34d.	3·5d.	3·13d	2·8d.	4·9d.	3·9d.	3·5d.	3·21d.	6d.	4·9d.	4·32d.	4d.	6·75d.	5·58d.	4·68d.	4·5d.
(21)	Page No.	54	..	..	..	52	..	..	..	50	..	..	..	48	..	..	..	46	..	..	..

§ The costs per ton-mile loaded one way are about 10% less than double those when loaded both ways because there is less wear and tear on tyres and less petrol is used when running light.

Steam and Petrol Motors

	2-Ton Petrol				1½-Ton Petrol.				1¼-Ton Petrol.				1-Ton Petrol.				15-Cwt. Petrol.				6-Ton. Steam F.		5-Ton. Steam F.		3-Ton. Steam		
..	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	..
(1)	40	60	80	100	40	60	80	100	40	60	80	100	40	60	80	100	40	60	80	100	40‡	40‡	40‡	40‡	40	80	(1)
(2)	£579	..	..	..	£532	..	..	..	£492	..	..	..	£430	..	..	..	£400	..	..	..	£560	†£628	£550	*£608	£653	..	(2)
(3)	£71	£106·5	£142	£177·5	£66	£99	£132	£165	£60	£90	£120	£150	£49	£73·5	£98	£122·5	£36	£54	£72	£90	..	..	..	..	£163	£326	(3)
(4)	£25	£25	£25	£25	£22·5	£22·5	£22·5	£22·5	£21·3	£21·3	£21·3	£21·3	£18·8	£18·8	£18·8	£18·8	£18	£18	£18	£18	£28	£31	£27	£30	£25	£25	(4)
(5)	£75	£75	£75	£75	£67·5	£67·5	£67·5	£67·5	£64	£64	£64	£64	£56·4	£56·4	£56·4	£56·4	£54	£54	£54	£54	£84	£93	£81	£90	£75	£75	(5)
(6)	£22	£24	£26	£28	£21	£23	£25	£27	£20	£22	£24	£26	£19	£21	£23	£25	£18	£20	£22	£24	£50	£60	£50	£60	£30	£40	(6)
(7)	£91	£91	£91	£91	£91	£91	£91	£91	£91	£91	£91	£91	£91	£91	£91	£91	£91	£91	£91	£91	£91	£91	£91	£91	£91	£91	(7)
(8)	£7·5	£8	£8·5	£10	£7	£7·5	£8	£9	£6·5	£7	£8	£9	£6	£6·5	£7	£7·5	£5·5	£6	£6·5	£7	£16	£17	£14	£15	£12	£13	(8)
(9)	£15	£15	£15	£15	£15	£15	£15	£15	£15	£15	£15	£15	£15	£15	£15	£15	£15	£15	£15	£15	£17	£19	£17	£19	£17	£17	(9)
(10)	£56·5	£85	£113	£141	£47	£70·5	£94	£117·5	£40	£60	£80	£100	£37·5	£56·3	£75·5	£94·3	£35	£52·5	£70	£87·5	..	..	..	..	..	..	(10)
(11)	10	..	..	..	12	..	..	..	14	..	..	..	15	..	..	..	16	..	..	..	..	..	..	..	..	..	(11)
(12)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	£55	£55	£55	£55	£55	£55	(12)
(13)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	£36	£42	£36	£42	£32	£64	(13)
(14)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10	8	10	8	11	11	(14)
(15)	£363	£429·5	£495·5	£562·5	£337	£396	£455	£514·5	£317·8	£370·3	£423·3	£476·3	£292·7	£338·5	£382·7	£430·5	£272·5	£310·5	£348·5	£386·5	£377	£408	£371	£402	£500	£706	(15)
(16)	£7·3	£8·6	£10	£11·2	£6·7	£8	£9·1	£10·3	£6·3	£7·4	£8·5	£9·5	£5·8	£6·8	£7·6	£8·6	£5·4	£6·2	£7	£7·7	£7·5	£8	£7·5	£8	£10	£14	(16)
(17)	£1·5	£1·7	£2	£2·2	£1·34	£1·6	£1·8	£2·1	£1·26	£1·5	£1·7	£1·9	£1·16	£1·36	£1·5	£1·7	£1·1	£1·25	£1·4	£1·5	£1·5	£1·6	£1·5	£1·6	£2	£2·8	(17)
(18)	9d.	6·8d.	6d.	5·75d.	8d.	6·4d.	5·4d.	5d.	7·6d.	6d.	5·1d.	4·7d.	7d.	5·5d.	4·5d.	4·1d.	6·7d.	5d.	4·2d.	3·6d.	9d.	9·5d.	9d.	9·5d.	12d.	8·4d.	(18)
(19)	4·5d.	3·4d.	3d.	2·87d.	5·3d.	4·25d.	3·6d.	3·34d	6·1d.	4·8d.	4·1d.	3·75d.	7d.	5·5d.	4·5d.	4·1d	8·8d.	6·7d.	5·6d.	4·8d.	1·5d.	·95d	1·8d.	1·2d.	4d.	2·8d.	(19)
(20)	8·1d.	6·12d.	5·4d.	5·17d.	9·5d.	7·6d.	6·5d.	6d.	11d.	8·6d.	7·4d.	6·75d.	12·6d.	9·9d.	8·1d.	7·4d	15·8d.	12d.	10d.	8·64d	2·75d.	1·75d.	3·2d.	2·1d.	7·2d.	5d.	(20)
(21)	44	..	..	..	42	..	..	..	42	..	..	..	40	..	..	..	40	..	..	..	21	..	20	..	..	..	(21)

* With Trailer carrying 3 tons. † With Trailer carrying 4 tons. ‡ Steel Tyres.

Note.—These costs are at the best approximate, but they are very reliable, and will give those interested a good idea of the charges incurred with any particular motor.

Price List of Steam Wagons

Page.	Description.	CHASSIS.			COMPLETE VEHICLE.		
		Price (a)	Code Word.	Extra for Packing.	Price (b)	Code Word.	Extra for Packing.
19-20	5-Ton Standard Wagon	£525	**Dimace**	£20	£550	**Dimadi**	£25
21	6-Ton Wagon	£535	**Dimafo**	£22	£560	**Dimagu**	£26
21	8-Ton Special Wagon	£580	**Dimany**	£25	£612	**Dimarr**	£30
22	5-Ton Tip Wagon, hand tip	£540	**Dimast**	£20	£595	**Dimbax**	£30
22	5-Ton Tip Wagon, mechanical tip	£557	**Dimbel**	£20	£612	**Dimbib**	£30
103	1,000 Gallon Tank Wagon, no tipping gear	£535	**Dimbog**	£20	£593	**Dimbur**	£30
118	Vacuum Tank Wagon	£540	**Dimbyt**	£20	£620	**Dimcal**	£30
102-103	Municipal Combination Hand Tip and Tank	£540	**Dimcen**	£20	£653	**Dimciv**	£30

For particulars of Municipal Motors, see pages 97 onwards

NOTES.—(a). Chassis price includes seat, steam type cab, lamps, tools, and lead colour finish and delivery Leyland.
(b). Complete Vehicle prices include body specified, painting and ordinary lettering and delivery Leyland.

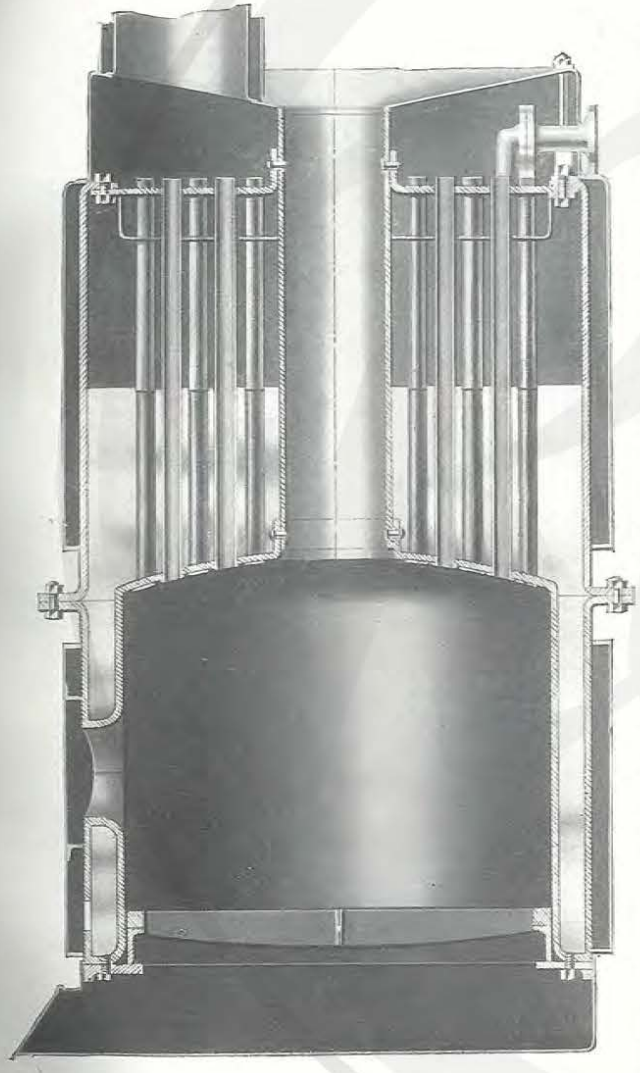
Steam Wagon Extras

Particulars.	Price.	Code Word.	Extra for Packing.
Petrol Type Cab (illustration facing page 71)	£5	**Dimcle**	£2
Petrol Type Cab, with doors each side	£9	**Dimcof**	£2
Winding Drum	£3	**Dimcus**	
Trailer Brake Attachment	£5	**Dimcyn**	
All-Steel Road Wheels	£15	**Dimdan**	
All-Steel Tip Body	£8	**Dimdeb**	
Solid Rubber Tyres, 160 m/m. section, for 5 tonner about	£185	**Dimbol**	
,, ,, ,, 140 ,, ,, 4 ,, about	£140	**Dimdug**	
Top Sides to Tip Wagon	£5	**Dimdyr**	
Hinged Removable Sides and Tailboard Platform Wagon	£14	**Dimebi**	
Made entirely of teak, for hot climates	£12	**Dimect**	
Sand-boxes (see page 122.)	£18	**Dimectab**	

Leyland Heavy Pattern Steam Wagon and Trailer.

General Description of 5-Ton Steam Wagon complying with the L.G.B. Regulations

Boiler



Elevation.

Advantages

Convenience, accessibility, lightness, average efficiency (due to ease of scaling), absence of stays, safety, freedom from scorching (because water is always over firebox even on the steepest hill).

Location

The advantage of placing the weight of the boiler forward of the front axle is that it enables us to carry a greater weight on the back axle than is possible to builders who place the bulk of their boiler behind the front axle.

Tube Cleaning

By undoing six gun-metal nuts the smoke box can be removed and all the tubes cleansed.

Scaling

By breaking the two main joint rings of the boiler, the whole of the interior, both tubes and fire box, can be cleaned and made equal to new.

Expansion

By the acetylene welding process in the absence of foundation and other rings our fire box is given free expansion, avoiding grooving of plates, and leaving no dead metal to become overheated.

Prevention of Corrosion

Some years ago, the only remaining trouble with the vertical boiler was the corrosion of the tubes just above the water line. We have entirely overcome it by fitting the steel tubes with copper sleeves for the upper portion of their length.

Anti-Primer

It will be observed that a steam box is provided just below the top tube plate. The steam enters one side, and passing across the tubes, without the presence of water, becomes thoroughly dried.

Super-Heater

The superheating coil fitted with our poppet valve engines is not shown in the illustration, but consists of a coil suspended below the tubes and above the fire. It is made of hydraulic tubing, the life of it being about 12 months, and the expense of renewal only a small matter.

Size

Diameter, 2-ft 6-in. ; heating surface, 67 sq. ft. ; grate area, 3·2 sq. ft. ; number of tubes, 105.

Testing

All our boilers are built under the supervision of the Manchester Steam Users' Association, The National Boiler and General Insurance Co., Ltd., or other firm specified by customer.

Price

Tested and lagged .. **£105** Code Word : **Dimeda.**
Complete .. .. .. **£145** ,, ,, **Dimefe.**

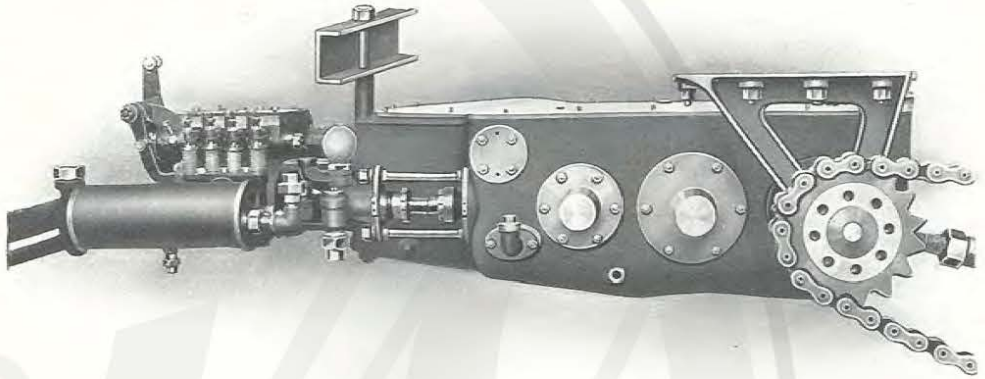
65 cu. ft. ; lift, 1 ton.

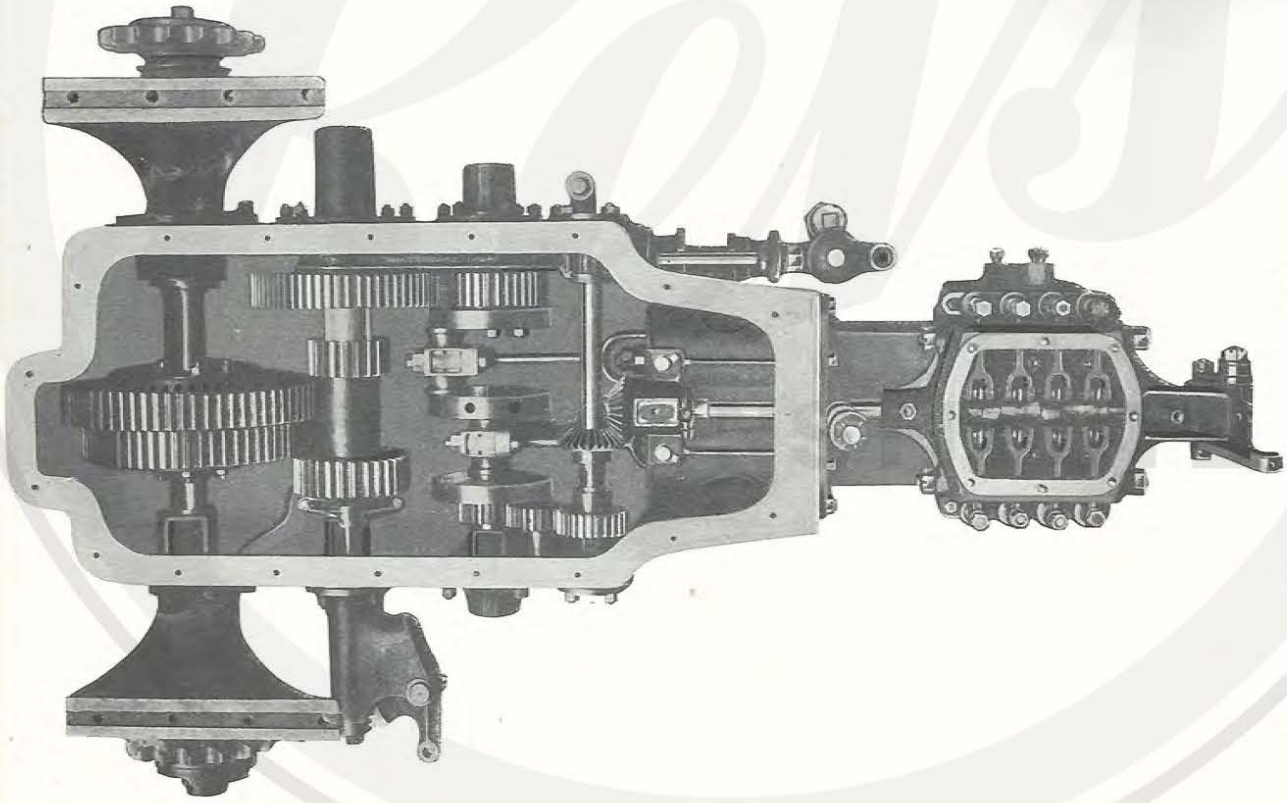
Engine

Cylinders The Engine has two high-pressure, double-acting cylinders, bore 4½-in. by 6-in. stroke.

Bearing Surface Note the great length of the gun-metal bearings, which, protected from dust, are almost everlasting.

Valve Gear The cam shaft is worked by a wheel gearing off the crankshaft, provision being made on the cam shaft for "notching up" and reversing the engine. This gear runs continuously in a rotary direction, and is therefore absolutely free from vibration.





Valves Note the poppet valves, the mo suitable form of valve for supe heated steam. There are separa valves for the inlet and exhaust.

Feed Pump Made throughout of gun-met and all parts, valves, and glan readily accessible.

Feed Water Heater This will be observed adjacent the feed water pump, and is of t type adopted by us for many yea with no internal joints to give troub

Change-Speed Gear The double pinion for changi the gear, and all the gearing its runs in oil, the pinion shaft bei provided with splines or keys machin from the solid.

Price **£250.** Code Word—**Dimego**

Shipping Specification

130 cubic ft. ; lift, under 3 to

Chassis

Carrying Capacity

On good macadam or paved roads, and on gradients not exceeding 1 in 9, 5 tons on the wagon, 3 tons on the trailer.

Platform

Platform, 13-ft. 6-in. long × 6-ft. 6-in. wide, outside measure.

General Dimensions

Length overall, 19-ft. 5-in. ; width overall, 7-ft. 2-in. ; height, 9-ft. 0-in. ; wheel base, 10-ft. 0-in. ; front wheels, 3-ft. 0-in. diameter, 6-in. wide ; back wheels, 3-ft. 6-in. diameter, 10-in. wide ; height from ground to top of frame (loaded), 3-ft. 3-in. ; length, back of driver's seat to back of frame, 13-ft. 10-in. ; tare, 4 tons 19 cwts. ; speeds, 3 and 6 miles per hour.

Engine and Transmission

The engine is fitted with two high-pressure double-acting cylinders, 4½-in. diameter × 6-in. stroke.

All the moving parts and change speed and reversing gear are contained in one oil-tight casing. The cylinders and casing are of the highest grade cast iron. The gear wheels are of steel with teeth machined from the solid, and the crankshaft is also machined from a solid billet of special mild steel, and the connecting rods and valve motion are made from steel stampings. All wearing parts where not fitted with gun-metal are case-hardened and ground. It will be seen that there is a reduction between the crankshaft and the second motion shaft, and that between this and the differential shaft, which carries the chain pinions, two changes of speed are provided. The valves are of the poppet type, separate valves being provided for inlet and exhaust. The horizontal cam shaft is placed on top of the cylinders to actuate the valves through rocking levers. This shaft can be moved horizontally to vary the cut-off, and to reverse the engine, and it is driven from the crankshaft by machine-cut spur gearing.

Boiler

For particulars of boiler, see page 17.

Pumps

The Boiler is fed by a pump geared to the crankshaft of the engine, and capable of being used when the engine is running or standing ; and further, by an automatic injector having a separate suction from the water tank.

Wheels

The wheels, in ordinary circumstances, are of our "Composite" pattern (which we designed in 1901).

The tyres are of weldless steel, hydraulically fitted.

Brakes

Our improved internal Brakes are fitted inside the chain rings, and are protected from dust. They are capable of skidding the back wheels on any reasonable gradient in either direction. The L.G.B. have held that, subject to this stipulation, the reversal of the engine is equivalent to a second brake within the meaning of the Act.

Fuel

Ordinary gas coke is the fuel generally adopted. Hard Welsh coal, when obtainable, can be used with excellent results.

Water

The water is carried in a galvanized iron tank with wash plates, carried in an oak cradle, and having a capacity for from 10 to 18 miles according to the nature of the road.

Cab

Each wagon is supplied with a Standard Pattern Cab mounted on four posts, and as illustrated on page 20, with a strongly-boarded top with rails, and suitable for the accommodation of several bags of coke.

When desired, a Petrol Pattern Cab, as coloured illustration facing page 30, can be supplied at an extra cost of **£5.**

Price

Chassis, **£525.** Code Word : **Dimenu.**
Complete Wagon, **£550.** Code Word: **Dimepp.**

Extra for packing, **£25.**

Shipping Specification.

See page 20.

STANDARD STEAM WAGON

For Special Bodies, see pages 71 etc., and 104.

For Prices of extras, see page 16.

5-Ton Steam Wagon.

Price, complete, £550. CODE WORD—**Dimerk.** Extra for packing in one or several cases, **£25**

Shipping Specifications (Approximate)

Wagon Packed in Parts.	Actual Weight.	MEASUREMENTS.	Cubic Feet.	Shipping Weight.
Frame	6 cwts.	19-ft. 6-in. × 3-ft. 7-in. × 0-ft. 7-in.	36	18 cwts.
Boiler	18 ,,	4-ft. 6-in. × 3-ft. 9-in. × 3-ft. 9-in.	64	52 ,,
Engine with 1-ton Axles, Springs, etc.	43 ,,	6-ft. 8-in. × 5-ft. 2-in. × 2-ft. 6-in.	87	43½ ,,
Bunker, Seat, etc.	— ,,	4-ft. 0-in. × 2-ft. 10-in. × 6-ft. 7-in.	75	38 ,,
Angle Frame	— ,,	6-ft. 7-in. × 6-ft. 0-in. × 0-ft. 4-in.	13	6½ ,,
Front Wheels (unpacked)	6 ,,	3-ft. 0-in. × 3-ft. 0-in. × 2-ft. 0-in.	18	9 ,,
Back Wheels	14 ,,	3-ft. 6-in. × 3-ft. 6-in. × 2-ft. 6-in.	32	16 ,,
Plain Platform	12 ,,	14-ft. 0-in. × 7-ft. 0-in. × 1-ft. 0-in.	100	50 ,,

Packed in one large case. Length, 20-ft. 6-in. ; width, 8-ft. ; height, 6-ft. ; cube, 860 cu. ft. ; gross weight, under 7 tons.
To omit the platform does not materially reduce the size of the case.

6-Ton Steam Wagon

Description — This is generally the same as the vehicle described on pages 17-20, except—

Carrying Capacity — On good macadam or paved roads, and on gradients not exceeding 1 in 9, 6 tons on the wagon, 4 tons on the trailer.

Overall sizes — Length, 20-ft. 5-in. Width, 7-ft. 2-in.

Platform — 14-ft. 6-in. × 6-ft. 6-in., outside measure.

PRICE — Complete, **£560.** Code Word—**Dimesy. Price** for packing, **£26.**

Approximate Shipping Specification — In one case—21-ft. 6-in. × 8-ft. 0-in. × 6-ft. 0-in. Gross weight, under 8 tons.

In several cases—coming out at about 9 tons by measurement.

8-Ton "Colonial" Steam Wagon

Description — Generally as described on pages 17-20, except—

Carrying Capacity — On good macadam or paved roads and on gradients not exceeding 1 in 9, 8 tons on the wagon, and 4 tons on a trailer.

Overall sizes — Length, 22-ft. 5-in. Width, 7-ft. 2-in.

Platform — 16-ft. 6-in. × 7-ft. 0-in.

PRICE — **£612.** Code Word—**Dimfah. Price** for packing, **£30.**

Approximate Shipping Specification — In one case—23-ft. 6-in. × 8-ft. 0-in. × 6-ft. 0-in. Lift, under 9 tons.

In several cases—coming out at about 10 tons by measurement.

All-Steel Wheels — Extra, **£15.** Code Word—**Dimfev.**

5-Ton Standard Steam Tip Wagon

Carrying Capacity

On good macadam or paved roads, and on gradients not exceeding 1 in 9, 5 tons on the wagon, 3 tons on the trailer.

General Dimensions

Length overall, 18-ft. 3-in. ; width overall, 7-ft. 2-in. ; height, 9-ft. ; wheel base, 9-ft. 8½-in. ; front wheels, 3-ft. 0-in. diameter, 6-ft. wide ; back wheels, 3-ft. 6-in. diameter, 10-in. wide ; height from ground to floor (loaded), 3-ft. 11-in. (light), 4-ft. 2-in. ; length, back of driver's seat to hinge pin, 9-ft. 2-in. ; tare, 4 tons 10 cwts. ; speeds, 3 and 6 miles per hour.

Engine Transmission Boiler Feeds, Pumps, etc.

All these details same as for Standard Platform Wagon, page 17 onwards.

Tip Body

The body is very heavily framed of well-seasoned ash, and the bottom and the sides are of hard wood and lined with sheet iron. It is thoroughly protected against damage by ironing at the corners and along the top of the sides. The back door is hinged at the top, and is held in position by a bolt worked by a lever underneath the body. The inside dimensions are :—

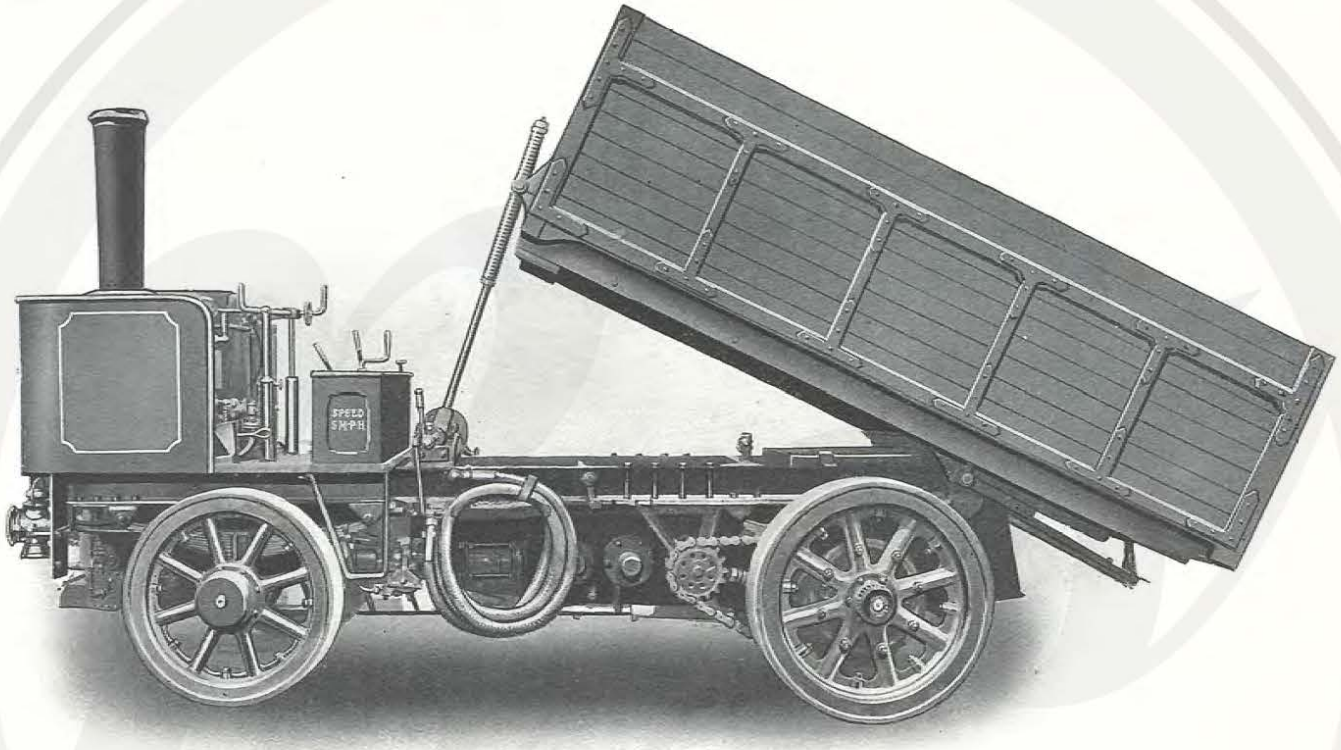
For details of Tank Wagons, see page 103

Length, 11-ft. 0-in. ; width at front, 5-ft. 8-in. ; width at back, 5-ft. 11-in. ; depth, 2-ft. 0-in. This gives a cubic capacity of 7½ yards, with 12-in. detachable side boards, but the dimensions can be varied to suit special requirements.

Tipping Gear

The body is designed to be sufficiently strong to carry the load independently of the steel frame on to which it is hinged. It is elevated from the front end by our Patent Telescopic Tipping Gear, which is self-sustaining and fitted with two screws. When commencing to tip, the screws act differentially, so that the leverage attainable is very great. When the load has been lifted about half way, the screws act singly, so that the tip is finished at increased speed. When required, this gear is arranged to be worked from the crank-shaft of the engine, this increases the price of the wagon.

Vacuum Wagons, see page 118



Prices

Complete, including Body and Cab.	Price.	Extra.	Code Word.	Extra for Packing.
With Hand-tipping Gear	£595	—	Dimfin	£30
,, Mechanical Tipping Gear	£612	—	Dimfod	£30
,, Extension Top Sides	—	£5	Dimful	—
,, Hinged Removable Main Sides	—	£8	Dimfye	—
,, All-Steel Body	—	£12	Dimgab	—

Approximate Shipping Specification

	Gross Weight. Tons.	Cwts.	Measurements.	Cube.	Shipping Weight. Tons.	Cwts.
Body and Sundries	3	9	12-ft. 3-in. × 7-ft. 0-in. × 4-ft. 0-in.	343	8	10
Engine and Sundries	2	8	7-ft. 0-in. × 5-ft. 3-in. × 3-ft. 6-in.	130	3	10
Boiler	—	18	4-ft. 9-in. × 3-ft. 9-in. × 3-ft. 6-in.	63	1	10
Two Wheels	—	6	3-ft. 0-in. × 3-ft. 0-in. × 2-ft. 0-in.	18	—	9
Two Wheels	—	14	3-ft. 6-in. × 3-ft. 6-in. × 2-ft. 6-in.	32	—	16
Frame	—	5	15-ft. 1-in. × 3-ft. 7-in. × 0-ft. 7-in.	32	—	16

FURNITURE REMOVALS

For costs of running this Motor with and without a Trailer,
see page 15, columns 43 and 44

Standard 5-Ton WAGON with 13-ft. 6-in. Platform. Carrying Lift Van and drawing Pantechnicon.

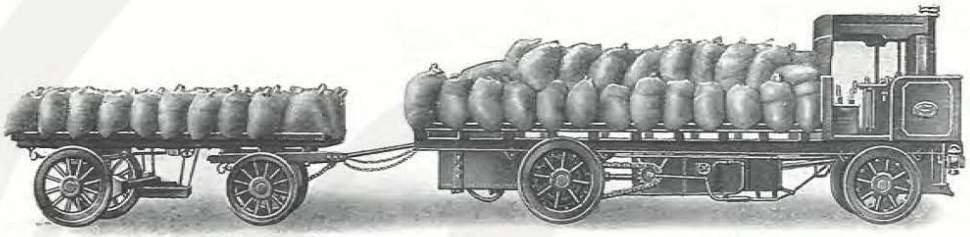
Winding Drum, £3 extra

6-TON STEAM WAGON and 4-TON TRAILER

For costs of running,
see page 15, columns 41 and 42

Standard 6-Ton WAGON and TRAILER. Showing Winding Drum.

8-TON SPECIAL STEAM WAGON



Special heavy Steam Wagon, suitable for dock work and large loads.

Price, £612. CODE WORD—**Dimged.** Extra for packing, **£30.**

Trailer Brake Attachment, £5 extra

For Special Vacuum Tank Wagon see page 118

TIMBER WAGON

Wagon with Bolsters, £575. CODE WORD—**Dimgic.** Extra for packing, **£30.** **Trailer, £68.** CODE WORD—**Dimgow.**

Specification

This Chassis is our Standard 6-ton Chain-driven Chassis. The distance between the back of the driver's seat and the end of the frame is 16-ft. 9-in. The distance between the same point and the centre of back axle is 10-ft. Wheel base is 12-ft. 2-in. The cross bearers, four in number, are of oak heavily ironed, and a box is provided to carry the pins and other tackle.

Approximate Shipping Specification

Complete Wagon in one case, 23-ft. 6-in. long, 8-ft. wide, 6-ft. high, 1,175 cu. ft. ; gross weight, under 8 tons.

3 and 4-Ton Trailer

Only one set of Brakes is fitted to the Wagon in the illustration, which is not our standard practice

Dimensions of Platform	3-ton, 12-ft. 0-in. × 5-ft. 9-in. outside. 4-ton, 13-ft. 6-in. × 6-ft. 4-in. outside.
Body Framing	To be of American ash with usual ironing, and thoroughly braced and jointed.
Boarding	In tongued and grooved maple.
Wheels	"Leyland Composite" Pattern. Front, 2-ft. 10-in. × 5-in. ; rear, 3-ft. 3-in. × 6-in.
Tyres	Weldless steel, hydraulically fitted.
Axles	Best mild axle steel fitted in oak beds.
Brakes	Two sets are fitted, one operated from the side of the lorry, and applied to the rear tyres ; the other operated from the steam wagon and applied to brake drum on the rear hubs. See illustration on opposite page.
Drawbar	A strong round section triangular draw bar is fitted Spring Drawbar, **£2** extra. Code Word—**Dimhap.**
Locking Device and Buffers	All our trailers are now fitted with hard wood buffers and a device which fixes the lock by up-ending the drawbar, thus permitting the wagon to back the trailer with comparative ease.
Painting	The whole to be painted and lettered to customers' requirements.
Price	3-ton, **£88.** Code Word—**Dimhem.** Price for packing, **£10.** 4-ton, **£98.** Code Word—**Dimhie.** Price for packing, **£10.**
Approximate Shipping Specification	14-ft. 6-in. × 7-ft. 0-in. × 3-ft. 6-in. 360 cubic feet. Lift, under 3 tons.

4-Ton Tipping Trailer

Overall Dimensions — Length, 13-ft. 0-in. ; width, 6-ft. 0-in. ; height, 5-ft. 10-in. (light).

Body — Framed in American Ash, securely ironed, and boarded with tongued and grooved maple. Length, 10-ft. 6-in.; width at front, 5-ft. 4-in. ; back, 5-ft. 2-in. ; sides, 2-ft. 0-in. high (inside dimensions).

Height, ground to floor, 3-ft. 10-in. when light.

Chassis Frame — Channel Steel, properly braced.

Wheels, Axles. Brakes, Draw Bar, Painting — All these details will be exactly the same as the trailer described on page 26.

Tipping Screw — This is of our standard double telescopic screw as fitted to our steam wagons. The tipping is hand operated, and allows the body to take such an angle that all material is shot out.

Price — **£125.** Code Word—**Dimhoc.** Extra for packing, **£15.**

Approximate Shipping Specification — 14-ft. 6-in. × 7-ft. 0-in. × 4-ft. 0-in. 460 cubic feet. Lift, under 4 tons.

Compressed Air Plant Wagon

General Dimensions and Particulars — The same as for Standard 5-Ton Wagon, page 17, except as follows :—

Boiler — Of extra large capacity and grate area.

Body — Generally as illustrated, fitted up to contain the apparatus, and to carry tools, hose, and other plant.

Compressor — To be of the twin cylinder vertical double-acting pattern, to deliver 150 feet of free air at 100-lbs. pressure, or 170-ft. free air at 50-lbs. pressure.

Accessories — The plant includes cooling tank, circulating pump, the necessary piping, an air reservoir fitted with safety valve, and with six outlet valves.

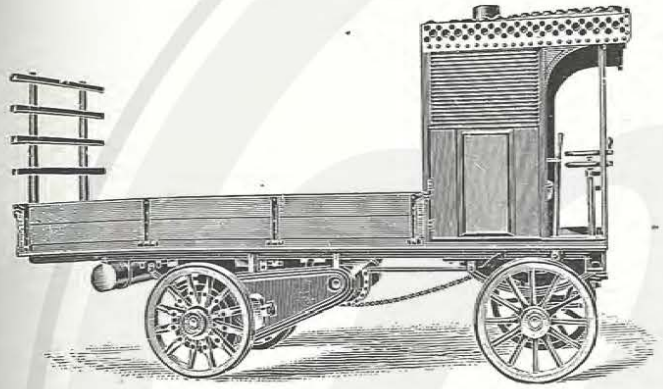
Price — **£725.** Code Word—**Dimhun.** **Price** for packing, **£35.**

Approximate Shipping Specification — Packed whole, 21-ft. 0-in. × 7-ft. 8-in. × 10-ft. 3-in. Lift, 10 tons 16-cwts.

This Wagon can be packed in parts on the lines of the Shipping Specification on page 20, to measure about 600 cu. ft.

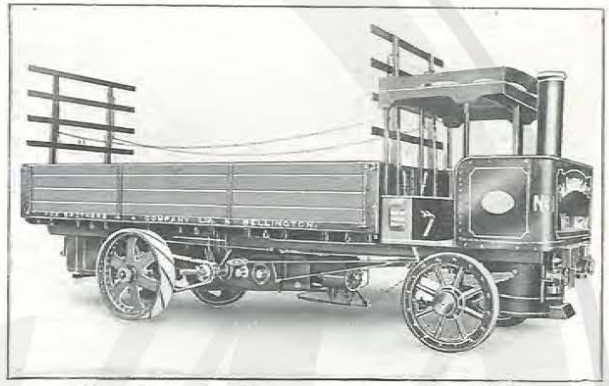
Solid rubber tyres, enabling the machine to travel up to 12 miles an hour, will be fitted for **£185.** Code Word—**Dimhyd.**

Messrs. Fox Bros., Wellington, First and Latest Steam Wagons



Supplied in 1897.

Mr. S. H. SPARKES, Manager for Fox Bros., writes in "Commercial Motor," of September 3, 1908: "The Leyland lorries also serve our weaving shed at Cullompton, 12½ miles from here, on the road to Exeter, where we have 90 broad looms running, and another shed at Wiveliscombe (7 miles) on the Minehead road, with 60 looms there. I consider it would have been practically impossible to have worked the Cullompton business in a satisfactory way either by horse haulage or by rail. We often carry 5½ tons on the lorry platform, and 2 tons on the trailer; we work economically and are quite satisfied."



The fourth Wagon, supplied 1908.
A Petrol supplied in 1911.

List of Brewers, etc.

Messrs. Smith & Co., The Brewery, Oundle.
" Mann Crossman & Paulin, Ltd., Albion Brewery, Mile End, London, E.
" Maryport Brewery, Ltd., The Brewery, Maryport.
" Gartsides Brookside Brewery, Ltd., Ashton-under-Lyne.
" Greenall Whitley & Co., Ltd., The Brewery, St. Helens.
" Ely Brewery Co., Ltd., near Cardiff.
" Pontypridd United Breweries, Court House Street, Pontypridd.
" Daniel Thwaites, Ltd., Eanam Brewery, Blackburn.
" Rhondda Valley Breweries, Pontypridd.
" Crosswells Brewery, Ltd., Queen Street, Cardiff.
" Whitworth, Son & Nephew, Wath-upon-Dearne.
" R. A. Barrett & Co., Ltd., Mineral Water Manufacturers, Ashton-under-Lyne.
" W. Tong & Sons, Ltd., Diamond Brewery, Bolton.
" R. L. Jones, Brewers, Mansfield.
" Massey's Burnley Brewery, Ltd., Burnley.
" Ansell's Brewery, Ltd., Birmingham.
" John Smith's, Ltd., Tadcaster Brewery, Tadcaster.
" Jewsbury & Brown, Mineral Water Manufacturers, Ardwick Green, Manchester.
" Direct Supply Aerated Water Co., Ltd., Kingston-on-Thames, London.
" Mathew Brown & Co., Ltd., Preston.
" A. Guinness, Son & Co., Ltd., Dublin.
" Strout's Brewery Co., Ltd., Sheffield.
" Hardy's Kimberley Co., Kimberley, Notts.

Messrs. Brandon's Putney Brewery, Ltd., Twickenham.
" Cornbrook Brewery Co., Ltd., Manchester.
" Richard Seed & Co., Ltd., Spring Lane Brewery, Radcliffe.
" Holder's Brewery, Ltd., Midland Brewery, Birmingham.
" Whittle Springs Brewery, Ltd., Chorley.
" Peter Walker & Sons, Warrington.
" Threlfall's Brewery Co., Ltd., Cook Street Brewery, Salford.
" Stretton's Derby Brewery, Derby.
" Dutton's Blackburn Brewery, Ltd., Salford Brewery, Blackburn.
" Nuttall & Co., Lion Brewery, Blackburn.
" Mitchells & Butler, Ltd., Cape Hill Brewery, near Birmingham.
" Banfield's Taff Aerated Water Co., Pontypridd.
" Catterall & Swarbrick's Brewery, Ltd., Revoe, Blackpool.
" Nalder & Collyer Brewery, Croydon.
" Cheshire's Brewery, Ltd., Windmill Brewery, Smethwick, near Birmingham.
" John Kenyon, Ltd., The Brewery, Cloughfold.
" Saville Bros., Ltd., Brewers, London.
" Mowbray & Co., The Brewery, Grantham.
" James Armstrong & Sons, Barrow.
" Camwal, Ltd., Manchester.
" G. Clark & Co., Millwall, London.
" E. & H. Kelsey, Tunbridge Wells.

Etc., etc.

To January Delivery, 1914.

General Price List of "Leyland" Petrol Chassis

Bodies
see page 71

Passenger Vehicles,
see page 81 also page 47.

Tip Wagons,
see page 108-9

Subsidy Lorries,
see page 57

Size.		H.P.		Chassis and Tyres. *a. b.*	Allowance if buyer supplies his own tyres.	Vehicle fitted up with Seat, &c.					
						Platform.	Framed Sided Body.	Sheet Van.	Lift Van.	Box Van.	Brewer's Dray. *c.*
	Page.	.....	.....	.....	.....	30	73	74-76	77	78	70-71
			Code Word.	**lac**	**leh**	**lid**	**lop**	**luk**	**lyc**	**mak**	**meg**
6-Ton	54	40-50	**Dimibo**	**£860**	**£90**	**£885**	**£899**	**£922**	**£940**	**£970**	**£922**
5-Ton	51	40-50	**Dimick**	**£800**	**£70**	**£825**	**£839**	**£862**	**£880**	**£910**	**£862**
4-Ton	50	40-50	**Dimide**	**£740**	**£53**	**£763**	**£776**	**£796**	**£814**	**£840**	**£796**
3½-ton & Subsidy A *d.*	65	30-35	**Dimifa**	**£700**	**£48**	**£721**	**£733**	**£750**	**£767**	**£790**	**£750**
3-Ton	48	30-35	**Dimilt**	**£680**	**£45**	**£701**	**£713**	**£730**	**£747**	**£770**	**£730**
Subsidy B, 2½-ton *d.*	64	22-28	**Diming**	**£640**	**£43**	**£659**	**£669**	**£684**	**£705**	**£720**	**£684**
2½-Ton	46	22-28	**Dimiky**	**£620**	**£40**	**£639**	**£649**	**£664**	**£680**	**£700**	**£664**
2-Ton	44	22-28	**Dimips**	**£560**	**£36**	**£579**	**£589**	**£604**	**£620**	**£640**	**£604**
1½-Ton	43	22-28	**Dimiri**	**£515**	**£33**	**£532**	**£541**	**£555**	**£570**	**£590**	—
1¼-Ton	42	22-28	**Dimism**	**£475**	**£30**	**£492**	**£501**	**£515**	**£530**	**£550**	—
1-Ton	39	16-20	**Dimitu**	**£415**	**£25**	**£430**	**£438**	**£451**	**£465**	**£482**	—
15-Cwts.	39	12-16	**Dimjag**	**£385**	**£23**	**£400**	**£408**	**£421**	**£435**	**£452**	—

Alternative Engines.	Code Word.	Extra cost
48-60 H.P. Engine instead of 40-50	**Dimnad**	**£75**
40-50 ,, ,, ,, 30-35	**Dimnec**	**£50**
30-35 ,, ,, ,, 22-28	**Dimnig**	**£25**
22-28 ,, ,, ,, 16-20	**Dimnuv**	**£20**
16-20 ,, ,, ,, 12-16	**Dimnos**	**£15**
Dual Ignition	**Dimnyb**	**£15**

NOTES.

a.—Chassis includes tyres, front mudguards, kit of tools, number plates, and two coats of lead colour.

b.—Tyres supplied will be of leading make, and can be guaranteed in the British Isles for 10,000 miles.

c.—Body prices include seat, back mudguards, and painting and lettering.

d.—For prices of complete Subsidy Vehicles, with all extras required by the War Office, see page 64.

e.—Code Words. Code Word must be given and the Indicator syllable added for platform, van, etc. For example : Dimiriluk would mean 1½ tonner fitted with Sheet Van.

5-Ton 40-50 H.P. Petrol Lorry.

Extras on "Leyland" Chassis

Description.	Code Word.	15 cwt. & 1 ton.	1½ to 2½ tons.	3 and 4 tons.	5 and 6 tons
Pneumatic Tyres on front wheels ..	**Dimobe**	No extra charge	—	—	—
Twin Pneumatic Tyres on back wheels	**Dimocu**	**£12**	—	—	—
Extra Studded Tyre and Tube, 880×120	**Dimodo**	**£10**			
Shock Absorbers, front	**Dimofi**	**£9**	**£11**	**£11**	**£13**
Shock Absorbers, back	**Dimoga**	**£9**	**£11**	**£13**	**£16**
Light Load Springs, back	**Dimomy**	—	—	**£11**	**£13**

		Up to 3 tons.	4 tons and upwards.
Spare Magneto	**Dimorb**	**£12 10 0**	**£14 10 0**
Single Fold Windscreen	**Dimoys**	**£8 0 0**	**£9 10 0**
Double Fold Windscreen	**Dimpar**	**£11 0 0**	**£12 10 0**
Cab, fixed to seat	**Dimpei**	**£7 0 0**	**£8 0 0**
Cab, detachable from seat	**Dimpik**	**£8 10 0**	**£9 15 0**
Driving Hood	**Dimpux**	**£12 0 0**	**£12 0 0**
Hand Dash Extension	**Dimpym**	**£1 5 0**	**£1 5 0**

		All sizes.
Side Doors to cab	**Dimras**	**£4 0 0**
Towing Hooks	**Dimrek**	**£1 15 0**
Speedometer	**Dimrit**	**£6 6 0**
Speedometer, with trip record	**Dimrov**	**£7 7 0**
Exhaust Whistle	**Dimrovab**	**£1 10 0**
Extra Water Tank and Pipes	**Dimruh**	**£6 10 0**
Polished Radiator	**Dimryo**	**£2 0 0**

Lighting Sets

Description.	Code Word.	Price.
Single Side Head Lamp, Bracket, and Generator, Rushmore	**Dimsaf**	**£7 10 0**
Single Side Head Lamp, Bracket, and Generator, Allen Liveridge	**Dimset**	**£7 10 0**
Pair of Head Lamps and Generator, Rushmore	**Dimsis**	**£11 0 0**
Pair of Head Lamps and Generator, Allen Liveridge	**Dimsoz**	**£11 0 0**
Lucas Duplex Head Lamp and Central Bracket	**Dimsub**	**£9 10 0**
Electric Side Lamps and Tail Lamp instead of Paraffin, with Accumulator and Spare Accumulator	**Dimsyk**	**£8 10 0**
Adapters for Standard Side and Tail Lamps, Wires, and Accumulator ..	**Dimtaw**	**£5 10 0**
Pair of Electric Head Lamps, Wiring, and two Accumulators	**Dimtes**	**£12 0 0**
Large Dynamo and Switches for self-contained electric lighting, extra ..	**Dimtir**	**£25 0 0**
Public Service Vehicle Dynamo Outfit, alternative, extra	**Dimtoo**	**£36 0 0**

NOTE.—1. Two Side and Tail Paraffin Lamps are supplied free with each complete vehicle.

2. When more than one set of Electric Lamps are ordered, we reserve the right to add to the capacity rather than increase the number of accumulators.

3. Each accumulator is intended to run the lights specified for 12 hours.

The "Leyland" Petrol Motor Chassis

Chain v. Gear Transmission

An enclosed gear drive is a sounder engineering job than a chain drive. It is quieter and cleaner. It has a much longer life, costs less in upkeep, and is safer in every way. Its only objection is its cost, but when made in large quantities and properly jigged and standardised, this can be kept within a reasonable figure.

Nearly every pleasure car has now a gear drive either worm or bevel.

The War Office only buy and subsidise lorries with enclosed gear drive.

The Worm Gear Drive

The worm gear is not suitable for vehicles carrying upwards of three tons, because it cannot be made sufficiently large without unduly reducing ground clearance.

The combined spur and bevel drive is the most economical, but for passenger work the worm gear is the quieter.

"Leyland" Petrol Engine

The illustration on page 34 shows the general design of all our engines. The Valves are on one side and covered in. Up to and including 48-60 H.P. we fit 4 cylinders, for larger sizes 6 cylinders.

Base Chamber

The bottom cover is easily removed without disturbing the crank. There are large inspection covers on the magneto side of the engine, not shown in the illustration, for examination of the big ends. The base chamber is of aluminium for engines up to 30-35 H.P., and of cast iron for the larger sizes, the bottom cover always being of aluminium.

Cylinders

The cylinders are cast in pairs, of the very hardest and best quality cast iron procurable. The water jackets are of ample capacity, the water being admitted at the bottom of the jacket and also underneath the valves, finding a vent through covers on the tops of the cylinders.

Pistons

The pistons are of the same iron as the cylinders, with three rings at the top.

Bearings

The bearings are of gun-metal, lined with white metal. There is one at each end of the crank case, and also one between each pair of cylinders. The rear bearing carrying the weight of the flywheel is much longer than the others.

Valve Gear

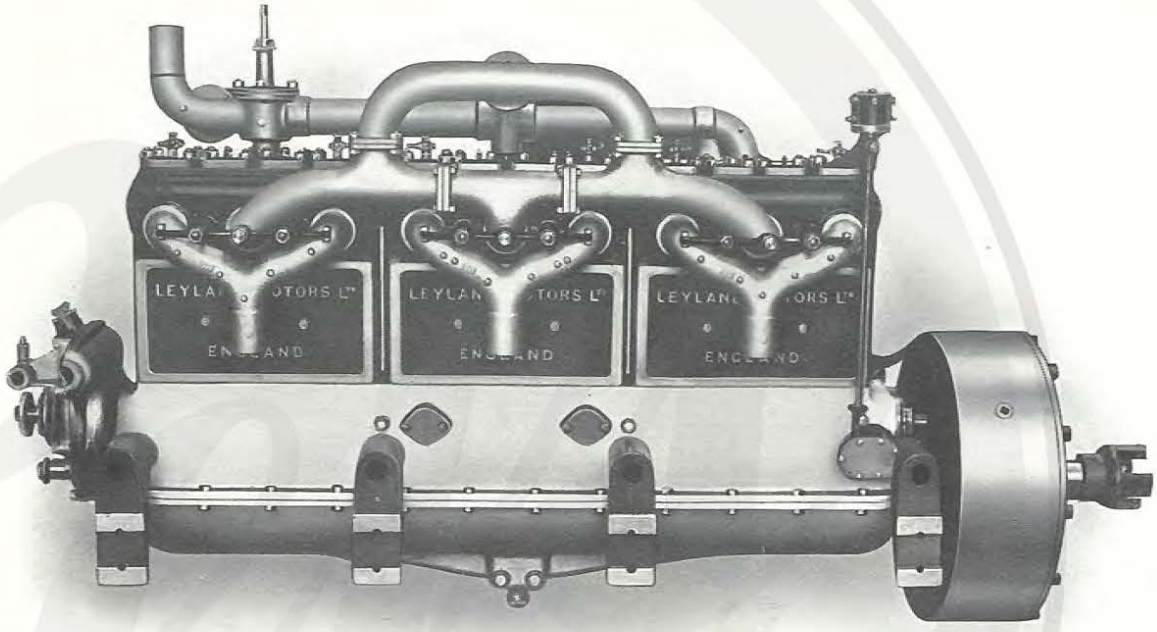
There is one cam shaft, with the cams machined from the solid in a special forming machine. The timing gear is a combination of ordinary spur and spiral gears, designed to be perfectly silent without the objectionable introduction of chain gears.

The crankshaft is made from a single forging, and all journals are ground after turning.

Valves

The valves are made of a high grade of nickel steel, and can easily be removed with the special tool provided. The push rods are adjustable, and the whole are enclosed with aluminium covers as shown in the illustration. The valve guides are renewable.

The Engine



The illustration shows our 6-cylinder, 160 H.P. Engine.

Flywheel The flywheel is of cast iron turned all over. The clutch cover is designed so as to prevent all access of dirt. The crankshaft and the flywheel are carefully balanced both separately and in combination.

Clutch The clutch is of aluminium, of the ordinary cone pattern, being shod with ferrodo. It is extremely elastic, requires no dressing, and wears well. The spring is concentric with the clutch, and requires very little adjustment.

Ignition Standard ignition consists of a Water-tight Bosch Magneto. On the larger machines dual ignition by means of Wade & Jones' combined high and low-tension distributor and single trembler coil, with accumulator and spare accumulator, can be fitted at an extra charge. Price, **£15.** Code Word—**Dimtue.**

Carburetter

The Claudel-Hobson Carburetter, with water jacketed induction pipe, is fitted as standard.

Water Pump

The water-circulating pump is of the centrifugal type, gear driven, of very large capacity. It has a long packing gland. Owing to the arrangement of drive mentioned above, this pump is in the most accessible position. The spindle is provided with a claw coupling for connection to the cross shaft.

Lubrication

Lubrication is effected by means of a gear oil pump, arranged with vertical spindle, and placed in the bottom cover of the engine casing on the left side, the spindle being driven through a claw coupling from the vertical shaft, which also provides a drive for the commutator of second ignition when fitted, being connected to the cam shaft by means of a pair of skew wheels run in oil. The pump is very accessible, and draws the oil from the well in the crankcase through a large improved strainer, which can easily be got at for cleaning purposes, delivering under pressure to the crankshaft bearings through internal pipes. The internal main oil pipe is supplied with an adjustable relief valve and a small pressure gauge. The crankshaft journals and short arms of the crank are drilled through their centres, and the crank is also provided with radial holes at the centre of the journals, so as to provide a passage for the oil from the main journal bearings to the crank-pin bearings. There is, therefore, a rapid and continuous flow of oil to all the bearings of the crankshaft, the oil being carried from the main journals and thrown from the crankpins by pump pressure and by centrifugal force. The oil that works through the outer crank bearings returns to the bottom of the crankcase. The end walls of the casing project beyond the bearings, and oil retaining washers are fitted to throw off the oil and prevent leakage. The spray from the continuous flow of oil that is flying from the crankpins, lubricates the cam shaft, valve lifters, etc., so that there is no fear of any part of the engine running short of oil. By this method of lubrication the quantity of oil supplied is constant, and does not depend upon keeping a fixed oil level in the crank chamber, as in the splash system of lubrication.

In the oil sump situated below and cast with the bottom cover proper, there is a float which indicates the total amount of oil in the engine before starting up.

Combined with the main oil pump there is another smaller pump drawing its supply from a level 2-in. higher than the main pump. The only purpose of this auxiliary pump is to supply oil to an indicator on the dash, so that as long as the indicator is working there is plenty of oil, and even for a reasonable length of time after it has ceased to work there is no danger in running.

Silencer

The silencer is of a form which we have adopted over a number of years. It is simple and efficient, and not liable to require any repairs.

"Leyland" Chassis Components

Radiator

The radiator is of the tube pattern, gilled or corrugated. The top and bottom can be removed, and the whole thoroughly cleaned out without removal from the chassis. The water-circulating pipes are so large and well arranged that in the event of the failure of the pump, the engine can still be run at reduced power by natural circulation alone. The draught through the radiator is maintained by an aluminium fan.

With engines up to 30 H.P. the spiral gill is adopted.

With engines of 40 H.P. upwards, the " Reliance " corrugated tube may be used in order to secure increased cooling surface in a limited space.

Petrol Tank

This is of cylindrical form of lead coated sheet steel with a large filling inlet, and of a capacity from 16-26 gallons according to the size of the machine.

Main Frame

Contrary to the practice of many Manufacturers who use ordinary channel steel for commercial vehicles, the " Leyland " Commercial Vehicles have now for a number of years been fitted with pressed nickel-steel frames, tapering off at the ends for lightness, lined with ash where the mechanism is placed, and strongly braced with cross tubes.

Steering Gear and Front Axle

Steering Gear and Front Axle

The illustration opposite shows very clearly the construction of the " Leyland " Central Pivot Steering Gear which has been employed on all sizes of " Leyland " vehicles for several years. It will be seen to be a combination of roller and ball bearings, with steel stampings of a very high class of steel, the central pivot having the effect of making the actual steering very much easier for the driver, and of relieving the steering levers of most of the shock from obstructions in the road. All joints are protected by leather gaiters.

Springs for Shock Absorbers, see page 31

Only springs of the very best quality are employed, and of suitable strength for the weight and the kind of load to be carried.

For instance, it is advisable to fit stronger springs with a 3-ton load of cloth than would be fitted for a 3-ton load of pig iron. Shock-absorbing springs can be fitted at an extra charge.

Road Wheels

All the road wheels, with the exception of the 15-cwt. and 1-ton classes are of electrically cast steel with hollow spokes, and practically unbreakable. They are built in the standard sizes specified under the various types of machines.

Trans-mission

There is a pair of Universal joints between the clutch and the gear box, and another between the gear box and the propeller shaft. The latter is concentric with and inside the "Leyland" Patent Spherical Central Thrust Bearing, which has been very largely adopted since its introduction by the builders of pleasure cars, and which conveys the forward thrust of the vehicle from the axle to the frame of the car without side rods, which restrict the movement due to road inequalities, or without passing it through the springs, a bad though cheap arrangement.

Brakes

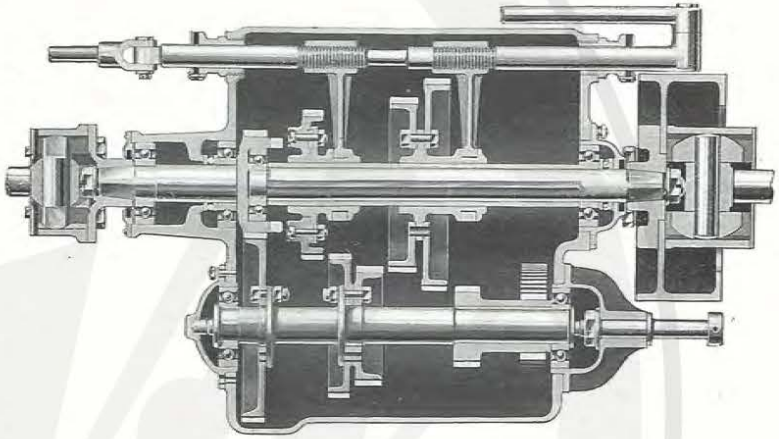
Two double-acting brakes are fitted—one on the gear shaft and one operating on the road wheels. The gear shaft brake is of ample width, and is actuated by a push pedal. The side brakes are of the internal expanding type actuated by a hand lever, the brake shoes being stamped out of mild steel. They are compensated one with the other so that the pressure on each is equalised.

Both the brake drums and the liners on the shoes are of simple construction, and can be quickly and economically replaced.

Change Gear Box

All the "Leyland" Gear Boxes are of one Standard type, viz., 4 speeds and reverse, with "gate" change.

The gear boxes up to two-and-a-half tons are made of aluminium. Three tons and upwards are made of cast iron, the covers being of aluminium. All the gears run on ball bearings, and are of very special material very carefully hardened. The shafts are splined with keys machined from the solid to take the drive. Direct drive on top gear except in fire engines and other high-speed vehicles.



Back Axle

Different forms of back axle are used with different sizes of machine, and are described more fully under the respective chassis types.

Dash

The dash on all "Leyland" Vehicles is of steel of the curved back pattern, forming protection for the apparatus mounted on it and for the driver.

Mudguards

Steel mudguards with wired edges, reinforced at the points of support, are fitted as standard to the front wheels of each chassis.

Back mudguards go with the body, and are not supplied with the chassis only.

Tools

Full kit of tools, including a lifting jack and certain spare parts are supplied with every Chassis.

Lamps

These are not supplied with the Chassis. With complete vehicles we fit one pair of Lucas commercial finish Side Lamps, and one Oldfield Tail Lamp with spring cistern, with the necessary brackets and number plates.

"Leyland" 15-Cwt. and 1-Ton Chassis

Engine, for 15-cwts.—4 cylinder, 12-16 H.P., "Leyland Aster."
" " 1-ton—4 cylinder, 16-20 H.P., "Leyland Aster."

Clutch—Leather cone.

Governor—An enclosed efficient governor is fitted.

Control—Foot with hand regulation.

Ignition—Bosch watertight magneto, with variable advance.

Carburetter—Zenith.

Radiator—Spiral tubes, detachable top and bottom.

Cooling—Thermo-syphon.

Petrol Tank—Lead-coated steel, gravity feed.

Frame—Pressed steel.

Steering Gear—Ackerman, irreversible, enclosed worm and segment.

Springs—Semi-elliptical with greasers to each pin.

Front Wheel—All steel, hollow spokes on gun-metal floating bushes

Back Wheel—All steel, hollow spoke, on roller bearing.

Transmission—Central thrust, with "Leyland" Patent Spherical Bracket.

Brakes—Foot on Cardan. Hand expanding in road wheel drums, fully compensated and enclosed.

Gear Box—4-speed and reverse, gate change, direct on top.

Front Axle—Drop forgings, Ackerman system. Leather gaiters.

Back Axle—This axle consists of a drop stamped steel beam, carrying the load and supporting a steel case containing the gears. The power is transmitted through the "Leyland" Patent Spherical Central Thrust and Propeller Tube to a bevel wheel, which engages a crown wheel on lay shaft. The crown wheel is coupled to a spur pinion, driving a spur wheel on the differential box. The axle ends engage the differential and transmit the power to the outer side of the road wheels, which are mounted on roller bearings. The gear wheels are all of hardened steel, machine-cut from the solid.

Illustration
see page 41.

Body Prices
see pages 72 and 73

Extras,
see pages 31 and 32.

"Leyland" 15-Cwt. and 1-Ton Chassis

15-CWTS.

Size—15-cwts.

Chassis Price—£385.

Code Word—Dimtyp.

Extra for Packing—£10.

Approximate Shipping Specification—17-ft. 6-in. × 4-ft. 0-in. × 4-ft. 6-in. Lift—Under 3 tons.

Engine—12-16 H.P. "Aster."

Frame—5-in. deep ; 2-in. wide ; $\frac{3}{16}$-in. thick.

Length overall—16-ft. 9-in.

Width—5-ft. $7\frac{1}{2}$-in.

Wheel Base—11-ft. 2-in.

Width, inside tyres—3-ft. 11-in.
,, outside tyres—4-ft. 11-in.

Length, dash to front of driver's seat—2-ft. $1\frac{1}{2}$-in.
,, ,, back of driver's seat—3-ft. $4\frac{1}{2}$-in.
,, ,, centre of back axle—8-ft. 3-in.
,, back of driver's seat—8-ft. 7-in.

Height from ground to top of frame (light)—2-ft. 4-in.

Ground Clearance—8-in.

Tare Weight—1 ton 12 cwts.

Front Wheel—2-ft. $9\frac{1}{2}$-in. ; tyre, 850 × 65 m/m. ; rim, 719 m/m.

Back Wheel—2-ft, $9\frac{1}{2}$-in. ; tyre, 850 × 65 m/m. twin ; rim, 740 m/m.

Body Prices, see pages 30 and 71 onwards.

Extras, see pages 31 and 32.

1-TON

Size—1-ton.

Chassis Price—£415.

Code Word—Dimubu.

Extra for Packing—£10.

Approximate Shipping Specification—17-ft. 6-in. × 4-ft. 0-in. × 4-ft. 6-in. Lift—Under 3 tons.

Engine—16-20 H.P. "Aster."

Frame—5-in. deep ; 2-in. wide ; $\frac{3}{16}$-in. thick.

Length overall—16-ft. 9-in.

Width—5-ft. $7\frac{1}{2}$-in.

Wheel Base—11-ft. 2-in.

Width, inside tyres, 3-ft. 11-in.
,, outside tyres, 4-ft. 11-in.

Length, dash to front of driver's seat—2-ft. $1\frac{1}{2}$-in.
,, of driver's seat—1-ft. 3-in.
,, back of seat to centre back axle—4-ft. $10\frac{1}{2}$-in.
,, back of driver's seat—8-ft. 7-in.

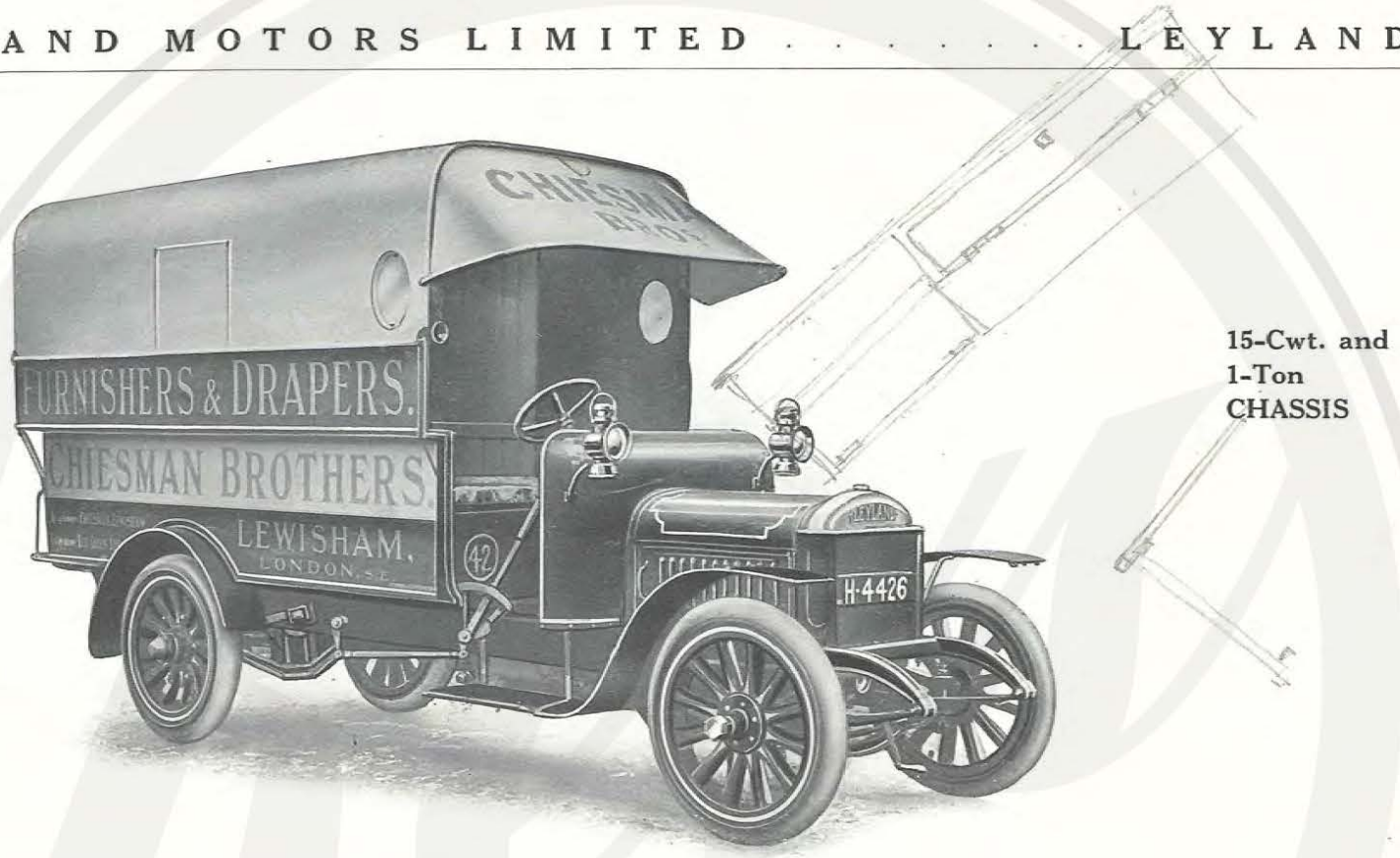
Height from ground to top of frame (light), 2-ft. 4-in.

Ground Clearance—8-in.

Tare Weight—1 ton 14 cwts.

Front Wheel—2-ft. $10\frac{1}{4}$-in. ; tyre, 870 × 75 m/m. ; rim, 719 m/m.

Back Wheel—2-ft. $10\frac{1}{4}$-in. ; tyre, 870 × 75 m/m. twin ; rim, 740 m/m.



15-Cwt. and 1-Ton CHASSIS

1-Ton Van

Some Users of our 15-Cwt. and 1-Ton Motors

AMBULANCES: Dublin Corporation. Westminster Board of Guardians, etc., etc.

Messrs. Crane & Sons, Liverpool.
,, Chiesman Bros., London.
,, Jelley & Clark, London.
,, R. Hogg & Co., Blackburn.
,, Roocroft & Sons, Ltd., Bolton.
,, W. A. Chapman, Taunton.

Messrs. T. Westby & Sons, Great Harwood.
,, J. Greenwood & Co., Ltd., Blackburn.
,, Birkdale Steam Laundry, Southport.

Messrs. The Bayer Co., Manchester.
,, S. Heap & Co., Ltd., Rochdale.
,, Hampton's, Ltd., London.
,, W. & R. Jacob & Co., Ltd.,
,, Alford & Alder, London.
,, G. Riley & Co., London.
Etc., etc.

"Leyland" 1¼ and 1½-Ton Commercial Chassis

Engine—4 cylinder, 22–28 H.P. "Leyland."

Clutch—Ferrodo-faced enclosed cone, central spring.

Governor—Enclosed and efficient.

Control—Hand and foot.

Ignition—Bosch watertight magneto with variable advance.

Carburetter—Claudel - Hobson, with water-jacketed induction.

Radiator—Gilled tube, detachable top and bottom.

Cooling—Centrifugal pump.

Petrol Tank—Lead-coated steel, gravity feed.

Frame—Pressed nickel steel.

Steering Gear—"Leyland" central pivot, enclosed irreversible worm and wheel, leather gaiters.

Springs—Semi-elliptical. Greasers for each pin.

Front Wheel—All steel, hollow spoke, roller and ball bearing.

Back Wheel—All steel, hollow spoke, floating gun-metal bush.

For details of Components see pages 34 to 38.

Transmission—Central thrust, with "Leyland" Patent Spherical Bracket.

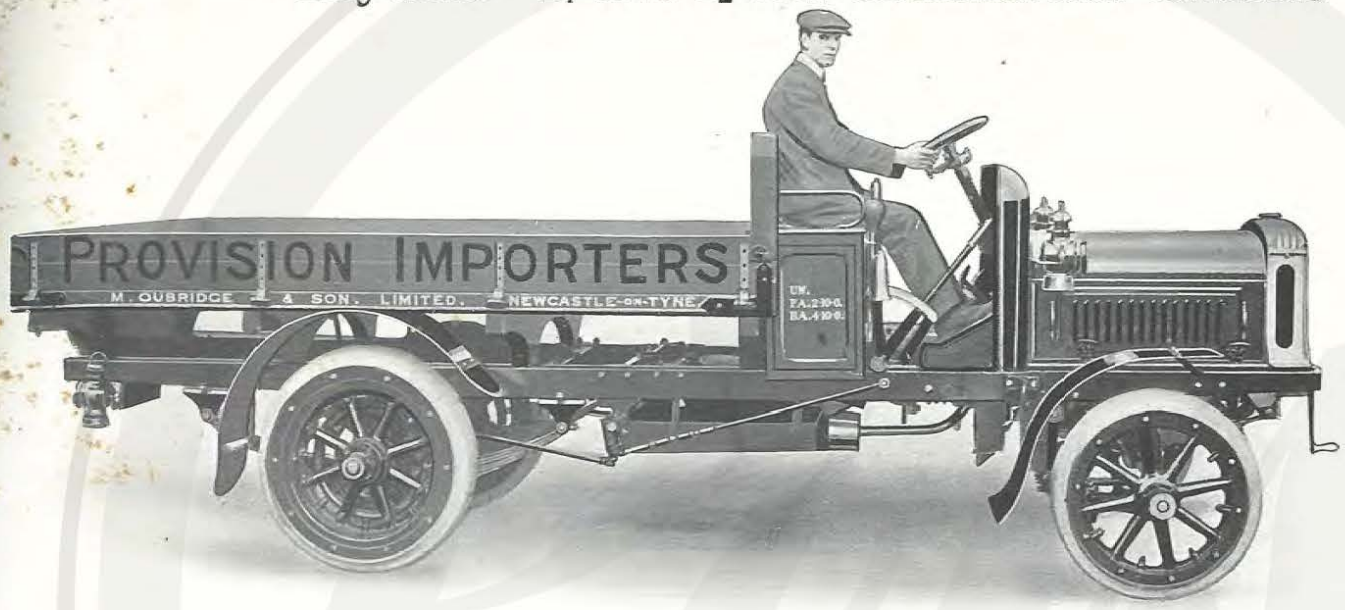
Brakes—Foot on Cardan. Hand-expanding in road wheel drums, enclosed and compensated.

Gear Box—4-speed and reverse, gate change, direct on top.

Front Axle—Drop forgings, central pivot pattern.

Back Axle—The back axles of these machines, which are largely used for passenger work and for town delivery vans, are of the worm pattern, consisting of hardened special steel worm, with phosphor-bronze worm wheel mounted on a steel case, with steel axle arms, and with steel central thrust propeller tube, through which the power is transmitted to the worm through our Patent Spherical Thrust Bracket. The power is transmitted from the differential to the outer faces of the road wheels through shafts with star ends, the outer axle tubes being for weight carrying purposes only. The road wheels run on gun-metal floating bushes.

"Leyland" 1¼ and 1½-ton Commercial Chassis



Body Prices,
see page 71 onwards.

Extras,
see page 31.

1¼-Ton Chassis

Size—1¼-ton.
Chassis Price—**£475.**
Code Word—**Dimudy.**
Extra for Packing—**£11.**
Approximate Shipping Specification—19-ft. 6-in. × 4-ft. 8-in. × 4-ft. 0-in.
Lift—Under 4 tons.
Engine—22-28 H.P.
Frame—5-in. × 2½-in. × ⅜-in.
Length Overall—18-ft. 2-in.
Width—6-ft. 7½-in.
Wheel Base—12-ft. 0½-in.

Width, inside tyres—3-ft. 11-in.
,, outside tyres—5-ft. 7½-in.
Length, dash to front of driver's seat—2-ft. 2½-in.
,, ,, back of driver's seat—3-ft. 5½-in.
,, ,, centre of back axle—9-ft. 10-in.
,, back of driver's seat—10-ft. 2-in.
Height, ground to top of frame (light)—2-ft. 9-in.
Ground Clearance—10-in.
Tare Weight—2 tons 3 cwts.
Front Wheel—2-ft. 8-in.; tyre, 810 × 90 m/m.; rim, 669·4 m/m.
Back Wheel—2-ft. 10-in.; tyre, 860 × 90 m/m. twin; rim, 719·5 m/m.

1½-Ton Chassis

Size—1½-ton.
Chassis Price—**£515.**
Code Word—**Dimuft.**
Extra for Packing—**£11.**
Approximate Shipping Specification—19-ft. 6-in. × 4-ft. 8-in. × 4-ft. 0-in.
Lift—Under 4 tons.
Engine—22-28 H.P.
Frame—5-in. × 2½-in. × ⅜-in.
Length Overall—18-ft. 2-in.
Width—6-ft. 7½-in.
Wheel Base—12-ft. 0½-in.

Width, inside tyres—3-ft. 10-in.
,, outside tyres—5-ft. 8½-in.
Length, dash to front of driver's seat—2-ft. 2½-in.
,, ,, back of driver's seat—3-ft. 5½-in.
,, ,, centre of back axle—9-ft. 10-in.
,, back of driver's seat—10-ft. 2-in.
Height, ground to top of frame (light)—2-ft. 9-in.
Ground Clearance—10-in.
Tare Weight—2 tons 5 cwts.
Front Wheel—2-ft. 8-in.; tyre, 810 × 90 m/m.; rim, 669·4 m/m.
Back Wheel—2-ft. 10-in.; tyre, 870 × 100 m/m. twin; rim, 719·5 m/m.

"Leyland" 2-Ton Commercial Chassis

Body Prices, see page 71

Extras, see page 31

Engine—4 cylinder, 22-28 H.P. "Leyland."

Clutch—Ferrodo-faced enclosed cone, central spring.

Governor—Enclosed and efficient.

Control—Hand and foot.

Ignition—Bosch watertight magneto with variable advance.

Carburetter — Claudel - Hobson, with water-jacketed induction.

Radiator—Gilled tube, detachable top and bottom.

Cooling—Centrifugal pump.

Petrol Tank—Lead-coated steel, gravity feed.

Frame—Pressed nickel steel.

Steering Gear—"Leyland" central pivot, enclosed irreversible worm and wheel, leather gaiters.

Springs—Semi-elliptical. Greasers for each pin.

Front Wheel—All steel, hollow spoke, roller and ball bearing.

Back Wheel—All steel, hollow spoke, floating gun-metal bush.

Transmission—Central thrust, with "Leyland" Patent Spherical Bracket.

Brakes—Foot on Cardan. Hand-expanding in road wheel drums, enclosed and compensated.

Gear Box—For bus work, 3 speeds and reverse, double helical gears, very silent. For lorry work, 4 speeds and reverse. Direct on top, gate change.

Front Axle—Drop Forgings, central pivot pattern.

Back Axle—The back axles of these machines, which are largely used for passenger work and for town delivery vans, are of the worm pattern, consisting of hardened special steel worm, with phosphor-bronze worm wheel mounted in a steel case, with steel axle arms, and with steel central thrust propeller tube, through which the power is transmitted to the worm by means of our Patent Spherical Thrust Bracket. The power is transmitted from the differential to the outer side of the road wheels through shafts with star ends, the outer axle tubes being for weight carrying purposes only. The road wheels run on gun-metal floating bushes.

"Leyland" 2-Ton Commercial Chassis

2-Ton Chassis with Sheet Van Body

2-Ton Chassis

Chassis Price—£560.
Code Words—Narrow, **Dimuge**; wide, **Dimuha.**
Extra for Packing—£12.
Approximate Shipping Specification—20-ft. 6-in. × 4-ft. 8-in. × 4-ft. 0-in. narrow frame; 20-ft. 6-in. × 4-ft. 8-in. × 4-ft. 5-in. wide frame.
Lift—Under 4 tons.
Engine—22-28 H.P.
Frame—5⅞-in. deep; 2½-in. wide; $\frac{3}{16}$-in. thick.
Length overall—19-ft. 0-in.
Width—Wide frame, 7-ft. 0½-in.; narrow frame, 6-ft. 7½-in.
Wheel Base—12-ft. 1½-in.
Width, inside tyres—4-ft. 11-in. or 5-ft. 6-in.
„ outside tyres—6-ft. 1-in. or 6-ft. 6-in.
Length, dash to front of driver's seat—2-ft. 2½-in.
„ „ back of driver's seat—3-ft. 8½-in.
„ „ centre of back axle—9-ft. 11-in.
Length, back of driver's seat—10-ft. 8-in.
Height, ground to top of frame (light)—2-ft. 9-in.
Ground clearance—10½-in.
Tare Weight—2 tons 8 cwts.
Front Wheel—2-ft. 8-in.; tyre, 820 × 100 m/m.; rim, 669·4 m/m.
Back Wheel—3-ft. 0-in.; tyre, 920 × 100 m/m.; rim, 770 m/m.

"Leyland" 2½-Ton Commercial Chassis

For 2½-Ton War Office Subsidy Lorry, Type "B"
see page 64

Engine—4 cylinder, 22-28 H.P. "Leyland."

Clutch—Enclosed, ferrodo-faced cone.

Governor—Efficient and enclosed.

Control—Hand and foot.

Ignition—Bosch watertight magneto, with variable advance.

Carburetter—Claudel-Hobson, with jacketed induction.

Radiator—Gilled tubes, detachable top and bottom.

Cooling—Centrifugal pump.

Petrol Tank—Lead-coated steel, gravity feed.

Frame—Pressed nickel steel.

Steering Gear—Ackerman, enclosed irreversible worm and wheel.

Springs—Semi-elliptical, with greasers to each pin.

Front Wheel—All steel, hollow spoke, on gun-metal floating bush.

Back Wheel—All steel, hollow spoke, on gun-metal floating bush.

Transmission—Central thrust. "Leyland" Patent Spherical Bracket.

Brakes—Foot on Cardan, hand on road wheel drums.

Gear Box—4-speed and reverse, gate change, direct on top.

Front Axle—Drop forgings, wheels on War Office standard bushes.

Back Axle—The axle fitted to this size machine can be either the worm type or the bevel gear type. The worm pattern is used for passenger work, and the bevel type for heavier goods carrying. The latter type is the same as on the "B" Subsidy model, and consists of steel casing, containing our double reduction gear, fixed arms to carry the weight, and inner floating shafts to transmit the power. The "Leyland" Patent Spherical Thrust Drive is used, and the power is transmitted from the bevel pinion to a crown wheel, with which is mounted the differential on a lay shaft. The final reduction is through spur gearing. The whole runs on ball bearings, and is enclosed in an oil-tight casing.

Extras,
see page 31.

"Leyland" 2-3 Ton Bus Chassis

LONDON STANDARD

—

30-35 H.P. Engine

3-speed Gear Box, with special helical gears

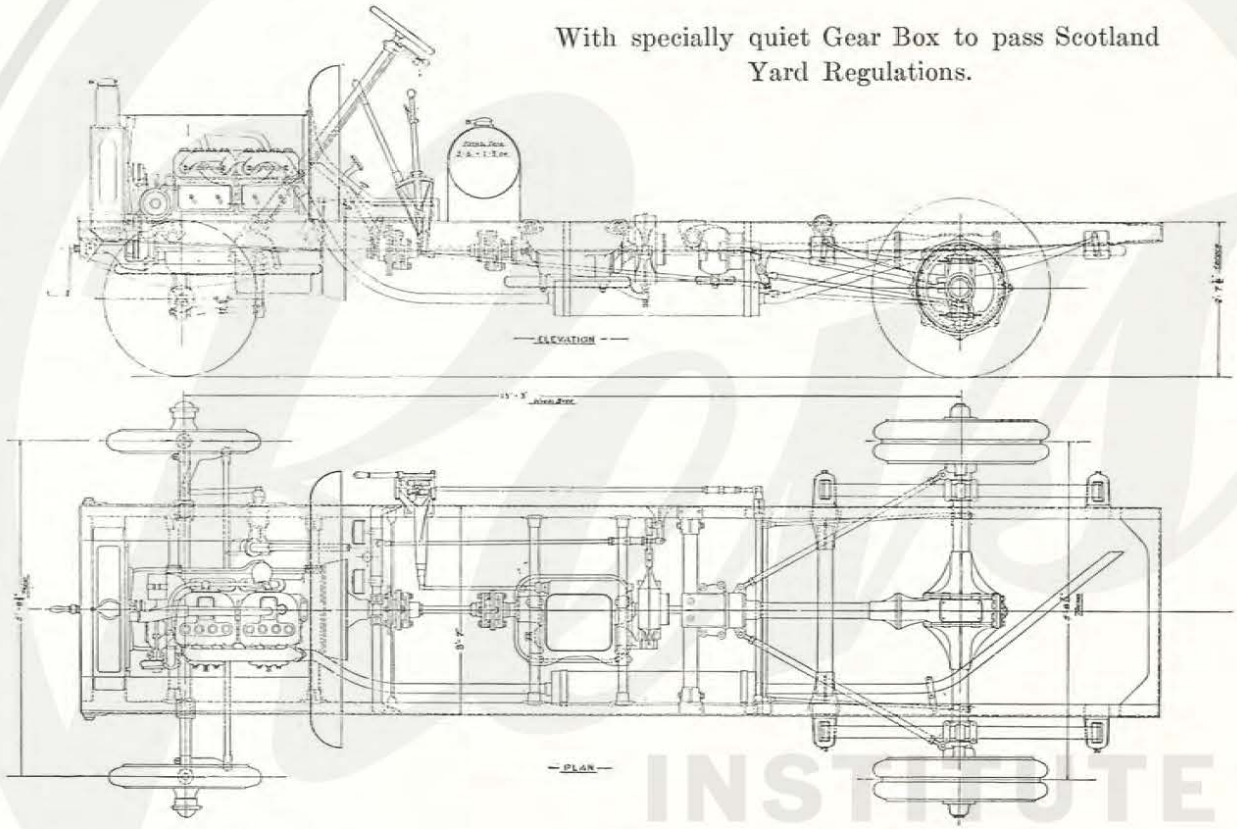
Worm Axle.

Wheel Base—13-ft. 3-in.

Chassis, with tyres, £645

Code Word—**Dimvay**

With specially quiet Gear Box to pass Scotland Yard Regulations.



1914 NEW MODEL

—

36-40 H.P. Engine

4-speed Gear Box, with special helical gears

New Type Worm Axle

Wheel Base—13-ft. 9-in.

Chassis, with tyres, £680

Code Word—**Dimvayac**

Approximate Shipping Specification—20-ft. 6-in. × 4-ft. 8-in. × 4-ft. 5-in.
Extra for Packing—£12.
Lift—Under 4 tons.
Engine—30-35 H.P.
Frame—6-in. deep × 2½-in. wide × ¼-in. thick.
Length overall—19-ft. 0-in.
Width—7-ft. 0½-in.
Wheel Base—13-ft. 3-in.
Width, inside tyres—5-ft. 0-in.
Width, outside tyres—6-ft. 6-in.

Length, dash to front of driver's seat—2-ft. 2½-in.
,, ,, back of driver's seat—3-ft. 8½-in.
,, ,, centre of back wheel—13-ft. 3-in.
Length, back of driver's seat—10-ft. 10-in.
Height, ground to top of frame (light)—2-ft. 8-in.
Ground Clearance—10½-in.
Tare Weight—2 tons 10 cwts.
Front Wheel—2-ft. 8-in. dia.; tyre, 820 × 100 m/m.; rim, 669·4 m/m.
Back Wheel—3-ft. 0-in. dia.; tyre, 920 × 110 m/m.; rim, 770 m/m.

"Leyland" 3-Ton Commercial Chassis

For 3½-Ton War Office Subsidy Lorry, Type "A,"
see page 65

Engine—4 cylinder, 30-35 H.P. "Leyland."

Clutch—Enclosed, ferrodo-faced cone.

Governor—Efficient and enclosed.

Control—Hand and foot.

Ignition—Bosch watertight magneto, with variable advance.

Carburetter—Claudel-Hobson, with jacketed induction.

Radiator—Gilled tubes, detachable top and bottom.

Cooling—Centrifugal pump.

Petrol Tank—Lead-coated steel, gravity feed.

Frame—Pressed nickel steel.

Steering Gear—Ackerman, enclosed irreversible worm and wheel.

Springs—Semi-elliptical, with greasers to each pin.

Front Wheel—All steel, hollow spoke, on roller and ball bearings.

Back Wheel—All steel, hollow spoke, on gun-metal floating bush.

Transmission—Central Thrust "Leyland" Patent Spherical Bracket.

Brakes—Foot on cardan, hand on road wheel drums.

Gear Box—4-speed and reverse, gate change, direct on top.

Front Axle—Drop forgings. Central pivot type.

Back Axle—This axle is of our latest design. It is a completely enclosed type and consists of a steel casing, containing our double reduction gear, fixed arms or tubes of special steel to carry the weight, and inner floating shafts to transmit the power. The gearing in the case consists of bevel drive on to lay shaft, on which the differential is mounted. and a final single reduction spur gearing for each driving shaft. The whole is enclosed in oil and runs on ball bearings, and the "Leyland" Central Spherical Thrust Transmission is employed.

"Leyland" 3-Ton Commercial Chassis

CO-OP. SOCIETIES SUPPLIED :—

Rochdale Provident,
Failsworth Industrial,
Bury Industrial,
Darwen Industrial,
Leigh Friendly,
Keighley Society,
Heckmondwike Soc.,
Crompton Society,
New Zealand Farmers' Co-op. Association,
Etc., etc.

Chassis Price—£680.
Code Words—Wide, **Dimveo** ; narrow, **Dimvip.**
Extra for Packing—£13.
Approximate Shipping Specification—Chassis only, 21-ft. 6-in. × 4-ft. 8-in. × 4-ft. 0-in.
Lift—Under 4 tons.
Engine—30-35 H.P.
Frame—6-in. deep ; 2½-in. wide ; ¼-in. thick.
Length overall—20-ft. 6-in.
Width—Narrow frame, 6-ft. 11½-in. ; wide frame, 7-ft. 4½-in.
Wheel Base—13-ft. 6-in.
Width, inside tyres—4-ft. 5½-in. or 4-ft. 10½-in.
Width, outside tyres—6-ft. 2½-in. or 6-ft. 7½-in.
Length, dash to front of driver's seat—2-ft. 2½-in.
„ „ back of driver's seat—3-ft. 8½-in.
„ „ centre of back axle—11-ft. 4-in.
Length, back of driver's seat—12-ft. 2-in.
Height, ground to top of frame (light)—3-ft. 0-in.
Ground Clearance—10-ins.
Tare, weight—2 tons 17 cwts.
Front Wheel—2-ft. 9-in. dia. ; tyre, 825 × 110 m/m. ; rim, 669 m/m.
Back Wheel—3-ft. 4-in. dia. ; tyre, 1,010 × 120 m/m. twin ; rim, 850 m/m.

3-Ton Chassis

"Leyland" 4-Ton Commercial Chassis

Bodies, see page 71

Chassis Price—£740.

Code Words—wide, **Dimvol** ; narrow, **Dimvuc.**

Extra for Packing—£14.

Approximate Shipping Specification—23-ft. 6-in. × 4-ft. 8-in. × 4-ft. 0-in.

Lift—Under 5 tons.

Engine—40-50 H.P.

Dimensions

Frame—6-in. deep × 2½-in. wide × ¼-in. thick.

Length overall—22-ft. 8-in.

Width—Narrow frame, 6-ft. 11½-in. ; wide frame, 7-ft. 4½-in.

Wheel Base—14-ft. 5¼-in.

Width, inside tyres—4-ft. 5½-in. or 4-ft. 10½-in.
,, outside tyres—6-ft. 2½-in. or 6-ft. 7½-in.

Length, dash to front of driver's seat—2-ft. 2½-in.
,, ,, back of driver's seat—3-ft. 8½-in.
,, ,, centre of back axle—11-ft. 8-in.

Length, back of driver's seat—13-ft. 8-in.

Height, ground to top of frame (light)—3-ft. 0-in.

Ground Clearance—12-in.

Tare Weight—3 tons 16 cwts.

Front Wheel—2-ft. 9-in. ; tyre, 830×120 m/m. ; rim, 669·4 m/m.

Back Wheel—3-ft. 4-in. ; tyre, 1,020×130 m/m. ; rim, 850 m/m.

Engine—4 cylinder, 40-50 H.P. "Leyland."

Clutch—Enclosed, ferrodo-faced cone.

Governor—Efficient and enclosed.

Control—Hand and foot.

Ignition—Bosch watertight magneto and accumulator ignition, if desired.

Details of Chassis Components, see pages 34 to 38

Carburetter — Claudel-Hobson, with jacketed induction.

Radiator—Reliance tubes, detachable top and bottom.

Cooling—Centrifugal pump.

Petrol Tank—Lead-coated steel, gravity feed.

Frame—Pressed nickel steel.

Steering Gear—Central pivot, enclosed irreversible worm and wheel. Gaiters on all joints.

Springs—Semi-elliptical, with greasers to each pin.

Front Wheel—Hollow spoke, steel, on roller and ball bearings.

Back Wheel—Hollow spoke, steel, on gun-metal floating bush.

Transmission—Central Thrust "Leyland" Patent Spherical Bracket.

Brakes—Foot on cardan, hand expanding on road wheel drums, enclosed, and compensated.

Gear Box—4-speed and reverse, gate change, direct on top.

Front Axle—Drop forgings, central pivot type.

Back Axle—This axle is of our latest design. It is a completely enclosed type and consists of a steel casing, containing our double reduction gear, fixed arms or tubes of special steel to carry the weight, and inner floating shafts to transmit the power. The gearing in the case consists of bevel drive on to lay shaft, on which the differential is mounted, and a final single reduction spur gearing for each driving shaft. The whole is enclosed in oil and runs on ball bearings, and the "Leyland" Central Spherical Thrust Transmission is employed.

4-Ton Petrol Lorry with Tar Sheet Rail and Enclosed Cab.

"Leyland" 5 and 6-Ton Commercial Chassis

Engine—4 cylinder, 40-50 H.P. "Leyland."

Clutch—Enclosed, ferrodo-faced cone.

Governor—Efficient and enclosed.

Control—Hand and foot.

Ignition—Bosch watertight magneto and accumulator ignition, if desired.

Carburetter — Claudel-Hobson, with jacketed induction.

Radiator—Reliance tubes, detachable top and bottom.

Cooling—Centrifugal pump.

Petrol Tank—Lead-coated steel, gravity feed.

Frame—Pressed nickel steel.

Steering Gear—Central pivot, enclosed irreversible worm and wheel. Gaiters to all joints.

Springs—Semi-elliptical, with greasers to each pin.

Front Wheel—Hollow spoke, steel, on roller and ball bearings.

Back Wheel—Hollow spoke, steel, on gun-metal floating bush.

Transmission—Central thrust. "Leyland" Patent Spherical Bracket.

Brakes—Foot on cardan, hand expanding on road wheel drums, enclosed, and compensated.

Gear Box—4-speed and reverse, gate change, direct on top.

Front Axle—Drop forgings, central pivot type.

Back Axle—This axle consists of a drop stamped steel beam carrying the load through underhung springs, and supporting a steel axle casing containing the gears. The power is transmitted through the "Leyland" Patent Spherical Central Thrust and propeller tube to a bevel which is mounted on the differential on a lay shaft. From each side of the differential the power is transmitted by spur pinions to spur wheels on the internal driving shafts gearing with the outer faces of the road wheels. The road wheels run on gun-metal floating bushes, and the gears are of oil toughened steel, all machine-cut from the solid.

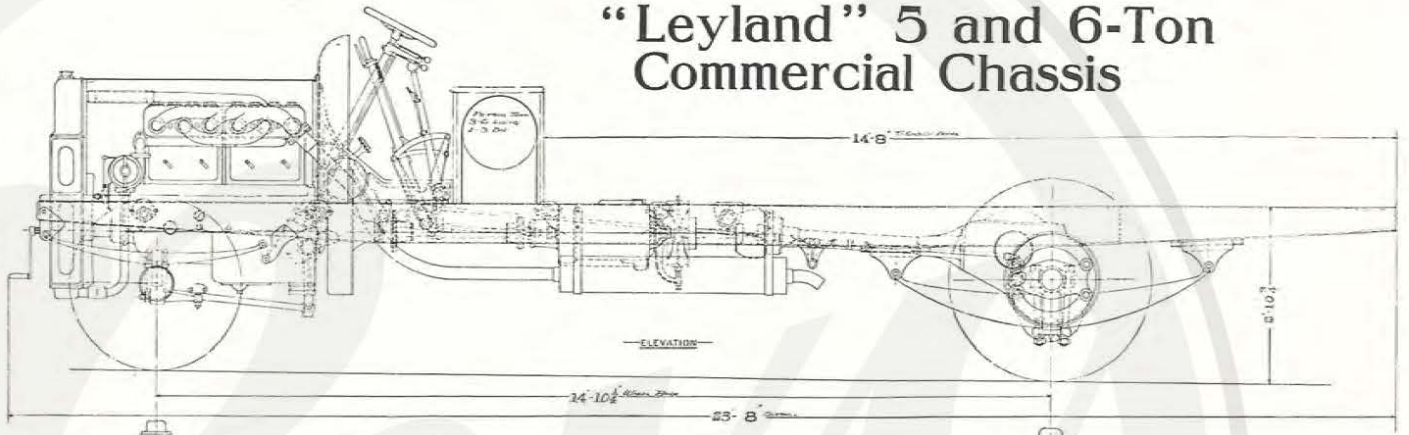
Body Prices, see pages 30 and 71.

Extras, see page 31

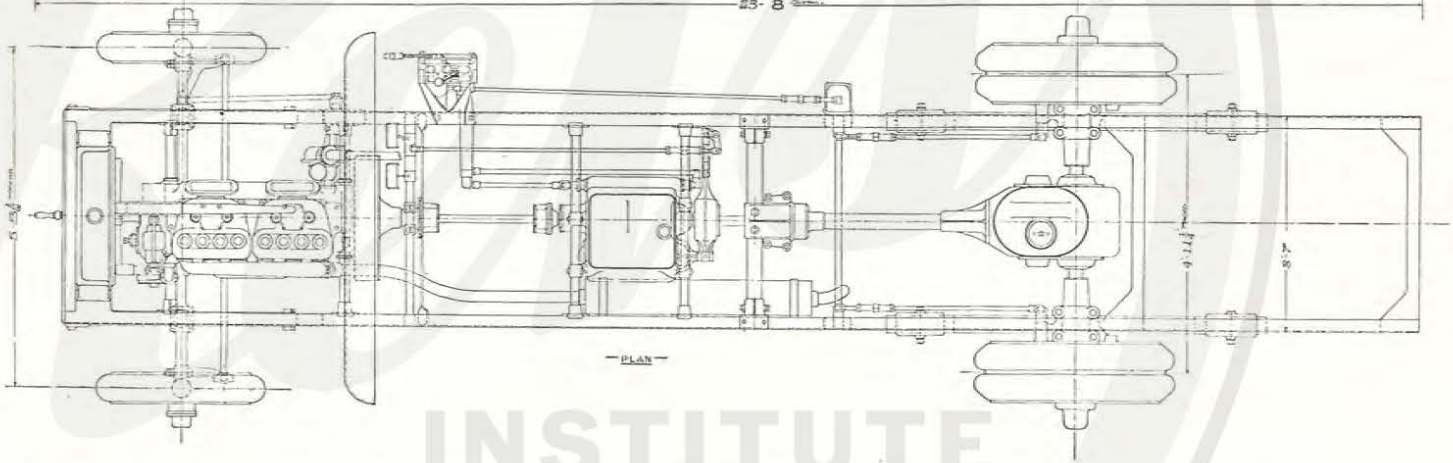
Illustration, see page 67

"Leyland" 5 and 6-Ton Commercial Chassis

Elevation of 5-Ton Chassis



Plan of 5-Ton Chassis



5 AND 6-TON CHASSIS

Chassis Price—5 ton, **£800 :** 6-ton, **£860.**
Code Words— ,, **Dimvyg ;** ,, **Dimwat.**
Extra for Packing—**£16.**
Approximate Shipping Specification—24-ft. 6-in. × 4-ft. 8-in. × 4-ft. 0-in.
Lift—Under 5 tons.
Engine—40-50 H.P.
Frame—7⅜-in. deep × 2½-in. wide × ¼-in.
Length overall—23-ft. 8-in.
Width—7-ft. 1½-in.
Wheel Base—14-ft. 10¼-in.
Width, inside tyres—5-ton, 3-ft. 11-in. ; 6-ton, 3-ft. 9½-in.
,, outside tyres—5-ton, 6-ft. 3-in. ; 6-ton, 6-ft. 4½-in.
Length, dash to front of driver's seat—2-ft. 2½-in.
,, ,, back of driver's seat—3-ft. 8½-in.
,, ,, centre of back axle—12-ft. 6-in.
Length, back of driver's seat—14-ft. 8-in.
Height, ground to top of frame (light)—3-ft. 0-in.
Ground Clearance—8-in.

5-TON :—

Tare Weight—4 tons 2 cwts.
Front Wheel—2-ft. 9-in. dia. ; tyre, 830 × 140 m/m. ; rim, 669.4 m/m.
Back Wheel—3-ft. 4-in. dia. ; tyre, 1,030 × 140 twin ; rim, 850 m/m.

6-TON :—

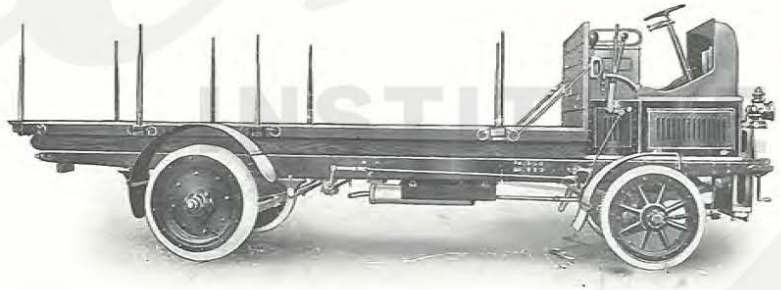
Tare Weight—4 tons 6 cwts.
Front Wheel—2-ft. 9-in. dia. ; tyre, 830 × 140 m/m. ; rim, 669.4 m/m.
Back Wheel—3-ft. 5½-in. dia. ; tyre, 1,050 × 160 m/m. ; rim, 850 m/m.

"Leyland" 5-Ton Commercial Chassis

5-Ton LIFT VAN

Size—5 or 6-ton Overhead Type.
Chassis Price—5-ton, **£820** ; 6-ton, **£880.**
Code Words— ,, **Dimwer** ; ,, **Dimwiy.**
Extra for Packing—5-ton, **£16** ; 6-ton, **£16.**
Approximate Shipping Specification—25-ft. 0-in. × 4-ft. 7-in. × 4-ft. 4-in.
Lift—Under 5 tons.
Engine—40-50 H.P.
Frame—$7\frac{3}{8}$-in. deep ; $2\frac{1}{2}$-in. wide ; $\frac{1}{4}$-in. thick.
Length Overall—23-ft. 5-in.
Width Overall—7-ft. $1\frac{1}{2}$-in.
Wheel Base—13-ft. 0-in.
Width, inside tyres—5-ton, 3-ft. 11-in. ; 6-ton, 3-ft. $9\frac{1}{2}$-in.
,, outside tyres—5-ton, 6-ft. 3-in. ; 6-ton, 6-ft. $4\frac{1}{2}$-in.
Length, back of seat to centre of back axle, 10-ft. $10\frac{1}{2}$-in.
,, ,, ,, end of frame—16-ft. 11-in.
Height, from ground to top of frame (light)—3-ft. 0-in.
Ground Clearance—8-in.

5-TON :—
Tare Weight—4 tons 6 cwts.
Front Wheel—2-ft. 9-in. ; tyre, 830 × 140 m/m. ; rim, 669·4 m/m.
Back Wheel—3-ft. 4-in. ; tyre, 1,030 × 140 m/m. ; rim, 850 m/m.



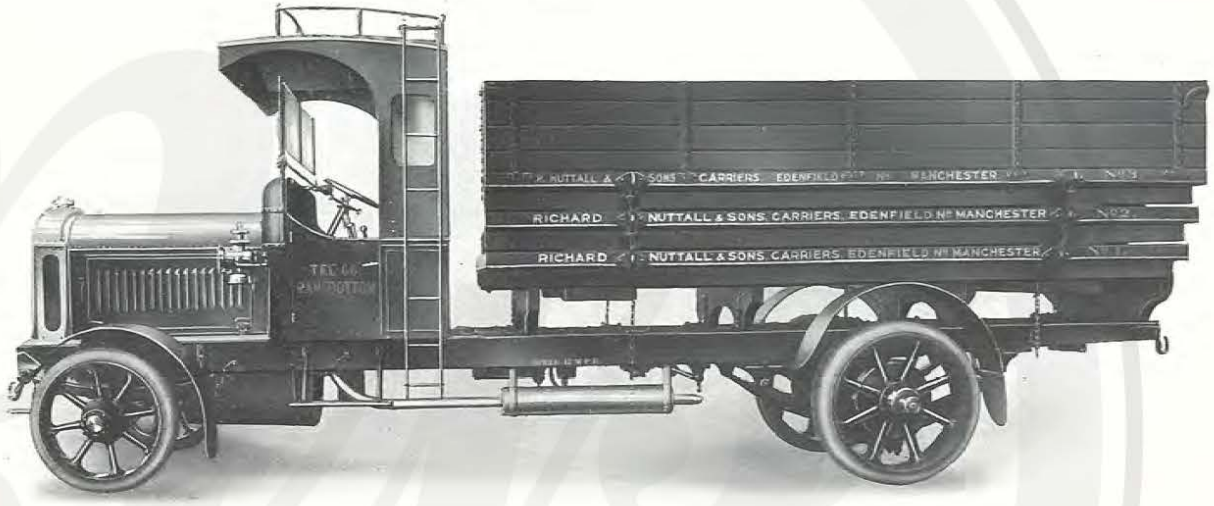
Special Long Platform, 5-Ton "OVER-TYPE" LORRY

6-TON :—
Tare Weight—4 tons 11 cwts.
Front Wheel—2-ft. $11\frac{1}{2}$-in. ; tyre, 900 × 160 m/m. ; 669·4 m/m.
Back Wheel—3-ft. $5\frac{1}{2}$-in. ; tyre, 1,050 × 160 m/m. ; rim, 850 m/m.

"Leyland" 6-Ton Petrol Chassis

For Price and Particulars, see page 51.

For Prices of Flats, see page 80.



Specially suitable for Lancashire Cotton Manufacturers

Some "Cotton" Firms using "Leyland" Machines

Cotton Manufacturers, etc., using "Leyland's"

A. J. Birley, Ltd., Burnley.
Wm. Ecroyd & Sons, Ltd., Nelson, Burnley.
Edmund Halstead, Ltd., Burnley.
Edward Lee, Ltd., Burnley.
Olive Mount Mill, Ltd., Burnley.
James Stansfield & Sons, Ltd., Burnley.
John S. Veevers, Brierfield, Burnley.
J. Bury & Co., Ltd., Accrington.
George Walmsley, Burnley.
Robert Walton, Hapton, Burnley.
Dugdale Bros., Burnley.
J. H. Birtwistle & Co., Ltd., Haslingden.
Thomas Moss & Sons, Lostock Hall, Preston.
Andrew Berry & Sons, Leyland, Preston.
G. & L. Dewhurst, Ltd., Preston.
John Hawkins & Son, Preston.
John Stanning & Sons, Ltd., Leyland, Preston.
Wilding Bros., Preston.
William Barnes, Whitebirk, Blackburn.
Marriage & Pinnock, Chorley.
Ensor Mills, Ltd., Rochdale.
John Fish, Ltd., Blackburn.
William Birtwistle, Withnell, Blackburn.
Alex. Carus & Sons, Ltd., Hoddlesden, Darwen.
A. & T. Eccles, Bolton Croft, Darwen.
T. & R. Eccles, Darwen.
Greenwood Bros., Infirmary Mills, Blackburn.
T. Westby & Sons, Great Harwood, Blackburn.
Robt. Hogg, Ltd., Blackburn.
E. & G. Hindle, Blackburn.
Wm. Kay & Sons, Ltd., Blackburn.
Smalley & Sons, Mellor, Blackburn.
John Baynes, Ltd., Blackburn.
P. W. Greenhalgh & Co., New Hey, Rochdale.
John Bright & Bros., Ltd., Rochdale.
Samuel Heap & Son, Ltd., Rochdale.
Plum Mill, Ltd., Heywood, Rochdale.
Edward Scott, Heywood, Rochdale.
Mark Kippax, Burnley.
Davey Kenyon & Co., Rochdale.
J. Orr & Sons, Ltd., Castleton, Rochdale.
Barlow Bros. & Greenwood, Church.
John Hardcastle & Co., Ltd. Firwood, Bolton.
R. Foster & Co., Ltd., Horwich, Bolton.
William Hoyle & Co., Tottington, Bury.
R. & A. Chambers, Whitefield, Bury.
D. Constantine & Sons, Bolton.
E. Butterworth & Sons, Ltd., Delph, Oldham.
Joseph Clare, Ltd., Greenfield, Oldham.
John Leigh, Ltd., Oldham.
Robinson Bros., Ltd., Bentfield Mill, Greenfield, nr. Oldham.
J. & W. Kearns, Waterfoot, Bacup.
John Hargreaves, Ltd., Bacup.
Wm. North & Co., Ltd., Bradford.
John Buckle, Ltd., Bradford.
James Drummond & Sons, Bradford.
Fox Bros., Wellington.
Edwin Turner, Ltd., Halifax.
Crossley & Co., Ltd., Halifax.
Hitchon, Hitchon, Rochdale.
Grove Mills, Ltd., Rochdale. Etc., etc.

"Leyland" Winding Gear

The "Leyland" Winding Gear is very clearly shown in the illustration. On the Chassis it is situated on the left side of the driver under the hinged portion of the seat. A hand lever is arranged conveniently to the driver, enabling the drum to be thrown in and out of action.

The drum can be stopped instantaneously by depressing the clutch pedal, which brings into action the friction stop.

A weight of 3-cwts. can be lifted to a height of 50 feet in about 20 seconds.

When lowering, the gear is disengaged, allowing the rope to run freely down, and a small continued movement of the hand lever brings into action a leather friction stop which stops the rope at any desired position.

The gear can be used for hoisting again without recourse to the hand lever.

Price **£60.** Code Word—**Dimwoh.**

Some Users of "Leyland" Machines in the London District

War Office.
Admiralty.
Indian Office.
H.M. Postmaster General, London.
London County Council Fire Brigade, London.
Westminster County Council, London.
Finchley Fire Brigade, London.
London United Tramways.
New Central Omnibus Co., Ltd., London.
London General Omnibus Co., London.
British Automobile Traction Co., Ltd., London.
London & North Western Railway, London.
Carter Paterson & Co., Ltd., London.
Hampton's, Ltd., London.
Waring's, Ltd., London.
Maple & Co., Ltd., London.
Lazenby & Sons, Ltd., London.
Whiteley's, Ltd., London.
British Petroleum Co., London.
Mann, Crossman & Paulin, Ltd., London.
Jones & Higgins, London.
Boon & Porter, London.
Saville Bros., Ltd., London.
Brandon's Putney Brewery, London.
Elder & Fyffes, London.
Sir W. P. Hartley, London.
Knowles & Foster, London.
Hay's Wharf, Ltd., Southwark, London.
Gloster & Sons, Grocers, Woking.
Marks & Co., London.
The Star Newspaper Co., London.
Otto Monsted, Ltd., Southwark, London.
Barnet District Gas and Water Co.
Bon Marché, Brixton, London.
Edward Cole, Tottenham, London.
Faulkner & Co., Ltd., London.
Kodak, Ltd., London.
R. Dickeson & Co., London.
Direct Supply Aerated Water Co., Ltd., London.
Dorman Long & Co., Ltd., London.
McNamara, Ltd. London.
G. Riley & Co., Lambeth Road.
E. & H. Hora, Peckham Road.
Lancaster & Co., Mitcham.
Oates Bros., Wimbledon.
G. Clark & Co., Millwall.
Fairclough Bros., London. Etc., etc.

4-Ton Petrol Tip as supplied to Bombay.

Bodies made in teak or other special hard woods as required.

3-Ton Wagon with Self-contained Crane for barrel lifting.

Colonial and Foreign Requirements

We specialise in vehicles for all uses in Colonies and abroad. **Write for details of any particular requirements.**

Cooling—Special radiator and tanks fitted for hot climates.
Paraffin—Special carburetter, for running on paraffin, fitted if desired.
Ground Clearance—Large ground clearance for rough roads or tracks.

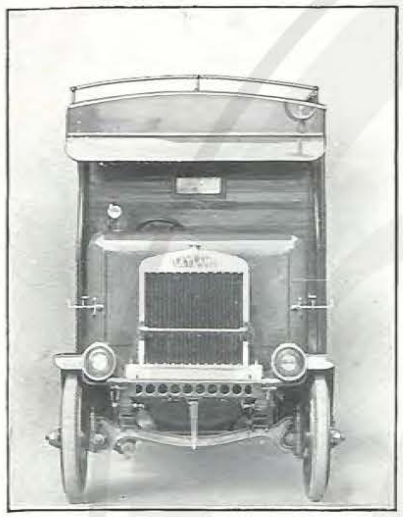
Winding Gear—Special winding drums worked from the engine to enable the machine to extricate itself from out of bogs, marshes, or soft ground.

2-Ton Petrol Wagon with Monsoon Hood for driver.

Special size rubber tyres fitted.

All-steel wheels with special straked steel tyres for soft ground.

5-Ton Tip Wagon with Steel Body for road material.



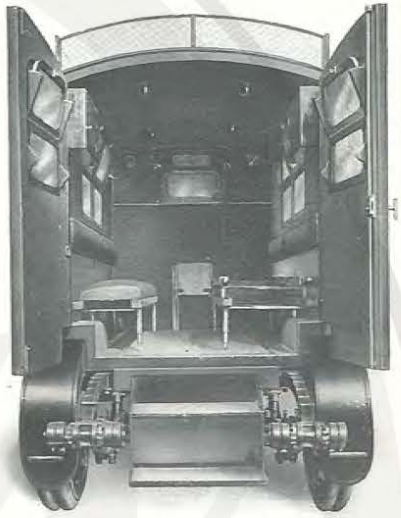
Front View of both Models.

NOTES ON THE

WAR OFFICE
SUBVENTION SCHEME

WE hold the **FIRST** and **ONLY** Certificate granted by the War Office for Subsidized Vehicles on determination of the first public trials, 1912.

Special Types of Bodies arranged for on application



Interior View of Army Ambulance.

"LEYLAND" War Office Orders

Sept., 1910	-	2
Dec., 1910	-	2
June, 1911	-	10
Sept., 1911	-	10
Sept., 1911	-	1
Sept., 1911	-	4
Sept., 1911	-	6
April, 1912	-	5
May, 1912	-	1
May, 1912	-	1

"LEYLAND" War Office Orders

May, 1912	-	15
July, 1912	-	2
Sept., 1912	-	3
Oct., 1912	-	5
Mar., 1913	-	1
April, 1913	-	55
June, 1913	-	1
Oct., 1913	-	1
Nov., 1913	-	1
Jan., 1914	-	7

GROUP OF SUBSIDY MACHINES READY FOR DELIVERY
(The above lot of Machines, including the Fire Engine, is actually one day's delivery).

Abridgment of War Office Scheme

NOTICE TO OWNERS DESIRING TO ENROL MOTOR LORRIES.

Classes of Petrol Lorries

1. For the purpose of this scheme petrol-driven motor lorries are divided as follows :—

Class " A."—Those capable of carrying a useful load of 3 tons.

Class " B."—Those capable of carrying a useful load of 30-cwt.

2.—Lorries will not be accepted for enrolment unless they conform to the specification for subsidised lorries given in Appendix A, which can be obtained from the War Office. They may also be required to undergo a trial not exceeding 80 miles to the satisfaction of an Inspecting Officer appointed by the War Department before being accepted.

3. Intending purchasers wishing to enrol their lorries will apply in the first instance to the War Office, and will only be accepted if they can satisfy the department that they will maintain their vehicles in a satisfactory condition.

4. Purchasers will be required to enter into an agreement in the approved form.

Purchase Premium and Annual Subsidy

5. Each motor lorry specified in the Schedule annexed hereto will be subsidised for a period of 3 years from the date of acceptance shown against such lorry in the said Schedule, and the Owner will receive in respect thereof—

(a.) Purchase premium, and
(b.) Annual subsidy

at the rates following and subject to the other conditions hereinafter contained :—

(a.) (i.) A purchase premium of £50 will be paid in six half-yearly instalments of £8 6s. 8d. each, in arrear, the first instalment to be paid in 6 months from date of acceptance shown against the lorry in the Schedule hereto.

Abridgment of War Office Scheme—*continued.*

(ii.) A further purchase premium of £10 will be paid in respect of each of the said motor lorries which is provided with a body of an approved type for the carriage of meat, slung from the roof, payable in six half-yearly instalments of £1 13s. 4d. each, in arrear, payable at the same times as the instalments of the purchase premium of £50.

(b.) An annual subsidy of £20 per motor lorry will be paid half-yearly, in arrear, the first instalment to be paid in 6 months from the date of acceptance shown against the lorry in the Schedule hereto.

The Owner of a subsidised motor lorry without a special body will thus receive the sum of £110, spread over a period of 3 years, provided he conforms to the conditions.

Liability imposed on Owners

The Owner will not be entitled to any payment, whether on account of purchase premium or annual subsidy, unless the following conditions are complied with at the time of payment :—

(a.) The motor lorry must continue to be enrolled.

(b.) The lorry must remain the property of the Owner.

(c.) The lorry must be in the United Kingdom.

(d.) A certificate has been signed by the War Department Inspecting Officer that the lorry has been inspected by him and found to be maintained in a thoroughly serviceable condition and in a satisfactory state of repair.

Hire

This scheme does not require the owner to hire the motor to the Army for manœuvres.

Inspection

6. (a) In order to ensure and ascertain that every subsidised motor lorry is maintained in a thoroughly serviceable condition and in a satisfactory state of repair an inspection will be made every 6 months by a War Department Inspector, who, in addition to inspecting the lorry at its own garage, may go out on it for a run of about 25 miles when fully loaded, as far as practicable during its ordinary course of business, so as to interfere as little as possible with trade. The actual date of inspections will be arranged by the Inspecting Officer, who will, as far as possible, regard the convenience of the Owner in fixing the date. The inspections will take place within a reasonable time before the instalments become due. No reimbursement on account of fuel and other running expenses during any of the test runs will be made by the War Department.

(b) If a motor lorry is found, in the opinion of the Inspecting Officer, to be in an unserviceable condition or in an unsatisfactory state of repair at any inspection, the Owner shall put the lorry into a thoroughly serviceable condition and satisfactory state of repair to the satisfaction of the War Department, within a reasonable time to be determined by the Inspecting Officer, before receiving any further payments.

(c) If this reasonable time is exceeded all instalments which would otherwise have then been payable will lapse and cease to be payable.

Abridgment of War Office Scheme—*continued.*

Inspection

(d) If a motor lorry is found at more than one inspection to be in an unserviceable condition or in an unsatisfactory state of repair, the War Department shall be entitled to strike the same off the list of enrolled motor lorries, in which case the Owner shall forfeit all instalments then due or to become due either for purchase premium or annual subsidy in respect thereof.

(e) **Powers of Inspectors.**—Duly qualified officers of the Army will be appointed as inspectors by the War Office.

(f) The War Department Inspectors shall have power, if desired, to inspect the motor lorries at the manufacturer's works, they shall be empowered to check the interchangeability of spare parts from time to time, they shall have opportunity, so far as practicable, of inspecting the subsidised motor lorries when running at all reasonable times (apart from the regular inspections), and at any time to order repairs to be executed if vehicles are not in proper running order, and the provisions of Clause 3 applicable in the case of a lorry being found to be in an unserviceable condition or in an unsatisfactory state of repair, shall thereupon apply.

(g) **Appeal.**—In case of dispute arising on question of a technical nature affecting this Agreement between the local War Department Inspector and the Owner, the matter shall be referred to the War Office. If it cannot then be settled satisfactorily between the Chief Inspector or Mechanical Transport Committee and the Owner, the matter shall be referred to the decision of two arbitrators, one representing the War Department to be appointed by the War Department, and one representing the Owner to be appointed by him in accordance with, and subject to, the provisions of the Arbitration Act, 1889, or any statutory modification or re-enactment thereof for the time being in force.

Sale to War Office

7. Right to Purchase.—If and whenever during the continuance of this Agreement the Army Reserve or any portion thereof shall be called out on permanent service, whether by proclamation under the Reserve Forces Act, 1882, or otherwise, the War Department shall (without prejudice to any statutory or other power of the Crown) be entitled to purchase as hereinafter mentioned any motor lorry enrolled hereunder.

8. (a) **Notice.**—Notice by telegraph or in writing of the intention to purchase any motor lorry shall be given to the Owner by the War Department, and the Owner shall, within 72 hours after receipt of such notice, deliver the lorry, together with any spare parts forming part of its free outfit by road to the War Department at the place in the United Kingdom ordered, with every part in thorough working order.

(b) A notice may be served on the Owner either personally, by telegram, or by letter, addressed to him at the Owner's address above mentioned, or at his last known address, and if so sent by post, shall be deemed to have been served on the day following that on which it is posted.

(c) If, however, the lorry is at the time of receipt of notice more than 200 miles distant from the place where delivery is ordered, an extra allowance of time shall be given in the proportion of 24 hours for every additional 120 miles.

Abridgment of War Office Scheme—*continued*

Sale to War Office (continued)

9. Terms.—The price to be paid for any motor lorry shall be the then value at the date of taking over by the War Department, plus 25 per cent., provided that the sum to be paid shall in no case be greater than the original actual purchase price, and never less than 30 per cent, of such price. The then value for this purpose shall be arrived at by deducting from the original actual purchase price of the lorry as entered in the schedule hereto (which price shall not include the cost of any spare duplicate parts other than those forming part of its free outfit), 7½ per cent. of that price in respect of each complete half-year which shall have elapsed from the date of delivery by the manufacturer on purchase, together with a further 7½ per cent. in respect of the broken period (if any) in excess of a complete number of half-years.

For example, if the purchase price of a lorry were £600, the price paid for it during the first 4 years of its life would be as under :—

Period.	Depreciation to be deducted at 7½ per cent. per half-year.	Depreciation value, *i.e.*, then value.	Sum of 25 per cent. to be added to then value.	Price to be paid by War Department.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
0 to 6 months	45 0 0	555 0 0	139 0 0	600 0 0
6 to 12 ,, ...	90 0 0	510 0 0	127 0 0	600 0 0
1 to 1½ years	135 0 0	465 0 0	116 0 0	581 0 0
1½ to 2 ,, ...	180 0 0	420 0 0	105 0 0	525 0 0
2 to 2½ ,, ...	225 0 0	375 0 0	95 0 0	469 0 0
2½ to 3 ,, ...	270 0 0	330 0 0	82 0 0	412 0 0
3 to 3½ ,, ...	315 0 0	285 0 0	71 0 0	356 0 0
3½ to 4 ,, ...	360 0 0	240 0 0	60 0 0	300 0 0

The inclusive cost of taking the lorry to the place ordered is included in the purchase price.

Sundry Conditions

10. Power of Rejection.—In the case of a motor lorry being considered unserviceable by the War Department when delivered, it may be rejected, in which case no payment will be made by the War Department for expenses incurred.

The War Office must be notified in the event of total disablement.

The owner must apply for permission if he wishes to sell.

Mileage returns must be kept and be available for inspection.

The "Leyland" Subsidy Models

Engine, for 30-cwt.—4 cylinder, 22–28 H.P., "Leyland."

Engine, for 3-ton—4 cylinder, 30–35 H.P., "Leyland."

Clutch—Enclosed, Ferrodo-faced cone.

Governor—Efficient and enclosed.

Control—Hand and foot, War Office pattern.

Ignition—Bosch watertight magneto and spare magneto in case.

Carburetter—Claudel-Hobson, jacketed induction.

Radiator—Gilled tube, detachable top and bottom, protected and mounted to War Office Standard.

Cooling—Centrifugal pump.

Petrol Tank—Lead-coated steel, gravity feed, petrol indicator and fittings to War Office Standard.

Frame—Pressed nickel steel.

Steering Gear—Ackerman, enclosed irreversible worm and wheel. Leather gaiters on joints,

Springs—Semi-elliptical, greasers to each pin.

Front Wheel—Hollow spoke steel, on War Office bush.

Back Wheel—Hollow spoke steel, on War Office bush.

Transmission—Central thrust, "Leyland" Patent Spherical Bracket.

Brakes—Foot, water cooled, on cardan. Hand, War Office pattern expanding on road wheel drums.

Gear Box—Lower ratios than standard, 4-speed, and reverse, direct on top. Gate change.

Front Axle—War Office pattern.

Back Axle (A Type)—This axle is of our latest design. It is a completely enclosed type and consists of a steel casing, containing our double reduction gear, fixed arms or tubes of special steel to carry the weight, and inner floating shafts to transmit the power. The gearing in the case consists of bevel drive on to lay shaft, on which the differential is mounted, and a final single reduction spur gearing for each driving shaft. The whole is enclosed in oil and runs on ball bearings, and the "Leyland" Central Spherical Thrust Transmission is employed. The road wheels run on standard War Office gun-metal floating bushes.

Back Axle (B Type)—This axle is of generally similar construction and design as the "A" type, but is of slightly lighter build. This is the same axle as fitted to our 3-ton Chassis.

Towing Hooks—Provided as standard.

Undershield—Detachable, fitted.

Tools—The tools scheduled in the undermentioned list are to be supplied as part of the free outfit for every vehicle, and will be checked on each inspection, and must be found complete and in good order :—

1 complete set of spanners and keys to fit all bolts and nuts on chassis, including wheel spanner and hub cap spanner.
Large shifting spanner, similar to Billings and Spencer, 14-in., automobile type.
Small shifting spanner, similar to Billings and Spencer, 8-in., automobile type.
1 spanner for adjustment of magneto.
1 box spanner for sparking plug.
1 (pin) punch.
1 screwdriver with handle
1 pair gas pliers.
1 pair universal pliers.
1 hammer.
1 cold chisel.
1 petrol filler with wire gauze strainer.
1 oil tin.
1 grease tin.
1 pressure greaser (where required).

Accessories—The following must be carried on all vehicles.

2 paraffin side lamps.
Paraffin tail lamp
1 acetylene head lamp.
1 generator for same.
1 horn.
Brackets for 3 acetylene head lamps, vide Clause No. 33, War Office Technical Appendix A.
1 set of instructions regarding the care and maintenance of the vehicle.

The "Leyland" Subsidy Models

Spare Parts—Manufacturers to agree to keep an adequate supply of spare parts for subsidised vehicles. The spare parts scheduled in the undermentioned list are to be supplied as part of the free outfit for every vehicle, and will be checked on each inspection, and must be found complete and in good order :—

4 sparking plugs with washers.
1 set of bolts and nuts, washers and pins, split pins, &c.
1 set of washers for valve caps.
1 dozen washers for sparking plugs.
1 set of washers for engine and water circulation joints and inlet and exhaust pipe joints.
1 of each type of grease or oil cup used.
1 of each type of valve complete with spring, cotter and washer (if inlet and exhaust valves are interchangeable, 2 complete valves must be carried).
1 fan belt (if used) and spare connectors.
1 length of each class of rubber tubing used in the water circulation.
Clips for making joints in the above.
1 set of brake blocks, or one brake liner for each brake on the vehicle.
Any other part which may be settled on for any particular type of vehicle.
1 set of all springs (excluding inlet and exhaust valve springs) used in connection with the engine or with the brake gear.

Tests—All lorries built to be subsidised have to pass severe tests of parts during manufacture; and the finished vehicles have to pass specified tests for hill climbing, petrol consumption, etc.

Cab—The cab is specially roomy, as shown in the illustration, and has added, weather screens, cushion, and padded squab. The ladders, as shown in illustration, are not now fitted. If desired, a folding hood can be fitted instead of the wooden canopy.

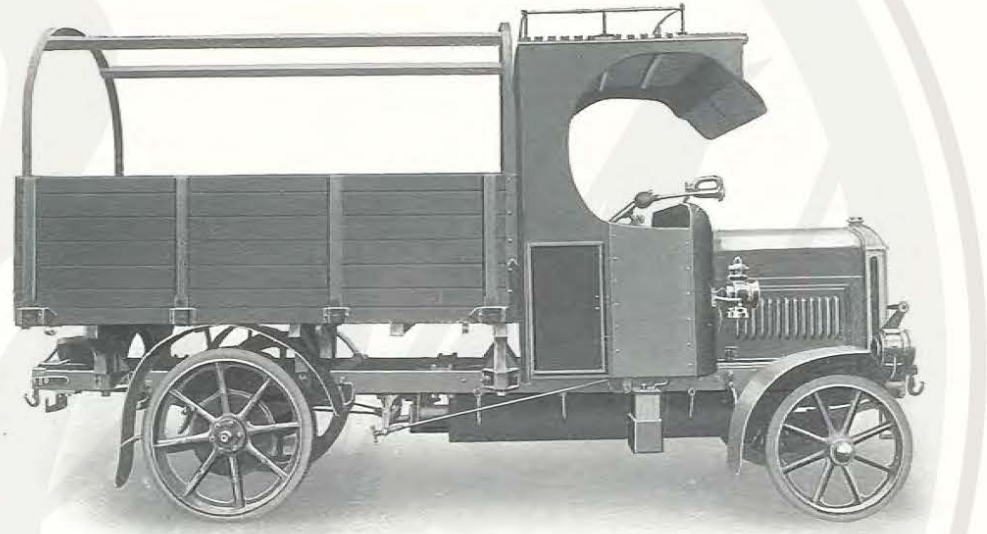
Lamps—Lucas' side and tail lamps, one acetylene head lamp, generator, and brackets for two other head lamps included.

Sprags—A pair are fitted with steel rope operating gear.

Body—Framing oak ; Flooring, T. & G. maple ; Cross Beams, ash ; Support Brackets, War Office standard ; Lattice Sides, boarded, 2-ft. 6-in. high, fitting into sockets ; Front, fixed, 3-ft. 0-in. high, carrying bow ; Back bow fixed, supporting hinged tail board ; Ridge Pole, 6-ft. 0-in. above floor.

"Leyland" Subsidy Model, Type "B"

Dimensions of 30-cwt. Subsidy "B," suitable for useful load of 2½ tons



General Details

Size—Subsidy "B."

War Office Chassis Price—**£640.** Complete vehicle to War Office Specification, **£695.**

Code Words—Chassis, **Dolaba** ; complete, **Dolace.**

Extra for Packing—**£12.**

Approximate Shipping Specification—Chassis only, 20-ft. 6-in. × 4-ft. 8-in. × 4-ft. 0-in.

Lift—Under 4 tons.

Engine—22-28 H.P.

Frame—5⅞-in. deep ; 2½-in. wide ; $\frac{3}{16}$-in. thick.

Length Overall—19-ft. 4-in.

Width—6-ft. 8-in.

Wheel Base—11-ft. 8-in.

Width, inside tyres—4-ft. 7-in.

Width, outside tyres—6-ft. 1-in.

Length, dash to front of driver's seat—2-ft. 2½-in.
,, ,, back of driver's seat—3-ft. 8½-in.
,, ,, centre of back axle—9-ft. 6½-in.

Length, back of driver's seat—10-ft. 8-in.

Height, ground to top of frame (light)—2-ft. 10-in.

Ground Clearance—1-ft. 0-in.

Tare Weight—3 tons 6 cwts.

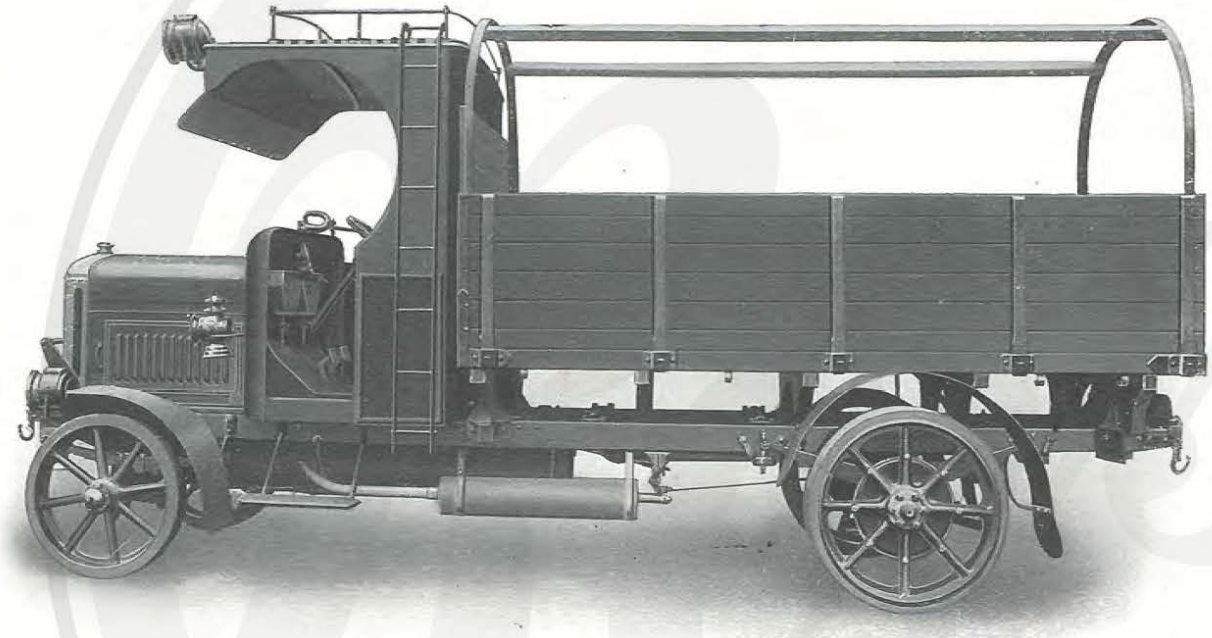
Front Wheel—2-ft. 10-in. ; tyre, 870 × 100 m/m. ; rim, 719·5 m/m.

Back Wheel—3-ft. 5-in. ; tyre, 1,030 × 100 m/m., twin ; rim, 880 m/m.

Body—10-ft. 6-in. × 6-ft. 0-in. outside measure.

Height from ground to platform (light)—3-ft. 11-in.

"Leyland" Subsidy Model, Type "A"



Dimensions of Subsidy "A," 3-ton Lorry, suitable for useful load of 3½ tons

Size—Subsidy "A."
War Office Chassis Price—**£700.** Complete vehicle, War Office Specification, **£760.**
Code Word—Chassis, **Doladi ;** complete, **Dolafo.**
Extra for Packing—**£13.**
Approximate Shipping Specification—22-ft. 0-in. × 4-ft 8-in. × 4-ft. 0-in. Chassis only.
Lift—Under 4 tons.
Engine—30 H.P.
Frame—6-in. deep ; 2½-in. wide × ¼-in. thick.
Length overall—21-ft. 0-in.
Width—6-ft. 11½-in.
Wheel Base—13-ft. 6-in.
Width, inside tyres—4-ft. 5½-in.
Width, outside tyres—6-ft. 2½-in.
Length, dash to front of driver's seat—2-ft. 2½-in.
" " to back of driver's seat—3-ft. 8½-in.
" " centre of back axle—11-ft. 4½-in.
Length, back of driver's seat—12-ft. 4-in.
Height, ground to top of frame (light)—3-ft. 0-in.
Ground Clearance—1-ft. 1-in.
Tare Weight—3 tons 13 cwts.
Front Wheel—2-ft. 11½-in. ; tyre, 900 × 120 m/m. ; rim, 719·5 m/m.
Back Wheel—3-ft. 5½-in. ; tyre, 1,050 × 120 m/m., twin ; rim, 880 m/m.
Body—12-ft. 2-in. × 6-ft. 6-in. outside measure.
Height, from ground to platform (light)—4-ft. 1-in.

General Details

FURNITURE VANS.

See also pages 79 and 80

First Motor Supplied, February, 1911. **Repeat Order, April, 1912.**

Some Users' Names.

CARRIERS.

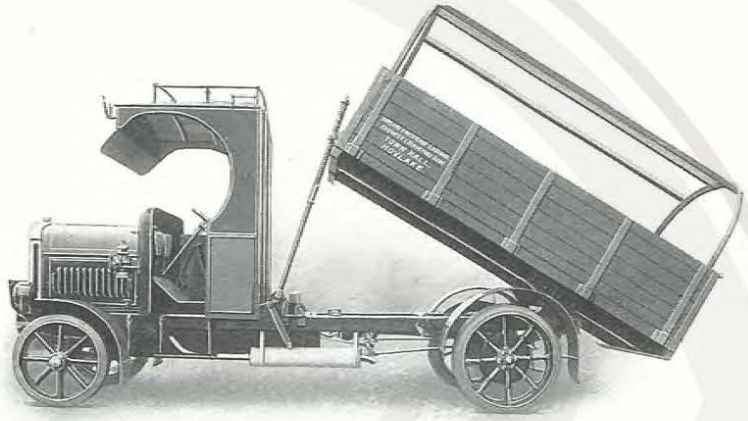
London & North Western Railway.
Great Central Railway, Manchester.
North Eastern Railway, York.
Carter Paterson & Co., Ltd., London.
McNamara, Ltd., London.
Bennett's, Ltd., Liverpool.
Viney & Co., Ltd., Preston.
Wilcockson Bros., Middleton.
C. T. Faulkner & Co., Manchester.
Darwen Haulage Co., Darwen.
Binnie & Co., Ltd., Liverpool.
Farnworth & Duckworth, Middleton.
Motor Transport Co., Rochdale.
F. Wearing, Darwen.
Wm. Lober, Ltd., Darwen.
John Eastham, Bury.
John Ashworth, Blackburn.
Helm Carrying Co., Helmshore.
Brown & Clegg, Burnley.
John Haydock, Blackburn.
R. Nuttall & Sons, Edenfield.
Wm. Hesford, Leigh.
Joseph Orrell & Co., Darwen.
John Potts & Co., Blackburn.
Geo. Richards, Darwen.
J. Tattersall, Bacup.
Joseph Taylor, Rochdale.
J. O. Tillotson, Burnley.
J. Nall & Co., Manchester.
Wm. Harper & Sons, Liverpool.
General Carrying Co., Huddersfield.
Blythe's Parcel Delivery Co., Bradford.
T. Spence, Carrier, Holbeck, Leeds.
T. W. Roberts, Liverpool.
John Fishwick, Leyland.

GROCERS.

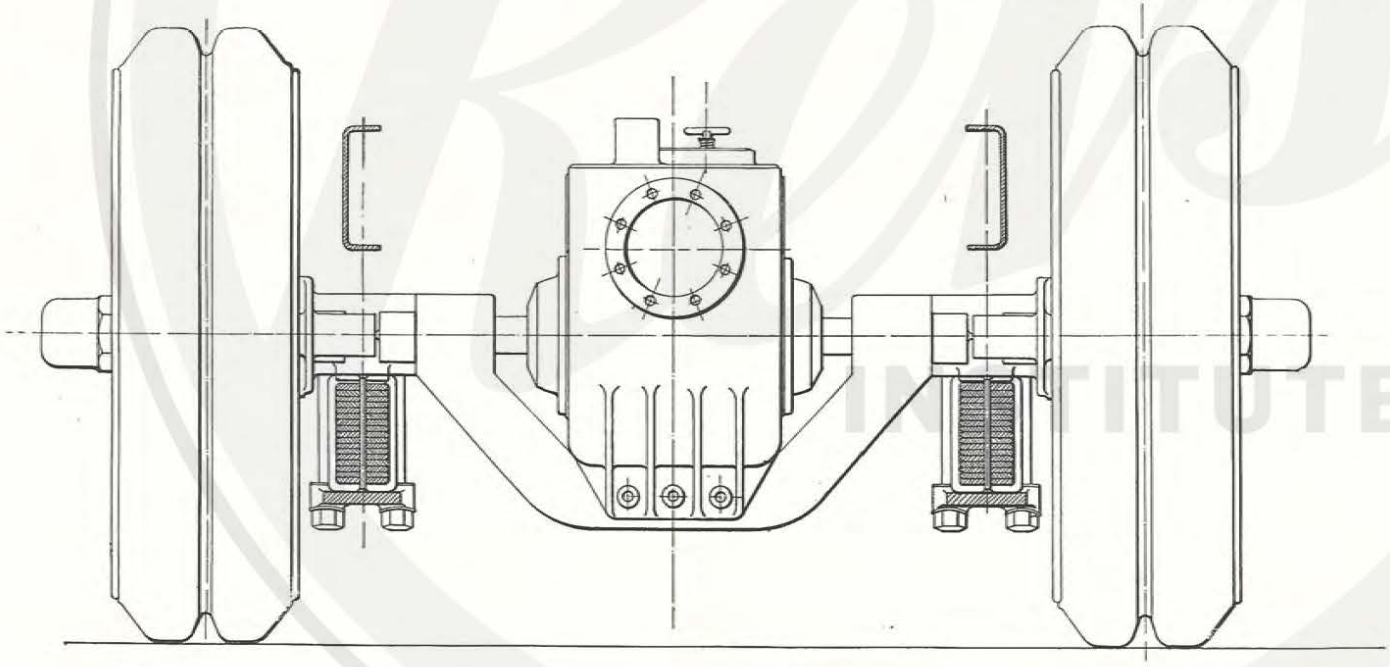
A. & J. Andrew, Manchester.
Seymour Mead & Co., Ltd., Manchester.
Hayes & Craven, Preston.
J. Crooks & Sons, Preston.
R. Dickeson & Co., Aldershot.
J. Brooks & Co., Ltd., Manchester.
Morris & Jones, Liverpool.
John Hughes, Bootle, Liverpool.
Hindhaugh's, Ltd., Newcastle.
M. Oubridge & Co., Ltd., Newcastle.
F. Strofton & Co., St. Albans.
Jelley & Clarke, Bedford.
Pegram's Stores, Liverpool.

FLOUR MILLERS, etc.

Joseph Appleby & Sons, Ltd., Liverpool.
Crawford & Sons, Ltd., Liverpool.
John Greenwood & Sons, Ltd., Blackburn.
Hovis Bread Flour Co., Ltd., Manchester.
W. & R. Jacob & Co., Ltd., Liverpool.
John Jackson & Son, Ltd., Bolton.
Joy's, Ltd., London.
John A. Ley & Sons, Preston.
W. & J. Pye, Lancaster.
Jos. Pyke & Sons. Preston.
R. Shackleton & Son, Blackburn.
J. Summer & Co., Ltd., Chorley.
J. & H. Robinson, Greenwich.
W. & E. Webb, Stourbridge.
Cunliffe & Swire, Manchester.
Greensmith & Co., Burton-on-Trent.
Reed & Co., Yarm.
Etc., etc.



War Office Subsidy "Tip" Wagon. Municipal type.



5-6-TON BACK AXLE for Petrol Wagons

Arrangement of 5 Ton Axle

Note the forged axle to carry the load, and the inner live shaft to drive the wheels.

"Leyland" Motors—Tyre Department

Guarantee

We can guarantee the tyres sold on " Leyland " Chassis for 10,000 miles, or so much of that as has been run within the first 12 months from the date of fitting, provided the vehicle is not overloaded or overrun, and that it is confined to proper roads and yards in reasonably good repair, and remains in the United Kingdom.

Allowance

In the event of the first set of tyres, complying with the above restrictions, failing before they have accomplished the 10,000 miles, or within the 12 months, an amount representing a proper proportion of the sale price of the tyre, equal to the unfinished mileage or unexpired months as the case may be, will be credited off the invoice, for the new tyre, *e.g.*, if the new set are to cost £100 and the old set have only done 5,000 miles, the credit would be £50 ; or if the mileage is small and the tyres are charged at the end of the 10th month, two months, *i.e.*, two-twelfths of their price will be credited. The allowance is to be calculated by time or distance at our option.

Advantage of dealing with us

In the unlikely event of the second set being unsatisfactory, we give you the option of **CHANGING THE MAKE** to that of any other tyre on our list, when we will still credit the unexpired mileage of the old set off the new brand of tyre.

Regulations

The following conditions must be rigidly observed to obtain our rebates :—

1. A suitable journey book must be kept and entered up daily.
2. A diary must be kept when each tyre is put on and taken off, the tyres being known by numbers.
3. One of our postcard summaries must be completed and sent to us for each vehicle each week.

Inspection

4. The books must be available to our inspectors at your Offices in working hours, and you must undertake to explain, satisfactorily, how the mileage is calculated.
5. When tyres are to be replaced you must communicate with us as to whether the work is to be done at our Works or locally.
6. Serious damage should be reported to give us a chance of making a temporary repair if we think it necessary.

Makes

The following Manufacturers are under Contract with us, and current prices for any of their tyres will be sent on application :—

Continental. Peter Union. Polack. Shrewsbury & Challiner. Wood-Milne. etc., etc.

Particulars and Prices of Tyres for "Leyland" Motors

Discounts according to make selected, on application.

		BRITISH ISLES.			COLONIES AND ABROAD.		
		Front Tyre.	Rear Tyre.	Set.	Front Tyre.	Rear Tyre.	Set.
15 cwts.	Diameter of Rim of Wheel (m/m.)	740	740		740	740	
	Size of Tyre (m/m.)	850×65	850×65	£39 8 0	870×75	870×75	£54 0 0
	Price	£6 11 4	£13 2 8		£9 0 0	£18 0 0	
	Code Word	Dolagu	Dolany	Dolarr	Dolast	Dolbax	Dolbib
1 Ton	Diameter of Rim of Wheel (m/m.)	740	740		720	740	
	Size of Tyre (m/m.)	870×75	870×75	£54 0 0	860×90	870×75	£58 5 4
	Price	£9 0 0	£18 0 0		£11 2 8	£18 0 0	
	Code Word	Dolbog	Dolbur	Dolbyt	Dolcal	Dolcen	Dolciv
1¼ Tons	Diameter of Rim of Wheel (m/m.)	669	719		669	719	
	Size of Tyre (m/m.)	810×90	860×90	£66 10 0	820×100	870×100	£77 13 4
	Price	£10 19 8	£22 5 4		£12 10 0	£26 6 8	
	Code Word	Dolcof	Dolcus	Dolcyn	Doldeb	Doldug	Doldyr
1½ Tons	Diameter of Rim of Wheel (m/m.)	669	719		669	719	
	Size of Tyre (m/m.)	810×90	870×100	£75 12 8	820×100	875×110	£82 13 4
	Price	£10 19 8	£26 16 8		£12 10 0	£28 16 8	
	Code Word	Dolect	Doleda	Dolefe	Dolego	Dolenu	Dolepp
2 Tons	Diameter of Rim of Wheel (m/m.)	669	770		669	770	
	Size of Tyre (m/m.)	820×100	920×100	£79 0 0	825×110	920×110	£89 17 4
	Price	£12 10 0	£27 0 0		£13 15 4	£31 3 4	
	Code Word	Dolerk	Dolesy	Dolfah	Dolfev	Dolfin	Dolfod
2½ Tons	Diameter of Rim of Wheel (m/m.)	669	770		669	770	
	Size of Tyre (m/m.)	820×100	920×110	£87 6 8	825×110	930×120	£97 9 4
	Price	£12 10 0	£31 3 4		£13 15 4	£34 19 4	
	Code Word	Dolful	Dolfye	Dolgab	Dolged	Doljef	Doljil
3 Tons	Diameter of Rim of Wheel (m/m.)	669	850		669	850	
	Size of Tyre (m/m.)	825×110	1010×120	£105 0 0	830×120	1020×130	£114 13 4
	Price	£13 15 4	£38 14 8		£15 3 4	£42 3 4	
	Code Word	Doljor	Doljup	Dolkai	Dolkep	Dolkif	Dolkob
4 Tons	Diameter of Rim of Wheel (m/m.)	669	850		669	850	
	Size of Tyre (m/m.)	830×120	1020×130	£114 13 4	830×140	1030×140	£134 8 0
	Price	£15 3 4	£42 3 4		£20 2 8	£47 1 4	
	Code Word	Dolkud	Dolkya	Dollac	Dolleh	Dollid	Dollop
5 Tons	Diameter of Rim of Wheel (m/m.)	669	850		669	850	
	Size of Tyre (m/m.)	830×140	1030×140	£134 8 0	830×140	1050×160	£178 18 8
	Price	£20 2 8	£47 1 4		£20 2 8	£69 6 8	
	Code Word	Dolluk	Dollyc	Dolmak	Dolmeg	Dolmox	Dolmum
6 Tons	Diameter of Rim of Wheel (m/m.)	669	850		669	850	
	Size of Tyre (m/m.)	830×140	1050×160	£178 18 8	870×160	1050×160	£193 7 8
	Price	£20 2 8	£69 6 8		£27 6 8	£69 6 8	
	Code Word	Dolmyf	Dolnad	Dolnec	Dolnig	Dolnos	Dolnuv

		Front Tyre.	Rear Tyre.	Set.	Front Tyre.	Rear Tyre	Set.
Subsidy Type B, 30 Cwts.	Diameter of Rim of Wheel (m/m.)	719·5	880		719·5	880	
	Size of Tyre (m/m.)	870×100	1030×100	£88 14 8	875×110	1050×120	£111 7 0
	Price	£13 3 4	£15 12 0		£14 8 6	£20 12 6	
	Code Word	Dolnyb	Dolobe	Dolocu	Dolodo	Dolofi	Dologa
Subsidy Type A, 3 Tons	Diameter of Rim of Wheel (m/m.)	719·5	880		719·5	880	
	Size of Tyre (m/m.)	900×120	1050×120	£116 10 0	880×140	1050×130	£128 0 0
	Price	£16 15 0	£20 15 0		£21 0 0	£21 10 0	
	Code Word	Dolomy	Dolorb	Doloys	Dolpar	Dolpei	Dolpik

Insurance

In order to meet the wishes of our Customers, we have arranged with the "Scottish Insurance Corporation, Ltd." to issue Unique Policies for "Leyland" Lorries, showing special advantages.

Sums Assured

Public Indemnity, **£1,000.**
Damage to Vehicle, any Accident, **£150.**
Fire, Explosion, or Self-Ignition, **£300.**

Premium

£15. **FIFTEEN POUNDS.** **£15.**

Extras

£1 for Unlimited Public Indemnity.
£1 for Damage Benefit up to full value of Vehicle.
12/6% for extra Fire Insurance.
15% of Premium extra for Trailer Insurance.

Abatements

If owner bears **1st £5** of each item insured, premium reduced by **15%.**
„ „ **1st £10** „ „ „ „ **25%.**
„ „ **1st £20** „ „ „ „ **40%.**
When owner only drives, 5% reduction.

When more than one Vehicle is insured, a reduction is made.

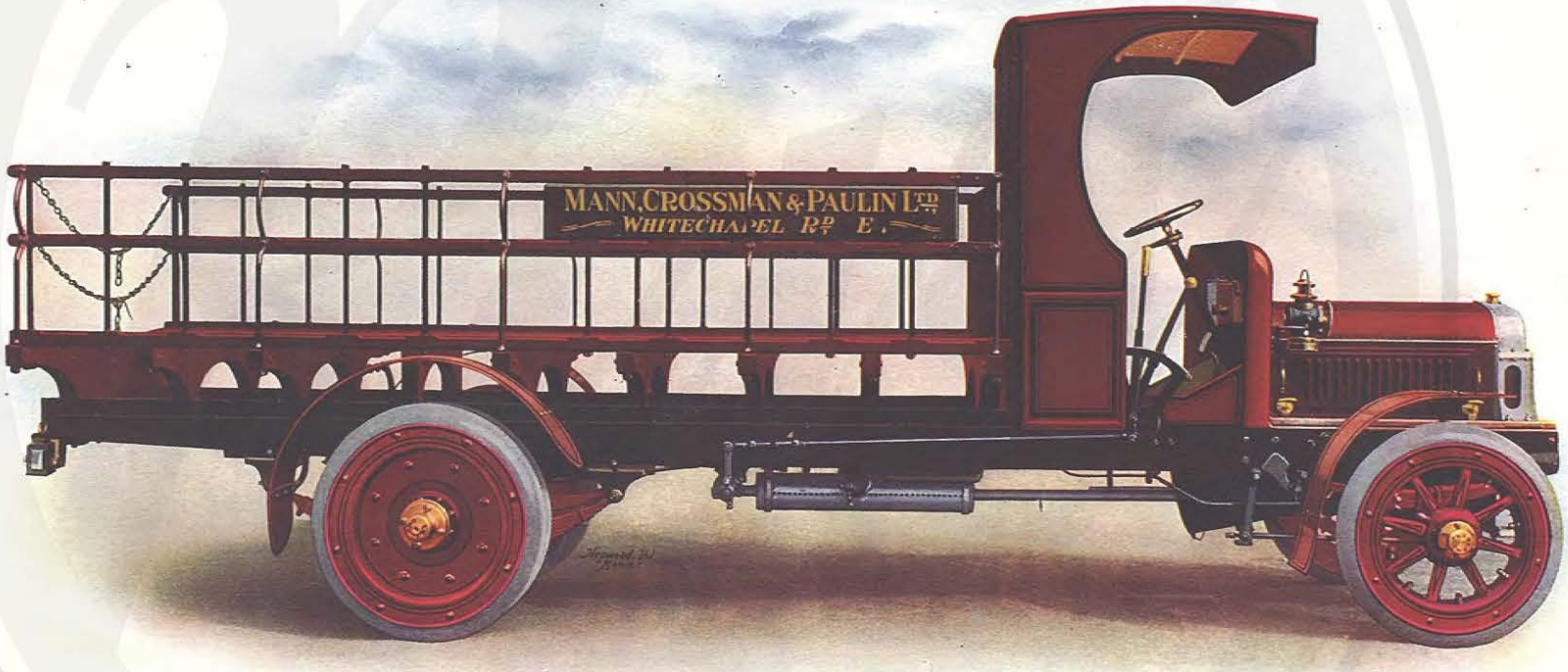
Advantages

Damage by Road, Rail, and Inland Waterway Transit is covered.

Note

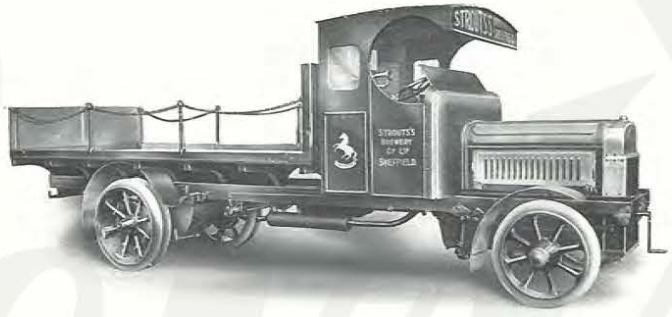
Damage to Passengers, Lamps, Tyres, and Mechanical Breakdowns are not covered.

Latest Concessions. Special unique policies, etc., etc.



4-Ton 40-50 H.P. Brewer's Dray.

Platforms



Specification

The platforms are all framed in American ash or oak, ironed at the corners and along the combings, and boarded with selected tongued and grooved maple, laid longitudinally.

They are mounted on ash bolsters clear of the wheels, and have a fixed front board 2-ft. 0-in. high supported in steel pockets.

Painting and lettering is executed to customers' requirements.

With Wheel Race

In order to get a low platform it can be dropped on to the Chassis, giving curved floor over the wheels.

Sides

Detachable lorry sides are of several sorts, solid and lattice. They can be fitted in several ways—socketed like the War Office, page 64, or hinged as shown on page 43. Height, 2-ft. 0-in.

Sheet Pole

The sheet pole can be fitted in several ways. The War Office pattern, to left above, is best, but sometimes the fixed back bow is in the way. Then it should be supported on a central forked pillar in sockets on the back combing, as shown facing page 50. Height of rail, 6-ft. 0-in. from floor of lorry.

Sheet Vans

SHEET VAN BODIES

4-Tonner with Type "A" Body with Wheel Race.

With Wheel Race

Bodies with Rocker Panel

High Bodies with Flat Floor

These can be of several designs :—

"A," with wheel race, as illustrated above, this gives the largest loading capacity.

"B," with reduced width between the wheels, this when boards are supplied for an upper floor above the well, gives a good van for light material liable to crush, and the bottom floor is level with the Chassis frame, and as low as possible.

Type **"C"** has a flat floor area raised up on packing above the top of the wheels. The extra height is often an advantage, and the unobstructed platform is sometimes indispensable.

Sheet Vans

The material is hard wood, well ironed, with ash bows, light longitudinal boarding, and covered with best canvas, painted and lettered to customers' requirements.

In all cases the canopy and seat are part of the body, and the back is arranged with canvas curtains with straps and a let-down tail board.

The front can be (**x**) open, (**y**) closed with match boarding, or (**z**) arranged with sliding door, for which an extra charge is made.

Type "C" Body

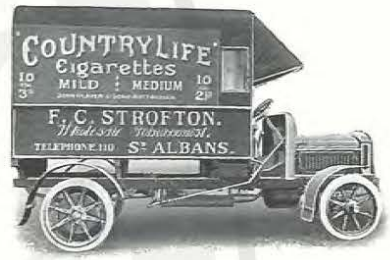
Two examples of the "B" Type.

4-Ton Sheet Van.

Sheet Vans

4-Ton Sheet Van.

1¼-Ton Sheet Van.



2-Ton Sheet Van.

	Code Word.	15-Cwts. and 1-Ton.	1¼ and 1½-Ton.	2 and 2½-Ton.	3 and 3½-Ton.	4-Ton.	5 and 6-Ton.
Size		7-ft. 9-in. × 5-ft. 3-in.	9-ft. 9-in. × 5-ft. 6-in.	10-ft. 3-in. × 5-ft. 9-in.	11-ft. 9-in. × 6-ft. 0-in.	13-ft. 3-in. × 6-ft. 3-in.	14-ft. 3-in. × 6-ft. 6-in.
Height, ground to van floor, Type A	**Dolsis**	2-ft. 7-in.	2-ft. 11-in.	3-ft. 3-in.	3-ft. 3-in.	3-ft. 3-in.	3-ft. 3-in.
Do., Type B . .	**Dolsoz**	2-ft. 7-in.	2-ft. 11-in.	3-ft. 3-in.	3-ft. 3-in.	3-ft. 3-in.	3-ft. 3-in.
Do., Type C . .	**Dolsub**	3-ft. 5-in.	3-ft. 5-in.	4-ft. 0-in.	4-ft. 0-in.	4-ft. 0-in.	4-ft. 1-in.
Price, open front		**£36**	**£40**	**£44**	**£50**	**£56**	**£62**
Code Word * . .		**cab**	**ceg**	**cil**	**cla**	**com**	**cud**
Approx. Shipping Specification . .		75 cub. ft.	130 cub. ft.	140 cub. ft.	160 cub. ft.	180 cub. ft.	190 cub. ft.
Cost of Packing . .		**£8 0 0**	**£8 0 0**	**£8 0 0**	**£10 0 0**	**£10 0 0**	**£10 0 0**
All Hard Wood . .	**Dolsyk**	**£4 0 0**	**£4 0 0**	**£4 0 0**	**£5 10 0**	**£5 10 0**	**£5 10 0**
Solid front	**Doltaw**	**£3 0 0**	**£3 0 0**	**£3 0 0**	**£3 0 0**	**£3 0 0**	**£3 0 0**
Sliding Doors in do.	**Doltes**	**£3 10 0**	**£3 10 0**	**£3 10 0**	**£3 10 0**	**£3 10 0**	**£3 10 0**
Doors instead of curtains at back	**Doltir**	**£4 0 0**	**£4 0 0**	**£4 0 0**	**£5 10 0**	**£5 10 0**	**£5 10 0**

* These terminations to be added to Code Words.

LIFT VANS

Lift Off Van Bodies

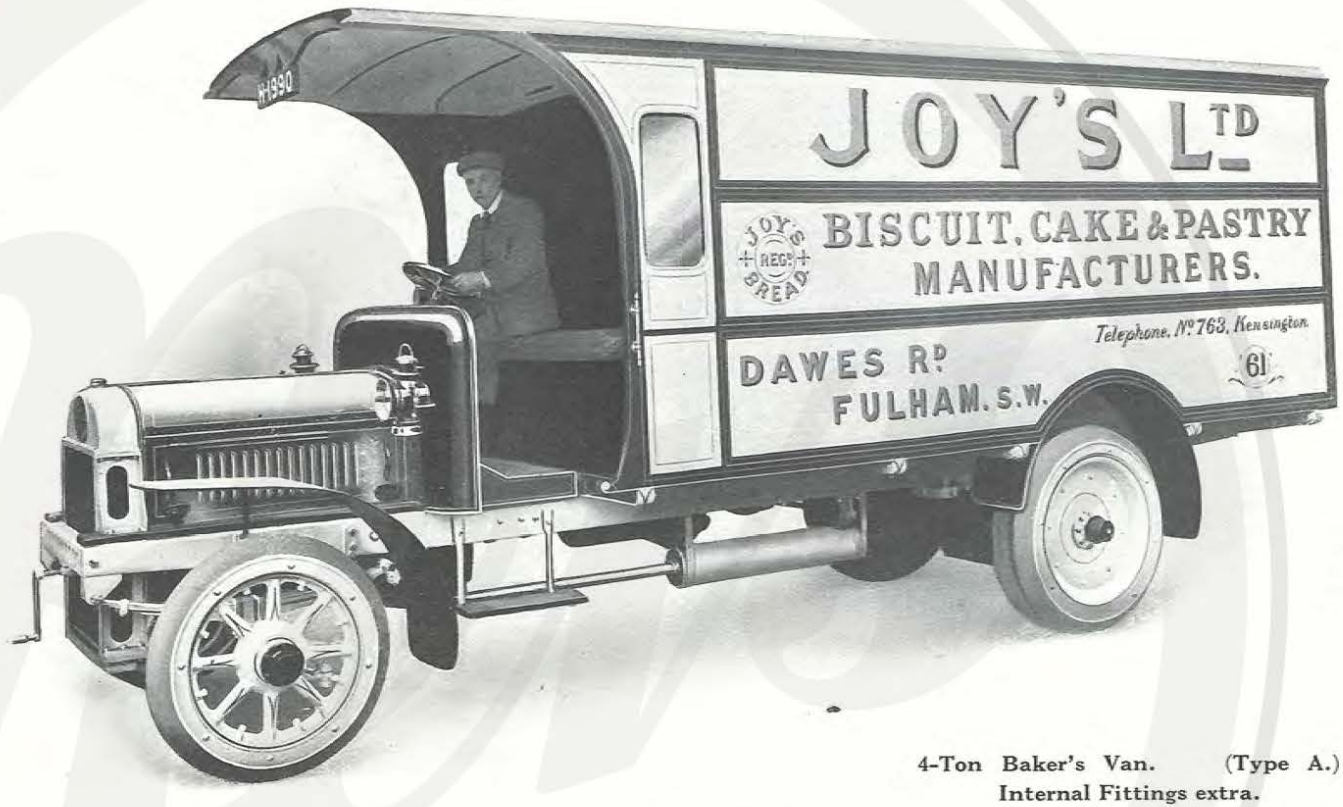
This is the usual Furniture Remover's Lift Body arranged for slinging, not including seat or cab, but to stand on an ordinary platform. Double back doors with tail board are fitted as standard. Framed ash, boarded diagonally, with tongued and grooved pine, lettered and painted as required.

These bodies can be supplied to knock down for export.

Type	Code Word.	15-Cwts. and 1-Ton.	1¼ and 1½-Ton.	2 and 2½-Ton.	3 and 3½-Ton.	4-Ton.	5 and 6-Ton.
Size		7-ft. 6-in. × 5-ft. 0-in.	9-ft. 6-in. × 5-ft. 6-in.	10-ft. 0-in. × 5-ft. 6-in.	11-ft. 6-in. × 6-ft. 0-in.	13-ft. 0-in. × 6-ft. 0-in.	14-ft. 0-in. × 6-ft. 0-in.
Price		**£50**	**£55**	**£60**	**£67**	**£74**	**£80**
Code Word		**Doltoo**	**Doltue**	**Doltyp**	**Dolubu**	**Doludy**	**Doluft**
* Shipping Specification		75 cub. ft.	130 cub. ft.	140 cub. ft.	160 cub. ft.	180 cub. ft.	190 cub. ft.
Cost of Packing		**£5**	**£5**	**£5**	**£6**	**£6**	**£6**
Extra, all hard wood	**Dolugat**	**£10**	**£10**	**£10**	**£15**	**£15**	**£15**

* Knocked down for packing.

BOX VANS.



4-Ton Baker's Van. (Type A.)
Internal Fittings extra.

Roof Rail and Iron Ladder, £8
see page 49

Code Word— Doluge

Other Van Types on page 95

These are of two general types—" A," with wheel race, " B " with reduced width between wheels.
In both cases the framing is of ash or oak, lead coated steel or baywood panels, and interior lining of match boarding if required.
There is a canopy and seat combined, and two doors at the back.
The front is boarded solid, or has a sliding panel door at an extra charge.
The roof is boarded and covered with roof canvas laid in white lead.

Type	Code Word.	15-Cwts. and 1-Ton.	1¼ and 1½-Ton.	2 and 2½-Ton.	3 and 3½-Ton.	4-Ton.	5 and 6-Ton.
Size		7-ft. 9-in. × 5-ft. 3-in.	9-ft. 9-in. × 5-ft. 6-in.	10-ft. 3-in. × 5-ft. 9-in.	11-ft. 9-in. × 6-ft. 6-in.	13-ft. 3-in. × 6-ft. 3-in.	14-ft. 3-in. × 6-ft. 6-in.
Height, ground to van floor, types A & B		2-ft. 7-in.	2-ft. 11-in.	3-ft. 3-in.	3-ft. 3-in.	3-ft. 3-in.	3-ft. 3-in.
Price, frames hard, panelled soft wood	**Doluki**	**£67**	**£75**	**£80**	**£90**	**£100**	**£110**
Code Word*		**cyc**	**daf**	**dec**	**did**	**dok**	**dub**
Price, fitted throughout hard wood, extra	**Doluss**	**£8**	**£8**	**£8**	**£10**	**£10**	**£10**
Sliding door to front	**Dolvay**	**£3 10 0**	**£3 10 0**	**£3 10 0**	**£3 10 0**	**£3 10 0**	**£3 10 0**

Inside fittings not included. * These terminations to be added to Code Words.

Design of "WELLED" PANTECHNICON BODY

For Special Bodies
see next page

5-Ton "Welled" Furniture Van. Price, Chassis, Tyres, and Body, £960.

The frame and back axle of this type are wider than those of an ordinary 5-Ton Box Van so as to allow for the well. CODE WORD—**Dolvip.** Body, 500 cub. ft. Lift, under 3 tons.

Sometimes, to avoid terminal delays, it is desirable to lift the load bodily by a crane on to a horse lorry for delivery and likewise for collection.

FLATS

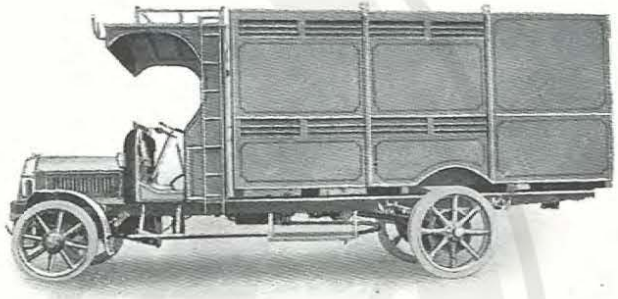
Flats are then used without a permanent body at all, and arranged as shown on page 54, where there is shown a 6-Ton Petrol Lorry with three flats. In this special case the top flat is fitted with loose sides and tail board.

These flats are made of hard wood, with heavy timber chests underneath, and substantial lifting irons. **Price,** lettered and arranged to go in lorry, **£15** each. CODE WORD—**Dolveo.**

The price of the first flat is the same as for a plain platform, as crossbearers and fittings are necessary for the main frame. CODE WORD—**Dolverto.**

3-Ton Lorry with Special Body.

For other types



4-Ton War Office Meat Van.
Special Zinc-lined Insulated Body.

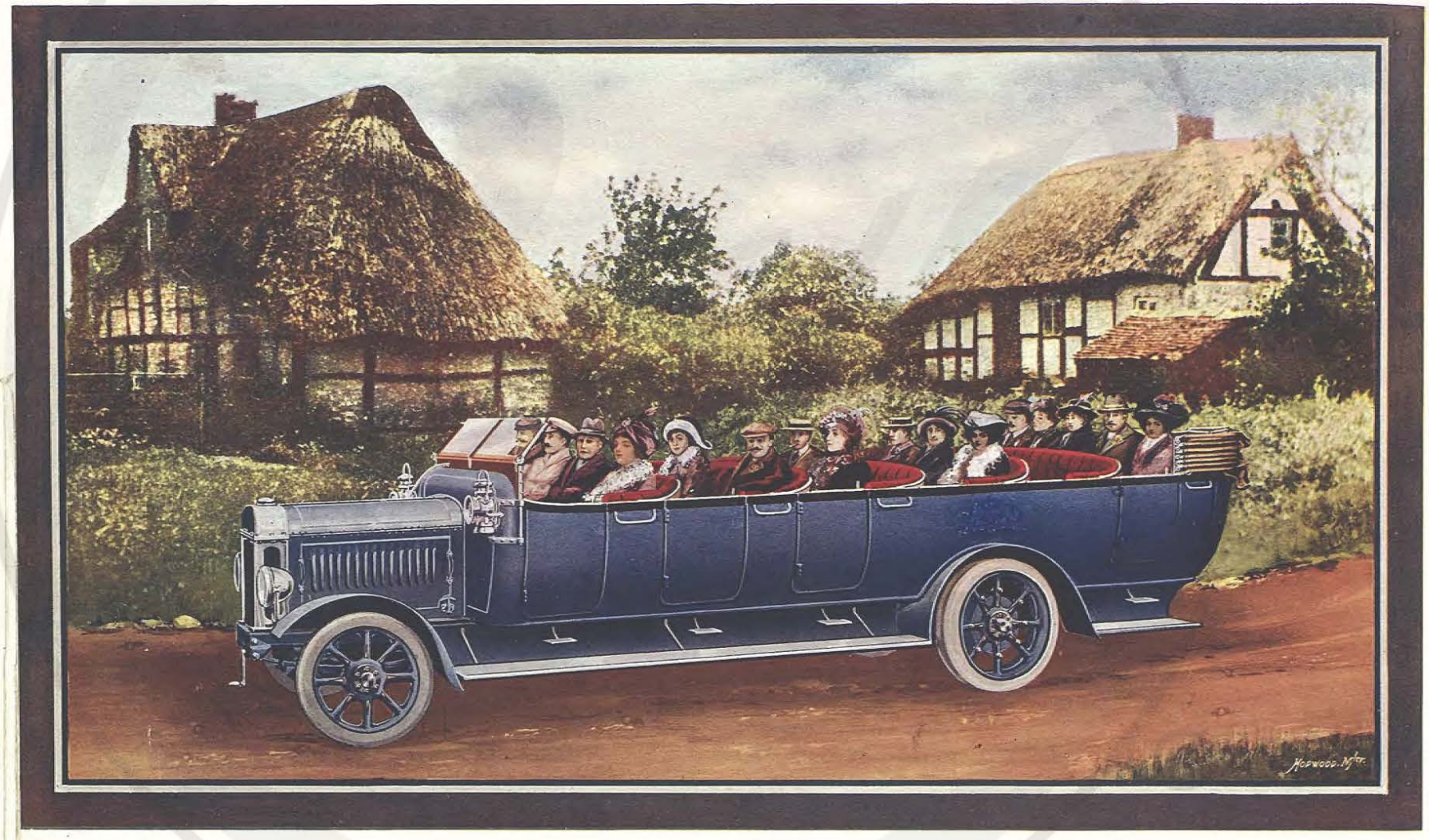
SPECIAL BODIES.

Any type of body made, and special quotations given for fitting up :—
Biscuit, Fruit, Bread, and Sample Vans, Caravans, Refrigerator Chambers, Insulated Meat Vans, Travelling Workshops, Road Repair Vans, Electric Welding Portable Sets, etc., etc., etc.

Special 5-Ton "Overtype" Furniture Van.

see page 95.

4-Ton Furniture Van.



Torpedo Char-a-banc with Cape-Hood and Windscreen.

Price List of "Leyland" Passenger Bodies

Description.	Page.	Title.		No. of Passengers, excluding driver.							
				9	13	18	22	27	32	37	48
			Code Word*	dyg	eba	ecc	edo	efu	egi	ena	epy
Single-Decked Omnibus	83	Haslingden	Dolvol	£100	£108	£121	£128	£135	—	—	—
Double-Decked Omnibus	84	London	Dolvuc	—	—	—	—	—	£142	£150	—
Do., with cross seats inside	84	Eastbourne	Dolvyg	—	—	—	—	—	—	£165	£175
Plain Open-sided Char-a-Banc	86	Leigh	Dolwat	—	£40	£45	£50	£55	£60	£70	—
Do., simply upholstered, and with canopy	86	Tenneriffe	Dolwer	—	£60	£70	£85	£95	£108	£125	—
Char-a-Banc with canopy, full sides, curtains, and plain upholstery	87	Eccleston	Dolwiy	—	—	£115	£130	£145	£160	£170	—
Bus Char-a-Banc, wooden seats, front entrance, canopy, and blinds	88	Carnarvon	Dolwoh	—	—	—	£144	£155	£165	£175	—
Do., upholstered, and with removable windows	88	Chorley	Dolwuz	—	—	—	£165	£177	£185	£205	—
Char-a-Banc, without doors, fully upholstered, and with canopy and blinds	89	Lisbon	Dolwyv	—	£160	£175	£185	£200	£215	£235	—
Torpedo do., with doors	89	Cape	Dolyav	—	£180	£200	£215	£235	£255	£275	—
Torpedo do., do., with cape hood instead of canopy	89 and opposite.	Rhyl and Torpedo	Dolyew	—	£185	£205	£220	£240	£260	£280	—

For Extras, see page 82.

* These terminations to be added to Code Words.

Body Extras

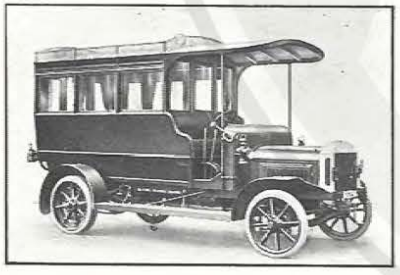
For Special Designs of Bodies, see page 90

	Code Word.	Per Passenger		Code Word.	
Plain Upholstering instead of wood ..	**Dugaba**	**8/-**	Electric Light by accumulators ..	**Dugbog**	**£10** to **£15**
Do., real Hide	**Dugace**	**13/-**	Spare Accumulator	**Dugbur**	**£4** to **£6**
Full instead of plain Upholstering ..	**Dugadi**	**£2 10 0**	Add to above for Dynamo	**Dugbyt**	**£25** to **£35**
Do., real Hide	**Dugafo**	**£3 2 0**	Destination Indicator	**Dugcal**	**£3 10 0**
Rattan instead of Rexine, plain backs	**Dugagu**	**4/-**	Do., with lights	**Dugcen**	**£4 15 0**
Hide instead of Rexine, plain backs ..	**Dugany**	**5/-**	Klaxon Horn	**Dugciv**	**£5 0 0**
Hide instead of Rexine, full curved backs	**Dugarr**	**12/-**	Roof Rail and Ladder	**Dugcle**	**£8 0 0**
Inside Blinds	**Dugast**	**1/6**	Aluminium on treads	**Dugcof**	**£2** to **£3**
Do., better quality	**Dugbax**	**2/-**	Brass Rug Rails, per seat	**Dugcus**	**8/-**
Aluminium Panels instead of steel ..	**Dugbel**	**17/6**	Valances to steps, per side	**Dugcyn**	**£2** to **£2 10**
Floor Mats	**Dugbib**	**1/-**	Side curtains for cape hood, per side	**Dugdan**	**£2** to **£3**
			Waterproof cover for hood	**Dugdeb**	**£2 10 0**

SINGLE-DECKED OMNIBUS

For Prices of various sizes, see page 81.

"Haslingden"



Hotel or Club Bus.

Built throughout of hard wood, ironed and braced.

Inside—Natural colour of wood, varnished.

Seats—Spring, hair, and best imitation leather. Real hide extra.

Outside—Best coach finish, varnished and lettered to instructions.

General—Plate glass is used, best roof canvas, and all details of the very best.

Lighting inside extra.

General Particulars

STANDARD PATTERN DOUBLE-DECKED OMNIBUS "London"

For further Prices of Omnibuses, see page 81.

General Particulars

Specification for material same as for Single-Decked Bus.

Top seats, garden pattern, slotted to let wet drain off.

Rails, steps, advertising boards, etc., all of best quality.

For lighting and other extras, see page 82.

Cross-seated Bus.

"LONDON" Special

SPECIAL LIGHT OMNIBUS

(To meet Scotland Yard Regulations)

Price, 5% more than Standard Body

Special "London" Bus, to comply with Scotland Yard Regulations, with Ladder and place for Luggage.

Capacity—16 inside, 18 outside.
Built throughout of hard wood, ironed and braced.
Inside—Natural colour of wood, varnished.
Seats—Spring, hair, and best imitation leather.
Real Hide extra.
Outside—Best coach finish, varnished and lettered to instructions.
General—Plate glass is used, best roof canvas, and all details of the very best.
For lighting inside and other extras, see page 82.

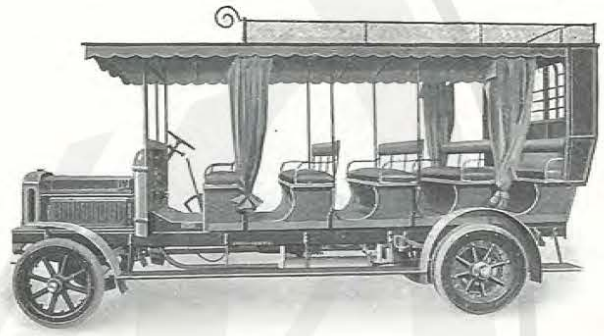
Passenger Body Specification

Open Char-a-banc

"LEIGH"

4-Ton Lorry, with Garden Seats and Canopy on Frame, seating 37.

"TENNERIFFE"



Cheap Char-a-banc, upholstered.

Our passenger bodies are all made in the best materials and with the highest class of commercial finish. The framing is in ash, well ironed, the panelling in baywood, steel, or aluminium. The steel is lead coated to prevent rust. Corners are pressed in dies and very strong.

For Extras, **see page 82**

All beadings are aluminium with sunk and invisible screws.

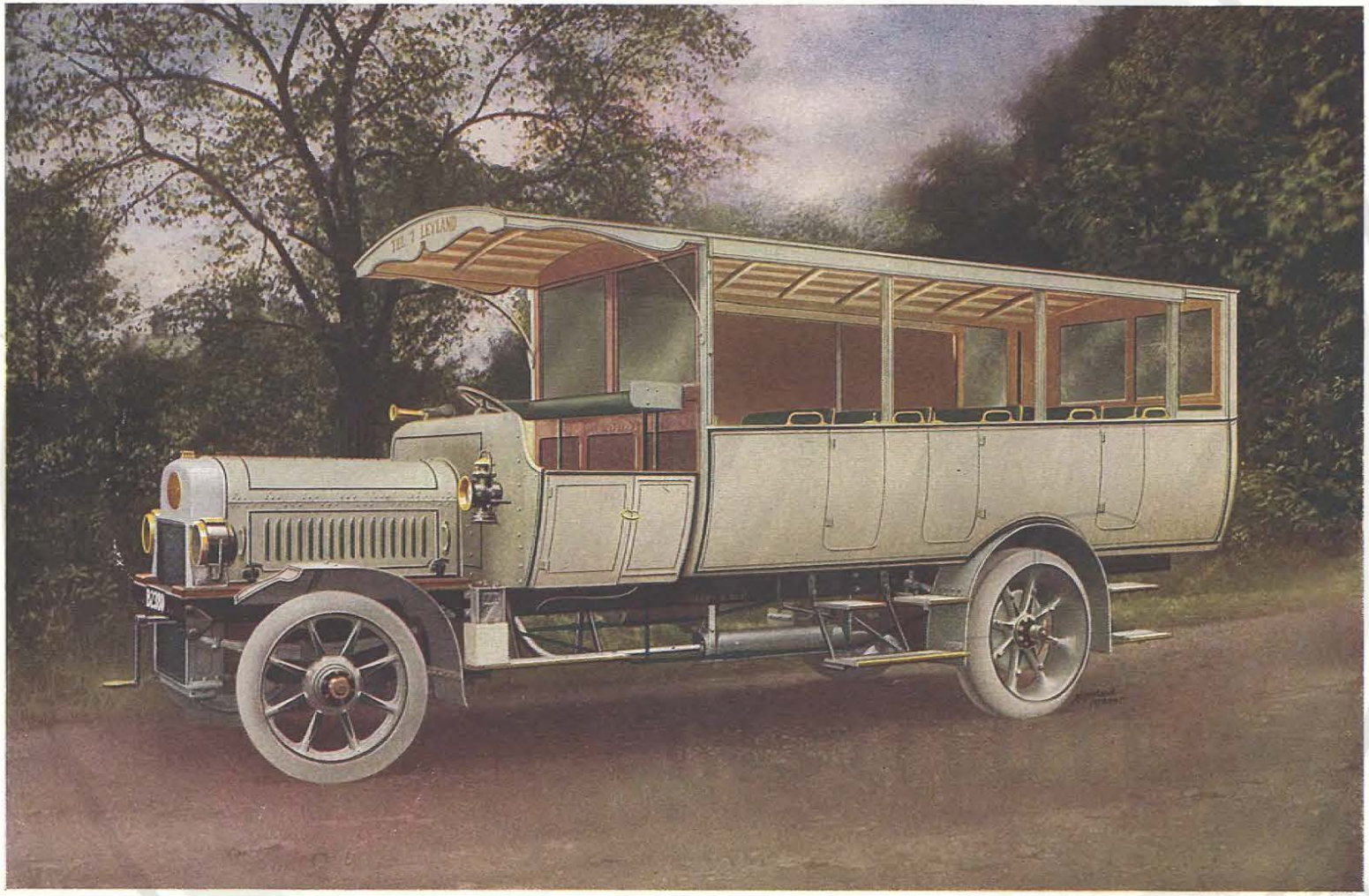
These bodies can go direct on chassis or on platform, the driver's seat can be part of the body, when a separate seat and tank at a cost of **£8** is necessary to use the chassis as a lorry.

The bottom step is continuous, the top one in sections, iron wearing strips, roll-up side curtains (or as illustrated), fixed back, with windows and brass rails, light canvas canopy roof and single wind-screen.

Prices

Passengers		13	18	22	27	32	37
	Code Word*	ego	enu	epp	erk	esy	fin
No Canopy or Upholstering	Dugect	£40	£45	£50	£55	£60	£70
Plain Upholstering and Canopy	Dugeff	£60	£70	£85	£95	£108	£125

* These terminations to be added to Code Words.



"Eccleston" Char-a-banc.

This body is as shown in the coloured illustration opposite, or like this small cut.

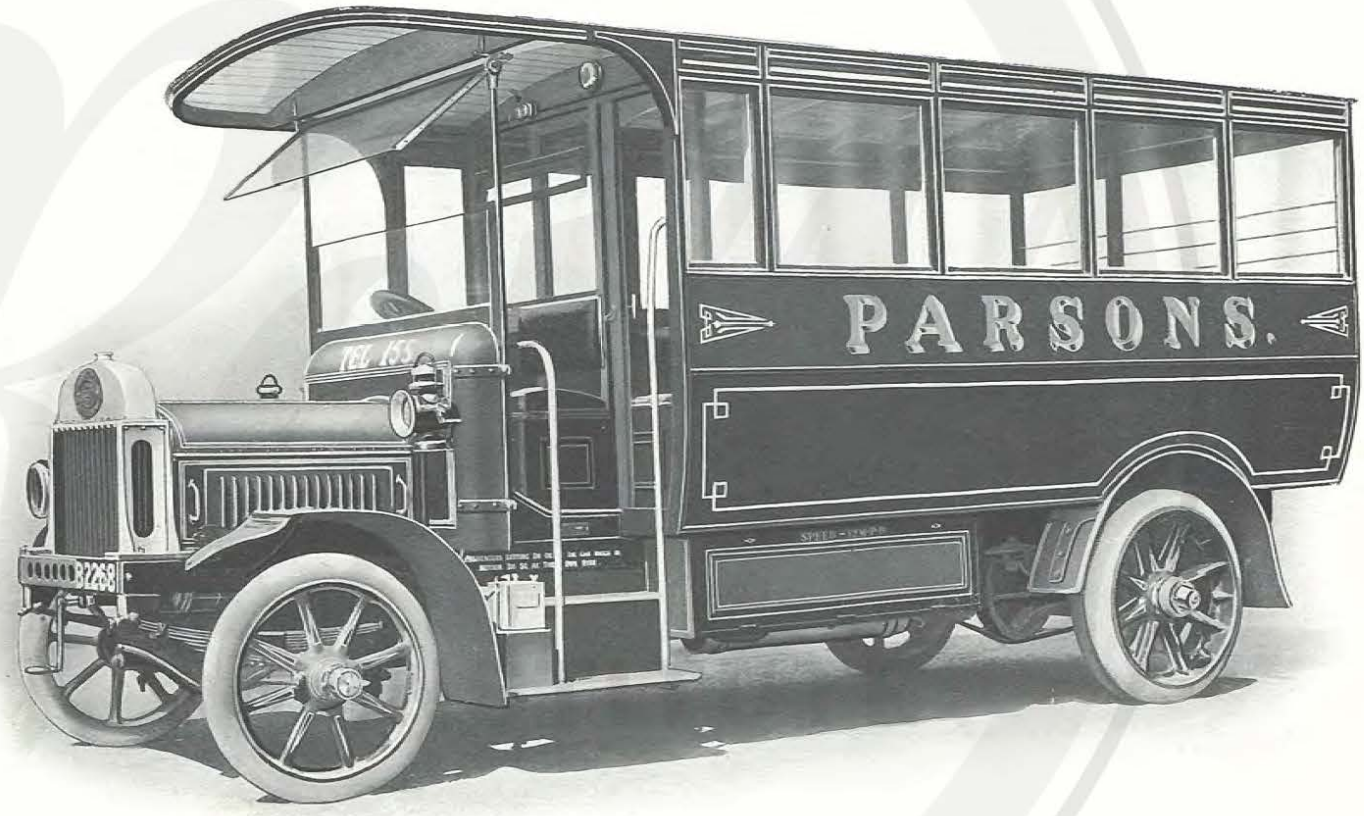
The sides are preferably nicely curved and radiused. There are central lift-up seats, and few doors, and those on one side only.

CHAR-A-BANC with Back Entrance, "ECCLESTON"

The upholstery is plain, colour at buyer's option, consisting of hard wood seat frames, best springs, hair, felt, rexine. Backs padded fibre, hair and rexine, brass beadings. Canopy, light waterproof canvas, fixed back and windows, fixed screen behind driver, and single fold in front. Driver's seat separate from body, which is detachable.

Passengers	18	22	27	32	37
Code Word	**Duggab**	**Dugged**	**Duggow**	**Dugguf**	**Duggyl**
Prices	**£115**	**£130**	**£145**	**£160**	**£170**

SINGLE-DECKED CAR, with Cross Seats, "Carnarvon," and Removable Windows, "Chorley"

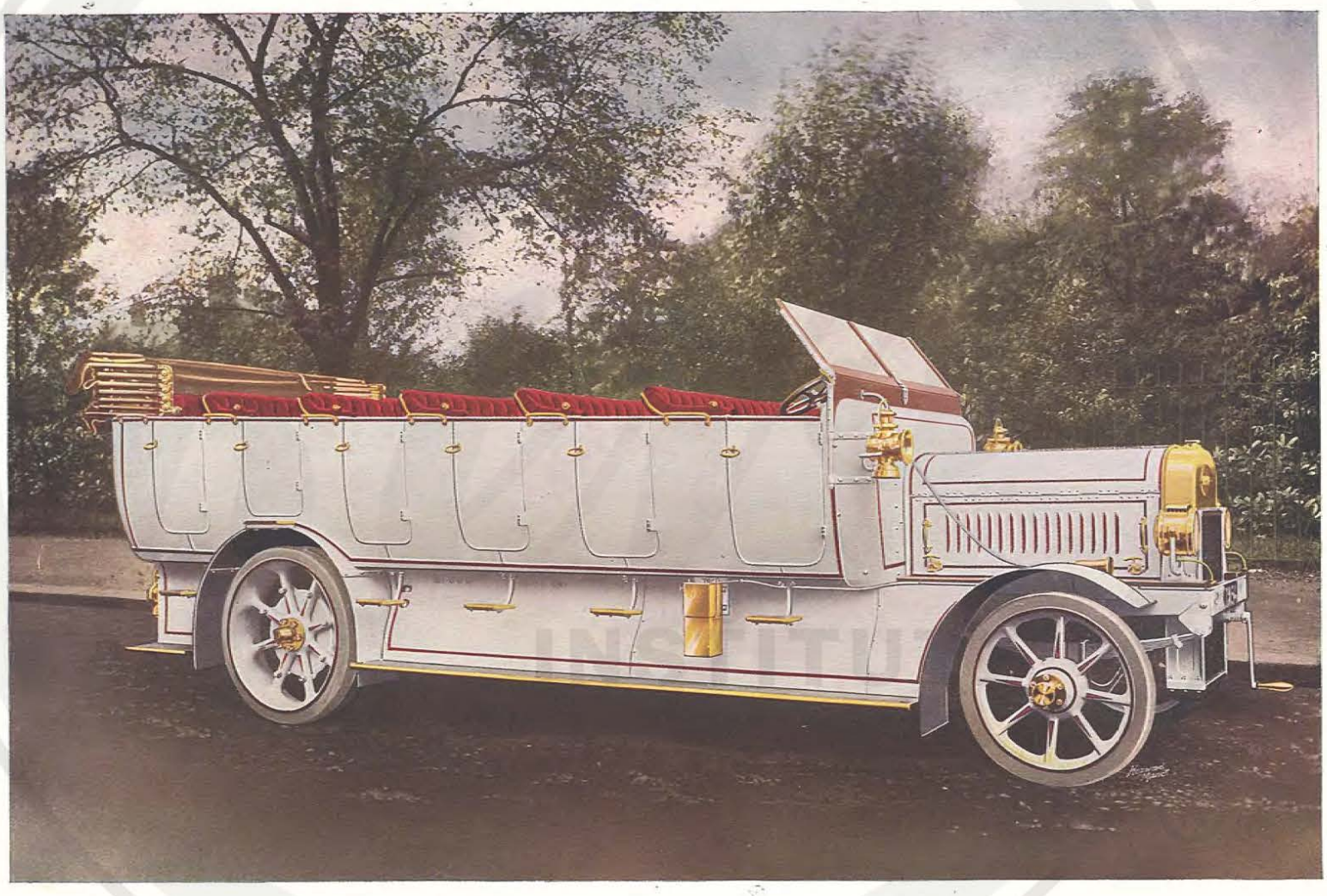


Body Extras,
see page 82

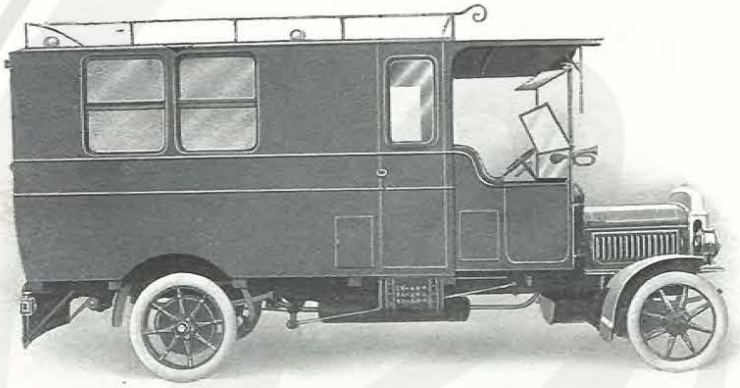
Chassis Extras,
see page 31

Prices
see page 81

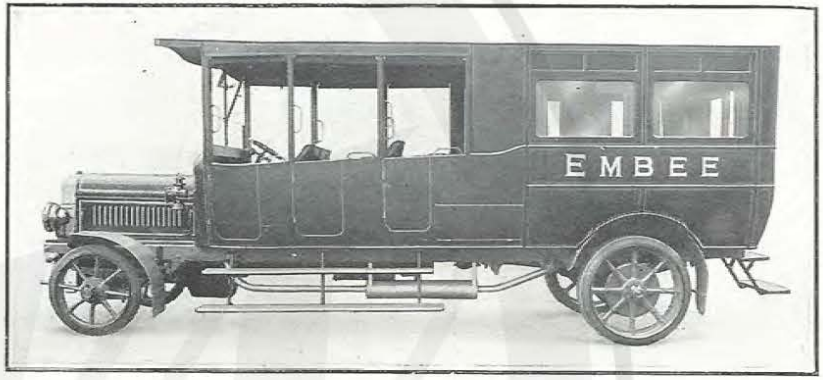
Framing, ash, well ironed, panels steel or bay wood, front steps, sliding door with anti-vibrators, brass commode handles and rails, seats wood lath, or plainly upholstered (at extra cost), five in a row, centre or gangway seats to tip up. Double wind-screen in front and double behind driver, back windows fixed, spring blinds, side windows in detachable frames to " Chorley " type only.



"Rhyl" Char-a-banc with Cape Cart Hood and Wind Screen.



Large Ambulance with Coupe.



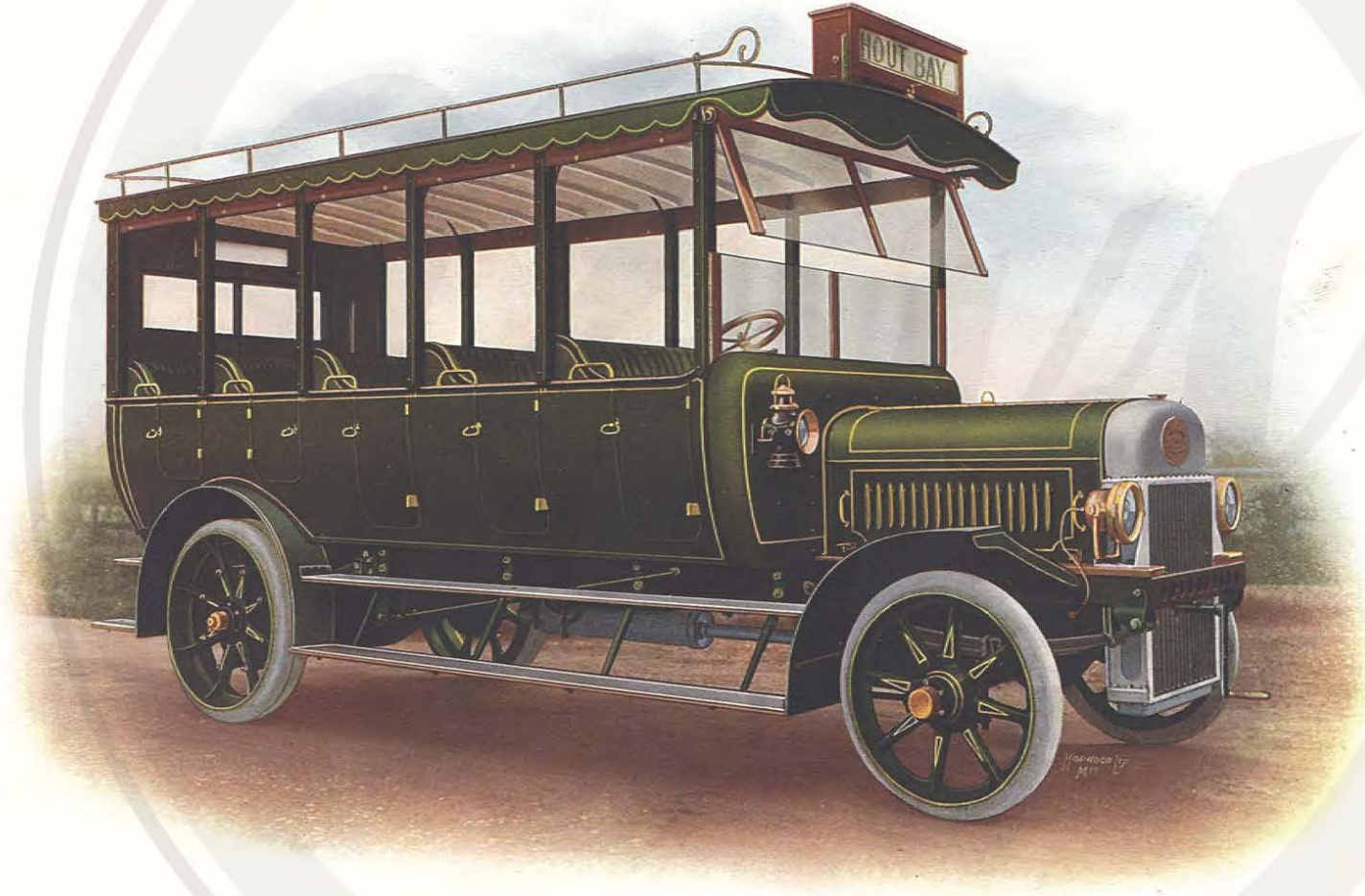
Special body with card table in saloon (convertible into emergency seats).

Sundry Passenger Bodies.

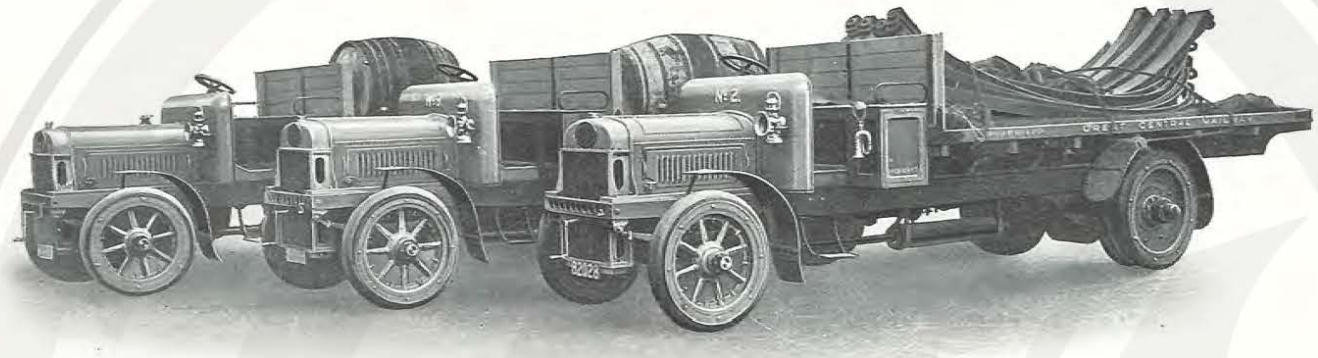
Quotations given for any design of body.

Small Ambulance.

Very elaborate body with closed vestibule front.



Cape Char-a-banc with Fixed Canopy and Back.



Heat Value of Fuels.

1-lb. of	Wood	contains	6,000	heat units.
,,	Carbon	,,	14,500	,,
,,	Anthracite	,,	15,250	,,
,,	Bituminous Coal	,,	15,400	,,
,,	Coke	,,	13,400	,,
,,	Petroleum	,,	20,000	,,

Evaporative Power.

1-lb. of	Anthracite will evaporate	15·29-lbs.	water	from and at 212° Fah.
,,	Bituminous Coal ,,	15·99	,,	
,,	Coke ,,	14·02	,,	

Horse-Power of Steam Engine.

33,000 ft-lbs. equal to 1 horse-power.
In a single-acting steam engine—

$$\text{horse-power} = \frac{P\,L\,A\,N}{33{,}000}$$

Where P = the mean effective pressure per sq. inch in the cylinder.
,, L = the length of stroke in feet.
,, A = the area of the piston in inches.
,, N = the number of revolutions.
NOTE.—In a double-acting engine this result must be doubled.
If there is more than one cylinder multiply also by the number of cylinders.
Horse-power to Forces-de-Cheval multiply by 1·01.

Temperature Conversion.

Fahrenheit to Centigrade, $C° = \frac{5}{9}$ (F°–32°).
Centigrade to Fahrenheit, $F° = \frac{9}{5}$ (C°+32°).

Pressure Conversion.

1-lb. per sq. inch = 69·34 grams. per sq. centimetre.

Automobile Club Rating.

The nominal rating of petrol engines adopted by the Royal Automobile Club is—Horse-Power equals $\frac{D^2\,N}{2{\cdot}5}$

Where D is the diameter of the piston in inches N is the number of cylinders.

Petrol Consumption Equivalents.

1 mile per gallon = ·3541 kilometre per litre.
1 kilometre per litre = 2·825 miles per gallon.
For general rough work, a kilometre a litre is about three miles a gallon.
To convert ton-miles per gallon to metric tonne kilometres per kilogram, multiply by ·5.

Loading Capacity.

500 bricks = load = 1½ tons.
1,000 bricks, stacked = 50 cu. ft.
10-lbs. water = 1 gallon.
1 ton of water = 36 cu. ft.
1 cu. ft. of coal weighs 55-lbs.
1 cu. ft. of coke weighs 30-lbs.

Telegrams :
" Motors, Leyland."
" Motatura, London."

"Leyland" Private Code

A B C Code
5th Edition also in use.

The following Code (Copyright) may be found useful.

	Code Word.		
Enquiries	**Acafee**	..	Please quote your present price for another ..... motor(s), similar to the last supplied.
	Acafic	..	Please say if you have in stock, or how soon you could deliver, and lowest price, for .....
	Acaflo	..	Please telephone or telegraph us at our expense by what train goods are sent.
	Acafov	..	Please write giving us full particulars.
	Acaful	..	Please wire cost of alterations proposed.
	Acafyv	..	We are waiting reply to our letter (or wire) of .....
	Acagag	..	Have you sent remittance? if so, when? and how?
	Acagel	..	Can you recommend a good driver?
Orders	**Acagib**	..	Please send by passenger train.
	Acagof	..	Please send by parcel post.
	Acagun	..	Please send by goods express, labelled " Urgent."
	Acagyf	..	Please instruct your representative to call upon us.
	Acahak	..	Please accept the instructions of our driver.
	Acaheb	..	Our motor requires overhauling. Please examine it on arrival and wire us approximate cost and time required.
	Acahig	..	Your tender is accepted, please proceed with the work.
	Acahoe	..	Please telegraph credit and instruct your Bankers to advise us that documents are to be negotiated when presented.
	Acahuf	..	Send a supply of catalogues.
	Acahyb	..	Send a price list of parts.
	Acajal	..	Please send us an expert driver for.....
	Acajed	..	Send a set of tyres as supplied with the motor originally.
	Acajim	..	Please send man at our expense to examine and report on our motor.
	Acajoc	..	Please send men at once to repair our motor, and bring .....

	Code Word.		
Orders	**Acajug**	..	Our motor is broken down at ..... Please send to bring it home at our expense. Will unload and meet your men ..... station. Wire time of arrival .....
	Acakam	..	Our motor is broken down at ..... Please send to take it to your works at our expense. Will unload and meet your men at ..... station.
Advice	**Acaken**	..	We very strongly recommend.
	Acakip	..	Prices are now advanced.
	Acakog	..	Prices are now reduced.
	Acakur	..	Our terms are one-third with the order and balance when motor is ready at our works.
	Acakye	..	Terms for Export. One-third with order and balance in England against shipping documents.
	Acalak	..	Shipment has been delayed through congested traffic on railway.
	Acalea	..	We have the B/L and are awaiting instructions from your Bankers.
	Acalif	..	Vehicle packed ready for boat.
	Acalon	..	Bankers have no authority to negotiate documents.
	Acalum	..	We shipped last week.
	Acalyk	..	We shipped last month.
	Acamap	..	We are shipping this week.
	Acamek	..	We are shipping this month.
	Acamia	..	We are shipping next week.
	Acamoo	..	We are shipping next month.
	Acamus	..	In reply to your letter (or wire) of.....
	Acamya	..	Please refer to your letter (or wire) of .....
	Acanar	..	Please refer to our letter (or wire) of .....
	Acanem	..	Your Motor will be on test probably in ..... days.
	Acanil	..	Your motor will be on test this week.
	Acanop	..	Your motor will be on test to-morrow.

Advice

Code Word.		
Acanut	..	Your motor will be despatched..... next.
Acanyl	..	Your motor has been out on test, and we find that.....
Acapan	..	We are doing our utmost to expedite delivery.
Acapeo	..	We have examined your motor, the approximate cost of the repairs will be.....time .....kindly send instructions.
Acapin	..	Carrying capacity on good macadam or paved roads is.....
Acapor	..	1.—We advise you to purchase..... page .....price nett on Board Home Port.....Shipment..... .....terms cash this country, one-third with order, balance when ready for shipment.
Acapus	..	2.—Same as No. 1, but "which can be made to your particulars" added.
Acapyn	..	3.—Same as No. 1, but "which can be made to your particulars except ....." added.

Acknowledgment

Code Word.		
Acarav	..	Your enquiry received, we are preparing particulars, and hope to mail them .....
Acarep	..	Your enquiry received, we are preparing particulars, and hope to mail them shortly.
Acaris	..	We have received your letter (or wire) and accept your terms.
Acarow	..	We have received your letter (or wire) and agree to the conditions named therein.
Acaruv	..	We have your letter (or wire) and confirm contents.
Acarym	..	We will leave the matter in your hands to do the best you can.

Code Words

The system of Code Words used in this Catalogue is copyright.

The words are each of six letters divided into two syllables, a prefix and a suffix. For cablegrams to the Works, it is necessary to repeat the prefix, as the first word in the cable is the only one requiring it. The first word in a coded telegram by this system will thus represent two code words, and all other words will represent three code words.

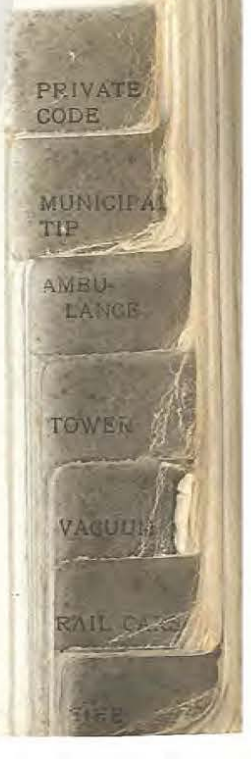
It will be noted that the same prefix is used for a group of about 140 words. When the prefix changes a fresh word must be commenced, using the new prefix. When making up coded messages by this system, make each word nine letters each or three syllables. The legal limit of code words is ten letters each.

Example of message coded as above :—

"Acafichyb Dolrasaca,"

which means :—"Please say if you have in stock, or how soon you could deliver, and lowest price for One-Ton Platform with socketed solid sides. Send a price list of parts."

All code words in this Catalogue, with the exception of those in the Private Code (which are from a different series of combinations), are arranged in alphabetical order, for instant reference.



Heavy Motor Car Order, 1904

(ABRIDGED.)

Light Locomotive or Heavy Motor Car

The expression "Light Locomotive or Heavy Motor Car" means a mechanically-propelled road vehicle, weighing, unladen, over 2 tons and under 5 tons.

Trailer

The expression "Trailer" means a vehicle drawn by a light locomotive or a heavy motor car.

Registration

Every heavy motor car must be registered with the Council of a County or the Council of a County Borough.

The owner must be prepared to give particulars as to:—

(A) The unladen weight=U.W. tons.
(B) The axle weight of each axle=A.W. tons.
(C) The diameter and width of each wheel.

Fees

The registration fee for a heavy motor car, used for trade purposes only, is £1, and does not require renewing annually.

Identification Marks

The registered number must be placed in a conspicuous position in front and at the back of the car and on the back of the trailer when such is being drawn by a car or tractor.

A trailer does not require registering.

Licenses

No license is required for a heavy motor car which is used exclusively for carrying goods.

Driver

A driver must take out a license, which costs 5s., and it must be renewed annually. If he resides in a County Borough he must apply to the chief constable; otherwise to the County Council Offices.

Weight Unladen

Weight unladen does not include water in the boiler or tanks, oil in the oil bath, fuel, or any detachable sides or other accessories not essential to the working of the machine.

Total Weight of Car and Trailer

The combined unladen weight of the motor vehicle must not exceed 5 tons, and of a motor and trailer 6½ tons.

Axle Weight

Axle weight means the aggregate weight transmitted to the road by the several wheels attached to any one axle of the motor car or trailer when such car or trailer is loaded.

The axle weight of car and load must not exceed 12 tons, and the weight transmitted to the road by any axle must not exceed 8 tons.

Tyres

The tyre of each wheel of a heavy motor car shall be smooth, and where the tyre touches the road it must be flat, excepting that the edges of the tyres may be rounded or bevelled on each edge to the extent of half an inch.

The tyres may, however, be constructed of separate plates, the space between each plate must be parallel, and such space must not measure more than one-eighth of the width of the tyre, when the measurement is taken across the face of the tyre, in a line with the axle.

Width of Tyres and Diameter of Wheels

The width of a tyre of a heavy motor car must not be less than 5-in. and, in the case of a trailer, not less than 3-in. (if the trailer weighs, unladen, more than a ton).

NOTE.—If a purchaser proposes to use a trailer not specially designed for motor work, he should consult us as to the width of tyres, etc.

The width of tyres varies according to the diameter of wheel and axle weight.

Speed

The speed of a heavy motor car must not exceed 5 miles per hour if it weighs, unladen, over 3 tons, or the registered weight of any axle exceeds 6 tons, or if used to draw a trailer.

With pneumatic tyres or tyres of soft material, and if the axle weight does not exceed 6 tons, 12 miles per hour is allowed; if over 6 tons axle weight, the speed may be 8 miles per hour if the tyres are of soft or elastic material.

Trailers

Trailers must have painted on the right or off side in letters and figures not less than one inch in height, the weight of trailer unladen=U.W. tons, and the axle weight of each axle=A.W. tons, if the trailer weighs unladen more than one ton.

A trailer must be hung upon suitable springs. The axle weight of any trailer must not exceed 4 tons.

Brakes

A heavy motor car shall have two independent brakes; the reversing gear is now officially recognised as a second brake.

Width of Motor or Trailer

No heavy motor car or trailer shall exceed 7-ft. 6-in. width over all.

30-cwt. Biscuit Van.

30-cwt. Lorry with fixed sides.

30-cwt. Biscuit Van.

As 30-cwt. Coal Lorry.
Body interchangeable with one opposite.

Fleets of Mail Vans running at
London,
Portsmouth,
London Suburban Mails,
Southampton,
Liverpool,
North Wales,
etc., etc.

3-4-Ton "Leyland" Mail Van.

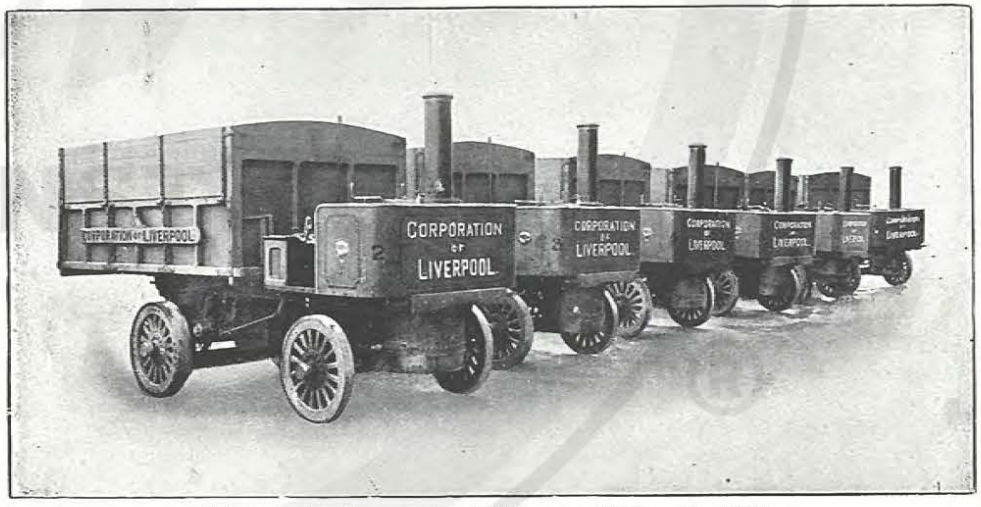
As Furniture Van.
Body interchangeable with one opposite.

Quotations given for services at rates per mile, year, town, etc., etc.

"Leyland" Steam Wagon 9 years old.

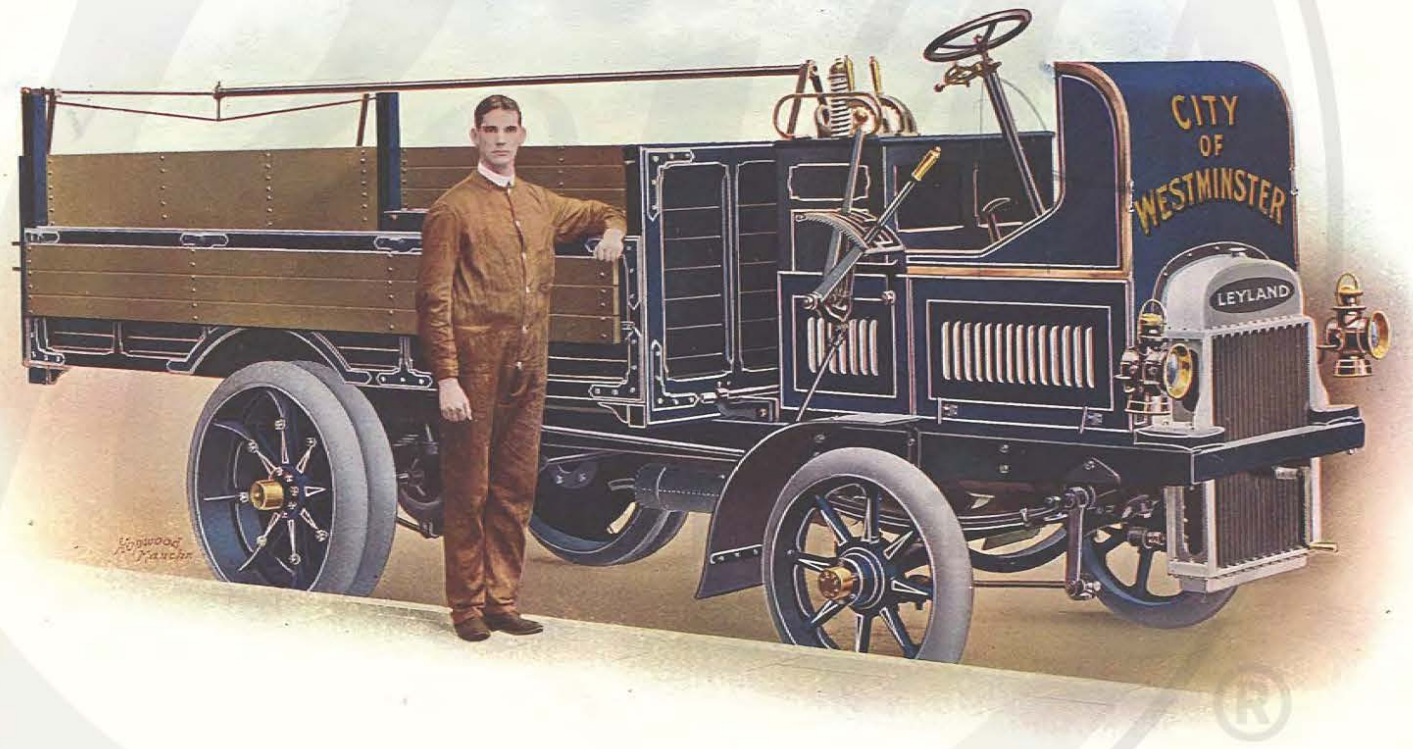
Municipal Tip Wagon with Trailer.

3-Ton Petrol Wagon, with large platform area for hay and straw.



Liverpool orders : six, 1909 ; one, 1912 ; six, 1913.

For other Group see page 6, 7, and 1



4-Ton Municipal Overhead Type Petrol Tip Wagon.

Municipal Section

MUNICIPAL

At the present time, when Municipal enterprise has extended into so many fields, it may be said, generally speaking, that all kinds of Commercial Motors are Municipal Motors, and in this sense the whole of our General Catalogue is of interest to members of the modern Corporate body.

The present section treats of Steam and Petrol Tip Wagons and Water Carts, Vacuum Tanks for street gulleys and drainage schemes, Tramway Tower Wagons, Ambulances, Petrol Tramway Cars, etc.

For Fire Appliances of all kinds consult our special Fire Engine Supplement, where very valuable estimates for the equipment of new Brigades will be found, besides prices and particulars of engines and appliances.

We issue a General Catalogue and a Fire Engine Supplement

For omnibuses and ordinary Lorries and Vans suitable for public service, and for general cartage, our General Catalogue should be consulted.

We have a very large Municipal connection extending back many years, and justly claim to have supplied as many Municipal Motors as nearly all other makers added together.

Maintenance

We are prepared to contract for the maintenance of fleets of four or more Municipal machines on regular service, either in the United Kingdom or the Colonies. Such contracts have been in force for many years in Chelsea, Westminster, Sydney, and elsewhere.

Special Municipal Price List

Description.	Page.	Code Word.	Price.	Extra for Packing.
Steam Tip Wagon, hand-tip gear	102	**Dughap**	**£595**	**£30**
Steam Tip Wagon, hand-tip gear, with 1,000-gallon tank	103	**Dughem**	**£653**	**£30**
Steam Tip Wagon, power-tip gear	102	**Dughie**	**£612**	**£30**
Steam Tip Wagon, power-tip gear, with 1,000-gallon tank	103	**Dughoc**	**£680**	**£30**
2-Ton Petrol Tip Wagon, seat behind engine	Pages 108–110.	**Dughun**	**£695**	**£25**
3-Ton Petrol Tip Wagon, seat behind engine		**Dughyd**	**£740**	**£25**
4-Ton Petrol Tip Wagon, seat behind engine		**Dugibo**	**£805**	**£25**
5-Ton Petrol Tip Wagon, seat behind engine		**Dugick**	**£870**	**£25**
3-Ton Petrol Tip Wagon, seat above engine		**Dugide**	**£760**	**£25**
4-Ton Petrol Tip Wagon, seat above engine		**Dugifa**	**£825**	**£25**
5-Ton Petrol Tip Wagon, seat above engine		**Dugilt**	**£890**	**£25**
24 H.P. Tower Wagon	116	**Duging**	**£645**	**£24**
30 H.P. Tower Wagon	116	**Dugiky**	**£765**	**£24**
40 H.P. Tower Wagon	117	**Dugips**	**£815**	**£30**
18 H.P. Town Ambulance	114	**Dugiri**	**£500**	**£30**
30 H.P. Institution Ambulance	112	**Dugism**	**£715**	**£35**
Vacuum Tank Wagon	118	**Dugitu**	**£620**	**£30**

RAIL CAR SECTION, page 125 onwards

Steam v. Petrol

In connection with Municipal work it is especially difficult to decide whether to use steam or petrol motors.

In city areas, where the vehicles work at night time in close proximity to dwelling-houses, india-rubber tyres are generally insisted on, then the advantage is with the petrol motor. More particularly is this the case where plenty of assistance is put on and where daily collection is the rule, and the motors have to serve a large area in a few hours practically without stopping.

In the provinces, however, and especially in semi-rural areas, the steam wagon, which can stand for considerable periods without any loss, is an advantage.

We publish in our General Catalogue comparative tables of working costs, which will be forwarded on application, to assist the Surveyor in deciding what is best for his local requirements.

3-Ton Tip Wagon

Special short type for Liverpool. 15th Repeat Order from this Corporation

Mr. Thos. H. Turner, Cleansing Superintendent, Bury, says : " That his petrol motor does the work of nine horses at present, but that he will do better when he gets the work properly organised."

Mr. T. W. E. Higgins, Chelsea, who has 17 " Leyland " Wagons, some of them 13 years old, the average age being eight years, writes : " The overall cost per annum per motor, excluding labour, is **£87.**

In 1910, the Westminster Council, after receiving a petition against the purchase of more motors, appointed a special committee to investigate the whole matter.

The following are extracted from the published report :—see next page.

Extract from Westminster C.C. Report on Motors and Horses

HORSE COST OF WORK DONE BY MOTOR.

To get a ratio of motor and horse work respectively, extracts of weights have been made for the four weeks ended 29th January, 1910, when the horses were wholly engaged on Dusting and Slopping work. These show :—

	T.	C.	Q.
1. The average total daily horse load was	2	14	1
2. The average total daily motor load was	8	1	2
	8	1	2
	2	14	1

(a)—One motor (on Dusting and Slopping) did the work of equals 2·98 horses, and as Dusting and Slopping represented only 58·52% of the motor's work, assuming the same relative values to obtain for the balance of 41·48% (Flushing and Watering) then as

58·52% of the motor's work equals	2·98 horses.
And 41·48% would equal	2·11 ,,
One motor on actual work done equals	5·09 ,,

(b)—The weekly cost of a motor is shown to be £10 3s. 10d. The weekly cost of a hired horse, etc., is £3 4s. 6d. Therefore one motor costs £10 3s. 10d. / £3 4s. 6d. equals 3·16 hired horses per week, but as it does the work of 5·09 hired horses it costs less than horse labour by £6 4s. 6d. per week.

	£	s.	d.
5·09 hired horses, etc., cost	16	8	4
1 motor costs	10	3	10
Difference	£6	4	6

or,

(c)—Motor work costs 37·92% less than horse work.

(d)—It has been contended that the charges of horses hired, incurred while the motors are disabled, should be added to the "gross" motor costs.

The report deals with the actual output recorded, and it would seem that if the account is to be debited with the cost of horses hired, then it should be credited with the work which the horses do.

The result is unaltered ; but—

(e)—Assuming the validity of the contention, it is seen, when tested by the simple fact, that taking the whole year, only eight horses were hired on the average daily for all Highway purposes (Watering, &c.), and that their entire cost could be added to the aggregate cost of the nine motors without disturbing their economic superiority. Thus, as shown above :—

Nine motors did the work of 5·09 horses × 9, equals . .	45·81	horses.
But cost 3·16 horses × 9, equals	28·44	horses.
Add the whole hired stud, 1909–10, equals . .	8·00 ,,	36·44 ,,

An advantage remaining to the motors of (say) 9 horses.

(f)—It might seem that the motor is to a disadvantage when under repair, inasmuch as its dust, &c., body is useless. The argument, however, is seen in better perspective, when the actual time lost is considered. In 1909–10, 146 working days were lost in the aggregate by the motors being under repair—5·2%—practically 95% of efficiency. Horse efficiency was 96%.

(g)—A further comparison is furnished by assuming the abolition of horses, 1909–10.

Extracts of horse work show 43,545 horse days, of which 4,165 were for street watering. Therefore it would seem that $\frac{4,165}{43,545}$ ths of stud of 119 equals 11·38 horses (say 12) were engaged on Watering ; leaving 107 on Dusting and Slopping ; now

(1)—If the motors moved at 3s. 1·76d. per ton, 92,480 tons carried by the horses, it would cost £14,550

(2)—At contract price the horses would cost 10s. 9d. × 313 days × 107 horses £18,001

Or (3)—The work would have to be done by $\frac{£14,550,}{£168\ 5s.}$ equals 85·88 hired horses to be as economical as the motors.

Examination of proposed policy of employing Motors for Dusting in Pimlico District (Westminster)

[EXTRACT.]

The Assistant City Engineer's figures as to plant and staff are taken, and it is assumed that the balance of Departmental work (50%) on which this same plant and staff are engaged when the Dusting has been completed, is of the same economic value.

(1)—Estimated Cost by Horse Transport :—

	£	s.	d.
12 hired horses at 5/9 (5/9 × 313 × 12)	1079	17	0
16 Council Horses ($\frac{£53}{7\frac{1}{2} \text{ years}}$ equals £7 1 4, add interest £1 1s. × 16)	129	17	4
Fodder (52 weeks at 13/6 × 16)	561	12	0
Stable charges (£10 × 16)	160	0	0
Harness and repairs (£1 × 28)	28	0	0
Vet. £1 10 0			
Farriery 3 10 0—(£5 × 16)	80	0	0
Cost of Vans (£14 × 15)	210	0	0
Carters (£90 × 15)	1350	0	0
Total	£3599	6	4
One-half is	£1799	13	2

(2)—Estimated Cost by Motor Transport (7 Motors) :—

	£	s.	d.
Capital cost $\frac{£580 \times 7}{10 \text{ years}}$ equals £406 plus Interest, £78	484	0	0
Trailers (£14 × 7)	98	0	0
Repairs and maintenance (£60 × 7)	420	0	0
Running expenses (30,000 miles at 3½d.)	437	10	0
Tyres (£110 per set, say £70 × 7)	490	0	0
Drivers (£105 × 8)	840	0	0
Total	£2769	10	0
One-half is	£1384	15	0
Total difference in favour of motors is	£829	16	4

Motor work is here shown to cost 23·06% less than horse work, or, approximately, one motor and trailer does the work of two pair-horsed vans.

Test of Blackford Bridge Destructor, Bury

From 6 a.m., Monday, April 7th, to 6 a.m., Saturday, April 12th, 1913.
Vehicles employed .. 1 Motor, 9 Horses and Carts.

	Horses. T.	C.	Q.	Motor. T.	C.	Q.
Monday	34	12	2	34	11	0
Tuesday	38	7	0	32	7	2
Wednesday	38	18	0	33	2	2
Thursday	37	19	0	27	15	0
Friday	35	16	3	35	6	2
	185	13	0	163	2	2

COST.

	£	s.	d.
9 horses at 10/– per day	4	10	0
5 days at £4 10 0	22	10	0
Average cost per ton	0	2	5¼
1 Motor at £3 per day	3	0	0
5 days at £3 per day	15	0	0
Average cost per ton	0	1	10

NIGHT WORK ONLY.

	6 Horses. T.	C.	Q.	1 Motor. T.	C.	Q.
Monday	24	3	2	26	9	2
Tuesday	27	0	0	23	11	2
Wednesday	26	3	0	25	15	2
Thursday	24	14	0	21	19	0
Friday	25	14	2	25	19	2
	127	15	0	123	15	0

6 Horses and Carts at 10/– per night	£15	0	0
Average cost per ton	0	2	4¼

1 Motor at 30/– per night for 5 nights	£7	10	0
Average cost per ton	0	1	2½

MUNICIPAL STEAM TIP WAGON

Body interchangeable with Tank opposite.

Body details, see page 104

Capacity—5 tons in body, and 3 tons on a trailer.

General Dimensions—Length overall, 18-ft. 3-in. ; width overall, 7-ft. 2-in. ; height, 9-ft. ; wheel base, 9-ft. 8½-in. ; front wheels, 3-ft. 0-in. diameter, 6-in. wide ; back wheels, 3-ft. 6-in. diameter, 10-in. wide ; height from ground to top of frame (loaded), 3-ft. 3-in. ; length, back of driver's seat to hinge pin, 9-ft. 8-in. ; tare, 4 tons 10 cwts. ; speeds, 3 and 6 miles per hour.

Engine and Transmission—The engine is fitted with two high-pressure double-acting cylinders, 4½-in. diameter × 6-in. stroke.

Boiler—Vertical fire tube, central coke feed. Copper-sleeved tubes, the whole acetylene welded, weldless shells, working pressure, 250-lbs.

Superheater—Coil pattern in smoke box.

Pumps—The Boiler is fed by a pump geared to the crankshaft of the engine, and capable of being used when the engine is running or standing ; and, further, by an automatic injector having a separate suction from the water tank.

Wheels—The wheels in ordinary circumstances are of our "Composite" pattern (which we designed in 1901).

Tyres.—The tyres are of weldless steel, hydraulically fitted.

Brakes—Our improved internal Brakes are fitted inside the chain rings, and are protected from dust. They are capable of holding the vehicle on any reasonable gradient in either direction.

Water—The water is carried in a galvanised iron tank with wash plates, carried in an oak cradle, and having a capacity for from 10 to 18 miles, according to the nature of the road.

Cab—Each wagon is supplied with a Standard Pattern Cab mounted on four posts, and as illustrated on page 124, with a strongly boarded top with rails, and suitable for the accommodation of several bags of coke.

Tip Body—The body is very heavily framed of well-seasoned ash, and the bottom and the sides are of hard wood and lined with sheet iron. It is thoroughly protected against damage by ironing at the corners and along the top of the sides. The back door is hinged at the top, and is held in position by a bolt worked by a lever underneath the body. The inside dimensions are :— Length, 11-ft. 0-in. ; width at front, 5-ft. 8-in. ; width, at back, 5-ft. 11-in. ; depth, 2-ft. 0-in. This gives a cubic capacity of 7½ yards, with 12-in. detachable side boards, but the dimensions can be varied to suit special requirements.

MUNICIPAL STEAM WATER CART

Standard Box Spreader at Work

Tank details, see page 105

Tipping Gear—The body is designed to be sufficiently strong to carry the load independently of the steel frame on to which it is hinged. It is elevated from the front end by our Patent Telescopic Tipping Gear, which is self-sustaining and fitted with two screws. When commencing to tip, the screws act differentially, so that the leverage attainable is very great. When the load has been lifted about half way, the screws act singly, so that the tip is finished at increased speed. When required, this gear is arranged to be worked from the crankshaft of the engine. This increases the price of the wagon.

Price—Complete with Hand-Tip Gear, **£595.**
CODE WORD—**Dugjag**
Complete with Power-Tip Gear, **£612.**
CODE WORD—**Dugjef**
Extra for packing, **£30.**

These prices do not include the tank, but body only

Approximate Shipping Specification

	Gross Weight.		Measurements.	Cube.	Shipping Weight.	
	Tons.	Cwts.			Tons.	Cwts.
Body and Sundries	3	9	12-ft. 3-in. × 7-ft. 0-in. × 4-ft. 0-in.	343	8	10
Engine and Sundries	2	8	7-ft. 0-in. × 5-ft. 3-in. × 3-ft. 6-in.	130	3	10
Boiler	—	18	4-ft. 9-in. × 3-ft. 9-in. × 3-ft. 6-in.	63	1	10
Two Wheels	—	6	3-ft. 0-in. × 3-ft. 0-in. × 2-ft. 0-in.	18	—	9
Two Wheels	—	14	3-ft. 6-in. × 3-ft. 6-in. × 2-ft. 6-in.	32	—	16
Frame	—	5	15-ft. 1-in. × 3-ft. 7-in. × 0-ft. 7-in.	32	—	16

Tip Wagon Bodies

General — The body is framed in ash, heavily ironed, and designed to carry the whole load supported on one pair of hinges. The front is fixed, the sides preferably so, and the back hinged at the top, with releasing gear at the side. Floor sheet-steel lined.

Wheel Race — Bodies can be made with a wheel race, as on colour print, when the floor level is reduced nearly 12-in., but at the same time the body, and consequently the overall length of the machine, must be lengthened about six inches.
Price for adding Wheel Race, **£15.** Code Word—**Dugkya**

Teak — Teak can be used throughout for hot climates. Extra cost, **£12.** Code Word—**Dugjil.**

Steel — Bodies can be made in steel, similar to page 106. Extra cost, **£12.** Code Word—**Dugjor.**

Detachable Sides — Main Sides can be made detachable. **Price, £12.** Code Word—**Dugjup.**

Extension Sides — Top Sides can be added of soft wood, socketed to increase capacity. **Price, £5.** Code Word—**Dugkai**

Covers — Top framing, as on page 106 and on colour print, for tarpaulin is useful to keep load down in windy weather. **Price, £8.** Code Word—**Dugkep.**

Approximate Shipping Specification — 4-ton wooden body, fixed sides, containing other parts of the Chassis—12-ft. 0-in. × 7-ft. 0-in. × 4-ft. 0-in. = 336 cubic feet ; lift, 45-cwts.

If made with detachable sides and not enclosing any Chassis parts, the bulk can be reduced to 168 cubic feet ; lift, under 2 tons.

PRICE LIST OF TIP BODIES.

Description.	Code Word.	Price.	Description.	Code Word.	Price.
2-ton body	**Dugkif**	**£40**	Hinged Sides	**Duglac**	**£8**
3-ton body	**Dugkob**	**£45**	Top Sides	**Dugleh**	**£5**
4-ton body	**Dugkud**	**£50**	Top Cover	**Duglid**	**£8**
5-ton body		**£55**	All Steel	**Duglop**	**£12**
Wheel Race (Reducing height of floor about 10-in.)	**Dugkya**	**£15**	All Teak	**Dugluk**	**£12**

Street Watering Tanks, Steam and Petrol

The Tank

These are made of $\frac{3}{16}$-in. steel, galvanised, cylindrical, unless ordered rectangular. They have large filling manhole, splash plates, and double outlet to spreader.

Front Spreaders

Price includes 4-division box spreader at back, as on page 103, with lever frame on seat to operate either side. The chambers for heavy spread being controlled by hand wheel at the rear.

At an extra charge of **£8** front circular spreaders can be fitted. Code Word—**Dugmak.**

Rotary Spreaders for Steamer

At an extra charge of **£37** rotary spreaders will be fitted to the Steam Wagon, consisting of the usual discs driven by machine-cut enclosed gearing from the crankshaft of the engine, and covering up to 40-ft. width. Code Word—**Dugmeg.**

Pump Pressure Spreaders for Steam or Petrol

At an extra charge of **£80** Pump Pressure Front Spreaders will be provided, worked from the seat, and arranged similar to illustration on page 111. The pump is of gun-metal, coupled to the constant-speed engine, so that spread is independent of the road speed, and up to a maximum of 50-ft. Code Word—**Dugmio.**

Filling the Tank

In combination with the above, 30-ft. of $3\frac{1}{2}$-in. suction hose, and the necessary valves, will be provided so that the same pump fills the tank from a river or canal with a lift up to 25-ft. **Price, £25.** Code Word—**Dugmox.**

Filling the Steam Wagon Tank

The Steam Wagon Tank can be filled in two ways, either by making it stronger and providing a vacuum ejector (**Price, £24,** Code Word—**Dugmum**) ; or by fitting a geared pump (**Price, £30.** Code Word—**Dugmyf**). In either case 30-ft. of $3\frac{1}{2}$-in. suction hose is provided.

PRICE LIST OF WATERING AND OTHER TANK BODIES.

	Code Word.	Price.		Code Word.	Price.
*600 gallons	**Dugnad**	**£50**	Vacuum Filler for Steam	**Dugocu**	**£24**
800 gallons	**Dugnec**	**£54**	Pump Filler for Steam	**Dugodo**	**£30**
1,000 gallons	**Dugnig**	**£58**	Pump Filler Spreader for Petrol (can be supplied with pump pressure)	**Dugofi**	**£25**
Front Spreaders, Glover type	**Dugnos**	**£8**	Gulley Flushing Valve and Hose	**Dugoga**	**£10**
Mechanical Spreader for Steam	**Dugnyb**	**£37**			
Pump Pressure Spreader for Petrol	**Dugobe**	**£80**			

For particulars of Vacuum Tank,
see page 118

Packing

* Tanks are made cylindrical for this country unless ordered rectangular. Rectangular for abroad to pack inside tip body.

Petrol Tip Wagons

MUNICIPAL PETROL REFUSE WAGON

"All Steel" Body with special top framing.

As used at Westminster, Chelsea, Wandsworth, Liverpool, Bury, Burnley Nottingham, Smethwick, Hoylake, Blackburn, Pontypridd, Rotherham, Sydney, Bombay, Buenos Ayres, Perth, W.A., Calcutta, Hamburg, etc., etc.

This body is interchangeable with the Water Tank on opposite page.

General—There are two types—(1) with seat behind engine ; this is the best all-round machine, and (2) with seat above engine to be used when a vehicle with short wheel base is a necessity. The Subsidy Machines in the table are those that comply with the War Office Specification, and for the use of which an annual grant is obtainable from the Government. See special pamphlet.

Engine—4 cylinder "Leyland."
Clutch—Cone enclosed.
Control—Hand and foot.
Ignition—Bosch H.T.
Carburetter—Claudel-Hobson.
Radiator—Tubular, top and bottom detachable.
Steering—Enclosed worm and wheel, irreversible, gaiters to each joint.

Petrol Tip Wagons

MUNICIPAL PETROL WATER CART

This body is interchangeable with the Refuse Body on opposite page.

Front Axle—Central pivot.

Back Axle—Enclosed live, geared type.

Wheels—All steel, hollow spokes.

Tyres—Solid rubber band.

Gear Box—Four speeds and reverse, direct on top. Gate change.

Transmission—Central Thrust. "Leyland" Patent Enclosed Spherical Thrust Bracket.

Bodies—For sizes, see tables and description, page 104.

Tanks—For particulars, see page 105.

Extras—See General Catalogue, page 31.

Prices and Shipping Specification—See tables on following pages.

Prices and Particulars of Standard Petrol Tip Wagons

Particulars	2-Ton (Subsidy). 24 H.P.		3-Ton (Subsidy). 30 H.P.		3-Ton. 30 H.P.		4-Ton. 40 H.P.		5-Ton. 50 H.P.	
	Chassis.	Complete Machine.	Chassis.	Complete Machine.	Chassis.	Complete Machine.	Chassis.	Complete Machine.	Chassis.	Complete Machine.
Price	**£655**	**£710**	**£715**	**£775**	**£695**	**£740**	**£755**	**££05**	**£815**	**£870**
Code Word	**Dugomy**	**Dugorb**	**Dugoys**	**Dugpar**	**Dugpei**	**Dugpik**	**Dugpoy**	**Dugpux**	**Dugpym**	**Dugras**
Extra for Packing	**£12**	**£25**	**£12**	**£25**	**£12**	**£25**	**£12**	**£25**	**£12**	**£25**
Approximate Shipping Specification	330 cub. ft.	485 cub. ft.	350 cub. ft.	530 cub. ft.	345 cub. ft.	510 cub. ft.	355 cub. ft.	520 cub. ft.	365 cub. ft.	520 cub. ft.
Lift under	4 tons	5 tons	4 tons	5 tons	4 tons	5 tons	5 tons	6 tons	5 tons	6 tons
Length, overall	16-ft. 6-in.	19-ft. 3-in.	18-ft. 11-in.	21-ft. 6-in.	18-ft. 4-in.	20-ft. 8-in.	18-ft. 11-in.	21-ft. 3-in.	19-ft. 5-in.	21-ft. 3-in.
Width, overall	6-ft. 8½-in.	6-ft. 8½-in.	6-ft. 11½-in.	6-ft. 11½-in.	6-ft. 11½-in.	6-ft. 11½-in.	6-ft. 11½-in.	6-ft. 11½-in.	7-ft. 1½-in.	7-ft. 1½-in.
Wheel Base	11-ft. 8-in.	—	13-ft. 6-in.	—	13-ft. 1-in.	—	13-ft. 7¼-in.	—	13-ft. 7¼-in.	—
Width, outside tyres	6-ft. 1-in.	—	6-ft. 2½-in.	—	6-ft. 2½-in.	—	6-ft. 3-in.	—	6-ft. 3-in.	—
Front Wheels	2-ft. 11-in.	—	3-ft. 0-in.	—	2-ft. 9-in.	—	2-ft. 9-in.	—	2-ft. 10-in.	—
Front Wheels, Tyres (m/m.)	870×100	—	900×120	—	825×110	—	830×120	—	850×140	—
Front Wheels, Rims (m/m.)	719·5	—	719·5	—	669·4	—	669·4	—	669·4	—
Rear Wheel	3-ft. 5-in.	—	3-ft. 6-in.	—	3-ft. 4-in.	—	3-ft. 4-in.	—	3-ft. 5-in.	—
Rear Wheel, Tyres (m/m.)	1,030×100	—	1,050×120	—	1,010×120	—	1,020×130	—	1,030×140	—
Rear Wheel, Rims (m/m.)	880	—	880	—	850	—	850	—	850	—
Ground Clearance	1-ft. 0-in.	—	1-ft. 1-in.	—	1-ft. 0-in.	—	1-ft. 0-in.	—	7-in.	—
Length of Body, outside	—	10-ft. 0-in.	—	12-ft. 3-in.	—	11-ft. 6-in.	—	11-ft. 6-in.	—	11-ft. 6-in.
Width of Body, outside (max.)	—	6-ft. 0-in.	—	6-ft. 6-in.	—	6-ft. 6-in.	—	6-ft. 6-in.	—	6-ft. 6-in.
Height, ground to floor (Light)	—	4-ft. 2-in.	—	4-ft. 2-in.	—	4-ft. 1-in.	—	4-ft. 1-in.	—	4-ft. 2-in.
Tare Weight	2 ton 14 cwt.	3 ton 6 cwt.	2 ton 17 cwt.	3 ton 10 cwt.	2 ton 17 cwt.	3 ton 10 cwt.	3 ton 12 cwt.	4 ton 6 cwt.	3 ton 18 cwt.	4 ton 12 cwt.
For Prices and Particulars of modifications in Body, etc., see page 104.					These types also supplied with Wheel Race in body as per coloured illustration facing page 97. **For Particulars, see page 104.**					

Prices and Particulars of "Overtype" Petrol Tip Wagon (Seat over Engine)

Particulars	3-Ton (Special Short and Narrow). 30 H.P.		3-Ton. 30 H.P.		4-Ton. 40 H.P.		5-Ton. 40 H.P.	
	Chassis.	Complete Machine.	Chassis.	Complete Machine.	Chassis.	Complete Machine.	Chassis.	Complete Machine.
Price	£715	£760	£715	£760	£775	£825	£835	£890
Code Word	Dugrek	Dugrit	Dugrov	Dugruh	Dugryo	Dugsaf	Dugset	Dugsis
Extra for Packing	£12	£25	£12	£25	£12	£25	£12	£25
Approximate Shipping Specification	—	—	—	—	—	—	—	—
Lift under	—	—	—	—	—	—	—	—
Length, overall	15-ft. 8-in.	16-ft. 9-in.	16-ft. 0-in.	18-ft. 4-in.	16-ft. 8-in.	19-ft. 0-in.	17-ft. 10-in.	19-ft. 6-in.
Width, overall	6-ft. 7½-in.	6-ft. 7½-in.	6-ft. 11½-in.	6-ft. 11½-in.	7-ft. 4½-in.	7-ft. 4½-in.	7-ft. 1½-in.	7-ft. 1½-in.
Wheel Base	8-ft. 4-in.	—	10-ft. 2-in.	—	10-ft. 2-in.	—	10-ft. 2-in.	—
Width, outside tyres	5-ft. 9-in.	—	6-ft. 2½-in.	—	6-ft. 8-in.	—	6-ft. 3-in.	—
Front Wheels	2-ft. 9-in.	—	2-ft. 9-in.	—	2-ft. 9-in.	—	2-ft. 10-in.	—
Front Wheels, Tyres (m/m.)	825×110	—	825×110	—	830×120	—	850×140	—
Front Wheels, Rims (m/m.)	669·4	—	669·4	—	669·4	—	669·4	—
Rear Wheel	3-ft. 4-in.	—	3-ft. 4-in.	—	3-ft. 4-in.	—	3-ft. 5-in.	—
Rear Wheel, Tyres (m/m.)	1,010×120	—	1,010×120	—	1,020×130	—	1,030×140	—
Rear Wheel, Rims (m/m.)	850	—	850	—	850	—	850	—
Ground Clearance	11-in.	—	1-ft. 0-in.	—	1-ft. 0-in.	—	7-in.	—
Length of Body, outside	—	9-ft. 9-in.	—	11-ft. 6-in.	—	11-ft. 6-in.	—	12-ft. 0-in.
Width of Body, outside (max.)	—	5-ft. 6-in.	—	6-ft. 6-in.	—	6-ft. 6-in.	—	6-ft. 6-in.
Height, ground to floor (Light)	—	4-ft. 1-in.	—	4-ft. 1-in.	—	4-ft. 1-in.	—	4-ft. 2-in.
Tare Weight	—	—	2 ton 17 cwt.	3 ton 10 cwt.	3 ton 12 cwt.	4 ton 6 cwt.	3 ton 18 cwt.	4 ton 12 cwt.

For Prices and Particulars of modifications in Body, etc., see page 104.

These types also supplied with Wheel Race in Body, as per coloured illustration facing page 97.
For Particulars, see page 104.

STANDARD
BOX SPREADER
AT REAR
(controlled from driver's seat).

1000-gallon Tank Wagon.

As supplied to
Westminster Council,
Chelsea Borough,
Bury Corporation,
etc., etc.

STANDARD BODY
without Wheel Race
or Extension Sides
(Enclosed Cab for driver's seat).

Standard 5-Ton Tip Wagon.

TYPE
APPROVED
BY THE
WAR OFFICE
see also page 67.

Large Ambulance

As used by the War Office and Admiralty, suitable also for Unions, Asylum Boards, etc.

General—This Ambulance is made for two stretchers—one each side, or two one side ; or four—two each side, interchangeable, with seats for 6 or 12 persons, all arranged to fold when not in use. Single or double lining as required.

Engine—4 cylinder, 30 H.P. " Leyland."

Gear Box—4 speed and reverse, direct on top, gate change.

Back Axle—Worm drive.

Front Axle—" Leyland " central pivot, with gaiters to joints.

Control—Hand and foot

Cooling—Pump.

Radiator—Tube pattern, detachable top and bottom.

Frame—Pressed nickel steel.

Springs—Semi-elliptical.

Tyres—Solid rubber, single and twin, 100 m/m. section.

Wheels—All steel, hollow spokes, on gun-metal floating bushes.

Ignition—Bosch.

Carburetter—Zenith.

Body—Of hard wood throughout, framing to view or not, as ordered. All corners rounded inside.

Stretcher frames, War Office spring pattern, plated or galvanised, collapsible.

Seats and seat backs best springs, hair, and rexine, to fold under stretcher frames when not required.

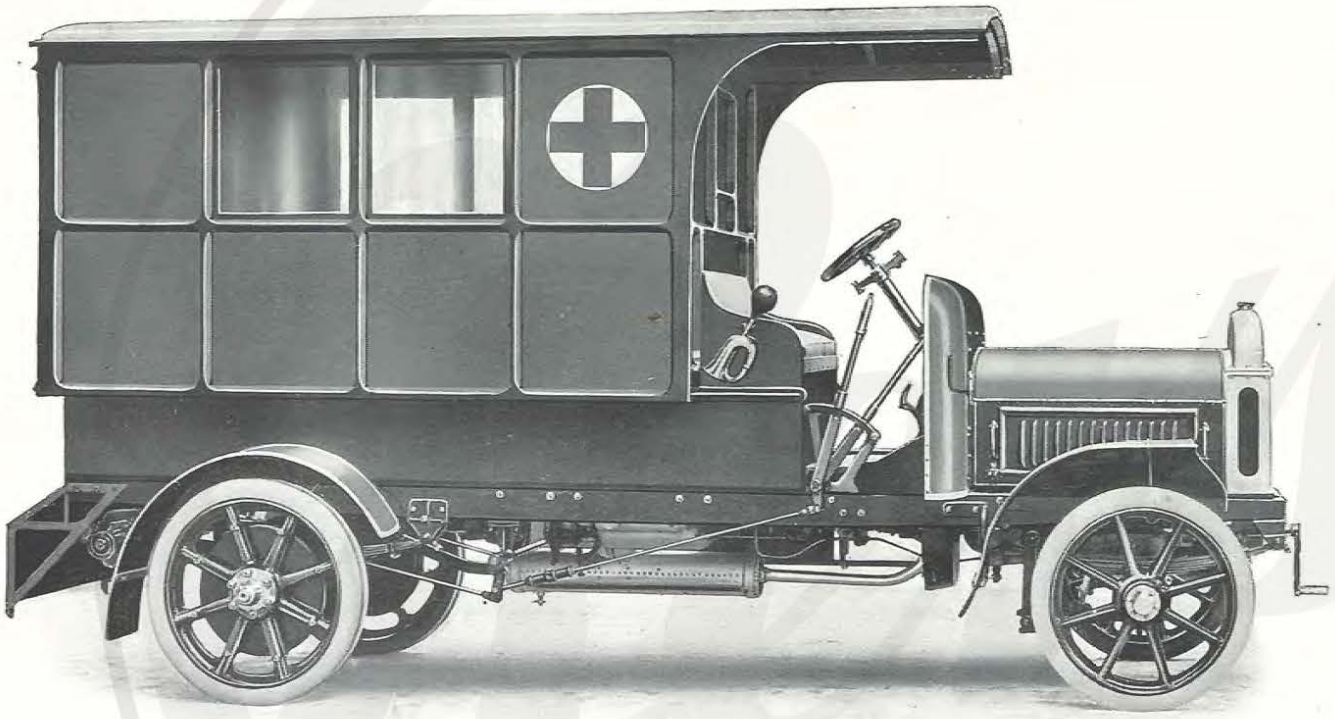
Ventilator windows each side, let-down back window, double back doors with gun-metal hinges and anti-vibrators, roof ventilators, nurse's spring seat at end, front sliding window, first-aid cupboards, etc. The front seat is upholstered and seats two besides the driver.

Dimensions—Length, 19-ft. 0-in. ; width, 6-ft. 8-in. ; height, 9-ft. 3-in.

Approximate Shipping Specification—

Body—12-ft. 3-in. × 5-ft. 6-in. × 6-ft. 3-in. Lift, 2 tons.

Chassis—20-ft. 0-in. × 4-ft. 8-in. × 4-ft. 5-in. Lift. 4 tons.



LARGE AMBULANCE VAN

As supplied to War Office, Admiralty, Metropolitan Asylum Board, etc., etc.

Other illustrations page 90 and overleaf

Description.	Code Word.	Price.	Description.	Code Word.	Price.
Ambulance for 2 Stretchers, single boarded	**Duguba**	**£715**	Shock-absorbing Springs to front wheels	**Duguki**	**£11**
Ditto, double boarded	**Dugudy**	**£735**	Shock-absorbing Springs to back wheels	**Duguss**	**£11**
Extra for Packing	**Duguft**	**£35**	Teak Frame and Metal Panels	**Dugvay**	**£30**
Roof Rail and Ladder	**Duguge**	**£6**			
Accommodation for 4 stretchers	**Duguha**	**£20**			

For other Extras, see pages 31, 32 and 115

Town or Private Ambulance

General—Some builders place the seat over the engine. In our opinion this is a mistaken policy ; it is done to shorten the wheel base so that the car can get into more confined quarters. It, however, has several serious disadvantages—inaccessibility, engine too near body and patient. Short wheel base tends to produce skidding, and is dangerous at speed on greasy road surfaces. With our narrow frame in front we get a big lock, and our machines can get almost anywhere without any of the disadvantages mentioned above.

Engine—4 cylinder " Aster," 18 H.P.

Gear Box—4 speed and reverse, gate change, direct on top.

Back Axle—Enclosed gear drive ; wheels on roller bearings.

Front Axle—Ackerman type, enclosed, irreversible worm and wheel, gaiters on joints.

Control—Hand and foot.

Cooling—Thermo-syphon.

Radiator—Tube pattern, detachable top and bottom.

Springs—Semi-elliptical, very long and easy riding.

Tyres—Solid rubber or pneumatics at extra cost.

Wheels—Artillery, on roller bearings.

Frame—Pressed nickel steel, inswept at front to give greater steering lock.

Ignition—Bosch watertight magneto.

Carburetter—Zenith.

Body—Our bodies are made throughout of hard wood, and with all internal corners rounded for cleansing purposes.

Design—We build two designs ; with framing to view outside and single boards, like the horse ambulances, or panelled outside framing, and lined inside—a much better job.

The simplest body is the box pattern, with seat for one beside driver, but if a very short vehicle is required, we do away with the extra front seat and extend the body forward on the side where the stretchers are to be placed. Extra cost, **£12.** CODE WORD—**Dugvel.**

Fittings—Double or single back doors, opaque glass side windows, bedded in rubber, hinged at the bottom, and arranged to open from the top for ventilation. Let-down back door window. Two roof air extractors. Rubber floor mats. Fittings for two stretchers. These are either of the War Office pattern, with spring carriers for service stretchers, when the top stretcher does not let down, or with the top stretcher supported on rocking levers, when spring stretchers are usual. A nurse's seat, and first-aid chest are also included as standard, and lavatory when required.

Dimensions—Length, 15-ft. 6-in. ; width, 5-ft. 7½-in. ; height, 8-ft. 6-in.

Approximate Shipping Specification—

Body—11-ft. 0-in. × 5-ft. 6-in. × 6-ft. 0-in. Lift, 2 tons.

Chassis—15-ft. 6-in. × 5-ft. 7-in. × 4-ft. 2-in. Lift, 3 tons.

Small Ambulance as supplied to War Office, Dublin Corporation, Westminster Board of Guardians, etc., etc.

See page 90

Description.	Code Word.	Price. £ s. d.	Description.	Code Word.	Price. £ s. d.
Ambulance, with single boardings	Dugveo	500 0 0	Shock-absorbing Springs, back axle	Dugwer	9 0 0
Ambulance, with double lining	Dugvip	515 0 0	Pneumatic Tyres to front wheels	Dugwiy	No extra charge.
Extra for packing	Dugvol	30 0 0	Twin Pneumatic Tyres to back wheels	Dugwoh	18 0 0
Lavatory, including water tank on roof	Dugvyg	8 0 0	Pneumatics all round, single front, twin rear; on detachable rims, with spare rim and tyre	Dugwohab	35 0 0
Shock-absorbing Springs, front axle	Dugwat	9 0 0	Teak Frame and Aluminium Panels for hot climate	Dugwuz	24 0 0
Window Rods and Curtains	Dugwyv	2 0 0	Electric Lighting by dynamo	Dyraba	35 0 0
Exhaust Heating of body	Dugyav	5 10 0	Wind Screen	Dyrace	8 0 0
Service Stretcher	Dugyew	3 0 0	Side Door to driver's seat	Dyradi	4 0 0
Spring Stretcher	Dugyix	5 0 0	Fire Extinguisher	Dyrafo	2 0 0
Speaking Tube to driver	Dugyom	1 10 0	Klaxon Horn	Dyragu	5 0 0
Electric Lighting by accumulators	Dugyut	12 0 0	Speedometer	Dyrany	5 10 0
			Double Ignition	Dyrarr	15 0 0

Extras common to both Ambulances

Petrol Tramway Tower Wagons

If a breakdown wagon is to be kept ready for instant service, there is no doubt that it should be a motor vehicle. With the horse vehicle there is time lost in harnessing, big expense in keeping horses at call, and the speed and effective radius of action is strictly limited. With the motor vehicle there is no standing charge, no depreciation, it is ready at any moment, and can travel up to 20 miles per hour, and thus cover a big tramway system from the central depot.

The Chassis best suited to this service is our 3-tonner with 30 H.P. 4 cylinder engine. For hilly districts a 40 H.P. engine is preferable. Where first cost is important, a 2-ton 24 H.P. Chassis will serve. Again, where a big weight of tools is carried our 4-tonner is a really strong machine, which will stand any amount of rough usage.

Specification

Engine—24 H.P., 30 H.P., or 40 H.P.

Back Axle—Enclosed gear drive.

Front Axle—Central pivot type, gaiters over joints.

Gear Box—4 speed and reverse, gate change, direct on top, with 24 and 30 H.P. engines, on 3rd with 40 H.P.

Control—Hand and foot.

Cooling—Pump.

Wheels—All steel, hollow spoke.

Tyres—Solid rubber band

Body—Generally as shown in coloured illustration, with lockers under second seat, at sides and rear. Made of hard wood throughout, with brass hand rails and cushion to front seat.

Two-Stage Tower—Larch sides, oak rails, well braced and ironed on all corners where sliding occurs.

Lifting—By rope or central screw, both operated by hand wheel at rear. Height, down, 13-ft. 0-in. ; height to platform, up, 20-ft. 0-in.

Top Platform—All in hard wood, with circular rack and pinion wheel for revolving by. Collapsible hand rails ; distance, centre to extreme overhang, 6-ft. 6-in.

Ladder—When required, ladders for easier access will be fitted.

Painting—Best coach, like coloured plate.

Gong—An alarm gong worked by pedal is fitted.

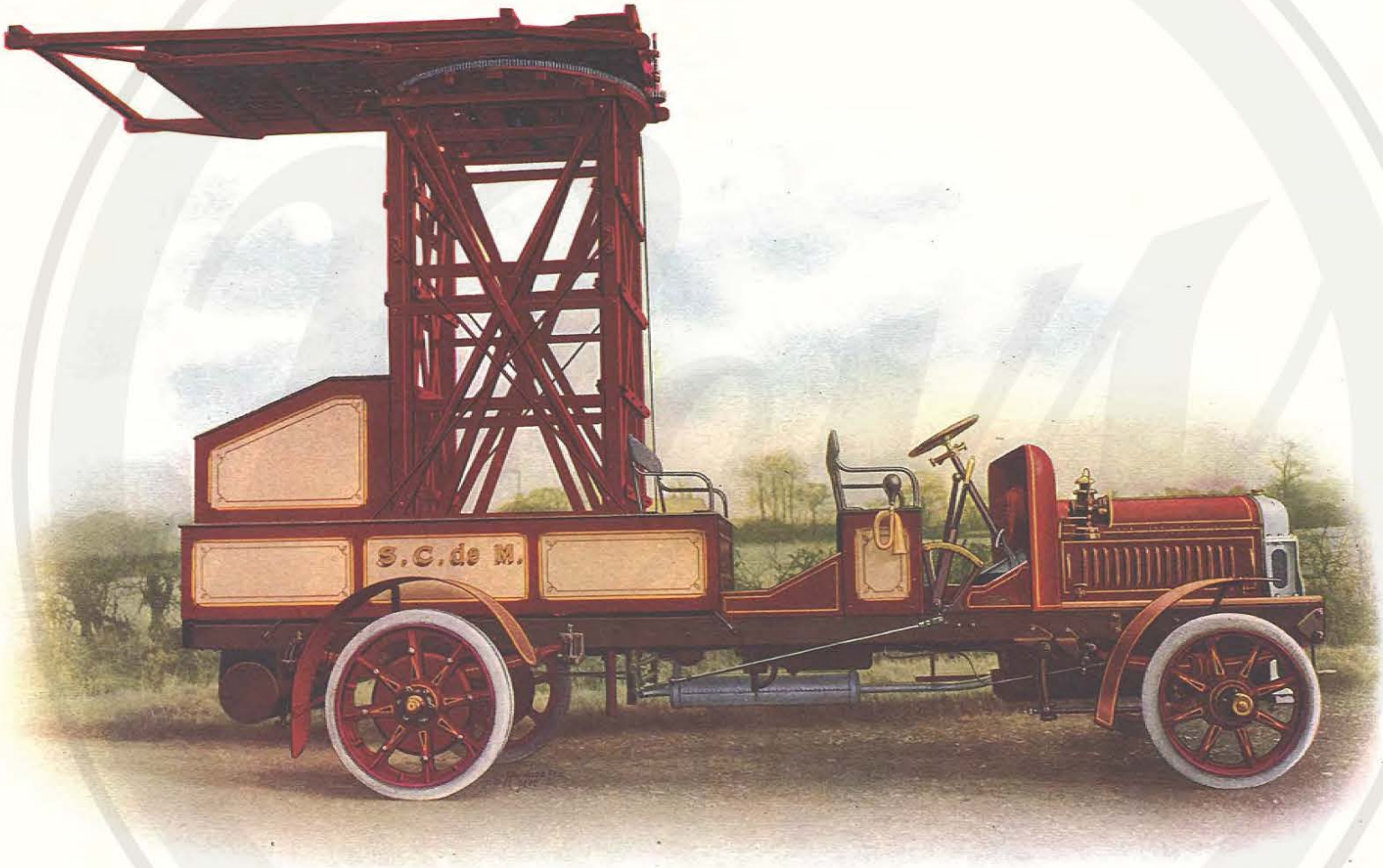
Lamps—Side and tail paraffin lamps and number plates, and full kit of tools are included.

Extras—Prices of lighting, dual ignition, etc., see General Catalogue, pages 31 and 32.

Tower Removal—One illustration shows tower on platform without lockers. This tower can be lifted off and the car used as an ordinary wagon.

Rail Tower Wagon—We also build Tower Wagons on Tramcar Chassis, to run in either direction on rails. Any gauge above and including 1 metre.

Three-Stage Tower—When it is necessary to reduce or increase the height unduly, we supply a three-stage tower instead of a two-stage.



40-50 H.P. Large Tower Wagon.

Prices

Description.	Code Word.	*Shipping Specification.	Price.	Extra for Packing.
		Cub. Ft.	£	£
2-Ton 24 H.P. Tower, small ..	**Dyrast**	500	**645**	**24**
3-Ton 30 H.P. Tower, medium ..	**Dyrbax**	550	**765**	**24**
3-Ton 40 H.P. Tower, medium ..	**Dyrbel**	600	**815**	**30**
4-Ton 40 H.P. Tower, large ..	**Dyrbib**	600	**825**	**30**
Extra for Ladders	**Dyrbog**	—	**5**	—
Extra for Three Stages	**Dyrbur**	—	**12**	—
Rail Tower Wagon	**Dyrbyt**	—	**825**	**40**

* All lift under 5 tons except last, which weighs packed 7 tons.

Large Tower Wagon.
40-H.P., Rope Action.

Some users of "Leyland" Tower Wagons

London United Tramways	1
Lancashire United Tramways.. ..	1
Manchester Tramways	1
Belfast	4
Burnley	1
Bury	1
Leicester	1
Southport	1
Accrington	1
Swansea	1
Preston	1
Haslingden	1
Rangoon	2
Pretoria	2
Auckland	2
Monte Video	1
Lisbon Tramways	1
Cape Electric Tramways	1

Small 24-H.P. Tower Wagon.

Medium Tower Wagon, 30-H.P., Screw Action.

Vacuum Tank Wagons

These are generally steam on account of the simple way in which the vacuum can be got up by a steam ejector. If necessary, however, a mechanical exhauster can be supplied on a petrol chassis.

The small illustration shows a 1,000-gallon tank used in connection with tan pit refuse in India. There is a small portion partitioned off from the main tank, filled with disinfectant, and used to pass the exhaust gas through on its way to the firebox, where it is burnt. With this arrangement the most offensive fluids can be dealt with without the slightest nuisance.

For gulley-cleansing a small jib crane is supplied, being an improved form of the one shown in the Chelsea photographs, pages 120 and 121. As an alternative a spring drum pulley can be fitted, so that the hose is automatically drawn up in position, after being pulled down for use.

SPECIFICATION OF MUNICIPAL VACUUM TANK.

Chassis—Standard 5-Ton Tip Pattern, see General Catalogue, page 22.

Tank—Cylindrical, of $\frac{3}{8}$-in. plate, strongly riveted to withstand full vacuum. Fitted with level indicator, intake, large rear manhole, and screw conveyor operated from the engine.

Hose—Four-inch, smooth bore, with suitable crane, rests, and two nozzles to suit work in hand. Length, 30-ft.

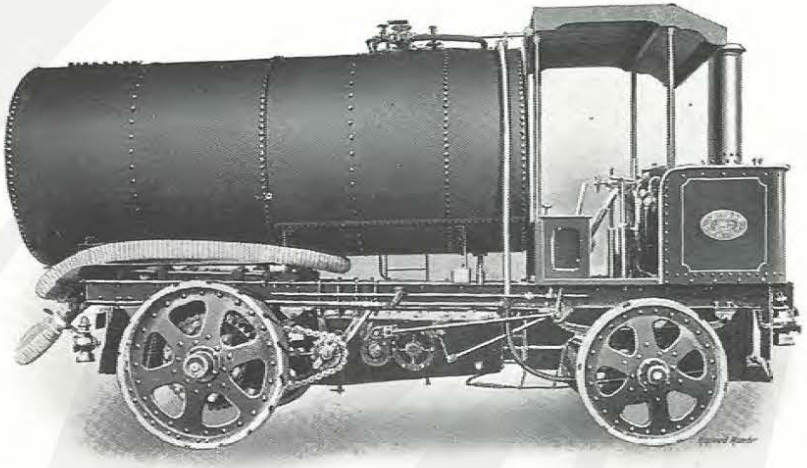
Ejector—White's, of suitable size, to work from the boiler whilst in transit, and to create a full vacuum in 10 minutes. Note : a working vacuum for ordinary gulleys can be created from atmospheric pressure in 4 minutes. The whole 1,000-gallon tank can be filled in 5 minutes when the vacuum has been formed.

Approximate Shipping Specification—Chassis, see Standard Tip, page 102.
Tank, 12-ft. 0-in. × 4-ft. 9-in. × 5-ft. 3-in.
Lift, under 2 tons.

Code Word—Dyrcal.

Price—£620.

Extra for Packing—£30. Code Word—**Dyrcen.**



Vacuum Tank Wagon

This Tank has a compartment in front with disinfecting fluid to kill germs in poisonous liquids carried.

Motor Vacuum Tank

5½ days per week.

Fuel, 3½ cwts. per day at -/9	£0 15 0
Repairs and Depreciation	2 0 0
Driver	1 15 0
Two Gulley Men at 30/-	3 0 0
Oil and Sundries	0 10 0
Total cost	£8 0 0

Work accomplished :—

95 gulleys, large and small, cleansed per day and 15 tons of sludge removed.

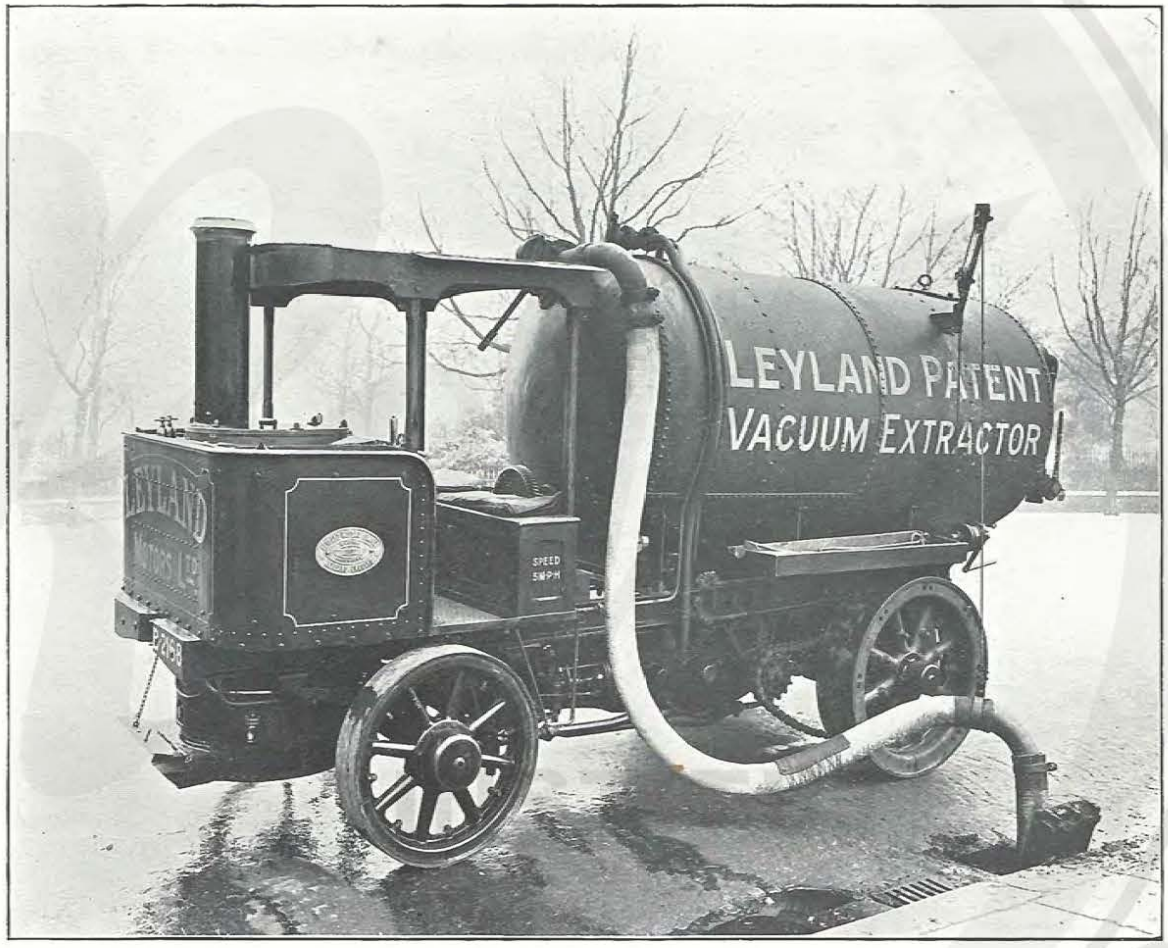
Estimate of cost of doing same work with horses.

4 horses at 12/-	£13 0 0
4 vans, repairs, and depreciation	1 10 0
6 men at 30/-	9 0 0
Total cost	£23 10 0

Saving on 95 gulleys per day .. £15 per week.

Work done at Chelsea, and cost compared with horses

Vacuum Tank Wagon in use



At work in Chelsea.

The tank having been exhausted of all air the photo. shows the suction pipe in the gulley removing the liquid refuse

Vacuum Tank Wagon in use

As in use at Chelsea, Kensington, Calcutta, etc., etc.

At Work in Chelsea

After the tank is filled the men lift the hose out by Crane, as above, and hose lies in tray until next gulley is reached. If spring drum pulley is fitted, the hose is automatically drawn into travelling position.

5-Ton Mechanical Tip Wagon, with deep body and sand boxes.

A Contractor's load on a 6-Ton Steam Wagon.

Street Watering

Motors are often employed by night with tank and horse brush, trailed, for washing city streets, when 20 miles can be covered per night in a watering period of five hours by two men, at a cost of about £7 per week, excluding water. The broom is 6-ft. wide, but only 4-ft. is effectively covered at each traverse.

Street Washing

The following shows what can be done by one motor wagon :—

Hours worked watering, per week	48
Number of miles of street, 26-ft. 0-in. wide, watered, per day	25
Water distributed, 23 loads of 1,000 gallons each, per day	110 tons.

Sufficient for 6 miles of street (wide and narrow together) in dry weather.

At a cost of :—

Fuel	£0 15 0
Repair and depreciation	1 0 0
Driver	1 15 0
Sundries	0 10 0
	£4 0 0 per week,

Equal to 1/6 per 1,000 gallons distributed.

For other groups, see pages 5, 6, 7, 91, 96, etc.

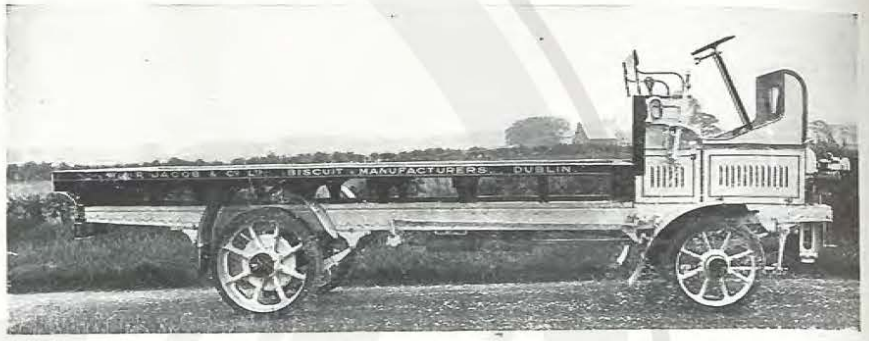
Group of 15 Municipal Wagons.

Two ordered 1900 ; One in 1903 ; Two in 1905 ; Ten in 1906.

Average life of these Wagons, 8 years. Average overall cost, excluding drivers, £87 per Wagon per annum.

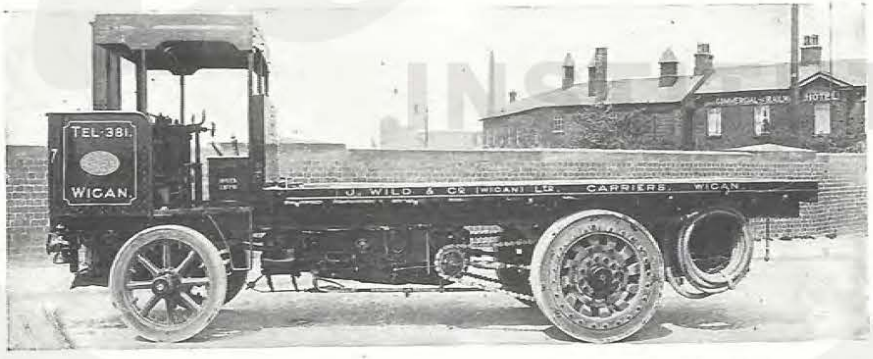
Orders and Repeat Orders from Chelsea, Westminster, Liverpool, Pontypridd, Wandsworth, Twickenham, Rotherham, Green Point, Blackburn, Belfast, Bombay, Hamburg, Colombo, Perth, W.A., &c., &c., have been filled.

One of Six "Leyland" Wagons employed between Manchester and Leyland.



Special long Platform "Overtype" Petrol Wagon.

We issue a General Catalogue and a Fire Engine Supplement



A 6-Ton "Leyland" Steam Wagon, with special rear wheels. This firm ordered Wagons from us in 1909, 1910, 1911.

Messrs. John Potts & Sons,
181, Accrington Road,
Blackburn.

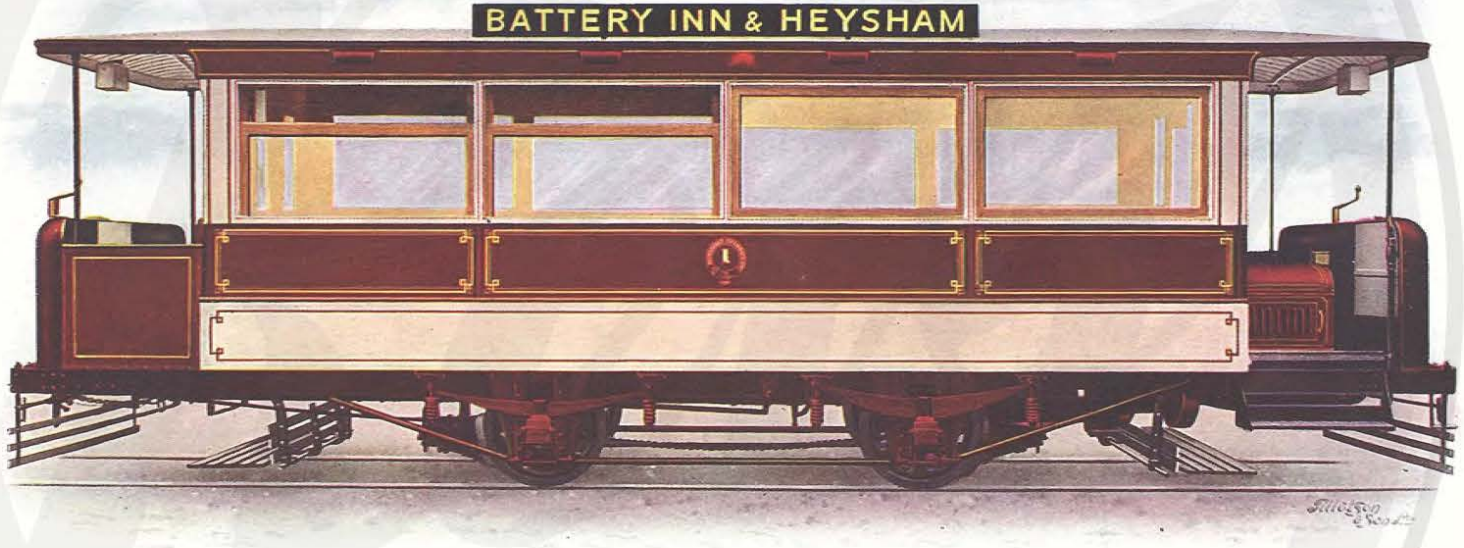
9th June, 1913.

Dear Sirs,

The Steam Wagon we bought from you in February, 1912, has been in constant use to date. We have never been off the road one single day since we started. The Wagon has only cost 5/– in repairs in the whole sixteen months, and has had the usual hard Lancashire roads to contend with, namely, Blackburn, Bolton, and Manchester, and also through Oldham and Rochdale, home.

I have nothing but praise to offer the Leyland Company for the excellence of the material they use, and I know of no wagon that can beat my performances.

Yours truly,
JOHN POTTS & SONS.

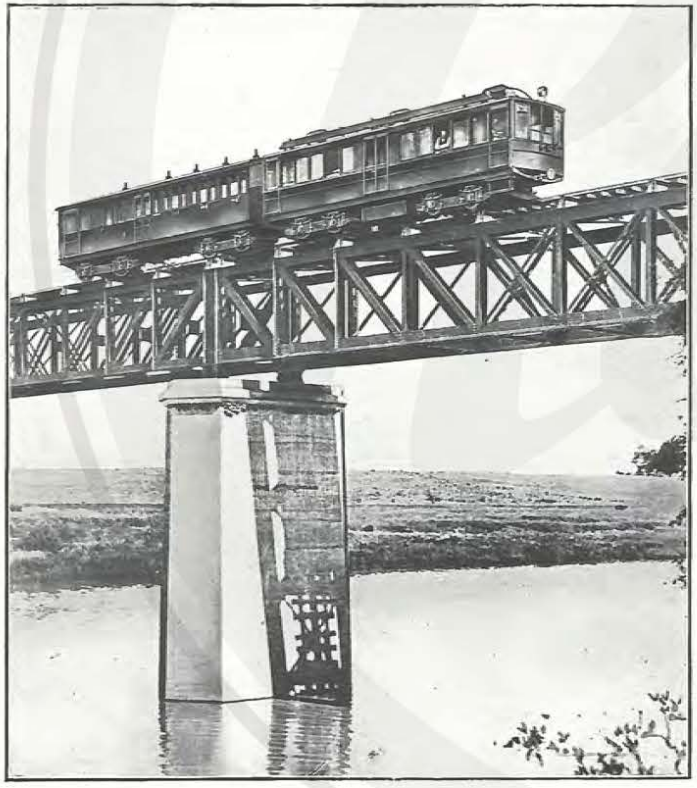


48-60 H.P. Petrol Tram Car to carry 36 Passengers.

Petrol Rail and Tramway Car Section

General

With our unrivalled experience in Heavy Commercial Vehicle design, and with the assistance of one of the leading firms of Tramcar Body Builders, we are enabled to offer Rail and Tramway Motor Vehicles we know to be reliable and economical in work.



South African Car and Trailer on Viaduct.

We installed at Morecambe the first Public Petrol Motor Tramway system approved by the Board of Trade in this country, and this system has been in operation upwards of $2\frac{1}{2}$ years (January, 1914).

The Cars have 55 H.P. 4-cylinder petrol engines, are capable of heavy overloading, and are well patronised as our two pictures testify.

The overall costs of this tramway are about 8d. per mile.

We have also Cars operating satisfactorily over several years in an out-of-the-way part of South America, and in South Africa.

Our Cars are not chain driven with exposed working parts, but vehicles finished in the best style.

Operating figures vary with the service and local conditions, so we have prepared forms for you to give the information to enable us to make up an estimate for you.

Transmission

We use two systems of transmission.

For Cars of moderate weight, say up to 12 tons, and operating at road speed, say up to 20 miles per hour, a petrol engine and a change gear transmission.

Alternatively an electrical transmission, consisting of petrol engine, generator, and various combinations of motors, suitable for high-speed rail vehicles and large bogie tramcars.

Quotations

Conditions vary so much, that almost of necessity cars must be specially designed for the service they are to perform.

Bodies also vary enormously in price, from the Open Toast Rack on four wheels, to the large, elaborately-finished bogie railway saloon, so that no figures are in any sense comparable except to a fixed data.

Fuel

Petrol is the nicest fuel to use, but cheaper grades of Motor Spirit can be employed, and mixtures of petrol and paraffin. Indeed, where long runs are the rule out in the open, the latter fuel can be used almost exclusively, except for starting up from cold.

Explanation of Tables

The following tables have been specially prepared to enable intending purchasers to find out for themselves the speed obtainable on various grades with a given weight and horse power ; alternatively the horse power required for a given weight and speed.

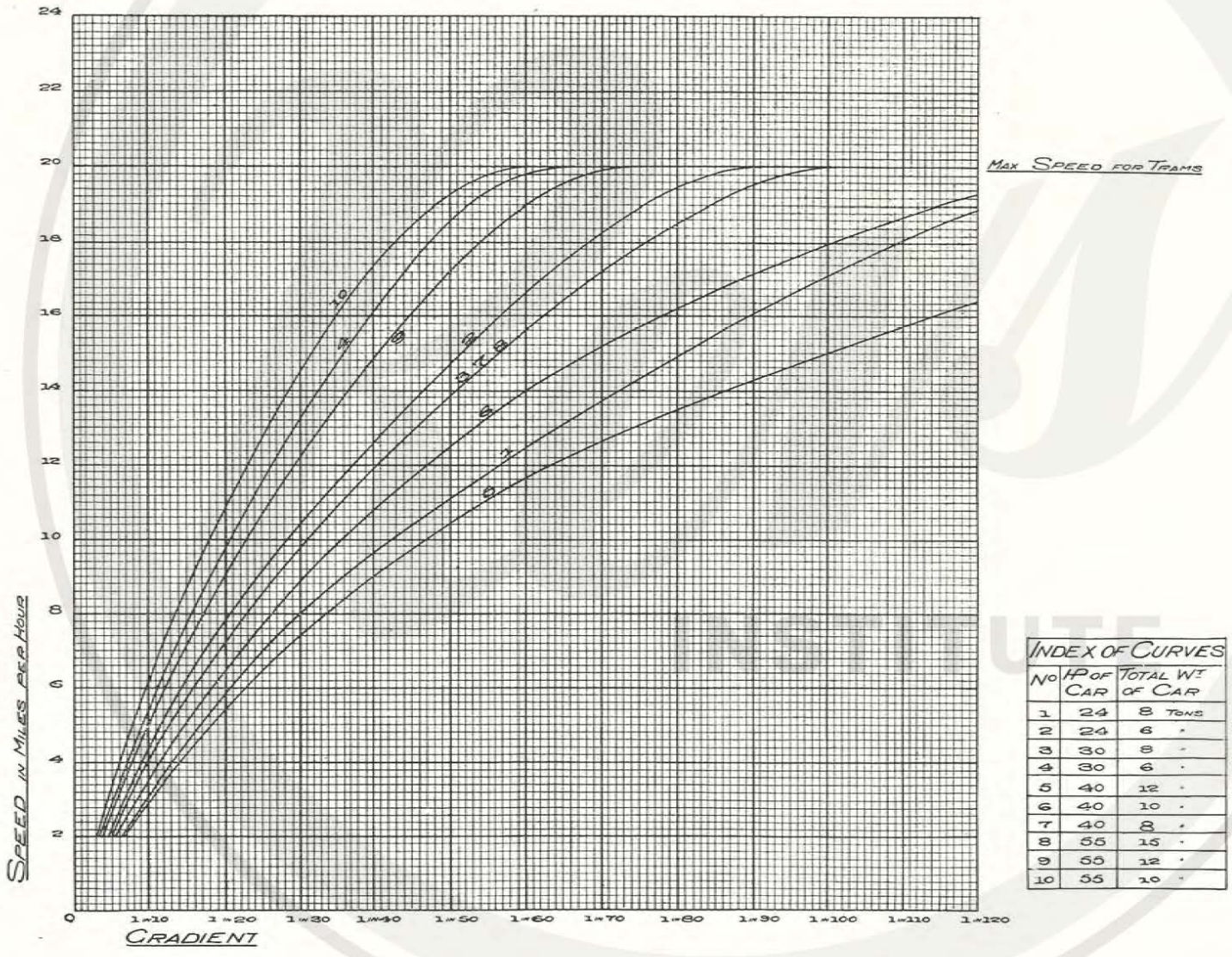
Full allowance has been made for transmission and rail losses so that the power is the rated power of the engine.

The weight taken must be the total weight of car, trailer, passengers, luggage, and any possible overload.

It is usual to estimate one ton as the weight of 16 passengers.

Petrol Tram Cars

SPEED, GRADIENT, AND HORSE-POWER CURVES

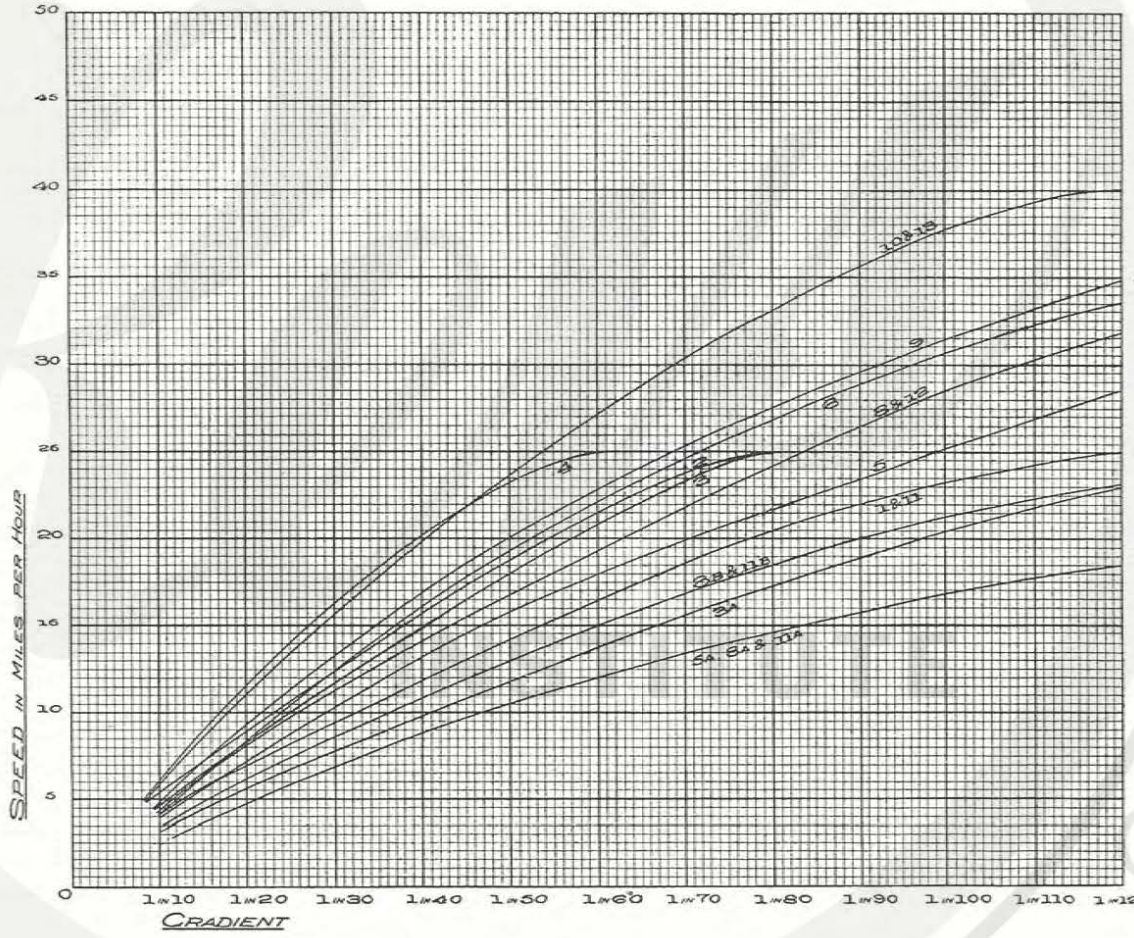


INDEX OF CURVES		
No	HP OF CAR	TOTAL WT OF CAR
1	24	8 TONS
2	24	6 "
3	30	8 "
4	30	6 "
5	40	12 "
6	40	10 "
7	40	8 "
8	55	15 "
9	55	12 "
10	55	10 "

Petrol Rail Cars

SPEED, GRADIENT, AND HORSE-POWER CURVES

Chart for Cars not exceeding 85 H.P.



INDEX TO CURVES		
Nº	HP OF CAR	TOTAL WT CAR OR CARS
1	24	8 TONS
2	24	6 "
3	30	8 "
4	30	6 "
5	40	12 "
6	40	10 "
7	40	8 "
8	55	15 "
9	55	12 "
10	55	10 "
11	85	21 "
12	85	18 "
13	85	15 "
3A	30	12
5A	40	18
8A	55	25
8B	55	20
11A	85	30
11B	85	25

Petrol Rail Cars

SPEED, GRADIENT, AND HORSE-POWER CURVES

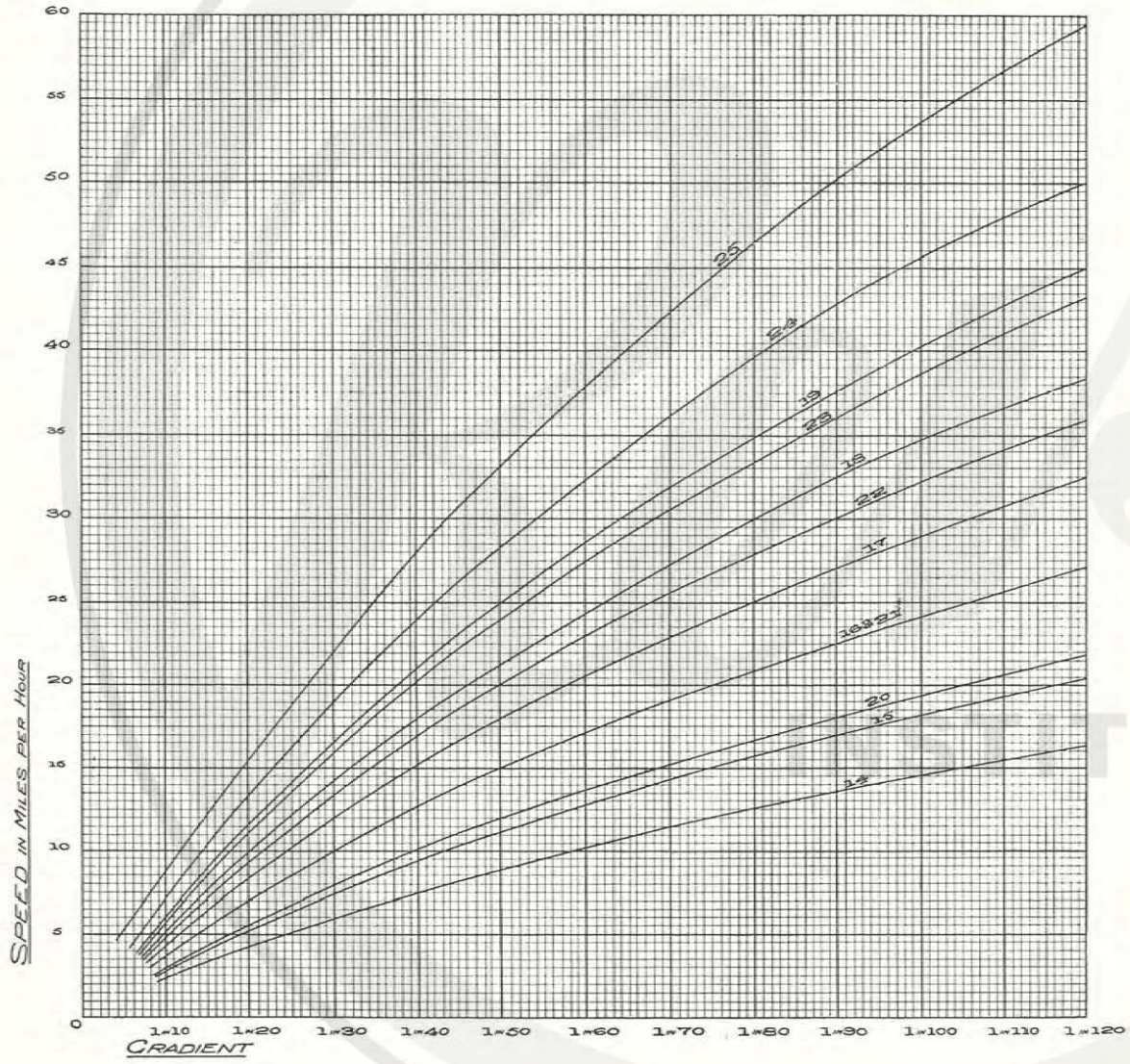
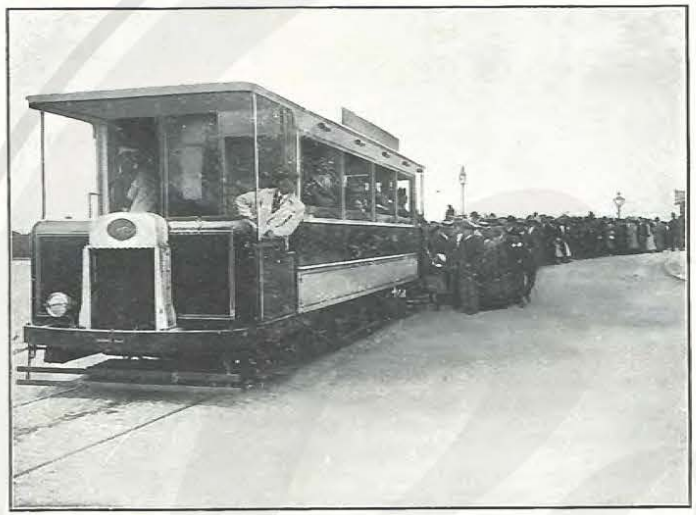


Chart for Cars of 120 H.P. upwards

INDEX TO CURVES		
No	HP OF CAR	TOTAL WT OF CAR OR CARS
14	120	50 TONS
15	120	40 "
16	120	30 "
17	120	25 "
18	120	21 "
19	120	18 "
20	160	50 "
21	160	40 "
22	160	30 "
23	160	25 "
24	160	21 "
25	160	18 "



A Busy Afternoon at Morecambe.

Passengers waiting to Board Cars.

Petrol Consumption and Speed

The petrol consumption varies with the work.

With a 22-28 H.P. Car on a level road with a light body, 18 miles per gallon is possible.

With a 30-35 H.P. Car on a hilly road, 12 miles per gallon can be expected.

The Morecambe Cars, running a short way with halts at each terminal, and over-engined for the overload traffic (up to 70 passengers), do 6 to 7 miles

A similar Railway Car would do from 9 to 12 miles per gallon.

Our large South African Bogie Car, on routes embracing plenty of 1 in 40 grades, including a climb of 1,000 ft. in 42 miles, did on test with a trailer, gross weight 40 tons, 5·7 miles per gallon ; without trailer, gross weight 23½ tons, 8·5 miles per gallon.

	Alone.	With 16-ton trailer.
Speed on 1 in 100	35	27
,, ,, 70	32	25
,, ,, 50	30	—
,, ,, 40	22	—

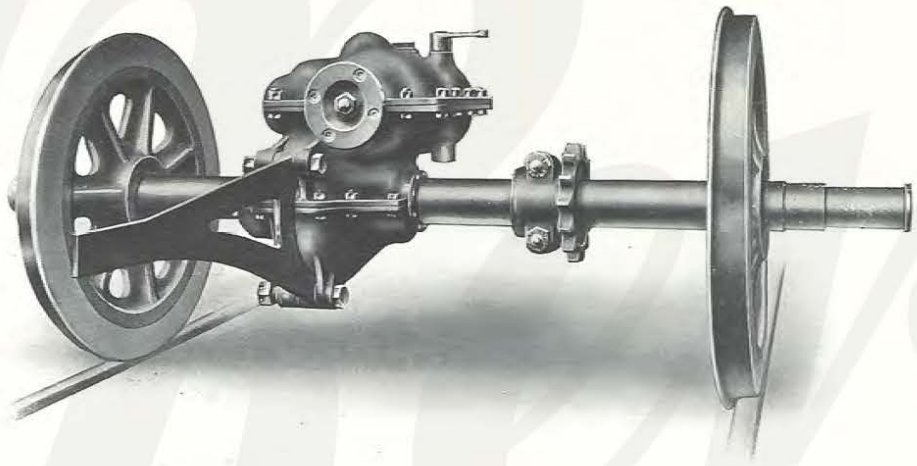
Average speed on a heavy road, alone, 32 miles per hour

The Engine

All these Rail Cars are fitted with " Leyland " four or six-cylinder petrol engines, with enclosed valves all on one side, forced lubrication, pump circulation, dual ignition, and governor.

Axle Gearing

The illustration shows the Driving Axle Gearing of one of our 30-35-H.P. Tramcars. Note the torque rod, the driving shaft, and the reverse lever shown on top.



Petrol Storage

The Petrol Tank goes below the frame, with pressure feed to the carburetter and the radiators at each end of the car, or in larger cars, on the roof.

Improvements

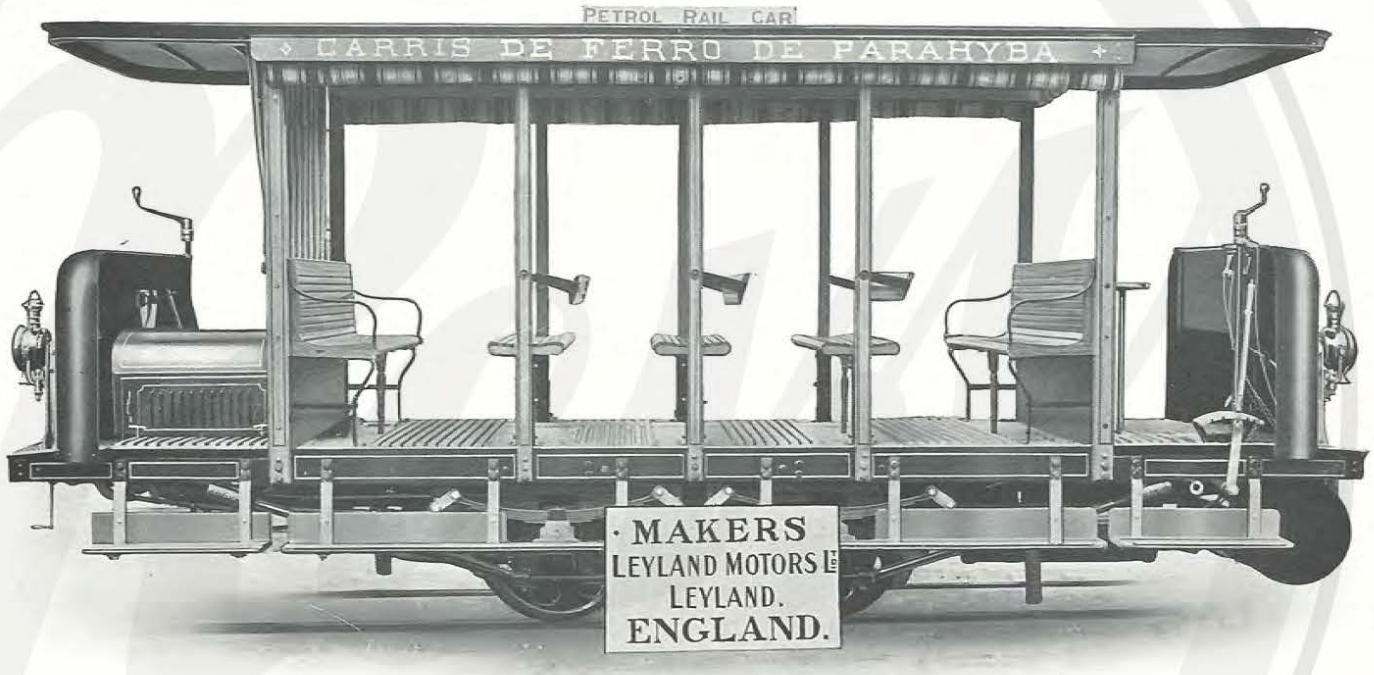
As rapid strides are being made in the manufacture of this class of vehicle, we reserve the right to depart from any specifications so as to incorporate the latest improvements, whilst of course observing the restrictions imposed by the intended service.

Our Enquiry Forms

To save time it is most advisable to get the accompanying Enquiry Form properly filled up with all possible detail and accuracy.

Single-Decked, Open-sided Cross-bench Cars

Illustration is of a 20-Seater with 4-ft. Wheel Base



Specification

Underframe—Mild steel.
Body Frame—Pitch pine and oak.
Pillars—American ash.
Cant Rails—Pitch pine.
Roof Sticks—Ash.
Floor—Pitch pine.
Hand Brake—One block per wheel.
Foot Brake—Acting on transmission.
Wheels—Steel, with steel tyres.

Engine—24 to 55 H.P., 4-cylinder.
Gear Box (a)—4-speed, enclosed gear, drive to one axle.
Control (b)—Both ends.
Seats—Lath, throw-over.
Lamps—Each end.
Life Guards, H. & B. Pattern, included.
Sand Gear—One box per wheel.
Blinds—Spring waterproof fitted.
Gauge—One metre upwards.

Particulars of Rail Cars with cross seats and side entrances

Size	5 Seats.		6 Seats.		7 Seats.		8 Seats.		9 Seats.		10 Seats.	
Passengers	20	25	24	30	28	35	32	40	36	45	40	50
Approx. Tare Weight	5	5	6	6	7	7	8	8	9	9	10	10
Horse Power	22-28	22-28	22-28	22-28	22-28	30-35	30-35	30-35	30-35	30-35	30-35	30-35
Code Word	Dyrebi	Dyrect	Dyreda	Dyrefe	Dyrego	Dyrenu	Dyrepp	Dyrerk	Dyresy	Dyrfah	Dyrfev	Dyrfin
Shipping Specification	850 cu. ft.	875 cu. ft.	900 cu. ft.	925 cu. ft.	950 cu. ft.	975 cu. ft.	1075 cu. ft.	1100 cu. ft.	1125 cu. ft.	1150 cu. ft.	1175 cu. ft.	1200 cu. ft.
Price	£825	£835	£845	£855	£865	£900	£940	£960	£980	£1000	£1110	£1150
Extra for Packing	£30	£30	£30	£30	£30	£40	£40	£40	£45	£45	£45	£45
Extra for Teak	£25	£25	£30	£30	£35	£35	£45	£45	£60	£60	£80	£80
Length over Collision Fenders	20-ft. 0-in.	20-ft. 0-in.	22-ft. 4-in.	22-ft. 4-in.	24-ft. 8-in.	24-ft. 8-in.	29-ft. 0-in.	29-ft. 0-in.	31-ft. 6-in.	31-ft. 6-in.	33-ft. 10-in.	33-ft. 10-in.
Width overall	6-ft. 6-in.	7-ft. 8-in.	6-ft. 6-in.	7-ft. 8-in.	6-ft. 6-in.	7-ft. 8-in.	6-ft. 6-in.	7-ft. 8-in.	6-ft. 6-in.	7-ft. 8-in.	6-ft. 6-in.	7-ft. 8-in.
Wheel Base	4-ft. 6-in.	4-ft. 6-in.	5-ft. 0-in.	5-ft. 0-in.	6-ft. 0-in.	6-ft. 0-in.	7-ft. 0-in.	7-ft. 0-in.	8-ft. 0-in.	8-ft. 0-in.	10-ft. 0-in.	10-ft. 0-in.
Bogie Centres	Where sharp curves have to be negotiated it is essential that the larger cars should have bogies.								16-ft. 0-in.	16-ft. 0-in.	18-ft. 0-in.	18-ft. 0-in.

Note.—The overall widths vary slightly according to the gauge.

EXTRAS.	Code Word.	Price.
		£
Drive to both axles of four-wheeler (a)	Dyrfod	30
Drive to two axles of eight-wheeler	Dyrful	50
Double Bogie Trucks to the larger size cars	Dyrfye	200
30-35 H.P. instead of 22-28 H.P. Engine	Dyrgab	25
40-50 H.P. instead of 30-35 H.P. Engine	Dyrged	50
48-60 H.P. instead of 30-35 H.P. Engine	Dyrgow	125
Allowance for Control at one end of car only (b)	Dyrguf	16

Single-Decked Open Car with end entrances

Illustration is of a 36-Seater 8-ft. 0-in. Wheel Base

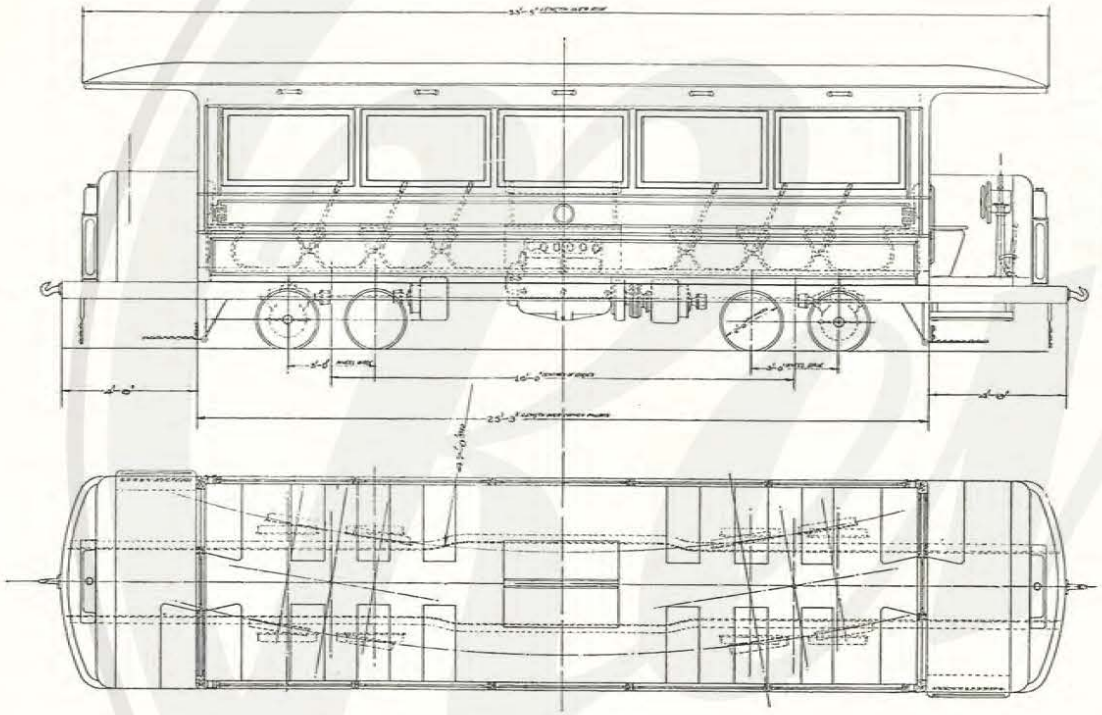
Description These Cars are similar to those on the preceding page, but have the width of the wide cars with the capacity of the narrow cars, due to the space occupied by the central gangway.

Price The price of this type of car is 5% more than the preceding model.

Code Word **Dyrhap.**

Approximate Shipping Specification Same as for preceding model.

Single-Decked Closed Petrol Tram Car



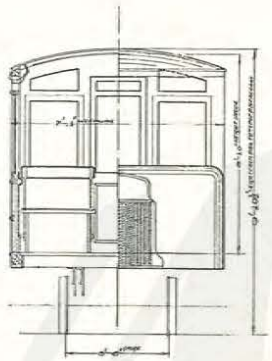


Illustration represents a Cross-seated Car, seating 40 passengers and mounted on two Trucks

The illustration shows Electrical Drive which is an extra

Description

These vehicles are generally as above for long cars, or like the coloured plate of Morecambe Car when fitted with four wheels only. The four wheeler, on account of price, and for other reasons, is to be preferred when it is practicable to adopt it.

Specification

Underframe—Mild steel.
Body Frame—Pitch pine and oak.
Panels—Canary.
Inside—Oak tongued and grooved boards.
Roof—Frame to view inside.
Ventilators—Over each window.
Windows—Plate glass, fixed.
Hand Brake—One block per wheel.
Foot Brake—Acting on transmission.
Wheels—Steel, with steel tyres.
Engine—30 to 55 H.P., 4-cylinder.

Gear Box—Four-speed in either direction.
Transmission (a)—Enclosed gear drive to one axle.
Control (b)—Both ends.
Seats (c)—Lath, throw-over.
Lamps—Each end and inside, acetylene, or electric with accumulators.
Life Guards—H. & B. Pattern included.
Finish—Oak, with brass furniture.
Sand Gear—One box per wheel.
Blinds—Extra.
Gauge—One metre and upwards.

Single-Decked Closed Petrol Tram Car

Size	7 Seats.	8 Seats.	9 Seats.	10 Seats.	11 Seats.	12 Seats.
Passengers	28	32	36	40	44	48
Approximate Tare Weight	8 tons	8½ tons	9 tons	10½ tons	14½ tons	15½ tons
Horse Power	30-35	30-35	30-35	40-50	40-50	40-50
Code Word	Dyribo	Dyrick	Dyride	Dyrifa	Dyrilt	Dyring
Shipping Specification	2200 cu. ft.	2300 cu. ft.	2400 cu. ft.	2500 cu. ft.	2600 cu. ft.	2700 cu. ft.
Price	£900	£1000	£1150	£1300	£1600	£1750
Extra for Packing	£50	£50	£55	£55	£70	£70
Extra for Teak	£60	£70	£80	£90	£100	£110
Length over Collision Fenders	24-ft. 8-in.	29-ft. 0-in.	31-ft. 6-in.	33-ft. 10-in.	36-ft. 2-in.	38-ft. 6-in.
Width overall	7-ft. 8-in.	7-ft. 8-in.	7-ft. 8-in.	7-ft. 10-in.	7-ft. 10-in.	7-ft. 10-in.
Wheel Base	6-ft. 0-in.	7-ft. 0-in.	8-ft. 0-in.	10-ft. 0-in.	16-ft. 0-in. (bogie).	18-ft. 0-in. (bogie).

EXTRAS.	Code Word.	Price.
Better interior finish, millboard ceiling, etc., including Preston Patent Double Windows :—		
9-seater downwards	Dyriky	£85
10-seater, upwards	Dyrips	£115
Dynamo Outfit for self-contained lighting	Dyrism	£35
Drive to both axles of four-wheeler (a)	Dyritu	£30
Drive to two axles of eight-wheeler	Dyrjag	£50
Rattan Seats, per passenger (c)	Dyrjef	7/6
Fully Upholstered Seats in Rexine, per passenger	Dyrjil	10/6
Fully Upholstered Seats in Hide, per passenger	Dyrjor	12/6
Inside Blinds, per blind	Dyrjup	8/-
Lantern Ventilator Roof, with best fittings	Dyrkai	£50
Control from one end only, allowance (b)	Dyrkep	£16
Electric Transmission for the Bogie Cars, 40 H.P.	Dyrkif	£700
Straight Self-contained Air Brake Set	Dyrkob	£95

Double-Decked Closed Petrol Tram Cars

Description

We have no space for an illustration, but the cars are similar to those on the preceding page, except that a certain amount of interior accommodation is sacrificed at the engine end of the vehicle for one of the staircases. This is compensated for by the extra seating capacity of the top deck, which is carried over both platforms, so that the accommodation of a Double-decked Car is rather more than that of a single decker.

Seating

The top seats are of the narrow lath-on-end pattern, with throw-over backs. Brass top rails, iron lower rails, nettings, advertisement boards, and other usual details, including two top-deck pillar lamps, when lighting is included in the price, are supplied.

Price

For a Double-decked Car with open top, add 7½ per cent, to the price for a car of similar length and wheel base, on page 136. CODE WORD—**Dyrkud.**

For Double-decked Car with top canopy and let-down windows, add 15 per cent. to the price for a car of similar length and wheel base, on page 136. CODE WORD—**Dyrkul.**

Destination Indicators

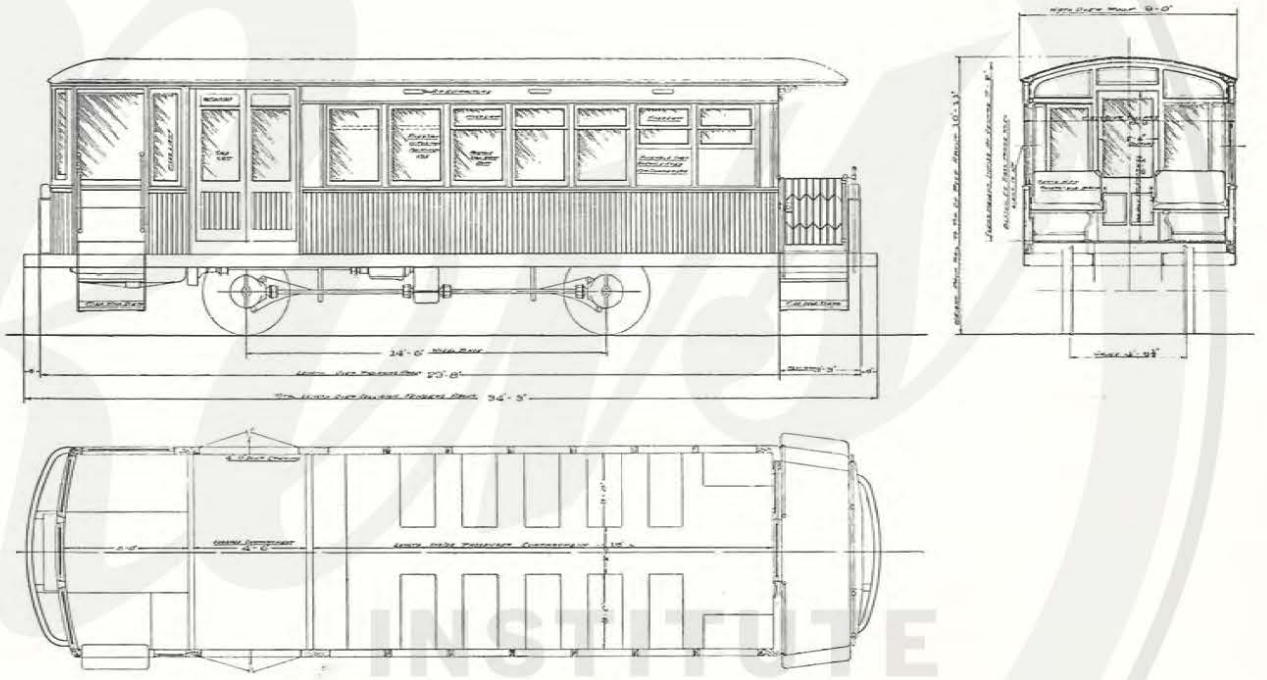
Revolving blind type Indicators, with electric lights, when car lighting is included, will be supplied at **£4 15 0** each. CODE WORD—**Dyrkya.**

Life Guards

Regulation Life Guards for both ends of all tram cars in this list are included in the prices.

Four-Wheeled Petrol Railway Car

Illustration of 29-Passenger Vehicle



Description

The Cars described are on railway lines, much heavier, all of hard wood, with larger wheels, wider tyres, and generally suited to high-speed work.

The floor level is higher, and suitable steps are fitted at both ends, and accommodation for luggage.

Four and Eight-Wheeled Petrol Railway Cars

Specification

Underframe—Mild steel, oak and teak.
Body Frame—Pitch pine, oak and ash.
Pillars—Ash.
Cant Rails—Pitch pine.
Roof Sticks—Ash.
Floor—Pitch pine.
Sides—Tongued and grooved teak.
Windows—Mahogany frames.
Ventilators—Above windows.
Inside Finish—Millboard, oak, brass.
Lighting—Electric, by belt-driven dynamo.
Luggage Compartment provided.
Central Spring and coupling gear fitted as standard.

Engine—30 to 85 H.P., 4-cylinder.
Transmission—Four speeds in either direction.
Control—Both ends alike.
Hand Brakes—One block per wheel, spindle handle.
Foot Brake—On transmission (not fitted with power brake).
Power Brake—Vacuum or Westinghouse.
Wheels—All steel, with steel tyres, 3-ft. 3-in. diameter.
Sand Gear—One box per wheel.
Gauge—One metre upwards.
Heating—By pipes in the water circulation.
Seats—Rattan.
Blinds—Spring, of duck.

Passengers	20	29	37
Approx. Tare Weight	11 tons.	13½ tons	18 tons
Horse Power	40-50	48-60	70-85
Length over Collision Fenders	28-ft. 0-in.	34-ft. 3-in.	41-ft. 6-in.
Width overall	9-ft. 0-in.	9-ft. 0-in.	9-ft. 0-in.
Wheel Base	10-ft. 0-in.	14-ft. 6-in.	20-ft. 0-in. (bogie)

Passengers	20	29	37
Code Word	**Dyrkya**	**Dyrlac**	**Dyrleh**
Shipping Specification	2200 cu. ft.	2500 cu. ft.	2800 cu. ft.
Price	**£1350**	**£1600**	**£2100**
Extra for Packing	**£90**	**£100**	**£120**

The two first cars have four wheels, the latter preferably bogies, and is so quoted.
The quoted prices include power brakes.

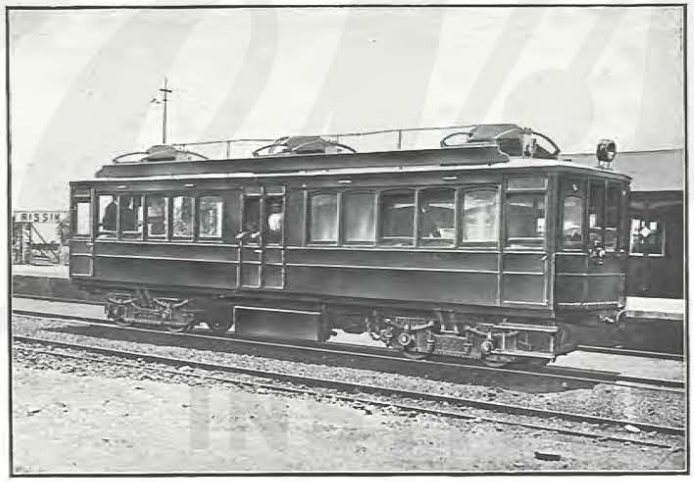
EXTRAS.

	Code Word.	Price.
		£
Compressed Air Starter	**Dyrlid**	70
Allowance or addition if 55 H.P. is replaced by 85 H.P. engines	**Dyrlop**	125
Extra for drive to both axles	**Dyrluk**	50
Extra for drive to both bogies	**Dyrlyc**	90
Allowance for control at one end only	**Dyrmac**	20
Electric transmission with motors on two axles, including self-starting for engine	**Dyrmeg**	800

Large Eight-Wheeled Petrol Electric Railway Cars

These Cars are full-sized railway vehicles on eight wheels, with engine and generator in the centre, or over one bogie. They are all built of hard wood, and have electrical transmission with motors on two axles. Pilot engine for air brake, lighting, generator exciting, and to start the large engine.

Luggage accommodation is provided, and other accommodation as required.



The prices given are only approximate. Full particulars of requirements should be sent, when correct prices will be quoted.

The prices include rattan seating and polished oak inside finish, spring blinds, driver's compartments, hand and air brakes, air whistle, air-operated sand gear, etc. The bogies are easy riding, with equal-sized wheels, 3-ft. 3-in. diameter, and heavy axles on which the motors are mounted. The vehicles are carefully sprung, and any draw gear provided will be fitted free of charge.

Petrol Electric Cars for Railway Service

PETROL
RAIL CARS

High-Speed Bogie Rail Car, 3-ft. 6-in. gauge, 160 H.P. 42 Passengers and Luggage.

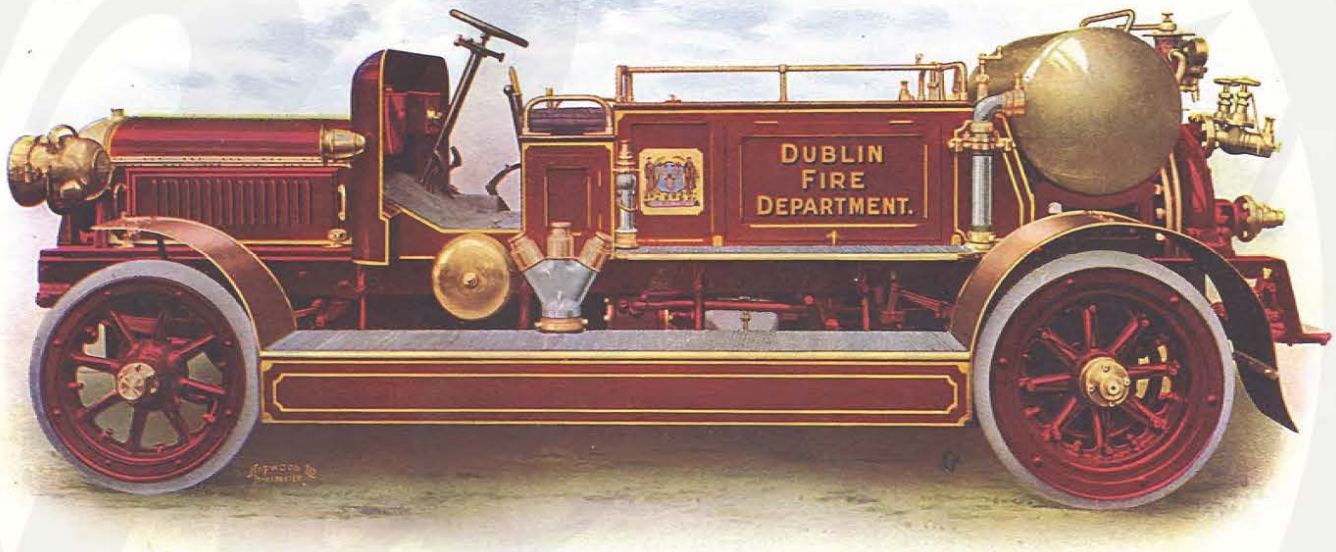
Passengers	**42**	**56**	Passengers	**42**	**56**
Approx. Tare Weight	24 tons	30 tons.	Code Word	**Dyrmio**	**Dyrmox**
Horse Power	120	160	Shipping Specification	3750 cu. ft.	4800 cu. ft.
Length over Collision Fenders	38-ft. 6-in.	59-ft. 6-in.	**Price**	**£3200**	**£4350**
Width overall	8-ft. 7-in.	10-ft. 0-in.	Extra for Packing	**£150**	**£200**
Wheel Base	22-ft. 6-in.	39-ft. 0-in.			

Large Bogie Petrol Electric Car

(CONTROL FROM ONE END)

EXTRAS

	Code Word.	Price. From	Price. To
Lantern Roof	Dyrmum	£65	£80
Hide Seating	Dyrmyf	£18	£24
Lavatory	Dyrnad	£20	£20
Better finish	Dyrnec	£60	£80
Double extra deep Windows, Preston Patent	Dyrnig	£60	£80
Control one end (allowance)	Dyrnos	£70	£70
Outer Windows for cold climate	Dyrnuv	£36	£45



Standard Leyland Fire Engine with First-aid Outfit.

Fire Engine Price List

Description.	Capacity in gallons per minute at			Engine.	Page.	Shipping Specification.		Code Word.	Price.	Extra for Packing.
	160-lbs. per sq. in.	120-lbs. per sq. in.	80-lbs. per sq. in.			Cu. ft.	Lift, in tons			
Large	570	600	850	6 cyl., 70-85 H.P.	156	900	7	**Dyrnyb**	**£1250**	**£40**
Standard	380	425	580	4 cyl., 48-60 H.P.	158	800	6	**Dyrobe**	**£1050**	**£35**
Medium	300	375	400	4 cyl., 40-50 H.P.	160	800	6	**Dyrocu**	**£975**	**£35**
Small..	190	225	275	4 cyl., 30-35 H.P.	162	700	5	**Dyrodo**	**£820**	**£30**
Turntable Escape	—	—	—	4 cyl., 48-60 H.P.	—	900	7	**Dyrofi**	**£1050**	**£40**
Large Tender ..	—	—	—	4 cyl., 40-50 H.P.	164	800	5	**Dyroga**	**£835**	**£35**
Small Tender ..	—	—	—	4 cyl., 30-35 H.P.	165	750	4	**Dyromy**	**£710**	**£35**

We were one of the first firms to enter the Motor Fire Engine business, and delivered our first engine to Dublin over four years ago. Time has shown the efficiency of the "Leyland" combination, and repeat orders from Dublin, London, and elsewhere keep coming to hand.

We make a full range of Fire Engines, Tenders, etc., Motor Ambulances being dealt with in the Municipal Section.

Horse *v.* Motor

With the old, heavy, horse-drawn engine it was impossible to protect rural and outlying districts, but with the advent of the motor all this has been changed. A motor-equipped station is a good protection within a radius of 10 miles, and of great use at even a greater distance.

Central Brigades

The consequence of this is that: (1) Towns can now partly support their brigade from the contributions of outlying districts; (2) Various scattered rural areas and villages can club together and form a central station; (3) County Councils must consider the establishment of central brigades to serve the whole county as a charge on the general fund.

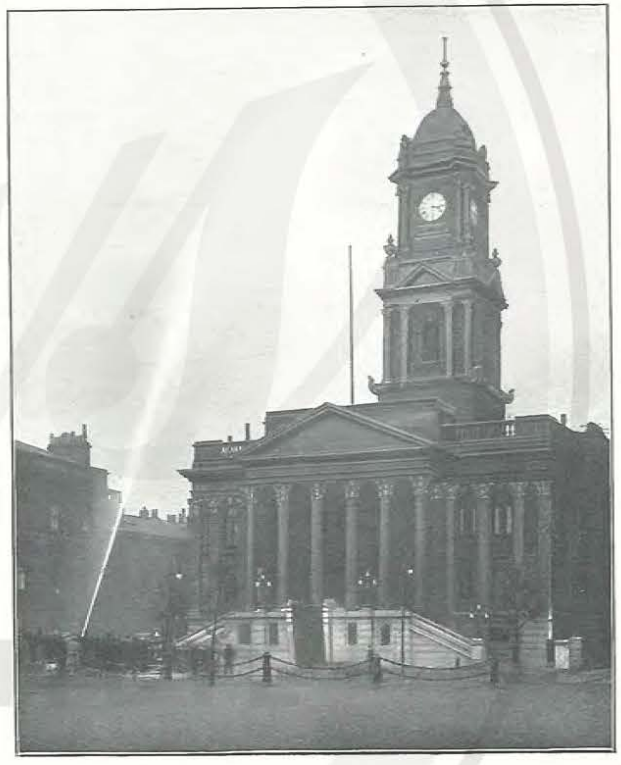
To form a rough guide to County Councillors and others about to study this important problem, the following estimates have been prepared—all of them based on the modest rate of one penny in the £1, which surely no one would grudge for adequate fire protection.

"Economic" Motor Fire Brigade

(VOLUNTEER)

FOR SEMI-RURAL DISTRICTS.

Population, 10,000. Rateable value, £65,000. Fire Brigade Rate, 1d.

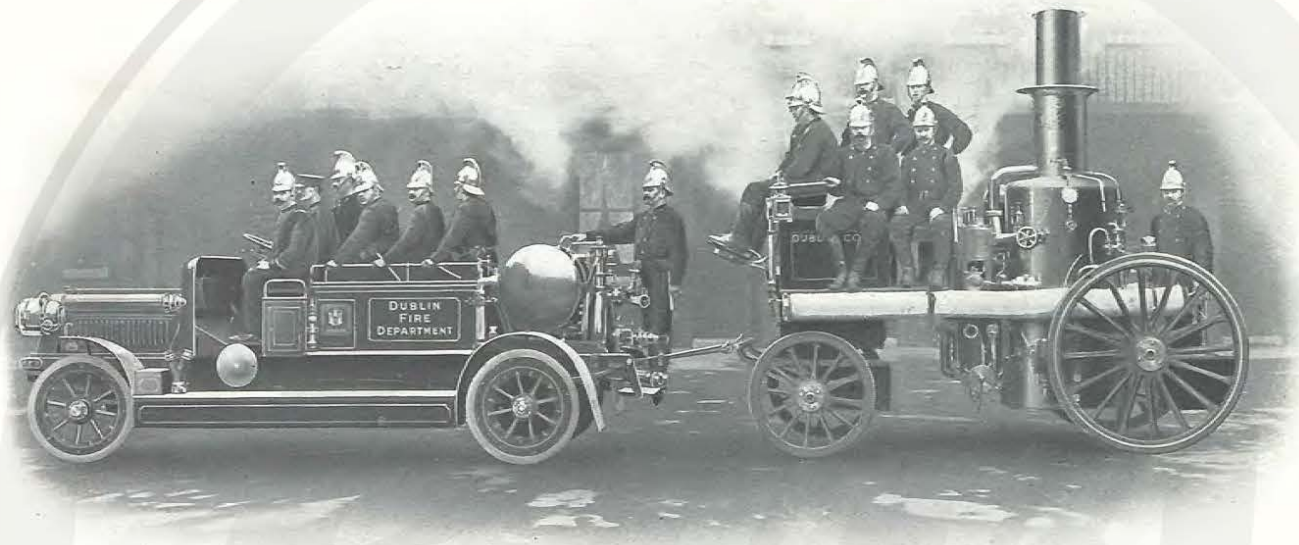


EQUIPMENT :—

	£
"Leyland" 225-gallon Fire Engine, including first-aid set and ladder	850
Hose and appliances	55
Uniforms, etc.	40
	£945

ANNUAL EXPENDITURE :—

	£
Repayment of loan within 10 years, with interest at 4½% per annum	140
Upkeep of motor and tyres	20
Petrol, lubricants, etc.	10
Rent of premises	20
Retaining Fee for care of engine	20
Insurance expenses	20
Retaining Fee and allowance to six men at £2	12
Retaining Fee and allowance to six reserve men at £1	6
Lighting and heating engine house	18
Upkeep of appliances	15
Total	£281



Dublin
Engine
Towing
Steamer

This interesting photo. well illustrates what a "Leyland" Motor Fire Engine can be made to do. It is trailing an old horse-drawn steamer and seven men with ease.

Fire Brigade for Medium-sized Towns and Federated Rural Areas

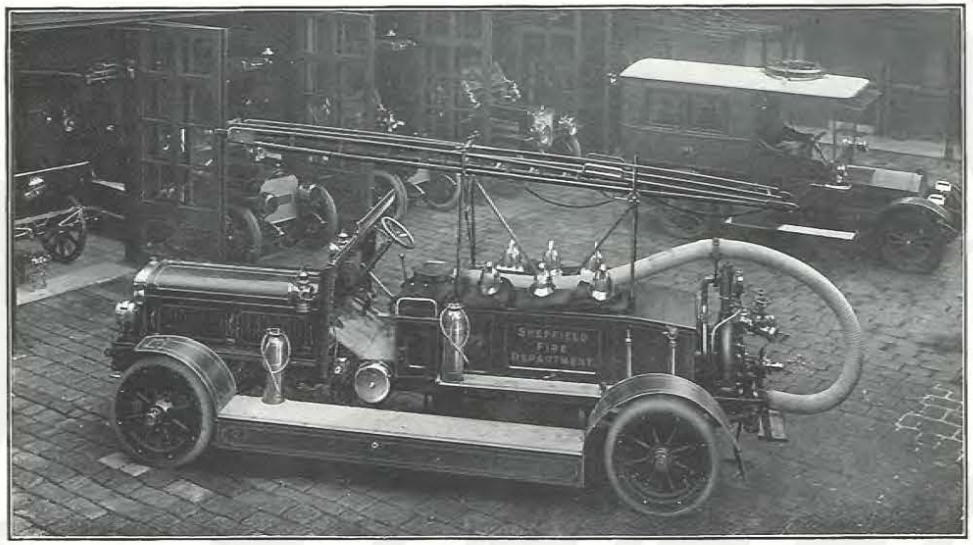
(VOLUNTEER CREW WITH SALARIED OFFICIALS).

Population, 26,000. Rateable value, £182,000. Fire Brigade Rate, 1d.

EQUIPMENT :—	£
"Leyland" Standard 400-gallon Fire Engine	1050
First Turn-out Machine for hose with Ajax ladder and first-aid outfit	738
Hose and appliances	100
Uniforms	100
	£1988

ANNUAL EXPENDITURE :—	£
Repayment of loan in 10 years, with interest at 4½% per annum	250
Upkeep of machines	70
Petrol and lubricants	25
Rent	50
Insurance	35
Chief Officer	150
Engineer	75
Retaining Fee and drill allowance for four motor drivers at £10	40
Retaining Fee and drill allowance for 10 men at £2	20
10 reserve men at £1	10
Lighting and heating station	8
Renewal of apparatus	40
Total	£773

This view shows Extension Ladder



6-cylinder, 600-gallon Engine, with Telescopic Ladder.

Estimate for Town Fire Brigade (Professional)

Population, 90,000. **Rateable value, £650,000.** **Fire Brigade Rate, 1d.**

EQUIPMENT :—	£
" Leyland " 600-gallon Fire Engine with ladder	1286
" Leyland " 300-gallon Fire Engine with wheeled-escape and first-aid set	1090
Motor ambulance	550
Run-about car for Chief	350
Appliances and hose	250
Uniforms	175
Station and equipment	4000
	£7701

ANNUAL EXPENDITURE :—	£
Repayment of loan in 10 years, with interest at 4½% per annum	925
Upkeep of machines	145
Insurance	100
Petrol	75
Renewals of equipment	100
Chief Officer	250
Second Officer	125
Chief Engineer	100
Second Engineer	75
12 men at 30/- per week	936
10 reserve men at a retaining fee of £2 per year	20
Lighting and heating of station	20
Total	£2871

General Specification of "Leyland" Fire Engines

Engine

By far the most important consideration in choosing a Motor Fire Engine is the motor. Without a good, reliable and economical motor the rest of the outfit is useless.

The "Leyland" 4 and 6-cylinder engines are well known. They are built in our own works, and the components are in daily use on standard Commercial Motors, consequently spares are always stocked and can be supplied on the shortest notice. The crankcase has large inspection doors, and the valves are covered in. The magneto is watertight, and the ignition in duplicate.

The Transmission

We have adopted the single gear between the engine and pump because the high-speed pump with gear is more economical than a slower pump direct driven, and because the direct drive to the axle is the most efficient and quietest road transmission. The pump gear is inserted and withdrawn from the driver's seat.

The Chassis

We use for our fire engines, except the small size, our 3-ton gear drive chassis with central pivot steering.

The engine and chassis are employed at least 300 times for first-aid purposes and for small fires to one time when it is necessary to use the main pump.

The Reciprocating Pump v. the Turbine

The Petrol Engine is essentially a high-speed motor, and consequently is most advantageously connected to a high-speed pump. There is no mechanical objection to a high-speed pump of the rotary type running on ball bearings, and with no valves to get out of order.

The turbine is as efficient as the best reciprocating pump, and has many advantages, such as continuous flow, absence of vibration, automatic load adjustment, absence of valves, byepass, and all reciprocating wearing parts, economy of suction and delivery hose, etc.

The Rees Roturbo v. the Velocity Turbine

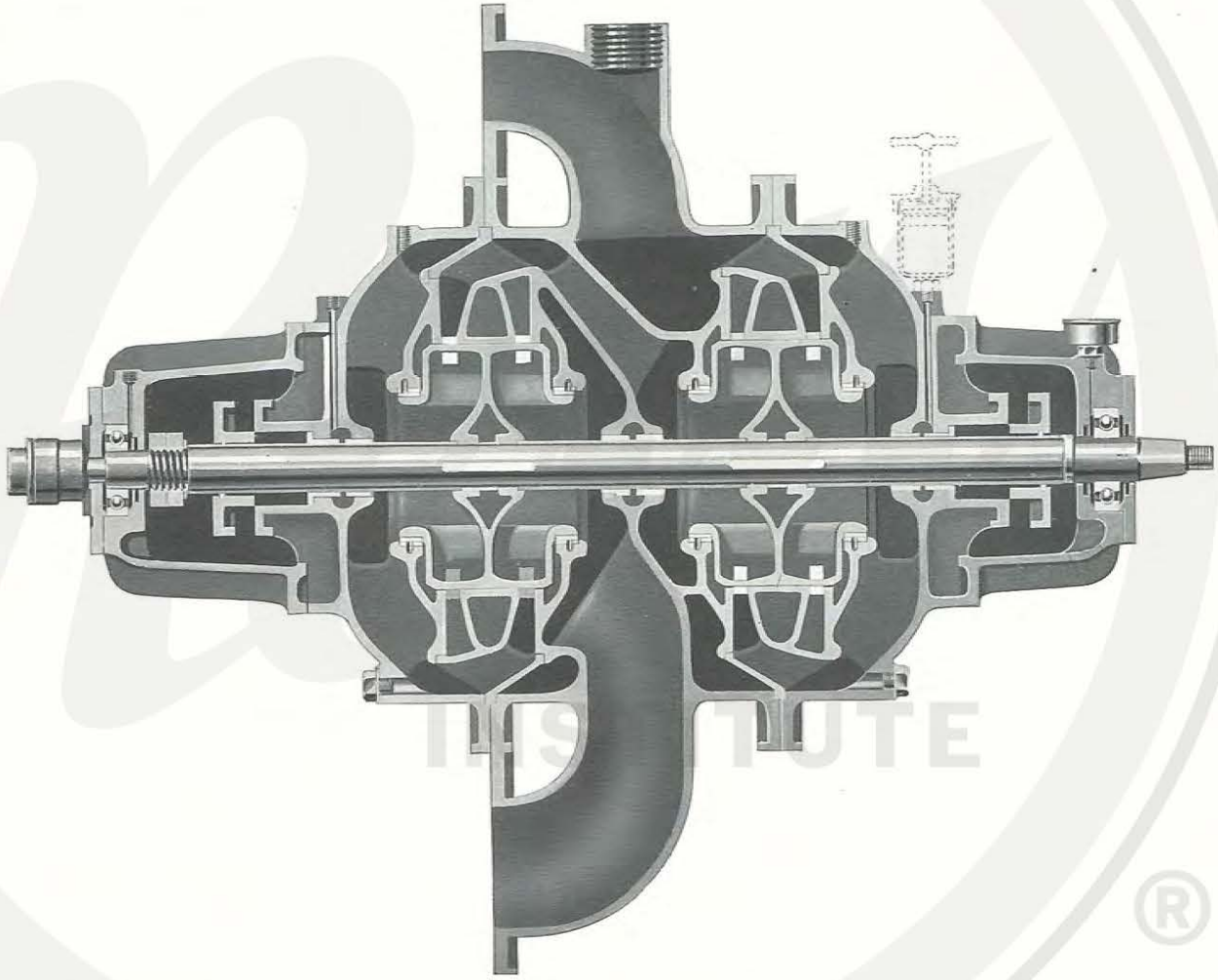
The fundamental difference between the Rees Roturbo, and the ordinary turbine pump, is in the impeller, which, instead of being constructed to create velocity in the impeller, is built in the form of a drum, the rotation of which creates a constant pressure energy at the periphery, equivalent to the delivery pressure required. The result of this construction is that the water on its way through the impeller is appreciably stilled, thus minimising wear, reducing friction losses, and consequently increasing the efficiency of the pump.

The Pump

The compact design and the general arrangement of the pumps are clearly shown by the outside view, and in greater detail in the sectional drawing.

Round the periphery of the drum, reaction turbine nozzles are arranged, and should the head against which the pump is operating be reduced, the energy in the extra volume of water which the pump then deals

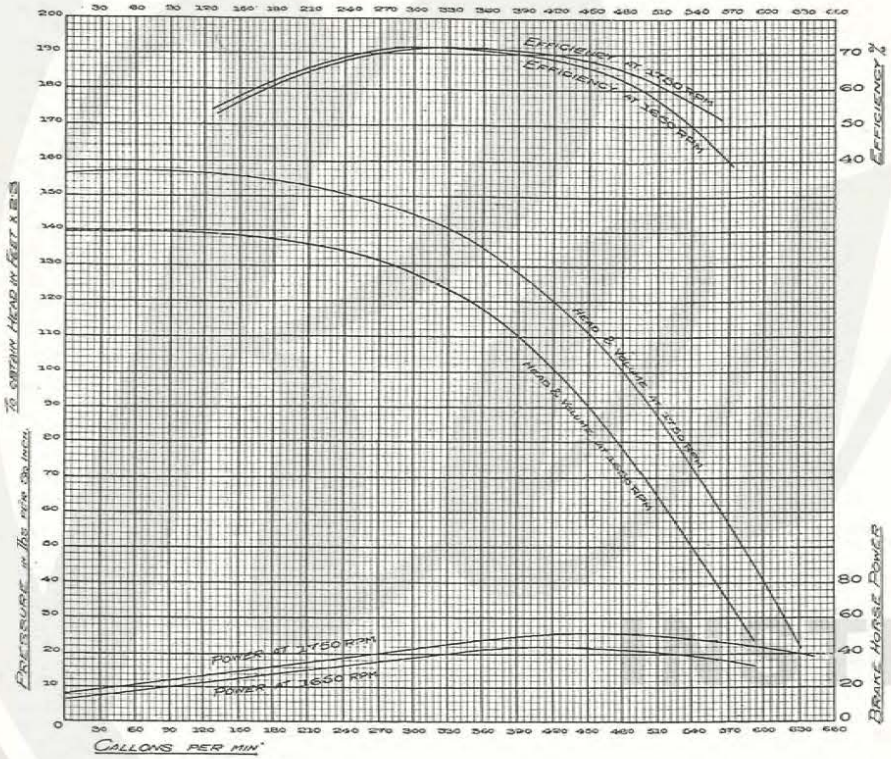
The Turbine



with, is utilised in these turbine nozzles to assist in the driving of the impeller, thus preventing any overloading of the driving mechanism, and maintaining the efficiency of the pump over wide variations of head.

For Fire Pumps this feature cannot be over-emphasised, as it makes it possible to use alternatively either a small number of jets at the top of a building, or a greater number of jets on lower stories, without any regulation of the driving mechanism being necessary.

Self Regulation



Efficiency Output Horse-Power Curve for Standard Pump

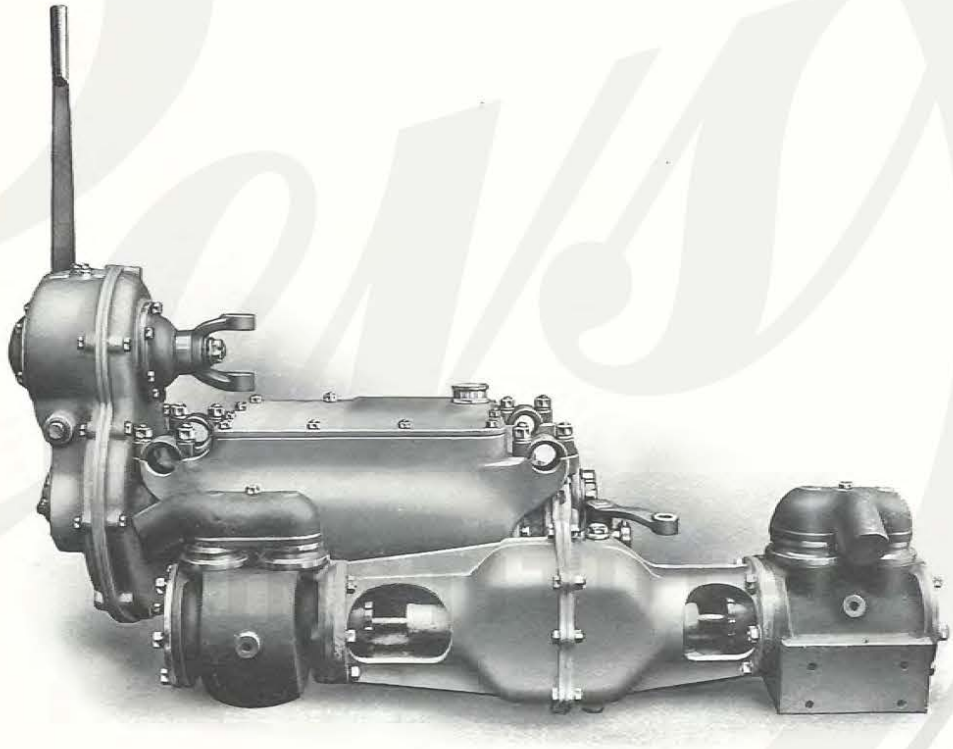
When the water leaves the revolving drum, part of its pressure energy is converted into velocity in the turbine nozzles, which velocity is re-converted into pressure in the guide channels which are mounted on the fixed casing and situated at some distance from the revolving pressure drum, thereby greatly reducing wear and tear, and tending to give permanent efficiency. This claim has been emphatically demonstrated by tests taken on high-lift pumps, after continuous service of over three years, under bad conditions.

Material

The pumps are gun-metal throughout, balanced, with exterior ball bearings and nickel-steel, gun-metal sheathed spindle.

The Priming Apparatus

This consists of a twin cylinder, double-acting air pump connected by a large pipe to the suction side of the main pump. Vacuum gauge, 5-in. diameter, in protected gun-metal case is mounted and connected to same.



Driving Gear

The drive for the main pump and for the air exhauster is indicated by the shape of the casings in the accompanying view. The main gear is, roughly, two to one spur gear. The exhauster gear, one pair of spiral gears.

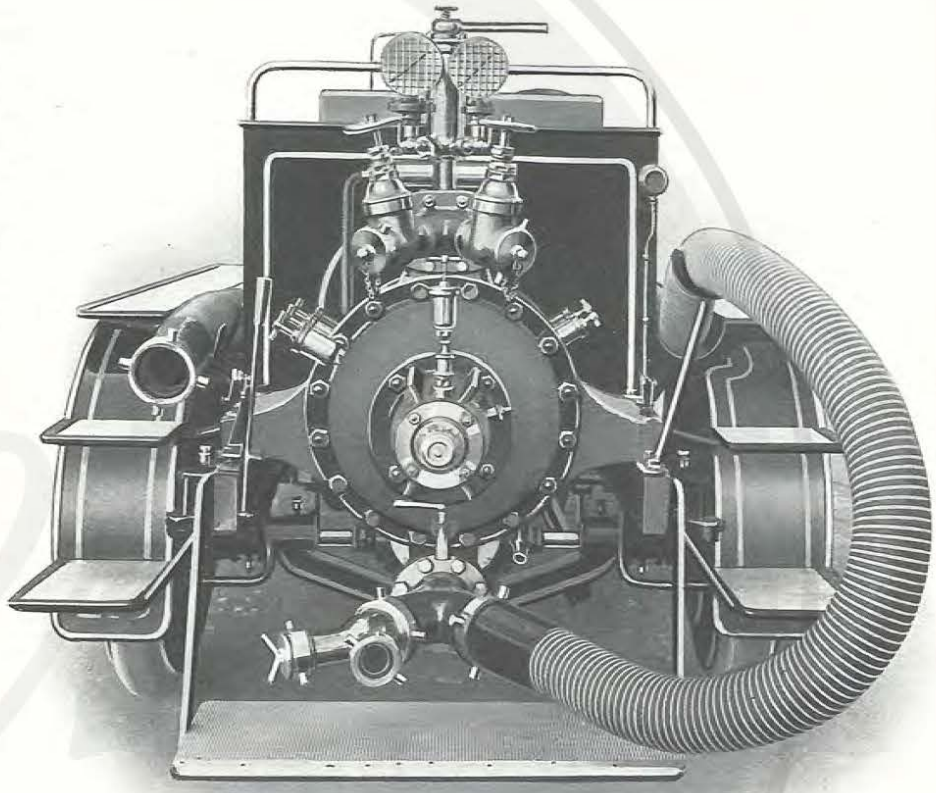
In duplicate with watertight Bosch Magneto.	**Ignition**
Zenith, jacketed.	**Carburetter**
Tubular, polished, easily repaired and plugged.	**Radiator**
A special two-way valve is provided on the turbine pump casing for the purpose of directing the supply of water under pressure from the main pump into one of the two filters, either of which can be cleaned whilst the other is in operation. From these filters the water passes into the engine circulation to enable it to keep cool when pumping at full power.	**Radiator Cooling**
Where salt water has to be pumped we fit a special branch to feed the radiator from a hydrant with fresh water. (Salt water should never be put in the radiator except in great emergency).	**Jacket Water**
The whole apparatus is so designed that one man can take full charge both of the engine and the pump from the pump end of the vehicle.	**Engine and Pump Control**
Pressed nickel steel.	**Frame**
Central pivot, most advantageous for high-speed heavy vehicles.	**Front Axle**
" Leyland " 3-Ton, all-gear-drive type.	**Back Axle**
The body is of seasoned hard wood, independent of the chassis frame, with false bottom for access to the gearing. The top is slightly sloped to draw off wet, and the seats are composed of light lath frames. There are substantial brass hand rails and kicking plates. Entrance is gained to the box through panelled locker doors each side, with automatic catches. Hose capacity, 1,500-ft. of $2\frac{3}{4}$-in. hose in 75-ft. lengths.	**Body**
Long hard wood boxes, strongly built, are provided, forming steps between the mudguards on either side of the vehicle, and of sufficient capacity to hold the whole of the suction hose if desired, or alternatively, sundry fire appliances, accumulators, etc.	**Steps and Side Boxes, &c.**

The boxes are supported on strong brackets so that a large number of men can stand on them with safety. They are arranged to prevent the ingress of water to the contents, covered with rubber or aluminium matting as preferred, and finished with polished brass nosings.

Mudguards These are of sheet steel, strengthened, beaded, and fitted with side and front wings to prevent mud reaching the body work.

Painting Very best colour and finish. Lettering included, but transfers of Coats of Arms to be supplied by purchaser.

The foot boards in front, also the rear step, are also finished in the same way.



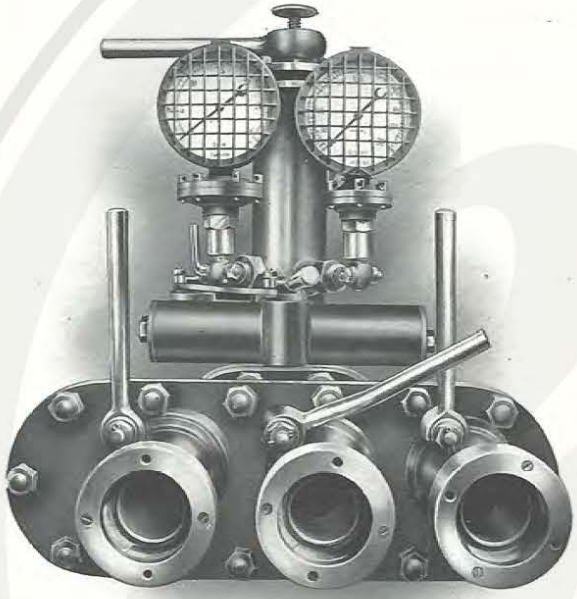
Illustrating double suction breeching to adapt London Standard small hose.

Lamps Our Standard consists of all brass paraffin side and tail lamps (the latter with electric adapter), electric head lamps, accumulator in teak case, and spare accumulator.

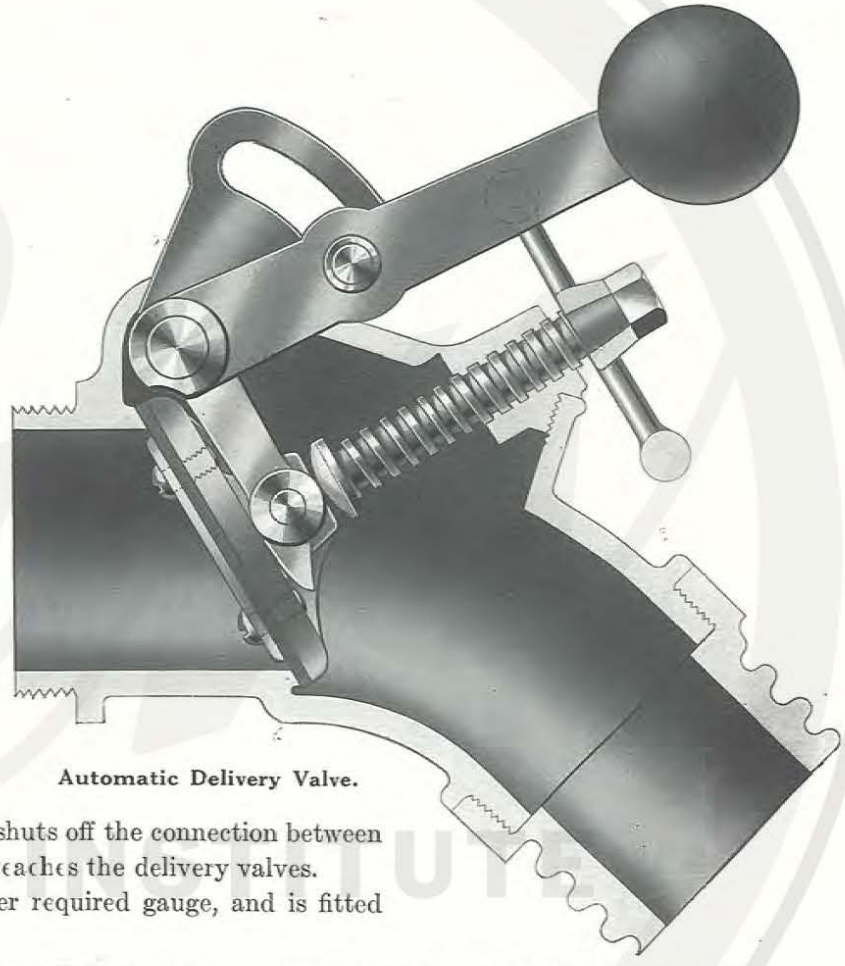
Bells, etc. A polished fire bell or a foot gong will be fitted at purchaser's option, also a hand horn.

Klaxon Electric Horn. **Price, £6 0 0.** CODE WORD—**Dyrorb.**

Whistle Exhaust whistle operated by foot pedal, and also by lever at rear, is supplied.



Priming Valve with " Gate " Delivery Valves and " Corona " Couplings.



Automatic Delivery Valve.

Priming Valve

This valve is shown in the view above ; it shuts off the connection between the pump and the exhauster as scon as water reaches the delivery valves.

Inlet

This is screwed to our own or any other required gauge, and is fitted with internal strainer.

Delivery Valves

Our own automatic, designed by Capt. Purcell, and shown in the illustration. This valve cannot be damaged by vibration, can be shut off quickly, and opens automatically as soon as water reaches the pump. Ends finished to suit customers' couplings.

Suction Hose

30-ft. of very flexible hose 5-ply rubber, with internal wire covered and external wire to view, in four lengths, with couplings and wrenches, is supplied as standard.

Collecting Breeching (quoted extra)

Three or four-way collecting breeching, as illustrated, of aluminium alloy, with gun-metal branch male couplings, adapted for any couplings, each fitted with an internal seat and hinged flap valve, the large end screwed to fit the inlet of the pump.

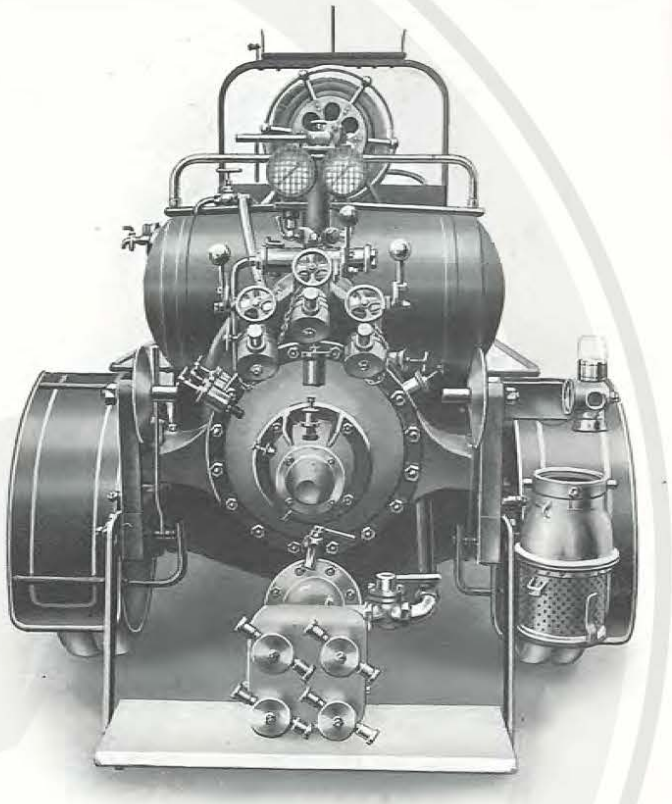
Foot Valve

The suction hose ends with an ordinary copper shoe strainer and basket; alternatively, with a combined foot valve and strainer (see illustration on page 173). This is useful where deep lifts are the rule, but is by no means essential, it does not assist priming, but has, if anything, a contrary effect, but it does enable the pump to stand longer and start up again on deep lift without re-priming. A basket strainer is included.

It is fitted with a releasing valve, useful to empty the hose before raising it from the water.

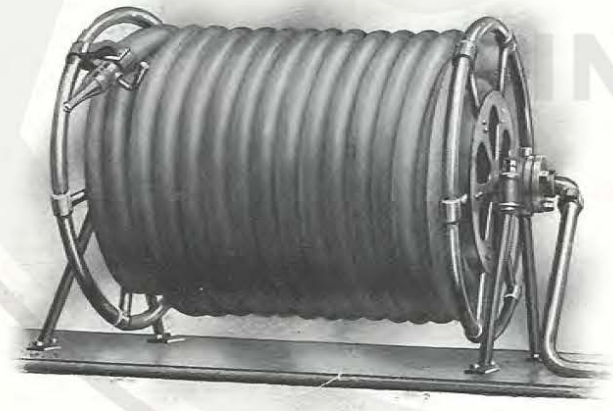
First-Aid Apparatus

Our First-Aid Apparatus consists of tank and reel used in conjunction with the main pump, or, where it is absent, an auxiliary pump.



Rear View showing "Leyland" Automatic Delivery Valves and 4-way collecting breeching on Suction.

Reel



The hose reel is furnished with polished brass ends, and with 180-ft. of 1-in. four-ply india-rubber hose in 60-ft. lengths, fitted with brass connecting screws with $1\frac{1}{4}$-in. standard gas threads. The reel is placed so that the hose can readily be run off from either side. The hose is permanently attached to the centre of the reel and furnished at its outer end with a hand control branch of "Morris" or similar pattern to approval, with a $\frac{1}{4}$-in. nozzle.

Tank.

The lead-lined steel tank or cistern has a capacity of 40 gallons, and is built into the body, from which water is conveyed to the main pump, generally also kept primed with water, so that as soon as it is set in motion the water in the first-aid hose is put under pressure. The 40-gallon tank will supply a $\frac{1}{4}$-in. jet for three minutes. The tank is fitted with the necessary control valves and hose connections, all arranged handily to perform the following operations :—

1. Water from hydrant to tank.
2. Water from tank to pump.
3. Water from tank or hydrant to hose.
4. Water from the pump to the hose.

Connections

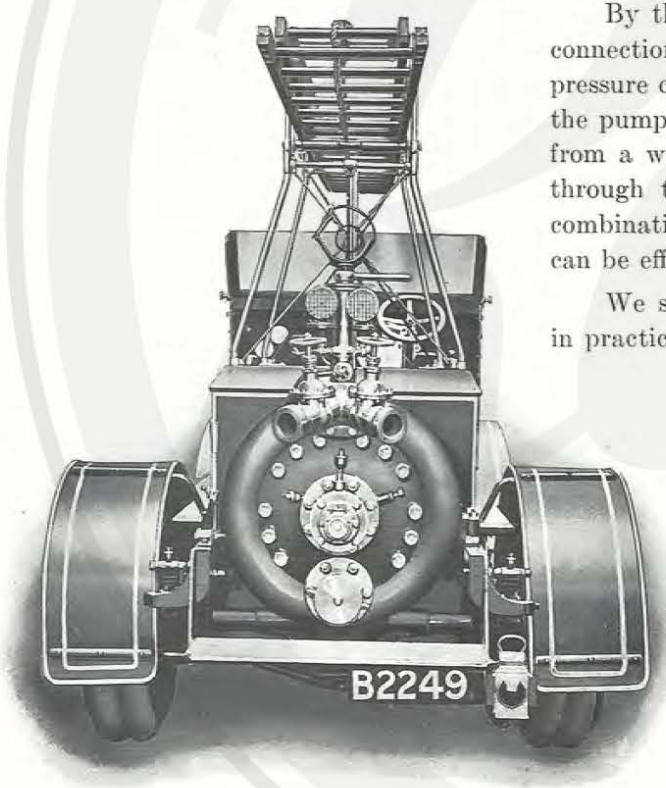
Action.

By the time the tank is becoming exhausted a hydrant connection will have been effected and then the hydrant pressure can supply the hose reel, or it can be augmented by the pump ; or the main pump can draw by a small suction from a well and supply the reel, or the hydrants can work through the pump to the main deliveries. In short, any combination except transfer from first-aid jet to large suction can be effected without interruption of the water output.

We submit that such a requirement is never met with in practice, because on arrival at a big fire the engine must go to the water and consequently be too far from the fire to use the first-aid jet at all.

Compressed Air.

When there is no main pump, or when it is desired not to use it for first-aid purposes, compressed air cylinders or CO_2 gas can be fitted to provide pressure, at an extra charge.



Rear View of Fire Engine, showing a Single-Stage Turbine Pump and Connections.

Prices

Description.	Code Word.	Price.
40-gallon set fixed on new "Leyland" Engine ..	**Dyroys**	**£60 0 0**
Do., polished copper tank ..	**Dyrpar**	**£75 0 0**
Do., with two gas bottles ..	**Dyrpei**	**£85 0 0**
Do., extra for auxiliary pump	**Dyrpik**	**£18 0 0**

"Leyland" Large Fire Engine

For Extras, see following pages.

General Specification, see page 147

Engine—" Leyland " 6 cylinder, 70-85 H.P.

Ignition—Bosch Watertight, and Wade & Jones H.T. distributor, with accumulator and spare ditto.

Carburetter—Zenith.

Gear Box—4 speed and reverse, direct on third, gate change.

Transmission—Gear drive, central thrust.

Back Axle—3-ton size.

Road Wheels—All steel, 34-in. diameter.

Tyres—5-in. front, 4½-in. twin rear.

Pump—Rees Roturbo, capacity in gallons per minute, with 10-ft. lift :—

160-lbs.	570 gallons.
120-lbs.	600 ,,
80-lbs.	850 ,,

Petrol Consumption—5½ gallons per hour.

Priming—By Duplex exhauster.

Deliveries—Four automatic valves.

Inlet—6½-in., with strainer.

Body—Hard wood, capacity for 1,500 feet of hose in 75-ft. lengths.

Side Boxes—Hard wood, covered aluminium, with brass edging.

Bell or Gong fitted.

Lamps—Head electric, side oil, tail electric and oil.

Dimensions—

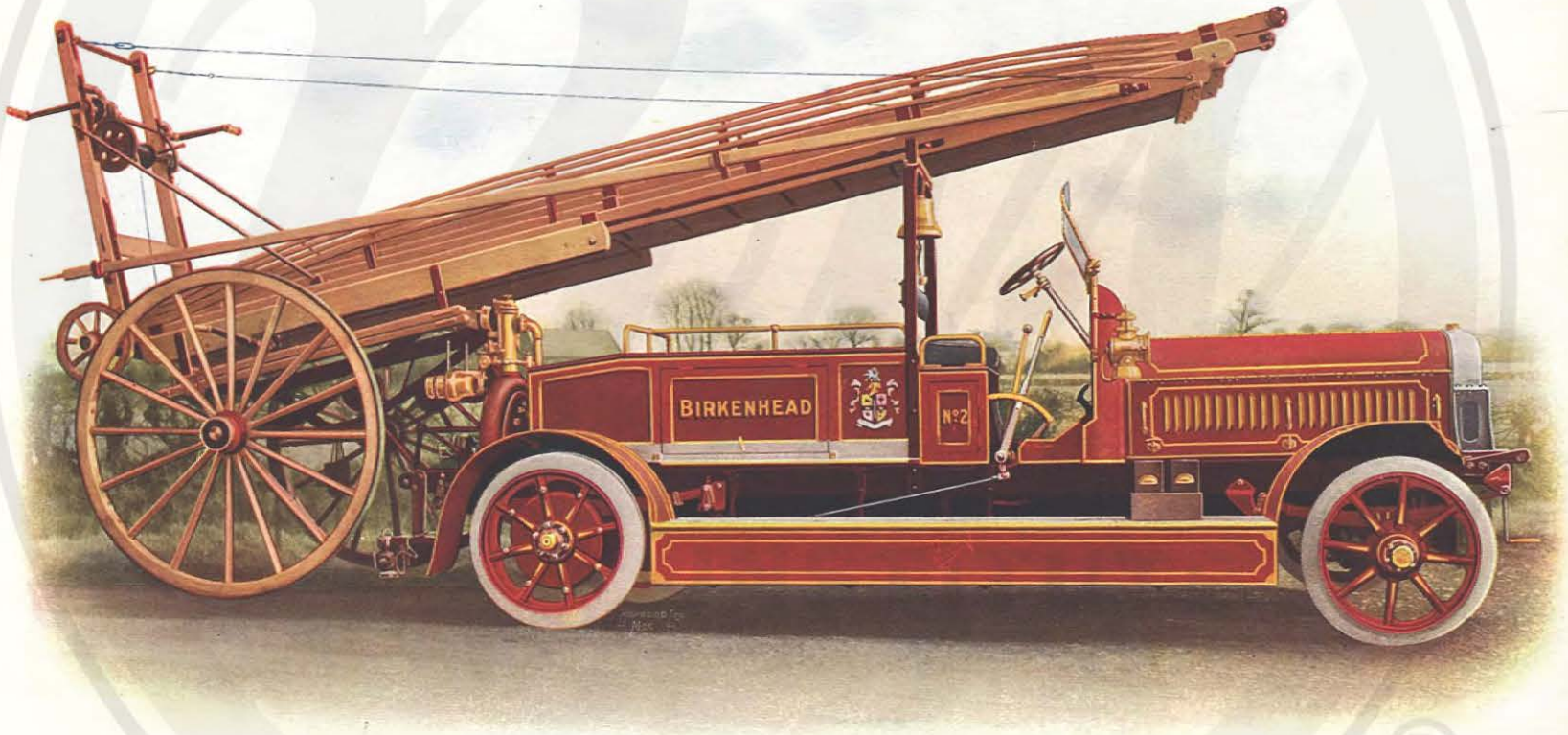
Length, without escape	19-ft. 6-in.
,, with escape	26-ft. 0-in.
Width	6-ft. 9-in.
Height	10-ft. 0-in.
Wheel base	13-ft. 3-in.
Weight	4 tons 15 cwts.

Approximate Shipping Specification—

Without extras	900 cub. ft.
Lift, under	7 tons.

PRICE—£1,250.

Code Word—Dyrpoy.



Large Leyland Fire Engine with "Ajax" Wheeled Escape.

"Leyland" Motor Fire Engine Towing Steamer.

CITIES and TOWNS USING "LEYLAND" FIRE APPLIANCES.

LONDON (32 Machines)	Sheffield	Bury	Leamington	Padiham
Finchley	Liverpool	Wallasey	Nelson	Hobart
Hornsey	Bolton	Waterloo-	Fleetwood	Calcutta
Dublin	Blackpool	with-	Southport	Shanghai
Birkenhead	Warrington	Seaforth	Chorley	etc., etc.

"Leyland" Standard Fire Engine

General Specification
see page 147

Extras,
see following pages.

Engine—" Leyland " 4 cylinder, 48-60 H.P.

Ignition—Bosch watertight, and Wade & Jones H.T. distributor, with accumulator and spare ditto.

Carburetter—Zenith.

Gear Box—4 speed and reverse, direct on third, gate change.

Transmission—Gear drive, central thrust.

Back Axle—3-ton size.

Road Wheels—All steel, 34-in. diameter.

Tyres—4½-in. front, 4½-in. twin rear.

Pump—Rees Roturbo, capacity in gallons per minute, with 10-ft. lift :—

160-lbs.	380 gallons.
120-lbs.	425 ,,
80-lbs.	580 ,,

Petrol Consumption—4½ gallons per hour.

Priming—By duplex exhauster.

Deliveries—Three, automatic valves.

Inlets—4½-in. and 5-in., with strainer.

Body—Hard wood, capacity for 1,500 feet of hose in 75-ft. lengths.

Side Boxes—Hard wood, covered aluminium, with brass edging.

Bell or Gong fitted.

Lamps—Head electric, side oil, tail electric and oil.

Dimensions—

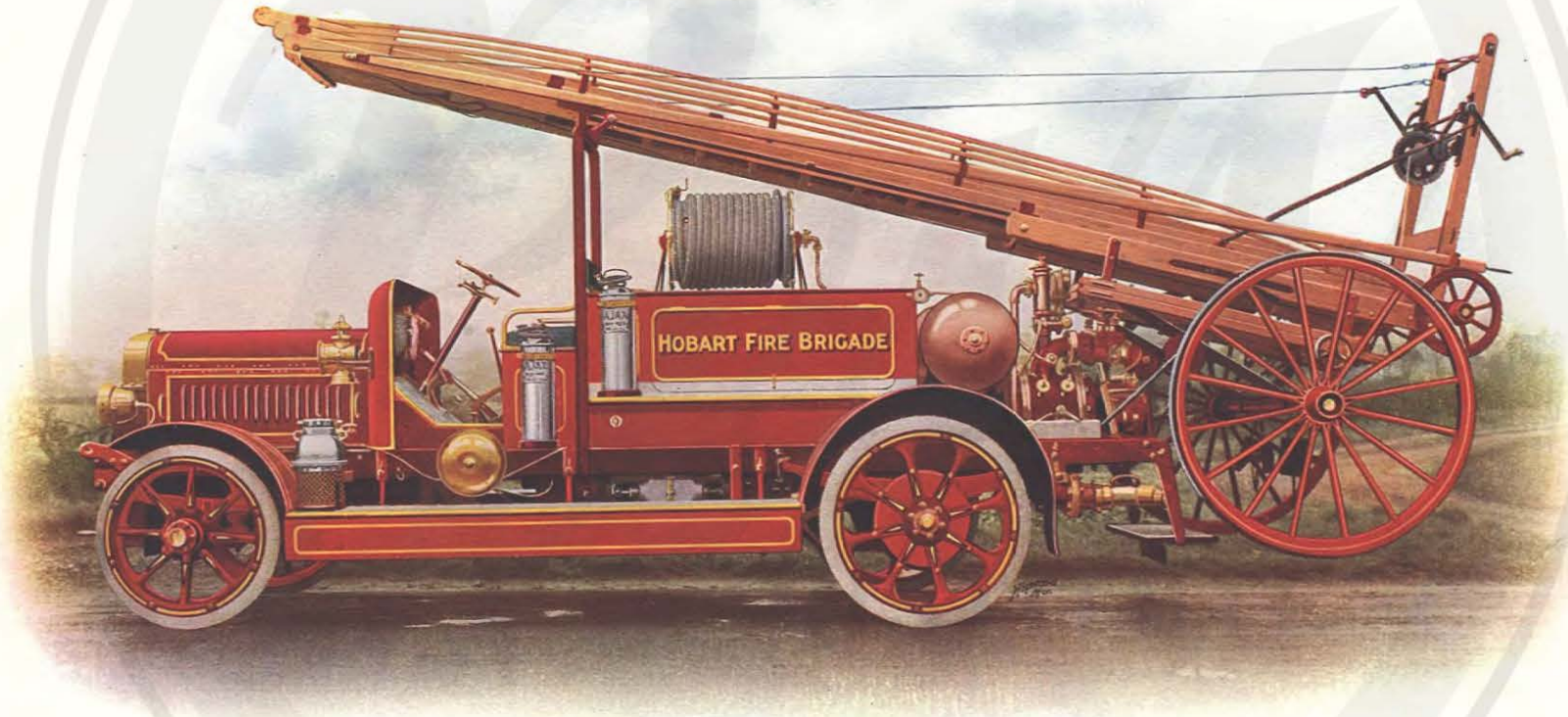
Length, without escape	17-ft. 6-in.
,, with escape . .	23-ft. 0-in.
Width	6-ft. 9-in.
Height	10-ft. 0-in.
Wheel base	12-ft. 0-in.
Weight	4 tons 10 cwts.

Approximate Shipping Specification—

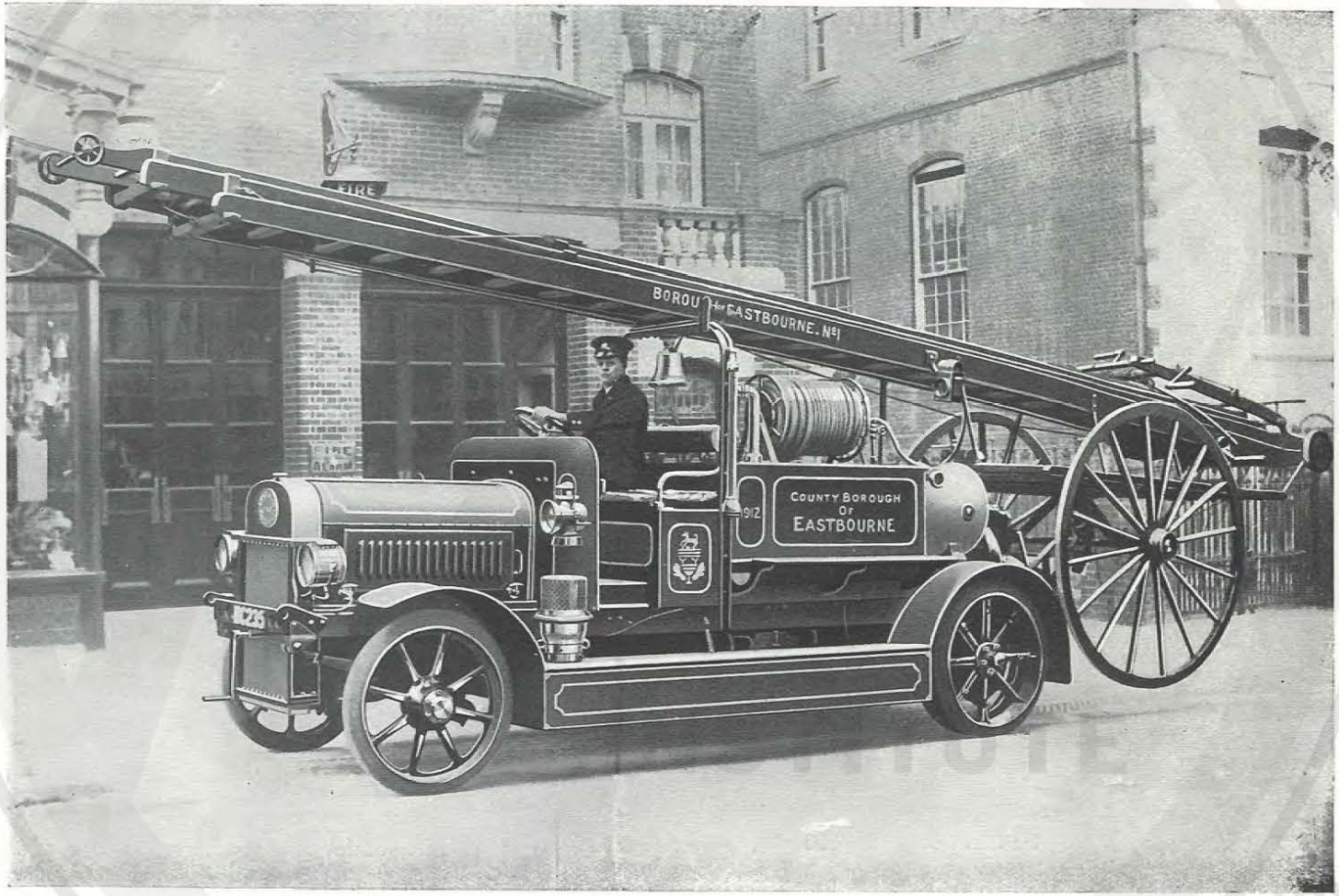
Without extras	800 cub. ft.
Lift, under	6 tons.

PRICE—£1,050.

Code Word—Dyrpux



Standard Leyland Fire Engine with First-aid Outfit and Wheeled Escape.



"Leyland" Standard Fire Engine, with Wheeled Escape and First-Aid Outfit.

"Leyland" Medium Fire Engine

General Specification, see page 147

Extras, see following pages.

Engine—" Leyland " 4 cylinder, 40-50 H.P.

Ignition—Bosch watertight, and Wade & Jones H.T. distributor, with accumulator and spare ditto.

Carburetter—Zenith.

Gear Box—4 speed and reverse, direct on third, gate change.

Transmission—Gear drive, central thrust.

Back Axle—3-ton size.

Road Wheels—All steel, 34-in. diameter.

Tyres—4-in. front, and 4-in. twin rear.

Pump—Rees Roturbo, capacity in gallons per minute, with 10-ft. lift :—

160-lbs.	300 gallons.
120-lbs.	375 ,,
80-lbs.	400 ,,

Petrol Consumption—4 gallons per hour.

Priming—By duplex exhauster.

Deliveries—Two, automatic valves.

Inlet—5½-in. with strainer.

Body—Hard wood, capacity for 1,500 feet of hose in 75-ft. lengths.

Side Boxes—Hard wood, covered aluminium, with brass edging.

Bell or Gong fitted.

Lamps—Head electric, side oil, tail electric and oil.

Dimensions—

Length, without escape	17-ft. 6-in.
,, with escape . .	23-ft. 0-in.
Width	6-ft. 9-in.
Height	10-ft. 0-in.
Wheel base	12-ft. 0-in.
Weight	4 tons 5 cwts.

Approximate Shipping Specification—

Without extras	800 cub. ft.
Lift, under	6 tons.

PRICE—£975.

Code Word—Dyrpym

Showing Rack for Additional Hose

Tower, 174-ft. 6-cylinder engine throws 1½-in. jet to top, equal to 600 gallons at 155-lbs. on pump gauge (feed from main).

BIRKENHEAD LIFT TEST.

25-ft. lifted in 20 seconds.
21-ft. ,, 15 ,,
13-ft. ,, 7 ,,

BIRKENHEAD OFFICIAL DISPLAY.

6 $\frac{5}{8}$-in. jets, 115-lbs.
4 (two $\frac{3}{4}$-in. and two $\frac{5}{8}$-in.) 140-lbs.
3 $\frac{3}{4}$-in. jets, 160-lbs.
2 1-in. jets, 155-lbs.
1 1$\frac{3}{8}$-in. jet, 170-lbs.
5·25 gallons of petrol an hour, full load.

CALCUTTA OFFICIAL TEST.

2 1-in. jets, 155-lbs.
1 1¼-in. jet, 160-lbs.
1 1$\frac{3}{8}$-in. jet, 150-lbs.
1 1½-in. jet, 150-lbs.

MANCHESTER OFFICIAL TEST.

6 $\frac{3}{4}$-in. jets, 95-lbs. pressure, feed from tank.
860 gallons per minute.

LONDON COUNTY COUNCIL TEST.

4-cylinder, 55 H.P. engine.
400 gallons, 120-lbs., 10-ft. lift.
4·8 gallons per hour, full load.

Extract from Letter, written by the Chief Officer of the Calcutta Fire Brigade, Calcutta,
September 10th, 1912.

" The ' Leyland ' Pump is a very fine machine and does a lot of good work. I really do not know what I should do without it.
" I am recommending several more Motor Pumps, and trust that the order will be placed before very long."

"Leyland" Small Fire Engine

General Specification,
see page 147

Engine—"Leyland" 4 cylinder, 30-35 H.P.

Ignition—Bosch watertight, and Wade & Jones H.T. distributor, with accumulator and spare ditto.

Carburetter—Zenith.

Gear Box—4 speed and reverse, direct on third, gate change.

Transmission—Gear drive, central thrust.

Back Axle—30-cwt. type, worm drive.

Road Wheels—All steel, 34-in. diameter.

Tyres—4-in. front and 3½-in. twin rear.

Pump—Rees Roturbo, capacity in gallons per minute, with 10-ft. lift :—

160-lbs.	190 gallons.
120-lbs.	225 ,,
80-lbs.	275 ,,

Petrol Consumption—3 gallons per hour.

Priming—By 30-gallon reserve and first-aid tank.

Delivery—One, automatic valve.

Inlet—3½-in., with strainer.

Body—Hard wood ; capacity for 1,000 feet of hose in 75-ft. lengths.

Side Boxes—Hard wood, covered aluminium, with brass edging.

Bell or Gong fitted.

Lamps—Head electric, side oil, tail electric and oil.

First-Aid—Consisting of hose reel, 150-ft. hose, and tank built into body.

Dimensions—

Length, without escape	17-ft. 6-in.
,, with escape	23-ft. 0-in.
Width	6-ft. 9-in.
Height	10-ft. 0-in.
Wheel base	12-ft. 0-in.
Weight	3 tons.

Approximate Shipping Specification—

Without extras	700 cub, ft.
Lift, under	5 tons.

PRICE—£820 (including First-Aid Set).

Code Word—Dyrras.

Small Engine

Small Fire Engine

Guarantee

In the case of Fire Engines, we extend our Guarantee for the complete machine, including tyres, to cover a period of twelve months. Accidents of course excepted.

Large Tender

Escapes,
see page 166

Extension Ladders,
see page 168

Engine—" Leyland " 4 cylinder, 40-50 H.P.

Ignition—Bosch watertight, and Wade & Jones N.F. distributor, with accumulator and spare ditto.

Carburetter—Zenith.

Gear Box—4 speed and reverse, direct on third, gate change.

Transmission—Gear drive, central thrust.

Back Axle—3-ton size.

Road Wheels—All steel, 34-in. diameter.

Tyres—4-in. front and 4-in. twin rear.

Body—Hard wood ; capacity for 1,500 feet of hose in 75-ft. lengths.

Side Boxes—Hard wood, covered aluminium, with brass edging.

Bell or Gong fitted.

Lamps—Head electric, side oil, tail electric and oil.

First-Aid—Consisting of auxiliary pump, hose reel, 180-ft. hose, and 40-gallon tank built into body.

Dimensions—

Length	18-ft. 6-in.
Width	6-ft. 9-in.
Wheel base	13-ft. 3-in.

Extras—Escape, ladders, etc., see following pages.

Approximate Shipping Specification—
800 cub. ft. Lift, 5 tons.

PRICE—£820.

Code Word—Dyrrek.

Small Tender

Engine—30-35 H.P. "Leyland" 4 cylinder.

Ignition—Bosch watertight, and Wade & Jones N.F. distributor, with accumulator and spare ditto.

Carburetter—Zenith.

Gear Box—4 speed and reverse, direct on third, gate change.

Transmission—Gear drive, central thrust.

Back Axle—2-ton size.

Road Wheels—All steel, 34-in. diameter.

Tyres—3½-in. single and 3½-in. twin

Body—Hard wood, capacity for 1,200 feet of hose in 75-ft. lengths.

Side Boxes—Hard wood, covered aluminium, with brass edging.

Bell or Gong fitted.

Lamps—Head electric, side oil, tail electric and oil.

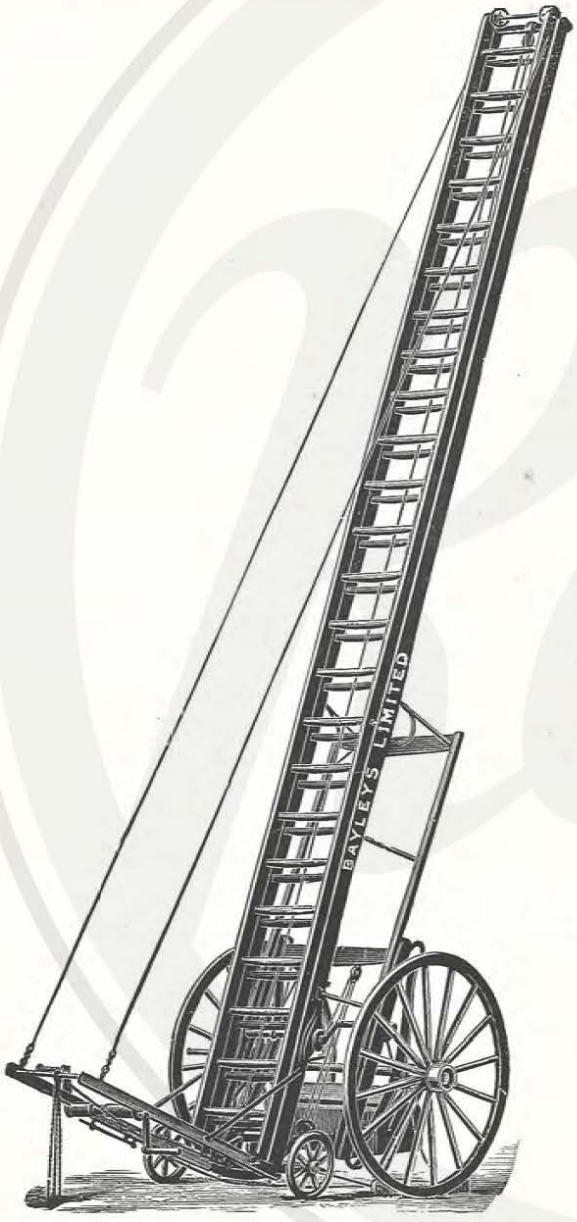
First-Aid—Consisting of auxiliary pump, hose reel, 150-ft. hose, and 30-gallon tank built into body.

Dimensions—Length .. .. .. 17-ft. 6-in.
Width .. .. 6-ft. 9-in.
Wheel base .. .. 12-ft. 0-in.

Approximate Shipping Specification—750 cub. ft. Lift, 4 tons.

PRICE—£710.

Code Word—Dyrrit.



Wheeled Escapes

General — We are not manufacturers of these appliances, but standardise two for attachment to our engines. There is a good deal of work necessary to properly attach the escape, and the cost of it is covered by the prices quoted below.

Sliding Carriage — All Escapes fitted by us have a sliding balanced carriage, to mount easily on to engine, and to run horizontally on the road to go under bridges, etc.

These Escapes can be used in the horizontal position to bridge an area, etc.

Extension Ladders — All instantly unship for separate use.

Materials — Only selected and thoroughly seasoned timber is employed, and the ladders may be inspected in the white before painting.

Finish — Red to match engine ; or varnish, natural colour of wood, at an extra charge of 5 per cent.

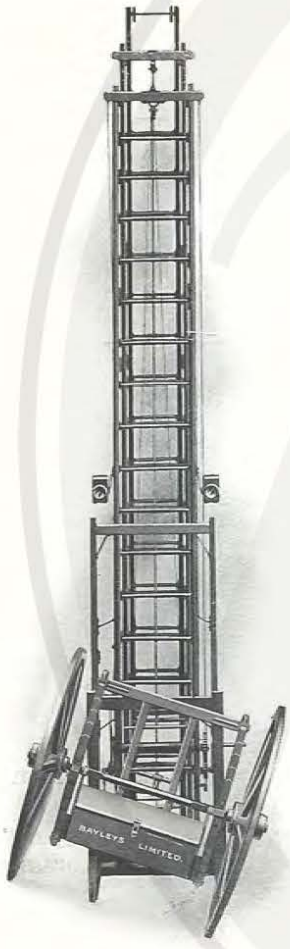
Code Word—**Dyrriz.**

Lowering Gear — Safety brake is fitted to prevent hasty lowering.

PRICES.

Size.	Stage.	Code Word.	Price.	Extra for Packing.
50-ft.	3	**Dyrrov**	**£100**	
60-ft.	3	**Dyrryo**	**£115**	

Special prices on application, according to make and fixings.



Plumbing Gear in use.

Plumbing Gear

The illustration shows this important addition to an escape, which is self-explanatory. **£15.** CODE WORD—**Dyrsyk.**

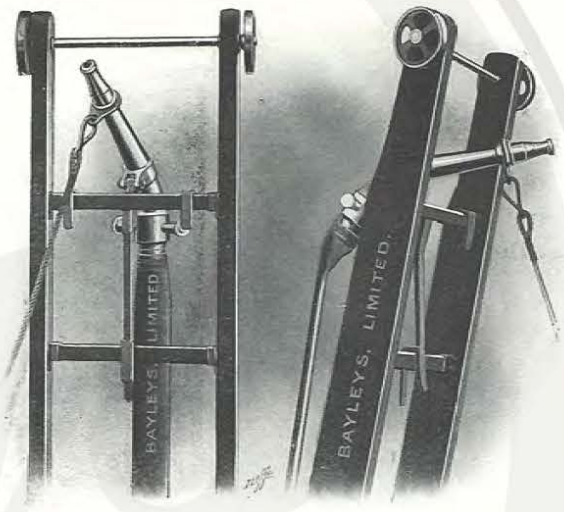
Water Tower

The illustration shows Bayley's Water Tower. **£4 15 0.** CODE WORD—**Dyrtaw.**

Alternatives are—

Shand .. .. **£15.**
CODE WORD—**Dyrtes.**

Hart .. .. **£40.**
CODE WORD—**Dyrtir.**



Turret Pipes

These are largely used in America, consisting of a large branch pipe on universal mountings to be placed on engine and used to direct the water on to the fire in one large jet without the use of delivery hose at all.

These pipes can also be mounted on tenders and supplied from the engine at a distance.

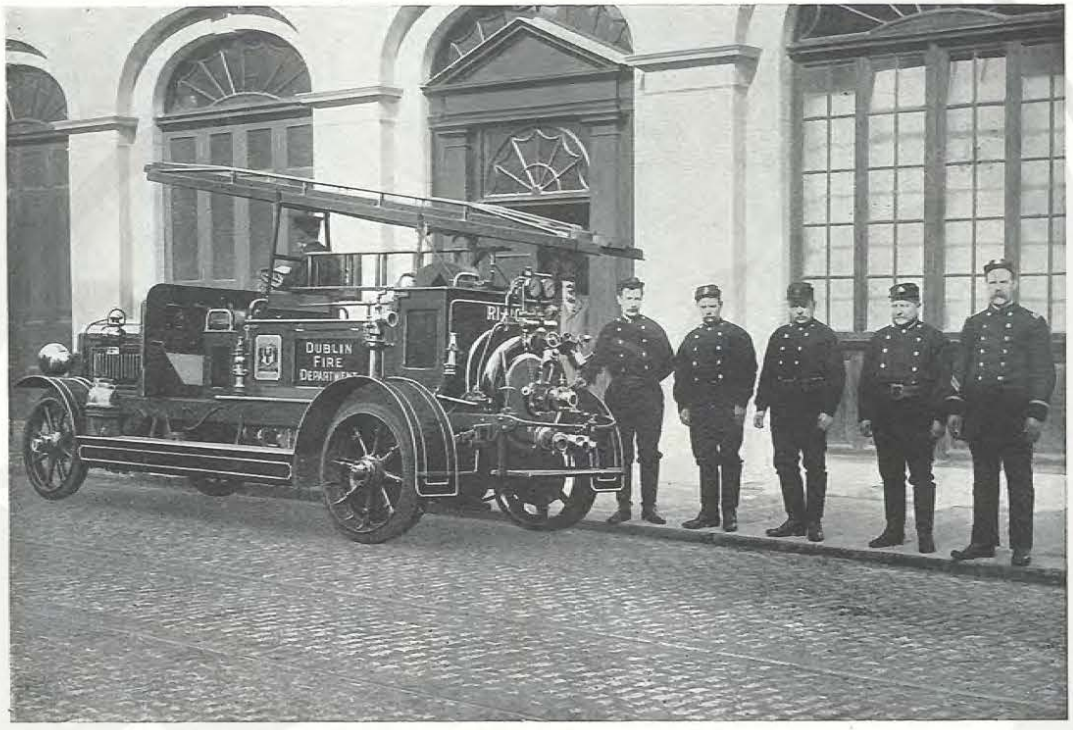
One very powerful jet is often of more value than several smaller ones.

Up to		Price.	Code Word.
$1\frac{3}{8}$-in.	2-way feed.	**£50**	**Dyrtoo**
$1\frac{3}{4}$-in.	3 „ „	**£60**	**Dyrtue**
2-in.	4 „ „	**£70**	**Dyrtyp**

Each outfit includes four spare nozzles.

Ladders

Second Engine supplied to Dublin



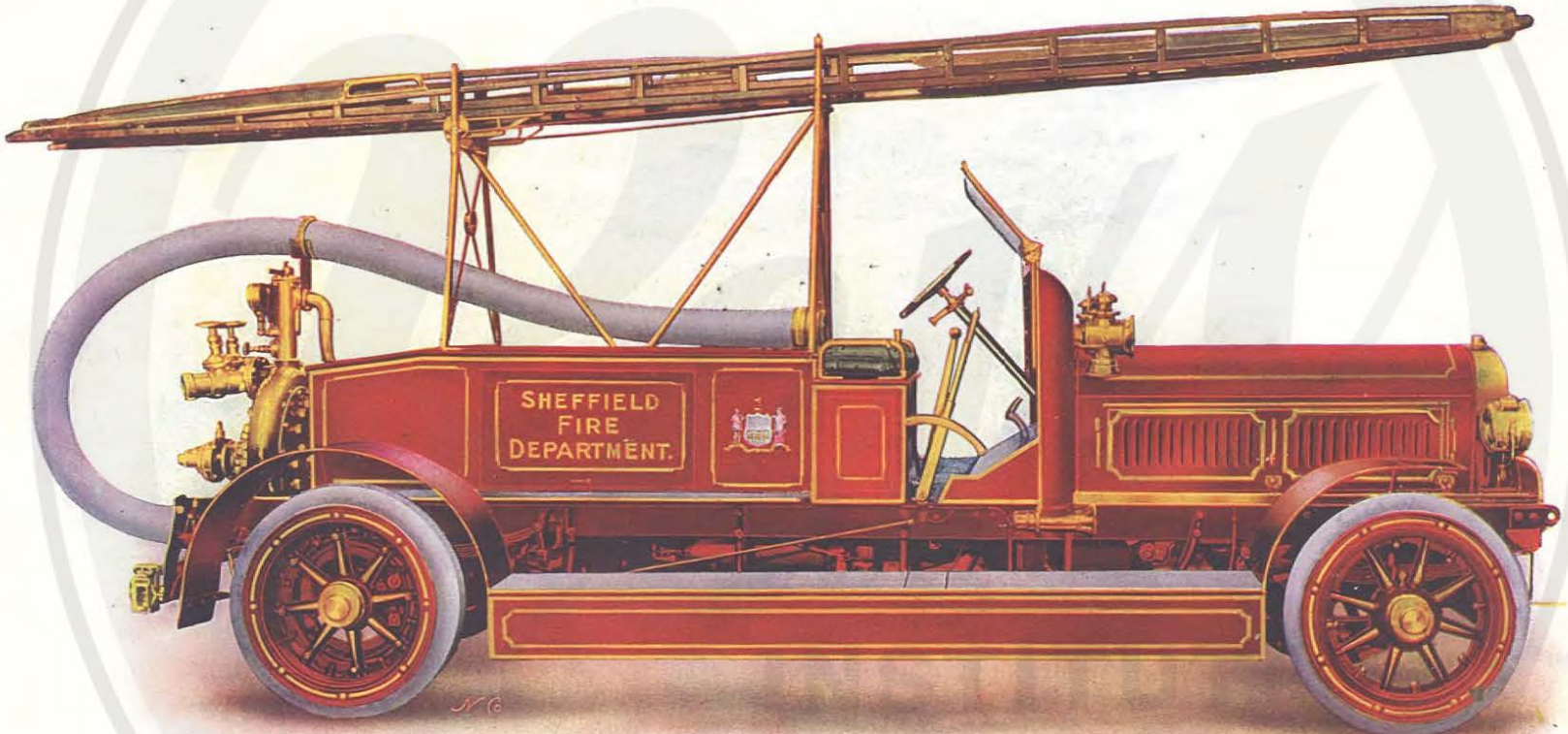
Trussed Extension Ladder on "Standard" Engine.

Trussed Extension Ladders

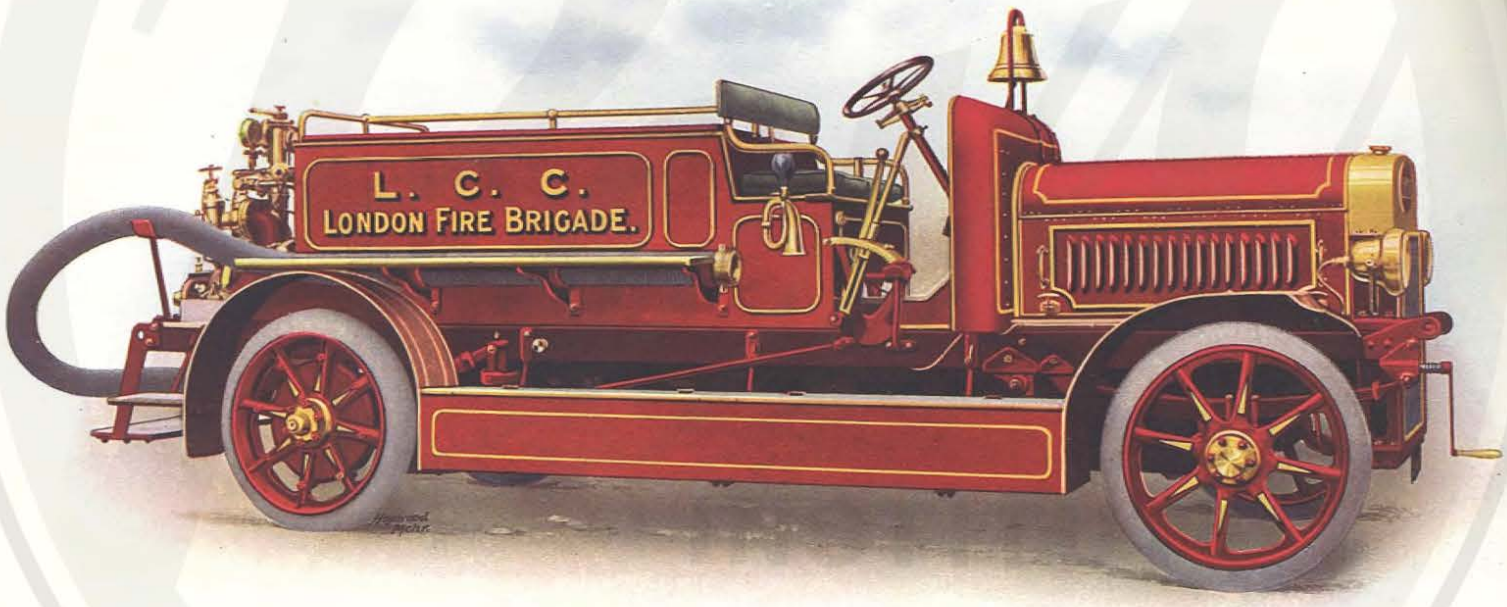
For general use we recommend the Ajax Extension Ladder, 36-ft., for a first turn-out, or 45-ft. for an engine.

In both sizes the top ladder is instantly detachable, and can be used separately. These ladders are very light and strong, and finished in varnish the natural colour of the wood. The price includes close brass-plated gantries and fastenings on the machine.

Size.	Price.	Code Word.	Extra for Packing.
36-ft.	£28	Dyrubu	£2
40-ft.	£36	Dyrudy	£2
45-ft.	£40	Dyruft	£3



6-Cylinder, 70-85 H.P. 600-Gallon Fire Engine, with Telescopic Ladder.



Medium Leyland Fire Engine.

First Engine supplied to Dublin 5 years ago

Discounts on application

Suction Hose for "Leyland" Fire Engines Price per Foot

	Description.	Code Word.	3½-in. bel	4-in. civ	4½-in. deb	5-in. fod	5½-in. gab	6-in. hoc	6½-in. meg
1	Smooth bore, 5-ply, smooth outer cover	Dyruge	12/-	14/1	16/-	18/-	£1 0 0	£1 2 0	£1 4 0
2	Do., 4-ply	Dyruha	11/3	13/4	15/1	17/-	18/10	£1 0 10	£1 2 0
3	Spiral bore, with covered wire and exposed protecting wire, 5-ply	Dyruki	7/4	8/9	9/11	11/-	12/2	13/4	14/6
4	Do., 4-ply	Dyruss	6/8	8/-	9/-	10/-	11/-	12/3	13/4
5	Rubber substitute, specially suited for hot climates, and very flexible	Dyrvay	7/4	8/9	9/11	11/-	12/2	13/4	14/6
	Couplings, per pair, including wires. 3 threads per inch, round thread	Dyrveo	£1 0 0	£1 5 0	£1 10 0	£1 15 0	£2 0 0	£2 5 0	£2 10 0

To order, give number of pieces in figures, length of piece in writing, type by code prefix ; size by code suffix ; thus—2 fifteen, **Dyrvaydeb.**

Canvas Hose Price List

Price per Foot

Description.		1½-in.	2½-in.	2¾-in.	3-in.	3½-in.	4-in.
	Code Word.	**mox**	**nad**	**nec**	**par**	**pik**	**ras**
Tanned flax, seamless or diagonal, 28-strand, with red rubber lining	**Dyrvip**	**1/2**	**1/10**	**2/1½**	**2/4**	**3/-**	**3/7½**
Hand-woven pure long flax, shrunk and tanned, 24-strand	**Dyrvol**	—	**1/4**	**1/5**	**1/7**	**1/11**	—
Second, 18-strand		**-/11**	**1/3**	**1/4½**	**1/6**	**1/9**	**1/11**
Machine-woven seamless long flax, 28-strand, shrunk and tanned . .	**Dyrvuc**	**-/8**	**1/-**	**1/1**	**1/2**	**1/4**	**1/6**
Second, 18-strand		**-/6**	**-/10**	**-/11**	**1/-**	**1/2**	**1/4**

Couplings per pair :—Ferruled, **14/-** Code Word, **Dyrvul.** Wired, **12/-** Code Word, **Dyrvup.** Fixing Couplings, per length, **1/-**

To order, give number of lengths in figures, length of piece in feet in writing.

Discounts on application

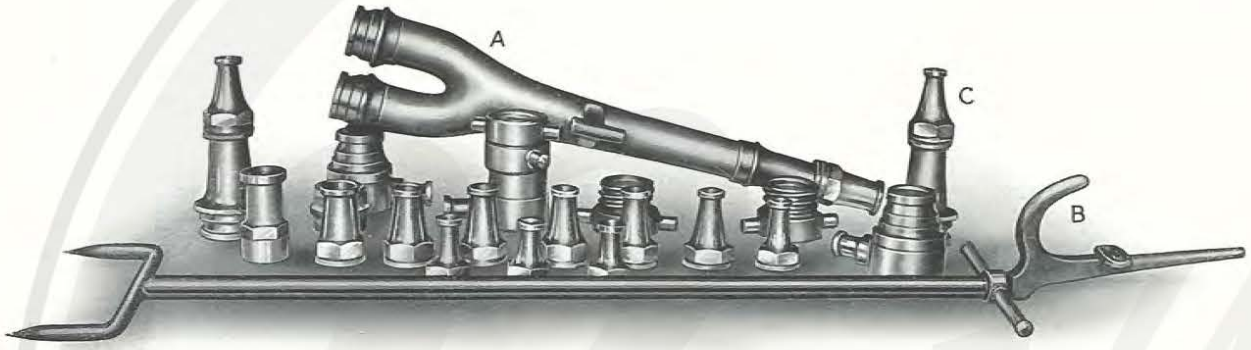
Type of hose by code prefix, size by suffix, thus :—10 fifty.

Rubber Delivery Hose for First-Aid Reel

Per Foot

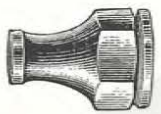
	Price.	Code Word.		Price.	Code Word.
6-ply	**2/4**	**Dyrvyg**	Couplings, per pair . .	**£0 8 0**	**Dyrwiy**
5-ply	**2/1**	**Dyrwat**	Shut-off Nozzle . .	**2 0 0**	**Dyrwoh**
4-ply	**1/10**	**Dyrwer**	Light Spray & Shut-off, Gibbs'	**0 7 6**	**Dyrwuz**

Accessories



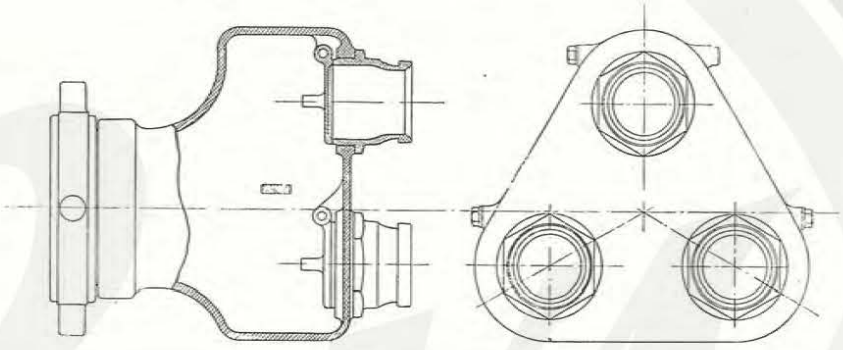
Branch Pipes

Description.		Price.	Code Word.	
		£ s. d.		
Ajax Twin Branch, polished copper	A	7 10 0	Ebibax	State bore
Stand for ditto	B	1 5 0	Ebibel	required
Nozzles for ditto		0 8 6	Ebibib	
18-in. Copper Branch Pipe	D	0 18 0	Ebibog	
2-ft. Copper Branch Pipe		1 0 0	Ebibur	
Hexagonal Nozzle for ditto	E	0 6 6	Ebibyt	
Ajax Branch, with stream formers	C	1 12 6	Ebical	
Shut-off nozzle		3 0 0	Ebicen	
Shut-off Nozzle, with spray		5 0 0	Ebiciv	State bore
Flexible Play Pipe		3 10 0	Ebicle	required
Haley Controlling Nozzle		4 0 0	Ebicof	
Cellar Nozzle		3 0 0	Ebicus	



Accessories

COLLECTING BREECHINGS

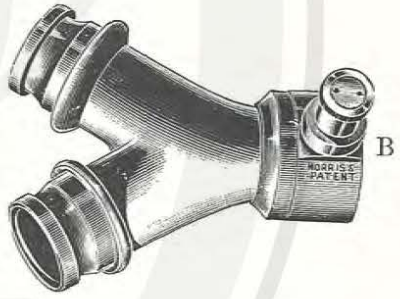


STANDARD THREE WAY SUCTION BREECHING

A

DIVIDING BREECHINGS

Description.		Price.	Code Word.
		£ s. d.	
4-way		5 10 0	Ebicyn
3-way	A	4 10 0	Ebidan
2-way (without valves)	B	2 5 0	Ebidef



B

State size of Hose and send pattern of Coupling

Instantaneous or Screw Couplings,
£3 0 0

Code Word—
Ebifin

Adapters

A

11/-

Code Word—
Ebifod

B

11/-

Code Word—
Ebiful

Supplied either V or round thread.

Accessories

PUMP STRAINER

Ordinary Shoe Pattern, of copper, **£1 5s.** Code Word—**Ebifye.**

Do., larger, **£1 12s. 6d.** Code Word—**Ebigab.**

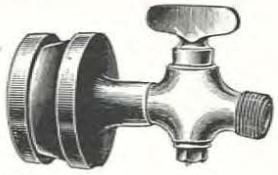
"Leyland" Pattern Combined Foot Valve and Strainer, **£5.** Code Word—**Ebiged.**

Do., as illustrated, with release valve, **£6.** Code Word—**Ebigow.**

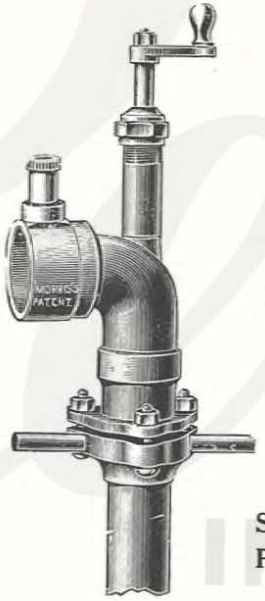
Basket and Strap for any of above, **10/6.** Code Word—**Ebiguf.**

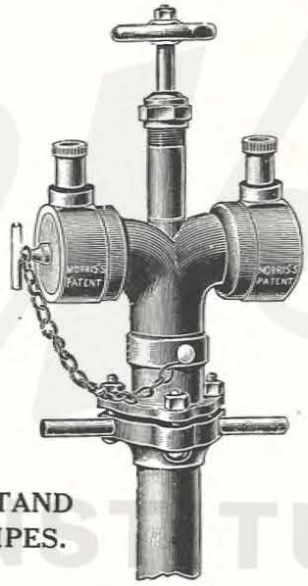
Female Blank Cap, **15/-** Code Word—**Ebigyl.**

Male Blank Cap, **6/-** Code Word—**Ebihap.**



Blank Cap and Bib Tap, **12/6.** Code Word—**Ebihem.**





STAND PIPES.

Single Swivel, with valve, **£3.** Code Word—**Ebihie.**

Double Swivel, with valve, **£4.** Code Word—**Ebihoc.**

HAND PUMP

London Pattern Hand Pump, **£2 10s.** Code Word—**Ebihun.**

Do., with suction hose and stirrup, **£3 3s.** Code Word—**Ebihyd.**

Do., with canvas bucket, as illustrated, **£5 5s.** Code Word—**Ebijag.**

GAUGE

Water Gauge and Blank Cap, **£1 10s.** Code Word—**Ebijef.**

Accessories

Ceiling Hook with Ash Shaft. 12/6 Code Word—**Ebijil.**

Sundries

Description.	Code Word.	Price. £ s. d.	Description.	Code Word.	Price. £ s. d.
Acetylene Flare	**Ebijor**	—	Helmets, Special	**Ebilyc**	Up to 66/-
Ambulance Set, large	**Ebijup**	2 5 0	Hose Band, with clamp	**Ebimak**	0 8 6
,, ,, small	**Ebikai**	1 10 0	,, ,, straps	**Ebimeg**	0 5 6
Canvas Dam, large, with gun-metal joints and 4 inlets	**Ebikep**	8 10 0	Hose Suspender	**Ebimio**	0 5 0
Very large, 1,800 gallons	**Ebikif**	19 0 0	Jumping Sheet, 10-ft., with 32 handles	**Ebimox**	4 15 0
Chemic, 3-gallon	**Ebikob**	4 0 0	American Type	**Ebimum**	15 0 0
,, 2-gallon Non-freezer	**Ebikud**	4 0 0	,, with Springs	**Ebimyf**	20 0 0
Electric Lighters, for acetylene lamps	**Ebikya**	3 0 0	Lever Crow Bar	**Ebinad**	1 0 0
Felling Axe	**Ebilac**	0 10 6	Pike Pole	**Ebinec**	1 0 0
American do.	**Ebileh**	0 15 0	Plaster Fork	**Ebinig**	2 0 0
Fire Bell	**Ebilid**	4 10 0	,, Hook	**Ebinos**	1 10 0
Fire Gong	**Ebilop**	5 0 0	Saw, in case	**Ebinuv**	0 16 6
Helmets	**Ebiluk**	15/- to 27/6	Scenery Knife	**Ebinyb**	0 7 6
			Small Axe, with belt and pouch	**Ebipar**	0 17 6

Electric Hand-Lamps

Special Tyres

Description.	Code Word.	Price. £ s. d.
Electric Hand Lamp, dry battery	**Ebipei**	1 10 0
Spare Battery	**Ebipik**	0 2 6
Do., with accumulator (weight, 7-lbs.)	**Ebipoy**	3 5 0
Do., cheaper	**Ebipux**	2 5 0
Do. ,,	**Ebipym**	1 15 0
Spare Accumulator	**Ebiras**	1 5 0
K.T. Tyres, extra	**Ebirek**	15 0 0
Studded Leather Bands, half set	**Ebirit**	18 0 0
,, ,, whole set	**Ebirov**	36 0 0
Torkington Tyres	**Ebiruh**	25 0 0
Challinor, ribbed	**Ebiryo**	15 0 0
Continental, grooved	**Ebisaf**	5 0 0

Smoke Helmet Apparatus

After careful investigation we have standardised certain of Messrs. Siebe Gorman's Oxygen Apparatus, knowing it to be the best on the market, and in every way thoroughly reliable. This firm are the inventors of diving apparatus, and of the original smoke helmet and mine rescue apparatus.

For short distance work, up to, say, 150-ft., the helmet apparatus with tubing is quite suitable, but the self-contained outfit is absolutely necessary in mines, and for long distance work, and is really the best all-round outfit, when the expense is not prohibitive, as there is no long tube to become kinked or damaged.

Smoke Helmet, consisting of helmet, 40-ft. of tube and bellows, **£30.** Code Word—**Ebiset.**
The same, with telephonic apparatus, **£33.** Code Word—**Ebisis.**

Self-contained Salvator Set

For resuscitating unconscious men, and work of one hour's duration in a non-poisonous atmosphere.

Consisting of one small cylinder of compressed oxygen, with valves and capacity gauge, breathing bag, mouthpiece, inhaling and exhaling valves, skull cap, nose clip, goggles, and all necessary connections, tubes, and containing bags. Total weight, 13-lbs.

Price	**£14 0 0** . .	CODE WORD—**Ebisoz**
With Half Mask, extra	**0 15 0** . .	,, **Ebisub**
With Automatic Feed Valve . .	**1 10 0** . .	,, **Ebisyk**

Proto Self-contained Set for Rescue Work in Poisonous Atmospheres

This apparatus is designed to supply the user with a factitious but perfectly respirable air entirely independent of any communication with the outer atmosphere, for from two to four hours at a time. It has no air pipe or other connection with the base of operations, so that for exploring and rescue work in mines, etc., its scope of usefulness is practically unlimited, the wearer being safe in the most poisonous gases, and able to walk any distance and to explore the most intricate turnings of a mine with every freedom of action. The principle of the apparatus is that the wearer breathes the same air over and over again, the carbonic acid gas being absorbed from it after each expiration, and at the same time the requisite amount of oxygen is restored to it, thus rendering it pure and fit to be again inhaled into the lungs.

Weight only 32-lbs. Charging materials obtainable anywhere at a cost of **3/9**, and oxygen cylinders, 5 cubic feet each, equal to four hours' work.

Price, £24 0 0 Code Word—**Ebitaw** With full mask, **£25 15 0** Code Word—**Ebites**

Table prepared by "Fire" to show the working height of Streams and equivalent Nozzle Pressure

Diameter in nozzle	½-in.	⅝-in.	¾-in.	⅞-in.	1-in.	1⅛-in.	1¼-in.	1⅜-in.	1½-in.	1¾-in.	2-in.
Height of stream in feet	70	90	110	120	150	170	180	190	200	230	250
Pressure in lbs. per square inch at nozzle	50	60	75	85	105	110	120	125	130	140	150

Table of equivalent Jets

Two equal one			Two equal one			Four equal one		
¾	,,	$1\frac{1}{16}$	$1\frac{1}{8}$	,,	$1\frac{5}{8}$	¾	,,	$1\frac{1}{2}$
⅞	,,	$1\frac{1}{4}$	$1\frac{1}{4}$	,,	$1\frac{3}{4}$	⅝	,,	$1\frac{1}{4}$
1	,,	$1\frac{3}{8}$	$1\frac{3}{8}$	,,	$1\frac{15}{16}$			

Copied by permission from "Fire."

Table to show loss of pressure per 100-ft. of 2½-in. and 2¾-in. unlined Canvas Hose

Gallons per minute.	Loss of pressure in lbs. per square inch per 100 feet.		Gallons per minute.	Loss of pressure in lbs. per square inch per 100 feet.	
	2½-in.	2¾-in.		2½-in.	2¾-in.
50	1½	1	300	54	33
100	6	3¾	350	74	46
150	13½	8½	400	96	60
200	24	14½	450	122	78
250	37	23	500	150	93

Table prepared by "Fire" to show output in gallons per minute at different nozzle pressures

TABLE III. DISCHARGE OF NOZZLES IN GALLONS PER MINUTE.

Pressure in lbs. at nozzle	40	50	65	80	100	120	140	160
½-in. nozzle	37	41	47	52	58	63	69	72
⅝-in. nozzle	56	65	73	82	90	99	108	114
¾-in. nozzle	82	92	106	116	130	143	155	164
⅞-in. nozzle	112	128	144	160	173	194	210	223
1-in. nozzle	146	165	188	208	230	250	276	291
1⅛-in. nozzle	184	217	237	261	282	322	349	372
1¼-in. nozzle	229	257	294	328	359	395	432	460
1⅜-in. nozzle	278	310	355	391	435	481	522	552
1½-in. nozzle	330	371	423	465	520	570	622	663
1¾-in. nozzle	450	500	576	640	705	780	846	903
2-in. nozzle	597	658	752	832	920	1017	1105	1182

The above figures are really a little on the low side, and can therefore be relied on.

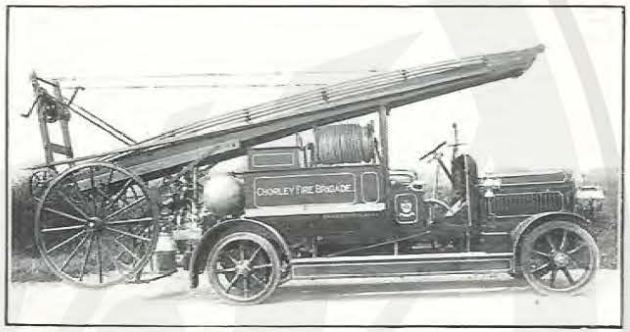
Testimonials

EXTRACT FROM "IRISH TIMES," Saturday, April 6th, 1912.
IMPORTANT SAVE BY MOTOR FIRE ENGINE.
GREAT FIRE IN MEATH.

"Gibbstown Castle, the residence of Mr. Thomas Gerrard, D.L., has been seriously injured by a fire, which broke out after 10 o'clock last night.

"In the end the attempt to overcome the flames with the means at hand became so hopeless that a message asking for assistance was sent to the headquarters of the Dublin Fire Brigade. There, a few minutes sufficed to obtain from the Lord Mayor the necessary permission to leave Dublin, and at six minutes past 8 o'clock in the morning, Station Officer Lambert and eight firemen set out on the great motor engine for Gibbstown House, a distance of thirty-six miles. The road through Blanchardstown to Navan was chosen as the most direct route, and along it the motor raced, checked only here and there by the few obstacles met at that early hour. Dublin people have long since grown accustomed to the sight of this powerful motor, with its crew of red-coated and brass-helmeted men, and pay it but a passing tribute of admiration. But the peaceful country folk that live along the Navan road are not used to such a spectacle, and their astonishment as the engine dashed by was unequalled in the experience of the firemen. At times, moreover, it was not unmixed with alarm, as the deep boom of the horn heralded the approach of the motor, and on not a few occasions nervous rustics hastily sought the shelter of a friendly hedge. It speaks well for the pilot of the run that it was accomplished in such unfavourable circumstances, over unknown roads, without an accident in the good time of one hour and twenty minutes, the speed being about 30 miles an hour.

"When the firemen reached Gibbstown House, it was burning fiercely in two storeys, the ground floor being so far untouched by the flames. Luckily, about a hundred yards away, there was a fine pond, from which an ample supply of water was pumped by the engine. Entering the house the firemen made their way with hose lines to the balconies running around the central hall, and put out the fire in one room after another. This was dangerous work, but before long after their arrival, they had the satisfaction of getting the outbreak under control. One notable incident of their fight with the flames was the saving of a number of paintings from a room already alight."



CHIEF FIRE STATION, BURY.

January 16th, 1914.

Messrs. Leyland Motors, Ltd., Leyland.

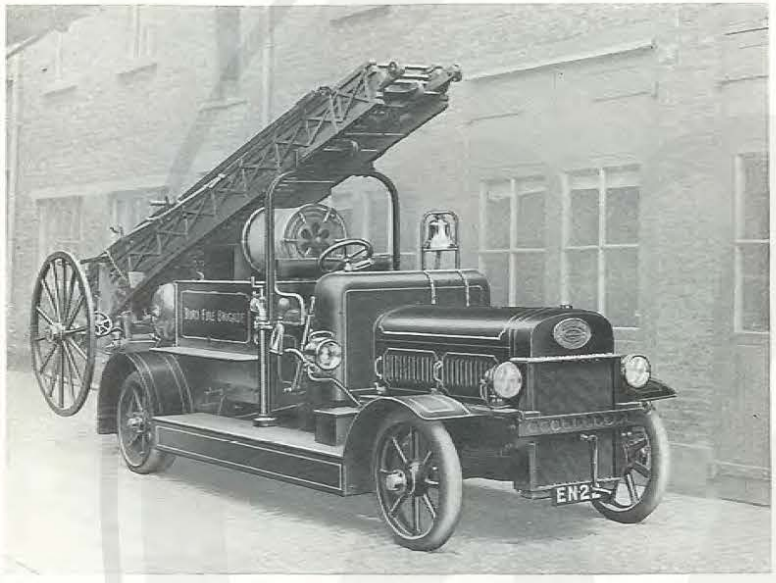
Gentlemen,—In reference to the Motor Fire Engine supplied by you to the Bury Corporation on the 1st of April, 1913.

It has done remarkably well; it pumped on June 4th, without a stop for four hours through three lines of hose with open ends. Again on August 20th, emptying a lodge for repair and which was very dirty when near the bottom, but it emptied it without a stop, taking out over 140,000 gallons in 4¼ hours.

From being called on August 20th, to arriving at Hardman's Green, Whitefield, 6½ minutes, which was commented on by the newspapers as a record run.

Wishing you, Gentlemen, a Prosperous New Year,

I remain,
Yours, etc.,
(Signed) J. E. FARGHER,
Chief Officer.



Large Engine with First-Aid Set and Brigade's own Escape.

Standard Fire Engine with Brigade's own Escape.

EXTRACTS FROM THE REPORT OF THE CHIEF OFFICER OF THE SHEFFIELD FIRE BRIGADE.

Saturday, April 27th, 1912.

FIRE AT HARDY PATENT PICK CO.'S WORKS.

"The 'Leyland' Pump, however, soon obtained the mastery, the jets cutting off the fire from the main building splendidly.

"The credit for a very good 'stop' is due entirely to the excellent work done by the Motor Pump in the early stages of the fire.

"The old steam engine also pumped very well indeed, but it seemed an age before it reached the scene, and of course the horses only travelled at about one-fourth the speed of the 'Leyland' Motor."

EXTRACT FROM "THE BIRKENHEAD AND CHESHIRE ADVERTISER," September 21st, 1912.

"By the way, the new Motor Engine that was purchased last November, worked for seven hours without a stop, added Mr. Burns, and was in every way very satisfactory. This was the first practical demonstration we have had of its powers, and it could not have been better. The brigade was withdrawn at half-past five yesterday morning, and we think our readers will agree that they came out of a big ordeal with flying colours."

EXTRACTS FROM THE REPORT OF THE CHIEF OFFICER OF THE SHEFFIELD FIRE BRIGADE.

Friday, 26th April, 1912.

FIRE AT CLUMBER HOUSE.

"I beg to report that at 6-50 p.m., on the 25th instant, I personally received the following message per telephone exchange : **'Please send an Engine at once to Fire at Clumber House.'**

"Having received permission I at once turned out with the No. 2 Motor, Inspector Corlett as driver, and six firemen. Every possible care was used in going through the City traffic and through the villages *en route*, but on good stretches of road, such as Lindrick Common, the speedometer registered from thirty-five to forty miles per hour. In fifty minutes, including the time lost in telephoning to the Town Hall, the motor was driven up in front of the lawn at Clumber.

"On arrival the Motor was run alongside the Welbeck and Worksop Steamers and pumped from the same supply. The fire by this time was well in hand, and consequently one line only was used, the branch being taken by Fireman Thompson up ladders right to the heart of the fire in the roof. This jet was kept on for about forty minutes, when the whole of the pumps were turned off, and the fire was practically extinguished."

One large Jet at Calcutta from Large Engine.

Guarantee

All "Leyland" Fire Engines are guaranteed for 12 months. The outputs given in the specification leave a margin, and are guaranteed ; they are generally considerably exceeded, as the copies of test reports prove.

Several smaller Jets from same Engine at Calcutta.

CENTRAL FIRE BRIGADE STATION,
Tara Street, Dublin.

February 8th, 1911.

Messrs. Leyland Motors, Ltd.,
Leyland.

"Dear Sirs,—I have your enquiry as to the general behaviour of the Motor Fire Engine constructed by your firm for this Department, and after an experience of over one year, I am pleased to give you my assurance that in actual practice it has proved fully up to my expectation in every respect.

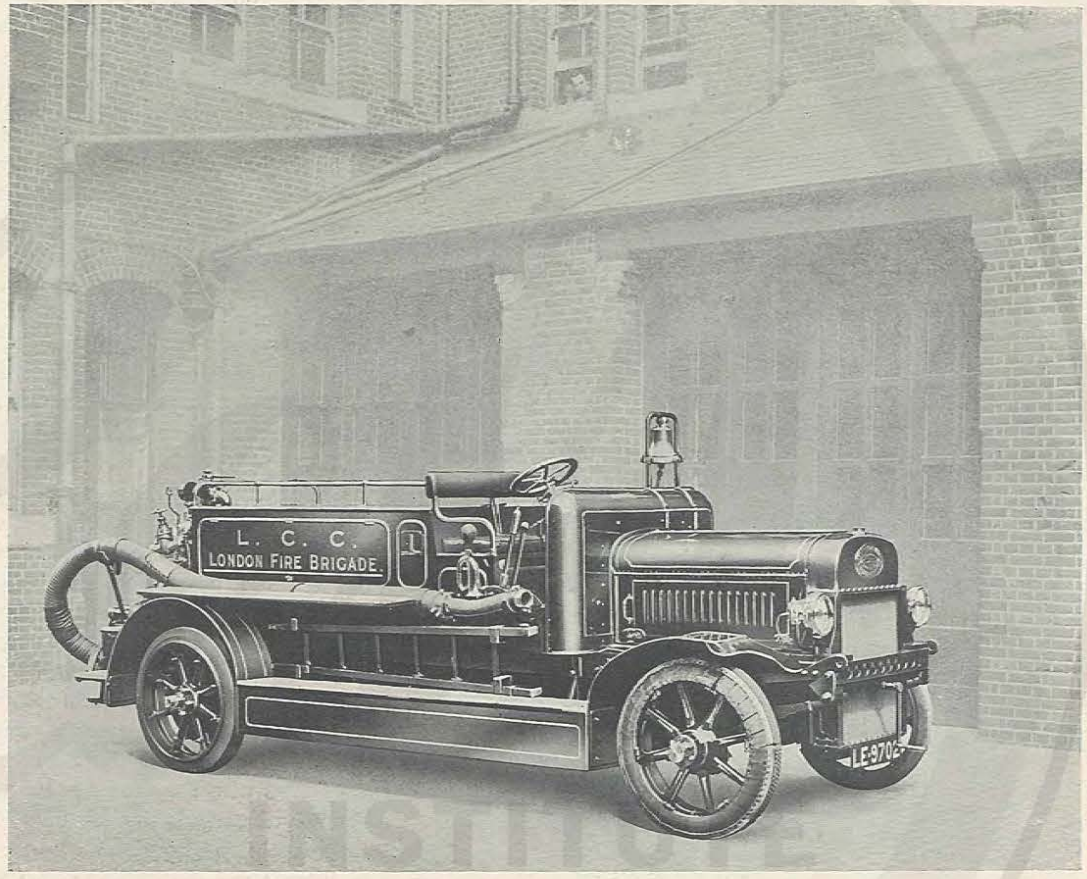
"The Motor has always stood ready, and never failed to respond for duty when required, in fact this Machine with its crew of ten firemen is the 'First Turn Out' from Central Station, and has thus attended nearly every outbreak of fire in the City. As to the Engine it has proved of ample power and flexibility for our work, we usually run in the City on the third speed, which is the 'direct drive,' and have taken every gradient without change of gear ; this with the Machine fully made up with appliances and men, weighing 12,500-lbs., is no mean test.

"The centrifugal pump has been operated at many fires for periods of about three hours, sometimes fed by lines of hose direct off the mains, in which case the pressure on the jets was considerably augmented, on other occasions it has lifted its supply through suction from rivers, and in two cases from wells, where we had to apply 32-ft. of suction, the vertical lift being 24-ft. I find the quantity delivered varies directly as the ratio of speed and pressure. When running at its normal speed the pump delivers 3,500-lbs. of water through hose and nozzles with a static pressure of 60-lbs., or say, from 350 to 600 British gallons per minute, accurately ascertained by several tests with a measuring tank of ample capacity. There is no pulsation nor vibration in the hose lines—a matter of the greatest importance in practical fire brigade work—the jets are steadier and reach a greater distance without breaking than those from reciprocating pump, no matter how driven.

"The design and proportion of the machine as a whole has proved practical and reliable, and cannot be much improved on. I am making a reference in my Annual Report as to the economical side of the adoption of Motors for Fire Department work, copy of which shall be sent you when received from printers."

"Yours faithfully,
"(Signed) THOS. P. PURCELL,
"Chief Officer."

One of the first eight London "Leyland" Fire Engines at home.



Repeat order for 25 more given Jan., 1914

Fleetwood Test, 27th March, 1913.

Deep Lift.—27-ft. 6-in. Time, 33 seconds to obtain water at end of 100-ft. delivery hose.

Display Test.—One $1\frac{1}{2}$-in., 130-lbs., 180-ft., 598 gallons.
One $1\frac{1}{4}$-in., and one $1\frac{1}{8}$-in., 95-lbs., 135-ft., 641 gallons.
Three 1-in., 75-lbs., 150-ft., 606 gallons.
Four $\frac{3}{4}$-in., 120-lbs., 135-ft., 576 gallons.
All with 19-ft. straight lift.