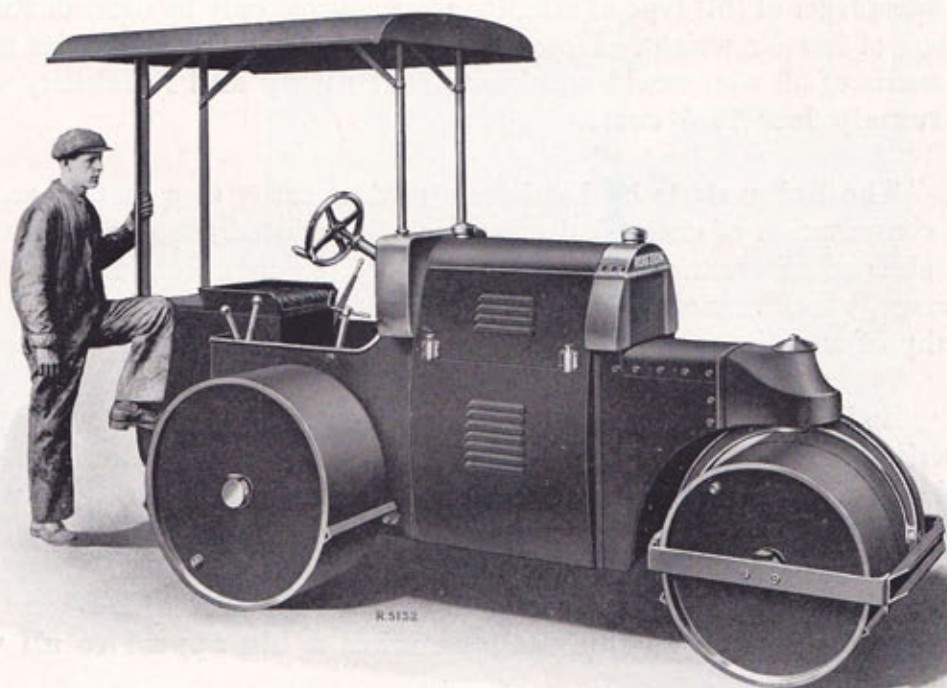


RUSTON

LIGHT "DIESEL" ROLLER



Ruston & Hornsby Ltd., Lincoln

TELEGRAMS: RUSTON LINCOLN

TELEPHONE: LINCOLN 580

RUSTON LIGHT "DIESEL" ROLLER

RUSTON Crude Oil Road Rollers—made by one of the earliest builders of Steam Road Rollers and the pioneers in the heavy Oil Engine Industry—already enjoy an enviable reputation.

Previous to the introduction of the Ruston Light "Diesel" Roller the advantages of this type of machine were enjoyed only by users of Ruston Rollers of heavier weight. Now, the Ruston Light "Diesel" Roller meets the needs of all who would **combine great utility and reliability with extremely low fuel cost.**

The Roller starts by hand from cold as easily as a motor car, but low consumption of cheap fuel means greatly reduced running costs while the absence of electrical ignition apparatus, freedom from fire risk and pilferage, which cannot be ignored in the case of a petrol engine, are points worthy of attention.

Embodying modern road roller practice and all the latest features in airless injection oil engine design, the Ruston Light "Diesel" Roller marks a distinct advance and considerably extends the field in which power rolling is a definite economy.

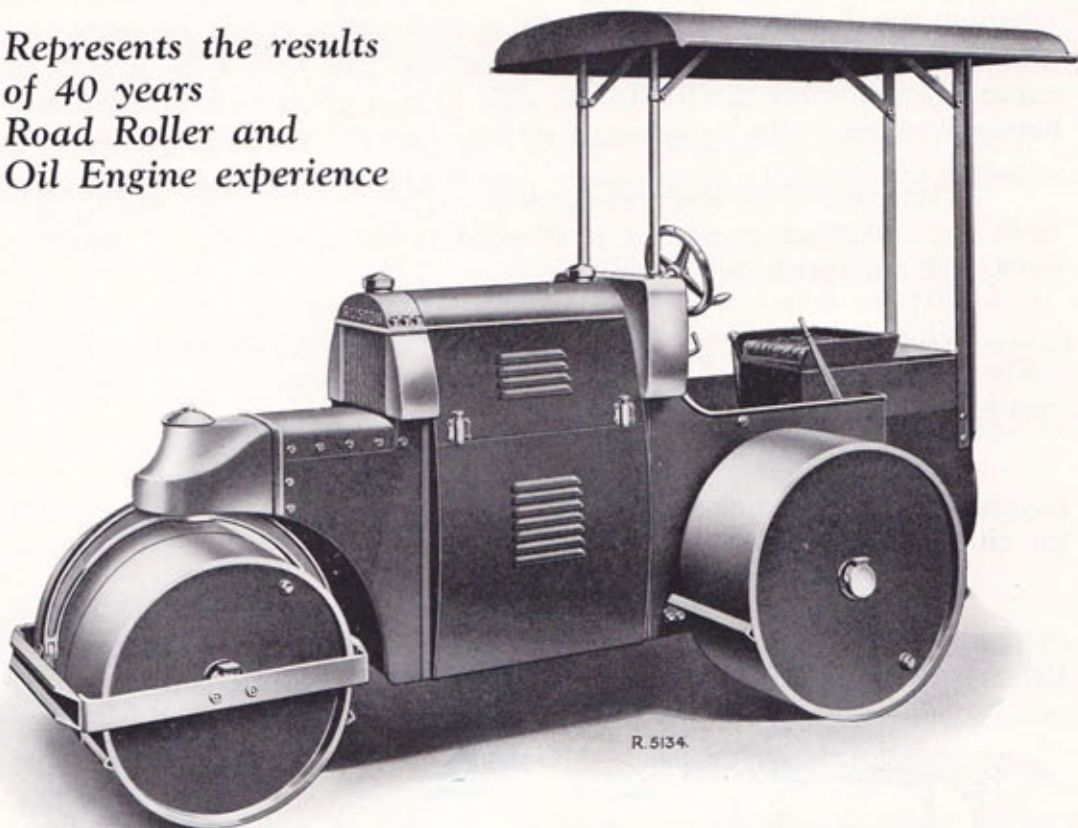
Working with a 2½ ton roller at a fuel cost of 7d. per day of eight hours, the Ruston Roller makes a big appeal to all who look for economy.

In the construction of the Roller high-grade materials, first-class workmanship, effective lubrication and, wherever possible, the enclosure of all working parts, make for reliability and long life.

Change speed and reverse gears, together with clutches and all operating mechanism, are enclosed in the gear box so that all pins and joints work in an oil mist and, being protected from dust and moisture, require no independent lubrication.

RUSTON LIGHT "DIESEL" ROLLER

*Represents the results
of 40 years
Road Roller and
Oil Engine experience*



Designed by manufacturers who are themselves Oil Engine specialists, the Ruston Roller is equipped with an engine of the most suitable power — an important fact which will be appreciated by engineers who know the loss of efficiency resulting from the use of an engine of excessive size.

The Ruston Roller has an engine which provides ample power when running at normal or "economical" load, and a properly proportioned gear box giving a wide range of speeds suitable for various gradients and all classes of work.

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A four-speed gear box gives a top travelling speed of 4 m.p.h. and a bottom speed of two-thirds m.p.h. at normal engine revolution, with two intermediate speeds carefully selected. These four speeds all operate in either direction while the **Ruston double clutch gives an instantaneous reverse without disengagement of any gears.**

The frame of the Roller is designed to give great strength and rigidity while the maximum protection is afforded to the engine and all working parts, without sacrificing accessibility.

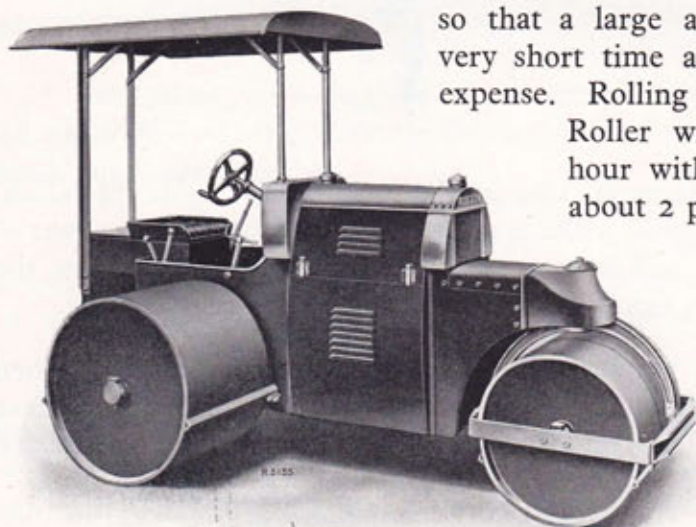
Wide driving wheels and generous overlap are prominent features, while the fact that the driving wheels have steel rims assures the maximum possible adhesion and minimum wear.

The Roller being of the three-wheel type, there is no projection beyond the wheels on either side and rolling is possible close up to a wall on either hand.

By substituting extra wide hind wheels for the standard width wheels the Ruston Light Roller becomes the ideal machine for rolling Aerodromes, Cricket Grounds, Golf Courses, and other grass land. The standard

rolling width can be increased up to 6 feet so that a large area can be rolled in a very short time and at surprisingly small expense. Rolling at 4 m.p.h. the Ruston

Roller will cover 2 acres in an hour with a fuel consumption of about 2 pints of Diesel fuel oil—a fuel cost (at current prices in England) of less than $\frac{3}{4}$ d. per acre.



RUSTON LIGHT "DIESEL" ROLLER

Special Features

Medium speed airless injection "Diesel" engine, starting instantly from cold without use of electric ignition, lamp, or cartridge.

Quick reverse by double clutches, no gears having to be disengaged.

All-steel wheels, giving maximum possible grip on the road and minimum wear on the rims.

Two powerful independent brakes, in addition to the reversing clutches, by means of which the Roller can be reversed instantly on any hill.

All change-speed and reversing gears running in oil, with shafts carried in ball or roller bearings.

All gears made from forged steel, with machine-cut teeth, and hardened.

Front wheels low pivoted, giving great stability.

Specification

Frame. The frame is constructed of rolled steel sections and plates, and is designed to give great strength without rendering the engine and other parts inaccessible.

Engine.—As described on page 7.

Transmission. Power is transmitted from the engine to the gears through a flexible coupling and double clutches. The reversing clutches and change-speed gears are totally enclosed in the gear box, the gears being of hardened steel and the shafts running in ball and roller bearings.

Differential Gear. Differential gear is included, and is of the spur-gear type, entirely enclosed in the gear box.

Clutches. Double clutches of disc type are provided, giving quick reverse without

disengaging any gears. The whole of the clutch operating mechanism is enclosed in the gear box, and consequently receives ample lubrication and is protected from dust. The clutches are controlled by one hand lever, which is simply moved forward or backward according to the direction of travel.

Speeds. Four speeds are provided for travelling in either direction, these being, at full engine speed, respectively 4, 2, $1\frac{1}{2}$, and $\frac{2}{3}$ miles per hour (6.4, 3.2, 2.1 and 1 km. per hour).

The engine speed can be varied considerably, so that any intermediate speed can be obtained.

Rollers. These are built entirely of steel, and the nave, discs, and rim are electrically welded together to form one solid unit.

RUSTON LIGHT "DIESEL" ROLLER

Specification—continued

Interchangeable wheels of varying weights and widths can be supplied for special purposes, such as grass rolling.

The heavy type wheels are arranged for water ballast, but the light type, or "grass," rollers are not.

Steering. The movements of the steering fork are controlled by a hand wheel placed at a convenient angle in front and towards the right-hand side of the driver. The steering is operated through hardened steel worm gear, and the vertical stem of the fork is hardened and turns in an accurately machined bearing in the forecarriage.

The weight is carried on hardened steel thrust surfaces, which function in an oil bath.

The steering fork itself is of cast steel, and is pivoted to a steel frame which surrounds the front wheels and is capable of rocking in the fork to allow the wheels to follow the contour of the road.

Forecarriage. The forecarriage is of cast steel and is securely bolted to the side plates of the frame.

Brakes. Two powerful independent brakes are fitted, one operated by hand and one by foot. Both have linings of bonded asbestos fabric. The hand brake is controlled by a screw, and both brakes have full control even if the change-speed gear is in neutral position.

In addition to these brakes, the reversing clutches provide another effective safeguard,

as the gear may be reversed with impunity even when descending steep hills.

The compression of the engine also gives such a great retarding effect that with a low gear engaged even steep hills can be descended without applying the brakes, the governor cutting off the fuel supply entirely. In this way hills several miles in length can be traversed without any wear or heating of the brakes, which need only be applied in order to bring the Roller to a standstill.

Scrapers. Efficient adjustable scrapers are fitted to both front and hind rollers.

Awning. An awning is provided for the protection of the driver.

Bonnet. A car-type bonnet is fitted to protect the engine and is provided with ventilating louvres.

Seat. A padded seat is supplied.

Painting and Outfit. The whole is painted, lined, and varnished in the best style, and all necessary tools, tool box, instruction book, and equipment are supplied with each Roller.

The following parts are extra unless expressly mentioned as included:—

Lamps. Two head and one tail lamps.

Water Sprayer. Tank with necessary pipes and valves for spraying front and hind wheels.

Awning Curtains. Side curtains only, or side and end curtains can be supplied if desired.

RUSTON LIGHT "DIESEL" ROLLER

Specification—continued

ENGINE

The Engine. The Roller is driven by a Lister* single-cylinder vertical Diesel engine of the medium speed, airless injection cold starting type, running on the four-cycle principle.

It is started by hand and runs efficiently on a wide range of fuels, including paraffin, gas oil, solar oil, and Diesel light fuel oil.

The following is a specification of the engine:—

Crankcase. Of stiff and uniform section cast iron.

Cylinder. The cylinder and liner are cast together of close-grained hard-wearing cast iron.

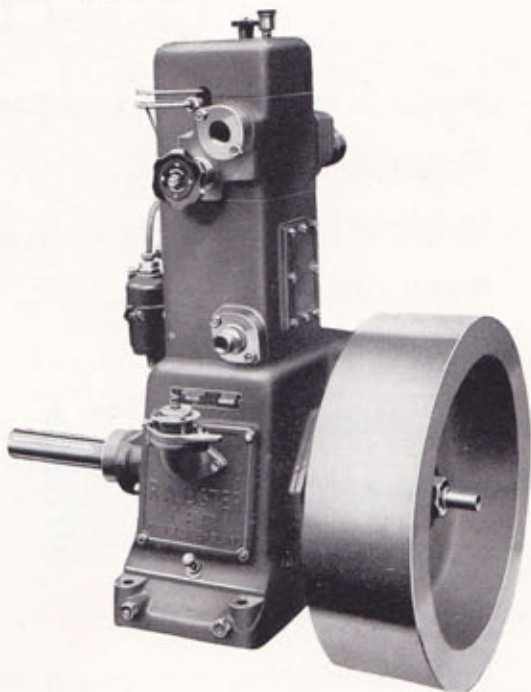
Piston. Of cast iron with three pressure and one oil-scraping piston rings.

Cylinder Head. Fitted with overhead valves which are operated by push rods, both ends of which work in oil. The cylinder head carries the "Lister Patent Combustion Chamber".

Lister Patent Combustion Chamber—Fuel Pump and Fuel Injection Valve. This combination provides a means of easy starting from cold without need of cartridge, heating lamp or electric ignition gear. Compression is raised for starting and lowered for normal running.

Camshaft. Of case-hardened mild steel ground all over, with cams set in correct positions by means of taper pins.

Crankshaft. Of 30/35 tons tensile acid steel, ground all over.



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Connecting Rod. Of a high-grade carbon steel drop forging, fitted with die-cast white-metal big-end and phosphor bronze small-end bearings.

Governor. Is of the variable quantity type and operates on the by-pass system. The stroke of the pump is constant, and the amount of fuel oil delivered at a given load is fixed by the governor.

Lubrication. Pump feed to main bearings and by splash to big-end and small-end bearings.

Silencing. An efficient silencer is fitted and the exhaust carried clear above the awning.

Cooling. Cooling is affected by means of water passing through a fan-cooled radiator.

* Manufactured by R. A. Lister & Co. Ltd., Dursley, who are associated with Ruston & Hornsby Ltd. in the production of Modern Oil Engines.

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General Dimensions

Weight in working order, including water ballast, approx.	..	2½ tons	2500 k.g.
Weight of water ballast	.. .. .	7½ cwt.	375 k.g.
Weight of fuel and cooling water, approx.	.. .. .	1 cwt.	50 k.g.
Width rolled	.. .. .	4' 1"	1250 m/m.
Front Rollers	.. .. .	Dia. 2' 3"	Width 2' 4"
		690 m/m.	710 m/m.
Hind Rollers	.. .. .	Dia. 2' 9"	Width 14"
		840 m/m.	360 m/m.
Engine B.H.P.	.. .. .	.. .. .	5
Engine revs. per min. maximum	.. .. .	.. .. .	600
Fuel tank capacity	.. .. .	4 gals.	18 lit.
Fuel consumption, average per working day of 8 hours	..	1½ gals.	7 lit.
Travelling speeds at 600 r.p.m.	.. .. .	4, 2, 1½, and ¾ m.p.h.	6.4, 3.2, 2.1, and 1 km.p.h.

NOTE.—This Roller can also be supplied, if desired, with non-ballasted wheels of the same sizes, giving a working order weight of approx. 2 tons, or with special wheels for grass rolling, giving a working order weight of approx. 2½ tons and a rolling width of 6 feet.

RUSTON & HORNSBY LIMITED
LINCOLN ————— ENGLAND