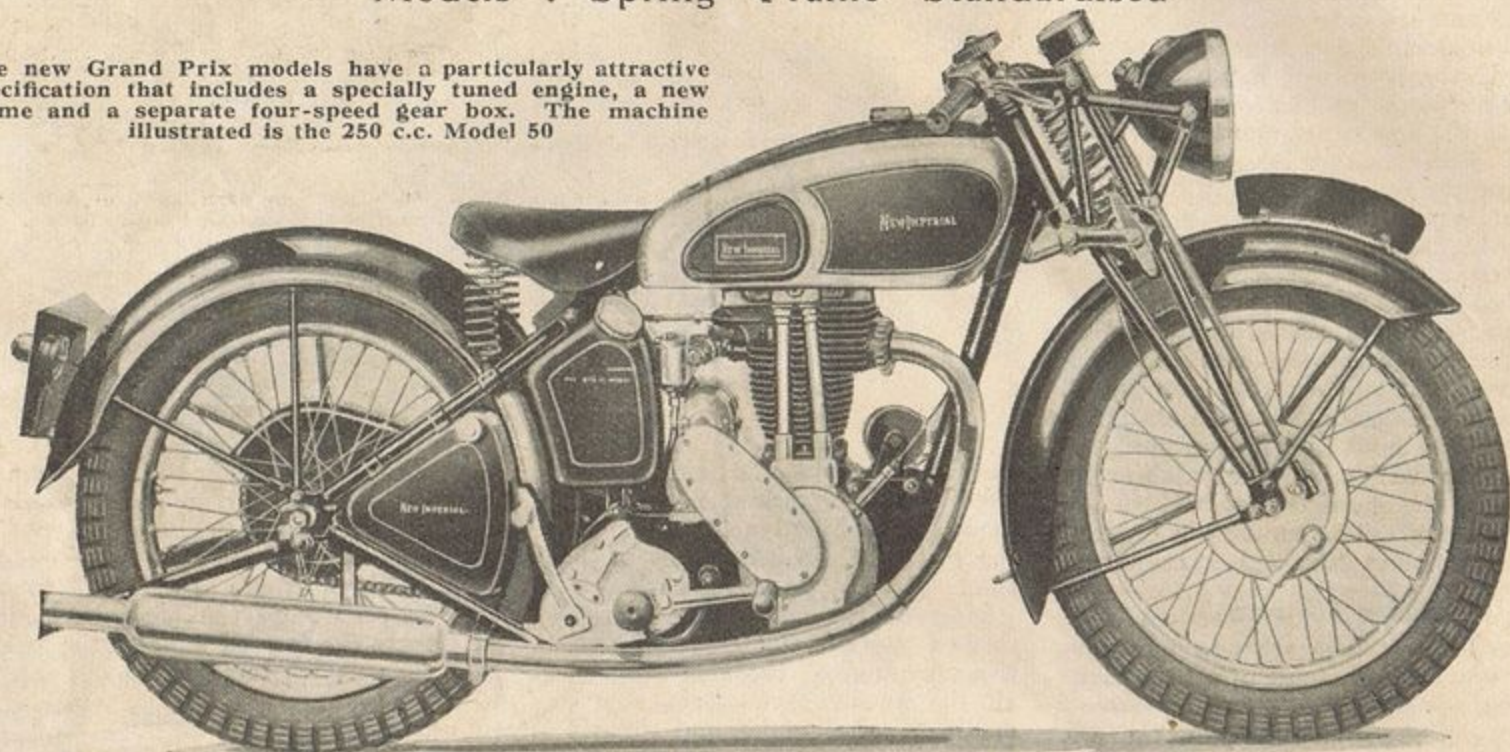


Attractive New Imperials

Much-improved Unit Construction Machines : Two New Grand Prix Models : Spring Frame Standardised

The new Grand Prix models have a particularly attractive specification that includes a specially tuned engine, a new frame and a separate four-speed gear box. The machine illustrated is the 250 c.c. Model 50



CONSIDERABLE improvements have been made to New Imperial machines for next year, not only as regards appearance, but also in connection with road-holding and comfort. In addition there are two new models of the sporting type; they are very attractive mounts, based on the makers' extensive experience of racing.

The range is divided into four groups, namely, Lightweight, Standard, De Luxe and Grand Prix. All machines, with the exception of the two new Grand Prix models, will have the New Imperial unit construction of engine and gear box. It is interesting to note that the De Luxe group is produced with the spring frame as standard equipment. Incidentally, the spring frame is available only on these three machines and is not applicable to any other model.

There are two overhead-valve models in the Lightweight group. Model 23 is a 146 c.c. Utility de Luxe machine, and Model 36L is a similar machine of 247 c.c. capacity. There are only slight differences in the specifications, but the two-fifty is rather more robust in construction and, in order to render it particularly suitable for town work, has been specially designed to give a good performance at low engine speeds. Both engines are of the single-port type. Helical gears are used for the drive to the gear box and dynamo, and the latter drive is silenced by the use of "Tufnol" gears. The three-speed gear box has hand control and a multi-plate

clutch with Ferodo inserts. Tyre sizes of 3.00-19 are common to both models, but the larger machine embodies a shock absorber in the rear wheel and has larger brakes.

Improvements include a new tank finish, which gives a much bolder appearance; it is in a deep shade of blue with gold lines and includes a "New Imperial" transfer in place of the "N.I." used this year. The head lamp and speedometer have been lowered and the electric horn has been removed from the fork to a position immediately in front of the engine. The use of a higher-grade steel and an increase in size of gear box and kick-starter parts represent still further improvements.

Coil ignition is standard, but a Maglita can be fitted at an extra charge of £2 5s. The prices of the standard machines are, Model 23 (146 c.c.) £33; Model 36L (247 c.c.) £38.

Improved Steering

In the Standard range there are three machines, of 247 c.c., 344 c.c. and 496 c.c. respectively. They are built on the same general lines and embody four-speed, foot-controlled, unit-construction gear boxes, Magdyno ignition and lighting, 3.25-19 tyres and 7in. brakes.

Important alterations have been made to the frames. The head lugs are shorter and the distance between the upper and lower fork-link centres has also been reduced. Again, the head lamp is lowered, the electric horn is mounted in front of

the engine and the new tank finish is employed. The new frame gives a lower tank mounting, and is said to provide better weight distribution and improved steering.

Single-port engines are standard, but a two-port head is available at an extra charge of £1 10s. Coil ignition can also be provided, in which case £2 10s. should be deducted from each of the following prices: Model 36 (247 c.c.) £48; Model 46 (344 c.c.) £50; Model 76 (496 c.c.) £58.

Next comes the De Luxe range, which virtually comprises the three last-named models with the important addition of the New Imperial spring frame. In this frame the triangulated rear portion is pivoted at the forward end of the chain stays, the pivots being widely spaced taper-roller bearings. Between the rear end of the top frame tube and the upper end of the seat stays there are two powerful springs which absorb road shocks, while their movement is controlled by an adjustable damper.

These machines are real luxury jobs, and embody the 1939 improvements already mentioned with the addition of deeply valanced mudguards. A further note of smartness is struck by finishing the tanks in chromium and blue with, of course, a "New Imperial" transfer.

With Magdyno equipment and single-port engines the prices are: Model 36 D.L.S. (247 c.c.) £56; Model 46 D.L.S. (344 c.c.) £58; Model 76 D.L.S. (496 c.c.) £63. Two-port engines cost £1 10s. extra.

There are two new models in the Grand Prix range that are deserving of attention. Actually, there are three machines in this category, but the 496 c.c. Model 110 is a unit-construction job on lines similar to those of the 1938 design. It is a sports machine with a specially tuned engine, a four-speed, foot-controlled gear box, 3.00-19 front and 3.25-19 rear tyres, 7in. brakes, a 3½-gallon petrol tank finished in chromium and red or chromium and blue, and a Lucas Magdyno set. The price is £60.

The two really new jobs are the 246 c.c. and 346 c.c. Models 50 and 60. These are non-unit machines with frames of a new pattern in which the saddle tube slopes downwards to a point in front of the gear box. This frame is constructed mainly of single tubes, but duplex tubes lead from the base of the front down tube to the rear fork ends.

The single-port engine is mounted vertically and has a particularly thorough lubrication system. A mechanical pump feeds oil to the big-end bearings, the timing gear and the rocker gear. The feed to the timing gear is by way of a drilled mainshaft and oil from this point is flung on to the timing gear, the surplus draining back to the sump. There is a separate delivery to the rocker gear, and this feed attends to rocker spindles, push-rod ends and valve stems. The oil pumped to these points drains back to a boss in the crankcase, where it enters an annular groove in the base of the cylinder thus lubricating the cylinder walls and the piston.

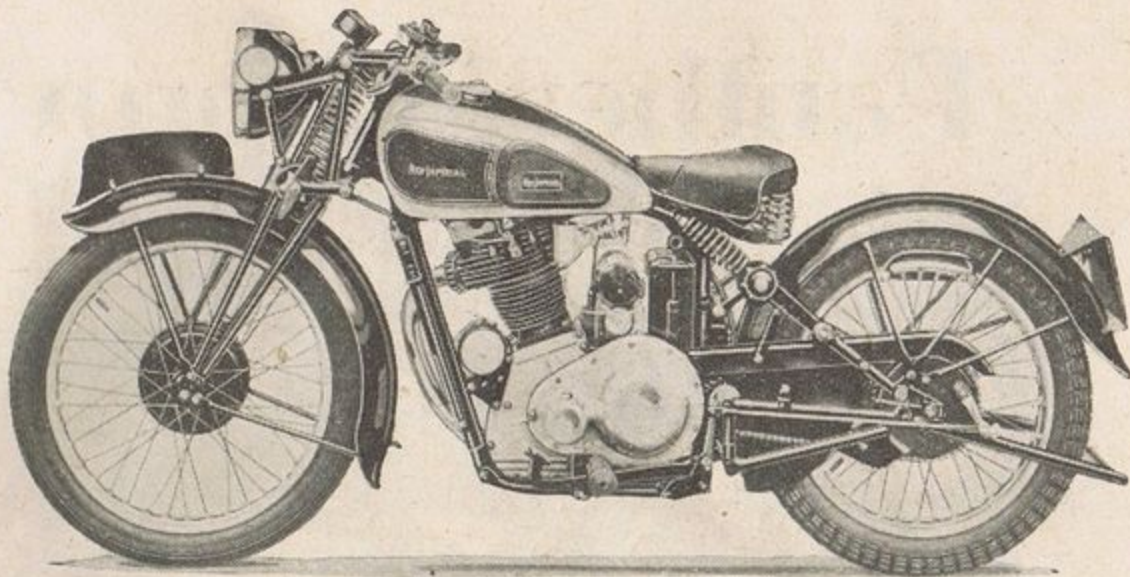
The valves are push-rod operated and the harmonic cams bear against flat-base tappets, which are free to revolve. Racing cams and cam followers are also available.

Flat-topped or domed pistons can be supplied, according to the compression ratio required. The flywheels are of forged steel; the crank-pin is taper-fitting; the big-end has a double-row roller bearing; and the mainshaft is supported on ball and roller bearings on the drive side and a ball bearing on the timing side.

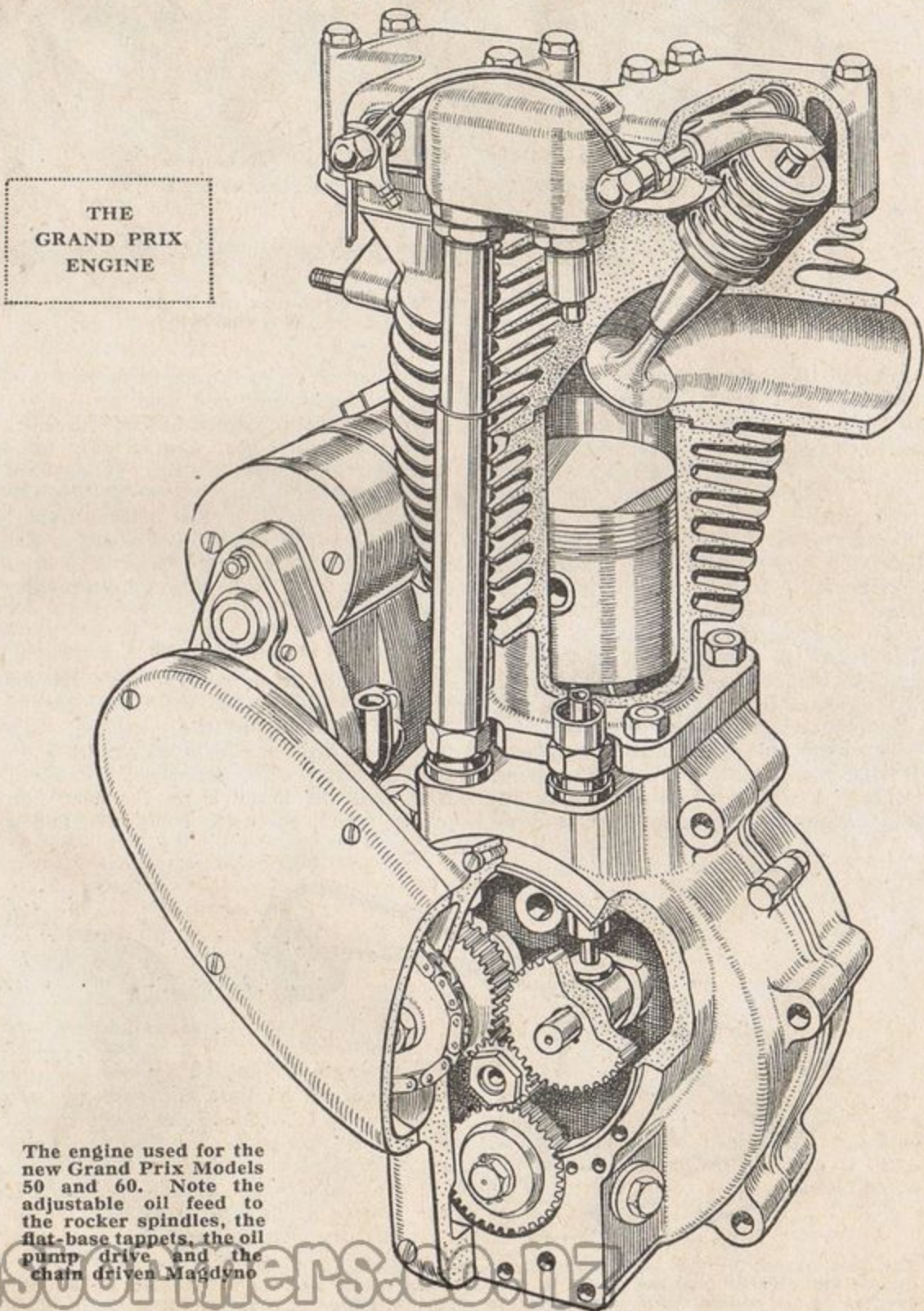
Special Features

The Burman four-speed gear box has foot control and a new and extremely accessible method of adjustment.

In standard form the gear box provides ratios of 6.25, 7.9, 11, and 16.6 to 1 for the 246 c.c. model, and 5.4, 6.9, 9.5 and 14.4 to 1 for the three-fifty. All models have 7in. brakes and 3.00-20 front tyres. The rear tyres are 3.25-19 and 3.50-19 for the two-fifty and three-fifty respectively. A tool box is carried between the chain and seat stays, and the petrol tank is rather narrower than formerly with well-rounded corners. Another feature of these two machines is the exceptionally deeply domed mudguards. These one-piece guards really do surround the tyre; also, they are free from seams and designed to provide the maximum protection. Lucas dynamo lighting, coil ignition and an electric horn are standardised on both models. Prices are: Model 50 (246 c.c.) £56; Model 60 (346 c.c.) £58. On all New Imperial machines an illuminated trip speedometer costs an additional £2 10s.



A really luxurious mount—the 344 c.c. Model 46 DL.S. As with other models in the De Luxe range, a spring frame forms part of the standard equipment



The engine used for the new Grand Prix Models 50 and 60. Note the adjustable oil feed to the rocker spindles, the flat-base tappets, the oil pump drive and the chain driven Magdyno