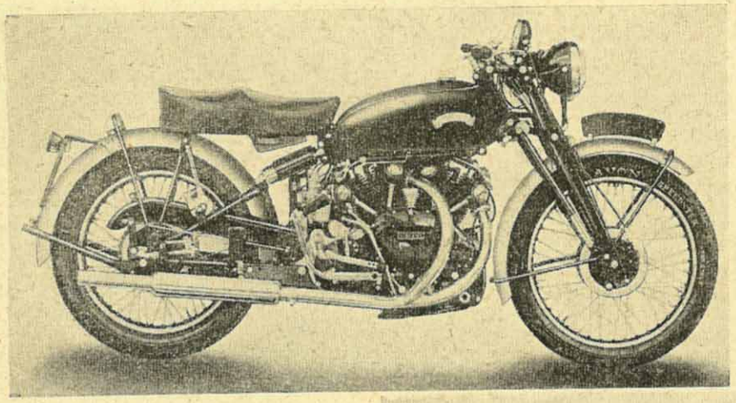
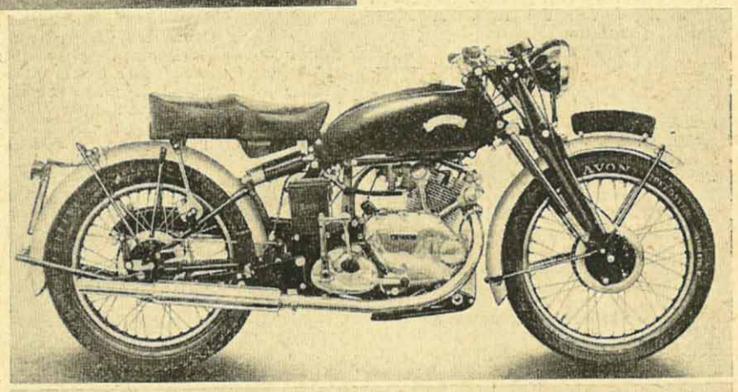


VINCENT

Stevenage Manufacturers Continue The "C" Series of o.h.v. Single- and Twin-cylinder Motorcycles and the "Firefly" Cyclemotor

(Left) Road-equipped, the 998 c.c. Vincent "Black Shadow" is, with its vee-twin engine, a unique motorcycle capable of sustained high speed either solo or pulling a sidecar. (Below) The "single" Vincent which retains many of the characteristics of its bigger brethren.



The fastest model in the Vincent range — the 998 c.c. twin "Black Lightning" in racing trim.

SINCE the publication of the 1953 Vincent programme, a considerable amount of water has flowed beneath the bridge of whatever river Stevenage may possess. First, the original company has been reconstituted, and is now known as Vincent Engineers (Stevenage), Ltd., a title which justifies the extensive fields of engineering in which it now operates. Secondly, the factory has achieved the somewhat unique distinction of manufacturing both the largest-in-capacity standard motorcycle engine and one of the smallest, due, of course, to the acquisition during the past year of the manufacturing rights of the 47 c.c. "Firefly" cyclemotor unit.

In this way, Vincent Engineers (Stevenage), Ltd., now cater, on the one hand, for what might be termed the superlative outlook—the requirement of a man who asks for the best, in terms of engine capacity and speed with a 998 c.c. standard machine, and, on the other, for the need of the cyclist who seeks powered transport, perchance as a stepping-stone to motorcycling proper. And for those who, perhaps rightly, suggest that such a step might be an unduly lengthy one, there is listed the single-cylinder 499 c.c "Comet," a potent, but, at the same time, reasonably docile "500."

The Series "C" 998 c.c. models, as previously, are catalogued under the names "Black Lightning," "Black Shadow" and "Rapide." All of them have the 84 mm. by 90 mm. bore and stroke vee-twin engine. The specification of this famous power unit includes cylinder barrels with detachable, high-grade cast-iron liners shrunk into finned, aluminium jackets. Both liners spigot deeply into the massive crankcase, which is cast in DTD424 alloy. The forged connecting rods are of 65-ton nickel-chrome steel (75-80 tons in the case of the "Black Lightning"). For big-end liners EN31 carbon chrome steel is used, and the components are hardened, ground and honed to final precision dimensions. A separate camshaft, mounted high in the timing case, is provided for each cylinder, and the push-rods are not more than 6 in. in length, so minimizing reciprocating weight. The crank assembly is supported by three roller bearings and a ball bearing, well separated to provide rigid support.

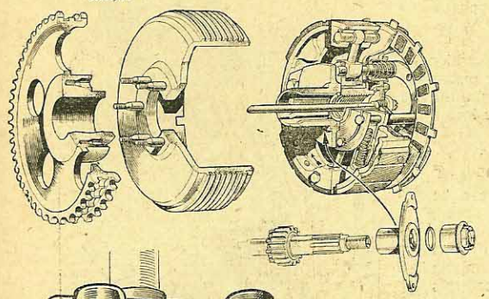
In the case of the "Black Lightning," which is essentially a racing machine, the compression ratio is optional. Two Amal 32-mm. bore TT9 carburetters are fitted and, with a 45-tooth rear-wheel sprocket, the gear ratios are 3.27, 3.89, 5.26 and 6.77 : 1. A 1954 engine modification for the "Black Lightning" is the use of flywheels modified to take a special crankpin and a three-row, 36-roller caged bearing. This big-end assembly has been redesigned to cope with sustained r.p.m. in excess of 6,500. The model is fitted as standard with Avon 3-in. by 21-in. front and 3.50-in. by 20-in. rear racing tyres. The ground clearance is 6½ in., and the model, which is finished black with highly polished alloy parts, weighs 380 lb.

Although similar so far as engine dimensions are concerned, the "Black Shadow" is turned out in standard form with a 7.3 : 1 C.R., two 1⅛-in. bore carburetters and Avon 3-in. by 20-in. front and 3.50-in. by 19-in. rear tyres. The gear ratios are 3.5, 4.2, 5.6 and 9 : 1, and the model weighs 458 lb.

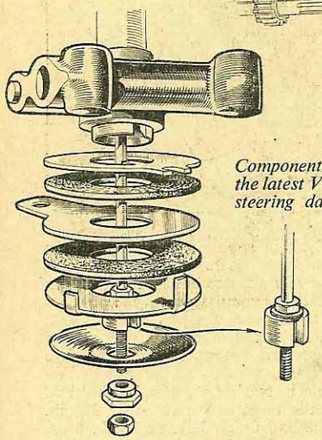
A favourite machine for fast, long-distance solo work, the "Black Shadow" is also a very useful sidecar proposition. Its attractiveness in this respect lies in excellent

PLANS FOR 1954

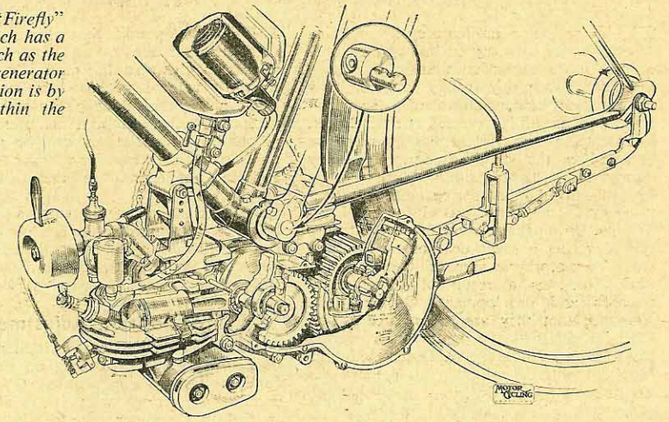
(Below) Details of the now famous Vincent servo clutch. Inset, and turned to show more clearly its construction is the new clutch carrier with its rubber O-ring and the modified shaft.



Components of the latest Vincent steering damper.



(Right) The two-stroke Vincent "Firefly" —a 47 c.c. cyclemotor unit which has a number of ingenious features, such as the embodiment of the magneto-generator rotor in the transmission. Ignition is by separate coil, seen housed within the fuel tank.



1954 Vincent Prices	Basic Price	Purchase Tax	Total
	£ s. d.	£ s. d.	£ s. d.
47 c.c. "Firefly"	25 0 0	—	25 0 0
499 c.c. "Comet"	215 0 0	43 0 0	258 0 0
998 c.c. "Rapide"	272 0 0	54 8 0	326 8 0
998 c.c. "Black Shadow"	305 0 0	61 0 0	366 0 0
998 c.c. "Black Lightning"	395 0 0	79 0 0	474 0 0

pulling power throughout the speed range, for, of course, the 998 c.c. engine provides excellent flexibility as well as speed. With sidecar work in view, the steering damper on this model has been modified and the 1954 pattern is very similar to that developed for Clubman's T.T. purposes.

The clutch push-rod has been divided and it incorporates centrally a ¼-in. diameter steel ball to prevent premature wear of the clutch-actuating mechanism under heavy-duty conditions. The centrifugal clutch shoes are now lined with moulded material, impervious to oil, and the clutch carrier has been redesigned to take a rubber O-ring, instead of the bonded seal used previously. Detail alterations to the clutch shaft and the retaining nut have been made in consequence.

To lessen the possibility of oiled plugs at the comparatively low engine speeds imposed by sidecar work, lubrication of the cylinder walls has been reduced by the use in the timing case of calibrated feed jets instead of the loose oil-restrictor discs fitted hitherto.

The "Rapide" is continued virtually unchanged. This model, the "softest" of the 998 c.c. series, has a 6.45 : 1 C.R., and 1 1/16-in. bore Amal carburetters, but otherwise it is identical with the "Black Shadow" so far as the major specification items are concerned.

For those not conversant with the Stevenage-made range, it is appropriate to explain that the Series "C" 499 c.c. "Comet" is ingeniously designed as a "half-thousand." The forward-inclined single-cylinder engine is dimensioned to give a bore and stroke of 84 mm. by 90 mm. respectively. A single 1⅛-in. bore Amal carburetter, a shorter primary chain and separate Burman gearbox providing final 4.64, 5.98, 8.17 and 12.4 : 1 ratios complete the scaling-down process which results in a formidable "500" in which docility plus a maximum speed of 88 m.p.h.—*vide Motor Cycling's* road-test figures—are pleasing characteristics. The "Comet" has a wheelbase ¾ in. shorter than that of the bigger models. It weighs 390 lb. but is built to "thousand" standards in other respects.

Standardization of main components has long been the keynote of Vincent policy. At the four post-war Earls Court Shows all Stevenage-made exhibits have been seen with the well-tried Vincent rear suspension.

While swinging-fork rear suspension has become an almost universal fashion, Vincents continue to pin faith in their own rear-sprung frame, a complete saddle- and chain-stay triangulation designed to pivot at a point behind the engine-gearbox unit. Its movement is damped by special spring units, acting as a species of buffer, between the top of the structure and the rigid backbone assembly. Vincents have no diamond or loop frame: instead an exceptionally strong head-lug is bolted to a forged steel bracket on the front cylinder head and a triangulated oil reservoir, of six pints capacity, acts as a top "frame" member, or stay, between the two cylinder heads, or, in the case of the "Comet," between the cylinder and cast-aluminium rear seat stay.

Other Vincent features are dry-sump lubrication with a Pilgrim pump, a separate Lucas magneto and 6v. Miller dynamo and Miller lamps. The patent Vincent "Girdraulic" forks, of course, are retained and all models have a fuel capacity of 3⅝ gallons. Dual brakes are fitted and the total brake lining area—an important specification item in a range claimed to include the world's fastest standard motorcycle—is 38.5 sq. in.

A latecomer to the cyclemotor field, the Vincent "Firefly" has lost nothing by reason of its delayed arrival; indeed, the time spent in development is probably to the ultimate good. With bore and stroke dimensions of 38 mm. by 42 mm., this 47 c.c. unit is a four-port, flat-top-piston two-stroke introduced during the 1953 season and designed to be used with any standard bicycle.

Generally accepted two-stroke construction methods are followed except that full flywheels, balanced by flats machined adjacent to the big-end, are used. The big-end assembly is of the built-up type with a caged roller bearing and a parallel, pressed-in crankpin. The longitudinally, finned cast-iron barrel and detachable alloy cylinder head are retained by four long studs screwed into the crankcase.

Supported by a journal ball bearing, the drive side engine mainshaft carries a taper-fit pinion meshing with a secondary transmission member which, in normal motorcycle design, would form the clutch wheel, carry the clutch assembly and drive the gearbox mainshaft. The "Firefly" has no clutch assembly and the driven wheel is used (a) as a magneto rotor for the generator

(*Continued on next page*)

(the coils are mounted on a back-plate) and (b) as a means of driving a countershaft carrying a rubber-bushed, flexible friction-drive component.

Positioning the unit so that it is in contact with, or free of, the rear wheel is achieved by means of a conventional clutch-type handlebar control lever.

Smooth Drive

Torsionally, the drive component can be moved by hand as much as one-eighth of a revolution which gives some idea of its cush-drive characteristics. Laterally, too, it will accommodate tyre or wheel irregularities without slipping, or transferring the stress to the countershaft or pinions.

An unusual feature of the " electrics " is the employment of a separate coil for ignition purposes. The coil is located by a bayonet-fitting ring, and is housed in a recess in the bottom of the petroil tank. It is served by the A.C. generator and a crankshaft-driven contact-breaker. The generator output is sufficient to supply current also for a 6v. direct-lighting set.

" Firefly " modifications for 1954 are few but include separate grommets for the leads to the contact-breaker and coil and lights. A modified fuel tank lug facilitates the fixing of the unit to bicycles of widely varying types; with this difficulty in mind the manufacturers also supply an adapter by means of which the bottom bracket shaft of a bicycle—they are not all of a standard length—can be extended so that the cranks clear the power unit.

A redesigned choke for the 308 Amal carburetter has proved to be more effective and it greatly improves the appearance of the little engine. After experiments over a long period the manufacturers now fit a K.L.G. FE20 plug and suppressor as standard initial equipment and it is understood that in the near future a special central stand—for which a fixing point is already provided—is to be available.

The address of Vincent Engineers (Stevenage), Ltd., is Stevenage, Herts.

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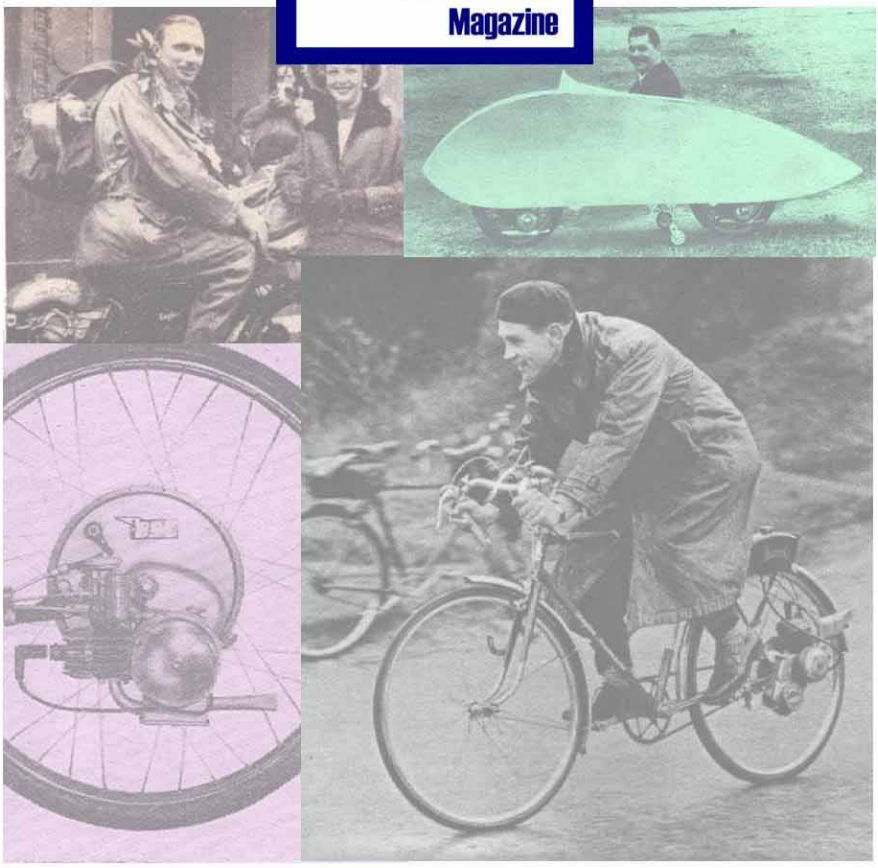

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