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REG. MINIST. 10329 DI GIUGNO 1971 N° 2281/123  
 Via Maresca 16/18 - Padova - 35100

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# Associazione Documentazione, S

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ARIEL Square Four - Note di Servizio Generali e Catalogo parti di ricambio per Ariel 1000 modello 4G MK.11

## SERVICE NOTES

# THE ARIEL SQUARE FOUR

**JIM LEE, Ariel marque specialist, overhauls the unique four pot motor.**



*Last of the line. The MkII OHV 1000cc Four manufactured from 1953 to 1958.*

**CLASSIC MECHANICS**

□ Ariel's first 1000cc four-cylinder model was introduced for the 1937 season to replace the 650cc overhead cam model. The new engine had a cast-iron overhead-valve configuration, with 65mm bore and 71mm stroke. These dimensions were to remain the same until the model's demise in 1959.

The cast-iron engine was made until early 1940, then discontinued during the war and reintroduced when the factory resumed peacetime production late in 1945. From 1945 to 1948 this model continued with the engine unchanged, but for the 1949 season the first of the alloy-engined models came in as the MkII. The crankcase layout and timing side arrangement was the same as on the iron model, except for the introduction of coil ignition with a new Lucas dynamo replacing the old Lucas Magneto.

The MkII engine had an alloy cylinder block and all-alloy head with the exhaust manifolds integral with the head. Two exhaust pipes were used and, like the iron engine, were taken off the front of the manifold.

Unfortunately the MkII engine suffered from a number of design problems. Excessive heat build-up in the head was caused by the exhaust manifolds being part of the whole casting and an alloy of dubious quality being used. Although a few pence cheaper than the material specified, this was more than outweighed by the expense of warranty claims made by dissatisfied customers.

For 1953 the last of the line came in as the all-alloy MkIII, and the main consideration here was to improve the reliability of the cylinder head layout. To this end the factory improved the exhaust manifold, making it detachable from the main casting, whilst providing two outlets for the pipes on each side. The rocker gear was also revamped. In this guise the Ariel Square Four continued in production until early 1959 when the whole range of four-stroke models was finally dropped completely.

All Square Four engines are basically the same, their differences being in detail modification which will be dealt with as we go along. In my experience two main factors are to be considered when overhauling and using any of the Square Four models. First, everything must be kept scrupulously clean, with particular attention paid to the engine internals, making sure that all oilways are free of sludge and hard carbon deposits. This may sound obvious but in the crankshafts, particularly, the sludge traps are very small and efficient, and many a broken conrod has been caused by a

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