

## The Matchless

**T**he 500 Matchless churned out 42bhp on petrol and nearly 50bhp on dope and was of a single cylinder ohv type.

It was Jack Emmott, an ex-AMC race mechanic who decided to develop the 500cc Matchless engine for Speedway. He had got the idea whilst acting as a machine examiner at West Ham Speedway and saw scope for such a development.

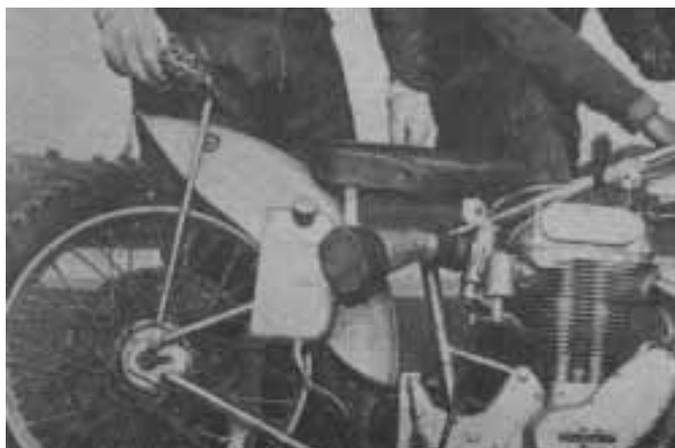
The original motor was derived from the latest AMC units, the G85 series that could be bought from the Woolwich factory. Most of Emmott's modification's were intended for Speedway and Grasstrack but could have also lent themselves to Scramblers and possibly roadsters.

The standard cast piston was replaced with a forged piston making it much lighter and for high compression addicts, Emmott would machine .025ins from the cylinder base and when used with compression plates would allow a range of compressions from 11 to 14.5 to 1.

Another speedway innovation was a fully floating engine sprocket that eliminated primary chain misalignment. The range of engine sprockets were from 16 to 26 teeth. In tests, the ohv rocker assembly was found to flex under stress and was overcome with the fitting of a modified camshaft. The new cam form, which does not increase power, provides the cam gear with a much easier life and eliminates valve float. As a result lighter strength valve springs are possible and this also benefits acceleration.

An Emmott idea incorporated on Production AMC units was the magneto fixing. This was now bolted directly on the rear of the timing case instead of the engine plate. The engine could be removed, or fitted into a frame, with the minimum of effort and certainly without disturbing the magneto.

The general specification of the G85 is most interesting when it is appreciated that the over square 86mm x 85.5mm engine owes a great deal to the 7R and G50 road racers. The big end bearing is the same, as is the material for the connecting rod.



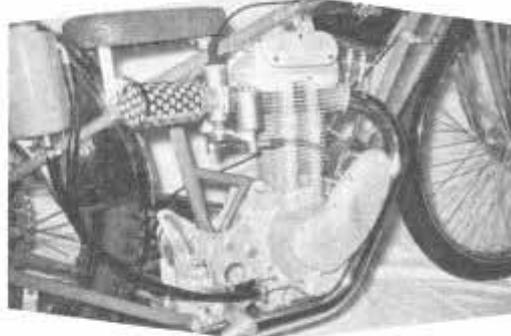
# New SPEEDWAY ENGINE UNIT FROM... Matchless

## G85 CS SPEEDWAY UNIT SPECIFICATION.

Engine 497cc (86mm x 85.5mm) all alloy o.h.v. single developed solely for Speedway and Grasstrack racing. Alloy cylinder head with shrunk-in valve seats and central plug: stellite tipped valves: racing duplex hairpin valve springs: built up rockers housed in detachable light alloy rocker box: separate inspection cover: hiduminium push-rods with hardened steel end cups: mushroom type cam followers: special high lift cams (type HS) on separate pinions: built up crankshaft (individually balanced) with steel fly-wheels and two piece crankpin (alloy steel centre pin with hardened steel sleeve) supported by two-ball journal, one roller and one plain, main bearings: duralumin caged single row roller big-end bearing: forged steel connecting rod with pressed-in hardened liner: alloy piston (standard CR12.5): alloy cylinder barrel with low friction iron liner: gear type oil pump driven by timing side of crankshaft: Lucas waterproof competition magneto, driven by chain, bolted directly to alloy timing chest, enabling engine changes without disturbing ignition timing.

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the Grandstand Trophy-winning  
scrambler engine.*



*Ample spares available -  
at competitive prices*

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This information was found at:

<http://speedwaybikes.fortunecity.net/match.htm>