

# ENGINES

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## The 'B' Series engine



The engine that was used for the MGB for its entire life (1963-1972 in Australia and 1962-1980 overseas) was the 'B' Series engine. This engine was created by the Austin Motor Company, with its design dating back to 1952. Whilst it was similar to its predecessor (the engine used in the Austin A40 Devon), it had the major advantage that its initial capacity of 1200cc could be bored out to suit the company's needs (there was an Australian variation that took it out to 2.4L). It also had a diesel version. This flexible and adaptive engine has been used in no less than 60 different vehicles. Of these, four different MGA engines were all powered by the 'B' series engine (1489cc, 2 x 1588cc [one of which was a twin cam version] and a 1622cc).

The engine itself was a conventional 4 cylinder OHV engine, with a one-piece cast iron crankcase and cylinder block, with a cast iron head and pressed steel sump. Initially designed with a 3-bearing crankshaft, this was changed to a 5-bearing early in its life. A chain-driven camshaft operated the valves via pushrods and rocker arms.

## ENGINES used in Australia



The iteration of the 'B Series' engine that was used on the MGB for its entire life was the 1798cc version. These were all shipped out in CBU (Completely Built Up) form (Australian components were then attached to it; this was to meet Plan B tariff requirements). During the period of vehicle assembly in Australia, the following engines were used:

*NB: for a very detailed description of all the modifications to these engines, see ('Clausager: Original MGB, 1994. MBI Publishing Company)*

**18G/U/H** – This was the first engine that was in the MGBs from April, 1963.

**Features:**

- crankshaft with 3 main bearings.
- simple crankcase ventilation system, pipe venting front tappet cover to atmosphere and a pipe from rocker cover into the front air filter.
- semi-floating gudgeon pins
- mechanical drive for rev counter
- metal oil filler cap

**18GA/U/H**

– This engine was introduced around August, 1964 in Australia.

**Features:**

- crankshaft with 3 main bearings.
- positive crankcase ventilation (closed circuit breathing ). This was to conform with regulations concerning air pollution (used on engines 18GA/U 101 – 17 500). Front side cover now had an oil separator.
- Oil filler cap now plastic with built-in air vent.
- semi-floating gudgeon pins.
- mechanical drive for rev counter.

**18GB/U/H**

– Around March, 1965 saw the next iteration of engines and major changes.

**Features:**

- crankcase with 5 main bearings.
- fully floating gudgeon pins.
- electronic rev counter (the previous drive-gear was deleted).
- positive crankcase ventilation (closed circuit breathing ).

**18GB/RU/H**

– Towards the end of 1967 the move from PMC, Enfield to BMC, Zetland had been mooted. Due to Australia being so far behind the UK with the introduction of the Mk II (for all the reasons mentioned elsewhere on this website), the last approx. 500 YGHN3 vehicles (still basically Mk I vehicles), incorporated many of the changes now seen on the British Mk II. One of the main inclusions was that of overdrive being offered. These vehicles have been affectionately called 'the 1.5 series'.



Inexplicably, these vehicles were still classified as YGHN3, even though they now had a different engine.

*NB: First vehicle to be assigned an overdrive gearbox was YGHN3/5022, engine no. 18GB/RU/H 61942.*

**Features:**

- crankcase with 5 main bearings.
- optional overdrive
- positive crankcase ventilation (closed circuit breathing ).

*NB: The above-listed engines coincided with the UK equivalents – GHN4 & GHD4 engines. Those below coincided with the UK equivalent – GHN5 & GHD5 engines.*

## 18GD/RWE/H

– The MGB Mk II officially started with this engine.

**Features:**

- 5 bearing crankshaft.
- closed circuit breathing.
- fully synchronised gearbox.
- new overdrive unit and relay.
- new inverted oil filter.
- new distributor (now with cables no longer coming out of the side but the top of the cap).
- negative earth electrical system.
- six-blade metal fan.
- alternator
- the starter motor was of the pre-engagement type.

*NB: From February 1969, to overcome a Service complaint of difficulty in removing dipsticks, Production decided to remove the lower packing ring (AEC 3461). This ring was found to protrude inside the gearbox casing, restricting the removal of the dipstick and not acting as a seal.*

## 18GD/RC/H

– In 1969, an ‘automatic’ version of the MGB was offered.

**Features:**

- same as 18GD/RWe/H but fitted with the Borg Warner Type 35 automatic transmission.

## 18GG/RWE/H

– The 18GG engine was introduced mid to late 1969.

**Features:**

- 5 bearing crankshaft.
- fully synchronised gearbox.
- alternator 16ACR (built-in regulator).
- carburettor ventilation. PCV valve replaced with a vacuum source taken from the twin SU carbs, using a ‘Y’-pipe.



## 18GG/WE/H

– During 1969 and 1970, some 260 'YHN6' designated vehicles were assembled without overdrive.

### Features:

- carburettor ventilation. PCV valve replaced with a vacuum source taken from the twin SU carbs, using a 'Y-pipe'.

## 18GG/RC/H

– Also during 1969 and into 1970 another iteration of the 'automatic' was introduced

### Features:

- same as 18GG/RWE/H but fitted with the Borg Warner Type 35 automatic transmission.

*NB: It should be noted that not many of these vehicles were assembled as, at the time, they didn't appear to be very popular with the public.*

## 18V582H

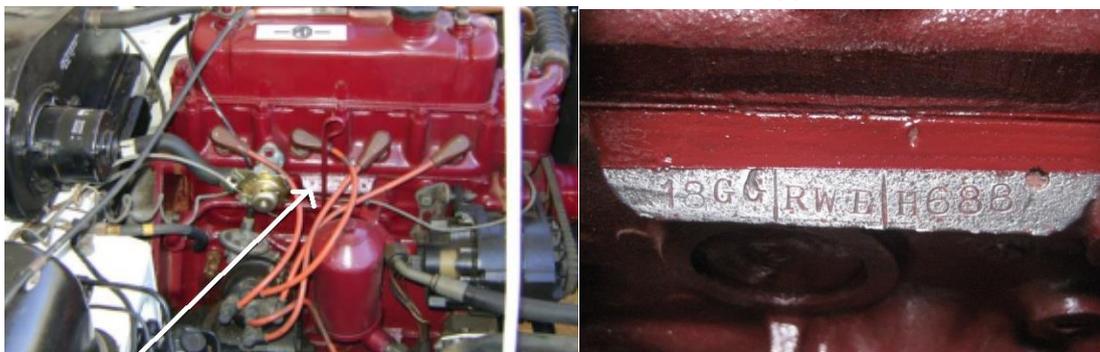
– This was the final engine used in the Australian assembly of the MGB and was introduced around April, 1972 (YHN9 vehicles).

### Features:

- engine painted black.
- HIF. 4 carburettor.
- compression ratio now 9:1
- new style tappets and longer pushrods.
- new water pump.
- new fan pulley.
- new air cleaners.

## ENGINE NUMBER LOCATION

In the UK the practice was to attach a numbered plate, riveted to the side of the body of the engine. In Australia, the engines arrived with the engine number plate attached by wire to the oil dipstick. This was removed and discarded, with the number actually punched into the block (in the same location as in the UK). The 'date of manufacture dial' was on the opposite side of the vehicle.





Build Clock (this engine - 11th Nov, '65)

## NOTES:

### FAN BLADES

The 3-blade metal fan (12H907) was used on **18G** and **18GA** engines (**YGHN3 501 – 1007**) then (12H1058) used on **18G** and **18GA** engines (**YGHN3 1008 on**); one replaced the other, the second requiring slightly different fittings. The 6-blade metal fan (AHH6999) was introduced with the **18GD** engines

### MANIFOLD INLET

Two slightly different manifold inlets were used; (12H911) on the **18G** and **18GA** engines and (12H1397) on the **18GB** and **18GD** engines.

### CLOSED CIRCUIT BREATHER VALVE

(13H3609) was used on the **18GA/U/101 – 17500** and **18GB/U/101 – YGHN3 3349** (this was actually a replacement for the original 13H1753, which was substituted by March, 1967).

### OIL FILTERS

The oil filters are 180° different on **18GB** c/f **18GD** engines.



## **ENGINE MOUNTING CROSS MEMBER**

The rear mounting cross member changed between the **Mk I** (AHH6134) and the **Mk II** (AHH8430)

### **Original BMC/L Documents:**

[1963 Crankshaft Thrust Washer](#)

[1964 \(mid\) SLS \(extract\) Closed Circuit Breathing](#)

[1965 Modifications to MGB \(8 pages\)](#)

[1967 Closed Circuit Breather Valve \(2 pages\)](#)

[1967 Starter Jingle](#)

[1967 Oil Control Rings \(2 pages\)](#)

[1967 Oil Seal Cylinder Front Cover](#)

[1968 Closed Circuit Breather Valve \(2 pages\)](#)

[1972 Vehicle Emission Control \(12 pages\)](#)

### **SLS Docs – Engines**

### **SLS Docs – Engine Bay**





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