

Mechanicals

Does Your Healey Have Low Oil Pressure?

Courtesy of the Carolinas AHC Tech Tip Book

Does your Austin-Healey smoke? Burn oil? Have a rough idle? Have less than 15 lbs. oil pressure at idle? Have inadequate oil pressure at 60 mph? This kind of problem

is so very common with the Big Healeys and it is usually diagnosed as a worn out engine. It has been known for owners to have their engines pulled, have the crank reground, the block rebored with new pistons and a valve job with new guides. The engine then runs great but it still smokes and the oil pressure is still low. That same problem is still there. Now what?

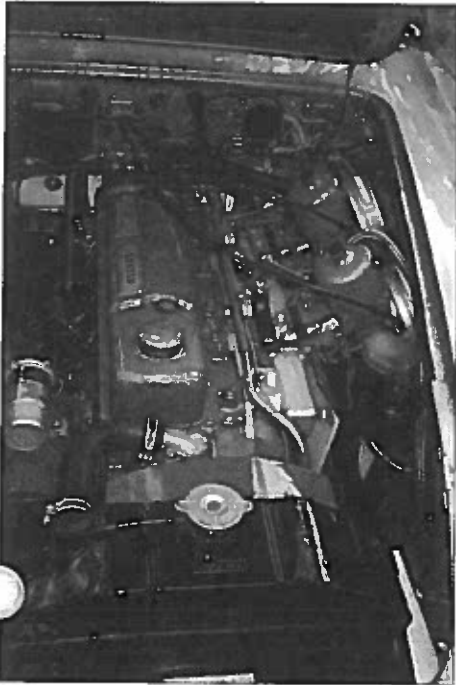
If you have the smoking and oil pressure problem, here is a diagnosis that could save you an engine rebuild of a few thousand dollars.

Drive your car for 30+ miles to

bring the oil up to operating temperature. As soon as you return to your garage, remove the valve cover before the oil cools down. With the valve cover removed, start your engine and run it at 3,000 rpms and notice the quantity of oil coming from the side of each rocker arm; an engine in good condition will only have a very small amount of oil coming from the side of the rocker arms. If you have a large amount of oil coming out of the small hole on the top center of the rocker arm, or it spurts out and makes a gusher of six inches or more, you have now found a major cause of low

oil pressure and smoking in the Big Rustin Healey's.

You may want to purchase a rebuilt rocker assembly for installation. These units all have a new shaft, new bushes, and reground rocker arm faces. Hope this saves you some dollars and sense.



Engine compartment photos by Dr. Roberto Scaglione, AHC De Argentina.

10 lbs Oil Pressure Increase For 10 Minutes Work

By Stuart Shepherd, North Texas Austin-Healey Club

It was just a routine oil change. No problem, drip trays in place, container big enough to catch the oil. Raise the front end, unscrew the drain plug and dump the oil.

The filter is a bit more difficult, I still use a paper element in the original canister. It seems best to pull the whole assembly by undoing the bolts holding the aluminum oil filter adaptor to the engine block.

Some might be thinking: Crazy guy, why doesn't he convert the thing to a modern screw on element and have done with the mess. Well, I might one day, but I have a few paper elements left and that kind of element permits me to inspect the inner surface for signs of metal or other strange particles lodged in the folds. It is possible to purchase a special can opener to inspect modern screw on filters, but outside of aircraft industry, I have never seen anyone do that.

The oil change went well, fresh Castrol GTX 20W/50 dumped in the crankcase, new oil filter element carefully installed and the whole assembly bolted back in place on the engine block.

It was good to have an excuse to drive the 100-6, so a drive was in order to make sure that there were no oil leaks and everything else was kosher. Imagine my surprise when on this bright winter day the pressure came up to only 40 lbs. and stuck there. Normally it would go right up to about 58 lbs. and then drop back to 50 when warm. Figuring no harm would be done driving it a few more miles, I hoped that when the oil temperature came up the pressure would rise. Deep down I knew that would not happen, but I reasoned that a simple oil change could not affect oil pressure. Maybe the oil pressure relief valve had stuck slightly open.

I would eventually free up and normalize the pressure?

Back home in the garage, I was scratching my head because the OP reading never

went above 40 lbs. when the engine was good and warm. Overnight I went over and over a diagnostics process in my head.

- Oil pressure gauge had suddenly gone bad, not likely.
- Wrong grade of oil, not likely.
- Pressure relief valve had stuck open, maybe, but not likely
- Oil pump had suddenly become inefficient, not likely.
- I had goofed doing the oil and filter change, impossible.

It took a while but gradually pride was overcome, and I admitted that the most likely cause of low engine oil pressure was something I had worked on.

Couldn't be the drain plug, definitely was not the grade of oil, so it must be in the filter assembly. Off it came again, oil dripping off the starter, down the block into the drip pan as well as down my arm. When the filter canister was removed it was immediately apparent that the pressure plate under the spring was upside down and the felt washer and steel washers were

not to be seen. (Moss catalog items 25, 26 and 27) These were soon fished out from the inside of the paper element, and a correctly installed filter was reinstalled resulting in normal oil pressure.

All I can think is that as I was assembling the filter someone or something had distracted me, and I had dropped the pressure plate and washers upside down into the canister over the central bolt followed by the filter. If that is how it happened, the error would be hidden by the canister casing as the central bolt was tightened down.

I was really surprised that a couple of misplaced washers could result in such a drastic oil pressure drop. Apparently when the felt washer is not in its proper location, some unrestricted oil bypasses the filter by sneaking between the central bolt and the hole in the pressure plate.

Could it be that there are a number of Healeys out there suffering from lower than normal oil pressure and all that is wrong is a bad or misplaced felt washer valued at around 50 cents?



Big Healey Spin-on Oil Filters

by Steve Jekogian

Many Healey owners have switched to the spin-on oil filter that makes it so much easier and less messy to change. I know the kit that Moss sells comes with a Fram PH3600 filter, but is that the only one you can use? The answer I get from my internet research is that there are many interchangeable brands. Do your own research and comparison, but below for your consideration (in alphabetical order) is a list of some spin-on oil filters that should be compatible with the Moss unit.

AC Delco PF56
Fram PH3600
K&N HP 2009
Motorcraft FL400S
Pennzoil PZ19
Purolator L20195
WIX 51516

If you want to learn more about oil filters, here is a website that makes comparisons.
lubrication-oil filters

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Engine Codes



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B.M.C, M.G, & Morris Engine Codes.

1936 to 1956.

Consists of four letters, followed by the engines number.

| (1)MODEL | (2)Valves | (3)Bore & H.P. | (4)Make. |
|--------------------|-------------|----------------|--------------|
| U Morris 8 | S Sidevalve | H 57mm 8HP | M Morris |
| M Morris 10/4 | P OHV | J 63.5mm 10HP | G M.G. |
| X late Morris 10/4 | C OHC | A 66.5mm 11HP | W Wolseley |
| T Morris 12/4 | | B 69.5mm 12HP | C Commercial |
| Q 2ltr 6 cyl | | E 72mm 13HP | |
| O 3 1/2 ltr 6cyl | | D 75mm 14HP | |
| A Austin A30 | | D 61.5mm 6cyl | |
| | | H 69mm 6cyl | |

ie:

- XPAG 1250cc MG TB OHV engine 11HP.
- XPJM 1140cc Morris 10/4 ohv engine 10HP.
- XPJW 1140cc Wolseley 10/40 ohv engine 10HP.
- USHM 918cc Morris Minor MM SV engine 8HP.
- XPEG 1488cc MG TF OHV engine 13HP.
- MPJG 1292cc MG TA engine ohv 12HP.
- MPJM 1292cc Morris 12/4 OHV engine 10HP.
- MPJW 1292cc Wolseley 12/48 OHV engine 10HP.
- APHM 803cc Morris Minor MM OHV engine, 8HP. (first 'A' series.)
- APJM 948cc Morris Minor 1000 OHV engine 10HP.
- TPBG 1549cc MG VA ohv engine 12HP.
- TPDG 1705cc MG 'Cream Cracker' TA engine.
- QPHG 2322cc MG WA ohv engine 18HP.
- QPHW 2561cc Wolseley 18/80 ohv engine 18HP.

BMC 'B' Series, 1947 to 1981.(First real 'B' series was in 1953.)

With the arrival of Austin based 'A' & 'B' series amongst those used, a system of engine cc was added. It basically followed the post 1956 system, but put 'BP' in front to denote 'B' series 'P'ush rod ohv. The first car to use the 'B' series was the M.G. Midget ZA, in 1489cc form, in 1953. The earlier Austin 1200cc unit was that developed into this 1489cc and 1200cc 'B'.

ie:

- BP15M was a 1489cc Morris Oxford.
- BP15GA was the ZA Midget of 1489cc.
- BP15GC an improved ZA Midget, with full flow oil filter.
- BP15GB was the first MGA 1489cc engine.
- BP 15GD followed it.
- BC16GB was the MGA Twin Cam, 'B' series, 'C' camshaft.
- 1956 to 1970 'A', 'B', and 'C' Series engine Prefix.

The 'BP' prefix was dropped once BMC had its three engine types, A, B, and C. Again, there is a prefix, consisting of a number, then letter/letter/letter, then the engine number.

| Cubic capacity | Make | Type | Ancillaries | Compression |
|----------------|------------------|----------------|----------------------|-------------|
| 8 803cc | B BMC Industrial | A to Z | A automatic | H high comp |
| 9 948cc | G M.G. | .. | M manumatic clutch | L low comp |
| 10 1098cc | | P police spec. | | |
| 12 1200cc | | | | |
| 12 1275cc | H miscellaneous | .. | N column change | |
| 15 1489cc | J Commercial | .. | o overdrive | |
| 16 1588cc | V Van den Plas | | | |
| 16 1622cc | M Morris | .. | | |
| 18 1798cc | R Riley | .. | U central gearchange | |
| 22 2200cc | | | | |
| 25 2500cc | | | | |
| 26 2600cc | | | | |
| 29 2912cc | | | | |

ie:

- 15W / U / H 1234 1489cc Wolseley 15/50, central gear change, high comp.
- 15GE / U / H 1234 1489cc M.G. Midget Mk3, central gearchange, high comp.
- 16AMW / U / H 1234 1622cc Austin, Morris & Wolseley Farina, central gear, high c.
- 16GA / U / H 1234 1588cc MGA 1600, central gear change, high comp.
- 15AC / N / L 1234 1489cc Austin 15cwt van, column change, low comp.
- 18GA / O / H 1234 1798cc MGB 3 main B. with overdrive, high comp.
- 29WA / O / H 1234 2912cc Wolseley 6/110, overdrive, high comp.
- 29GA / A / H 1234 2912cc MGC GT, automatic, high comp.

1970 onwards.

After 1970 the system was again changed, and simple types were just numbered.

16 1622cc

18 1798cc

12 1275cc

22 2200cc

with either a 'V' or an 'H' after it. 16V meant vertical,(in-line), as in the Sherpa van, or 18V as in both the later Sherpa and MGB, and Morris Marina 1800. 12V would be in an Ital, and 12H in Metro, H meaning horizontal. (FWD.) It was the group of numbers/letters after that denoted the fitment, ie, 18V-584F for a UK specification engine on the MGB. 18H was in the FWD 1800.

As an aside, the big BMC 6 cylinder 'C' series was a Morris Engines design, where as the 'A' & 'B' were Austin designed.

BMC 'B' SERIES ENGINES USE.(1953 to 1981.)

| Model | cc | Prefix | BHP/RPM | Torque |
|--------------------------|------------------------|-------------|---------------|---------|
| Austin A40 Devon | 1200 | BP12M | 40/4500 | 58lb/ft |
| Austin A40 Somerset | 1200 | BP12M | 42/4500 | 58 |
| Austin A40 Sports | 1200 | BP12M | 42/4500 | 58 |
| Austin A40 Sports | 1200 | BP12M | 46/4500 | 58 |
| Austin A40 Cambridge | 1200 | BP12M | 42/4500 | 58 |
| Morris Cowely series 1 | 1200 | BP12M | 40/4500 | 58 |
| Austin Metropolitan | 1200 1200 | BP12M | 42/4500 | 58 |
| Austin Metropolitan 1500 | 1489 | BP15M | 52/4500 | 70 |
| Morris Oxford series 2 | 1489 | BP15MH | 50/4500 | 70 |
| Morris Oxford series 2 | 1489 | BP15ML | 45/4500 | 65 (LC) |
| Morris Cowely series 2 | 1489 | BP15M | 50/4500 | 70 |
| Morris Oxford series 3 | 1489 15M 55/4500 72 | | | |
| Morris Oxford series 4 | 1489 | 15M | 55/4500 | 72 |
| Wolseley 15/50 | 1489 | BP15W | 50/4500 | 70 |
| Wolseley 15/50 | 1489 | 15AMW | 55/4500 | 72 |
| Wolseley 1500 Mk1 | 1489 | BP15LAW | 50/4500 | 70 |
| Wolseley 1500 Mk2 | 1489 | 15W, 15WA | 55/4500 | 72 |
| Riley 1.5 Mk1 | 1489 | 15R, 15RA | 60/4800 | 77 |
| Riley 1.5 Mk2 | 1489 | 15RB | 66/5200 | 82 |
| M.G. Magnette ZA | 1489 | BP15GA | 60/4800 | 77 |
| M.G. Magnette ZA & ZB | 1489 | BP15GC,15GC | 68/5200 | 82 |
| M.G. MGA | 1489 | BP15GB,15GB | 68/5200 | 82 |
| M.G. MGA | 1489 | 15GD | 72/5500 | 85 |
| M.G. MGA 1600 | 1588 | 16GA | 80/5600 | 87 |
| MGA Twin Cam | 1588 | BC16GB | 108/6700 | |
| | 1489 | | 15AC, VS15C) | 50/4200 |

| | | | | |
|--|------|----------------------------|------------|------------|
| Austin/Morris 1/2ton,) van,pick up.) | | BPI5ML,) 15AC, VS15C) | | 74 (LC) |
| Diesel Engine | 1489 | BP15J,15Y,15J.15Z | 40/4200 | 90 |
| Austin A50 Cambridge | 1489 | 1H | 50/4500 | 70 |
| Austin A55 Cambridge | 1489 | 15 | 55/4500 | 72 |
| Austin A55 Mk2 Camb. | 1489 | 15AMW | 55/4500 | 82 |
| Morris Oxford series 5 | 1489 | 15AMW | 55/4500 | 82 |
| Wolseley 15/60 | 1489 | 15AMW | 55/4500 | 82 |
| Riley 4/68 | 1489 | 15RA, 15RB, | 68/5200 | 85 |
| M.G. Magnette Mk3 | 1489 | 15GE | 66/5200 | 85 |
| Morris Oxford series 6 | 1622 | 16AMW, 16AA | 61/4500 | 90 |
| Austin A60 Cambridge | 1622 | 16AMW, 16AA | 61/4500 | 90 |
| Wolseley 16/60 | 1622 | 16AMW,16AA | 61/4500 | 90 |
| M.G. Magnette Mk4 | 1622 | 16GE, 16GF | 68/5200 | 89 |
| Riley 4/72 | 1622 | 16RA,16GF | 72/5500 | 90 |
| M.G. MGA 1600 Mk2 | 1622 | 16GC | 90/5500 97 | |
| A60 commercials | 1622 | 16AC,16AE | 61/4500 | 90 |
| Farinas with alternators. | 1622 | 16C (1971 only) | 61/4500 | 90 |

BMC 'A' Series Engines. (1952 to 1999)

Just like the 'B' series. BMC used the same system as above to denote the use of the engine. 1098cc 948cc 1098cc 1098cc 1275cc

| Car Model | Engine cc | Prefix number |
|----------------------------|-----------|---------------------------------------|
| Austin A30 | 803cc | 2A |
| Austin A35 | 948cc | 9A |
| Austin A35 van (optional) | 848cc | 8G (post 1962 all GPO.) |
| Austin A40 Mk1 | 948cc | 9A or 9D |
| Austin A40 Mk2 | 948cc | 9DB |
| Austin A40 Mk2 1100 | | 10D or 10DD |
| Austin Healey Sprite Mk1 | | 9CG or 9CC |
| Sprite Mk2/ MG Midget Mk1 | | 10CG |
| Sprite Mk3/ MG Midget Mk2 | | 10CC (2" main bearings.) |
| Sprite Mk4/ MG Midget Mk3 | | 12CC or 12CE home market |
| .. | | 12CD or 12CJ N. America |
| .. | | after Oct '72. 12V/586F/H home market |
| .. | | 12V/671Z/L N. America |

| | | |
|---|------------------------|---|
| Austin Allegro | 1275cc | 12H/A (same as Metro) |
| Austin Mini | 848cc | 8A |
| Morris Mini | 848cc | 8MB |
| Austin & Morris Mini after 1962, | 848cc | 8AM |
| Austin/Morris Mini automatic | 848cc | 8AH |
| Mini Automatic closed circuit breather | 848cc | 8AK |
| Mini floor change closed circuit breather | 848cc | 8AJ |
| Mini GPO saloon & van | 848cc | 85H (1" restrictor in carb.) |
| Mini Clubman | 1098cc | 10H |
| Mini 1000 | 998cc | 99H |
| Mini 1275cc | 1275cc | 12H |
| Mini Moke | 848cc | 8AC |
| 1275GT & Cooper Mk3 'S' | 1275cc | 12H |
| Later Cooper models | 1275cc | 12A |
| Wolseley Hornet, Riley Elf Mk1 | 848cc | 8WR |
| Wolseley Hornet, Riley Elf Mk2 | 998cc | 9WR |
| Austin, Morris, Wolseley fwd 1100 | 1098cc | 10AMW, 10H |
| .. | 1098cc | closed circuit breather 10AH |
| Austin, Morris, Wolseley 1100 Automatic | 1098cc | 10AG |
| .. | 1098cc | closed circuit breather, 10AJ |
| MG 1100 Mk1 & Mk2, Riley 1100 | 1098cc | 10GR |
| Vanden Plas 1100 | 1098cc | 10GR, 10V |
| MG 1300 Mk1 | 1275cc | 12G (single SU.) |
| MG 1300 Mk2 , Riley 1300 | 1275cc after April '68 | 12GR |
| All fwd 1300 Automatic | 1275cc | 12A |
| Vanden Plas 1300 | 1275cc | 12GR, 12V |
| Austin 1300 'S' Mk1, Mk2 | 1275cc | 12FA |
| Austin 1300 'S' Mk3 | 1275cc | 12H |
| Austin Maestro/Montego 1.3 | 1275cc | 12HA ('A' Plus) (Uses Marina 1.3 type block.) |
| Austin Metro 1 ltr | 998cc | 99HA (all 'A' Plus) |
| Metro 1 ltr 1985 on | 998cc | 99HA, 99HB, 99HC, 99HD, 99HE, 99F. |
| Metro 1300 HLE | 1275cc | 12HA08AA |
| | 1275cc | 12HB, 12HC, 12HD, 12HE, 12HF |
| MG Metro 1300 leaded fuel pre 1989 | 1275cc | 12H996AA, 12HD24 |
| MG Metro 1300 unleaded post mid-1989 | 1275cc | 12HF01 |
| MG Metro Turbo leaded fuel pre 1989 | 1275cc | 12HD26 |
| MG Metro Turbo unleaded | 1275cc | 12HF01 |
| Austin Metro Sport .. | 1275cc | 12HF02 |
| Austin Metro GTa .. | 1275cc | 12HF02 |
| Austin Metro's with unleaded heads. | 1275cc | 12HE24, 35, 39, 40, 41, 42, 67 up to 75. |
| Morris Minor Series 2 | 803cc | APHM |

| | | |
|---|--------------------|---------------------------------------|
| Morris Minor 1000 series 3 | 948cc | APJM |
| Morris Minor 1000 series 4 after 1956 | 948cc | 9M |
| Morris Minor 1000 series 5 | 1098cc | 10MA |
| Morris Minor series 5, close circuit breather | 1098cc | 10ME |
| Morris 1000 GPO van | 948cc | 8AG after 1962 |
| Morris 1000 van, low compression | 1098cc | 10AB |
| Morris 1000 van closed circuit breather | 1098cc | 10V |
| Morris Marina 1300 | 1275cc | 12V |
| Mini Cooper | 997cc & 1070cc 'S' | 9F/SA/H comp 9.1 |
| Mini Cooper | 997cc | 9F/SA/L 8.3 |
| Mini Cooper | 970cc 'S' | 9F/SA/X 10 |
| Mini Cooper | 1275cc 'S' | 9F/SA/Y 9.75 |
| Mini Cooper | 998cc | 9FA/SA/H 9.1 |
| Mini Cooper | 998cc | 9FA/SA/L 8.3 |
| Mini Cooper | 970cc 'S' | 9FC/SA/H 9.1 |
| Mini Cooper | 998cc | 9FD/SA/H 9.1 |
| Mini Cooper | 1070cc 'S' | 9FD/SA/H 9.1 (engine 33661 to 33948.) |
| Mini Cooper | 998cc | 9FD/SA/L 8.3 |
| Mini Cooper | 970cc 'S' | 9FD/SA/X 10 |
| Mini Cooper | 1275cc 'S' | 9FD/SA/Y 9.75 |
| Mini Cooper | 970cc 'S' | 9FE/SA/X 10 |
| Mini Cooper | 1275cc 'S' | 9FE/SA/Y 9.75 |
| Mini Cooper | 1070cc 'S' | 10F 8.3 |
| 1275cc Mini | 1275 | 12HE (still fitted in 1999) |

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