

Buying Guide for BMW 2002

By Richard Stern

History: (1966-1975)



As early as 1963 there had been discussions about a new and smaller BMW. Thoughts began to focus on a short wheelbase two-door version of the New Class saloon. This plan had particular merit because it would help to re-establish the sporting image that BMW had enjoyed in the 1930's but never recaptured since. The shorter wheelbase would bring handling advantages while the lighter body would improve performance, and of course the two-door configuration would look more sporting than the four-door New Class type. The two-door model did not take long to design. The New Class wheelbase was shortened from 100.4 inches to 98.4 inches, Wilhelm Hofmeister restyled the passenger cabin to suit, and the front of the car was given a minor facelift. Most of the running gear came directly from the existing four-door saloons, although there was a narrow track rear axle, which made front and rear tracks equal on the two-door model. The decision was made to launch the car with the 1,573cc "1600" engine and, decided to call it the 1600-2. The additional figure 2 standing for its two doors and distinguishing it from the four-door 1600 saloon. The 1600-2 was announced in March 1966 and was immediately acclaimed as a winner. The lighter body made the car nearly as fast as the 1800 sedan, while the excellent handling added a sporting ingredient, which was lacking in the larger car. The motoring press was unable to resist comparisons with Alfa Romeo's sports cars, which suited BMW's needs perfectly. At the Frankfurt Motor show in autumn 1967, they announced an even more sporting version - the 1600ti - with a 105 hp twin carburetor engine. And by this stage BMW were already considering the possibility of giving their two-door vehicle yet another engine in the shape of a 2-litre relative of the 1600ti's four cylinders. Not long after the 1600-2 was announced, Alex von Falkenhausen had a 2-litre engine dropped into an example of the car for his own use. Completely independently, BMW's Planning Director Helmut Werner Bonsch had exactly the same conversion carried out for his car. Neither man knew of the other's car until one day in mid - 1967 when both cars were in the workshops together at BMW. Both were enthusiastic about their 2-litre two-doors, and between them decided to put a formal proposal to the BMW Board that such a model should be considered for production.

Their cause was greatly helped by developments in the USA. BMW had never meant very much in that market before the mid-1960's, and the marque had been imported only in small numbers. The company was well aware of the value of sales success in such a large market, and until this point had not had a model which appealed to American customers. In 1966, all that changed. The new two-door 1600-2 models received rave reviews in the American motoring press, and all of a sudden sales started to gather momentum. Wanting to capitalize on this success, importer Max Hoffman urged the Bavarians to let him have another model in the same vein, and preferably one with even more performance. The only model in that range was the 1600ti. Unfortunately, the twin-carburetor engine could not be made to meet the new Federal exhaust emissions

regulations, and so it could not be sold in the good old US of A. However, the 100hp 2-litre engine in the 2000 coupe had been made to meet the regulations. The solution was simple, BMW Sales Director Paul Hahnemann was well aware of the US market requirement, and so he supported the proposal for a 2-litre version of the two-door car, despite opposition the sales argument won the day and the 2002 was born. There were three distinct "generations" of the BMW 2002 range during its eight and a half year production life. The first generation cars were built between 1968 and 1971. The second generation, or model 71, cars were built between 1971 and 1973. And the third generation, or model 73, cars were built between 1973 and the end of production in 1976. Within each of those generations, the 2002 range was further subdivided into a variety of different models.

Total 02's Built: 401 947

Bodywork



Starting from the front of the car, the box section below the radiator can rot out from the inside, as can the boxed in sections behind the headlamps and direction indicator lamps, and inside the front wings where mud can collect on the inner-wing supports, check around the wheel arch and adjacent to the A-post and where the front wing joins the sill. Check in the bulkhead and around the heater's air box and make sure that the drains are free running. The sills are prone to rot, especially at the rear where they protrude into the rear wheel arch, and where the rear subframe is mounted. Be vigilant around the differential area, too. Peel back the floor carpets, especially on Cabrio and Targa models, which are more prone to water leaks, and check the floor pans, particularly where the inner sill meets the bulkhead. Inspect the front chassis rails for rust and damage usually caused by poor jacking also check the rear subframe and 'chassis' rails above the driveshafts. Inside the boot, pay particular attention to the rear spring mounting plates, the inner wheel arches and the spare wheel well. The edges of the boot, bonnet and door bottoms are prone to rot too. All cars are prone to rust, most of the mechanics & cosmetics are cheaper to replace than the structure.

Fuel Systems

Standard engines have one single-choke carburettor, and Ti models have twin carburettors (Non UK). Tii versions have Kugelfischer mechanical fuel injection and the Turbo models have an additional KKK turbocharger, plus beefed up brakes and suspension. An in-line fuel filter to the single-carburettor system should be replaced every 24,000 miles. Failure to do this can lead to the main jet blocking. The Tii has an aluminium-bodied fuel filter fitted under the battery tray, and should be renewed at the same interval with a similar type, costing around £10.

Check the fuel tank for corrosion around its middle where the two halves meet, and clean and protect the area accordingly. Inspect the fuel line(s) periodically. Carburettor models have a plastic pipe that threads its way through the offside of the car, which can become brittle and damaged, leading to a smell of petrol in the cabin. Injected models have a steel feed pipe that can corrode, and a plastic return pipe that's also prone to damage.

If single-carburettor engines run poorly and resist successful tuning, inspect the throttle spindles for play. The throttle bodies have a tendency to wear badly, requiring removal, machining and a new throttle spindle. Alternatively, renew the carburettor with a replacement item or upgrade to twin-carburettors for more performance.

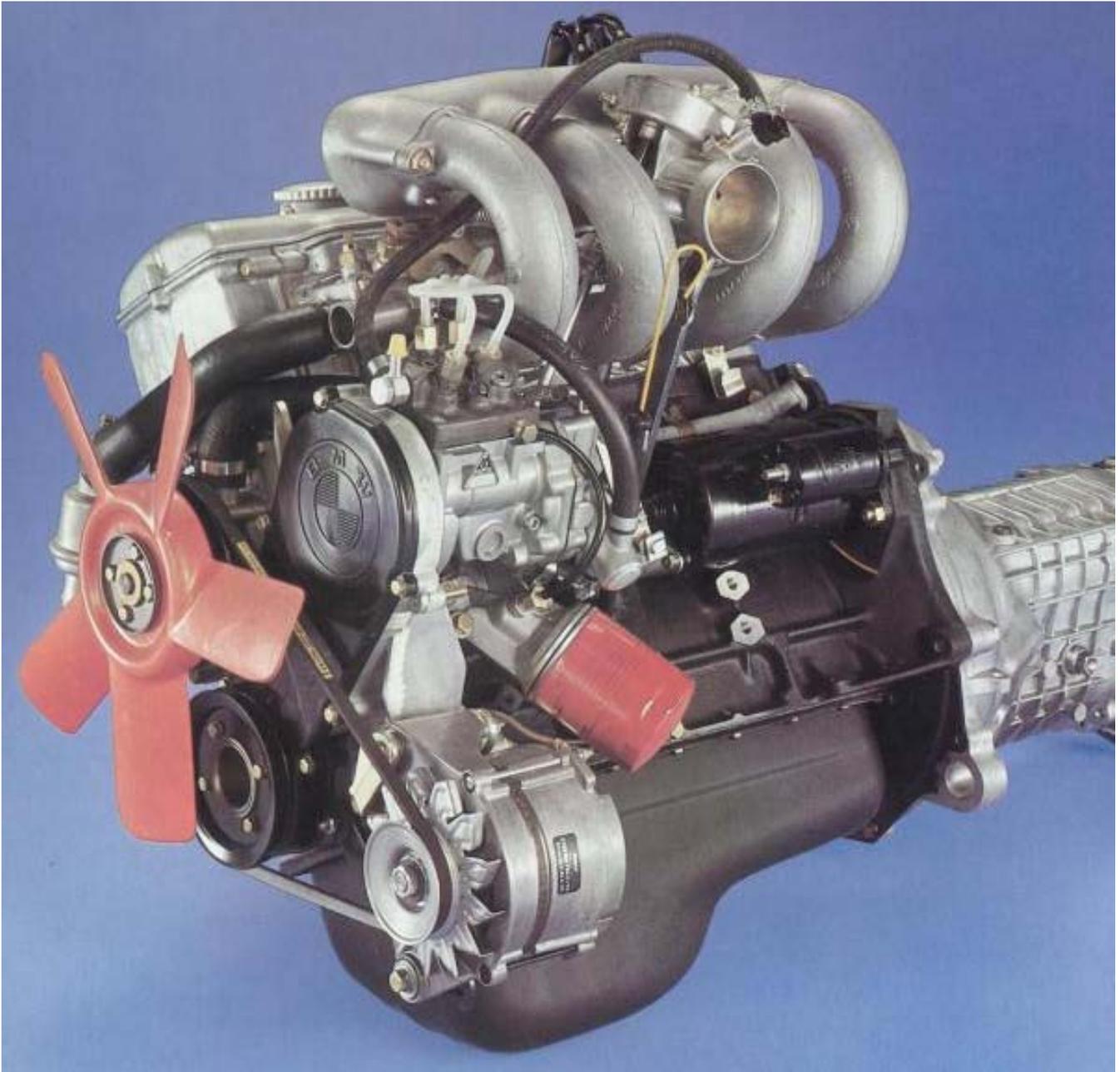
The Kugelfischer injection system is pretty reliable as long as the car is regularly used. If it sits idle for long periods, one of the pump plungers can be likely to stick. The remedy is to drive the car more often. Tii's can suffer from poor running and black smoke, but this is usually caused by wear in the ball-joint linkage between the pump and the throttle-butterfly. To set up the system, it's necessary to lock the throttle and pump in relation to each other but if the joints are worn, that's impossible. Replacing the worn parts is the only remedy, followed by regular lubrication. Ensure the pump is topped up with engine oil (details in the Jaymic injection bulletin). High-mileage injection pumps can suffer from a worn metering cone, and while the components can be sourced in Germany, finding someone to strip and reassemble the pump is another matter. It's certainly not a DIY job.

There are different views as to whether '02s can use unleaded fuel, to be on the safe side, however, it's best to use premium-unleaded with a good quality lead additive and octane booster, until you have had your valves seats hardened.



Typical Twin Carburettor set-up

Engine and Transmission



Tii injection Engine

Each model in the BMW '02 range derived its full name and its power from an iron-block four-cylinder overhead-cam engine: the 1600-2 and 1602 models had a 1593cc 'plant, all 2002's had a 1990cc unit, the 1802 (which was never imported into the UK) had a 1793cc engine, and the 1502 economy model used at the end of production with reduced trim with a 1.5 litre engine.

Engines will last for at least 100,000 miles as long as they're looked after. Every 3000 to 5000 miles, depending on how much the car is used, drain the engine oil after a run when the oil is hot and thin. Replace the sump plug with a new washer and refill the sump with a good quality oil no thinner than 15W/40. Replace the oil filter at the same time, preferably using a genuine BMW item especially if the car isn't used regularly. The screw-on canister embodies a return valve: if it's faulty, the oil can drain back into the sump leaving the bearings starved of oil on start up. Early cars used a paper element filter.

The '02 range has exceptionally good spares backup. BMW are able to supply most parts at a reasonable cost and have remanufactured parts as necessary. Specialists such as Jaymic Ltd. of Cromer are also able to supply OEM and after-market spares, and German company Wallothnesch, can supply many hard-to-find spares. The engine has an iron block and an aluminium head, the latter of which is prone to corrosion. Use a top quality anti-freeze with a corrosion inhibitor and change it regularly – the anti-freeze component doesn't usually degrade, but the corrosion inhibitor does, so follow the manufacturer's recommendations. If the car isn't used very frequently, the water pump can leak but replacements only cost around £50.

Check the oil isn't milky, this means the head gasket has blown. After 60,000 miles or so, '02s are renowned for burning a little oil on the over-run. The only remedy for this is to renew the valve stem oil seals, either by removing the head or by using a proprietary method of retaining the valves while the springs are removed.

High mileage engines are also prone to a top-end rattle. First check the valve clearances, but if the adjusting rollers have run out of travel, it's more than likely that the rocker shaft and rockers have worn. After many thousands of miles, the distributor bearings can wear, particularly on the Tii models, causing timing inaccuracies. An electronic ignition module, costing around £150, should alleviate the effects of this wear, or budget around £120 for a replacement dizzy.

The engines really are bulletproof. However, if an engine seems to run sweeter with the oil filler cap removed, it's more than likely on its last legs.

At the time of writing, BMW are no longer able to supply Tii exhaust down-pipes, although after-market systems are available. Jaymic and Fritz Bits are able to supply top quality stainless '02 exhausts for little more expense than the standard BMW mild steel system.

The gearbox and differential give no problems as long as they're maintained regularly. Frequently check the oil levels in both units, draining them every 24,000 miles and refilling with a good quality EP 80/90. Early gearboxes suffered from worn mainshafts, resulting in the units jumping out of gear, but by now they've been rebuilt or swapped for the later gearbox which was much stronger. The later E21 'box also fits, and is a recognised upgrade. The differential should be silent, but a noisy one is likely to continue reliably for many more miles. A suitable oil-additive may help matters. The diff itself is rubber mounted, so look for any perishing or delamination and replace accordingly.

A worn centre prop bearing can produce a rumbling vibration from underneath, so don't confuse it with a worn diff. While underneath, check the rubber prop shaft joint on the back of the gearbox, which is also prone to oil contamination and degradation. The gear-linkage is located on rubber mounting blocks, which can become oil-contaminated and weak, producing unwanted side-to-side gear lever movement. The rear drive shafts are immensely strong and require little maintenance, other than to check the CV joint gaiters for splits.

Suspension and Brakes



Jack up each corner of the car and rock the wheels, looking for any excessive wear in the wheel bearings or suspension joints. The front wheel bearings are of the taper-roller variety, so there should be a little movement. These need regular greasing. Remove the wheels and visually inspect the dampers for leakage, the springs for damage, and the suspension joints for wear. Carefully inspect the front struts' spring plates, as they can rot right through, allowing the suspension to collapse. At the rear, the box-section trailing arms are also prone to corrosion, so be very vigilant. At the rear, also check the condition of the subframe and differential mountings.

Replacing the rubber components with polyurethane ones will resist oil contamination and reduce play.

A small amount of play in the steering box can be very carefully adjusted out. Be careful, however, as you can easily damage the box or cause bad tight spots in parts of the lock. Also make sure that the steering idler isn't seizing up.

The suspension is more than adequate for hard driving, but it can be improved no end by fitting stiffer dampers and uprated coil springs. Fitting front and rear anti-roll bars to the 1502 and 1602 will improve the handling, as will swapping the standard bar for the Turbo's bar on other cars.

The brakes are very good, as long as the pistons in the four-pot callipers, and the rear wheel-cylinders, aren't seized. Clean and operate each piston if the car isn't used regularly, to ensure they're free to move. Front Brake Callipers can be expensive but are still available. The rear drum brakes require regular adjustment at the back-plate, using a 17mm spanner. The adjuster can seize, so don't round off the hexagon if it doesn't move. Instead, remove the drum and shoes, douse the adjuster with penetrating oil and lever it back and forth with a hand-held vice-grip. When free, copper-grease it to prevent further seizure. Check the handbrake cables for corrosion and lubricate them. Change the brake fluid no later than every two years. Rear brakes can be upgraded to the bigger Tii and Turbo brakes without too much trouble, and again an aftermarket option of rear discs can be fitted. All UK cars had twin-servo set up, again these are expensive and difficult to source, so thoroughly check the braking system out of any potential car.

For hard driving or extra stopping power, it's possible to swap the front legs for the Tii units fitted with E21 hubs and vented discs, using 5- or 6-Series callipers but make sure your wheels have the internal clearance though, alternatively it is possible to fit aftermarket modern callipers from companies like Wilwood and Hi-Spec.

Wheels

Alloys were an option for all models and most are still available, 5.0J and 5.5J are really the correct wheels to fit to an 02 (6J on the Turbo), any wider and your tyres will start rubbing the arch lip and inner wing, arch lips can be rolled by a specialist or fit narrow tyres as BMW had intended, but this will make the steering heavier especially under load conditions.

Trim and Interior



Generally trim is hard wearing but cars are now all approaching or over 30 years old and you'd be very lucky to find a mint original interior. Black door cards are available but no other colours at present, a good trimming company should be able to help. Early cars only had vinyl seats with wider headrests; later models had the option of cloth trim with the narrower head restraints. Cabriolets had a check cloth pattern with vinyl at the tops of the seats for weatherproofing. Some owners have fitted the later Recaro front seats from a 3-Series car, some have been brave enough to fit 6-Series rear bucket coupe seats. Chrome trim and interior should also be a sign of bad abuse and wear. "Lux" models came with wood trim, velour seats, tinted windows, centre rear armrest, delay wash wipe & a few other goodies.

Electrics

Points, Condensers and Spark plugs are cheap and easy to replace if the engine is miss firing. Pinking can be caused by poor fuel octane rating and/or timing needs adjusting for modern fuels. After market contactless points systems are an excellent upgrade. No headlamps or only main beam - Usually caused by a bad contact on a fuse. Clean all of the fuse contacts, not just the headlamp ones. If that does not do the trick - check that a wire has not come off the back of the light switch on the dashboard. Dashboard warning light stays on; Probably the switch at fault behind the handbrake lever. Flickering instruments - Indicates bad earth. Check the soundness of the following wiring earth points (brown wires): - By the battery, engine fire wall (front bulkhead) on the tii and turbo, behind the glove box and in the boot area under the petrol tank cover board, and last but not least the large earth lead to the engine block. Tii's have the additional injection wiring loom and relay box that can cause owners poor starting problems, but Jaymic do supply an injection set-up guide that helps pinpoint any problems.

Performance Modifications

The standard 2002 engine produces nearly 100bhp as standard, 120bhp with twin carburettors, 130bhp with fuel injection, and 170bhp with a turbo. The BMW F1 Team wrung 1,500bhp out of the same block. Most of the engines will respond to standard tuning modifications, although the Tii engine is immediately limited by the injection system, so for bigger power increases, it's best to swap to carburettors. The cylinder heads respond well to porting and polishing, and it's possible to fit a pair of Weber 45 DCOE's with free-flow air-filters, manifolds and exhaust systems. There are a number of different camshafts available, from around, suitable for different applications. With these basic modifications, it's possible to liberate a tractable 150bhp, but with more extreme modifications, you could see upwards of 200 bhp. Needless to say, any modifications need to be made to an engine in perfect mechanical condition, or you'll be wasting your money, and any hike in power needs to be accompanied by upgrades in the braking, steering and suspension systems, it's best to consult a specialist first.



Driving

Be under no pretence; the 02 is a "sports car". The Tii and 2.0 litre cars are surprisingly fast, the 1502 less so, but they all handle impeccably and are very nimble. The Turbo is a real handful with monster power that's either on or off, requiring a large degree of respect. Don't take the other models for granted either, as they can become tail-happy in slippery conditions, as you'd expect from a rear-wheel drive car. If the handling lacks direction, the front suspension bushes are more than likely shot, characterised by the steering pulling to the left or right under braking. Replacing the rear subframe and differential bushes will improve wayward handling no end. The electrical system is robust but headlamps aren't the brightest, even with new reflectors and higher output bulbs. If the front indicators play up, suspect rotten wings, and if the instruments flicker it's like to be an earthing problem. See if there's any history & a current MOT. Check mileage with any old MOT's & History the lower & genuine the better. Cars without a current MOT aren't worth much and usually turn up on Ebay. Take it for a test drive, check the brakes work (servos these are not cheap to replace). Make sure you get it up to Temp & it doesn't over-heat.

Specification

Length: 13' 10 ½"

Width: 5' 2 ½"

Height: 4' 7 ½"

Kerb Weight: 19 ½ cw (02), 19 ¾ cw (tii), 21 ¼ cw (turbo)

Tyre Pressures: 27 psi F&R (normal conditions)

Contact Breaker Gap: 0.016 in or 0.4mm

Spark Plug Gap: 0.024 in or 0.6 to 0.7mm

Battery; 12 Volt, 44 Amp/Hr, Lowest starting voltage 8.5

What should I pay?

All 02's are grossly under valued; to build a concours winning car from a Mot failure can cost tens of thousands of pounds. If possible buy the best 02 your budget can afford, let some other poor 02'er have spent all their hard earned money restoring the car. Nice too see original documents & a comprehensive history with any car, this again reflects the value. For a rare real mint car don't mess around or you'll risk losing it. Wrecks can be found on Ebay, but be careful before bidding.

MODEL	YEAR	A	B	C
1600	1966	2500	1500	300
1600-2	66/67	3500	1500	300
1600	67-75	5000	3000	2000
1502	73-77	3750	1500	300
2002	68-76	4250	2250	300
2002 Tii	71-75	7000	3000	500
2002 Cabriolet	71-73	7500	3500	800
2002 Touring	71-74	3750	1650	300
20002 Turbo	73-75	15,000	7000	3500

Conclusion

The 2002 Tii is considered by many to be the most desirable 02 produced by BMW. Compared to a standard 2002, a tii offers greater performance and overall value. Thus, a 2002tii is usually worth more, and therefore, more highly touted. Since the last tii's were made in 1974, finding one in good shape, without owner modifications has grown increasingly difficult. This is especially true considering the tii's mechanical uniqueness and cost of some of those unique parts. Furthermore, since the 2002 is a "tinkerer's car", many owners have upgraded their regular 2002's with tii hardware, to increase their performance.

Useful 02 Web Sites

www.bmw2002.co.uk

www.jaymic.com

www.wallothnesch.com

www.bmw2002faq.com

www.mytii.com

www.bmw02club.nl

www.bmw-02-club.de

Specialists

Jaymic Ltd. of Cromer 01263 768768 www.jaymic.com

Wallothnesch 00 49 29 32 70 00 20 www.wallothnesch.com

Cooks Ferry 0208 804 2002 www.cooksferry.co.uk

ETA Motorsport 01474 328777

Bensten Motor Works 01480 463000 www.bestenmotorsbmw.co.uk

Ron Walmsley 01789 730855

Car Care BMW 07836 369284 www.bmwcarcare.co.uk (East Herts area Only)

Reference Books

BMW Profiles – The BMW 02 Series, the Cult Car (Mobile Tradition) BMW P/No: 01.09.0.035.276
The BMW 2002 – A comprehensive guide to the Classic Sporting saloon ISBN: 1-85520-334-0
The BMW '02 Restoration Guide – Mike McCartney (*The Bible*) ISBN: 1-85520-451-7
BMW 1500-2002 – Walter Zeichner ISBN: 0-88740-213-5
BMW 2000-2002 – Autobooks ISBN: 0-85146-150-6
BMW 2002 Gold Portfolio – Brooklands Books ISBN: 1-85520-220-4

Typical Parts prices (Jaymic)

Cooling hose set with clips £78.99
Valve Seals cost around £0.88 each
Head gasket set is around £62.70
Fuel Filters £1.30
Service Kit (Plugs, points, condensor, oil filter, air filter etc) + rocker gasket £43.91
Front Brake Pads £13.65
Rear Brake Shoes £23.50
Front Discs £32.08 for a pair
Front & Rear Wheel bearings £92.12 for the full set
Typical Shocks £194.09 for a full set of Sachs original
Propshaft Donut £36.14
Rear Diff Seals £38.72 diff gasket and seal set
Rear Beam Bushes £63.00 for the pair of rear subframe mounting bushes
Full-reconditioned cylinder head with hardened valve seats £522.00
Plug Lead set £19.47
Brake stainless flexi hose set £74.00
Recon Carb £146.00
Recon Distributor £120.00

