

I was the owner of MTM Cymru LTD, a Bosch car service centre between 2006>2016.

The car came into us initially to diagnose a misfire that the owner was experiencing I believe October 2013 after a short period of no use due to the misfire, after a initial diagnostic check we had engine misfire codes relating to cylinders 1&2, & 5&6. a further compression test confirmed a lower compression ratio in the affected cylinders indicating a potential head gasket failure. A quote was prepared for the customer who at that time indicated to us that he did not have the funds to finance the potential repairs, as a full quote for repair would only be prepared after removal of the cylinder head to assess the issues needed to be corrected. After a conversation with the owner I subsequently purchased the vehicle from the customer, with a view of carrying out the repairs myself and keeping the car as it was a manual, had a fairly low ownership, and a full BMW service history, and was a fairly unmolested example other than a set of KW coil over shocks and springs and a Scorpion rear exhaust box had been retrofitted.

The car was placed into storage in a adjacent unit waiting for such a time for me to carry out the work needed. The following year i had space in the workshop, and after some time investigating the issues these vehicles can potentially come with the decision was made to remove the engine for disassembly as I could also perform a bottom end check of the sputter bearings due to the noted failure of some of the S54 series engines. once removed, stripped and assessed the head gasket had failed between cylinders 1&2, 5&6 with a breach in the gasket between cylinders between 5&6. More the likely due to the engine not being correctly completing its warm up cycle before higher revolutions being used.

The cylinder head, engine block, crank and rods were sent to Andrew Davies of Davies bearings Burry Port for assessment, the rods measured fine with no ovality or distortion, crank was measured STD/STD with no distortion only requiring a light journal polishing, cylinder head had 0.002 removed from face, and all valve faces recut and lapped, cylinder block bores measured within STD spec rehoned line bore checked and block cleaned.

On rebuilding the engine all parts were sourced from Lesley H Trainer & Son Swansea, The local BMW dealer at the time (now Sytner Swansea) other than the big end bolts which were ARP2000, 6 coil packs (Bosch) 6 spark plugs (NGK) Vanos rebuild kit with resized Vanos oil pump disc drive holes resized and anti rattle kits (Beisan systems) and some after market O/E supplier gaskets.

Parts used in the rebuild consisted of the following:

- Main sputter bearings BMW
- Big end sputter bearings BMW
- Piston rings 00 size (for used but STD bores) BMW
- Big end rod bolts ARP2000
- Rear main oil seal BMW
- Front crankshaft oil seal BMW
- Front timing case cover seals BMW
- Sump gasket BMW
- Head gasket BMW

- Oil filter housing gasket BMW
- External water gallery & Thermostat housing O rings BMW
- Oil CPV O ring generic viton
- Valve stem oil seals BMW
- Timing chain sprocket to hub bolts BMW
- Camshaft to hub bolts BMW
- Beisan systems full vanos rebuild kit with anti rattle kit fitted
- Beisan systems resized oil pump disc
- Timing chain guides BMW
- Vanos gasket BMW
- Throttle body to head O rings BMW
- Rocker cover gasket Elring
- Exhaust manifolds to head Victor Reinz
- Thermostat BMW
- Spark plugs NGK
- Coil packs Bosch

Once I had the engine parts delivered back to the workshop I commenced rebuilding the engine, a majority of these parts were ordered in Nov 2014 from the above dealer. Unfortunately I do not have the receipts for these parts as they were ordered and paid for by my company at the time and the supplying dealer has subsequently been bought out, so no record remains other than some of the old parts packaging, some of which I had retained and included in a box of receipts which will accompany the car and the head gasket packaging. At the time I envisaged retaining the car so wasn't so fastidious about retaining the paperwork.

The engine block and head was assembled in the spring of 2015 and sealed waiting to be put back into the car, the vanos was not built until a later stage to preserve the O rings.

While the engine parts were away the car was put back on the lift for the rear subframe to be removed to check the boot floor for cracking. Once the subframe had been removed and the underseal removed there was superficial cracking found, mainly stretching for 2/3 inches on the forward mounting points. These were welded up and a subframe reinforcement kit purchased from Redish Motorsport fitted. Then spray seam sealer applied to the floor to seal the welding then stone chip and finally wax oiled. I do have many photos of the process to show the extent of the cracking.

All this was during spare time after work and weekends so not a 9-5 project. In 2016 I had an offer to sell part of the company so took the decision to down size, and take some time off, this resulted in the M3 still sitting on a lift in another unit with a further collection of cars. After a period of spending time outside the country a decision was made to finish and sell the vehicles I had amassed, and the beginning of this year returned to finishing the M3.

While the car sat on the lift over a few years, I had been amassing a collection of new parts required to rebuild the car.

The rear subframe assembly was stripped, and all the major parts sent to be blasted and powder coated along with the front crossmember, front hubs anti roll bars etc. The coil over suspension was removed and sold and a good rear standard exhaust silencer located.

Further parts bought for the chassis and drive line were:

- Duel mass flywheel LUK
- Duel mass flywheel bolts BMW
- 3 Part clutch kit LUK
- Clutch slave cylinder LUK
- Complete gear shift assembly with short shift lever BMW
- Engine mountings
- Fuel Filter Mann
- Front CSL brake discs ATE
- Rear brake discs ATE
- Front brake pads BMW
- Rear brake pads BMW
- Front and rear brake hoses Brembo
- Front shock absorbers Sachs
- Rear shock absorbers Sachs
- Front springs BMW
- Rear Springs BMW
- Front anti roll bar bushes BMW
- Front anti roll bar drop links
- Front CSL brake calliper mountings Generic
- Rear wheel bearings FAG
- Inner Prop shaft CV joints and boot kit Driveline
- Rear diff mounting bushes BMW
- Rear subframe mounting bushes BMW
- Rear spring lower arm bushes BMW
- Rear lower arms
- Rear hub upper and lower rose joint bushes
- Rear trailing arm bushes Powerflex
- Rear inboard park brake shoes Brembo
- Rear Differential oil BMW
- Gear box oil Castrol
- Differential casing gasket BMW
- Differential casing bolts BMW
- Suspension mounting kits BMW
- 4 wheels sent for refurbishment Diamond alloys Llanelli
- 4 new Michelin Pilot sport 5 tyres

All new nuts and bolts required for the rebuild BMW

A large amount of the receipts are included in the paperwork.

The seats were removed and sent to be refurbished and re connollised by Classic leather care in Porthcawl

The car was reassembled in August and September 25, with it being finally back together for the first time since 2013. After initial start up and bringing up to temperature the oil and filter was changed. a 30 mile test drive was carried out and a further oil and filter change performed. Mot'd and booked into Sytner Swansea for the Airbag recall and a Oil service as the service indicator was showing on the dash board. Unfortunately i recived a phone call to advise me that due to parts supply issues the air bags have been placed on back order so unfortunately this will have to be carried out by the perspective new owner, although the oil service was carried out so the car still maintains its full BMW service history with the invoice present in the service history book, needless to say no issue at all were noted.