

Buying a BMW R80/100GS

Jörg Hau

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What bike do you ride? My R80GS is an early 1990 model – one of the last "naked" GS without the bikini fairing. As of summer 2018, the bike is approaching the 200 Mm¹ mark. For a detailed history and further tips and tricks, please refer to my R80GS page <https://www.schweizerschrauber.ch/mot/r80gs.html>.

Are 37 kW (50 PS) enough? The answer to this question is entirely subjective! For solo riding and long touring, also with heavy luggage, the R80GS certainly has enough power. However, riding two-up, I sometimes wish I had some more "horsepower" available ... and whenever I ride the 1000-ccm 2V engine, I find myself making use of the higher power and, in particular, of the higher torque. Then again, its 28+ years that I am used to this "modest" 800-ccm engine ...

Does the R80GS easier "survive" 50'000 km than the R100GS? The 1000-ccm delivers significantly higher torque and this, in turn, exerts mechanical stress on the driveshaft and gearbox, so you may want to test these thoroughly. The engines of the R80 and R100 share the same base and are almost indestructible ... as long as you do the maintenance correctly: remember, the GS engines have an oil reserve of only 2 litres, which is less than the "street" boxers.

Is the handling the same (apart from the difference Paris-Dakar vs. Basic etc) ? It seems that there are more accessories available for the 800-cc? The R80GS and R100GS are pretty much identical, the differences are in the engine (bigger bore, other carburetors), the rear transmission, and a few details about the stock-mounted accessories. Almost everything that fits the R100GS will also fit the R80GS. A partial exception is the "Basic", which is a R80GS frame that was fitted with lots of parts from the "old" R80G/S.

What should you observe in particular if you buy a used GS? Take along a bright lamp, and a simple voltmeter. Apart from the "common" points to consider when buying any motorcycle - such as bearings, tires etc. - the airheads have a few particularities.

Pushrods Some people that say that a boxer always loses oil, but this is plain wrong. Cylinder head and foot gaskets must be completely dry. There might be a little "humidity" around the rubber grommets at the bottom of the pushrods, but if this area is *wet* then this is a problem. Fixing this is "technically easy", but the process is very time-consuming as you have to remove the cylinders.

Oil leaking between engine and gearbox means a defective Simmerring - expensive. Again, not in terms of parts but this is several hours of work.

Fork Lift the rubber bellows off the fork: Is the area dry? The Simmerring is cheap and changing it is not difficult, but again this is time consuming.

¹1 Mm = 1 Megameter = 1'000 km

- Oil consumption: At about 50 Mm my GS started drinking oil like a two-stroke engine. This was due to worn-out valves and valve seats, reportedly a problem specific to the pre-1991 models. Remove the spark plugs and look into the cylinder with a spotlight (turn rear wheel in 5th gear to see the valves) - if the spark, valve shafts or the piston are oily or "wet", calculate some 500 EUR for a head overhaul.
- Rear shock: The original rear shock will be used up after 50 Mm and can *not* be repaired. Get a replacement such as ÖHLINS, WHITE POWER, TECHNOFLEX, FOURNALES, etc. (starting at 350 EUR – make sure you get it adjusted to *your* weight and *your* riding style). At the same time, you may want to invest in progressive front fork springs (around 100 EUR).
- Exhaust system: Watch for rust on the collector and/or the exhaust; both are expensive. From 1991 onwards, the GS was equipped with a stainless steel exhaust, but the downpipes and the collector under the gearbox are still made from ordinary steel. Don't worry too much about the downpipes themselves, they get hot very quickly and are usually not prone to rust. Especially on older bikes, the downpipes will be dull gray; as long as both sides have the same color, this is normal.
- Charging system: Connect a know-to-be-good voltmeter either to the auxiliary plug (left or right side under the seat; the location depends on the model year) or directly to the battery poles. Start the engine, switch the headlight on and keep rpm steady around 2000/min for a few seconds; you should get close to 13.6 Volt at the battery. If it's significantly less, it is usually a faulty rotor. Easy to change but expensive. In 2005, a new rotor reportedly costs 250+ EUR; re-wound exchange parts can be found for about a quarter of that price.
- GENlight The alternator "Battery" light should only light when the engine is off, and is allowed to glow when idling below 1000/min. If the light glows dimly while riding, you have some trouble with the charging system (most probably the diode board).
- Battery The battery must be in good state, with no acid leakages. Many GS riders have now equipped their bike with sealed lead-acid batteries such as the Kung Long WP18-12. The battery must be able to turn the starter motor with ease and there should be no *Uuhhhhhmmmmmpbrmm* sound before it starts to turn.
- Starter motor: Must not make any *screeeeeeeeetching* noise (especially observed right after the start of a cold engine). This can often be repaired with some grease, but the noise *could* be a sign of a dying starter motor. Expensive.
- Ignition coil: Located under the right side of the gas tank; easy to see with a flashlight if the GS has no fairing. The old, gray coil that was used until mid-1990 has a design flaw that causes it to fail sooner or later. An improved part (the "red coil") can be obtained secondhand, but many coils from third-party manufacturers or Japanese motorcycles are also used.
- Driveshaft: When you turn the rear wheel *by hand*, there must *not* be any kind of blockage or strange noises (*one single* "clack" when you change the direction of rotation is normal). It seems that especially the R100GS destroys its driveshaft at latest around 100 Mm, often earlier, but much less the R80 due to the lower torque. Very expensive, especially if the defect goes unnoticed for a while (it may damage the rear swingarm).
- Bellows Are the two rubber bellows around the driveshaft in good shape? Sand or dust entering through any crack or hole would have disastrous consequences. Minor damages in this area can be repaired with a tire patch set, but their presence would be a reason to negotiate a lower price.
- Final drive: Carefully look for play around the two bolts that hold the final drive in the rear swingarm (they look like two ordinary M8 hex bolts). There are two bearings that may fail; changing them is a time-consuming job.
- Wheel bearing: Turn the rear wheel *rapidly* by hand. If you hear a "rustling" or "rushing" noise, the rear wheel bearing is worn out. Commonly, this goes unnoticed as the noise builds up very gradually, but once the rear wheel starts to have axial play you really need to fix this. *Very* expensive: Repair requires exchanging of the bearing plus some delicate adjustment; common wisdom (and even BMW dealers) says that it may be cheaper to get a new final drive.

- Gearbox:** Take the bike for a test ride, look for smooth gear transitions. If you notice a howling noise in the lower gears, the bearings are worn out. Rebuild cost is very variable, depending what you are willing to do yourself, but count at least 250 EUR (if you are located in Central Europe, contact me for a reasonably priced address ;-). – From my own experience, you may want to think about a gearbox rebuild if the gearbox has gone more than 60 Mm on a R100GS, 80 Mm on the R80GS, and well in excess of 100 Mm for the "other" models (like R80 G/S and the early 2V).
- Front brake:** Is the brake disc (rotor) in good shape? Measure the thickness and compare it to the wear limit (usually engraved on the disc). Models up to summer 1990 had a fixed disc (6.0 mm new, limit 5.4 mm), the later models used a floating disc (5.0 mm new, limit 4.6 mm).
- Rear brake:** It is normal that the rear brake has "almost no" braking performance. This can be improved by re-coating the stock brake with softer liners (ask a clutch or brake service shop).
- Frame** Has the frame been modified? If yes, are all the modifications street legal? At the time of this writing, there are several companies who copy the HPN-type frame modifications, but - to my knowledge - only the original frame reinforcement, executed and stamped by HPN, will pass a technical examination outside of Germany.
- Equipment:** The rider's manual should come along with a used bike, as it contains lots of valuable adjustment data. The tool set should be included and complete. The stock BMW toolbox is of excellent quality and contains some well-designed multi-purpose keys: if the kit is missing or incomplete, this justifies a three-digit reduction of the price.
- TLC** Has the bike been used "intensively" off road? Typical signs are dented downpipes, dented engine guard, scratched crash bars, dirt between engine guard and oil sump ... but on the other hand, "some degree of" dirt is normal, it's a GS!