



Assessing the condition of your car

This is more difficult than it might be imagined. Most cars need a lot of work as they tend to be in better condition cosmetically than mechanically. This is because most owners have limited mechanical knowledge and rely on regular servicing and MOT tests alone to insure their condition. The trouble is that very few mechanics really understand these cars and they are sufficiently different from most others for problems to be missed. I've seen quite a few that are unsafe yet have an MOT and a good service history.

If you are considering buying a car then bear in mind that most experts believe that MKVI's after B1GT are best and that it is better to try to find R types from chassis series T onwards.

Unless you have extensive mechanical knowledge and are prepared to get very dirty, the best thing to do is obtain, through one of the clubs, a list of really knowledgeable specialists, have one of them assess the car and list the problems. Once this is done they can be put in order of priority and worked through over time.

For the more mechanically minded I have itemised trouble spots and given basic guidelines as to what to look out for:

Rust



Boot floor around rear body mount needs welding

An awful lot has been written about the seriousness of rust in these cars and none of it applies today. Then, it was difficult to effectively repair and even more difficult to prevent it from coming back. Now, because classic car restoration of all makes is a major business, there are quite a few companies around that can repair almost anything. Also, repairing a very rusty car often costs no more than one that just has a few visible bubbles.

To check out your own car it is best to put it on axle stands, remove all the wheels, put on a boiler suit a woolly hat and latex or vinyl gloves and get under it with a good inspection light a hammer and a screwdriver. The major problem areas are the sills, which consist of three parts, you can see the inner and the outer but not the diagonal internal brace. These three join at the welded seam that extends from the front of the rear wing through

into the area under the front wing. This must all be in good condition with plenty of drain holes to let the water out. If there is any evidence of rust, poor fitting or poor repairs anywhere, then it is best to have the bottom cut out to see what needs doing. The body mounts along this area and the sill is a major structural part of the car. It must be in perfect condition.

There are two body mounts under the rear wheel arch and this area is very rust prone so give it a good stabbing with the screw driver around the body mounts, where the outer part of the inner wheel arch meets the lip of the wing and in the forward part where the rear door closes over it. Finally take out the rear seat squab, the backrest and lift the boot floor panel and thoroughly examine the condition of the inner rear wheel arch and the area around it including the base of the rear seat where it meets the door opening.

The rear chassis legs can rust too so, if in doubt drop the petrol tank and inspect them thoroughly and then check the condition of the two rear body mounts and the boot floor where they bolt down. The body should be held about 2" above the chassis by the mounts but rarely is. Examine the floor panels of the rear wings and the body panel in front of the rear bumper. Be extremely thorough because there is nothing more depressing than getting the car back from the body shop and finding more rust!

It is a good idea to remove the door trims to see inside the doors and whether they have been treated as well as looking outside for bubbles. Any doubts, stab the bottom of the door from the inside with a screwdriver to see if rust is about to burst through, better now than after an expensive respray! B posts too need careful inspection. If the doors are to be removed and re-skinned, then it is advisable to overhaul the hinges otherwise they will not satisfactorily re-fit.

The front wings rust around the sidelights, through the base of the seam at the very front, through the curved outside in front of the wheel and for about 3" up from where the mud flap attaches – check it thoroughly.

The sunshine roof rusts along the seam at the rear of the opening and from the funnels at the front where the water drains down to the road through the A posts. The funnel can have rusted away and there are rubber tubes that connect it to the copper drainpipes. If these are rotten then water will have flowed down the A post and caused rust to the side of the scuttle panel. Also if water has been leaking from the roof aperture onto the floor, the woodwork above the sunshine roof will be rotten and the floor may be rusty.

The area of floor under the rear of the driver's seat is weak and with the help of a little rust, can sag. Any doubts then take out the floor and remake as necessary.



Body sitting on chassis at rear because body mount has collapsed



Lower part of B post has had new section welded in

Do not be tempted to remove the body to repair it, try to do it while it is mounted on the chassis otherwise you may not be able to fit it back on! Before commencing work it is important to establish that all body mounts are sound and that the body is properly supported by the mounts under the wheel arches and at least 2" above the rear cross member. Do try to find all the rust to avoid work having to be re-done. Be brutal with a sharp object to discover the remaining thickness of the metal. As you go round the car it is a good idea to list every problem and highlight it with chalk or yellow crayon.

I always completely remove the interior of the car as it reduces the risk of missing something and saves paying the body shop to do it.

The likelihood is that the car will need a complete respray and if it does, it is best to remove all the windows, all chrome trim, door catches, lights etc and even the front wings. Apart from the screen washer jets this is easy with the trim out and it makes for a far better job.

If this sounds expensive and time consuming then you will be re-assured to learn that, at its worst, the cost will probably only amount to half that for a coachbuilt car.

The Mechanicals

In addition to the workshop manuals there is an enormous amount of information already on various websites to explain how to do most of these jobs. I will not repeat this but merely advise on assessment.

Back Axle and Prop shaft assembly

In recent years rear quite a few wheel bearings have seized locking the back wheels and rear axles have failed sometimes destroying the crown wheel and pinion. In both cases the car is immovable and the damage very expensive to repair. As it is very difficult to ascertain the condition of either prior to failure, you are better off to have both overhauled. Having said that, sometimes rear axles cause vibration that is difficult to locate, if this happens, regard failure as imminent.

Remove brake drums and check condition of linings and that the actuators are functioning correctly. Make sure rubber dust covers are on the actuating rods, that all linkages are lubricated and that the rubber mounts are on the cross shaft.

Examine shock absorbers for signs of leaking, corrosion and for the condition of the Silentbloc bushes.

Examine condition of rear flexible chassis lubrication pipes and check rear springs and shackles for the presence of oil. If dry, assume shackle pins will be worn and may need replacing.

Unless the petrol pump is new, assume it is in need of overhaul or replacement.

Check prop shaft UJ's for grease and also for evidence of bearing housings rotating in yoke. New UJ's are relatively easy to obtain and fit. Check prop shaft bearing for wear, any doubts, fit new one. It is a 6206 and should be replaced with a "sealed for life" one. This bearing is in a swaged housing so the best way to get it out is to put in a lathe and turn off the swaging. It can be soft soldered or Loctited back together.



View of inner rear wheel arch showing body mounts, this area can rust leaving body unsupported except at rear.

Gearbox area

Make sure all brake linkages are lubricated and that nothing is either seized or badly worn. Check master cylinder for leaks by peeling back rubber dust cover and follow brake pipes to front of car to check for rust.

Check rear gearbox output flange for lift – if there is any, the bearing needs replacing before gears wear.

Check condition of torque stay rubbers and replace if necessary. At its rear, the gearbox sits on a large rubber block in the cross member, because it is nasty and oily around here, the rubber block softens and lowers the gearbox. If this happens, it can lock the car in one gear or inhibit gear selection. If in doubt, replace it.

Make sure the rubber buffers that prevent the engine assembly from rotating are in good order and correctly adjusted. Also, make sure that the torque bracket retaining nuts are tight.

NB. If a road test reveals poor braking, it is best to first make sure everything looks OK and then follow the adjusting procedure in the workshop manual. To adjust the servo, jack up drivers side rear wheel with hand brake off, rotate it with your foot whilst watching the servo to see if it rotates. Once it has, back it off a couple of flats and tighten the lock nut. If none of this works, remove the servo and check its condition.

Expect a fair amount of wear in the entire throttle, clutch and brake linkages, makes sure they are all lubricated (motorcycle chain oil is very effective) and be prepared to re-bush anything dodgy.

Make sure clutch has plenty of free play and does not judder, if it does, replace it. When you test drive the car, make sure that there is no knocking or rattling from first or reverse gear and that, when the car is good and hot, the syncro mesh allows selection of the higher gears without crunching. Many of gearbox parts are no longer available so replacement will be extremely expensive.

Front Suspension, Brakes and Steering

Jack the front of the car up and remove the wheels and brake drums. Check slave cylinders for leaking and overhaul as necessary. Regular brake fluid changes are desirable. Check brake shoes for wear and for uniform contact of drums. If OK, check for play in King Pins and remove top covers to make sure oil is getting to top bearings, if not there are 3/16" restrictor pins in the top that should be removed and have small flats filed on the sides to increase oil flow.



New outer wheel arch flange to be made

Undo large nuts through Silentbloc bushes, check condition and replace if off centre or rubber is cracked. Lift shock absorber arms to check if damping correctly expecting nearside to be ineffective and need overhaul, if so, do both.

Check lower yoke bearing for presence of oil, for play either endways or up and down – any doubts, overhaul assembly.

To assess condition of steering without removing the six ball joints is very difficult so remove the bronze nuts from the top and take out spring and ball bearings, take out split pins and remove nuts. Using a good strong two legged puller or lever type Ball joint extractor, apply a reasonable amount of pressure and then slide a piece of

wood in above the joint in question and heat assembly with suitable Propane torch. The joints should separate with a bang. It is now possible to establish condition of bearings and shims in swivel pin housings.

The side steering tube has a spring-loaded joint at the steering box end and this can be tightened to remove the spring effect if radial tyres are fitted. The result is more precise steering.

The lower radius arm rubber joints at the rear should be removed and inspected, as they will almost certainly need replacing.

Under the bonnet

Carefully inspect everywhere under the bonnet looking out for faulty or rotting hoses, water leaks from radiator or taps, petrol leaks etc. Check condition of exhaust manifolds and retaining nuts and try water pump bearing for excessive play. Water pumps fail unpredictably so if in doubt, buy another.

It is important to understand that unless your engine has been fitted with full-length cylinder liners there is a risk of piston failure and all that can be done to postpone the problem is to keep speed down to around 60-65 mph. Neither is there any point in replacing failed pistons, as the new ones will not last long.

Much has been written about the crankshaft damper too and unless you know to the contrary, it should be assumed that yours is seized and sludged up. Whilst it is best to have it overhauled, there is no point in doing it if you intend to do the whole engine at some point in the future. Look out for a droning/roaring sound at around 58 mph, especially if you are accelerating hard and then try to drive the car to avoid it.



Rear wing in the process of repair

To establish condition of engine it is best to drive about 20 miles on a hot day and then open the bonnet and blip the throttle from a relatively low tickover speed. Rattles as the revs pick up will be crankshaft bearings or piston slap and those on the overrun will be small ends. Any doubts then meticulously adjust the tappets (inlet and exhaust) and try again. These engines are very strong and will run for years with low oil pressure and some rings broken, however, if it is the intention to use the car for long trips, holidays or whatever, it makes sense to rebuild the engine properly rather than have the constant fear of failure. The oil pressure should be 20-25 p.s.i. at about 40 miles an hour with a hot engine. Usually it is, except on MKVIs with a by-pass oil filter. These invariably have worn out cranks and are in urgent need of a complete engine overhaul. The later cars with proper filters suffer very little crank wear. If the engine has to come out do not forget to replace oil seal in the steering box, it is virtually impossible to do with the engine in the car.



Offside rear wing and lower panel repaired ready for filling and painting.

It is also advisable to fit new ignition coils and overhaul the starter motors and dynamos. Carburettors too may benefit from overhaul as worn needle valves in the float chambers can lead to flooding which is unsafe with highly volatile modern petrol.

Overheating is not uncommon and can be caused by clogged radiators or silted up cylinder blocks. As a general rule engine temperature should be between seventy-five and eighty degrees in the winter and perhaps five to eight higher in hot weather, rising further on hills and in traffic jams. If the temperature approaches the red warning line, the car will use water. Signs of overheating need attending to as serious damage can occur if it is allowed to persist.

Exhaust system

Do not attempt to fit a new exhaust system unless you are sure the rear gearbox mounting is in perfect condition.

It is very difficult to fit exhaust systems to these cars, this is not a reflection of the competence of the manufacturers, most of whom offer an excellent fitting service, but because the underside is so complicated and the route so tortuous, that it is difficult to avoid it hitting the chassis somewhere. If you are not near a supplier it is best to ask them not to weld on the flanges so that the system can be assembled onto the car and tacked welded in the best position. Once you are sure everything is clear, it can be removed and welded up properly.

The two rear silencers of the twin system slope forward so that condensation builds up in the front of them so it is best to have stainless steel ones made and then as added precaution, drill 1/16" holes at the lowest point to let the moisture out. Just like on Japanese motorbike silencers!



Front end of sill under front wheel arch should be checked thoroughly for rust.

Conclusion

The result of this sort of assessment is bound to be depressing, however, much of the work will not be urgent so it is best to schedule everything that needs doing in order of priority and work your way through it as you can afford it and as time permits. As each job is completed so the car will improve and driving will be more enjoyable. As has already been said, these cars are remarkably good to drive by any standards if they are in top condition. It is also true that very good cars command extremely high prices whereas average ones can be quite difficult to sell.